U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE

VOL 881

DECEMBER

1970

MICRO PHOTO DIVISION

BELL & HOWELL

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 1, 1970 Volume 881 Number 1

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of October 1970

Examiner affirmed	119
Examiner affirmed in part	9
Examiner reversed	21
Total	149

Disclaimers

Re. No. 26,773.—*Karol L. Hujsak,* Tulsa, *Howard Grekel,* Claremore, and *Richard Mungen,* Tulsa, Okla. PRODUCING PETROLEUM BY FORWARD COMBUSTION AND CYCLIC STEAM INJECTION. Reissue patent dated Jan. 20, 1970. Disclaimer filed July 17, 1970, by the assignee, *Pan American Petroleum Corporation.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,380,236.—*Edwin Stanley Shepardson,* Ithaca, N.Y. APPARATUS FOR HARVESTING GRAPES. Patent dated Apr. 30, 1968. Disclaimer filed June 1, 1970, by the inventor; the assignee, *New York State Concord Grape Production Research Fund, Inc.,* assenting.

Hereby enters this disclaimer to claims 3, 4, 7, 9, 10, 13, 16 and 18 of said patent.

3,445,635.—*Terrance Trickett,* Bedford, *Donald J. Zepp,* Wellesley, *Benjamin Horne,* Needham, and *Thomas Brill,* Cochituate, Mass. DECODING ARRANGEMENT. Patent dated May 20, 1969. Disclaimer filed May 20, 1970, by the assignee, *Honeywell Inc.*

Hereby enters this disclaimer to claims 1, 2, 13 and 14 of said patent.

3,463,124.—*Paul Patz,* Pound, Wis. ENDLESS CONVEYOR CATTLE FEEDER. Patent dated Aug. 26, 1969. Disclaimer filed Apr. 1, 1970, by the assignee, *Patz Company.*

Hereby enters this disclaimer to claim 9 of said patent.

3,511,291.—*Bradley E. Ragan,* Spruce Pine, N.C. RENEWED HEAVY-DUTY TIRE WITH A LUGGED TREAD THEREON. Patent dated May 12, 1970. Disclaimer filed Oct. 26, 1970, by the assignee, *Brad Ragan, Inc.*

Hereby disclaims the terminal portion of the term of said patent subsequent to Sept. 2, 1986.

Certificates of Correction for the Week of Dec. 1, 1970

Re. 26,810	3,495,463	3,518,254	3,528,439
Re. 26,874	3,496,119	3,518,628	3,528,468
3,303,234	3,496,161	3,519,368	3,528,832
3,357,501	3,496,517	3,519,636	3,528,982
3,384,586	3,496,526	3,520,849	3,528,994
3,417,817	3,496,613	3,520,885	3,529,019
3,419,965	3,497,495	3,522,154	3,529,389
3,442,807	3,497,841	3,522,352	3,529,463
3,456,628	3,497,924	3,522,846	3,529,810
3,464,438	3,498,461	3,523,012	3,529,899
3,464,881	3,498,699	3,523,120	3,529,927
3,466,496	3,502,774	3,523,124	3,529,935
3,469,005	3,503,253	3,523,569	3,530,169
3,470,097	3,505,334	3,523,687	3,530,231
3,475,577	3,505,404	3,524,094	3,530,281
3,475,710	3,506,670	3,524,835	3,530,385
3,477,721	3,507,737	3,525,128	3,530,418
3,478,100	3,509,622	3,525,225	3,530,996
3,478,534	3,509,697	3,525,704	3,531,240
3,482,177	3,511,101	3,525,709	3,531,492
3,487,835	3,511,291	3,526,510	3,531,527
3,487,892	3,512,924	3,526,825	3,531,751
3,489,982	3,514,860	3,526,937	3,531,865
3,491,180	3,515,724	3,527,392	3,532,511
3,492,616	3,515,740	3,527,712	3,532,984
3,493,158	3,515,991	3,527,752	3,533,225
3,493,214	3,516,537	3,527,814	3,533,550
3,493,215	3,516,928	3,527,821	
3,493,936	3,516,967	3,528,056	
3,494,961	3,517,428	3,528,143	

Patents Available for Licensing or Sale

D. 215,183. FLEXIBLE TRANSMISSION COUPLING FOR THREE-WHEELED VEHICLE. James H. Mayland, 173 Southwood Drive, Old Bridge, N.J., 08857.

3,344,962. DISPENSING DEVICE. Andrew C. Popivalo, 2028 Webster St., Sanger, Calif., 93657.

3,364,548. METHODS OF PRODUCING ELECTROFORMED HEAT EXCHANGERS. Alex Marco, 877 W. El Repetto Drive, Apt. #96, Monterey Park, Calif., 91754.

3,384,084. COLOSTOMY DEVICE. Fred Jeschawitz, Chadwicks, N.Y. Correspondence to: Cushman, Darby & Cushman, 730 15th St. NW., Washington, D.C., 20005.

3,432,211. SAFETY AUTOMATIC BRAKE. George Sawan. Correspondence to: Misegades & Douglas, 803 Washington Bldg., Washington, D.C., 20005.

3,505,603. MUTUALLY COMPENSATED TUNED BYPASS AMPLIFIER CIRCUITRY, Frank J. HOBAN, 4042 Birney Ave., Moosic, Pa., 18507.

New Applications Received During August 1970

Patents	8337
Designs	532
Plant Patents	5
Reissues	33
Total	8907

Issue—December 1, 1970

Patents	1700	No. 3,543,308 to No. 3,545,007, incl.
Designs	32	No. 219,328 to No. 219,359, incl.
Reissues	2	No. 26,994 to No. 26,995, incl.
Def. Pub	12	No. T881,001 to No. T881,012, incl.
Total	1746	

3,521,621. SUIT FOR CIRCULATION OF FLUID AROUND BODY. Mary G. Smith, 905 W. 13th, Wichita, Kans., 60636.

3,525,354. LIQUID LEVEL CONTROL DEVICE. Bloys D. Parris, 1012 Matthews Drive, Cincinnati, Ohio, 45215.

3,530,807. ANTI-POLLUTION APPARATUS. Solomon Zalman, 1 E. 42nd St. New York, N.Y., 10017.

3,532,839. SAFETY DEVICE FOR STALLED VEHICLES. Robert G. Wallace, 9548 Gerber Road, Sacramento, Calif., 95829.

Otto Wohr of Stuttgart, Germany, is prepared to grant exclusive or non-exclusive license on reasonable terms and conditions under the following patent.

Inquiries should be addressed to: George V. Caldwell & Associates, 236 Adelaide Drive, Santa Monica, Calif., 90402.

3,437,217. DOUBLE-TIER GARAGE.

The following 3 patents are offered by: Mike Craddock, P.O. Box 1084, Big Spring, Tex., 79720.

3,417,290. OIL FIELD OVER/UNDER CURRENT DEVICE.

3,470,742. PROBE ELECTRODES.

3,524,109. TIME DELAY RELAY.

The following 3 patents are offered by John W. Barnd, 32 Hollybrook Road, Paramus, N.J.

3,351,128. MULTI-ZONE TEMPERATURE CONTROL.

3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.

3,515,345. MULTI-ZONE TEMPERATURE CONTROL.



General Electric Company is prepared to grant non-exclusive licenses under the following 2 patents upon reasonable terms to domestic manufacturers.

Applications for license should be addressed to: Patent Counsel, Metallurgical Products Department, General Electric Company, Box 237–GPO, Detroit, Mich., 48232.

3,440,364. SPEAKER MAGNET HAVING CURVED PREFERRED DIRECTION OF MAGNETIZATION.

3,526,553. METHOD OF ORIENTING A SPEAKER MAGNET.

The G. T. Schjeldahl Company is prepared to grant non-exclusive licenses under the following 5 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patents may be addressed to: Orring M. Haugen, 502 Midwest Plaza Bldg., Minneapolis, Minn., 55402.

3,324,019. METHOD OF SPUTTERING SEQUENTIALLY FROM A PLURALITY OF CATHODES.

3,296,115. SPUTTERING OF METALS WHEREIN GAS FLOW IS CONFINED TO INCREASE THE PURITY OF DEPOSITION.

3,344,054. ART OF CONTROLLING SPUTTERING AND METAL EVAPORATION BY MEANS OF A PLANE ACCEPTOR.

3,347,772. RF SPUTTERING APPARATUS INCLUDING A CAPACITIVE LEAD-IN FOR AN RF POTENTIAL.

3,494,853. VACUUM DEPOSITION APPARATUS INCLUDING A PROGRAMMED MASK MEANS HAVING A CLOSED FEEDBACK CONTROL SYSTEM.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF NOVEMBER 17, 1970

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-19-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	12-23-68
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-15-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-09-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-17-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	1-02-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-29-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-24-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-20-69
PHYSICS, GROUP 280—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	5-29-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-09-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-05-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	5-22-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	6-06-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	11-06-69
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	9-18-69

Total number of pending applications (excluding Designs)	183,677
Total number of Design applications pending	2,973

Expiration of patents: The patents within the range of numbers indicated below expire during November 1970, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,660,723 to 2,664,561, inclusive
Plant Patents	Numbers 1,232 to 1,237, inclusive

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

PACIFIC INDUSTRIES, INC. *v.* MINNESOTA MINING AND MANUFACTURING CO.

No. 8307. Decided May 21, 1970

[57 CCPA —; 425 F.2d 1265; 165 USPQ 630]

1. TRADEMARK—DESCRIPTIVENESS—"IMPACT" FOR CARBONLESS TRANSFER COPY PAPER.

"We cannot agree with the Board that the term 'IMPACT' as applied to carbonless transfer paper is merely descriptive of such paper. Appellant argues that the term describes, if anything, the action of a machine key against the paper, and we agree. It is the key which does the impacting, not the paper."

2. SAME—CANCELLATION—EFFECT OF REGISTRATION.

"* * * we cannot agree with the Board that appellant's continued registration of 'IMPACT' would constitute a 'preemption of the word "impact"' and interfere with appellee's right to use that word descriptively. From the evidence of record, as illustrated above, appellee has been using the word in a non-trademark sense. Certainly it may continue to do so notwithstanding appellant's registration. Appellant's registration carries with it a presumption of exclusive right, not to any use of the word, but to use of the word in a trademark sense, i.e., as an indication of origin."

APPEAL from Trademark Trial and Appeal Board. Cancellation No. 8,545.

REVERSED.

Donald H. Zarley, Bruce W. McKee, Dennis L. Thomte (*Dick, Zarley, McKee & Thomte*), for appellant.

Charles H. Lauder, for appellee.

Before WORLEY, *Chief Judge*, RICH, BALDWIN, LANE, *Associate Judges*, and RICHARDSON, *Judge*, United States Customs Court, sitting by designation

LANE, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Trademark Trial and Appeal Board, 155 USPQ 171 (1967), granting appellee's petition to cancel appellant's Registration No. 785,620 of "IMPACT" for carbonless transfer copy paper, issued February 23, 1965. We reverse.

Appellee alleged in its petition for cancellation that prior to the first use claimed by appellant, appellee had used the term "impact" in connection with carbonless copy paper of its manufacture, both to describe the nature, functions, characteristics, operation and use of that paper *and* as a common descriptive name therefor. The petition also alleged that the term "impact," when used in connection with such paper, is "entirely, completely and necessarily descriptive," indicating the mechanism by which images are produced on the paper. Appellant denied these allegations and asserted that IMPACT is a mark denominating the origin of appellant's goods, that it had acquired secondary meaning as such, and that it was not descriptive of the goods sold thereunder.

As discussed by the Board in its review of the evidence, appellant's copy paper is a mechanical transfer-type paper which requires at least two sheets, one with a coating on the back and the other with a coating on the front, so that when the coated surfaces are mated together, an image will be formed on the second sheet in response to impact or pressure, as from a typewriter key, pencil, etc., against the upper side

of the top sheet. Appellee's copy paper, which it markets under the trademark "ACTION," contains microcapsules full of chemicals to be released when the capsules are ruptured by the impact of a machine key or the pressure of a writing instrument. Release of the chemicals forms the image on the paper. To use this paper as copy paper, one simply stacks several sheets on top of each other, the pressure on the top sheet being transmitted to the lower sheets.

The Board found that "[t]he record does not in any way support petitioner's assertion in its pleading that 'IMPACT' is a common descriptive name for carbonless paper." The Board did find, however, from a review of the evidence, that appellee and others had used the word "impact" so extensively in connection with carbonless copy paper as to render the term merely descriptive within the meaning of 15 U.S.C. 1052(e)(1).

We think no useful purpose would be served by restating all the evidence of record concerning the use of "impact" before appellant's adoption of the term as a trademark.[1] The following examples are illustrative of such uses. In 1962, Consumer Price Schedules for appellee's "ACTION" paper contained the statement "3M Brand 'ACTION' paper will record an image by the impact of a business machine key, without the necessity of either ribbon or carbon." Advertisements in various publications stated that customers are "saving time and money with this new record-roll paper that creates its own image from machine key impact! The ink's built right into the paper structure!" Promotional material distributed by appellee in 1964 contained an illustration showing an outline of a machine key striking a sheet of paper and fracturing microcapsules therein. Above the outline of the key are the words KEY IMPACT in heavy block letters, the letters in KEY being about twice as large as the letters in IMPACT.

After discussing the evidence, the Board stated:

> A term is considered to be merely descriptive within the meaning of section 2(e)(1) not only if it describes the nature, character, or quality of the goods in connection with which it is used, but if it describes the intended function, use or other characteristics or qualities of the goods. See: *Ex parte Heatube Corporation*, 109 USPQ 423 (Comr., 1956); *In re St. Paul Hydraulic Hoist Company*, 83 USPQ 315 (CCPA, 1949); *Bardahl Oil Company et al. v. Atomic Oil Company of Oklahoma, Inc.*, 146 USPQ 637 (CA 10, 1965) and *In re W. A. Sheaffer Pen Company*, 72 USPQ 129 (CCPA, 1946). "IMPACT" clearly comes within these proscriptions because, to customers and prospective customers for carbonless type paper, it would without any thought or mental exercise indicate that images are formed on the paper by impact whether of a business machine key, stylus, or the like.

[1] We cannot agree with the Board that the term "IMPACT" as applied to carbonless transfer paper is merely descriptive of such paper. Appellant argues that the term describes, if anything, the action of a machine key against the paper, and we agree. It is the key which does the impacting, not the paper. The cases cited by the Board do not compel a different conclusion. In *Heatube* the Commissioner ruled that HEATUBE was not merely descriptive as applied to electrical heating apparatus since it did not tell a purchaser what the goods were, nor what their function and use were. In *St. Paul Hydraulic*, the term Dump IT was held to be merely descriptive as applied to hydraulic units for raising truck bodies. The dumping function was accomplished by the hydraulic units to which the alleged

[1] For a complete discussion of the evidence, see the Board's opinion, 155 USPQ 271, 272–274.

trademark was applied. In *Bardahl* the term "Savmotor" was held to be merely descriptive as applied to an oil additive, and in *Sheaffer* the term "Fineline" was held to be descriptive as applied to mechanical pencils. In the present case it cannot be said that "IMPACT" tells a purchaser what the paper is; it also fails to describe anything which the paper *does*, and we find this to be a critical distinction over the cited cases.

The Board further concluded that continued registration of "IMPACT" by appellant would interfere with appellee's right to use the word impact descriptively. To support this conclusion, heavy reliance was placed by the Board on this court's opinion in *DeWalt, Inc.* v. *Magna Power Tool Corp.*, 48 CCPA 909, 289 F.2d 656, 129 USPQ 275 (1961). In arguing the correctness of the Board's conclusion, appellee similarly relies on *DeWalt*. That case involved the registration of "Power Shop" as a trademark for woodworking saws. The opposer showed that it had promoted its own power tools by the use of the phrase "The Complete Power Shop in One Tool." The phrase was used to describe the goods. In the present case, no one has used "impact" to describe the goods but rather to describe the action of a machine key or other implement. [2] Moreover, we cannot agree with the Board that appellant's continued registration of "IMPACT" would constitute a "preemption of the word 'impact'" and interfere with appellee's right to use that word descriptively. From the evidence of record, as illustrated above, appellee has been using the word in a non-trademark sense. Certainly it may continue to do so notwithstanding appellant's registration. Appellant's registration carries with it a presumption of exclusive right, not to any use of the word, but to use of the word in a trademark sense, i.e., as an indication of origin.

We conclude that the Board erred in holding appellant's mark to be merely descriptive under 15 U.S.C. 1052(e)(1). The decision of the Board is reversed.

REVERSED.

WORLEY, *Chief Judge*, concurs in the result.

In the United States Patent Office
Before the Board of Patent Interferences

LORITZ AND UNGER *v.* RISCH

Patent Interference No. 93,510

1. INTERFERENCE—PATENT AND APPLICATION—RIGHT TO MAKE—COPYING CLAIMS WITHIN YEAR OF PATENT GRANT—RULE 204—35 U.S.C. 135.

Upon considering the effect of 35 U.S.C. 135 in an interference proceeding between applicants and a patentee, where the applicants (Loritz et al.) had copied the patent claim within the year after the patent grant but after a notice of allowance had been received in the application, and affidavits under Rule 204 had been filed by applicants beyond the year after the patent issued, *Held* that "* * * we agree that the action taken by Loritz et al. within one year from the date of the patent is all that is made mandatory by 35 U.S.C. 135 and a ruling is in order that they 'made' the claim of the patent within the time prescribed by statute."

2. SAME—SAME—SAME—SAME—35 U.S.C. 135.

"We believe, and accordingly hold, that the technical status of closed prosecution of the Loritz et al. application, at the time when the copied patent claim was asserted by amendment duly filed on August 13, 1962, does not permit holding that the assertion of that claim was not timely under the statute [35 U.S.C. 135]. We hold therefore that Loritz et al. 'made' the claim copied from Risch's patent and thus fully satisfied the requirements of the statute when they filed the amendment on August 13, 1962 which was 'prior to one year from the date on which the patent was granted.'"

Application of Edward F. Loritz and Harold W. Unger, filed July 29, 1959, Ser. No. 830,200.

Patent granted William E. Risch, October 24, 1961, No. 3,005,433 on application Ser. No. 788,447, filed January 22, 1959.

Messrs. Greist, Lockwood, Greenawalt and Dewey, Messrs. Beale and *Jones* for Loritz et al.

Mr. Norman N. Holland and Mr. Arthur G. Connolly for Risch.

BOYS, WILLIAMS AND GASTON, *Examiners of Interferences*

WILLIAMS, *Examiner of Interference.*

The invention here in issue relates to a method of making closure caps for glass food containers, for example. The issue is set forth in a single count thus:

The method of making a closure cap which comprises coating one side of a sheet of tinplate with a thin coating of organosol having an easily evaporatable solvent therein, heating said sheet of tinplate to evaporate said solvent and cure said coating composition, fabricating said sheet of tinplate into at least a partially formed closure cap with said coating on the inside, flowing a plastisol gasket material into the inside of said closure in the shape of a ring to form a gasket, and heating said closure cap to cure said plastisol gasket and to fuse said plastisol gasket into said thin coating to form a securely bonded integral element.

The count corresponds to the sole claim in the above-identified patent issued on October 24, 1961 to Risch on the basis of an application filed on January 22, 1959. That claim was copied verbatim and presented as claim 24 by an amendment filed on August 13, 1962 (clearly "prior to one year from the date on which the patent was granted") in the above identified application filed by Loritz et al. on July 29, 1959.

Each party filed a preliminary statement which was approved. During the usual motion period Risch brought a motion to dissolve under Rule 232 (paper No. 12) raising the question, among others, of the right of Loritz et al. to make the claim corresponding to the count in issue. In a decision (paper No. 16) mailed on June 16, 1964 the Primary Examiner granted the motion to dissolve to the extent that it was based on the premise that "The one year statute bars Loritz et al. from making the count." He denied the motion to the extent that it was based on the ground that "The count is not disclosed in the Loritz et al. application."

The interference was dissolved and the decision was reviewed on petition to the Commissioner.

In his decision, denying the petition (paper No. 22), mailed on July 16, 1964, First Assistant Commissioner Edwin L. Reynolds reveiwed the facts in the record with our insertions thus:

It appears from the record that the above-styled interference involving petitioners' application filed July 29, 1959, and a patent to the party Risch which issued on October 24, 1961, was declared with a single count forming the issue. During the course of the ex parte prosecution of petitioners' application, an amendment was presented on August 13, 1962 after a notice of allowance had been mailed in that case copying a claim from the Risch patent. Thereafter, on October 29, 1962, petitioners filed an affidavit under Rule 204 in their case and requested that an interference with the patent be declared. In an action in petitioners' case rendered thereafter on November 9, 1962, the examiner indicated that the amendment did not comply with the provisions of Rule 204 and entry of the amendment was denied. The petitioners responded to this action by filing a further affidavit on November 30, 1962, some thirty five days after

expiration of the one year period and in due course the interference was declared. During the course of the proceedings, the party Risch moved in a timely manner to dissolve the interference on the ground that petitioners have no right to make the count because they did not make the claims of the Risch patent within one year of the date of issuance of that patent. In a decision rendered on June 16, 1964, the Examiner granted the motion made by the party Risch to dissolve. The petition followed.

In support of the present petition, the party Loritz et al. questions the soundness of the decision rendered by the Board of Patent Interferences in *Davis et al.* v. *Kershner et al.*, 138 USPQ 84, (1963) and argues that the Examiner erred in following that decision here without making any attempt to evaluate its legality.

Ex parte prosecution of the Loritz et al. application was resumed and a rejection of claim 24 was made final for the reasons stated in the above-noted decision of the Examiner on motions "as further interpreted in the decisions of the First Assistant Commissioner of Patents * * *." Appeal was taken to the Board of Appeals which reversed the decision of the Primary Examiner stating that "a ruling is in order that they 'made' the claim of the patent within the time prescribed by statute."

The interference was then reinstated on July 22, 1965. Testimony was taken and copies of the depositions with related exhibits have been filed on behalf of both parties. Both parties filed briefs and were represented by counsel at final hearing on October 19, 1966.

In his brief Risch raises for review the matter of Loritz et al's. right to make the claim corresponding to the count. He urges (pp. 32–34) in substance that the count is directed to an invention broader than anything supported by the disclosure of Loritz et al., Loritz et al. allegedly having "expressly disclaimed the organosol defined by the count" by their earlier arguments to secure allowance of other claims and by the presentation of original claims directed only to a three-component resinous-mixture. He thus urges that Loritz et al. shifted from claiming one invention to claiming an entirely new invention and thus introduced new matter.

In our view the arguments presented by Risch in support of his above-noted contentions are directed to the matter of patentability, not ancillary to priority and, thus, not properly to be considered by us. To the extent that such arguments might be considered by another tribunal to be directed to a matter ancillary to priority, we note first that, contrary to Risch's apparent views, the count calls only broadly for an "organosol." We are unable to discern anything in the count language which requires that "organosol" to be limited to *any* particular composition and we are unable to discover wherein Risch has pointed out that such an "organosol" *is* limited to any particular composition of elements, or even *one* element, with a solvent. We find nothing in Loritz et al's. prosecution record which persuades us that he has disclaimed the method-invention here in issue, even noting that the original claims and the prosecution relating thereto were directed to obtaining allowable claims to a *particular* organosol as a coating or to a cap having as a coating an organosol of a particular composition.

We agree with Risch that the rule stated in the cited case of *Segall* v. *Sims et al.*, 125 USPQ 394 (at 395), 47 CCPA 886; 276 F.2d 661; 1960 C.D. 224 (225, 226) and quoted at page 35 of his brief, is the law. However, we do not agree with Risch in its application to this case. We have no doubts as to Loritz et al's. right to make the claim here in issue based on the disclosure in their involved application. Further, we note that Risch has *not* pointed out a single limitation in the count language that he asserts is not supported in the original disclosure of Loritz et al. The applicable rule in this case, in our view, is that adopted by the court in the case of *Wirkler* v. *Perkins et al.*, 44 CCPA 1005; 245 F.2d 502; 114 USPQ 284; 1957 C.D. 385 (at 388). Thus (with our insertions):

It is immaterial that Perkins et al. (Loritz et al.) did not start claiming the subject matter in issue until after the issuance of the Wirkler (Risch) patent so long as they asserted a claim corresponding to the count within a year of the issuance of the patent, which they did, if the disclosure in fact supports the count. *In other words the test is disclosure and not what had been claimed.*

* * * * * * *

The fact that Perkins et al. (Loritz et al.) *placed more emphasis* on the alleged novel "orientation" (composition and article) feature of their application is no reason, in and of itself, why they may not claim other novel features (method) of their disclosure at a later date as long as those features have proper support in their disclosure and are timely claimed.

Risch contends further (page 32 of his brief) that Loritz et al. failed effectively to "make" any claim to the subject matter of the interference within one year of the issue date of the Risch patent. His arguments in support of this contention appear at pages 35–39 of his brief.

As to this matter, we are in agreement with the conclusion reached by the Board of Appeals in its ex parte consideration on appeal by Loritz et al. **[1]** That is, we agree that the action taken by Loritz et al. within one year from the date of the patent is all that is made mandatory by 35 U.S.C. 135 and a ruling is in order that they "made" the claim of the patent within the time prescribed by statute.

We note that the facts of the case of *Davies et al.* v. *Kershner et al.*, 138 USPQ 84, relied on by Risch, are materially different from the facts of this case and we do not regard that decision as precedent that is binding in our determination of this case. We also note that the facts of the case of *Moorman et al.* v. *Martin*, 99 USPQ 483, referred to by the Board of Appeals in its noted decision differ greatly from the facts of this case, there being no necessity in that case for any affidavit under Rule 204. Nevertheless, we believe the principle underlying the decision in *Moorman et al.* v. *Martin* (page 485) to be applicable herein. **[2]** We believe, and accordingly hold, that the technical status of closed prosecution of the Loritz et al. application, at the time when the copied patent claim was asserted by amendment duly filed on August 13, 1962, does not permit holding that the assertion of that claim was not timely under the statute. We hold therefore that Loritz et al. "made" the claim copied from Risch's patent and thus fully satisfied the requirements of the statute when they filed the amendment on August 13, 1962 which was "prior to one year from the date on which the patent was granted."

In reaching this conclusion as to compliance with the provisions of the statute, we express no opinion whether an applicant may lose the right to have his application, that is otherwise closed to further prosecution, placed in interference because of failure to present a timely showing under Rule 204. We find only that the requirement, in the Rules of Practice as distinguished from the statute, for such a showing does not relate to the matter of support in the disclosure of the application under consideration. It therefore is not determinative of

the ancillary question of applicant's right to make the claim, irrespective of the effect to be given to the circumstances surrounding that showing in connection with the entry of the amendment presenting the claim as to which further prosecution is closed (Rule 312) and in determining whether an interference should be declared involving that application.

Consistent with the foregoing discussion we hold that Loritz et al. are entitled to make the claim corresponding to the count here in issue.

* * * * * * *

Consonant with the discussion set forth in the foregoing, we hold that Loritz et al. have not sustained the burden of proof resting on them as junior party in that they have not *proved* by a preponderance of evidence that they conceived and actually reduced to the practice the method invention here in issue or that they were the first to conceive the invention and exercised reasonable continuing diligence during the critical period to either an actual reduction to practice or to the filing of their involved application. We hold further that Loritz et al. have not sustained their burden of proof on the issue of originality raised by them. Accordingly, Loritz et al. are not entitled to prevail herein.

Since it was not necessary to discuss the record for Risch in detail in arriving at our above-stated conclusion, we shall not lengthen this statement by any further discussion of their record.

Particularly in view of our above-stated conclusion, the contingent "Special Request," under Rule 259 presented in Appendix B, page 86 of Risch's brief, is denied.

Priority of invention of the subject matter here in issue is hereby awarded to William E. Risch, the senior party patentee.

U.S. Court of Customs and Patent Appeals

THE AMERICAN NOVAWOOD CORPORATION
v.
U.S. PLYWOOD-CHAMPION PAPERS INC.

No. 8274. Decided May 21, 1970

[57 CCPA —; 426 F.2d 823; 165 USPQ 613]

1. TRADEMARK—OPPOSITION—SUPERIOR RIGHT TO MARK—FAMILY OF MARKS.
"* * * while it is clear that opposer (and others) used novawood as a name prior to applicant's use of NOVOWOOD, and attempted to make a generic name of it, that attempt failed, and was bound to fail, in view of applicant's admittedly prior rights in the mark NOVOPLY for the same goods, together with a half-dozen other 'NOVO' marks for other wood products.
* * * If applicant wished to expand its line or extend its family of 'NOVO' marks to include NOVOWOOD products, as it has done, we cannot see that the short-lived attempt of the A.E.C. and opposer to constitute novawood as a generic name could prevent it. We think that, on the facts, applicant had the right and that it is superior to any right opposer has shown."

2. SAME—SAME—CONFUSING SIMILARITY—"NOVAWOOD" AS A NAME AND "NOVOWOOD" AS A TRADEMARK—SECTION 2(d).
"With respect to opposer's reliance on section 2(d), opposer relies on the confusion provision and the similarity of novawood, the name, and NOVOWOOD, the trademark. We point out, however, that novawood is not 'a mark' and is not asserted as such. Opposer asserts it only as a generic name which it has the right to use along with other members of the public. It is not seen how applicant's use of NOVOWOOD as a trademark alongside the use of novawood by others as a generic name could create any confusion as to the source of the goods. The *name* novawood, if a name, could not indicate origin in anyone. As to reliance on the trade name provision, opposer's trade name is The American Novawood Corporation, not Novawood, not Novawood Corporation."

3. SAME—SAME—MATTER BEFORE BOARD.
"In a case such as this [opposition proceeding], the Board is obliged to consider which party has the superior rights and to consider all of the relevant facts bearing thereon. Because one decision the Board must make is the same as would be made by a court of general jurisdiction in an infringement suit does not mean it is precluded from making it. It is not adjudicating infringement in the sense of imposing any liability on opposer. All that is being decided here is whether applicant is entitled to a registration."

4. SAME—SAME—SAME.
"Opposer's next argument is that whether applicant's prior ownership and registration of NOVOPLY gives it rights superior to the rights of opposer in novawood is an issue which applicant failed to plea. We see no merit in this contention. The purpose of pleadings is to apprise a party by fair notice of the case it has to meet. The Federal Rules of Civil Procedure (FRCP), on which opposer is relying, reject the approach that pleading is a game of skill. * * * Opposer had fair notice. The file of the opposed application [to register 'NOVOWOOD'], with which opposer was of course familiar, contains a requirement by the Examiner 'that claim should be made of record to its "Novo" prefix registrations' by applicant, to which applicant responded by an amendment making of record its Novoply, Novowall, Novidor, Novocore, Novotile, Novodor, and Novotex registrations."

5. SAME—SAME—DAMAGE.
"The concept of 'damage' from a trademark registration as it arises in opposition proceedings is often a difficult one to come to grips with. * * * We come back to what we deem to be the only possible solution [where both parties feel damaged] * * * on a decision as to who has the *superior* right and hence the greater damage. The other party must yield, even though, as a practical matter, it is not entirely without damage or the possibility thereof. In this sense, then, we accept the conclusion of the Board that opposer 'could not be *legally* damaged.'" [Emphasis ours.]

6. SAME—SAME—SAME—SECTION 13.
"Section 13 (15 U.S.C. 1063), which provides for opposition to registration on the Principal Register, permits anyone 'who believes that he would be damaged by the registration' to oppose. But it does not require proof of damage as a condition to the sustaining of the opposition nor does it provide that anyone who shows that he will be damaged by the registration will necessarily succeed in preventing registration. * * * If 'damage' be the touchstone, which we seriously doubt, then it is necessary, as the Board did, to qualify the term by the adjective 'legal' when deciding that a party who clearly may suffer from the decision in its economic affairs is not going to be 'damaged.' This is the old legal concept expressed in the phrase *damnum absque injuria*, loss, hurt, or harm without injury in the *legal* sense, redressible by an action."

APPEAL from Trademark Trial and Appeal Board. Opposition No. 45,413.

AFFIRMED.

A. Donald Messenheimer (*Burns, Doane, Benedict, Swecker & Mathis* and *William L. Mathis*, of counsel) for appellant.

James M. Heilman and *Heilman & Heilman*, for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Trademark Trial and Appeal Board, 154 USPQ 505 (1967), dismissing an opposition to the registration of NOVOWOOD as a trademark for "Lumber and Wood Products, i.e., Particle Board With or Without

Decorative Faces," Serial No. 211,215, filed February 2, 1965. Applicant, U.S. Plywood-Champion Papers Inc.,[1] claims use of the mark since January 9, 1965, and also that this mark is the newest member of a family of "NOVO" marks previously registered by it in the Patent Office.

Appellant-opposer concedes in its brief that appellee has the following registrations:

Trademark	*Reg. No.*	*Date Reg'd*
Novoply (Board formed of wood particles, etc.)	542,445	May 15, 1951
Novidor (Flush doors)	572,330	Mar. 24, 1953
Novocore (Boards and doors formed of wood particles adhesively secured together both with and without facings of other decorative materials)	595,787	Sept. 28, 1954
Novotile (Board formed of wood particles adhesively secured together)	609,406	July 26, 1955
Novodor (Doors)	670,823	Dec. 9, 1958
Novowall (Wall panels used principally for partitions)	672,043	Jan. 6, 1959
Novotex (Wood and lumber products, i.e., particle board or fiber board)	677,212	Apr. 21, 1959

Admittedly, *subsequent* to all of the foregoing registrations, opposer, The American Novawood Corporation, was incorporated on August 28, 1964, and began the use of the *name* "novawood" under the following circumstances.

The Atomic Energy Commission, Process Radiation Section of the Division of Isotopes Development, in a search for peacetime uses of atomic energy, developed a new wood product which was produced by impregnating ordinary wood with a synthetic resin monomer and then irradiating it with gamma ray energy to polymerize and solidify the resin. This irradiated wood-plastic combination, or "alloy" as it was called, was named "novawood" by the A.E.C. which then, in July of 1964, asked the Commissioner of Patents to place that name on file in the Trademark Division for search purposes, "to be cited against applications for registration of trademarks," as the request stated.[2] It was so placed on file. The A.E.C. then released publicity on novawood and solicited proposals for the design of a large-scale pilot plant to make it. Lawrence G. Barrett, president of opposer, being familiar with the project, decided to form a corporation to commercialize novawood and organized American Novawood Corporation. Members of the A.E.C. are said to have expressed pleasure at his willingness to accept and use the term novawood. In the latter part of 1964, opposer proceeded with its plans and distributed brochures and samples of the product to the wood-fabricating industry. The samples were stamped with the name novawood and a mark adopted by opposer which consisted of a rectangular, wood-grained panel occupied by the name in capital letters and with zig-zag lines having arrow heads pointing at the opposite ends of the panel, indicative of irradiation.[3]

United States Plywood, upon learning of the situation, called the attention of the A.E.C. to its family of "NOVO" marks and on January 12, 1965, the A.E.C. requested that the name novawood be withdrawn from the files of the Trademark Division, putting out a press release on the same day in which it said:

> These [wood-plastic] combinations heretofore have been called "novawood." As explained later, use of that term has been discontinued.
>
> * * * * * * *
>
> Use of the term "novawood," previously employed by the Commission to describe these radiation processed wood-plastic combinations, is being discontinued to avoid any possible confusion with proprietary terms used in industry and to assure that this new product enters the market place free from discord that might inhibit its use.

As above noted, United States Plywood had begun using its NOVOWOOD mark three days earlier on January 9, 1965, applied for registration within a month, and this opposition ensued.

While this was going on, United States Plywood was also petitioning the Commissioner of Patents, questioning the practice of placing generic names in its trademark search files and objecting to the presence there of the name novawood. This petition was denied but on a request for reconsideration after the A.E.C. had requested that the name be withdrawn, on February 3, 1965, the First Assistant Commissioner noted in a supplemental opinion that the request to withdraw had been granted, which disposed of the matter. *United States Plywood*, supra, note 2.

The Board found, and the record appears to support the finding, that after the A.E.C.'s dropping of the name novawood,

> * * * the designation WPC (meaning wood-plastic combination) has been used in lieu of "novawood" by writers in articles as the name for the wood product developed under the sponsorship of the Atomic Energy Commission. One company, other than opposer, indicated that it had adopted "Lockwood" as a name for this product. It does not appear that any company but applicant [opposer?] refers to this product by the term "novawood."
>
> * * * * * * *
>
> Apparently the trade, excepting opposer, has recognized applicant's rights by dropping "novawood" as a name and substituting "WPC" or some different designation therefor. In fact we note that opposer is not wholly consistent since it too has used in correspondence "WPC" as a generic name. We recognize that a product may have more than one name but opposer apparently is the only one using "novawood" as a name.

On the basis of the foregoing factual situation, the Board dismissed the opposition on the ground that opposer could not be legally damaged by the registration of NOVOWOOD to applicant. The sole issue is whether it erred in so doing.

We do not find that the opposer raises any substantial issue as to any of the foregoing facts. As we view the matter, the basic question is whether applicant, United States Plywood, has a right to register NOVOWOOD which is superior to opposer's asserted right to prevent registration, which opposer predicates on prior use of novawood as a generic name and as a trade name, relying on section 2(d) of the statute (15 U.S.C. 1052(d)). **[1]** On the first point, while it is clear that opposer (and others) used novawood as a name prior to applicant's use of NOVOWOOD, and attempted to make a generic name of it, that attempt failed, and was bound to fail, in view of applicant's admittedly prior rights in the mark NOVOPLY for the same goods, together with a half-dozen other "NOVO" marks for other wood products. As the Board pointed out, applicant was selling $20,000,000 worth of particle board under the trademark NOVOPLY in the year

[1] Formerly, and at the time of application, United States Plywood Corporation.

[2] It is understood that this is a Patent Office practice of long standing. See the opinion of First Asst. Comr. Reynolds in *In re United States Plywood Corp.*, 144 USPQ 440 (1965), stating that the practice goes back to 1916.

[3] Opposer has an application to register this mark on file, Serial No. 209,652, filed Jan. 11, 1965, claiming first use Oct. 8, 1964. This application is in no way involved in this opposition. In an amendment therein dated Sept. 16, 1965, the attorneys stated that "novawood" is a "truly descriptive term" and disclaimed it "apart from its use in combination with the design." In an action dated Oct. 15, 1965, further action in the application was suspended pending the outcome of this opposition.

1965. If applicant wished to expand its line or extend its family of "NOVO" marks to include NOVOWOOD products, as it has done, we cannot see that the short-lived attempt of the A.E.C. and opposer to constitute novawood as a generic name could prevent it. We think that, on the facts, applicant had the right and that it is superior to any right opposer has shown.

[2] With respect to opposer's reliance on section 2(d),[4] opposer relies on the confusion provision and the similarity of novawood, the name, and NOVOWOOD, the trademark. We point out, however, that novawood is not "a mark" and is not asserted as such. Opposer asserts it only as a generic name which it has the right to use along with other members of the public. It is not seen how applicant's use of NOVOWOOD as a trademark alongside the use of novawood by others as a generic name could create any confusion as to the source of the goods. The *name* novawood, if a name, could not indicate origin in anyone. As to reliance on the trade name provision, opposer's trade name is The American Novawood Corporation, not Novawood, not Novawood Corporation.

The manner in which the Board approached its decision in its opinion has given rise to opposer's principal argument. The Board made the following statement:

> The continued use by opposer of "novawood" is in contradiction to applicant's prior rights in "NOVOPLY" and opposer is therefore not entitled to the use thereof. Accordingly, opposer could not be legally damaged by the registration of "NOVOWOOD" to applicant.

Opposer argues that this was plainly a ruling *on infringement* of applicant's right in NOVOPLY, a mark different from that sought to be registered, by opposer's use of novawood, and that this was beyond the statutory jurisdiction of the Board. Opposer, at oral argument, charged the Board with turning the opposition upside down. Opposer says, in effect, that the Board was without "jurisdiction" to decide whether applicant's rights are *superior* to those of opposer because to do so is to adjudicate infringement; it complains that United States Plywood has not sued for infringement and therefore opposer has not had the opportunity to present all the defenses which would be possible in an infringement suit. It urges that the Board must be reversed because the sole basis for its decision was an adjudication of "Applicant's rights stemming from the earlier NOVOPLY trademark use and registration * * *." We see no merit in the argument. [3] In a case such as this, the Board is obliged to consider which party has the superior rights and to consider all of the relevant facts bearing thereon. Because one decision the Board must make is the same as would be made by a court of general jurisdiction in an infringement suit does not mean it is precluded from making it. It is not adjudicating infringement in the sense of imposing any liability on opposer. All that is being decided here is whether applicant is entitled to a registration. If opposer has any defenses or rights which it could assert if sued on the NOVOPLY or NOVOWOOD marks, which it has not brought forward in this proceeding, it will still have them in the event of an

[4] "No trademark by which the goods of the applicant may be distinguished from the goods of others shall be refused registration on the Principal Register on account of its nature unless it—

* * * * * * *

"(d) consists of or comprises a mark which so resembles a mark registered in the Patent Office or a *mark* or *trade name* previously used in the United States by another and not abandoned, as to be likely, when applied to the goods of the applicant, to cause confusion, or to cause mistake, or to deceive * * *." [Emphasis ours.]

infringement suit and can oppose them to the merely prima facie rights applicant will get from its registration. Clearly the Board has jurisdiction to decide whether applicant should get such rights.

[4] Opposer's next argument is that whether applicant's prior ownership and registration of NOVOPLY gives it rights superior to the rights of opposer in novawood is an issue which applicant failed to plead. We see no merit in this contention. The purpose of pleadings is to apprise a party by fair notice of the case it has to meet. The Federal Rules of Civil Procedure (FRCP), on which opposer is relying, reject the approach that pleading is a game of skill. *Conley* v. *Gibson*, 355 U.S. 41 (1957). Opposer had fair notice. The file of the opposed application [to register NOVOWOOD], with which opposer was of course familiar, contains a requirement by the Examiner "that claim should be made of record to its 'Novo' prefix registrations" by applicant, to which applicant responded by an amendment making of record its Novoply, Novowall, Novidor, Novocore, Novotile, Novodor, and Novotex registrations. After the Notice of Opposition was filed, applicant filed a Motion to Dismiss in which reference was made to these registrations, asserting that in *opposer's* pending application (see note 3, supra) a rejection had been based on them. Testimony of applicant's witnesses was taken with respect to its use of Novoply and other "NOVO" marks without objection that it related to issues not raised by the pleadings. See FRCP 15(b).

Lastly, opposer asserts that the evidence does not justify the Board's findings. Having reviewed the record, we disagree.

[5] The concept of "damage" from a trademark registration as it arises in opposition proceedings is often a difficult one to come to grips with. In this opposition it seems to take on a rather unusual twist. Opposer, in the posture of its business as it was when the record was made in 1966, was undoubtedly feeling damaged by disturbance of its belief that it was secure in the use of the name novawood that the A.E.C. had led it to think was generic and free for use by all; and at the same time United States Plywood was also feeling damaged by this very thought, foreseeing encroachment on rights attaching to its considerable family of "NOVO" trademarks by the possible development of a NOVA- generic name in the wood-products field. We come back to what we deem to be the only possible solution in such a situation—a decision as to who has the *superior* right and hence the greater damage. The other party must yield, even though, as a practical matter, it is not entirely without damage or the possibility thereof. In this sense, then, we accept the conclusion of the Board that opposer "could not be *legally* damaged" (emphasis ours).

[6] Section 13 (15 U.S.C. 1063), which provides for opposition to registration on the Principal Register, permits anyone "who believes that he would be damaged by the registration" to oppose. But it does not require proof of damage as a condition to the sustaining of the opposition nor does it provide that anyone who shows that he will be damaged by the registration will necessarily succeed in preventing registration. This case and many others do not permit of syllogistic resolution by mere application of statutory language to the facts. If "damage" be the touchstone, which we seriously doubt, then it is necessary, as the Board did, to qualify the term by the adjective "legal" when deciding that a party who clearly may suffer from the decision in its economic affairs is not going to be "damaged." This is the old

legal concept expressed in the phrase *damnum absque injuria*, loss, hurt, or harm without injury in the *legal* sense, redressible by an action. It is a matter of balancing rights and determining whose are superior; that done, the problem is solved. If it must be expressed in terms of damage, then it is appropriate to say that the loser is not "legally damaged," as the Board did, but we see no necessity for going beyond a conclusion as to which party has the superior right.

The decision of the Board dismissing the opposition is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE SUN OIL COMPANY

No. 8320. Decided May 28, 1970

[57 CCPA —; 426 F.2d 701; 165 USPQ 718]

1. TRADEMARK—DESCRIPTIVENESS—"CUSTOM-BLENDED" FOR GASOLINE.

In affirming a decision of the Trademark Trial and Appeal Board sustaining the Examiner's refusal to register the mark "CUSTOM-BLENDED" for gasoline on the Principal Register for the reason that the mark is merely descriptive of appellant's goods, where the present application was a continuation of an earlier one in which a similar refusal was sustained by the Board, the court incorporated by reference the Board's opinion which stated that, in view of the merely descriptive significance of the mark and the decision in the prior application, it was incumbent on appellant "to show that the facts and circumstances since that decision have changed" so that the mark now serves as an indication of origin of appellant's gasoline to the general public; and that survey evidence, indicating purchasers of "SUNOCO" gasoline know it to be custom blended, does not support appellant's assertion "that CUSTOM-BLENDED has acquired a secondary meaning as an indication of origin for gasoline."

APPEAL from Patent Office. Serial No. 211,939.

AFFIRMED.

Donald R. Johnson, for appellant.

Joseph Schimmel (*Mrs. D. Lenore Lady*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

ALMOND, *J.*, delivered the opinion of the court.

Sun Oil Company brings this appeal from the decision of the Trademark Trial and Appeal Board, 155 USPQ 600 (1967), affirming the Examiner's refusal to allow appellant's application to register "CUSTOM-BLENDED" for gasoline [1] on the ground that the mark is merely descriptive of applicant's goods within the meaning of section 2(e)(1) of the Trademark Act of 1946 (15 U.S.C. 1052(e)(1)) and because the evidence submitted has not clearly established a secondary meaning, denoting that the mark has become distinctive of appellant's goods, within section 2(f) of the Act (15 U.S.C. 1052(f)).

The application seeking registration on the Principal Register alleges use since 1956. The mark is displayed on special pumps, called "blending pumps," at appellant's service stations. The application is designated a continuation of an earlier application filed July 13, 1961, in which registration on the Principal Register was sought for the same mark for gasoline and refused by the Trademark Trial and Appeal Board on the ground that the mark was merely a descriptive connotation to purchasers of applicant's goods.[2]

[1] Serial No. 211,939, filed February 12, 1965.

In his answer, the Examiner predicated refusal of registration on the ground that CUSTOM-BLENDED is merely descriptive of appellant's goods within the meaning of section 2(e)(1) because it is so highly descriptive of appellant's blended gasoline that it is incapable of becoming distinctive as claimed. It was the Examiner's opinion that the term CUSTOM-BLENDED merely informs purchasers that various grades of gasoline from appellant's blending pumps are custom blended for them; that the word "custom" is commonly used to indicate things made to order; that it has very little trademark significance when used in connection with blended gasoline; that appellant is not entitled to exclusive appropriation of this term, which so aptly describes custom-blended gasoline; and that the conclusion derived from surveys conducted by appellant is that purchasers who are acquainted with appellant's Blue Sunoco gasoline know that such gasoline is custom blended.

In affirming refusal of registration, the Board stated that granted that the generic terms for appellant's blended gasolines are pump-blended and multiple-grade gasolines, there is no question that "'CUSTOM-BLENDED' has a merely descriptive significance in that it will immediately indicate to patrons of applicant's service stations that the various grades of gasoline dispensed thereat are custom blended to their needs and requirement"; that in view thereof and the decision on applicant's prior application, it was incumbent upon applicant to show that the facts and circumstances since that decision have changed in that "'CUSTOM-BLENDED' now serves as an indication of origin of applicant's gasoline to the general public"; that the case, therefore, turned upon the sufficiency of applicant's evidence in that regard; that "the only definite conclusion that can be drawn from the surveys is that purchasers who are acquainted with applicant's 'SUNOCO' gasoline know that such gasoline is custom blended"; that this manifestly does not support applicant's assertion that CUSTOM-BLENDED has acquired a secondary meaning as an indication of origin for gasoline, and that upon the record presented CUSTOM-BLENDED does not possess anything "other than a descriptive significance to purchasers of gasoline."

We have given a synoptic analysis of the Board's able, well-considered and exhaustive opinion without reiterating essential facts of record. These facts are detailed in their essence and relevancy and supportive of the Board's conclusions so clearly and aptly enunciated in its decision. We, therefore, incorporate herein by reference the opinion of the Board and affirm its refusal of registration. [1] The decision of the Trademark Trial and Appeal Board is, accordingly, affirmed.

AFFIRMED.

RICH, *Acting Chief Judge*, concurring.

I agree with the result reached by the majority which is supported by an opinion largely relying on and incorporating by reference the opinion of the Board. While I do not disagree with anything said in the majority's opinion, I do not accord the survey evidence, by which it was attempted to show "secondary meaning," the significance apparently accorded it by the Board. The Examiner accorded it none. I

[2] *In re Sun Oil Company*, 144 USPQ 103 (1964).

do not agree with the Board's statement that "This case turns upon the sufficiency of applicant's evidence" of "secondary meaning."

The Examiner in this case was of the view, as the Board reported, that CUSTOM-BLENDED "is *so highly* descriptive of applicant's blended gasoline that it is *incapable* of becoming distinctive as claimed." [My emphasis.] If that is so, registration must be refused under 15 U.S.C. 1052(e)(1) no matter what evidence of alleged "secondary meaning" is adduced; in other words, under the facts of this case the law proscribes the *possibility* of a de jure "secondary meaning," notwithstanding the existence of 15 U.S.C. 1052(f) and a de facto "secondary meaning." *In re Deister Concentrator Co.*, 48 CCPA 952, 963 et seq., 289 F.2d 496, 129 USPQ 314 (1961), and cases cited therein.

In my opinion, CUSTOM-BLENDED is so highly descriptive that it cannot, under the law, be accorded trademark rights even though at some times, or to some people, or in some places, it has a de facto secondary meaning. My view was expressed by the Examiner. I think that conclusively disposes of the matter. While I see no objection to pointing out to appellant that its evidence has not established "secondary meaning," I am unwilling to lead appellant or others to think that the fault was in the quantity or quality of its evidence rather than in the descriptiveness of the words sought to be registered.[3] Appellant should not be encouraged to try again to prove "secondary meaning." The only particular in which I do not fully agree with the Examiner is that he said the word "custom" in CUSTOM-BLENDED "has very little trademark significance." I think it has none.

Appellant has argued that the descriptive term for its gasoline is "pump-blended." I do not question that that is *a* descriptive—or as appellant calls it "generic"—term; but a product may have more than one generically descriptive name. Because one merchandiser has latched onto one of the descriptive terms does not mean it can force its competitors to limit themselves to the use of the others, which appellant, it seems to me, is trying to do here. *All* of the generic names for a product belong in the public domain. The product itself, for example, is called gasoline in the United States but petrol in England. Clearly both of those names must remain free of proprietary claims, in either country. So it is, in my view, with respect to pump-blended and custom-blended. The Examiner stated the factual basis for this view in pointing out that "custom," as in custom-built, custom-service,[4] custom-cut, custom-made, custom-tailored, custom-work, etc., merely indicates that it is done according to the customer's desire. That is exactly how appellant's gasolines are pump-blended—to give the customer what he asks for. I can think of no descriptive term which is more apt. *In re Bailey Meter Co.*, 26 CCPA 1136, 102 F.2d 843, 41 USPQ 275 (1939).

FISHER, *District Judge*, dissenting.

Under the doctrine of "secondary meaning," a trademark, though originally descriptive of a type of product, is nonetheless entitled to

[3] I think the Solicitor erred in arguing the case solely on the basis that the only issue before us is the sufficiency of applicant's evidence to show that CUSTOM-BLENDED now serves as an indication of origin. That was not the Examiner's ground of rejection. It does not appear to me that the Board ever made a different one and the Examiner's refusal to register was affirmed. At best, the sufficiency of the evidence is a second-string argument.

[4] I take judicial notice that, as anyone can observe on the streets of Washington, if one looks past the CUSTOM-BLENDED pumps of a Sunoco station at the front of the apparently standard service station building, one sees the words CUSTOM SERVICE in red letters a foot high across the white front of the building.

registration if the mark has, by association with a business, come primarily to identify its user, rather than the product, to that part of the public interested in contracting with the trademark user. Application of *Automatic Radio Mfg. Co.*, 56 CCPA 817, 404 F.2d 1391, 160 USPQ 233 (1969). Whether a descriptive mark has acquired secondary meaning depends upon the particular facts of each case. *W. E. Bassett Co.* v. *Revlon, Inc.*, 354 F.2d 868, 148 USPQ 170 (2d Cir. 1966).

Briefly, it has been shown that appellant has used the mark in question for its gasoline exclusively and continuously over a period of some twelve years. There is evidence of extensive advertising of and sales of large volumes of gasoline under that mark during this period. Surveys of record suggest that in at least two areas where there are other marketers of multi-grade, pump-blended gasoline, the term CUSTOM-BLENDED is associated in the public mind with this appellant in a preponderance which can only be accounted for by recognition of origin. There is no evidence which would imply that the mark is of such a descriptive nature that granting trademark rights therein to the user would deprive others of their right to normal use of the language.

In light of these facts, it is respectfully submitted that the decision of the Trademark Trial and Appeal Board should be reversed and registration granted on the basis that the mark CUSTOM-BLENDED has acquired secondary meaning within section 2(f) of the Act (15 U.S.C. 1052(f)).

DEFENSIVE PUBLICATIONS

PUBLISHED DECEMBER 1, 1970

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T881,001
COLOR STABILIZATION OF ISOCYANATE ETHER SOLUTIONS

Arthur P. Werts III, 1362 Lafayette Circle, and Sidney B. Miller, Jr., 4426 Glenden Road, both of Kingsport, Tenn. 37664

Filed Apr. 9, 1970, Ser. No. 27,103
Int. Cl. C08f *45/72, 45/58*
U.S. Cl. 252—182
No Drawing. 7 Pages Specification

Solutions of isocyanates in solvents containing ether or ether/ester groups to be employed in the manufacture of polyurethane products to be used as industrial coatings are stabilized against undesirable color formation by dissolving in the solvent component a small amount of a phenol such as 2,6-ditertiarybutyl-p-cresol, 2,6-dioctadecyl-p-cresol, toluhydroquinone, and hydroquinone monomethyl ether (p-methoxyphenol). Alternatively, the stabilizer may be added to the solution of the isocyanate in the solvent. Solutions of isocyanates stabilized by the addition of these compounds are found to have excellent keeping properties and may be stored for indefinite periods without color formation. When such solutions are employed in the manufacture of polyurethanes no adverse color is carried into the polyurethane product or the coatings produced therefrom.

T881,002
PHOTOCONDUCTIVE MATERIALS

Jean E. Jones, % Kodak Park Works, Rochester, N.Y. 14650

Filed Apr. 20, 1970, Ser. No. 30,226
Int. Cl. C03g *5/00, 7/00*
U.S. Cl. 96—1.6
No Drawing. 14 Pages Specification

n-Type photoconductive compositions are prepared from polyester resins such as poly(ethylene alkaryloxyalkylene terephthalate), poly(ethylene alkaryloxyalkylene isophthalate) resins and a Lewis acid such as trinitrofluorenone. The two materials are added together in the presence of a solvent, mixed well and coated to form a charge transfer complex having n-type photoconductive properties. The resultant charge transfer complex has an enhanced photoconductive response over trinitrofluorenone in other typical binders. This enhanced response is mainly the result of an extension of the radiation absorption well into the visible range of the spectrum. A particularly useful polyester resin for preparing the charge transfer complexes is poly(4,4'-isopropylidenebisphenoxy ethyl-co-ethylene terephthalate). Electrophotographic elements can be formed by preparing coatings of the charge transfer complex on a support such as an electrically conducting film base. The compositions used in such elements can also be sensitized with a variety of dyes. Various electron-accepting cyanine, merocyanine and azacyanine dyes are particularly useful.

T881,003
PROCESS FOR BONDING A NONWOVEN WEB OF CONTINUOUS FILAMENTS

Arthur John Herrman, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Apr. 24, 1970, Ser. No. 31,766
Int. Cl. B29h *9/02;* **D04h** *3/14, 5/06*
U.S. Cl. 156—181
No Drawing. 11 Pages Specification

A method for obtaining bonded continuous filament nonwoven fabric having an improved balance of physical properties which involves exposing an unbonded nonwoven web comprising a major proportion of high melting matrix filaments and a minor proportion of lower melting binder filaments having a nonround cross section to temperatures in the vicinity of the binder melting point, the degree of nonroundness of the binder filaments being characterized by a ratio of the filament cross-sectional perimeter to the square root of the cross-sectional area ($P/\sqrt{A}$) of at least 7. Residence time at the bonding temperature should be no greater than about five seconds and preferably less than one second.

T881,004
REINFORCED FOAMED THERMOPLASTIC MATERIALS

William Bruce Ian Small, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

Filed Apr. 27, 1970, Ser. No. 32,405
Claims priority, application Great Britain, May 2, 1969, 22,512/69
Int. Cl. B29d *27/08*
U.S. Cl. 264—51
No Drawing. 7 Pages Specification

A process for producing a reinforced foamed thermoplastic structure from a foamable thermoplastic composition consisting of a thermoplastic material such as polymers and copolymers of propylene, 4-methyl pentene, polyvinyl chloride and various nylons and a blowing agent which yields a gas on heating, such as the volatile liquids of hydrocarbons and halogenated hydrocarbons as pentene and methyl chloride respectively, or solid materials which decompose on heating such as sulphohydrazines and N-nitroso compounds is disclosed. The foamable thermoplastic composition is placed in a mold through which extends at least one hollow body, heat is applied through the hollow body supplied by a heated fluid at or above the activation temperature for the blowing agent thereby foaming the thermoplastic material so that it envelopes the part of the hollow body or bodies within the mold. Heat may also be applied externally to the structure by means of the mold surface concurrently with the heat supplied through the hollow body. The process is especially useful for the production of rigid thermoplastic pallets for fork lift trucks.

T881,005
METHOD OF MAKING A HYDROLYZED CELLULOSE ESTER PRINTING PLATE

Edward C. Yackel, Pittsford, and Donald P. Foster, Hilton, N.Y. (both % Kodak Park Works, Rochester, N.Y. 14650)

Filed May 4, 1970, Ser. No. 34,231
Int. Cl. G03f *7/02*
U.S. Cl. 96—33
1 Sheet Drawing. 13 Pages Specification

Preparation of lithographic printing plates by coating a substantially fully esterified cellulose organic acid ester support with a hydrophilic colloid layer containing silver halide, exposing the sensitive colloid layer to light under an image, developing the exposed layer under conditions of tanning development, treating the layer with a hydrolyzing solution to hydrolyze the portions of the cellulose ester support beneath the non-image areas of the colloid layer, and removing all of the colloid layer from the support.

In one aspect of the invention, after the tanning development step, water-soluble colloid layer in the non-image areas may be washed off and the resulting element containing the insolubilized colloid layer in the image areas treated with a hydrolyzing agent which will not diffuse through the insolubilized colloid layer. Removal of the remaining colloid layer provides the finished product. Additionally, the fidelity of the printed image as well as the resistance of the image area to the hydrolyzing solution is much improved, if after tan-development and washing-out of the colloid layer, the non-image area is treated with alcohol.

T881,006
IODINE BLEACH FOR COLOR FILM PROCESSING

Charleton C. Bard, 74 Cornwall Lane, Rochester, N.Y. 14617

Filed May 8, 1970, Ser. No. 35,910
Int. Cl. G03c *5/32*
U.S. Cl. 96—60
No Drawing. 6 Pages Specification

Silver images in photographic emulsion layers are bleached with an aqueous solution of iodine and pyrrolidinone or of iodine and polyvinyl pyrrolidinone to render the silver removable with silver halide solvent. The iodine-containing bleach solutions are particularly useful in reversal color processes in which a first silver bleach solution, such as ferricyanide solution, is used followed by hypo to remove most of the silver followed by the iodine-containing bleach to effect removal of traces of silver remaining in the layers.

T881,007
FRACTURED FILM PRODUCT

August K. Meyer, Box 495, Kingsport, Tenn. 37662

Continuation-in-part of application Ser. No. 673,272, Oct. 6, 1967. This application May 12, 1970, Ser. No. 36,671
Int. Cl. B32b *3/10*
U.S. Cl. 161—109
No Drawing. 14 Pages Specification

A polymeric film containing up to about 15% polyester or copolyester resulting in an increase in tenacity of the end product after the film is drafted to produce orientation and fractured by applying shear forces thereto. Some examples of the polyesters and copolyesters are: Poly(ethylene terephthalate); poly(tetramethylene terepthalate); copolyesters such as those made by a condensation reaction between cyclohexanedimethanol and a dimethyl ester made from isophthalic and terephthalic acid; and copolyesters such as those made by a condensation reaction between a dimethyl ester of terephthalic acid, cyclohexanedimethanol and ethylene glycol.

T881,008
PROCESS FOR INCREASING THE RETENTION OF PAPER FINES AND ADDITIVES BY USING A LINEAR, WATER-DISSIPATABLE, MELTABLE POLYESTER PREPARED FROM MIXED CARBOXYLIC ACIDS AND A GLYCOL

Charles H. Coney, 2008 Canterbury Road 37660, and Donald A. Maxwell, Rte. 11 37663, both of Kingsport, Tenn.

Filed May 13, 1970, Ser. No. 36,995
Int. Cl. D21h *3/60*
U.S. Cl. 162—168
No Drawing. 27 Pages Specification

A linear, water-dissipatable, meltable polyester having an inherent viscosity within the range of about 0.1 to about 0.8 prepared from mixed carboxylic acids (especially sodiosulfoisophthalic acid) and a glycol (especially diethylene glycol) is added as a retention aid to a water slurry or suspension of paper-forming fibers prior to the use of the slurry in a paper-making operation. Such a polymer functions through a flocculating action to cause "paper fines" (for example, small particles of paper-forming fibers and minute particles of additives such as pigments, resinous sizes, binders and the like) to form larger, particulate aggregates of such size that they are enmeshed in, and entrapped by, the paper-forming fibers at the screening or sheet-forming step in which water is removed from the slurry. This expedient makes possible retention of the paper fines in the ultimate product and by removing them from the "white water," reduces the amount of treatment necessary to render the water suitable for reuse in making up new slurries of raw stock.

T881,009
DIRECT-PRINT SILVER HALIDE PHOTOGRAPHIC PROCESSES

John R. Tinney, % Kodak Park Works, Rochester, N.Y. 14650

Filed May 14, 1970, Ser. No. 37,301
Int. Cl. G03c *5/32*
U.S. Cl. 96—45.2
No Drawing. 11 Pages Specification

There are disclosed processes for forming visible images on direct-print silver halide systems. The silver halide systems disclosed contain silver halide grains which have trivalent metal ions occluded therein. The silver halide systems have a halogen acceptor contiguous to the trivalent metal containing silver halide grains. In one embodiment, an image is produced on a direct-print film by applying a potential or an electric charge to the surface of a film coated with the direct-print emulsion. This is accomplished by rendering the direct-print material conductive by soaking it in a salt solution and thereafter establishing positive and negative contacts on the film. A visual record of an input signal from one or more stationary negative electrodes may be obtained by continuously moving a sheet coated with the direct-print emulsion in contact with the electrodes to produce graphic chart lines on the emulsion. The image thus obtained may be intensified by the application of heat, e.g., by heating to 200° C. or higher.

According to another aspect, the direct-print system is exposed to light to form a latent image and heated to a temperature of at least 300° F. to repress print-out ability of the silver halide. The latent image is subsequently photodeveloped by exposing it for a short duration to an intense flash, e.g., by flashing with a 100 watt-second 800 microsecond duration xenon light source, while maintaining the film at an elevated temperature, e.g., at a temperature of 150° C. A visible image is thus produced very rapidly. The image may be further photo-developed by conventional means to produce a high quality image having a low background and a high Dmax.

Silver halide emulsions and elements described contain silver halide grains formed in the presence of a trivalent metal ion, such an antimony, bismuth, arsenic, gold, iridium, rhodium, and halogen acceptors. They can contain dispersing agents, coating aids, plasticizers, sensitizing dyes, hardeners, and other suitable addenda such as described in U.S. Pat. 3,447,927 of Bacon and Barbier, issued June 3, 1969 (columns 2–6).

T881,010
PHOTOGRAPHIC FILM UNIT FOR DIFFUSION TRANSFER PROCESSING

Harold E. Cole, 8 Cottonwood Lane, Pittsford, N.Y. 14534

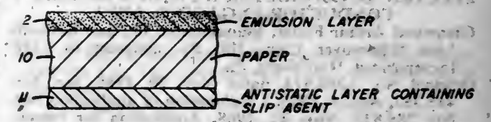
Filed May 25, 1970, Ser. No. 40,438
Int. Cl. G03c *1/48*
U.S. Cl. 96—76
No Drawing. 16 Pages Specification

Color diffusion transfer photosensitive elements and film units are disclosed which are adapted for one-step processing. The photosensitive element comprises a transparent support coated with an image-receiving layer, an opaque reflecting layer and at least one, and preferably three, silver halide emulsion layers having associated therewith a dye image-providing material, preferably a dye developer. After exposure of the photosensitive element, an opaque process sheet containing an alkaline processing composition, preferably imbided in the sheet in liquid form, is laminated to the photosensitive element as it is withdrawn from the camera. Alternately, the opaque process sheet may contain the processing composition in dry form, e.g., a layer of an alkali source such as sodium carbonate overcoated with pressure-sensitive microcapsules of water. The processing composition develops the exposed silver halide emulsion layers and dye images are formed as a function of development which diffuse to the image-receiving layer to provide a positive, right-reading image which is viewed through the transparent support on the opaque reflecting layer background. Developing agents may be present in the process sheet or photosensitive element.

T881,011
ANTISTATIC COMPOSITION WITH SLIP PROPERTIES

Douglas C. Joseph, Victor, and Harold K. Reed, Rochester, N.Y. (both of 1669 Lake Ave, Rochester, N.Y. 14650)

Filed June 10, 1070, Ser. No. 44,966
Int. Cl. G03c *1/78*
U.S. Cl. 96—87
1 Sheet Drawing. 8 Pages Specification



Photographic paper bases are provided with antistatic layers containing calcium stearate as a slip agent. A representative antistatic layer contains a mixture of colloidal silica, calcium stearate and sodium polymethacrylic acid. Calcium stearate reduces the coefficient of friction substantially more than other slip agents.

T881,012
SILVER DYE BLEACH PROCESS USING CHELATED DYES

John Williams and Robert T. Claunch, Pittsford, N.Y. (both of 1669 Lake Ave., Rochester, N.Y. 14650)

Filed June 11, 1970, Ser. No. 45,461
Int. Cl. G03c *1/76*
U.S. Cl. 96—73
1 Sheet Drawing. 29 Pages Specification

A photographic silver-dye-bleach element of improved speed contains in one or more emulsion layers an azo dye which during image exposure absorbs radiation of different wavelength from that of the sensitizing dye of the particular emulsion. In this way the speed loss inherent in conventional silver-dye-bleach products which contain dyes that adsorb light in the same range as the emulsion, is avoided. These azo dyes form a metal complex, e.g., a chelate, of different hue from that of the non-metallized dye and bleach in the presence of developed silver. Therefore, after exposure the dyes are complexed with a metal such as Co, Ni, Cu, Cr or Pb during or after black and white processing to yield a dye which is complementary in color to the sensitivity of its emulsion layer. The metal complexes also provide improved dye stability and extinction. The resultant image is positive, as the dye and silver associated with the image are destroyed in a bleach bath. Examples of suitable azo dyes include: 8-acetamido-1-hydroxy-2-(8 - quinolylazo)-5,7-naphthalene disulfonic acid disodium salt; 8-amino-2-(4-benzotriazolylazo)-1-hydroxy-5,7-naphthalene disulfonic acid disodium salt; and 1-hydroxy-4-(8 - quinolyl)-2-[4 - (2,4 - di-tert-amylphenoxy)-n-butyl]naphthamide.

REISSUES

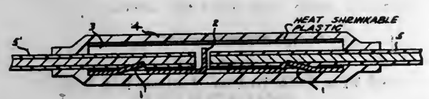
DECEMBER 1, 1970

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,994
ELECTRICAL CONNECTOR HAVING A RESILIENT CONDUCTOR-ENGAGING AREA

Glenwood Arthur Fuller, Bloomington, Ill., and Kenneth Leon Whitmoyer, Camp Hill, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Original No. 3,288,914, dated Nov. 29, 1966, Ser. No. 445,352, Apr. 5, 1965. Continuation of application Ser. No. 785,825, Nov. 22, 1968. Application for reissue Aug. 19, 1969, Ser. No. 852,981
Int. Cl. H01r *9/06*; H02g *15/08*
U.S. Cl. 174—84 4 Claims

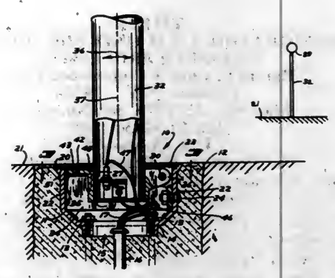


An electrical connector comprises a conductive tubular member having three equally-spaced spring projections provided with free ends extending away from an insertion end of the tubular member. The spring projections have a wedge-shaped configuration with the free ends being of less width than the width of the opposite ends and the free ends are directed toward and disposed adjacent each other to define a normal conductor-engaging area having a substantially triangular configuration disposed in a plane substantially normal to a longitudinal axis of the tubular member to provide uniform engagement pressure on an electrical conductor means when it is placed within the conductor-engaging area with the free ends of the spring projections biting into the electrical conductor means upon the electrical conductor means being moved in a direction opposite to its direction of insertion to provide a mechanical and electrical connection.

26,995
RECESSED HINGED BASE STANDARD

Kenneth F. Guggemos, Winsted, Minn. 55395

Original No. 3,364,635, dated Jan. 23, 1968, Ser. No. 523,148, Jan. 26, 1966. Application for reissue Jan. 22, 1970, Ser. No. 10,671
Int. Cl. F21s *13/10*
U.S. Cl. 52—122 12 Claims



A lighting pole having a recessed hinged base that is mounted substantially flush with the ground or supporting surface. The base permits hinging the light pole down for servicing and also has means for adjusting the pole so it is properly positioned.

PATENTS

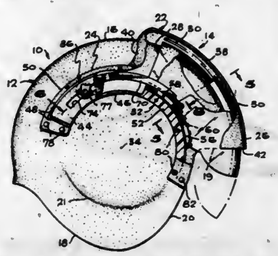
GRANTED DECEMBER 1, 1970

GENERAL AND MECHANICAL

3,543,308
VISOR

James A. Stapenhill, Glendora, Calif., assignor to Sierra Engineering Company, Sierra Madre, Calif., a corporation of California

Filed Dec. 19, 1966, Ser. No. 608,948
Int. Cl. A42b *3/02*
U.S. Cl. 2—6 5 Claims

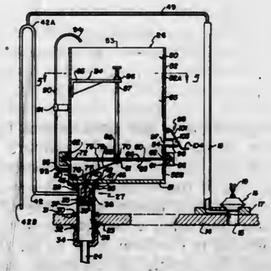


An arcuate visor extending over a protective helmet from one side to the other with sides of the visor mounted in arcuate tracks, having a location generally around the perimeter of the ear, there being a visor covering acting as a frame provided with tracks at the sides within which the visor is guided. There is an extension at the side of the visor extending beyond the tracks upon which is mounted a tightening device provided with a knob capable of being operated by hand. On some occasions there are two visors rotating about a common axis of rotation, each of which is mounted in a track, the tracks of the different visors being adjacent to each other and each visor being provided with a manually actuated tightening device, all for the purpose of moving the visor between positions in front of the wearer's line of vision and a position retracted therefrom.

3,543,309
FLUID CONTROL APPARATUS

Clair W. Boone, P.O. Box 706, Merritt, British Columbia, Canada

Filed Feb. 3, 1969, Ser. No. 795,944
Int. Cl. E03d *1/22*
U.S. Cl. 4—35 8 Claims

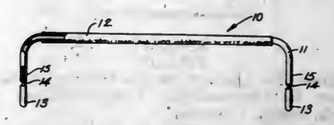


Apparatus for controlling the refilling of a fluid tank, which apparatus utilizes the pressure of fluid supplying the tank and the pressure developed by the weight of a column of fluid contained within the tank to open and close a supply valve.

3,543,310
COT

John E. Smith, Gas City, Ind., assignor to Shelby Engineering Co., Inc., Indianapolis, Ind., a corporation of Indiana

Filed Apr. 25, 1968, Ser. No. 724,032
Int. Cl. A47c *19/16*
U.S. Cl. 5—111 6 Claims

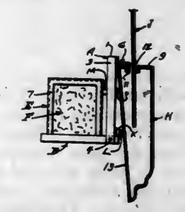


A cot or bed composed of five removable pieces which may be quickly and easily disassembled for storage in small areas, the device having no fitting or other movable parts which can wear out.

3,543,311
FOLDABLE PORTABLE SHELF FOR VEHICLES

Ashton L. Richard, 976 Torrano Ave., Apt. 1, Hayward, Calif. 94542

Filed Nov. 22, 1968, Ser. No. 778,181
Int. Cl. B60r *11/00*
U.S. Cl. 5—118 8 Claims



A foldable portable shelf for a vehicle that has a hook for engaging with the window sill on the inner side of a vehicle door and has a frame that extends downwardly from the hook for supporting the shelf a predetermined distance below the window sill. The shelf can be swung from a horizontal position into an inoperative one where it will be received within the frame. A hinged extension is carried by the shelf and can be swung into an upright or forwardly inclined position when the shelf is in a horizontal plane. The shelf can be used as a service tray or for supporting a pet animal. The device may be folded and removed from the vehicle door.

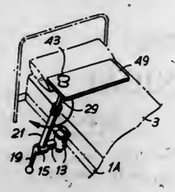
3,543,312
TABLE UNIT MOUNTABLE ON A BED FRAME

Giancarlo Pofferi, Pistoia, Italy, assignor to Ital-Bed Costruzione Letti e Affini S.r.l., Pistoia, Italy, an Italian corporate body

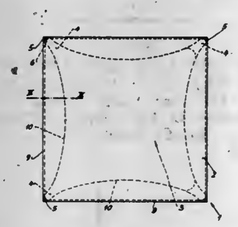
Filed Aug. 7, 1968, Ser. No. 750,915
Claims priority, application Italy, Aug. 12, 1967, 4,137/67
Int. Cl. A47b *23/00*
U.S. Cl. 5—332 10 Claims

A table unit for a bed includes a support assembly supporting a table top on the frame of a bed. The support

assembly includes two couplings each operative for rotation in a pair of mutually perpendicular planes. The couplings are so arranged that the bed table can be supported with its working surface facing upwardly above the bed or supported below the bed with its working surface facing downwardly.

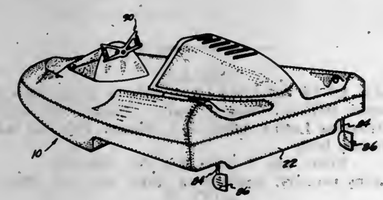


3,543,313
PILLOW
Erich Schweigert, Lorrach, Baden-Tumringen, Germany, assignor to Oberbadische Bettfedernfabrik GmbH, Lorrach, Baden, Germany
Filed Nov. 21, 1967, Ser. No. 684,696
Claims priority, application Germany, May 30, 1967, O 9,402; Aug. 11, 1967, O 12,698
Int. Cl. A47g *9/00*
U.S. Cl. 5—337 **2 Claims**



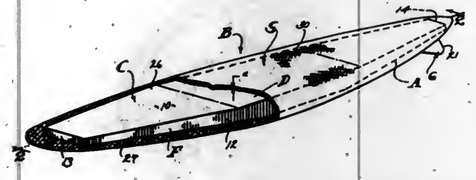
This invention provides a pillow consisting of an outer cover, a substantially smaller inner pillow in this outer cover, and strap-like extensions between the outer cover and the inner pillow. The inner pillow is filled with an inexpensive filling, and the space between the inner pillow and the outer cover is filled with an expensive filling, e.g. down. The strap-like extensions connecting the inner pillow to the outer cover may be made integral with the inner pillow or later sewn thereon.

3,543,314
BOAT APPARATUS
Carl F. Tropf, 23028 Cushing, East Detroit, Mich. 48205, and Martin J. Tropf, 42198 Utica, Sterling Heights, Mich. 48087
Filed Feb. 13, 1968, Ser. No. 705,142
Int. Cl. B63b *3/00, 1/18*
U.S. Cl. 9—6 **14 Claims**



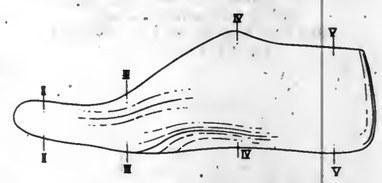
This invention relates to an inboard powered pleasure craft. The superstructure is designed to carry one or two persons. The hull has a keel oriented tunnel and other configurations to promote stability and prevent ruddering. Twin coacting rudders are provided for stability in turning. A "dead man" safety control is provided to shut off the engine when driver is no longer excercising control over the craft. The steering column and wheel translate forward away from the driver when the craft is suddenly stopped or deaccelerated.

3,543,315
SOFT BOARD FABRICATION
William L. Hoffman, 16646 Linda Terrace, Pacific Palisades, Calif. 90272
Filed Oct. 9, 1967, Ser. No. 673,806
Int. Cl. A63c *15/00*
U.S. Cl. 9—310 **2 Claims**



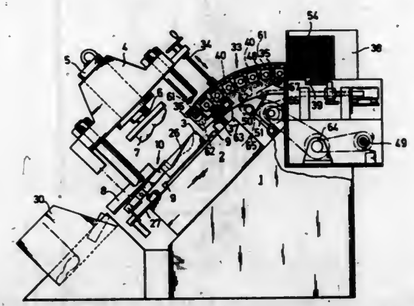
A surfboard fabrication providing increased safety insofar as the usual hard surfacing thereof is virtually eliminated. Specifically, a surfboard is fabricated with a low density core contoured to the required depth and carrying spaced stress members, and over which a skin of depressible material is carried for supporting engagement of a person's body parts, for example. Broadly, this invention is applicable to any board, plank, platform, panel or like article, where safety as related to the elimination of hard surfaces is required.

3,543,316
BOOTS AND SHOES
Marcus Luther Austin, 53 Park Ave., and Clive Jonathan Austin, 1 Balmoral Ave., both of Bedford, Bedfordshire, England
Filed Feb. 20, 1969, Ser. No. 800,984
Claims priority, application Great Britain, Feb. 21, 1968, 8,464/68
Int. Cl. A43d *11/00, 3/00*
U.S. Cl. 12—142 **12 Claims**



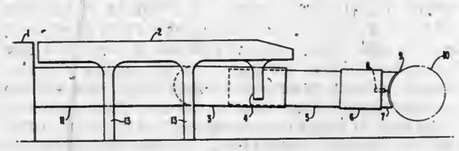
A footform having over that area defined by an underside plan view three-dimensional contours which are identifiable with the three-dimensional contours over the corresponding area of the human foot. A process of making a article of footwear composed wholly or in part of moulded material and using a footform as specified above, the material flowing to conform itself to the three-dimensional contours. An article of footwear made by the above process so that the top surface of the sole has three-dimensional contours which are identifiable as being complementary to the three-dimensional contours on the underside surface of the human foot.

3,543,317
COMBINED FORMING PRESS AND EJECTING DEVICE
Ernst Mohrbach, Zweibruckerstrasse 6, Rieschweiler, Pfalz, Germany
Filed June 2, 1969, Ser. No. 829,664
Int. Cl. A43d *65/00*
U.S. Cl. 12—21 **15 Claims**



In a device for the forming of planar workpieces, in particular insoles used in the shoe industry, into a curved shape, the cooperating matrix and punch members of a forming press are arranged at a vertical incline angle and the formed workpieces removed from the press by an ejecting lever movable within a slot in said matrix and projectable into the lower part of the matrix cavity. Said lever, operable to a position with its end adjoining the lower portion of the matrix cavity, acts, upon deflection in the upward direction, to engage the lower end of a formed workpiece within said matrix, whereby to eject and feed the same to a chute or the like conveying means.

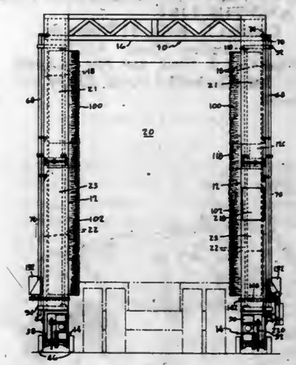
3,543,318
AUTOMATIC RELATIVE POSITION CONTROL DEVICE
Michael P. Tushim, Huntsville, Ala., assignor to Brown Engineering Company, Inc., a corporation of Alabama
Filed Apr. 15, 1969, Ser. No. 816,268
Int. Cl. B65g *11/00*
U.S. Cl. 14—71 **5 Claims**



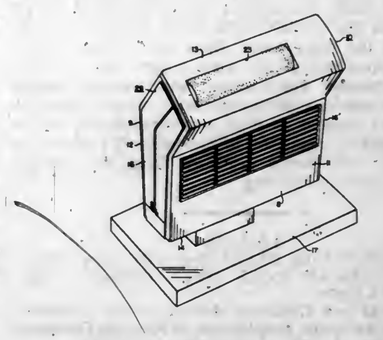
A conveyance loading bridge is raised and lowered in response to changes in the relative vertical position between the bridge and a conveyance such as an aircraft. The conveyance is contacted by a sensor which is movably mounted on the bridge. Vertical movement of the sensor moves a deflector with respect to a stream of fluid to initiate the raising or lowering of the bridge.

3,543,319
PORTABLE SELF-PROPELLED TRAILER WASHING DEVICE
Samuel Posner, Philadelphia, Pa., assignor to Power-Wash, Inc., a corporation of Pennsylvania
Filed Aug. 12, 1968, Ser. No. 751,940
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 **11 Claims**

A trailer washing device which can be readily transported to a yard or depot where trailers are normally stored to thus obviate the necessity of manually washing the trailers or erecting a permanent washing bay through which the trailers must be driven, the device comprising a substantially U-shaped frame carrying spray pipes and brushes adapted to straddle the trailer body and including means to cause the frame to be self-propelled to properly align itself with the trailer body throughout its travel back and forth relative to the trailer body and to permit movement and steering of the frame in close quarters.



3,543,320
CLOTHESBRUSH
Myron Swetlitz, Pitcairn, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 22, 1968, Ser. No. 730,984
Int. Cl. A46b *13/02*
U.S. Cl. 15—23 **6 Claims**



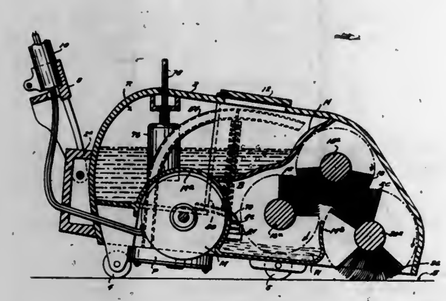
A battery-operated clothesbrush which is compact and lightweight thereby lending itself to being conveniently used and which comprises a motor, brush, battery and switch spatially arranged within a casing to provide an optimum dirt and lint collecting area within the casing. The subject device is further characterized by the provision of a sidewardly opening clean-out door which simultaneously provides access to the dirt collecting chamber and to the brush for cleaning thereof. To minimize the total number of parts required and number of operations required for fabricating the subject clothesbrush, one of

the bearings for the brush is mounted on the sidewardly opening door which door is captivated between two housing sections forming the casing.

3,543,321
METHOD AND APPARATUS FOR WASHING FLOOR COVERINGS INCLUDING CARPETS, RUGS AND THE LIKE

Charles D. Raia, 81 Ridge St., Arlington, Mass. 02174

Filed Oct. 2, 1968, Ser. No. 764,488
Int. Cl. A47l *11/292, 11/34*
U.S. Cl. 15—50 1 Claim



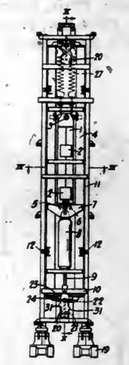
Wash water is releasably contained in a reservoir tank and allowed to flow in metered amounts into a brush compartment which includes a wash water receptacle. The brush compartment encloses three brushes including a carrier brush which is partially immersed in wash water in a wash water receptacle. A second transfer brush is mounted in a raised position and is constantly supplied with small quantities of wash water from the carrier brush. The transfer brush transfers wash water to a third cleaning brush. The cleaning brush is in rolling contact with a floor covering to be cleaned. Dirt, lint and other foreign material is wetted and dissolved and particles of solubilized dirt and lint are picked up by the cleaner brush and transferred to the transfer brush and then to the carrier brush which deposits the dirt and lint in the wash water. Dirty wash water is constantly pumped out of the wash water receptacle into a filtering chamber where filtered wash water is allowed to overflow and recycled to the wash water receptacle. The metered amount of wash water released from the reservoir tank is regulated to substantially replace the amounts of wash water dispensed from the cleaning brush onto the floor covering.

3,543,322
APPARATUS FOR CLEANING THE SEALING SURFACES OF COKE OVEN DOORS AND DOOR JAMBS

Walter Stanke and Gottfried Mertens, Essen, Germany, assignors, by mesne assignments, to Koppers Company, Inc., Pittsburgh, Pa., a corporation of Delaware

Continuation-in-part of applications Ser. No. 650,031, June 29, 1967, and Ser. No. 726,112, May 2, 1968. This application June 19, 1969, Ser. No. 834,782
Int. Cl. C01b *43/04*
U.S. Cl. 15—93 10 Claims

A cleaning apparatus comprising three co-planar frames: a first frame is positionable adjacent a surface to be cleaned; a second frame is pivotally mounted to the first frame; and a third frame is vertically reciprocable relative to the first and second frames. Cleaning tools mounted to the third frame engage and clean the vertical sealing surfaces, while cleaning tools mounted to pivotable arms clean the horizontal sealing surfaces under the

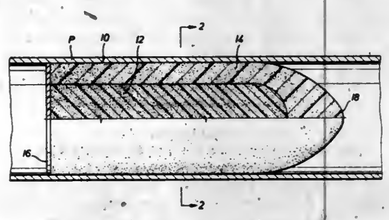


influence of cams mounted to the third frame that engage the arms and cause them to pivot in a horizontal plane.

3,543,323
FOAMED PLASTIC PIG FOR PIPE LINES

Harry J. Girard, 3202 Huntingdon, Houston, Tex. 77019

Filed Nov. 20, 1968, Ser. No. 777,449
Int. Cl. B08b *9/04*
U.S. Cl. 15—104.06 6 Claims



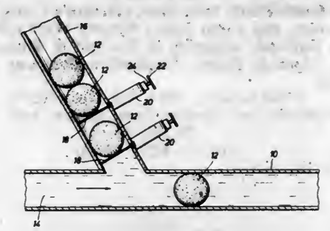
A pipe line pig formed of foamed plastic adapted to be propelled through a pipe line by a pressure gradient therein. The pig has a central core formed of relatively soft foamed plastic and an outer shell formed of relatively dense, tough foamed plastic resistant to wear and tear. The entire body of the pig is of sponge-like character capable of being penetrated by fluid in the pipe line and the body has a barrier layer at one end closing the body to the flow of fluid therethrough and which forms a fluid tight seal with the internal surface of the surrounding pipe to prevent the flow of fluid past the pig. Due to the flexible and compressible character of the pig it may pass readily through restrictions or misshapen portions and about bends in the pipe line while remaining in sealing contact therewith.

3,543,324
PIPELINE PIG AND ASSOCIATED APPARATUS

Kenneth M. Knapp and Mary M. Knapp, both of 1209 Hardy, Houston, Tex. 77020

Filed June 2, 1969, Ser. No. 829,496
Int. Cl. B08b *9/04*
U.S. Cl. 15—104.06 5 Claims

A pipeline pig for cleaning the interior of a pipeline which incorporates preferably a round spherical body having a diameter somewhat larger than the inside diameter of the pipeline, and being formed of a material with an open cell structure to thereby avoid pressure differentials within the pig. The associated apparatus further incorporates an extension on the pipeline having a number of pigs at rest therein, there being a barrier for holding the pigs

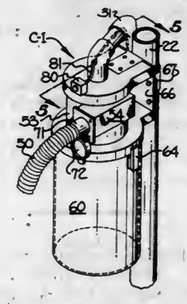


in the extension for release to flow in the pipeline as the pigs are dropped from the extension into the pipeline.

3,543,325
VACUUM CLEANING SYSTEM WITH WASTE COLLECTION REMOTE FROM SUCTION FAN

James C. Hamrick, Matthews, N.C., assignor, by mesne assignments, to JL Products Incorporated, Matthews, N.C.

Filed Dec. 22, 1967, Ser. No. 692,967
Int. Cl. A47l *5/38*
U.S. Cl. 15—314 14 Claims



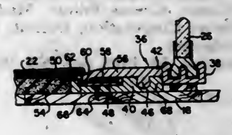
A vacuum cleaning system having a stationary conduit connected to a source of suction and wherein waste material, which heretofore would flow through the stationary conduit and be collected adjacent the far end thereof, is prevented from entering the conduit and collected outside of the conduit through use of an expansion chamber for separating the waste material from the suction air currents to thereby prevent accumulation of waste material in and clogging of the stationary conduit. The expansion chamber which also serves to collect waste may be detachably connected to the outer end of the conduit carried by a vertical support, such as a wall or post, for supporting the expansion chamber on the vertical support above the underlying floor surface. A readily accessible switch is disposed adjacent the outer end of the conduit with an electrical conductor line connected thereto and extending through the conduit to the source of suction.

3,543,326
CARPET CLAMPING METHOD AND MEANS

Roderick G. Rohrberg, 2742 W. 234th St. 90501, and Vernon J. Carrier, 3654 Spencer St., Apt. 119 90503, both of Torrance, Calif.

Filed Jan. 18, 1967, Ser. No. 610,120
Int. Cl. A47g *27/04*
U.S. Cl. 16—16 13 Claims

This invention relates to clamping method and means such as may be used to retain and otherwise secure flexible materials, especially rugs, rug pads, carpets, plastic floor coverings and the like, to adjoining surfaces or structures

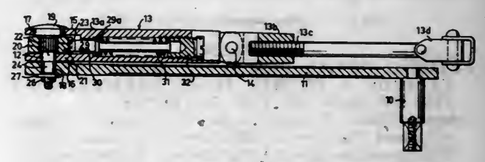


such as floors, walls, steps, thresholds or corners therebetween.

3,543,327
AUTOMATIC DOOR CLOSING DEVICE WITH DETENT TO HOLD DOOR OPEN

Gunnar Nilsson, Eskilstuna, Sweden, assignor to Aktiebolaget Optimus, Upplands Vasby, Sweden, a corporation of Sweden

Filed June 21, 1968, Ser. No. 739,109
Claims priority, application Sweden, June 30, 1967, 9,995/67
Int. Cl. E05f *3/22*
U.S. Cl. 16—49 1 Claim

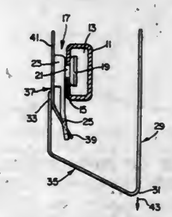


An automatic door closing device biased by a spring in a door closing direction includes a swing arm pivotally connected with one end of a link arm. The opposite end of the link arm is pivotally connected, for example to the door when the housing of the device is attached either to the wall above the door opening or to the door frame proper. The pivot connection between the swing arm and link arm includes a pivot pin and a snap action latching device is associated with the pin to hold the door in a predetermined open position.

3,543,328
DRAPERY HANGER

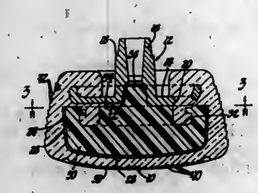
Liborio Egea, Center Square, and Tobias Vilaplana, Norristown, Pa., assignors to New Products Corporation, Blue Bell, Pa.

Filed Mar. 27, 1968, Ser. No. 716,647
Int. Cl. A47h *13/00, 13/14;* E05d *13/02*
U.S. Cl. 16—87.4 7 Claims



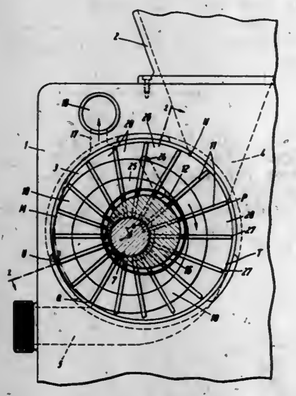
The present draper hanger is formed to fit onto a slidable element of a traverse rod and is further formed so that the drape is held upright without its associated gathered section hanging forward as such sections normally do because the drape pivots on the slidable element in response to the weight of the drape.

3,543,329
DECORATIVE KNOB
Ronald S. Gulette, Warren, Robert G. Zeller, Troy, and Albert J. Gonas, Grosse Pointe, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 30, 1969, Ser. No. 795,223
Int. Cl. E05b *1/00*
U.S. Cl. 16—121 6 Claims



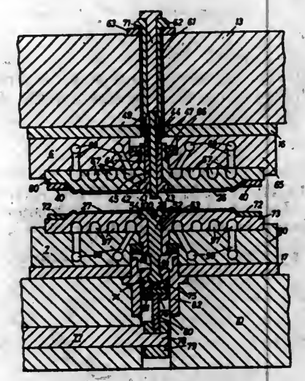
A knob has a decorative metal cap covering a plug and a transparent plastic casing bonding the cap to the plug and to a base which seats on the plug. The decorative metal cap is visible through the transparent casing.

3,543,330
FEEDING DEVICE FOR PULPY MASSES OF THE TYPE OF A BUCKET PUMP, PARTICULARLY FOR SAUSAGE FILLING MACHINES
Johannes Muller, Biberach an der Riss, Germany, assignor to Albert Handtmann Metallgusswerk Armaturen- & Fleischereimaschinenfabrik, Biberach an der Riss, Germany, a corporation of Germany
Filed May 6, 1968, Ser. No. 726,815
Claims priority, application Germany, May 6, 1967, H 62,659
Int. Cl. A22c *11/08*
U.S. Cl. 17—37 14 Claims



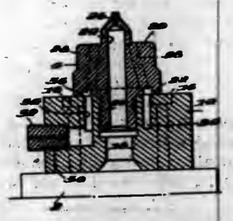
A feeding device for pulpy masses of the type of a bucket pump, which comprises a pump housing having a cover and a rotor disposed eccentrically in the pump housing and having radial slots. Feeding wings are guided in the rotor and cooperate with the walls of the housing. The pump housing includes an inlet channel and a vacuum chamber disposed in front of the inlet channel in order to suck off air. A common resilient element is centrally inserted in the pump housing, and the feeding wings support themselves in radial direction on the resilient element.

3,543,331
APPARATUS FOR MOULDING GRAMOPHONE RECORDS
Walter Leslie Rand, Dale Side, Gerrard's Cross, Buckinghamshire, and Colin James Brown, West Ealing, London, England, assignors to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
Filed June 16, 1967, Ser. No. 646,576
Claims priority, application Great Britain, June 24, 1966, 28,258/66
Int. Cl. B29d *17/00*
U.S. Cl. 18—5.3 4 Claims



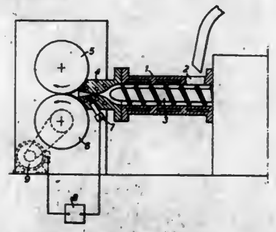
Apparatus for moulding thermoplastics material such as a gramophone record press wherein aperture forming means has associated therewith a key so arranged that any residue from the aperture is held captive by the press when the moulded article is removed. The residue may be incorporated into a subsequent record.

3,543,332
APPARATUS FOR PRODUCING FIBROUS STRUCTURES
William Sherwood Wagner, Berkeley Heights, N.J., and John Drew Roberts, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 581,075, Sept. 21, 1966. This application June 28, 1968, Ser. No. 740,913
Int. Cl. D01d; B29d *23/08*
U.S. Cl. 18—8 4 Claims



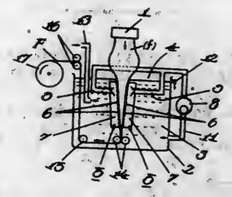
Apparatus and method for producing filamentary material by extruding substantially axially through an orifice comprising contacting the extruded filament stream downstream of the orifice and prior to hardening with a plurality of high velocity gas streams, each moving in a direction having a major component in the direction of extrusion of the filament stream in a shallow angle of tangential convergence therewith to attenuate the filament stream.

3,543,333
MANUFACTURE OF SYNTHETIC RESIN RAILS
Dietmar Anders and Hans Frölich, Hannover, Germany, assignors to Hermann Berstorff Maschinenbau G.m.b.H., Hannover, Germany
Filed Mar. 18, 1968, Ser. No. 713,730
Int. Cl. B29d *7/10*; B29f *3/012*
U.S. Cl. 18—12 4 Claims



The disclosure relates to a method of producing runs of constant thickness from material such as, for example, rubber or plastics or synthetic resin materials, by means of a screw extruder having at its discharge end a relatively wide extrusion head which delivers the extruded material to a pair of contra-rotating rollers.

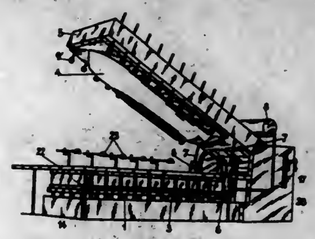
3,543,334
APPARATUS FOR MANUFACTURING THERMOPLASTIC FILMS
Michio Sudo, Tokyo, Japan, assignor to Mitsubishi Yuka Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 29, 1968, Ser. No. 724,795
Claims priority, application Japan, May 9, 1967, 42/28,883
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 9 Claims



Cooling arrangement for cylindrical film extruded on an extruder die. This cooling arrangement comprises a tank for cooling liquid with two perforated screening boxes arranged therein on opposite sides of the extruded cylindrical film. Means are provided for circulating the cooling liquid through the aforesaid screening boxes.

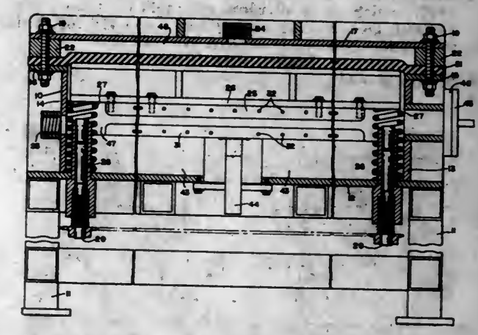
3,543,335
MOULDING PRESS
Rudolf Meyer, Chiemseestrasse 42, Gstadt am Chiemsee, Germany
Filed July 17, 1967, Ser. No. 653,903
Int. Cl. B29c *3/00*; B29g *5/00*
U.S. Cl. 18—16 14 Claims

A molding press for production of articles of large area from reinforced plastic material, e.g., boat hulls, automobile-bodies, etc., have a female mold which is forced into molding engagement with a male mold by a plurality of short-stroke pressure cylinders. The male mold rotates about an axis located to the side of the press into spaced position above the female mold and is locked in such position for the molding operation. The press is free of yokes and like obstructions so the mold cavity is freely accessible for inserting materials and removing molded articles. The male mold is moved at high speed into locking position and energy of its descent may be used to actuate the locking of the male mold or perform other



work involved in the press operation. The structure and operation of the press ensures that premature polymerization of plastic material and cracks in the molded articles do not occur.

3,543,336
MOLDING APPARATUS
William J. Feeney, Brighton, Mass., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed Mar. 25, 1968, Ser. No. 715,651
Int. Cl. B29h *5/00*
U.S. Cl. 18—17 3 Claims

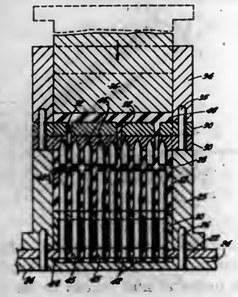


A molding apparatus comprising an enclosure divided into pressure and vacuum chambers by a flexible diaphragm. Thermoplastic plates are molded between the water-cooled platens located in the vacuum chamber, which platens are also the electrodes of dielectric heating means. One platen is moved by the diaphragm. To mold, air pressure is applied above the diaphragm while air is removed from the lower vacuum chamber.

3,543,337
APPARATUS FOR MANUFACTURING INSULATORS FOR MULTIPLE CONDUCTOR CONNECTORS
John E. Meyn, Anaheim, Calif., assignor to Microdot Inc., South Pasadena, Calif., a corporation of California
Original application Apr. 8, 1966, Ser. No. 541,162. Divided and this application Aug. 14, 1968, Ser. No. 765,737
Int. Cl. B29d *3/00*
U.S. Cl. 18—36 5 Claims

The product is a multiple-bore rigid insulator of thermosetting material with a multiple-bore elastomeric grommet united therewith. The rigid insulator is placed in a mold with multiple core pins extending from the multiple bores thereof through a mold cavity. The face of the rigid insulator is coated with uncured thermosetting adhesive

and then, with the mold heated, uncured elastomeric material is extruded under heat and pressure into the mold cavity to form the grommet around the core pins and to

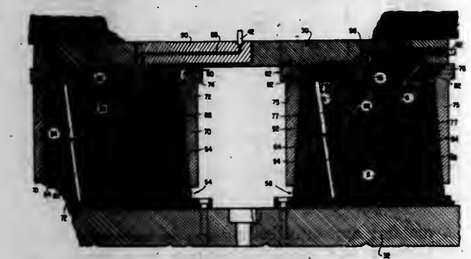


bond the resultant grommet to the face of the insulator. When the product is ejected from the mold and from the core pins, the grommet assumes a desirable tapered configuration.

3,543,338
MOLDING APPARATUS

Frank W. Cooper, McCandless Township, Pa., assignor, by mesne assignments, to Cities Service Company, a corporation of Delaware

Continuation of application Ser. No. 721,896, Dec. 27, 1967, which is a division of application Ser. No. 511,462, Dec. 3, 1965, now Patent No. 3,475,530. This application Nov. 6, 1969, Ser. No. 871,653
Int. Cl. B29c 9/00
U.S. Cl. 18—42 3 Claims

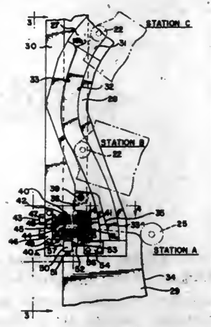


A molding apparatus for producing a hollow plastic article having fused together panels of different plastic materials is disclosed herein. The molding apparatus has lower and upper press platens mounted on a frame which are movable toward and away from each other, the lower press platen having three mold bases, each embodying similar mold cores and guide members, and the upper press platen having plastic injecting means and communicating passages to two different mold covers which are positioned on the upper platen to engage two of the mold cores when the platens are moved toward each other. The lower press platen is rotatably movable so as to position sequentially each mold base opposite a mold cover whereupon the platens are moved towards each other and plastic material injected into cavities formed by the mold covers engaging the mold cores. In operation a frame is first molded on a mold core then the platens are separated and the lower platen with the plastic frame being retained on the core is rotated and moved together again. A second shot of injected plastic material into the cavity formed by the other mold cover on the core retaining the plastic frame results in the plastic article having different plastic materials fused together.

3,543,339
BLOW MOLD CLOSING APPARATUS

Rudolph J. Stefaniak, Munster, Ind., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,665
Int. Cl. B29d 23/03
U.S. Cl. 18—5 18 Claims

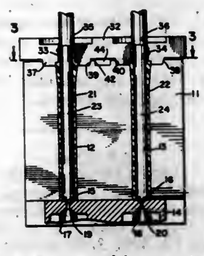


A closing cam segment of the radial cam type, with safety overload trip. A cam follower fixed to a radially movable mold half rides along a cam track as the mold wheel rotates. The closing transition section of the cam track is profiled to slide the mold half inward toward closed position. As the sliding mold half approaches closed position, the follower bears on a pivoted load relief member constituting part of the transition track section. Springs bias the member toward normal camming position. Should the resistance to closing the mold exceed a predetermined value corresponding to the value of the opposing spring bias, the relief member section pivots outward and trips a limit switch, stopping the machine.

3,543,340
MOLDING APPARATUS WITH INDIVIDUALLY SEPARABLE PARISON MOLD AND NECK RING PARTS

John Guelph, Paterson, N.J., assignor to Emery I. Valyi, Riverdale, N.Y.

Filed Feb. 5, 1968, Ser. No. 702,843
Int. Cl. B29d 23/03
U.S. Cl. 18—5 5 Claims

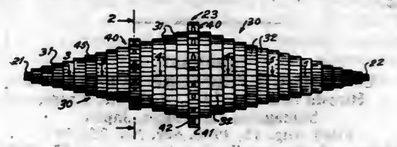


Molding apparatus comprising a two-part parison mold, a blow mold, a blow core to be transferred therebetween and a two-part neck ring for molding the neck portion of the parison and of the blown article. The neck ring parts are formed with tapered flanges to seat in the parison mold cavity to center the blow core while permitting the parison mold to be separated while the neck ring parts remain closed, and with positioning lugs to engage flanges on the blow mold for positioning the blow core therein while permitting the neck ring parts to be separated while the blow mold parts remain closed.

3,543,341
HIGH PRESSURE REACTION APPARATUS

William C. Day, P.O. Box 383, Bloomfield, N.J. 07003

Filed Dec. 12, 1968, Ser. No. 783,259
Int. Cl. B30b 11/32
U.S. Cl. 18—5 7 Claims

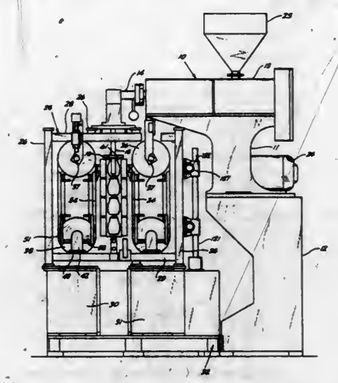


This invention relates to a high pressure reaction chamber apparatus, for example, one attaining a million pounds per square inch or more, and comprises a central longitudinal liner having an inlet side containing a plurality of pumping chambers for stepwise increase of pressure to a maximum at the central reaction chamber. A series of access chambers are disposed on the outlet side for manual access to the reaction chamber and for the gradual release of the high pressure of said chamber. The reactants are disposed in the reaction chamber by access through the access chamber and then are pressurized and heated, if required, by use of heat supplied, for example, by electrical resistance wires. The central liner is re-enforced by segments having exterior stepwise configurations of integral bulk metal corresponding to the high pressure to be resisted in the liner. These segments are circumferentially disposed around the liner and are tied together by use of tension blocks co-acting with tie rods.

3,543,342
CONTINUOUS INJECTION MOLDING AND FILLING APPARATUS

Kevin E. Moran, Cumberland, Md., and Robert J. Brown, Des Plaines, Ill., assignors to Union Oil Company of California, Los Angeles, Calif., a corporation of California

Continuation of application Ser. No. 609,593, Jan. 16, 1967. This application Feb. 7, 1969, Ser. No. 800,347
Int. Cl. B29d 23/03
U.S. Cl. 18—5 5 Claims

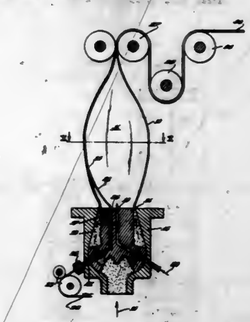


Apparatus for the continuous blow molding and filling of plastic containers comprising a vertical extrusion and filling nozzle, and disposed therebelow an endless conveyer mechanism for moving paired mold halves in separate rectangular paths, first uniting them by horizontally opposed movement around the end of the nozzle to receive the parison, then moving the united halves downwardly while filling the enclosed container, then separating them horizontally to release the filled container, then moving the separated halves vertically upwardly in parallel paths to be again united around the nozzle.

3,543,343
TUBE EXTRUDER

Karel J. Staller, Rutherford, N.J., and Steven Ausnit, New York, N.Y.; said Staller assignor, by mesne assignments, to Minigrip, Inc., Orangeburg, N.Y., a corporation of New York

Filed May 3, 1967, Ser. No. 635,818
Int. Cl. B29f 3/10; B29d 23/04
U.S. Cl. 18—14 6 Claims

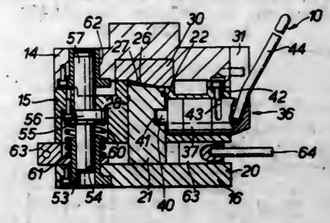


Apparatus for forming continuous plastic tubing with reclosable fastener profiles on the surface, the tubing being used to form bags by cross-cutting and cross-sealing, with the tubing initially made by the apparatus and method which includes attaching separately formed profiles to the surface of the film after it has been extruded and/or attaching a fiber tear member to the surface of the film after it has been extruded between the fastener profiles.

3,543,344
MOULDING PRESS

Ian Arthur Hunt, Derby, Derbyshire, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England, a British company

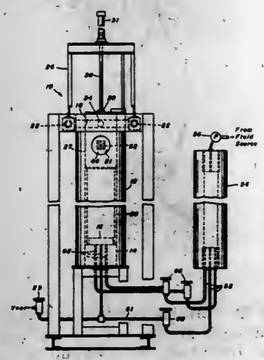
Filed Feb. 5, 1968, Ser. No. 703,035
Claims priority, application Great Britain, Feb. 22, 1967, 8,588/67
Int. Cl. B30b 1/06
U.S. Cl. 18—16 7 Claims



An article, such as a fibre-reinforced synthetic resin, aerofoil-shaped blade is moulded by positioning first, second and third members so that a moulding surface on a portion of the first member is within an aperture in the second member and engageable surfaces on the second and third members are separated, placing an article or material to be moulded in said aperture and between moulding surfaces on the said portion and the third member, clamping the second and third members together with their engageable surfaces in engagement, bringing

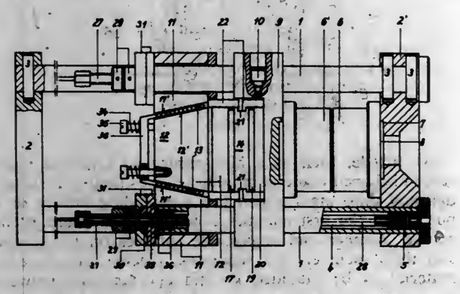
the moulding surfaces together and effecting moulding of the said article or material, separating the second and third members, effecting relative sliding movement of the said portion in the said aperture to bring the moulding surface on the said portion outwardly of said aperture, and removing the moulded article.

3,543,345
APPARATUS FOR RAPID FLUID COMPACTING
Charles Benjamin Boyer, Columbus, Ohio, assignor to Crucible Inc., Pittsburgh, Pa., a corporation of Delaware
Filed Dec. 12, 1968, Ser. No. 783,237
Int. Cl. B29g *1/00*
U.S. Cl. 18—16 7 Claims



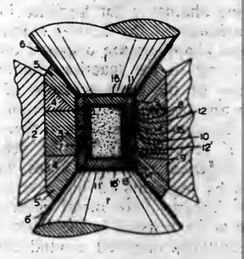
This disclosure relates to apparatus for use in producing compacted articles from powdered-metal charges in a pressure vessel. The apparatus is particularly adapted for quick compacting, whereby cooling of a previously heated charge for compacting is minimized. This is achieved by providing means for quickly opening and resealing or closing the pressure vessel after loading thereof with a charge to be compacted. Also, means are provided for quickly pressurizing the vessel upon loading.

3,543,346
MOULD SUPPORT UNITS FOR INJECTION-MOULDING MACHINES
Rudolf Brcher, Uffeln, uber Vlotho (Weser), Germany, assignor to Firma Elastomer AG., Chur, Switzerland
Filed July 14, 1967, Ser. No. 653,459
Int. Cl. B29f *1/06*
U.S. Cl. 18—30 6 Claims



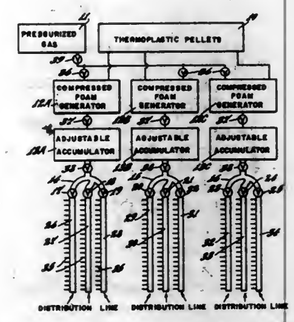
A mould support unit for an injection-moulding machine in the form of a frame with hydraulically operated closing and opening device for the mould halves mounted upon mould clamping plates, the hydraulic drive device for closing and opening the mould consisting of a first hydraulic means to effect the initial closing stroke of the mold halves and a second hydraulic means operable with a key arrangement to effect the final closing and locking stroke.

3,543,347
ULTRAHIGH PRESSURE APPARATUS
Hiroshi Ishizuka, 19–2, 6-chome, Ebara, Shinagawa-ku, Tokyo, Japan
Filed Aug. 15, 1968, Ser. No. 752,997
Claims priority, application Japan, Aug. 25, 1967, 42/54,573
Int. Cl. B30b *11/32*
U.S. Cl. 18—16.5 4 Claims



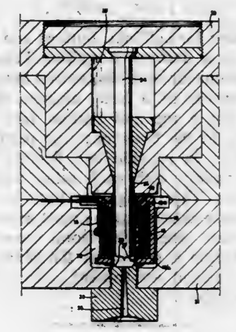
A dual punch high pressure apparatus in which the punch members are coated with a thin metal or alloy of between one millimeter and two millimeters thickness.

3,543,348
INJECTION MOLDING APPARATUS
Frank J. Nussbaum, New York, N.Y., assignor to Bischoff Chemical Corporation, Hicksville, N.Y.
Filed Aug. 14, 1968, Ser. No. 752,590
Int. Cl. B29f *1/00*
U.S. Cl. 18—30 2 Claims



Gas at many atmospheres pressure is dispersed in molten thermoplastic and the resulting compressed plastic foam is stored temporarily in at least one accumulator, each of adjustable volume. During the relatively brief portion of the molding cycle in which thermoplastic flows into a single mold through a plurality of injection nozzles, and expands significantly within the mold, the proportions of plastic foam for each of the nozzles and its adjacent zone of the mold are regulated by adjustable valve means. A plurality of distribution lines direct the flow of the plastic foam from an accumulator to its injection nozzles, adjustable valves regulating the proportions going to each branch of the distribution system. Greater flexibility in the design of the molds is possible because of the plurality of valve controls over the proportions of the injected foam amongst the various distribution lines and nozzles.

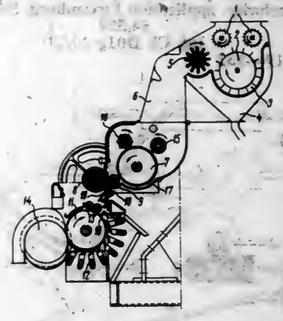
3,543,349
MOULD FOR USE IN AN INJECTION MOULDING PROCESS
Giuseppe Marocco, Turin, Italy, assignor to Drymit S.A., Vaduz, Liechtenstein
Original application Nov. 13, 1967, Ser. No. 682,004. Divided and this application Aug. 7, 1969, Ser. No. 848,292
Claims priority, application Italy, Mar. 10, 1967, 50,858/67
Int. Cl. B29d *3/00*
U.S. Cl. 18—36 5 Claims



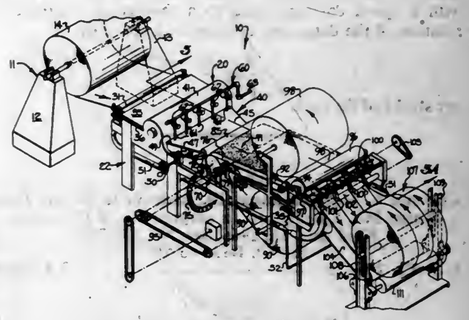
An article to be embedded in plastic material, having an axial inner hollow inserted on a tubular bushing slidably mounted on a stationary core projecting into an external divided mould the inner surface of which matches the outer shape of the article already embedded in plastics. The parts are so shaped as to leave a clearance between the free end of the core and one of the mould bottoms and to prevent communication between the said clearance and the other parts of the said hollow till the said bushing is withdrawn from the inner hollow of the article. The plastic material is injected into the said clearance and pushes the said bushing out of the mould, thereby allowing coating of the inner hole of the article with plastic and the flow of the latter towards the remaining parts of the mould hollow.

3,543,350
ROLLER GIN
Emanuil Borisovich Malkov, Tashkent, U.S.S.R., assignor to Tsentralny Nauchno-Issledovatelsky Institut Khimicheskoi Promyshlennosti, Tashkent, U.S.S.R.
Filed Dec. 4, 1967, Ser. No. 687,640
Int. Cl. D01b *1/06*
U.S. Cl. 19—50 1 Claim

A roller gin is provided in which seed is separated from fiber by a leather roller, a separation roller and a stationary knife, the seed dropping through a screen located under a second saw tooth feed roller, while the separated fiber is cleaned by a second saw tooth roller which cards the fiber and a stripper for the saw tooth roller.

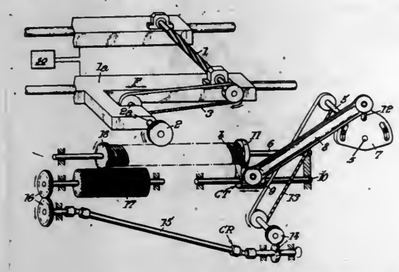


3,543,351
MACHINE FOR FORMING A RANDOM FIBER WEB
Donald K. George, Aiken, S.C., assignor to Riegel Textile Corporation, a corporation of Delaware
Filed Sept. 24, 1968, Ser. No. 762,106
Int. Cl. D01g *25/00*
U.S. Cl. 19—156.3 5 Claims



A machine for forming a random fiber web comprising means for fiberizing fibrous material received from a supply means into a mass of substantially individual fibers, decreasingly tapering fiber conveying air duct means for receiving and conveying therethrough the mass of fiberized fibers from the fiberizing means and for reducing the width of the mass of fibers from the fiberizing means to the other end of the air duct means, a plurality of air nozzle means extending into the air duct means in spaced positions transversely across the air duct means with individual regulator means for controlling the flow of air through each air nozzle means whereby the transverse cross-sectional distribution of fibers in the decreasingly tapering air duct means may be controlled and balanced, and rotating foraminous means including suction means therein to receive the mass of air conveyed fiberized fibers from the air duct means, form and retain the fibers in condensed random web form thereon and convey the fiber web away from the air duct means.

3,543,352
COMBING MACHINE
Louis Vignon, Geneva, Switzerland, assignor to Hispano Suiza (Suisse) S.A., Geneva, Switzerland
Filed Sept. 12, 1968, Ser. No. 759,394
Claims priority, application Luxemburg, Sept. 26, 1967, 54,537
Int. Cl. D01g *19/20*
U.S. Cl. 19—232 8 Claims



The combing machine has a detaching cylinder which is driven in an unsymmetrical oscillating movement—with an amplitude A_1 in one direction which is greater than its amplitude A_2 in the opposite direction—via a helical pinion in mesh with a cylindrical rack orthogonal to that pinion. A translation control reciprocates this rack with an amplitude corresponding to a theoretical symmetrical oscillating movement of the detaching cylinder of amplitude

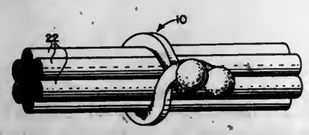
$$\frac{A_1+A_2}{2}$$

And a rotation control continuously rotates this rack with a speed corresponding to a theoretical continuous rotation of the detaching cylinder at a speed of

$$\frac{A_1-A_2}{2}$$

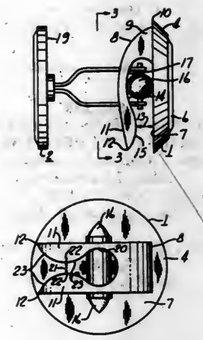
per stroke of the rack.

3,543,353
WIRE TIE
Clarence L. Meehan, Itasca, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Aug. 16, 1966, Ser. No. 572,770
Int. Cl. B65d *63/00*
U.S. Cl. 24—16 8 Claims



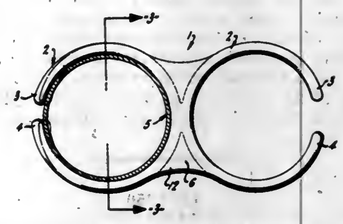
1. A one piece flexible fastener adapted to embrace two or more axially aligned workpieces including a resilient ring-like loop shaped body portion adapted to substantially encircle said workpieces, integral curved end portion extending from opposite sides of said loop shaped body portions inwardly towards one another and thence outwardly so that the free ends extend in opposite directions toward the sides of said body portions forming a pair of oppositely facing hook-like members, said hook-like members being adapted to be moved into a closed hooked relationship, said hook-like members being noncircular in cross-section and each presenting means defining an edge for bitingly engaging the other hook-like member, said spring-like body portion resiliently maintaining said hook-like members in removably locked relationship.

3,543,354
BUTTON ATTACHMENT AND CUFFLINK KEEPER
Frederick E. Schuchman, Sr., Box 348, Coraopolis, Pa. 15108, and David L. Mitchell, Jr., Riverview Road, Glenwillard, Pa. 15046
Filed Aug. 26, 1968, Ser. No. 755,131
Int. Cl. A44b *1/14, 5/00*
U.S. Cl. 24—41 6 Claims



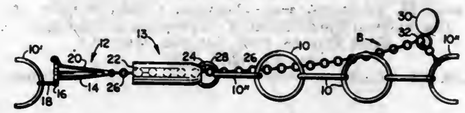
An attachment for cufflinks, buttons and the like which is employed as a decorative cufflink keeper to prevent loss of the cufflink or as a decorative button cover. The attachment consists of a body element of any desired shape which has a top and bottom face. A bifurcated arm is secured to the body near the perimetral edge of the bottom face to provide two flexible prongs which extend coextensively with each other adjacently across the bottom face. The prongs flex both in the horizontal and vertical plane relative to the body element to provide a snapping action when the pivotal cross link bar of a cufflink or a button is slid under the flexible prongs with its stem or threaded attachment, respectively, received between the prongs.

3,543,355
CONNECTOR FOR TUBULAR GOLF CLUB BAG SEPARATORS
Charles A. Wyckoff, 1757 Via Escondido, and John R. Lindahl, 1783 Via Escondido, both of San Lorenzo, Calif. 94580
Filed July 5, 1968, Ser. No. 742,851
Int. Cl. A44b *21/00*
U.S. Cl. 24—81 4 Claims



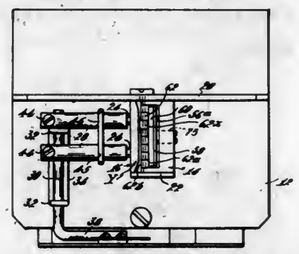
A connector is provided with a plurality of adjacent pairs of cooperating yieldable finger elements, each pair adapted to be snugly positioned around a tubular separator for golf club bags to hold a plurality of such separators in predetermined proximity one to the other and restrain each separator from being inadvertently removed from such bag.

3,543,356
CLASP
Horst D. Zimmermann, 3974 Waterhouse Road, Oakland, Calif. 94602
Filed Dec. 11, 1968, Ser. No. 783,074
Int. Cl. A44b *17/00*
U.S. Cl. 24—230 9 Claims



A clasp for forming a closed loop by coupling portions of an elongated flexible strand through the use of a pair of interlocking members adapted to be engaged by applying a force to a chain attached at one end to a first of the interlocking members, slidably threaded through an aperture in the second of the interlocking members and affixed at its other end to a portion of the strand spaced from the second interlocking member.

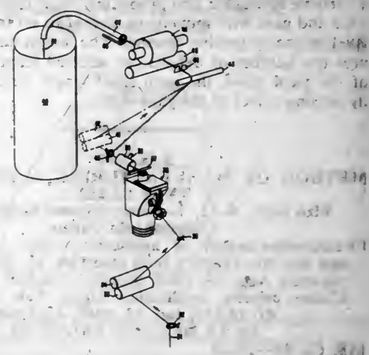
3,543,357
SLUB CATCHER
Samuel L. Abbott, Wilton, N.H., assignor to Abbott Machine Co. Inc., Wilton, N.H., a corporation of New Hampshire
Filed Dec. 4, 1968, Ser. No. 781,198
Int. Cl. D01h *13/22*
U.S. Cl. 28—64 14 Claims



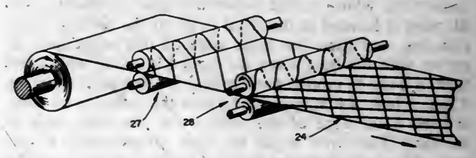
A slub catcher embodying a yarn passage of a width such as to permit unobstructed passage of yarn but to intercept slubs and other enlargements in the yarn, and a member extending part way across the passage near the end from which the yarn leaves which, by engagement with the yarn, maintains tension in the yarn leaving the slub catcher.

3,543,358
PROCESS FOR INCREASING THE BULK OF MULTIFILAMENT YARN
Alvin L. Breen and Herbert G. Lauterbach, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Continuation-in-part of application Ser. No. 698,103, Nov. 22, 1957. This application Oct. 24, 1967, Ser. No. 699,753
Int. Cl. D02g *1/16*
U.S. Cl. 28—72.12 17 Claims

Processes and apparatus are disclosed for treating a bundle of continuous filaments to produce a multifilament yarn of greatly increased bulk, wherein the filaments have a unique nonhelical crimp. The treatment also improves the dyeing characteristics. A hot compressible fluid, such as air or steam, is jetted to form a turbulent region. Yarn or zero or very low twist is fed through the turbulent regions, is plasticized by the hot fluid and is led away from the fluid and cooled. The yarn feed and take-up speeds, temperature and other conditions are adjusted to provide the desired amount of crimp. The examples illustrate a wide variety of treatments for different purposes.

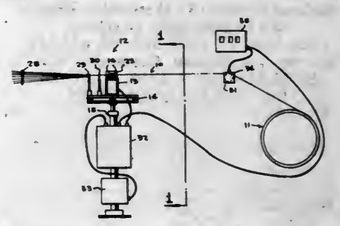


3,543,359
METHOD OF PRODUCING MULTICOLORED YARN
Ralph Whitaker, Bala Cynwyd, Pa., assignor to Fred Whitaker Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 25, 1967, Ser. No. 663,388
Int. Cl. D04b *19/00*
U.S. Cl. 28—72.16 6 Claims



Undrawn nylon yarn is knitted into a fabric and dye is applied to the fabric in spaced areas. The dye is heat-set and the fabric is then deknitted. The resulting randomly dyed undrawn yarn is then drawn with a ratio of about 4 to 1. The resulting drawn yarn may be crimped.

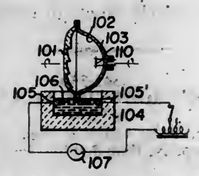
3,543,360
YARN INSPECTOR
Raymond Baines Fertig, Ronceverte, W. Va., assignor to Appalachian Electronic Instruments, Inc., Ronceverte, W. Va., a corporation of West Virginia
Filed Dec. 13, 1968, Ser. No. 783,776
Int. Cl. D02h *13/08*; D03d *5/28*
U.S. Cl. 28—51 28 Claims



A yarn inspector for detecting slub-like defects in a yarn sheet, including a light source projecting a narrow beam across the sheet, through which the sheet passes and a photodetector. The signals from the photodetector

are routed through a major defects channel, a minor defects channel, and a length channel, each of which have a variable gain amplifier with a feedback loop including a variable resistance unit producing linear change of resistance and gain with movement thereof to set the sensitivity level of the respective channel. The length channel measures the number of defects per selected length increment of the yarn sheet, the yarn sheet length being measured by sensing travel of the yarn sheet.

3,543,361
METHOD OF MANUFACTURING A REFLECTOR TYPE LAMP
Eizo Goto, 6–15, 1-chome, Higashi Kaigon Kita, Chigasaki-shi, Japan
Continuation-in-part of applications Ser. No. 617,948 and Ser. No. 618,123, both filed Feb. 23, 1967. This application Aug. 15, 1968, Ser. No. 752,885
Claims priority, application Japan, Feb. 28, 1966, 41/18,035; Jan. 12, 1967, 42/1,960
Int. Cl. H01j *9/18*; C03c *27/04*
U.S. Cl. 29—25.13 1 Claim

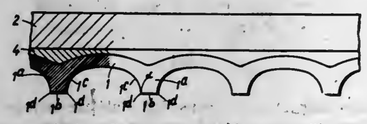


Method of manufacturing a reflector type lamp wherein a filament carrying lead wires is inserted through open projections which extend outwardly from a reflector. The filament is located at the focal point of the surface of the reflector, and then the inner edge of the projections together with the lead wires are dipped into and withdrawn from a body of molten glass to seal the two parts together. Then, a lens is juxtapositioned with the reflector by holding the outer edge of the reflector to the outer edge of the lens. The outer edges are then progressively dipped into and removed from a body of molten glass by rotating the outer edges at a speed sufficient to allow the molten glass to adhere to the edges to thus seal the edges to each other. The molten glass is heated by a pair of electrodes as well as by a further electric current which passes between the metallic reflector and one of the electrodes.

ERRATUM

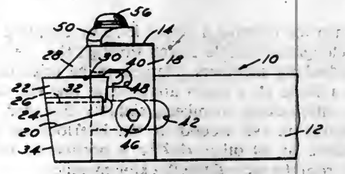
For Class 29—33 see:
Patent No 3,544,284

3,543,362
ABRADING DEVICE OR FILE
Richard Steding, 87 Werdohler Strasse, 588 Ludenscheid, Germany
Filed Mar. 27, 1967, Ser. No. 626,212
Claims priority, application Germany, Apr. 6, 1966, St 25,213; July 7, 1966, St 25,612
Int. Cl. B23d *71/00*, *73/04*
U.S. Cl. 29—78 9 Claims



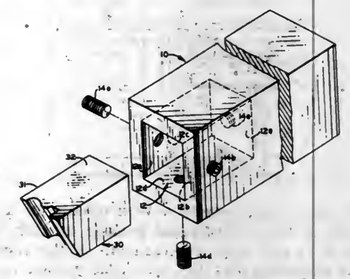
An abrading device or file which does not roughen the material being abraded or filed and which makes it possible to achieve a polishing action with it, if desired, which polishing action occurs substantially simultaneously with the abrading or filing action.

3,543,363
FLEXIBLE CLAMP CUT-OFF AND SLOTTING TOOL CUTTER
Leroy H. Diemond, East Hartford, Conn., assignor to The Valeron Corporation, a corporation of Michigan
Filed Mar. 26, 1968, Ser. No. 716,093
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 3 Claims



An integral clamp arm arrangement provided in a blade holder for cut-off and slotting tools which includes a clamp arm extending over the insert seat and formed to yield to an external clamping force to retain the insert securely in place.

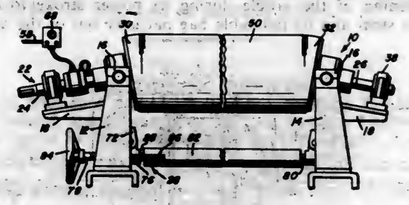
3,543,364
TOOL BIT HOLDER
James MacKew, 5605 Riviera Drive, Fort Wayne, Ind. 46805
Filed Aug. 30, 1968, Ser. No. 756,639
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 3 Claims



A tool bit holder is provided with a rectangular hole having rectangular plane sides and a bottom for receiving a cutting tool bit. Clamping screws project into the hole from the sides and bottom to hold the cutting tool bit. The cutting tool bit is clamped in either corner between two adjacent sides. The cutting tool bit may be quickly removed for replacement or sharpening and then reinserted and clamped in the original preset position. When so clamped, the tool bit is at the same preset location so that further realignment of the tool bit is not necessary to locate the best cutting position.

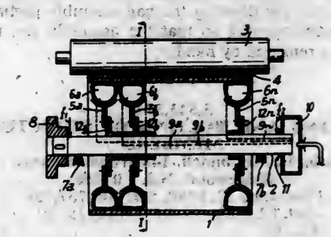
3,543,365
WEB STRETCHING AND SHRINKING DEVICE
Toivo A. Helminen, 12 Crestview Drive, Appleton, Wis. 54911
Filed June 1, 1967, Ser. No. 642,876
Int. Cl. B29c *17/07*
U.S. Cl. 29—113 10 Claims

Adjustable roller device for shrinking or stretching a continuously moving web in width during the manufacture of paper. A web of paper while in a semiplastic state is passed in contact with a circumferential portion of the roller undergoing a change in axial length on its peripheral



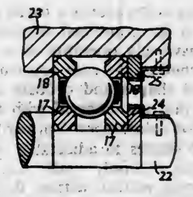
contact surfaces to correspondingly change the width of the web.

3,543,366
CALENDERING ROLL
Etienne Collet, 29 Avenue Hoche, Paris 8°, France
Filed Nov. 29, 1967, Ser. No. 686,661
Claims priority, application France, Nov. 30, 1966, 85,516; May 3, 1967, 105,056
Int. Cl. B21b *31/32*
U.S. Cl. 29—113 4 Claims



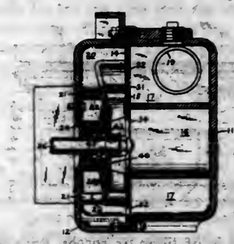
This invention relates to a calendering roll and, more particularly, to a roll for use in the treatment of the surfaces of strip materials, the shape of the surface of the roll being adjustable by means of inflatable resilient cushions arranged internally along its axis of rotation.

3,543,367
WIRE RACE BALL BEARING MANUFACTURE
Alfred E. R. Arnot, The Bell House, Baughurst, Basingstoke, Hampshire, England
Filed Jan. 29, 1968, Ser. No. 701,454
Int. Cl. B23p *11/00*; F16c *33/58*; B23b *19/04*
U.S. Cl. 29—148.4 21 Claims



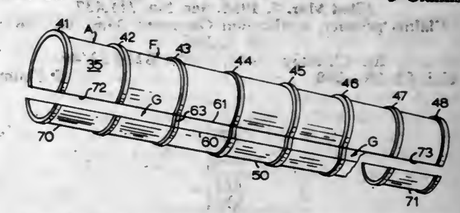
A method of manufacturing a wire-race ball bearing in which wire race rings are formed by bending wire in a stable bending orientation so that the wire does not twist in bending, the wire having a cross-section including at least one ball track. The bearing is assembled so that the bearing balls are in contact with one track on each race ring.

3,543,368
VARIABLE CAPACITY FLUID DISCHARGE DEVICE
Alfred S. Marlow, Weatherstone, Sharon, Conn. 06069
Filed Mar. 26, 1968, Ser. No. 716,145
Int. Cl. B21k *3/04*
U.S. Cl. 29—156.8 3 Claims



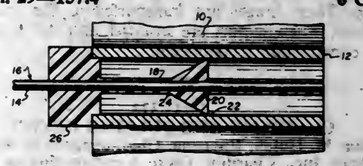
A fluid discharge device such as a centrifugal pump having a housing with fixed interior dimensions and configuration but with replaceable volute and impeller of variable dimensions for selectively changing the fluid flow capacity and characteristics of the device.

3,543,369
METHOD FOR EXPANDING A CYLINDRICAL VACUUM COOLING CHAMBER
George W. Baker, P.O. Box 1756, El Centro, Calif. 92243
Filed July 9, 1968, Ser. No. 743,447
Int. Cl. B21d *53/00*
U.S. Cl. 29—157 3 Claims



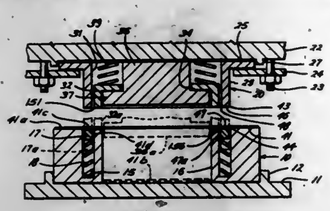
A method for converting and an apparatus comprising a cylindrical vacuum cooling chamber having an eccentric and increased overhead dimension. The cylinder as expanded provides substantially the strength of a cylindrical shell without elastic deformation of the cylinder or extensive piping reconnection during the expansion process.

3,543,370
METHOD AND APPARATUS FOR EXPLOSIVELY FORMING A TUBE WITHIN A TUBE SHEET
Irwin Berman, Bronx, N.Y., and Bharat S. Thakkar, Carteret, Joseph W. Schroeder, Clark, Union, and Herman P. Smith, Bound Brook, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York
Filed May 8, 1968, Ser. No. 727,531
Int. Cl. B23p *17/00*
U.S. Cl. 29—157.4 6 Claims



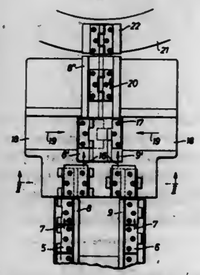
Cylindrical explosive insert surrounded by annular polyethylene force transmitter having a conical portion making a narrow ring of contact with the inside surface of the tube.

3,543,371
METHOD OF MANUFACTURING SCREENS
Willard H. Leavens and Albert C. Poujol, both of 3007 Honeydew, P.O. Box 36512, Houston, Tex. 77036
Filed Jan. 16, 1968, Ser. No. 698,192
Int. Cl. B23p 15/12
U.S. Cl. 29—160 4 Claims



The disclosure is of filter or screen apparatus wherein single or multiple superimposed screen webs are provided, the screen edge being bound together by a unitary U-shaped edge binding, and to improved methods of manufacturing such screen or filter apparatus. The methods include the use of stamping operations, including both cutting and forming operations.

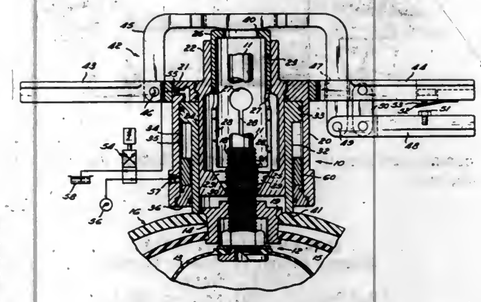
3,543,372
TILTING DEVICE FOR HINGE MAKING MACHINES
Alfons Unglaube, Rodenkirchen Bezirk Cologne, Germany, assignor to Meyer, Roth & Pastor, Raderberg-Cologne, Germany, a corporation of Germany
Filed Mar. 7, 1968, Ser. No. 711,437
Claims priority, application Germany, Mar. 18, 1967, M 73,245
Int. Cl. B23p 19/00, 19/04; B21d 53/40
U.S. Cl. 29—200 5 Claims



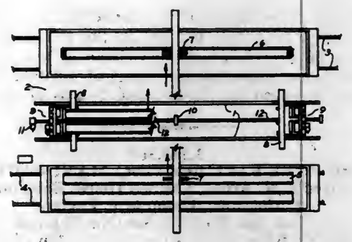
A device for tilting and transporting hinge halves is located between a rolling machine and an assembling machine. In the rolling machine hinge halves are formed and are placed on two guides. Then they are transported to tilting guides which tilt them so that properly spaced curved portions of the hinge halves face each other. Then slides push the hinge halves against each other to form hinges. These hinges are transported to the assembling machine, wherein pins are inserted into the hinges and their construction is completed.

3,543,373
CLAMPING AND PULLING DEVICE
William M. Hulak, Ravenna, Ohio, assignor to Structural Fibers, Inc., Chardon, Ohio, a corporation of Ohio
Filed June 6, 1968, Ser. No. 735,102
Int. Cl. B23p 19/00, 19/02, 19/04
U.S. Cl. 29—200 3 Claims

A device for initiating the removal of an inflatable bag assembly from within a hollow molded article. The device includes a clamp for engaging the stem portion of the bag assembly and a fluid-operated, hollow piston which engages the molded article adjacent the access opening of the article during its power stroke to drive the stem and its inflatable bag partially out of the access opening. The device includes a handle for applying clamping pressure to the stem, and for then actuating the hollow piston for drawing the bag assembly partially out of the access opening so that the assembly can then be completely removed by hand.



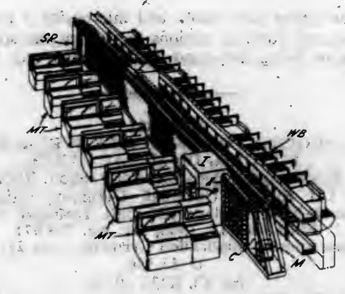
3,543,374
DRILLING AND BOLTING OF STRUCTURAL MEMBERS
John R. McConnell, 148 Woodside Ave., Ridgewood, N.J. 07450
Filed June 17, 1968, Ser. No. 737,786
Int. Cl. B23p 19/04, 17/00, 19/00
U.S. Cl. 29—200 1 Claim



The main shop crane moves a batch of raw shapes into place parallel to the combined fabricating machines. A light hoist, transversely operable on a short minor runway beam attached to the roof construction, successively hoists individual shapes and deposits them on the dual conveyor belts that are integral with the dual opposite-hand end located fabricators. Forward actuation of the belts moves the shapes to adjustable combined stops, to locate the shapes precisely under the operating centres of the dual-paired, vertical action, drilling and bolt-torquing units. The said torquing elements also apply the required pre-assembled mated connection angles to opposite sides of the shape-web, apply the nuts and torque them to a pre-selected tensional value, at each end of the shape. The lower connection angles have plural bolt shanks or bolts rigidly attached to them, preferably by welding. The mobile track-mounted units are symmetrically pre-located by a common oppositely threaded shaft

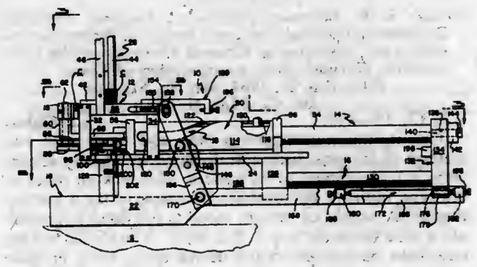
to suit the overall length of the fabricated beam, after which length-centering of the random length shape is executed previous to the drilling and bolting. This apparatus, shown in FIG. 3, is advantageous in the finished fabrication of long runs of identical beams.

3,543,375
POSITIONING DEVICES
David Theodore Nelson Williamson, Richard Graham Crosland, and Edward Henry Parke, London, England, assignors to Mollus Machine Company Limited, London, England, a corporation of Great Britain
Filed Aug. 29, 1968, Ser. No. 758,183
Claims priority, application Great Britain, Sept. 13, 1967, 41,871/67
Int. Cl. B23p 19/04; B23q 7/00
U.S. Cl. 29—200 10 Claims



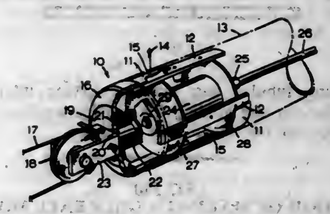
A positioning device for bringing a transporter to a desired position along a storage rack under control of electric signals (e.g. from a computer) comprises a number of parallel magnetic strips secured to the rack and disposed in a numerically coded pattern, and reed switches secured to the transporter so as to register with the strips. Circuitry connected to the switches and receiving the electrical signals derives the difference between the number sensed by the switches (according to the pattern of the strips at the transporter position) and the number represented by the signals and controls drive means for the transporter.

3,543,376
APPARATUS FOR FEEDING AND APPLYING A SPRING CLIP TO A WORKPIECE
Donald H. Lovell, Jacksonville, Fla., and Paul D. Orleman, Antioch, Calif., assignors to Kaiser Gypsum Company, Inc., Oakland, Calif., a corporation of Washington
Filed Aug. 21, 1968, Ser. No. 754,257
Int. Cl. B23q 7/10; B23p 19/04
U.S. Cl. 29—211 24 Claims



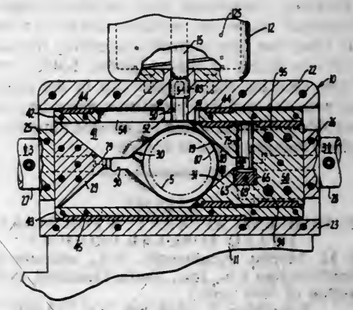
Improved apparatus for handling a workpiece engaging element such as a U-shaped spring clip. The apparatus generally comprises a clip grasping arm, a feeder device including a slide for receiving a clip for feeding the clip to the aforesaid arm and a common drive mechanism operatively connected to the arm and the slide of the feeder device for effecting relative advancements between the arm and the slide thereof. The common drive mechanism, after the slide receives the clip, synchronizes the relative advancements of the arm and the slide so as to simultaneously locate the arm and the slide in clip transferring relationship. The arm with the transferred clip thereon is then advanced by the common drive mechanism out of clip transferring relationship with the slide while at the same time the arm is given selected linear and arcuate movements.

3,543,377
VIBRATORY TOWING HEAD
Raymond Muir Bremner, 102 Lynedock Crescent, Don Mills, Ontario, Canada
Continuation of application Ser. No. 773,084, Nov. 4, 1968. This application Dec. 30, 1968, Ser. No. 787,932
Int. Cl. B23p 19/04; F16l 55/18
U.S. Cl. 29—234 6 Claims



Means for drawing a flexible tubular member through a pipe or bore comprises a vibratory head having a cylindrical outer surface which is adapted to engage telescopically one end of the flexible tubular member so as to be embraced thereby. An air motor which drives an eccentric mass rotor is mounted within the vibratory head, and a tow cable is connected to the forward end of the vibratory head by means of a pulley mounted on the vibratory head and connected thereto by a swivel mounting.

3,543,378
CLIPPING APPARATUS
Karl A. Klenz, Oakland, Calif., assignor to Rheem Manufacturing Company, New York, N.Y., a corporation of California, and Rheem International, Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 11, 1968, Ser. No. 758,998
Int. Cl. B23p 11/00; A22c 11/12
U.S. Cl. 29—243.57 13 Claims



Clipping apparatus for applying a seal or a pair of seals at spaced points along the length of an extruded sausage or like article formed by a stuffing machine. The stuffed

article is passed through the apparatus which automatically constricts the article to a relatively small cross sectional extent and applies a clip or pair of clips to form a plurality of serially connected chubs or the like. A modification of the invention permits substantially similar action to seal a flexible article such as the mouth of a bag with the bag being fed laterally into the device.

3,543,379
APPARATUS FOR MANUFACTURING PLASTIC TUBING FOR RECLOSABLE BAGS
Kakuji Naito, 49, 1-chome, Watarida-Shin-machi, Kawasaki-shi, Kanagawa, Kanagawa-ken, Japan
Original application Feb. 15, 1961, Ser. No. 89,540. Divided and this application Aug. 22, 1967, Ser. No. 662,344
Int. Cl. B32b *3/02, 31/02*
U.S. Cl. 29—400 **11 Claims**



Extruding tubular bag material having interlocking profiles thereon and guiding the profiles together flattening the tube and interlocking the profiles.

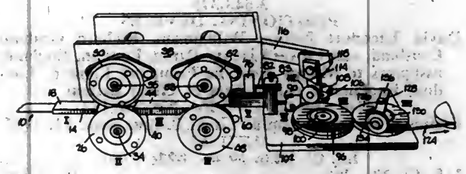
3,543,380
METHOD OF MAKING A GOLF BALL MOLD
Gary J. Hagopian, 17 Belli Drive, Wilbraham, Mass. 01095
Filed May 6, 1968, Ser. No. 726,791
Int. Cl. B23p *9/00*
U.S. Cl. 29—445 **5 Claims**



A golf ball mold as formed by the sequential steps of: spinning, stamping or otherwise forming a semispherical cup from sheet stock, trimming the so-forming cup so as to allow an annular protrusion extending slightly above the cup center line, stamping a pattern of dimples into the cup, forming a machined steel holder provided with a semispherical recess or arcuate surface extending inwardly from one face thereof, assembling the so-dimpled cup into the recess of the so-formed holder, brazing or otherwise securing the dimpled cup in the recess of the holder with the annular protrusion extending outwardly of the holder, and machining the outside dimensions of the assembled dimpled cup and holder.

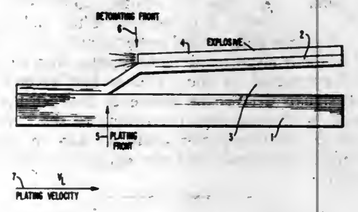
3,543,381
METHOD AND APPARATUS FOR MAKING A FILLED TUBULAR PRODUCT
Louis H. Martin, Kenilworth, N.J., assignor to Astor Manufacturing Co., Inc., South Plainfield, N.J., a corporation of New Jersey
Filed Mar. 6, 1968, Ser. No. 710,980
Int. Cl. B23p *19/00, 19/04;* **B22f** *3/24*
U.S. Cl. 29—429 **24 Claims**

Method and apparatus for making a filled tubular product including forming a channel shaped tube with an upper longitudinally extending top slot, depositing a filling material inside the so formed tube, and thence passing the so filled channel shaped tube between roll means for folding over the side edges thereof to form



an overlapping edge seam, and interposing a guide station between forming stations to prevent the strip from curling or being deformed while approaching the next station.

3,543,382
PROCESS FOR EXPLOSIVE SURFACE BONDING OF METAL PARTS
Peter Riegelmayer, Wasserscheide, Jakob Roth, Spich, and Ulf Richter, Odenthal, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed June 18, 1968, Ser. No. 738,071
Claims priority, application Germany, June 21, 1967, D 53,386
Int. Cl. B23k *29/00*
U.S. Cl. 29—486 **11 Claims**

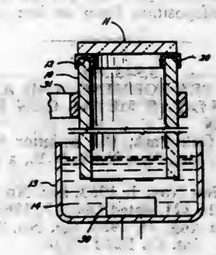


Helium, hydrogen, or another gas having an acoustical velocity substantially greater than air is placed between the spaced non-parallel parts to be bonded prior to the ignition of the explosive contained on the outer surface of at least one of the parts.

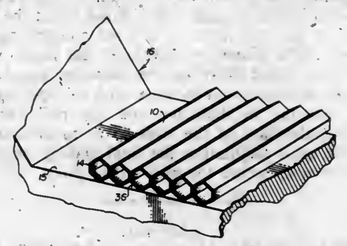
3,543,383
INDIUM SEAL
George S. P. Freeman, Middlesex, England, Franklin D. Jackson, Garland, Tex., and Joseph J. Weber, Scottsdale, Ariz., assignors to General Electrodynamics Corporation, Garland, Tex., a corporation of Texas
Filed Feb. 20, 1967, Ser. No. 617,126
Int. Cl. B23k *21/00*
U.S. Cl. 29—470.1 **2 Claims**

This invention concerns a new and novel seal and method of forming such a seal. More specifically it concerns a seal adapted to be utilized with pick-up tubes of the type utilizing photoconductive material as a portion thereof. A supply of indium metal is provided intermediate a tube envelope and a face plate. Vibrational energy may then be applied to the device along with, in some instances, a sudden burst of heat to render fluid the indium, in order that surface film on the indium may be scraped away to assure intimate contact between the indium and the adjacent member.

In constructing such tubes, a vidicon being an example, difficulties have been encountered in uniformly providing a photoconductive material to a face plate and linking said face plate to an envelope normally provided said tube.



3,543,384
METHODS OF COLLIMATOR FABRICATION
Carl W. Hansen, Chagrin Falls, Ohio, assignor, by mesne assignments, to Picker Corporation, White Plains, N.Y., a corporation of New York
Filed Nov. 14, 1966, Ser. No. 594,083
Int. Cl. B23k *31/02*
U.S. Cl. 29—471.1 **22 Claims**



A collimator for nuclear energy imaging devices and method of making collimators including the steps of positioning a plurality of hexagonal tubes in a body, mounting the body and tubes on a mold to achieve the configuration desired, bonding the tubes together and to the body, filling spaces between the perimetral ones of the tubes and the body with radiation-opaque material and machining the collimator.

3,543,385
PRODUCTION OF SOLDER JOINTS BETWEEN A SPACER STRIP AND A METALLIZED COATING IN A MULTIPLE PANE GLAZING UNIT
Gustave Javaux and Jean-Pierre Vasseur, Brussels, Belgium, assignors to Glaverbel S.A., Watermael-Boitsfort, Belgium
Filed Aug. 29, 1967, Ser. No. 664,142
Claims priority, application Luxembourg, Sept. 9, 1966, 31,916
Int. Cl. B23k *31/02*
U.S. Cl. 29—472.5 **13 Claims**

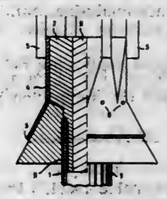
A method and apparatus for mass-producing solder joints between a spacer strip and a metallized coating in a multiple pane glazing unit by mechanically conveying the units in which the joints are to be formed at a predetermined speed past a soldering appliance, automatically bringing the appliance into contact with the joint and delivering solder thereto, and automatically lifting the appliance away from the joint at the end of the soldering pass, the movements of the appliance having a horizontal component and a vertical component which are independently selected for giving the compound movement any desired trajectory.



3,543,386
METHOD OF METALLIZING BODIES MADE FROM CERAMICS OR CRYSTALLIZED GLASS AND METHOD OF PRODUCING A GAS TIGHT SEAL
Morio Inoue and Gota Kano, Suita-shi, Japan, assignors to Matsushita Electronics Corporation, Oaza Kadoma, Kadoma-shi, Osaka, Japan, a corporation of Japan
No Drawing. Filed Sept. 28, 1966, Ser. No. 582,510
Claims priority, application Japan, Sept. 28, 1965, 40/60,192
Int. Cl. B23k *3/02*
U.S. Cl. 29—473.1 **3 Claims**

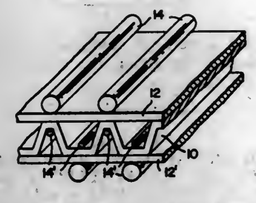
A method of metallizing ceramic or crystallized glass in which a body having a surface composed of a material selected from the group consisting of any ceramic and crystallized glass is provided. A metal selected from the group consisting of molybdenum and tungsten is deposited on at least a portion of the body directly from vapor phase. A second body having a surface of any ceramic, any metal or crystallized glass may be attached to the metallized portion of the first body thereby providing a gas-tight seal. The metal deposition may be accomplished by hydrogen reduction of any halide or decomposition of any carbonyl compound.

3,543,387
METHOD FOR THE EXPLOSIVE WELDING OF A METAL PLUG TO A METAL TUBE OR OF NESTED PORTIONS OF METAL TUBES TO EACH OTHER
Paolo Golinelli, Modena, Helmut Holtbecker, Cardana di Besozzo, and Mario Montagnani, Bologna, Italy, Joost Louis Remmerswaal, Voorburg, Netherlands, and Guido Verzeletti, Ispra, Italy, assignors to European Atomic Energy Community (EURATOM), Brussels, Belgium
Filed Nov. 8, 1968, Ser. No. 774,459
Claims priority, application Germany, Dec. 1, 1967, 1,627,503
Int. Cl. B21d *39/04*
U.S. Cl. 29—474.3 **11 Claims**



A method of explosively welding two telescopically fitted members by using a laminar explosive charge and a deformable buffer ring. An annular gap is left between the members permitting conversion of shock wave energy to impact work and the explosive charge is externally placed around the buffer ring and detonated at a plurality of points.

3,543,388
CONTROLLED AREA EXPLOSIVE BONDING
George F. Blank and Billy A. Bothe, Concord, Calif., assignors to Hexcel Corporation, Dublin, Calif., a corporation of California
Filed Dec. 29, 1967, Ser. No. 694,643
Int. Cl. B23k 29/00
U.S. Cl. 29—486 3 Claims



A method for manufacturing structures formed from a plurality of metal members through the bonding of the metal members along linear surface portions thereof by first shaping the members to correspond to segments of the structure, aligning and temporarily retaining the members to provide the required configuration, disposing an explosive charge at those outside surface areas of at least one member opposite those locations of adjacent members where the explosive bonding is to be accomplished and initiating the explosive charge.

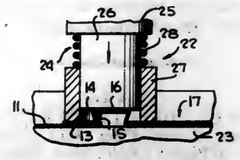
3,543,389
METHOD FOR CLEANING METAL SURFACES
Gerard A. Baldauf, Wernersville, and Michael J. Elkind, Wyomissing, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
No Drawing. Continuation of application Ser. No. 563,989, July 11, 1966. This application July 7, 1969, Ser. No. 871,764.
Int. Cl. B23k 1/20, 31/02
U.S. Cl. 29—488 2 Claims

The specification discloses a method of bonding one gold-plated surface to another which includes cleaning the surfaces, placing them in contact and heating the contacting surfaces with or without compression until a bond is formed wherein the bonding effectiveness between gold surfaces is increased by cleaning with a solution containing dibasic ammonium citrate, cyanide, and a chelating agent such as EDTA.

3,543,390
FUSION-JOINING COARSE-SURFACED FERROUS METALS TO METALS, USING ALKALINE PLATING WITH CHELATING AGENTS
Richard Parsons, Mountainside, N.J., assignor to Oakite Products, Inc., Berkeley Heights, N.J., a corporation of New York
No Drawing. Original application Feb. 9, 1962, Ser. No. 172,117, now Patent No. 3,380,151, dated Apr. 30, 1968. Divided and this application Dec. 11, 1967, Ser. No. 689,309
Int. Cl. B23k 31/02
U.S. Cl. 29—492 17 Claims

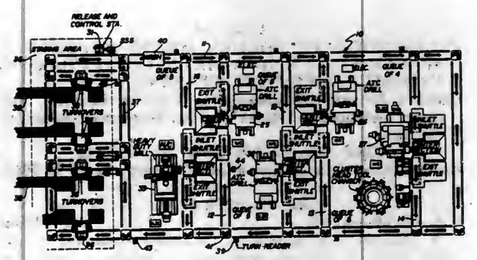
A method of fusion-joining (e.g. welding, soldering or brazing) a fusion-joinable metal part, ordinarily readily fusion-joinable to a low carbon steel, to a coarse-surfaced high carbon ferrous metal such as cast iron, gray iron, malleable iron or wrought iron involving first cleaning from the coarse-surfaced ferrous metal any soil which might prevent electroplating on it an adherent electrodeposit, then electroplating on it a firmly adhering, masking electrodeposit of iron from an alkaline iron-plating bath having dissolved in it an organic sequestering agent in an amount adequate to hold any iron compound in the bath dissolved in it as the iron chelate, in addition to a sufficient amount of (a) an alkali metal hyroxide to provide the desired pH and (b) an iron compound to enable electrodeposition from an iron anode.

3,543,391
METHOD OF PRE-FORMING AND ATTACHING METAL PULL TAB METAL CAN END RIVET FORMATION
John Henchert, Oak Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Original application Nov. 1, 1963, Ser. No. 320,763, now Patent No. 3,416,221, dated Dec. 17, 1968. Divided and this application Aug. 21, 1968, Ser. No. 754,215
Int. Cl. B21d 39/00
U.S. Cl. 29—509 3 Claims

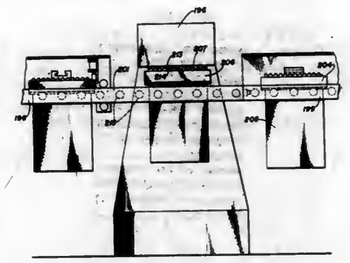


This disclosure relates to a method of securing a pull tab to a removable panel portion of a container wherein the removable panel portion is provided with the integral rivet. The pull tab is provided with an aperture therein of a diameter less than the diameter of the base of the rivet, after which the pull tab is flared about the opening therein so that the metal is stressed and the opening is increased to a diameter to receive the rivet. The pull tab is then seated down on the container panel and the flared portion thereof is flattened with the opening therein again reducing in diameter and the pull tab tightly squeezing the base of the rivet so as to inwardly stake the rivet, thus facilitating the final staking or crimping of the rivet to secure the pull tab in place.

3,543,392
MACHINE TOOLS HAVING CONVEYOR MEANS EXTENDING THEREBETWEEN AND CARRYING PALLET MEANS WHICH ARE SELECTIVELY CONNECTABLE TO THE MACHINE TOOLS
Charles B. Perry, Raymond L. Bomkamp, and Kendall F. Bone, Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 15, 1967, Ser. No. 690,940
Int. Cl. B23p 23/06; B23q 3/57
U.S. Cl. 29—563 5 Claims



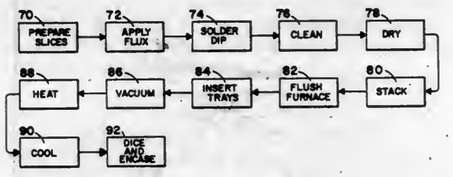
This invention has to do with an automatic manufacturing system and, more particularly, to a plurality of work stations to which a variety of workpieces are carried by a network of conveyors, in which means are provided to identify each workpiece and means are provided to direct the workpiece through a path variable in accordance with load conditions in the network having various work stations where selected operations are automatically performed on the workpiece.



ERRATUM

For Class 29—568 see:
Patent No. 3,544,286

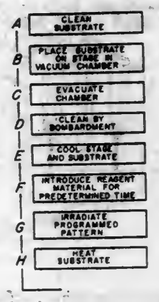
3,543,393
METHOD OF FORMING RECTIFIER STACKS
David F. Cosper, Dallas, and Jerry R. Estes, Garland, Tex., assignors to Varo, Inc., Garland, Tex., a corporation of Texas
Filed Feb. 28, 1968, Ser. No. 708,901
Int. Cl. B01j 17/00; H01l 7/66
U.S. Cl. 29—583 5 Claims



A method is disclosed for forming rectifier stacks in which thin wafers of silicon, each of which has a P-N junction formed therein, are dipped in a soft solder to wet the surface of the wafer. Subsequently, a desired number of the wafers are stacked together and placed in a furnace having an inert atmosphere. The stacks of wafers are heated under a vacuum to fuse the wafers together without voids or air pockets between the wafers. The stacks of wafers are then cut to provide stacks of semiconductor die of the desired junction area.

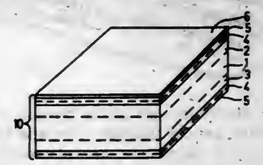
3,543,394
METHOD FOR DEPOSITING THIN FILMS IN CONTROLLED PATTERNS
Sheldon L. Matlow, 556 St. Claire Drive, Palo Alto, Calif. 94306
Filed May 24, 1967, Ser. No. 640,926
Int. Cl. H01l 7/18
U.S. Cl. 29—584 22 Claims

An apparatus for forming patterned deposits of thin films of material on the surface of a substrate. The apparatus includes a vacuum chamber and an associated vacuum system. A support within said chamber for supporting a substrate and means for selectively cooling or heating the same. One or more reagent sources for selectively introducing reagent vapors into said chamber. A means responsive to control signals for bombarding selected areas of the surface of a substrate on said support.



A method for forming patterned deposits of thin films of selected material on the surface of a substrate to form active and passive electronic devices and components.

3,543,395
STACKED DIODE HIGH-VOLTAGE RECTIFIER AND METHOD OF MANUFACTURE THEREOF
Ludovicus Augustinus Lambertus Esseling, Nijmegen, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 25, 1967, Ser. No. 663,407
Claims priority, application Netherlands, Aug. 26, 1966, 6612022
Int. Cl. H01l 1/10
U.S. Cl. 29—588 14 Claims

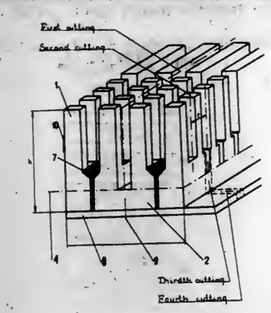


A high-voltage rectifier comprises a stacked series array of semiconductor wafers having etch-resistant electrode coatings, mounted in clamped relation, between etch-resistant current-supply members, in an insulated housing, prior to etching. After the etching process, the space between the stacked array and the walls of the housing is filled with a resilient insulating material, and then encapsulated in an insulating resin.

3,543,396
METHOD OF MULTI-TRACK, TWO-GAP, FERRITE MAGNETIC HEADS DESIGNED ESPECIALLY FOR DIGITAL RECORDING
Zbigniew Illg, Siennicka 36a–16; Wojciech Walczak, Piekna 7/9–93; Jan Zaluska, Zawiszy 30–110; Czeslaw Szymański, Balnckiego 18–8; Edward Seremak, Karola Wojcika 14–16; and Henryk Domoslawski, Zagosciniec 12, all of Warsaw, Poland
Filed Jan. 16, 1968, Ser. No. 698,196
Claims priority, application Poland, Jan. 17, 1967, P 118,532; June 17, 1967, P 121,200
Int. Cl. H01f 7/06
U.S. Cl. 29—603 15 Claims

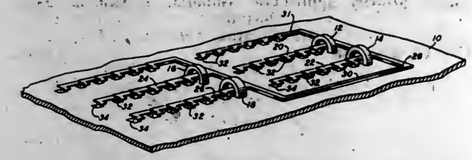
A method for producing multi-track, two-gap ferrite magnetic leads, in which ferrite body shapes are provided with gap-forming surfaces, the body shapes are positioned with these surfaces forming two gaps, bonding the body

shapes with material filling the gaps, cutting the body shapes to provide multiple pairs of heads each with a pair



of core legs, and removing some excess material provided on the initial body shapes.

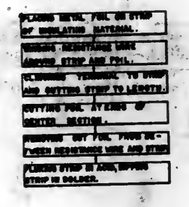
3,543,397
MAGNETIC MEMORY ASSEMBLY METHOD
Bruce S. Hoagland, Red Bank, and Bernard Kirschenbaum, Elizabeth, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Original application May 3, 1965, Ser. No. 452,773, now Patent No. 3,328,782. Divided and this application Feb. 13, 1967, Ser. No. 630,164
Int. Cl. H01f *7/06*
U.S. Cl. 29—604 **4 Claims**



The instant disclosure sets out a process of providing conductors which extend through core apertures on one side of a memory plane and are electrically fixed to planar circuitry disposed upon the other side of said plane. Plural conductive strips containing lateral projections are interspersed between sheets of insulation to form a stacked unit. Plural apertured cores are provided on a substrate with their respective apertures exposed above the surface so that the aperture axis of each extends in a plane parallel to the major surface of said substrate. The other major surface of the substrate is provided with conductive circuitry, and holes are provided through the substrate to facilitate interconnecting. Then the stacked unit is extended through the core apertures as desired and the lateral extensions of same are forced through respective holes and secured into electrical engagement with the said circuitry.

3,543,398
METHOD OF MAKING AN ELECTRICAL CONTROL
Stanley O. Bender, Berne, and Robert E. Eash, Decatur, Ind., assignors to CTS Corporation, Elkhart, Ind., a corporation of Indiana
Original application Mar. 14, 1966, Ser. No. 533,878, now Patent No. 3,409,855, dated Nov. 5, 1968. Divided and this application Mar. 6, 1968, Ser. No. 711,115
Int. Cl. H01c *17/00*
U.S. Cl. 29—610 **8 Claims**

A method for shorting a portion of a resistance element by placing an elongated strip of metal foil onto an elongated winding strip of insulating material. Resistance wire is then wound around the foil and the winding strip with adjacent convolutions of the wire spaced from each other and in contact with the foil. A plurality of terminals

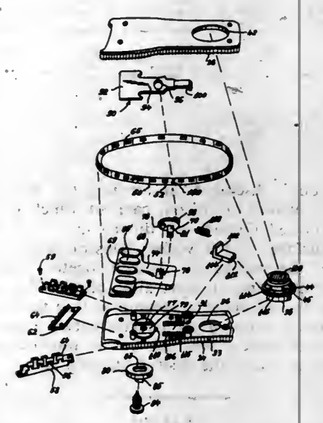


is then secured to the strip and the terminals are connected to the resistance wire. A section of the foil is then removed from between the resistance wire and the winding strip and the turns of the resistance wire are secured to the foil with metal deposits.

ERRATUM

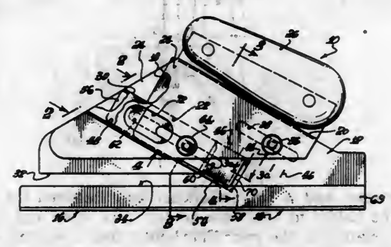
For Class 29—620 see:
Patent No. 3,544,287

3,543,399
SAFETY RAZOR WITH ENDLESS BAND BLADE
Victor Yager, 2712 Ditmars Blvd., Astoria, N.Y. 11105
Filed Sept. 24, 1968, Ser. No. 761,913
Int. Cl. B26b *21/26*
U.S. Cl. 30—40.1 **10 Claims**



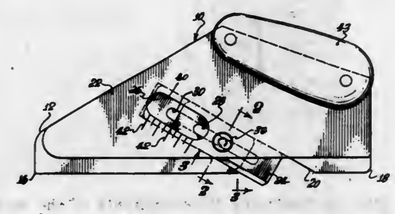
Safety razors are described each employing an endless band blade which is moved between sets of sharpening elements each time the blade is advanced to locate a fresh, sharpened portion at a cutting position. Each razor is provided with an alternately retracting and advancing pressure plate and shield plate. The pressure plate holds the blade in position for cutting. The shield plate covers the cutting portion of the blade while the blade is being advanced and sharpened. One razor employs a rotating ring to advance the blade and an independently operable cam alternately retracts and advances the pressure plate and shield plate. Another razor employs a crank to advance the blade. The crank is revolvable to retract and advance the pressure plate and shield plate alternately.

3,543,400
LOOP PILE CARPET CUTTER
Warren Farrar Scott, West Covina, and William W. McPherson, North Hollywood, Calif., assignors to Roberts Consolidated Industries, Inc., City of Industry, Calif., a corporation of California
Filed Oct. 17, 1968, Ser. No. 768,477
Int. Cl. B26b *3/08*
U.S. Cl. 30—280 **9 Claims**



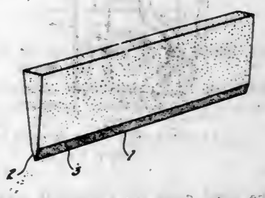
A cutter especially for loop pile carpet, including a supporting plate structure provided with a floor engaging base and having therein above the base a forwardly-facing carpet receiving slot the rear end of which is spanned by either a left-hand or a right-hand blade for cutting close to the carpet pile on the left side or the right side, respectively. Forwardly of the blades is a reduced-thickness guide plate having a carpet engaging lower edge forming the upper edge of the carpet receiving slot. The plate structure comprises a movable portion which includes the guide plate, the movable portion being mounted for movement along an inclined path paralleling the blades so as to raise and lower the guide plate and thus vary the width of the carpet receiving slot.

3,543,401
CUSHION BACK CARPET CUTTER
Warren Farrar Scott, West Covina, and William W. McPherson, North Hollywood, Calif., assignors to Roberts Consolidated Industries, Inc., City of Industry, Calif., a corporation of California
Filed Oct. 17, 1968, Ser. No. 768,248
Int. Cl. B26b *29/02*
U.S. Cl. 30—294 **4 Claims**



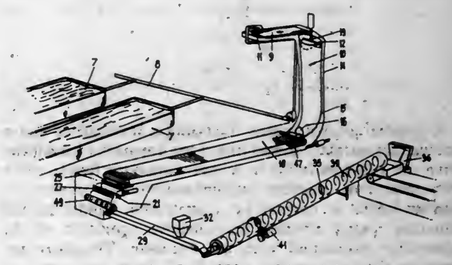
A cutter for face cutting cushion back carpet, including a guide plate carrying left-hand and right-hand blades in side-by-side relation for cutting close to the carpet pile on the left side and the right side of the guide plate, respectively. The blades are oriented at an acute angle to the carpet engaging edge of the guide plate to operate with a slicing action, and are disposed in a similarly angled notch in the guide plate.

3,543,402
CERAMIC CUTTING BLADE
Richard M. Seager, Newport Beach, Calif., assignor to Coors Porcelain Company, Golden, Colo., a corporation of Colorado
Filed Apr. 15, 1968, Ser. No. 721,254
Int. Cl. B26b *21/54*; B21k *11/00*
U.S. Cl. 30—346.53 **7 Claims**



A cutting blade comprising a non-porous ceramic body having an elongated sharp cutting edge thereon formed by smooth surfaces of said body which are at an angle to each other of at least about 8°, said ceramic containing at least about 99.5% by weight aluminum oxide substantially all of which is in the form of randomly oriented crystals having a size not exceeding 5 microns.

3,543,403
CHEESE PRODUCTION
Franc Speglic, Havenview, Tasmania, and Milan Vyhnalek, Burnie, Tasmania, Australia, assignors to Lact-O-Matic Proprietary Limited, Broadmeadows, Victoria, Australia, a corporation of Victoria
Filed Dec. 9, 1968, Ser. No. 782,069
Claims priority, application Australia, Dec. 11, 1967, 31,009
Int. Cl. A01j *25/00*
U.S. Cl. 31—89 **12 Claims**

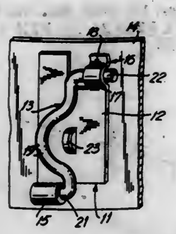


This invention provides a process and apparatus whereby curd is separated from a slurry of curd and whey, fused, milled, salted, mellowed and packaged.

3,543,404
ORTHODONTIC APPARATUS
James M. Rubin, 141 W. 17th St., New York, N.Y. 10011
Filed Apr. 9, 1969, Ser. No. 814,559
Int. Cl. A61c *7/00*
U.S. Cl. 32—14 **8 Claims**

An orthodontic apparatus for receiving one or more arch wires in the art of orthodontics. The apparatus is

in the form of a bracket secured to a tooth band with the bracket having a fixed plate and a hinged clip releasably



latched to the fixed plate for releasably securing one or more arch wires.

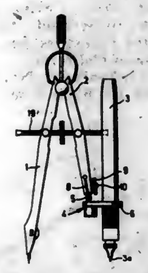
3,543,405
APPARATUS FOR DENTAL TREATMENT
Peter Banhart, 27 Marktstrasse, 7 Stuttgart-Bad Canstatt, Germany
Filed Nov. 18, 1968, Ser. No. 776,554
Claims priority, application Germany, Nov. 16, 1967, 1,566,195; Feb. 9, 1968, 1,616,126
Int. Cl. A61c *1/08*
U.S. Cl. 32—26 **27 Claims**



A remote control means including a transmitter and a receiver for wireless dental treatment apparatus permitting drive and speed variation by a dental operator free to move with minimum physical encumbrance. The transmitter with an aerial is carried by a protective handle having actuating means effective for selective operation of the transmitter associated with the receiver. Transistorized circuitry assures compact control of drive and speed of dental work tools with multi-channel operation including a step-by-step switching relay with delayed energization in an infinitely variable manner within particular transmitter impulse range.

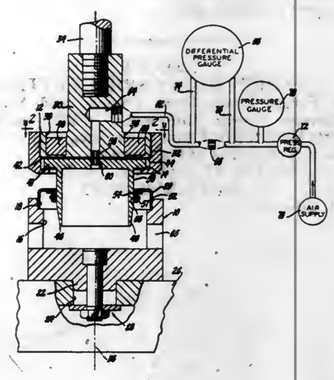
3,543,406
ATTACHMENT FOR DRAWING COMPASSES
Karl Kolb, Nuremberg, Germany, assignor to J. S. Staedtler, Nuremberg, Germany, a firm
Filed Dec. 5, 1968, Ser. No. 781,414
Claims priority, application Germany, Dec. 7, 1968, St 22,013
Int. Cl. B43l *9/02*
U.S. Cl. 33—27 **4 Claims**

An attachment for attaching a drawing implement to one leg of compasses in such a manner that the point of the drawing implement can be moved into close proximity with the point on the other leg of the compasses. The attachment comprises a peg detachably secured to said one leg of the compasses, a holder carrying the drawing



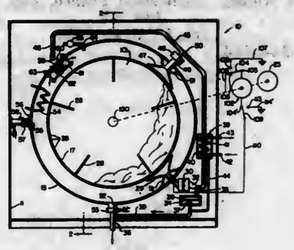
implement, and a ball-and-socket joint between the peg and the holder to allow the holder to be tilted and swiveled relative to the peg. The holder has a waisted portion to allow the implement to lie close to said other leg of the compasses.

3,543,407
LIP SEAL ECCENTRICITY GAGE
Robert L. Dega, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 3, 1968, Ser. No. 764,764
Int. Cl. G01b *3/30*
U.S. Cl. 33—180 **7 Claims**



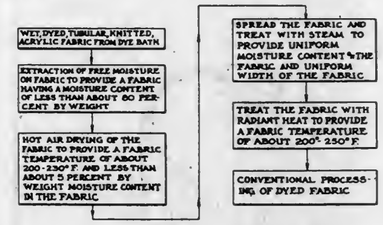
A gage for measuring the eccentricity of the seal lip to the seal casing in a lip-type seal wherein the seal casing is concentrically mounted on a fixed support and a mandrel mounted on an axially movable support is inserted through and into engagement with the seal lip. The mandrel is axially supported by a magnetic field or air pressure but is free to move radially into alignment with the axis of the seal lip. The radial distance or eccentricity between the axes of the seal lip and the seal casing is indicated by an electrical sensing or an air gaging system associated with the mandrel.

3,543,408
LIQUID REMOVING APPARATUS AND METHOD
Robert R. Candor, 5940 Munger Road, Miami Township, Ohio 45459, and James T. Candor, 5440 Cynthia Lane, Washington Township, Ohio 45429
Continuation-in-part of application Ser. No. 748,298, July 29, 1968, which is a continuation-in-part of application Ser. No. 696,639, Jan. 9, 1968, which is a continuation-in-part of application Ser. No. 639,354, May 18, 1967, which is a continuation-in-part of application Ser. No. 532,266, Mar. 7, 1968, which in turn is a continuation-in-part of application Ser. No. 219,587, Aug. 29, 1962. This application Oct. 21, 1968, Ser. No. 769,155
Int. Cl. B01k *5/00*
U.S. Cl. 34—1 **32 Claims**



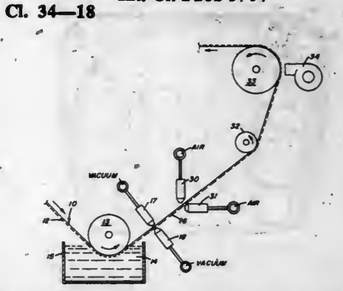
This disclosure relates to a laundry apparatus, paper making apparatus or the like wherein the moisture in the wet laundry, paper slurry or the like, disposed therein is removed by an electrostatic means that provides a nonuniform field between the moisture in the laundry, paper slurry or the like and an electrode means to tend to cause the moisture to leave the laundry, paper slurry or the like and move toward the electrode means where the higher intensity portion of the nonuniform field is located. Such electrode means can be disposed in a nozzle which tends to provide a localized and controlled atmosphere about the electrode means.

3,543,409
DRYING, SPREADING AND RADIANT HEATING OF TUBULAR KNITTED, ACRYLIC FABRICS
Joseph F. Fuhs and Samuel Z. Fain, Williamston, N.C., assignors to Beaunit Corporation, New York, N.Y., a corporation of New York
Filed Oct. 31, 1968, Ser. No. 772,076.
Int. Cl. F26b *5/14*
U.S. Cl. 34—14 **2 Claims**



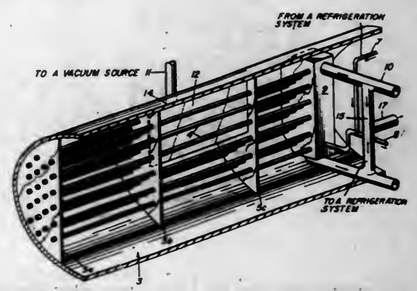
Dyed, tubular knitted, acrylic fabric having improved handle and being essentially free of crack marks is prepared by extracting free moisture from the dyed fabric; heating the dyed fabric at a temperature and for a time sufficient to provide a fabric surface temperature of about 200–230° F. and a moisture content in the fabric of less than about 5 percent by weight; spreading and steam treating the dyed fabric to provide uniform moisture content on the fabric and a uniform width throughout the fabric; and then treating the dyed fabric wtih radiant heat at a temperature and for a time sufficient to obtain a fabric surface temperature of about 200–250° F. The dyed fabric so treated will have outstanding hand or handle and an extremely low degree of crack or crease marks. The dyed, tubular knitted, acrylic fabric so treated may then be processed by conventional means into garments and the like.

3,543,410
METHOD OF REMOVING MOISTURE FROM A WEB OF MATERIAL
William Trachtenberg, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 8, 1969, Ser. No. 823,041
Int. Cl. F26b *5/04*
U.S. Cl. 34—18 **10 Claims**



A method of removing moisture from a web of material that is being moved continuously through a liquid bath. Upon emerging from the bath a suction is applied to the web preferably at right angles thereto and to one or both surfaces thereof. A flow of air is then directed at one or both surfaces of the web preferably at an angle that is in opposition to the direction of movement of the web to move any remaining moisture into the effective region of the suction. This method effectively dries a liquid-developed photoconductive sheet or web and can be used at high processing speeds without any degrading effects as to the fragile liquid-toned image(s).

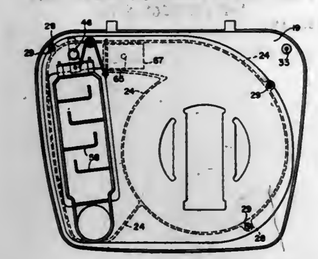
3,543,411
TUBULAR FREEZE-DRYING CONDENSER
Robert F. Bardsley, Harrington Park, and Harvey S. Bower, Upper Saddle River, N.J., and Saul Katz, Monsey, N.Y., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,907
Int. Cl. F26b *13/30*
U.S. Cl. 34—92 **12 Claims**



An improved freeze drying condenser consisting of a set of tubes mounted internally in a freeze drying chamber. The condenser is compact and capable of handling

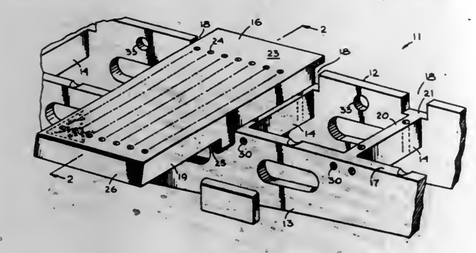
the large peak loads experienced in a batch freeze drying cycle. The efficiency, as compared to horizontal tubes, is improved by raising the discharge end of the tubes from the horizontal or by other means of increasing the volume of liquid within the tubes in order to achieve more uniform wetting of the tubes.

3,543,412
HAIR DRYER
David B. Price, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 31, 1968, Ser. No. 749,136
Int. Cl. A45d 20/18
U.S. Cl. 34—99 3 Claims



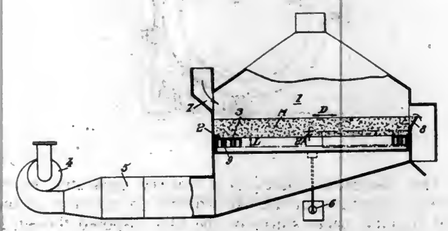
A portable, soft-bonnet hair dryer provided with a combination boiler and heater which serves to simultaneously convert water to steam and to heat forced air which is subsequently united with the steam for delivery to the bonnet. The hair dryer constitutes a self-contained unit, in that, the boiler unit, unlike prior art constructions, is disposed in the same housing with the fan and heater. Air flow control mechanism is provided which sufficiently reduces the normal air flow rate so that the heated air picks up a maximum quantity of steam.

3,543,413
REMOVABLE CLINKER COOLER GRATE PLATES AND SUPPORT FRAME THEREFOR
Harry D. Howell, Jr., Colton, and William J. Gillman, Apple Valley, Calif., assignors, by mesne assignments, to Hanford Foundry Company, San Bernardino, Calif., a corporation of California
Filed Dec. 18, 1968, Ser. No. 784,792
Int. Cl. F26b 9/00
U.S. Cl. 34—164 3 Claims



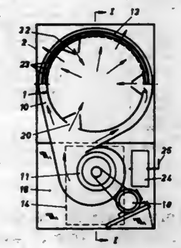
A simplified structure for holding cast alloy steel grate plates on a supporting frame in a movable type cement clinker cooler assures long life because of freedom from warping of the grate plates. The grate plates are provided with down-turned flanges and a rigidifying grid understructure, with maximum cooling by air ducts through the plates. The plates are held on the unitary cast steel support frame by horizontally disposed pin means, with half the plate surface cantilevered over the adjoining down stream plate. The simplified means for attachment of the plates to the frame facilitates removal and replacement of defective plates.

3,543,414
GAS TREATMENT APPARATUS
Claude Gomarin, Champigny-sur-Marne, France, assignor to Tunzini Amelioratr, Paris, France
Filed Jan. 28, 1969, Ser. No. 794,676
Claims priority, application France, Feb. 13, 1968, 139,724
Int. Cl. F26b 9/08
U.S. Cl. 34—164 14 Claims



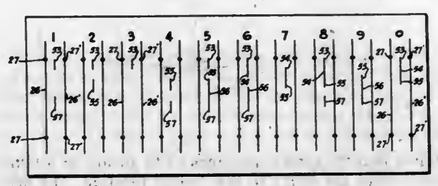
The apparatus comprises a sole subjected to mechanical vibrations in the vertical direction. The fragmented material is fluidized by the treatment gas. The orifices of the sole are each constituted by a conduit whose axial length is greater than the distance which separates the lower extreme and upper extreme positions that the sole occupies alternately.

3,543,415
DRUM DRYING APPARATUS
Arnfried Meyer, Frankenbach, Germany, assignor to Passat Maschinenbau GmbH, Frankenbach, Germany
Filed Sept. 23, 1968, Ser. No. 761,442
Claims priority, application Germany, Sept. 21, 1967, 1,585,888
Int. Cl. F26b 11/02
U.S. Cl. 34—130 10 Claims



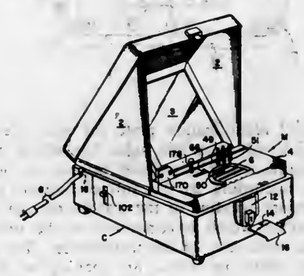
Apparatus for drying laundry or the like, including a drum rotatably mounted in a stationary housing and having at least a portion of the peripheral surface thereof perforated, one or more axially-extending entrainment ribs within the interior of the drum, one or more fans for producing a fluid flow, one or more radiators for heating the fluid stream produced by the fans, one or more inlets for conducting the fluid stream into the interior of the drum, wherein the inlets are disposed, relative to the perforations serving as fluid outlets, so as to create fluid streams within the interior of the drum which are substantially radially-directed and wherein axially-directed fluid streams are minimized.

3,543,416
IDENTIFYING CODE AND METHOD OF PRODUCING THE SAME AND A DECIPHERING CHART THEREFOR
Ralph A. Pannier, McCandless Township, Allegheny County, Pa., assignor to The Pannier Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application July 20, 1965, Ser. No. 473,286. Divided and this application July 10, 1967, Ser. No. 652,151
Int. Cl. G09c 3/08
U.S. Cl. 35—4 8 Claims



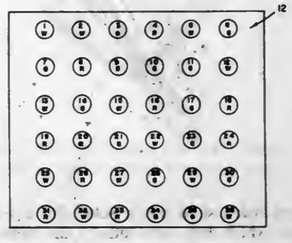
A simplified identifying code for printing on fast moving material and a deciphering chart for reading the code on the printer as well as the printed code of identification. The identifying code consists of a series of uniformly spaced vertical parallel reference lines each having uniformly vertically spaced reference dots thereon, and each code character is represented by vertical lines of different lengths and parallel to and positioned between adjacent of the parallel reference lines, each of which has a character starting reference dot, the length and position of each character line relative to its starting reference dot on an adjoining reference line determining the code.

3,543,417
FILMED PROGRAMMED TEACHING MACHINES AND THE LIKE
Robert H. Murray, 2412 Lancaster Court, Falls Church, Va. 22043
Filed Mar. 8, 1968, Ser. No. 711,798
Int. Cl. G09b 3/06
U.S. Cl. 35—9 37 Claims



A filmed programmed teaching machine including a projecting lens system; first means for advancing film in a first direction past the lens system; second means for advancing film in a second direction past the lens system; scoring means associated with said first means for making a record; and means associated with said second means for advancing the record.

3,543,418
INTELLIGENCE TESTING DEVICE
Jay L. Press, BOQ, Whidbey Island, Oak Harbor, Wash. 98277
Filed Jan. 10, 1969, Ser. No. 790,346
Int. Cl. G09b 5/00
U.S. Cl. 35—22 8 Claims



An intelligence testing device employing an array of lights which during a first interval of operation presents a partially completed visual display formed by the array of lights to a subject who, in response thereto, is required in a second interval of operation to select an additional light to illuminate to complete the visual display. The number of selections made by the subject until the proper completion of the visual display has significant value as an indication of the intelligence of the subject being tested.

3,543,419
EDUCATIONAL DEVICE INTENDED TO STIMULATE FOREIGN LANGUAGE LEARNING AND AWARENESS TO LANGUAGE RELATIONSHIP
Victor H. Santini, 1413 W. Lake St., Fort Collins, Colo. 80521
Filed Aug. 26, 1968, Ser. No. 755,277
Int. Cl. G09b 1/20
U.S. Cl. 35—77 1 Claim



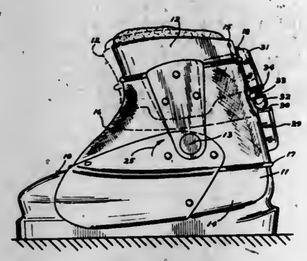
A language teaching apparatus in which comb-like members having T-shaped teeth are supported in a frame and rotatably support triangular prisms. Each side of a prism contains a different foreign equivalent of an English word as well as the pronunciation.

3,543,420
SPORT SHOE
Rudolf Dassler, Harzogenaurach, Germany, assignor to Puma-Sportschuhfabriken Rudolf Dassler KG, Herzogenaurach, Germany, a company of Germany
Filed Sept. 6, 1968, Ser. No. 757,814
Claims priority, application Germany, Sept. 20, 1967, 1,685,697
Int. Cl. A43b *23/28*; A43c *15/00*
U.S. Cl. 36—2.5 1 Claim



A heelless track shoe has a sole with a resilient running surface which has substantially the same roughness and is made of the same material as the cover layer of a racing track or playing field to be used by the wearer of the shoe.

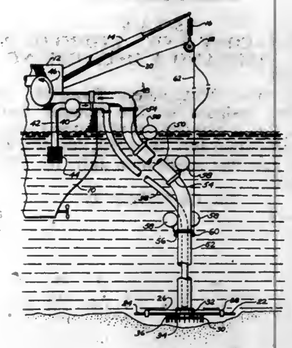
3,543,421
ADJUSTABLE STOP FOR PIVOTED CUFF
Gary B. Ader, Eden Prairie, Minn., assignor, by mesne assignments, to Sports Technology, Inc., Eden Prairie, Minn., a corporation of Delaware
Filed Feb. 17, 1969, Ser. No. 799,572
Int. Cl. A43b
U.S. Cl. 36—2.5 14 Claims



A quick adjustable stop means for a pivoting cuff on a ski boot to prevent rearward movement, and which can be quickly adjusted externally of the boot.

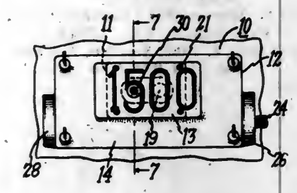
3,543,422
UNDERWATER MINING ASSEMBLY
Noel B. Plutchak, San Diego, Calif., assignor to The Bendix Corporation, a corporation of Delaware
Filed June 28, 1968, Ser. No. 740,964
Int. Cl. E02f *3/94, 3/92*
U.S. Cl. 37—57 10 Claims

A mining head having a flexible suspension arrangement for mining material from the bottom of the ocean or from any location where the material can be converted into a slurry. The head consists of a circular plate having a smoothly contoured circular passageway through its center connected with a large diameter hose and a bell-shaped member attached in close proximity to the central passageway to direct the flow into the hose. A manifold carries water at high pressure to a number of nozzles located around the edge of the plate, and flow from these nozzles puts the solids into suspension. The resulting slurry



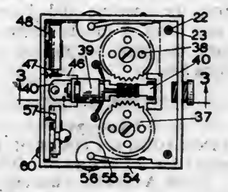
is drawn into the central passageway by means of a pump which carries the slurry to the desired location. The head is suspended from a crane carried on a ship by means of a cable having a flexible link to take up vertical movement due to wave action. Flotation buoys are fastened to the hose to keep the loaded hose essentially neutrally buoyant irrespective of its length or the weight of the slurry carried.

3,543,423
EXTERNAL IDENTIFICATION PLATE FOR INSTRUMENT TRANSFORMER
Robert S. Canney, Berwick, Maine, assignor to General Electric Company, a corporation of New York
Filed Apr. 2, 1969, Ser. No. 812,669
Int. Cl. G09f *3/02*
U.S. Cl. 40—2.2 5 Claims



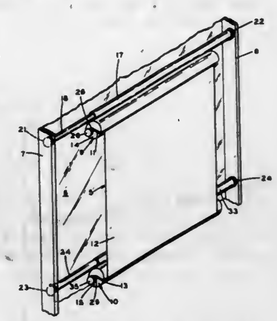
An external identification plate for instrument transformers which will show the value for which the transformer is connected. The plate is printed on both sides with values according to the full or tapped condition of the secondary winding of the transformer. A terminal post is provided which is connected to the unused terminal of the secondary of the transformer. The external identification plate has either an opening or a pair of transparent detents which cooperate with the post so that the plate can only be put on in a position to show the correct value of the secondary connection. The end of the post is coated with a fluorescent material so that it can be readily seen that the post is in place thus insuring that the correct value of the connection of the secondary terminals is showing.

3,543,424
PORTABLE VIEWER FOR MICRO-FILM
Jeshayahu Klein, 5153 Durocher St., Montreal 8, Quebec, Canada
Filed Nov. 16, 1967, Ser. No. 684,598
Int. Cl. G09f *11/295*
U.S. Cl. 40—31 11 Claims



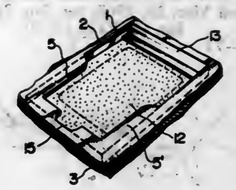
A battery-operated film viewer with a worm drive for the spools in which the worm can be displaced to operate either spool and advance or return the film, the motor circuit being closed by the aforementioned displacement. The film is viewed through a lens, either by ambient light or by an electric light. Ambient light enters the viewer through a translucent panel. The electric light is provided by a light bulb manually shiftable between an operative position intermediate the lens and the panel, and an inoperative out-of-the-way position, the light bulb electric circuit being automatically closed by movement of the light bulb into operative position. A manual drive for the spools is also provided.

3,543,425
DISPLAY DEVICE
Thomas B. Mulvey, 73 SW. 1st Ave., Boca Raton, Fla. 33432; Ernie Hegerman, 6061 NW. 19th St., Fort Lauderdale, Fla. 33313; and Elwood V. Schuessler, 1301 SE. 7th St., Pompano Beach, Fla. 33060
Filed Aug. 21, 1968, Ser. No. 754,219
Int. Cl. G09f *11/24*
U.S. Cl. 40—86 5 Claims



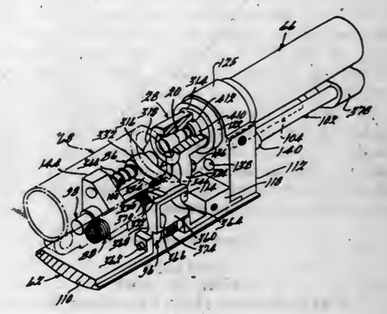
A display device having a plurality of spools between which a message carrying area is displayed with means for insertion and removal of the device between upright support members.

3,543,426
FILM FILING PLATE
Yoshichika Sakamoto, 214 2-chome, Sengen-cho, Ohmiya, Japan
Filed May 31, 1968, Ser. No. 733,448
Claims priority, application Japan, Sept. 21, 1967, 42/60,143
Int. Cl. G09f *1/10*
U.S. Cl. 40—158 2 Claims



A film filing plate comprises a front cardboard, a back cardboard, and a heat-sensitive synthetic resin layer laminated on at least one of said front or back cardboards to facilitate bonding the cardboards together by heat sealing. Each cardboard has a plurality of through holes that register with each other, with the holes in the front cardboard larger than those in the back cardboard. The front cardboard has holding lugs formed on a pair of opposite edges of the front hole, one of the other edges of the front hole having therein a finger notch and the remaining edge of the front hole having a guide slope formed thereon that bends toward the back cardboard. A three-layer translucent membrane can be inserted between the front and back cardboards.

3,543,427
AIR OPERATED PROJECTILE FIRING APPARATUS
Ronald W. Joyce, Springdale, Eugene E. Billingslea, Rogers, Leopold C. Sage, Fayetteville, and Robert K. Marshall, Rogers, Ark., assignors to Victor Comptometer Corporation, Chicago, Ill., a corporation of Illinois
Application Mar. 29, 1968, Ser. No. 739,575, now Patent No. 3,497,984, dated Mar. 3, 1970, which is a division of application Ser. No. 598,087, Nov. 30, 1966. Divided and this application Apr. 3, 1969, Ser. No. 815,257
Int. Cl. F41c *11/00*
U.S. Cl. 42—39.5 6 Claims



There is herein disclosed an air operated projectile firing apparatus having an ammunition holding means which is movable longitudinally and laterally between a firing

position and a loading position. Ejection rod means are operable in the loading position of the holding means to eject an old round of ammunition from the holding means into a pivotally mounted ammunition discharging device which laterally discharges the old round of ammunition.

3,543,428
RIFLE FORESTOCK
George A. Bronson, West Sacramento, Calif.
(P.O. Box 588, Sacramento, Calif. 95803)
Filed Mar. 29, 1968, Ser. No. 717,163
Int. Cl. F41c *23/00*
U.S. Cl. 42—71 6 Claims



A rifle forestock having a lower portion with a square cross section and an upper portion with longitudinal grooves in which the fingers of the user lie while the rifle is being fired. The bottom surface of the stock is aligned with the touch-point of the trigger of the rifle.

3,543,429
KITS FOR ADAPTING OLD PERCUSSION REVOLVERS TO FIRE MODERN CARTRIDGES
Paul Bendele, 14 Rue d'Illkirch, Ostwald, Bas-Rhin, France, and Gilles Merklen, 25 Rue de Bourgogne, Strasbourg-Meinau, France
Filed May 8, 1968, Ser. No. 727,504
Claims priority, application Italy, May 10, 1967, 6,996/67, Patent 807,597
Int. Cl. F41c *1/00, 21/10*
U.S. Cl. 42—77 2 Claims



A caliber-reducing kit for percussion revolvers, or the like intended to permit the firing of modern rigid cartridges with these known percussion firing guns, for example, of the "Colt" type, comprising in combination a shouldered barrel for fitting from the rear into the barrel of the percussion revolver, a shield surrounding the shoulder of the barrel and including an ejector, a cylinder of the usual type but including a rack offset towards the rear, a breech block carrying a striker operated by the normal striking system, and a movable loading flap permitting the introduction of the cartridges and the extraction of the cases.

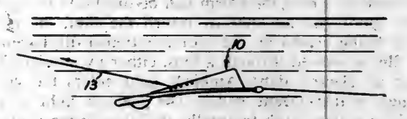
3,543,430
FISHING LURE
Paul E. Brokaw, 15500 Lake Shore Blvd., Cleveland, Ohio 44110
Filed June 11, 1968, Ser. No. 747,055
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.05 10 Claims

A fishing lure including an elongated body made from a flexible material having at least one recess aperture therein and a connecting line operably associated with the body for selectively flexing the body along its length. At least one hook is operably connected to the connecting line and is detachably carried in the recess aperture



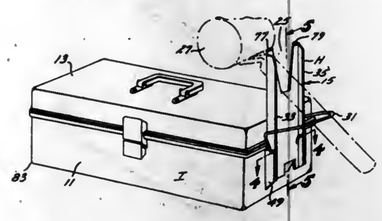
so that when the hook is struck by a fish, the hook will be released from the aperture and drawn outwardly of the body. In one form, a tubular member is angularly disposed through the body to provide a slidable guide for the connecting line.

3,543,431
TROLLING DEPTH CONTROL DEVICE
Philip David Olds, 27 Malwa St., Osborne 5017, South Australia, Australia
Filed Feb. 23, 1968, Ser. No. 707,840
Int. Cl. A01k *91/00, 95/00*
U.S. Cl. 43—43.13 6 Claims



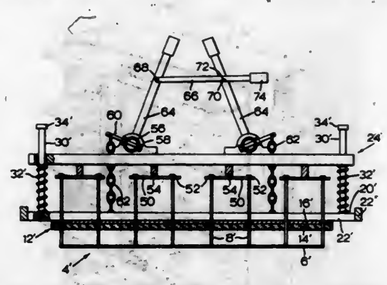
Trolling depth control device having a horizontal vane and an upstanding vane, the towing line being attached to the upstanding vane and the towed line to the horizontal vane, the vanes being of buoyant material but having a lead weight near the front end of the horizontal vane to impart a couple which acts to retain the device beneath the surface of water in which it is trolled, the couple however being overcome and reversed if extra drag (for example, due to a fish) is applied to the towed line, so that the device then moves to the surface.

3,543,432
FISHING ROD HOLDER
Paul Gates, 2675 Fashion Ave., Long Beach, Calif. 90810
Filed Apr. 4, 1969, Ser. No. 813,605
Int. Cl. A01k *97/00*
U.S. Cl. 43—54.5 9 Claims



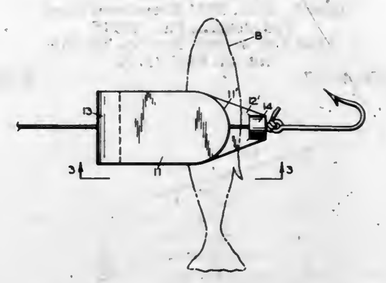
A fishing rod holder for securement to a tackle box having a lid, such holder including a vertical frame having an upwardly-opening yoke for passage of the fishing rod and being formed with intermediate mounting tabs for receipt between the lid and the top of the sidewall of such box. A bail is secured to the frame and forms a loop for receiving the butt end of the fishing rod.

3,543,433
WORM TRAP
Oscar R. Jackson, 910 Bridge St., Niagara Falls, Ontario, Canada
Filed Mar. 19, 1969, Ser. No. 808,440
Int. Cl. A01m *23/24*
U.S. Cl. 43—78 17 Claims



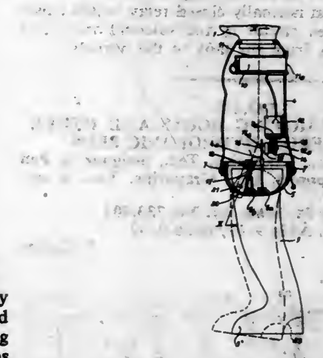
A worm trap having a planar grid structure, typically formed by a wire mesh, adapted to lie on the ground containing worms to be caught, so that worms leaving their holes will crawl over the grid structure. Guide arms extend upwardly from the grid structure through a backing structure formed by a sheet of perforated metal covered by sponge rubber. In the trap's set condition, the grid and backing structures are spaced apart. When the trap is sprung, heavy springs acting on the guide arms snap the grid and backing structures together, pinning between them worms that have crawled over the grid structure.

3,543,434
FISH BAIT HOLDER
Julius J. Hauck, 2519 Wallace Road, Salem, Oreg. 97304
Filed Nov. 21, 1968, Ser. No. 777,733
Int. Cl. A01k *97/00*
U.S. Cl. 43—44.6 1 Claim



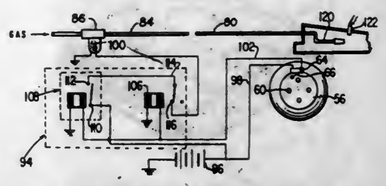
A bait holder mountable on the fish line near the hook for holding herring and similar live bait in place transversely with respect to the fishing line, comprising an elongated resilient body with a medial flexible hinge portion enabling one portion of the body to be folded over on the other so as to secure the bait between the portions, the folded-over portion being shorter than the other portion and temporarily maintained in folded-over position by integral clips. Bait-engaging teeth are disposed on the end of the shorter portion and extend toward the other portion to hold the bait firmly in position. The holder is mounted on a fishing line which passes freely through an aperture in the hinge portion and an apertured lug on the end of the other portion.

3,543,435
WALKING DOLL
Germain Giroud, Moingt-par-Montbrison, Loire, France
Filed Feb. 23, 1968, Ser. No. 707,771
Claims priority, application France, Mar. 9, 1967, 48,386; Aug. 29, 1967, 49,071
Int. Cl. A63h *33/26*
U.S. Cl. 46—247 9 Claims



A walking doll of the kind in which the alternate pivoting of the legs is effected by imparting to the body a swinging motion which causes alternate shifting of the center of gravity of the doll relative to the median vertical axis of the legs. It has a body formed as an upper part to which is pivoted a lower part. The legs are pivoted on the lower part and are coupled by a hinged cross-bar so that a swing by one leg causes an opposite swing of the other. A flexible metallic rod is fixed to a boss on the lower part and looped at its other end to cooperate with a crank pin rotated by a battery-driven motor through a worm and cog. Weights in the feet facilitate the swings of the legs.

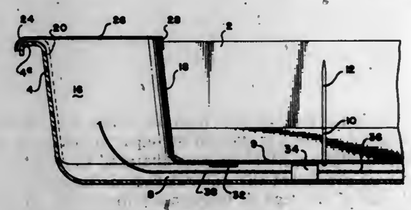
3,543,436
FLAME CULTIVATION APPARATUS
Milton C. Baxter, Cranbury, N.J., assignor to Cities Service Oil Company, Bartlesville, Okla., a corporation of Delaware
Filed Mar. 28, 1968, Ser. No. 716,845
Int. Cl. A01m *15/00*
U.S. Cl. 47—1.44 2 Claims



A tractor drawn flame cultivating apparatus for automatically controlling the application of flame to crops during cultivation is shown herein. The flame cultivating apparatus comprising a frame detachably mounted to a farm vehicle such as a farm tractor on which a plurality of gas burners are mounted. The burners are periodically supplied with combustible gas from a supply tank through an electrically controlled solenoid valve. Rotatably mounted on a leg attached to the frame is a wheel which is free rolling on the ground and has a number of equidistantly spaced camming pins extending out of the wheel hub. A microswitch mounted on the frame adjacent the wheel hub is actuated by the camming pins as the wheel

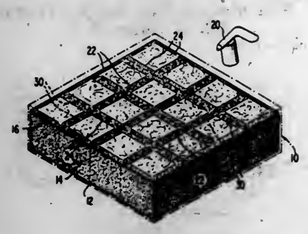
turns and energizes a timed locking relay and a normally closed relay both of which are connected in series with the energizing coil of the solenoid valve. During the period of microswitch actuation the locking relay switch closes while the normally closed relay switch opens thereby not energizing the solenoid valve. Immediately after the microswitch energization is removed from the aforesaid relays the solenoid valve is opened since the locking relay switch remains closed for a preset period of time while the deenergized normally closed relay switch closes completing the series circuit to the solenoid valve and allowing gas to pass from the tank to the burners.

3,543,437
DEVICE FOR REMOVING ROOTS AND OTHER MATERIAL FROM HYDROPONIC BEDS
Floyd C. Gaines, Jr., Grapevine, Tex., assignor to Pan American Hydroponics, Inc., Grapevine, Tex., a corporation of Texas
Filed May 31, 1968, Ser. No. 733,401
Int. Cl. A01g *9/02*; B08b *9/02*
U.S. Cl. 47—34 **7 Claims**



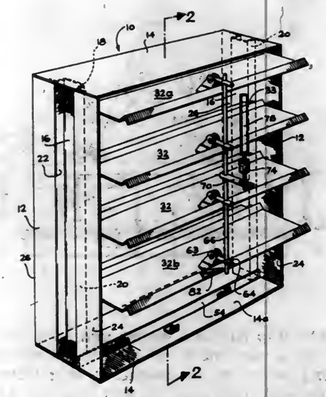
A device for cleaning roots from channels in troughs for hydroponic plant beds through which water and other nutrients are delivered to plant roots.

3,543,438
PLANT GROWING MEANS AND METHOD OF MAKING SAME
Paul R. Edwards, Orlando, Fla., assignor to Edwards Enterprises of Orlando, Inc., Orlando, Fla., a corporation of Florida
Filed Jan. 5, 1968, Ser. No. 695,975
Int. Cl. A01g *9/10*
U.S. Cl. 47—34.13 **4 Claims**



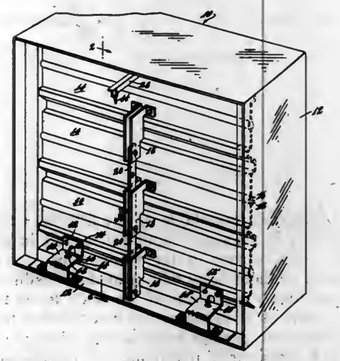
A body of loose discrete particles of plant growth material is disposed between two spaced porous members and an adhesive or binder means extends around the sides of the material to hold it in place. A plurality of such bodies may be interconnected wherein the porous members at one side of the bodies comprise portions of a single sheet of material. A plurality of bodies of self-supporting plant growth material are also provided and include filamentary binder means. These self-supporting bodies may be secured in fixed spaced relationship to a sheet of material. This latter sheet of material may be folded upon itself and sandwiched between adjacent bodies.

3,543,439
FIRE DAMPERS
Frederick William Pantland, 120 Marsden Road, West Ryde, New South Wales, Australia
Filed Oct. 7, 1968, Ser. No. 765,324
Int. Cl. E05f *15/20*
U.S. Cl. 49—7 **16 Claims**



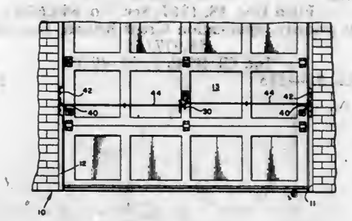
Dampers in air-conditioning or other ducts are held open by a thermo-responsive device which operates to close the damper under the influence of an elevated temperature. When the damper closes, its blades overlap the surrounding frame, thereby eliminating the peripheral space normally left between the blades and that frame. This prevents jamming of the blades and also provides a complete peripheral seal. The blade bearings are protected against grit or corrosion by being immersed in wax which normally holds them rigid but which melts under elevated temperatures and permits the necessary movement for closure of the blades.

3,543,440
FIRE DAMPER
John C. Kurz, 8933 Krewstown Road, Philadelphia, Pa. 19115
Filed Feb. 6, 1969, Ser. No. 797,015
Int. Cl. E05f *15/20*
U.S. Cl. 49—7 **2 Claims**



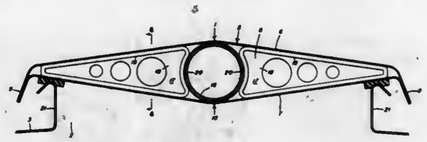
A multi-blade fire damper including spring clip means to secure the damper blade in closed position and means to easily depress the spring clip means to thereby disengage the blade when it is desired to again open the fire damper.

3,543,441
VERTICALLY SLIDABLE DOOR
Gordon La Porte, Lakeside School, Spring Valley, N.Y. 10977
Filed Feb. 20, 1969, Ser. No. 800,938
Int. Cl. E05d *13/06*; E06b *7/232*
U.S. Cl. 49—450 **6 Claims**



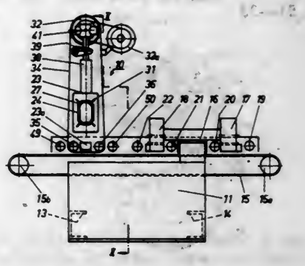
A vertically movable exterior door for a building such as a garage, etc., is provided with a metal channel member or strip having a V-shaped cross section fixed to its bottom rail to displace loose or hard snow, ice or stones on the floor surface in the entrance, so the door may be closed with snow on the ground. The metal strip may be adjusted to the angle made by the floor surface with the door guide tracks or door frame. A latch mechanism has a plurality or engaging elements fixed on the building at the side of the door and vertically spaced so the door may be latched when the lower edge is prevented from engaging the floor surface by ice or hard snow.

3,543,442
REINFORCED FIBER GLASS HATCH COVER
Orville Ingram and Walter L. Floehr, Toledo, Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 20, 1968, Ser. No. 785,570
Int. Cl. E06b *3/00*
U.S. Cl. 49—501 **11 Claims**



A hollow fiber glass hatch cover for a roof hatch of a covered railway hopper car formed of upper and lower fiber glass panels internally reinforced longitudinally by a center, longitudinally extending fiber glass tube and laterally by longitudinally spaced pairs of laterally extending fiber glass ribs bonded to the panel and embracing the central tube, with end blocks fitting in and bonded to the ends of the tube providing internal end stiffening.

3,543,443
MACHINE FOR GRINDING LARGE-AREA WORKPIECES
Karl Heesemann, 54 Friedenstrasse, Bad Oeynhausen-Rehme, Germany
Filed Nov. 13, 1967, Ser. No. 682,270
Claims priority, application Austria, Nov. 11, 1966, A 10,443/66
Int. Cl. B24b *7/00, 9/00, 21/00*
U.S. Cl. 51—3 **24 Claims**

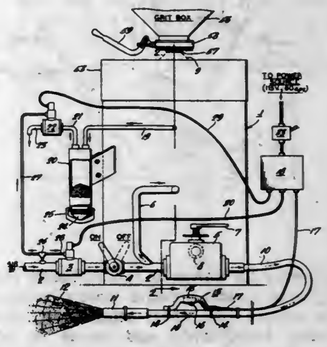


A machine for automatically providing fine and subsequent very fine grinding of large plate-like workpieces is disclosed. A plurality of grinding assemblies are mounted on a frame structure. A conveyor means is provided to transport the workpieces sequentially below the grinding assemblies. At least one of the grinding assemblies provides transverse grinding of the workpiece. At least one of the grinding assemblies provides longitudinal grinding of the workpiece. A means is provided to effect periodic back and forth movement of the longitudinal grinding assembly transversely to the direction of movement of the workpieces.

ERRATUM

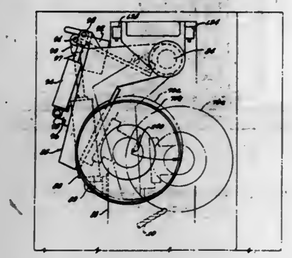
For Class 51—7 see:
Patent No. 3,544,292

3,543,444
ABRASIVE BLASTING SYSTEM
Kirit T. Mehta, Ahmedabad, India, assignor to Sun Shipbuilding & Dry Dock Company, Chester, Pa., a corporation of Pennsylvania
Filed Apr. 25, 1968, Ser. No. 724,192
Int. Cl. B24c *3/06*
U.S. Cl. 51—8 **10 Claims**



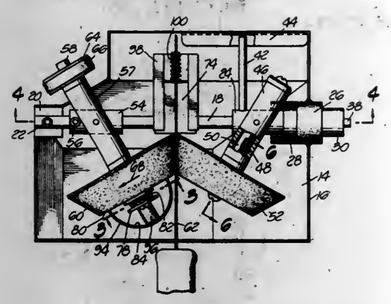
In an abrasive blasting system, the high pressure air valve and the exhaust valve are electrically controlled, the electrical switch for these valves being located at the nozzle end of the blasting hose and being spring loaded to "off" position. This provides a "deadman" control system which operates to cause direct cutoff of the blasting if the switch is not manually held closed. Means are provided for automatically refilling the pressurized, abrasive-containing tank when blasting stops.

3,543,445
APPARATUS FOR GRINDING DRILLS
Ernst Borchert III, Pomona, and John Robert Southland, Arcadia, Calif., assignors to Winslow Product Engineering Corporation, Arcadia, Calif., a corporation of California
Filed Apr. 14, 1967, Ser. No. 630,885
Int. Cl. B24b 7/02
U.S. Cl. 51—33 20 Claims



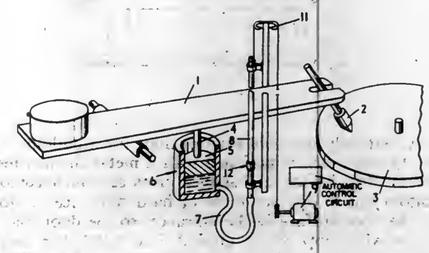
Precision grinding apparatus for "splitting" the point of a twist drill to produce secondary cutting edges, thereby improving the drilling efficiency and accuracy of the drill, especially in harder metals. A grinding wheel sweeps progressively across a drill oriented in a drill holder that automatically rotates the drill 180° to grind both flutes equally and evenly using a grinding wheel having a frusto-conical grinding surface.

3,543,446
BLADE SHARPENER
Jerome J. Kilian, 7003 Magda Drive, Minneapolis, Minn. 55428
Filed June 21, 1968, Ser. No. 739,073
Int. Cl. B24b 9/00
U.S. Cl. 51—80 2 Claims



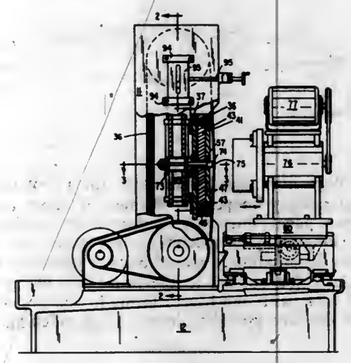
A sharpener for knives or similar blades comprising a pair of frusto-conical abrasive wheels having their side walls in contact, one wheel being freely rotatable, the other wheel being driven and having its side wall in frictional driving contact with the side wall of the other wheel, one of the abrasive wheels being mounted for movement toward and away from the other in a direction normal to a plane commonly tangent to the side walls of the two wheels, the wheels being biased together to maintain frictional drive contact and a proper sharpening bight; means for supporting and guiding the movable wheel toward and away from the other; means for providing lubricant to the grinding surfaces of the wheels; means for absorbing excess lubricant, and means providing a shield for the lubricant absorber and also a stop abutment for blades being sharpened.

3,543,447
APPARATUS TO CONTROL GRAVITATIONAL MOVEMENT OF A GEM STONE POLISHING TANG TOWARDS A STONE POLISHING SURFACE
Alec Leibowitz, London, England, assignor to Spectrum Diamonds (Proprietary) Limited, Johannesburg, Transvaal, Republic of South Africa, a company of South Africa
Filed Dec. 18, 1967, Ser. No. 691,618
Claims priority, application Great Britain, Dec. 20, 1966, 56,977/66
Int. Cl. B24b 7/00, 49/00
U.S. Cl. 51—125 5 Claims



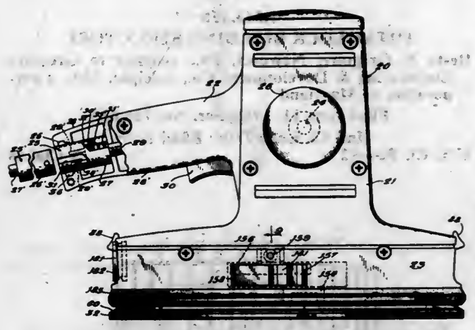
A gem stone polishing machine is provided with a tang whose movements towards a polishing surface are cushioned by a liquid dashpot which communicates with an upstanding tube, with the vertical positioning thereof being automatically varied to adjust the position of balance of the dashpot.

3,543,448
BELT-PLATEN ABRADING MACHINE
Robert L. Schaller, Camillus, N.Y., assignor to Sundstrand Engelberg, Inc., a corporation of Delaware
Filed Oct. 16, 1968, Ser. No. 768,022
Int. Cl. B24b 21/12
U.S. Cl. 51—148 8 Claims



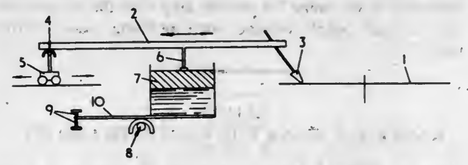
An abrading machine employing an endless abrading belt and having a platen for backing up a run of the belt. The platen and the belt tensioning mechanism are mounted in the machine framework in such manner that stresses developed by the tensioning mechanism are not transmitted to the platen. There is also included means operable to extend a small area of the abrading belt forwardly from the face of the platen for rapid rough grinding operation.

3,543,449
DUAL MOTION SURFACE-DRESSING MACHINE
William H. Scott, Glen Ellyn, and Earl F. Smith, Lombard, Ill., assignors to G. W. Murphy Industries, Inc., a corporation of Texas
Original application Jan. 11, 1965, Ser. No. 424,715, now Patent No. 3,375,616. Divided and this application Nov. 28, 1967, Ser. No. 686,065
Int. Cl. B24b 23/00
U.S. Cl. 51—170 3 Claims



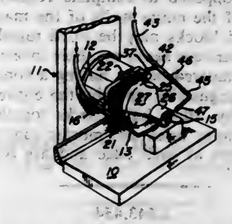
A surface-dressing machine is provided which has an externally actuated member for converting the motion of the surface-dressing member from reciprocating motion to orbital motion. The machine also has externally actuated members for locking or unlocking the sand paper or the like to the machine. The housing is designed in relation to the surface-dressing platen that suction inside the housing will draw dust into and through the housing. A means is provided between the driving means and the surface-dressing platen for reducing the ill-effects of misalignment of the drive pin therebetween. A novel mechanism is provided for converting the rotary motion of the driving means to either reciprocating motion or orbital motion of the surface-dressing member.

3,543,450
APPARATUS FOR CONTROLLING RECIPROCATORY MOVEMENT OF A GEM STONE ACROSS A POLISHING SURFACE
Alec Leibowitz, London, England, assignor to Spectrum Diamonds (Proprietary) Limited, Johannesburg, Transvaal, Republic of South Africa, a company of South Africa
Filed Dec. 18, 1967, Ser. No. 691,617
Claims priority, application Great Britain, Dec. 20, 1966, 56,976/66
Int. Cl. B24b 19/00, 7/00
U.S. Cl. 51—229 5 Claims



A gem stone polishing machine has a tang pivoted at its rear about a horizontal axis, means for reciprocating the tang lengthwise across a polishing surface and a system for accurately aligning the plane of reciprocation of the tang with the plane of the polishing surface in which a follower depends from the tang and is adapted to reciprocate over a guide surface whose inclination can be adjusted.

3,543,451
ACCESSORY FOR MACHINE TOOLS
Robert E. Smith, Dayton, Ohio, assignor to Day/ton Progress Corporation, Dayton, Ohio, a corporation of Ohio
Filed Oct. 26, 1967, Ser. No. 678,323
Int. Cl. B24b 55/02, 55/04
U.S. Cl. 51—267 15 Claims

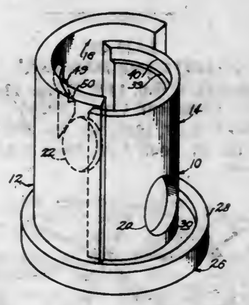


A machine tool attachment comprising a tool guard member displaceable in plural senses for flexibility of use and application and incorporating, in a preferred embodiment, coolant spray nozzles which are adjustable in conformance to and in correspondence with changing positions or the variable configuration of the related tool guard.

3,543,452
FINISHING PROCESS FOR METALLIC SURFACES
Charles J. Guenther, Mankato, Minn., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
No Drawing. Filed Mar. 1, 1968, Ser. No. 709,790
Int. Cl. B24b 1/00
U.S. Cl. 51—313 9 Claims

A method for improving surface smoothness of a surface having particles of a hard, wear resistant substance embedded in a metal matrix involving a minimum of matrix particle removal. Parts to be finished are tumbled or vibrated in an aggressive media in the presence of a liquid containing a wetting agent.

3,543,453
SANITARY SEWER MANHOLES
Gene P. Wright, Blue Springs Mobile Home Park A–6, Kennesaw, Ga. 30144
Filed Apr. 4, 1969, Ser. No. 813,551
Int. Cl. E02d 29/12
U.S. Cl. 52—20 8 Claims



An improved method of construction of sanitary sewer manholes to eliminate brick construction and to substitute pre-cast pieces which are basic in form and may be fitted and adjusted to several different situations. One wall piece is a pre-cast concrete wall section which is arcuate in formation and a second smaller, wall piece to be fitted therein is also a pre-cast concrete wall section of arcuate construction but small enough in size so that at least part of the smaller wall fits into the larger wall

for adjustment. Each wall section has a hole therein, one of which is for the input and the other for the output into which the input pipe and the output pipe of the sewer invert are to be located by means of which the sewage passes through the manhole. Thus, the angle of bend may be varied by adjusting one section with respect to the other as opposed to complete constructions from brick or block of the entire walls of the manhole.

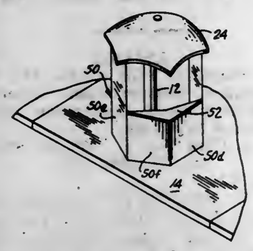
Special shaped blocks may be fitted together to make the bend in the sanitary sewer manhole invert, comprising open individual tapered blocks having a concave interior and varying in angularity whereby the entire invert may be constructed by fitting said blocks together to avoid the usual concrete or brick and mortar construction. The blocks are tapered at each edge and are wedge-shaped.

3,543,454

KIOSK,

Alex Danin, 1080 Mamaroneck Ave., White Plains, N.Y. 10605

Filed Aug. 15, 1968, Ser. No. 752,916
Int. Cl. E04g 1/343; E04h 1/12
U.S. Cl. 52—36 **7 Claims**



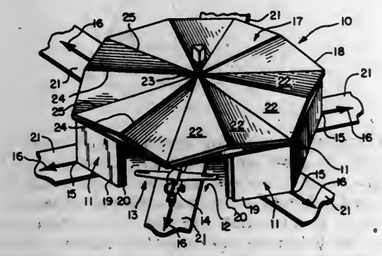
A kiosk capable of fulfilling a multiplicity of purposes such as providing protection at a bus stop or the like, forming an enclosure from which articles may be sold, providing areas from which advertisements may be displayed, etc. The kiosk has a central column carried by and extending upwardly from a suitable support such as a sidewalk. This column carries at its top end a roof which extends outwardly in all directions beyond the column. A plurality of panels extend downwardly from the roof and each panel is carried at least in part by the roof.

3,543,455

AIRPLANE HANGAR

James H. Walsh, 1442 Sharpe Place, Longmont, Colo. 80501

Filed Feb. 17, 1969, Ser. No. 800,008
Int. Cl. E04b 7/00; E04h 6/44
U.S. Cl. 52—64 **2 Claims**



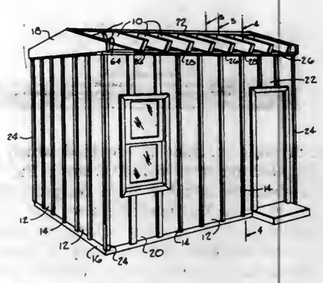
An airplane hangar has its walls arranged to define a hexagon. Moreover, the walls are composed of sliding doors so that adjacent doorways may be opened in a pair of adjacent walls to define an opening that permits ingress and egress of an airplane across one corner of the hexagonal area. Also shown are other overall hangar shapes made up of individual modules each of which are similar to the different individual modules that make up the aforedescribed hexagonal hangar.

3,543,456

TOTAL LOCK BUILDING STRUCTURE

Resta S. Gregoire, Newport, Pa., assignor to Gregoire Engineering & Development Co., Adelphi, Md., a corporation of Maryland

Filed June 11, 1968, Ser. No. 736,065
Int. Cl. E04b 7/06; E04d 1/36
U.S. Cl. 52—92 **3 Claims**



This novel building structure is such that its base frame forms a continuous interlock edge with the lower ends of the wall panels which have the side edges of each pair of adjacent panels adapted to form an interlocking joint extending the full length of the panels, the upper ends of the wall panels being interlocked with the eave ends of the roof panels which have the side edges of each adjacent pair of panels similarly interlocked, and extend across the width of the structure, the side edges of the roof panels at the ends of the structure being interlocked with complementary interlock edges provided at the top of the end wall panels; and for the larger roof spans one or more trusses may be interlocked with the roof panels to provide support therefor between the side walls at spaced intervals between the end walls. For gable roof structures, a gable ridge beam may further be provided and its ends interlockingly mounted in the tops of the roof end wall panels, with a ridge cap member locked over the top of the beam and providing axial grooves on each side of the ridge for interlocking with the upper ends of the roof panels on the corresponding sides of the roof.

3,543,457

KNOCKOUT LINER FOR CONCRETE UTILITY VAULTS

Oscar A. Budlong, Santa Ana, Calif., assignor to Brooks Products, Inc., El Monte, Calif., a corporation of California

Filed Jan. 28, 1969, Ser. No. 794,544
Int. Cl. E02d 29/12; E06b 1/56
U.S. Cl. 52—100 **5 Claims**

A liner intended to fit within a knockout formed in a wall of an underground concrete vault; the liner comprising flanged telescoping sleeves, the flanges of which bear against the walls bordering the knockout, and the outer-sleeve extending outwardly to receive a conduit, whereby the conduit and the linear form a duct to receive utility cables.

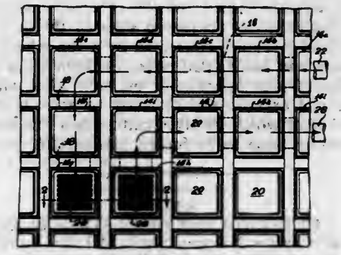


3,543,458

MONOLITHIC FLOOR STRUCTURE WITH AIR PASSAGES

Kenneth E. Guritz, 570 Emerald Harbor Drive, Sarasota, Fla. 33577

Filed Dec. 27, 1967, Ser. No. 693,800
Int. Cl. E04b 1/16; E04f 17/04
U.S. Cl. 52—127 **12 Claims**



A pan-type concrete floor construction wherein the joists thereof define a plurality of upward extending cavities. Openings of substantial area are placed at selected locations in the joists to provide passages for building services within the normal thickness of the floor. Where heating, ventilation and air conditioning are provided by forced air, the bottoms of selected cavities are provided with closures, diffusers and collectors as required. The method of forming a pan-type floor having such integral service passages is described.

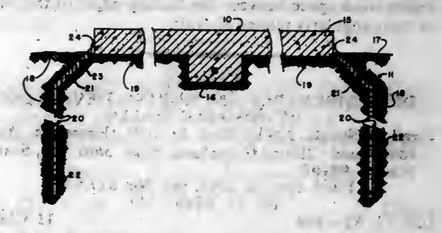
3,543,459

METHOD AND MEANS FOR STABILIZING CONCRETE SLAB STRUCTURES

George C. Mills, 2715 Regent St., Shreveport, La. 71109

Filed Sept. 5, 1968, Ser. No. 757,570
Int. Cl. E02d 27/32, 27/52
U.S. Cl. 52—169 **10 Claims**

A method and means for treating slab foundations or structures to prevent cracking as a result of drying or moisture accumulation in clay soil on which the structures are constructed, comprising installing a circumferential or peripheral damming skirt normally spaced outwardly at or just beyond the peripheral limits of the structure and



extending downwardly into the earth below the surface moisture level and root level of vegetation adjacent the structure.

3,543,460

FIRE-RESISTANT COMPOSITE ELEMENTS CONTAINING INTERNAL LAYERS OF EXPANDED PLASTICS

Fritz Stastny, Ludwigshafen, Rudolf Breu, Lambsheim, and Udo Haardt, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Feb. 17, 1969, Ser. No. 799,861
Claims priority, application Germany, Feb. 22, 1968, 1,658,806
Int. Cl. E04c 2/04, 2/28
U.S. Cl. 52—232 **3 Claims**



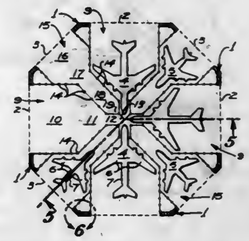
A fire-resistant composite element consisting of a centrally arranged water-containing alkali metal silicate sheet to each side of which an organic expanded plastics layer is applied which in turn is covered by an incombustable outer layer. At least two of the lateral faces are likewise covered with an incombustible material which also serves as a spacer for the incombustible outer layers and positions the alkali metal silicate sheet. A key which engages the composite element permits two or more such elements to be combined.

3,543,461

HANGAR FOR SWEPT-WING AIRCRAFT

Lawrence W. Davidson, North Hollywood, Calif. (3518 Cahuenga Blvd. W., Los Angeles, Calif. 90028)

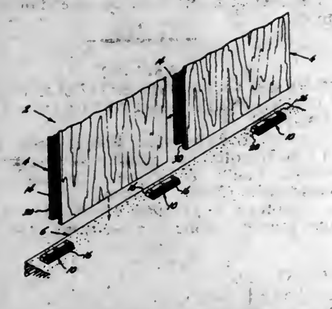
Filed Jan. 29, 1969, Ser. No. 794,940
Int. Cl. E04h 6/44
U.S. Cl. 52—237 **8 Claims**



An aircraft hangar having right angularly related aircraft stalls terminating in V-shaped inner ends in approximate parallelism with the leading edges of swept-wing

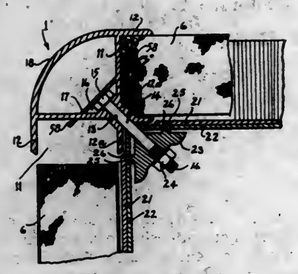
aircraft and defining accommodation openings for the forward ends of the aircraft fuselages, the hangar providing work space between the leading edges of the wings of right-angularly related aircraft.

3,543,462
DISMEMBERABLE ANCHORING DEVICE FOR REMOVABLE WALLS
Virgil E. Spratt, 22931 92nd Ave. W., Edmonds, Wash. 98020, and Clifford C. Jackson, 5028 36th NE., Seattle, Wash. 98105
Filed Apr. 17, 1969, Ser. No. 817,032
Int. Cl. E04b 1/40
U.S. Cl. 52—264 11 Claims



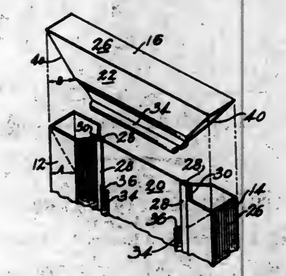
A dismemberable device is disclosed for anchoring a removable, bottom-recessed wall to a base. The device comprises three elongated, parallelly juxtaposed members whose mutually opposing lateral surfaces are abutted and adhesively bonded to one another, to form a unitary strip which is anchorable to the base; and means on the two relatively outside strip members whereby the recessed bottom of the wall can be jam locked onto the strip from above, yet the intermediate of the three strip members can be relatively longitudinally displaced from between the outside members when the wall is to be removed.

3,543,463
BUILDING CORNER CONSTRUCTION
Henry Cannon, 126 Dean Swift Road, Ballymun, Dublin, Ireland
Filed Mar. 18, 1968, Ser. No. 713,914
Claims priority, application Ireland, Mar. 16, 1967, 286/67
Int. Cl. E04b 1/40
U.S. Cl. 52—282 1 Claim



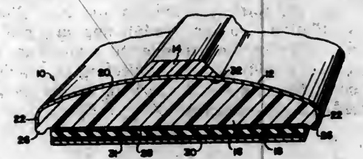
A building construction having a plurality of spaced apart wall and roof support members defining channels for receiving and supporting wall and roof panels, each support member having two or more channels disposed at angles of 90° or 180° towards one another depending upon whether the support members are positioned where wall or roof panels meet at right angles at corners of the building construction or whether the support members are located between corners of the building.

3,543,464
DOOR HAVING MITERED JOINT APPEARANCE
Lloyd S. Taylor, 3116 Maple Drive NE., P.O. Box 12444, Atlanta, Ga. 30305
Filed Mar. 24, 1966, Ser. No. 537,105
Int. Cl. E04c 2/38; E06b 3/72
U.S. Cl. 52—475 5 Claims



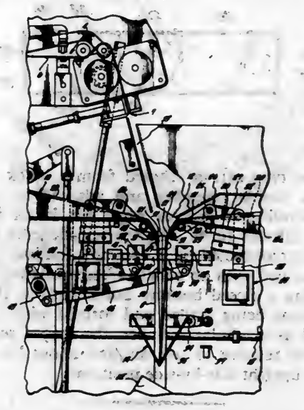
A door having a mitered joint appearance whereby only one of the members at the intersection of a mitered joint is actually angled and the other is concealed from view. The ends of two spaced sides of the door such as the vertical stiles are concealed by a top which fits over said ends and has angled edges on both sides that give the mitered joint appearance on both sides without the trouble and expense and difficulty of actually making a mitered joint which involves cutting two matching edges and causing same to be forced into careful engagement.

3,543,465
EXTERIOR MOLDING STRUCTURE
Norman Charles Jackson, Sheffield Lake, Lorain, Ohio, assignor to The Standard Products Company, Cleveland, Ohio, a corporation of Ohio
Filed June 6, 1968, Ser. No. 734,907
Int. Cl. B60r 13/02
U.S. Cl. 52—716 6 Claims



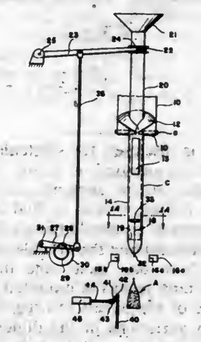
An exterior molding for automobiles having a channel shaped metallic member filled with vinyl material and a vinyl bumper secured to the outer surface of the channel. Adhesive tape is employed to secure the molding to the supporting surface. The surfaces of the channel are selectively primed and vinyl material is extruded directly on to the surfaces of the channel and removed from the un-primed surfaces.

3,543,466
METHOD AND APPARATUS FOR OPENING, FILLING AND CLOSING OF BAGS
Karl Viking Forsberg, Alvsjo, Sweden, assignor to Avery Products Corporation, San Marino, Calif., a corporation of California
Filed Nov. 25, 1968, Ser. No. 778,419
Claims priority, application Sweden, Nov. 28, 1967, 16,331/67
Int. Cl. B65b 61/14
U.S. Cl. 53—14 9 Claims



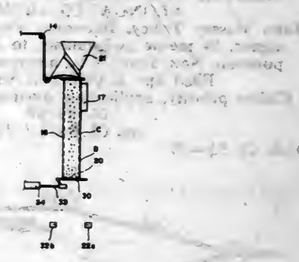
Plastic hose is cut into sections of desired height, and each section is sealed at the bottom to form a bag. The bag is held in a flat upright position while strips of pressure-sensitive labels are fed to both sides of the bag on two carrier bands. Labels are glued to opposite sides of the bag at its upper end, with portions of the labels projecting above the opening end of the bag. The bag is then opened by using the projecting portions of the labels to pull the opposite sides of the bag apart. The bag is filled, and the projecting portions are released from their carrier bands and pressed against each other above the bag opening so as to close the bag.

3,543,467
METHOD AND APPARATUS FOR PACKAGING WITH A MOVABLE MANDREL
William C. Leasure, Houston, Tex., assignor to Mira-Pak, Inc., Houston, Tex.
Filed Dec. 19, 1967, Ser. No. 691,762
Int. Cl. B65b 9/00, 5/30
U.S. Cl. 53—28 12 Claims



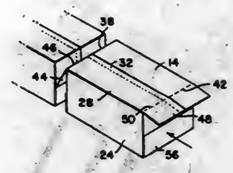
A method and an apparatus for packaging including a mandrel movable within a tubular length of material (a) for assisting in forming an additional length of tubular material from a former and (b) for assisting in flattening the end of the tubular length of material remote from the former.

3,543,468
METHOD AND APPARATUS FOR PACKAGING WITH STATIONARY INNER MANDREL FOR FORMING FLAT BOTTOM PACKAGE
William C. Leasure, Houston, Tex., assignor to Mira-Pak, Inc., Houston, Tex.
Filed Dec. 19, 1967, Ser. No. 691,870
Int. Cl. B65b 9/00
U.S. Cl. 53—28 17 Claims



A method and apparatus for forming a flat bottom package on form fill and seal packaging machinery having a former which shapes strip packaging film into tubular shape and reciprocates vertically with respect to a pair of stationary sealing jaws. A stationary mandrel extends through the former into the tubular formed packaging film and the movement of the former draws the sealed end of the film against the bottom of the mandrel to flatten the sealed end. An external platen may be provided to further shape the package bottom by folding the transverse end seal against the bottom.

3,543,469
PACKAGING APPARATUS
John E. Ullman, Huntingdon Valley, Pa., assignor to Huntingdon Industries Incorporated, Bethayres, Pa., a corporation of Pennsylvania
Original application Apr. 25, 1966, Ser. No. 544,738, now Patent No. 3,397,509, dated Aug. 20, 1968. Divided and this application May 22, 1968, Ser. No. 731,242
Int. Cl. B65b 43/10, 47/04, 51/14
U.S. Cl. 53—29 4 Claims



A method of forming an end-closing case comprising the steps of applying adhesive to the bottom flaps, folding the side panels at right angles to the bottom panel, folding the side flaps at right angles to the side panels, folding the bottom flaps at right angles to the bottom panel, pressing the side and bottom flaps together to adhesively seal them, folding the top panels outwardly from the case, filling the case, applying adhesive to a top panel and to the top flaps, folding the top panels over so that

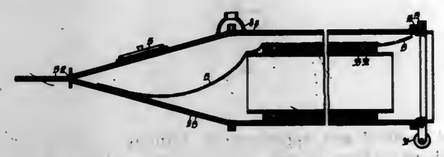
the manufacturer's flap laps said top panel, pressing the manufacturer's flap and said top panel together to adhesively seal them, folding the top flaps down, and pressing the top flaps and the side flaps together to adhesively seal them.

In another embodiment of the invention, one of the top panels comprises a manufacturer's flap, and the method steps include folding the manufacturer's flap at right angles to the side panels so that it laps the top panel, and pressing the top panel and manufacturer's flap together to adhesively seal them.

3,543,470
METHOD AND APPARATUS FOR WRAPPING ELONGATED ARTICLES

John Massey Trihey, Burwood, Victoria, Australia, assignor, by mesne assignments, to Johns-Manville Corporation, New York, N.Y., a corporation of New York

Filed Apr. 8, 1968, Ser. No. 719,530
Claims priority, application Australia, Apr. 10, 1967, 20,109/67
Int. Cl. B65b *1/16*
U.S. Cl. 53—30 11 Claims

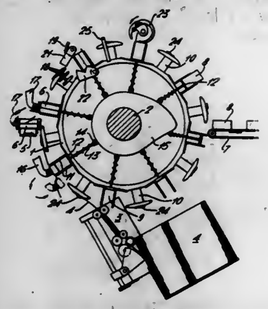


Elongated articles such as lengths of ducting are wrapped in tubing of expandible material such as polyethylene by expanding the tube within a vaccum chamber, inserting the article and then releasing the vacuum to allow the tube to relax onto the article.

3,543,471
PACKAGING

Derek Henry Youngman, Maitland, Cape Province, Republic of South Africa, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain

Filed Oct. 10, 1968, Ser. No. 766,403
Claims priority, application Great Britain, Oct. 17, 1967, 47,197/67
Int. Cl. B65b *11/36*
U.S. Cl. 53—32 6 Claims

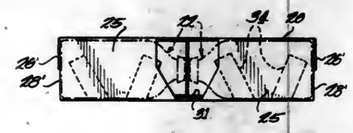


A rotary boxer for packaging batches of cigarette packets comprises a rotary drum with peripheral pockets to which successive blanks are fed; the blanks are first partially plunged into the pockets, and then plunged entirely into the pockets by pushing batches of packets into the partly-formed blanks, which help to guide the batches into the pockets.

3,543,472
BASKET TYPE CARRIER, BLANK THEREFOR AND METHOD OF LOADING THE CARRIER

Robert J. Hickin, Seville, Ohio, assignor to Packaging Corporation of America, Evanston, Ill., a corporation of Delaware

Filed Feb. 23, 1968, Ser. No. 707,782
Int. Cl. B65b *21/14*
U.S. Cl. 53—35 5 Claims

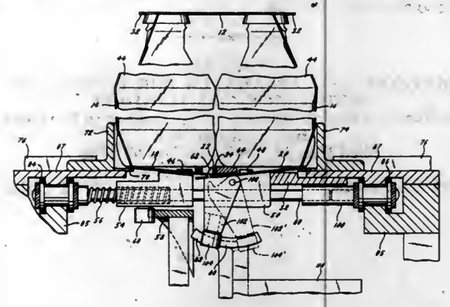


A basket type carrier formed from a blank prefolded to form a tubular member and adapted to be loaded with a plurality of articles while the blank is in said prefolded tubular form. The carrier includes a pair of sections interconnected by a common foldline. Each section is provided with an article-accommodating compartment having a closed bottom. Subsequent to the section compartments being loaded and formed while the blank is retained as a tubular member, the loaded sections are then moved relative to one another about the common foldline to upright side-by-side positions.

3,543,473
APPARATUS FOR TIGHTENING AND LOCKING WRAP-AROUND CARTONS

Carl P. Cato, Lynchburg, Va., assignor to Dacam Corporation, Lynchburg, Va., a corporation of Virginia

Original application May 10, 1966, Ser. No. 548,972, now Patent No. 3,410,397. Divided and this application Dec. 26, 1967, Ser. No. 708,466
Int. Cl. B65b *11/10*
U.S. Cl. 53—48 13 Claims

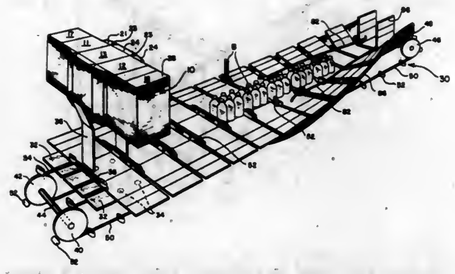


An apparatus is disclosed for tightening and locking a wrap-around carton around a group of articles. The apparatus includes article support means with a fixed blade extension, folding means to fold a pair of closure panels of the carton in an overlapping relationship, means to tighten the panels around the articles, and a lock former to form a tab from one panel and through the other panel. The tightening means is mounted to apply a yieldable force to one of the panels to urge the closure panels together wherein variations in the dimensions of the articles is compensated for, and the lock former thereafter mates with the fixed blade of the article support to lock the panels together.

3,543,474
GUSSET FORMING MACHINE

William C. Hasselo, Berwyn, Pa., and Wendell E. Standley, Lake Forest, Ill., assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed Aug. 26, 1968, Ser. No. 755,168
Int. Cl. B65b *21/04, 21/24*
U.S. Cl. 53—48 10 Claims



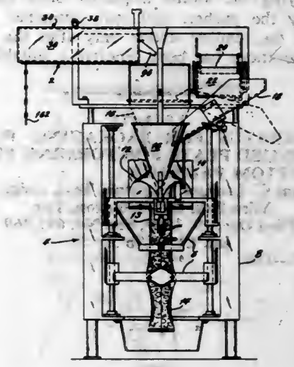
A machine for forming, from a blank of foldable paperboard, a carrier carton having at least one gusset, the blank being cut and scored to provide a carton having opposed pairs of top and bottom main walls and side walls hingedly interconnected therebetween. One of the main walls is formed of two sections. The black has a gusset section having first, second and third hingedly interconnected panels, the first panel being hinged to one of the side walls, the third panel being hinged to one of the main walls, and the second panel being hinged to the first and third panels. The machine comprises conveying means for advancing the blank along a predetermined path, loading means operating in timed relationship with the conveying means for placing a selected number of articles, such as cans or bottles, on the blank; folding means located along the path for gradually folding the walls relative to one another thereby forming a partially erected tubular structure open at the ends, gusset forming means located along the bath and operating in timed relationship with the folding means and the conveying means for forming the gusset whereby the first gusset panel is folded inwardly and substantially against the interior surface of the side wall to which it is hinged; and means for completing the erection of the tubular structure thereby forming a gusseted carton.

3,543,475
DISPENSING DEVICE AND PACKAGING MACHINE

Lester E. Moon, St. Louis County, Mo., assignor to Framton Foods, Inc., St. Louis, Mo., a corporation of Missouri

Filed Sept. 30, 1968, Ser. No. 763,749
Int. Cl. B65b *57/06, 57/14, 61/06*
U.S. Cl. 53—55 14 Claims

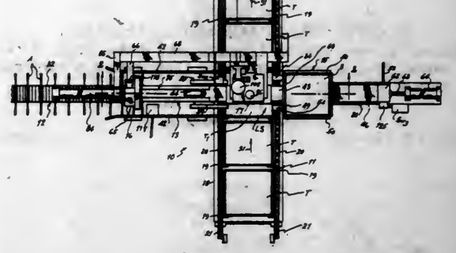
An article dispensing device for attachment to a packaging machine having a shear automatically separating and discharging one article in response to a signal from the packaging machine indicating measurement and discharge of product for packaging, and having control elements automatically advancing sequentially connected articles into position for separating and discharging the next successive article.



3,543,476
SWAB PACKAGING APPARATUS

David B. Jaroff, New York, Donald D. Litt, Scarsdale, and Arnold Weinstein, New York, N.Y., assignors to Custom Swabs, Inc., Long Island City, N.Y., a corporation of New York

Filed Dec. 24, 1968, Ser. No. 786,642
Int. Cl. B65b *19/34, 34/40, 57/20*
U.S. Cl. 53—62 13 Claims



In apparatus for packaging swabs or other elongated articles in upwardly opening containers or trays which are transported intermittently to and from a loading station, a conveyor carries the successive swabs for accumulation on a platform which extends to one side of a container at such loading station at a level above the container, upon the accumulation of a predetermined number of swabs on the platform, a support member is moved from a retracted position at the other side of the path of the containers to an extended position where such support member abuts the platform and, with the support member in its extended position, a pusher is reciprocated from a rest position along the platform to displace the accumulated swabs onto the extended support member, whereupon the support member is returned to its retracted position while the swabs are urged downwardly to form a layer thereof in the underlying container at the loading station. Where two or more layers

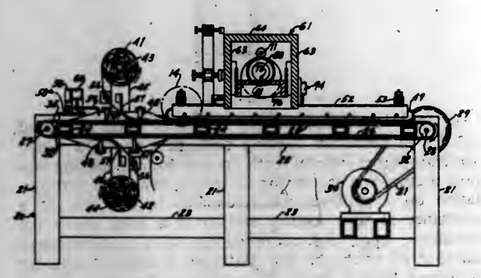
of swabs are to be loaded into each container, the support member may carry a separating sheet from a stack thereof during each movement to its extended position for underlying the swabs displaced onto the support member by the pusher, and each container is moved away from the loading station only after the foregoing cycle of operations has been repeated a suitable number of times.

3,543,477
APPARATUS FOR PACKAGING WITH HINGED PLATE FOR FORMING FLAT BOTTOM PACKAGE
William C. Leasure, Houston, Tex., assignor to Mira-Pak, Inc., Houston, Tex.
Filed Dec. 19, 1967, Ser. No. 691,869
Int. Cl. B65b *51/30*
U.S. Cl. 53—180 7 Claims



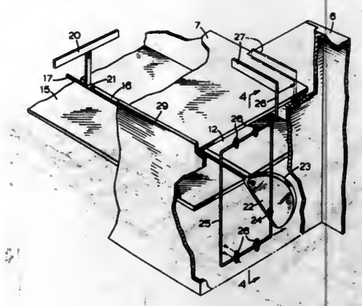
A packaging apparatus for forming a flat bottom package on form, fill and seal packaging machinery including a movable former adapted to form a tubular length of material from a continuous web of material and including an actuating plate positioned within the tubular length of material for cooperating with the former and with a flat exterior platen surface to flatten the end of the tubular length of material remote from the former.

3,543,478
PLASTIC FILM PACKAGING MACHINE
Forrest G. von Brecht, Clayton, and Ryder Pratt, Kirkwood, Mo., assignors to Radec Corporation, a corporation of Michigan
Filed Feb. 14, 1968, Ser. No. 705,411
Int. Cl. B65d *9/12*
U.S. Cl. 53—182 12 Claims



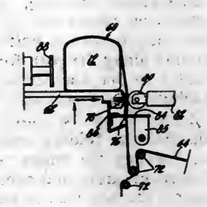
Packing apparatus in which two plastic films are drawn from rolls and conveyed with the products to be packaged between them over a platten by a continuously driven conveyor belt having means for gripping and holding the films along their sides; and in which a slidably mounted heat sealing device travels forward with the conveyor belt as it functions to heat seal the films around a product and then returns to travel forward with a succeeding product.

3,543,479
CARTON DISTRIBUTOR
Kenneth N. Pugsley, 2164 Wedgewood Road, Cooksville, Ontario, Canada
Filed Aug. 23, 1968, Ser. No. 754,909
Int. Cl. B65b *43/26, 67/02*
U.S. Cl. 53—186 10 Claims



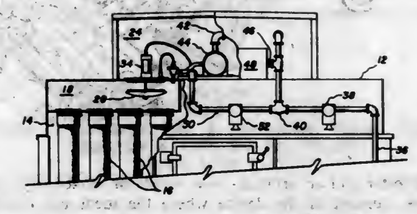
Cartons are stored in collapsed condition in a magazine, from which they are fed one at a time as required to a counter top. The counter top has a first portion to which groceries to be packed are fed, and a second portion to which the cartons are fed, each carton being automatically set up from the collapsed condition as it is delivered.

3,543,480
APPARATUS FOR FORMING BREAD WRAPPER
Richard C. Weeks, Wilton, Conn., assignor to Campbell Soup Company, Camden, N.J., a corporation of New Jersey
Original application Feb. 13, 1968, Ser. No. 705,089, now Patent No. 3,432,310, dated Mar. 11, 1969. Divided and this application Sept. 23, 1968, Ser. No. 761,595
Int. Cl. B65b *11/42*
U.S. Cl. 53—210 3 Claims



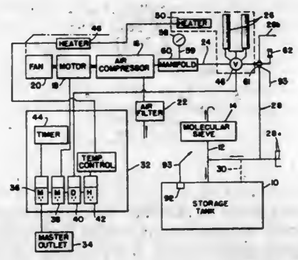
A bread wrapper and a method and apparatus for forming the same characterized by a wrapped, tightly fitting and tightly closed end-tied package which when opened expands at the open end to permit withdrawal and replacement of bread slices but which may be reclosed without affecting the tight wrapping of the loaf. The wrapper is characterized by a fin seal extending longitudinally along the overlapped side edge portions thereof, spaced between the line of overlap and the wrapper side edges. A subsequently formed conventional overlap seal of the overlapped edge portions provides a tightly wrapped package. The combination of the fin seal and overlap seal permits an expansion of the wrapper open end proportional to the spacing of the fin seal from the line of overlap. The present method of forming such a wrapper permits the formation of the essentially bag-shaped wrapper directly on the loaf to insure a tight package. The present apparatus provides a means for carrying out the method by a simple modification of conventional bread wrapping machinery.

3,543,481
HIGH PRESSURE CLEANING OF DUST SEPARATING APPARATUS
Josef Pausch, Hopkins, Minn., assignor to Aerodyne Machinery Corporation, Hopkins, Minn.
Filed Aug. 3, 1967, Ser. No. 658,109
Int. Cl. B01d *46/04*
U.S. Cl. 55—96 3 Claims



A method and apparatus for dislodging dust from a porous filtering surface, embodying the use of high pressure gas emitted from a reservoir in such a manner as to impart a high pressure shock to one or more porous filtering surfaces to dislodge heavily compacted solids therefrom.

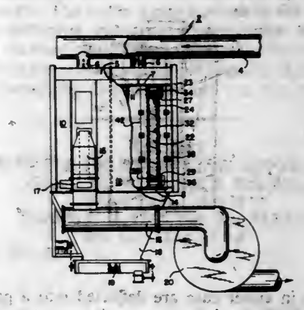
3,543,482
AIR DRIER SYSTEM
Daniel S. Foster, Grosse Pointe, Mich., assignor to W. D. Gale, Inc., Detroit, Mich., a corporation of Michigan
Filed May 1, 1967, Ser. No. 635,252
Int. Cl. B01d *53/02*
U.S. Cl. 55—162 22 Claims



A system for eliminating moisture from air in contact with material stored in a tank comprising moisture absorbing means in the path of air entering the tank to replace withdrawn material, and automatic means for regenerating the moisture absorbing means at regular intervals.

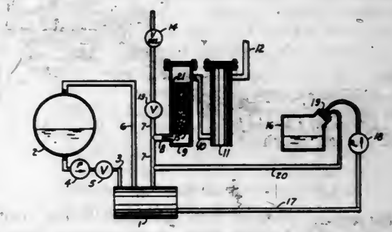
3,543,483
SEPARATOR APPARATUS
John James Sheehan, Berea, Ohio, assignor to Buell Engineering Company, Inc., Lebanon, Pa., a corporation of Delaware
Filed July 6, 1967, Ser. No. 651,441
Int. Cl. B01d *46/04*
U.S. Cl. 55—272 14 Claims

A dust collecting apparatus for removing solid materials from a gaseous stream including a plurality of collector units with filter members disposed in dust separating and/or collecting communication within the collector units for removing entrained dust from the gaseous stream by deposit thereof on the filter members. Deflection elements are disposed in coacting association with the filter members and with magnetic elements disposed adjacent



the filter members for periodically imparting shaking movement to the filter members for removing collected dust therefrom upon electrical energization of the deflection elements and/or the magnetic elements.

3,543,484
FUEL VAPOR ADSORBING APPARATUS
Edwin R. Davis, 2020 Beverly Plaza 213, Long Beach, Calif. 90815
Filed May 24, 1968, Ser. No. 731,758
Int. Cl. B01d *39/00*
U.S. Cl. 55—387 3 Claims

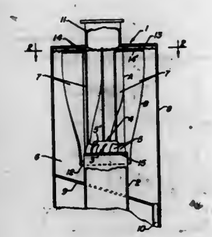


A fuel vapor adsorbing apparatus to prevent emission to the atmosphere of residual fuel vapors from a service station storage tank when such tank is filled. The adsorbing apparatus includes a hydrocarbon adsorbing means having its inlet connected with the upper portion of the storage tank whereby vapors expelled during filling of the storage tank will be passed through the adsorbing means to remove hydrocarbons therefrom to prevent emission to the atmosphere.

3,543,485
CENTRIFUGAL PARTICLE SEPARATOR
Leslie C. Hardison, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,467
Int. Cl. B01d *45/12*; B04c *3/00*
U.S. Cl. 55—398 4 Claims

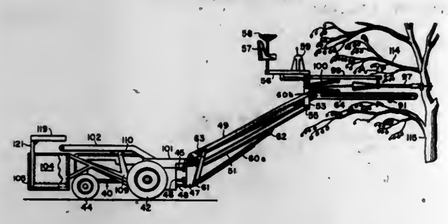
An improved vertically aligned centrifugal particle separator wherein a multiplicity of static vanes extend upward from and are circumferentially fixed around a static spinner. The spinner has a hub and blades and is axially mounted over a particle laden gas inlet. A gas stream

rising from the gas inlet is forced into an ascending spiral by the spinner blades. Relatively dense particles entrained in the gas stream are thrown centrifugally outward and are either passed between static vanes or strike static



vanes, and in either case are deflected into a particle receiving section, which is the space bounded by the outer surfaces of the gas inlet and the static vanes and the inner surface of the centrifugal particle separator.

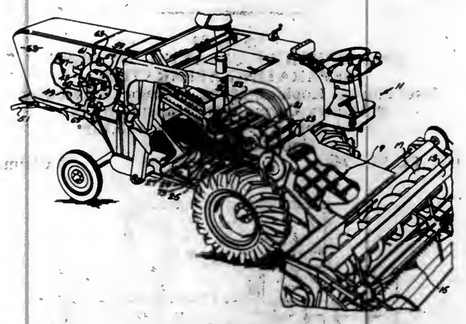
3,543,486
METHOD OF HARVESTING FRUIT
George Rodney Bull, 750 Canada Ave., Bailey, Mich. 49303
Filed May 29, 1967, Ser. No. 641,818
Int. Cl. A01g *19/08*
U.S. Cl. 56—1 3 Claims



A harvesting machine with substantially flat fruit-receivers insertable laterally between branches of trees, the receivers being inclinable to roll fruit shaken from a limb above the receiver onto a conveyor. The machine also has a system for loading the fruit into successive containers submerged in water, with a shiftable conveyor switching from one container to another for continuous operation as the containers are alternately loaded and handled with a special device for positioning them in separate tank compartments. Both the picking and loading mechanisms have articulating conveyors, and the transfer of fruit from one to another is made via a separate central tank on a vehicle, with the loading and the picking structures being on opposite sides for balance.

3,543,487
HARVESTER AND METHOD FOR HARVESTING UTILIZING SONIC ENERGY
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406
Filed Apr. 5, 1968, Ser. No. 719,168
Int. Cl. A01d *41/02*
U.S. Cl. 56—21 8 Claims

A strong high-amplitude sound wave is generated in a conventional harvester to activate the straw passing therethrough with substantial vibratory amplitude to separate the seeds or the grain from the straw. Two separate means for generating the sonic energy can be utilized including a large diaphragm in the main cavity of the



harvester and an orbiting-mass oscillator affixed to a concave element of the device where the seeds are initially separated from the straw.

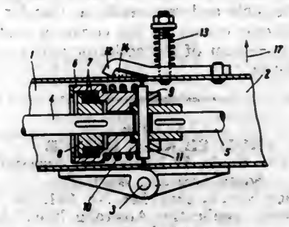
3,543,488
APPARATUS FOR PLANT CROP CURING BY FLAMING
John J. Kowalik, Glenview, Edward Sverelka, Chicago, and Harold G. Meitl, Clarendon Hills, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 17, 1967, Ser. No. 631,360
Int. Cl. A01d *43/10*
U.S. Cl. 56—23 5 Claims

Applying flame to plants in the cutting operation, either immediately before cutting while they are standing, or immediately after cutting, for sweating out the moisture from the plants or conditioning plants to release moisture and destroying pests such as aphids which in recent years have caused serious crop losses and for curing and preserving purposes.

3,543,489
AGRICULTURAL IMPLEMENTS
Martin Maier, Martin Stelzle, and Ludwig Kasberger, Gottmadingen, Germany, assignors to Firma Maschinenfabrik Fahr Aktiengesellschaft, Gottmadingen, Germany, a corporation of Germany
Filed Oct. 15, 1968, Ser. No. 767,623
Claims priority, application Austria, Oct. 20, 1967, A 9,464/67
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 7 Claims

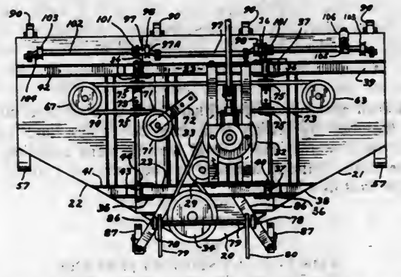
An agricultural implement having a beam carrying rotating tools and projecting to one side of a tractor. A shaft extending along the beam is arranged to be driven by a dog clutch and a friction clutch which is arranged to

transmit power only when the dog clutch is engaged. The beam is furthermore provided with an overload catch so



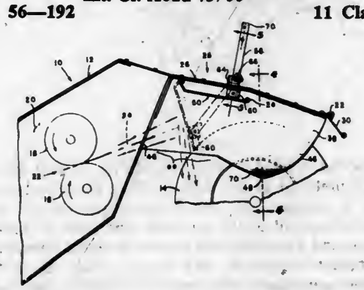
that it may swing back into a trailing position if the beam should strike an obstacle.

3,543,490
FLEXIBLE ROTARY MOWER
Waldo G. Erickson, Rte. 2, Springfield, Minn. 56087
Filed Nov. 8, 1968, Ser. No. 774,474
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 13 Claims



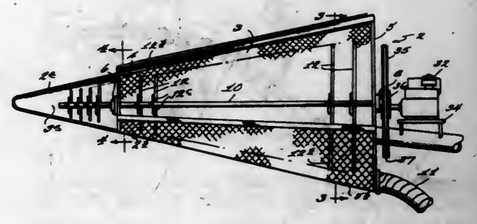
A multiple blade rotary type mower comprising a plurality of sections which have hinged outer portions that permit the mower to mow irregular surfaces. The mower is belt driven, and the belts are made so that as the sections pivot, the belts do not change in length. Further, adjustable guide wheels are provided to set the height of cut of the mower.

3,543,491
WINDROW BAFFLE FOR CROP HARVESTING MACHINES
Henry N. Lausch, Leola, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed June 3, 1968, Ser. No. 734,098
Int. Cl. A01d *43/00*
U.S. Cl. 56—192 11 Claims



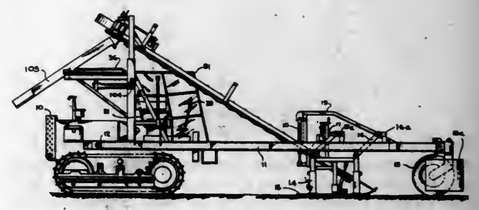
A harvesting machine has a crop deflector for receiving cut crops from a mower-conditioner and forming the cut crops into either a windrow or a swath. The crop deflector comprises an upper panel extending across the width of the machine, two rearwardly converging side panels, a front baffle and a rearward transverse panel cross the end of the top panel. The forward portion of the side panels having recesses to pass cut crops deflected by the baffle to form a swath. The baffle forms a swath in the lower position by deflecting cut crops downwardly between the recessed forward portions of the side panels and passing cut crops in the raised position for forming into a windrow by the converging side panels and the transverse panel.

3,543,492
PORTABLE FRUIT PICKING APPARATUS
Grover C. Nixon, Rte. 2, Box 955, Dover, Fla. 33527
Filed Sept. 5, 1968, Ser. No. 757,535
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 7 Claims



A coniform basket having a large opening in its side for receiving substantial portions of a fruit-bearing tree or bush, including those which are adjacent the longitudinal axis thereof; a rotatable shaft axially disposed in said coniform basket; a series of flexible rodlike fruit-picking teeth secured at one end to said rotatable shaft and projecting outwardly therefrom into proximity with the adjacent portions of the inner surface of said coniform basket and becoming progressively longer in conformity with the tapering of the latter from the smaller to the larger end thereof; a closure member for the larger end of said coniform basket having an opening for the passage therethrough of the fruit which has been picked by said fruit-picking teeth as the same are activated by the rotation of said rotatable shaft.

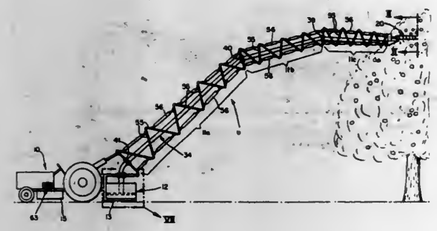
3,543,493
HARVESTING MACHINE
John L. Duda, Jr., Oviedo, Fla., assignor to A. Duda & Sons, Inc., Oviedo, Fla., a corporation of Florida
Filed Apr. 24, 1967, Ser. No. 633,044
Int. Cl. A01d *45/00*
U.S. Cl. 56—327 7 Claims



This invention relates to an improved automatic harvesting machine utilizing vertically adjustable cutoff means for severing plants from the ground, in concert with pickup means for grasping the plants as they are

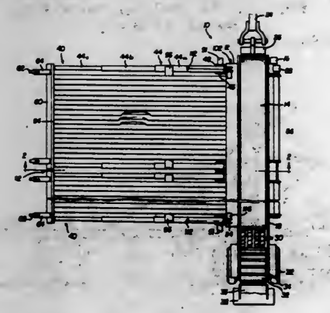
severed, so that they can subsequently be raised to a sufficient height for loading into an adjacent wagon. Such pickup is accomplished by the use of a belt arrangement so designed as to avoid damaging the plants, even though a brittle variety of celery is being harvested. The pickup belt arrangement is of unusual length, so that the severed plants can thereby be raised to the full height necessary for subsequent loading into the accompanying wagon, which loading can be accomplished utilizing gravitational forces and involving only a minimum of handling.

3,543,494
FRUIT PICKER
John H. Bartram, 103 Bartram Lane, West Chester, Pa. 19380
Filed June 8, 1967, Ser. No. 644,553
Int. Cl. A01g 19/08
U.S. Cl. 56—328 9 Claims



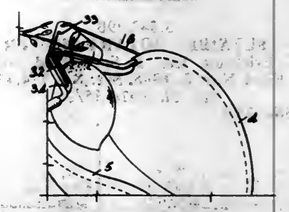
A plurality of closely spaced cylindrical picking fingers having helical rubber ridges thereon and disposed in generally parallel relationship are cantilevered from a drive means for rotating said fingers about their axes. The drive means is attached to a mobile boom for positioning the fingers in a fruit tree to remove the fruit. Once the fruit is removed, it travels down the fingers to a fruit retrieval belt along which it travels to a receiver. Both the fingers, the belt, and the receiver are designed to handle the fruit gently to avoid bruising it.

3,543,495
HARVESTING MECHANISM
John P. Harvey, Grand Haven, Mich., assignor to Harvey Harvesters, Inc., a subsidiary of Koehring Company, Grand Haven, Mich.
Filed Jan. 31, 1969, Ser. No. 795,457
Int. Cl. A01g 19/00
U.S. Cl. 56—329 6 Claims



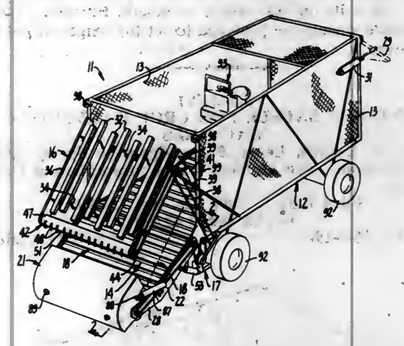
A fruit harvester having a main frame housing, a conveyor with transversely extending collector units extending from the main frame and pivotally connected to the main frame. The collector units each include extensible frame elements and a collector canvas and decelerating strips disposed above the canvas with the strips and canvas being extensible and retractable to transfer the fruit from the collector canvas to the conveyor and also allow pivotal movement of the collector unit to a vertical transport position.

3,543,496
FRUIT PICKING DEVICE
Howard H. Foale, 59 Victoria St., Forestville, South Australia, Australia
Filed Nov. 8, 1967, Ser. No. 681,366
Claims priority, application Australia, Nov. 14, 1966, 13,865/66
Int. Cl. A01g 19/08
U.S. Cl. 56—336 5 Claims



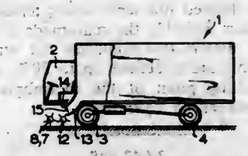
A fruit picking device which has a pivoted fruit engaging member by which fruit can be caught and pulled from their stems, the pivotal arrangement enabling this to be done without damage to the selected fruit or adjacent fruit in a bunch.

3,543,497
FORAGE HANDLING WAGON
Otto Engeler, Orovada, Nev. 89425
Filed Feb. 23, 1968, Ser. No. 707,617
Int. Cl. A01d 87/04
U.S. Cl. 56—345 20 Claims



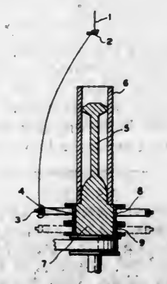
A self-propelled wagon for picking up and discharging forage material in the field, loading from and unloading same to storage, and comminuting the forage, having a longitudinal full width conveyor floor and a combination blower and comminuting beater, a flight conveyor from the beater-blower to the wagon bed, an articulated creeper composed of counteroscillating fingered bars pivoted at the top of the wagon, eccentric tined pickup reels interchangeably mounted on the flight conveyor and the creeper, an adjustable deflecting hood for the beater-blower, an adjustable stop for controlling the degree of comminution, and a fully opening tailgate on the end of the wagon opposite the creeper and flight conveyor.

3,543,498
CROP CARRYING VEHICLE HAVING PLURAL CROP RECEIVING DEVICES
Ernst Welchel, 1, Bahnhofstrasse, 7326 Heiningen, Krels, Goppingen, Germany
Continuation-in-part of application Ser. No. 672,487, Oct. 3, 1967. This application Oct. 6, 1969, Ser. No. 864,028
Claims priority, application Germany, Oct. 4, 1966, W 42,517
Int. Cl. A01d 87/00
U.S. Cl. 56—364 6 Claims



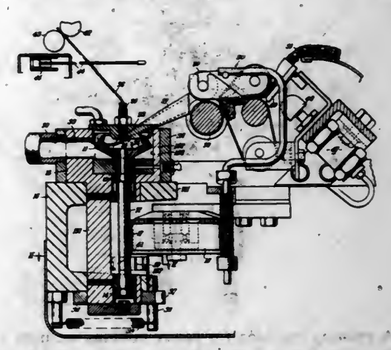
A crop carrying vehicle has a load receiving surface, a loading duct discharging onto the surface and having a width coextensive therewith, a crop receiving device arranged in front of the loading duct and discharging thereinto and conveying means operable in the loading duct to move harvested material along the duct to the load receiving surface. A pair of additional crop receiving devices are mounted on the vehicle and positioned laterally outside the vehicle profile, and each additional crop receiving device discharges harvested material onto a respective transverse conveyor device which discharges into the loading duct. The additional crop receiving devices, with their associated transverse conveyors, are mounted for pivoting, about horizontal and longitudinally extending axis, into retracted positions in which they extend vertically of the crop carrying vehicle.

3,543,499
METHOD OF AND APPARATUS FOR REMOVING WASTE YARN IN A YARN MACHINE
Haruki Takizawa and Masakazu Fujita, Matsuyama-shi, Japan, assignors to Teijin Limited, Osaka, Japan
Filed Dec. 18, 1968, Ser. No. 784,798
Claims priority, application Japan, Dec. 21, 1967, 42/82,290
Int. Cl. D01h 1/38
U.S. Cl. 57—34 3 Claims



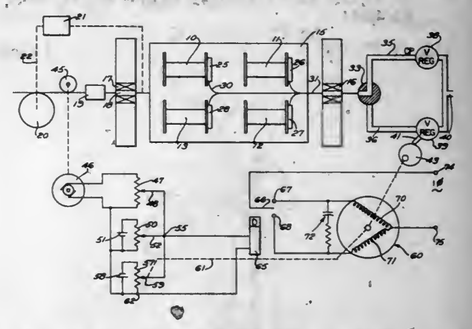
Method and apparatus for removing waste yarn spools from draw-twister apparatus. Two waste yarn spools are placed on the bobbin spindle, and when the upper waste yarn spool is full, the waste yarn is automatically wound on the lower spool until the next time that the bobbin is removed, at which time the waste yarn spools are replaced.

3,543,500
SPINNING OF TEXTILE YARNS
Herbert Bancroft, Queensway, Rochdale, and John M. Shepherd, Edenfield, Ramsbottom, near Bury, England, assignors to T.M.M. (Research) Limited, Oldham, England, a British company
Filed June 3, 1968, Ser. No. 734,028
Claims priority, application Great Britain, June 5, 1967, 25,771/67; June 8, 1967, 26,582/67
Int. Cl. D01h 7/74
U.S. Cl. 57—58.89 15 Claims



A method of removing fibres from the fibre-collecting surface of a spinning rotor in an open-end spinning unit, comprising the steps of stopping the feed of fibres to said spinning rotor and applying or maintaining suction to said spinning rotor as it is stopped or at least reduced in speed to cause a reduction in the centrifugal force acting on fibres remaining on said fibre-collecting surface of said rotor, whereby said fibres are withdrawn from said fibre-collecting surface of said rotor and conveyed from said rotor by said suction.

3,543,501
TENSION CONTROL FOR RIGID STRANDERS
Konrad C. Schillebeeckx, Cranston, R.I., assignor to Wanskuck Company, a corporation of Rhode Island
Filed July 10, 1968, Ser. No. 743,886
Int. Cl. D01h 7/02
U.S. Cl. 57—59 3 Claims



A cable making apparatus having a plurality of reels mounted in a frame which is revolved about an axis as a wire from each of the reels is pulled from each reel and twisted together. Each of the reels is equipped with a brake for tensioning the wire drawn therefrom with a means for adjusting the brake of each reel while it is revolving, the means being capable of adjusting all of the brakes on all of the reels in the frame simultaneously while the frame is revolving with greater tension during stopping.

3,543,502

TWISTING MACHINES FOR HEAVY BOBBINS FOR THE COLLECTION OF TWISTED YARN

Michele Ratti, 21016 Luino, Varese, Italy

Filed July 22, 1968, Ser. No. 746,678
Claims priority, application Italy, Aug. 25, 1967, 19,792/67
Int. Cl. D01h *1/00*; B65h *54/52*
U.S. Cl. 57—62 3 Claims



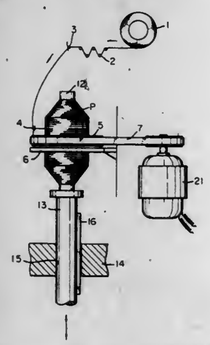
A twisting machine for heavy bobbins includes a dragging roller for each bobbin, the bobbins resting peripherally by gravity against the dragging rollers. Each bobbin is mounted for vertical swinging movement about an axis disposed beneath the bobbin, so that the axis of rotation of the bobbin and the axis of vertical swinging movement of the bobbin define a plane which occupies a more upright position when the bobbin is larger than when the bobbin is smaller. In this way, the heavier the bobbin, the less directly it bears against the dragging roller, so that the pressure exerted by the bobbin on the dragging roller tends to be constant.

3,543,503

APPARATUS FOR WINDING A YARN

Kaname Watabe, Kohei Horimoto, and Masahiro Muramatsu, Ibaragi-shi, and Mamoru Ito, Nishinomiya-shi, Japan, assignors to Teijin Limited, Osaka, Japan, a corporation of Japan

Filed May 21, 1968, Ser. No. 730,863
Claims priority, application Japan, May 26, 1967, 42/33,420; Aug. 4, 1967, 42/50,099; Jan. 25, 1968, 43/4,644
Int. Cl. D01h *7/52*, *7/58*
U.S. Cl. 57—75 1 Claim



Apparatus for winding a yarn package on a stationary bobbin and of the kind in which the yarn is passed through a snail wire to a yarn guide rigidly coupled with a ring which surrounds the axis and which is driven to rotate about the axis so that non-twisted yarn can be obtained when the yarn is left off from the package for certain after-treatment of the yarn.

3,543,504

COMPOSITE TEXTILE YARN

Ronald S. Goy, Sutton Coldfield, England, assignor to The Dunlop Company Limited, London, England, a British company

No Drawing. Filed Aug. 14, 1968, Ser. No. 752,480
Claims priority, application Great Britain, Aug. 25, 1967, 39,139/67
Int. Cl. D02g *3/02*
U.S. Cl. 57—157 16 Claims

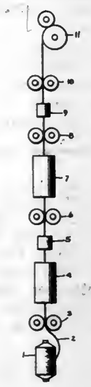
A method of making a textile yarn which comprises twisting together at least one filament of paper and at least one filament of a man-made textile material and subjecting the twisted filaments under tension to a heat-setting operation. Suitably the man-made textile material filaments are drawn thermoplastic flat strips and the twisted filaments are stretched up to 20% at within 50° C. of the melting point of the thermoplastic material during the heat-setting operation.

3,543,505

PROCESS FOR RELAXING INTERNAL TENSIONS OF TEXTURED SYNTHETIC YARNS

Otto Titus Stutz, Wattwil, Switzerland, assignor to Heberlein Patent Corporation, New York, N.Y., a corporation of New York

Filed Feb. 17, 1969, Ser. No. 799,676
Claims priority, application Switzerland, Feb. 20, 1968, 2,394/68
Int. Cl. D02g *1/02*
U.S. Cl. 57—157 6 Claims



Process for relaxing internal tensions of synthetic textile yarns which have been textured by temporary high-twisting and heating while in the high-twisted state, followed by a second heat treatment, wherein the yarns are then temporarily high-twisted in a direction opposite to that of the initial temporary high-twist.

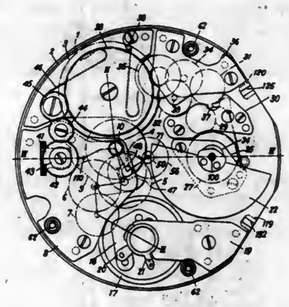
3,543,506

SELF-WINDING WRISTWATCH WITH A CHRONOGRAPH MECHANISM

Gérald Dubois, Le Lieu, and Paul Marmier, Buren an der Aare, Switzerland, assignors to Buren Watch Company S.A., Buren an der Aare, Bern, Switzerland

Filed Aug. 1, 1968, Ser. No. 749,478
Claims priority, application Switzerland, Aug. 8, 1967, 11,134/67
Int. Cl. G01g *13/02*, *13/04*
U.S. Cl. 58—74 9 Claims

The wristwatch movement comprises a spring motor, a gear train and an escapement mechanism mounted between a base-plate and bridges and the chronograph mechanism is mounted above these bridges, but it comprises shafts for the seconds hand of the chronograph and at least for a minute-register hand, which extend through-



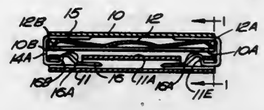
out the watch movement. A self-winding mechanism actuated by an oscillatory winding weight is connected to the spring motor of the watch and is wholly mounted under the chronograph mechanism, while avoiding any interference with the chronograph shafts carrying hands.

3,543,507

EXPANSIBLE LINKAGE FOR USE IN MAKING A WATCHBAND OR SIMILAR ARTICLE OF JEWELRY

Wallace F. Vanover and Max Flaig, Warwick, R.I., assignors to Textron Inc., Providence, R.I., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 779,888
Int. Cl. F16g *13/24*
U.S. Cl. 59—79 8 Claims



An expansible linkage for use as a bracket having two rows of overlapping staggered links, connecting members displaceably connecting the links of the first row to the links of the second row and springs in the first row for urging the links from their expanded to their contracted positions. The springs are located only in the links of the first row of links. The connecting members are provided with protrusions which cooperate with openings provided in the inner walls of the second row of links to prevent the accidental withdrawal of the connecting members from the linkage.

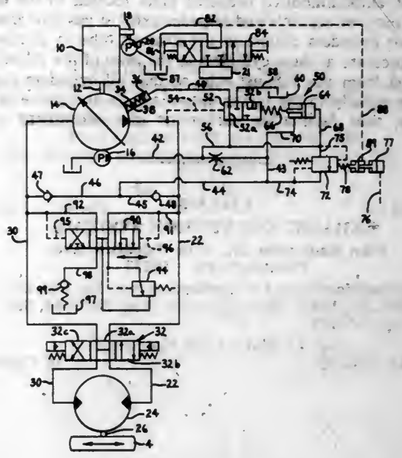
3,543,508

HYDROSTATIC TRANSMISSION WITH PRESSURE CONTROL

Delmar G. Schwab, Portland, Oreg., assignor to Hyster Company, Portland, Oreg., a corporation of Nevada

Filed Oct. 16, 1968, Ser. No. 768,098
Int. Cl. F15b *15/18*; F16d *31/02*
U.S. Cl. 60—19 32 Claims

A hydrostatic transmission system suitable for driving a traction vehicle. The system includes an engine driven variable displacement pump which delivers pressure fluid to a fluid motor for transmitting torque to the driving wheels of the vehicle. A pressure control for controlling pump displacement is sensitive both to the pressure produced by the variable displacement pump and the speed



of the engine in a manner so that increases in pump pressures tend to reduce pump displacement and so that increases in engine speed tend to increase pump displacement and increase the magnitude of pump pressure required to minimize pump displacement.

3,543,509

ENGINE EXHAUST SYSTEM

Michael J. Boerma, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware

Filed July 19, 1968, Ser. No. 746,079
Int. Cl. F01n *7/10*
U.S. Cl. 60—29 10 Claims



Disclosed herein is a marine propulsion device provided with an exhaust gas receiver. In one embodiment the receiver is in the form of a housing having inner and outer communicating chambers with the inner chamber

located over the exhaust ports for the cylinders and the outer chamber communicating at its lower end with an exhaust gas passage which extends through the lower unit of the marine propulsion device. The back pressure at the exhaust ports or resistance to flow is equalized by providing flow paths of equal distance for all the cylinders between the exhaust ports and the outer chamber. In a further embodiment, a deflector plate located in the exhaust receiver restricts and impedes exhaust gas flow from the two cylinders closest to the exhaust tube to increase back pressure at these cylinders to the level of the cylinder farthest from the exhaust tube so that all cylinders contribute equally to the power output at idle and above idle speeds, thus facilitating carburetor idle adjustment.

3,543,510

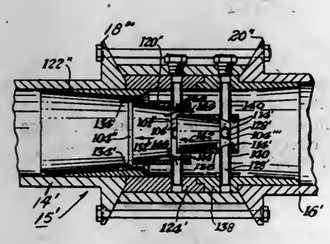
EXHAUST CONVERSION SYSTEMS

John Kaufmann, Jr., 3716 Woodrow Ave., Pittsburgh, Pa. 15227

Continuation-in-part of application Ser. No. 618,226, Feb. 23, 1967. This application Aug. 30, 1968, Ser. No. 767,602

Int. Cl. F01n *3/10*; F04f *5/16*

U.S. Cl. 60—30 **16 Claims**



I disclose a conversion system for the exhaust duct of an internal combustion engine, said system comprising at least one venturi induction section mounted in the exhaust duct, said venturi section being disposed adjacent that portion of said duct wherein said exhaust gases exhibit substantially a maximum temperature and a nonpulsating flow, said venturi section having a circumferential array of radially extending apertures for inducting combustion air into said duct upon the passage of said exhaust gases therethrough.

3,543,511

CONTROL ARRANGEMENT FOR A HOT GAS GENERATOR

Eric Kellett, Ealing, London, England, assignor to C.A.V. Limited, Acton, London, England

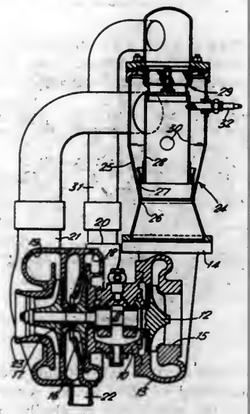
Filed Sept. 13, 1968, Ser. No. 759,691

Claims priority, application Great Britain, Sept. 22, 1967, 43,231/67

Int. Cl. F02c *9/14*

U.S. Cl. 60—39.23 **1 Claim**

A hot gas generator comprising a combustion chamber a turbine having a rotor driven by heated gases leaving the combustion chamber a first compressor including a rotor for supplying an air/fuel mixture to a burner disposed in the combustion chamber a second compressor for supplying air to the combustion chamber and means for controlling the quantity of air supplied by the second compressor whereby the relative pressures of the air/fuel mixture and dilution air can be controlled.



3,543,512

VEHICLE BRAKING SYSTEMS

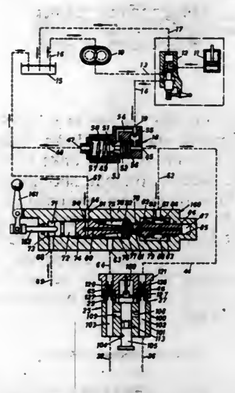
Michael J. England, Sutton Coldfield, Derrick Donnell, Coventry, and Eric C. Hales, Studley, Warwickshire, England, assignors to Girling Limited, Tyseley, Birmingham, England

Filed Jan. 29, 1969, Ser. No. 795,103

Claims priority, application Great Britain, Feb. 1, 1968, 5,210/68; Feb. 17, 1968, 7,870/68; Mar. 20, 1968, 13,412/68

Int. Cl. F15b *1/02*; B60t *13/28*

U.S. Cl. 60—51 **5 Claims**



A hydraulic accumulator, e.g. for a trailer brake system, is charged from a constant volume pump intended for operating hydraulic services through open-centre type control valves. An unloader valve connected in series with the open-centre valves unloads the pump responsively to the accumulator reaching a predetermined pressure. The accumulator may be a dual purpose accumulator in that it is adapted to automatically release a spring to apply the trailer brakes mechanically in the event of loss of hydraulic pressure from the accumulator. A metering valve may be provided on the tractor for controllably operating hydraulic actuators for the trailer brakes utilizing the trailer mounted accumulator or utilizing another accumulator mounted on the tractor. In the former case the tractor and trailer lines are releasably interconnected by a quick-release, twin-line, self-sealing hydraulic coupling. The accumulator and brake lines on the trailer are automatically interconnected to apply the trailer brakes hydraulically in the event of trailer breakaway.

3,543,513

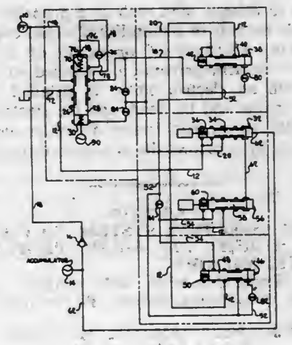
CONTROL APPARATUS FOR HYDRAULIC SYSTEMS

Robert E. Raymond, Zanesville, Ohio, assignor to International Basic Economy Corporation, New York, N.Y., a corporation of New York

Filed Feb. 19, 1969, Ser. No. 800,657

Int. Cl. F15b *1/02*

U.S. Cl. 60—51 **10 Claims**



A control apparatus for hydraulic systems for variably establishing and holding constant pressure ranges between two preselected pressure values for accumulator or energy storing systems.

3,543,514

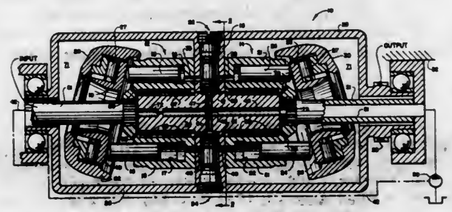
UNCOUPLING VALVE FOR HYDROSTATIC TRANSMISSION

Leonard H. Reimer, Hutchinson, Kans., assignor to The Cessna Aircraft Company, Wichita, Kans., a corporation of Kansas

Filed Feb. 7, 1969, Ser. No. 797,529

Int. Cl. F16d *31/06*

U.S. Cl. 60—53 **11 Claims**



The invention is an improved uncoupling valve in a hydrostatic transmission utilized in an automotive vehicle. The valve allows the transmission to free wheel as soon as the power from the primary engine is shut off by venting the pressure between the elements of the transmission. The valve is actuated when the low pressure from a system charging pump is cut off from the valve or when a damaging pressure level is approached in the loop circuit connecting the pump and motor, thus giving the valve a secondary function as a high pressure relief valve.

3,543,515

HYDRAULIC APPARATUS

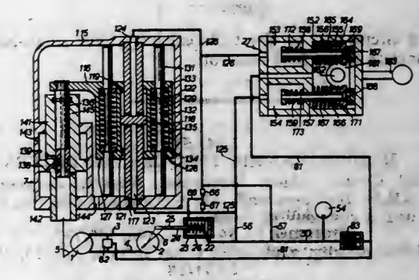
Bertram Carl Kempson, Cheltenham, England, assignor to Dowty Hydraulic Units Ltd., Cheltenham, England, a British company

Filed Oct. 14, 1968, Ser. No. 767,430

Claims priority, application Great Britain, Oct. 20, 1967, 47,913/67

Int. Cl. F15b *15/18*

U.S. Cl. 60—52 **13 Claims**



This invention relates to a hydraulic power transmission comprising a variable positive displacement pump in hydraulic connection with a variable positive displacement motor, the speed ratio between the pump speed and the motor speed being dependent on the relative displacements of the pump and the motor. The invention provides a first spring-loaded variable-volume device arranged to vary pump displacement, a second spring-loaded variable-volume device arranged to adjust motor displacement and a control adapted to supply fluid at variable pressure to both the first and second spring-loaded variable-volume devices. The spring loading of the variable-volume devices is so arranged that within a first range of variation of fluid pressure the pump will increase its displacement from zero to a maximum and in a second range of variation of fluid pressure the motor will reduce displacement from the maximum to a minimum value.

3,543,516

AUTOMATICALLY SHIFTABLE DIRECTION CONTROL VALVE

Richard Treichel, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware

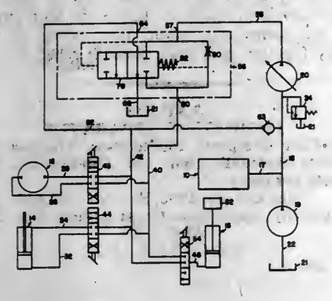
Filed May 19, 1969, Ser. No. 825,835

Int. Cl. F15b *15/18*; G05d *11/00*

U.S. Cl. 60—52 **9 Claims**

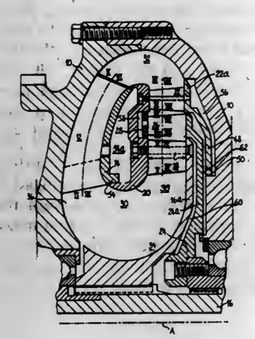
An automatically shiftable direction control valve for a tractor hydraulic system wherein there is provided a charging pump, low pressure priority functions such as cooling and lubrication connected to the charging pump, a main pump, a continuously acting reversible function, a single-acting function and a double-acting function all connected to the output of the main pump, and a manually operable direction control valve for each of the functions. The automatically shiftable direction control valve has a restricted passage causing a pressure drop which

shifts the valve so as to direct the exhaust of the continuously acting and double-acting functions to the charg-



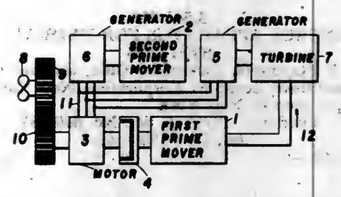
ing circuit and to direct the exhaust of the single-acting function to the fluid resrevoir.

3,543,517
HYDRODYNAMIC TORQUE CONVERTERS
Karl Gustav Åhlén, Stockholm, Sweden, assignor to S.R.M. Hydromekanik AB, Stockholm-Vallingby, Sweden, a company of Sweden
Filed Jan. 13, 1969, Ser. No. 790,737
Claims priority, application Great Britain, Jan. 19, 1968, 3,124/68
Int. Cl. F16d *33/00*
U.S. Cl. 60—54 20 Claims



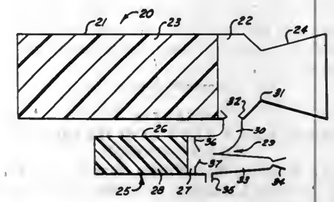
A hydrodynamic torque converter having a closed hydraulic circuit, in which there is located a ring of pump blades, first and second rings of turbine blades and a ring of guide blades disposed between the rings of turbine blades. The turbine rings and the guide ring are positioned in the inflow section and the guide ring is positioned in the outflow section of the hydraulic circuit. The angle of deviation between the leading and trailing edges of the blades for the blades of the first turbine rings is 50° to 90° for a low Ms range of 40–80 and 75° to 115° for a high Ms range up to 140. The value of this angle for the guide ring is 25° to 50° for the said low and the said high Ms ranges, and value of this angle for the second turbine ring is 40° to 65° for the said low and the said high Ms ranges.

3,543,518
ARRANGEMENTS COMBINING A PLURALITY OF PRIME MOVER POWERS
Fukuo Shibata, 13 Tokiwa-cho, Nishinomiya, Hyogo Prefecture, Japan
Original application June 6, 1967, Ser. No. 645,094, now Patent No. 3,478,619. Divided and this application Nov. 7, 1968, Ser. No. 774,219
Claims priority, application Japan, Aug. 11, 1966, 41/52,719
Int. Cl. F02b *61/00, 41/10, 73/00*
U.S. Cl. 60—97 5 Claims



In order to drive a load such as a propeller of a ship by combined outputs of a plurality of diesel engines without sacrificing efficiency of operation or economy of apparatus of the arrangements, a combined set of a clutch coupling with an electric motor is installed between a first diesel engine and the load, and the electric motor is supplied with an electric energy from an electric generator driven by a second diesel engine through an electric cable.

3,543,519
VORTEX INJECTION SYSTEM TO CONTROL THE THRUST OF SOLID PROPELLANT ROCKET MOTORS
Robert L. Glick, Columbus, Ind., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Jan. 2, 1968, Ser. No. 695,058
Int. Cl. F02k *9/04, 9/06*
U.S. Cl. 60—254 1 Claim

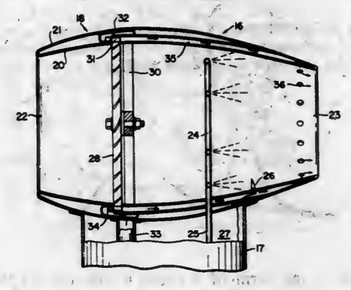


A vortex injection system to control the thrust of solid propellant rocket motors, that utilizes the gas created by a gas generator to effect a swirl in the products of combustion of the solid propellant in the solid propellant rocket motor by injecting the gas created by the gas generator into the solid propellant rocket motor in a substantially tangential direction, in relation to the longitudinal axis of the solid propellant rocket motor.

3,543,520
AUGMENTED RAMJET ENGINE
Archibald P. Kelley, Scottsdale, and Allan D. Meshew, Tempe, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif., a corporation of California
Filed Aug. 23, 1968, Ser. No. 754,875
Int. Cl. F02k *3/04;* F02c *3/14*
U.S. Cl. 60—269 1 Claim

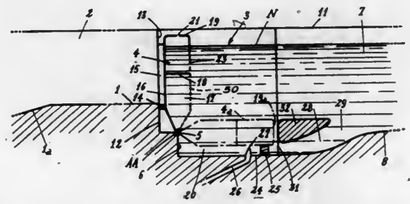
The helicopter blade tip propulsion means herein is provided to augment the operation of substantially conventional ramjet engines. The augmentation means consists

of providing a ramjet engine of the type having a substantially ovoid casing with an open subsonic diffuser end and a converging outlet nozzle, with means for increasing inlet air flow, injecting fuel into such increased air flow, and burning the mixture upstream of the nozzle for discharge therefrom. One means for increasing the inlet air flow comprises the location of a manifold at the inner end of the diffuser and locating jet nozzles substantially uniformly over the cross sectional area of the casing to discharge air under pressure from a source in the heli-



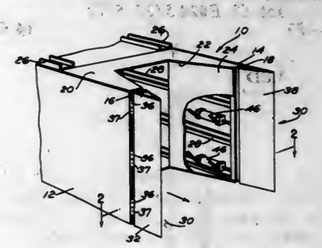
copter fuselage from the nozzles to increase the flow. Injecting fuel and burning it in the augmented air flow also increases the mass flow through the outlet nozzle. Another means for accomplishing the same end is to place a fan in the casing and drive it with compressed air from the source in the fuselage. Use of a tip turbine on the fan is contemplated. These measures serve to start and accelerate the rotation of helicopter blades to a rate at which ramjet engines become effective. Also, they may assist in take-off or landing under excessively loaded conditions.

3,543,521
CLOSURE DEVICE APPLICABLE TO WATER-SLOPE SYSTEMS
Jean Aubert, 8 Rue la Boetie, Paris, France
Filed July 15, 1968, Ser. No. 744,847
Claims priority, application France, Aug. 3, 1967, 116,691
Int. Cl. E02b *7/40*
U.S. Cl. 61—25 2 Claims



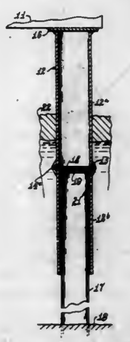
A closure device which is intended to be fitted in the upstream portion of a water-slope channel and which comprises a guard gate which is pivoted on the channel sill about a horizontal axis, the connections which are provided being intended to permit the movement of said gate between a substantially vertical position of closure and a substantially horizontal position of withdrawal. Hydrostatic actuating means are provided for the purpose of carrying out a passive movement of withdrawal of the gate which is assumed to be in the raised position in the case of a predetermined pressure difference between its two faces. Additional means are provided for lifting the gate.

3,543,522
TRENCH SHORING APPARATUS
Emanuel Torti, 1135 Plainfield St., Johnston, R.I. 02919
Filed Mar. 20, 1969, Ser. No. 808,740
Int. Cl. E21d *5/00*
U.S. Cl. 61—41 6 Claims



Trench shoring apparatus comprising telescoping inner and outer members and power means for effecting expansion and retraction of the telescoping members with respect to each other, one of said members having an end wall for engaging back fill in a trench, wherein upon such engagement and subsequent expansion of the members, the member that is not in engagement with the back fill will be caused to move along the trench in a direction away from the back fill, the improvement comprising the provision of pivotal guide means located adjacent the forward end of said last-mentioned member and power means for effecting pivotal movement of said guide means in order that the apparatus may be steered sideways and downwardly as it self-propels along the trench in response to selective actuation of said guide means.

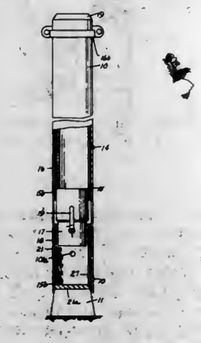
3,543,523
STRUCTURAL DOCK SYSTEM
Harry E. Nelson, La Pointe, Wis., assignor, by mesne assignments, to Gary Industries, Inc., Chicago, Ill., a corporation of Nevada
Filed Feb. 6, 1969, Ser. No. 797,084
Int. Cl. E02b *17/00*
U.S. Cl. 61—46 6 Claims



The subject structure pertains to a dock system wherein the dock platform carries on its under side a plurality of sleeves which telescope freely over driven piling so as

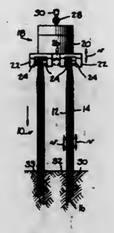
to enable the dock platform to rise and fall with the rise and fall of the level of ice on the water mass and thereby prevent pulling of the piling from its anchorage.

3,543,524
THIN-WALLED PILE WITH CLOSURE PLUG
William C. Clements, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 650,018, June 29, 1967. This application June 20, 1969, Ser. No. 835,048
Int. Cl. E02d *5/28, 5/72*
U.S. Cl. 61—53 14 Claims



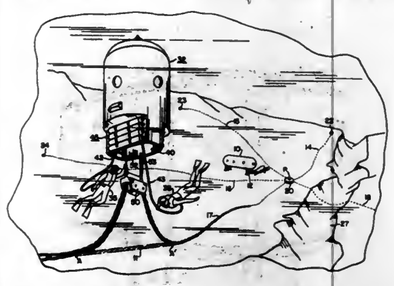
Thin-walled shell piles, each comprising a thin-walled shell of a length suitable to form a pile, and one of a variety of tapered closure plugs to expand or compress the lower end of the shell within a specified range. Additionally, the thin-walled shell piles may be of a stepped-down diameter, in which case a tapered, drive fit, stepped diameter transition ring joins the varying diameters of the shells.

3,543,525
FORMATION OF CAST-IN-PLACE CONCRETE PILES
Lindsey J. Phares, Chicago, Ill., assignor to Raymond International, Inc., New York, N.Y., a corporation of New Jersey
Filed Nov. 27, 1968, Ser. No. 779,503
Int. Cl. E02d *5/38, 7/18*
U.S. Cl. 61—53.66 6 Claims



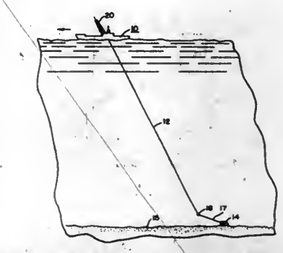
Use of double shells with a vibrator driver selectively clamped to one and both of the shells at different times during driving of the shells into the earth, extraction of the inner shell with a core of earth and extraction of both shells after pouring of concrete to improve the manufacture of a concrete pile.

3,543,526
UNDERWATER SUBMERSIBLE CHAMBER SYSTEM
Wilbur J. O'Neill, Severna Park, and Alan R. Krasberg, Annapolis, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 20, 1968, Ser. No. 730,552
Int. Cl. B63c *11/00*
U.S. Cl. 61—69 13 Claims



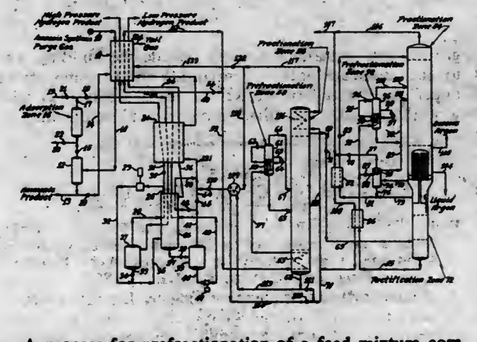
A track in the form of a chain is laid out on the sea bottom in a desired pattern. A submersible chamber which is normally positively buoyant includes a carriage which grips the chain, the action being to exert an upward force on the chain. Drive means on the carriage enables the submersible chamber to propel itself along the track. With an open bottom chamber pressurized to the surrounding sea water pressure, any change in buoyancy is essentially self-compensating by lifting or setting down a short length of the chain according to the changes in buoyant conditions. In another embodiment first and second chain tracks are carried by the submersible work chamber in continuous loop fashion. To further compensate for buoyancy variations water level or pressure sensor means are utilized.

3,543,527
UNDERWATER MINING METHOD
Melvin W. Smith, Edgewater, and Charles S. Kluth, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 31, 1968, Ser. No. 733,532
Int. Cl. F16l *1/00*
U.S. Cl. 61—72.3 3 Claims



A surface vessel travels through the water while connecting and paying out conduit sections, to which is connected an underwater mining collector. A gimbal arrangement on the vessel allows the conduit to assume a certain angle with respect to vertical as the vessel travels through the water. A derrick on the vessel is tilted at the same angle that the conduit makes with the vertical and includes means for gripping a conduit section to be added onto the already payed out conduit. The tilted derrick serves to receive a new conduit section, lower the section down to the gimbal arrangement for joining onto the payed out conduit, and repeat the process until the desired length of conduit is payed out. Thereafter, the surface vessel trailing the conduit and collector slows down to a predetermined speed for placing the collector on the sea bottom to commence mining operations.

3,543,528
SEPARATION OF LOW-BOILING GAS MIXTURES
Duffer B. Crawford, Westfield, N.J., and Johannes C. Norenburg, New York, N.Y., assignors to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Continuation-in-part of application Ser. No. 438,900, Mar. 11, 1965. This application Aug. 1, 1967, Ser. No. 657,662
Int. Cl. F25j *3/04*
U.S. Cl. 62—22 23 Claims

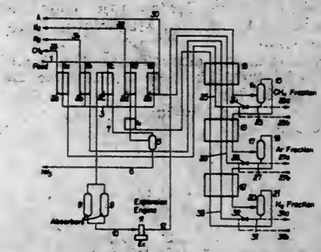


A process for prefractionation of a feed mixture comprised of at least two components prior to introduction to the main fractionation zone, wherein substantially liquid feed maintained at pressures higher than that prevailing in the fractionation zone is cooled by indirect heat exchange, part or all of said cooled feed is flashed at a pressure at least above that of the fractionation zone, to produce flashed material having a liquid phase and a vapor phase. The refrigeration potential of the flashed material is utilized for cooling of the feed by indirect heat exchange with a liquid or mixed phase portion of said flashed material thereby increasing the vapor-to-liquid ratio of the latter prior to its introduction to the fractionation zone at a suitable point. Remaining feed is introduced to the fractionation zone at one or more other suitable points.

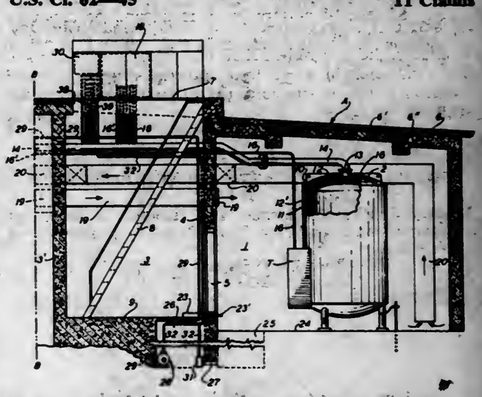
Preferred feeds disclosed are nitrogen-containing mixtures, such as mixtures comprising nitrogen and methane, nitrogen and argon, nitrogen, methane and argon. A specific example is included as to the application of the invention to the separation of the individual components of an ammonia synthesis purge gas and to the recovery of argon in either liquid or gaseous form.

3,543,529
SEPARATION OF AMMONIA SYNTHESIS OFF GAS BY ENGINE EXPANSION AND SEPARATION
Helmut Knapp, 3 Mittelweg, 6369 Massenheim, uber Bad Vilbel, and Martin Streich, 44 Urseler Weg, 6 Nieder Eschbach, Taunus, Germany
Filed Aug. 22, 1968, Ser. No. 754,637
Claims priority, application Germany, Aug. 29, 1967, 1,667,185
Int. Cl. F25j *3/00, 3/06*
U.S. Cl. 62—23 9 Claims

Components in a release gas of ammonia synthesis equipment are extracted by cooling the release gas with at least one part of the decomposition component to a temperature slightly above the freezing point of ammonia. The condensed ammonia is precipitated and the remaining release gas is reheated against at least one part of the ammonia-containing release gas with the residual ammonia being removed by approximately surrounding temperature. The ammonia-free release gas is then released under high pressure in an expansion machine with the resulting cold being used to condense the ammonia. The release ammonia-free gas is then decomposed into a fraction concentrated into one or more higher-boiling fractions.

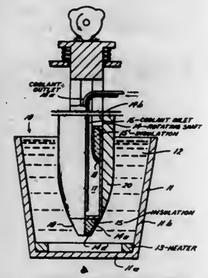


3,543,530
UNDERGROUND BULK STORAGE SYSTEM FOR CRYOGENIC LIQUID
William T. Brennen, New York, N.Y., and George H. Schoonover, Hillsdale, N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 14, 1968, Ser. No. 752,522
Int. Cl. F17c *1/00*; F16l *5/00*; B65d *51/16*
U.S. Cl. 62—45 11 Claims



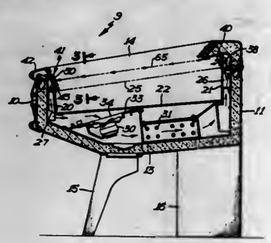
An underground bulk storage system for oxygen in liquid and vapor phases, comprising two adjoining bunker-type compartments, one having an insulated tank for storing liquid oxygen, and the other affording access to the oxygen tank compartment and having a sump in gravity-flow communication with the oxygen tank compartment for receiving condensate and escaped cold liquid oxygen therefrom, a condensate pump and temperature responsive means for shutting down the pump when escaped cold oxygen enters the sump, the tank compartment having a pressure-relief panel that opens into the access-compartment, and the latter having a pressure-relief access hatch that in turn opens to atmosphere, the tank compartment also having air ducts communicating with atmosphere above ground for fan-induced change of the tank compartment atmosphere.

3,543,531
FREEZE REFINING APPARATUS
Clyde C. Adams, 3800 Baker Road, Apt. 137, Baytown, Tex. 77520
Filed May 8, 1967, Ser. No. 636,924
Int. Cl. B01d 9/04
U.S. Cl. 62—124 9 Claims



An apparatus for obtaining pure solid materials from a liquid melt containing impure and pure materials and for continuous removal of the pure solid materials utilizing a crucible for receiving the liquid melt with a rotatable hollow cylindrical shaft positioned in the crucible. The hollow shaft is provided with conduit means for circulating coolant therein which thereby causes pure materials with a high melting point to become deposited on the rotating shaft in a pure solid crystal form. The deposited pure solid is then continuously removed from the shaft.

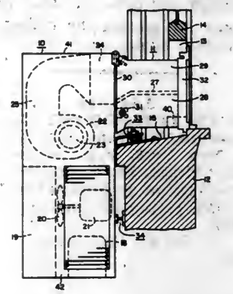
3,543,532
AIR RETURN GRILLE FOR AN AIR CURTAIN TYPE REFRIGERATED DISPLAY CASE
Robert P. Gatton and Steven J. Toth, Kendallville, Ind., assignors to Streater Industries, Inc., Albert Lea, Minn., a corporation of Minnesota
Filed Nov. 25, 1968, Ser. No. 778,725
Int. Cl. A47f 3/04
U.S. Cl. 62—256 2 Claims



The invention relates to an air return grille for an air curtain type of refrigerated display case. The grille has a louvre design which facilitates an efficient air current flow and prevents or minimizes the tendency of liquids to enter the air return flue through the grille.

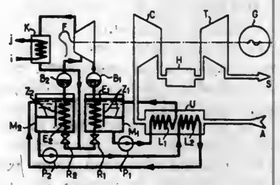
3,543,533
OUTSIDE MOUNTED ROOM AIR CONDITIONER STRUCTURE
Robert W. Oberdier, Woodstock, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 5, 1968, Ser. No. 781,518
Int. Cl. F25d 23/12
U.S. Cl. 62—262 5 Claims

An access panel arrangement for a room air conditioner having a main section depending along an outside building wall below a window and with a separable duct section connected to the window opening, the access panel arrangement being located on the outer face of the main section to accommodate access to the main section in



ground level installations from outside the building, and to accommodate access from inside the building on an upper level installation after the main section has been moved upwardly and tilted into the window opening.

3,543,534
APPARATUS FOR GENERATION OF ENERGY IN A GAS CYCLE
Pierre Henri Pacault, Ville d'Avray, and Francis J. Mary, Paris, France, assignors to Babcock-Atlantique Societe Anonyme, Paris, France, a corporation of France
Filed Jan. 3, 1969, Ser. No. 788,887
Claims priority, application France, Jan. 12, 1968, 135,738
Int. Cl. F28d 5/00
U.S. Cl. 62—310 13 Claims



Apparatus for generation of energy in a gas cycle has in addition to the conventional elements of a turbine, compressor and heat source, a refrigerating machine for cooling the working fluid prior to its infeed into the compressor therefor and having a compressor for cold-producing fluid. Also provided is a network for circulation of intermediary fluid and means for performing a heat exchange between the intermediary fluid and the cold-producing fluid on the one hand and between the intermediary fluid and the working fluid on the other hand. This latter heat exchange is performed by direct contact between the fluids, one of the fluids passing through the other fluid.
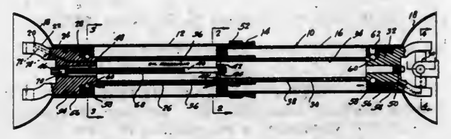
3,543,535
JEWELRY ARTICLE BASE COMBINED WITH DETACHABLE ORNAMENT MOUNTING
Arthur Siegel, 63—61 99th St., Forest Hills, N.Y. 11374, and Charles Estrin, 73—03 183rd St., Flushing, N.Y. 11363
Filed Nov. 13, 1967, Ser. No. 682,168
Int. Cl. A44c 17/02
U.S. Cl. 63—29 17 Claims

Article of personal adornment having an ornament detachably connected thereto and held in attached condition on the article by separable, cooperably pivotal members and interengageable locking means spaced from such pivotal members. In a preferred embodiment one of the pivotal members is a pin located in an opening in a base and on which is slidably mounted a tube provided on an ornament mounting. The thus loosely connected pivotal members are locked in their pivotal relation by the lock-



ing means composed of a locking element provided on the base and a locking element mounted on ornament mounting. The interlocked pivotal members and locking means both connect the ornament mounting to the base. A movable blocking member is also provided to facilitate the connection of the pivotal members and to prevent their inadvertent separation.

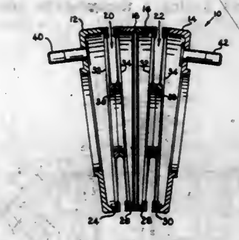
3,543,536
OIL-FILLED TELESCOPING DRIVE LINE
Russell N. Rekow, Rte. 2, Box 96N, Emmett, Idaho 83617
Filed May 23, 1969, Ser. No. 827,417
Int. Cl. F16c 1/06; F16d 3/06, 3/84
U.S. Cl. 64—4 6 Claims



An oil-filled telescoping drive line comprising a power shaft and a driven shaft with telescoping sleeve means disposed over the connecting portion of the power shaft and the driven shaft with the telescoping shaft means comprising at least two sleeves. The sleeves have their adjacent ends telescoped over each other with seal means therebetween and the sleeves are disposed on bearing means, so that the sleeves can rotate with respect to the power shaft and the driven shaft. The sleeves are provided with sealing means adjacent the ends thereof to prevent dirt from getting into the sleeves. The sleeves are further provided with oil means for providing lubrication of the inner parts disposed therein.

3,543,537
SYNCHRONIZING COUPLING
Neal B. Rothfuss, Clinton, and Arthur R. Brady, Utica, N.Y., assignors to The Bendix Corporation, a corporation of Delaware
Filed Nov. 20, 1968, Ser. No. 777,424
Int. Cl. F16d 3/52, 3/79
U.S. Cl. 64—13 8 Claims

A flexible coupling for shafts having intersecting noncolinear axes and which need not execute full rotational movement. The coupling comprises a plurality of flexible diaphragms which are connected to cylindrical segments having purposely non-parallel end planes. Since diaphragm couplings are rotationally rigid, but are axially-elastically-



deformable, they permit synchronized rotary movement between coupled shafts.

3,543,538
FLEXIBLE COUPLING
Robert C. Farrell and John W. Skelley, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 7, 1969, Ser. No. 822,535
Int. Cl. F16d 3/78
U.S. Cl. 64—13 2 Claims

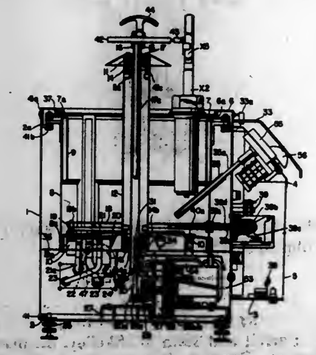


A flexible coupling for automotive vehicle steering shaft assemblies constructed for optimum compactness of size in the axial dimension and including immediately juxtaposed nested first and second coupling members, at least one of the members being provided with radial connecting portions having axial offset over the other coupling member to lie in the same transverse plane with connecting portions thereof, and the two coupling members being flexibly interconnected by an elastomeric ring located at one side of the assembly and attached to the planar related connecting portions.

3,543,539
MACHINE FOR DYEING UNDER PRESSURE AT HIGH TEMPERATURE OR IN OPEN BATH
Carlos A. Hornstein, Avda. Tibidabo 47, Barcelona, Spain
Continuation-in-part of application Ser. No. 593,184, Nov. 9, 1966. This application Dec. 16, 1968, Ser. No. 783,957
Claims priority, application Spain, July 30, 1966, 329,730
Int. Cl. D06f 33/02, 39/04
U.S. Cl. 68—12 8 Claims

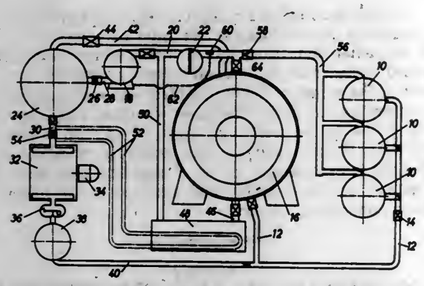
A laboratory dyeing machine wherein a stainless steel casing contains a vat for the heating liquid. The vat is thermo insulated from the casing and has a cover wherein a plurality of dye carrier receptacles are mounted, a tubular column is centrally mounted in the vat serving as a chimney for the evacuation of vapors. Means are provided for holding textile samples which are guided

by the tubular column for intermittent immersion in the receptacles. Means are provided for reciprocating the textile samples and a motor is located in the lower part of the casing for operating the reciprocating means. Electrical resistances having a thermostatic control heat the



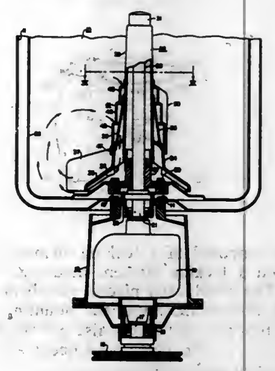
liquid and safety devices control the upper heating level. Means are provided for regulating the temperature of the liquid so as to make the temperature uniform and a time control is provided for automatically controlling the treatment cycles.

3,543,540
DRYCLEANING MACHINE WITH SOLVENT RECOVERY MEANS
Hans Güntner, 13 Landsberger Strasse, 8034 Germering, Germany
Filed Dec. 2, 1966, Ser. No. 598,808
Claims priority, application Germany, Dec. 3, 1965, 1,460,403
Int. Cl. B01d *5/00;* **D06f** *39/00, 43/08*
U.S. Cl. 68—18 **4 Claims**



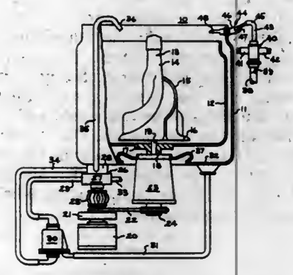
An apparatus for cleaning wearing apparel and the like, in which, after starting the cleaning operation, a mixture of air and vaporized cleaning fluid is exhausted by a compressor from a tightly closed cleaning drum, compressed, and separated into its components. The vaporized cleaning fluid is then condensed and recirculated to the cleaning drum or a storage tank; the compressor being automatically actuated by pressure control means dependent upon the pressure in the cleaning drum and/or the storage tank. Air from the separating vessel can be recirculated to the cleaning drum at the end of the cleaning operation for pressure equalization. During the cleaning operation, cleaning liquid can be distilled in a distiller, vaporized and exhausted by the compressor.

3,543,541
CLOTHES WASHING MACHINE APPARATUS
William A. Wasemann, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 13, 1968, Ser. No. 752,341
Int. Cl. D06f *39/10*
U.S. Cl. 68—18 **10 Claims**



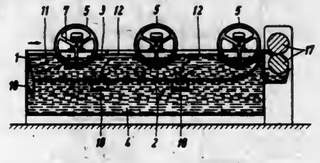
Combination agitator and lint removal structure characterized by the provision of a frusto-conical filter element removably fitted over the centerpost member of the agitator structure and having a cover superimposed thereover for preventing back flow of lint from the space occupied by the filter. The combination is further characterized by the provision of vanes on the underside of the skirt portion of the agitator structure to form a centrifugal pump for circulating washing fluid in a toroidal path from underneath the skirt portion upwardly within the tub and then downwardly through openings in the top walls of a plurality of stepped segments of the cover member.

3,543,542
SELF-CLEANING FILTER
John Bochan, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Jan. 29, 1969, Ser. No. 794,891
Int. Cl. D06f *29/00*
U.S. Cl. 68—18 **13 Claims**



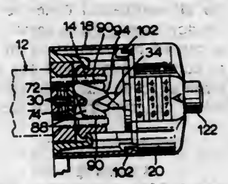
A self-cleaning filter assembly for removing impurities from a fluid flow is provided having a housing defining a chamber therein and having inlet and outlet means comprising a centrally positioned opening in the bottom portion of the housing and at least one opening formed elsewhere in the housing. A plurality of circular discs are disposed one above the other in stacked relationship within the chamber, the uppermost of the discs being imperforate, the remainder of the discs having an aperture formed centrally therein. Spacing means separate each disc from adjacent discs, and the cross-section of the chamber is sufficiently large to permit the discs to stack therein with edges randomly unaligned and randomly contacting the housing. Impurities trapped along the edges of the stacked discs during fluid discharge from the chamber through the bottom opening are prevented, by the unaligned edges of the stacked discs, from forming a solid continuous blanket therealong. By preventing such a blanket formation, the discs are able to separate and thereby release the impurities during fluid discharge from the chamber through the other opening.

3,543,543
APPARATUS FOR THE WET-TREATMENT OF LOOSE MATERIAL, PARTICULARLY TEXTILE MATERIAL
Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to VEPA AG, Basel, Switzerland
Filed Dec. 2, 1968, Ser. No. 780,362
Claims priority, application Germany, Dec. 1, 1967, 1,685,524
Int. Cl. D06f *17/02, 39/10, 45/12*
U.S. Cl. 68—22 **14 Claims**



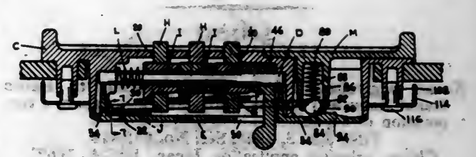
The present disclosure is directed to a process and apparatus for the wet-treatment of fibrous material which comprises introducing the material to be treated into a treatment bath containing a treatment liquid, floating said material on the surface of said treatment liquid and conveying said material on the surface of at least one conveying element, thereby penetrating the material with the treatment liquid which flows from the outside to the inside of the conveying element due to a differential liquid level between the inside and outside of said conveying element, and returning the liquid to the treatment bath uniformly over the entire working width of the conveying elements. The present disclosure is particularly adaptable to the wet-treatment of raw wool.

3,543,544
LOCKING DEVICE FOR USE WITH AN ELECTRIC PLUG
Evan N. Efston, 69 Goodwill Ave., Downsview, Ontario, Canada
Filed Aug. 19, 1968, Ser. No. 753,688
Int. Cl. E05b *65/00;* **H01r** *13/62, 13/54*
U.S. Cl. 70—57 **5 Claims**



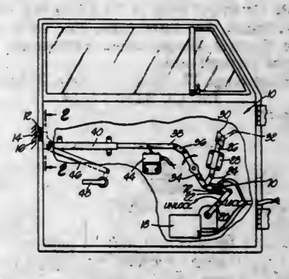
A locking device for disabling an electrical plug to prevent unauthorized use of electrical equipment comprising a housing adapted to receive the plug prongs therein, spring-loaded pawls pivotally mounted within the housing for retaining the prongs therein by frictional engagement, and a combination lock for releasing the pawls and the prongs secured thereby.

3,543,545
COMBINATION LOCK
Boleslaw L. Budzyn, Passaic, N.J., assignor, by mesne assignments, to Presto Lock Co., Inc., Garfield, N.J., a corporation of Delaware
Filed Feb. 17, 1969, Ser. No. 799,589
Int. Cl. E05b *65/52, 37/02*
U.S. Cl. 70—71 **17 Claims**



A combination lock which employs a plurality of dials and sleeve means for each dial mounted on a shaft, each sleeve means being provided with a flange portion and a flat portion. A slotted bolt member is positioned adjacent the sleeve means with the dials extended through the slots. A latch member is positioned beneath and adjacent the bolt member. The latch member is mounted for movement in a plane parallel to the longitudinal axis of the shaft to latched and unlatched positions when the flat portions of the sleeve means are in alignment and facing the bolt member. The latch member also is mounted for movement in a plane perpendicular to the longitudinal axis of the shaft, such movement being imparted to the latch member by the engagement of a flange portion with the adjoining bolt member. The lock includes a frame member beneath the shaft, dials, sleeve means, bolt member and latch member. The latch member and the frame member are provided with cooperable means to lock the latch member in latched position when the latch member and bolt member are displaced by a flange portion or portions.

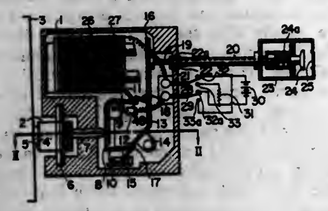
3,543,546
AUTOMOBILE DOOR SAFETY LOCK
Louis J. Gallo, 4779 Randall Drive, Las Vegas, Nev. 89109
Filed Oct. 18, 1968, Ser. No. 768,837
Int. Cl. E05b *53/00, 65/19, 65/36*
U.S. Cl. 70—264 **4 Claims**



This patent describes a device adapted to provide an automobile ignition, door and window safety lock and adapted for incorporation with the electrical circuit of the automobile ignition system, the automobile door lock and the operating mechanism for the window which ignition system has an electrical circuit connecting the ignition switch inside of the automobile with the battery and starting motor, the door lock comprises two counter-rotating members on the edge of the door which are adapted to receive a cooperating fixed engaging member on the striker plate of the door jam, and which automobile window is controlled by the turning of a rod or shaft, the

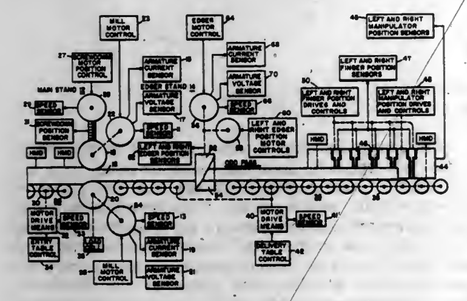
present invention being characterized by a switch in circuit with the ignition system said switch being activated by an electro-motor which moves a system of levers, said system of levers moving a pin which causes interference with the rotation of the counter-rotating members of said door lock and said levers also having a portion moving into and out of contact with the rod or shaft for the window.

3,543,547
MANUALLY UNLOCKING DEVICE OF ELECTRIC LOCK
Kazuo Sugiyama, Tokyo, Japan, assignor to Heiwa Denki Kabushiki Kaisha, Kanagawa-ken, Japan, a corporation of Japan
Filed Jan. 3, 1968, Ser. No. 695,418
Claims priority, application Japan, Jan. 5, 1967, 42/799
Int. Cl. E05b *15/02, 47/00*
U.S. Cl. 70—277 **3 Claims**



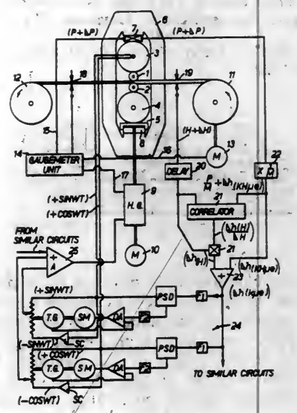
The present invention relates to a device for manually unlocking an electric lock or, more specifically, in an electric lock which performs locking and unlocking electrically, a device for manually releasing the electric lock in an emergency such as a fire or when it becomes impossible to operate the lock electrically because of trouble in theelectric circuit due to other causes making it possible to release the lock of a door by a manual operation but the electrical unlocking operation by a pushbutton provided near the door and an attracting iron piece of said electric lock interlocked mechanically with said pushbutton.

3,543,548
METHOD AND COMPUTER CONTROL SYSTEM FOR OPERATING A SLABBING MILL
Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 27, 1968, Ser. No. 755,633
Int. Cl. B21b *37/14*
U.S. Cl. 72—7 **28 Claims**



A digital computer system determines the mill schedule including the main mill stand and edger stand setup and operating conditions required to reduce an entry ingot to a slab product of specified width and thickness within operating constraints. Updating data is processed by the computer to modify the schedule for minimum processing time on the basis of the actual workpiece hardness.

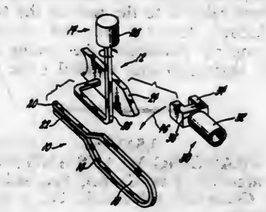
3,543,549
ROLLING MILL CONTROL FOR COMPENSATING FOR THE ECCENTRICITY OF THE ROLLS
David Robert Howard, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, Yorkshire, England
Filed Nov. 20, 1968, Ser. No. 777,322
Claims priority, application Great Britain, Nov. 21, 1967, 52,853/67
Int. Cl. B21b *37/00*
U.S. Cl. 72—8 **7 Claims**



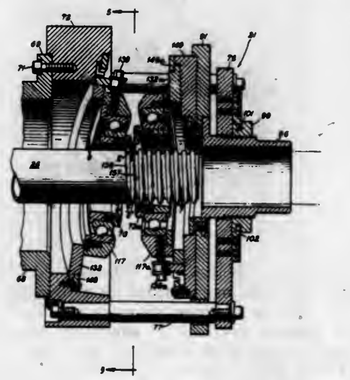
The effects of eccentricity of the rolls of a rolling mill are compensated for by comparing a continuous electrical signal which is representative of the variations in rolling load with a second signal which is representative of the gauge variations of the material being rolled in order to produce a signal which is representative of the ratio of the components of the two signals which occur synchronously withone another. The ratio signal is then multiplied by a signal which is representative of the gauge variations of the material entering the mill to produce a further signal which is representative of those variations in the outgoing gauge of the material which are solely attributable to variations in ingoing gauge. This further signal is subtracted from a signal representative of the outgoing gauge variations due to all sources in order to yield a signal which contains predominantly those variations in outgoing gauge which are caused by eccentricity of the rolls. This signal is used to continuously adjust the roll gap of the mill in such a sense as to diminish the effects on the material being rolled of the eccentricity of the rolls.

3,543,550
ELECTROMAGNETIC FORMING APPARATUS
David J. Rose, Waban, Mass., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 17, 1968, Ser. No. 745,540
Int. Cl. B21d *26/14*
U.S. Cl. 72—56 **4 Claims**

An electromagnetic forming apparatus comprising a primary coil and a secondary coil which are relatively movable. The secondary coil may be positioned within the interior opening of the primary coil so as to define a workspace for the workpiece. The secondary coil may also be positioned without the interior opening of the primary coil so as to permit an irregularly shaped workpiece to be transferred into and out of the workspace through the interior opening of the primary coil.



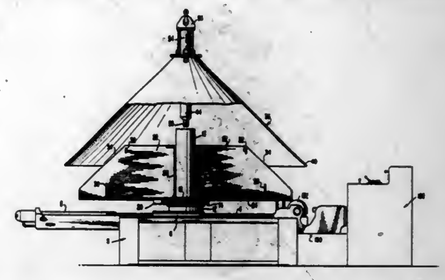
3,543,551
APPARATUS FOR HELICALLY CORRUGATING METAL TUBING
Lee S. Raisch and Howard M. Falkenberg, Chicago, Ill., assignors to Universal Metal Hose Company, Chicago, Ill., a corporation of Delaware
Filed Mar. 5, 1968, Ser. No. 710,605
Int. Cl. B21b *13/20*
U.S. Cl. 72—77 **16 Claims**



Apparatus for continuously manufacturing helical corrugated tubing from straight wall tubing. A rotatable corrugating head has two adjustably spaced annular die rings eccentrically encompassing the tubing; and each die ring is circumferentially adjustable in a plane which is oblique to the tubing axis to modify the shape and to vary the pitch of the corrugation generated in the tubing.

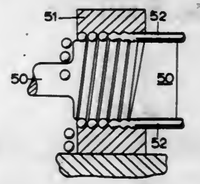
3,543,552
KNUCKLE RADIUS MACHINE
Thomas W. Howe, Sr., Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Mar. 2, 1967, Ser. No. 619,974
Int. Cl. B21d *22/14*
U.S. Cl. 72—82 **20 Claims**

A flanging machine having a pair of rolls between which the peripheral edge of a circular workpiece passes. The workpiece is supported on a turntable that includes an upright column. A mandrel is connected to the workpiece for lifting and transporting the workpiece. A stabilizer on the turntable rigidly supports the workpiece and when the mandrel is locked in the column, an axial force is applied to the mandrel to cause the workpiece to conform to the shape of the stabilizer and to be clamped rigidly in position relative to the pair of rolls. One of the rolls is mounted in a cradle that is journalled on the base



of the machine for vertical swinging movement. As the workpiece rotates with the turntable, the cradle gradually swings relative to the base to form a flange progressively on the workpiece.

3,543,553
MACHINE FOR PROFILING SOLID WORKPIECES
Jacob Marcovitch, Johannesburg, Transvaal, Republic of South Africa, assignor to Rotary Profile Anstalt, Vaduz, Liechtenstein
Filed Apr. 9, 1968, Ser. No. 719,975
Claims priority, application Republic of South Africa, Apr. 19, 1967, 67/2,272
Int. Cl. B21h *1/16*
U.S. Cl. 72—91 **5 Claims**



A machine for profiling rods to form articles such as balls, rollers or elongated articles, consisting of a scrolled inner roller surrounded substantially continuously by correspondingly scrolled structure. The inner roller defines with the outer structure an annular throat through which the rod advances to be progressively profiled on rotation of the inner roller relatively to the outer structure. The outer structure may be a bored member in which the inner roller is concentrically mounted, or it may be a series of rollers. The machine is capable of profiling two or more rods simultaneously, and the forces generated in it are in good balance.

3,543,554
APPARATUS FOR PUNCHING AND FORMING ARTICLES FROM SHEET STOCK
Milton B. Hoagland, Troy, George E. Groener, Rochester, and Clayton J. Trible, Troy, Mich., and William A. Fletcher, Fort Myers, Fla., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 25, 1968, Ser. No. 778,504
Int. Cl. B21d *22/08*
U.S. Cl. 72—185 **7 Claims**

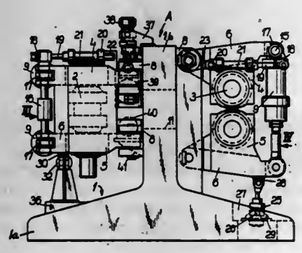
A metal forming machine has first and second rolls carrying punches and dies respectively to punch blanks

from a sheet metal strip fitted between the rolls. Coining punches carried by the second roll within the dies cooperate with other coining punches carried by a third



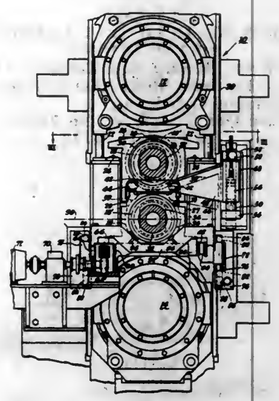
roll to coin the blanks. The punches on the third roll are provided with a rocking action to allow the cooperating punch faces to remain parallel throughout the coining operation.

3,543,555
FORM CHANGING DEVICE FOR CONTINUOUS CASTING
Hans G. Baumann and Gerhard K. Komma, Duisburg, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany
Filed Jan. 18, 1968, Ser. No. 698,774
Claims priority, application Germany, May 16, 1967, D 53,093
Int. Cl. B21b *31/32*
U.S. Cl. 72—224 **21 Claims**



A form changing device for castings in a continuous casting operation is formed of a rigid frame for suporting form changing rolls. In a preferred embodiment, the frame has an inverted T-shaped configuration with its upright web having an opening for the passage of the casting from a pair of vertically arranged rolls supported on one side of the web to a pair of horizontally arranged rolls on the other side. Support arms are articulated to and extend outwardly from the web and each form changing roll is supported by a pair of spaced support arms. Adjustable means are secured to the outer ends of the support arms for varying the spacing between cooperating rolls. Cross members are provided between the adjusting means to supply additional rigidity to the device. One of the cross members may be a shaft provided with cams for affording a fine adjustment of the spacing between cooperating form changing rolls. A bearing means including an adjustably movable member, such as a piston cylinder and arm, permits the pivotal movement of the combination of the support arms, adjusting members, and cross members relative to the web of the frame. An adjustable holddown device is provided on the web of the frame for properly positioning the casting in its passage between the horizontal and vertical rolls.

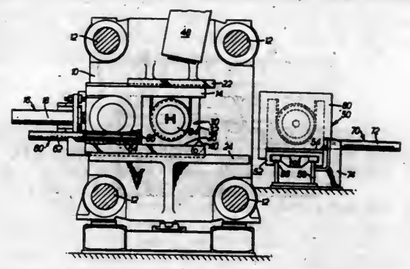
3,543,556
ROLL CHANGING MEANS AND METHODS
Ray A. Wolfendale, Fox Chapel, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 29, 1967, Ser. No. 664,040
Int. Cl. B21b *31/10*
U.S. Cl. 72—238 **6 Claims**



Means are disclosed for adjusting the elevation of the spindle couplings provided for a four-high mill stand or the like to facilitate changing the work rolls. The lower spindle coupling is adjustably supported by a plunger arrangement associated with the roll changing rails. The upper spindle coupling is adjustably supported by a bracket and cylinder arrangement. With this invention the spindle couplings can be pre-set and maintained at the proper elevation so that the work rolls can be easily engaged and disengaged therewith during the changing operation.

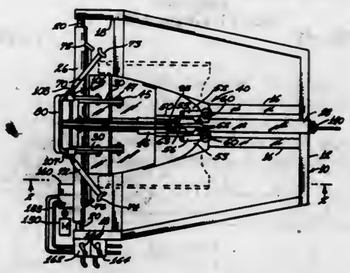
3,543,557
EXTRUSION PRESS WITH DIE-CHANGING DEVICE
Ernest Lomas, Wimbourne, Dorset, England, assignor to Loewy Robertson Engineering Company Limited, Dorset, England
Filed Oct. 28, 1968, Ser. No. 771,058
Claims priority, application Great Britain, Nov. 1, 1967, 49,693/67
Int. Cl. B21c *23/00*
U.S. Cl. 72—263 **12 Claims**

An extrusion press has its die or die assembly supported on a die slide which is movable transversely of the extrusion axis of the press by hydraulic propulsion means to a position in which the axis of the die is not coincident with the extrusion axis and adjacent a die change mechanism and further hydraulic means serve to displace the die or die assembly from the slide in this position to the die change mechanism. Further means are provided for



displacing a replacement die or die assembly which has been held in a heated oven into the die slide.

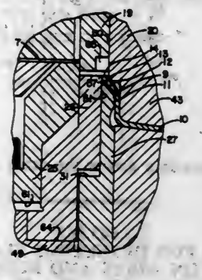
3,543,558
CULVERT END SECTION FORMING MACHINE
Lewellyn M. Currier, Box 63E, Rte. 1, Wayzata, Minn. 55391
Filed Sept. 4, 1968, Ser. No. 757,273
Int. Cl. B21d *11/04*
U.S. Cl. 72—306 **8 Claims**



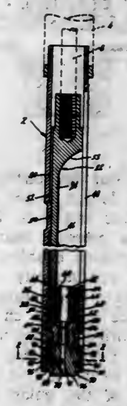
A metal forming machine in which a metal apron is formed from a sheet of metal on a mandrel through the use of bending arms and plates which roll and bend the metal plate against the mandrel. The mandrel is interchangeable for varying sizes of metal aprons.

3,543,559
CUP BLANKING AND FORMING METHOD AND TOOLING THEREFOR
Jerry D. Hawkins, Country Club Hills, and Bill G. Reid, Dolton, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Dec. 23, 1968, Ser. No. 785,899
Int. Cl. B21d *51/48*
U.S. Cl. 72—335 **15 Claims**

A method of forming a corrugated crown cap having an uncorrugated lip at an angle to the flange, and compound tooling for forming the cap in a double-acting press. The method comprises gripping the margin of the blank with predetermined pressure, draw forming and corrugating the skirt and flange while constricting the marginal portion of the blank, under restraint of the grip, then restraining the flange, leaving the lip free, and bending the lip. The tooling includes blanking and forming punches in a first assembly, and a nested die set in a second assembly. The blanking punch and an anvil grip the margin of the blank, while the forming punch, telescoped in the blanking punch, coacts with the forming die, telescoped in the anvil, to draw and corrugate the skirt and flange, constricting the marginal portion of the blank under restraint of the grip. The grip pressure is predetermined by a spring biasing the anvil toward the blanking punch. At the completion of the draw, a shoulder on the forming punch restrains the flange against the upper face of the forming die. Continued downward motion of the forming punch bends the lip between the anvil bore and a collar on the forming punch.



3,543,560
RIVET TOOL
Frederick J. Harris, Ansonia, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed Jan. 4, 1968, Ser. No. 695,759
Int. Cl. B21d *9/05*
U.S. Cl. 72—391 **2 Claims**

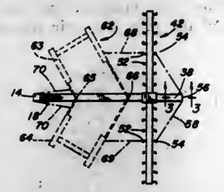


A rivet tool for use in setting tubular rivets mounted on a mandrel wherein the housing of the tool has a detachable nose piece with a mandrel gripping pawl positioned therein.

3,543,561
PORTABLE STRAIGHTENING DEVICE
David F. Taber, 1S785 Hawthorne Lane, Wheaton, Ill. 60187
Filed Jan. 27, 1969, Ser. No. 794,308
Int. Cl. B21d *41/02*
U.S. Cl. 72—392 **6 Claims**

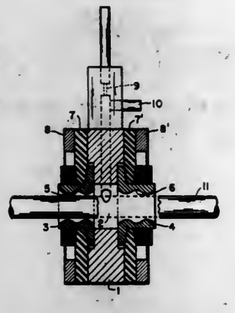
Apparatus for straightening unitized automobile bodies and automotive frames includes a main beam having a tension applying member pivotally attached near one end

and a crossbeam mounted thereon and held in a balanced position thereon by a chain connected to the crossbeam



and slidably extending across the other end of the main beam.

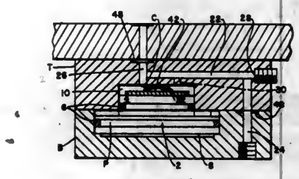
3,543,562
APPARATUS FOR DETECTING FLAT PORTIONS ON WIRES AND RODS
Georges Clemenceau, Albertville, France, assignor to Ugine Kuhlmann, Paris, France, a corporation of France
Filed Jan. 7, 1969, Ser. No. 789,485
Claims priority, application France, Sept. 20, 1968, 166,934
Int. Cl. G01b *13/00*
U.S. Cl. 73—37.7 3 Claims



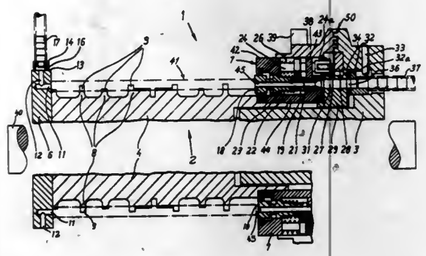
Method and apparatus for pneumatically measuring the area and finding defects in the section of elongate materials such as wires and rods. The apparatus comprises a body with a pressure chamber therein which has inlet and exit orifices enabling the elongate materials to be passed continuously therethrough. Compressed air is delivered to the chamber through an orifice at a constant pressure and the chamber is connected to a means for measuring the pressure therein. Aligned with the orifices are guides having internal walls substantially conforming to the section of the elongate materials. The section of the guide means is generally slightly larger than the nominal section of the elongate materials being tested. Placed centrally within the guides are enlarged sections forming a peripheral expansion groove. The pressure within the pressure chamber changes as the section of the elongate materials passing through the guide means changes.

3,543,563
CONTROL VALVE ASSEMBLY
Paul Weien, P.O. Box 68, Marietta, Pa. 17547
Filed Oct. 24, 1968, Ser. No. 770,154
Int. Cl. G01m *3/02*
U.S. Cl. 73—40 3 Claims

A control valve assembly adapted to be used in testing devices wherein a pressurized fluid is admitted to a testing system which system includes an article to be tested, a pressure differential sensor and a control valve admitting pressure to said system. The control valve enables a predetermined time span to elapse between initially connecting the system and the time at which the pressure is stabilized in the system. The time span is desirable in order to enable the system to achieve a stability while maintaining adequate pressure in all of the component parts.



3,543,564
CONVEYOR FOR CIGARETTES OR THE LIKE
Bob Heitmann, Hamburg, Hans J. Grasse, Wentorf, Günter Schubert, Reinbek, and Fritz Bodner, Hamburg, Lohbrugge, Germany, assignors to Hauni-Werke Korber & Co., KG, Hamburg, Germany
Filed Jan. 17, 1968, Ser. No. 698,521
Claims priority, application Great Britain, Feb. 10, 1967, 6,405/67
Int. Cl. G01m *3/02*
U.S. Cl. 73—41 11 Claims

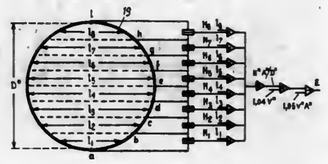


A conveyor including a rotary drum which transports cigarettes or like rod-shaped articles sideways past a testing station where the articles are tested by air or another suitable gas which is admitted into one or both ends of articles. The articles are accommodated in flutes which extend in parallelism with the axis of the drum and one end of each article can be moved into abutment with a flange which rotates with the drum. The latter also supports nozzles which convey testing fluid and are movable axially of the drum toward and away from the other end of each article. The nozzles are biased by springs which cause them to move the articles into abutment with the flange. Shifting forks are controlled by a stationary cam and serve to disengage the nozzles from the respective articles during travel past an ejecting station where the defective articles are expelled from their flutes by compressed air, and thereupon past a transfer station where the satisfactory articles are removed for delivery to a stacking, packing or other processing machine.

The springs compensate for eventual differences in the length of articles in that they bias the nozzles against

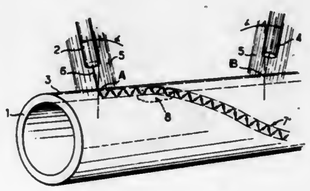
the articles and cause each article to move axially into abutment with the flange. Testing air passes through the nozzles and through bores provided in the flange. The characteristics of such air are examined to determine the condition of articles. Signals produced in response to detection of a defective article are used to expel such article at the ejecting station.

3,543,565
METHOD AND APPARATUS FOR DETERMINING THE CONCENTRATION OF DREDGER SPOIL IN A SUSPENSION OF DREDGER SPOIL AND WATER FLOWING THROUGH A PIPE
Jan de Koning, Amsterdam, and Romke van der Veen, Jutphaas, Netherlands, assignors to N.V. Ingenieursbureau voor Systemen en Octrooien, Spanstaal, Rotterdam, Netherlands, a Dutch contracting company
Filed Mar. 28, 1968, Ser. No. 716,809
Claims priority, application Netherlands, Mar. 31, 1967, 6704596
Int. Cl. G01n *15/06, 9/26*
U.S. Cl. 73—61 9 Claims



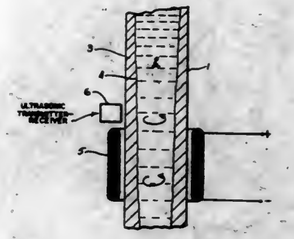
For determining the concentration of dredger spoil in a suspension of dredger spoil and water flowing through a horizontal pipe, the difference is measured between the pressures at two different levels at least of the horizontal pipe and the concentration is derived from this pressure difference.

3,543,566
METHOD OF TESTING METALLIC ARTICLE BY MEANS OF ULTRASONIC BEAMS
Alain Sulmont, Aulnaoye-Aymeries, France, assignor to Societe Anonyme dite: Vallourec, Paris, France
Filed Mar. 8, 1967, Ser. No. 621,665
Claims priority, application France, Mar. 14, 1966, 53,250
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.7 6 Claims



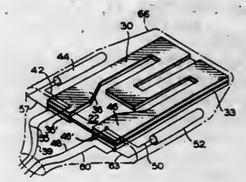
A method of detecting defects in metallic articles having parallel surfaces by causing an ultrasonic beam to be repeatedly reflected from one of said surfaces to the other so that it will follow a predetermined path in the absence of defects, and detecting any deviation of said beam from said path.

3,543,567
METHOD OF INTENSIFYING REFLECTION OF ULTRASONIC WAVES FROM BOUNDARY BETWEEN SOLID AND LIQUID METAL
Benno Lux and Wilfried Kurz, Geneva, Switzerland, assignors to Concast AG, Zurich, Switzerland
Filed Nov. 20, 1967, Ser. No. 684,530
Int. Cl. G01n *9/24*
U.S. Cl. 73—67.7 2 Claims



In a method of locating the solidification front in a metal casting by measuring the amplitude of ultrasonic waves reflected from the boundary between the solid and liquid phases, the boundary is more sharply defined to intensify the reflection of the waves by agitating the liquid phase at the point of measurement—by mechanical agitation or by applying a rotating magnetic field.

3,543,568
STRAIN GAGE ASSEMBLY
John D. Russell, 26878 Sea Vista Drive, Malibu, Calif. 90265
Filed Dec. 13, 1967, Ser. No. 690,134
Int. Cl. G01b *7/18*
U.S. Cl. 73—88.5 7 Claims

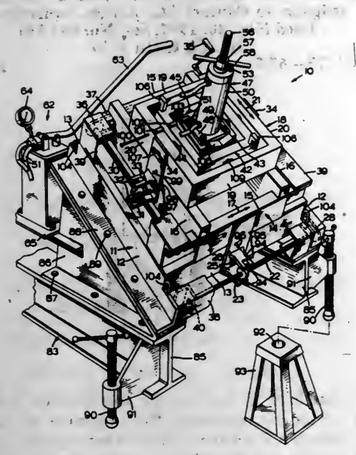


A strain gage assembly for determining the reaction of a test specimen to forces exerted thereon has a plurality of foil-type strain gages arranged to react identically to strains experienced by the test specimen with the strain gages being axially aligned and stacked one upon another and separated by electrically insulating and adhesive bonding material, with the separation of said gages effected by the material therebetween being insufficient to cause a gage in the stack to react significantly different from its adjacent gage in the stack.

3,543,569
GUY ANCHOR TESTING DEVICE
William S. Carter, 49 Sagebrush Lane, Toronto, Ontario, Canada
Filed Oct. 16, 1968, Ser. No. 767,966
Int. Cl. G01n *3/10*
U.S. Cl. 73—95 6 Claims

A testing device for guy anchors having a base member and two sliding frame members sliding at right angles to each other mounted on top of the base member.

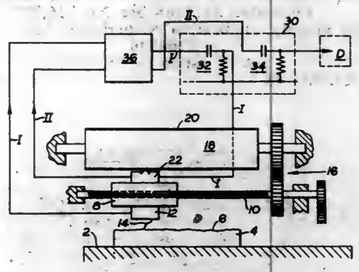
Another frame member is pivotally mounted inside the top sliding frame member and a support member is mounted pivotally within this last frame member. An hydraulically operated pulling device having a calibrated measuring device attached thereto is mounted in the support member for connection to a guy anchor to be tested.



3,543,570
AQUEOUS BASE PENETRANT COMPOSITION AND METHOD
Adolf Mlot-Fijalkowski, Elmwood Park, Ill., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Nov. 21, 1967, Ser. No. 684,633
Int. Cl. G01n *19/02*
U.S. Cl. 73—104 **6 Claims**

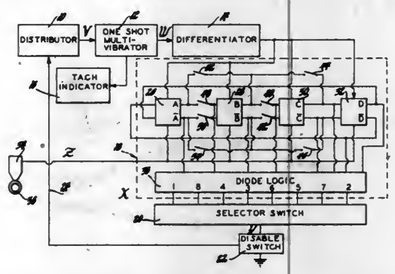
An aqueous base penetrant for and method of detecting surface discontinuities in test pieces in which the penetrant comprises an oil-soluble but water-immiscible hydrocarbon solvent, preferably having a K.B. value of from 60 to 80, and an oil-soluble, but water-dispersible alkanolamide that is soluble in said hydrocarbon solvent and that increases the solubility of the dye and thus increases the sensitivity of the penetrant. The increased sensitivity is also a result of better control of the removal of the penetrant from the surface when washing with water. The inclusion in the penetrant of a sufficient proportion of a glycol type coupler, with or without a surfactant, renders the penetrant, notwithstanding its water insoluble content of hydrocarbon solvent and oil-soluble alkanolamide, miscible with water up to infinite proportions of water. This permits the penetrant to be made available in a concentrated form that can be diluted for use with any desirable amount of water, and also permits the excessive penetrant applied to the surface of the test piece to be removed by water washing alone. The aqueous base penetrant preferably contains at least one fluorescent dye and, a glycol type coupler, and optionally a nonionic surfactant and a corrosion inhibitor. For best results an alkylphenoxy polyethoxyethanol containing from 6 to 20 ethylene oxide groups per molecule is selected as the surfactant. An alkanolamide of a C_{12}–C_{18} aliphatic fatty acid or mixture of such acids is selected that imparts a yellowing of the fluorescent dyes where the dyes are in a cascading relationship, and that retards the water washability of the excess penetrant at temperatures above about 100° F. Thus, in order to reduce the likelihood of removing any of the penetrant residue entrapped in surface discontinuities, water washing is preferably effected at a temperature of at least 100° F. The method can be carried out without the use of a developer, due to the greater fluorescent intensity of the color indication.

3,543,571
COMPENSATION FOR PHASE DISTORTION IN SURFACE PROFILE MEASURING APPARATUS
David John Whitehouse, Melton Mowbray, Leicester, England, assignor to The Rank Organisation Limited, London, England, a British company
Filed Nov. 3, 1967, Ser. No. 680,395
Int. Cl. G01b *7/34*
U.S. Cl. 73—105 **9 Claims**



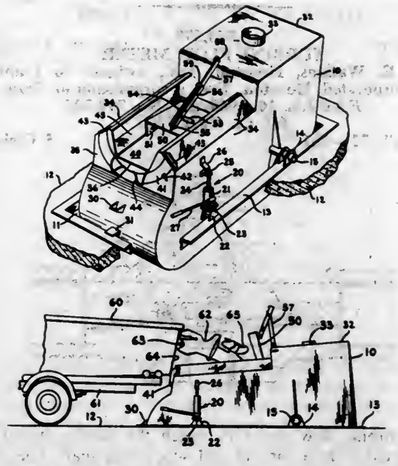
In the measurement of workpiece surface roughness a signal derived from a workpiece-feeling sensor is subjected to two consecutive identical filtering operations, between which the signal is stored, e.g., on a magnetic cylinder. The signal is read out from storage in the reverse sequence to that in which it is recorded, so that phase distortions in the two filtering operations compensate for each other, the resulting filtered signal being displayed as a measure of a particular surface irregularity.

3,543,572
IGNITION SUPPRESSION SYSTEM
Raymond E. Summerer, Grand Blanc, and John B. Force, Bancroft, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 19, 1968, Ser. No. 753,429
Int. Cl. G01m *15/00*
U.S. Cl. 73—116 **3 Claims**



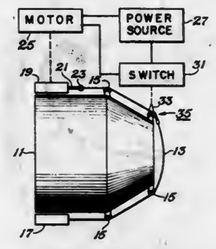
An agitation suppression system for testing internal combustion engines by selectively disabling one or more cylinders. Ignition voltage pulses are counted in a digital register. Outputs from the register are connected through selection means to a disable switch to short the distributor points each time a preselected count is attained.

3,543,573
TEST TANK FOR MARINE ENGINES
Louis A. Hunziker, 783 Commerce Ave., Longview, Wash. 98632
Filed Aug. 8, 1968, Ser. No. 751,160
Int. Cl. G01m *15/00, 10/00*
U.S. Cl. 73—117.1 **9 Claims**



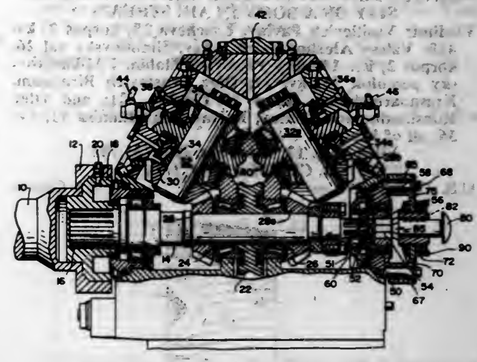
The tank is mounted on trunnions whereby the front end may be lowered to receive a stern drive unit on a boat carried by a trailer. Then the front end of the tank is raised to operative position by a jack. Ropes are arranged to pull the transom of the boat against a seal on said front end of the tank.

3,543,574
METHODS AND APPARATUS FOR DETECTING VARIATIONS IN GROSS MOMENTUM THRUSTS
Carroll E. Johnson, 1905 Sevilla Road, Fort Worth, Tex. 76116
Continuation-in-part of application Ser. No. 489,530, Sept. 23, 1965. This application Nov. 1, 1968, Ser. No. 814,860
Int. Cl. G01m *15/00*
U.S. Cl. 73—117.4 **16 Claims**



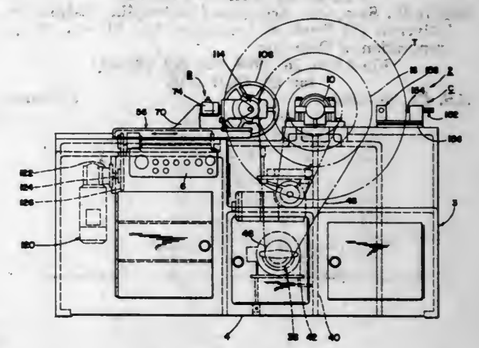
Methods and apparatus for detecting variations in gross momentum thrusts of momentum thrust engines by positioning a wire across the vena contracta of the exhaust flow of a convergent or convergent-divergent nozzle and measuring the variations in tensile loading of the wire. For minimum inaccuracy, the angle the wire makes with the supports is physically maintained constant, or computed to a predetermined value with an analogue computer.

3,543,575
SHEAR PIN TESTING DEVICE
John H. Fox, Rock Island, Ill., assignor, by mesne assignments, to Nichols-Homeshield, Inc., Elmhurst, Ill., a corporation of Delaware
Filed Dec. 9, 1968, Ser. No. 783,462
Int. Cl. G01l *5/00*
U.S. Cl. 73—133 **7 Claims**



A collar on a drive shaft is connected by a shear pin to a splined sleeve connected to the splined end of a second drive shaft used for operating a single stand in a multi-stand rolling mill. A plunger is keyed to a friction clutch and is actuable to engage a claw coupling with the stand drive shaft. The friction clutch is adjusted to apply a predetermined torque to the drive shaft as it rotates the coupling. If a shear pin is broken the torque applied to the drive shaft by the clutch will prevent it from being rotated by the mill drive shaft.

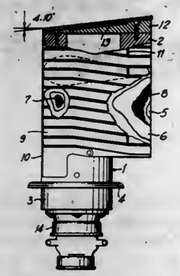
3,543,576
TIRE TESTING APPARATUS AND METHOD
Earl L. Bishop, Cuyahoga Falls, Ohio, assignor, by mesne assignments, to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed May 3, 1966, Ser. No. 547,213
Int. Cl. G01m *17/02*
U.S. Cl. 73—146 **17 Claims**



A tire testing apparatus including a frame with a power driven shaft mounted for rotation on the frame. A support member is disposed adjacent one end of the shaft adapted for mounting an inflatable member to be tested. A carriage mounted for reciprocal movement on the frame

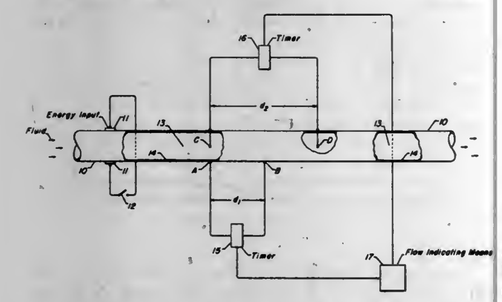
and carrying a pressure-applying wheel for pressure engagement with the inflatable member. Electrical pressure-responsive devices operably coact with the pressure-applying wheel for measuring force variations imparted by the inflatable member upon pressure engagement by the pressure-applying wheel.

3,543,577
DEVICE FOR MONITORING THE ICING INTENSITY OF A BODY IN AIR STREAM
Vladimir Vasilievich Pavlov, Usacheva 29, korpus 7, kv. 418; Valery Alexandrovich Ivliev, Simonovsky val 26, korpus 2, kv. 18; Jury Petrovich Zlobin, I Mikhalkovsky pereulok 25, kv. 17; Oleg Ernstovich Birnbaum, Krasnoarmeiskaya ulitsa 13/15, kv. 121; and Oleg Konstantinovich Trunov, Bulvar Yana Rainisa 11, kv. 36, all of Moscow, U.S.S.R.
Filed Aug. 12, 1968, Ser. No. 751,781
Int. Cl. G01w *1/08, 1/14*
U.S. Cl. 73—170 **3 Claims**



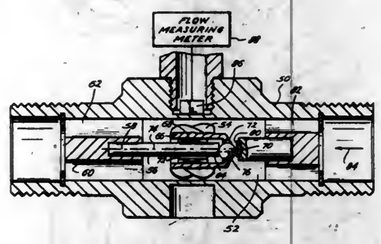
A device for measuring icing intensity of a body in an air stream comprises a casing in the form of a symmetrical airfoil on which is mounted a temperature difference transducer, which provides output signals indicative of the icing intensity on the body and which is constituted by a band thermocouple pile with hot and cold junctions disposed on the casing and connected in series to form a band which constitutes an outer covering for the casing. Electrical heating elements are disposed in the casing and are connected to an impact temperature transducer, which is mounted on the inner surface of an end wall cover of the casing.

3,543,578
FLOW METERING SYSTEM
Robert W. Sampson, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Feb. 26, 1968, Ser. No. 708,257
Int. Cl. G01f *1/00*
U.S. Cl. 73—204 **2 Claims**



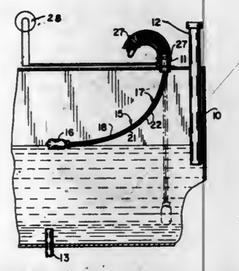
Flow metering system particularly adaptable for measuring relatively small flow rates of fluid flow within a conduit. The system utilizes a dual set of energy sensors for measuring the rate at which an externally induced energy source is applied to the sensors. The output signals from each set of sensors are compared and correlated with the flow rate of the fluid in the conduit. Preferably, the energy input is thermal in nature and the dual set of sensors are devices for receiving thermal information along the downstream path of the flowing fluid.

3,543,579
TURBINE FLOW METER
Fred E. Watkins, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex., a corporation of Texas
Filed Jan. 10, 1969, Ser. No. 790,205
Int. Cl. G01f *1/00*
U.S. Cl. 73—231 **5 Claims**



A turbine flow meter in which the turbine wheel is supported from a cantilevered supporting shaft, one end of which is fixedly secured, and the turbine wheel is rotatably supported from the second end of the shaft on a bearing and a thrust ball is positioned against the second end of the shaft and supported from the turbine wheel on the axis of the wheel. A thrust support fixedly secured in the housing and axially aligned therein and positioned adjacent and thrust bearing opposite the second end of the wheel supporting shaft. Straightening vanes on each side of the wheel supporting the supporting shaft on one side of the wheel and supporting the thrust support on the second side of the wheel.

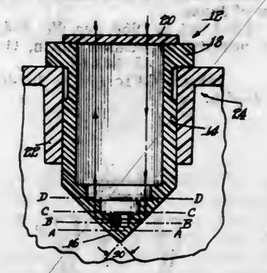
3,543,580
LIQUID LEVEL INDICATOR
Landon G. McGill, P.O. Box 127, St. Pauls, N.C. 28384
Filed Apr. 25, 1969, Ser. No. 819,328
Int. Cl. G01f *23/10*
U.S. Cl. 73—313 **3 Claims**



Apparatus for indicating when a container of liquid requires replenishment including a flexible support member extending into the container a distance less than the depth thereof and with such support member being easily bendable in one direction but resisting bending in any other direction. A mercury switch type float is mounted on one end of the support member and is connected elec-

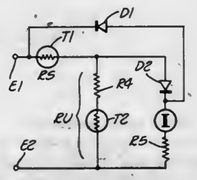
trically to a signal in a remote position and adapted to energize the signal when the liquid within the container reaches a predetermined level.

3,543,581
LIQUID LEVEL INDICATOR
Francis E. Ryder, Island Lake, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Feb. 6, 1969, Ser. No. 797,141
Int. Cl. G01f *23/02*
U.S. Cl. 73—327 **7 Claims**



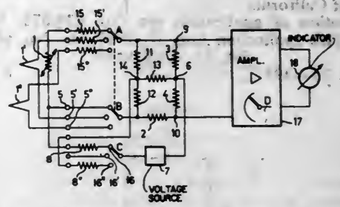
The present invention relates generally to liquid level indicators adapted to be mounted in the upper wall of a liquid container, as for example the upper wall of a conventional storage battery. The embodiments of the invention disclosed in the present application include a relatively thin-walled hollow element formed of suitable light receiving and reflecting material adapted to depend from the upper wall of a container into a body of liquid within the container. This relatively thin-walled hollow container is adapted to receive light from the upper extremity thereof and to direct such light downwardly into association with angularly disposed light receiving and reflecting surface means. Portions of the angularly disposed light receiving and reflecting means not immersed within the liquid will reflect light back to the upper light receiving portion of the member. Portions thereof immersed within the liquid will not reflect light rays back to the upper light receiving area and hence the level of the liquid may be visually determined by observing the extent to which the upper light receiving area is light or dark in shade.

3,543,582
AGE INDICATING DEVICE
Donald R. Sessler, Temple City, Calif., assignor to Dynametric, Inc., Pasadena, Calif., a corporation of California
Filed Feb. 10, 1969, Ser. No. 798,060
Int. Cl. G01k *3/04, 7/24*; G01r *11/44*
U.S. Cl. 73—339 **11 Claims**



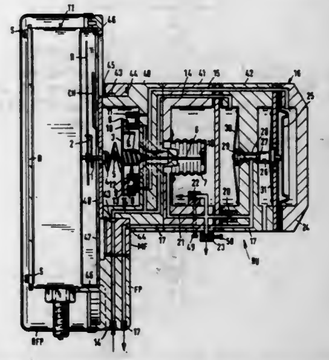
An age indicator suitable for ascertaining the effect of exposure of articles to varying temperature conditions on the useful life of the article, is provided with means for conveniently resetting the age indicator for reuse. An electrical circuit is provided by which a greater magnitude of current is allowed to flow through the age indicator when operated in the setting, that is, resetting, mode than when the age indicator is being operated in the age indicating mode. The age indicator may be reset by this operation to its zero point or to any desired intermediate position.

3,543,583
CIRCUIT ARRANGEMENT FOR CONNECTING DEVICES FOR PICKING UP MEASURING VALUES TO BE RECORDED
Karl-Georg Holsten, Kassel, Germany, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed June 11, 1968, Ser. No. 736,125
Claims priority, application Germany, June 19, 1967, 1,623,799
Int. Cl. G01k *7/02, 7/24*
U.S. Cl. 73—341 **7 Claims**



Test apparatus for selectively connecting a plurality of temperature pick-up devices to an indicator includes a bridge circuit having input terminals connected to a DC voltage source and output terminals connected to the indicator. Switching means selectively connect the pick-up devices into one arm of the bridge. A voltage divider is connected in parallel with said one arm of the bridge. A resistor is connected between a tap on the voltage divider and one input terminal of the bridge. The switching means includes at least one switch path for selectively connecting the voltage source to the other bridge input terminal or to the tap on the voltage divider.

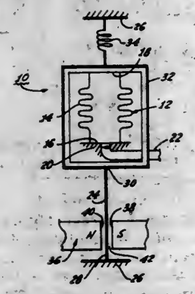
3,543,584
REGULATING SYSTEMS
Gerhard Klee, Am Fuchshohl 104, Frankfurt am Main-Ginnheim, Germany
Continuation-in-part of application Ser. No. 508,305, Nov. 17, 1965. This application Nov. 25, 1968, Ser. No. 778,742
Claims priority, application Germany, Nov. 18, 1964, S 94,243
Int. Cl. G01l *7/00*; G01d *5/46*
U.S. Cl. 73—388 **7 Claims**



A regulator system has a measuring instrument with a dial on a shaft within a housing. A first transducer is behind the dial for transducing a signal physically trans-

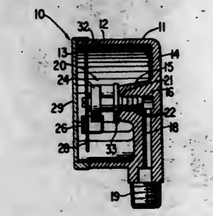
mitted from outside the housing into rotation of the shaft. A hand fixed on the shaft rotates and in cooperation with a scale on the dial gives a reading. A regulator unit is detachably mounted by a mounting frame in front of the dial. A coupling in front of the regulator unit makes contact with the hand of the measuring instrument. The coupling is supported so that it can rotate substantially coaxially in front of the dial coaxially with the shaft. As the shaft rotates a second transducer produces a pneumatic output signal in accordance with rotation of the shaft for transmission to a load.

3,543,585
VIBRATORY WIRE PRESSURE TRANSDUCER
Neil L. Brown, El Cajon, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif., a corporation of California
Continuation of application Ser. No. 429,075, Jan. 29, 1965. This application Aug. 17, 1967, Ser. No. 661,467
Int. Cl. G01l *9/00*
U.S. Cl. 73—398 4 Claims



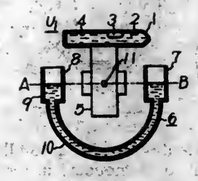
This application relates to a pressure transducer which includes a wire having a relatively great rigidity, the rigidity of the wire remaining substantially constant even with variations in temperature. The wire is coupled to a bellows which receives fluid at variable pressure and which imposes upon the wire a force dependent upon the pressure of the fluid. The bellows is expansible with variations in temperature without producing any effect on the force imposed upon the wire. The wire is vibratable at a natural frequency dependent upon the force imposed upon the wire. This natural frequency is measured to provide an indication of the force upon the wire. In this way, the wire provides an indication of the variable pressure of the fluid introduced to the bellows without being affected by variations in temperature.

3,543,586
INSTRUMENT ASSEMBLY
Ralph D. Waite, Sellersville, Pa., assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 19, 1968, Ser. No. 777,073
Int. Cl. G01d *11/00*
U.S. Cl. 73—431 8 Claims



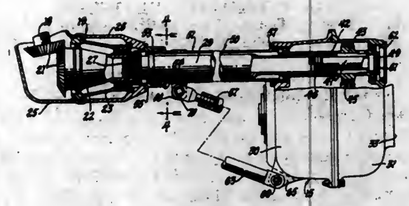
An instrument casing of a plastic material has a closed end wall with a bore formed in the end wall and opening within the casing. An instrument movement is provided with a tubular extension which is snugly received within the bore to mount the movement within the casing. A series of annular serrations are provided on the tubular extension to grip securely the inner face of the bore.

3,543,587
GYROSCOPIC INSTRUMENT
Shin-Ichi Kawada, Yokohama-shi, Kanagawa-ken, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan, a corporation of Japan
Filed Oct. 1, 1968, Ser. No. 764,071
Claims priority, application Japan, Oct. 7, 1967, 42/64,616
Int. Cl. G01c *19/28, 19/46*
U.S. Cl. 74—5.6 3 Claims



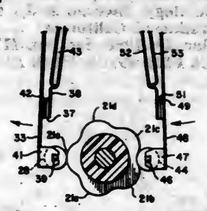
A gyroscopic instrument having a tilt integrator consisting of a sealed container, a fluid enclosed therein, a moving member insoluble in and nonmiscible with the fluid, having a specific gravity different from that of the fluid and movably disposed in the sealed container, torque generator means, a gyroscope, and means for detecting the position of the moving member in the form of an electric signal.

3,543,588
ACCESSORY INSTALLATION
Truman R. Richardson, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 12, 1968, Ser. No. 774,975
Int. Cl. F02c *7/20*; F16h *37/00*
U.S. Cl. 74—15.8 8 Claims



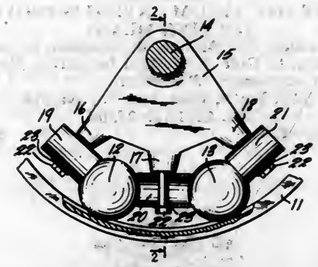
An accessory drive arrangement for a ducted fan type aircraft engine has the accessory drive housing suspended from the engine case within the by-pass duct. The accessory drive housing is slidable on the engine case and is driven by a shaft extending axially of the engine. The housing for this shaft locates the accessory drive housing axially of the engine. The axially-extending shaft and its housing may be retracted rearwardly from a transfer gear enclosure by which they are coupled to the engine so that the assembly of the accessory drive and the axial shaft may be removed vertically from the engine.

3,543,589
CAM WITH BALANCED SPRING-LOADED FOLLOWERS
Eugene F. Loughran, Jr., Oakville, Conn., assignor to North American Philips Corporation, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 466,963, June 25, 1965. This application Dec. 20, 1967, Ser. No. 692,210
Int. Cl. F16h *25/16*
U.S. Cl. 74—54 11 Claims



A cam having a plurality of substantially equal lobes evenly spaced around an axis and having two cam followers spaced apart so that when one is on a rising portion of a lobe and thereby withdrawing energy from the mechanism that drives the cam, the other is on the falling portion of a lobe and is thereby returning energy to the cam in an amount of energy being withdrawn by the first cam follower.

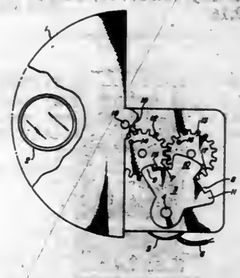
3,543,590
MECHANICAL VIBRATOR
Arne Bergendal, Stockholm, and Johnny Fransson, Akersberga, Sweden, assignors to Aktiebolaget Vibro-Verken, Solna, Sweden, a corporation of Sweden
Filed Jan. 8, 1969, Ser. No. 789,668
Claims priority, application Sweden, Jan. 9, 1968, 233/68
Int. Cl. B06b *3/00*
U.S. Cl. 74—87 7 Claims



A mechanical vibrator which includes a roller path of cup-shaped cross-section and along the inside of which one or more balls are driven. The vibrator includes a drive member, mounted on a central axis, on which ball drive means are pivotally mounted. The ball drive means are formed to provide an abutment of greatest area at all times between the ball and the ball drive means while the ball is propelled by the drive member.

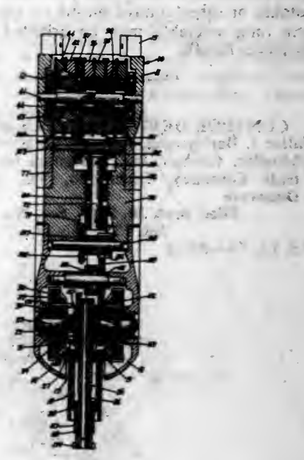
3,543,591
SHUTTER OPERATING MECHANISM
Harold L. Christy and Herbert F. Diegel, Phoenix, Ariz., assignors to Sickles, Inc., a corporation of Arizona
Filed June 9, 1969, Ser. No. 831,343
Int. Cl. F16h *27/02*
U.S. Cl. 74—88 3 Claims

In order to achieve uniform shutter-controlled exposure through an aperture, a shutter activating mechanism is provided whereby the trailing edge and the leading edge of the shutter sweep across the aperture in the same direction when the shutter is opened and closed, respectively. The shutter operating mechanism comprises two meshed gear members and a rotary solenoid driven actuator which engages upright pins on the two gear members whereby each of the gear members is driven a quarter turn, always



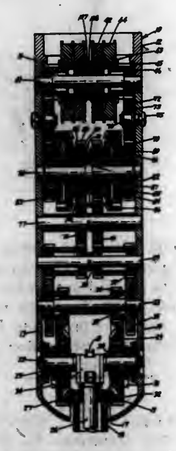
in the same direction, with each power stroke and each return stroke of the solenoid. The shutter is carried on a shaft common with a third gear member meshed with the first gear member with the tooth ratio between the first and third gear members providing a half turn of the shutter for each quarter turn of the first gear member.

3,543,592
SEALED WRIST JOINT
Lester W. Haaker and Demetrius G. Jelatis, Red Wing, Minn., assignors to Central Research Laboratories, Inc., Red Wing, Minn., a corporation of Minnesota
Continuation-in-part of application Ser. No. 774,467, Nov. 8, 1968. This application Apr. 8, 1969, Ser. No. 814,265
Int. Cl. F16h *1/06*; B25j *3/00*
U.S. Cl. 74—89.16 12 Claims



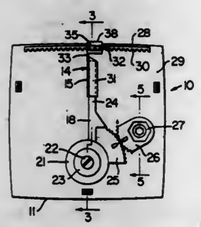
A sealed wrist joint for mounting the tong means of a remote control master-slave manipulator. Elevation and twist and tong motions are transmitted from the master arm to tape drums and thence through rotary seals to differential gears and to the operating members of the tong assembly. A slave arm fitted with the wrist joint can be booted to provide more complete sealing with reduced motion interference.

3,543,593
CONTINUOUS TWIST WRIST JOINT
Lester W. Hanker and Demetrius G. Jelatis, Red Wing, Minn., assignors to Central Research Laboratories, Inc., Red Wing, Minn., a corporation of Minnesota
Continuation-in-part of application Ser. No. 774,467, Nov. 8, 1968. This application June 4, 1969, Ser. No. 830,271
Int. Cl. F16h 27/06; B25j 3/00
U.S. Cl. 74—89.16 10 Claims



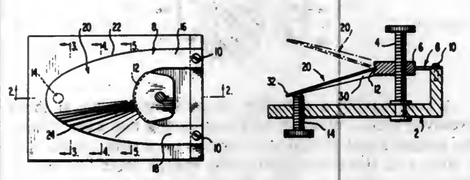
A wrist joint for mounting the tong means of a remote control master-slave manipulator characterized by continuous twist rotation. The wrist joint may be provided with a motorized drive or positional indexing system. A motorized slave arm twist joint may be controlled by switches or other control means on the master side. The slave tong assembly may be oriented independently of the master handle.

3,543,594
CONTROL DEVICE MANIPULATOR MEANS
Walter J. Berleyoung, Kenneth G. Kreuter, and Klaus P. Mueller, Goshen, Ind., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,511
Int. Cl. F16h 21/16
U.S. Cl. 74—89.18 20 Claims



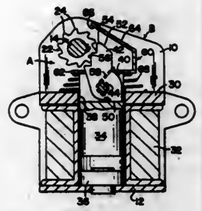
This disclosure relates to a control device having a rotatable control member provided with an arm that is slidably interconnected to a manipulator means that is guided relative to the control device by a guide track, said manipulator means being a one-piece integral structure having the guide part thereof integrally interconnected to the slide part thereof by a hinge means whereby the guide part can move in one direction and the slide part can move in another direction while moving the control member to a desired position thereof.

3,543,595
SNAP ACTION APPARATUS
Donald F. Wilkes, Albuquerque, N. Mex., assignor to Rolamite Technology Incorporated, San Francisco, Calif., a corporation of California
Filed Mar. 29, 1968, Ser. No. 717,114
Int. Cl. F16h 49/00; H01h 13/32
U.S. Cl. 74—100 20 Claims



A snap action device formed by a thin resilient sheet elastically stressed into a three dimensional configuration. The shape of the sheet provides one or more bi-stable segments in which the cross buckling modulus of successive transverse cross sections decreases from one end of the segment to the other. Relative movement of the ends of a bi-stable segment causes transverse buckling of the segment to progress lengthwise to the end of the segment and then the segment snaps over into a reversely curved configuration.

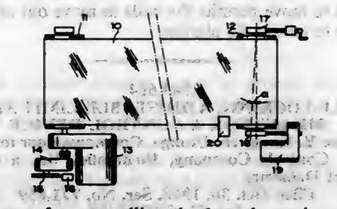
3,543,596
DRIVE MECHANISM HAVING IMPROVED LOCKING MEANS
Gary D. Fredell, East Moline, Ill., assignor, by mesne assignmentss, to Gulf + Western Industries, New York, N.Y., a corporation of Delaware
Filed Jan. 9, 1969, Ser. No. 790,018
Int. Cl. F16h 27/04
U.S. Cl. 74—128 5 Claims



A drive mechanism for converting linear motion to rotary motion including a shaft rotatably mounted on a frame, a ratchet wheel secured to the shaft for rotation therewith in a forward and reverse direction, drive means for reciprocating a drive pawl between an uppermost position and a lowermost position, the pawl adapted to reciprocate into and out of engagement with the ratchet wheel to drive the wheel in a forward direction, and a lock pawl pivotally supported on the frame and biased into contact with the ratchet wheel to prevent rotation of the wheel in the reverse direction. There is further

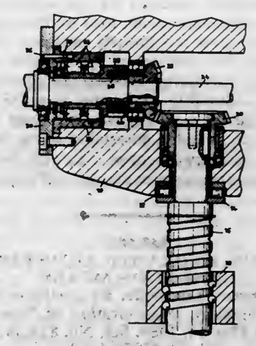
provided an improved locking means which is mounted on the drive means and reciprocates therewith to prevent rotation of the ratchet wheel in the forward direction when the drive pawl is traveling downward from a predetermined position, intermediate the uppermost and lowermost positions, to the lowermost position.

3,543,597
DEVICE FOR THE POSITIONING CONTROL OF AN ENDLESS BELT
Lucien A. Amede De Schamphelaere, Edegem, and Gentil De Blende, Wilrijk, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company
Filed Oct. 26, 1967, Ser. No. 679,580
Claims priority, application Belgium, Oct. 26, 1966, 46,175
Int. Cl. F16h 7/18
U.S. Cl. 74—241 12 Claims



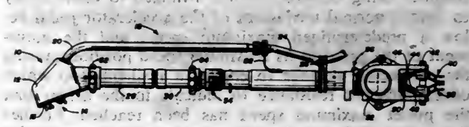
Apparatus for controlling the lateral running position of an endless belt by adjusting the position of a belt correcting member, i.e. as by adjusting the axis of a guide roll. Deviations in the position of the belt edge are detected and are averaged over a given period, such as the period of one belt revolution, and the position of the belt correcting member is adjusted in accordance with such average deviation plus the rate of change of such average deviation, which can be determined, for example, by subtracting two successive average deviations.

3,543,598
DRIVING MEANS FOR VERTICAL BALL-ROLL SPINDLES
Horst Lanzenberger, Munich, Germany, assignor to Friedrich Deckel Prazisions Mechanik und Maschinenbau, Munich, Germany, a firm of Germany
Filed Oct. 11, 1968, Ser. No. 766,841
Claims priority, application Austria, Oct. 23, 1967, A 9,561/67
Int. Cl. B66f 3/08; F16d 63/00; F16h 1/18
U.S. Cl. 74—424.8 7 Claims



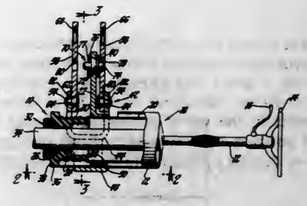
A drive for a vertical ball-roll spindle, useful especially for a spindle for elevating a support for a worktable of a machine tool. Friction creating means is connected to the spindle by a one-way clutch, so that the friction creating means is ineffective when the spindle is turned in a direction to raise the load, but becomes effective when the spindle is turned in a direction to lower the load, thus interposing the friction necessary to prevent the spindle from being turned in a descending direction by the weight of the load. In one form of the invention, the friction creating means is associated with a drive shaft geared to the spindle, and the amount of friction varies with the load.

3,543,599
THROTTLE CONTROL LINKAGE
Berwyn Blaine Caswell, Smithfield, Tex., assignor to Textron Inc., a corporation of Delaware
Filed Mar. 20, 1969, Ser. No. 808,896
Int. Cl. G05g 13/00
U.S. Cl. 74—469 24 Claims



A linkage provides independent control of the engines of a two-engine helicopter through a control stick mounted for pivotal movement to adjust the collective pitch of the blades of the helicopter. The linkage includes a pair of tubular coaxial shafts terminating in independent control grips and a pair of independent throttle gears. The shafts are connected to the gears by a flexible coupling positioned at the pivotal axis of the stick and comprised of telescoped tubes each characterized by a series of pairs of transverse slots alternately entering the walls of the tubes from mutually perpendicular directions.

3,543,600
TRANSMISSION CONTROL
Robert D. Wight and Owen R. Rittenhouse, Saginaw, Mich., and Earl W. Glover, deceased, late of Saginaw, Mich., by Ann P. Glover, executrix, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 7, 1968, Ser. No. 766,042
Int. Cl. G05g 9/12
U.S. Cl. 74—484 16 Claims



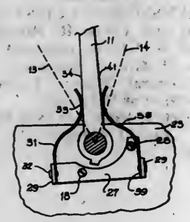
This disclosure describes a steering column-mounted single lever, shift control assembly for automatic transmissions which may be readily converted to an assembly for use with manual transmissions by the addition thereto of a subassembly comprising relatively few parts, said parts including an additional pair of shift levers and selector means for alternately engaging the single automatic transmission lever with the pair of shift levers in response to reciprocal movement of the single lever.

3,543,601
VEHICLE SPEED CONTROLLER
George C. Berger, Erskine, Minn. 56535
Filed Apr. 4, 1968, Ser. No. 718,809
Int. Cl. G05g 11/00
U.S. Cl. 74—513 4 Claims



An accelerator attachment for a vehicle engine incorporates a connector member extending between a tension spring and the accelerator linkage, the connector member being constructed and arranged to move freely to permit normal movement of the accelerator pedal below a predetermined maximum speed, and the movement of the pedal to its maximum speed position causing the connector member to engage a resilient stop which offers sufficient resistance to indicate to the driver that the preset maximum speed has been reached. Further depression of the accelerator pedal beyond the maximum speed position is required to move the connector member past the resilient stop against the resistance of the spring, which then operates to exert a restraining force against the movement of the connector member and accelerator linkage beyond their maximum speed position.

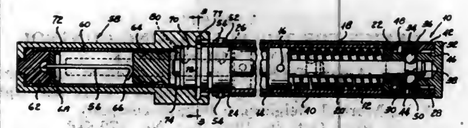
3,543,602
LEVER POSITIONING APPARATUS
Robert D. Riedle, Indianapolis, Ind.
(3868 New Salem Ave., Okemos, Mich. 48864)
Filed Nov. 25, 1968, Ser. No. 778,618
Int. Cl. G05g 5/00
U.S. Cl. 74—526 7 Claims



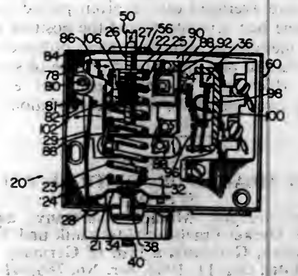
A bracket affixed to a tractor frame adjacent a hydraulic valve control lever, mounts two semi-circular leaf springs, each having a distal end engaging an edge of the lever and both resisting movement of the lever from a central, neutral position, the valve control lever being returnable to neutral position by whichever of the springs is moved by the lever during operation thereof for actuation of the valve.

3,543,603
AUTOMATIC QUICK RELEASE MECHANISM
Paul R. Gley, Hillsdale, N.J., assignor to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Jan. 10, 1968, Ser. No. 696,793
Int. Cl. G05g 5/06
U.S. Cl. 74—527 4 Claims

An automatic quick release mechanism in which detent balls supported by a barrel may move between a first position at which they engage the groove in a plunger heavily spring-loaded for movement out of the barrel to lock the barrel in a retracted position and a second or release position out of engagement with the groove. A light spring biases an element mounted for telescoping movement with relation to the barrel to a position out of telescoping relationship with the barrel to urge a portion of the element into engagement with the balls to urge them to plunger-locking position. Movement of the element in the same direction as that in which the plunger is urged to move permits the balls to move out of locking position to release the plunger.



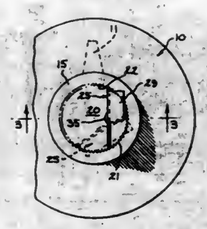
3,543,604
SELF-LOCKING, ADJUSTABLE LIMIT STOP MEANS FOR A CONTROL DEVICE
Theodore Y. Korsgren, Orange, Conn., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Oct. 30, 1968, Ser. No. 771,859
Int. Cl. G05g 5/04
U.S. Cl. 74—531 26 Claims



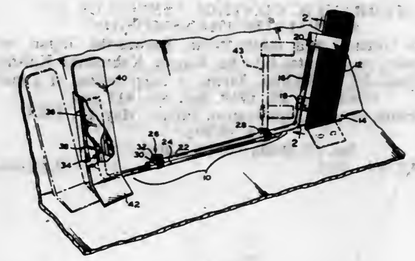
A control device includes a movable control member and an adjusting member. A spring has an actuated spring portion actuated by the control member, and has an arrested spring portion arrested by the adjusting member to produce an adjustable spring load on the control member. A threaded screw has threads engaging the adjusting member to vary the position of the arrested spring portion and to vary the spring load on the control member. A self-locking adjustable limit stop is provided on the screw and comprises a spring wire wrapped around the threads of the screw and is adjustable along the length of the screw. The spring wire cooperates with the screw and the adjusting member to provide the self-locking, adjustable limit stop.

3,543,605
CONTROL KNOB WITH ADJUSTABLE CONNECTION MEANS
George R. Sherman, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed May 14, 1969, Ser. No. 824,582
Int. Cl. G05g 1/12
U.S. Cl. 74—553 5 Claims

A control knob usable on an adjustable control device such as a multiple position electric switch or a thermostat. In order to standardize the knob design for many different applications so as to reduce large inventory problems, the knob is made with an adjustable connection means so that it may accommodate many different control devices that have different orientations of the flat side of the shaft of the devices. The knob has a hollow hub with a cylindrical bore that has a plurality of longitudinal slots formed in the wall thereof. A generally flat clip member is confined between a pair of a large choice of opposing slots in the hub with an interference fit to establish a D-shaped bore for receiving the mating shaft. The clip member is capable of assembly in a plurality of different angular positions so as to be able to alter the angular relationship between the handle and the mounting shaft of the control device.

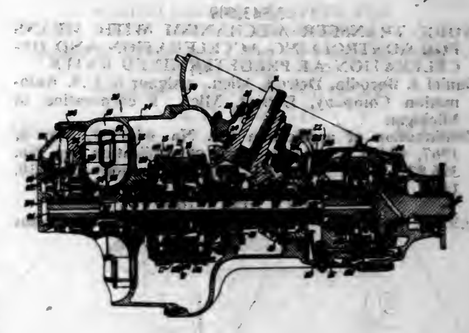


3,543,606
ACCELERATOR PEDAL ATTACHMENT
Arthur A. Kaul, Chehalis, Wash. 98532
Filed July 15, 1968, Ser. No. 744,867
Int. Cl. G05g 1/16
U.S. Cl. 74—562.5 7 Claims



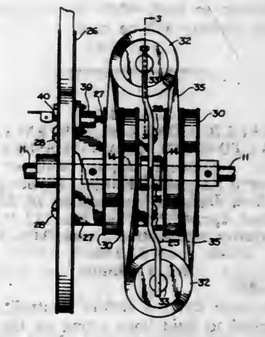
An auxiliary accelerator pedal attachment comprises a transverse shaft member, adapted for resting along an automobile floor board next to the automobile accelerator pedal, and an upward angular extension thereof positioned proximate the left hand side of the automobile accelerator pedal. The upward angular extension is provided with one or more transverse tabs which are slidably engageable with the vehicle's accelerator pedal, and the remaining end of the attachment suitably supports an auxiliary accelerator pedal. Movement of the auxiliary accelerator pedal forces a tab against the vehicle's accelerator pedal for positioning the same. The attachment is not secured to the vehicle's accelerating apparatus, but rests upon the automobile floor board and upon the automobile's accelerator pedal of its own weight. Therefore, no installation is required, and moreover, the attachment can be easily removed out of the way when use thereof is not desired.

3,543,607
ANGLE INPUT POWER TRANSMISSION
Jack W. Schmidt, Robert M. Tuck, and William V. Phillips, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 1, 1969 Ser. No. 820,723
Int. Cl. F16h 47/08
U.S. Cl. 74—688 7 Claims



An angle input power transmission for providing two forward speed ranges, including a converter drive and an overdrive, and a reverse speed range is disclosed. The transmission has an angle input shaft drivingly connected through a bevel gear set to a pair of input clutches. One clutch is connectable with the torque converter pump to provide a converter input planetary gear set while the other clutch provides a direct input to the planetary gear set. A turbine clutch on the output of the torque converter permits the turbine to be selectively coupled with the planetary gear set when a converter drive is desired. The converter input clutch and the turbine clutch are disengaged when the direct clutch is engaged to remove the torque converter from the power path to reduce the power loss in the transmission.

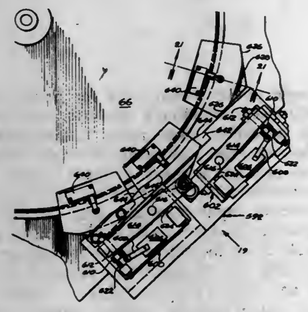
3,543,608
BELT DRIVEN DIFFERENTIAL
Roger W. Melhak, 1877 W. Minnehaha, St. Paul, Minn. 55104
Filed Dec. 6, 1968, Ser. No. 781,918
Int. Cl. F16h 1/28, 1/38, 1/44
U.S. Cl. 74—710.5 4 Claims



A belt driven differential having V-belt connection between a driven pulley and a pair of differential pulleys

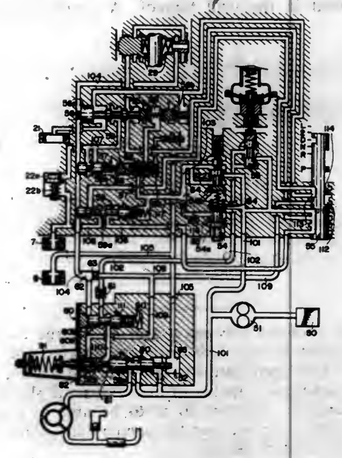
connected to the wheels or the like to be driven at a differential rate. Idler pulleys on the driven pulley means allow the differential movement. Locking means to lock the differential in case of a breakage of belts, and clutch means, useful in prevention of skidding may also be provided.

3,543,609
WORK TRANSFER MECHANISM WITH MEANS FOR CONTROLLING ACCELERATION AND DECELERATION AT PREDETERMINED RATES
Daniel J. Borodin, Detroit, Mich., assignor to U.S. Automation Company, Detroit, Mich., a corporation of Michigan
Continuation of application Ser. No. 649,759, May 8, 1967, which is a continuation of application Ser. No. 396,822, Sept. 16, 1964. This application Aug. 30, 1968, Ser. No. 767,887
Int. Cl. B17q *17/00*
U.S. Cl. 74—818 50 Claims



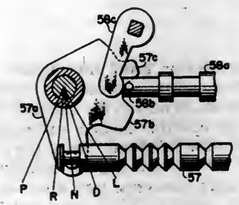
A work transfer mechanism embodying a base provided with a plurality of stations and a carriage movable on the base for traversing the stations, the carriage being driven by a variable speed motor unit. Means are provided for accelerating and decelerating the carriage travel at predetermined rates. The decelerating means are adapted to reduce the carriage velocity to zero when the carriage arrives at a predetermined station and includes a switch mechanism located on the base at a predetermined distance in advance of a station for triggering the carriage decelerating mechanism when the carriage traverses the switch mechanism so that, when the carriage arrives at the station, its velocity will be zero.

3,543,610
HYDRAULIC CONTROL SYSTEM IN AN AUTOMATIC TRANSMISSION
Keiji Kogaki, Toyota-shi, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-cho, Toyota-shi, Aichi-ken, Japan, a corporation of Japan
Filed Apr. 4, 1969, Ser. No. 813,410
Claims priority, application Japan, May 15, 1968, 43/32,735
Int. Cl. B60k
U.S. Cl. 74—867 3 Claims



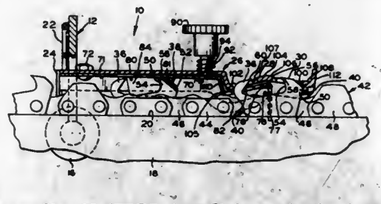
A fluid pressure control system controlling the fluid pressure supplied to fluid lines acting on the automobile drive means including clutches and gearing. The required pressure is selectively supplied by the combination of a throttle relay valve and a pressure regulator valve which receive the fluid pressure line, vacuum throttle pressure line, pressure governor line and a two position check valve connected to the throttle relay valve. These valves have respectively a valve piece and a valve spool as well as a free slide valve next to the valve spool. The position of these components within the respective valves as well as the position of the check valve determines the interconnection between the various lines supplying fluid pressure to the fluid lines acting on the drive means.

3,543,611
HYDRAULIC CONTROL SYSTEM OF AN AUTOMATIC TRANSMISSION
Sumio Uozumi and Ichio Sakai, Toyota-shi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan, a corporation of Japan
Filed Apr. 25, 1969, Ser. No. 819,403
Claims priority, application Japan, May 27, 1968, 43/35,905
Int. Cl. B60k *19/12*; G05g *9/00*
U.S. Cl. 74—867 2 Claims



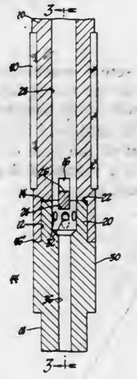
An automatic transmission hydraulic control system which provides high hydraulic pressure required by servo units when applying engine brake at low and reverse speeds. The throttle valve is operably interconnected with the manual shift valve by means of a link mechanism provided with a special shaped cam. In this way, a high control pressure is maintained at low and reverse speeds and applied to the hydraulic servos.

3,543,612
CLAMP-ON TOP FILERS
Kay Silvon, Portland, Oreg., assignor to Omark Industries, Inc., Portland, Oreg., a corporation of Oregon
Filed Jan. 15, 1968, Ser. No. 697,696
Int. Cl. B23d *63/08*
U.S. Cl. 76—31 12 Claims



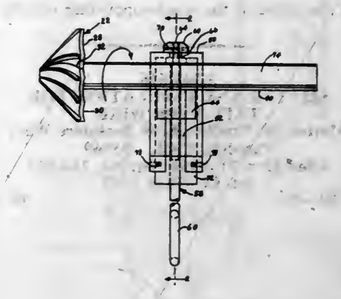
A top filer **10** (FIGS. 1 to 5) has a depth of cut gauging plate **70** carried by a file guiding arm **26** pivotal on a C-clamp frame **12** between a sharpening position and a position permitting movement of a saw chain **42** along a saw bar **18**. The plate **70** has an edge **77** which engages a gullet portion **78** of a cutter link **38** or **40** in the sharpening position, and is spring urged toward the arm **26**. An adjustment screw **90** limits the movement of the plate **70** toward the arm **26**. A screw **16** and a clamp pad **14** flush with the top edge of the saw bar rigidly secure the frame **12** to the saw bar. Tabs **100** and **102** of the arm **26** engage the depth gauge **36** and the shank **50** of each cutter link to locate it precisely. A top filer **150** (FIGS. 6 to 8) is similar to the top filer **10** but includes a tab **164** engaging top edge surface **56** of a cutter link and an edge **166** engaging the gullet portion **78** of another cutter link to precisely locate the filer **150** on the saw bar prior to clamping a C-clamp frame **160** to the saw bar at the start of a filing operation on the saw chain.

3,543,613
ROTARY CUTTING TOOL
Leo A. Obloy, Bloomfield Hills, Mich., assignor to Special Drill and Reamer Corp., Madison Heights, Mich., a corporation of Michigan
Filed Dec. 13, 1968, Ser. No. 783,576
Int. Cl. B23d *75/00*
U.S. Cl. 77—72 12 Claims



A rotary cutting tool comprising a tool holder formed with a socket having a slot in the end face. A reaming bit has a slotted end portion received in the socket, and a drive key is received in the slots. The reaming bit is brazed or otherwise secured to the socket wall against axial displacement.

3,543,614
ARMOR SHEATH STRIPPER FOR ELECTRICAL CONDUCTORS
James W. Tibbet, Rte. 1, Box 94, Tampman Road, Gold Hill, Oreg. 97525
Filed July 17, 1968, Ser. No. 745,454
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 10 Claims



Armor sheaths composed of high-pitched, spirally wrapped, metallic wires, commonly called "rod," are conventionally provided on aluminum power line conductors at points of conductor support. Linemen are frequently required to relocate sheaths along a conductor.

The invention provides a hot line tool, operable through the familiar "shotgun," which can be applied from the side to an unbroken conductor, and similarly removed. The tool includes a two-part nose cone having teeth on its working face for digging into, between and beneath the wires of the sheath and, through a to and fro, step by step rotary action, unwinding, separating and detaching the wires of the sheath from the conductor and from one another without cutting the sheath wires. The operation can be performed in a safe, rapid and efficient manner, and without damage to the conductor.

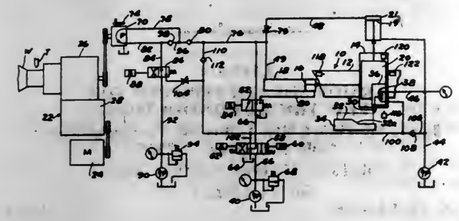
ERRATUM

For Class 81—9.5 see:
Patent No. 3,543,616

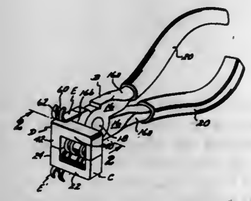
3,543,615
TRACER CONTROL CIRCUIT FOR A LATHE OR THE LIKE
Sylvester R. Cudnohufsky, 1290 Lake Angelus Shore Drive, Pontiac, Mich. 48055
Filed Aug. 8, 1968, Ser. No. 751,285
Int. Cl. B23b *3/28*
U.S. Cl. 82—14 16 Claims

A hydraulic tracer control circuit for a lathe wherein the feed of the cutting tool per revolution of the workpiece is controlled or maintained constant by directing the oil disharged from the main and/or cross slide cylin-

ders during the feed cycle of the tool through an adjustable, positive displacement pump driven at a speed proportional to the speed of the work-supporting spindle of the lathe.



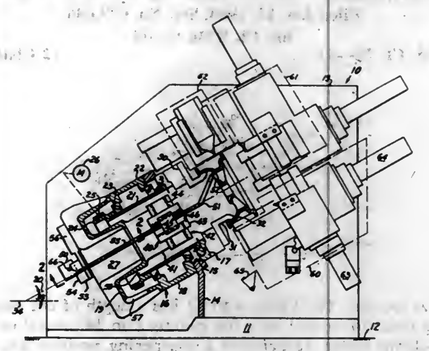
3,543,616
SLITTER AND INSULATION FOR TAPE-TYPE WIRE
Marion W. Bradley, 6159 Berkshire Way, Paradise, Calif. 95969
Filed Mar. 21, 1968, Ser. No. 714,933
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 10 Claims



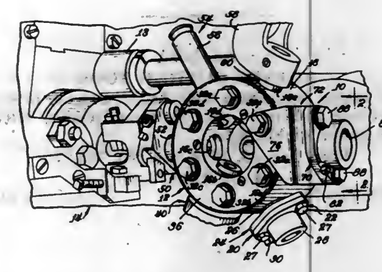
A portable tool including aligned rollers and cutters which may be manually moved from a first to a second position to slit tape-type insulated wire into a number of longitudinal segments, and thereafter strip the insulation from each of said segments to expose bare wire.

3,543,617
LATHE
Paul J. Weaver, San Marino, Calif., assignor to Graning-Weaver Company, El Monte, Calif., a corporation of California
Filed Dec. 23, 1968, Ser. No. 786,012
Int. Cl. B23b *3/28*
U.S. Cl. 82—14 8 Claims

A lathe with a base and a rotatable spindle mounted to the base which carries a chuck means. The spindle and chuck means have a common axis of rotation that is disposed at an acute angle, preferably 30°, to the horizontal to aid in loading the lathe. The spindle may have a central port extending therethrough to pass a tool slide system which is mounted to the base, thereby permitting machining of inside surfaces of a workpiece from the chuck side thereof.

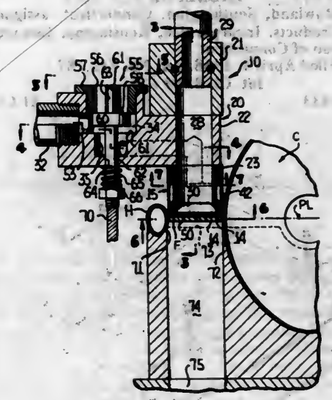


3,543,618
TOOL HOLDER
Richard A. Holden, 3853 W. 70th St., Chicago, Ill. 60629
Filed Aug. 6, 1968, Ser. No. 750,587
Int. Cl. B23b *29/12*
U.S. Cl. 82—36 6 Claims



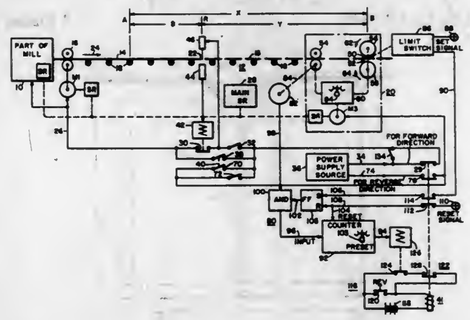
Tool holders for screw machines and turret latches which are mounted on the turret head of said machines using the actuating bolts in the base of the turret head and in a way such that the tool held by the holder is aligned over the radial socket of the face of the turret head but without depending on a shank of the tool seating in the radial socket to support it.

3,543,619
APPARATUS FOR DEFLASHING AND DEBURRING PLASTIC PRODUCTS
Ernest W. Hellmer, Chicago and Alfred G. Down, Wood Dale, Illinois, assignors to Continental Can Company, Inc., New York, New York a corporation of New York
Filed Dec. 18, 1967, Ser. No. 691,308
Int. Cl. B26d *7/06*; B26f *3/06*
U.S. Cl. 83—24 13 Claims



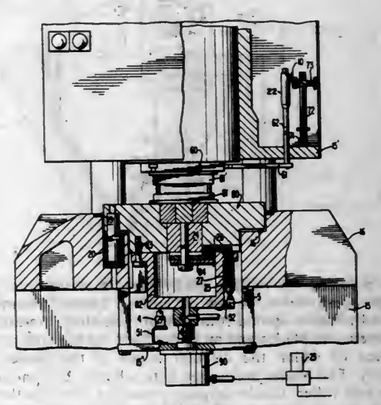
This disclosure is directed to a novel apparatus for removing flash or flash material from a molded plastic product after it has been removed from a mold, and is particularly directed to a mechanism which includes a nozzle having an orifice contoured to the general outline of the flash which is to be removed from a molded plastic product. The nozzle is effective for contouring hot air to the general profile of the flash which is to be removed, and upon directing the hot air against the flash the latter is totally removed from and/or smoothed against the surface of the product. Means are additionally provided for preventing the product from being distorted, deformed or otherwise adversely affected by the hot air during the deflashing operation.

3,543,620
METHOD AND APPARATUS FOR INDEXING FLYING SHEARS FOR FIRST CUT SYNCHRONIZATION
Larry L. Hilsenbeck, Lancaster and John Montoro, Clarence, New York, assignors to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Jan. 21, 1969, Ser. No. 792,420
Int. Cl. B26d *1/56*
U.S. Cl. 83—37 5 Claims



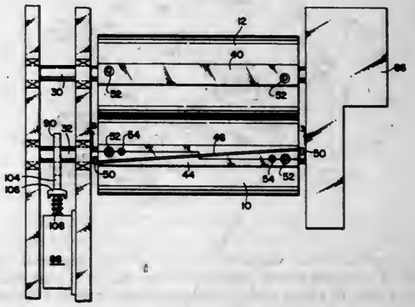
A flying shear located along a strip processing line cuts the moving strip into pieces of equal predetermined length. The shear is adjustable to change the predetermined length. There is disclosed a system and method for indexing the shear to make a first (front crop cut) of a desired length before it starts the normal cuts of the predetermined equal length. This maneuver is called first cut synchronization, and the apparatus and method disclosed herein perform this maneuver by jogging the shear backwards.

3,543,621
TOOL SAFETY DEVICE
John H. Welland, Bronxville, New York, assignor to Hydrel A. G., Romanshorn, Switzerland by mesne assignments
Filed June 14, 1968, Ser. No. 737,201
Int. Cl. B26d *5/00*; B26f *1/14*
U.S. Cl. 83—61 24 Claims



A tool safety device in which a tool support is floatingly supported with respect to the frame, and in which the continued presence of a workpiece from a previous operation or the failure of the workpiece ejection mechanism is sensed by such relative movement to close a control circuit that stops the punch press or the like.

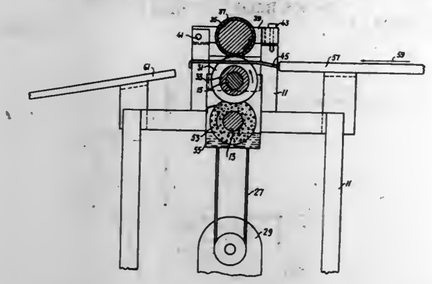
3,543,622
SEVERING APPARATUS
Christopher R. Rice, Wakefield, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,585
Int. Cl. B26d *1/56*
U.S. Cl. 83—117 25 Claims



This disclosure involves a pair of rollers for drawing sheet material therebetween and severing the sheet material as it is drawn between the rollers. The rollers are disclosed in con-

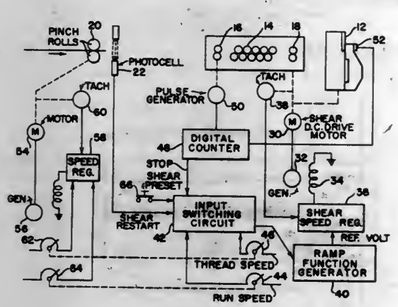
junction with apparatus for laminating a succession of discrete sheet segments to a continuous web and severing the web between each segment.

3,543,623
MACHINE FOR CUTTING STRIPS
Roland Torsten Wirstroem, Oerebro, Sweden, assignor to Orbo Aktiebolag, Orebro, Sweden a company of Sweden
Filed April 1, 1969, Ser. No. 811,722
Claims priority, application Sweden, April 2, 1968, 4346/68
Int. Cl. B26d 7/08, 1/22
U.S. Cl. 83—169 3 Claims



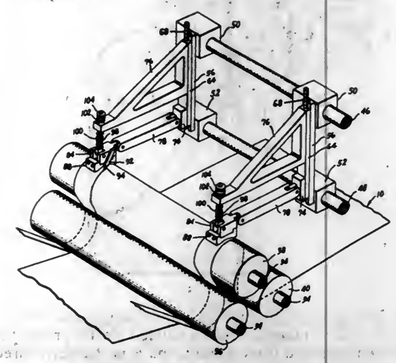
A machine for cutting sticky sheet material into parallel strips comprises a series of cutting blades assembled in spaced relation upon a rotary shaft. The sheet material is fed between said blades and an upper hard rubber roller, into the surface of which the circular edges of the blades cut in slightly. The blades are driven with a higher peripheral speed than said roller. Guide tongues extending between the blades divert the cut strips horizontally out of the cutting zone. The blade edges are lubricated by means of a lower foam rubber roller.

3,543,624
FEED DEVICE FOR FLYING SHEAR
John O. Richards, Mentor, Ohio, assignor to Production Machinery Corporation, Mentor, Ohio a corporation of Ohio
Filed Dec. 30, 1968, Ser. No. 787,961
Int. Cl. B23d 25/06, 25/16
U.S. Cl. 83—288 6 Claims



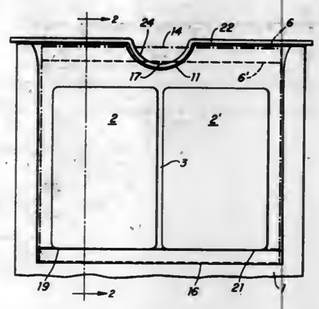
An apparatus for shearing a coil of strip material into sheets of predetermined length wherein the strip material is fed by a pair of pinch rolls to a flying shear machine. To obtain a maximum number of sheets from the coil, a minimum first cut is made. To minimize the length of the first cut, the shear is stopped at a predetermined point in its cycle between cutting strokes, and is restarted when the strip end advances at thread speed to a position a predetermined distance from the shear. The point in its cycle at which the shear is stopped is dependent upon the predetermined distance, the thread speed of the strip end as it advances into the shear, and the shear acceleration rate from stop.

3,543,625
METHOD FOR PROVIDING PRECISELY CONTROLLED EDGE ON SHEET MATERIAL AND APPARATUS THEREFOR
William P. Rowland, Southington, Connecticut, assignor to Rowland Products, Incorporated, Kensington, Connecticut a corporation of Connecticut
Filed April 4, 1968, Ser. No. 718,787
Int. Cl. B26d 104
U.S. Cl. 83—433 21 Claims



There is disclosed a method for providing embossed sheet material with at least one edge in predetermined alinement with respect to the embossments by first embossing the sheet material with a longitudinally extending rib in one side marginal portion. Supported on the sheet material is a guide member with a groove receiving the rib which controls cutting means and the guide member tracks with the sheet material so as to cut the sheet material in a predetermined location across the width thereof relative to the rib. The apparatus for performing the method includes a rotatably mounted cutting roll desirably provided with a cutting groove therein receiving the cutting means and the cutting roll is preferably adjustable axially to ensure proper alinement between the cutting means and the cutting groove.

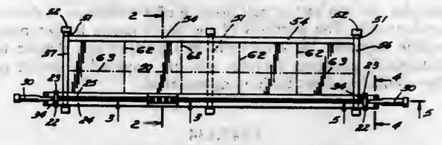
3,543,626
CARD PUNCHING DEVICE
Frederick W. Macone, Carlisle, Massachusetts, assignor to Avant Incorporated, Lincoln, Massachusetts a corporation of Massachusetts
Filed July 22, 1968, Ser. No. 746,645
Int. Cl. B26d 7/16, 7/28
U.S. Cl. 83—449 8 Claims



An improved card punching device is disclosed herein which employs means for insuring that a card to be punched

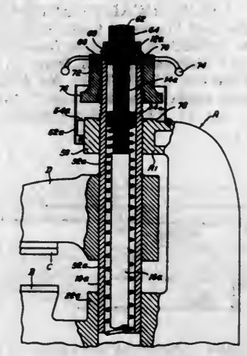
in the punching device may be accurately and rapidly positioned with respect to the movable punching members to eliminate the production of improperly punched cards.

3,543,627
MACHINE FOR CUTTING FLEXIBLE MATERIAL ACCURATELY BOTH LINEARLY AND VERTICALLY
Joseph D. Hearns, 3603 Breaker, Drayton Plains, Michigan
Filed April 17, 1969, Ser. No. 816,940
Int. Cl. B26d 7/02
U.S. Cl. 83—455 5 Claims



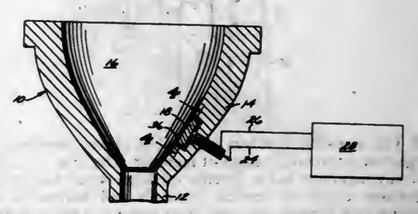
A machine for cutting thick flexible material accurately both linearly and vertically comprising paired spaced lower bars defining a cutting blade guide channel therebetween with their top surfaces engaging the material, superposed paired spaced upper bars defining a cutting blade guide channel therebetween with their bottom surfaces engaging the material in opposition to the lower bars, springs normally urging the upper and lower bars toward one another to clamp the material therebetween, and a cam lever pivotally mounted on one set of bars and reacting against the other set of bars to move one set of bars away from the other set of bars to allow insertion of material therebetween; whereupon when the material is inserted and the lever is released, the springs urge the bars into clamping engagement with the material; and a cutter blade and holder slidable on the top bars with the blade lying in the guide channels of both sets of bars so that upon manual linear movement of the blade and holder the material is cut off accurately both linearly and vertically with the bars guiding the blade linearly and vertically and holding the material against movement both linearly and transversely.

3,543,628
DEVICE FOR CONTROLLING THE MOVABLE TABLE OF A PUNCH PRESS
Artorige Chiesa, Vigevano, Pavia, Italy
Filed April 29, 1968, Ser. No. 725,076
Claims priority, application Italy, Feb. 14, 1968, 12742/68
Int. Cl. B26d 5/12
U.S. Cl. 83—525 5 Claims



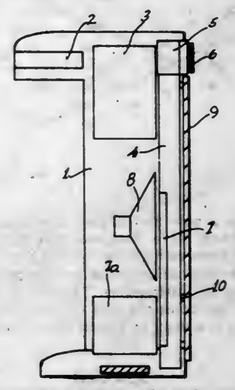
A press having a stationary table and a further table movable toward and away from the stationary table by means of a fluid pressure cylinder. The movable table has an adjustable stop member mounted thereon which coacts with a switch stationarily mounted relative to the fixed table for controlling the flow of pressurized fluid to the fluid pressure cylinder.

3,543,629
ELECTRICAL PICKUP LOCATED IN MOUTHPIECE OF MUSICAL INSTRUMENT UTILIZING PIEZAELECTRIC TRANSDUCER
Lester M. Barcus, 252 Tivoli, and John F. Berry, 4020 Fountain St., Long Beach, California
Filed March 27, 1968, Ser. No. 716,441
Int. Cl. G10h 3/00
U.S. Cl. 84—1 .4 11 Claims



A mouthpiece for a musical instrument such as the trumpet, trombone or the like, and including a transducer utilizing piezoelectric material to produce electrical signals in response to pressure differences or waves developed within the mouthpiece.

3,543,630
COMPACT PIANO CONSTRUCTION
Robert L. Ferris and Daniel W. Martin, Cincinnati, Ohio, assignors to D. H. Baldwin Company, Cincinnati, Ohio a corporation of Ohio
Filed June 13, 1968, Ser. No. 736,706
Int. Cl. G10c 3/02, 3/04, 3/06
U.S. Cl. 84—177 13 Claims

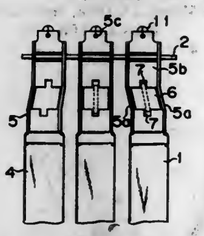


A compact piano construction having the playing action and the tuning action in essentially horizontal alignment, with the tuning pins of the tuning action preferably projecting rearwardly from the instrument, the instrument being further characterized by the suspension of the playing action and the string plate which incorporates the tuning action from an opposing pair of case defining end walls connected together by a plurality of rigidifying rails, the string plate being shock mounted to effectively free the playing action from mechanical interconnection to the string plate.

3,543,631
KEY ASSEMBLY

Junji Ohno, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Nakazawa-cho, Hamamatsu-shi, Japan a corporation of Japan

Filed Dec. 4, 1968, Ser. No. 781,199
Claims priority, application Japan, Dec. 9, 1967, Sept. 14, 1968, 42/102999;43/79254
Int. Cl. G10c 3/12
U.S. Cl. 84—433 6 Claims

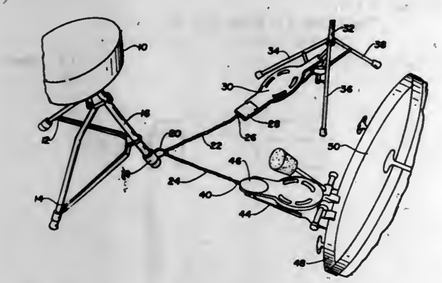


A key assembly involves a plurality of key members arranged on a transverse support member. The arm of each of said key members has a specific cross-sectional form which comprises a pair of vertical sidewalls and horizontal web bridging said vertical sidewalls. Said web has a through aperture, both side edges of which are set in line with said sidewalls.

3,543,632
ACCESSORY FOR DRUMS

Thomas R. La Flame, 426 Union Ave., Pittsburgh, Pennsylvania

Filed Nov. 5, 1968, Ser. No. 773,412
Int. Cl. G10g 7/00
U.S. Cl. 84—453 4 Claims



Described is a new and improved system for preventing gradual movement of a foot-operated musical instrument, such as a bass drum or high-hat cymbal, away from the musician playing the instrument because of repeated strokes on a pedal actuating the instrument. This means preferably comprises a chain device or the like secured to the pedal of the instrument and to a stool on which the musician sits.

3,543,633
SHEET MUSIC HOLDER FOR TROMBONES AND THE LIKE

Joseph E. Batten, 4200 Edinburgh Drive, Virginia Beach, Virginia

Filed Oct. 28, 1969, Ser. No. 871,876
Int. Cl. G10g 5/00
U.S. Cl. 84—453 5 Claims

A sheet music holder attachable to a trombone or the like having an operationally vertically elongated central member formed of sheet material, a sheet music clamp element outer jaw member having an upper extremity urged by spring means towards the upper extremity of a front surface of the central member for clamping sheet music disposed therebetween and a musical instrument clamp element outer jaw member having a lower extremity urged by spring means towards the lower extremity of a rear surface of the central member for



clamping the rim of the bell portion of a trombone disposed therebetween. The portions of the sheet music holder positionable adjacent the trombone bell portion are shaped to substantially conform thereto, and are covered with felt or other similar resilient cushioning material.

3,543,634
PUSH-ON-FASTENING DEVICE

Vernon E. Allen, Middleburg Heights, Ohio, assignor to Eaton Yate & Towne, Inc., Cleveland, Ohio a corporation of Ohio.

Continuation of application Ser. No. 628,600, April 5, 1967, now abandoned. This application Jan. 27, 1969, Ser. No. 807,475
Int. Cl. F16b 17/00
U.S. Cl. 85—36 1 Claim

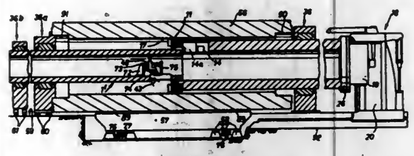


A fastening device for securement with a stud or the like comprising a base having an elongated opening and a pair of spaced, inclined resilient fingers extending upwardly from the base adjacent one end of the opening for gripping engagement with the stud when disposed in "push-on" relation thereon. The other end of the opening defining a clearance area for receiving the stud therein when slidably removed from the fingers so that the device may be lifted off and removed from the stud.

3,543,635
INTERNAL MACHINING OF LARGE HOLLOW CYLINDRICAL WORKPIECES

Maso Galbarini and Francesco Cotta Ramusino, Milan, Italy, assignors to INNOCENTI Societa Generale per l'Industria Metallurgica e Meccanica, Milan, Italy

Filed Oct. 25, 1967, Ser. No. 677,980
Claims priority, application Italy, Aug. 3, 1967, 52665-A/67
Int. Cl. B23c 3/00; B23b 39/02
U.S. Cl. 90—11 15 Claims

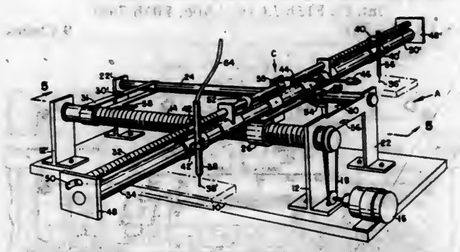


A large hollow cylindrical workpiece is machined internally by milling or reaming tools supported on a tubular member which is itself supported coaxially within the workpiece for axial movement and rotation under control of a headstock connected to one end of the tubular member.

3,543,636
PATTERN DUPLICATING APPARATUS

Donald L. Tracy, 255 Deerwood Drive, Ukiah, California

Filed April 12, 1968, Ser. No. 721,026
Int. Cl. B23c 1/16
U.S. Cl. 90—13.2 9 Claims

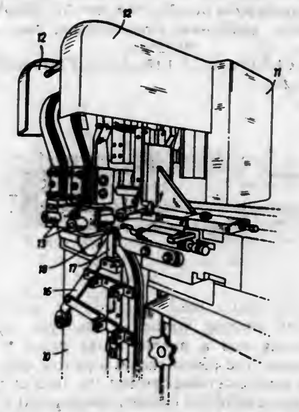


A three-dimensional pattern duplicating apparatus including a carriage mounted for to-and-fro movement across the surface of a pattern and blank. The carriage includes a pivotally mounted guide and rotary cutter. As the guide is moved along a linear segment of the surface indentations in the pattern length, the cutter produces corresponding indentations in the blank. Means are also provided to produce periodic incremental advancement of the guide and rotary cutter relative to the width of the pattern.

3,543,637
DEVICE FOR BURR REMOVAL FROM BUTT-WELDED CHAIN LINKS

Adolf Englisch, Colgne-Raderthal, Germany, assignor to Meyer, Roth & Pastor, Colgne-Raderberg, Germany a firm of Germany

Filed Aug. 29, 1968, Ser. No. 756,223
Claims priority, application Germany, Sept. 9, 1967, 1,627,711
Int. Cl. B23d 5/02
U.S. Cl. 90—24 5 Claims

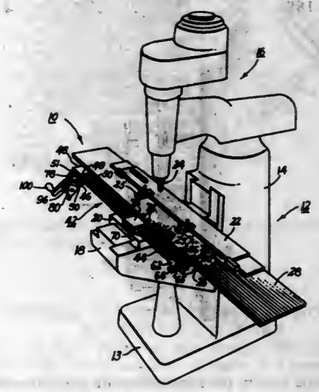


A device for the complete burr removal from chain links is characterized by the provision of two knife holders which are longitudinally and rotatably movable in fixed supports, the axes of which extend along the axis of the link within the range of the burr and which have bent ends directed toward the link. The device also has peeling knives adjustable in these ends of the knife holders tangentially to the circumference of the chain and a tangentially extending cutter provided at least upon that knife which cuts first.

3,543,638
TRAVEL EXTENSION ATTACHMENT FOR MACHINE TOOLS

Karl J. Braun, Springdale, Connecticut, assignor to Braun Engineering Corporation, Stamford, Connecticut

Filed Nov. 22, 1968, Ser. No. 778,043
Int. Cl. B23d 7/08
U.S. Cl. 90—58 7 Claims

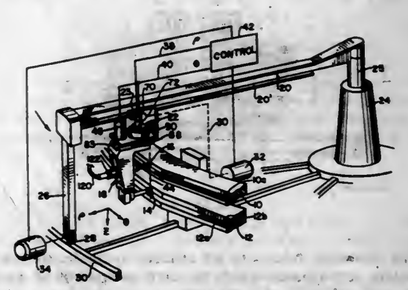


A feed travel extension attachment for machine tools comprising an attachment worktable floating on the main machine tool worktable. An attachment lead screw is secured to the main worktable and is drivingly connected to the machine tool lead screw to provide for conjunctive feed travel of both the main worktable and the attachment worktable. Increased movement of the attachment worktable relative to the main worktable is permitted to accommodate longer continuous workpiece travel than is otherwise possible.

3,543,639
CONTOURING CONTROL DEVICE WITH COMPENSATION FOR MISALIGNMENT OF STYLUS AND TRACING AXES

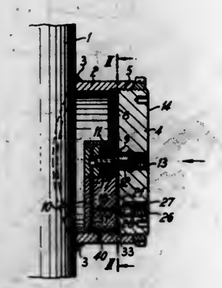
Roger Gettys Hill, Racine, Wisconsin, assignor to Gettys Manufacturing Company, Inc., Racine, Wisconsin a corporation of Wisconsin

Filed Aug. 13, 1968, Ser. No. 752,193
Int. Cl. B23c 1/16
U.S. Cl. 90—13.5 11 Claims



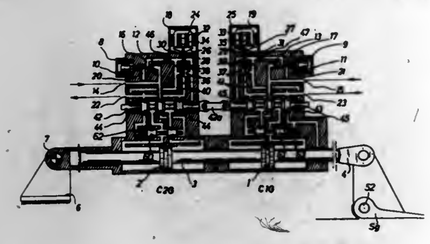
Tracing apparatus for use with machine tools comprises a device for alining the tool with respect to a fourth axis other than a tracing axis as a function of the stylus output signals representative of stylus deflection along one of the tracing axes. Means are provided to compensate for the misalinement of the stylus and tracing axes by resolving the deflection signals from the adjusted stylus into the signals which the stylus would have produced had it not been adjusted relative to such fourth axis.

3,543,640
CONTROL ARRANGEMENT FOR A SELF-ADVANCING PIT PROP UNIT
Haas Rieschel, Essen, Germany, assignor to Bergwerksverband G.m.b.H., Essen, Germany a company of Germany
Filed Oct. 2, 1968, Ser. No. 764,455
Claims priority, application Germany, Oct. 11, 1967, 1,583,070
Int. Cl. F15b *11/16, 13/06*
U.S. Cl. 91—189 4 Claims



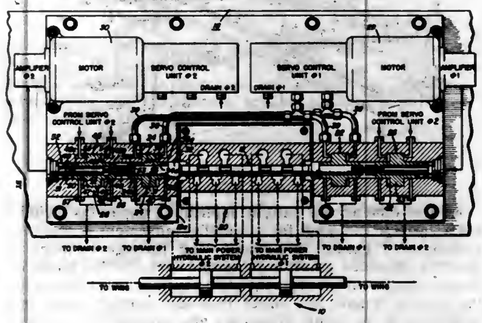
An automatic system for controlling the angular settings of pit props comprising a plumb or pendulumlike device operating as a switch for causing motive fluid to actuate one or another power ram for adjusting the angle of the pit prop. The switch has a cover which supports the fulcrum pin for the plumb and the motive fluid flows through a port in the switch cover and through the fulcrum pin to passages which when pit prop adjustment is required, will deliver power to the control rams.

3,543,641
CONTROL FOR SPOILERS AND LIKE AERODYNAMIC ACTUATORS OF AIRCRAFT
Henri Deplante, Paris, France, assignor to Avions Marcel Dassault, Saint-Cloud, Hauts-de-Seine, France a company of France
Filed April 2, 1968, Ser. No. 718,078
Claims priority, application France, May 8, 1967, 105,607
Int. Cl. F15b *13/16, 13/06*
U.S. Cl. 91—361 10 Claims



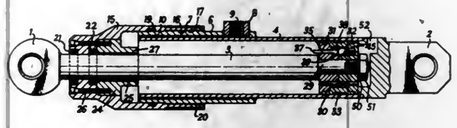
This invention relates to an electric hydraulic device for actuating aerodynamic elements such as spoilers in an aircraft, and comprises for each controlled element a duplex system comprising two hydraulic jacks independently supplied with fluid through coupled distributors the operation of which is controlled by two servovalves fed with electrical control pulses and providing a fluid pulse output. The invention is particularly useful in connection with variable geometry aircraft and has the advantages of offering a high degree of flexibility suited to various applications and of providing for the ready incorporation of safety features.

3,543,642
UNITIZED CONTROL MODULE FOR A HYDRAULIC ACTUATION APPARATUS
Woodrow Seamone, Rockville, Maryland, assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Continuation-in-part of Ser. No. 671,493, Sept. 28, 1967. This application May 28, 1969, Ser. No. 830,213
Int. Cl. F15b *13/16, 13/06*; F01b *7/00*
U.S. Cl. 91—361 9 Claims



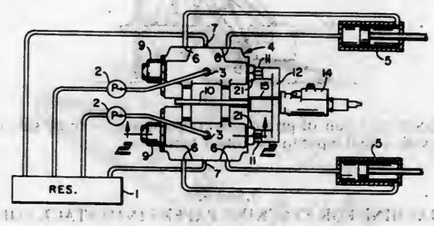
The present invention is an hydraulic control apparatus that may be used in missiles and aircraft for operating a main power actuator, such as a wing actuator. The apparatus is dual, to provide redundancy, and has its own oil supply so that it may operate independently of the main hydraulic system of the missile or aircraft, and may be removed for servicing or replacement without interrupting the hydraulic lines of said main system.

3,543,643
FLUID OPERATED RAM ASSEMBLY FOR A POWER ASSISTED STEERING SYSTEM
Stanley William Southwell, Stroud, England, assignor to Winget Limited, Rochester, Kent, England
Continuation of application Ser. No. 682,268, Nov. 13, 1967. This application Dec. 26, 1968, Ser. No. 788,693
Claims priority, application Great Britain, Nov. 14, 1966, 50,929/66
Int. Cl. F15b *15/22*; F15b *13/04*; F16j *15/18*
U.S. Cl. 91—401 4 Claims



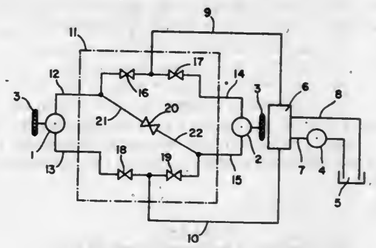
There is provided a fluid operated ram assembly for a power assisted steering system of the type including a cylinder housing and a double acting piston within the cylinder housing. The piston carries a pair of valves, one of which has a stem extending beyond the face of the piston confronting one end of the cylinder housing and is engageable therewith to mechanically open the valve. The other valve carried by the piston is in series with the first valve thereby to provide for the passage of fluid through the piston in order to reduce the fluid pressure and to retain the piston at one end at a reduced fluid pressure and to permit the fluid to pass through and beyond the piston. In addition the cylinder housing is formed in two assemblies, a power assembly and a skirt assembled therewith so as to provide for adjusting the length of the stroke of the ram.

3,543,644
DIRECTIONAL CONTROL VALVE ASSEMBLY
Hugh J. Stacey, Willoughby, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio a corporation of Ohio
Filed Oct. 22, 1968, Ser. No. 769,610
Int. Cl. F15b *13/06*
U.S. Cl. 91—411 18 Claims



A directional control valve assembly for actuating a pair of fluid motors (or pairs of fluid motors) characterized in that duplicate directional control valves have duplicate motor ports adapted to be connected to the respective fluid motors and have duplicate inlet ports adapted to be connected to duplicate pumps, said inlet ports and/or the respective motor ports of said valves being cross-connected thus to equalize the fluid pressures in said inlet ports and/or in said motor ports to provide substantially equalized flow of fluid to the respective motors.

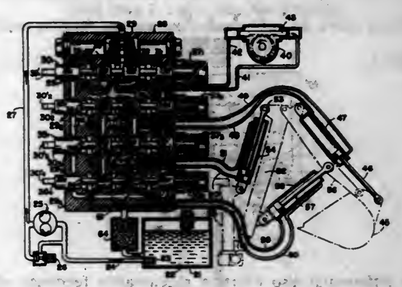
3,543,645
CONTROL EQUIPMENT FOR HYDROSTATIC DRIVE OF A VEHICLE
Johannes Vagn Baatrup, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark a company of Denmark
Filed Nov. 12, 1968, Ser. No. 774,992
Claims priority, application Germany, Dec. 14, 1967, 1,630,399
Int. Cl. 62d *11/00*
U.S. Cl. 91—413 18 Claims



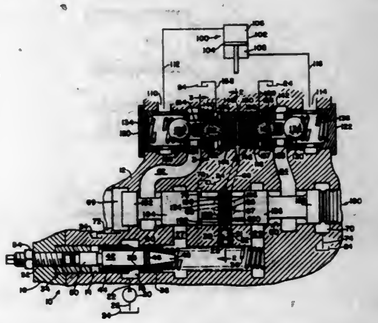
The invention relates to a control apparatus for the hydrostatic drive of a vehicle having at least two wheels and hydraulic motors for driving the wheels. The control apparatus functions to selectively drive the motors in parallel or series and to selectively supply higher pressure fluid to one of the wheels to effect turning of the vehicle.

3,543,646
HYDRAULIC SYSTEM
Katsuhiko Iijima, Ohta-ku, Tokyo, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 12, 1968, Ser. No. 774,679
Claims priority, application Japan, Nov. 24, 1967, 42/75299
Int. Cl. F15b *11/00, 15/18*
U.S. Cl. 91—414 4 Claims

Hydraulic apparatus includes plural hydraulic actuators and a hydraulic control circuit therefor. The control circuit has a single source of hydraulic fluid under pressure, such as a pump, and plural directional control valves each controlling operation of a respective actuator. A flow divider valve is connected in the control circuit and distributes the hydraulic fluid in accordance with the requirements of the respective actuators.



3,543,647
CONTROL VALVE MEANS FOR A TWO-WAY HYDRAULIC CYLINDER
Daniel Luce Hall, Waterloo and Stanley Martin Gregerson, Cedar Falls, Iowa, assignors to Deere & Company, Moline, Illinois a corporation of Delaware
Filed May 2, 1969, Ser. No. 821,349
Int. Cl. F15b *11/08*
U.S. Cl. 91—420 3 Claims

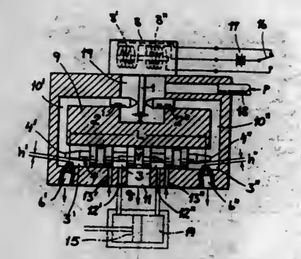


A control valve for controlling a two-way hydraulic cylinder in which a pressure-compensated flow control valve maintains a constant predetermined flow rate to the cylinder, and including a pair of check valves normally preventing return flow from the ends of the cylinder, a pair of opposed hydraulically-operated pistons for controlling the check valves and a manually-operated spool-type direction control valve for selectively connecting the outlets of the pressure-compensated valve to the ends of the cylinder and to the pistons.

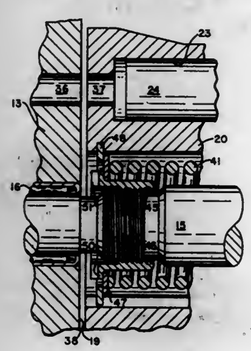
3,543,648
FLOW REGULATOR WITH REGENERATING EFFECT
Kurt Stahle, Heimsheim, Leonberg, Germany, assignor to Jos. Schneider & Co., Optische Werke, Bad Kreuznach, Rhineland, Germany a corporation of Germany
Filed Sept. 9, 1968, Ser. No. 758,325
Claims priority, application Germany, Sept. 8, 1967, 1,650,559
Int. Cl. F15b *13/044*
U.S. Cl. 91—461 8 Claims

Servovalve, especially flow regulator, wherein a valve piston is axially slidable in response to a differential in fluid pressure prevailing in two pressure chambers at opposite ends of the piston, this differential being brought about by the selective displacement of a control tongue interposed

between two closely spaced orifices through which pressure fluid is concurrently admitted to the two chambers. The pressure differential also exerts a regenerative feedback effect upon the controlling motion of the tongue.



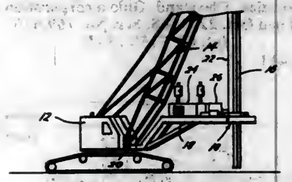
3,543,649
AXIAL PISTON PUMP OR MOTOR DEVICE
Robert J. Martin, Hutchinson, Kansas, assignor to The Cessna Aircraft Company, Wichita, Kansas a corporation of Kansas
Filed Aug. 19, 1968, Ser. No. 753,560
Int. Cl. F04b *1/02*; F01b *13/04*
U.S. Cl. 91—507 **7 Claims**



An axial piston-type hydraulic pump or motor in which the cylinder block is mounted in the housing for selective adjustment during assembly to insure sealing engagement with the mating backplate surface during operation. The cylinder block is supportingly engaged by abutment means on the drive shaft to limit axial separation of the cylinder block away from the backplate to a predetermined maximum clearance. Selective adjustment is achieved through means which vary the effective axial position of the shaft abutment means.

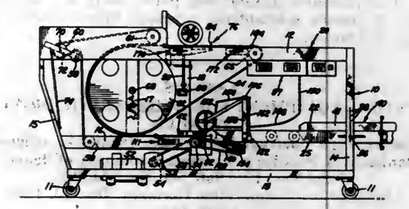
3,543,650
ROTARY TABLE POWER UNIT
Thomas H. Boyce, Jr., Houston, Texas, assignor to Stewart & Stevenson Services, Inc., Houston, Texas a corporation of Texas
Filed Jan. 10, 1969, Ser. No. 790,413
Int. Cl. E21c *11/00*; F16h *37/14*
U.S. Cl. 173—43 **2 Claims**

A rotary table having first and second power input shafts connected to first and second prime movers with first and second power shafts positioned parallel to the axis of the rotary table and being perpendicular to their respective power input shafts with a speed reduction gear drive between each of the power shafts and one of the input shafts and a speed reduction chain drive between each of the power shafts and the rotary table output. A rotary table power unit for attachment to a crane having an elongate boom having a support for connection to and positioned beneath the boom for



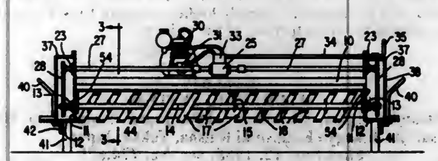
supporting a pair of prime movers positioned side by side to provide a dual input to the rotary table.

3,543,651
MACHINE FOR STACKING PAPERS INTO STACKS OF PREDETERMINED COUNT
Leo O. Donahue and Roy E. Behrens, Highland, California, assignors to Graphic Engineers, Inc., San Bernardino, California a corporation of California
Filed Aug. 16, 1968, Ser. No. 753,177
Int. Cl. B65h *33/00*
U.S. Cl. 93—93 **11 Claims**



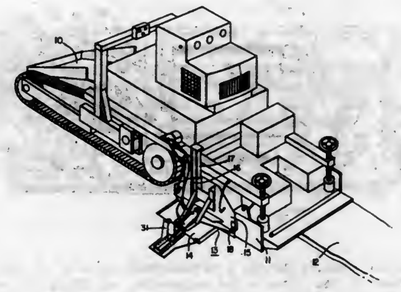
A first belt conveyor delivers a continuous, overlapping line of papers to a second belt conveyor, which inverts the line and inserts the papers into the bottom of a stack. A photoelectric cell counter counts the papers passing from the first conveyor to the second. When a preselected count is reached, the counter energizes a circuit, stopping the first conveyor and holding the papers thereon until a gap is opened in the line. When the gap reaches a first switch, the first conveyor is caused to resume operation. Upon reaching a second switch, the gap causes a limit stop holding the stack to be released. The stack moves on over a third switch, causing the limit stop to be extended through the gap to start the next stack.

3,543,652
CONCRETE SCREEDING APPARATUS
Arvid Kalns, 541 Central Ave., Albany, N.Y. 12206
Filed May 14, 1969, Ser. No. 824,546
Int. Cl. E01c *19/22*
U.S. Cl. 94—45 **6 Claims**



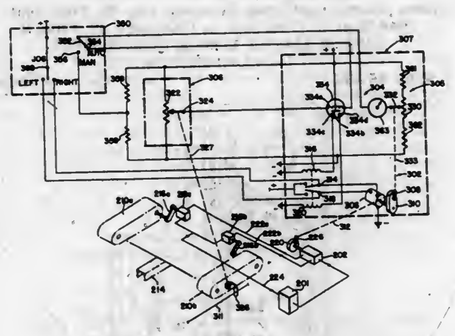
A series of annular members is fixedly mounted on a shaft rotated by power. The annular members are arranged concentrically with the shaft and are inclined relative to the axis of the shaft. The shaft is supported with the peripheries of the annular members engaging the concrete surface.

3,543,653
POWERED CUT-OFF ATTACHMENT FOR PAVING MACHINE
Charles K. Meadows, P.O. Box A, Gassaway and Allen N. Smyth, P.O. Box 13, Sutton, West Virginia
Filed July 19, 1868, Ser. No. 746,211
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 **5 Claims**



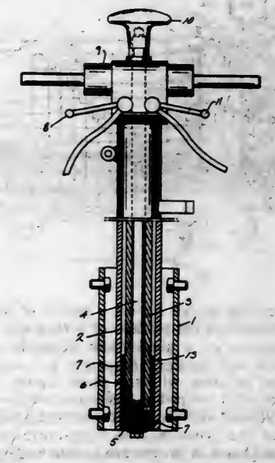
A cutoff shoe attachment for a paving machine which employs a side skirt attached to the paving machine and a cutoff shoe movable in guide channels in the side skirt to move in front of the screed to control the width of the mat. The movement of the cutoff shoe is effected by means of a hydraulic cylinder disposed between the side skirt and the cutoff shoe. The cutoff shoe also includes a plurality of ratchet teeth cooperating with a yoke on the cylinder permitting use of a cylinder of stroke less than the length of the cutoff shoe. A sidearm extension is provided to give additional adjustment of the cutoff shoe.

3,543,654
SERVO CONTROLLED HYDRAULIC SYSTEM
George E. Long, Rte. 2 Box 382, Monroe and Howard G. Anson, 15823 35th NE, Seattle, Washington
Continuation-in-part of application Ser. No. 745,507, July 17, 1968. This application June 19, 1969, Ser. No. 834,623
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 **11 Claims**



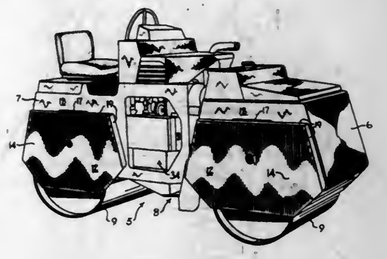
A servocontrol regulates the output of a variable displacement hydraulic pump circuit to a hydraulic motor responsive to changes in a predetermined relationship between a sensing input and a feedback input to a control means, the latter being adapted to control the output of an electromechanical transducer to the pump circuit. This servocontrol is particularly suited to control the propulsion system of a slip-form paving machine to maintain a desired travel direction.

3,543,655
GROUND COMPACTING APPARATUS
Philipp Uebel, Munich, Germany, assignor to Wacker-Werke KG, Munich, Germany a firm
Filed May 2, 1969, Ser. No. 821,283
Claims priority, application France, May 14, 1968, 151,722
Int. Cl. E01c *19/30*
U.S. Cl. 94—48 **8 Claims**



In vibrating apparatus for compacting sand, gravel, concrete or similar materials that is moved by vibrating means mounted in the apparatus, and which is provided with a guide bar, the guide bar is so constructed as to be varied in length by a clamping means disposed between two tubes of the guide bar and connected by means of a spindle to the handle of the guide bar for rotation.

3,543,656
SOIL COMPACTING MACHINE
Raymond F. Roettger, Minneapolis, Minnesota, assignor to RAYGO, Inc., Minneapolis, Minnesota a corporation of Minnesota
Filed Feb. 3, 1969, Ser. No. 795,884
Int. Cl. E01c *19/24*
U.S. Cl. 94—50 **6 Claims**

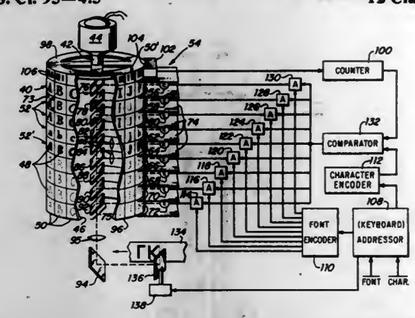


A soil compacting machine in which tandem arranged ground engaging drums are journaled in yokes, each of which is connected with one of two articulately joined frame sections, solely through cushioned shock absorbing pads. An eccentric mass rotatably mounted on each yoke rotates about a horizontal axis above the associated drum so that vibration imparted to the yokes and the drums journaled therein by the rotating eccentric masses, causes the yokes to rock about horizontal axes located between the axes of the rotating mass and the drum and imparts fore and aft oscillation to the drums. Both drums are power driven.

3,543,657
PHOTOTYPESETTING MACHINES

Louis Rosenblum, Belmont, Massachusetts, assignor to Itek Corporation, Lexington, Massachusetts a corporation of Delaware

Filed March 22, 1968, Ser. No. 715,257
Int. Cl. B41b *13/10, 17/00, 17/34*
U.S. Cl. 95—4.5 12 Claims

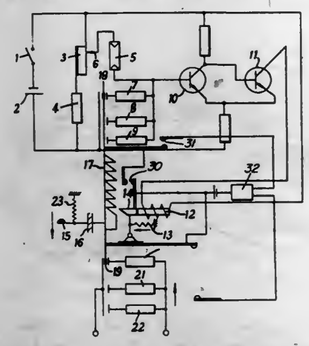


Photocomposing device having a matrix of image-forming master characters on the surface of a rotatable cylinder, all master characters of a single font being in one circumferential band and master characters in each font being alined in axial columns with the same master characters in other fonts. Several lamps are positioned external to the surface of the cylinder and are alined with the axial columns on the surface of the cylinder. One lamp corresponds to each circumferential band. A projection system within the cylinder surface is provided for selectively receiving light from individual lamps and transmitting it to a light-sensitive medium. A selection control system is provided for energizing the lamp associated with the circumferential band containing the selected font at the time when the axial column containing the particular master character selected is between the lamps and the projection system.

3,543,658
PHOTOGRAPHIC CAMERA WITH EXPOSURE CONTROL CIRCUIT

Hubertus Reimann, Dresden, Germany, assignor to VEB Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany

Filed Feb. 26, 1968, Ser. No. 708,172
Int. Cl. G03b *7/08*; G01j *1/44*
U.S. Cl. 95—10 8 Claims

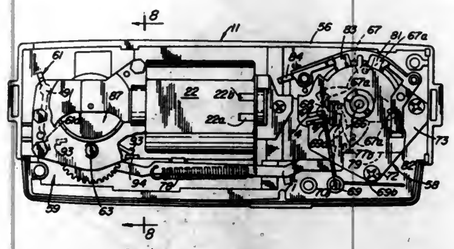


A photographic camera is provided with an exposure control circuit and a resistance device which varies the circuit resistance. A control element sets the exposure timing element of an electronic exposure control circuit of the camera and is adjustable concomitantly with the resistance of the resistance device until a switch influenced by the circuit resistance operates an electromagnetic blocking means. The blocking means when operated prevents further movement of the control element and permits release of the camera shutter.

3,543,659
MOTORIZED STILL CAMERA

Robert L. Moore, La Grange, Illinois, assignor to United States Camera Corporation, Chicago, Illinois a corporation of Illinois

Filed April 13, 1967, Ser. No. 630,707
Int. Cl. G03b *19/04*
U.S. Cl. 95—11 7 Claims

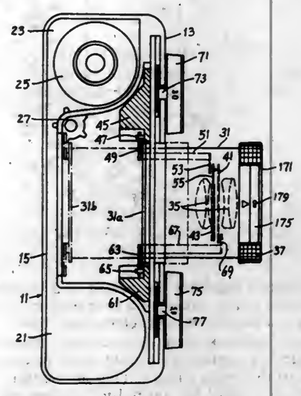


A still camera having a subassembly housing on the top portion of the camera for supporting an electrical motor which advances the film and also causes an indexing mechanism to rotate a flash cube. A control mechanism for the motor includes a sensing finger movable by a retractor between a position above the surface of the film for closing a switch to start the motor and a second position engaging a perforation in the film corresponding to one of the film frame positions for closing another switch to cause dynamic braking of the motor to abruptly stop the film at the next film frame position. The indexing mechanism includes a gear assembly, a spring element, and a pawl member connected to the spring element for rotating the flash cube in response to advancement of the film by the motor. The gear assembly has a connecting member which connects the spring element to the gear assembly in response to actuation of the shutter so that the spring element is biased during operation of the motor. A release device subsequently disconnects the spring element from the gear assembly thus releasing the spring element from its biased position to rotate the flash cube.

3,543,660
PHOTOGRAPHIC CAMERA

Heinz Waaske, Braunschweig-Runingen, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany a firm of Germany

Filed Aug. 24, 1967, Ser. No. 663,097
Claims priority, application Germany, Aug. 30, 1966, Sept. 3, 1966, Sept. 3, 1966, Sept. 3, 1966, Sept. 27, 1966, R 44021;R 33467;R 33468;R 33469;R 33593
Int. Cl. G03b *17/04*
U.S. Cl. 95—11 11 Claims

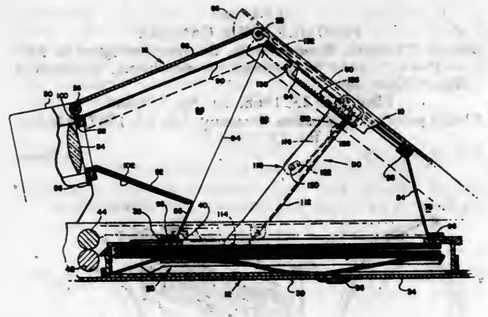


A photographic camera having a lens in a tube movable axially forwardly when pictures are to be taken, and axially rearwardly to a collapsed space-saving position when the camera is not in use. The shutter blades and diaphragm leaves are mounted in the tube and move axially with it, but the operating mechanism for the shutter and diaphragm is mounted in the camera body, operating connections being established by the act of moving the tube forwardly to picture-taking position. A lever differential system connects the shutter and diaphragm adjusting knobs to a followup pointer of a light meter. Details of mounting various parts in a space-saving manner are disclosed.

3,543,661
CAMERA ERECTING SYSTEM

William J. Rosen, Dorchester, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Massachusetts

Filed July 30, 1968, Ser. No. 748,773
Int. Cl. G03b *17/04*
U.S. Cl. 95—11 4 Claims



A folding camera including components of the camera's exposure system pivotally coupled to each other and an erecting system for supporting the camera in an erect position. A first component includes means for supporting photosensitive material in position for exposure and a second component includes a reflector for reflecting light from a lens onto the photosensitive material. The erecting system provides a rigid means for supporting and maintaining the first and second components in a predetermined spacial relation when the components are in an erect position. The erecting system includes two links pivotally coupled to the camera housing and to each other by a lost-motion connection for allowing movement of one link relative to the other as the erecting system approaches a collapsed or folded position without imparting any movement to the other link. One link is provided with a projection which cooperates with an aperture in the other link to lock the erecting system for maintaining the camera in its extended or operative position.

3,543,662
FILM CASSETTE INCLUDING BATTERY POWER SUPPLY

Irving Erlichman, Wayland, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware

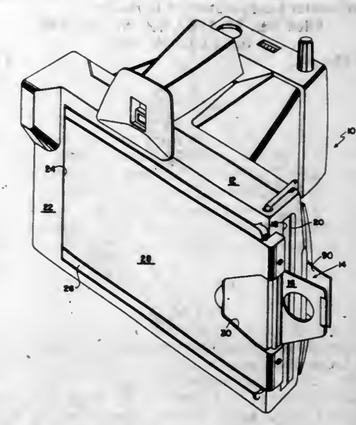
Filed Oct. 10, 1968, Ser. No. 766,548
Int. Cl. G03b *17/26*
U.S. Cl. 95—11 16 Claims

A film cassette for photographic cameras configured to retain a number of film units for sequential exposure and a flat battery assembly for powering camera instrumentalities until the film supply is exhausted. The structure includes a spring loaded platform positioned between the battery assembly and film units for compressively retaining the batteries and supporting the film units.

3,543,663
PHOTOGRAPHIC CAMERA WITH FILM GUIDING MEANS

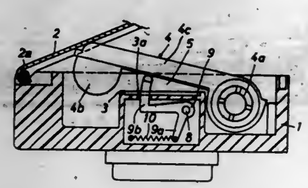
Walter R. Lyon, West Roxbury, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware

Filed April 12, 1968, Ser. No. 720,764
Int. Cl. G03b *17/50*
U.S. Cl. 95—13 12 Claims



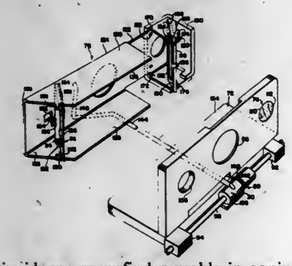
A photographic camera of the selfdeveloping type containing a film chamber having spreader apparatus therein providing a narrow gap between a pair of spreading surfaces for spreading a processing liquid between negative and positive film sheets as said sheets move through said narrow gap and out of said film chamber through a film exit opening and means for guiding said film sheets for movement through said narrow gap and out of said film chamber.

3,543,664
PHOTOGRAPHIC CAMERA WITH EJECTOR FOR FILM MAGAZINES
Rudolf Kremp, Grunwald, near Munich, Ernst Friedlaender, Leverkusem, Alfred Winkler, Munich, Delter Englesman, Unterhaching, near Munich, Heinz Ernst, and Rolf Schroder, Leverkusen, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed May 31, 1968, Ser. No. 728,400
Claims priority, application Germany, May 19, 1967, 1,597,052
Int. Cl. G03b *19/04, 23/02*
U.S. Cl. 95—31 9 Claims



A camera wherein the chamber for a film magazine accommodates a spring-biased lever which brings about at least partial ejection of the magazine in response to movement of the rear wall of the camera housing to open position. The lever can but need not bear against the magazine when the rear wall is returned to closed position, and it can be returned to a retracted position directly by the rear wall when the latter moves to closed position or by way of the magazine. The lever can be movably mounted in the body or in the rear wall of the housing.

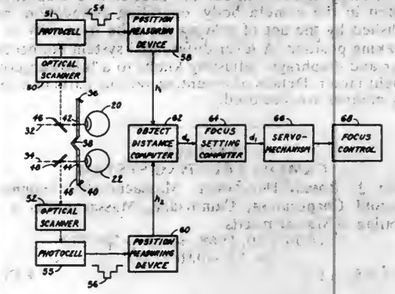
3,543,665
SIMPLIFIED PHOTOGRAPHIC COINCIDENCE RANGEFINDER
John M. Reed, Lexington and John M. Reynard, Boston, Massachusetts, assignors to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed Dec. 21, 1967, Ser. No. 692,599
Int. Cl. G03b *3/06*
U.S. Cl. 95—44 9 Claims



In a coincidence rangefinder usable in conjunction with a variable focus photographic camera, a mirror is mounted on a flexible arm. The rangefinder and camera focusing mechanism are linked by a finger which slides along the flexible arm at a slight angle thereto. Movement of the finger along the arm deflects the arm with the mirror, thereby moving one image into coincidence with another.

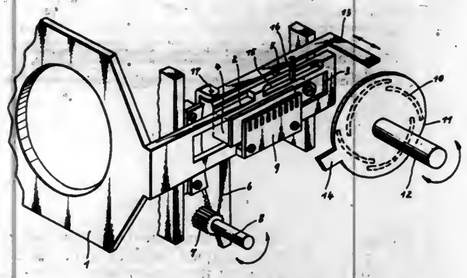
3,543,666
AUTOMATIC RANGING AND FOCUSING SYSTEM
Sidney Kazel, 6131 N. Harding Ave., Chicago, Illinois 60645
Filed May 6, 1968, Ser. No. 726,847
Int. Cl. G03b *3/00*
U.S. Cl. 95—45 5 Claims

An automatic ranging and focusing system, for use with cameras and other similar optical systems, in which the range of an object of interest is automatically determined by measuring the convergence of the photographer's eyes. The computed range is used in focusing the camera on the object of



interest. The principles of the present invention may also be used for purposes of automatic range finding.

3,543,667
PHOTOGRAPHIC CAMERA
Reinhard Sobotta, Braunschweig, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany a firm of Germany
Filed June 25, 1968, Ser. No. 739,884
Claims priority, application Germany, July 12, 1967, R46456
Int. Cl. G03b *3/00*
U.S. Cl. 95—45 7 Claims

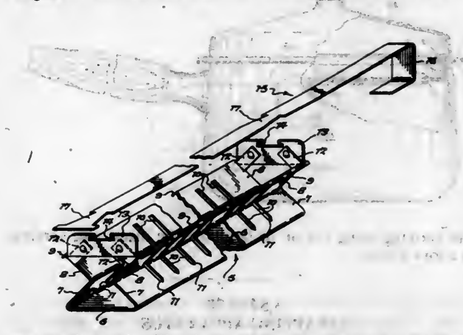


A camera has a lens movable backwardly and forwardly for focusing by a rotary focusing knob which turns more than one complete revolution to cover the entire range of focusing movement. A stop member engages a projection on the focusing knob or on some part turning therewith to limit the rotation of the focusing knob in at least one direction and to determine at least one of its limit positions. Since the focusing knob must turn through more than one complete revolution in order to cover the entire focusing range, the stop member is out of the path of travel of the projection associated with the focusing knob during all but the last part of the movement of the focusing knob in the direction which is to be limited. As the knob approaches its limit position, a cam moves the stop member into effective position ready to limit the rotation of the knob at the desired point.

3,543,668
FILM DEVELOPING MAGAZINE
Mark Vlock, 25 Tinker St., Woodstock, New York
Filed Sept. 12, 1967, Ser. No. 667,132
Int. Cl. G03d *3/00*
U.S. Cl. 95—100 4 Claims

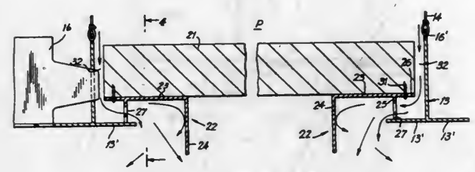
A film developing magazine having an elongated hollow body of polygonic cross section in which certain opposed wall portions contain transverse slots that collectively define a plurality of spaced parallel film-receiving slots for receiving and centering individual film units which are inserted

through the top of the body. The magazine is provided with a releasable locking device for preventing upward displacement of the inserted films during handling of the filled magazine. In one embodiment, the magazine has a pair of converging lower wall portions connected at their lower edges to the bottom wall of the magazine, and a pair of



diverging upper wall portions which are connected at their lower edges to the upper edges of the lower wall portions. In another embodiment, the lower wall portions diverge from the bottom wall of the magazine and are connected at their upper edges to the lower edges of a pair of converging upper wall portions.

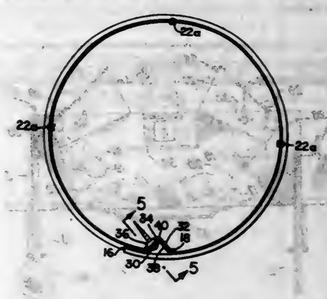
3,543,669
VENTILATING CEILING CONSTRUCTION
Michael J. Kodaras, Scarsdale, New York, assignor to Baldwin-Ehret-Hill, Inc., Trenton, New Jersey a corporation of Pennsylvania
Filed Nov. 18, 1968, Ser. No. 776,594
Int. Cl. F24f *13/06*
U.S. Cl. 98—40 3 Claims



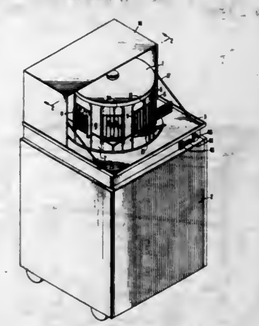
The invention relates to a ventilating ceiling construction in which a grid is suspended below the main ceiling of a room, the grid-supporting panels which form a suspended ceiling that defines a plenum chamber with respect to the main ceiling, ventilating elements being associated with the periphery of said panels to provide passageways for flow of air under pressure from the plenum chamber into the room below the suspended ceiling.

3,543,670
DEVICE FOR INTERCONNECTING TUBULAR MEMBERS
Richard L. Stone, Los Altos Hills, California, assignor to Wallace-Murray Corporation, New York, New York a corporation of Delaware
Continuation-in-part of application Ser. No. 739,005, June 21, 1968. This application June 3, 1969, Ser. No. 829,892
Int. Cl. F23l *17/02*; F16l *21/08*
U.S. Cl. 98—122 4 Claims

A connecter device for attaching sheet metal terminal devices on vent pipes or metal chimneys which can either contract around or expand within the vent or chimney pipe is comprised of a sheet metal sleeve having portions that overlap longitudinally and are pivotally connected at a point between their ends. Spaced from the pivot point near the outlet of the terminal device is a means for applying a substantially tangential force to push apart or bring together the adjacent overlapped end portions, thereby expanding or contracting the circumference of the connecter device at the lower end.



3,543,671
FOOD COOKER
Donald J. Pendzimas, Minneapolis and Theodore J. Rees, St. Paul, Minnesota, assignors to P&R Corporation, Minneapolis, Minnesota
Filed Feb. 12, 1969, Ser. No. 798,638
Int. Cl. A47j *27/14*
U.S. Cl. 99—333 44 Claims

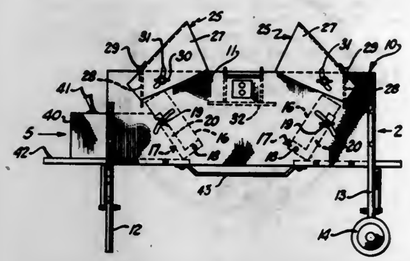


The present disclosure is directed to a cooking apparatus for cooking and/or flavoring articles of food, for example raw meat, particularly frozen raw meat, in a cooking liquor. The apparatus generally comprises a cabinet adapted to contain a cooking liquor said cabinet being provided with a conveying means containing elements for holding said food articles and means for conveying said elements through said cooking liquor.

3,543,672
SMOKELESS CHARCOAL FIRED GRILL
Anthony L. Payonk, 4148 Bridge St., Whitehall, Pennsylvania
Filed Oct. 25, 1968, Ser. No. 770,665
Int. Cl. A47j *37/04*
U.S. Cl. 99—340 2 Claims

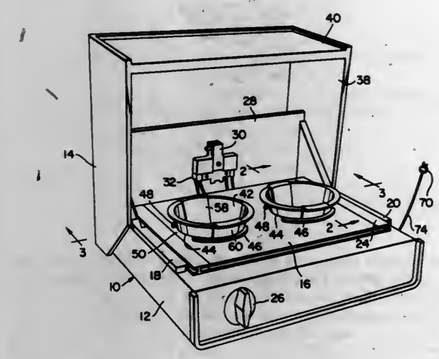
A horizontally disposed sheet metal box having an open top and one end open in which is partly located a cooking oven that rests on a horizontally disposed end member. The aforesaid sheet metal box, which is the body of this invention, is supported at each end by vertically disposed tubular legs. The legs at one end of the body have a laterally disposed axle on each end of which is located a wheel. The aforesaid body of this invention is provided with two angularly disposed and removable burner boxes having a grill top thereon, each box providing a container for the charcoal of this invention. A swingably mounted hood, that is trapezium in shape when viewed from the side, is located on each side and top of the said sheet metal box. One hood is placed over each of the aforesaid burner boxes. Two vertically spaced

and parallel grills are mounted within the aforesaid box which has an open bottom under which is located a drip pan



adapted to catch the grease or other drippings of whatever is being cooked on this grill.

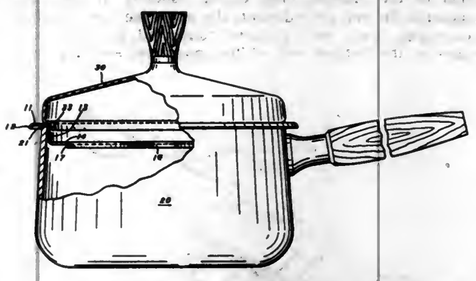
3,543,673
ELECTRICAL DEEP DISH COOKING UNIT
James McDevitt and Victor F. Hildebrand, Clearwater, Florida, assignors to Ken Smith, St. Petersburg, Florida
Filed April 7, 1969, Ser. No. 813,890
Int. Cl. H05b *3/60*
U.S. Cl. 99—358 6 Claims



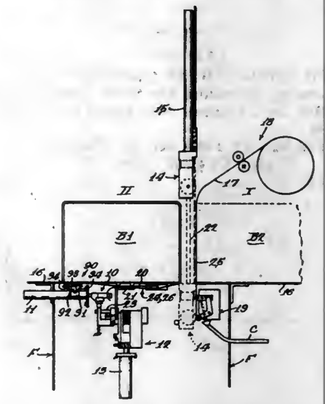
An electrical deep-dish cooking unit including a cooker plate and at least one set of positive and negative contact rings affixed about an opening therein to thereby receive diametrically positioned electrodes which are affixed to a cooking dish and are so positioned as to contact the said contact rings when the dish is placed within the said opening. The electrodes position upon the sides of the cooking dish in spaced relationship and the food to be cooked contacts the electrodes to thereby complete an electrical circuit across the said contact rings.

3,543,674
FONDUE COOKING UTENSIL
Walter A. Kunze, Chillicothe, Ohio, assignor to Aluminum Company of America, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed June 14, 1968, Ser. No. 737,239
Int. Cl. A47j *37/12*
U.S. Cl. 99—403 5 Claims

A cooking utensil combination including a pan suitable for preparing foods such as cheese or chocolate fondue and a sheet metal insert by which the pan may be adapted for fondue cooking using hot oil or bouillon, the insert also serving as a fork holder.



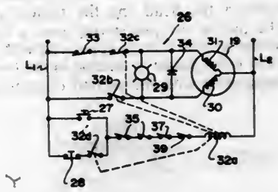
3,543,675
STRAPPING APPARATUS
Barry R. Angarola, Franklin Park, Illinois, assignor to Signode Corporation, a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,574
Int. Cl. B65b *13/24*
U.S. Cl. 100—17 26 Claims



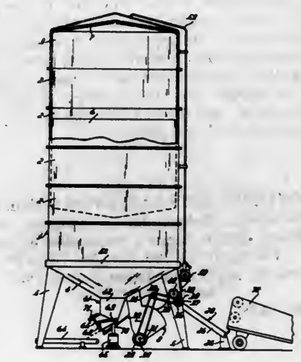
Apparatus for applying strap around a bale or like bundle including: means for moving bales horizontally into and out of a sealing station, adjacent bales cooperating to clamp a length of strap or like binding material therebetween so that strap is pulled around three sides of a bale as it moves into the sealing station; a needle assembly for moving a length of strap around the fourth side of the bale; a gripper assembly for pulling the last mentioned length of strap toward a sealing head; and means for applying a seal to overlapping strap portions at the sealing station. Movement of the gripper assembly toward the needle assembly actuates blocking means for preventing actuation of the sealing structure, a fork structure movable under the strap for lifting the strap away from the bale into sealing position, a cutoff mechanism for severing the strap from the strap supply, and a feed system for feeding a length of strap for the next bale to be strapped.

3,543,676
REFUSE COMPACTOR CONTROL CIRCUIT
Gordon H. Brown, St. Joseph, Michigan, assignor to Whirlpool Corporation, a corporation of Delaware
Filed April 29, 1968, Ser. No. 725,072
Int. Cl. B30b *15/14*
U.S. Cl. 100—52 12 Claims

A refuse compactor having a ram driven by an electric motor for compacting refuse in a receptacle. The operation of the motor is controlled by an electric control circuit including manually operable pushbutton switches and switches responsive to the arrangement of the compactor elements for automatically controlling a compacting cycle. The control includes a signal lamp for indicating to the user energization of the motor. The manual pushbuttons and lamp are provided in one form of the compactor in a plug adapted to be connected to the compactor with a special plug.



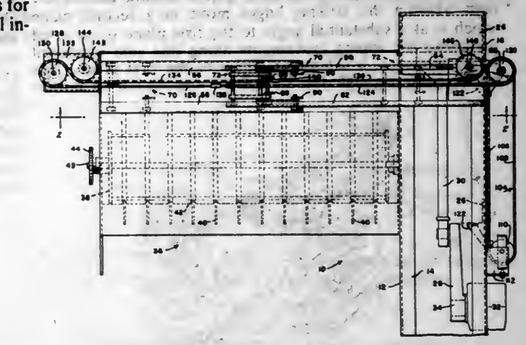
3,543,677
CROP STORES AND SILOS
Cornelis van der Lely, 7 Brueschenrain, Zug, Switzerland
Filed March 13, 1968, Ser. No. 712,774
Claims priority, application Netherlands, March 28, 1967, 6704384
Int. Cl. B65g *3/10, 65/46*
U.S. Cl. 100—66 18 Claims



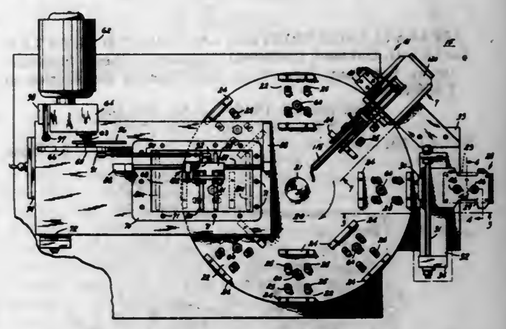
A crop store with an airtight flexible member which can be biased to compress crop under fluid pressure. A crop feed mechanism at the bottom of the store urges crop in the crop store and a dispensing mechanism moves crop towards an outlet.

3,543,678
FEEDER MECHANISM FOR A BALING MACHINE
William Hobbs, Jr., Lancaster, Pennsylvania, assignor to Sperry Rand Corporation, New Holland, Pennsylvania a corporation of Delaware
Filed Oct. 21, 1968, Ser. No. 769,270
Int. Cl. A01f *17/02*
U.S. Cl. 100—189 10 Claims

A hay baling machine having feeding means comprising a pair of reciprocable carriages, with feeder fingers depending therefrom. The carriages ride in tracks mounted above a hay receiving platform and are adapted to convey hay from a remote end of the platform to an intermediate region thereof by one carriage and from the intermediate region to the bale chamber by the other carriage.



3,543,679
SILK SCREEN APPARATUS FOR PRINTED CIRCUIT BOARDS
Frank Wahl, North Bergen, New Jersey, assignor to Western Electric Company, Incorporated, New York, New York a corporation of New York
Filed April 19, 1968, Ser. No. 722,598
Int. Cl. B41f *17/36*
U.S. Cl. 101—35 8 Claims

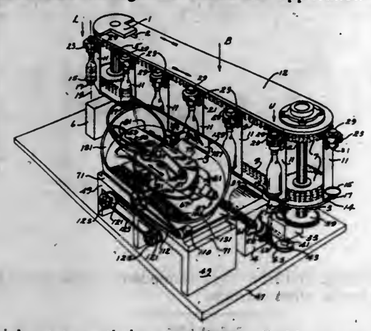


Apparatus for silk screening circuit boards including a pivotal loader which transfers a circuit board to an index table. Magnets on the loader and the table hold the circuit board in aligned position for a printing operation. The table indexes the board to a silk screen printing station. The screen is supported over the nested circuit board. A motor driven cam wheel is subject to a single revolution of turning for each cycle of the circuit board printing operation, and drives a carriage back and forth across the screen. The carriage supports a print squeegee and flood squeegee. The print squeegee is lowered to ink the screen and print the circuit during the forward half cycle of operation while the flood squeegee is lowered to spread the ink on the screen during the return half of the cycle of operation. The board is then indexed to an ejection station where it is removed from the indexing table.

3,543,680
APPARATUS FOR IMPRINTING OBJECTS SUCH AS BOTTLES AND THE LIKE
Richard J. Killen, Manchester, Missouri and Robert G. Jones, Sapulpa, Oklahoma, assignors to Liberty Glass Company, Sapulpa, Oklahoma a corporation of Oklahoma
Filed Feb. 9, 1968, Ser. No. 704,408
Int. Cl. B41f *17/18*; B41l *13/12*
U.S. Cl. 101—40 7 Claims

A first circulating conveyor moves squeegees along a closed path over a first part of which they proceed over a

pool of color with their striking edges moving in a first plane to receive color from the top of a drum which dips into the pool. Then the squeegees move over a second part of the path wherein the striking edges move in a second plane which is at a substantial angle to the first plane so as to be presented for wiping movements along one side of stencil which is also at a substantial angle to the first plane. This forces color through the stencil for application to bottles



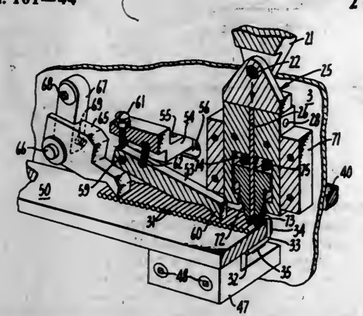
which rotate on their axes and are rolled in contact along the other side of the stencil. The speeds of the bottle contacts and of the striking edges are equal. The axes of the bottles are conveyed in a plane which is also at a substantial angle to said first plane. While moving along the second part of the path the squeegees partake of transverse movements to and from the face of the stencil to begin and terminate wiping movements in engagement therewith.

3,543,681

APPARATUS FOR PRINTING ON U-SHAPED ARTICLES

Karl Klenz, Oakland, California, assignor to Rheem Manufacturing Company, New York, New York a corporation of California

Filed Jan. 10, 1968, Ser. No. 696,890
Int. Cl. B41f *17/20*, *17/24*, *17/36*
U.S. Cl. 101—44 **2 Claims**



A apparatus for accurately imprinting indicia on relatively small articles such as U-shaped clips. A relatively large number of articles are secured together in stacked relationship and each group is fed to a printing head for imprinting of each successively. A centering device is provided for centering each clip leg relative to the printing element. A feeding device permits a relatively large number of articles to be loaded in the apparatus at one time.

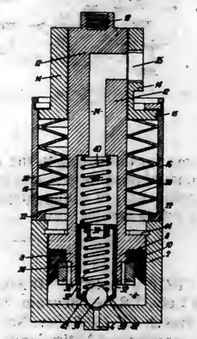
3,543,682

PRINTING MACHINES

Harold Frederick Farrow, Hitchin, England, assignor to Colorflo Limited, Hitchin, England a British Company

Filed July 11, 1968, Ser. No. 744,068
Claims priority, application Great Britain, July 21, 1967, 33735/67
Int. Cl. B41f *31/08*
U.S. Cl. 101—366 **1 Claim**

The feed mechanism for a printing machine in which printing ink is fed into the recessed design of an intaglio printing plate includes a cylinder open at its upper end and communicating at its bottom with the recessed designs. A piston is housed in the cylinder, the lower end of which piston forms a chamber at the bottom of the cylinder. The piston rod extends above the cylinder and carries a support member at its upper end, the support member carrying a head. A second cylinder rests upon the top of the first cylinder and receives the head which is slidable therein within limits. A spring is interposed between the head and the bottom of the second cylinder. The piston and piston rod have a bore forming a second chamber provided at its upper end with an ink supply inlet. A hollow relief piston is slidable in the lower end of the bore communicating with the second chamber and commu-



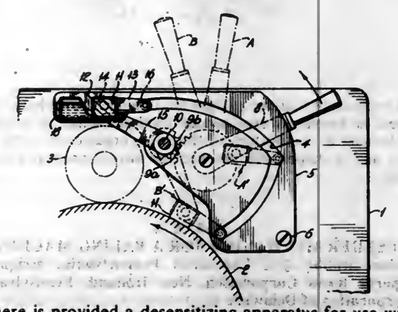
nicating through inlet openings with the first chamber. A ball valve in the lower end of the relief piston is normally spring-biased to close the outlet passage of the relief piston, and a second spring in the bore above the relief piston normally urges the relief piston into position in which the ball valve closes communication between the first chamber and the opening in the bottom of the first cylinder. The piston rod is adapted to receive printing pressure whereby the chambers will be contracted by the application of pressure on the printing plate during printing, and will expand when such pressure is released, the chamber expansion causing a further supply of ink to be sucked into the chambers ready for the next printing operation; and the ball valve being closed automatically by application of said pressure.

3,543,683

DESENSITIZING APPARATUS FOR OFFSET-PRESS

Kohichi Hirokawa, Tokyo, Japan, assignor to Kabushiki Kaisho Ricoh, Tokyo, Japan a corporation of Japan

Filed July 3, 1968, Ser. No. 742,429
Claims priority, application Japan, July 8, 1967, 42/43639
Int. Cl. B41f *35/00*
U.S. Cl. 101—425 **1 Claim**



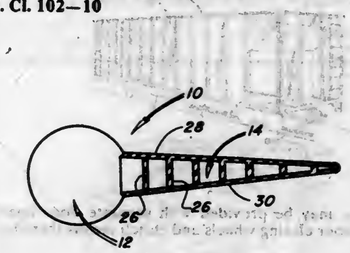
There is provided a desensitizing apparatus for use with a rotary offset-press which functions to apply desensitizing liquid to sheet material. In particular, the coating surface of the liquid applicator is at all times, i.e., during use and at rest, maintained in a downwardly facing position, no reversal of such surface being permitted.

3,543,684

STABILIZER FIN

James E. Radford, Silver Spring, Maryland, assignor to The United States of America as represented by the Secretary of the Navy

Filed Sept. 18, 1968, Ser. No. 760,402
Int. Cl. F42b *22/10*
U.S. Cl. 102—10 **5 Claims**



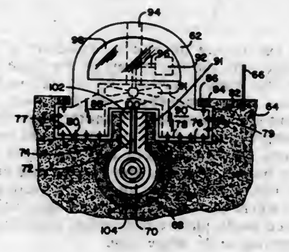
A moored marine mine having a nonmetallic, inflatable stabilizing fin with a plurality of fluidly sealed compartments, each of which is inflated with sea water, gas or a mixture thereof to a pressure of desirably at least 2—3 p.s.i. higher than the environmental hydrostatic pressure. A plurality of internal struts are secured to opposite side walls of the fin to maintain the fin in its desired shaped.

3,543,685

GROUND ORIENTED VEHICLE WITH REACTION TYPE PROPULSION

Jan J. Rosciszewski, 4784 Panaroma Drive, San Diego, California 92117

Filed May 16, 1968, Ser. No. 729,669
Int. Cl. B61b *13/08*, *13/12*
U.S. Cl. 104—23 **13 Claims**



A ground-oriented vehicle that may be supported by an air cushion or on a rail that is propelled by reaction-type propulsion, such as a fan jet engine, with the reaction-type propulsion unit being mounted in a tube to reduce the transmission of propulsion unit noise to the outer atmosphere.

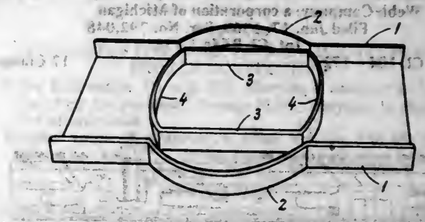
3,543,686

TRACK ARRANGEMENT FOR IMPARTING A SLEWING MOVEMENT TO WHEELED CARS

Per Borje Fonden, Linkoping and Bjorn Sture Wiklund, Norrkoping, Sweden, assignors to Borgs Fabriks AB, Norrkoping, Sweden

Continuation of application Ser. No. 622,180, March 10, 1967. This application June 11, 1969, Ser. No. 835,886
Claims priority, application Sweden Mar. 22, 1967, 3,741/66.
Int. Cl. B61b *13/00*; B61f *13/00*; E01b *26/00*
U.S. Cl. 104—35 **9 Claims**

A track system for cars which travel on rails, the cars having axles for their wheels which rotate perpendicularly to the plane of the rails or tracks. Fixed or movable supplemental rail sections are positioned between the main tracks and which supplemental rail sections, when encountered by the



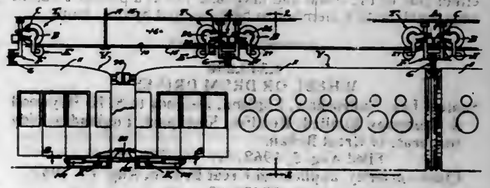
wheels of the cars, will cause the cars to slew or twist and thus perform a desired rotative or turning movement.

3,543,687

SUSPENDED RAILWAY CAR DAMPENING CONTROLLING COUPLING MECHANISM

Floyd P. Elizey, 2301 Marshallfield Lane, Redondo Beach, California 90278

Filed Oct. 27, 1967, Ser. No. 678,720
Int. Cl. B61b *3/02*, *13/04*, *11/02*
U.S. Cl. 104—95 **19 Claims**



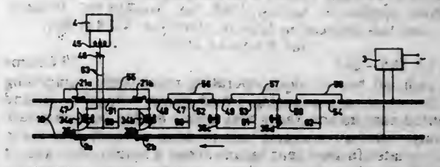
This invention relates to monorail systems wherein sectional vehicles are suspended from tracks for high speed transportation, it being a general object of this invention to provide cooperative section and intervehicle couplings and controls therefor. More particularly, this invention relates to the intercar and intervehicle unit coupling of articulated car bodies that are suspended so as to depend individually from track supported trucks, this invention providing for controlled articulated coupling together of sectional monorail vehicles and providing related sway stabilizing controls operable for distinct purposes when the vehicles are underway as compared with loading and unloading when the vehicles are stopped at stations.

3,543,688

DISPLAY DEVICE

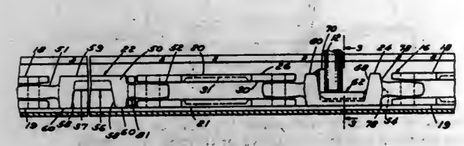
Bo Goeran Malmberg, Norrkoping, Sweden, assignor to Erik I. I. Rockstrom and Beno J. B. Grunwald, Norrkoping, Sweden

Filed March 5, 1968, Ser. No. 710,554
Claims priority, application Sweden, March 23, 1967, 4123/1967
Int. Cl. B61b *13/00*
U.S. Cl. 104—150 **20 Claims**



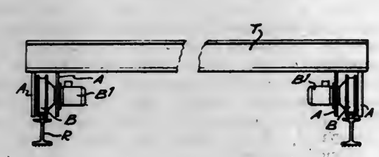
Articles to be displayed are placed on a rotary platform which is supported by a carriage. A first motor propels the carriage along rail means situated on the floor, for instance inside a shop window. A second motor rotates the platform. A programmer turns on and off the electric current to said motors according to a predetermined pattern.

3,543,689
CONVEYOR AND DRAGLINE CHAIN
Clarence A. Dehne, Farmington, Michigan, assignor to Jervis B. Webb Company, a corporation of Michigan
Filed Jan. 17, 1969, Ser. No. 792,048
Int. Cl. B65g 17/38
U.S. Cl. 104—172 17 Claims



A chain of the type composed of alternate pin-connected center links and pairs of side links has side links each formed with a flat outer face and the center links each formed with a transverse U-shaped recess. When the chain is assembled, the outer face of the base of the recess of a center link is coplanar with the outer faces of adjacent side links on one side of the chain and the ends of the legs of the center link recess are coplanar with the outer faces of adjacent side links on the other side of the chain. A center link may be assembled to adjacent pairs of side links with the recess facing either side of the chain and may function as a pusher element engageable with a member to be propelled by the chain.

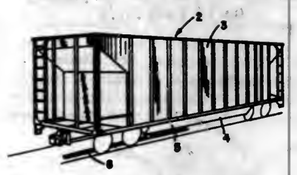
3,543,690
WHEEL OR DRUM DRIVES
Samuel Lee, Audenshaw, England, assignor to S. H. Heywood & Company Limited, Reddish, Stockport, England a body corporate of Great Britain
Filed Aug. 5, 1968, Ser. No. 750,188
Claims priority, application Great Britain, Aug. 15, 1967, 37473/67
Int. Cl. F16h 1/26; B66c 9/10, 1/00
U.S. Cl. 105—163 1 Claim



A wheel or drum drive unit employing a motor driven spindle driving planetary pinions and further pinions mounted on shafts journalled in the wheel or drum, the further pinions engaging stationary pinions concentric with the spindle to cause the wheel or drum to rotate about end casings.

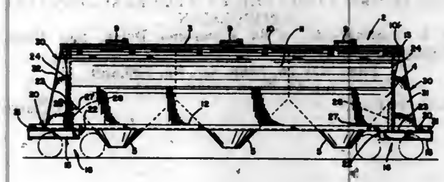
3,543,691
OPERATING MECHANISM FOR VEHICLE DISCHARGE MEANS
Ernest J. Nagy, Munster, Indiana, assignor to Pullman Incorporated, Chicago, Illinois a corporation of Delaware
Original application April 4, 1968, Ser. No. 718,892. Divided and this application June 16, 1969, Ser. No. 835,904
Int. Cl. B61d 7/30
U.S. Cl. 105—241 19 Claims

A railroad hopper door operating mechanism comprising car mounted cam engaging wheel means engaging ground mounted cam means, the wheel means having gear structure rotating about a transverse axis to drive a worm gear mean which rotates further gear means about a longitudinal axis of a longitudinally extending door operating shaft connecting with flexible chainlike door opening arms which become rigid strut means in the extended position to hold doors open where the door opening and closing cam means is disposed beneath the hopper car and the between the railroad tracks and wherein the cam engaging wheel means may be provided with a single wheel having clutch means for selective alternate opening and closing of the doors in either direction of



car travel or may be provided with separate door opening wheels and door closing wheels and clutch means therefor.

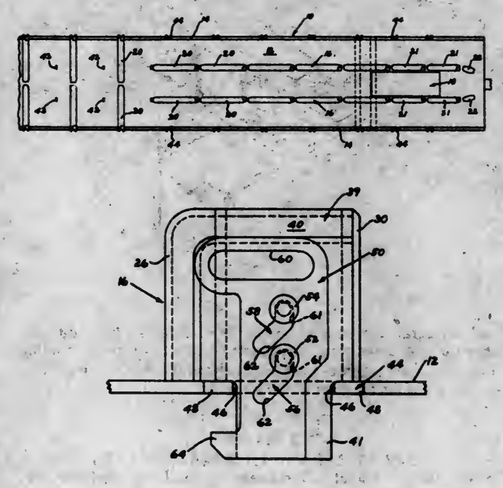
3,543,692
HOPPER CAR
Marvin Stark, Michigan City and Norman M. Szala, Hammond, Indiana, assignors to Pullman Incorporated, Chicago, Illinois a corporation of Delaware
Filed May 1, 1968, Ser. No. 725,665
Int. Cl. B61d 5/00, 7/00, 1/10
U.S. Cl. 105—248 13 Claims



A hopper car having an end construction of a hopper torque box type with the upper part of the slope sheet connecting with the upper part of the bolster web and the horizontal shear plate connecting with the lower part of the bolster web but spaced outwardly from the slope sheet, and a vertical bending unit including a pair of upright members attached between the hopper roof and the shear plate outwardly of the bolster web and the vertical flat end wall so that coupler forces are taken up by the vertical bending structure and where the side sill structure may include an inwardly directed angle plate construction attaching the ends of the side sheeting to the angle plate.

3,543,693
MOVABLE GUIDE RAIL STRUCTURE FOR RAILWAY FLAT CARS
Duane V. Thornton and Jan D. Holt, St. Charles, Missouri, assignors to ACF Industries, Incorporated, New York, New York a corporation of New Jersey
Filed May 2, 1968, Ser. No. 726,127
Int. Cl. B61d 17/10, 45/00, 47/00
U.S. Cl. 105—368 5 Claims

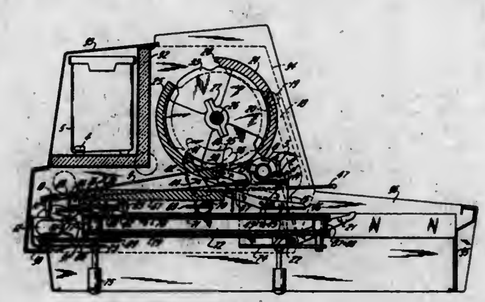
A guide rail structure for a railway flat car comprising a pair of spaced rails each including a plurality of alined sections. The guide rail sections are mounted for movement between a wheel guide position extending longitudinally of the deck for guiding wheels of roadway vehicles and a load support position extending transversely of the deck for supporting ladings thereon. Releasable locking means adjacent an end of each movable guide rail section secures the guide rail section at the transverse and longitudinal positions and is lifted upwardly to release the guide rail section for pivotal movement between the load support position and the wheel guide position. A downward extending projection on the guide rail section is received within an associated slot when the rail section is properly positioned and the locking means



then moves by gravity into the associated slot to automatically lock the guide rail section in position.

ERRATUM
For Class 105—366 see:
Patent No. 3,543,969

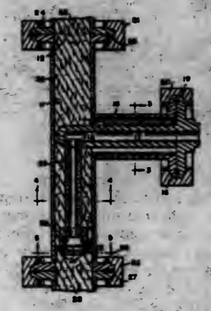
3,543,694
MACHINE FOR MAKING ELONGATED COOKED FLAT FOOD PRODUCTS
Pierre Jean Clement Tanguy, Pierre Robert Carre, and Jean Andre Le Boulbouech, all of 2 rue Bodello, Lorient, France
Filed Nov. 8, 1967, Ser. No. 681,549
Claims priority, application France, Nov. 10, 1966, 2,261; June 7, 1967, 2,320, 2,321 and 2,322
Int. Cl. A21b 1/44, 5/02
U.S. Cl. 107—4 19 Claims



Machine for making flat cooked food products of any shape such as pancakes, in which there are provided a dough dispensing device movable relative to a device for feeding dough in which the level of the dough is maintained fixed, a cooking device movable relative to the dough dispensing device in such a way that owing to its relative movements, the dough dispensing device dispenses dough on the cooking device in the desired shape.

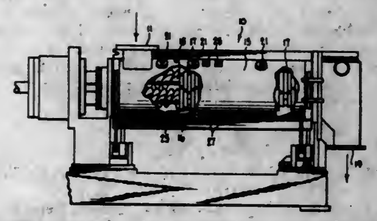
ERRATUM
For Class 107—17 see:
Patent No. 3,545,007

3,543,695
APPARATUS FOR EFFECTING GASIFICATION OF FROZEN CONFECTIONS
Irving Rubenstein, Owings Mill, Maryland, assignor to Maryland Cup Corporation, Owings Mills, Maryland a corporation of Maryland
Original application March 29, 1966, Ser. No. 538,381, now Patent No. 3,503,757. Divided and this application Feb. 7, 1969, Ser. No. 822,340
Int. Cl. A23g 5/00
U.S. Cl. 107—31 3 Claims



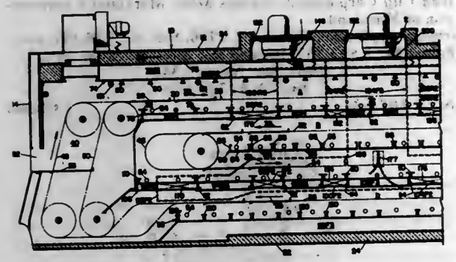
Apparatus for manufacturing a frozen confection comprises a tube containing a gas nozzle through which a conventional chilled liquid mix is passed on the form of a stream. The mix flows around the nozzle and the nozzle discharges through extremely fine openings in the direction of the flow of the mix. Means are provided for regulating the flow of the mix and gas independently of each other. The gasified mix is discharged into containers which are subsequently subjected to freezing temperatures. This results in the mix having a uniform distribution of the gas in finely divided form with a minimum of physical manipulation of the mix. The gas has a molecular weight greater than air, such as carbon dioxide and/or nitrous oxide.

3,543,696
METHOD OF MAKING FUDGE, CARAMEL, FONDANT AND HARD CANDY TYPE CONFECTIONS
James R. Posdal, Glenview, Illinois, assignor to Krafico Corporation, New York, New York a corporation of Delaware
Filed Jan. 22, 1968, Ser. No. 699,540
Int. Cl. A23g 3/02
U.S. Cl. 107—54 12 Claims



The invention is directed to a method for the manufacture of confectionery products. A blend of confectionery ingredients is prepared which contains substantially the amount of water desired in the finished confectionery product. The blend is introduced into a mixer and is thereafter subjected to mixing and heating conditions. The mixing and heating conditions are sufficient to provide a blend of confectionery materials that have a consistency substantially similar to the consistency of confectionery products prepared by conventional methods.

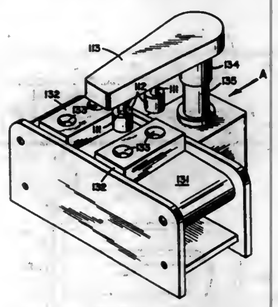
3,543,697
DOUBLE LAP OVEN HEATING SYSTEM
Wayne H. Royer, York, Pennsylvania, assignor to Teledyne, Inc., Los Angeles, California a corporation of Delaware. by mesne assignments
Filed June 10, 1968, Ser. No. 735,734
Int. Cl. A21b 1/42
U.S. Cl. 107—55 4 Claims



An air agitating and recirculating system for a double lap oven having an endless product carrying tray conveyor including an initial, intermediate, and a final vertically spaced horizontal longitudinally extending tray conveyor runs. An upper air-return header provided with downwardly directed vents is spaced above the initial tray conveyor run. A first series of transversely extending side-by-side contiguous headers is spaced therebelow to form an impervious partition separating the initial tray conveyor run from the tray conveyor runs therebeneath. Certain of this first series of headers form air-feeding headers provided with upwardly directed air vents. A first suction-blower has its intake side connected with the upper air-return header and its discharge side connected with the air-feeding headers of the said first series of headers to provide agitation and recirculation of air around the product on said initial tray conveyor run. A lower air-feeding header provided with upwardly directed vents is spaced below the final tray conveyor run. A second series of transversely extending side-by-side contiguous headers is spaced thereabove to form an impervious partition separating the final tray conveyor run from the tray conveyor runs thereabove. Certain of this second series of headers form air-return headers provided with downwardly directed air vents. A second suction-blower has its intake side connected with the said air-return headers of the second series of headers and its discharge side connected with the lower air-feeding header to provide agitation and recirculation of air around the product on said final tray conveyor run. Certain other of the said first series of headers form air-return headers provided with downwardly directed vents, and certain other of said second series of headers form air-feeding headers provided with upwardly directed vents. A third suction-blower has its intake side connected with the air-return headers of said first series of headers and its discharge side connected with the air-feeding headers of said second series of headers to provide agitation and recirculation of air around the product on the intermediate tray conveyor runs.

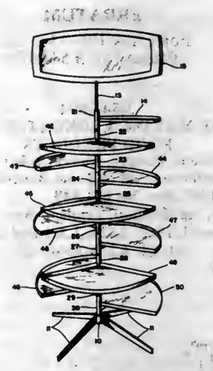
3,543,698
DEVICE FOR CONTROLLING AN INTERMITTENT WORK CYCLE
Hans Grubelnik, Waldschulstrasse 44, Munich, Germany
Continuation-in-part of application Ser. No. 481,138, Aug. 19, 1965, which is a continuation-in-part of Ser. No. 639,914, May 19, 1967. This application July 5, 1968, Ser. No. 761,362
Int. Cl. A21c 7/06
U.S. Cl. 107—68 4 Claims

This application concerns an indenting machine for successively working pieces of dough, consisting of a stationary frame carrying a conveyor belt for transporting pieces of dough. A knife head spindle rail extends over the conveyor and carries a knife for penetrating the dough. A drive arrangement is provided which will intermittently advance the belt and thereby bring successive pieces of dough into the work zone and, also, raise and lower the knife head spindle



rail. An arrangement is provided for rotating the knife during upward and downward movement of the drive head spindle rail, which arrangement is selectively adjustable to a position which prevents rotation of the knife.

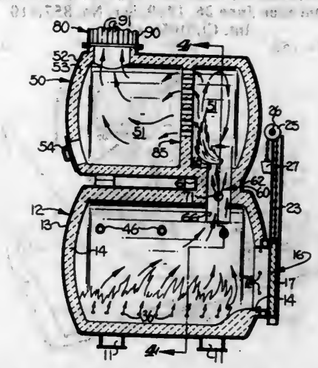
3,543,699
DISPLAY RACK WITH SPIRAL SHELVES
Aldis Juris Leikarts, Indianapolis, Indiana, assignor to Streater Industries, Inc., Albert Lea, Minnesota a corporation of Minnesota
Filed Oct. 24, 1968, Ser. No. 770,353
Int. Cl. A47b 57/00
U.S. Cl. 108—59 2 Claims



The invention relates to a display rack for displaying merchandise articles. The rack comprises a base, a vertically extending shaft attached to the base, and a plurality of shelf units having collar or spacer elements which allow the shelf units to be vertically stacked on the shaft. The collar or spacer elements are provided with indexing means which comprise interengaging projections and recesses, or tabs and slots, which function to provide a spiral arrangement for the shelf units relative to the axis of the vertically extending shaft.

3,543,700
AIR PURIFYING INCINERATOR APPARATUS
Joseph F. Balgas, Jr.; Richard G. Nolte; Peter M. DeVita and James E. Neinast, Charlotte, North Carolina, assignors to Environmental Control Products, Inc., Charlotte, North Carolina a corporation of North Carolina
Filed July 7, 1969, Ser. No. 839,431
Int. Cl. F23g 5/12
U.S. Cl. 110—8 19 Claims

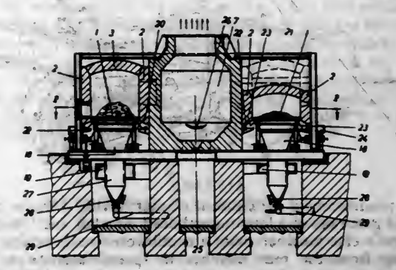
Air purifying incinerator apparatus comprising an independent secondary combustion chamber for receiving and burning products of incomplete combustion from a main combustion chamber or for use in receiving and burning any type of combustibles contained in gases prior to exhausting same into the atmosphere and conduit means for introducing the products of incomplete combustion from a main combustion chamber or otherwise into said secondary combustion chamber. Further provided are means for introducing secondary air tangentially into said secondary combustion chamber and selectively operable burner means for introducing an elongate flame to maintain a predetermined temperature in the secondary combustion chamber to support combustion,



both aiding in causing a generally cyclonic flow of the products of incomplete combustion and the secondary air in at least a portion of the secondary combustion chamber. An exhaust stack means is provided for exhausting the purified gases after burning from the secondary combustion chamber. The apparatus preferably includes a heat exchanger chamber in the exhaust stack means for heating the secondary air and preferably includes an incandescent screen means in the secondary combustion chamber for providing an additional burning medium therein and to produce a partial obstacle to the flow of the products of incomplete combustion therethrough.

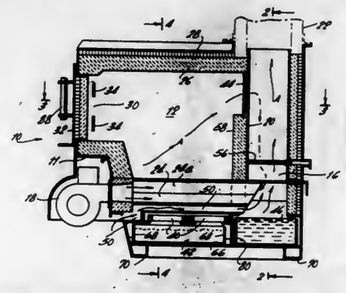
the flow path of combustion products generated in the primary chamber includes a water impingement surface for collecting fly ash and other contaminant materials prior to entrance into the secondary combustion chamber.

3,543,702
METHOD OF AND APPARATUS FOR BURNING OF REFUSE
Hermann Appelhans, 112 Frantfurter Strasse 35, Kassel and Wolfgang Schumann, 351 Werdenstieg 22b, Hannover-Muenden, Germany
Filed Dec. 30, 1968, Ser. No. 787,981
Int. Cl. F23g 5/02
U.S. Cl. 110—13 14 Claims



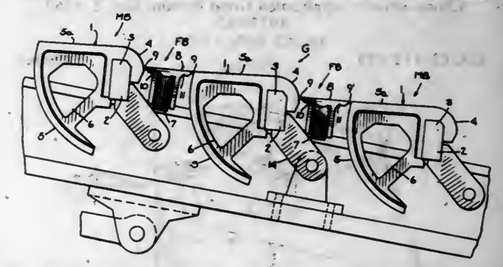
A method and apparatus for burning refuse, comprising guiding refuse in a circular path successively through a drying zone, a burning zone and a cooling zone, subjecting the refuse during the continuous guidance to combustion air, and lifting and airing the refuse during the burning step. The apparatus includes an oven having an annular tunnel and including an annular grate turnable in the tunnel and having openings, a feeding station, a drying chamber, a burning chamber, a cooling chamber, and a discharge station in series in the tunnel in the direction of rotation of the grate, and means for feeding combustion air from the bottom of the annular grate. In the center of the oven is an afterburner chamber having a waste gas opening for communication with the burning chamber, and a dust removing device is operatively connectable with the afterburner chamber.

3,543,701
PORTABLE INCINERATOR
Arthur John Doner, Kearny, New Jersey, assignor to Resources Control Corporation, North Plainfield, New Jersey a corporation of Delaware
Filed Jan. 15, 1969, Ser. No. 791,244
Int. Cl. F23g 5/12
U.S. Cl. 110—8 7 Claims



A compact incinerator suitable for use close to a source of refuse is constructed with primary and secondary combustion chambers so as to reduce the quantity of contaminants released into the atmosphere. Both the primary and secondary combustion chambers are fired from a single flame source by means of a flame conduit which passes through the primary combustion chamber and opens into the secondary combustion chamber. In a preferred embodiment of the invention

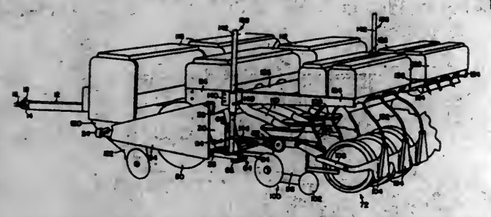
3,543,703
GRATE ASSEMBLIES FOR REFUSE INCINERATORS
Geoffrey Alan Archer, Malvern, England, assignor to Nicholas Engineering and Research Corporation, New York, New York a corporation of Delaware. by mesne assignments
Filed July 29, 1968, Ser. No. 748,270
Claims priority, application Great Britain, Aug. 11, 1967, 37045/1967
Int. Cl. F23b 1/22
U.S. Cl. 110—39 17 Claims



An improved grate assembly for a movable grate incinerator having alternate movable and fixed grate sections. The fixed grate sections are provided with a frangible zone or area such that, if an unburnt refuse material becomes entrapped between the movable and fixed sections, controlled breakage occurs along the frangible zone of the fixed sections thereby minimizing possible damage to the movable grate sections or their associated supported drive mechanisms. Also, the grate sections are provided with

cooperating tongue and groove contours to provide a non-linear space therebetween to minimize the possibility of the unburnt refuse slipping therebetween.

3,543,704
SEED PLANTER
Harold Valentine Hansen, Cordova and Robert Leroy Childester, East Moline, Illinois, assignors to Deere & Company, Moline, Illinois a corporation of Delaware
Filed Aug. 5, 1968, Ser. No. 750,078
Int. Cl. A01c 5/08, 7/06
U.S. Cl. 111—52 12 Claims

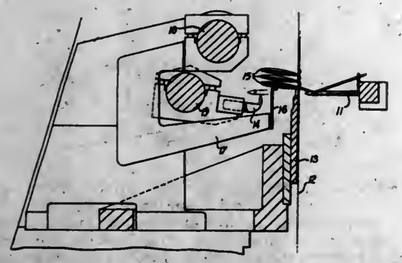


A tractor-drawn agricultural planter having a frame comprised generally of a longitudinal draft member and fore-and-aft transverse members with a cantilevered rear section projecting from the rear member in spaced relation to the ground, the frame being carried by ground wheels disposed between the fore-and-aft frame members and adjustable between transport and working positions. A plurality of commonly driven individual planting units, including seed selecting and dispensing means, are mounted for transverse adjustment on and extend rearwardly beneath the rear section from the rear transverse frame member, these units each containing a small auxiliary seed hopper which is supplied with seed from high capacity central seed hoppers mounted on the planter frame. Fertilizer hoppers and dispensing means are mounted on the forward transverse frame member, and high-capacity central pesticide hoppers and dispensing means are supported on the rear section above the rearward portion of the planting units.

ERRATUM

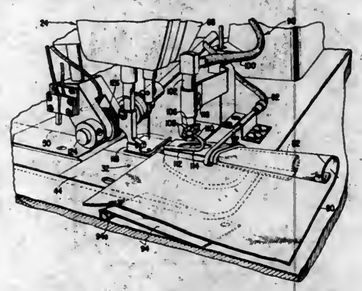
For Class 112—121.12 see:
Patent No. 3,543,737

3,543,705
ATTACHMENT FOR TUFTING MACHINES
Raymond Victor Evans and Thomas Alban Donlan, Blackburn, England, assignors to Singer-Cobble Limited, Blackburn, England
Filed Nov. 1, 1968, Ser. No. 772,744
Claims priority, application Great Britain, Nov. 2, 1967, 49759/67
Int. Cl. D05c 15/04
U.S. Cl. 112—79 5 Claims



A tufting machine, especially a machine for producing high pile fabric, is provided with a pusher member adjacent to the tufting needles, the member being reciprocable across the path of the needles in synchronism with the motion thereof and being arranged to engage the last entered tuft or row thereof and to hold same out of the path of the needle during the initial part of the forward motion thereof.

3,543,706
HEMMING AND BUTTON SEWING MODULES
Orland B. Reid, Kenilworth and Bert G. Feuling, Whippany, New Jersey, assignors to The Singer Company, New York, New York a corporation of New Jersey
Original application March 18, 1968, Ser. No. 713,712, now Patent No. 3,482,540, dated Dec. 9, 1969. Divided and this application June 26, 1969, Ser. No. 857,610
Int. Cl. D05b 35/04
U.S. Cl. 112—150 4 Claims



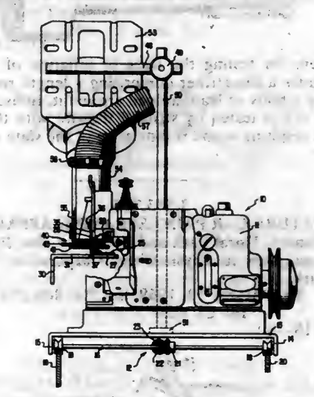
This disclosure relates to a method and apparatus by which a piece, such as a shirt front, is passed along a prescribed line of feed for hemming and sewing of a plurality of buttons thereon. The piece is fed tail-end-first to be hemmed and thereafter the piece is turned over so that the buttons are sewn successively from the collar end. In order to accommodate the wide range of both natural and synthetic materials a holddown means or guide finger may be selectively actuated to assist in the hemming operation. Other guiding devices may be used to aid in the button sewing operation.

3,543,707
PORTABLE TREADLE MECHANISM FOR SEWING MACHINES
Karl D. Schweers, Spring Valley, New York, assignor to The Singer Company, New York, New York a corporation of New Jersey
Filed April 17, 1969, Ser. No. 817,083
Int. Cl. D05b 69/00
U.S. Cl. 112—220 10 Claims



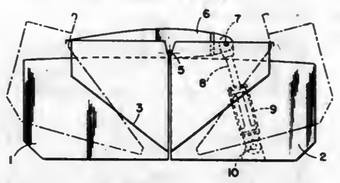
A treadle mechanism is disclosed for a sewing machine having a one-way clutch connected to the main shaft. This mechanism includes a treadle which is effective to transmit foot power when it is simply placed on a floor i.e., without a cumbersome support frame. A flexible belt and return spring arrangement is disclosed having a connection at a single point to the treadle to facilitate rapid folding into compact form for storage or transport of the treadle mechanism.

3,543,708
THREAD CUTTING MECHANISM FOR RAILWAY SEWING MACHINE
George B. Armstead, Jr., Glastonbury, Connecticut, assignor to The Merrow Machine Company, Hartford, Connecticut a corporation of Connecticut
Filed Nov. 22, 1968, Ser. No. 778,210
Int. Cl. D05b 65/06
U.S. Cl. 112—252 6 Claims



A railway sewing apparatus including a sewing machine having a thread chain cutting mechanism mounted for movement with the sewing machine to trim the thread chain at the leading and trailing edges of stationary articles sewn by the machine. The cutting mechanism includes a clipper assembly supported above the needle plate of the machine to pass above the top surface of articles sewn on the machine. A vacuum draws the thread chain up above the sewn articles in position to be engaged and cut by the clipper assembly as the machine moves along the articles sewn.

3,543,709
DEVICE FOR CLOSING BOTTOM DUMP BARGE
Ludwig Bock, Hornstorf-Straubing and Georg Onderca, Metten, Germany, assignors to Deggendorfer Werft und Eisenbau G.m.b.H., Deggendorf Danube, Germany
Filed March 12, 1969, Ser. No. 806,420
Claims priority, application Germany, April 30, 1968, 1,756,273
Int. Cl. B63b 35/30, 35/38
U.S. Cl. 114—29 12 Claims



A bottom dump barge is comprised of a pair of barge sections hinged together along a longitudinally extending axis located at approximately the deck level of the barge. For moving the barge sections from the closed to the opened position, an arm is secured to one barge section and extends in cantilever fashion transversely across the hinge axis to a point above the other barge section and a closing device is secured at its upper end to the free end of the cantilever arm and at its lower end to the other barge section. The closing member can be locked to retain the barge sections in the closed position.

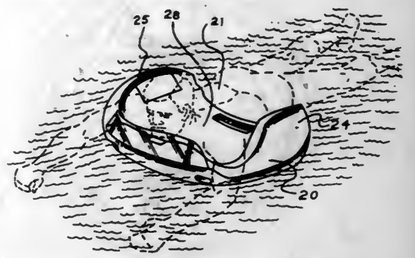
3,543,710
METHOD FOR FILLING BALLAST TANKS
Charles F. Myers, Jr., Bel Air, Maryland, assignor to Harry T. Campbell Sons' Corporation, Towson, Maryland a corporation of Maryland
No Drawing. Filed Feb. 18, 1969, Ser. No. 800,288
Int. Cl. B63b 43/06
U.S. Cl. 114—125 5 Claims

A method for filling a ballast tank or space of a vessel with a flowable inert inorganic ballast composition comprising water and a mixture of graded aggregate and noncementitious filler, said filler being present in amounts of about 5—30 weight percent of said mixture, said aggregate and filler having a specific gravity ranging between about 2.40—2.90, said aggregate and filler being graded to provide a mixture having minimum percent voids so that when said mixture is combined with water in amounts of 6—25 percent by weight of the total ballast composition, said ballast composition has a density ranging between about 115—160 pounds per cubic foot, the steps of introducing said ballast composition into said ballast tank or space and vibrating said tank or other structure defining said space at a frequency of at least about 1000 vibrations per minute.

3,543,711
METHOD FOR BALLASTING A VESSEL
Donald J. Peters, Baltimore and George E. Oiseth, Cockeysville, Maryland, assignors to Harry T. Campbell Sons Corporation, Towson, Maryland a corporation of Maryland
No Drawing. Filed Feb. 18, 1969, Ser. No. 800,291
Int. Cl. B63b 43/06
U.S. Cl. 114—125 5 Claims

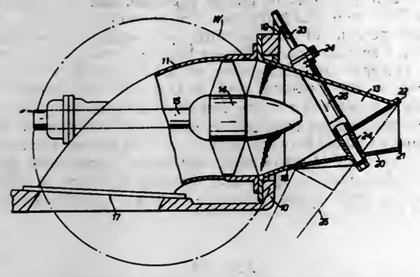
A method for ballasting a vessel comprising introducing into a ballast space in said vessel a flowable inert inorganic ballast composition comprising water and a mixture of graded aggregate and noncementitious filler, said filler being present in amounts of about 5—30 weight percent of said mixture, said aggregate and filler having a specific gravity ranging between about 2.40—2.90, said aggregate and filler being graded to provide a mixture having minimum percent voids so that when said mixture is combined with water in amounts of 6—25 percent by weight of the total ballast composition, said ballast composition has a density ranging between about 115—160 pounds per cubic foot.

3,543,712
BUOYANT SWIMMING AID
Anastasios J. Vasilatos, Wilmette, Illinois, assignor to A.V. American Ventures, Inc., Wilmette, Illinois a corporation of Illinois
Filed Oct. 7, 1968, Ser. No. 765,360
Int. Cl. B63b 21/56
U.S. Cl. 115—6.1 10 Claims



A swimming aid device contoured on its upper side to engage the upper torso of the user in a manner that allows freedom of motion of the arms and legs and provides buoyancy in direct relationship to the weight distribution of those parts of the body supported by the device. The lower side of the device is a hydrodynamically streamlined hull shape with keellike projections providing lateral stability. Venturi-shaped passages extending fore and aft are utilized for the location of propulsion means.

3,543,713
PROPULSION UNIT FOR A VESSEL
Owen G. Slade, Cowes, Isle of Wight, England, assignor to J. Samuel White & Company Limited
Filed Nov. 22, 1968, Ser. No. 778,141
Claims priority, application Great Britain, Nov. 24, 1967, Feb. 27, 1968, 53,627/67;9423/68
Int. Cl. B63h *11/08*; B60h *3/00*
U.S. Cl. 115—12 8 Claims

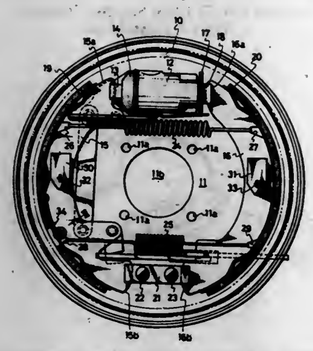


A propulsion unit for a marine vessel operating by discharging water from a pump through an orifice which can be directed in accordance with the desired direction of propulsion has a particular disposition of the components so that the water can be discharged in a substantially straight and preferably horizontal line, when forward propulsion is required. This gives maximum efficiency for forward propulsion and can be achieved quite simply by:

a. having a rotatable duct forming a downstream part of the discharge passage; or

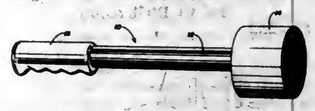
b. having a rotatable vaned plate at the end of the discharge passage.

3,543,714
BRAKE LINING WEAR WARNING DEVICE
Tatsumi Torii and Toshiyuki Kondo, Kariya, Aichi, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan
Filed July 18, 1969, Ser. No. 842,925
Claims priority, application Japan, July 20, 1968, 42/62,160
Int. Cl. 608b *3/00*
U.S. Cl. 116—67 12 Claims



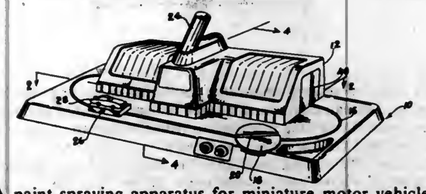
A brake lining wear warning device for use on an automotive vehicle, wherein a ratchet wheel is rotatably mounted on the brake shoe, and when the brake lining is worn below a predetermined minimum level during a successive brake application, said ratchet wheel comes into direct engagement with the rotating brake drum, thereby generating an audible sound to apprise a vehicle operator of excessive brake lining wear.

3,543,715
INFLATION TESTING SYSTEM
James W. D. Hill, 2214 Wentworth Ave., Dallas, Texas 75208
Filed Aug. 11, 1969, Ser. No. 849,062
Int. Cl. C08b *3/00*
U.S. Cl. 116—67 1 Claim



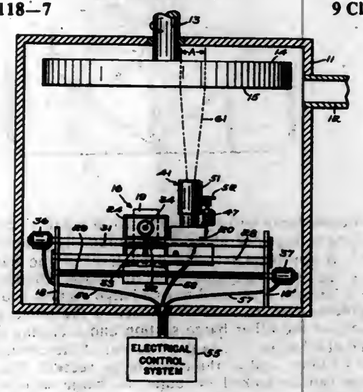
A system for testing the state of inflation of pneumatic tires includes a tire striker comprising a length resilient tubing having a body of lead molded around it. In use, the inflation of a tire is tested by striking the tire with the body of lead. The resulting sound is indicative of the state of inflation of the tire.

3,543,716
MINIATURE CAR PAINT SPRAYING APPARATUS
George Dunsay, Floral Park and Leonard Cohn, Roslyn, New York, assignors to Physio-Chem Corporation, Westbury, New York
Filed March 12, 1969, Ser. No. 806,372
Int. Cl. B05c *5/00*, *11/16*
U.S. Cl. 118—6 17 Claims



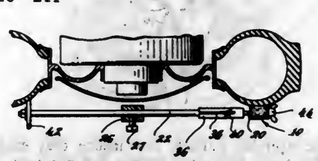
A paint spraying apparatus for miniature motor vehicles, comprising a spray station, including a paint sprayer, conveyor means for transporting a miniature motor vehicle to and away from said spray station, and a turntable connected to the conveyor for reversing the position of the miniature motor vehicle relative to the paint sprayer, so that one side of the motor vehicle is sprayed on its first exposure to the paint sprayer, and the opposite side is sprayed on its second exposure thereto.

3,543,717
MEANS TO ADJUST COLLIMATOR AND CRUCIBLE LOCATION IN A VAPOR DEPOSITION APPARATUS
Iwao P. Adachi, Lexington, Massachusetts, assignor to Itek Corporation, Lexington, Massachusetts a corporation of Delaware
Filed April 25, 1968, Ser. No. 724,081
Int. Cl. B05c *11/00*
U.S. Cl. 118—7 9 Claims



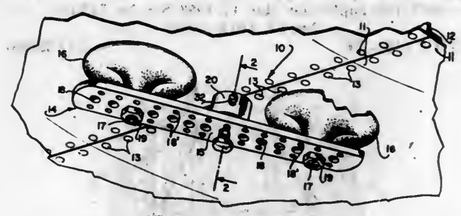
A surface generating system in which means move a vapor column over the work surface of an optical blank in an irregular path so to produce relative elevational changes thereon. Means for independent two-dimensional control of the vapor column's movement permits selective, asymmetrical correction of the work surface.

3,543,718
PAINT APPLICATOR FOR PAINTING THE SIDE WALLS OF TIRES
David G. Keeler, 28 Saddle Road, Norwalk, Connecticut
Filed May 27, 1968, Ser. No. 732,346
Int. Cl. B05c *1/02*
U.S. Cl. 118—211 5 Claims



Apparatus for applying a paint stripe to an automobile wheel as the wheel is rotated including an applicator rod having a paint roller on one end and a guideroller on the other. Spring biased support means urge the paint roller and guide roller into contact with the rotating wheel.

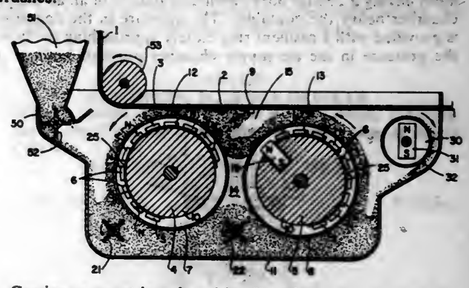
3,543,719
SEALANT APPLYING TOOL
Philip C. Pettyjohn, Marietta, Georgia, assignor to Lockheed Aircraft Corporation, Burbank, California
Filed April 9, 1968, Ser. No. 719,950
Int. Cl. B05c *1/00*
U.S. Cl. 118—410 5 Claims



A sealant applying tool consists of a fixture bar with attached rubber suction cups which allow it to be firmly affixed in any position on an aircraft wing area to be repaired. Attached to the fixture bar is a pressure vessel which contains the sealant to be used and a pressure bolt that passes through the center of the vessel with a washer at its end to give a piston ring seal effect. As the pressure bolt is threaded into the vessel the sealant is forced under pressure up, into and around the leaking fastener thus effecting a permanent seal. Lock bolts are threaded in the fixture bar one on each side of each pressure bolt mounting hole to adjust the pressure vessel to any required height and to force it against the wing surface locking it in position at the repair area.

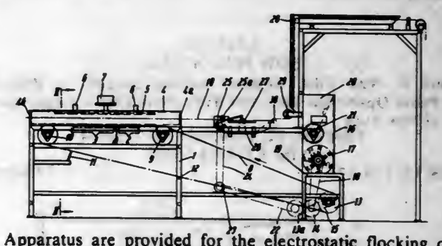
3,543,720
APPARATUS FOR DEVELOPMENT OF ELECTROSTATIC IMAGES
Roger A. Drexler and Conrad Aktmann, Rochester, New York, assignors to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed Feb. 29, 1968, Ser. No. 709,281
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 17 Claims

Developer is fed into a cavity faster than it is discharged creating a developer accumulation in the cavity forming a soft, agitated development medium. In preferred embodiments, two magnetic brushes are arranged to create the accumulation in the form of a gently tumbling rollback from the contacting of one of the brushes with the image-bearing surface. In the preferred embodiments, the accumulation is accentuated by adjusting the spacing between the brushes and the image-bearing surface, adjusting the peripheral speed of the brushes and controlling the direction of movement of the image-bearing surface relative to the movement of the brushes.



Carrier carryout is reduced by directing a strong magnetic flux at the rollback area and by providing an auxiliary carrier scavenging mechanism.

3,543,721
PROCESS AND APPARATUS FOR THE ELECTROSTATIC FLOCKING OF TEXTILE MATERIAL
Walter Linneborn, Cologne-Braunsfeld, Germany, assignor to The Singer Company, New York, New York
Filed Jan. 2, 1968, Ser. No. 694,973
Claims priority, application Germany, Dec. 31, 1966, S107707
Int. Cl. B05b *5/02*
U.S. Cl. 118—638 11 Claims

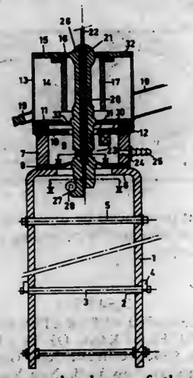


Apparatus are provided for the electrostatic flocking of textile material including textile material in the form of filaments or yarns. The textile material is coated with adhesive and past into an atmosphere of flock material generated by an electrostatic field of high intensity. The electrostatic field is produced by a main electrode and a complementary electrode of opposite polarity and a separate activating electrode having the same polarity as the main electrode, is disposed adjacent to but not in contact with the main electrode. The activating electrode is charged to a greater potential than the main electrode. The adhesive-coated material is passed between the complementary electrode and the main and activating electrodes so that flock material is deposited onto the material. In order to ensure that the flock material is deposited uniformly onto the adhesive-coated material, the flock material is conveyed between the electrodes on an endless belt in such a way that there is a greater amount of flock material conveyed on the outer portions of the belt than on the centre portion of the belt.

3,543,722
APPARATUS FOR MANUFACTURING A HOSE FOR TAKING AN UNDISTURBED SOIL SAMPLE
Hendrikus J. Bos, Delft and Adriaan B. Mann, Pijnacker, Netherlands, assignors to Stichting Waterbouwkundig Laboratorium, Delft, Netherlands a Non-profit institution according to Dutch Laws
Filed April 3, 1968, Ser. No. 718,549
Claims priority, application Netherlands, April 6, 1967, 6704889
Int. Cl. B05c *3/12*
U.S. Cl. 118—642 15 Claims

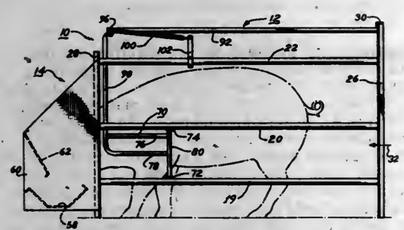
An apparatus for manufacturing a coated hose for taking undisturbed soil samples, the hose to be coated is led through

a central aperture in a container having the coating substance, and is internally supported by a floating guiding element having a central bore communicating with an air supply chamber below the container. The aperture in the container is provided with a resilient ring closely approaching the hose, the pressure in the air supply chamber prevents leakage of



the coating substance, the bore of the guiding element furthermore comprising a coaxial tube for discharging the air blown into the coated part of the hose from the air supply chamber and through the bore of said element, which element is kept centered by means of a wiping ring at the upper side of the container.

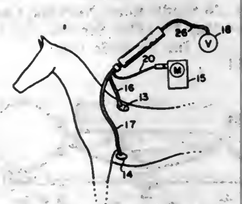
3,543,723
SOW FEED STALL
Carl W. Van Gilst, Goshen, Indiana, assignor to Bangor Punta Operations Inc., New York, New York a corporation of New York
Filed Jan. 22, 1969, Ser. No. 793,024
Int. Cl. A01k *05/00*
U.S. Cl. 119—27 7 Claims



A sow stall having a door at one end and a feeding container at the other end and a false door in the stall pivotally disposed between the two ends and connected to the door by a linkage for closing the door as the sow approaches the feeding container. An over center spring is used to releasably retain the door in either its closed or opened position.

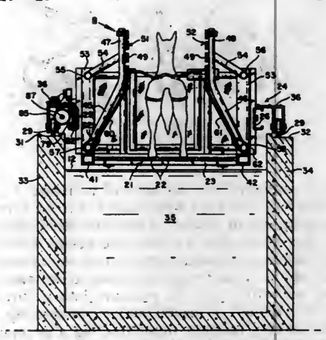
3,543,724
MONITORED AND CONTROLLED CONDITIONING AND EXERCISE METHOD FOR ANIMALS
Max B. Kirkpatrick, Anchorage, Alaska; Andrew G. Harvey and John M. Sparks III, both of Box 1509, Wickenburg, Arizona
Filed Nov. 16, 1967, Ser. No. 683,719
Int. Cl. A01k *15/00*
U.S. Cl. 119—29 18 Claims

A method of producing an animal such as a race horse capable of optimum performance comprises selection of an animal having an adequately large heart at an early age so that training may start during the formative years, placing the animal on a known analysis highly digestible diet and making blood and related analysis to determine the normal equilibrium of the particular animal in respect to various physiological characteristics involved in conditioning and exercise, checking the animal for normal weight during this equilibrium period, and conditioning the animal by causing it to cyclically undergo swimming periods of vigorous exercise spaced by partial recovery intervals, all the while during such conditioning monitoring the animal's heart action to determine the timing of the exercise periods and recovery intervals to thereby prevent the heart rate from rising above safe values



during the exercise periods and insure that each exercise period of a cycle is started before full recovery to normal heart rate, and monitoring the animal's weight by measuring it at the beginning of each day's exercise to correlate it with normal and the animal's diet and enable the conditioning cycle to be terminated in time to prevent the existence of excessive energy requirements which might cause excessive tissue damage.

3,543,725
EXERCISING APPARATUS
Max B. Kirkpatrick, Anchorage, Alaska; Andrew G. Harvey and John M. Sparks III, all of Box 1509, Wickenburg, Arizona
Continuation-in-part of application Ser. No. 683,719, Nov. 16, 1967. This application Mar. 11, 1968, Ser. No. 712,183
Int. Cl. A01k *15/00*
U.S. Cl. 119—29 12 Claims



Apparatus for exercising an animal such as a race horse wherein the animal is caused to cyclically undergo swimming periods of vigorous exercise spaced by partial recovery intervals, all the while monitoring the animal's heart rate to determine the timing of the exercise periods and recovery intervals to thereby prevent the heart rate from rising above safe values during the exercise periods and insure that each exercise period of a cycle is started before full recovery to normal heart rate, wherein an elevator assembly is provided above a body of water mounted to be lowered and raised with respect to the water by a special hydraulically operated manually controlled system for determining the successive exercise and recovery periods.

3,543,726
EGG INCUBATOR
Albert F. Marsh, 14232 Brookhurst, Garden Grove, California 92640
Filed Feb. 29, 1968, Ser. No. 709,248
Int. Cl. A01k *41/00*, *41/06*
U.S. Cl. 119—37 9 Claims

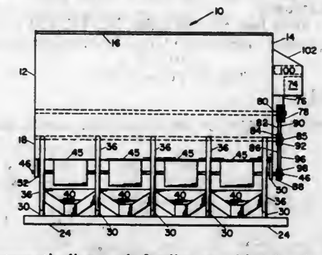
An egg incubator having a generally circular horizontal vented support platform at a position slightly above a base,

and a plurality of spokes disposed in a circular ring with said spokes radiating from the center of the platform, which spokes are disposed slightly above the platform and are supported for movement by a carrier ring which is slidably supported by the base and is indexed by the platform; and there is provided a circular cover for the incubator which cover is removably disposed on the base for rotational movement



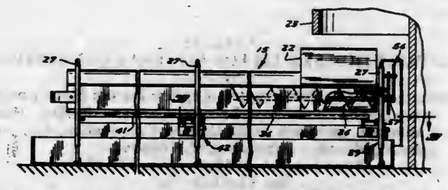
relative to the base, and there is provided means for transmitting rotary motion of the cover to said ring of spokes and thence to eggs disposed on the platform between said spokes in order to turn the eggs without opening the cover. Additionally, there is provided a heat source disposed at the center of the ring of spokes and the heat source is positioned to prevent newly hatched chicks from getting into a liquid supply container within the incubator.

3,543,727
AUTOMATIC LIVESTOCK FEEDING MACHINE
Warren C. Reed, 713 E. Prospect St., Kewanee, Illinois 61443
Filed Dec. 22, 1967, Ser. No. 692,775
Int. Cl. A01k *05/02*
U.S. Cl. 119—51.11 2 Claims



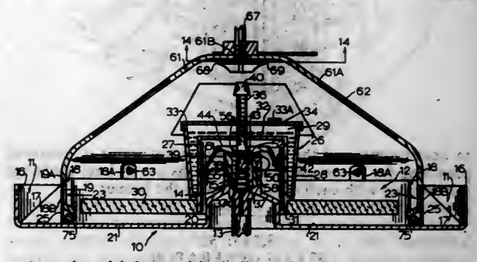
An automatic livestock-feeding machine having improved means for dispensing feed in predetermined quantities and at predetermined intervals of time. The improved dispensing means including a rotatable feed supply drum having a plurality of feed compartments of different capacities disposed to transfer feed from a supply tank to an animal feed tray.

3,543,728
MULTIPLE LOT BUNK FEEDER
Floyd E. Buschbom, Long Lake, Minnesota, assignor to Van Dale Corporation, Long Lake, Minnesota a corporation of Minnesota
Filed Nov. 15, 1967, Ser. No. 683,274
Int. Cl. A01k *05/00*
U.S. Cl. 119—52 24 Claims



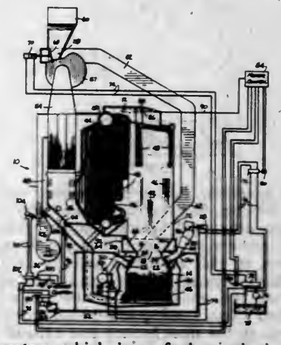
A bunk feeder for selectively depositing feed in one or more separate feeding locations. The bunk feeder has an auger for transporting feed into an elongated reservoir over a feed bunk. Dump control switches cooperating with gear head motors operate to open and close gates located along the bottom of the reservoir to dump feed into the feed bunk. Located below the gates is an upright diverter board movable with a cable and winch control to selectively deflect the dumped feed to opposite sides of the feed bunk.

3,543,729
AUTOMATIC POULTRY DRINKER
Albert W. Davis, Bonlee, assignor to Poly-Matic Fountain, Inc., Siler City, North Carolina a corporation of North Carolina
Filed Jan. 2, 1969, Ser. No. 788,380
Int. Cl. A01k *07/00*
U.S. Cl. 119—80 5 Claims



A poultry drinker and including a float controlled valve to maintain a predetermined level of drinking water and which automatically closes when the drinker is tilted. A plurality of one-way ball valves are employed to control the flow of water from the reservoir to the trough of the poultry drinker.

3,543,730
MULTI-FUEL STEAM GENERATOR
Earle C. Miller, Worcester, Massachusetts, assignor to Riley Stoker Corporation, Worcester, Massachusetts a corporation of Massachusetts
Filed Feb. 3, 1969, Ser. No. 795,915
Int. Cl. F22g *5/06*
U.S. Cl. 122—7 13 Claims

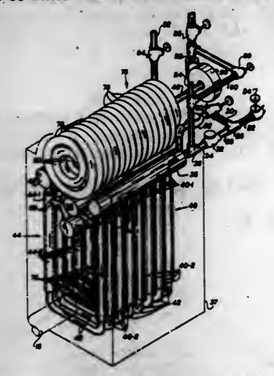


Steam generators which burn fuels producing different mass flow rates for given heat production rates, including gas recirculation arrangements for returning selected portions of exhaust gases back around to mix with fresh products of combustion and pass with them again through a boiler tube region to maintain a uniform mass flow rate through the boiler tube region irrespective of changes in the fuel being burned.

3,543,731
HIGH VELOCITY WATER HEATER
Lyn David, 19 Universe Drive, Levittown, New York 11756
Filed Sept. 4, 1968, Ser. No. 757,270
Int. Cl. F22b *1/02*
U.S. Cl. 122—33 13 Claims

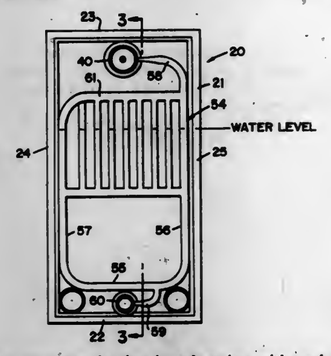
A heater supplying hot water for space heating purposes and for home consumption having a burner fired by oil or gas

fuel and in which cold water is supplied to two different heating paths, one of which delivers hot water for use in radiators



to heat rooms, and the other delivers hot water to domestic plumbing for home use. The two paths are in heat exchange relationship with each other, and with the burner.

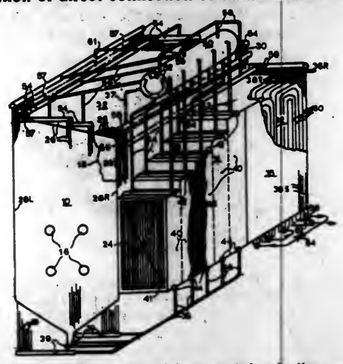
3,543,732
STEAM GENERATOR
James H. Layler, 2003 N. Santa Fe Ave., Compton, California 90221
Filed June 6, 1969, Ser. No. 830,992
Int. Cl. F22b *19/00*
U.S. Cl. 122—235 13 Claims



A steam generator, having in a housing with end plates a series of tubular heat-exchange members fitting snugly against each other and against said end-plates. The heat-exchange members are shaped in groups to provide a series of chambers, so that the flame and the combustion gases from said flame pass serially through a lower chamber, a first transfer chamber, an upper chamber, a second transfer chamber, and a final heating and exhaust chamber, to an exhaust means. In the final heating and exhaust chamber is a steam collection manifold having inlets at intervals on each side midway between its top and bottom surfaces connected to outlet portions of each said heat-exchange member. Inside the manifold is a small-diameter steam outlet tube having a series of small vertical inlets providing restricted openings from the manifold into the steam outlet tubes, out of line with the manifold's inlets.

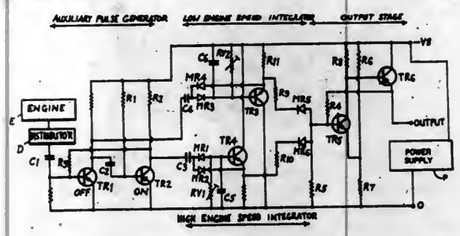
3,543,733
MODULAR STEAM GENERATOR
Baldassare Russo, Jr., King County, Washington (16608 Marine View Drive SW., Seattle, WA 98166)
Filed Aug. 19, 1968, Ser. No. 753,366
Int. Cl. F22b *31/00*
U.S. Cl. 122—336 17 Claims

A steam generator arrangement is provided whereby various components may be independently designed and positioned to reduce or eliminate intercomponent dependency disadvantageously affecting efficiency and economy, and enabling component standardization and prefabrication with minimized field assembly. The key structural features pertain to elimination of direct connection of boiler tubes to drums,



with the boiler section comprising modular boiler units including headers in the flow path between the steam drum and the boiler tubes. The lower mud drum is completely eliminated and the steam drum is positioned exteriorly of the combustion gas path.

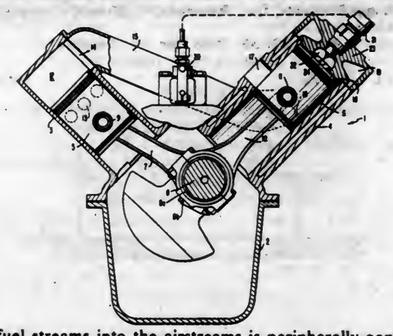
3,543,734
FUEL INJECTION SYSTEMS
Joseph Mair, Leamington Spa, England, assignor to Associated Engineering Limited, Leamington Spa, England a British Company
Filed Jan. 31, 1968, Ser. No. 702,033
Claims priority, application Great Britain, Feb. 8, 1967, 6,101/67
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 7 Claims



This invention relates to a discriminator circuit for a fuel injection system for an internal combustion engine and which produces an output voltage dependent on engine speed, wherein the discriminator circuit comprises a monostable multivibrator which is triggered to its unstable state by means of trigger pulses occuring at a repetition rate proportional to engine speed, at least one integrator circuit for integrating the output of the multivibrator, and means for producing an output voltage having a desired characteristic in relation to engine speed which can be fed as a control voltage to said fuel injection system.

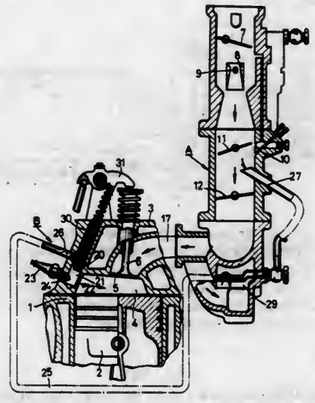
3,543,735
COMBUSTION SYSTEM FOR INTERNAL COMBUSTION ENGINE
Perry Lester Kruckenberg, Los Angeles; Harold Elden Anderson, Lomita and Ray Lavette Carlson, Rolling Hills, California, assignors to McCulloch Corporation, Los Angeles, California a corporation of Wisconsin
Filed June 24, 1968, Ser. No. 739,434
Int. Cl. F02b *3/00*
U.S. Cl. 123—32 11 Claims

Method and apparatus for burning fuel within the cylinder of an internal combustion engine wherein a series of spaced and mutually distinct airstreams are projected into the interior of a combustion zone of the cylinder. Another series of spaced and mutually distinct streams of fuel are projected into the combustion zone, with at least some of the fuel streams individually intersecting airstreams. The passage of



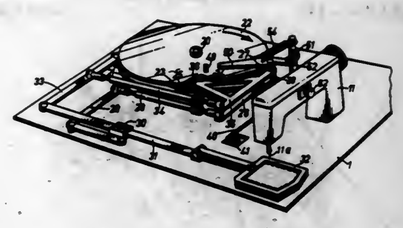
the fuel streams into the airstreams is peripherally confined to define a series of mutually distinct fuel and airstream intersection zones where the fuel is effectively dispersed and heated. These intersection zones define burning loci.

3,543,736
INTERNAL COMBUSTION ENGINE WITH SUB-COMBUSTION CHAMBER
Toshio Suzuki, Nagoya-shi, Yujiro Oshima, Ichinomiya-shi and Masao Kataoka, Nagoya-shi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Aichi-ken, Japan
Filed Nov. 1, 1968, Ser. No. 772,732
Claims priority, application Japan, Nov. 18, 1967, 42/74350
Int. Cl. F02b *17/00*
U.S. Cl. 123—32 1 Claim



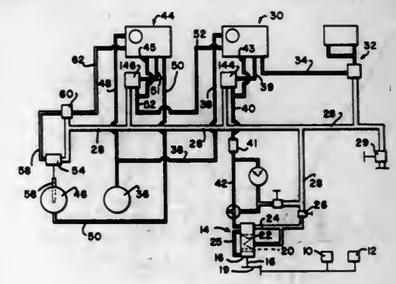
An internal combustion engine having a cylinder, including a main combustion chamber, in combination with a subcombustion chamber provided with an ignition plug and communicating with the main combustion chamber through a small hole in a cylinder wall for jetting out the flame of air-fuel mixture ignited in the subcombustion chamber to the main combustion chamber, the air-fuel mixture being supplied to the subcombustion chamber through a suction tube from the same carburetor which feeds the main combustion chamber. The carburetor inlet of said suction tube is positioned between the throttle valves of a carburetor having dual throttle valves. A valve is placed at the outlet of the suction tube to the subcombustion chamber and this valve may be interconnected with a main valve in the suction manifold leading from the carburetor to the main combustion chamber to move in synchronism therewith and with a piston in the cylinder, or it may be arranged to operate automatically in response to the difference of pressure within the subcombustion chamber and the suction tube.

3,543,737
CAM-CONTROLLED AUTOMATIC SEWING APPARATUS
Hans Maschmann, W. Orange, New Jersey, assignor to G. M. Pfaff AG, Kaiserslautern Pfalz Konigstrasse, Germany a corporation of Germany
Filed Sept. 20, 1967, Ser. No. 669,118
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.12 7 Claims



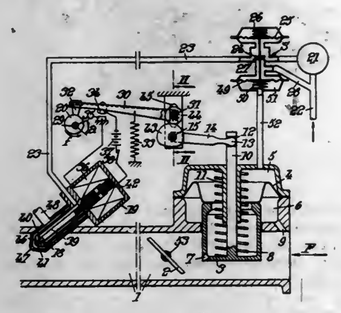
In automatic sewing apparatus of the type comprising a sewing machine having a reciprocatory needle and a workpiece support displaceable by means of a cam-controlled mechanism operated synchronism with said machine along a desired path, to sew a seam in accordance with a first cam section of said mechanism upon a workpiece held by said support, means are provided to drive said mechanism by an auxiliary motor and by way of an overriding clutch in the transmission path between said machine and said mechanism, to displace said support in accordance with at least a second cam section of said mechanism from a point corresponding to the end point of the seam to the starting point thereof, in the case of an interrupted seam or pattern, and/or to and from a workpiece loading position exterior of said machine.

3,543,738
SPARK IGNITION CONTROL SYSTEM
Robert O. Barber, Corning and William C. Anderson, Savona, New York, assignors to Ingersoll-Rand Company, New York, New York a corporation of New Jersey
Filed Feb. 7, 1969, Ser. No. 797,551
Int. Cl. F02p *5/12, 5/04, 5/14*
U.S. Cl. 123—117 8 Claims



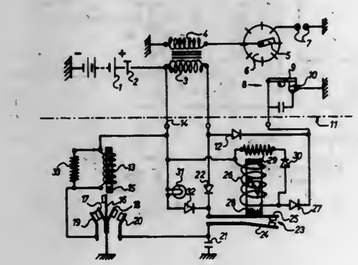
Control system for a spark ignited gas engine in which the pressures in the air manifold and fuel manifold, and the speed of the engine, are measured and compared, and a resultant signal is produced to actuate a magneto to set the spark timing in accordance with the air gas fuel ratio, and the load of the engine. The control system also measures the temperature in the air manifold and produces a signal when that temperature exceeds a predetermined value to adjust the spark in order to prevent detonation.

3,543,739
FUEL FEED DEVICE FOR AN INTERNAL COMBUSTION ENGINE
Andre Louis Mennesson, Neuilly-sur-Seine, France, assignor to Societe Industrielle De Brevets et D'Etudes S.I.B.E., Neuilly-sur-Seine, a society of France
Filed Oct. 9, 1968, Ser. No. 766,264
Claims priority, application France, Oct. 11, 1967, Nov. 23, 1967, Jan. 16, 1968, April 10, 1968, 124,114;129,441;136,251;147,703
Int. Cl. F02m *51/00*
U.S. Cl. 123—119 19 Claims



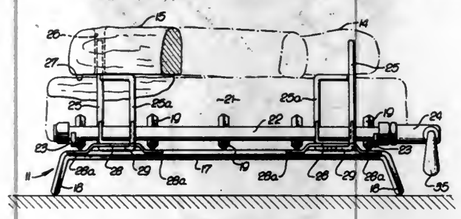
The fuel is delivered, by a valve, into the inlet conduit downstream of the principal throttle member. A metering system opens the valve during a fraction of each revolution of a continuously rotating member. The metering system is controlled by an auxiliary throttle member disposed in the inlet conduit upstream of the principal throttle member and arranged to open automatically and progressively as the air flow rate in this conduit increases, such that said fraction varies in the same sense as the degree of opening of the auxiliary throttle member.

3,543,740
IGNITION SYSTEM CONTROLLED BY A PILOT RELAY
Philippe Vienat, Thetford Mines, Quebec, Canada, assignor to Louis-Philippe Duval, Thetford Mines, Quebec, Canada
Filed Dec. 18, 1968, Ser. No. 784,612
Int. Cl. F02p *3/02*
U.S. Cl. 123—148 10 Claims



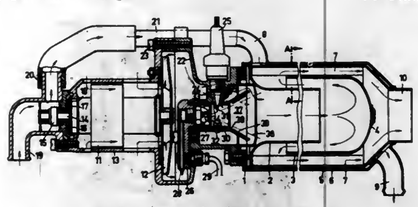
An improved ignition system having a vibrator to produce series of auxiliary sparks, wherein a pilot relay is used to control the timing of the sparks at the spark plugs, such that closure of the breaker points will open the vibrator circuit, and upon subsequent opening of the breaker points, the first spark will always be produced by the latter, not by the vibrator.

3,543,741
ARTIFICIAL LOG FIREPLACE WITH FLAME AND LOG POSITION CONTROL
Jack D. Whitehead, San Marino, California, assignor to International Products, Inc., Pasadena, California a corporation of California
Filed July 30, 1968, Ser. No. 748,861
Int. Cl. F24c *3/04*
U.S. Cl. 126—92 8 Claims



The disclosure concerns the control of flame production and distribution in relation to artificial log-positioning in fireplaces.

3,543,742
HEATER FOR BURNING LIQUID FUEL, PRIMARILY BENZINE, ESPECIALLY EXTRANEOUS HEATER FOR MOTOR VEHICLES
Eugen Stump, Stuttgart-Unterturckheim and Gerhard Juergen Frankle, Grunbach, Germany, assignors to Suddeutsche Kuhlerfabrik Julius Fr. Behr, Stuttgart-Feuerbach, Germany
Filed July 8, 1968, Ser. No. 743,065
Claims priority, application Germany, July 7, 1967, 1,551,725
Int. Cl. F24h *3/02*
U.S. Cl. 126—110 15 Claims



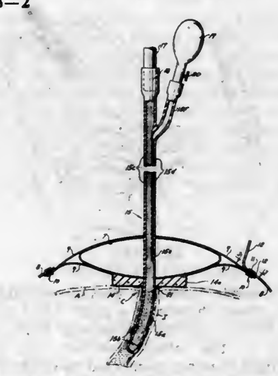
Heating device primarily for motor vehicles operated with liquid fuel having a burner, a flame cylinder and a heat exchanger with a chamber arranged ahead of the pressure fuel nozzle into which extends the electrode of a spark plug and air means are provided for supplying a partial quantity of the air of combustion into the chamber.

3,543,743
COMBINED URINARY CATHETER AND SPECIFIC GRAVITY MEASURING APPLIANCE
John Walter Foderick, 115 Ramsey St., Hastings, Minnesota
Filed June 12, 1967, Ser. No. 645,121
Int. Cl. A61b *10/00*
U.S. Cl. 128—2 1 Claim



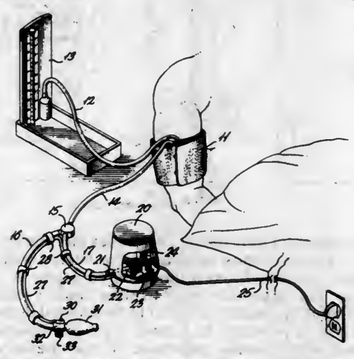
A combination urinary catheter and specific gravity measuring device for bedside use comprising the combination of an indwelling retention catheter including a drainage tube, a urine drain line extending between the proximal end of said drainage tube and a collection receptacle, tube means incorporated in and being a length section of said drain line and forming a urine test chamber, means for maintaining a constant-level column of urine in said test chamber, and an hydrometer disposed in said test chamber and floating on that portion of the column of urine freshly draining thereinto.

3,543,744
EQUIPMENT FOR ADMINISTERING ENEMAS FOR RADIOLOGICAL PURPOSES
Edwin LePar, 542-B-1 Bellscourt Salem Harbour Apartments, Andalusia, Pennsylvania 19020
Filed Nov. 29, 1968, Ser. No. 779,878
Int. Cl. A61b *19/00*; A61m *3/00*
U.S. Cl. 128—2 8 Claims



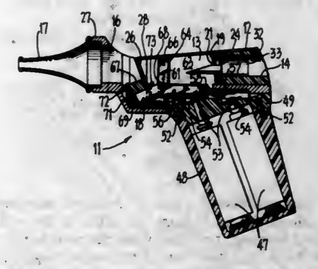
Equipment for administering enemas, particularly for radiological purposes and comprising an obturator adapted to be positioned externally of the body in the region of an intestinal opening, the obturator being flexible and distendable or inflatable. The equipment further includes an annular sealing element at the inner face of the obturator adapted to provide a liquid-tight seal between the obturator and the surface of the body in the region around the intestinal opening, and also a catheter extended through the obturator and the annular sealing element. Provision is made for mooring the obturator in position on the body. The obturator, sealing element, and catheter are formed of radiolucent material and a radiopaque marker is provided adjacent the entrance to the intestinal opening.

3,543,745
BLOOD PRESSURE CUFF INFLATOR
Irving Asa Rosenstein, 3162 Bainbridge Ave., Bronx, New York 10467
Filed Feb. 5, 1968, Ser. No. 702,956
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 6 Claims



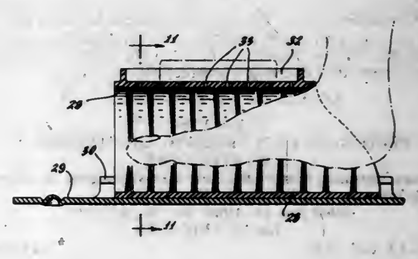
A blood pressure cuff inflator including an electrically driven air pump with electrical switching, and valve means for release of air pressure, both positioned for operation by one hand at the squeeze bulb.

3,543,746
ENDOSCOPE HAVING IMPROVED ILLUMINATION SYSTEM
John E. Hotchkiss, Corte Madera, California, assignor to Hotchkiss Instruments Inc., a corporation of California
Filed Oct. 17, 1967, Ser. No. 675,811
Int. Cl. A61b *1/06, 1/22*
U.S. Cl. 128—9 3 Claims



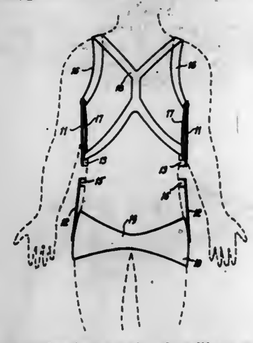
An otoscope is provided with an illumination system which projects a beam of light onto the area to be viewed coaxially with the line of sight through the instrument. For this purpose, a light source is located within the instrument at a position at which it will direct light toward a mirror which is positioned to reflect the light along the line of sight through the instrument and onto the area to be viewed. An aperture is provided centrally through the mirror to permit an unobstructed view through the instrument, and a light shield arrangement is provided for preventing light from the light source from passing through this aperture to cause glare to the eye of the user. The instrument also includes a pressure sensitive switch which facilitates energization of the light source.

3,543,747
MASSAGING DEVICE
Edwin P. Gustafson, 64 Washington St., Forestville, Connecticut 06010
Filed April 24, 1968, Ser. No. 723,952
Int. Cl. A61h *7/00*
U.S. Cl. 128—67 6 Claims



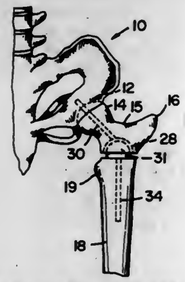
A massaging medium unit mounted on a mat like base which can be placed on a floor surface such as a shower bath stall or bath tub. The massaging medium is formed into various shapes and contours to make substantial contact coverage with the surface of the body portion such as a foot or hand. The action is effected by moving the body member relative to the medium while they are in engagement. One embodiment includes a reservoir for holding a flowable material which can filter through the medium to the surface of the body being massaged.

3,543,748
BACK SUPPORT
John Dumergue Charters, 14 Stafford St., Midland, Australia
Filed Oct. 20, 1967, Ser. No. 676,939
Int. Cl. A61f 5/02
U.S. Cl. 128—78 8 Claims



A back support having a pair of resilient members passing down the side of the body from the axilla to the middle of the thigh, a band passing from one resilient member to the other across the back, a chest member connecting together the upper ends of the resilient members across the chest, and a connecting structure connecting together the lower ends of the resilient members across the front of the body.

3,543,749
MECHANICAL PSEUDARTHROSIS OF THE FEMUR
Ned M. Grove, 654 N. El Camino, San Mateo, California
Filed Feb. 19, 1968, Ser. No. 706,332
Int. Cl. A61f 5/04, 5/01
U.S. Cl. 128—92 10 Claims



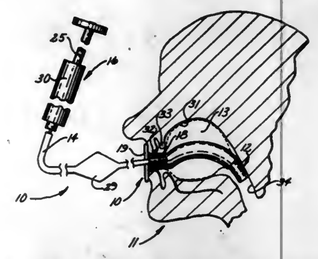
A prosthetic device for insertion between the ends of a living bone to provide, in combination with distally transferred muscles, relative movement between the ends of the bone, and a method of inserting a prosthetic device.

3,543,750
PERFORATE FILM DRESSING AND METHOD OF MAKING SAME
James Meizanis, Somerville, New Jersey, assignor to Johnson & Johnson, a corporation of New Jersey
Filed Jan. 15, 1968, Ser. No. 697,947
Int. Cl. A61f 15/00
U.S. Cl. 128—156 14 Claims



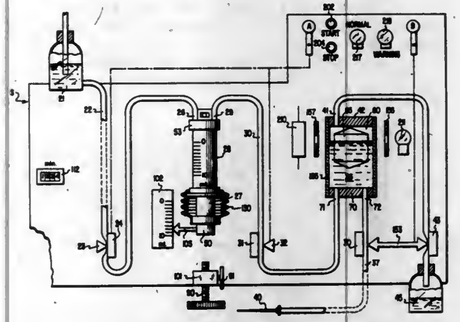
Dressings having a low degree of adhesion to healing wound surfaces are prepared in which the wound-contacting surface is an undulating surface of a perforate film having hills and valleys with the perforations occurring in the valleys. The perforate film having the undulating surface is formed by printing an organosol, such for example as polyvinyl chloride organosol, on a carrier in an open-mesh pattern and then heating the printed organosol to fuse the plastic and remove solvent therefrom.

3,543,751
ORAL AIRWAY WITH INFLATABLE CUFF
Marcus B. Sheffer, 45999 Pickford, Northville Township, Wayne County, Michigan 48167
Filed Nov. 29, 1967, Ser. No. 686,632
Int. Cl. A61m 16/00, 17/00
U.S. Cl. 128—208 6 Claims



A tubular member defining a passageway adapted to extend from the lower pharynx to a point which is external of the lips of a human patient. Membrane means encircles a major portion of the tubular member and substantially defines an airtight chamber connected by conduit means to a source of pressure fluid for inflating said membrane means.

3,543,752
INFUSION APPARATUS
Holger Hesse, Lyngby; Carl Sloth, Copenhagen Valby, and Asger Brendstrup, Glostrup, Denmark; said Sloth and Brendstrup assignors to said Hesse; Ruth Leo Hesse, heiress and executrix of the estate of said Holger Hesse, deceased
Filed June 1, 1965, Ser. No. 460,302
Claims priority, application Great Britain, June 1, 1964, 22,651/64
Int. Cl. A61m 5/00
U.S. Cl. 128—214 16 Claims



An apparatus for performing continuous infusion of liquids into blood vessels or muscles of animal or human bodies over an extended period of time with a desired degree of dosage exactitude. The apparatus has a treating liquid container, a pump, an infusion cannula adapted to be inserted in the body of the animal or person to be treated, a gas bubble-collecting vessel and safety means responsive to the presence of a predetermined volume of accumulated gas in the collecting vessel.

3,543,753
INTRA-VENOUS INFUSION DEVICE
Berel Welnstein, New York, New York, assignor to Bio-Medical Sciences Inc., a corporation of New York
Filed July 26, 1968, Ser. No. 747,993
Int. Cl. A61m 5/00
U.S. Cl. 128—214 11 Claims



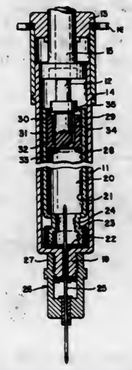
A device for the intravenous infusion of fluid under pressure comprising a container having its interior subdivided by an intermediate elastic diaphragm into an upper and a lower chamber, with the infusion fluid contained in and dischargeable from the upper chamber and the lower chamber having an opening for the selective introduction of compressed gas from an independent unit to force the fluid out of the container under constant pressure, in combination with a flow tube and hypodermic needle assembly cooperative with the container having valve means to regulate flow and detect malfunction.

3,543,754
TAMPON APPLICATOR
John Leslie Jones, Sr., 1070 Glen Oaks Blvd., Pasadena, California 91105
Filed Oct. 16, 1967, Ser. No. 675,561
Int. Cl. A61f 15/00
U.S. Cl. 128—263 2 Claims



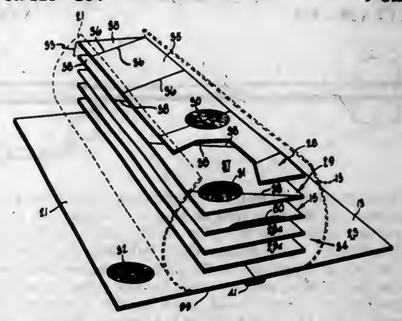
A one-piece, thin wall, rigid cylindrical menstrual tampon applicator, of uniform cylinder diameter, has a tubular receptacle disposed at one end of the applicator. The receptacle is capable of snugly holding a compressed, absorbent cellulosic menstrual tampon in storage. The applicator dispenses the tampon in a vagina, as needed.

3,543,755
AMPULE FOR HYPODERMIC SYRINGES
John Delbert Kessel, Camarillo, California, assignor to Dale V. Bell, Camarillo, California a part interest
Filed Nov. 9, 1967, Ser. No. 681,682
Int. Cl. A61j 1/06; A61m 5/24
U.S. Cl. 128—272 1 Claim



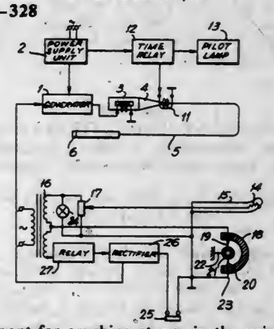
An ampule for hypodermic syringes having a diaphragm at one end to be pierced by one end of a double-ended hypodermic needle and having a novel combination piston-plug-diaphragm unit at the other end whereby aspiration can be easily performed during the administration of an injection by deflecting the diaphragm portion of said unit by pressing on the syringe plunger and then releasing the pressure so that the diaphragm portion returns to its relaxed position without endwise outward movement of the entire unit.

3,543,756
DISPOSABLE DIAPER
James A. Murphy, Toronto, Ontario, Canada and Charles A. Lee, Knoxville, Tennessee, assignors to International Paper Company, New York, New York a corporation of New York, by mesne assignment
Filed Sept. 27, 1967, Ser. No. 671,078
Int. Cl. A61f 13/16
U.S. Cl. 128—284 9 Claims



A disposable diaper having an absorbent pad of cellulosic material, such as wood fluff or plies of creped tissue, is disposed within an encompassing wrapper. The latter has a front facing sheet on one side of the pad for engaging a child's skin and a backing sheet on the opposite side of the pad. These front and back sheets are subject to failing as by tearing or splitting. Lower costs, less material, and unusually good strength and stretchability are provided when an assemblage of bias laid sheets is disposed within the wrapper. The bias laid sheets are preferably formed of abutted strips of creped tissue having a line of strength at angle to the longitudinal and transverse axes of the diaper. These strips add strength and stretchability in both the longitudinal and transverse directions, particularly in the latter direction. A longitudinally extending expansion pleat may be provided in the backing sheet to permit transverse expansion of the backing sheet. The diaper is preferably made by a unique process to eliminate the crossfeeding and laying of sheets.

3,543,757
INSTRUMENT FOR CRUSHING CONCRETIONS IN THE URINARY BLADDER
Oleg Gavrilovich Balaev, Prospect 40-letia Oktyabrya 100 Kv. 174 and Jury Grigorievich Ediny, Rovenskaya Ulitsa 7, Kv. 58, Kiev, U.S.S.R.
Filed April 6, 1965, Ser. No. 445,878
Int. Cl. A61b 17/00
U.S. Cl. 128—328 4 Claims



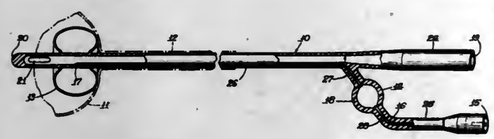
An instrument for crushing stones in the urinary bladder, used together with a cystoscope, comprises a generator of

electrical oscillations connected with a magnetostrictive converter of the electrical oscillations to ultrasonic oscillations which in turn is connected with a concentrator exciting an elongated lithotrite having an elastic conductor enclosed in a waterproof catheter with a working member at the end of the conductor, introduced through the cystoscope, to form a connection between the oscillating working member with the stone which results in crushing of the latter.

3,543,758
CATHETER WITH SAFETY INDICATOR

Daniel M. McWhorter, Arlington Heights, Illinois, assignor to The Kendall Company, Boston, Massachusetts a corporation of Massachusetts

Filed Aug. 14, 1967, Ser. No. 660,407
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 **5 Claims**



An inflatable balloon-type retention insertion tube, such as a catheter, for insertion into an animal body channel wherein the portion of the insertion tube visible outside of the body is provided with a signal means which indicates when the retention balloon is misplaced or the pressure therein has reached a preselected value and prevents further inflation of the retention balloon which would cause trauma or rupture of the channel walls. The signal means is a formed dilatation in the lumen transmitting the inflation fluid to the retention balloon, and visibly inflates when a preselected pressure is reached within the lumen.

3,543,759
CATHETER WITH SAFETY INDICATOR

Daniel M. McWhorter, Palatine, Illinois, assignor to The Kendall Company, Boston, Massachusetts a corporation of Massachusetts

Continuation of application Ser. No. 549,021, May 10, 1970. This application July 14, 1969, Ser. No. 849,228
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 **23 Claims**



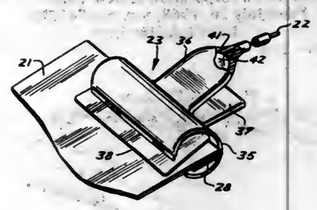
An improved inflatable retention catheter is described wherein the catheter includes a signal device adapted to be activated where inflation of the retention balloon is impeded by the walls of the body cavity where the catheter is being inserted. The signal member is designed to prevent further inflation of the retention balloon as well as indicating the physical impediment to inflation, thereby minimizing the danger of pain and trauma caused by inflating the retention balloon when improperly inserted in the body cavity.

3,543,760
DISPOSABLE GROUND PLATE ELECTRODE

Lee R. Bolduc, Minneapolis, Minnesota, assignor to Medical Plastic Inc., Minneapolis, Minnesota a corporation of Minnesota

Filed March 11, 1968, Ser. No. 711,949
Int. Cl. A61n *3/06*
U.S. Cl. 128—416 **19 Claims**

An electrosurgical unit using high frequency currents having an active electrode and a patient indifference ground plate electrode. The plate electrode is a disposable, flexible, autoclavable ground electrode having a flexible cardboard base carrying an aluminum foil skin. The metal skin of the disposable electrode is divided with indicator lines to outline approximately 100 square inches minimum surface area required for proper grounding of the patient. A releasable

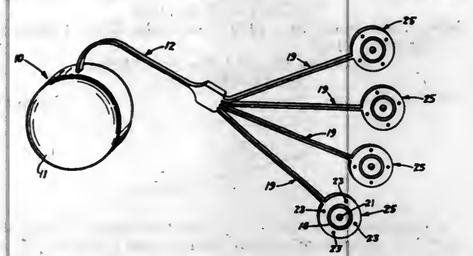


connector is used to attach a ground cable to the plate electrode. The connector has a flat metal foil skin engaging surface to provide a large surface of contact between the connector and the foil skin.

3,543,761
BLADDER STIMULATING METHOD

William E. Bradley, Minneapolis, Minnesota, assignor to The Regents of the University of Minnesota, Minneapolis, Minnesota a corporation of Minnesota

Filed Oct. 5, 1967, Ser. No. 673,120
Int. Cl. A61n *1/18*
U.S. Cl. 128—421 **1 Claim**

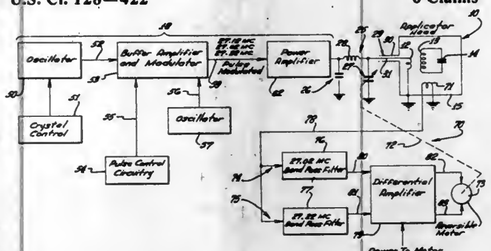


An apparatus and method for implantation in the body of an animal to stimulate the bladder without stimulating nearby muscles, and the method of so stimulating the bladder. The electrode structure of the apparatus includes a first plurality of electrodes, each of which is surrounded by one of a second plurality of electrodes to limit the stimulation to a series of spaced spots.

3,543,762
AUTOMATIC CONTROL OF ELECTROTHERAPEUTIC APPARATUS

William Denis Kendall, Los Angeles, California, assignor to Dynapower Systems Corporation of California, Santa Monica, California a corporation of California

Filed Feb. 15, 1968, Ser. No. 705,647
Int. Cl. A61n *1/40*
U.S. Cl. 128—422 **6 Claims**

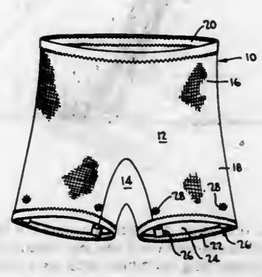


The disclosure concerns electrotherapeutic apparatus employing a power-radiating head useful in diathermy, and wherein patient movement-induced detuning of a tuned circuit at the head is automatically compensated by a servoloop including two filters having pass bands above and below the frequency of the therapeutic signal as servomotor connected to the filters and a variable impedance element in the signal circuit adjusted by the motor.

3,543,763
STOCKING SUPPORT MEANS

Frank Porco, Bronx, New York, assignor to Biflex Foundations, Inc., New York, New York a corporation of New York

Filed July 11, 1968, Ser. No. 744,150
Int. Cl. A41c *1/00*
U.S. Cl. 128—535 **1 Claim**

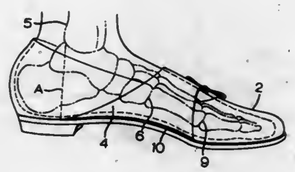


A stocking support means which is relatively simple and inexpensive to manufacture. The stocking support means is compact and flat, thereby eliminating unsightly bulges and the like. A particular application of the stocking support means is its use in conjunction with a panty girdle-type undergarment. The inventive stocking support means includes a strip, preferably of elastic, which is attached by stitching to the lower region of the undergarment, with the stitching placed such that the strip folds downwardly at its midpoint forming an upper portion which overlies the lower portion. Male and female snap fastener halves, secured to the upper and lower portions respectively, are automatically juxtaposed and cooperate with each other, thereby engaging the stocking. The snap fastener means are preferably fabricated of a plastic material.

3,543,764
ORTHOPAEDIC SHOES

Hilkka O. Hormavirta, 86 Bloor St. W., Toronto, Ontario, Canada

Filed Jan. 8, 1968, Ser. No. 696,437
Int. Cl. A61f *5/14*
U.S. Cl. 128—581 **6 Claims**

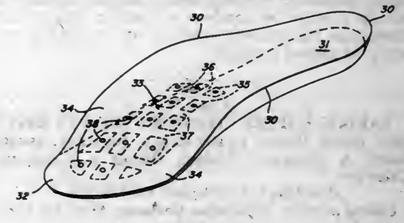


An orthopaedic shoe has a retaining strap. When the shoe is fitted to the foot the strap is secured to the inner edge of the sole directly below the ankle joint and extends outside the upper diagonally over the top of the forefoot, and is secured at the other end to the outer edge of the sole adjacent to the joint of the fifth toe, thus providing a brake against the downward thrust of the soleus at the upper end of the longitudinal arch.

3,543,765
ARCH SUPPORTS

Georg Alzner, Vancouver, British Columbia, Canada, assignor to Alznner National Arch Supports, Ltd., Vancouver, British Columbia, Canada, a corporation of British Columbia, Canada

Filed Oct. 20, 1965, Ser. No. 498,866
Int. Cl. A61f *5/14*
U.S. Cl. 128—588 **2 Claims**

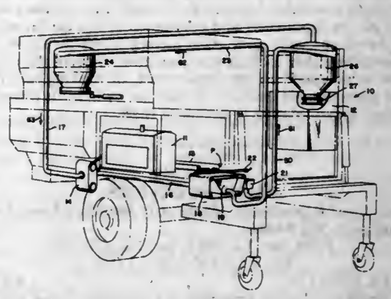


An arch support in the form of an elongated one-piece molded shape of firm, resilient plastic for supporting the transverse, metatarsal arch as well as the longitudinal arch. The shape has a substantial upward curvature in the longitudinal direction and an area of raised convex configuration at the forward region and extending into the intermediate region of the support, and an upwardly extending margin around the back and the sides of the support for forming a dish-shaped heel receiving region and longitudinal troughs for the first and fifth metatarsal bones. Waffllelike indentations are provided on the underside of the molded shape underneath the area of raised convex configuration and perforations extend from the indentations to the upper surface of the support.

3,543,766
PNEUMATIC PRODUCT HANDLING AND RECYCLE SYSTEM FOR MOBILE COMBINES

Edward J. Moe, Mercer Island, Washington, assignor to Temco Inc., Mercer Island, Washington a corporation of Washington

Filed Aug. 7, 1967, Ser. No. 658,753
Int. Cl. A01f *12/48*
U.S. Cl. 130—27 **3 Claims**

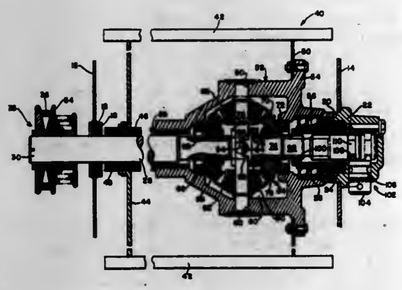


A pneumatic system for conveying peas or lima beans or like products within a mobile harvester or combine from the

shelling discharge point to a holding bin and unloading point, and also for recycling pods, delivered and separated at the discharge point, to the threshing drum of the combine for reworking. In one form of the system a positive displacement blower directs an airstream through a conveying valve within a hopper or collector at the product discharge point of the combine to carry the shelled product to a positive receiver or holding bin. In the same system, the suction or intake side of the blower is connected to a suction conduit which receives the pods which have been separated from the shelled product at the combine discharge point. The pods are collected by a cyclone type receiver and discharged into the threshing drum by means of a rotary valve or the like for reworking. A second form of the system utilizes a positive displacement blower to direct an airstream through a conduit which receives the pods at the discharge and separation point and introduces the pods to the threshing drum of the combine to be reworked.

In this system the suction or intake side of the blower is connected to a suction line which picks up the shelled product by vacuum pressure from a hopper or funnel at the discharge point of the combine and delivers the product to a cyclone-type bin receiver which serves for holding and unloading the shelled product.

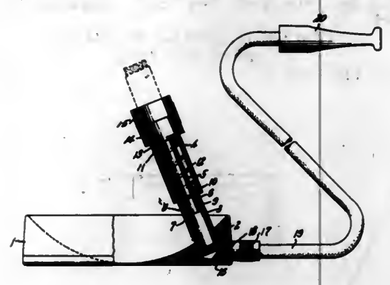
3,543,767
VARIABLE-SPEED COMBINE CYLINDER DRIVE
Homer Daniel Witzel, Zwelbruecken, Germany, assignor to Deere & Company, Moline, Illinois a corporation of Delaware
Filed Sept. 9, 1968, Ser. No. 758,403
Claims priority, application Germany, Sept. 13, 1967, 1,657,331
Int. Cl. A01f *12/18*
U.S. Cl. 130—27 **4 Claims**



A combine cylinder drive has an input shaft driven through an infinitely variable belt drive. The combine cylinder is journaled on the input shaft and connected to the carrier element of a bevel epicyclic gear train having a selectively shiftable element for either locking the gear train to drive the cylinder at the same speed as the input shaft, or locking one of the bevel gears against rotation so that the cylinder is driven at a reduced speed relative to the input shaft.

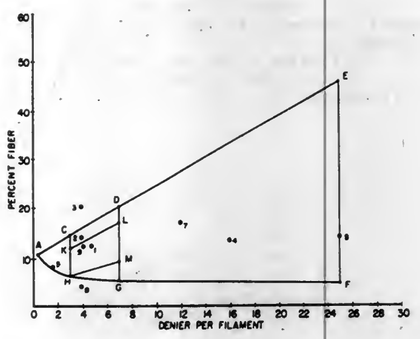
3,543,768
SMOKING DEVICES
Edwin Law, Kennebunk, Maine (c/o Jonathan Law, Kennebunkport, ME 04046)
Filed Dec. 12, 1967, Ser. No. 690,025
Int. Cl. A24f *13/02, 13/10*
U.S. Cl. 131—175 **6 Claims**

A smoking device primarily for cigarettes and the like, comprising an ash tray provided with a holder for a cigarette or the like extending upwardly therefrom in such a position that the ashes from the cigarette or the like will fall into the tray as the cigarette or the like is consumed, a smoking tube connected with the said holder and extending from and beyond the ash tray so that the smoker may mount the smoking device relatively remote from his smoking position, a plurality of adapter members of severally different interior sizes and forms assemblable with said holder for adapting the



holder to the reception of cigarettes and the like of different diameters and cross-sectional shapes, means for affixing the device to a supporting member, such as a table or bracket, and, per choice, a pivotal connection between said holder and ash tray whereby the holder and tray may be folded into compact arrangement for disposition in a constricted space such as a garment pocket or hand bag.

3,543,769
CIGARETTE FILTER PLUG
James B. Arthur and John J. Osmar, Charlotte, North Carolina, assignors to Celanese Corporation, a corporation of Delaware
Continuation of application Ser. No. 604,506, Nov. 14, 1966, now abandoned, which is a division of application Ser. No. 265,518, Nov. 15, 1963, now abandoned. This application Dec. 26, 1967, Ser. No. 693,656
Int. Cl. A24d *01/04*; A24f *13/06*
U.S. Cl. 131—268 **4 Claims**



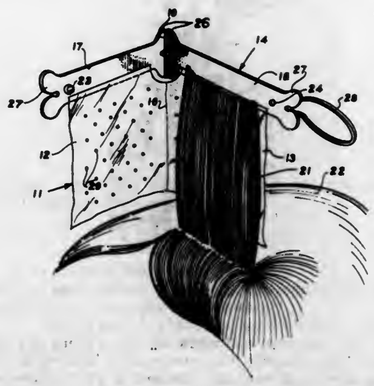
A cigarette filter plug is described which is composed of a plurality of deregistered crimped cellulose ester filaments, the filaments extending approximately longitudinally from end to end of the plug and the plug having preferably 5,000 to 33,000 independent filaments having about 4 to 40-crimps per inch. The relationship between linear per filament and percent of fiber in the filter plug falls within the zone CDGH of FIG. 1. The cellulose ester filaments in the plug are unbonded and the plug is characterized by good firmness and resilience.

3,543,770
APPARATUS FOR TREATING HAIR
John F. Snider, 4911 Hoagland St., Fort Wayne, Indiana
Continuation-in-part of application Ser. No. 346,281, Feb. 20, 1964, now abandoned. This application Nov. 21, 1966, Ser. No. 602,441
Int. Cl. A45d *8/40*
U.S. Cl. 132—7 **1 Claim**



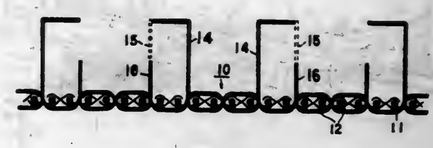
The apparatus of the invention comprises a cap and a plurality of clips. The cap is made of flexible and resilient sheet material. The cap is also impervious to liquids. The cap has a plurality of spaced apart openings therein, the openings being generally evenly distributed over an area covering at least a portion of that part of a human head covered by hair when the cap is worn. The cap has integrally molded thereto a plurality of tubes. Each of the openings in the cap is surrounded by one of the tubes. The tubes are formed of the same material as the cap and are both flexible and resilient. Each of the clips is provided to be positioned on one of the tubes of the cap thereby to clasp the opposite sidewall portions of the tubes together to form a "liquid-tight" seal therebetween.

3,543,771
CURLING DEVICE AND METHOD FOR USING SAME
Irwin L. Altman, San Francisco, California, assignor to Jory of San San Francisco, San Francisco, California a corporation of California, by mesne assignment
Filed Oct. 14, 1968, Ser. No. 767,360
Int. Cl. A45d *2/12*
U.S. Cl. 132—9 **4 Claims**



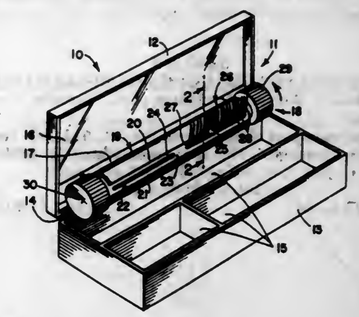
A device for curling hair is described having a stiff rod attached to a flexible envelope. The hair is captured in the envelope, which opens for this purpose, and the envelope is then wrapped on the rod with the hair inside the envelope.

3,543,772
HAIR CURLING CLIP
Harue Kanai, Tokyo, Japan, assignor to Picaso Company Limited, Tokyo, Japan
Filed May 19, 1967, Ser. No. 639,766
Claims priority, application Japan, May 26, 1966, 41/48545
Int. Cl. A45d *2/12*
U.S. Cl. 132—33 **1 Claim**



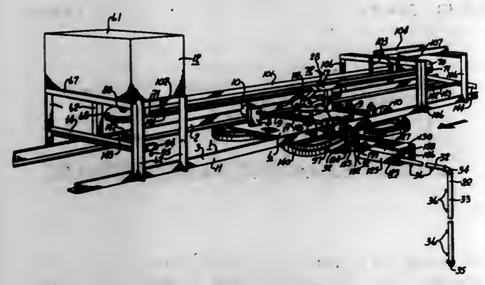
A curling clip consists of a cylindrical core and a tubelike covering fabric. The fabric is made of plastic and a great number of relatively stiff short monofilaments which protrude in pairs. Each pair of the monofilaments comprises a vertical twig and a right-angled twig, i.e., the reversed L twig, to clip and hold the hair.

3,543,773
FALSE EYELASH CURLING KIT
Laura Aurora Thompson, West Los Angeles, California, assignor to Walter John DeFranco, Lakewood, California a percent interest
Filed July 30, 1968, Ser. No. 748,854
Int. Cl. A45d *2/48*
U.S. Cl. 132—79 **12 Claims**



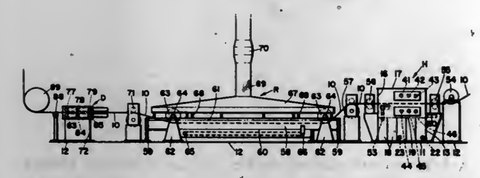
A false eyelash curling device includes a tubular shaped guideway formed with a window or access opening and a holding element that is rotatably coupled within the guideway. The holding element defines plural longitudinally extending slits for retaining false eyelashes. When eyelashes have been tucked into the slits the holding element may be rotated to transfer the eyelashes between opposing shaping surfaces formed respectively by the guideway and holding element. The shaping surfaces exert sufficient pressure on the eyelashes to curl them and as they are becoming dried. After the eyelashes are curled they may be easily rotated to a position aligned with the window where the person may gain access to them and withdraw them from the slits.

3,543,774
VEHICLE WASHING APPARATUS
George Oliver Trasp, Aliquippa, Pennsylvania, assignor to Homestead Industries, Inc., a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 780,484, Dec. 2, 1968, now abandoned. This application Sept. 18, 1969, Ser. No. 859,018
Int. Cl. B60s 3/04
U.S. Cl. 134—57 23 Claims



A vehicle washing apparatus for washing the surface of the vehicle having an elongated track supported horizontally above the vehicle to be washed. A carriage is provided for reciprocal motion along the track and to support a spray head mechanism which includes an inverted L-shaped spray unit adapted to extend above and partly across the vehicle to be washed as well as along one side thereof. A drive means is provided to control the reciprocal movement of the carriage along the elongated track through a designated path of travel. Arcuate travel guide means are disposed on the spray head mechanism operative by the drive means when the carriage is at each end of its path of travel to rotate the L-shaped spray unit 180° around the ends of the vehicle to be washed to simultaneously cause the L-shaped spray unit when so rotated to subscribe a substantially rectangular U-shaped path around the end of the vehicle.

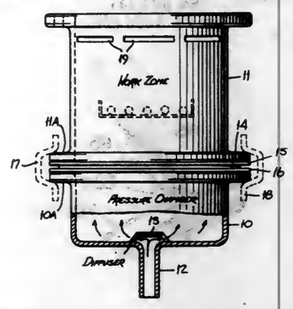
3,543,775
APPARATUS FOR CLEANING HOT ROLLED STEEL
Ernest Robert Bodnar, 16 Easson Ave., Toronto, Ontario, Canada
Continuation-in-part of application Ser. No. 611,285, Jan. 24, 1967, now abandoned. This application March 25, 1968, Ser. No. 720,753
Int. Cl. B08b 3/02
U.S. Cl. 134—64 9 Claims



Apparatus for cleaning strip metal such as hot rolled steel and the like to remove impinged shot and scale and also to remove grease and dirt by means of a very high pressure water spray and a water rinse, and a method of cleaning such strip metal by means of subjecting such strip metal to very high pressure water sprays raked at an angle to the path of movement of the metal, and also directed from the center line of said strip in a fan shaped manner outwardly across the surface of the metal towards the side edges of the strip so as to provide an outwardly sweeping action of the water flowing over the surface of the metal.

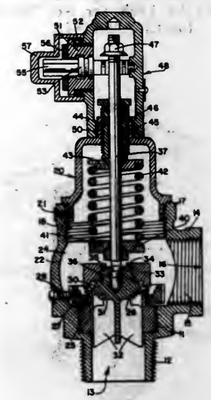
ERRATUM
For Class 134—93 see:
Patent No. 3,544,371

3,543,776
LAMINAR FLOW RINSING AND DRYING VESSELS
Howard M. Layton, Ossining, New York, assignor to Interlab Inc., Pleasantville, New York a corporation of New York
Filed April 30, 1968, Ser. No. 725,408
Int. Cl. B08b 3/10
U.S. Cl. 134—110 9 Claims



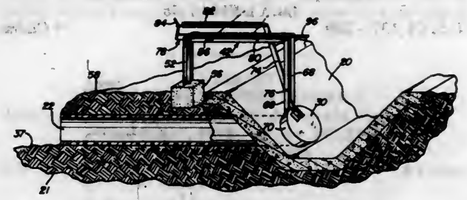
A process vessel for rinsing or drying small parts, the vessel being formed by separable lower and upper sections and a porous membrane clamped therebetween to serve as a flow impedance. A rinsing or drying fluid is fed into the lower section which acts as a pressure chamber. The fluid passes through the impedance into the upper section to produce a laminar flow therein, the parts to be cleaned being carried into a work zone in said upper section.

3,543,777
VALVE STRUCTURE WITH IMPROVEMENTS FOR TORQUE WRENCH TESTING
Franklin J. Howes, Fort Wayne, Indiana, assignor to Kunkle Valve Company, Inc., Fort Wayne, Indiana a corporation of Indiana
Filed April 3, 1969, Ser. No. 813,005
Int. Cl. F16k 37/00
U.S. Cl. 137—551 5 Claims



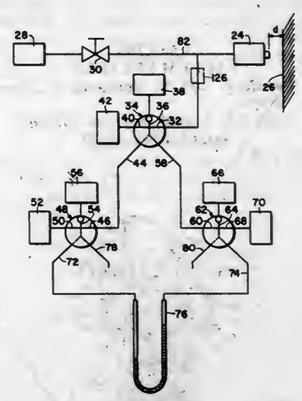
The valve structure is characterized by a lifting dog for the valve member whereby the compression load on the valve member can be conveniently checked at any time by means of a torque wrench. A rotatable dog shaft is provided for lifting the valve member by the torque wrench and by matching a torque data mark with a fixed bench mark, the extent of lifting can be accurately repeated for each checking procedure.

3,543,778
IRRIGATION SYSTEM
Ernest N. Martin, 1141 High St., Escondido, Calif. 92025
Filed Feb. 5, 1968, Ser. No. 703,073
Int. Cl. E02b 13/02; F16k 31/44
U.S. Cl. 137—67 1 Claim



An irrigation system in which water is delivered from a source of water supply to an area, such as a field, the system comprising a valve for controlling the flow, which valve is closed automatically when the water reaches a predetermined portion of the field, the controlling of the valve closing being in the form of a water soluble element, such as a block of sugar, which, in cooperation with a trigger, maintains the valve open while the block of sugar is in a solid state, but which permits the trigger, through mechanism, to close the valve when the block of sugar disintegrates from its solid state.

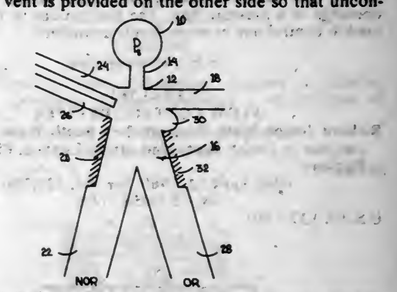
3,543,779
FLUIDIC AIR GAUGE SIGNAL AMPLIFICATION AND DISPLAY CIRCUIT
Herbert M. Eckerlin, Raleigh and Morris V. Ward, Cary, North Carolina, assignors to Corning Glass Works, Corning, New York a corporation of New York
Filed June 13, 1967, Ser. No. 645,761
Int. Cl. F15c 1/12
U.S. Cl. 137—81.5 15 Claims



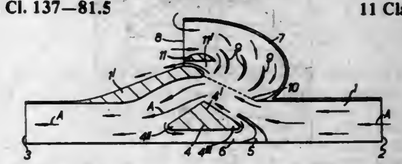
A fluidic circuit for the amplification and display of a pneumatic signal from an air gauge.

3,543,780
FLUIDIC OR/NOR GATE
Charles J. Ahern, Sidney, New York, assignor to The Bendix Corporation, a corporation of Delaware
Filed June 17, 1968, Ser. No. 737,707
Int. Cl. F15c 1/10
U.S. Cl. 137—81.5 5 Claims

A multiple-input monostable fluidic OR gate which uses segregated inputs to avoid the generation of spurious signals being transmitted to other stages of the circuit and which employs a cusp on the wall opposing the inputs to prevent overdriving of the OR output. To provide OR/NOR operation, an attachment wall is provided on one side of the fluid reaction area and a vent is provided on the other side so that uncontrolled fluid flow shows a preference for the output passage downstream of the attachment wall.

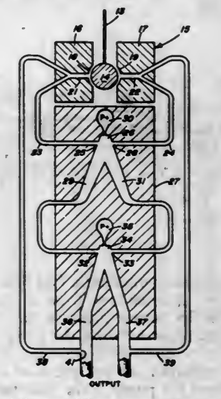


3,543,781
FLUID RECTIFIERS
John A. C. Kentfield, London SW 19, England (7 Mortimer Lodge, Albert Drive, Wimbledon, England)
Filed June 26, 1968, Ser. No. 740,352
Int. Cl. F15c 4/00
U.S. Cl. 137—81.5 11 Claims



A fluid rectifier includes three ducts meeting at an intersection and the cross section of each duct adjacent the intersection is substantially the same. In each embodiment either a baffle or an auxiliary fluid flow serves to deflect a main flow of fluid in such a way that under different operating conditions the flow path through the rectifier differs. The rectifier can be used for example in a crop drier, a combustion system or as a safety device to prevent damage to delicate equipment as a result of flow reversal in a duct.

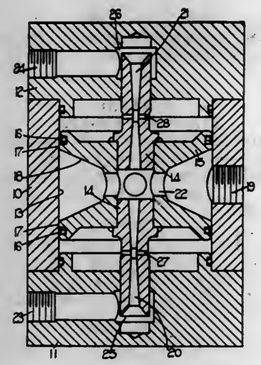
3,543,782
UNIAXIAL ACCELEROMETER CONTROLLED FLUIDIC AMPLIFIER
Peter Bauer, Germantown, Maryland, assignor to United States of America, as represented by the Secretary of the Navy, by mesne assignments to
Filed May 21, 1969, Ser. No. 826,558
Int. Cl. F15c ; G01p 15/02
U.S. Cl. 137—81.5 4 Claims



One or more fluidic amplifiers controlled by the motions of a uniaxial accelerometer. The accelerometer is in the form of

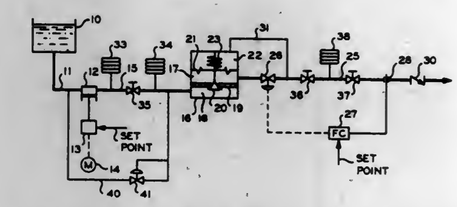
a mass rigidly suspended from a horizontally supported strand, the mass moving under slight forces to restrict openings in a pressure line. The fluctuations in the line are used to control one or more fluidic amplifiers.

3,543,783
FLOW CONTROL DEVICES
Richard Joseph Ifield, Beecroft, New South Wales, Australia, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed April 12, 1968, Ser. No. 720,780
Int. Cl. G05d *11/00*
U.S. Cl. 137—101 4 Claims



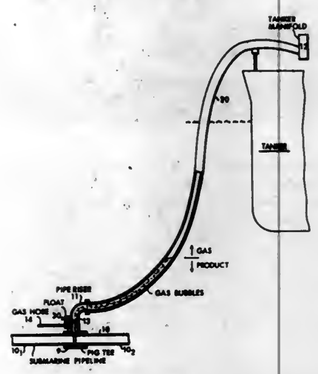
A flow control device comprising a body having a single port and two passages between which flow is to be controlled, a member movably mounted within the body, restricted passages in the member these restricted passages communicating with the passages in the body and with the port respectively, the position of the member determining the proportions of the flows through the restricted passages respectively, and further passages whereby the pressures in the restricted passages are applied to the member to determine its position.

3,543,784
FLOW CONTROL SYSTEM
Dexter E. Smith, Bartlesville, Oklahoma, assignor to Phillip Petroleum Company, a corporation of Delaware
Filed Oct. 13, 1967, Ser. No. 675,204
Int. Cl. G05d *16/02*
U.S. Cl. 137—116 5 Claims



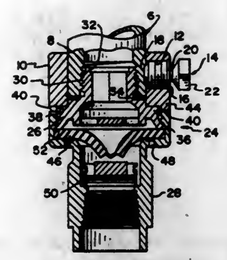
A flow control system employs a first flow controller which regulates a valve downstream from a pump. A pressure responsive controller senses pressure downstream from the valve and regulates flow between the pump and valve. Pump regulation means responsive to pressure downstream of the pump can be employed, as can pressure responsive bypass flow means around the pump. Flow smoothing means can be added upstream and downstream from the pressure responsive controller.

3,543,785
APPARATUS FOR PURGING LIQUID FROM FLEXIBLE HOSE CONNECTIONS
John F. Flory, Morristown, New Jersey, assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed April 12, 1968, Ser. No. 720,867
Int. Cl. F17d *1/08*
U.S. Cl. 137—209 9 Claims



This invention relates to apparatus for purging residual liquids from loading arms, especially flexible hoses, operatively attached to pipelines used for loading and unloading liquids from containing vessels. It relates particularly to a combination wherein a liquid controlled gas valve is provided at the junction between a pipeline and flexible hose, as on location at a sea berth, to inject gas into the sea hose to displace residual liquid back to the pipeline when delivery is completed.

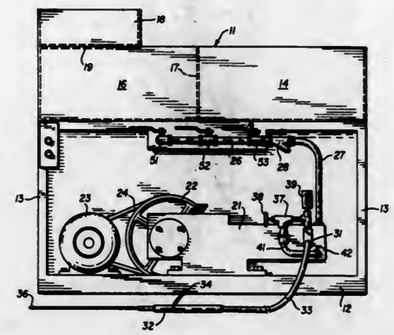
3,543,786
VACUUM BREAKER
Joseph C. Woodford, 205 N. Buchanan St., Spring Lake, Michigan 49456
Filed July 3, 1968, Ser. No. 742,462
Int. Cl. F16k *45/00*
U.S. Cl. 137—218 10 Claims



A vacuum breaker construction designed to accommodate a vacuum breaker to a faucet outlet in a manner such that at least a portion of the vacuum breaker is permanently secured to the faucet outlet. A collar has been developed which can be telescoped over a portion of the vacuum breaker and in overlapping relationship with respect to a faucet outlet; and utilizing a nonremovable screw, the assembly can be permanently secured to the faucet outlet. In an alternate embodiment, the end of the vacuum breaker which is connected to the facet outlet may be directly and permanently secured to the faucet outlet utilizing a breakoff screw element threaded through the body of the vacuum breaker and into compressive engagement with the outer surface of the faucet

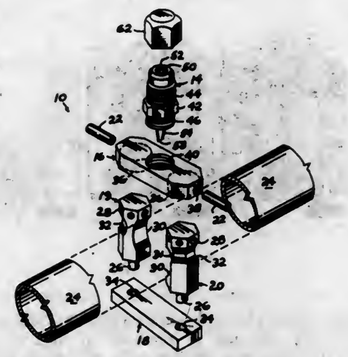
outlet in a manner such that the means for threading the screw through the vacuum breaker body will be broken off upon the exertion of a predetermined force. Another embodiment utilizes a spring, anchored at one end and threaded to the threads coupling the vacuum breaker to an outlet, for permanently securing a vacuum breaker element to a faucet outlet. A means is also provided for protecting a fluid sealing gasket and the vacuum breaker from radial or axial extrusion.

3,543,787
PRESSURE WASHER CONSOLE
Jerry J. Tepper, 7201 Sheridan Blvd., Arvada, Colorado
Filed Feb. 7, 1969, Ser. No. 797,558
Int. Cl. E03b *11/00*
U.S. Cl. 137—266 8 Claims



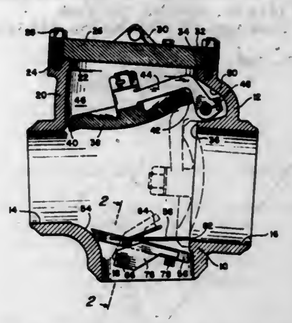
High-pressure apparatus for cleaning muddy, greasy, and soiled surfaces which includes a multistage pump selectively interconnectable to storage compartment sources for solvents, heated water, and/or cleaners and rinsing solutions with apparatus for regulating the supply level and the discharge rate of the variously useable solutions and/or combinations thereof.

3,543,788
SERVICE VALVE
John W. Mullins, P.O. Box 20524, Oklahoma City, Oklahoma
Filed Aug. 23, 1968, Ser. No. 755,000
Int. Cl. F16k *43/00*; F16l *41/04*
U.S. Cl. 137—318 4 Claims



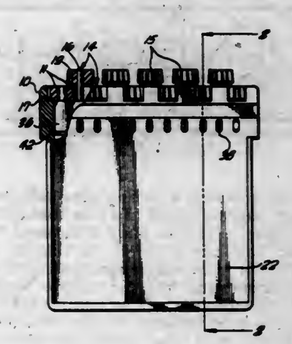
Oppositely disposed parallel plates journal the respective end portions of a pair of spaced-apart parallel standards to form a pipe clamping means. Each of the standards are provided with cooperating recesses, intermediate their ends, for nesting a peripheral portion of a line to be tapped when surrounded by the clamp means. One of the plates threadedly receives a valve housing having a line piercing core.

3,543,789
RECEIVING VALVE
Charles Wheatley, Tulsa, Oklahoma, assignor to Charles Wheatly Company, Tulsa, Oklahoma a corporation of Oklahoma
Filed March 5, 1969, Ser. No. 804,432
Int. Cl. B08b *9/04*
U.S. Cl. 137—544 6 Claims



A receiving valve for pipe line spheroids which is interposed in the pipe line at the desired location wherein it is desired to remove the spheroids from the pipe line. The valve is provided with an inlet port for receiving the spheroids and directing thereof into the interior of the valve and an outlet port for discharging the spheroids into a storage tube for removal from the pipe line. A fluid outlet port is also provided in the valve for directing the flow of fluid through the valve and discharging the fluid therefrom for continued flow through the pipe line. A grate member is disposed in the fluid outlet port for precluding passage of the spheroid therethrough and is angularly disposed with respect to the horizontal whereby gravity assists the movement of the spheroid through the valve and into the storage tube. A kicker member is provided in the proximity of the fluid outlet for precluding accidental lodging of the spheroid within the body at the juncture between the outlet port and the grate member.

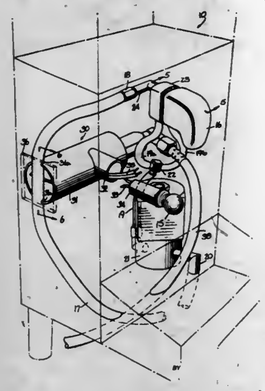
3,543,790
MANUALLY ADJUSTABLE PNEUMATIC CARTRIDGE
Walter Griffin Paige, Pasadena, California, assignor to Burroughs Corporation, Detroit, Michigan a corporation of Michigan
Filed Sept. 6, 1968, Ser. No. 757,865
Int. Cl. F16k *5/04*; G06d *1/02*; G06m *1/12*
U.S. Cl. 137—594 14 Claims



A manually adjustable cartridge for use with a pneumatic reading apparatus. The cartridge has a housing having a side

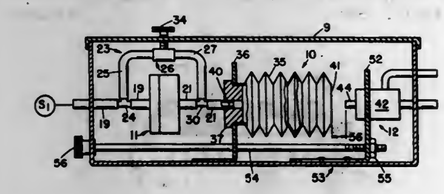
containing a plurality of air exits aligned in each of a plurality of columns. An air intake is provided for each column. An elongated member is rotatably mounted in the housing at each column and has a chamber opening to the corresponding air intake. Each elongated member contains a wall having a plurality of openings therethrough to the chamber which can be rotated in register with one of the air intakes.

3,543,791
MIXING CHAMBER AND SHUTOFF VALVE FOR CONTROLLING VISCOUS FLUIDS
Irving Fox, 70-20 108th St., Forest Hills and Ralph Labelson, 735 East 101st St., Brooklyn, New York
Filed April 18, 1968, Ser. No. 722,330
Int. Cl. F16k *19/00*
U.S. Cl. 137—599 **6 Claims**



A mixing chamber and shutoff valve for a dispenser in which a heavy viscous fluid such as chocolate syrup is combined with a nonviscous fluid such as carbonated water by passing the viscous and nonviscous fluids through intersecting paths in the mixing chamber and thence through a foraminous member and the shutoff valve stops the flow of the viscous material without coming in direct contact with it.

3,543,792
TIME DELAY
Robert F. O'Keefe, Trumbull, Connecticut, assignor to Pitney-Bowes, Inc., Stamford, Connecticut a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,702
Int. Cl. F16k *7/17, 31/165, 47/10*
U.S. Cl. 137—612.1 **10 Claims**



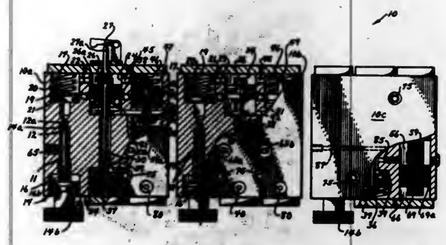
A device for providing a variable time delay between the incoming and outgoing signals of a flow control device. The time delay utilizes a bellows which is actuated by an input signal to the flow control device to connect the supply passage of a sensor to the output signal passage of said sensor whereby the output signal from the sensor is initiated a short time after the initiation of the input signal to the flow control device. The time delay between initiation of said signals may be varied by adjustment of a variable restrictor in the fluid conduit line to the bellows or by varying the relative position of the bellows and the sensor.

3,543,793
WELL TOOLS
William W. Dollison, Dallas, Texas, assignor to Otis Engineering Corporation, Dallas, Texas a corporation of Delaware
Continuation-in-part of application Ser. No. 328,157, Nov. 29, 1963, now abandoned. This application Jan. 29, 1965, Ser. No. 429,021
Int. Cl. E21b *33/00*
U.S. Cl. 137—614.2 **20 Claims**



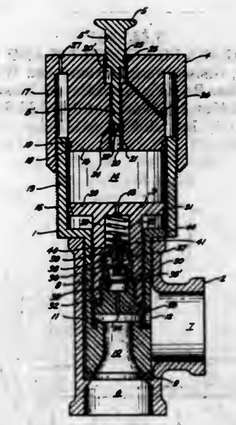
This invention relates to a fluid flow control device comprising a safety valve and a check valve including a bypass around the check valve to permit displacement of any fluid which may become trapped between the valves and prevent opening of the safety valve.

3,543,794
PROGRAMMER
Joe Stewart, Jr., McLeansboro, Illinois 62859
Filed Feb. 13, 1968, Ser. No. 705,096
Int. Cl. F15b *21/02*
U.S. Cl. 137—624.14 **6 Claims**



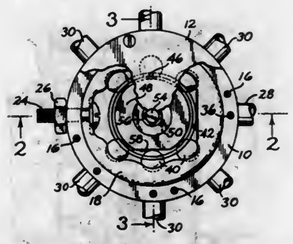
A programmer characterized by a grouping of independent control units operated in response to fluid pressure to achieve the sequential programming of various mechanical functions, and including metering means for controlling the time at which a succeeding control unit functions with respect to a preceding control unit, as well as an arrangement for "holding" one or more of the aforesaid mechanical functions.

3,543,795
HYDRAULIC TIMER VALVE AND ACTUATOR THEREFOR
Jackson T. Schwindt, 12507 W. Mississippi Ave., Denver, Colo. 80226
Filed Dec. 26, 1967, Ser. No. 693,482
Int. Cl. F16k *21/12*
U.S. Cl. 137—624.18 **8 Claims**



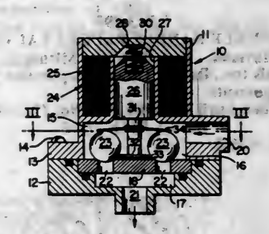
A hydraulic timing valve including a generally cylindrical and hollow housing and a valve member which is operative to reciprocate between a valve seat in one end of the housing and a timing chamber in the other end to control the flow of fluid from the inlet to the outlet of the valve. Small droplets of water are metered from the valve inlet through an orifice in the valve member at a fixed rate into the timing chamber thereby exerting pressure on the valve member to continually push it into seating relationship with the valve seat to thereby close the valve. The cap of the timer valve, which defines one end of the timing chamber, is adjustable for determining the time setting of the valve. In addition, an automatic valve actuator is provided to trigger the operation of a second timer valve upon the shutting off of the first timer valve.

3,543,796
FLUID SELECTOR VALVE
Stuart J. Durant, 9575 Hillsdale Beaverton Highway, Beaverton, Oreg. 97005
Filed April 16, 1968, Ser. No. 721,685
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.11 **5 Claims**



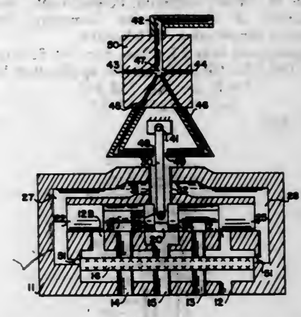
A hollow housing contains an annular, hollow, flexible manifold which communicates with a fluid outlet and a plurality of circumferentially spaced fluid inlets. Each inlet has a valve seat at its inner end. A valve-actuating ball associated with each inlet is located outside the manifold opposite each inlet seat and is movable by a central, rotatable cam between an unsealing position in which the seat-confronting portion of the manifold is spaced from the inlet seat and a sealing position in which said confronting portion abuts the seat and seals the inlet.

3,543,797
MULTIPLE BALL VALVE
William C. McNutt, Phoenix and Bernard C. Goy, Scottsdale, Arizona, assignors to The Garrett Corporation, Los Angeles, California a corporation of California
Filed March 18, 1968, Ser. No. 713,624
Int. Cl. F16k *11/10*
U.S. Cl. 137—628 **11 Claims**



This valve has a casing with an internal chamber and inlet and outlet ports. An internal wall divides the chamber into inlet and outlet sections between which communication may take place through a plurality of openings in the wall, the edges of the wall around the openings serving as seats for a plurality of ball-type valve elements. Means are provided to move the ball valves relative to the seats to control flow through the valve, such means being a solenoid with a headed plunger which engages each of the balls at one side and rolls it off the seat. Resilient means urge the balls toward the closed positions. The head of the plunger is normally spaced a predetermined distance from the balls so that the solenoid core may move initially before impact of the head with the balls. If desired, the seat may be elevated different distances relative to one another so that the balls will be engaged one at a time and the valve opening load will be maintained at a minimum. It is believed, however, that such design need not be intentionally employed since the normally allowable production tolerances would prevent the plunger head from contacting all balls simultaneously.

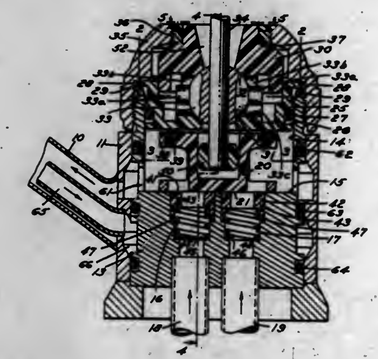
3,543,798
PNEUMATICALLY CONTROLLED SERVO VALVE
Emanuel Briguglio, Wheaton, Maryland, assignor to Singer-General Precision, Inc., Binghamton, New York a corporation of Delaware
Filed July 8, 1968, Ser. No. 743,239
Int. Cl. F15c *3/02*; **F16k** *31/12*
U.S. Cl. 137—625.62 **3 Claims**



A control block contains an input, two outputs and two control input ports. Fluid pressure is continuously applied to the system input, and fluid pressure is continuously exhausted from the two outputs in equal amounts. The two output ports expel the exhausted fluid against opposite sides of a vane. Normally, the vane is thereby maintained in a central position. When a fluid pulse is applied to one of the control inputs or the other, the fluid is deflected in the control block so that more is delivered to one output port than to the other. The vane is thereby deflected to one side. The vane is pivoted on a fixed mount at one end and is pivoted on a slideable spool at the other end. When the vane is deflected

to one side or the other, the spool is also moved from a central position. The spool contains a plurality of pistons which fit in a cylinder in a valve housing, and when the spool is moved to one side or another, a source of fluid under pressure is connected through an input port to one or the other of a pair of output ports. The direction of movement determines which of the two output ports receives the fluid.

3,543,799
SINGLE HANDLE FAUCET VALVE
Dennis J. Hayman, East Detroit, Michigan, assignor to Hydrometals Inc., Dallas, Texas a corporation of Illinois, by mesne assignments
Filed April 19, 1968, Ser. No. 722,768
Int. Cl. F16k 11/00
U.S. Cl. 137—636.2 8 Claims



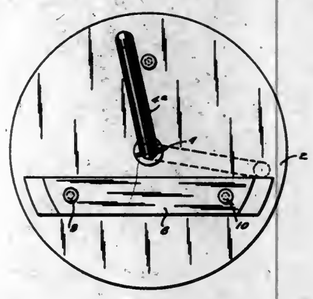
A single handle faucet valve comprising a body having a cylindrical opening therein into which hot and cold water inlets extend. A control disc is movable in said opening to selectively uncover said inlets. The control disc is operated by a lever which is swivelly mounted in the body. The degree of movement of the lever is controlled by projections and by a cap member threaded onto the body.

3,543,800
APPARATUS FOR PLUGGING PERFORATIONS IN CASINGS
Martin H. Harris, Pittsburgh; James W. Jennings, Verona and Francis M. Smith, Gibsonia, Pennsylvania, assignors to Gulf Research & Development Company, Pittsburgh, Pennsylvania a corporation of Delaware
Original application May 23, 1966, Ser. No. 552,163, now Patent No. 3,399,726. Divided and this application March 20, 1968, Ser. No. 735,945
Int. Cl. E21b 33/13
U.S. Cl. 137—802 21 Claims



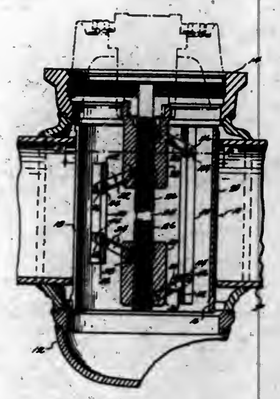
The invention comprises casing plugs having an end cap having a largest diameter slightly larger than the diameter of the casing perforations and a tapering body. The plugs may be either permeable or impermeable to fluids. The methods comprises introducing the plugs into a well one at a time in a carrier liquid and transporting them to the perforations where the liquid flowing into the perforations causes the plugs to turn and seat therein. Several system parameters are adjusted to assure that the hydrodynamic drag exerted upon the nose of the plug is sufficient to displace the plug laterally into the perforations.

3,543,801
CLOSURE MEANS FOR CONDUITS AND THE LIKE
Floyd L. Thayer, Goose Point, Duxbury and Wallace S. Pinkham, R.F.D. State Rd., Vineyard Haven, Massachusetts
Filed May 24, 1968, Ser. No. 731,946
Int. Cl. F16l 55/12
U.S. Cl. 138—89 1 Claim



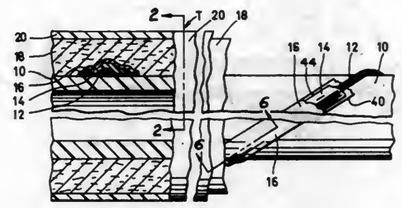
Cover means for an open end pipe section is comprised by a cover element for engaging against the end of the pipe section. Adjustable gripper mechanism mounted on the back of the cover means resiliently engages an inner peripheral portion of the pipe section in response to rotative movement of a handle extending through the front side of the cover means.

3,543,802
PIPELINE STOPPER ASSEMBLY
Wilbur R. Leopold, Jr.; Lynn D. Edwards and John J. Smith, Decatur, Illinois, assignors to Mueller Co., Decatur, Illinois a corporation of Illinois
Filed Dec. 5, 1968, Ser. No. 781,450
Int. Cl. F16l 55/12, 55/18
U.S. Cl. 138—94 9 Claims



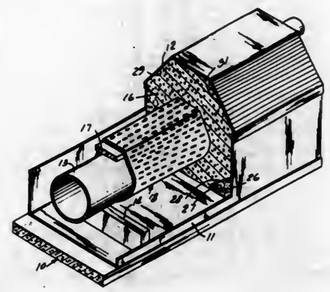
A pipeline stopper of the expanding sleeve type adapted to be inserted into a transverse circular cutout portion of a pipe and expanded to stop the flow therethrough. The pipeline stopper is provided with actuating means to positively expand and contract the sleeve and includes a plurality of toggle arms connected between the sleeve and at least one member movable longitudinally of the sleeve. A positive stop is provided to limit the pivotal movement of the arms to an angle no greater than 90° to the longitudinal axis of the stopper assembly thereby preventing the arms from inadvertently contracting the sleeve when the member is being moved in one direction.

3,543,803
COMPOSITE TUBING
Albert E. Chrow, Chagrin Falls, Ohio, assignor to Samuel Moore and Company, Mantua, Ohio a corporation of Ohio
Continuation-in-part of application Ser. No. 510,202, Nov. 29, 1965, now Patent No. 3,445,583. This application Jan. 15, 1968, Ser. No. 697,670
Int. Cl. F16l 55/00
U.S. Cl. 138—103 13 Claims



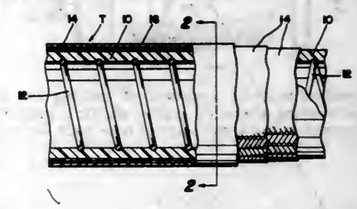
A composite tubing product for transmission of fluid under high pressure, including an inner polymeric core tube and an outer polymeric protective sheath surrounding the core tube. An electrical discharge element is disposed between the inner core tube and the outer sheath and extends in a spirally wound relation with respect to the axis of the core tube, and a particle penetration-resistant, envelopelike sleeve is disposed around the discharge element in engaged relation with the inner core tube.

3,543,804
INSULATING STRUCTURE FOR UNDERGROUND PIPES
George E. Ziegler, Evanston, Illinois, assignor to Thermal Conduits, Inc., Kirkland, Washington a corporation of Washington
Original application Sept. 13, 1965, Ser. No. 487,004, now Patent No. 3,418,399, dated Dec. 24, 1968. Divided and this application July 5, 1968, Ser. No. 742,642
Int. Cl. F16l 1/00; E02d 29/10
U.S. Cl. 138—105 6 Claims



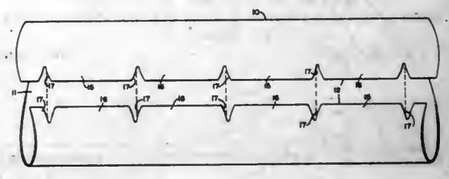
Insulated pipe installations including a monolithic thermal insulating embedment separated from one or more pipes by void spaces and having at least one chamfered corner, a duct forming element abutting the chamfered corner and providing a longitudinally extending vent for the passage of moisture vapor therealong.

3,543,805
COMPOSITE TUBING
Richard A. Matthews, Chagrin Falls; James H. Coe, Ravenna, Ohio, assignors to Samuel Moore and Company, Mantua, Ohio, a corporation of Ohio
Filed June 24, 1966, Ser. No. 560,328
Int. Cl. F16l 9/16
U.S. Cl. 138—141 5 Claims



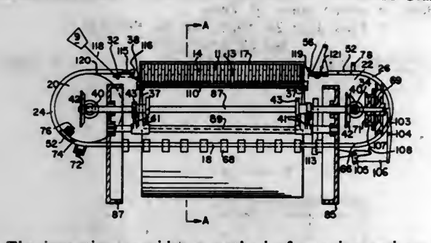
A composite tubing product for undersea applications and the like which includes an inner core tube made from a thermoplastic material and having an endless inner surface defining a fluid transmission passageway therein. A resilient wire reinforcement element is disposed helically in the passageway and partially embedded in the inner surface to a depth sufficient to prevent axial movement of the element upon flexure of the tubing product. An external fibrous reinforcement means is disposed around the core tube and the polymeric outer jacket is disposed around the reinforcement to provide a protective cover therefor.

3,543,806
EXTENDIBLE BOOM
Frank C. Rushing and Albert B. Simon, Ellicott City, Maryland, assignors to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Nov. 20, 1967, Ser. No. 684,241
Int. Cl. H01g 1/12
U.S. Cl. 138—156 1 Claim



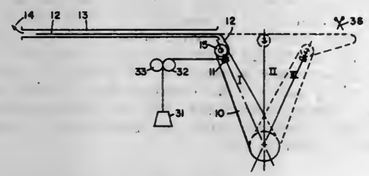
An improved extendible boom of the unrolled thin wall strip, self-forming, hollow tube-type having overlapping tabs both inside and outside at its longitudinally extending seam; the improvement wherein the tabs of each seam edge consist of an alternating series of wide and narrow tabs with tapered side edges, with the wide tabs of one seam edge overlapping narrow tabs and abutting the tapered side edges of wide tabs, of the other seam edge.

3,543,807
PROCESS FOR THE INSERTION OF THE WEFT IN A LOOM
Albert E. Moessinger, 1066 Epalinges, Switzerland
Continuation-in-part of application Ser. No. 501,651, Oct. 22, 1965. This application Oct. 30, 1967, Ser. No. 685,993
Int. Cl. D03d
U.S. Cl. 139—125 15 Claims



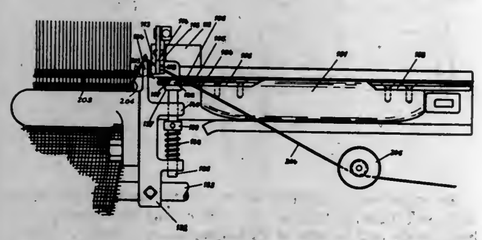
The invention provides a method of weaving and an apparatus for weaving wherein a gripper shuttle is presented at a shed entrance at the same point of time each weaving cycle.

3,543,808
PROCESS AND APPARATUS FOR THE LAYING OF A PICK INTO THE SHED OF A LOOM
Albert E. Moessinger, 1 Grand Place, Fribourg, Switzerland
Filed Feb. 13, 1968, Ser. No. 705,081
Int. Cl. D03d *47/12*
U.S. Cl. 139—127 16 Claims



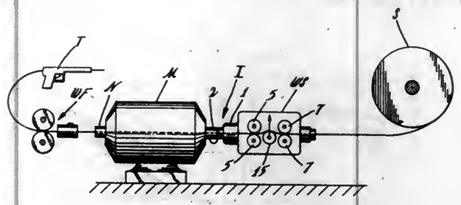
A process and apparatus for laying-in a pick of weft yarn utilizing a bobbin, first means to unwind a pick of weft yarn from said bobbin, second means for laying in the pick, said pick comprising a controlled limb, a loop, and a free limb and said second means comprising means to engage the controlled limb of the pick and means to move the loop, thereby causing the free limb to unwind within the shed of a loom.

3,543,809
LOOM FOR WEAVING FABRIC
Claude Laval, 1 Avenue de Lavour, Castres, Tarn, France
Filed Feb. 26, 1969, Ser. No. 802,392
Claims priority, application France, Feb. 26, 1968, 141,516
Int. Cl. D03d *47/24*
U.S. Cl. 139—125 10 Claims



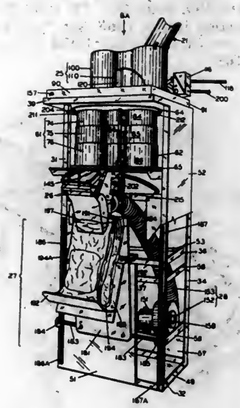
Weft thread handling mechanisms cooperating to cut, hold and facilitate shuttle pickup of the weft thread. External spools supply weft thread to the shuttle which carries it through the shed to the other side of fabric. Elongated tip means and shuttle pincer hook means dislodge the leading end of the weft thread from the shuttle pincer hook. A cut and hold assembly acts on the trailing portion of the weft to cut it, to hold the end still connected to the spool and to position it for pickup by the shuttle pincer hook on the shuttle's next pass.

3,543,810
ROTARY WIRE WELDING STRAIGHTENER
Arthur P. Scheller, Chatham, New Jersey, assignor to Union Carbide Corporation, a corporation of New York
Filed June 12, 1968, Ser. No. 736,369
Int. Cl. B21f *1/02*
U.S. Cl. 140—147 3 Claims



A wire straightening device incorporating the combination of orbital rotation with longitudinal rotation of a wire guide roll about and along the wire to produce unusually straight wire with minimum amount of pull force.

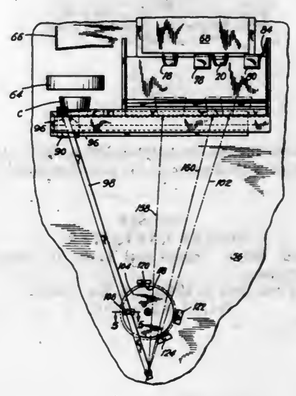
3,543,811
PROCESS FOR DISPENSING ICY MATERIALS
Charles E. Lamka, 1218 Crocket St. and Walter J. Atkins, 2414 S. Ong, Amarillo, Texas
Filed Aug. 8, 1968, Ser. No. 751,241
Int. Cl. F25c *5/16*
U.S. Cl. 141—9 5 Claims



Apparatus and process for accurate continuous automatic volumetric dispensing and bagging of large amounts of ice

arcs and cubes and like icy particulate material normally tending to form larger clumps of varying size and stiffness. Repeated small volumes of such to be bagged icy material are intermittently automatically continually and approximately measured out and brought to and briefly maintained in a fluid condition immediately prior to continuous dispensing thereof to smaller final volumetric measuring dispensing and bagging apparatus.

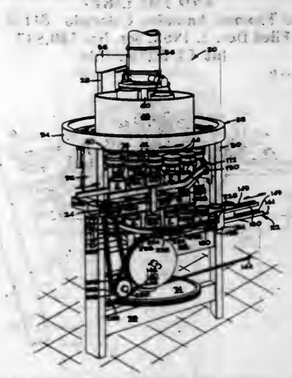
3,543,812
HYGIENICALLY ENCLOSED MACHINE AND CUP-DISPENSING STRUCTURE THEREFOR
Sidney L. Friedman, New York, New York, assignor to Lanex Importing Company, Lodi, New Jersey
Filed Feb. 5, 1968, Ser. No. 702,855
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—103 6 Claims



A dispensing apparatus particularly of the type which is designed to dispense an edible product. The product is dispensed into a container which is moved by a moving means from a given starting position along a predetermined path to a receiving station where the dispensed product is received and then to a removal station where the container with the product therein is removed. A control means coacts with the moving means to actuate the latter first to move the container from the starting position to the receiving station, then to stop the operation of the moving means while the container remains for a given dwell period at the receiving station to receive the dispensed product, and then to operate the moving means for continuing the travel of the container from the receiving station to the removal station. The container is slidably supported on a suitable elongated support means from which a pair of end walls extend upwardly with the receiving and removal stations situated between these end walls, a dispensing means being situated over the support means between the end walls and a door being situated at the removal station, so that in this way for hygienic purposes when dealing with an edible product the space where the product is dispensed is maintained away from the individual who removes the container from the removal station.

3,543,813
CONTAINER FILLING MACHINE
Sherman H. Creed, San Jose, California, assignor to FMC Corporation, San Jose, California a corporation of Delaware
Filed April 1, 1968, Ser. No. 717,582
Int. Cl. B65b *43/60*; B65g *29/02*
U.S. Cl. 141—148 9 Claims

A can-filling machine has a turret with a series of filling heads and vertical rollers to guide the cans up and down relative to the heads. Feed and discharge conveyors are tangent to the turret with the discharge conveyor above the feeder conveyor, and a generally helical ramp extends between the



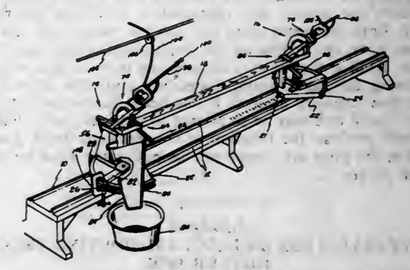
conveyors. A spring gate assembly is employed at the feed conveyor for seating cans between the rollers.

3,543,814
COFFEE DISPENSER
Peter A. Alutto, 3904 Fillmore Ave., Brooklyn, New York
Filed May 12, 1966, Ser. No. 549,521
Int. Cl. B67c *11/04*
U.S. Cl. 141—335 1 Claim



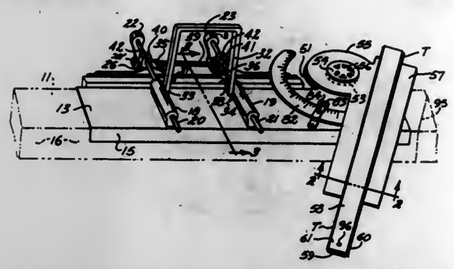
A coffee dispenser having a valve assembly positioned at its lower end with a conical deflector for distributing a desired amount of coffee to a percolator.

3,543,815
TRUSS CUTTING APPARATUS WITH TWO CUTTING STATIONS
Donald C. Menge, Warren, Michigan, assignor to Troy Steel Corporation, Warren, Michigan a corporation of Michigan
Filed Sept. 25, 1967, Ser. No. 670,146
Int. Cl. B27g *5/02*
U.S. Cl. 143—6 20 Claims



A pair of spaced saw-supporting pedestals are mounted on a frame for horizontal movement toward and away from one another. A section of unfinished lumber spans the two pedestals. Each pedestal is rotatable about a vertical axis to individually position a power saw to cut the lumber at a selected pitch and a predetermined length. The apparatus includes a novel telescoping saw shield and a novel lumber clamp.

3,543,816
PORTABLE POWER SAW GUIDE FOR MITRE CUTS AND THE LIKE
James Arthur Thomas, Antonito, Colorado 81120
Filed Dec. 2, 1968, Ser. No. 780,547
Int. Cl. B27b *27/06*
U.S. Cl. 143—6 7 Claims



A guide or adapter for portable power saws is designed to rest on and lock to the timber to be cut in order to facilitate cutting structural elements that are used in quantity in construction, such as rafters, for example. It comprises a saw base adapter and an adjustable protractor and guide arm or track for the saw with quick-release adjustable clamping means for engaging the timber to be cut. The clamping means is designed to hold firmly to timbers of moderate dimensions or tolerances without readjustment and the saw can slide freely on and off the guide track.

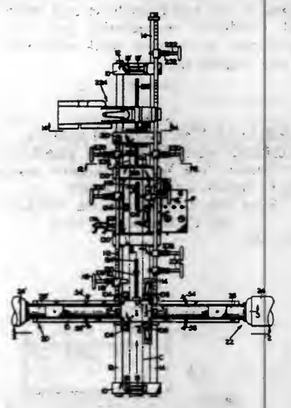
3,543,817
SAW CHAIN
Roy H. Anderson, P.O. Box 1445, Victoria, British Columbia, Canada
Filed Jan. 15, 1968, Ser. No. 698,055
Int. Cl. B27b *33/14*
U.S. Cl. 143—135 5 Claims



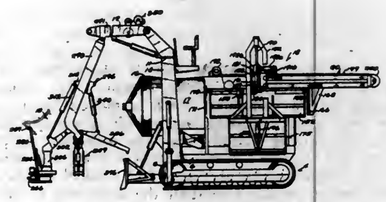
A saw chain made up entirely of cutter tooth links, raker tooth links, twin safety guards or lateral guide links, spacer links and side connector links. A complete sequence normally includes a pair of side link mounted safety guards, a link carrying only a bifurcated cutter tooth followed immediately by a separate link carrying only a raker tooth and at least one spacer link immediately following the raker tooth. Both the cutter tooth link and the raker tooth link are center links, i.e. located on the longitudinal center line of the chain. Each sequence may include one or more spacer links following the raker tooth, depending upon the amount of chip flow capacity desired. It has been discovered that the cutter tooth link may be so related to the raker tooth link as to itself perform the function of conventional depth gauges used in the prior art, therefore eliminating the need for such depth gauges.

3,543,818
APPARATUS FOR DRILLING AND ROUTING TRUSS JOIST CHORDS
Arthur L. Troutner, Skyline Drive, Boise, Idaho
Filed Dec. 4, 1968, Ser. No. 781,057
Int. Cl. B27m *3/00*
U.S. Cl. 144—3 6 Claims

An elongated framework adjustably supports drilling and routing components and a plurality of longitudinally spaced stops by which a truss joist chord is advanced stepwise to selected positions at which it is drilled transversely and routed in the drilled areas. Each stop succeeding the first utilizes a previously drilled opening to position the chord for subsequent drilling and routing operations. The router component includes means for varying the width of the rout in correspondence with the size of the associated drill opening.



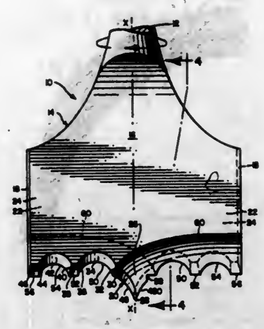
3,543,819
TIMBER HARVESTER
Waino Peltola, Rte 1, Tripoli and Ervin W. Braski, Brantwood, Wisconsin
Filed June 6, 1968, Ser. No. 734,923
Int. Cl. A01g *23/02*
U.S. Cl. 144—2 9 Claims



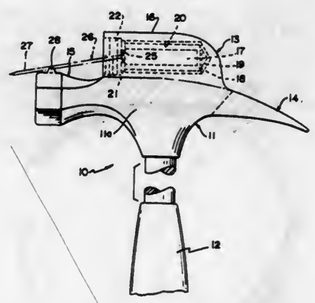
Disclosed herein is a timber harvester in the form of a vehicle which comprises in unitary assembly, a main frame propelled by endless tracks, a forward boom which supports a timber felling chain saw, a log grapple, a delimber which includes a rotor with an axial throat for receiving felled timber, and four circumferentially arranged cutters that are movable at an acute angle relative to the throat to sever limbs from the felled timber, a feed mechanism for drawing the timber through the delimber, a cutoff saw swingably mounted for movement transverse to the linear feed path to cut the timber into predetermined lengths and a log unloading assembly for palletizing or stacking the cut logs.

3,543,820
ROSETTE CUTTING BIT
Michael Tulumello, Buffalo, New York, assignor to Joseph Panzarella, Buffalo, New York a part interest in
Filed Oct. 7, 1968, Ser. No. 765,354
Int. Cl. B27g *13/12*
U.S. Cl. 144—219 8 Claims

A rosette cutting bit including a substantially flat head having a configurated front edge surface cut away to form a forwardly projecting central pilot portion terminating in a transverse pilot cutting edge extending across the central longitudinal rotational axis and connecting oppositely facing leading faces, and to form on opposite sides of such pilot edge substantially identical configurated working faces each inclined forwardly from each trailing face to form with the opposite leading face a substantially continuous leading cutting edge extending outwardly from its juncture with such pilot edge.



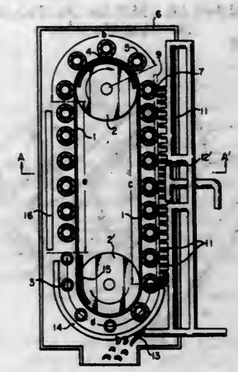
3,543,821
NAIL HOLDER-DUAL HAMMER
Roy Johnson, Rte 1, Rock, Michigan 49880
Filed Sept. 25, 1967, Ser. No. 670,324
Int. Cl. B25d *1/04*
U.S. Cl. 145—30 6 Claims



A hammer is disclosed herein having a hammerhead and a handle. The hammerhead is provided with a fulcrum and nail-retaining means in conjunction with claw and shank portions. The fulcrum and nail-retaining means, among other things, is provided with a cavity and a magnet, and a nail guide is provided on the shank.

3,543,822
APPARATUS FOR SEPARATING SEGMENTS OF AN ORANGE
Yonekichi Morikawa, Shimizu, Japan, assignor to Daiwa Can Co. Ltd., Tokyo, Japan
Filed Aug. 21, 1968, Ser. No. 754,363
Int. Cl. A23n *15/00*
U.S. Cl. 146—3 8 Claims

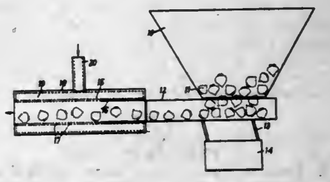
The disclosed apparatus for separating segments of an orange automatically separates the segments by liquid ejected from nozzles perpendicular or oblique to the orange-stalk axis and toward the connecting portion of the segments in rotating a peeled orange at its stalk axis in water.



3,543,823
PROCESSING OF ENDOSPERM SPLITS
James L. Keen, New Brighton, Minnesota, assignor to General Mills, Inc., a corporation of Delaware
Filed March 4, 1968, Ser. No. 709,946
Int. Cl. B02b *3/04*; B02c *4/00*; B23b *1/30*
U.S. Cl. 146—221.9 12 Claims

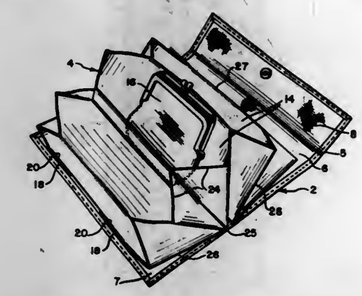
An improved process of treating seeds containing galactomannan polysaccharides wherein endosperm splits are flaked to a particle thickness of less than 25 microns at a moisture content of 30 to 70 percent resulting in a product rapidly dispersible in water which produces unexpectedly high viscosity aqueous sols useful in papermaking, drilling muds, food stuffs, and printing pastes.

3,543,824
TREATMENT OF FRUIT AND VEGETABLE CROPS
Leslie Arthur Parsons, Burry Port, South Wales, Great Britain, assignor to Les. Parsons and Sons Engineers Limited, Burry Port, South Wales, Great Britain
Filed Dec. 19, 1968, Ser. No. 785,201
Claims priority, application Great Britain, Dec. 29, 1967, 59,254/67
Int. Cl. A23n *7/00*
U.S. Cl. 146—226 9 Claims



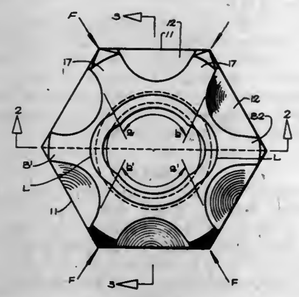
A method of (and apparatus for) skinning onions comprising feeding onions to a pipe closely following each other in a continuous stream and conveying the onions through the pipe by a stream of fluid under such pressure that it removes the outer skins of the onions without disintegrating the edible parts of onions.

3,543,825
POCKETBOOK
Frank G. Dobbs, Kew Gardens, New York, assignor to Fran-Stef Corporation, New York, New York a corporation of New York
Filed July 10, 1968, Ser. No. 743,741
Int. Cl. A45c *1/08*
U.S. Cl. 150—35 1 Claim



There is disclosed a pocketbook including a bellows-type multiple pocket insert together with a coin purse or money clip, all removably affixable in a cover.

3,543,826
STIFF NUT
Harcourt L. Forgaard, 20 Hall Lane, Hagley, England
Filed July 30, 1968, Ser. No. 748,734
Claims priority, application Great Britain, Aug. 5, 1967, 36058/67
Int. Cl. F16b *39/28*
U.S. Cl. 151—21 9 Claims



A prevailing torque stiff nut comprising a body with an internally threaded opening the exterior of the body having a number of circumferentially spaced axially extending grooves, each of which is of maximum depth at the top face of the nut and tapers in cross section down to zero on the exterior of the body a short distance from the abutment end face of the nut, there being a radially extending buttress between each two adjacent grooves and the prevailing torque stiff feature being provided by acting, with radially inwardly directed forces, at the top portion of the nut, upon each buttress of two pairs of buttresses, which two pairs are arranged symmetrically on opposite sides of a diameter of the nut.

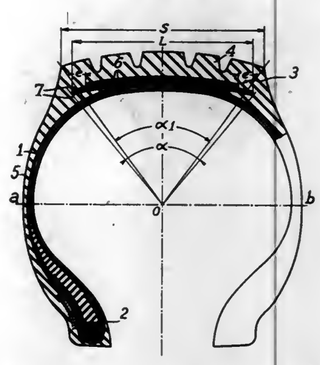
3,543,827
PNEUMATIC TIRES
Glyn B. Roberts, Four Oaks, Sutton Coldfield and Thomas Holmes, Walmley, Sutton Coldfield, England, assignors to The Dunlop Company Limited, London, England a British Company
Filed May 6, 1968, Ser. No. 726,692
Claims priority, application Great Britain, May 19, 1967, 23353/67
Int. Cl. B60c *11/06, 11/10*
U.S. Cl. 152—209 9 Claims

A reinforced tread pneumatic tire provided to reduce or eliminate the tendency to aquaplane by the provision of radially inwardly extending chambers in the ground-contacting surface of the tire which penetrate the tread reinforcement



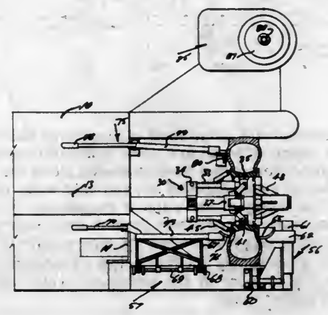
but not the carcass plies or breaker layers of the tire, and tend to act as local reservoirs soaking up water in the tread contact patch, of which the following is a specification.

3,543,828
TIRE WITH A REINFORCED BREAKER LAYER
Georges Edouard Yvon Caille, Colombes and Bernard Weben, Montmorency, France, assignors to Pneumatiques, Caoutchouc Manufacture Et Plastiques Kleber-Colombes, Place de Valmy, Colombes, Hauts de Seine, France
Continuation-in-part of application Ser. No. 542,906, April 15, 1966, now abandoned. This application Jan. 29, 1969, Ser. No. 801,915
Claims priority, application France, Apr. 17, 1965, 13,742; Dec. 9, 1965, 41,653.
Int. Cl. B60c *9/20*
U.S. Cl. 152—361 7 Claims



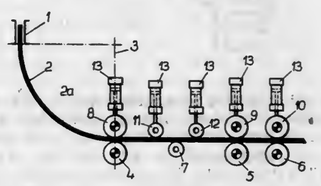
In a tire with supple sidewalls and a breaker layer reinforcement consisting of a pair of superposed generally longitudinal cord layers containing cables or wires forming small angles with the equatorial plane of the tire, a cord layer having its cables or wires in a transverse direction is located between the longitudinal cord layers and the carcass of the tire after the curving of the carcass. The width of the reinforcement assembly is approximately equal to the width of the tread surface. The transverse cord layer is relatively rigid and made of two superposed layers of parallel cables or wires at 60° to 90° to the equatorial plane of the tire. The edges of the generally longitudinal cord layers may be staggered and may be reinforced by a subtread of smaller hysteresis than the tread.

3,543,829
TIRE BEAD BREAKER AND REMOVAL DEVICE
Matthew Schultz, Box 241 and William L. Schultz, Box 485, Red Lake Falls, Minnesota
Filed May 3, 1968, Ser. No. 726,414
Claims priority, application Great Britain, May 5, 1967, 20910/67
Int. Cl. B06c *25/06*
U.S. Cl. 157—1.28 23 Claims



A tire removal device having a horizontal mandrel upon which the wheel is mounted and held by a plurality of brakeshoe elements expanded outwardly against the rim of the wheel. The mandrel is then moved outwardly with the wheel against a stationary outer bead-breaking shoe and then inwardly against a stationary inner bead-breaking shoe. A tire-restricting shoe is then swung into position opposite the innner bead-breaking shoe and the mandrel moved further inwardly thus withdrawing the wheel from the tire.

3,543,830
METHOD AND APPARATUS FOR STRAIGHTENING ARC-TYPE CONTINUOUS CASTING
Hans G. Baumann, Duisburg, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany
Filed Nov. 16, 1967, Ser. No. 683,589
Claims priority, application Germany, Jan. 18, 1967, D52038
Int. Cl. B22d *11/12*
U.S. Cl. 164—82 3 Claims

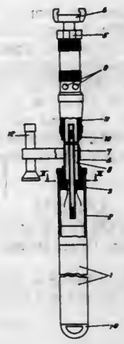


An apparatus for straightening a casting in an arc-type continuous casting plant is formed of a number of serially positioned, horizontally arranged rolls. In the direction of its path of travel, the casting first passes between a pair of vertically alined rolls at the point where the straightening process commences. This first pair of rollers drive the casting over a rigid support roll while two horizontally spaced rolls are positioned in contact with the upper surface of the casting. In the final straightening operation, the casting passes between two pair of withdrawing and straightening rolls. Each of these straightening and withdrawing rolls is individually driven and all of the rolls exerting a downward pressure on the upper surface of a casting are individually adjustable.

3,543,831
ELECTROSTATIC COATINGS
Richard D. Schile, Wethersfield, Connecticut, assignor to United Aircraft Corportion, East Hartford, Connecticut a corportion of Delaware
Filed Jan. 9, 1967, Ser. No. 608,199
Int. Cl. B22d *11/00*
U.S. Cl. 164—89 12 Claims

This invention provides a process for forming filaments from molten material which comprises the continuous casting of a molten jetstream of the material, rapidly cooling and stabilizing the stream to prevent droplet formation by contacting the stream with a coolant medium comprising finely dispersed coolant particles. Then, an electric charge is imposed on the particles and a charge is imposed on the stream of opposite polarity to that on the particles, the difference in the charges being sufficient to attract the coolant particles to the molten jetstream, attracting the particles to the jet, thereby cooling and solidifying the jet, and recovering a composite case filament.

3,543,832
APPARATUS FOR THE MANUFACTURE OF MOLDS FOR CASTING METALS
Horst Erwin Langer, Augsburg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Augsburg, Germany
Filed April 18, 1967, Ser. No. 631,673
Claims priority, application Germany, April 21, 1966, M69223
Int. Cl. B22c *15/10*
U.S. Cl. 164—203 3 Claims

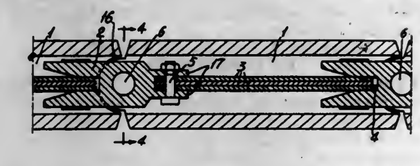


A vibrating apparatus adapted particularly for packing foundry sand compositions to make metal casting molds in which the vibrator housing has a removable cap made of a highly wear-resistant material and the vibrator housing is connected by means of an elastomeric collar to a tubular connecter pipe and the tubular connecter pipe has a handle construction mounted thereon by means including an elastomeric sleeve.

3,543,833
FLEXIBLE STARTING BAR FOR CONTINUOUS CASTING PLANTS
Luigi Danieli, Buttrio, Udine, Italy
Filed Feb. 19, 1968, Ser. No. 707,388
Claims priority, application Italy, April 17, 1967, 793419
Int. Cl. B22d *11/08*
U.S. Cl. 164—274 6 Claims

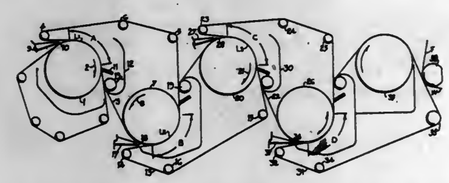
A false bar for continuous casting plants, characterized by comprising a series of hollow elements equivalent to one another, coaxially arranged one after the other, with a section equal to that of the bar to be cast, each element being bound to the next element by a pin passing through two cor-

responding portions of the two ends, allowing slight oscillations between the two elements dampened by a resilient



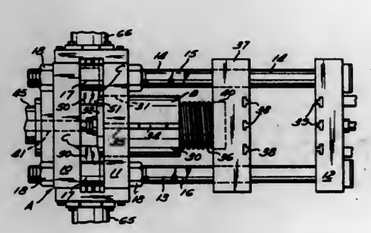
device inside of each element and tending to hold said bar at an upright position.

3,543,834
MULTI-LAYER CENTRIFUGAL WEB FORMER
Louis M. Stuebe, Beloit, Wisconsin, assignor to Beloit Corporation, Beloit, Wisconsin a corporation of Wisconsin
Filed Jan. 5, 1968, Ser. No. 695,955
Int. Cl. D21f *1/00*
U.S. Cl. 162—300 **7 Claims**



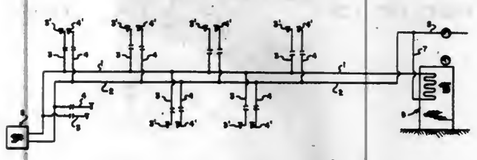
A web-forming machine for forming a web from layers of slurries of suspended fibers, having a looped foraminous belt, a roll on the outside of the belt wrapped by the belt defining a web-forming area, a slurry supplier to supply slurry to the web-forming area, a second roll on the inside of the belt, another belt wrapping the layer on the first belt as it wraps the second roll defining a second web-forming area, and a second slurry supplier to supply slurry to the second area whereby a layer is added to the first layer.

3,543,835
WEDGE BLOCK FOR DIE CASTING MACHINE
John A. Perkon, Wickliffe, Ohio, assignor to Basic Aluminum Castings Company
Filed Aug. 22, 1968, Ser. No. 754,551
Int. Cl. B22d *33/04*
U.S. Cl. 164—339 **7 Claims**



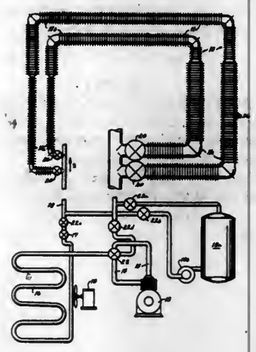
A wedge block combination apparatus for a die casting machine mounted adjacent the rear of the main ram of the said machine and on opposite sides of said ram, the said apparatus having a pair of main wedges and a pair of facing plate wedges. Each of said main wedges having a rabbet recess along its face and end adjacent the main ram of said machine and having one of said facing plate wedges adjustably mounted therein to frictionally engage the rear surface of said main ram of said machine for lockup and quick release of said apparatus.

3,543,836
RECIRCULATION UNIT
Rudolph M. Paulson, 217-29, 50 Ave. and Roy A. Watt, 3359, 210th, Bayside, New York
Filed Oct. 30, 1969, Ser. No. 872,532
Int. Cl. F24f *3/00*
U.S. Cl. 165—22 **10 Claims**



An automatically controlled recirculation unit for maintaining a supply of water at a predetermined temperature for consumption from outlet fixtures spaced along the hot water supply line of a conventional hot and cold water distribution system. The supply of hot water is maintained by selectively circulating water directly from the hot water supply line into the cold water supply line when the temperature of the water in the hot water supply line falls below a predetermined value to allow replacement of the withdrawn water with a fresh supply of heated water.

3,543,837
ROOM COOLING AND HEATING APPARATUS
Chester M. Wilcox, 5171 98th Ave., Pinellas Park, Florida
Filed Sept. 5, 1968, Ser. No. 757,574
Int. Cl. F25b *29/00*
U.S. Cl. 165—29 **12 Claims**

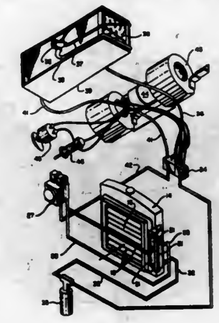


Cooling and/or heating air system, unobtrusively installed around perimeter of room, includes finned heat excnange tubing selectively connected in evaporator or condenser circuits of heat pump device or with auxiliary "Freon" (a product of Du Pont) boiler for selectively cooling or heating room air in a manner which eliminates disturbing noises due to vapor release of refrigerant circulated through the tubing.

3,543,838
COOLING SYSTEM FOR VEHICLE COMPARTMENT
Jack Hans White, Huntington Beach, California, assignor to Transicoid Corporation, Montebello, California a corporation of Delaware
Continuation-in-part of application Ser. No. 618,580, Feb. 27, 1967, now abandoned . This application April 16, 1968, Ser. No. 721,696
Int. Cl. B60h *3/04*
U.S. Cl. 165—23 **4 Claims**

An air-conditioning system for a truck's cab or sleeping space. The condenser for the system is cooled by the truck's engine fan. Two sets of louvers serve to independently con-

trol the airstream to the radiator. One of the two sets further serves to control the airstream passing over the condenser



coils. The louvers for controlling the airstream to the condenser are subject to being opened whenever those for the radiator are opened. One embodiment provides the composite functions of heating, cooling and windshield defrosting.

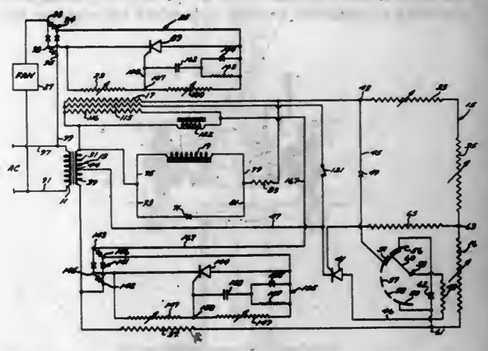
3,543,839
MULTI-CHAMBER CONTROLLABLE HEAT PIPE
Arnold P. Shlosinger, Los Angeles, California, assignor to TRW, Inc., Redondo Beach, California a corporation of Ohio
Filed May 14, 1969, Ser. No. 824,628
Int. Cl. F28d *15/00*; B63c *11/04*
U.S. Cl. 165—32 **15 Claims**



A temperature controllable heat pipe switching device includes separate evaporating and condensing chambers interconnected by separate vapor flow and liquid return conduits. The vapor flow conduit can be opened or closed to the flow of vapor, whereas the liquid return conduit blocks vapor flow at all times. When the vapor flow path is open, the device has high thermal conductivity, and when the vapor flow path is blocked the device has low thermal conductivity.

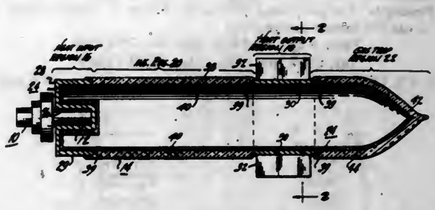
3,543,840
HEAT COUPLED CONTROL SYSTEM
William W. Chambers, Anaheim, California, assignor to Robertshaw Control Company, Richmond, Virginia
Filed Nov. 4, 1968, Ser. No. 772,969
Int. Cl. B60h *1/00*
U.S. Cl. 165—39 **10 Claims**

A control system including a sensing circuit having a sensing thermistor for sensing the environmental temperature and, at specified variances from a target temperature, triggering a rectifier which actuates a temperature change apparatus and initiates current flow through a heat motor. A blower fan is controlled by a circuit formed by a voltage divider circuit including a triggering thermistor disposed in heat exchange relationship with the heat motor. Heating of the triggering thermistor changes the voltage in said divider circuit and, after a selected time, triggers a controlled rectifier which actuates the fan to circulate air through the tem-



perature change apparatus and bring the environment back within a specified temperature range.

3,543,841
HEAT EXCHANGER FOR HIGH VOLTAGE ELECTRONIC DEVICES
George Y. Eastman, Lancaster, Pennsylvania, assignor to RCA Corporation, a corporation of Delaware
Filed Oct. 19, 1967, Ser. No. 676,582
Int. Cl. F28d *15/00*; H01j *7/24*
U.S. Cl. 165—80 **7 Claims**

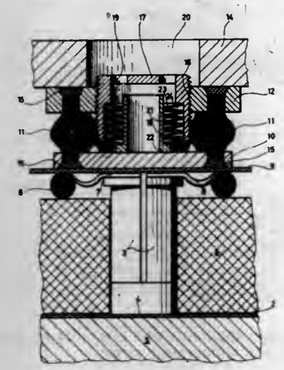


A heat exchanger incorporating a modified heat pipe is used to provide heat transfer and electrical insulation for electrical or electronic devices which dissipate thermal power from electrodes or elements operating at relatively high voltages with respect to an ultimate heat sink. The heat pipe structure includes an insulating region which separates a relatively high voltage heat input region from a relatively low voltage heat output region, and may also include a gas trap region beyond the heat output region to which unwanted gases are driven during heat pipe operation.

3,543,842
DEVICE FOR ELASTIC AND HEAT CONDUCTING CONNECTION OF THERMO-COUPLES
Veit Merges, Munich, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Ottobrunn near Munich, Germany
Filed Oct. 6, 1967, Ser. No. 673,517
Claims priority, application Germany, Oct. 13, 1966, B89339
Int. Cl. F28f *7/00*; H01v *1/30*
U.S. Cl. 165—82 **4 Claims**

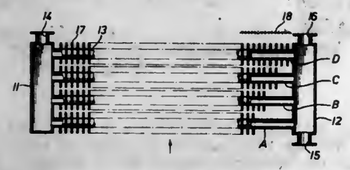
A device for the elastic and heat conducting connection of the cold ends of thermocouples of a thermogenerator with a radiator includes a supporting plate facing the radiator and a pressure plate facing the cold ends of the thermocouples. A plurality of flaccid bodies such as loosely supported multibraided cable sections of twisted silver filaments are connected between the pressure plate and the supporting plate along with an energy accumulator arranged and supported so that the supporting plates and the pressure plate are biased away from each other toward contact with the respective radiator and thermocouple but are movable about at least

two mutually perpendicular axes without disrupting conductive contact. The supporting plate is securely connected to the radiator and is provided with an opening therethrough for receiving an adjustable bearing body which encompasses the



energy accumulator which comprises a plurality of plate springs. The plate springs are disposed around a centrally arranged pressure body which rests on the pressure plate facing the cold side of the thermocouple.

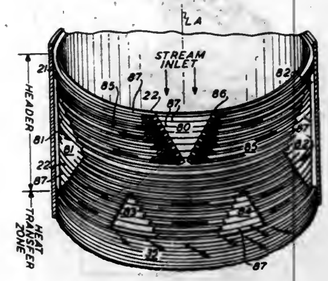
3,543,843
AIR COOLED CONDENSER APPARATUS
Addison Y. Gunter, Houston, Texas, assignor to Hudson Products Corporation, Houston, Texas a corporation of Texas. by mesne assignment
Filed Aug. 20, 1968, Ser. No. 754,048
Int. Cl. F28b *1/06, 7/00;* **F28f** *13/00*
U.S. Cl. 165—111 **8 Claims**



An air cooled condenser in which successive rows of finned tubes of equal length extend between an inlet header and an outlet header and are adapted to be arranged in the direction of air flow therepast. The fins on each tube of the row first to be contacted by the air flow extend from the inlet header for a lesser length thereof than the fins on each tube of a successive row. An air flow regulating means is provided on the side of the condenser adjacent the last succeeding row of tubes and generally opposite the unfinned lengths of the tubes at their ends adjacent the outlet header. In one embodiment, the condenser is a vent condenser having its inlet header connected in series with the outlet header of a main condenser to receive uncondensed vapors therefrom.

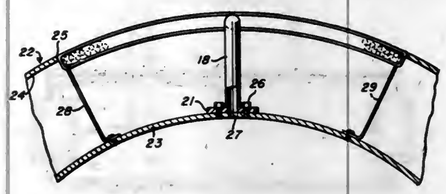
3,543,844
MULTIPLE-PASS HEAT EXCHANGER FOR CRYOGENIC SYSTEMS
Michael Jordan, Bellemead and Bradley S. Kirk, Plainfield, New Jersey, assignors to Air Reduction Company, Incorporated, New York, New York a corporation of New York
Filed May 17, 1968, Ser. No. 730,031
Int. Cl. F28d *7/00*
U.S. Cl. 165—155 **20 Claims**

A plurality of thin-wall metal cylinders are concentrically nested in radially spaced relation to form respectively, annular fluid passages mutually related for heat transfer. The passages connect at their opposite ends respectively, with fluid distributing headers to make up a multiple-pass heat exchanger. The concentric passages are spanned throughout by heat-conducting extensions consisting of coiled metal strip. Each coil turn is essentially rectangular and at opposite ends of the rectangle is integrally joined to the passage walls respectively, for heat transfer between contiguous passages



and for imparting mechanical strength and rigidity to the thin-wall cylinders. The coiled strip is arranged for defining fluid dividing ducts that direct fluid flow through each annular passage along a generally helical path.

3,543,845
HEAT EXCHANGE APPARATUS
Joseph F. Fernandes and Robert R. Pfouts, Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio a corporation of Ohio
Filed Sept. 19, 1968, Ser. No. 760,776
Int. Cl. F28f *3/12*
U.S. Cl. 165—168 **8 Claims**

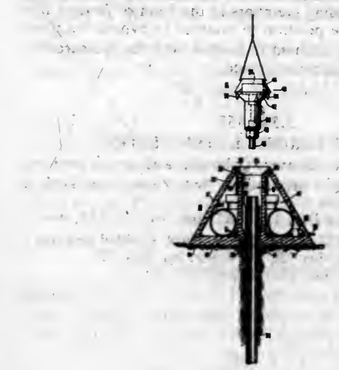


A tubular heat exchanger for use as a surface cooler or the like wherein an array of heat transfer tubes is united into an integral structure and disposed for flow of a ducted fluid over at least one surface thereof, the tube array being useful as a replacement duct section in which it becomes a structural duct component or as a heat exchanger means alone to be disposed intermediately of the duct wall in the path of flowing fluid.

3,543,846
UNDERWATER OIL OR GAS FACILITY
Melvin Wilmer Smith, Edgewater, Maryland and Andre George Brun, Paris, France, assignors to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Nov. 18, 1968, Ser. No. 776,319
Int. Cl. E21b *33/035, 43/00*
U.S. Cl. 166—.5 **12 Claims**

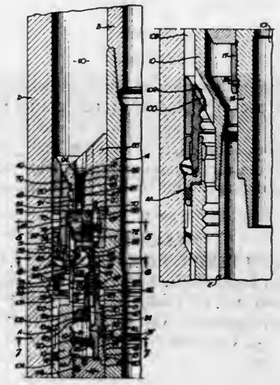
An integrated underwater structure of a generally frustoconical configuration located on the bottom of the sea which serves a plurality of functions with respect to an offshore oil or gas well. When installed on the sea floor, the structure can be utilized not only as a platform for drilling but also as an oil and/or gas production facility, an oil-gas separation facility, and even as an underwater storage facility, or any combination thereof. Furthermore, the structure is

adapted to provide a base for or completely enclose the wellhead and includes means whereby a submerged vehicle can



automatically position and attach itself to the structure in proximity to its apex.

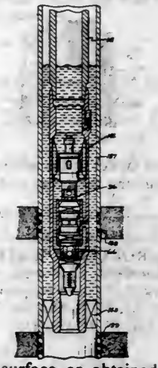
3,543,847
CASING HANGER APPARATUS
John A. Haeber, Ventura, California, assignor to Vetco Offshore Industries, Inc., Ventura, California a corporation of California
Filed Nov. 25, 1968, Ser. No. 778,404
Int. Cl. E21b *33/035, 33/12, 43/10*
U.S. Cl. 166—.6 **38 Claims**



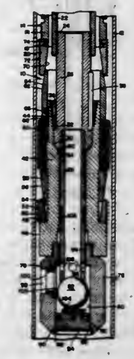
Casing hanger apparatus for running, landing, cementing and packing-off a casing string in an underwater well. A running tool connected to a casing hanger has cylinder and piston members to which fluid pressure is applied to release the running tool from the hanger after the latter is landed in a casing head. A packing assembly is actuated to pack-off the annulus between the hanger and casing head after the casing suspended from the hanger is cemented in place, the pack-off being consummated by forcing dogs outwardly into a tapered groove of the casing head, which also lock the casing hanger in place.

3,543,848
INTERMITTER
Henry U. Garrett, Houston, Texas, assignor to Udell Garrett Inc., Houston, Texas a corporation of Texas
Filed April 28, 1969, Ser. No. 819,608
Int. Cl. E21b *, 33/00;* **E09f** *1/00*
U.S. Cl. 166—53 **7 Claims**

This patent discloses a diverter for use in petroleum wells in which liquids are permitted to accumulate from a well formation and are then lifted to the surface by gas, either introduced from the surface or obtained from the same or another formation penetrated by the well.



3,543,849
CEMENT RETAINER VALVE FOR WELL PACKERS
Marion D. Kilgore, Houston, Texas, assignor to Dresser Industries, Inc., Dallas, Texas a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 766,020
Int. Cl. E21b *23/00, 33/12*
U.S. Cl. 166—128 **8 Claims**

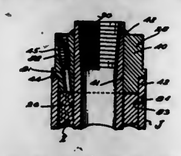


A cementing valve that is used in conjunction with well packers. The cementing valve includes a valve member that functions automatically to prevent the movement of fluid from within the packer into the well bore and to prevent the movement of fluid from the well bore into the packer. The cementing valve also includes an elongated hollow stinger member that extends through the packer for engagement with the valve member. The stinger member when engaged with the valve member, holds the valve member in an open position permitting fluid flow through the valve whereby cementing of the well can be accomplished.

3,543,850
APPARATUS FOR INJECTING STEAM INTO OIL WELLS
George W. Stout, Los Angeles, California, assignor to Walhamlin, Inc., Los Angeles, California a corporation of California
Filed Jan. 27, 1969, Ser. No. 794,320
Int. Cl. E21b *43/24*
U.S. Cl. 166—62 **9 Claims**

The method and apparatus for inducing and maintaining the flow of oil in an oil producing formation into an oil well structure having a cased bore, a string of production tubing in the casing and a pump and sucker rod string in the casing including steam generating means at the top of the well and a string of insulated tubing sections connected with the steam generating means and extending downwardly through the chamber between the casing and the production tubing and opening in the bore in the formation, each tubing section

having an elongate jacket about its exterior, an insulating filler between the section and the jacket, means securing and



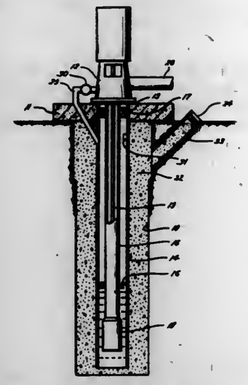
sealing one end of the jacket to the section and axially shiftable sealing means coupling the other end of the jacket to the section.

3,543,851

APPARATUS FOR PRODUCING WATER FROM A WELL

Forest D. Gray, Bakersfield, California, assignor to Tenneco Oil Company, Houston, Texas a corporation of Delaware

Filed Oct. 21, 1968, Ser. No. 769,332
Int. Cl. E21b *43/00*
U.S. Cl. 166—106 **6 Claims**



The apparatus for producing water from a well includes a well casing, and a production pipe supported therein with the pump means connected to the production pipe for pumping water from the well. The invention includes seal means for providing an air seal between the casing pipe and the production pipe whereby oxygen intrusion into the water produced from the well is substantially eliminated.

3,543,852

WELL TOOLS

Donald F. Taylor, Dallas, Texas, assignor to Otis Engineering Corporation, Dallas, Texas a corporation of Delaware

Filed Dec. 16, 1968, Ser. No. 784,162
Int. Cl. E21b *33/16*
U.S. Cl. 166—155 **13 Claims**



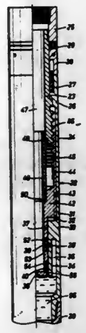
A motor unit, pump-down piston or impeller device for use in fluid pressure operated well systems. The impeller includes a body having a flow course therethrough provided with a flow restricting structure for limiting the application of fluid pressure differentials across the device, and is provided with external resilient sealing members in the form of flexible lips which turn from one position to another to bypass the pressure past the sealing element to further limit the pressure differential across the impeller device.

3,543,853

METHODS FOR DRILL STEM TESTING

Archie Z. Griffin, Jr., Denver, Colorado, assignor to Schlumberger Technology Corporation, New York, New York a corporation of Texas

Original application Dec. 12, 1967, Ser. No. 694,731, now Patent No. 3,482,628, dated Dec. 9, 1969. Divided and this application May 15, 1969, Ser. No. 844,227
Int. Cl. E21b *47/00*
U.S. Cl. 166—264 **1 Claim**



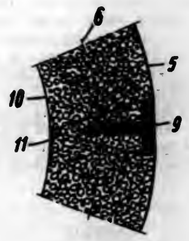
Drill Stem testing apparatus and methods wherein the pressure below the packer is gradually reduced after opening the test valve to prevent the application of shock loads to the tools and the formation, thereby enabling even "dry" tests at great depths in the earth under extremely high pressure conditions without damage to the tools or the formation.

3,543,854

FILTERING PIPE FOR WELL

Wilhelm Degen, Zeppelinallee 89, Frankfurt, Germany

Filed Oct. 15, 1968, Ser. No. 767,672
Claims priority, application Austria, Oct. 17, 1967, A9364/67
Int. Cl. E03b *3/18*; E21b *43/00*
U.S. Cl. 166—228 **4 Claims**



The pipe sections of a well filtering pipe each comprises a water permeable tubular wall of a bonded granular material, and a plurality of elongated supports embedded within the wall and extending uniformly about the axis.

3,543,855

OIL RECOVERY PROCESS

Paul E. Blatz and James O. Erickson, Laramie, Wyoming, assignors to Mobil Oil Corporation, a corporation of New York

Original application Sept. 1, 1966, Ser. No. 576,530, now Patent No. 3,475,515. Divided and this application June 17, 1969, Ser. No. 844,710
Int. Cl. E21b *43/20*, *43/22*
U.S. Cl. 166—274 **5 Claims**

An oil recovery process employing as an injection medium a viscous aqueous solution of a graft copolymer comprising hydrolyzed vinyl methyl ether-maleic anhydride copolymer having grafted thereon polyacrylamide.

3,543,856

METHOD OF ACIDIZING WELLS

John A. Knox; Sherman E. Frederickson and Gene C. Broaddus, Duncan, Oklahoma, assignors to Halliburton Company, Duncan, Oklahoma a corporation of Delaware

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,455
Int. Cl. E21b *33/138*, *43/27*
U.S. Cl. 166—281 **12 Claims**

The present invention relates to a method of treating wells for the removal of drilling mud, water sensitive clays that have been subjected to water contact, or other materials containing silica or silicates to increase the productivity thereof. A well to be treated is preflushed with an aqueous ammonium chloride solution to displace water containing metallic ions such as calcium, sodium and potassium therefrom, and to stabilize the mud or clays so that migration thereof is minimized. An aqueous solution of hydrochloric acid and hydrofluoric acid is then introduced into said well to dissolve said mud, clays and other materials. Ammonium chloride particles in a carrying fluid may be initially introduced as a diverting agent.

3,543,857

PRODUCING WELLS BY INTERNAL HEAT GENERATION TO AVOID PLUGGING

Robert V. Gerner, Bartlesville, Oklahoma, assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Aug. 26, 1968, Ser. No. 755,392
Int. Cl. E21b *43/00*
U.S. Cl. 166—302 **2 Claims**

The temperature of fluid being produced from a well is maintained above the congealment point by introducing into the well at a point at which congealable material is still fluid a reactant for generating heat within said fluid sufficient to maintain said fluid noncongealed until it has been produced from the well. A specific method of producing wells whose production includes elemental sulfur which will congeal in the upper portions of the well comprises introducing a reactive fluid, e.g. oxygen-containing gas into the flow tubing at a depth at which the temperature is still slightly above the melting point of the sulfur. The reactive fluid or oxygen-containing gas which can be air is introduced in a manner and quantity sufficient that it will react with part or all of one or more components of the natural well fluid to release the required quantity of heat to maintain the flowing fluids at a temperature in excess of the melting temperature of sulfur until the molten sulfur has reached the ground surface.

3,543,858

STABILIZATION OF MONTMORILLONITE CLAYS IN AN UNDERGROUND FORMATION

Daryl W. Nooner, Houston, Texas and Jack H. Kolaian, Wappingers Falls, New York, assignors to Texaco Inc., New York, New York a corporation of Delaware

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,406
Int. Cl. E21b *43/22*
U.S. Cl. 166—303 **1 Claim**

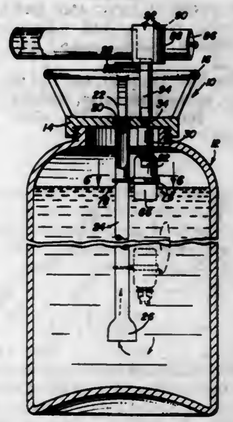
A method of treating subterranean formations containing water-sensitive montmorillonite clays by contacting the formation with an aqueous solution of potassium salt at elevated temperatures whereby the montmorillonite is transformed into other clay minerals which are less sensitive to swelling when contacted with water.

3,543,859

FLUID ACTUATED AUTOMATIC PORTABLE FIRE EXTINGUISHER

Joseph S. De Palma, 109 Carlson Court, Closter, New Jersey

Filed July 23, 1968, Ser. No. 746,978
Int. Cl. A62c *35/02*
U.S. Cl. 169—27 **10 Claims**



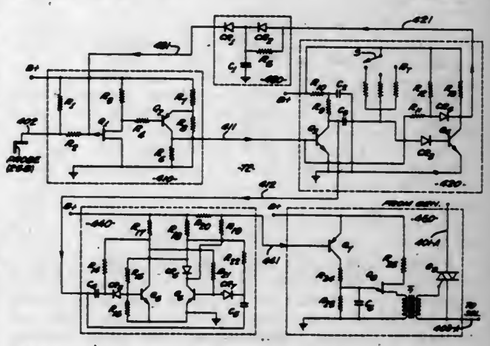
A portable automatic fire extinguisher, such as normally charged with a bicarbonate solution and an acid to be reacted therewith, which includes a heat reactive actuator operatively mounted exteriorly of the extinguisher housing which upon expansion in response to an abnormal temperature rise releases an acid-containing receptacle into the bicarbonate solution by ejecting the acid container from its resilient bindings. The acid and the bicarbonate solution react forming the fire extinguishing fluid which exits through an orifice in the top of the extinguisher to impinge upon a diffuser plate interposed in the path of discharge of the fluid.

3,543,860

ELECTRONICALLY CONTROLLED ROW CROP THINNING MACHINE

Fred Walker Field, Torrance and David Walter Cayton, Whittier, California, assignors to Deere & Company, Moline, Illinois a corporation of Delaware

Filed Dec. 12, 1966, Ser. No. 601,139
Int. Cl. A01b *63/110*
U.S. Cl. 172—6 **3 Claims**



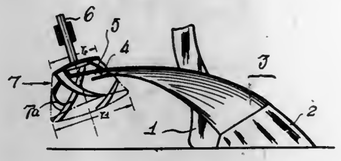
An electronic control circuit including a sensing circuit for comparing an observed value of electrical resistance to a predetermined threshold value and producing an output

signal only when the observed value passes the threshold value; a timing circuit for measuring a predetermined time interval after the production of each such output signal; a feedback circuit for disabling the sensing circuit under control of the timing circuit during the continuance of each such time interval; a triggering flip-flop responsive to each output signal from the sensing circuit for changing its state; and a power switch and solenoid means controlled by the flip-flop for initiating a mechanical operation each time the flip-flop changes its state.

3,543,861
APPARATUS FOR TILLING AND BREAKING SOILS

Shinjiro Takakita, No. 1, 323 Kamihatsu-Cho and Ko Takakita, 3088–40, Sakuragaoka, both of Nabari-shi, Mei-ken, Japan

Filed Nov. 15, 1967, Ser. No. 683,340
Claims priority, application Japan, Nov. 17, 1966, 41/75,602
Int. Cl. A01b 9/00, 15/00
U.S. Cl. 172—66 2 Claims

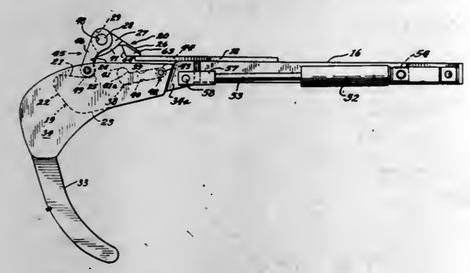


Apparatus for tilling and breaking soils comprises a share blade; a metal bed to maintain said share blade in a fixed attitude; a guide means connected to the share blade; a rotating axle at an inclined angle proximate at an arcuate notch formed at the tail end part of the guide means; and a plurality of spiral blades for cutting the soil tilled by said share and inverted and moving along the guiding surface of the guide means, only at the top surface thereof, the cutting blades being fitted at one end thereof on the lower part of the rotating shaft in a manner such that the other end thereof projects beyond the guide surface to receive and cut the soil inverted by the guide means.

3,543,862
TRIP MECHANISM FOR GROUND WORKING IMPLEMENT

Philip D. Wenzel, Rockford and Gerald L. Gallagher, Loves Park, Illinois, assignors to J. I. Company, a corporation of Wisconsin

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,109
Int. Cl. A01b 61/04
U.S. Cl. 172—264 8 Claims

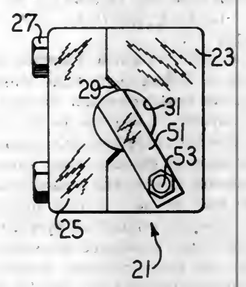


A tillage implement having a plurality of spaced ground working tools, with safety trip means for each tool allowing the tool to move from a normal ground penetrating position to a position elevated thereabove when an obstruction, such as rock or a stump, is encountered. Each ground working tool is mounted for free swinging movement between the ground penetrating position and a fully elevated position above the ground, and the tool is positively guided to and from the ground working position, with the guiding means functioning to allow the ground working tool to initially move out of the ground penetrating position without substantial downward movement into the ground, and with the guiding means also functioning to direct the ground working tool back into the ground at the proper angle of reentry. Hydraulic cylinder means continuously biases each tool toward the ground penetrating position, with the hydraulic cylinder means yieldably resisting movement of the tool away from the ground penetrating position and returning the ground working tool into the ground penetrating position after the obstruction has been cleared.

3,543,863
QUICK DETACH BUCKET MOUNTING

Glenn A. Ball and Eugene L. Helton, Peoria, Illinois, assignors to Caterpillar Tractor Co., Peoria, Illinois a corporation of California

Filed Feb. 14, 1968, Ser. No. 705,488
Int. Cl. A01b 51/02
U.S. Cl. 172—273 4 Claims

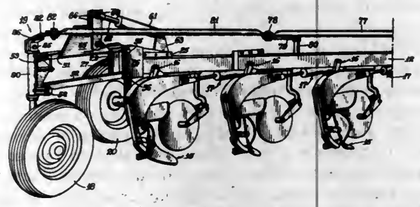


A bucket mounting to facilitate changing from one bucket or implement to another, mounted on an end loader comprising a bearing set mounted in the arm of an end loader and capturing a pin therein. Mounting blocks cooperating with the implement are fastened on the longitudinal ends of the pin.

3,543,864
TAIL WHEEL LIFTING MECHANISM

Philip D. Wenzel, Rockford and Gerald L. Gallagher, Loves Park, Illinois, assignors to J.I. Case Company, a corporation of Wisconsin

Filed Sept. 27, 1968, Ser. No. 763,204
Int. Cl. A01b 69/00, 63/18
U.S. Cl. 172—285 7 Claims

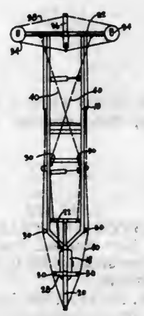


A tillage implement including a frame having hitch means at the forward end thereof for connection to a tractive vehicle, and a tail wheel at the rearward end thereof, which is steered in response to turning movement of the tractive vehicle. During a normal plowing operation, the tail wheel is positioned at a slight lead angle toward the plowed ground to compensate for side draft forces. Hydraulic cylinder means is connected between the implement frame and the tail wheel for lowering the tail wheel to lift the implement frame from the normal plowing position to a transport position. Compensating linkage means connects the tail wheel to the implement frame in a manner such that the tail wheel lead angle is eliminated when the implement is raised to the transport position, so that lateral movement of the plow is eliminated during transportation thereof.

3,543,865
DISC TILLER

Ralph W. Tuttle and Floyd W. Tuttle, Tribune, Kansas

Filed July 18, 1968, Ser. No. 745,882
Int. Cl. A01b 69/00
U.S. Cl. 172—288 4 Claims

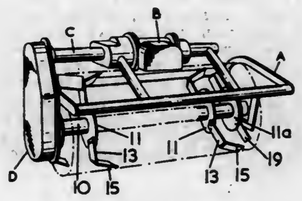


A disc tiller which can be reversed in direction to turn either to the right or to the left through the use of hydraulic and cable controls.

3,543,866
EARTH-WORKING ROTOR FOR A CULTIVATING MACHINE

Arthur Clifford Howard and John Arthur Howard, West Horndon, England, assignors to Rotary Hoes Limited, West Horndon, Essex, England

Filed March 23, 1967, Ser. No. 625,499
Claims priority, application Great Britain, Mar. 31, 1966, 14,206/66
Int. Cl. A01b 21/02
U.S. Cl. 172—548 1 Claim

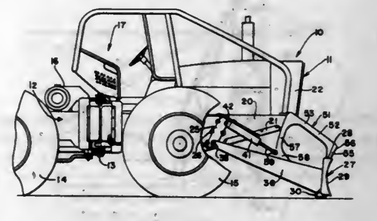


The transverse rotor of a cultivating machine has circumferential rows of L-shaped blades which are all directed towards one end of the rotor and have their lateral limbs divergent so as to cut laterally-declining channels in the subsoil, and to tear the clods cut by one row from those cut by the next succeeding row so as to leave an open texture through which moisture in the clods can drain away.

3,543,867
TRASH EMITTING DEVICE FOR TRACTOR-MOUNTED BLADE

Alfred Sigmund Smemo, Durango and Larry James Glider, Dubuque, assignors to Deere & Company, Moline, Illinois a corporation of Delaware

Filed May 7, 1968, Ser. No. 727,297
Int. Cl. E02f 3/76
U.S. Cl. 172—801 10 Claims

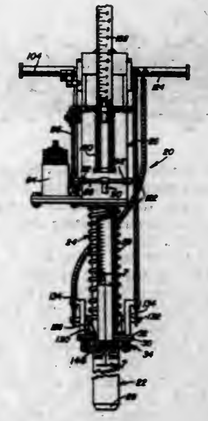


A pair of upright structural elements disposed alongside opposite sides of a tractor and extending from the upper edge of a blade upwardly and rearwardly to close the gap between the upper edge of the blade and the forward end of the tractor.

3,543,868
STAKE DRIVER

Howard W. Drake, 1908 N. Madelyn Ave., Tucson, Arizona

Filed Nov. 19, 1968, Ser. No. 777,044
Int. Cl. B25d 17/00; G01c 15/08
U.S. Cl. 173—21 16 Claims

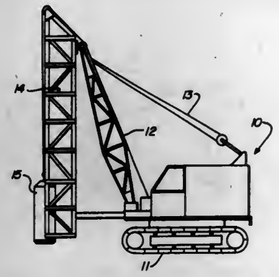


A power driver for grade stakes and the like including a stake receiving hollow lower end portion incorporating a stake centering internal seal and both height indicating means and orientation indicating means respectively associated with a vertically movable reading rod and a plurality of check rods associated with the reading rod. A spring-loaded impact hammer is utilized to supply the driving force, the hammer, through a selective engagement of chain-mounted lugs therewith, being moved against the biasing force of the spring and subsequently released so as to effect the driving force. Impact transferring blocks are provided for selectively transferring the driving force to the lower part of the housing, rather than to just the stake itself.

ERRATUM

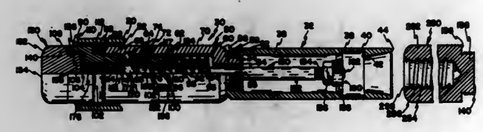
For Class 173—43 see:
Patent No. 3,543,650

3,543,869
PILE DRIVING APPARATUS
Gabriel Fuentes, Jr., 1501 Ashford Ave., Santurce, Puerto Rico 00907
Filed Oct. 9, 1968, Ser. No. 766,109
Int. Cl. E02d 7/06
U.S. Cl. 173—86 5 Claims



A method and apparatus for installing a hammer in the leads of the support frame of the pile driving apparatus which are generally used to support and aline the hammer.

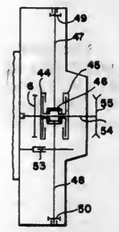
3,543,870
CORE BARREL RETRIEVAL
Lyle J. Martinsen, Murray, Utah, assignor to Boyles Bros. Drilling Company, Salt Lake City, Utah
Filed March 18, 1969, Ser. No. 808,205
Int. Cl. E21b 33/16; F21b 49/00
U.S. Cl. 175—60 15 Claims



Apparatus and method for retrieving a core barrel assembly from its core-receiving position at the leading end of a string of drill pipe, the apparatus comprising an outer locking sleeve and an annular fitting disposed partly within the locking sleeve and featuring an annular seal ring interposed between the sleeve and fitting which (a) forms a fluid seal with the drill string when the annular fitting is advanced within the locking sleeve to foreshorten the overall apparatus and (b) breaks the fluid seal when the annular fitting is extended relative to the locking sleeve. An elongated shaft aids in maintaining the locking sleeve and annular fitting in the foreshortened condition within the drill string, to preserve the fluid seal so that the apparatus is displaced by the pressure of drilling fluid, until the shaft is axially displaced counter to a bias upon impact thereof with overshot latching structure of the core barrel assembly at the leading end of the drill string adjacent the outer tube whereupon the annular fitting is relatively extended from the locking sleeve and the fluid seal is broken to accommodate passage of drilling fluid by the apparatus as the core barrel assembly and apparatus, to which the core barrel assembly has latched are retrieved to the trailing end of the drill string.

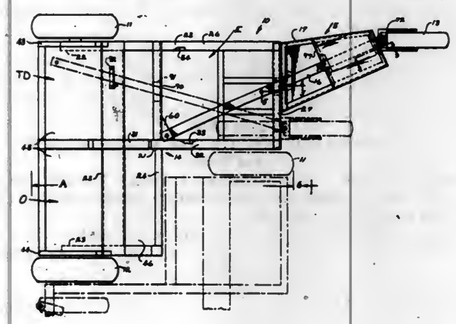
3,543,871
CONTROL MECHANISM FOR TRACKED VEHICLES
Hermann Klaue, 5 Brugierstrasse 775, Constance, Germany
Filed April 4, 1968, Ser. No. 718,869
Claims priority, application Germany, July 3, 1967, K 62,709
Int. Cl. B62d 11/06
U.S. Cl. 180—6.7 3 Claims

A control mechanism for a tracked vehicle such as a bulldozer has a single operating lever for controlling both the speed of the vehicle through the changing of gears and the steering of the vehicle. A longitudinal pivoting movement of the operating lever controls the movement of a gear-change control slide valve through a lever-mounted gear arrangement whereas a transverse pivoting movement of the lever



controls the pressurization of a pair of steering control valves through a pair of oppositely disposed lever-mounted projections.

3,543,872
HEADER SUPPORTING TRACTOR FRAME
Lawrence M. Halls, New Holland, Pennsylvania, assignor to Sperry Rand Corporation, New Holland, Pennsylvania a corporation of Delaware
Filed Feb. 26, 1969, Ser. No. 802,502
Int. Cl. B62d 61/06
U.S. Cl. 180—27 12 Claims

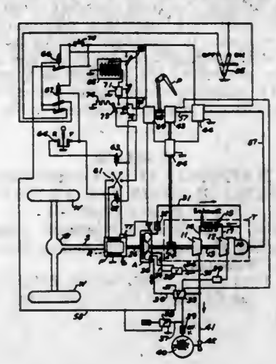


A tractor for carrying and operating a header has a rigid main frame with a longitudinally extending center beam intermediately positioned between two transversely spaced drive wheel side members and with cross and torsion beams rigidly attached to the side members and the center beam. The frame is supported in front by two transversely spaced drive wheels and supported in the rear by a detachable tail wheel assembly with a pivotally mounted tail wheel spaced from the rear of the main frame. The tail wheel assembly is mountable in a compact shipping position with the tail wheel at the rear of the frame.

3,543,873
TURBINE AND ELECTRIC POWERED VEHICLE
William W. Toy, Bloomfield Hills, Michigan, assignor to Lewis G. Harmon, Birmingham, Michigan a part interest
Filed March 19, 1968, Ser. No. 714,268
Int. Cl. B60k 1/04, 17/10
U.S. Cl. 180—65 36 Claims

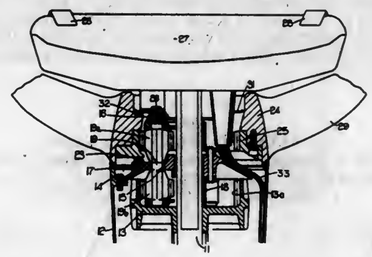
A combined turbine and electric drive for a vehicle which includes a turbine, an aerodynamic torque converter driven by the turbine, and a motor generator connected to a source of electrical energy and having a rotor connected to the

aerodynamic torque converter and the vehicle wheels. The vehicle is driven by the turbine or is driven electrically by the motor generator in the motor mode or simultaneously by



both and includes automatic switching means to disconnect the energy source from the motor generator under certain conditions.

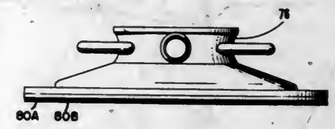
3,543,874
MEANS FOR MOUNTING CONTROLS IN A ROAD VEHICLE
Leslie James Nevett, Whalley, England, assignor to Joseph Lucas Industries Limited, Birmingham, England
Filed June 20, 1968, Ser. No. 738,582
Claims priority, application Great Britain, June 26, 1967, 29338/67
Int. Cl. B62d 1/16
U.S. Cl. 180—78 1 Claim



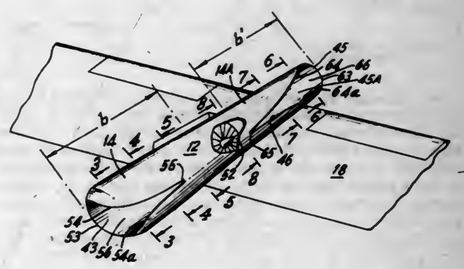
Means for mounting controls in a road vehicle includes a gear train which is engaged at one end with the steering shaft of the road vehicle. A gear supporting assembly is rigidly secured to the body of the road vehicle, and a panel supporting controls of the road vehicle is fixed relative to the support assembly. A steering wheel encircles the panel and is engaged with the other end of said gear train for rotation relative to the support assembly. The steering wheel is coaxial with the steering shaft, and the gear train is such that rotation of the steering wheel in one direction causes rotation of the steering shaft in the same direction.

3,543,875
MONITORING DEVICES
David Littmann, Belmont, Massachusetts, assignor to Minnesota Mining & Manufacturing Company, Maplewood, Minnesota a corporation of Delaware
Filed Aug. 25, 1967, Ser. No. 663,423
Int. Cl. A61b 7/02
U.S. Cl. 181—24 3 Claims

A stethoscope head made entirely of inexpensive plastic adapted for manufacture as a low cost item having a diaphragm permanently sealed at its periphery to the diaphragm of a shell. In a modification the stethoscope head is provided with an arcuately curved diaphragm adapted to conform to the body or arm of a human with tabs extending therefrom for attachment of straps whereby the stethoscope may be either attached by the straps to the body for monitoring or attached to a blood pressure monitoring cuff with provisions being made in the cuff for securing the plastic stethoscope. Clip means for a separate strap attachment to a stethoscope head in place of the tabs are also disclosed.



3,543,876
JET ENGINE SILENCER NOZZLE STRUCTURES WITH TAPERED APERTURES IN OUTER WALLS
John E. Karlson, Nassau County, New York (423 Bedell Terrace, West Hempstead, NY 11552)
Continuation of application Ser. No. 486,392, Sept. 10, 1965, now abandoned. This application Feb. 5, 1968, Ser. No. 703,080
Int. Cl. F01n 1/14, 7/20
U.S. Cl. 181—43 14 Claims

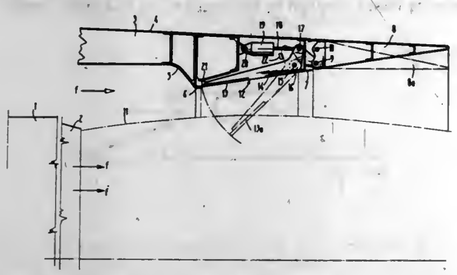


This invention relates to a design for conditioning the flow of fluid passing through a tubular structure, and to a method of controlling the pressure and velocity of fluids and the accelerations thereof. Specifically, the design is a tapered aperture in the wall of the tubular structure through which the flow of fluid is passing. The aperture or slot is substantially longitudinal and has its greatest transverse width dimension at the general opening of the tubular structure. From the region of maximum width it continuously converges to a point of minimum width and closure.

3,543,877
SILENCER DEVICE FOR AN EJECTOR-TYPE JET PROPULSION NOZZLE
Gaston Jean Louis Ranvier, Issy-les-Moulineaux and Gerhard Richter, Dammarie-les-Lys, France, assignors to Societe Nationale D'Etude de Construction de Moteurs d'-Aviation, Paris, France a company of France
Filed July 1, 1968, Ser. No. 741,551
Claims priority, application France, March 27, 1968, July 7, 1967, 145,218;113,650
Int. Cl. F01n 1/14; B64d 33/06
U.S. Cl. 181—51 18 Claims

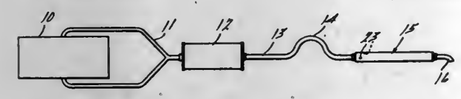
A silencer device, for ejector-type jet propulsion nozzle comprising a primary nozzle and a secondary fairing, said propulsion nozzle having, distributed around the internal periphery of the secondary fairing and downstream of the outlet section of the primary nozzle, a series of baffles such

as strips or vanes each of which can be displaced between an operative position in which its upstream extremity penetrates



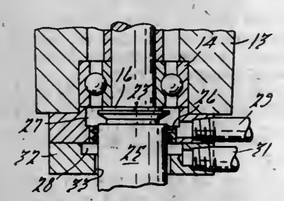
into the primary jet stream in the manner of a scoop, and an inoperative position in which it is retracted into said fairing.

3,543,878
AUTOMOBILE EXHAUST MUFFLER
Francis W. Hamilton, Southfield, Michigan, assignor to Chrysler Corporation, Highland Park, Michigan a corporation of Delaware
Filed Aug. 19, 1969, Ser. No. 851,228
Int. Cl. F01n *1/02, 1/08*
U.S. Cl. 181—59 **3 Claims**



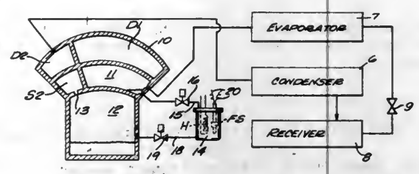
An upstream exhaust pipe section is spaced axially from a coaxial tailpipe section of reduced diameter to provide an annular sound-wave generating or driving gap for a reflective type tuning column defined by an outer housing secured coaxially at its upstream and downstream ends respectively to the upstream section adjacent the gap and to the tailpipe section. The latter is also supported coaxially at its upstream end adjacent the gap by a sliding interference fit with inward projections from the housing that accommodate relative thermal expansion. Exhaust gases discharging axially across the annular gap from the upstream section into the tailpipe section generate in the tuning column a muffling wave of length and amplitude determined respectively by the length and cross-sectional area of the tuning column, the amplitude of the muffling wave being enhanced by the impingement of exhaust gases against the tuning column around the periphery of the reduced tailpipe section.

3,543,879
OIL MIST LUBRICATING SYSTEM
Robert L. Munn, Warren and John J. Mikton, Mount Clemens, Michigan, assignors to The Cross Company, Fraser, Michigan
Filed Oct. 22, 1968, Ser. No. 769,627
Int. Cl. F16n *29/00*
U.S. Cl. 184—6 **9 Claims**



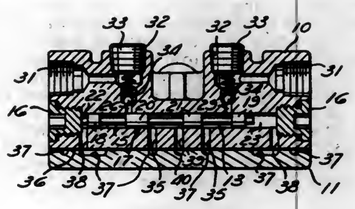
Bearings, gears and other operating parts located within a closed area are lubricated by an oil-mist system which delivers oil-ladened air to the area and from which it is conducted to a filter assembly which separates the oil particles from the air and delivers the air back to atmosphere. To prevent the oil-mist air from escaping from the area, a chamber has air delivered thereto at slightly higher pressure than the oil-mist air. The higher pressure air escapes from the chamber to atmosphere and retains the oil-mist air within the area, thereby preventing the ambient air from being contaminated. The escaping of the higher pressure air prevents the ingress of dirt and other contaminants to the area.

3,543,880
TWO STAGE REFRIGERATION COMPRESSOR HAVING AUTOMATIC OIL DRAIN FOR THE FIRST STAGE SUCTION CHAMBER
James C. Scott, Hales Corners, Wisconsin, assignor to Vilter Manufacturing Corporation, Milwaukee, Wisconsin a corporation of Wisconsin
Filed July 7, 1969, Ser. No. 839,182
Int. Cl. F16n *17/06*; **F25b** *43/02*
U.S. Cl. 184—6 **6 Claims**



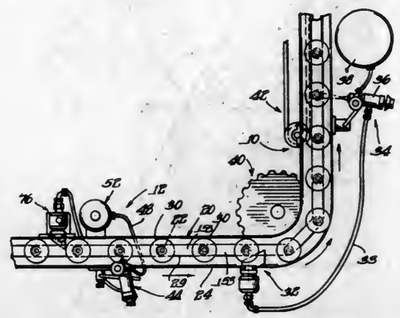
Means for automatically draining the oil from the first stage suction chamber to the crankcase of a two stage refrigeration compressor. The first stage suction chamber is at a lower pressure than the crankcase, but the present draining means nevertheless permits draining of suction chamber oil due to the action of a float switch which in turn actuates a solenoid controlled valve that equalizes pressure between the first stage suction chamber and the oil collecting tank, to permit draining.

3,543,881
FLUID DISTRIBUTOR MEANS
Ronald F. Obergefell, Cleveland, Ohio, assignor to Houdaille Industries, Inc., a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,814
Int. Cl. F16n *25/02*
U.S. Cl. 184—7 **6 Claims**



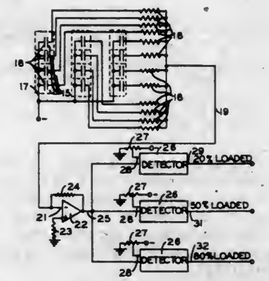
A distributor for a lubrication system that supplies lubricant from a supply source to several stations and proportions the supplied lubricant between the several stations to branch lines that communicate between the distributor and the stations to be lubricated. The distributor includes a single cylinder block having a plurality of valve and plunger members therein. Member-to-member interconnecting passageways are at least in part defined by a manifold block which is fixed to and extends along the member-to-member extent of the cylinder block in face-to-face engagement therewith.

3,543,882
AUTOMATIC LUBRICATING APPARATUS
Jens A. Paasche, Wilmette, Illinois (1909 Diversey Parkway, Chicago, IL 60614), assignor to Continental Illinois National Bank & Trust Company of Chicago, Executor of the estate of said Paasche, deceased
Filed Aug. 19, 1968, Ser. No. 753,464
Int. Cl. F01m *1/08*; **F16n** *7/24*
U.S. Cl. 184—15 **13 Claims**



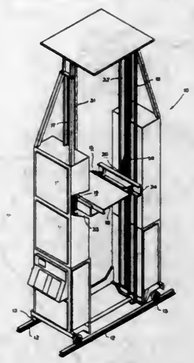
Automatic lubricating apparatus for use with a conveyor system such as an air-coating apparatus, in lubricating moving parts thereof, such as, for example rotating article support spindles and bearings thereof, including a micrometer adjusted air gun mounted adjacent the air coating apparatus and connected to a reservoir of lubricant, and a trigger mechanism mounted adjacent the apparatus in the path of the moving spindles, preceding the automatic lubricating air gun. The trigger mechanism is connected to the air gun and a source of pressurized air. Upon engagement of the trigger mechanism by a first moving spindle, a low-pressure quantity of atomized oil is applied onto a second spindle which has assumed a position adjacent the air gun. Because of the micrometer control of both the consistency of the air and oil quantity, all the oil is utilized in the lubrication of each of the spindles with little, if any, excess permeating the atmosphere thereabout.

3,543,883
FLOOR MAT PASSENGER COUNTER
James H. Kuzara, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio a corporation of Delaware
Filed April 12, 1968, Ser. No. 720,856
Int. Cl. B66b *5/14*
U.S. Cl. 187—29 **7 Claims**



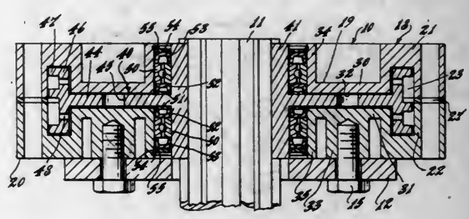
An electrical circuit for ascertaining the number of persons in a given floor area. The circuit is adapted particularly for passenger elevators where discrete pressure sensitive areas of the floor of an elevator cab actuate individual circuit sections to issue signals employed in either digital or analog form to indicate the loading of the elevator cab.

3,543,884
EMERGENCY BRAKING MEANS FOR MATERIAL HANDLING ELEVATOR
William E. Riedner, Battle Creek, Michigan
Filed Aug. 23, 1968, Ser. No. 755,004
Int. Cl. B66b *5/16*
U.S. Cl. 187—87 **18 Claims**



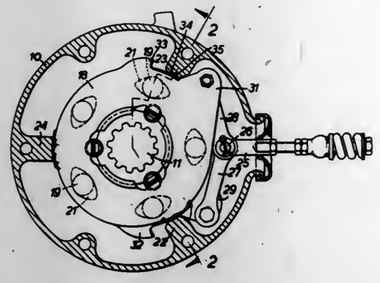
A material handling and stacking vehicle is horizontally movable along a track and has a vertically movable elevator for carrying materials. An emergency braking device within a vertical channel is attached to the elevator and operates to prevent falling of the elevator if a support chain breaks. The braking device has an actuator bar held in place by the tension of the support chain against the force of a biasing spring. If the support chain breaks, the tension decreases and the biasing spring moves the actuator bar against the cam surfaces of two serrated shoes. The actuator bar pushes against the cam surfaces and rotates the serrated shoes to engage the serrations with the side of the vertical channel and thereby support the elevator. A reset pin is positioned to act against the cam extensions on the shoes to return the shoes to normal operating position upon support of the load by the support chain.

3,543,885
FLUID BRAKE DEVICE
Harry G. Ditlow, 564 Carman St., Camden, New Jersey
Filed Dec. 6, 1968, Ser. No. 781,731
Int. Cl. F16d *57/02*
U.S. Cl. 188—90 **5 Claims**



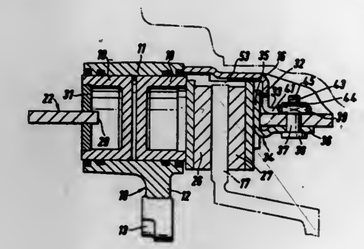
A housing circumposed about a relatively rotating member to be braked, a vaned wheel in the housing and rotatable therein together with the rotary member, and fluid feeding means for introducing fluid into the housing whereupon vane action on the fluid effects braking of the wheel and rotary member.

3,543,886
DISC BRAKES
Roy Campbell, Dudley, England, assignor to Girling Limited, Birmingham, England a British Company
Filed Feb. 6, 1969, Ser. No. 797,001
Claims priority, application Great Britain, Feb. 10, 1968, 6702/68
Int. Cl. F16d *55/04*
U.S. Cl. 188—71.4 6 Claims



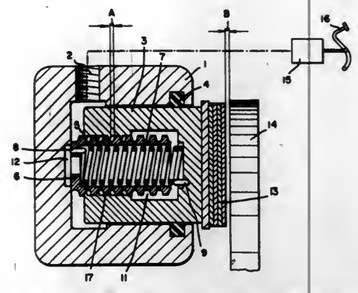
In a disc brake of the kind comprising a stationary housing, axially spaced braking surfaces in the housing, a shaft extending axially within the housing, axially spaced brake discs slidably keyed on said shaft for engagement with said brake surfaces in the housing, cooperating pressure plates located between said brake discs, angularly spaced balls located in a complementary inclined recess in the adjacent faces of said pressure plates, means for moving said pressure plates angularly in opposite directions to initiate the application of the brake, and a plurality of angularly spaced pilot lugs extending radially inwards from said housing for centralizing said pressure plates with respect to the axis of the brake, an insert is mounted for rocking movement in the radially innermost face of at least one pilot lug and is adapted to be engaged by one or both pressure plates in the application of the brake.

3,543,887
CLOSED LOOP TYPE DISC BRAKE AND SUPPORT MEANS THEREFOR
Harold Hodkinson, Warwickshire, England, assignor to Automotive Products Company Limited, Warwickshire, England
Filed Nov. 22, 1968, Ser. No. 778,066
Claims priority, application Great Britain, Dec. 1, 1967, 54699/67
Int. Cl. F16d *65/02*
U.S. Cl. 188—73.4 8 Claims



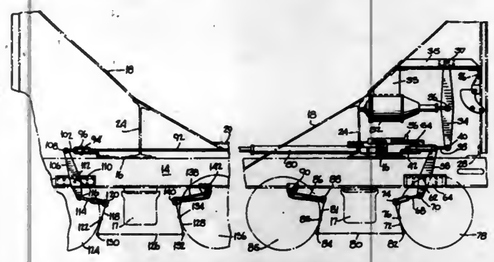
A disc brake in which a fixed supporting structure carrying a brake-actuating means provides support on both sides of the brake disc for a movable member of closed loop construction, the brake-actuation means including opposed operating members one acting directly on a brake pad on one side of the disc, and the other acting through the movable member on a brake pad on the other side of the disc.

3,543,888
SPRING-LOADED BRAKE ADJUSTMENT MECHANISM
Hans Erdmann, Neu Isenburg, Germany, assignor to Alfred Teves GmbH, Frankfurt/Main, Germany a corporation of Germany
Filed Dec. 11, 1968, Ser. No. 782,850
Claims priority, application Germany, Dec. 23, 1967, T35,588
Int. Cl. F16d *65/56*, *55/18*
U.S. Cl. 188—196 10 Claims



A brake adjustment mechanism has a rotatable spindle in the form of a hollow bolt braced against the inside of the cylinder and threaded in the brake piston. A torsion compression spring between this spindle and the piston tends to rotate the spindle thereby adjusting the brake. The threads between the spindle and the piston have a limited degree of axial play (equal to the desired brake play); thus only on actuation of the piston far enough to take up this play and pull the spindle away from the cylinder wall can the spring rotate it and adjust the brake. The spring is axially stressed to urge the spindle against the housing or cylinder wall to limit further rotation.

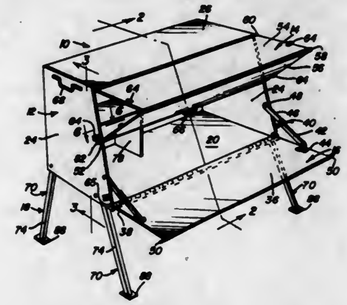
3,543,889
BRAKE REGULATOR INSTALLATION
Charles F. Roselius, Kinnelon and George A. Pelikan, Closter, New Jersey, assignors to Robert M. Holloway, Robert L. Ludington, Michigan City, Indiana by mesne assignment
Continuation-in-part of application Ser. No. 576,336, Aug. 31, 1966, now Patent No. 3,372,799. This application March 4, 1968, Ser. No. 710,038
Int. Cl. F16d *65/52*
U.S. Cl. 188—197 23 Claims



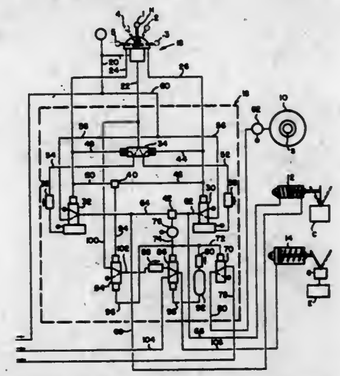
A braking system including a brake cylinder assembly which is mounted on the railway car frame adjacent one end thereof, and a brake regulator disposed adjacent thereto. New and improved lever means are provided for interconnecting the brake regulator and the brake cylinder assembly, and for interconnecting the brake cylinder assembly with the brake beam assemblies.

3,543,890
CAMPER KITCHEN
Donald E. Criswell, Oshkosh, Nebraska 69154
Filed Sept. 5, 1968, Ser. No. 757,672
Int. Cl. A45f *4/00*
U.S. Cl. 190—12 11 Claims

A cabinet unit intended for use by campers which has an interior that incorporates shelf and storage space and a foldable work surface. The legs for the device are retractable into the unit so as not to be lost and to simplify storage.



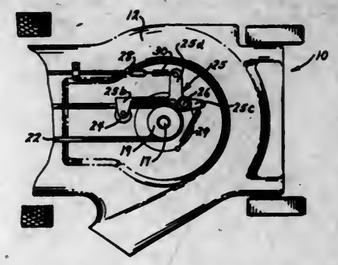
3,543,891
CONTROLS FOR ENGINE, BRAKE AND FORWARD-REVERSE CLUTCHES
Harold M. Mathers, Seattle, Washington, assignor to Mathers Controls Inc., Seattle, Washington a corporation of Washington
Filed May 17, 1968, Ser. No. 730,017
Int. Cl. F16d *67/00*
U.S. Cl. 192—.094 13 Claims



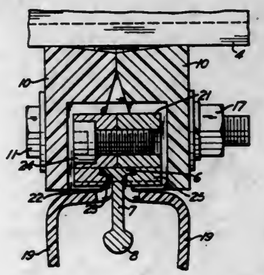
The sequence of clutch, throttle and output shaft brake application in a propulsion system are controlled in a manner such that a "crash reversal" condition imposed on the system will automatically cause the clutch assembly to be disengaged from a directional mode and held in neutral for a neutral delay period of predetermined duration before reengagement in the opposite directional mode, the engine throttle to be held at idle during the neutral delay period, and the output shaft brake applied during the neutral delay period. The preferred control mechanism is pneumatically operated responsive to pneumatic signals transmitted from a single lever master control.

3,543,892
COMBINATION BELT IDLER, CLUTCH AND BRAKE FOR POWER LAWNMOWER
Arnold A. De Baillie, Evansville, Indiana, assignor to Kearney-National Inc., a corporation of Delaware. by mesne assignment
Filed March 11, 1968, Ser. No. 712,244
Int. Cl. F16h *57/10*
U.S. Cl. 192—11 2 Claims

An arrangement for a power rotary lawnmower utilizing a belt to transmit power to the cutting blade characterized by a single mechanical device to serve idler, clutch and brake functions instead of a separate mechanical device for each function.

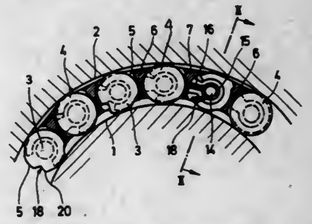


3,543,893
TROLLEY CONDUCTOR TENSION DEVICE
Donald R. Ross and Donald R. Ross, Jr., Pittsburgh, Pennsylvania, assignors to U.S. Electric Manufacturing Company, Pittsburgh, Pennsylvania a partnership
Filed Oct. 16, 1968, Ser. No. 768,127
Int. Cl. B60m *1/24*
U.S. Cl. 191—40 2 Claims



An anchor block is rigidly mounted on one end of a straight length of trolley conductor which is anchored at its opposite end. A supporting hanger is clamped onto the conductor and provided with a central recess containing the block. Means is provided for rigidly connecting the hanger to a fixed support with one end wall of its recess pressed against the adjoining end of the anchor block to hold the conductor under tension.

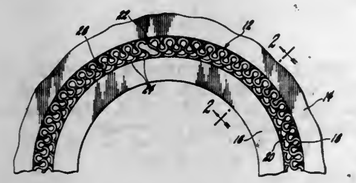
3,543,894
RETAINER RING
Emil E. Giese, Bad Homburg, Vor de hohe, Germany, assignor to Ringspann Albrecht Maurer KG, Bad Homburg, Germany
Filed April 14, 1969, Ser. No. 815,802
Claims priority, application Austria, April 22, 1968, 3906/68
Int. Cl. F16d *41/07*; F16c *33/50*
U.S. Cl. 192—45.1 16 Claims



A retainer ring is assembled from individual links consisting of two oblong flanges arranged opposite to one another

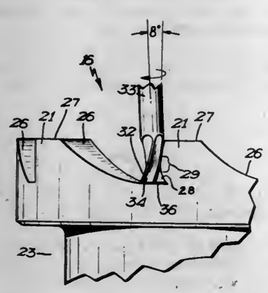
and being combined in the middle section by a bridgelike stud. Each of the two flange portions on one side of the stud are provided with the positive elements of a hinge while each of the two flange portions on the other side of the stud are provided with the negative elements of a hinge matching the positive elements. A clamping member or a bearing member and associated resilient means are arranged between the flanges of each link.

3,543,895
OVERRUNNING DEVICE
Gerard T. Klees, Rochester, Michigan, assignor to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,339
Int. Cl. F16d *41/07*
U.S. Cl. 192—45.1 **6 Claims**



An overrunning device using a one-piece sheet metal sprag assembly is disclosed. The one-piece sprag assembly includes a plurality of circumferentially spaced S-shaped sprag elements interconnected by sinuous resilient annuli on both sides. The resilient annuli space the sprag elements, orient them to their overrunning position, and provide a returning force to the sprag elements from their lockup position to their overrunning position.

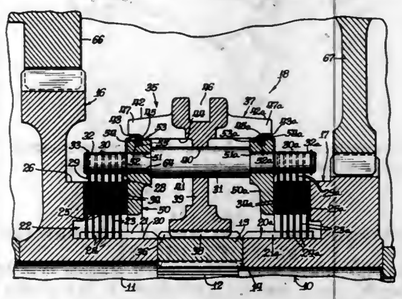
3,543,896
POSITIVE DOG CLUTCH
George Meyer Mooney, St. Paul, Minnesota, assignor to Capitol Gears, Inc., St. Paul, Minnesota a corporation of Minnesota
Filed Jan. 13, 1969, Ser. No. 790,594
Int. Cl. F16d *11/00*
U.S. Cl. 192—46 **12 Claims**



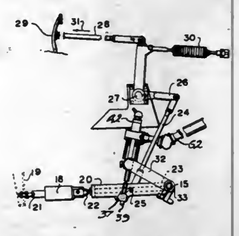
An integral composite gear and clutch assembly having a one-piece gear with clutch teeth. A dog having cooperating teeth drives the gear. The engaging faces of the teeth on the gear and dog have cooperating convex spherical surfaces to centrally locate stress on the teeth.

3,543,897
SYNCHRONIZER ACTIVATOR
James H. Lemke, Sturtevant and Raymond A. Bazen, South Milwaukee, Wisconsin, assignors to J. I. Case Company, a corporation of Wisconsin
Filed March 17, 1969, Ser. No. 807,847
Int. Cl. F16h *3/38*; F16d *23/04*
U.S. Cl. 192—53 **9 Claims**

A synchronizing mechanism for a transmission including a rotatable shaft, first gear coaxial with the shaft and free to rotate relative thereto, and a second gear coaxial with the shaft and fixed to rotate therewith. The synchronizing mechanism initially rotates the first gear at the rotational speed of the second gear, and subsequently establishes a direct driving connection between the gears. The synchronizing mechanism includes a shifting mechanism comprised of an axially movable coupling member and an actuating member that is movable both axially and relative to the coupling member. The actuating member is directly coupled to the second gear, and cooperating cam and cam follower means are provided on the actuating member and coupling member, so that when the actuating member is moved from a rest position to an intermediate position, clutch means associated with the coupling member and first gear are brought into engagement to rotate the first gear at the speed of the shaft. Cooperating means are provided on the first gear and the actuating member, so that upon movement of the actuating member from the intermediate position to an engaged position, a direct driving connection is established between the actuating member and the first gear.



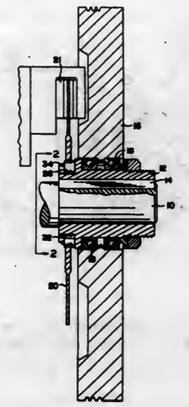
3,543,898
REMOTE CLUTCH ADJUSTMENT DEVICE
Harry Zoltok, Winnipeg, Manitoba, Canada, assignor to Motor Coach Industries Ltd., Winnipeg, Manitoba, Canada
Filed July 1, 1969, Ser. No. 838,260
Int. Cl. F16d *13/75*
U.S. Cl. 192—99 **7 Claims**



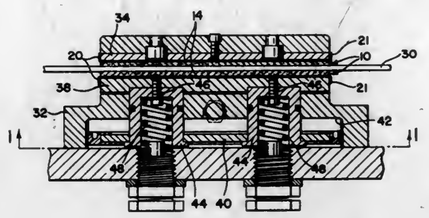
A lever is splined to the clutch operating shaft and is adjustable with relation to a clutch assist lever by means of a left and right handed screw engageable between said lever and rotated from the rear of the vehicle through rods, universal joints, and a worm and pinion gear connected to said screw thus permitting adjustment of the clearance between the clutch thrust race and the operating fingers.

3,543,899
DRIVE ARRANGEMENT FOR CLUTCH OR BRAKE
William H. Colbert and Derald H. Kraft, Canton, Ohio, assignors to Gulf & Western Industrial Products Company, Grand Rapids, Michigan a corporation of Delaware. by mesne assignment
Filed June 26, 1968, Ser. No. 740,254
Int. Cl. F16d *13/68*
U.S. Cl. 192—107 **4 Claims**

A drive connection between a rotatable hub and a disc wherein the hub has circumferentially spaced recesses around the outside periphery and the disc has corresponding recesses around the inside periphery, one set of recesses being of a lesser radial depth than the other. A cylindrical pin is fitted tightly into one set of recesses and loosely fitted into the other, thereby allowing sliding movement of the disc relative to the hub while restraining any relative rotation.



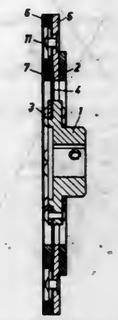
3,543,900
FRICTION PLATES FOR CLUTCHES AND BRAKES
William H. Colbert and Derald H. Kraft, Canton, Ohio, assignors to Gulf & Western Industrial Products Company, Grand Rapids, Michigan a corporation of Delaware. by mesne assignments
Filed June 26, 1968, Ser. No. 740,266
Int. Cl. F16d *13/60*
U.S. Cl. 192—107 **2 Claims**



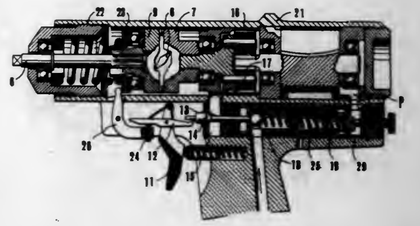
A friction plate assembly formed from a flat sheet with the edges of the sheet being disposed generally transverse to the plane of the sheet. A rigid backing plate is frictionally gripped by the edges of the sheet to retain the sheet assembled to the plate.

3,543,901
ELECTROMAGNETIC FRICTION ARMATURE WITH VIBRATION DAMPER
Karl Lengsfeld, Plankstadt and Willi Konzet, Neckarhausen, Germany, assignors to Frankl & Kirchner, Fabrik Fur Elektromotoren Und Elktrische Apparate, Schwetzingen/Baden, Germany
Filed Sept. 24, 1968, Ser. No. 761,956
Claims priority, application Germany, Sept. 27, 1967, 1,625,715
Int. Cl. F16d *27/04*
U.S. Cl. 192—107 **8 Claims**

Electromagnetic friction coupling or brake where a friction layer is provided on a relatively rigid flat supporting surface 10 or insert 9 and/or the resilient support of the armature ring 5 is provided on the side remote from the friction surface with a damping layer or cover 6 stiffened by a relatively rigid flat cover layer 7 or an insert.



3,543,902
TORQUE TRANSMISSION SYTEM
Shu Tsuji, 21-5 3-Chome, Honda, Ko Kubunji-shi and Hiroshi Tsuji, 1318-8, Shimofuda, Chofu-Shi, Japan
Filed Sept. 17, 1968, Ser. No. 760,279
Claims priority, application Japan, Feb. 13, 1968, June 5, 1968, June 5, 1968, 43-9039;43-38500;43-38501
Int. Cl. F16p *3/00*; F15b *13/04*
U.S. Cl. 192—150 **6 Claims**

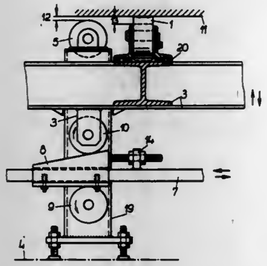


A torque control device is made up of an inlet element to which the torque is supplied, an outlet element which applies the torque, and toggle means operatively interposed between them for discontinuing the application of the torque when a predetermined valve is attained. Through a connecter member the toggle means can regulate the supply of compressed air to a speed control valve for discontinuing the application of input power. The valve is arranged to supply the compressed air in variable amounts to an air motor in relationship to the output torque required.

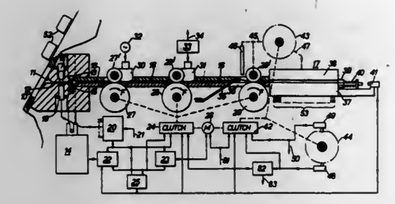
3,543,903
LIFTING AND LOWERING CONVEYING DEVICE
Alois Lodige, Frankfurterweg 13, Paderborn, Germany
Filed Jan. 5, 1968, Ser. No. 696,018
Claims priority, application Germany, Jan. 6, 1967, L55450
Int. Cl. B65g *13/00*
U.S. Cl. 193—36 **4 Claims**

A conveying device for workpieces having two sets of support means and respective roller means thereon. One of the sets of roller means is capable of conveying the workpiece in a direction different from the other set of roller means. A system for relatively raising and lowering the roller means so that one of the sets of roller means engages the workpiece, and the other set is not in engagement. This system includes a wedge which is reciprocated between two further rollers, one fixed, so as to vertically displace the other roller which

is affixed to the support means for one of the roller means. One of the sets of roller means having movable axes of rotation so that the roller path may be changed when that set of roller means is not contacting the workpiece.



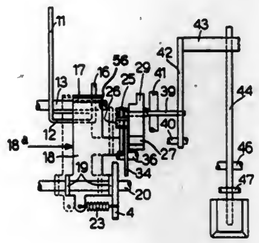
3,543,904
ACCESS-CONTROL EQUIPMENT AND ITEM-DISPENSING SYSTEMS INCLUDING SUCH EQUIPMENT
Geoffrey Ernest Patrick Constable, Cheltenham, England; Graeme E. Cullen, Castel Douglas, Scotland and Richard Swarbrick, Glasgow, Scotland, assignors to Smiths Industries Limited, London, a British Company
Filed March 5, 1968, Ser. No. 710,601
Claims priority, application Great Britain, March 6, 1967, 10537/67
Int. Cl. G07f 1/06
U.S. Cl. 194—4 26 Claims



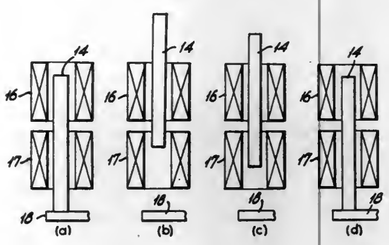
A money-dispensing system dispenses a pack of money in response to a bank customer's punched card and keyed entry of his personal identification number, only if that number equals the numerical result of summation without carry of numbers read from the card. Admission of a card to the equipment is barred unless it has a predetermined hole distribution along a leading edge, and dispenser operation is inhibited unless the entered card satisfies a magnetic authenticity check.

3,543,905
SWITCH CONTROL AND KEYBOARD LOCKING DEVICE FOR AN ELECTRIC TYPEWRITER
Walter Albrile, Turin, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy, a corporation of Italy
Filed Sept. 26, 1968, Ser. No. 762,812
Claims priority, application Italy, Oct. 14, 1967, 53350-A/67
Int. Cl. B41j 23/32
U.S. Cl. 197—12 2 Claims

A cover of a typewriter by its displacement to an open position acts, via a mechanism, normally on a power supply switch to move it to open-circuit condition and/or to hold it there. Said mechanism embodies means which, after the cover has been opened, is then settable to render the power supply switch freely operable between open and closed-circuit positions. A next effected movement of the cover to closed position will render said mechanism again operatively conditioned to act on said switch to move it to open-circuit condition upon the cover being next displaced.



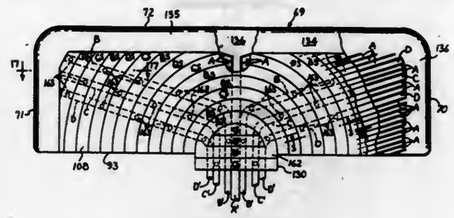
3,543,906
SOLENOID CONTROLLED PRINTING HAMMER MECHANISM
Walter Hladky, Chatham, New Jersey, assignor to Edward J. Buxton, Summit, New Jersey a part interest by mesne assignments; Albert C. Nolte, Jr., Oyster Bay Cove, New York a part interest by mesne assignments and Walter Hladky, Chatham, New Jersey a part interest interests by mesne assignments
Filed Aug. 21, 1967, Ser. No. 662,043
Int. Cl. B41j 9/24
U.S. Cl. 197—49 1 Claim



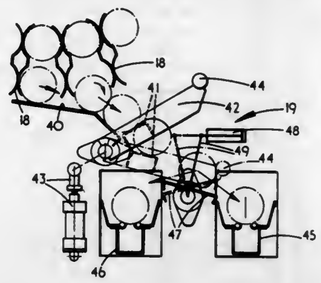
A printing mechanism which forms printing impressions on a print medium by a hammer element in conjunction with constantly moving character type. The mechanism includes two solenoids mounted end-to-end and having alined openings therethrough. The hammer element moves entirely under the influences of magnetic fields generated by the solenoids from electric currents supplied and controlled by electronic circuitry.

3,543,907
EXPANDABLE CELL STATIC CONVEYOR
Stuart D. Pool and Richard R. Steingas, Naperville, Illinois, assignors to International Harvester Company, a corporation of Delaware
Original application March 31, 1965, Ser. No. 444,173, now Patent No. 3,430,425, dated March 4, 1969. Divided and this application Nov. 18, 1968, Ser. No. 785,433
Int. Cl. B65g
U.S. Cl. 198—1 9 Claims

A conveyor in the form of a pad for moving articles deposited thereon, having a series of inflatable and deflatable sinuses and a valved conduit and pump for sequentially inflating and deflating selected sinuses for undulating the surface of the pad for advancing the fruit to a collection and delivery area.



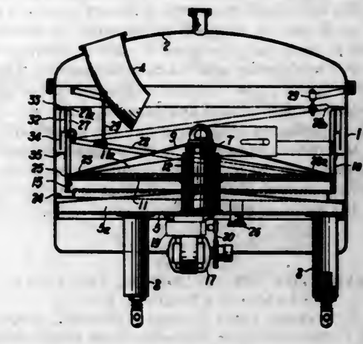
3,543,908
TRANSFER MECHANISM FOR CONTAINER STICKS
Peter Clive Holland, Stamford, England, assignor to Mather & Platt Limited, Manchester, Lancashire, England a British Company
Filed April 25, 1968, Ser. No. 724,003
Int. Cl. B65g 47/32
U.S. Cl. 198—226 3 Claims



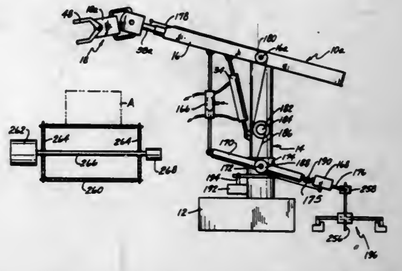
A continuously operating hydrostatic cooker having a mechanism for discharging container sticks from between the carrier beams of a cooker conveying mechanism onto a runway down which the sticks roll into contact with a stop at the runway exit which constitutes a locating means against which each container stick is adapted to abut to correct any misalinements. The stop is movable out of the path of the sticks to allow the sticks to roll onto a platform located between two discharge conveyors and movable to convey consecutive sticks alternately into either of the two conveyors.

3,543,909
MACHINE TO ALIGN BOTTLES SO THAT A FLUID CAN BE POURED THEREIN
Kazuo Ueda, Tokyo, Japan, assignor to Shikoku Kakooki Company Limited, Yakura, Otucho, Naruto, Tokushima, Japan a corporation of Japan
Filed Jan. 15, 1969, Ser. No. 791,314
Claims priority, application Japan, May 4, 1968, 43/29979
Int. Cl. B65g 47/24
U.S. Cl. 198—33 10 Claims

This is a machine to receive empty bottles and to orient and feed these bottles onto a bottle-filling station so that the mouth portion of the bottle is disposed for receiving a liquid. The machine has outer fixed and inner rotating coaxial cylinders. Bottle positions are defined on the outside, towards the upper part of the inner cylinder with a floor and limits. These bottle positions rotate within the outer cylinder. There is a floor on said inner cylinder, and delivery means to drop bottles on this floor; guide means in said inner cylinder to guide the bottles to a location over said positions; engaging and clearing means at said location to engage the bottom of bottles and clear the neck of bottles so as to drop the bottles into the positions bottomside down.



3,543,910
WORK-HEAD AUTOMATIC MOTIONS CONTROLS
George C. Devol, 990 Ridgefield Road, Wilton, Connecticut and Paul S. Martin, 189-54 43 Road, Flushing, New York
Filed July 30, 1968, Ser. No. 748,703
Int. Cl. B65g 47/08
U.S. Cl. 198—34 55 Claims



The disclosed apparatus has a workhead movable in program-controlled three-dimensional paths by an extendable and retractable arm that is movable through angles both in azimuth and elevation. The workhead may be any of various tools. As shown, the workhead has article-gripping jaws. The workhead is also operable about horizontal and vertical axes at the end of the arm. Each motion is produced by a respective drive unit, especially a hydraulic actuator, and has a corresponding control. Inverse angular controls can be used to enforce equal and opposite angular movements of the workhead about its axes corresponding to the angular motions of the arm in elevation and azimuth.

In one form of the apparatus, the control information is supplied directly to the respective polar coordinate controls, in polar form. In another form of the apparatus, the control information is supplied in rectangular coordinates and controls the operation of a manipulating unit having respective parts movable in mutually perpendicular directions, and the manipulating unit operates a lever that is movable in elevation and azimuth and operable lengthwise by elongation and contraction, and in turn, the lever acts as a converter or as part of a converter in operating the polar coordinate controls of the workhead operating apparatus.

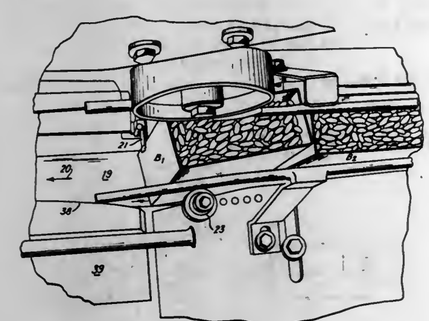
There is a linear-motion control in both forms of apparatus additional to the controls already mentioned for producing a

control effect to cause straight-line motion of the workhead in a direction that involves lengthwise and angular motion of the arm that carries the workhead. Information can be supplied to this linear-motion control in increments, as in pallet loading; or it can be supplied continuously to enable the workhead to carry out a program of control information in relation to a work space on a continuous conveyor. There is a converter in the polar coordinate apparatus that responds to the linear-motion control and provides polar coordinate output for introducing offset input into the polar coordinate controls that otherwise respond to the polar coordinate control information. In the rectangular coordinate apparatus, the linear-motion control introduces an offset in the manipulating unit that responds otherwise to its input control information.

3,543,911
DEVICE FOR THE SEPARATING AND TIMED RELEASING OF FOLDING BOXES

Thomas B. Brickson, Santa Barbara, California, assignor to Kliklok Corporation, New York, New York a corporation of Delaware

Filed Oct. 29, 1968, Ser. No. 771,441
Int. Cl. B65g *47/26*
U.S. Cl. 198—34 **3 Claims**



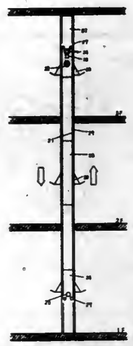
Boxes and similar-shaped articles arriving on a transport track in end-to-end contact propelled by a continuously operating friction-type transport device are positively separated from one another and released at timed intervals by a lateral flag stop which is first projected into the path of the boxes, thereby arresting the foremost box by engagement with its front wall. The flag stop is then withdrawn to release the box and is immediately reprojected to hit the box at its side, causing it to pivot before the box has moved a distance equal to half of its length. The pivoted box is carried by the transport device around the projected flag stop which then arrests the next box, whereafter the procedure is repeated.

3,543,912
MAGNETIC CONVEYOR SYSTEM

Masami Miya and Koichi Fukuda, Tokyo, Japan, assignors to Nepon Kabushiki Kaisha

Filed Nov. 30, 1967, Ser. No. 686,880
Claims priority, application Japan, May 26, 1967, July 6, 1967, 42/33106;42/43925;42/57813;42/57814
Int. Cl. B65g *17/46, 43/08, 47/48*
U.S. Cl. 198—38 **9 Claims**

A conveyor system for conveying light objects, such as documents, upwardly and downwardly between different levels, comprising a belt of a nonmagnetic material, a support frame with a magnetically permeable slide face for the belt, a drive means, and a separate carrier box with a magnet, the latter being carried along with the belt by virtue of the magnetic attraction between the magnet and the slide face. Particular destinations are preselected by repulsion magnets on the support frame and by a detachable destination selecting

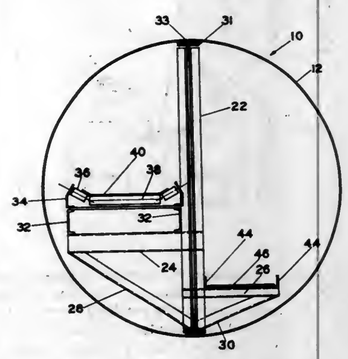


magnet on the carrier box. Several belts may operate in tandem.

3,543,913
STRUCTURAL SUPPORT ELEMENT FOR CONVEYING APPARATUS

Talat D. Itil, 2527 Rosedale, Toledo, Ohio 43606

Filed Dec. 21, 1967, Ser. No. 692,550
Int. Cl. B65g *15/60, 19/14*
U.S. Cl. 198—129 **4 Claims**



This invention relates to structural element for conveying work and, more particularly, to the means for providing support to a conveying apparatus that moves work from one location to another. The element of this invention comprises a corrugated tube having a truss member received therein. The truss member is disposed at a generally vertical position and extends substantially the length of the corrugated tube. At each end of the tube a structural ring is secured thereto and support members, such as legs, are secured to the ring members. This combination of corrugated tube, truss member and end rings provides a structural support element having high axial, radial, and torsional strength.

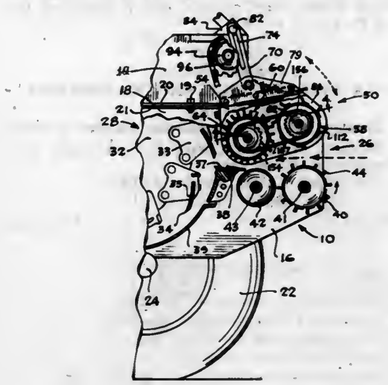
3,543,914
FEED ROLLS

Carmetn S. Phillips, Downers Grove, Illinois; James Corwith, Jr., Bettendorf, Iowa and Wilbur H. Clendenin, Ava, Illinois, assignors to International Harvester, Chicago, Ill., a corporation of Delaware

Filed Nov. 13, 1968, Ser. No. 775,400
Int. Cl. B65g *15/00*
U.S. Cl. 198—167 **10 Claims**

A feed assembly for a harvester having an enclosed drive train for differentially rotatable front and rear rollers, each having disposed thereon a plurality of peripheral serrate slats.

Each of the rollers have a different number of slats wherein the teeth on the respective rollers interdigitate when their slats are alined in edge to edge relationship to function in combing relation to eliminate crop wrappings, and the teeth

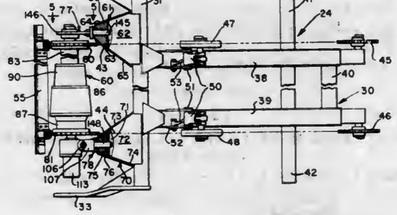


on successive slats on the rear roller being staggered relative to the teeth on the slats on the front roller so that the teeth on the rear roller work through laterally offset portions of a space between two corresponding teeth on the front roller.

3,543,915
ELEVATOR FOR SCRAPER

Ronald Paul Grossklaus, Moline, Illinois, assignor to Deere & Company, Moline, Illinois a corporation of Delaware

Filed Aug. 21, 1968, Ser. No. 754,199
Int. Cl. B65g *15/30, 23/00*
U.S. Cl. 198—203 **21 Claims**



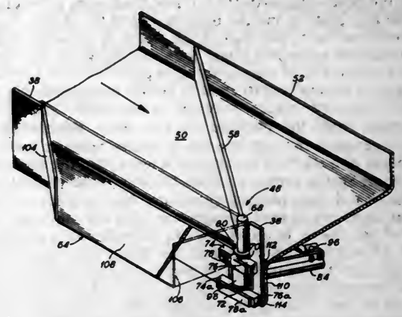
A mounting arrangement for the drive sprocket structure on the upper end of an elevator frame in which the sprockets drive a pair of transversely spaced chains interconnected by rigid flights. The elevator frame has a pair of transversely spaced upwardly opening sockets that receive downwardly extending pins of transversely spaced sprocket supports, one sprocket support is connected to the end of the drive sprocket structure by means of pivots and the other support is connected to its respective end by a relatively loose connection so that the entire drive sprocket structure may self-position itself to prevent stresses being set up in the structure.

3,543,916
FLOW DIVERTING SHAKER CONVEYOR TROUGH

Edward J. Berk, Chicago, Illinois, assignor to Westinghouse Air Brake Company, Pittsburgh, Pennsylvania a corporation of Pennsylvania

Filed Sept. 13, 1968, Ser. No. 759,688
Int. Cl. B65g *27/04*
U.S. Cl. 198—220 **3 Claims**

A shaker conveyor trough with a diverting gate for selectively diverting conveyed material through an opening in the trough wall when the gate is in diverting position. Gate blocks flow through the opening in an alternate. closed position.

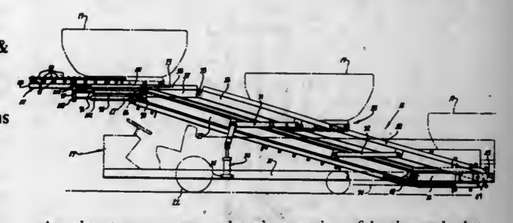


Power means such as a cylinder and piston may be used to move the gate between operative positions.

3,543,917
INCLINED ELEVATOR CONVEYOR

Arnold Duerksen, Salinas, California, assignor to Cochran Western Corpration, Salinas, California a corporation of California. by mesne assignment

Filed June 6, 1968, Ser. No. 735,084
Int. Cl. B66b *9/12;* **B65g** *17/06, 17/34*
U.S. Cl. 198—233 **9 Claims**

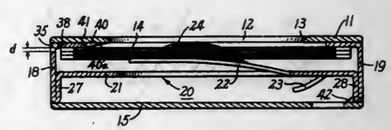


An elevator conveyor wherein a series of horizontal platforms, articulated in sections, travel an inclined, reversible cyclic path. The leading and trailing ends of the platforms include positive stops. The leading stops move out of the way of cargo on the platform while the trailing stops continue to follow the cargo as it is discharged onto a cargo handling receiving table. The direction of cargo movement is varied by variously directing the table.

3,543,918
DISPENSING PACKAGE CONTAINER FOR NEW AND USED RAZOR BLADES

Neil S. Waterman, Stamford, Connecticut and Philip H. Borden, Fort Wayne, Indiana, assignors to Perma-Sharp Manufacturing Corp., New York, New York a corporation of New York

Filed Feb. 17, 1969, Ser. No. 799,591
Int. Cl. B65d *83/10;* **A45c** *11/18;* **B65h** *1/00*
U.S. Cl. 206—16 **6 Claims**



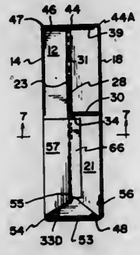
A two piece package for containing both new and used razor blades is formed of an outer plastic sleeve enclosing a stamped sheet metal blade tray having folded end portions which substantially close the open sleeve ends when the tray is slidably inserted into the sleeve. Detents on an inner surface of the sleeve lock the slidable tray into the assembly to complete a two-compartment enclosure; a first compartment

being for new blades is formed between a centrally disposed plateau portion of the tray and the top wall of the sleeve while the other compartment for used blades lies between the central tray plateau and the bottom wall of the sleeve. In one embodiment the upper wall of the sleeve is provided with a longitudinally extending finger access opening and the upper corner of one end of the metal tray is provided with a pierced exit slot of dimension sufficient to permit passage of only one blade, whereby blades may be individually and singly dispensed from the package by the user's application of thumb pressure through the finger access opening onto the top blade of a stack of blades contained within the first compartment. Spring pressure means formed in the central area of the metal tray plateau constantly bias a stack of new blades upwardly toward engagement with the inner top surface of the sleeve. In an alternative embodiment a staggered stack of razor blades is held in the metal tray, against the spring bias of the central spring means, by the clamping force of downwardly bent opposite folded tray ends, while the top surface of the enclosing sleeve is provided with a narrow longitudinal slot extending substantially throughout the length of the assembled package, and exit slots are formed at both ends of the package in the molded plastic sleeve top.

3,543,919
DISPLAY PACKAGING STRUCTURE

Philip W. Lewis and Lawrence V. Brom, Greensboro, North Carolina, assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed Dec. 16, 1968, Ser. No. 783,799
Int. Cl. B65d *5/50, 25/54*
U.S. Cl. 206—45.14 **5 Claims**

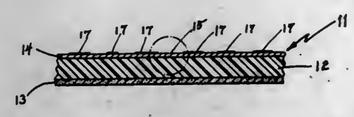


A display package formed from a unitary paperboard blank and having an intermediate panel disposed between the front and rear panels, the intermediate panel being folded diagonally on itself to stiffen the same, and the front panel being slitted longitudinally thereof to provide a pair of shadow panels flanking an object positioned in an opening in the intermediate panel.

3,543,920
PRINTABLE ADHESIVE PRODUCT

Guy J. Crocker, North Brunswick and Frank Puskadi, Edison, New Jersey, assignors to Johnson & Johnson, a corporation of New Jersey

Filed Aug. 31, 1967, Ser. No. 664,773
Int. Cl. C09j *7/02*
U.S. Cl. 206—59 **7 Claims**

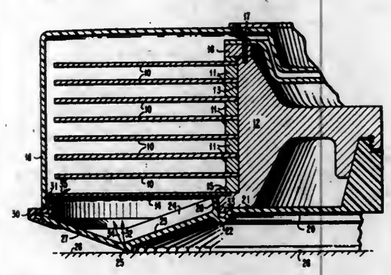


A normally tacky and pressure-sensitive adhesive tape which is coated with a release composition to provide easy release from the roll on which it is wound, and yet possesses good printability on the surface of the release coating, itself. The release coating composition comprises a particular type of film former and release agent combination wherein the release agent enters into a stable phase relationship with a film former adjacent the outer surface of the release coat wherein both the release agent and the film former are effectively distributed at said surface in a substantially uniform and macroscopically continuous manner. The resulting release coating then may be printed with inks normally suitable for printing on the film former, per se, even though the presence of the release agent provides easy release from the roll on which the tape is wound.

3,543,921
CONTAINER WITH EXTERNAL SHOCK ABSORBING STRUCTURE

Terrag W. Bradley, Los Gatos, California, assignor to International Business Machines Corporation, Armonk, New York a corporation of New York

Filed April 3, 1969, Ser. No. 813,025
Int. Cl. B65d *25/001, 85/30*
U.S. Cl. 206—62 **13 Claims**

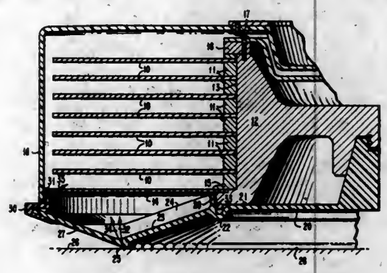


A container with a resilient, annular protrusion at the base of the container which extends both downwardly and outwardly from a circular center portion. An object, such as a disk pack, is mounted on the center portion. The annular protrusion is attached to the center portion by a flexure and includes an annular bearing portion for bearing approximately radially inward against the hub of the disk pack. Impact energy from either the bottom or side of the container causes the flexure to give, allowing the bearing portion to contact the hub, causing a compression and resultant deformation of the protrusion therebetween, the deformation absorbing at least a portion of the impact energy.

3,543,922
CONTAINER WITH EXTERNAL SHOCK ABSORBING STRUCTURE

Richard J. Charlton, Los Gatos, California, assignor to International Business Machines Corporation, Armonk, New York a corporation of New York

Filed April 3, 1969, Ser. No. 813,196
Int. Cl. B65d *25/00, 85/30*
U.S. Cl. 206—62 **9 Claims**

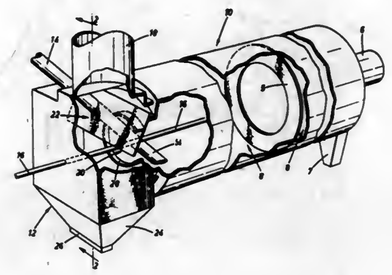


A container with a resilient, annular protrusion around the base of the container which extends both outwardly and downwardly therefrom to absorb impact energy from either the bottom or side of the container.

3,543,923
DRUM GRANULATION

Gordon C. Hildred, Calgary, Alberta and John T. Higgins, Trail, British Columbia, Canada, assignors to Cominco Ltd., Montreal, Quebec, Canada a corporation of Canada

Original application Aug. 19, 1965, Ser. No. 481,053, now abandoned. Divided and this application Jan. 22, 1969, Ser. No. 816,852
Int. Cl. B07b *7/086*
U.S. Cl. 209—11 **3 Claims**

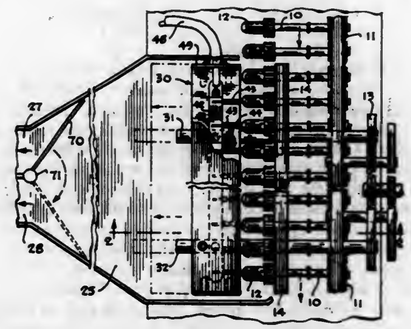


This disclosure provides a method for separation and recovery of entrained solids from cooling air exhausting from a rotating drum in which moving gases employed for the cooling of granules are reduced in velocity and deflected downwardly into a slowly rising column of gas in a separation zone and the velocity of the rising gas is controlled for classification and primary separation and recovery of solids carried by the cooling gas.

3,543,924
TESTING APPARATUS

George R. Ryan, 1431 Henry Place, Waukegan, Illinois and Robert A. Sullivan, Arlington, Virginia

Filed April 2, 1968, Ser. No. 718,169
Int. Cl. B07c *5/344*
U.S. Cl. 209—74 **17 Claims**

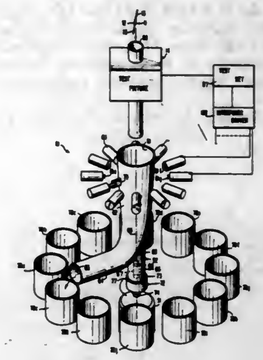


A high voltage apparatus which tests plastic parts molded on a mold core pin to detect perforations or cracks therein and which is integrally associated with the molding apparatus.

3,543,925
ARTICLE SORTING DEVICE

George B. Loughery 3rd, Laureldale, Pennsylvania, assignor to Western Electric Company Incorporated, New York, New York a corporation of New York

Filed July 16, 1968, Ser. No. 745,312
Int. Cl. B07c *3/02*
U.S. Cl. 209—74 **7 Claims**

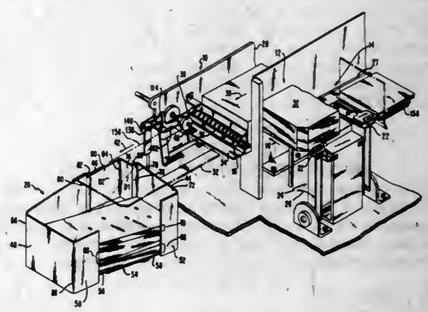


A distributor chute is moved rotatably about a vertical axis by a continuously energized drive mechanism and has an upper opening for receiving articles from a test fixture and a lower opening which is alined with one of a plurality of sorting bins arrayed peripherally about the circular path of motion of the lower end of the distributor. One of a plurality of interposers, radially disposed about the vertical axis, is actuated by a signal in accordance with the test characteristics of each article to engage a stop on the chute and interrupt the impartation of rotary movement from the drive mechanism to the chute to aline the chute with a selected bin.

3,543,926
CARD READER EMPLOYING STACKER WITH OFFSET MEMORY

Elwood C. Campbell, Endicott, New York, assignor to International Business Machines Corporation, Armonk, New York a corporation of New York

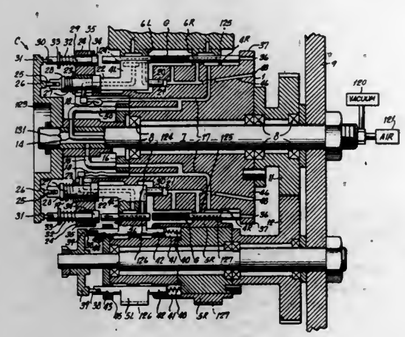
Filed Dec. 11, 1968, Ser. No. 782,946
Int. Cl. B07c *3/02*
U.S. Cl. 209—74 **11 Claims**



In a card reader discharging cards into a stationary stacker positioned below and in the path of card movement, the card stacker having a stepped end wall at its entry end and acting in conjunction with converging sidewall to form two card receiving compartments having angularly offset longitudinal axes with one of the compartments being in line with a normal card path and the other in line with a deflected card

path. The card reader is provided with means for selectively deflecting the trailing edge of a card as it leaves the positive feed means during card discharge. The stepped wall retains the accumulated cards in selected alined or laterally offset positions within the card stacker. The card stacker may be sectional and longitudinally adjustable for use with cards of differing length.

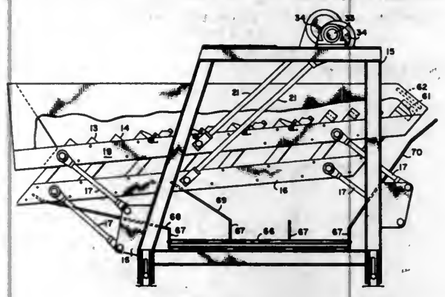
3,543,927
APPARATUS FOR TESTING CIGARETTES
Jesse Randolph Pinkham; Leslie Elmer Payne; David Hill Michal and Colin Shaw McArthur, Winston-Salem, North Carolina, assignors to R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina a corporation of New Jersey
Filed Dec. 4, 1968, Ser. No. 781,113
Int. Cl. B07c *3/10*
U.S. Cl. 209—75 **25 Claims**



An apparatus and method for inspecting filter-tipped cigarettes either singly or in groups, comprising the application of pull, leak, and loose end tests while maintaining a high speed line. A rotating inspecting drum has cigarette-holding members on its surface, certain or all of which are provided with means for performing a pull test, i.e., testing the cigarette in tension to check the soundness of the connection between the filter and the tobacco rod, and means for administering a leak test shortly thereafter. In the pull testing operation, the cigarette-holding members cooperate with grippers on a separate drum in applying a tensile stress on the cigarettes at opposite sides of the tip joints, rather than at the ends, and leak test couplings are provided on the inspection drum which subsequently couples the cigarette ends to a source of air at a pressure different from the ambient pressure, to test for leaks and separated joints. By using various feed drum and test drum combinations for testing alternate cigarettes in the line, the cigarettes are tested individually rather than in double units while the high speed of the line is maintained.

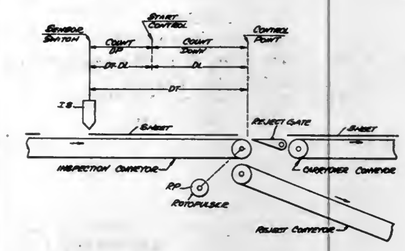
3,543,928
SHUFFLE FEED SIZING MECHANISM
Chester Green, San Jose, Calif., assignor of fifty percent to Genevieve I. Hanscom (formerly Genevieve I. Magnuson), Saratoga, Calif., and fifty percent to Genevieve I. Hanscom, Robert Magnuson, Lois J. Thomsom (formerly Lois I. Duggan), trustees of the estate of Roy M. Magnuson
Int. Cl. B07b *13/04*
U.S. Cl. 209—73 **11 Claims**

A shuffle feed sizing structure wherein articles are progressed from valley to valley over a shuffle feed mechanism and as they progress the article advancing face of the shuffle feed member provides a sizing opening of a given width so that the articles small enough to fall through the opening are discharged downwardly beneath the shuffle feed at this point. Various widths of sizing openings are provided along the length of the shuffle feed as required and the largest articles are discharged over the end. Adjacent each of the sizing openings is a rotatable roller serving to roll the articles as they are advanced so that the smallest diameter of an article will determine its passing through the sizing opening.



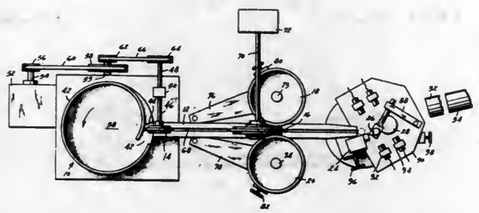
Means are also provided for ejecting articles from the sizing opening if they tend to become wedged or if they remain in front of the sizing opening but are too large to pass through the opening.

3,543,929
LEAD DISTANCE COMPENSATION AND MAGNET SEQUENCING CONTROL SYSTEM FOR ARTICLE CONVEYORS
Donald J. Mattia, Germantown, Wisconsin and Richard D. Wallis, South St. Paul, Minnesota, assignors to Cutler-Hammer Inc., Milwaukee, Wisconsin a corporation of Delaware
Filed Jan. 6, 1969, Ser. No. 789,320
Int. Cl. B07c *5/36*
U.S. Cl. 209—74 **11 Claims**



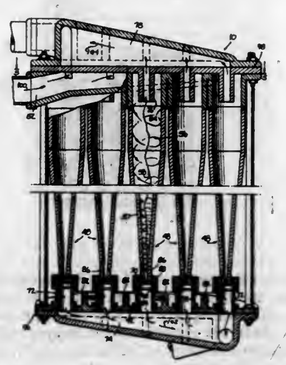
A lead distance compensator that sets the time, relative to conveyor travel, at which an operation is initiated to allow for the operating time delay of the apparatus and automatically adjusts this time when the conveyor speed varies or is changed. The total distance from the article detector to the operation point (reject gate opening or magnet deenergization) includes the lead distance and the compute time, that is, the time it takes to compute the lead distance in terms of distance of conveyor travel. To provide for maximum lead distance variation, the compute time is scaled for very fast operation, thereby allowing greater variation in the lead distance within a given fixed time period. When used for reject gate operation, the system effects opening of the gate just ahead of the leading edge of a sheet and reclosing of the gate just ahead of the leading edge of the next sheet of closely spaced sheets. When used for magnet control, the system effects deenergization of magnets to drop metal sheets trailing end first onto a pile or in overlapping arrangement. Additionally, in the latter case, pulse frequency division apparatus provides for reenergization of the magnets in sequence just ahead of the leading edge of the next sheet.

3,543,930
METAL OBJECT SEPARATION SYSTEM
Wilfred Richard Delbridge; Olva A. Wienola and Robert K. Young, York, Pennsylvania, assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed Aug. 19, 1968, Ser. No. 753,621
Int. Cl. B07c *5/34*
U.S. Cl. 209—111.9 **4 Claims**



The invention comprises means for projecting a metal object against an anvil, means for detecting the dominant frequency of vibration caused thereby, an electromagnetic coil, and means for activating the electromagnetic coil in response to the detection of a predetermined frequency.

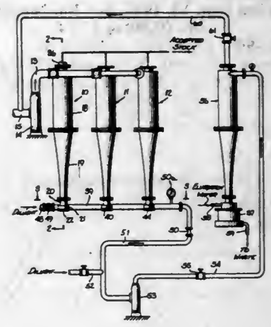
3,543,931
MULTIPLE CYCLONE ASSEMBLY
Edward L. Rastatter, New York, New York, assignor to Nichols Engineering & Research Corporation, New York, New York a corporation of Delaware
Filed Feb. 29, 1968, Ser. No. 709,298
Int. Cl. B04c *5/28*
U.S. Cl. 209—211 **16 Claims**



A multiple cyclone assembly for separating material suspended in a fluid suspension including a plurality of modules which are independently connected to a common header system, and each module including a manifold system connected to the common header system and a plurality of conical cyclones connected to the manifold system, respectively.

3,543,932
VORTEX CHAMBER REJECT CONTROL
Edward L. Rastatter, New York, New York, assignor to Nichols Engineering & Research Corporation, New York, New York a corporation of Delaware
Filed Dec. 29, 1967, Ser. No. 694,712
Int. Cl. B04c *5/28*
U.S. Cl. 209—211 **3 Claims**

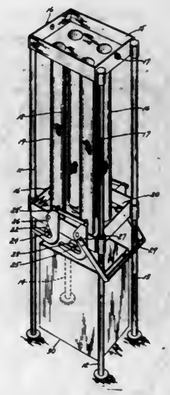
Reject outlets from one or more vortex type separating chambers are connected to a common manifold through generally unrestricted conduits. Controlled pressure in the common manifold regulates the liquid reject rate from the vortex chambers. Pressure may be, and preferably is, maintained and controlled by the addition of dilution water to the upstream end of the manifold. A single large orifice which may be adjustable is located at the downstream end of this manifold.



ERRATA

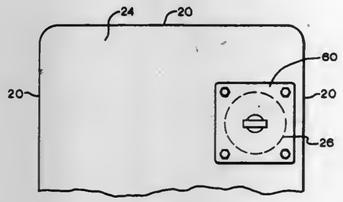
For Class 210—65 see:
Patent Nos. 3,544,457 and 3,544,458

3,543,933
PROCESS AND APPARATUS FOR SEPARATING LIQUIDS AND SOLIDS
Peter Karter, York, Pennsylvania, assignor to American Machine & Foundry Co., a corporation of New Jersey
Filed March 15, 1968, Ser. No. 713,537
Claims priority, application Great Britain, Oct. 20, 1967, 47845/67;47846/67;4784767;47848/67
Int. Cl. B01d *21/04, 23/06*
U.S. Cl. 210—83 **4 Claims**



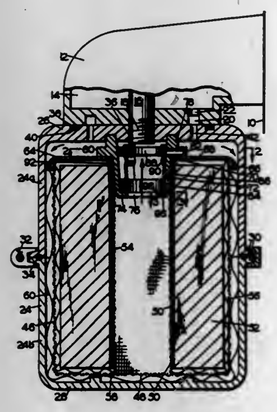
This invention is for a process apparatus for separating solids and liquids by gravity filtration while utilizing flocculation and/or precipitation of the solids as an auxiliary self-filtering means. Generally the apparatus covers a plurality of open ended filtering tubes having collection means for the filtrate and the separated solids associated therewith.

3,543,934
HYDRAULIC RESERVOIR AND FILTER APPARATUS
Robert E. Raymond, Zanesville, Ohio, assignor to International Basic Economy Corporation, New York, New York a corporation of New York
Filed Sept. 18, 1968, Ser. No. 760,426
Int. Cl. B01d 35/14
U.S. Cl. 210—90 2 Claims



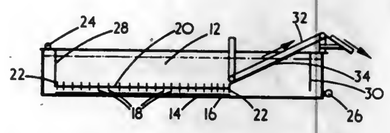
A hydraulic machine that includes a reservoir for hydraulic fluid and a filter and filter condition indicator apparatus for said fluid. The filter and filter condition indicator apparatus include a tube portion which is extended through a wall of the reservoir so as to be removable therefrom as an assembly and the tube portion is arranged to serve the dual function of a vacuum transmitting column to a pressure gauge as well as a force transmitting structural member which maintains portions of the apparatus in sealed engagement with one another.

3,543,935
COMBINATION FULL FLOW, SLOW FLOW OIL FILTER
Robert P. Detrick, 1203 NE. 107th Place, Portland, Oregon
Filed Jan. 13, 1969, Ser. No. 790,731
Int. Cl. B01d 29/04
U.S. Cl. 210—130 6 Claims



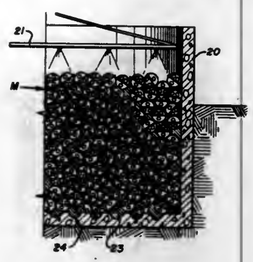
A spin-on filter assembly having a removable holder receiving a hollow center slow flow or bypass filter cartridge. The holder has a substantially full or free flow of oil therearound and is enclosed on the sides and bottom by a sheet of coarse filter material. A sheet of finer filter material is provided between the slow flow filter cartridge and the holder at the sides and bottom of the latter. A restrictor plate is provided at the top of the holder to provide slow flow of oil to the filter cartridge. A relief valve is located directly at an inlet portion of the filter casing.

3,543,936
APPARATUS FOR EFFLUENT TREATMENT
James William Abson, Cheadle Hulme; Eric Innes Clark, Cheadle and Ian Malcolm Gray, Disley, England, assignors to Simon-Carves Limited, Cheadle Heath, Stockport, England
Filed Feb. 21, 1968, Ser. No. 707,112
Claims priority, application Great Britain, Feb. 23, 1967, 8603/67
Int. Cl. C02c 5/12
U.S. Cl. 210—221 11 Claims



In the treatment of effluent sludge, electrodes are immersed in the effluent sludge and a potential difference is applied and maintained across them at a low current density sufficient to cause gassing whereby a layer of thickened sludge rises to the surface of the liquor and is removed.

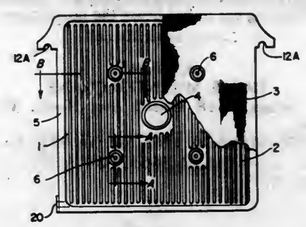
3,543,937
FILTER MEDIA
Joseph M. Choun, 13300 Braun, Golden, Colorado 80401
Filed Aug. 2, 1968, Ser. No. 749,761
Int. Cl. B01d 23/10
U.S. Cl. 210—150 8 Claims



A filter for the treatment of liquid effluent and sewage having a filter media consisting of a thin-wall shell of polymeric resin of sufficient rigidity as to be self-supporting in the filter bed. The shells are reticulated by an array of comparatively large diameter openings to facilitate a trickling flow of liquid and a free circulation of air to the interior of the shells as well as to the exterior thereof. The surfaces of the shells are preferably scored or pitted to facilitate the retention of bacterial growths thereon. Preferably, the shells are spherical in form and manufactured as hemispherical units having outstanding equatorial flanges which join together to form a completed unit.

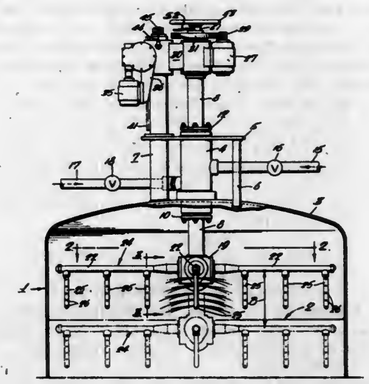
3,543,938
FILTER PLATE WITH SPACING MEANS
Oswald Busse and Hugo Klesper, Michelbach, Germany, assignors to Passavant Werke, Michelbacher, Hutte, Germany
Filed April 28, 1969, Ser. No. 819,929
Claims priority, application Germany, June 6, 1968, 1,761,556
Int. Cl. B01d 25/12
U.S. Cl. 210—229 7 Claims

A filter plate for a filter press, the plate including raised parts projecting outwardly from the inner portions of the plate within the bordering frame part and including spacing elements located at the outermost ends of the spacing elements. A filter cloth extends over the inner portion and passes between the spacing elements and the surface of the



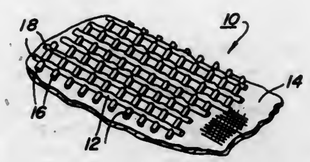
inner portion. One spacing element may be mounted on each end of a pin extending through the filter plate.

3,543,939
FLUID FEED ARRANGEMENT
Raymond R. Dupler, Toledo, Ohio, assignor to Sun Oil Company, Philadelphia, Pennsylvania a corporation of New Jersey
Filed Sept. 20, 1968, Ser. No. 761,107
Int. Cl. B01d 29/38
U.S. Cl. 210—273 5 Claims



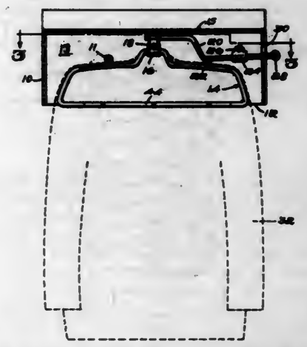
In a water softener tank containing a bed of ion exchange resin, fluids such as water to be treated are fed into the tank through a rotating feed pipe which carries at its inner end a (rotating) distributor head with nozzles through which the fluids flow out onto the bed. The distributor head is adjustable vertically with respect to the bed, and the discharge angle of the nozzles with respect to the bed is also adjustable.

3,543,940
FILTER CONSTRUCTION
Henry Schmidt, Jr., Hinsdale, Illinois, assignor to Industrial Filter and Pump Mfg. Co., Cicero, Illinois a corporation of Illinois
Filed Aug. 14, 1968, Ser. No. 752,709
Int. Cl. B01d 27/06
U.S. Cl. 210—490 9 Claims



A cleanable, reusable filter medium includes a thermoplastic netting bonded throughout its surface area to a thin, porous, nonwoven fabric formed of synthetic or natural fibers. The medium has application in pleated type tubular filter elements and eliminates the need for the usual center tube.

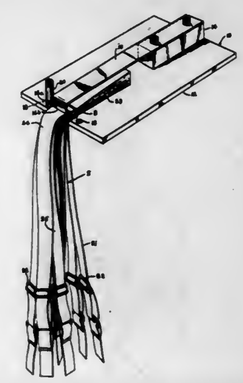
3,543,941
GARMENT HANGER
Arnold Gorman, 1911 Beacon St., Brookline, Massachusetts
Filed April 16, 1969, Ser. No. 816,492
Int. Cl. E05b 73/00
U.S. Cl. 211—4 8 Claims



A garment hanger includes garment-gripping means to protect against theft. A hanger is suspended from an operating lever which is pivoted in an inverted garment enclosure. The lever carries means for gripping a garment against one shoulder of the hanger in a raised position, and for preventing tilting of the hanger.

A fixed element grips the other shoulder of the hanger. The hanger has a horizontal framework below the shoulders, fitting snugly inside the enclosure.

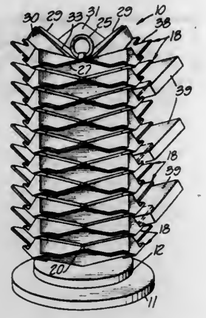
3,543,942
APPARATUS FOR DISPENSING GARMENT STRAPS
Charles Block, North Bellmore and Leon J. Mintz, Syosset, New York, assignors to Undergarment Assemblies, Inc., Copiaque, New York a corporation of New York
Filed Dec. 18, 1968, Ser. No. 784,759
Int. Cl. A47f 7/00
U.S. Cl. 211—51 1 Claim



A stack of garment straps is held together at one end by a band. That end is supported and engaged by an edge urged downwardly compressing the stack against the support proximate the band. The band and edge hold the remainder of the stack intact as the top strap is pulled lengthwise from the

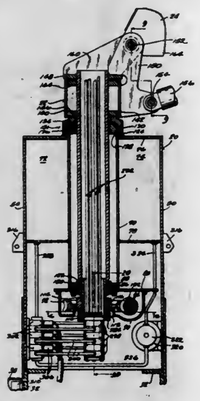
stack for use in a garment making operation while a retaining pin mounted in said support prevents lateral movement of the stack with respect to the edge.

3,543,943
ROTARY STORAGE RACK
Theodore K. Joy, 5245 Craner Ave., North Hollywood and Herbert M. Rose, 2617 Palos Verdes Drive W., Palos Verdes Estates, California
Filed Jan. 13, 1969, Ser. No. 790,603
Int. Cl. A47f 3/10, 5/02
U.S. Cl. 211—131 10 Claims



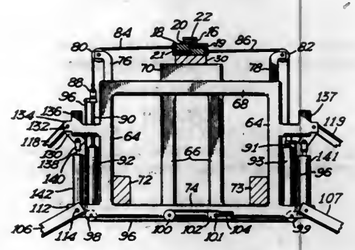
A lazy susan-type storage rack for albums, tape casettes, records, etc., having a central tie bolt passing through a plurality of compartmented dished trays, each compartment of which is sized to store a carton or the like with its exposed rim conveniently positioned for reading. The trays are preferably formed separately and similarly and nest to form a tiered rack of a height and capacity dependent on the number of trays held assembled by the central tie bolt.

3,543,944
VEHICLE MOUNTED HOIST
Frank G. Woodside, 1751 E. Fox Lane, Milwaukee, Wisconsin and Richard F. Uren, Bowling Green, Ohio
Filed June 5, 1967, Ser. No. 643,637
Int. Cl. B66c 23/84
U.S. Cl. 212—66 4 Claims



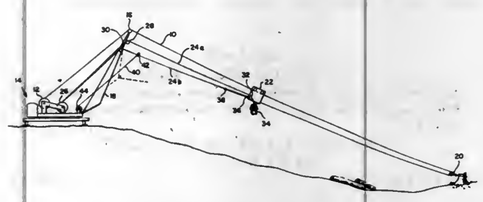
A box frame reinforced by the walls of oil reservoirs has a prefabricated tubular core sleeve on which mast bearings are assembled in inherent alinement. The structure of the main and jib booms is such as to yield high ratio of strength in relation to weight and the tying of the hinge points of the boom and operating cylinder to each other as well as to the mast gives stability. A worm gear connected to the lower end of the mast provides for 360° rotation accommodated by swiveled hydraulic manifold connections. The stabilizer legs are not only strong per se but brace the hoist frame.

3,543,945
TRUCK MOUNTED CRANE
Martin R. Nelson, 4618 Russell Ave. North, Minneapolis, Minnesota
Filed March 20, 1968, Ser. No. 723,340
Int. Cl. B66c 23/84
U.S. Cl. 212—67 1 Claim



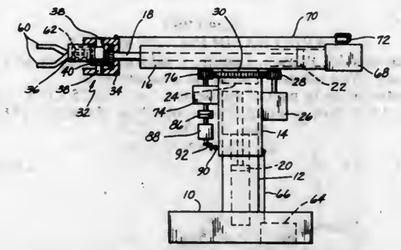
A utility truck is provided with an upright frame structure secured to the vehicle chassis immediately behind the truck cab, the frame structure serving to support a mast assembly on which a multiple-section boom is pivotally supported. An upright bracket mounted on one side of the rear end of the truck bed supports the crane boom in its stored position of nonuse at an elevated position above the truck bed and at an angle with respect thereto, so that the boom assembly does not obstruct the load-carrying space of the truck bed. The crane boom is pivoted upon a vertical spindle by a sheave assembly which is rotated by oppositely directed cables actuated by hydraulic cylinders.

3,543,946
LOG YARDING SYSTEM
Maurice J. McIntyre, Coquitlam, New Westminster and David G. Rennie, Burnaby, British Columbia, Canada, assignors to Skagit Corporation, Sedro Woolley, Washington a corporation of Washington
Continuation-in-part of application Ser. No. 618,022, Feb. 23, 1967, now Patent No. 3,407,942. This application July 11, 1968, Ser. No. 743,992
Int. Cl. B66c 21/00
U.S. Cl. 212—84 12 Claims



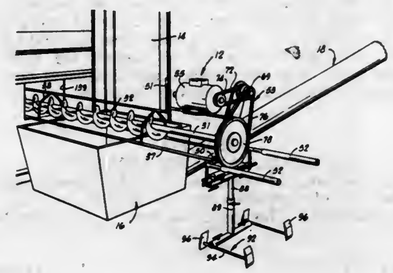
A log yarding system is provided with a carriage riding on a suspending line and rigged with a two-part inhaul line with a tag line connected to one part of the two-part inhaul line and extended through the carriage to a log engaging means. A line puller is rigged to one part of the two-part inhaul line such that its operation will advance or retract the point of connection between the tag line and the inhaul line relative to the carriage.

3,543,947
CONSTANT-AIM WORK HEAD
George C. Devol, 990 Ridgefield Road, Wilton, Connecticut
Filed July 30, 1968, Ser. No. 748,702
Int. Cl. B66c 1/44
U.S. Cl. 214—1 24 Claims



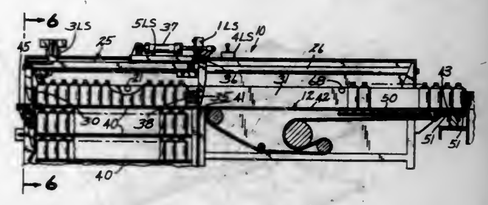
A work head carried by a pivoted arm has a pivotal axis that is parallel to the pivotal axis of the arm. In one mode, the work head is operable about its own axis independent of the angular motions of the arm, and the work head is also operable in a parallel-motion mode so as to maintain a constant attitude in space despite the angular motions of the arm that carries the work head. The arm and the work head each has its own actuator and its own control means and each is separately responsive to its own channels of control input for independent motions. The control means of the work-head actuator also responds inversely, either directly or indirectly, to the channel of control input for the control means of the arm when the parallel-motion mode is in effect. Both manual and program-control means are provided, both for the control means of the actuators and for selecting the mode of operation of the work head, whether independent or parallel-motion mode.

3,543,948
PORTABLE AUGER APPARATUS
Robert N. Tatum, Rte. 1, Burden, Kansas
Filed Oct. 22, 1968, Ser. No. 769,630
Int. Cl. B65g 41/00, 33/10
U.S. Cl. 214—17 4 Claims



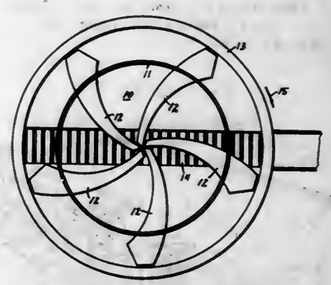
This invention is a portable auger apparatus operable to remove grains and the like from storage bins for subsequent conveyance by an auger conveyor to a transport truck or the like. More particularly, this invention is a portable auger apparatus including an auger means having an elongated auger assembly provided with an open frame assembly thereabout; a power means supported on the frame assembly and operably connected to the auger means to provide the operating power thereto; and a support assembly secured to the frame assembly adapted to engage a support surface to provide a reaction force against the pulling action of the rotating auger means. Additionally, the support assembly is readily movable from inactive to active positions and adjustable in all directions to achieve the required support.

3,543,949
CONTAINER DEPALLETIZING APPARATUS
Roman J. Weier, Forest Lake, Minnesota, assignor to Wyard Industries, Inc., Forest Lake, Minnesota a corporation of Minnesota
Filed Dec. 11, 1968, Ser. No. 782,884
Int. Cl. B65g 59/02
U.S. Cl. 214—8.5 10 Claims



Lift mechanism adapted to receive a pallet containing a plurality of tiers of containers thereon and move said pallet vertically approximately the height of a tier of containers to be depalletized whereby a sweep arm engages the tier of containers between parallel, spaced apart guide rails and a removable restraining arm engages the tier of containers on the opposite side to substantially encircle the tier and urge it on to a conveyor belt. As the tier of containers is urged on to the conveyor belt the restraining arm is removed just prior to the mingling of the tier of containers with containers already present on the conveyor belt.

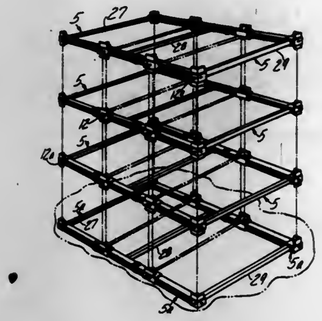
3,543,950
PARTICLE HANDLING APPARATUS
John L. Peterson, Spokane, Washington, assignor to Atlas Spokane, Inc., a corporation of Washington
Continuation-in-part of application Ser. No. 666,614, Sept. 11, 1967, now abandoned. This application Aug. 11, 1969, Ser. No. 863,734
Int. Cl. B65g 65/28
U.S. Cl. 214—10 8 Claims



An apparatus for transfer of particles from a storage pile to a conveyor system designed for particulated materials, such as sawdust, which readily "bridge" or otherwise obstruct normal flow to a conveyor system. It includes a support surface for the pile, including recessed transfer conveyors open to the supporting surface, along with an encircling powered ring which carries a series of rigid arms that extend inwardly toward the center of the ring. These rigid arms are pivotally connected to the ring so as to be free to move inwardly and outwardly to engage the peripheral contour of the pile at the support.

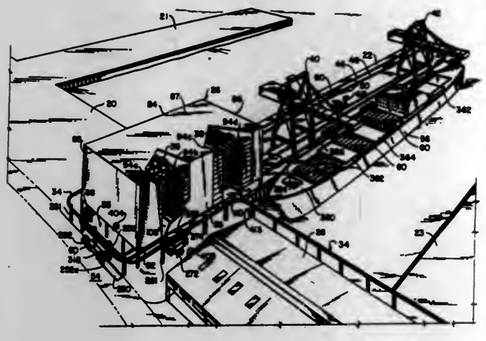
In one preferred embodiment described, a biasing force is provided on the individual arms in an equalized manner to normally move them inward toward the center of the ring. This is provided by means of a frictional drag ring that engages the support and a force transmitting mechanism including independently movable shuttle carriages on the ring connected to the individual arms by means of rigid bars.

3,543,951
CARGO-CONTAINER STACK AND STACK REINFORCING AND LASH-DOWN APPARATUS
Harry N. Marvin, Larchmont, New York, assignor to Midland-Ross Corporation, Cleveland, Ohio a corporation of Ohio
Filed July 19, 1968, Ser. No. 746,227
Int. Cl. B65g 1/14
U.S. Cl. 214—10.5 14 Claims



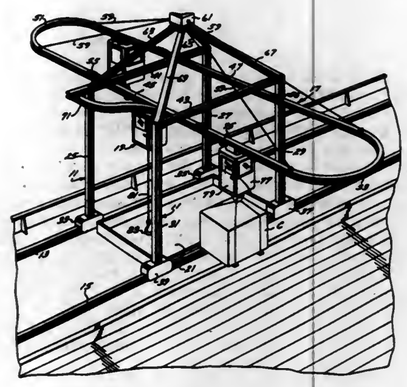
Rack or beam apparatus for use in stacking and lashing down a stack of cargo containers on, e.g., ship decks especially adapted to function in conjunction with the corner columns of the containers ordinarily provided. The apparatus and the columns are structurally coordinated to prevent high stack-stresses imposed on individual container structure as a result of ship roll or wave action.

3,543,952
CONTAINER HANDLING AND STORAGE SYSTEM
Robert R. Young, Danville, California, assignor to Kaiser Industries Corporation, Oakland, California a corporation of Nevada
Filed March 29, 1968, Ser. No. 717,174
Int. Cl. B63b 27/00; B65g 1/00
U.S. Cl. 214—14 5 Claims



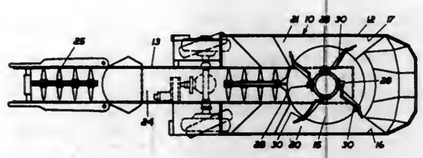
A system for handling large, heavy containers of relatively uniform shape at a shipping terminal including a vertical storage housing, a stacker crane for inserting containers into and removing containers from the storage facility, a carrier crane for loading containers into and unloading containers from a carrier at a terminal, conveyor units for transporting containers and being movable along a predetermined path into and out of transfer stations at the carrier crane and the stacker crane, a conveyor for moving containers between an input/output station for the terminal and the transfer station at the stacker crane, and a control center including computer means for coordinating the movement, storage, loading and unloading of containers by the cranes, conveyor units and conveyor

3,543,953
CARGO HANDLING APPARATUS
Catharinus M. Ponsen, Lomita, California, assignor to Colin Craig, Westminster, California a part interest
Continuation-in-part of application Ser. No. 754,175, Aug. 21, 1968, now pending. This application March 12, 1969, Ser. No. 812,537
Int. Cl. B63b 27/10
U.S. Cl. 214—15 6 Claims



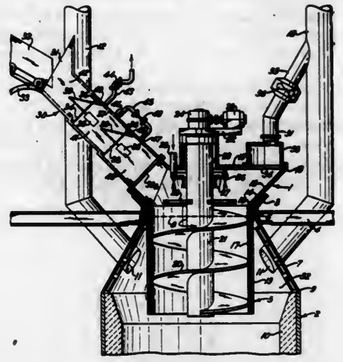
The present application relates to cargo handling apparatus. The cargo handling apparatus includes a pair of rails extending longitudinally on opposite sides of the hatchway of a cargo ship and mounting a frame supporting an endless track. The track forms a portion which extends over the hatchway and a section which projects transversely beyond the side of the hull for disposition over a dock against which said ship is docked. A plurality of hoists are carried on the track whereby an empty hoist may be moved into position over the hatchway for receiving cargo from the hold and the loaded hoist may be moved on around the track for dispensing the cargo on the dock and subsequent return to the hatchway for receiving additional cargo.

3,543,954
MATERIAL HANDLING APPARATUS
Carl E. Marshall, 123 Liberty St., Franklin, Pennsylvania
Continuation of application Ser. No. 566,785, July 21, 1966, now abandoned . This application Nov. 21, 1968, Ser. No. 777,628
Int. Cl. B60p 1/36
U.S. Cl. 214—17 12 Claims



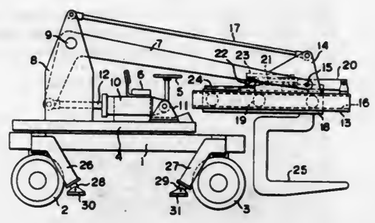
A material handling apparatus having an upwardly open compartment receiving material to be handled and a method and means for distributing such material throughout the compartment.

3,543,955
BLAST FURNACE TOP
Harold F. Shekels, Borough of Edgewood, Pennsylvania (150 Race St., Pittsburgh, PA 15218)
Filed Mar. 22, 1968, Ser. No. 715,234
Int. Cl. F27b 1/12
U.S. Cl. 214—21 13 Claims



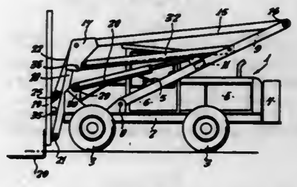
A blast furnace top comprising a hopper that provides a gastight cover for upper end of the furnace stack. The hopper is a gas tight enclosure and has a downwardly extending screw conveyor for feeding stock therefrom into the furnace, and a supply chute through which stock is fed thereto from a skip hoist. A pair of valve gates in the chute form a gaslock and operate to control the gravitational movement of stock through the chute into the hopper and to prevent the leakage of blast furnace gas therefrom. A pressure equalizing conduit connects the interior of the hopper with the furnace offtakes to minimize the leakage of blast furnace gas through the screw conveyor into the hopper.

3,543,956
LOAD CARRYING VEHICLE
Yukio Furuno; Hiroshi Tokuno and Katsusuke Murata, Ishi, Japan, assignors to Shinko Denki Kabushiki Kaisha, Tokyo, Japan a corporation of Japan
Filed Feb. 27, 1968, Ser. No. 708,615
Int. Cl. B66f 9/06
U.S. Cl. 214—141 6 Claims



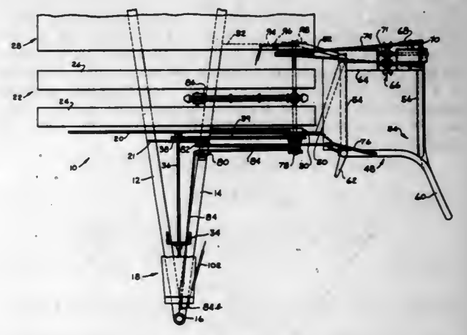
A load carrying vehicle wherein parallel lift arms are pivotally provided on a revolving table on a chassis on the forward end of said parallel lift arms being pivotally mounted directly or through a support frame a support table with a load support arm such as a rotatable ram or fork, said load support arm being capable of advancing or receding at least with said support table and the lift arms.

3,543,957
FORK LIFT TRUCKS
Derek Vincent Russell, 2 Selbourne Ave, Low Fell, Gateshead 9, England
Filed Sept. 16, 1968, Ser. No. 759,951
Claims priority, application Great Britain, Sept. 21, 1967, 42,984/67
Int. Cl. B66c 23/00
U.S. Cl. 214—146.5 6 Claims



The invention provides a lift truck where the frame carrying the fork or other supporting member is mounted on a jib member, which itself is pivoted to link means pivotally mounted on the truck chassis. Means are provided to maintain the frame constantly in a substantially vertical attitude whatever the attitude of the jib member, though the frame can be tilted through a small angle when required. The jib member may be angled to provide a limb which can be brought almost down to ground level, and to the free end of which the frame is pivoted. The lift truck provides an exceptional range for the load being carried.

3,543,958
CAPSTAN LIFT FOR A BALE WAGON BALE LOADER
Donald M. Grey, Selma, California, assignor to Sperry Rand Corporation, New Holland, Pennsylvania a corporation of Delaware
Filed May 29, 1969, Ser. No. 828,908
Int. Cl. B60p 1/38
U.S. Cl. 214—522 6 Claims

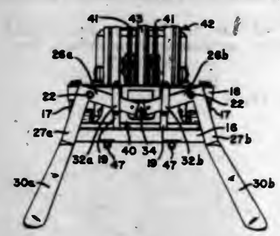


A capstan and lock mechanism for manually raising and lowering a bale wagon bale loader between an operable position and a transport position.

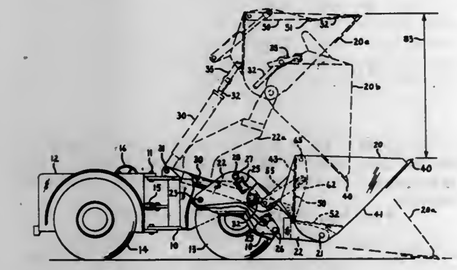
3,543,959
LIFT TRUCK MECHANISM
Harold A. Stammen, New Bremen, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio, a corporation of Ohio
Int. Cl. B66f 9/14
U.S. Cl. 214—731 9 Claims

Mechanism for controlling the sidewise movement of fork lift tines includes symmetrical bell cranks mounting the tines for swinging movement, a support member carrying the

cranks and vertically movable on a carriage part, and a track on the carriage part engaging rollers on the cranks to translate relative vertical movement of the support member and carriage part into swinging motion of the cranks.



3,543,960
LOADER BUCKET WITH PUSH PLATE EJECTOR
Eddie B. Wagner, Portland, Oregon, assignor to Wagner Mining Scoop, Inc., Portland, Oregon a corporation of Oregon
Filed Dec. 23, 1968, Ser. No. 785,877
Int. Cl. E02f *3/70*
U.S. Cl. 214—767 **7 Claims**

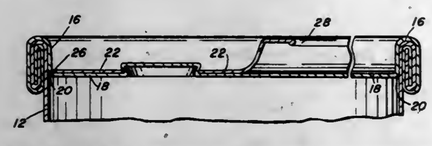


An open bottom bucket is equipped with a jointed push plate ejector which, when retracted, forms the bottom of the bucket. Actuation of the push plate ejects the load without the necessity of tilting the bucket downward to the usual gravity discharge position whereby the bucket may discharge at a higher level than conventional buckets. Also, the push plate provides a mobile platform spanning the mouth of the bucket to give workmen convenient access to the roof of a mine or tunnel.

ERRATA

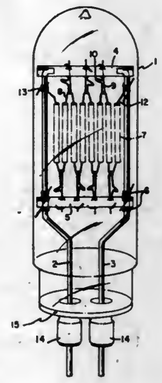
For Classes 215—12 thru 220—54, see:
Patent Nos. 3,544,020 thru 3,544,025

3,543,961
PROTECTIVE ARRANGEMENT IN AN EASY-OPENING CONTAINER
James E. Kennedy and James R. Pound, St. Louis, Missouri, assignors to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed Dec. 2, 1968, Ser. No. 780,318
Int. Cl. B65d *17/20, 17/24, 17/00*
U.S. Cl. 220—54 **1 Claim**



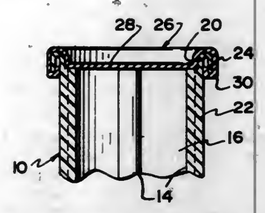
A container having a tubular body and a pair of end members, at least one of the end members being formed of metal and having a peripheral portion and a removable central panel portion with a pull tab mounted thereon, the end member being formed with a single line of weakness on the inner surface thereof at the juncture of the peripheral and the central panel portions and immediately adjacent the tubular wall of container so that, when the central panel portion is removed by operation of the pull tab, no protrusion of metal will extend inwardly from the inner surface of the body a distance substantially greater than the thickness of the metal in the peripheral portion. The single line of weakness in the inner surface of the end member is formed by placing the end member against a stationary support member having a cutting element and forcing the end member against the cutting element by operation of a movable compression member.

3,543,962
HIGH WATTAGE QUARTZ HALOGEN LAMP
Carl L. Peterson, Gloucester, Massachusetts, assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 13, 1968, Ser. No. 783,517
Int. Cl. H01k *1/18, 1/56*
U.S. Cl. 313—278 **8 Claims**



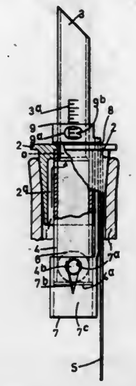
A quartz halogen lamp has a folded coiled tungsten filament supported on a bridge, the bridge being made of tungsten rods and quartz tubing. Tungsten support wires extend through holes in the wall of the quartz tubing and support each fold of the filament. The support wires are shaped so as to permit adjustment thereof, when the filament is mounted on the bridge, to provide adequate support for each fold of the filament.

3,543,963
PLASTIC CONTAINER AND A METHOD OF MAKING SAME
Jerome S. Heisler; Anthony J. Starr, Wilmington and John D. Carey, Sr., New Castle, Delaware, assignors to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed July 5, 1968, Ser. No. 750,410
Int. Cl. B65d *7/42*
U.S. Cl. 220—67 **1 Claim**



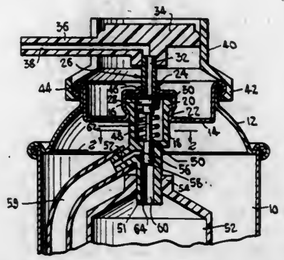
A container is formed from plastic and comprises a hollow, open ended, tubular body having a main portion and a terminal portion. A separate closure is formed having a peripheral flange. The closure engages and closes the open end of the body. The peripheral flange is joined to the terminal portion of the body thereby securing the closure to the body. The method of forming the above container includes the steps of extruding a hollow, open ended tubular body, reshaping a terminal portion of the body, and molding a separate closure having a peripheral flange. The closure is placed in engagement with the open end of the body thereby closing the same. The peripheral flange is bent so as to bring it into engagement with the terminal portion of the body, the flange being joined to the terminal portion to secure the closure to the body.

3,543,964
MEASURING AND DISPENSING DEVICE FOR LIQUIDS
Wilhelm Schlossmacher, Wilhelmshaven, Germany, assignor to Emil Von Der Crone, Ludenscheid, Westphalia, Germany a firm
Filed March 29, 1968, Ser. No. 717,476
Claims priority, application Germany, April 3, 1967, 40486
Int. Cl. B65d *5/76;* **B67d** *5/22*
U.S. Cl. 222—41 **8 Claims**



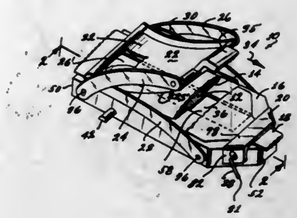
A liquid premeasuring and dispensing device of the type wherein the quantity of liquid dispensed depends upon the time required for filling a measuring chamber having a fixed volume with liquid is provided with a pair of relatively movable inlet orifices of which one is oblong, substantially wedge-shaped and has a pair of converging sides. The relative position of the pair of orifices determines the time required for filling the aforementioned measuring chamber with liquid and, therefore, the quantity of liquid dispensed.

3,543,965
HAND-HELD DISPENSER WITH TWO CONTAINERS AND TWO VALVES
Herbert G. Lehmann, Easton, Connecticut, assignor to Valve Corporation of America, Bridgeport, Connecticut a corporation of Delaware
Filed June 14, 1968, Ser. No. 737,238
Int. Cl. B65d *35/22*
U.S. Cl. 222—94 **5 Claims**



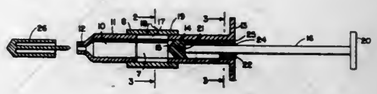
A dispenser with dual valves and multiple containers, comprising a tubular valve housing having an annular seat for a poppet valve, a cylindrical bore to accommodate a slide or spool valve, and a valve stem longitudinally movable in the housing and having poppet and spool valve portions for simultaneously closing and opening the valves. The housing has a side passage, and is at one end carried in the neck of a pressurized container in which there is also a flexible bag connected to the other housing end. Different liquids in the container and bag are mixed and discharged when the valve stem is fully shifted to open the valves, or if the stem is only partially shifted there occurs a discharge of only one liquid.

3,543,966
MIXING AND DISPENSING DEVICE
John W. Ryan, Los Angeles; Wallace H. Shapero; Jacob De Gelder, Torrance and Harold B. Collins, Manhattan Beach, California, assignors to Mattel, Inc., Hawthorne, California a corporation of Delaware
Filed Oct. 16, 1968, Ser. No. 768,050
Int. Cl. B65d *35/22*
U.S. Cl. 222—94 **9 Claims**



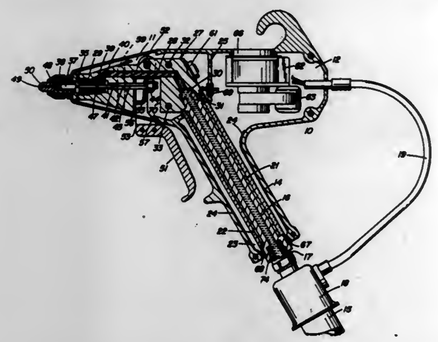
Apparatus for mixing two or more products in a flexible package and then dispensing them, comprising a platform for holding the package and a rocker which rolls back and forth over the platform. The platform has a channel which receives a portion of the flexible package, so that the products flow back through the channel as the rocker rolls forward. A bar forming the bottom of the channel can be raised to close the channel, and the front of the package can be opened, so that forward movement of the rocker expels the mixed product from the package.

3,543,967
DEVICE FOR PACKAGING TWO SEPARATE SUBSTANCES
James A. O'Connor, 141—15 Beach Channel Drive, Neponsit, New York 11694
Filed June 18, 1968, Ser. No. 737,893
Int. Cl. B67d *5/52*
U.S. Cl. 222—136 **5 Claims**



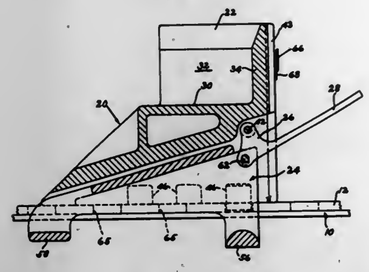
In a storage device, particularly a hypodermic syringe, the barrel wall is provided at a midpoint with at least two channels which permits passage of the contents from one chamber to the other. The chambers are separated by the piston which is positively locked to a plunger and in storage the piston is sealed to the barrel wall by a breakable seal. The plunger passes through a proximal plug and plunger and plug are sealed to with a breakable seal, the construction of plunger and plug enabling rotation of the plunger to break the various seals.

3,543,968
GUN FOR DISPENSING THERMOPLASTIC MATERIALS
Alan B. Reighard; Samuel R. Rosen, Bay Village and Robert G. Baker, Lorain, Ohio, assignors to Nordson Corporation, Amherst, Ohio a corporation of Ohio
Filed March 20, 1969, Ser. No. 808,727
Int. Cl. F16k 31/62
U.S. Cl. 222—146 11 Claims



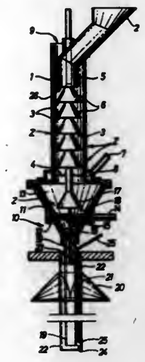
A gun for dispensing thermoplastic or viscous materials, particularly molten adhesives. Molten thermoplastic material is introduced under pressure to a conduit in the grip of the gun and flows from there through a conduit in the gun barrel to a trigger controlled outlet nozzle. The conduits in the barrel and in the handle are provided with thermostatically controlled heaters to melt or to maintain molten the thermoplastic material. The heated interior portion of the grip is spaced from the exterior gripping portion by insulation or by insulation and an air space. When an air space is provided cooling air is drawn into the rear of the gun by a fan or is introduced thereto through a line from a suitable pressurized supply, and circulates in and through the air space to maintain the temperature at the exterior of the grip at a comfortable level.

3,543,969
ADJUSTABLE CONTAINER SUPPORT MEANS FOR A RAILWAY FLAT CAR
Edwin A. Zambruski, St. Louis County, Missouri, assignor to ACF Industries, Incorporated, New York, New York a corporation of New Jersey
Filed May 21, 1968, Ser. No. 730,867
Int. Cl. B65j 1/22; B60p 7/08
U.S. Cl. 105—366 7 Claims



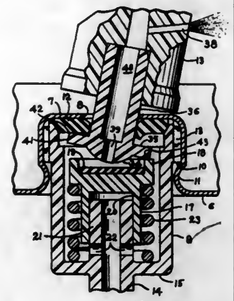
Supports are provided for holding the corners of containers transported on railway flatcars. Each support rests on the deck of the car and has pins on the bottom adapted to be anchored in a pair of perforated strips at a required position. The support includes a clamping device which extends through a slot in the deck between the perforated strips. The clamping device is movable by a handle toward the underside of the deck to lock the support to the deck. When not in use, the supports are stowable below the deck.

3,543,970
REDUCING THE ATMOSPHERIC OXYGEN CONTENT OF BULK MATERIALS WHICH CAN FLOW OR BE TRICKLED
Norbert Buchner, Beutelsbach Wurttemberg and Klaus Domke, Stuttgart-Weilimdorf, Germany, assignors to Fr. Hesser Maschinenfabrik-Aktiengesellschaft, Stuttgart-Bad Cannstatt, a corporation of Germany
Filed Feb. 23, 1968, Ser. No. 707,843
Claims priority, application Germany, March 16, 1967, H62156
Int. Cl. B67d 5/58
U.S. Cl. 222—190 6 Claims



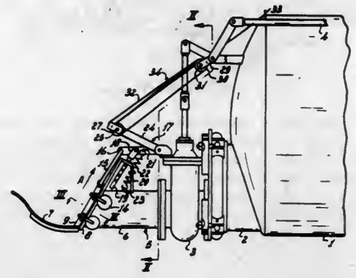
For reducing the atmospheric oxygen content of bulk material, an apparatus is provided in which the material is poured or trickled through a confining passageway through which a protective or scavenging gas passes in counterflow. The material is thus prepared for packaging, and the apparatus may be directly combined with a packaging machine.

3,543,971
NON-CLOGGING AEROSOL VALVE
Richard E. Treharne, Jr., Manchester, New Hampshire, assignor to Scovill Manufacturing Company, Waterbury, Connecticut a corporation of Connecticut
Filed Oct. 7, 1968, Ser. No. 765,444
Int. Cl. B65d 83/00
U.S. Cl. 222—402.22 1 Claim



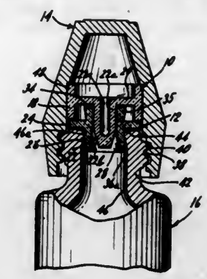
An aerosol valve especially useful for dispensing powders, has a valve seating surface at the bottom of the valve head which cooperates with a vertically movable seat inside the valve housing, to open or close an inlet port through the valve head by a tilt action of the valve stem. The seat moves clear of the valve when open to allow free flow, and the valve head wipes across the seat in the closing action to clear the seating surface around the inlet port.

3,543,972
TRANSPORTABLE LIQUID DISTRIBUTING DEVICES
Ary van der Lely, 10 Weverskade, Massland and Cornelis Johannes Gerardus Bom, 36, Esdoornlaan, Rozenburg, Netherlands
Filed March 29, 1968, Ser. No. 717,282
Claims priority, application Netherlands, Feb. 1, 1968, 6801447
Int. Cl. B65d 47/00
U.S. Cl. 222—559 11 Claims



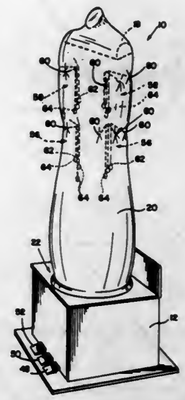
A liquid spreader with a container has an opening which can be opened and closed by a sliding closing member. The closing member can be biased against a stop to be partly open. An actuating mechanism attached to the closing member can raise the member if the opening becomes clogged.

3,543,973
DROP DISPENSER AND CLOSURE ASSEMBLY
Michael L. Berins, Scarsdale, New York, assignor to Guild Molders, Inc., Elmsford, New York a corporation of New York
Filed Nov. 6, 1967, Ser. No. 685,730
Int. Cl. B65d
U.S. Cl. 222—571 5 Claims



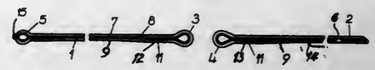
A drop dispenser and closure assembly for use with a cap and container in which a dispensing fitment is mounted within the neck of the container and a sealing fitment is mounted within the cap. The fitments are constructed to be temporarily interconnected such that they may be initially mounted together in the cap, with the act of engaging the cap on the container firmly seating the dispensing fitment within the neck of the container. The construction of the dispensing fitment is such as to provide drop-by-drop dispensation, with a minimal tendency for liquid to drip inadvertently from the exit opening of the dispensing fitment.

3,543,974
BAG SIZING APPARATUS AND METHOD FOR COAT FINISHER
Harry D. Forse, 220 Woods Road, Edgewood Addition, Anderson, Indiana
Filed May 7, 1969, Ser. No. 822,380
Int. Cl. A41h 5/02
U.S. Cl. 223—70 22 Claims



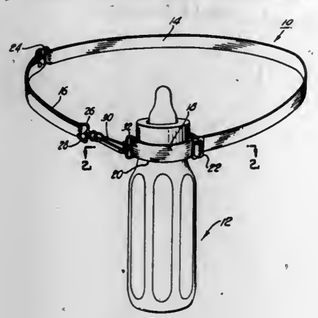
A garment finishing apparatus comprising an inflatable bag for supporting and shaping a garment, the bag being arranged to be disposed internally of such a garment and to shape the garment when it is inflated. Biasing means is connected to a portion of the bag and arranged to pull inwardly thereon and fluid source means, such as a blower, is arranged to provide a first static fluid pressure within the bag effective to expand the bag portion outwardly in opposition to the biasing means. First means is provided and arranged, when actuated, to prevent further outward expansion of the bag portion, and second means is provided for actuating the first means. Preferably, the fluid source means is effective, when actuated to do so, to provide a greater capacity output providing a second and greater static fluid pressure within the bag.

3,543,975
MULTI-LAYER THERMOPLASTIC WATCHBAND
Kurt Bauer, Ellmendingen, Germany, assignor to Firma Gustav Bauer, Ellmendingen, Germany a corporation of Germany
Filed June 17, 1968, Ser. No. 737,517
Claims priority, application Germany, June 19, 1967, 1,557,589
Int. Cl. A44b 5/16
U.S. Cl. 224—4 6 Claims



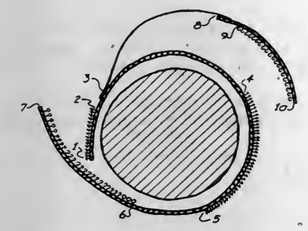
A top layer for a watchband is folded over on itself to make a loop for insertion of a cross pin of a wristwatch or buckle; after folding, the top layer ends abruptly, and a bottom layer, of suede-type plastic, is abutted against the abrupt end of the top layer; in the region of the butt end, a thermoplastic cross fusion seam is placed; additionally, all layers are fused at their longitudinal edges, except in the region of the loop to form one whole. For strength, an insert can be placed between the top and bottom layer, also folded upon itself.

3,543,976
FLEXIBLE SUPPORT FOR A NURSING BOTTLE
Bella Ronald, Box 311, Middletown, New Jersey
Filed July 25, 1968, Ser. No. 747,741
Int. Cl. A61j 9/06
U.S. Cl. 224—5 1 Claim



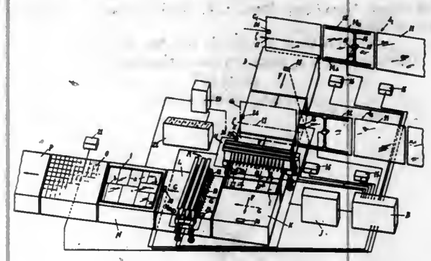
A nursing bottle holder to support a nursing bottle that is to be placed about an infant's neck to retain the bottle in a position that is most accessible for nursing, comprised of a flexible strap with one end adjustable to grip the neck of the nursing bottle and the other end adjustable to fit the infant's neck and retain the nursing bottle in a proper accessible position in front of the infant and with a pivotally supported snap spring to join both ends together.

3,543,977
PILOT LEG STRAP REFERENCE MATERIAL HOLDER
James E. Lockridge, 615 Laurel Circle, Selma, Alabama
Filed March 11, 1969, Ser. No. 806,189
Int. Cl. A45f 5/00
U.S. Cl. 224—5 1 Claim



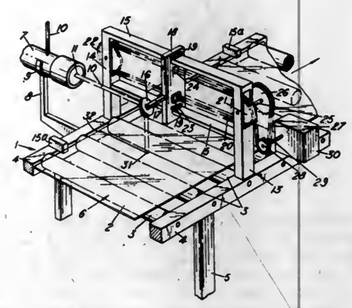
This invention constitutes a strap device consisting of two portions: the main elastic strap which attaches snugly to the thigh, and the overstrap which is a combination transparent pliable plastic, and elastic strip used for holding the pilots reference material firmly to the main strap and thus to the leg. Velcro fabric fastener material, or similar contact type fastener material is used. The reference material is then visible to the pilot through the transparent portion of the overstrap, yet held firmly and securely by the elastic portion which is fastened with the Velcro.

3,543,978
METHOD AND DEVICE FOR CUTTING SHEETS OF GLASS
Antoine Feillet, Assevent, France, assignor to Boussois Souchon Neuvesel, Paris, France
Filed Nov. 29, 1968, Ser. No. 779,900
Claims priority, application France, Dec. 12, 1967, 131,906
Int. Cl. B26f 3/00
U.S. Cl. 225—2 16 Claims



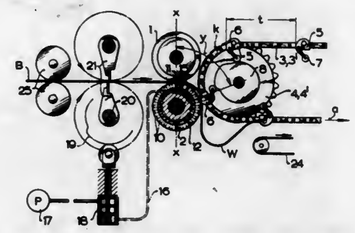
A process and a device for cutting glass into sheets in order to obtain rectangular panes of commercial dimensions and comprising the preparation of a marking layout by means of an electronic computer which receives data relating to customers' specifications. According to the process, an automatic marking operation is carried out on each sheet of glass in accordance with a complete T-layout in which the T crossbars are parallel either to one or the other of two orthogonal directions, said marking operation being carried out continuously by displacement of the glass sheet in one of said directions and correlative incision of all the lines which are parallel to said direction followed by displacement of the same sheet in the orthogonal direction and correlative incision of all the lines which are parallel to said second direction followed by cracking of the glass which has thus been completely incised. The device comprises two traveling gantries adapted to carry the marking-tool units and disposed above two sections of a glass conveyor which extend in directions at right angles to each other and a direction-changing table which serves to convey the sheets to be cut along two orthogonal directions.

3,543,979
CUTTING OF GLASS WITH A LASER BEAM
Francis John Grove, Eccleston, St. Helens; Donald Curtis Wright, Bolton and Francis Michael Hamer, Ormskirk, Lancashire, England, assignors to Pilkington Brothers Limited, Liverpool, England a corporation of Great Britain
Filed March 25, 1969, Ser. No. 810,150
Claims priority, application Great Britain, March 29, 1968, 15,301/68
Int. Cl. B26f 3/00
U.S. Cl. 225—2 9 Claims



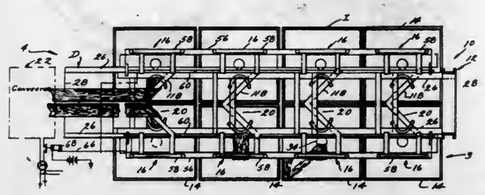
Glass is cut using a laser beam of a wavelength to which the glass is opaque which scans the glass to induce a stress field in the scanned strip of glass which causes a controlled fracture to run along a predetermined cutting line within that strip.

3,543,980
APPARATUS FOR CONVEYING WORKPIECES OF PAPER OR PLASTICS MATERIAL SHEETING, PREFERABLY FOR BAG-MAKING MACHINES
Friedrich Franz Brockmuller, Lengerich, Germany, assignor to Windmoller & Holscher, Lengerich, Germany
Filed July 29, 1968, Ser. No. 748,550
Claims priority, application Germany, Aug. 3, 1967, W44501
Int. Cl. B26f 3/02; B65h 29/28, 35/10
U.S. Cl. 225—96 7 Claims



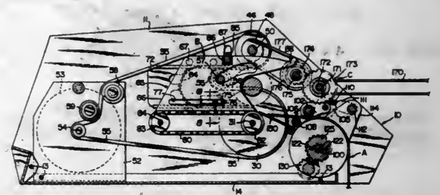
The workpieces are fed at a high velocity of travel and are inserted with their leading end into grippers carried by gripper chains, which revolve at a lower velocity. The spacing of the grippers is smaller than the length of the workpieces. An input feed roll is provided at the charging station for the gripper chains and revolves oppositely to the reversing sprockets of the gripper chains about an axis which is parallel to the axes of said sprockets and at a peripheral velocity which is higher than the velocity of the grippers. The roll contacts the path of the grippers along a generatrix and is provided with peripheral recesses enabling a passage of the grippers therethrough and with vacuum openings on its peripheral surface between the recesses. The communication between said vacuum openings and a vacuum conduit is interrupted when the vacuum openings contact the path of the grippers.

3,543,981
TEXTILE CREEL APPARATUS
Elbert F. Morrison, Clarksville and Raymond D. Joy, Halifax, Virginia, assignors to Burlington Industries Inc., Greensboro, N.C., a corporation of Delaware
Filed Nov. 28, 1967, Ser. No. 686,173
Int. Cl. B65h 23/10
U.S. Cl. 226—11 19 Claims



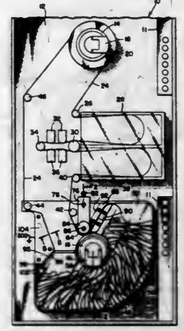
A creel apparatus for creeling tow from a package or a plurality of packages, the apparatus flattening the tow into strands of predetermined width and keeping the strands straight and tensioned both when the tow is being creeled or pulled from the apparatus and when the tow is stationary in the apparatus. The creel apparatus is used for feeding tow to textile processing machines such as converters, gills, or the like. By having the tow fed from a plurality of packages along each side of the creel apparatus and the tow fed from an end of the apparatus, the creel apparatus reduces the amount of floor space necessary for supplying tow to textile processing machines.

3,543,982
STRIP FEEDING AND SEVERING MACHINES
Albert A. Sargent, Grand Island, New York, assignor to Moore Business Forms, Inc., Niagara Falls, New York, a corporation of Delaware
Original application Ser. No. 558,024, June 16, 1966, now Patent No. 3,425,607. Divided and this application Oct. 17 1968, Ser. No. 768,259
Int. Cl. B65h 23/10
U.S. Cl. 226—90 2 Claims



Apparatus for feeding weblike material wherein the material is laid over a smooth arcuate surface and threaded between a pair of transversely extending rollers. Yieldable pressure is applied to press the material against the arcuate surface during operation, and the material is pressed against the arcuate surface to thread it. Relative movement of the rollers is effected to provide a zigzag convolution in the weblike material for tensional guiding purposes.

3,543,983
CONTINUOUS LOOP TRANSPORT
Ralph H. Dale, Littleton and Roy D. Youngblood, Englewood, Colorado, assignors to Honeywell Inc., Minneapolis, Minnesota a corporation of Delaware
Filed Aug. 19, 1968, Ser. No. 753,622
Int. Cl. B65h 17/42
U.S. Cl. 226—118 8 Claims

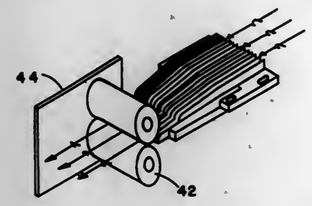


A continuous loop transport is shown for moving magnetic tape across magnetic record/reproduce heads at a high rate of speed. The continuous loop of magnetic tape is drawn into a bin by a pair of grooved driving drums. A pair of pickoff guides having fingers engage the grooves within the drums for removing the tape therefrom. The guides pass the tape through a tape guide path toward the upper portion of one side of the bin. The larger driving drum is arranged with its periphery substantially within the bin for urging the tape entering the bin toward the bin exit on the opposite side thereof. As the tape exits the bin, it passes over a vacuum guide for initially tensioning the tape prior to passing over the magnetic record/reproduce heads and reentering the bin. Further tension control is provided for by a pair of vacuum bins located on each side of the record/reproduce heads.

3,543,984
TAPERED INFEED YARN GUIDE

Peter W. Mansfield, Hopewell, Virginia, assignor to Allied Chemical Corporation, New York, New York a corporation of New York

Filed Mar. 12, 1968, Ser. No. 712,425
Int. Cl. B65h 23/02
U.S. Cl. 226—196 7 Claims

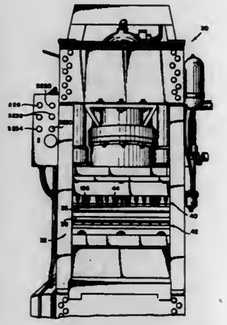


Continuous filaments supplied from yarn packages are passed through a tapered guide member having a plurality of grooves which diminish in width in the direction the filaments are advanced to converge the filaments closely together prior to their being introduced into a confined area. The sidewalls of the tapered grooves are comprised of webs made from thin metal strips mounted in a base member. The strips are removable thereby facilitating replacement or repair of worn or damaged parts.

3,543,985
MULTIPLE RIVETING MACHINE

George F. Adolphi, La Mesa, California, assignor to Ametek, Inc., a corporation of Delaware

Filed June 27, 1968, Ser. No. 740,508
Int. Cl. B27f 7/06
U.S. Cl. 227—7 11 Claims



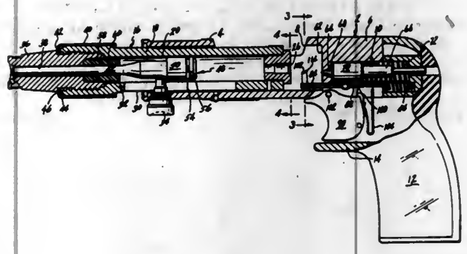
A multiple riveting machine having an arrangement for feeding a predetermined number of rivets into a workpiece to be riveted and then heading said rivets.

3,543,986
EXTRACTOR FOR CARTRIDGE-ACTUATED DEVICE

Andrew G. Bakoledis, Clinton and James B. Brosious, Cheshire, Connecticut, assignors to Olin Corporation, a corporation of Virginia

Filed Nov. 6, 1968, Ser. No. 773,850
Int. Cl. B25c 1/14
U.S. Cl. 227—10 7 Claims

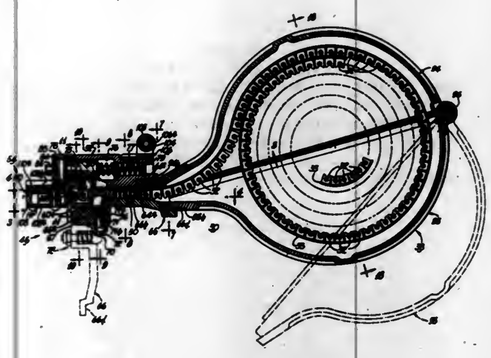
An extractor for a cartridge-actuated tool which is mounted on the cocking rod and is resilient to allow the edge portion thereof to cam over the rim of a cartridge and snap firmly against the cartridge case. The extractor is also resiliently twistable so that the edge portion digs into the cartridge case and causes the cartridge to fly free of the chamber to assure full extraction.



3,543,987
FASTENER DRIVING TOOL

Allen R. Obergfell, Park Ridge; Richard H. Doyle, Mount Prospect; Raymond F. Novak, Chicago and Edward J. Novak, Franklin Park, Illinois, assignors to Fastener Corporation, Franklin Park, Illinois a corporation of Illinois

Filed June 12, 1968, Ser. No. 736,425
Int. Cl. B25c 1/04
U.S. Cl. 227—136 38 Claims

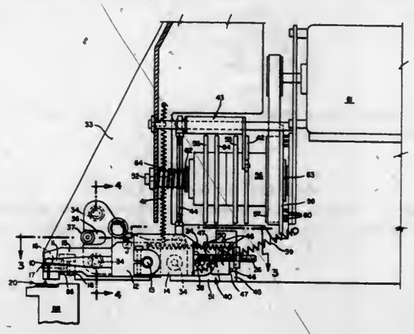


A tool for driving a fastener mounted on an elongated, flexible, carrier strip including a drive track, a driver movable in said track, guide means for directing fasteners on said carrier strip into said drive track and pawl means projecting laterally into said guide means and movable toward and away from said drive track. The pawl means is engageable with the carrier strip on forward strokes to advance fasteners on the strip toward the drive track and is formed with a rearward, cammed surface engageable to deflect the carrier strip laterally on rearward movement without moving the strip rearwardly away from the drive track.

3,543,988
APPARATUS FOR CONTROLLING THE MOTION OF A WIRE BONDING TOOL

Frederick W. Kulicke, Jr., Philadelphia, Pennsylvania, assignor to Kulicke and Soffa Industries, Inc., a corporation of Pennsylvania

Filed Feb. 13, 1969, Ser. No. 798,977
Int. Cl. B23k 21/00
U.S. Cl. 228—3 10 Claims

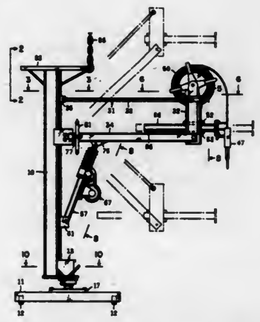


An apparatus for moving and positioning a bonding tool between bonding positions along a predetermined path including manually adjustable means for changing the height and shape of a wire loop pattern between bonds.

3,543,989
MANIPULATOR FOR WELDING OR CUTTING APPARATUS

Cleveland N. Cooper, Kirkwood, Missouri, assignor to The Pandjiris Weldment Co., St. Louis, Missouri a corporation of Missouri

Filed Dec. 26, 1967, Ser. No. 693,276
Int. Cl. B23k 1/00, 5/00
U.S. Cl. 228—25 10 Claims

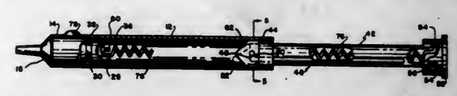


A manipulator for welding or cutting operations, having substantially horizontal boom carried by a support member of a parallelogram linkage pivoted on a substantially vertical column. The manipulator directly mounts every type of welding head, whether automatic, semiautomatic or gun-type wire feeder, or mounts a cutting torch. A height adjustment means, such as a jackscrew, is operatively connected to the pivoted parallelogram linkage for selectively adjusting the boom elevation. The boom is reciprocatively mounted for selective extension or retraction in positioning the operational tool, and is selectively locked in the adjusted position. Mounted on the top of the column is a platform adapted to support associated equipment, the platform having attachment lugs strategically placed to facilitate lifting of the unit by a hoist. The column is mounted for rotation on a substantially vertical swivel pin, and can be selectively locked in adjusted position. The relative disposition of the component parts provides a substantially balanced design and counterweight on opposite sides of the swivel axis for ease of operation, and on opposite sides of the attachment lugs for convenient lifting action.

3,543,990
VACUUM DESOLDER IMPLEMENT

William S. Fortune, 14250 Dearborn St., Panorama City, California

Filed March 13, 1968, Ser. No. 712,748
Int. Cl. B23k 1/00, 5/22
U.S. Cl. 228—20 10 Claims

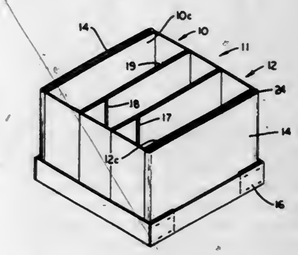


The specification discloses a small, hand held, cylindrical, vacuum stroke tool for removing molten solder. A trigger mechanism carried by the cylindrical body may hold a spring-loaded piston near the tip, solder inlet end of the tool. A hollow, cylindrical, cocking plunger extends out of the opposite end of the body and is displaceable axially to push the piston forwardly until it engages the trigger mechanism. The cocking plunger, coupled to the piston by an axially-tensive spring is then pulled rearwardly and locked in place. When the trigger mechanism is actuated to produce the solder removing vacuum stroke, the piston flies back and strikes the forward end of the cocking plunger. The piston and the cocking plunger are constructed so that the indicated impact unlocks the cocking plunger thus enabling it to be moved forwardly for a subsequent cocking action.

3,543,991
MULTI-CELL BULK CONTAINER

Philip R. George, Houston, Texas and Robert N. Wood, Indianapolis, Indiana, assignors to Inland Container Corporation, Indianapolis, Indiana a corporation of Indiana

Filed Jan. 13, 1969, Ser. No. 790,670
Int. Cl. B65d 1/36, 3/24, 5/48
U.S. Cl. 229—15 1 Claim



A multi-cell container having reinforced ends and which has no exposed corner or panel seams or joints. The joints or seams in the individual cells are staggered to prevent interior, divider-wall weakness.

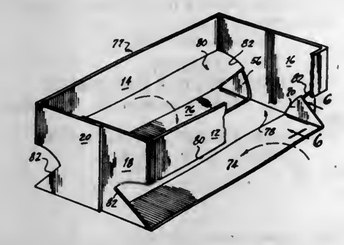
3,543,992
ONE-PIECE STRAIGHT LINE EDGE PAPERBOARD TRAY

Richard E. Paige, 432 Park Ave. South, New York, New York

Filed Jan. 13, 1969, Ser. No. 790,584
Int. Cl. B65d 5/00
U.S. Cl. 229—16 2 Claims

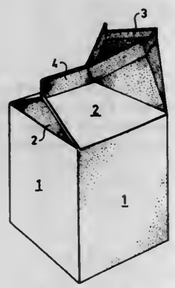
A one-piece paperboard tray for displaying and supporting flat articles of rectangular configuration conveniently and removably in exposed position. The tray is adapted to be shipped flat and readily erected by the ultimate user. The tray comprises sectional side and end walls, the bottom sec-

tions of the sidewalls being pivotally mounted and adapted to be moved inwardly of the upper sections thereof to serve as



bottom shelves for supporting the articles. The top of the tray is open.

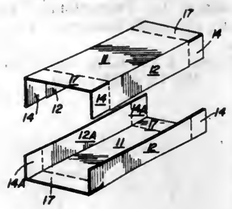
3,543,993
ARRANGEMENT IN SQUARE PACKAGES
Hans Anders Rausing, Lund, Sweden, assignor to AB Tetra Pak, Lund, Sweden a Swedish Company
Filed Feb. 17, 1969, Ser. No. 799,801
Claims priority, application Sweden, Feb. 20, 1968, 2176/68
Int. Cl. B65d *5/08, 5/74*
U.S. Cl. 229—17 **3 Claims**



In a square gable top package of cardboard or paper having an internal coating of thermoplastic material and forming an upper closure means having wall portions sealed to each other and adapted to be opened by breaking such seal, there is provided adjacent said seal a cut separating areas of the thermoplastic layer, the thermoplastic layer above said cut being less strongly adhered to said paper or cardboard than the thermoplastic layer below said cut.

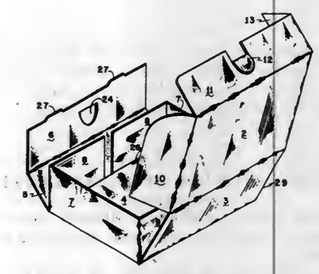
3,543,994
CONTAINER SLEEVE
Frank E. Clark, Orinda, California, assignor to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed Jan. 23, 1969, Ser. No. 793,285
Int. Cl. B65d *5/00*
U.S. Cl. 229—23 **1 Claim**

A container sleeve formed from a pair of asymmetrical blanks, each of the blanks including a symmetrical portion having a main panel and opposed side and end panels, the side panels having flaps extending from each end thereof, one of the side panels being foldably connected to a mirror side panel adapted to be folded against its adjacent side panel and glued thereto, to thereby make a blank having a side flap of double thickness. The second blank is turned through 180° along an axis passing therethrough and parallel to the side panels. The double-thickness side flap of one blank is then glued to the single-thickness side flap of the other blank, and



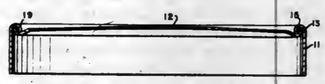
vice versa. The method of making such a container sleeve is also comprehended herein.

3,543,995
SELF LOCKING CONTAINER
Bobby L. Wilson, Washington Court House, Ohio, assignor to The Mead Corporation, Dayton, Ohio a corporation of Ohio
Filed Dec. 20, 1968, Ser. No. 785,523
Int. Cl. B65d
U.S. Cl. 229—36 **2 Claims**



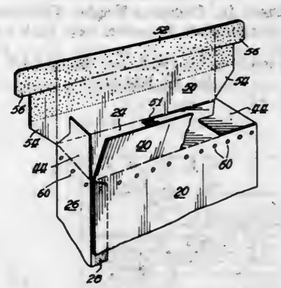
A hinged cover self-locking container having a reversely folded locking flap struck out from a closure panel. The closure panel is closed interiorly of a locking panel thereby causing the locking flap to come into mating engagement with an exteriorly inaccessible locking recess in the locking panel. The closure panel is provided with a rearwardly recessed bracing flap for maintaining positive locking engagement while permitting limited inward swinging of the closure panel during the closing sequence.

3,543,996
LID CONSTRUCTION
John B. West, Pikesville, Maryland, assignor to Maryland Cup Corporation, Owings Mills, Maryland a corporation of Maryland
Original application July 21, 1967, Ser. No. 655,096, now Patent No. 3,469,507. Divided and this application March 25, 1969, Ser. No. 832,523
Int. Cl. B65d *5/64, 3/14*
U.S. Cl. 229—43 **4 Claims**



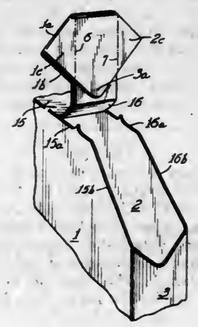
A cardboard lid is made by joining the flange of a disc to an overlapping and beaded marginal portion of a cardboard cylindrical member with glue between the outer edge of the flange and the inner wall of the marginal portion. The glue, typically, may be applied by placing a nozzle on the inside of the cylinder and rotating the cylinder relative to the nozzle as the glue is discharged therethrough. This places the glue between surfaces which are conventionally not printed or treated in a way to adversely affect the adhesion of the glue and permits the use of less cardboard material.

3,543,997
RECLOSABLE HOODED CARTON
Louis C. Michetti, Santa Clara and William R. Pettit, San Jose, California, assignors to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed April 24, 1968, Ser. No. 723,794
Int. Cl. B65d *5/54*
U.S. Cl. 229—51 **1 Claim**



A reclosable carton comprising a body and a cover including a top panel hinged to the body and having front and side panels depending therefrom and interconnected to form a hood telescopingly receiving upper marginal areas of the body.

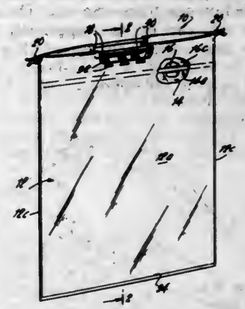
3,543,998
EASY OPEN CARTON
Bert James Dunlap, Batavia, Illinois, assignor to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed Aug. 26, 1968, Ser. No. 755,167
Int. Cl. B65d *5/54*
U.S. Cl. 229—51 **1 Claim**



A carton, having very narrow width edge walls and relatively wide side walls, with an end closure formed by overlapping flaps. Weakened tear lines are formed along the closure flap hinge lines. At one corner of the carton the weakened lines extend angularly of the side walls and across the edge wall to enable the corner portion to be severed to provide an easily grasped element to facilitate severance of the tear strip between the weakened lines.

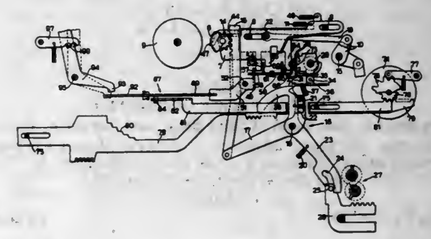
3,543,999
SIFTPROOF HANDLE BAG
Emanuel Kugler, 124 Richmond Place, Lawrence, New York
Filed April 7, 1969, Ser. No. 813,819
Int. Cl. B65d *31/12, 33/28*
U.S. Cl. 229—56 **4 Claims**

An improved siftproof bag construction which has an outer and inner bag arranged one within the other and wherein the outer bag has an upper gusset in which there are drawstrings disposed between the gusset wall sections and a finger or hand opening cut in the fold formed by the gusset wall and



the bag walls, the opening being reinforced by heat seals which strengthen the overall bag construction and retain the drawstrings in position.

3,544,000
DEVICE FOR CONTROLLING THE PRINTING OF THE DECIMAL POINT IN A CALCULATING MACHINE OR THE LIKE
Michele Bovio, Banchette, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy, a corporation of Italy
Filed April 4, 1968, Ser. No. 718,658
Claims priority, application Italy, April 6, 1967, 51,213/67 Patent 800,724
Int. Cl. G06c *19/00, 29/00*
U.S. Cl. 235—60.15 **3 Claims**

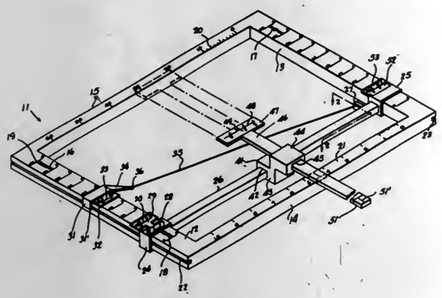


In a calculating machine, wherein some typecarriers are interspersed with a group of decimal point printing elements individually selectable by a transversely movable plate and wherein a member is variably settable for causing a predetermined number of orders to be dropped in printing the total, the plate and the members are set simultaneously by a common knob. The plate is adapted to entrain a zero printing suppressing slider along the left. The suppressing slider normally allows the typecarrier of the lower order to print, whereas another slider is transversely movable one step with respect to the suppressing slider for normally preventing said lower order typecarrier from printing.

3,544,001
LINEAR INTERPOLATING DEVICE
Clayton W. Hann, 1516 Sunrise Rim Road, Boise, Idaho
Filed March 28, 1969, Ser. No. 811,374
Int. Cl. G06g *1/00*
U.S. Cl. 235—61 **10 Claims**

A device to be employed for interpolation in finding the values of mathematical functions. The device consists of a rectangular frame calibrated along its transverse sides in digital values and along its longitudinal sides in subdivisions of the values to be found by interpolation, which are related to said digital values. For example, the digital values may represent the numerical values of trigonometric functions

and the longitudinal sides may be calibrated in seconds or in fractions of an angle. A longitudinal bar is mounted on respective sliders on the transverse sides, and an additional slider is provided on one transverse side. The sliders on said one transverse side can be set respectively to upper and lower function limit values between which an interpolated angle value is to be found. A spring-biased cable connects said additional slider to the opposite end of the longitudinal



bar. A further slider is mounted on the longitudinal bar and slidably carries a further bar extending perpendicular to the longitudinal bar. Said further bar has a transparent end plate provided with crosshairs. The further bar can be adjusted so that the intersection of the crosshairs registers with the cable. The position of said further bar then corresponds to the required angle interpolation value, read off from a scale on one of the longitudinal sides.

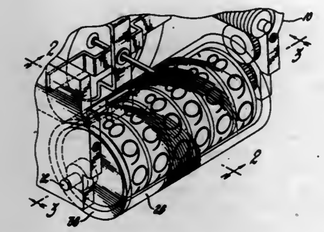
ERRATUM

For Class 235—88 see:
Patent No. 3,544,768

3,544,002
TAMPER-PROOF ODOMETER

Raymond E. Summerer, Grand Blanc and Harold A. Haven, Fenton, Michigan, assignors to General Motors Corporation, Detroit, Michigan, a corporation of Delaware

Filed Oct. 9, 1969, Ser. No. 865,012
Int. Cl. G01c *22/00*
U.S. Cl. 235—96 **6 Claims**

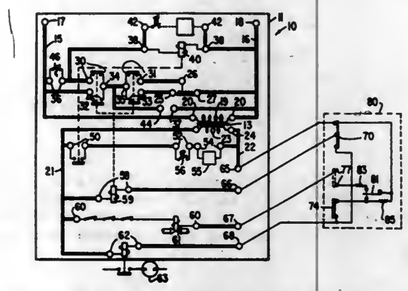


This invention relates to a numbered wheel odometer which provides an indication of tampering and more specifically to an odometer having a pair of spaced-apart transparent concentric cylinders around the numbered wheels, forming a receptacle or chamber between the cylinders. The chamber is filled with a chemical that will cause a visible change if the interior chamber is exposed to the atmosphere after being filled and sealed. The cylinders prevent the use of an instrument on the numbered wheels for rotation thereof other than normal rotation of the odometer during normal driving operation. If the cylinders are broken or penetrated in some manner, there will be a change noted in the odometer to provide a ready indication of tampering. A single tempered glass cylinder could be used, wherein the glass will shatter upon penetration.

3,544,003
FURNACE HAVING CONTROL MODULE WITH PLUG-IN RELAY MEANS FOR CONTROL OF DIFFERING VOLTAGE ACCESSORY

Harold R. Bissell, Jr., Hacienda Heights, California, assignor to Carrier Corporation, Syracuse, New York a corporation of Delaware

Filed May 23, 1969, Ser. No. 827,396
Int. Cl. F24f *3/14*
U.S. Cl. 236—11 **2 Claims**

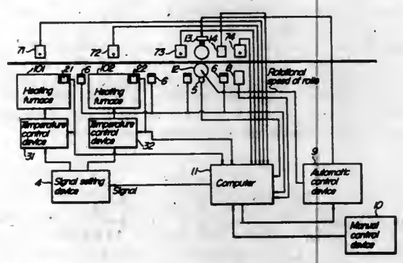


A furnace having a control module comprising printed circuit board which contains a prewired control circuit for either a high voltage humidifier or a low voltage humidifier. Terminal means are provided for connecting a plug-in fan relay and a thermostat in a low voltage circuit. Additional terminal means are provided for connecting a fan motor and a high voltage humidifier relay to a line voltage circuit. In the event it is desired to use line voltage humidifier controls, the humidifier relay is omitted and the humidifier controls are connected in place of the relay. In the event that it is desired to use low voltage humidifier controls, the humidifier is plugged into its socket in the high voltage circuit and the switch contacts of the humidifier relay are used to control low voltage humidifier controls, which are connected to suitable terminals in the low voltage circuit.

3,544,004
METHOD OF AND APPARATUS FOR CONTROLLING ROUGHING-DOWN ROLLS OUTLET TEMPERATURE IN HOT ROLLING MILLS

Katumi Hirakawa, Japan; Hidehiro Kitanosono, Japan and Hiroshi Nakanishi, Hitachi-Shi, Japan, assignors to Hitachi Ltd., Tokyo, Japan a corporation of Japan

Filed Jan. 31, 1967, Ser. No. 612,941
Claims priority, application Japan, Feb. 2, 1966, 41/5614
Int. Cl. B21b *37/10*
U.S. Cl. 236—15 **3 Claims**



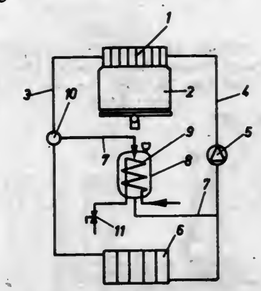
The present invention contemplates to control the temperature of a heating furnace in a hot rolling operation so as to maintain the roughing-down rolls outlet temperature at a

desired value in accordance with the roughing-down rolls inlet thickness and outlet thickness, weight of a steel material being rolled, frequency of passage of the steel material through the roughing-down rolls or number of roll stands used, roughing-down rolls outlet width and rotational speed of the rolls.

3,544,005
HOT WATER CIRCULATION HEATING SYSTEM

Hans Meier and Max Albert Mueller, Remscheid, Germany, assignors to Joh. Vaillant KG., Remscheid, Germany

Filed Jan. 7, 1969, Ser. No. 789,522
Claims priority, application Germany, Jan. 13, 1967, 1,753,300
Int. Cl. F24d *3/02, 3/08*
U.S. Cl. 237—8 **3 Claims**



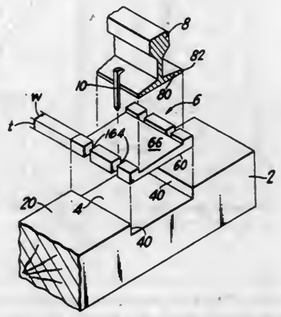
A hot water circulation heating system comprises a gas-heated instantaneous water heater used as a heat source, in which a domestic water heater is connected in a connection line leading from the supply line to the return flow line of the heating circuit connected to the water heater thereby short circuiting the heating circuit. A flow through the connection line is released by a thermostatically controlled priority switch valve both during the initial heating-up period and also during the drawing of domestic water. A domestic water heat exchanger is connected in said connection line. Annular spaces are provided in said container of said domestic water heat exchanger by concentric inserts for the flow of the circulating heating water therethrough from the connection line, so that flow is effected by multiple reversal of the direction of flow and reduction of the rate of flow.

Thereby the container is adapted as air separator and is provided with an automatic air exhaust valve.

3,544,006
NONMETALLIC TIE PLATE

Charles J. Pennino, Monroeville, Pennsylvania, assignor to Koppers Company, Inc., a corporation of Delaware

Filed Jan. 22, 1969, Ser. No. 793,099
Int. Cl. E01b *9/40*
U.S. Cl. 238—283 **4 Claims**

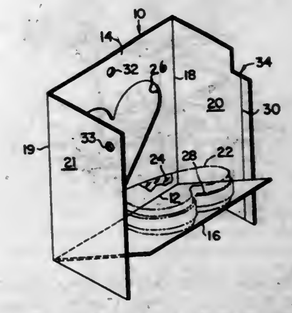


A nonmetallic tie plate is provided which is disposable on a railroad tie for carrying a rail and which is usable with railroad spikes for securing the tie, the tie plate, and the rail together as a unit. The tie plate comprises a high density polyethylene which is capable of absorbing impact stresses and of distributing conventional compressive stresses that are caused by a train passing over the rail.

3,544,007
ANTI-MOTH CAKE HOLDER

Morris A. Bordman, Bala-Cynwyd, Pennsylvania (Umbria & Lemonte Streets, Philadelphia, PA 19127)

Filed Sept. 16, 1968, Ser. No. 762,291
Int. Cl. A61l *9/04*
U.S. Cl. 239—60 **3 Claims**



A holder for storing, displaying for sale, and for using antimoth, or deodorant cake, or the like. The holder which is made of light cardboard, plastic, or the like, has a window opening, and the cake has a peripheral flange which coacts with the edge of the opening to prevent the cake from accidentally falling out of the holder. The moth cake is hermetically sealed in a readily tearable, preferably transparent wrapper or container, which is removed or slit open when it is desired to allow the vaporized material of the cake to flow into a closet or other enclosure.

3,544,008
FUEL INJECTOR

Neville H. Reiners and Julius P. Perr, Columbus, Indiana, assignors to Cummins Engine Company, Inc., Columbus, Indiana a corporation of Indiana

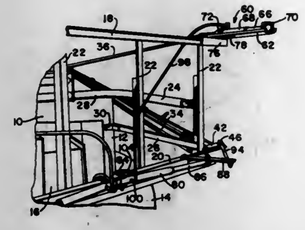
Filed Jan. 2, 1969, Ser. No. 788,387
Int. Cl. F02m *47/02*
U.S. Cl. 239—90 **21 Claims**



A fuel injector for injecting fuel into a cylinder of an internal combustion engine, wherein the maximum stroke of a

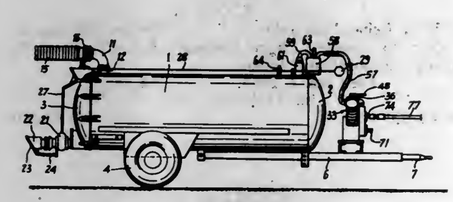
shiftable piston in the injector determines the maximum quantity of fuel injected by the injector during each cycle of operation thereof.

3,544,009
SPRAYER BOOM LEVELING AND FOLDING APPARATUS
Francis Edward Schlueter, Des Moines, Iowa, assignor to Deere & Company, Moline, Illinois a corporation of Delaware
Filed March 18, 1969, Ser. No. 808,168
Int. Cl. B05b *1/20*
U.S. Cl. 239—167 **12 Claims**



The leveling and folding cylinders for a sprayer boom are connected in parallel to a single control valve. The folding linkage is designed to give the folding cylinder a greater load requirement then the leveling cylinder so that the folding cylinder operates last in the raise and fold cycle but first in the unfold and lower cycle.

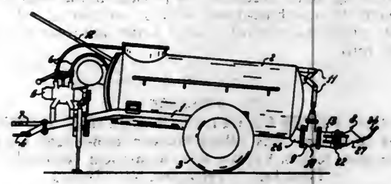
3,544,010
MOBILE DRUM FOR DISTRIBUTING AND SPRAYING
Marius Jurdyc, Bel Air, Chabris, Indres, France
Filed July 12, 1968, Ser. No. 744,408
Int. Cl. B05b *1/20*
U.S. Cl. 239—168 **4 Claims**



A wheeled drum for distributing liquid manure or for spraying liquid fertilizers, herbicides, plant protectants and the like. The drum is equipped with an air compressor having two operative speeds, namely a speed for distributing at a high rate of delivery and low pressure and a speed for spraying at a lower rate of delivery and high pressure, an adjustable safety valve, a distributing nozzle, articulated spray bars in communication with the interior of the drum and a filter opening fitted with a removable leak-tight plug.

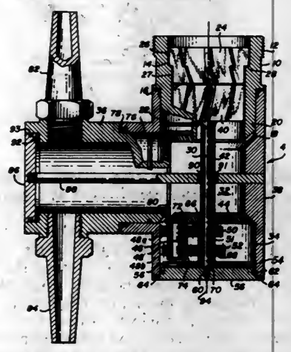
3,544,011
DEVICES FOR SPREADING LIQUIDS
Ary Van der Lely, 10, Weverskade, Maasland, Netherlands
Filed March 27, 1968, Ser. No. 716,393
Claims priority, application Netherlands, April 3, 1967, 67,04689
Int. Cl. B05b *9/00*
U.S. Cl. 239—175 **3 Claims**

A spreader for liquids has a container, an outlet and a spreading member at the end of the outlet to form a conduit for the liquid being spread. The spreading member is



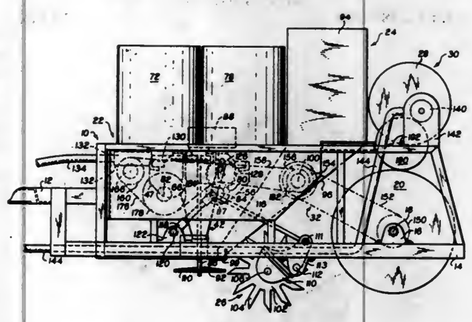
mounted to be pivotable relative to the outlet so that the spreading member can be swung away from the outlet.

3,544,012
PRESSURE JET TANK CLEANER
Michael McNally, Bundtacherstrasse 30, Forch, Switzerland
Filed Aug. 26, 1968, Ser. No. 755,226
Int. Cl. B05b *3/04*
U.S. Cl. 239—227 **12 Claims**



A hydraulically operated cleaner with nozzles for directing strong jets of cleaning fluid against interior tank surfaces.

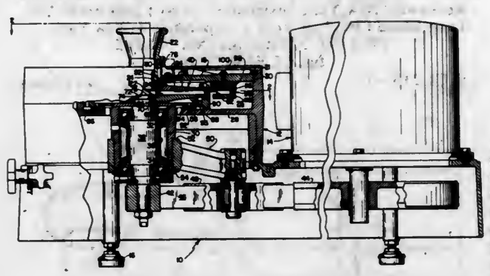
3,544,013
SOIL TREATING APPARATUS
Daniel Dorfman, Woodbury, New York, assignor to Lawn-A-Mat Chemical & Equipment Corporation, Mineola, New York a corporation of New York
Continuation of Ser. No. 558,307, June 17, 1966, abandoned. This application Oct. 7, 1969, Ser. No. 866,428
Int. Cl. A01c *7/06*
U.S. Cl. 239—656 **2 Claims**



A complete soil treating apparatus including means for distributing particulate material, means to pierce the soil to loosen and aerate the same and means to distribute liquids,

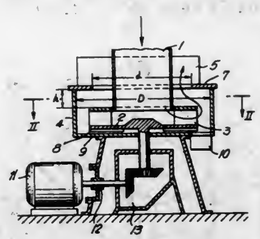
said details being operated by a drive transmission of the apparatus as the same moves over and relative to the soil.

3,544,014
IMPACT MILL
Johannes F. E. Kampe, Torrance, California, assignor to McDonnell Douglas Corporation, a corporation of Maryland
Filed Dec. 26, 1967, Ser. No. 693,561
Int. Cl. B02c *19/00, 23/00*
U.S. Cl. 241—41 **4 Claims**



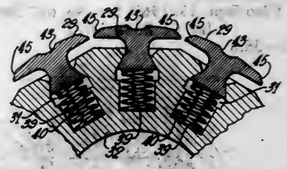
An impact crushing mill having a rotor with radial channels and U-shaped wear plates along the channel walls to provide a flat-bottomed wearing surface for uniform distribution of particles and even wear of the plates. An annular impact target device surrounds the periphery of the rotor and includes upper and lower rings with a plurality of impact targets secured between the rings in spaced relation to provide passageways which permit the escape of crushed material away from the rotor periphery.

3,544,015
MILL FOR PULVERIZING HARD MATERIAL
Milos Gulic, Brankava 23 and Dobren Stojkovic, Pavla Papa 12, both of Beograd, Yugoslavia
Filed Dec. 26, 1967, Ser. No. 693,539
Claims priority, application Yugoslavia, Dec. 27, 1966, 2445
Int. Cl. B02c *13/18, 13/288, 31/00*
U.S. Cl. 241—44 **17 Claims**



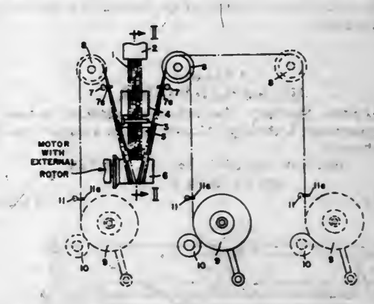
A ventilating mill in which material to be pulverized is fed with a heated transport fluid to crushing plates on a rotor in a housing to be subjected to a first crushing operation. The material is discharged by centrifugal force from the rotor into the housing wherein the material undergoes a second crushing operation and is thereafter discharged to a distributor. The degree of crushing in the second crushing operation is regulated by the period of detention of the material in the housing as controlled by the size of a throttle outlet aperture from the housing to the distributor and the length of the housing between the rotor and the distributor.

3,544,016
WINDING MANDREL FOR PACKAGING GLASS STRANDS
Cecil R. Cunningham and James C. Rushton, Aiken, South Carolina, assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed March 8, 1968, Ser. No. 711,776
Int. Cl. B65h *75/30*
U.S. Cl. 242—18 **8 Claims**



A rotatable mandrel for holding a tube on which a glass strand is wound into a package which has elongated fingers extending lengthwise of the mandrel in closely adjoining relation, said fingers being loosely held for outward movement under the centrifugal force of the rotation of the mandrel whereby the tube is held to its greatest diameter, each of said fingers having a groove along its longitudinal centerline and tapered edges whereby on termination of the rotating movement of the mandrel and of the associated application of centrifugal force against the tube, the tube is constricted by the tension of the wound strand thereon and to effect an accommodating reduction in diameter, portions of the tube collapse and enter into the depressed areas of the center grooves and tapered edges of the fingers.

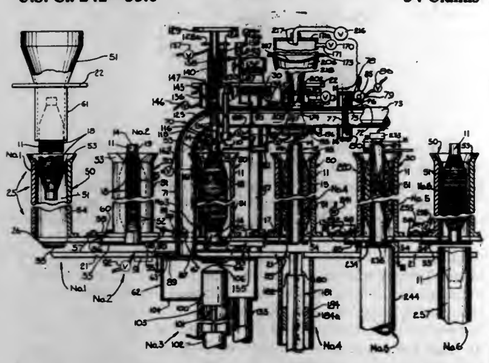
3,544,017
MULTI-UNIT SPINNING AND SPOOLING ASSEMBLY
Heinz Schippers; Erich Lenk and Friedrich Neuhaus, Remscheid-Lennep, Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany
Filed July 12, 1968, Ser. No. 744,448
Claims priority, application Germany, July 12, 1967, Dec. 23, 1967, B71,781;B73,963
Int. Cl. B65h *54/06*
U.S. Cl. 242—18 **11 Claims**



A multi-unit spinning and spooling assembly for producing and collecting a large number of continuous monofilament or multifilament synthetic thermoplastic threads in which a draw-off godet is arranged vertically below each spinning unit with its axis of rotation parallel to the frontside of the supporting frame and/or parallel to the planar bundle of threads being drawn from the spinning unit and in which all deflection godets and spooling bobbins associated with each spinning unit have their axes of rotation parallel to each other and perpendicular to the axis of the drawoff godet. The spooling bobbins may be rotated by frictional drive rollers, and each of the resulting winding or spooling devices are advantageously arranged such that either the bobbin or the drive roller is mounted with reference to a fixed rotating axis

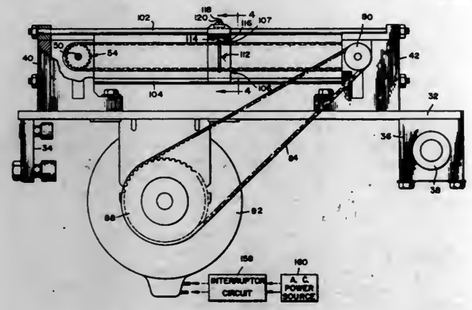
or at the end of a swinging arm having a fixed axis, these fixed axes of the winding devices being arranged in substantially vertical alinement below the drawoff godet.

3,544,018
BOBBIN HANDLING
William E. Stoppard, Warwick; Thomas E. Pitts, Cranston and John Nelson, North Kingstown, Rhode Island, assignors to Leesona Corporation, Warwick, Rhode Island a corporation of Massachusetts
Filed Sept. 13, 1967, Ser. No. 667,500
Int. Cl. B65h 54/22
U.S. Cl. 242—35.6 34 Claims



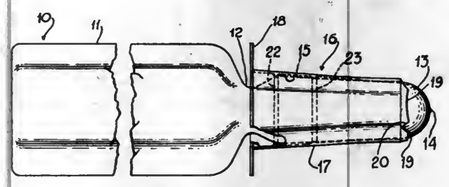
An apparatus and method for readying filled bobbins from a spinning or twisting machine for further processing on a winding machine. Each bobbin is delivered to a receiving station and then advanced from station to station. These stations includes a first processing station at which the bobbin is cleaned, a terminal or inner end of the strand of yarn is broken from the bobbin, and surplus windings of the unwinding or outer end (such as a halch and tailing coils) are removed. Then the unwinding end is transferred to a bunch making station and is formed into a bunch of relatively large random loops. The bobbin is also transferred to the bunch making station and the bunch is deposited in a hollow of the core of the bobbin for retention therein until subsequent retrieval at the winding machine. From the bunch making station the bobbin passes through an inspection station to a discharge station.

3,544,019
HIGH SPEED WINDER
Manuel Lapidas, Sudbury, Massachusetts, assignor to Lamautex Corporation, Uxbridge, Massachusetts a corporation of Massachusetts
Filed Nov. 23, 1966, Ser. No. 596,524
Int. Cl. B65h 54/28
U.S. Cl. 242—43 19 Claims



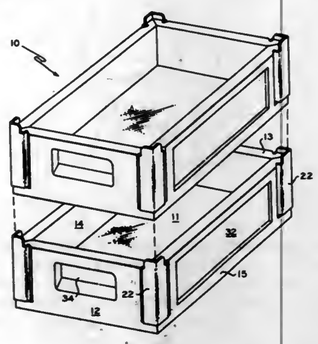
A high-speed filament winder having a frame, a bobbin drive roll, an arbor for supporting a cylindrical bobbin, the roll and arbor being movable with respect to one another so that the roll can contact-drive the yarn package on the arbor while the package grows in diameter, and a traversing mechanism for moving the yarn up and down the package. The traversing mechanism includes a pair of endless belts supported and driven by respective pairs of pulleys, a traverse guide mounted on guide rails and connected to the belts so as to provide a reciprocal motion.

3,544,020
FINGER PROTECTOR FOR USE IN THE OPENING OF AMPOULES
Raymond Goldberg, East Meadow and Irving F. Shaw, East Rockaway, New York, assignors to West Laboratories Inc., Long Island City, New York a corporation of New York
Filed Oct. 3, 1968, Ser. No. 774,562
Int. Cl. B65d 17/16
U.S. Cl. 215—12 11 Claims



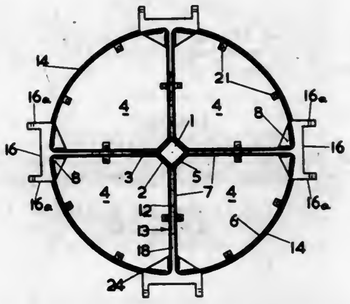
Finger protector for grasping the removable end of flame-sealed ampoules and the like in the opening thereof comprising a tubular body of cylindrical to frustoconical contour having at one end thereof an outwardly extending circumferential flange, and at the other end portion thereof a plurality of circumferentially disposed inwardly extending flanges, said tubular body and flanges being integrally formed of yieldable material whereby said inwardly extending flanges can yieldable engage and center the removable end of an ampoule within the device. The device may also have inwardly extending circumferential means adjacent said outwardly extending flange for positioning said body on the removable end with said outwardly extending flange in substantial alinement with the point of severance of said end.

3,544,021
DOUBLE-WALL BLOW MOLDED CARTON
Newton R. Wilson and Bill T. Morgan, Bartlesville, Oklahoma, assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,340
Int. Cl. B65d 7/22, 11/16, 11/18
U.S. Cl. 220—7 3 Claims



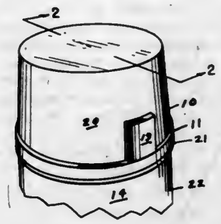
A collapsible carton of double-wall construction and an apparatus for forming the carton. The carton, having a bottom and four side walls, is maintained in the assembled condition by clips which also serve as guides for similarly constructed cartons placed thereover. The apparatus includes a pair of mold halves which define an internal cavity partitioned into a bottom and four side wall sections. Air holes maintain communication between the sections so that the plastic material may be blow molded by a single needle protruding into one of the cavity sections.

3,544,022
STRUCTURES
Michael Weston Jones, Drotiwich and John Gordon Hardwick, Kidderminster, England, assignors to Imperial Metal Industries (Kynoch) Limited, Witton, Birmingham, Warwickshire, England a corporation of Great Britain
Filed Aug. 5, 1968, Ser. No. 750,292
Claims priority, application Great Britain, Aug. 8, 1967, 36360/67
Int. Cl. B65d 21/02
U.S. Cl. 220—23.4 3 Claims



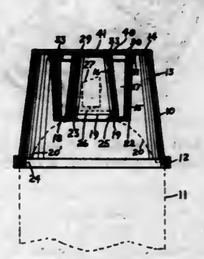
A space satellite structure, preferably of plastics materials, comprises a column of polygonal cross section and a plurality of panel members projecting radially from the column, each panel member lying in a plane containing an edge of the polygonal column and being secured to two adjoining sides defining said edge.

3,544,023
TAMPERPROOF CLOSURE
Richard F. Hendrickson, Erie, Pennsylvania and Roderick V. King, Girard, Pennsylvania
Continuation-in-part of application Ser. No. 704,720, Feb. 12, 1968, now Patent No. 3,452,894. This application May 20, 1969, Ser. No. 826,233
Int. Cl. B65d 17/00
U.S. Cl. 220—27 14 Claims



A protective cap having tamperproof qualities suitable for use in combination with an aerosol can. The cap being of generally cup-shaped design made of relatively thin material. A shoulder around the periphery of the cap extends out over the rim of the can and a skirt extends downwardly from the outer portion of the shoulder, an inward projection within the skirt adapted to underlie the rim of an aerosol can and an upward extension of the shoulder forming a protrusion which can be readily removed thereby weakening the shoulder.

3,544,024
DIRECTIONAL CLOSURE FOR A CONTAINER
Richard F. Hendrickson, Erie and Roderick V. King, Girard, Pennsylvania, assignors to Sterling Seal Company, Erie, Pennsylvania a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 704,885, Feb. 12, 1968, now Patent No. 3,438,537, which is a Continuation-in-part of 775,040, Nov. 12, 1968, now Patent No. 3,421,651. This application Feb. 13, 1969, Ser. No. 798,986
Int. Cl. B65d 51/20
U.S. Cl. 220—27 6 Claims

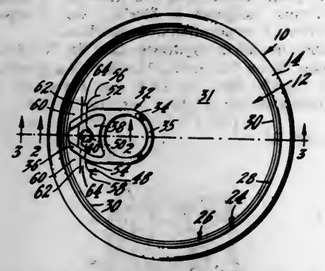


A tamperproof overcap for an aerosol can or the like made up of a cylindrical outer body closed at one end and having an inner wall generally concentric with the outer wall and an intermediate wall between the inner wall and the outer wall. The lower part of the intermediate wall is attached to the lower part of the inner wall by an annular bottom. The upper edge of the intermediate wall is fixed to the upper part of the outer wall by an annular top. The lower edge of the inner wall has an annular inwardly extending bead which may underlie the overhanging annular circumferential bead around the valve of an aerosol can. The bead has a circumference slightly less than the outer circumference of the overhanging circumferential bead. Thus the bead on the cap may snap under the overhanging circumferential bead of the can and hold the cap firmly in place. The cap body is closed at one end and forms a cover which closes the upper edge of inner wall and this cap cover has a slot in it. The slot is made to receive a coin or a suitable tool. A suitable tool may be twisted in the slot. This will cause the material at the ends of the slot to tear along a line which will extend down and intercept the bead. A cover disk may be inserted in the annular space defined by the upper edge of the outer walls overlying the cap cover. This cover disk may either be removed to give access to the slot or the cover disk may have a slot through which the coin or suitable tool may be inserted to fracture the inner cup. The coin or suitable tool will first pass through a first outer top and then into the inner top, a twisting action then applied to the coin or suitable tool will rotate the cover disk and break the inner circular wall, thus releasing the locking quality of the lower flange from its underlying position. The closure's basic construction could provide a tapered design or shape from a straight wall normal design realizing a limited stacking quality.

3,544,025
FULL OPEN END
Leonard Thomas La Croce, Paramus; Raymond Luscombe Batchelar, Westwood and John Wilson Rouse, Ramsay, New Jersey, assignors to American Can Company, New York, New York a corporation of New Jersey
Filed May 13, 1968, Ser. No. 728,518
Int. Cl. B65d 17/24, 17/20
U.S. Cl. 220—54 10 Claims

A "self-opening" can end having a central wall is peripherally scored to define a removable panel which may be removed by manipulation of a pull tab which is riveted to the removable panel at a location adjacent to the peripheral score, the removable panel being provided with an ancillary score passing adjacent to the rivet on the side thereof away from the peripheral score, to set off in the removable panel a pivotable portion which contains the rivet and two flex-inducing scores which are disposed on either side of the rivet between the peripheral score and the ancillary score, to

render the pivotable portion sufficiently flexible to prevent its rupture during the opening operation. The outer end of



the pull tab is tilted upwardly to insure that the ancillary score ruptures before the peripheral score does.

3,544,026
BOBBIN CLUTCH FOR TEXTILE SPINDLE ASSEMBLY
Philip A. Bowie, Pendleton and Edward A. Bragg, Clemson, South Carolina, assignors to Maremont Corporation, Chicago, Illinois a corporation of Illinois
Filed June 16, 1969, Ser. No. 833,597
Int. Cl. B65h *75/30, 79/00;* **D01h** *3/16*
U.S. Cl. 242—46.6 **10 Claims**

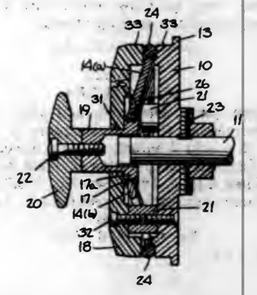


A bobbin clutch for textile spindle assemblies which may be of the type including a collar slidable longitudinally of the spindle blade's lower portion and having a clutch upon both such collar and upon the blade's upper portion. The clutches comprise resilient split rings detachably seated within cooperating grooves and having resilient fingers extending outwardly therefrom for releasably engaging a bobbin mounted by the assembly.

3,544,027
QUICK CHANGE HUB FOR RECORDING TAPE REELS
Joe William Green, Calgary, Alberta, Canada and William Earle Swift, Tulsa, Oklahoma, assignors to Geophysical Research Corporation, New York, New York a corporation of New Jersey
Filed Feb. 6, 1969, Ser. No. 797,097
Int. Cl. B65h *17/02*
U.S. Cl. 242—68.3 **8 Claims**

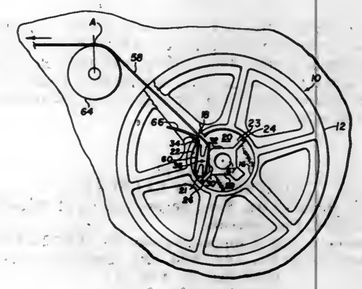
The subject matter of the disclosure is a device enabling the quick and easy attaching and removal of recording tape reels to and from a shaft.

An elastic O-ring is positioned in a groove formed in a hub. The ring is held firmly in place by the outer edges of the segments of a segmented disc while the inner edges of the segments are held in a groove inscribed in a spool which is slidable in the hub. Sliding the spool alters the position of the segments with a toggle action, causing the O-ring to expand or



contract as desired. The tape reel, if put on the hub while the O-ring is in a contracted position, can be held fast by expanding the ring by sliding the spool.

3,544,028
STRIP ANCHORING DEVICE
Elmer O. Wangerin, Rochester, New York, assignor to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed Sept. 11, 1968, Ser. No. 759,168
Int. Cl. B65h *75/28*
U.S. Cl. 242—74.1 **16 Claims**



This disclosure relates to an anchoring device or member for securing a flexible strip to a reel. In one illustrative embodiment of this invention, the anchoring device takes the form of an H-shaped member of a suitably resilient material about which a loop of the flexible strip is disposed. More specifically, the loop of the flexible material is inserted through a slot of a hub of the reel and the anchoring member is then disposed within the loop. The anchoring device coacts with the interior of the hub to prevent the withdrawal of the strip from the hub and to present a resilient portion of the anchoring device for absorbing the force tending to withdraw the strip from the hub.

3,544,029
POWER-DRIVEN DISPENSER ASSEMBLY
William A. Meier, Roselle, Illinois, assignor to Signode Corporation, a corporation of Delaware
Filed Oct. 7, 1968, Ser. No. 765,529
Int. Cl. B21c *47/16*
U.S. Cl. 242—78.6 **4 Claims**

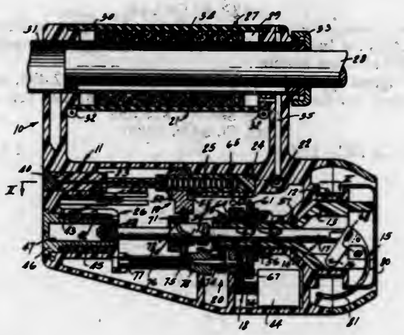
An automatic dispenser for coiled steel strapping materials, or the like, having a rotatable material dispensing tray which is intermittently power-driven by an electric motor, or other suitable means, and a motor-controlling switch and a

movable position-responsive sensor device constructed and arranged adjacent the axis of a rotatable material-dispensing



tray to control the motor in response to demand for strapping material.

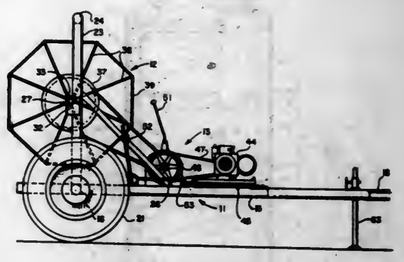
3,544,030
SPINNING REEL
Dennis Daniels, 122 Berkeley Rd., Williamsville, New York
Filed Aug. 15, 1967, Ser. No. 660,666
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.21 **24 Claims**



A spinning reel has a spinner which is rotatable and which is axially fixed that carries a retractable bail mechanism, an electric motor operating a rewind mechanism acting on the spinner. A collapsible elastomeric hollow handle within which there is elastomeric foam serves as a source of pressurized fluid which is controlled by a gravity-actuated selector valve to operate one or the other of a pair of fluid actuators. One fluid actuator is connected through a rheostatic motor control to the electric motor for rewinding, and the other actuator is connected to a bail control for retracting the bail. The fluid actuators have a spring acting therebetween which is augmented by a piston-cylinder arrangement carried by such actuators. The line-engaging portion of the bail has a dual curvature along its length.

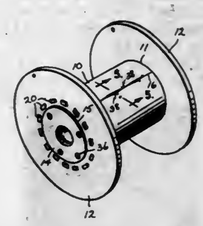
3,544,031
MOBILE WIRE ROLLER APPARATUS
George E. White, Winona, Kansas, assignor to Johanna A. Michael doing business as Michael Mfg. Co., Winona, Kansas
Continuation of application Ser. No. 678,061, Oct. 25, 1967, now abandoned. This application June 24, 1969, Ser. No. 838,042
Int. Cl. B65h *75/40*
U.S. Cl. 242—86.5 **9 Claims**

Wire roller apparatus inclusive of wheel-mounted body having rotary wire reel and reel drive mounted on body. Reel positively rotated by drive to wind wire on reel while standing and unwind wire from reel, and tauten wire paid out from reel during movement of body along work area. Reel sections arranged for movement lengthwise of shaft and shaft mounts



on upright portions of body arranged for permitting removal of reel from body and wound wire coil from reel.

3,544,032
WIRE REEL
Arnold T. Faulkner, R.R. 2 Box 443, Berrien Springs, Michigan
Filed Oct. 29, 1968, Ser. No. 771,584
Int. Cl. B65h *75/14*
U.S. Cl. 242—118.8 **8 Claims**

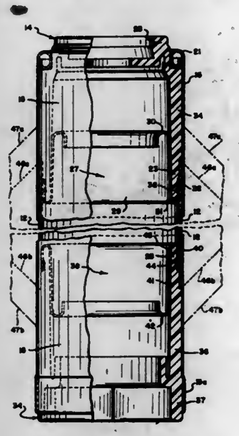


A reel for storage of wire or like material comprising a tubular core, and a pair of end disks each abutting an end edge of said core. Each end edge of said core includes a plurality of circumferentially spaced tabs which protrude through corresponding slots in an abutting end disk. A reinforcing disk is mounted to the outer face of each end disk and has an outer circumferential edge which extends to the slots of the end disk. The protruding ends of the tabs at each end edge of the core are bent around the circumferential edge of a reinforcing disk.

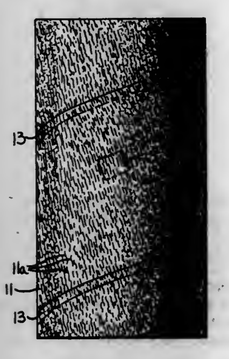
3,544,033
BOBBIN EXTENDER
Charles C. L'Allemand, Murray Hill, New Jersey, assignor to Baldt Corporation, New York, New York a corporation of Delaware. by mesne assignments
Filed May 3, 1968, Ser. No. 726,406
Int. Cl. B65h *75/10*
U.S. Cl. 242—118.31 **7 Claims**

Bobbin extenders for extending the length of conventional bobbin or pirn assemblies replace the original top end cap and/or the bottom end cap of the assembly. Both the top end and bottom end bobbin extenders comprise essentially a first cylindrical section adapted to be force fitted into the top or the bottom end, respectively, of the tubular metal barrel of the bobbin, an elongated center cylindrical section adapted to receive and support yarn wound on the outer surface of the bobbin assembly immediately thereover, and a top or bottom cylindrical section, respectively, of conventional con-

figuration. Both are provided with an inner reinforcing member that extends from the inward end of the bobbin extender along the inner surface of the extender to a point overlying the center cylindrical section thereof.



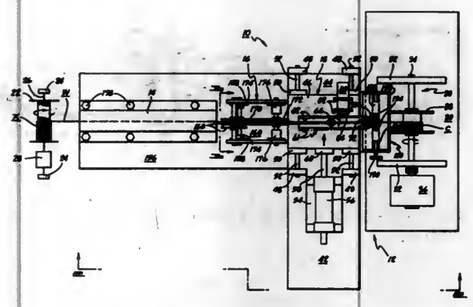
3,544,034
YARN CARRIER TUBE
Joseph F. Jurney and Herman R. Roediger, Danville, Virginia, assignors to Star Paper Tube Inc., Rock Hill, South Carolina a corporation of South Carolina
Filed May 28, 1968, Ser. No. 732,734
Int. Cl. B65h *75/10, 75/26*
U.S. Cl. 242—118.32 **6 Claims**



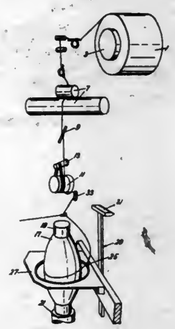
A thin outer ply of creped parchment paper is secured to the outer surface of a supporting core to provide an excellent slip-resistant and moisture-resistant outer winding surface for textile yarns.

3,544,035
APPARATUS FOR COILING A WEB OF ROD-LIKE MATERIAL
Kenneth W. Woolever, Pleasantville, Ohio, assignor to Kaiser Aluminum & Chemical Corporation, Oakland, California a corporation of Delaware
Filed July 24, 1968, Ser. No. 747,258
Int. Cl. B65h *57/28*
U.S. Cl. 242—158 **14 Claims**

An improved apparatus for coiling a continuously advancing web of rodlike material about a reel to form a tangle-free coil. The apparatus is generally comprised of a movable carriage disposed in spaced relation to the reel for traversing and controlling the lag angle of the material to be coiled on a reel. An improved electromechanical sensing device is used to control the traverse movements of the carriage in accordance with the desired lag angle and the desired manner and rate of coiling of the material about the reel.



3,544,036
YARN PACKAGE
Alan Conway Jones, Pontypool, England, assignor to Imperial Chemical Industries Limited, London, England a corporation of Great Britain
Original application July 11, 1967, Ser. No. 652,483, now Patent No. 3,451,208. Divided and this application Feb. 20, 1969, Ser. No. 816,455
Int. Cl. B65h *55/00*
U.S. Cl. 242—178 **1 Claim**

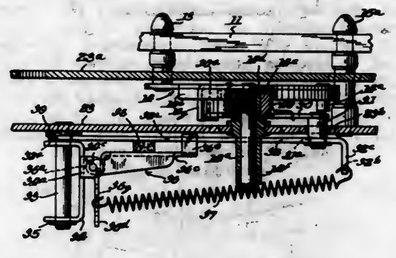


A yarn package composed of layers of yarn wound with coils having a sinusoidal wave form wherein the frequency of the sinusoidal waveform varies cyclically throughout the package.

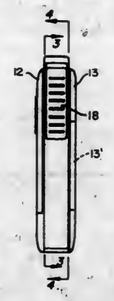
3,544,037
DAMPENING DEVICE
John F. Arent, Benton Harbor, Michigan, assignor to V-M Corporation, Benton Harbor, Michigan a corporation of Michigan
Filed March 16, 1967, Ser. No. 623,717
Int. Cl. B65h *59/38, 63/02*; **G03b** *1/04*
U.S. Cl. 242—189 **27 Claims**

A dampening device particularly suited for tape tension levers of a tape recorder to prevent excessive tension in the tape which may occur, for example, in reel start-ups and stops. The dampening force is a combination of a frictional force and a spring force but only the difference in the two forces effects a return of the tension lever to its normal

"play" range. A separate spring force is used in the play range to isolate reel vibrations or to accommodate minor fluctuations in speed of tape takeup. A retracted position of the levers is provided for loading of the tape and said position is controlled by the position of the switch actuator for the main on-off switch.



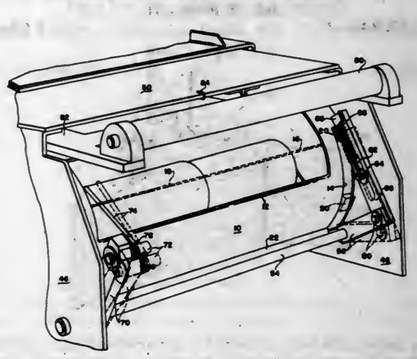
3,544,038
TAPE TRANSPORT AND CARTRIDGE
Kobert Smith, II, 24119 Summerhill Ave., Los Altos, California
Filed Aug. 12, 1968, Ser. No. 751,786
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—192 **9 Claims**



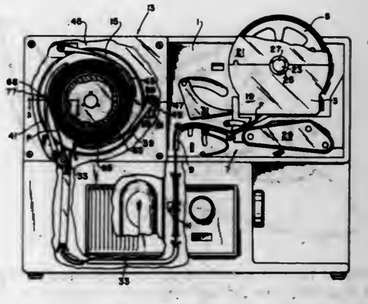
A tape transport device including a cartridge having takeup and supply rolls which are driven by an elastic belt. The belt supports the tape from the point of departure from the supply roll to the point of arrival of the tape on its takeup roll, thereby acting as a pressure pad for the tape. A driving capstan engages the belt drive, stretching it and producing a greater tension on the takeup reel than on the supply reel when the tape is driven to provide a constant tension on the tape in the zone between the departure and arrival points. No idler wheel is used, thus allowing for easy reversal of the tape without clutching or solenoids.

3,544,039
ADAPTER ASSEMBLY FOR CASSETTES
William P. Lynch, Honeoye Falls; Philip A. Payne, Rochester and Albert B. Zornow, Pittsford, New York, assignors to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed March 7, 1969, Ser. No. 805,175
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—197 **5 Claims**

This invention relates to an adapter assembly for a cassette of the type having an outer drum and an inner core upon which film is wound. A clamp within the core secures one end of the film and is arranged to be opened by a release lever after the film has been unwound from the core. The adapter assembly includes a trigger pin which is normally held away from the cassette so that the cassette may be easily inserted into the assembly without interference from the trigger pin. Upon opening the outer drum of the cassette, the trigger pin is automatically lowered through the opening into contact with the film convolutions to rest thereon as the film is unwound from the inner core. After the last convolution has been unwound, the pin drops into a recess in the core where it engages the release lever to open the clamp and release the end of the film from the cassette.

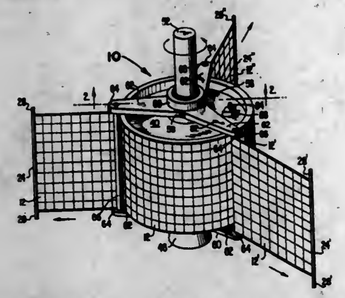


3,544,040
TAKE-UP THREADING IMPROVEMENT FOR AUTOMATIC STRIP HANDLING DEVICE
John J. Bundschuh, Penfield, New York, assignor to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed Feb. 10, 1969, Ser. No. 798,071
Int. Cl. G11b *15/66*; **G03b** *1/04*; **B65h** *75/28*
U.S. Cl. 242—206 **10 Claims**



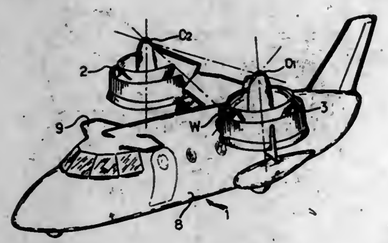
A takeup mechanism for directing strip material onto a rotatable hub member in a device for handling such material includes a plurality of elongated strip-guiding fingers equally spaced about the hub member and having adjacent first and second curved surfaces on the sides of the fingers facing the hub member. The first of said curved surfaces on each finger is configured to direct the strip material toward the hub while the second of said curved surfaces on each finger is configured to direct the strip material toward the first curved surface of the adjacent finger. Moreover, said first and second curved surfaces on each finger define a nub or raised portion between the surfaces configured to be the only portion on the finger which engages the strip material regardless of the amount of such material on the hub member.

3,544,041
DEPLOYABLE FLEXIBLE SOLAR ARRAY
Wilfred J. Billerbeck, Jr., Silver Spring and James R. Owens, Garrett Park, Maryland, assignors to Communications Satellite Corporation, a corporation of Washington, DC
Filed Nov. 7, 1967, Ser. No. 681,127
Int. Cl. B64g 1/10
U.S. Cl. 244—1 8 Claims



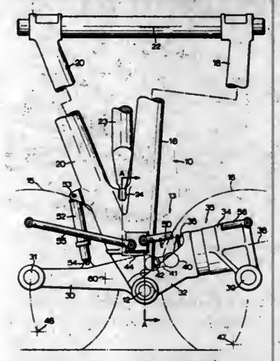
A deployable solar array for a spin-oriented and stabilized spacecraft comprising a plurality of flexible solar cell panels, each panel having one end thereof rigidly coupled to the sidewall of the spacecraft along a line parallel to the spin axis with the panels initially wrapped about the periphery of the spacecraft and means for releasing and guiding the panels, whereby centrifugal force, acting on the free end of the panels, causes them to be deployed under tension radially of the rotating spacecraft.

3,544,042
AERODYNE WITH VERTICAL TAKE-OFF OR LANDING MEANS
Jean Soulez-Lariviere, La Celle-St-Cloud and Octave Lecocq, Boissy L'Aillerie, France, assignors to Nord-Aviation Societe Nationale De Constructions Aeronautiques, Paris, France a joint-stock company of France
Filed May 23, 1968, Ser. No. 731,448
Claims priority, application France, May 25, 1967, 107904
Int. Cl. B64d 27/02
U.S. Cl. 244—56 5 Claims



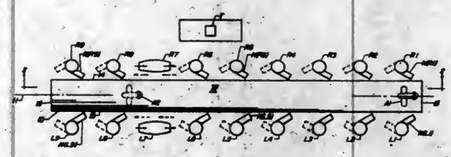
A vertical takeoff aerodyne in which symmetrical propellers on opposite sides of the aerodyne tilt about an inclined axis having an angle of inclination of about 30° relative to the transverse axis passing through the thrust centers of both propellers, with the horizontal stabilizer lying forwardly of the center of gravity G thereby preventing interactions of the various tilting positions of the propellers from causing instability of the aerodyne.

3,544,043
AIRCRAFT LANDING GEAR
Henry Ralph Stratford, Whitby, Ontario, assignor to York Gears Limited, Toronto, Ontario, Canada
Filed Aug. 5, 1968, Ser. No. 750,195
Claims priority, application Great Britain, July 22, 1967, 38698/67
Int. Cl. B64c 25/58
U.S. Cl. 244—104 6 Claims
An aircraft undercarriage which includes an upper support structure extending down from the wing or fuselage, and two independent bogie arms extending forwardly and rearwardly, respectively, from the bottom of the support structure. Each bogie arm has a wheel axle on which can be mounted one or a pair of wheels. The bogie arms are pivoted together and to



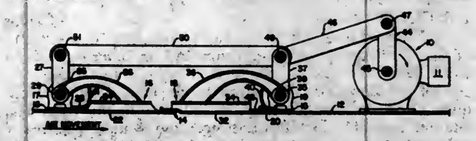
the support structure. A shock-absorbing cylinder is incorporated between the two bogie arms so as to resist upward movement of the wheel axles with respect to the support structure.

3,544,044
AIRPORT WITH MANUFACTURED SURFACE WINDS
Bernhardt Stahmer, 1509 Chicago St., Omaha, Nebraska
Filed July 3, 1968, Ser. No. 742,210
Int. Cl. B64f 1/00
U.S. Cl. 244—114 9 Claims



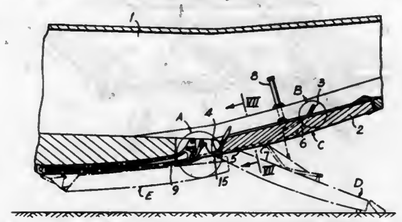
This invention relates to airports for self-powered aerodynamic aircraft and having at least one elongate horizontal hard-surfaced runway whereby the aircraft might accelerate itself along the runway surface and through the ambient air disposed above the runway until the rate of air flow encountered frontally by the airfoil structure of the horizontally self-propelled aircraft reaches the critical level appropriate to the aircraft's weight and design causing the aircraft to be lifted above the earth; in particular, this invention relates to an airport that includes remotely controllable stationary apparatus for manufacturing airstreams and directing them along and above the runway as a ground wind to provide more favorable ambient air conditions whereby the aircraft's airfoil structure will be frontally subjected to the critical level of air volume with the expenditure of less energy by the aircraft's own power plant.

3,544,045
THRUST RECOVERY OUTFLOW CONTROL VALVE
Robert C. Butscher, Hawthorne, California, assignor to The Garrett Corporation, Los Angeles, California a corporation of California
Filed Jan. 10, 1969, Ser. No. 790,267
Int. Cl. B64c 1/14
U.S. Cl. 244—129 7 Claims



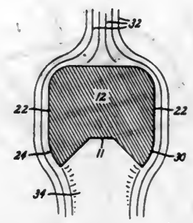
A double flapper valve to provide pressure control and thrust recovery from the outflow of a pressurized enclosure.

3,544,046
DEVICE FOR OPENING AND CLOSING HATCH OF AIRBORNE CRAFT
Alexei Yakovlevich Belolipetsky, ulitsa Kremenetskaya, 3/11, dv.65; Vladimir Tarasovich Shvedov, Brest-Litovsky prospekt, 97, kv.29; Viktor Timofeevich Chmil, Brest-Litovsky prospekt 144/2 kv. 68; Valentin Zinovievich Bragilevsky, Deputatskaya ulitsa, 17/6 kv. 44; Sergei Dmitrievich Elmesev, Brest-litovsky prospekt, 97 kv., 9; Mikhail Evmenovich Babkin, Novo-Gostomelskoe shosse, 26/6 kv. 40; Vadim Alexandrovich Maximov, Ulitsa Scherbakova, 84 kv. 76, and Valentin Nikolaevich Gelprin, Deputatskaya ulitsa, 17/6 kv. 64, all of Kiev, U.S.S.R.
Filed Aug. 1, 1968, Ser. No. 749,488
Int. Cl. B64d 9/00
U.S. Cl. 244—137 3 Claims



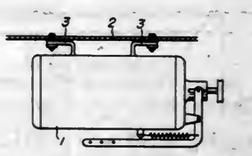
A device is provided for opening and closing the hatch of an aircraft and the device comprises a cover having a hinge attached by means of carriages to the fuselage to permit outward swinging movement of the cover when it is to be used as a ramp. The carriages are mounted in a guide and can be displaced by a drive means attached to the fuselage to shift the cover along the fuselage when the hatch is to be opened. The cover carries supports at both sides thereof at an end opposite the hinge and these supports are in turn carried in further guides, each of which comprises front parts fastened to the fuselage and rear parts hinged to the front parts and to a second drive means for turning the cover in a vertical plane. Arranged around the periphery of the hatch are locks for retaining the cover in the closed position.

3,544,047
DOWNLOAD REDUCTION APPARATUS
Edward A. Gabriel, Chester, Pennsylvania, assignor to The Boeing Company, Seattle, Washington a corporation of Delaware
Filed Feb. 23, 1968, Ser. No. 707,708
Int. Cl. B64c 27/00
U.S. Cl. 244—17.11 10 Claims



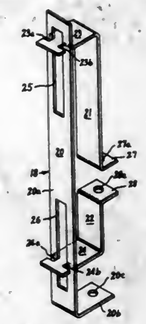
Apparatus for reducing download on a vertical takeoff and landing aircraft. A fairing adapted to be suspended from the aircraft is selectively movable between an inoperative retracted position and an operative, extended position. In the extended position, the fairing is effective to decrease the size of a reduced pressure region created beneath the aircraft by a lift rotor and thereby to increase the lift capability of the aircraft.

3,544,048
ELECTRIC MOTOR MOUNTING DEVICE
Shuzo Oshima; Eishyo Masuda; Iwao Sugiyama; Seeo Akashi and Kiyoshi Seto, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan a corporation of Japan
Filed Feb. 14, 1968, Ser. No. 705,416
Claims priority, application Japan, Feb. 17, 1967, 42/12,727
Int. Cl. F16f 1/36
U.S. Cl. 248—18 6 Claims



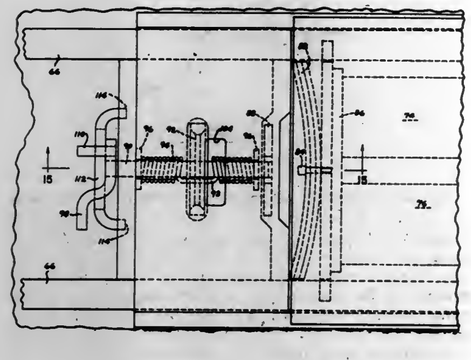
An electric motor mounting device comprising a mounting arm fixed to the electric motor and two vibration damping members of different spring constants, of which the one having a larger spring constant is disposed on that side of the mounting arm which faces a baseplate to which said electric motor is to be mounted and another one having a smaller spring constant is disposed on the opposite side of the mounting arm, both of said vibration damping members and said mounting arm being tightened together with the baseplate by means of a bolt and a nut.

3,544,049
EVAPORATOR SUPPORT BRACKET FOR WATER COOLERS
Norman Robert Brown, Chicago Heights, Mitchell Joseph Koziara, Chicago and Franklin Ribble, Park Forest, Illinois, assignors to General Electric Company, a corporation of New York
Filed Oct. 9, 1968, Ser. No. 766,082
Int. Cl. F16l 3/00
U.S. Cl. 248—68 5 Claims



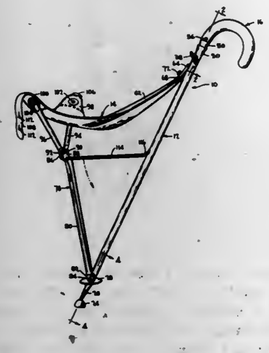
An evaporator support bracket for attaching a plurality of water cooler evaporator tubes to the elongated L-shaped support which is utilized to mount the evaporator within the water cooler cabinet, the bracket consisting of two mating halves which are clamped together by means of a metal screw to form a generally U-shaped member, the ends of the legs of the U-shaped member being provided with attaching means which fit within slots suitably provided in the elongated leg of the L-shaped support and which are prevented from removal therefrom except by a rotation of approximately 90° of each half of the U-shaped member.

3,544,050
RAILWAY TRAILER HITCH HAVING SAFETY MEANS
James C. Hammonds, St. Charles, Missouri, assignor to ACF Industries Incorporated, New York, New York a corporation of New Jersey
Filed Dec. 10, 1968, Ser. No. 782,674
Int. Cl. B60p 7/06; B61d 3/16
U.S. Cl. 248—119 16 Claims



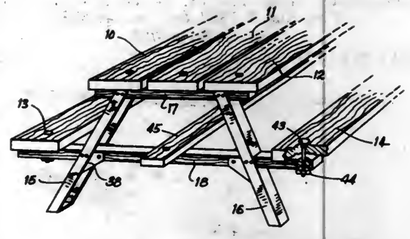
A trailer hitch on a railway car has a fifth wheel supporting strut which is held resiliently in an erect position by cushioning means. Safety means are provided which are actuated in response to a loss of cushioning or restoring force in the cushioning means. The safety means, when actuated, positively lock the strut in its erect position, and yet permit the hitch to be retracted, and prevent the hitch from being erected again by locking it to the car.

3,544,051
PORTABLE-CONVERTIBLE CANE, SEAT AND GUNREST
Rufus Norman, North Little Rock, Arkansas (6313 Butler Road, Apt. 110, Little Rock, Ark. 72209)
Filed Oct. 4, 1968, Ser. No. 765,229
Int. Cl. A45b 5/00
U.S. Cl. 248—155 9 Claims



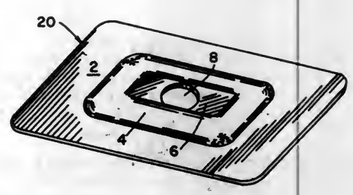
A sportsman's aid particularly having a central cane or support member forming a single leg for a foldable seat in one attitude, and when used as either a seat or cane, having a U-shaped handle pivotal to an upwardly opening position to provide a gunrest for the barrel of a rifle or the like.

3,544,052
TABLE SUPPORT
Elmer W. Conklin, c/o Knapp Roffing & Sheet Metal, 600 N. Erie St., P.O. Box 406, Three Rivers, Michigan
Filed May 16, 1969, Ser. No. 825,176
Int. Cl. F16m 11/22
U.S. Cl. 248—188.8 6 Claims



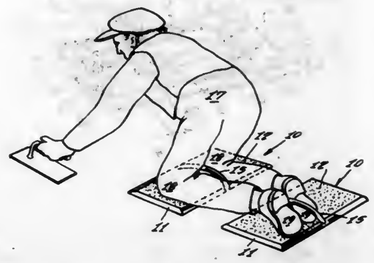
A support for a picnic table designed for easy assembly and disassembly for winter storage or for compact shipping, the support comprising a pair of opposed, inclined sheet metal legs of channel cross section, with the ends and intermediate section having portions of the bottom of the channel bent into the channel parallel with one another and the ground. The lower end provides a broad foot for the leg and the upper and intermediate bent portions provide supports for braces connecting and securing together the pair of legs to form a rigid frame. The intermediate brace is a single piece which passes through both legs and functions at its protruding ends as a support for benches for the table.

3,544,053
SUPPORT WASHER
Rawson V. Ingalls, P.O. Box 6087, Richmond, Virginia
Filed Aug. 13, 1968, Ser. No. 752,363
Int. Cl. F16b 43/00
U.S. Cl. 248—221 1 Claim



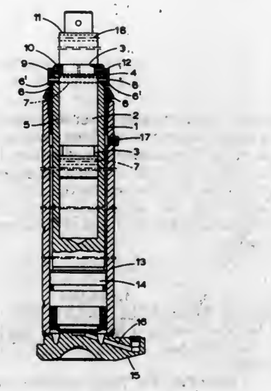
An improved washer adapted to support a sign on a U-shaped post without allowing the sign to dish in or otherwise be distorted when tightened and attached to said post. The washer comprises a rectangular body with a strengthened central portion, said central portion comprising a depressed rectangular groove and an aperture centrally located inside said groove but raised from the plane of said groove.

3,544,054
PADDED KNEE BOARDS
Kenneth L. Ward, P.O. Box 01, Cortez, Colorado
Filed March 4, 1968, Ser. No. 710,335
Int. Cl. A47c 7/50, 11/02
U.S. Cl. 248—350 1 Claim



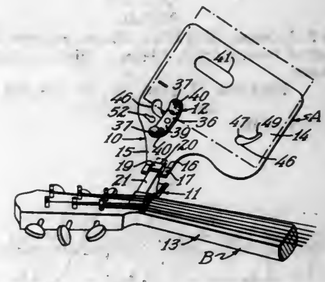
A pair of boards upon which a cement finisher may kneel while he is working on a cement surface, each of the boards comprising a rectangular metal panel having a foam rubber pad thereupon and each of the boards having an upwardly arched, transverse extending handle.

3,544,055
HYDRAULIC PIT PROP
Karl Heinz Piester, Wethmar near Lunen and Erich Hoffmann, Altlunen, Westphalia, Germany, assignors to Gewerkschaft Eisenhutte Westfalia, a body corporate of Germany
Filed April 25, 1968, Ser. No. 724,189
Claims priority, application Germany, April 29, 1967, G37,060
Int. Cl. E21d 15/20
U.S. Cl. 248—354 2 Claims



A pit prop having a variable effective length which is accomplished by mechanically resetting an extension member slidably mounted in an extended skirt of a piston member which is in turn slidably mounted in a cylindrical outer member and displaced therein hydraulically. The extension member has grooves disposed along its periphery into one of which a split ring is located to abut the outer end of the skirt. A securing ring is attached to the skirt by means of a detachable locking element which extends through alined bores in the split ring, the skirt and the extension member. To vary the effective length of the pit prop the securing parts are detached and the split ring relocated in another groove of the extension member.

3,544,056
BRACKET FOR SHEET MUSIC
John E. Berquist, P.O. Box 4632, 1630 Overlook Lane, Santa Barbara, California
Filed Jan. 8, 1968, Ser. No. 696,394
Int. Cl. G10d 3/00
U.S. Cl. 248—443 6 Claims

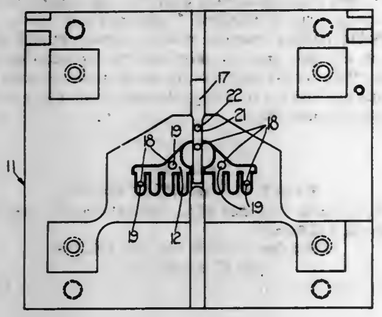


This invention relates to a bracket for sheet music and includes a panel against which the sheet music may rest, an angularly related spring clamp which may clamp the panel to a supporting object, and a spring clip for holding the sheet music on the panel. The clamp is designed for attachment to the neck of a musical instrument such as a guitar or may clamp any flat support such as a chair back or the like.

3,544,057
MOLDS FOR CASTING INTERCELL CONNECTORS FOR USE IN ELECTRIC STORAGE BATTERIES
Peter Norman Coward, Solihull, England, assignor to Joseph Lucus (Industries) Limited, Birmingham, England
Filed March 29, 1968, Ser. No. 717,326
Claims priority, application Great Britain, April 5, 1967, 15679/67
Int. Cl. B29c 11/00
U.S. Cl. 249—63 3 Claims

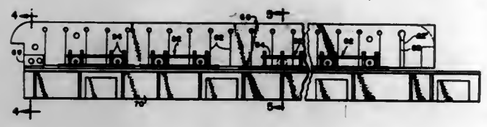
In the moulding of intercell connecters for electric storage batteries, a body which is carried by a conveyor on an automatic casting machine has an impression of the required intercell connecter in it. Molten metal is poured into the impression, and a core piece is provided which is pivotally en-

gaged with the body, the core piece being movable from a first position which is occupied when the molten metal is



poured into the impression, to a second position in which it permits ejection of the intercell connecter from the mould.

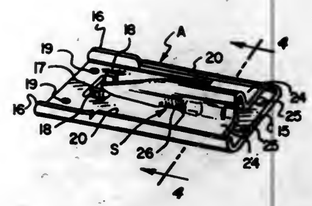
3,544,058
MOLDS
Gordon R. Lohman, Glen Ellyn, Illinois, assignor to AMSTED Industries Incorporated, Chicago, Illinois a corporation of Delaware
Filed Jan. 17, 1968, Ser. No. 698,448
Int. Cl. B28b 7/06
U.S. Cl. 249—158 **5 Claims**



In conjunction with a slab mold including spaced side blocks and top, bottom and end blocks engaged between the side blocks to define a casting cavity, an improved metallic bottom block is provided with a plurality of spaced transverse slits. One end of the bottom block is anchored to its supporting structure while the remainder is prevented from vertical warpage and yet allowed to expand longitudinally by means of rollers associated with the bottom block held down by rails secured to the support structure.

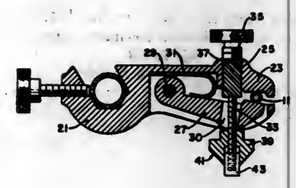
3,544,059
FORM TIE ANCHOR WITH RECIPROCABLE SLIDE
Volker Rassbach, Englewood and John C. McArdle, 3300 S. Holly St., Denver, Colorado, assignors to Said Rassbach assignor to said McArdle
Filed Nov. 16, 1967, Ser. No. 683,675
Int. Cl. E04g 17/06
U.S. Cl. 249—219 **6 Claims**

A form tie loop terminal anchor detachably applicable to features of conventional construction for attainment of customary purpose and is unitarily constituted as a conveniently rectangular, flat plate of appropriate size and rigid material having one smooth, plane face adapted for pressure engagement exteriorly against a form wall, side margin flanges inturned relative to its other face and therewith defining a slideway, an aperture loosely accommodative of a tie loop terminal centrally transverse of an adjacent one end of the slideway, a slide engaged for limited reciprocation in the slideway, a fixed nose projection at one end of the slide reciprocable therewith across the plate aperture into and away from intrusion through an associated tie loop terminal, the nose being inwardly offset at an appropriate position to



be yieldably retentive of the nose and loop terminal interengagement. As an optional facility, a waler supplement is integrated with and at one end of the plate.

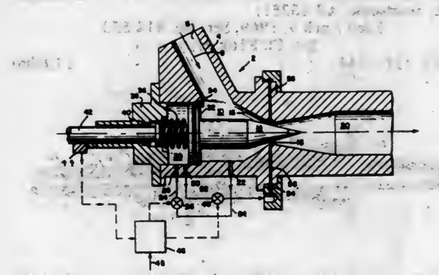
3,544,060
FLOW CONTROL VALVE
Herbert Collier Stoltz, Hershey; Joseph Willard Hoffman, Liverpool and Henry William Demler, Sr., Lebanon, Pennsylvania, assignors to AMP Incorporated, Harrisburg, Pennsylvania
Filed Dec. 15, 1967, Ser. No. 690,984
Int. Cl. F16k 7/06
U.S. Cl. 251—9 **6 Claims**



The disclosure relates to several valves for controlling the flow of a liquid through a flexible tube and particularly to the use of same in the intravenous feeding of glucose and the like. The valves provide a pinching action on the flexible tube carrying the liquid whereby the amount of liquid passing therethrough can be accurately controlled to provide a predetermined number of drops of flow per unit of time with great accuracy.

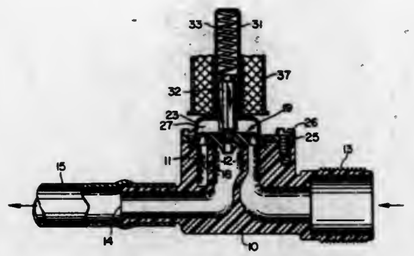
3,544,061
INTEGRAL THROTTLE VALVE SERVO-ACTUATOR
Richard M. Moy and Sam Hunlu, Los Angeles, California, assignors to TRW Inc., Redondo Beach, California a corporation of Ohio
Filed Oct. 14, 1966, Ser. No. 595,287
Int. Cl. F16k 31/40
U.S. Cl. 251—24 **5 Claims**

To vary fluid flow in the valve which utilizes a cavitating venturi principle, an actuation system is provided to control movement of the valve pintle. The actuation force for positioning the pintle is provided by fluid pressure operating on a piston which is integrated with the pintle. To move the pintle



in the opposite direction there is provided a vent into the low pressure region of the cavitating venturi throat.

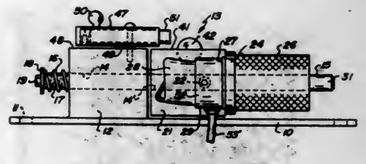
3,544,062
DIAPHRAGM VALVE WITH PROJECTIONS AROUND BLEED HOLE
Myles N. Murray, Chagrin Falls, Ohio, assignor to Industrial Electronic Rubber Company, Twinsburg, Ohio, a corporation of Ohio
Filed Nov. 7, 1968, Ser. No. 774,119
Int. Cl. F16k 31/385, 31/40
U.S. Cl. 251—38 **6 Claims**



The flexible diaphragm has an annular fold the inner wall of which is rolled in the opening and closing action of the diaphragm, and the inlet bleed hole through the same is located near the outer edge where comparatively little flexing occurs to minimize crack growth. The exterior of the fold is provided with bumps to preclude blockage of the bleed hole and assist in dislodging scale and the like in flexure of the diaphragm.

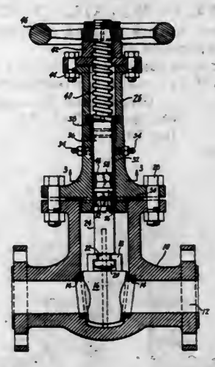
3,544,063
HYDRAULIC HOSE COUPLING CONNECT AND DISCONNECT DEVICES
Percy Barlow, General Delivery, Griffin, Saskatchewan, Canada, and Roderick Bruce Barlow, 881 9th Ave., NE., Swift Current, Saskatchewan, Canada
Filed Oct. 31, 1968, Ser. No. 772,227
Claims priority, application Great Britain, Oct. 31, 1967, 49,350/67
Int. Cl. F16l 37/28
U.S. Cl. 251—149.9 **15 Claims**

This invention consists of an hydraulic hose coupling a connecting device which includes a manual lock which will only break away when a predetermined tension has been exceeded. It also includes a valve which releases a static



hydraulic pressure within the lines prior to connecting and disconnecting the coupling.

3,544,064
BLOW-OUT PROOF PACKING FOR AXIALLY MOVABLE ROD OR SHAFT
Bernard Carlin, Orange, Texas, assignor to Preston Cessac, Sr., Nederland, Texas a part interest and Delmon Shults, Jr., Orange, Texas a part interest
Filed July 11, 1969, Ser. No. 841,039
Int. Cl. F16k 41/00
U.S. Cl. 251—214 **1 Claim**

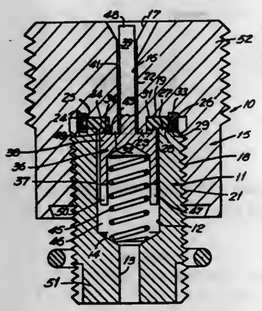


While not limited to such use, the device is particularly intended as a packing for valve stems wherein the stem is altered to receive packing elements so constructed that endwise movement of the valve stem or the like causes the packing to grip tightly against both the stem and the cylinder in which it operates to provide positive blowout protection.

3,544,065
RESILIENT ANNULAR VALVE SEAT WITH COAXIAL RIGID ANNULAR MEMBER
Jacques H. Mercier, 49 rue de Naples, Paris, France
Continuation-in-part of application Ser. No. 734,388, June 4, 1968, now pending. This application April 9, 1969, Ser. No. 814,539
Int. Cl. F16k 1/34
U.S. Cl. 251—284 **4 Claims**

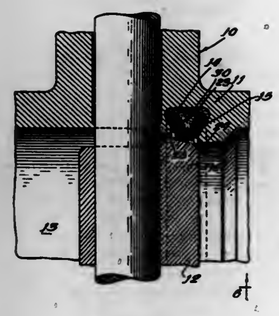
This invention relates to a valve for fluid under pressure, said valve comprising a fluid passageway having a resilient annular seat encompassing the passageway with a valve member cooperating with said seat to control said passageway, said valve member being urged to closed position against said seat both by the fluid pressure and by as-

sociated resilient means, said valve member including a stem, the end of which is designed to be pushed to open the valve,



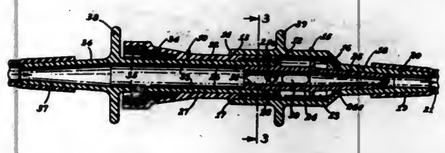
said resilient annular seat having a rigid annular member coaxial therewith.

3,544,066
VALVE SEAT STRUCTURE
Donald G. Fawkes, Aurora, Illinois, assignor to Henry Pratt Company, a corporation of Delaware
Original application Jan. 3, 1967, Ser. No. 606,649, now Patent No. 3418,411, which is a continuation-in-part of application Ser. No. , . Divided and this application July 5, 1968, Ser. No. 742,675
Int. Cl. F16k *1/22*
U.S. Cl. 251—306 13 Claims



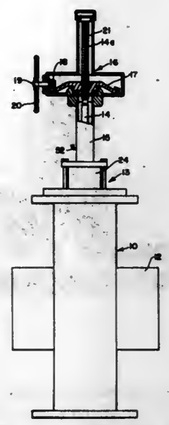
A valve seal which is adjusted by means of a body of plastic material set in situ in a valve member channel between the seal and the bottom surface of the channel exerting pressure against the seal to bias an outer seat portion of the seal outwardly, with the outer portion of the seal engaging the side walls of the channel. The plastic material defines mechanical means interlocking with interlocking means on the seal to retain the seal in association with the valve member.

3,544,067
FLOW CONTROL VALVE
Austin E. Elmore, 8519 E. Passadena Ave., Scottsdale and Ernest A. Uhlmann, Phoenix, Arizona (4533 N. Scottsdale Rd., Scottsdale, AZ 85251)
Filed April 9, 1969, Ser. No. 814,553
Int. Cl. F16k *31/60*
U.S. Cl. 251—344 2 Claims



A flow control valve particularly designed to control the water inflow during enema irrigation period, the valve being easily and accurately controlled by one hand actuation of the slide valve to regulate water inflow speed.

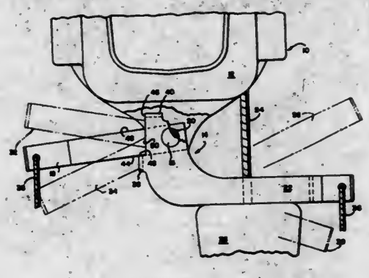
3,544,068
VALVE CONSTRUCTION
Dalton Everett Rice, Houston, Texas, assignor to M & J Valve Company, Houston, Texas a corporation of Delaware and M & J Development Company, Houston, Texas a partnership consisting of M. H. Grove and J. E. Grove
Filed June 4, 1968, Ser. No. 734,415
Int. Cl. F16k *41/02*
U.S. Cl. 251—355 4 Claims



A gate valve of the type having operating means engaging a threaded portion of the operating rod. The valve yoke is tubular and surrounds the operating rod in such a manner as to form a closed space on the exterior side of the bonnet seal. This space accommodates lubricating oil (*e.g.*, as a body of oil or as oil carried by an oil impregnated medium) whereby the rod is lubricated.

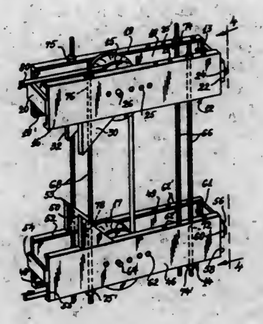
3,544,069
CONTROL LEVER FOR HOISTS
Thomas E. Grego, Waverly, New York, assignor to Ingersoll-Rand Company, New York, New York a corporation of New Jersey
Continuation of application Ser. No. 715,842, March 25, 1968, now abandoned. This application Dec. 5, 1969, Ser. No. 878,991
Int. Cl. B66d *1/00*
U.S. Cl. 254—168 5 Claims

A hoist "payout" and "retrieval" control lever having two separate and oppositely disposed control arms on the hoist's normally neutrally constrained control rod. Actuation of one or the other arms, respectively, pays out or retrieves the cable. Also, movement of one arm causes it to engage and



move the other arm, except that there is therebetween a built-in disengaging feature to insure that excessive retrieving motion will not trigger the payout motion.

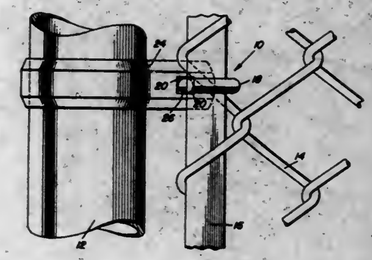
3,544,070
CABLE PULLING SHEAVE
William E. Blume, 126-13 101 St. Ave., Richmond Hill, New York
Filed Sept. 24, 1968, Ser. No. 761,912
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.3 10 Claims



Manhole sheave assemblies are described for use in pulling cables through ducts and manholes. One assembly has two frameworks. An upper framework carrying a sheave mounts on the chimney of a manhole while a lower framework carrying another sheave is disposed inside the manhole and is adjustably supported by the upper framework. The pulled cable is entrained on both sheaves. In another assembly, the lower framework is replaced by a sheave and wedge assembly including wedge blocks which can be anchored in a duct in a wall of the manhole.

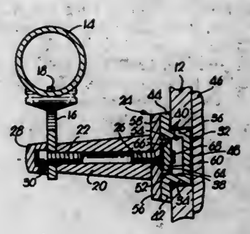
3,544,071
HOOK BOLT FOR FABRIC FENCE
John S. Case, Towson, Maryland, assignor to Anchor Post Products, Inc., Baltimore, Maryland a corporation of New Jersey
Filed April 17, 1969, Ser. No. 816,982
Int. Cl. E04h *17/12*
U.S. Cl. 256—47 4 Claims

A hook bolt arrangement is provided for terminating lengths of fabric fence to a post. The desired orientation of the hook in the line of tension is present with aid of a pinch or



bite in the shank portion which cooperates with a square aperture in the post bracket.

3,544,072
WALL MOUNTED CONTINUOUS TRACK AND HANDRAIL ASSEMBLY
Wenzel W. Thom, Wichita, Kansas, assignor to Fannie Mae Jones, Wichita, Kansas a part interest
Filed July 17, 1969, Ser. No. 842,608
Int. Cl. E04h *17/14*
U.S. Cl. 256—59 5 Claims

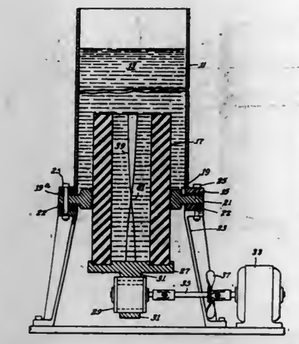


A handrailing structure wherein an open-faced channel member coextensive in length with that of the handrail permits the bracket supports for the handrail to be placed at any location along the longitudinal extent thereof. The handrail is mounted on the channel member by a plurality of bracket elements that have opposed leg portions disposed within the channel. A spreader brace disposed between the opposed leg portions of the bracket element in spreading engagement therewith holds the leg portions in tight, frictional engagement with the sidewalls of the channel member. A cover plate closing those areas of the channel member not occupied by the supporting bracket elements gives the structure a finished appearance.

3,544,073
ELASTOMER RESONATOR FOR ORBITING MASS OSCILLATOR
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, California
Filed Sept. 8, 1967, Ser. No. 666,398
Int. Cl. B06b *1/16, 1/20*; B08b *3/10*
U.S. Cl. 259—1 6 Claims

An orbiting-mass oscillator is coupled to a low-impedance elastomer in which a resonant standing wave pattern can be established. The elastomer serves as a transmission and energy storage medium for the energy in the resonant system to

enable utilization of the energy in various work functions. In one embodiment the elastomer is coupled to water, while in

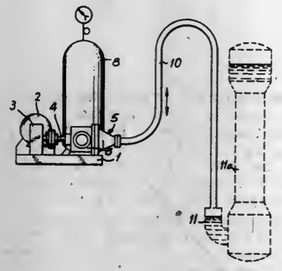


another embodiment the elastomer is coupled to a free standing heavy mass.

3,544,074
PNEUMATIC PULSATION FOR IMPARTING VIBRATORY MOTION TO A LIQUID IN A CONTAINER

Susanna Mikhailovna Karpacheva, 2, Schukinsky proezd, 2, Kv. 88, Valerian, Matveevich, Muratov, Astoakhovsky pereulok 1/2, Kv. 118; Leonid Solomonovich Raginsky, Nikitinskaya ulitsa, 16 korpus 1, kv. 29; Igor Viktorovich Ilgisonis, Parkovoaya ulitsa, 2 korpus 4, Kv. 20, and Noi Mikhailovich Adamsky, Novaya Bodraya ulitsa, 7, Kv. 45, Moscow, U.S.S.R.

Filed June 26, 1968, Ser. No. 740,280
Claims priority, application U.S.S.R., June 30, 1967, 1,167,696
Int. Cl. B01f *11/00*
U.S. Cl. 259—1 4 Claims

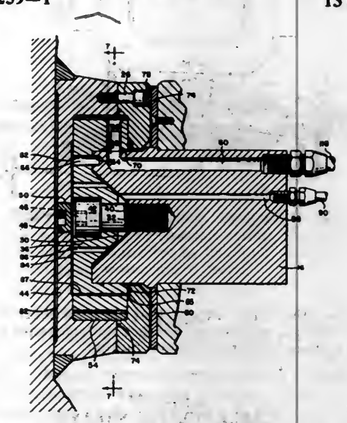


A pneumatic pulsator for imparting vibratory motion to a liquid in a container comprises a body with an inlet port connected to a compressed air supply line and an outlet port connected with the atmosphere, the body containing a rotary valve with at least one channel connected to a pulsation chamber for alternately placing the same in communication with the compressed air supply line and the atmosphere, the pulsation chamber being in turn connected to the container to produce pulsation of the liquid therein. Between the valve and the body is a stationary liner made from a wear-resistant material having inlet and outlet apertures in communication with the ports in the body, the liner being spaced with a permanent gap from the valve.

3,544,075
VIBRATOR SYSTEMS

David B. Sugden, Kingston Beach, Tasmania, Australia, assignor to James S. Robbins and Associates, Inc., Seattle, Washington a corporation of Washington

Filed Aug. 21, 1968, Ser. No. 754,322
Int. Cl. B28d *1/24*; E21c *31/02*
U.S. Cl. 259—1 13 Claims

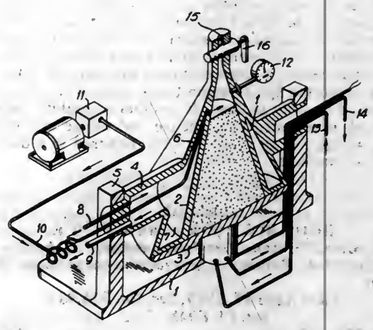


A first member includes an inner cavity containing a second member which diametrically is slightly smaller than the cavity and axially is snugly received in the cavity. One of the members is connected to a large mass backup structure and the other is free for orbiting radial shifting movement within the limits of the radial gap between the members. Radially movable seals carried by one of the members divide the gap into a plurality of pulse chambers. A separate bidirectional flow passageway leads into each pulse chamber. Fluid pressure pulses are distributed around the gap in repetitive cyclic fashion from pulse chamber to pulse chamber. A radial piston type pulse generator divided into two axially spaced sets of pistons moved radially by separate rotary cams offset on opposite sides of a cam shaft. A cutting edge on such a first member, and means for moving the backup structure to advance the cutting edge into an earth formation.

3,544,076
APPARATUS FOR THE PREPARATION OF PASTY MIXTURES CONTAINING METALS

Ivan Gavrilovich Zenkovich, ul, Kerova 16, Kv. 39, Vitebsk, and Nikolai Mitrofanovich Kolenko, Vozdukhoflotsky prospekt, 55a, Kv. 57, Kiev, U.S.S.R.

Filed Dec. 20, 1967, Ser. No. 692,176
Int. Cl. B01f *15/02*
U.S. Cl. 259—2 4 Claims



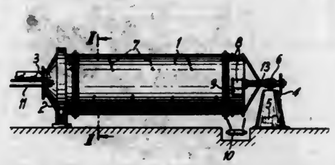
Apparatus for the preparation of pasty mixtures especially metal-containing pastes used for conductive coatings on

ceramic parts, said apparatus including a working chamber having tapering walls of conical shape which narrows upwardly and a floor which is constituted by an emitter of ultrasonic oscillations, the arrangement being such that when constituents are introduced into the chamber and the emitter is operated, oscillations are produced which act on the constituents to produce a uniform fineness of grind and a viscosity of the mixture which remains stable over a long period of time.

3,544,077
DRUM MIXER FOR MIXING WOOD WOOL WITH A BINDER

Gerrit Jan Van Elten, P.O. Box 17, Voorthuizen, Tromplaan, Netherlands

Filed Dec. 9, 1968, Ser. No. 782,019
Int. Cl. B01f *9/02*
U.S. Cl. 259—3 11 Claims

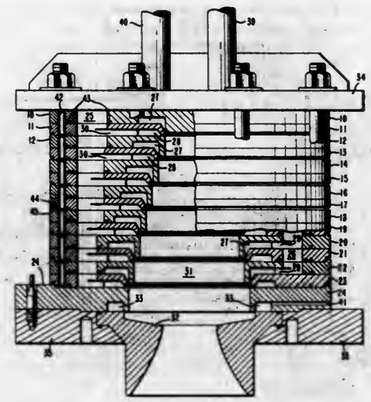


In a drum mixer for mixing wood wool with a binder such as cement, rods are arranged at the smooth inside wall of the horizontal drum in two longitudinal rows diametrically opposed to each other. These rods have a large interspace and mix the inserted wood wool with the binder. Because of the large distance of said rods the wood wool fibres cannot felt and by rolling and sliding movements automatically clean the inside drum wall. The drum also stores the wood wool and thereby allows a permanent operation of the machines producing the wood wool.

3,544,078
JET FLUID MIXING PROCESS

Yani S. Stupakis, Wilmington, Delaware, assignor to E.I. du Pont de Nemours and Company, Wilmington, Delaware, a corporation of Delaware

Original application April 28, 1967, Ser. No. 634,754, now Pat No. 3,423,028, Jan. 21, 1969. Divided and this application May 28, 1968, Ser. No. 753,314
Int. Cl. B05b *7/04*; B01f *5/02*
U.S. Cl. 259—4 4 Claims

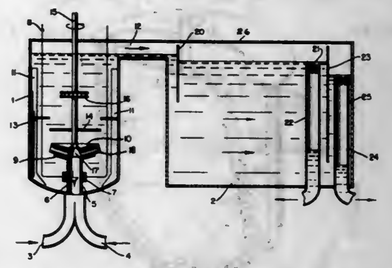


A multistage (e.g., seven-stage) jet device for mixing fluids (e.g., steam and polymer solutions) which has a plurality of annular chambers surrounding a central zone, a first set of the chambers having annular orifices for directing thin tubular sheaths of fluid (e.g., polymer solution) down the zone, each of increasing diameter, and alternating therewith along the zone a second set of fluid chambers for directing a second fluid (e.g., steam) in thin sheaths transverse to the tubular sheaths.

3,544,079
APPARATUS FOR MIXING LIQUIDS

Jacques Henri Dressler, Courbevoie, Seine, France, assignor to Saint-Gobain Techniques Nouvelles, Courbevoie, France

Continuation-in-part of application Ser. No. 790,900, Feb. 3, 1959, now abandoned. This application June 4, 1965, Ser. No. 461,349
Claims priority, application France, Feb. 6, 1958, 757,601
Int. Cl. B01f *7/00*
U.S. Cl. 259—7 23 Claims

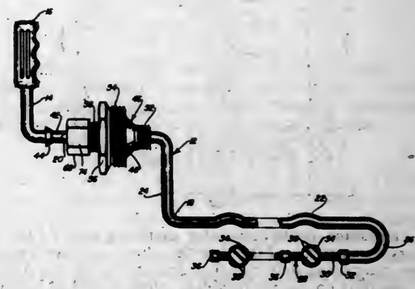


Method and apparatus for the mixing and decantation of two normally immiscible liquids of different specific gravity. The liquids are separately introduced to pass upwardly through a vertical pipe section opening through the bottom wall of a container and terminating in a flared upwardly facing frustoconical seat for a mixing rotor fixed to the lower end of a shaft and having a complementally shaped lower face. The shaft is journaled and rotated at the top end of the container, exteriorly thereof. The rotor has a central mixing chamber in communication with the upper end of the pipe section, from which lead radial bores. The liquids are drawn upwardly into the mixing chamber and impelled through the bores as the rotor spins. The intermingled liquids pass upwardly in the container, flow to a settling or decantation tank from which they are separately drawn off by outlets at different elevations. The vertical pipe section has an opening in its side wall which may be manually varied in effective size to selectively vary the proportions of mixed liquids recirculated through the opening. There may be several cycles of mixing and decantation each in a sequential one of a plurality of container-settling tank pairs.

3,544,080
AGITATOR

Julius L. Lawrence, 55 Oak St., Naugatuck, Connecticut

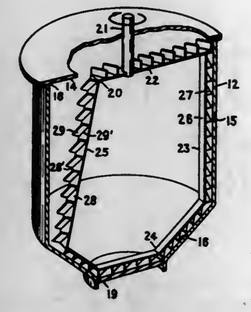
Filed Dec. 23, 1968, Ser. No. 786,013
Int. Cl. B01f *7/02*, *15/02*
U.S. Cl. 259—45 18 Claims



An agitator is rotatably mountable in the aperture of a vessel, such as a drum or the like for agitation of the contents

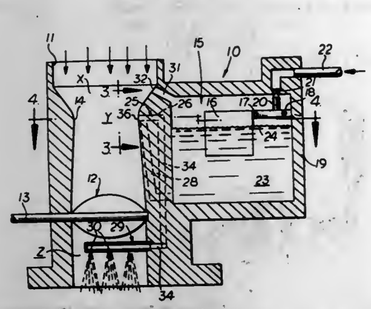
thereof. The agitator is slidable therein between a sealing section and a flow section thereof to provide closed and open positions. The agitator may be slidably and rotatably mounted in a sleeve which, in turn, is mountable in the vessel aperture, and a resilient sealing element may be positioned within the sleeve to cooperatively provide the closed position.

3,544,081
APPARATUS FOR MIXING FLOWABLE MATERIALS
Hans A. Eckhardt, 55 Crescent Bend, Allendale, New Jersey
Filed March 15, 1968, Ser. No. 713,523
Int. Cl. B01f 7/16
U.S. Cl. 259—107 **14 Claims**



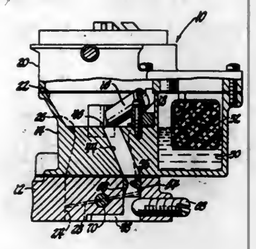
An apparatus for mixing flowable materials in the form of powder, flake, granules, and of fluids in a wide range of viscosities, has in a container a frame rotating about a vertical axis. The frame comprises impellers for radial movement of the material at the top and at the bottom of the container, and members in between for vertical movement. Flow patterns of closed loops in vertical planes are enforced for batch mixing by rotating the frame in one direction, and reversed flow patterns for continuous mixing by reversing the frame rotation, as well as for complete discharge. The impellers and the members carry vanes oblique to the mixer elements.

3,544,082
FLUIDIC FUEL METERING SYSTEM
Edward F. Fort, Naperville and Wayne E. Berndt, Lombard, Illinois, assignors to International Harvester Company, Chicago, Illinois a corporation of Delaware
Filed March 12, 1969, Ser. No. 806,645
Int. Cl. F02m 7/04
U.S. Cl. 261—19 **9 Claims**



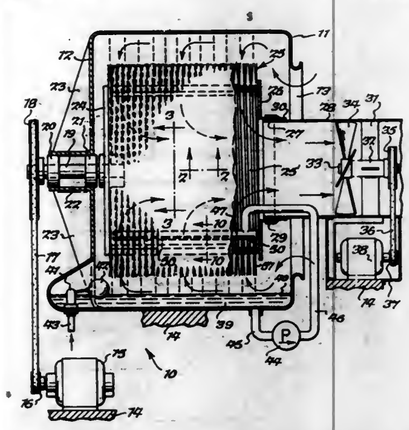
A carburetor construction for metering liquid fuel for delivery downstream of the throttle valve to a spark-ignition engine comprising only one fuel delivery system for all engine operating conditions including idling as well as full load conditions. The system, except for float bowl fuel inlet control and variable throttle valve, employs a fluidic device but no moving parts. Recycling of fuel in excess of engine demand to the fuel supply reservoir is avoided as well as any necessity for a secondary source of fluid pressure or a secondary fuel system for engine idling.

3,544,083
CARBURETOR
James H. Currie, Rochester, Michigan, assignor to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed Oct. 7, 1968, Ser. No. 765,398
Int. Cl. F02m 3/08
U.S. Cl. 261—23 **1 Claim**



The disclosed carburetor has three barrels—two conventional barrels designed to deliver air-fuel mixtures over the broad range of open-throttle operating conditions and a small third barrel designed to deliver the air-fuel mixture during closed-throttle idling conditions. The small third barrel has a venturi to provide an idle fuel-metering signal and a fixed throttling restriction below the venturi to control the rate of flow. The idle fuel passages which deliver fuel into the third barrel venturi also have transfer ports opening into the main barrels above the throttles to provide a smooth transition from idling operation to open throttle operation.

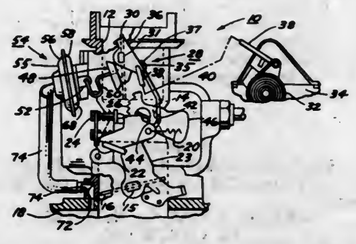
3,544,084
DRUM FOR INTIMATELY CONTACTING GAS AND LIQUID
Lawrence Macrow, 481 Chair Factory Road, Elma, New York
Continuation of application Ser. No. 411,232, Nov. 16, 1964, This application Sept. 16, 1968, Ser. No. 784,969
Int. Cl. B01d 47/18; B01f 3/04, 9/02
U.S. Cl. 261—29 **8 Claims**



A gas-liquid contact apparatus including a housing, a drum mounted for rotation within the housing and including a perforated shell having first apertures spaced radially from the center thereof a greater distance than second apertures, fringe members mounted on the outside of the shell, a motor for rotating the drum, a stationary conduit for depositing

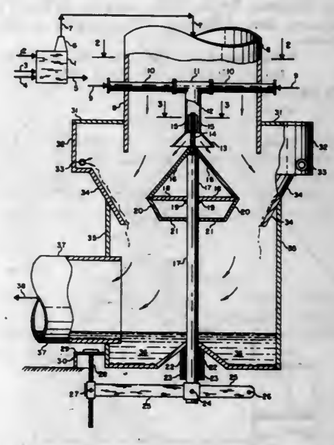
liquid on the inside of the shell, and a fan for causing air to pass into the housing and radially inwardly through the second apertures after contacting liquid on the fringe members which is flung radially outwardly through the first apertures. The perforated shell has inner and outer peripheral surfaces and first and second portions with the first portions interspersed with the second portions. The first portions are located closer to the center of the shell than the second portions adjacent thereto. The first apertures are located in the second portions and the second apertures are located in the first portions. The first apertures are located radially outwardly of the second apertures to thereby cause liquid deposited on the inner peripheral surface of the shell to be forced radially outwardly through the first apertures by centrifugal force when the shell is caused to rotate to set up a spray of liquid about the outer peripheral surface. The forcing of the liquid through the first apertures tending to leave the second apertures free from liquid to permit the gas to pass radially inwardly through the shell. The liquid and gas do not tend to pass through the same apertures to thereby permit the counter flow relationship with a low pressure drop and elimination of carryover. In one embodiment the second portions of the shell extend in a helical path axially along the periphery of the shell. The liquid is deposited on the inside of the shell to be forced into those portions of the internal surface at the second portions of the shell and to be distributed equally throughout the portions of the internal surface of shell by virtue of the continuity provided by the helical path. The fringe members are continuously elongated and a channel receives the base portion of the fringe members. The channel is of helical configuration in following the helical path of the second portion of the shell. The base of the fringe member is located in contiguous relationship to the first apertures to thereby convey liquid passing therethrough radially outwardly. The gas which passes radially inwardly is prevented from carrying discharged liquid therewith by a flap member which is attached to the conduit for engaging the inner peripheral portion of the shell. The fringe members are removably secured to the shell to permit selective replacement. The helical path followed by the second portions of the shell constitutes a first helical path and the second portions of the shell follows a second helical path lying parallel to the first helical path to provide a double thread arrangement. In another embodiment the shell is formed with undulations and in which the first portions of the shell are those portions of the undulations lying closer to the axis of rotation of the drum. The second portions of the shell are those portions of the undulations lying more remote from the axis of the drum than the first portions.

3,544,085
CARBURETOR HAVING AN AUTOMATIC CHOKE
Kenneth C. Bier, Bloomfield Hills, Michigan, assignor to Holley Carburetor Company, Warren, Michigan a corporation of Michigan
Filed June 13, 1968, Ser. No. 736,795
Int. Cl. F02m 1/10
U.S. Cl. 261—39 **3 Claims**



Typically, a carburetor, having a choke valve with thermostatic means adapted to urge the choke valve in the closing direction when cold and pressure responsive means which communicates with a source of engine vacuum for moving the choke valve in a direction opposite to that of the thermostatic means upon engine starting, is provided with additional temperature responsive means for selectively introducing an abutment member into interconnecting linkages operatively connected to the pressure responsive means and choke valve whereby a first initial choke valve position is attained upon the engine being started in response to environmental temperatures less than a predetermined minimum temperature and a second initial choke valve position is attained after the engine is started in response to environmental temperatures greater than a predetermined minimum temperature.

3,544,086
ADJUSTABLE ANNULAR VENTURI SCRUBBER
Howard P. Willett, Darien, Connecticut, assignor to Chemical Construction Corporation, New York, New York a corporation of Delaware
Filed Aug. 19, 1968, Ser. No. 753,583
Int. Cl. B01d 47/00
U.S. Cl. 261—62 **29 Claims**

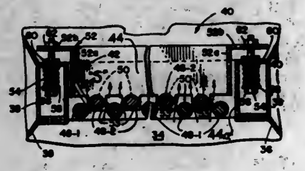


Apparatus is provided for scrubbing contaminants from a gas stream, which includes an annular venturi scrubber in which the throat section is adjustable by means of a vertically movable central conical baffle. A central pipe is disposed above the apex of the conical baffle, to pass scrubbing liquid downwards on the outer surface of the conical baffle. Liquid is also passed downwardly on the inner surface of an inverted frustoconical baffle which is concentrically disposed external to the conical baffle. The conical baffle is preferably vertically displaced by means of a dependent central support shaft which extends downward from the apex of the conical baffle to external support and vertical displacement elements. A central rod preferably extends vertically upwards from the apex of the conical baffle into the central liquid supply pipe, and the rod is preferably provided with external alinement fins.

3,544,087
FILTER APPARATUS FOR GAS SCRUBBER
Robert L. McIlvaine, Glencoe, Illinois, assignor to National Dust Collector Corporation, Skokie, Illinois a corporation of Illinios
Filed April 17, 1969, Ser. No. 816,922
Int. Cl. B01d 47/16
U.S. Cl. 261—81 **13 Claims**

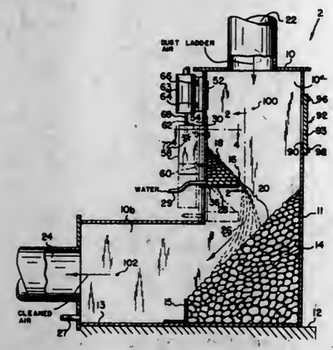
Filter apparatus for a gas scrubber comprising a plurality of elongated filter elements extending transversely across a flow passage and defining a plurality of separate flow paths between adjacent elements. First support means is provided for maintaining a first group of said elements in a fixed position in said flow passage and second support means is provided for supporting a second group of said elements for movement toward and away from said elements of said first

group to increase and decrease the spacing or area defining said separate flow paths between adjacent elements in



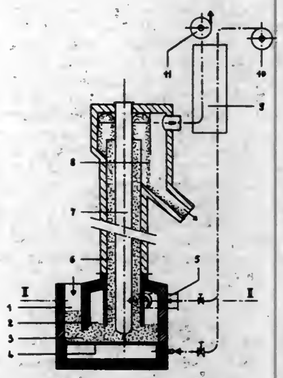
response to the flow pressure or buoyancy of said gas moving through said scrubber.

3,544,088
SCRUBBER APPARATUS
John J. Sheehan, Berea, Ohio, assignor to Buell Engineering Company, Inc., Lebanon, Pennsylvania a corporation of Delaware
Filed March 13, 1967, Ser. No. 622,667
Int. Cl. B01d *47/00*; B01f *3/04*, *5/00*
U.S. Cl. 261—95 **6 Claims**



A scrubber apparatus for controlling the flow of and/or for cleansing a gaseous fluid stream including an angularly bent housing which contains a relatively stationary glomerate impingement media and a relatively movable glomerate impingement media which coact to provide a variable orifice region for controlling the flow of the gaseous fluid stream. A source of liquid is disposed to be introduced in the form of a streamlike spray from the relatively movable glomerate impingement media and through the variable orifice region for impingement upon the relatively stationary glomerate impingement media. The scrubber has a hollow housing with an inlet section and an outlet section each with respective inlet and outlet openings and an L-shaped passageway communicating the openings with one another for transmitting a gaseous fluid stream from the supply source downwardly and outwardly through the passage way. A replaceable glomerate media is disposed in the passage way adjacent the juncture of the inlet section with the outlet section for deflecting the flow of a gaseous fluid stream through the housing. The media includes first rock material disposed in superposed, stacked relation at the bottom adjacent the juncture of the inlet section with the outlet section. A second high density rock material is disposed in super posed, stacked relation in the inlet section and above the first rock material. The second rock material is laterally offset with respect to the longitudinal central axis of the inlet section. A selectively adjustable weirlike support member is mounted in the inlet section and supports the second rock material in the stacked relation for vertical movement toward and away from the first rock material. A fluid pressure unit is operably connected with the support member to move the support member relative to the first rock material so as to provide a selectively adjustable orificelike opening between the first and second rock materials for regulating the velocity of the gaseous fluid stream in the passageway. The first rock material has an exposed surface defining an inclined plane extending downwardly and outwardly in a direction away from the inlet section toward the outlet section. The second rock material has an exposed surface defining an inclined plane which extends perpendicularly to the inclined plane of the first rock material so that the gaseous fluid stream is directed from the second rock material and into impingement with the first rock material. A liquid discharge conduit is connected with the support member for introducing a liquid from a supply source through the second rock material and out into the region of the orificelike opening and into engagement with the first rock material. This liquid moisturizes the gaseous fluid stream and imparts a scrubbing action with any contaminants collected on the first rock material from the gaseous fluid stream. The second rock material is disposed on the support member below the inlet opening in the inlet section to provide a bafflelike and abrasive surface to receive and direct the gaseous fluid stream onto the first rock material and out through the outlet opening.

3,544,089
PNEUMATIC ELEVATORS FOR LIFTING GRANULAR SOLIDS
Pierre Ledent, Parc de Sainval, Tiff, Belgium
Filed July 1, 1968, Ser. No. 741,743
Claims priority, application Belgium, July 12, 1967, 701,295
Int. Cl. F27b *15/00*
U.S. Cl. 263—21 **5 Claims**

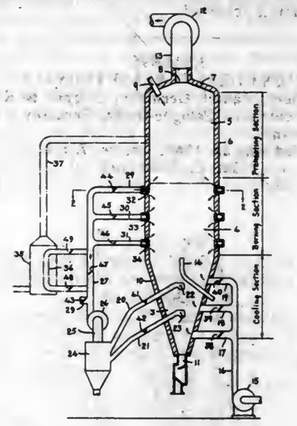


Apparatus for the pneumatic elevation of granular solid products utilising a compressed carrier gas, comprising a closed receptacle the bottom of which is constituted by a porous surface, through which a gas may be blown at such a speed as to fluidise a bed of granular solids situated in said receptacle when the apparatus is in use, and a vertical elevator tube passing through the top wall of said receptacle and extending inside it, wherein means are provided for introducing a flow of high-temperature gas into said receptacle outside the elevator tube.

3,544,090
KILN FOR MAKING CEMENT CLINKER
Martinus F. Peeters, 218 Lakewood Drive, Oakville, Ontario, Canada
Filed Nov. 8, 1968, Ser. No. 774,456
Int. Cl. F27b *1/00*
U.S. Cl. 263—29 **6 Claims**

A kiln, of the vertical type, for producing cement clinker and like materials in which the meal descends by gravity through a preheat chamber, a burning chamber, and cooling chamber, the cement clinker being removed from the bottom. Fresh air is withdrawn from the cooling chamber and injected into the burning chamber through orifices in the wall

of the burning chamber. The injected air keeps the descending molten meal away from the walls of the burning chamber



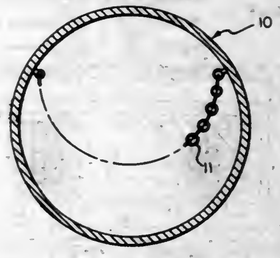
which ensures better contact between meal and flame and prevents coating the walls of the kiln with agglomerate.

3,544,091
APPARATUS FOR CONTINUOUS THERMAL TREATMENT OF POURABLE GRANULES
Friedrich Jaeger, Bad Hersfeld and Johannes Holzner, Erlenbach, Germany, assignors to Glanzstoff AG, Wuppertal, Germany
Filed April 9, 1969, Ser. No. 814,625
Claims priority, application Germany, April 13, 1968, 1,751,164
Int. Cl. F27b *1/10*
U.S. Cl. 263—30 **10 Claims**



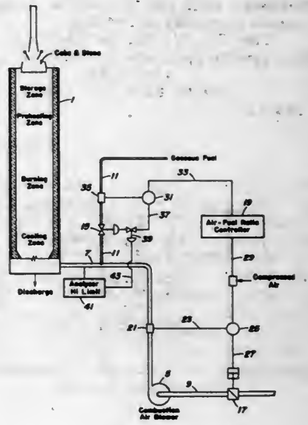
Apparatus for the continuous thermal treatment of a pourable or flowing granular material, especially granules of a thermoplastic polymer, including a vertically positioned vessel of rectangular cross section enclosing in sequence from top to bottom (a) at least one thermal treatment zone arranged above a lowermost horizontal heat exchange means, (b) a stabilizing zone of the same cross section as the thermal treatment zone or zones thereabove, and (c) a discharge zone of unidimensionally narrowing rectangular cross section. The specific dimensions of the apparatus are dependent upon the angle of slide of the pourable granular material being treated.

3,544,092
ROTARY KILN CHAIN
Frank J. Boron, Elyria, Ohio, assignor to Abex Corporation, New York, New York a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,815
Int. Cl. F27b *7/00*
U.S. Cl. 263—33 **14 Claims**



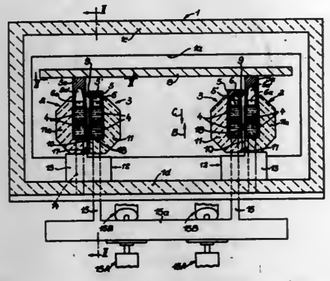
Rotary kiln chain for use as a heat transfer element in a rotary kiln used in the manufacture of cement, and like products, including connected circular links formed with a uniform cross-sectional shape that is substantially greater in dimension in one of the axial or radial directions than the other of the axial or radial directions, and provided with inner engaging surfaces having a form that minimizes material buildup to provide more efficient heat transfer action.

3,544,093
CALCINING LIMESTONE
Robert K. Fisher, Grosse Ile; George W. Plant, Wyandotte and Maurice J. Collins, Detroit, Michigan, assignors to Wyandotte Chemicals Corporation, Wyondotte, Michigan a corporation of Michigan
Filed Nov. 5, 1968, Ser. No. 773,614
Int. Cl. C04b *1/00*
U.S. Cl. 263—53 **13 Claims**



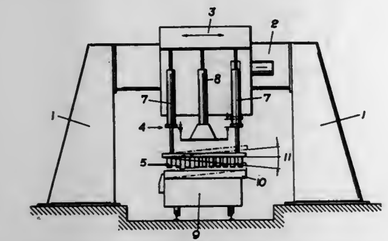
The process of calcining limestone in a vertical mixed feed-type kiln wherein gaseous fuel is mixed with the combustion air for such kiln at a concentration below the flammable limit for the fuel gas at the conditions at which the air-gas mixture enters the kiln. The combustion air then carries the gas up into the kiln burning zone whereby the gas is ignited by the heat from the burning coke and/or hot kiln charge.

3,544,094
METALLURGICAL WALKING BEAM FURNACE
Ruediger Knaak, Neuss, Germany, assignor to Koppers-Wistra-Ofenbau G.m.b.H., Dusseldorf, Germany
Filed April 9, 1968, Ser. No. 719,990
Claims priority, application Germany, April 15, 1967, K62025
Int. Cl. F27d *3/12*
U.S. Cl. 266—5 **2 Claims**



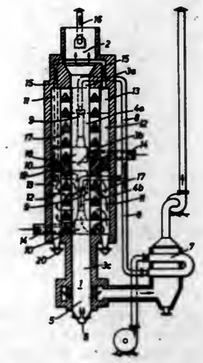
A walking beam metallurgical furnace wherein the walking beams are separated from stationary beams by narrow vertical gaps having upper portions of lesser and lower portions of greater width. Each beam comprises two superimposed hollow internally cooled elongated metallic carriers which are immediately adjacent to the respective gap and are welded to each other, and a row of work-engaging plates which are mounted on the uppermost carriers of the respective beams so as to be held against tilting and/or lengthwise displacement. The walking beams move at a lesser speed during engagement with and during disengagement from the workpieces, and at a greater speed during movement with reference to the workpieces.

3,544,095
APPARATUS FOR SCARFING SLABS AND INGOTS
Ferdinand Thalhammer, Steyr, Austria, assignor to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria a company of Austria
Filed Dec. 9, 1968, Ser. No. 782,223
Claims priority, application Austria, Dec. 12, 1967, A11180/67
Int. Cl. B23k *7/06, 7/10*
U.S. Cl. 266—23 **6 Claims**



Apparatus for scarfing slabs and ingots enabling an automatic adjustment of a series of burners to any slope or warping of the surface to be scarfed. The apparatus comprises an articulated frame formed by two side beams suspended with extensible hydraulic jacks on a support and a transverse beam connecting said side beams and holding a series of parallel burners of adjustable inclination. A crossbeam, also jack-mounted on said support, extends between said side beams. A rod linkage on either side of the crossbeam, comprising a lever contacting with one end an adjustable stop on the crossbeam and connected with its other end to a slab or ingot surface feeler resiliently mounted on the pertinent side beam, actuates switch and valve means for controlling the pressure applied to the respective side-beam suspending jack. Thus, an independent feeler-controlled movement of the side beams as well as a communication of any crossbeam motion to the side beams is achieved.

3,544,096
CROSS-CURRENT BLAST FURNACE
Heinrich Buchner, Ranzel, Germany, assignor to Klockmer-Humboldt-Deutz AG, Cologne-Deutz, Germany a corporation of Germany
Filed May 22, 1968, Ser. No. 731,172
Int. Cl. F27d *7/03*
U.S. Cl. 266—30 **4 Claims**

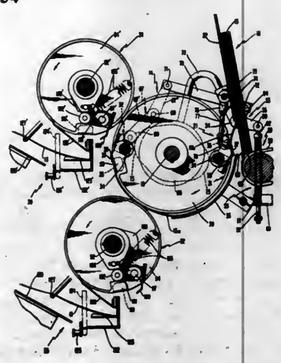


A crosscurrent blast furnace for the combustion or sintering of limestone, dolomite and magnesite in which the vertical stack is provided with vertically alined preheating, combustion and cooling zones with sealing zones therebetween, and in which each combustion zone is provided with its individual heating gas circuit provided with its own air and fuel supply means.

ERRATUM

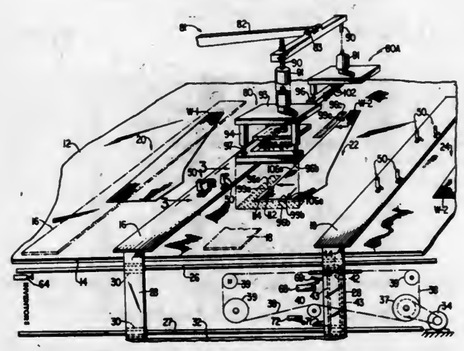
For Class 270—21 see:
Patent No. 3,544,454

3,544,097
SIGNATURE HANDLING APPARATUS
Gosta R. Linden, Park Ridge, New Jersey, assignor to North American Rockwell Corporation, Pittsburgh, Pennsylvania a corporation of Delaware. by mesne assignments
Continuation-in-part of application Ser. No. 677,258, Oct. 23, 1967, now Patent No. 3,510,119. This application Aug. 6, 1968, Ser. No. 750,693
Int. Cl. B65h *39/02*
U.S. Cl. 270—54 **3 Claims**



An apparatus and method for handling signatures, sheets, and the like, such apparatus being adapted for use in collating apparatus having a series of hoppers from which signatures are fed in rapid succession to a plurality of conveyors where the signatures are gathered in collated form. The invention particularly relates to a novel apparatus and method for effecting the transfer of signatures in generally flat condition from one of said hoppers to said plurality of conveyors. The apparatus includes a single primary transfer reel receiving signatures from the hopper and transferring them in generally flat condition, and a plurality of similar, similarly driven secondary transfer reels interposed between the primary transfer reel and the respective conveyors, said secondary transfer reels each receiving selected ones of the signatures transferred by the primary transfer reel and carrying them in generally flat condition to the conveyors.

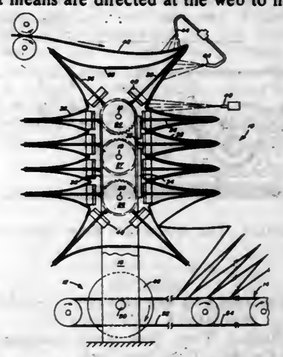
3,544,098
METHODS AND APPARATUS FOR AUTOMATICALLY TRANSFERRING AND REGISTERING FABRIC WORKPIECES
George F. Hawley, Bogota, New Jersey and John H. Buettner, Williston, Vermont, assignors to Ivanhoe Research Corporation, New York, New York a corporation of Delaware. by mesne assignment
Filed July 30, 1965, Ser. No. 475,986
Int. Cl. B65h *39/02, 9/00*
U.S. Cl. 270—58 **27 Claims**



Methods and apparatus for automatically transferring and registering fabric workpieces and for combining them, including means for moving the fabric workpieces over a supporting surface upon which they can be slid, means for impelling one or more of their edges outwardly against one or more stop surfaces in known positions to register the workpieces with respect to the positions of the stop surfaces, and means for maintaining the known orientation and relationship relative to the other workpieces during the subsequent transfer of the workpieces following registration and during the combining thereof.

3,544,099
METHOD AND APPARATUS FOR CONTINUOUS ZIG-ZAG WEB FOLDING
Kenneth G. Cooke; Curt G. Adomeit, Rochester and Leo David Delaney, Webster, New York, assignors to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed Dec. 23, 1968, Ser. No. 786,284
Int. Cl. B65h *45/00*
U.S. Cl. 270—69 **19 Claims**

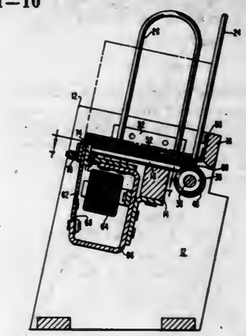
A continuous zig-zag web folding apparatus having an endless drive member with a plurality of blades extending outwardly therefrom which contact only one surface of the web. Air jet means are directed at the web to maintain it in contact with the blades as they are advanced to assure that the web is folded.



ERRATUM

For Class 270—86 see:
Patent No. 3,544,107

3,544,100
RECORD CARD FEED DEVICE
Kishore T. Desai, Detroit, Michigan, assignor to Burroughs Corporation, Detroit, Michigan a corporation of Michigan
Filed Oct. 17, 1968, Ser. No. 768,422
Int. Cl. B65h *5/00, 3/24*
U.S. Cl. 271—10 **5 Claims**

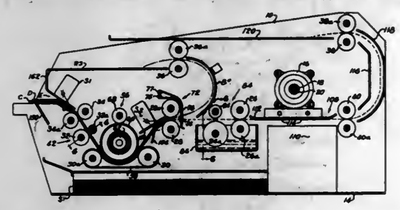


The disclosure embodies a device for feeding record cards singly from the bottom of a stack of such cards. The card stack is supported on a platform comprising a plate and the upper end of an upright solenoid clapper which is operable about a fulcrum to push the bottom card to a restriction. An abutment carried by the clapper projects slightly above the upper end of the clapper to engage the rear edge of the bottom card. The clapper is biased to a retracted position and is solenoid activated whereupon the bottom card of a stack is pushed to a restriction defined by an upper guide and a lower constantly driven feed roller which has a card displaceable resilient tire.

3,544,101
REPRODUCTION APPARATUS
James A. Kolibas, Cleveland, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio a corporation of Delaware
Original application Sept. 17, 1965, Ser. No. 488,015, now abandoned . Divided and this application Feb. 2, 1968, Ser. No. 721,142
Int. Cl. B65h *29/64*
U.S. Cl. 271—64 **10 Claims**

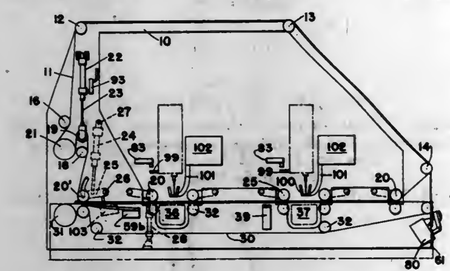
A sheet separator is provided for separating a unit set com-

posed of an original and a copy sheet which are in contact



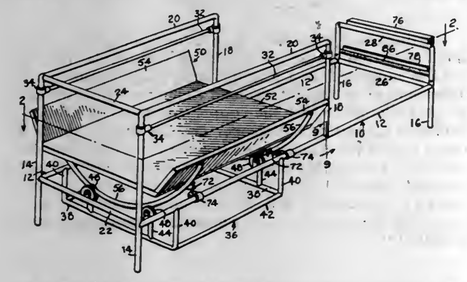
with one another. The sheets are then separated into different paths.

3,544,102
WORK HANDLING APPARATUS FOR SEWING MACHINES AND THE LIKE
Francis H. Hughes, Troy, New York, assignor to Cluett, Peabody & Co., Inc., Troy, New York
Filed Aug. 21, 1968, Ser. No. 754,232
Int. Cl. B65h *29/68;* **D05b** *23/00*
U.S. Cl. 271—68 **6 Claims**



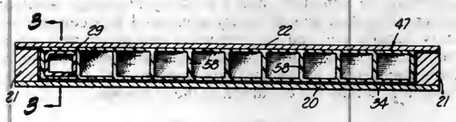
Apparatus for sewing buttons on shirt fronts including a dual belt feed arrangement and means for indexing so that the buttons will be sewed in the proper place on the shirt fronts. The machine includes a means for transferring the shirt fronts directly from the sewing station to a stacking station after the last button is sewed.

3,544,103
RESILIENT CRADLE EXERCISE APPARATUS
Milo G. Conable, 5356 15 Ave., Sacramento, Calif. 95820
Filed June 10, 1968, Ser. No. 735,623
Int. Cl. A63b *23/02*
U.S. Cl. 272—58 **5 Claims**



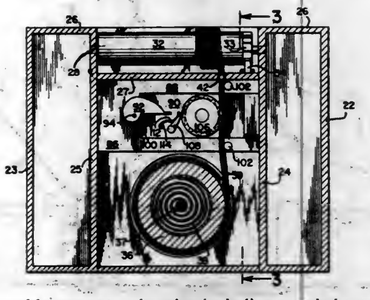
A metal frame supports a rocker or cradle on which a person may be supported in prone position to rock about an axis above his body. The frame is provided with top bars which may be grasped by the person exercising to effect various exercises including the rocking of the cradle. Elongated resilient members, similar to shock cords, are arranged below and parallel to the top bars of the frame and which elements the user may grasp to push or pull longitudinally to exercise the hands and arms. Springs connected between the cradle and the frame to oppose the cradle-rocking movement and a shoe-engaging structure on the frame for stabilizing the exerciser.

3,544,104
LAMINATED FIBERGLASS DIVING BOARD
Herbert R. Jenks, Santa Ana, California, assignor to Dura-Fiber, Inc., Costa Mesa, California a corporation of California
Filed Oct. 12, 1967, Ser. No. 674,958
Int. Cl. A63b *5/10*
U.S. Cl. 272—66 **5 Claims**



A laminated fiberglass diving board having an upper and lower skin separated by a plurality of vertical ribs providing hollow cores therebetween wherein the skins and the ribs are molded into an integral structure with the fibers straight and under tension. The board also has an elastomeric covering laminated to the fiberglass and resin and bonded thereto to provide a nonskid surface along the upper surface of the board and over the edges.

3,544,105
CONTINUOUS RESISTANCE TYPE EXERCISING DEVICE
Richard S. Latta, Trumansburg, New York (01 Cathy Place, Succasunna, NJ 07876)
Filed Aug. 24, 1967, Ser. No. 663,015
Int. Cl. A63b *21/02*
U.S. Cl. 272—83 **4 Claims**



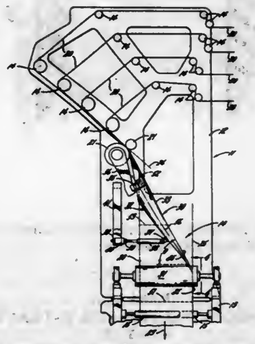
A portable support or housing including a reeled rope having an outer end passed about a smooth fixed cylinder to furnish continuous and variable resistance to the rope-unreeling pull on its end by a user standing on or adjacent the support or housing which includes variable rope-tensioning means and reel-braking means to also enable use of the device for isometric exercises, the tensioning means being a member having a curved surface conforming to the curvature of the rope, said member being movable toward and away from the rope by movement of a mounting block having a vernier adjusting means.

3,544,106
SPRING TYPE FEMALE BUSTLINE MUSCLE EXERCISER
John J. Barrett, 10803 E. 16th Ave., Spokane, Washington
Filed Jan. 21, 1969, Ser. No. 792,641
Int. Cl. A63b *21/00*
U.S. Cl. 272—83 **1 Claim**



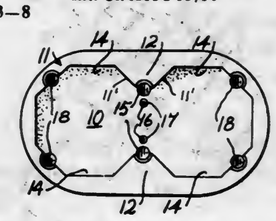
A muscle stimulating device providing handlelike stimulators maintained at spaced distance by an elongated body having two medially positioned slideably mounted handles spring-biased to one particular spaced position. The exerciser may be positioned between the medial joints of the folded arms to, by appropriate body manipulations, stimulate the muscles underlying the female breasts. The spaced medial grips may be moved against their bias for exercise of the upper appendages.

3,544,107
WEB FOLDING ASSEMBLY
Maurits C. Blomberg, Naperville, Illinois, assignor to Miehle-Goss-Dexter Incorporated
Filed May 26, 1969, Ser. No. 827,682
Int. Cl. B65h *45/22*
U.S. Cl. 270—86 **5 Claims**



A generally triangular folder former having conical edges proportioned to avoid stressing a web being folded and ending in a nose section curved to the new direction of web travel with rounded edges formed to continue the stress-free folding. Control of the web being folded is maintained by large diameter rollers fitted closely within the concave sides of the nose section.

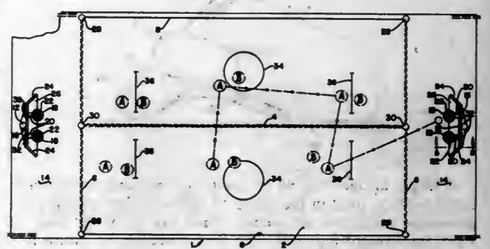
3,544,108
POOL TABLE
Joseph Bali, 11, 889 James Morrice St., Montreal, Quebec, Canada
No Drawing. Filed Nov. 27, 1967, Ser. No. 685,834
Int. Cl. A63d *15/00*
U.S. Cl. 273—8 **1 Claim**



A pool table in which the rails extend inwardly towards the center of the table from two opposite sides of the playing surface of the table, so as to form wedgelike projections, each defined by mutually inclined rail portions meeting at an apex, and a pocket located at each apex to thereby render the game more difficult to play.

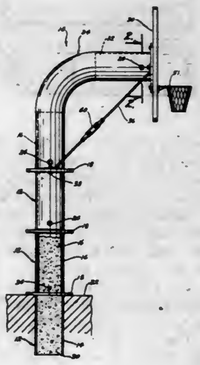
3,544,109
METHOD OF PLAYING A CROSS-BALL GAME
William A. Woods, Rte. 3, Box 283, Lindale, Texas
Original application Jan 26, 1967, Ser. No. 633,878, now Pat. No. 3,388,909. Divided and this application Dec. 26, 1967, Ser. No. 694,029
Int. Cl. A63b *71/02;* **A63c.***19/02*
U.S. Cl. 273—1.5 **3 Claims**

The method of playing a ball game, using a playing field or court which is divided by a medial, longitudinal net with a transverse net at each end of the longitudinal net, to define a playing field with two portions. A backboard is mounted a spaced distance outward from each end of the longitudinal barrier or net, which backboard has two horizontal, outwardly extending loops or baskets on the sides adjacent to the playing field and being a spaced distance apart transversely on each side of a vertical plane passing longitudinally along the the longitudinal barrier or net. The loops or baskets are elevated above the playing field. Outwardly diverging wings are provided on each side of the backboard and a



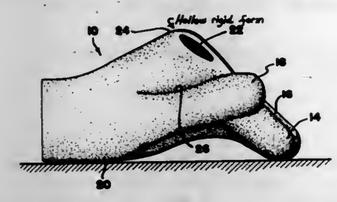
downwardly and forwardly extending wing extends across the lower side of the backboard. A plurality of players, an equal number from each team are positioned on each side of the longitudinal net, with the players on one side using both loops or baskets on the opposite side of the medial, vertical plane to score. Provisions are made for penalties and fouls and for starting and playing the game. The method comprises the steps of throwing the ball across the longitudinal barrier to another player and that player throwing the ball back across the barrier into one of the goals.

3,544,110
POST CONSTRUCTION FOR BASKETBALL BACKBOARDS
Russell B. Dickinson, 6905 New York Ave., Des Moines, Iowa
Filed July 2, 1968, Ser. No. 741,971
Int. Cl. A63b *67/04*
U.S. Cl. 273—1.5 **3 Claims**



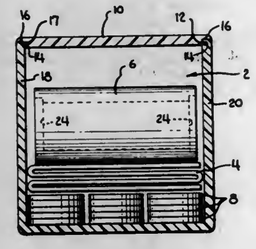
A device including a bottom post member anchored in the ground, and upper lightweight plastic post members telescopically inserted over the upper end of the lower post members. A peripheral flange extends outwardly from the center of each member and limits the telescopic movement of adjacent members. A basketball backboard mounted on an L-shaped member telescopically mounted over the top post member is height-adjustable since any desired number of post members can be used. Adjustable brace rods extend between the backboard and the uppermost member.

3,544,111
FINGER BRIDGE FOR BILLIARD PLAYERS
Donald M. Crisman, 515 N. Main St., Lombard, and John E. Kluber, 525 N. Austin St., Chicago, Illinois
Filed Aug. 25, 1969, Ser. No. 852,616
Int. Cl. A63d 15/10
U.S. Cl. 273—24 4 Claims



A finger bridge training device to aid in teaching the basic hand position used in the game of billiards. The teaching aid generally comprises an arched, hand-like form or mold of rigid, lightweight material. The form encases the entire forwardly located hand of the player except for the forefinger. A semicircular groove is molded between the thumb and the first knuckle in order to correctly support and guide the movement of the billiard cue.

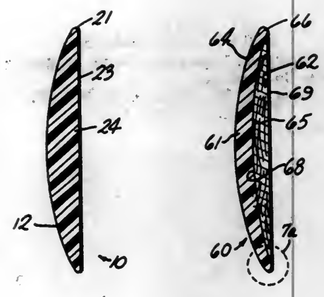
3,544,112
EDUCATIONAL GAME
Evonne H. Cornblatt, Alexandria, Virginia (143 St. Patrick St., Rapid City, SD 57701)
Filed April 1, 1968, Ser. No. 717,748
Int. Cl. A63f 9/02, 9/04
U.S. Cl. 273—101 4 Claims



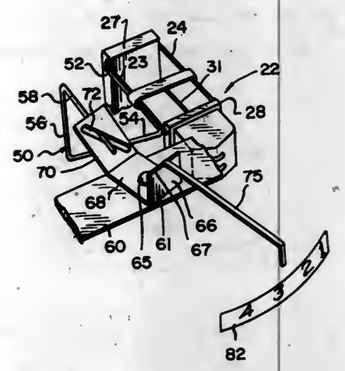
A game for teaching children how to count and distinguish colors while developing the power of concentration and muscular coordination. A die having a different color and indicia on each side is provided for use with a board having the same colors. The separate colors on the board are bounded by different geometrical outlines. An ejector and tokens of the same colors as used on the board and die complete the game articles. The die is rolled to indicate the color which is to be covered by the token. The token is ejected from the ejector to cover the selected color on the board. Success is rewarded by giving points indicated by the indicia on each side of the die. The die is hollow and provided with a removable face to define a storage device for the board, tokens, and ejector.

3,544,113
SET OF DISCS HAVING DIFFERENT FLOATATION CHARACTERISTICS
Kenneth E. Hand, 175 S. Woodrow Ave., Battle Creek, Michigan
Filed April 10, 1967, Ser. No. 629,786
Int. Cl. A63b 65/10, 67/06
U.S. Cl. 273—106 7 Claims

A set of disc assembly members. At least one disc assembly member sinks when stopped in water. A second disc assembly member floats when stopped in water, and a third disc assembly member sinks at a controlled rate when stopped in water. The buoyancy of the floating and controlled sinking members is varied by changing a structural characteristic of the body assembly.

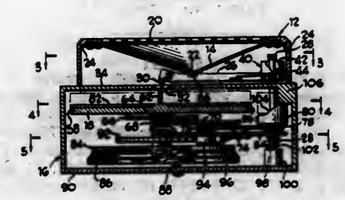


3,544,114
TRACK INDICATOR FOR MULTI-TRACK TAPE PLAYER
Frank G. Malone, Palatine, Illinois, assignor to Motorola, Inc., Franklin Park, Illinois a corporation of Illinois
Filed April 25, 1967, Ser. No. 633,548
Int. Cl. G11b 5/00
U.S. Cl. 274—4 4 Claims



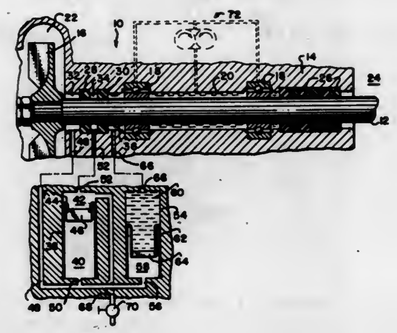
This apparatus utilizes a member pivoted to the tape player which has an angular slot in it for converting the vertical movement of the player head assembly between the different tracks of the multitrack tape into motion for operating a track indicator device. A pickup arm is connected to the head assembly and rides in the angular slot in the member. The arm slides in the angular slot when the head is positioned to a different track causing the member to pivot thereby rotating a pointer indicator arm to a number corresponding to the track to which the head assembly is positioned.

3,544,115
TOY PHONOGRAPH DEVICE
Gunars Licitis, Lombard and Marvin I. Glass, Chicago, Illinois, assignors to Marvin Glass & Associates, Chicago, Illinois a partnership
Filed July 3, 1968, Ser. No. 742,302
Int. Cl. G11b 17/06
U.S. Cl. 274—15 4 Claims



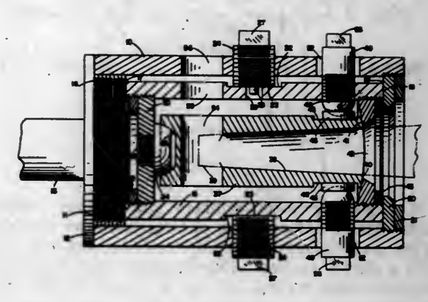
A miniature phonograph for use in toys to provide random playing of one of a plurality of sound messages. The device includes a flat record with a plurality of separate messages thereon and is operable in response to any appreciable movement of the device to initiate the playing of a message. The turntable is rotatably mounted and also mounted to pivot about an axis and to move parallel to said axis outside of its periphery, whereby the turntable is pivoted and raised to contact a stylus at a selected band. The stylus is mounted for limited movement to play said band.

3,544,116
FLUID SEALING ARRANGEMENT
Carl R. Peterson, Princeton, New Jersey, assignor to Ingersoll-Rand Company, New York, New York a corporation of New Jersey
Filed Nov. 2, 1967, Ser. No. 680,164
Int. Cl. F16j 15/00, 17/00
U.S. Cl. 277—3 11 Claims



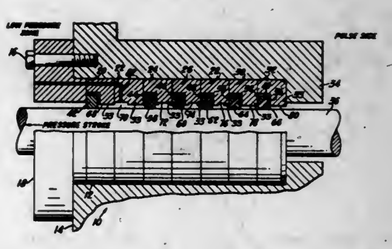
Fluid sealing elements with a pressure responsive chamber in communication therewith for automatically maintaining optimum pressure differential across said elements.

3,544,117
TOOL-HOLDING AND ALINING DEVICE
Spencer Lewis Bingham, 396 N. Thomas St., Orange, California
Continuation-in-part of application Ser. No. 572,647, Aug. 10, 1966, now abandoned. This application March 18, 1968, Ser. No. 713,641
Int. Cl. B23b 31/34, 31/36
U.S. Cl. 279—6 11 Claims



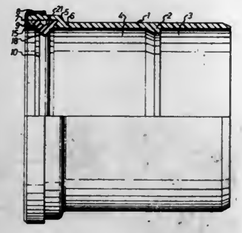
A tool-holding and alining device that includes a tool holder circumscribed by a tubular member, the tool holder being pivotal relative to the tubular member and adjusted pivotally by opposed screws, and a second tubular member circumscribing the first tubular member and including opposed screws for effecting transverse movement of the first tubular member and, hence, the cutting tool relative to the second tubular member, for thereby obtaining lateral centering alinement.

3,544,118
PRESSURE BALANCED SHAFT SEAL
Donald E. Klein, Ellicott City, Md., assignor to Koppers Company, Inc., a corporation of Delaware
Int. Cl. F16j 15/16, 15/40
U.S. Cl. 277—27 14 Claims



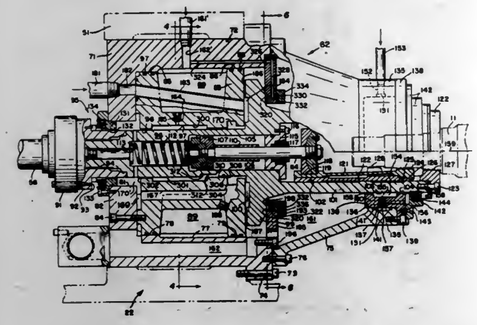
A shaft seal assembly for sealing against pulses of fluid pressure utilizing the principle of progressively reducing the pressure across adjacent seal rings by a unique combination of gas ports and expansion reservoirs to provide controlled leakage paths for establishing an instantaneous pressure differential throughout the duration of the pulses thereby reducing the wear of said seal rings.

3,544,119
PIPE COUPLINGS
John Benjamin Glover, Stocksbridge, near Sheffield, England, assignor to The Hepworth Iron Company Limited
Filed Apr. 1, 1968, Ser. No. 717,836
Int. Cl. F16j *15/10*
U.S. Cl. 277—206 7 Claims



A slightly resilient synthetic plastic pipe coupling socket has an outer portion of larger diameter connected to the main socket portion by an annular wall and which with a slightly resilient synthetic plastic cap snapping on to the enlarged portion to form an inwardly-facing recess for a sealing ring which has flanged sides engaged by undercut sides of the recess.

3,544,120
FRICTION WELDING APPARATUS HAVING IMPROVED HYDROSTATIC BEARING ARRANGEMENT
Alex F. Stamm, Rochester, Mich., assignor, by mesne assignments, to Rockwell-Standard Company, Pittsburgh, Pa., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,892
Int. Cl. B23b *31/30*
U.S. Cl. 279—4 13 Claims

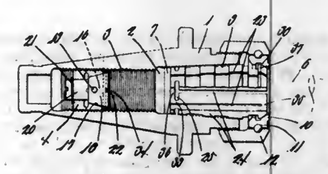


A friction welding apparatus includes an arbor assembly surrounded by a housing, the arbor assembly having a generally cylindrical portion and a pressure actuated chucking means. The housing and the cylindrical portion of the arbor assembly cooperate to define a plurality of equally angularly spaced-apart journal bearing cavities for receiving hydraulic fluid under pressure to hydrostatically support the arbor assembly, and the arbor assembly further includes passages interconnecting the chucking means and a plurality of equally angular spaced-apart inlets on the cylindrical portion for supplying hydraulic fluid to the chucking means from the cavities. The inlets are each positioned to communicate sequentially with each, but not more than one at a time, of the cavities as the arbor assembly is rotated within the housing, the number of the cavities exceeding the number of inlets by an amount sufficient to assure at all times during rotation of the arbor assembly that the arbor assembly is hydrostatically supported in a balanced manner.

ERRATUM

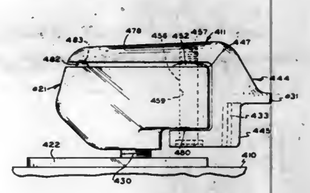
For Class 279—6 see:
Patent No. 3,544,117

3,544,121
CHUCK AND A CUTTING TOOL
Sutemaru Mizoguchi, 1738 Oh-aza Kitahara, Ikoma-cho, Ikoma-gun, Nara Prefecture, Japan
Filed Nov. 21, 1967, Ser. No. 684,770
Claims priority, application Japan, Dec. 3, 1966, 41/110,508, 41/110,509; Jan. 24, 1967, 42/6,372; June 1, 1967, 42/46,569, all utility models
Int. Cl. B23b *31/20*
U.S. Cl. 279—51 2 Claims



A chuck for a cutting tool. An adapter has a shank hole therein with the outer end tapered outwardly, and a collet is positioned therein, and a locking nut and retaining ring are positioned around the outer end of the collet and adapter. The collet is appropriately slotted so as to be flexible for easy gripping of the shank of a tool. A stopper is positioned at the internal end of the hole against which the end of the tool can abut.

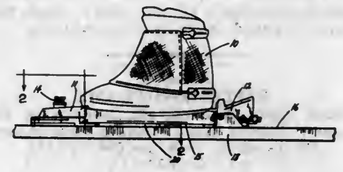
3,544,122
CUP TOE BINDINGS
Hjalmar Hvam, Rte. 1, Box 404, Beaverton, Oreg. 97005
Filed Mar. 21, 1968, Ser. No. 715,034
Int. Cl. A63c *9/081*
U.S. Cl. 280—11.35 8 Claims



Cup toe bindings **11** and **111** have sole engaging cups pivotal on swivels and downwardly detented to the swivels more strongly than the swivels are downwardly detented to bases so that when maximum safe forces are approached the swivels pivot on the bases first and then, if the forces are sustained, the cups pivot on the swivels. In binding **211**, a hollow swivel **221** having an integral cup portion **244** is swiveled on a base. Downwardly acting detenting pins **240** are movable in arcuate slots **154**, and a leaf spring **261** urges the swivel toward its operative position.

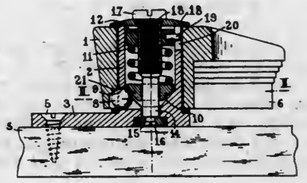
In binding **311**, a downwardly detented swivel **321** carries downwardly detented wings **344**, cup means as an abutment being preferable to teeth means to afford larger contact and eliminating destructive scoring of the toes of the ski boots, and ease of fitting. A binding **411** includes a toe engaging member **444** pivoted on swivel **421** and having an arm **478** and normally held by a detent **482** holding the arm and detents **480** acting on the swivel. A binding **511** is like the binding **411** but has a tooth cup **544**. In binding **611**, cup halves **644** are angularly adjustable on swivel **621**.

3,544,123
ANTI-FRICTION DEVICE FOR SKI BOOTS AND SKIS
Frank D. Werner, Bloomington, and Paul S. Petersen, Minnetonka, Minn., assignors, by mesne assignments, to Sports Technology, Inc., Eden Prairie, Minn., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,214
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 13 Claims



An anti-friction unit to be mounted on the top of a ski and positioned underneath a ski boot so that when the ski boot is held in lateral release bindings, the anti-friction device will permit the boot to move laterally within acceptable force variations regardless of the load distribution on the boot, and made to be substantially unaffected by dirt, rust, ice or other foreign materials.

3,544,124
SAFETY SKI BINDING
Jean Joseph Alfred Beyl, 1 Rue Devieux Robelin, Nevers, France
Filed Nov. 15, 1968, Ser. No. 776,095
Claims priority, application France, Nov. 20, 1967, 128,874
Int. Cl. A63c *9/085*
U.S. Cl. 280—11.35 27 Claims



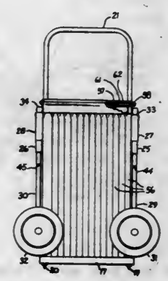
A safety device for releasably binding the toe end of a ski boot to a ski comprising a base plate adapted to be secured to a ski, a hollow pivot member rigid with and extending upwardly at right angles to the base plate and an abutment member adapted to engage the toe portion of a ski boot and having a bore receiving the hollow pivot member whereby the abutment member is rotatably mounted on the hollow pivot member. The hollow pivot member has apertures through its upstanding walls with detent members positioned in said apertures and engageable in recesses in the bore of the abutment member to restrain the abutment member from pivoting about the pivot member with the hollow pivot member containing resilient means for biasing the detent members into the recesses.

3,544,125
PREFABRICATED INFANT REARING IMPLEMENT
Yoshio Unno, 9–18 Higashinakano 4-chome, Nakano-ku, Tokyo, Japan
Filed Aug. 16, 1968, Ser. No. 753,086
Claims priority, application Japan, Sept. 6, 1967, 42/56,795
Int. Cl. B62b *7/12*
U.S. Cl. 280—31 6 Claims



A prefabricated infant rearing implement is disclosed which comprises a pair of side frames each consisting of a semi-circular curved tube integrally jointed at its both ends to a straight tube or a straight rod, a plurality of coupling tubes which may fit at their both ends into side holes provided in each curved tube of said pair of side frames, a plurality of coupling rods which may extend through said coupling tube and said side holes in said side frames and which may be detachably secured at their both ends to said side holes, a flat plate having a width substantially equal to the length of said coupling tube, a plurality of curved rods provided with sleeves at their both ends which may fit around said coupling tube, and a smaller plate piece which may be bridged between said curved rods.

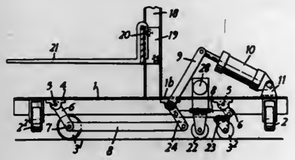
3,544,126
COLLAPSIBLE HAND-PULLED GOLF CART
James F. Spielman, North Road, Bantam, Conn. 06750
Filed Apr. 7, 1969, Ser. No. 813,941
Int. Cl. B62b *11/00*
U.S. Cl. 280—41 6 Claims



A collapsible golf cart having a golf club receiving rack with column like undercarriage structure laterally pivoted thereto adjacent the upper end thereof extending downwardly therefrom and with a handle member laterally

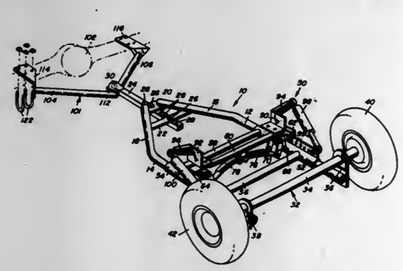
pivoted at its lower end to a point intermediate the upper and lower end of the rack, extending upwardly therefrom crossing the undercarriage structure, and a mechanism manually operable to collapse the undercarriage structure and the handle member against the rack.

3,544,127
TRUCKS
Peter V. Dobson, 27 Windsor Walk, South Anston, near Sheffield, Yorkshire, England
Filed Nov. 6, 1967, Ser. No. 680,717
Int. Cl. B62d *21/18*
U.S. Cl. 280—43.17 **4 Claims**



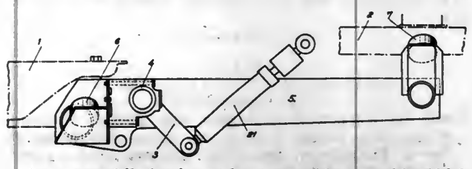
A truck comprising a chassis fitted with main wheels and auxiliary wheels disposed at an angle to the latter, the auxiliary wheels being movable up and down so that the main wheels and the auxiliary wheels respectively contact the ground and the truck is movable in two different directions. The auxiliary wheels are carried by sets of wheel arms pivotally mounted on the chassis, the arms of each set being connected together by coupling links so that their wheels are movable up and down in unison. Raising and lowering of the auxiliary wheels is effected by one or more sources of force connected with the sets. Various arrangements of wheel arms and coupling links and various ways of connecting the source(s) of force to them are provided. The truck may be provided with a driving and steering unit.

3,544,128
SUPPORT TRAILER
Nelson Storm, 213 Perry, Rossville, Ill. 60963
Filed Nov. 12, 1968, Ser. No. 774,710
Int. Cl. B62d *53/04*
U.S. Cl. 280—81 **6 Claims**



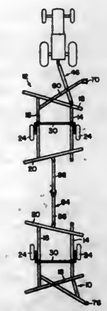
A support trailer for use with a conventional pickup truck to provide additional load carrying capacity and stabilization to the vehicle, said support trailer including a main frame assembly mounting, a pair of wheels with a subframe slidably mounted on said main frame, said subframe having means thereon for securement to the truck frame aft of the truck rear axle housing.

3,544,129
AUTOMOBILE VEHICLES
Edmond Henry-Biabaud, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France, a French company
Filed Oct. 26, 1967, Ser. No. 678,402
Claims priority, application France, Nov. 3, 1966, 82,353; Sept. 7, 1967, 3,398
Int. Cl. B60g *11/00*
U.S. Cl. 280—106.5 **2 Claims**



An automobile having at least one axle assembly which is intended substantially to prevent transmission of road vibrations to bodywork of the vehicle. The axle assembly includes resilient bushings or other members which are capable of yielding to a greater extent when a given force is applied longitudinally of the vehicle, than when the same force is applied vertically or transversely.

3,544,130
IMPLEMENT FRAME
John Oscar Hayes, Urbana, Ill., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,180
Int. Cl. B62d *53/00*
U.S. Cl. 280—412 **15 Claims**



An agricultural implement frame having two independently supported subframes movable between a side-by-side position for normal field-working purposes, and a fore-and-aft position wherein one of said subframes is adapted to trail behind the other for transport purposes. Front and rear connections between the two subframes are provided, the rear connection, comprising an elongated link member which, in conjunction with the front connection, serves to maintain the subframes in side-by-side relation when the implement frame is in its field-working position, and, when the front connection is released serves as a connecting link between the subframes when the implement frame is in its transport position.

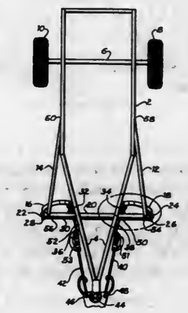
3,544,131
IMPLEMENT FRAME
Joe S. Pennington, Tuckerman, Ark., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,779
Int. Cl. B62d *53/00*
U.S. Cl. 280—412 **5 Claims**

An agricultural implement frame having two independently supported subframes with front and rear connections to maintain them in side-by-side relation for field-working purposes, the front connection being releasable to allow one subframe to pivot about the rear



connection to a trailing position directly behind the other subframe for transport purposes.

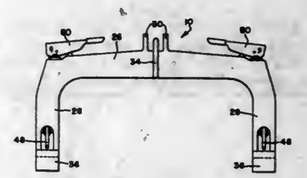
3,544,132
TRAILER STABILIZER
William V. Collins, 1411 S. Hackley, Muncie, Ind. 47302
Filed Jan. 21, 1969, Ser. No. 792,273
Int. Cl. B62d *53/00*
U.S. Cl. 280—446 **7 Claims**



A trailer stabilizer having a central bar attached to the forward section of a trailer, pivotally attached to either end of said central bar are dog leg shaped pressure arms wherein opposing ends of the dog leg shaped pressure arms are attached to each other by means of a push-pull rod. The other ends of the dog leg shaped pressure arms are attached via flexible cables and springs to the towing vehicle chassis in the vicinity of the trailer hitch.

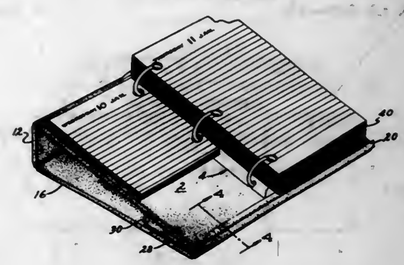
3,544,133
QUICK COUPLER
Norman Frederick Lemmon and Gerald Dennis Williams, Cedar Falls, Iowa, assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed May 19, 1969, Ser. No. 825,645
Int. Cl. B62d *53/00*
U.S. Cl. 280—479 **5 Claims**

A quick coupler in which the latching mechanism is normally spring biased closed and is movable to an open condition by a cam lever. When the lever is moved to a generally upright position, it opens the latching mechanism and when moved to a generally horizontal position in which it overlies the bight portion of the quick coupler,



it permits the spring to close the latching mechanism. A pin and slot arrangement prevents the lever from moving to the horizontal position if the spring fails to close the latching mechanism.

3,544,134
LOOSELEAF BINDER STRUCTURE FOR CALENDAR DESK DIARY USE
William J. Sibley, South Hadley, Mass., assignor to National Blank Book Company, Inc., Holyoke, Mass., a corporation of Nevada
Filed Mar. 18, 1968, Ser. No. 713,988
Int. Cl. B42d *3/18*; B42f *13/16*
U.S. Cl. 281—33 **5 Claims**

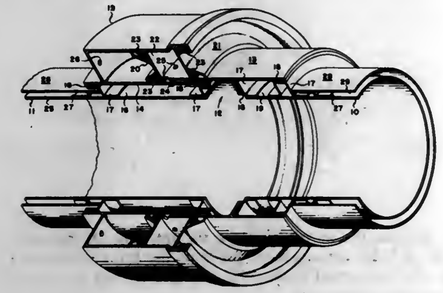


Looseleaf binder structure for calendar desk diary use having a support panel provided with a central transversely disposed sheet holding means and hingedly connected end and cover panel members extending from the upper and lower edges of the support panel, said extending panels having interengageable fastening means and being foldable above and below the support panel for use as an easel-type desk stand and a binder carrying case, respectively.

3,544,135
DUCT PRESSURE COMPENSATOR
William L. Hoermer, Marietta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Jan. 31, 1969, Ser. No. 795,573
Int. Cl. F16l *59/16*
U.S. Cl. 285—47 **7 Claims**

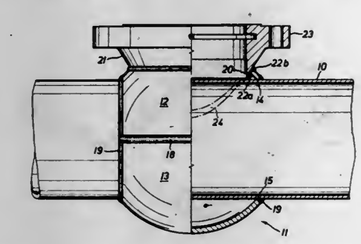
A compensator is provided for use in high temperature (above 500° F.) pressure fluid ducting systems to absorb thermal expansion. State of the art compensator designs often require metal bellows in order to perform the sealing function at such temperatures. Penalties are imposed upon the system in these designs due to the bellows acting as springs, causing compression (buckling) loads in the ducting at certain operating conditions and over-design of the compensator to overcome these spring loads. The design of this proposed compensator allows

use of existing elastomeric sealing ring materials by provision of protective insulating means for the seals. At the same time, the proposed compensator construction allows



for a weight and space reduction to half of that of known units, eliminates compression loading in the system, and facilitates replacement of the seals when worn out.

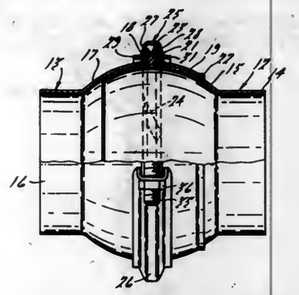
3,544,136
SPLIT T
Burton Ver Nooy, Broken Arrow, and Cornelis Boshuizen, Tulsa, Okla., assignors to T. D. Williamson, Inc., Tulsa, Okla.
Filed Aug. 1, 1968, Ser. No. 749,516
Int. Cl. F16l *41/00*
U.S. Cl. 285—156 **8 Claims**



A split T comprising a pair of hemispherical bodies each being of substantially the same radius and having a pair of generally semicircular recesses along its edge. The recesses are adapted to fit closely around the pipeline to disposed the edges of the bodies adjacent one another to permit bodies to be secured to one another and to the pipeline, as by welding. One of the bodies has an opening through it for access to the pipeline, and a tubular member is fixed to the one body and extends from the opening. A hot tapping machine may be connected to the tubular member to enable a cutter or the like to be extended through the opening to cut a coupon from the pipeline and thus form a lateral opening in it.

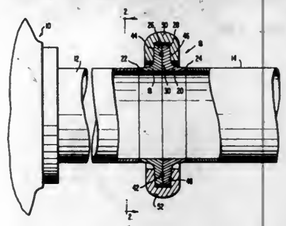
3,544,137
BALL JOINT FOR FLUID LINES
Gilbert E. Contreras, Los Angeles, and Ronald H. Nystrom, Canoga Park, Calif., assignors to Aeroquip Corporation, Jackson, Mich.
Filed Jan. 17, 1969, Ser. No. 791,925
Int. Cl. F16l *27/04*
U.S. Cl. 285—261 **4 Claims**

A ball joint comprising interfitting ball and socket members, a retainer of partially spherical shape, a gasket between flanges on the socket member and retainer, and a clamping ring drawing together the socket member and retainer flanges against the gasket so as to force the latter against the ball member. A double bias scarf cut on the



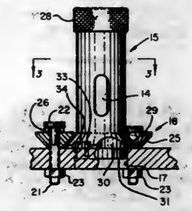
gasket permits both radial and circumferential adjustment of the gasket while preventing leakage.

3,544,138
COUPLING ASSEMBLY FOR CONDUITS
Ulrich C. von Eiff, Malintzin 34–B, Coyoacan, Mexico City 21, Mexico
Filed Apr. 7, 1969, Ser. No. 814,042
Int. Cl. F16l *17/00*
U.S. Cl. 285—336 **2 Claims**



The flat end faces of a pair of coupling members are clamped together and provided with registering grooves defining a channel of irregular pentagonal cross section within an O-ring is received. The assembly effects a seal for fluids under high pressure while allowing for ready and easy coupling and uncoupling of the members.

3,544,139
PRECISION QUICK CONNECTION
Thomas D. Sharples, Atherton, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Apr. 11, 1969, Ser. No. 815,420
Int. Cl. F16b *9/00*
U.S. Cl. 287—20 **8 Claims**



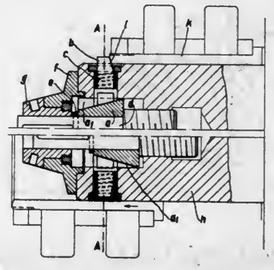
An attaching device for readily detachably mounting a body, such as a cuvette, to a plate with repeatable axial precision. A plurality of roller assemblies, at least one of which is resilient, are carried by the plate. The cuvette surface contains recesses for clearing the rollers when seating the body. When the seated body is turned, the roller assemblies press the body toward the plate and the resilient roller assembly laterally urges the body toward the other of the roller assemblies.

3,544,140
ANTENNA ATTACHMENT BASE FOR VEHICLES
Richard Langheck, Niefern, Baden, Germany, assignor to Wilhelm Sihn jun. K.G., Niefern, Baden, Germany
Filed Apr. 29, 1969, Ser. No. 820,083
Int. Cl. F16b *9/00*
U.S. Cl. 287—20 **5 Claims**



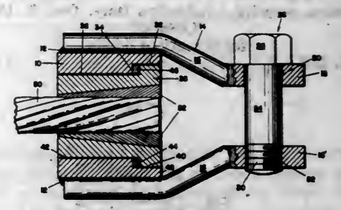
An antenna rod is detachably mounted on an antenna base, which is adapted to be secured to a vehicle body. Releasably interengaging locking elements are provided on said base and rod, respectively, and have releasing means operable by a key to disengage said locking elements. Key-selecting means are arranged to prevent an operation of said releasing means by means other than a predetermined key. The locking means are arranged to interengage automatically as said rod is applied to said base and reaches said predetermined position.

3,544,141
BENDING AND STRAIGHTENING MACHINES
Toni Schuetzmann, Spiesen, Saar, Germany, assignor to Ehrhardt & Sehmer Maschinenfabrik AG., Saarbrucken, Germany
Filed Jan. 8, 1968, Ser. No. 696,245
Claims priority, application Germany, Jan. 14, 1967, E 33,217
Int. Cl. B21b *31/08*
U.S. Cl. 287—52.01 **4 Claims**



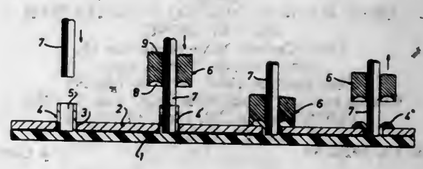
The specification describes means for holding a rolling means in a girder straightening or bending machine which comprises axially extending pins. The pins have oblique faces on their outer ends for exerting an axial clamping action on the rolling means and can be retracted to a size within the bore diameter of the rolling means so that the rolling means can be removed without having to disassemble their retaining means.

3,544,142
SWIVEL HITCH FOR WIRE ROPE
Reuben R. Moss, Jr., Box 265, Superior, Mont. 59872
Filed May 14, 1968, Ser. No. 729,005
Int. Cl. F16c *11/00*; F16g *11/04*
U.S. Cl. 287—91 **1 Claim**



A clevis having a swivel between the wire rope supporting the clevis and a quick disconnect for the wire rope attachment. The device comprises a cylindrical-like body having a stepped interior bore forming a shoulder. A rotor having a shoulder portion is positioned in the bore with a thrust member between the shoulders to allow for rotation. The rotor has an internal conical surface receiving wedges for clamping a cable. Clevis arms are welded to the body which have inturned apertured discs for a clevis pin.

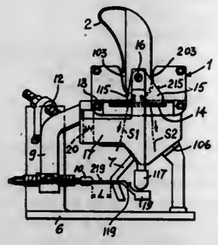
3,544,143
RIVETABLE PROJECTIONS
Jarl-Erik S. I. Ohlsson, Hannebergsgatan 2F, Solna, Sweden
Filed May 23, 1968, Ser. No. 731,450
Claims priority, application Sweden, June 2, 1967, 7,731/67
Int. Cl. F16b *19/04*
U.S. Cl. 287—189.36 **2 Claims**



This invention relates to a rivetable projection, a tool for riveting same, and a method of performing the riveting operation. The rivetable projection which primarily is intended for riveting an apertured detail to an article of plastic or like material, is integral with the said article and is adapted to extend with a clinchable end portion through an aperture provided in said detail. The rivetable projection has an outer dimension corresponding to the aperture in which it is received, and a central longitudinal recess extending approximately up to the level of the projection-carrying surface of the article, the thickness of the projection material preferably being less than one half the thickness of that portion of the article where the projection is provided. The device for riveting the projection consists of a guide pin insertable into the recess of the projection, and a preferably heated tool annularly surrounding the guide pin and movable relative thereto, said tool having an annularly concave engaging surface adapted to engage the upstanding clinchable portion of the rivetable projection and to clinch it. According to the method, the guide pin is introduced into the recess, whereupon the

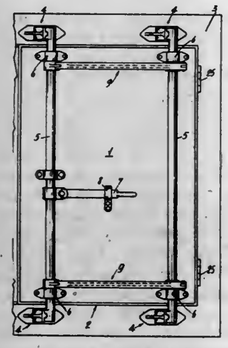
tool associated with the guide pin urges the clinchable portion of the projection down against the surface of the apertured detail which is to be secured by means of the projection. After the clinching operation, the tool is first retracted from the clinched portion of the projection, and then the guide pin is withdrawn from the recess.

3,544,144
THREAD KNOTTING APPARATUS
Luciano Savio, Via Udine, Pordenone, Italy
Filed Dec. 3, 1968, Ser. No. 780,704
Claims priority, application Italy, Dec. 9, 1967, 7,486/67
Int. Cl. A01d *59/04*
U.S. Cl. 289—2 **15 Claims**



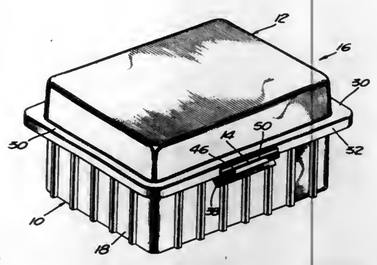
Thread knotting apparatus which ties the ends of a broken thread into a knot having two knot ends which extend from the knot is provided with a gripper device which is operable in timed relation with the knotting mechanism to grip the two knot ends so that if one or both knot ends should not be cut off by the cutter device associated with the knotting mechanism the thread will be again broken on being drawn away from the knotting mechanism and the knotting mechanism will automatically keep retying the thread until a knot is formed and both knot ends are severed from the knot.

3,544,145
DEVICE FOR BLOCKING A CONTAINER OR VAN WING
Piero Cerutti, Viale Sempione 35, Sesto Calende, Varese, Italy
Filed July 29, 1968, Ser. No. 748,299
Claims priority, application Italy, Aug. 1, 1967, 19,076/67; Mar. 28, 1968, 14,176/68
Int. Cl. E05c *9/16*
U.S. Cl. 292—54 **4 Claims**



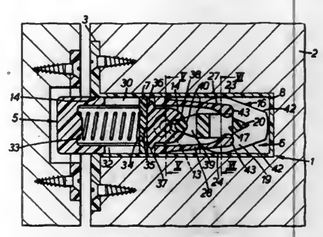
A device for blocking a container or van door wing comprising four hooking units for the wing to the van structure as disposed at the four angles of said wing, the moving portions of which are connected two by two through two vertical rods supported by the wing so as to rotate, one of said rods being provided with a handle for causing rotation thereof while the other rod is connected to the former through two articulated quadrilateral drives.

3,544,146
CONTAINER
Donald J. Asenbauer, Whittier, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Oct. 7, 1968, Ser. No. 765,469
Int. Cl. E05c *19/06*
U.S. Cl. 292—87 **2 Claims**



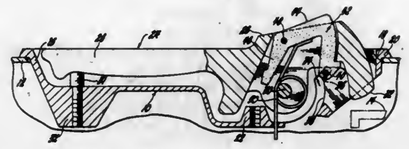
A closable container in which a resilient box lid is releasably secured to a box by means of a rigid lid clip mounted on the lower edge of a flange on the lid, the lid clip extending under an enlarged shoulder on the box whereby the edge of the lid must be deliberately flexed outwardly to disengage the lid clip from the lower side of the shoulder.

3,544,147
DOOR LATCHES
Michael Joseph James, Charlton Kings, England, assignor to Micro & Precision Mouldings (Cheltenham) Limited, Cheltenham, England
Filed May 3, 1968, Ser. No. 726,429
Int. Cl. E05c *1/12;* **E05b** *3/00*
U.S. Cl. 292—169 **9 Claims**



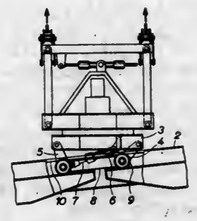
A door latch having a latch bolt and an operating shaft adapted to be rotationally coupled to door handles respectively mounted on opposite sides of the door and rotation of which produces inward movement of the bolt. When the latch is fitted the shaft is axially displaceable from one side of the door to a locking position in which rotation of the handle on the opposite side of the door is not prevented but is ineffective to release the latch, and retaining means are provided which comprise a resilient locking arm projecting from the inner end of the bolt for engagement with the shaft to retain the latter in the locking position.

3,544,148
LATCH OPERATING DOOR HANDLE
Bela Sandor, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 21, 1968, Ser. No. 777,683
Int. Cl. E05b *5/02*
U.S. Cl. 292—336.3 **5 Claims**
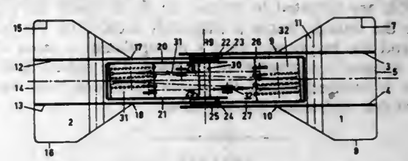


A latch operating outside door handle for vehicle body doors includes an elongated handle member of the type including integral thumb and finger gripping portions pivotally mounted on a door escutcheon by a pivot stud adjacent the thumb portion of the handle member for rotation between an inoperative or a normal position generally flush with the door and an extended position operative for outside actuation of the door latch. A handle latching member is pivotally carried within the thumb portion of the handle member and carries a latching pin cooperating with slots in the handle escutcheon to normally positively latch the handle member in its inoperative position but responsive to thumb pressure to release the pin and permit movement of the handle member between its inoperative and operative positions.

3,544,149
SUSPENDED GRIPPING ELEMENT
Veikko Saarinen, Hameenlinna, Finland
Filed Apr. 18, 1968, Ser. No. 722,376
Claims priority, application Finland, Feb. 16, 1968, 413/68
Int. Cl. B66c *1/00*
U.S. Cl. 294—67 **3 Claims**



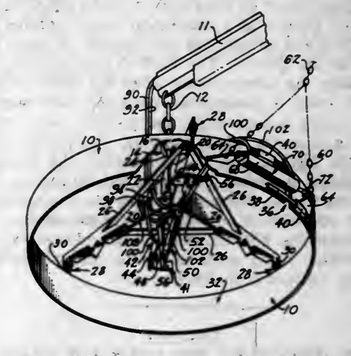
A gripping element is suspended by the hoisting ropes of a crane, and can be positioned in various inclined positions to engage a load to be hoisted. The gripping element is vertically divided into two parts which are joined together by two linkage arms so that in the quadrangle defined by the pivot points of the linkage arms at least two opposite sides are non-parallel, and that the parts are furthermore interconnected by a pressure cylinder for moving the lower part in relation to the upper part.

3,544,150
GRAB
Leendert van Hunksloot, Rotterdam, Netherlands, assignor to Nemag N.V., Rotterdam, Netherlands
Filed July 26, 1968, Ser. No. 748,089
Claims priority, application Netherlands, Aug. 16, 1967, 6711272
Int. Cl. B66c *3/12*
U.S. Cl. 294—71 **3 Claims**



A grab comprising two mutual pivoted cisterns the supporting plates of which are extended beyond the fulcrum and at their ends are provided with means for bypassing and tying up the control cables. The pivot for the supporting plates is so designed, that the portion of the supporting plate of a cistern connected to said cistern is located on one side of that pivot and its extension carrying the by-pass and securing means for the controlling cable on its other side, whereas the portions of the other cistern substantially lie in the same plane.

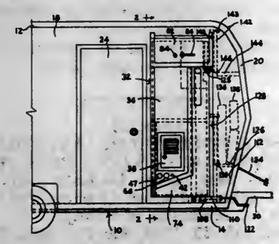
3,544,151
LIFTING DEVICE FOR HEAVY, HOLLOW ARTICLES SUCH AS CONCRETE PIPE
Frank R. Stokes, near Tucker, De Kalb County, Ga., assignor to Southeast Precast Concrete Products, Inc., Tucker, Ga., a corporation of Georgia
Filed July 23, 1968, Ser. No. 746,943
Int. Cl. B66c *1/00*
U.S. Cl. 294—81 **9 Claims**



A hydraulically operated pipe lifting device that may be suspended from a chain on the boom of a material handling tractor having a source of hydraulic fluid and pressure with controls to direct the flow. Heavy, hollow, tubular objects like concrete pipe or clay tile pipe, which are fragile, especially when "green" or uncured, may be easily and properly moved with the present device. A rigid upper frame supports an open outside lifting frame, which may be circular when used with circular pipe, suspended by shackles or chain; and for tapered or conical pipe the rigid frame also supports near the center a shoe arrangement comprising a pair of spaced, hydraulically-operated shoes which move in retraction inwardly toward the center and move outwardly for operation to engage the tapered inside of the tapered pipe as the device is

lifted. A hydraulic cylinder connects a movable section of the outside lifting frame in such a manner as to permit tightening or loosening of the frame (which does not tighten on conical pipe) around the outside of the object to be lifted by operating the hydraulic cylinder. In the operation, the boom of the vehicle is manipulated to suspend the outside frame around the outside of the object (pipe) to be lifted with the inside shoes inside the object (pipe) facing opposite inside portions. Then the hydraulic controls are actuated to extend the shoes inside the pipe while the outside frame is inactively located on the outside and the boom and tractor manipulated to move the pipe. Release is a reversal of grasping. The outside lifting frame is independent of the inside shoes and vice versa except that hydraulics are simplified.

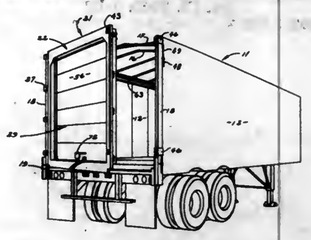
3,544,152
MOBILE TRAILER WITH ROLL-OUT KITCHEN UNIT
Lester L. Low, 1120 S. Pacific Hwy., Talent, Oreg. 97540
Filed Apr. 3, 1969, Ser. No. 813,173
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 **11 Claims**



A mobile trailer includes a kitchen unit, having suitable means for the storage of food, dishes and utensils, for the preparation of food, and for dishwashing, adapted to be used indoors at a convenient height relative to the trailer floor, and outdoors at substantially the same height relative to the ground. The kitchen unit is always confined within the camper body when the trailer is in motion, but may, if desired, be projected downward and outward along a supporting and guiding ramp, weather permitting, for use when camping. Preferably, and as shown, the kitchen unit is located near one end of the trailer and is projected and retracted through a lateral wall of the trailer. Some sitting and sleeping utilities are desirably provided in an inoperative, space-saving condition between the kitchen unit and the adjacent end wall of the trailer, being made accessible and usable by the projecting outward of the kitchen unit.

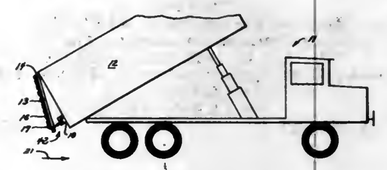
3,544,153
DOOR STRUCTURE FOR OPEN TOP TRAILER
Gerald W. Galbreath, Marion, Basil S. Oriti, Parma, and Carl R. Munn, Newbury, Ohio; said Galbreath assignor to Overhead Door Corporation, Dallas, Tex., a corporation of Indiana, and said Oriti and Munn assignors to Cleveland Freight Lines, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Oct. 27, 1967, Ser. No. 678,758
Int. Cl. B62d *25/00*
U.S. Cl. 296—51 **11 Claims**

A door unit for the rear opening of an open top truck trailer capable of functioning both as a conventional swing-type door and as a conventional roll-up overhead door. The door unit has a rectangular frame which is hinged on one side thereof to a vertical sidewall of the trailer to permit the door to be swung so as to open and close the same. The other side of the rectangular frame is provided with a pin-type latch mechanism to permit locking the frame in a closed position. The vertical side members of the swinging frame are provided with vertical tracks therein, which tracks abut and mate with similar horizontal tracks positioned along the opposite interior sidewalls of the trailer adjacent the top thereof. A conventional roll-up overhead door is mounted within the track. The overhead door unit is movable from a closed position wherein it is positioned within the rectangular frame to an open position wherein it is positioned in horizontal tracks mounted along the upper edges of the trailer sidewalls. A safety mechanism comprising



a spring-biased lever coacts between the vertical guide track and the sidewall structure of the trailer so as to lock the overhead door unit in a closed position when the rectangular frame with the overhead door unit therein is swung to an open position. Further, a removable adjustable spreader bar employing a toggle mechanism therein is positioned adjacent the upper ends of the trailer sidewalls so as to permit the rectangular frame of the door unit to mate properly with the rear frame of the trailer when it is swung from the open to the closed position.

3,544,154
DUMP TRUCK SPREADER CHAIN MOUNTING
Gallerd B. Ford, R.R. 2, Ford Road, Zionsville, Ind. 46077
Filed July 26, 1968, Ser. No. 747,872
Int. Cl. B62d *25/00*
U.S. Cl. 296—56 **7 Claims**

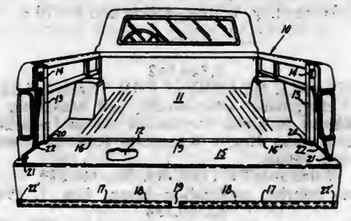


A dump body has chain holders projecting backwardly therefrom at each side of the tail gate just above the lower margin of the tail gate. The chain holders have downwardly inclined slots with large upper ends to freely receive chain therethrough, the lower portions being narrow to prevent free passage of the chain therethrough transverse to the plane of the holders. Each holder has a pivotally mounted rear plate portion forming the rear margin of the slot and pivotable outward upon release of a lock pin to release a chain even when under load by a tail gate opened for spreading.

3,544,155
TAILGATE SEALER
Vernon D. Gardner, Edison, Nebr. 68936
Filed Apr. 24, 1969, Ser. No. 818,934
Int. Cl. B62d *25/00*
U.S. Cl. 296—57 **6 Claims**

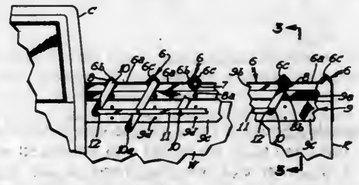
A canvas or like flexible material liner for the interior surface of the tailgate of a truck carries rods at one end which interlock with existing side posts on the truck body.

Similar rods at the opposite ends of the liner serve as weight elements to render the liner taut and smooth. Com-



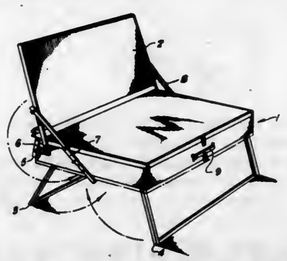
pressible gasketing material is provided along the side edges of the liner.

3,544,156
SHUTTERED ROOF FOR TRUCKS, TRAILERS AND THE LIKE
Le Roy V. Rusten, 220 S. 15th St., Moorhead, Minn. 56560
Filed Feb. 17, 1969, Ser. No. 799,728
Int. Cl. B60j *7/10*
U.S. Cl. 296—137 **6 Claims**



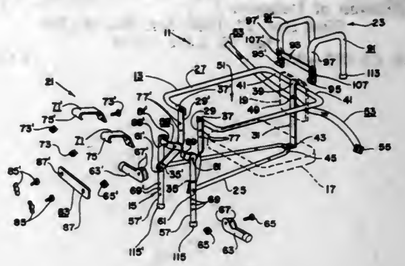
A shuttered roof or top for the bodies of transport vehicles, to exclude rain, snow, dust and wind from the contents of said vehicles, and to further facilitate the loading of the bodies with particulate materials having a plurality of swingable shutters mounted transversely across the top of the transport vehicle body in normally overlapping relation with sealed effect. Each of the shutter members extend somewhat beyond the side walls of the transport body and has at the two ends thereof, coaxial means for swingably interconnecting the shutter with the respective upper side walls of the body. Actuating mechanism is provided for swinging all of said shutters simultaneously to and from overlapping shuttered positions.

3,544,157
CONVERTIBLE ARTICLE
Emanuel Muller, 4671 Park Ave., Apt. 2, Montreal, Quebec, Canada
Filed May 8, 1968, Ser. No. 727,598
Claims priority, application Canada, May 10, 1967, 990,163
Int. Cl. A47c *13/00*
U.S. Cl. 297—118 **5 Claims**



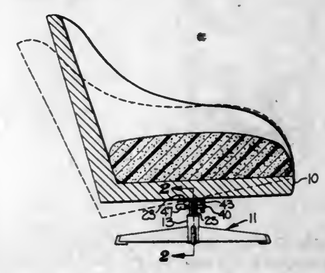
The present invention relates to a folding chair which when folded has sufficiently readily accessible space inside to serve as a suitcase and when unfolded can serve as a chaise lounge or bed.

3,544,158
BICYCLE INFANT CARRIER MEANS
Richard M. Timms, Memphis, Tenn., assignor to Troxel Manufacturing Company, Moscow, Tenn.
Filed July 8, 1968, Ser. No. 743,145
Int. Cl. A47d *1/10*
U.S. Cl. 297—254 **7 Claims**



Infant carrier apparatus is disclosed which is adapted optionally to be arranged on the steering handlebar structure of a bicycle or adapted to be supported on the front side of an automobile seat backrest. The carrier includes hook means arranged on the forward portion thereof adapted to be hooked over the handlebar of the bicycle and supported cantilever fashion rearwardly of the bicycle handlebar. For automobile use, the inventive structure includes a pair of hooks adapted to hook over the upper brim portion of the seat back and to support the rearward part of the carrier from the seat back. For automobile use the carrier structure also includes foldable leg-like yoke means adapted to be arranged vertically with the lower terminal portions of said leg-like members resting on the automobile horizontal seat. The carrier is adapted to be simultaneously supported on both the seat and back part of an automobile seat.

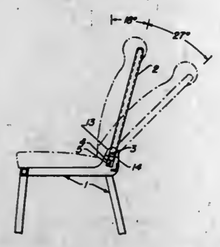
3,544,159
TILTABLE CHAIR CONSTRUCTION
Herbert Andersson, Dalum, Sweden, assignor, by mesne assignments, to Consolidated Burris International, Ltd., Lincolnton, N.C., a corporation of North Carolina
Filed May 10, 1968, Ser. No. 728,187
Int. Cl. A47c *3/18*
U.S. Cl. 297—303 **10 Claims**



A supporting structure for a tiltable chair seat in which a frame secured to the seat bottom has laterally spaced depending post means thereon in which opposite end

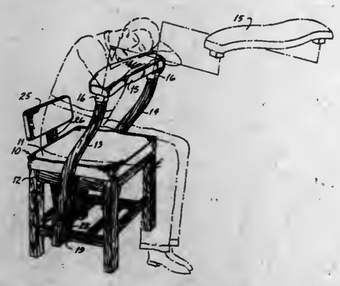
portions of a torsion bar are secured for resiliently resisting tilting movement of the chair seat. A shaft is penetrated by a medial portion of the torsion bar, and the shaft is adapted to be mounted in an upright position in a mating bore in a chair base or pedestal, preferably for swivel movement therein.

3,544,160
SEAT BACK POSITIONING SYSTEM
Norman M. Karasick, Salisbury, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Dec. 27, 1968, Ser. No. 787,359
Int. Cl. A47c 1/024
U.S. Cl. 297—355 6 Claims



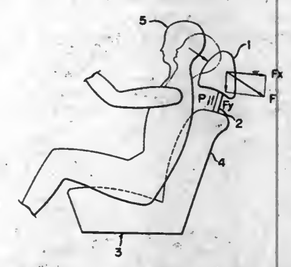
Seat back adjustment is effected through the use of a laterally positioned adjuster-locking unit which has a movable rod member to move in a plane parallel with the plane of the seat back and such rod is provided with cam follower means to move against a cam surface which, in turn, is on a portion of the seat back that is closely adjacent the pivot zone for the latter, whereby small cam movements will permit relatively greater seat back movements.

3,544,161
THERAPEUTIC CHAIR
Norman E. Bryden, 2407 Arden Drive, Champaign, Ill. 61820
Filed July 19, 1968, Ser. No. 746,160
Int. Cl. A47c 7/36, 7/42
U.S. Cl. 297—391 10 Claims



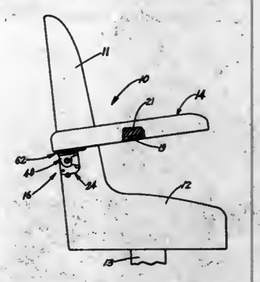
A therapeutic chair particularly designed for patients recovering form a heart attack. The chair has interchangeable side sections and a back rest which are easily adjustable and removable to facilitate handling of the patient sitting in the chair. In one modification, the side sections support a head and arm rest for supporting a sleeping or resting person in a sitting position. In another modification, the side sections comprise chair arms, the back rest is provided with an adjustable head rest, and a removable tray adapted to fit over the side arms is provided for reading, writing, eating and the like.

3,544,162
ADJUSTABLE HEADREST FOR VEHICLE SEAT
Kameo Uchiyamada, Okazaki-shi, and Masahiko Inoue and Katsuo Sakurai, Toyota-shi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
Filed July 29, 1968, Ser. No. 748,329
Claims priority, application Japan, Aug. 7, 1967, 42/50,328
Int. Cl. A47c 7/36
U.S. Cl. 297—410 7 Claims



An adjustable headrest for a vehicle seat is formed by a support rod fitted at its upper end into a headrest member and at its lower end into the frame of the vehicle seat. Means are adjustably positionable on the support rod for varying the height of the headrest above the seat. For such adjustable positioning transversely arranged grooves or recesses can be formed in the support rod arranged to receive spring loaded locking members supported on the vehicle seat. Alternatively, a threaded engagement or spacer tubes can be used for maintaining the desired distance between the seat and the headrest.

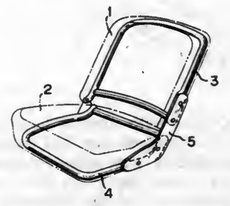
3,544,163
ARTICULATED CONNECTOR
Reuben J. Krein, Forest City, Iowa, assignor to Stitchcraft Corporation, Forest City, Iowa, a corporation of Iowa
Continuation-in-part of application Ser. No. 762,203, Sept. 16, 1968. This application Nov. 8, 1968, Ser. No. 774,328
Int. Cl. A47c 7/36, 7/54
U.S. Cl. 297—417 21 Claims



A seat having an arm rest attached with an articulated connector to one side of the back of the seat. The articulated connector has pivotally related members carrying

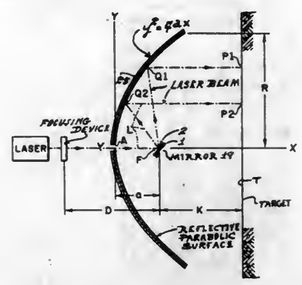
stops positioned to permit the connector to be mounted on either side of the seat back to operably hold the arm rest in a first forward position and in a second storage position adjacent the back side of the seat back.

3,544,164
SEAT FRAME CONSTRUCTION
Seizo Ohta, Toyota-shi, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
Filed July 17, 1968, Ser. No. 745,538
Claims priority, application Japan, July 24, 1967, 42/47,229
Int. Cl. A47c 7/14, 7/22
U.S. Cl. 297—452 8 Claims



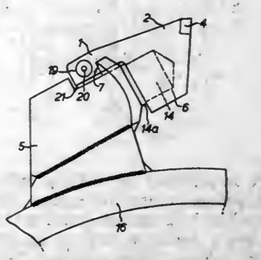
A back frame for a vehicle seat is formed of a continuous section of a member having a uniform cross sectional configuration bent into an inverted U-shape with the horizontal cross member of the U-shape flattened in the vertical direction to insure its tendency to deform under a downwardly applied impact. In addition, a V-shaped indentation can be formed in each of the leg members of the U-shaped frame to assist the deformation of the cross member under a downwardly applied impact.

3,544,165
TUNNELING BY LASERS
Louis L. Snedden, Jacksonville, Fla., assignor to Mason & Hanger-Silas Mason Co., Inc., Lexington, Ky.
Filed Apr. 18, 1967, Ser. No. 631,733
Int. Cl. E21d 9/00
U.S. Cl. 299—14 7 Claims



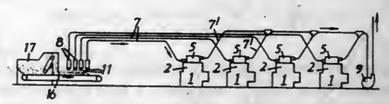
The disclosure is directed to a method and apparatus for tunneling in rock by means of a laser beam. A movable support carries both a forwardly directed laser device and a parabolic mirror. An adjustable mirror is carried by the support in a position to intercept the laser beam and reflect the beam onto the parabolic mirror from which the beam is reflected onto selected areas of the tunnel face. By the disclosed arrangement the movement of the beam on the tunnel face can be carried out while the path length of the beam is maintained constant.

3,544,166
CUTTER TOOLS AND MOUNTINGS THEREFOR
Sidney E. Proctor, High Wycombe, England, assignor to Austin Hoy and Company Limited, High Wycombe, England
Continuation-in-part of application Ser. No. 527,570, Feb. 15, 1966. This application Nov. 19, 1968, Ser. No. 776,965
Claims priority, application Great Britain, Feb. 17, 1965, 6,936/65; Mar. 16, 1965, 11,138/65; Nov. 22, 1967, 53,263/67; June 10, 1968, 27,566/68
Int. Cl. E21c 35/18
U.S. Cl. 299—81 13 Claims



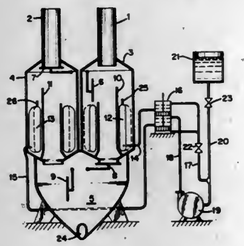
A coal cutter pick having a body formed with a tapered recess of circular cross-section for accommodating a similarly shaped projection on a support, the pick being squat in shape and the recess occupying a substantial portion of the body whereby a rigid and secure connection can be established between the pick and support. In one embodiment, the pick has a passage through it for liquid coolant and in another embodiment a tongue extended rearwardly from the pick is used to engage a recess on the mining machine to additionally secure it in place.

3,544,167
PNEUMATIC CUT TOBACCO FEEDING APPARATUS
Tokio Fuchu, Hojichyo, Ko Kanamori, Tokyo, Takeyoshi Akiyama, Sendai, and Mataji Murakami, Osaka, Japan, assignors to The Japan Monopoly Corporation, Tokyo, and Kabushiki Kaisha Murakami Seisakusho, Osaka, Japan
Filed Dec. 16, 1968, Ser. No. 783,904
Claims priority, application Japan, Dec. 2, 1967, 42/101,110
Int. Cl. B65g 53/04
U.S. Cl. 302—13 10 Claims



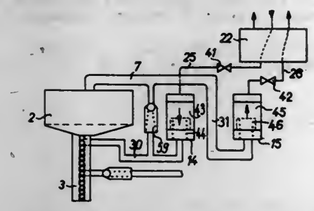
A pneumatic distribution system for distributing tobacco to cigarette-making machines comprises a conveyor band carrying tobacco and a plurality of collector conduits each having an open end above the band, a suction pump (or pumps) connected to the conduits to suck tobacco into the conduits, and dischargers between each conduit and the pump. The conduits can be moved away from the band when not in use, and the supply of tobacco is completely automatic.

3,544,168
DEVICE FOR LOADING BULK MATERIALS INTO PRESSURE PIPING
Mark Iosifovich Junovich, Ust-Kamenogorsk, and Nikolai Ivanovich Kazakov, Leningorsk, U.S.S.R., assignors to Vsesojuzny nauchno-issledovatelsky gornometallurgicheskiy institut tsvetnykh metallov, Ust-Kamenogorsk, U.S.S.R.
Filed Apr. 22, 1968, Ser. No. 722,989
Int. Cl. B65g 53/00
U.S. Cl. 302—14 5 Claims



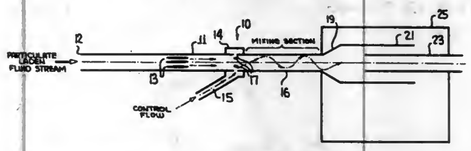
A device is provided for loading bulk materials into a pressure piping, comprising a lock chamber with an inlet for loading bulk materials and a charging valve at such inlet and a discharge valve at an outlet of the lock chamber to provide communication between the lock chamber and the pressure piping. A compensator is disposed within the lock chamber around a guide tube which is coaxial with the inlet and the compensator is constituted as a variable volume receptacle having resilient walls, adapted to be filled with fluid when the material is being discharged from the lock chamber and to be released from fluid when the material is being loaded thereinto.

3,544,169
APPARATUS FOR SUPPLYING WORKPIECES TO A WORKING STATION
Willy Gassert, 59 Hauptgasse, Solothurn, Switzerland
Filed Dec. 26, 1968, Ser. No. 787,128
Claims priority, application Switzerland, Dec. 27, 1967, 18,192/67
Int. Cl. B65g 53/30
U.S. Cl. 302—14 8 Claims



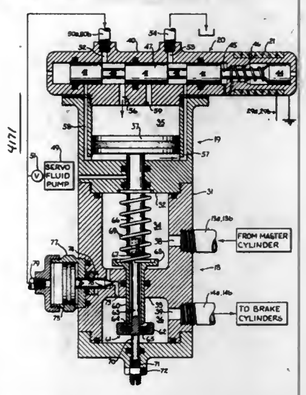
Apparatus for supplying workpieces to a working station comprises a supply container, a magazine connected to the supply container and provided with a duct for the passage of the workpieces to the working station, said supply container and magazine duct being filled with a liquid. Two cylinders with pressure fluid operated reciprocatory pistons are provided and connected to said supply container and said magazine duct to cause the liquid in the container and the duct to effect a reciprocatory movement to impart a to-and-fro motion to the workpieces in the duct, and two further cylinders with reciprocatory pressure fluid operated pistons are provided and connected to said supply container to cause the liquid in the container to effect a rotary motion. The combined action of the reciprocatory movement of the liquid in the magazine duct and the rotary motion in the supply container assists in facilitating correct loading of the workpieces into the magazine.

3,544,170
PURE FLUID VALVING OF SUSPENDED SOLIDS
Ronald E. Bowles, Silver Spring, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md., a corporation of Maryland
Filed Jan. 24, 1969, Ser. No. 793,841
Int. Cl. B65g 53/04
U.S. Cl. 302—28 10 Claims



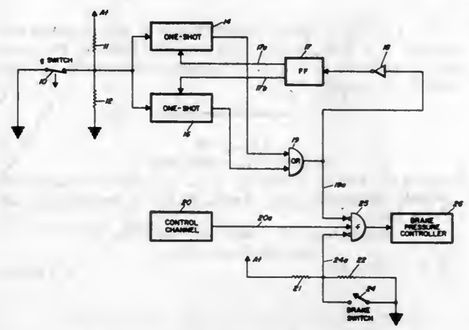
A fluid stream, laden with solid or liquid particulates, is selectively switched between two fluid receiver passages by selectively introducing pressurized control fluid tangentially about the stream periphery so as to introduce a vortical flow component in the otherwise axial flow. A pair of downstream receiver passages are concentrically disposed whereby substantially all of the flow, when axial, is received by the inner passage and substantially all of the flow, when a vortical component is introduced thereinto, is received by the outer receiving passage.

3,544,171
ANTI-SKID DEVICE FOR HYDRAULIC BRAKE SYSTEM
Waldermar Lester, Bondegatan 11B, Linkoping, Sweden, and Lennart Bror Anders Swiden, Idrottsvagan 27, Vreta, Kloster, Sweden
Filed Feb. 20, 1969, Ser. No. 801,043
Claims priority, application Sweden, Feb. 26, 1968, 2,432/68
Int. Cl. B60t 8/06
U.S. Cl. 303—21 7 Claims



The anti-skid device has an inlet chamber connected with the master cylinder, an outlet chamber connected with the brake cylinder, and a sleeve slideable in a partition between said chamber and normally projecting into the outlet chamber. A poppet has a head in the outlet chamber, normally spaced from the sleeve, and a stem extending through the sleeve with clearance and connected with a servo which so moves in response to an electrical output signifying excessive brake force as to first engage the head against the sleeve, blocking fluid flow therethrough, then draw the sleeve outwardly of the outlet chamber to increase its volume. The sleeve is biased toward the outlet chamber to follow the poppet in servo actuated return motion.

3,544,172
ADAPTIVE BRAKING SYSTEM FALSE TRIGGER HOLD-OFF CIRCUIT
Donald W. Howard and Thomas C. Schafer, South Bend, Ind., assignors to The Bendix Corporation, a corporation of Delaware
Filed Dec. 16, 1968, Ser. No. 783,813
Int. Cl. B60t 8/08
U.S. Cl. 303—21 8 Claims



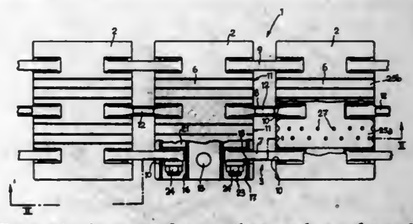
An improved control channel for an automobile adaptive braking system wherein control signals which are generated after a controlled wheel decelerates to a predetermined reference are applied to a braking pressure controller to automatically control the braking pressure applied to the controlled wheel so as to optimize wheel braking characteristics. An acceleration switch senses wheel or axle vertical acceleration forces and in response thereto causes one or the other of a pair of one-shots to generate an output pulse which inhibits a gate through which the control channel control signal must pass on its way to the brake pressure controller, thus preventing vertical acceleration forces (false triggers) from activating the brake pressure controller.

3,544,173
MOP HANDLE AND CLAMP MECHANISM
Ralph P. Senick, 3055 E. Desert Cove Ave. 85029, and Harvey I. Ilda, 3938 E. Cheery Lynn Road 85018, both of Phoenix, Ariz.
Filed Mar. 12, 1969, Ser. No. 806,593
Int. Cl. A01b 1/22
U.S. Cl. 306—26 4 Claims



A mop handle and clamp mechanism having a handle structure with externally screw threaded generally semicircular spaced apart arms having a clamp bar at the end thereof; a bail member having a shank extending between said arms and connected to a ring slidably mounted over said externally screw threaded portions; a nut member screw threadably mounted on said externally screw threaded portions of said arms and disposed between said bail member and said ring for actuating said bail member relative to said clamp member; and a pivoted bar member pivotally mounted on opposite ends of U-shaped portions of said bail member so as to permit removable disposition of a mop between said clamp member and said bar member pivoted on said bale.

3,544,174
ENDLESS TRACKS HAVING PNEUMATIC TRACK ELEMENTS
Dante Giacosa, Turin, Italy, assignor to Fiat Societa per Azioni, Turin, Italy, an Italian joint-stock company
Filed Sept. 12, 1968, Ser. No. 759,264
Claims priority, application Italy, Sept. 21, 1967, 53,086/67
Int. Cl. B62d 55/24
U.S. Cl. 305—34 2 Claims

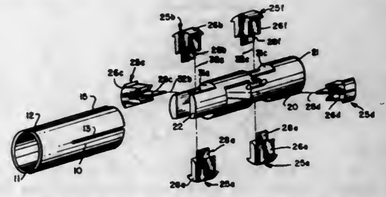


The track elements of an endless track are formed of resilient material. A metal frame embedded in the element subdivides it into a portion engaging the wheels of the track vehicle and a ground-engaging portion. The wheel-engaging portion incorporates corrugated sheet metal reinforcing, with the corrugations extending longitudinally, and with turned-over ends. The ground-engaging portion includes a pneumatic cushion. The ends of the metal frame are bent to tubular form and carry resilient bushes receiving pins that are attached to the links interconnecting the track elements. Certain links have a tooth to engage with the driving wheels.

ERRATUM

For Class 306—26 see:
Patent No. 3,544,173

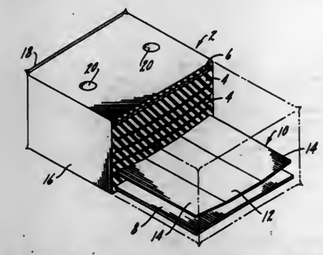
3,544,175
FLEXURAL PIVOT HAVING LIMITED BENDING STRESSES IMPARTED TO FLEXURE MEMBER
Walter C. Tooker, Palos Verdes Estates, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Dec. 30, 1968, Ser. No. 787,828
Int. Cl. F16d 3/64
U.S. Cl. 308—2 6 Claims



Means for providing relatively rotational movement between two objects without the need for a bearing surface is provided. For example, an optical element may

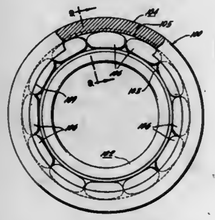
be mounted to perform a scanning operation. The flexural pivot includes a shaft member inserted within and spaced radially from an outer sleeve member. The shaft and outer sleeve are rotatable with respect to one another. The shaft is characterized by a diametrical slot into which is inserted a cam and spring-follower unit. This unit securely joins one end of the spring to the shaft member. The spring extends through the slot in the shaft to join with the sleeve member. The cam surfaces restrict the spring-follower to a prescribed bending shape thereby reducing the stresses in the spring.

3,544,176
BRIDGE BEARINGS WITH PLATES HAVING NONPLANAR ENDS
William M. Slater, Toronto, Ontario, Canada, assignor to Conenco International Limited, a Canadian corporation
Filed Dec. 11, 1968, Ser. No. 782,848
Int. Cl. F16c *29/02*; E01d *19/04*
U.S. Cl. 308—3 **12 Claims**



A bearing pad or block structure for use in supporting bridges and the like which comprises the use of reinforcing plates of metal or fiber construction having end portions which bend downward or upward, which plates are interleaved between elastomer layers of the bearing structure. The plates having nonplanar end portions permits desired K or transverse shear factor ratings while not substantially increasing the thickness of the bearing and provides other ideal characteristics. In another embodiment a center or equalizing plate is positioned along the axis of the bearing so as to obtain a better distribution of shear stresses.

3,544,177
ELASTOHYDRODYNAMIC SLIDING BEARINGS
Tibor E. Tallian, Newtown Square, and Lewis B. Sibley, Wayne, Pa., assignors to SKF Industries, Inc., King of Prussia, Pa., a corporation of Delaware
Application Mar. 19, 1968, Ser. No. 649,762, now Patent No. 3,421,799, dated Jan. 14, 1969, which is a continuation-in-part of application Ser. No. 457,913, May 24, 1965. Divided and this application June 11, 1968, Ser. No. 736,195
Int. Cl. F16c *17/06*
U.S. Cl. 308—73 **8 Claims**

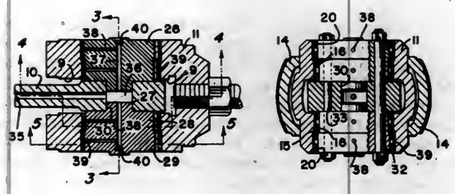


An elastohydrodynamic sliding bearing comprising first and second relatively movable members having confronting bearing surfaces and at least one or a plurality of contact members between the confronting surfaces of a configuration to define a plurality of contact zones. A lubricant is provided between the bearing surfaces and the contact members so that when the members are rotated relative to one another while being in pressure-applying relation, a load-carrying uninterrupted elastohydrodynamic film is formed for a predetermined range of entrainment velocities of the members moving through the contact zones and for a predetermined range of loads and contact curvatures. It has been found that ranges of variables to produce an elastohydrodynamic film are given approximately by the following inequalities:

$$\frac{G^{1.6}V^{0.7}}{L^{0.13}} \geqq 1.5\epsilon \quad \frac{\sigma}{R_e} \quad \frac{V}{L^2G^{1.7}} \leqq 10^7$$

where G is the material parameter, V is the entrainment velocity, L is load, R_e is the equivalent radius of the contacting surfaces and σ is the surface roughness of the surfaces in contact.

3,544,178
COUPLING ASSEMBLY
Bernard F. Miller, Corning, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed June 27, 1968, Ser. No. 740,733
Int. Cl. F16c *33/34*
U.S. Cl. 308—78 **11 Claims**

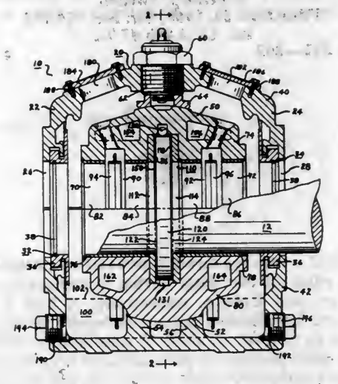


A journal and bearing type coupling assembly for connecting a reciprocating member such as a piston or crosshead of a compressor to an oscillating member such as a connecting rod. The piston is provided with a bore having a first bearing surface which is eccentric to and has a diameter smaller than a second bearing surface of the bore. A wrist pin connects the reciprocating member and oscillating member and includes a first portion which is eccentric to and of a smaller diameter than a second portion. As the connecting rod oscillates, the rod is alternately supported on the first and second bearing surfaces. This permits complete lubrication of the bearing.

3,544,179
COMBINATION THRUST AND RADIAL BEARING
Robert P. De Leu, South Bend, Ind., assignor to Reliance Electric and Engineering Company, Euclid, Ohio, a corporation of Ohio
Filed Oct. 21, 1968, Ser. No. 769,153
Int. Cl. F16c *1/24*
U.S. Cl. 308—168 **13 Claims**

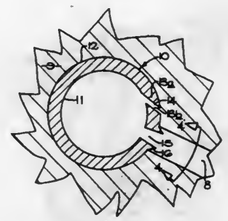
A combination thrust and radial bearing structure for a shaft with an annular collar, including a body with a cylindrical bore therethrough and an annular groove therein separating the bore into two radial bearing sections. The groove is defined by annular side walls which form opposed thrust bearings for the shaft collar, and the thrust bearings are provided with radial recesses for

receiving lubricant from the radial bearings. The body may be enclosed in a housing containing a reservoir which



supplies oil to the two radial bearings, which in turn supply oil to the thrust bearings.

3,544,180
BEARINGS
Gwilym Jones, Brongwynedd, Pencaenewydd, Pwllheli, Wales
Filed Nov. 18, 1968, Ser. No. 776,330
Int. Cl. F16c *17/00*
U.S. Cl. 308—237 **3 Claims**



The invention relates to bearings in the form of split bushings either independently or in combination with a housing. The split bushing comprises a cylindrical tubular body having a compensation gap extending wholly or partially across the axial length of the bushing to allow radial deformation of the bushing and expansion and contraction of the bushing relative to the housing, and the split bushing is provided with a locating lug extending from the periphery of an oil hole formed in the bushing. The locating lug is engageable within a lubricant supply passageway of the housing so as to locate the split bushing relative thereto whilst permitting of required lubricant flow.

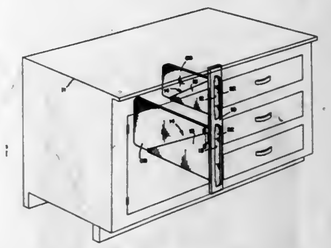
3,544,181
SHOWCASE CONSTRUCTION
Robert A. Schottland, Ashland, Ky., assignor to Castle Showcase Co., Ashland, Ky., a partnership
Filed July 24, 1968, Ser. No. 747,273
Int. Cl. A47f *3/00*
U.S. Cl. 312—114 **7 Claims**

A simplified showcase construction wherein the glass wall panels are received in essentially rigid plastic extrusions, the extrusions being configured to receive and cushion the end edges of the glass panels as well as their opposite marginal side edges, the plastic extrusions or mounting members being of a width to be received in U-shaped channels defining the supporting frame of the showcase, the mounting members in a preferred embodiment each defining a longitudinal glass receiving cavity



offset laterally with respect to the longitudinal center line of the mounting member, whereby abutting channel-shape frame members may be overlapped at their abutting ends and the positions of the mounting members received therein reversed so as to bring their longitudinal cavities into axial alignment in spite of the offset relationship of the channel-shaped frames.

3,544,182
KITCHEN CUTTING BOARD STORAGE UNIT
Gregory H. Tainter, P.O. Box 528, Lakeview, Oreg. 97630
Filed Dec. 23, 1968, Ser. No. 785,926
Int. Cl. A47b *77/14*
U.S. Cl. 312—237 **5 Claims**

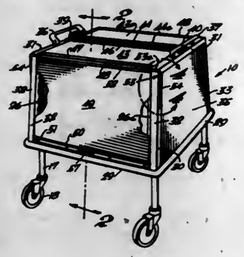


A cutting board storage unit disposed within a kitchen cabinet for storage of cutting boards of the type used in culinary work. An upright space located between kitchen cabinet components is slotted to receive inserted cutting boards which are supported in a concealed manner by inwardly projecting board supports carried by the spaces. Wiping means contactable with cutting board surfaces for cleaning the same are also disclosed.

3,544,183
DISH CART
Arthur B. Dixon, Coral Gables, Fla., assignor to Shelly Manufacturing Company, a corporation of Florida
Filed May 29, 1969, Ser. No. 828,961
Int. Cl. A47b *91/00*
U.S. Cl. 312—250 **10 Claims**

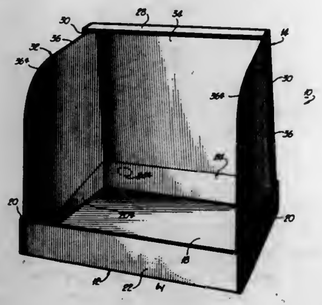
A low profile mobile dish cart of the type having opposed side compartments, each of which is open at the top and to the outside for ready access in the placement and removal of dishes and the like. Each of the compartments is provided with top lid and side cover members so hinged and linked to the compartment structure that

either side cover member can readily be partially dropped to provide side access. Additionally, one or the other of the top lid members can be swung back against the other to provide top access to its compartment. Alternatively,



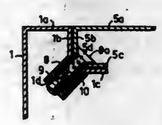
instead of dropping a side cover member, it can be folded back over its associated top opening, the top lid first having been swung back upon the opposite top lid to provide full side access opening.

3,544,184
COMBINATION STORAGE CONTAINER AND VOTING ENCLOSURE FOR VOTE RECORDERS
Ira G. Laws, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,477
Int. Cl. A47b *43/02*
U.S. Cl. 312—259 3 Claims



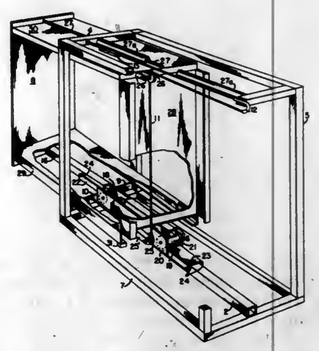
A combination storage container and voting enclosure for a vote recording device comprising a base having a bottom wall and upstanding sidewalls. A cover member including a top wall is hingedly attached to the base along an upper edge of one of the sidewalls for movement between a closed position, nested within said base and an upstanding or open position when the vote recorder is to be used. A replaceable voting enclosure member is removably nested within the cover member against the top wall and includes a back wall and a pair of curtain flaps hingedly joined to opposite edges of the back wall. The curtain flaps are movable between a position folded adjacent the back wall and an extended position generally normal to the back wall forming the voting enclosure. The lower edges of the flaps are extended into the base adjacent a pair of opposite sidewalls thereof for supporting the back wall and cover member in an upright position relative to the base when forming a voting enclosure.

3,544,185
CABINET COMPRISING SEPARATE PARTS TO BE ASSEMBLED
Kurt Bonnie Karl Axel Lundberg, Malarvagen 1, Segeltorp, Sweden
Filed June 24, 1968, Ser. No. 739,298
Int. Cl. A47b *47/02*
U.S. Cl. 312—263 4 Claims



A cabinet comprises separate parts to be assembled, the abutting edges of two parts having interengaging flanges of U-shape and Z-shape, respectively. A bolt is passed through the intermediate corners between the legs of the flanges so as to form an angle of substantially 45 degrees with the main portions of the said parts when assembled. A washer having a V-shape portion fits said bolt and receives one of the said corners. A nut tightens the bolt.

3,544,186
STORAGE CABINET HAVING A READILY SLIDABLE AND REMOVABLE TILTING-RESISTANT DRAWER ASSEMBLY
Carl Björge, Danderyd, Sweden
Filed Apr. 22, 1968, Ser. No. 723,194
Claims priority, application Sweden, Apr. 20, 1967, 5,605/67
Int. Cl. A47b *88/00, 88/12*
U.S. Cl. 312—331 14 Claims

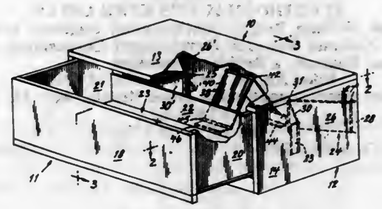


A storage cabinet is provided having a readily slidable and removable tilting-resistant drawer assembly, the drawer sliding on a track, and riding along a relatively taut cable fixed at each end to the frame to inhibit tilting of the drawer when it is pulled out of the cabinet.

3,544,187
FILING CABINET
Ernest J. Hils, Tonawanda, N.Y., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,933
Int. Cl. A47b *88/00*
U.S. Cl. 312—331 6 Claims

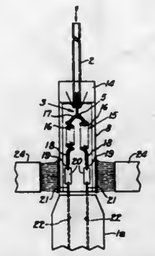
A filing cabinet having an outer casing adapted to accommodate at least one drawer or shelf suspended for relative movement with respect thereto. The casing is in

the form of a shell comprising a back panel and two side panels extending from opposing edges of the back panel to define a compartment. Access to the compartment is gained through an open front portion through which a drawer or shelf is adpated to move into and out of the



shell by virtue of a support mechanism mounted within the casing. A stabilizing mechanism operates in conjunction with the support mechanism to directionally stabilize the drawer under conditions where the drawer is moving relative to the shell.

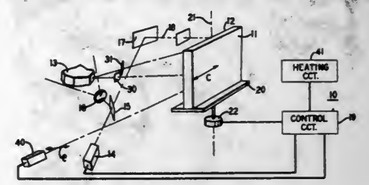
3,544,188
INCANDESCENT LAMP AND METHOD OF MANUFACTURE
George K. Danko, Chesterland, and Frederick A. Mosby, Cleveland, Ohio, assignors to General Electric Company, a corporation of New York
Filed Nov. 17, 1967, Ser. No. 683,936
Int. Cl. H01j *9/38*
U.S. Cl. 316—20 6 Claims



A single-ended pinch seal lamp is made by first pinch sealing an end of an exhaust tube as well as a portion of a support wire in one end of a tubular envelope of vitreous material. The support wire is used to support a coiled filament having leads attached to its ends and permits stretching the coiled filament while the leads are pinch sealed in the other end of the tubular envelope, after which the envelope may be exhausted and filled with gas through the exhaust tube which is then tipped off.

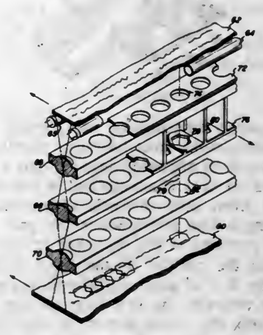
3,544,189
HOLOGRAPHY USING A POLED FERROELECTRIC RECORDING MATERIAL
Fang-Shang Chen, Murray Hill, and John T. LaMacchia, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed June 12, 1968, Ser. No. 736,492
Int. Cl. G02b *27/00*
U.S. Cl. 350—3.5 7 Claims

Poled ferroelectric crystals such as lithium niobate and lithium tantalate have been found useful as storage media for volume holograms when the C axis of one such crystal is oriented transverse to the bisector of the



angle formed by wave normals of two incident interfering waves. An illustrative arrangement is described along with an explanation of the phenomenon utilized.

3,544,190
LENS STRIP OPTICAL SCANNING SYSTEM
Robert W. Moorhusen, Penfield, and David C. Harper, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 29, 1968, Ser. No. 780,143
Int. Cl. G02b *17/00, 27/00*
U.S. Cl. 350—6 9 Claims

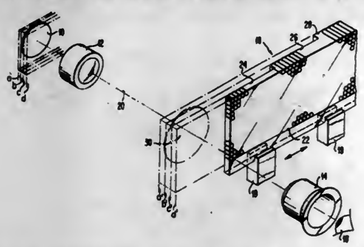


Apparatus for forming a continuous image from an object at 1:1 magnification with a lens strip optical imaging system having a series of individual optical imaging devices with an internal field stop. The magnification of the object through a first lens to the field stop is reduced in size from the size of the object and is then magnified by another lens element to the image plane where the image is at 1:1 magnification to the object. The field stops of the series of optical imaging devices may be of varying shapes to achieve illumination uniformity at the image surface of the system.

3,544,191
OPTICAL FIBER FOCUSING DEVICE FOR OPTICAL INSTRUMENTS
Hans R. Rottmann, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Nov. 21, 1968, Ser. No. 777,788
Int. Cl. G02b *21/00*
U.S. Cl. 350—8 11 Claims

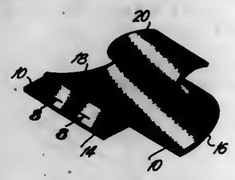
A focus range selection device for optical instruments which compensates for axial displacements in the posi-

tion of the object. A number of fiber optics bundles of different length adjust the position of the image of said



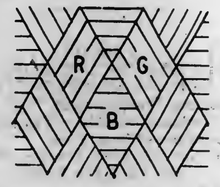
object by translating the image into focus range of the optical instrument.

3,544,192
SHAPED ENERGY TRANSMISSION ARRAYS
Amnon Goldstein, Forest Hills, N.Y., assignor, by mesne assignments, to Decitron Communication Systems, Inc., Brooklyn, N.Y., a corporation of Delaware
Filed Feb. 29, 1968, Ser. No. 709,474
Int. Cl. G02b 5/16; H01b 7/08
U.S. Cl. 350—96 **9 Claims**



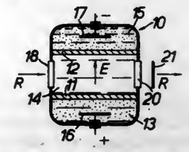
A shaped energy transmission array made by forming an energy transmission sheet having a plurality of channels therein, a pair of opposed edges defining a plurality of discrete inputs to said channels and a plurality of discrete outputs from said channels respectively, bending the sheet along a line intermediate the pair of opposed edges so that portions of the sheet are in overlapping relation, shaping the portion of the sheet extending normally from the first of said pair of opposed edges to the desired shape whereby the first edge defines the desired shape, and fixing the conformation of the shaped array. The array may be formed from a plurality of filaments such as electrical conductors or fiber optical filaments aligned in side by side relation so that the pair of opposed edges are defined by the opposed ends of the filaments.

3,544,193
POLARIZING COLOR FILTER FOR USE IN COLOR TELEVISION SYSTEMS
Peter Laput, 32—29 43rd St., Long Island City, N.Y. 11103
Filed Aug. 31, 1965, Ser. No. 484,020
Int. Cl. G02f 1/40
U.S. Cl. 350—150 **5 Claims**



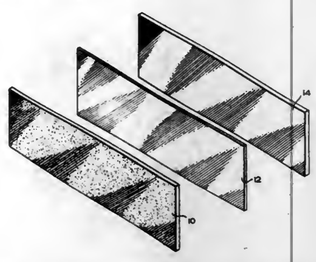
A color filter with a multiplicity of small discrete areas of three respective colors is provided for use with a color television screen. Each discrete color area provides polarization of light different from each other. The filter is used in operation with a polarizer and a variable electro-optical cell.

3,544,194
ELECTRO-DIALYSIS KERR CELLS
Alfred William Bright, Southampton, England, assignor to National Research Development Corporation, London, England, a British corporation
Filed Apr. 8, 1968, Ser. No. 719,393
Claims priority, application Great Britain, Apr. 18, 1967, 17,854/67
Int. Cl. G02f 1/26
U.S. Cl. 350—150 **12 Claims**



An electro-dialysis Kerr cell has two spaced apart electrodes at least one of which is substantially surrounded by ion exchange material, and at least one permeable member separating an inter-electrode space in the cell from said ion exchange material.

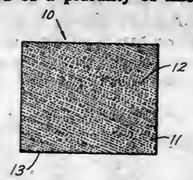
3,544,195
ANTIGLARE REARVIEW MIRROR
Peter C. Cameron, 6625 River Road, Bethesda, Md. 20034
Filed May 3, 1965, Ser. No. 452,495
Int. Cl. G02b 27/78
U.S. Cl. 350—156 **2 Claims**



A vehicle antiglare rearview mirror comprising a front partially reflective mirror, a rear full reflective mirror and an interposed circularly polarized layer which allows light received through the partial mirror to pass in a helical path to the full mirror and then obstructs the reflected light which is in a reversed helical path.

3,544,196
ANTIGLARE CONTRIVANCE WITH THE PROPERTY OF DIFFRACTION, BIFURCATION AND POLARIZATION OF LIGHT RAYS
Armando Luiz Robba, Al. Ribeiro da Silva 877, Sao Paulo, Brazil
Filed July 5, 1968, Ser. No. 742,939
Claims priority, application Brazil, July 7, 1967, 191,112
Int. Cl. G02b 27/28
U.S. Cl. 350—156 **3 Claims**

An antiglare device for permitting the human eye to have substantially perfect visability without glare when exposed to a light source. The device is characterized by a substantially flat, transparent sheet having substantially parallel surfaces thereon. One of the surfaces has a plurality of substantially parallel lines formed thereon, such as by chemical etching, with the lines extending diagonally substantially at a 22 degree angle. Each of the lines is comprised of a plurality of line segments which

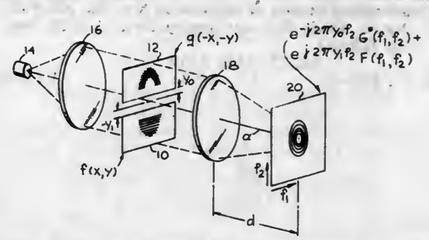


are of a predetermined thickness and are spaced from one another by a predetermined distance so as to result in the device having the properties of diffraction, bifurcation and polarization of light rays.

ERRATUM

For Class 350—161 see:
Patent No. 3,544,964

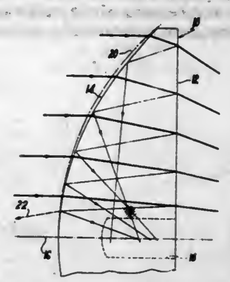
3,544,197
OPTICAL CROSSCORRELATION
Charles S. Weaver, Palo Alto, Calif., assignor to Research Corporation, New York, N.Y., a nonprofit corporation of New York
Filed Mar. 23, 1967, Ser. No. 625,460
Int. Cl. G02b 27/38
U.S. Cl. 350—162 **9 Claims**



This invention eliminates the requirement for extreme accuracy in positioning transparencies along the optical path of laser signal processors by placing the two transparencies in the same plane, on opposite sides of the axis of the laser beam, instead of at positions spaced from each other along the axis of the laser beam. In the invention, a collimated laser beam shines through the two transparencies containing the functions to be convoluted, or compared, the transparencies being positioned in the same plane but offset on opposite sides of the laser beam axis. The emerging beam passes through a lens and the Fraunhofer diffraction pattern falls on photographic film. Then a laser beam is projected through the developed film and a focusing lens, and the image is recorded on a second photographic film. The image on the second film is the convolution of the two functions on the transparencies.

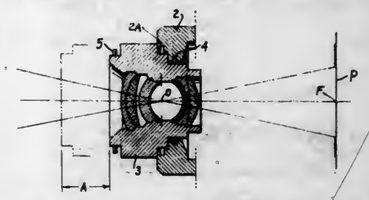
3,544,198
UNITARY DIOPTRIC LENS
Jean de Metz, Colombes, and Francois Millet, Paris, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Nov. 5, 1968, Ser. No. 773,390
Claims priority, application France, Nov. 8, 1967, 127,473
Int. Cl. G02b 3/04
U.S. Cl. 350—189 **4 Claims**

A lens for concentrating at its focus parallel light beam from a laser, has a plane exit face and an aspheric entrance face of revolutions whose shape provides minimum degree of coma. This lens is formed with an axial polished wall hole which opens at least in the exit face of the lens. The depth of this hole is sufficient for it to be traversed by the light rays which are reflected successively by the exit face and entrance face of the lens. The lens



may have an annular lens surrounding a central lens with an aspheric entrance face which projects from the front face of the first central lens to a distance such that the light rays which are successively reflected from the exit face and from the entrance face are focused outside the lenses.

3,544,199
PHOTOGRAPHIC CAMERA WITH REVERSIBLE LENS
Claus Prochnow, Braunschweig, Germany, assignor to Rollei-Werke Franke & Heidecke, Braunschweig, Germany, a firm of Germany
Filed Aug. 3, 1967, Ser. No. 664,591
Claims priority, application Germany, Aug. 6, 1966, R 43,852
Int. Cl. G02b 7/02
U.S. Cl. 350—255 **3 Claims**

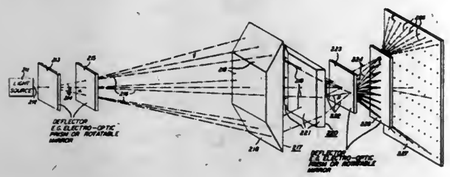


There is disclosed a photographic camera adapted to receive and cooperate with a detachable and reversible lens mount. The lens itself (usually comprising a plurality of elements) is placed in the mount so that its principal point (or principal points, if more than one) are non-symmetrical with respect to the means for mounting the lens mount in the two reversed positions on the camera. Thus when the lens mount is mounted in one position on the camera, with one end forwardly, the principal point of the lens will be at one distance from the focal plane of the camera, and when the lens mount is reversed so that the second end of the mount is forwardly, the principal point of the lens will be at a different distance from the focal plane or film plane of the camera.

3,544,200
CASCADED LIGHT BEAM DEFLECTOR SYSTEM
Harry J. Boll, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Jan. 8, 1968, Ser. No. 696,313
Int. Cl. G02b 17/00
U.S. Cl. 350—285 **10 Claims**

Two or more light beam deflectors are cascaded to increase their deflection capabilities. In one embodiment

of the invention, a light beam is incident on a deflector that can deflect the beam down one of M resolvable diverging paths, each of which is incident on one of the M facets of a prism. No matter what facet the beam is incident on, the prism then refracts the beam onto a second deflector and because of the optics and the geometry of the arrangement substantially increases the angle

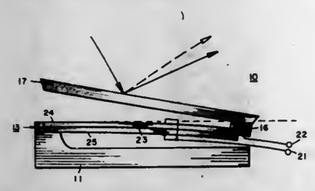


between that beam and any other beam traversing the prism on a different path and converging on the second deflector. The latter deflector deflects the incident beam down one of N resolvable paths, some of which are located in newly opened angles between the M beam paths. Because there is a different set of paths N for each path M traversed, a beam can be deflected to any one of NM resolvable spots on an appropriate target.

3,544,201
OPTICAL BEAM DEFLECTOR

Vernon J. Fowler, East Meadow, John Schlafer, Flushing, and William R. Watson, College Point, N.Y., assignors to General Telephone and Electronics Laboratories Incorporated, a corporation of Delaware

Filed Jan. 2, 1968, Ser. No. 695,142
Int. Cl. G02f 1/34
U.S. Cl. 350—285 **10 Claims**



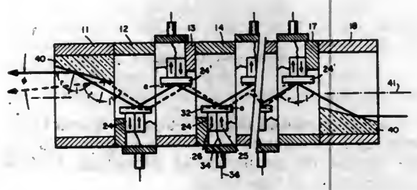
An optical beam deflector employing a plurality of piezoelectrically-driven deflecting elements is disclosed. Each individual deflecting element includes at least one piezoelectric transducer and an overlying reflector coupled thereto. The transducer which operates in the bending mode, is cantilevered from a rigid support so that the free end thereof can be displaced by an applied deflection signal. One edge of the overlying reflector is coupled to the free end of the transducer so that its center of gravity is located proximate to the midpoint of the transducer. Consequently, when the displacement of the free end of the transducer causes the reflector to rotate, the motion of the center of gravity of the reflector is minimized and the inertial loading of the transducer is reduced.

3,544,202
BEAM-DEFLECTION APPARATUS

Vernon J. Fowler, East Meadow, N.Y., assignor to General Telephone and Electronics Laboratories, Inc., a corporation of Delaware

Filed Jan. 3, 1966, Ser. No. 518,324
Int. Cl. G02f 1/34
U.S. Cl. 350—285 **8 Claims**

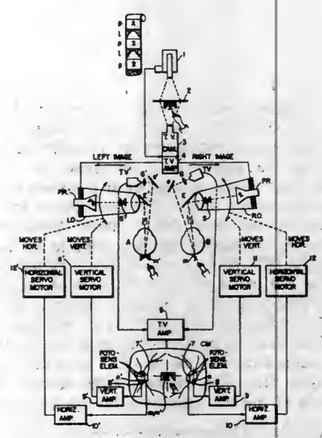
An apparatus for deflecting a beam of electro-magnetic energy. A plurality of piezoelectric blocks, each of which has a reflective surface, are mounted on opposing sides of a support member. The beam is successively incident upon and reflected by the reflective surface of each block. Each block is mounted by affixing to the support member a surface of the block that is adjacent to its reflective surface. An electric field applied to each block induces a shear strain in the block and causes a rotation of its reflective surface. The deflection contributions of the individual blocks are made cumulative by reversing the rotational directions of the reflective surfaces of successive blocks.



3,544,203
APPARATUS FOR TESTING STRABISMUS

Antonio Beiras Garcia, deceased, late of Vigo, Spain, by Antia Cal Vazquez, administratrix, Calle Policarpo Sanz 22, Vigo, Spain

Continuation-in-part of application Ser. No. 328,948, Dec. 9, 1963. This application Dec. 6, 1968, Ser. No. 782,007
Int. Cl. A61b 3/00, 3/12
U.S. Cl. 351—2 **3 Claims**

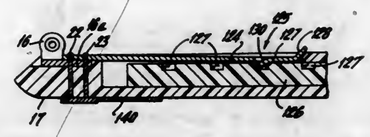


An apparatus for testing strabismus comprising means for displaying a scene so that the display may be touched by a patient and for producing two complementary images each representing a part of the displayed scene. Two ophthalmoscopic arrangements are disposed to transmit different ones of said images to different eyes of a patient and to allow examination of the images formed on the respective fundi of the patient's eyes, said ophthalmoscopic arrangements being relatively movable to enable the two ophthalmoscopic arrangements to be aligned on the respective optical axes of the patient's eyes.

3,544,204
ADJUSTABLE TEMPLE FOR SAFETY SPECTACLES

Harold Bienenfeld, Forest Hills, N.Y., assignor to Glendale Optical Company, Inc., Woodbury, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 703,486, Feb. 6, 1968. This application June 12, 1969, Ser. No. 834,238
Int. Cl. G02c 5/20
U.S. Cl. 351—118 **1 Claim**

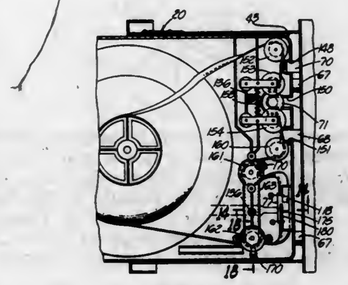


Safety spectacles for industrial use and the like having adjustable temple members consisting of an ear-piece portion that telescopes into the body portion of the temple. A series of transverse recesses provided in the ear-piece portion are engageable by a proturberance resiliently pressed into a selected one of the recesses. The protuberance is carried on a resilient clamp or clasp arranged to engage each of the recesses in sequence as the ear-piece portion is adjustably moved into telescoping movement with respect to the body portion.

3,544,205
PROJECTOR FOR CONTINUOUS LOOP MOTION PICTURE FILM

Mitchell J. Bogdanowicz, New York, N.Y., assignor to Jayark Instruments Corporation, New York, N.Y., a corporation of New York

Filed Nov. 28, 1967, Ser. No. 686,083
Int. Cl. G03b 31/02
U.S. Cl. 352—27 **5 Claims**

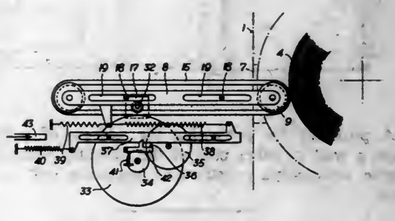


A motion picture projector where the film is contained in a film cartridge in a continuous loop. The film is moved past a sound reproducing device and then past a film gate. In order to cause the film to move at a constant speed, a rotatable idler drum in the projector frictionally engages a pair of idler wheels in the cartridge. The idler drum is connected to a flywheel to prevent sudden changes of the film speed thereby to preserve the fidelity of the sound reproduction. The film is positively driven by a drive spocket in the film cartridge which is driven by a clutch in the film projector.

3,544,206
FILM-FEEDING MECHANISM FOR CARTRIDGE-LOADED MOTION PICTURE APPARATUS

Otto Freudenschuss, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

Filed May 15, 1968, Ser. No. 729,226
Claims priority, application Austria, May 16, 1967, A 4,585/67
Int. Cl. G03b 1/56
U.S. Cl. 352—72 **5 Claims**

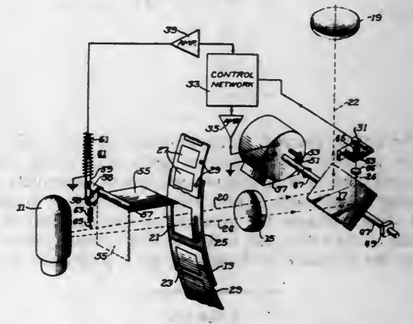


A belt-driven friction roller mounted on a horizontally-sliding bar feeds film from a cartridge. It enters a side opening in the cartridge and contacts the coil of film, driving the coil a sufficient amount to allow the leading film end to emerge from the cartridge. A mechanical interrupting arrangement shuts off the drive for the belt after the coil has turned enough for the film end to emerge.

3,544,207
SHUTTER CONTROL MECHANISM

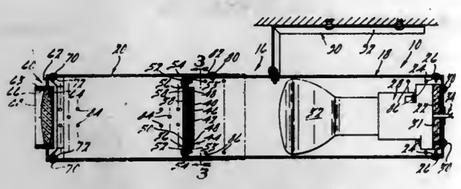
Robert S. John, Jr., Deerfield, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Jan. 3, 1968, Ser. No. 695,451
Int. Cl. G03b 41/10
U.S. Cl. 352—109 **14 Claims**



A shutter control mechanism for a continuous film movement motion picture projector. The location of indexing marks on the motion picture film is sepsed by a photo-potentiometer which controls the closing of the projector's shutter. One closure occurs each time an indexing mark reaches the end of a mark aperture gate, and a second closure occurs midway between two end closures. The midway closure is created by controlling the charging and discharging of a pair of capacitors so that the midframe closure occurs exactly between end frame closures.

3,544,208
ADDRESS PROJECTOR
Carroll M. Wasson, 264 Eastlawn, Detroit, Mich. 48215
Filed May 24, 1968, Ser. No. 731,921
Int. Cl. G03b 21/14
U.S. Cl. 353—22 6 Claims



A projector for projecting the address of a building upon a wall or other part of the building which is of a simple telescoping construction requiring only a single lens.

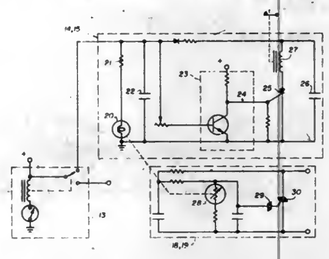
3,544,209
OPTICAL COUNTERS
Kurt Schanda, Jena, Germany, assignor to VEB Carl Zeiss Jena, Gera, Germany
Filed Feb. 26, 1968, Ser. No. 708,435
Int. Cl. G03b 21/00
U.S. Cl. 353—41 2 Claims



An optical counter, particularly for use with testing devices, includes two transparent figure dials which are interconnected by a reduction gear, one of these dials containing a diaphragm having helical apertures. A first optical system images the numerals of the one dial in the plane of the other dial, and a second optical system projects the numerals of both dials on a projection screen.

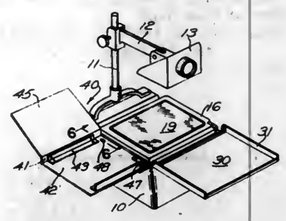
3,544,210
AUTOMATIC DISSOLVE CONTROL FOR SLIDE PROJECTORS HAVING A SOURCE OF ILLUMINATION AND A SIGNAL ACTUATED SLIDE ADVANCE
Seymour L. Goetz, 202 E. 44th St., Brooklyn, N.Y. 10017
Filed Jan. 24, 1969, Ser. No. 793,724
Int. Cl. G03b 21/36
U.S. Cl. 353—86 6 Claims

An automatic dissolve control for each of at least a pair of projectors focused in registration on a screen having automatic or manual means for actuating the projectors alternately wherein both projectors are momentarily simultaneously illuminated and thereafter, the source of illumination of alternate projectors is dimmed to extinction and a signal imposed upon the slide advance circuit of that projector wherein the dimming of the source of illumination of the projector is controlled by the automatic and predetermined rate of decay of a photo-



cell light source, the resistance of the photocell biasing a dimmer output circuit for the projector illumination functioning as a full wave rectifier, the dimmer and slide advance signal control circuits being electrically isolated from the projector illumination circuit.

3,544,211
AUXILIARY STAGE FOR A VISUAL PROJECTOR
Percy Frederick Albee, Jr., Barrington, R.I., assignor to Q-Panel Corporation, a corporation of Rhode Island
Filed Apr. 22, 1968, Ser. No. 723,158
Int. Cl. G03b 21/64
U.S. Cl. 353—120 5 Claims

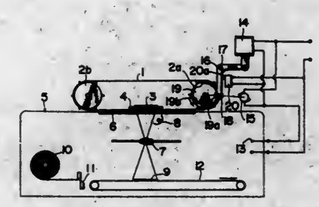


A stage comprising a frame with a transparent window to be positioned over a visual projector with a plate to cover the transparent window and also provide a shelf for projectuals. Means are also provided to detachably connect a structure containing a plurality of visuals or projectuals which may be pivoted to the transparent portion of the stage and thereafter moved to a position on the shelf.

3,544,212
COPYING DEVICE FOR MAKING VOUCHERS
Minoru Umahashi, Higashi Matsuyama, and Yugoro Kobayashi, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan
Filed Oct. 6, 1967, Ser. No. 673,370
Claims priority, application Japan, Oct. 12, 1966, 41/67,023
Int. Cl. G03b 27/32, 27/62
U.S. Cl. 355—42 2 Claims

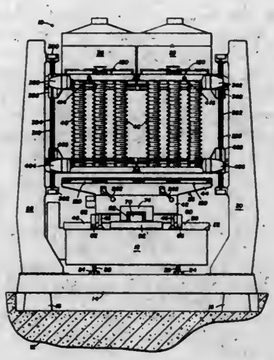
A copying device having means for aligning a voucher manuscript with one of a number of voucher forms on an endless belt called a plate including electric drive means for moving the plate, which is supported on a

pair of pulleys, so as to bring about alignment of the stationary manuscript and a desired form which is on the plate. The combination of plate and manuscript can



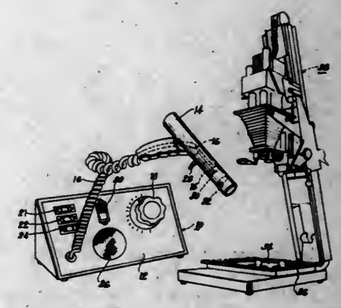
be projected onto sensitized paper to produce a voucher which combines the information which is on the plate and that on the manuscript.

3,544,213
STEP AND REPEAT CAMERA WITH COMPUTER CONTROLLED FILM TABLE
Hans Jaeger, Dallas, and Nicholas Alfonso Perna, Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Oct. 18, 1967, Ser. No. 676,155
Int. Cl. G03b 27/42
U.S. Cl. 355—53 4 Claims



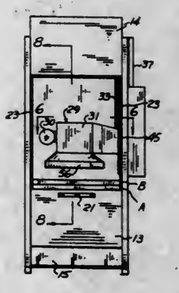
A film support table is movable in the X and Y coordinate directions by X and Y drive systems. A laser interferometer and fringe counter detects movement of the table in the X and Y coordinate directions by fringe counts. A projection system simultaneously projects a plurality of images onto the film carried by the table after the table is moved to each of a plurality of predetermined exposure positions. A reference detector system detects when the table is at a zero reference position and resets the counters. A digital computer is programmed to compute the coordinate of each exposure position and then, based on the current barometric pressure, compute the number of fringe counts from the reference position to the first exposure position. The computer then operates the drive system in such a manner as to move the table to the exposure position by continuously computing the position and velocity of the table from the readings of the fringe counters. Then the table is maintained at the exposure position during the exposure period by continuously determining the position of the table from the fringe counters and operating the drive system to produce forces for correcting the positional error.

3,544,214
ILLUMINATION INTENSITY METERING SYSTEM
Albert D. Edgar, 743 Bonnie Brae, River Forest, Ill. 60305
Filed Nov. 9, 1967, Ser. No. 681,806
Int. Cl. G03b 27/76
U.S. Cl. 355—68 12 Claims



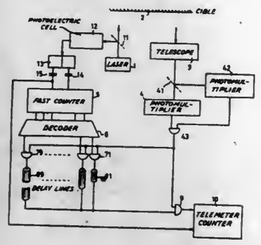
A system for metering visible illumination intensity which allows an operator to quantitatively determine the visible illumination intensity. A photosensitive sensing device is coupled to a speaker which emits an audible signal. The audible signal beats in proportion to the intensity of the visible light received by the photo-sensitive sensing device.

3,544,215
CONTACT PRINTER ASSEMBLY
Loren W. Hutchins, Detroit, Mich., assignor to Douthitt Corporation, Detroit, Mich.
Filed July 15, 1968, Ser. No. 744,728
Int. Cl. G03b 27/02
U.S. Cl. 355—78 7 Claims



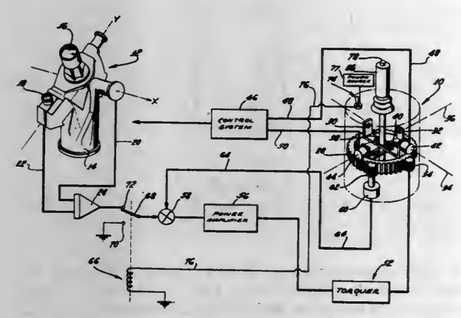
A photographic contact printer having a housing defining a printing chamber and a bed, with an improved light assembly mounting which includes channel tracks and rollers on the light assembly to support and guide the light assembly. A counterweighted control is provided on the exterior of the housing for automatically spacing the light source relative to the bed. An improved door construction is provided to seal off the light assembly during exposure. Also included is an improved light reflector.

3,544,216
DOUBLE-PULSED LASER TELEMETER SYSTEM
Jean Rene Besson, Boulogne-Billancourt, and Pierre Francois Weber, Paris, France, assignors to Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sous-Bagneux, France, a body corporate of France
Filed Nov. 16, 1967, Ser. No. 683,618
Claims priority, application France, Nov. 21, 1966, 84,375
Int. Cl. G01c 3/08
U.S. Cl. 356—5 3 Claims



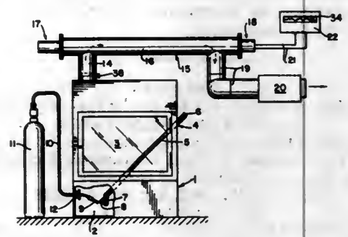
The specification discloses a laser telemeter system using a solid state laser which is so triggered as to deliver a pair of pulses in response to reach triggering, a photoelectric receiving cell such as a photomultiplier tube and a telemeter counter. The time interval between the two pulses forming each pair is measured and employed for selecting a delay line having a corresponding time constant from a plurality of delay lines. The telemeter counter is started by the second pulse of each pair and stopped by the output signal of an AND-gate having a first input connected to the outputs of all the delay lines and a second input connected to the output of the photomultiplier tube whereby every telemeter measurement employs the second of two pulses separated by the last measured interval.

3,544,217
DUAL MODE MANUAL CONTROLLER
David E. McEntyre, Simi, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 1, 1968, Ser. No. 717,807
Int. Cl. G01p 3/36
U.S. Cl. 356—29 9 Claims



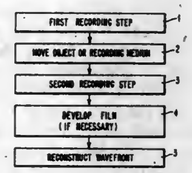
Manual control apparatus for target acquisition in a gimbal-mounted optical tracking telescope. Manual control of the telecope movement about its X and Y gimbal axes is effected by moving a joystick to pivot a pair of output members about respective horizontal, normal axes which are referenced to the telescope mount for coarse, visual alignment of the telescope in a first mode of operation, and are variably referenced in response to the telescope gimbal angles in a second mode where fine alignment is achieved through an optical guidescope to compensate for confusing image reversals in the guidescope optics.

3,544,218
APPARATUS FOR TESTING SMOKE FROM A SPECIMEN OF MATERIAL
James J. Cassidy, Scotch Plains, N.J., assignor to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware
Filed June 5, 1967, Ser. No. 643,595
Int. Cl. G01j 3/30; G01n 21/12, 1/00
U.S. Cl. 356—36 1 Claim



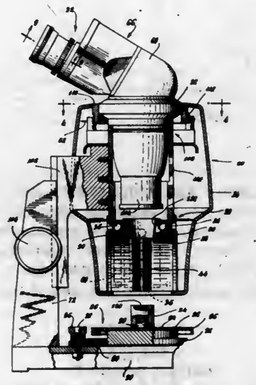
This disclosure relates to an apparatus for testing the smoke generated by the burning of a specimen of material by measuring under controlled conditions the light transmitted through the smoke. Smoke is generated in a burning chamber and caused to flow from the chamber through an elongated enclosure in which light is emitted and the amount of light transmitted through the smoke in the enclosure is measured.

3,544,219
OPTICAL COMPUTATION OF SECOND DERIVATIVE
Olof Bryngdahl, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Feb. 5, 1968, Ser. No. 702,878
Int. Cl. G01b 9/02; G02b
U.S. Cl. 356—106 8 Claims



Double exposure holography is used to obtain the second derivative of the function which describes a given object. The object is illuminated with coherent light and an image of the object is created. The light carrynig the image information is divided into two beams. The paths of these beams are arranged such that (a) each beam creates an image of the object on the same photographic plate, (b) the images created by the two beams are shifted, or sheared, relative to each other, and (c) there is an appropriate angle between the optical axis of the two beams, such that the beams interact to create a hologram. The photographic recording medium is exposed twice. The only difference between the first exposure and the second exposure is that the object, or the recording medium, is slightly shifted. The photographic plate is developed and then illuminated with coherent light in an optical system which creates an image of the object which was used to form the hologram. Superimposed on the image of the object will be lines, or fringes, which represent the second derivative of the function which describes the object.

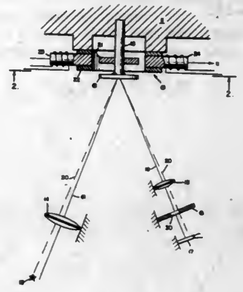
3,544,220
OPTICAL INSTRUMENTS
Morton Kaye, Stamford, Conn., assignor, by mesne assignments, to The Plastic Contact Lens Company, Chicago, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 439,749, Mar. 15, 1965. This application Nov. 5, 1965, Ser. No. 506,521
Int. Cl. G01b 9/02; A61b 3/10, 3/00
U.S. Cl. 356—109 9 Claims



A method and apparatus are provided for investigating the nature of a curved surface particularly that of a contact lens. A first pattern of closely spaced lines is reflected off the curved surface and focused on an image plane. A second pattern of closely spaced lines is superimposed on the pattern located at the image plane. A moiré pattern is established which is utilized to indicate the character of the curved surface being investigated.

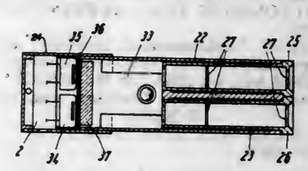
3,544,221
QUARTZ MODULATED MIRROR SMALL ANGLE DETECTION DEVICE
Robert M. Putnam, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Oct. 9, 1967, Ser. No. 673,813
Int. Cl. G01b 11/26
U.S. Cl. 356—152 8 Claims

A mirror is affixed to one end of a quartz rod and the rod is mounted at the other end in cantilevered fashion to a reference frame. An electromagnetic driver is connected between the reference frame and the quartz rod to impart a nutating motion to the quartz rod and the mirror. An objective lens collects the light from a desired image and directs the light along an image axis to the mirror's surface. A collector lens is rigidly attached to the reference frame and is positioned in front of the mirror to receive the reflected image along a sensor axis. The collector lens focuses the light rays from the mirror onto a photodetector element. A diaphragm having



an aperture is positioned at the focal point of the collector lens and between the collector lens and the photodetector element. The position of the image with respect to the aperture as compared to the position of the nutating mirror is a function of the angle between the image axis and the sensor axis.

3,544,222
OPTICAL INSTRUMENT FOR DETERMINING LAYER THICKNESS
Ulrich Jannasch, Cologne-Ostheim, and Gunther Schmidt, Cologne-Bayental, Germany, assignors, by mesne assignments, to Leybold-Hochvakuum-Anlagen GmbH, Cologne-Bayental, Germany
Filed Oct. 12, 1967, Ser. No. 698,996
Claims priority, application Germany, Oct. 13, 1966, L 54,802
Int. Cl. G01b 11/00; G01n 21/48
U.S. Cl. 356—161 10 Claims

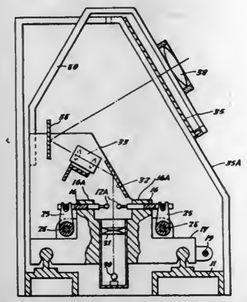


An optical instrument for measuring the reflectivity or transparency of a layer in order to produce a continuous indication of the thickness of the layer as it is being formed during a vapor deposition process, the instrument including an arrangement for directing a narrow light beam onto a surface of the layer and an indicator system having two substantially identical light-sensitive elements and two parallel light paths, one for each light-sensitive element, only one light path being arranged for receiving the refected or transmitted light beam, while both light-sensitive elements receive an identical amount of extraneous or ambient light, so that the difference in response between the two light-sensitive elements provides an indication of the degree to which the light beam is reflected or transmitted by the layer being measured.

3,544,223
PROFILE COMPARATORS

Christopher L. Bartlett, Filton, Bristol, England, assignor, by mesne assignments, to Rolls-Royce Limited, Derby, England, a British company

Filed May 6, 1968, Ser. No. 726,728
Claims priority, application Great Britain, May 9, 1967, 21,382/67
Int. Cl. G01b 9/08
U.S. Cl. 356—165 4 Claims

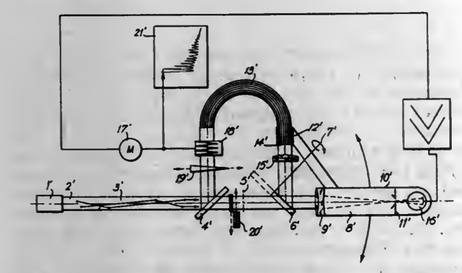


The disclosure of this invention pertains to a profile comparator wherein relative movement between a probe and a work piece is converted into relative movement between a pointer and a screen and wherein an image of the pointer is projected onto the screen by a projector. The pointer is connected to a first slide supported for movement in a first direction on a second slide supported for movement in a second direction perpendicular to the first direction, and the projector is secured to the second slide so as to move together with the pointer when the latter is moved in the second direction. Thereby the aperture of the projector need not be larger than the extent of movement in the first direction. Alternatively the projector is connected directly to the pointer so as to be movable together therewith in both directions.

3,544,224
METHOD FOR MEASURING THE OPTICAL TRANSMISSION CHARACTERISTICS OF TRANSPARENT AND TRANSLUCENT MEDIA AND OPTICAL DIFFRACTOMETER FOR CARRYING OUT THIS METHOD

Wolfgang Friedl, Neckargemund, Germany, assignor to Eltro GmbH & Co., Heidelberg, Germany

Filed Aug. 14, 1967, Ser. No. 660,327
Claims priority, application Germany, Aug. 25, 1966, E 32,366
Int. Cl. G01n 21/06, 21/22, 21/26
U.S. Cl. 356—201 10 Claims

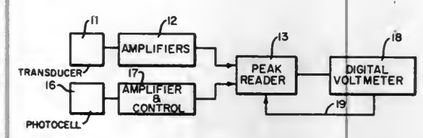


A method and apparatus is provided for measuring the angle dependency of the intensity of a monochromatic spectrum produced by penetration through a transparent or translucent medium, the invention being characterized in that the beam of rays issuing from the medium is subdivided through a diffraction grating and the diffraction angle is continuously detected by means of a telescope rotatable about an axis intersecting optical axis of the system at right angles and lying in the plane of the grating, the rays thereby received being supplied to a receiver diode and converted therein into electrical signals which can be displayed in the form of a curve, consisting of adjacent loops wherein the maximum of one loop represents the intensity associated with the corresponding angle.

3,544,225
PEAK READING OPTICAL DENSITY MEASURING SYSTEM

Willard H. Wattenburg, Orinda, Donald A. Glaser, Berkeley, and Hector O. Conde, San Pablo, Calif., assignors, by mesne assignments, to Berkeley Scientific Laboratories, Inc., Berkeley, Calif., a corporation of Texas

Filed Dec. 13, 1967, Ser. No. 690,316
Int. Cl. G01n 21/06; G01j 1/44; G06m 7/00
U.S. Cl. 356—201 6 Claims

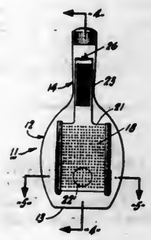


An optical density measuring system for determining growth or reaction rates in materials disposed in a plurality of sample tubes sequentially and repeatedly presented to the optical system. The system includes means for commanding a peak reader which provides a signal representative of the peak density and means for indicating said density.

3,544,226
BRUSH BOTTLE

Louis T. Kellis, 540 O'Farrell St., San Francisco, Calif. 94102

Filed Jan. 25, 1968, Ser. No. 700,475
Int. Cl. A46b 11/00
U.S. Cl. 401—28 1 Claim

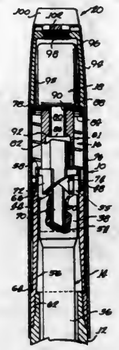


A combination brush and bottle particularly adapted for utilization with materials such as hair shampoo which may be contained within the bottle and employed with the brush. A single unit comprising a bottle formed with a neck comprising a handle and a side comprising a brush, and preferably formed of light-weight, inexpensive plastic is provided hereby. Additionally, the invention provides for dispensing of the bottle contents while the invention is being employed as a brush through simple finger movement of a plate covered aperture.

3,544,227
WRITING INSTRUMENT

Homer T. Green, Milton, Wis., assignor to The Parker Pen Company, Janesville, Wis., a corporation of Wisconsin

Filed Oct. 31, 1968, Ser. No. 772,169
Int. Cl. B43k 24/08
U.S. Cl. 401—52 11 Claims

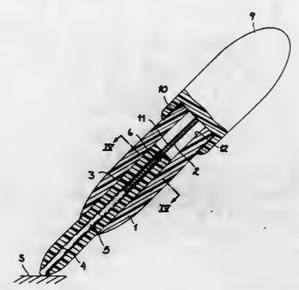


The barrel of the writing instrument includes separable forward and rearward portions adapted to enclose a self-contained replaceable cartridge. A point-actuating mechanism includes a plunger mounted to the rearward portion of the barrel, which plunger cooperates with the replaceable cartridge to actuate the writing nib and a reciprocable cap that depresses and releases the plunger. The cap may be removed to expose an eraser mounted to the plunger.

3,544,228
THIN-LEAD MECHANICAL PENCIL

Ludwig Wittrock, 121 Breddenrampstrasse, 437 Marl, Germany

Filed Oct. 16, 1968, Ser. No. 767,964
Int. Cl. B43k 21/06
U.S. Cl. 401—82 6 Claims

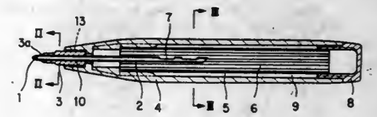


A slidable insert projecting from a cylindrical sleeve has a narrow center bore to accommodate a thin lead, the sleeve containing a pusher member with two or more radial ribs bearing upon the inner sleeve periphery; the rear part of the insert is provided with guide formations which form clearances for the ribs and slidably engage the pusher member to stabilize it against bending.

3,544,229
MARKING PEN

Takashi Aoki and Kenji Matsumoto, Tokyo, Japan, assignors to Nikko Pen Kabushiki Kaisha, Chofu, Tokyo, Japan, a corporation of Japan

Filed Dec. 2, 1968, Ser. No. 780,378
Claims priority, application Japan, Dec. 19, 1967, 42/135,939
Int. Cl. B43k 8/00
U.S. Cl. 401—199 10 Claims

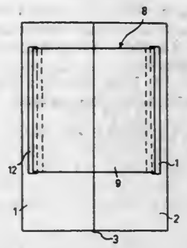


The present invention relates to a marking pen or the like characterized by the fact that it comprises a bundle of stick-like mono-filaments used for the conduction of ink and as a point.

3,544,230
BINDER WITH LABEL

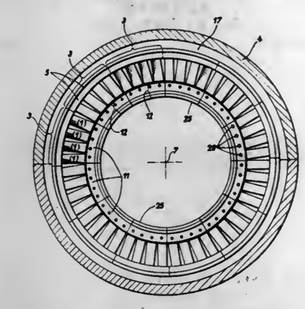
Jarl-Erik S. I. Ohlsson, 27 Hannebergsgatan, 171 47 Solna, Sweden

Filed May 23, 1968, Ser. No. 731,451
Claims priority, application Sweden, June 1, 1967, 7,672/67
Int. Cl. B42f 21/00
U.S. Cl. 402—3 2 Claims



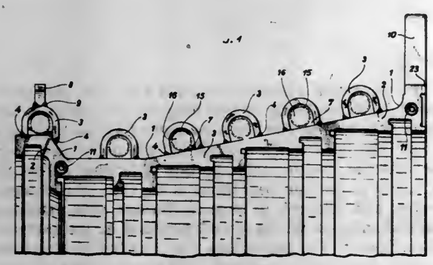
This invention relates to a label for such binders as have a back consisting of two hingedly connected halves, where it is desired that the label extend across both back halves. The label which is made of essentially rigid, strip-like material, has a center portion extending across the back, and projections bent down at the ends of said center portion and adapted to project through slits extending longitudinally of the back and provided at the marginal edges thereof. The projections are intended in the closed position of the back to engage with the slit edges adjacent the back center, thereby to hold the center portion of the label in engagement with the back, whereas the engagement of the projections with the said edges is released, when the binder is opened and the projections are moved through the slits so that during the continued opening movement at least one end of said center portions can extend a distance through one or the other of said slits.

3,544,231
STATOR-BLADE ASSEMBLY FOR TURBOMACHINES
Ferdinand Zerlauth, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland, a company of Switzerland
Filed Oct. 11, 1968, Ser. No. 766,843
Claims priority, application Switzerland, Mar. 22, 1968, 4,329/68
Int. Cl. F01d 1/00, 25/12
U.S. Cl. 415—115 2 Claims



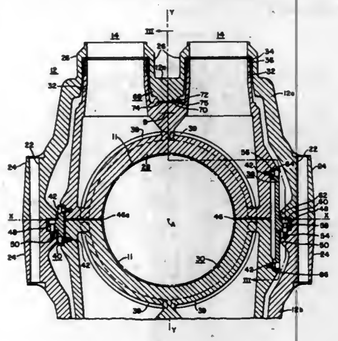
There is disclosed a stator-blade assembly for axial-flow turbomachines (e.g., turbines, or pumps or compressors) in which the stator blades of any one stage are divided into a plurality of segments making up an annular array. The blades are hollow, and those of each segment are connected at their radially outer ends to a hollow root member and at their radially inner ends to a hollow head member, for the flow of a temperature-control fluid such as air therethrough.

3,544,232
HOUSING FOR TURBOMACHINES
Ferdinand Zerlauth, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland, a company of Switzerland
Filed Oct. 11, 1968, Ser. No. 766,924
Claims priority, application Switzerland, Mar. 22, 1968, 4,331/68
Int. Cl. F01d 1/00, 29/40
U.S. Cl. 415—219 7 Claims



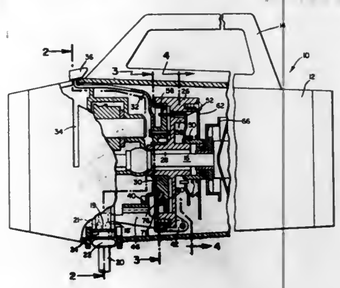
There is disclosed an axially split housing for turbomachines, the housing comprising a body made up of two cast steel halves held together by bolts extending across the plane of division between U-shaped lugs welded to the exterior of the housing halves.

3,544,233
TURBINE NOZZLE CHAMBER SUPPORT ARRANGEMENT
Ralph D. Brown, Springfield, and Ernest K. Johnson, Newtown Square, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 29, 1968, Ser. No. 748,462
Int. Cl. F01d 25/28
U.S. Cl. 415—126 8 Claims



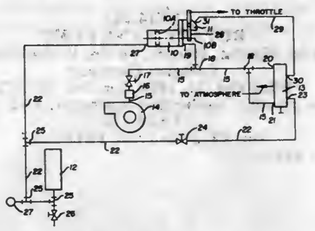
In an elastic fluid turbine, two inlet nozzle chamber structures, one upper and one lower, are fastened together and to the cylinder or casing of the turbine so as to permit differential thermal expansion to take place between all three parts while also dampening any vibration in the chambers that could result from the elastic fluid excitation, if any clearance exists between guide members and the chambers at the vertical centerline of the turbine.

3,544,234
COMBINED SPEED CONTROL-EJECTOR FOR KITCHEN MIXER
Charles L. Bauer, Cheshire, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed June 16, 1969, Ser. No. 833,322
Int. Cl. A22c 5/00
U.S. Cl. 416—170 1 Claim



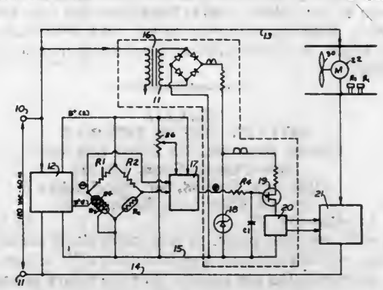
A single element control for a mixer provides simple, reliable beater ejector means operable on one side of the "off" position. Mixer speed is selectable on the other side of the "off" position. The ejector means comprises a simple lever bar disposed longitudinally of the mixer housing.

3,544,235
CONTROL MECHANISM FOR FIRE PUMP
Edson W. Smith, Elmira, N.Y., assignor to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 28, 1969, Ser. No. 811,340
Int. Cl. F04b 49/00
U.S. Cl. 417—18 5 Claims



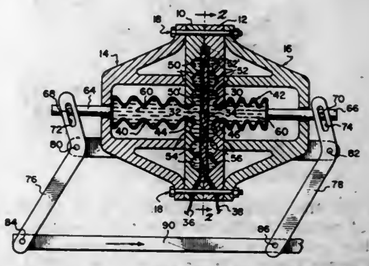
A control mechanism for fire pumps driven by a variable speed engine operates by the fire pump establishing a reference pressure in an accumulator which is then balanced with the output pressure of the fire pump in a balancing piston and cylinder assembly, the reference pressure being in communication with the cylinder on one side of the piston and the pump output pressure being in communication with the cylinder on the other side of the piston, the piston and its piston rod being movable responsive to fluctuations in the pump pressure as compared with the reference pressure in the accumulator. The movement of the piston and piston rod controls the engine throttle by way of a clutch which is pressure actuated by the pump pressure and is thus responsive in operation to fluctuations in the pump pressure whereby cavitation in the pump disengages the clutch and permits the throttle to move toward an engine idling position.

3,544,236
FLUID FLOW CONTROL
James L. Brookmire, 3310 Hastings Road, Erie, Pa. 16506
Filed Mar. 17, 1969, Ser. No. 807,890
Int. Cl. F04b 49/00; G05b 5/00
U.S. Cl. 417—32 8 Claims



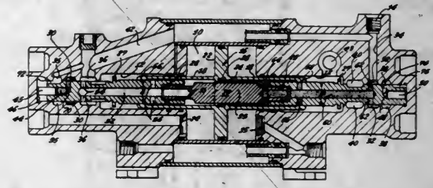
This specification discloses a control that utilizes superheated sensors which give an electrical output from a change of flow rate of a liquid or gas medium in which the sensor is located. The change of flow rate changes the temperature of the sensor and results in a change of its electrical output. The superheated sensor may be an NTC type, such as a thermistor, or a PTC type, such as a nickel wire, platinum wire sensor, or other suitable sensor. The super heating of the sensor is achieved by wrapping the sensor with an electrical heating element which elevates the body temperature of the sensor to several hundred degrees above normal room temperatures. Any change of the body temperature of the superheated sensor due to variations of ambient temperatures is an unwanted variable and is cancelled out by another sensor such that the only variable that is utilized for control purposes is the change in body temperature of the superheated sensor due to rate of change of the flow of the medium. The superheated sensor's electrical output is amplified and utilized to change the speed of a fan motor, control the closure or opening of a valve, control a compressor motor, or any mechanism which can be utilized to change the flow rate and flow of the medium. Closed loop feedback techniques are utilized to enable good control with accurate results.

3,544,237
HYDRAULIC REGULATING DEVICE
Alfred Walz, Emmendingen, Germany, assignor to Dornier System G.m.b.H., Friedrichshafen, Germany, a limited-liability corporation of Germany
Filed Dec. 19, 1968, Ser. No. 785,193
Int. Cl. F04f 11/00; F16j 3/00; F16h 21/44
U.S. Cl. 417—48 10 Claims



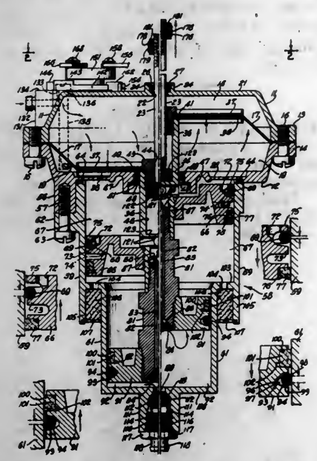
A porous diaphragm is provided with electrode means on opposite sides thereof. Means is provided for applying electrical potential of varying polarity to the electrode means. A reservoir means is disposed at either side of the diaphragm and a fluid fills the space within the reservoir means and the spaces defined adjacent the diaphragm. A body means supports the diaphragm and includes grooves for distributing the fluid. An output means is connected with the reservoir means for operating a suitable mechanism.

3,544,238
HYDRAULICALLY ACTUATED FREE PISTON AIR COMPRESSOR
Clarence E. Liles, Los Angeles, Calif., assignor to White Motor Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 10, 1969, Ser. No. 790,269
Int. Cl. F04b 35/00, 1/00
U.S. Cl. 417—397 28 Claims



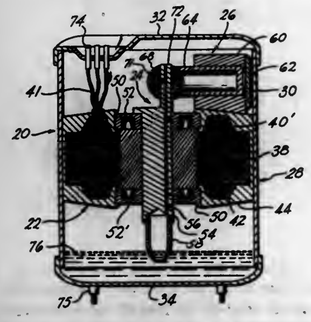
In a hydraulically actuated free piston air compressor, a 4-way valve is shifted part way mechanically by the free piston and is shifted the rest of the way hydraulically. At a predetermined point intermediate in each opposite piston stroke, means is effective to increase the input area of the piston for a second stage of air compression.

3,544,239
VACUUM OPERATED COMPOUND DOUBLE-ACTING PISTON PUMP OR COMPRESSOR
George C. Graham, 76 Crest Road, Ridgewood, N.J. 07450
Filed Nov. 25, 1968, Ser. No. 778,614
Int. Cl. F04b *35/00*; F01l *23/00*
U.S. Cl. 417—403 34 Claims



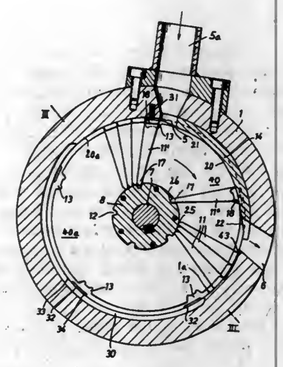
A vacuum operated pump having an axially aligned pair of pistons of different diameters operating in respective low and high pressure cylinders where a piston operating in the larger cylinder compresses air and transmits said compressed air into the smaller high pressure cylinder where the smaller piston produces further and higher compression for transmission to work apparatus or storage means. The invention further includes a control rod operating in conjunction with the vacuum diaphragm and mounted axially in respect of said diaphragm and said pistons and extending externally of the apparatus housing to operate an alternating vacuum control mechanism.

3,544,240
HERMETIC MOTOR-COMPRESSOR UNIT
Theodore W. Rundell, Tecumseh, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich., a corporation of Michigan
Filed Sept. 24, 1968, Ser. No. 762,105
Int. Cl. F04b *35/04, 39/02*
U.S. Cl. 417—416 7 Claims



A hermetic motor-compressor unit with a motor stator encapsulated in a cast metallic body to provide a mounting for both the rotor of the compressor motor and the cylinder block of the compressor. The body is cast with pockets to receive and retain bearing assemblies in which the rotor is journalled. The hermetic housing of the unit comprises a tube with end caps connected thereto, and the stator is is shrink or press-fitted into the tube to mount the motor and compressor assembly within the housing.

3,544,241
ROTARY VANE PUMP
Karl Mueller, Ringstr. 60–66, Rodenkirchen, Cologne, Germany
Filed Oct. 22, 1968, Ser. No. 769,672
Claims priority, application Germany, Oct. 25, 1967, 1,628,332
Int. Cl. F04c *1/00*; F01c *1/00*
U.S. Cl. 418—35 20 Claims

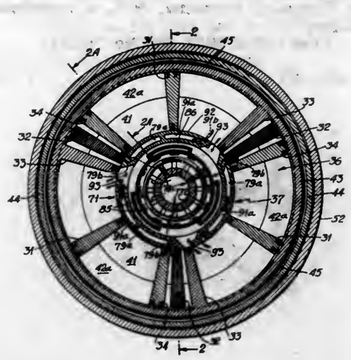


A rotary pump has an inlet and an outlet on opposite sides of which a first chamber portion extends over a greater angle and a second chamber portion extends over a smaller angle. A stack of vanes is located in the first chamber portion, and the foremost vane of the stack is coupled with the rotor in the region of the inlet and transported by the rotor through the second chamber portion to the outlet, sucking fluid from the inlet and discharging fluid through the outlet until the transported vane passes the outlet and becomes the rearmost vane of the stack.

3,544,242
ROTARY PISTON DEVICES
Charles Bancroft, 178 Ferris Hill Road, New Canaan, Conn. 06018
Filed Aug. 5, 1968, Ser. No. 750,084
Int. Cl. F04c *1/00*; F02b *53/00*
U.S. Cl. 418—37 14 Claims

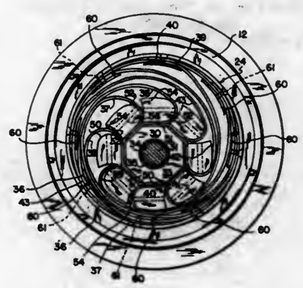
A self-contained power system particularly suitable for use as a vehicle drive system consisting of a self-powered and self-regulating gas generator of the rotary piston type delivering hot compressed gas for any desired purpose, such as the powering of compressed gas motors which may also be of the rotary piston type, capable of individually driving each wheel of a vehicle. Both the compressed gas motors and the gas generator incorporate rotating sets of vane pistons moving in an annular chamber, and alternately accelerating and decelerating while moving around the annular chamber. The rotating sets of accelerating and decelerating pistons are controlled by their engagement with connecting members mounted for planetary orbital rotation within the stator housings of these devices. At least one of these connecting members is engaged with at least one central crankshaft for controlling this orbital rotation and delivering torque to or from the device, while

one or more other connecting members are "floating" connecting members engaged only with the piston sets, and not connected directly with other connecting members or crankshafts or with the stator housing. The gas generator incorporates a unique compressed gas bleed feature providing self-regulating operation for efficient delivery of compressed gas at a predetermined pressure level. The compressed gas motor devices incorporate simple reversing means and means for automatic adjustment of port openings and closings for most efficient operation at any



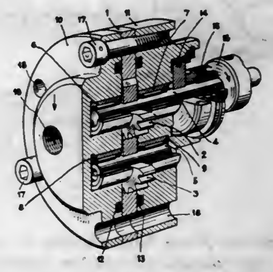
given pressure, as well as simple speed reducer means functioning to reduce the high rotational velocity of the crankshafts in these gas motors to more useful output velocities for such purposes as driving the wheels of a moving vehicle. Other useful features of these rotary piston devices include positive lubrication means for drawing oil from an oil sump during operation, splashing it over the moving parts during operation, but returning it to a sump in which it is retained when the device is not in operation.

3,544,243
ROTARY FLUID PUMP MECHANISM AND THE LIKE
Sterling O. Stageberg, 985 Alt. 19, Rte. 1, Palm Harbor, Fla. 33563
Filed Sept. 10, 1968, Ser. No. 758,907
Int. Cl. F04c *1/00, 17/00*
U.S. Cl. 418—58 6 Claims



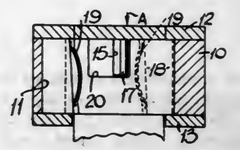
A fluid pump comprises a driven rotor having a cylindrical wall which rotates about a hub structure eccentric therewith, and a plurality of flexible, deformable band-like vanes attached at one end to the rotor and at the other end to the hub form flexing sides of pump chambers which expand and contract when the rotor is driven. A radial end plate at one end of the rotor and a fixed radial port plate adjacent the opposite end of the rotor are sealingly engaged by the side edges of the vanes and form rigid sides of the pump chambers. The ends of adjacent vanes are overlapped and clamped to the hub and rotor to form continuous fluid tight ends for the pump chambers. The portions of the vanes adjacent the hub are supported against destructive flexure by blocks which permit fluid to flow from between the vanes and their supports.

3,544,244
GEAR PUMP
Fritz Haupt, Zurich, Switzerland, assignor to Maag Gear Wheel & Machine Company Limited, Zurich, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,495
Int. Cl. F04c *1/00*; F04d *29/40*; F04b *21/08*
U.S. Cl. 418—178 4 Claims



A gear pump, particularly for pumping gasoline under high pressures, comprises two intermeshed gears on substantially parallel shafts and an annular casing of substantially the same thickness as the gears surrounding the periphery of the gears and held between two casing covers arranged on respective sides of the gears which carry bores for receiving and rotatably supporting the shafts. The casing is made of a metal material with running-in properties and at least the sides of the casing covers which come in contact with the gear wheels have a hard surface. These surfaces are advantageously made by anodizing a light metal alloy such as Anticorodal, for example, and the gears are nitrided at least on the teeth and the lateral surfaces so that they can runin in the casing to operate with a very small running clearance.

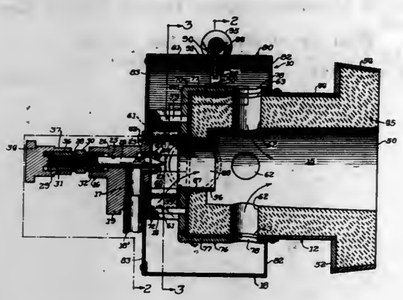
3,544,245
FLUID PUMPS
Dorian Farrar Mowbray, Burnham, England, assignor to C.A.V. Limited, Warply Way, Acton, London, a British company
Filed Oct. 4, 1968, Ser. No. 765,067
Claims priority, application Great Britain, Oct. 9, 1967, 46,091/67
Int. Cl. F04c *1/00, 17/02*; F02b *53/00*
U.S. Cl. 418—258 5 Claims



A fluid pump in which a rotor is located within a pumping chamber and has its axis off-set from the axis of the pumping chamber. A pair of blades is slidable within

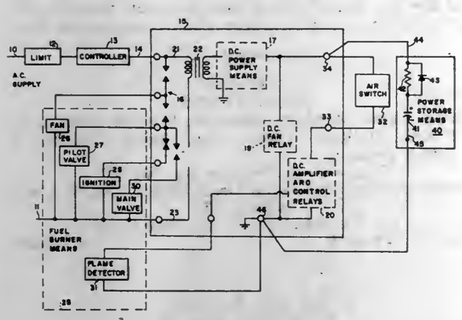
grooves formed in the rotor and each blade is divided into two overlapping parts, with resilient means being provided to urge the ends of the two parts of the blades into engagement with the peripheral surface of the pumping chamber.

3,544,246
INSPIRATOR BURNER
David Meyer, Kankakee, Ill., assignor to Radiant International Incorporated, a corporation of Illinois
Filed Aug. 26, 1968, Ser. No. 755,109
Int. Cl. F23d *15/02*
U.S. Cl. 431—352 6 Claims



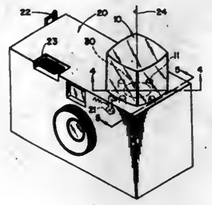
An inspirator burner having means for preventing the inflow of contaminated air into the combustion chamber environment and also having means for coordinately controlling the quantities of primary and secondary airs entering said chamber.

3,544,247
FUEL BURNER POWER FAILURE BRIDGE
James C. Blackett, Rosemount, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Nov. 25, 1968, Ser. No. 778,737
Int. Cl. F23n
U.S. Cl. 431—18 2 Claims



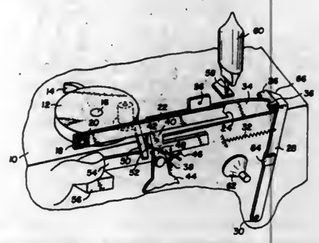
A fuel burner is operatively connected to a burner primary control means and operates in response to the condition of a controller. The burner primary control means is of a type that includes a direct current power supply means to supply all of the necessary operating power for its amplifiers and control relays. Connected to the burner primary control means is a power storage means that obtains direct current power from the direct current power supply means of the burner primary control means and which stores this power over a period of time. In the event of a momentary power loss to the burner primary control means, the power storage means feeds direct current power back to the primary control means keeping it energized for a short interval.

3,544,248
SOCKET FOR MULTILAMP FLASH UNIT
David E. Beach, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Oct. 8, 1968, Ser. No. 765,931
Int. Cl. F21k *5/02*
U.S. Cl. 431—93 17 Claims



A socket construction which provides rigid support for inserted, percussion-firable, multilamp, photoflash units is disclosed in several embodiments. One embodiment provides flexible retaining fingers, a central stabilizing stud and a plurality of upright protective and bearing members which protect the flexible fingers and define open ended slots adapted to receive an inserted flash unit. The slot sides rigidly support against percussion impact, the webs of an inserted flash unit which webs in turn support the ignition tubes of the flash unit, making the percussion firing more reliable. Another embodiment provides members located radially outwardly from the main socket body to provide localized support for the ignition elements of an inserted flash unit. Other modifications and embodiments of this type of socket are disclosed.

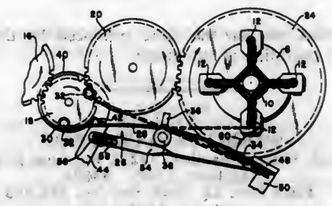
3,544,249
PERCUSSION TYPE FLASH LAMP IGNITER
Chester W. Michatek, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Oct. 14, 1968, Ser. No. 767,141
Int. Cl. F21k *5/02*
U.S. Cl. 431—93 4 Claims



A firing mechanism for a photographic apparatus having a striker element located adjacent to the firing locus of a primer of a percussion-ignitable flash lamp. The striker element is movable to an energized position, and

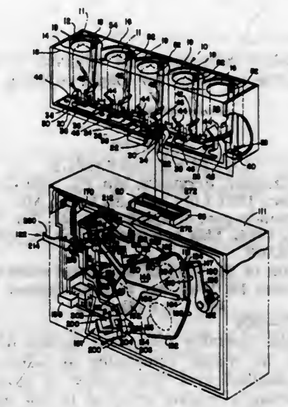
when released is automatically moved successively into percussion impact with the flash lamp primer located at the firing locus and then out of the firing locus to permit facile removal and replacement of flash lamps.

3,544,250
FIRING MECHANISM FOR PERCUSSION-IGNITABLE FLASH LAMPS
David E. Beach, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Oct. 14, 1968, Ser. No. 767,142
Int. Cl. F21k *5/02*
U.S. Cl. 431—93 7 Claims



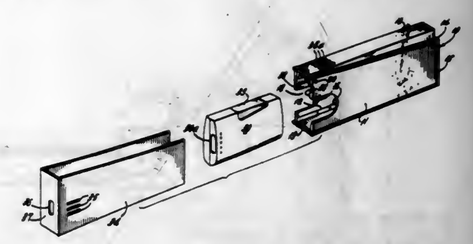
A firing mechanism is provided in a photographic apparatus having a striker element located adjacent the firing locus of a primer of a percussion-ignitable flash lamp. The striker element is movable to an energized position, and when released is urged into percussion impact with a flash lamp primer located at the firing locus for igniting the flash lamp.

3,544,251
APPARATUS FOR SEQUENTIALLY SELECTING PHOTOFLASH LAMPS FOR IGNITION
Edison R. Brandt, Cohasset, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 764,062
Int. Cl. F21k *5/02*
U.S. Cl. 431—95 7 Claims



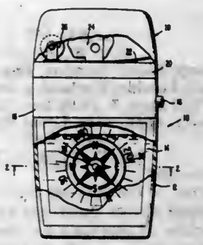
A photoflash lamp assembly supports a plurality of photoflash lamps for sequential ignition and includes means responsive to discharge of one of the lamps for selecting another lamp for subsequent ignition.

3,544,252
COMBINATION POCKET AND TABLE LIGHTER
Erwin C. Quednow, Lomar, Germany, assignor to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey
Filed Jan. 2, 1969, Ser. No. 788,464
Claims priority, application Germany, July 31, 1968, 6,752,742; Aug. 20, 1968, 1,782,355, 1,782,356
Int. Cl. F23q *2/16*
U.S. Cl. 431—253 7 Claims



A cigarette lighter which is adapted to be used as a table lighter or a small lighter which can be carried on one's person. The flame actuating means of the table lighter is separate from the pocket lighter and provides a "snap" action for more reliable flame ignition.

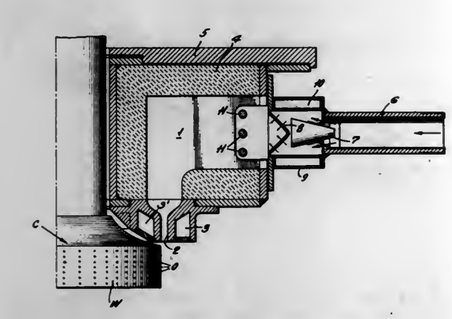
3,544,253
CIGARETTE LIGHTER WITH MAGNETIC COMPASS
Walter L. Bloom, Marietta, and John Sherman Smith, Atlanta, Ga., assignors to Scripto, Inc., Atlanta, Ga.
Filed Mar. 6, 1969, Ser. No. 804,962
Int. Cl. F23d *13/04*
U.S. Cl. 431—253 4 Claims



A magnetic compass disc is located in the transparent and nonmetallic fuel reservoir of a cigarette lighter sufficiently removed from the metallic portions of the lighter to allow the compass to indicate direction accurately. The fuel acts as a lubricant, damping and bouying medium to increase the sensitivity of the compass disc and an indicator mark is provided on the fuel reservoir so that when the

north-pointing part of the disc is aligned with the mark, the influence of the metallic parts of the lighter is further minimized.

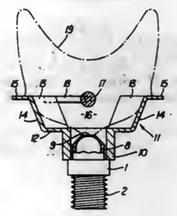
3,544,254
BURNERS FOR PRODUCING GASEOUS MIXTURES IN CENTRIFUGAL FIBER ATTENUATING APPARATUS
Jean Battigelli, Rantigny, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, Hauts-de-Seine, France, a corporation of France
Filed July 3, 1967, Ser. No. 650,896
Claims priority, application France, July 20, 1966, 70,069
Int. Cl. C03b *19/04*
U.S. Cl. 431—350 **11 Claims**



The invention concerns the improvement of internal combustion burners used in conjunction with rotary centrifuges for attenuating the filaments of molten material issuing from the orifices in the peripheral wall of the centrifuge. Such burners have two grids or gratings behind each other at the inlet end of the burner for stabilizing the flame in the burner in this zone. The instant invention seeks to increase the calorific power of the burner without increasing its size by modifying the first grid and the openings therein so that the kinetic energy of the jets issuing therefrom is reduced. Thereby, flame stability may be maintained despite an increase in the quantity in combustible factors which are fed to the burner.

3,544,255
GAS BURNERS
Francis George Roper, London, England, assignor to The Gas Council, London, England, a British body corporate
Filed Sept. 9, 1968, Ser. No. 758,344
Claims priority, application Great Britain, Sept. 29, 1967, 44,517/67
Int. Cl. F23d *13/24*
U.S. Cl. 431—350 **6 Claims**

A gas burner of the neat gas type which is intended for burning natural gas or other gas containing a predominant proportion of methane or other hydrocarbon gas, comprises a nozzle and a bluff body stabiliser which is fixed to the nozzle and extends into the stream of gas which, in use, issues from the nozzle. The bluff body stabiliser is fixed to the burner in a position which is so close to the nozzle orifice that, with gas issuing from the nozzle at a discharge pressure which would be sufficient to cause the flame to lift away from the nozzle in the absence of the stabiliser, the gas impinges on the stabiliser while its flow is still streamlined. The part of the surface of the stabiliser closest to the nozzle is adjusted in position, within the limits set by the requirement that the gas impinges on the stabiliser while its flow is still



streamlined, so that the noise produced by the burner when in operation is minimised.

3,544,256
WEIGHT REDUCING BELT
Jack Vincent Feather, 11293 Kerrigan Drive, Oakland, Calif. 94604
Filed Dec. 22, 1969, Ser. No. 886,880
Int. Cl. A61f *7/00*
U.S. Cl. 128—293 **3 Claims**

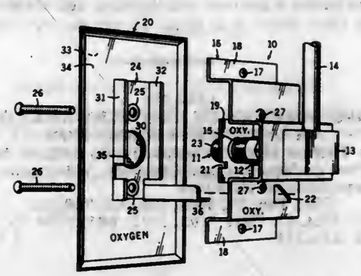


An inflatable waist encircling relatively wide belt to be worn during exercising for weight reducing.

3,544,257
COUPLER ASSEMBLY
Bidwell C. Cranage, Ferguson, Mo. (% Stile-Craft Manufactures Inc., 1801 Lilly Ave., St. Louis, Mo. 63110)
Continuation-in-part of application Ser. No. 556,173, June 8, 1966. This application Feb. 5, 1969, Ser. No. 796,866
The portion of the term of the patent subsequent to June 10, 1986, has been disclaimed
Int. Cl. F16l *5/02*
U.S. Cl. 137—360 **9 Claims**

The coupler assembly includes a station for a designated fluid, the station comprising an adjustable two-part valve attached to a fluid supply. A cover plate is provided having a bracket attached to one side of the cover plate. The cover plate bracket includes a pair of projecting keys located at specific points to correspond with the particular fluid designation of the cover plate. A coacting slot is provided on each part of the valve at

specific points corresponding to the fluid designation of the station slots to permit assembly of the coupler

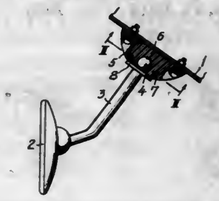


when a condition of matching fluid designation exists between the various parts.

3,544,258
SELF-PROPELLED LIQUID DISPENSER CONTAINING AN ANTIPERSPIRANT ALUMINUM SALT
Fred Presant and Carmelo Carrion, Jr., Bridgeport, Conn., assignors to Aerosol Techniques Incorporated, a corporation of New York
Filed Aug. 19, 1963, Ser. No. 303,185
The portion of the term of the patent subsequent to Sept. 21, 1982, has been disclaimed
Int. Cl. A61k *7/00*; B67d *5/06*
U.S. Cl. 222—192 **12 Claims**

This invention relates to the dispensing, from a pressurized container by means of vaporization of a propellant therein, of a deodorant composition containing an aluminum salt as the active antiperspirant agent.

3,544,259
SUPPORTING APPARATUS FOR A MIRROR
Haruyasu Fujita, Tokyo, Japan, assignor to Kabushiki Kaisha Honda Gijutsu Kenkyusho, Yamato-machi, Kitaadachi-gun, Saitama-ken, Japan
Filed Dec. 18, 1967, Ser. No. 691,451
Claims priority, application Japan, Jan. 20, 1967, 42/5,489
Int. Cl. B60r *1/04*
U.S. Cl. 248—475 **3 Claims**



A support arm for the rear view or side view mirror of a vehicle which has a ball projection removably mounted in a spherical concavity in an elastic member fixed to the body of the vehicle such that the mirror and arm are detached as a unit if struck by a force exceeding a predetermined maximum value.

CHEMICAL

3,544,260
PROCESS FOR DYEING SYNTHETIC LINEAR POLYESTER FIBROUS TEXTILE MATERIAL BLUE SHADES AND THE DYED MATERIAL
Guenter Lange and Hans Guenter Wippel, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Continuation-in-part of application Ser. No. 546,496, May 2, 1966. This application Nov. 14, 1968, Ser. No. 775,959
Claims priority, application Germany, May 8, 1965, 1,544,373
Int. Cl. D06p *1/18*
U.S. Cl. 8—41 **4 Claims**

Process for dyeing synthetic linear polyesters such as polyethylene terephthalate using a specific para-aminoazo dye and giving blue dyeings with outstanding fastness properties.

3,544,261
PROCESS FOR BLEACHING TEXTILES
Shamrao Harischandra Mhatre, Madras, India, assignor to The Buckingham & Carnatic Limited, Madras, India, a public company of India
Filed July 18, 1967, Ser. No. 654,119
Claims priority, application Great Britain, July 22, 1966, 33,044/66
Int. Cl. D06l *3/06*
U.S. Cl. 8—108 **3 Claims**

A process for bleaching textile materials of natural and/or synthetic fibers in the form of yarn, webs, woven and non-woven fabrics, filaments, and the like in which the textile material is impregnated with an aqueous hypochlorite bleaching solution having an active chlorine content of about 0.25–10 grams/liter and a pH of about 7–12. The impregnation is conducted so as to provide on the textile material a concentration of chlorine of about 0.06–1.0% by weight of the textile material. The impregnated textile material is then exposed to an atmosphere of saturated or supersaturated steam at a temperature of about 50–140° C. for a period of about 15–60 seconds. The bleached material is then subjected to washing and drying.

3,544,262
FIBERS OF ACRYLONITRILE-HYDROXY ETHYL METHACRYLATE POLYMER CROSS-LINKED BY PHOSPHORIC ACID
Seth Owens Harris, Rumford, Maine, and Gary Kaufiani Miller, Port Chester, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Jan. 24, 1967, Ser. No. 611,264
Int. Cl. D06m *9/00*
U.S. Cl. 8—115.5 **5 Claims**

An acrylic fiber with good hot-wet properties formed by heat-curing a phosphoric acid cross-linked fiber of a copolymer of at least 70% by weight of acrylonitrile and at least 4.5 mole percent of hydroxy ethyl methacrylate.

3,544,263
METHOD OF REMOVING SULFUR DIOXIDE FROM GASES
Nobutaka Ninomiya and Hirohiko Ichikawa, Kyoto, and Hiroshi Nishino, Nishinomiya, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan
No Drawing. Filed Jan. 12, 1968, Ser. No. 697,321
Claims priority, application Japan, Jan. 13, 1967, 42/2,580
Int. Cl. B01d *53/34*
U.S. Cl. 23—2 **9 Claims**

Sulfur dioxide is removed from SO_2-containing gas by passing the latter through a carbonized intimate mixture

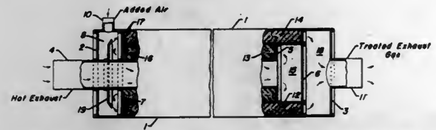
of bituminous coal and inorganic sodium compound or potassium compound (about 5 to about 75 mg. equivalent of K or Na atom per 100 grams of the coal), the said mixture having first been subjected to gasification at elevated temperature up to a gasification yield of from about 20 to about 40 weight percent.

3,544,264

METHOD AND MEANS FOR TWO-STAGE CATALYTIC TREATING OF ENGINE EXHAUST GASES

Leslie C. Hardison, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Sept. 25, 1968, Ser. No. 762,554
Int. Cl. B01d *53/00*; B01j *9/04*
U.S. Cl. 23—2 6 Claims



A two-stage catalytic treatment of engine exhaust gases by passing the hot gas stream without cooling and without added air through a first internally positioned catalyst section to effect reduction of nitrogen oxides and then mixing air with the resulting stream for passage through a second stage catalyst section so as to effect more complete oxidation of CO and unburned hydrocarbons. A preferred apparatus is built to have the second catalyst stage surround the first and assist in maintaining a high temperature first catalytic reduction section.

3,544,265

PROCESS FOR LOWERING THE MAGNETIC REORIENTATION TEMPERATURE OF SAMARIUM ORTHOFERRITE

Ernst M. Gyorgy, Madison, Joseph P. Remeika, Warren Township, Somerset County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Nov. 15, 1967, Ser. No. 683,289
Int. Cl. C22b *59/00*; C01g *49/00, 57/00*
U.S. Cl. 23—21 4 Claims

The magnetic reorientation temperature of samarium orthoferrite, $SmFeO_3$, is reduced to a temperature centering about 85° C. by heating in hydrogen.

3,544,266

FINELY DIVIDED SPINEL

Hayne Palmour III, and Halit Z. Dokuzoguz, Raleigh, N.C., assignors to Research Corporation, New York, N.Y., a nonprofit corporation of New York

No Drawing. Filed Mar. 5, 1968, Ser. No. 710,657
Int. Cl. C01f *7/02*
U.S. Cl. 23—52 3 Claims

Finely-divided magnesium aluminate spinel ($MgAl_2O_4$) is prepared by calcination of the solid compound or mixture obtained on cocrystallization of a stoichiometrically equivalent magnesium-aluminum salt mixture from aqueous solution.

3,544,267

CALCIUM HYPOCHLORITE PRODUCT AND PROCESS FOR PRODUCING SAME

George Roman Dychdala, Norristown, Pa., assignor to Pennwalt Corporation, a corporation of Pennsylvania

No Drawing. Filed Sept. 4, 1968, Ser. No. 757,449
Int. Cl. C01b *11/06*
U.S. Cl. 23—86 4 Claims

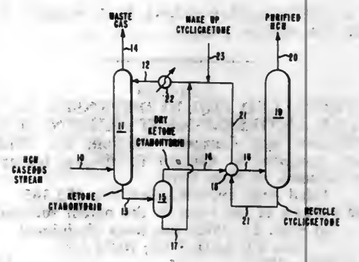
Water is uniformly mixed with substantially dry particulate calcium hypochlorite prone to self-propagating decomposition to provide a free-flowing, essentially dust-free, decomposition-resistant calcium hypochlorite composition having a granular configuration and a water content of from about 4 to about 15 percent by weight.

3,544,268

HYDROGEN CYANIDE RECOVERY BY KETONE CYANOHYDRIN FORMATION

Wayne Thomas Hess, Memphis, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Feb. 29, 1968, Ser. No. 709,414
Int. Cl. C01c *3/02, 1/12*; B01j *1/00*
U.S. Cl. 23—151 4 Claims



Hydrogen cyanide is recovered from a gaseous stream wherein at least ammonia is present as an additional gas by reacting the hydrogen cyanide with a cyclic ketone to form the corresponding cyclic ketone cyanohydrin, which is then thermally decomposed to yield purified hydrogen cyanide and the original cyclic ketone. The cyclic ketone is recycled for further reaction with the hydrogen cyanide in the gaseous stream after it is decanted or dried to remove condensed water, if necessary. The ammonia and other waste gases from the gaseous stream are passed out of the system and the ammonia can be recovered by scrubbing with water.

3,544,269

METHOD FOR PRODUCING DEFLUORINATED PHOSPHORIC ACID

William E. Rushton, South Holland, Ill., assignor to Whiting Corporation, a corporation of Illinois

Filed Feb. 27, 1967, Ser. No. 618,790
Int. Cl. C01b *25/18*
U.S. Cl. 23—165 5 Claims

A method and apparatus for defluorinating wet process phosphoric acid containing undesirable amounts of fluorine wherein water of dilution is contacted with such phosphoric acid in a vessel maintained under vacuum and at a temperature sufficient to keep the water of dilution in a vapor state.

3,544,270

AQUEOUS HYDROXYLAMINE SOLUTIONS STABILIZED WITH HYDROXYUREA OR HYDROXYTHIOUREA DERIVATIVES

Donald D. Carlos, Crown Point, Ind., assignor to Sinclair Oil Corporation, a corporation of New York

No Drawing. Filed Aug. 13, 1968, Ser. No. 752,138
Int. Cl. C01c *1/00*; C09k *3/00*
U.S. Cl. 23—190 6 Claims

Hydroxylamine in aqueous solution is stabilized with respect to oxidation deterioration by an hydroxyurea or hydroxythiourea derivative present in a small amount, often about 0.01 to 1 weight percent based upon the aqueous solution.

3,544,271

PHENOL DETECTION PROCESS

Robert J. Nadalin, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 14, 1968, Ser. No. 729,114
Int. Cl. G01n *31/22, 33/18*
U.S. Cl. 23—230 10 Claims



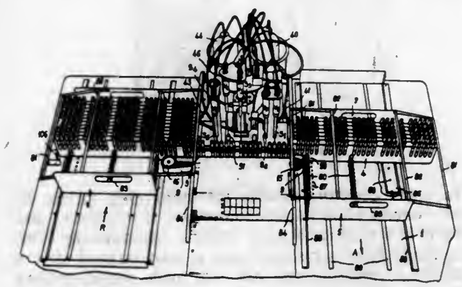
A process for detecting the presence of a phenolic compound in water comprising the steps: admixing a sample of water suspected of containing a phenol with chloroform or other good solvent for the phenol to extract phenol from the water, separating the chloroform solution containing the phenol from the water, and admixing the chloroform-phenol solution with a reagent solution composed of an oxidizing agent reactive with phenolic hydroxy groups in concentrated sulfuric acid to produce a coloration in the solution when a phenol is present.

3,544,272

MACHINES FOR MAKING LABORATORY ANALYSES

Laurent M. Vallis, Perpignan, France, assignor to Ministere de l'Agriculture-Service Veterinaire, Paris, France

Filed Jan. 2, 1968, Ser. No. 695,000
Claims priority, application France, Jan. 12, 1967, 90,860
Int. Cl. G01n *1/00*
U.S. Cl. 23—253 7 Claims



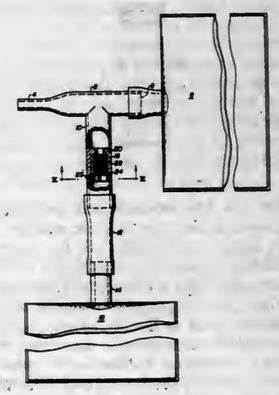
A machine for performing laboratory analyses involving fluids to be mixed in test tubes, characterised in that it comprises syringes for delivering said fluids, said syringes having a pneumatically-operated piston, the test tubes being disposed on supports responsive to step-by-step driving means, the length of each feed step corresponding to the relative spacing between adjacent test tubes, so that the test tubes are caused to move and stop under said syringes, the pneumatic syringe actuating means being timed with said step-by-step drive. At least two syringes have a common pivot, permitting one syringe to change fluid in a test tube while the other co-acts with its test tube and a rinsing vessel.

3,544,273

APPARATUS FOR SAMPLING AND ANALYZING BREATH

Paul W. McConnaughey, Pittsburgh, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 4, 1968, Ser. No. 773,153
Int. Cl. A61b *5/00*; G01n *31/22, 33/16*
U.S. Cl. 23—254 8 Claims



An apparatus for receiving the breath of a subject has an open passage to a first inflatable, non-elastic bag, and a second passage with a one-way valve opening at a predetermined pressure opening into a second inflatable, non-elastic bag. When breathing into the apparatus, the first bag is filled with the first portion of the exhalation and the second bag is filled with alveolar air to be analyzed. The sample is analyzed by contacting it with a colorimetric chemical reagent.

3,544,274

HALOGEN PRODUCTION

Christiaan P. van Dijk, Westfield, and Frank H. Siebentritt, Lebanon, N.J., assignors to Pullman Incorporated, Chicago, Ill., a corporation of Delaware

Filed Dec. 3, 1968, Ser. No. 780,682
Int. Cl. C01b *7/04*
U.S. Cl. 23—219 20 Claims

In a process where hydrogen halide is oxidized with oxygen in the presence of an oxygen-containing compound of nitrogen as a catalyst, the gaseous oxidizer effluent is passed to a sulfuric acid absorption zone, to dry said

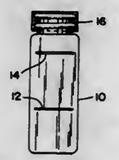
effluent and the gaseous effluent from the absorption zone is introduced into a distillation zone wherein halogen is separated in a gaseous overhead mixture from a liquid effluent containing a nitrogen oxide halide and halogen, the improvement wherein the liquid effluent is passed as a coolant to the oxidizer and/or the absorber to control the exothermic heat of reaction, to convert the nitrogen oxide halide to halogen and to utilize the exothermic heat of reaction to provide reboiling in the distillation zone. A further aspect of the invention comprises operating the oxidation zone in a plurality of stages with intermittent cooling by means of the liquid effluent or another suitable coolant at temperatures which decrease in each successive stage of the oxidation zone.

3,544,275

METHOD FOR DETERMINING THE PRESENCE OF ETHYLENE GLYCOL IN LUBRICATING OIL

Robert E. Habermas, Livonia, and Thomas M. Morasky, Detroit, Mich., assignors to The Detroit Edison Company, Detroit, Mich., a corporation of New York

Filed June 26, 1967, Ser. No. 648,661
Int. Cl. G01n 31/08, 33/28
U.S. Cl. 23—230 8 Claims



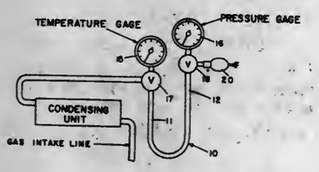
Method for use by non-technical personnel in determining the presence and approximate amount of ethylene glycol in oil, such as lubricating oil for water-cooled internal combustion engines, characterized by the use of a chromograph comprising a transparent indicator tube having a granular chromatographic material therein treated with an indicator such as Schiff reagent, a simple graduated mixing vial for receiving a measured amount of a second reagent containing sodium metal periodate, and a sample of oil, in which the mixture of oil and second reagent is allowed to separate by gravity and the second reagent after separation is introduced into an open end of the indicator tube.

3,544,276

REFRIGERANT SAMPLING AND TESTING DEVICE

William Edward Merwitz, Sr., 6300 Park Heights Ave., Baltimore, Md. 21215

Filed May 24, 1967, Ser. No. 641,030
Int. Cl. G01m 7/00, 31/22
U.S. Cl. 23—253 4 Claims



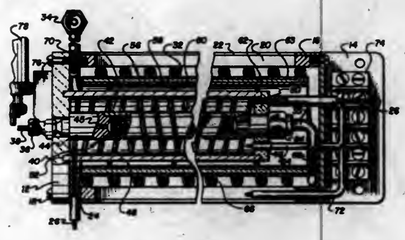
A refrigerant sampling and testing device having a U-shaped reception chamber with an inlet provided with a valve in one leg of the U, a temperature gage in the inlet leg, a vent with valve in the other leg of the U and a pressure gage in the vent leg, the vent further provided with a device for detecting contaminants in the refrigerant.

3,544,277

DUAL HEAT ZONE PYROLYTIC FURNACE

Ihor Lysyj, Canoga Park, Lawrence H. Groeper, Woodland Hills, and Kurt H. Nelson, Thousand Oaks, Calif., assignors to North American Rockwell Corporation

Filed Sept. 16, 1968, Ser. No. 759,969
Int. Cl. B01j 9/04
U.S. Cl. 23—253 8 Claims



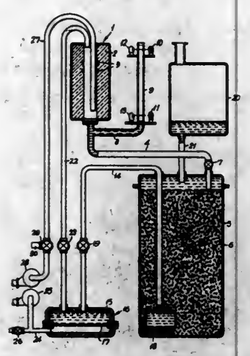
A pyrolytic furnace of concentric design for a sewage water or other organic-containing sample analyzer wherein the pyrolysis chamber, heating element and flow stabilization column or the tube are concentrically contained in one unit having variable heat zones for the chamber and the column.

3,544,278

APPARATUS FOR DETECTING GASES

George Edward Bowman, Clophill, and George Stewart Weaving, Shefford, England, assignors to National Research Development Corporation, London, England, a British corporation

Filed Mar. 26, 1968, Ser. No. 716,179
Claims priority, application Great Britain, Mar. 28, 1967, 14,109/67
Int. Cl. B01d 15/04; G01n 27/06
U.S. Cl. 23—254 2 Claims



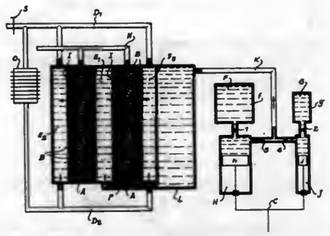
In a gas detector, suitable for monitoring carbon dioxide concentration in glasshouses, gas is introduced into a liquid in a conductivity cell which is intermittently filled with liquid from a reservoir and is then emptied after a conductivity measurement has been made, liquid emptied from the cell passing through a deionising bed before being returned to the reservoir. The detector may be operated cyclically using an automatic control system responsive to filling and emptying of the cell.

3,544,279

APPARATUS FOR THE PRODUCTION OF GAS FOR GALVANIC FUEL CELLS

August Winsel, Kelkheim, Taunus, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 9, 1967, Ser. No. 673,564
Claims priority, application Germany, Oct. 8, 1966, V 32,086
Int. Cl. B01j 9/04, 7/02
U.S. Cl. 23—288 2 Claims



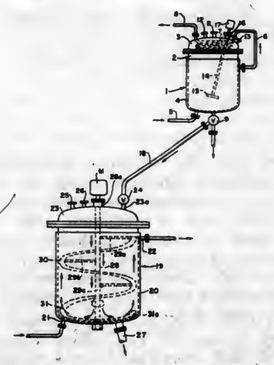
A porous gas generating device and process in which gas and waste material are produced by contacting a liquid raw material with a catalyst is provided with various means for providing a pressure differential between the source of raw material and the place of egress for the waste material, and including a waste disposal overflow pipeline; a valved gas line to allow some of the gas produced to be used to pressurize the supply of raw material; and a valved waste material disposal line having a pneumatic valve activated by the pressure of a portion of the gas produced.

3,544,280

APPARATUS FOR THE PREPARATION IN MASS OF VINYL CHLORIDE POLYMERS

Jean Claude Thomas, Lyon, Rhone, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Paris, France

Continuation-in-part of application Ser. No. 347,147, Feb. 25, 1964. Division of application Ser. No. 414,697, Nov. 30, 1964. This application May 3, 1968, Ser. No. 726,335
Claims priority, application France, Apr. 30, 1964, 972,927
Int. Cl. B01j 3/00
U.S. Cl. 23—290 6 Claims



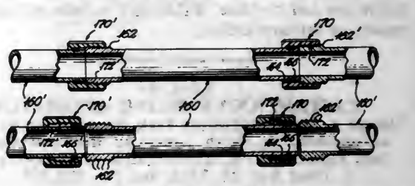
An apparatus for polymerizing vinyl chloride and the like is provided with parts providing (a) efficient, smooth circulation of the mass in (b) intimate uniform contact with the temperature-controlled walls of the autoclave, (c) thereby promoting by walls which are automatically maintained clean and free of accretions and encrustations; and (d) maintaining the individual grains essentially separated and discrete so that all are subjected to the same rate of circulation and heat exchange. The apparatus is of autoclave type suitable for polymerizations in mass.

3,544,281

LABORATORY EQUIPMENT INCLUDING NOVEL CONNECTOR MEANS FOR TUBULAR GLASS MEMBERS

Edwin D. Phillips, 170 Albert St., North Plainfield, N.J. 07060

Filed Dec. 14, 1967, Ser. No. 690,601
Int. Cl. B01l 11/00; F16l 9/06, 9/10
U.S. Cl. 23—292 22 Claims



Laboratory equipment including a tubular glass portion having machine threads thereon. Novel connector means for connecting the glass portion to another portion of laboratory equipment includes a coupling member having a portion for receiving and holding such other portion of the laboratory equipment and also having threads thereon for engagement with the machine threads on the glass tubular portion to rigidly connect the portions of laboratory equipment to one another and to permit ready release of one of the portions without disturbing the position of the adjacent portions when desired.

3,544,282

SIMPLIFIED PRETREATMENT FOR COARSE FLOTATION

Richard Burr, Saint-Louis, Michel Mames, Ensisheim, and Robert Berthon, Wittelsheim, France, assignor of fifty percent each to Mines de Potasse d'Alsace, Mulhouse, France, and Gesellschaft fur Kali-Interessen m.b.H., Kassel, Germany

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,493
Claims priority, application France, Dec. 6, 1966, 86,234
Int. Cl. B02c 19/12; B03b 7/00; C01d 3/08
U.S. Cl. 23—312 10 Claims

The coarse flotation of sylvinite wherein comminuted flotation-size sylvinite is first deslimed in brine; the resultant suspension liberated slimes is passed over a sieve bend unit to separate smaller particles of ore and also clay; the overside from the sieve bend unit is then passed onto a vibrating screen; and the oversive from the vibrating screen is subjected to coarse flotation.

3,544,283

AMINE AND HYDRAZINE COMPLEXES OF MOLYBDENUM CHROMIUM AND TUNGSTEN CARBONYLS

Henry Drummond Murdoch, Surrey, England, and Fausto Calderazzo, Pescia, Italy, assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

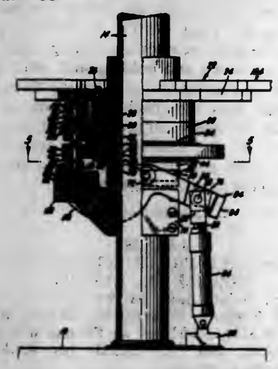
No Drawing. Filed May 2, 1967, Ser. No. 635,344
Int. Cl. C01c 1/00; C07d 107/00
U.S. Cl. 23—359 15 Claims

Amine complexes of carbonyl compounds of chromium, molybdenum and tungsten are prepared by reacting certain classes of amines with compounds having halopentacarbonyl anions of the formula:

$$[M(CO)_5X]^-$$

wherein M is chromium, molybdenum or tungsten, and X is chlorine, bromine and iodine. The process can be effected in organic solvents, water, or where the amine is a liquid, in an excess of reacting amine. Depending on the particular halogen, reaction solvent, and nature of the amine, pentacarbonyl mono-amine complexes or tetracarbonyl diamine complexes are produced. In the case of certain chelating diamines a tricarbonyl complex also results. Many of the products have been produced by other processes, but complexes with hydrazines and substituted hydrazines are new compounds and are, therefore, included as new products. The present invention includes ammonia, primary amines, ethylene diamines, and certain cyclic secondary and tertiary amines, such as piperazine and pyridine. It does not include ordinary secondary or tertiary amines.

3,544,284
CASTING AND FORGING APPARATUS
Vincent A. Iannucci, Lincoln Park, Pa., assignor, by mesne assignments, to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Apr. 26, 1968, Ser. No. 724,367
Int. Cl. B23p 23/04
U.S. Cl. 29—33 12 Claims

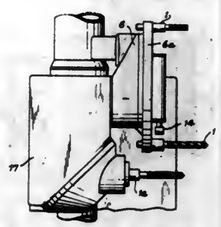


A machine for simultaneously casting one or more metal work pieces at a first station, forging said previously cast pieces at a second station, trimming and releasing previously forged pieces for collection at a third station and ejecting the scrap trim of previously trimmed pieces at a fourth station, the machine including an indexable and vertically movable turntable having means to convey the work pieces through the several operations by integrally cast portions thereof. Following each set of operations the turntable is elevated from a locked stationary position to release the lock and lift the newly cast work piece from the casting die and to similarly lift the work pieces at the forging and trimming stations, and the turntable is then indexed while in its elevated position.

3,544,285
OXIDATION-RESISTANT COATINGS
Robert Leslie Graham, Sutton Coldfield, and Peter Harlow Morton, Solihull, England, assignors to Imperial Metal Industries (Kynoch) Limited, Birmingham, England, a corporation of Great Britain
No Drawing. Filed Nov. 8, 1967, Ser. No. 681,586
Claims priority, application Great Britain, Nov. 16, 1966, 51,412/66
Int. Cl. B32f 15/04
U.S. Cl. 29—195 4 Claims

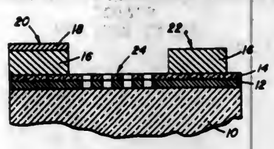
An oxidation-resistant coating for articles of refractory metals and alloys comprising an underlayer rich in iridium, and a top layer of glaze.

3,544,286
TOOL CHANGER FOR MACHINE TOOLS
Otto Oeckl, Munich, and Richard Purschke, Hoppach, Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Munich, Germany
Filed Apr. 8, 1968, Ser. No. 719,598
Claims priority, application Germany, Apr. 7, 1967, M 73,501; Nov. 14, 1967, M 76,213
Int. Cl. B23q 3/157
U.S. Cl. 29—568 7 Claims



The headstock of a machine tool carries two spindles alternately turnable from a tool working to a tool change position. Tools are stored on the periphery of a circular tool magazine. Each tool is mechanically removed from a spindle in the tool change position and put into the magazine, and vice versa.

3,544,287
HEAT TREATMENT OF MULTILAYERED THIN FILM STRUCTURES EMPLOYING OXIDE PARTING LAYERS
Donald Jex Sharp, Princeton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Apr. 13, 1967, Ser. No. 630,688
Int. Cl. H01c 7/00, 17/00
U.S. Cl. 29—620 5 Claims

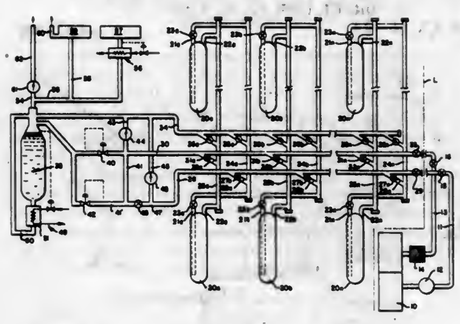


Multilayer thin film structures have heretofore been produced employing tantalum nitride for resistor components, metallic tantalum from which capacitors can be produced, with layers of aluminum, gold, etc., forming conductive leads. A preferred method of manufacture involves successive deposition on a substrate of Ta_2N, Ta_2O_5, Ta and Al or Au, followed by selective etching to form discrete components, the Ta_2O_5 layer serving as a parting or etch stop layer. Electrical connection of the Ta_2N to the Ta layer through the Ta_2O_5 layer occurs because of penetration by high energy tantalum atoms during sputtering, but the connection is noisy and has substantial resistance. This problem has now been eliminated by a diffusion heat treatment after etching, which not only produces a low-noise, low-resistance connection, but also improves capacitor quality, improves overlay adhesion and allows for changes of resistance and temperature coefficient of resistor components.

3,544,288
LIQUID HYDROCARBON FUELS CONTAINING METAL FLUOROCARBYL PHOSPHATES
Anthony J. Revukas, Cranford, N.J., assignor to Cities Service Oil Company, Bartlesville, Okla., a corporation of Delaware
No Drawing. Original application July 18, 1966, Ser. No. 565,756, now Patent No. 3,478,088, dated Nov. 11, 1969. Divided and this application June 24, 1969, Ser. No. 840,126
Int. Cl. C10l 1/22, 1/26
U.S. Cl. 44—68 15 Claims

Liquid hydrocarbon fuel compositions containing additives comprising metal fluorocarbyl phosphates and their amine adducts. The preferred hydrocarbon fuel is gasoline.

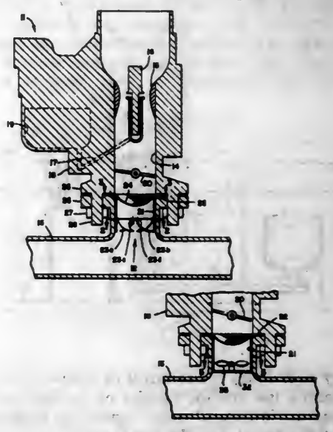
3,544,289
FLUID CONTROL SYSTEM FOR LIQUID STORAGE APPARATUS
Norton H. Berlin, Matawan, N.J., assignor to Vehoc Corporation, a corporation of Delaware
Filed Aug. 21, 1967, Ser. No. 662,126
Int. Cl. F17b 1/00, 1/14
U.S. Cl. 48—174 18 Claims



A safety system for controlling liquid expansion and vapor evolution in vessels completely filled with a liquid at or near the boiling point, the vessels being open through relief means to a fluid control drum sized to contain the maximum volume of liquid expansion produced in the vessels from normal heat leak plus its own safe amount of ullage and from which excess vapor is disposed of by venting or consumption.

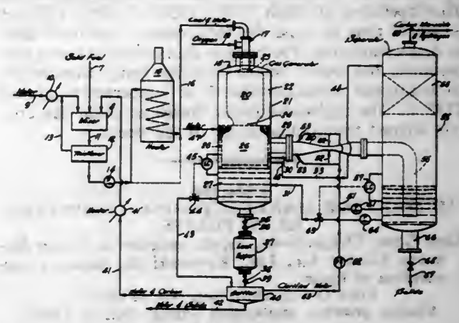
3,544,290
FUEL ATOMIZING UNIT
Raymond C. Larson, Sr., 2944 Rustic Drive, San Jose, Calif. 95124, and Charles A. Morrone, 1180 Alice Drive, Santa Clara, Calif. 95050
Filed Oct. 21, 1965, Ser. No. 499,641
Int. Cl. B01f 3/22; F02m 29/02, 29/04
U.S. Cl. 48—180 3 Claims

A fuel atomizing unit arranged for insertion in the duct connecting a carburetor to the intake manifold of an internal combustion engine including a strainer for the fuel-air mixture and a vibratory structure in the form of a vane resonator or propellor resonator located in the path of the fuel-air mixture so as to automatically vibrate and



generate sonic vibrations in response to the flow of the fuel-air mixture through the duct.

3,544,291
COAL GASIFICATION PROCESS
Warren G. Schlinger, Pasadena, and William L. Slater, La Habra, Calif., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 22, 1968, Ser. No. 722,922
Int. Cl. C10j 3/16
U.S. Cl. 48—206 5 Claims

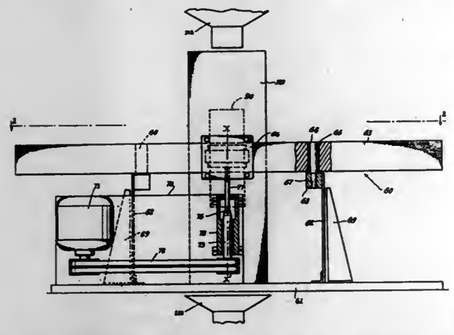


A process for gasification of solid fuel by partial oxidation to produce carbon monoxide and hydrogen in a flow type suspension gasification reaction system in which pulverized solid fuel, such as coal or petroleum coke, is supplied to the reactor as a slurry with water and reacted with oxygen at an autogeneous temperature above about 1800° F.

3,544,292
GRANULAR CLEANER
Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406
Continuation-in-part of application Ser. No. 423,559, Jan. 5, 1965. This application Jan. 19, 1968, Ser. No. 699,198
Int. Cl. B24b 19/00, 31/00
U.S. Cl. 51—7 2 Claims

This invention relates generally to methods and apparatus for cleaning metal parts and the like of foreign

material such as hard crusts or scale, or adhesive coatings of any kind, including remaining fragments or surface coatings of adhering hard material, or in certain



foundry techniques the removal of whole cores, and also for cleaning the interior cavities of castings of the metal filaments or "whiskers" often caused by reason of intrusions of the metal into the sand core.

3,544,293

PRODUCTION OF ALPHA-CRISTOBALITE FIBERS

Eugene F. Riebling, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

No Drawing. Filed Apr. 26, 1968, Ser. No. 724,606
Int. Cl. C03b *37/00*; C01b *33/12*
U.S. Cl. 65—2 **5 Claims**

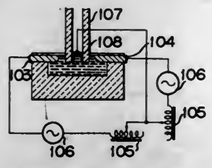
This invention relates to the manufacture of alpha-cristobalite fibers wherein fused silica bodies are placed in a bath of molten lithium and/or sodium-containing glass operating at about 1300°–1600° C. for a sufficient length of time to cause the conversion of the fused silica to beta-cristobalite. The body is then cooled to room temperature, the cubic beta-cristobalite being transformed to tetragonal alpha-cristobalite at temperatures around 218° C. The alpha-cristobalite forms as prism-like crystals aligned toward the center of the body.

3,544,294

METHOD FOR MANUFACTURING LAMINATED GLASS PLATES

Eizo Goto, Chigasaki-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan

Filed Oct. 5, 1967, Ser. No. 673,030
Claims priority, application Japan, Oct. 8, 1966, 41/66,218
Int. Cl. C03c *27/12*; B32b *17/00*
U.S. Cl. 65—40 **2 Claims**



A method of manufacturing laminated glass plates wherein glass plates are placed parallel to each other leaving a space between them. A metal spacer is inserted between the glass plates along their circumferential edges. The circumferential edges are then immersed in a molten glass bath having a viscosity sufficient to allow the molten glass to fill in the spaces between the glass plates and the spacer, to thus act as a bonding agent. An electric current is passed between the meter spacer and electrodes immersed in the molten glass bath. Then the immersed circumferential edges are withdrawn from the bath.

3,544,295

PROCESS FOR INHIBITING NITRIFICATION OF AMMONIA NITROGEN IN SOILS AND SOIL-TREATING MATERIALS THEREFOR

Koichi Nakamigawa and Reijiro Takaoka, Yokohama, and Katsura Koyama, Tokyo, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,337
Int. Cl. A01n *7/00*
U.S. Cl. 71—1 **8 Claims**

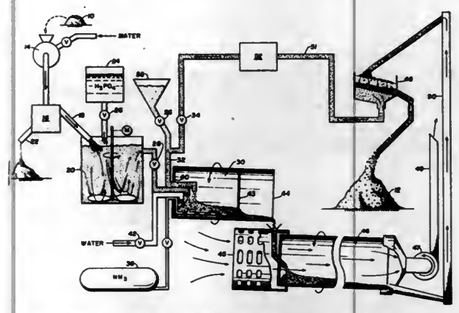
A process for inhibiting the nitrification of ammonia nitrogen in growth media for plants by applying to said media 1-amidino-2-thiourea or salts thereof or mixtures thereof; and soil-treating materials containing 1-amidino-2-thiourea.

3,544,296

METHOD OF FORMING A SOLID PLANT NUTRIENT FROM LEONARDITE HUMATE BEARING ORE

John C. Karcher, Dallas, Tex., assignor to Concho Petroleum Company, Dallas, Tex., a corporation of Delaware

Filed Oct. 20, 1967, Ser. No. 676,930
Int. Cl. C05f *11/02*; C05c *7/02*
U.S. Cl. 71—24 **4 Claims**



The method of forming a solid nutrient from leonardite ore wherein the ore is wet ground into a slurry that is treated with phosphoric acid to convert the humates therein to humic acids. The slurry is then tumbled in the presence of ammonia to form ammonium humates in such manner as particularly to utilize in a one stage operation the ammonium humates as the binder material in the formation of granules. Such granules are then dried and screened to size and have a pH between 7–9. A portion of the dried granules are recycled to provide an absorbent for the slurry feed.

3,544,297

ANTICAKING TREATMENT OF UREA BY POLYMERIZED RESINS

James Passmore, Long Beach, Calif., assignor to Petrochemicals Company, Inc., Fort Worth, Tex.

No Drawing. Filed May 26, 1967, Ser. No. 641,490
Int. Cl. C05c *9/00*
U.S. Cl. 71—28 **4 Claims**

A method of reducing the tendency of nitrogen containing compounds of the type used as fertilizers, such as urea, to form into hard agglomerates or a cake during storage, by mixing with a polymerized resin such as polyethylene, polyvinyl chloride and polyacrylonitrile.

3,544,298

LOW MAGNESIUM AMMONIUM POLYPHOSPHATE SOLUTIONS

Charles B. R. Fitz-William, Jr., Richmond, and James E. Sansing, Jr., Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Sept. 22, 1967, Ser. No. 669,724
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **2 Claims**

An ammonium polyphosphate fertilizer solution having a relatively low amount of magnesium which is prepared by mixing aqueous ammonia with superphosphoric acid in a reaction zone to give an N/P_2O_5 ratio within the range of 0.37–0.45. During the mixing, the temperature of the reaction mixture is maintained at least above 70° C. The mixture is then cooled to 45–65° C. and maintained in that temperature range until at least 5% solids have precipitated. The precipitated solids are separated and the N/P_2O_5 ratio of the reaction solution is adjusted to within the range of 0.27–0.35 by vaporization of ammonia and/or addition of phosphoric acid.

3,544,299

PRODUCTION OF AMMONIUM POLYPHOSPHATE SOLUTIONS AND DIAMMONIUM PHOSPHATE

Charles B. R. Fitz-William, Jr., Richmond, and James E. Sansing, Jr., Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Sept. 27, 1967, Ser. No. 671,120
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **10 Claims**

A process for coproducing ammonium polyphosphate fertilizer solution and diammonium phosphate by reacting 25–45% aqueous ammonia with superphosphoric acid containing 70–85% by weight P_2O_5 at a temperature within the range of 20–65° C. During the reaction period period of 0.5–6 hours, the pH is maintained in the range of 8.5–9.0 and the reacting mixture is continuously agitated to precipitate out diammonium phosphate. After the diammonium phosphate is separated from the ammonium polyphosphate solution that is formed, superphosphoric acid is added to the solution so as to adjust the pH to 5.7–6.4 and thus stabilize the solution.

3,544,300

METHOD OF INCREASING AVAILABLE PHOSPHATE CONTENT OF PHOSPHATE ORE

Calvin Seiso Kobayashi, Nyack, N.Y., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 8, 1967, Ser. No. 636,679
Int. Cl. C05b *11/14*
U.S. Cl. 71—38 **7 Claims**

The available phosphate content of phosphate ores can be increased by reacting substantially anhydrous phosphate ores with sulfur trioxide in a substantially anhydrous environment at temperatures as low as ambient. A dry free-flowing material having sufficient available phosphate for use as a fertilizer is provided.

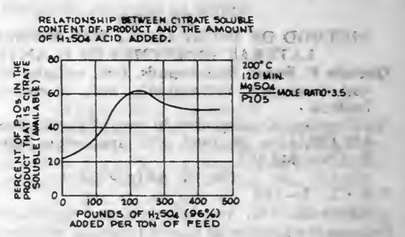
3,544,301

PROCESS FOR CONVERTING PHOSPHATE ROCK TO FERTILIZER

Edward F. Fitzhugh, Jr., Cleveland Heights, and Don C. Seidel, Golden, Colo., assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Oct. 5, 1967, Ser. No. 673,219
Int. Cl. C05b *11/06*
U.S. Cl. 71—39 **20 Claims**

This invention comprises an improved process for converting calcium phosphate rock to a fertilizer having a substantial proportion of citrate soluble phosphate therein, the process of this invention being improved over prior art processes by virtue of the very small amount of acid, preferably sulfuric acid, that is used for this conversion and by utilizing magnesium sulfate as the principal reagent for converting the phosphate to a form which has greater utility as a fertilizer. The improved process of this invention is made possible by the discovery that a temperature of at least 170° C., preferably 180–210° C.,



effects the $MgSO_4$ exchange reaction which results in the conversion desired for fertilizing purposes. Although the citrate soluble percentage effected by this process is lower than that obtained in the production of normal superphosphate, this has distinct advantages as pointed out hereinafter, and also has the tremendous economic advantage of a much higher efficiency in the use of acid to produce phosphate of fertilizing quality.

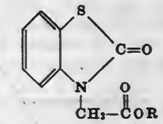
3,544,302

PHYTOTOXIC COMPOSITIONS AND METHODS

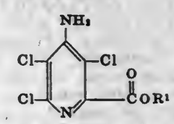
Philip C. Hamm, Glendale, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Sept. 15, 1967, Ser. No. 668,216
Int. Cl. A01n *9/12*
U.S. Cl. 71—90 **16 Claims**

Compositions comprising a benzothiazoline of the formula



and a picolinate of the formula



wherein R and R^1 are each selected from the group consisting of hydrogen, alkyl of not more than 12 carbon atoms and a salt-forming cation, said benzothiazoline being present in an amount from about 0.01 part to about 10 parts by weight per one part of picolinate. The compositions exhibit unexpected phytotoxic activity.

3,544,303

AROMATIC CARBOXIMIDES AS HERBICIDES

Ronald Swidler, Pasadena, and Charles A. Beasley, South Pasadena, Calif., assignors to Stanford Research Institute, Menlo Park, Calif., a corporation of California

No Drawing. Filed Apr. 3, 1968, Ser. No. 718,370
Int. Cl. A01n *9/22, 9/36*
U.S. Cl. 71—94 **7 Claims**

Novel aromatic carboximides and compositions containing these compounds are disclosed. Aromatic carboximides which are reducible between about —0.1 to —0.9 volt and which contain cationic, anionic, or nonionic water

solubilizing groups substituted via alkyl, aryl aralkyl moieties onto the imidic nitrogen exhibit phytotoxic activity. Nucleophilic or electron donating groups such as β-naphthyl, dimethoxyphenyl, naphthylamine or acridine when substituted on the imidic nitrogen directly or through an alkyl chain, result in brilliantly colored crystals exhibiting piezochromic properties.

3,544,304
METHOD OF INCREASING THE NUMBER OF LATERAL BRANCHES IN PLANTS

Quentin F. Soper, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Continuation-in-part of application Ser. No. 647,199, June 19, 1967. This application July 9, 1969, Ser. No. 840,492
Int. Cl. A01n *9/24*
U.S. Cl. 71—107 4 Claims

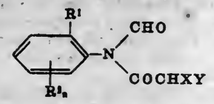
Atrolactic acid, mandelic acid and derivatives thereof increase the number of lateral branches in plants.

3,544,305
HERBICIDAL N-FORMYL α-HALOACETANILIDES

John F. Olin, St. Louis County, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Mar. 2, 1964, Ser. No. 348,862. Divided and this application Jan. 27, 1967, Ser. No. 624,110
Int. Cl. A01n *9/20*
U.S. Cl. 71—118 18 Claims

Phytotoxicants containing a compound of the formula



wherein R^1 is alkyl, R^2 is selected from the class consisting of halogen, alkyl and alkoxy, n is an integer from 0 to 4, X is selected from the class consisting of chlorine, bromine and iodine, and Y is selected from the class consisting of the hydrogen atom and halogen atoms.

3,544,306
CONCENTRATION OF COPPER FROM COPPER ORES, CONCENTRATES AND SOLUTIONS

Patrick J. McGauley, 7 Plymouth Road, Port Washington, N.Y. 11050

No Drawing. Continuation of application Ser. No. 607,335, Nov. 2, 1966, which is a continuation of application Ser. No. 304,438, Aug. 26, 1963. This application Jan. 21, 1969, Ser. No. 792,760
Int. Cl. C22b *15/08, 15/12*
U.S. Cl. 75—72 9 Claims

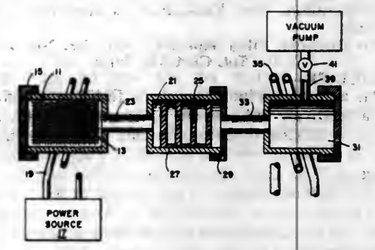
Copper is recovered from copper ore containing a mixture of oxidized copper minerals and copper sulfide minerals by leaching the ore with sulfuric acid, precipitating the copper by addition of acid soluble iron sulfide plus iron and separating the copper therefrom by froth flotation.

3,544,307
PURIFICATION OF POLONIUM

Carl J. Kershner and Robert E. Ellis, Centerville, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 30, 1968, Ser. No. 772,073
Int. Cl. C22b *5/16*
U.S. Cl. 75—84.1 4 Claims

The purification and removal of oxygen from association with polonium comprising heating material to vaporize polonium and separate oxygen from its oxide, removing oxygen from the vapor by passing the vapor



h.ough or over tantalum powder, and thereafter collecting the purified polonium.

3,544,308
METHOD OF PRODUCING ASBESTOS-FELT BODIES HAVING ELASTIC PROPERTIES

Franz Josef Rohr, Ober-Absteinach, Germany, assignor to Brown, Boveri & Cie A.G., Mannheim-Kafertal, Germany, a corporation of Germany

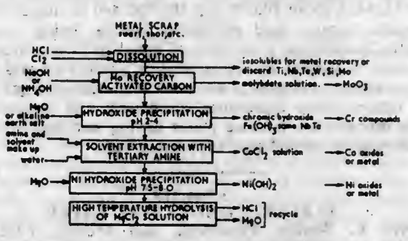
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,330
Int. Cl. B22f *3/14*
U.S. Cl. 75—206 7 Claims

A method is described for producing formed asbestos-felt bodies or elements having elasticity and other desirable properties. The asbestos raw material is saturated with a metallic salt solution and then dried. The metal salt dissociates during heating of the material in a controlled atmosphere which is reducing or inert. To further improve the mechanical properties of the asbestos-felt body or elements, the material thereof is pulverized and compressed to form it into a desired molded shape by sintering. A further feature of the invention includes carrying out the heating step in a reducing or inert atmosphere, in such manner that the metal salt is reduced to the corresponding metal. According to still another feature, the felt-asbestos material is subjected to compression so as to form it into sealing rings having sealing properties for joints, and discs having filtering properties. Depending upon the selected metallic salt employed, it is also possible to have the resulting formed body endowed with catalytic properties. According to the process, the asbestos material is impregnated with a solution of the selected metallic salt. The salt precipitates on the surface of the particles of asbestos-felt material. Subsequent sintering, when added as a step, causes the particles of the material to become welded together at their mutual points of contacts. The density as well as the porosity of the product can be controlled by varying the pressure and temperature of the sintering step. At a sufficiently high degree of compression, the individual particles of the asbestos-felt material becomes closely welded together so that the resulting formed body or element is rendered gas-impermeable. Examples of salts which may be employed in the process are: magnesium nitrate (which dissociates to become magnesium oxide) and silver nitrate (which dissociates to form silver oxide and subsequently metallic silver). Other examples are gold or platinum metallic salts, which dissociate to form the metals of the respective salts. Compression of the material in a hollow cylindrical piston produces shaped discrete ring bodies which are endowed with gas-tight sealing properties when made dense; or with partial filtering properties when made as porous discs.

3,544,309
RECOVERY OF CONSTITUENTS FROM METAL ALLOY SCRAP

Archibald William Fletcher, Eric Raymond Baggott, and Raymond Derry, Stevenage, England, assignors to Brandhurst Company Limited, London, England, and Charter Consolidated Limited, London, England, a British company

Filed Nov. 6, 1967, Ser. No. 680,743
Claims priority, application Great Britain, Nov. 14, 1966, 50,975/66
Int. Cl. C22b *23/00*; C01g *1/06, 37/02*
U.S. Cl. 75—108 5 Claims



The constituents of nickel alloy scrap (particularly of Nimonic alloys) are recovered by dissolving the scrap in HCl and/or chlorine gas in aqueous medium and separating the constituents by wet chemical methods. A particular flow process is described which includes removal of molybdenum by absorption on active carbon, precipitation of chromium and iron (if any) as hydroxides by addition of MgO, removal of cobalt by solvent extraction precipitation of nickel hydroxide by MgO, and regeneration of HCl and MgO.

3,544,310
PROCESS FOR THE PRODUCTION OF ALLOYS USED AS ADDITIVE IN THE PRODUCTION OF SPHEROIDAL GRAPHITE CAST IRONS

Shiro Terado and Koya Seki, Kanazawa-shi, Japan, assignors to Nippon Denko Co., Ltd., Tokyo, Japan, a corporation of Japan

Filed Mar. 1, 1968, Ser. No. 709,684
Int. Cl. C22c *37/04, 39/04*
U.S. Cl. 75—129 2 Claims

A process for the production of a ferrosilicon-base alloy adapted to be used in the production of spheroidal graphite cast irons as an additive, which comprises placing a slag-making material in a ladle lined with a basic refractory material, pouring a molten ferrosilicon from a ferrosilicon furnace directly into said ladle, imparting a shaking motion to the melt in the ladle by eccentrically rotating said ladle and casting the melt into a casting mold.

3,544,311
SOLDER FOR CONTACT-BONDING A BODY CONSISTING OF A GERMANIUM-SILICON ALLOY

Eugen Szabo de Bucs, Erlangen, and Gerhard Oesterhelt, Nuremberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany, a corporation of Germany

Filed July 18, 1967, Ser. No. 654,115
Claims priority, application Germany, July 19, 1966, S 104,882
Int. Cl. C22c *31/00*
U.S. Cl. 75—134 7 Claims

Solder for contact-bonding a body consisting of germanium-silicon alloy consists of germanium and silicon alloy from Groups IV and V of the Periodic Table, the relative proportions of the components being such that the melting point of the solder is just below the melting point of the germanium-silicon alloy. Method of producing the solder includes placing the alloy components in a vertically disposed melting tube closed at the bottom end thereof, inductively fusing the components, and rotating the melting tube about its axis at least while the solder is thereafter permitted to harden.

3,544,312
ALLOYING METHOD

Pierre P. Turillon, Ramsey, and Patrick J. Hanley, Westwood, N.J., assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed May 16, 1968, Ser. No. 729,526
Int. Cl. C22c *1/02*
U.S. Cl. 75—135 9 Claims

The invention is directed to a method for producing nickel-magnesium-silicon alloys wherein production of magnesium oxide vapor is prevented comprising preparing a melt of nickel containing about 26% to about 45% silicon, reducing the temperature of the bath so as not to exceed 1950° F., covering the surface of the bath with a fluid slag and plunging magnesium through the slag cover into the bath. Desirably, the casting produced from the bath is slowly cooled at a rate not exceeding about 350° F. per hour so as to produce an ingot having substantial toughness and substantial freedom from the production of fines when crushed.

3,544,313
DISPERSION HARDENED HIGH STRENGTH BRASS ALLOY

Akira Sadoshima, 6 3-chome, Andojibashi-dori, Minami-ku, Osaka, Japan, and Saburo Yoshikawa, 459 Miwa, Sakurai-shi, Nara-ken, Japan

No Drawing. Filed Jan. 23, 1968, Ser. No. 699,784
Int. Cl. C22c *9/04*
U.S. Cl. 75—157.5 4 Claims

An intermetallic compound or compounds formed by aluminum on one part and titanium or zirconium of Group IV*a* or chromium or molybdenum of Group VI*a* of the periodic table on the other part, is or are added to a wrought high strength brass alloy having a structure of $\alpha+\beta$ solid solution or a β solid solution containing no iron; and is or are dispersed therein so as to strengthen the matrix of said brass alloy. Said brass alloy so produced, which is to be used for constituent parts of various machinery, has a greater strength, a greater resistance to wear and a better refractory property, and can be produced at a lower cost of production.

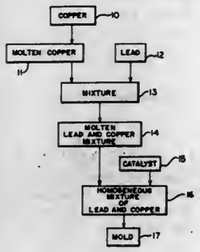
3,544,314
HOMOGENEOUS COPPER LEAD METAL AND METHOD OF MAKING

Carl E. Bazley, Colorado Springs, Colo., assignor to Colea Metals International, Ltd., Denver, Colo., a corporation of Colorado

Filed Nov. 24, 1967, Ser. No. 685,389
Int. Cl. C22c *9/08*
U.S. Cl. 75—163 8 Claims

A method of producing an intimate two phase solid mixture of copper and lead. The metal has a very low coefficient of friction and is particularly suitable for bearings and other applications requiring low friction; it is effective as a high and low temperature seal as in water and steam packings and as a sliding contact or electric brush and it is useful in ballistic applications where low

friction is essential. The method comprises melting copper and heating it to a predetermined temperature then adding the lead and reheating to the same temperature. A



catalyst is then added and the melt poured into a mold and allowed to cool. The metal is remeltable repeatedly without the addition of catalyst or other additives.

3,544,315

DENTURE ALLOY

Kamal Asgar, Ann Arbor, Mich., assignor to The Regents of The University of Michigan, Ann Arbor, Mich.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,669
Int. Cl. C22c *19/00*
U.S. Cl. 75—171 3 Claims

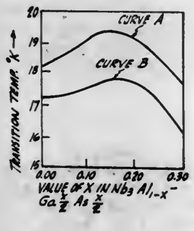
An alloy for dental appliances containing as essential ingredients 50% to 60% cobalt, 20% to 28% chromium, 10% to 20% nickel, 3.7% to 4.1% molybdenum and 0.18% to 0.22% carbon has high strength and improved elongation and toughness.

3,544,316

SUPERCONDUCTORS

Peter R. Sahm, Trenton, and Fred D. Rosi, Princeton, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Mar. 14, 1968, Ser. No. 712,979
Int. Cl. C22c *27/00*; H01r *17/12*
U.S. Cl 75—174 8 Claims



Superconductive alloys comprise niobium aluminum, in which a portion of the aluminum has been replaced by boron, aluminum, gallium or indium, and nitrogen, phosphorus, arsenic or antimony. When gallium and arsenic are present, the composition may be expressed as $Nb_3Al_{1-x}Ga_yAs_z$, wherein x is about 0.02 to 0.25, and is equal to $y+z$. When y and z are unequal, preferably y is greater than z. The gallium and arsenic may be present in equimolecular amounts, as in gallium arsenide.

3,544,317

MIXTURES OF DIAZONIUM COMPOUNDS AND CARBOXYLATED POLYMERS IN THE MAKING OF A LIGHT-SENSITIVE LITHOGRAPHIC PLATE

Teruhiko Yonezawa, Kanagawa, Japan, assignor to Polychrome Corporation, Yonkers, N.Y.

No Drawing. Filed Dec. 15, 1966, Ser. No. 601,848
Claims priority, application Japan, Dec. 18, 1965, 40/77,966
Int. Cl. G03f *7/02*; G03c *1/52*
U.S. Cl. 96—33 10 Claims

A light-sensitive composition which comprises a mixture of a polymeric material having a molecular weight of between about 10,000 and 100,000 and having carboxyl groups thereon, said polymeric material being substantially insoluble in a solution of equal parts of water and isopropyl alcohol and being slightly swelled by said solution without substantial decrease of its film strength, and a light-sensitive diazonium compound; and positive-acting lithographic printing plates having said light-sensitve composition coated on a supporting base.

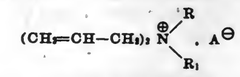
3,544,318

ELECTROCONDUCTIVE PAPER

Jerry E. Boothe, Pittsburgh, and Merwin Frederick Hoover, Bethel Park, Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 462,742, June 9, 1965. This application July 10, 1968, Ser. No. 743,634
Int. Cl. G03g *7/00*; B44d *1/00*
U.S. Cl. 96—1.5 20 Claims

Electroconductive paper useful typically in making copies by an electrostatic process is made by incorporating therein a polymer comprising at least 90% monomers of the formula



where R is an alkyl group of 1 to 18 carbon atoms and R_1 is R or β-propionamido and A is an anion.

3,544,319

PRODUCTION OF PRINTING PLATES

Adolf Diebold and Justus Walter, Ludwigshafen, and Hugo Strehler, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 436,656, Mar. 2, 1965. This application Oct. 22, 1968, Ser. No. 769,724
Claims priority, application Germany, Mar. 6, 1964, B 75,760
Int. Cl. G03c *5/00*
U.S. Cl. 96—36.3 4 Claims

Production of printing plates by photomechanical methods wherein the supporting polymer sheet is rendered electrically conducting by first applying a base metal and then depositing thereon a nobler metal, and coating the resulting layer with copper, nickel or chromium.

3,544,320

STABILIZATION OF LIGHT SENSITIVE FILM WITH A PEROXIDE, PERCHLORATE OR PERBORATE

Yoshikazu Yamada, 170 Lowell Ave., Sierra Madre, Calif. 91024, and Lester F. M. Storm, 380 S. Mentor, Pasadena, Calif. 91106

No Drawing. Filed July 21, 1966, Ser. No. 566,726
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 17 Claims

A process for stabilizing a photographic image formed by image-wise exposure to actinic light of a photosensitive combination of an organic halogen compound and an aromatic nitrogen-containing compound, in a solid film-forming hydrophilic binder wherein the background and image areas are stabilized by the application of a solution of a compound selected from (1) organic peroxides and hydroperoxides and (2) inorganic peroxides, perchlorates and perborates. In specific embodiments, the solution is an aqueous solution of a water-miscible organic solvent and in broader embodiments, such a solution can be utilized in conjunction with any stabilizer.

3,544,321

STABILIZATION OF ORGANIC PHOTOSENSITIVE MATERIAL

Yoshikazu Yamada, Sierra Madre, and Lester F. M. Storm, Pasadena, Calif., assignors to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

No Drawing. Filed July 21, 1966, Ser. No. 566,731
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 19 Claims

A process for stabilizing a photographic image formed by image-wise exposure to actinic light of a photosensitive combination of an organic halogen and an aromatic nitrogen-atom containing compound, whereby the background and image areas are stabilized by the application of a compound containing a substituted phenoxy group.

3,544,322

PHOTOSENSITIVE DISPERSION IN A HYDROPHILIC BINDER INCORPORATING A STABILIZER

Yoshikazu Yamada, 170 Lowell Ave., Sierra Madre, Calif. 91024, and Lester F. M. Storm, 380 S. Mentor, Pasadena, Calif. 91106

No Drawing. Filed July 21, 1966, Ser. No. 566,723
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. G03c *1/72*, *5/24*
U.S. Cl. 96—48 14 Claims

A recording medium including a dispersion in a solid film-forming hydrophilic binder of a photosensitive combination of organic halogen compound and aromatic nitrogen-containing compound, and incorporating a stabilizer for background and image areas.

3,544,323

DIAZO COMPOUND FOR LITHOGRAPHIC PLATES

Ho Chien Hwang, Peabody, Mass., assignor to Sumner Williams, Inc., East Boston, Mass., a corporation of Massachusetts

No Drawing. Filed Dec. 12, 1966, Ser. No. 600,748
Int. Cl. G03c *1/54*; G03f *7/08*
U.S. Cl. 96—75 10 Claims

A diazo compound formed by the reaction of one mole of 3-amino-9-ethyl-carbazole with one mole or more of 2-diazo-1-naphthol-5-sulfonyl chloride was found to provide a light sensitive material for a wide variety of lithographic plates including positive and negative, smooth and grained, and mono- to tri-metallic surfaces.

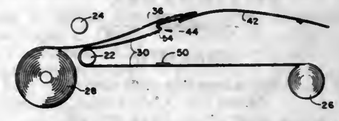
3,544,324

COMPOSITE PHOTOGRAPHIC FILM ROLL WITH CORRUGATED FLEXIBLE PORTIONS

Ralph F. Sheehan, Brockton, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Oct. 19, 1967, Ser. No. 676,517
Int. Cl. G03c *3/02*
U.S. Cl. 96—78 5 Claims

A photographic film assemblage having two superposed sheets with areas thereon to be registered with one another. The two sheets are joined at the leading end thereof and one of the sheets has a portion of increased flexibility which permits relative movement between the sheets while confined in a camera should there be any slack in the sheet having the portion of increased flexibility thereby allowing the proper registration of the superposed sheets.



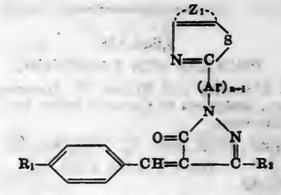
3,544,325

PHOTOGRAPHIC ELEMENTS CONTAINING STYRYL DYESTUFFS

Henri Depoorter, Mortsel, Theofiel Hubert Ghys, Kontich, and Marcel Jan Libeer, Mortsel, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium, a Belgian company

Filed Sept. 8, 1967, Ser. No. 666,301
Claims priority, application Great Britain, Oct. 4, 1966, 44,275/66
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 2 Claims

A photographic silver halide light-sensitive material containing a dyestuff having the formula:



wherein:

Z_1 represents the atoms necessary to form a fused benzene nucleus,

Ar represents a phenylene group,

n stands for 1 or 2,

R_1 represents hydroxy, an alkoxy group, or a dialkylamino group, and

R_2 represents an alkyl group, or an aryl group, at least one of the hydrogen atoms of the fused benzene nucleus or an aryl nucleus represented by R_2 being substituted by a sulphonic acid group in acid or salt form

is described. The photographic materials do not induce fog and have excellent spectral absorption characteristics for filter purposes and are very resistant to diffusion.

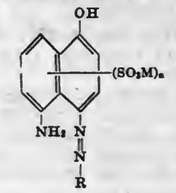
3,544,326

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC ELEMENTS

Makoto Yoshida, Akio Okumura, and Shinichi Imai, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed July 29, 1968, Ser. No. 748,182
Claims priority, application Japan, July 29, 1967, 42/48,759
Int. Cl. G03c *1/10*
U.S. Cl. 96—99 2 Claims

A light sensitive color photographic element intended for silver dye bleaching wherein the silver halide emulsion contains a magenta dye having the formula



wherein R is an unsubstituted aryl or a substituted aryl group, M is hydrogen, alkali metal or ammonium and *n* is 0 or 1.

ERRATUM

For Class 96—109 see:
Patent No. 3,544,336

3,544,327
POLYMERIC FOG STABILIZERS FOR PHOTOGRAPHIC EMULSIONS

Edward P. Abel and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,272
Int. Cl. G03c *1/34*
U.S. Cl. 96—109 15 Claims

A photographic silver halide emulsion or photographic element containing a fog-stabilizing amount of an ammonium or alkali metal salt of a copolymer of maleamic acid with an α-ethylenically unsaturated compound.

3,544,328
PROCESS FOR CONCHING

Herbert N. Dunning and Robert D. Dannert, Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware

No Drawing. Filed Nov. 17, 1967, Ser. No. 683,820
Int. Cl. A23g *1/00*
U.S. Cl. 99—23 4 Claims

Conched chocolate is produced by a method wherein a mixture consisting essentially of cocoa nibs and an edible solid material is ground in a jet mill at a temperature of 150 to 300° F.

3,544,329
ELECTROLYSIS OF FERMENTED BEVERAGES

Erik Johannes Helm, Klampenborg, and Richard Stanley Wrey Thorne, Holte, Denmark, assignors to Alfred Jorgensen Gaeringsfysiologisk Laboratorium A/S (Alfred Jorgensen, Laboratory for Fermentation Ltd.), Copenhagen, Denmark, a firm

Filed Aug. 1, 1967, Ser. No. 657,687
Int. Cl. C12h *1/10*
U.S. Cl. 99—48 6 Claims

To improve the flavour of fermented beverages by elimination of hydrogen sulphide produced during fermentation, small quantities of copper are added by means of electrolytic dissolution. Means for the electrolytic dissolution are also disclosed.

3,544,330
GLASSES AND CAPACITOR DIELECTRIC COMPOSITIONS MADE THEREFROM

Lewis C. Hoffman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 24, 1967, Ser. No. 632,890
Int. Cl. C03c *3/08, 3/14, 5/02*
U.S. Cl. 106—54 3 Claims

The particular glasses are novel and are composed of critical proportionate amounts of CaO, B_2O_3, BaO, ZrO_2, Al_2O_3, SiO_2, ZnO, and SrO. Capacitor dielectric compositions, which are composed of the glass dispersed in an inert vehicle, are fabricated into capacitors which possess extremely low electrical loss properties and high Q-values.

3,544,331
SEPARATE GRINDING OF VARIOUS COFFEE TYPES TO CONTROL FLAVOR CONTRIBUTION

Eddy R. Hair, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,872
Int. Cl. A23f *1/00*
U.S. Cl. 99—68 3 Claims

A process for obtaining a roast and ground coffee product comprising (1) separately grinding to a fine particle size roast coffee beans that provide a taste contribution to a roast and ground coffee product that it is desired to increase, (2) separately grinding to a coarse particle size roast coffee beans that provide a taste contribution to a roast and ground coffee product that it is desired to decrease, and (3) mixing the resulting roast and ground coffee fractions to obtain a novel roast and ground coffee product.

3,544,332
PROCESS FOR MAKING CEREAL FLAKES CONTAINING ENTRAPPED ADDITIVES

James V. Leebens, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

Filed Feb. 2, 1967, Ser. No. 613,664
Int. Cl. A23l *1/10*
U.S. Cl. 99—83 9 Claims

A process for incorporating powdered additives into ready to eat cereal flakes by puffing a cereal dough to form voids in the dough, forming the puffing dough into pieces, coating the pieces with the powdered additive to cover the surface and voids of the pieces, and then flaking the pieces to entrap the powdered additives in the flakes.

3,544,333
MACARONI PRODUCTS MADE WITH NONFAT MILK SOLIDS

Elmer F. Glabe, Chicago, Perry W. Anderson, Niles, and Gerald M. Murawski, Chicago, Ill., assignors to Marine Colloids, Inc., Springfield, N.J., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 696,998, Jan. 11, 1968, which is a continuation-in-part of application Ser. No. 437,294, Mar. 4, 1965. This application Jan. 29, 1969, Ser. No. 800,334
Int. Cl. A23l *1/16*
U.S. Cl. 99—85 5 Claims

Macaroni products containing 1% to 30% by weight nonfat milk solids and Iota type carrageenan in an amount sufficient to improve texture, stability and cooking stability of said products are prepared.

3,544,334
MULTICOLORED CAKE BATTER AND PROCESS FOR MAKING SAME

Robert F. Kozlik, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

No Drawing. Filed July 3, 1967, Ser. No. 650,629
Int. Cl. A21d *13/08*
U.S. Cl. 99—92 4 Claims

A frozen cake batter which is made up of solidly frozen pieces of different colored batters which may be assembled in a baking container prior to baking so as to produce a three-dimensional, reproducible pattern in the baked cake.

3,544,335
COATED FROZEN BATTER PIECES AND PROCESS FOR MAKING SAME

Robert F. Kozlik, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

No Drawing. Filed July 3, 1967, Ser. No. 650,630
Int. Cl. A21d *13/08*
U.S. Cl. 99—92 5 Claims

A chemically leavened, shortened batter which is made up of a plurality of frozen discrete pieces, each completely encapsulated within an aqueous coating which is frozen solid at the highest temperatures common to home freezers or refrigerator-freezer compartments.

3,544,336
PHOSPHATE ANTIFOGGANTS FOR PHOTOGRAPHIC EMULSIONS

Kirby M. Milton, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 6, 1967, Ser. No. 628,829
Int. Cl. G03c *1/34*
U.S. Cl. 96—109 16 Claims

A photographic silver halide emulsion or photographic element containing as an antifoggant an aryl, alkyl or mixed alkyl-aryl phosphate.

3,544,337
SELF-PRESERVING BANANA PASTE

Robert H. Bundus, Chicago, Ill., assignor to Beatrice Foods Co., Chicago, Ill., a corporation of Delaware

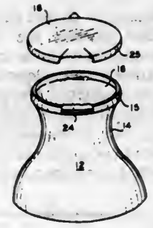
No Drawing. Filed Jan. 5, 1967, Ser. No. 607,396
Int. Cl. A23l *1/06*
U.S. Cl. 99—102 3 Claims

A self-preserving banana paste is prepared by mixing banana powder, banana puree and sugar at a temperature sufficient to destroy yeasts and molds and either (1) packaging hot, followed by cooling in a sealed container, or (2) cooling and filling and sealing aseptically.

3,544,338
FOOD CONTAINER WITH A TAMPER PROOF SNAP ON CLOSURE

Alfred W. Kinney, Kansas City, Mo., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Jan. 8, 1968, Ser. No. 696,328
Int. Cl. B65b *61/12;* B65d *17/00*
U.S. Cl. 99—171 8 Claims



A single service plastic container has a closure which is heat sealed to the neck of the container around a minor portion of the circumference of this neck.

3,544,339
METHOD OF RETAINING INTEGRITY OF THE OPEN END OF SHIRRED FOOD CASINGS

Henry Majewski, Le Mont, and John K. Hutson, Country Club Hills, Ill., assignors to Union Carbide Corporation, a corporation of New Jersey

No Drawing. Filed Dec. 6, 1966, Ser. No. 599,365
Int. Cl. A22c *13/00*
U.S. Cl. 99—176 9 Claims

A method is provided for treating the open end of a shirred casing stick so that the pleats formed therein are locked in place to retain their integrity and will not become dissociated or decompacted during humidificaton and prior to use of the casing stick.

3,544,340
CHEESE PACKAGING METHOD AND APPARATUS

Roland E. Miller, Orangeville, Henry Borgardt, Chicago, and Edgar C. Olson, Waukegan, Ill., assignors to Kraftco Corporation, Chicago, Ill., a corporation of Delaware

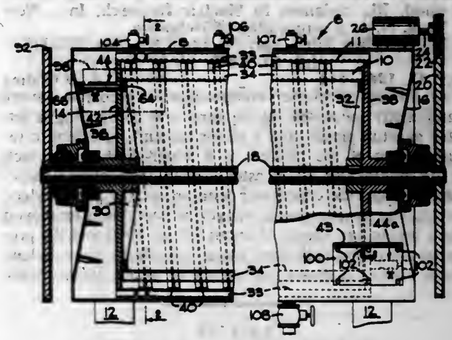
Continuation-in-part of application Ser. No. 550,234, May 16, 1966. This application Sept. 24, 1969, Ser. No. 860,508
Int. Cl. B65b *25/06;* B65g *47/24*
U.S. Cl. 99—178 12 Claims

Method and apparatus for wrapping cheese slices individually in which the slices are aligned on a conveyor and then wrapped. Portions of the slices are elevated from the conveyor prior to wrapping to reduce frictional forces so that alignment of the slices is facilitated. A preferred method of elevating the slices is the forming of a cushion of air beneath them.

3,544,341
METHOD AND APPARATUS FOR COOKING AND COOLING FOODSTUFF WITHIN LARGE CONTAINERS

James L. Reimers, Santa Clara County, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Nov. 23, 1966, Ser. No. 596,575
Int. Cl. A23l *3/06*
U.S. Cl. 99—214 2 Claims



Foodstuff within large cylindrical containers, number 10 to one-gallon cans, are introduced on their sides into a rotary cooker and cooler comprising a housing enclosing a spiral which surrounds a reel. During input and discharge, the spiral is locked to the stationary housing and the reel rotates moving the containers in a helical path. During heat treatment, the spiral is locked to the reel and the combination of the reel, containers, and spiral rotate at high speeds in a circular path while permitting limited circumferential shifting of the containers.

3,544,342
BLUING COMPOUNDS AND THEIR PRODUCTION

George R. Numrich, Jr., R.D. 3, Box 266, Kingston, N.Y. 12401

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,895
Int. Cl. C09d *11/00, 13/00, 5/00*
U.S. Cl. 106—19 1 Claim

Bluing compounds which are particularly useful on firearms for touching up worn spots, scrapes and nicks are produced by reacting selenium and nitric acid to form selenous acid, forming a copper sulphate solution to which an alkylaryl polyether alcohol and a blue dye are added and to this solution adding the selenous acid previously formed.

ERRATUM

For Class 106—54 see:
Patent No. 3,544,330

3,544,343
HIGH DENSITY ALUMINA AND METHOD FOR PRODUCING IT

Irwin M. Lachman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 506,120, Nov. 2, 1965. This application Feb. 2, 1967, Ser. No. 613,509
Int. Cl. C04b *35/10, 35/44*
U.S. Cl. 106—65 **10 Claims**

High density alumina articles of improved translucency formed by mixing high purity alumina with from 0.01 up to less than 0.5% by weight of nickel ions, calculated as nickel oxide and sintering the composition at from 1500°–1900° C., articles having an improved modulus of rupture obtained by coating with compression glaze.

Sintering is conducted in oxygen containing atmosphere, e.g., air. Optimum results are obtained with 0.01 to 0.4% by weight nickel ions. Nickel added as any compound convertible to oxide on sintering.

3,544,344
SET RETARDED PLASTER COMPOSITION

Richard J. Pratt, Floosmoor, and David W. Young, Homewood, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 18, 1968, Ser. No. 722,215
Int. Cl. C04b *11/14*
U.S. Cl. 106—111 **9 Claims**

An improved plaster composition is prepared having significantly increased setting time and comprising a settable gypsum plaster and a minor amount, sufficient to retard setting of the plaster, of a water-soluble salt, such as the sodium salt, of the ester formed by reacting styrene-maleic anhydride copolymer with an alkoxy polyalkylene glycol. The styrene-maleic anhydride copolymer employed has a molecular weight of about 500 to 5000 and the preferred alkoxy polyalkylene glycol is methoxy polyethylene glycol having a molecular weight of about 300 to 5000.

3,544,345
METHOD OF MAKING A DRIED STARCH-ENZYME BLEND

Edwin Lawrence Speakman, Clinton, Iowa, assignor to Standard Brands Incorporated, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,881
Int. Cl. C13l *1/08;* **C08b** *27/14;* **C09j** *3/18*
U.S. Cl. 106—157 **7 Claims**

A starch liquefying enzyme is incorporated into a starch slurry, the slurry dewatered and the dewatered starch blend dried at temperatures in the range of 160° to 250° F. This dried starch product can be used for preparing starch adhesives.

3,544,346
PAINTS AND PAINT COMPOSITIONS

Hussein Shimi, Alcantara 33, Madrid 6, Spain

No Drawing. Filed Nov. 2, 1967, Ser. No. 680,049
Claims priority, application Great Britain, Jan. 20, 1967, 3,219/67
Int. Cl. C09c *1/00, 1/36*
U.S. Cl. 106—299 **1 Claim**

A paint pigment composition for use in paint manufacture, particularly the manufacture of corrosion-inhibiting priming paints for iron and steel, contains a mixture of the ores ilmenite and chromite in the "as mined" state. The operable ratio for the ores is from 0.5% to 99.5% by weight of ilmenite and, correspondingly, from 99.5% to 0.5% by weight of chromite, these percentages being based on the total weight of ilmenite plus chromite. Paints formed from the pigment by mixture with a paint vehicle, and, optionally, also a paint extender, a paint suspending agent, a paint thinner and/or a paint drier, exhibits superior corrosion inhibiting properties compared with conventional red lead priming paints.

3,544,347
PROCESS FOR THE PRODUCTION OF ZIRCONIUM-VANADIUM BLUE PIGMENTS

Horst Weber, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Jan. 11, 1967, Ser. No. 608,484
Claims priority, application Germany, Jan. 18, 1966, F 48,194
Int. Cl. C09c *1/00*
U.S. Cl. 106—299 **4 Claims**

Process for the production of zirconium-vanadium blue pigments wherein a zirconium silicate-alkali mixture is decomposed at a temperature above 800° C., to the decomposed zirconium silicate is then added water to form a slurry, which is rapidly mixed with an inorganic acid. The resulting mixture to which previously had been added oxides of vanadium is then calcined at a temperature of 850° to 1150° C.

3,544,348
OVERHAUL PROCESS FOR ALUMINIDE COATED GAS TURBINE ENGINE COMPONENTS

Donald H. Boone and George W. Goward, North Haven, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,853
Int. Cl. B23p *7/00;* **C23c** *9/02*
U.S. Cl. 117—2 **4 Claims**

An overhaul process for coated gas turbine engine components is described wherein the components are: removed from the engine at or prior to the onset of significant coating penetration as evidenced by the loss of one or more substrate components; recoated in a pack cementation process of high aluminum activity without stripping of the old coating; and are subsequently heat treated to promote the formation of aluminides having an aluminum content less than that corresponding to Ni_2Al_3.

3,544,349
METHOD OF PROTECTING FINISHED SURFACES

Robert A. Isaksen and Robert V. De Shay, East Longmeadow, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,135
Int. Cl. B44d *1/14;* **B32b** *15/08*
U.S. Cl. 117—6 **10 Claims**

Disclosed herein is a method for the temporary protection of surfaces coated with a permanent cured resin system. The temporary coating is applied at a time when the permanent coating is less than fully cured. The temporary coating comprises a blend of two interpolymers: the first, an interpolymer comprising an ethylenically unsaturated mono- or poly-carboxylic acid containing from 3 to 6 carbon atoms and a vinylidene ester of a saturated aliphatic acid, said saturated acid containing from 1 to 6 carbon atoms; the second, a vinylidene aromatic hydrocarbon and an alpha-beta ethylenically unsaturated dicarboxylic acid, its anhydride or half-ester and mixtures thereof. Preferably, the first interpolymer is comprised of vinyl acetate and crotonic acid and the second interpolymer is comprised of styrene and a half-ester of maleic acid. When no longer needed, the coating is removed from the finished surface by washing with an aqueous alkaline solvent.

3,544,350
DUSTING METHOD OF SCREENING A CATHODE-RAY TUBE

Val R. Veirs, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Nov. 2, 1967, Ser. No. 680,021
Int. Cl. H01j *31/20*
U.S. Cl. 117—17.5 **5 Claims**

A phosphor material and a light sensitive, water soluble material, both in finely powdered form, are dusted onto the faceplate of a cathode-ray tube. The dusting takes place through a water mist or spray; alternatively, the mist is applied after the dusting has taken place. Selected portions of the dusted area are exposed to light and the exposed areas are developed by washing the faceplate with water.

3,544,351
METHOD FOR COATING AN ARTICLE WITH AN OXYMETHYLENE POLYMER AND PRODUCT THEREOF

George C. Schweiker, Mountainside, and Harry W. Tenney, Jr., West Long Branch, N.J., and Robert L. Patrick, Palos Park, Ill., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 386,398, July 30, 1964. This application Sept. 30, 1968, Ser. No. 766,372
Int. Cl. B44d *1/092, 1/095;* **C23l** *7/00*
U.S. Cl. 117—21 **15 Claims**

A method of coating objects with oxymethylene polymers wherein the object to be coated is first treated with a base or primer material which, upon partial decomposition, results in an oxymethylene polymer-receptive surface, the thus-primed article is heated to partially decompose said base, and the oxymethylene polymer is then applied by such techniques as fluidized bed coating or powder spraying.

3,544,352
ENAMELWARE PRODUCED BY FIRING DRY ENAMEL POWDER IN CONTACT WITH A GLASS FIBER FABRIC

William C. Cawthon, New Canaan, Conn., and Robert J. Ulrich, Lyndon, Ky., assignors to American Standard Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Mar. 7, 1966, Ser. No. 532,090, now Patent No. 3,453,133, dated July 1, 1969. Divided and this application Feb. 14, 1969, Ser. No. 817,212
Int. Cl. B44d *1/094;* **B44c** *1/04;* **C23d** *5/04*
U.S. Cl. 117—23 **2 Claims**

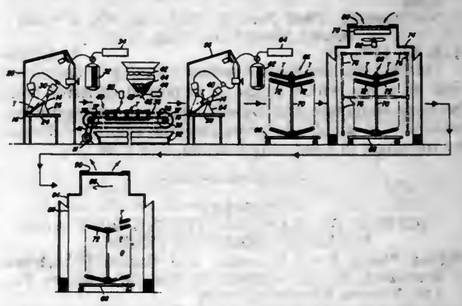
Method for producing an enamelware article having a patterned surface which involves applying to an object to be enameled a coating of dry enamel powder, placing in contact with the coating a glass fiber cloth, and firing the dry enamel powder and the glass fiber cloth in contact therewith.

3,544,353
METALLIC TILE MANUFACTURE

John Calvin Jureit, Coral Gables, and Gilbert T. Coovert, Hollywood, Fla., assignors to Automated Building Components, Inc., Miami, Fla., a corporation of Florida

Filed Apr. 2, 1968, Ser. No. 718,140
Int. Cl. B44c *1/08;* **B05b** *7/00;* **B44c** *1/00*
U.S. Cl. 117—26 **12 Claims**

Sheet metal blanks are corrugated to simulate a plurality of tiles disposed in side-by-side relation. Opposite elongated edges of the corrugated blanks are bent in opposite directions to form flanges for interlocking with adjacent tiles. The blanks are spray coated on the weather side with a bituminous emulsion. Colored granules are gravity fed onto the bituminous coated blank and cover the entire



coated surface of the blank. Polyvinyl acetate is spray coated on the bituminous granule coating and the multiple coated blank is placed in an oven maintained at temperatures between 180° and 200° F. and within a relative humidity range of 18–40%. The dried tiles are removed from the oven and cooled.

3,544,354
METHOD OF PREPARING A PHOSPHOR COMPOSITION FOR SCREENING A COLOR CATHODE-RAY TUBE

Irwin Kachel, Skokie, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware

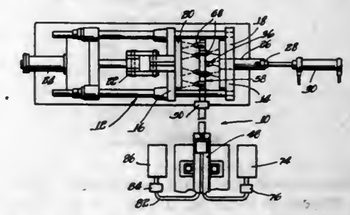
No Drawing. Filed June 1, 1966, Ser. No. 554,367
Int. Cl. C09k *1/04;* **B44d** *1/14*
U.S. Cl. 117—33.5 **4 Claims**

Phosphor particles are suspended in a neutral liquid along with pigment particles that are very small relative to the phosphor. A basic solution including aluminum hydroxide and a salt solution including aluminum chloride are added to produce aluminum hydroxide as a reaction product. This is an inorganic insoluble gel formed in situ which coats the phosphor and pigment particles. The liquid is agitated, causing the pigment to coat the phosphor, and thereafter the pigmented phosphor is removed and heated to increase the adhesion of the pigment to the phosphor.

3,544,355
SHOT CYLINDER LUBRICATING APPARATUS

Richard J. Ott, New Buffalo, Mich., assignor to Respond Inc., Baroda, Mich., a corporation of Michigan

Filed Aug. 31, 1967, Ser. No. 664,847
Int. Cl. B22d *7/04*
U.S. Cl. 117—96 **4 Claims**

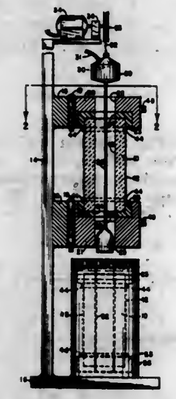


There is disclosed a method and apparatus for lubricating a shot cylinder in a die casting machine. Spray head means is adapted to be moved into position for spraying the lubricant directly into the interior of the shot cylinder.

3,544,356
PROCESS FOR THE SURFACE TREATMENT OF ALUMINUM AND ITS ALLOYS
Hargovind N. Vazirani, Stirling, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
No Drawing. Filed Nov. 1, 1967, Ser. No. 679,642
Int. Cl. B44d *1/34*; C23g *1/02*
U.S. Cl. 117—49 12 Claims
This is a method for the surface cleaning of aluminum and its alloys which yields an improved adhesive bond between aluminum and organic adhesives, and comprises treatment in a sulfochromate cleaning solution followed by treatment in a reducing solution.

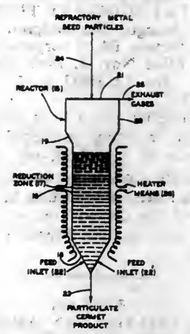
3,544,357
METHOD OF MANUFACTURING SOFT AND FLEXIBLE SHEET MATERIALS
Kazuo Noda, Yuya Enomoto, and Osamu Fukushima, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Sakaza, Kurashiki, Japan
No Drawing. Filed May 15, 1967, Ser. No. 638,564
Claims priority, application Japan, May 27, 1966, 41/34,156; June 9, 1966, 41/37,383
Int. Cl. B44d *1/44*; D06h *3/14*
U.S. Cl. 117—63 8 Claims
A method of manufacturing synthetic leather-like sheet materials having homogeneous porous structure, flexibility substantialness, drapability and strength by applying a solution of polyurethane elastomer or a polymer mixture containing not less than 50% of polyurethane elastomer, which contains boric acid or polyethylene glycol having an average molecular weight of 200 to 10,000, to a substratum and then coagulated said solution by wet process.

3,544,358
PRODUCTION OF SEMIPERMEABLE MEMBRANES DIRECTLY ON THE SURFACES OF PERMEABLE SUPPORT BODIES
Serop Manjikian, Del Mar, Calif., assignor to Universal Water Corporation, Del Mar, Calif., a corporation of California
Filed July 18, 1966, Ser. No. 565,761
Int. Cl. B44d *1/44*
U.S. Cl. 117—63 7 Claims



A semipermeable membrane, suitable for use in reverse osmosis process, is produced directly on the surfaces of a semipermeable support body by first spreading a membrane forming composition containing at least one water soluble constituent to form a film on the surface of the porous body. Water is then applied to only the surface of the film remote from the permeable body supporting surface.

3,544,359
PROCESS FOR PREPARING PARTICULATE CERMETS
Joseph Hubbard Oxley, Columbus, Ohio, assignor, by mesne assignments, to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Feb. 26, 1965, Ser. No. 435,421
Int. Cl. C23c *11/02*
U.S. Cl. 117—100 10 Claims



A process for producing particulate cermets of refractory metal containing refractory ceramic particles embedded and dispersed therein, whereby a halide of a refractory metal, hydrogen and finely divided refractory ceramic particles, are introduced into a fluidized bed of seed particles of refractory metal particles, refractory metal particles having refractory ceramic particles embedded and dispersed therein or refractory ceramic particles at a temperature so that the halide is reduced and codeposited on the seed particles with the refractory ceramic particles. The resultant cermets can be compacted and sintered to form structures lighter in weight than refractory metal structures alone, and thermal expansion properties can be varied as desired.

3,544,360
PROCESS FOR DESENSITIZING SOLID EXPLOSIVE PARTICLES BY COATING WITH WAX
Arthur E. Gardner, Ottawa, Ontario, Canada, assignor to Minister of National Defence of Her Majesty's Canadian Government
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,491
Int. Cl. B44d *5/12*
U.S. Cl. 117—100 11 Claims
Solid explosive particles are coated with a wax desensitizer by a method in which a solution of the wax in a solvent heavier than water and of boiling point below 100° C. is poured onto a water slurry of the explosive particles which is under stirring and at a temperature at which the wax does not solidify.

3,544,361
PROCESS OF PRODUCING TIN OXIDE COATING
Albert Servais, Gosselies, Belgium, assignor to Glaverbel S.A., Brussels, Belgium
Filed June 7, 1966, Ser. No. 555,787
Claims priority, application Luxembourg, June 25, 1965, 48,910
Int. Cl. C03c *17/22*
U.S. Cl. 117—124 5 Claims
Applying to a solid substrate an anhydrous (organic solvent) solution of anhydrous stannous chloride, hydrolyzing the stannous chloride, drying the hydrolyzed stannous chloride and baking the dried thus-formed coating results in a more economical preparation of more uniform and clear transparent tin oxide coatings with improved electrical and optical properties.

3,544,362
PROCESS FOR IMPROVING THE DELUSTERING AND THE SLIPPING RESISTANCE OF TEXTILES
Hans Deiser, Neuasseln-Lohwald, and Heinrich Singer, Horgau, Germany, assignors to Chemische Fabrik Pfersee G.m.b.H., Augsburg, Germany, a corporation of Germany
No Drawing. Filed Mar. 20, 1968, Ser. No. 714,428
Claims priority, application Germany, Mar. 29, 1967, C 41,896; June 3, 1967, C 42,529
Int. Cl. C09k *3/14*; D06m *15/00*
U.S. Cl. 117—139.5 4 Claims
Textiles are refined by being treated with organic solutions of reaction products of alcoholates of zirconium, titanium or aluminum of aliphatic, saturated, 1- or 2-valent alcohols with 2 to 6 carbon atoms, or with monoalkyl ethers of these 2-valent alcohols, whereby these monoalkyl ethers have totally 4 to 8 carbon atoms, and paraformaldehyde in a mol ratio of 1:1 to 1:10 in an organic inert solvent, whereupon the textiles are dried and possibly subjected to a heat treatment.

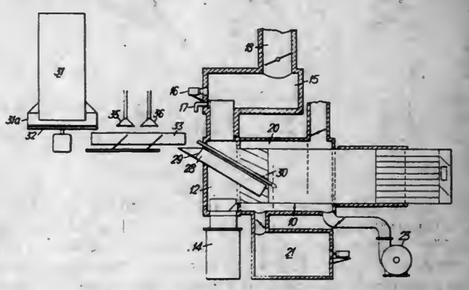
3,544,363
DYED TEXTILE MATERIALS HAVING IMPROVED WET FASTNESS PROPERTIES AND METHOD OF PRODUCING SAME
Hermann Rath, Tubingen, Karl Bredereck, Stuttgart, Horst Rieckert, Stuttgart-Hedelfingen, Hans Toepffer, Frankfurt am Main, Otto Troeken, Frankfurt am Main-Fechenheim, Hanswilli von Brachel, Offenbach am Main, and Christian Heid, Frankfurt am Main-Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main-Fechenheim, Germany, a company of Germany
No Drawing. Continuation of application Ser. No. 592,722, Nov. 8, 1966. This application May 26, 1969, Ser. No. 827,938
Claims priority, application Switzerland, Nov. 9, 1965, 15,411/65
Int. Cl. D06p *1/30*; D06m *13/36*
U.S. Cl. 117—139.5 5 Claims
Textile cellulosic materials dyed or printed with sulfur dyestuffs and having improved wet fastness properties, wherein the materials contain from 0.1 to 5.0% by weight, based on the dry weight of the material, of a bis- or poly-α,β-halohydrin compound containing at least one basic nitrogen atom.

3,544,364
SOLID HYDROXYLATED SUBSTRATE TREATED WITH A PROLONGED ODOR RELEASING COMPOSITION
Bernard Rudner, Westfield, N.J., and Joseph H. Stump, Jr., Pensacola, Fla., assignors to Tenneco Chemicals, Inc., a corporation of Delaware
No Drawing. Filed May 1, 1968, Ser. No. 725,932
Int. Cl. D21h *1/34*; A45d *33/38*
U.S. Cl. 117—143 12 Claims
A method for prolongating the release of a pleasant odor from a solid hydroxylated substrate. The method comprises applying to the hydroxylated substrate a composition containing volatile odoriferous alcohols having from six to sixteen carbon atoms and metal or metalloid alcoholates of alcohols having from six to sixteen carbon atoms, wherein the metal or metalloid component is selected from Group III and Group IV of the Periodic Table.

3,544,365
CLEANING METHOD
Arline G. McCormick, Vernon, Conn., assignor to Conversion Chemical Corporation, Rockville, Conn., a corporation of Connecticut
No Drawing. Filed Nov. 20, 1968, Ser. No. 777,468
Int. Cl. B08b *3/08*, *3/10*
U.S. Cl. 134—1 13 Claims
A method for removing food residues from metallic utensils used at elevated temperatures for food preparation involves applying a cleaning solution to the surface of the utensil and maintaining the solution in contact with the surface under conditions of time and temperature sufficient to separate the residue therefrom. The cleaning solution employed contains a chlorinated organic solvent and an activator therefor. Preferably it includes an oil-soluble surfactant and a layer of water is provided on the top thereof to act as a barrier to vaporization of the solvent.

3,544,366
METHOD FOR REMOVING INCRUSTATION FROM METAL SURFACES
Carlo W. Uhlmann, 20 Upper Merrion Square, Dublin 2, Ireland
No Drawing. Filed Dec. 29, 1967, Ser. No. 694,396
Claims priority, application Ireland, Feb. 3, 1967, 135/67
Int. Cl. B08b *3/02*; C11d *3/08*
U.S. Cl. 134—2 6 Claims
A method for removing incrustation from metal surfaces by spraying a jet of an aqueous alkaline solution of the sodium salts of nitric and metasilicic acids, atomized by carbon dioxide under pressure, onto the metal surface which is heated to at least 80° C., silicic acid being formed when the jet meets the hot metal surface and thus causing the incrustation to assume a molten or vapour-like state.

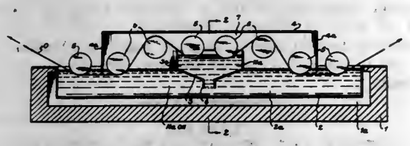
3,544,367
DRYING PLANT FOR METAL TURNINGS
Friedrich Ehrlich, Wendover, Aylesbury, and Gordon James Thomas, Butlers Cross, Aylesbury, England, assignors to International Alloys Limited
Filed June 3, 1968, Ser. No. 733,905
Claims priority, application Great Britain, June 7, 1967, 26,368/67
Int. Cl. B08b *7/00*; C23g *5/00*
U.S. Cl. 134—2 8 Claims



An apparatus for, and a method of, treating metal scrap contaminated with volatile and/or combustible substances employing an oil and water spray regulated in dependence on the temperature in a combustion chamber for adding oil or water to the scrap before the scrap is fed into the combustion chamber.

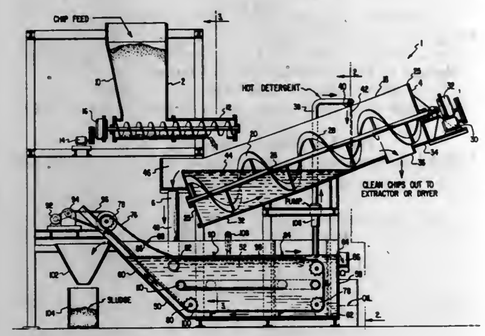
3,544,368
PROCESS AND THE DESCALING OF METALS
Rudolf Kuhn, Koppern, Taunus, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Continuation-in-part of application Ser. No. 706,108, Feb. 16, 1968. This application Oct. 16, 1969, Ser. No. 866,808
Claims priority, application Germany, Nov. 30, 1968, 1,812,035
Int. Cl. C23g *1/00*
U.S. Cl. 134—2 14 Claims
Metals having metal oxide scales are descaled with molten sodium metal. The descaling can be preceded

and/or followed by treatment of the metal with molten alkali metal hydroxide. Preferably the sodium hydroxide



treatment is carried out as a pretreatment in the austenitization range whereby the wires or bands after annealing are changed to a perlite structure.

3,544,369
METHOD FOR THE CLEANING OF METAL WASTE AND THE RECOVERY OF OIL THEREFROM
James R. Keogh, Jr., Philadelphia, Pa., assignor to FMC Corporation, a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,298
Int. Cl. B08b *3/08*; **C23g** *1/36*
U.S. Cl. 134—25 **8 Claims**

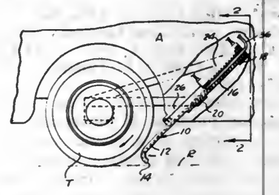


A method and apparatus for the removal of oil and other impurities from metal waste such as metal turnings, chips and the like and the reclamation of lubricating oils from said waste. The waste is moved countercurrent to an oil-dissolving detergent solution, the waste being agitated. The used detergent solution is purified by settling and standing, removing sludge and upper oil phase, and is then recirculated after adding make-up detergent thereto.

3,544,370
ANTIHYDROPLANING METHOD FOR VEHICLES
Kenneth W. Wrede, Warner Robins, Ga.
(CMR 878, APO, N.Y. 09332)
Filed Nov. 29, 1967, Ser. No. 686,541
Int. Cl. B08b *5/00*; **B60b** *39/02*; **F01b** *1/08*
U.S. Cl. 134—37 **1 Claim**

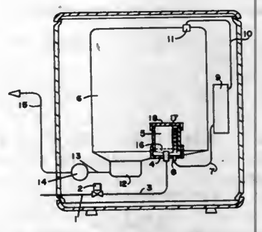
A method and apparatus for preventing hydroplaning of a vehicle tire on a wet surface by introducing forced and deflected air to the surface in front of the tire to break up the water film on the surface immediately in front of the tire, thereby increasing traction between the tire and surface.

The apparatus includes an elongated vane mounted retractably on the vehicle in front of the tire for deflecting impinging air during movement of the vehicle to the surface. The vane includes an arcuate end portion for directing the air and a plurality of conical ducts in the end portion for forming air jets to accelerate the air and



direct it in a concentrated form. Provision is also made for introducing forced air into longitudinal ducts in the vane for aiding the deflected air in breaking up the water film on the surface.

3,544,371
DEVICE FOR REGENERATING AN ION EXCHANGER, WATER SOFTENER IN A DISHWASHING OR OTHER WASHING MACHINE
Peter Zinkann, Gutersloh, Germany, assignor to Miele & Cie., Gutersloh, Germany
Filed Mar. 25, 1968, Ser. No. 715,758
Int. Cl. B08b *3/02, 13/00*
U.S. Cl. 134—93 **1 Claim**

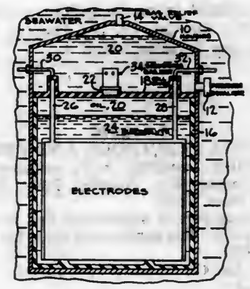


An ion exchanger water softener is mounted exteriorly of the washing tub of a washing machine. A receiving holder for a salt container is provided in the bottom of the tub. A salt container having a strainer and an outlet provided with strainer openings is detachably mounted on the holder. A solenoid valve is provided in the water conduit to the strainer. The holder is connected to the inlet of the water softener. The outlet of the water softener is connected with the tub. A pump for scavenging the used water is provided. The solenoid valve is actuated for inlet of water during predetermined periods.

3,544,372
DEEP SUBMERGENCE BATTERY HAVING GAS BUBBLE-ELECTROLYTE SCRUBBING VENT CAP
Laurance Bridge, Levittown, Walter J. Horner, Willow Grove, and Harold F. Thiel, Cornwell Heights, Pa., assignors to ESB Incorporated, a corporation of Delaware
Filed Sept. 26, 1968, Ser. No. 762,893
Int. Cl. H01m *1/06*
U.S. Cl. 136—6 **4 Claims**

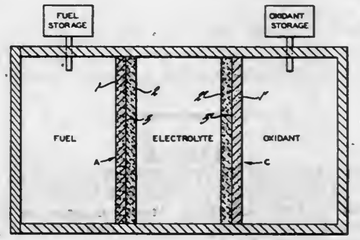
A pressure equalized deep submergence battery for immersion in a salt or fresh water medium having an oil-

electrolyte interface beneath the cell cover is provided with a vent cap in the cover which scrubs drops of elec-



trolyte from the discharge gas bubbles as they pass through the oil.

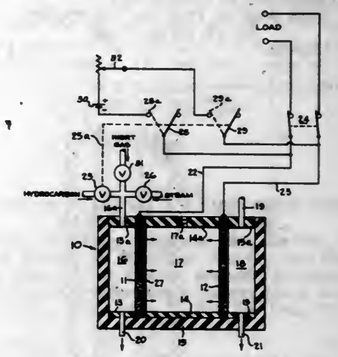
3,544,373
ELECTROCHEMICAL CELL WITH LAYERED ELECTRODE OF CERAMIC AND CARBON AND METHOD
Dominicus A. J. Swinkels, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 16, 1966, Ser. No. 550,514
Int. Cl. C01b *7/06*; **H01m** *27/00, 27/02*
U.S. Cl. 136—86 **14 Claims**



An electrode for an electrochemical cell which electrode comprises at least two porous materials, one of which is electrically conductive and not wettable by the cell's electrolyte, and the other is electrically nonconductive and wettable by the cell's electrolyte. The wettable, nonconductive material faces the electrolyte. The nonwettable, conductive portion of the electrode faces the cell reactant.

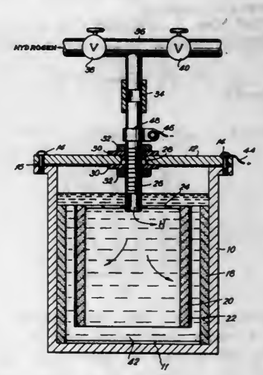
3,544,374
FUEL CELL WITH D.C. POTENTIAL MEANS AND METHOD OF OPERATING SAME
Alfred F. D'Alessandro, Havertown, and Harold Shalit, Drexel Hill, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 25, 1966, Ser. No. 552,758
Int. Cl. H01m *27/06*
U.S. Cl. 136—86 **8 Claims**

This invention deals with fuel cells and in particular with a system for reducing the deterioration of anodes containing metallic hydrogen transfer membranes during periods of start-up and shut-down. During such operation hydrogen is removed from the vicinity of said membrane and a direct current potential is supplied to the mem-



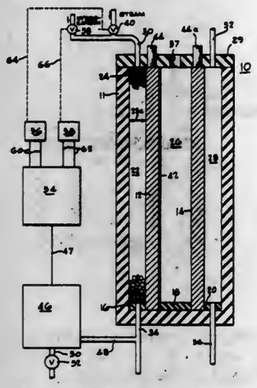
brane in a sufficient amount to maintain the membrane negative with respect to the cathode and chemically inactive with respect to the electrolyte.

3,544,375
RECHARGEABLE FUEL CELL
Samuel Ruben, 52 Seacord Road, New Rochelle, N.Y. 10804
Filed May 22, 1967, Ser. No. 640,300
Int. Cl. H01m *13/02, 27/04*
U.S. Cl. 136—86 **4 Claims**



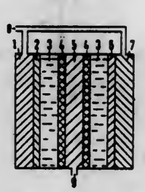
A rechargeable fuel cell utilizing an oxidizable and ionizable gas, such as hydrogen, methane or hydrazine as its anodic agent and a rechargeable or electrochemically reoxidizable metal oxide as its cathode. On discharging, oxidizable gas is supplied to the porous anode, and preferably by assistance of a catalyst, is combined with oxygen derived from the cathode, producing water. On charging, the said water is decomposed to hydrogen and oxygen of which the oxygen component serves to reoxidize the cathode. As the net water content is balanced between discharge and charge cycle, the cell of the invention can be continuously operated without the necessity of replacing its electrolyte.

3,544,376
METHOD AND APPARATUS FOR MONITORING FUEL CELL FEED
James E. Connor, Jr., Wynnewood, Alfred F. D'Alessandro, Havertown, and Harold Shalit, Drexel Hill, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 26, 1966, Ser. No. 575,301
Int. Cl. H01m 27/00
U.S. Cl. 136—86 8 Claims



This invention relates to monitoring the methane concentration in a fuel cell effluent and adjusting the rate of feed to the fuel cell responsive to said monitoring.

3,544,377
OXYGEN-HYDROGEN STORAGE BATTERY CELL
Eduard Justi and Ralf Wendtland, Braunschweig, Germany, assignors of one-half each to Varta Aktiengesellschaft, Hagen, Westphalia, Germany, and Siemens Aktiengesellschaft, Berlin and Munich, Germany, both corporations of Germany
Filed Mar. 2, 1967, Ser. No. 620,051
Claims priority, application Germany, Mar. 26, 1966, A 51,976
Int. Cl. H01m 27/00
U.S. Cl. 136—86 11 Claims



Oxygen-hydrogen cell for storing electric energy by electrolysis of water and recombination of electrolysis gas. The same cell is used for both steps. Valve electrode covers are on the electrodes. Both nickel and silver oxygen electrodes are required.

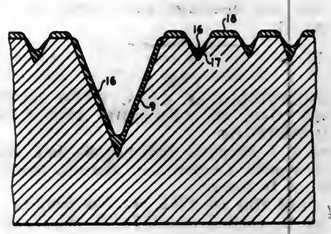
3,544,378
FUEL CELL COMPRISING A METAL TUNGSTATE ANODE
Barret Broyde, New York, N.Y., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Dec. 29, 1966, Ser. No. 605,553
Int. Cl. H01m 13/00, 27/00
U.S. Cl. 136—86 11 Claims

1. An electrochemical cell, comprising an anode, a cathode, and an electrolyte therebetween, said anode consisting essentially of an electrically conductive base support and an anodic oxidation catalyst having the formula:

$$M_xWO_3$$

where M is selected from the group consisting of Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm and Yb, and x has a value between 0 and 1.

3,544,379
FUEL CELL ELECTRODE AND PROCESS
George T. Miller, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 550,245, May 16, 1966. This application Mar. 14, 1967, Ser. No. 622,959
Int. Cl. H01m 27/04, 13/00
U.S. Cl. 136—86 10 Claims



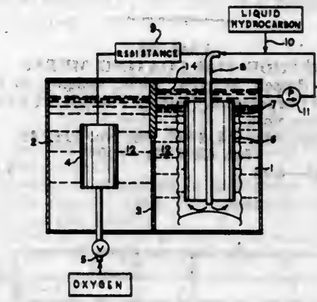
A fuel cell, utilizing liquid carbonaceous fuels insoluble in the aqueous electrolyte, is provided with a fuel electrode having catalytic points or projections and means for flowing a film of liquid fuel over the electrode face in contact with both such projections and the electrolyte.

3,544,380
METHOD OF ACTIVATING FUEL CELL ELECTRODE BY DIRECT CURRENT
Arabinda N. Dey, Arlington, Mass., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Apr. 21, 1967, Ser. No. 632,551
Int. Cl. H01m 27/00
U.S. Cl. 136—86 4 Claims

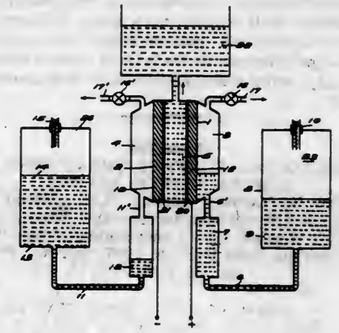
The activity of the fuel electrode in a fuel cell is increased by periodic application for a short time, of a superimposed direct current in the same direction as the normal current.

3,544,381
FUEL CELL WITH WICKING-TYPE ELECTRODE
George T. Miller, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 622,959, Mar. 14, 1967. This application Oct. 5, 1967, Ser. No. 673,202
Int. Cl. H01m 27/04
U.S. Cl. 136—86 4 Claims

A fuel cell with wicking type fuel electrode is provided by wrapping or pressing an electrically conductive base or support with a porous, hydrophobic sheet of fiber or paper upon which a catalyst is deposited. A liquid fuel, substantially insoluble in the electrolyte wicks up between the electrode base and the hydrophobic porous sheet of material to contact the catalyst at the electrolyte, catalyst, fuel interface, generating electrical current.



3,544,382
FUEL CELL DEVICE FOR CONTINUOUS OPERATION
Dieter Spahrbier, Frankfurt am Main, Klaus Wandschneider, Kelkheim, and Rudolf Eckardt, Steinbach, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed July 1, 1968, Ser. No. 741,405
Claims priority, application Germany, July 8, 1967, V 34,027; July 21, 1967, V 34,121, V 34,122
Int. Cl. H01m 27/12
U.S. Cl. 136—86 20 Claims



In the liquid supply conduit system used for supplying gas precursors in liquid form to the catalytically active surfaces of gas diffusion electrodes there is provided a pressure pipe or rising main which is used to regulate the flow of such liquids to such electrodes during continuous operation thereof under various electrical load conditions.

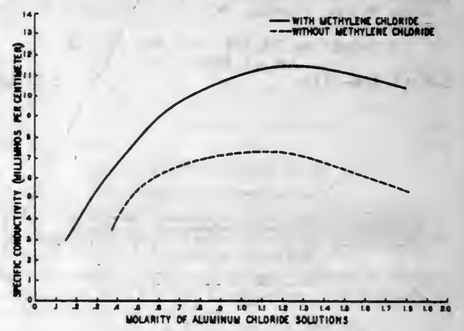
3,544,383
METHOD OF SEALING AN ELECTRIC BATTERY BY MEANS OF SPIN WELDING
John E. Oltman, Madison, Wis., assignor to ESB Incorporated, a corporation of Delaware
Filed Dec. 16, 1968, Ser. No. 784,147
Int. Cl. H01m 1/02, 31/00
U.S. Cl. 136—133 5 Claims

The construction of a battery sealed within a plastic container comprising a plastic can and a plastic top wherein the top is spin welded to the can. While the top is being spin welded to the can, rotatable contact between the terminal in the top and the current collector of one of the battery electrodes is maintained. If the physical properties of the battery electrode permit, the terminal in the top may have an extension projecting down into the electrode and the extension rotates in the electrode during the spin welding operation and serves as the current collector therefor. The peripheral edge of the top is designed to permit a combined radial-butt seam weld to be formed between the top and the can.

3,544,384
METHOD OF MAKING A LAMINATED POROUS BATTERY SEPARATOR
Erik Gustav Sundberg, Osbacken, Nol, Sweden, Arthur Korbol, Hafrsfjord, Stavanger, Norway, and Ove Karl Gustaf Nilsson, Nol, Sweden, assignors to Aktiebolaget Tudor, Stockholm, Sweden, a corporation of Sweden
No Drawing. Filed May 7, 1968, Ser. No. 727,372
Int. Cl. H01m 3/02
U.S. Cl. 136—148 5 Claims

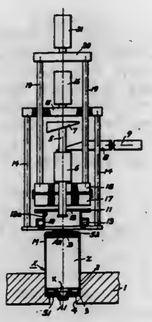
An improved porous battery separator is made by laminating together a macroporous, relatively rigid layer and a microporous, mechanically flexible layer. To accomplish this, a macroporous layer of desired thickness is made by sintering a layer of pulverulent synthetic resin particles and another layer of desired thickness is made by dissolving a synthetic resin, preferably in admixture with a porous or pore-forming filler, in a volatile solvent and extruding or otherwise shaping the resulting gel or viscous mixture. Thereupon the two layers are pressed and bonded together, such as with the aid of the solvent from the second layer which causes solvation of the first layer where the two layers abut, and the solvent is evaporated from the laminated product.

3,544,385
NON-AQUEOUS BATTERY WITH METHYLENE CHLORIDE IN THE ELECTROLYTE
Gerald H. Newman, Strongsville, Ohio, assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York
Filed Nov. 4, 1968, Ser. No. 773,102
Int. Cl. H01m 11/00
U.S. Cl. 136—155 7 Claims



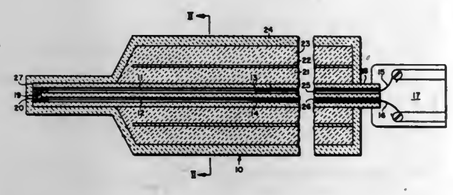
The invention relates to a mixed solvent system for use in non-aqueous organic electrolytes. The novel electrolytes comprise a solute dissolved in a mixed solvent system, one of the solvent being methylene chloride.

3,544,386
METHOD OF RENDERING GALVANIC CELLS LEAKPROOF BY ENCASING THEM IN A JACKET OF THERMOPLASTIC SYNTHETIC MATERIAL
Johann Musil, Vienna, Austria, assignor to Telephon- und Telegraphen-Fabriks-Aktiengesellschaft Kapsch & Soehne, Vienna, Austria, a corporation of Austria
Filed Mar. 6, 1968, Ser. No. 710,817
Claims priority, application Austria, Mar. 7, 1967, A 2,173/67, Patent 269,242
Int. Cl. H01m 1/02
U.S. Cl. 136—175 5 Claims



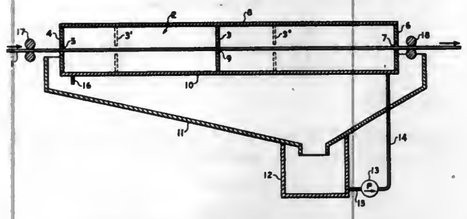
Method of rendering galvanic cells leakproof by inserting them in a plastic tubular jacket closed at one end by a first end wall. A second plastic end wall is inserted into the terminal portion of the tubular jacket, and pressure is exerted on the outside of the second end wall which is transmitted by way of the cell to the opposite, first end wall as a deforming pressure arching the first end wall elastically outwardly. The tubular jacket is welded to the second end wall, and the welded-on-wall is relieved of pressure. By the elastic return to its original shape of the second end wall, there is produced a contact pressure between the cell contacts and external contacts embedded in said two end walls.

3,544,387
EXPENDABLE IMMERSION THERMOCOUPLE
Thomas E. Norby, Raleigh, N.C., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Dec. 28, 1966, Ser. No. 605,336
Int. Cl. H01v 1/04
U.S. Cl. 136—233 3 Claims



An inexpensive expendable thermocouple is disclosed which can be immersed in a molten pool of glass, metal or the like and remain at thermal equilibrium for a sufficient time to permit accurate recordation of temperature. The thermocouple includes a radiation shield around a vulnerable junction of lead wires and noble metal wires, but the shield does not extend to the area of the measuring junction.

3,544,388
METHOD FOR COATING METAL
William S. Russell, Warren, Mich., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
Filed Mar. 24, 1967, Ser. No. 625,743
Int. Cl. C23f 7/00
U.S. Cl. 148—6.14 3 Claims



A method and apparatus for treating metal sheet and strip in an immersion type process with a chemical conversion type coating solution to form a protective and/or paint base coating on the metal surface. The sheet or strip is introduced into a coating zone wherein a chemical conversion coating solution is flowed in contact with the metal surface. The amount of coating produced on the surface is controlled by varying the size of the coating zone. The apparatus for accomplishing this has a coating chamber which may be increased or decreased in length. The chamber itself may be telescoping, or have a longitudinally movable end wall, or have a series of folding, transverse partitions or be made up of a series of separate, connecting coating zones, each with its own coating solution inlet.

3,544,389
PROCESS FOR SURFACE TREATMENT OF COPPER AND ITS ALLOYS
Hargovind N. Vazirani, Stirling, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,201
Int. Cl. C23f 7/02
U.S. Cl. 148—6.14 9 Claims

This is a method for surface treatment of copper and and its alloys which results in an improved adhesive joint between the metal and organic adhesive materials and comprises treatment in an alkaline permanganate solution.

3,544,390
PHOSPHATIZING PROCESS FOR IRON PRODUCTS AND PRODUCTS OBTAINED THEREBY
Edward Labib Ghali and Jacques Voeltzel, Saint-Germain-en-Laye, Yvelines, France, assignors to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France
No Drawing Filed Dec. 3, 1968, Ser. No. 780,893
Claims priority, application France, Dec. 4, 1967, 130,842
Int. Cl. C23f 7/10
U.S. Cl. 148—6.15 8 Claims

An anti-corrosion iron phosphate coating with a superposed zinc phosphate coating is formed on iron products by applying a potential difference between the product and a counter-electrode while the product is immersed in a zinc-containing phosphatizing bath, which potential difference is discontinued after a surface solution of the iron has been effected and an iron phosphate coating has been formed followed by formation of a superposed zinc phosphate coating.

3,544,391
PROCESS FOR LAMINATING ALUMINUM WITH A PLASTIC FILM
John A. Scott, 48 Grove Road, North Haven, Conn. 06473, and William H. Anthony, 11 Lovig Lane, Hamden, Conn. 06518
No Drawing. Continuation of application Ser. No. 448,288, Apr. 15, 1965. This application Sept. 26, 1968, Ser. No. 766,371
The portion of the term of the patent subsequent to Sept. 29, 1987, has been disclaimed
Int. Cl. C23f 7/06
U.S. Cl. 148—6.27 9 Claims

A process for treating aluminum articles to improve adhesion of paints and adhesive coatings thereto comprising contacting the aluminum with an amine or hydrazine in an aqueous solution having a pH of 7 to 11 at a temperature of 85° C. to boiling and then applying a coating of adhesive or paint to the aluminum article.

3,544,392
PROCESS FOR MAKING HIGH QUALITY HOT-WORKED PRODUCTS FROM ALUMINUM BASE ALLOY POWDERS
John P. Lyle, Jr., New Kensington, Pa., and Raymond J. Towner, Lima, Ohio, assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,742
Int. Cl. C22f 1/04; C21d 9/00
U.S. Cl. 148—11.5 14 Claims

Production of articles of improved ultrasonic quality made of aluminous metal powder by compacting powder to from 60% to less than 100% of theoretical density, degassing the resulting compact by heating without sintering at 800 to 1125° F. in a substantially dry inert atmosphere substantially free of hydrogen and then substantially immediately compressing the heated compact to substantially 100% of its theoretical density before hot working.

3,544,393
METHOD OF MANUFACTURING LOW CARBON HIGH TENSILE STRENGTH ALLOY STEEL
Joseph R. Zanetti, Dearborn, Mich., assignor to National Steel Corporation, a corporation of Delaware
No Drawing. Filed Aug. 11, 1967, Ser. No. 659,885
Int. Cl. C21d 7/00
U.S. Cl. 148—12 2 Claims

A low carbon, weldable, high tensile strength alloy steel characterized by ductility and toughness suitable for structural uses is produced in the "as rolled" condition by utilizing a steel consisting essentially, by weight, of

	Percent, about
Carbon	.10–20
Manganese	.75–1.15
Silicon	.50–1.0
Chromium	.50–.80
Zirconium	.05–.20
Boron	.0005–.0025
Titanium	.02–.15
Columbium	.01–.06

and the balance iron with residual impurities. The steel is hot rolled to form bars, plate and sheets with a starting rolling temperature between 2100° F.–2300° F. and a finishing rolling temperature between 1400° F.–1700° F. followed by air cooling.

3,544,394
ALUMINUM-COPPER-MAGNESIUM-ZINC POWDER METALLURGY ALLOYS
John P. Lyle, Jr., New Kensington, Pa., and Raymond J. Towner, Lima, Ohio, assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,752
Int. Cl. C22f 1/04; B22f 3/24
U.S. Cl. 148—12.7 2 Claims

Aluminum base powder metallurgy alloy article having an improved combination of high transverse yield strength and high stress corrosion cracking resistance. The alloy contains the basic precipitation hardening elements zinc, magnesium and copper plus dispersion strengthening elements iron and nickel. It may additionally contain chromium and/or manganese. The alloy is prepared by atomization of a melt of the elements, hot working, solution heat treating, quenching and artificial aging. Components of the alloy in percent by weight are, in addition to the aluminum, from at least 6.5 to 13 zinc, 1.75 to 6 magnesium, 0.25 to 2.5 copper, 0.75 to 4.25 iron and 0.75 to 6 nickel, up to 3 manganese and up to 0.75 chromium. The iron to nickel ratio is from 0.2:1 to 2.0:1.

3,544,395
SILICON P-N JUNCTION DEVICE AND METHOD OF MAKING THE SAME
Takeshi Terasaki, Kyoto-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Nov. 15, 1966, Ser. No. 594,601
Claims priority, application Japan, Nov. 30, 1965, 40/74,567
Int. Cl. H01l 3/12
U.S. Cl. 148—33 5 Claims

A silicon p-n junction device comprising a silicon wafer having an etch pit density greater than 10^3/cm.^{2}, an alloy dot mounted on a surface thereof, an interposed recrystallization layer between said alloy dot and said silicon wafer and a diffusion layer between said recrystallization layer and silicon wafer.

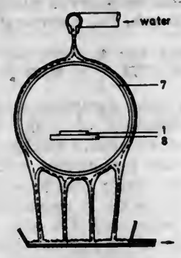
3,544,396
SILICON STEEL COATED WITH MAGNESIA CONTAINING CHROMIC OXIDE
David W. Taylor, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
No Drawing. Filed Aug. 28, 1967, Ser. No. 663,543
Int. Cl. H01f 1/18
U.S. Cl. 148—111 6 Claims

An annealing separator for silicon steel consisting essentially of magnesium oxide (MgO) and from about 1% to about 20% of chromic oxide (Cr_2O_3) by weight; and a method of making silicon steel wherein sheet stock at final gauge and prior to a final high temperature anneal is coated with an annealing separator consisting essentially of magnesium oxide and from about 1% to about 20% of chromic oxide by weight, whereby to produce a product with a superior insulative glass coating. The annealing separator may also contain from about 0.1% to about 1% of calcium oxide by weight.

3,544,397
METHOD FOR THE MANUFACTURING OF ZENER DIODES
Hans Weinerth, Freiburg, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 4, 1968, Ser. No. 695,747
Claims priority, application Germany, Jan. 26, 1967, D 52,101
Int. Cl. H01l 7/46
U.S. Cl. 148—177 5 Claims

This is an invention for a method of manufacturing Zener diodes with breakdown voltages below 7 volts and

optimum low differential resistance for the breakdown voltage by forming a zone at the surface of a substrate of opposite conductivity type than said substrate by the



planar process, evaporating an alloying material on to said surface zone and of the same conductivity as said zone, and then alloying said material within a temperature gradient through the surface zone to a desired depth.

3,544,398
METHOD OF PREVENTING AVALANCHING IN SEMICONDUCTOR DEVICES
Ogden J. Marsh, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed July 11, 1968, Ser. No. 744,112
Int. Cl. H01l *7/54*
U.S. Cl. 148—186 **4 Claims**

Method of preventing avalanching of a P-N junction by implanting alkali metal ions at the portions of the junction where it is desired to prevent or inhibit avalanching.

3,544,399
INSULATED GATE FIELD-EFFECT TRANSISTOR (IGFET) WITH SEMICONDUCTOR GATE ELECTRODE
Hans G. Dill, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Oct. 26, 1966, Ser. No. 589,547
Int. Cl. H01l *7/34*
U.S. Cl. 148—187 **5 Claims**

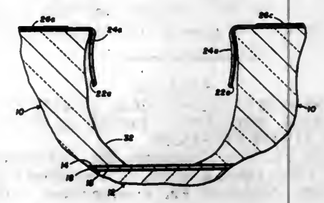
An insulated gate field-effect transistor in which the gate member is of semiconductor material formed on and insulated from the semiconductor body prior to the formation of the source and drain so that the gate may be used as a mask against diffusion to form the source and drain regions without critical and difficult gate alignment problems.

3,544,400
METHOD AND MASKANT COMPOSITION FOR CHEMICAL MILLING OR PLATING
Henry M. Deutsch, Fullerton, Calif., assignor to Organocerams, Inc., Placentia, Calif., a corporation of California
No Drawing. Filed May 29, 1967, Ser. No. 642,198
Int. Cl. C23f *1/02, 1/04*
U.S. Cl. 156—13 **14 Claims**

A low solvent, high resin solids containing maskant forming liquid composition including a low molecular weight liquid diene prepolymer having end and side chain functionality such as, a 1000–2000 equivalent weight hydroxyl, thiol, chloro or isocyanate terminated and side chain modified diene polymer having a functionality of at least 2 and a cross-linking and curing agent such as a polyisocyanate, polyamide, polyol, or polybasic acid, acid chloride or anhydride. Said composition being curable to form a polymeric maskant having a molecular weight greater than 20,000.

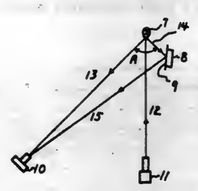
The maskant is applied to a metal article by a one pass spray, dip, brush or forced flow, and is cured in place to form a bubble and cob-web free muskant film of a thickness from 5 to 20 mils. The maskant film may contain aluminum, magnesium or calcium silicate fillers such that it is translucent as applied but becomes visible in regions that are mechanically stressed. A portion of the maskant is removed from the area to be etched and selective chemical milling or plating is effected by subjecting the exposed area to an etchant that dissolves the metal or to a chemical plating bath to deposit metal in the exposed area.

3,544,401
HIGH DEPTH-TO-WIDTH RATIO ETCHING PROCESS
Hall E. Jarman, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 16, 1967, Ser. No. 638,914
Int. Cl. C23f *1/02;* H01l *7/50*
U.S. Cl. 156—17 **6 Claims**



A process for etching semiconductor material and the like by forming a malleable etching mask on the surface of the material which has an opening exposing the material that is substantially narrower than the desired depth of the etch, and periodically bending the edges of the mask down over the sides of the etched cavity as the cavity is deepened by an etching fluid to retard etching of the side walls and decrease the width of the etched cavity.

3,544,402
PHOTOGRAPHIC REPRODUCTION BY DISCRETE INTERSECTING RAYS WITH COMPRESSION IN THE THIRD DIMENSION
Kenneth Leslie Agnew, Falconbridge, Ontario, Canada, assignor to The Battelle Development Corporation, Columbus, Ohio
Filed Dec. 18, 1967, Ser. No. 691,553
Claims priority, application Canada, June 2, 1967, 992,034
Int. Cl. B44b *1/02;* B44c *3/06*
U.S. Cl. 156—58 **5 Claims**



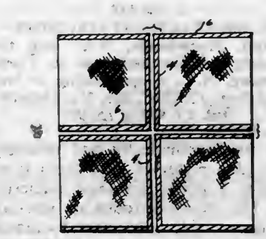
This invention relates to a method of recording and reproducing the appearance of the shape of three-dimensional objects by means of contour lines, which, on reprojection, at points of simultaneous intersection, photographically reproduce the recorded shape, compressed in depth, so that the original scene may be reproduced within a relatively shallow depth of space, yet still provide the appearance of a three-dimensional view, by means of a bas-relief effect. At least one of the rays projected to produce a contour line is modulated to provide for variations in shade or color. In the limiting case of complete compression, two or more non-adjoining rays may intersect simultaneously, with no ray originating from a contour line, but merely one or more modulated to produce differences in shade or color in a two-dimensional plane within the space occupied by a transparent differentially-photosensitive material.

3,544,403
METHOD OF MAKING MULTILAYER COMPOSITE DRIVING BELT
Livio Zenere, Via Margherita 9, Valdagno, Vicenza, Italy
Filed Nov. 21, 1967, Ser. No. 684,869
Claims priority, application Italy, Nov. 21, 1966, •Patent 780,202
Int. Cl. B29d *29/00*
U.S. Cl. 156—137 **3 Claims**



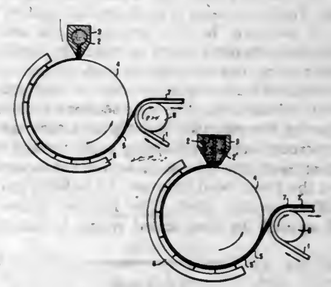
A method is provided for making multilayer straps or belts particularly adapted for generally fast drives and particularly spinning and twisting machines, wherein a composite fabric is first prepared as formed by coupling or bonding polyamide resin layers, with the addition of an outside layer formed of a double-face fabric, one face of which is formed of plastic material yarns adapted to be adhered or welded to the other layers, and the other face of which is formed of cotton yarns or other insulating fiber having equivalent thermal properties.

3,544,404
METHOD OF MAKING POLYPROPYLENE BAGS
Frederick W. Johnson, Summit, N.J., and Jack Leach, Greensboro, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C., a corporation of Delaware
Filed Jan. 5, 1968, Ser. No. 696,068
Int. Cl. D03d *1/04*
U.S. Cl. 156—148 **5 Claims**



A unitary industrial bag, which may be used as a sandbag, is woven from a slit film thermoplastic yarn such as polypropylene, which may be fibrillated or non-fibrillated. The fabric is woven in a conventional double fabric manner on a standard loom with a single thickness relatively high-textured strip down the center of the warp. The longitudinal sides or edges of the fabric are woven with any desired selvage construction to prevent raveling and are maintained separately to form the open end of the bag. Filling picks are inserted across the center of the fabric, and the double fabric is woven with a single thickness filling strip of a texture similar to the warp strip. During the weaving of the single thickness strips, the fabric is simultaneously slit down the center of the longitudinal warp strip with a hot knife; the fabric is then cut in the transverse direction along the center of the filling strip. The resulting unitary bag units are reinforced and heat-sealed on three sides, open at the end, and are reinforced on the open end with a fabric selvage. The foregoing abstract is provided only to permit a cursory review of the gist of the invention, and is not intended to define the scope of the invention.

3,544,405
METHOD OF MAKING A LAMINATE, ONE LAYER COMPRISING A REVERSIBLE SOL-GEL
Setsuo Nakai and Takeshi Mikami, Ashigara-machi, Ashigara-Kamigun, Japan, assignors to Fuji Photo Film Co., Ltd., Nakanuma, Minami Ashigara-machi, Ashigara-Kamigun, Kanagawa, Japan
Filed Sept. 13, 1967, Ser. No. 667,465
Claims priority, application Japan, Sept. 13, 1966, 41/60,596
Int. Cl. B32b *31/08*
U.S. Cl. 156—164 **3 Claims**

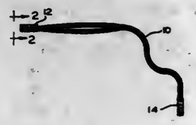


A process for coating a reversible sol-gel coating composition on a surface of a travelling support in a thin layer by applying the coating composition to a cooling surface moving at a speed slower than that of the support, gelling the layer formed by cooling, stripping the layer from the cooling surface, and then transferring to the surface of the support while stretching.

3,544,406
METHOD AND APPARATUS FOR MAKING LIGHT PIPES
John H. McAllister, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Mar. 27, 1968, Ser. No. 716,446
Int. Cl. B65h *81/00*
U.S. Cl. 156—174 **11 Claims**

A fiber optic light pipe is formed by winding a first helix comprising contiguous turns of optical fiber material around a mandrel, and winding a plurality of other optical fiber helices over the first in the same helix direction. Successive helices are formed by directing the separate fiber strand forming each helix into the groove formed between and above turns of the helix immediately thereunder, to provide a closely packed and correctly aligned

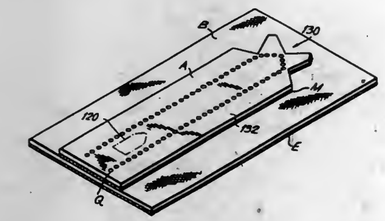
cross section of optical fibers. The centers of the fibers in successive helices are aligned diagonally with respect to the mandrel axis with each fiber substantially adjoining six others in honeycomb fashion. In a preferred embodiment, the various helices are wound substantially simultaneously with each successive helix being started at least one turn behind the previous helix so as to provide a groove for guiding each successive helix.



3,544,407
METHOD FOR FORMING A HEAT-SEALED END SEAM IN A PLASTIC TUBE
Kurt Rochla, Lengerich, Westphalia, Germany, assignor to Windmoller & Holscher
Filed June 15, 1967, Ser. No. 646,384
Claims priority, application Germany, June 27, 1966, W 41,878
Int. Cl. B29c *17/00*
U.S. Cl. 156—198 **1 Claim**

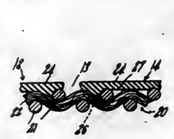
The open end of each tube section is continuously moved by retaining tools past a stationary source of radiant heat. The fused bead is then consolidated by the application of pressure. In this process, those end portions where the tube sections are to be closed by heat sealing are arranged one behind the other in planes which are at right angles to the direction of movement of said ends past the source of radiant heat. The tube sections are held in such a manner by the platelike holding tools that said end portions protrude from the holding tools toward the source of radiant heat. The tube sections are subsequently pulled to move the fused bead between the holding plates, which are slightly spaced apart. The holding plates are then pressed against the heat-sealed seams to consolidate the same.

3,544,408
METHOD OF MAKING FABRIC COVERED BELTS
Theodore Loew, Schenectady, N.Y., assignor, by mesne assignments, to The Standard Products Company, a corporation of Ohio
Filed Sept. 27, 1967, Ser. No. 670,842
Int. Cl. B32b *31/00*
U.S. Cl. 156—249 **7 Claims**



The disclosure sets forth a belt end forming method in which a pattern or templet is provided, having cut out side and end flaps to be folded with fabric, which will permit the excess fabric to be removed and eliminate undue lumpiness or thickness at the end of the belt. The pattern is employed in cutting the fabric and folding the side and end flaps. The pattern is separated from the folded fabric which may then be applied to a suitable backing.

3,544,409
METHOD OF MAKING ADHESIVE TAPE PRODUCTS
Joseph C. Komp, Bowling Green, Ky., assignor to The Kendall Company, Boston, Mass., a corporation of Massachusetts
Original application Mar. 8, 1965, Ser. No. 437,813. Divided and this application Oct. 14, 1968, Ser. No. 786,521
Int. Cl. B32b *31/00*
U.S. Cl. 156—290 **5 Claims**



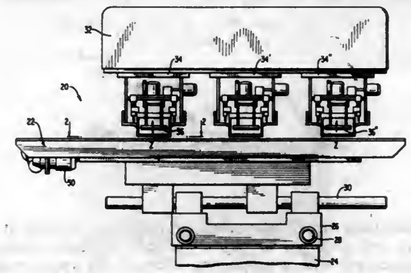


The method of making previous pressure-sensitive adhesive-coated fabric from theromplastic adhesive and a fabric backing sheet by supporting a pressure-sensitive adhesive film on a moving surface, separating it into a multiplicity of continuous transversely spaced strips each of substantially greater thickness at its edges than in its central position by causing lateral flow of said adhesive at each of a plurality of transversely spaced positions continuously to form openings by displacing film material laterally to the edges of the strips, creating said openings and providing said greater thickness of film at the edges of said strips continuously therealong and thereafter pressing the unsupported surface of each of said strips while supported on their other side into contact with the surface of a pervious fabric to bond said adhesive strips to said fabric by penetrating said fabric with the material of said strips to a greater degree at the edges thereof providing a greater degree of bonding along the edges of said strips throughout their length while maintaining said openings in their open state to provide a permanently porous pressure sensitive, adhesive-coated fabric.

3,544,410
GLASS STACKING MACHINE
Howard S. Best, Horseheads, N.Y., and Graham H. Mosely, Raleigh, N.C., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Nov. 17, 1967, Ser. No. 684,006
Int. Cl. G05g *15/00*
U.S. Cl. 156—351 **18 Claims**

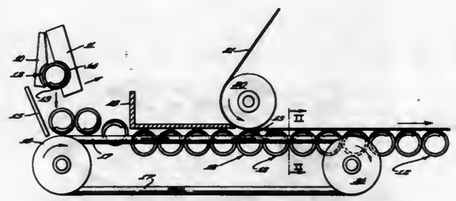
A machine for automatically and precisely stacking and laminating thin plates of glass from three separate magazines under a pre-programmed numerical control onto a pallet. The glass electrodes are stacked in magazines and a support table is horizontally movable in oppose directions relative to a pick-up head having a vertically movable pick-up bar with vacuum applied thereto. The pick-up bar includes a registration bar and a sensor for registering and aligning picked-up plates and by the relative movement of the table the pick-up bar moves over a vertically movable adhesive applying pad and then to a pallet to deposit the plate by release of vacuum. There is automatic pallet loading and unloading and a pallet

conveyor for conveying loaded pallets from several identical heads to an unloading station. The entire machine



is automatically controlled from the numerical control unit and interlocked with various limit switches.

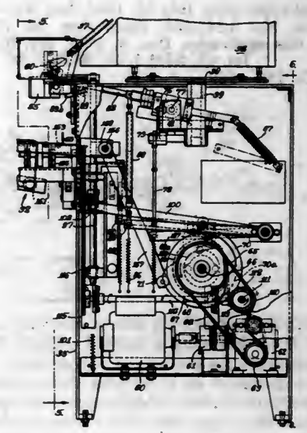
3,544,411
APPARATUS FOR TAPING BINDINGS AND PRODUCT PREPARED THEREBY
Henry N. Staats, Deerfield, Ill., assignor to General Binding Corporation, Northbrook, Ill., a corporation of Delaware
Filed Apr. 6, 1967, Ser. No. 628,987
Int. Cl. B26d *5/00*
U.S. Cl. 156—353 **8 Claims**



A method of packaging binding elements and an apparatus for packaging them. Heretofore conventional plastic binding elements of the type having a backbone carrying a plurality of transverse integral curled fingers have been marketed in a loose, box, fashion. The apparatus herein described releasably secures individual bindings to a common carrier member or members and provides for their distribution in a unitized manner. Apparatus is disclosed capable of automatically applying previously constructed conventional binding elements to the carrier member or members for unitized sales distribution and use.

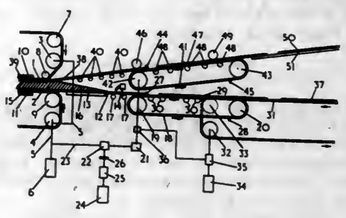
3,544,412
PACKAGE LABELLING EQUIPMENT
Bengt A. Arvidson, Villa Park, and Fritz F. Treiber, Niles, Ill., assignors to Corley-Miller, Inc., a corporation of Ohio
Continuation-in-part of application Ser. No. 451,742, Apr. 29, 1965, which is a continuation-in-part of applications Ser. No. 114,779, June 5, 1961, and Ser. No. 200,608, June 1, 1962. This application Aug. 16, 1967, Ser. No. 660,966
Int. Cl. B32b *31/04*
U.S. Cl. 156—360 **5 Claims**

A package labelling device in which means are provided for delivering a printed label to a transfer member which applies the label to a package. The transfer member includes a heated platen having an air opening to which suction is applied to hold the label on the platen and for subsequently discontinuing the suction to aid in removing the label from the platen and applying it to the package. Means are provided selectively positionable in the path of movement of the transfer member to prevent contact of the platen with the package. In one embodiment, a manually operated stop pin is selectively positionable in the path of movement of the transfer member. In another embodiment, a stop arm is normally positioned in the



path of movement of the transfer member and a piston and cylinder device retracts the stop arm whenever a label is properly located on the platen. The piston is controlled by the means for applying suction to the air opening on the platen such that the piston moves the stop arm out of the path of movement of the transfer member when vacuum is created at the air opening by blockage thereof by a label.

3,544,413
MANUFACTURE OF LAMINATED ARTICLES
William Raymond Clegg and Harry Edwards, Manchester, England, assignors to Imperial Chemical Industries, Limited, London, England, a corporation of Great Britain
Filed Nov. 8, 1967, Ser. No. 681,381
Claims priority, application Great Britain, Nov. 10, 1966, 50,473/66
Int. Cl. B65c *9/40*; B32b *31/00*
U.S. Cl. 156—363 **9 Claims**



Modified apparatus for the continuous manufacture of laminated foam articles in which at least one of the facing sheets is in the form of discontinuous panels. The apparatus incorporates means whereby panels which are fed

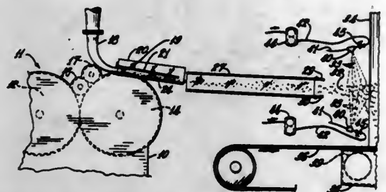
initially onto a conveyor at randomly-spaced intervals are thereafter caused to move relatively to one another to bring their adjacent edges into abutment before they are conveyed into contact with the foam-forming ingredients.

3,544,414

APPARATUS FOR PRODUCING A FIBROUS MAT

Allen L. Simison, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Original application July 15, 1965, Ser. No. 472,100, now Patent No. 3,381,069, dated Apr. 30, 1968. Divided and this application Dec. 6, 1967, Ser. No. 708,462
Int. Cl. B29j 5/00; B32b 5/00
U.S. Cl. 156—369 6 Claims



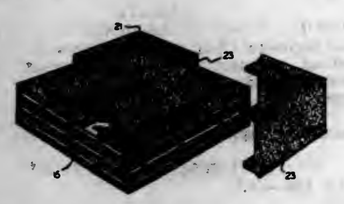
Apparatus for making a fibrous mat from waste gatherings of fibers including a toothed cylinder from the top of which fibers are discharged horizontally, a blower directing a stream of air in merging relation with the fibers, a generally horizontal guiding spout through which the combined air stream and fibers pass, binder atomizing nozzles beyond the spout, a foraminous conveyor for receiving the fibers and intermixed binder particles, and a hood through which the conveyor travels.

3,544,415

REINFORCED ELASTOMERIC BEARING

Paul S. Price and William M. Slater, Toronto, Ontario, Canada, assignors to Conenco Canada Limited, a corporation of Canada

Filed Mar. 20, 1967, Ser. No. 624,320
Int. Cl. B32b 1/04; E01d 19/06
U.S. Cl. 161—44 5 Claims



A bearing pad structure of laminated natural rubber layers and metal plates with a synthetic rubber layer adhered to the sides of the pad. The synthetic rubber is used to resist ozone deterioration.

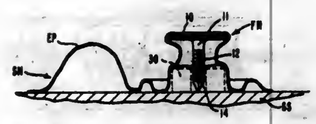
3,544,416

COMBINATION OF A PLASTIC SHEET MEMBER AND FASTENING MEANS FOR SECURING SAID MEMBER TO A SUPPORTING STRUCTURE

John Charles Gebhard, Jr., West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed July 31, 1967, Ser. No. 657,335
Int. Cl. B32b 3/06; E04b 1/38
U.S. Cl. 161—48 7 Claims

The combination of a flexible plastic sheet member and fastening means for securing the member to a supporting structure, the fastening means comprising; a plurality of pointed penetrating elements movably secured to one side of the sheet member for movement relative to the sheet member between a retracted inoperative fastening position and an extended position for operative fastening engagement with a supporting structure, said elements not



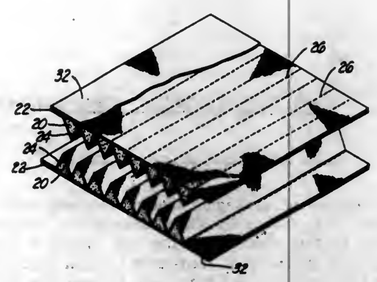
penetrating or extending through the sheet member at any time and arranged to be moved into operative fastening engagement with a supporting structure by application of force to said elements through the sheet member from the other side thereof.

3,544,417

CELLULAR FOAM CORE ASSEMBLY

Luke H. Corzine, Lakewood, Calif., assignor to Unicor, Inc., Paramount, Calif., a corporation of California

Continuation-in-part of application Ser. No. 383,390, July 17, 1964. This application Apr. 28, 1969, Ser. No. 819,796
Int. Cl. B32b 3/26, 5/18, 7/08
U.S. Cl. 161—50 8 Claims



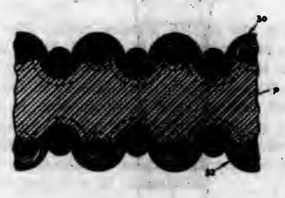
A series of preformed, elongated foam cores are positioned generally longitudinally parallel and transversely aligned and are covered with primary base and covering layers of a relatively flexible fabric, such as fiberglass. In the assembly, the primary base layer extends continuously along common lower base sides of the foam cores, while the primary covering layer extends continuously upwardly over and downwardly transversely between the foam cores, the primary layers being stitched at the transverse extremities of each of the foam cores. Depending on the transverse cross sectional configurations of the foam cores, the stitched primary layer and core assemblies may be used separately or with one inverted and assembled interfitting with another, and may be shaped in various configurations and sandwiched between continuous secondary covering layers of fabric, in all cases all of the fabric layers and stitching being completely covered and impregnated with resin cured to rigidify the overall assembly. Still further, such assemblies may be incorporated with the rigid, thickened face layer of various materials and configuration at one or both sides thereof, for instance, a thickened face layer of cured resin.

3,544,418

LUGGAGE MANUFACTURE

Samuel J. Holtzman, 8201 Symphony Drive, Baltimore, Md. 21208

Original application Nov. 1, 1963, Ser. No. 320,636, now Patent No. 3,309,451, dated Mar. 14, 1967. Divided and this application Sept. 2, 1966, Ser. No. 577,044
Int. Cl. B32b 5/28, 7/06
U.S. Cl. 161—92 8 Claims



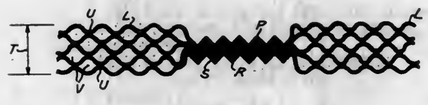
A molded, substantially rigid layer of a polypropylene composition to which there is directly bonded a textile fabric by the polypropylene composition of the layer. The textile fabric is bonded to the rigid layer of polypropylene so that the exposed surface of the fabric possesses the texture and appearance of the textile fabric. More specifically, the composite constitutes a molded concavely shaped shell for luggage with the textile fabric on the inner side to furnish a lining, or on the outer side of the shell to furnish the various decorative and color effects available of fabrics, or both.

3,544,419

PAPER LAMINATION SYSTEM

George Gerard, Point Pleasant, N.J., assignor to Jiffy Manufacturing Co., Hillside, N.J., a corporation of Delaware

Filed Jan. 26, 1968, Ser. No. 700,825
Int. Cl. B32b 3/10, 35/00
U.S. Cl. 161—111 8 Claims



The present invention relates to obtaining a multilayer of laminated paper packaging material in which a plurality of sheets of a relatively coarse, slightly calendered or uncalendered thin embossed kraft paper are attached together by means of piercing and disturbing the fibers of the paper, which causes the fibers of adjacent sheets to interlock under high pressure. This is quite different from embossing, which does not cause an interlocking of fibers of adjacent sheets of paper.

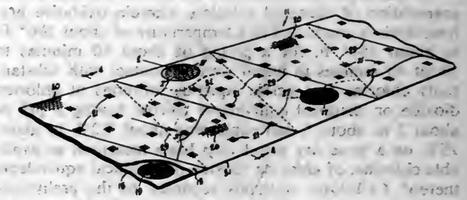
With this pinning or piercing, which causes this interlocking, the sheets may be simultaneously embossed with varying directed patterns extending longitudinally and transversely and also obliquely or diagonally in respect to the longitudinal axis of the sheet of paper. These sheets are desirably arranged in a series of continuous areas, either triangular, hexagonal or octagonal or preferably square rectangular, positioned side by side over the entire area of the paper sheets. The piercing or interlocking of the fibers may be accomplished along the edges of the sheets or at various spaced intervals across the surface of the sheets and even within the various embossed areas. The areas are desirably so embossed that in one area will be rows of mounds and recesses parallel with the longitudinal axis of the paper and in adjacent squares or areas will be diagonally arranged rows of mounds and recesses.

3,544,420

CREPED TISSUE PRODUCT

James A. Murphy, Toronto, Ontario, Canada, and Charles A. Lee and Warren R. Furbeck, Knoxville, Tenn., assignors, by mesne assignments, to International Paper Company, New York, N.Y., a corporation of New York

Filed Sept. 27, 1967, Ser. No. 671,034
Int. Cl. B32b 3/00, 29/00
U.S. Cl. 161—129 7 Claims



A creped tissue product is formed by at least two superimposed sheets of creped tissue with the lines of creping in one sheet laid at a bias to the longitudinal and transverse direction of the product and disposed to cross the lines of creping in the other sheet. The fibers of one sheet are interlocked with fibers of the other sheet. The resultant product is extensible in both the longitudinal and transverse directions and has unusually good strength and resistance to bursting, particularly in the transverse direction. Preferably, the product is a ribbon formed by collapsing a spirally-wound tube and has interlocked fibers at spaced areas formed by light compression forces which texture the ribbon's surfaces, and by heavy compression forces which glassine the fibers at other areas.

3,544,421

FILAMENT WOUND STRUCTURAL LAMINATES

James R. Griffith, Riverdale Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 31, 1967, Ser. No. 643,321
Int. Cl. B32b 17/04, 17/10; B65h 81/00
U.S. Cl. 161—144 2 Claims

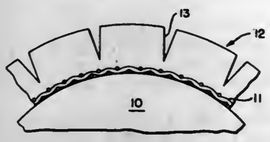


Filament-wound structural laminates of high modulus, nonmetallic, inorganic filament windings bonded with cured epoxy resins are modified to have improved stress distribution by the inclusion in the laminates of a tough, flexible plastic which encapsulates the filaments, e.g. glass filaments, and intervenes between the filaments and the cured epoxy resin binder. The tough, flexible plastic is a high molecular weight, flexible thermoplastic organic polymer, formed in place on the filaments in continuous strands by an interfacial polycondensation from an appropriate pair of starting organic bifunctional compounds and fused in the strands.

3,544,422
PREHYDROLYSIS TREATMENT FOR CHEMICAL CELLULOSE PRODUCTION
Byron J. L. Huff, Memphis, Tenn., and Karsten A. Zachariasen, Perry, Fla., assignors to The Buckeye Cellulose Corporation, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Continuation-in-part of application Ser. No. 555,700, June 7, 1966. This application June 10, 1969, Ser. No. 832,032
Int. Cl. D21c *3/00*
U.S. Cl. 162—82 8 Claims

An oxidative prehydrolysis procedure for use in the preparation of chemical cellulose wherein oxidative prehydrolysis is conducted at a temperature of about 300° F. to about 350° F. for a period of about 10 minutes to about 40 minutes in initial wetting contact with substantially chlorine free acidic aqueous solutions of chlorine dioxide or chemical equivalents thereof having a pH of about 2 to about 6 and containing about 0.2% to about 15% on a bone dry wood chip basis measured as available chlorine, of chlorine dioxide or chemical equivalents thereof. Cellulosic materials accorded to the prehydrolysis are thereafter treated by conventional digestive and bleaching procedures to result in chemical cellulose of substantially increased purity, as measured by increased alpha cellulose content together with decreased pentosan content and decreased Swedish cold caustic solubility. Further, and more importantly, the filterability of viscose prepared from the oxidatively prehydrolyzed chemical cellulose is substantially increased without conventional surfactant addition.

3,544,423
LOOM ROLL COVER
Edward M. Rothernel, Winchester, Mass., assignor to American Biltrite Rubber Co., Inc., Chelsea, Mass., a corporation of Delaware
Filed June 1, 1967, Ser. No. 642,916
Int. Cl. D03d *49/20*; B32b *3/30*
U.S. Cl. 161—88 1 Claim



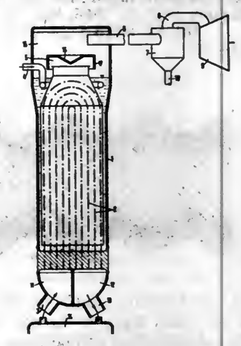
Roll cover in strip form comprising a textile backing ply bonded to an elastomeric fabric engaging ply which presents a multiplicity of oblique siped incisions in its otherwise smooth surface.

ERRATA

For Classes 162—82 and 162—300 see:
Patent Nos. 3,544,422 and 3,543,834

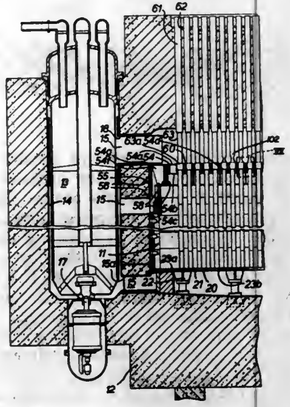
3,544,424
NUCLEAR POWER PLANT WITH WET-STEAM GENERATOR AND STEAM DRYING SYSTEM
Hans Mayer and Werner Bohmann, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
Filed Dec. 5, 1967, Ser. No. 688,049
Claims priority, application Germany, Dec. 28, 1966, S 107,637
Int. Cl. G21c *15/16*
U.S. Cl. 176—55 5 Claims

A nuclear power plant with a pressurized-water reactor or boiling-water reactor for producing steam for a turbine is provided with a system which dries the generated wet steam by means of two mutually spaced separators. One of them is a pre-separator, such as a baffle structure, and is mounted in the steam plenum chamber of the

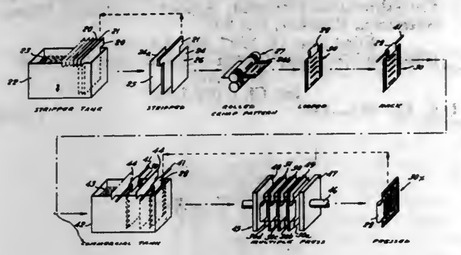


wet-steam generating boiler or tank of the reactor. The other, main separator is located in the steam line just ahead of the turbine and consists of a centrifugal water-from-steam separator such as a cyclone.

3,544,425
GAS COOLED NUCLEAR REACTOR
James William Westgarth Shaw, Warrington, Geoffrey Coast, Sandiway, near Northwich, and Ronald Francis Briody, Wigan, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Nov. 27, 1967, Ser. No. 685,874
Claims priority, application Great Britain, Nov. 28, 1966, 53,223/66
Int. Cl. E21b *19/28*
U.S. Cl. 176—58 2 Claims



it to beyond its elastic limit, after which the metal is electrolytically deposited on both sides of the intermediate



cathode sheets to a thickness suitable for metal cathodes of commerce.

3,544,432
ELECTROPLATING PLASTIC ARTICLES
Teiji Ishii and Koh Morita, Yokohama-shi, Kanagawa-ken, Japan, assignors to Chisso Corporation, Osaka-shi, Japan, a corporation of Japan
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,191
Claims priority, application Japan, Mar. 19, 1968, 43/17,880
Int. Cl. C23b *5/12, 17/00;* B44d *1/092*
U.S. Cl. 204—20 10 Claims

In the electroplating of plastic articles, adhesion of the plated metal to the plastic substrate is improved by coating the surface of the plastic article with an adhesive layer of a carboxyl-modified, amorphous propylene polymer prior to the electroplating process steps such as sensitizing, activating, chemical plating and electroplating.

3,544,433
CLAD PRESSING DIE OR PLASTIC MATERIAL FOR PRESSING SHEET METAL
Paul Ensio Leskinen, Vittnesgranden 11, Lund 5, Sweden
Filed Dec. 13, 1967, Ser. No. 690,142
Claims priority, application Sweden, Jan. 27, 1967, 1,198/67
Int. Cl. C23b *5/60*
U.S. Cl. 204—20 2 Claims

A press die for pressing sheet metal into a desired shape has a plastic body covered by a protective cap of sheet metal, the surface of which cap is formed in the desired die shape. The cap is reinforced by a layer of heat conducting metal disposed between it and the plastic body. The conducting layer is thicker than the sheet metal of the cap and the total thickness of the cap and conducting layer is greater than the thickness of the sheet metal to be pressed.

3,544,434
THICK FILM CAPACITORS FOR MINIATURIZED CIRCUITRY
Ronald R. Giller, Danbury, and Milton Schneider, Norwalk, Conn., and William J. Condon and Alfred F. Torrisi, Bennington, Vt., assignors of one-half each to Dictograph Products, Inc., Danbury, Conn., a corporation of Delaware, and Transitor Electronics, Inc., Bennington, Vt.
No Drawing. Filed Oct. 29, 1968, Ser. No. 771,641
Int. Cl. C23f *17/00;* H01g *9/00*
U.S. Cl. 204—38 10 Claims

A method for manufacturing miniature printed circuit capacitive elements in which a thick film mixture containing a finely divided valve-forming metal and glass in a binder is applied to a conductive metal surface formed on a printed circuit insulative substrate. Heat is then applied for a time sufficient to solidify the film and render it porous, and the film anodized to form or "grow" a dielectric oxide film of the metal. Subsequently a solid conductive electrolytic layer is formed over the oxide layer, and the capacitive element is completed by forming a metallic layer in contact with the electrolytic layer to complete the cathode system. In order to prevent migration of the conductive electrolyte through the dielectric oxide film, an intermediate continuous layer may be applied to the conductive substrate surface by baking a mixture of finely divided particles of the valve-forming metal, a non-film forming metal and glass in a binder.

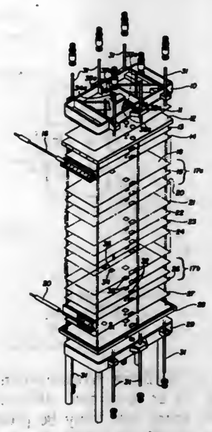
3,544,435
ELECTRODEPOSITION OF PALLADIUM
Hamish Carmichael Angus, Bramblings, 24 Amersham Hill Gardens, High Wycombe, England, and John Michael Stevens, Top Flat, 58 Herne Hill, London, SE. 24, England
No Drawing. Filed Oct. 17, 1966, Ser. No. 586,937
Claims priority, application Great Britain, Oct. 20, 1965, 44,450/65
The portion of the term of the patent subsequent to Mar. 17, 1987, has been disclaimed
Int. Cl. C23b *5/24*
U.S. Cl. 204—47 9 Claims

Directed to a method for electrodepositing palladium in a single compartment cell using a bath consisting of an aqueous ammoniacal solution of tetramminopalladous bromide having a pH of at least about 9 up to pH 10 to produce ductile palladium coatings highly useful in electrical contact service.

ERRATUM

For Class 204—74 see:
Patent No. 3,545,006

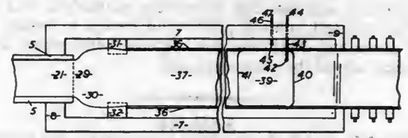
3,544,436
ELECTRODIALYSIS PROCESS AND APPARATUS
Leo H. Francis, Burlingame, Calif., and Gerald J. Treleven, Appleton, Wis., assignors to Foremost-McKesson, Inc., San Francisco, Calif., a corporation of Maryland
Continuation-in-part of application Ser. No. 404,658, Oct. 19, 1964. This application Mar. 27, 1969, Ser. No. 811,187
Int. Cl. B01b *13/02*
U.S. Cl. 204—180 3 Claims



Electrodialysis method and apparatus for reducing the mineral salt content of liquid materials having dispersed

organic constituents (e.g., whey). Certain factors are controlled during the course of an operating cycle, including the applied stack voltage and the resistivity of the concentrating solution, together with the selection of membranes to provide low working membrane resistance, whereby demineralization of such materials is made more efficient, with savings in processing costs.

3,544,437
FLAT GLASS
David Gordon Loukes, Kenwyn, 17 Broom Close, Eccleston Park, Prescot, Lancashire, England, and Glen Nightingale, 47 Rookery Lane, Rainford, Lancashire, England
Continuation-in-part of application Ser. No. 563,138, July 6, 1966. This application Aug. 12, 1969, Ser. No. 849,467
Claims priority, application Great Britain, July 9, 1965, 29,288/65
The portion of the term of the patent subsequent to Sept. 16, 1986, has been disclaimed and dedicated to the Public
Int. Cl. B01d *59/42*
U.S. Cl. 204—180 1 Claim



Float glass having a concentration of metal in a surface of the glass is produced while the ribbon of float glass is advanced along a bath of molten metal. Metal migration into the glass is effected by isolating a molten body of electrically conductive material on the upper surface of the ribbon and passing electric current through the glass between the molten body and the bath.

3,544,438
NITROSATION OF HYDROCARBONS USING NITRITE ESTERS WITH ACTINIC LIGHT IN THE ABSENCE OF HALIDES
Thijmen J. de Boer and Adrianus Mackor, Amsterdam, Netherlands, assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed Feb. 23, 1968, Ser. No. 707,469
Int. Cl. B01j *1/10*
U.S. Cl. 204—162 3 Claims

Organic compounds are nitrosated by reaction of a nitrite ester therewith in the presence of actinic light and the substantial absence of halide.

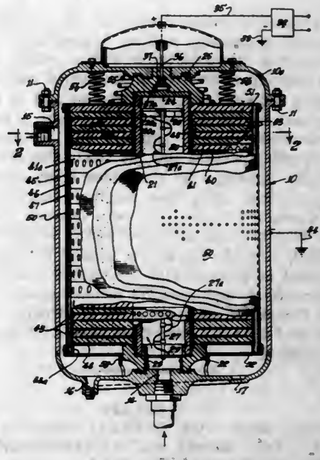
3,544,439
ELECTROPHORETIC COATING PROCESS
Harold A. Wittcoff and William S. Baldwin, Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware
No Drawing. Filed Nov. 13, 1967, Ser. No. 682,524
Int. Cl. B01k *5/02;* C23b *13/00*
U.S. Cl. 204—181 11 Claims

An aqueous composition containing a polymeric secondary amine derived from dimerized fat acids, a polybasic carboxylic acid or anhydride thereof, a monofunctional chain stopping agent and optional additives is used to electrophoretically coat metal surfaces.

3,544,440
PROCESS FOR COATING CONDUCTIVE SUBSTRATES
Jürgen Weigel, Illingen, Germany, assignor to Hamburger Flugzeugbau G.m.b.H., Hamburg, Germany, a corporation of Germany
No Drawing. Continuation-in-part of application Ser. No. 373,970, June 10, 1964. This application Jan. 23, 1969, Ser. No. 793,532
Claims priority, application Germany, June 15, 1963, H 49,471
Int. Cl. B01k *5/02;* C23b *13/00*
U.S. Cl. 204—181 10 Claims

A method of coating metal substrates with synthetic resins in which the substrate is anodized in an electrophoresis bath containing dispersed synthetic resin particles. An additive is supplied to neutralize cations released from the anode by complexing them or precipitating the cations as slightly soluble salts.

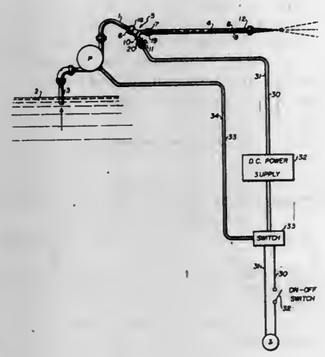
3,544,441
ELECTROSTATIC FILTERING FOR CLEANING DIELECTRIC FLUIDS
Edward A. Griswold, 225 S. Holliston, Pasadena, Calif. 91106
Continuation-in-part of application Ser. No. 190,457, Apr. 26, 1962. This application Mar. 29, 1966, Ser. No. 538,275
Int. Cl. B03c *5/00*
U.S. Cl. 204—186 14 Claims



A method of removing particles suspended in a fluid stream includes the steps of flowing the stream along a path within a laterally bounded, porous dielectric region; maintaining a high-intensity electrostatic field directed generally transversely in said region and extending to a lateral boundary thereof and effecting such substantial change of velocity of the stream as the stream flows generally within said field as to cause longitudinal migration of the particles toward and to said boundary and collecting the migrating particles at said boundary and past

which the stream flows along said path. The particles can be precharged prior to or after entry into said region to react to the electric field.

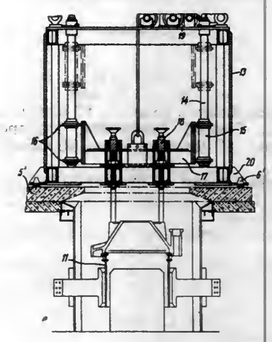
3,544,442
APPARATUS FOR PRODUCING AND DISPENSING SODIUM HYPOCHLORITE
Edward P. Anderson, Livingston, N.J., assignor to Engelhard Minerals & Chemical Corporation, Newark, N.J., a corporation of Delaware
Filed May 29, 1968, Ser. No. 733,157
Int. Cl. B01k 3/00
U.S. Cl. 204—275 5 Claims



The present invention deals with an apparatus for producing and dispensing sodium hypochlorite comprising conduit means communicable with a source of a liquid sodium chloride electrolyte, an elongated tubular housing, a coupling section interconnecting an end of the tubular housing and an end of the conduit means, a pair of elongated electrodes having adjacent end portions mounted in the coupling section and the electrodes extending into the tubular housing, the electrodes being closely spaced from each other along their lengths, electrical conductor means connected to the electrodes through said coupling section, whereby sodium hypochlorite is generated from the sodium chloride electrolyte passing through the tubular housing in contact with the spaced electrically energized electrodes, and pressure means associated with the conduit means for motivating the electrolyte through the housing and dispensing the electrolyte from the other end of the housing.

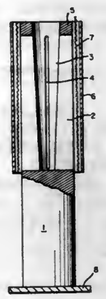
3,544,443
DEVICE FOR THE INSTALLATION OF THE CATHODE DOME WITH DIAPHRAGM INTO THE ELECTROLYTIC CELL
Evgeny Ivanovich Adaev, Ulitsa Dybenko 30, korpus 1, kv. 75; Alexandr Vasilievich Blinov, Ulitsa Gorkogo 64, kv. 13; Georgy Mikirtychevich Kamarian, Vorontsovskaya ulitsa 30b, kv. 18; Viktor Alexandrovich Novoselov, Ulitsa Vavilova 10, korpus 20, kv. 28; Vladimir Nikolaevich Suchkov, Ulitsa Marii Ulyanovoi 16, kv. 53; and Leonid Markovich Yakimenko, Abelmanovskaya Ulitsa 7, kv. 17, all of Moscow, U.S.S.R.
Filed Feb. 20, 1967, Ser. No. 617,236
Int. Cl. B01k 3/00, 3/10; C22d 3/06
U.S. Cl. 204—279 5 Claims

A device for the installation of a cathode dome with a diaphragm into an electrolytic cell comprises a stand for centering the dome and connecting it with the diaphragm, and for fixing the dome to a carrying frame which in turn is connected with a hoisting-and-setting arrangement which is used for transporting the cathode dome with the



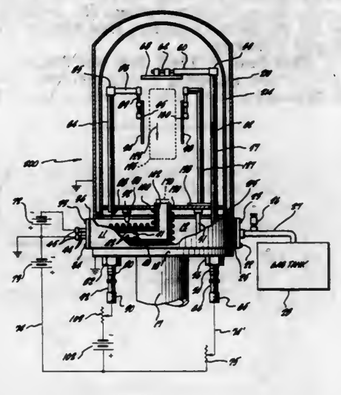
diaphragm and inserting it into the electrolytic cell. The stand and cell contain positioning means to insure that the dome and diaphragm are centered with respect to the vertical axis of the electrolytic cell.

3,544,444
FUSED SALT ELECTROLYSIS CELL HAVING ANODE WITH TAPERED WELL THEREIN
Victor J. Reilly, Memphis, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed May 19, 1967, Ser. No. 639,863
Int. Cl. C22d 3/02
U.S. Cl. 204—243 8 Claims



A fused salt electrolysis cell, particularly for the production of metallic sodium, having a vertical anode surrounded by a cathode, which anode is provided with a tapered well in the top thereof extending longitudinally through the center of the anode in the portion thereof opposite the electrolysis zone, which well, in conjunction with perforations, preferably vertical slots, provided in the anode wall, assures circulation of electrolyte from the well into the electrolysis zone. By having the anode well tapered from its top towards its bottom, i.e., towards the end of the anode where it is connected with the power source, the anode resistance in the cell is desirably reduced without adversely affecting electrolyte circulation.

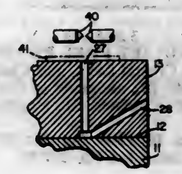
3,544,445
FLOATING SHIELD IN A TRIODE SPUTTERING APPARATUS PROTECTING THE BASE FROM THE DISCHARGE
Roger M. Moseson, Rochester, and John H. Smith, Pittsford, N.Y., assignors, by mesne assignments, to The Bendix Corporation, Detroit, Mich., a corporation of Delaware
Continuation-in-part of application Ser. No. 516,472, Dec. 27, 1965. This application Sept. 1, 1966, Ser. No. 585,994
Int. Cl. C23c 15/00
U.S. Cl. 204—298 8 Claims



1. An apparatus for depositing thin films by sputtering material from an ion target onto a substrate, which comprises:
an enclosure having a base;
means for evacuating said enclosure and for establishing an ionizable atmosphere therein;
a base plate having a central aperture, said base plate located above and electrically isolated from the base of said enclosure and defining a sputtering zone above and isolated from the base and isolated from the base of said enclosure;
means for establishing an ion plasma in said zone, said means including an anode, a cathode, and a tubular cathode shield encompassing said cathode, with said shield extending through the central aperture and electrical isolated from said base plate;
means for positioning the ion target inside said zone;
means for applying an electrical bias to the ion target to attract ions to the target and sputter material therefrom; and
means for positioning the substrate inside said zone for the reception of material sputtered from the ion target.

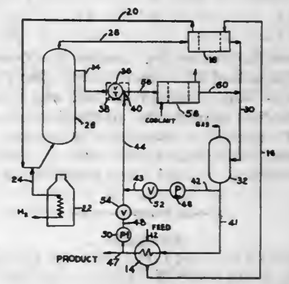
3,544,446
SPECIMEN PREPARING DEVICE FOR MICROSCOPES AND THE LIKE
James H. McAlear, 2780 Buena Vista Way, Berkeley, Calif. 94708
Filed Feb. 21, 1968, Ser. No. 707,074
Int. Cl. B26d 7/08, 7/10
U.S. Cl. 204—298 4 Claims

A device for preparing a specimen for microscopy work comprising a cylindrical body having a specimen holder therein, a cover rotatable about the axis of the body, the cover engaging the body and carrying a knife for severing a frozen specimen supported by the holder upon movement of the cover between a first and second position, and passages in the cover alignable with the specimen upon movement of the cover to the second position to permit



shadowing and cast replicating of the specimen, with means for controlling heat transfer to or from the specimen.

3,544,447
HEAVY OIL HYDROCRACKING PROCESS
Roger P. Van Driesen, Hopewell, N.J., assignor to Cities Service Research and Development Company, New York, N.Y., a corporation of Delaware
Filed Dec. 19, 1967, Ser. No. 691,887
Int. Cl. C07c 3/42; C09k 3/02; C10g 9/16
U.S. Cl. 208—48 5 Claims



A method for preventing fouling of petroleum refinery apparatus is disclosed herein, by which polymerization of polymerizable components of high boiling hydrocarbon liquid streams from a hydrogenation treatment of heavy hydrocarbon oil is substantially eliminated. The method comprises, reducing the pressure of the high boiling hydrocarbon liquid stream, and no later than immediately after the pressure reduction, contacting the high boiling hydrocarbon liquid stream with a cool liquid hydrocarbon stream, the resulting contacted stream having a temperature up to 650° F. Preferably, two separate streams are passed out of the hydrogenation treatment zone, one being a gaseous effluent stream and the other being the high boiling hydrocarbon liquid stream. The gaseous effluent stream is cooled and partially condensed, mixed with the quenched (contacted) stream, and passed to a gas-liquid separator, after which a quantity of the separated liquid, a liquid oil stream which is the product and corresponds in characteristics to a synthetic crude oil, is recycled as the cool liquid hydrocarbon stream and mixed with the high boiling hydrocarbon liquid stream, preferably immediately after the pressure of the high boiling stream is reduced. The coincident rapid cooling of the mixed high boiling and cool liquid hydrocarbon streams immediately after pressure reduction substantially eliminates polym-

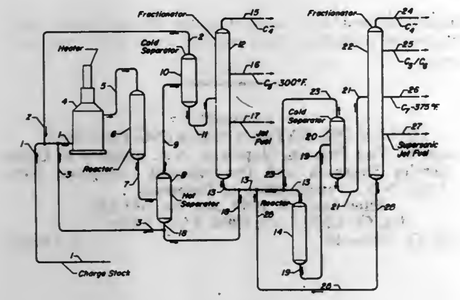
erization of the mixed streams and prevents rapid fouling of refinery equipment such as heat exchangers, cooling coils, and other apparatus.

3,544,448

SUPERSONIC JET FUEL PRODUCTION

William L. Jacobs, Crystal Lake, and Charles H. Watkins, Arlington Heights, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Jan. 15, 1969, Ser. No. 791,230
Int. Cl. C10g 27/00
U.S. Cl. 208—59 6 Claims



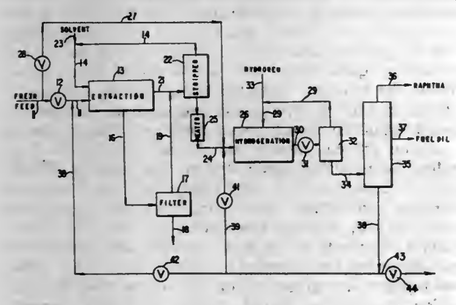
A process for converting heavier hydrocarbonaceous material into jet fuel kerosene fractions. The simultaneous production of both standard jet fuel and supersonic jet fuel is afforded through the utilization of a modified "series-flow" system. A two-stage process in which the sonic jet fuel (standard) is produced in the first stage, with the supersonic jet fuel being produced in the second stage.

3,544,449

REMOVING TETRAHYDROFURAN INSOLUBLES FROM A HYDROGENATION FEEDSTOCK

Lester M. Rapp, Baton Rouge, La., and Adrian S. Wilk, North Brunswick, N.J., assignors to Cities Service Research and Development Company, New York, N.Y., a corporation of Delaware

Filed Dec. 3, 1968, Ser. No. 780,705
Int. Cl. C10g 23/10, 21/06
U.S. Cl. 208—87 8 Claims



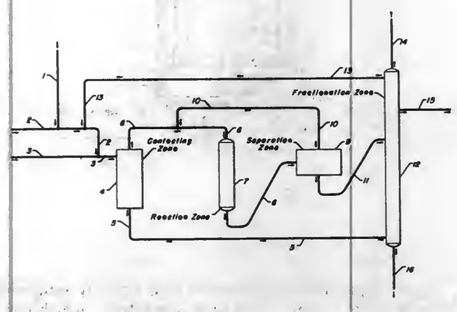
A method for hydrogenating heavy hydrocarbon oils containing material insoluble in tetrahydrofuran (THF) is disclosed. THF insolubles are precipitated and removed by contact with THF so that the remainder of the feed can be hdyrogenated in a conventional manner. By removing THF insolubles from the feed, the operability of the hydrogenation process may be significantly improved, especially for feed material containing large quantities of material insoluble in THF. THF insolubles are removed from either fresh feed or recycle feed or both so that the amount of THF insolubles in the total feed to the hydrogenation reaction zone is preferably less than 1 weight percent.

3,544,450

PETROLEUM CRUDE OIL CONVERSION PROCESS

Laurence O. Stine, Western Springs, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corportion of Delaware

Filed Sept. 9, 1968, Ser. No. 758,217
Int. Cl. C10g 23/02, 23/00
U.S. Cl. 208—93 7 Claims



A petroleum crude oil feedstock is converted into more valuable products by a combination process including the steps of contacting, separation, catalytic conversion and further separation and recovery.

3,544,451

CONVERSION OF HYDROCARBONS WITH A CATALYST CONTAINING PLATINUM AND RHENIUM COMBINED WITH A CARRIER MATERIAL CONTAINING ALUMINA AND MORDENITE

Roy T. Mitsche, Island Lake, and Ernest L. Pollitzer, Skokie, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Original application Apr. 24, 1968, Ser. No. 723,896. Divided and this application Dec. 12, 1969, Ser. No. 884,728
Int. Cl. C10g 35/08; B01j 11/40
U.S. Cl. 208—139 14 Claims

Hydrocarbons are converted by contacting them and hydrogen with a catalytic composite comprising platinum and rhenium combined with a carrier material containing alumina and finely divided mordenite. Key features of the process involve the preparation of the catalytic composite from an aluminum hydroxyl halide sol. to which finely divided particles of mordenite are added and the use of both a platinum group component and a rhenium component in the catalytic composite. A specific example of the recent invention involves a process for the production of LPG and a high octane reformate wherein a hydrocarbon charge stock and hydrogen are contacted with a catalyst comprising platinum and rhenium combined with a carrier material containing alumina and finely divided mordenite at LPG-production conditions.

3,544,452

FLUORINE AND METAL PHOSPHATE-CONTAINING CATALYSTS AND PREPARATION AND USE THEREOF

Joseph Jaffe, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 671,994, Oct. 2, 1967. This application July 8, 1968, Ser. No. 743,003
Int. Cl. C10g 23/02; B01j 11/06
U.S. Cl. 208—216 9 Claims

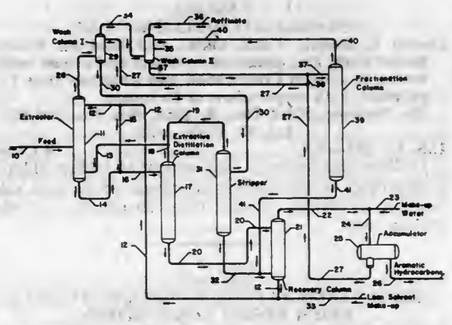
A hydrodesulfurization process utilizes a catalyst containing dispersed metal phosphate particles in an alumina matrix, at least one hydrogenating component selected from Group VI metals and compounds thereof and Group VIII metals and compounds thereof, and fluorine in an amount of 0.5 to 10 weight percent of the total catalyst. The alumina may be a porous xerogel; the metal phosphates may be selected from the phosphates of zirconium, titanium, tin, thorium, cerium and hafnium.

3,544,453

PROCESS FOR THE EXTRACTION AND RECOVERY OF AROMATIC HYDROCARBONS

Herbert Lytle Thompson, Park Ridge, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 5, 1968, Ser. No. 781,536
Int. Cl. C10g 21/28
U.S. Cl. 208—321 7 Claims



Process for the recovery of aromatic hydrocarbons utilizing the steps of solvent extraction, water washing of the raffinate phase, recovery and reuse of the wash water, and fractionation of the extract phase. Sulfolane is the preferred solvent and benzene is recovered as a preferred product stream.

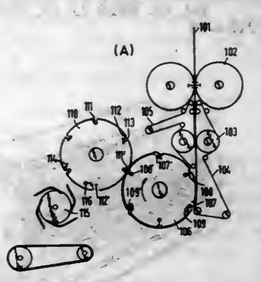
3,544,454

METHOD AND APPARATUS FOR THE PRODUCTION OF TRIMMED AND FOLDED COPIES

Gregor Nikolaus Muth, Zell am Main, near Wurzburg, and Engelbert Michael Muth and Otto Weschenfelder, Wurzburg, Germany, assignors to Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft, Wurzburg, Germany

Filed May 20, 1968, Ser. No. 730,406
Claims priority, application Germany, Aug. 9, 1967, Sch 41,124
Int. Cl. B41f 13/56; B65h 45/16; B23d 25/12
U.S. Cl. 270—21 15 Claims

The apparatus takes a plurality of ribbons as paper or the like that is fed together as an assembly of ribbons, cross cuts the ribbons to form a product of assembled sheets that are folded intermediate their leading and rear edges to form, for example, a book or periodical. A pair of cutting cylinders cross cuts the continuously fed ribbons, endless belts running side by side transfer the product to a cylinder that has grippers that grip the leading edge of the product and it is rotated against a folding and cutting cylinder where a blade on the gripping cylinder folds the product intermediate its ends into a jaw on the folding and cutting cylinder. Knives on cooperating cylinders trim the edge of the folded product opposite to the fold line. A modification is two pair of cutting cylinders that cross cut the ribbons to form the cut leading and rear edge of the product of assembled sheets which lead



to a gripping-and-fold-blade cylinder which cooperates with a folding jaw cylinder to fold the product intermediate its ends. A third form of apparatus is a pair of cutting cylinders that have closely spaced apart knives that cut a narrow cross strip out of the assembled ribbons led therebetween and the product is led to a gripper-and-folding blade cylinder that cooperates with a folding-jaw cylinder to fold the product. A fourth form is like the firstly described form of the apparatus with the addition of a cutting cylinder cooperating with a folding-jaw cylinder that has scissor knives cooperating with scissor knives on the additional cutting cylinder to trim the edge of the folded product opposite to the fold line.

3,544,455

ITACONIC ACID PURIFICATION PROCESS USING REVERSE OSMOSIS

Frank Adams, Jr., Groton, Leo F. Rice, Gales Ferry, and Roy J. Taylor, Quaker Hill, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 16, 1969, Ser. No. 833,724
Int. Cl. B01d 13/00
U.S. Cl. 210—23 9 Claims

Process for purifying aqueous solutions of itaconic acid containing impurities by use of reverse osmosis, with the solution under pressure and exposed to one face of a semi-permeable membrane. The semi-permeable membrane allows passage of substantial amounts of itaconic acid and water, and prevents passage of substantial amounts of inorganic salts, colored matter and organic impurities, thereby accomplishing separation. The itaconic acid can then be recovered in relatively pure form by simple crystallization techniques.

3,544,456

DREDGING PROCESS

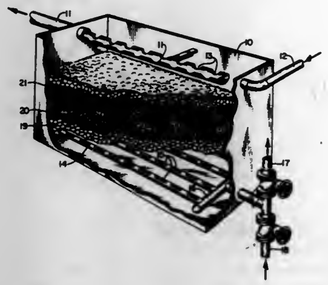
Donald Y. Shanfelt, Sunnyvale, and Robert A. Douglas, Palo Alto, Calif., assignors to Calgon Corporation, Pittsburgh, Pa.

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,702
Int. Cl. B01d 21/01
U.S. Cl. 210—54 6 Claims

In a dredging process wherein silt and water are removed from the floor of a body of water and pumped to

a barge or other container to be transported, an improvement is effected by adding to the silt-water mixture a water-soluble polymeric flocculating agent, which causes the silt to settle more quickly and compactly, permitting a more efficient continuous removal of relatively clear water from the barge.

3,544,457
PROCESS AND APPARATUS FOR FLUID TREATMENT
Fredrick T. Tulley and Berlin C. Harris, Jr., Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
Filed Mar. 28, 1968, Ser. No. 716,908
Int. Cl. B01d *23/10, 39/04*
U.S. Cl. 210—65 **9 Claims**



A process and apparatus for removing solids from a liquid stream. The liquid is passed through a filter containing discrete particles of a plastic material having irregular, nonuniform shaped surfaces. The particles of plastic material may be supported on gravel or rocks or by other media. It is preferred that the plastic particles have a size from about 16 mesh to about 25 mesh. The preferred material for the plastic particles is polyvinyl chloride particles which have been formed by the suspension process. The filters are characterized by extremely high throughput and high clarity of the effluent liquid. The filters can be backwashed in the same manner as conventional sand filters.

3,544,458
METHOD OF FILTERING
Masamichi Sato, Asaka-shi, Japan, assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Apr. 14, 1969, Ser. No. 815,557
Claims priority, application Japan, May 8, 1968, 43/30,794
Int. Cl. B01d *43/00;* **F03c** *5/00*
U.S. Cl. 210—65 **10 Claims**



Process and apparatus for selectively separating particles from mixtures, suspensions and colloidal suspensions by contacting the suspensions with solid particles capable of generating an electrostatic field with the particles and thereby hold them. An application of the invention is in liquid developers and other suspensions utilized in electrophotographic imaging systems.

3,544,459
METHOD OF EXTINGUISHING FIRES
Ronald Hirst, London, England, assignor to Graviner (Colnbrook) Limited, London, England, a British company
No Drawing. Filed Nov. 29, 1966, Ser. No. 597,798
Int. Cl. A62c *1/00;* **A62d** *1/00*
U.S. Cl. 252—5 **3 Claims**

A fire extinguisher is provided which contains potassium aluminium fluoride as the extinguishant. To improve the flow of the extinguishant, a lubricant such as a silicate can be added.

3,544,460
DRILLING FLUID COMPOSITION
Aaron E. Markham and Kenneth A. E. Blackmore, Bellingham, Wash., assignors to Georgia-Pacific Corporation, Portland, Oreg., a corporation of Georgia
No Drawing. Continuation-in-part of application Ser. No. 313,767, Oct. 4, 1963. This application Sept. 15, 1966, Ser. No. 579,513
Int. Cl. C10m *3/34, 3/48*
U.S. Cl. 252—8.5 **28 Claims**

A water-base drilling fluid composition comprising, as an additive, a sulfonated lignin-containing material which has been heated in a dry form at a temperature of at least 200 C.

3,544,461
STABILIZED DRILLING MUD
Daniel E. Boone, Tulsa, Okla., and Paul H. Ralston, Bethel Park, Pa., assignors, by direct and mesne assignments, to Calgon Corporation and Amerada Hess Corporation, both corporations of Delaware
No Drawing. Filed Dec. 5, 1966, Ser. No. 598,919
Int. Cl. C10m *3/30*
U.S. Cl. 252—8.5 **8 Claims**

Drilling mud having a high content of sodium chloride is stabilized by the nitrilotriacetamide or its acid salts, resulting in savings of mud, other chemicals, and other drilling costs.

3,544,462
HIGH TEMPERATURE RESISTANT TEXTILE FIBER FINISH COMPOSITION
Neil Lamar Finch, James Dean Lemley, and Thomas Jefferson Proffitt, Jr., Kinston, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed May 2, 1967, Ser. No. 635,363
Int. Cl. D06m *13/32, 15/38*
U.S. Cl. 252—8.6 **1 Claim**

A heat-stable finish composition for synthetic fibers which comprises

(1) a major portion of an alkali metal salt of a phosphate ester where the alcohol portion of the ester has from 6 to 10 carbon atoms, and

(2) a minor portion of a weak acid such as boric acid.

These finishes are applied to the fibers as dilute aqueous solutions.

3,544,463
OVERBASED OIL-SOLUBLE METAL SALTS
Emil Koft, Jr., Woodbury Heights, N.J., assignor to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Dec. 19, 1968, Ser. No. 785,394
Int. Cl. C10m *1/46, 1/40, 1/24*
U.S. Cl. 252—40.7 **7 Claims**

Overbased oil-soluble metal salts are prepared by reacting a mixture comprising an oil-soluble organic acid, an alcohol and a diluent with sequential addition, under intermediate refluxing, of a metal oxide and carbon dioxide under anhydrous conditions and in the presence of a halide. Liquid hydrocarbon fuels and lubricants containing the above described salts are also provided.

3,544,464
SOAP-FILLED DIMETHYLDIPHENYLPOLYSILOXANE GREASE
Abraham L. Hajjar, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Sept. 25, 1969, Ser. No. 861,174
Int. Cl. C10m *7/48*
U.S. Cl. 252—42.1 **6 Claims**

A grease composition containing a polysiloxane, the organic substituents of which include phenyl and tetrachlorophenyl radicals in amounts of from 5 to 50%, a higher fatty acid soap of lithium, an amount of a particular polyether sufficient to cause the lithium soap of the fatty acid to disperse into the polysiloxane, and a sufficient amount of a base to render the grease alkaline. The grease is made by heating the polysiloxane, the polyether, the lithium soap of the higher fatty acid, and the base to a temperature of about 400° F. to 500° F., after which the grease composition is cooled to room temperature and milled. The grease composition is used in the journal bearings of starter motors having high current capacity and which run hot but are subjected to extremely low temperatures when not running.

3,544,465
ESTERS OF PHOSPHORODITHIOATES
Milton Braid, Westmont, N.J., assignor to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed June 3, 1968, Ser. No. 733,815
Int. Cl. C10m *1/48, 3/42;* **C10l** *1/26*
U.S. Cl. 252—46.6 **9 Claims**

Novel esters of O,O-diorgano-S-(2-hydroxyalkyl) phosphorodithioates are excellent antioxidants and corrosion inhibitors in industrial fluid compositions. Lubricant compositions containing the O,O-diaryl derivatives are particularly effective in high temperature engine performance.

3,544,466
TWO-CYCLE LUBRICATING OIL COMPOSITIONS
Donald E. McDowell, Jackson, Jack Ryer, East Brunswick, and Harold E. Deen, Cranford, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed May 16, 1968, Ser. No. 729,543
Int. Cl. C10m *1/48*
U.S. Cl. 252—46.7 **19 Claims**

Two-cycle mineral lubricating oils having a viscosity of from about 58 to about 85 SUS at 210° F. contain a small but effective amount of the amide condensation product of an alkenyl substituted alpha-beta unsaturated monocarboxylic acid of between about 800 and about 3500 molecular weight and an alkylene polyamine together with a small but effective amount of an antioxidant which is the sulfide of phosphorus reaction product of an oil-soluble compound selected from the group consisting of alpha monoolefin polymers and copolymers, terpenes, and saturated and unsaturated primary and secondary C_{12}–C_{20} alcohols, or the oils contain the sulfide of phosphorus reaction product of the aforementioned amide condensation product. Optionally, a lower viscosity base oil may have added thereto a sufficient amount of a viscosity index improving oil-soluble organic compound to achieve the above-defined viscosity of the oil composition. The oil compositions are used in admixture with gasolines, in a volume ratio of oil to gasoline of 1 to at least 20, preferably 1 to at least 50.

3,544,467
ACID-AMIDE POUR POINT DEPRESSANTS
George J. Kautsky, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
No Drawing. Original application Apr. 8, 1968, Ser. No. 719,701, now Patent No. 3,444,082, dated May 13, 1969. Divided and this application Oct. 31, 1968, Ser. No. 794,444
The portion of the term of the patent subsequent to May 13, 1986, has been disclaimed
Int. Cl. C10l *1/22;* **C10m** *1/32*
U.S. Cl. 252—51.5 **4 Claims**

Pour point depressants for waxy hydrocarbonaceous fuels and oils having as the pour point depressant an alkenyl succinamic acid disubstituted on the nitrogen and the amine salts, the succinamic acid having a total of at least 50 carbon atoms. The succinamic acid or salt is preferably used in combination with a relatively low molecular weight ethylene-olefin copolymer.

3,544,468
PRODUCTION OF HIGH-CONDUCTIVITY N-TYPE ZnS, ZnSe, ZnS/ZnSe, OR ZnSe/ZnTe
Aurelio Catano, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,385
Int. Cl. C09k *1/12, 1/16, 1/20*
U.S. Cl. 252—62.3 **8 Claims**

Zinc sulfide of either cubic or hexagonal crystalline form is made n-type by doping with halogen atoms while immersed in molten zinc. The preferred method of doping involves submerging the base crystal in molten zinc in the presence of iodine or of a heavy metal halide such as lead chloride or lead bromide. Best results are obtained when the starting material is also pre-doped with iodine or other halogen atoms, and when zinc sulfide powder is added to inhibit or prevent surface layers of the mother crystal from dissolving in the melt. Room temperature resistivities of the order of 1 to 10 ohm-centimeters or less are readily and reproducibly obtained. Zinc selenide and alloys or solid solutions of zinc selenide with zinc sulfide or with small proportions of zinc telluride may also be made n-type with the process.

3,544,469
FERROELECTRIC CERAMIC
Hideo Watanabe and Yushi Kusunoki, Kofu-shi, Japan, assignors to TDK Electronics Co., Ltd., Chiyoda-ku, Japan
Filed Aug. 7, 1967, Ser. No. 658,926
Claims priority, application Japan, Aug. 29, 1966, 41/56,438
Int. Cl. C04b *35/46, 35/48*
U.S. Cl. 252—62.9 **1 Claim**

Piezoelectric ceramic compositions of the ternary system $Pb(Co_{1/3}Nb_{2/3})O_3$—$PbTiO_3$—$PbZrO_3$ are disclosed. These compositions are useful in various electrocommunication devices.

3,544,470
PIEZOELECTRIC CERAMICS
Norio Tsubouchi, Masao Takahashi, Tomeji Ohno, and Tsuneo Akashi, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan
Filed Oct. 16, 1968, Ser. No. 768,143
Int. Cl. C04b *35/46, 35/48*
U.S. Cl. 252—62.9 **2 Claims**

A piezoelectric ceramic is disclosed consisting essentially of a solid solution of the three components

$$Pb(Mn_{2/3}W_{1/3})O_3$$

$PbTiO_3$ and $PbZrO_3$.

3,544,471
PIEZOELECTRIC CERAMICS

Norio Tsubouchi, Masao Takahashi, Tomeji Ohno, and Tsuneo Akashi, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Continuation-in-part of application Ser. No. 721,810, Apr. 16, 1968. This application July 9, 1969, Ser. No. 840,262
Claims priority, application Japan, Apr. 20, 1967, 42/56,173, 42/56,174
Int. Cl. H04b 35/00
U.S. Cl. 252—62.9 9 Claims

A piezoelectric ceramic is disclosed consisting essentially of a solid solution of the three components

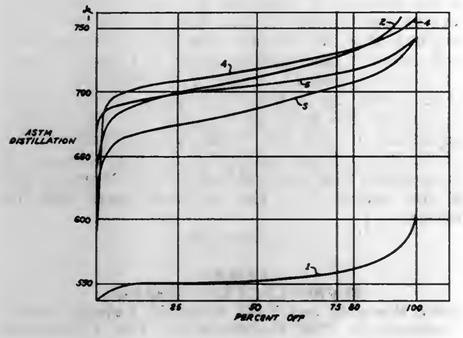
$$Pb(Sb_{1/2}Z_{1/2})O_3$$

$PbTiO_3$ and $PbZrO_3$, wherein Z represents one element selected from the group consisting of Nb and Ta. Up to about 25 atom percent of Pb may be replaced by at least one element selected from the group consisting of Ba, Sr and Ca. The ceramic may have incorporated in it about 0.1 to 3.0 weight percent of MnO.

3,544,472
POWER TRANSMISSION HYDROCARBON OIL

Ulric B. Bray, Pasadena, and Morton Z. Fainman, Los Angeles, Calif., assignors to Bray Oil Company, Los Angeles, Calif., a corporation of California

Filed Nov. 8, 1966, Ser. No. 592,944
Int. Cl. C09k 3/00; B01d 3/00
U.S. Cl. 252—73 7 Claims



A hydraulic oil for power transmission particularly suited to aeronautic service having a high flash point coupled with low pour point made by alkylating benzene with normal monochlorinated hydrocarbons of 11 to 13 carbon atoms followed by distillation of the alkylate to recover a fraction in the range of 650–760° F. having a viscosity of 20–30 centistokes at 100° F. and a viscosity index of 70–110.

3,544,473
ALKALINE DISHWASHER DETERGENT

Everitt A. Kitchen and Judith K. Simmons, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Sept. 6, 1968, Ser. No. 758,121
Int. Cl. C11d 7/56
U.S. Cl. 252—99 3 Claims

Alkaline dishwasher detergent based on an alkaline sequestrant builder, sodium silicate, a chlorine bleach, an alcohol ethoxylate nonionic surfactant and an insoluble phthalocyanine green dye.

3,544,474
OXIDATION-RESISTANT ROSIN SOAP COMPOSITION

Charles O. Shaffer, Panama City, Fla., assignor, by mesne assignments, to Arizona Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,680
Int. Cl. C11d 15/04; C11b 5/00
U.S. Cl. 252—131 7 Claims

An oxidation-resistant rosin soap composition is prepared by forming a solution of an alkali metal soap of disproportionated rosin, adding sufficient finely-divided microporous hydrous calcium silicate to form a free-flowing powder, and drying the resulting product.

3,544,475
DETERGENT COMPOSITIONS BASED ON MIXTURES OF ALPHA-OLEFIN SULFONATES AND DIMER OLEFIN SULFONATES

Shinichi Tomiyama, Ichikawa-shi, Akira Mori and Masuzo Nagayama, Tokyo, Masayasu Takao, Funabashi-shi, and Hitoshi Sekiguchi, Tokyo, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,281
Claims priority, application Japan, Sept. 29, 1967, 42/62,301
Int. Cl. C11d 1/14, 3/65
U.S. Cl. 252—161 1 Claim

A powdered or granular detergent composition, superior in controlled suds and free-flow characteritsics, containing the active ingredients consisting of 50 to 97 percent by weight of sodium α-olefine sulfonates having from about 12 to about 20 carbon atoms, and 3 to 50 percent by weight of sodium sulfonates of the compounds having a general formula of

wherein R and R′ are alkyl groups and the total carbon atoms are between about 10 to about 20 is disclosed.

3,544,476
COAGULANT AND METHOD FOR TREATING AQUEOUS MEDIUM COMPRISING A BASIC METAL SALT AND A MULTIVALENT ANION

Yoshikazu Aiba and Takaki Furumori, Kakogawa, Japan, assignors to Taki Fertilizer Manufacturing Co., Ltd., Kakogawa, Japan

No Drawing. Filed May 3, 1968, Ser. No. 726,583
Claims priority, application Japan, May 9, 1967, 42/29,267
Int. Cl. C02b 1/20, 5/02; C02c 5/02
U.S. Cl. 252—175 11 Claims

A coagulating agent for the treatment of an aqueous medium comprises a basic metal salt of the formula:

$$M_n(OH)_mX_{3n-m}$$

wherein M is a tri- or more valent metal, X is Cl, NO_3 or CH_3COO, $3n$ is larger than m, and the basicity

$$(m/3n \times 100)$$

is about 30 to 83%, an anion (Y)—for example, sulfuric acid ion, phosphoric acid ion—having been chemically introduced into the basic salt in an amount such that the molar ratio Y/M is more than about 0.015 but less than the amount which would impair the stability of the basic salt. Preparation of the coagulating agent and use thereof in treating an aqueous medium are also described.

3,544,477
INORGANIC LIQUID LASER MEDIA AND METHOD OF PREPARATION THEREOF

Adam Heller, Bayside, N.Y., assignor to General Telephone & Electronics Laboratories, Incorporated, a corporation of Delaware

Filed Aug. 17, 1967, Ser. No. 661,298
Int. Cl. C09k 1/04; H01s 3/20
U.S. Cl. 252—301.1 4 Claims

A method for eliminating colored impurities in an inorganic liquid laser solution containing an active ion selected from the group consisting of ions of chromium, manganese, molybdenum, holmium, dysprosium, praseodymium, neodymium, europium, samarium, terbium, erbium, ytterbium, thulium and uranium, an inorganic solvent selected from the group consisting of $SeOCl_2$, $SeOBr_2$ and $SbCl_3$, a Lewis acid, and an oxidizing agent formed of a compound having the formula $AClO_x$ wherein A is a colorless metal cation, Cl and O are chlorine and oxygen respectively, and x is within the range of 1 to 4 is described. The oxidizing agent decomposes in the solution and oxidizes colored impurities therein which otherwise interfere with the pumping of the medium or absorb at the laser output frequency.

3,544,478
METHOD FOR PRODUCING EUROPIUM ACTIVATED YTTRIUM OXIDE PHOSPHORS

Eugene A. Graff, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 721,569, Apr. 16, 1968. This application Feb. 18, 1969, Ser. No. 800,272
Int. Cl. C09k 1/10
U.S. Cl. 252—301.4 6 Claims

Method of preparing europium-activated yttrium oxide phosphor composition by firing the oxides with chlorine containing fluxes. The luminescent brightness of phosphors prepared by this method compares with what was previously only achievable by the more costly and inefficient techniques in which rare-earth metal oxalates were precipitated and fired.

3,544,479
LITHIUM VANADIUM GARNET PHOSPHORS

Ranajit K. Datta, East Cleveland, Ohio, assignor to General Electric Company, a corporation of New York

Filed Dec. 28, 1967, Ser. No. 694,185
Int. Cl. C09k 1/44
U.S. Cl. 252—301.6 8 Claims

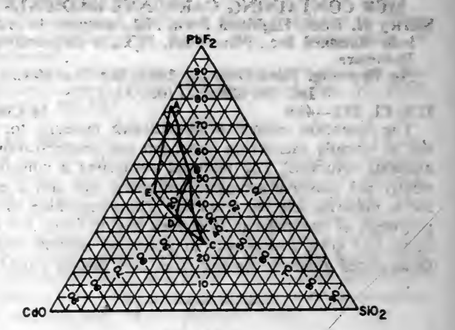
Lithium vanadium garnets of the general formula $Ca_2LiE_2V_3O_{12}$(E=Ca^{+2},Mg^{+2},Zn^{+2}) were activated with various trivalent ions while maintaining the charge balance. These materials show a broad blue emission under cathode rays and long- and short-wavelength ultraviolet radiations and can be used in lamps or cathode ray tubes. Such Eu^{+3}-activated vanadium garnets show red emission under short- and long-wavelength ultraviolet radiations, and in the former case the brightness is about 65% of that of commercial YVO_4:Eu. In the case of coupled substitution of $Eu^{+3}+Z^{+4}$(Z=Si^{+4},Ge^{+4}) for $V^{+5}+Mg^{+2}$, an improved brightness-temperature relationship is obtained.

3,544,480
CADMIUM SILICATE CRYSTALS

Kenneth O. Beck, Newton, Mass., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Jan. 11, 1968, Ser. No. 697,236
Int. Cl. C01b 33/20; C09k 1/04
U.S. Cl. 252—301.6 12 Claims

This invention relates to a method of growing single crystals of dicadmium silicate (Cd_2SiO_4) and tricadmium silicate (Cd_3SiO_5) from a saturated solution of cadmium oxide (CdO) and silicon dioxide (SiO_2) in lead fluoride



(PbF_2). The tricadmium silicate is a semiconducting material and the dicadmium silicate can be used as a phosphor.

3,544,481
EUROPIUM-ACTIVATED ALKALINE EARTH ORTHOSILICATE PHOSPHOR

Thomas L. Barry, Beverly, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed Dec. 1, 1967, Ser. No. 687,359
Int. Cl. C09k 1/54
U.S. Cl. 252—301.4 1 Claim

Phosphors having the composition

$$M_aMg_bEu_cSi_2O_8$$

where:

M is calcium, strontium and/or barium,
a is between about 2.75 and 3.25,
b is between about 0.75 and 1.25, and
c is between about 0.0004 and 0.40,

are disclosed. The phosphors have strong emissions with narrow emission bands in the blue region of the spectrum when excited by ultraviolet radiation and are useful in fluorescent lamps.

3,544,482
EUROPIUM AND MANGANESE ACTIVATED ALKALINE EARTH SILICATE PHOSPHORS

Thomas L. Barry, Beverly, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed Mar. 15, 1968, Ser. No. 713,379
Int. Cl. C09k 1/54
U.S. Cl. 252—301.4 2 Claims

A discharge lamp having a phosphor, activated by divalent europium and divalent manganese, disposed on the inner surface of the lamp envelope. Emission bands of the phosphor are preferential in the blue and red regions of the spectrum. The phosphor composition comprises alkaline earth silicate matrices.

3,544,483
EUROPIUM ACTIVATED STRONTIUM MAGNESIUM ORTHOPHOSPHATE PHOSPHORS

Costas C. Lagos, Danvers, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,369
Int. Cl. C09k 1/36
U.S. Cl. 252—301.4 3 Claims

Europium is a useful activator for strontium magnesium orthophosphate phosphors. In the preferred compositions, the phosphor emits in the deep blue region of the spectrum under ultraviolet excitation.

3,544,484
OPTICAL pH INDICATOR COMPRISING AROMATIC AMINOAZO DYE AND INERT POLYMER CONTAINING CARBONYL RADICALS
Shirley H. Roth, Highland Park, N.J., assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 18, 1967, Ser. No. 694,021
Int. Cl. G01n 21/08, 33/22
U.S. Cl. 252—408 10 Claims
The invention relates to an indicator material for the use in visually measuring hydrogen ion concentration in aqueous solutions. The material comprises a colorimetrically pH sensitive aromatic aminoazo dye and a polymeric material selected from the group consisting of (1) polymers of unsaturated aldehydes having from 3–4 carbons; (2) graft copolymers of polyvinyl alcohol and an unsaturated aldehyde having from 3–4 carbon atoms.

3,544,485
METHOD OF ACTIVATING CATALYTIC ALLOYS
Shin-Ichi Taira, Nagoya, and Akio Kuroda, Kanagawaken, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,357
Int. Cl. B01j 11/22
U.S. Cl. 252—477 5 Claims
A method of activating Raney alloys to form new Raney type catalysts by treating Raney alloys with water in the presence of either aluminas, amines, non-N-substituted lactams, N-substituted lactams, oximes, N-substituted acid amides or urea derivatives.

3,544,486
REFRACTORY BODIES CONTAINING ALUMINUM NITRIDE, BORON NITRIDE AND TITANIUM BORIDE
Edmund M. Passmore, Wilmington, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
No Drawing. Filed May 23, 1968, Ser. No. 731,620
Int. Cl. H01b 1/06
U.S. Cl. 252—520 9 Claims
An electrically conductive ceramic body contains an admixture of AlN and BN and together with TiB_2 as a conductive material. The body can be manufactured by thoroughly mixing the powdered ingredients and then vacuum hot pressing the mixture in suitable molds. A boat suitable for the evaporation of vapor-deposition metals, such as aluminum, can be either molded in a desired shape or machined from the hot pressed body.

3,544,487
CROSS-LINKED POLYTETRAHYDROFURAN POLYMERS
Andrew P. Dunlop, Riverside, Norman E. Rustad, Barrington, and Edward Sherman, Chicago, Ill., assignors to The Quaker Oats Company, Chicago, Ill., a corporation of New Jersey
No Drawing. Filed June 16, 1967, Ser. No. 646,460
Int. Cl. C08g 43/00
U.S. Cl. 260—2 5 Claims
This disclosure relates to cross-linked ploymers having the formula

$$-C_4H_7R-(O-C_4H_7R-)n-O-C_4H_8R-(O-C_4H_7R-)n'-$$
$$-C_4H_7R-(O-C_4H_7R-)m-O-C_4H_8R-(O-C_4H_7R-)m'-$$

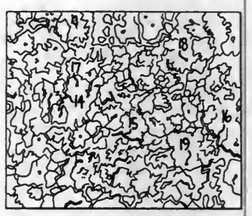
in which n, n', m and m' represent integers which may be alike or different and which are such that the molecular weights of the backbone chains are 300–3000, and wherein R represents hydrogen or substituent polymeric residues resulting from the polymerization of compounds of formula

$$HC=C-E$$

in which R′ is hydrogen or CH_3 ond E represents an electron sink. These cross-linked polymers are useful polymeric intermediates, e.g. in urethane applications.

3,544,488
CROSS-LINKED ACRYLONITRILE COPOLYMERS AND ION EXCHANGERS MADE THEREFROM
Herbert Corte, Opladen, and Harold Heller, Leichlingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed July 24, 1967, Ser. No. 655,312
Claims priority, application Germany, Sept. 22, 1966, F 50,260; Dec. 5, 1966, F 50,853
The portion of the term of the patent subsequent to Feb. 11, 1986, has been disclaimed
Int. Cl. C08f 15/40, 15/02
U.S. Cl. 260—2.2 6 Claims
Hydrolysis resistant copolymers of acrylonitrile and a hydrocarbon containing two or more allyl groups. Copolymers may contain further monomers. Process for producing these copolymers. Process for hydrolysing the CN-groups of these copolymers to yield weakly acidic ion exchangers and ion exchangers constituting these hydrolysis products.

3,544,489
NON-PIGMENTED, OPAQUE, MICROPOROUS FILM AND PROCESS AND COMPOSITION FOR PREPARING SAME
Rostyslaw Dowbenko and Bruce N. McBane, Gibsonia, Pa., assignors to PPG Industries, Inc., a corporation of Pennsylvania
Filed June 14, 1966, Ser. No. 557,578
Int. Cl. C08d 13/12; C08j 1/28
U.S. Cl. 260—2.5 27 Claims



Highly opaque films which are opaque without the use of opacifying pigments, may be formed by applying to a substrate a composition comprising (a) a thermosetting resin and (b) a solvent extractable thermoplastic resin, which resins are at least partially compatible and subsequently curing the thermosetting resin such as by heating. Upon curing of the thermosetting resin, the thermoplastic resin forms minute discrete particles in the thermoset resin matrix. The thermoplastic resin is then extracted from the film such as by using a suitable solvent for the thermoplastic resin. Upon removal of the minute particles of thermoplastic resin from the thermoset resin matrix there results a film which is continuous, opaque, and contains a large number of voids.

3,544,490
ETHYLENE POLYMER FOAM COMPOSITIONS AND PROCESS FOR MAKING SAME
Richard L. Alexander, Greensburg, Ind., Donald G. Ashburn and Bert H. Clampitt, Overland Park, Kans., and Harry D. Anspon, Kansas City, Mo., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Jan. 4, 1967, Ser. No. 607,172
Int. Cl. C08f 47/10; C08j 1/20
U.S. Cl. 260—2.5 16 Claims
Superior open-cell free-rising foam compositions are prepared from polyethylene and ethylene-alkyl acrylate polymers by admixing a polyethylene or ethylene-alkyl acrylate polymer with an azodicarbon-amide blowing agent, a cross-linking agent, mono- and polyfunctional unsaturated monomeric cross-linking rate and viscosity control agents and subjecting the admixture to an elevated temperature.

3,544,491
FOAMED COPOLYMER OF AN ETHYLENICALLY UNSATURATED MONOMER AND AN ALKENYL GUANAMINE AND PROCESS OF MAKING SAME
Joseph John Benischeck, Philadelphia, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Jan. 13, 1967, Ser. No. 608,963
Int. Cl. C08f 47/08; C08g 9/24; C08j 1/16
U.S. Cl. 260—2.5 12 Claims
This invention relates to novel acrylic foams having high resilience properties that enables the foam to recover rapidly from depression. The foams are produced by the foaming of a mixture of a reactive polymer latex comprising 2-(ω-alkenyl)-guanamines having a terminal group $CH_2=C<$ which is in an unconjugated relationship to the unsaturation of the triazine ring, such as 4-pentenoguanamine with a polyfunctional reagent, such as a melamine-formaldehyde condensate. The foams of this invention are capable of incipient gelatinization so that the foam gels rapidly during the drying and curing process. The unconjugation of the terminal double bond of the alkenyl group permits the guanamines to become an integral part of the polymer; whereas substituents on the triazine ring having their terminal unsaturation in conjugated relation to the triazine unsaturation fail to copolymerize with other monoethylenically unsaturated monomers because of the coagulation of the initial charge of the monomer mixture during polymerization. The reactive groups in the polymer may react with each other before the latex is mixed with the polyfunctional reagent to cause internal cross-linking and thereby set up or gel the polymeric mass, or they may react with the polyfunctional reagent to set up or gel the polymeric mass after foaming. The products of this invention may be used wherever high resilience is the desired characteristic for a foamed product such as, for example, in carpet backing material, draperies and cosmetic apparel.

3,544,492
SULFUR-CONTAINING CURING AGENTS
Ray D. Taylor, Brecksville, and Pyong-Nae Son, Parma Heights, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
No Drawing. Filed Dec. 4, 1967, Ser. No. 687,492
Int. Cl. C08b 33/00; C08d 9/10
U.S. Cl. 260—4 10 Claims
The resinous compositions obtained by the reaction of one or more olefins and a substituted s-triazine with sulfur have been found to be useful curing agents for unsaturated rubbers. The curing agents disclosed herein have the advantage of being able to withstand higher processing temperatures than previously known curing agents of the same type without the development of "bloom" when the undercured rubber stock is stored prior to vulcanization.

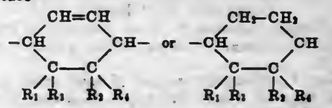
3,544,493
ADHESIVE COMPOSITIONS OF IMPROVED PRE-PRESS PROPERTIES COMPRISING HIGH AMYLOPECTIN STARCH
Clyde H. Sheppard, Bellevue, Wash., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 539,644, Apr. 4, 1966. This application Jan. 21, 1969, Ser. No. 792,803
Int. Cl. C08g 37/14
U.S. Cl. 260—17.2 7 Claims
An aqueous alkaline thermosetting adhesive composition having improved pre-press properties for plywood manufacture which comprises an aqueous alkaline phenolic resin containing less than 5% residual free formaldehyde, an alkali metal hydroxide, a filler, and a starch comprising at least about 75% based upon total starch units of amylopectin units, said starch having been pre-treated by contact with alkali metal hydroxide prior to combination with the bulk of the phenolic resin.

3,544,494
METHOD OF PRODUCING RESINOUS MATERIALS FROM BY-PRODUCTS OBTAINED IN THE REFINING OF PETROLEUM
Detlev Schmidt, Frankfurt am Main, Cacilia Zivi, Hamburg-Wandsbek, Fritz Alberts, Ahrensbok, and Rudolf Radke, Frankfurt am Main, Germany, assignors to Schill & Seilacher Chemische Fabrik, Hamburg, Germany
No Drawing. Filed Apr. 1, 1968, Ser. No. 718,655
Claims priority, application Germany, Mar. 31, 1967, Sch 40,471
Int. Cl. C08c 11/68; C08d 9/06; C10c 3/08
U.S. Cl. 260—17.4 13 Claims
Resinous products suitable as homogenizers for rubber mixtures and/or for other purposes are obtained by treating extracts obtained in the purification of petroleum or asphalt-free residue obtained in the distillation of petroleum at an elevated temperature of up to about 150° C. with a polyol, for instance a sugar, formaldehyde or a formaldehyde derivative, or formic acid, and reacting the thus-obtained pre-treated mixture with nitric acid or nitric acid anhydride at an initial temperature of up to about 120° C. which temperature is then raised to between about 130 and 180° C.

3,544,495
DIAMINES AND DERIVATIVES
John R. Nazy, Kankakee, Ill., and Donald H. Wheeler, Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware
No Drawing. Original application June 24, 1966, Ser. No. 560,057, now Patent No. 3,449,423, dated June 10, 1969. Divided and this application Sept. 18, 1968, Ser. No. 760,730
Int. Cl. C08g 20/00, 20/26, 22/02
U.S. Cl. 260—18 10 Claims
New diamines of the formula

$$R'-Z-R''-CH_2NH_2$$

where R′ is a monovalent straight chain aliphatic hydrocarbon radical containing 2 to 6 carbon atoms, R″ is a divalent straight chain aliphatic hydrocarbon radical containing 7 to 11 carbon atoms, the sum of the carbon atoms in R′ and R″ is 13, and Z is a divalent radical of the structure



where R_1 and R_2 are H or CH_3 with the proviso that one of such radicals must be H and R_3 and R_4 are H or CH_2NH_2 with the proviso that one of such radicals must

be H and the other must be CH_2NH_2. Polymers prepared from such diamines and urea, thiourea, a dicarboxylic acid of 2 to about 50 carbon atoms or mixtures thereof.

3,544,496

PROCESS FOR THE PREPARATION OF OIL-MODIFIED ALKYD COMPOSITIONS CONTAINING A TRIS-2-HYDROXYALKYL ISOCYANURATE

Robert L. Formaini, Montvale, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Application Sept. 18, 1968, Ser. No. 760,661, which is a continuation-in-part of application Ser. No. 454,991, May 11, 1965. Divided and this application June 26, 1969, Ser. No. 836,960

Int. Cl. C08g *17/003, 17/16;* C09d *3/64*

U.S. Cl. 260—22 14 Claims

An alkyd composition produced by reacting a polycarboxylic acid, a polyhydric alcohol, a tris-2-hydroxyalkyl isocyanurate wherein the 2-hydroxyalkyl group contains between two and four carbon atoms, with an oily modifier selected from the group consisting of vegetable oils, marine oils, and fatty acids derived from vegetable oils or marine oils. The resulting reaction product can be then blended with an amino resin.

3,544,497

PREPARATION OF POLAR PETROLEUM RESINS

Jean Guerrier, Rouen, and Jacques Hamard, Mont-Saint-Aignan, France, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,661

Claims priority, application France, Aug. 8, 1966, 72,469

Int. Cl. C08f *27/00*

U.S. Cl. 260—23.7 22 Claims

Petroleum resins are reacted with unsaturated fatty acids to produce a resin containing polar groups. This resin has increased adherence to substrates.

3,544,498

DETERGENT RESISTANT SILICONE POLISH

Norman G. Holdstock and Raymond J. Thimineur, Scotia, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed July 17, 1968, Ser. No. 745,346

Int. Cl. C08g *31/24;* C09g *1/04, 1/12*

U.S. Cl. 260—29.2 18 Claims

An organopolysiloxane copolymer is prepared by the partial hydrolysis and condensation of a silanol-stopped polydimethylsiloxane having 5 siloxy units, an aminoalkyltrialkoxysilane, and an aminoalkoxyalkyltrialkoxysilane. A second organopolysiloxane copolymer is prepared by the partial hydrolysis and condensation of a silanol-stopped polydimethylsiloxane having 800 dimethylsiloxy units with an aminoalkoxyalkenyltrialkoxysilane. The first organopolysiloxane copolymer is converted to a partial amine salt by reaction with an aliphatic carboxylic acid, then mixed with the second organopolysiloxane. The resulting combination is used in detergent resistant polish formulations of improved rub-out and gloss.

3,544,499

SULFONIUM MODIFIED WATER SOLUBLE SURFACE COATINGS

Melvin J. Hatch, Socorro, N. Mex. assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 112,513, May 25, 1961. This application Oct. 14, 1966, Ser. No. 586,670

Int. Cl. C08f *15/00, 27/06*

U.S. Cl. 260—29.6 28 Claims

Water-soluble, heat-polymerizable salts containing sulfonium ions as the cationic moiety thereof are employed as binders in coating compositions which provide an initial hydrophilic coating convertible to a hard, water-insoluble coating by heating.

3,544,500

POLYMER COATED PARTICLES

Desmond Wilfrid John Osmond, Windsor, and Anthony Gifford Moody, Alvanley, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 10, 1966, Ser. No. 593,314

Claims priority, application Great Britain, Nov. 11, 1965, 47,901/65

Int. Cl. C08f *45/02, 47/18*

U.S. Cl. 260—29.6 14 Claims

Encapsulation of solid particles is achieved by carrying out an aqueous emulsion polymerization process in the presence of the solid particles dispersed in the aqueous phase, the particles having adsorbed on their surface a water-insoluble polymer and being stabilized in the aqueous phase by a compound containing an anchor component which is associated with the adsorbed polymer and a pendent chain-like hydrophilic component which is solvated by the aqueous phase and so provides a stabilizing sheath around the particles. The preparatory treatment of the particles which results in adsorption of polymer on the surface of the particles and the association of the stabilizing component therewith prior to polymerization is achieved by modifying a dispersion of the particles in a solution of the polymer and stabilizing compound to cause the polymer to become insoluble therein.

3,544,501

FIBER COATING COMPOSITIONS

Charles Fearnley and Thomas Ivor Jones, Cheshire, England, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 416,648, Dec. 7, 1964. This application Nov. 13, 1967, Ser. No. 682,589

Int. Cl. C08f *45/24;* C09d *5/02*

U.S. Cl. 260—29.6 4 Claims

Aqueous dispersions of polystyrene or styrene copolymers containing an N-long-chain alkyl betaine as an emulsifying agent impart soil resistance to and prevent deterioration in the appearance of fibers and fiber assemblies such as carpets.

3,544,502

LATEX STABILIZED WITH SALTS OF POLYMETHYLATED MUCONIC ACIDS

Jackson S. Boyer, Claymont, Del., and Richard D. Cassar, West Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 691,199, Dec. 18, 1967. This application May 23, 1968, Ser. No. 731,619

Int. Cl. C08c *7/10;* C08d *7/10*

U.S. Cl. 260—29.7 16 Claims

Stabilized aqueous latex emulsion compositions and methods of their preparation, comprising a rubber latex emulsion containing 0.05 to 10.0 weight percent based on the weight of the whole composition of the alkali and/or the alkaline earth metal salts of certain polymethylated muconic acids.

3,544,503

POLYVINYL CHLORIDE RESINS PLASTICIZED WITH TETRAHYDROFURFURYL ALCOHOL-POLYMERIZED FATTY ACID ESTERS

Robert W. Van Tuyle, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

No Drawing. Original application Aug. 20, 1964, Ser. No. 391,039, now Patent No. 3,470,212, dated Sept. 30, 1969. Divided and this application Nov. 14, 1968, Ser. No. 794,819

Int. Cl. C08f *45/40*

U.S. Cl. 260—30.4 3 Claims

Diesters prepared from tetrahydrofurfuryl alcohol and polymerized fatty acids useful in the plasticizing of polyvinyl chloride resins.

3,544,504

INSULATING AMIDE-IMIDE POLYMERIC MAGNETIC WIRE COATING COMPOSITION

William W. Ulmer, Muskegon, Mich., assignor to Anaconda Wire and Cable Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 4, 1967, Ser. No. 607,139

Int. Cl. C08g *51/34, 51/40;* H01b *3/30*

U.S. Cl. 260—31.2 10 Claims

The thermoplastic flow, burnout, and smoothness of an amide-imide polymeric coating of a magnetic wire is substantially improved by the addition of benzyl benzoate and/or 1,4 butanediol in the initial coating composition.

3,544,505

LIQUID COATING COMPOSITION

Nobuyoshi Nagata, Nara-shi, and Yoshio Ota, Kyoto, Japan, assignors to Nippon Paint Co., Ltd., Oyodo-ku, Osaka, Japan, a corporation of Japan

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,329

Claims priority, application Japan, Dec. 27, 1966, 42/84,749

Int. Cl. C08g *37/32;* C09d *3/76*

U.S. Cl. 260—37 10 Claims

This invention relates to a liquid coating composition containing as a main vehicle a mixed solution of an aminoaldehyde resin and a copolymer comprising a polymerizable monomer having a hydroxyl group and a tertiary aliphatic group, a polymerizable monomer having a hydroxyl group, and a monomer copolymerizable with said monomers.

3,544,506

BORON CONTAINING COATING COMPOSITIONS

James Patrick Dowd, 5300 Sunrise St., Houston, Tex. 77021

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,252

Int. Cl. C08g *51/04, 47/00*

U.S. Cl. 260—37 10 Claims

Heat resistant protective and decorative coatings can be produced with the reaction products of phenyltrichlorosilane and vinyl or allyl carborane. The use of alkyl titanates with these products is shown to enhance the heat resistance of the resultant coatings.

3,544,507

DEDUSTING AND AGGLOMERATING ACTIVATED CARBON

Roger V. Lloyd, Pittsburgh, Pa., assignor, by mesne assignments, to Calgon Corporation, a corporation of Delaware

No Drawing. Filed Aug. 23, 1967, Ser. No. 662,589

Int. Cl. B01d *29/08;* C08g *51/08*

U.S. Cl. 260—39 15 Claims

Agglomerated activated carbon is prepared by treating the carbon with a mixture of (1) a copolymer of acrylamide or derivative thereof and at least one comonomer such as ethyl acrylate and (2) an aminoplast thermosetting resin. In order to decrease dusting of the carbon particles they are coated with the resin mixture.

3,544,508

VITREOUS ENAMEL COMPOSITION TO PRODUCE A MATTE FINISH ON A GLASS SURFACE

Allison L. Smith, Vineland, N.J., assignor to Owens-Illinois, Inc., a corporation of Ohio

No Drawing. Filed Jan. 6, 1966, Ser. No. 518,997

Int. Cl. C04b *33/00;* C08k *1/24, 1/10*

U.S. Cl. 260—41 9 Claims

A vitreous enamel composition for producing a marking area on a glass surface. Said composition consisting essentially of a major proportion of a vitreous enamel color component, a minor proportion of finely divided silica-containing material, and a finely divided polytetrafluoroethylene resin used to form a gas when heated to roughen the surface and produce a matte finish.

3,544,509

DIPHOSPHONIC ACIDS AND SALTS THEREOF AS FLAME RETARDANTS

Robert L. Carroll, Richmond, Va., and Marvin M. Crutchfield, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 636,599, May 8, 1967. This application Oct. 14, 1968, Ser. No. 767,491

Int. Cl. C08f *45/00;* C08g *51/00*

U.S. Cl. 260—45.7 8 Claims

Polymers of lower alkylene-1,1-diphosphonates, copolymers of lower alkylene-1,1-diphosphonates and polymerizable ethylenically unsaturated compounds, as well as synthetic polymers containing lower alkylene-1,1-diphosphonates, are described which exhibit many and various advantageous features including increased resistance to burning.

3,544,510

MERCAPTAL STABILIZED HALOGEN-CONTAINING RESINS

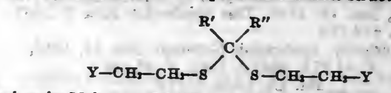
Christian H. Stapfer, Newtown, Pa., assignor to Cincinnati Milacron Chemicals, Inc., Reading, Ohio, a corporation of Ohio

No Drawing. Filed May 15, 1968, Ser. No. 729,456

Int. Cl. C08f *45/58*

U. S. Cl. 260—45.75 5 Claims

Halogen-containing resins are stabilized with monomeric or polymeric mercaptals of the unit structure



wherein Y is a —COOR or —OOCR group, and R, R', and R'' are monovalent hydrocarbon groups, which mercaptals contain chemically bound or in intimate physical mixture an alkyl stannoic or alkyl thiostannoic acid.

3,544,511

HYDROXYARYLTHIOARYL PHOSPHITE STABILIZERS FOR RUBBER

Alan Jeffrey Neale, and Peter James Stratford Bain, Llangollen, Wales, assignors to Monsanto Chemicals Limited, London, England, a British company

Filed Dec. 18, 1967, Ser. No. 691,120

Claims priority, application Great Britain, Dec. 20, 1966, 56,944/66

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.95 2 Claims

Phosphite esters having the formula:

$$(RO)_xP(OR')_{3-x}$$

where R represents a radical comprising at least two aromatic nuclei, the oxygen atom of the group (RO) being linked to a nuclear carbon atom of one such nucleus, at least one pair of the said nuclei are linked through a sulfur atom, and at least one nucleus has a hydroxyl group as a nuclear substituent, R' represents an aromatic or aliphatic radical, and x has the value 1, 2, or 3 stabilize rubbers, particularly synthetic rubbers produced by aqueous emulsion polymerization of styrene and butadiene.

3,544,512

STABILIZED POLYOLEFIN COMPOSITIONS

Andrew J. Dietzler, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application Dec. 13, 1965, Ser. No. 513,543. Divided and this application Jan. 22, 1968, Ser. No. 725,551

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95 5 Claims

Poly α-olefins are stabilized against oxidative degradation by the incorporation of a small amount of a trinuclear bisphenol which can be prepared by reacting a meta- or para-dialkenylbenzene where alkenyl is vinyl or isopropenyl or a xylylene dihalide with an o-cycloalkylphenol. An auxiliary antioxidant such as dilauryl 3,3'-thiodipropionate is also preferably present in the stabilized composition.

3,544,513

COMPOSITION AND PROCESS FOR THE PREPARATION OF ORGANOSILICON ELASTOMERS

Marcel Lefort, Caluire, and Paraskо Nicou, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed Aug. 14, 1968, Ser. No. 752,469

Claims priority, application France, Aug. 22, 1967, 118,628

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 16 Claims

Organosilicon elastomers may be made by curing linear organosiloxanes containing alkenyl groups with oxaziridines.

3,544,514

PROCESS FOR THE PRODUCTION OF THERMOPLASTIC POLYCARBONATES

Hermann Schnell, Krefeld-Urdingen, Ludwig Bottenbruch, Krefeld-Bockum, Kurt Weirauch, Krefeld, and Wilhelm Hechelhammer, Hugo Streib, and Gerhard Fritz, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation-in-part of application Ser. No. 520,653, Jan. 14, 1966. This application June 7, 1967, Ser. No. 644,106

Claims priority, application Germany, Jan. 15, 1965, F 44,973; June 8, 1966, F 49,420

Int. Cl. C08g 17/13

U.S. Cl. 260—47 11 Claims

Branched chain high molecular weight thermoplastic polycarbonates containing the residues of monohydric phenols and polyhydric phenols having more than two hydroxy groups in the molecule.

3,544,515

DIARYLGUANIDINES AS RATE PROMOTERS IN OXIDATIVE POLYPHENYLENE ETHER FORMATION

Arthur Katchman and Glen D. Cooper, Delmar, N.Y., assignors to General Electric Company, a corporation of New York

Filed Mar. 13, 1969, Ser. No. 806,929

Int. Cl. C08g 23/18

U.S. Cl. 260—47 17 Claims

A process for the formation of high molecular weight polyphenylene ethers by the oxidative coupling of a phenolic precursor in the presence of a catalyst comprising a primary, secondary or tertiary amine and a copper salt; the process being characterized by the addition of a small but effective amount of a diarylguanidine. The diarylguanidine acts to promote reaction rate, provides higher molecular weight polymer than otherwise available and provides substantially decreased reaction time or decreased catalyst levels. Illustrative of the invention is the polymerization of 2,6-xylenol in an aromatic solvent medium using a catalyst comprising about 1 mole cupric bromide, 15 moles dibutyl amine, and ½ mole diphenyl guanidine; the concentration of catalyst components based upon 100 moles of 2,6-xylenol.

3,544,516

DIARYL FORMAMIDINES AS RATE PROMOTERS IN OXIDATIVE POLYPHENYLENE ETHER FORMATION

Glenn D. Cooper, Delmar, and James G. Bennett, Menands, N.Y., assignors to General Electric Company, a corporation of New York

Filed Mar. 13, 1969, Ser. No. 807,047

Int. Cl. C08g 23/18

U.S. Cl. 260—47 17 Claims

A process for the formation of high molecular weight polyphenylene ethers by the oxidative coupling of a phenolic precursor in the presence of a catalyst comprising a primary, secondary or tertiary amine and a copper salt, the process being characterized by the addition of a small but effective amount of a diaryl formamidine. The diaryl formamidine acts to promote reaction rate, provides higher molecular weight polymer than otherwise available and provides substantially decreased reaction time or decreased catalyst levels. Illustrative of the invention is the polymerization of 2,6-xylenol in an aromatic solvent medium using a catalyst comprising about 1 mole cupric bromide, 15 moles dibutyl amine, and ½ mole N,N' diphenyl formamidine; the concentration of catalyst components based upon 100 moles of 2,6-xylenol.

3,544,517

AMINO-ETHYLATED NOVOLAKS AS CURING AGENTS FOR EPOXY RESINS

Thaddeus Muzyczko, Melrose Park, Samuel Shore, Roselle, and Jerome A. Martin, La Grange Park, Ill., assignors to The Richardson Company, Melrose Park, Ill., a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 591,985, Nov. 4, 1966. This application June 9, 1969, Ser. No. 831,742

Int. Cl. C08g 30/14

U.S. Cl. 260—47 8 Claims

The invention is directed to a process of producing cured epoxy resins using amino-ethylated novolaks. The cured products are useful as molded articles, coatings and other purposes characteristic of epoxy resins.

3,544,518

PRODUCTION OF FOAMED 1-OLEFIN POLYMER ARTICLES USING AN INSULATED MOLD

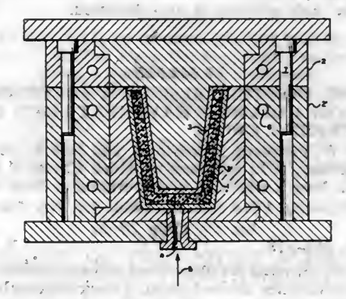
Roy L. Bodkins and Donald G. Needham, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Jan. 22, 1968, Ser. No. 699,518

Int. Cl. B29d 23/02, 27/00

U.S. Cl. 264—48 4 Claims

Molded articles of 1-olefin polymers having a glossy or shiny surface are produced by means of a mold, the bulk of which is made of a material having a relatively high thermal conductivity value and which is kept at a relatively low temperature, the mold having an insulating lining of material which has a low thermal conductivity



so that the polymer on introduction into the mold will not be chilled on initial contact with the mold.

3,544,519

SULFONATED STYRENE-PHENOL RESINS

Harold George Burrows, Frederick Keith Duxbury, and Philip Brierley Ingham, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,304

Claims priority, application Great Britain, Mar. 30, 1967, 14,592/67

Int. Cl. C08g 33/10

U.S. Cl. 260—49 1 Claim

Sulphonated styrene/phenolic resins, and the incorporation of such sulphonated resins into polyamides to improve the affinity of the polyamides for basic dyestuffs.

3,544,520

LUBRICANT ADDITIVES FROM FORMALDEHYDE-POLYALKYLENE POLYAMINE OXIDIZED OLEFIN POLYMER CONDENSATION PRODUCTS

George S. Culbertson, Whiting, Ind., and Edmund J. Piasek, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,303

Int. Cl. C08d 5/02; C08f 27/00; C08g 9/00

U.S. Cl. 260—72 5 Claims

Ashless dispersants are produced by subjecting a polymer such as a polybutene or polypropylene to oxidation in the presence of a catalyst such as manganous carbonate and the oxidation product is then condensed with formaldehyde and a polyalkylene polyamide.

3,544,521

PROCESS OF PREPARING OXYMETHYLENE COPOLYMERS

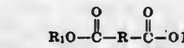
Calvin N. Wolf, Princeton, N.J., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Continuation of application Ser. No. 220,062, Aug. 28, 1962. This application Feb. 21, 1967, Ser. No. 617,712

Int. Cl. C08g 1/18

U.S. Cl. 260—73 8 Claims

Preparation of a linear thermoplastic oxymethylene copolymer of a formaldehyde and a dihydrocarbyl ester of a dicarboxylic acid. The diester of the dicarboxylic acid has a formula



wherein R_1 and R_2 are monovalent, hydrocarbon radicals having up to about 32 carbon atoms each of which may, for example, be an alkyl, cycloalkyl, aryl or alkaryl group. R is a divalent hydrocarbon radical having from about 1 to about 12 carbon atoms and is an alkylene, arylene or cycloalkylene group. These polymers exhibit the desired charcteristics of polyoxymethylene in that they are tough, resilient, resistant to thermal degradation and have enhanced resistance to degradation when in contact with strongly alkaline substances.

3,544,522

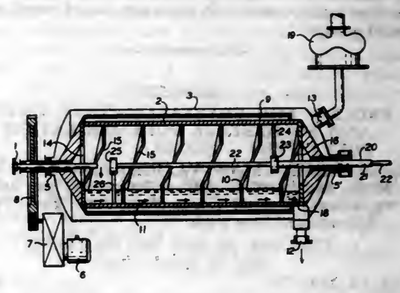
CONTINUOUS MANUFACTURE OF POLYMERS

Wolf-Diether Hahn, Frankfurt am Main, Germany, assignor, by mesne assignments, to Inventa AG für Forschung und Patentverwertung, Zurich, Switzerland, a corporation of Switzerland

Filed Aug. 3, 1965, Ser. No. 476,902

Int. Cl. C08g 17/08

U.S. Cl. 260—75 4 Claims



Process for continuous production of the polymer from reactants suitable for production of the polymer by polymerizing the reactants in liquid phase, which comprises:

introducing the reactants into one end of a horizontally extending drum having an internal, continuous, helical baffle fixedly secured to and extending inwardly from the internal surface of the drum,

the reactants being introduced so that the drum is only partially filled and reactant material between successive turns of the baffle is separated by the baffle, the level of the material in the drum being such that the material does not overflow the baffles,

rotating the drum in a direction to advance the reactant material by the baffle toward the other end of the drum,

withdrawing the reactant material as the polymer product from said other end of the drum.

3,544,523

POLYCONDENSATION OF SOLID POLYESTERS WITH ANTICAKING AGENTS

Emil J. Maxion, North Brunswick, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed June 13, 1969, Ser. No. 833,177

Int. Cl. C08g 17/003

U.S. Cl. 260—75 19 Claims

Thermoplastic linear polyester resins derived from dihydric alcohol esters of carbocyclic dicarboxylic acids (e.g., polyethylene terephthalate having a reduced specific viscosity of 0.4 to 1.3 or a molecular weight of 9000 to 34,000) and having relatively low sticking temperatures (110–150 °C.) are treated with a minor amount of an inert refractory liquid or powdered anticaking agent (talc), and the resulting treated resins are then subjected to polycondensation in the solid state at temperatures above their original sticking temperatures and usually at improved polymerization rates to produce resins of substantially higher molecular weight.

3,544,524
POLYURETHANE POLYMERS PREPARED FROM A CHAIN EXTENDER AND THE TRANSESTERIFICATION PRODUCT OF 1,6-HEXANEDIOL WITH A DIARYLCARBONATE

Erwin Müller, Leverkusen, Wilhelm Kallert, Cologne-Stammheim, and Josef Ivanyi, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Sept. 28, 1967, Ser. No. 671,198
Claims priority, application Germany, Oct. 13, 1966, F 50,416
Int. Cl. C08g *17/13, 41/04*
U.S. Cl. 260—77.5 5 Claims

Polyurethane polymers and a process for preparing them are provided wherein 1,6-hexanediol is transesterified with a diarylcarbonate and the transesterification product is reacted with an organic polyisocyanate and a chain extending agent containing hydrogen atoms reactive with NCO groups.

3,544,525
PROCESS FOR CRYSTALLIZATION, DRYING AND SOLID-STATE POLYMERIZATION OF POLYESTERS

Laszlo J. Balint, Chester, Va., Ramon Luis Abos, Wayne, Mich., and Orvill E. Snider, Petersburg, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Mar. 26, 1968, Ser. No. 716,089
Int. Cl. C08g *17/003*
U.S. Cl. 260—75 8 Claims

Polyesters with a crystallization temperature at least 50° C. above their glass transition temperature are prepared in a continuous operation by contacting the molten polyester with a liquid such as water for a period of time sufficient to facilitate converting the polyester extrudate into pellets. The pellets are immediately removed from contact with the liquid or quenching medium before an equilibrium temperature is established in the pellets so that the maximum amount of heat possible is retained which reduces substantially the residence time in the crystallization chamber prior to entering a solid-state polymerization and/or drying tower directly from the crystallization chamber. The total time required to quench, pelletize, de-water and transfer the polyester pellets to a fluidized crystallization chamber is less than six seconds. Crystallization occurs in a few minutes in the fluidized zone and the crystallized pellets are passed directly to the drying and polymerization tower wherein solid-state polymerization is accomplished, if desired, under plug flow conditions utilizing a gas moving countercurrent to the polyester. The gas is heated to about 180–210° C. and moved at a superficial velocity of 0.5 to 2.0 ft./sec. for a period of time sufficient to achieve the desired molecular weight.

3,544,526
POLYAMIDES

David Kirkaldy, Raglan, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed July 17, 1967, Ser. No. 653,639
Claims priority, application Great Britain, Aug. 3, 1966, 34,801/66
Int. Cl. C08g *20/00*
U.S. Cl. 260—78 1 Claim

Copolyterephthalamides derived from terephthalic acid, dodecamethylenediamine and 15% to 45% of a polymethylenediamine having from 6 to 10 methylene groups, such as octamethylenediamine, gamma-methyl hexamethylenediamine and hexamethylenediamine. The use of the copolyterephthalamides in the manufacture of filaments by melt spinning is also disclosed.

3,544,527
NOVEL MOISTURE RESISTANT POLYAMIDES FROM A DIAMINE HAVING AT LEAST ONE PIPERIDYL GROUP

Edward W. Pietrusza, Morristown, and Jack R. Pedersen, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Jan. 25, 1968, Ser. No. 700,344
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 8 Claims

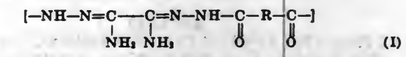
This specification discloses novel moisture resistant, heat stable polyamides derived from 4,4′-dichlorocarbonyldiphenylsulfone and a diamine having at least one piperidyl group. The polyamides can be formed into useful fibers, films and molded articles.

3,544,528
PRODUCTION OF A POLYACYLOXAMIDRAZONE

Helmut Mägerlein, Erlenbach, Erhard Siggel, Seckmauern, Hans-Dieter Rupp and Michael Wallrabenstein, Erlenbach, Albert Schöpf, Hering, Odenwald, and Gerhard Meyer, Obernburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,364
Claims priority, application Germany, Oct. 31, 1967, G 51,497
Int. Cl. C08g *20/20, 20/22*
U.S. Cl. 260—78 15 Claims

Process of producing a polyacyloxamidrazone characterized by recurring units of the formula



(I)

in which R is a divalent organic radical of 2 up to about 12 carbon atoms, preferably 2 to 6 carbon atoms, in an essentially hydrocarbon structure, e.g. 1,4-phenyl, by polycondensing oxalic acid bisamidrazone with an organic dicarboxylic acid chloride or bromide in a two phase solvent system of water and an inert organic solvent of at least 8% miscibility with water (g./100 ml. H_2O at 20° C.), the two phases being produced by the addition of a salting out agent, and the reaction being carried out at temperatures of about 0° C. to 60° C. while mixing and withdrawing the heat of reaction and in the presence of an acid acceptor. The resulting polycondensate is a useful fiber-forming or filmaceous polymer product.

3,544,529
PREPARATION OF VINYL ESTER AMIDES OF PINIC ACID AND COPOLYMERS THEREOF WITH VINYL CHLORIDE

Glen W. Hedrick, Lake City, Fla., and Frank C. Magne, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 20, 1967, Ser. No. 647,343
Int. Cl. C08f *15/34, 15/08*
U.S. Cl. 260—78.5 4 Claims

This invention relates to some vinyl ester amides of pinic acid, methods for preparing same and to certain copolymers thereof. More particularly, this invention relates to the preparation of vinyl 2,2-dimethyl-3-morpholinocarbonylcyclobutane acetate, vinyl 2,2-dimethyl-3-piperidinocarbonylcyclobutane acetate, and vinyl 2,2-dimethyl-3-di-n-butylaminocarbonylcyclobutane acetate by

selective amination followed by vinyl interchange and the preparation of several vinyl chloride copolymers derived therefrom.

3,544,530
FURFURYL ALCOHOL CO-POLYMERS

Robert C. Shaffer, Playa Del Rey, Calif., assignor to Hitco, a corporation of California

No Drawing. Filed Oct. 1, 1968, Ser. No. 764,308
Int. Cl. C08f *5/04*
U.S. Cl. 260—78.5 2 Claims

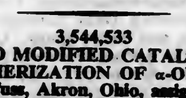
Useful synthetic resins are prepared by copolymerizing furfuryl alcohol with an ester prepolymer of maleic acid or anhydride and a polyhydric alcohol.

3,544,531
METHOD OF VULCANIZING RUBBER WITH DIALKOXYPHOSPHINOTHIOYL AMINO DISULFIDES

Eiichi Morita, St. Albans, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,201
Int. Cl. C07f *9/02*; C08f *27/06*
U.S. Cl. 260—79.5 11 Claims

Compounds of the formula:



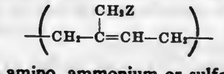
where R_1, R_2, R_3, and R_4 are alkyl, aralkyl, alicyclic, or R_3 and R_4 taken together with the nitrogen form a heterocycle are described together with their use as accelerating and vulcanizing agents for diene rubber.

3,544,532
CATIONIC 2-METHYLENE-1,3-BUTADIENE POLYMERS

Giffin D. Jones, Gerald R. Geyer, and Melvin J. Hatch, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application July 9, 1964, Ser. No. 381,546. Divided and this application Oct. 23, 1968, Ser. No. 798,512
Int. Cl. C08d *3/14*; C08f *27/06, 3/84*
U.S. Cl. 260—79.7 5 Claims

Cationic polymers containing a plurality of moieties of the general formula



where Z is an amino, ammonium or sulfonium group are obtained by polymerization of 2-methylene-1,3-butadiene amino, ammonium or sulfonium monomers or by reaction of poly(2-chloromethyl-1,3-butadiene) with an appropriate reagent to substitute the cationic group Z for the reactive chloro group. The resulting polymers are useful as flocculants, dispersants and thickeners, and as electroconductive and wet-strength additives for paper.

3,544,533
PROCESS AND MODIFIED CATALYST FOR THE POLYMERIZATION OF α-OLEFINS

Max Peter Dreyfuss, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Filed Aug. 3, 1967, Ser. No. 658,030
Int. Cl. C08f *3/10, 15/04*; B01j *11/84*
U.S. Cl. 260—80.78 12 Claims

α-Olefins are polymerized with a modified Ziegler type catalyst whereby the molecular weight of the α-olefin polymers may be controlled. The modified catalyst is prepared from a transition metal compound, a metal alkyl reducing agent and a modifying agent which is a Group II–B metal salt of a carboxylic acid.

3,544,534
METHOD FOR POLYMERIZING OLEFINS

Yoshio Kadowaki and Hayao Shimokawa, Tokyo, and Kazuaki Yoshida and Eisuke Saito, Yokohama, Japan, assignors to The Furukawa Electric Company Limited, Tokyo, Japan

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,606
Claims priority, application Japan, Apr. 28, 1967, 42/27,265
Int. Cl. C08f *1/66, 3/06*
U.S. Cl. 260—88.2 18 Claims

Polymerization of ethylene or a mixture of ethylene and α-olefins by contacting said ethylene or mixture with a catalyst obtained by compounding an oxide of transition metal of Group V*a* or VI*a* of the Periodic Table and a salt of alkali or alkaline earth metal to a carrier consisting of alumina or mainly of alumina and reducing these substances partially, which is combined with at least one promoter of alkali metals, alkaline earth metals, or hydrides, complex hydrides or carbides of these metals. This catalyst may be further activated by effecting halogenation after the reduction. The resulting olefin polymers have a low content of the internal trans vinylene double bond in the unsaturated double bonds and an improved weather resistance and are inexpensive.

3,544,535
NOVEL CARBINOL AND DERIVATIVES THEREOF

Everett E. Gilbert, Morris Township, Morris County, N.J., and Basil S. Farah, West Seneca, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 26, 1965, Ser. No. 475,005
Int. Cl. C08f *3/42*
U.S. Cl. 260—89.5 9 Claims

Production of 2-(pentafluorophenyl)hexafluoroisopropanol, its acrylate and methacrylate esters and polymers derived from the acrylate and methacrylate esters, the polymers being useful as textile impregnants.

3,544,536
METAL SEALANT CONTAINING OXYALKYL AMINE ACCELERATOR

Charanjit Rai, Bellwood, and Arthur Frederic Krueger, Villa Park, Ill., assignors to Broadview Chemical Corporation, a corporation of Illinois

No Drawing. Filed June 20, 1966, Ser. No. 558,595
Int. Cl. C08f *3/62, 15/16, 7/12*
U.S. Cl. 260—89.5 9 Claims

For accelerating a shelf stable room temperature setting sealant composition while retaining shelf stability, accelerators are proposed having the formula

$$[H]_mN[(CH_2)_x(OR_1)_yOR_2]_n$$

wherein *m* and *n* are each integers 1 to 2 inclusive, the total of *m* and *n* is 3, *x* is an integer 1 to 6 inclusive, *y* is an integer 0 to 6 inclusive, R_1 is a lower alkyl chain and R_2 is selected from the class consisting of hydrogen and lower alkyl groups.

3,544,537
POLY(PERFLUOROALKOXY)POLYFLUOROALKYL ACRYLATE-TYPE ESTERS AND THEIR POLYMERS

Neal O. Brace, Wheaton, Ill., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 31, 1968, Ser. No. 733,271
Int. Cl. C08f *3/64, 3/66*
U.S. Cl. 260—89.5 5 Claims

Esters of the formula

$$R_fO[CF(CF_3)CF_2O]_nCF(CF_3)CH_2O_2CCR{=}CH_2$$

wherein R_f is perfluoroalkyl, R is hydrogen or methyl and *n* is an integer of 0–2. Homopolymers of the above esters;

and copolymers of the above esters with at least one polymerizable vinylidene monomer free of non-vinylic fluorine, in which units derived from the ester are present in an amount of at least 25% by weight. Polymeric mixtures of a polymer defined in the preceding sentence and a polymer of at least one polymerizable vinylidene monomer free of non-vinylic fluorine, in which the mixture contains at least 3% by weight of polymer units derived from the esters of the first paragraph above. Textiles treated with the polymers and polymeric mixtures defined above.

3,544,538

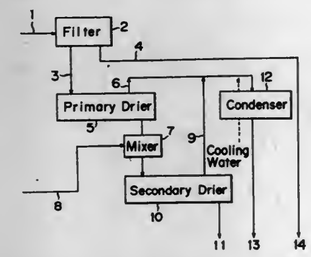
PRODUCTION OF HIGHLY SAPONIFIED POLYVINYL ALCOHOL

Shiro Masuda and Kozo Konishi, both of 1277 Ohaza Ohmi, Ohmi-machi Nishi, Kubiki-gun, Niigata-ken, Japan

Continuation-in-part of application Ser. No. 399,500, Sept. 28, 1964. This application May 20, 1968, Ser. No. 730,597

Int. Cl. C08f *3/34*

U.S. Cl. 260—91.3 **2 Claims**



Highly saponified and purified polyvinyl alcohol from polyvinyl acetate can be obtained with a remarkably small amount of alkaline catalyst by partly drying the wet cake of filtered polyvinyl alcohol, adding a small amount of alkaline catalyst to the partly dried cake and final drying it thoroughly.

3,544,539

PROCESS FOR THE SUSPENSION POLYMERIZATION OF VINYL CHLORIDE

Shunichi Koyanagi, Hajime Kitamura, and Shigenobu Tajima, Naoetsu-shi, Niigata-ken, Japan, assignors to Shin-Etsu Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Nov. 8, 1966, Ser. No. 592,759

Int. Cl. C08f *1/11, 3/30*

U.S. Cl. 260—92.8 **5 Claims**

In the suspension polymerization of vinyl chloride monomer to polyvinyl chloride in an aqueous dispersion system, under agitation, the agitation is interrupted before the polymerization rate has reached about 15%. The system, after interruption of the agitation is left in unagitated state for a period of 30 minutes to five hours and until the polymerization rate has risen to about 20 to 40% whereupon agitation is again resumed to complete the polymerization.

3,544,540

TEMPERATURE CONTROL SYSTEM

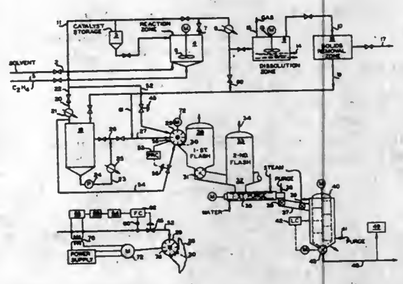
Clarence G. Houser and Jack E. Hoskins, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Nov. 12, 1968, Ser. No. 774,945

Int. Cl. C08f *1/88*

U.S. Cl. 260—94.9 **6 Claims**

A method and apparatus is provided for the introduction of liquid solvent to a polyolefin flash chopper zone so as to control the temperature of the flash chopper zone and the polymer therein. Introduction of the liquid solvent to the flash chopper zone is regulated in response to the work load on the motor providing power to the chopper means in the flash chopper zone.



3,544,541

VULCANIZABLE COMPOSITIONS CONTAINING AZIRIDINYL COMPOUND AND BASIC COMPOUND

Douglas C. Edwards and Premysl Thomas Dolezal, Sarnia, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate and body politic

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,017

Claims priority, application Canada, Apr. 14, 1967, 987,841

Int. Cl. C08d *5/02, 5/04;* C08f *27/08*

U.S. Cl. 260—94.7 **8 Claims**

A liquid polymer containing molecules with more than one active halogen atom, preferably allylic halogen, is mixed with an aziridinyl compound and a minor amount of an additive selected from inorganic basic substances or metal compounds of metals such as copper, iron, nickel and cobalt, or mixtures of both. The resulting mixture is storable at room temperature and can be vulcanized at temperatures of at least 50° C. to a substantially insoluble vulcanized composition.

The above mixture is suitable for use as a binder for particulate solid material e.g. for solid rocket propellant compositions.

3,544,542

PROCESS FOR ISOLATING CIS-1,4-POLYISOPRENE FROM HYDROCARBON SOLUTIONS

Josef Witte, Cologne-Stammheim, Gottfried Pampus, Leverkusen, Friedrich Haas, Cologne-Buchheim, and Nikolaus Schön and Egon Kuntz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,210

Claims priority, application Germany, Dec. 21, 1967, 1,720,763

Int. Cl. C08d *5/00;* C08f *1/92, 27/00*

U.S. Cl. 260—94.7 **4 Claims**

Improved process for isolating cis-1,4-polyisoprene from its solution in organic solvents wherein the catalyst is deactivated by means of a primary or secondary aliphatic diamine or polyamine, optionally in combination with a lower aliphatic alcohol and/or a secondary aliphatic or cycloaliphatic monoamine.

3,544,543

REACTION PRODUCT OF POLYMERCAPTANS AND EPISULFIDES

Carl C. Greco, Bronx, N.Y., and Stanley B. Mirviss, Stamford, Conn., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Original application Nov. 7, 1966, Ser. No. 592,325, now Patent No. 3,453,126, dated July 1, 1969. Divided and this application May 31, 1968, Ser. No. 749,235

Int. Cl. C07g *17/00;* C09d *1/00*

U.S. Cl. 260—125 **9 Claims**

Plasticizers, useful in road marking compositions containing a major amount of elemental sulfur, are prepared by reacting a polymercaptan of the formula:

$$HS—R—(SH)_n$$

wherein R is a hydrocarbon containing up to and including 20 carbon atoms per molecule and n is an integer of from 1 to 2 inclusive; with a compound containing an episulfide group.

3,544,544

PROCESS FOR IMPROVING THE ODOR OF PHOSPHORUS-SULFIDE ORGANIC COMPOUNDS

Dallas C. Armstrong, Belleville, and Taniel A. Garabedian, East St. Louis, Ill., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 532,078, Mar. 7, 1966. This application Nov. 7, 1968, Ser. No. 774,165

Int. Cl. C07g *17/00;* C10m *3/42*

U.S. Cl. 260—139 **9 Claims**

A process for improving the odor of phosphorus- and sulfur-containing organic compounds by contacting such compounds with a gas containing oxygen in the presence of small amounts of ammonia. The phosphorus- and sulfur-containing organic compounds produced by the process of this invention are useful as lubricants per se or as additive to lubricating oils.

3,544,545

1:1 CHROMIUM COMPLEXED DYES CONTAINING HYDROXY AROMATIC AZOPYRAZOLONES, β-HYDROXY - α,β - UNSATURATED CARBONYLS AND A HYDROQUINONYL GROUP

Elbert M. Idelson, Newton Lower Falls, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Original application Sept. 13, 1965, Ser. No. 486,853, now Patent No. 3,453,107, dated July 1, 1969. Divided and this application Jan. 3, 1969, Ser. No. 788,928

Int. Cl. C09b *45/14;* G03c *5/24, 5/30*

U.S. Cl. 260—147 **11 Claims**

Novel 1:1 chrome-complexed azo dyes, including such dyes containing a dihydroxyphenyl silver halide developing substituent making them particularly useful in color photography.

3,544,546

MIXED CHROMIUM COMPLEX MONOAZO DYESTUFFS

Allen Crabtree and Graham Holmes, Manchester, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

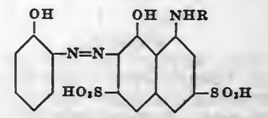
No Drawing. Filed Jan. 9, 1967, Ser. No. 607,913

Claims priority, application Great Britain, Jan. 31, 1966, 4,174/66

Int. Cl. C09b *45/16;* D06p *1/02*

U.S. Cl. 260—145 **5 Claims**

Mixed 1:2-complex reactive dyes in which the metal is chromium or cobalt, and the two dyestuff molecules are different, have at least 3 sulfonic acid groups to ensure adequate water solubility and have three cellulose-reactive groups divided between the two molecules. These reactive groups are acyl or heterocyclic radicals containing an atom or group capable of entering into reaction with the hydroxyl groups of cellulose. The preferred dyestuffs are chromium or cobalt complexes of compounds of the formula



where one of the benzene nuclei contains a NHR group; R is a cellulose-reactive group, and other substituents of the kind readily available in o-aminophenols can be present in this or the other benzene nucleus, for example, NO_2, SO_3H, Cl. The preferred reactive group is the 2-chloro-4-amino-s-triazine group. These dyes are black reactive dyes with very high fixation.

3,544,547

WATER-SOLUBLE TRIAZINE REACTIVE METAL COMPLEX MONOAZO DYESTUFFS

Allen Crabtree and Henry Roy Murton, Manchester, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

No Drawing. Filed Aug. 14, 1967, Ser. No. 660,204

Claims priority, application Great Britain, Aug. 15, 1966, 36,390/66

Int. Cl. G09d *62/08;* D06p *1/02*

U.S. Cl. 260—146 **4 Claims**

1:2 chromium and cobalt complexes of monoazo dyes of the general formula:

$$A—N{=}N—E—T$$

in which A is an o-hydroxyphenyl or o-hydroxynaphthyl radical containing a nitro group and optionally 1 or more sulphonic acid groups, E is a hydroxyamino naphthyl sulphonic acid radical connected to the azo group in o-position to the OH group, T is a 2-chloro-4-anilino-s-triazin-6-yl radical connected to the amino group of E and having a sulphatoethyl-, chloroethyl- or vinyl-sulphonyl group on the benzene nucleus of the anilino group. The preferred dyestuffs are those based on nitroaminophenols and their monosulphonic acids as diazo components and 1,8 - aminonaphthol - 3,6 - disulphonic acids as coupling components, suitable mixtures of the Cr and Co complex giving neutral blacks of an exceptionally high rate of fixation.

3,544,548

WATER-INSOLUBLE MONOAZO DYESTUFFS

Dieter Günther, Kelkheim, Taunus, Ernst Hoyer, Frankfurt am Main, Heinz Schmidt, Kelkheim, Taunus, and Hansjörg Vollmann, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

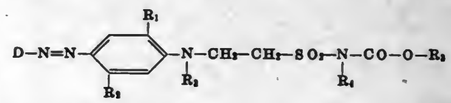
No Drawing. Filed July 2, 1968, Ser. No. 741,910

Claims priority, application Germany, July 18, 1967, F 52,992

Int. Cl. C09b *29/36;* D06p *1/02*

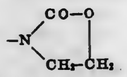
U.S. Cl. 260—152 **6 Claims**

Water-insoluble monoazo-dyestuffs of the formula



in which D represents phenyl which may be substituted by non-water solubilizing groups, R_1 represents hydrogen

or lower alkoxy, R_2 represents hydrogen, chlorine, bromine, lower alkyl, lower alkoxy, or lower acylamino, R_3 and R_4 each represent hydrogen or lower alkyl, R_5 represents lower alkyl or phenyl, and R_4 and R_5 together with the radical —N—CO—O— the ring



said dyestuffs being suitable for the dyeing of textile materials consisting of cellulose-triaceate, cellulose-2½-acetate, polyamide and polyurethane fibres, particularly of polyester fibres, and of mixtures of wool and polyester fibres.

3,544,549

DISPERSE DYES OF THE AZOBENZENE SERIES

Ruedi Altermatt, Tecknau, Basel-Land, and Curt Mueller, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed July 31, 1967, Ser. No. 657,009
Claims priority, application Switzerland, Aug. 12, 1966, 11,682/66
Int. Cl. C07c *107/06;* **C09b** *29/24*
U.S. Cl. 260—207 **10 Claims**

This invention relates to dyes of the 4-nitro-2'-acylamino-4'-dialkylamino-5'-alkoxy-1,1' - azobenzene series which are substituted by at least one formyloxy group and have high affinity from aqueous dispersion for textiles made of synthetic or semi-synthetic materials of hydrophobic character and high molecular weight. On these substrates the dyes give blue dyeings having excellent all-round fastness properties.

3,544,550

NON-OXO-CARBONYLIC CONTAINING, PHENYL-AZO-PHENYL DYESTUFFS

Catherine Margaret Anderton, Brian Ribbons Fishwick, and John Lawson, Manchester, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

No Drawing. Filed July 12, 1967, Ser. No. 652,706
Claims priority, application Great Britain, July 15, 1966, 31,920/66
Int. Cl. C07c *107/06;* **C09b** *29/06*
U.S. Cl. 260—207.1 **2 Claims**

Water-insoluble azo dyestuffs derived from diazo components, which are preferably of the benzene series, and as coupling components optionally substituted anilines carrying as N-substituent a substituted alkoxycarbonylalkyl radical, and the use of the said dyestuffs for coloring synthetic textile materials.

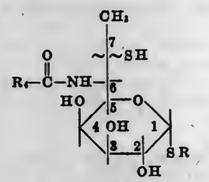
3,544,551

7-MERCAPTO-7-DEOXYLINCOMYCINS AND PROCESS FOR PREPARING THE SAME

Fred Kagan, Kalamazoo, and Barney J. Magerlein, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

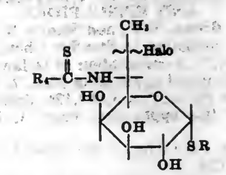
No Drawing. Filed Apr. 30, 1968, Ser. No. 725,531
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **10 Claims**

Novel antibacterial compounds of the formula:



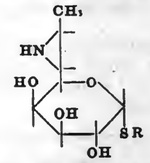
I

are prepared either by heating a compound of the formula:



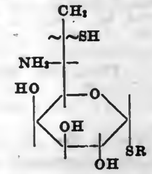
II

with water in dimethylformamide, the 2-, 3-, and 4-hydroxy group may be covered with protective groups, or by heating a novel compound of the formula:



III

with hydrogen sulfide in an inert solvent to form a novel compound of the formula:



IV

which on acylation yields compounds of Formula I. The first process produces predominantly compounds having the 7(R)- or D-erythro configuration whereas the second produces predominantly compounds having the opposite configuration, 7(S)- or L-threo.

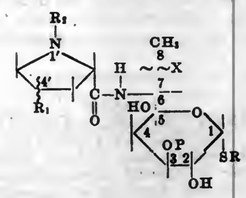
3,544,552

3-PHOSPHATE ESTERS OF LINCOMYCIN

Alexander D. Argoudelis, Portage, and John H. Coats, Kalamazoo, Mich., assignors to The Upjon Company, Kalamazoo, Mich., a corporation of Delaware

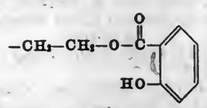
No Drawing. Filed Oct. 18, 1968, Ser. No. 768,879
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **14 Claims**

This invention relates to novel antibacterial compounds and to processes for preparing them. It is particularly directed to novel 3-phosphate esters of lincomycin, and of analogs thereof, and of celesticetins. The compounds of the invention can be shown by the following formula:



I

wherein R is CH_3, C_2H_5 or



R_1 is H, or cis or trans lower-alkyl of from 1 to 8 carbon atoms, inclusive; R_2 is H, CH_3, or C_2H_5; X is OH, chlorine, or bromine, each in the (R) or (S) configuration, or $—OCH_3$; and, P is

and salts thereof.

Examples of alkyl of from 1 to 8 carbon atoms are methyl, ethyl, propyl, butyl, pentyl, hexyl, heptyl, and octyl and isomers thereof.

3,544,553

SCILLIGLAUCOSIDIN-19-OL-α-L-RHAMNOSIDE

Franz Pattermann, Ingelheim am Rhein, Germany, assignor to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany, a corporation of Germany

Filed Apr. 4, 1968, Ser. No. 718,736
Claims priority, application Germany, Apr. 17, 1967, B 92,100
Int. Cl. C07c *173/00*
U.S. Cl. 260—210.5 **1 Claim**

A new cardiac-active glycoside, scilliglaucosidin-19-ol-α-L-rhamnoside, useful for increasing the ability of the heart muscle to contract and changing the heart beat frequency in warm-blooded animals, and a method of preparing said glycoside from scilliglaucosidin-α-L-rhamnoside by reduction with metal hydrides.

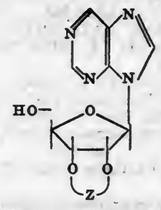
3,544,554

NEBULARIN DERIVATIVES

Klaus Koch, Mannheim-Feudenheim, Max Thiel, Mannheim, Kurt Stach and Wolfgang Schaumann, Mannheim-Waldhof, and Klaus Hardebeck, Ludwigshafen (Rhine), Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, Mannheim-Waldhof, Germany, a corporation of Germany

No Drawing. Filed June 26, 1968, Ser. No. 740,081
Claims priority, application Germany, July 1, 1967, B 93,275
Int. Cl. C07d *51/54*
U.S. Cl. 260—211.5 **7 Claims**

Novel nebularin derivatives constituting valuable circulatory stimulants and corresponding to the formula:



wherein Z is alkylidene containing 4 to 8 carbon atoms, cycloalkylidene containing 5 to 8 carbon atoms or aralkylidene containing 7 to 10 carbon atoms, the aryl moiety of which may be substituted by 1 or more members of the group consisting of halogen, nitro, amino, methylenedioxy, lower alkyl, alkoxy, alkylmercapto, monoalkylamino, dialkylamino and acylamino containing up to 4 carbon atoms.

3,544,555

SULFATION OF ALCOHOLS WITH A SOLUTION OF A COMPLEX OF SO_3 WITH DIMETHYLFORMAMIDE

Laszlo F. Biritz, Cook County, Ill., and Everett E. Gilbert, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Oct. 9, 1963, Ser. No. 314,877
Int. Cl. C08b *5/14*
U.S. Cl. 260—215 **20 Claims**

Process for the sulfation of alcohols such as cellulose and glycerol wherein the reaction can be selectively controlled and the sulfating agent is stable, can be conveniently formed and will readily provide SO_3 for the reaction. The process comprises reacting the alcohol with a solution of a complex of SO_3 with dimethylformamide.

3,544,556

PROCESS FOR THE PREPARATION OF CELLULOSE ETHERS

Franz Eichenseer and Siegfried Janocha, Wiesbaden-Schierstein, and Hans Macholdt, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany, a corporation of Germany

Continuation of application Ser. No. 604,896, Dec. 27, 1966. This application Oct. 11, 1968, Ser. No. 768,965
Claims priority, application Germany, Dec. 30, 1965, 1,543,136
Int. Cl. C08b *11/00*
U.S. Cl. 260—231 **7 Claims**

This invention relates to a process which comprises continuously passing a mixture of alkali cellulose, excess liquid methyl chloride, and liquid dimethyl ether through a reaction zone at a temperature in the range of about 70 to 95° C., and separating a cellulose ether from the reaction mixture.

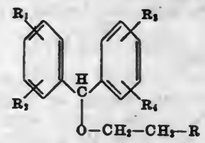
3,544,557

BENZHYDRYL ETHERS

Wijbe T. Nauta, Nieuw Loosdrecht, Netherlands, assignor to N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia, Amsterdam, Netherlands

No Drawing. Filed Aug. 4, 1967, Ser. No. 658,355
Claims priority, application Great Britain, Aug. 9, 1966, 35,658/66
Int. Cl. C07d *41/08*
U.S. Cl. 260—239 **6 Claims**

This invention relates to benzhydryl ethers which can be utilized as local anesthetics, spasmolytics, anticonvulsants, sedatives, blood vessel dilators, or anti-Parkinson agents. The compounds of this invention have the formula



wherein R, R_1, R_2, R_3 and R_4 are as defined herein.

3,544,558

SUBSTITUTED DIAZOCINODIBENZOAZEPINES

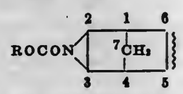
Marshall D. Draper, Woodland Hills, Murle W. Kloks, Tarzana, and Francis J. Petracek, Agoura, Calif., assignors to Rexall Drug and Chemical Company, Los Angeles, Calif., a corporation of Delaware

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,366
Int. Cl. C07d *53/00*
U.S. Cl. 260—239 **1 Claim**

5 - lower alkyl - 4H - 5,6,7,8,14,15-hexahydro - 5,9 - diazocino[1,2,3-de]-dibenzoapines which are pharmacologically useful as antidepressants.

3,544,559
AZIRIDINE N-CARBOXYLATES
Hiroshi Tanida, Osaka, and Teruji Tsuji, Takatsuki-shi, Japan, assignors to Shionogi & Co. Ltd., Osaka, Japan
No Drawing. Original application Oct. 27, 1965, Ser. No. 505,400, now Patent No. 3,445,456, dated May 20, 1969. Divided and this application Sept. 18, 1968, Ser. No. 798,219
Int. Cl. C07d 23/06
U.S. Cl. 260—239 4 Claims

Compounds of the formula:



wherein the symbol ~~~~~~~~ represents hydrogen atoms at positions 5- and 6-, a double bond between said positions or a condensed benzene ring with or without one or more substituents selected from the group consisting of lower alkyl group, lower alkoxy group, halogen, amino group, alkylamino group, di (lower) alkylamino group and cyano group between the 5- and 6-positions are useful as intermediates for production of antidepressants and psychomotor stimulants.

3,544,560
PENICILLIN COMPOUNDS
Bernard J. Ludwig, North Brunswick, and Frank M. Berger and George M. Fukui, Princeton, N.J., assignors to Carter-Wallace, Inc., New York, N.Y., a corporation of Maryland
No Drawing. Filed July 19, 1968, Ser. No. 746,003
Int. Cl. C07d 99/16
U.S. Cl. 260—239.1 7 Claims

Novel α-phenoxy-β-hydroxy penicillins and salts thereof. The compounds possess valuable antibacterial activity and are particularly useful in cases where hypersensitivity to presently-available penicillins may occur.

3,544,561
10-SUBSTITUTED DIBENZ[b,f][1,4] OXAZEPIN-11(10H)-ONES
Gunther Schmidt and Hans Machleidt, Biberach (Riss), and Hans Klupp, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany, a corporation of Germany
No Drawing. Filed Jan. 27, 1967, Ser. No. 612,097
Claims priority, application Germany, Jan. 28, 1966, T 30,351
Int. Cl. C07d 87/00
U.S. Cl. 260—239.3 10 Claims

The compounds are of the class of dibenz[b,f][1,4]-oxazepin-11(10H)-ones having an aminocarbonyl-alkyl substituent attached to the nitrogen atom in the 10-position, which are useful as sedatives, anticonvulsives, analgesics, antipyretics, antiphlogistics and hypotensives.

3,544,562
PROCESS FOR THE MANUFACTURE OF OMEGA-DECALACTAM USING EPSILON-CAPROLACTAM AS A SOLVENT THEREFOR
Hans-Joachim Schultze and Clau Berther, Chur, Grisons, Switzerland, assignors to Inventa A.G. fur Forschung und Patentverwertung, Zurich, Switzerland
No Drawing. Filed June 29, 1967, Ser. No. 657,457
Claims priority, application Switzerland, June 30, 1966, 9,511/66
Int. Cl. C07d 41/06
U.S. Cl. 260—239.3 7 Claims

A process for the manufacture of omega-decalactum utilizing the solvent power of epsilon-caprolactam. The caprolactam can be added to cyclodecanone oxime prior to the Beckmann type rearrangement to decalactam, or else, can simultaneously be produced by mixing cyclodecanone and cyclohexanone in suitable proportions and oximating and rearrangement in mixture. The resulting lactams can readily be separated by fractionation, and two pure products in good yields thus are obtained.

3,544,563
CERTAIN 3-INDOLYL-LOWER-ALKANOIC ACID DERIVATIVES
Hisao Yamamoto, Nishinomiya-shi, and Masaru Nakao, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Mar. 10, 1967, Ser. No. 622,076
Claims priority, application Japan, Mar. 15, 1966, 41/16,236; Mar. 18, 1966, 41/17,085; Jan. 24, 1967, 42/4,951
Int. Cl. C07d 27/56
U.S. Cl. 260—240 8 Claims

N-acylated 3-indolyl acetic acid derivatives having anti-inflammatory, analgesic, antipyretic and anticholesterolemic activities and being useful as an intermediate for anti-inflammatory drugs which are prepared by reacting an N[1]-acylated phenylhydrazine derivative with a ketoglutaric acid or its derivative at an elevated temperature.

3,544,564
IMIDAZOANTHRAQUINONE DYES
Hans Weidinger, Limburgerhof, Pfalz, and Manfred Eisert, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 16, 1967, Ser. No. 660,938
Claims priority, application Germany, Aug. 19, 1966, 1,619,347
Int. Cl. C07d 49/36; C09b 23/14
U.S. Cl. 260—240 5 Claims

Anthraquinone derivatives which contain in α,β-position an imidazole ring condensed onto the anthraquinone nucleus. These compounds can be prepared for example from 1,2-diaminoanthraquinone and acid halides; they are suitable as dyes.

3,544,565
PHTHALOCYANINE AND DIOXAZINE SULPHUR DYESTUFFS AND A PROCESS FOR THEIR PREPARATION
Djavad Razavi, Paris, France, assignor to Ugine Kuhlmann, Paris, France
No Drawing. Filed Mar. 28, 1968, Ser. No. 717,414
Claims priority, application France, Mar. 31, 1967, 100,915
Int. Cl. C09b 19/00, 47/06
U.S. Cl. 260—244 4 Claims

Process for the preparation of sulphur dyestuffs which comprises treating a dyestuff containing in its molecule at least two $-SO_2X$ substituents, in which X represents a hydrogen or halogen atom, a monovalent cation or an SY group, in which Y represents a hydrogen atom or a monovalent cation with a thioamide in aqueous acid medium and at a temperature from 0° C. to 100° C. inclusive; and sulphur dyestuffs thus obtained.

3,544,566
PROCESS FOR PRODUCING ARENO-OXAZINONES
Helmo Brunetti, Reinach, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York
No Drawing. Filed Feb. 16, 1968, Ser. No. 705,928
Claims priority, application Switzerland, Feb. 27, 1967, 2,902/67
Int. Cl. C07d 87/20
U.S. Cl. 260—244 7 Claims

Areno-oxazinones are produced from aromatic carbocyclic or heterocyclic carboxylic acid chlorides or bromides and o-hydroxy-aryl-carboxylic acid amides at a temperature in the range of from 60 to 230° C. and preferably between 100 and 200° C., optionally with a reaction accelerator and/or an aprotic organic solvent; hydrogen halide and water which are set free during the reaction being continuously eliminated. The resulting areno-oxazinones are valuable intermediates in the production of s-triazine light stabilizers for polymeric synthetic materials.

3,544,567
PROCESS FOR PRODUCING ARENO-OXAZINONES
Helmo Brunetti, Reinach, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York
No Drawing. Filed Feb. 16, 1968, Ser. No. 705,934
Claims priority, application Switzerland, Feb. 27, 1967, 2,906/67
Int. Cl. C07d 87/20
U.S. Cl. 260—244 6 Claims

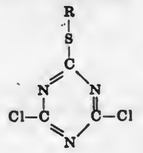
Areno-oxazinones are produced from o-hydroxy-aryl-carboxylic acids and o-hydroxy-aryl-carboxylic acid amides in the presence of a non-oxidizing inorganic acid halide or organic sulfonic acid halide as condensing agent, at a temperature in the range of from 40 to 230° C., and preferably between 100 and 200° C., optionally with a reaction accelerator and/or an aprotic organic solvent; gaseous products set free during the reaction being continuously eliminated. The resulting areno-oxazinones are valuable intermediates in the production of s-triazine light stabilizers for polymeric synthetic materials.

3,544,568
3-AMINO-5,6-SUBSTITUTED PYRAZINAMIDES
Edward J. Cragoe, Jr., and John B. Bicking, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 573,447, Aug. 17, 1966. This application Mar. 18, 1969, Ser. No. 808,335
Int. Cl. C07d 87/42
U.S. Cl. 260—247.2 10 Claims

3-aminopyrazinamides, optionally having an additional substituent or substituents attached to the pyrazine nucleus and wherein the amide nitrogen carries an amino alkyl substituent, a pyridyl methyl, a 1-loweralkyl-2-pyrrolidinylmethyl or a 1-loweralkyl-3-pyrrolidinylmethyl, are described. The products possess diuretic and/or saluretic properties and are prepared by the reaction of a 3-amino-pyrazinoate and a suitably substituted amine or by the reaction of said amine with a 4H-pyrazino-[2,3-d][1,3] oxazin-4-one followed by hydrolysis.

3,544,569
PRODUCTION OF SUBSTITUTED 2-MERCAPTO-4,6-DICHLORO-S-TRIAZINES
Werner Schwarze, Frankfurt am Main, and Wolfgang Weigert, Offenbach am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed July 5, 1968, Ser. No. 742,537
Claims priority, application Germany, July 7, 1967, D 53,535; Dec. 30, 1967, D 54,987
Int. Cl. C07d 55/48
U.S. Cl. 260—248 6 Claims

Mercapto triazines of the formula



in which R is cycloalkyl, alkenyl, aralkyl or alkyl with 1–18 C atoms which may be substituted by one or more of —OR[1], —SR[1] or —CN groups in which R[1] is lower alkyl are produced by reaction of a mercaptan of the formula R—SH or corresponding mercaptides with cyanuric chloride in a heterogeneous liquid reaction system of water and at least one water immiscible inert organic solvent with thorough mixture of the phases of such system at a temperature and pressure at which such solvent and water are still present in the liquid state, the reactions being carried out in the presence of a hydrochloric acid acceptor when the mercapto reactant is a mercaptan.

Compounds are useful as starting materials for herbicides such as 2-methyl mercapto-4,6-bis-isopropyl-amino-s-triazine. These herbicides can be made from the products of the invention for instance by replacing the chlorine substituents with amino groups.

3,544,570
1,2,4-TRIAZINE-5-ONES
Helmut Timmler, Wuppertal-Vohwinkel, Richard Wegler, Leverkusen, Ludwig Eue, Cologne-Stammheim, and Helmuth Hack, Cologne-Buchheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Aug. 8, 1968, Ser. No. 751,069
Claims priority, application Germany, Aug. 18, 1967, F 53,277
Int. Cl. C07d 55/10
U.S. Cl. 260—248 10 Claims

3-(alkylmercapto, alkoxy, alkenylmercapto, alkenyloxy, chloroalkenylmercapto, chloroalkenyloxy, phenyl-alkylmercapto, phenylalkoxy, chloro- and nitro- -phenyl-alkylmercapto, chloro- and nitro- -phenyl-alkoxy, amino, alkylamino, dialkylamino, and heterocyclic, e.g. pyrrolodino, morpholino, piperidino, etc.)-4-(alkyl, alkenyl and phenyl)-6-(alkyl, cycloalkyl, phenyl-alkyl, chlorophenyl-alkyl, carbo-alkoxy, alkoxycarbonyl - alkyl, phenyl, chloronitro-, alkyl- and alkoxy- -phenyl, and heterocyclic, e.g. furyl, pyrrolidyl, morpholyl, pyridyl, piperidyl, etc.)-1,2,4-triazine-5-ones, which possess herbicidal properties, and which may be produced by conventional methods.

3,544,571
PROCESS FOR MAKING PYRAZINOYL-THIOUREA COMPOUNDS
Edward J. Cragoe, Jr., Lansdale, and Kenneth L. Shepard, Ambler, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Sept. 4, 1968, Ser. No. 757,492
Int. Cl. C07d 51/76
U.S. Cl. 260—250 11 Claims

Pyrazinoylthioureas and a process for their preparation are described which process comprises treating a pyrazinoylcyanamide with hydrogen sulfide. The products are diuretic and/or saluretic agents.

3,544,572
THIONOPHOSPHONIC ACID ESTERS
Christa Fest, Wuppertal-Elberfeld, and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Feb. 19, 1969, Ser. No. 800,697
Claims priority, application Germany, Mar. 27, 1968, 1,770,067
Int. Cl. C07d 51/04
U.S. Cl. 260—250 9 Claims

Thionophosphonic acid esters, i.e. (alkyl and phenyl)-O-alkyl-O-(1,2 - pyridazin-6-on-3-yl) - thionophosphonic acid esters, which possess arthropodicidal, especially acaricidal and insecticidal, properties as well as rodenticidal and plant growth-inhibiting properties, and which

may be produced by reacting the corresponding thionophosphonic acid diester monohalide with maleic acid hydrazide.

3,544,573

PIGMENT DYES OF THE PERINONE SERIES

Otto Christmann, Ludwigshafen (Rhine), Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,564
Claims priority, application Germany, Apr. 27, 1967, 1,569,670
Int. Cl. C07d 51/48
U.S. Cl. 260—256.4 2 Claims

Perinones obtainable from 3,3',4,4'-benzophenone tetracarboxylic acid and ortho-phenylenediamines or perinaphthylenediamines are valuable pigment dyes which are particularly advantageous for mass coloration of polyamides and polyesters.

It is known that particularly high thermostability is required of pigment dyes which are to be used for mass coloration of polyamides. Since there is a pronounced lack of organic pigments having yellow to red shade and high thermostability, there has been a desire to synthesize pigment dyes which will to a great extent fulfill the requirements.

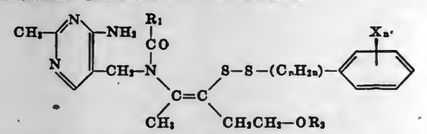
3,544,574

THIAMINE HALOPHENYLALKYL DISULFIDES

Hiroshi Hirano, Mitsuo Numata, and Noboru Shimahara, Suita, and Kiyohisa Kawai, Kyoto-fu, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,920
Claims priority, application Japan, Mar. 3, 1967, 42/13,475; May 27, 1967, 42/33,818
Int. Cl. C07d 51/42
U.S. Cl. 260—256.5 7 Claims

Thiamine derivatives of the formula



wherein R_1 is a hydrogen atom or α-hydroxyethyl, n is an integer from 1 to 5 inclusive, R_2 is a hydrogen atom, an acyl of carboxylic acid having up to 8 carbon atoms, an alkoxycarbonyl having up to 4 carbon atoms or phosphono, n' is an integer from 1 to 3 inclusive and each X is a halogen, having outstanding anti-inflammatory, analgesic and anti-pyretic activity as well as thiamine activity with remarkably low toxicity to mammals.

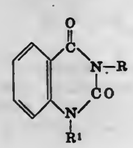
3,544,575

2,4-DIOXOTETRAHYDROQUINAZOLINES

Guenter Scheuerer and Adolf Zeidler, Ludwigshafen (Rhine), and Adolf Fischer, Mutterstadt, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 447,912, Apr. 13, 1965. This application July 17, 1967, Ser. No. 653,608
Claims priority, application Germany, Apr. 20, 1964, B 76,408; Mar. 31, 1965, B 81,248
Int. Cl. C07d 51/30
U.S. Cl. 260—260 2 Claims

Substituted 2,4-dioxotetrahydroquinazolines having the formula



in which R denotes a linear or branched lower alkyl or alkenyl group which may bear a chlorine atom, a hydroxy group or an alkoxy group as a substituent, and R^1 denotes the grouping $-(CO)_n-A$ in which n denotes zero or 1 and A denotes a linear or branched alkyl, alkenyl or cycloalkyl group, which may bear chlorine atoms, methyl groups or phenoxy groups as substituents, or a phenyl group which may bear chlorine atoms, bromine atoms or nitro groups as substituents, or the cyclohexyl or decahydronaphthyl group. The subject compounds are highly effective when used as plant growth regulants and for controlling undesirable vegetation.

3,544,576

POLYVINYLCHLORIDE COMPOSITION STABILIZED WITH A BITUMINOUS MATERIAL

Wendell A. Barnes, Stillwell, Okla., and David L. Bash and Norman W. Franke, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 718,256, Apr. 2, 1968. This application Apr. 14, 1969, Ser. No. 816,098
Int. Cl. C08f 45/52, 45/62
U.S. Cl. 260—28.5 10 Claims

A stabilized resinous polyvinylchloride composition is provided containing a neutral branched-chain alkyl ester plasticizer and a stabilizer comprising between 0.2 and 2 weight percent of a bituminous material. If the composition contains, in addition, between 1 and 12 weight percent of the polyvinylchloride of at least one stable hydrogen chloride metal compound, such as dibasic lead phthalate, then the composition can suitably contain between 0.1 and 7 weight percent of said polyvinylchloride of a bituminous material.

3,544,577

1 - PYRIDYL - 1,2,3,4 - TETRAHYDROISOQUINOLINE SUBSTITUTION PRODUCTS AND SALTS THEREOF

Ernst Seeger, Alpenstrasse 39; Wolfhard Engel, Wolfentalstrasse 32; and Helmut Teufel, Talfeldstrasse 48, all of Biberach an der Riss, Germany

No Drawing. Filed June 7, 1967, Ser. No. 644,098
Claims priority, application Germany, June 16, 1966, T 31,376
The portion of the term of the patent subsequent to July 22, 1986, has been disclaimed
Int. Cl. C07d 35/34
U.S. Cl. 260—287 8 Claims

The compounds are substitution products of 1-pyridyl-1,2,3,4 - tetrahydro-isoquinoline useful as antiphlogistics, antipyretics, analgesics and spasmolytics in warm-blooded animals.

3,544,578

METHOD FOR DEALKYLATING CERTAIN SOLONACEOUS ALKALOIDS AND DERIVATIVES THEREOF

Rolf Banholzer, Alex Heusner, Werner Schulz, Walther Sirrenberg, Gerhard Walther, and Karl Zeile, Ingelheim, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany, a corporation of Germany

No Drawing. Filed Aug. 2, 1968, Ser. No. 749,565
Claims priority, application Germany, Aug. 4, 1967, 1,670,258
Int. Cl. C07d 43/06
U.S. Cl. 260—292 6 Claims

A process for the production of norscopolamine, noratropine, norhyoscyamine, norscopoline, nortropinone and norpseudopelletierine and their nontoxic, pharmaceutically acceptable acid addition salts and compositions and method for treating spasms in warm-blooded animals.

3,544,579

SUBSTITUTED PHENYLCARBAMIC ACID ESTERS OF CYCLIC AMINO ALCOHOLS

Johan Richard Dahlbom, Sodertalje, and John Lars Gunnar Nilsson, Marsta, Sweden, assignors to Aktiebolaget Astra, Sodertalje, Sweden, a company of Sweden

No Drawing. Filed Feb. 28, 1968, Ser. No. 708,758
Claims priority, application Sweden, Mar. 9, 1967, 3,307/67
Int. Cl. C07d 29/26
U.S. Cl. 260—294.3 3 Claims

A new class of carbamates is disclosed which carbamates constitute substituted phenylcarbamic acid esters of N-alkyl-substituted cyclic amino alcohols. The compounds are useful as local anesthetics. Methods of synthesis and evaluations of local anesthetic properties are described.

3,544,580

CERTAIN ACYL DERIVATIVES OF OXO- AND OXYISOTHIAZOLES

Sheldon N. Lewis, Willow Grove, and George A. Miller, Glenside, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed June 21, 1967, Ser. No. 647,586
Int. Cl. C07d 71/12
U.S. Cl. 260—302 15 Claims

Disclosed herein is a novel group of compounds which are properly designated as 3-isothiazole derivatives being obtained, for the most part, by reacting a substituted 3-hydroxyisothiazole with an active halogen compound. These compounds and compositions thereof exhibit biocidal characteristics and are exceptionally effective in the control of living organisms.

3,544,581

PRODUCTION OF 6-AMINO-PENICILLANIC ACID SULFOXIDE

John M. Essery, Liverpool, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 22, 1965, Ser. No. 474,156
Int. Cl. C07d 99/16, 99/24
U.S. Cl. 260—306.7 3 Claims

A general procedure for the *direct* preparation of penicillin sulfoxides comprises the use of sodium metaperiodate in aqueous solution at pH 6.5–7.0 to produce the sulfoxides of 6-aminopenicillanic acid and seven penicillins.

3,544,582

PROCESS FOR PREPARING AMINOISOXAZOLES

Harry Allen Albrecht, Nutley, and John Thomas Plati, Rutherford, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 6, 1965, Ser. No. 446,103
Int. Cl. C07d 85/22
U.S. Cl. 260—307 7 Claims

3-amino-4-(H or alkyl)-5-alkyl isoxazoles are prepared by (a) reacting the corresponding 4-(H or alkyl)-5-alkyl isoxazole with isobutylene or a compound of the formula



wherein R_3, R_4 and R_5 are lower alkyl and X is I, Cl, Br, OH, ClO_4, lower alkosulfate, or the anion of a mineral acid, (b) reacting the product formed with hydroxylamine, and (c) treating that reaction product with a mineral acid. The 3-amino-4-(H or alkyl)-5-alkyl isoxazoles are useful intermediates for the preparation of known antibacterial sulfonamides.

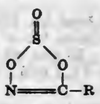
3,544,583

CYCLOALIPHATIC MONO (NITRILE SULFITES)

Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Atlantic Richfield Company, a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 660,242, Aug. 14, 1967. This application Nov. 27, 1968, Ser. No. 779,620
Int. Cl. C07d 95/00
U.S. Cl. 260—301 9 Claims

Compounds of the formula



wherein R is a cycloaliphatic radical are prepared by reacting the corresponding hydroxamic acids with thionyl chloride. The compounds are useful as, inter alia, isocyanate generators and have the advantage over conventional cycloaliphatic isocyanates in that they can be easily handled and stored.

3,544,584

CERTAIN 5-ALKYL-3-HYDROXYISOXAZOLES

Issei Iwai, Yukichi Kishida, Tetsuo Hiraoka, and Norio Nakamura, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Continuation of application Ser. No. 485,914, Sept. 8, 1965. This application Oct. 1, 1968, Ser. No. 767,053
Claims priority, application Japan, Sept. 14, 1964, 39/52,515; June 12, 1965, 40/34,828
Int. Cl. C07d 85/22
U.S. Cl. 260—307 7 Claims

Process for the preparation of 3-hydroxy-5-substituted (or unsubstituted) isoxazoles. The corresponding acetylenic acid alkyl esters are reacted with hydroxylamine in the presence of an alkali metal hydroxide. New 3-hydroxy-5-substituted (or unsubstituted) isoxazoles are disclosed which are useful as an agricultural fungicide.

3,544,585

N'-[4-(HYDROXYMETHYL)-5-PYRAZOLYL] AMIDINES

Leo Ralph Swett and James Daniel Ratajczyk, Waukegan, and Patrick Richard Young, Winthrop Harbor, Ill., assignors to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois

No Drawing. Filed Oct. 4, 1967, Ser. No. 672,717
Int. Cl. C07d 49/20
U.S. Cl. 260—310 2 Claims

A novel series of N'-[4-hydroxymethyl)-5-pyrazolyl] amidines which are useful as effective anti-inflammatory agents. These compounds are prepared by reacting 5-amino-1,3-disubstituted pyrazole with the appropriate formylated amine, and reducing the product obtained thereby to yield the desired compound.

3,544,586

METHOD OF PREPARING PHTHALOCYANINE PIGMENTS

Volney Tullsen, Westfield, N.J., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 9, 1965, Ser. No. 507,046
Int. Cl. C09b 47/04
U.S. Cl. 260—314.5 4 Claims

A process for preparing phthalocyanine pigments which comprises (1) forming a salt of a phthalocyanine starting

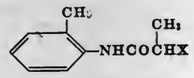
material, and (2) thereafter regenerating the free phthalocyanine in the presence of a water-soluble salt and a liquid material during or after a milling operation.

3,544,587
SUBSTITUTED TOLUIDIDES AND COMPOSITIONS CONTAINING THEM

Charles Leslie Meredith Brown, Ewell, Epsom, Surrey, England, assignor, by mesne assignments, to Wigglesworth Limited, Westhoughton, Lancashire, England, a British company

No Drawing. Filed June 20, 1966, Ser. No. 558,626
Claims priority, application Great Britain, June 23, 1965, 26,666/65
Int. Cl. C07d 27/04
U.S. Cl. 260—326.3 3 Claims

This invention relates to a class of aminopropionyl-o-toluidides and their acid addition salts which are useful as local anaesthetics. The toluidides have the general formula:



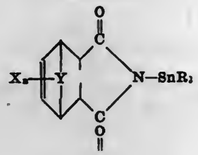
in which X is a member of the class consisting of —NHR and —N=Q, R represents a cycloalkyl ring which may have alkyl substituents and which contains a total of 3 to 5 carbon atoms in the ring, and Q together with the nitrogen atom to which it is linked represents a heterocyclic ring which may have alkyl substituents and which has a total, including any carbon atoms in the alkyl substituents of from 3 to 5 carbon atoms.

3,544,588
ORGANOTIN IMIDES

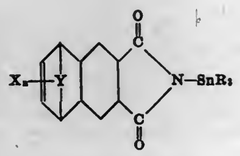
Pasquale P. Minieri, Woodside, N.Y., assignor to Tenneco Chemicals, Inc., a corporation of Delaware

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,982
Int. Cl. C07d 27/52
U.S. Cl. 260—326 5 Claims

Organotin imides that have the structural formula



or



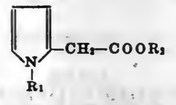
wherein each R represents phenyl or an alkyl group having from 4 to 8 carbon atoms, X represents an alkyl group having from 1 to 4 carbon atoms, an alkenyl group having from 4 to 8 carbon atoms, halogen, or phenyl; Y represents methylene, ethylene, chloromethylene, or chloroethylene; and *n* represents an integer in the range of 0 to 4 can be used to control the growth of undesirable plants, insects, and fungi. Illustrative of these compounds are N-tri-n-butyltin chlorendic imide and N-triphenyltin chlorocyclic imide.

3,544,589
PROCESS FOR PREPARING PYRRYL-(2)-ACETIC ACID ESTERS

Winfried Orth, Schifferstadt, Ludwig Rappen, Duisburg-Meiderich, and Gerd Busse, Krefeld, Germany, assignors to Rutgerswerke und Teerverwertung Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Nov. 28, 1967, Ser. No. 686,286
Claims priority, application Germany, Dec. 3, 1966, R 44,720
Int. Cl. C07d 27/26
U.S. Cl. 260—326.3 7 Claims

Pyrryl-(2)-acetic acid esters corresponding to the formula



wherein R_1 stands for hydrogen or alkyl groups and R_2 stands for alkyl groups or aralkyl groups, are prepared by alkaline saponification of pyrryl-(2)-acetonitriles and conversion of the resulting alkali salts by means of alkylating agents into pyrryl-(2)-acetic acid esters, in a single reaction stage.

The resulting compounds are useful as starting materials in the production of phenothiazime derivatives which are useful in medicine as antihistamines, spasmolytica and local anesthetics.

3,544,590
CYCLIC AMINES AND THE PROCESS FOR THEIR FORMATION

Allen R. Kittleson, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 634,458, Apr. 28, 1967. This application Apr. 10, 1968, Ser. No. 721,560
Int. Cl. C07d 27/30
U.S. Cl. 260—326.5 22 Claims

Monocyclic and bicyclic amine compositions such as 1-aza bicyclo (3.3.0) octanes, 1-aza bicyclo (4.3.0) nonanes, 1-aza bicyclo (4.4.0) decanes, amino substituted pyrrolidine and piperidine compounds as well as their organic substituted derivatives are secured through the catalytic hydrogenation of keto dinitrile compounds such as 1,5-dicyano pentanone-3. The compositions are useful as additives for lubricating oil compositions, as epoxy curing agents, polyurethane catalysts, etc.

3,544,591
PREPARATION OF 2,4-BIS(HEXAFLUOROISOPROPYLIDENE) - 1,3 - DITHIETANE AND FLUORINATED POLYSULFIDES BY REACTION OF PERFLUOROISOBUTENE WITH AN ALKALI METAL SULFIDE

David C. England, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 512,191, Dec. 7, 1965. This application Aug. 21, 1967, Ser. No. 661,843
Int. Cl. C07d 69/00; C07c 149/12; C08f 45/46
U.S. Cl. 260—327 7 Claims

Preparation of 2,4-bis(hexafluoroisopropylidene)-1,3-dithietane by the reaction of perfluoroisobutene with an alkali metal sulfide, including polysulfide, e.g., M_2S, M_2S_2, M_2S_4, etc., where M is sodium, potassium or cesium. Also compounds, essentially by-products of some variations of the process, bis(perfluoro-tert-butyl) trisulfide and bis (perfluoro-tert-butyl) tetrasulfide. Both of these compounds are useful as solvents for fluorinated polymers.

3,544,592
PROCESS FOR THE PURIFICATION OF TRITHIANE

Hans-Dieter Rupp, Erlenbach, Erhard Siggel, Seckmauern, and Gerhard Meyer, Oberasburg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

Filed Nov. 28, 1967, Ser. No. 686,234
Claims priority, application Germany, Dec. 10, 1966, G 48,694
Int. Cl. C07d 77/00
U.S. Cl. 260—327 5 Claims

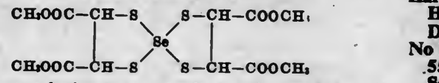
Process of purifying trithiane in which the impure or crude material is dissolved in water at about 170° C. to 210° C. under pressure and the trithiane is then crystallized from the solution by cooling.

3,544,593
SELENIUM COMPOUNDS

Ernst A. H. Friedheim, 5 Avenue Marc-Monnier, Geneva, Switzerland

No Drawing. Filed Dec. 5, 1967, Ser. No. 688,010
Int. Cl. A61k 27/00; C07d 99/00
U.S. Cl. 260—327 14 Claims

New, therapeutically active selenium compounds are prepared by reacting a reactive selenium compound with an organic vicinal dithiol, in solution. For example, a dimercaptosuccinic acid compound is reacted with selenious acid in methylalcohol or ethanol in order to obtain a compound of the structural formula



The new selenium compounds can be used for the treatment of seborrhea and other dermatological conditions by topical application.

3,544,594
1,3-DITHIETANE - 2,2,4,4 - TETRAACYL CHLORIDE AND THE CORRESPONDING ESTER AND AMIDE DERIVATIVES

Robert A. Grimm, Lakeville, Minn., assignor to Ashland Oil & Refining Company, Ashland, Ky., a corporation of Kentucky

No Drawing. Continuation-in-part of application Ser. No. 466,110, June 22, 1966. This application Mar. 19, 1968, Ser. No. 716,699
Int. Cl. C07d 69/00; C07c 153/05
U.S. Cl. 260—327 7 Claims

Carbon suboxide is reacted with sulfur dichloride to yield 1,3-dithietane-2,2,4,4-tetraacyl chloride or reacted with a hydrocarbylsulfenyl chloride to yield a malonyl chloride. Said tetraacyl chloride or malonyl chloride can be hydrolyzed with an alcohol to form an ester or reacted with ammonia or a primary or secondary amine to form an amide. The tetraacyl chlorides of this invention as well as their ester and amide derivatives are useful as monomers in the preparation of polyesters for film-forming coatings. Additionally, said esters and amides possess utility as plasticizers for polyvinyl chloride.

3,544,595
ARYL KETONE CONTAINING ORGANOSILICON MATERIALS

Edward V. Wilkus, Albany, and Abe Berger, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Original application Nov. 1, 1966, Ser. No. 591,118, now Patent No. 3,391,109, dated July 2, 1968. Divided and this application Feb. 2, 1968, Ser. No. 724,300
Int. Cl. C07d 63/12; C07f 7/08
U.S. Cl. 260—332.3 3 Claims

There are provided silylorganoarylketones which can be made by acylating various aryl nuclei, such as benzene, thiophene, and phenylether with a silylorganocarboxcyclic acid halide, for example, trimethylsilylpropionylchloride in the presence of an acylation catalyst such as aluminum chloride. The silylorganoarylketones are useful as perfumes, oil bases in cosmetics, etc.

3,544,596
PROCESS FOR THE PREPARATION OF THIOPHENES

Robert D. Dillard, Zionsville, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Continuation-in-part of abandoned application Ser. No. 571,974, Aug. 12, 1966. This application June 20, 1969, Ser. No. 835,266
Int. Cl. C07d 63/12; A01n 9/12
U.S. Cl. 260—332.8 1 Claim

Thiophenes are prepared by the reaction of an alkali metal sulfide or hydrosulfide and a 5-chloropent-3-en-1-yne. Process useful for making highly substituted thiophene possessing at least a methyl function in the 2-position.

3,544,597
PROCESS FOR MANUFACTURING SULFONATED AMIDES

Harrison S. Killam, Holland, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 550,600, May 17, 1966. This application June 12, 1969, Ser. No. 832,831
Int. Cl. C07c 143/14, 143/56; C07d 63/04
U.S. Cl. 260—332.1 5 Claims

This invention is for a process of preparing lower alkyl- and olefinic-amido-sulfonic acids. A nitrile, olefin and fuming sulfuric acid are sequentially mixed together at a temperature of between —30° and 45° C. The SO_3 content of the fuming H_2SO_4 may vary from a catalytic amount to about 0.5 mol/mol of olefin, and in any event must be substantially less than an equimolar amount with reference to the olefin. The process results in the formation of sulfonated amides which are insoluble in an excess of the nitrile employed as the sole solvent, the amides being obtained directly by filtration and in a high state of purity.

3,544,598
STEREOSPECIFIC HYDROGENATION OF BENZOPYRANS

Gabriel Saucy, Essex Fells, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 633,730, Apr. 28, 1967, which is a continuation-in-part of application Ser. No. 604,124, Dec. 23, 1966, which in turn is a continuation-in-part of application Ser. No. 549,816, May 13, 1966. This application Nov. 2, 1967, Ser. No. 679,989
Int. Cl. C07d 15/04
U.S. Cl. 260—340.9 10 Claims

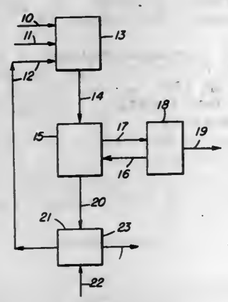
Stereo-specific total synthesis of steroidal materials. 7-substituted 3-oxo-1-heptenes or variants thereof are reacted with 2-alkylcycloalkane-1,3-diones yielding 3-substituted 6aβ-alkylcyclopenta[f][1]benzopyrans or naphtho[2,1-b]pyrans. These are then subjected to a selective catalytic hydrogenation followed by an introduction of a hydroxy, alkoxy or acyloxy group at the 4a-position to produce a 3-substituted 6aβ,4a-hydroxy, alkoxy or acyloxy perhydrocyclopenta[f][1]benzopyran or perhydronaphtho-[2,1-b]pyran. These latter compounds are then converted into 4-or 5-(3-oxoalkyl)perhydroindene-5-ones or perhydronaphthalene-6-ones which inturn can be converted to known steoidal materials by known methods.

3,544,599

PROCESS FOR THE CATALYTIC REACTION OF OLEFINS AND ALCOHOLS TO ACETALS AND KETALS

Morgan C. Sze, Upper Montclair, and Adolf W. Gessner, Montclair, N.J., assignors to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Filed Apr. 18, 1968, Ser. No. 722,393
Int. Cl. C07d *13/04*
U.S. Cl. 260—340.9 10 Claims



Acetals and ketals are prepared from their corresponding olefins by reacting certain olefins witn primary or secondary polyhydric alcohols and a catalyst system comprising a noble metal compound and a promoter, regenerating the catalyst system and removing water formed during the regeneration before the catalyst system is recycled.

3,544,600

9-OXO-5-HYDROXYDECANOIC ACID LACTONE

Michael Rosenberger, Bloomfield, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed May 13, 1969, Ser. No. 824,319
Int. Cl. C07d *7/06*
U.S. Cl. 260—343.5 1 Claim

The intermediates and processes of this disclosure provide a new stereo-specific total synthesis of steroidal materials having known valuable pharmacological properties. A fundamental feature of this disclosure is the utilization of aryl ketals, preferably phenylenedioxy ketals derived from catechol as protective groups for oxo moieties in the polycyclic intermediates used in the aforesaid total synthesis.

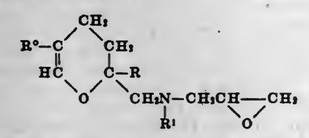
3,544,601

EPOXIDES

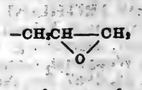
Edward George Gazzard and James Nairn Greenshields, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Jan. 31, 1968, Ser. No. 701,859
Claims priority, application Great Britain, Feb. 9, 1967, 6,175/67
Int. Cl. G07d *7/10*
U.S. Cl. 260—345.9 8 Claims

Epoxides of the Formula I



wherein R^0 and R represents hydrogen, hydrocarbon radicals or halogen atoms and R^1 represents hydrogen, a hydrocarbon radical, a group $R^4.CO$ wherein R^4 represents hydrogen or a hydrocarbon radical, or a group of the formula



A process for the manufacture of said epoxides, polymerisation of said epoxides and use of said epoxides as adhesives.

3,544,602

PRODUCTION OF BICYCLO-[2,2,2]-OCT-7-EN-2,3,5,6-TETRACARBOXYLIC DIANHYDRIDE

Heinz Nobe, Hubert Suter, and Heinz Hannebaum, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 26, 1968, Ser. No. 755,447
Claims priority, application Germany, Aug. 29, 1967, 1,643,654
Int. Cl. C07c *61/28*
U.S. Cl. 260—346.6 6 Claims

Process for the production of bicyclo-[2,2,2]-oct-7-en-2,3,5,6-tetracarboxylic dianhydride by reaction of 3,5-cyclohexadiene-1,2-trans-dicarboxylic acid, in which the 3,5-cyclohexadiene-1,2-trans-dicarboxylic acid is first heated in the anhydride of a low molecular weight alkanecarboxylic acid in the presence of active carbon having an internal surface area of more than 500 $m.^2/g.$, a bleaching earth, silica gel, an aluminum oxide or an aluminum hydroxide or a mixture of two or more of these adsorbents to the reaction temperature of from 50 to 150° C. and is then reacted with maleic anhydride.

3,544,603

ALKYL-TETRAHYDROPYRANOLS AND ETHOXYLATED ALKYL-TETRAHYDROPYRANOLS

John J. Morrisroe, Huntington Beach, and Thomas F. Banigan, Arcadia, Calif., assignors to Pilot Chemical Company, Santa Fe Springs, Calif., a corporation of California

Filed Feb. 27, 1967, Ser. No. 618,824
Int. Cl. C07d *7/04*
U.S. Cl. 260—345.9 6 Claims

Higher alpha olefins containing from about 8 to 24 carbon atoms can be reacted with an aldehyde in the presence of a concentrated acid to form a product which contains novel higher alcohols and which can be ethoxylated to form a nonionic detergent. The olefin and aldehyde reaction product is purified by treating with an aqueous mineral acid at elevated temperatures. The reaction product contains alkyltetrahydropyranols and alkyl metadioxanes which may be converted to form novel linear 1,3-glycols. These alcohol containing reaction products may be used in the formulation of detergents.

3,544,604

NOVEL NICKEL ALCOHOLATES AND ALCOHOLS THEREOF AND A PROCESS OF THEIR PRODUCTION

Günther Wilke, Lembkestrasse 2a, and Paul Heimbach, Kaiser Wilhelm Platz 3, both of Mulheim (Ruhr), Germany

No Drawing. Filed Oct. 26, 1967, Ser. No. 678,172
Claims priority, application Germany, May 26, 1967, St 26,928
Int. Cl. C07d *5/16;* C07j *15/04*
U.S. Cl. 260—347.8 24 Claims

Process of producing nickel alcoholates by reacting 0 valent complexes of nickel with conjugated diolefins and carbonyl compounds. The nickel alcoholates can be hydrolyzed to their corresponding alcohols and these alcohols can be dehydrated in part to corresponding olefins. The products of such reaction are also disclosed. The nickel alcoholate products are useful for manufacturing their corresponding alcohols. The alcohols are useful as starting materials for the production of polyenes.

3,544,605

PROCESS FOR OBTAINING HIGHLY PURIFIED PHOSPHATIDYLCHOLINE AND THE PRODUCT OF THIS PROCESS

Hans Betzing, Horrem, Bezirk Cologne, and Hans Elkermann, Cologne-Braunsfeld, Germany, assignors to A. Nattermann & Cie GmbH, Braunsfeld, Germany, a corporation of Germany

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,489
Claims priority, application Germany, Aug. 21, 1967, 1,617,679, 1,617,680
Int. Cl. A23j *7/00*
U.S. Cl. 260—403 6 Claims

Process for obtaining highly purified phosphatidylcholine with a high content of essential fatty acids from vegetable lecithins, comprising dissolving the crude oil-containing phosphatides in ethyl acetate or a dischlorinated hydrocarbon having 1 to 4 carbon atoms or a mixture of such solvents, treating the resulting solution with a quantity of aluminium oxide at least five times the amount of the crude phosphatide used in order to adsorb the crude phosphatides on the aluminium oxide, separating the aluminium oxide, and eluting the phosphatidylcholine therefrom by means of an alcohol; and the highly purified phosphatidylcholine obtained by the process.

3,544,606

PROCESS FOR MAKING SARCOSINES

John J. Singer, Jr., Westboro, Mass., assignor, by mesne assignments, to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

No Drawing. Continuation of application Ser. No. 428,861, Jan. 28, 1965. This application Jan. 21, 1969, Ser. No. 802,714
Int. Cl. C07c *103/46, 103/66*
U.S. Cl. 260—404 6 Claims

Free fatty acids are reacted with a chlorinating agent to form the chloride of the fatty acid and an excess of 5 to 15%, by weight, of the chlorinating agent is left in the acid chloride to give a reagent useful for condensation with an amino acid, which reagent is thereafter condensed with a secondary amino acid to form an amide.

3,544,607

PROCESS FOR INHIBITING FAT DEGRADATION DURING STORAGE

William Kuster, 1211 Avondale Road, Hillsborough, Calif. 94010

No Drawing. Filed Apr. 17, 1967, Ser. No. 631,196
Int. Cl. A23d *5/04*
U.S. Cl. 260—412.7 4 Claims

A method for storing animal by-products at room temperature by maintaining the by-product in an aqueous suspension with an inorganic acid at a pH of about 1–4.

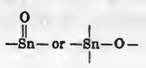
3,544,608

TRICYCLOHEXYLTIN ISOTHIOCYANATE AND A PROCESS FOR MAKING ORGANOTIN SALTS

Kailash C. Pande, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,791
Int. Cl. C07f *7/22*
U.S. Cl. 260—429.7 9 Claims

Organotin salts of the formula $R_nSnZ_{(4-n)}$ are made by a process comprising reacting an organotin compound containing the group



with the appropriate ammonium salt, NH_4Z, where Z is an anion and *n* is an integer of from one to three, inclusive. A new compound, tricyclohexyltin isothiocyanate, is produced by the process. The compounds produced have biological activity.

3,544,609

ZINC COMPLEXES

Eric Simon Forbes, Woking, and Howard Bernard Silver, Esher, England, assignors to The British Petroleum Company Limited, London, England, a British company

No Drawing. Filed Nov. 7, 1967, Ser. No. 681,080
Claims priority, application Great Britain, Nov. 10, 1966, 50,369/66
Int. Cl. C07f *3/06;* C10m *5/14*
U.S. Cl. 260—429.9 3 Claims

Zinc salt complexes of general formula

$$(RCOO)_6Zn_4O(R^1NH_2)_n$$

where R is alkyl, cycloalkyl, aryl, alkaryl, or aralkyl radical and R^1 is a straight or branched chain alkyl or alkenyl group having up to 30 carbon atoms and *n* is an integer from 1 to 8 are new compounds which possess load-carrying and anticorrosion properties in lubricating oils.

3,544,610

PHENOXY- AND SUBSTITUTED PHENOXY-PHENOXARSINE COMPOUNDS

Chun-Shan Wang and Thomas W. McGee, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 23, 1969, Ser. No. 793,601
Int. Cl. C07d *105/06*
U.S. Cl. 260—440 8 Claims

10-phenoxyphenoxarsine, 10 - (halophenoxy)phenoxarsines and 10-(alkylphenoxy)phenoxarsines are disclosed as novel compounds useful as herbicides, insecticides, fungicides and stabilizer additives for polyvinyl chloride resins.

3,544,611

PROCESS FOR THE PREPARATION OF ORGANIC ISOCYANATES

Jean Michelet and Louis Alheritiere, Deux-Sevres, France, assignors to Societe Toulousaine de Produits Chimiques Tolochimie, Paris, France, a corporation of France

Filed Sept. 9, 1966, Ser. No. 578,417
Claims priority, application France, Dec. 27, 1965, 43,800; Apr. 13, 1966, 57,470, Patent 1,469,105
Int. Cl. C07c *119/04*
U.S. Cl. 260—453 12 Claims

High pressure process for the production of saturated aliphatic or aromatic mono- or diisocyanates by reaction of corresponding amines with phosgene utilizing a large excess of phosgene.

3,544,612

PROCESS FOR THE PRODUCTION OF ORGANIC ISOCYANATES

Louis Alhéritière and Marcel Repper, Melle, France, assignors to Societe Toulousaine de Produits Chimiques Tolochimie, Paris, France, a corporation of France

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,295
Claims priority, application France, Nov. 29, 1966, 85,355
Int. Cl. C07c *119/04*
U.S. Cl. 260—453 6 Claims

This application describes a continuous process for the production of organic isocyanates in an elongated reaction column in which an amine salt, preferably the hydrochloride, enters the top of the column as a dispersion in a reaction inert organic liquid, phosgene enters the bottom of the column, by-product hydrogen chloride gas is collected at the top of the column, and the organic isocyanate

in the organic liquid is withdrawn from the bottom of the column. A temperature gradient of from 40° C. to 180° C. is maintained from the top to the bottom of the column. If desired a portion of the by-product hydrogen chloride can be used to prepare the amine hydrochloride. A procedure is described for washing phosgene out of the hydrogen chloride gas.

3,544,613
ALCOHOL SULFATION

Edward A. Knaggs, Deerfield, and Marvin L. Nussbaum, Skokie, Ill., assignors to Stepan Chemical Company, Northfield, Ill., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 354,634, Mar. 25, 1964. This application Aug. 9, 1965, Ser. No. 478,081
The portion of the term of the patent subsequent to Feb. 9, 1982, has been disclaimed
Int. Cl. C07c *141/04*
U.S. Cl. 260—458 3 Claims

The instant invention relates to an improvement in a known continuous process for sulfating certain fatty alcoholic compounds, under continuous process conditions which involve a relatively short-time contact of the alcoholic material with gaseous SO_3 as well as a relatively short time in which the sulfated alcoholic compound is subjected to elevated temperatures. The improvement in this process results in a sequence of treatment of the continuously sulfated alcoholic material, by quenching the same immediately after the material has been sulfated and neutralizing the sulfated material, and finally bleaching the product with hydrogen peroxide, all under certain specified conditions.

3,544,614
COMPLEX ESTERS PRODUCED BY REACTING A DICARBOXYLIC ACID, A POLYHYDRIC ALCOHOL AND BORIC ACID

Norbert C. Schwartz, Homer, N.Y., assignor to R. H. Miller Company, Inc., Homer, N.Y., a corporation of New Jersey

No Drawing. Filed June 8, 1967, Ser. No. 644,497
Int. Cl. C07f *5/04, 9/08*
U.S. Cl. 260—462 6 Claims

Complex esters for use as lubricants and to impart desirable rust inhibiting films on metallic surfaces, such as those of wire, rods, strips, webs and plates, by way of example, as produced by compositions of matter composed of various combinations of di- and poly-basic carboxylic acids, polyhydric alcohols, borates and phosphates, particularly in the equivalent weight ratios set out in the specification.

3,544,615
PROCESS FOR THE PURIFICATION OF CRUDE CYANOALKYLATED POLYOXYALKYLENE COMPOUNDS

Fedor Poppelsdorf, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Application June 26, 1963, Ser. No. 290,578, which is a continuation-in-part of applications Ser. No. 107,060, May 2, 1961, and Ser. No. 230,253, Oct. 12, 1962. Divided and this application Dec. 8, 1967, Ser. No. 688,971
Int. Cl. C07c *121/46, 121/66, 121/00*
U.S. Cl. 260—465 13 Claims

A process is disclosed for the purification of a crude cyanoalkylated polyoxyalkylene containing a nitrile polymer. The cyanoalkylated polyoxyalkylene compounds are prepared by reacting an olefinic nitrile such as acrylonitrile with a polyoxyalkylene compound. During the reaction some of the olefinic nitrile is converted to a polymer, e.g., polyacrylonitrile. This polymer is removed by precipitation from the cyanoalkylated polyoxyalkylene by forming a mixture with a solvent that is miscible with the cyanoalkylated polyoxyalkylene and immiscible with the polymer. Solvents suitable in this regard comprise alkanes, cycloalkanes, alkylcycloalkanes and mixtures thereof containing from about 3 to about 10 carbon atoms and optionally up to about 50 weight percent based on said hydrocarbon solvent and said co-solvent of a 2 to about 10 carbon atom co-solvent including aliphatic, cycloaliphatic and aromatic ethers, esters, ketals, and ketones; aliphatic and cycloaliphatic alcohols and amines and tetrahydrofuran.

3,544,616
AMMOXIDATION OF PROPYLENE OR ISOBUTYLENE TO ACRYLONITRILE OR METHACRYLONITRILE

Robert K. Grasselli, Warrensville Heights, and Maria S. Friederich, Cleveland, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 20, 1967, Ser. No. 691,992
Int. Cl. C07c *121/02*
U.S. Cl. 260—465.3 2 Claims

Catalysts are provided which are useful in the oxidation of olefins to aldehydes and conjugated dienes and in ammoxidation of olefins to nitriles. The catalysts comprise the combined oxides of uranium and arsenic on a catalyst support and the combined oxides of uranium and arsenic promoted by molybdenum, boron, vanadium, tin, nickel, bismuth, chromium, iron, manganese, zinc, tungsten, antimony, cerium, cobalt or rhenium.

3,544,617
PROCESS FOR THE MANUFACTURE OF AROMATIC NITRILES

Taijiro Oga, Hideo Ichinokawa, and Masatomo Ito, Tokyo, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Dec. 27, 1967, Ser. No. 693,708
Int. Cl. C07c *121/04, 121/52, 121/56*
U.S. Cl. 260—465 16 Claims

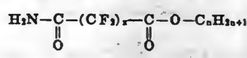
A process for the production of aromatic nitriles by ammoxidation of an alkyl substituted benzene using a catalyst comprising oxide of vanadium on a carrier. The carrier is prepared by mixing 20–100μ α-alumina with hydrous aluminum silicate or titanium oxide, molding and cancinating at 800–1700° C.

3,544,618
ALKYL PERFLUOROALKYLENE AMIDATES

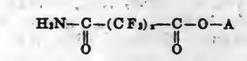
Edwin Dorfman and William E. Emerson, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Aug. 17, 1967, Ser. No. 661,240
Int. Cl. C07c *103/14*
U.S. Cl. 260—482 8 Claims

New alkyl perfluoroalkylene amidates of the formulae



and



where x is from 1 to 12, n is from 1 to 25, and A is aryl substituted methyl of 7 to 21 carbon atoms, are produced either (a) by treatment with ammonia or a corresponding dialkyl perfluoroalkylene dicarboxylate, or (b) by treatment of the imide of the perfluoroalkylene dicarboxylic acid with a corresponding alcohol. They are useful intermediates in the preparation of perfluoroalkylenetriazine polymers.

3,544,619
PROCESS FOR PRODUCING CYCLOHEXYLAMMONIUM N-CYCLOHEXYLSULFAMATE

Hachiro Yamaguchi, Hiroshima-shi, Japan, assignor to Nitto Chemical Industry Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,983
Claims priority, application Japan, Apr. 19, 1967, 42/24,553
Int. Cl. C07c *161/00*
U.S. Cl. 260—501.12 4 Claims

The product of a reaction between cyclohexylamine and sulfur trioxide in a vapor phase at a temperature lower than 80° C. is heated in liquid cyclohexylamine at 90°–150° C., whereby the novel cyclohexylammonium N-cyclohexylimidodisulfonate contained in said reaction product is converted into cyclohexylammonium N-cyclohexylsulfamate, thereby increasing the yield of the desired product. Said cyclohexylammonium N-cyclohexylsulfamate can be converted into an alkali salt of cyclohexylsulfamic acid which is used as an artificial sweetener.

3,544,620
NOVEL PERFLUOROALKYL AND PERFLUOROALKOXY THIO ACIDS

Everett E. Gilbert, Morris Township, Morris County, and James O. Peterson, Convent Station, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 21, 1969, Ser. No. 809,369
Int. Cl. C07c *153/01*
U.S. Cl. 260—502.6 5 Claims

Novel perfluoroalkyl and perfluoroalkoxy thio acids useful for imparting high lubricity surfaces to unsaturated elastomers by chemical grafting procedures.

3,544,621
METHOD OF PREPARING VANILLIN FROM EUGENOL

Alberto Fiecchi, Milan, and Gian Mario Nano, Paolo Cabella, and Giorgio Cicognani, Turin, Italy, assignors to Collins Chemical Co., Inc., a U.S. body corporate

No Drawing. Filed Sept. 5, 1968, Ser. No. 757,773
Claims priority, application Italy, Dec. 20, 1967, 54,192/67
Int. Cl. C07c *45/56, 143/38*
U.S. Cl. 260—505 5 Claims

In a process of preparing vanillin by isomerization of eugenol with aqueous alkali metal hydroxide, oxidation of the isomer by sodium meta-nitrobenzenesulfonate, acidification of the oxidate by sulfuric acid and extraction of vanillin by a water-immiscible organic solvent, the spent aqueous liquor from which vanillin has been extracted is regenerated in specific conditions to substantially restore the consumed sulfonate, whereby the liquor may be used as oxidant for further amounts isoeugenol or the restored sulfonate may be recovered and re-used in the process.

3,544,622
ALKALINE SAPONIFICATION OF POLYETHYLENE TEREPHTHALATE AT HIGH TEMPERATURES USING CONTROLLED AMOUNT OF SODIUM HYDROXIDE

Richard J. England, Circleville, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 438,754, Mar. 10, 1965. This application Feb. 10, 1966, Ser. No. 526,346
Int. Cl. C07c *63/28*
U.S. Cl. 260—515 12 Claims

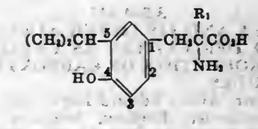
A process for the alkaline saponification of polyethylene terephthalate in ethylene glycol to produce disodium terephthalate and subsequently, terephthalic acid, wherein the sodium hydroxide charged in the reaction mixture does not exceed 10% excess over stoichiometric based in the terephthalyl values. The process is carried out at atmospheric pressure and near the boiling point of ethylene glycol.

3,544,623
3-ISOPROPYLTYROSINE

Holger V. Hansen, Morris Plains, and Robert I. Meltzer, Rockaway, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed May 18, 1966, Ser. No. 550,918
Int. Cl. C07c *101/28*
U.S. Cl. 260—519 2 Claims

3-isopropyltyrosine and 3-isopropyl-α-alkyltyrosines of the formula:



wherein R_1 is hydrogen or lower alkyl.

These compounds are useful as hypotensive agents.

3,544,624
PROCESS FOR PREPARING ACRYLIC ACID AND METHACRYLIC ACID

G. Charles Anderson, Johnson City, and Edgar L. McDaniel and Howard S. Young, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,322
Int. Cl. C07c *51/26*
U.S. Cl. 260—530 7 Claims

Process for the oxidative conversion of alpha,beta-unsaturated aldehydes to the corresponding unsaturated acids comprising contacting a mixture of vaporized aldehyde and oxygen at a temperature from about 250° C. to about 500° C. with a novel catalyst composition comprising oxidized molybdenum and at least one of oxidized niobium, oxidized zirconium, oxidized titanium, and oxidized tantalum. The novel catalyst optionally includes oxidized arsenic. Acrylic acid and methacrylic acid may be subsequently converted to lower alkyl esters for use in the plastics industry.

3,544,625
METHOD FOR PRODUCING PERCHLOROMETHYL MERCAPTAN

Jan Masat, 13 Na Hanspaulce, Prague 6, Czechoslovakia, and Miroslav Zbirovsky, 47, 5 kvetna, Prague 4, Czechoslovakia

No Drawing. Filed Aug. 10, 1965, Ser. No. 478,753,
Claims priority, application Czechoslovakia, Aug. 11, 1964, 4,535/64
Int. Cl. C07c *145/00*
U.S. Cl. 260—543 13 Claims

Perchloromethyl mercaptan is produced by reacting at a temperature between about 0 and 46° C. an agitated mixture of (a) chlorine, (b) a solution of at least one inorganic acid including hydrochloric acid at a concentration of between about 5 and 38% by weight, and (c) carbon disulfide, so as to chlorinate the carbon disulfide under formation of perchloromethyl mercaptan, followed by recovery of thus formed perchloromethyl mercaptan.

3,544,626
QUATERNARY AMMONIUM AND PHOSPHONIUM SALTS AS CATALYSTS IN THE PRODUCTION OF CARBOXYLIC ACID CHLORIDES
John Eric Carr, Albert Edward Kaye, and James Harry Wild, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,385
Claims priority, application Great Britain, Sept. 29, 1966, 4,326/66
Int. Cl. C07c *51/58*
U.S. Cl. 260—544 4 Claims

A process for the manufacture of a carboxylic acid chloride which comprises reacting a carboxylic acid with phosgene in the presence of a quaternary ammonium, quaternary phosphonium, or ternary sulphonium salt.

3,544,627
THIOUREA AND ITS LOWER ALKYL SUBSTITUTED DERIVATIVES AS CATALYSTS IN THE PRODUCTION OF CARBOXYLIC ACID CHLORIDES
John Eric Carr, Albert Edward Kaye, and James Harry Wild, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,442
Claims priority, application Great Britain, Sept. 29, 1966, 43,624/66
Int. Cl. C07c *51/58*
U.S. Cl. 260—544 4 Claims

A process for the manufacture of a carboxylic acid chloride which comprises reacting a carboxylic acid with phosgene in the presence of a compound containing a thiocarbonamido group.

3,544,628
UREA SYNTHESIS
Henry Hsu, New Rochelle, N.Y., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Continuation of application Ser. No. 222,572, Sept. 10, 1962. This application Sept. 20, 1965, Ser. No. 496,224
Int. Cl. C07c *127/00*
U.S. Cl. 260—555 9 Claims

Urea is produced by reacting liquid ammonium carbonate under exothermic conditions.

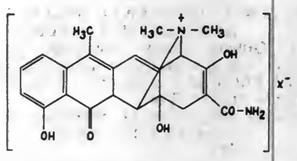
3,544,629
2-AMINO-5-CHLORO-3-BENZOYL-BENZENESULFONAMIDES
Stanley C. Bell, Penn Valley, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Original application Apr. 12, 1968, Ser. No. 721,098, now Patent No. 3,449,337, dated June 10, 1969. Divided and this application Nov. 12, 1968, Ser. No. 791,826
Int. Cl. C07c *143/78*
U.S. Cl. 260—556 3 Claims

7-chloro-1,2,4-benzothiadiazine 1,1-dioxides, substituted in the 5-position with aroyl groups, especially the 2,4-dichlorobenzoyl group (I) are prepared by condensing the corresponding 2-amino-5-chloro-3-(substituted-aroyl) benzenesulfonamide (II) with formic acid. Compounds (II) are prepared by reacting the corresponding 2-amino-5-chloro-3-(substituted-aroyl)benzophenone with chlorosulfonic acid-thionyl chloride and then with ammonia. Compounds (I) and (II) are pharmacologically active, especially as central nervous system depressants.

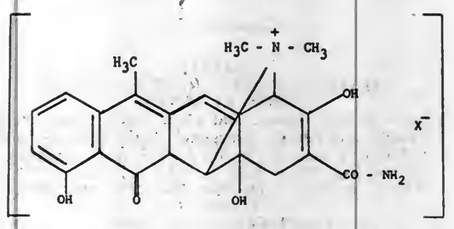
3,544,630
NOVEL EXPLOSIVE COMPOUNDS
Milton B. Frankel, Tarzana, and Gerald L. Rowley, Albany, Calif., assignors to North American Rockwell Corporation
No Drawing. Filed Dec. 13, 1967, Ser. No. 691,920
Int. Cl. C07c *103/22*
U.S. Cl. 260—558 3 Claims

Novel N - (dinitrofluoro - lower alkylene) - trinitrobenzamides which are useful as explosives.

3,544,631
TETRACYCLINE DERIVATIVE INCORPORATING THE BENZENE-SULPHONATE ANION
Sandor Szoke, Peter Szentmiklosi, Agoston David, and Gabor Horvath, Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RT.
Filed Aug. 8, 1967, Ser. No. 659,119
Claims priority, application Hungary, Aug. 9, 1966, CI-651; July 6, 1967, CI-651
Int. Cl. C07c *103/19*
U.S. Cl. 260—326.3 1 Claim



A compound of

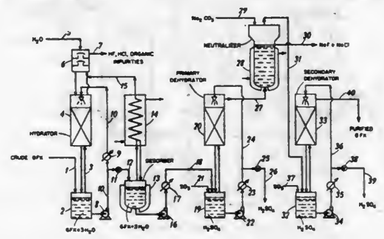


where X is the benzene-sulphonate anion which melts at 228–230° C., and shows absorption maximums at 223–226 mμ in the UV spectrum and shows absorption bands at 3420, 3370, 1648, 1625, 1573, 1448, 1400, 1388, 1324, 1228, 1180, 1113, 1080, 902, 800 cm.$^{-1}$ in the IR spectrum.

3,544,632
PRODUCTION OF ALKANOLAMINES-(1,2) OR CYCLOALKANOLAMINES-(1,2)
Erich Haarer and Hubert Corr, Ludwigshafen (Rhine), and Siegfried Winderl, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Apr. 10, 1968, Ser. No. 720,352
Claims priority, application Germany, Apr. 13, 1967, 1,593,774
Int. Cl. C07c *85/00*
U.S. Cl. 260—563 13 Claims

An improved process for the production of alkanolamines-(1,2) or cycloalkanolamines-(1,2) by reaction of alkylene oxides or cycloalkylene oxides with ammonia or primary or secondary amines at elevated temperature in the presence of water, the improvement comprising carrying out the reaction in the presence of a solid inert large-surfaced substance. The alkanolamines and cycloalkanolamines prepared are suitable for the production of surfactants.

3,544,633
NEUTRALIZATION OF PERHALOACETONES
Anthony W. Yodis, Whippany, Aubrey W. Michener, Jr., Rockaway, and Bela I. Karsay, West Orange, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Jan. 30, 1967, Ser. No. 612,596
Int. Cl. C07c *49/16*
U.S. Cl. 260—593 30 Claims



Halogen acid impurities are removed from crude perhaloacetone mixtures by neutralization with certain critically defined salts of polybasic acids. Such salts, e.g. Na_2CO_3, Na_2SO_3 and $Na_4P_2O_7$, effect removal of halogen acids to high specification standards without causing decomposition of the perhaloacetones. Gross amounts of halogen acids as well as organic impurities may first be removed from crude perhaloacetone masses by forming hydrates and desorbing impurities therefrom. This step may then be followed by neutralization of residual halogen acids with the defined salts by directly treating the hydrates or by treating reconstituted perhaloacetones obtained by dehydration of the hydrates, such as with conc. H_2SO_4. Some of the perhaloacetones can be reconstituted by heating their corresponding unstable hydrates to dissociate the same into the corresponding stable hydrates and perhaloacetones.

3,544,634
PRODUCTION OF 3-KETOBUTANOL-(1)
Herbert Mueller, Frankenthal, Pfalz, and Harald Koehl, Hermann Overwien, and Horst Pommer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Sept. 11, 1967, Ser. No. 666,966
Claims priority, application Germany, Sept. 15, 1966, 1,277,235
Int. Cl. C07c *49/18*
U.S. Cl. 260—594 9 Claims

Production of 3-ketobutanol by reaction of acetone with aqueous formaldehyde solution at temperatures of from 140° to 210° C. and superatmospheric pressure. Methyl vinyl ketone (which can be polymerized to high molecular weight compounds) is prepared from 3-ketobutanol by elimination of water in the presence of aluminum oxide.

3,544,635
PROCESS FOR PREPARING ALCOHOLS AND ALDEHYDES
Lawrence J. Kehoe, Huntington Woods, and Raymond A. Schell, Berkley, Mich., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,186
Int. Cl. C07c *45/10*
U.S. Cl. 260—604 14 Claims

A process is described for preparing alcohols and aldehydes, by reacting olefins, carbon monoxide and water using a rhodium or iridium oxide or sulfide as the catalyst in the presence of an ether or ketone solvent. The reaction is carried out at elevated temperatures (to about 300° C.) and under pressures above atmospheric (to 500 atmospheres).

The alcohols and aldehydes produced contain one carbon atom more than the starting olefin; they are especially useful as solvents and intermediates for the preparation of carboxylic acids, for example.

3,544,636
PRODUCTION OF ALKYL-β-HYDROXYALKYL THIOETHERS AND ALKENYL-β-HYDROXYETHYL THIOETHERS
Harry Distler, 4 Alwin-Mittasch-Platz, and Gerhard Klatt, 11 Edenkobener Str., both of Ludwigshafen (Rhine), Germany, and Kurt Schneider, 25 Kropsburgstrasse, Limburgerhof, Pfalz, Germany
No Drawing. Filed Oct. 2, 1967, Ser. No. 671,974
Claims priority, application Germany, Oct. 7, 1966, 1,290,550; Dec. 9, 1966, 1,568,215
Int. Cl. C07c *149/18*
U.S. Cl. 260—609 8 Claims

Production of alkyl- and alkenyl-β-hydroxyalkyl thioethers by reacting β-hydroxyethylmercaptan or β-hydroxypropylmercaptan with an alkyl or alkenyl halide in molar ratio at 40° to 110° C. in the presence of equivalent amounts of hydroxides of metals of Group I-A or II-A of the Periodic System, a tertiary amine or a quaternary ammonium base. The products are used for the manufacture of pest control agents.

3,544,637
POLYOXYALKYLATED HYDRAULIC FLUIDS
Ehrenfried H. Kober and Gerhard F. Ottmann, Hamden, and John E. Pregler, Wallingford, Conn., assignors to Olin Corporation, a corporation of Virginia
No Drawing. Filed Apr. 5, 1965, Ser. No. 445,706
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 3 Claims

Polyoxyalkylated fluids which are particularly valuable in fire-resistant, water base hydraulic fluids, are prepared by condensing a polycyclic aromatic amine or phenol with a hydroxyalkylene oxide or with an alkylene oxide followed by subsequent reaction with a hydroxyalkylene oxide.

3,544,638
3,3,3',3'-TETRAMETHYL-6,6'-DI(2-HYDROXYPROPOXY)-1,1'-SPIROBIINDANE
Erkki J. Pulkkinen, Morris Plains, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Dec. 13, 1968, Ser. No. 783,721
Int. Cl. C07c *43/26*
U.S. Cl. 260—613 1 Claim

This invention relates to the propoxylation of 3,3,3',3'-tetramethyl - 6,6' - dihydroxy-1,1'-spirobiindane to form 3,3,3',3' - tetramethyl - 6,6'-di(2-hydroxypropoxy)-1,1'-spirobiindane and to the reaction of this latter compound with an ethylenically unsaturated dicarboxylic acid to give an unsaturated polyester. These unsaturated polyesters can be cross-linked with styrene to give a cured polyester having excellent chemical resistance which is useful in films, molded articles and in reinforced sheets such as polyester impregnated glass fabric.

3,544,639
PRODUCTION OF ALCOHOLS
Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Feb. 12, 1968, Ser. No. 704,563
Int. Cl. C07c *29/00*
U.S. Cl. 260—618 9 Claims

Alcohols, and particularly primary alcohols, are prepared by treating a mercaptan with an oxygen-containing gas in the presence of a metallic-oxidation catalyst in

an aqueous alkali medium, a specific example being the preparation of butyl alcohol by treating butyl mercaptan with air in the presence of vanadium oxide.

3,544,640

AROMATIC NITRO COMPOUNDS

Milton B. Frankel, Tarzana, and Gerald L. Rowley, Van Nuys, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware

No Drawing. Filed Mar. 10, 1967, Ser. No. 623,183
Int. Cl. C07c *79/10, 79/12*
U.S. Cl. 260—645 6 Claims

Compounds comprising aromatic, substituted aromatic, heterocyclic, and substituted heterocyclic halodinitromethyl compounds and their syntheses. The method comprises reacting monohalomethyl aromatic or heterocyclic compounds with nitrile salts of Group I–A and I–B metals, thereby substituting a nitrite group for a halogen. This aromatic nitro compound is then halogenated, producing monohalonitromethyl aromatic or heterocyclic compounds which are then reacted with nitrite salts of Groups I–A and I–B metals to give the corresponding salts of the dinitromethyl compounds. A final halogenation or acidification produces halodinitromethyl or dinitromethyl, etc., aromatic or heterocyclic compounds.

3,544,641

PROCESS FOR THE PRODUCTION OF SOLID MULTIBROMOALKANE OR CYCLOALKANE ADDITION PRODUCTS

John Versnel, Plainsboro, N.J., assignor to Cities Service Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 28, 1967, Ser. No. 694,087
Int. Cl. C07c *23/02, 21/00*
U.S. Cl. 260—648 10 Claims

Processes are described for the reaction of multiunsaturated aliphatic or cycloaliphatic hydrocarbons with elemental bromine to produce solid multibromoalkane or cycloalkane addition products which are useful as flame retardants in thermoplastic organic polymers. Unreacted bromine in the reaction mixture is deactivated by reaction with an alkali metal bisulfite and, by carefully controlling the relative quantities of water and solvent present during this deactivation step, high purity products are obtained.

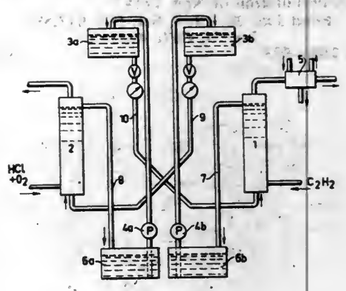
3,544,642

METHOD FOR THE PRODUCTION OF TRIHALOGENATED AND TETRAHALOGENATED ETHYLENE

Asbjörn Oppegaard and Jan Anders Dahlberg, Skoghall, Sweden, assignors to Uddeholms Aktiebolag, Uddeholm, Sweden, a corporation of Sweden

Continuation of application Ser. No. 473,030, Apr. 19, 1965. This application Mar. 11, 1969, Ser. No. 809,470
Claims priority, application Sweden, Aug. 20, 1964, 10,062/64
Int. Cl. C07c *21/02*; B01j *11/78*
U.S. Cl. 260—654 2 Claims

In the method of forming a halogenated ethylene of the group consisting of bromoethylene and iodoethylene and intra-molecularly mixed halogenated ethylenes by passing acetylene through an aqueous reaction solution of copper halide containing cupric and cuprous ions, the cupric ions constituting more than 50 mole percent of the total copper content, at a pH value of 0–3 and a temperature of at least 60° C., the formation of free halogen in the solution is supressible by adding chloride ions to the solution.



3,544,643

PROCESS FOR THE CATALYTIC CYCLO-DIMERIZATION OF 1,3-DIOLEFINS

Herbert Schott, Hofheim, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 14, 1969, Ser. No. 791,175
Claims priority, application Germany, Jan. 27, 1968, 1,668,084
Int. Cl. C07c *13/26, 13/16, 3/10*
U.S. Cl. 260—666 12 Claims

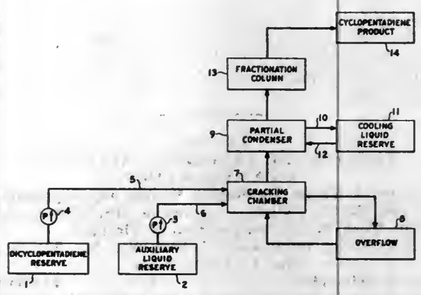
Process for the cyclo-dimerization of 1,3-diolefins at a temperature in the range of from 0 to 200° C. using a catalyst prepared by heating at a temperature of from 100 to 400° C. nickel-II compounds, phosphorus-III compounds and metal amides in the presence of the 1,3-diolefin to be dimerized.

3,544,644

CRACKING DICYCLOPENTADIENE TO MONOMER

Stephen Robota, North Tonawanda, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

Filed Oct. 11, 1968, Ser. No. 766,695
Int. Cl. G07c *3/40*
U.S. Cl. 260—666 7 Claims



In the liquid phase cracking of dicyclopentadiene, a partial condenser is employed wherein the cracked gaseous mixture is held for a short time prior to being directed to a fractionating column.

3,544,645

XYLENE ISOMER SEPARATION

Charanjit Rai, Somerset, Mohamed M. El-Mogazi, Hightstown, and Jay A. Rashkin, New Brunswick, N.J., assignors to Cities Service Oil Company, Tulsa, Okla., a corporation of Delaware

No Drawing. Filed Jan. 3, 1969, Ser. No. 788,945
Int. Cl. C07c *7/14*
U.S. Cl. 260—674 10 Claims

In the separation of para-xylene from mixtures consisting predominantly of meta- and para-xylene isomers by fractional crystallization, small amounts of free radicals are introduced into the xylene mixture to lower the eutectic point of the mixture and improve recovery of para-xylene therefrom. The amount of free radicals present in the xylene mixture is between about 0.001 and about 4.0 mole percent. Free radicals are preferably formed in situ by adding free radical initiators such as peroxides, especially inorganic peroxides, prior to separation of para-xylene crystals from mother liquor.

3,544,646

HYDROCARBON SEPARATION VIA CRYSTALLIZATION METHODS

Donald B. Broughton, Evanston, and Armand J. de Rosset, Clarendon Hills, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Oct. 9, 1968, Ser. No. 766,115
Int. Cl. C07c *7/14*
U.S. Cl. 260—674 9 Claims

A process for the separation of components of a feed mixture which components form crystals having sufficient crystal density differences to allow a physical separation of the crystals. The feed mixture passes into a primary crystallization zone wherein a pure component of the feed is crystallized and recovered. The remaining mother liquor is contacted with a miscible liquid diluent in a second crystallization zone. The resulting diluted mother liquor mixture is controlled at a temperature to allow crystallization of at least two components of the feed and the crystals are separated into individual concentrated streams which are collected as desired products.

3,544,647

OLEFIN CONVERSION AND CATALYST THEREFOR

Filippo Pennella, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Apr. 3, 1967, Ser. No. 627,630
Int. Cl. C07c *3/62*
U.S. Cl. 260—683 9 Claims

Olefins are converted to other olefins having different numbers of carbon atoms per molecule by contact with a catalyst, active for disproportionating propylene into ethylene and butene at temperatures in the range of 400 to 1200° F, which has been treated with hydrogen chloride prior to use. Hydrocarbon chlorides which decompose at treating conditions to form hydrogen chloride can be used.

3,544,648

CONVERSION OF OLEFINS

Reagan T. Wilson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Apr. 3, 1967, Ser. No. 627,631
Int. Cl. C07c *5/62*
U.S. Cl. 260—683 8 Claims

In the conversion of an olefin into other olefins having different numbers of carbon atoms by contact with a catalyst active for disproportionating propylene into ethylene and butene wherein the catalyst has an initial activity which is quite high, the activity is controlled by adding a small amount of water with the feed olefin.

3,544,649

CONVERSION OF PROPYLENE TO ISOAMYLENE

Rolland E. Dixon and John F. Hutto, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Nov. 8, 1967, Ser. No. 681,380
Int. Cl. C07c *3/62*
U.S. Cl. 260—683 6 Claims



An olefin hydrocarbon, for example, propylene, is converted to an isoamylene, by a three-step catalytic conversion process comprising disproportionating the propylene to produce ethylene and butene, separating the ethylene from the butene, dimerizing the butene to produce a branched dimer, and reacting the branched dimer and the ethylene in an olefin reaction zone to produce the isoamylene.

3,544,650

CRYSTALLINE ALUMINOSILICATE CATALYST MODIFIED BY SOLID-STATE REACTION WITH ALKALI METAL HALIDE

William E. Garwood, Haddonfield, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,302
Int. Cl. C07c *5/18*; B01j *11/78*
U.S. Cl. 260—683.3 12 Claims

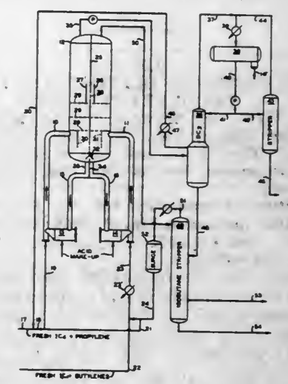
A hydrogenation-dehydrogenation catalyst and method for preparing the same by contacting in the solid state an ammonium metal aluminosilicate with an alkali metal halide. A hydrogenation-dehydrogenation process carried out in the presence of such a catalyst.

3,544,651

RECYCLING ACID STREAMS TO DIFFERENT ALKYLATION REACTIONS

Charles C. Chapman, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

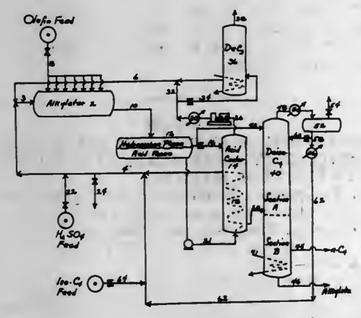
Filed May 2, 1968, Ser. No. 726,102
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.45 3 Claims



Separate acid catalytic alkylations are maintained wherein isoparaffin is reacted with a different olefin in

each alkylation reaction, the resulting alkylate-acid admixtures are maintained separately in a liquid-full divided settler and the acid catalyst removed from each part of the divided settler is partially mixed but recycled separately to the respective alkylation reactions. The partial mixing of the acid catalyst provides acid streams which are more nearly at the temperatures of the respective alkylation reactions.

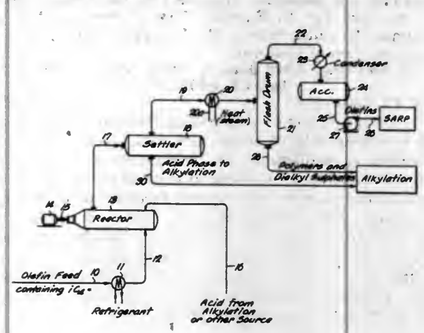
3,544,652
ALKYLATION WITH SULFURIC ACID
Christiaan P. van Dijk, Westfield, N.J., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed July 15, 1966, Ser. No. 565,472
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.59 **10 Claims**



The present process relates to an improvement in the alkylation of an alkylatable hydrocarbon with an olefin at a temperature of from 0 to 120° C. In the presence of sulfuric acid catalyst which comprises introducing olefin under high velocity mixing conditions into a preformed mixture of alkylatable hydrocarbon-acid in a reaction zone so that the combined liquids substantially fill the reaction zone and the process is operated under flood conditions and maintaining sufficient pressure in the reaction zone to prevent the formation of vapors during the alkylation reaction which is carried out under adiabatic conditions. Operation under the above conditions permits recovery of two separate liquid phases from the reactor, namely, a hydrocarbon phase containing the alkylatable hydrocarbon and alkylate and a separate acid phase.

3,544,653
PREPARATION OF OLEFIN FEEDS FOR ACID RECOVERY PROCESSES
Orlando Webb, Jr., Shawnee Mission, Kans., Ward A. Graham, Kansas City, Mo., and Harry E. Massa, Prairie Village, Kans., assignors to Stratford Engineering Corporation, Kansas City, Mo., a corporation of Delaware
Continuation of application Ser. No. 593,367, Nov. 10, 1966. This application May 9, 1969, Ser. No. 824,394
Int. Cl. C07c *3/54, 11/00, 3/14*
U.S. Cl. 260—683.61 **5 Claims**

A process for preparing olefinic hydrocarbon containing feeds for use in sulfuric acid recovery processes, alkylation reactions and the like wherein isobutylene is removed from C_4 olefin containing (straight chain and isoolefins) hydrocarbon feed streams by strong acid of titratable strength equivalent to that of catalyst acid for alkylation reactions (conventionally defined as 85% H_2SO_4 acid or higher), and alkyl sulfates and isobutylene polymer are separated from the straight chain olefins and normal paraffinic hydrocarbons in the feed stream, the former passable to an alkylation reaction, the straight



chain olefins passable to the absorption step of a sulfuric acid recovery process or a butadiene production process.

3,544,654
TWO COMPONENT ABLATIVE COMPOSITION COMPRISING A CHROMIUM PHOSPHINATE POLYMER AND A THERMOSETTING EPOXY RESIN
Gerald J. Fleming, Bowie, and Francis J. Koubek, Ellicott City, Md., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Apr. 10, 1967, Ser. No. 629,821
Int. Cl. C08g *43/02, 45/04*
U.S. Cl. 260—830 **7 Claims**

An ablative composition composed of an ablative polymer of chromium phosphinate admixed in a thermo-setting resinous binder such as epoxy novolac.

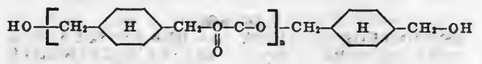
3,544,655
ALKYLENE OXIDE COPOLYMERS WITH 0.01 TO 2.0 PERCENT OF A POLYEPOXIDE
Llewellyn D. Booth and Ralph R. Langner, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 8, 1968, Ser. No. 743,051
Int. Cl. C08g *45/00*
U.S. Cl. 260—830 **6 Claims**

Polyalkylene oxide elastomers are produced in the copolymerization of monomeric alkylene monoepoxides and small amounts of a compound containing a plurality of epoxide groups. The elastomeric copolymers thus formed are solid, branched or partially cross-linked and are easily compounded on the conventional rubber-processing equipment to a vulcanizable mixture. The physical properties of the cured elastomeric copolymers do not differ substantially from the physical properties of the correspondingly cured alkylene oxide elastomer wherein the polyepoxide component is deleted. Accordingly, they have the same elastomeric utility.

3,544,656
HARD, ELASTIC, AND IMPACT-RESISTANT COATINGS
Karl-Heinz Hornung, Ernst-Christian Schütze, and Rudolf Nehring, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany
No Drawing. Filed Dec. 8, 1967, Ser. No. 688,968
Claims priority, application Germany, Dec. 10, 1966, C 40,944
Int. Cl. C08g *37/34, 17/13*
U.S. Cl. 260—850 **10 Claims**

Exceptionally hard, extensible, chemically resistant, and impact resistant coatings based on coating compositions

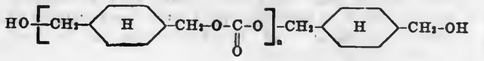
of aminoplasts combined with polyesters, wherein the latter is formed from dicarboxylic acids and carbonate-containing dihydroxy compounds of the formula:



wherein n is an integer of 1 to 15 inclusive.

3,544,657
HARD-ELASTIC AND IMPACT-RESISTANT COATINGS
Ernst-Christian Schütze, Karl-Heinz Hornung, and Rudolf Nehring, Marl, Germany, assignors to Chemische Werke Huels, A.G., Marl, Germany
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,069
Claims priority, application Germany, Jan. 3, 1967, C 41,123
Int. Cl. C08g *37/32, 37/34*
U.S. Cl. 260—850 **19 Claims**

Hard coatings having high elasticity and high impact strength are prepared by curing an aminoplast with a polycarbonate of the formula:



wherein n is an integer from 5–20 inclusive.

3,544,658
POLYMERIC COMPOSITIONS CONTAINING POLYESTERS, POLYAMIDES AND POLYETHERS
Anthony Julian East and Wendy Denise Thackray, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Continuation of application Ser. No. 554,681, June 2, 1966. This application June 5, 1969, Ser. No. 833,881
Claims priority application Great Britain, June 10, 1965, 24,605/65
Int. Cl. C08g *41/04*
U.S. Cl. 260—857 **8 Claims**

A process for obtaining fibres of improved substantivity towards acid dyestuffs which involves melt-spinning a molten and intimate mixture of (a) a polyester or copolyester (b) a polyamide or copolyamide and (c) a polyalkylene oxide, the component (b) being present to the extent of less than 50% by weight of the sum of (a) and (b) and the component (c) being present at a level of from 5 to 15% by weight of the sum of (a), (b) and (c). Particularly effective as component (c) are polyethylene oxides of 6,000 to 20,000 molecular weight.

3,544,659
PREPARATION OF CYCLIC ETHER GRAFT COPOLYMERS
Peter A. Schwab, 1601 Trio Lane, and Wayne R. Sorenson, 720 E. Liberty, both of Ponca City, Okla. 74601
No Drawing. Filed Mar. 16, 1967, Ser. No. 623,543
Int. Cl. C08f *29/30*
U.S. Cl. 260—874 **8 Claims**

A process wherein polyethers are grafted onto a backbone of vinyl polymer containing pendant protonic groups along the backbone. Said process comprises terminating the cationic polymerization of cyclic ethers with the protonic groups of the vinyl polymer.

3,544,660
GRAFT POLYMERIZATION IN MASS OF VINYL CHLORIDE ON AN ETHYLENE-VINYL ACETATE COPOLYMER
Jean Claude Thomas and Francis Fournel, Lyon, and Salomon Soussan, Saint-Fons, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Paris, France
No Drawing. Filed Nov. 2, 1967, Ser. No. 680,027
Claims priority, application France, Nov. 14, 1966, 83,488
Int. Cl. C08f *15/40*
U.S. Cl. 260—878 **8 Claims**

Resinous copolymers of high shock resistance are made by dissolving a first copolymer of vinyl acetate and ethylene in liquid vinyl chloride, the reaction mass being copolymerized, and the first copolymer grafted by vinyl chloride, under the conditions of temperature, pressure and catalysis characteristic of bulk polymerization.

3,544,661
CROSS-LINKABLE INTERNALLY PLASTICIZED VINYL CHLORIDE COMPOSITIONS
André Oth and Alexis Mathieu, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium, a Belgian corporation
No Drawing. Filed Aug. 11, 1967, Ser. No. 659,849
Claims priority, application France, Aug. 16, 1966, 73,145
Int. Cl. C08f *15/40*
U.S. Cl. 260—879 **17 Claims**

Cross-linkable internally plasticized vinyl chloride copolymers are prepared by polymerizing 3 to 50 parts by weight and preferably 5 to 25 parts by weight of a mixture of a diolefin and a monomer of the group consisting of nitriles and esters of unsaturated mono- or polycarboxylic acids in the presence of 100 parts by weight of a copolymer of vinyl chloride with a monomer containing at least 8 carbon atoms and selected from the group consisting of vinyl esters of monocarboxylic acids, esters of unsaturated mono- or polycarboxylic acids and alkyl-vinyl ethers.

3,544,662
HIGH-MELTING POLYMER COMPOSITIONS COMPRISING A 3-METHYL-1-BUTENE POLYMER AND ANOTHER POLYOLEFIN
Walter J. Polestak, Summit, and Herbert W. Keuchel, Long Valley, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 2, 1966, Ser. No. 591,453
Int. Cl. C08f *29/12*
U.S. Cl. 260—896 **4 Claims**

Compositions of matter comprising a major amount of a 3-methyl-1-butene polymer blended with a minor but plasticizing amount of a poly-1-olefin capable of reducing melt flow and extrusion temperature properties of the 3-methyl-1-butene polymer and of increasing the tensile strength retention value at an elevated temperature of fibers spun from the polymer blend as compared with similar fibers spun without the poly-1-olefin modifier.

3,544,663
FLUORINATED ORGANIC COMPOUNDS AND POLYMERS THEREOF
Murray Hauptschein, Glenside, and Robert Bonner Hager and Thomas Clark Allen, King of Prussia, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Jan. 30, 1967, Ser. No. 612,315
Int. Cl. C08f *29/22, 37/18*
U.S. Cl. 260—900 **12 Claims**

Disclosed herein are certain polymerizable acrylates containing perfluoroalkyl tails, homopolymers and co-

polymers thereof, means for preparing these compositions and methods of their use for treating textiles and related materials.

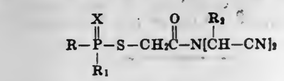
3,544,664

BIS CYANOALKYL AMIDE PHOSPHATES AND PHOSPHONATES

Peter E. Newallis, Overland Park, Kans., and Pasquale Lombardo, Laurel, Md., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,018
Int. Cl. C07f *9/16, 9/40;* **A01n** *9/36*
U.S. Cl. 260—940 **9 Claims**

Bis cyanoalkyl amide phosphates and phosphonates useful as insecticides having the following general formula:



wherein X represents oxygen or sulfur; R represents an alkoxyl group having 1–5 carbon atoms; R_1 represents an alkyl or alkoxyl group having 1–5 carbon atoms; and R_2 represents hydrogen or an alkyl group having 1–5 carbon atoms.

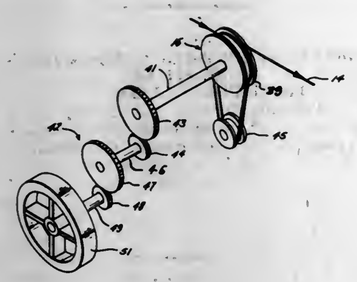
The above compounds are prepared by reacting ammonium salts of phosphoric acid monoesters or diesters with a chloro-N,N-dicyanoalkyl amide.

3,544,665

METHOD AND APPARATUS FOR MANUFACTURING ELECTRICAL CONDUCTORS

William E. Bowers, Houston, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas

Continuation of application Ser. No. 548,294, May 6, 1966. This application Jan. 24, 1969, Ser. No. 797,352
Int. Cl. B29f *3/10;* **B29h** *5/28;* **B65h** *25/04*
U.S. Cl. 264—40 **5 Claims**



The technical disclosure describes methods and apparatus for manufacturing insulated electrical conductor wiring. The wire to be insulated is payed out at a substantially constant average speed from a supply spool. Variable tensioning means is utilized to eliminate any slack in the wire. The wire is then coupled through a system of gears to a flywheel possessing a large moment of inertia. This wheel serves as a passive speed stabilization device to stabilize the instantaneous speed of the wire just prior to its passage through an extrusion die. The wire is then passed through the extrusion die and the insulation material extruded thereon. From the extrusion die, the wire passes through a cooling or curing trough and, finally, is taken up on a storage spool.

ERRATUM

For Class 264—46 see:
Patent No. 3,544,518

3,544,666

METHOD FOR PRODUCING A HEAT INSULATING REFRACTORY USING CALCINED GEYSERITE HAVING A HIGH TRIDYMITE CONTENT

Masatoshi Shiota and Taizo Kato, Yokohama, and Hideji Numata, Kamakura, Japan, assignors to Asahi Glass Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 4, 1968, Ser. No. 695,556
Claims priority, application Japan, Jan. 10, 1967, 42/1,552; May 4, 1967, 42/28,056
Int. Cl. C04b *35/14*
U.S. Cl. 264—66 **4 Claims**

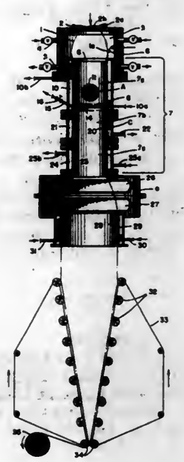
Heat-treated geyserite, in which more than 60% of silica is composed of tridymite, is blended with other raw refractory materials in such a way that the heat-treated geyserite will amount to 20 to 90%, by weight percent, in the total raw refractory materials as a refractory material. Grain hull ash, in which the greater part of silica is tridymitized, is also effectively used jointly with the heat-treated geyserite, if circumstances require. The heat-treated geyserite is combined with light weight chamotte, and a binder such as clay, water glass, aluminum monophosphate and equivalents, tempered with water, pressed into shape, and either fired to develop a ceramic bond or heat treated at lower temperatures to develop a chemical bond. The fired shape can be used as an insulating refractory.

3,544,667

PROCESS FOR BIAXIALLY STRETCHING THERMOPLASTIC TUBULAR FILM

Alfred Ebert and Ernst Pirot, Wuppertal-Barmen, Fritz Holler, Wuppertal-Langerfeld, and Georg Steinhilber, Wuppertal-Elberfeld, Germany, assignors to J. P. Bemberg Aktiengesellschaft, Wuppertal, Germany

Filed Feb. 2, 1968, Ser. No. 702,733
Claims priority, application Germany, Feb. 10, 1967, B 91,113; Aug. 9, 1967, B 93,882; Jan. 8, 1968, B 96,135, B 96,136, B 96,137, B 96,138
Int. Cl. B29c *17/00, 17/07, 25/00*
U.S. Cl. 264—89 **15 Claims**



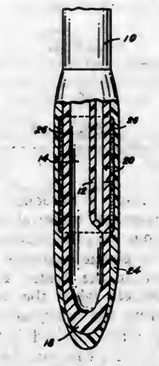
Process wherein an extruded seamless thermoplastic tubular film is biaxially stretched by a longitudinal drawing accompanied by an inflation or blowing for transverse stretch. After first inflating the initially extruded film tube under a counterpressure of an externally applied cooling gas in a pressure chamber, the tubular film is necked down from the pressure chamber to pass through an elongated pipe having at least a first cooling section of reduced surface contact with the tubular film, after which the tubular film is reheated for further inflation and/or longitudinal stretching and may then be subsequently tempered to achieve uniform and/or stable dimensions. The resulting inflated and biaxially stretched tube is collapsed or flattened and collected on a take-up roll in the usual manner.

3,544,668

METHOD OF MANUFACTURING A BALLOON CATHETER

Paul Dereniuk, Woonsocket, R.I., assignor to Davol Inc., Providence, R.I., a corporation of Rhode Island

Filed July 22, 1968, Ser. No. 746,355
Int. Cl. B29c *13/00;* **B32b** *7/06, 31/26*
U.S. Cl. 264—135 **12 Claims**



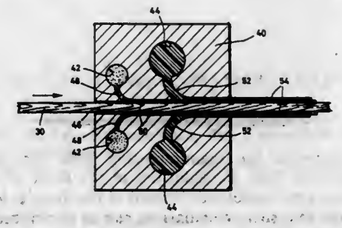
In the manufacture of balloon catheters for urethral retention, the catheter shaft is coated with a gel material, and the shaft and coating are then overdipped to form a skin which bonds to the shaft. But the gel is not dissolved by the overdip solution, and thus acts as a barrier preventing the skin from adhering to the shaft in the neighborhood of the gel. Later the gel is decomposed by drying, allowing the skin to be inflated as a retention balloon.

3,544,669

METHOD OF COATING MOISTURE-CONTAINING ARTICLES OF WOOD OR WOOD PRODUCTS

Friedrich Schock, Schorndorf, Wurttemberg, Germany, assignor to Schock & Co., GmbH, Schorndorf, Wurttemberg, Germany

Filed Dec. 6, 1967, Ser. No. 688,405
Claims priority, application Germany, Dec. 10, 1966, Sch 39,948
Int. Cl. B29f *3/10;* **B44d** *1/09, 1/28*
U.S. Cl. 264—174 **8 Claims**



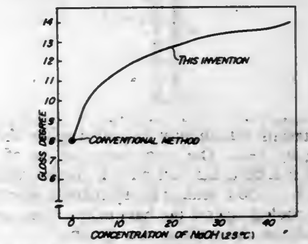
A moisture-containing article of wood or wood products is initially coated with a layer of solvent-free thermoplastic heat-sealing adhesive in molten state in an extrusion tool and thereafter applying with the same extrusion tool a second layer of synthetic plastic adherent to the first upon solidification and finally solidifying the second layer to form a coherent article.

3,544,670

METHOD FOR PRODUCING POLYAMIDE FILAMENTARY ARTICLE

Taiichi Murao, Masakatsu Hara, Toru Sato, and Shigeo Katsuyama, Nobeoka-shi, and Toshio Sasaki, Ibaragi-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a Japanese corporation

Filed Sept. 5, 1968, Ser. No. 757,681
Claims priority, application Japan, Sept. 12, 1967, 42/58,093
Int. Cl. D01d *5/08*
U.S. Cl. 264—178 **7 Claims**



A polyamide filamentary article having high transparency and gloss is produced by solidifying a melt-extruded polyamide with a solution of an alkali such as KOH, NaOH and LiOH.

3,544,671

PROCESS FOR NECK DRAWING BLOCK COPOLYMER FILMS AND FILAMENTS

Denis James Henry Sandiford, Welwyn, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Continuation of application Ser. No. 563,696, July 8, 1966. This application July 1, 1969, Ser. No. 840,596
Claims priority, application Great Britain, July 14, 1965, 29,821/65
Int. Cl. D01d *5/12;* **B29c** *17/02*
U.S. Cl. 264—210 **6 Claims**

A process for preparing an oriented, voided structure which comprises forming a crystalline olefin copolymer composition into a structure suitable for drawing, quenching the said structure and drawing the same under conditions of temperature, draw ratio, and draw rate such that it draws through a neck.

3,544,672

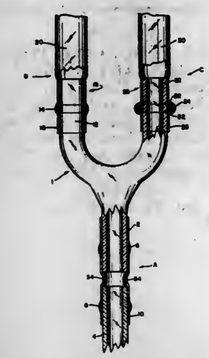
COUPLING AND METHOD FOR MAKING

George Goda, New York, and John O. Fitter, East Northport, N.Y., assignors to Greiner Scientific Corp., New York, N.Y., a corporation of New York

Filed Nov. 6, 1967, Ser. No. 680,810
Int. Cl. B29c *27/00*
U.S. Cl. 264—230 **3 Claims**

A coupling for elongated members, such as rods or pipes, is provided which can be prepared by inserting the member into a sealing ring which will cover a smaller portion of the member, and a part of a shrinkable sleeve which will cover a larger portion of the member, then shrinking the sleeve over and into intimate engagement with the larger portion of the member and with the ring thereon. The resulting seal is vacuumtight and strong. The other part of the sleeve can be left unshrunk to accept a part of another attenuated member for later sealing, or

the other member can be sealed for coupling both members together at the same time. The sealing rings of which more than one can also be applied for each member, can be of a thermoplast, or a shrinkable thermoplast in which case they are required to have only a very small resiliency.

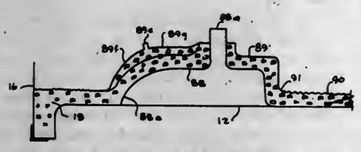


These materials will slightly flow during the shrinking of the sleeve by heat. The rings can also be of a rubber which will not flow, but will have a greater resiliency for creation of a good seal. The shrinkable sleeve can be optionally tooled against the base of a rubber sealing ring where it adjoins the surface of a member.

3,544,673
PROCESS FOR HEAT TREATING FABRICATED PLASTIC ARTICLES
Mark D. Inskeep, Saddle River, and Walter T. Zagar, Wayne, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Oct. 12, 1967, Ser. No. 674,748
Int. Cl. B29c *24/00, 25/00*
U.S. Cl. 264—235 **6 Claims**

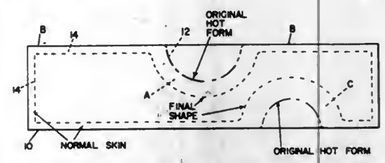
Process for producing articles having improved stiffnes and stress crack resistance and which will not change substantially in volume when subjected to subsequent temperature fluctuations or long term storage. Polyethylene and copolymers thereof are formed into hollow containers by a stress inducing fabrication step at temperatures from about 150° C. to 320° C. and the containers are cooled to below the crystalline freeze point thereof. The containers are subsequently heated at a temperature ranging from the crystalline freeze point to the melting point thereof for a period of time ranging from 4 to 10 minutes and are then cooled to a temperature substantially below the crystalline freeze point thereof.

3,544,674
METHODS FOR FORMING ARTICLES OF SIMULATED STONE
Russell K. Barron, 6419 Bissonnet, Houston, Tex. 77036
Filed Apr. 20, 1967, Ser. No. 632,433
Int. Cl. B29c *21/00, 5/08*
U.S. Cl. 264—255 **3 Claims**



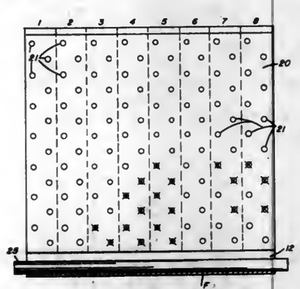
In the formation of simulated stone articles having a variety of sizes and shapes, the preferred apparatus including a table having a molding surface, support means therebelow for bearing the weight of the mixture of materials forming the simulated stone thereon, a plurality of springs mounting the table for vibratory movement while yet maintaining same in a horizontal plane beneath a radiant heat means which cures the materials to hardness. Additional molding apparatus including male and female members for forming an integral counter top and basin are used cooperatively with the molding surface. Sub-combination apparatus including edge defining members releasably attachable to the molding surface for defining edges, curves, openings, and the like.

3,544,675
FORMING SKINS ON PLASTIC CELLULAR MATERIAL
Richard A. Belle Isle, Wilbraham, Mass. (% Tainer Tech Corporation, Corner Sutton and Main Sts., Northbridge, Mass. 01534)
Filed Sept. 27, 1967, Ser. No. 670,965
Int. Cl. B29d *7/22*
U.S. Cl. 264—321 **2 Claims**



A method of forming a hardened skin surface on a plastic cellular light-weight material particularly adapted for custom packaging, etc., the method comprising heating and forming the plastic material and then reducing the thickness thereof in the heated areas by applying a cold forming die thereto while the material is still hot, and including forming the material under pressure and heat to the general shape desired but oversized in predetermined areas thereof, wherein the cold forming step reduces the oversized areas down to the final area or thickness desired while at the same time forming the hardened skin referred to.

3,544,676
FLATNESS CONTROL OF THERMOPLASTIC SHEETS
Arthur W. Spencer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Feb. 3, 1969, Ser. No. 796,057
Int. Cl. B29c *25/00*
U.S. Cl. 264—346 **7 Claims**



In processes for manufacturing heat set, oriented thermoplastic films, irregularities in the form of limp or baggy areas are sometimes formed in the films. It has been discovered that such irregularities can be minimized by decreasing the rate of cooling of the effected areas of the film during the final cooling stage of the heat-relaxing step of such manufacturing processes.

3,544,677
RODENT BAITING WITH ANTICOAGULANT HALOPYRIDINE DERIVATIVES
Karyn L. Lapham, Midland, Mich., and Philip J. Shea, Indianapolis, Ind., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,948
Int. Cl. A01n *9/22, 17/44*
U.S. Cl. 424—17 **7 Claims**

A method and composition therein employed which comprises administering to warm-blooded animals a halopyridine derivative comprising 2,3,5-trichloro-4-pyridine acetate, alkali metal tetrahalopyridylate, ammonium tetrahalopyridylate or a tetrahalopyridyl ester, wherein the ester moiety represents alkyl or halogenated alkylcarbonyl, alkyliminocarbonyl, phenylthiocarbonyl, phenylcarbonyl and phenylsulfonyl. The method and composition are useful for inhibiting the coagulation of blood, and are particularly useful for the control of rodents.

3,544,678
ORAL COMPOSITIONS FOR CARIES PROPHYLAXIS
William J. Griebstein, Mount Healthy, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Original application May 2, 1966, Ser. No. 546,535. Divided and this application Nov. 27, 1968, Ser. No. 796,629
Int. Cl. A61k *7/16*
U.S. Cl. 424—52 **8 Claims**

Oral compositions such as dentifrice, mouthwash, chewing gum, prophylaxis paste, etc. containing a water-soluble fluoride salt, a water-soluble stannous compound, and a water-soluble source of a complexing anion of hydroxyethylnitrilodiacetic acid, m-hydroxybenzoic acid, 1,2,3-propanetricarboxylic acid, or itaconic acid, the stannous complexes of said acids providing a stable and dental enamel-reactive source of stannous tin.

3,544,679
PARAFFINIC BASE OIL CARRIER COMPOSITIONS FOR USE IN METAL WORKING AND PESTICIDES
Frederic C. McCoy, % Texaco Inc., P.O. Box 509, Beacon, N.Y. 12508
No Drawing. Filed June 24, 1968, Ser. No. 739,182
Int. Cl. C10m *1/46, 1/32*
U.S. Cl. 424—80 **13 Claims**

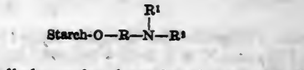
A base oil composition comprising (1) a paraffinic hydrocarbon oil having an unsulfonatable content of at least about 90 wt. percent, (2) an oil soluble aluminum, iron, nickel, alkali metal, alkaline earth metal or alkyl ammonium salt of a carboxylic acid or dihydrocarbyl orthophosphoric acid and (3) an oil soluble ashless dispersant for lubricating oils selected from (a) an alkylene oxide derivative of an organic phosphorus acid, (b) an alkyl methacrylate-vinyl pyrrolidinone copolymer or (c) an alkoxylated piperazine derivative of alkenyl succinic anhydride.

3,544,680
INTRANASAL IMMUNIZATION AGAINST RUBELLA
Stanley A. Plotkin, Philadelphia, Pa., assignor to The Wistar Institute, Philadelphia, Pa., a nonprofit corporation of Pennsylvania
No Drawing. Filed Oct. 9, 1968, Ser. No. 766,324
Int. Cl. A61k *27/00*
U.S. Cl. 424—89 **2 Claims**

A rubella vaccine, prepared by passaging rubella virus at least 18 times in human diploid lung fibroblasts, is described as being effective in inducing immunity when administered intranasally.

3,544,681
ANIMAL FEED COMPOSITIONS AND METHODS
Gino J. Marco, Webster Groves, and Robert B. Grainger, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 12, 1967, Ser. No. 645,512
Int. Cl. A61k *27/00*; A23k *1/00*
U.S. Cl. 424—180 **15 Claims**

Animal feed composition containing a growth-promoting amount of at least one compound of the formula



wherein R is alkylene of at least 2 and not more than 3 carbon atoms, and R^1 and R^2 are each selected from the group consisting of hydrogen, alkyl, aryl and aralkyl of not more than 18 carbon atoms.

3,544,682
FUNGICIDAL CONTROL METHOD EMPLOYING SUBSTITUTED PYRAZINES
Harold M. Taylor and Howard E. Holden, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana
No Drawing. Filed Mar. 18, 1968, Ser. No. 714,101
Int. Cl. A01n *9/22*
U.S. Cl. 424—250 **7 Claims**

Fungi which damage useful plants are controlled by applying substituted pyrazines or nonphytotoxic acid addition salts thereof to the locus of the fungi.

3,544,683
ACTIVE-CHLORINE-CONTAINING COMPOUND
Tsunezo Ushioda, 448 Horinouchi, 2-chome, Suginami-ku, Tokyo-to, Japan; and Katsuhiko Nonaka, 21 Otsutomocho, Kanazawa-ku; and Takeshi Inoi, 44 Otsutomocho, Kanazawa-ku, both of Yokohama-shi, Japan; Kenjiro Shoji, 538 Yukinoshita, Kamakura-shi, Japan; and Motoyoshi Matsunaga and Hitoshi Kato, both % Moriyama Plant % Chiseo Acetate K.K., 515 Kojima, Moriyamacho, Yasu-gun, Shiga-ken, Japan
Filed Nov. 28, 1966, Ser. No. 597,333
Claims priority, application Japan, Nov. 26, 1965, 40/72,629
Int. Cl. A61l *13/00*
U.S. Cl. 424—251 **4 Claims**

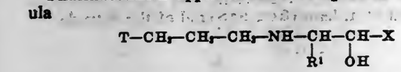
A composition of one *or* more chlorides of 2,7-dioxo-4,5 - dimethyl - decahydropyrimido[4,5 - d]pyrimidine, its isomer or mixtures thereof, wherein each ingredient contains one to four active chlorines, and the use of such compositions as germicides, bleaching agents, oxidants, and the like.

3,544,684
COSMETIC COMPOSITION CONTAINING URACIL-4-CARBOXYLIC ACID
Arthur Scherm, 10 Paul Andrich-Weg, Bad Homburg, Germany
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,132
Claims priority, application Germany, Dec. 31, 1966, M 72,266
Int. Cl. A61k *7/00, 27/00*
U.S. Cl. 424—251 **2 Claims**

Uracil-4-carboxylic acid and its salts increase the softening effect of cosmetic bases.

3,544,685
TREATMENT OF ASTHMATIC BRONCHIAL CONDITIONS INVOLVING HEART INSUFFICIENCY
Karl Heinz Klingler, Langen, Hesse, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed July 26, 1968, Ser. No. 747,847
Int. Cl. A61k 27/00
U.S. Cl. 424—253 13 Claims

Pharmaceutical application of compounds of the formula



wherein T signifies the theophyllinyl-(7)-radical, R^1 is H or CH_3 and X is 2, 3 or 4 hydroxy substituted phenyl or 3,5 dihydroxy substituted phenyl, or when R^1 is CH_3, X can also be 3,4 dihydroxy substituted phenyl, which possess broncholytic activity combined with a strong positive inotropic action (activity in increasing contraction amplitude of the heart) in the treatment of asthmatic bronchial conditions such as asthma, bronchitis, silicosis and emphysema with latent or manifest heart insufficiency.

3,544,686
DIALKOXY - HYDROXY - QUINOLINE CARBOXYLATE ESTERS HAVING COCCIDIOSTATIC AND ANTIVIRAL ACTIVITY
Michael Davis, Upminster, Essex, Edgar William Parnell and Brian William Sharp, Romford, Essex, and Dennis Warburton, Upminster, Essex, England, assignors to May & Baker Limited, Dagenham, Essex, England, a British company
No Drawing. Continuation-in-part of application Ser. No. 637,359, May 10, 1967. This application Nov. 6, 1967, Ser. No. 680,965
Claims priority, application Great Britain, May 13, 1966, 21,396/66; Aug. 4, 1966, 35,037/66
Int. Cl. A61d 7/00; A61k 27/00
U.S. Cl. 424—258 13 Claims

The invention provides new methyl and ethyl 6,7-dialkoxy-4-hydroxyquinoline-3-carboxylates in which the 6-alkoxy group contains 8 to 10 carbon atoms and the 7-alkoxy group contains 1 to 3 carbon atoms or is sec-butoxy, which new compounds are potent coccidiostats useful in the prevention and treatment of coccidiosis in chickens caused by parasites of the genus Eimeria. The new compounds also possess a useful degree of activity against certain viruses capable of causing influenza in chickens.

3,544,687
DIURETICS
Thomas A. Lynch, Columbus, Ohio, assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Nov. 21, 1966, Ser. No. 595,595
Int. Cl. A61k 27/00
U.S. Cl. 424—317 1 Claim

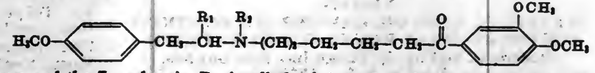
Para-tertiary octylphenoxy acetic acid along with several novel analogs and derivatives thereof are shown to possess a high degree of diuretic activity. These compounds are especially useful as diuretics since they combine low toxicity with high effectiveness at promoting sodium excretion with only minimum potassium excretion.

3,544,688
METHOD OF DISINFECTING HARD SURFACES
Reginald L. Wakeman, 1830 Rittenhouse Square, Philadelphia, Pa. 19103
No Drawing. Original application Aug. 16, 1966, Ser. No. 572,683, now Patent No. 3,479,406, dated Nov. 18, 1969. Divided and this application Apr. 2, 1969, Ser. No. 812,896
The portion of the term of the patent subsequent to Nov. 15, 1983, has been disclaimed
Int. Cl. A01n 9/20
U.S. Cl. 424—329 1 Claim

A method of disinfecting hard surfaces which comprises applying thereto an aqueous solution of alkyl dimethyl pseudocuminyl ammonium chloride, wherein the alkyl contains 8 to 18 carbon atoms.

3,544,689
METHODS AND COMPOSITIONS FOR TREATING SPASMS EMPLOYING 3',4' - DIMETHOXY - 6 - (2 - (p - METHOXYPHENYL) - 1 - ALKYL - ALKYL-ETHYLAMINO) - HEXANOPHENONES AND THE SALTS THEREOF
Hendrik Durk Mood, Van Houtenlaan, Weesp, Netherlands, assignors to U.S. Philip Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 656,696, July 28, 1967. This application May 12, 1969, Ser. No. 823,961
Int. Cl. A61k 27/00
U.S. Cl. 424—330 6 Claims

3',4'-dimethoxy phenones of the formula



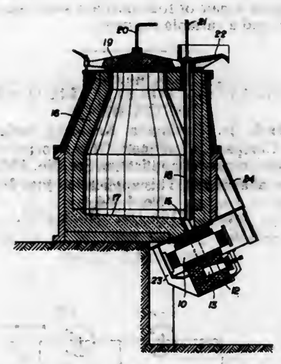
wherein R_1 is alkyl of 1 to 2 carbon atoms and R_2 is alkyl of 1 to 3 carbon atoms. The compounds have musculotropiospasmolytic activities and are useful in the treatment of disorders of the colon for example spastic colon.

3,544,690
METHOD OF CONTROLLING FUNGI WITH HALODINITROBENZOTRIFLUORIDE COMPOUNDS
Quentin F. Soper, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana
No Drawing. Filed July 7, 1966, Ser. No. 563,359
Int. Cl. A01n 9/20
U.S. Cl. 424—349 9 Claims

Methods for the control of fungi in soil employing as active agent halodinitrobenzotrifluoride compounds.

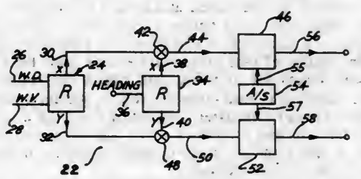
ELECTRICAL

3,544,691
APPARATUS FOR DEGASSING METALLIC MELTS BY SONIC VIBRATIONS
Alfred Adamec, Vienna, Austria, assignor to Wiener Schwachstromwerke Gesellschaft m.b.H., Vienna, Austria
Original application Dec. 11, 1964, Ser. No. 417,667, now Patent No. 3,434,823. Divided and this application Sept. 5, 1968, Ser. No. 757,698
Int. Cl. H05b 5/00
U.S. Cl. 13—26 11 Claims



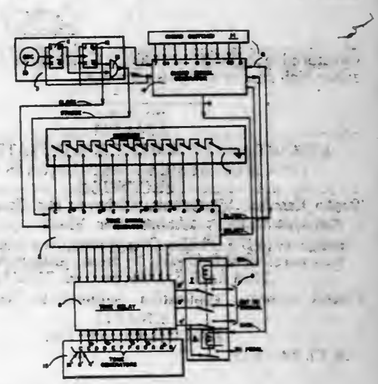
Apparatus for degassing metallic melts by sonic vibrations uses the ponderomotive effect produced by an alternating current supplied from a source at commercial frequencies, the alternating currents being distorted to increase their harmonics. The distortion can be effected by abrupt limitations of amplitude to produce a pulse-type current. The apparatus may include a supply transformer which can be loaded beyond the saturation range, or by providing special laminations or by magnetically preloading the transformer. Alternatively, the distortion of the alternating current is effected electronically.

3,544,692
X-Y RECORDER FOR AVIATION TRAINING DEVICE
Rudolf A. Frasca, 606 S. Nell St., Champaign, Illinois
Filed Nov. 20, 1967, Ser. No. 684,119
Int. Cl. G09b 9/02; G01d 1/04
U.S. Cl. 35—10.2 9 Claims



An X-Y plotter including, generally, drive mechanism for driving a plotting head in the well-known manner to plot a continuous line representing, in the illustrated case, a simulated flight of a stationary aviation trainer. The drive mechanism can be of generally standard construction. A control mechanism is coupled to the drive mechanism and includes, generally, a pair of mechanical resolvers for computing X- and Y-components of the simulated wind direction and velocity and the simulated heading of the trainer, respectively. The X- and Y-outputs of the respective resolvers are combined to provide a resultant X- and Y-component, each of which is coupled, as one input, to a pair of ball-disc integrators respectively. The simulated airspeed of the trainer is coupled, as a second input, to each of the ball-disc integrators. The output of each of the ball-disc integrators is coupled to the drive mechanism, to cause the same to drive the plotting head in an X- and Y-direction to plot the simulated flight of the trainer.

3,544,693
ELECTRONIC CONTROL SYSTEM FOR MUSICAL INSTRUMENT
Robert W. Tripp, 14 Westview Ave. 401, Tuckahoe, New York
Filed Nov. 29, 1968, Ser. No. 779,958
Int. Cl. G10h 1/00
U.S. Cl. 84—1.01 14 Claims

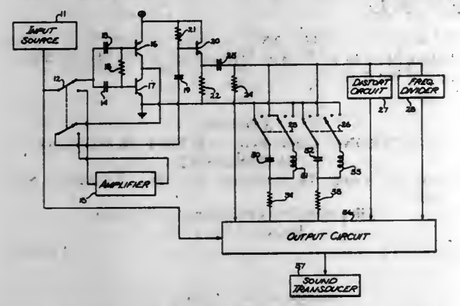


Control signals representing selected chords are automatically generated as a function of a selected root tone of the chord by the synchronized operation of two counters and associated logic. When a root tone (musical tone) is selected, for example, by depressing a pedal, the counter associated with chord selection is cleared to zero at the time the decoded count of the tone control counter represents the decoded root tone. The two counters are thereafter counted in synchronism until a new root tone is selected by depressing another pedal and a new synchronism is established. Each time a new root tone is selected, the counters are synchronized with a different counting relationship so that tone selection signals can be generated to represent any selected chord transposed to the new root note. The decoded count of the cleared counter produces selection signals as a function of the type of chord selected, for example, by depressing a key. The selection signals in conjunction with the decoded counting signals from the control counter, enable tone selection signals to be generated by switching devices receiving both signals. The decoded counting signals of the tone control counter represent tones used in forming all chords. When there is coincidence between the chord selection signals and the decoded tone control signals, tone selection signals are generated. The signals are used with relays or equivalent switching devices to select signals from tone generators in producing musical sounds. The system includes logic for storing the bass and counter bass notes of a chord so that the notes can be played at a subsequent time.

3,544,694
PICKUP AND WAVEFORMING CIRCUITRY FOR ELECTRONIC MUSICAL INSTRUMENT
William A. Freeman, 372 Memorial Drive, Cambridge, Massachusetts
Filed Mar. 17, 1969, Ser. No. 807,655
Int. Cl. G10h 1/02, 3/04
U.S. Cl. 84—1.11 8 Claims

Circuitry for changing the waveform and other characteristics of musical instrument tone signals in electrical form

which consists of a pickup, a special amplifying and limiting stage driving tone filters, frequency dividers, and other

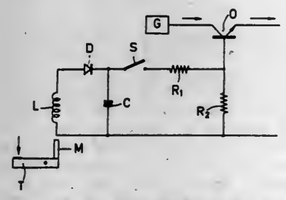


waveforming circuits including LC networks switchable to either high pass or low pass response.

3,544,695
CIRCUIT ARRANGEMENT FOR IMITATING THE TOUCH OF MUSICAL INSTRUMENTS WITH PERCUSSION

Popko Reinder Dijksterhuis, Bilthoven and Casper Antonius Henricus Mulkens, administrator, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, New York a corporation of Delaware. by mesne assignment

Filed April 5, 1968, Ser. No. 719,831
Claims priority, application Netherlands, Apr. 8, 1967, 6,705,025
Int. Cl. G10h *3/00, 1/02*
U.S. Cl. 84—1.13 **5 Claims**



A control circuit for a tone generation in a key operated electronic instrument where the motion of a magnet attached to a key generates a voltage in an associated coil, the generated voltage charges a capacitor with a voltage proportional to the intensity with which the key is depressed. The capacitor is connected to a gate circuit controlling the tone generator only after receiving a full charge, thereby eliminating the variable transient effects pulse widths induced in the coil in response to the various speeds magnet.

ERRATUM

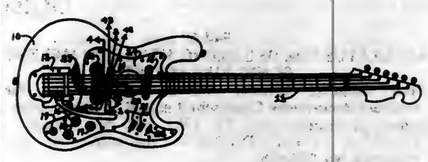
For Class 84—1.14 see:
Patent No. 3,543,629

3,544,696
PLURAL ELECTROMAGNETIC PICKUP SYSTEM FOR STRINGED MUSICAL INSTRUMENT WITH TONE AND VOLUME CONTROLS

Paul Daniel Broussard, Andrew, Louisiana (Rte. 2, Box 271, Kaplan, LA 70548)

Continuation of application Ser. No. 724,901, April 29, 1968, now abandoned. This application Sept. 29, 1969, Ser. No. 864,947
Int. Cl. G10d *5/00;* **G10h** *3/00*
U.S. Cl. 84—1.15 **16 Claims**

Resiliently mounted and circularly adjustable plural permanent magnet-coil pickups for stringed instruments such as a guitar. An individual volume control is provided for each pickup with interconnections between controls whereby

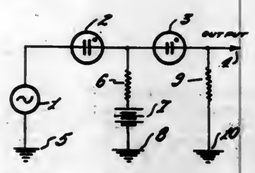


changing one does not affect the others. Tone control circuitry includes a pair of four-position switches, a single-position switch, and a variable resistor.

3,544,697
KEYING SYSTEM FOR ELECTRICAL MUSICAL INSTRUMENTS

Walter Munch, Jr., Covington, Kentucky, assignor to D. H. Baldwin Company, Cincinnati, Ohio a corporation of Ohio

Continuation-in-part of application Ser. No. 657,085, May 6, 1957, now abandoned. This application Jan. 25, 1960, Ser. No. 4,444
Int. Cl. G10h *1/02;* **H03k** *17/52*
U.S. Cl. 84—1.26 **54 Claims**



A gating circuit for transmitting electric oscillations corresponding to musical tones comprising a continuously operating source thereof, a load circuit, a common return to which said source and said load circuit are both connected, said gating circuit comprising a first gaseous discharge tube and a second gaseous discharge tube connected in series between said source and said load circuit, said tubes having ignition and extinction potentials, said source being coupled to said first tube, said oscillations having a peak voltage insufficient to ignite said tubes, said load circuit being coupled to the second of said tubes, and means for applying to said gating circuit at a point between said tubes a direct current potential of a value which will provide a potential above the ignition voltage of said tubes, said source, said load circuit, and said means for applying said direct current potential being connected to said common return, whereby said tubes are caused to fire alternately depending upon the direction of the oscillations, and whereby a signal is produced in said load circuit in the form of direct current impulses of the same frequency as said oscillations.

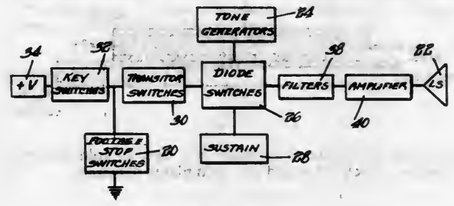
3,544,698
ELECTRONIC ORGAN DIODE KEYING CIRCUIT

Harold O. Schwartz, North Tonawanda; William V. Machanian. Niagara Falls and Robert D. Barry, Lockport, New York, assignors to The Wurlitzer Company, Chicago, Illinois a corporation of Delaware

Filed May 6, 1968, Ser. No. 726,872
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.26 **13 Claims**

A two-manual electronic organ wherein continually oscillating tone generators are respectively switched to output or utilization circuits through diodes which are normally biased for non-conduction. Each key has only one single-pole single-

throw switch which acts through a diode to turn on a switching transistor, which transistor in turn turns on the ap-

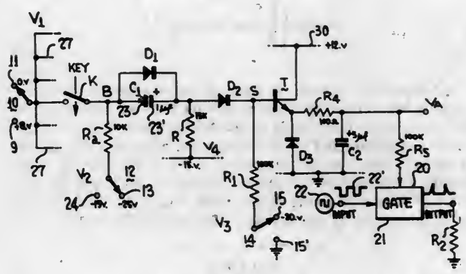


propriate diode to key the output. Various stops are controlled through diodes.

3,544,699
ELECTRONIC PIANO WITH PERCUSSIVE EFFECTS EMPLOYING ZENER OPERATION

Michael R. Harris, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio a corporation of Ohio

Filed Sept. 30, 1968, Ser. No. 763,654
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.26 **21 Claims**



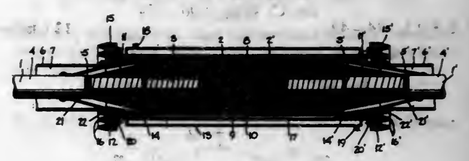
A control voltage terminal is connected in series with a key switch and further in series with two diodes, similarly poled, and with the base-emitter circuit of a transistor poled like the diodes. Across the first diode is connected a capacitor, across which may be applied voltages from d.c. supplies, to control mode of operation of the system. To the base of the transistor via a high resistance may be applied either of two d.c. voltages, to effect two control modes, these voltages including one negative value sufficiently great that the base-emitter circuit of the transistor can have Zener operation and another which does not permit Zener operation. A timing capacitor is connected from the emitter of the transistor to ground as an emitter load, and gate control voltage is derived therefrom for a tone controlling gate. A diode is connected across the timing capacitor, having its cathode connected to the emitter of the transistor, to provide a shunt path across the emitter load when the base-emitter junction operates in the Zener mode.

3,544,700
ELECTRICAL CABLE JOINTS

Priaroggia, Paolo Gazzana, Milan, Italy, assignor to Pirelli S.p.A., Milan, Italy, a corporation of Italy

Filed Dec. 26, 1967, Ser. No. 693,347
Claims priority, application Italy, Dec. 30, 1966, 31,733/66
Int. Cl. H01b *7/34;* **H02g** *15/24*
U.S. Cl. 174—15 **10 Claims**

Joining devices for electrical power cables comprising an electrical connector, an insulator surrounding the connector, an outer metal casing and a thermally and electrically insula-

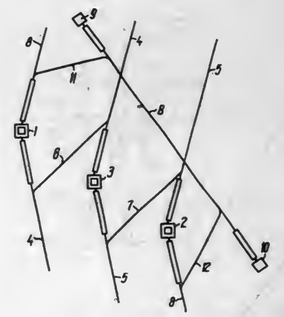


tive flange at each end of the joint which interconnects the metal casing and the outer sheath of the cables being joined.

3,544,701
SYSTEM FOR TRANSPOSING THE WIRES OF A POWER TRANSMISSION LINE, MAINLY OF A HIGH VOLTAGE POWER TRANSMISSION LINE

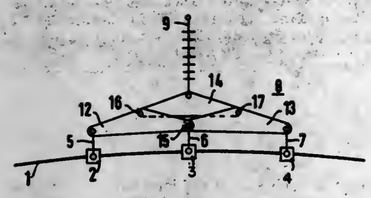
Abram Simkhovich Zelichenko, Staro-Kashirskoe shosse, 4, korpus II, kv. 51 Evgeny Arkadievich Khvoles, ulitsa Krapotkina, 34, kv. 22 and Elizaveta Alexandrovna Sokolova, ulitsa Dmitrovka, 38, kv. 21 Moscow, U.S.S.R.

Filed June 26, 1969, Ser. No. 836,856
Int. Cl. H02g *7/20*
U.S. Cl. 174—33 **4 Claims**



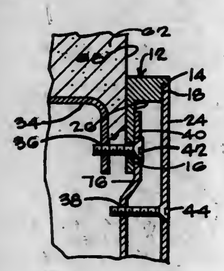
A system is provided for transposing the phases of a high voltage electrical transmission line having a horizontal arrangement of three wires mounted on respective vertical poles. For this purpose, two additional vertical poles with a phase line suspended therebetween are provided and loop connectors effect phase connection between the line and wires directly and without the employment of additional insulator strings or brackets on the poles for suspending the lines. This considerably simplifies the pole design and reduces the number of insulators. The outer vertical phase poles and the two additional verticals poles are displaced along and across the transmission line with respect to the middle vertical pole a distance sufficient for proper electrical spacing to be observed between the wires of opposite phases, the loop connectors and the poles, and the loop connectors and the ground.

3,544,702
SUSPENSION FOR OVERHEAD CABLES
Walter Philippe, 1 Waldfriedenstr. 8022, Grunwald and Walter Bueckner, Erlangen, Germany
Filed Aug. 21, 1968, Ser. No. 754,401
Claims priority, application Germany, Aug. 25, 1967, April 26, 1968, P-42,874;P-1765276.5
Int. Cl. H02g 7/00, 7/14
U.S. Cl. 174—42 12 Claims



Suspension for overhead cables includes a carrying device, and at least three individual clamps for holding the cable, the clamps being movably suspended from the carrying device and being spaced side-by-side from one another.

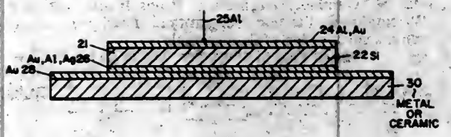
3,544,703
WALL PLATE STRUCTURE
Terry D. Jones, 4116 Sunswept Drive, Studio City, California
Continuation-in-part of application Ser. No. 668,323, Sept. 18, 1967, now pending, which is a continuation-in-part of application Ser. No. 431,034, Feb. 8, 1965, now abandoned. This application Dec. 26, 1968, Ser. No. 797,311
Int. Cl. H02g 3/14
U.S. Cl. 174—66 10 Claims



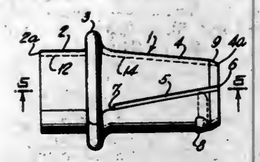
This patent describes a wall plate structure comprised of a frame with an outwardly extending peripheral flange with grooved means in front interior edge of said peripheral flange, a laterally extending flange at the back, as a part of the frame, extending to an opening, a flat plate with suitable apertures and mounting screw holes, said plate to seat in said grooved means of said outwardly extending flange, said plate being substantially flush with the front edge of said outwardly extending flange, a space provided between said plate and said laterally extending flange for mounting of devices, means attaching said plate to said devices, means for mounting said devices through said opening to box or plaster ring.

3,544,704
BONDING ISLANDS FOR HYBRID CIRCUITS
Thomas P. Glenn, Jr., Phoenix and Richard E. Shipley, Tempe, Arizona, assignors to Motorola Inc., Franklin Park, Illinois a corporation of Illinois
Filed Jan. 21, 1969, Ser. No. 792,437
Int. Cl. H05k 1/02
U.S. Cl. 174—68.5 5 Claims

A silicon bonding island connected to a gold-plated substrate is disclosed. The silicon bonding island is a silicon wafer substrate which has an upper layer of aluminum or gold to which aluminum or gold leads are connected. On the other side of the silicon substrate is a layer of gold, silver or aluminum which is bonded to a gold plated substrate.

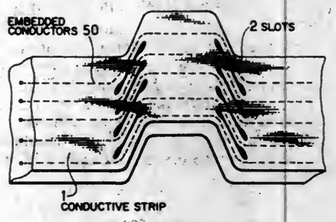


3,544,705
EXPANDABLE CABLE BUSHING
Eric Winston, Melrose Park, Pennsylvania, assignor to Jerrold Electronics Corporation, Hatboro, Pennsylvania a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,714
Int. Cl. H02g 15/02
U.S. Cl. 174—75 3 Claims



An adjustable ferrule or bushing for connection with different diameter coaxial cables having braided sheathing. A slit in the connecting body of the ferrule permits it to be expanded or contracted to fit between the dielectric and sheath of the size cable being connected. A rib or lip near the connecting extremity of the ferrule reinforces the body thereof and provides a retaining ridge across which the braid of the cable is clamped to prevent its pulling free of the ferrule.

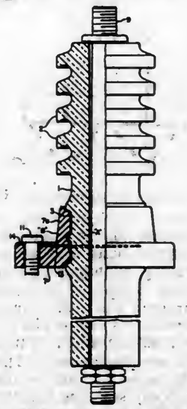
3,544,706
ELECTRICAL CONDUCTOR CONFIGURATION PROVIDING LENGTH STABLE WITH TEMPERATURE
Marcel Aupoix, Paris and Francois Moisson-Franckhauser, Bretigny-sur-Orge, France, assignors to Compagnie Generale D'Electricite, Paris, France a French corporation
Filed Dec. 28, 1967, Ser. No. 694,146
Claims priority, application France, Dec. 28, 1966, PV-89180
Int. Cl. H01v 11/02
U.S. Cl. 174—129 11 Claims



An electrical conductor, comprising a metal strip in which bending areas are formed to take up longitudinal stresses exerted on the said strip, so that the said conductor may be deformed in its plane under the action of thermal stresses without any change in length.

The metal strip has a plurality of slots. The strip may be of normal metal and within the strip can be embedded a plurality of superconductive wires.

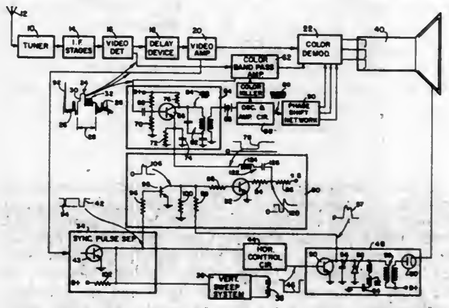
3,544,707
COMPOSITE INSULATOR SUPPORTS USING CAST RESINOUS FLANGES AND INSERTS
James R. Gamble, Greensburg, Pennsylvania, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Feb. 6, 1969, Ser. No. 797,110
Int. Cl. H01b 17/26
U.S. Cl. 174—142 8 Claims



A ceramic insulator, such as porcelain, is supported in place having a cast-in-place resinous flange, and in particular an epoxy-resin flange. To prevent the imposition of electrical stress over the surface of the cast resinous flange, in one embodiment, a conducting glaze is provided on the outer surface of the porcelain insulator. In addition, an elastic silicone adhesive layer provides a resilient interface between the porcelain surface and the surrounding resinous flange. To provide the conducting glaze at the same potential as the mounting bolts, preferably a conducting washer is connected by a wire to the conducting glaze so that no voltage stress occurs on the surface of the resinous flange.

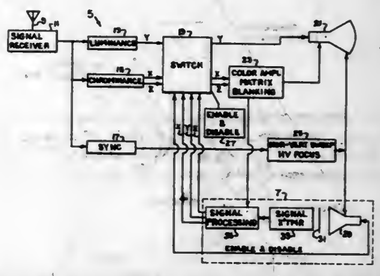
In another embodiment of the invention, instead of a silicone adhesive, layers of woven glass tape, or silicone rubber tape, are wound about the outer surface of the insulator, and then the epoxy, or other resin flange is cast in place over the glass tape layers or silicone rubber tape. The glass tape, or rubber tape layers provide the desired ability to withstand thermal cycling throughout the life of the insulator.

3,544,708
COLOR BURST SEPARATOR SYSTEM
Mel E. Buechel, Chicago, Illinois, assignor to Motorola, Inc., Franklin Park, Illinois a corporation of Illinois
Filed Dec. 1, 1967, Ser. No. 687,382
Int. Cl. H04n 9/46
U.S. Cl. 178—5.4 10 Claims



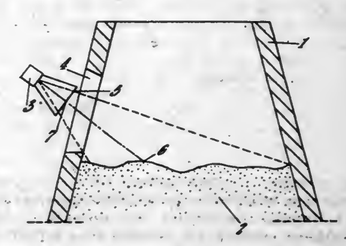
The system includes a gating circuit for translating the burst portion of the composite color signal. The gate pulse for the gating circuit is derived by utilizing both the horizontal synchronizing pulse which has a fixed time relationship with the burst, and the horizontal flyback pulse.

3,544,709
DC RESTORATION AND GAMMA CORRECTION SYSTEM
Robert Roy Eckenbrecht, East Bethany and George Cleveland Waybright, Batavia, New York, assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed April 26, 1968, Ser. No. 724,368
Int. Cl. H04n 9/02, 7/00
U.S. Cl. 178—5.4 14 Claims



In an integrated electrical to optical and optical to electrical signal transducer system, the optical to electrical portion includes an automatic brightness control system and d.c. restoration and gamma correction circuitry having a common reference potential level. The automatic brightness control system develops feedback control signals in response to the magnitude of video signals to vary the intensity of the electron beam and light emitted by a flying spot scanner tube whereby the video signals are developed. Also, the common reference potential level of the d.c. restoration and gamma correction circuitry not only provides a common reference for a plurality of channels eliminating tracking problems, but also provides a uniform level of signal for application to the gamma correction means virtually eliminating adjustments therein.

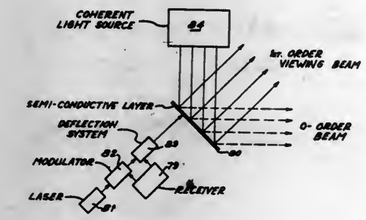
3,544,710
METHOD OF CONTROLLING THE OPERATION OF A SHAFT FURNACE
Arthur Poos, Embourg, Belgium, assignor to Centre National De Recherches Metallurgiques, Brussels, Belgium a Belgian Body Corporate
Filed Sept. 11, 1967, Ser. No. 666,869
Claims priority, application Belgium, Sept. 12, 1966, 51941
Int. Cl. H04n 7/02
U.S. Cl. 178—6 7 Claims



A method of controlling the operation of a shaft furnace in which the upper surface of the charge is scanned by a television camera sensitive to infrared radiation which transmits the signals and coordinates of the signals to a computer for measurement and display to show temperature distribution

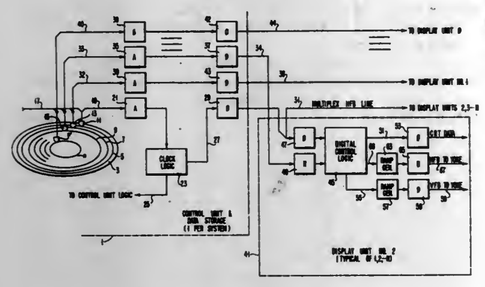
over the upper surface. A further feature provides measurement of the distance of each point relative to the camera, giving a three-dimensional picture of the charge and knowledge of the temperature at each point.

3,544,711
THREE-DIMENSIONAL DISPLAY SYSTEM EMPLOYING OPTICAL WAVEFRONT RECONSTRUCTION
Dominick John DeBitetto, Briarcliff Manor, New York, assignor to U.S. Philips Corporation, New York, New York a corporation of Delaware, by mesne assignment
Filed Oct. 22, 1965, Ser. No. 501,193
Int. Cl. H04n *9/00, 9/02, 9/54*
U.S. Cl. 178—6.5 **13 Claims**



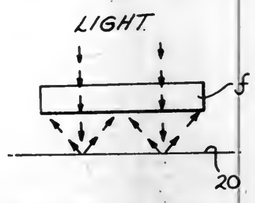
A receiver for information signals representing holograms, utilizing either a cathode ray tube or a sheet of semiconductor material capable of being reflectance modulated in accordance with the incoming signal. The radiation from a coherent light source is projected through said tube or semiconductor to recreate the originally viewed scene in three dimensions.

3,544,712
MULTIPLEXED DIGITAL FLYBACK CONTROL OF CRT DISPLAYS
Lester R. Adams, Saratoga; Kenneth G. Beaman, Sunnyvale; Louis E. Handloff; Theodore P. Harley and John F. Kevill, San Jose, California, assignors to International Business Machines Corporation, Armonk, New York a corporation of New York
Filed Oct. 4, 1967, Ser. No. 672,873
Int. Cl. H04n *3/16*
U.S. Cl. 178—6.8 **7 Claims**



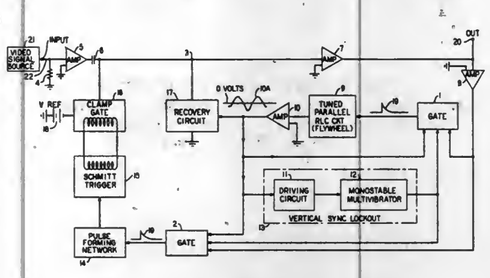
Means to effect absolute control of a multiplicity of cathode-ray tube (CRT) display units from external storage, by using information recorded on said external storage as a system oscillator; means being provided at each CRT display unit to utilize said recorded information to operate horizontal and vertical flyback and simultaneously block CRT display data; said means allowing the use of a common horizontal flyback line from said external storage for synchronizing all CRT's and a simplex data line from said external storage to each CRT for providing video data and vertical flyback.

3,544,713
SOLID STATE ELECTRO-OPTICAL CONTACT SCANNER
Bernard Case, Tarzana and Wilfried H. Hell, Woodland Hills, California, assignors to The Marquardt Corporation, Van Nuys, California a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,912
Int. Cl. H04n *3/12*
U.S. Cl. 178—7.1 **27 Claims**



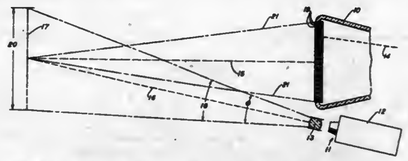
The solid state scanner can be employed in a number of optical transducing applications, such as facsimile scanning, optical character reading, photographic scanning, etc. It has a contact sensing head comprised of a plurality of sensing elements, each comprising a partially transparent photoconductor. The photoconductors can be placed closely adjacent to the images to be read and a light is transmitted through the photoconductors towards the image. The amount of light reflected from the image to each of the sensing elements is obtained by electronically scanning the elements and comparing their output with a reference element which views a white portion of the same type of paper on which the image is printed. Contact with the photoconductors can be obtained from conductors located on opposite edges of the sensing element or with transparent conductors covering the two surfaces of the photoconductor elements.

3,544,714
SYNCHRONOUS VIDEO CLAMPER WITH GATING MEANS TO MINIMIZE NOISE INTERFERENCE
Eric D. Stoll, Piscataway, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed Nov. 7, 1967, Ser. No. 681,289
Int. Cl. H04n *5/18*
U.S. Cl. 178—7.3 **5 Claims**



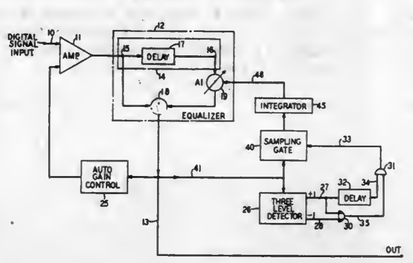
A synchronous video clamping circuit which minimizes the possibility of clamping error under severe impulse noise conditions. Incoming synchronizing pulses drive a resonant RLC circuit which provides a gating signal and, in turn, operates through two gates to control both the clamping operation and its own excitation. The gates are enabled when the positive peak of the resonant circuit signal and the incoming synchronizing pulse occur simultaneously. All noise pulses occurring outside of the gating interval formed by the resonant circuit signal are completely blocked out.

3,544,715
TELEPHONE-TELEVISION SUBSTATION APPARATUS
Donald R. Herriott, Morris Township, Morris County and Kenneth M. Poole, Bernardsville, New Jersey, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed July 25, 1967, Ser. No. 655,934
Int. Cl. H04n *5/72*
U.S. Cl. 178—7.85 **7 Claims**



The face plate of the kinescope tube of a telephone-television substation comprises an array of optic fibers each having an inner transparent portion surrounded by an outer light filtering portion. The central axes of the fibers approximately intersect the optic axis of the substation camera tube at a viewing plane. The refractive indices of the two portions are tailored to restrict the light output of each fiber to a region within the field of view of the camera tube. In order to see the kinescope display, the viewer must then locate his eyes within the field of view of the camera tube.

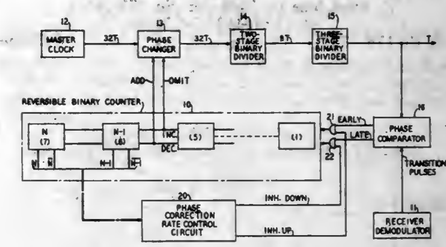
3,544,716
ADAPTIVE EQUALIZATION OF A DIGITAL COMMUNICATION SYSTEM
Peter A. Franaszek, Middletown, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed June 28, 1968, Ser. No. 741,181
Int. Cl. H04b *3/14*
U.S. Cl. 178—69 **6 Claims**



In the disclosed system, logic circuitry selects a predetermined pulse combination in the received data signal. Error signals are derived from amplitude samples of the pulses in the selected pulse combination. These error signals are then collected to produce a control signal for the equalizer circuit. Because a specific pulse combination is selected, it is not necessary to perform a cross-correlation process or to determine the error at each level of the data signal.

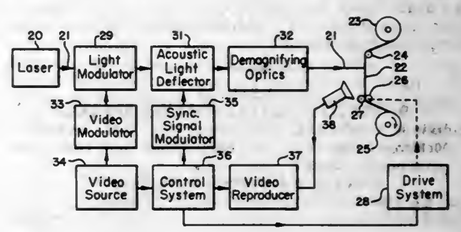
3,544,717
TIMING RECOVERY CIRCUIT
Larrabee M. Smith, Holmdel, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed Oct. 18, 1967, Ser. No. 676,292
Int. Cl. H04l *7/00*
U.S. Cl. 178—69.5 **8 Claims**

The phase of a locally generated square wave timing signal is compared to that of a received digital data bit stream which typically experiences short-term time or phase changes; the result of this comparison is used to rapidly change the phase of the timing signal to maintain the same in phase alignment with the received bit stream. However, in



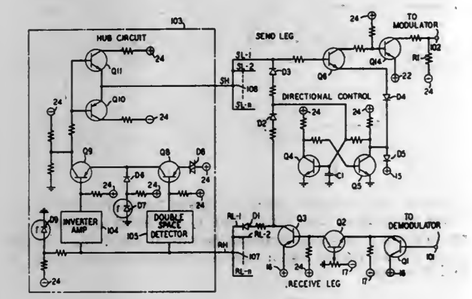
response to successive phase changes in the same direction, a phase correction control circuit is rendered operative to restrict to a preselected amount the rate at which the average phase of the timing signal may be changed continuously in said direction.

3,544,718
VIDEO PLAYBACK SYSTEMS
Robert Adler, Northfield, Illinois, assignor to Zenith Radio Corporation, Chicago, Illinois a corporation of Delaware
Filed Nov. 13, 1967, Ser. No. 682,455
Int. Cl. H04n *5/04*
U.S. Cl. 178—69.5 **14 Claims**



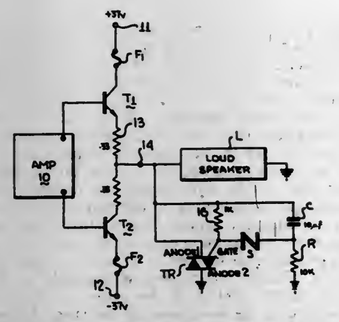
A video-playback system utilizes a vertically moving strip on which has been recorded a succession of horizontal lines each representing a scansion of video information. The system includes a collimated beam of coherent optical radiation which is focused upon the strip. A deflector causes repetitive horizontal deflection of the beam. A detector responds to a portion of the radiation either reflected from or transmitted through the strip and develops a control signal that has a component proportional to an effect, of information recorded on the strip, upon the radiation. Another developed signal is indicative of the movement of the beam during the deflection action. The control signal and that other signal are compared in order to develop an error signal which is proportional in turn to differences between those two signals. Finally, control means responds to the error signal and effects control of the action of the deflection means relative to the movement of the strip. As disclosed, the foregoing constitutes synchronizing and scanwidth control apparatus in an overall system in which, to effect recording upon the strip, the light beam is modulated in response to video picture information, deflected in response to video synchronizing signals and imaged upon the strip to effect recording of a succession of horizontal lines. On playback of the information recorded on the strip, the detector yields video picture and synchronizing signals which are fed to a video reproducer such as a television receiver.

3,544,719
DIRECTIONAL CONTROL CIRCUIT FOR HUB TYPE DATA REPEATER
Heinz Kahlbrock, Edison, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed June 14, 1968, Ser. No. 737,165
Int. Cl. H04l 25/24, 25/60
U.S. Cl. 178—73 8 Claims



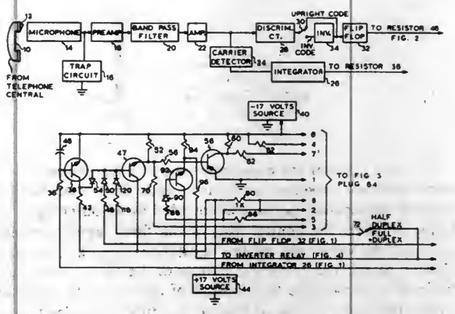
Hub repeater directional control circuits normally function to block the application of signals from the hub to any line circuit which is sending into the hub. The control circuit then restores when the incoming signals terminate. The present circuit does not start to restore until the hub ceases to apply signals to the sending leg of the line circuit, thereby accounting for the inherent delay of the hub repeater. Also featured is a double space detector which, when two or more line circuits concurrently send to the hub, operates to override the directional control circuit.

3,544,720
PROTECTIVE CIRCUIT FOR LOUDSPEAKER
Sidney A. Corderman, Binghamton, New York, assignor to McIntosh Laboratory, Inc., Binghamton, New York a corporation of Delaware
Filed March 26, 1969, Ser. No. 810,706
Int. Cl. H04r 3/00; H02h 3/20; G05f 1/60
U.S. Cl. 179—1 7 Claims



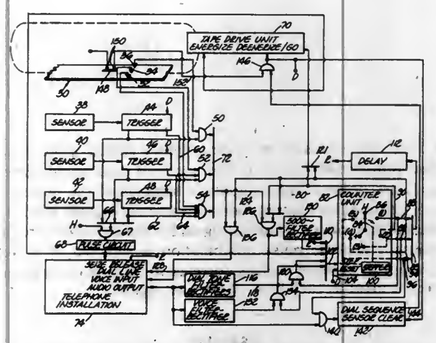
A protective circuit for a transistor power amplifier which connects both positive and negative voltages directly to a loudspeaker, in which a voltage sensitive bilateral switch is connected to the speaker terminal in series with an a.c. filter, to act as a switch, sensitive to voltage of either polarity above a predetermined value, and which when fired fires a triac connected directly across the speaker.

3,544,721
TELETYPE COMMUNICATION SYSTEM
John Van Geen, Sunnyvale, California, assignor to Stanford Research Institute, Menlo Park, California a corporation of California
Filed Feb. 27, 1967, Ser. No. 618,945
Int. Cl. H04m 11/06
U.S. Cl. 179—2 5 Claims



A teletype communication system is provided which converts teletype signals into signals shifted between two specified frequencies which represent characters being transmitted. These are transmitted over a telephone line. At the receiver, the received signals are converted into signals suitable for actuating a teleprinter. Acoustic coupling for transmission and reception is employed between the terminal apparatus and the telephone headsets. Provision is made to eliminate noise effects upon transmission and reception and carrier ripple effects upon reception.

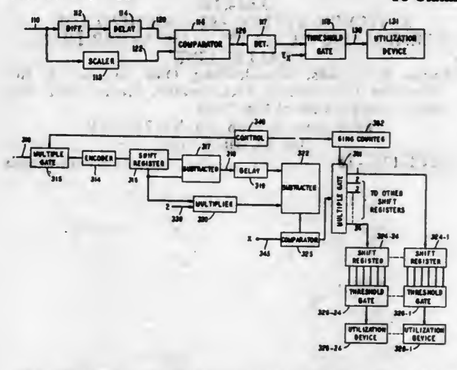
3,544,722
SECURITY SYSTEM
Thomas C. Hartfield; Erich F. Feigl and Richard L. Davis, Los Angeles, California, assignors to Computer Security Systems, Los Angeles, California a limited partnership
Filed Sept. 8, 1967, Ser. No. 666,312
Int. Cl. H04m 11/04
U.S. Cl. 179—5 6 Claims



The disclosed system is for summoning assistance and operates in conjunction with a conventional telephone station. The system includes a loop of magnetic recording medium divided into a plurality of parallel channels and a plurality of sequential sections. One of several sensor units initiates operation of the system and additionally controls the system to selectively sense a particular recording channel to summon a particular type of assistance.

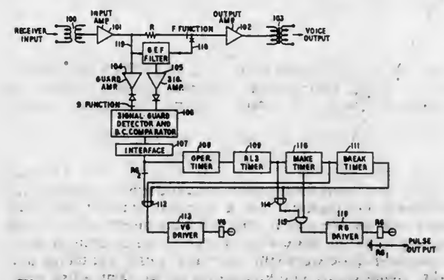
In this regard, one channel may be employed for signals to summon the fire department while signals recorded in another channel serve to summon the police and so on. The system also incorporates means for verifying the fact that the message has been communicated. Specifically, means are provided for: verifying the occurrence of a dial tone before supplying dialing signals; verifying communication with the desired station before providing the message to summon help; and verifying receipt of the message requesting assistance. Still further, this system incorporates structure for dialing secondary sources of help if communication is not established with the primary.

3,544,723
TONE DETECTOR
Ralph N. Battista, Colts Neck, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed Nov. 29, 1968, Ser. No. 779,856
Int. Cl. H04m 1/50
U.S. Cl. 179—15 16 Claims



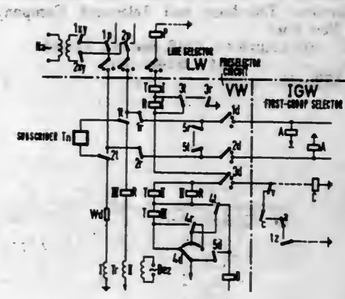
An inband tone signal detector is described in which an incoming signal is compared to its derivative after the derivative is delayed for a fixed time. The result of the comparison is evaluated to detect the occurrence of only the tone signal in the incoming signal. The detector operates on the principle that only the derivative of a sinusoid signal delayed for one-quarter-cycle of the sinusoid frequency is directly proportional to the sinusoid.

3,544,724
PULSE CORRECTING SINGLE FREQUENCY SIGNALING RECEIVER
Frank L. Pento, Colts Neck, New Jersey, assignor to Bell Telephone Laboratories, Inc., Murray Hill, New Jersey a corporation of New York
Filed Sept. 27, 1968, Ser. No. 763,077
Int. Cl. H04g 1/36; H04b 1/10
U.S. Cl. 179—16 11 Claims



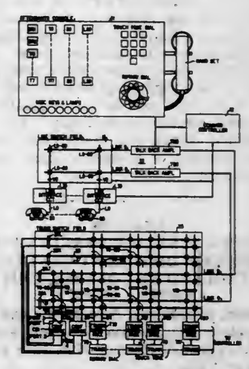
The two-speed pulse corrector circuit of a single-frequency signaling receiver employs a dual purpose sequential logic circuit in lieu of a memory system to provide for both pulse correction and for the processing of steady state supervisory signals.

3,544,725
EXCHANGE ARRANGEMENT PERMITTING TEMPORARY CALL SUSPENSION FOR ACCEPTANCE OF A NEW CALL
Hans Baur; Peter Gerke; Gerhard Rolle, Krailling; Karl Rutkowski, Pullach and Siegfried Zahlhaas, Munich, Germany, assignors to Siemens Aktiengesellshaft, Berlin and Munich, Germany
Filed Sept. 26, 1967, Ser. No. 670,629
Claims priority, application Germany, Sept. 29, 1966, S106239
Int. Cl. H04m 3/42
U.S. Cl. 179—18 14 Claims



A telephone exchange installation with subscriber stations for notifying subscribers participating in an original call connection of the receipt of a new call connection demand. The new call connection is completed in an intermediate answer connection which permits an original subscriber to accept the new call while the original call connection is preserved in an open circuit condition to be reestablished upon termination of the intermediate answer condition.

3,544,726
CONFERENCE SWITCHING SYSTEM
Berry J. Wimberly, Falls Church, Virginia, assignor to American Telephone and Telegraph Company, New York, New York, a corporation of New York
Filed Feb. 26, 1968, Ser. No. 708,390
Int. Cl. H04m 3/42
U.S. Cl. 179—18 21 Claims



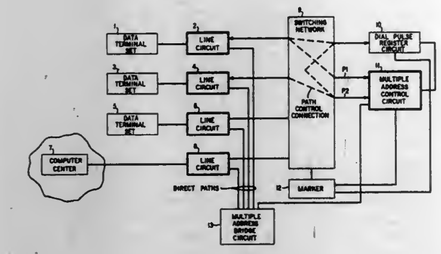
A communication switching system is arranged to conference a group of line circuits and one trunk circuit via a common bus. Additional trunks may be added to the con-

ference by connecting one terminal of a bridge circuit to the common bus while connecting a second terminal of the bridge to another bus associated with the common bus. The connection of the bridge circuit with the common bus automatically transfers the previously connected trunk circuit to the other bus, thereby interposing the bridge circuit into the conference connection between the trunk and the common bus. Echo suppression circuitry, individual to each terminal of the bridge circuit, is inhibited upon the connection of a trunk circuit which does not require external echo suppression.

3,544,727
ARRANGEMENT FOR ESTABLISHING CONFERENCE CONNECTIONS IN COMMUNICATION SWITCHING SYSTEMS

William W. Sloan, Concord; Michael J. Sturtevant, Berkeley and Kenneth R. Walters, Pleasant Hill, California, assignors to American Telephone and Telegraph Company, New York, New York

Filed April 16, 1968, Ser. No. 721,661
Int. Cl. H04m *3/56*
U.S. Cl. 179—18 **6 Claims**



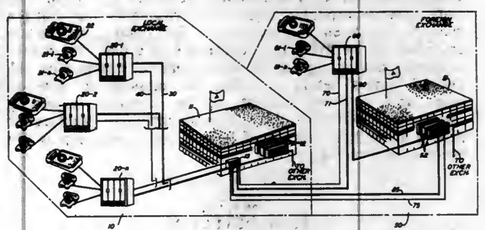
In a communication switching system all connections are normally established through links set up in a switching network. We disclose a conference bridge circuit arrangement wherein the line circuits in addition to being connected to appearances on the switching network are also connected directly to ports of the bridge circuit. A bridge control circuit is seized through a network path by an originating station and it in turn establishes successive temporary control connections to the desired line circuits. Each successive line circuit is then controlled to release the network path through to the bridge control circuit and instead to enable the direct path to the assigned port of the bridge circuit. The bridge control circuit further controls the establishment of the necessary successive connections of the register circuit through the bridge control circuit to the originating station and the establishment of a communication path for the originating station to a port of the bridge circuit. Accordingly, only one network path is maintained during the conference connection regardless of the number of stations connected to the conference bridge circuit.

3,544,728
PBX TELEPHONE SYSTEM WHEREIN SWITCH UNITS SERVED THROUGH DIFFERENT CENTRAL OFFICES ARE CONTROLLED BY CONTROL UNIT AT ONE CENTRAL OFFICE

Dennis L. Rodkin, Piscataway, New Jersey and Laurance A. Weber, Wheaton, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey, a corporation of New York

Filed May 13, 1968, Ser. No. 728,566
Int. Cl. H04m *7/14*
U.S. Cl. 179—18 **10 Claims**

A switching arrangement for a communication system is described which permits private branch exchanges (PBX's)

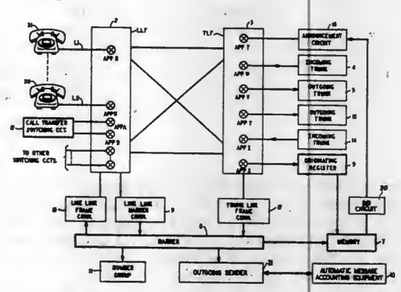


served through a central office in one exchange area to be controlled by facilities in a remote exchange area.

3,544,729
SWITCHING SYSTEM ARRANGEMENT FOR TERMINATING A CALL TO A LINE OTHER THAN A CALLED LINE

Thomas R. Stevens, Reynoldsburg, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York

Filed June 18, 1968, Ser. No. 737,923
Int. Cl. H04m *3/54*
U.S. Cl. 179—18 **13 Claims**



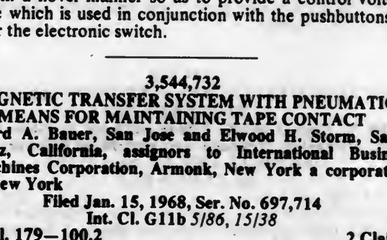
A switching system is arranged to transfer calls incoming to selected subscriber lines to any other telephone location arbitrarily preselected by the called subscriber. Control circuitry including a central memory is utilized to inhibit the completion of a call to a line which is to be afforded transfer service and to establish an alternate connection to the preselected other telephone location via an idle auxiliary switching circuit which is not directly associated with the originally called line. The called subscriber's line remains free at all times for the origination of outgoing calls; for the concurrent transfer of all incoming calls; and for the receipt of an audible announcement indicating that a transfer is in progress and the directory number of the transfer line.

3,544,730
TRUNK SIGNALLING AND SUPERVISION CONTROL

Brian E. Voss, Georgetown, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed July 5, 1968, Ser. No. 742,925
Int. Cl. H04m *7/06*
U.S. Cl. 179—18 **6 Claims**

This disclosure relates to an outgoing trunk signalling and supervision arrangement for a common control switching system wherein the sender does not have direct access to the outgoing trunk but instead has access to an originating junctor positioned between the line and trunk switching networks. Signalling in such a system is provided by a first relay positioned in the originating junctor for connecting the sender to the outgoing trunk through the trunk switching network and for holding the trunk switching network and the outgoing trunk. A second relay is positioned in the outgoint trunk which is responsive to the release of the sender



when the required digits have been outpulsed for holding the trunk switching network and the trunk and for connecting the talking and supervisory path to the distant office.

3,544,731
PUSHBUTTON DIAL TELEPHONE SET

Michael C. J. Cowpland, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed March 24, 1969, Ser. No. 809,632
Int. Cl. H04m *1/50, 1/00*
U.S. Cl. 179—84 **4 Claims**

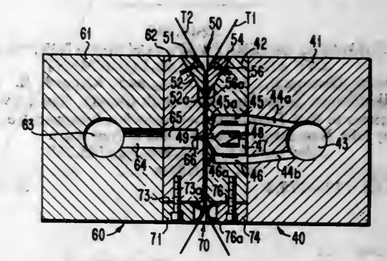
A simple electronic switch is used to directly replace a corresponding mechanical common switch in a pushbutton dial telephone set. And, the conventional circuit associated with the telephone set is modified by the addition of a single resistor in a novel manner so as to provide a control voltage source which is used in conjunction with the pushbuttons to trigger the electronic switch.

3,544,732
MAGNETIC TRANSFER SYSTEM WITH PNEUMATIC MEANS FOR MAINTAINING TAPE CONTACT

Richard A. Bauer, San Jose and Elwood H. Storm, Santa Cruz, California, assignors to International Business Machines Corporation, Armonk, New York a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,714
Int. Cl. G11b *5/86, 15/38*
U.S. Cl. 179—100.2 **2 Claims**

A magnetic transfer system that transfers a magnetic image from a high coercivity master tape to a lower coercivity slave tape by passing them through a changing magnetic transfer field with the tapes having a pressure contact therebetween while traveling through the field. The pressure is provided by fixed and movable heads that expel air toward the two tapes. The transfer magnet is in the fixed head and the air is expelled through two rows of holes on either side of the magnetic air gap. A pneumatic system is employed to latch the

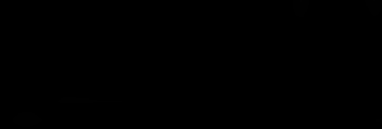


movable head into a fixed position. A pressure chamber is formed by the two heads with a check valve forming the entrance of the tape into the chamber and another check valve forming the exit of the tape from the chamber.

3,544,733
ELECTROSTATIC ACOUSTIC TRANSDUCER

Robert S. Reylek, St. Paul and Frederick W. Zachau, Oakdale Township, Washington County, Minnesota, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minnesota a corporation of Delaware

Filed June 15, 1967, Ser. No. 646,219
Int. Cl. H04r *19/00*
U.S. Cl. 179—111 **11 Claims**

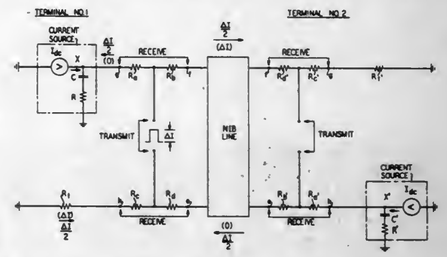


A multilayer electrostatic transducer in the form of a pliable unitary structure for use in a fluid atmosphere having alternate relatively thin flexible conductive layers and relatively thin electrically leaky flexible dielectric layers which entrap relatively large bubbles of fluid between each conductive and dielectric layer is shown.

3,544,734
NEGATIVE IMPEDANCE BOOSTED TRANSMISSION SYSTEM

Larned A. Meacham, Bainbridge Island, Washington, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York

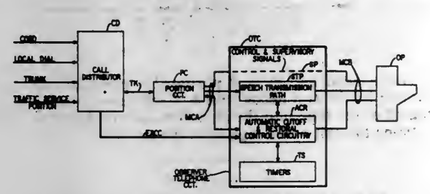
Filed Dec. 13, 1968, Ser. No. 783,513
Int. Cl. H04b *3/16, 3/36*
U.S. Cl. 179—170 **6 Claims**



A two wire negative impedance boosted transmission system capable of simultaneous transmission in either

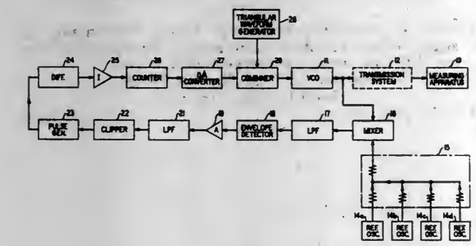
direction wherein identical constant current sources are symmetrically placed at each terminal so as to supply constant bias current to the negative impedance booster units without interfering with the hybrid balance at the terminals.

3,544,735
AUTOMATIC OBSERVER SPEECH MONITORING CUT OFF AND RESTORAL EQUIPMENT
Edward Olszewski, Fair Haven, and Richard R. Plum, Middletown Township, Monmouth County, New Jersey, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed Dec. 12, 1968, Ser. No. 783,250
Int. Cl. H04m 3/22
U.S. Cl. 179—175.2 20 Claims



A service observer telephone circuit is disclosed for controlling a speech transmission path and a path for transmitting control and supervisory signals from a call distributor through a position circuit toward an observer position. The telephone circuit is equipped for automatically disabling, or cutting off, a service observer's ability to monitor customer-to-customer conversations on the speech path during observed calls and for automatically restoring the monitoring ability upon changes in call supervision. A pair of timers control the speech cutoff and key controlled switching apparatus selectively recycles the timers to delay the automatic cutoff.

3,544,736
BROADBAND TRANSMISSION TESTING APPARATUS
William A. Bruwer, Jr., Greensboro, North Carolina, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey a corporation of New York
Filed Jan. 7, 1969, Ser. No. 789,444
Int. Cl. H04b 3/46
U.S. Cl. 179—175.3 7 Claims

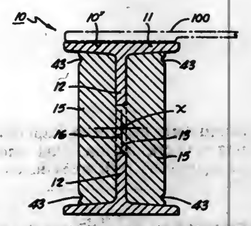


Apparatus for suppressing the energy in predetermined bands of the signal frequency spectrum of a sweep frequency generator, used for testing transmission systems, is disclosed. Selective energy suppression is accomplished by adding a staircase waveform to a triangular waveform used to drive a sweep frequency generator. The resulting discontinuities in the composite waveform, which are precisely situated by the use of stabilized oscillators, increase the sweep speed in the selected frequency bands and thereby substantially decrease the energy content of said bands.

ERRATUM

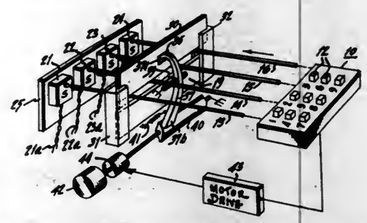
For Class 191—40 see:
Patent No. 3,543,893

3,544,737
MULTI-METALLIC RAIL DEVICE AND PROCESS
Thomas A. Nowak, Veradale, Washington, assignor to Kaiser Aluminum & Chemical Corporation, Oakland, California a corporation of Delaware
Continuation-in-part of application Ser. No. 666,654, Sept. 11, 1967, now abandoned. This application July 5, 1968, Ser. No. 742,586
Int. Cl. B60m 1/30; B22d 11/00; F01b 5/10
U.S. Cl. 191—22 13 Claims



This invention relates to an improved multimetallic rail device wherein the different metal components making up the rail device are permanently secured together in intimate interfacial and electrical contact.

3,544,738
MOMENTARY RETAINING TRANSLATION MEANS FOR MULTIPLE SWITCHES
Kenneth C. Gaspar, Canoga Park, California, assignor to RCA Corporation, a corporation of Delaware
Filed March 27, 1968, Ser. No. 716,626
Int. Cl. H01h 9/26
U.S. Cl. 200—5 4 Claims

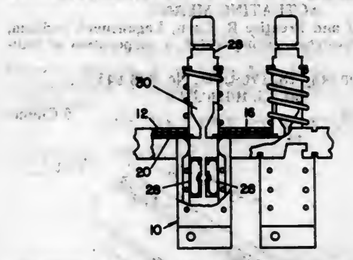


A keyboard having a system for translating key movements into coded electrical signals by selective operation of a plurality of electrical switches and incorporating a clamping apparatus for the switch actuating devices to momentarily retain a switch actuated state of the devices to insure an accurate switch readout.

3,544,739
LOCKOUT MEANS FOR GANGED MODULAR PUSH BUTTON SWITCHES
Pradip N. Shah, Chicago, Illinois, assignor to Globe-Union Inc., Milwaukee, Wisconsin a corporation of Delaware
Filed May 12, 1969, Ser. No. 823,705
Int. Cl. H01h 9/26
U.S. Cl. 200—5 10 Claims

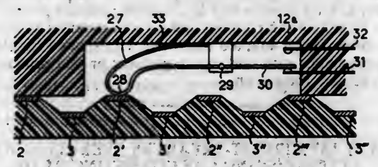
Lockout means for a ganged modular, pushbutton switch including latch segments which are disposed between adjacent pushbutton slider bars and cooperate with a cam arrangement associated with each slider bar to limit the actuating movement of the slider bars, when two or more slider bars are depressed simultaneously, thereby preventing the inadvertent actuation of two or more switch modules at the same time. In an alternate embodiment, the slider bar cams are contoured so that any number of push-push type switch

slider bars can be depressed before any previously depressed slider bars have to be released. And another alternate em-



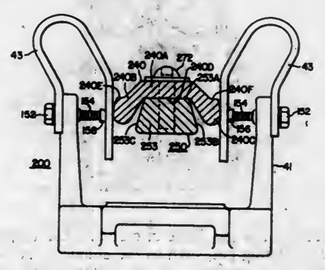
bodiment, the slider bar cams are contoured so that push-push type switch slider bars must be depressed and released in a sequential order.

3,544,740
TRACK PROVIDING A BIPOLAR CONTACT THROUGHOUT ITS SURFACE AND SLIDING CONTACT-PIECES THEREFOR
Claude M. Robin, 20 rue Garibaldi, Eaubonne, France
Filed July 31, 1968, Ser. No. 749,027
Claims priority, application France, Aug. 3, 1967, 116,813
Int. Cl. H01h 15/00
U.S. Cl. 200—16 5 Claims



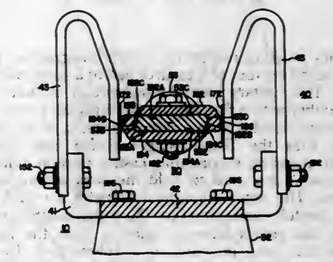
A track including parallel conductive strips over which an insulating slider carrying contact pieces is adapted to slide to feed with d.c. a circuit incorporated with a toy vehicle or the like movable part carried by the slider. The contact pieces are associated with switching means in a manner such as to always feed current of the same polarity into the circuit. This is obtained by distributing the conductive strips alternatingly at two different levels or by making them alternatingly magnetic and nonmagnetic or again by inserting each strip between diodes of the same polarity.

3,544,741
ELECTRIC SWITCH HAVING IMPROVED BLADE CONSTRUCTION
Edmund W. Kuhn, Pittsburgh, Pennsylvania, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Jan. 9, 1969, Ser. No. 790,078
Int. Cl. H01h 31/00
U.S. Cl. 200—48 10 Claims



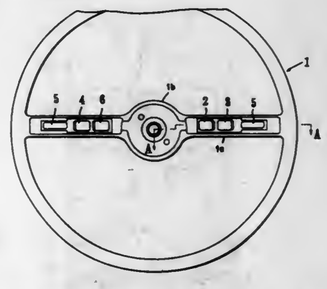
An electric switch comprising a switch blade movable between open and closed positions with respect to a relatively stationary contact means with a portion of said blade being formed from aluminum and a portion of said blade being formed from an electrically conducting material other than aluminum.

3,544,742
ELECTRIC SWITCH HAVING IMPROVED BLADE CONSTRUCTION
Russel E. Frink, Pittsburgh, Pennsylvania, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Jan. 9, 1969, Ser. No. 790,088
Int. Cl. H01h 31/00
U.S. Cl. 200—48 7 Claims



An electric switch comprising a switch blade movable between open and closed positions with respect to a relatively stationary contact means with a portion of said blade being formed from aluminum and a portion of said blade being formed from an electrically conducting material other than aluminum.

3,544,743
PRINTED CIRCUIT CONTROL PANEL FOR A VEHICULAR STEERING MECHANISM
Kazuhiro Takei, No. 3 Awa-machi, Hagashi-ku, Nagoya and Isamu Asano, No. 1-6, Takanawate, Yahagi-cho, Okazaki, Japan
Filed Jan. 30, 1969, Ser. No. 795,174
Claims priority, application Japan, Feb. 10, 1968, 43/8450
Int. Cl. H01h 9/00
U.S. Cl. 200—61.54 7 Claims

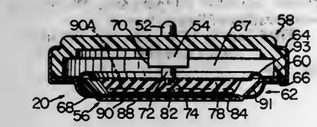


A plurality of printed circuits mounted on a circuit board which in turn is mounted on a section of a vehicular steering wheel, each individual circuit being electrically connected to contacting elements that eventually lead to such electrically actuatable devices as a horn, a blinking turn signal indicator, an overdrive mechanism, and a light dimmer unit. Manually operable electrical pushbutton switches are also mounted on the same portion of the steering wheel and arranged so that each switch when operated completes a corresponding one of the electrical circuits which in turn actuates a corresponding one of the electrically actuable devices.

3,544,744
DOUBLE DIAPHRAGM PRESSURE RESPONSIVE SWITCH CONSTRUCTION

Edward L. Bello, Indiana, Pennsylvania, assignor to Robertshaw Controls Company, Richmond, Virginia a corporation of Delaware

Filed June 14, 1968, Ser. No. 736,999
Int. Cl. H01h 35/34
U.S. Cl. 200—83 16 Claims

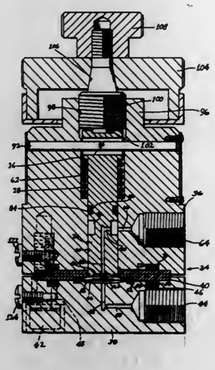


A unitary pressure responsive switch construction may be mounted at the bottom of a control bell of a sump pump construction. This unitary switch construction includes a first casing member with a flat diaphragm engaging portion and a second casing member with a clamping rim in telescoping engagement with the first casing member and having a diaphragm engaging second flat casing portion. These flat casing portions are used to hold the rims of two adjacent diaphragms. The inner diaphragm actuates a switch means inside the switch casing whereas the outer diaphragm is exposed to, and resists adverse reaction from the liquid or sewage in the sump in which it is submerged. The outer diaphragm may have an aluminum disk bonded to the inner surface of said outer diaphragm. Alternatively or additionally, the outer diaphragm is held in closed relationship with the lower casing part by a lip on the outer diaphragm which prevents any silt or sewage from entering into the main part of the casing. The unitary pressure responsive switch construction may be assembled at the factory and may be inserted and clamped at the bottom of the control bell, so that the diaphragm portions are submerged in the liquid of the sump with the outer diaphragm protecting the inner diaphragm from the harmful effect of the liquid or sewage.

3,544,745
SENSOR

Wainwright Tuttle, Cincinnati, Ohio, assignor to Spati Industries Inc., Covington, Kentucky a corporation of Kentucky

Filed Aug. 20, 1968, Ser. No. 753,944
Int. Cl. H01h 35/40
U.S. Cl. 200—83 6 Claims

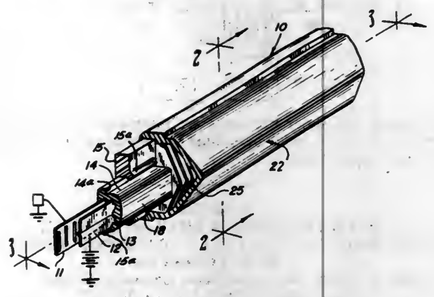


Device for sensing very small changes in fluid pressure or quantity including a pair of electrical contacts, one of the contacts being adjustably fixed and the other of the contacts being carried by a very thin, light weight, resilient member separating a fluid at a fixed pressure or quantity from the fluid where change is to be detected.

3,544,746
ELONGATED SWITCH HAVING SPACED RIB ACTUATING MEANS

Walter A. Wolf and Prentice R. Corn, Logansport, Indiana, assignors to Switches, Incorporated, a corporation of Indiana

Filed May 28, 1969, Ser. No. 828,641
Int. Cl. H01h 3/14
U.S. Cl. 200—86 5 Claims

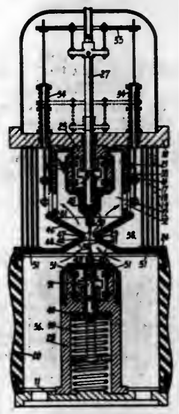


This invention relates to an electrical switch which includes a pair of resilient metal contact strips mounted in parallel spaced relationship in a hollow resilient primary casing to form a switch element and a cover member in the form of a resilient shell adapted internally with spaced rib element for engagement with said switch element or said primary casing to actuate the switch.

3,544,747
GAS-BLAST CIRCUIT-BREAKERS OPERATING WITH EXTINGUISHING GAS CONSISTING OF OR COMPRISING A FLUORINATED COMPOUND

Rintje Boersma, Harmelen, Netherlands, assignor to N.V. "CO2", Utrecht, Netherlands a Dutch limited liability company

Filed Dec. 15, 1967, Ser. No. 691,012
Claims priority, application Netherlands, Dec. 28, 1966,
Int. Cl. H01n 33/60
U.S. Cl. 200—148 1 Claim

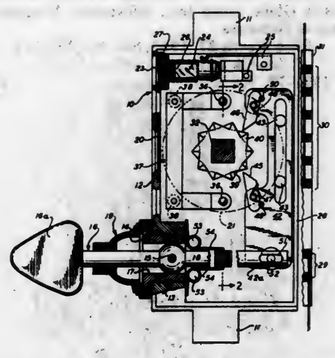


The portions of a gas blast circuit breaker employing a fluorinated insulating gas, such as the contacts and parts adjacent thereto and surfaces of the extinguishing chamber, which are disposed in close adjacency to the arc produced by opening the contacts, are made of a sintered tungsten-nickel alloy consisting essentially of from 95—99.7 percent tungsten and the balance nickel. These portions are also coated in part with carbon.

3,544,748
REVERSIBLE STEPPING SWITCH

Pierre P. Schwab, River Edge, New Jersey, assignor to McGraw-Edison Company, Elgin, Illinois a corporation of Delaware

Filed May 7, 1969, Ser. No. 822,642
Int. Cl. H01h 3/34
U.S. Cl. 200—156 5 Claims

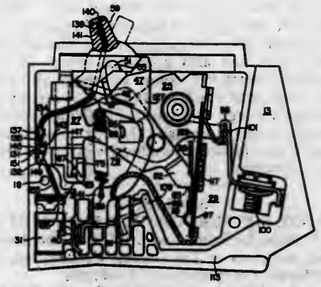


A reversible stepping switch has a reciprocable slide plate carrying right- and left-hand pawls for engaging respective right- and left-hand ratchet wheels to step the switch in either direction as the slide plate is shifted in either direction from a midposition. A window in the front wall of the switch housing permits the user to view the switch positioning on a readout drum connected to the switch rotor. A manual lever for stepping the switch in either direction as the lever is shifted in one direction or the other from a neutral position is coupled to an extending end portion of the slide plate permitting the lever to be spaced sufficiently from the readout window to permit the lever to be manipulated without the hand obstructing the view through the window.

3,544,749
CIRCUIT INTERRUPTER WITH ILLUMINATED HANDLE

Gerald J. DeAngelo, Monroe, Connecticut, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania

Filed March 25, 1968, Ser. No. 715,789
Int. Cl. H01n 9/18
U.S. Cl. 200—167 14 Claims

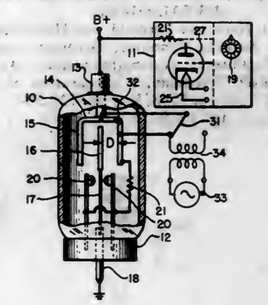


A circuit interrupter having an operating mechanism including a manually operated handle to open or close the contacts and tripping mechanism for causing automatic opening of the contacts in response to predetermined overload conditions in the circuit. The handle of the circuit breaker is illuminated by a light source within the interrupter arranged to be illuminated only when the circuit interrupter is tripped, or if desired, whenever the contacts are open.

3,544,750
OVER-VOLTAGE DETECTING AND PROTECTION APPARATUS

Robert Adler, Northfield, Illinois, assignor to Zenith Radio Corporation, Chicago, Illinois a corporation of Delaware

Filed March 12, 1968, Ser. No. 712,411
Int. Cl. H01h 59/00
U.S. Cl. 200—181 8 Claims

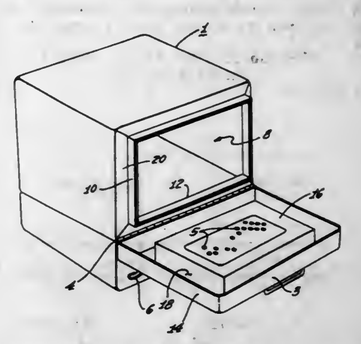


An electrostatic overvoltage protection vacuum tube apparatus and voltage indicator is useful in a fail-safe overvoltage control system for image-reproducing cathode-ray tubes operating at high voltages of about 25 kv. A tractably mounted electrode having an extended surface facing a similar electrode surface responds to an electrostatic field caused by a voltage greater than about 25 kv. to provide an indication of the voltage magnitude and/or to reduce the high voltage or interrupt its application to the cathode-ray tube.

3,544,751
MICROWAVE OVEN HAVING MESHING MICROWAVE DOOR SEAL

Benjamin V. Valles, Williamsport, Pennsylvania, assignor to Litton Precision Products Inc., San Carlos, California a corporation of Delaware

Filed Feb. 4, 1969, Ser. No. 796,537
Int. Cl. H05b 9/06
U.S. Cl. 219—10.55 9 Claims



A microwave oven includes an oven cavity portion having an opening for permitting the insertion of food stuffs and a door to close the oven during heating. An elongated strip formed from and recessed from the oven walls surrounds the oven opening. The oven door includes an inwardly projecting

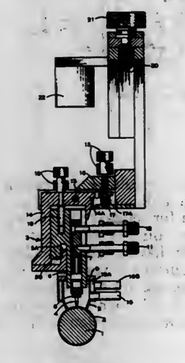
rim portion which fits within the recess and overlaps substantially the strip portion when the door is in the closed position; and a second conductive strip or surface, which in like manner overlaps the strip portion, extends about the inner surface of the oven door spaced from the rim. This forms a channel within which fits the first conductive strip when the door is in the closed position. In each instance the spacing between the conductive surface and the conductive strip and the spacing between the conductive strip and the rim is less than one-tenth of the wavelength of the microwave energy used in the oven for heating purposes. In addition, a narrow lining of dielectric is positioned between the conductive surface and the conductive strip.

3,544,752

MULTI-ARC SEAM WELDING APPARATUS FOR THIN METAL SHEET

Gunther Lehnert, Hannover-Bothfeld, and Harald Roderburg and Gerhard Ziemek, Hannover, Germany, assignors to Kabel-und Metallwerki Gutehoffnug-shutte Aktiengeselschaft, Hannover, Germany, a corporation of Germany

Filed April 11, 1968, Ser. No. 720,504
Int. Cl. B23k 9/02
U.S. Cl. 219—60 5 Claims



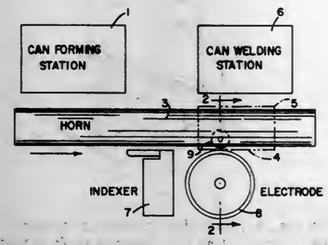
A multiarc welding apparatus for welding longitudinal seams in thin metal sheet such as metal sheathed cable core moving at high speed to form a precision welded seam therein.

3,544,753

CAN WELDING INDEXER

Anton A. Aschberger, Oak Lawn, and Herbert D. Bartels, Palos Heights, Illinois, assignors to Continental Can Company, Inc., New York, New York; a corporation of New York

Filed Jan. 23, 1969, Ser. No. 793,271
Int. Cl. B23k 1/16
U.S. Cl. 219—64 3 Claims



An indexer for turning a can on which the seam has not been fully welded so that the welding current goes through different parts of the electrode as successive can seams are turned and the electrode erodes across a wide area instead of at one point. This prolongs electrode life.

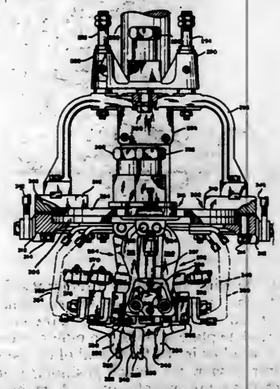
Our invention is drawn to a can weld indexer and particularly to a machine for turning successive can seams to various positions before welding the seams, thus prolonging electrode life.

3,544,754

ELECTRIC WELDER FOR JOINING BATTERY-CELL CONNECTERS THROUGH INTERCELL WALLS

Richard A. Buttke; Anthony Sabatino; Daniel Orlando, Milwaukee and William H. Behrens, Racine, Wisconsin, assignors to Globe Union Inc., Milwaukee, Wisconsin a corporation of Delaware

Filed March 27, 1963, Ser. No. 268,359
Int. Cl. B23k 9/12; H01m 37/00
U.S. Cl. 219—79 24 Claims



2. Apparatus for connecting pairs of conductive straps of adjacent battery cell element assemblies contained in a battery case, and wherein each of said pairs of conductive straps is separated by a partition wall of the battery case, by a weld through an opening in the partition wall, said apparatus comprising, in combination, battery case support means, means for producing welds at a plurality of different areas in said battery case corresponding to the location of said pairs of conductive straps and further operative to produce said welds sequentially and with less than all of said welds being made at a given time, said means including a welding head, a plurality of pairs of relatively movable welding arms depending from said welding head, means for positioning said battery case support means, with a battery case containing said cell element assemblies supported thereon, relative to said welding head and with said welding arms arranged on opposite sides of said partition walls for engagement with said pairs of adjacent conductive straps which are also on opposite sides of the partition walls and means connected to said welding arms for moving said welding arms into engagement with pairs of adjacent conductive straps to press said adjacent straps into engagement through said partition wall openings and also operative, when said welding arms are moved toward each other to engage and press said conductive straps into engagement, to sequentially pass an electric current through said pairs of welding arms and adjacent conductive straps engaged thereby of sufficient magnitude to weld said adjacent conductive straps through said partition wall openings.

3,544,755

METHOD FOR THE PERCUSSIVE WELDING OF STUDS

William J. Phillips, La Palma and Leolf M. Reese, Hawthorne, California, assignors to The Garrett Corporation, Los Angeles, California a corporation of California

No Drawing. Filed April 18, 1968, Ser. No. 722,188
Int. Cl. B23k 9/20
U.S. Cl. 219—99 3 Claims

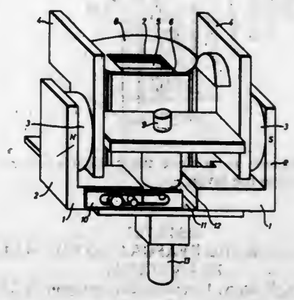
A process for the percussive welding of studs, wherein a mixture of water and strontium chloride is employed during welding as a wet continuous coating upon the surface to which the stud is to welded.

3,544,756

APPARATUS FOR VAPORISING HIGH MELTING MATERIALS SUCH AS QUARTZ OR THE LIKE

Karl Dietzel, Krefeld-Uerdingen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

Filed April 24, 1967, Ser. No. 632,984
Claims priority, application Germany, May 3, 1966, F49093
Int. Cl. B23k 9/00
U.S. Cl. 219—121 5 Claims



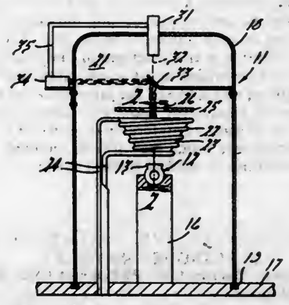
Apparatus for vaporization of high-melting materials such as quartz, comprising an electron beam source and a horseshoe permanent magnet for magnetically focusing the beam. The web joining the arms of the permanent magnet is interrupted by a gap and means are provided for adjusting the width of the gap for regulation of the magnetic conductivity. Further, means for supporting the material to be vaporized are disposed between the magnet arms. The construction makes possible the use of permanent magnets, rather than electron magnets, in high output apparatus.

3,544,757

METHOD OF MELTING A LEVITATED MASS

Rodney E. Christian, Bloomfield Hills and Peter C. Taudvin, Birmingham, Michigan, assignors to Material Transformation Associates, Inc., Detroit, Michigan a corporation of Michigan. by mesne assignment

Original application May 15, 1967, Ser. No. 638,556, now Patent No. 3,476,170, dated Nov. 4, 1969. Divided and this application May 22, 1969, Ser. No. 841,663
Int. Cl. H05b 5/00; B23k 9/00
U.S. Cl. 219—121 1 Claim



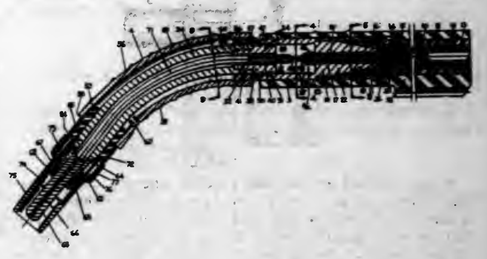
This application discloses an apparatus and method for forming a casting having a high purity wherein the material to be cast is levitated by the forces of a magnetic field generated by the passage of an alternating electric current through an induction coil. The thus levitated mass is then subjected to a laser beam generating sufficient energy to elevate the temperature of the levitated material to its melting point. This molten mass is then transferred to a mold by changing the current flow through the levitating coil. The mold may be formed from the same material as that which is being cast so that the mold itself forms a portion of the finished casting or may be formed from a different material that is removed after the cast material cools.

3,544,758

CABLE APPARATUS FOR CONDUCTING GAS AND ELECTRICAL CURRENT

Guido A. dal Molin, Westlake, Ohio, assignor to Unitec, a corporation of Ohio

Filed Oct. 4, 1967, Ser. No. 672,794
Int. Cl. B23k 9/16
U.S. Cl. 219—130 6 Claims



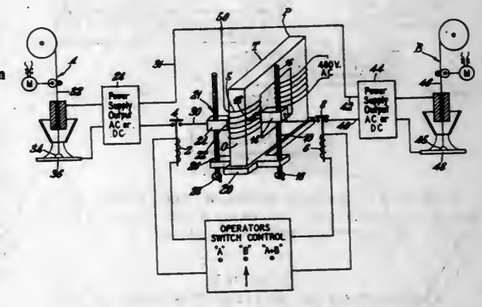
Cable apparatus for conducting gas and electricity, and if desired, electrode wire, having at least one end of the cable means for making a quickly disconnectible connection to connectible means such as a gun or the like that emits electric current, gas, and electrode wire if desired.

3,544,759

ELECTRIC ARC WORKING APPARATUS

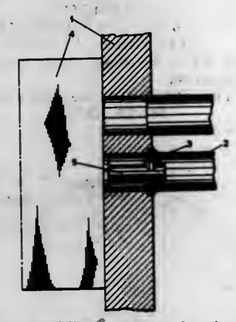
August F. Manz, Union, New Jersey, assignor to Union Carbide Corporation, a corporation of New York

Filed Nov. 30, 1966, Ser. No. 597,980
Int. Cl. B23k 9/10
U.S. Cl. 219—131 4 Claims



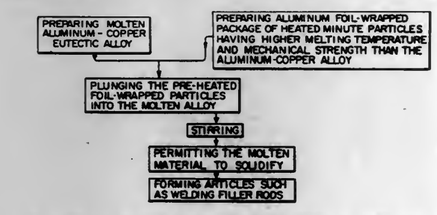
An electric arc working system having a power supply connected in circuit relation with the electrode and workpiece for controlling the delivery of power to the arc under one or more welding conditions. The power supply includes a transformer and a reactance coil which has adjustable sliding contacts mounted so as not to interfere with each other thereby permitting each to be preset within the full output range of the supply. Hence two or more voltage current conditions can be independently preset for use in one or more welding systems.

3,544,760
PROCESS FOR GAS-SHIELDED ARC WELDING WITH A NONCONSUMABLE ELECTRODE
Johannes Jacobus Broodman, Breskens, Netherlands, assignor to N.V. Koninklijke Maatschappij "De Scheide"
Filed April 10, 1968, Ser. No. 720,033
Claims priority, application Netherlands, April 12, 1967, 6705165
Int. Cl. B23k 9/00
U.S. Cl. 219—137 6 Claims



A gas-shielded arc welding process whereby during passage of an electric arc over a workpiece, the welding current is varied in alternating high- and low-intensity intervals, such that the weld metal is melted during the high-intensity interval and solidifies during the low-intensity interval. The low and high current intensity levels are controlled to vary between about 50 percent and at least 150 percent respectively, of the average welding current.

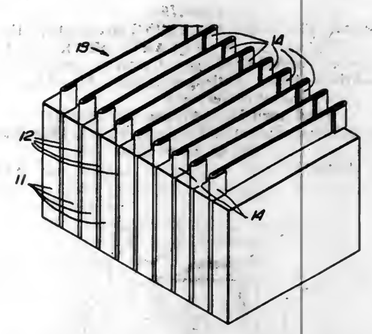
3,544,761
PROCESS OF WELDING ALUMINUM
Robert A. Rosenberg, Dover, Mass., assignor to Mitron Research & Development Corporation, Waltham, Mass., a corporation of Delaware
Original application Nov. 29, 1965, Ser. No. 510,301, now Pat. No. 3,492,119. Divided and this application Mar. 27, 1969, Ser. No. 811,184
Filed Mar. 27, 1969, Ser. No. 811,184
Int. Cl. B23k 9/24
U.S. Cl. 219—137 2 Claims



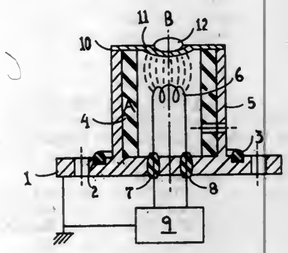
A method of welding aluminum using a filler rod of a copper-aluminum alloy containing a minor amount of elongated microfilaments of refractory material.

3,544,762
METHOD OF SEPARATING PORTIONS OF A TRANSPORTED BODY BY RESISTANCE HEATING
Paul Eisler, 57, Exeter Road, London, NW 2, England
Continuation-in-part of application Ser. No. 165,736, Jan. 12, 1962, now Pat. No. 3,283,284. This application Oct. 10, 1966, Ser. No. 585,552
Claims priority, application Great Britain, Jan. 20, 1961, 2,384/61; May 31, 1966, 24,069/66
Int. Cl. H05b 1/00
U.S. Cl. 219—200 21 Claims

A method of positioning a dispensable electric resistance heating film over zones of the film in close heat conducting relationship to the layer reached by heat to reduce its viscosity and transport the body and supply sufficient electrical energy to the film for the resulting dissipation of heat to at least that necessary to achieve the critical weakening of the cohesive forces in the layer.



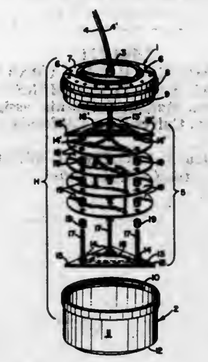
3,544,763
APPARATUS FOR THE EVAPORATION OF MATERIALS IN A VACUUM
Gottfried Geir, Balzers, Liechtenstein, assignor to The Bendix Corporation, Rochester, New York a corporation of Delaware
Filed Dec. 16, 1966, Ser. No. 602,399
Claims priority, application Switzerland, Dec. 18, 1965, 17501/65
Int. Cl. F22b 1/28
U.S. Cl. 219—271 2 Claims



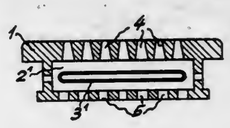
The present invention consists of an electron beam apparatus for melting and/or evaporating metals in a vacuum such as in vapor coating processes or the like. The improvement of this invention is characterized in that the support for the metal to be evaporated forms a separation wall between an electron gun on one side and the material to be melted on the other, thereby electrically and magnetically shielding the melt metal. The support is preferably of thin foil to suppress heat conduction losses which may also be reduced in thicker support constructions by spoked support design.

3,544,764
IMMERSION TYPE ELECTRIC WATER HEATER WITH ELECTRODE ASSEMBLY
Conrado Gococo, Quezon City, Philippines (P.O. Box 4288, Manila, Philippines)
Filed Sept. 27, 1968, Ser. No. 763,314
Int. Cl. H05b 3/60
U.S. Cl. 219—293 1 Claim

An immersion type electric water heater having opposed matching cap-shaped housing members having holes for passage of water and an electrode assembly positioned within said housing members. The electrode assembly comprising equilateral triangularly-shaped bottom and top dielectric plates each having symmetrically-arranged hollow studs on one side thereof, said plates being superimposed and spaced apart, dielectric posts ends of which are fitted into said hollow studs of said plates to connect said plates, electrode plates inserted on said posts, and dielectric hollow cylindrical spacers inserted on said posts to separate adjacent electrode plates.



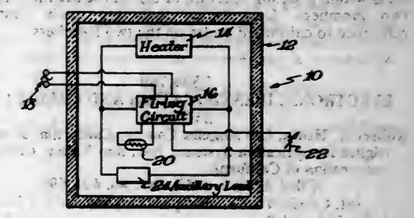
3,544,765
ELECTRIC HEATING AND HEAT RADIATING PLATE
Arthur Kuster, Widen, Switzerland, assignor to Johanna Kuster-Wyss, Widen, Aargau, Switzerland
Filed Jan. 23, 1968, Ser. No. 699,923
Claims priority, application Switzerland, Jan. 23, 1967, 948/67
Int. Cl. H05b 3/74
U.S. Cl. 219—459 2 Claims



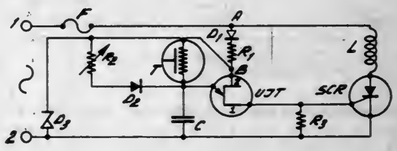
An electric heating and heat radiating plate consisting of an upper plate covering a chamber in which an electric quartz heating element is located. The upper plate and the bottom wall of the chamber are both equipped with openings through which the heat generated by the heating element may escape. The electric heating and heat radiating plate may consist of metal or of a ceramic material in which latter case the upper plate may be glazed and may be provided with raised or flat ornamentation and/or dilation slits.

3,544,766
TIME PROPORTIONAL FIRING CIRCUIT
Nicholas G. Muskovac, Rockville, Maryland, assignor to Vectrol Inc., Rockville, Maryland a corporation of Maryland
Continuation-in-part of application Ser. No. 539,022, March 31, 1966, now Patent No. 3,417,320, dated Dec. 17, 1968. This application July 29, 1968, Ser. No. 748,242
Int. Cl. H05b 1/02
U.S. Cl. 219—501 8 Claims

A sensing branch of a thyristor circuit is cycled to provide a secondary firing cycle imposed on the primary cycle resulting from sensor response to average environmental conditions. The secondary cycle is achieved by either electrical cycling within the sensing branch or by providing intermittent sensor stimuli in addition to the average environmental condition.

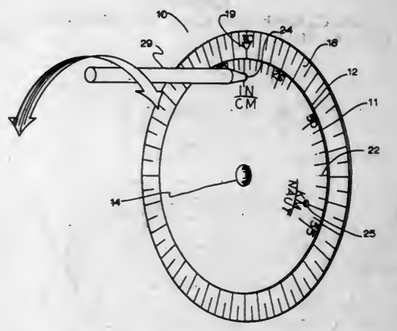


3,544,767
HEATING CONTROL CIRCUIT WITH SCR-UNIJUNCTION TRANSISTOR COMBINATION
Peter Lauck, III, Princeton, New Jersey, assignor to J. P. Stevens & Co., Inc., a corporation of Delaware. by direct and mesne assignments.
Filed Mar. 27, 1969, Ser. No. 810,948
Int. Cl. H05 1/02
U.S. Cl. 219—501 15 Claims



A half-wave electronic control circuit for a flexible heating device having an electronic switch that comprises a single silicon controlled rectifier (SCR) triggered by a unijunction transistor circuit connected at its gate. Temperature control means comprising variable resistance, a capacitor, and a thermistor, control the amount of heat developed by the heating device.

3,544,768
MECHANICAL CONVERSION DEVICE
Louis A. Warner, 5223 N. Natoma, Chicago, Illinois
Filed July 24, 1968, Ser. No. 747,387
Int. Cl. G06c 27/00; G09b 19/02, 19/00
U.S. Cl. 235—88 5 Claims



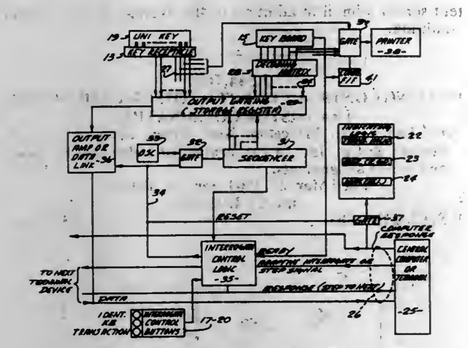
A conversion device adapted to be easily and automatically set to perform conversions, simply by inserting a

pointed object through an appropriate one of a number of indexing apertures in one member and slidably movably adjusting that member relative to another until the pointed object seats within a setting aperture or slot in the second one of the two members. Conversions then are made simply by reference to calibrated scales on the two members.

3,544,769
ELECTRONIC IDENTIFICATION AND CREDIT CARD SYSTEM

Robert A. Hedin, Los Angeles County, California, assignor to Digital Identification Systems, Inc., Sun Valley, California a corporation of California

Filed April 5, 1967, Ser. No. 628,599
Int. Cl. G07f 7/02; H04q 5/16; G06k 7/06, 17/00
U.S. Cl. 235—61.9 7 Claims

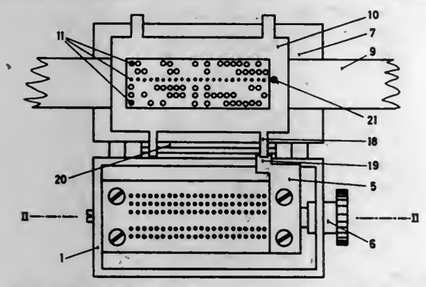


An identification key containing uniquely coded electrical circuits is entered into a time-sharing computer system to verify credit rating, debit or credit of a corresponding account, and provide appropriate records of transactions. The terminal device for accepting the key replaces many of the functions of a conventional cash register. A central data processor communicates with a number of remote terminal devices on a time-sharing basis, via interconnecting telephone lines or other data links. Coding of the key is by means of permuted circuit closures providing approximately four trillion unique codes with a forty-four pin key receptacle sufficient to identify the entire world's population.

3,544,770
APPARATUS FOR READING INFORMATION FROM PUNCHED-TAPES

Kurt Ehrat, Zurich, Switzerland, assignor to Ciba Limited, Basel, Switzerland a company of Switzerland

Filed Nov. 15, 1967, Ser. No. 683,401
Claims priority, application Switzerland, Nov. 24, 1966, 16929/66
Int. Cl. G06k 7/04; G11b 3/02; H05b 39/00
U.S. Cl. 235—61.11 9 Claims

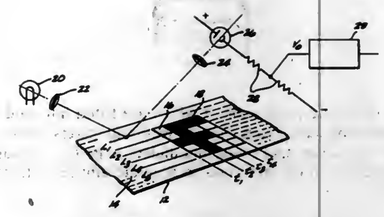


A sensing apparatus for reading information from a punched-tape, or like perforated information-bearing medium, has a sensing field of pins arranged in a raster corresponding to the perforation raster of the punched tape. The pins are supported in a carrier of a resilient material which may be extended or compressed in the direction of movement of the tape to vary the pin spacing and thereby compensate for variations of the raster spacing on the punched-tape.

3,544,771
RECORD MEDIUM HAVING CHARACTER REPRESENTATIONS THEREON

Thomas R. O'Meara, Malibu, California, assignor to Hughes Aircraft Company, Culver City, California a corporation of Delaware

Filed Jan. 3, 1967, Ser. No. 607,007
Int. Cl. G06r 19/06
U.S. Cl. 235—61.12 9 Claims

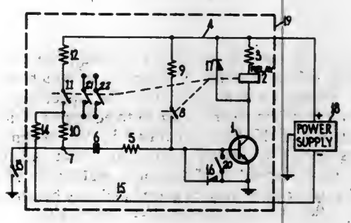


An information bearing medium processed to produce three levels of output signals when machine read, and an apparatus for reading the medium.

3,544,772
ELECTRIC BISTABLE CIRCUITS

Richard Michael Morris, Romse, England, assignor to The General Electric Company Limited, London, England a British company

Filed May 15, 1967, Ser. No. 638,324
Claims priority, application Great Britain, May 25, 1966, 23480/66
Int. Cl. H03k 25/02, 23/03
U.S. Cl. 235—92 6 Claims

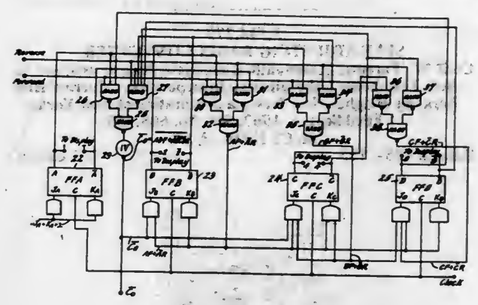


An electric bistable circuit which may be utilised in binary counters comprises a single transistor having the energising winding of an electromagnetic relay connected in its emitter-collector circuit, a capacitive element connected between its base electrode and an input point, and a circuit including a pair of contacts of the relay to apply either a positive or a negative potential to the input point in dependence upon the state of the relay, the bistable circuit being switched from one condition to the other by temporarily earthing the input point.

3,544,773
REVERSIBLE BINARY CODED DECIMAL SYNCHRONOUS COUNTER CIRCUITS

John G. Peddle, San Antonio, Texas, assignor to H. Dell Foster Co., San Antonio, Texas a corporation of Texas

Filed Aug. 2, 1967, Ser. No. 657,936
Int. Cl. G06m 3/14
U.S. Cl. 235—92 11 Claims

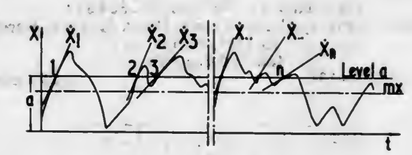


This invention relates to binary coded decimal counter circuitry to count pulsed information in either a forward or reverse direction in response to forward and reverse count control signals. Gated logic steering means are provided for applying auxiliary switching signals to selected input gates of the two-state switching and memory elements in response to selected output signals from the two-state elements to reduce the bidirectional carry propagation delay time thereby enabling the counter to approach the speed represented by the switching time of the individual two-state elements.

3,544,774
APPARATUS FOR DETERMINING CHARACTERISTIC MAGNITUDES IN STOCHASTIC PROCESSES

Janez Peklenik, 6 Kingsway Drive, Kings Norton, Birmingham, England

Filed Oct. 18, 1965, Ser. No. 496,856
Claims priority, application Germany, Oct. 20, 1964, P35309
Int. Cl. G01b 7/34; G06g 7/48
U.S. Cl. 235—151.13 2 Claims

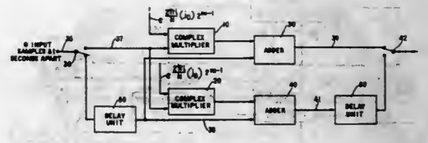


An apparatus is provided for determining a statistic characteristic magnitude of a fluctuating parameter by multiplying together signals derived from (a) a device which calculates the standard deviation of the fluctuating parameter, (b) a counter which records the number of occasions on which the parameter exceeds a predetermined value, and (c) a function generator which produces a constant signal which is a known function of the predetermined value.

3,544,775
DIGITAL PROCESSOR FOR CALCULATING FOURIER COEFFICIENTS

Glenn D. Bergland, Morris Township and Richard Klahn, Mendham Township, Morris Township, New Jersey, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, New Jersey, a corporation of New York

Filed Dec. 29, 1966, Ser. No. 605,791
Int. Cl. G01r 23/16
U.S. Cl. 235—151.31 44 Claims

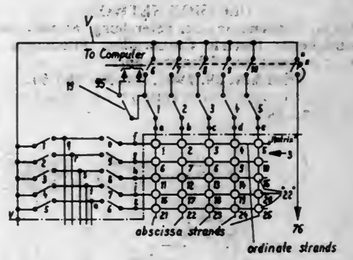


A digital processor for iteratively calculating the Fourier coefficients corresponding to a sequence of N input samples comprising a plurality of individual cascaded stages, each of which combines a result appearing at the output of the previous stage with others of these results and with constant trigonometric function values to form subsequences of Fourier coefficients. The first stage forms N/2 of such subsequences each based on a pair of samples of the original input sequence. The final stage generates the desired output sequence of Fourier coefficients corresponding to the entire input sequence.

3,544,776
CONTROL DEVICE FOR MULTIPLE-DIGIT FIGURES

Hans-Dietrich Fischer, Wildpark, Germany, assignor to Walther-Buromaschinen G.m.b.H., Gerstetten/Wurttemberg, Germany

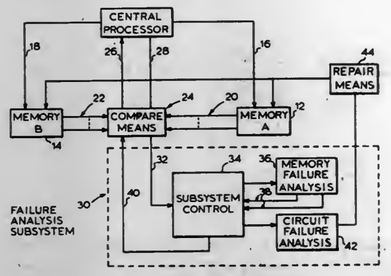
Filed Dec. 22, 1965, Ser. No. 515,787
Claims priority, application Germany, Dec. 23, 1964, W38238
Int. Cl. G06f 11/10
U.S. Cl. 235—153 16 Claims



A testing device for use in checking the entry of a multiple digit figure into a machine by means of a keyboard. Each of the digit positions is assigned a weight which is multiplied by the numeral of that position to form a product according to a predetermined modulus. The products so formed are stored in a matrix having one portion which is substantially a symmetrical mirror image of a second portion thereof. The design of the matrix enables the generation of products of four times the capacity of conventional matrices. Apparatus is provided for summing the individual products stored to

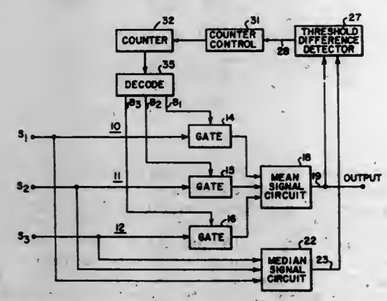
generate a signal indicative of the accuracy of entry of the multiple digit figure. If the entry has been accurately made, the multiple digit figure is used to provide an output, for example, on a punch card or punch strip unit. If the entry has not been accurately made, no such output will be provided.

3,544,777
TWO MEMORY SELF-CORRECTING SYSTEM
Ted Winkler, Inglewood, California, assignor to TRW Inc., Redondo Beach, California a corporation of Ohio
Filed Nov. 6, 1967, Ser. No. 680,663
Int. Cl. G06f *11/00*; G11c *29/00*
U.S. Cl. 235—153 **12 Claims**



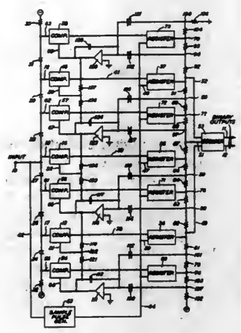
A memory system including redundancy and failure analysis means. The system utilizes two or more memories, whose outputs are supplied to a common comparator. For so long as the comparator indicates that the memory outputs are identical, the system will continue to operate normally with the common memory output information being supplied to a central processor. When the comparator indicates that the memory outputs differ, however, operation is switched to a failure analysis mode in which a plurality of prewired test data words are written into the memories. Subsequently, the test data words are sequentially read from each memory and compared with data stored in a fixed store. The read test data words which differ from the corresponding words in the fixed store identify the failed memory circuits. The system can then continue to operate using the memory which has not failed. Additionally, a repair means can be activated to replace the failed circuit after which the system can be returned to two memory operation.

3,544,778
DECISION NETWORK
Charles G. Masters, Jr., St. Petersburg, Florida, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Nov. 29, 1967, Ser. No. 686,642
Int. Cl. G05b *23/02*; G06f *15/16*; G06k *19/26*
U.S. Cl. 235—153 **7 Claims**



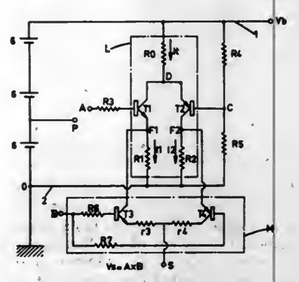
A plurality of input lines receive nominally identical redundant analog signals. Each line includes an analog transmission gate which, when open, passes a respective input signal to a mean signal circuit which provides an output signal proportional to the average of the input signals. The input analog signals are also fed to a median signal circuit which provides an output signal proportional to the median input analog signal. The outputs of the mean and median signal circuits are compared and any predetermined difference is sensed by a control network which closes the analog transmission gate receiving the erroneous signal causing the predetermined difference.

3,544,779
SELF-ADJUSTING RADIX CONVERTER
Cecil W. Farrow, Monmouth Hills, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, New Jersey a corporation of New York
Filed Sept. 6, 1967, Ser. No. 665,755
Int. Cl. H03b *13/175*
U.S. Cl. 235—155 **7 Claims**



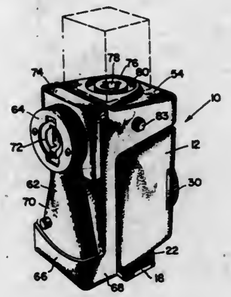
In a multilevel slicer extra slices are taken intermediate the prescribed slicing levels at the nominal signal levels. If the actual signal differs from the nominal signal on a long term average the prescribed slicing levels are adjusted to be centered between the actual signal levels. This tends to reduce errors due to nonlinear amplitude distortion in received multilevel data signals.

3,544,780
ELECTRONIC MULTIPLYING APPARATUS AND CIRCUITRY THEREFOR
Pierre Jorgensen, A L'Hay-les-Roses, France, assignor to Saint-Gobain Techniques Nouvelles, Courbevoie, Seine, France
Filed March 21, 1967, Ser. No. 624,877
Claims priority, application France, March 21, 1966, March 13, 1967, 798,430
Int. Cl. L06g *1/16*
U.S. Cl. 235—194 **25 Claims**



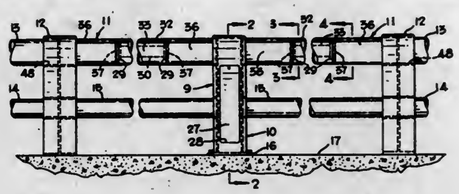
An electronic multiplier for producing an algebraic product A × B comprising (1) a device having a source of electrical energy, a PNP-type transistor and an NPN-type transistor capable of delivering on two output terminals voltages corresponding to A and −A when a voltage representing A is supplied to an input terminal and (2) a transistorized commutator circuit having two input terminals connected to said output terminals, a signal input terminal connected to the base electrodes of two transistors for receiving a voltage representative of B and an output terminal for delivering a voltage representative of said product; and said multiplier circuit in combination with a two-phase control motor and with magnetic memory means.

3,544,781
PHOTOGRAPHIC FLASHGUN
Ronald G. Schmidt, Littleton, Colo., assignor to Honeywell Inc., a corporation of Delaware
Filed Jan. 19, 1968, Ser. No. 699,217
Int. Cl. G03b *15/02*
U.S. Cl. 240—1.3 **3 Claims**



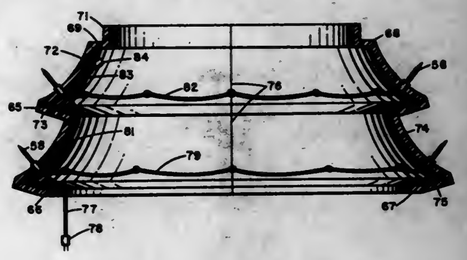
A flash gun including a housing with a hinged mounting platform having a first and a second flash mounting socket. The sockets are oriented at right angles with respect to each other. The first socket is of the type to receive any of a plurality of conventional individual flash bulbs, and has associated therewith a fanfold or collapsible reflector. The second socket is of the type for receiving multiple flash flashcubes. The mounting platform is arranged to be selectively tilted on its hinge whereby the flash from either conventional bulbs or from cubes may be operated in either the direct lighting mode or the indirect, or bounce, lighting mode.

3,544,782
LUMINATED GUARD RAIL ASSEMBLY
Richard Hahn, Olivette, Missouri, assignor to Soundolier Manufacturing Company, Inc., St. Louis, Missouri a corporation of Missouri
Filed June 16, 1967, Ser. No. 646,627
Int. Cl. F21v *33/00*; F21s *1/10*
U.S. Cl. 240—2 **5 Claims**



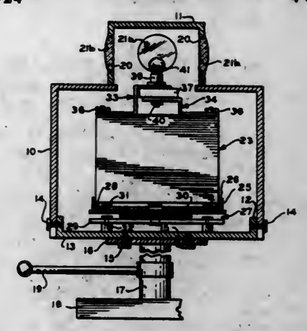
A hollow post and a pair of laterally extending, illuminated, tubular rails form a T-shaped section which is interspaced as required within a typical post and guardrail system. External power cables enter the hollow post and are connected to a ballast member housed within the post. Supply wires from the ballast member are connected to terminals at each end of a fluorescent tube mounted within each rail. Each rail includes an interlocking translucent panel and a pair of aligned access panels, all of which are curved to provide the tubular rail with an unbroken circular cross section. The hollow post has substantially the same appearance and function as the other, typical guardposts in the system.

3,544,783
ARTIFICIAL TREE
Bradford A. Williams, Sr., 8231 Driftwood Drive, Norfolk, Virginia
Filed Sept. 23, 1968, Ser. No. 761,597
Int. Cl. A47g *33/06*
U.S. Cl. 240—10 **10 Claims**



A compactly storable artificial Christmas tree including a horizontally disposed base element having a circular periphery; an essentially conical, hollow, vertically sectionalized tree body peripherally superposable on the base element; and a crown element superposable on the tree body. Each tree body section has a circular lower periphery matching the circular upper periphery of the section or element positionable therebeneath, as well as a circular upper periphery smaller in diameter than the circular lower periphery thereof matching the circular lower periphery of the section or element positionable thereabove. The elements and sections of the tree, when superposed, are peripherally restrained against relative lateral movement, and means may also be provided for restraining the same against relative vertical movement. Means for decoratively electrically illuminating the tree are also provided and the wiring therefor is concealed within the tree.

3,544,784
SIGNAL LANTERN
Philip F. Grieger, West Orange; Norman A. Martin, Kearny and William L. Douma, Bloomfield, New Jersey, assignors to McGraw-Edison Company, Elgin, Illinois a corporation of Delaware
Filed June 18, 1968, Ser. No. 738,016
Int. Cl. F21l *15/04*; F21q *3/00*
U.S. Cl. 240—24 **4 Claims**



A signalling device adapted especially for railroad switch signalling comprises a lantern having different indicator

openings moved selectively into view by shifting the lantern about a vertical axis, and a turntable in the lantern carrying a battery and lamp mounted thereon for turning movement relative to the lantern whereby the battery and lamp are held substantially stationary by inertia as the lantern is turned.

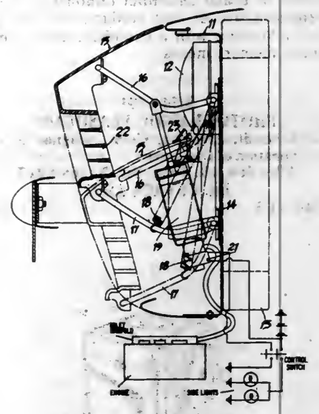
3,544,785
LUMINAIRE
William A. Welbel, Chicago, Illinois, assignor to Joslyn Mfg. and Supply Co., Chicago, Illinois a corporation of Illinois
Filed Sept. 10, 1968, Ser. No. 758,849
Int. Cl. F21s *3/00*
U.S. Cl. 240—25 12 Claims



A luminaire comprising an elongated, tubular, substantially cylindrical light refractor formed of transparent molded plastic material and including at least one pair of identical mating members of semicircular cross section, each member including first and second opposite, longitudinally extending edges confronting the second and first edges, respectively, on the other member when the members are secured together to form the cylindrical refractor. A plurality of recesses are formed along the first edge of each member and a corresponding plurality of protruding tonguelike projections are formed on the second edge of the member so that when the members are assembled together the tonguelike projections extend into the recesses to interlock the members tightly together against relative vertical displacement. Opposite ends of the refractor are provided with annular recesses so that any number of refractors may be assembled and secured together in end-to-end relation.

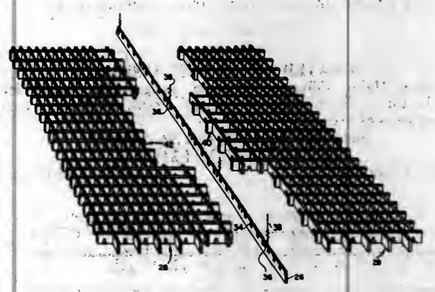
3,544,786
BODIES FOR ROAD VEHICLES
Alfred Dickens Baker, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England a British Company
Filed Dec. 19, 1967, Ser. No. 691,846
Claims priority, application Great Britain, Dec. 21, 1966, 57182/66
Int. Cl. F21v *11/18*
U.S. Cl. 240—46.29 11 Claims

A body for a road vehicle includes a forward bulkhead on which the headlamps of the vehicle are mounted. A forwardly presented portion of the vehicle body is mounted on a pivoting linkage arrangement which permits movement of the portion of the body between a first position wherein the portion of the body masks the headlamp assemblies on both sides of the vehicle, and conforms to the remainder of the body work of the vehicle, and a second position wherein the headlamp units on both sides of the vehicle are exposed for use. The body portion is movable on the linkage arrangement by means of a vacuum-operated ram which is controlled



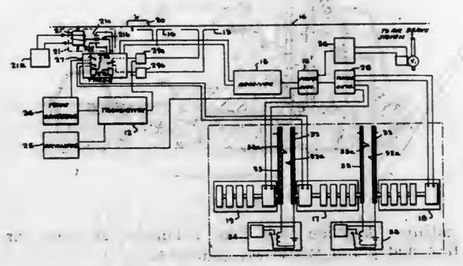
through a solenoid-operated valve which in turn is controlled by the lighting switch of the vehicle.

3,544,787
LOUVER CONSTRUCTION
Georges Marceau Audeval, Montreal North, Quebec, Canada, assignor to Integrated Lighting Limited, Montreal, Quebec, Canada
Filed Sept. 20, 1968, Ser. No. 761,251
Claims priority, application Canada, June 24, 1968, 23,387
Int. Cl. F21s *3/00*
U.S. Cl. 240—78 4 Claims



A louver construction to be used as a false ceiling and for other purposes, which generally comprises parallel support runners and rows of light-diffusing panels or baffles of incomplete latticework construction. The runners are the same thickness as the ribs of the panels and intersect the ribs of the panel which are perpendicular to the endmost ribs at a distance inside the endmost ribs. Thus, when the panels are mounted adjacent one another on the support runners, the incomplete latticework of the panels is completed and the effect is of an uninterrupted latticework construction.

3,544,788
POSITION INDICATION AND CONTROL SYSTEM FOR RAIL VEHICLE
Nicholas J. Guzik, Cape May Court House, New Jersey, assignor to Piasecki Aircraft Corporation, Philadelphia, Pennsylvania a corporation of Pennsylvania
No Drawing. Filed Jan. 29, 1969, Ser. No. 794,861
Int. Cl. B61l *3/06*
U.S. Cl. 246—63 12 Claims



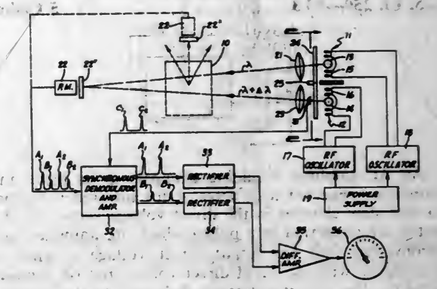
An electronic train position indicator system for indicating in each train unit and in each station along a route a train unit position with respect to a base station and with respect to the train unit immediately ahead and the train unit immediately behind. A carrier wire antenna extends alongside the track and has magnetic inducers spaced at predetermined intervals therealong to activate an "own train" counter and a radio transmitter in each train unit to register its position and transmit through the carrier wire antenna upper or lower side band signals of modulation frequencies distinctively identifying each train unit and its direction of travel for reception and activation of counters in the immediately ahead and behind train units and in stations.

ERRATUM

For Class 246—169 see:
Patent No. 3,545,005

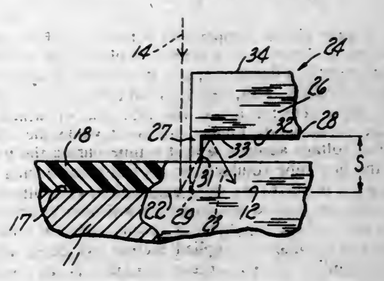
3,544,789
ATOMIC ABSORPTION DETECTION OF GIVEN SUBSTANCES INDEPENDENT OF ABSORPTION BY BACKGROUND SUBSTANCES
Irwin Wieder, Santa Clara, California (459 Panchita Way, Los Altos, CA 94022)
Filed March 4, 1968, Ser. No. 715,463
Int. Cl. G01h *21/26*
U.S. Cl. 250—43.5 5 Claims

A vapor detector in which the atomic absorption of a given substance is measured, independently of any absorption by background substances, by comparing the absorption of radiation by a sample at two different wavelengths. The first wavelength is a strong atomic absorption wavelength of the given substance, and the second wavelength is separated from the first wavelength by a wavelength separation which is sufficiently large that the second wavelength is substantially unabsorbed by the strong atomic absorption of the given substance but is sufficiently small that the second wavelength is absorbed by background substances substantially the same as the first wavelength. In the preferred embodiment, the two radiations are generated by discharge envelopes inductively coupled to the tank coils of two r-f oscillators energized by a common power supply, with the radiation beam from each discharge being directed through the sample, and either the transmitted or scattered radiation from the sample is intercepted by a photomultiplier tube which detects the intensity of the intercepted radiation. A chopper alternately interrupts each beam to provide a photomultiplier signal which is phase-detected to give one output signal representative of the absorption at one wavelength and a second output signal representative of the absorption at the other wavelength, and these two output signals are compared to give a background-free indication of the atomic absorption. In an example, the



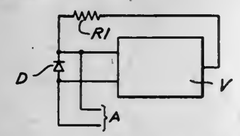
atomic absorption of mercury vapor at 2537 angstroms is detected by using one discharge envelope containing H_{g202} and the other discharge envelope containing H_{g198}.

3,544,790
AN ELECTRON BEAM MASKING ARRANGEMENT
Martin J. Brown, Lambertville, New Jersey, assignor to Western Electric Company, Incorporated, New York, New York a corporation of New York
Filed March 1, 1968, Ser. No. 709,672
Int. Cl. H01j *37/26*
U.S. Cl. 250—49.5 8 Claims



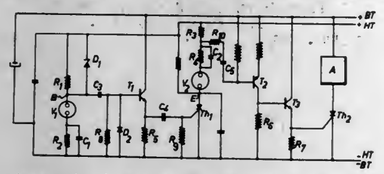
An improved mask provides increased resolution of a substrate pattern delineated by electron beam radiation-induced polymerization over selected portions of a coating on the substrate. A peripheral lip extending from the bottom of the mask penetrates the coating and contacts the substrate to prevent electrons scattered from the substrate portions adjacent the mask from penetrating and curing the coating portion below the mask. The remainder of the scattered energy is dissipated in an internal cavity defined by the inner surface of the lip and the bottom of the mask.

3,544,791
VOLTAGE STABILIZING DEVICE CONNECTED TO A DETECTOR FOR INFRARED RADIATION
Kjell Arne Hakan Gustafson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a Swedish company
Filed Sept. 25, 1968, Ser. No. 762,540
Claims priority, application Sweden, Sept. 27, 1967, 13,299/67
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 5 Claims



An AC-amplifier including choppers at its input and output is connected to a detector for infrared radiation, so that slow changes in the direct voltage across the detector are converted into pulses which are amplified and reconverted into an output direct voltage varying in accordance with the input direct voltage but of opposite polarity. The output voltage is fed back to the detector to counteract the original direct voltage across the detector.

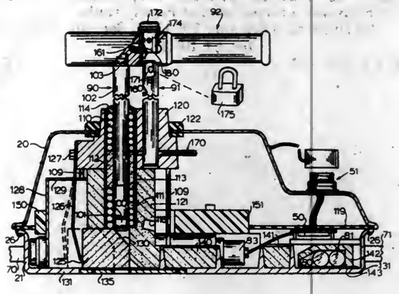
3,544,792
ULTRAVIOLET FLAME DETECTOR USING A TRIGGER CIRCUIT TO AVOID FALSE ALARMS
Marcel Charles Giltaire, Creil, France, assignor to Charbonnages de France, Paris, France, a public institution of France
Filed Nov. 27, 1968, Ser. No. 779,484
Claims priority, application France, Dec. 8, 1967, 131,625
Int. Cl. G08b *17/12, 29/00*
U.S. Cl. 250—83.3 10 Claims



A trigger circuit adapted to actuate a safety device upon the occurrence of a source of ultraviolet radiation, as for example a flame or spark, in a poorly lit area, such as a mine gallery. This trigger-circuit comprises two ultraviolet light detector tubes, the first one of which has voltage permanently applied across it while the second one has voltage applied to it at a time during the period that the first tube conducts or applied commencing at a time when the first tube stops conduction. It results therefrom that the second detector tube will only be triggered if the cause of the triggering of the first detector tube still exists when voltage is applied thereto, which eliminates any possibility of spontaneous working of the detector circuit assembly.

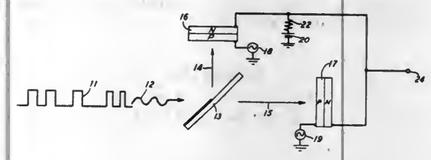
3,544,793
PORTABLE NUCLEAR MEASURING GAUGE PROVIDING MULTIPLE RADIATION AND DETECTING POSITIONS
Paul W. Bless, Durham, and Richard F. Clements, Raleigh, N.C., assignors to Troxler Electronic Laboratories, Inc., Raleigh, N.C., a corporation of North Carolina
Filed Dec. 11, 1967, Ser. No. 689,530
Int. Cl. G01t *1/18*
U.S. Cl. 250—83.6 9 Claims

A portable nuclear measuring gauge enables material characteristics such as those related to density and moisture to be determined with both backscatter and direct transmission techniques and with source radiation and



radiation detection each being obtainable at above surface and plural subsurface positions.

3,544,794
AVALANCHE PHOTODIODE DETECTION APPARATUS
William T. Lynch, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J., a corporation of New York
Filed Aug. 29, 1967, Ser. No. 664,136
Int. Cl. H01j *39/12*; H01l *15/06*; H04b *9/00*
U.S. Cl. 250—199 3 Claims

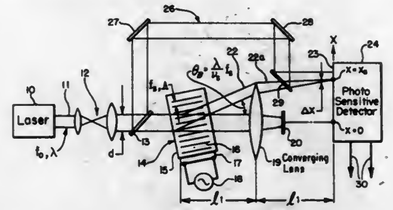


Alternating current biasing to suppress microplasma effects in avalanche photodiodes may be used even when the signal frequency is greater than the bias frequency; a condition which normally violates the sampling theorem. The sampling theorem requires that the signal be sampled, that is, measured, at least twice during each time interval corresponding to the inverse of the bandwidth. For a wide bandwidth pulse detection system the bandwidth is the equivalent of the maximum frequency.

3,544,795
ELECTRO-OPTICAL SIGNAL TRANSFER APPARATUS
Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Dec. 11, 1967, Ser. No. 689,542
Int. Cl. H04b *9/00*
U.S. Cl. 250—199 11 Claims

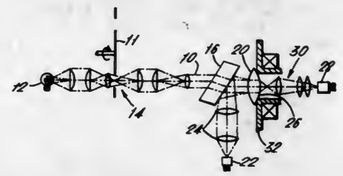
The apparatus includes a laser for directing a beam of spatially coherent light along a first path and an acoustic cell, to which input signals are applied, propagates across the path of the laser beam acoustic waves corresponding in frequency and amplitude to the components of the input signal. Their interaction diffracts the beam along a plurality of paths respectively representing the

different frequency components of the input signal. A first optical system projects the diffracted beams upon an image plane and another optical system derives some of



the laser light ahead of the acoustic cell for use as a reference beam in a manner analogous to a local oscillator in a heterodyning system.

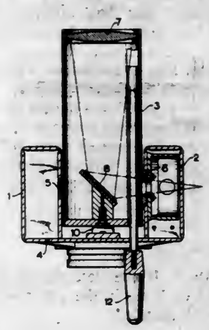
3,544,796
LENS CENTERING INSTRUMENT
Lionel Richard Baker, Chislehurst, England, assignor to British Scientific Instrument Research Association, Chislehurst, Kent, England, a British company
Filed July 7, 1967, Ser. No. 651,749
Claims priority, application Great Britain, July 11, 1966, 31,082/66
Int. Cl. G01b *19/29*; H01j *39/12*
U.S. Cl. 250—201 12 Claims



A lens centering apparatus consisting of a rotatable holder in which the lens to be tested is mounted. A light beam is directed onto one or both surfaces of the lens and the light reflected from and/or transmitted through a surface is detected by a position sensitive photocell. If the lens is not correctly centred the image in the transmitted or reflected light beam will appear to move on rotation of the lens and the signal from the position sensitive photocell is fed to a proportional servo control arrangement which adjusts the position of the lens in the holder until the image no longer is displaced.

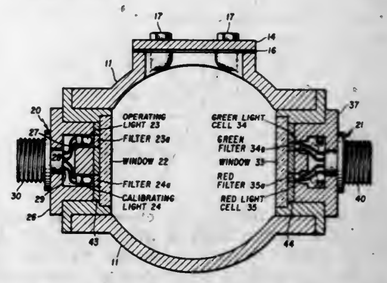
3,544,797
LIGHT RECEIVER HOUSING HAVING INCLINED MIRROR MOUNTED ON TILTABLE SHAFT
Frank Früngel, Hamburg-Rissen, Germany, assignor to Impulsphysik G.m.b.H., Hamburg-Rissen, Germany
Filed June 17, 1968, Ser. No. 737,772
Claims priority, application Germany, June 15, 1967, 1,572,685
Int. Cl. G06m *7/00*
U.S. Cl. 250—216 9 Claims

A light signal receiver, especially a receiver for a cloud altitude meter operated by light impulses reflected from a cloud, with a tiltable optical means for receiving reflected light impulses and for directing the same onto a photocell connected to an amplifier, in which the photocell is not mounted in the optical means for tilting movement therewith, but in a stationary housing member housing also the amplifier, while the optical means is mounted on a hollow shaft for tilting relative to the housing member and includes a mirror inclined to the shaft. axis for directing light impulses received by the optical means through the hollow shaft onto the photocell in



the stationary housing member so that a flexible conductor between the photocell and the amplifier may be omitted.

3,544,798
RADIATION SENSITIVE DEVICE FOR DETECTING INTERFACE BETWEEN FLUIDS
George J. Topol, Reston, Va., assignor to Bowser, Inc., Fort Wayne, Ind., a corporation of Indiana
Filed Apr. 16, 1968, Ser. No. 721,790
Int. Cl. G01n *21/26*
U.S. Cl. 250—218 6 Claims

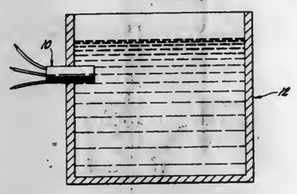


An interface detector has a visible light source and two light sensitive devices positioned to receive light from the light source that passes through a liquid being detected. A green light filter is positioned between the first light sensitive device and the light source, and a red light filter is positioned between the second light sensitive device and the light source. An electrical circuit is coupled to the light sensitive devices for indicating the ratio of the electrical signals produced by the light sensitive devices. A transition from one liquid to another causes the indicated ratio to change, thus indicating an interface.

3,544,799
PHOTOELECTRIC LIQUID LEVEL DETECTOR WITH CHECKOUT MEANS WHICH INCREASES OUTPUT OF LAMP TO SIMULATE LOW-LEVEL CONDITION
Clark E. Quinn, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,961
Int. Cl. G01l *21/24*
U.S. Cl. 250—218 6 Claims

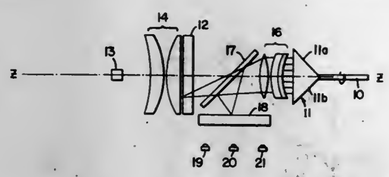
A photoelectric liquid level detector incorporating a photosensitive indicating circiut and a parallel checkout

circuit. The checkout circuit is selectively operable to instantaneously increase the illumination intensity of a lamp employed by the detector so as to simulate a low



liquid level condition. If the detector is operating satisfactorily, an indicator lamp in the photosensitive indicating circuit will be illuminated.

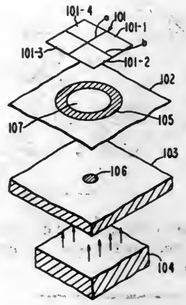
3,544,800
OPTICAL APPARATUS FOR ENCODING ANGULAR MOVEMENT OF A ROTATING SHAFT
Harold A. Elliott, Woodside, Calif., assignor to Quantic Industries, Inc., San Carlos, Calif., a corporation of California
Filed Nov. 20, 1968, Ser. No. 777,311
Int. Cl. G01d *1/26, 5/34*
U.S. Cl. 250—231 **11 Claims**



Optical apparatus for digitally encoding the angular movement of a rotating shaft in which a 45°–90°–45° prism is mounted on the shaft for rotating any image projected on the hypotenuse of the prism. Such image is provided by primary counting and reference masks, the reflected image from the prism being imaged on secondary counting and reference masks having a coded pattern to provide a digital output indicating shaft rotation.

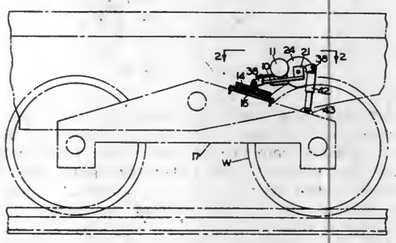
3,544,801
MASK DESIGN FOR OPTICAL ALIGNMENT SYSTEMS
Rudolph H. Dyck, Palo Alto, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware
Filed May 1, 1969, Ser. No. 821,025
Int. Cl. H01j *5/16, 39/12*
U.S. Cl. 250—237 **13 Claims**

Special alignment marks make it possible to accurately aligna two transparent objects without the necessity of accurately aligning a photodetector array with respect to either object. By making one alignment mark opaque to light over the boundaries between the several light sensing elements of the photodetector array, the photodetector array produces an output signal indicative only of the relative misalignment of the objects being aligned and, provided the boundaries between the light sensing elements of the photodetector remain beneath the opaque regions of the alignment mark, small mislocations of the photodetector relative to the alignment mark have no



effect on the output signals from its light-sensitive elements.

3,544,802
ALTERNATOR DRIVE MEANS FOR RAILWAY CABOOSE LIGHTING SYSTEM
William E. Burrell, 2037 SE. Harold St., Portland, Oreg. 97202
Filed July 5, 1968, Ser. No. 742,866
Int. Cl. B61c *17/00*
U.S. Cl. 290—3 **4 Claims**

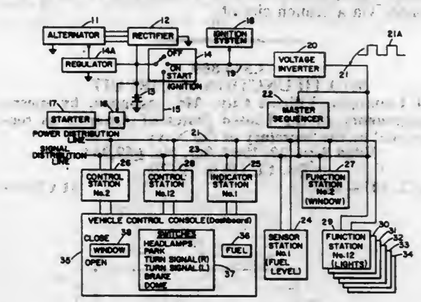


Improved means for driving the alternator for an electric lighting system in a railway caboose in which a specially surfaced take-off wheel rides constantly on the periphery of a track wheel of the caboose and the drive wheel of the alternator is maintained in constant engagement with such take-off wheel under all operating conditions.

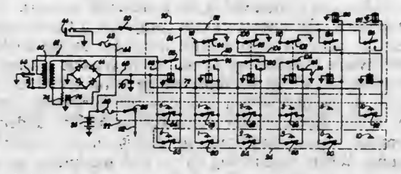
3,544,803
VEHICULAR ELECTRICAL SYSTEMS
Douglas W. Taylor, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Apr. 1, 1968, Ser. No. 717,826
Int. Cl. H04q *3/02*
U.S. Cl. 307—10 **38 Claims**

A power distribution line and a signal distribution line are disposed throughout a vehicle and connected to control and function performing stations. A master sequencer emits signals over the signal line for sequentially addressing sets of stations, each set of stations having one station emitting a control or indicating signal to a corresponding function performing station. Control and indicating signals are transferred over the signal line inter-

mediate successively occurring address signals. Pulsating power is supplied over the power line and is used to synchronize the station addressing. DC power is distributed over a third line. Stations may have a memory capability.



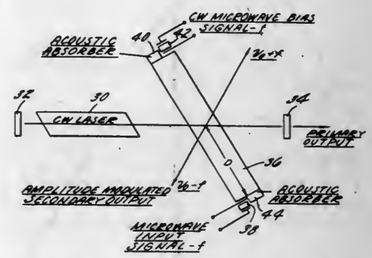
3,544,804
SEQUENCE INITIATED ELECTRICAL ACTIVATOR
David D. Gaumer, 1330 N. Walnut, Kingman, Kans. 67068; Charles D. Hanna, 525 N. Anna, Wichita, Kans. 67212; and Charles E. Bailey, W. 2nd St.; and Leighton E. Trickel, N. Chariton St., both of Kingman, Kans. 67068
Filed Dec. 16, 1968, Ser. No. 784,032
Int. Cl. B60r *25/04*
U.S. Cl. 307—10 **10 Claims**



A security system especially adapted for an automotive vehicle employs a register which establishes a security combination through the use of a plurality of electrical components, such as relays, operable only in a predetermined sequence. Keyboards on the driver's door and the dash have numbered keys or push buttons which actuate switches that, in turn, operate the components within the register. When the proper combination is formed by sequential actuation of the keys, a lock release solenoid in the door or the starter circuit for the vehicle engine may be operated to open the door or start the vehicle. Additional keys are provided on each keyboard to minimize the possibility of guessing the combination, resetting of the register being effected if any of such additional keys are depressed or if the keys representing the combination are actuated in other than the proper order. The combination is readily changed through the use of a plug and jack patch panel which may be locked within the trunk of the vehicle.

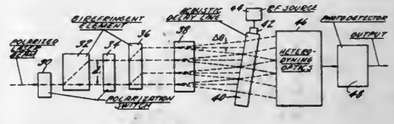
3,544,805
LASER DELAY LINE USING BIASING SIGNAL
Anthony J. De Maria, West Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed May 23, 1966, Ser. No. 552,077
Int. Cl. H01s *3/10*
U.S. Cl. 307—88.3 **5 Claims**

1. A signal delay apparatus comprising
means for generating a laser beam including a laser medium having a pair of end reflectors to form a feedback cavity, at least one of said reflectors being spaced from said laser medium,
an acoustic transmitting medium positioned between said laser medium and said spaced reflector, said acoustic medium having first and second opposed ends,
a first transducer connected to said medium at said first end and a second transducer connected to said medium at said second end,
first and second acoustic absorbers mounted at the second and first ends respectively of said acoustic medium, each said absorber being located opposite said first and second transducers respectively,



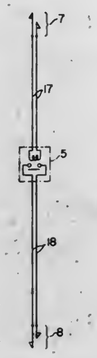
means for supplying an input signal to said first transducer for generating a first acoustic wave within said acoustic medium,
and means for supplying an input signal to said second transducer for generating a second acoustic wave within said acoustic medium parallel to said first acoustic wave and in the opposite direction therefrom,
both said first and second acoustic waves propagating through said acoustic medium and intersecting said laser feedback radiation to cause said laser radiation to be diffracted and produce an output signal from said laser beam.

3,544,806
CONTINUOUSLY VARIABLE LASER-ACOUSTIC DELAY LINE
Anthony J. de Maria, West Hartford, and Michael J. Brienza, Vernon, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Mar. 4, 1968, Ser. No. 710,379
Int. Cl. H03h *7/30*
U.S. Cl. 307—88.3 **9 Claims**



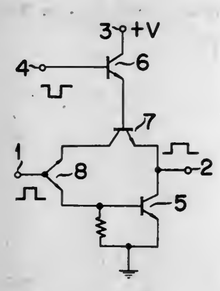
A laser beam is propagated through an acoustic cell, in which an electrical signal generates a high-frequency acoustic wave, and the laser beam intersects the acoustic wave at the Bragg angle. The laser beam is thereby Bragg diffracted, and the zero order and diffracted order beams are heterodyned at a photodetector to reproduce the electrical signal. A beam scanner is positioned before the acoustic cell to vary the position along the cell at which the laser beam intersects the acoustic wave and thereby vary the time delay between the generation and reproduction of the acoustic wave.

3,544,807
CONTROL CIRCUIT CONNECTING CORDS
Shunsei Kratomi, Tokyo, Japan (456 Maegawa, Tachibana-machi Ashigara-shimo-gun, Kanagawa-ken, Japan)
Application Aug. 30, 1966, Ser. No. 588,642, now Patent No. 3,475,747, dated Oct. 28, 1969, which is a continuation of application Ser. No. 436,743, Mar. 3, 1965. Divided and this application June 2, 1969, Ser. No. 842,419
Claims priority, application Japan, Mar. 7, 1964, 39/12,506, 39/12,508, 39/12,509; Jan. 13, 1965, 40/1,359, 40/1,360, 40/1,362
Int. Cl. H01r *35/00*
U.S. Cl. 307—112 6 Claims



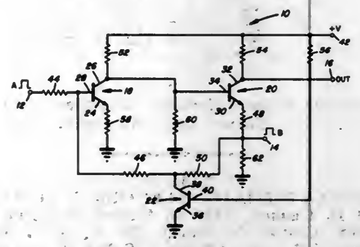
Connecting cord for control circuits and the like having primary and secondary leads and an isolation device, such as a transformer or relay, for transmitting electrical signals between the primary and secondary leads.

3,544,808
HIGH SPEED SATURATION MODE SWITCHING CIRCUIT FOR A CAPACITIVE LOAD
Hisakazu Mukai, Tokyo, Japan, assignor to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan, a corporation of Japan
Filed Mar. 19, 1968, Ser. No. 714,245
Claims priority, application Japan, Mar. 25, 1967, 42/18,292
Int. Cl. H03k *19/36, 19/40*
U.S. Cl. 307—214 7 Claims



In a semiconductor switching circuit including an output transistor connected to a load circuit on its output side, a first transistor is connected to the output side of the output transistor to accelerate charging and discharging of a capacitive load at the time of switching operation of the output transistor and a second transistor is interposed between said two transistors at the emitter junction thereof, the collector electrode of the second transistor being connected to the input side of the output transistor via a branch circuit.

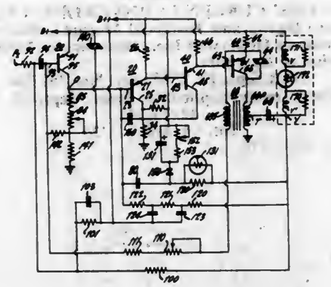
3,544,809
MULTIFUNCTIONAL CIRCUIT
Vasil Uzunoglu, Ellicott City, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 22, 1967, Ser. No. 669,964
Int. Cl. H03k *19/20*
U.S. Cl. 307—216 11 Claims



The subject invention relates to a multifunctional circuit which is capable of serving as an Exclusive-OR circuit, an FM modulator, a voltage controlled oscillator and a linear amplifier, and which can easily be fabricated in the form of a monolithic semiconductor network. More particularly, the instant circuit comprises a two-transistor feedback network with a third transistor in the feedback path. When functioning as an Exclusive-OR circuit, the third transistor can be replaced by a tunnel diode connected in parallel with a resistor—the third transistor or the tunnel diode-resistor combination acting, under appropriate input conditions, to divert circuit current to ground. When functioning as an FM modulator or as a voltage controlled oscillator, the base of the third transistor is associated with an external signal source in such a manner that the resonant frequency of the circuit is controlled by adjusting the signal applied to the base of said third transistor, which, in turn, adjusts the capacitive reactance of the feedback path.

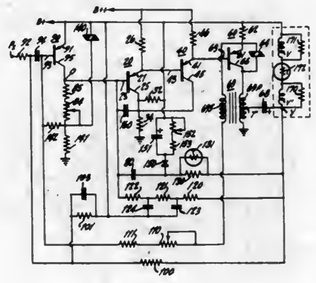
3,544,810
SPURIOUS OSCILLATION SUPPRESSION IN TRANSISTOR DEFLECTION CIRCUITS
James A. McDonald and Todd J. Christopher, Indianapolis, Ind., assignors to RCA Corporation, a corporation of Delaware
Application June 6, 1968, Ser. No. 739,938, now Patent No. 3,488,553, dated Jan. 6, 1970, which is a continuation of application Ser. No. 455,682, May 14, 1965. Divided and this application Jan. 27, 1969, Ser. No. 794,150
Int. Cl. H03k *4/56*
U.S. Cl. 307—228 2 Claims

Transistorized vertical deflection circuit for a television receiver avoids use of an electrolytic capacitor as the timing or sawtooth capacitor in the deflection wave generator through use of a "Miller integrator" approach, with the sawtooth voltage waveform developed across a capacitor in a negative feedback path looped around high gain transistor amplifier. Cascaded emitter followers are employed within loop to drive output transistor of the amplifier, and provide high input impedance for amplifier, enhancing proper Miller integrator action. Collectors of the cascaded emitter followers are provided with a common collector impedance of such value as to constitute an insignificant load at desired frequencies of operation. A capacitor is coupled between the common collector impedance and the input of the cascaded emitter followers.



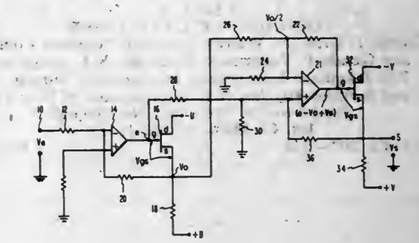
At high frequencies (e.g., several megacycles) for which regenerative loops may undesirably be otherwise associated with the high gain amplifier, negative feedback via the capacitor introduces sufficient degeneration to preclude sustaining of oscillations.

3,544,811
LOCK-ON PREVENTION IN TRANSISTOR DEFLECTION CIRCUITS
James A. McDonald and Todd J. Christopher, Indianapolis, Ind., assignors to RCA Corporation, a corporation of Delaware
Application June 6, 1968, Ser. No. 739,938, now Patent No. 3,488,553, dated Jan. 6, 1970, which is a continuation of application Ser. No. 455,682, May 14, 1965. Divided and this application Jan. 27, 1969, Ser. No. 794,151
Int. Cl. H03k *4/56*
U.S. Cl. 307—228 3 Claims



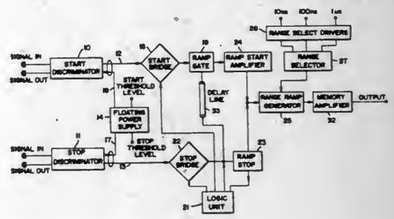
Deflection circuit involves sawtooth waveform generation across a capacitor in a negative feedback path looped around a high gain transistor amplifier. Capacitor is subject to alternate charging and discharging as a switching transistor, connected to the amplifier input terminal, is altered between conducting and nonconducting states; switching between these two states occurs on a recurrent, oscillatory basis, the switching transistor cooperating with the output stage of the transistor amplifier in the fashion of an astable multivibrator. To preclude output stage, on turn-on of the receiver, from locking on in saturation and preventing desired multivibrator action, a low-valued resistor is provided in the emitter circuit of the output stage, and a direct current conductive feedback path is provided between said emitter circuit and the input electrode of the switching transistor.

3,544,812
ANALOG MULTIPLIER
Vladimir Riso, Nice, France, assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Dec. 18, 1967, Ser. No. 691,471
Int. Cl. G06g *7/16*
U.S. Cl. 307—229 8 Claims



The analog multiplier makes use of a variable impedance characteristic of a field effect transistor as controlled by its gate-to-source voltage Vgs. The output of a high gain difference amplifier is applied to the gate of a field-effect transistor. The drain of the transistor is connected to a negative potential source —U, while the source terminal of the transistor is connected through an output resistor to a positive potential source +U of the same magnitude. A first input to the difference amplifier is driven by analog signal Ve through a resistor; the other input of the difference amplifier is grounded. In addition, the source terminal is also connected via a feedback resistor to the first input of the difference amplifier.

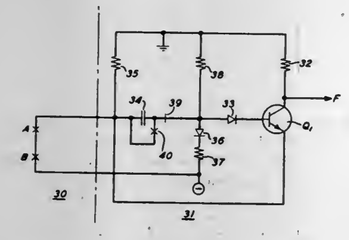
3,544,813
TIME TO HEIGHT CONVERTER
Arthur E. Bjerke, Walnut Creek, Calif., assignor to E-H Research Laboratories, Inc., Oakland, Calif., a corporation of California
Filed Dec. 14, 1967, Ser. No. 690,448
Int. Cl. H03k *5/18*
U.S. Cl. 307—232 6 Claims



A time to height converter which provides start and stop pulses in response to a test signal reaching two predetermined threshold levels of a test waveform. The time interval between the start and stop signal is converted

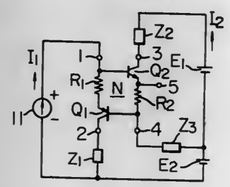
to a height proportional to the time interval. A discriminator pair of transistors are coupled in close proximity to a device under test to sense the test signal waveform. Each discriminator has a floating power supply for its positive and negative voltage sources. The floating power supply maintains a constant voltage difference between the programmed threshold level input and the voltage sources. A range ramp generator is turned on by a start pulse to couple a constant current source to an integrating capacitor and decouples the current source from the capacitor by a stop signal which overrides the start signal. The integrating capacitor is charged to a magnitude proportional to the time interval between the start and the stop pulses.

3,544,814
COINCIDENCE GATE TIMER
George T. Kraemer, Warren Township, Somerset County, and Gerald P. Pasternack, Matawan, N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Nov. 29, 1967, Ser. No. 686,605
Int. Cl. H03k 17/28, 19/22
U.S. Cl. 307—246 3 Claims



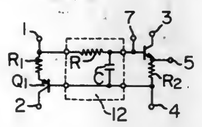
A telephone protection of service system is described which includes a timing circuit relying upon a single stage responsive only to both of two inputs to produce a delayed output that minimizes the risk of mistriggering on voice signals.

3,544,815
ELECTRIC CURRENT CONVERTING CIRCUIT
Shinichiro Ogawa and Toshiyuki Matsuda, Tokyo, Japan, assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Sept. 16, 1968, Ser. No. 759,945
Claims priority, application Japan, Sept. 18, 1967, 42/59,393
Int. Cl. H03k 3/26
U.S. Cl. 307—270 1 Claim



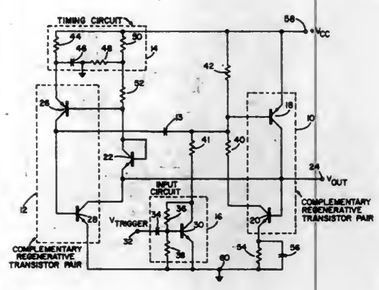
A first serial connection comprises a first resistor, a first transistor and a first load. A second serial connection comprises a second load, a second transistor, a second resistor and a third load. The first serial connection is connected parallel to the second serial connection. A current of a magnitude proportional to the magnitude of the current in the first load is obtained in the second and third loads.

3,544,816
ELECTRIC CURRENT CONVERTING CIRCUIT
Shinichiro Ogawa and Toshiyuki Matsuda, Tokyo, Japan, assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Sept. 16, 1968, Ser. No. 759,946
Claims priority, application Japan, Sept. 18, 1967, 42/59,394
Int. Cl. H03k 3/26
U.S. Cl. 307—270 1 Claim



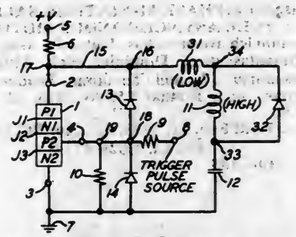
A first serial connection comprises a first resistor, a first transistor and a first load. A second serial connection comprises a second load, a second transistor, a second resistor and a third load. The first serial connection is connected parallel to the second serial connection. A current of a magnitude proportional to the magnitude of the current in the first load is obtained in the second and third loads. Between the first and second serial connections a filter circuit is provided.

3,544,817
MICROPOWER COMPLEMENTARY MONOSTABLE MULTIVIBRATOR
Alan G. Thiele, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Oct. 27, 1967, Ser. No. 678,554
Int. Cl. H03k 3/26
U.S. Cl. 307—273 9 Claims



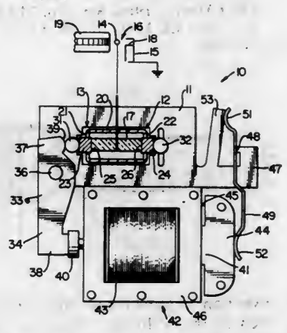
Disclosed is a low power monostable multivibrator employing complementary bipolar transistors and is characterized by a fast output pulse rise time, a fast output pulse fall time, a high duty cycle capability, a high trigger sensitivty, and high output pulse width stability. One pair of complementary transistors in the multivibrator rapidly responds to an input trigger pulse to switch the multivibrator from one to another of its two conductive states, and another complementary transistor pair responds to a timing signal a predetermined time after the multivibrator has changed states to return the multivibrator to its standby state.

3,544,818
THYRISTOR SWITCH CIRCUIT
William B. Harris, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 26, 1967, Ser. No. 693,272
Int. Cl. H03k 3/335, 3/26
U.S. Cl. 307—284 12 Claims



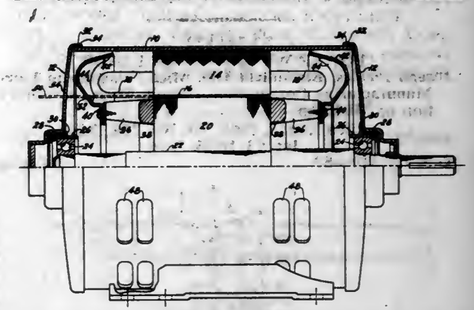
Heretofore, when a thyristor switch circuit has employed a resonant circuit, including a series connected inductor and capacitor, for turning off the thyristor, the minimum pulse width that could be obtained was usually greater than twice the recovery time of the thyristor. It has now been discovered that an approximately 30 percent reduction in this minimum pulse width can be effected by connecting a second inductor in series with the first-mentioned inductor. This second inductor is selected to have an inductance value which is different from that of the first inductor. A diode is connected in parallel with that one of the inductors which has the larger inductance value. The diode is so poled as to provide a shunt path across the larger inductor only during the initial portion of a pulse. This provides a greater ratio of turn-off time to pulse width and thereby produces a narrower pulse for a given turn-off time.

3,544,819
IGNITION MEANS FOR A COOKING APPARATUS OR THE LIKE
Arthur L. Good, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed July 19, 1968, Ser. No. 746,049
Int. Cl. H01v 7/00
U.S. Cl. 310—8.7 12 Claims



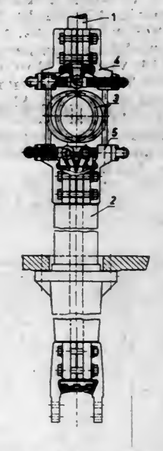
This disclosure relates to an improved means for altering the stresses in piezoelectric crystal means for spark igniting purposes and the like, the stresses in the crystal means being altered by an electromagnetic motor means having its armature balanced between the force of a spring means and the compressive force of the crystal means being operatively interconnected to one end of the armature by a lever means pivotally mounted between the ends thereof.

3,544,820
ELECTRIC MOTOR WITH END SHIELD AND BEARING ARRANGEMENT AND COOLING SYSTEM
Lawrance W. Wightman, St. Louis County, Mo., assignor to Emerson Electric Co., St. Louis, Mo., a corporation of Missouri
Filed Jan. 8, 1969, Ser. No. 789,746
Int. Cl. H02k 5/10, 5/16, 15/14
U.S. Cl. 310—42 4 Claims



A "take apart," ball bearing, electric motor in which dimensional and alignment tolerances are accumulated in relatively small diameter, annular, cemented joints between the bearings and bearing supporting end shields, in which the end shields are closely fitted at their peripheries to the ends of a cylindrical stator shell and detachably connected thereto by a very thin, frangible, cemented joint, and in which large diameter cooling fans rotate in the space at the ends of the casing usually occupied by through bolts or attaching lugs.

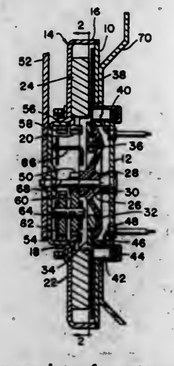
3,544,821
HIGH-POWER TURBOGENERATOR WITH DIRECTLY COOLED STATOR WINDING AND LEADS
Günter Garnitschnig, Birr, Hans Herrmann, Baden, and Hans Wälchli, Nussbaumen, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland, a joint-stock company
Filed Aug. 4, 1969, Ser. No. 847,035
Claims priority, application Switzerland, Aug. 15, 1968, 12,299/68
Int. Cl. H02k 9/19
U.S. Cl. 310—54 3 Claims



A flexible electrical and hydraulic connection between the hollow leads of a hollow stator winding of a high-

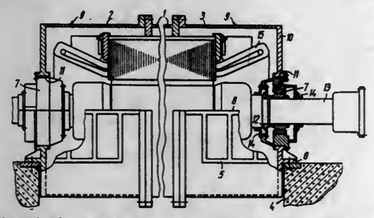
power turbogenerator and corresponding terminal bushings in the stator casing through which a fluid coolant is passed comprises a plurality of spirally-shaped electrically conductive pipes arranged electrically and hydraulically in parallel. Distribution headers are located at the lead and bushing ends of the pipes and the coolant passes through adjacent pipes in opposite directions so as to avoid creation of a magnetic field that could produce leakage fluxes in the region of the terminal box.

3,544,822
POWER WINDOW REGULATOR
Joseph Pickles, Bloomfield Hill, Mich., assignor to Ferro Manufacturing Corporation, Detroit, Mich., a corporation of Michigan
Filed Aug. 5, 1968, Ser. No. 750,324
Int. Cl. H02k 7/06
U.S. Cl. 310—83 6 Claims



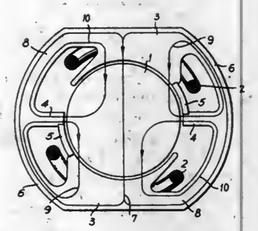
A power window regulator for automotive vehicles comprises a flat pancake motor which includes a circular array of flat permanent magnets. Epicyclic gearing is partly disposed in a central zone lying radially inwardly from the magnets and include an internal output gear connected to a window actuating arm. The motor includes a rotatable armature connected to a sun gear forming a part of the epicyclic gearing.

3,544,823
HIGH POWER ELECTRICAL MACHINE SUCH AS A TURBOGENERATOR
Alexandr Abramovich Chigirinsky, Ulitsa Kuibysheva 11, kv. 8; Boris Volkovich Spivak, Ulitsa Kosiora 56, kv. 55; Lazar Yankelevich Stanislavsky, Ulitsa Mayakovskogo 11, kv. 24; Vladimir Mordokheevich Rabinovich, prospekt Pravdy 7, kv. 186; Anatoly Kuzmich Levitsky, prospekt Frunze 46, kv. 27; Alexandr Ivanovich Kraschenko, Ulitsa Fesenkovskaya 12/14, kv. 4; Oleg Borisovich Gradov, Ulitsa Kosiora 6, kv. 1; and Evgeny Khaimovich Glider, Prospekt Ordzhonikidze 18, kv. 55, all of Kharkov, U.S.S.R.
Filed Dec. 17, 1968, Ser. No. 784,318
Int. Cl. H02k 5/00
U.S. Cl. 310—89 2 Claims



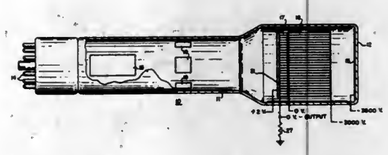
An electrical machine has a stator comprising a middle portion and adjacent its ends horizontally split enclosures in which the front portions of the machine are disposed. The bearings of the machine are positioned in the end walls of the enclosures.

3,544,824
SINGLE-PHASE MINIATURE SALIENT POLE ASYNCHRONOUS MOTOR
Pavel Ivanovich Kostrauskas, Ulitsa Ju. Gagarina 18, kv. 1; Rimantas-Ionas Dominikovich Mukulis, Ulitsa Kaishyadorju 37; and Teodoras Teodorovich Shimkevichjus, allea Biduno 25, kv. 318, all of Kaunas, U.S.S.R.
Filed Feb. 21, 1968, Ser. No. 707,149
Int. Cl. H02k 1/14
U.S. Cl. 310—185 2 Claims



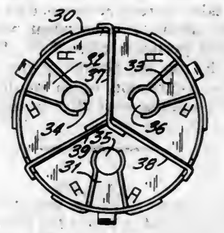
A single phase asynchronous motor wherein the stator has narrow poles without field windings alternating with wide poles provided with field windings. Shunts connect the poles in pairs and the yoke portions associated with the connected poles have cross-sectional areas which are smaller than the yoke portions associated with the unconnected poles.

3,544,825
CAMERA TUBE INCLUDING CHANNEL ELECTRON MULTIPLIER AND CHANNEL STORAGE SECTION
Talbot A. Chubb, 5023 38th St. North, Arlington, Va. 22207
Filed Mar. 6, 1968, Ser. No. 710,967
Int. Cl. H01j 31/26, 31/36
U.S. Cl. 313—65 9 Claims



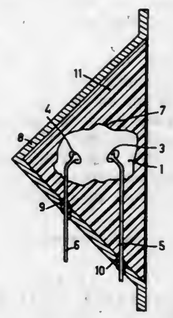
This invention is concerned with electronic imaging devices such as the orthicon, vidicon or image amplifier vidicon type. This imaging tube comprises four distinct sections, (1) a photoelectric surface which converts an optical image to an electron image, (2) an image amplifier comprising an array of channel amplifier imaging tubes, (3) an array of charge accumulating elements, and (4) an electron gun with conventional focusing and deflection means for sequentially scanning and neutralizing the stored image. The array of charge accumulating elements are unique and avoid the necessity of the usual insulator storage element.

3,544,826
CONVERGENCE ASSEMBLY
John McQueen, Bloomfield, and Leonard D. Minutillo, Sayreville, N.J., assignors to Griffiths Electronics Inc., Linden, N.J., a corporation of New Jersey
Filed Apr. 1, 1969, Ser. No. 812,131
Int. Cl. H01j 29/70
U.S. Cl. 313—77 6 Claims



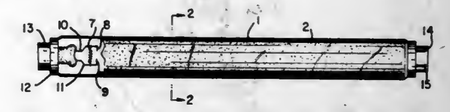
A convergence assembly for use in color television kinescopes in which the internal pole pieces are secured to the housing thereof by means of an ear or tab portion engaging a slot in the housing and by means of a substantially T shape arrangement mechanically connected to exert a force on the pole pieces tending to keep them in proper alignment position. An interleaving sheet arrangement is further provided to shield the magnetic field associated with one pole pair from the magnetic field associated with a second such pair.

3,544,827
MOUNTING FOR SEMICONDUCTOR RADIANT ENERGY SOURCE
Petrus Johannes Julius Witterick, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 9, 1967, Ser. No. 673,707
Claims priority, application Netherlands, Oct. 7, 1966, 6614122
Int. Cl. H01j 1/62, 63/04
U.S. Cl. 313—108 5 Claims



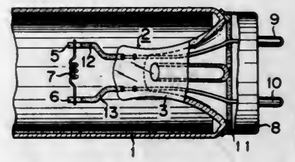
A tiny semiconductor element, with electrode means, which is structured to emit light by electron-hole injection and recombination, is compactly mounted in the interior of a reflector by transparent casting means having a refractive index exceeding about 1.1. The semiconductor element is oriented in the interior of the reflector so as to concentrate the emitted radiation in a uniform direction with minimum energy loss. According to the preferred embodiment, the invention comprises a plate of gallium phosphide mounted in the interior of a conical reflector so that the principal optical axis of the reflector lies in or parallel to the major surfaces of the plate.

3,544,828
ELECTRIC DISCHARGE LAMP HAVING A CONTINUOUS THREE-DIMENSIONAL COATING ON THE INNER SURFACE OF THE ENVELOPE
André C. Bouchard, Peabody, Peter W. Gaudet, Lynn, and Martha J. B. Thomas, Winchester, Mass., assignors to Sylvania Electric Products, Inc., a corporation of Delaware
Filed Sept. 25, 1967, Ser. No. 670,268
Int. Cl. H01j 1/62, 63/04
U.S. Cl. 313—109 7 Claims



An electric discharge lamp having a thin, continuous, three-dimensional, amorphous film of crosslinked silicon and oxygen atoms on the inner surface of the glass envelope which inhibits the formation of a dark mercury-alkali amalgam deposit and thereby improves the light maintenance during the life of the lamp. A thin coating of a polyorganosiloxane resin is deposited on the glass, dried, cured and then oxidized at an elevated temperature to form the continuous film. Controlled oxidation eliminates the organic constituents without rupturing the —Si—O—Si— linkages.

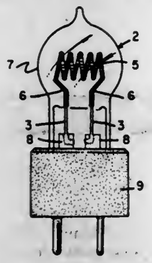
3,544,829
LOW PRESSURE MERCURY VAPOUR DISCHARGE LAMP
Akira Someya, Yokohama-shi, Teizo Hanada, Saitama-ken, and Tadaaki Watanabe, Hyogo-ken, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed Feb. 3, 1969, Ser. No. 796,031
Claims priority, application Japan, Feb. 3, 1968, 43/6,428
Int. Cl. H01k 1/56
U.S. Cl. 313—178 10 Claims



A low pressure mercury vapour discharge lamp has a getter disposed on said mounts except those portions thereof which are coated with said activated electron-emitting materials. The getter comprises a mixture of a least one metal selected from a first group consisting of nickel, cobalt, iron, aluminium and copper, and at least one metal selected from a second group consisting of titanium, zirconium, hafnium, thorium, vanadium, niobium, tantalum, scandium, cerium and tungsten, said mixture containing 5 to 90 percent by weight of said at least one

metal selected from said second group. Said getter functions to decrease the occurrence of end bands while said discharge lamp is lit, with no increase in anode spots.

3,544,830
QUARTZ-HALOGEN LAMP AND METHOD OF MAKING
Frederick J. George, Hamilton, Mass., and Edmund R. Kern, Hampton, N.H., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Oct. 25, 1968, Ser. No. 770,569
Int. Cl. H01k 1/18, 3/06
U.S. Cl. 313—271 5 Claims

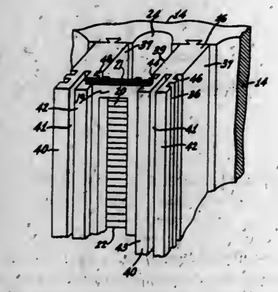


The legs of a U-shaped support wire are inserted into the coiled legs of a tungsten filament. The corners of the support wire are then welded to separate ribbon connectors and, after the filament assembly is mounted for press sealing, the crossbar of the U is severed. The ribbon connectors are then press sealed in a lamp envelope and the lamp is completed by exhausting, filling and sealing.

ERRATUM

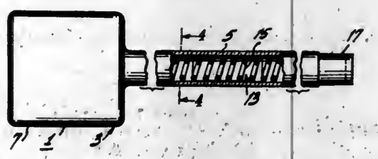
For Class 313—278 see:
Patent No. 3,543,962

3,544,831
GRID SUPPORT FOR ELECTRON TUBES
Fred G. Hammersand, East Petersburg, and William A. Novajovsky, Lancaster, Pa., assignors to RCA Corporation, a corporation of Delaware
Filed Oct. 23, 1967, Ser. No. 678,775
Int. Cl. H01j 1/46, 17/04, 19/38
U.S. Cl. 313—348 12 Claims



A grid support structure for an electron tube has an elongated finlike grid support adapted to support two adjacent edge regions of two adjacent grid sections, and a two thin strips of a material having a relatively low coefficient of thermal expansion brazed one to the top and the other to the bottom of each grid section. A longitudinal slot extends into an end region of the finlake supports to permit independent bending movement of portions of the two sides of the finlike support and thereby isolates the thermally induced movements of the two grid sections. The finlike grid support also has longitudinal slots in the sides thereof perpendicular to the slot in the end region to facilitate independent bending movements of the support portions referred to. The thin strips of material on the top and bottom of the grid sections prevent excessive contraction which would otherwise result when the grid sections cool after brazing.

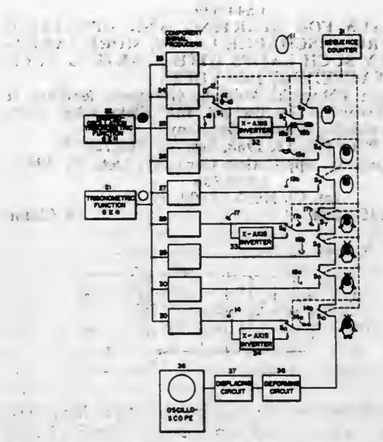
3,544,832
TRAVELING WAVE TUBE WITH EVAPORATED NICKEL ATTENUATOR COATING AND METHOD OF MANUFACTURE THEREOF
Jack Brous, Livingston, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,929
Int. Cl. H01j 25/34
U.S. Cl. 315—3.5 11 Claims



A traveling wave amplifier tube is provided with an attenuator in the form of a thin resistive evaporated metal coating of precisely controlled thickness on the inner wall of the glass envelope, and the helix is mounted within the envelope in firm contact with the atteunator coating. The attenuator coating comprises a central region of uniform thickness merging with end regions smoothly tapered to zero thickness. An envelope with three longitudinal ribs is shown, with the helix slightly embedded in the ribs. The attenuator coating is formed by plating a precise amount of nickel, for example, on a tungsten wire of given length, mounting the coated wire coaxially in the envelope and passing an electric current through the wire for a time sufficient to envaporate nearly all of the nickel from the wire and onto the wall. Due to end cooling and geometry effects, the ends of the wall coating are tapered to zero thickness, with the overall length of the attenuator coating somewhat less than the length of the wire.

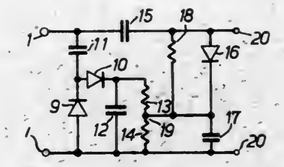
3,544,833
ANIMATABLE PICTURE-IMAGE REPRESENTING SYSTEM
Takeo Miura, 20–4 5-chome, Honda, Kokubunji-shi, Japan; Junzo Iwata, 201 Meguridacho, Kodaira-shi, Japan; and Junji Tsuda, 344 1 cho, Nakano, Hachioji-shi, Japan
Filed June 22, 1967, Ser. No. 648,100
Claims priority, application Japan, June 22, 1966, 41/40,078
Int. Cl. H01j 29/70
U.S. Cl. 315—18 6 Claims

An animatable picture-image representing system for developing a number of component signals, each indicating partial components of an original figure to be represented. The component signals are prepared by analogical operational circuits, and are combined time-sequentially under the control of a suitable sequence counter to form a picture-image on an oscilloscope. The animation of the picture-image on the oscilloscope observing screen is carried out by means for deforming the component signals



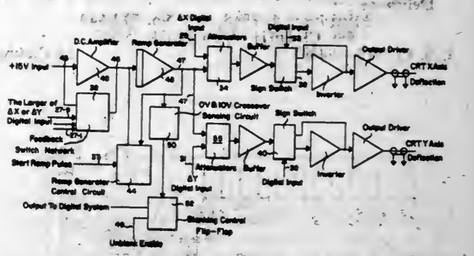
optionally and for deforming and displacing the composite picture image.

3,544,834
OSCILLOSCOPE OPERATING CIRCUITS
Thomas Bates, Garston, Watford, England, assignor to Marconi Instruments Limited, London, England, a British company
Filed Feb. 3, 1969, Ser. No. 796,015
Claims priority, application Great Britain, Feb. 13, 1968, 6,911/68
Int. Cl. H01j 29/70
U.S. Cl. 315—18 6 Claims



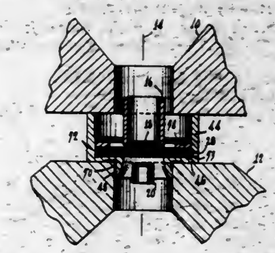
In an oscilloscope operating circuit arrangement of the kind wherein a time base is automatically triggered into operation under the control of an input waveform which is to be displayed the input wave form is applied to a circuit which produces a similar waveform which is substantially symmetrical about a fixed potential. This similar waveform is used to trigger the time base by means of an electronic switch adapted to trigger the time base to commence a time base excursion in response to a predetermined amplitude of the waveform.

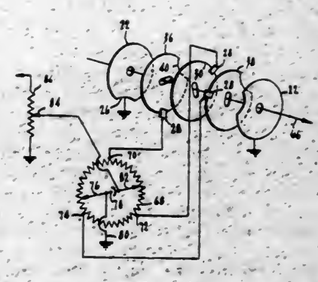
3,544,835
DIGITALLY CONTROLLED GENERATION OF A TRACE
Asger T. Nielsen, El Cajon, Calif., assignor, by mesne assignments, to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 15, 1966, Ser. No. 542,975
Int. Cl. H01j 29/52, 29/72
U.S. Cl. 315—22 10 Claims



A line generator including a cathode ray tube and digitally controlled circuitry for so controlling the sweep of the cathode ray beam as to produce a generally uniform trace of specified length and direction.

3,544,836
SLOT STIGMATOR
John H. Reisner, Haddonfield, N.J., assignor, by mesne assignments, to Forgflo Corporation, Sunbury, Pa., a corporation of Delaware
Filed Apr. 27, 1966, Ser. No. 545,681
Int. Cl. H01j 29/56
U.S. Cl. 315—31 5 Claims

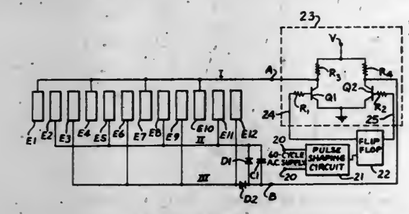




Disk means are disclosed to overcome the defocusing effect of a non-symmetrical magnetic electron lens in an electron microscope. The disk means is thin enough to fit between the pole pieces of the magnetic lens and still leave room for the specimen to be inserted between the pole pieces of the magnetic lens. The disk means includes

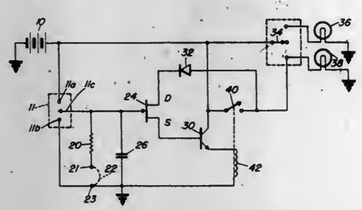
a plurality of disks so constructed and arranged as to produce a plurality of different and distinct electron lenses.

3,544,837
ELECTRONIC COUNTING OR TIMEKEEPING SYSTEM USING GLOW DISCHARGE TUBE
Joseph Mangaly, Glasgow, Scotland, assignor to General Time Corporation, Stamford, Conn., a corporation of Delaware
Filed Nov. 1, 1968, Ser. No. 772,649
Int. Cl. H01j 17/36; H03k 25/00
U.S. Cl. 315—84.6 **13 Claims**



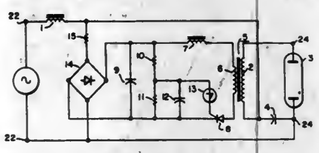
A glow tube counting or indicating system in which the glow tube has three separate groups of electrodes, one electrode of each group being disposed between two electrodes of the other two groups. One group of electrodes is connected to a first input means and the other two groups of electrodes are connected to a second input means. An alternating voltage, which acts as the transfer potential, is applied across the two input means.

3,544,838
HEADLAMP TIME DELAY CIRCUIT AND MEANS FOR ADJUSTMENT THEREOF
Winford B. Carruth and Ralph W. Carp, Baltimore, Md., assignors to The Bendix Corporation, a corporation of Delaware
Filed June 6, 1968, Ser. No. 735,134
Int. Cl. B60q 1/06, 1/08
U.S. Cl. 315—83 **9 Claims**



An automotive time delay circuit which automatically turns off the headlamps a fixed time after a control switch is opened wherein a relay coil, when energized, closes relay contacts paralleling the normal headlamp switch thus connecting the headlamps to the automobile battery. An RC discharge circuit, arranged to be charged when the control switch is closed and to discharge according to its time constant when the control switch is opened, biases the gate of a field effect transistor. The field effect transistor in turn applies forward bias to a control transistor which controls the current flow through the relay coil. In one embodiment of the invention the ignition switch acts as the control switch and the relay contacts not only apply power to the headlamp circuit, but also apply power to the control transistor and the field effect transistor, thus, the relay is self-latching so that the circuit will not operate unless the ignition switch is opened before the manual headlamp switch is opened, the manual headlamp switch having shunted the latching relay contacts. In a second embodiment an auxiliary switch acts as the control switch and the control transistor is connected directly between the battery and the relay coil so that the time delay circuit will operate whenever the auxiliary switch is momentarily closed.

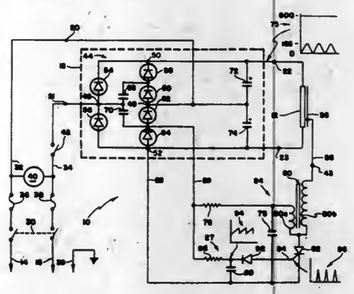
3,544,839
APPARATUS FOR STARTING AND OPERATING ELECTRIC DISCHARGE LAMPS, MORE PARTICULARLY SUCH LAMPS WITH STARTING VOLTAGES EXCEEDING 1000 VOLTS
Hans-Jürgen Fähnrich, Munich, Germany, assignor to Patent-Treuhand-Gesellschaft fur Elektrische Gluhlampen m.b.H., Munich, Germany
Filed Oct. 11, 1968, Ser. No. 766,728
Claims priority, application Germany, Oct. 19, 1967, 1,589,306
Int. Cl. H05b 37/00, 39/00
U.S. Cl. 315—200 **6 Claims**



Apparatus for operating high-pressure vapor lamps having a high starting voltage comprises an inductive ballast connected in series with the secondary winding of a high frequency transformer. During starting of the lamp, a pulse generating circuit applies high voltage pulses across the lamp and after the lamp is operational, the pulse generating circuit does not operate.

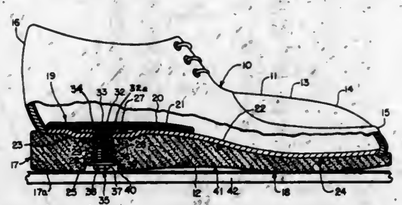
The subject matter of the invention is an apparatus for starting and operating electric discharge lamps, more particularly A.C. energized high pressure and super-high-pressure lamps with a gas or vapor filling, such as high pressure sodium or mercury vapor lamps with or without additives, with a starting voltage exceeding 1000 volts.

3,544,840
VOLTAGE MULTIPLIER POWER SUPPLY FOR GAS-DISCHARGE LAMPS
George P. Salger, Schiller Park, Ill., assignor to Diversitronics, Inc., Wauconda, Ill., a corporation of Illinois
Filed Sept. 26, 1968, Ser. No. 762,694
Int. Cl. H05b 41/29, 41/231
U.S. Cl. 315—205 **11 Claims**



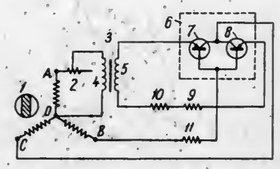
A compact power supply system for a gas-discharge lamp such as a xenon tube, employs a transformerless voltage multiplier of the capacitor-rectifier type and a pulse trigger circuit to provide continuous light emission from the lamp.

3,544,841
STATIC DISCHARGING FOOTWEAR
James R. Peel, Villa Park, Ill., assignor to The Conductive Research Corporation, Villa Park, Ill., a corporation of Illinois
Filed Dec. 14, 1967, Ser. No. 690,617
Int. Cl. H05f 3/00; A61r 1/14
U.S. Cl. 317—2 **9 Claims**



A static discharging footwear in the form of a conductive shoe comprising a conductive inner heel pad and an outer non-conductiev or conductive heel between a non-conductive insole, a shoe heel mounted ground piercing and contacting element conductive by coupling the heel pad with the outer heel, the conductive element being of metal or plastic and including a tubular element having an upper pad engaging edge portion with a set screw therein and a lower ground engaging cap screw threaded into the tubular portion and fixed by the set screw. The conductive element in the alternate comprises a shoe heel mounted conductive tube with opposed end plugs flaring the ends of said tube whereby the plugs and the tube communicate the conductive heel pad with the ground and/or conductive outer heel.

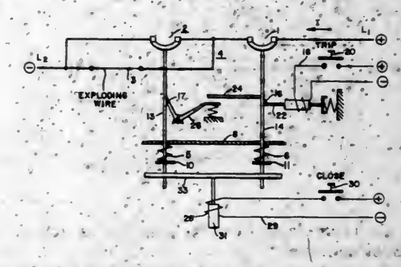
3,544,842
DEVICE FOR DETERMINING THE VALUE AND DIRECTION OF THE ANGULAR SPEED FOR ROTATION OF MACHINE PARTS
Zhozef Alexandrovich Yampolsky, Institutskaya ul. 52, kv. 7, Lvov, U.S.S.R.
Filed Oct. 31, 1967, Ser. No. 679,337
Int. Cl. G01p 3/44
U.S. Cl. 317—5 **8 Claims**



A tachometric device in which a polyphase generator is connected to a phase sensitive unit to which is connected a saturable core transformer.

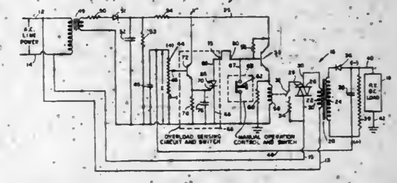
3,544,843
HIGH-VOLTAGE DIRECT CURRENT CIRCUIT INTERRUPTER
Andreas M. Slettten and Martin A. Uman, Penn Hills, Richard E. Orville, Pittsburgh, and Anthony J. Venturino, Verona, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 19, 1967, Ser. No. 691,760
Int. Cl. H02h 7/22
U.S. Cl. 317—11 **2 Claims**

A high-voltage direct-current circuit interrupter is provided by placing an exploding wire in electrical parallel with a circuit breaker. A second circuit breaker is disposed in series with the foregoing parallel arrangement. The sequence of operation is such that the sole series breaker opens first, drawing an arc between its electrodes and subsequently the parallel breaker opens. The arc voltage across the parallel breaker forces the DC current to flow



through the exploding wire and the arc in the parallel breaker is extinguished. Subsequently the exploding wire creates a current zero which extinguishes the arc in the series breaker and allows the series breaker to deionize and thus recover a withstand voltage resulting in a permanent interruption of the current flow.

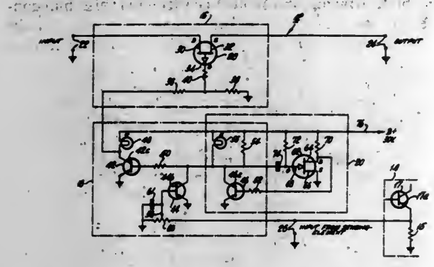
3,544,844
INTERLOCKED OPERATION CONTROL AND OVERLOAD PROTECTIVE CIRCUIT SYSTEM
Anthony J. Pellegrino, Brewster, N.Y., assignor to Hipotronics, Inc., Brewster, N.Y.
Filed July 11, 1969, Ser. No. 841,024
Int. Cl. H01h 47/04; H02h 3/20
U.S. Cl. 317—16 **7 Claims**



An interlocked operational control and overload protective circuit system is disclosed in which an overload sensing circuit and switch is connected in parallel interlocked relationship with a manually actuated control switch. When an overload occurs, the overload protective circuit automatically shuts off the flow of electrical power, and the interlocked arrangement prevents the reestablishing of electrical power flow until the operator has placed the manual control switch in the off position. When the operator again actuates the manual control switch, the flow of power is resumed, if the condition which caused the overload has been removed. The application of this system to protect high voltage utilization equipment, such as electrostatic spray equipment, flocking equipment, electrostatic dust precipitation and the like is described.

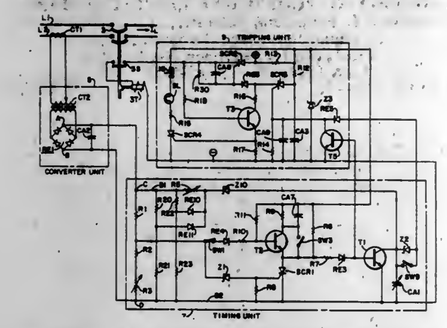
3,544,845
OVERLOAD PROTECTION CIRCUIT FOR TRANSISTORS
Constantine A. Spyrou, Island Park, N.Y., assignor to Harman-Kardon Inc.
Filed Nov. 6, 1967, Ser. No. 680,925
Int. Cl. H02h 7/00
U.S. Cl. 317—33 **6 Claims**

A circuit for preventing failure and other damage to transistors used in amplifiers and other load supplying devices in which a sensing means continuously monitors



nect the input signal from the amplifier as long as the condition continues.

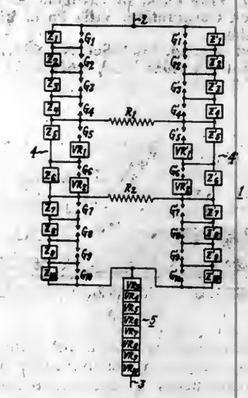
3,544,846
TIME DELAY CIRCUIT FOR ELECTRIC NETWORK PROTECTION
Francis T. Thompson, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 28, 1968, Ser. No. 708,898
Int. Cl. H01h *47/18*
U.S. Cl. 317—33 **18 Claims**



A protecting apparatus responsive to the magnitude of current through an electric transmission line and effective to actuate a disconnect switch whereby the line is disconnected from an electrical energy source in an inversely decreasing time interval with respect to the magnitude of the line current at magnitudes of line current above a predetermined minimum magnitude; the apparatus including a solid state timing network utilizing a plurality of diodes which at lower line current magnitudes are reversedly biased and which are sequentially forwardly biased to decrease the effective impedance of a capacitor charging circuit.

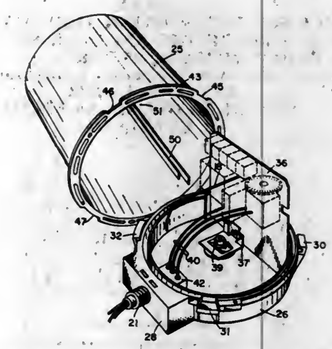
3,544,847
FLIP-FLOP LIGHTNING ARRESTER WITH REDUCED PROTECTIVE LEVEL
Eugene C. Sakshaug, Lanesborough, and James S. Kresge, Pittsfield, Mass., assignors to General Electric Company, a corporation of New York
Filed Sept. 16, 1968, Ser. No. 762,225
Int. Cl. H02h *1/00, 9/06*
U.S. Cl. 317—61 **6 Claims**

An auxiliary low resistance paralleling connection or connections is provided between equal fractions of electrically parallel current limiting gap columns which are in series with a common valve resistor column for preventing the protective level of a lightning arrester with flip-flop mode of operation from exceeding the arrester sparkover voltage. The parallel fractions of the columns each



include a like number of current limiting gaps and a like amount of valve resistance in series.

3,544,848
HOUSING FOR ELECTRONIC EQUIPMENT WITH ROTATABLE CIRCUIT BOARD MEANS
James A. Donewald, Northfield, and Henry E. Schaefges, Niles, Ill., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Oct. 2, 1968, Ser. No. 764,467
Int. Cl. H02b *1/10, 1/06*
U.S. Cl. 317—99 **8 Claims**

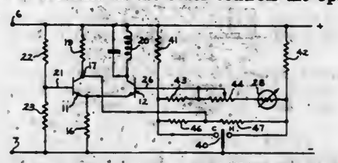


A sealed housing is provided for electronic equipment with the housing being adapted for mounting in any of four orientations. Means is provided for rotating a portion of the housing to maintain the electronic equipment in the required orientation without opening the housing.

3,544,849
SOLID STATE TEMPERATURE CONTROL MEANS
Lawrence W. Speaker, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Feb. 29, 1968, Ser. No. 709,417
Int. Cl. H01h *47/26*
U.S. Cl. 317—132 **3 Claims**

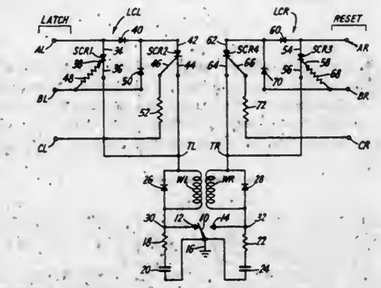
A solid state thermostat for controlling a space temperature conditoniing apparatus includes a differential amplifier circuit comprising a reference transistor and a load transistor with the load transistor connected to one terminal of a DC source through the operating coil of

a relay controlling the operation of the conditioning apparatus. Voltage dividing means including a thermistor responsive to the space temperature supplies a variable voltage to the load transistor base to control the firing thereof and thereby the energization of the apparatus. A positive or in phase feedback from the collector of one transistor to the base of the other controls the operating



temperature differential of the apparatus. In its application to the control of means for either heating or cooling a space, the voltage dividing means is so designed that by means of a single single-pole double throw switch, the connections of the load transistor voltage dividing means is reversed and also the feedback network is changed so that the same thermistor is employed for either heating or cooling control, with selected temperature differentials on heating and cooling.

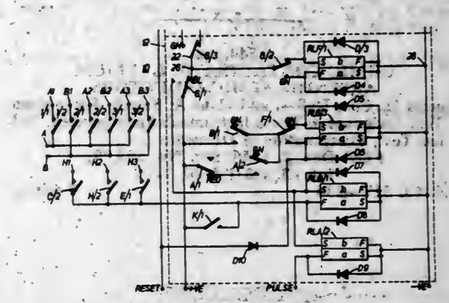
3,544,850
SOLID STATE LOGIC CIRCUIT MEANS WITH CONTROLLED LATCHING RELAYS AND THE LIKE
Charles F. Casson, Winslow, Ind., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Oct. 10, 1968, Ser. No. 766,496
Int. Cl. H01h *47/00*
U.S. Cl. 317—137 **17 Claims**



A logic relay circuit including a bistable relay having "set" and "reset" latching coil and a pair of logic circuits each connected to energize one of the coils by its output. Each logic circuit having a series of silicon controlled rectifiers, an input connected to the anodes of all the controlled rectifiers, and a plurality of other inputs each connected to the gate of one of the controlled rectifiers and to the anodes of all the subsequent controlled rectifiers so that simultaneous energization of any two inputs will fire at least one controlled rectifier to provide a coil energizing output.

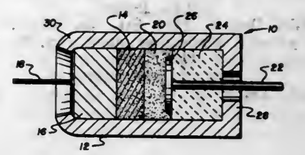
3,544,851
ELECTRIC STEPPING SWITCHES
Douglas Sydney Knights, West Wickham, England, assignor to B&R Relays Limited
Filed Nov. 18, 1968, Ser. No. 776,550
Claims priority, application Great Britain, Nov. 16, 1967, 52,273/67
Int. Cl. H01h *47/14*
U.S. Cl. 317—139 **11 Claims**

A uniselector stepping switch has a series of energising windings, which are to be successively energised in sequence, arranged alternately in two sub-circuits. A drive circuit responds to input pulses to energise the two sub-circuits alternately. Magnetically operable bistable con-



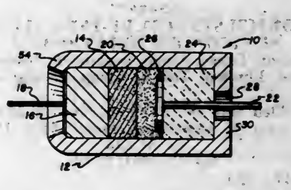
tacts operated by the respective windings prepare the next windings in the sequence for operation upon change-over of the sub-circuit being energised.

3,544,852
SOLID ELECTROLYTE ELECTROCHEMICAL TIMER HAVING A RELATIVELY STABLE PRESTRESSED CONDITION
Stuart Giles, Woodland Hills, Calif., assignor to North American Rockwell Corporation
Filed June 27, 1968, Ser. No. 740,632
Int. Cl. H01g *9/05, 9/06*
U.S. Cl. 317—230 **5 Claims**



An improved electrochemical timer having a plurality of timer components, which include a solid electrolyte, maintained in a relatively stable prestressed condition during timer operation to ensure improved electrical contact between the components without structural discontinuities during timer operation.

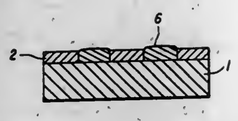
3,544,853
ELECTROCHEMICAL TIMER HAVING A SOLID ELECTROLYTE
Stuart Giles, Woodland Hills, Calif., assignor to North American Rockwell Corporation
Filed June 27, 1968, Ser. No. 740,689
Int. Cl. H01g *9/08*
U.S. Cl. 317—230 **7 Claims**



An improved electrochemical timer having a plurality of timer components, which include a solid electrolyte,

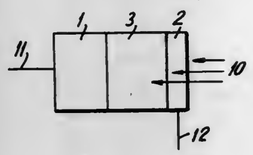
maintained in a prestressed condition during timer operation to ensure improved electrical contact between the components during timer operation.

3,544,854
OHMIC CONTACTS FOR GALLIUM ARSENIDE SEMICONDUCTORS
Ronald H. Cox, Dallas, and Hans A. Strack, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Dec. 2, 1966, Ser. No. 598,701
Int. Cl. H01l 3/20, 7/02
U.S. Cl. 317—234 **6 Claims**



A gallium arsenide semiconductor device is provided with an alloy contact comprising 50–98% by weight silver, 0.5–30% by weight indium, and 0.5–40% by weight dopant. In a preferred embodiment the contact is tin free and the dopant is germanium or zinc.

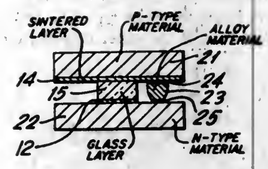
3,544,855
VARIABLE-FREQUENCY MICROWAVE OSCILLATOR ELEMENT
Yasuo Nannichi, % Nippon Electric Company, Ltd., Tokyo, Japan
Filed Oct. 16, 1967, Ser. No. 675,553
Claims priority, application Japan, Oct. 29, 1966, 41/71,249
Int. Cl. H01l 9/00
U.S. Cl. 317—234 **4 Claims**



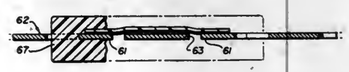
The frequency of oscillation of a semiconductor microwave oscillator is controlled in a desired manner by injecting into the drift region of an IMPATT type diode, carriers having an opposite polarity to that of the drift carriers in said drift region.

3,544,856
SANDWICH-STRUCTURE-TYPE ALLOYED SEMICONDUCTOR ELEMENT
Hiroo Yonezu, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan, an organization of Japan
Filed May 15, 1968, Ser. No. 729,279
Claims priority, application Japan, May 19, 1967, 42/31,824
Int. Cl. H01l 9/10
U.S. Cl. 317—234 **9 Claims**

A semiconductor device is described which is of the sandwich structure type having an alloy PN junction. A sintered layer of a metallic material is placed on one side of a semiconductor material to provide a selective shaping of the PN junction and the ohmic contact made thereto with the result that a tunnel diode may be formed with low resistance and low inductance.

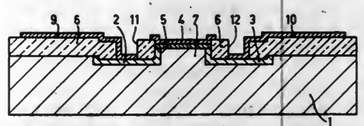


3,544,857
INTEGRATED CIRCUIT ASSEMBLY WITH LEAD STRUCTURE AND METHOD
Robert C. Byrne, Sunnyvale, Alan V. King, Saratoga, and Albert P. Youmans, Cupertino, Calif., assignors to Signetics Corporation, Sunnyvale, Calif., a corporation of California
Continuation of application Ser. No. 618,973, Feb. 27, 1967, which is a continuation-in-part of application Ser. No. 572,720, Aug. 16, 1966. This application May 26, 1969, Ser. No. 828,013
Int. Cl. H01l 1/14; H05k 5/06
U.S. Cl. 317—234 **5 Claims**



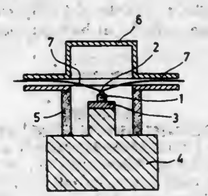
An integrated circuit assembly with a lead structure which includes thin film connecting elements for making connections between the leads and the contact pads carried by a semiconductor body. The thin film connecting elements may be carried by an insulating member such as a plastic film.

3,544,858
INSULATED GATE FIELD-EFFECT TRANSISTOR COMPRISING A MESA CHANNEL AND A THICKER SURROUNDING OXIDE
Else Kooi, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed May 8, 1968, Ser. No. 727,563
Claims priority, application Netherlands, June 8, 1967, 6707956
Int. Cl. H01l 11/00
U.S. Cl. 317—235 **7 Claims**



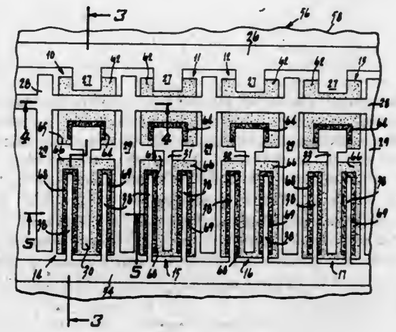
An insulated gate field-effect transistor and a method of making same, in which the channel is provided in a mesa region of a silicon body, and the channel is surrounded by thicker silicon oxide over the adjacent source and drain regions. A thinner insulating layer is over the channel, and a gate electrode on the latter. The manufacturing method involves masking the channel region while growing silicon oxide around it causing the oxide to penetrate into the silicon areas surrounding the channel to provide the channel in a mesa surrounded by the oxide.

3,544,859
MICROWAVE SEMICONDUCTOR OSCILLATOR EMPLOYING III–V COMPOUND AND DOPED TIN CONTACT
Rudolf Paulus Tijburg and Dirk de Nobel, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed July 5, 1968, Ser. No. 742,625
Claims priority, application Netherlands, July 22, 1967, 6710184
Int. Cl. H01l 3/00
U.S. Cl. 317—235 **6 Claims**



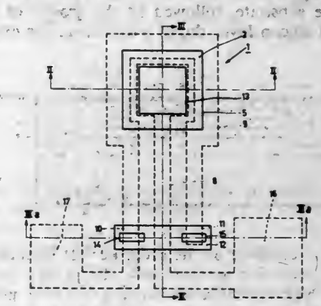
A semiconductor microwave oscillator of the Gunn effect type is described employing an n-type A^{III}-B^{V} compound and an ohmic contact of tin plus sulphur, selenium or tellurium.

3,544,860
INTEGRATED POWER OUTPUT CIRCUIT
Abraham Lichowsky, Los Angeles, Calif., assignor to RCA Corporation, a corporation of Delaware
Filed Apr. 11, 1968, Ser. No. 720,509
Int. Cl. H01l 11/00
U.S. Cl. 317—235 **3 Claims**



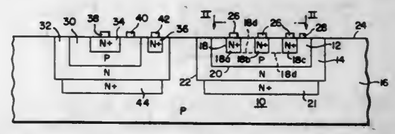
An integrated power output circuit includes several transistors connected as Darlington pairs. The transistors are arranged in adjacent parallel rows, with one transistor of each pair in each of the rows. The several pairs are connected in parallel with a single metallization layer which requires no lead crossings. Series base resistance is provided, in the input to each pair and is utilized to aid in equalizing the current flow among all the pairs.

3,544,861
STABILIZED SEMICONDUCTOR DEVICE
Else Kooi, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,803
Claims priority, application Netherlands, Sept. 12, 1967, 6712435
Int. Cl. H01l 5/02
U.S. Cl. 317—235 **10 Claims**



A stabilized semiconductor device is described employing a field relief interrupted ring which surrounds an interconnection to an active region of the device. At the area of the interruption, a guard ring or channel interrupter is provided in the semiconductor surface, and the field relief ring is connected to the channel interrupter. This arrests any inversion layers that may form in the surface before or during operation of the device.

3,544,862
INTEGRATED SEMICONDUCTOR AND PN JUNCTION CAPACITOR
Robert C. Gallagher, Ellicott City, and David W. Williams, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 20, 1968, Ser. No. 761,025
Int. Cl. H01l 1/16
U.S. Cl. 317—235 **4 Claims**

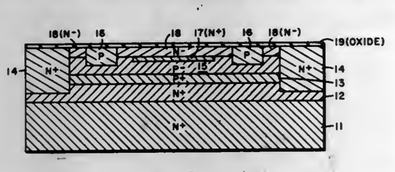


An integrated semiconductor structure having a transistor element and a capacitor element; the capacitor element including emitter, base, and collector regions with PN junctions therebetween. The emitter region is provided with many interdigitated portions whereby a high perimeter to surface area ratio exists, and the total value of capacitance obtained from a given area is increased.

3,544,863
MONOLITHIC INTEGRATED CIRCUIT SUBSTRUCTURE WITH EPITAXIAL DECOUPLING CAPACITANCE
William L. Price and Don M. Jackson, Jr., Scottsdale, Ariz., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Oct. 29, 1968, Ser. No. 771,449
Int. Cl. H01l 7/36, 7/44, 19/00
U.S. Cl. 317—235 **6 Claims**

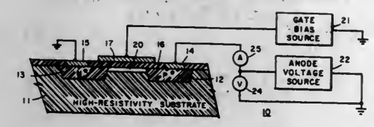
A monolithic silicon substructure, for use in the fabrication of an integrated circuit having high component

density, is constructed to provide a voltage distribution system having increased capacitive decoupling, reduced collar resistance, and reduced collector substrate capacitance. The increased decoupling capacitance is provided by the growth of an epitaxial step junction, beginning with a phosphorus-doped silicon substrate of 0.001 to 0.003 ohm-centimeter resistivity. A first epitaxial silicon layer doped with arsenic or antimony to provide a resistivity of slightly less than 0.01 ohm-centimeter is grown upon the substrate, followed by the growth of a second epitaxial silicon layer doped with boron, for example, to



provide a resistivity on the order of 0.01 ohm-centimeter, thereby producing an extremely abrupt step junction to provide high-capacitive decoupling between power and ground levels of the voltage distribution system. Third and fourth epitaxial layers are then grown, in combination with various selective diffusion steps, to provide PN-junction isolation of a portion of the fourth epi layer wherein a circuit component or components are to be fabricated, and to provide a low series resistance path from the substrate to the upper surface of the completed structure.

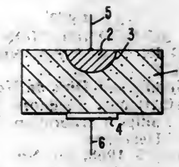
3,544,864
SOLID STATE FIELD EFFECT DEVICE
Paul Richman, Bayside, N.Y., assignor to General Telephone & Electronics Laboratories Incorporated, a corporation of Delaware
Filed Aug. 31, 1967, Ser. No. 664,836
Int. Cl. H01l *11/00*
U.S. Cl. 317—235 **5 Claims**



An insulated-gate field effect device utilizing a high resistivity substrate in combination with low resistivity semiconductor regions of opposite conductivity type is described. The conducting channel produced by the application of a voltage to the gate electrode contains a PN junction for both positive and negative applied voltages. The location of this PN junction in the device is determined by the gate voltage and, consequently, the device exhibits several different modes of operation.

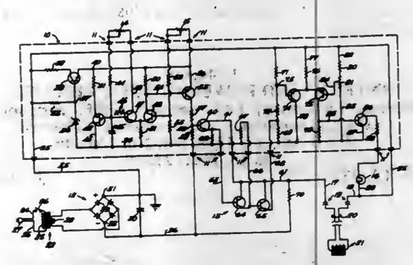
3,544,865
RECTIFYING FERROMAGNETIC SEMICONDUCTOR DEVICES AND METHOD FOR MAKING SAME
Frederic Holtzberg, Pound Ridge, and Stephan von Molnar, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Dec. 20, 1968, Ser. No. 785,478
Int. Cl. H01l *3/06*
U.S. Cl. 317—237 **9 Claims**

Ferromagnetic semiconductor devices having rectifying junctions are provided. A low melting metal, such as Pb and Sn is diffused into a semiconductor body, normally n-type, having the general formula $Eu_{1-x}RE_xA$ where RE is a trivalent rare earth element and A is a chalcogen



selected from O, S, Se, and Te. An ohmic contact is affixed to the surface opposite the diffused metal and conducting leads are soldered at both surfaces.

3,544,866
ELECTRONIC DRIVE CIRCUITRY FOR ULTRASONIC DEVICES
Robert P. McLeroy, Miramar, Fla., assignor to C & B Corporation, a corporation of Florida
Filed Oct. 16, 1969, Ser. No. 866,996
Int. Cl. H01v *9/00*
U.S. Cl. 318—118 **8 Claims**

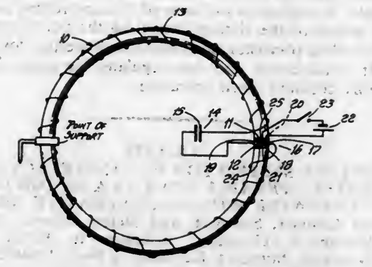


Solid state electronic circuitry for driving the magnetostrictive transducer of ultrasonic dental tools is described, wherein the power output to the tool is controlled by variation of the duty cycle rather than the amplitude of the ultrasonic output signal. Variation in duty cycle is achieved in a differential comparator stage which transforms the sawtooth input from an RC relaxation oscillator into a signal voltage of substantially square waveform of variable pulse width or duty cycle, which square waveform is amplified in a power amplifier to drive the magnetostrictive transducer.

3,544,867
ACOUSTIC TRANSDUCER WITH HALL EFFECT FEEDBACK
Milton Green, Mystic, Conn., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 7, 1969, Ser. No. 874,738
Int. Cl. H01v *9/00*
U.S. Cl. 318—118 **6 Claims**

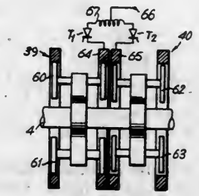
A magnetostrictive transducer wherein an oscillatory current is applied to the winding of a magnetostrictive

core which in turn is magnetically coupled to a Hall generator. The output derived from the Hall generator is in



series with the winding and thereby provides a feedback loop for sustaining a specific low frequency.

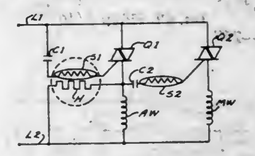
3,544,868
DYNAMO ELECTRIC MACHINES
James John Bates, Swindon, England, assignor to National Research Development Corporation, London, England, a corporation of Great Britain
Filed Jan. 19, 1968, Ser. No. 699,074
Claims priority, application Great Britain, Jan. 25, 1967, 3,845/67
Int. Cl. H02p *7/28*
U.S. Cl. 318—138 **3 Claims**



In a D.C. electric machine the commutator brushes are replaced by freely rotating wheels and separate switching means are employed to switch current from the wheels before they roll off a commutator segment so that the commutator acts as an off-load distributor. The machine windings and the commutator are inverted and current to the wheels supplied from slip rings through the wheel axles.

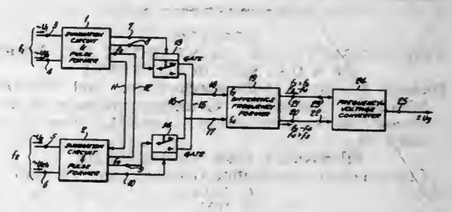
3,544,869
A.C. MOTOR STARTING CONTROL CIRCUIT UTILIZING TRIGGERABLE SEMICONDUCTOR SWITCHING DEVICE WITH THERMISTOR IN GATING CIRCUIT
Leo A. Plouffe, South Attleboro, and Lyle E. McBride, Jr., Norton, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,449
Int. Cl. H02p *1/44*
U.S. Cl. 318—221 **12 Claims**

A control for an electrical motor having a main winding and an auxiliary winding. The control comprises a gate-triggerable semiconductor switching device connectable in series with the auxiliary winding across an A.C. power source. A thermistor is interconnected with the gate terminal for controlling the flow of triggering current. The thermistor reduces the triggering current below a predetermined triggering level for the device when heated to a predetermined threshold temperature. A heater is thermally coupled to the thermistor for heating thereof, and is connectable across the start winding for energization concurrently therewith. When the motor is energized, the heater thereby heats the thermistor which, after a predetermined delay to reach its threshold temperature, reduces the triggering current below the required triggering



level thereby reducing the current in the auxiliary winding. The heater remains energized by the voltage across the auxiliary winding when the motor is operating so as to maintain the thermistor above its threshold temperature. Additional thermistor means, thermally coupled to the motor, and switching means provide overload protection.

3,544,870
MEANS FOR AND METHOD OF DETERMINING THE DIFFERENCE BETWEEN THE STATOR AND ROTOR FREQUENCIES OF ASYNCHRONOUS MACHINES
Edmund Müller, Weinheim, Germany, assignor to Brown, Boveri & Company Ltd., Baden, Switzerland
Filed Aug. 23, 1968, Ser. No. 754,851
Claims priority, application Germany, Sept. 30, 1967, 1,591,852
Int. Cl. H02p *1/44*
U.S. Cl. 318—227 **5 Claims**



A first and second alternating current voltage varying in frequency, respectively, in proportion to the speeds of rotation of the stator field and the rotor of an asynchronous electric machine and having different time phase positions upon the stator field rotating in clockwise or anticlockwise direction, respectively, are converted into a pair of pulse trains of mutually exclusive time positions and of twice the frequency of the respective alternating voltages. The pulse trains are applied, via synchronous switching gates to the inputs of a difference frequency former with said gates being controlled selectively by pulses derived from the respective trains, to cause the latter to be applied separately to the respective inputs of the difference frequency former if the stator field and rotor rotate in the same direction, and to cause said trains to be combinedly applied to either of said inputs if the stator field and rotor rotate in opposite directions.

The difference frequency former has two outputs supplying either the sum or difference frequency of said trains and is connected to a common frequency-to-voltage converter producing a D.C. output signal proportional to said difference frequency and representing both in sign and amplitude the relative slip between the stator rotary field and rotor of the asynchronous machine.

3,544,871

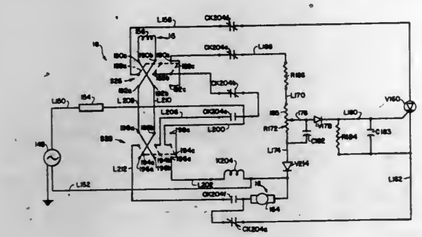
SPEED CONTROL FOR REVERSIBLE MOTOR WITH INDEPENDENTLY OPERATED, REVERSIBLE BY-PASS SWITCH

Edward C. Warrick and Edward J. Niehaus, Jr., Pittsburgh, Pa., assignors to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Original application Oct. 8, 1965, Ser. No. 494,168. Divided and this application Mar. 21, 1968, Ser. No. 714,905

Int. Cl. H02p 5/16

U.S. Cl. 318—257 10 Claims



Power drive units for machine tools and the like including an electric motor, a speed control system capable of maintaining the motor speed at a selectively adjustable level despite changes in the load on the motor and including arrangements for reversing the direction of motor rotation and for bypassing the speed regulating circuitry to operate the motor at a higher speed, and an arrangement including a selectively engageable clutch which can be adjusted to slip at selectively variable torques for drive-connecting the motor to the device with which it is associated.

3,544,872

ARRANGEMENT FOR MAINTAINING THE SPEED OF A D.C. MOTOR CONSTANT

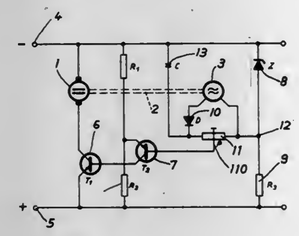
Dietmar Rudolph, Heilbronn-Sontheim, and Winfried Mieslinger, Nuremberg, Germany, assignors to Gebruder Buhler Nachfolger G.m.b.H., Nuremberg, Germany

Filed Aug. 8, 1968, Ser. No. 751,167

Claims priority, application Germany, Aug. 11, 1967, 1,588,068

Int. Cl. H02p 7/36

U.S. Cl. 318—328 9 Claims



A speed regulating arrangement for maintaining the speed of a D.C. motor constant. The D.C. motor is mechanically coupled to an electrical generator serving as a feed-back element. The output of the generator is made a function of the speed of the motor and the generator, and is applied to a controlling transistor, by way of a potentiometer. The series circuit of a Zener diode and a resistor is used to stabilize a voltage for operating the motor, and to provide the stabilized potential to the potentiometer. The superimposed signal of the generator output and the stabilized potential provided by the Zener diode, is applied to the base of the controlling transistor by means of the sliding contact of the potentiometer. A controlling transistor operates to regulate the flow of current to the motor and thus regulates the motor speed to realize constant speed operation.

3,544,873

CONTROL SYSTEM FOR DYNAMO ELECTRIC MACHINE OPERABLE BOTH AS A MOTOR OR AS A GENERATOR WITH REGENERATIVE BRAKING

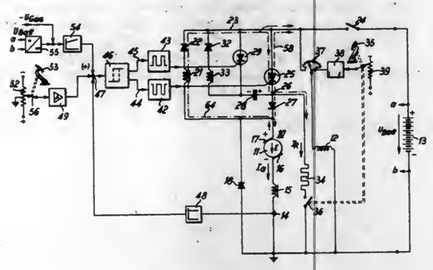
Peter Gunsser, Stuttgart, and Stefan Renner, Stuttgart-Sillenbuch, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany, a limited liability company of Germany

Filed May 1, 1969, Ser. No. 820,787

Claims priority, application Germany, June 21, 1968, 1,763,541

Int. Cl. H02p 3/14

U.S. Cl. 318—376 12 Claims



A thyristor has its pulse period determined by a control circuit to determine operating speed of the dynamo electric machine when acting as a motor; when acting as a generator, current is fed back to the supply battery bypassing the thyristor. In order to prevent over-voltages appearing at the battery, a sensing potential is derived when output voltage exceeds a predetermined value, the sensing potential causing operation of the thyristor, a dissipating resistance being connected in series with the thyristor, and isolated from the dynamo electric machine circuit by a diode which passes current in the direction of current flow when the machine operates as a motor, and blocks current (and thus diverts current through the dissipating resistance) when the machine operates in the generator mode.

3,544,874

INHIBIT TRIGGER CIRCUIT TO PREVENT SIMULTANEOUS CONDUCTION OF CONTROLLED RECTIFIERS DUE TO IMPROPERLY SPACED COMMAND SIGNALS

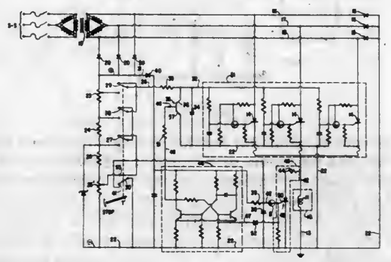
John J. Dutko, North Plainfield, and Henry A. Seesselberg, South Plainfield, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Jan. 21, 1969, Ser. No. 792,451

Int. Cl. H02p 3/12

U.S. Cl. 318—380 4 Claims

A circuit is disclosed for controlling the starting, running and stopping of a D.C. motor fed from an A.C. voltage in which alternatively a start and a stop command signal is applied to respective drive and brake controlled rectifiers (SCR's) to trigger them into conduction to supply respectively a driving direct current or a dynamic braking current for the motor. A special circuit is disclosed for inhibiting the triggering of one controlled rectifier until the other controlled rectifier has turned off to prevent simultaneous triggering of both rectifiers if command signals are not spaced properly. An RC delay circuit provides a definite time delay for delaying the



triggering of the brake controlled rectifier until some time after the stop command signal is applied. A monostable multivibrator triggered into its quasi-stable state by the same trigger pulse which triggers the brake controlled rectifier into conduction provides an inhibit signal to prevent triggering of the drive controlled rectifier by said start command signal until the multivibrator has reverted to its stable state.

3,544,875

CONTROL SYSTEM FOR A MACHINE TOOL

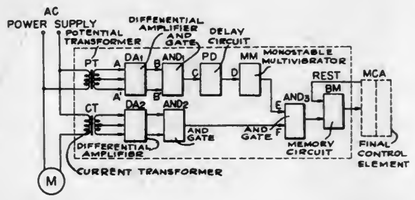
Seiichi Hara, Yokohama-shi, Gilchi Kosuge, Chigasaki-shi, and Kazuji Inoue, Yokosuka-shi, Japan, assignors to Tokyo Sharyo Seizo Kabushiki Kaisha, Yokohama-shi, Japan

Filed May 16, 1967, Ser. No. 638,796

Claims priority, application Japan, May 20, 1966, 41/31,789

Int. Cl. G05b 9/02

U.S. Cl. 318—563 10 Claims



The overload protection of a cutting tool in a machine tool is based on the assumption that the power factor of an alternating current motor for driving the machine tool represents the loading condition of the cutting tool. Both a pulse, generated at each zero of the motor current, and a square wave, with variable presettable width, generated at each zero of the supplied voltage, are supplied to an AND-gate which generates a signal for protecting the tool from damage due to overload, responsive to whether or not the current pulse falls within the width of the square wave.

3,544,876

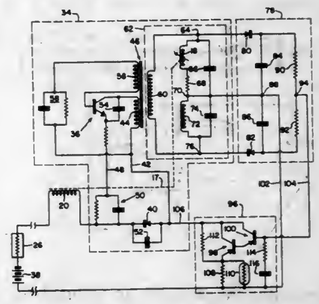
FORCE REBALANCE SERVO SYSTEM INCLUDING A UNIQUE TWO WIRE TRANSMISSION LINE AND TRANSISTOR CONTROL CIRCUIT

James A. Hogan, Hatfield, William F. Newbold, Springfield Township, Montgomery County, and Richard J. Spady, Feasterville, Pa., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Aug. 7, 1967, Ser. No. 658,701

Int. Cl. G05d 15/01

U.S. Cl. 318—675 7 Claims



There has been provided, in accordance with the present invention, a position-to-current transducer or signal transmitter which includes a controlled amplitude transistor oscillator which operates at a substantially constant frequency. A special detector circuit is provided which includes, effectively, a variable A.C. bridge followed by a D.C. bridge. The A.C. bridge includes the essential tuning elements of the oscillator. The output of the D.C. bridge is connected, through a transistor amplifier, to a power supply circuit. Connected in series with the power supply circuit is a mechanical feedback unit as well as an output load device, thus preserving the highly desirable two wire transmission characteristics.

3,544,877

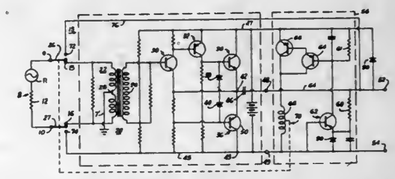
REMOTE SEISMIC PRE-AMPLIFIER SYSTEM

Louis W. Erath, Houston, Tex., assignor to Geo Space Corporation, Houston, Tex., a corporation of Texas

Filed May 3, 1968, Ser. No. 726,442

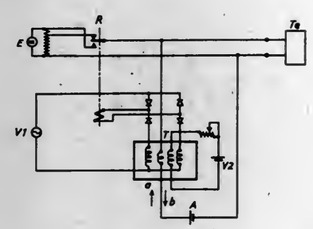
Int. Cl. H02j 13/00

U.S. Cl. 320—2 8 Claims



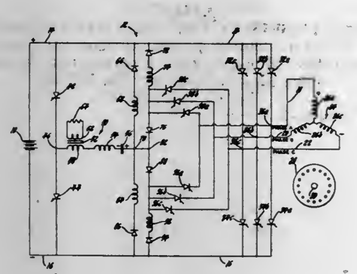
A self-contained pre-amplifier system for coupling a single pair of long conductors to the output terminals of a remotely positioned alternating current or voltage source having an internal resistance. The system includes a pre-amplifier energized by a rechargeable battery. A first network is coupled to the pre-amplifier to allow the alternating current signal to pass from the pre-amplifier to the conductors. A second network is coupled between the first network and the battery to allow a DC charging current to flow from the conductors to the battery. A third network is coupled between the battery and the conductors to allow a DC current to flow through said source for measuring its internal resistance.

3,544,878
ARRANGEMENT FOR CHARGING AN ACCUMULATOR BATTERY
Tadeusz Wolpert, Bandhagen, and Leif Tage Hansson, Alvsjo, Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden
Filed June 11, 1968, Ser. No. 736,230
Claims priority, application Sweden, June 30, 1967, 9,927/67
Int. Cl. H02j 9/00
U.S. Cl. 320—39 2 Claims



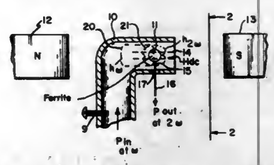
An arrangement for charging an accumulator battery, n which arrangement an amplistat is used as a device for measuring the current in the charging circuit for the battery, and to connect or disconnect a charging voltage in dependence on the value of the current in the charging circuit.

3,544,879
COMMUTATING CIRCUIT FOR AN INVERTER HAVING CONTROLLED RECTIFIERS
Raymond T. King, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 11, 1969, Ser. No. 806,160
Int. Cl. H02m 7/52; H02p 7/28
U.S. Cl. 321—5 3 Claims



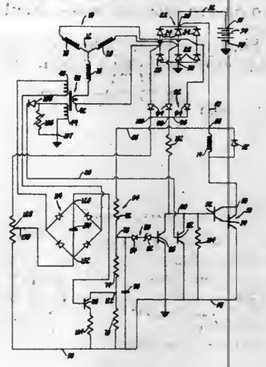
In a preferred form, a controlled rectifier inverter circuit for an A.C. motor power supply has a commutating circuit including a commutating capacitor and an arrangement of shut-off controlled rectifiers for applying reverse turn-off voltages across power controlled rectifiers of the inverter. A first diode circuit including a series connected inductor is connected to the commutating circuit to provide a voltage clipping path which reduces reactive voltage spikes which are otherwise developed across the load and portions of the inverter circuit. A second diode circuit is connected between the load circuit and the shut-off controlled rectifiers to return reactive current to the load circuit and also to limit recharging of the commutating circuit by the reactive current energy.

3,544,880
MICROWAVE HARMONIC GENERATOR UTILIZING SELF-RESONANT FERRITE
Irving Kaufman, Tempe, Ariz., and Richard E. Norton, Beverly Hills, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Aug. 9, 1968, Ser. No. 751,424
Int. Cl. H02m 5/06; H03f 7/00
U.S. Cl. 321—69 8 Claims



A microwave generator for developing a harmonic such as the second harmonic of a signal input frequency. The harmonic generator utilizes an element exhibiting ferrimagnetic resonance such as a piece of ferrite or else a ferroelectric element. The ferrite element is so dimensioned that it will resonant electromagnetically at the desired harmonic frequency. On the other hand, a magnetic field applied to the ferrite element has a magnitude to provide gyromagnetic resonance at the fundamental frequency. As a result, substantially all the energy at the desired harmonic is contained in the ferrite element.

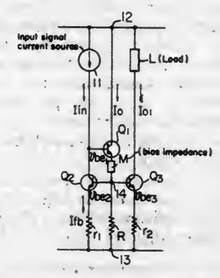
3,544,881
TRANSISTOR VOLTAGE AND CURRENT REGULATING SYSTEM FOR AN ALTERNATING CURRENT GENERATOR
Louis J. Raver, Anderson, and Robert J. Nowakowski, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 11, 1968, Ser. No. 759,040
Int. Cl. H02p 9/30
U.S. Cl. 322—25 4 Claims



In a preferred embodiment, a regulating system for a generator having an output winding and a field winding is disclosed in which the generator output voltage is maintained within a certain range, is increased with increasing load current and is limited when the load current exceeds a predetermined value. The regulating system includes an output transistor which operates in a switching mode and which is controlled by first and second driver transistors. The first driver transistor is responsive to the voltage developed across a voltage sensing circuit and the second driver transistor is responsive to current developed by the generator. A current transformer is connected in series with the generator output to develop two control signals

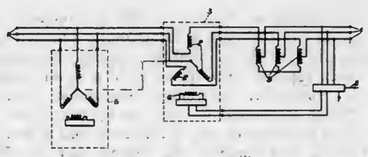
proportional to generator output current. The first driver transistor is controlled by the voltage output of a voltage divider sensing circuit having a portion thereof shunted by a control transistor that provides a variable impedance which varies linearly in response to one of the current transformer control signals. The amount of voltage developed across the voltage divider circuit varies as a function of the generator output current, thereby proportionally increasing the generator output voltage when the generator current rises. The second driver transistor is directly controlled by the second current transformer control signal so that the output transistor is biased nonconductive to maintain generator load current below a predetermined maximum value.

3,544,882
ELECTRIC CURRENT RANGE CONVERTING AMPLIFIER
Masayoshi Tanaka, Tokyo, Japan, assignor to Honeywell, Inc., Minneapolis, Minn., a corporation of Delaware
Filed Aug. 27, 1968, Ser. No. 755,601
Claims priority, application Japan, Aug. 30, 1967, 42/55,193
Int. Cl. G05f 1/56
U.S. Cl. 323—4 2 Claims



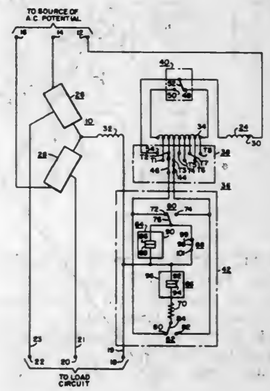
A transistor amplifier circuit is provided which converts an input current signal in one range to an output current signal in another range. The amplifier includes an input control stage which features a signal amplifier transistor and a feedback signal amplifier transistor. The amplifier further includes an output stage transistor amplifier, the transistor of which is matched to the transistor of the feedback amplifier and so connected that the V_{be} drop of the two transistors substantially cancel, making the amplifier circuit self-compensating with respect to temperature variations.

3,544,883
VOLTAGE STABILIZATION SYSTEM UTILIZING A BUCK-BOOST GENERATOR
John C. Milne, Wolverhampton, England, assignor to Electric Construction (W'ton) Limited, Wolverhampton, England, a British company
Filed Nov. 14, 1968, Ser. No. 775,770
Int. Cl. G05f 1/12
U.S. Cl. 323—5 3 Claims



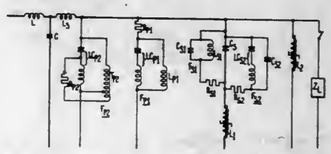
A voltage stabilized electrical output is produced from an unstabilized voltage alternating current supply by injecting into the supply voltage a voltage of the same frequency generated by an A.C. generator driven by a synchronous electric motor from the supply to boost or buck the supply voltage. A voltage regulator controls this operation by sensing the output voltage and controlling the generator field accordingly.

3,544,884
LOAD TAP CHANGER APPARATUS EMPLOYING PARALLEL CIRCUITS COMPRISING VACUUM AND NO-LOAD SWITCHES
Herbert L. Prescott, Brookfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 27, 1968, Ser. No. 787,355
Int. Cl. H02m 5/12; H02p 13/06
U.S. Cl. 323—43.5 19 Claims



Load tap changer apparatus of the impedance type, wherein an impedance is connected into the circuit during a tap change to limit the current magnitude when two adjacent winding taps are both electrically connected in the circuit. The tap changer apparatus includes a combination of vacuum and no-load switches, which are actuated in a predetermined sequence to effect a tap change without contaminating the fluid dielectric associated with the tap changer apparatus.

3,544,885
VOLTAGE STABILISING ARRANGEMENTS FOR ALTERNATING CURRENT SUPPLIES UTILIZING SATURATED SHUNT REACTORS
Erich Siegfried Friedlander, Sutton Coldfield, and David John Young, Edgbaston, England, assignors to The General Electric Company Limited, London, England, a British company
Filed Apr. 15, 1968, Ser. No. 721,424
Claims priority, application Great Britain, Apr. 26, 1967, 19,275/67
Int. Cl. G05f 3/04
U.S. Cl. 323—61 12 Claims



A voltage stabilising arrangement for alternating current supplies which makes use of saturated reactors connected in shunt with the supply system and wound and

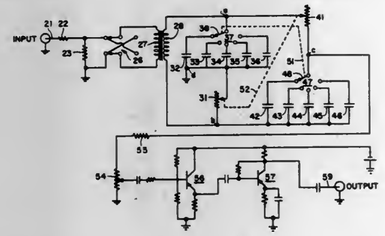
connected in such a manner as to suppress certain odd harmonics, together with auxiliary stabilising means for selectively suppressing instability-producing even or near-even harmonics and sub-harmonics.

3,544,886

RC PHASE SHIFT CIRCUIT HAVING IMPROVED OUTPUT AMPLITUDE STABILITY

Shou-Ling Hou, Corning, and Paul L. Walsh, Elmira, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Jan. 25, 1968, Ser. No. 700,636
Int. Cl. G05f *3/04*
U.S. Cl. 323—75 6 Claims



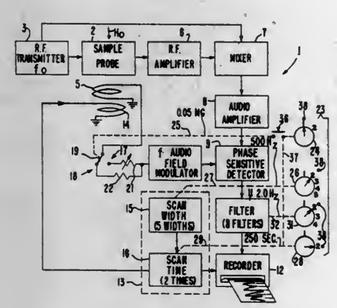
A phase shift circuit for producing a phase shift over a 360° range. Two series RC circuits are connected in parallel and are provided with a low impedance input circuit and a high impedance output circuit to maintain the amplitude of the output signal at an acceptable level. Variable capacitors are utilized to provide a maximum amount of phase shift over a wide frequency range.

3,544,887

GYROMAGNETIC RESONANCE SPECTROMETER WITH MEANS FOR SELECTING PREDETERMINED OPERATING CONDITIONS

James Feeney, 6 Church Close, Horsell, Woking, Surrey, England

Filed Mar. 1, 1968, Ser. No. 709,632
Claims priority, application Great Britain, June 16, 1967, 27,956/67
Int. Cl. G01n *27/78*
U.S. Cl. 324—.5 5 Claims



A gyromagnetic resonance spectrometer is disclosed which employs means for selecting a certain predetermined set of operating conditions to obtain a certain standard output spectrum, thereby permitting a relatively unskilled operator to obtain a standard output.

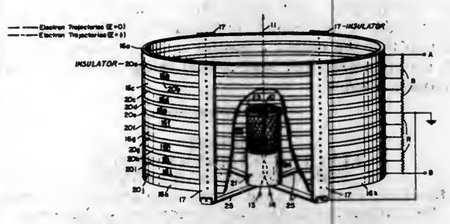
3,544,888

EMISSIVE E-FIELD METER

John M. Sellen, Jr., Encino, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio

Filed Jan. 23, 1967, Ser. No. 663,181
Int. Cl. G01r *29/12*
U.S. Cl. 324—32 5 Claims

The emissive E-field meter has an elongated emissive



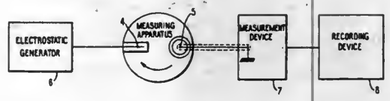
filament, the elongated dimension of which defines a central axis. The filament generates a beam of electrons radially and perpendicular to the elongated central axis. A cylindrical accelerator anode positioned symmetrically around the filament intercepts the radially generated beam and provides an accelerating potential that effectively collimates the beam. A plurality of collector rings having diameters substantially greater than the diameter of the cylindrical accelerator anode are positioned with their centers axially displaced on the central axis such that the deflections of the electron beam caused by an E-field are detected by sensing which collector rings are struck with the electron beam. Symmetrical placement of the collector rings with respect to the undeflected electron beam allows a differential sensing of the collector rings with respect to the center collector ring.

3,544,889

METHOD AND APPARATUS FOR MEASURING THE ELECTROSTATIC PROPERTIES OF PLASTIC MATERIALS INCLUDING MEANS FOR ROTATING THE MATERIALS PAST A CHARGING ELECTRODE AND A MEASUREMENT PROBE

Maurice Alauzet, La Mulatiere, and Yves Fleurquin, Oullins, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

Filed Dec. 4, 1968, Ser. No. 780,995
Claims priority, application France, Dec. 4, 1967, 130,873; May 7, 1968, 150,875
Int. Cl. G01r *5/28, 29/12*
U.S. Cl. 324—32 7 Claims



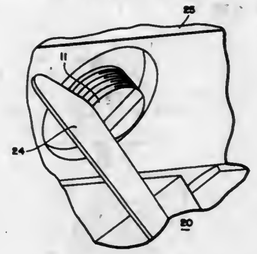
The specification describes a method and apparatus for measuring and recording the electrostatic characteristics of at least one sample of plastics material. The samples are placed in register with apertures in a cover plate secured to a rotatable, electrically conductive, grounded support, which is rotated so that the apertures pass adjacent a high potential charging electrode and a measurement probe. Use is made of the corona effect to charge the samples and the potential is reduced to zero, a record being made of the electrical signal transmitted by the probe.

3,544,890

METHOD AND APPARATUS FOR DETECTING DAMAGE IN TURBINE BLADES BY THEIR MAGNETIC CHARACTERISTICS

Jack E. Bridges, Park Ridge, and Henry R. Hegner, Park Forest, Ill., assignors to IIT Research Institute, Chicago, Ill., a not-for-profit Illinois corporation

Filed July 17, 1968, Ser. No. 745,629
Int. Cl. G01r *33/00*
U.S. Cl. 324—34 7 Claims



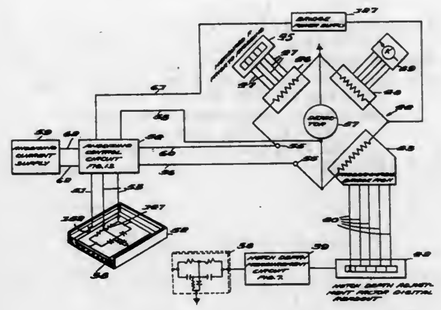
A system for the detection of foreign object damage in the blades of a turbomachine. The blades are preferably made of magnetic material and the flux or magnetic field emanating from each blade is detected by a transducer as the blade passes. Damaged blades are demagnetized and do not produce the same flux pattern through the transducer as they pass.

3,544,891

METHOD AND APPARATUS FOR MEASURING AND ADJUSTING AN R-C NOTCH FILTER HAVING THIN-FILM RESISTORS

Allen R. Gerhard, Fullerton, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed May 9, 1968, Ser. No. 727,972
Int. Cl. G01r *27/00*
U.S. Cl. 324—57 10 Claims



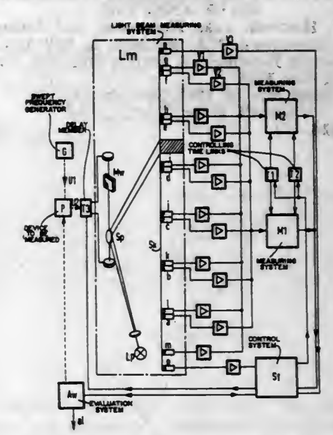
The notch depth of a notch filter is measured to ascertain the degree of its deviation from a desired value. The measurement is used to program an adjustable Wheatstone bridge which controls a circuit for anodizing a resistor in the filter to adjust the notch depth to the desired value. The deviation of the notch frequency is then measured and a similar technique is used to anodize all the resistors of the filter to adjust the notch frequency to a desired value.

3,544,892

PHOTO-ELECTRIC APPARATUS FOR THE MEASUREMENT OF ELECTRICAL CHARACTERISTICS OF CIRCUIT DEVICES WHICH ARE SUPPLIED DURING THE MEASURING PERIOD WITH A VARYING ELECTRICAL SIGNAL

Erwin Martin, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany

Filed Dec. 9, 1968, Ser. No. 782,182
Int. Cl. G01n *27/00, 13/38*
U.S. Cl. 324—57 9 Claims



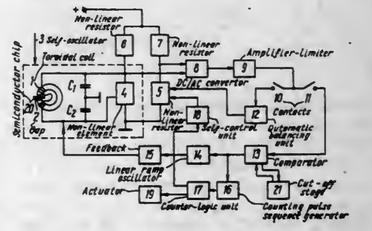
A system for measuring or classifying electric circuit devices which provide fluctuating outputs. The outputs are supplied to a photo electric measuring device employing a movable mirror which sweeps a light beam across a large number of photo elements. The photo elements are arranged in two different groups or classifications, the first group being employed to indicate the range of fluctuations of the output of the device being measured, and the second group of photo elements being employed to provide the digital value of the characteristic being measured.

3,544,893

APPARATUS FOR NONCONTACT MEASUREMENT OF SEMICONDUCTOR RESISTIVITY INCLUDING A TOROIDAL INDUCTIVE COIL WITH A GAP

Anatoly Ivanovich Savin, Ulitsa Dzerzhinskogo 24a, kv. 23; Alexandr Ivanovich Golubev, 1 Nagorny Mikroraion 16, kv. 81; and Valentina Mikhailovna Lomakina, Ulitsa Studenaya 37, kv. 5, all of Gorky, U.S.S.R.

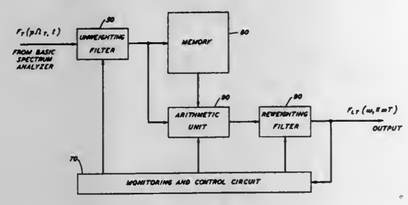
Filed Aug. 5, 1968, Ser. No. 750,100
Int. Cl. G01r *27/02, 33/00*
U.S. Cl. 324—62 2 Claims



Noncontact measuring of semiconductor resistivity is effected by passing semiconductor chips into a gap in a toroidal coil of a tank circuit and an absolute change

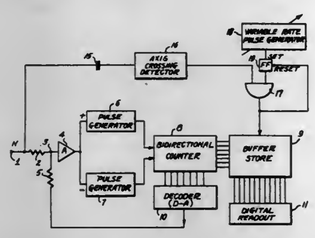
in the Q-factor of said circuit is measured, which is indicative of the resistivity of said semiconductor chips. The circuit comprises a DC measuring bridge, and the toroidal coil is an HF self-oscillator connected in one of the arms of the bridge, a load being incorporated into the diagonal of the bridge and adapted to produce a signal indicative of the resistivity value of said chips.

3,544,894
APPARATUS FOR PERFORMING COMPLEX WAVE ANALYSIS
Walter T. Hartwell, Lake Hopatcong, and Richard A. Smith, Morristown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed July 10, 1967, Ser. No. 652,108
Int. Cl. G01r *23/12, 23/16*
U.S. Cl. 324—77 **7 Claims**



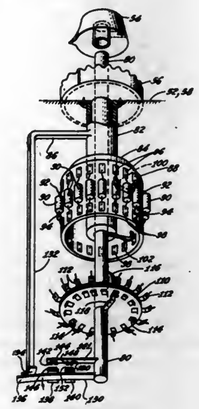
Apparatus for performing short-time complex frequency analyses of waveforms is described. One embodiment relates to a post-processor for extending the resolution, redundancy, and transient performance of a typical prior art spectrum analyzer by combining results obtained by it for a number of successive time intervals into composite results. Filtering and phase correcting operations ensure that phase information is preserved in the final results.

3,544,895
NOISE REJECTING DIGITAL VOLTMETER
Peter L. Richman, Lexington, Mass., assignor to Weston Instruments, Inc., Newark, N.J., a corporation of New Jersey
Filed Jan. 10, 1968, Ser. No. 696,934
Int. Cl. G01r *17/06, 19/00*
U.S. Cl. 324—99 **3 Claims**



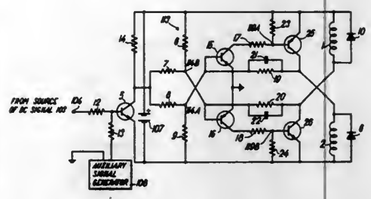
A tracking-logic digital voltmeter including an axis crossing detector AC coupled to the signal input to an operational amplifier which drives a counter. The output of the counter is provided to a buffer store unit which can be triggered to transfer the instantaneous output of the counter in parallel to a display unit. The output of the axis crossing detector is connected to one input of an AND circuit, the other input being supplied by a variable rate pulse generator through a bistable circuit. When the AND circuit is supplied with both inputs, indicating a desired readout and a zero noise level, the buffer store circuit is triggered to transfer the counter output to the display unit.

3,544,896
METER ARRANGEMENT FOR SIMULTANEOUSLY PROVIDING AT LEAST A PAIR OF INDEPENDENT INDICATIONS
Samuel Solow, 5451 Eau Claire Drive, Rolling Hills, Calif. 90274
Filed Dec. 22, 1965, Ser. No. 515,529
Int. Cl. G01r *15/08*
U.S. Cl. 324—115 **16 Claims**



This invention relates to a system for simultaneously providing at least a pair of independent indications. The pair of indications are obtained by selecting individual ones of a plurality of impedances to control the sensitivity of the indications. When the same impedance is selected for each of the indications in the pair, means are provided for breaking the circuit providing one of the indications so that only the other indication is obtained.

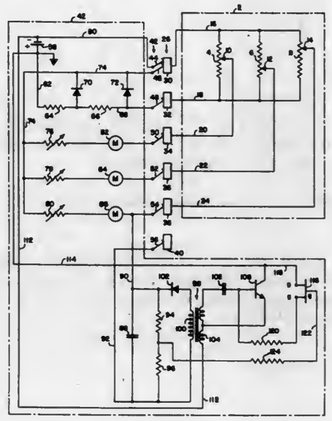
3,544,897
PULSE-MODULATED PUSH-PULL AMPLIFIER STAGE FOR A DUAL-COIL METER
Jiří Simurda, Brno, Czechoslovakia, assignor to Vyzkumny ustav Zdravotnicke techcniky, Brno, Czechoslovakia
Filed Jan. 29, 1969, Ser. No. 794,954
Claims priority, application Czechoslovakia, June 21, 1967, 4,544/67
Int. Cl. G01r *19/26, 15/10*
U.S. Cl. 324—120 **4 Claims**



A pulse modulated push-pull amplifier for individually feeding the coils of a dual-coil meter is arranged to incorporate the respective coils in a pair of common modulation-demodulation circuits. The stage modulates a slowly varying incoming signal to form a pair of pulse trains

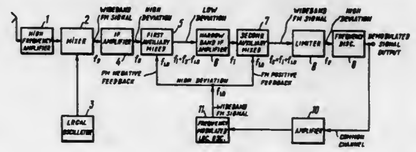
that are (a) generated with the same repetition period; (b) mutually displaced by one half cycle of the repetition period; and (c) modulated in pulse duration in complementary fashion in proportion to the amplitude of the incoming signal. The modulated pulse trains are applied across the respective coils of the meter, and the resulting current through the coils are rectified to form push-pull replicas of the incoming signal.

3,544,898
CONTROL CIRCUIT FOR MAINTAINING A CHARGE IN A CAPACITOR
William D. Macgeorge, Doylestown, Pa., assignor to American Meter Company, Philadelphia, Pa., a corporation of Delaware
Filed Sept. 18, 1967, Ser. No. 668,428
Int. Cl. H02j *7/24;* **H03k** *17/60*
U.S. Cl. 324—157 **5 Claims**



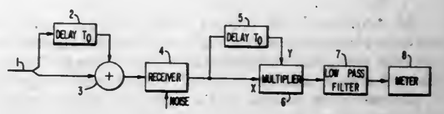
An oscillator powered by a battery charges a capacitor to a voltage exceeding that of the battery. To prevent battery drain, a field effect transistor responds to the capacitor potential to cut off current to the oscillator when the capacitor attains a predetermined voltage. The capacitor is used in a meter reading circuit to provide a current flow to clean engageable contacts to avoid undue resistance to currents supplied by the low voltage battery.

3,544,899
FREQUENCY-MODULATED RECEIVER WITH DECREASED THRESHOLD LEVEL
Igor Alexandrovich Gusyatinsky, 1 Kolobovsky pereulok 13, kv. 10, and Jury Nosonovich Margolin, Ul. Zhigulevskaya 19, korpus 1, kv. 30, both of Moscow, U.S.S.R.
Filed Feb. 17, 1966, Ser. No. 528,216
Int. Cl. H03c *3/06*
U.S. Cl. 325—346 **3 Claims**



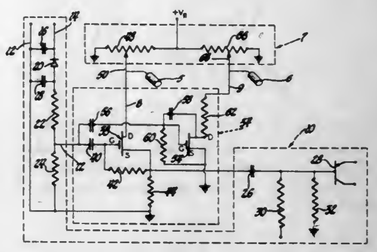
Frequency-modulated receivers with decreased threshold level. To decrease the threshold level the invention employs a filtering of a highly compressed frequency-modulated signal in an auxiliary narrow-band intermediate-frequency amplifier. In order to compress the frequency-modulated signal use is made of a negative feedback frequency circuit whereas in order to recover the initial frequency deviation of the frequency-modulated signal and to increase the stability of operation of the frequency-modulated receiver, use is made of a positive feedback frequency circuit.

3,544,900
DELAY CORRELATION RADIOMETER
John P. Beyer, Rockville, Md., assignor to Communications Satellite Corporation, Washington, D.C.
Filed Apr. 22, 1968, Ser. No. 723,113
Int. Cl. H04b *1/16*
U.S. Cl. 325—363 **6 Claims**



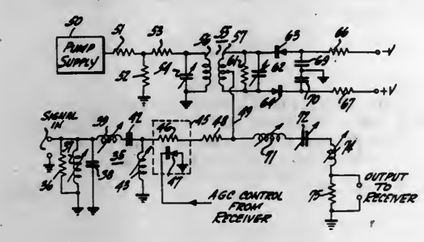
A radiometer receiver system for the elimination or reduction of receiver noise through the use of delay correlation. The input signal is divided into two components. One of the components is time delayed and summed with the other component at the input to an input amplifier stage of the receiver. At the output of the receiver, the signal is again divided into two components, one of which is time delayed an amount equal to the input time delay. The delayed output component is correlated with the other output component to produce a response proportional only to the input signal without amplifier noise.

3,544,901
RADIO VOLUME AND TONE CONTROLS USING FIELD EFFECT TRANSISTORS
Paul W. Wood, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 22, 1967, Ser. No. 692,891
Int. Cl. H04b *1/16*
U.S. Cl. 325—397 **4 Claims**



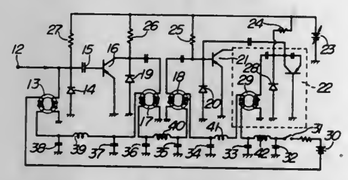
Volume and tone control circuits for radio receivers. Each circuit employs a field effect transistor connected to operate as a variable gain amplifier by applying a selectively variable positive DC voltage to the drain electrodes of the transistors.

3,544,902
RECEIVER GAIN CONTROL SYSTEM PROVIDING NEGATIVE RESISTANCE STABILIZATION
James Walter Daniel, Jr., Cherry Hill, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed May 24, 1968, Ser. No. 731,843
Int. Cl. H04b *1/16*
U.S. Cl. 325—411 **6 Claims**



An automatic gain control system for use with a receiver of the type which has an unstable negative resistance parametric amplifier as an input stage. The gain control system includes a variable attenuator comprising a photoresistive element and a light source responsive to a suitable control signal derived from the output of the receiver. The photoelectric coupling system so provided exhibits a high degree of linearity in that it introduces virtually no intermodulation products. Also, the photoelectric coupling system exhibits a high positive stabilization resistance that is coupled in series with the negative resistance exhibited by the unstable negative resistance amplifier to provide stabilization of the amplifier.

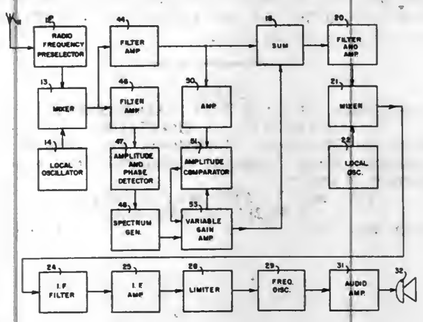
3,544,903
VARIABLE INDUCTOR BAND CHANGING FOR VHF-UHF TUNER
Yoishi Sakamoto, Toyonaka-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Aug. 24, 1967, Ser. No. 662,916
Claims priority, application Japan, Aug. 30, 1966, 41/57,750; Sept. 2, 1966, 41/58,426; Dec. 28, 1966, 42/247; Jan. 19, 1967, 42/4,284; Jan. 26, 1967, 42/5,527; Jan. 27, 1967, 42/11,507; Mar. 1, 1967, 42/13,530; Apr. 14, 1967, 42/24,128
Int. Cl. H03j *5/02*
U.S. Cl. 325—459 **5 Claims**



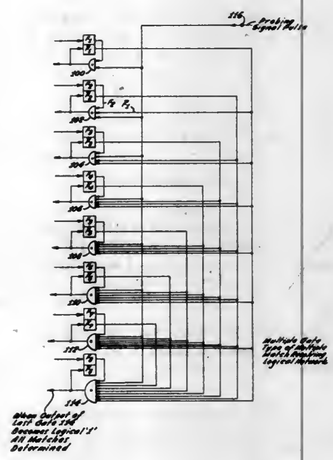
A tuner using variable capacitance diodes as elements for changing the tuning and oscillation and which is adapted to effect the desired selection of television broadcast by applying different voltages to the variable capacitance diodes.

3,544,904
RECEIVER NOISE CANCELLATION SYSTEM
Orville M. Eness, Park Ridge, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Sept. 7, 1967, Ser. No. 666,019
Int. Cl. H04b *1/10*
U.S. Cl. 325—476 **10 Claims**

In a communications receiver an impulse noise spectrum cancellation system develops a cancellation signal in response to impulse noise. The cancellation signal is reversed in phase and of the same amplitude as the impulse noise disturbance and is mixed with the impulse noise disturbance to cancel it. The use of a cancellation signal reduces the magnitude of the impulse noise disturbance without developing sideband splatter.

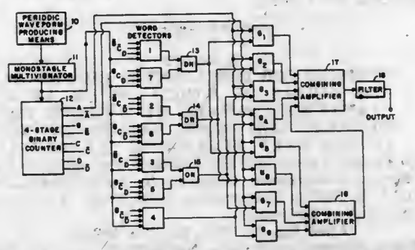


3,544,905
MULTIPLE MATCH RESOLVING NETWORK
Richard M. Bird, Glendale, and Ju C. Tu, Sylmar, Calif., assignors to General Precision Systems Inc., a corporation of Delaware
Filed Feb. 19, 1968, Ser. No. 706,339
Int. Cl. H03k *19/00, 19/22, 5/20*
U.S. Cl. 328—92 **3 Claims**



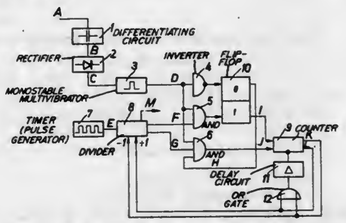
The system is concerned with electronic data processing systems, and it comprises an improved multiple match resolving network which includes, for example, a logical tree or multiple gate type of network, and which may be quickly probed sequentially to select matching states from a group of multistate units.

3,544,906
LOGIC PULSE TIME WAVEFORM SYNTHESIZER
Ernest N. Dulaney, Marion, William S. Elliott and Charles F. Haberly, Cedar Rapids, and Robert H. Pool, Marion, Iowa, assignors to Collins Radio Company, Dallas, Tex., a corporation of Iowa
Filed Dec. 20, 1968, Ser. No. 785,592
Int. Cl. H03b *19/00*
U.S. Cl. 328—14 **20 Claims**



A logic pulse time waveform synthesizer is disclosed wherein logic pulses in a pulse train are digitally separated, amplitude-weighted and then recombined to form a predetermined pulse time waveform with which a predetermined frequency spectrum is associated.

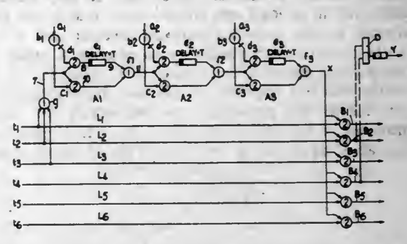
3,544,907
APPARATUS FOR GENERATING SYNCHRONISED TIMING PULSES IN A RECEIVER OF BINARY DATA SIGNALS
Werner Bleickardt, Redbank, N.J., assignor to Hasler A.G., Bern, Switzerland, a Swiss company
Filed June 8, 1967, Ser. No. 644,616
Claims priority, application Switzerland, June 8, 1966, 8,244/66
Int. Cl. H03k *5/13, 1/00*
U.S. Cl. 328—63 **2 Claims**



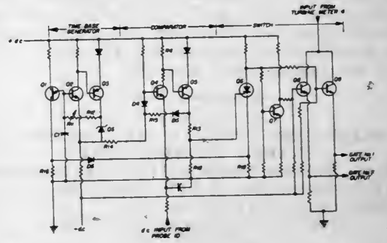
Apparatus for generating synchronised timing pulses in a receiver of a binary data wave having transitions between individual data bits occurring at a synchronous data bit rate has a flip-flop which is in each case set by the output signal of a first gate circuit and is reset at the end of the transition pulse, and a connection between the output of the flip-flop and an additional input of a second gate circuit by means of which a second gate circuit is blocked while the flip-flop is set.

3,544,908
TIME CORRELATION PULSE CODING TECHNIQUE FOR SUPERVISORY CIRCUITS
Peter Wood, Highstown, N.J., and David John Hunter, Emsworth, Robert Edward Whyard, Weymouth, Dorset, and Albert Brian Keats, Dorchester, Dorset, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed May 23, 1966, Ser. No. 552,074
Claims priority, application Great Britain, May 28, 1965, 22,900/65
Int. Cl. H03k *5/18*
U.S. Cl. 328—120 **5 Claims**

A supervisory circuit arrangement for monitoring purposes, comprises a group of coupled elements which are conditioned in accordance with the conditions on the respective group of conductors and which are arranged to be pulsed in timed sequence to product a train of output pulses corresponding in number to the number of correct electrical conditions existing on the conductors of the group. The trains of output pulses derived from the respective groups of elements are applied contemporaneously to pulse-responsive detectors to which interrogation pulses are applied, in a predetermined sequence with the pulses derived from the grouped elements, such that predetermined outputs are derived from the pulse-responsive detectors only if the requisite number of conductors in each of the groups are in the correct condition. In the event of one or more of the conductors of any group being in an "improper" condition the pulse train is shortened at its front end by the omission of one or more pulses.



3,544,909
GATING CIRCUIT
John B. Rosso, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware
Original application June 7, 1966, Ser. No. 555,765, now Patent No. 3,385,108, dated May 28, 1968. Divided and this application Mar. 11, 1968, Ser. No. 712,257
Int. Cl. H03b *3/02*
U.S. Cl. 328—147 **2 Claims**

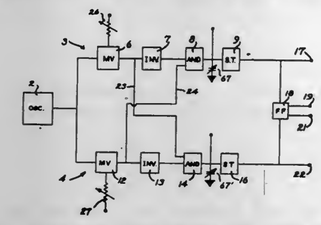


An electric circuit including a section for generating a linear sawtooth time base voltage and a second section to compare this sawtooth voltage with an analog D.C. voltage to produce a signal which will control a switch section of the circuit and thereby distribute voltage pulses in accordance with the comparison.

3,544,910
ANALOG TO DIGITAL METHOD AND APPARATUS FOR MONITORING THE STATUS OF A PARAMETER
Russell W. Ralphs, Concord, Calif., assignor to James D. Lambert, Mountain View, Calif.
Filed May 7, 1968, Ser. No. 727,147
Int. Cl. H03k *17/00*
U.S. Cl. 328—150 **21 Claims**

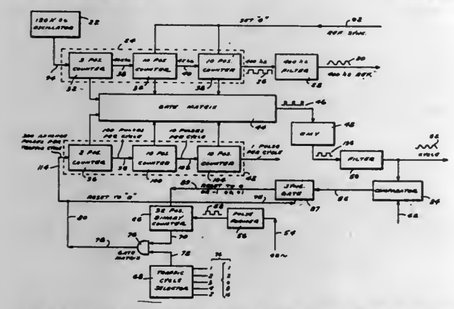
Presented is a method and apparatus for monitoring the status of a parameter which may vary continuously

or noncontinuously from a predetermined norm. The variations in the status or condition of the parameter are analog in nature, and such variations are utilized to produce a digital or analog pulse width output correlated to the analog variation. An oscillator or other source having a pulsed wave output is selectively adjustable over a broad repetition rate range and channels a pulsed wave into a utilization circuit having first and second branch circuits. Multivibrators are serially interposed in the branch circuits, and in at least one embodiment, one of the branch circuits is also provided with an inverter and a logical AND circuit which cooperate to provide a pulse width comparator means which functions to compare the pulse widths that are imposed on the two multivibrators. Circuit means are provided cross-connecting the separate branches of the utilization circuit so as to impose on the logical AND circuit of one branch signal pulses from the



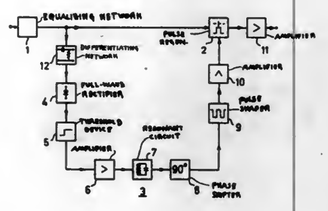
other branch prior to inverter action. In this way the output from the logical AND circuit constitutes a pulse having a width which equals the difference in pulse width between the pulses emanating from the multivibrators. Means are provided to correlate the pulse width emanating from a first one of the multivibrators to variations in the condition being monitored. Means are also provided associated with the other multivibrator establishing the pulse width emanating from this multivibrator as a reference against which the pulses from the first multivibrator are compared for width. Means in the form of a delay circuit, or digital dissemination equipment, or transistor operated load means of various kinds, are provided to receive the digital or analog pulse width output signal emanating from the pulse width comparator means to effect a digital display or readout of information pertaining to the condition being monitored.

3,544,911
PHASE SHIFT CYCLE GENERATOR FOR A TRAFFIC CONTROL UNIT
Charles L. DuVivier, Darien, and Ludwig R. Pallat, Stamford, Conn., assignors to LFE Corporation, Waltham, Mass., a corporation of Delaware
Filed Nov. 20, 1968, Ser. No. 777,224
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **13 Claims**



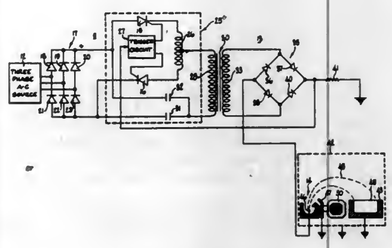
An improved cycle generator for providing a signal control traffic cycle in a traffic control system. The cycle generator is adapted to produce two single phase wave energies of identical frequencies one derived from the other wherein one wave energy is adapted to incrementally shift in phase with respect to the other. The desired traffic control cycle is obtained between adjacent coincidences of the two wave energies which is equivalent to the time required for the shiftable wave energy to pass through 360° of phase angle with respect to the reference wave energy.

3,544,912
AMPLIFIER FOR TRIVALENT PULSE SIGNALS THE PULSES OF WHICH OCCUR AT INSTANTS DETERMINED BY A CLOCK FREQUENCY, THE PEAK VALUES OF THE PULSES ONLY OCCURRING SEPARATELY
Leo Eduard Zegers and Jan Kuilman, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 23, 1968, Ser. No. 699,893
Claims priority, application Netherlands, Jan. 24, 1967, 6701061
Int. Cl. H03k *5/08*
U.S. Cl. 328—164 **8 Claims**



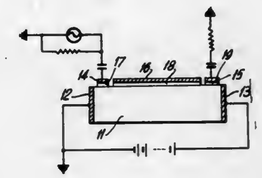
In a system for regenerating clock frequency pulses from a trivalent pulse signal, the trivalent signal is differentiated and rectified to produce a pulse series of pulses having different amplitudes. Only the higher pulses are selected from the pulse series to regenerate clock pulses.

3,544,913
POWER SUPPLY
Emmett R. Anderson, Berkeley, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Oct. 17, 1967, Ser. No. 675,902
Int. Cl. H03k *17/08*
U.S. Cl. 328—267 **8 Claims**



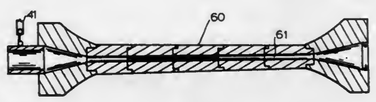
A power supply is described for use with an electron gun employed in an electron beam furnace system. The power supply includes means for increasing the frequency of an a-c source and for deriving a direct current from the increased frequency signal and applying such direct current to the electron gun. The frequency increasing means operate to a non-conductive condition in the presence of an arc in the electron gun.

3,544,914
SEMICONDUCTOR HIGH FREQUENCY AMPLIFIER DEVICE
Michihisa Suga, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan, a company of Japan
Filed Mar. 11, 1969, Ser. No. 806,196
Claims priority, application Japan, Mar. 12, 1968, 43/16,306
Int. Cl. H03f *3/04*
U.S. Cl. 330—5 **6 Claims**



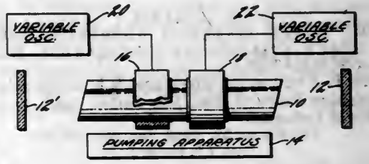
A semiconductor high frequency amplifier device is described. The device utilizes a semiconductor body made of a material having a bulk negative resistance effect of a filed-control type. The body is provided with a metallic layer between cathode and anode electrodes to control the electric field distribution whereby substantially all of the region, except for a small portion adjacent the cathode, may support an electric field intensity above a threshold level needed to sustain a high field domain.

3,544,915
GAS LASER PLASMA GUIDE
William H. McMahan, Raleigh, N.C., assignor to Orlando Research Corporation, Orlando, Fla., a corporation of Florida
Filed July 24, 1967, Ser. No. 655,652
Int. Cl. B01j *17/00;* **H01s** *3/06*
U.S. Cl. 331—94.5 **10 Claims**



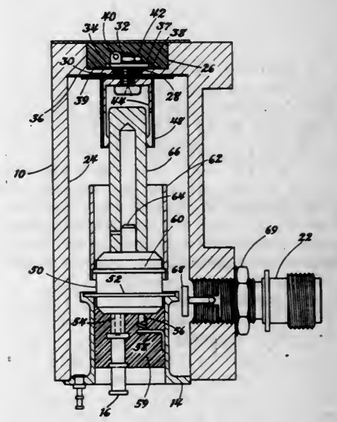
A laser construction utilizes a gas which assumes an ionic state at the discharge temperature and in the active discharge reigon the plasma is contained and "guided" by a tube exhibiting anisotropic and semi-conductor properties, pyrolytic carbon being used as an example. The tube utilizes the thermal and electrical characteristics of the material such that radially of the axis of discharge the tube exhibits high thermal conductivity and axially of the discharge the tube exhibits low thermal conductivity and a semi-conductor electrical character. The tube is held at an anodic potential which enables employment of a unique starting technique and reduction of ionic bombardment between the plasma and the bore of the tube. Other electrical and physical configurations for reducing ion bombardment or "sputtering" are disclosed.

3,544,916
MULTIPLE FREQUENCY ULTRASONIC CONTROL FOR LASERS
Albert W. Angelbeck, East Hartford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 16, 1968, Ser. No. 721,637
Int. Cl. H01s *3/00*
U.S. Cl. 331—94.5 **9 Claims**



A laser control in which ultrasonic standing waves of different frequencies are generated within the laser medium to gate or modulate the laser at a low frequency, or to prevent amplified spontaneous emission from depopulating long laser rods during pumping.

3,544,917
MICROWAVE CAVITY
Bobby J. Sanders, Pacoima, Calif., assignor to The Bendix Corporation, a corporation of Delaware
Filed Aug. 28, 1968, Ser. No. 756,042
Int. Cl. H03b *5/18*
U.S. Cl. 331—98 **10 Claims**



A microwave cavity for use with a high frequency planar triode is disclosed wherein certain of its physical characteristics and dimensions provide nearly optimum performance in either the transmitting or receiving modes of operation in a radar system without significant frequency shift. This cavity includes a cylindrical anode member or extension which is attached to the anode pin of the tube and a grid cylinder coaxially positioned with respect to the anode member. A cathode cylinder is included which closes one end of the cavity housing and which has a length of one quarter wave length measured to the cathode flange of the tube. A radio frequency probe

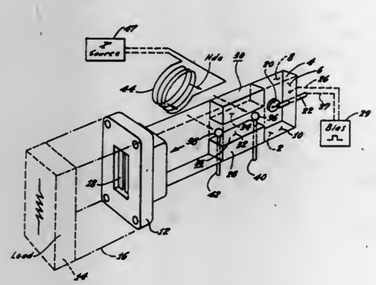
is located adjacent the cathode flange. Two of the characteristics which have proven to be most significant in affecting operation of the cavity are the anode inductance and the anode-to-grid capacity. Dimensions of the grid cylinder and the anode extension have been determined to control these characteristics such that the ratio of the diameters of the grid cylinder to the anode member is approximately 1.77 and such that the length of the grid cylinder is approximately one and one-seventh times one quarter wave length.

3,544,918

YIG TUNED GALLIUM ARSENIDE-LIMITED SPACE CHARGE ACCUMULATION DIODE OSCILLATOR

Walter E. Venator, Jr., Riveredge, N.J., assignor to Litton Precision Products, Inc., San Carlos, Calif., a corporation of Delaware

Filed Nov. 22, 1968, Ser. No. 778,038
Int. Cl. H03b 7/14
U.S. Cl. 331—107 **12 Claims**



In the oscillator of the present invention a gallium arsenide LSA breakdown diode is provided to generate high frequency microwave energy. Gyromagnetic material, suitably a single crystal yttrium iron garnet sphere (YIG), is electromagnetically coupled to the output of the LSA diode and functions as the frequency determining element of the oscillator. A waveguide dimensioned to be beyond cutoff in the frequency range to which the gyromagnetic material is tuned and which is termed a waveguide cutoff section is coupled to the YIG sphere. The waveguide cutoff section is coupled to receive microwave energy as gyroscopically modified by the YIG sphere and passes the microwave field only of the frequency to which the YIG sphere is tuned to a resistive load coupled to the other end of the cutoff section. An electromagnet provides the magnetic field for biasing the YIG sphere for resonance at any particular frequency. Additionally, a second YIG sphere subject to the same magnetic fields as the first sphere is coupled in the output end of the waveguide cutoff section for modifying the electromagnetic field passing therethrough prior to being coupled to a resistive load.

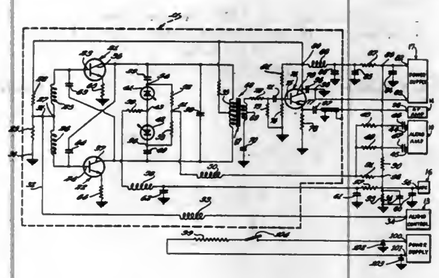
3,544,919

FREQUENCY MODULATED TRANSMITTER WITH CROSSTALK ISOLATION

Hardin G. Stratman, Quincy, Ill., assignor to Gates Radio Company, Quincy, Ill., a corporation of Illinois

Filed May 25, 1967, Ser. No. 641,182
Int. Cl. H04j 9/00; H03c 3/08, 3/20
U.S. Cl. 332—16 **13 Claims**

A modulated oscillator for a solid state FM exciter having first and second transistors connected in a push-pull manner and having a main channel audio amplitude varying signal coupled to the input of said transistors. Said transistors together with an inductance in the output circuit thereof forming a tank circuit and generating an output frequency dependent on the amplitude of the input audio signal. A pair of voltage variable capacitors are also connected across the outputs of the push-pull transistors, and a subcarrier channel amplitude varying signal is applied to the voltage variable capacitors to modulate the output frequency of the oscillator without interfering with the modulation developed by the main channel audio input. In addition, an automatic frequency correction signal is applied to a circuit point intermediate the voltage variable capacitors, such that the correction signal is also isolated from both the main channel and subcarrier channel audio inputs. Hence, modulation of the center frequency of the oscillator is achieved at three different circuit input points, while eliminating substantially all crosstalk between the various modulation signals. The entire oscillator circuit is substantially electrically isolated and disposed in an oven and maintained at a substantially constant environmental temperature.

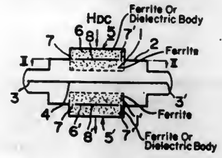


3,544,920

WIDE FREQUENCY BAND CIRCULATOR

Yoshihiro Konishi, Sagamihara, Japan, assignor to Japan Broadcasting Corporation, Tokyo, Japan

Filed Apr. 4, 1968, Ser. No. 718,890
Claims priority, application Japan, Apr. 27, 1967, 42/26,555
Int. Cl. H01p 1/32, 5/12
U.S. Cl. 333—1.1 **7 Claims**



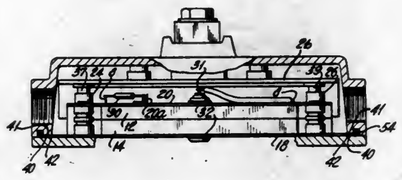
A Y-circulator using an anisotropic feature of a ferrite body under application of a DC magnetic field and having non-reversible characteristics, comprising cavity resonators at the inside of the outer conductor of the circulator, which are coupled only to the same phase component of the exciting energy in order to widen the operating frequency band, so as to realize a wide frequency band circulator having improved characteristics.

3,544,921

SIGNAL DISTRIBUTION SYSTEM COMPRISING A HIGH FREQUENCY INDUCTIVE COUPLER

Eric Winston, Melrose Park, and Edward M. Frank, Churchville, Pa., assignors to Jerrold Electronics Corporation, Hatboro, Pa., a corporation of Delaware

Filed Dec. 9, 1968, Ser. No. 782,120
Int. Cl. H01p 5/14; H03h 7/48
U.S. Cl. 333—6 **2 Claims**



A split housing signal distribution station for series connection within a main signal carrying coaxial cable line. A parallel wire directional inductive coupler enclosed in the coupler half of the housing, detects signals upon a main transmission line, and supplies them to a hybrid splitter mounted in the other half of the housing, which supplies a series of feeder taps which angle 30° down from the housing and generally along the main cable line. A quick-disconnect fitting connects the splitter and the coupler when the housing is assembled.

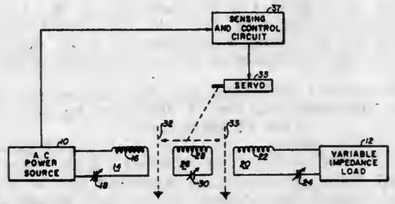
The wires of the coupler are sandwiched between two boards of plastic dielectric, which in turn are sandwiched between grounded conducting plates. One of said conducting plates is peripherally grounded to the edges of the coupler housing. The wires are circuitously laid between the boards to achieve a selected electrical length. One end of the coupled wire is connected to the center contact of the quick-disconnect fitting, and the other end is connected through a resistor to one of the grounded conducing plates. The other wire is connected in series with the center conductor of the main cable line.

3,544,922

IMPEDANCE MATCHING COUPLER SYSTEM FOR A VARIABLE RESISTIVE LOAD IMPEDANCE

Roger A. McConnell, Portola Valley, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 4, 1969, Ser. No. 813,486
Int. Cl. H04b 3/04; H03h 7/38
U.S. Cl. 333—17 **6 Claims**



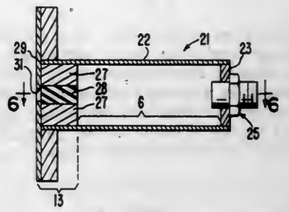
A coupler system for efficiently coupling power from a radio-frequency source to a varying resistive load, including a series tuned input circuit connected to the source, a series tuned output circuit connected to the load and a tuned linking circuit having a single inductance coupled to input and output circuit inductances such that the sum of the coefficients of coupling remains constant and the circuits remain tuned when the linking inductance is moved with a servo into greater or less flux linkage with the input and output circuit inductances to match the load impedance to the source.

3,544,923

MICROWAVE WAVEGUIDE WATER LOAD EMPLOYING A QUARTER WAVE WINDOW OF REDUCED CHARACTERISTIC IMPEDANCE

Norman H. Williams, San Francisco, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Continuation of application Ser. No. 593,423, Nov. 10, 1966. This application Oct. 30, 1969, Ser. No. 871,776
Int. Cl. H01p 1/26
U.S. Cl. 333—22 **6 Claims**



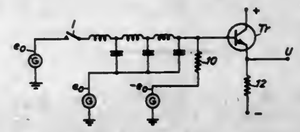
An inexpensive waveguide type water load for the absorption of microwave energy which utilizes a window material having a dielectric constant lower than that of alumina is disclosed together with the design criteria and structural requirements to enable such a water load to provide a proper impedance match over a useful bandwidth.

3,544,924

VARIABLE DELAY ARRANGEMENT IN A LADDER NETWORK USING SIGNALS RELATED TO THE INPUT FED TO THE SHUNT ELEMENTS TO AFFECT THE POLES AND ZEROES OF THE TRANSFER FUNCTION

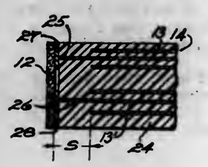
Tore Torstensson Fjällbrant, Fjaras, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden

Filed Sept. 25, 1968, Ser. No. 762,545
Claims priority, application Sweden, Oct. 9, 1967, 13,777/67
Int. Cl. H03h 7/36, 7/14
U.S. Cl. 333—29 **8 Claims**



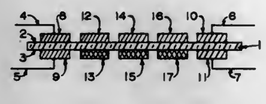
A signal delay device comprises a plurality of serially connected impedance links to form a ladder network. Each impedance link includes a series impedance and a shunt impedance. One end of the ladder network is the input of the device while the other end is the output. When signals are fed to the input of the device, signals related thereto are fed to the shunt elements to affect the poles and zeroes of the transfer function of the ladder network.

3,544,925
SOLID-STATE ELECTRICAL COMPONENT WITH CAPACITANCE DEFEATING RESISTOR ARRANGEMENT
Robert Swart, Newtown, and Irving Berlin, Bridgeport, Conn., assignors to Vitramon, Incorporated, Monroe, Conn., a corporation of Delaware
Continuation of application Ser. No. 484,036, Aug. 31, 1965. This application Nov. 29, 1968, Ser. No. 781,693
Int. Cl. H03h 7/06; H03g 3/07, 3/28
U.S. Cl. 333—70 7 Claims



The present invention relates to a multielement electronic circuit component. More particularly the present invention relates to a component having a series of capacitors arranged in a stacked, one-on-top-of-the-other arrangement and a resistor arranged along the side of the component having its major surface perpendicular to the major surfaces of the conductive layers of the capacitors.

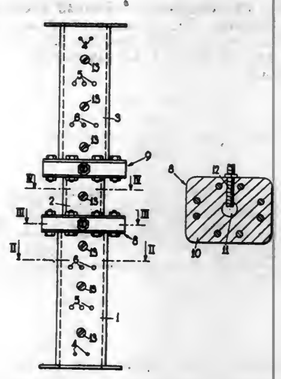
3,544,926
MONOLITHIC CRYSTAL FILTER HAVING MASS LOADING ELECTRODE PAIRS HAVING AT LEAST ONE ELECTRICALLY NONCONDUCTIVE ELECTRODE
Carl R. Hurtig, Scituate, Mass., assignor to Damon Engineering, Inc., Needham Heights, Mass., a corporation of Massachusetts
Filed Oct. 22, 1968, Ser. No. 769,502
Int. Cl. H03h 7/10; H01v 7/00
U.S. Cl. 333—72 2 Claims



The specification describes an improved monolithic crystal filter comprising three or more resonators in which at least one of the internal electrodes which define the resonators and fix their parameters is composed of an electrically nonconductive material, such as silicon monoxide. Substitution of such a nonconductor for the metal used in previously-known monolithic crystal filters greatly increases the maximum possible bandwidth of a filter, thus removing an important limitation on its flexibility and performance.

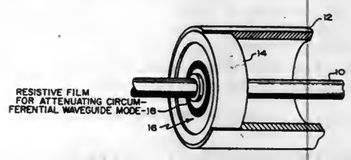
3,544,927
BAND-PASS WAVEGUIDE FILTERS EMPLOYING TRANSMISSION TYPE RESONANT IRISES
Kenneth Frederick Elder, North Wembley, and Larry Joseph Stagg, London, England, assignors to The General Electric Company Limited, London, England, a British company
Filed July 15, 1968, Ser. No. 744,863
Claims priority, application Great Britain, July 13, 1967, 32,231/67
Int. Cl. H03b 7/10, 7/08
U.S. Cl. 333—73 7 Claims

A waveguide band-pass filter having two resonant irises spaced a quarter wavelength apart at a frequency in the pass band. The waveguide on each side of these irises contains sets of posts which are also spaced a quarter wavelength apart at the said frequency. The resonant



irises are tuned to a frequency outside the pass band so that they each provide a capacitive shunt at frequencies above the required pass band.

3,544,928
MODE ATTENUATING SUPPORT BEAD FOR A COAXIAL TRANSMISSION LINE
Richard C. Kelter, Palo Alto, Calif., assignor, by mesne assignments, to Hewlett-Packard Company, a corporation of California
Filed Mar. 15, 1968, Ser. No. 713,444
Int. Cl. H01p 1/16
U.S. Cl. 333—97 2 Claims

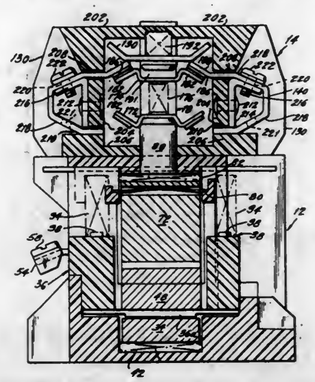


A center conductor is coaxially supported within an outer conductor by a dielectric support bead having an annular resistive film to attenuate circumferential waveguide modes.

3,544,929
INDUSTRIAL CONTROL RELAY
Bernard di Marco, Lincoln Park, Frank W. Kussy, Birmingham, and John B. Cataldo, Bloomfield, Mich., assignors, by mesne assignments, to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
Continuation of application Ser. No. 568,249, July 27, 1966. This application Jan. 17, 1969, Ser. No. 845,109
Int. Cl. H01h 51/04
U.S. Cl. 335—126 17 Claims

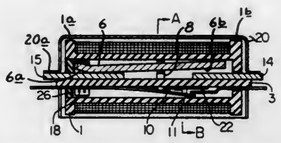
An industrial control relay including a basic magnetic operator above which may be positioned one or more integral self-contained contact blocks, each including a movable contact carrier which releasably interconnects with the contact carrier of the contact block therebeneath or to the movable armature assembly of the magnetic operator. Each contact carrier of each contact block includes a plurality of pairs of bridging contacts which cooperate with associated sets of stationary contacts to control individual circuits. Each pair of stationary contacts may be

easily converted, exteriorly of the contact block, from a normally open to a normally closed position with respect to the associated pairs of bridging contacts. A novel spring biasing arrangement is provided within each con-



tact block such that a constant force opposes the main springs in the magnetic operator regardless of the combination of normally open and normally closed contact arrangements being utilized.

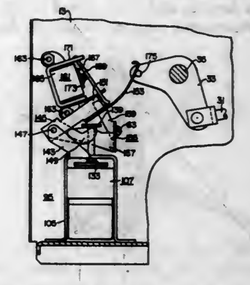
3,544,930
ELECTROMAGNETIC MULTICONTACT RELAY
Hans Sauer, Munich, Germany, assignor of one-half to Matsushita Electric Works, Ltd., Osaka, Japan, a corporation of Japan
Filed Feb. 27, 1969, Ser. No. 803,039
Claims priority, application Germany, Feb. 29, 1968, 1,639,417
Int. Cl. H01h 51/28
U.S. Cl. 335—154 6 Claims



An electromagnetic multicontact relay having a single coil wound on a tubular insulating core. The magnetic circuit associated with the coil is insulated from the current-conducting contact elements within the core. More particularly, an armature is mounted within the core for pivotal movement in response to energization of the coil, and an insulating actuating member is mounted on the armature for operating two or more pairs of electrical contacts within the core in response to pivotal movement of the armature.

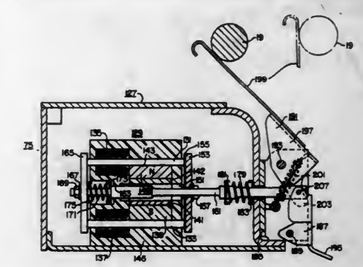
3,544,931
CIRCUIT BREAKER WITH IMPROVED TRIP MEANS
Nagar J. Patel, East McKeesport, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 24, 1968, Ser. No. 770,236
Int. Cl. H01h 9/20
U.S. Cl. 335—174 10 Claims

A circuit breaker comprises improved trip means automatically operable to open the breaker upon the occurrence of overload current conditions. A magnetic trip device comprises a movable keeper connected to an actuator which, when the movable keeper is released, moves as a unit to engage a trip extension that is carried on the breaker trip shaft to move the trip shaft and thereby effect opening of the breaker contacts. A magnetic trip device comprises a generally U-shaped unitary



magnetic member and a movable keeper opposite the ends of the legs of the generally U-shaped unitary magnetic member with the bight portion of the generally U-shaped unitary magnetic member serving as a fixed keeper.

3,544,932
CIRCUIT BREAKER WITH IMPROVED TRIP MEANS
Edmund W. Kuhn, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 24, 1968, Ser. No. 770,305
Int. Cl. H01h 9/20
U.S. Cl. 335—174 9 Claims

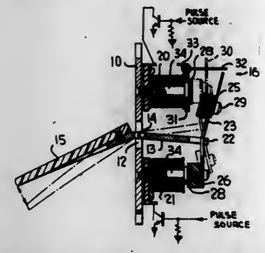


A circuit breaker having improved trip means. The trips means is a magnetic trip device having magnetic pole-piece means, a magnetic fixed keeper, a moveable keeper having an actuator connected to the moveable keeper to trip the breaker upon the occurrence of abnormal or over load current conditions.

3,544,933
COMBINATION STOP ACTION
Marion B. Gregory and William L. Fritz, Cincinnati, Ohio, assignors to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 12, 1968, Ser. No. 783,218
Int. Cl. H01h 9/20
U.S. Cl. 335—179 14 Claims

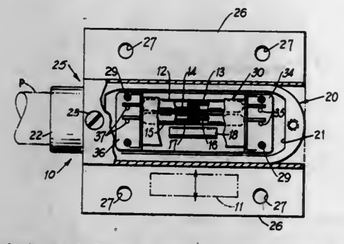
A draw knob for an electronic or pipe organ, in which a pair of actuating electromagnets operate on a permanent magnet means, to actuate a shaft to which the permanent magnet is secured. The electromagnets include armatures which exert a toggle effect on the permanent magnet means. The electromagnets are so poled relative to the

permanent magnet means that the latter can be repelled by that electromagnet to which it is most nearly adjacent, and having passed a dead center position becomes self-attached to the armature of the other electromagnet, which is not energized at that time. In a modification, a further permanent magnet is positioned mid-way between the extremes of movement of the first mentioned permanent magnet means, and is so poled as to force the first mentioned permanent magnet means off dead center.



In a further modification of the invention, applied to a stop tab, two permanent magnets are mounted on a pivotable member, and are positioned over electromagnets having parallel axes. The electromagnets are so arranged that each permanent magnet is repelled by the electromagnet to which it is adjacent, when the latter is energized, forcing the remaining permanent magnet to approach the armature of the remaining and then unenergized electromagnet, to effect a toggle action.

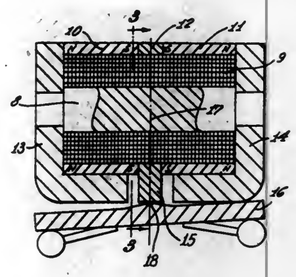
3,544,934
PROXIMITY SWITCH-TYPE CONTROL MEANS
Theodore E. Poliakoff, Alexandria, Va., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed May 8, 1969, Ser. No. 822,910
Int. Cl. H01h *51/28*
U.S. Cl. 335—206 **9 Claims**



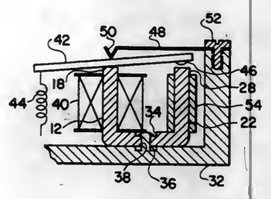
Proximity switch-type control means having magnetic operating means and switching means including at least one reed switch, switch supporting and connecting means, and housing means consisting of a condulet and a cover therefor adapted to be removably mounted on supporting structure.

3,544,935
RELAY WITH PERMANENT MAGNETS
Wilhelm Sterff, Munich, Germany, assignor to Schaltbau Gesellschaft m.b.H., Munich, Germany, a corporation of Germany
Filed Nov. 6, 1968, Ser. No. 773,927
Claims priority, application Germany, Nov. 8, 1967, 1,614,713; Sept. 19, 1968, 1,764,999
Int. Cl. H01f *7/08*
U.S. Cl. 335—229 **20 Claims**

Three relay constructions, each having a coil-core structure, a pair of permanent magnets face each other with similar poles along the coil-core structure. A soft-iron member separates the magnets and serves as support for a rocking armature. The permanent magnets are disposed partially or completely on the other side of the coil-core structure relative to armature, the coil-core structure extending in between and being completely or partially enveloped by the permanent magnets, the enveloping being supplemented by the armature to the extent permitted by the rocking range.



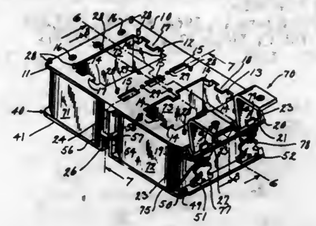
3,544,936
SYMMETRICAL SHADED POLE ELECTROMAGNET
Wesley V. De Forest, Long Beach, and Marvin M. Graham, San Pedro, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Aug. 2, 1968, Ser. No. 749,863
Int. Cl. H01f *7/10*
U.S. Cl. 335—245 **10 Claims**



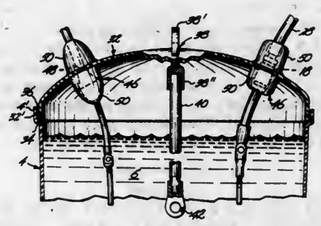
An electromagnet having a U-shaped core comprising a first portion defining a first pole and a second portion defining second and third poles symmetrically disposed around a fourth shaded pole, and an electromagnetic operator comprising the electromagnet, an electrical winding on the first portion of the core and a keeper armature disposed on the first pole for fulcrum action and having a contact end extending over the second portion of the core to contact the fourth pole when the winding is energized.

3,544,937
COIL SUPPORTING PLATES
Gerd C. Boysen, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed May 8, 1969, Ser. No. 823,110
Int. Cl. H01f *27/30*
U.S. Cl. 336—65 **5 Claims**

Cooperating supporting plates for holding electrical coils, particularly electromagnetic coils, for encapsulation which includes integral means for spacing a coil assembly in a molding die during encapsulation and means for controlling coverage of surface areas with the encapsulation material, co-acting locking means for joining together a pair of spaced supporting plates with coils positioned therebetween, and provision for the facile attachment of electrical terminals to the coil assembly.



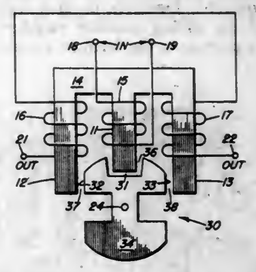
3,544,938
SEALED POWER TRANSFORMER
Elmer G. Bergmann, Vancouver, and Vern D. Ritter, Shelton, Wash., assignors to Tyee Construction Company, Kirkland, Wash., a corporation of Washington
Filed June 12, 1969, Ser. No. 832,627
Int. Cl. H01j *27/06*
U.S. Cl. 336—92 **18 Claims**



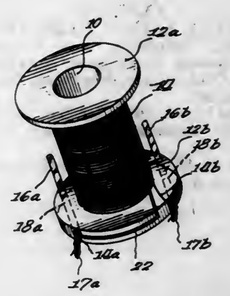
In the manufacture of a hermetically sealed power transformer, a reinforced resinous plate cover is molded or otherwise formed around a mechanical attachment device so that the cover and device are hermetically sealed to one another and the device provides an attachment point on each side of the cover. In addition, holes are formed in the cover for a length of primary cable and a pair of moisture proof secondary cable connectors; and resinous sealing grommets are molded around the holes while the length of cable and connectors are inserted therein, so as to hermetically seal the holes and secure the cable and connectors in the cover, while maintaining exposed electrical contact points for the same on one side of the cover. Then, a transformer core and coil unit is freely suspended from the attachment device on the other side of the cover, for electrical interconnection with the contact points through the cable and connectors, and immersion in a tank of dielectric fluid therebelow.

3,544,939
ELECTRICAL PICKOFF
Carl C. Bath, Plantation, Fla., assignor to The Bendix Corporation, a corporation of Delaware
Filed Jan. 10, 1969, Ser. No. 792,205
Int. Cl. H01f *21/06*
U.S. Cl. 336—135 **2 Claims**

An electrical pickoff is described. The inventive pickoff includes a rotatable armature and a symmetrical magnetic circuit. Rotation of the armature causes an imbalance in the reluctance of the magnetic circuit resulting in an output voltage. The magnitude and polarity of the output are indicative of the angular value and direction of the rotation of the armature. A unique configuration of the armature increases the electrical sensitivity of the pickoff, while decreasing the criticality of its initial balancing in a null position.



3,544,940
INDUCTOR COIL
DhuAine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co. Inc., a corporation of Connecticut
Filed Jan. 21, 1969, Ser. No. 792,721
Int. Cl. H01j *15/10*
U.S. Cl. 336—192 **8 Claims**

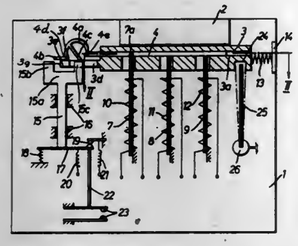


An electrical coil which has a bobbin configuration with a coil receiving central portion and a pair of end discs at the ends of the central portion defining a channel. A plurality of slots are formed in one of the end discs for receiving terminal leads which have exposed conductor portions for connection to end wires from a coil wound on the central portion of the bobbin. Each of the slots has openings at opposite ends so that a terminal lead may be inserted into one end of the slot with the exposed conductor portion protruding from the opposite end of the slot for connection to one of the coil end wires.

3,544,941
THERMAL RELAY
Otto Deissler, Gummersbach, Siepen, Germany, assignor to Starkstrom-Schaltgeratefabrik E. Spindler & O. Deissler, Rodt Gemeinde Marienheide, Gummersbach, Germany
Filed Nov. 26, 1968, Ser. No. 779,016
Claims priority, application Germany, Nov. 27, 1967, 1,614,743
Int. Cl. H01h *37/52, 61/00*
U.S. Cl. 337—38 **12 Claims**

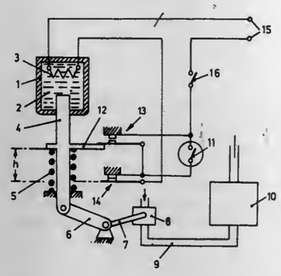
A thermal relay with one or more operating coil phases. The actuating members associated with the coil phases

are of bimetallic strips to compensate for dimensional variation due to thermal effects. Each operating phase has a movable sliding member cooperating with the actuating member. Electrical contracts are actuated through the sliding movable members in their path of motion. Each one of the sliding movable members is provided with a spring portion in the form of an arch terminating



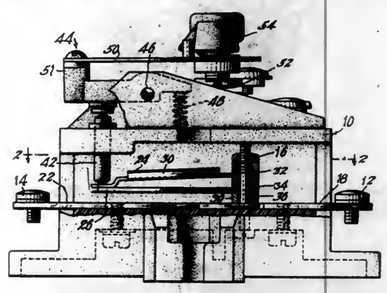
in a projection which is movable upon a sliding surface. This sliding surface lies upon a projection, in turn, of a retaining member in which the sliding movable members are slidable. A contact actuating link with a U-shaped portion is arranged relative to the sliding surface so that the U-shaped portion becomes contacted by the spring portion after sliding off the sliding surface.

3,544,942
THERMALLY ACTUATED SERVO-MOTOR
Ingolf Johnsen, Havnbjerg, near Nordborg, and J. Gammelby Jensen, Holm, near Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark, a company of Denmark
Filed May 1, 1969, Ser. No. 820,773
Claims priority, application Germany, Apr. 19, 1968, 1,751,188
Int. Cl. H01h *37/44, 37/46, 61/00*
U.S. Cl. 337—116 **3 Claims**



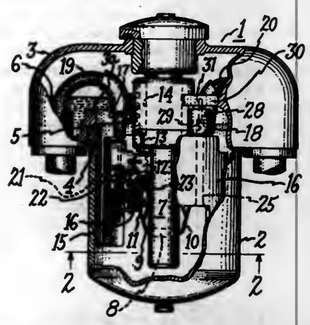
A thermally actuated servo-motor of the type having a piston that is displaceable by an electrically heatable expansible material and a heating circuit therefor which includes two limit switches. The limit switches are actuatable at each end of the working range of the servo-motor at points just prior to the ends of the stroke. The opposite ends of the working range correspond to "on" and "off" positions. The circuit arrangement functions to selectively maintain either the "on" or "off" position with a continuously cycling intermittent heating operation which maintains the servo-motor in a "warmed up" condition so that it can respond to a control signal immediately without a time lag.

3,544,943
OVERCURRENT RESPONSIVE DEVICE
Porter Hoagland, Jr., Rumson, N.J., assignor to Hoagland Instrument Company, Red Bank, N.J., a corporation of New Jersey
Filed June 17, 1968, Ser. No. 737,428
Int. Cl. H01h *37/46, 61/06, 71/18*
U.S. Cl. 337—139 **7 Claims**



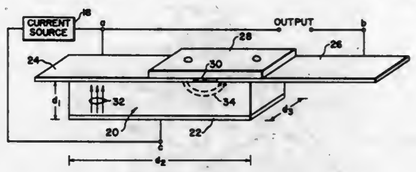
An electrical device which exhibits a predetermined physical distortion when exposed to current in excess of that to which it is normally subjected. The device comprises a thermally responsive assembly in the form of a cantilevered element which may be connected in series with a circuit to be monitored, an overcurrent causing heating and flexure of the element, movement of the element being transmitted to a switching device. The cantilevered element comprises a pair of elongated conductors connected in parallel, and the response time of the device may be matched to that of an appliance to be protected by varying the materials and/or configuration of the members of the cantilevered element. The device may also be self-compensating for variations in ambient temperature.

3,544,944
LIQUID FILLED FUSE CUTOUT WITH FLUID PRESSURE RESISTANT BASE MEMBER FORMED OF INSULATING MATERIAL
Edward A. Vrabel, Pittsfield, Mass., assignor to General Electric Company, a corporation of New York
Filed Apr. 24, 1969, Ser. No. 818,907
Int. Cl. H01h *85/02, 85/54*
U.S. Cl. 337—204 **6 Claims**



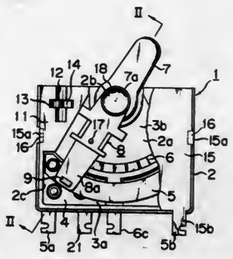
A liquid filled, fused circiut interrupter having a component supporting base member characterized by features that enable it to safely withstand high fluid pressures to which it is subjected when gases are generated in the interrupter responsive to a fuse rupturing. A unique feature of the base member is the provision in it of a plurality of mounting recesses that are substantially sealed with a moldable epoxy to prevent the flow of high pressure liquid therein when the interrupter is in operation.

3,544,945
CONDUCTANCE DIVIDER
Henry C. Leahy, Glen Burnie, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 9, 1969, Ser. No. 789,983
Int. Cl. H01c *13/00*
U.S. Cl. 338—89 **6 Claims**



Described is a three-terminal electrical device, somewhat similar to the variable resistance network known as a potentiometer, but which is the mathematical inverse of a potentiometer. Variation in conductance between a pair of output terminals is achieved by relative movement of a pair of spaced conductors to which the output terminals are connected with respect to a body of anisotropic resistance characteristics, a source of input current being connected to one of said terminals and the body of anisotropic resistance characteristics.

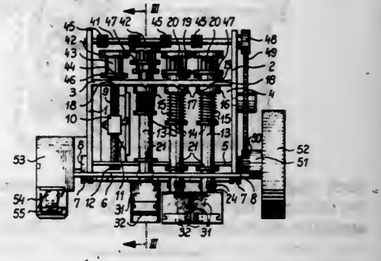
3,544,946
VARIABLE RESISTOR
Shinichi Murakami, Hamamatsu-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan, a corporation of Japan
Filed Mar. 10, 1969, Ser. No. 805,722
Int. Cl. H01c *9/02*
U.S. Cl. 338—174 **10 Claims**



A variable resistor has a narrow housing, and a hand operable lever swingable in a plane extending in the lengthwise direction of said housing so as to control the resistance. A large number of variable resistors can be arranged in juxtaposition within a short distance in their transverse direction.

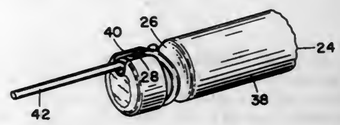
3,544,947
TUNING DEVICE FOR HIGH FREQUENCY COMMUNICATION
Herbert Meyer, Rottweil-Buhlingen, and Rudolf Mayer, Rottweil, Germany, assignors to Messrs. R. & E. Hopt KG, Rottweil, Germany
Filed Feb. 6, 1969, Ser. No. 797,052
Claims priority, application Germany, Feb. 7, 1968, 1,616,263, 1,616,264
Int. Cl. H01c *9/08*
U.S. Cl. 338—179 **25 Claims**

A tuning device for high frequency communication apparatus, in particular television receivers, comprises two parallel rows of switch rods and tuning spindles associated with tuning elements, each switch rod being associated with and disposed parallel to one of the said tuning spindles and displaceable relatively thereto in a longitudinal direction to effect operation of the tuning element associated with the respective tuning spindle, and



rocker buttons connected to pairs of the said switch rods, each of the said rocker buttons being pivotally connected to a switch rod in the said one row and to a switch rod in the said other row to permit selective alternate operation of the said switch rods of the said pair.

3,544,948
ELECTROCONDUCTIVE COATING RESISTOR
Guenter H. Loose, Webster, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Dec. 27, 1968, Ser. No. 787,530
Int. Cl. H01c *7/00*
U.S. Cl. 338—300 **5 Claims**

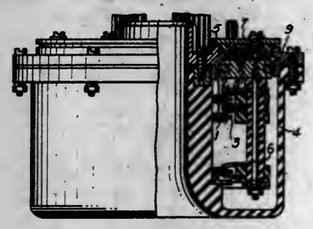


A capless electroconductive coating resistor. The resistor dielectric substrate is formed on a continuous basis, passed between forming rolls to impart therein grooves and notches, coated with resistive material, and thereafter separated into individual resistor blanks. Wire leads are attached directly to the blanks by wrapping them about the blanks within the preformed grooves and in electrical contact with the resistive material coating.

3,544,949
SLIP RING DEVICE
Lev Emelianovich Panasjuk, Ulitsa Oktyabrskaya 95–b, kv. 47; Arnold Karlovich Kupits, Ulitsa Oktyabrskaya 95–a, kv. 70; Evgeny Mikhailovich Romanov, Ulitsa Krasnoarmeiskaya 20–a, kv. 43; Veniamin Dmitrievich Ageev, Ulitsa 9 Maya 62–a, kv. 37; and Vladimir Vasilievich Ryazantsev, Ulitsa Metallurgov 23/11, kv. 10, all of Tula, U.S.S.R.
Filed Oct. 12, 1967, Ser. No. 674,937
Int. Cl. H01r *39/18*
U.S. Cl. 339—8 **13 Claims**

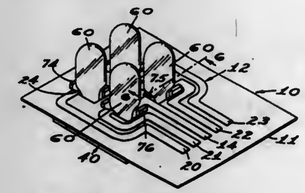
A slip ring device for transmitting electrical power comprises a plurality of contact pairs between a power supply source and a receiver, the pairs being constituted by rings which are stacked in two packs, the rings of one pack being flat while an edge of each of the rings of the other

pack is formed with circumferentially spaced radial lamels which are bent from the plane of its ring and resiliently contact the surface of an associated ring of the other pack.



Each ring has a connector element for connection with the source or the receiver and the connector elements are angularly offset in the rings of each of the packs.

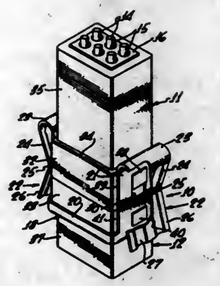
3,544,950
LAMP SOCKET AND PRINTED CIRCUIT
Lawrence A. Lopez, Dearborn, and Donald F. Malkiewicz, Madison Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Nov. 1, 1968, Ser. No. 772,685
Int. Cl. H05k 1/16, 1/02
U.S. Cl. 339—17 15 Claims



This disclosure relates to a lamp socket and printed circuit adapted particularly for use with wedge base lamps or bulbs in which a socket body is provided constructed of insulating material and having a cavity positioned therein extending in a direction substantially transverse to a generally flat wall portion of the socket body. A printed circuit having a substrate of insulating material, preferably a flexible material, has a plurality of flexible conductors positioned thereon, and the substrate has an opening positioned therein with the printed circuit including a pair of conductors each extending into the opening and into the cavity in the socket body. The socket body includes means positioned in the cavity and cooperating with a pair of transverse notches positioned in the glass base of a wedge type bulb or lamp for positioning one of these conductors in engagement with a lead from the bulb that is positioned in one notch and for positioning the other of the conductors in engagement with the other of the leads from the bulb that is positioned in the other notch in the base.

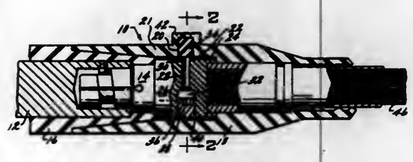
3,544,951
COUPLING WITH DEFLECTABLE ARMS
James Roberts, Banning, Calif., assignor to The Deutsch Company Electronic Components Division, Banning, Calif., a corporation of California
Filed June 28, 1968, Ser. No. 741,105
Int. Cl. H01r 13/54
U.S. Cl. 339—91 13 Claims

A coupling arrangement that includes a member having an annular portion for circumscribing one element to be connected, a pair of arms extending from the annular portion, the arms having first openings adjacent the annular portion for engaging lugs on the one element to be connected, and second openings outwardly of said first openings for engaging lugs on the other element to be connected, and including doubled-over portions extending



from the outer ends of the arms to fulcrums intermediate the openings, and distal portions beyond the fulcrums, so that upon deflecting the distal portions the doubled-over portions are pivoted about the fulcrums and the arms are deflected to free the lugs from the second openings.

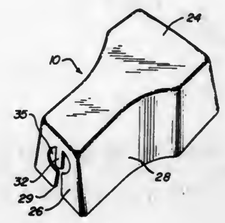
3,544,952
MOLDED INSULATOR AND SHELL THEREFOR, RELEASABLY ATTACHABLE TO AN ELECTRICAL CONTACT, AND ACCOMPANYING FLASH SHIELD
Robert Edgar Piaget, 4432 Homer Ave., Cincinnati, Ohio 45227
Filed Dec. 19, 1968, Ser. No. 785,192
Int. Cl. H01r 7/02
U.S. Cl. 339—94 8 Claims



The combination of a releasably attachable insulating molded insulator for an electrical conductor with an electrical contact comprising, in one form of the invention, a forceably removable plug mounted in a recess formed within the marginal wall of the sleeve for particular insulating of the contact upon attaching the sleeves thereto, a dog-point screw element having an extension on its outer end engaging a corresponding aperture in a metal ring molded to the inner wall of the insulator and which dog-point screw element is threadedly mounted in a radially extending cavity aligned with the plug disposed in the recess provided in the opposing wall of the insulator, whereby with omission of the plug form its recess, the contact is releasably attachable to the insulator before insulating same in such insulator by the plug. In another form of the invention embodied in a receptacle or sleeve coupled with a mounting flange, a screw is provided for disposition in such a recess, said screw extending into a ring molded to the receptacle or sleeve and into the contact thereby

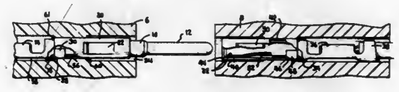
attaching the latter to the former, an insulating disc insertable in the recess above the head of the screw, and a flash shield coupled to the insulator for preventing arcing between the electrical contact and the mounting screws in the mounting flange. The shield is mounted about the receptacle or sleeve over an opening leading to the recess, thus, also functioning as a seal and insulator at the recess.

3,544,953
PROTECTIVE COVER
John K. Shannon, 6504 43rd Ave., Kenosha, Wis. 53140
Filed Jan. 21, 1969, Ser. No. 792,423
Int. Cl. H01r 3/02
U.S. Cl. 339—116 4 Claims



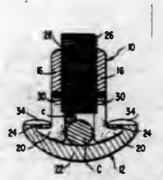
A protective cover for protecting a battery terminal connector affixed to the one end of a battery cable and the battery terminal post to which the connector is affixed from exposure to elements that tend to cause them to corrode. One wall of the protective cover is provided with a Y-shaped slot to receive the battery cable, the central finger of the Y-shaped slot bearing against the battery cable when the cable is forced into the slot to cause the protective cover to tip forward and maintain a tight seal with the top surface of the battery.

3,544,954
PIN AND SOCKET TYPE ELECTRICAL CONTACT TERMINALS
Marvin Leo Yeager, Carlisle, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 21, 1968, Ser. No. 769,329
Int. Cl. H01r 9/16
U.S. Cl. 339—217 6 Claims



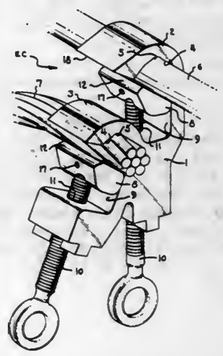
Invention relates to pin or socket type contact terminal in which terminal body comprises stamped end formed cylinder, having an axially extending open seam. A stamped and formed sheet metal sleeve is co-axially mounted on the terminal body and has an open seam which is on the opposite side of the terminal from the side of the open seam. The sleeve and the terminal body are secured together, by means of ears on the sleeve, which extend radially inwardly through an opening in the terminal body, the sleeve functioning to cover and protect the contact spring in the terminal body. The principles of the invention can be applied to the manufacture of both pin contacts and socket contacts, one sleeve length being mountable on either type of contact.

3,544,955
CABLE CONNECTOR
Raúl Heres Ruiz, Calle Cerro Maculltepec 89, Colonia Campestre Churubusco, Mexico City 21, Mexico
Filed Mar. 28, 1967, Ser. No. 626,590
Int. Cl. H01r 7/08
U.S. Cl. 339—244 6 Claims



The electrical connector includes a body portion having a cable receiving channel, a slidably engaged closure portion and a screw threaded into the channel to clamp cables therein and the two portions together. The body may be provided with a transverse passageway to accommodate cross cables.

3,544,956
ELECTRICAL CLAMP
Harry Chinn Bricker, Jr., Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Apr. 10, 1968, Ser. No. 720,161
Int. Cl. H01r 7/08
U.S. Cl. 339—264 6 Claims

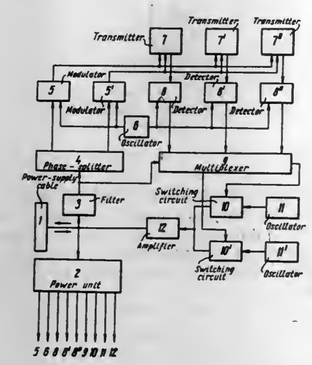


An electrical clamp having spaced conductor-receiving areas for receiving therein respective electrical conductors and conductor-engaging means driven by driving means along the conductor-receiving areas in the same direction to engage and secure the conductors in the conductor-receiving areas.

3,544,957
ELECTRONIC INCLINOMETER FOR ELECTRIC DRILLS
Alexandr Georgievich Smetanin, Ulitsa Sovetskaya 13, korpus 1, kv. 104, and Valentin Vasilievich Golovanov, Ulitsa Pervomaiskaya 8, kv. 57, both of Istra Moskovskoi Oblasti, U.S.S.R.
Filed Feb. 11, 1969, Ser. No. 798,369
Int. Cl. E21b 47/022
U.S. Cl. 340—18 1 Claim

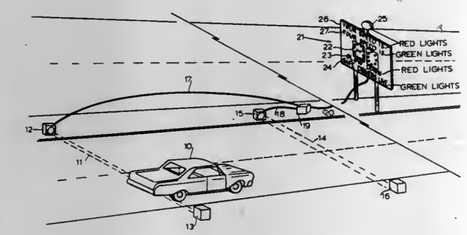
An electronic inclinometer comprising a bore-hole tool which uses phase-angle transmitters to sense the position

of the electric drill and whose supply circuit contains a phase splitter energized from the power-supply cable of the electric drill at the supply-voltage frequency and controlling operation of a multiplexer separating in time the output signals of the transmitters and connected to a frequency changer converting the low-frequency transmitter signals into R.F. code pulses fed to a surface de-



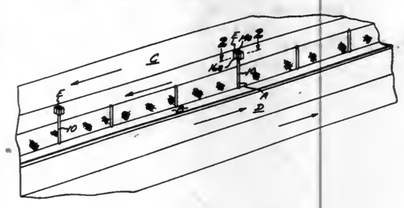
coder, and in which the R.F. carrier oscillator is connected to at least two modulators placed between the phase-splitter and the transmitters in the supply circuit of the latter, and to detectors placed one each between the output of each transmitter and the input of the time multiplexer and performing synchronous demodulation of the transmitter signals.

3,544,958
SELECTIVE SPEED SIGNS ACTUATED BY VEHICLE SPEED SENSING
Leo J. Carey, Raleigh, and Joseph N. McIntire, Durham, N.C.; said McIntire assignor, by mesne assignments, to Leo J. Carey, Raleigh, N.C., a partnership composed of Leo J. Carey and James A. Thompson
Filed Sept. 11, 1967, Ser. No. 666,627
Int. Cl. G08g 1/04
U.S. Cl. 340—31 5 Claims



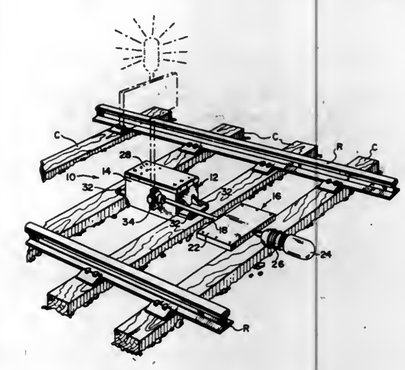
A system for measuring vehicular speed and for displaying such speed to the driver by signs that are selectively actuated according to the speed measured comprises a pulse generator fed counter which is controlled by a pair of spaced speed sensors and which in turn controls a display logic circuitry. The rate of counting is constantly changed by periodically feeding back to the pulse generator the state of the count so that at high speeds the rate of counting is relatively high and at low speeds is relatively low.

3,544,959
TRAFFIC PACING DEVICE
Thomas R. Hawks, 801 E. 37th St., Long Beach, Calif. 90807
Filed Dec. 18, 1967, Ser. No. 691,438
Int. Cl. G08g 1/96
U.S. Cl. 340—43 8 Claims



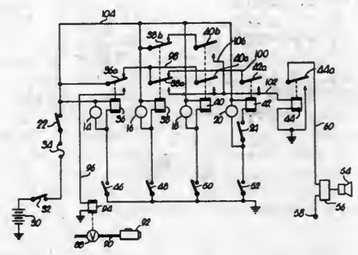
A series of illuminable signals spread at fixed distances along a highway or freeway that periodically flash to indicate to drivers the optimum speed at which they should be traveling in order to minimize stop-and-start driving, which time periods between flashes are varied from time to time which change in traffic density.

3,544,960
RAILWAY SAFETY APPARATUS
Brice E. Hayes, Richmond, Ind., assignor to Hayes Track Appliance Company, Richmond, Ind., a corporation of Indiana
Filed Apr. 25, 1968, Ser. No. 724,089
Int. Cl. B61l 5/18, 7/10
U.S. Cl. 340—47 3 Claims



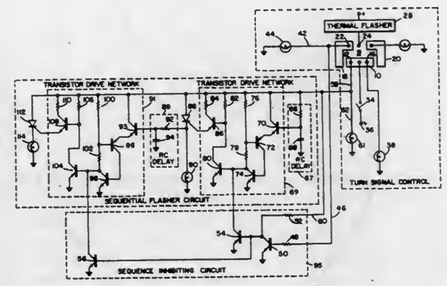
A compact housing mounted along the roadbed encloses a remote controlled operating mechanism for pivoting a blue flag signal and lamp between a horizontal standby position over the roadbed and an upstanding signalling position. Readback indications are provided at the remote location, and an indication that the signal is up is prevented until both the operating mechanism and the signal have moved. A lamp on the signal is energized independently of signal movement. The signal may be used with a derail, in which case it is operated only in response to completion of the operation of the derail.

3,544,961
DELIVERY EQUIPMENT SAFETY DEVICE
Marquis R. Pasley, Shawnee Mission, and Ceylon B. Frazer, Overland Park, Kans., assignors to Pasley Manufacturing & Distributing Co., Inc., Kansas City, Mo., a corporation of Missouri
Filed June 8, 1967, Ser. No. 644,559
Int. Cl. G08b 5/00
U.S. Cl. 340—53 7 Claims



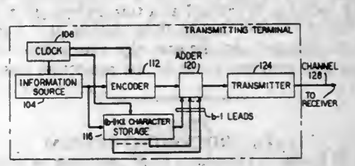
In a delivery truck, electrical switches are associated with the various actuatable components thereof employed during a delivery operation. Each switch senses the operational state of an associated component. Relay circuitry connects the switches with the horn of the vehicle and is arranged to energize the horn if the vehicle operator fails to actuate the delivery components in a predetermined order or, after the delivery operation is concluded, fails to deactivate the components in a predetermined sequence selected to assure that the vehicle is returned to a safe traveling condition.

3,544,962
SEQUENTIAL LIGHT FLASHER
James Elbert Thompson, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Aug. 31, 1967, Ser. No. 664,856
Int. Cl. B60g 1/38; H03k 17/28
U.S. Cl. 340—67 6 Claims



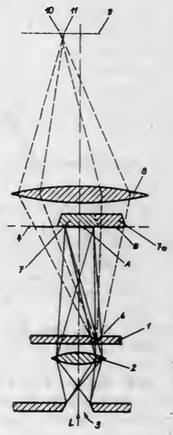
Disclosed is a sequential light flasher circuit which may be constructed in monolithic integrated form. The circuit, which is adapted for use in automobile turn signalling, includes a plurality of cascaded, resistance-capacitance time delay networks which are connectable via transistor and SCR drive circuitry to a corresponding plurality of turn lamps in an automobile. The time delay networks provide the sequential energization of the turn lamps in response to sequential charging of a capacitor in the resistance-capacitance time delay networks.

3,544,963
RANDOM AND BURST ERROR-CORRECTING ARRANGEMENT
Shih Y. Tong, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Dec. 27, 1968, Ser. No. 787,496
Int. Cl. G08c 25/00; H04l 1/10
U.S. Cl. 340—146.1 18 Claims



A system is disclosed for utilizing block codes to correct both random and burst errors. Information sequences are encoded into a block code capable of correcting a certain number of random errors. Portions of previously encoded information sequences or sequences derived therefrom are added to each code word and the resultant sequence is transmitted to a receiving station. At the receiving station, each received sequence is decoded to determine if the number of errors are within the error-correcting ability of the code. If so, the sequence is corrected using a random error-correcting technique. If not, the information portion of the sequence is replaced with information derived from previously and/or subsequently received sequences.

3,544,964
APPARATUS FOR REPRODUCING TELEVISION PICTURES
Rudolf Waser, Regensdorf, Zurich, and Hans Ott, Watt-Regensdorf, Zurich, Switzerland, assignors to Eidophor A.G., Glarus, Switzerland
Filed Mar. 11, 1968, Ser. No. 711,960
Claims priority, application Switzerland, Mar. 17, 1967, 3,898/67
Int. Cl. G02f 1/08
U.S. Cl. 350—161 8 Claims



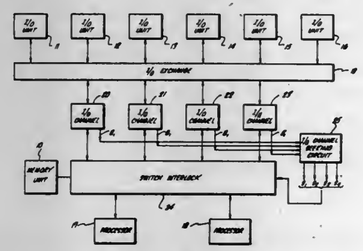
Apparatus for reproducing television pictures by means of a Schlieren optical system includes a light-modulating medium deformable by a video-modulated electron beam.

The optical system has input and output masks of an alternate bar and slit configuration, and when the medium is undeformed the input slits are imaged on the output bars to prevent light transmission to a projection lens. The bars are wider than the slit images thereon and the latter are asymmetrically disposed with reference to the longitudinal centre lines of the bars so that, upon deformation of the medium, light is preferentially deflected past one edge of each bar. In a modification the other edge of each bar is formed as a transparent prism so that light falling thereon due to deformation of the medium and light deflected past the one edge above-mentioned are brought to a common focus by the projection lens.

3,544,965
DATA PROCESSING SYSTEM

Roger E. Packard, Glendora, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Mar. 25, 1966, Ser. No. 537,573
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **10 Claims**



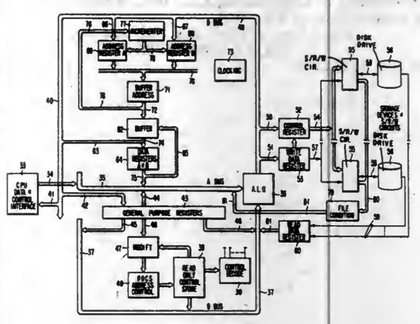
An improved data processing system having a time-shared main memory and providing means for reading a predetermined address of main memory, moving the word stored at this address to a reserved address in memory, and clearing the predetermined address, all within the same memory cycle. Means for automatically restoring information read from the predetermined address are inhibited whenever such a "move and clear" operation is to be performed. In another embodiment, means are provided for reading a predetermined flag-address of main memory, moving the word stored at the flag-address to a reserved address in memory, and storing a flag-value in the flag-address, all during the same memory cycle, thereby making it impossible for more than one processor to read from the flag-address a word other than the flag-value.

3,544,966
METHOD AND APPARATUS FOR MULTIPLEX CONTROL OF A PLURALITY OF PERIPHERAL DEVICES FOR TRANSFER OF DATA WITH A CENTRAL PROCESSING SYSTEM

John J. Harmon, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Dec. 27, 1966, Ser. No. 604,876
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **16 Claims**

Control method and system for automatic queueing and sequencing of instructions to time-multiplex the transfer of data between a central processing system and a plurality of direct-access storage devices. After an initial communication with the control, the central processing system may transmit an instruction set relative to a specified peripheral device to the control, which inserts the instruction in a queue. The control multiplies the "seek" operations of the plurality of devices in accordance with the queued instructions, cycling through the various

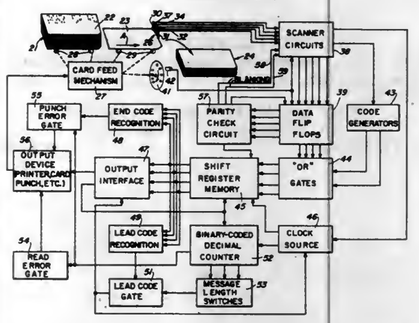


functions of the devices and communicating with the central processing system in predetermined sequences.

3,544,967
CODE TRANSLATION AND CONTROL SYSTEM FOR PRINTING MACHINES AND THE LIKE

Max E. Sallach, Chesterland, and Donald N. Heisner and Robert G. Baker, Mentor, Ohio, assignors to Addressograph Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware

Filed June 20, 1967, Ser. No. 647,460
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **12 Claims**



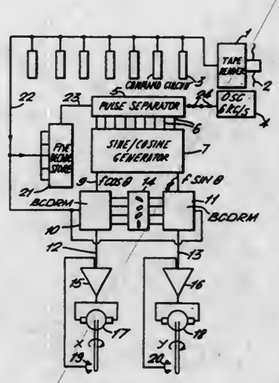
A data conversion machine using machine-read bar code data from individual record members to control an output device such as a Teletype printer, a card punch, or the like; each record member carries a data message constituting a predetermined number of code characters. The machine includes a conventional card feed for feeding record cards one by one through a sensing station, the sensing station including an array of individual photocells or other sensing devices for scanning the bar code data on the record cards. The sensing devices are electrically coupled to a code memory, comprising a shift register, the data from the shift register memory being applied to an output interface circuit that translates the bar code to a working code for controlling the output device. Separate code generators are provided to add special control codes to the data from the record cards both at the beginning of a card sensing operation and at the end thereof to afford more complete control for the printer or other output. The

sensing devices are also connected to a parity check circuit that determines whether the number of code elements in each sensed code character corresponds or fails to correspond to a given parity condition, the parity circuit developing parity and non-parity signals indicative of these conditions. The parity signal actuates a first blanking means that effectively blanks the sensing devices, whenever parity is found, for a period of time long enough to permit the code character being sensed to clear the sensing station. The non-parity signal actuates a second blanking means that blanks the sensing devices for a much shorter time interval. A counter is connected to the shift register memory to count the number of code characters recorded and the number of shift operations required to move the recorded code data completely through the shift register, this counter being connected to adjustable message length switches that may be set for a message length of a given number of code characters corresponding to the number of code characters on each record member. Operation of the output device is initiated only when the first special control code reaches the end of the shift register memory in timed coincidence with a count related to the correct number of code characters in the message, both reading errors and output operational errors being detected on the basis of information supplied from the counter and the message length switches.

3,544,968
AUTOMATIC CONTROL OF MACHINING OPERATIONS

Samuel Lattimore, Carrum, Victoria, Australia, and Richard A. Morris, Lower Hutt, North Island, New Zealand, assignors to The New Zealand Government Property Corporation, Wellington, North Island, New Zealand, a body corporate of New Zealand

Filed Aug. 16, 1967, Ser. No. 661,032
Int. Cl. G05b *19/24*
U.S. Cl. 340—172.5 **22 Claims**

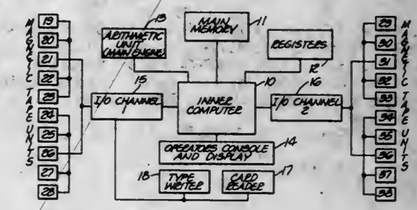


A motion control for deriving distance and velocity control of a machine from a digitally stored program. Instructions are translated into a pulse train with the number of pulses representative of distance between two successive points. A sine/cosine generator converts said pulse train into two pulse trains which represent the component of said motion along two coordinate axes by successively adding binary representations of the sine and cosine of the angle of motion to binary representations of the cosine tail and sine tail respectively, associated with said angle of motion and passed additions. Means are provided for changing the sine and cosine representations to obtain curved motions and for multiplying the pulse output of the sine/cosine generator to control velocity.

3,544,969
LANGUAGE INDEPENDENT COMPUTER

Laszlo L. Rakoczi, Irvine, and David E. Keefer, Gary J. Goss, and Ernest J. Porcelli, Mission Viejo, Calif., assignors to Standard Computer Corporation, Santa Ana, Calif., a corporation of Arizona

Filed Nov. 27, 1967, Ser. No. 685,857
Int. Cl. G06f *15/16, 9/00*
U.S. Cl. 340—172.5 **21 Claims**

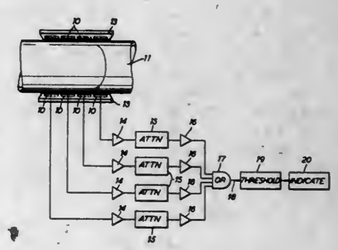


A digital computer which may be viewed as a computer within a computer and which can interpret a variety of machine languages permitting direct execution of program libraries compiled for other computers without modifications or reprogramming. The inner computer has its own memory and registers and acts as an interpreter. The inner computer is programmed to interpret the language of another computer and to set up the necessary logic for processing data, while the outer computer essentially acts as though it were the computer it is intended to emulate. Generalized console apparatus and circuitry enables duplication of operating conditions.

3,544,970
CALIBRATION OF MULTIPLE CHANNEL ELECTRONIC SYSTEMS

Hillel Weinbaum, Houston, Tex., assignor to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey

Filed Dec. 12, 1967, Ser. No. 689,973
Int. Cl. G06f *3/05*; H04j *3/14*
U.S. Cl. 340—172.5 **5 Claims**



This application discloses apparatus for calibrating or standardizing the gain in each channel of an electronic system having a large number of like channels. In each channel the gain is controlled by an attenuator arrangement including a series of digitally weighted resistors which may be switched into a voltage divider arrangement connected between amplifying stages. Switching devices for connecting the resistors in the desired configuration are controlled by memory units for each channel so

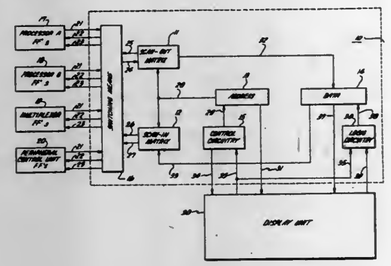
that the desired gain may be individually entered in digital form and stored. The memory units are selectively addressed for entry of this information, while all of the channels except the addressed channel may be rendered inoperative so that the observed or detected system output is that of only one channel. The system may be automatically operated using an addressed register for sequentially addressing each channel and a sensitivity register which is incremented in response to the detected system output until the gain of the address channel reaches a desired level. Alternatively, the channels may be manually addressed and the sensitivity set into the memory units by a manual selector.

3,544,971

DEVICE FOR AUTOMATICALLY DISPLAYING THE LOGIC ELEMENTS AND FOR AUTOMATICALLY CHANGING THEIR STATUS

Floyd W. Looschen, Arcadia, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Feb. 21, 1968, Ser. No. 707,251
Int. Cl. G11c 7/00
U.S. Cl. 340—172.5 28 Claims



A display device containing a plurality of incandescent lamps used to display the status of respective flip-flop circuits in any selected one of a plurality of discrete units within a data processing system. Silicon controlled rectifiers associated with respective ones of the lamps trigger their associated lamps to incandescence when concurrent data and word signals are provided to the rectifiers during a scan-out operation in which word groups of the flip-flop circuits are sequentially and automatically scanned. Push button switches are also associated with respective ones of the lamps and depression of one of these push buttons effects a halt of the scan-out operation when the word associated with the depressed button is scanned and initiates a scan-in operation in which the status of the flip-flop associated with the button is altered. An additional push button is utilized to indicate the status to which the designated flip-flop is to be changed and additional push button switches are utilized to initiate scan-in operations in which entire words of flip-flop circuits are cleared.

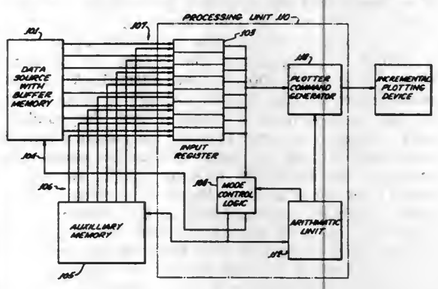
3,544,972

DIGITAL PLOTTING SYSTEM

Robert B. Trousdale, Sana Ana, Calif., assignor to California Computer Products, Inc., Anaheim, Calif., a corporation of California

Filed Dec. 13, 1967, Ser. No. 690,308
Int. Cl. G05b 19/18
U.S. Cl. 340—172.5 6 Claims

A variable length positional notation instruction word format may be used to effectuate efficient transmission of incremental plotting data encoding both a small and large number of incremental movements. These instructions may be decoded and used to generate 4-bit command words compatible with existing plotting devices to control the direction of each incremental movement thereof. The drawing of straight lines which are not parallel to a basic plotting direction may be approximated by a series of elementary movements. The direction of these elementary movements may be determined from the po-



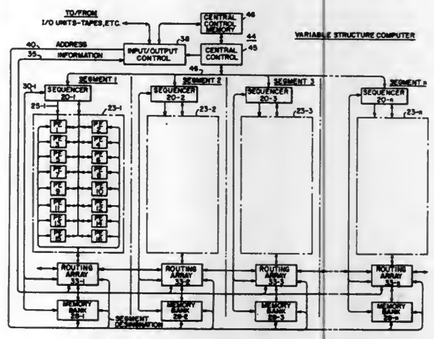
larity of the difference obtained by successively subtracting the number of incremental minor axis movements from the number of increments of major axis movement. In addition to encoding the number of major and minor axis increments, an instruction word may also be used to access an auxiliary memory by specifying the address of a stored subroutine.

3,544,973

VARIABLE STRUCTURE COMPUTER

Walter C. Borck, Jr., West Acton, Mass., and John G. Gregory, White Marsh, James R. Hudson, Charlestown, and John C. Murtha, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 13, 1968, Ser. No. 712,708
Int. Cl. G06f 15/16
U.S. Cl. 340—172.5 18 Claims



A computer which includes a central control for controlling a plurality of similar computer segments. Each segment has a sequencer means, a plurality of processing elements for carrying out logic and arithmetic operations, a like plurality of memory units for storing instructions and for storing data, and a like plurality of routing registers for transferring information to and from the memory unit and to and from the processing elements. The sequencer means is selectively operable to receive instructions from the central control or from the memory units to provide control signals for controlling operations in its associated segment. The routing registers are additionally connected for transferring information to other routing

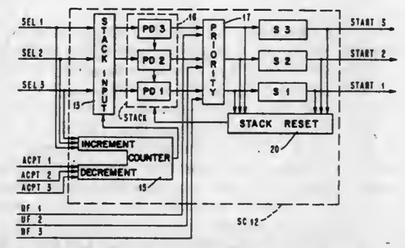
registers of the segment, routing registers of other segments, and to an input/output means whereby information may be placed in selected segments and the results of various computations may be transferred to suitable readout means or other types of utilization means. In a first operating condition the central control provides identical instructions simultaneously to all the sequencers such that all processing elements of the computer receive the same control signals. In a second operating condition the sequencer of one segment may receive instructions from the memory units of that segment while being non-responsive to instructions provided by the central control. In the second operating condition with one computer segment operating independently of the others, one processing element of that segment may function to carry out logic and arithmetic operations while the remaining processing elements of that segment function as a fast access memory storage for the storage of data used in the logic and arithmetic computations.

3,544,974

DATA PROCESSING SYSTEM INCLUDING BUFFERED OPERANDS AND MEANS FOR CONTROLLING THE SEQUENCE OF PROCESSING OF SAME

Kwang G. Tan, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Apr. 1, 1968, Ser. No. 717,765
Int. Cl. G06f 3/04
U.S. Cl. 340—172.5 2 Claims



A data processing system has add units or reservation stations which collect operands for execution in an adder. A Start Control receives control signals and engages or starts the adder when the reservation stations are filled. The adder obtains operands from the reservation stations on a first-selected-and-ready, first-out basis. The main elements of the Start Control are a fill-up push-down stack for establishing priority of selection, and a priority circuit that starts the adder in response to signals from the stack and to control signals indicating a reservation station is filled and ready to deliver operands to the adder.

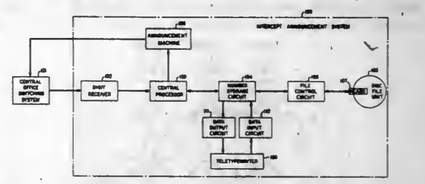
3,544,975

DATA INSERTION IN A CONTENT ADDRESSABLE SEQUENTIALLY ORDERED FILE

Paul D. Hunter, Middletown Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed May 24, 1968, Ser. No. 731,838
Int. Cl. G06f 7/32
U.S. Cl. 340—172.5 8 Claims

Circuitry is disclosed which uses a rotating magnetic disc file as a content addressable memory into which file both address data and information data are entered and arranged in a sequence of increasing, interlaced addresses. After entries are no longer needed, they are erased from the file. New entries are inserted in the file in accordance with their address data in appropriate positions within the aforementioned sequence. This is done by shifting the present entries of the file in order



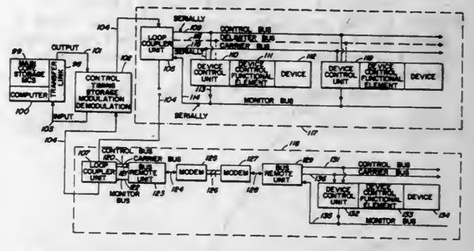
to make room for the new entries. A special track is provided for temporary storage and delay of the entries to be shifted.

3,544,976

DIGITALIZED COMMUNICATION SYSTEM WITH COMPUTATION AND CONTROL CAPABILITIES EMPLOYING TRANSMISSION LINE LOOP FOR DATA TRANSMISSION

Arthur A. Collins, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed July 2, 1968, Ser. No. 741,966
Int. Cl. G06f 9/18
U.S. Cl. 340—172.5 70 Claims



A communication system with computation and control capabilities and comprising computer means, transmission line loop means beginning and terminating at the computer site, and interface means for transferring identifiable data words from the computer to the loop and for transferring data words received from the loop into identifiable storage locations in the computer. Each data word circulating in the loop occupies a time slot and is encoded to establish the relation of said time slot with a given reference storage location in the computer. A plurality of stations positioned along the loop are each constructed to intercept predetermined ones of identifiable circulating data words, to generate response data words when required, and to insert said response data words into predetermined time slots in the circulating data stream. Further, each station can comprise means for controlling a device and for generating said response data words.

3,544,977

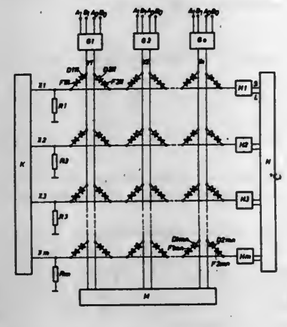
ASSOCIATIVE MEMORY MATRIX USING SERIES CONNECTED DIODES HAVING VARIABLE RESISTANCE VALUES

Manfred Bohner, Stuttgart-Zuffenhausen, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 29, 1968, Ser. No. 771,520
Claims priority, application Germany, Dec. 22, 1967, 1,549,076
Int. Cl. G11c 11/36
U.S. Cl. 340—173 2 Claims

The arrangement utilizes as a storage or memory element solid-state devices which can be in a high- or low-resistive state, so that when applying a voltage to the

device exceeding a threshold value, the device is rendered low-resistive, and the device is rendered high-resistive as



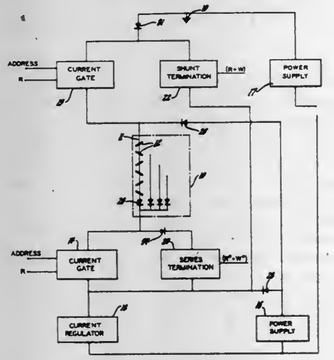
soon as a current exceeding the threshold value flows through the device.

3,544,978

METHOD AND APPARATUS FOR DRIVING MEMORY CORE SELECTION LINES

William E. McLean, Hales Corners, Wis., and David E. Ruch, Playa Del Rey, Calif., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Mar. 18, 1968, Ser. No. 713,638
Int. Cl. G11c *7/00*
U.S. Cl. 340—174 12 Claims



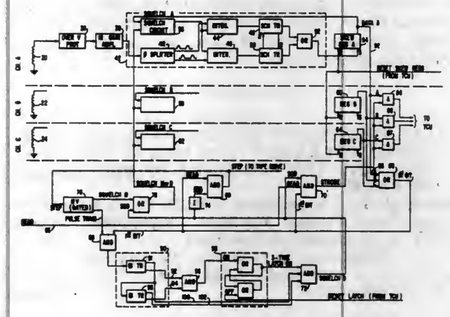
Apparatus for supplying selection lines of a magnetic core memory with drive currents of uniform ampitude and configuration. The apparatus includes a pair of line selection switches at opposite ends of a selection line group for steering current from a source through a selected line and a current regulator that maintains the sum of the currents through the line at a constant level. The lines in the group are terminated by a set of alternately operable termination circuits, which set is common to all of the lines of a coordinate axis of the memory array. The termination circuits serve to damp voltage spikes, ringing oscillations and the inductive energy of the line upon energization and de-energization thereof and to maintain the lines of the memory stack at a fixed potential to prevent the lines from floating due to leakage currents and capacitive voltage build-ups that would establish the lines at different potentials during inactive or memory idle periods.

3,544,979

DESKEWING OF DATA READ FROM AN INCREMENTALLY DRIVEN TAPE

Earl G. McDonald, Jr., Shelburne, Vt., and Walter R. Hahs, Rockledge, Fla., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 13, 1967, Ser. No. 609,205
Int. Cl. G11b *15/02, 15/12, 15/20*
U.S. Cl. 340—174.1 7 Claims



A system for deskewing the bits of a character recorded in parallel tracks on a magnetic tape which is driven past a read head in steps. The character detection circuits are squelched until the tape speed is great enough to produce a useful read signal and the first bit in a character has been sensed. A logic circuit relates tape velocity to the distance traveled by the tape during each step such that the squelch is removed and character bits are read during a fixed reading cycle which may span two steps. When the first bit of a character is sensed after minimum tape speed is attained, the output of a clock multivibrator is gated on to initiate the reading cycle. The bits from the plural channels are transferred to corresponding channel skew registers which are readout at the end of the reading cycle which is terminated when a predetermined number of multivibrator clock pulses are counted. The tape is normally stepped once during each bit period. However, if the first bit of a character is sensed late in a step, two steps will be required to sense the complete character. In this case, another partial or complete character may be sensed and stored in the skew registers. In the case of a complete character being stored, the character is available without stepping the tape again. When the first bit is sensed at a point in the tape step such that the reading cycle occurs during the higher velocity portion of the step, readout is squelched before said predetermined number of pulses is counted.

3,544,980

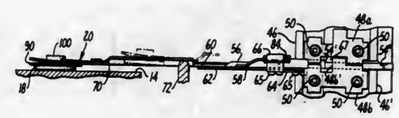
MAGNETIC RECORDING DISC DRIVE WITH HEAD POSITIONING AND COLLISION AVOIDANCE APPARATUS

Roy A. Applequist, San Jose, and Laurence M. Wilson, Los Gatos, Calif., assignors to Peripheral Systems Corporation, Sunnyvale, Calif., a corporation of California

Filed Mar. 22, 1968, Ser. No. 715,237
Int. Cl. G11b *5/48, 5/54, 5/60*
U.S. Cl. 340—174.1 4 Claims

An apparatus for linear positioning of magnetic recording heads in a disc-type recording machine containing a linear positioning motor which converts an electrical address signal directly into linear motion, a rack and pawl

mechanism for locking the recording heads at predetermined locations over the recording surface, a stationary cam cooperating with a loading ramp on a head access arm for direct head loading and unloading as the access



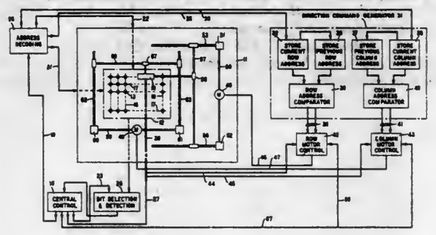
arm is moved radially of the disc, and a recording head suspension which permits the heads to be loaded at the peripheral, high speed area of the disc rather than the central low speed area, wile eliminating the need for control of tolerances during assembly of the apparatus.

3,544,981

POSITION CONTROL SYSTEM FOR MAGNETIC MEMORY

Ronald V. Gunther, Cranford, Donald E. Kish, North Plainfield, and James L. Smith, Bedminster, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Apr. 11, 1968, Ser. No. 720,609
Int. Cl. G11b *5/48, 21/08, 21/10*
U.S. Cl. 340—174.1 13 Claims



A writing head for a planar magnetic memory is moved in the direction of a selected memory location in accordance with address signals provided to the memory. The same address signals also cause a read-level current to be applied to memory access circuits corresponding to the selected location. Sensing heads on the same carriage with the writing head detect the magnetic fields resulting from the access currents and the detection output is utilized to stop the head at the selected location. A differentiating-type of sensing head is employed for the positioning function, and a comb-type writing head is employed for establishing information writing conditions. Theshold logic circuits respond to the sensing head output for stopping the writing head at the selected location.

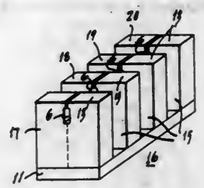
3,544,982

MULTI-HEAD MAGNETIC TRANSDUCER

Joseph John Hanak, Trenton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed May 1, 1968, Ser. No. 725,811
Int. Cl. G11b *5/28*
U.S. Cl. 340—174.1 9 Claims

An integral multi-head magnetic transducer and method of manufacturing the same which is for example suitable for use in contact or non-contact disc recording. The transducer is comprised of blocks of preferred magnetic material having desired grooved shape and surface smoothness which are united and gap filled by stipulated non-magnetic materials to form a loaf. In one embodiment a non-magnetic base is affixed to the loaf from which selected portions are removed to form an integral head assembly having a series of recording heads at spaced intervals. For certain applications the non-magnetic base may be dispensed with, in which case selected pieces of the loaf are removed at spaced intervals with the remaining portions providing the backing and structural support for the resultant series of magnetic heads. In either case a multiple transducer is provided with accurately located heads and perfectly aligned recording gaps.

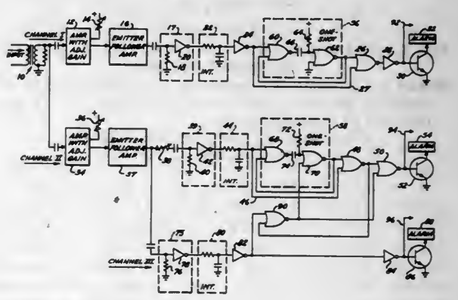


3,544,983

SIGNAL LEVEL DETECTOR

Jacob L. Wallace, Jr., Springfield, and Robert M. Brown, Arlington County, Va., assignors to The Susquehanna Corporation, Fairfax County, Va., a corporation of Delaware

Filed Sept. 30, 1968, Ser. No. 763,833
Int. Cl. G08b *19/00*; H03k *5/20*
U.S. Cl. 340—213 10 Claims



An embodiment of the signal level detector utilizes two channels, each of which is set at a desired threshold level. As long as the level of the monitored signal remains within the signal level range between the thresholds established by the two channels, no alarm is actuated. If the signal exceeds the upper threshold level or drops below the lower threshold level, an alarm is actuated.

3,544,984

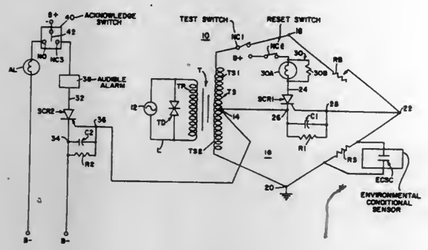
ALARM SYSTEM FOR DETECTING PHYSICAL DISTURBANCES OF ONE OR MORE ELECTRICAL APPLIANCES AND THE LIKE FROM A LOCATION REMOTE FROM SAID APPLIANCES

Archie A. Hanson, Orlando, Fla., assignor to Albright's Electronics, Inc., Maitland, Fla., a corporation of Florida

Filed Oct. 28, 1968, Ser. No. 771,259
Int. Cl. G08b *13/14, 25/00*
U.S. Cl. 340—213.1 17 Claims

An alarm system for the protection of electrical appliances from burglary and unauthorized tampering is provided which includes a centrally located master indicating panel containing the major portion of the alarm system. Each appliance being monitored includes an electric circuit component of the alarm system integrally

incorporated therein in such a manner as to preclude defeating the system. Detection of attempted burglary or tampering is effected by alternating current bridge circuitry which is unbalanced by such attempted burglary or tampering. Solid-state switch devices are utilized to respond to the unbalance and effect an audible indication



of a condition of an attempted burglary of or tampering with a given appliance and the visual indication of the location of that appliance. The device is readily adapted to detect the fact and location of fires and similar environmental conditions by associating a simple two-position switch type condition detector wih a single circuit element of the bridge circuit.

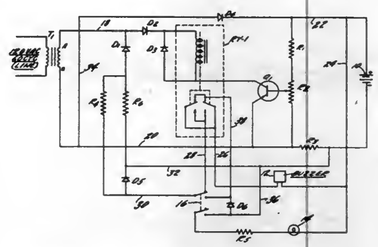
3,544,985
VOLTAGE-INDICATING DEVICE FOR A SWITCH BUSHING STUD
Robert J. Lawrence, Bloomington, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennnsylvania
Filed Dec. 22, 1966, Ser. No. 603,999
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 **10 Claims**

A voltage-indicating test socket is provided on the grounded casing of a tank-type switch for determining the energized state of the terminal-bushing studs leading into the apparatus. A connection from a voltage divider, disposed physically within the tank structure, connected between the terminal bushing stud and the grounded cover is provided; and a neon lamp, for example, indicating device may be applied to the test terminal on the grounded cover, at desired times, to indicate the voltage condition of the respective terminal-bushing stud. Preferably, a shorting cap is used with the insulated test socket to remove voltage from one branch of the voltage divider for long life.

The voltage-dividing means may be, for example, two capacitors in series, or two resistors in series, or a resistance and a capacitance in series, all such elements being preferably physically disposed within the tank structure.

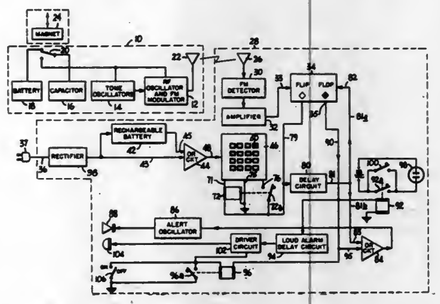
3,544,986
AC POWER FAILURE ALARM
Leonard E. Earling, Tecumseh, and Carleton J. Kirkwood, Adrian, Mich., assignors to The Gray Manufacturing Company, a corporation of Connecticut
Filed Mar. 25, 1968, Ser. No. 715,668
Int. Cl. G08b *21/00*
U.S. Cl. 340—253 **8 Claims**

A circuit for sensing the condition of an alternating current supply and for providing an indication of an AC power failure, the circuit being self-supervising with respect to a supplementary source of direct current employed to normally forward bias a semiconductor device connected in series with the solenoid of a relay which controls the operation of an alarm device. The alarm will also sound upon the interruption of the supply of direct current to the circuit and the circuit is characterized by the



provision for either slow or rapid charging of the direct current supply and by the ability to constantly monitor the condition of the direct current supply.

3,544,987
PROPERTY PROTECTION ALARM SYSTEM
Renville H. McMann, Jr., New Canaan, and Arthur Kaiser, Trumbull, Conn., assignors, by direct and mesne assignments, of one-half to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York, and one-half to Pinkerton, Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 24, 1967, Ser. No. 618,450
Int. Cl. G08b *13/08*
U.S. Cl. 340—274 **10 Claims**

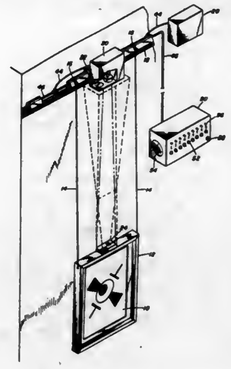


In the particular embodiment of the invention a centrally located radio receiver detects a signal from a transmitter located at each entry to a building whenever the entry is opened. Reception of the signal normally initiates an alarm but, to permit authorized entry, the alarm may be delayed. Entering the proper code into a keyboard-operated delay unit enables the system and similarly disables it.

3,544,988
PICTURE MOTION DETECTION SYSTEM
Robert W. Astheimer, Westport, Conn., assignor to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware
Filed Dec. 22, 1966, Ser. No. 603,932
Int. Cl. G08b *13/18, 13/14*
U.S. Cl. 340—282 **2 Claims**

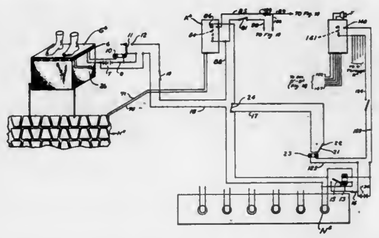
A sensor head includes an illuminator which projects a beam of radiation toward a cylindrical mirror which is mounted on an object whose displacement is to be detected, and reflected by the mirror to a receiver which is located in a common housing with the illuminator. The

receiver includes a lined reticle and an infrared detector which generates a transient signal on movement of the



object on which the mirror is mounted, which signal is utilized to actuate an alarm.

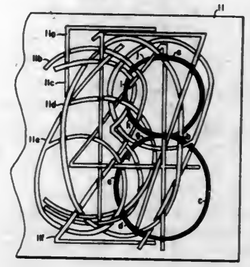
3,544,989
JUDGING SYSTEM FOR COMPETITIVE SWIMMING ACTIVITIES
William T. MacCreadie, R.D. 2, Mifflinburg, Pa. 17844
Continuation of abandoned application Ser. No. 585,961, Oct. 11, 1966. This application Feb. 20, 1967, Ser. No. 617,111
Int. Cl. G08b *5/22*
U.S. Cl. 340—323 **22 Claims**



An electrical timing system for swimming competitions including means for detecting the start of a race and for indicating false starts, means for detecting the finish of the race, means for recording the elapsed time of each competing individual or team, and means for indicating the order of finish. The system also provides means for monitoring relay races, providing an indication if a subsequent member of the team leaves the starting line before the preceding member reaches the line.

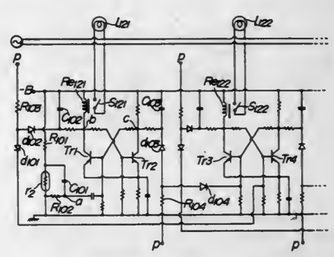
3,544,990
PLANAR ELECTROLUMINESCENT PLURAL CHARACTER DISPLAY
Alfred J. MacIntyre, Nashua, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed May 24, 1968, Ser. No. 731,955
Int. Cl. G08b *5/22*
U.S. Cl. 340—336 **19 Claims**

An electroluminescent display device is provided, in which the characters or multiplicity of characters, numbers and/or symbols are located within a single layer. Each character is a complete unit, and consists of a series of permanently interconnected segments which collectively form the natural shape of the character, number or



symbol being displayed. Each character being a complete electrical circuit thereby requires only one external interconnecting point for applying the power to illuminate the character, number or symbol.

3,544,991
ELECTRIC SIGN DEVICES
Naosuke Tsubakimoto, Ibaraki-shi, Yasutaka Kawase, Kyoto-shi, and Hiroyuki Matsushita, Takatsuki-shi, Japan, assignors to Matsushita Electronics Corporation, Kadoma-shi, Japan, a corporation of Japan
Filed June 7, 1965, Ser. No. 461,705
Claims priority, application Japan, June 17, 1964, 39/34,764
Int. Cl. G08b *5/36*
U.S. Cl. 340—339 **4 Claims**

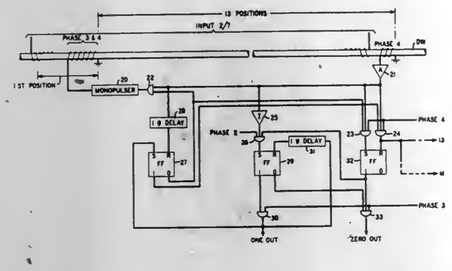


An electric sign device for displaying an image on a screen formed by a number of electric luminous elements mounted in stages. An original picture on a tape is read by photoelectric conversion type readers. The output of the readers is fed to shift registers to selectively control the energization of the luminous elements to form bright and dark areas corresponding to the original picture. The shift pulses are obtained by using a number of dots provided on the tape in its lengthwise direction.

3,544,992
CODE TRANSLATOR
Reginald A. Kaenel, Chatham, and James L. Smith, Bedminster, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed June 1, 1967, Ser. No. 642,865
Int. Cl. G06f *5/00*
U.S. Cl. 340—347 **11 Claims**

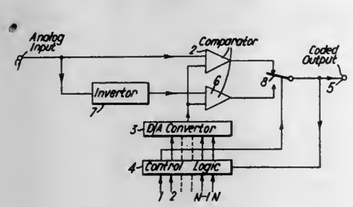
Domain wall sequence recognizers are adapted, for code translation in telephone signaling operations, to ac-

cept an output of a domain wall two-out-of-seven to one-out-of-twelve code converter. The recognizers replace re-



lay logic trees providing an easily coded and easily changed translator arrangement.

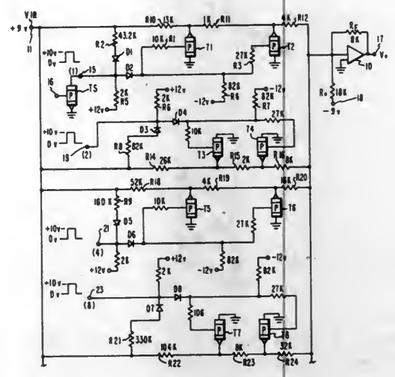
3,544,993
BIPOLAR ANALOG TO DIGITAL ENCODER UTILIZING TWO COMPARATORS
Malcolm Edward Gabriel, Basildon, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 10, 1967, Ser. No. 652,053
Claims priority, application Great Britain, Aug. 2, 1966, 34,580/66
Int. Cl. H03k *13/06*
U.S. Cl. 340—347 **9 Claims**



A substraction type encoder for bipolar samples incorporating a first comparator for providing coded signals for positive samples and a second comparator for providing coded signals for negative samples. One of the comparators provides an additional code digit whose binary conditions indicates the polarity of the sample. This code digit controls the connection of the proper one of the comparators to the output terminal. A decoder coupled to the output terminal provides a non-linear unidirectional reference signal for each of the comparators. There is thusly provided a non-linear encoder having identical coding characteristics for samples of either polarity.

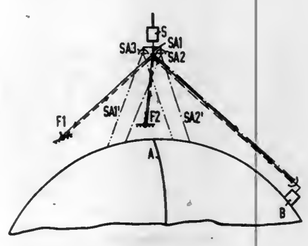
3,544,994
DIGITAL TO ANALOG CONVERTER
Charles C. Hanson, Rochester, Joseph P. L. Ho, Byron, and Lawrence P. Segar, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Oct. 2, 1967, Ser. No. 672,268
Int. Cl. H03k *13/04, 17/16, 17/60*
U.S. Cl. 340—347 **7 Claims**

A shunt-type digital to analog converter is provided which includes a pair of inverted transistor switches for each stage of weighting resistors to provide low voltage offset and minimum switch resistance. Dummy load resistors are connected in the circuit to maintain a constant load current when the switches are turned off. Keeping the current from the power supply relatively



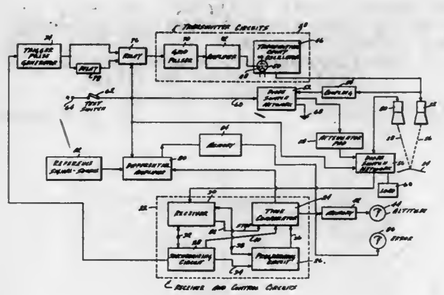
constant eases the load regulation requirement. This enables zener diodes to be used for regulation. Voltage across the zener reference diode will be constant at a given current.

3,544,995
NAVIGATION METHOD WITH THE AID OF SATELLITES
Hans H. Bottenberg and Hans-Joachim Jestadt, Munich, Hans G. Leysieffer, Icking-Walchstadt, and Felix Johan Stockinger, Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany
Filed July 15, 1968, Ser. No. 753,024
Claims priority, application Germany, July 21, 1967, 1,591,517, 1,591,518
Int. Cl. G01s *5/02, 5/12*
U.S. Cl. 343—6 **8 Claims**



A method of navigating aircraft by the use of artificial earth satellites in which a plurality of aircraft or other craft such as ships may be accurately located for navigation purposes and to prevent collisions between the crafts. In one system aircrafts carry dead reckoning equipment and transmit identification and position to a ground station via a satellite and the ground station keeps a record of the positions of all craft. A second system and method comprises a ground station and more than one earth satellite which relay messages to aircraft upon interrogation by the ground station. The aircraft receives the messages from the satellite and retransmits them where they are detected at the ground station after passing through the satellites. A computer at the ground station calculates the position of the aircraft based on the transmittal time via the two satellites which position may then be transmitted back to the aircraft over a communication link, if desired. This system is modified, in the equatorial zone for example, to include satellite antennas having overlapping lobes for receiving the craft signals to allow the ground station to determine the geographic latitude of the craft.

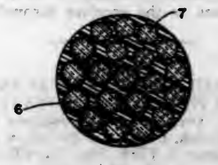
3,544,996
RADAR SYSTEM INCORPORATING CALIBRATION MEANS
Delbert W. Pile, Northridge, Calif., assignor to The Bendix Corporation, a corporation of Delaware
Filed Feb. 10, 1969, Ser. No. 799,152
Int. Cl. G01s *7/40*
U.S. Cl. 343—17.7 **11 Claims**



A radar distance-measuring system is disclosed wherein pulses of travelling-wave energy are transmitted over a distance that is to be measured, and echoes are then sensed to determine a time interval which is directly related as a measurement of the distance. The system includes self-testing structure (whereby the pulses are delayed with reference to the operating program of the system) and attenuating means for coupling such pulses to the receiver as simulated echoes. Signals (indicative of distance) that are developed from a simulated echo are compared with a reference signal to develop an error-indicating signal. Structure is disclosed for calibrating or correcting the operation of the radar system in accordance with the error-indicating system. Additionally, the disclosed system incorporates means for variously delaying and attenuating the synthesized echo signal, which are selectively actuated in accordance with the indicated distance. Sequence control structure is also disclosed for the self-test system.

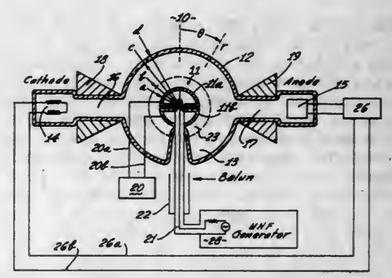
3,544,997
COUNTERMEASURE RADAR CHAFF
James W. Turner, Pompano Beach, Fla. (31309 Tuttle Drive, Bay Village, Ohio 44140), and Charles J. Holly, Jr., 469 SE. 17th Terrace, Deerfield Beach, Fla. 33441
Filed Feb. 6, 1967, Ser. No. 614,344
Int. Cl. H01q *15/14*
U.S. Cl. 343—18 **6 Claims**

Radar chaff is formed of a number of metal-coated glass fibers and a number of uncoated glass fibers, all enrobed and united in parallel coextensive relation, into a single unitary strand, by binder material such as a thermoplastic resin. The ratio of uncoated fibers to coated



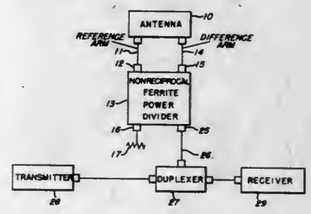
fibers may vary in proportion to the effective dipole length of the chaff.

3,544,998
PLASMA COATED ANTENNA
Paul E. Vandenplas, 80 Avenue de la Brabanconne, Brussels, Belgium, and André M. Messiaen, 19 Avenue Colonel Picquart, Schaerbeek, Belgium
Filed Dec. 8, 1967, Ser. No. 689,151
Claims priority, application Belgium, Dec. 19, 1966, 691,389
Int. Cl. H01q *1/26, 1/28, 9/00*
U.S. Cl. 343—701 **8 Claims**



A plasma coated antenna wherein an expandable sheath consisting almost entirely of positively charged ions act electrically like a vacuum to isolate the antenna from a layer of plasma which encompasses the antenna. The plasma layer may be maintained over the antenna by a suitable container. The antenna may be selectively tuned by varying either the thickness of the sheath or the density of the plasma.

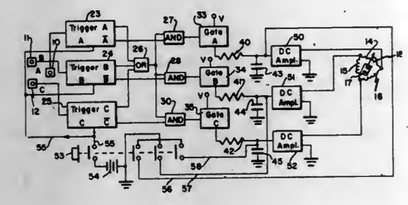
3,544,999
COUPLING CIRCUITS FOR SCANNING ANTENNAS AND THE LIKE
Max Michelson, Framingham, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed May 4, 1960, Ser. No. 26,911
Int. Cl. H01q *3/26;* **H01p** *1/32*
U.S. Cl. 343—100 **10 Claims**



A coupling circuit for COSRO antennas is provided wherein electromagnetic energy is transmitted in a conventional manner and a conical scan is obtained on receive only. A nonreciprocal ferrite power divider is used

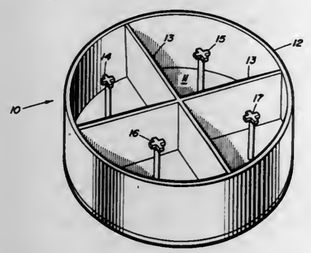
whereby there is no power split in the direction of transmission but the energy from the reference and difference arms of the antenna is combined in the direction of reception and passes to the receiver through a duplexer.

3,545,000
SIMPLE DIRECTION OF ARRIVAL INDICATOR FOR PULSED PLANE WAVES
Lee O. Heflinger, Torrance, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed June 2, 1969, Ser. No. 829,690
Int. Cl. G01s *3/48*
U.S. Cl. 343—113 **19 Claims**



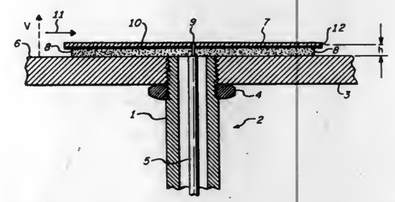
An instrument for indicating the direction of arrival of a wave of short duration. The wave may be an electromagnetic wave, but preferably is a mechanical wave such as a seismic or acoustic wave. A plurality of detectors is provided, each developing an electric signal upon arrival of the wave. These signals then feed a number of coils in such a manner that a current flows in each of the coils. This current has an intensity proportional to the difference in the time of arrival of the wave pulse at a predetermined pair of detectors. Further the intensity of the current corresponds to the patterns of the detectors and coils. This current flow will now set up a magnetic field which may be indicated by a magnet or the like. For example, there may be three detectors positioned at the vertices of an equilateral triangle and three coils positioned along the sides of another equilateral triangle parallel to the first. In this case a current may be made to flow through the three coils, which is simply proportional to the difference of the time of arrival of the wave pulse at any two of the three detectors.

3,545,001
ANTENNA FEED COMPRISING DIPOLE ARRAY WITH CONDUCTIVE GROUND PLANE
Morris Giller, Baltimore, Md., assignor to The Bendix Corporation, a corporation of Delaware
Filed Apr. 24, 1968, Ser. No. 723,826
Int. Cl. H01q *1/48, 13/00*
U.S. Cl. 343—776 **5 Claims**



This invention describes a feed for an antenna such as a parabolic antenna for receiving and transmitting electromagnetic energy. The inventive feed incorporates four dipole radiation devices which are located symmetrically on a ground plane. By locating the feed at the focus of the parabolic reflector the energy is transmitted in substantially parallel lines. However, the directivity of the antenna is dependent upon the directivity of the feed. The diameter of the ground plane is a contributing feature to the directivity of the antenna system and therefore an increase of directivity of the feed requires an increase in the physical size of the ground plane. This invention shows that the ground plane is electrically extended by placing a conductive fence, or side wall, around the entire periphery of the ground plane. In this manner the electrical size of the feed is increased but the physical diameter is held to a minimum. This is advantageous because it permits a physically smaller feed and consequently the antenna gain is increased but the sidelobes are decreased. The cross coupling between the four dipoles is minimized by placing a conductive barrier between the dipoles. The barrier extends across the ground plane and is in electrical contact with both the ground plane and the side wall.

3,545,002
WIDEBAND WAVE TRAPPING ANTENNA HAVING A TIME LIMITED IMPULSE RESPONSE
Paul Fenster, Highland Park, N.J., assignor to Sperry Rand Corporation, a corporation of Delaware
Filed Feb. 4, 1969, Ser. No. 796,347
Int. Cl. H01q *1/48, 15/00*
U.S. Cl. 343—830 **9 Claims**

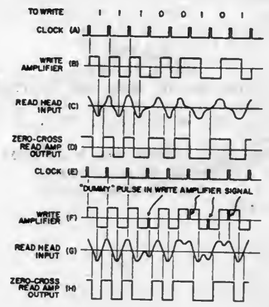


A wave trapping type antenna comprising an apertured ground plane conductive member through which the center conductor of a coaxial line extends to form a monopole antenna, the outer conductor of the coaxial line being connected to the member. The center conductor is terminated with a disk of conductive material having a thickness and an angle relative to the member so as to equalize the amplitudes of the waves propagating on opposite sides of the disk. The energy propagating media on opposite sides of the disk provide substantially the same velocities of propagation to travelling waves. A coaxial line coupler embodiment of the antenna is also disclosed.

3,545,003
MODIFIED PHASE MODULATION MAGNETIC RECORDING SYSTEM
Theodore A. Conant, Jr., Sylmar, Calif., assignor to Singer-General Precision, Inc., a corporation of Delaware
Filed Oct. 7, 1968, Ser. No. 765,281
Int. Cl. G11b *5/04*
U.S. Cl. 346—74 **5 Claims**

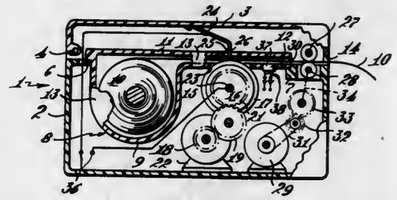
A system for digital recording on a magnetic memory is provided which is compatible with the self-clocking type of magnetic recording and reproducing system utilizing zero-cross read amplifiers. The system of the invention retains the basic characteristics of phase modulated digital recording, but it eliminates the undesired phase shift inherent in the reproduction of such recording in

the prior art systems. This elimination of phase shift is achieved by forcing a temporary complementation in the



wave form of the recorded signal at selected points thereon.

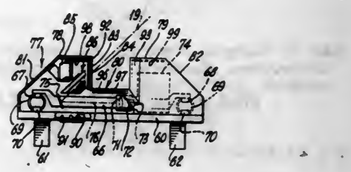
3,545,004
CARTRIDGE FOR FACSIMILE RECORDING WEBS
Milton Alden, Wellesley, Mass. (% Alden Research Foundation, Washington St., Westboro, Mass. 01581)
Filed Nov. 26, 1968, Ser. No. 779,181
Int. Cl. G01d *15/06, 15/28*
U.S. Cl. 346—74 **17 Claims**



A facsimile recorder comprises a housing enclosing blade and helical electrodes for marking moist electrolytic paper and a drive for feeding the paper. A roll of the paper is enclosed in a throw-away cartridge detachably mounted in the housing. The cartridge has a linear slit through which the blade enters to one side of the paper, an opposed linear slit through which the helix scans the paper line by line, and an exit for the paper. Adhesive tape temporarily seals the slits and exit to retain the paper moisture. Feed rolls engage the paper between the slits and exit. A heater just beyond the slits dries the paper. The electrodes, heater and feed rolls are mounted either on the housing or on the cartridges. Alternatively photosensitive paper may be scanned line by line through a linear slit and the resulting latent record developed and fixed on the path to the cartridge exit.

3,545,005
HOTBOX DETECTOR
Cornelius A. Gallagher, 18 High St., Syosset, N.Y.
Continuation-in-part of application Ser. No. 720,441, Apr. 11, 1968, which is a continuation-in-part of application Ser. No. 489,898, Sept. 24, 1965. This application Dec. 18, 1968, Ser. No. 784,802
The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed
Int. Cl. B61k *9/06;* **B61l** *3/06*
U.S. Cl. 246—169 **25 Claims**

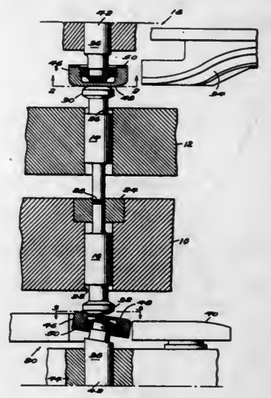
The invention contemplates an infrared hotbox detector wherein scanning of corresponding sides of successive journal boxes is accomplished "inside" or "behind" the truck frame, utilizing a detector scanner which may be carried by the track itself and which may rely upon gating means also carried by the track itself. The detector response axis is more steeply inclined upward than heretofore, and is in a generally vertical plane parallel to the track. Improved performance is attributable to improved features of construction and arrangement in the scanner.



3,545,006
ELECTROLYTIC HYDRODIMERIZATION
Arabinda N. Dey, Arlington, Mass., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed May 25, 1967, Ser. No. 641,175
Int. Cl. C07b *3/06*
U.S. Cl. 204—74 **4 Claims**

In the hydrodimerization of olefinic compounds, such as in the production of adiponitrile by electrolytic hydrodimerization of acrylonitrile, improved results are obtained by mixing some of the dimerized product with the olefinic compounds fed to the electrolytic cell. In the production of adiponitrile, the formation of bis-2-cyanoethylether is suppressed and current efficiency is increased.

3,545,007
TABLET MAKING MACHINE
William H. Hamilton, Philadelphia, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennnsylvania
Filed May 1, 1969, Ser. No. 821,052
Int. Cl. B30b *11/10*
U.S. Cl. 107—17 **10 Claims**

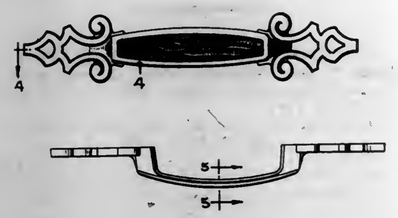


The punches of a rotary tabletting machine are guided at least in part by a cam roll which pivots on an axis extending in the same general direction as the rotational axis of the die table. The end surface of the cam roll that is normal to its pivotal axis engages the punch heads.

DESIGNS

DECEMBER 1, 1970

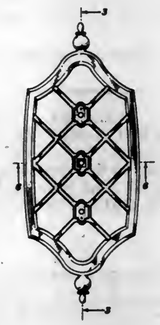
219,328
PULL
John R. Morgan, Wheeling, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Connecticut
Filed May 26, 1969, Ser. No. 17,348
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—166



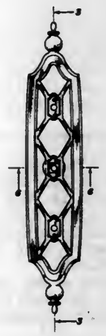
219,329
CABINET DOOR PULL
Lawrence McCain, Beverly Hills, and Raymond Tintary, Covina, Calif., assignors to Ajax Hardware Manufacturing Corp., City of Industry, Calif., a corporation of California
Filed Nov. 3, 1969, Ser. No. 19,917
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—166



219,330
BACKPLATE
Lawrence McCain, Beverly Hills, and Raymond Tintary, Covina, Calif., assignors to Ajax Hardware Manufacturing Corp., City of Industry, Calif., a corporation of California
Filed Nov. 3, 1969, Ser. No. 19,914
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—179

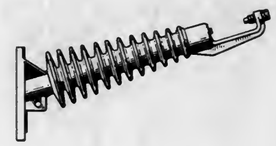


219,331
BACKPLATE
Lawrence McCain, Beverly Hills, and Raymond Tintary, Covina, Calif., assignors to Ajax Hardware Manufacturing Corp., City of Industry, Calif., a corporation of California
Filed Nov. 3, 1969, Ser. No. 19,916
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—179



219,332
ELECTRICAL CONDUCTOR SUPPORT
Paul E. Lewis, Mexico, and Robert W. Harmon, Centralia, Mo., assignors to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
Filed July 8, 1969, Ser. No. 18,108
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D8—230

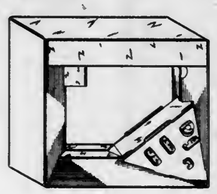




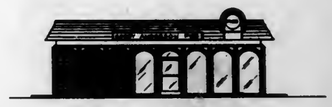
219,333
DISPENSING CONTAINER
Jay Doblin, Chicago, Ill., assignor to The Gillette Company, Boston, Mass., a corporation of Delaware
Filed Oct. 13, 1969, Ser. No. 19,513
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—9



219,334
DISPLAY CARTON FOR POWER TOOLS OR THE LIKE
Arthur L. Shreve III, Butler, Lyell Bayne Norris, Jr., Phoenix, and Robert W. Beichler, Baltimore, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Original design application Apr. 24, 1968, Ser. No. 11,599, now Patent No. 217,131, dated Apr. 14, 1970. Divided and this application June 23, 1969, Ser. No. 17,834
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—191



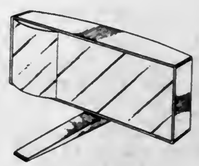
219,335
BUILDING
Gregory D. Anderson, 3210 Highland Drive, Salt Lake City, Utah 84106
Filed May 27, 1969, Ser. No. 17,368
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



219,336
VEHICLE MIRROR
James G. Monos, Gardena, Calif.
(4370 W. 141st St., Hawthorne, Calif. 90250)
Filed Sept. 17, 1969, Ser. No. 19,180
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—6



219,337
VEHICLE MIRROR
James G. Monos, Gardena, Calif.
(4370 W. 141st St., Hawthorne, Calif. 90250)
Filed Sept. 17, 1969, Ser. No. 19,780
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—6



219,338
BABY WALKER
Fred J. Gallagher, 704 E. Thompson St., Princeton, Ill. 61614
Filed July 3, 1969, Ser. No. 18,040
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



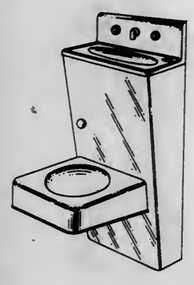
219,339
CHAIR
Hughes Steiner, 13 Avenue des Paupliers, 94 Cretell, France
Filed Sept. 8, 1969, Ser. No. 19,060
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



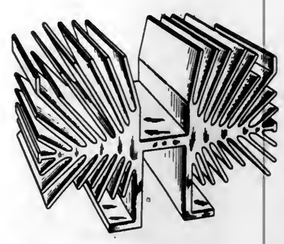
219,340
SWIMMING POOL FILTER CONTROL VALVE
Peter John Snelling, Brompton Park, South Australia, Australia, assignor to Waratah Archer Pty. Limited, South Australia, Australia, a corporation of South Australia
Filed Mar. 14, 1969, Ser. No. 16,244
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—38



219,341
COMBINATION WASH BASIN AND TOILET
David J. Jacoby, 1268 Fleetwood Road, Rydal, Pa. 19046, and Robert A. Leymann, 3031 Stiles St., Philadelphia, Pa. 19121
Filed May 1, 1969, Ser. No. 16,971
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49



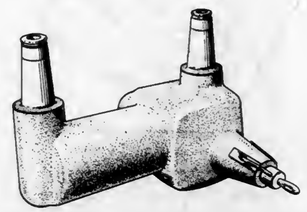
219,342
HEAT SINK FOR SEMICONDUCTOR RECTIFIERS OR SIMILAR ARTICLE
Michael A. Koltuniak, Warren, Robert G. Plantholt, Rochester, and Claybourne Mitchell, Jr., Ann Arbor, Mich., assignors to Controlled Power Corporation, Farmington, Mich., a corporation of Michigan
Filed July 17, 1969, Ser. No. 18,235
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—1

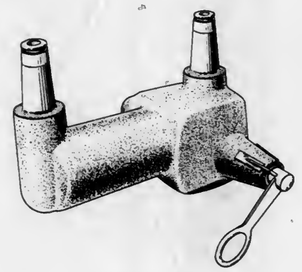


219,343
ELECTRICAL DISTRIBUTION POLE STRUCTURE
Joseph A. Rinaldi, New York, N.Y., assignor to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
Filed July 7, 1969, Ser. No. 18,096
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—12

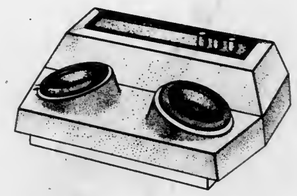


219,344
ENCAPSULATED VACUUM SWITCH
Thomas E. Curtis, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
Filed May 12, 1969, Ser. No. 17,124
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13

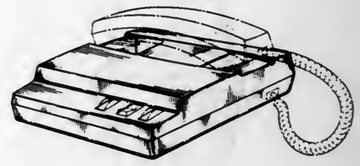




219,345
TELEPHONE DATA TRANSCEIVER
Arnold Wolf, Berkeley, Calif., assignor to Tymshare, Inc., Palo Alto, Calif., a corporation of California
Filed Aug. 6, 1969, Ser. No. 18,564
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



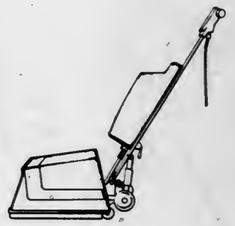
219,346
HOUSING FOR TELEPHONE ANSWERING DEVICE
Joseph B. Federico, Rochester, N.Y., assignor to Ford Industries, Inc., Portland, Oreg., a corporation of Washington
Filed Sept. 11, 1969, Ser. No. 19,117
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



219,347
GOLF TEE
Charles W. Letts, Jr., Toledo, Oreg., assignor of twenty-five percent each to Elmer S. Price and Sid Neal, both of Toledo, Oreg.
Filed June 23, 1969, Ser. No. 17,835
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



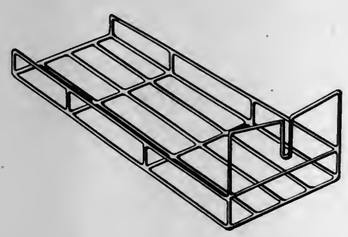
219,348
FLOOR SCRUBBER
Harlan J. Anderson, Muskegon, Mich., assignor to Clarke Floor Machine Division, Studebaker Corporation, Muskegon, Mich., a corporation of Michigan
Filed Nov. 24, 1969, Ser. No. 20,263
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D37—3



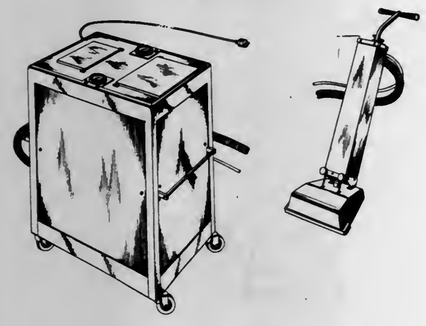
219,349
KETTLE OR SIMILAR ARTICLE
Henry Muller, New York, N.Y., assignor to Cathrineholm Ltd., Norwalk, Conn., a corporation of New York
Filed Jan. 2, 1970, Ser. No. 20,744
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D44—25



219,350
BREAD TRAY
Howard L. Rivenbark, Box 22, Teachey, N.C. 28464
Filed Dec. 16, 1968, Ser. No. 14,976
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—29



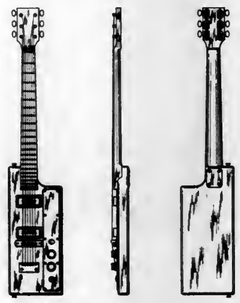
219,351
CARPET AND UPHOLSTERY STEAM-VACUUM CLEANING SYSTEM
Thomas E. Goyne, Boulder, Colo., assignor to Collman Industries, Incorporated, Dallas, Tex., a corporation of Texas
Filed Feb. 24, 1969, Ser. No. 15,878
Term of patent 14 years
Int. Cl. D15—*06*
U.S. Cl. D49—11



219,352
HAND-HELD RHYTHMIC DRUM
Paul C. Pierce, 4026 S. State, Salt Lake City, Utah 84107
Filed Nov. 17, 1969, Ser. No. 20,142
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D56—1



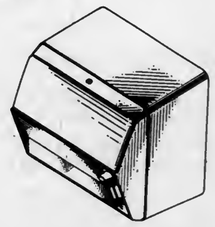
219,353
ELECTRIC GUITAR
Jay E. Downing, 147 Williams St., Providence, R.I. 02906
Filed Nov. 26, 1969, Ser. No. 20,294
Term of patent 3½ years
Int. Cl. D17—*03*
U.S. Cl. D56—1



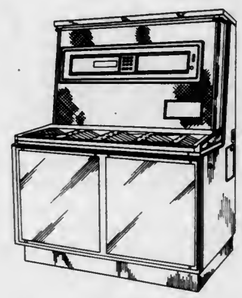
219,354
STRINGED MUSICAL INSTRUMENT
Walter J. Pelensky, 19C Manheim Gardens, Philadelphia, Pa. 19144
Filed Dec. 8, 1969, Ser. No. 20,393
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1



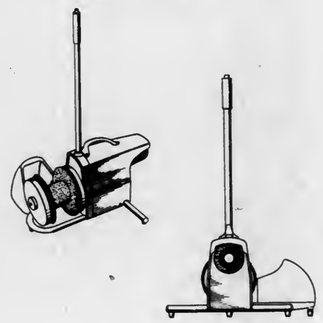
219,355
LEVER ACTUATED ROLL TOWEL DISPENSER
Council A. Tucker, Glendale, and Jack L. Perrin, Los Angeles, Calif., assignors to Towlsaver, Inc., Los Angeles, Calif., a corporation of California
Filed July 28, 1969, Ser. No. 18,442
Term of patent 14 years
Int. Cl. D6—*99*; D9—*99*
U.S. Cl. D52—2



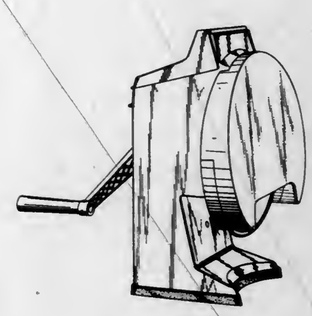
219,356
PHONOGRAPH CABINET
Carl W. Sundberg, Bloomfield, Mich., assignor to The Seeburg Corporation of Delaware, Chicago, Ill., a corporation of Delaware
Filed Sept. 4, 1969, Ser. No. 19,013
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



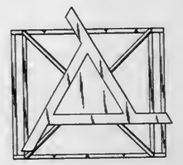
219,357
COMBINED SHOE CLEANER AND POLISHER
Lloyd H. Leonard, 14877 Valley Vista Blvd., Sherman Oaks, Calif. 91403
Filed July 25, 1969, Ser. No. 18,411
Term of patent 14 years
U.S. Cl. D86—12
Int. Cl. D28—*99*

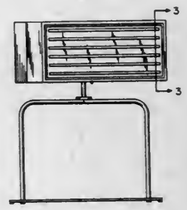


219,358
FOOD CUTTING MACHINE
Samuel J. Popeil and Raymond Popeil, Chicago, Ill., assignors to Popeil Brothers, Inc., Chicago, Ill., a corporation of Delaware
Filed Dec. 17, 1969, Ser. No. 20,531
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D89—1



219,359
COMBINED ROTATABLE SIGN AND SUPPORT
Nicholas Louis Mezin, Jr., Rte. 1, Box 754H, Groton Place, Escondido, Calif. 92025
Filed Oct. 3, 1968, Ser. No. 13,833
Term of patent 7 years
Int. Cl. D20—*03*
U.S. Cl. D96—12





LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Tetra Pak: *See—*
Rausing, Hans Anders, 3,543,993.

Abbott Laboratories: *See—*
Swett, Leo Ralph, Ratajczyk, James Daniel, and Young, Patrick Richard, 3,544,585.

Abbott Machine Co., Inc.: *See—*
Abbott, Samuel L., 3,543,357.

Abbott, Samuel L., to Abbott Machine Co., Inc. Slub catcher. 3,543,357, Cl. 28-64.

Abel, Edward P., and Minsk, Louis M., to Eastman Kodak Company. Polymeric fog stabilizers for photographic emulsions. 3,544,327, Cl. 96-109.

Abex Corporation: *See—*
Boron, Frank J., 3,544,092.

Abos, Ramon Luis: *See—*
Balint, Laszlo J., Abos, Ramon Luis, and Snider, Orvill E.,3,544,525.

Abson, James William, Clark, Eric Innes, and Gray, Ian Malcolm, to Simon-Carves Limited. Apparatus for effluent treatment. 3,543,936, Cl. 210-221.

ACF Industries, Incorporated: *See—*
Hammonds, James C., 3,544,050.
Thornton, Duane V., and Holt, Jan D., 3,543,693.
Zambruski, Edwin A., 3,543,969.

Adachi, Iwao P., to Itek Corporation. Means to adjust collinator and crucible location in a vapor deposition apparatus. 3,543,717, Cl. 118-7.

Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich. Device for the installation of the cathode dome with diaphragm into the electrolytic cell. 3,544,443, Cl. 204-279.

Adamec, Alfred, to Wiener Schwachstromwerke Gesellschaft m.b.H. Apparatus for degassing metallic melts by sonic vibrations. 3,544,691, Cl. 13-26.

Adams, Clyde C. Freeze refining apparatus. 3,543,531, Cl. 62-124.

Adams, Frank, Jr., Rice, Leo F., and Taylor, Roy J., to Pfizer, Chas., & Co., Inc. Itaconic acid purification process using reverse osmosis. 3,544,455, Cl. 210-23.

Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F., to International Business Machines Corporation. Multiplexed digital flyback control of CRT displays. 3,544,712, Cl. 178-6.8

Adamsky, Noi Mikhailovich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ilgisonis, Igor Viktorovich, and Adamsky, Noi Mikhailovich,3,544,074.

Addressograph-Multigraph Corporation: *See—*
Kolibas, James A., 3,544,101.
Sallach, Max E., Heisner, Donald N., and Baker, Robert G., 3,544,967.

Ader, Gary B., to Sports Technology, Inc., mesne. Adjustable stop for pivoted cuff. 3,543,421, Cl. 36-2.5

Adler, Robert, to Zenith Radio Corporation. Video playback systems. 3,544,718, Cl. 178-69.5

Adler, Robert, to Zenith Radio Corporation. Over-voltage detecting and protection apparatus. 3,544,750, Cl. 200-181.

Adolphi, George F., to Ametek, Inc. Multiple riveting machine. 3,543,985, Cl. 227-7.

Adomeit, Curt G.: *See—*
Cooke, Kenneth G., Adomeit, Curt G., and Delaney, Leo David,3,544,099.

Aerodyne Machinery Corporation: *See—*
Pausch, Josef, 3,543,481.

Aeroquip Corporation: *See—*
Contreras, Gilbert E., and Nystrom, Ronald H., 3,544,137.

Aerosol Techniques Incorporated: *See—*
Presant, Fred, and Carrion, Carmelo, Jr., 3,544,258.

Ageev, Veniamin Dmitrievich: *See—*
Panasjuk, Lev Emelianovich, Kupits, Arnold Karlovich, Romanov, Evgeny Mikhailovich, Ageev, Veniamin Dmitrievich, and Ryazantsev, Vladimir Vasilievich,3,544,949.

Agfa-Gevaert Aktiengesellschaft: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf, 3,543,664.

Agnew, Kenneth Leslie, to Battelle Development Corporation, The. Photographic reproduction by discrete intersecting rays with compression in the third dimension. 3,544,402, Cl. 156-58.

Ahern, Charles J., to Bendix Corporation, The. Fluidic OR/NOR gate. 3,543,780, Cl. 137-81.5

Ahlen, Karl Gustav, to S. R. M. Hydromekanik AB. Hydrodynamic torque converters. 3,543,517, Cl. 60-54.

Aiba, Yoshikazu, and Furumori, Takaki, to Taki Fertilizer Manufacturing Co., Ltd. Coagulant and method for treating aqueous medium comprising a basic metal salt and a multi- valent anion. 3,544,476, Cl. 252-175.

Air Reduction Company, Incorporated: *See—*
Anderson, Emmett R., 3,544,913.
Brennen, William T., and Schoonover, George H., 3,543,530.
Jordan, Michael, and Kirk, Bradley S., 3,543,844.

Aisin Seiki Kabushiki Kaisha: *See—*
Tori, Tatsumi, and Kondo, Toshiyuki, 3,543,714.

Akashi, Sueo: *See—*
Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi,3,544,048.

Akashi, Tsuneo: *See—*
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,470.
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,471.

Akiyama, Takeyoshi: *See—*
Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji,3,544,167.

Aktiebolaget Astra: *See—*
Dahlbom, Johan Richard, and Nilsson, John Lars Gunnar, 3,544,579.

Aktiebolaget Bofors: *See—*
Gustafson, Kjell Arne Hakan, 3,544,791.

Aktiebolaget Optimus: *See—*
Nilsson, Gunnar, 3,543,327.

Aktiebolaget Tudor: *See—*
Sundberg, Erik Gustav, Korbol, Arthur, and Nilsson, Ove Karl Gustaf, 3,544,384.

Aktiebolaget Vibro-Verken: *See—*
Bergendal, Arne, and Fransson, Johnny, 3,543,590.

Aktiengesellschaft Brown, Boveri & Cie: *See—*
Garnitschnig, Gunter, Herrmann, Hans, and Walchli, Hans, 3,544,821.

Alauzet, Maurice, and Fleurquin, Yves, to Rhone-Poulenc S.A. Method and apparatus for measuring the electrostatic properties of plastic materials including means for rotating the materials past a charging electrode and a measurement probe. 3,544,889, Cl. 324-32.

Albee, Percy Frederick, Jr., to Q-Panel Corporation. Auxiliary stage for a visual projector. 3,544,211, Cl. 353-120.

Alberts, Fritz: *See—*
Schmidt, Detlev, Zivi, Cacilia, and Alberts, Fritz,3,544,494.

Albrecht, Harry Allen, and Plati, John Thomas, to Hoffmann-La Roche Inc. Process for preparing aminoisoxazoles. 3,544,582, Cl. 260-307.

Albright's Electronics, Inc.: *See—*
Hanson, Archie A., 3,544,984.

Albrile, Walter, to Olivetti, Ing. C., & Co., S.p.A. Switch control and keyboard locking device for an electric typewriter. 3,543,905, Cl. 197-12.

Alden, Milton. Cartridge for facsimile recording webs. 3,545,004, Cl. 346-74.

Alexander, Richard L., Ashburn, Donald G., Clampitt, Bert H., and Anspon, Harry D., to Gulf Research & Development Company. Ethylene polymer foam compositions and process for making same. 3,544,490, Cl. 260-2.5

Alheritiere, Louis: *See—*
Michelet, Jean, and Alheritiere, Louis,3,544,611.

Alheritiere, Louis, and Repper, Marcel, to Societe Toulousaine de Produits Chimiques Tolochimie. Process for production of organic isocyanates. 3,544,612, Cl. 260-453.

Allen, Thomas Clark: *See—*
Hauptschein, Murray, Hager, Robert Bonner, and Allen, Thomas Clark,3,544,663.

Allen, Vernon E., to Eaton Yale & Towne, Inc., mesne. Push-on-fastening device. 3,543,634, Cl. 85-36.

Allen-Bradley Company: *See—*
Boysen, Gerd C., 3,544,937.

Allied Chemical Corporation: *See—*
Balint, Laszlo J., Abos, Ramon Luis, and Snider, Orvill E., 3,544,525.
Biritz, Laszlo F., and Gilbert, Everett E., 3,544,555.
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr., 3,544,298.
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr., 3,544,299.
Formaini, Robert L., 3,544,496.
Gilbert, Everett E., and Farah, Basil S., 3,544,535.
Gilbert, Everett E., and Peterson, James O., 3,544,620.
Inskeep, Mark D., and Zagar, Walter T., 3,544,673.

Mansfield, Peter W., 3,543,984.
Newallis, Peter E., and Lombardo, Pasquale, 3,544,664.
Pietrusza, Edward W., and Pedersen, Jack R., 3,544,527.
Pulkkinen, Erkki J., 3,544,638.
Yodis, Anthony W., Michener, Aubrey W., Jr., and Karsay, Bela I., 3,544,633.

Altermatt, Ruedi, and Mueller, Curt, to Sandoz Ltd., a/k/a Sandoz A.G. Disperse dyes of the azobenzene series. 3,544,549, Cl. 260-207.

Altman, Irwin L., to Jory of San Francisco, mesne. Curling device and method for using same. 3,543,771, Cl. 132-9.

Altmann, Conrad: *See—*
Drexler, Roger A., and Altmann, Conrad, 3,543,720.

Aluminum Company of America: *See—*
Kunze, Walter A., 3,543,674.
Lyle, John P., Jr., and Towner, Raymond J., 3,544,392.
Lyle, John P., Jr., and Towner, Raymond J., 3,544,394.

Aluotto, Peter A. Coffee dispenser. 3,543,814, Cl. 141-335.

Alzner, Georg, to Alzner National Arch Supports Ltd. Arch supports. 3,543,765, Cl. 128-588.

Alzner National Arch Supports Ltd.: *See—*
Alzner, Georg, 3,543,765.

Amerada Hess Corporation: *See—*
Boone, Daniel E., and Ralston, Paul H., 3,544,461.

American Biltrite Rubber Co., Inc.: *See—*
Rothermel, Edward M., 3,544,423.

American Can Company: *See—*
La Croce, Leonard Thomas, Batchelar, Raymond Luscombe, and Rouse, John Wilson, 3,544,025.

American Cyanamid Company: *See—*
Harris, Seth Owens, and Miller, Gary Kauilani, 3,544,262.
Murdoch, Henry Drummond, and Calderazzo, Fausto, 3,544,283.

American Home Products Corporation: *See—*
Bell, Stanley C., 3,544,629.

American Machine & Foundry Co.: *See—*
Karter, Peter, 3,543,933.
Casson, Charles F., 3,544,850.
Delbridge, Wilfred Richard, Wienola, Oiva A., and Young, Robert K., 3,543,930.
Poliakoff, Theodore E., 3,544,934.
Weinbaum, Hillel, 3,544,970.

American Meter Company: *See—*
Macgeorge, William D., 3,544,898.

American Standard Inc.: *See—*
Cawthon, William C., and Ulrich, Robert J., 3,544,352.
Roth, Shirley H., 3,544,484.

American Telephone and Telegraph Company: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R., 3,544,727.
Wimberly, Berry J., 3,544,726.

Ametek, Inc.: *See—*
Adolphi, George F., 3,543,985.
Nielsen, Asger T., 3,544,835.
Waite, Ralph D., 3,543,586.

AMP Incorporated: *See—*
Bricker, Harry Chinn, Jr., 3,544,956.
Stoltz, Herbert Collier, Hoffman, Joseph Willard, and Demler, Henry William, Sr., 3,544,060.
Yeager, Marvin Leo, 3,544,954.

Amsted Industries Incorporated: *See—*
Lohman, Gordon R., 3,544,058.

Anaconda Wire and Cable Company: *See—*
Ulmer, William W., 3,544,504.

Anchor Post Products, Inc.: *See—*
Case, John S., 3,544,071.

Anders, Dietmar, and Frolich, Hans, to Hermann Berstorff Maschinenbau GmbH. Manufacture of synthetic resin rails. 3,543,333, Cl. 18-12.

Anders, Lennart Bror: *See—*
Lester, Waldermar, and Anders, Lennart Bror, 3,544,171.

Anderson, Edward P., to Engelhard Minerals & Chemicals Corporation. Apparatus for producing and dispensing sodium hypochlorite. 3,544,442, Cl. 204-275.

Anderson, Emmett R., to Air Reduction Company, Incorporated. Power supply. 3,544,913, Cl. 328-267.

Anderson, G. Charles, Mc Daniel Edgar L., and Young, Howard S., to Eastman Kodak Company. Process for preparing acrylic acid and methacrylic acid. 3,544,624, Cl. 260-530.

Anderson, Harold Elden: *See—*
Kruckenberg, Perry Lester, Anderson, Harold Elden, and Carlson, Ray Lavette, 3,543,735.

Anderson, Perry W.: *See—*
Glabe, Elmer F., Anderson, Perry W., and Murawski, Gerald M., 3,544,333.

Anderson, Roy H. Saw chain. 3,543,817, Cl. 143-135.

Anderson, William C.: *See—*
Barber, Robert O., and Anderson, William C., 3,543,738.

Andersson, Herbert, to Consolidated Burris International, Ltd., mesne. Tiltable chair construction. 3,544,159, Cl. 297-303.

Anderton, Catherine Margaret, Fishwick, Brian Ribbons, and Lawson, John, to Imperial Chemical Industries Limited. Non-oxo-carbonylic containing, phenyl- azo-phenyl dyestuffs. 3,544,550, Cl. 260-207.1

Angarola, Barry R., to Signode Corporation. Strapping apparatus. 3,543,675, Cl. 100-17.

Angelbeck, Albert W., to United Aircraft Corporation. Multiple frequency ultrasonic control for lasers. 3,544,916, Cl. 331-94.5

Angus, Hamish Carmichael, and Stevens, John Michael. Electrodeposition of palladium. 3,544,435, Cl. 204-47.

Anson, Howard G.: *See—*
Long, George E., and Anson, Howard G., 3,543,654.

Anspon, Harry D.: *See—*
Alexander, Richard L., Ashburn, Donald G., Clampitt, Bert H., and Anspon, Harry D., 3,544,490.

Anthony, William H.: *See—*
Scott, John A., and Anthony, William H., 3,544,391.

Aoki, Takashi, and Matsumoto, Kenji, to Nikko Pen Kabushiki Kaisha. Marking pen. 3,544,229, Cl. 401-199.

Appalachian Electronic Instruments, Inc.: *See—*
Fertig, Raymond Baines, 3,543,360.

Appelhans, Hermann, and Schumann, Wolfgang. Method of and apparatus for burning of refuse. 3,543,702, Cl. 110-13.

Applequist, Roy A., and Wilson, Laurence M., to Peripheral Systems Corporation. Magnetic recording disc drive with head positioning and collision avoidance apparatus. 3,544,980, Cl. 340-174.1

Archer, Geoffrey Alan, to Nichols Engineering and Research Corporation, mesne. Grate assemblies for refuse incinerators. 3,543,703, Cl. 110-39.

Arent, John F., to V-M Corporation. Dampening device. 3,544,037, Cl. 242-189.

Argoudelis, Alexander D., and Coats, John H., to Upjohn Company, The. 3-Phosphate esters of lincomycin. 3,544,552, Cl. 260-210.

Armco Steel Corporation: *See—*
Clements, William C., 3,543,524.
Taylor, David W., 3,544,396.

Armstead, George B., Jr., to Merrow Machine Company, The. Thread cutting mechanism for railway sewing machine. 3,543,708, Cl. 112-252.

Armstrong, Dallas C., and Garabedian, Taniel A., to Monsanto Company. Process for improving the odor of phosphorus- sulfide organic compounds. 3,544,544, Cl. 260-139.

Arnot, Alfred E. R. Wire race bearing manufacture. 3,543,367, Cl. 29-148.4

Arthur, James B., and Osmar, John J., to Celanese Corporation. Cigarette filter plug. 3,543,769, Cl. 131-268.

Arvidson, Bengt A., and Treiber, Fritz F., to Corley-Miller, Inc. Package labelling equipment. 3,544,412, Cl. 156-360.

Asahi Glass Co., Ltd.: *See—*
Shiota, Masatoshi, Kato, Taizo, and Numata, Hideji, 3,544,666.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio, 3,544,670.

Asano, Isamu: *See—*
Takei, Kazuhiro, and Asano, Isamu, 3,544,743.

Aschberger, Anton A., and Bartels, Herbert D., to Continental Can Company, Inc. Can welding indexer. 3,544,753, Cl. 219-64.

Asenbauer, Donald J., to Shell Oil Company. Container. 3,544,146, Cl. 292-87.

Asgar, Kamal, to University of Michigan, The Regents of the. Denture alloy. 3,544,315, Cl. 75-171.

Ashburn, Donald G.: *See—*
Alexander, Richard L., Ashburn, Donald G., Clampitt, Bert H., and Anspon, Harry D., 3,544,490.

Ashland Oil & Refining Company: *See—*
Grimm, Robert A., 3,544,594.

Associated Engineering Limited: *See—*
Mair, Joseph, 3,543,734.

Astheimer, Robert W., to Barnes Engineering Company. Picture motion detection systems. 3,544,988, Cl. 340-282.

Astor Manufacturing Co., Inc.: *See—*
Martin, Louis H., 3,543,381.

Atkins, Walter J.: *See—*
Lamka, Charles E., and Atkins, Walter J., 3,543,811.

Atlantic Richfield Company: *See—*
Burk, Emmett H., Jr., and Carlos, Donald D., 3,544,583.
Connor, James E., Jr., D'Alessandro, Alfred F., and Shalit, Harold, 3,544,376.
D'Alessandro, Alfred F., and Shalit, Harold, 3,544,374.

Atlas Spokane, Inc.: *See—*
Peterson, John L., 3,543,950.

Aubert, Jean. Closure device applicable to water-slope systems. 3,543,521, Cl. 61-25.

Audeval, George Marceau, to Integrated Lighting Limited. Louver construction. 3,544,787, Cl. 240-78.

Aupoix, Marcel, and Moisson-Franckhauser, Francois, to Compagnie Generale d'Electricite. Electrical conductor configuration providing length stable with temperature. 3,544,706, Cl. 174-129.

Ausnit, Steven: *See—*
Staller, Karel J., and Ausnit, Steven, 3,543,343.

Austin, Clive Jonathan: *See—*
Austin, Marcus Luther, and Austin, Clive Jonathan, 3,543,316.

Austin Hoy and Company Limited: *See—*
Proctor, Sidney E., 3,544,166.

Austin, Marcus Luther, and Austin, Clive Jonathan. Boots and shoes. 3,543,316, Cl. 12-142.

Automated Building Components, Inc.: *See—*
Jureit, John Calvin, and Coovert, Gilbert T., 3,544,353.

'Automatic' Sprinkler Corporation of America: *See—*
Smith, Edson W., 3,544,235.

Automotive Products Company Limited: *See—*
Hodkinson, Harold, 3,543,887.

A.V./American Ventures, Inc.: *See—*
Vasilatos, Anastasios J., 3,543,712.

Avant Incorporated: *See—*
Macone, Frederick W., 3,543,626.

Avery Products Corporation: *See—*
Forsberg, Karl Viking, 3,543,466.

Avions Marcel Dassault: *See—*
Deplante, Henri, 3,543,641.

B & R Relays Limited: *See—*
Knights, Douglas Sydney, 3,544,851.

Baatrup, Johannes Vagn, to Danfoss A/S. Control equipment for hydrostatic drive of a vehicle. 3,543,645, Cl. 91-413.

Babcock-Atlantique Societe Anonyme: *See—*
Pacault, Pierre Henri, and Mary, Francis J., 3,543,534.

Babkin, Mikhail Evmenovich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich, 3,544,046.

Badische Anilin- & Soda-Fabrik AG: *See—*
Christmann, Otto, 3,544,573.

Badische Anilin- & Soda-Fabrik Akteingesellschaft: *See—*
Nohe, Heinz, Suter, Hubert, and Hannebaum, Heinz, 3,544,602.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Diebold, Adolf, Walter, Justus, and Strehler, Hugo, 3,544,319.
Haarer, Erich, and Winderl, Siegfried, 3,544,632.
Lange, Guenter, and Wippel, Hans Guenter, 3,544,260.
Scheuerer, Guenter, Zeidler, Adolf, and Fischer, Adolf, 3,544,575.
Stastny, Fritz, Breu, Rudolf, and Haardt, Udo, 3,543,460.
Weidinger, Hans, and Eisert, Manfred, 3,544,564.
Mueller, Herbert, Koehl, Harald, Overwien, Hermann, and Pommer, Horst, 3,544,634.

Baggott, Eric Raymond: *See—*
Fletcher, Archibald William, Baggott, Eric Raymond, and Derry, Raymond, 3,544,309.

Baigas, Joseph F., Jr., Nolte, Richard G., and De Vita, Peter M., to Environmental Control Products, Inc. Air purifying incinerator apparatus. 3,543,700, Cl. 110-8.

Bailey, Charles E.: *See—*
Gaumer, David D., Hanna, Charles D., Bailey, Charles E., and Trickel, Leighton E., 3,544,804.

Bain, James Stratford: *See—*
Neale, Alan Jeffrey, and Bain, James Stratford, 3,544,511.

Baker, Alfred Dickens, to Lucas, Joseph, (Industries) Limited. Bodies for road vehicles. 3,544,786, Cl. 240-46.29

Baker, George W. Method for expanding a cylindrical vacuum cooling chamber. 3,543,369, Cl. 29-157.

Baker, Lionel Richard, to British Scientific Instrument Research Association. Lens centering instrument. 3,544,796, Cl. 250-201.

Baker, Robert G.: *See—*
Reighard, Alan B., Rosen, Samuel R., and Baker, Robert G., 3,543,968.
Sallach, Max E., Heisner, Donald N., and Baker, Robert G., 3,544,967.

Bakoledis, Andrew G., and Brosious, James B., to Olin Corporation. Extractor for cartridge-actuated device. 3,543,986, Cl. 227-10.

Balaev, Oleg Gavrilovich, and Ediny, Jury Grigorievich. Instrument for crushing concretions in the urinary bladder. 3,543,757, Cl. 128-328.

Baldauf, Gerard A., and Elking, Michael J., to Bell Telephone Laboratories, Incorporated. Method for cleaning metal surfaces. 3,543,389, Cl. 29-488.

Baldt Corporation: *See—*
L'Allemand, Charles C., 3,544,033.

Baldwin, D. H., Company: *See—*
Gregory, Marion B., and Fritz, William L., 3,544,933.
Harris, Michael R., 3,544,699.
Munch, Walter, Jr., 3,544,697.
Ferris, Robert L., and Martin, Daniel W., 3,543,630.

Baldwin, William S.: *See—*
Wittcoff, Harold A., and Baldwin, William S., 3,544,439.

Baldwin-Ehret-Hill, Inc.: *See—*
Kodaras, Michael J., 3,543,669.

Balint, Laszlo J., Abos, Ramon Luis, and Snider, Orvill E., to Allied Chemical Corporation. Process for crystallization, drying and solid-state polymerization of polyesters. 3,544,525, Cl. 260-75.

Ball, Glenn A., and Helton, Eugene L., to Caterpillar Tractor Company. Quick detach bucket mounting. 3,543,863, Cl. 172-273.

Ball, Joseph. Pool table. 3,544,108, Cl. 273-8.

Bancroft, Charles. Rotary piston devices. 3,544,242, Cl. 418-37.

Bancroft, Herbert, and Shepherd, John M., to T.M.M. (Research) Limited. Spinning of textile yarns. 3,543,500, Cl. 57-58.89

Bangor Punta Operations, Inc.: *See—*
Van Gilst, Carl W., 3,543,723.

Banhart, Peter. Apparatus for dental treatment. 3,543,405, Cl. 32-26.

Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl, to Boehringer Ingelheim GmbH. Method for dealkylating certain solonaceous alkaloids and derivatives thereof. 3,544,578, Cl. 260-292.

Banigan, Thomas F.: *See—*
Morrisroe, John J., and Banigan, Thomas F., 3,544,603.

Barber, Robert O., and Anderson, William C., to Ingersoll-Rand Co. Spark ignition control system. 3,543,738, Cl. 123-117.

Barcus, Lester M., and Berry, John F. Electrical pickup located in mouthpiece of musical instrument utilizing piezoelectric transducer. 3,543,629, Cl. 84-1.14

Bardsley, Robert F., Bower, Harvey S., and Katz, Saul, to General Foods Corporation. Tubular freeze-drying condenser. 3,543,411, Cl. 34-92.

Barlow, Bruce Roderick: *See—*
Barlow, Percy, and Barlow, Bruce Roderick, 3,544,063.

Barlow, Percy, and Barlow, Bruce Roderick. Hydraulic hose coupling connect and disconnect devices. 3,544,063, Cl. 251-149.9

Barmag Barmer Maschinenfabrik Aktiengesellschaft: *See—*
Schippers, Heinz, Lenk, Erich, and Neuhaus, Friedrich, 3,544,017.

Barnes Engineering Company: *See—*
Astheimer, Robert W., 3,544,988.

Barnes, Wendell A., Bash, David L., and Franke, Norman W., to Gulf Research & Development Company. Polyvinylchloride composition stabilized with a bituminous material. 3,544,576, Cl. 260-28.5

Barrett, John J. Spring type female bustline muscle exerciser. 3,544,106, Cl. 272-83.

Barron, Russell K. Methods for forming articles of simulated stone. 3,544,674, Cl. 264-255.

Barry, Robert D.: *See—*
Schwartz, Harold O., Machanian, William V., and Barry, Robert D., 3,544,698.

Barry, Thomas L., to Sylvania Electric Products, Inc. Europium-activated alkaline earth orthosilicate phosphor. 3,544,481, Cl. 252-301.4

Barry, Thomas L., to Sylvania Electric Products, Inc. Europium and manganese activated alkaline earth silicate phosphors. 3,544,482, Cl. 252-301.4

Bartels, Herbert D.: *See—*
Aschberger, Anton A., and Bartels, Herbert D., 3,544,753.

Bartlett, Christopher L., to Rolls-Royce Limited, mesne. Profile comparators. 3,544,223, Cl. 356-165.

Bartram, John H. Fruit picker. 3,543,494, Cl. 56-328.

Bash, David L.: *See—*
Barnes, Wendell A., Bash, David L., and Franke, Norman W., 3,544,576.

Basic Aluminum Castings Company: *See—*
Perkon, John A., 3,543,835.

Batchelar, Raymond Luscombe: *See—*
La Croce, Leonard Thomas, Batchelar, Raymond Luscombe, and Rouse, John Wilson, 3,544,025.

Bates, James John, to National Research Development Corporation. Dynamo electric machines. 3,544,868, Cl. 318-138.

Bates, Thomas, to Marconi Instruments Limited. Oscilloscope operating circuits. 3,544,834, Cl. 315-18.

Bath, Carl C., to Bendix Corporation, The. Electrical pickoff. 3,544,939, Cl. 336-135.

Battelle Development Corporation, The: *See—*
Agnew, Kenneth Leslie, 3,544,402.

Batten, Joseph E. Sheet music holder for trombones and the like. 3,543,633, Cl. 84-453.

Battigelli, Jean, to Compagnie de Saint-Gobain. Burners for producing gaseous mixtures in centrifugal fiber attenuating apparatus. 3,544,254, Cl. 431-350.

Battista, Ralph N., to Bell Telephone Laboratories, Incorporated. Tone detector. 3,544,723, Cl. 179-15.

Bauer, Charles L., to Scovill Manufacturing Company. Combined speed control-ejector for kitchen mixer. 3,544,234, Cl. 416-170.

Bauer, Kurt, to Gustav Bauer, Firma. Multi-layer thermoplastic watchband. 3,543,975, Cl. 224-4.

Bauer, Peter, to United States of America, Navy, mesne. Uniaxial accelerometer controlled fluidic amplifier. 3,543,782, Cl. 137-81.5

Bauer, Richard A., and Storm, Elwood H., to International Business Machines Corporation. Magnetic transfer system with pneumatic means for maintaining tape contact. 3,544,732, Cl. 179-100.2

Baumann, Hans G., to Demag Aktiengesellschaft. Method and apparatus for straightening arc-type continuous casting. 3,543,830, Cl. 164-82.

Baumann, Hans G., and Komma, Gerhard K., to Demag Aktiengesellschaft. Form changing device for continuous casting. 3,543,555, Cl. 72-224.

Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Stahlhaas, Siegfried, to Siemens Aktiengesellschaft. Exchange arrangement permitting temporary call suspension for acceptance of a new call. 3,544,725, Cl. 179-18.

Baxter, Milton C., to Cities Service Oil Company. Flame cultivation apparatus. 3,543,436, Cl. 47-1.44

Bazen, Raymond A.: *See—*
Lemke, James H., and Bazen, Raymond A., 3,543,897.

Bazley, Carl E., to Colea Metals International, Ltd. Homogeneous copper lead metal and method of making. 3,544,314, Cl. 75-163.

Beach, David E., to Eastman Kodak Company. Socket for multilamp flash unit. 3,544,248, Cl. 431-93.

Beach, David E., to Eastman Kodak Company. Firing mechanism for percussion-ignitable flash lamps. 3,544,250, Cl. 431-93.

Beaman, Kenneth G.: *See—*
Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F., 3,544,712.

Beasley, Charles A.: *See—*
Swidler, Ronald, and Beasley, Charles A.,3,544,303.
Beatrice Foods Co.: *See—*
Bundus, Robert H., 3,544,337.
Beaunit Corporation: *See—*
Fuhs, Joseph F., and Fain, Samuel Z., 3,543,409.
Beck, Kenneth O., to Corning Glass Works. Cadmium silicate crystals. 3,544,480, Cl. 252-301.6
Beckman Instruments, Inc.: *See—*
Sharples, Thomas D., 3,544,139.
Behrens, Roy E.: *See—*
Donahue, Leo O., and Behrens, Roy E.,3,543,651.
Behrens, William H.: *See—*
Buttke, Richard A., Sabatino, Anthony, Orlando, Daniel, and Behrens, William H.,3,544,754.
Beiras Garcia, Antonio, deceased (by Vazquez, Antia Cal, administratrix). Apparatus for testing strabismus. 3,544,203, Cl. 351-2.
Bell & Howell Company: *See—*
John, Robert S., Jr., 3,544,207.
Yamada, Yoshikazu, and Storm, Lester F.M., 3,544,321.
Bell, Stanley C., to American Home Products Corporation. 2-Amino-5-chloro-3-benzoyl-benzenesulfonamides. 3,544,629, Cl. 260-556.
Bell Telephone Laboratories, Incorporated: *See—*
Baldauf, Gerard A., and Elking, Michael J., 3,543,389.
Battista, Ralph N., 3,544,723.
Bergland, Glenn D., and Klahn, Richard, 3,544,775.
Boll, Harry J., 3,544,200.
Bruwer, William A., Jr., 3,544,736.
Chen, Fang-Shang, and LaMacchia, John T., 3,544,189.
Farrow, Cecil W., 3,544,779.
Franaszek, Peter A., 3,544,716.
Gunther, Ronald V., Kish, Donald E., and Smith, James L., 3,544,981.
Gyorgy, Ernst M., and Remeika, Joseph P., 3,544,265.
Harris, William B., 3,544,818.
Hartwell, Walter T., and Smith, Richard A., 3,544,894.
Herriott, Donald R., and Poole, Kenneth M., 3,544,715.
Hoagland, Bruce S., and Kirschenbaum, Bernard, 3,543,397.
Hunter, Paul D., 3,544,975.
Kaenel, Reginald A., and Smith, James L., 3,544,992.
Kahlbrock, Heinz, 3,544,719.
Kraemer, George T., and Pasternack, Gerald P., 3,544,814.
Lynch, William T., 3,544,794.
Meacham, Larned A., 3,544,734.
Olszewski, Edward, and Plum, Richard R., 3,544,735.
Pento, Frank L., 3,544,724.
Rodkin, Dennis L., and Weber, Laurance A., 3,544,728.
Smith, Larrabee M., 3,544,717.
Stevens Thomas R., 3,544,729.
Stoll, Eric D., 3,544,714.
Tong, Shih Y., 3,544,963.
Vazirani, Hargovind N., 3,544,356.
Vazirani, Hargovind N., 3,544,389.
Belle Isle, Richard A. Forming skins on plastic cellular material. 3,544,675, Cl. 264-321.
Bello, Edward L., to Robertshaw Controls Company. Double diaphragm pressure responsive switch construction. 3,544,744, Cl. 200-83.
Beloit Corporation: *See—*
Stuebe, Louis M., 3,543,834.
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich. Device for opening and closing hatch of airborne craft. 3,544,046, Cl. 244-137.
Bemberg, J. P., Aktiengesellschaft: *See—*
Ebert, Alfred, Pirot, Ernst, Holler, Fritz, and Steinhilber, Georg, 3,544,667.
Bendele, Paul, and Merklen, Gilles. Kits for adapting old percussion revolvers to fire modern cartridges. 3,543,429, Cl. 42-77.
Bender, Stanley O., and Eash, Robert E., to CTS Corporation. Method of making an electrical control. 3,543,398, Cl. 29-610.
Bendix Corporation, The: *See—*
Ahern, Charles J., 3,543,780.
Bath, Carl C., 3,544,939.
Barruth, Winford B., and Carp, Ralph W., 3,544,838.
Beir, Gottfreid, 3,544,763.
Giller, Morris, 3,545,001.
Howard, Donald W., and Schafer, Thomas C., 3,544,172.
Moseson, Roger M., and Smith, John H., 3,544,445.
Pile, Delbert W., 3,544,996.
Plutchak, Noel B., 3,543,422.
Rothfuss, Neal B., and Brady, Arthur R., 3,543,537.
Sanders, Bobby J., 3,544,917.
Benischeck, Joseph John, to Rohm and Haas Company. Foamed copolymer of an ethylenically unsaturated monomer and an alkenyl guanamine and process of making same. 3,544,491, Cl. 260-2.5
Bennett, James G.: *See—*
Cooper, Glenn D., and Bennett, James G.,3,544,516.
Bergendal, Arne, and Fransson, Johnny, to Aktiebolaget Vibro-Verken. Mechanical vibrator. 3,543,590, Cl. 74-87.
Berger, Abe: *See—*
Wilkus, Edward V., and Berger, Abe,3,544,595.
Berger, Frank M.: *See—*
Ludwig, Bernard J., Berger, Frank M., and Fukui, George M.,3,544,560.
Berger, George C. Vehicle speed controller. 3,543,601, Cl. 74-513.
Bergland, Glenn D., and Klahn, Richard, to Bell Telephone Laboratories, Incorporated. Digital processor for calculating fourier coefficients. 3,544,775, Cl. 235-151.31
Bergmann, Elmer G., and Ritter, Vern D., to Tyee Construction Company. Sealed power transformer. 3,544,938, Cl. 336-92.
Bergwerksverband GmbH: *See—*
Rieschel, Hans, 3,543,640.
Berins, Michael L., to Guild Molders, Inc. Drop dispenser and closure assembly. 3,543,973, Cl. 222-571.
Berk, Edward J., to Westinghouse Air Brake Company. Flow diverting shaker conveyor trough. 3,543,916, Cl. 198-220.
Berkeley Scientific Laboratories, Inc.: *See—*
Wattenburg, Willard H., Glaser, Donald A., and Conde, Hector O., 3,544,225.
Berleyoung, Walter J., Kreuter, Kenneth G., and Mueller, Klaus P., to Robertshaw-Controls Company. Control device manipulator means. 3,543,594, Cl. 74-89.18
Berlin, Irving: *See—*
Swart, Robert, and Berlin, Irving,3,544,925.
Berlin, Norton H., to Vehoc Corporation. Fluid control system for liquid storage apparatus. 3,544,289, Cl. 48-174.
Berman, Irwin, Thakkar, Bharat S., Schroeder, Joseph W., and Smith, Herman P., to Foster Wheeler Corporation. Method and apparatus for explosively forming a tube within a tube sheet. 3,543,370, Cl. 29-157.4
Berndt, Wayne E.: *See—*
Fort, Edward F., and Berndt, Wayne E.,3,544,082.
Berquist, John E. Bracket for sheet music. 3,544,056, Cl. 248-443.
Berry, John F.: *See—*
Barcus, Lester M., and Berry, John F.,3,543,629.
Berther, Clau: *See—*
Schultze, Hans-Joachim, and Berther, Clau,3,544,562.
Berthon, Robert: *See—*
Burr, Richard, Mames, Michel, and Berthon, Robert,3,544,282.
Besson, Jean Rene, and Weber, Pierre Francois, to Office National d'Etudes et de Recherches Aerospatiales. Double-pulse laser telemeter system. 3,544,216, Cl. 356-5.
Best, Howard S., and Mosely, Graham H., to Corning Glass Works. Glass stacking machine. 3,544,410, Cl. 156-351.
Betzing, Hans, and Eikermann, Hans, to Nattermann, A., & Cie GmbH. Process for obtaining highly purified phosphatidylocholine and the product of this process. 3,544,605, Cl. 260-403.
Beyer, John P., to Communications Satellite Corporation. Delay correlation radiometer. 3,544,900, Cl. 325-363.
Beyl, Jean Joseph Alfred. Safety ski binding. 3,544,124, Cl. 280-11.35
Bicking, John B.: *See—*
Cragoe, Edward J., Jr., and Bicking, John B.,3,544,568.
Bienenfeld, Harold, to Glendale Optical Company, Inc. Adjustable temple for safety spectacles. 3,544,204, Cl. 351-118.
Bier, Kenneth C., to Holley Carburetor Company. Carburetor having an automatic choke. 3,544,085, Cl. 261-39.
Biflex Foundations, Inc.: *See—*
Porco, Frank, 3,543,763.
Billerbeck, Wilfred J., Jr., and Owens, James R., to Communications Satellite Corporation. Deployable flexible solar array. 3,544,041, Cl. 244-1.
Billingslea, Eugene E.: *See—*
Joyce, Ronald W., Billingslea, Eugene E., Sage, Leopold C., and Marshall, Robert K.,3,543,427.
Bingham, Spencer Lewis. Tool-holding and aligning device. 3,544,117, Cl. 279-6.
Bio-Medical Sciences, Inc.: *See—*
Weinstein, Berel, 3,543,753.
Bird, Richard M., and Tu, Ju C., to General Precision Systems Inc. Multiple match resolving network. 3,544,905, Cl. 328-92.
Biritz, Laszlo F., and Gilbert, Everett E., to Allied Chemical Corporation. Sulfation of alcohols with a solution of a complex of SO_3 with dimethylformamide. 3,544,555, Cl. 260-215.
Birnbaum, Oleg Ernstovich: *See—*
Pavlov, Vladimir Vasilievich, Ivliev, Valery Alexandrovich, Zlobin, Jury Petrovich, Birnbaum, Oleg Ernstovich, and Trunov, Oleg Konstantinovich,3,543,577.
Bischoff Chemical Corporation: *See—*
Nussbaum, Frank J., 3,543,348.
Bishop, Earl L., to Goodrich, B. F., Company, The, mesne. Tire testing apparatus and method. 3,543,576, Cl. 73-146.
Bissell, Harold R., Jr., to Carrier Corporation. Furnace having control module with plug-in relay means for control of differing voltage accessory. 3,544,003, Cl. 236-11.
Bissett-Berman Corporation, The: *See—*
Brown, Neil L., 3,543,585.
Bjerke, Arthur E., to E-H Research Laboratories, Inc. Time to height converter. 3,544,813, Cl. 307-232.
Bjorge, Carl. Storage cabinet having a readily slidable and removable tilting-resistant drawer assembly. 3,544,186, Cl. 312-331.
Blackett, James C., to Honeywell Inc. Fuel burner power failure bridge. 3,544,247, Cl. 431-18.
Blackmore, Kenneth A. E.: *See—*
Markham, Aaron E., and Blackmore, Kenneth A. E.,3,544,460.
Blank, George F., and Bothe, Billy A., to Hexcel Corporation. Controlled area explosive bonding. 3,543,388, Cl. 29-486.

Blatz, Paul E., and Erickson, James O., to Mobil Oil Corporation. Oil recovery process. 3,543,855, Cl. 166-274.
Bleickardt, Werner, to Hasler A.G. Apparatus for generating synchronised timing pulses in a receiver of binary data signals. 3,544,907, Cl. 328-63.
Bless, Paul W., and Clements, Richard F., to Troxler Electronic Laboratories, Inc. Portable nuclear measuring gauge providing multiple radiation and detecting positions. 3,544,793, Cl. 250-83.6
Blinov, Alexandr Vasilievich: *See—*
Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich,3,544,443.
Bloch, Herman S., to Universal Oil Products Company. Production of alcohols. 3,544,639, Cl. 260-618.
Block, Charles, and Mintz, Leon J., to Undergarment Assemblies, Inc. Apparatus for dispensing garment straps. 3,543,942, Cl. 211-51.
Blomberg, Maurits C., to Miehle-Goss-Dexter Incorporated. Web folding assembly. 3,544,107, Cl. 270-86.
Bloom, Walter L., and Smith, John Sherman, to Scripto, Inc. Cigarette lighter with magnetic compass. 3,544,253, Cl. 431-253.
Blume, William E. Cable pulling sheave. 3,544,070, Cl. 254-134.3
Bochan, John, to General Electric Company. Self-cleaning filter. 3,543,542, Cl. 68-18.
Bock, Ludwig, and Onderca, Georg, to Deggendorfer Werft und Eisenbau G.m.b.H. Device for closing bottom dump barge. 3,543,709, Cl. 114-29.
Bodine, Albert G. Harvester and method for harvesting utilizing sonic energy. 3,543,487, Cl. 56-21.
Bodine, Albert G. Elastomer resonator for orbiting mass oscillator. 3,544,073, Cl. 259-1.
Bodine, Albert G. Granular cleaner. 3,544,292, Cl. 51-7.
Bodkins, Roy L., and Needham, Donald G., to Phillips Petroleum Company. Production of foamed 1-olefin polymer articles using an insulated mold. 3,544,518, Cl. 264-48.
Bodnar, Ernest Robert. Apparatus for cleaning hot rolled steel. 3,543,775, Cl. 134-64.
Bodner, Fritz: *See—*
Heitmann, Bob, Grasse, Hans J., Schubert, Gunter, and Bodner, Fritz,3,543,564.
Boehringer Ingelheim GmbH: *See—*
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl, 3,544,578.
Boehringer Ingelheim G.m.b.H.: *See—*
Pattermann, Franz, 3,544,553.
Schmidt, Gunther, Machleidt, Hans, and Klupp, Hans, 3,544,561.
Boehringer Mannheim Gesellschaft mit beschrankter Haftung: *See—*
Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus, 3,544,554.
Boeing Company, The: *See—*
Gabriel, Edward A., 3,544,047.
Boerma, Michael J., to Outboard Marine Corporation. Engine exhaust system. 3,543,509, Cl. 60-29.
Boersma, Rintje, to N.V. 'CPQ'. Gas-blast circuit-breakers operating with extinguishing gas consisting of or comprising a fluorinated compound. 3,544,747, Cl. 200-148.
Bogdanowicz, Mitchell J., to Jayark Instruments Corporation. Projector for continuous loop motion picture film. 3,544,205, Cl. 352-27.
Bohmann, Werner: *See—*
Mayer, Hans, and Bohmann, Werner,3,544,424.
Bohner, Manfred, to International Standard Electric Corporation. Associative memory matrix using series connected diodes having variable resistance values. 3,544,977, Cl. 340-173.
Bolduc, Lee R., to Medical Plastic Inc. Disposable ground plate electrode. 3,543,760, Cl. 128-416.
Bolkow Gesellschaft mit beschrankter Haftung: *See—*
Merges, Veit, 3,543,842.
Boll, Harry J., to Bell Telephone Laboratories, Incorporated. Cascaded light beam deflector system. 3,544,200, Cl. 350-285.
Bom, Cornelis Johannes Gerardus: *See—*
Lely, Ary van der, and Bom, Cornelis Johannes Gerardus,3,543,972.
Bomkamp, Raymond L.: *See—*
Perry, Charles B., Bomkamp, Raymond L., and Bone, Kendall F.,3,543,392.
Bone, Kendall F.: *See—*
Perry, Charles B., Bomkamp, Raymond L., and Bone, Kendall F.,3,543,392.
Boone, Clair W. Fluid control apparatus. 3,543,309, Cl. 4-35.
Boone, Daniel E., and Ralston, Paul H., to Calgon Corporation, and Amerada Hess Corporation, mesne. Stabilized drilling mud. 3,544,461, Cl. 252-8.5
Boone, Donald H., and Goward, George W., to United Aircraft Corporation. Overhaul process for aluminide coated gas turbine engine components. 3,544,348, Cl. 117-2.
Booth, Llewellyn D., and Langner, Ralph R., to Dow Chemical Company, The. Alkylene oxide copolymers with 0.01 to 2.0 percent of a polyepoxide. 3,544,655, Cl. 260-830.
Boothe, Jerry E., and Hoover, Merwin Frederick, to Calgon Corporation. Electroconductive paper. 3,544,318, Cl. 96-1.5
Borchert, Ernst, III, and Southland, John Robert, to Winslow Product Engineering Corporation. Apparatus for grinding drills. 3,543,445, Cl. 51-33.
Borck, Walter C., Jr., Gregory, John G., Hudson, James R., and Murtha, John C., to Westinghouse Electric Corporation. Variable structure computer. 3,544,973, Cl. 340-172.5
Borden, Philip H.: *See—*
Waterman, Neil S., and Borden, Philip H.,3,543,918.
Bordman, Morris A. Anti-moth cake holder. 3,544,007, Cl. 239-60.
Borgardt, Henry: *See—*
Miller, Roland E., Borgardt, Henry, and Olson, Edgar C.,3,544,340.
Borgs Fabriks AB: *See—*
Fonden, Per Borje, and Wiklund, Bjorn Sture, 3,543,686.
Borodin, Daniel J., to U.S. Automation Company. Work transfer mechanism with means for controlling acceleration and deceleration at predetermined rates. 3,543,609, Cl. 74-818.
Boron, Frank J., to Abex Corporation. Rotary kiln chain. 3,544,092, Cl. 263-33.
Bos, Hendrikus J., and Mann, Adriaan B., to Stichting Waterbouekundig Laboratories. Apparatus for manufacturing a hose for taking an undisturbed soil sample. 3,543,722, Cl. 118-642.
Bosch, Robert, GmbH: *See—*
Gunsser, Peter, and Renner, Stefan, 3,544,873.
Boshuizen, Cornelis: *See—*
VerNooy, Burton, and Boshuizen, Cornelis,3,544,136.
Bothe, Billy A.: *See—*
Blank, George F., and Bothe, Billy A.,3,543,388.
Bottenberg, Hans H., Jestadt, Hans-Joachim, Leysieffer, Hans G., and Stockinger, Felix Johan, to Siemens Aktiengesellschaft. Navigation method with the aid of satellites. 3,544,995, Cl. 343-6.
Bottenbruch, Ludwig: *See—*
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard,3,544,514.
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B., to Sylvania Electric Products, Inc. Electric discharge lamp having a continuous three-dimensional coating on the inner surface of the envelope. 3,544,828, Cl. 313-109.
Boussois Souchon Neuvesel: *See—*
Feillet, Antoine, 3,543,978.
Bovio, Michele, to Olivetti, Ing. C., & C., S.p.A. Device for controlling the printing of the decimal point in a calculating machine or the like. 3,544,000, Cl. 235-60.15
Bower, Harvey S.: *See—*
Bardsley, Robert F., Bower, Harvey S., and Katz, Saul,3,543,411.
Bowers, William E., to Schlumberger Technology Corporation. Method and apparatus for manufacturing electrical conductors. 3,544,665, Cl. 264-40.
Bowie, Philip A., and Bragg, Edward A., to Maremont Corporation. Bobbin clutch for textile spindle assembly. 3,544,026, Cl. 242-46.6
Bowles Engineering Corporation: *See—*
Bowles, Ronald E., 3,544,170.
Bowles, Ronald E., to Bowles Engineering Corporation. Pure fluid valving of suspended solids. 3,544,170, Cl. 302-28.
Bowman, George Edward, and Weaving, George Stewart, to National Research Development Corporation. Apparatus for detecting gases. 3,544,278, Cl. 23-254.
Bowser, Inc.: *See—*
Topol, George J., 3,544,798.
Boyce, Thomas H., Jr., to Stewart & Stevenson Services, Inc. Rotary table power unit. 3,543,650, Cl. 173-43.
Boyer, Charles Benjamin, to Crucible Inc. Apparatus for rapid fluid compacting. 3,543,345, Cl. 18-16.
Boyer, Jackson S., and Cassar, Richard D., to Sun Oil Company. Latex stabilized with salts of polymethylated muconic acids. 3,544,502, Cl. 260-29.7
Boyles Bros. Drilling Company: *See—*
Martinsen, Lyle J., 3,543,870.
Boysen, Gerd C., to Allen-Bradley Company. Coil supporting plates. 3,544,937, Cl. 336-65.
Brace, Neal O., to Du Pont de Nemours, E. I., and Company. Poly (perfluoroalkoxy) polyfluoroalkyl acrylate- type esters and their polymers. 3,544,537, Cl. 260-89.5
Bradley, Marion W. Slitter and insulation for tape-type wire. 3,543,616, Cl. 81-9.5
Bradley, Terrag W., to International Business Machines Corporation. Container with external shock absorbing structure. 3,543,921, Cl. 206-62.
Bradley, William E., to University of Minnesota, The Regents of the. Bladder stimulating method. 3,543,761, Cl. 128-421.
Brady, Arthur R.: *See—*
Rothfuss, Neal B., and Brady, Arthur R.,3,543,537.
Bragg, Edward A.: *See—*
Bowie, Philip A., and Bragg, Edward A.,3,544,026.
Bragilevsky, Valentin Zinovievich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.
Braid, Milton, to Mobil Oil Corporation. Esters of phosphorodithioates. 3,544,465, Cl. 252-46.6
Brandhurst Company Limited: *See—*
Fletcher, Archibald William, Baggott, Eric Raymond, and Derry, Raymond, 3,544,309.
Brandt, Edison R., to Polaroid Corporation. Apparatus for sequentially selecting photoflash lamps for ignition. 3,544,251, Cl. 431-95.

Braski, Ervin W.: *See—*
Peltola, Waino, and Braski, Ervin W.,3,543,819.
Braun Engineering Corporation: *See—*
Braun, Karl J., 3,543,638.
Braun, Karl J., to Braun Engineering Corporation. Travel extension attachment for machine tools. 3,543,638, Cl. 90-58.
Bray Oil Company: *See—*
Bray, Ulric B., and Fainman, Morton Z., 3,544,472.
Bray, Ulric B., and Fainman, Morton Z., to Bray Oil Company. Power transmission hydrocarbon oil. 3,544,472, Cl. 252-73.
Bredereck, Karl: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian,3,544,363.
Breen, Alvin L., and Lauterbach, Herbert G., to Du Pont de Nemours, E. I., and Company. Process for increasing the bulk of multifilament yarn. 3,543,358, Cl. 28-72.12
Breher, Rudolf, to Elastomer AG., Firma. Mould support units for injection-moulding machines. 3,543,346, Cl. 18-30.
Bremner, Raymond Muir. Vibratory towing head. 3,543,377, Cl. 29-234.
Brendstrup, Asger: *See—*
Hesse, Holger, Sloth, Carl, and Brendstrup, Asger,3,543,752.
Brennen, William T., and Schoonover, George H., to Air Reduction Company, Incorporated. Underground bulk storage system for cryogenic liquid. 3,543,530, Cl. 62-45.
Breu, Rudolf: *See—*
Stastny, Fritz, Breu, Rudolf, and Haardt, Udo,3,543,460.
Bricker, Harry Chinn, Jr., to AMP Incorporated. Electrical clamp. 3,544,956, Cl. 339-264.
Brickson, Thomas B., to Kliklok Corporation. Device for the separating and timed releasing of folding boxes. 3,543,911, Cl. 198-34.
Bridge, Laurance, Horner, Walter J., and Thiel, Harold F., to ESB Incorporated. Deep submergence battery having gas bubble- electrolyte scrubbing vent cap. 3,544,372, Cl. 136-6.
Bridges, Jack E., and Hegner, Henry R., to IIT Research Institute. Method and apparatus for detecting damage in turbine blades by their magnetic characteristics. 3,544,890, Cl. 324-34.
Brienza, Michael J.: *See—*
De Maria, Anthony J., and Brienza, Michael J.,3,544,806.
Bright, Alfred William, to National Research Development Corporation. Electro-dialysis kerr cells. 3,544,194, Cl. 350-150.
Briguglio, Emanuel, to Singer-General Precision, Inc. Pneumatically controlled servo valve. 3,543,798, Cl. 137-625.62
Briody, Ronald Francis: *See—*
Shaw, James William Westgarth, Coast, Geoffrey, and Briody, Ronald Francis,3,544,425.
Bristol-Meyers Company: *See—*
Essery, John M., 3,544,581.
British Petroleum Company Limited, The: *See—*
Forbes, Eric Simon, and Silver, Howard Bernard, 3,544,609.
British Scientific Instrument Research Association: *See—*
Baker, Lionel Richard, 3,544,796.
Broaddus, Gene C.: *See—*
Knox, John A., Frederickson, Sherman E., and Broaddus, Gene C.,3,543,856.
Broadview Chemical Corporation: *See—*
Rai, Charanjit, and Krueger, Arthur Frederic, 3,544,536.
Brockmuller, Friedrich Franz, to Windmoller & Holscher. Apparatus for conveying workpieces of paper or plastics material sheeting, preferably for bag- making machines. 3,543,980, Cl. 225-96.
Brokaw, Paul E. Fishing lure. 3,543,430, Cl. 43-42.05
Brom, Lawrence V.: *See—*
Lewis, Philip W., and Brom, Lawrence V.,3,543,919.
Bronson, George A. Rifle forestock. 3,543,428, Cl. 42-71.
Broodman, Johannes Jacobus, to N.V. Koninklijke Maatschappij 'de Schelde'. Process for gas-shielded arc welding with a non-consumable electrode. 3,544,760, Cl. 219-137.
Brookmire, James L. Fluid flow control. 3,544,236, Cl. 417-32.
Brooks Products, Inc.: *See—*
Budlong, Oscar A., 3,543,457.
Brosious, James B.: *See—*
Bakoledis, Andrew G., and Brosious, James B.,3,543,986.
Broughton, Donald B., and deRosset, Armand J., to Universal Oil Products Company. Hydrocarbon separation via crystallization methods. 3,544,646, Cl. 260-674.
Brous, Jack, to RCA Corporation. Traveling wave tube with evaporated nickel attenuator coating and method of manufacture thereof. 3,544,832, Cl. 315-3.5
Broussard, Paul Daniel. Plural electromagnetic pickup system for stringed musical instrument with tone and volume controls. 3,544,696, Cl. 84-1.15
Brown, Boveri & Cie A.G.: *See—*
Rohr, Franz Josef, 3,544,308.
Brown, Boveri & Company: *See—*
Muller, Edmund, 3,544,870.
Brown, Charles Leslie Meredith, to Wigglesworth Limited, mesne. Substituted toluidides and compositions containing them. 3,544,587, Cl. 260-326.3
Brown, Colin James: *See—*
Rand, Walter Leslie, and Brown, Colin James,3,543,331.
Brown Engineering Company, Inc.: *See—*
Tushim, Michael P., 3,543,318.
Brown, Gordon H., to Whirlpool Corporation. Refuse compactor control circuit. 3,543,676, Cl. 100-52.
Brown, Martin J., to Western Electric Company, Incorporated. Electron beam masking arrangement. 3,544,790, Cl. 250-49.5
Brown, Neil L., to Bissett-Berman Corporation, The. Vibratory wire pressure transducer. 3,543,585, Cl. 73-398.
Brown, Norman Robert, Koziara, Mitchell Joseph, and Ribble, Franklin, to General Electric Company. Evaporator support bracket for water coolers. 3,544,049, Cl. 248-68.
Brown, Ralph D., and Johnson, Ernest K., to Westinghouse Electric Corporation. Turbine nozzle chamber support arrangement. 3,544,233, Cl. 415-126.
Brown, Robert J.: *See—*
Moran, Kevin E., and Brown, Robert J.,3,543,342.
Brown, Robert M.: *See—*
Wallace, Jacob L., Jr., and Brown, Robert M.,3,544,983.
Broyde, Barret, to Esso Research and Engineering Company. Fuel cell comprising a metal tungstate anode. 3,544,378, Cl. 136-86.
Brun, Andre George: *See—*
Smith, Melvin Wilmer, and Brun, Andre George,3,543,846.
Brunetti, Heimo, to Geigy Chemical Corporation. Process for producing areno-oxazinones. 3,544,566, Cl. 260-244.
Brunetti, Heimo, to Geigy Chemical Corporation. Process for producing areno-oxazinones. 3,544,567, Cl. 260-244.
Bruwer, William A., Jr., to Bell Telephone Laboratories, Incorporated. Broadband transmission testing apparatus. 3,544,736, Cl. 179-175.3
Bryden, Norman E. Therapeutic chair. 3,544,161, Cl. 297-391.
Bryngdahl, Olof, to International Business Machines Corporation. Optical computation of second derivative. 3,544,219, Cl. 356-106.
Buchner, Heinrich, to Klockner-Humboldt-Deutz AG. Cross-current blast furnace. 3,544,096, Cl. 266-30.
Buchner, Norbert, and Domke, Klaus, to Fr. Hesser Maschinenfabrik-Aktiengesellschaft. Reducing the atmospheric oxygen content of bulk materials which can flow or be trickled. 3,543,970, Cl. 222-190.
Buckeye Cellulose Corporation: *See—*
Huff, Byron J. L., and Zachariasen, Karsten A., 3,544,422.
Buckingham & Carnatic Limited, The: *See—*
Mhatre, Shamrao Harischandra, 3,544,261.
Buckner, Walter: *See—*
Philipps, Walter, and Buckner, Walter,3,544,702.
Budlong, Oscar A., to Brooks Products, Inc. Knockout liner for concrete utility vaults. 3,543,457, Cl. 52-100.
Budzyn, Boleslaw L., to Presto Lock Co., Inc., mesne. Combination lock. 3,543,545, Cl. 70-71.
Buechel, Mel E., to Motorola, Inc. Color burst separator system. 3,544,708, Cl. 178-5.4
Buell Engineering Company, Inc.: *See—*
Sheehan, John J., 3,544,088.
Sheehan, John James, 3,543,483.
Buettner, John H.: *See—*
Hawley, George F., and Buettner, John H.,3,544,098.
Bull, George Rodney. Method of harvesting fruit. 3,543,486, Cl. 56-1.
Bundschuh, John J., to Eastman Kodak Company. Take-up threading improvement for automatic strip handling device. 3,544,040, Cl. 242-206.
Bundus, Robert H., to Beatrice Foods Co. Self-preserving banana paste. 3,544,337, Cl. 99-102.
Buren Watch Company, S.A.: *See—*
Dubois, Gerald, and Marmier, Paul, 3,543,506.
Burk, Emmett H., Jr., and Carlos, Donald D., to Atlantic Richfield Company. Cycloaliphatic mono (nitrile sulfites). 3,544,583, Cl. 260-301.
Burlington Industries, Inc.: *See—*
Johnson, Frederick W., and Leach, Jack, 3,544,404.
Morrison, Elbert F., and Joy, Raymond D., 3,543,981.
Burr, Richard, Mames, Michel, and Berthon, Robert, 50% to Mines de Potasse d'Alsace, and 50% to Gesellschaft fur Kalinteressen mbH. Simplified pretreatment for coarse flotation. 3,544,282, Cl. 23-312.
Burrell, William E. Alternator drive means for railway cabbose lighting system. 3,544,802, Cl. 290-3.
Burroughs Corporation: *See—*
Desai, Kishore T., 3,544,100.
Looschen, Floyd W., 3,544,971.
Packard, Roger E., 3,544,965.
Paige, Walter Griffin, 3,543,790.
Burrows, Harold George, Duxbury, Frederick Keith, and Ingham, Philip Brierley, to Imperial Chemical Industries Limited. Sulfonated styrene-phenol resins. 3,544,519, Cl. 260-49.
Buschbom, Floyd E., to VanDale Corporation. Multiple lot bunk feeder. 3,543,728, Cl. 119-52.
Busse, Gerd: *See—*
Orth, Winfried, Rappen, Ludwig, and Busse, Gerd,3,544,589.
Busse, Oswald, and Klesper, Hugo, to Passavant Werke. Filter plate with spacing means. 3,543,938, Cl. 210-229.
Butscher, Robert C., to Garrett Corporation, The. Thrust recovery outflow control valve. 3,544,045, Cl. 244-129.
Buttke, Richard A., Sabatino, Anthony, Orlando, Daniel, and Behrens, William H., to Globe-Union Inc. Electric welder for joining battery-cell connectors through intercell walls. 3,544,754, Cl. 219-79.
Buxton, Edward J.,: *See—*
Hladky, Walter, 3,543,906.
Byrne, Robert C., King, Alan V., and Youmans, Albert P., to Signetics Corporation. Integrated circuit assembly with lead structure and method. 3,544,857, Cl. 317-234.
C & B Corporation: *See—*
McLeroy, Robert P., 3,544,866.

Cabella, Paolo: *See—*
Fiecchi, Alberto, Nano, Gian Mario, Cabella, Paolo, and Cicognani, Giorgio,3,544,621.
Caille, Georges Edouard Yvon E., and Weben, Bernard, to Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes. Tire with a reinforced breaker layer. 3,543,828, Cl. 152-361.
Calderazzo, Fausto: *See—*
Murdoch, Henry Drummond, and Calderazzo, Fausto,3,544,283.
Calgon Corporation: *See—*
Boothe, Jerry E., and Hoover, Merwin Frederick, 3,544,318.
Lloyd, Roger V., 3,544,507.
Shanfelt, Donald Y., and Douglas, Robert A., 3,544,456.
Boone, Daniel E., and Ralston, Paul H., 3,544,461.
California Computer Products, Inc.: *See—*
Trousdale, Robert B., 3,544,972.
Camco, Incorporated: *See—*
Watkins, Fred E., 3,543,579.
Cameron, Peter C. Antiglare rear view mirror. 3,544,195, Cl. 350-156.
Campbell, Elwood C., to International Business Machines Corporation. Card reader employing stacker with offset memory. 3,543,926, Cl. 209-74.
Campbell, Harry T., Sons Corporation: *See—*
Myers, Charles F., Jr., 3,543,710.
Peters, Donald J., and Olseth, George E., 3,543,711.
Campbell, Roy, to Girling Limited. Disc brakes. 3,543,886, Cl. 188-71.4
Campbell Soup Company: *See—*
Weeks, Richard C., 3,543,480.
Candor, James T.: *See—*
Candor, Robert R., and Candor, James T.,3,543,408.
Candor, Robert R., and Candor, James T. Liquid removing apparatus and method. 3,543,408, Cl. 34-1.
Canney, Robert S., to General Electric Company. External indentification plate for instrument transformer. 3,543,423, Cl. 40-22.
Cannon, Henry. Building corner construction. 3,543,463, Cl. 52-282.
Capitol Gears, Inc.: *See—*
Mooney, George Meyer, 3,543,896.
Carey, John D., Sr.: *See—*
Heisler, Jerome S., Starr, Anthony J., and Carey, John D., Sr.,3,543,963.
Carey, Leo J., and Mc Intire, Joseph N., to said Carey, mesne. Selective speed signs actuated by vehicle speed sensing. 3,544,958, Cl. 340-31.
Carlin, Bernard, 25% to Cessac, Preston, Sr., and 25% to Shults, Delmon, Jr. Blow-out proof packing for axially movable rod or shaft. 3,544,064, Cl. 251-214.
Carlos, Donald D.: *See—*
Burk, Emmett H., Jr., and Carlos, Donald D.,3,544,583.
Carlos, Donald D., to Sinclair Oil Corporation. Aqueous hydroxylamine solutions stabilized with hydroxyurea or hydroxythiourea derivatives. 3,544,270, Cl. 23-190.
Carlson, Ray Lavette: *See—*
Kruckenberg, Perry Lester, Anderson, Harold Elden, and Carlson, Ray Lavette,3,543,735.
Carp, Ralph W.: *See—*
Carruth, Winford B., and Carp, Ralph W.,3,544,838.
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry, to Imperial Chemical Industries Limited. Quaternary ammonium and phosphonium salts as catalysts in the production of carboxylic acid chlorides. 3,544,626, Cl. 260-544.
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry, to Imperial Chemical Industries Limited. Thiourea and its lower alkyl substituted derivatives as catalysts in the production of carboxylic acid chlorides. 3,544,627, Cl. 260-544.
Carrier Corporation: *See—*
Bissell, Harold R., Jr., 3,544,003.
Carrier, Vernon J.: *See—*
Rohrberg, Roderick G., and Carrier, Vernon J.,3,543,326.
Carrion, Carmelo, Jr.: *See—*
Presant, Fred, and Carrion, Carmelo, Jr.,3,544,258.
Carroll, Robert L., and Crutchfield, Marvin M., to Monsanto Company. Diphosphonic acids and salts thereof as flame retardants. 3,544,509, Cl. 260-45.7
Carruth, Winford B., and Carp, Ralph W., to Bendix Corporation, The. Headlamp time delay circuit and means for adjustment thereof. 3,544,838, Cl. 315-83.
Carter, William S. Guy anchor testing device. 3,543,569, Cl. 73-95.
Carter-Wallace, Inc.: *See—*
Ludwig, Bernard J., Berger, Frank M., and Fukui, George M., 3,544,560.
Case, Bernard, and Hell, Wilfried H., to Marquardt Corporation, The. Solid state electro-optical contact scanner. 3,544,713, Cl. 178-7.1
Case, J. I., Company: *See—*
Lemke, James H., and Bazen, Raymond A., 3,543,897.
Wenzel, Philip D., and Gallagher, Gerald L., 3,543,862.
Wenzel, Philip D., and Gallagher, Gerald L., 3,543,864.
Case, John S., to Anchor Post Products, Inc. Hook bolt for fabric fence. 3,544,071, Cl. 256-47.
Cassar, Richard D.: *See—*
Boyer, Jackson S., and Cassar, Richard D.,3,544,502.
Cassella Farbwerke Mainkur Aktiengesellschaft: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian, 3,544,363.
Cassidy, James J., to M&T Chemicals Inc. Apparatus for testing smoke from a specimen of material. 3,544,218, Cl. 356-36.
Casson, Charles F., to American Machine & Foundry Company. Solid state logic circuit means with controlled latching relays and the like. 3,544,850, Cl. 317-137.
Castle Showcase Company: *See—*
Schottland, Robert A., 3,544,181.
Caswell, Berwyn Blaine, to Textron Inc. Throttle control linkage. 3,543,599, Cl. 74-469.
Cataldo, John B.: *See—*
De Marco, Bernard, Kussy, Frank W., and Cataldo, John B.,3,544,929.
Catano, Aurelio, to Zenith Radio Corporation. Production of high-conductivity N-type Zns, ZnSe, ZnS/Zes, or ZnSe/ZnTe. 3,544,468, Cl. 252-62.3
Caterpillar Tractor Company: *See—*
Ball, Glenn A., and Helton, Eugene L., 3,543,863.
Cato, Carl P., to Dacam Corporation. Apparatus for tightening and locking wrap-around cartons. 3,543,473, Cl. 53-48.
C.A.V. Limited: *See—*
Kellett, Eric, 3,543,511.
Mowbray, Dorian Farrar, 3,544,245.
Cawthon, William C., and Ulrich, Robert J., to American Standard Inc. Enamelware produced by firing dry enamel powder in contact with a glass fiber fabric. 3,544,352, Cl. 117-23.
Cayton, David Walter: *See—*
Field, Fred Walker, and Cayton, David Walter,3,543,860.
Celanese Corporation: *See—*
Arthur, James B., and Osmar, John J., 3,543,769.
Polestak, Walter J., and Keuchel, Herbert W., 3,544,662.
Schweiker, George C., Tenney, Harry W., Jr., and Patrick, Robert L., 3,544,351.
Wagner, William Sherwood, and Roberts, John Drew, 3,543,332.
Central Research Laboratories, Inc.: *See—*
Haaker, Lester W., and Jelatis, Demetrius G., 3,543,592.
Haaker, Lester W., and Jelatis, Demetrius G., 3,543,593.
Centre National de Recherches Metallurgiques: *See—*
Poos, Arthur, 3,544,710.
Century Laboratories, Inc.: *See—*
Sloane, Nathan H., 3,544,427.
Cerutti, Piero. Device for blocking a container or van wing. 3,544,145, Cl. 292-54.
Cessac, Preston, Sr.: *See—*
Carlin, Bernard, 3,544,064.
Cessna Aircraft Company, The: *See—*
Martin, Robert J., 3,543,649.
Reimer, Leonard H., 3,543,514.
Chambers, William W., to Robertshaw Controls Company. Heat coupled control system. 3,543,840, Cl. 165-39.
Chapman, Charles C., to Phillips Petroleum Company. Recycling acid streams to different alkylation reactions. 3,544,651, Cl. 260-683.45
Charbonnages de France: *See—*
Giltaire, Marcel Charles, 3,544,792.
Charlton, Richard J., to International Business Machines Corporation. Container with external shock absorbing structure. 3,543,922, Cl. 206-62.
Charter Consolidated Limited: *See—*
Fletcher, Archibald William, Baggott, Eric Raymond, and Derry, Raymond, 3,544,309.
Charters, John Dumergue. Back support. 3,543,748, Cl. 128-78.
Chemical Construction Corporation: *See—*
Willett, Howard P., 3,544,086.
Chemische Fabrik Pfersee G.m.b.H.: *See—*
Deiner, Hans, and Singer, Heinrich, 3,544,362.
Chemische Werke Huels A.G.: *See—*
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf, 3,544,656.
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf, 3,544,657.
Chen, Fang-Shang, and LaMacchia, John T., to Bell Telephone Laboratories, Incorporated. Holography using a poled ferroelectric recording material. 3,544,189, Cl. 350-3.5
Chevron Research Company: *See—*
Jaffe, Joseph, 3,544,452.
Chidester, Robert Leroy: *See—*
Hansen, Harold Velentine, and Chidester, Robert Leroy,3,543,704.
Chiesa, Artorige. Device for controlling the movable table of a punch press. 3,543,628, Cl. 83-525.
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich. High power electrical machine such as a turbo generator. 3,544,823, Cl. 310-89.
Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RF.: *See—*
Szoke, Sandor, Szentmiklosi, Peter, David, Agoston, and Horvath, Gabor, 3,544,631.
Chisso Corporation: *See—*
Ishii, Teiji, and Morita, Koh, 3,544,432.
Chmil, Viktor Timofeevich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich,

Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.
Choun, Joseph M. Filter media. 3,543,937, Cl. 210-150.
Christian, Rodney E., and Taudvin, Peter C., to Material Transformation Associates, Inc., mesne. Method of melting a levitated mass. 3,544,757, Cl. 219-121.
Christmann, Otto, to Badische Anilin- & Soda-Fabrik AG. Pigment dyes of the perinone series. 3,544,573, Cl. 260-256.4
Christopher, Todd J.: *See—*
McDonald, James A., and Christopher, Todd J.,3,544,810.
McDonald, James A., and Christopher, Todd J.,3,544,811.
Christy, Harold L., and Diegel, Herbert F., to Sickles, Inc. Shutter operating mechanism. 3,543,591, Cl. 74-88.
Chrow, Albert E., to Moore, Samuel, and Company. Composite tubing. 3,543,803, Cl. 138-103.
Chrysler Corporation: *See—*
Hamilton, Francis W., 3,543,878.
Chubb, Talbot A. Camera tube including channel electron multiplier and channel storage section. 3,544,825, Cl. 313-65.
Ciba Limited: *See—*
Ehrat, Kurt, 3,544,770.
Cicognani, Giorgio: *See—*
Fiecchi, Alberto, Nano, Gian Mario, Cabella, Paolo, and Cicognani, Giorgio,3,544,621.
Cincinnati Milacron Chemicals: *See—*
Stapfer, Christian H., 3,544,510.
Cincinnati Milacron Inc.: *See—*
Perry, Charles B., Bomkamp, Raymond L., and Bone, Kendall F., 3,543,392.
Cities Service Company: *See—*
Cooper, Frank W., 3,543,338.
Versnel, John, 3,544,641.
Cities Service Oil Company: *See—*
Baxter, Milton C., 3,543,436.
Rai, Charanjit, El-Mogazi, Mohamed M., and Rashkin, Jay A., 3,544,645.
Revukas, Anthony J., 3,544,288.
Cities Service Research and Development Company: *See—*
Rapp, Lester M., and Wilk, Adrian S., 3,544,449.
Van Driesen, Roger P., 3,544,447.
Clampitt, Bert H.: *See—*
Alexander, Richard L., Ashburn, Donald G., Clampitt, Bert H., and Anspon, Harry D.,3,544,490.
Clark Equipment Company: *See—*
Riedner, William E., 3,543,884.
Clark, Eric Innes: *See—*
Abson, James William, Clark, Eric Innes, and Gray, Ian Malcolm,3,543,936.
Clark, Frank E., to Container Corporation of America. Container sleeve. 3,543,994, Cl. 229-23.
Clegg, William Raymond, and Edwards, Harry, to Imperial Chemical Industries, Limited. Manufacture of laminated articles. 3,544,413, Cl. 156-363.
Clemenceau, Georges, to Ugine Kuhlmann. Apparatus for detecting flat portions on wires and rods. 3,543,562, Cl. 73-37.7
Clements, Richard F.: *See—*
Bless, Paul W., and Clements, Richard F.,3,544,793.
Clements, William C., to Armco Steel Corporation. Thin-walled pile with closure plug. 3,543,524, Cl. 61-53.
Clendenin, Wilbur H.: *See—*
Phillips Carmen S., Corwith, James, Jr., and Clendenin, Wilbur H.,3,543,914.
Cluett, Peabody & Co., Inc.: *See—*
Hughes, Francis H., 3,544,102.
Coast, Geoffrey: *See—*
Shaw, James William Westgarth, Coast, Geoffrey, and Briody, Ronald Francis,3,544,425.
Coats, John H.: *See—*
Argoudelis, Alexander D., and Coats, John H.,3,544,552.
Cochran Western Corporation: *See—*
Duerksen, Arnold, 3,543,917.
Coe, James H.: *See—*
Matthews, Richard A., and Coe, James H.,3,543,805.
Cohn, Leonard: *See—*
Dunsay, George, and Cohn, Leonard,3,543,716.
Colbert, William H., and Kraft, Derald H., to Gulf & Western Industrial Products Company, mesne. Drive arrangement for clutch or brake. 3,543,899, Cl. 192-107.
Colbert, William H., and Kraft, Derald H., to Gulf & Western Industrial Products Company, mesne. Friction plates for clutches and brakes. 3,543,900, Cl. 192-107.
Colea Metals International, Ltd.: *See—*
Bazley, Carl E., 3,544,314.
Collet, Etienne. Calendering roll. 3,543,366, Cl. 29-113.
Collins, Arthur A., to Collins Radio Company. Digitalized communication system with computation and control capabilities employing transmission line loop for data transmission. 3,544,976, Cl. 340-172.5
Collins Chemical Co., Inc.: *See—*
Fiecchi, Alberto, Nano, Gian Mario, Cabella, Paolo, and Cicognani, Giorgio, 3,544,621.
Collins, Harold B.: *See—*
Ryan, John W., Shapero, Wallace H., De Gelder, Jacob, and Collins, Harold B.,3,543,966.
Collins, Maurice J.: *See—*
Fisher, Robert K., Plant, George W., and Collins, Maurice J.,3,544,093.
Collins Radio Company: *See—*
Collins, Arthur A., 3,544,976.
Dulaney, Ernest N., Elliott, William S., Haberly, Charles F., and Pool, Robert H., 3,544,906.
Collins, William V. Trailer stabilizer. 3,544,132, Cl. 280-446.
Colorflo Limited: *See—*
Farrow, Harold Frederick, 3,543,682.
Columbia Broadcasting Systems Inc.: *See—*
McMann, Renville H., Jr., and Kaiser, Arthur, 3,544,987.
Combustion Engineering, Inc.: *See—*
Rosso, John B., 3,544,909.
Cominco Ltd.: *See—*
Hildred, Gordon C., and Higgins, John T., 3,543,923.
Commissariat a l'Energie Atomique:*See—*
De Metz, Jean, and Millet, Francois, 3,544,198.
Communications Satellite Corporation: *See—*
Beyer, John P., 3,544,900.
Billerbeck, Wilfred J., Jr., and Owens, James R., 3,544,041.
Compagnie de Saint-Gobain: *See—*
Battigelli, Jean, 3,544,254.
Compagnie Generale d'Electricite:*See—*
Aupoix, Marcel, and Moisson-Franckhauser, Francois, 3,544,706.
Computer Security Systems: *See—*
Hartfield, Thomas C., Feigl, Erich F., and Davis, Richard L., 3,544,722.
Conable, Milo G. Resilient cradle exercise apparatus. 3,544,103, Cl. 272-58.
Conant, Theodore A., Jr., to Singer-General Precision, Inc. Modulated phase modulation magnetic recording system. 3,545,003, Cl. 346-74.
Concast AG: *See—*
Lux, Benno, and Kurz, Wilfried, 3,543,567.
Concho Petroleum Company: *See—*
Karcher, John C., 3,544,296.
Conde, Hector O.: *See—*
Wattenburg, Willard H., Glaser, Donald A., and Conde, Hector O.,3,544,225.
Condon, William J.: *See—*
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F.,3,544,434.
Conductive Research Corporation, The: *See—*
Peel, James R., 3,544,841.
Conenco Canada Limited: *See—*
Price, Paul S., and Slater, William M., 3,544,415.
Conenco International Limited: *See—*
Slater, William M., 3,544,176.
Conklin, Elmer W. Table support. 3,544,052, Cl. 248-188.8
Connor, James E., Jr., D'Alessandro, Alfred F., and Shalit, Harold, to Atlantic Richfield Company. Method and apparatus for monitoring fuel cell feed. 3,544,376, Cl. 136-86.
Consolidated Burris International, Ltd.: *See—*
Andersson, Herbert, 3,544,159.
Constable, Geoffrey Ernest Patrick, Cullen, Graeme E., and Swarbrick, Richard, to Smiths Industries Limited. Access-control equipment and item-dispensing systems including such equipment. 3,543,904, Cl. 194-4.
Container Corporation of America: *See—*
Clark, Frank E., 3,543,994.
Dunlap, Bert James, 3,543,998.
Hasselo, William C., and Standley, Wendell E., 3,543,474.
Heisler, Jerome S., Starr, Anthony J., and Carey, John D., Sr., 3,543,963.
Kennedy, James E., and Pound, James R., 3,543,961.
Lewis, Philip W., and Brom, Lawrence V., 3,543,919.
Michetti, Louis C., and Pettit, William R., 3,543,997.
Continental Can Company, Inc.: *See—*
Aschberger, Anton A., and Bartels, Herbert D., 3,544,753.
Hawkins, Jerry D., and Reid, Bill G., 3,543,559.
Hellmer, Ernest W., and Down, Alfred G., 3,543,619.
Henchert, John, 3,543,391.
Stefaniak, Rudolph J., 3,543,339.
Continental Illinois National Bank & Trust Company of Chicago: *See—*
Paasche, Jens A., 3,543,882.
Continental Oil Company: *See—*
De Boer, Thijmen J., and Mackor, Adrianus, 3,544,438.
Contreras, Gilbert E., and Nystrom, Ronald H., to Aeroquip Corporation. Ball joint for fluid lines. 3,544,137, Cl. 285-261.
Conversion Chemical Corporation: *See—*
McCormick, Arline G., 3,544,365.
Cooke, Kenneth G., Adomeit, Curt G., and Delaney, Leo David, to Eastman Kodak Company. Method and apparatus for continuous zig-zag web folding. 3,544,099, Cl. 270-69.
Cooper, Cleveland N., to Pandjiris Weldment Co., The. Manipulator for welding or cutting apparatus. 3,543,989, Cl. 228-25.
Cooper, Frank W., to Cities Service Company, mesne. Molding apparatus. 3,543,338, Cl. 18-42.
Cooper, Glen D.: *See—*
Katchman, Arthur, and Cooper, Glen D.,3,544,515.
Cooper, Glenn D., and Bennett, James G., to General Electric Company. Diaryl formanidines as rate promoters in oxidative polyphenylene ether formation. 3,544,516, Cl. 260-47.

Coors Porcelain Company: *See—*
Seager, Richard M., 3,543,402.
Coovert, Gilbert T.: *See—*
Jureit, John Calvin, and Coovert, Gilbert T.,3,544,353.
Corderman, Sidney A., to McIntosh Laboratory, Inc. Protective circuit for loudspeaker. 3,544,720, Cl. 179-1.
Corley-Miller, Inc.: *See—*
Arvidson, Bengt A., and Treiber, Fritz F., 3,544,412.
Corn, Prentice R.: *See—*
Wolf, Walter A., and Corn, Prentice R.,3,544,746.
Cornblatt, Evonne H. Educational game. 3,544,112, Cl. 273-101.
Corning Glass Works: *See—*
Beck, Kenneth O., 3,544,480.
Best, Howard S., and Mosely, Graham H., 3,544,410.
Eckerlin, Herbert M., and Ward, Morris V., 3,543,779.
Hou, Shou-Ling, and Walsh, Paul L., 3,544,886.
Lachman, Irwin M., 3,544,343.
Loose, Guenter H., 3,544,948.
Norby, Thomas E., 3,544,387.
Riebling, Eugene F., 3,544,293.
Corte, Herbert, and Heller, Harold, to Farbenfabriken Bayer Aktiengesellschaft. Cross-linked acrylonitrile copolymers and ion exchangers made therefrom. 3,544,488, Cl. 260-2.2
Corwith, James, Jr.: *See—*
Phillips Carmen S., Corwith, James, Jr., and Clendenin, Wilbur H.,3,543,914.
Corzine, Luke H., to Unicor, Inc. Cellular foam cors assembly. 3,544,417, Cl. 161-50.
Cosper, David F., and Estes, Jerry R., to Varo, Inc. Method of forming rectifier stacks. 3,543,393, Cl. 29-583.
Cotta Ramusino, Francesco: *See—*
Galbarini, Maso, and Cotta Ramusino, Francesco,3,543,635.
Coward, Peter Norman, to Lucas, Joseph, (Industries) Limited. Molds for casting intercell connectors for use in electric storage batteries. 3,544,057, Cl. 249-63.
Cowpland, Michael C. J., to Northern Electric Company Limited. Pushbutton dial telephone set. 3,544,731, Cl. 179-84.
Cox, Ronald H., and Strack, Hans A., to Texas Ubstry&0. Ohmic contacts for gallium arsenide semiconductors. 3,544,854, Cl. 317-234.
Crabtree, Allen, and Holmes, Graham, to Imperial Chemical Industries Limited. Mixed oromuim complex monoazo dyestuffs. 3,544,546, Cl. 260-145.
Crabtree, Allen, and Murton, Henry Roy, to Imperial Chemical Industries Limited. Water-soluble triazine reactive metal complex mono azo dyestuffs. 3,544,547, Cl. 260-146.
Cragoe, Edward J., Jr., and Bicking, John B., to Merck & Co., Inc. 3-Amino-5,6 substituted pyrazinamides. 3,544,568, Cl. 260-247.2
Cragoe, Edward J., Jr., and Shepard, Kenneth L., to Merck & Co., Inc. Process for making pyrazinoylthiourea compounds. 3,544,571, Cl. 260-250.
Craig, Colin: *See—*
Ponsen, Catharinus M., 3,543,953.
Cranage, Bidwell C. Coupler assembly. 3,544,257, Cl. 137-360.
Crawford, Duffer B., and Norenburg, Johannes C., to Pullman Incorporated. Separation of low-boiling gas mixtures. 3,543,528, Cl. 62-22.
Creed, Sherman H., to FMC Corporation. Container filling machine. 3,543,813, Cl. 141-148.
Crisman, Donald M., and Kluber, Joh E. Finger bridge for billiard players. 3,544,111, Cl. 273-24.
Criswell, Donald E. Camper kitchen. 3,543,890, Cl. 190-12.
Crocker, Guy J., and Puskudi, Frank, to Johnson & Johnson. Printable adhesive product. 3,543,920, Cl. 206-59.
Crone Emil Von Der: *See—*
Schlossmacher, Wilhelm, 3,543,964.
Crosland, Richard Graham: *See—*
Williamson, David Theodore Nelson, Crosland, Richard Graham, and Parke, Edward Henry,3,543,375.
Cross Company, The: *See—*
Munn, Robert L., and Mikton, John J., 3,543,879.
Crown Controls Corporation: *See—*
Stammen, Harold A., 3,543,959.
Crucible Inc.: *See—*
Boyer, Charles Benjamin, 3,543,345.
Crutchfield, Marvin M.: *See—*
Carroll, Robert L., and Crutchfield, Marvin M.,3,544,509.
CTS Corporation: *See—*
Bender, Stanley O., and Eash, Robert E., 3,543,398.
Cudnohufsky, Sylvester R. Trucer control circuit for a lathe or the like. 3,543,615, Cl. 82-14.
Culbertson, George S., and Piasek, Edmund J., to Standard Oil Company. Lubricant additives from formaldehyde-polyalkylene polyamine oxidized olefin polymer condensation products. 3,544,520, Cl. 260-72.
Cullen, Graeme E.: *See—*
Constable, Geoffrey Ernest Patrick, Cullen, Graeme E., and Swarbrick, Richard,3,543,904.
Cummins Engine Company, Inc.: *See—*
Reiners, Neville H., and Perr, Julius P., 3,544,008.
Cunningham, Cecil R., and Rushton, James C., to Owens-Corning Fiberglas Corporation. Winding mandrel for packaging glass strands. 3,544,016, Cl. 242-18.
Currie, James H., to General Motors Corporation. Carburetor. 3,544,083, Cl. 261-23.
Currier, Lewellyn M. Culvert end section forming machine. 3,543,558, Cl. 72-306.
Custom Swabs, Inc.: *See—*
Jaroff, David B., Litt, Donald D., and Weinstein, Arnold, 3,543,476.
Cutler-Hammer, Inc.: *See—*
Mattia, Donald J., and Wallis, Richard D., 3,543,929.
Dacam Corporation: *See—*
Cato, Carl P., 3,543,473.
Dahlberg, Jan Anders: *See—*
Oppegaard, Asbjorn, and Dahlberg, Jan Anders,3,544,642.
Dahlbom, Johan Richard, and Nilsson, John Lars Gunnar, to Aktiebolaget Astra. Substituted phenylcarbamic acid esters of cyclic amino alcohols. 3,544,579, Cl. 260-294.3
Daiwa Can Co. Ltd.: *See—*
Morikawa, Yonekichi, 3,543,822.
Dal Molin, Guido A., to Utitec Corporation, mesne. Cable apparatus for conducting gas and electrical current. 3,544,758, Cl. 219-130.
Dale, Ralph H., and Youngblood, Roy D., to Honeywell Inc. Continuous loop transport. 3,543,983, Cl. 226-118.
Dale V Bell: *See—*
Kessel, John Delbert, 3,543,755.
D'Alessandro, Alfred F.:*See—*
Connor, James E., Jr., D'Alessandro, Alfred F., and Shalit, Harold,3,544,376.
D'Alessandro, Alfred F., and Shalit, Harold, to Atlantic Richfield Company. Fuel cell with D.C. potential means and method of operating same. 3,544,374, Cl. 136-86.
Damon Engineering, Inc.: *See—*
Hurtig, Carl R., 3,544,926.
Danfoss A/S: *See—*
Baatrup, Johannes Vagn, 3,543,645.
Johnsen, Ingolf, and Jensen, J. Gammelby, 3,544,942.
Daniel, James Walter, Jr., to RCA Corporation. Receiver gain control system providing negative resistance stabilization. 3,544,902, Cl. 325-411.
Danieli, Luigi. Flexible starting bar for continuous casting plants. 3,543,833, Cl. 164-274.
Daniels, Dennis. Spinning reel. 3,544,030, Cl. 242-84.21
Danin, Alex. Kiosk. 3,543,454, Cl. 52-36.
Danko, George K., and Mosby, Frederick A., to General Electric Company. Incandescent lamp and method of manufacture. 3,544,188, Cl. 316-20.
Dannert, Robert D.: *See—*
Dunning, Herbert N., and Dannert, Robert D.,3,544,328.
Dassler, Rudolf, to Puma-Sportschuhfabriken Rudolf Dassler KG. Sport shoe. 3,543,420, Cl. 36-2.5
Datta, Ranajit K., to General Electric Company. Lithium vanadium garnet phosphors. 3,544,479, Cl. 252--016 0
David, Agoston: *See—*
Szoke, Sandor, Szentmiklosi, Peter, David, Agoston, and Horvath, Gabor,3,544,631.
David, Lyn. High velocity water heater. 3,543,731, Cl. 122-33.
Davidson, Hugh Wilson, and Losty, Howard Harold Walter, to General Electric Company Limited, The. Manufacture of electrostatic clutches. 3,544,409, Cl. 156-294.
Davidson, Lawrence W. Hangar for swept-wing aircraft. 3,543,461, Cl. 52-237.
Davis, Albert W., to Poly-Matic Fountain, Inc. Automatic poultry drinker. 3,543,729, Cl. 119-80.
Davis, DhuAine J., to Hermetic Coil Co. Inc. Inductor coil. 3,544,940, Cl. 336-192.
Davis, Edwin R. Fuel vapor adsorbing apparatus. 3,543,484, Cl. 55-387.
Davis, Michael, Parnell, Edgar William, Sharp, Brian William, and Warburton, Dennis, to May & Baker Limited. Dialkoxy-hydroxy-quinoline carboxylate esters having coccidiostatic and antiviral activity. 3,544,686, Cl. 424-258.
Davis, Richard L.: *See—*
Hartfield, Thomas C., Feigl, Erich F., and Davis, Richard L.,3,544,722.
Davol Inc.: *See—*
Dereniuk, Paul, 3,544,668.
Davy and United Engineering Company Limited: *See—*
Howard, David Robert, 3,543,549.
Day, William C. High pressure reaction apparatus. 3,543,341, Cl. 18-5.
Dayton Progess&: *See—*
Smith, Robert E., 3,543,451.
Dayton Progress Corporation: *See—*
Smith, Robert E., 3,543,451.
DeAngelo, Gerald J., to Westinghouse Electric Corporation. Circuit interrupter with illuminated handle. 3,544,749, Cl. 200-167.
De Baillie, Arnold A., to Kearney-National Inc., mesne. Combination belt idler, clutch and brake for power lawnmower. 3,543,892, Cl. 192-11.
deBitetto, Dominick John, to U.S. Philips Corporation, mesne. Three-dimensional display system employing optical wavefront reconstruction. 3,544,711, Cl. 178-6.5
De Blende, Gentil: *See—*
De Schamphelaere, Lucien A. Amede, and De Blende, Gentil,3,543,597.
De Boer, Thijmen J., and Mackor, Adrianus, to Continental Oil Company. Nitrosation of hydrocarbons using nitrite esters with actinic light in the absence of halides. 3,544,438, Cl. 204-162.

De Bucs, Eugen Szabo, and Oesterhelt, Gerhard, to Siemens Aktiengesellschaft. Solder for contact-bonding a body consisting of a germanium-silicon alloy. 3,544,311, Cl. 75-134.
Decitron Communication Systems, Inc.: *See—*
Goldstein, Amnon, 3,544,192.
Deen, Harold E.: *See—*
McDowell, Donald E., Ryer, Jack, and Deen, Harold E.,3,544,466.
Deere & Company: *See—*
Field, Fred Walker, and Cayton, David Walter, 3,543,860.
Grossklaus, Ronald Paul, 3,543,915.
Hall, Daniel Luce, and Gregerson, Stanley Martin, 3,543,647.
Hansen, Harold Velentine, and Chidester, Robert Leroy, 3,543,704.
Hayes, John Oscar, 3,544,130.
Lemmon, Norman Frederick, and Williams, Gerald Dennis, 3,544,133.
Pennington, Joe S., 3,544,131.
Schlueter, Francis Edward, 3,544,009.
Smemo, Alfred Sigmund, and Glider, Larry James, 3,543,867.
Treichel, Richard, 3,543,516.
Witzel, Homer Daniel, 3,543,767.
DeForest, Wesley V., and Graham, Marvin M., to Robertshaw Controls Company. Symmetrical shaded pole electromagnet. 3,544,936, Cl. 335-245.
DeFranco, Walter John: *See—*
Thompson, Laura Aurora, 3,543,773.
Dega, Robert L., to General Motors Corporation. Lip seal eccentricity gage. 3,543,407, Cl. 33-180.
De Gelder, Jacob: *See—*
Ryan, John W., Shapero, Wallace H., De Gelder, Jacob, and Collins, Harold B.,3,543,966.
Degen, Wilhelm. Filtering pipe for well. 3,543,854, Cl. 166-228.
Deggendorfer Werft und Eisenbau G.m.b.H.: *See—*
Bock, Ludwig, and Onderca, Georg, 3,543,709.
Dehne, Clarence A., to Webb, Jervis B., Company. Conveyor and dragline chain. 3,543,689, Cl. 104-172.
Deiner, Hans, and Singer, Heinrich, to Chemische Fabrik Pfersee G.m.b.H. Process for improving the delustering and the slipping resistance of textiles. 3,544,362, Cl. 117-139.5
Deissler, Otto, to Starkstrom-Schaltgeratefabrik E. Spindler & O. Deissler. Thermal relay. 3,544,941, Cl. 337-38.
de Koning, Jan, and van der Veen, Romke, to N.V. Ingenieursbureau voor System en Octrooien. Method and apparatus for determining the concentration of dredger spoil in a suspension of dredger spoil and water flowing through a pipe. 3,543,565, Cl. 73-61.
Delaney, Leo David: *See—*
Cooke, Kenneth G., Adomeit, Curt G., and Delaney, Leo David,3,544,099.
Delbridge, Wilfred Richard, Wienola, Oiva A., and Young, Robert K., to American Machine & Foundry Company. Metal object separation system. 3,543,930, Cl. 209-111.9
DeLeu, Robert P., to Reliance Electric and Engineering Company. Combination thrust and radial bearing. 3,544,179, Cl. 308-168.
Demag Aktiengesellschaft: *See—*
Baumann, Hans G., and Komma, Gerhard K., 3,543,555.
Baumann, Hans G., 3,543,830.
De Marco, Bernard, Kussy, Frank W., and Cataldo, John B., to I-T-E Imperial Corporation, mesne. Industrial control relay. 3,544,929, Cl. 335-126.
De Maria, Anthony J., to United Aircraft Corporation. Laser delay line using biasing signal. 3,544,805, Cl. 307-88.3
De Maria, Anthony J., and Brienza, Michael J., to United Aircraft Corporation. Continuously variable laser-acoustic delay line. 3,544,806, Cl. 307-88.3
De Metz, Jean, and Millet, Francois, to Commissariat a l'Energie Atomique. Unitary dioptric lens. 3,544,198, Cl. 350-189.
Demler, Henry William, Sr.: *See—*
Stoltz, Herbert Collier, Hoffman, Joseph Willard, and Demler, Henry William, Sr.,3,544,060.
de Nobel, Dirk: *See—*
Tijburg, Rudolf Paulus, and de Nobel, Dirk,3,544,859.
De Palma, Joseph S. Fluid actuated automatic portable fire extinguisher. 3,543,859, Cl. 169-27.
Deplante, Henri, to Avions Marcel Dassault. Control for spoilers and like aerodynamic actuators of aircraft. 3,543,641, Cl. 91-361.
Depoorter, Henri, Ghys, Theofiel Hubert, and Libeer, Marcel Jan, to Gevaert-Agfa N.V. Photographic elements containing styryl dyestuffs. 3,544,325, Cl. 96-84.
Dereniuk, Paul, to Davol Inc. Method of manufacturing a balloon catheter. 3,544,668, Cl. 264-135.
deRosset, Armand J.: *See—*
Broughton, Donald B., and deRosset, Armand J.,3,544,646.
Derry, Raymond: *See—*
Fletcher, Archibald William, Baggott, Eric Raymond, and Derry, Raymond,3,544,309.
Desai, Kishore T., to Burroughs Corporation. Record card feed device. 3,544,100, Cl. 271-10.
De Schamphelaere, Lucien A. Amede, and De Blende, Gentil, to Gevaert-Agfa N.V. Device for the positioning control of an endless belt. 3,543,597, Cl. 74-241.
De Shay, Robert V.: *See—*
Isaksen, Robert A., and De Shay, Robert V.,3,544,349.
Detrick, Robert P. Combination full flow, slow flow oil filter. 3,543,935, Cl. 210-130.
Detroit Edison Company, The: *See—*
Habermas, Robert E., and Morasky, Thomas M., 3,544,275.
Deutsch Company Electronic Components Division The: *See—*
Roberts, James, 3,544,951.
Deutsch, Henry M., to Organocerams, Inc. Method and maskant composition for chemical milling or platting. 3,544,400, Cl. 156-13.
Deutsche Gold- und Silber-Scheideanstaldt vormals Roessler: *See—*
Schwarze, Werner, and Weigert, Wolfgang, 3,544,569.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Klingler, Karl Heinz, 3,544,685.
Kuhn, Rudolf, 3,544,368.
De Vita, Peter M.: *See—*
Baigas, Joseph F., Jr., Nolte, Richard G., and De Vita, Peter M.,3,543,700.
Devol, George C. Constant-aim work head. 3,543,947, Cl. 214-1.
Devol, George C., and Martin, Paul S. Work-head automatic motions controls. 3,543,910, Cl. 198-34.
Dey, Arabinda N., to Hooker Chemical Corporation. Method of activating fuel cell electrode by direct current. 3,544,380, Cl. 136-86.
Dey, Arabinda N., to Hooker Chemical Corporation. Electrolytic hydrodimerization. 3,545,006, Cl. 204-74.
Dickinson, Russell B. Post construction for basketball backboards. 3,544,110, Cl. 273-1.5
Dictograph Products, Inc.: *See—*
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F., 3,544,434.
Diebold, Adolf, Walter, Justus, and Strehler, Hugo, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of printing plates. 3,544,319, Cl. 96-36.3
Diegel, Herbert F.: *See—*
Christy, Harold L., and Diegel, Herbert F.,3,543,591.
Diemond, Leroy H., to Valeron Corporation, The. Flexible clamp cutoff and slotting tool cutter. 3,543,363, Cl. 29-96.
Dietzel, Karl, to Farbenfabriken Bayer Aktiengesellschaft. Apparatus for vaporising high melting materials such as quartz or the like. 3,544,756, Cl. 219-121.
Dietzler, Andrew J., to Dow Chemical Company, The. Stabilized polyolefin compositions. 3,544,512, Cl. 260-45.95
Digital Identification Systems, Inc.: *See—*
Hedin, Robert A., 3,544,769.
Dijksterhuis, Popko Reinder, deceased (by Mulkens, Casper Antonius Henricus, administrator), to U.S. Philips Corporation, mesne. Circuit arrangement for imitating the touch of musical instruments with percussion. 3,544,695, Cl. 84-1.13
Dill, Hans G., to Hughes Aircraft Company. Insulated gate field-effect transistor (IGFET) with semiconductor gate electrode. 3,544,399, Cl. 148-187.
Dillard, Robert D., to Lilly, Eli, and Company. Process for the preparation of thiophenes. 3,544,596, Cl. 260-332.8
Distler, Harry, Klatt, Gerhard, and Schneider, Kurt. Production of alkyl-β-hydroxyalkyl thioethers and alkenyl-β-hydroxyethyl thioethers. 3,544,636, Cl. 260-609.
Ditlow, Harry G. Fluid brake device. 3,543,885, Cl. 188-90.
Diversitronics, Inc.: *See—*
Saiger, George P., 3,544,840.
Dixon, Arthur B., to Shelly Manufacturing Company. Dish cart. 3,544,183, Cl. 312-250.
Dixon, Rolland E., and Hutto, John F., to Phillips Petroleum Company. Conversion of propylene to isoamylene. 3,544,649, Cl. 260-683.
Dobbs, Frank G., to Fran-Stef Corporation. Pocketbook. 3,543,825, Cl. 150-35.
Dobson, Peter V. Trucks. 3,544,127, Cl. 280-43.17
Dokuzoguz, Halit Z.: *See—*
Palmour, Hayne, III, and Dokuzoguz, Halit Z.,3,544,266.
Dolezal, Premysl Thomas: *See—*
Edwards, Douglas C., and Dolezal, Premysl Thomas,3,544,541.
Dollison, William W., to Otis Engineering Corporation. Well tools. 3,543,793, Cl. 137-614.2
Domke, Klaus: *See—*
Buchner, Norbert, and Domke, Klaus,3,543,970.
Domoslawski, Henryk: *See—*
Illg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk,3,543,396.
Donahue, Leo O., and Behrens, Roy E., to Graphic Engineers, Inc. Machine for stacking papers into stacks of predetermined count. 3,543,651, Cl. 93-93.
Doner, Arthur John, to Resources Control Corporation. Portable incinerator. 3,543,701, Cl. 110-8.
Donewald, James A., and Schaefges, Henry E., to Motorola, Inc. Housing for electronic equipment with rotatable circuit board means. 3,544,848, Cl. 317-99.
Donlan, Thomas Alban: *See—*
Evans, Raymond Victor, and Donlan, Thomas Alban,3,543,705.
Donnell, Derrick: *See—*
England, Michael J., Donnell, Derrick, and Hales, Eric C.,3,543,512.
Dorfman, Daniel, to Lawn-A-Mat Chemical & Equipment Corporation. Soil treating apparatus. 3,544,013, Cl. 239-656.
Dorfman, Edwin, and Emerson, William E., to Hooker Chemical Corporation. Alkyl perfluoroalkylene amidates. 3,544,618, Cl. 260-482.

Dornier System G.m.b.H.: *See—*
Walz, Alfred, 3,544,237.
Douglas, Robert A.: *See—*
Shanfelt, Donald Y., and Douglas, Robert A.,3,544,456.
Douma, William L.: *See—*
Grieger, Philip F., Martin, Norman A., and Douma, William L.,3,544,784.
Douthitt Corporation: *See—*
Hutchins, Loren W., 3,544,215.
Dow Chemical Company, The: *See—*
Booth, Llewellyn D., and Langner, Ralph R., 3,544,655.
Dietzler, Andrew J., 3,544,512.
Hatch, Melvin J., 3,544,499.
Jones, Griffin D., Geyer, Gerald R., and Hatch, Melvin J., 3,544,532.
Lapham, Karyn L., and Shea, Philip J., 3,544,677.
Pande, Kailash, 3,544,608.
Wang, Chun-Shan, and McGee, Thomas W., 3,544,610.
Dowbenko, Rostyslaw, and McBane, Bruce N., to PPG Industries, Inc. Non-pigmented, opaque, microporous film and process and composition for preparing same. 3,544,489, Cl. 260-2.5
Dowd, James Patrick. Boron containing coating compositions. 3,544,506, Cl. 260-37.
Down, Alfred G.: *See—*
Hellmer, Ernest W., and Down, Alfred G.,3,543,619.
Dowty Hydraulic Units Ltd.: *See—*
Kempson, Bertram Carl, 3,543,515.
Doyle, Richard H.: *See—*
Obergfell, Allen R., Doyle, Richard H., Novak, Raymond F., and Novak, Edward J.,3,543,987.
Drake, Howard W. Stake driver. 3,543,868, Cl. 173-21.
Draper, Marshall D., and Klohs, Murle W., to Rexall Drug and Chemical Company Rexal Drug and Chemical Company. Substituted diazocinodibenzoazepines. 3,544,558, Cl. 260-239.
Dresser Industries, Inc.: *See—*
Kilgore, Marion D., 3,543,849.
Dressler, Jacques Henri, to Saint-Gobain Techniques Nouvelles. Apparatus for mixing liquids. 3,544,079, Cl. 259-7.
Drexler, Roger A., and Altmann, Conrad, to Eastman Kodak Company. Apparatus for development of electrostatic images. 3,543,720, Cl. 118-637.
Dreyfuss, Max Peter, to Goodrich, B. F., Company, The. Process and modified catalyst for the polymerization of α-olefins. 3,544,533, Cl. 260-80.78
Drymit S.A.: *See—*
Marocco, Giuseppe, 3,543,349.
Dubois, Gerald, and Marmier, Paul, to Buren Watch Company, S.A. Selfwinding wrist-watch with a chronograph mechanism. 3,543,506, Cl. 58-74.
Duda, A., & Sons, Inc.: *See—*
Duda, John L., Jr., 3,543,493.
Duda, John L., Jr., to Duda, A., & Sons, Inc. Harvesting machine. 3,543,493, Cl. 56-327.
Duerksen, Arnold, to Cochran Western Corporation, mesne. Inclined elevator conveyor. 3,543,917, Cl. 198-233.
Dulaney, Ernest N., Elliott, William S., Haberly, Charles F., and Pool, Robert H., to Collins Radio Company. Logic pulse time waveform synthesizer. 3,544,906, Cl. 328-14.
Dunlap, Bert James, to Container Corporation of America. Easy open carton. 3,543,998, Cl. 229-51.
Dunlop, Andrew P., Rustad, Norman E., and Sherman, Edward, to Quaker Oats Company, The. Crosslinked polytetrahydrofuran polymers. 3,544,487, Cl. 260-2.
Dunlop Company Limited, The: *See—*
Goy, Ronald S., 3,543,504.
Roberts, Glyn B., and Holmes, Thomas, 3,543,827.
Dunning, Herbert N., and Dannert, Robert D., to General Mills, Inc. Process for conching. 3,544,328, Cl. 99-23.
Dunsay, George, and Cohn, Leonard, to Physio-Chem Corporation. Miniature car paint spraying apparatus. 3,543,716, Cl. 118-6.
Dupler, Raymond R., to Sun Oil Company. Fluid feed arrangement. 3,543,939, Cl. 210-273.
Du Pont de Nemours, E. I., and Company: *See—*
Brace, Neal O., 3,544,537.
Breen, Alvin L., and Lauterbach, Herbert G., 3,543,358.
England, David C., 3,544,591.
England, Richard J., 3,544,622.
Finch, Neil Lamar, Lemley, James Dean, and Proffitt, Thomas Jefferson, Jr., 3,544,462.
Gebhard, John Charles, Jr., 3,544,416.
Hess, Wayne Thomas, 3,544,268.
Hoffman, Lewis C., 3,544,330.
Reilly, Victor J., 3,544,444.
Stupakis, Yani S., 3,544,078.
Dura-Fiber, Inc.: *See—*
Jenks, Herbert R., 3,544,104.
Durant, Stuart J. Fluid selector valve. 3,543,796, Cl. 137-625.11
Dutko, John J., and Seesselberg, Henry A., to Singer Company, The. Inhibit trigger circuit to prevent simultaneous conduction of controlled rectifiers due to improperly spaced command signals. 3,544,874, Cl. 318-380.
Duval, Philippe Louis: *See—*
Vienat, Philippe, 3,543,740.
DuVivier, Charles L., and Pallat, Ludwig R., to LFE Corporation. Phase shift cycle generator for a traffic control unit. 3,544,911, Cl. 328-155.
Duxbury, Frederick Keith: *See—*
Burrows, Harold George, Duxbury, Frederick Keith, and Ingham, Philip Brierley,3,544,519.
Dychdala, George Roman, to Pennwalt Corporation. Calcium hypochlorite product and process for producing same. 3,544,267, Cl. 23-86.
Dyck, Rudolph H., to Fairchild Camera and Instrument Corporation. Mask design for optical alignment systems. 3,544,801, Cl. 250-237.
Dynametric, Inc.: *See—*
Sessler, Donald R., 3,543,582.
Dynamit Nobel Aktiengesellschaft: *See—*
Riegelmayer, Peter, Roth, Jakob, and Richter, Ulf, 3,543,382.
Dynapower Systems Corporation of California: *See—*
Kendall, William Denis, 3,543,762.
Earling, Leonard E., and Kirkwood, Carleton J., to Gray Manufacturing Company, The. AC power failure alarm. 3,544,986, Cl. 340-253.
Eash, Robert E.: *See—*
Bender, Stanley O., and Eash, Robert E.,3,543,398.
East, Anthony Julian, and Thackray, Wendy Denise, to Imperial Chemical Industries Limited. Polymeric composition containing polyesters, polyamides and polyethers. 3,544,658, Cl. 260-857.
Eastman, George Y. Heat exchanger for high voltage electronic devices. 3,543,841, Cl. 165-80.
Eastman Kodak Company: *See—*
Abel, Edward P., and Minsk, Louis M., 3,544,327.
Anderson, G. Charles, Mc Daniel Edgar L., and Young, Howard S., 3,544,624.
Beach, David E., 3,544,248.
Beach, David E., 3,544,250.
Bundschuh, John J., 3,544,040.
Cooke, Kenneth G., Adomeit, Curt G., and Delaney, Leo David, 3,544,099.
Drexler, Roger A., and Altmann, Conrad, 3,543,720.
Lynch, William P., Payne, Philip A., and Zornow, Albert B., 3,544,039.
Michatek, Chester W., 3,544,249.
Milton, Kirby M., 3,544,336.
Spencer, Arthur W., 3,544,676.
Trachtenberg, William, 3,543,410.
Wangerin, Elmer O., 3,544,028.
Eaton Yale & Towne, Inc.: *See—*
Allen, Vernon E., 3,543,634.
Ebert, Alfred, Pirot, Ernst, Holler, Fritz, and Steinhilber, Georg, to Bemberg, J. P., Aktiengesellschaft. Process for biaxially stretching thermoplastic tubular film. 3,544,667, Cl. 264-89.
Eckardt, Rudolf: *See—*
Spahrbier, Dieter, Wandschneider, Klaus, and Eckardt, Rudolf,3,544,382.
Eckenbrecht, Robert Roy, and Waybright, George Cleveland, to Sylvania Electric Products, Inc. DC restoration and gamma correction system. 3,544,709, Cl. 178-5.4
Eckerlin, Herbert M., and Ward, Morris V., to Corning Glass Works. Fluidic air gauge signal amplification and display circuit. 3,543,779, Cl. 137-81.5
Eckhardt, Hans A. Apparatus for mixing flowable materials. 3,544,081, Cl. 259-107.
Edgar, Albert D. Illumination intensity metering system. 3,544,214, Cl. 355-68.
Ediny, Jury Grigorievich: *See—*
Balaev, Oleg Gavrilovich, and Ediny, Jury Grigorievich,3,543,757.
Edwards, Douglas C., and Dolezal, Premysl Thomas, to Polymer Corporation Limited. Vulcanizable compositions containing aziridinyl compound and basic compound. 3,544,541, Cl. 260-94.7
Edwards Enterprises of Orlando, Inc.: *See—*
Edwards, Paul R., 3,543,438.
Edwards, Harry: *See—*
Clegg, William Raymond, and Edwards, Harry,3,544,413.
Edwards, Lynn D.: *See—*
Leopold, Wilbur R., Jr., Edwards, Lynn D., and Smith, John J.,3,543,802.
Edwards, Paul R., to Edwards Enterprises of Orlando, Inc. Plant growing means and method of making same. 3,543,438, Cl. 47-34.13
Efston, Evan N. Locking device for use with an electric plug. 3,543,544, Cl. 70-57.
Egea, Liborio, and Vilaplana, Tobias, to New Products Corporation. Drapery hanger. 3,543,328, Cl. 16-87.4
E-H Research Laboratories, Inc.: *See—*
Bjerke, Arthur E., 3,544,813.
Ehrat, Kurt, to Ciba Limited. Apparatus for reading information from punched- tapes. 3,544,770, Cl. 235-61.11
Ehrhardt & Sehmer Maschinenfabrik AG.: *See—*
Schuetzmann, Toni, 3,544,141.
Ehrlich, Friedrich, and Thomas, Gordon James, to International Alloys Limited. Drying plant for metal turnings. 3,544,367, Cl. 134-2.
Eichenseer, Franz, Janocha, Siegfried, and Macholdt, Hans, to Kalle Aktiengesellschaft. Process for the preparation of cellulose ethers. 3,544,556, Cl. 260-231.
Eidophor A.G.: *See—*
Waser, Rudolf, and Ott, Hans, 3,544,964.
Eikermann, Hans: *See—*
Betzing, Hans, and Eikermann, Hans,3,544,605.

Eisert, Manfred: *See—*
Weidinger, Hans, and Eisert, Manfred,3,544,564.
Eisler, Paul. Method of separating portions of a transported body by resistance heating. 3,544,762, Cl. 219-200.
Elastomer AG., Firma: *See—*
Breher, Rudolf, 3,543,346.
Elder, Kenneth Frederick, and Stagg, Larry Joseph, to General Electric Company Limited, The. Band-pass waveguide filters employing transmission type resonant irises. 3,544,927, Cl. 333-73.
Electric & Musical Industries Limited: *See—*
Rand, Walter Leslie, and Brown, Colin James, 3,543,331.
Electric Construction (W'Ton) Limited:*See—*
Milne, John C., 3,544,883.
Elking, Michael J.: *See—*
Baldauf, Gerard A., and Elking, Michael J.,3,543,389.
Elliott, Harold A., to Quantic Industries, Inc. Optical apparatus for encoding angular movement of a rotating shaft. 3,544,800, Cl. 250-231.
Elliott, William S.: *See—*
Dulaney, Ernest N., Elliott, William S., Haberly, Charles F., and Pool, Robert H.,3,544,906.
Ellis, Robert E.: *See—*
Kershner, Carl J., and Ellis, Robert E.,3,544,307.
Ellzey, Floyd P. Suspended railway car dampening controlling coupling mechanism. 3,543,687, Cl. 104-95.
Elmesev, Sergei Dmitrievich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.
El-Mogazi, Mohamed M.: *See—*
Rai, Charanjit, El-Mogazi, Mohamed M., and Rashkin, Jay A.,3,544,645.
Elmore, Austin E., and Uhlmann, Ernest A. Flow control valve. 3,544,067, Cl. 251-344.
Eltro GmbH & Co.: *See—*
Friedl, Wolfgang, 3,544,224.
Emerson Electric Co.: *See—*
Wightman, Lawrance W., 3,544,820.
Emerson, William F.: *See—*
Dorfman, Edwin, and Emerson, William E.,3,544,618.
Emery Industries, Inc.: *See—*
Van Tuyle, Robert W., 3,544,503.
Eness, Orville M., to Motorola, Inc. Receiver noise cancellation system. 3,544,904, Cl. 325-476.
Engel, Wolfhard: *See—*
Seeger, Ernst, Engel, Wolfhard, and Teufel, Helmut,3,544,577.
Engeler, Otto. Forage handling wagon. 3,543,497, Cl. 56-345.
Engelhard Minerals & Chemicals Corporation: *See—*
Anderson, Edward P., 3,544,442.
Engelsmann, Dieter: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf,3,543,664.
England, David C., to Du Pont de Nemours, E. I., and Company. Preparation of 2,4-bis(hexafluoroisopropylidene)- 1,3-dithietane and fluorinated polysulfides by reaction of perfluoroisobutene with an alkali metal sulfide. 3,544,591, Cl. 260-327.
England, Michael J., Donnell, Derrick, and Hales, Eric C., to Girling Limited. Vehicle braking systems. 3,543,512, Cl. 60-51.
England, Richard J., to Du Pont de Nemours, E. I., and Company. Alkaline saponification of polyethylene terephthalate at high temperatures using controlled amount of sodium hydroxide. 3,544,622, Cl. 260-515.
Englisch, Adolf, to Meyer, Roth & Pastor. Device for burr removal from butt-welded chain links. 3,543,637, Cl. 90-24.
Enomoto, Yuya: *See—*
Noda, Kazuo, Enomoto, Yuya, and Fukushima, Osamu,3,544,357.
Environmental Control Products, Inc.: *See—*
Baigas, Joseph F., Jr., Nolte, Richard G., and De Vita, Peter M., 3,543,700.
Erath, Louis W., to Geo Space Corporation. Remote seismic pre-amplifier system. 3,544,877, Cl. 320-2.
Erdmann, Hans, to Teves, Alfred, G.m.b.H. Spring-loaded brake adjustment mechanism. 3,543,888, Cl. 188-196.
Erickson, James O.: *See—*
Blatz, Paul E., and Erickson, James O.,3,543,855.
Erickson, Waldo G. Flexible rotary mower. 3,543,490, Cl. 56-25.4
Erlichman, Irving, to Poloroid Corporation. Film cassette including battery power supply. 3,543,662, Cl. 95-11.
Ernst, Heinz: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf,3,543,664.
ESB Incorporated: *See—*
Bridge, Laurance, Horner, Walter J., and Thiel, Harold F., 3,544,372.
Oltman, John E., 3,544,383.
Esseling, Ludovicus Augustinus Lambertus, to U.S. Philips Corporation, mesne. Stacked diode high-voltage rectifier and method of manufacture thereof. 3,543,395, Cl. 29-588.
Essery, John M., to Bristol-Meyers Company. Production of 6-aminopencillanic acid sulfoxide. 3,544,581, Cl. 260-306.7
Esso Research and Engineering Company: *See—*
Broyde, Barret, 3,544,378.
Flory, John F., 3,543,785.
Guerrier, Jean, and Hamard, Jacques, 3,544,497.
Kittleson, Allen R., 3,544,590.
McDowell, Donald E., Ryer, Jack, and Deen, Harold E., 3,544,466.
Estes, Jerry R.: *See—*
Cosper, David F., and Estes, Jerry R.,3,543,393.
Estrin, Charles: *See—*
Siegel, Arthur, and Estrin, Charles,3,543,535.
Ethyl Corporation: *See—*
Tulley, Fredrick T., and Harris, Berlin C., Jr., 3,544,457.
Wolf, Calvin N., 3,544,521.
Eue, Ludwig: *See—*
Timmler, Helmut, Wegler, Richard, Eue, Ludwig, and Hack, Helmuth,3,544,570.
European Atomic Energy Community (Euratom): *See—*
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido, 3,543,387.
Evans, Raymond Victor, and Donlan, Thomas Alban, to Singer-Cobble Limited. Attachment for tufting machines. 3,543,705, Cl. 112-79.
Fahnrich, Hans-Jurgen, to Patent-Treuhand-Gesellschaft fur Elektrische Gluhlampen m.b.H. Apparatus for starting and operating electric discharge lamps, more particularly such lamps with starting voltages exceeding 1000 volts. 3,544,839, Cl. 315-200.
Fain, Samuel Z.: *See—*
Fuhs, Joseph F., and Fain, Samuel Z.,3,543,409.
Fainman, Morton Z.: *See—*
Bray, Ulric B., and Fainman, Morton Z.,3,544,472.
Fairchild Camera and Instrument Corporation: *See—*
Dyck, Rudolph H., 3,544,801.
Falkenberg, Howard M.: *See—*
Raisch, Lee S., and Falkenberg, Howard M.,3,543,551.
Farah, Basil S.: *See—*
Gilbert, Everett E., and Farah, Basil S.,3,544,535.
Farbenfabriken Bayer Aktiengesellschaft: *See—*
Corte, Herbert, and Heller, Harold, 3,544,488.
Dietzel, Karl, 3,544,756.
Fest, Christa, and Hammann, Ingeborg, 3,544,572.
Muller, Erwin, Kallert, Wilhelm, and Ivanyi, Joszef, 3,544,524.
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard, 3,544,514.
Timmler, Helmut, Wegler, Richard, Eue, Ludwig, and Hack, Helmuth, 3,544,570.
Weber, Horst, 3,544,347.
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon, 3,544,542.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Gunther, Dieter, Hoyer, Ernst, Schmidt, Heinz, and Vollman, Hansjorg, 3,544,548.
Schott, Herbert, 3,544,643.
Farrow, Cecil W., to Bell Telephone Laboratories, Incorporated. Self-adjusting radix converter. 3,544,779, Cl. 235-155.
Farrow, Harold Frederick, to Colorflo Limited. Printing machines. 3,543,682, Cl. 101-366.
Fastener Corporation: *See—*
Obergfell, Allen R., Doyle, Richard H., Novak, Raymond F., and Novak, Edward J., 3,543,987.
Faulkner, Arnold T. Wire reel. 3,544,032, Cl. 242-118.8
Fawkes, Donald G., to Pratt, Henry, Company. Valve seat structure. 3,544,066, Cl. 251-306.
Fearnley, Charles, and Jones, Thomas Ivor, to Geigy Chemical Corporation. Fiber coating compositions. 3,544,501, Cl. 260-29.6
Feather, Jack Vincent. Weight reducing belt. 3,544,256, Cl. 128-293.
Feeney, James. Gyromagnetic resonance spectrometer with means for selecting predetermined operating conditions. 3,544,887, Cl. 324-0.5
Feeney, William J., to Grace, W. R., & Co. Molding apparatus. 3,543,336, Cl. 18-17.
Feigl, Erich F.: *See—*
Hartfield, Thomas C., Feigl, Erich F., and Davis, Richard L.,3,544,722.
Feillet, Antoine, to Boussois Souchon Neuvesel. Method and device for cutting sheets of glass. 3,543,978, Cl. 225-2.
Fenster, Paul, to Sperry Rand Corporation. Wideband wave trapping antenna having a time limited impulse response. 3,545,002, Cl. 343-830.
Fernandes, Joseph F., and Pfouts, Robert R., to United Aircraft Products, Inc. Heat exchange apparatus. 3,543,845, Cl. 165-168.
Ferrell, Robert C., and Skelley, John W., to General Motors Corporation. Flexible coupling. 3,543,538, Cl. 64-13.
Ferris, Robert L., and Martin, Daniel W., to Baldwin, D.H., Company. Compact piano construction. 3,543,630, Cl. 84-177.
Ferro Manufacturing Corporation: *See—*
Pickles, Joseph, 3,544,822.
Fertig, Raymond Baines, to Appalachian Electronic Instruments, Inc. Yarn inspector. 3,543,360, Cl. 28-51.
Fest, Christa, and Hammann, Ingeborg, to Farbenfabriken Bayer Aktiengesellschaft. Thionophosphonic acid esters. 3,544,572, Cl. 260-250.
Feuling, Bert G.: *See—*
Reid, Orland B., and Feuling, Bert G.,3,543,706.
Fiat Societa per Azioni: *See—*
Giacosa, Dante, 3,544,174.

Fiecchi, Alberto, Nano, Gian Mario, Cabella, Paolo, and Cicognani, Giorgio, to Collins Chemical Co., Inc. Method of preparing vanillin from eugenol. 3,544,621, Cl. 260-505.
Field, Fred Walker, and Cayton, David Walter, to Deere & Company. Electronically controlled row crop thinning machine. 3,543,860, Cl. 172-6.
Finch, Neil Lamar, Lemley, James Dean, and Proffitt, Thomas Jefferson, Jr., to Du Pont de Nemours, E. I., and Company. High temperature resistant textile fiber finish composition. 3,544,462, Cl. 252-8.6
Fischer, Adolf: *See—*
Scheuerer, Guenter, Zeidler, Adolf, and Fischer, Adolf,3,544,575.
Fischer, Hans-Dietrich, to Walther-Buromaschinen B.m.b.H. Control device for multiple-digit figures. 3,544,776, Cl. 235-153.
Fisher, Robert K., Plant, George W., and Collins, Maurice J., to Wyandotte Chemicals Corporation. Calcining limestone. 3,544,093, Cl. 263-53.
Fishwick, Brian Ribbons: *See—*
Anderton, Catherine Margaret, Fishwick, Brian Ribbons, and Lawson, John,3,544,550.
Fitter, John O.: *See—*
Goda, George, and Fitter, John O.,3,544,672.
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr., to Allied Chemical Corporation. Low magnesium ammonium polyphosphate solutions. 3,544,298, Cl. 71-34.
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr., to Allied Chemical Corporation. Production of ammonium polyphosphate solutions and diammonium phosphate. 3,544,299, Cl. 71-34.
Fitzhugh, Edward F., Jr., and Seidel, Don C., to Republic Steel Corporation. Process for converting phosphate rock to fertilzer. 3,544,301, Cl. 71-39.
Fjallbrant, Tore Torstensson, to Telefonaktiebolaget LM Ericsson. Variable delay arrangement in a ladder network using signals related to the input fed to the shunt elements to affect the poles and zeroes of the transfer. 3,544,924, Cl. 333-29.
Flaig, Max: *See—*
Vanover, Wallace F., and Flaig, Max,3,543,507.
Fleissner, Heinz, to Vepa AG. Apparatus for the wet-treatment of loose material, particularly textile material. 3,543,543, Cl. 68-22.
Fleming, Gerald J., and Koubek, Francis J., to United States of America, Navy. Two component ablative composition comprising a chromium phosphinate polymer and a thermosetting epoxy resin. 3,544,654, Cl. 260-830.
Fletcher, Archibald William, Baggott, Eric Raymond, and Derry, Raymond, to Brandhurst Company Limited, and Charter Consolidated Limited. Recovery of constituents from metal alloy scrap. 3,544,309, Cl. 75-108.
Fletcher, William A.: *See—*
Hoagland, Milton B., Groener, George E., Trible, Clayton J., and Fletcher, William A.,3,543,554.
Fleurquin, Yves: *See—*
Alauzet, Maurice, and Fleurquin, Yves,3,544,889.
Floehr, Walter L.: *See—*
Ingram, Orville, and Floehr, Walter L.,3,543,442.
Flory, John F., to Esso Research and Engineering Company. Apparatus for purging liquid from flexible hose connections. 3,543,785, Cl. 137-209.
FMC Corporation: *See—*
Creed, Sherman H., 3,543,813.
Keogh, James R., Jr., 3,544,369.
Reimers, James L., 3,544,341.
Foale, Howard H. Fruit picking device. 3,543,496, Cl. 56-336.
Foderick, John Walter. Combined urinary catheter and specific gravity measuring appliance. 3,543,743, Cl. 128-2.
Fonden, Per Borje, and Wiklund, Bjorn Sture, to Borgs Fabriks AB. Track arrangement for imparting a slewing movement to wheeled cars. 3,543,686, Cl. 104-35.
Forbes, Eric Simon, and Silver, Howard Bernard, to British Petroleum Company Limited, The. Zinc complexes. 3,544,609, Cl. 260-429.9
Force, John B.: *See—*
Summerer, Raymond E., and Force, John B.,3,543,572.
Ford, Gailerd B. Dump truck spreader chain mounting. 3,544,154, Cl. 296-56.
Ford Motor Company: *See—*
Lopez, Lawrence A., and Malkiewicz, Donald F., 3,544,950.
Foremost-McKesson, Inc.: *See—*
Francis, Leo H., and Treleven, Gerald J., 3,544,436.
Forgaard, Harcourt L. Stiff nut. 3,543,826, Cl. 151-21.
Forgflo Corporation: *See—*
Reisner, John H., 3,544,836.
Formaini, Robert L., to Allied Chemical Corporation. Process for the preparation of oil-modified alkyd compositions containing a tris-2-hydroxyalkyl isocyanurate. 3,544,496, Cl. 260-22.
Forsberg, Karl Viking, to Avery Products Corporation. Method and apparatus for opening, filling and closing of bags. 3,543,466, Cl. 53-14.
Forse, Harry D. Bag sizing apparatus and method for coat finisher. 3,543,974, Cl. 223-70.
Fort, Edward F., and Berndt, Wayne E., to International Harvester Company. Fluidic fuel metering system. 3,544,082, Cl. 261-19.
Fortune, William S. Vacuum desolder implement. 3,543,990, Cl. 228-20.
Foster, Daniel S., to Gale, W. D., Inc. Air drier system. 3,543,482, Cl. 55-162.
Foster, H. Dell, Co.: *See—*
Peddie, John G., 3,544,773.
Foster Wheeler Corporation: *See—*
Berman, Irwin, Thakkar, Bharat S., Schroeder, Joseph W., and Smith, Herman P., 3,543,370.
Fournel, Francis: *See—*
Thomas, Jean Claude, Fournel, Francis, and Soussan, Salomon,3,544,660.
Fowler, Vernon J., to General Telephone and Electronics Laboratories, Inc. Beam-deflection apparatus. 3,544,202, Cl. 350-285.
Fowler, Vernon J., Schlafer, John Flushing, and Watson, William R., to General Telephone & Electronics Laboratories, Incorporated. Optical beam deflector. 3,544,201, Cl. 350-285.
Fox, Irving, and Labelson, Ralph. Mixing chamber and shutoff valve for controlling viscous fluids. 3,543,791, Cl. 137-599.
Fox, John H., to Nichols-Homeshield, Inc., mesne. Shear pin testing device. 3,543,575, Cl. 73-133.
Fr. Hesser Maschinenfabrik-Aktiengesellschaft: *See—*
Buchner, Norbert, and Domke, Klaus, 3,543,970.
Framton Foods, Inc.: *See—*
Moon, Lester E., 3,543,475.
Franaszek, Peter A., to Bell Telephone Laboratories, Incorporated. Adaptive equalization of a digital communication system. 3,544,716, Cl. 178-69.
Francis, Leo H., and Treleven, Gerald J., to Foremost-McKesson, Inc. Electrodialysis process and apparatus. 3,544,436, Cl. 204-180.
Frank, Edward M.: *See—*
Winston, Eric, and Frank, Edward M.,3,544,921.
Franke, Norman W.: *See—*
Barnes, Wendell A., Bash, David L., and Franke, Norman W.,3,544,576.
Frankel, Milton B., and Rowley, Gerald L., to North American Rockwell Corporation. Novel explosive compounds. 3,544,630, Cl. 260-558.
Frankel, Milton B., and Rowley, Gerald L., to North American Rockwell Corporation. Aromatic nitro compounds. 3,544,640, Cl. 260-645.
Frankl & Kirchner, Fabrik fur Elektromotoren une Elektrische Apparate: *See—*
Lengsfeld, Karl, and Konzet, Willi, 3,543,901.
Frankle, Gerhard: *See—*
Stump, Eugen, and Frankle, Gerhard,3,543,742.
Fransicold Corporation: *See—*
White, Jack Hans, 3,543,838.
Fransson, Johnny: *See—*
Bergendal, Arne, and Fransson, Johnny,3,543,590.
Fran-Stef Corporation: *See—*
Dobbs, Frank G., 3,543,825.
Frasca, Rudolf A. X-Y recorder for aviation training device. 3,544,692, Cl. 35-10.2
Frazer, Ceylon B.: *See—*
Pasley, Marquis R., and Frazer, Ceylon B.,3,544,961.
Fredell, Gary D., to Gulf & Western Industries, mesne. Drive mechanism having improved locking means. 3,543,596, Cl. 74-128.
Frederickson, Sherman E.: *See—*
Knox, John A., Frederickson, Sherman E., and Broaddus, Gene C.,3,543,856.
Freeman, George S. P., Jackson, Franklin D., and Weber, Joseph J., to General Electrodynamics Corporation. Indium seal. 3,543,383, Cl. 29-470.1
Freeman, William A. Pickup and waveforming circuitry for electronic musical instrument. 3,544,694, Cl. 84-1.11
Freudenschusz, Otto, to Vockenhuber, Karl, and Hauser, Raimund. Film-feeding mechanism for cartridge-loaded motion picture apparatus. 3,544,206, Cl. 352-72.
Friederich, Maria S.: *See—*
Grasselli, Robert K., and Friederich, Maria S.,3,544,616.
Friedheim, Ernst A. H. Selenium compounds. 3,544,593, Cl. 260-327.
Friedl, Wolfgang, to Eltro GmbH & Co. Method for measuring the optical transmission characteristics of transparent and translucent media and optical diffractometer for carrying out this method. 3,544,224, Cl. 356-201.
Friedlaender, Ernst: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf,3,543,664.
Friedlander, Erich Siegfried, and Young, David John, to General Electric Company Limited, The. Voltage stabilising arrangements for alternating current supplies utilizing saturated shunt reactors. 3,544,885, Cl. 323-61.
Friedman, Sidney L., to Lanex Importing Company. Hygienically enclosed machine and cup-dispensing structure therefor. 3,543,812, Cl. 141-103.
Friedrich Deckel Prazisions Mechanik und Maschinenbau: *See—*
Lanzenberger, Horst, 3,543,598.
Frink, Russell E., to Westinghouse Electric Corporation. Electric switch having improved blade construction. 3,544,742, Cl. 200-48.
Fritz, Gerhard: *See—*
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard,3,544,514.
Fritz, William L.: *See—*
Gregory, Marion B., and Fritz, William L.,3,544,933.
Frolich, Hans: *See—*
Anders, Dietmar, and Frolich, Hans,3,543,333.
Frungel, Frank, to Impulsphysik GmbH. Light receiver housing having inclined mirror mounted on tiltable shaft. 3,544,797, Cl. 250-216.

Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji, to Japan Monopoly Corporation, The, and Kabushiki.Kaisha Murakami Seisakusho. Pneumatic cut tobacco feeding apparatus. 3,544,167, Cl. 302-13.
Fuentes, Gabriel, Jr. Pile driving apparatus. 3,543,869, Cl. 173-86.
Fuhs, Joseph F., and Fain, Samuel Z., to Beaunit Corporation. Drying, spreading and radiant heating of tubular knitted, acrylic fabrics. 3,543,409, Cl. 34-14.
Fuji Photo Film Co., Ltd.: *See—*
Yoshida, Makoto, Okumura, Akio, and Imai, Shinichi, 3,544,326.
Nakai, Setsuo, and Mikami, Takeshi, 3,544,405.
Fujita, Haruyasu, to Kabushiki Kaisha Honda Gijutsu Kenkyousho. Supporting apparatus for a mirror. 3,544,259, Cl. 248-475.
Fujita, Masakazu: *See—*
Takizawa, Haruki, and Fujita, Masakazu,3,543,499.
Fukuda, Koichi: *See—*
Miya, Masami, and Fukuda, Koichi,3,543,912.
Fukui, George M.: *See—*
Ludwig, Bernard J., Berger, Frank M., and Fukui, George M.,3,544,560.
Fukushima, Osamu: *See—*
Noda, Kazuo, Enomoto, Yuya, and Fukushima, Osamu,3,544,357.
Furbeck, Warren R.: *See—*
Murphy, James A., Lee, Charles A., and Furbeck, Warren R.,3,544,420.
Furukawa Electric Company Limited, The: *See—*
Kadowaki, Yoshio, Shimokawa, Hayao, Yoshida, Kazuaki, and Saito, Eisuke, 3,544,534.
Furumori, Takaki: *See—*
Aiba, Yoshikazu, and Furumori, Takaki,3,544,476.
Furuno, Yukio, Tokuno, Hiroshi, and Murata, Katsuske, to Shinko Denki Kabushiki Kaisha. Load carrying vehicle. 3,543,956, Cl. 214-141.
Gabriel, Edward A., to Boeing Company, The. Download reduction apparatus. 3,544,047, Cl. 244-17.11
Gabriel, Malcolm Edward, to International Standard Electric Corporation. Bipolar analog to digital encoder utilizing two comparators. 3,544,993, Cl. 340-347.
GAF Corporation: *See—*
Tullsen, Volney, 3,544,586.
Gaines, Floyd C., Jr., to Pan American Hydroponics, Inc. Device for removing roots and other material from hydroponic beds. 3,543,437, Cl. 47-34.
Galbarini, Maso, and Cotta Ramusino, Francesco, to Innocenti Societa Generale per l'Industria metallurgica e Meccania. Internal machining of large hollow cylindrical workpieces. 3,543,635, Cl. 90-11.
Galbreath, Gerald W., Oriti, Basil S., and Munn, Carl R., said Galbreath assor to Overhead Door Corporation said Oriti and said Munn assor to Cleveland Freight Lines, Inc. Door structure for open top trailer. 3,544,153, Cl. 296-51.
Gale, W. D., Inc.: *See—*
Foster, Daniel S., 3,543,482.
Gallagher, Cornelius A. Hotbox detector. 3,545,005, Cl. 246-169.
Gallagher, Gerald L.: *See—*
Wenzel, Philip D., and Gallagher, Gerald L.,3,543,862.
Wenzel, Philip D., and Gallagher, Gerald L.,3,543,864.
Gallagher, Robert C., and Williams, David W., to Westinghouse Electric Corporation. Integrated semiconductor and PN junction capacitor. 3,544,862, Cl. 317-235.
Gallo, Louis J. Automobile door safety lock. 3,543,546, Cl. 70-264.
Gamble, James R., to Westinghouse Electric Corporation. Composite insulator supports using cast resinous flanges and inserts. 3,544,707, Cl. 174-142.
Garabedian, Taniel A.: *See—*
Armstrong, Dallas C., and Garabedian, Taniel A.,3,544,544.
Gardner, Arthur E., to Minister of National Defense, in Her Majesty's Canadian Government. Process for desensitizing solid explosive particles by coating with wax. 3,544,360, Cl. 117-100.
Gardner, Vernon D. Tail gate sealer. 3,544,155, Cl. 296-57.
Garnitschnig, Gunter, Herrmann, Hans, and Walchli, Hans, to Aktiengesellschaft Brown, Boveri & Cie. High-power turbogenerator with directly cooled stator winding and leads. 3,544,821, Cl. 310-54.
Garre, Pierre Robert: *See—*
Tanouy, Pierre Jean Clement, Garre, Pierre Robert, and Le Boulbouech, Jean Andre,3,543,694.
Garrett Corporation, The: *See—*
Butscher, Robert C., 3,544,045.
Kelley, Archibald P., and Meshew, Allan D., 3,543,520.
McNutt, William C., and Goy, Bernard C., 3,543,797.
Phillips, William J., and Reese, Leolf M., 3,544,755.
Garrett, Henry U., to Garrett, Udell, Inc. Intermitter. 3,543,848, Cl. 166-53.
Garrett, Udell, Inc.: *See—*
Garrett, Henry U., 3,543,848.
Garwood, William E., to Mobil Oil Corporation. Crystalline aluminosilicate catalyst modified by solid-state reaction with alkali metal halide. 3,544,650, Cl. 260-683.3
Gary Industries, Inc.: *See—*
Nelson, Harry E., 3,543,523.
Gas Council, The: *See—*
Roper, Francis George, 3,544,255.
Gaspar, Kenneth C., to RCA Corporation. Momentary retaining translation means for multiple switches. 3,544,738, Cl. 200-5.
Gassert, Willy. Apparatus for supplying workpieces to a working station. 3,544,169, Cl. 302-14.
Gates, Paul. Fishing rod holder. 3,543,432, Cl. 43-54.5
Gates Radio Company: *See—*
Stratman, Hardin G., 3,544,919.
Gatton, Robert P., and Toth, Steven J., to Streater Industries, Inc. Air return grille for an air curtain type refrigerated display case. 3,543,532, Cl. 62-256.
Gaudet, Peter W.: *See—*
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B.,3,544,828.
Gaumer, David D., Hanna, Charles D., Bailey, Charles E., and Trickel, Leighton E. Sequence initiated electrical activator. 3,544,804, Cl. 307-10.
Gazzard, Edward George, and Greenshields, James Nairn, to Imperial Chemical Industries Limited. Epoxides. 3,544,601, Cl. 260-345.9
Gebhard, John Charles, Jr., to Du Pont de Nemours, E. I., and Company. Combination of a plastic sheet member and fastening means for securing said member to a supporting structure. 3,544,416, Cl. 161-48.
Gebruder Buhler Nachfolger GmbH: *See—*
Rudolph, Dietmar, and Mieslinger, Winfried, 3,544,872.
Geigy Chemical Corporation: *See—*
Brunetti, Heimo, 3,544,566.
Brunetti, Heimo, 3,544,567.
Fearnley, Charles, and Jones, Thomas Ivor, 3,544,501.
Geir, Gottfreid, to Bendix Corporation, The. Apparatus for the evaporation of materials in a vacuum. 3,544,763, Cl. 219-271.
Gelprin, Valentin Nikolaevich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.
General Binding Corporation: *See—*
Staats, Henry N., 3,544,411.
General Electric Company: *See—*
Bochan, John, 3,543,542.
Brown, Norman Robert, Koziara, Mitchell Joseph, and Ribble, Franklin, 3,544,049.
Canney, Robert S., 3,543,423.
Cooper, Glenn D., and Bennett, James G., 3,544,516.
Danko, George K., and Mosby, Frederick A., 3,544,188.
Datta, Ranajit K., 3,544,479.
Hajjar, Abraham L., 3,544,464.
Holdstock, Norman G., and Thimineur, Raymond J., 3,544,498.
Katchman, Arthur, and Cooper, Glen D., 3,544,515.
Sakshaug, Eugene C., and Kresge, James S., 3,544,847.
Sherman, George R., 3,543,605.
Speaker, Lawrence W., 3,544,849.
Vrabel, Edward A., 3,544,944.
Wilkus, Edward V., and Berger, Abe, 3,544,595.
Davidson, Hugh Wilson, and Losty, Howard Harold Walter, 3,544,409.
Elder, Kenneth Frederick, and Stagg, Larry Joseph, 3,544,927.
Friedlander, Erich Siegfried, and Young, David John, 3,544,885.
Morris, Richard Michael, 3,544,772.
General Electrodynamics Corporation: *See—*
Freeman, George S. P., Jackson, Franklin D., and Weber, Joseph J., 3,543,383.
General Foods Corporation: *See—*
Bardsley, Robert F., Bower, Harvey S., and Katz, Saul, 3,543,411.
General Mills, Inc.: *See—*
Dunning, Herbert N., and Dannert, Robert D., 3,544,328.
Keen, James L., 3,543,823.
Kozlik, Robert F., 3,544,334.
Kozlik, Robert F., 3,544,335.
Leebens, James V., 3,544,332.
Nazy, John R., and Wheeler, Donald H., 3,544,495.
Wittcoff, Harold A., and Baldwin, William S., 3,544,439.
General Motors Corporation: *See—*
Currie, James H., 3,544,083.
Dega, Robert L., 3,543,407.
Ferrell, Robert C., and Skelley, John W., 3,543,538.
Gulette, Ronald S., Zeller, Robert G., and Gonas, Albert J., 3,543,329.
Hoagland, Milton B., Groener, George E., Trible, Clayton J., and Fletcher, William A., 3,543,554.
King, Raymond R., 3,544,879.
Klees, Gerard T., 3,543,895.
McLean, William E., and Ruch, David E., 3,544,978.
Quinn, Clark E., 3,544,799.
Raver, Louis J., and Nowakowski, Robert J., 3,544,881.
Richardson, Truman R., 3,543,588.
Rose, David J., 3,543,550.
Sandor, Bela, 3,544,148.
Schmidt, Jack W., Tuck, Robert M., and Phillips, William V., 3,543,607.
Summerer, Raymond E., and Force, John B., 3,543,572.
Summerer, Raymond E., and Haven, Harold A., 3,544,002.
Swinkels, Dominicus A. J., 3,544,373.
Wight, Robert D., Rittenhouse, Owen R., and Glover, Earl W., 3,543,600.
Wood, Paul W., 3,544,901.

General Precision Systems Inc.: *See—*
Bird, Richard M., and Tu, Ju C., 3,544,905.
General Telephone & Electronics Laboratories, Incorporated: *See—*
Fowler, Vernon J., Schlafer, John Flushing, and Watson, William R., 3,544,201.
Heller, Adam, 3,544,477.
Richman, Paul, 3,544,864.
General Telephone and Electronics Laboratories, Inc.: *See—*
Fowler, Vernon J., 3,544,202.
General Time Corporation: *See—*
Mangaly, Joseph, 3,544,837.
Geo Space Corporation: *See—*
Erath, Louis W., 3,544,877.
Geophysical Research Corporation: *See—*
Green, Joe William, and Swift, William Earle, 3,544,027.
George, Donald K., to Riegel Textile Corporation. Machine for forming a random fiber web. 3,543,351, Cl. 19-156.3
George, Frederick J., and Kern, Edmund R., to Sylvania Electric Products, Inc. Quartz-halogen lamp and method of making. 3,544,830, Cl. 313-271.
George, Philip R., and Wood, Robert N., to Inland Container Corporation. Multi-cell bulk container. 3,543,991, Cl. 229-15.
Georgia-Pacific Corporation: *See—*
Markham, Aaron E., and Blackmore, Kenneth A. E., 3,544,460.
Gerard, George, to Jiffy Manufacturing Co. Paper lamination system. 3,544,419, Cl. 161-111.
Gerhard, Allen R., to Western Electric Company, Incorporated. Method and apparatus for measuring and adjusting an R-C notch filter having thin-film resistors. 3,544,891, Cl. 324-57.
Gerke, Peter: *See—*
Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Zahlhaas, Siegfried,3,544,725.
Gerner, Robert V., to Phillips Petroleum Company. Producing wells by internal heat generation to avoid plugging. 3,543,857, Cl. 166-302.
Gesellschaft fur Kaliinteressen mbH: *See—*
Burr, Richard, Mames, Michel, and Berthon, Robert, 3,544,282.
Gessner, Adolf W.: *See—*
Sze, Morgan C., and Gessner, Adolf W.,3,544,599.
Gettys Manufacutring Company, Inc.: *See—*
Hill, Roger Gettys, 3,543,639.
Gevaert-Agfa N.V.: *See—*
De Schamphelaere, Lucien A. Amede, and De Blende, Gentil, 3,543,597.
Depoorter, Henri, Ghys, Theofiel Hubert, and Libeer, Marcel Jan, 3,544,325.
Gewerkschaft Eisenhutte Westfalia: *See—*
Plester, Karl Heinz, and Hoffmann, Erich, 3,544,055.
Geyer, Gerald R.: *See—*
Jones, Griffin D., Geyer, Gerald R., and Hatch, Melvin J.,3,544,532.
Ghali, Edward Labib, and Voeltzel, Jacques, to Institut de Recherches de la Siderurgie Francaise. Phosphatizing process for iron products and products obtained thereby. 3,544,390, Cl. 148-6.15
Ghys, Theofiel Hubert: *See—*
Depoorter, Henri, Ghys, Theofiel Hubert, and Libeer, Marcel Jan,3,544,325.
Giacosa, Dante, to Fiat Societa per Azioni. Endless tracks having pneumatic track elements. 3,544,174, Cl. 305-34.
Giese, Emil E., to Ringspann Albrecht Mauer KG. Retainer ring. 3,543,894, Cl. 192-45.1
Gilbert, Everett E.: *See—*
Biritz, Laszlo F., and Gilbert, Everett E.,3,544,555.
Gilbert, Everett E., and Farah, Basil S., to Allied Chemical Corporation. Novel carbinol and derivatives thereof. 3,544,535, Cl. 260-89.5
Gilbert, Everett E., and Peterson, James O., to Allied Chemical Corporation. Novel perfluoroalkyl and perfluoroalkoxy thio acids. 3,544,620, Cl. 260-502.6
Giles, Stuart, to North American Rockwell Corporation. Solid electrolyte electrochemical timer having a relatively stable prestressed condition. 3,544,852, Cl. 317-230.
Giles, Stuart, to North American Rockwell Corporation. Electrochemical timer having a solid electrolyte. 3,544,853, Cl. 317-230.
Giller, Morris, to Bendix Corporation, The. Antenna feed comprising dipole array with conductive ground plane. 3,545,001, Cl. 343-776.
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F., 1/2 to Dictograph Products, Inc., and 1/2 to Transitor Electronics, Inc. Thick film capacitors for miniaturized circuitry. 3,544,434, Cl. 204-38.
Gillman, William J.: *See—*
Howell, Harry D., Jr., and Gillman, William J.,3,543,413.
Giltaire, Marcel Charles, to Charbonnages de France. Ultra violet flame dector using a trigger circuit to avoid false alarms. 3,544,792, Cl. 250-83.3
Girard, Harry J. Foamed plastic pig for pipe lines. 3,543,323, Cl. 15-104.06
Girling Limited: *See—*
Campbell, Roy, 3,543,886.
England, Michael J., Donnell, Derrick, and Hales, Eric C., 3,543,512.
Giroud, Germain. Walking doll. 3,543,435, Cl. 46-247.
Glabe, Elmer F., Anderson, Perry W., and Murawski, Gerald M., to Marine Colloids, Inc. Macaroni products made with nonfat milk solids. 3,544,333, Cl. 99-85.
Glanzstoff AG: *See—*
Jaeger, Friedrich, and Holzner, Johannes, 3,544,091.
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard, 3,544,528.
Rupp, Hans-Dieter, Siggel, Erhard, and Meyer, Gerhard, 3,544,592.
Glaser, Donald A.: *See—*
Wattenburg, Willard H., Glaser, Donald A., and Conde, Hector O.,3,544,225.
Glass, Marvin, & Associates: *See—*
Licitis, Gunars, and Glass, Marvin I., 3,544,115.
Glass, Marvin I.: *See—*
Licitis, Gunars, and Glass, Marvin I.,3,544,115.
Glaverbel S. A.: *See—*
Servais, Albert, 3,544,361.
Javaux, Gustave, and Vasseur, Jean-Pierre, 3,543,385.
Glendale Optical Company, Inc.: *See—*
Bienenfeld, Harold, 3,544,204.
Glenn, Thomas P., Jr., and Shipley, Richard E., to Motorola, Inc. Bonding islands for hybrid circuits. 3,544,704, Cl. 174-68.5
Gley, Paul R., to Rex Chainbelt Inc. Automatic quick release mechanism. 3,543,603, Cl. 74-527.
Glick, Robert L., to Thiokol Chemical Corporation. Vortex injection system to control the thrust of solid propellant rocket motors. 3,543,519, Cl. 60-254.
Glider, Evgeny Khaimovich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.
Glider, Larry James: *See—*
Smemo, Alfred Sigmund, and Glider, Larry James,3,543,867.
Globe-Union Inc.: *See—*
Buttke, Richard A., Sabatino, Anthony, Orlando, Daniel, and Behrens, William H., 3,544,754.
Shah, Pradip N., 3,544,739.
Glover, Ann P.: *See—*
Wight, Robert D., Rittenhouse, Owen R., and Glover, Earl W.,3,543,600.
Glover, Earl W.: *See—*
Wight, Robert D., Rittenhouse, Owen R., and Glover, Earl W.,3,543,600.
Glover, John Benjamin. Hepworth Iron Company Limited, The Pipe couplings. 3,544,119, Cl. 277-206.
Gococo, Conrado. Immersion type electric water heater with electrode assembly. 3,544,764, Cl. 219-293.
Goda, George, and Fitter, John O., to Greiner Scientific Corporation. Coupling and method for making. 3,544,672, Cl. 264-230.
Goetz, Seymour L. Automatic dissolve control for slide projectors having a source of illumination and a signal actuated slide advance. 3,544,210, Cl. 353-86.
Goldberg, Raymond, and Shaw, Irving F., to West Laboratories, Inc. Finger protector for use in the opening of ampoules. 3,544,020, Cl. 215-12.
Goldstein, Amnon, to Decitron Communication Systems, Inc., mesne. Shaped energy transmission arrays. 3,544,192, Cl. 350-96.
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido, to European Atomic Energy Community (Euratom). Method for the explosive welding of a metal plug to a metal tube or of nested portions of metal tubes to each other. 3,543,387, Cl. 29-474.3
Golovanov, Valentin Vasilievich: *See—*
Smetanin, Alexandr Georgievich, and Golovanov, Valentin Vasilievich,3,544,957.
Golubev, Alexandr Ivanovich: *See—*
Savin, Anatoly Ivanovich, Golubev, Alexandr Ivanovich, and Lomakina, Valentina Mikhailovna,3,544,893.
Gomarin, Claude, to Tunzini Ameliorair. Gas treatment apparatus. 3,543,414, Cl. 34-164.
Gonas, Albert J.: *See—*
Gulette, Ronald S., Zeller, Robert G., and Gonas, Albert J.,3,543,329.
Good, Arthur L., to Robertshaw Controls Company. Ignition means for a cooking apparatus or the like. 3,544,819, Cl. 310-8.7
Goodrich, B. F., Company, The: *See—*
Bishop, Earl L., 3,543,576.
Dreyfuss, Max Peter, 3,544,533.
Taylor, Ray D., and Son, Pyong-Nae, 3,544,492.
Gorman, Arnold. Garment hanger. 3,543,941, Cl. 211-4.
Goss, Gary J.: *See—*
Rakoczi, Laszlo L., Keefer, David E., Goss, Gary J., and Porcelli, Ernest J.,3,544,969.
Gosudatstvenny Vsesojuzny Institut Po Proektirovaniju Predpriaty Koksokhimicheskoi Promyshlennosti: *See—*
Kulakov, Nikolai Konstantinovich, 3,544,429.
Goto, Eizo. Method of manufacturing a reflector type lamp. 3,543,361, Cl. 29-25.13
Goto, Eizo, to Tokyo Shibaura Electric Co., Ltd. Method for manufacturing laminated glass plates. 3,544,294, Cl. 65-40.
Goward, George W.: *See—*
Boone, Donald H., and Goward, George W.,3,544,348.
Goy, Bernard C.: *See—*
McNutt, William C., and Goy, Bernard C.,3,543,797.
Goy, Ronald S., to Dunlop Company Limited, The. Composite textile yarn. 3,543,504, Cl. 57-157.

Grace, W. R., & Co.: *See—*
Feeney, William J., 3,543,336.
Singer, John J., Jr., 3,544,606.

Gradov, Oleg Borisovich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.

Graff, Eugene A., to Westinghouse Electric Corporation. Method for producing europium activated yttrium oxide phosphors. 3,544,478, Cl. 252-301.4

Graham, George C. Vacuum operated compound double-acting piston pump or compressor. 3,544,239, Cl. 417-403.

Graham, Marvin M.: *See—*
DeForest, Wesley V., and Graham, Marvin M.,3,544,936.

Graham, Robert Leslie, and Morton, Peter Harlow, to Imperial Metal Industries (Kynoch) Limited. Oxidation-resistant coatings. 3,544,285, Cl. 29-195.

Graham, Ward A.: *See—*
Webb, Orlando, Jr., Graham, Ward A., and Massa, Harry E.,3,544,653.

Grainger, Robert B.: *See—*
Marco, Gino J., and Grainger, Robert B.,3,544,681.

Graning-Weaver Company: *See—*
Weaver, Paul J., 3,543,617.

Graphic Engineers, Inc.: *See—*
Donahue, Leo O., and Behrens, Roy E., 3,543,651.

Grasse, Hans J.: *See—*
Heitmann, Bob, Grasse, Hans J., Schubert, Gunter, and Bodner, Fritz,3,543,564.

Grasselli, Robert K., and Friederich, Maria S., to Standard Oil Company, The (Ohio). Ammoxidation of propylene or isobutylene to acrylonitrile or methacrylonitrile. 3,544,616, Cl. 260-465.3

Graviner (Colnbrook) Limited: *See—*
Hirst, Ronald, 3,544,459.

Gray, Forest D., to Tenneco Oil Company. Apparatus for producing water from a well. 3,543,851, Cl. 166-106.

Gray, Ian Malcolm: *See—*
Abson, James William, Clark, Eric Innes, and Gray, Ian Malcolm,3,543,936.

Gray Manufacturing Company, The: *See—*
Earling, Leonard E., and Kirkwood, Carleton J., 3,544,986.

Greco, Carl C., and Mirviss, Stanley B., to Stauffer Chemical Company. Reaction product of polymercaptans and episulfides. 3,544,543, Cl. 260-125.

Green, Chester, 1/2 to Hanscom, Genevieve I. (formerly Magnuson, Genevieve I.), 1/2 to Hanscom, Genevieve I., Magnuson, Robert, and Thomson, Lois J. (formerly Duggan J.), as trustees of the estate of Magnuson, Roy M. Shuffle feed sizing mechanism. 3,543,928, Cl. 209-73.

Green, Homer T., to Parker Pen Company, The. Writing instrument. 3,544,227, Cl. 401-52.

Green, Joe William, and Swift, William Earle, to Geophysical Research Corporation. Quick change hub for recording tape reels. 3,544,027, Cl. 242-68.3

Green, Milton, to United States of America, Navy. Acoustic transducer with hall effect feedback. 3,544,867, Cl. 318-118.

Greenshields, James Nairn: *See—*
Gazzard, Edward George, and Greenshields, James Nairn,3,544,601.

Gregerson, Stanley Martin: *See—*
Hall, Daniel Luce, and Gregerson, Stanley Martin,3,543,647.

Grego, Thomas E., to Ingersoll-Rand Company. Control lever for hoists. 3,544,069, Cl. 254-168.

Gregoire Engineering & Development Co.: *See—*
Gregoire, Resta S., 3,543,456.

Gregoire, Resta S., to Gregoire Engineering & Development Co. Total lock building structure. 3,543,456, Cl. 52-92.

Gregory, John G.: *See—*
Borck, Walter C., Jr., Gregory, John G., Hudson, James R., and Murtha, John C.,3,544,973.

Gregory, Marion B., and Fritz, William L., to Baldwin, D. H., Company. Combination stop action. 3,544,933, Cl. 335-179.

Greiner Scientific Corporation: *See—*
Goda, George, and Fitter, John O., 3,544,672.

Grey, Donald M., to Sperry Rand Corporation. Capstan lift for a bale wagon bale loader. 3,543,958, Cl. 214-522.

Griebstein, William J., to Procter & Gamble Company, The. Oral compositions for caries prophylaxis. 3,544,678, Cl. 424-52.

Grieger, Philip F., Martin, Norman A., and Douma, William L., to McGraw-Edison Company. Signal lantern. 3,544,784, Cl. 240-24.

Griffin, Archie Z., Jr., to Schlumberger Technology Corporation. Methods for drill stem testing. 3,543,853, Cl. 166-264.

Griffith, James R., to United States of America, Navy. Filament wound structural laminates. 3,544,421, Cl. 161-144.

Griffiths Electronics Inc.: *See—*
McQueen, John, and Minutillo, Leonard D., 3,544,826.

Grimm, Robert A., to Ashland Oil & Refining Company. 1,3-Dithietane-2,2,4,4-tetraacyl chloride and the corresponding ester and amide derivatives. 3,544,594, Cl. 260-327.

Griswold, Edward A. Electrostatic filtering for cleaning dielectric fluids. 3,544,441, Cl. 204-186.

Groener, George E.: *See—*
Hoagland, Milton B., Groener, George E., Trible, Clayton J., and Fletcher, William A.,3,543,554.

Groeper, Lawrence H.: *See—*
Lysyj, Ihor, Groeper, Lawrence H., and Nelson Kurt H.,3,544,277.

Grossklaus, Ronald Paul, to Deere & Company. Elevator for scraper. 3,543,915, Cl. 198-203.

Grove, Francis John, Wright, Donald Curtis, and Hamer, Francis Michael, to Pilkington Brothers Limited. Cutting of glass with a laser beam. 3,543,979, Cl. 225-2.

Grove, Ned M. Mechanical pseudarthrosis of the femur. 3,543,749, Cl. 128-92.

Grubelnik, Hans. Device for controlling an intermittent work cycle. 3,543,698, Cl. 107-68.

Grunwald, Beno J. B.: *See—*
Malmberg, Bo Goran, 3,543,688.

Guelph, John, to Valyi, Emery I. Molding apparatus with individually separable parison mold and neck ring parts. 3,543,340, Cl. 18-5.

Guenther, Charles J., to International Business Machines Corporation. Finishing process for metallic surfaces. 3,543,452, Cl. 51-313.

Guerrier, Jean, and Hamard, Jacques, to Esso Research and Engineering Company. Preparation of polar petroleum resins. 3,544,497, Cl. 260-23.7

Guild Molders, Inc.: *See—*
Berins, Michael L., 3,543,973.

Gulette, Ronald S., Zeller, Robert G., and Gonas, Albert J., to General Motors Corporation. Decorative knob. 3,543,329, Cl. 16-121.

Gulf & Western Industrial Products Company: *See—*
Colbert, William H., and Kraft, Derald H., 3,543,899.
Colbert, William H., and Kraft, Derald H., 3,543,900.

Gulf & Western Industries: *See—*
Fredell, Gary D., 3,543,596.

Gulf Research & Development Company: *See—*
Alexander, Richard L., Ashburn, Donald G., Clampitt, Bert H., and Anspon, Harry D., 3,544,490.
Barnes, Wendell A., Bash, David L., and Franke, Norman W., 3,544,576.
Harris, Martin H., Jennings, James W., and Smith, Francis M., 3,543,800.

Gulic, Milos, and Stojkovic, Dobren. Mill for pulverizing hard material. 3,544,015, Cl. 241-44.

Gunsser, Peter, and Renner, Stefan, to Bosch, Robert, GmbH. Control system for dynamo electric machine operable both as a motor or as a generator with regenerative braking. 3,544,873, Cl. 318-376.

Gunter, Addison Y., to Hudson Products Corporation, mesne. Air cooled condenser apparatus. 3,543,843, Cl. 165-111.

Gunther, Dieter, Hoyer, Ernst, Schmidt, Heinz, and Vollman, Hansjorg, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Water-insoluble monoazo dyestuffs. 3,544,548, Cl. 260-152.

Gunther, Ronald V., Kish, Donald E., and Smith, James L., to Bell Telephone Laboratories, Incorporated. Position control system for magnetic memory. 3,544,981, Cl. 340-174.1

Guntner, Hans. Drycleaning machine with solvent recovery means. 3,543,540, Cl. 68-18.

Guritz, Kenneth E. Monolithic floor structure with air passages. 3,543,458, Cl. 52-127.

Gustafson, Edwin P. Massaging device. 3,543,747, Cl. 128-67.

Gustafson, Kjell Arne Hakan, to Aktiebolaget Bofors. Voltage stabilizing device connected to a detector for infrared radiation. 3,544,791, Cl. 250-83.3

Gustav Bauer, Firma: *See—*
Bauer, Kurt, 3,543,975.

Gusyatinsky, Igor Alexandrovich, and Margolin, Jury Nosonovich. Frequency-modulated receiver with decreased threshold level. 3,544,899, Cl. 325-346.

Guzik, Nicholas J., to Piasecki Aircraft Corporation. Position indication and control system for rail vehicle. 3,544,788, Cl. 246-63.

Gyorgy, Ernst M., and Remeika, Joseph P., to Bell Telephone Laboratories, Incorporated. Process for lowering the magnetic reorientation temperature of samarium orthoferrite. 3,544,265, Cl. 23-21.

Haaker, Lester W., and Jelatis, Demetrius G., to Central Research Laboratories, Inc. Sealed wrist joint. 3,543,592, Cl. 74-89.16

Haaker, Lester W., and Jelatis, Demetrius G., to Central Research Laboratories, Inc. Continuous twist wrist joint. 3,543,593, Cl. 74-89.16

Haardt, Udo: *See—*
Stastny, Fritz, Breu, Rudolf, and Haardt, Udo,3,543,460.

Haarer, Erich, and Winderl, Siegfried, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of alkanolamines-(1,2) or cycloalkanolamines-(1,2). 3,544,632, Cl. 260-563.

Haas, Friedrich: *See—*
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon,3,544,542.

Haberly, Charles F.: *See—*
Dulaney, Ernest N., Elliott, William S., Haberly, Charles F., and Pool, Robert H.,3,544,906.

Habermas, Robert E., and Morasky, Thomas M., to Detroit Edison Company, The. Method for determining the presence of ethylene glycol in lubricating oil. 3,544,275, Cl. 23-230.

Huck, Helmuth: *See—*
Timmler, Helmut, Wegler, Richard, Eue, Ludwig, and Hack, Helmuth,3,544,570.

Haeber, John A., to Vetco Offshore Industries, Inc. Casing hanger apparatus. 3,543,847, Cl. 166-0.6

Hager, Robert Bonner: *See—*
Hauptschein, Murray, Hager, Robert Bonner, and Allen, Thomas Clark,3,544,663.

Hagopian, Gary J. Method of making a golf ball mold. 3,543,380, Cl. 29-445.

Hahn, Clayton W. Linear interpolating device. 3,544,001, Cl. 235-61.

Hahn, Richard, to Soundolier Manufacturing Company, Inc. Luminated guard rail assembly. 3,544,782, Cl. 240-2.

Hahn, Wolf-Diether, to Inventa AG fur Forschung und patentverwertung, mesne. Continuous manufacture of polymers. 3,544,522, Cl. 260-75.

Hahs, Walter R.: *See—*
McDonald, Earl G., Jr., and Hahs, Walter R.,3,544,979.

Hair, Eddy R., to Procter & Gamble Company, The. Separate grinding of various coffee types to control flavor contribution. 3,544,331, Cl. 99-68.

Hajjar, Abraham L., to General Electric Company. Soap-filled dimethyldiphenylpolysiloxane grease. 3,544,464, Cl. 252-42.1

Hales, Eric C.: *See—*
England, Michael J., Donnell, Derrick, and Hales, Eric C.,3,543,512.

Hall, Daniel Luce, and Gregerson, Stanley Martin, to Deere & Company. Control valve means for a two-way hydraulic cylinder. 3,543,647, Cl. 91-420.

Halliburton Company: *See—*
Howe, Thomas W., Sr., 3,543,552.
Knox, John A., Frederickson, Sherman E., and Broaddus, Gene C., 3,543,856.

Halls, Lawrence M., to Sperry Rand Corporation. Header supporting tractor frame. 3,543,872, Cl. 180-27.

Hamard, Jacques: *See—*
Guerrier, Jean, and Hamard, Jacques,3,544,497.

Hamburger Flugzeugbau GmbH: *See—*
Weigel, Jurgen, 3,544,440.

Hamer, Francis Michael: *See—*
Grove, Francis John, Wright, Donald Curtis, and Hamer, Francis Michael,3,543,979.

Hamilton, Francis W., to Chrysler Corporation. Automobile exhaust muffler. 3,543,878, Cl. 181-59.

Hamilton, William H., to Pennwalt Corporation. Tablet making machine. 3,545,007, Cl. 107-17.

Hamm, Philip C., to Monsanto Company. Phytotoxic compositions and methods. 3,544,302, Cl. 71-90.

Hammann, Ingeborg: *See—*
Fest, Christa, and Hammann, Ingeborg,3,544,572.

Hammersand, Fred G., and Novajovsky, William A., to RCA Corporation. Grid support for electron tubes. 3,544,831, Cl. 313-348.

Hammonds, James C., to ACF Industries, Incorporated. Railway trailer hitch having safety means. 3,544,050, Cl. 248-119.

Hamrick, James C., to JL Products Incorporated, mesne. Vacuum cleaning system with waste collection remote from suction fan. 3,543,325, Cl. 15-314.

Hanada, Teizo: *See—*
Someya, Akira, Hanada, Teizo, and Watanabe, Tadaaki,3,544,829.

Hanak, Joseph John, to RCA Corporation. Multi-head magnetic transducer. 3,544,982, Cl. 340-174.1

Hand, Kenneth E. Set of discs having different floatation characteristics. 3,544,113, Cl. 273-106.

Handloff, Louis E.: *See—*
Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F.,3,544,712.

Handtmann, Albert Metallgusswerk Armaturen- & Fleischereimaschinenfabrik: *See—*
Muller, Johannes, 3,543,330.

Hanford Foundry Company: *See—*
Howell, Harry D., Jr., and Gillman, William J., 3,543,413.

Hanley, Patrick J.: *See—*
Turillon, Pierre P., and Hanley, Patrick J.,3,544,312.

Hanna, Charles D.: *See—*
Gaumer, David D., Hanna, Charles D., Bailey, Charles E., and Trickel, Leighton E.,3,544,804.

Hannebaum, Heinz: *See—*
Nohe, Heinz, Suter, Hubert, and Hannebaum, Heinz,3,544,602.

Hanscom, Genevieve I.,: *See—*
Green, Chester, 3,543,928.
Green, Chester, 3,543,928.

Hansen, Carl W., to Picker Corporation, mesne. Methods of collimator fabrication. 3,543,384, Cl. 29-971.1

Hansen, Harold Velentine, and Chidester, Robert Leroy, to Deere & Company. Seed planter. 3,543,704, Cl. 111-52.

Hansen, Holger V., and Meltzer, Robert I., to Warner-Lambert Pharmaceutical Company. 3-Isopropyltyrosine. 3,544,623, Cl. 260-519.

Hanson, Archie A., to Albright's Electronics, Inc. Alarm system for detecting physical disturbances of one or more electrical appliances and the like from a location remote from said appliances. 3,544,984, Cl. 340-213.1

Hanson, Charles C., Ho, Joseph P. L., and Segar, Lawrence P., to International Business Machines Corporation. Digital to analog converter. 3,544,994, Cl. 340-347.

Hansson, Leif Tage: *See—*
Wolpert, Tadeusz, and Hansson, Leif Tage,3,544,878.

Hara, Masakatsu: *See—*
Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio,3,544,670.

Hara, Seiichi, Kosuge, Giichi, and Inoue, Kazuji, to Tokyu Sharyo Sheizo Kabushiki Kaisha. Control system for a machine tool. 3,544,875, Cl. 318-18.

Hardebeck, Klaus: *See—*
Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus,3,544,554.

Hardison, Leslie C., to Universal Oil Products Company. Centrifugal particle separator. 3,543,485, Cl. 55-398.

Hardison, Leslie C., to Universal Oil Products Company. Method and means for two-stage catalytic treating of engine exhaust gases. 3,544,264, Cl. 23-2.

Hardwick, John Gordon: *See—*
Jones, Michael Weston, and Hardwick, John Gordon,3,544,022.

Harley, Theodore P.: *See—*
Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F.,3,544,712.

Harman-Kardon Inc.: *See—*
Spyrou, Constantine A., 3,544,845.

Harmon, John J., to International Business Machines Corporation. Method and apparatus for multiplex control of a plurality of peripheral devices for transfer of data with a central processing system. 3,544,966, Cl. 340-172.5

Harmon, Lewis G.: *See—*
Toy, William W., 3,543,873.

Harper, David C.: *See—*
Moorhusen, Robert W., and Harper, David C.,3,544,190.

Harris, Berlin C., Jr.: *See—*
Tulley, Fredrick T., and Harris, Berlin C., Jr.,3,544,457.

Harris, Frederick J., to Olin Mathieson Chemical Corporation. Rivet tool. 3,543,560, Cl. 72-391.

Harris, Martin H., Jennings, James W., and Smith, Francis M., to Gulf Research & Development Company. Apparatus for plugging perforations in casings. 3,543,800, Cl. 137-802.

Harris, Michael R., to Baldwin, D. H., Company. Electronic piano with percussive effects employing Zener operation. 3,544,699, Cl. 84-1.26

Harris, Seth Owens, and Miller, Gary Kauilani, to American Cyanamid Company. Fibers of acrylonitrile-hydroxy ethyl methacrylate polymer cross-linked by phosphoric acid. 3,544,262, Cl. 8-115.5

Harris, William B., to Bell Telephone Laboratories, Incorporated. Thyristor switch circuit. 3,544,818, Cl. 307-284.

Hartfield, Thomas C., Feigl, Erich F., and Davis, Richard L., to Computer Security Systems. Security system. 3,544,722, Cl. 179-5.

Hartwell, Walter T., and Smith, Richard A., to Bell Telephone Laboratories, Incorporated. Apparatus for performing complex wave analysis. 3,544,894, Cl. 324-77.

Harvey, Andrew G.: *See—*
Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III,3,543,724.
Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III,3,543,725.

Harvey Harvesters, Inc.: *See—*
Harvey, John P., 3,543,495.

Harvey, John P., to Harvey Harvesters, Inc. Harvesting mechanism. 3,543,495, Cl. 56-329.

Hasler A.G.: *See—*
Bleickardt, Werner, 3,544,907.

Hasselo, William C., and Standley, Wendell E., to Container Corporation of America. Gusset forming machine. 3,543,474, Cl. 53-48.

Hatch, Melvin J.: *See—*
Jones, Griffin D., Geyer, Gerald R., and Hatch, Melvin J.,3,544,532.

Hatch, Melvin J., to Dow Chemical Company, The. Sulfonium modified water soluble surface coatings. 3,544,499, Cl. 260-29.6

Hauck, Julius J. Fish bait holder. 3,543,434, Cl. 43-44.6

Hauni-Werke Korber & Co., KG: *See—*
Heitmann, Bob, Grasse, Hans J., Schubert, Gunter, and Bodner, Fritz, 3,543,564.

Haupt, Fritz, to Maag Gear Wheel & Machine Company Limited. Gear pump. 3,544,244, Cl. 418-178.

Hauptschein, Murray, Hager, Robert Bonner, and Allen, Thomas Clark, to Pennwalt Corporation. Fluorinated organic compounds and polymers thereof. 3,544,663, Cl. 260-900.

Hauser, Raimund: *See—*
Freudenschusz, Otto, 3,544,206.

Haven, Harold A.: *See—*
Summerer, Raymond E., and Haven, Harold A.,3,544,002.

Hawkins, Jerry D., and Reid, Bill G., to Continental Can Company, Inc. Cup blanking and forming method and tooling therefor. 3,543,559, Cl. 72-335.

Hawks, Thomas R. Traffic pacing device. 3,544,959, Cl. 340-43.

Hawley, George F., and Buettner, John H., to Ivanhoe Research Corporation, mesne. Methods and apparatus for automatically transferring and registering fabric workpieces. 3,544,098, Cl. 270-58.

Hayes, Brice E., to Hayes Track Appliance Company. Railway safety apparatus. 3,544,960, Cl. 340-47.

Hayes, John Oscar, to Deere & Company. Implement frame. 3,544,130, Cl. 280-412.

Hayes Track Appliance Company: *See—*
Hayes, Brice E., 3,544,960.

Hayman, Dennis J., to Hydrometals, Inc., mesne. Single handle faucet valve. 3,543,799, Cl. 137-636.2

Hearns, Joseph D. Machine for cutting flexible material accurately both linearly and vertically. 3,543,627, Cl. 83-455.
Heberlein Patent Corporation: *See—*
Stutz, Otto Titus, 3,543,505.
Hechelhammer, Wilhelm: *See—*
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard,3,544,514.
Hedin, Robert A., to Digital Identification Systems, Inc. Electronic identification and credit card system. 3,544,769, Cl. 235-61.9
Hedrick, Glen W., and Magne, Frank C., to United States of America, Agriculture. Preparation of vinyl ester amides of pinic acid and copolymers thereof with vinyl chloride. 3,544,529, Cl. 260-78.5
Heesemann, Karl. Machine for grinding large-area workpieces. 3,543,443, Cl. 51-3.
Heflinger, Lee O., to TRW Inc. Simple direction of arrival indicator for pulsed plane waves. 3,545,000, Cl. 343-113.
Hegerman, Ernie: *See—*
Mulvey, Thomas B., Hegerman, Ernie, and Schuessler, Elwood V.,3,543,425.
Hegner, Henry R.: *See—*
Bridges, Jack E., and Hegner, Henry R.,3,544,890.
Heid, Christian: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian,3,544,363.
Heimbach, Paul: *See—*
Wilke, Gunther, and Heimbach, Paul,3,544,604.
Heisler, Jerome S., Starr, Anthony J., and Carey, John D., Sr., to Container Corporation of America. Plastic container and a method of making same. 3,543,963, Cl. 220-67.
Heisner, Donald N.: *See—*
Sallach, Max E., Heisner, Donald N., and Baker, Robert G.,3,544,967.
Heitmann, Bob, Grasse, Hans J., Schubert, Gunter, and Bodner, Fritz, to Hauni-Werke Korber & Co., KG. Conveyor for cigarettes or the like. 3,543,564, Cl. 73-41.
Heiwa Denki Kabushiki Kaisha: *See—*
Sugiyama, Kazuo, 3,543,547.
Hell, Wilfried H.: *See—*
Case, Bernard, and Hell, Wilfried H.,3,544,713.
Heller, Adam, to General Telephone & Electronics Laboratories Incorporated. Inorganic liquid laser media and method of preparation thereof. 3,544,477, Cl. 252-301.1
Heller, Harold: *See—*
Corte, Herbert, and Heller, Harold,3,544,488.
Hellmer, Ernest W., and Down, Alfred G., to Continental Can Company, Inc. Apparatus for deflashing and deburring plastic products. 3,543,619, Cl. 83-24.
Helm, Erik Johannes, and Thorne, Richard Stanley Wrey, to Jorgensen, Alfred, Gaeringsfysiologisk Laboratorium A/S, (Alfred Jorgensen, Laboratory for Termentation Ltd.). Electrolysis of fermented beverages. 3,544,329, Cl. 99-48.
Helminen, Toivo A. Web stretching and shrinking device. 3,543,365, Cl. 29-113.
Helton, Eugene L.: *See—*
Ball, Glenn A., and Helton, Eugene L.,3,543,863.
Henchert, John, to Continental Can Company Inc. Method of preforming and attaching metal pull tab metal can end rivet formation. 3,543,391, Cl. 29-509.
Hendrickson, Richard F., and King, Roderick V., to Sterling Seal Company. Tamperproof closure. 3,544,023, Cl. 220-27.
Hendrickson, Richard F., and King, Roderick V., to Sterling Seal Company. Directional closure for a container. 3,544,024, Cl. 220-27.
Henry-Biabaud, Edmond, to Societe Anonyme Andre Citroen. Automobile vehicles. 3,544,129, Cl. 280-106.5
Heres Ruiz, Raul. Cable connector. 3,544,955, Cl. 339-244.
Hermann Berstorff Maschinenbau GmbH: *See—*
Anders, Dietmar, and Frolich, Hans, 3,543,333.
Hermetic Coil Co. Inc.: *See—*
Davis, DhuAine J., 3,544,940.
Herriott, Donald R., and Poole, Kenneth M., to Bell Telephone Laboratories, Incorporated. Telephone-television substation apparatus. 3,544,715, Cl. 178-7.85
Herrmann, Hans: *See—*
Garnitschnig, Gunter, Herrmann, Hans, and Walchli, Hans,3,544,821.
Hess, Wayne Thomas, to Du Pont de Nemours, E. I., and Company. Hydrogen cyanide recovery by ketone cyanohydrin formation. 3,544,268, Cl. 23-151.
Hesse, Holger, Sloth, Carl, and Brendstrup, Asger. Infusion apparatus. 3,543,752, Cl. 128-214.
Heusner, Alex: *See—*
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl,3,544,578.
Hewlett-Packard Company: *See—*
Keiter, Richard C., 3,544,928.
Hexcel Corporation: *See—*
Blank, George F., and Bothe, Billy A., 3,543,388.
Heywood, S. H., & Company Limited: *See—*
Lee, Samuel, 3,543,690.
Hickin, Robert J., to Packaging Corporation of America. Basket type carrier, blank therefor and method of loading the carrier. 3,543,472, Cl. 53-35.
Higgins, John T.: *See—*
Hildred, Gordon C., and Higgins, John T.,3,543,923.
Hilderbrand, Victor F.: *See—*
McDevitt, James, and Hilderbrand, Victor F.,3,543,673.
Hildred, Gordon C., and Higgins, John T., to Cominco Ltd. Drum granulation. 3,543,923, Cl. 209-11.
Hill, James W. D. Inflation testing system. 3,543,715, Cl. 116-67.
Hill, Roger Gettys, to Gettys Manufacutring Company, Inc. Contouring control device with compensation for misalignment of stylus and tracing axes. 3,543,639, Cl. 90-13.5
Hils, Ernest J., to Sperry Rand Corporation. Filing cabinet. 3,544,187, Cl. 312-331.
Hilsenbeck, Larry L., and Montoro, John, to Westinghouse Electric Corporation. Method and apparatus for indexing flying shears for first cut synchronization. 3,543,620, Cl. 83-37.
Hipotronics, Inc.: *See—*
Pellegrino, Anthony J., 3,544,844.
Hirakawa, Katumi, Kitanosono, Hidehiro, and Nakanishi, Hiroshi, to Hitachi Ltd. Method of and apparatus for controlling roughing-down rolls outlet temperature in hot rolling mills. 3,544,004, Cl. 236-15.
Hirano, Hiroshi, Numata, Mitsuo, Shimahara, Noboru, and Kawai, Kiyohisa, to Takeda Chemical Industries, Ltd. Thiamine halophenylalkyl disulfides. 3,544,574, Cl. 260-256.5
Hiraoka, Tetsuo: *See—*
Iwai, Issei, Kishida, Yukichi, Hiraoka, Tetsuo, and Nakamura, Norio,3,544,584.
Hirokawa, Kohichi, to Kabushiki Kaisha Ricoh. Desensitizing apparatus for offset-press. 3,543,683, Cl. 101-425.
Hirst, Ronald, to Graviner (Colnbrook) Limited. Method of extinguishing fires. 3,544,459, Cl. 252-5.
Hispano Suiza(Suisse)S.A.: *See—*
Vignon, Louis, 3,543,352.
Hitachi Ltd.: *See—*
Hirakawa, Katumi, Kitanosono, Hidehiro, and Nakanishi, Hiroshi, 3,544,004.
Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi, 3,544,048.
Hitco: *See—*
Shaffer, Robert C., 3,544,530.
Hladky, Walter: *See—*
Hladky, Walter, 3,543,906.
Hladky, Walter, 9/20 to Buxton, Edward J., 9/20 to Nolte, Albert C., Jr., and 2/20 to Hladky, Walter. Solenoid controlled printing hammer mechanism. 3,543,906, Cl. 197-49.
Ho, Joseph P. L.: *See—*
Hanson, Charles C., Ho, Joseph P. L., and Segar, Lawrence P.,3,544,994.
Hoagland, Bruce S., and Kirschenbaum, Bernard, to Bell Telephone Laboratories, Incorporated. Magnetic memory assembly method. 3,543,397, Cl. 29-604.
Hoagland Instrument Company: *See—*
Hoagland, Porter, Jr., 3,544,943.
Hoagland, Milton B., Groener, George E., Trible, Clayton J., and Fletcher, William A., to General Motors Corporation. Apparatus for punching and forming articles from sheet stock. 3,543,554, Cl. 72-185.
Hoagland, Porter, Jr., to Hoagland Instrument Company. Overcurrent responsive device. 3,544,943, Cl. 337-139.
Hobbs, William, Jr., to Sperry Rand Corporation. Feeder mechanism for a baling machine. 3,543,678, Cl. 100-189.
Hodkinson, Harold, to Automotive Products Company Limited. Closed loop type disc brake and support means therefor. 3,543,887, Cl. 188-73.4
Hoerrner, William L., to Lockheed Aircraft Corporation. Duct pressure compensator. 3,544,135, Cl. 285-47.
Hoffman, Joseph Willard: *See—*
Stoltz, Herbert Collier, Hoffman, Joseph Willard, and Demler, Henry William, Sr.,3,544,060.
Hoffman, Lewis C., to Du Pont de Nemours, E. I., and Company. Glasses and capacitor dielectric compositions made therefrom. 3,544,330, Cl. 106-54.
Hoffman, William L. Soft board fabrication. 3,543,315, Cl. 9-310.
Hoffmann, Erich: *See—*
Plester, Karl Heinz, and Hoffmann, Erich,3,544,055.
Hoffmann-La Roche Inc.: *See—*
Albrecht, Harry Allen, and Plati, John Thomas, 3,544,582.
Rosenberger, Michael, and Saucy, Gabriel, 3,544,600.
Saucy, Gabriel, 3,544,598.
Hogan, James A., Newbold, William F., and Spady, Richard J., to Honeywell Inc. Force rebalance servo system including a unique two wire transmission line and transistor control circuit. 3,544,876, Cl. 318-32.
Holden, Howard E.: *See—*
Taylor, Harold M., and Holden, Howard E.,3,544,682.
Holden, Richard A. Tool holder. 3,543,618, Cl. 82-36.
Holdstock, Norman G., and Thimineur, Raymond J., to General Electric Company. Detergent resistant silicone polish. 3,544,498, Cl. 260-29.2
Holland, Peter Clive, to Mather & Platt Limited. Discharging mechanism for delivering container sticks after processing in a hydrostatic cooker to discharge conveying means. 3,543,908, Cl. 198-26.
Holler, Fritz: *See—*
Ebert, Alfred, Pirot, Ernst, Holler, Fritz, and Steinhilber, Georg,3,544,667.

Holley Carburetor Company: *See—*
Bier, Kenneth C., 3,544,085.
Holloway, Robert M.: *See—*
Roselius, Charles F., and Pelikan, George A., 3,543,889.
Holly, Charles J., Jr.: *See—*
Turner, James W., and Holly, Charles J., Jr.,3,544,997.
Holmes, Graham: *See—*
Crabtree, Allen, and Holmes, Graham,3,544,546.
Holmes, Thomas: *See—*
Roberts, Glyn B., and Holmes, Thomas,3,543,827.
Holsten, Karl-Georg, to U.S. Philips Corporation, mesne. Circuit arrangement for connecting devices for picking up measuring values to be recorded. 3,543,583, Cl. 73-341.
Holt, Jan D.: *See—*
Thornton, Duane V., and Holt, Jan D.,3,543,693.
Holtbecker, Helmut: *See—*
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido,3,543,387.
Holtzberg, Frederic, and von Molnar, Stephan, to International Business Machines Corporation. Rectifying ferromagnetic semiconductor devices and method for making same. 3,544,865, Cl. 317-237.
Holtzman, Samuel J. Luggage manufacture. 3,544,418, Cl. 161-92.
Holzner, Johannes: *See—*
Jaeger, Friedrich, and Holzner, Johannes,3,544,091.
Homestead Industries, Inc.: *See—*
Trasp, George Oliver, 3,543,774.
Honeywell Inc.: *See—*
Blackett, James C., 3,544,247.
Dale, Ralph H., and Youngblood, Roy D., 3,543,983.
Hogan, James A., Newbold, William F., and Spady, Richard J., 3,544,876.
Ogawa, Shinichiro, and Matsuda, Toshiyuki, 3,544,815.
Ogawa, Shinichiro, and Matsuda, Toshiyuki, 3,544,816.
Schmidt, Ronald G., 3,544,781.
Tanaka, Masayoshi, 3,544,882.
Hooker Chemical Corporation: *See—*
Dey, Arabinda N., 3,544,380.
Dey, Arabinda N., 3,545,006.
Dorfman, Edwin, and Emerson, William E., 3,544,618.
Miller, George T., 3,544,379.
Miller, George T., 3,544,381.
Robota, Stephen, 3,544,644.
Russell, William L., 3,544,388.
Hoover, Merwin Frederick: *See—*
Boothe, Jerry E., and Hoover, Merwin Frederick,3,544,318.
Horimoto, Kohei: *See—*
Watabe, Kaname, Horimoto, Kohei, Muramatsu, Masahiro, and Ito, Mamoru,3,543,503.
Hormavirta, Hilkka O. Orthopaedic shoes. 3,543,764, Cl. 128-581.
Horner, Walter J.: *See—*
Bridge, Laurance, Horner, Walter J., and Thiel, Harold F.,3,544,372.
Hornstein, Carlos A. Machine for dyeing under pressure at high temperature or in open bath. 3,543,539, Cl. 68-12.
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf, to Chemische Werke Huels A.G. Hard, elastic, and impact-resistant coatings. 3,544,656, Cl. 260-850.
Hornung, Karl-Heinz: *See—*
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf,3,544,657.
Horvath, Gabor: *See—*
Szoke, Sandor, Szentmiklosi, Peter, David, Agoston, and Horvath, Gabor,3,544,631.
Hoskins, Jack E.: *See—*
Houser, Clarence G., and Hoskins, Jack E.,3,544,540.
Hotchkiss Instruments, Inc.: *See—*
Hotchkiss, John E., 3,543,746.
Hotchkiss, John E., to Hotchkiss Instruments, Inc. Endoscope having improved illumination system. 3,543,746, Cl. 128-9.
Hou, Shou-Ling, and Walsh, Paul L., to Corning Glass Works. RC phase shift circuit having improved output amplitude stability. 3,544,886, Cl. 323-75.
Houdaille Industries, Inc.: *See—*
Obergefell, Ronald F., 3,543,881.
Houser, Clarence G., and Hoskins, Jack E., to Phillips Petroleum Company. Temperature control system. 3,544,540, Cl. 260-93.7
Howard, Arthur Clifford, and Howard, John Arthur, to Rotary Hoes Limited. Earth-working rotor for a cultivating machine. 3,543,866, Cl. 172-548.
Howard, David Robert, to Davy and United Engineering Company Limited. Rolling mill control for compensating for the eccentricity of the rolls. 3,543,549, Cl. 72-8.
Howard, Donald W., and Schafer, Thomas C., to Bendix Corporation, The. Adaptive braking system false trigger hold-off circuit. 3,544,172, Cl. 303-21.
Howard, John Arthur: *See—*
Howard, Arthur Clifford, and Howard, John Arthur,3,543,866.
Howe, Thomas W., Sr., to Halliburton Company. Knuckle radius machine. 3,543,552, Cl. 72-82.
Howell, Harry D., Jr., and Gillman, William J., to Hanford Foundry Company, mesne. Removable clinker cooler grate plates and support frame therefor. 3,543,413, Cl. 34-164.
Howes, Franklin J., to Kunkle Valve Company, Inc. Valve structure with improvements for torque wrench testing. 3,543,777, Cl. 137-551.
Hoyer, Ernst: *See—*
Gunther, Dieter, Hoyer, Ernst, Schmidt, Heinz, and Vollman, Hansjorg,3,544,548.
Hsu, Henry, to Pullman Incorporated. Urea synthesis. 3,544,628, Cl. 260-555.
Hudson, James R.: *See—*
Borck, Walter C., Jr., Gregory, John G., Hudson, James R., and Murtha, John C.,3,544,973.
Hudson Products Corporation: *See—*
Gunter, Addison Y., 3,543,843.
Huff, Byron J. L., and Zachariasen, Karsten A., to Buckeye Cellulose Corporation. Prehydrolysis treatment for chemical cellulose production. 3,544,422, Cl. 162-82.
Hughes Aircraft Company: *See—*
Dill, Hans G., 3,544,399.
Marsh, Ogden J., 3,544,398.
O'Meara, Thomas R., 3,544,771.
Hughes, Francis H., to Cluett, Peabody & Co., Inc. Work handling apparatus for sewing machines and the like. 3,544,102, Cl. 271-68.
Hulak, William M., to Structural Fibers, Inc. Clamping and pulling device. 3,543,373, Cl. 29-200.
Huniu, Sam: *See—*
Moy, Richard M., and Huniu, Sam,3,544,061.
Hunt, Ian Arthur, to Rolls-Royce Limited. Moulding press. 3,543,344, Cl. 18-16.
Hunter, David John: *See—*
Wood, Peter, Hunter, David John, Whyard, Robert Edward, and Keats, Albert Brian,3,544,908.
Hunter, Paul D., to Bell Telephone Laboratories, Incorporated. Data insertion in a content addressable sequentially ordered file. 3,544,975, Cl. 340-172.5
Huntingdon Industries Incorporated: *See—*
Ullman, John E., 3,543,469.
Hunziker, Louis A. Test tank for marine engines. 3,543,573, Cl. 73-117.1
Hurtig, Carl R., to Damon Engineering, Inc. Monolithic crystal filter having mass loading electrode pairs having at least one electrically non-conductive electrode. 3,544,926, Cl. 333-72.
Hutchins, Loren W., to Douthitt Corporation. Contact printer assembly. 3,544,215, Cl. 355-78.
Hutson, John K.: *See—*
Majewski, Henry, and Hutson, John K.,3,544,339.
Hutto, John F.: *See—*
Dixon, Rolland E., and Hutto, John F.,3,544,649.
Hvam, Hjalmar. Cup toe bindings. 3,544,122, Cl. 280-11.35
Hwang, Ho Chien, to Sumner Williams, Inc. Diazo compounds for lithographic plates. 3,544,323, Cl. 96-75.
Hydrel A.G.: *See—*
Weiland, John H., 3,543,621.
Hydrometals, Inc.: *See—*
Hayman, Dennis J., 3,543,799.
Hyster Company: *See—*
Schwab, Delmar G., 3,543,508.
Iannucci, Vicent A., to North American Rockwell Corporation, mesne. Casting and forging apparatus. 3,544,284, Cl. 29-33.
Ichikawa, Hirohiko: *See—*
Ninomiya, Nobutaka, Ichikawa, Hirohiko, and Nishino, Hiroshi,3,544,263.
Ichinokawa, Hideo: *See—*
Oga, Taijiro, Ichinokawa, Hideo, and Ito, Masatomo,3,544,617.
Idelson, Elbert M., to Polaroid Corporation. 1:1 Chromium complexed dyes containing hydroxy aromatic azopyrazolones, β-hydroxy-α,β-unsaturated carbonyls and a hydroquinonyl group. 3,544,545, Cl. 260-147.
Ifield, Richard Joseph, to Lucas, Joseph (Industries) Limited. Flow control devices. 3,543,783, Cl. 137-101.
Iida, Harvey I.: *See—*
Senick, Ralph P., and Iida, Harvey I.,3,544,173.
Iijima, Katsuhiko, to Mitsubishi Jukogyo Kabushiki Kaisha. Hydraulic system. 3,543,646, Cl. 91-414.
IIT Research Institute: *See—*
Bridges, Jack E., and Hegner, Henry R., 3,544,890.
Ilgisonis, Igor Viktorovich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ilgisonis, Igor Viktorovich, and Adamsky, Noi Mikhailovich,3,544,074.
Illg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk. Method of multitrack, two-gap, ferrite magnetic heads designed especially for digital recording. 3,543,396, Cl. 29-603.
Illinois Tool Works Inc.: *See—*
Meehan, Clarence L., 3,543,353.
Ryder, Francis E., 3,543,581.
Imai, Shinichi: *See—*
Yoshida, Makoto, Okumura, Akio, and Imai, Shinichi,3,544,326.
Imperial Chemical Industries Limited: *See—*
Anderton, Catherine Margaret, Fishwick, Brian Ribbons, and Lawson, John, 3,544,550.
Burrows, Harold George, Duxbury, Frederick Keith, and Ingham, Philip Brierley, 3,544,519.

Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry, 3,544,626.
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry, 3,544,627.
Clegg, William Raymond, and Edwards, Harry, 3,544,413.
Crabtree, Allen, and Holmes, Graham, 3,544,546.
Crabtree, Allen, and Murton, Henry Roy, 3,544,547.
East, Anthony Julian, and Thackray, Wendy Denise, 3,544,658.
Gazzard, Edward George, and Greenshields, James Nairn, 3,544,601.
Jones, Alan Conway, 3,544,036.
Kirkaldy, David, 3,544,526.
Osmond, Desmond Wilfrid John, and Moody, Anthony Gifford, 3,544,500.
Sandiford, Denis James Henry, 3,544,671.

Imperial Metal Industries (Kynoch) Limited: *See—*
Graham, Robert Leslie, and Morton, Peter Harlow, 3,544,285.
Jones, Michael Weston, and Hardwick, John Gordon, 3,544,022.

Impulsphysik GmbH: *See—*
Frungel, Frank, 3,544,797.

Industrial Electronic Rubber Company: *See—*
Murray, Myles N., 3,544,062.

Industrial Filter & Pump Mfg. Co.: *See—*
Schmidt, Henry, Jr., 3,543,940.

Ingalls, Rawson V. Support washer. 3,544,053, Cl. 248-221.

Ingeniorsfirma H. Sundkvist: *See—*
Snellman, Karl Olof, 3,544,426.

Ingersoll-Rand Co.: *See—*
Barber, Robert O., and Anderson, William C., 3,543,738.
Grego, Thomas E., 3,544,069.
Miller, Bernard F., 3,544,178.
Peterson, Carl R., 3,544,116.

Ingham, Philip Brierley: *See—*
Burrows, Harold George, Duxbury, Frederick Keith, and Ingham, Philip Brierley,3,544,519.

Ingram, Orville, and Floehr, Walter L., to Midland-Ross Corporation. Reinforced fiberglass hatch cover. 3,543,442, Cl. 49-501.

Inland Container Corporation: *See—*
George, Philip R., and Wood, Robert N., 3,543,991.

Innocenti Societa Generale per l'Industria metallurgica e Meccania:*See—*
Galbarini, Maso, and Cotta Ramusino, Francesco, 3,543,635.

Inoi, Takeshi: *See—*
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi,3,544,683.

Inoue, Kazuji: *See—*
Hara, Seiichi, Kosuge, Giichi, and Inoue, Kazuji,3,544,875.

Inoue, Masahiko: *See—*
Uchiyamada, Kameo, Inoue, Masahiko, and Sakurai, Katsuo,3,544,162.

Inoue, Morio, and Kano, Gota, to Matsushita Electronics Corporation. Method of metallizing bodies made from ceramics or crystallized glass and method of producing a gas tight seal. 3,543,386, Cl. 29-473.1

Inskeep, Mark D., and Zagar, Walter T., to Allied Chemical Corporation. Process for heat treating fabricated plastic articles. 3,544,673, Cl. 264-235.

Institut de Recherches de la Siderurgie Francaise: *See—*
Ghali, Edward Labib, and Voeltzel, Jacques, 3,544,390.

Integrated Lighting Limited: *See—*
Audeval, George Marceau, 3,544,787.

Interlab, Inc.: *See—*
Layton, Howard M., 3,543,776.

International Alloys Limited: *See—*
Ehrlich, Friedrich, and Thomas, Gordon James, 3,544,367.

International Basic Economy Corporation: *See—*
Raymond, Robert E., 3,543,513.
Raymond, Robert E., 3,543,934.

International Business Machines Corporation: *See—*
Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F., 3,544,712.
Bauer, Richard A., and Storm, Elwood H., 3,544,732.
Bradley, Terrag W., 3,543,921.
Bryngdahl, Olof, 3,544,219.
Campbell, Elwood C., 3,543,926.
Charlton, Richard J., 3,543,922.
Guenther, Charles J., 3,543,452.
Hanson, Charles C., Ho, Joseph P. L., and Segar, Lawrence P., 3,544,994.
Harmon, John J., 3,544,966.
Holtzberg, Frederic, and von Molnar, Stephan, 3,544,865.
McDonald, Earl G., Jr., and Hahs, Walter R., 3,544,979.
Riso, Vladimir, 3,544,812.
Rottmann, Hans R., 3,544,191.
Tan, Kwang G., 3,544,974.

International Harvester Company: *See—*
Fort, Edward F., and Berndt, Wayne E., 3,544,082.
Kowalik, John J., Svereika, Edward, and Meitl, Harold G., 3,543,488.
Phillips Carmen S., Corwith, James, Jr., and Clendenin, Wilbur H., 3,543,914.
Pool, Stuart D., and Steingas, Richard R., 3,543,907.

International Nickel Company, Inc., The: *See—*
Turillon, Pierre P., and Hanley, Patrick J., 3,544,312.

International Paper Company: *See—*
Murphy, James A., and Lee, Charles A., 3,543,756.
Murphy, James A., Lee, Charles A., and Furbeck, Warren R., 3,544,420.

International Products, Inc.: *See—*
Whitehead, Jack D., 3,543,741.

International Standard Electric Corporation: *See—*
Bohner, Manfred, 3,544,977.
Gabriel, Malcolm Edward, 3,544,993.
Weinerth, Hans, 3,544,397.

International Telephone and Telegraph Corporation: *See—*
McEntyre, David E., 3,544,217.

Inventa AG fur Forschung und patentverwertung: *See—*
Hahn, Wolf-Diether, 3,544,522.

Inventa A.G. fur Forschung und Patentverwertung: *See—*
Schultze, Hans-Joachim, and Berther, Clau, 3,544,562.

Isaksen, Robert A., and De Shay, Robert V., to Monsanto Company. Method of protecting finished surfaces. 3,544,349, Cl. 117-6.

Ishii, Teiji, and Morita, Koh, to Chisso Corporation. Electroplating plastic articles. 3,544,432, Cl. 204-20.

Ishizuka, Hiroshi. Ultra high pressure apparatus. 3,543,347, Cl. 18-16.5

ITAL-BED Costruzione Letti e Affini S.r.l.: *See—*
Pofferi, Giancarlo, 3,543,312.

I-T-E Imperial Corporation: *See—*
De Marco, Bernard, Kussy, Frank W., and Cataldo, John B., 3,544,929.

Itek Corporation: *See—*
Adachi, Iwao P., 3,543,717.
Rosenblum, Louis, 3,543,657.

Itil, Talat D. Structural support element for conveying apparatus. 3,543,913, Cl. 198-129.

Ito, Mamoru: *See—*
Watabe, Kaname, Horimoto, Kohei, Muramatsu, Masahiro, and Ito, Mamoru,3,543,503.

Ito, Masatomo: *See—*
Oga, Taijiro, Ichinokawa, Hideo, and Ito, Masatomo,3,544,617.

Ivanhoe Research Corporation: *See—*
Hawley, George F., and Buettner, John H., 3,544,098.

Ivanyi, Joszef: *See—*
Muller, Erwin, Kallert, Wilhelm, and Ivanyi, Joszef,3,544,524.

Ivliev, Valery Alexandrovich: *See—*
Pavlov, Vladimir Vasilievich, Ivliev, Valery Alexandrovich, Zlobin, Jury Petrovich, Birnbaum, Oleg Ernstovich, and Trunov, Oleg Konstantinovich,3,543,577.

Iwai, Issei, Kishida, Yukichi, Hiraoka, Tetsuo, and Nakamura, Norio, to Sankyo Company Limited. Certain 5-alkyl-3-hydroxyisoxazoles. 3,544,584, Cl. 260-307.

Iwata, Junzo: *See—*
Miura, Takeo, Iwata, Junzo, and Tsuda, Junji,3,544,833.

Jackson, Clifford C.: *See—*
Spratt, Virgil E., and Jackson, Clifford C.,3,543,462.

Jackson, Don M., Jr.: *See—*
Price, William L., and Jackson, Don M., Jr.,3,544,863.

Jackson, Franklin D.: *See—*
Freeman, George S. P., Jackson, Franklin D., and Weber, Joseph J.,3,543,383.

Jackson, Norman Charles, to Standard Products Company, The. Exterior molding structure. 3,543,465, Cl. 52-716.

Jackson, Oscar R. Worm trap. 3,543,433, Cl. 43-78.

Jacobs, William L., and Watkins, Charles H., to Universal Oil Products Company. Supersonic jet fuel production. 3,544,448, Cl. 208-59.

Jaeger, Friedrich, and Holzner, Johannes, to Glanzstoff AG. Apparatus for continuous thermal treatment of pourable granules. 3,544,091, Cl. 263-30.

Jaeger, Hans, and Perna, Nicholas Alfonso, to Texas Instruments, Incorporated. Step and repeat camera with computer controlled film table. 3,544,213, Cl. 355-53.

Jaffe, Joseph, to Chevron Research Company. Flourine and metal phosphate-containing catalysts and preparation and use thereof. 3,544,452, Cl. 208-216.

James, Michael Joseph, to Micro & Precision Mouldings (Cheltenham) Limited. Door latches. 3,544,147, Cl. 292-169.

Jannasch, Ulrich, and Schmidt, Gunther, to Leybold-Hochvakuum-Anlagen GmbH. Optical instrument for determining layer thickness. 3,544,222, Cl. 356-161.

Janocha, Siegfried: *See—*
Eichenseer, Franz, Janocha, Siegfried, and Macholdt, Hans,3,544,556.

Japan Broadcasting Corporation: *See—*
Konishi, Yoshihiro, 3,544,920.

Japan Monopoly Corporation, The: *See—*
Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji, 3,544,167.

Jarman, Hall E., to Texas Instruments, Incorporated. High depth-to-width ratio etching process. 3,544,401, Cl. 156-17.

Jaroff, David B., Litt, Donald D., and Weinstein, Arnold, to Custom Swabs, Inc. Swab packaging apparatus. 3,543,476, Cl. 53-62.

Javaux, Gustave, and Vasseur, Jean-Pierre, to Glaverbel S.A. Production of solder joints between a spacer strip and a metallized coating in a multiple pane glazing unit. 3,543,385, Cl. 29-472.5

Jayark Instruments Corporation: *See—*
Bogdanowicz, Mitchell J., 3,544,205.

Jelatis, Demetrius G.: *See—*
Haaker, Lester W., and Jelatis, Demetrius G.,3,543,592.

Haaker, Lester W., and Jelatis, Demetrius G.,3,543,593.

Jenks, Herbert R., to Dura-Fiber, Inc. Laminated fiberglass diving board. 3,544,104, Cl. 272-66.

Jennings, James W.: *See—*
Harris, Martin H., Jennings, James W., and Smith, Francis M.,3,543,800.

Jensen, J. Gammelby: *See—*
Johnsen, Ingolf, and Jensen, J. Gammelby,3,544,942.

Jerrold Electronics Corporation: *See—*
Winston, Eric, 3,544,705.
Winston, Eric, and Frank, Edward M., 3,544,921.

Jestadt, Hans-Joachim: *See—*
Bottenberg, Hans H., Jestadt, Hans-Joachim, Leysieffer, Hans G., and Stockinger, Felix Johan,3,544,995.

Jiffy Manufacturing Co.: *See—*
Gerard, George, 3,544,419.

JL Products Incorporated: *See—*
Hamrick, James C., 3,543,325.

John, Robert S., Jr., to Bell & Howell Company. Shutter control mechaniam. 3,544,207, Cl. 352-109.

Johnsen, Ingolf, and Jensen, J. Gammelby, to Danfoss A/S. Thermally actuated servo-motor. 3,544,942, Cl. 337-116.

Johns-Manville Corporation: *See—*
Trihey, John Massey, 3,543,470.

Johnson & Johnson: *See—*
Crocker, Guy J., and Puskadi, Frank, 3,543,920.
Meizanis, James, 3,543,750.

Johnson, Carroll E. Methods and apparatus for detecting variations in gross momentum thrusts. 3,543,574, Cl. 73-117.4

Johnson, Ernest K.: *See—*
Brown, Ralph D., and Johnson, Ernest K.,3,544,233.

Johnson, Frederick W., and Leach, Jack, to Burlington Industries, Inc. Method of making polypropylene bags. 3,544,404, Cl. 156-148.

Johnson, Roy. Nail holder-dual hammer. 3,543,821, Cl. 145-30.

Jones, Alan Conway, to Imperial Chemical Industries Limited. Yarn package. 3,544,036, Cl. 242-178.

Jones, Fannie Mae: *See—*
Thom, Wenzel W., 3,544,072.

Jones, Griffin D., Geyer, Gerald R., and Hatch, Melvin J., to Dow Chemical Company, The. Cationic 2-methylene-1,3-butadiene polymers. 3,544,532, Cl. 260-79.7

Jones, Gwilym. Bearings. 3,544,180, Cl. 308-237.

Jones, John Leslie, Sr. Tampon applicator. 3,543,754, Cl. 128-263.

Jones, Michael Weston, and Hardwick, John Gordon, to Imperial Metal Industries (Kynoch) Limited. Structures. 3,544,022, Cl. 220-23.4

Jones, Robert G.: *See—*
Killen, Richard J., and Jones, Robert G.,3,543,680.

Jones, Terry D. Wall plate structure. 3,544,703, Cl. 174-66.

Jones, Thomas Ivor: *See—*
Fearnley, Charles, and Jones, Thomas Ivor,3,544,501.

Jordan, Michael, and Kirk, Bradley S., to Air Reduction Company, Incorporated. Multiple-pass heat exchanger for cryogenic systems. 3,543,844, Cl. 165-155.

Jorgensen, Alfred, Gaeringsfysiologisk Laboratorium A/S, (Alfred Jorgensen, Laboratory for Termentation Ltd.): *See—*
Helm, Erik Johannes, and Thorne, Richard Stanley Wrey, 3,544,329.

Jorgensen, Pierre, to Saint-Gobain Techniques Nouvelles. Electronic multiplying apparatus and circuitry therefor. 3,544,780, Cl. 235-194.

Jory of San Francisco: *See—*
Altman, Irwin L., 3,543,771.

Joslyn Mfg. and Supply Co.: *See—*
Weibel, William A., 3,544,785.

Joy, Raymond D.: *See—*
Morrison, Elbert F., and Joy, Raymond D.,3,543,981.

Joy, Theodore K., and Rose, Herbert M. Rotary storage rack. 3,543,943, Cl. 211-131.

Joyce, Ronald W., Billingslea, Eugene E., Sage, Leopold C., and Marshall, Robert K., to Victor Comptometer Corporation. Air operated projectile firing apparatus. 3,543,427, Cl. 42-39.5

Junovich, Mark Iosifovich, and Kazakov, Nikolai Ivanovich, to Vsesojuzny nauchno-issledovatelsky gornomerallur gischesky institut tsvetnykh metallov. Device for loading bulk materials into pressure piping. 3,544,168, Cl. 302-14.

Jurdyc, Marius. Mobile drum for distributing and spraying. 3,544,010, Cl. 239-168.

Jureit, John Calvin, and Coovert, Gilbert T., to Automated Building Components, Inc. Metallic tile manufacture. 3,544,353, Cl. 117-26.

Jurney, Joseph F., and Roediger, Herman R., to Star Paper Tube, Inc. Yarn carrier tube. 3,544,034, Cl. 242-118.32

Justi, Eduard, and Wendtland, Ralf, 1/2 to Varta Aktiengesellschaft, and 1/2 to Siemens Aktiengesellschaft. Oxygen-hydrogen storage battery cell. 3,544,377, Cl. 136-86.

Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft: *See—*
Lehnert, Gunther, Roderburg, Harald, and Ziemek, Gerhard, 3,544,752.

Kabushiki Kaisha Honda Gijutsu Kenkyousho: *See—*
Fujita, Haruyasu, 3,544,259.

Kabushiki Kaisha Murakami Seisakusho: *See—*
Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji, 3,544,167.

Kabushiki Kaisha Ricoh: *See—*
Hirokawa, Kohichi, 3,543,683.
Umahashi, Minoru, and Kobayashi, Yugoro, 3,544,212.

Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*
Suzuki, Toshio, Oshima, Yujiro, and Kataoka, Masao, 3,543,736.

Kabushikikasha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.): *See—*
Kawada, Shin-Ichi, 3,543,587.

Kachel, Irwin, to Zenith Radio Corporation. Method of preparing a phosphor composition for screening a color cathode-ray tube. 3,544,354, Cl. 117-33.5

Kadowaki, Yoshio, Shimokawa, Hayao, Yoshida, Kazuaki, and Saito, Eisuke, to Furukawa Electric Company Limited, The. Method for polymerizing olefins. 3,544,534, Cl. 260-88.2

Kaenel, Reginald A., and Smith, James L., to Bell Telephone Laboratories, Incorporated. Code translator. 3,544,992, Cl. 340-347.

Kagan, Fred, and Magerlein, Barney J., to Upjohn Company, The. 7-Mercapto-7-deoxylincomycins and process for preparing the same. 3,544,551, Cl. 260-210.

Kahlbrock, Heinz, to Bell Telephone Laboratories, Incorporated. Directional control circuit for hub type data repeater. 3,544,719, Cl. 178-73.

Kaiser Aluminum & Chemical Corporation: *See—*
Nowak, Thomas A., 3,544,737.
Woolever, Kenneth W., 3,544,035.

Kaiser, Arthur: *See—*
McMann, Renville H., Jr., and Kaiser, Arthur,3,544,987.

Kaiser Gypsum Company, Inc.: *See—*
Lovell, Donald H., and Orleman, Paul D., 3,543,376.

Kaiser Industries Corporation: *See—*
Young, Robert R., 3,543,952.

Kalle Aktiengesellschaft: *See—*
Eichenseer, Franz, Janocha, Siegfried, and Macholdt, Hans, 3,544,556.

Kallert, Wilhelm: *See—*
Muller, Erwin, Kallert, Wilhelm, and Ivanyi, Joszef,3,544,524.

Kalns, Arvid. Concrete screeding apparatus. 3,543,652, Cl. 94-45.

Kamarian, Georgy Mikirtychevich: *See—*
Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich,3,544,443.

Kampe, Johannes F. E., to McDonnell Douglas Corporation. Impact mill. 3,544,014, Cl. 241-41.

Kanai, Harue, to Picaso Company Limited. Hair curling clip. 3,543,772, Cl. 132-33.

Kanamori, Ko: *See—*
Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji,3,544,167.

Kano, Gota: *See—*
Inoue, Morio, and Kano, Gota,3,543,386.

Karasick, Norman M., to Universal Oil Products Company. Seat back positioning system. 3,544,160, Cl. 297-355.

Karcher, John C., to Concho Petroleum Company. Method of forming a solid plant nutrient from leonardite humate bearing ore. 3,544,296, Cl. 71-24.

Karlson, John E. Jet engine silencer nozzle structure with tapered apertures in outer walls. 3,543,876, Cl. 181-43.

Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ilgisonis, Igor Viktorovich, and Adamsky, Noi Mikhailovich. Pneumatic pulsation for imparting vibratory motion to a liquid in a container. 3,544,074, Cl. 259-1.

Karsay, Bela I.: *See—*
Yodis, Anthony W., Michener, Aubrey W., Jr., and Karsay, Bela I.,3,544,633.

Karter, Peter, to American Machine & Foundry Co. Process and apparatus for separating liquids and solids. 3,543,933, Cl. 210-73.

Kasberger, Ludwig: *See—*
Maier, Martin, Stelzle, Martin, and Kasberger, Ludwig,3,543,489.

Kataoka, Masao: *See—*
Suzuki, Toshio, Oshima, Yujiro, and Kataoka, Masao,3,543,736.

Katchman, Arthur, and Cooper, Glen D., to General Electric Company. Diarylguanidines as rate promoters in oxidative polyphenylene ether formation. 3,544,515, Cl. 260-47.

Kato, Hitoshi: *See—*
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi,3,544,683.

Kato, Taizo: *See—*
Shiota, Masatoshi, Kato, Taizo, and Numata, Hideji,3,544,666.

Katsuyama, Shigeo: *See—*
Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio,3,544,670.

Katz, Saul: *See—*
Bardsley, Robert F., Bower, Harvey S., and Katz, Saul,3,543,411.

Kaufman, Irving, and Norton, Richard E., to TRW Inc. Microwave harmonic generator utilizing self- resonant ferrite. 3,544,880, Cl. 321-69.

Kaufmann, John, Jr. Exhaust conversion systems. 3,543,510, Cl. 60-30.

Kaul, Arthur A. Accelerator pedal attachment. 3,543,606, Cl. 74-562.5

Kautsky, George J. Acid-amide pour point depressants. 3,544,467, Cl. 252-51.5

Kawada, Shin-Ichi, to Kabushikikasha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.). Gyroscopic instrument. 3,543,587, Cl. 74-5.6

Kawai, Kiyohisa: *See—*
Hirano, Hiroshi, Numata, Mitsuo, Shimahara, Noboru, and Kawai, Kiyohisa,3,544,574.

Kawase, Yasutaka: *See—*
Tsubakimoto, Naosuke, Kawase, Yasutaka, and Matsushita, Hiroyuki,3,544,991.

Kaye, Albert Edward: *See—*
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry,3,544,626.
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry,3,544,627.

Kaye, Morton, to Plastic Contact Lens Company, The, mesne. Optical instruments. 3,544,220, Cl. 356-109.

Kazakov, Nikolai Ivanovich: *See—*
Junovich, Mark Iosifovich, and Kazakov, Nikolai Ivanovich,3,544,168.

Kazel, Sidney. Automatic ranging and focusing system. 3,543,666, Cl. 95-45.

Kearney-National Inc.: *See—*
De Baillie, Arnold A., 3,543,892.

Keats, Albert Brian: *See—*
Wood, Peter, Hunter, David John, Whyard, Robert Edward, and Keats, Albert Brian,3,544,908.

Keefer, David E.: *See—*
Rakoczi, Laszlo L., Keefer, David E., Goss, Gary J., and Porcelli, Ernest J.,3,544,969.

Keeler, David G. Paint applicator for painting the side walls of tires. 3,543,718, Cl. 118-211.

Keen, James L., to General Mills, Inc. Processing of endosperm splits. 3,543,823, Cl. 146-221.9

Kehoe, Lawrence J., and Schell, Raymond A. Process for preparing alcohols and aldehydes. 3,544,635, Cl. 260-604.

Keiter, Richard C., to Hewlett-Packard Company, mesne. Mode attenuating support bead for a coaxial transmission line. 3,544,928, Cl. 333-97.

Kellett, Eric, to C.A.V. Limited. Control arrangement for a hot gas generator. 3,543,511, Cl. 60-39.23

Kelley, Archibald P., and Meshew, Allan D., to Garrett Corporation, The. Augmented ramjet engine. 3,543,520, Cl. 60-269.

Kellis, Louis T. Brush bottle. 3,544,226, Cl. 401-28.

Kempson, Bertram Carl, to Dowty Hydraulic Units Ltd. Hydraulic apparatus. 3,543,515, Cl. 60-52.

Kendall Company, The: *See—*
McWhorter, Daniel M., 3,543,758.
McWhorter, Daniel M., 3,543,759.

Kendall, William Denis, to Dynapower Systems Corporation of California. Automatic control of electrotherapeutic apparatus. 3,543,762, Cl. 128-422.

Kennedy, James E., and Pound, James R., to Container Corporation of America. Protective arrangement in an easy-opening container. 3,543,961, Cl. 220-54.

Kentfield, John A. C. Fluid rectifiers. 3,543,781, Cl. 137-81.5

Keogh, James R., Jr., to FMC Corporation. Method for the cleaning of metal waste and the recovery of oil therefrom. 3,544,369, Cl. 134-25.

Kern, Edmund R.: *See—*
George, Frederick J., and Kern, Edmund R.,3,544,830.

Kershner, Carl J., and Ellis, Robert E., to United States of America, Atomic Energy Commission. Purification of polonium. 3,544,307, Cl. 75-84.1

Kessel, John Delbert, to Dale V Bell. Ampule for hypodermic syringes. 3,543,755, Cl. 128-272.

Keuchel, Herbert W.: *See—*
Polestak, Walter J., and Keuchel, Herbert W.,3,544,662.

Kevill, John F.: *See—*
Adams, Lester R., Beaman, Kenneth G., Handloff, Louis E., Harley, Theodore P., and Kevill, John F.,3,544,712.

Khvoles, Evgeny Arkadievich: *See—*
Zelichenko, Abram Simkhovich, Khvoles, Evgeny Arkadievich, and Sokolova, Elizaveta Alexandrovna,3,544,701.

Kilgore, Marion D., to Dresser Industries, Inc. Cement retainer valve for well packers. 3,543,849, Cl. 166-128.

Kilian, Jerome J. Blade sharpener. 3,543,446, Cl. 51-80.

Killam, Harrison S., to Rohm and Haas Company. Process for manufacturing sulfonated amides. 3,544,597, Cl. 260-332.1

Killen, Richard J., and Jones, Robert G., to Liberty Glass Company. Apparatus for imprinting objects such as bottles and the like. 3,543,680, Cl. 101-40.

King, Alan V.: *See—*
Byrne, Robert C., King, Alan V., and Youmans, Albert P.,3,544,857.

King, Raymond R., to General Motors Corporation. Commutating circuit for an inverter having controlled rectifiers. 3,544,879, Cl. 321-5.

King, Roderick V.: *See—*
Hendrickson, Richard F., and King, Roderick V.,3,544,023.
Hendrickson, Richard F., and King, Roderick V.,3,544,024.

Kinney, Alfred W., to Phillips Petroleum Company. Food container with tamper proof snap on closure. 3,544,338, Cl. 99-171.

Kirk, Bradley S.: *See—*
Jordan, Michael, and Kirk, Bradley S.,3,543,844.

Kirkaldy, David, to Imperial Chemical Industries Limited. Polyamides. 3,544,526, Cl. 260-78.

Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III. Monitored and controlled conditioning and exercise method for animals. 3,543,724, Cl. 119-29.

Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III. Exercising apparatus. 3,543,725, Cl. 119-29.

Kirkwood, Carleton J.: *See—*
Earling, Leonard E., and Kirkwood, Carleton J.,3,544,986.

Kirschenbaum, Bernard: *See—*
Hoagland, Bruce S., and Kirschenbaum, Bernard,3,543,397.

Kish, Donald E.: *See—*
Gunther, Ronald V., Kish, Donald E., and Smith, James L.,3,544,981.

Kishida, Yukichi: *See—*
Iwai, Issei, Kishida, Yukichi, Hiraoka, Tetsuo, and Nakamura, Norio,3,544,584.

Kitamura, Hajime: *See—*
Koyanagi, Shunichi, Kitamura, Hajime, and Tajima, Shigenobu,3,544,539.

Kitanosono, Hidehiro: *See—*
Hirakawa, Katumi, Kitanosono, Hidehiro, and Nakanishi, Hiroshi,3,544,004.

Kitchen, Everitt A., and Simmons, Judith K., to Procter & Gamble Company, The. Alkaline dishwasher detergent. 3,544,473, Cl. 252-99.

Kittleson, Allen R., to Esso Research and Engineering Company. Cyclic amines and the process for their formation. 3,544,590, Cl. 260-326.5

Klahn, Richard: *See—*
Bergland, Glenn D., and Klahn, Richard,3,544,775.

Klatt, Gerhard: *See—*
Distler, Harry, Klatt, Gerhard, and Schneider, Kurt,3,544,636.

Klaue, Hermann. Control mechanism for tracked vehicles. 3,543,871, Cl. 180-6.7

Klee, Gerhard. Regulating systems. 3,543,584, Cl. 73-388.

Klees, Gerard T., to General Motors Corporation. Overrunning device. 3,543,895, Cl. 192-45.1

Klein, Donald E., to Koppers Company, Inc. Pressure balanced shaft seal. 3,544,118, Cl. 277-27.

Klein, Jeshayahu. Portable viewer for micro-film. 3,543,424, Cl. 40-31.

Klenz, Karl A., to Rheem Manufacturing Company, and Rheem International, Inc. Clipping apparatus. 3,543,378, Cl. 29-243.57

Klenz, Karl A., to Rheem Manufacturing Company. Apparatus for printing on U-shaped articles. 3,543,681, Cl. 101-44.

Klesper, Hugo: *See—*
Busse, Oswald, and Klesper, Hugo,3,543,938.

Kliklok Corporation: *See—*
Brickson, Thomas B., 3,543,911.

Klingler, Karl Heinz, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Treatment of asthmatic bronchial conditions involving heart insufficiency. 3,544,685, Cl. 424-253.

Klockner-Humboldt-Deutz AG: *See—*
Buchner, Heinrich, 3,544,096.

Klohs, Murle W.: *See—*
Draper, Marshall D., and Klohs, Murle W.,3,544,558.

Kluber, Joh E.: *See—*
Crisman, Donald M., and Kluber, Joh E.,3,544,111.

Klupp, Hans: *See—*
Schmidt, Gunther, Machleidt, Hans, and Klupp, Hans,3,544,561.

Kluth, Charles S.: *See—*
Smith, Melvin W., and Kluth, Charles S.,3,543,527.

Knaak, Rudiger, to Koppers-Wistra-Ofenbau GmbH. Metallurgical walking beam furnace. 3,544,094, Cl. 266-5.

Knaggs, Edward A., and Nussbaum, Marvin L., to Stepan Chemical Company. Alcohol sulfation. 3,544,613, Cl. 260-458.

Knapp, Kenneth M., and Knapp, Mary M. Pipeline pig and associated apparatus. 3,543,324, Cl. 15-104.06

Knapp, Mary M.: *See—*
Knapp, Kenneth M., and Knapp, Mary M.,3,543,324.

Knights, Douglas Sydney, to B & R Relays Limited. Electric stepping switches. 3,544,851, Cl. 317-139.

Knox, John A., Frederickson, Sherman E., and Broaddus, Gene C., to Halliburton Company. Method of acidizing wells. 3,543,856, Cl. 166-281.

Kobayashi, Calvin Seiso, to Stauffer Chemical Company. Method of increasing available phosphate content of phosphate ore. 3,544,300, Cl. 71-38.

Kobayashi, Yugoro: *See—*
Umahashi, Minoru, and Kobayashi, Yugoro,3,544,212.

Kober, Ehrenfried H., Ottmann, Gerhard F., and Pregler, John E., to Olin Corporation. Polyoxyalkylated hydraulic fluids. 3,544,637, Cl. 260-613.

Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus, to Boehringer Mannheim Gesellschaft mit beschrankter Haftung. Nebularin derivatives. 3,544,554, Cl. 260-211.5

Kodaras, Michael J., to Baldwin-Ehret-Hill, Inc. Ventilating ceiling construction. 3,543,669, Cl. 98-400.

Koehl, Harald: *See—*
Mueller, Herbert, Koehl, Harald, Overwien, Hermann, and Pommer, Horst,3,544,634.

Koft, Emil, Jr., to Mobil Oil Corporation. Overbased oil-soluble metal salts. 3,544,463, Cl. 252-40.7

Kogaki, Keiji, to Toyota Jidosha Kogyo Kabushiki Kaisha. Hydraulic control system in an automatic transmission. 3,543,610, Cl. 74-867.

Kolaian, Jack H.: *See—*
Nooner, Daryl W., and Kolaian, Jack H.,3,543,858.

Kolb, Karl, to Steadtler, J. S. Attachment for drawing compasses. 3,543,406, Cl. 33-27.

Kolenko, Nikolai Mitrofanovich: *See—*
Zenkovich, Ivan Gavrilovich, and Kolenko, Nikolai Mitrofanovich,3,544,076.

Kolibas, James A., to Addressograph-Multigraph Corporation. Reproduction apparatus. 3,544,101, Cl. 271-64.

Komma, Gerhard K.: *See—*
Baumann, Hans G., and Komma, Gerhard K.,3,543,555.

Kondo, Toshiyuki: *See—*
Tori, Tatsumi, and Kondo, Toshiyuki,3,543,714.

Konishi, Kozo: *See—*
Masuda, Shiro, and Konishi, Kozo,3,544,538.

Konishi, Yoshihiro, to Japan Broadcasting Corporation. Wide frequency band circulator. 3,544,920, Cl. 333-1.1

Konzet, Willi: *See—*
Lengsfeld, Karl, and Konzet, Willi,3,543,901.

Kooi, Else, to U.S. Philips Corporation, mesne. Insulated gate field-effect transistor comprising a mesa channel and a thicker surrounding oxide. 3,544,858, Cl. 317-235.

Kooi, Else, to U.S. Philips Corporation, mesne. Stabilized semiconductor device. 3,544,861, Cl. 317-235.

Koppers Company, Inc.: *See—*
Klein, Donald E., 3,544,118.
Pennino, Charles J., 3,544,006.
Stanke, Walter, and Mertens, Gottfried, 3,543,322.

Koppers-Wistra-Ofenbau GmbH: *See—*
Knaak, Rudiger, 3,544,094.

Korbol, Arthur: *See—*
Sundberg, Erik Gustav, Korbol, Arthur, and Nilsson, Ove Karl Gustaf,3,544,384.

Korpel, Adrianus, to Zenith Radio Corporation. Electro-optical signal transfer apparatus. 3,544,795, Cl. 250-199.

Korsgren, Theodore Y., to Robertshaw-Controls Company. Self locking, adjustable limit stop means for a control device. 3,543,604, Cl. 74-531.

Kostrauskas, Pavel Ivanovich, Mukulis, Rimantas-Ionas Dominikovich, and Shimkevichjus, Teodoras Teodorovich. Single-phase miniature salient pole asynchronous motor. 3,544,824, Cl. 310-185.

Kosuge, Giichi: *See—*
Hara, Seiichi, Kosuge, Giichi, and Inoue, Kazuji,3,544,875.

Koubek, Francis J.: *See—*
Fleming, Gerald J., and Koubek, Francis J.,3,544,654.

Kowalik, John J., Svereika, Edward, and Meitl, Harold G., to International Harvester Company. Apparatus for plant crop curing by flaming. 3,543,488, Cl. 56-23.

Koyama, Katsura: *See—*
Nakamigawa, Koichi, Takaoka, Reijiro, and Koyama, Katsura,3,544,295.

Koyanagi, Shunichi, Kitamura, Hajime, and Tajima, Shigenobu, to Shin-Etsu Chemical Industry Co., Ltd. Process for the suspension polymerization of vinyl chloride. 3,544,539, Cl. 260-92.8

Koziara, Mitchell Joseph: *See—*
Brown, Norman Robert, Koziara, Mitchell Joseph, and Ribble, Franklin,3,544,049.

Kozlik, Robert F., to General Mills, Inc. Multicolored cake batter and process for making same. 3,544,334, Cl. 99-92.

Kozlik, Robert F., to General Mills, Inc. Coated frozen batter pieces and process for making same. 3,544,335, Cl. 99-92.

Kraemer, George T., and Pasternack, Gerald P., to Bell Telephone Laboratories, Incorporated. Coincidence gate timer. 3,544,814, Cl. 307-246.

Kraft, Derald H.: *See—*
Colbert, William H., and Kraft, Derald H.,3,543,899.
Colbert, William H., and Kraft, Derald H.,3,543,900.

Kraftco Corporation: *See—*
Miller, Roland E., Borgardt, Henry, and Olson, Edgar C., 3,544,340.
Posdal, James R., 3,543,696.

Krasberg, Alan R.: *See—*
O'Neill, Wilbur J., and Krasberg, Alan R.,3,543,526.

Kraschenko, Alexandr Ivanovich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.

Kratomi, Shunsei. Control circuit connecting cords. 3,544,807, Cl. 307-112.

Krein, Reuben J., to Stitchcraft Corporation. Articulated connector. 3,544,163, Cl. 297-417.

Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf, to Agfa-Gevaert Aktiengesellschaft. Photographic camera with ejector for film magazines. 3,543,664, Cl. 95-31.

Kresge, James S.: *See—*
Sakshaug, Eugene C., and Kresge, James S.,3,544,847.

Kreuter, Kenneth G.: *See—*
Berleyoung, Walter J., Kreuter, Kenneth G., and Mueller, Klaus P.,3,543,594.

Kruckenberg, Perry Lester, Anderson, Harold Elden, and Carlson, Ray Lavette, to McCalloch Corporation. Combustion system for internal combustion engine. 3,543,735, Cl. 123-32.

Krueger, Arthur Frederic: *See—*
Rai, Charanjit, and Krueger, Arthur Frederic,3,544,536.

Kugler, Emanuel. Siftproof handle bag. 3,543,999, Cl. 229-56.

Kuhn, Edmund W., to Westinghouse Electric Corporation. Electric switch having improved blade construction. 3,544,741, Cl. 200-48.

Kuhn, Edmund W., to Westinghouse Electric Corporation. Circuit breaker with improved trip means. 3,544,932, Cl. 335-174.

Kuhn, Rudolf, to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler. Process and the descaling of metals. 3,544,368, Cl. 134-2.

Kuilman, Jan: *See—*
Zegers, Leo Eduard, and Kuilman, Jan,3,544,912.

Kulakov, Nikolai Konstantinovich, to Gosudatstvenny Vsesojuzny Institut Po Proektirovaniju Predpriaty Koksokhimicheskoi Promyshlennosti. Batteries of coke ovens. 3,544,429, Cl. 202-139.

Kulicke and Soffa Industries, Inc.: *See—*
Kulicke, Frederick W., Jr., 3,543,988.

Kulicke, Frederick W., Jr., to Kulicke and Soffa Industries, Inc. Apparatus for controlling the motion of a wire bonding tool. 3,543,988, Cl. 228-3.

Kunkle Valve Company, Inc.: *See—*
Howes, Franklin J., 3,543,777.

Kuntz, Egon: *See—*
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon,3,544,542.

Kunze, Walter A., to Aluminum Company of America. Fondue cooking utensil. 3,543,674, Cl. 99-403.

Kupits, Arnold Karlovich: *See—*
Panasjuk, Lev Emelianovich, Kupits, Arnold Karlovich, Romanov, Evgeny Mikhailovich, Ageev, Veniamin Dmitrievich, and Ryazantsev, Vladimir Vasilievich,3,544,949.

Kurashiki Rayon Co., Ltd.: *See—*
Noda, Kazuo, Enomoto, Yuya, and Fukushima, Osamu, 3,544,357.

Kuroda, Akio: *See—*
Taira, Shin-Ichi, and Kuroda, Akio,3,544,485.

Kurz, John C. Fire damper. 3,543,440, Cl. 49-7.

Kurz, Wilfried: *See—*
Lux, Benno, and Kurz, Wilfried,3,543,567.

Kussy, Frank W.: *See—*
De Marco, Bernard, Kussy, Frank W., and Cataldo, John B.,3,544,929.

Kuster, Arthur, to Wyss-Kuster, Johanna. Electric heating and heat radiating plate. 3,544,765, Cl. 229-459.

Kuster, William. Process for inhibiting fat degradation during storage. 3,544,607, Cl. 260-412.7

Kusunoki, Yushi: *See—*
Watanabe, Hideo, and Kusunoki, Yushi,3,544,469.

Kuzara, James H., to Reliance Electric Company. Floor mat passenger counter. 3,543,883, Cl. 187-29.

Labelson, Ralph: *See—*
Fox, Irving, and Labelson, Ralph,3,543,791.

Lachman, Irwin M., to Corning Glass Works. High density alumina and method for producing it. 3,544,343, Cl. 106-65.

La Croce, Leonard Thomas, Batchelar, Raymond Luscombe, and Rouse, John Wilson, to American Can Company. Full open end. 3,544,025, Cl. 220-54.

Lact-O-Matic Proprietary Limited: *See—*
Speglic, Franc, and Vyhnalek, Milan, 3,543,403.

La Flame, Thomas R. Accessory for drums. 3,543,632, Cl. 84-453.

Lagos, Costas C., to Sylvania Electric Products, Inc. Europium activated strontium magnesium orthophosphate phosphors. 3,544,483, Cl. 252-301.4

L'Allemand, Charles C., to Baldt Corporation, mesne. Bobbin extender. 3,544,033, Cl. 242-118.31

LaMacchia, John T.: *See—*
Chen, Fang-Shang, and LaMacchia, John T.,3,544,189.

Lamautex Corporation: *See—*
Lapidas, Manuel, 3,544,019.

Lambert, James D.: *See—*
Ralphs, Russell W., 3,544,910.

Lamka, Charles E., and Atkins, Walter J. Process for dispensing icy materials. 3,543,811, Cl. 141-9.

Lanex Importing Company: *See—*
Friedman, Sidney L., 3,543,812.

Lange, Guenter, and Wippel, Hans Guenter, to Badische Anilln- & Soda-Fabrik Aktiengesellschaft. Process for dyeing synthetic linear polyester fibrous textile material blue shades and the dyed material. 3,544,260, Cl. 8-41.

Langer, Horst Erwin, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Apparatus for the manufacture of molds for casting metals. 3,543,832, Cl. 164-203.

Langheck, Richard, to Wilhelm Sihn jun K. G. Antenna attachment base for vehicles. 3,544,140, Cl. 287-20.

Langner, Ralph R.: *See—*
Booth, Llewellyn D., and Langner, Ralph R.,3,544,655.

Lanzenberger, Horst, to Friedrich Deckel Prazisions Mechanik und Maschinenbau. Driving means for vertical ball-roll spindles. 3,543,598, Cl. 74-424.8

Lapham, Karyn L., and Shea, Philip J., to Dow Chemical Company, The. Rodent baiting with anticoagulant halopyridine derivatives. 3,544,677, Cl. 424-17.

Lapidas, Manuel, to Lamautex Corporation. High speed winder. 3,544,019, Cl. 242-43.

La Porte, Gordon. Vertically slidable door. 3,543,441, Cl. 49-450.

Laput, Peter. Polarizing color filter for use in color television systems. 3,544,193, Cl. 350-150.

Larson, Raymond C., Sr., and Morrone, Charles A. Fuel atomizing unit. 3,544,290, Cl. 48-180.

Latta, Richard S. Continuous resistance type exercising device. 3,544,105, Cl. 272-83.

Lattimore, Samuel, and Morris, Richard A., to New Zealand Government Property Corporation, The. Automatic control of machining operations. 3,544,968, Cl. 340-172.5

Lauck, Peter, III, to Stevens, J. P., & Co., mesne. Heating control circuit with SCR-unijunction transistor combination. 3,544,767, Cl. 219-501.

Lausch, Henry N., to Sperry Rand Corporation. Windrow baffle for crop harvesting machines. 3,543,491, Cl. 56-192.

Lauterbach, Herbert G.: *See—*
Breen, Alvin L., and Lauterbach, Herbert G.,3,543,358.

Laval, Claude. Loom for weaving fabric. 3,543,809, Cl. 139-125.

Law, Edwin. Smoking devices. 3,543,768, Cl. 131-175.

Lawler, James H. Steam generator. 3,543,732, Cl. 122-235.

Lawn-A-Mat Chemical & Equipment Corporation: *See—*
Dorfman, Daniel, 3,544,013.

Lawrence, Robert J., to Westinghouse Electric Corporation. Voltage-indicating device for a switch bushing stud. 3,544,985, Cl. 340-248.

Lawrence, Uulius L. Agitator. 3,544,080, Cl. 259-45.

Laws, Ira G., to Seismograph Service Corporation. Combination storage container and voting enclosure for vote recorders. 3,544,184, Cl. 312-259.

Lawson, John: *See—*
Anderton, Catherine Margaret, Fishwick, Brian Ribbons, and Lawson, John,3,544,550.

Layton, Howard M., to Interlab, Inc. Laminar flow rinsing and drying vessels. 3,543,776, Cl. 134-110.

Leach, Jack: *See—*
Johnson, Frederick W., and Leach, Jack,3,544,404.

Leahy, Henry C., to Westinghouse Electric Corporation. Conductance divider. 3,544,945, Cl. 338-89.

Leasure, William C., to Mira-Pak, Inc. Method and apparatus for packaging with a movable mandrel. 3,543,467, Cl. 53-28.

Leasure, William C., to Mira-Pak Inc. Method and apparatus for packaging with stationary inner mandrel for forming flat bottom package. 3,543,468, Cl. 53-28.

Leasure, William C., to Mira-Pak, Inc. Apparatus for packaging with hinged plate for forming flat bottom package. 3,543,477, Cl. 53-180.

Leavens, Willard H., and Poujol, Albert C. Method of manufacturing screens. 3,543,371, Cl. 29-160.

Le Boulbouech, Jean Andre: *See—*
Tanouy, Pierre Jean Clement, Garre, Pierre Robert, and Le Boulbouech, Jean Andre,3,543,694.

Lecocq, Octave: *See—*
Soulez-Lariviere, Jean, and Lecocq, Octave,3,544,042.

Ledent, Pierre. Pneumatic elevators for lifting granular solids. 3,544,089, Cl. 263-21.

Lee, Charles A.: *See—*
Murphy, James A., and Lee, Charles A.,3,543,756.
Murphy, James A., Lee, Charles A., and Furbeck, Warren R.,3,544,420.

Lee, Samuel, to Heywood, S. H., & Company Limited. Wheel or drum drives. 3,543,690, Cl. 105-163.

Leebens, James V., to General Mills, Inc. Process for making cereal flakes containing entrapped additives. 3,544,332, Cl. 99-83.

Leesona Corporation: *See—*
Stoppard, William E., Pitts, Thomas E., and Nelson, John, 3,544,018.

Lefort, Marcel, and Nicou, Parasko, to Rhone-Poulenc S.A. Composition and process for the preparation of organosilicon elastomers. 3,544,513, Cl. 260-46.5

Lehmann, Herbert G., to Valve Corporation of America. Hand-held dispenser with two containers and two valves. 3,543,965, Cl. 222-94.

Lehnert, Gunther, Roderburg, Harald, and Ziemek, Gerhard, to Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Multi-arc seam welding apparatus for thin metal sheet. 3,544,752, Cl. 219-60.

Leibowitz, Alec, to Spectrum Diamonds (Proprietary) Limited. Apparatus to control gravitational movement of a gemstone polishing tang towards a stone polishing surface. 3,543,447, Cl. 51-125.

Leibowitz, Alec, to Spectrum Diamonds (Proprietary) Limited. Apparatus for controlling reciprocatory movement of a gemstone across a polishing surface. 3,543,450, Cl. 51-229.

Leikarts, Aldis Juris, to Streater Industries, Inc. Display rack with spiral shelves. 3,543,699, Cl. 108-59.

Lely, Ary van der, and Bom, Cornelis Johannes Gerardus. Transportable liquid distributing devices. 3,543,972, Cl. 222-559.

Lely, Cornelis Van der. Crop stores and silos. 3,543,677, Cl. 100-66.

Lemke, James H., and Bazen, Raymond A., to Case, J. I., Company. Synchronizer activator. 3,543,897, Cl. 192-53.

Lemley, James Dean: *See—*
Finch, Neil Lamar, Lemley, James Dean, and Proffitt, Thomas Jefferson, Jr.,3,544,462.

Lemmon, Norman Frederick, and Williams, Gerald Dennis, to Deere & Company. Quick coupler. 3,544,133, Cl. 280-479.

Lengsfeld, Karl, and Konzet, Willi, to Frankl & Kirchner, Fabrik fur Elektromotoren une Elektrische Apparate. Electromagnetic friction armature with vibration damper. 3,543,901, Cl. 192-107.

Lenk, Erich: *See—*
Schippers, Heinz, Lenk, Erich, and Neuhaus, Friedrich,3,544,017.

Leopold, Wilbur R., Jr., Edwards, Lynn D., and Smith, John J., to Mueller Co. Pipeline stopper assembly. 3,543,802, Cl. 138-94.

LePar, Edwin. Equipment for administering enemas for radiological purposes. 3,543,744, Cl. 128-2.

Leskinen, Paul Ensio. Clad pressing die plastic material for pressing sheet metal. 3,544,433, Cl. 204-20.

Lester, Waldermar, and Anders, Lennart Bror. Anti-skid device for hydraulic brake system. 3,544,171, Cl. 303-21.

Levitsky, Anatoly Kunmich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.

Lewis, Philip W., and Brom, Lawrence V., to Container Corporation of America. Display packaging structure. 3,543,919, Cl. 206-45.14

Lewis, Sheldon N., and Miller, George A., to Rohm and Haas Company. Certain acyl derivatives of oxo-and oxyisothiozoles. 3,544,580, Cl. 260-302.

Leybold-Hochvakuum-Anlagen GmbH: *See—*
Jannasch, Ulrich, and Schmidt, Gunther, 3,544,222.

Leysieffer, Hans G.: *See—*
Bottenberg, Hans H., Jestadt, Hans-Joachim, Leysieffer, Hans G., and Stockinger, Felix Johan,3,544,995.

LFE Corporation: *See—*
DuVivier, Charles L., and Pallat, Ludwig R., 3,544,911.

Libeer, Marcel Jan: *See—*
Depoorter, Henri, Ghys, Theofiel Hubert, and Libeer, Marcel Jan,3,544,325.

Liberty Glass Company: *See—*
Killen, Richard J., and Jones, Robert G., 3,543,680.

Lichowsky, Abraham, to RCA Corporation. Integrated power output circuit. 3,544,860, Cl. 317-235.

Licitis, Gunars, and Glass, Marvin I., to Glass, Marvin, & Associates. Toy phonograph device. 3,544,115, Cl. 274-15.

Liles, Clarence E., to White Motor Corporation. Hydraulically actuated free piston air compressor. 3,544,238, Cl. 417-397.

Lilly, Eli, and Company: *See—*
Dillard, Robert D., 3,544,596.
Soper, Quentin F., 3,544,304.
Soper, Quentin F., 3,544,690.
Taylor, Harold M., and Holden, Howard E., 3,544,682.

Lindahl, John R.: *See—*
Wyckoff, Charles A., and Lindahl, John R.,3,543,355.

Linden, Gosta R., to North American Rockwell Corporation, mesne. Signature handling apparatus. 3,544,097, Cl. 270-54.

Linneborn, Walter, to Singer Company, The. Process and apparatus for the electrostatic flocking of textile material. 3,543,721, Cl. 118-638.

Lion Fat & Oil Co., Ltd.: *See—*
Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi, 3,544,475.

Litt, Donald D.: *See—*
Jaroff, David B., Litt, Donald D., and Weinstein, Arnold,3,543,476.

Littmann, David, to Minnesota Mining & Manufacturing Company. Monitoring devices. 3,543,875, Cl. 181-24.

Litton Precision Products, Inc.: *See—*
Valles, Benjamin V., 3,544,751.
Venator, Walter E., Jr., 3,544,918.

Lloyd, Roger V., to Calgon Corporation, mesne. Dedusting and agglomerating activated carbon. 3,544,507, Cl. 260-39.

Lockheed Aircraft Corporation: *See—*
Hoerrner, William L., 3,544,135.
Pettyjohn, Philip C., 3,543,719.

Lockridge, James E. Pilot leg strap reference material holder. 3,543,977, Cl. 224-5.

Lodige, Alois. Lifting and lowering conveying device. 3,543,903, Cl. 193-16.

Loew, Theodore, to Standard Products Company, The. Method of making fabric covered belts. 3,544,408, Cl. 156-249.

Loewy Robertson Engineering Company Limited: *See—*
Lomas, Ernest, 3,543,557.

Lohman, Gordon R., to Amsted Industries Incorporated. Molds. 3,544,058, Cl. 249-158.

Lomakina, Valentina Mikhailovna: *See—*
Savin, Anatoly Ivanovich, Golubev, Alexandr Ivanovich, and Lomakina, Valentina Mikhailovna,3,544,893.

Lomas, Ernest, to Loewy Robertson Engineering Company Limited. Extrusion press with die-changing device. 3,543,557, Cl. 72-263.

Lombardo, Pasquale: *See—*
Newallis, Peter E., and Lombardo, Pasquale,3,544,664.

Long, George E., and Anson, Howard G. Servo controlled hydraulic system. 3,543,654, Cl. 94-46.

Looschen, Floyd W., to Burroughs Corporation. Device for automatically displaying the logic elements and for automatically changing their status. 3,544,971, Cl. 340-172.5

Loose, Guenter H., to Corning Glass Works. Electroconductive coating resistor. 3,544,948, Cl. 338-300.

Lopez, Lawrence A., and Malkiewicz, Donald F., to Ford Motor Company. Lamp socket and printed circuit. 3,544,950, Cl. 339-17.

Losty, Howard Harold Walter: *See—*
Davidson, Hugh Wilson, and Losty, Howard Harold Walter,3,544,409.

Loughery, George B., to Western Electric Company, Incorporated. Article sorting device. 3,543,925, Cl. 209-74.

Loughran, Eugene F., Jr., to North American Philips Corporation. Cam with balanced spring-loaded followers. 3,543,589, Cl. 74-54.

Loukes, David Gordon, and Nightingale, Glen. Flat glass. 3,544,437, Cl. 204-180.

Lovell, Donald H., and Orleman, Paul D., to Kaiser Gypsum Company, Inc. Apparatus for feeding and applying a spring clip to a workpiece. 3,543,376, Cl. 29-211.

Low, Lester L. Mobile trailer with roll-out kitchen unit. 3,544,152, Cl. 296-23.

Lucas, Joseph, (Industries) Limited: *See—*
Baker, Alfred Dickens, 3,544,786.
Coward, Peter Norman, 3,544,057.
Ifield, Richard Joseph, 3,543,783.
Nevett, Leslie James, 3,543,874.

Ludington, Robert L.: *See—*
Roselius, Charles F., and Pelikan, George A., 3,543,889.

Ludwig, Bernard J., Berger, Frank M., and Fukui, George M., to Carter-Wallace, Inc. Penicillin compounds. 3,544,560, Cl. 260-239.1

Lummus Company, The: *See—*
Sze, Morgan C., and Gessner, Adolf W., 3,544,599.

Lundberg, Kurt Bonnie Karl Axel. Cabinet comprising separate parts to be assembled. 3,544,185, Cl. 312-263.

Lux, Benno, and Kurz, Wilfried, to Concast AG. Method of intensifying reflection of ultrasonic waves from boundary between solid and liquid metal. 3,543,567, Cl. 73-67.7

Lyle, John P., Jr., and Towner, Raymond J., to Aluminum Company of America. Process for making high quality hot-worked products from aluminum bas alloy powders. 3,544,392, Cl. 148-11.5

Lyle, John P., Jr., and Towner, Raymond J., to Aluminum Company of America. Aluminum-copper-magnesium-zinc powder metallurgy alloys. 3,544,394, Cl. 148-12.7

Lynch, Thomas A., to Rohm & Haas Company. Diuretics. 3,544,687, Cl. 424-317.

Lynch, William P., Payne, Philip A., and Zornow, Albert B., to Eastman Kodak Company. Adapter assembly for cassettes. 3,544,039, Cl. 242-197.

Lynch, William T., to Bell Telephone Laboratories, Incorporated. Avalanche photodiode detection apparatus. 3,544,794, Cl. 250-199.

Lyon, Walter R., to Poloroid Corporation. Photographic camera with film guiding means. 3,543,663, Cl. 95-13.

Lysyj, Ihor, Groeper, Lawrence H., and Nelson Kurt H., to North American Rockwell Corporation. Dual heat zone pyrolytic furnace. 3,544,277, Cl. 23-253.

Maag Gear Wheel & Machine Company Limited: *See—*
Haupt, Fritz, 3,544,244.

MacCreadie, William T. Judging system for competitive swimming activities. 3,544,989, Cl. 340-323.

Macgeorge, William D., to American Meter Company. Control circuit for maintaining a charge in a capacitor. 3,544,898, Cl. 324-157.

Machanian, William V.: *See—*
Schwartz, Harold O., Machanian, William V., and Barry, Robert D.,3,544,698.

Machleidt, Hans: *See—*
Schmidt, Gunther, Machleidt, Hans, and Klupp, Hans,3,544,561.

Macholdt, Hans: *See—*
Eichenseer, Franz, Janocha, Siegfried, and Macholdt, Hans,3,544,556.

MacIntyre, Alfred J., to Sanders Associates, Inc. Plannar electroluminescent plural character display. 3,544,990, Cl. 340-336.

Mac Kew, James. Tool bit holder. 3,543,364, Cl. 29-96.

Mackor, Adrianus: *See—*
De Boer, Thijmen J., and Mackor, Adrianus,3,544,438.

Macone, Frederick W., to Avant Incorporated. Card punching device. 3,543,626, Cl. 83-449.

Macrow, Lawrence. Drum for intimately contacting gas and liquid. 3,544,084, Cl. 261-29.

Magerlein, Barney J.: *See—*
Kagan, Fred, and Magerlein, Barney J.,3,544,551.

Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard, to Glanzstoff AG. Production of a polyacyloxamidrazone. 3,544,528, Cl. 260-78.

Magnaflux Corporation: *See—*
Mlot-Fijalkowski, Adolf, 3,543,570.

Magne, Frank C.: *See—*
Hedrick, Glen W., and Magne, Frank C.,3,544,529.

Magnuson, Robert: *See—*
Green, Chester, 3,543,928.

Maier, Martin, Stelzle, Martin, and Kasberger, Ludwig, to Maschinenfabrik Fahr Aktiengesellschaft, Firma. Agricultural implements. 3,543,489, Cl. 56-25.4

Mair, Joseph, to Associated Engineering Limited. Fuel injection systems. 3,543,734, Cl. 123-32.

Majewski, Henry, and Hutson, John K., to Union Carbide Corporation. Method of retaining integrity of the open end of shirred food casings. 3,544,339, Cl. 99-176.

Malkiewicz, Donald F.: *See—*
Lopez, Lawrence A., and Malkiewicz, Donald F.,3,544,950.

Malkov, Emanuil Borisovich, to Tsentralny Nauchno-Issledovatelsky Institut Khimicheskoi Promyshlennosti. Roller gin. 3,543,350, Cl. 19-50.

Malmberg, Bo Goran, to Rockstrom, Erik I. I., and Grunwald, Beno J. B. Display device. 3,543,688, Cl. 104-150.

Malone, Frank G., to Motorola, Inc. Track indicator for multi-track tape player. 3,544,114, Cl. 274-4.

Mames, Michel: *See—*
Burr, Richard, Mames, Michel, and Berthon, Robert,3,544,282.

Mangaly, Joseph, to General Time Corporation. Electronic counting or timekeeping system using glow discharge tube. 3,544,837, Cl. 315-84.6

Manjikian, Serop, to Universal Water Corporation. Production of semipermeable membranes directly on the surfaces of permeable support bodies. 3,544,358, Cl. 117-63.

Manjikian, Serop, to Allied Chemical Corporation, mesne. Process for preparing particulate cermets. 3,544,359, Cl. 117-100.

Mann, Adriaan B.: *See—*
Bos, Hendrikus J., and Mann, Adriaan B.,3,543,722.

Mansfield, Peter W., to Allied Chemical Corporation. Tapered infeed yarn guide. 3,543,984, Cl. 226-196.

Manz, August F., to Union Carbide Corporation. Electric arc working apparatus. 3,544,759, Cl. 219-131.

Marco, Gino J., and Grainger, Robert B., to Monsanto Company. Animal feed compositions and methods. 3,544,681, Cl. 424-180.

Marconi Instruments Limited: *See—*
Bates, Thomas, 3,544,834.

Marcovitch, Jacob, to Rotary Profile Anstalt. Machine for profiling solid workpieces. 3,543,553, Cl. 72-91.

Maremont Corporation: *See—*
Bowie, Philip A., and Bragg, Edward A., 3,544,026.

Margolin, Jury Nosonovich: *See—*
Gusyatinsky, Igor Alexandrovich, and Margolin, Jury Nosonovich,3,544,899.

Marine Colloids, Inc.: *See—*
Glabe, Elmer F., Anderson, Perry W., and Murawski, Gerald M., 3,544,333.

Markham, Aaron E., and Blackmore, Kenneth A. E., to Georgia-Pacific Corporation. Drilling fluid composition. 3,544,460, Cl. 252-8.5

Marlow, Alfred S. Variable capacity fluid discharge device. 3,543,368, Cl. 29-156.8

Marmier, Paul: *See—*
Dubois, Gerald, and Marmier, Paul,3,543,506.

Marocco, Giuseppe, to Drymit S.A. Mould for use in an injection moulding process. 3,543,349, Cl. 18-36.

Marquardt Corporation, The: *See—*
Case, Bernard, and Hell, Wilfried H., 3,544,713.

Marsh, Albert F. Egg incubator. 3,543,726, Cl. 119-37.

Marsh, Ogden J., to Hughes Aircraft Company. Method of preventing avalanching in semiconductor devices. 3,544,398, Cl. 148-186.

Marshall, Carl E. Material handling apparatus. 3,543,954, Cl. 214-17.

Marshall, Robert K.: *See—*
Joyce, Ronald W., Billingslea, Eugene E., Sage, Leopold C., and Marshall, Robert K.,3,543,427.

Martin, Daniel W.: *See—*
Ferris, Robert L., and Martin, Daniel W.,3,543,630.

Martin, Ernest N. Irrigation system. 3,543,778, Cl. 137-67.

Martin, Erwin, to Siemens Aktiengesellschaft. Photo-electric apparatus for the measurement of electrical characteristics of circuit devices which are supplied during the measuring period with a varying electrical signal. 3,544,892, Cl. 324-57.

Martin, Jerome A.: *See—*
Muzyczko, Thaddeus, Shore, Samuel, and Martin, Jerome A.,3,544,517.

Martin, Louis H., to Astor Manufacturing Co., Inc. Method and apparatus for making a filled tubular product. 3,543,381, Cl. 29-429.

Martin, Norman A.: *See—*
Grieger, Philip F., Martin, Norman A., and Douma, William L.,3,544,784.

Martin, Paul S.: *See—*
Devol, George C., and Martin, Paul S.,3,543,910.

Martin, Robert J., to Cessna Aircraft Company, The. Axial piston pump or motor device. 3,543,649, Cl. 91-507.

Martinsen, Lyle J., to Boyles Bros. Drilling Company. Core barrel retrieval. 3,543,870, Cl. 175-60.

Marvin, Harry N., to Midland-Ross Corporation. Cargo-container stack and stack reinforcing and lash-down apparatus. 3,543,951, Cl. 214-10.5

Mary, Francis J.: *See—*
Pacault, Pierre Henri, and Mary, Francis J.,3,543,534.

Maryland Cup Corporation: *See—*
Rubenstein, Irving, 3,543,695.
West, John B., 3,543,996.

Masat, Jan, and Zbirovsky, Miroslav. Method for producing perchloromethyl mercaptan. 3,544,625, Cl. 260-543.

Maschamann, Hans, to Pfaff, G. M., AG. Cam-controlled automatic sewing apparatus. 3,543,737, Cl. 112-121.12

Maschinenfabrik Augsburg-Nurmberg Aktiengesellschaft: *See—*
Oeckl, Otto, and Purschke, Richard, 3,544,286.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Langer, Horst Erwin, 3,543,832.

Maschinenfabrik Fahr Aktiengesellschaft, Firma: *See—*
Maier, Martin, Stelzle, Martin, and Kasberger, Ludwig, 3,543,489.

Mason & Hanger- Silas Mason Co., Inc.: *See—*
Snedden, Louis L., 3,544,165.

Massa, Harry E.: *See—*
Webb, Orlando, Jr., Graham, Ward A., and Massa, Harry E.,3,544,653.

Masters, Charles G., Jr., to Westinghouse Electric Corporation. Decision network. 3,544,778, Cl. 235-153.

Masuda, Eishyo: *See—*
Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi,3,544,048.
Masuda, Shiro, and Konishi, Kozo. Production of highly saponified polyvinyl alcohool. 3,544,538, Cl. 260-91.3
Material Transformation Associates, Inc.: *See—*
Christian, Rodney E., and Taudvin, Peter C., 3,544,757.
Mather & Platt Limited: *See—*
Holland, Peter Clive, 3,543,908.
Mathers Controls, Inc.: *See—*
Mathers, Harold M., 3,543,891.
Mathers, Harold M., to Mathers Controls, Inc. Controls for engine, brake and forward-reverse clutches. 3,543,891, Cl. 192-0.094
Mathieu, Alexis: *See—*
Oth, Andre, and Mathieu, Alexis,3,544,661.
Matlow, Sheldon L. Method for depositing thin films in controlled patterns. 3,543,394, Cl. 29-584.
Matsuda, Toshiyuki: *See—*
Ogawa, Shinichiro, and Matsuda, Toshiyuki,3,544,815.
Ogawa, Shinichiro, and Matsuda, Toshiyuki,3,544,816.
Matsumoto, Kenji: *See—*
Aoki, Takashi, and Matsumoto, Kenji,3,544,229.
Matsunaga, Motoyoshi: *See—*
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi,3,544,683.
Matsushita Electric Industrial Co., Ltd.: *See—*
Sakamoto, Yoichi, 3,544,903.
Terasaki, Takeshi, 3,544,395.
Matsushita Electric Works, Ltd.: *See—*
Sauer, Hans, 3,544,930.
Matsushita Electronics Corporation: *See—*
Inoue, Morio, and Kano, Gota, 3,543,386.
Tsubakimoto, Naosuke, Kawase, Yasutaka, and Matsushita, Hiroyuki, 3,544,991.
Matsushita, Hiroyuki: *See—*
Tsubakimoto, Naosuke, Kawase, Yasutaka, and Matsushita, Hiroyuki,3,544,991.
Mattel, Inc.: *See—*
Ryan, John W., Shapero, Wallace H., De Gelder, Jacob, and Collins, Harold B., 3,543,966.
Matthews, Richard A., and Coe, James H., to Moore, Samuel, and Company. Composite tubing. 3,543,805, Cl. 138-141.
Mattia, Donald J., and Wallis, Richard D., to Cutler-Hammer, Inc. Lead distance compensation and magnet sequencing control system for article conveyors. 3,543,929, Cl. 209-74.
Maximov, Vadim Alexandrovich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.
Maxion, Emil J., to Mobil Oil Corporation. Polycondensation of solid polyesters with anticaking agents. 3,544,523, Cl. 260-75.
May & Baker Limited: *See—*
Davis, Michael, Parnell, Edgar William, Sharp, Brian William, and Warburton, Dennis, 3,544,686.
Mayer, Hans, and Bohmann, Werner, to Siemens Aktiengesellschaft. Nuclear power plant with wet-steam generator and steam drying system. 3,544,424, Cl. 176-55.
Mayer, Rudolf: *See—*
Meyer, Herbert, and Mayer, Rudolf,3,544,947.
McAlear, James H. Specimen preparing device for microscopes and the like. 3,544,446, Cl. 204-298.
Mc Allister, John H., to Tektronix, Inc. Method and apparatus for making light pipes. 3,544,406, Cl. 156-174.
McArdle, John C.: *See—*
Rassbach, Volker, and McArdle, John C.,3,544,059.
McArthur, Colin Shaw: *See—*
Pinkham, Jesse Randolph, Payne, Leslie Elmer, Michal, David Hill, and McArthur, Colin Shaw,3,543,927.
McBane, Bruce N.: *See—*
Dowbenko, Rostyslaw, and McBane, Bruce N.,3,544,489.
McBride, Lyle E., Jr.: *See—*
Plouffe, Leo A., and McBride, Lyle E., Jr.,3,544,869.
McCalloch Corporation: *See—*
Kruckenberg, Perry Lester, Anderson, Harold Elden, and Carlson, Ray Lavette, 3,543,735.
McConnaughey, Paul W., to Mine Safety Appliances Company. Apparatus for sampling and analyzing breath. 3,544,273, Cl. 23-254.
Mc Connell, John R. Drilling and bolting of structural members. 3,543,374, Cl. 29-200.
McConnell, Roger A., to United States of America, Atomic Energy Commission. Impedance matching coupler system for a variable resistive load impedance. 3,544,922, Cl. 333-17.
McCormick, Arline G., to Conversion Chemical Corporation. Cleaning method. 3,544,365, Cl. 134-1.
McCoy, Frederic C. Parraffinic base oil carrier compositions for use in metal working and pesticides. 3,544,679, Cl. 424-80.
Mc Daniel Edgar L.: *See—*
Anderson, G. Charles, Mc Daniel Edgar L., and Young, Howard S.,3,544,624.
McDevitt, James, and Hilderbrand, Victor F., to Smith, Ken. Electrical deep dish cooking unit. 3,543,673, Cl. 99-358.
McDonald, Earl G., Jr., and Hahs, Walter R., to International Business Machines Corporation. Deskewing of data read from an incrementally driven tape. 3,544,979, Cl. 340-174.1
McDonald, James A., and Christopher, Todd J., to RCA Corporation. Spurious oscillation suppression in transistor deflection circuits. 3,544,810, Cl. 307-228.
McDonald, James A., and Christopher, Todd J., to RCA Corporation. Lock-on prevention in transistor deflection circuits. 3,544,811, Cl. 307-228.
McDonnell Douglas Corporation: *See—*
Kampe, Johannes F. E., 3,544,014.
McDowell, Donald E., Ryer, Jack, and Deen, Harold E., to Esso Research and Engineering Company. Two-cycle lubricating oil compositions. 3,544,466, Cl. 252-46.7
McEntyre, David E., to International Telephone and Telegraph Corporation. Dual mode manual controller. 3,544,217, Cl. 356-29.
McGauley, Patrick J. Concentration of copper from copper ores, concentrates and solutions. 3,544,306, Cl. 75-72.
McGee, Thomas W.: *See—*
Wang, Chun-Shan, and McGee, Thomas W.,3,544,610.
Mc Gill, Landon G. Liquid level indicator. 3,543,580, Cl. 73-313.
McGraw-Edison Company: *See—*
Grieger, Philip F., Martin, Norman A., and Douma, William L., 3,544,784.
Schwab, Pierre P., 3,544,748.
Mc Ilvaine, Robert L., to National Dust Collector Corporation. Filter apparatus for gas scrubber. 3,544,087, Cl. 261-81.
Mc Intire, Joseph N.: *See—*
Carey, Leo J., and Mc Intire, Joseph N.,3,544,958.
McIntosh Laboratory, Inc.: *See—*
Corderman, Sidney A., 3,544,720.
McIntyre, Maurice J., and Rennie, David G., to Skagit Corporation. Log yarding system. 3,543,946, Cl. 212-84.
McLean, William E., and Ruch, David E., to General Motors Corporation. Method and apparatus for driving memory core selection lines. 3,544,978, Cl. 340-174.
McLeroy, Robert P., to C & B Corporation. Electronic drive circuitry for ultrasonic devices. 3,544,866, Cl. 318-118.
McMahan, William H., to Orlando Research Corporation. Gas laser plasma guide. 3,544,915, Cl. 331-94.5
McMann, Renville H., Jr., and Kaiser, Arthur, 1/2 to Columbia Broadcasting Systems Inc., and 1/2 to Pinkerton Inc., mesne. Property protection alarm system. 3,544,987, Cl. 340-274.
McNally, Michael. Pressure jet tank cleaner. 3,544,012, Cl. 239-227.
McNutt, William C., and Goy, Bernard C., to Garrett Corporation, The. Multiple ball valve. 3,543,797, Cl. 137-628.
McPherson, William W.: *See—*
Scott, Warren Farrar, and McPherson, William W.,3,543,400.
Scott, Warren Farrar, and McPherson, William W.,3,543,401.
McQueen, John, and Minutillo, Leonard D., to Griffiths Electronics Inc. Convergence assembly. 3,544,826, Cl. 313-77.
McWhorter, Daniel M., to Kendall Company, The. Catheter with safety indicator. 3,543,758, Cl. 128-349.
McWhorter, Daniel M., to Kendall Company, The. Catheter with safety indicator. 3,543,759, Cl. 128-349.
Meacham, Larned A., to Bell Telephone Laboratories, Incorporated. Negative impedance boosted transmission system. 3,544,734, Cl. 179-170.
Mead Corporation, The: *See—*
Wilson, Bobby L., 3,543,995.
Meadows, Charles K., and Smyth, Allen N. Powered cut-off attachment for paving machine. 3,543,653, Cl. 94-46.
Medical Plastic Inc.: *See—*
Bolduc, Lee R., 3,543,760.
Meehan, Clarence L., to Illinois Tool Works Inc. Wire tie. 3,543,353, Cl. 24-16.
Mehta, Kirit T., to Sun Shipbuilding & Dry Dock Company. Abrasive blasting system. 3,543,444, Cl. 51-8.
Meier, Hans, and Muller, Max Albert, to Vaillant, Joh., KG. Hot-water circulation heating system. 3,544,005, Cl. 237-8.
Meier, William A., to Signode Corporation. Power-driven dispenser assembly. 3,544,029, Cl. 242-78.6
Meihak, Roger W. Belt driven differential. 3,543,608, Cl. 74-710.5
Meitl, Harold G.: *See—*
Kowalik, John J., Svereika, Edward, and Meitl, Harold G.,3,543,488.
Meizanis, James, to Johnson & Johnson. Perforate film dressing and method of making same. 3,543,750, Cl. 128-156.
Mellbom, Marvin E., to Universal Oil Products Company. Hydrocarbon fractionation column having plural flashing and stripping sections. 3,544,428, Cl. 196-111.
Meltzer, Robert I.: *See—*
Hansen, Holger V., and Meltzer, Robert I.,3,544,623.
Menge, Donald C., to Troy Steel Corporation. Truss cutting apparatus with two cutting stations. 3,543,815, Cl. 143-6.
Mennesson, Andre Louis, to Societe Industrielle de Brevets et d'Etudes S. I. B. Fuel feed device, for an internal combustion engine. 3,543,739, Cl. 123-119.
Merciers, Jacques H. Resilient annulor valve seat with coaxial rigid annular member. 3,544,065, Cl. 251-284.
Merck & Co., Inc.: *See—*
Cragoe, Edward J., Jr., and Bicking, John B., 3,544,568.
Cragoe, Edward J., Jr., and Shepard, Kenneth L., 3,544,571.

Merges, Veit, to Bolkow Gesellschaft mit beschrankter Haftung. Device for elastic and heat conducting connection of thermo-couples. 3,543,842, Cl. 165-82.
Merklen, Gilles: *See—*
Bendele, Paul, and Merklen, Gilles,3,543,429.
Merrow Machine Company, The: *See—*
Armstead, George B., Jr., 3,543,708.
Mertens, Gottfried: *See—*
Stanke, Walter, and Mertens, Gottfried,3,543,322.
Merwitz, William Edward, Sr. Refrigerant sampling and testing device. 3,544,276, Cl. 23-253.
Meshew, Allan D.: *See—*
Kelley, Archibald P., and Meshew, Allan D.,3,543,520.
Messiaen, Andre M.: *See—*
Vandenplas, Paul E., and Messiaen, Andre M.,3,544,998.
Messrs. R and E Hopt KG: *See—*
Meyer, Herbert, and Mayer, Rudolf, 3,544,947.
Mesta Machine Company: *See—*
Wolfendale, Ray A., 3,543,556.
Meyer, Arnfried, to Passat Maschinenbau GmbH. Drum drying apparatus. 3,543,415, Cl. 34-130.
Meyer, David, to Radiant International Incorporated. Inspirator burner. 3,544,246, Cl. 431-352.
Meyer, Gerhard: *See—*
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard,3,544,528.
Rupp, Hans-Dieter, Siggel, Erhard, and Meyer, Gerhard,3,544,592.
Meyer, Herbert, and Mayer, Rudolf, to Messrs. R and E Hopt KG. Tuning device for high-frequency communication. 3,544,947, Cl. 338-179.
Meyer, Roth & Pastor: *See—*
Englisch, Adolf, 3,543,637.
Unglaube, Alfons, 3,543,372.
Meyer, Rudolf. Moulding press. 3,543,335, Cl. 18-16.
Meyn, John E., to Microdot Inc. Apparatus for manufacturing insulators for multiple conductor connectors. 3,543,337, Cl. 18-36.
Mhatre, Shamrao Harischandra, to Buckingham & Carnatic Limited, The. Process for bleaching textiles. 3,544,261, Cl. 8-108.
Michael, Johanna A.: *See—*
White, George E., 3,544,031.
Michael Mfg. Co.: *See—*
White, George E., 3,544,031.
Michal, David Hill: *See—*
Pinkham, Jesse Randolph, Payne, Leslie Elmer, Michal, David Hill, and McArthur, Colin Shaw,3,543,927.
Michatek, Chester W., to Eastman Kodak Company. Percussion type flash lamp igniter. 3,544,249, Cl. 431-93.
Michelet, Jean, and Alheritiere, Louis, to Societe Toulousaine de Produits Chimiques Tolochimie. Process for the preparation of organic isocyanates. 3,544,611, Cl. 260-453.
Michelson, Max, to Raytheon Company. Coupling circuits for scanning antennas and the like. 3,544,999, Cl. 343-100.
Michener, Aubrey W., Jr.: *See—*
Yodis, Anthony W., Michener, Aubrey W., Jr., and Karsay, Bela I.,3,544,633.
Michetti, Louis C., and Pettit, William R., to Container Corporation of America. Reclosable hooded carton. 3,543,997, Cl. 229-51.
Micro & Precision Mouldings (Cheltenham) Limited: *See—*
James, Michael Joseph, 3,544,147.
Microdot Inc.: *See—*
Meyn, John E., 3,543,337.
Midland-Ross Corporation: *See—*
Ingram, Orville, and Floehr, Walter L., 3,543,442.
Marvin, Harry N., 3,543,951.
Miehle-Goss-Dexter Incorporated: *See—*
Blomberg, Maurits C., 3,544,107.
Miele & Cie: *See—*
Zinkann, Peter, 3,544,371.
Mieslinger, Winfried: *See—*
Rudolph, Dietmar, and Mieslinger, Winfried,3,544,872.
Mihm, Clifford H., to Phillips Petroleum Company. Sulfolane treatment. 3,544,430, Cl. 203-29.
Mikami, Takeshi: *See—*
Nakai, Setsuo, and Mikami, Takeshi,3,544,405.
Mikton, John J.: *See—*
Munn, Robert L., and Mikton, John J.,3,543,879.
Miller, Bernard F., to Ingersoll-Rand Company. Coupling assembly. 3,544,178, Cl. 308-78.
Miller, Earle C., to Riley Stoken Corporation. Multi-fuel steam generator. 3,543,730, Cl. 122-7.
Miller, Gary Kauilani: *See—*
Harris, Seth Owens, and Miller, Gary Kauilani,3,544,262.
Miller, George A.: *See—*
Lewis, Sheldon N., and Miller, George A.,3,544,580.
Miller, George T., to Hooker Chemical Corporation. Fuel cell electrode and process. 3,544,379, Cl. 136-86.
Miller, George T., to Hooker Chemical Corporation. Fuel cell with wicking-type electrode. 3,544,381, Cl. 136-86.
Miller, R. H., Company, Inc.: *See—*
Schwartz, Norbert C., 3,544,614.
Miller, Roland E., Borgardt, Henry, and Olson, Edgar C., to Kraftco Corporation. Cheese packaging method and apparatus. 3,544,340, Cl. 99-178.
Millet, Francois: *See—*
De Metz, Jean, and Millet, Francois,3,544,198.
Mills, George C. Method and means for stabilizing concrete slab structures. 3,543,459, Cl. 52-169.
Milne, John C., to Electric Construction (W'Ton) Limited. Voltage stabilization system utilizing a buck- boost generator. 3,544,883, Cl. 323-5.
Milton, Kirby M., to Eastman Kodak Company. Phosphate antifoggants for photographic emulsions. 3,544,336, Cl. 96-109.
Mine Safety Appliances Company: *See—*
McConnaughey, Paul W., 3,544,273.
Mines de Potasse d'Alsace: *See—*
Burr, Richard, Mames, Michel, and Berthon, Robert, 3,544,282.
Minieri, Pasquale P., to Tenneco Chemicals, Inc. Organotin imides. 3,544,588, Cl. 260-326.
Minigrip, Inc.: *See—*
Staller, Karel J., and Ausnit, Steven, 3,543,343.
Minister of National Defense, in Her Majesty's Canadian Government: *See—*
Gardner, Arthur E., 3,544,360.
Ministrere de l'Agriculture-Service Veterinaire: *See—*
Vaills, Laurent M., 3,544,272.
Minnesota Mining & Manufacturing Company: *See—*
Littmann, David, 3,543,875.
Minnesota Mining and Manufacturing Company: *See—*
Reylek, Robert S., and Zachau, Frederick W., 3,544,733.
Minsk, Louis M.: *See—*
Abel, Edward P., and Minsk, Louis M.,3,544,327.
Mintz, Leon J.: *See—*
Block, Charles, and Mintz, Leon J.,3,543,942.
Minutillo, Leonard D.: *See—*
McQueen, John, and Minutillo, Leonard D.,3,544,826.
Mira-Pak, Inc.: *See—*
Leasure, William C., 3,543,467.
Leasure, William C., 3,543,468.
Leasure, William C., 3,543,477.
Mirviss, Stanley B.: *See—*
Greco, Carl C., and Mirviss, Stanley B.,3,544,543.
Mitchell, David L., Jr.: *See—*
Schuchman, Fredrick E., Sr., and Mitchell, David L., Jr.,3,543,354.
Mitron Research & Development Corporation: *See—*
Rosenberg, Robert A., 3,544,761.
Mitsche, Roy T., and Pollitzer, Ernest L., to Universal Oil Products Company. Conversion of hydrocarbons with a catalyst containing platinum and rhenium combined with a carrier material containing alumina and mordenite. 3,544,451, Cl. 208-139.
Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Iijima, Katsuhiko, 3,543,646.
Mitsubishi Yuka Kabushiki Kaisha: *See—*
Sudo, Michio, 3,543,334.
Miura, Takeo, Iwata, Junzo, and Tsuda, Junji. Animatable picture-image representing system. 3,544,833, Cl. 315-18.
Miya, Masami, and Fukuda, Koichi, to Nepon Kabushiki Kaisha. Magnetic conveyor system. 3,543,912, Cl. 198-38.
Mizoguchi, Sutemaru. Chuck and a cutting tool. 3,544,121, Cl. 279-51.
M&J Development Company: *See—*
Rice, Dalton Everett, 3,544,068.
M&J Valve Company: *See—*
Rice, Dalton Everett, 3,544,068.
Mlot-Fijalkowski, Adolf, to Magnaflux Corporation. Aqueous base penetrant composition and method. 3,543,570, Cl. 73-104.
Mobil Oil Corporation: *See—*
Blatz, Paul E., and Erickson, James O., 3,543,855.
Braid, Milton, 3,544,465.
Garwood, William E., 3,544,650.
Koft, Emil, Jr., 3,544,463.
Maxion, Emil J., 3,544,523.
Moe, Edward J., to Temco Inc. Pneumatic product handling and recycle system for mobile combines. 3,543,766, Cl. 130-27.
Moed, Hendrik Durk, to U.S. Philips Corporation. Methods and compositions for treating spasm employing 3',4'-dimethoxy-6-(2-(p-methoxphenyl)- 1-alkyl-alkyl-ethylamino)-hexanophenones and the salts thereof. 3,544,689, Cl. 424-330.
Moessinger, Albert E. Process for the insertion of the weft in a loam. 3,543,807, Cl. 139-125.
Moessinger, Albert E. Process and apparatus for the laying of a pick into the shed of a loom. 3,543,808, Cl. 139-127.
Mohrbach, Ernst. Combined forming press and ejecting device. 3,543,317, Cl. 12-21.
Moisson-Franckhauser, Francois: *See—*
Aupoix, Marcel, and Moisson-Franckhauser, Francois,3,544,706.
Molins Machine Company Limited: *See—*
Williamson, David Theodore Nelson, Crosland, Richard Graham, and Parke, Edward Henry, 3,543,375.
Youngman, Derek Henry, 3,543,471.
Monsanto Chemicals Limited: *See—*
Neale, Alan Jeffrey, and Bain, James Stratford, 3,544,511.
Monsanto Company: *See—*
Armstrong, Dallas C., and Garabedian, Taniel A., 3,544,544.
Carroll, Robert L., and Crutchfield, Marvin M., 3,544,509.

Hamm, Philip C., 3,544,302.
Isaksen, Robert A., and De Shay, Robert V., 3,544,349.
Marco, Gino J., and Grainger, Robert B., 3,544,681.
Morita, Eiichi, 3,544,531.
Olin, John F., 3,544,305.
Sheppard, Clyde H., 3,544,493.

Montagnani, Mario: *See—*
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido,3,543,387.

Montoro, John: *See—*
Hilsenbeck, Larry L., and Montoro, John,3,543,620.

Moody, Anthony Gifford: *See—*
Osmond, Desmond Wilfrid John, and Moody, Anthony Gifford,3,544,500.

Moon, Lester E., to Framton Foods, Inc. Dispensing device and packaging machine. 3,543,475, Cl. 53-55.

Mooney, George Meyer, to Capitol Gears, Inc. Positive dog clutch. 3,543,896, Cl. 192-46.

Moore Business Forms, Inc.: *See—*
Sargent, Albert A., 3,543,982.

Moore, Robert L., to United States Camera Corporation. Motorized still camera. 3,543,659, Cl. 95-11.

Moore, Samuel, and Company: *See—*
Chrow, Albert E., 3,543,803.
Matthews, Richard A., and Coe, James H., 3,543,805.

Moorhusen, Robert W., and Harper, David C., to Xerox Corporation. Lens strip optical scanning system. 3,544,190, Cl. 350-6.

Moran, Kevin E., and Brown, Robert J., to Union Oil Company of California. Continuous injection molding and filling apparatus. 3,543,342, Cl. 18-5.

Morasky, Thomas M.: *See—*
Habermas, Robert E., and Morasky, Thomas M.,3,544,275.

Morgan, Bill T.: *See—*
Wilson, Newton R., and Morgan, Bill T.,3,544,021.

Mori, Akira: *See—*
Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi,3,544,475.

Morikawa, Yonekichi, to Daiwa Can Co. Ltd. Apparatus and method for separating segments of an orange. 3,543,822, Cl. 156-3.

Morita, Eiichi, to Monsanto Company. Method of vulcanizing rubber with dialkoxyphosphino- thioyl amino disulfides. 3,544,531, Cl. 260-79.5

Morita, Koh: *See—*
Ishii, Teiji, and Morita, Koh,3,544,432.

Morris, Richard A.: *See—*
Lattimore, Samuel, and Morris, Richard A.,3,544,968.

Morris, Richard Michael, to General Electric Company Limited, The. Electric bistable circuits. 3,544,772, Cl. 235-92.

Morrison, Elbert F., and Joy, Raymond D., to Burlington Industries, Inc. Textile creel apparatus. 3,543,981, Cl. 226-11.

Morrisroe, John J., and Banigan, Thomas F., to Pilot Chemical Company. Alkyl-tetrahydropyranols and ethoxylated alkyl-tetrahydropyranols. 3,544,603, Cl. 260-345.9

Morrone, Charles A.: *See—*
Larson, Raymond C., Sr., and Morrone, Charles A.,3,544,290.

Morton, Peter Harlow: *See—*
Graham, Robert Leslie, and Morton, Peter Harlow,3,544,285.

Mosby, Frederick A.: *See—*
Danko, George K., and Mosby, Frederick A.,3,544,188.

Mosely, Graham H.: *See—*
Best, Howard S., and Mosely, Graham H.,3,544,410.

Moseson, Roger M., and Smith, John H., to Bendix Corporation, The, mesne. Floating shield in a triode sputtering apparatus protecting the base from the discharge. 3,544,445, Cl. 204-298.

Moss, Rueben R., Jr. Swivel hitch for wire rope. 3,544,142, Cl. 287-91.

Motor Coach Industries Ltd.: *See—*
Zoltok, Harry, 3,543,898.

Motorola, Inc.: *See—*
Buechel, Mel E., 3,544,708.
Donewald, James A., and Schaefges, Henry E., 3,544,848.
Eness, Orville M., 3,544,904.
Glenn, Thomas P., Jr., and Shipley, Richard E., 3,544,704.
Malone, Frank G., 3,544,114.
Price, William L., and Jackson, Don M., Jr., 3,544,863.
Taylor, Douglas W., 3,544,803.
Thiele, Alan G., 3,544,817.
Thompson, James Elbert, 3,544,962.

Mowbray, Dorian Farrar, to C.A.V. Limited. Fluid pumps. 3,544,245, Cl. 418-258.

Moy, Richard M., and Huniu, Sam, to TRW Inc. Integral throttle valve servo-actuator. 3,544,061, Cl. 251-24.

M&T Chemicals Inc.: *See—*
Cassidy, James J., 3,544,218.

Mueller Co.: *See—*
Leopold, Wilbur R., Jr., Edwards, Lynn D., and Smith, John J., 3,543,802.

Mueller, Curt: *See—*
Altermatt, Ruedi, and Mueller, Curt,3,544,549.

Mueller, Herbert, Koehl, Harald, Overwien, Hermann, and Pommer, Horst, to Badische Anilin-& Soda-Fabrik Aktiengesellschaft. Production of 3-ketobutanol-(1). 3,544,634, Cl. 260-594.

Mueller, Karl. Rotary vane pump. 3,544,241, Cl. 418-35.

Mueller, Klaus P.: *See—*
Berleyoung, Walter J., Kreuter, Kenneth G., and Mueller, Klaus P.,3,543,594.

Mukai, Hisakazu, to Nippon Telegraph and Telephone Public Corporation. High speed saturation mode switching circuit for a capacitive load. 3,544,808, Cl. 307-214.

Mukulis, Rimantas-Ionas Domininkovich: *See—*
Kostrauskas, Pavel Ivanovich, Mukulis, Rimantas-Ionas Domininkovich, and Shimkevichjus, Teodoras Teodorovich,3,544,824.

Mulkens, Casper Antonius Henricus: *See—*
Dijksterhuis, Popko Reinder,3,544,695.

Muller, Edmund, to Brown, Boveri & Company. Means for and method of determining the difference between the stator and rotor frequencies of asynchronous machines. 3,544,870, Cl. 318-227.

Muller, Emanuel. Convertible article. 3,544,157, Cl. 297-118.

Muller, Erwin, Kallert, Wilhelm, and Ivanyi, Joszef, to Farbenfabriken Bayer Aktiengesellschaft. Polyurethane polymers prepared from a chain extender and the transesterification product of 1,6-hexanediol with a diarylcarbonate. 3,544,524, Cl. 260-77.5

Muller, Johannes, to Handtmann, Albert Metallgusswerk Armaturen-& Fleischereimaschinenfabrik. Feeding device for pulpy masses of the type of a bucket pump, particularly for sausage filling machines. 3,543,330, Cl. 17-37.

Muller, Max Albert: *See—*
Meier, Hans, and Muller, Max Albert,3,544,005.

Mullins, John W. Service valve. 3,543,788, Cl. 137-318.

Mulvey, Thomas B., Hegerman, Ernie, and Schuessler, Elwood V. Display device. 3,543,425, Cl. 40-86.

Munch, Walter, Jr., to Baldwin, D. H., Company. Keying system for electrical musical instruments. 3,544,697, Cl. 84-1.26

Munn, Carl R.: *See—*
Galbreath, Gerald W., Oriti, Basil S., and Munn, Carl R.,3,544,153.

Munn, Robert L., and Mikton, John J., to Cross Company, The. Oil mist lubricating system. 3,543,879, Cl. 184-6.

Murakami, Mataji: *See—*
Fuchu, Tokio, Kanamori, Ko, Akiyama, Takeyoshi, and Murakami, Mataji,3,544,167.

Murakami, Shinichi, to Nippon Gakki Seizo Kabushiki Kaisha. Variable resistor. 3,544,946, Cl. 338-174.

Muramatsu, Masahiro: *See—*
Watabe, Kaname, Horimoto, Kohei, Muramatsu, Masahiro, and Ito, Mamoru,3,543,503.

Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio, to Asahi Kasei Kogyo Kabushiki Kaisha. Method for producing polyamide filamentary article. 3,544,670, Cl. 264-178.

Murata, Katsuske: *See—*
Furuno, Yukio, Tokuno, Hiroshi, and Murata, Katsuske,3,543,956.

Muratov, Valerian Matveevich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ilgisonis, Igor Viktorovich, and Adamsky, Noi Mikhailovich,3,544,074.

Murawski, Gerald M.: *See—*
Glabe, Elmer F., Anderson, Perry W., and Murawski, Gerald M.,3,544,333.

Murdoch, Henry Drummond, and Calderazzo, Fausto, to American Cyanamid Company. Amine and hydrazine complexes of molybdenum, chromium and tungsten carbonyls. 3,544,283, Cl. 23-359.

Murphy, G. W., Industries, Inc.: *See—*
Scott, William H., and Smith, Earl F., 3,543,449.

Murphy, James A., and Lee, Charles A., to International Paper Company, mesne. Disposable diaper. 3,543,756, Cl. 128-284.

Murphy, James A., Lee, Charles A., and Furbeck, Warren R., to International Paper Company, mesne. Creped tissue product. 3,544,420, Cl. 161-129.

Murray, Myles N., to Industrial Electronic Rubber Company. Diaphragm valve with projections around bleed hole. 3,544,062, Cl. 251-38.

Murray, Robert H. Filmed programmed teaching machines and the like. 3,543,417, Cl. 35-9.

Murtha, John C.: *See—*
Borck, Walter C., Jr., Gregory, John G., Hudson, James R., and Murtha, John C.,3,544,973.

Murton, Henry Roy: *See—*
Crabtree, Allen, and Murton, Henry Roy,3,544,547.

Musil, Johann, to Telephon-und Telegraphen-Fabriks-Aktiengesellschaft Kapsch & Soehne. Method of rendering galvanic cells leakproof by encasing them in a jacket of thermoplastic synthetic material. 3,544,386, Cl. 136-175.

Muskovac, Nicholas G., to Vectrol, Inc. Time proportional firing circuit. 3,544,766, Cl. 219-501.

Muth, Engelbert Michael: *See—*
Muth, Gregor Nikolaus, Muth, Engelbert Michael, and Weschenfelder, Otto,3,544,454.

Muth, Gregor Nikolaus, Muth, Engelbert Michael, and Weschenfelder, Otto, to Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft. Method and apparatus for the production of trimmed and folded copies. 3,544,454, Cl. 270-21.

Muzyczko, Thaddeus, Shore, Samuel, and Martin, Jerome A., to Richardson Company, The. Amino-ethylated novolaks as curing agents for epoxy resins. 3,544,517, Cl. 260-47.

Myers, Charles F., Jr., to Campbell, Harry T., Sons Corporation. Method for filling ballast tanks. 3,543,710, Cl. 114-125.

Nadalin, Robert J., to Westinghouse Electric Corporation. Phenol detection process. 3,544,271, Cl. 23-230.

Nagata, Nobuyoshi, and Ota, Yoshio, to Nippon Paint Co., Ltd. Liquid coating composition. 3,544,505, Cl. 260-37.

Nagayama, Masuzo: *See—*
Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi,3,544,475.

Nagy, Ernest J., to Pullman Incorporated. Operating mechanism for vehicle discharge means. 3,543,691, Cl. 105-241.

Naito, Kakuji. Apparatus for manufacturing plastic tubing for reclosable bags. 3,543,379, Cl. 29-400.

Nakai, Setsuo, and Mikami, Takeshi, to Fuji Photo Film Co., Ltd., and. Method of making a laminate, one layer comprising a reversible sol-gel. 3,544,405, Cl. 156-164.

Nakamigawa, Koichi, Takaoka, Reijiro, and Koyama, Katsura, to Nitto Chemical Industry Co., Ltd. Process for inhibiting nitrification of ammonia nitrogen in soils and soil-treating materials therefor. 3,544,295, Cl. 71-1.

Nakamura, Norio: *See—*
Iwai, Issei, Kishida, Yukichi, Hiraoka, Tetsuo, and Nakamura, Norio,3,544,584.

Nakanishi, Hiroshi: *See—*
Hirakawa, Katumi, Kitanosono, Hidehiro, and Nakanishi, Hiroshi,3,544,004.

Nakao, Masaru: *See—*
Yamamoto, Hisao, and Nakao, Masaru,3,544,563.

Nannichi, Yasuo. Variable-frequency microv wave oscillator element. 3,544,855, Cl. 317-234.

Nano, Gian Mario: *See—*
Fiecchi, Alberto, Nano, Gian Mario, Cabella, Paolo, and Cicognani, Giorgio,3,544,621.

National Blank Book Company, Inc.: *See—*
Sibley, William J., 3,544,134.

National Dust Collector Corporation: *See—*
Mc Ilvaine, Robert L., 3,544,087.

National Research Development Corporation: *See—*
Bates, James John, 3,544,868.
Bowman, George Edward, and Weaving, George Stewart, 3,544,278.
Bright, Alfred William, 3,544,194.

National Steel Corporation: *See—*
Zanetti, Joseph R., 3,544,393.

Nattermann, A., & Cie GmbH: *See—*
Betzing, Hans, and Eikermann, Hans, 3,544,605.

Nauta, Wijbe T., to N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades Stheeman en Pharmacia. Benzhydryl ethers. 3,544,557, Cl. 260-239.

Nazy, John R., and Wheeler, Donald H., to General Mills, Inc. Diamines and derivatives. 3,544,495, Cl. 260-18.

Neale, Alan Jeffrey, and Bain, James Stratford, to Monsanto Chemicals Limited. Hydroxyarylthioaryl phosphite stabilizers for rubber. 3,544,511, Cl. 260-45.95

Needham, Donald G.: *See—*
Bodkins, Roy L., and Needham, Donald G.,3,544,518.

Nehring, Rudolf: *See—*
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf,3,544,656.
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf,3,544,657.

Nelson, Harry E., to Gary Industries, Inc., mesne. Structural dock system. 3,543,523, Cl. 61-46.

Nelson, John: *See—*
Stoppard, William E., Pitts, Thomas E., and Nelson, John,3,544,018.

Nelson Kurt H.: *See—*
Lysyj, Ihor, Groeper, Lawrence H., and Nelson Kurt H.,3,544,277.

Nelson, Martin R. Truck mounted crane. 3,543,945, Cl. 212-67.

Nemag N.V.: *See—*
Van Huuksloot, Leendert, 3,544,150.

Nepon Kabushiki Kaisha: *See—*
Miya, Masami, and Fukuda, Koichi, 3,543,912.

Neuhaus, Friedrich: *See—*
Schippers, Heinz, Lenk, Erich, and Neuhaus, Friedrich,3,544,017.

Nevett, Leslie James, to Lucas, Joseph, (Industries) Limited. Means for mounting controls in a road vehicle. 3,543,874, Cl. 180-78.

New Products Corporation: *See—*
Egea, Liborio, and Vilaplana, Tobias, 3,543,328.

New Zealand Government Property Corporation, The: *See—*
Lattimore, Samuel, and Morris, Richard A., 3,544,968.

Newallis, Peter E., and Lombardo, Pasquale, to Allied Chemical Corporation. Bis cyanoalkyl amide phosphates and phosphonates. 3,544,664, Cl. 260-940.

Newbold, William F.: *See—*
Hogan, James A., Newbold, William F., and Spady, Richard J.,3,544,876.

Newman, Gerald H., to Union Carbide Corporation. Non-aqueous battery with methylene chloride in the electrolyte. 3,544,385, Cl. 136-155.

Nichols Engineering & Research Corporation: *See—*
Rastatter, Edward L., 3,543,931.
Rastatter, Edward L., 3,543,932.

Nichols Engineering and Research Corporation: *See—*
Archer, Geoffrey Alan, 3,543,703.

Nichols-Homeshield, Inc.: *See—*
Fox, John H., 3,543,575.

Nicou, Parasko: *See—*
Lefort, Marcel, and Nicou, Parasko,3,544,513.

Niehaus, Edward J., Jr.: *See—*
Warrick, Edward C., and Niehaus, Edward J., Jr.,3,544,871.

Nielsen, Asger T., to Ametek, Inc., mesne. Digitally controlled generation of a trace. 3,544,835, Cl. 315-22.

Nightingale, Glen: *See—*
Loukes, David Gordon, and Nightingale, Glen,3,544,437.

Nikko Pen Kabushiki Kaisha: *See—*
Aoki, Takashi, and Matsumoto, Kenji, 3,544,229.

Nilsson, Gunnar, to Aktiebolaget Optimus. Automatic door closing device with detent to hold door open. 3,543,327, Cl. 16-49.

Nilsson, John Lars Gunnar: *See—*
Dahlbom, Johan Richard, and Nilsson, John Lars Gunnar,3,544,579.

Nilsson, Ove Karl Gustaf: *See—*
Sundberg, Erik Gustav, Korbol, Arthur, and Nilsson, Ove Karl Gustaf,3,544,384.

Ninomiya, Nobutaka, Ichikawa, Hirohiko, and Nishino, Hiroshi, to Takeda Chemical Industries, Ltd. Method of removing sulfur dioxide from gases. 3,544,263, Cl. 23-2.

Nippon Denko Co., Ltd.: *See—*
Terado, Shiro, and Seki, Koya, 3,544,310.

Nippon Electric Company: *See—*
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo, 3,544,470.
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo, 3,544,471.
Suga, Michihisa, 3,544,914.
Yonezu, Hiroo, 3,544,856.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Murakami, Shinichi, 3,544,946.

Nippon Paint Co., Ltd.: *See—*
Nagata, Nobuyoshi, and Ota, Yoshio, 3,544,505.

Nippon Telegraph and Telephone Public Corporation: *See—*
Mukai, Hisakazu, 3,544,808.

Nishino, Hiroshi: *See—*
Ninomiya, Nobutaka, Ichikawa, Hirohiko, and Nishino, Hiroshi,3,544,263.

Nitto Chemical Industry Co., Ltd.: *See—*
Nakamigawa, Koichi, Takaoka, Reijiro, and Koyama, Katsura, 3,544,295.
Yamaguchi, Hachiro, 3,544,619.

Nixon, Grover C. Portable fruit picking apparatus. 3,543,492, Cl. 56-328.

Noda, Kazuo, Enomoto, Yuya, and Fukushima, Osamu, to Kurashiki Rayon Co., Ltd. Method of manufacturing soft and flexible sheet materials. 3,544,357, Cl. 117-63.

Nohe, Heinz, Suter, Hubert, and Hannebaum, Heinz, to Badische Anilin- & Soda-Fabrik Akteingesellschaft. Production of bicyclo-[2,2,2]-oct-7-en-2,3,5,6- tetracarboxylic dianhydride. 3,544,602, Cl. 260-346.6

Nolte, Albert C., Jr.: *See—*
Hladky, Walter, 3,543,906.

Nolte, Richard G.: *See—*
Baigas, Joseph F., Jr., Nolte, Richard G., and De Vita, Peter M.,3,543,700.

Nonaka, Katsuhiko: *See—*
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi,3,544,683.

Nooner, Daryl W., and Kolaian, Jack H., to Texaco Inc. Stabilization of montmorilconite clays in an underground formation. 3,543,858, Cl. 166-303.

Norby, Thomas E., to Corning Glass Works. Expendable immersion thermocouple. 3,544,387, Cl. 136-233.

Nord-Aviation Societe Nationale de Constructions Aeronautiques: *See—*
Soulez-Lariviere, Jean, and Lecocq, Octave, 3,544,042.

Nordson Corporation: *See—*
Reighard, Alan B., Rosen, Samuel R., and Baker, Robert G., 3,543,968.

Norenburg, Johannes C.: *See—*
Crawford, Duffer B., and Norenburg, Johannes C.,3,543,528.

Norman, Rufus. Portable-convertible cane, seat and gunrest. 3,544,051, Cl. 248-155.

North American Philips Corporation: *See—*
Loughran, Eugene F., Jr., 3,543,589.

North American Rockwell Corporation: *See—*
Frankel, Milton B., and Rowley, Gerald L., 3,544,630.
Frankel, Milton B., and Rowley, Gerald L., 3,544,640.
Giles, Stuart, 3,544,852.
Giles, Stuart, 3,544,853.
Iannucci, Vicent A., 3,544,284.
Linden, Gosta R., 3,544,097.
Lysyj, Ihor, Groeper, Lawrence H., and Nelson Kurt H., 3,544,277.

Northern Electric Company Limited: *See—*
Cowpland, Michael C. J., 3,544,731.
Voss, Brian E., 3,544,730.

Norton, Richard E.: *See—*
Kaufman, Irving, and Norton, Richard E.,3,544,880.

Novajovsky, William A.: *See—*
Hammersand, Fred G., and Novajovsky, William A.,3,544,831.

Novak, Edward J.: *See—*
Obergfell, Allen R., Doyle, Richard H., Novak, Raymond F., and Novak, Edward J.,3,543,987.

Novak, Raymond F.: *See—*
Obergfell, Allen R., Doyle, Richard H., Novak, Raymond F., and Novak, Edward J.,3,543,987.

Novoselov, Viktor Alexandrovich: *See—*
Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich,3,544,443.

Nowak, Thomas A., to Kaiser Aluminum & Chemical Corporation. Multi-metallic rail device and process. 3,544,737, Cl. 191-22.

Nowakowski, Robert J.: *See—*
Raver, Louis J., and Nowakowski, Robert J.,3,544,881.

Numata, Hideji: *See—*
Shiota, Masatoshi, Kato, Taizo, and Numata, Hideji,3,544,666.

Numata, Mitsuo: *See—*
Hirano, Hiroshi, Numata, Mitsuo, Shimahara, Noboru, and Kawai, Kiyohisa,3,544,574.

Numrich, George R., Jr. Bluing compounds and their production. 3,544,342, Cl. 106-19.

Nussbaum, Frank J., to Bischoff Chemical Corporation. Injection molding apparatus. 3,543,348, Cl. 18-30.

Nussbaum, Marvin L.: *See—*
Knaggs, Edward A., and Nussbaum, Marvin L.,3,544,613.

N.V. 'CPO': *See—*
Boersma, Rintje, 3,544,747.

N.V. Ingenieursbureau voor System en Octrooien: *See—*
de Koning, Jan, and van der Veen, Romke, 3,543,565.

N.V. Koninklijke Maatschappij 'de Schelde': *See—*
Broodman, Johannes Jacobus, 3,544,760.

N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades Stheeman en Pharmacia: *See—*
Nauta, Wijbe T., 3,544,557.

Nystrom, Ronald H.: *See—*
Contreras, Gilbert E., and Nystrom, Ronald H.,3,544,137.

Oakite Products, Inc.: *See—*
Parsons, Richard, 3,543,390.

Oberbadische Bettfedernfabrik GmbH: *See—*
Schweigert, Erich, 3,543,313.

Oberdier, Robert W., to Westinghouse Electric Corporation. Outside mounted room air conditioner structure. 3,543,533, Cl. 62-262.

Obergefell, Ronald F., to Houdaille Industries, Inc. Fluid distributor means. 3,543,881, Cl. 184-7.

Obergfell, Allen R., Doyle, Richard H., Novak, Raymond F., and Novak, Edward J., to Fastener Corporation. Fastener driving tool. 3,543,987, Cl. 227-136.

Obloy, Leo A., to Special Drill and Reamer Corporation. Rotary cutting tool. 3,543,613, Cl. 77-72.

O'Connor, James A. Device for packaging two separate substances. 3,543,967, Cl. 222-136.

Oeckl, Otto, and Purschke, Richard, to Maschinenfabrik Augsburg-Nurmberg Aktiengesellschaft. Tool changer for machine tools. 3,544,286, Cl. 29-568.

Oesterhelt, Gerhard: *See—*
De Bucs, Eugen Szabo, and Oesterhelt, Gerhard,3,544,311.

Office National d'Etudes et de Recherches Aerospatiales: *See—*
Besson, Jean Rene, and Weber, Pierre Francois, 3,544,216.

Oga, Taijiro, Ichinokawa, Hideo, and Ito, Masatomo, to Showa Denko Kabushiki Kaisha. Process for the manufacture of aromatic nitriles. 3,544,617, Cl. 260-465.

Ogawa, Shinichiro, and Matsuda, Toshiyuki, to Honeywell Inc. Electric current converting circuit. 3,544,815, Cl. 307-270.

Ogawa, Shinichiro, and Matsuda, Toshiyuki, to Honeywell Inc. Electric current converting circuit. 3,544,816, Cl. 307-270.

Ohlsson, Jarl-Erik S. I. Rivetable projections. 3,544,143, Cl. 287-189.36

Ohlsson, Jarl-Erik S. I. Binder with label. 3,544,230, Cl. 402-3.

Ohno, Junji. Key assembly. 3,543,631, Cl. 84-433.

Ohno, Tomeji: *See—*
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,470.
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,471.

Ohta, Seizo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Seat frame construction. 3,544,164, Cl. 297-452.

O'Keefe, Robert F., to Pitney-Bowes, Inc. Time delay. 1,2-0,1-7, Cl. 137-612.1

Okumura, Akio: *See—*
Yoshida, Makoto, Okumura, Akio, and Imai, Shinichi,3,544,326.

Olds, Philip David. Trolling depth control device. 3,543,431, Cl. 43-43.13

Olin Corporation: *See—*
Bakoledis, Andrew G., and Brosious, James B.,3,543,986.
Kober, Ehrenfried H., Ottmann, Gerhard F., and Pregler, John E., 3,544,637.

Olin, John F., to Monsanto Company. Herbicidal N-formyl α-haloacetanilides. 3,544,305, Cl. 71-118.

Olin Mathieson Chemical Corporation: *See—*
Harris, Frederick J., 3,543,560.

Olivetti, Ing. C., & C., S.p.A.: *See—*
Bovio, Michele, 3,544,000.

Olivetti, Ing. C., & Co., S.p.A.: *See—*
Albrile, Walter, 3,543,905.

Olseth, George E.: *See—*
Peters, Donald J., and Olseth, George E.,3,543,711.

Olson, Edgar C.: *See—*
Miller, Roland E., Borgardt, Henry, and Olson, Edgar C.,3,544,340.

Olszewski, Edward, and Plum, Richard R., to Bell Telephone Laboratories, Incorporated. Automatic observer speech monitoring cut off and restoral equipment. 3,544,735, Cl. 179-175.2

Oltman, John E., to ESB Incorporated. Method of sealing an electric battery by means of spin welding. 3,544,383, Cl. 136-133.

Omark Industries, Inc.: *See—*
Silvon, Kay, 3,543,612.

O'Meara, Thomas R., to Hughes Aircraft Company. Record medium having character representations thereon. 3,544,771, Cl. 235-61.12

Onderca, Georg: *See—*
Bock, Ludwig, and Onderca, Georg,3,543,709.

O'Neill, Wilbur J., and Krasberg, Alan R., to Westinghouse Electric Corporation. Underwater submersible chamber system. 3,543,526, Cl. 61-69.

Oppegaard, Asbjorn, and Dahlberg, Jan Anders, to Uddeholms Aktiebolag. Method for the production of trihalogenated and tetrahalogenated ethylene. 3,544,642, Cl. 260-654.

Orbo Aktiebolag: *See—*
Wirstrom, Roland Torsten, 3,543,623.

Organocerams, Inc.: *See—*
Deutsch, Henry M., 3,544,400.

Oriti, Basil S.: *See—*
Galbreath, Gerald W., Oriti, Basil S., and Munn, Carl R.,3,544,153.

Orlando, Daniel: *See—*
Büttke, Richard A., Sabatino, Anthony, Orlando, Daniel, and Behrens, William H.,3,544,754.

Orlando Research Corporation: *See—*
McMahan, William H., 3,544,915.

Orleman, Paul D.: *See—*
Lovell, Donald H., and Orleman, Paul D.,3,543,376.

Orth, Winfried, Rappen, Ludwig, and Busse, Gerd, to Rutgenswerke und Teervewertung Aktiengesellschaft. Process for preparing pyrryl-(2)-acetic acid esters. 3,544,589, Cl. 260-326.3

Orville, Richard E.: *See—*
Sletten, Andreas M., Uman, Martin A., Orville, Richard E., and Venturino, Anthony J.,3,544,843.

Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi, to Hitachi, Ltd. Electric motor mounting device. 3,544,048, Cl. 248-18.

Oshima, Yujiro: *See—*
Suzuki, Toshio, Oshima, Yujiro, and Kataoka, Masao,3,543,736.

Osmar, John J.: *See—*
Arthur, James B., and Osmar, John J.,3,543,769.

Osmond, Desmond Wilfrid John, and Moody, Anthony Gifford, to Imperial Chemical Industries Limited. Polymer coated particles. 3,544,500, Cl. 260-29.6

Ota, Yoshio: *See—*
Nagata, Nobuyoshi, and Ota, Yoshio,3,544,505.

Oth, Andre, and Mathieu, Alexis, to Solvay & Cie. Cross-linkable internally plasticized vinyl chloride compositions. 3,544,661, Cl. 260-879.

Otis Engineering Corporation: *See—*
Dollison, William W., 3,543,793.
Taylor, Donald F., 3,543,852.

Ott, Hans: *See—*
Waser, Rudolf, and Ott, Hans,3,544,964.

Ott, Richard J., to Respond Inc. Shot cylinder lubricating apparatus. 3,544,355, Cl. 117-96.

Ottmann, Gerhard F.: *See—*
Kober, Ehrenfried H., Ottmann, Gerhard F., and Pregler, John E.,3,544,637.

Outboard Marine Corporation: *See—*
Boerma, Michael J., 3,543,509.

Overhead Door Corporation said Oriti and said Munn assor to Cleveland Freight Lines, Inc.: *See—*
Galbreath, Gerald W., Oriti, Basil S., and Munn, Carl R., 3,544,153.

Overwien, Hermann: *See—*
Mueller, Herbert, Koehl, Harald, Overwien, Hermann, and Pommer, Horst,3,544,634.

Owens, James R.: *See—*
Billerbeck, Wilfred J., Jr., and Owens, James R.,3,544,041.

Owens-Corning Fiberglas Corporation: *See—*
Cunningham, Cecil R., and Rushton, James C., 3,544,016.
Simison, Allen L., 3,544,414.

Owens-Illinois, Inc.: *See—*
Smith, Allison L., 3,544,508.

P & R Corporation: *See—*
Pendzimas, Donald J., and Rees, Theodore J., 3,543,671.

Paasche, Jens A., to Continental Illinois National Bank & Trust Company of Chicago, executor of the estate of said Paasche, deceased. Automatic lubricating apparatus. 3,543,882, Cl. 184-15.

Pacault, Pierre Henri, and Mary, Francis J., to Babcock-Atlantique Societe Anonyme. Apparatus for generation of energy in a gas cycle. 3,543,534, Cl. 62-310.

Packaging Corporation of America: *See—*
Hickin, Robert J., 3,543,472.

Packard, Roger E., to Burroughs Corporation. Data processing system. 3,544,965, Cl. 340-172.5

Paige, Richard E. One-piece straight line edge paperboard tray. 3,543,992, Cl. 229-16.

Paige, Walter Griffin, to Burroughs Corporation. Manually adjustable pneumatic cartridge. 3,543,790, Cl. 137-594.

Pallat, Ludwig R.: *See—*
DuVivier, Charles L., and Pallat, Ludwig R.,3,544,911.

Palmour, Hayne, III, and Dokuzoguz, Halit Z., to Research Corporation. Finely divided spinel. 3,544,266, Cl. 23-52.

Pampus, Gottfried: *See—*
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon,3,544,542.

Pan American Hydroponics, Inc.: *See—*
Gaines, Floyd C., Jr., 3,543,437.

Panasjuk, Lev Emelianovich, Kupits, Arnold Karlovich, Romanov, Evgeny Mikhailovich, Ageev, Veniamin Dmitrievich, and Ryazantsev, Vladimir Vasilievich. Slip ring device. 3,544,949, Cl. 339-8.

Pande, Kailash, to Dow Chemical Company, The. Tricyclohexyltin isothiocyanate and a process for making organotin salts. 3,544,608, Cl. 260-429.7

Pandjiris Weldment Co., The: *See—*
Cooper, Cleveland N., 3,543,989.

Pannier Corporation, The: *See—*
Pannier, Ralph A., 3,543,416.

Pannier, Ralph A., to Pannier Corporation, The. Identifying code and method of producing the same and a deciphering chart therefor. 3,543,416, Cl. 35-4.

Pantland, Fredrick William. Fire dampers. 3,543,439, Cl. 49-7.

Panzarella, Joseph: *See—*
Tulumello, Michael, 3,543,820.

Parke, Edward Henry: *See—*
Williamson, David Theodore Nelson, Crosland, Richard Graham, and Parke, Edward Henry,3,543,375.

Parker Pen Company, The: *See—*
Green, Homer T., 3,544,227.

Parker-Hannifin Corporation: *See—*
Stacey, Hugh J., 3,543,644.

Parnell, Edgar William: *See—*
Davis, Michael, Parnell, Edgar William, Sharp, Brian William, and Warburton, Dennis,3,544,686.

Parsons, Les., and Sons Engineers Limited: *See—*
Parsons, Leslie Arthur, 3,543,824.

Parsons, Leslie Arthur, to Parsons, Les., and Sons Engineers Limited. Treatment of fruit and vegetable crops. 3,543,824, Cl. 146-226.

Parsons, Richard, to Oakite Products, Inc. Fusion-joining coarse-surfaced ferrous metals to metals, using alkaline plating with chelating agents. 3,543,390, Cl. 29-492.

Pasley Manufacturing & Distributing Co., Inc.: *See—*
Pasley, Marquis R., and Frazer, Ceylon B., 3,544,961.

Pasley, Marquis R., and Frazer, Ceylon B., to Pasley Manufacturing & Distributing Co., Inc. Delivery equipment safety device. 3,544,961, Cl. 340-53.

Passat Maschinenbau GmbH: *See—*
Meyer, Arnfried, 3,543,415.

Passavant Werke: *See—*
Busse, Oswald, and Klesper, Hugo, 3,543,938.

Passmore, Edmund M., to Sylvania Electric Products, Inc. Refractory bodies containing aluminum nitride, boron nitride and titanium boride. 3,544,486, Cl. 252-520.

Passmore, James, to Petrochemicals Company, Inc. Anticaking treatment of urea by polymerized resins. 3,544,297, Cl. 71-28.

Pasternack, Gerald P.: *See—*
Kraemer, George T., and Pasternack, Gerald P.,3,544,814.

Patel, Nagar J., to Westinghouse Electric Corporation. Circuit breaker with improved trip means. 3,544,931, Cl. 335-174.

Patent-Treuhand-Gesellschaft fur Elektrische Gluhlampen m.b.H.: *See—*
Fahnrich, Hans-Jurgen, 3,544,839.

Patrick, Robert L.: *See—*
Schweiker, George C., Tenney, Harry W., Jr., and Patrick, Robert L.,3,544,351.

Pattermann, Franz, to Boehringer Ingelheim G.m.b.H. Scilliglaucosidin-19-ol-a-L-rhamnoside. 3,544,553, Cl. 260-210.5

Paulson, Rudolph M., and Watt, Roy A. Recirculation unit. 3,543,836, Cl. 165-22.

Pausch, Josef, to Aerodyne Machinery Corporation. High pressure cleaning of dust separating apparatus. 3,543,481, Cl. 55-96.

Pavlov, Vladimir Vasilievich, Ivliev, Valery Alexandrovich, Zlobin, Jury Petrovich, Birnbaum, Oleg Ernstovich, and Trunov, Oleg Konstantinovich. Device for monitoring the icing intensity of a body in air stream. 3,543,577, Cl. 73-170.

Payne, Leslie Elmer: *See—*
Pinkham, Jesse Randolph, Payne, Leslie Elmer, Michal, David Hill, and McArthur, Colin Shaw,3,543,927.

Payne, Philip A.: *See—*
Lynch, William P., Payne, Philip A., and Zornow, Albert B.,3,544,039.

Payonk, Anthony L. Smokeless charcoal fired grill. 3,543,672, Cl. 99-340.

Peddie, John G., to Foster, H. Dell, Co. Reversible binary coded decimal synchronous counter circuits. 3,544,773, Cl. 235-92.

Pedersen, Jack R.: *See—*
Pietrusza, Edward W., and Pedersen, Jack R.,3,544,527.

Peel, James R., to Conductive Research Corporation, The. Static discharging footwear. 3,544,841, Cl. 317-2.

Peeters, Martinus F. Kiln for making cement clinker. 3,544,090, Cl. 263-29.

Peklenik, Janez. Apparatus for determining characteristic magnitudes in stochastic processes. 3,544,774, Cl. 235-151.13

Pelikan, George A.: *See—*
Roselius, Charles F., and Pelikan, George A.,3,543,889.

Pellegrino, Anthony J., to Hipotronics, Inc. Interlocked operation control and overload protective circuit system. 3,544,844, Cl. 317-16.

Peltola, Waino, and Braski, Ervin W. Timer harvester. 3,543,819, Cl. 144-2.

Pendzimas, Donald J., and Rees, Theodore J., to P & R Corporation. Food cooker. 3,543,671, Cl. 99-333.

Pennella, Filippo, to Phillips Petroleum Company. Olefin conversion and catalyst therefor. 3,544,647, Cl. 260-683.

Pennington, Joe S., to Deere & Company. Implement frame. 3,544,131, Cl. 280-412.

Pennino, Charles J., to Koppers Company, Inc. Non-metallic tie plate. 3,544,006, Cl. 238-283.

Pennwalt Corporation: *See—*
Dychdala, George Roman, 3,544,267.
Hamilton, William H., 3,545,007.
Hauptschein, Murray, Hager, Robert Bonner, and Allen, Thomas Clark, 3,544,663.

Pento, Frank L., to Bell Telephone Laboratories, Incorporated. Pulse correcting single frequency signaling receiver. 3,544,724, Cl. 179-16.

Peripheral Systems Corporation: *See—*
Applequist, Roy A., and Wilson, Laurence M., 3,544,980.

Perkon, John A., to Basic Aluminum Castings Company. Wedge block for die casting machine. 3,543,835, Cl. 164-339.

Perma-Sharp Manufacturing Corporation: *See—*
Waterman, Neil S., and Borden, Philip H., 3,543,918.

Perna, Nicholas Alfonso: *See—*
Jaeger, Hans, and Perna, Nicholas Alfonso,3,544,213.

Perr, Julius P.: *See—*
Reiners, Neville H., and Perr, Julius P.,3,544,008.

Perry, Charles B., Bomkamp, Raymond L., and Bone, Kendall F., to Cincinnati Milacron Inc. Machine tools having conveyor means extending therebetween and carrying pallet means which are selectively connectable to the machine tools. 3,543,392, Cl. 29-563.

Peters, Donald J., and Olseth, George E., to Campbell, Harry T., Sons' Corporation. Method for ballasting a vessel. 3,543,711, Cl. 114-125.

Petersen, Paul S.: *See—*
Werner, Frank D., and Petersen, Paul S.,3,544,123.

Peterson, Carl L., to Sylvania Electric Products, Inc. High wattage quartz halogen lamp. 3,543,962, Cl. 313-278.

Peterson, Carl R., to Ingersoll-Rand Company. Fluid sealing arrangement. 3,544,116, Cl. 277-3.

Peterson, James O.: *See—*
Gilbert, Everett E., and Peterson, James O.,3,544,620.

Peterson, John L., to Atlas Spokane, Inc. Particle handling apparatus. 3,543,950, Cl. 214-10.

Petrochemicals Company, Inc.: *See—*
Passmore, James, 3,544,297.

Pettit, William R.: *See—*
Michetti, Louis C., and Pettit, William R.,3,543,997.

Pettyjohn, Philip C., to Lockheed Aircraft Corporation. Sealant applying tool. 3,543,719, Cl. 118-410.

Pfaff, G. M., AG: *See—*
Maschamann, Hans, 3,543,737.

Pfizer, Chas., & Co., Inc.: *See—*
Adams, Frank, Jr., Rice, Leo F., and Taylor, Roy J., 3,544,455.

Pfouts, Robert R.: *See—*
Fernandes, Joseph F., and Pfouts, Robert R.,3,543,845.

Phares, Lindsey J., to Raymond International, Inc. Formation of cast in place concrete piles. 3,543,525, Cl. 61-53.66

Phelps Dodge Refining Corporation: *See—*
Spoon, Bill Hugh, 3,544,431.

Philipps, Walter, and Buckner, Walter, said Buckner assor. to said Philipps. Suspension for overhead cables. 3,544,702, Cl. 174-42.

Phillip Petroleum Company: *See—*
Smith, Dexter E., 3,543,784.

Phillips Carmen S., Corwith, James, Jr., and Clendenin, Wilbur H., to International Harvester Company. Feed rolls. 3,543,914, Cl. 198-167.

Phillips, Edwin D. Laboratory equipment including novel connector means for tubular glass members. 3,544,281, Cl. 23-292.

Phillips Petroleum Company: *See—*
Bodkins, Roy L., and Needham, Donald G., 3,544,518.
Chapman, Charles C., 3,544,651.
Dixon, Rolland E., and Hutto, John F., 3,544,649.
Gerner, Robert V., 3,543,857.
Houser, Clarence G., and Hoskins, Jack E., 3,544,540.
Kinney, Alfred W., 3,544,338.
Mihm, Clifford H., 3,544,430.
Pennella, Filippo, 3,544,647.
Wilson, Newton R., and Morgan, Bill T., 3,544,021.
Wilson, Reagan T., 3,544,648.

Phillips, William J., and Reese, Leolf M., to Garrett Corporation, The. Method for the percussive welding of studs. 3,544,755, Cl. 219-99.

Phillips, William V.: *See—*
Schmidt, Jack W., Tuck, Robert M., and Phillips, William V.,3,543,607.

Physio-Chem Corporation: *See—*
Dunsay, George, and Cohn, Leonard, 3,543,716.

Piaget, Robert Edgar. Molded insulator and shell therefor releasably attachable to an electrical contact, and accompanying flash shield. 3,544,952, Cl. 339-94.

Piasecki Aircraft Corporation: *See—*
Guzik, Nicholas J., 3,544,788.
Piasek, Edmund J.: *See—*
Culbertson, George S., and Piasek, Edmund J.,3,544,520.
Picaso Company Limited: *See—*
Kanai, Harue, 3,543,772.
Picker Corporation: *See—*
Hansen, Carl W., 3,543,384.
Pickles, Joseph, to Ferro Manufacturing Corporation. Power window regulator. 3,544,822, Cl. 310-83.
Pietrusza, Edward W., and Pedersen, Jack R., to Allied Chemical Corporation. Novel moisture resistant polyamides from a diamine having at least one piperidyl group. 3,544,527, Cl. 260-78.
Pile, Delbert W., to Bendix Corporation, The. Radar system incorporating calibration means. 3,544,996, Cl. 343-17.7
Pilkington Brothers Limited: *See—*
Grove, Francis John, Wright, Donald Curtis, and Hamer, Francis Michael, 3,543,979.
Pilot Chemical Company: *See—*
Morrisroe, John J., and Banigan, Thomas F., 3,544,603.
Pinkerton Inc.: *See—*
McMann, Renville H., Jr., and Kaiser, Arthur, 3,544,987.
Pinkham, Jesse Randolph, Payne, Leslie Elmer, Michal, David Hill, and McArthur, Colin Shaw, to Reynolds, R. J., Tobacco Company. Apparatus for testing cigarettes. 3,543,927, Cl. 209-75.
Pinkham, Wallace S.: *See—*
Thayer, Floyd L., and Pinkham, Wallace S.,3,543,801.
Pirelli, S.p.A.: *See—*
Priaroggia, Paolo Gazzana, 3,544,700.
Pirot, Ernst: *See—*
Ebert, Alfred, Pirot, Ernst, Holler, Fritz, and Steinhilber, Georg,3,544,667.
Pitney-Bowes, Inc.: *See—*
O'Keefe, Robert F., 1,2-0,1-7.
Pitts, Thomas E.: *See—*
Stoppard, William E., Pitts, Thomas E., and Nelson, John,3,544,018.
Plant, George W.: *See—*
Fisher, Robert K., Plant, George W., and Collins, Maurice J.,3,544,093.
Plastic Contact Lens Company, The: *See—*
Kaye, Morton, 3,544,220.
Plati, John Thomas: *See—*
Albrecht, Harry Allen, and Plati, John Thomas,3,544,582.
Plester, Karl Heinz, and Hoffmann, Erich, to Gewerkschaft Eisenhutte Westfalia. Hydraulic pit prop. 3,544,055, Cl. 248-354.
Plotkin, Stanley A., to Wistar Institute, The. Intranasal immunization against ruhella. 3,544,680, Cl. 424-89.
Plouffe, Leo A., and McBride, Lyle E., Jr., to Texas Instruments, Incorporated. A.C. motor starting control circuit utilizing triggerable semiconductor switching device with thermistor in gating circuit. 3,544,869, Cl. 318-221.
Plum, Richard R.: *See—*
Olszewski, Edward, and Plum, Richard R.,3,544,735.
Plutchak, Noel B., to Bendix Corporation, The. Underwater mining assembly. 3,543,422, Cl. 37-57.
Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes: *See—*
Caille, Georges Edouard Yvon E., and Weben, Bernard, 3,543,828.
Pofferi, Giancarlo, to ITAL-BED Costruzione Letti e Affini S.r.l. Table unit mountable on a bed frame. 3,543,312, Cl. 5-332.
Polaroid Corporation: *See—*
Brandt, Edison R., 3,544,251.
Idelson, Elbert M., 3,544,545.
Rice, Christopher R., 3,543,622.
Sheehan, Ralph F., 3,544,324.
Polestak, Walter J., and Keuchel, Herbert W., to Celanese Corporation. High-meeting, polymer compositions comprising a 3-methyl-1-butene polymer and another polyolefin. 3,544,662, Cl. 260-896.
Poliakoff, Theodore E., to American Machine & Foundry Company. Proximity switch type control means. 3,544,934, Cl. 335-206.
Pollitzer, Ernest L.: *See—*
Mitsche, Roy T., and Pollitzer, Ernest L.,3,544,451.
Poloroid Corporation: *See—*
Erlichman, Irving, 3,543,662.
Lyon, Walter R., 3,543,663.
Reed, John M., and Reynard, John M., 3,543,665.
Rosen, William J., 3,543,661.
Polychrome Corporation: *See—*
Yonezawa, Teruhiko, 3,544,317.
Poly-Matic Fountain, Inc.: *See—*
Davis, Albert W., 3,543,729.
Polymer Corporation Limited: *See—*
Edwards, Douglas C., and Dolezal, Premysl Thomas, 3,544,541.
Pommer, Horst: *See—*
Mueller, Herbert, Koehl, Harald, Overwien, Hermann, and Pommer, Horst,3,544,634.
Ponsen, Catharinus M., 1/2 to Craig, Colin. Cargo handling apparatus. 3,543,953, Cl. 214-15.
Pool, Robert H.: *See—*
Dulaney, Ernest N., Elliott, William S., Haberly, Charles F., and Pool, Robert H.,3,544,906.
Pool, Stuart D., and Steingas, Richard R., to International Harvester Company. Expandable cell static conveyor. 3,543,907, Cl. 198-1.
Poole, Kenneth M.: *See—*
Herriott, Donald R., and Poole, Kenneth M.,3,544,715.
Poos, Arthur, to Centre National de Recherches Metallurgiques. Method of controlling the operation of a shaft furnace. 3,544,710, Cl. 178-6.
Poppelsdorf, Fedor, to Union Carbide Corporation. Process for the purification of crude cyanoalkylated polyoxyalkylene compounds. 3,544,615, Cl. 260-465.
Porcelli, Ernest J.: *See—*
Rakoczi, Laszlo L., Keefer, David E., Goss, Gary J., and Porcelli, Ernest J.,3,544,969.
Porco, Frank, to Biflex Foundations, Inc. Stocking support means. 3,543,763, Cl. 128-535.
Posdal, James R., to Kraftco Corporation. Method of making fudge, caramel, fandant and hard candy type confections. 3,543,696, Cl. 107-54.
Posner, Samuel, to Power-Wash, Inc. Portable self-propelled trailer washing device. 3,543,319, Cl. 15-21.
Poujol, Albert C.: *See—*
Leavens, Willard H., and Poujol, Albert C.,3,543,371.
Pound, James R.: *See—*
Kennedy, James E., and Pound, James R.,3,543,961.
Power-Wash, Inc.: *See—*
Posner, Samuel, 3,543,319.
PPG Industries, Inc.: *See—*
Dowbenko, Rostyslaw, and McBane, Bruce N., 3,544,489.
Pratt, Henry, Company: *See—*
Fawkes, Donald G., 3,544,066.
Pratt, Richard J., and Young, David W., to Sinclair Research, Inc. Set retarded plaster composition. 3,544,344, Cl. 106-111.
Pratt, Ryder: *See—*
vonBrecht, Forrest G., and Pratt, Ryder,3,543,478.
Pregler, John E.: *See—*
Kober, Ehrenfried H., Ottmann, Gerhard F., and Pregler, John E.,3,544,637.
Presant, Fred, and Carrion, Carmelo, Jr., to Aerosol Techniques Incorporated. Self propelled liquid dispenser containing an antiperspirant aluminum salt. 3,544,258, Cl. 222-192.
Prescott, Herbert L., to Westinghouse Electric Corporation. Load tap changer apparatus employing parallel circuits comprising vacuum and no-load switches. 3,544,884, Cl. 323-43.5
Press, Jay L. Intelligence testing device. 3,543,418, Cl. 35-22.
Presto Lock Co., Inc.: *See—*
Budzyn, Boleslaw L., 3,543,545.
Priaroggia, Paolo Gazzana, to Pirelli, S.p.A. Electrical cable joints. 3,544,700, Cl. 174-15.
Price, David B., to Westinghouse Electric Corporation. Hair dryer. 3,543,412, Cl. 34-99.
Price, Paul S., and Slater, William M., to Conenco Canada Limited. Reinforced elastomeric bearing. 3,544,415, Cl. 161-44.
Price, William L., and Jackson, Don M., Jr., to Motorola, Inc. Monolithic integrated circuit substructure with epitaxial decoupling capacitance. 3,544,863, Cl. 317-235.
Prochnow, Claus, to Rollei-Werke Franke & Heidecke. Photographic camera with reversible lens. 3,544,199, Cl. 350-255.
Procter & Gamble Company, The: *See—*
Griebstein, William J., 3,544,678.
Hair, Eddy R., 3,544,331.
Kitchen, Everitt A., and Simmons, Judith K., 3,544,473.
Proctor, Sidney E., to Austin Hoy and Company Limited. Cutter tools and mountings therefor. 3,544,166, Cl. 299-81.
Production Machinery Corporation: *See—*
Richards, John O., 3,543,624.
Produits Chimiques Pechiney-Saint-Gobain: *See—*
Thomas, Jean Claude, 3,544,280.
Proffitt, Thomas Jefferson, Jr.: *See—*
Finch, Neil Lamar, Lemley, James Dean, and Proffitt, Thomas Jefferson, Jr.,3,544,462.
Pruducts Chimiques Pechiney-Saint-Gobain: *See—*
Thomas, Jean Claude, Fournel, Francis, and Soussan, Salomon, 3,544,660.
Pugsley, Kenneth N. Carton distributor. 3,543,479, Cl. 53-186.
Pulkkinen, Erkki J., to Allied Chemical Corporation. 3,3,3',3'-Tetramethyl-6,6'-di(2-hydroxypropoxy) -1,1'-spirobiindane. 3,544,638, Cl. 260-613.
Pullman Incorporated: *See—*
Crawford, Duffer B., and Norenburg, Johannes C., 3,543,528.
Hsu, Henry, 3,544,628.
Nagy, Ernest J., 3,543,691.
Stark, Marvin, and Szala, Norman M., 3,543,692.
van Dijk, Christiaan P., and Siebentritt, Frank H., 3,544,274.
van Dijk, Christiaan P., 3,544,652.
Puma-Sportschuhfabriken Rudolf Dassler KG: *See—*
Dassler, Rudolf, 3,543,420.
Purschke, Richard: *See—*
Oeckl, Otto, and Purschke, Richard,3,544,286.
Puskadi, Frank: *See—*
Crocker, Guy J., and Puskadi, Frank,3,543,920.
Putnam, Robert M., to TRW Inc. Quartz modulated mirror small angle detection device. 3,544,221, Cl. 356-152.
Q-Panel Corporation: *See—*
Albee, Percy Frederick, Jr., 3,544,211.
Quaker Oats Company, The: *See—*
Dunlop, Andrew P., Rustad, Norman E., and Sherman, Edward, 3,544,487.

Quantic Industries, Inc.: *See—*
Elliott, Harold A., 3,544,800.
Quesnow, Erwin C., to Ronson Corporation. Combination pocker and table lighter. 3,544,252, Cl. 431-253.
Quinn, Clark E., to General Motors Corporation. Photoelectric liquid level detector with checkout means which increases output of lamp to simulate low-level condition. 3,544,799, Cl. 250-218.
Rabinovich, Vladimir Mordokheevich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.
Radec Corporation: *See—*
vonBrecht, Forrest G., and Pratt, Ryder, 3,543,478.
Radford, James E., to United States of America, Navy. Stabilizer fin. 3,543,684, Cl. 102-10.
Radiant International Incorporated: *See—*
Meyer, David, 3,544,246.
Raginsky, Leonid Solomonovich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ilgisonis, Igor Viktorovich, and Adamsky, Noi Mikhailovich,3,544,074.
Rai, Charanjit, El-Mogazi, Mohamed M., and Rashkin, Jay A., to Cities Service Oil Company. Xylene isomer separation. 3,544,645, Cl. 260-674.
Rai, Charanjit, and Krueger, Arthur Frederic, to Broadview Chemical Corporation. Metal sealant containing oxyalkyl amine accelerator. 3,544,536, Cl. 260-89.5
Raia, Charles D. Method and apparatus for washing floor coverings including carpets, rugs and the like. 3,543,321, Cl. 15-50.
Raisch, Lee S., and Falkenberg, Howard M., to Universal Metal Hose Company. Apparatus for helically corrugating metal tubing. 3,543,551, Cl. 72-77.
Rakoczi, Laszlo L., Keefer, David E., Goss, Gary J., and Porcelli, Ernest J., to Standard Computer Corporation. Language independent computer. 3,544,969, Cl. 340-172.5
Ralphs, Russell W., to Lambert, James D. Analog to digital method and apparatus for monitoring the status of a parameter. 3,544,910, Cl. 328-150.
Ralston, Paul H.: *See—*
Boone, Daniel E., and Ralston, Paul H.,3,544,461.
Rand, Walter Leslie, and Brown, Colin James, to Electric & Musical Industries Limited. Apparatus for moulding gramophone records. 3,543,331, Cl. 18-5.3
Rank Organisation Limited, The: *See—*
Whitehouse, David John, 3,543,571.
Ranvier, Gaston Jean Louis, and Richter, Gerhard, to Societe Nationale d'Etude de Construction de Moteurs d'Aviation. Silencer device for an ejector-type jet propulsion nozzle. 3,543,877, Cl. 181-51.
Rapp, Lester M., and Wilk, Adrian S., to Cities Service Research and Development Company. Removing tetrahydrofuran insolubles from a hydrogenation feedstock. 3,544,449, Cl. 208-87.
Rappen, Ludwig: *See—*
Orth, Winfried, Rappen, Ludwig, and Busse, Gerd,3,544,589.
Rashkin, Jay A.: *See—*
Rai, Charanjit, El-Mogazi, Mohamed M., and Rashkin, Jay A.,3,544,645.
Rassbach, Volker, and McArdle, John C., said Rassbach assor. to said McArdle. Form tie anchor with reciprocable slide. 3,544,059, Cl. 249-219.
Rastatter, Edward L., to Nichols Engineering & Research Corporation. Multiple cyclone assembly. 3,543,931, Cl. 209-211.
Rastatter, Edward L., to Nichols Engineering & Research Corporation. Vortex chamber reject control. 3,543,932, Cl. 209-211.
Ratajczyk, James Daniel: *See—*
Swett, Leo Ralph, Ratajczyk, James Daniel, and Young, Patrick Richard,3,544,585.
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian, to Cassella Farbwerke Mainkur Aktiengesellschaft. Dyed textile materials having improved wet fastness properties and method of producing same. 3,544,363, Cl. 117-139.5
Ratti, Michele. Twisting machines for heavy bobbins for the collection of twisted yarn. 3,543,502, Cl. 57-62.
Rausing, Hans Anders, to AB Tetra Pak. Arrangement in square packages. 3,543,993, Cl. 229-17.
Raver, Louis J., and Nowakowski, Robert J., to General Motors Corporation. Transistor voltage and current regulating system for an alternating current generator. 3,544,881, Cl. 322-25.
Raygo, Inc.: *See—*
Roettger, Raymond F., 3,543,656.
Raymond International, Inc.: *See—*
Phares, Lindsey J., 3,543,525.
Raymond, Robert E., to International Basic Economy Corporation. Control apparatus for hydraulic systems. 3,543,513, Cl. 60-51.
Raymond, Robert E., to International Basic Economy Corporation. Hydraulic reservoir and filter apparatus. 3,543,934, Cl. 210-90.
Raytheon Company: *See—*
Michelson, Max, 3,544,999.
Razavi, Djavad, to Ugine Kuhlmann. Phthalocyanine and dioxazine sulphur dyestuffs and a process for their preparation. 3,544,565, Cl. 260-244.
RCA Corporation: *See—*
Brous, Jack, 3,544,832.
Daniel, James Walter, Jr., 3,544,902.
Gaspar, Kenneth C., 3,544,738.
Hammersand, Fred G., and Novajovsky, William A., 3,544,831.
Hanak, Joseph John, 3,544,982.
Lichowsky, Abraham, 3,544,860.
McDonald, James A., and Christopher, Todd J., 3,544,810.
McDonald, James A., and Christopher, Todd J., 3,544,811.
Sahm, Peter R., and Rosi, Fred D., 3,544,316.
Reed, John M., and Reynard, John M., to Poloroid Corporation. Simplified photographic coincidence rangefinder. 3,543,665, Cl. 95-44.
Reed, Warren C. Automatic livestock feeding machine. 3,543,727, Cl. 119-51.11
Rees, Theodore J.: *See—*
Pendzimas, Donald J., and Rees, Theodore J.,3,543,671.
Reese, Leolf M.: *See—*
Phillips, William J., and Reese, Leolf M.,3,544,755.
Reid, Bill G.: *See—*
Hawkins, Jerry D., and Reid, Bill G.,3,543,559.
Reid, Orland B., and Feuling, Bert G., to Singer Company, The. Hemming and button sewing modules. 3,543,706, Cl. 112-150.
Reighard, Alan B., Rosen, Samuel R., and Baker, Robert G., to Nordson Corporation. Gun for dispensing thermoplastic materials. 3,543,968, Cl. 222-146.
Reilly, Victor J., to Du Pont de Nemours, E. I., and Company. Fused salt electrolysis cell having anode with tapered well therein. 3,544,444, Cl. 204-243.
Reimann, Hubertus, to VEB Pentacon Dresden Kamera- und Kinowerke. Photographic camera with exposure control circuit. 3,543,658, Cl. 95-10.
Reimer, Leonard H., to Cessna Aircraft Company, The. Upcoupling valve for hydrostatic transmission. 3,543,514, Cl. 60-53.
Reimers, James L., to FMC Corporation. Method and apparatus for cooking and cooling foodstuff within large containers. 3,544,341, Cl. 99-214.
Reiners, Neville H., and Perr, Julius P., to Cummins Engine Company, Inc. Fuel injector. 3,544,008, Cl. 239-90.
Reisner, John H., to Forgflo Corporation. Slot stigmator. 3,544,836, Cl. 315-31.
Rekow, Russell N. Oil-filled telescoping drive line. 3,543,536, Cl. 64-4.
Reliance Electric and Engineering Company: *See—*
DeLeu, Robert P., 3,544,179.
Reliance Electric Company: *See—*
Kuzara, James H., 3,543,883.
Remeika, Joseph P.: *See—*
Gyorgy, Ernst M., and Remeika, Joseph P.,3,544,265.
Remmerswaal, Joost Louis: *See—*
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido,3,543,387.
Renner, Stefan: *See—*
Gunsser, Peter, and Renner, Stefan,3,544,873.
Rennie, David G.: *See—*
McIntyre, Maurice J., and Rennie, David G.,3,543,946.
Repper, Marcel: *See—*
Alheritiere, Louis, and Repper, Marcel,3,544,612.
Republic Steel Corporation: *See—*
Fitzhugh, Edward F., Jr., and Seidel, Don C., 3,544,301.
Research Corporation: *See—*
Palmour, Hayne, III, and Dokuzoguz, Halit Z., 3,544,266.
Weaver, Charles S., 3,544,197.
Resources Control Corporation: *See—*
Doner, Arthur John, 3,543,701.
Respond Inc.: *See—*
Ott, Richard J., 3,544,355.
Revukas, Anthony J., to Cities Service Oil Company. Liquid hydrocarbon fuels containing metal fluorocarbyl phosphates. 3,544,288, Cl. 44-68.
Rex Chainbelt Inc.: *See—*
Gley, Paul R., 3,543,603.
Rexal Drug and Chemical Company: *See—*
Draper, Marshall D., and Klohs, Murle W., 3,544,558.
Rexall Drug and Chemical Company: *See—*
Draper, Marshall D., and Klohs, Murle W., 3,544,558.
Reylek, Robert S., and Zachau, Frederick W., to Minnesota Mining and Manufacturing Company. Electrostatic acoustic transducer. 3,544,733, Cl. 179-111.
Reynard, John M.: *See—*
Reed, John M., and Reynard, John M.,3,543,665.
Reynolds, R. J., Tobacco Company: *See—*
Pinkham, Jesse Randolph, Payne, Leslie Elmer, Michal, David Hill, and McArthur, Colin Shaw, 3,543,927.
Rheem International, Inc.: *See—*
Klenz, Karl A., 3,543,378.
Rheem Manufacturing Company: *See—*
Klenz, Karl A., 3,543,681.
Klenz, Karl A., 3,543,378.
Rhone-Poulenc S.A.: *See—*
Alauzet, Maurice, and Fleurquin, Yves, 3,544,889.
Lefort, Marcel, and Nicou, Parasko, 3,544,513.
Ribble, Franklin: *See—*
Brown, Norman Robert, Koziara, Mitchell Joseph, and Ribble, Franklin,3,544,049.

Rice, Christopher R., to Polaroid Corporation. Severing apparatus. 3,543,622, Cl. 83-117.
Rice, Dalton Everett, to M&J Valve Company, and M&J Development Company. Valve construction. 3,544,068, Cl. 251-355.
Rice, Leo F.: *See—*
Adams, Frank, Jr., Rice, Leo F., and Taylor, Roy J.,3,544,455.
Richard, Ashton L. Foldable portable shelf for vehicles. 3,543,311, Cl. 5-118.
Richards, John O., to Production Machinery Corporation. Feed device for flying shear. 3,543,624, Cl. 83-288.
Richardson Company, The: *See—*
Muzyczko, Thaddeus, Shore, Samuel, and Martin, Jerome A., 3,544,517.
Richardson, Truman R., to General Motors Corporation. Accessory installation. 3,543,588, Cl. 74-15.8
Richman, Paul, to General Telephone & Electronics Laboratories Incorporated. Solid state field effect device. 3,544,864, Cl. 317-235.
Richman, Peter L., to Weston Instruments, Inc. Noise rejecting degital voltmeter. 3,544,895, Cl. 324-99.
Richter, Gerhard: *See—*
Ranvier, Gaston Jean Louis, and Richter, Gerhard,3,543,877.
Richter, Ulf: *See—*
Riegelmayer, Peter, Roth, Jakob, and Richter, Ulf,3,543,382.
Riebling, Eugene F., to Corning Glass Works. Production of alpha-cristobalite fibers. 3,544,293, Cl. 65-2.
Rieckert, Horst: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian,3,544,363.
Riedle, Robert D. Lever positioning apparatus. 3,543,602, Cl. 74-526.
Riedner, William E., to Clark Equipment Company. Emergency braking means for material handling elevator. 3,543,884, Cl. 187-87.
Riegel Textile Corporation: *See—*
George, Donald K., 3,543,351.
Riegelmayer, Peter, Roth, Jakob, and Richter, Ulf, to Dynamit Nobel Aktiengesellschaft. Process for explosive surface bonding of metal parts. 3,543,382, Cl. 29-486.
Rieschel, Hans, to Bergwerksverband GmbH. Control arrangement for a self-advancing pit prop unit. 3,543,640, Cl. 91-189.
Riley Stoken Corporation: *See—*
Miller, Earle C., 3,543,730.
Ringspann Albrecht Mauer KG: *See—*
Giese, Emil E., 3,543,894.
Riso, Vladimir, to International Business Machines Corporation. Analog multiplier. 3,544,812, Cl. 307-229.
Rittenhouse, Owen R.: *See—*
Wight, Robert D., Rittenhouse, Owen R., and Glover, Earl W.,3,543,600.
Ritter, Vern D.: *See—*
Bergmann, Elmer G., and Ritter, Vern D.,3,544,938.
Robba, Armando Luiz. Antiglare contrivance with the property of diffraction, bifurcation and polarization of light rays. 3,544,196, Cl. 350-156.
Rohbins, James S., and Associates, Inc.: *See—*
Sugden, David B., 3,544,075.
Roberts Consolidated Industries, Inc.: *See—*
Scott, Warren Farrar, and McPherson, William W., 3,543,400.
Scott, Warren Farrar, and McPherson, William W., 3,543,401.
Roberts, Glyn B., and Holmes, Thomas, to Dunlop Company Limited, The. Pneumatic tires. 3,543,827, Cl. 152-209.
Roberts, James, to Deutsch Company Electronic Components Division The. Coupling with deflectable arms. 3,544,951, Cl. 339-91.
Roberts, John Drew: *See—*
Wagner, William Sherwood, and Roberts, John Drew,3,543,332.
Robertshaw Controls Company: *See—*
Bello, Edward L., 3,544,744.
Chambers, William W., 3,543,840.
DeForest, Wesley V., and Graham, Marvin M., 3,544,936.
Good, Arthur L., 3,544,819.
Berleyoung, Walter J., Kreuter, Kenneth G., and Mueller, Klaus P., 3,543,594.
Korsgren, Theodore Y., 3,543,604.
Robin, Claude M. Track providing a bipolar contact throughout its surface and sliding contact-pieces therefor. 3,544,740, Cl. 200-16.
Robota, Stephen, to Hooker Chemical Corporation. Cracking dicyclopentadiene to monomer. 3,544,644, Cl. 260-666.
Rochla, Kurt, to Windmoller & Holscher. Method for forming a heat-sealed end seam in a plastic tube. 3,544,407, Cl. 156-198.
Rockstrom, Erik I. I.: *See—*
Malmberg, Bo Goran, 3,543,688.
Rockwell Manufacturing Company: *See—*
Warrick, Edward C., and Niehaus, Edward J., Jr., 3,544,871.
Rockwell-Standard Company: *See—*
Stamm, Alex F., 3,544,120.
Roderburg, Harald: *See—*
Lehnert, Gunther, Roderburg, Harald, and Ziemek, Gerhard,3,544,752.
Rodkin, Dennis L., and Weber, Laurance A., to Bell Telephone Laboratories, Incorporated. PBX telephone system wherein switch units served through different central offices are controlled by control unit at one central office. 3,544,728, Cl. 179-18.
Roediger, Herman R.: *See—*
Jurney, Joseph F., and Roediger, Herman R.,3,544,034.
Roettger, Raymond F., to Raygo, Inc. Soil compacting machine. 3,543,656, Cl. 94-50.
Rohm & Haas Company: *See—*
Lynch, Thomas A., 3,544,687.
Rohm and Haas Company: *See—*
Benischeck, Joseph John, 3,544,491.
Killam, Harrison S., 3,544,597.
Lewis, Sheldon N., and Miller, George A., 3,544,580.
Rohr, Franz Josef, to Brown, Boveri & Cie A.G. Method of producing asbestos-felt bodies having elastic properties. 3,544,308, Cl. 75-206.
Rohrberg, Roderick G., and Carrier, Vernon J. Carpet clamping method and means. 3,543,326, Cl. 16-16.
Rolamite Technology Incorporated: *See—*
Wilkes, Donald F., 3,543,595.
Rolle, Gerhard: *See—*
Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Zahlhaas, Siegfried,3,544,725.
Rollei Werke Franke & Heidecke: *See—*
Waaske, Heinz, 3,543,660.
Prochnow, Claus, 3,544,199.
Sobotta, Reinhard, 3,543,667.
Rolls-Royce Limited: *See—*
Bartlett, Christopher L., 3,544,223.
Hunt, Ian Arthur, 3,543,344.
Romanov, Evgeny Mikhailovich: *See—*
Panasjuk, Lev Emelianovich, Kupits, Arnold Karlovich, Romanov, Evgeny Mikhailovich, Ageev, Veniamin Dmitrievich, and Ryazantsev, Vladimir Vasilievich,3,544,949.
Ronald, Bella. Flexible support for a nursing bottle. 3,543,976, Cl. 224-5.
Ronson Corporation: *See—*
Quesnow, Erwin C., 3,544,252.
Roper, Francis George, to Gas Council, The. Gas burners. 3,544,255, Cl. 431-350.
Rosciszewski, Jan J. Ground oriented vehicle with reaction type propulsion. 3,543,685, Cl. 104-23.
Rose, David J., to General Motors Corporation. Electromagnetic forming apparatus. 3,543,550, Cl. 72-56.
Rose, Herbert M.: *See—*
Joy, Theodore K., and Rose, Herbert M.,3,543,943.
Roselius, Charles F., and Pelikan, George A., to Holloway, Robert M., and Ludington, Robert L., mesne. Brake regulator installation. 3,543,889, Cl. 188-197.
Rosen, Samuel R.: *See—*
Reighard, Alan B., Rosen, Samuel R., and Baker, Robert G.,3,543,968.
Rosen, William J., to Poloroid Corporation. Camera erecting system. 3,543,661, Cl. 95-11.
Rosenberg, Robert A., to Mitron Research & Development Corporation. Process of welding aluminum. 3,544,761, Cl. 219-137.
Rosenberger, Michael, and Saucy, Gabriel, to Hoffmann-La Roche Inc. 9-Oxo-5-hydroxydecanoic acid lactone. 3,544,600, Cl. 260-343.5
Rosenblum, Louis, to Itek Corporation. Phototypesetting machines. 3,543,657, Cl. 95-4.5
Rosenstein, Irving Asa. Blood pressure cuff inflator. 3,543,745, Cl. 128-2.05
Rosi, Fred D.: *See—*
Sahm, Peter R., and Rosi, Fred D.,3,544,316.
Ross, Donald R., Jr.: *See—*
Ross, Donald R., Sr., and Ross, Donald R., Jr.,3,543,893.
Ross, Donald R., Sr., and Ross, Donald R., Jr., to U.S. Electric Manufacturing Company. Trolley conductor tension device. 3,543,893, Cl. 191-40.
Rosso, John B., to Combustion Engineering, Inc. Gating circuit. 3,544,909, Cl. 328-147.
Rotary Hoes Limited: *See—*
Howard, Arthur Clifford, and Howard, John Arthur, 3,543,866.
Rotary Profile Anstalt: *See—*
Marcovitch, Jacob, 3,543,553.
Roth, Jakob: *See—*
Riegelmayer, Peter, Roth, Jakob, and Richter, Ulf,3,543,382.
Roth, Shirley H., to American Standard Inc. Optical pH indicator comprising aromatic aminoazo dye and inert polymer containing carbonyl radicals. 3,544,484, Cl. 252-408.
Rothermel, Edward M., to American Biltrite Rubber Co., Inc. Loom roll cover. 3,544,423, Cl. 161-88.
Rothfuss, Neal B., and Brady, Arthur R., to Bendix Corporation, The. Synchronizing coupling. 3,543,537, Cl. 64-13.
Rottmann, Hans R., to International Business Machines Corporation. Optical fiber focusing device for optical instruments. 3,544,191, Cl. 350-8.
Rouse, John Wilson: *See—*
La Croce, Leonard Thomas, Batchelar, Raymond Luscombe, and Rouse, John Wilson,3,544,025.
Rowland Products, Incorporated: *See—*
Rowland, William P., 3,543,625.
Rowland, William P., to Rowland Products, Incorporated. Method for providing precisely controlled edge on sheet material and apparatus therefor. 3,543,625, Cl. 83-433.
Rowley, Gerald L.: *See—*
Frankel, Milton B., and Rowley, Gerald L.,3,544,630.
Frankel, Milton B., and Rowley, Gerald L.,3,544,640.
Royer, Wayne H., to Teledyne, Inc., mesne. Double lap oven heating system. 3,543,697, Cl. 107-55.

Ruben, Samuel. Rechargeable fuel cell. 3,544,375, Cl. 136-86.
Rubenstein, Irving, to Maryland Cup Corporation. Apparatus for effecting gasification of frozen confections. 3,543,695, Cl. 107-31.
Rubin, James M. Orthodontic apparatus. 3,543,404, Cl. 32-14.
Ruch, David E.: *See—*
McLean, William E., and Ruch, David E.,3,544,978.
Rudner, Bernard, and Stump, Joseph H., Jr., to Tenneco Chemicals, Inc. Solid hydroxylated substrate treated with a prolonged odor releasing composition. 3,544,364, Cl. 117-143.
Rudolph, Dietmar, and Mieslinger, Winfried, to Gebruder Buhler Nachfolger GmbH. Arrangement for maintaining the speed of a D.C. motor constant. 3,544,872, Cl. 318-328.
Rundell, Theodore W., to Tecumseh Products Company. Hermetic motor-compressor unit. 3,544,240, Cl. 417-416.
Rupp, Hans-Dieter, Siggel, Erhard, and Meyer, Gerhard, to Glanzstoff AG. Process for the purification of trithiane. 3,544,592, Cl. 260-327.
Rupp, Hans-Dieter: *See—*
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard,3,544,528.
Rushing, Frank C., and Simon, Albert B., to Westinghouse Electric Corporation. Extendible boom. 3,543,806, Cl. 138-156.
Rushton, James C.: *See—*
Cunningham, Cecil R., and Rushton, James C.,3,544,016.
Rushton, William E., to Whiting Corporation. Method for producing defluorinated phosphoric acid. 3,544,269, Cl. 23-165.
Russell, Derek Vincent. Fork lift trucks. 3,543,957, Cl. 214-146.5
Russell, John D. Strain gage assembly. 3,543,568, Cl. 73-88.5
Russell, William L., to Hooker Chemical Corporation. Method for coating metal. 3,544,388, Cl. 148-6.14
Russo, Baldassare, Jr. Modular steam generator. 3,543,733, Cl. 122-336.
Rustad, Norman E.: *See—*
Dunlop, Andrew P., Rustad, Norman E., and Sherman, Edward,3,544,487.
Rusten, Le Roy V. Shuttered roof for trucks, trailers and the like. 3,544,156, Cl. 296-137.
Rutgenswerke und Teervewertung Aktiengesellschaft: *See—*
Orth, Winfried, Rappen, Ludwig, and Busse, Gerd, 3,544,589.
Rutkowski, Karl: *See—*
Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Zahlhaas, Siegfried,3,544,725.
Ryan, Georges R., and Sullivan, Robert A., said Sullivan assor to said Ryan. Testing apparatus. 3,543,924, Cl. 209-74.
Ryan, John W., Shapero, Wallace H., De Gelder, Jacob, and Collins, Harold B., to Mattel, Inc. Mixing and dispensing device. 3,543,966, Cl. 222-94.
Ryazantsev, Vladimir Vasilievich: *See—*
Panasjuk, Lev Emelianovich, Kupits, Arnold Karlovich, Romanov, Evgeny Mikhailovich, Ageev, Veniamin Dmitrievich, and Ryazantsev, Vladimir Vasilievich,3,544,949.
Ryder, Francis E., to Illinois Tool Works Inc. Liquid level indicator. 3,543,581, Cl. 73-327.
Ryer, Jack: *See—*
McDowell, Donald E., Ryer, Jack, and Deen, Harold E.,3,544,466.
Saarinen, Veikko. Suspended gripping element. 3,544,149, Cl. 294-67.
Sabatino, Anthony: *See—*
Buttke, Richard A., Sabatino, Anthony, Orlando, Daniel, and Behrens, William H.,3,544,754.
Sadoshima, Akira, and Yoshikawa, Saburo. Dispersion hardened high strength brass alloy. 3,544,313, Cl. 75-157.5
Sage, Leopold C.: *See—*
Joyce, Ronald W., Billingslea, Eugene E., Sage, Leopold C., and Marshall, Robert K.,3,543,427.
Sahm, Peter R., and Rosi, Fred D., to RCA Corporation. Superconductors. 3,544,316, Cl. 75-174.
Saiger, George P., to Diversitronics, Inc. Voltage multiplier power supply for fluorescent lamps. 3,544,840, Cl. 315-205.
Saint-Gobain Techniques Nouvelles: *See—*
Dressler, Jacques Henri, 3,544,079.
Jorgensen, Pierre, 3,544,780.
Saito, Eisuke: *See—*
Kadowaki, Yoshio, Shimokawa, Hayao, Yoshida, Kazuaki, and Saito, Eisuke,3,544,534.
Sakai, Ichio: *See—*
Uozumi, Sumio, and Sakai, Ichio,3,543,611.
Sakamoto, Yoichi, to Matsushita Electric Industrial Co., Ltd. Variable inductor band changing for VHF-UHF tuner. 3,544,903, Cl. 325-459.
Sakamoto, Yoshichika. Film filing plate. 3,543,426, Cl. 40-158.
Sakshaug, Eugene C., and Kresge, James S., to General Electric Company. Flip-flop lightning arrester with reduced protective level. 3,544,847, Cl. 317-61.
Sakurai, Katsuo: *See—*
Uchiyamada, Kameo, Inoue, Masahiko, and Sakurai, Katsuo,3,544,162.
Sallach, Max E., Heisner, Donald N., and Baker, Robert G., to Addressograph-Multigraph Corporation. Code translation and control system for printing machines and the like. 3,544,967, Cl. 340-172.5
Sampson, Robert W., to Universal Oil Products Company. Flow metering system. 3,543,578, Cl. 73-204.
Sanders Associates, Inc.: *See—*
MacIntyre, Alfred J., 3,544,990.
Sanders, Bobby J., to Bendix Corporation, The. Microwave cavity. 3,544,917, Cl. 331-98.
Sandiford, Denis James Henry, to Imperial Chemical Industries Limited. Process for neck drawing block copolymer films and filaments. 3,544,671, Cl. 264-210.
Sandor, Bela, to General Motors Corporation. Latch operating door handle. 3,544,148, Cl. 292-336.3
Sandoz A.G.: *See—*
Altermatt, Ruedi, and Mueller, Curt, 3,544,549.
Sandoz Ltd.: *See—*
Altermatt, Ruedi, and Mueller, Curt, 3,544,549.
Sankyo Company Limited: *See—*
Iwai, Issei, Kishida, Yukichi, Hiraoka, Tetsuo, and Nakamura, Norio, 3,544,584.
Sansing, James E., Jr.: *See—*
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr.,3,544,298.
Fitz-William, Charles B. R., Jr., and Sansing, James E., Jr.,3,544,299.
Santini, Victor H. Educational device intended to stimulate foreign language learning and awareness to language relationship. 3,543,419, Cl. 35-77.
Sargent, Albert A., to Moore Business Forms, Inc. Strip feeding and severing machines. 3,543,982, Cl. 226-90.
Sasaki, Toshio: *See—*
Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio,3,544,670.
Sato, Kiyoshi: *See—*
Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi,3,544,048.
Sato, Masamichi, to Xerox Corporation. Method of filtering. 3,544,458, Cl. 210-65.
Sato, Toru: *See—*
Murao, Taiichi, Hara, Masakatsu, Sato, Toru, Katsuyama, Shigeo, and Sasaki, Toshio,3,544,670.
Saucy, Gabriel: *See—*
Rosenberger, Michael, and Saucy, Gabriel,3,544,600.
Saucy, Gabriel, to Hoffmann-La Roche Inc. Stereospecific hycrogenation of benzopyrans. 3,544,598, Cl. 260-340.9
Sauer, Hans, 1/2 to Matsushita Electric Works, Ltd. Electromagnetic multi-contact relay. 3,544,930, Cl. 335-154.
Savin, Anatoly Ivanovich, Golubev, Alexandr Ivanovich, and Lomakina, Valentina Mikhailovna. Apparatus for non-contact measurement of semiconductor resistivity including a toroidal inductive coil with a gap. 3,544,893, Cl. 324-62.
Savio, Luciano. Thread knotting apparatus. 3,544,144, Cl. 289-2.
Schaefges, Henry E.: *See—*
Donewald, James A., and Schaefges, Henry E.,3,544,848.
Schafer, Thomas C.: *See—*
Howard, Donald W., and Schafer, Thomas C.,3,544,172.
Schaller, Robert L., to Sundstrand Engelberg, Inc. Belt-platen abrading machine. 3,543,448, Cl. 51-148.
Schaltbau Gesellschaft mbH: *See—*
Sterff, Wilhelm, 3,544,935.
Schanda, Kurt, to VEB Carl Zeiss Jena. Optical counters. 3,544,209, Cl. 353-41.
Schaumann, Wolfgang: *See—*
Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus,3,544,554.
Schell, Raymond A.: *See—*
Kehoe, Lawrence J., and Schell, Raymond A.,3,544,635.
Scheller, Arthur P., to Union Carbide Corporation. Rotary wire welding straightener. 3,543,810, Cl. 140-147.
Scherm, Arthur. Cosmetic composition containing uracil -4- carboxylic acid. 3,544,684, Cl. 424-251.
Scheuerer, Guenter, Zeidler, Adolf, and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. 2,4-Dioxotetrahydroquinazolines. 3,544,575, Cl. 260-260.
Schile, Richard D., to United Aircraft Corporation. Electrostatic coatings. 3,543,831, Cl. 164-89.
Schill & Seilacher Chemische Fabril: *See—*
Schmidt, Detlev, Zivi, Cacilia, and Alberts, Fritz, 3,544,494.
Schillebeeckx, Konrad C., to Wanskuck Company. Tension control for rigid stranders. 3,543,501, Cl. 57-59.
Schippers, Heinz, Lenk, Erich, and Neuhaus, Friedrich, to Barmag Barmer Maschinenfabrik Aktiengesellschaft. Multi-unit spinning and spooling assembly. 3,544,017, Cl. 242-18.
Schlafer, John Flushing: *See—*
Fowler, Vernon J., Schlafer, John Flushing, and Watson, William R.,3,544,201.
Schlinger, Warren G., and Slater, William L., to Texaco Inc. Coal gasification process. 3,544,291, Cl. 48-206.
Schlossmacher, Wilhelm, to Crone Emil Von Der. Measuring and dispensing device for liquids. 3,543,964, Cl. 222-41.
Schlueter, Francis Edward, to Deere & Company. Sprayer boom leveling and folding apparatus. 3,544,009, Cl. 239-167.
Schlumberger Technology Corporation: *See—*
Bowers, William E., 3,544,665.
Griffin, Archie Z., Jr., 3,543,853.
Schmidt, Detlev, Zivi, Cacilia, and Alberts, Fritz, to Schill & Seilacher Chemische Fabril. Method of producing resinous materials from by-products obtained in the refining of petroleum. 3,544,494, Cl. 260-17.4

Schmidt, Gunther: *See—*
Jannasch, Ulrich, and Schmidt, Gunther,3,544,222.

Schmidt, Gunther, Machleidt, Hans, and Klupp, Hans, to Boehringer Ingelheim G.m.b.H.10-Substituted dibenz [b,p] [1,4] ones. 3,544,561, Cl. 260-239.3

Schmidt, Heinz: *See—*
Gunther, Dieter, Hoyer, Ernst, Schmidt, Heinz, and Vollman, Hansjorg,3,544,548.

Schmidt, Henry, Jr., to Industrial Filter & Pump Mfg. Co. Filter construction. 3,543,940, Cl. 210-490.

Schmidt, Jack W., Tuck, Robert M., and Phillips, William V., to General Motors Corporation. Angle input power transmission. 3,543,607, Cl. 74-688.

Schmidt, Ronald G., to Honeywell Inc. Photographic flashgun. 3,544,781, Cl. 240-1.3

Schneider, Jos., & Co. Optische Werke: *See—*
Stahle, Kurt, 3,543,648.

Schneider, Kurt: *See—*
Distler, Harry, Klatt, Gerhard, and Schneider, Kurt,3,544,636.

Schneider, Milton: *See—*
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F.,3,544,434.

Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of thermoplastic polycarbonates. 3,544,514, Cl. 260-47.

Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft: *See—*
Muth, Gregor Nikolaus, Muth, Engelbert Michael, and Weschenfelder, Otto, 3,544,454.

Schock & Co., G.m.b.H.: *See—*
Schock, Friedrich, 3,544,669.

Schock, Friedrich, to Schock & Co., G.m.b.H. Method of coating moisture-containing articles of wood or wood products. 3,544,669, Cl. 264-174.

Schon, Nikolaus: *See—*
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon,3,544,542.

Schoonover, George H.: *See—*
Brennen, William T., and Schoonover, George H.,3,543,530.

Schopf, Albert: *See—*
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard,3,544,528.

Schott, Herbert, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the catalytic cyclo-dimerization of 1,3-diolefins. 3,544,643, Cl. 260-666.

Schottland, Robert A., to Castle Showcase Company. Showcase construction. 3,544,181, Cl. 312-114.

Schroder, Rolf: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf,3,543,664.

Schroeder, Joseph W.: *See—*
Berman, Irwin, Thakkar, Bharat S., Schroeder, Joseph W., and Smith, Herman P.,3,543,370.

Schubert, Gunter: *See—*
Heitmann, Boh, Grasse, Hans J., Schubert, Gunter, and Bodner, Fritz,3,543,564.

Schuchman, Fredrick E., Sr., and Mitchell, David L., Jr. Button attachment and cufflink keeper. 3,543,354, Cl. 24-41.

Schuessler, Elwood V.: *See—*
Mulvey, Thomas B., Hegerman, Ernie, and Schuessler, Elwood V.,3,543,425.

Schuetzmann, Toni, to Ehrhardt & Sehmer Maschinenfabrik AG. Bending and straightening machines. 3,544,141, Cl. 287-52.01

Schultz, Matthew, and Schultz, William L. Tire bead breaker and removal device. 3,543,829, Cl. 157-1.28

Schultz, William L.: *See—*
Schultz, Matthew, and Schultz, William L.,3,543,829.

Schultze, Hans-Joachim, and Berther, Clau, to Inventa A.G. fur Forschung und Patentverwertung. Process for the manufacture of omega-decalactam using epsilon-caprolactam as a solvent therefor. 3,544,562, Cl. 260-239.3

Schulz, Werner: *See—*
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl,3,544,578.

Schumann, Wolfgang: *See—*
Appelhans, Hermann, and Schumann, Wolfgang,3,543,702.

Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf, to Chemische Werke Huels, A.G. Hard-elastic and impact-resistant coatings. 3,544,657, Cl. 260-850.

Schutze, Ernst-Christian: *See—*
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf,3,544,656.

Schwab, Delmar G., to Hyster Company. Hydrostatic transmission with pressure control. 3,543,508, Cl. 60-19.

Schwab, Peter A., and Sorenson, Wayne R. Preparation of cyclic ether graft copolymers. 3,544,659, Cl. 260-874.

Schwab, Pierre P., to McGraw-Edison Company. Reversible stepping switch. 3,544,748, Cl. 200-156.

Schwartz, Harold O., Machanian, William V., and Barry, Robert D., to Wurlitzer Company, The. Electronic organ diode keying circuit. 3,544,698, Cl. 84-1.26

Schwartz, Norbert C., to Miller, R. H., Company, Inc. Complex esters produced by reacting a dicarboxylic acid, a polyhydric alcohol and boric acid. 3,544,614, Cl. 260-462.

Schwarze, Werner, and Weigert, Wolfgang, to Deutsche Gold- und Silber-Scheideanstaldt vormals Roessler. Production of substituted 2-mercapto-4, 6- dichloro-s-triazines. 3,544,569, Cl. 260-248.

Schweers, Karl O., to Singer Company, The. Portable treadle mechanism for sewing machines. 3,543,707, Cl. 112-220.

Schweigert, Erich, to Oberbadische Bettfedernfabrik GmbH. Pillow. 3,543,313, Cl. 5-337.

Schweiker, George C., Tenney, Harry W., Jr., and Patrick, Robert L., to Celanese Corporation. Method for coating an article with an oxymethylene polymer and product thereof. 3,544,351, Cl. 117-21.

Schwindt, Jackson T. Hydraulic timer valve and actuator therefor. 3,543,795, Cl. 137-624.18

Scott, James C., to Vilter Manufacturing Corporation. Two stage refrigeration compressor having automatic oil drain for the first stage suction chamber. 3,543,880, Cl. 184-6.

Scott, John A., and Anthony, William H. Process for laminating aluminum with a plastic film. 3,544,391, Cl. 148-6.27

Scott, Warren Farrar, and McPherson, William W., to Roberts Consolidated Industries, Inc. Loop pile carpet cutter. 3,543,400, Cl. 30-280.

Scott, Warren Farrar, and McPherson, William W., to Roberts Consolidated Industries, Inc. Cushion back carpet cutter. 3,543,401, Cl. 30-294.

Scott, William H., and Smith, Earl F., to Murphy, G. W., Industries, Inc. Dual motion surface dressing machine. 3,543,449, Cl. 51-170.

Scovill Manufacturing Company: *See—*
Bauer, Charles L., 3,544,234.
Treharne, Richard E., Jr., 3,543,971.

Scripto, Inc.: *See—*
Bloom, Walter L., and Smith, John Sherman, 3,544,253.

Seager, Richard M., to Coors Porcelain Company. Ceramic cutting blade. 3,543,402, Cl. 30-346.53

Seamone, Woodrow, to United States of America, Navy, mesne. Unitized control module for a hydraulic actuation apparatus. 3,543,642, Cl. 91-361.

Seeger, Ernst, Engel, Wolfhard, and Teufel, Helmut. 1-Pyridyl-1,2,3,4-tetrahydroisoquinoline substitution products and salts thereof. 3,544,577, Cl. 260-287.

Seesselberg, Henry A.: *See—*
Dutko, John J., and Seesselberg, Henry A.,3,544,874.

Segar, Lawrence P.: *See—*
Hanson, Charles C., Ho, Joseph P. L., and Segar, Lawrence P.,3,544,994.

Seidel, Don C.: *See—*
Fitzhugh, Edward F., Jr., and Seidel, Don C.,3,544,301.

Seismograph Service Corporation: *See—*
Laws, Ira G., 3,544,184.

Seki, Koya: *See—*
Terado, Shiro, and Seki, Koya,3,544,310.

Sekiguchi, Hitoshi: *See—*
Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi,3,544,475.

Sellen, John M., to TRW Inc. Emissive E-field meter. 3,544,888, Cl. 324-32.

Senick, Ralph P., and Iida, Harvey I. Mop handle and clamp mechanism. 3,544,173, Cl. 306-26.

Seremak, Edward: *See—*
Ilg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk,3,543,396.

Servais, Albert, to Glaverbel S. A. Process of producing tin oxide coating. 3,544,361, Cl. 117-124.

Sessler, Donald R., to Dynametric, Inc. Age indicating device. 3,543,582, Cl. 73-339.

Shaffer, Robert C., to Hitco. Furfuryl alcohol co-polymers. 3,544,530, Cl. 260-78.5

Shah, Pradip N., to Globe-Union Inc. Lockout means for ganged modular push button switches. 3,544,739, Cl. 200-5.

Shalit, Harold: *See—*
D'Alessandro, Alfred F., and Shalit, Harold,3,544,374.
Connor, James E., Jr., D'Alessandro, Alfred F., and Shalit, Harold,3,544,376.

Shanfelt, Donald Y., and Douglas, Robert A., to Calgon Corporation. Dredging process. 3,544,456, Cl. 210-54.

Shannon, John K. Protective cover. 3,544,953, Cl. 339-116.

Shapero, Wallace H.: *See—*
Ryan, John W., Shapero, Wallace H., De Gelder, Jacob, and Collins, Harold B.,3,543,966.

Sharp, Brian William: *See—*
Davis, Michael, Parnell, Edgar William, Sharp, Brian William, and Warburton, Dennis,3,544,686.

Sharp, Donald Jex, to Western Electric Company, Incorporated. Heat treatment of multilayered thin film structures employing oxide parting layers. 3,544,287, Cl. 29-620.

Sharples, Thomas D., to Beckman Instruments, Inc. Precision quick connection. 3,544,139, Cl. 287-20.

Shaw, Irving F.: *See—*
Goldberg, Raymond, and Shaw, Irving F.,3,544,020.

Shaw, James William Westgarth, Coast, Geoffrey, and Briody, Ronald Francis, to United Kingdom Atomic Energy Authority. Gas cooled nuclear reactor. 3,544,425, Cl. 176-58.

Shea, Philip J.: *See—*
Lapham, Karyn L., and Shea, Philip J.,3,544,677.

Sheehan, John James, to Buell Engineering Company, Inc. Separator apparatus. 3,543,483, Cl. 55-272.

Sheehan, John J., to Buell Engineering Company, Inc. Scrubber apparatus. 3,544,088, Cl. 261-95.

Sheehan, Ralph F., to Polaroid Corporation. Composite photographic film roll with corrugated flexible portions. 3,544,324, Cl. 96-78.

Sheffer, Marcus B. Oral airway with inflatable cuff. 3,543,751, Cl. 128-208.

Shekels, Harold F. Blast furnace top. 3,543,955, Cl. 214-21.

Shelby Engineering Co., Inc.: *See—*
Smith, John E., 3,543,310.

Shell Oil Company: *See—*
Asenbauer, Donald J., 3,544,146.

Shelly Manufacturing Company: *See—*
Dixon, Arthur B., 3,544,183.

Shepard, Kenneth L.: *See—*
Cragoe, Edward J., Jr., and Shepard, Kenneth L.,3,544,571.

Shepherd, John M.: *See—*
Bancroft, Herbert, and Shepherd, John M.,3,543,500.

Sheppard, Clyde H., to Monsanto Company. Adhesive compositions of improved pre-press properties comprising high amylopectin starch. 3,544,493, Cl. 260-17.2

Sherman, Edward: *See—*
Dunlop, Andrew P., Rustad, Norman E., and Sherman, Edward,3,544,487.

Sherman, George R., to General Electric Company. Control knob with adjustable connection means. 3,543,605, Cl. 74-553.

Shibata, Fukuo. Arrangements combining a plurality of prime mover powers. 3,543,518, Cl. 60-97.

Shikoku Kakooki Company Limited: *See—*
Ueda, Kazuo, 3,543,909.

Shimahara, Noboru: *See—*
Hirano, Hiroshi, Numata, Mitsuo, Shimahara, Noboru, and Kawai, Kiyohisa,3,544,574.

Shimi, Hussein. Paints and paint compositions. 3,544,346, Cl. 106-299.

Shimkevichjus, Teodoras Teodorovich: *See—*
Kostrauskas, Pavel Ivanovich, Mukulis, Rimantas-Ionas Dominnikovich, and Shimkevichjus, Teodoras Teodorovich,3,544,824.

Shimokawa, Hayao: *See—*
Kadowaki, Yoshio, Shimokawa, Hayao, Yoshida, Kazuaki, and Saito, Eisuke,3,544,534.

Shin-Etsu Chemical Industry Co., Ltd.: *See—*
Koyanagi, Shunichi, Kitamura, Hajime, and Tajima, Shigenobu, 3,544,539.

Shinko Denki Kabushiki Kaisha: *See—*
Furuno, Yukio, Tokuno, Hiroshi, and Murata, Katsuske, 3,543,956.

Shionogi & Co., Ltd.: *See—*
Tanida, Hiroshi, and Tsuji, Teruji, 3,544,559.

Shiota, Masatoshi, Kato, Taizo, and Numata, Hideji, to Asahi Glass Co., Ltd. Method for producing a heat insulating refractory using calcined geyserite having a high tridymite content. 3,544,666, Cl. 264-66.

Shipley, Richard E.: *See—*
Glenn, Thomas P., Jr., and Shipley, Richard E.,3,544,704.

Shlosinger, Arnold P., to TRW Inc. Multi-chamber controllable heat pipe. 3,543,839, Cl. 165-32.

Shoji, Kenjiro: *See—*
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi,3,544,683.

Shore, Samuel: *See—*
Muzyczko, Thaddeus, Shore, Samuel, and Martin, Jerome A.,3,544,517.

Showa Denko Kabushiki Kaisha: *See—*
Oga, Taijiro, Ichinokawa, Hideo, and Ito, Masatomo, 3,544,617.

Shults, Delmon, Jr.: *See—*
Carlin, Bernard, 3,544,064.

Shvedov, Vladimir Tarasovich: *See—*
Belolipetsky, Alexei Yakovlevich, Shvedov, Vladimir Tarasovich, Chmil, Viktor Timofeevich, Bragilevsky, Valentin Zinovievich, Elmesev, Sergei Dmitrievich, Babkin, Mikhail Evmenovich, Maximov, Vadim Alexandrovich, and Gelprin, Valentin Nikolaevich,3,544,046.

Sibley, Lewis B.: *See—*
Tallian, Tibor E., and Sibley, Lewis B.,3,544,177.

Sibley, William J., to National Blank Book Company, Inc. Loose leaf binder structure for calendar desk diary use. 3,544,134, Cl. 281-33.

Sickles, Inc.: *See—*
Christy, Harold L., and Diegel, Herbert F., 3,543,591.

Siebentritt, Frank H.: *See—*
van Dijk, Christiaan P., and Siebentritt, Frank H.,3,544,274.

Siegel, Arthur, and Estrin, Charles. Jewelry article base combined with detachable ornament mounting. 3,543,535, Cl. 63-29.

Siemens Aktiengesellschaft: *See—*
Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Zahlhaas, Siegfried, 3,544,725.
Bottenberg, Hans H., Jestadt, Hans-Joachim, Leysieffer, Hans G., and Stockinger, Felix Johan, 3,544,995.
De Bucs, Eugen Szabo, and Oesterhelt, Gerhard, 3,544,311.
Justi, Eduard, and Wendtland, Ralf, 3,544,377.
Martin, Erwin, 3,544,892.
Mayer, Hans, and Bohmann, Werner, 3,544,424.

Sierra Engineering Company: *See—*
Stapenhill, James A., 3,543,308.

Siggel, Erhard: *See—*
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard,3,544,528.
Rupp, Hans-Dieter, Siggel, Erhard, and Meyer, Gerhard,3,544,592.

Signetics Corporation: *See—*
Byrne, Robert C., King, Alan V., and Youmans, Albert P., 3,544,857.

Signode Corporation: *See—*
Angarola, Barry R., 3,543,675.
Meier, William A., 3,544,029.

Silver, Howard Bernard: *See—*
Forbes, Eric Simon, and Silver, Howard Bernard,3,544,609.

Silvon, Kay, to Omark Industries, Inc. Clamp-on top filers. 3,543,612, Cl. 76-31.

Simison, Allen L., to Owens-Corning Fiberglas Corporation. Apparatus for producing a fibrous mat. 3,544,414, Cl. 156-369.

Simmons, Judith K.: *See—*
Kitchen, Everitt A., and Simmons, Judith K.,3,544,473.

Simon, Albert B.: *See—*
Rushing, Frank C., and Simon, Albert B.,3,543,806.

Simon-Carves Limited: *See—*
Abson, James William, Clark, Eric Innes, and Gray, Ian Malcolm, 3,543,936.

Simurda, Jiri, to Uyzkumny ustav Zdrayotnicke techniky. Pulse-modulated push-pull amplifier stage for a dual-coil meter. 3,544,897, Cl. 324-120.

Sinclair Oil Corporation: *See—*
Carlos, Donald D., 3,544,270.

Sinclair Research, Inc.: *See—*
Pratt, Richard J., and Young, David W., 3,544,344.

Singer Company, The: *See—*
Dutko, John J., and Seesselberg, Henry A., 3,544,874.
Linneborn, Walter, 3,543,721.
Reid, Orland B., and Feuling, Bert G., 3,543,706.
Schweers, Karl O., 3,543,707.

Singer, Heinrich: *See—*
Deiner, Hans, and Singer, Heinrich,3,544,362.

Singer, John J., Jr., to Grace, W. R., & Co., mesne. Process for making sarcosines. 3,544,606, Cl. 260-404.

Singer-Cobble Limited: *See—*
Evans, Raymond Victor, and Donlan, Thomas Alban, 3,543,705.

Singer-General Precision, Inc.: *See—*
Briguglio, Emanuel, 3,543,798.
Conant, Theodore A., Jr., 3,545,003.

Sirrenberg, Walther: *See—*
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl,3,544,578.

Skagit Corporation: *See—*
McIntyre, Maurice J., and Rennie, David G., 3,543,946.

Skelley, John W.: *See—*
Ferrell, Robert C., and Skelley, John W.,3,543,538.

SKF Industries, Inc.: *See—*
Tallian, Tibor E., and Sibley, Lewis B., 3,544,177.

Slade, Owen G., to White, J. Samuel, & Company Limited. Propulsion unit for a vessel. 3,543,713, Cl. 115-12.

Slater, William L.: *See—*
Schlinger, Warren G., and Slater, William L.,3,544,291.

Slater, William M.: *See—*
Price, Paul S., and Slater, William M.,3,544,415.

Slater, William M., to Conenco International Limited. Bridge bearings with plates having non-planar ends. 3,544,176, Cl. 308-3.

Sletten, Andreas M., Uman, Martin A., Orville, Richard E., and Venturino, Anthony J., to Westinghouse Electric Corporation. High-voltage direct current circuit interrupter. 3,544,843, Cl. 317-11.

Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R., to American Telephone and Telegraph Company. Arrangement for establishing conference connections in communication switching systems. 3,544,727, Cl. 179-18.

Sloane, Nathan H., to Century Laboratories, Inc. Method of production of urokinase. 3,544,427, Cl. 195-66.

Sloth, Carl: *See—*
Hesse, Holger, Sloth, Carl, and Brendstrup, Asger,3,543,752.

Smemo, Alfred Sigmund, and Glider, Larry James, to Deere & Company. Trash emitting device for tractor-mounted blade. 3,543,867, Cl. 172-801.

Smetanin, Alexandr Georgievich, and Golovanov, Valentin Vasilievich. Electronic inclinometer for electric drills. 3,544,957, Cl. 340-18.

Smith, Allison L., to Owens-Illinois, Inc. Vitreous enamel composition to produce a matter finish on a glass surface. 3,544,508, Cl. 260-41.

Smith, Andrew W., Jr., to Westinghouse Electric Corporation. Method and computer control system for operating a slabbing mill. 3,543,548, Cl. 72-7.

Smith, Dexter E., to Phillip Petroleum Company. Flow control system. 3,543,784, Cl. 137-116.

Smith, Earl F.: *See—*
Scott, William H., and Smith, Earl F.,3,543,449.

Smith, Edson W., 'Automatic' Sprinkler Corporation of America. Control mechanism for fire pump. 3,544,235, Cl. 417-18.

Smith, Francis M.: *See—*
Harris, Martin H., Jennings, James W., and Smith, Francis M.,3,543,800.
Smith, Herman P.: *See—*
Berman, Irwin, Thakkar, Bharat S., Schroeder, Joseph W., and Smith, Herman P.,3,543,370.
Smith, James L.: *See—*
Gunther, Ronald V., Kish, Donald E., and Smith, James L.,3,544,981.
Kaenel, Reginald A., and Smith, James L.,3,544,992.
Smith, John E., to Shelby Engineering Co., Inc. Cot. 3,543,310, Cl. 5-111.
Smith, John H.: *See—*
Moseson, Roger M., and Smith, John H.,3,544,445.
Smith, John J.: *See—*
Leopold, Wilbur R., Jr., Edwards, Lynn D., and Smith, John J.,3,543,802.
Smith, John Sherman: *See—*
Bloom, Walter L., and Smith, John Sherman,3,544,253.
Smith, Ken: *See—*
McDevitt, James, and Hilderbrand, Victor F., 3,543,673.
Smith, Kobert Rey, II. Tape transport and cartridge. 3,544,038, Cl. 242-192.
Smith, Larrabee M., to Bell Telephone Laboratories, Incorporated. Timing recovery circuit. 3,544,717, Cl. 178-69.5
Smith, Melvin Wilmer, and Brun, Andre George, to Westinghouse Electric Corporation. Underwater oil or gas facility. 3,543,846, Cl. 166-0.5
Smith, Melvin W., and Kluth, Charles S., to Westinghouse Electric Corporation. Underwater mining method. 3,543,527, Cl. 61-72.3
Smith, Richard A.: *See—*
Hartwell, Walter T., and Smith, Richard A.,3,544,894.
Smith, Robert E., to Dayton Progess& Dayton Progress Corporation. Accessory for machine tools. 3,543,451, Cl. 51-267.
Smiths Industries Limited: *See—*
Constable, Geoffrey Ernest Patrick, Cullen, Graeme E., and Swarbrick, Richard, 3,543,904.
Smyth, Allen N.: *See—*
Meadows, Charles K., and Smyth, Allen N.,3,543,653.
Snedden, Louis L., to Mason & Hanger- Silas Mason Co., Inc. Tunneling by lasers. 3,544,165, Cl. 299-14.
Snellman, Karl Olof, to Ingeniorsfirma H. Sundkvist. Method of making peptides. 3,544,426, Cl. 195-29.
Snider, John F. Apparatus for treating hair. 3,543,770, Cl. 132-7.
Snider, Orvill E.: *See—*
Balint, Laszlo J., Abos, Ramon Luis, and Snider, Orvill E.,3,544,525.
Sobotta, Reinhard, to Rollei-Werke Franke & Heidecke. Photographic camera. 3,543,667, Cl. 95-45.
Societe Anonyme Andre Citroen: *See—*
Henry-Biabaud, Edmond, 3,544,129.
Societe Anonyme dite: Vallourec: *See—*
Sulmont, Alain, 3,543,566.
Societe Industrielle de Brevets et d'Etudes S. I. B.:*See—*
Mennesson, Andre Louis, 3,543,739.
Societe Nationale d'Etude de Construction de Moteurs d'Aviation:*See—*
Ranvier, Gaston Jean Louis, and Richter, Gerhard, 3,543,877.
Societe Toulousaine de Produits Chimiques Tolochimie: *See—*
Alheritiere, Louis, and Repper, Marcel, 3,544,612.
Michelet, Jean, and Alheritiere, Louis, 3,544,611.
Sokolova, Elizaveta Alexandrovna: *See—*
Zelichenko, Abram Simkhovich, Khvoles, Evgeny Arkadievich, and Sokolova, Elizaveta Alexandrovna,3,544,701.
Solow, Samuel. Meter arrangement for simultaneously providing at least a pair of independent indications. 3,544,896, Cl. 324-115.
Solvay & Cie: *See—*
Oth, Andre, and Mathieu, Alexis, 3,544,661.
Someya, Akira, Hanada, Teizo, and Watanabe, Tadaaki, to Tokyo Shibaura Electric Co., Ltd. Low pressure mercury vapour discharge lamp. 3,544,829, Cl. 313-178.
Son, Pyong-Nae: *See—*
Taylor, Ray D., and Son, Pyong-Nae,3,544,492.
Soper, Quentin F., to Lilly, Eli, and Company. Method of increasing the number of lateral branches in plants. 3,544,304, Cl. 71-107.
Soper, Quentin F., to Lilly, Eli, and Company. Method of controlling fungi with halodinitrobenzo- trifluoride compounds. 3,544,690, Cl. 424-349.
Sorenson, Wayne R.: *See—*
Schwab, Peter A., and Sorenson, Wayne R.,3,544,659.
Soulez-Lariviere, Jean, and Lecocq, Octave, to Nord-Aviation Societe Nationale de Constructions Aeronautiques. Aerodyne with vertical take-off or landing means. 3,544,042, Cl. 244-56.
Soundolier Manufacturing Company, Inc.: *See—*
Hahn, Richard, 3,544,782.
Soussan, Salomon: *See—*
Thomas, Jean Claude, Fournel, Francis, and Soussan, Salomon,3,544,660.
Southeast Precast Concrete Products, Inc.: *See—*
Stokes, Frank R., 3,544,151.
Southland, John Robert: *See—*
Borchert, Ernst, III, and Southland, John Robert,3,543,445.
Southwell, Stanley William, to Winget Limited. Fluid operated ram assembly for a power assisted steering system. 3,543,643, Cl. 91-401.
Spady, Richard J.: *See—*
Hogan, James A., Newbold, William F., and Spady, Richard J.,3,544,876.
Spahrbier, Dieter, Wandschneider, Klaus, and Eckardt, Rudolf, to Varta Aktiengesellschaft. Fuel cell device for continuous operation. 3,544,382, Cl. 136-86.
Sparks, John M., III: *See—*
Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III,3,543,724.
Kirkpatrick, Max B., Harvey, Andrew G., and Sparks, John M., III,3,543,725.
Spati Industries, Inc.: *See—*
Tuttle, Wainwright, 3,544,745.
Speaker, Lawrence W., to General Electric Company. Solid state temperature control means. 3,544,849, Cl. 317-132.
Speakman, Edwin Lawrence, to Standard Brands Incorporated. Method of making a dried starch-enzyme blend. 3,544,345, Cl. 105-157.
Special Drill and Reamer Corporation: *See—*
Obloy, Leo A., 3,543,613.
Spectrum Diamonds (Proprietary) Limited: *See—*
Leibowitz, Alec, 3,543,447.
Leibowitz, Alec, 3,543,450.
Speglic, Franc, and Vyhnalek, Milan, to Lact-O-Matic Proprietary Limited. Cheese production. 3,543,403, Cl. 31-89.
Spencer, Arthur W., to Eastman Kodak Company. Flatness control of thermoplastic sheets. 3,544,676, Cl. 264-346.
Sperry Rand Corporation: *See—*
Fenster, Paul, 3,545,002.
Grey, Donald M., 3,543,958.
Halls, Lawrence M., 3,543,872.
Hils, Ernest J., 3,544,187.
Hobbs, William, Jr., 3,543,678.
Lausch, Henry N., 3,543,491.
Spielman, James F. Collapsible hand-pulled golf cart. 3,544,126, Cl. 280-41.
Spivak, Boris Volkovich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.
Spoon, Bill Hugh, to Phelps Dodge Refining Corporation. Method for electrolytic defining of metal, such as copper. 3,544,431, Cl. 204-12.
Sports Technology, Inc.: *See—*
Ader, Gary B., 3,543,421.
Werner, Frank D., and Petersen, Paul S., 3,544,123.
Spratt, Virgil E., and Jackson, Clifford C. Dismemberable anchoring device for removable walls. 3,543,462, Cl. 52-264.
Spyrou, Constantine A., to Harman-Kardon Inc. Overload protection circuit for transistors. 3,544,845, Cl. 317-33.
S. R. M. Hydromekanik AB: *See—*
Ahlen, Karl Gustav, 3,543,517.
Staats, Henry N., to General Binding Corporation. Apparatus for taping bindings and product prepared thereby. 3,544,411, Cl. 156-353.
Stacey, Hugh J., to Parker-Hannifin Corporation. Directional control valve assembly. 3,543,644, Cl. 91-411.
Stach, Kurt: *See—*
Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus,3,544,554.
Stageberg, Sterling O. Rotary fluid pump mechanism and the like. 3,544,243, Cl. 418-58.
Stagg, Larry Joseph: *See—*
Elder, Kenneth Frederick, and Stagg, Larry Joseph,3,544,927.
Stahle, Kurt, to Schneider, Jos., & Co. Optische Werke. Flow regulator with regenerating effect. 3,543,648, Cl. 91-461.
Stahmer, Bernhardt. Airport with manufactured surface winds. 3,544,044, Cl. 244-114.
Staller, Karel J., and Ausnit, Steven, said Staller assor to Minigrip, Inc., mesne. Tube extruder. 3,543,343, Cl. 18-14.
Stamm, Alex F., to Rockwell-Standard Company, mesne. Friction welding apparatus having improved hydrostatic bearing arrangement. 3,544,120, Cl. 279-4.
Stammen, Harold A., to Crown Controls Corporation. Lift truck mechanism. 3,543,959, Cl. 214-731.
Standard Brands Incorporated: *See—*
Speakman, Edwin Lawrence, 3,544,345.
Standard Computer Corporation: *See—*
Rakoczi, Laszlo L., Keefer, David E., Goss, Gary J., and Porcelli, Ernest J., 3,544,969.
Standard Oil Company: *See—*
Culbertson, George S., and Piasek, Edmund J., 3,544,520.
Grasselli, Robert K., and Friederich, Maria S., 3,544,616.
Standard Products Company, The: *See—*
Jackson, Norman Charles, 3,543,465.
Loew, Theodore, 3,544,408.
Standley, Wendell E.: *See—*
Hasselo, William C., and Standley, Wendell E.,3,543,474.
Stanford Research Institute: *See—*
Swidler, Ronald, and Beasley, Charles A., 3,544,303.
Van Geen, John, 3,544,721.
Stanislavsky, Lazar Yankelevich: *See—*
Chigirinsky, Alexandr Abramovich, Spivak, Boris Volkovich, Stanislavsky, Lazar Yankelevich, Rabinovich, Vladimir Mordokheevich, Levitsky, Anatoly Kunmich, Kraschenko, Alexandr Ivanovich, Gradov, Oleg Borisovich, and Glider, Evgeny Khaimovich,3,544,823.
Stanke, Walter, and Mertens, Gottfried, to Koppers Company, Inc., mesne. Apparatus for cleaning the sealing surfaces of coke oven doors and door jambs. 3,543,322, Cl. 15-93.
Stapenhill, James A., to Sierra Engineering Company. Visor. 3,543,308, Cl. 2-6.
Stapfer, Christian H., to Cincinnati Milacron Chemicals. Mercaptal stabilized halogen-containing resins. 3,544,510, Cl. 260-45.75
Star Paper Tube, Inc.: *See—*
Jurney, Joseph F., and Roediger, Herman R., 3,544,034.
Stark, Marvin, and Szala, Norman M., to Pullman Incorporated. Hopper car. 3,543,692, Cl. 105-248.
Starkstrom-Schaltgeratefabrik E. Spindler & O. Deissler: *See—*
Deissler, Otto, 3,544,941.
Starr, Anthony J.: *See—*
Heisler, Jerome S., Starr, Anthony J., and Carey, John D., Sr.,3,543,963.
Stastny, Fritz, Breu, Rudolf, and Haardt, Udo, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Fire-resistant composite elements containing internal layers of expanded plastics. 3,543,460, Cl. 52-232.
Stauffer Chemical Company: *See—*
Greco, Carl C., and Mirviss, Stanley B., 3,544,543.
Kobayashi, Calvin Seiso, 3,544,300.
Steadtler, J. S.: *See—*
Kolb, Karl, 3,543,406.
Steding, Richard. Abrading device or file. 3,543,362, Cl. 29-78.
Stefaniak, Rudolph J., to Continental Can Company, Inc. Blow mold closing apparatus. 3,543,339, Cl. 18-5.
Steingas, Richard R.: *See—*
Pool, Stuart D., and Steingas, Richard R.,3,543,907.
Steinhilber, Georg: *See—*
Ebert, Alfred, Pirot, Ernst, Holler, Fritz, and Steinhilber, Georg,3,544,667.
Stelzle, Martin: *See—*
Maier, Martin, Stelzle, Martin, and Kasberger, Ludwig,3,543,489.
Stepan Chemical Company: *See—*
Knaggs, Edward A., and Nussbaum, Marvin L., 3,544,613.
Sterff, Wilhelm, to Schaltbau Gesellschaft mbH. Relay with permanent magnets. 3,544,935, Cl. 335-229.
Sterling Seal Company: *See—*
Hendrickson, Richard F., and King, Roderick V., 3,544,023.
Hendrickson, Richard F., and King, Roderick V., 3,544,024.
Stevens, J. P., & Co.: *See—*
Lauck, Peter, III, 3,544,767.
Stevens, John Michael: *See—*
Angus, Hamish Carmichael, and Stevens, John Michael,3,544,435.
Stevens Thomas R., to Bell Telephone Laboratories, Incorporated. Switching system arrangement for terminating a call to a line other than a called line. 3,544,729, Cl. 179-18.
Stewart & Stevenson Services, Inc.: *See—*
Boyce, Thomas H., Jr., 3,543,650.
Stewart, Joe, Jr. Programmer. 3,543,794, Cl. 137-624.14
Stichting Waterbouekundig Laboratories: *See—*
Bos, Hendrikus J., and Mann, Adriaan B., 3,543,722.
Stine, Laurence O., to Universal Oil Products Company. Petroleum crude oil conversion process. 3,544,450, Cl. 208-93.
Stitchcraft Corporation: *See—*
Krein, Reuben J., 3,544,163.
Stockinger, Felix Johan: *See—*
Bottenberg, Hans H., Jestadt, Hans-Joachim, Leysieffer, Hans G., and Stockinger, Felix Johan,3,544,995.
Stojkovic, Dobren: *See—*
Gulic, Milos, and Stojkovic, Dobren,3,544,015.
Stokes, Frank R., to Southeast Precast Concrete Products, Inc. Lifting device for heavy, hollow articles such as concrete pipe. 3,544,151, Cl. 294-81.
Stoll, Eric D., to Bell Telephone Laboratories, Incorporated. Synchronous video clamper with gating means to minimize noise interference. 3,544,714, Cl. 178-7.3
Stoltz, Herbert Collier, Hoffman, Joseph Willard, and Demler, Henry William, Sr., to AMP Incorporated. Flow control valve. 3,544,060, Cl. 251-9.
Stone, Richard L., to Wallace-Murray Corporation. Device for interconnecting tubular members. 3,543,670, Cl. 98-122.
Stoppard, William E., Pitts, Thomas E., and Nelson, John, to Leesona Corporation. Bobbin handling. 3,544,018, Cl. 242-35.6
Storm, Elwood H.: *See—*
Bauer, Richard A., and Storm, Elwood H.,3,544,732.
Storm, Lester F. M.: *See—*
Yamada, Yoshikazu, and Storm, Lester F. M.,3,544,320.
Storm, Lester F.M.: *See—*
Yamada, Yoshikazu, and Storm, Lester F.M.,3,544,321.
Yamada, Yoshikazu, and Storm, Lester F.M.,3,544,322.
Storm, Nelson. Support trailer. 3,544,128, Cl. 280-81.
Stout, George W., to Walhamlin, Inc. Apparatus for injecting steam into oil wells. 3,543,850, Cl. 166-62.
Strack, Hans A.: *See—*
Cox, Ronald H., and Strack, Hans A.,3,544,854.
Stratford Engineering Corporation: *See—*
Webb, Orlando, Jr., Graham, Ward A., and Massa, Harry E., 3,544,653.
Stratford, Henry Ralph, to York Gears Limited. Aircraft landing gear. 3,544,043, Cl. 244-104.
Stratman, Hardin G., to Gates Radio Company. Frequency modulated transmitter with crosstalk isolation. 3,544,919, Cl. 332-16.
Streater Industries, Inc.: *See—*
Gatton, Robert P., and Toth, Steven J., 3,543,532.
Leikarts, Aldis Juris, 3,543,699.
Strehler, Hugo: *See—*
Diebold, Adolf, Walter, Justus, and Strehler, Hugo,3,544,319.
Streib, Hugo: *See—*
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard,3,544,514.
Structural Fibers, Inc:: *See—*
Hulak, William M., 3,543,373.
Stuebe, Louis M., to Beloit Corporation. Multi-layer centrifugal web former. 3,543,834, Cl. 162-300.
Stump, Eugen, and Frankle, Gerhard, to Suddeutsche Kuhlerbagrik Julius Fr. Behr. Heater for burning liquid fuel, primarily benzine, especially extraneous heater for motor vehicles. 3,543,742, Cl. 126-110.
Stump, Joseph H., Jr.: *See—*
Rudner, Bernard, and Stump, Joseph H., Jr.,3,544,364.
Stupakis, Yani S., to Du Pont de Nemours, E. I., and Company, Jet fluid mixing process. 3,544,078, Cl. 259-4.
Sturtevant, Michael J.: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R.,3,544,727.
Stutz, Otto Titus, to Heberlein Patent Corporation. Process for relaxing internal tensions of textured synthetic yarns. 3,543,505, Cl. 57-157.
Suchkov, Vladimir Nikolaevich: *See—*
Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich,3,544,443.
Suddeutsche Kuhlerbagrik Julius Fr. Behr: *See—*
Stump, Eugen, and Frankle, Gerhard, 3,543,742.
Sudo, Michio, to Mitsubishi Yuka Kabushiki Kaisha. Apparatus for manufacturing thermoplastic films. 3,543,334, Cl. 18-14.
Suga, Michihisa, to Nippon Electric Company, Limited. Semiconductor high frequency amplifier device. 3,544,914, Cl. 330-5.
Sugden, David B., to Robbins, James S., and Associates, Inc. Vibrator systems. 3,544,075, Cl. 259-1.
Sugiyama, Iwao: *See—*
Oshima, Shuzo, Masuda, Eishyo, Sugiyama, Iwao, Akashi, Sueo, and Sato, Kiyoshi,3,544,048.
Sugiyama, Kazuo, to Heiwa Denki Kabushiki Kaisha. Manually unlocking device of electric lock. 3,543,547, Cl. 70-277.
Sullivan, Robert A.: *See—*
Ryan, Georges R., and Sullivan, Robert A.,3,543,924.
Sulmont, Alain, to Societe Anonyme dite: Vallourec. Method of testing metallic article by means of ultrasonic beams. 3,543,566, Cl. 73-67.7
Sulzer Brothers Limited: *See—*
Zerlauth, Ferdinand, 3,544,231.
Zerlauth, Ferdinand, 3,544,232.
Sumitomo Chemical Company, Ltd.: *See—*
Yamamoto, Hisao, and Nakao, Masaru, 3,544,563.
Summerer, Raymond E., and Force, John B., to General Motors Corporation. Ignition suppression system. 3,543,572, Cl. 73-116.
Summerer, Raymond E., and Haven, Harold A., to General Motors Corporation. Tamper-proof odometer. 3,544,002, Cl. 235-96.
Sumner Williams, Inc.: *See—*
Hwang, Ho Chien, 3,544,323.
Sun Oil Company: *See—*
Boyer, Jackson S., and Cassar, Richard D., 3,544,502.
Dupler, Raymond R., 3,543,939.
Sun Shiphuilding & Dry Dock Company: *See—*
Mehta, Kirit T., 3,543,444.
Sundberg, Erik Gustav, Korbol, Arthur, and Nilsson, Ove Karl Gustaf, to Aktiebolaget Tudor. Method of making a laminated porous battery separator. 3,544,384, Cl. 136-148.
Sundstrand Engelberg, Inc.: *See—*
Schaller, Robert L., 3,543,448.
Susquehanna Corporation, The: *See—*
Wallace, Jacob L., Jr., and Brown, Robert M., 3,544,983.
Suter, Hubert: *See—*
Nohe, Heinz, Suter, Hubert, and Hannebaum, Heinz,3,544,602.
Suzuki, Toshio, Oshima, Yujiro, and Kataoka, Masao, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Internal combustion engine with sub-combustion chamber. 3,543,736, Cl. 123-32.
Svereika, Edward: *See—*
Kowalik, John J., Svereika, Edward, and Meitl, Harold G.,3,543,488.
Swarbrick, Richard: *See—*
Constable, Geoffrey Ernest Patrick, Cullen, Graeme E., and Swarbrick, Richard,3,543,904.
Swart, Robert, and Berlin, Irving, to Vitramon, Incorporated. Solid-state electrical component with capacitance defeating resistor arrangement. 3,544,925, Cl. 333-70.
Swetlitz, Myron, to Westinghouse Electric Corporation. Clothes brush. 3,543,320, Cl. 15-23.

Swett, Leo Ralph, Ratajczyk, James Daniel, and Young, Patrick Richard, to Abbott Laboratories. N'-[4-(Hydroxymethyl)-5-pyrazolyl]amidines. 3,544,585, Cl. 260-310.

Swidler, Ronald, and Beasley, Charles A., to Stanford Research Institute. Aromatic carboximides as herbicides. 3,544,303, Cl. 71-94.

Swift, William Earle: *See—*
Green, Joe William, and Swift, William Earle,3,544,027.

Swinkels, Dominicus A. J., to General Motors Corporation. Electrochemical cell with layered electrode of ceramic and carbon and method. 3,544,373, Cl. 136-86.

Switches, Incorporated: *See—*
Wolf, Walter A., and Corn, Prentice R., 3,544,746.

Sylvania Electric Products, Inc.: *See—*
Barry, Thomas L., 3,544,481.
Barry, Thomas L., 3,544,482.
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B., 3,544,828.
Eckenbrecht, Robert Roy, and Waybright, George Cleveland, 3,544,709.
George, Frederick J., and Kern, Edmund R., 3,544,830.
Lagos, Costas C., 3,544,483.
Passmore, Edmund M., 3,544,486.
Peterson, Carl L., 3,543,962.

Szala, Norman M.: *See—*
Stark, Marvin, and Szala, Norman M.,3,543,692.

Sze, Morgan C., and Gessner, Adolf W., to Lummus Company, The. Process for the catalytic reaction of olefins and alcohols to acetals and ketals. 3,544,599, Cl. 260-340.9

Szentmiklosi, Peter: *See—*
Szoke, Sandor, Szentmiklosi, Peter, David, Agoston, and Horvath, Gabor,3,544,631.

Szoke, Sandor, Szentmiklosi, Peter, David, Agoston, and Horvath, Gabor, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RF. Tetracycline derivative incorporating the benzene-sulphonate anion. 3,544,631, Cl. 260-559.

Szymanski, Czeslaw: *See—*
Illg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk,3,543,396.

Taber, David F. Portable straightening device. 3,543,561, Cl. 72-392.

Tainter, Gregory H. Kitchen cutting board storage unit. 3,544,182, Cl. 312-237.

Taira, Shin-Ichi, and Kuroda, Akio, to Toyo Rayon Kabushiki Kaisha. Method of activating catalytic alloys. 3,544,485, Cl. 252-477.

Tajima, Shigenobu: *See—*
Koyanagi, Shunichi, Kitamura, Hajime, and Tajima, Shigenobu,3,544,539.

Takahashi, Masao: *See—*
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,470.
Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo,3,544,471.

Takakita, Ko: *See—*
Takakita, Shinjiro, and Takakita, Ko,3,543,861.

Takakita, Shinjiro, and Takakita, Ko. Apparatus for tilling and breaking soils. 3,543,861, Cl. 172-66.

Takao, Masayasu: *See—*
Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi,3,544,475.

Takaoka, Reijiro: *See—*
Nakamigawa, Koichi, Takaoka, Reijiro, and Koyama, Katsura,3,544,295.

Takeda Chemical Industries, Ltd.: *See—*
Hirano, Hiroshi, Numata, Mitsuo, Shimahara, Noboru, and Kawai, Kiyohisa, 3,544,574.
Ninomiya, Nobutaka, Ichikawa, Hirohiko, and Nishino, Hiroshi, 3,544,263.

Takei, Kazuhiro, and Asano, Isamu. Printed circuit control panel for a vehiclar steering mechanism. 3,544,743, Cl. 200-61.54

Taki Fertilizer Manufacturing Co., Ltd.: *See—*
Aiba, Yoshikazu, and Furumori, Takaki, 3,544,476.

Takizawa, Haruki, and Fujita, Masakazu, to Teijin Limited. Method of and apparatus for removing waste yarn in a yarn machine. 3,543,499, Cl. 57-34.

Tallian, Tibor E., and Sibley, Lewis B., to SKF Industries, Inc. Elastohydrodynamic sliding bearings. 3,544,177, Cl. 308-73.

Tan, Kwang G., to International Business Machines Corporation. Data processing system including buffered operands and means for controlling the sequence of processing of same. 3,544,974, Cl. 340-172.5

Tanaka, Masayoshi, to Honeywell Inc. Electric current range converting amplifier. 3,544,882, Cl. 323-4.

Tanida, Hiroshi, and Tsuji, Teruji, to Shionogi & Co., Ltd. Aziridine N-carboxylates. 3,544,559, Cl. 260-239.

Tanouy, Pierre Jean Clement, Garre, Pierre Robert, and Le Boulbouech, Jean Andre. Machine for making elongated cooked flat food products. 3,543,694, Cl. 107-4.

Tatum, Robert N. Portable auger apparatus. 3,543,948, Cl. 214-17.

Taudvin, Peter C.: *See—*
Christian, Rodney E., and Taudvin, Peter C.,3,544,757.

Taylor, David W., to Armco Steel Corporation. Silicon steel coated with magnesia containing chromic oxide. 3,544,396, Cl. 148-111.

Taylor, Donald F., to Otis Engineering Corporation. Well tools. 3,543,852, Cl. 166-155.

Taylor, Douglas W., to Motorola, Inc. Vehicular electrical systems. 3,544,803, Cl. 307-10.

Taylor, Harold M., and Holden, Howard E., to Lilly, Eli, and Company. Fungicidal control method employing substituted pyrazines. 3,544,682, Cl. 424-250.

Taylor, Lloyd S. Door having mitered joint appearance. 3,543,464, Cl. 52-475.

Taylor, Ray D., and Son, Pyong-Nae, to Goodrich, B. F., Company, The. Sulfur-containing curing agents. 3,544,492, Cl. 260-4.

Taylor, Roy J.: *See—*
Adams, Frank, Jr., Rice, Leo F., and Taylor, Roy J.,3,544,455.

TDK Electronics Co., Ltd.: *See—*
Watanabe, Hideo, and Kusunoki, Yushi, 3,544,469.

Tecumseh Products Company: *See—*
Rundell, Theodore W., 3,544,240.

Teijin Limited: *See—*
Takizawa, Haruki, and Fujita, Masakazu, 3,543,499.
Watabe, Kaname, Horimoto, Kohei, Muramatsu, Masahiro, and Ito, Mamoru, 3,543,503.

Tektronix, Inc.: *See—*
Mc Allister, John H., 3,544,406.

Teledyne, Inc.: *See—*
Royer, Wayne H., 3,543,697.

Telefonaktiebolaget LM Ericsson: *See—*
Fjallbrant, Tore Torstensson, 3,544,924.
Wolpert, Tadeusz, and Hansson, Leif Tage, 3,544,878.

Telephon-und Telegraphen-Fabriks-Aktiengesellschaft Kapsch & Soehne: *See—*
Musil, Johann, 3,544,386.

Temco Inc.: *See—*
Moe, Edward J., 3,543,766.

Tenneco Chemicals, Inc.: *See—*
Minieri, Pasquale P., 3,544,588.
Rudner, Bernard, and Stump, Joseph H., Jr., 3,544,364.

Tenneco Oil Company: *See—*
Gray, Forest D., 3,543,851.

Tenney, Harry W., Jr.: *See—*
Schweiker, George C., Tenney, Harry W., Jr., and Patrick, Robert L.,3,544,351.

Tepper, Jerry J. Pressure washer console. 3,543,787, Cl. 137-266.

Terado, Shiro, and Seki, Koya, to Nippon Denko Co., Ltd. Process for the production of alloys used as additive in the production of spheroidal graphite cast irons. 3,544,310, Cl. 75-129.

Terasaki, Takeshi, to Matsushita Electric Industrial Co., Ltd. Silicon P-N junction device and method of making the same. 3,544,395, Cl. 148-33.

Teufel, Helmut: *See—*
Seeger, Ernst, Engel, Wolfhard, and Teufel, Helmut,3,544,577.

Teves, Alfred, G.m.b.H.: *See—*
Erdmann, Hans, 3,543,888.

Texaco Inc.: *See—*
Nooner, Daryl W., and Kolaian, Jack H., 3,543,858.
Schlinger, Warren G., and Slater, William L., 3,544,291.

Texas Instruments, Incorporated: *See—*
Jaeger, Hans, and Perna, Nicholas Alfonso, 3,544,213.
Jarman, Hall E., 3,544,401.
Plouffe, Leo A., and McBride, Lyle E., Jr., 3,544,869.

Texas Utsbry&0: *See—*
Cox, Ronald H., and Strack, Hans A., 3,544,854.

Textron Inc.: *See—*
Caswell, Berwyn Blaine, 3,543,599.
Vanover, Wallace F., and Flaig, Max, 3,543,507.

Thackray, Wendy Denise: *See—*
East, Anthony Julian, and Thackray, Wendy Denise,3,544,658.

Thakkar, Bharat S.: *See—*
Berman, Irwin, Thakkar, Bharat S., Schroeder, Joseph W., and Smith, Herman P.,3,543,370.

Thalhammer, Ferdinand, to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft. Apparatus for scarfing slabs and ingots. 3,544,095, Cl. 266-23.

Thayer, Floyd L., and Pinkham, Wallace S. Closure means for conduits and the like. 3,543,801, Cl. 138-89.

Thermal Conduits, Inc.: *See—*
Ziegler, George E., 3,543,804.

Thiel, Harold F.: *See—*
Bridge, Laurance, Hornet, Walter J., and Thiel, Harold F.,3,544,372.

Thiel, Max: *See—*
Koch, Klaus, Thiel, Max, Stach, Kurt, Schaumann, Wolfgang, and Hardebeck, Klaus,3,544,554.

Thiele, Alan G., to Motorola, Inc. Micropower complementary monostable multivibrator. 3,544,817, Cl. 307-273.

Thimineur, Raymond J.: *See—*
Holdstock, Norman G., and Thimineur, Raymond J.,3,544,498.

Thiokol Chemical Corporation: *See—*
Glick, Robert L., 3,543,519.

Thom, Wenzel W., 1/2 to Jones, Fannie Mae. Wall mounted continuous track and handrail assembly. 3,544,072, Cl. 256-59.

Thomas, Gordon James: *See—*
Ehrlich, Friedrich, and Thomas, Gordon James,3,544,367.

Thomas, James Arthur. Portable power saw guide for mitre cuts and the like. 3,543,816, Cl. 143-6.

Thomas, Jean Claude, to Produits Chimiques Pechiney-Saint-Gobain. Apparatus for the preparation in mass of vinyl chloride polymers. 3,544,280, Cl. 23-290.

Thomas, Jean Claude, Fournel, Francis, and Soussan, Salomon, to Pruducts Chimiques Pechiney-Saint-Gobain. Graft polymerization in mass of vinyl chloride on an ethylene-vinyl acetate copolymer. 3,544,660, Cl. 260-878.

Thomas, Martha J. B.: *See—*
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B.,3,544,828.

Thompson, Francis T., to Westinghouse Electric Corporation. Time delay circuit for electric network protection. 3,544,846, Cl. 317-33.

Thompson, Herbert Lytle, to Universal Oil Products Company. Process for the extraction and recovery of aromatic hydrocarbons. 3,544,453, Cl. 208-321.

Thompson, James Elbert, to Motorola, Inc. Sequential light flasher. 3,544,962, Cl. 340-67.

Thompson, Laura Aurora, 15% to DeFranco, Walter John. False eyelash curling kit. 3,543,773, Cl. 132-79.

Thomson, Lois J. (formerly Duggan J.): *See—*
Green, Chester, 3,543,928.

Thorne, Richard Stanley Wrey: *See—*
Helm, Erik Johannes, and Thorne, Richard Stanley Wrey,3,544,329.

Thornton, Duane V., and Holt, Jan D., to ACF Industries, Incorporated. Movable guide rail structure for railway flat cars. 3,543,693, Cl. 105-368.

Tibbet, James W. Armor sheath stripper for electrical conductors. 3,543,614, Cl. 81-9.5

Tijburg, Rudolf Paulus, and de Nobel, Dirk, to U.S. Philips Corporation, mesne. Microwave semiconductor oscillator employing III-V compound and daped tin contact. 3,544,859, Cl. 317-235.

Timmler, Helmut, Wegler, Richard, Eue, Ludwig, and Hack, Helmuth, to Farbenfabriken Bayer Aktiengesellschaft. 1,2,4-Triazine-5-ones. 3,544,570, Cl. 260-248.

Timms, Richard M., to Troxel Manufacturing Company. Bicycle infant carrier means. 3,544,158, Cl. 297-254.

T.M.M. (Research) Limited: *See—*
Bancroft, Herbert, and Shepherd, John M., 3,543,500.

Toepffer, Hans: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian,3,544,363.

Tokuno, Hiroshi: *See—*
Furuno, Yukio, Tokuno, Hiroshi, and Murata, Katsuske,3,543,956.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Goto, Eizo, 3,544,294.
Someya, Akira, Hanada, Teizo, and Watanabe, Tadaaki, 3,544,829.

Tokyu Sharyo Sheizo Kabushiki Kaisha: *See—*
Hara, Seiichi, Kosuge, Giichi, and Inoue, Kazuji, 3,544,875.

Tomiyama, Shinichi, Mori, Akira, Nagayama, Masuzo, Takao, Masayasu, and Sekiguchi, Hitoshi, to Lion Fat & Oil Co., Ltd. Detergent compositions based on mixtures of alpha-olefin sulfonates and dimer olefin sulfonates. 3,544,475, Cl. 252-161.

Tong, Shih Y., to Bell Telephone Laboratories, Incorporated. Random and burst error-correcting arrangement. 3,544,963, Cl. 340-146.1

Tooker, Walter C., to TRW Inc. Flexural pivot having limited bending stresses imparted to flexure member. 3,544,175, Cl. 308-2.

Topol, George J., to Bowser, Inc. Radiation sensitive device for detecting interface between fluids. 3,544,798, Cl. 250-218.

Tori, Tatsumi, and Kondo, Toshiyuki, to Aisin Seiki Kabushiki Kaisha. Brake lining wear warning device. 3,543,714, Cl. 116-67.

Torrisi, Alfred F.: *See—*
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F.,3,544,434.

Torti, Emanuel. Trench shoring apparatus. 3,543,522, Cl. 61-41.

Toth, Steven J.: *See—*
Gatton, Robert P., and Toth, Steven J.,3,543,532.

Towner, Raymond J.: *See—*
Lyle, John P., Jr., and Towner, Raymond J.,3,544,392.
Lyle, John P., Jr., and Towner, Raymond J.,3,544,394.

Toy, William W., 50% to Harmon, Lewis G. Turbine and electric powered vehicle. 3,543,873, Cl. 180-65.

Toyo Rayon Kabushiki Kaisha: *See—*
Taira, Shin-Ichi, and Kuroda, Akio, 3,544,485.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Kogaki, Keiji, 3,543,610.
Ohta, Seizo, 3,544,164.
Uchiyamada, Kameo, Inoue, Masahiko, and Sakurai, Katsuo, 3,544,162.
Uozumi, Sumio, and Sakai, Ichio, 3,543,611.

Trachtenberg, William, to Eastman Kodak Company. Method of removing moisture from a web of material. 3,543,410, Cl. 34-18.

Tracy, Donald L. Pattern duplicating apparatus. 3,543,636, Cl. 90-13.2

Transitor Electronics, Inc.: *See—*
Giller, Ronald R., Schneider, Milton, Condon, William J., and Torrisi, Alfred F., 3,544,434.

Trasp, George Oliver, to Homestead Industries, Inc. Vehicle washing apparatus. 3,543,774, Cl. 134-57.

Treharne, Richard E., Jr., to Scovill Manufacturing Company. Non-clogging aerosol valve. 3,543,971, Cl. 222-402.22

Treiber, Fritz F.: *See—*
Arvidson, Bengt A., and Treiber, Fritz F.,3,544,412.

Treichel, Richard, to Deere & Company. Automatically shiftable direction control valve. 3,543,516, Cl. 60-52.

Treleven, Gerald J.: *See—*
Francis, Leo H., and Treleven, Gerald J.,3,544,436.

Trible, Clayton J.: *See—*
Hoagland, Milton B., Groener, George E., Trible, Clayton J., and Fletcher, William A.,3,543,554.

Trickel, Leighton E.: *See—*
Gaumer, David D., Hanna, Charles D., Bailey, Charles E., and Trickel, Leighton E.,3,544,804.

Trihey, John Massey, to Johns-Manville Corporation, mesne. Method and apparatus for wrapping elongated articles. 3,543,470, Cl. 53-30.

Tripp, Robert W. Electronic control system for musical instrument. 3,544,693, Cl. 84-1.01

Tropf, Carl F., and Tropf, Martin J. Boat apparatus. 3,543,314, Cl. 9-6.

Tropf, Martin J.: *See—*
Tropf, Carl F., and Tropf, Martin J.,3,543,314.

Trosken, Otto: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian,3,544,363.

Trousdale, Robert B., to California Computer Products, Inc. Digital plotting system. 3,544,972, Cl. 340-172.5

Troutner, Arthur L. Apparatus for drilling and routing truss joist chords. 3,543,818, Cl. 144-3.

Troxel Manufacturing Company: *See—*
Timms, Richard M., 3,544,158.

Troxler Electronic Laboratories, Inc.: *See—*
Bless, Paul W., and Clements, Richard F., 3,544,793.

Troy Steel Corporation: *See—*
Menge, Donald C., 3,543,815.

Trunov, Oleg Konstantinovich: *See—*
Pavlov, Vladimir Vasilievich, Ivliev, Valery Alexandrovich, Zlobin, Jury Petrovich, Birnbaum, Oleg Ernstovich, and Trunov, Oleg Konstantinovich,3,543,577.

TRW Inc.: *See—*
Heflinger, Lee O., 3,545,000.
Kaufman, Irving, and Norton, Richard E., 3,544,880.
Moy, Richard M., and Huniu, Sam, 3,544,061.
Putnam, Robert M., 3,544,221.
Sellen, John M., 3,544,888.
Shlosinger, Arnold P., 3,543,839.
Tooker, Walter C., 3,544,175.
Winkler, Ted, 3,544,777.

Tsentralny Nauchno-Issledovatelsky Institut Khimicheskoi Promyshlennosti: *See—*
Malkov, Emanuil Borisovich, 3,543,350.

Tsubakimoto, Naosuke, Kawase, Yasutaka, and Matsushita, Hiroyuki, to Matsushita Electronics Corporation. Electric sign devices. 3,544,991, Cl. 340-339.

Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo, to Nippon Electric Company. Piezoelectric ceramics. 3,544,470, Cl. 252-62.9

Tsubouchi, Norio, Takahashi, Masao, Ohno, Tomeji, and Akashi, Tsuneo, to Nippon Electric Company. Piezoelectric ceramics. 3,544,471, Cl. 252-62.9

Tsuda, Junji: *See—*
Miura, Takeo, Iwata, Junzo, and Tsuda, Junji,3,544,833.

Tsuji, Hiroshi: *See—*
Tsuji, Shu, and Tsuji, Hiroshi,3,543,902.

Tsuji, Shu, and Tsuji, Hiroshi. Torque transmission system. 3,543,902, Cl. 192-150.

Tsuji, Teruji: *See—*
Tanida, Hiroshi, and Tsuji, Teruji,3,544,559.

Tu, Ju C.: *See—*
Bird, Richard M., and Tu, Ju C.,3,544,905.

Tuck, Robert M.: *See—*
Schmidt, Jack W., Tuck, Robert M., and Phillips, William V.,3,543,607.

Tulley, Fredrick T., and Harris, Berlin C., Jr., to Ethyl Corporation. Process and apparatus for fluid treatment. 3,544,457, Cl. 210-65.

Tullsen, Volney, to GAF Corporation. Method of preparing phthalocyanine pigments. 3,544,586, Cl. 260-314.5

Tulumello, Michael, 1/2 to Panzarella, Joseph. Rosette cutting bit. 3,543,820, Cl. 144-219.

Tunzini Ameliorair: *See—*
Gomarin, Claude, 3,543,414.

Turillon, Pierre P., and Hanley, Patrick J., to International Nickel Company, Inc., The. Alloying method. 3,544,312, Cl. 75-135.

Turner, James W., and Holly, Charles J., Jr. Countermeasure radar chaff. 3,544,997, Cl. 343-18.

Tushim, Michael P., to Brown Engineering Company, Inc. Automatic relative position control device. 3,543,318, Cl. 14-71.

Tuttle, Floyd W.: *See—*
Tuttle, Ralph W., and Tuttle, Floyd W.,3,543,865.

Tuttle, Ralph W., and Tuttle, Floyd W. Disc tiller. 3,543,865, Cl. 172-288.

Tuttle, Wainwright, to Spati Industries, Inc. Sensor. 3,544,745, Cl. 200-83.

Tyee Construction Company: *See—*
Bergmann, Elmer G., and Ritter, Vern D., 3,544,938.

Uchiyamada, Kameo, Inoue, Masahiko, and Sakurai, Katsuo, to Toyota Jidosha Kogyo Kabushiki kaisha. Adjustable head rest for vehicle seat. 3,544,162, Cl. 297-410.

Uddeholms Aktiebolag: *See—*
Oppegaard, Asbjorn, and Dahlberg, Jan Anders, 3,544,642.

Uebel, Philipp, to Wacker-Werke KG. Ground compacting apparatus. 3,543,655, Cl. 94-48.
Ueda, Kazuo, to Shikoku Kakooki Company Limited. Machine to align bottles so that a fluid can be poured therein. 3,543,909, Cl. 198-33.
Ugine Kuhlmann: *See—*
Clemenceau, Georges, 3,543,562.
Razavi, Djavad, 3,544,565.
Uhlmann, Carlo W. Method for removing incrustation from metal surfaces. 3,544,366, Cl. 134-2.
Uhlmann, Ernest A.: *See—*
Elmore, Austin E., and Uhlmann, Ernest A., 3,544,067.
Ullman, John E., to Huntingdon Industries Incorporated. Packaging apparatus. 3,543,469, Cl. 53-29.
Ulmer, William W., to Anaconda Wire and Cable Company. Insulating amide-imide polymeric magnetic wire coating composition. 3,544,504, Cl. 260-31.2
Ulrich, Robert J.: *See—*
Cawthon, William C., and Ulrich, Robert J., 3,544,352.
Umahashi, Minoru, and Kobayashi, Yugoro, to Kabushiki Kaisha Ricoh. Copying device for making vouchers. 3,544,212, Cl. 355-42.
Uman, Martin A.: *See—*
Sletten, Andreas M., Uman, Martin A., Orville, Richard E., and Venturino, Anthony J., 3,544,843.
Undergarment Assemblies, Inc.: *See—*
Block, Charles, and Mintz, Leon J., 3,543,942.
Unglaube, Alfons, to Meyer, Roth & Pastor. Tilting device for hinge making machines. 3,543,372, Cl. 29-200.
Unicor, Inc.: *See—*
Corzine, Luke H., 3,544,417.
Union Carbide Corporation: *See—*
Majewski, Henry, and Hutson, John K., 3,544,339.
Manz, August F., 3,544,759.
Newman, Gerald H., 3,544,385.
Poppelsdorf, Fedor, 3,544,615.
Scheller, Arthur P., 3,543,810.
Union Oil Company of California: *See—*
Moran, Kevin E., and Brown, Robert J., 3,543,342.
United Aircraft Corporation: *See—*
Angelbeck, Albert W., 3,544,916.
Boone, Donald H., and Goward, George W., 3,544,348.
De Maria, Anthony J., 3,544,805.
De Maria, Anthony J., and Brienza, Michael J., 3,544,806.
Schile, Richard D., 3,543,831.
United Aircraft Products, Inc.: *See—*
Fernandes, Joseph F., and Pfouts, Robert R., 3,543,845.
United Kingdom Atomic Energy Authority: *See—*
Shaw, James William Westgarth, Coast, Geoffrey, and Briody, Ronald Francis, 3,544,425.
Wood, Peter, Hunter, David John, Whyard, Robert Edward, and Keats, Albert Brian, 3,544,908.
United States Camera Corporation: *See—*
Moore, Robert L., 3,543,659.
United States of America
Agriculture: *See—*
Hedrick, Glen W., and Magne, Frank C., 3,544,529.
Atomic Energy Commission: *See—*
Kershner, Carl J., and Ellis, Robert E., 3,544,307.
McConnell, Roger A., 3,544,922.
Navy: *See—*
Bauer, Peter, 3,543,782.
Fleming, Gerald J., and Koubek, Francis J., 3,544,654.
Green, Milton, 3,544,867.
Griffith, James R., 3,544,421.
Radford, James E., 3,543,684.
Seamone, Woodrow, 3,543,642.
Uzunoglu, Vasil, 3,544,809.
Universal Metal Hose Company: *See—*
Raisch, Lee S., and Falkenberg, Howard M., 3,543,551.
Universal Oil Products Company: *See—*
Bloch, Herman S., 3,544,639.
Broughton, Donald B., and deRosset, Armand J., 3,544,646.
Hardison, Leslie C., 3,543,485.
Hardison, Leslie C., 3,544,264.
Jacobs, William L., and Watkins, Charles H., 3,544,448.
Karasick, Norman M., 3,544,160.
Mellbom, Marvin E., 3,544,428.
Mitsche, Roy T., and Pollitzer, Ernest L., 3,544,451.
Sampson, Robert W., 3,543,578.
Stine, Laurence O., 3,544,450.
Thompson, Herbert Lytle, 3,544,453.
Universal Water Corporation: *See—*
Manjikian, Serop, 3,544,358.
Allied Chemical Corporation: *See—*
Manjikian, Serop, 3,544,359.
University of Michigan, The Regents of the: *See—*
Asgar, Kamal, 3,544,315.
University of Minnesota, The Regents of the: *See—*
Bradley, William E., 3,543,761.
Unno, Yoshio. Prefabricated infant rearing implement. 3,544,125, Cl. 280-31.
Uozumi, Sumio, and Sakai, Ichio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Hydraulic control system of an automatic transmission. 3,543,611, Cl. 74-867.
Upjohn Company, The: *See—*
Argoudelis, Alexander D., and Coats, John H., 3,544,552.
Kagan, Fred, and Magerlein, Barney J., 3,544,551.
Uren, Richard F.: *See—*
Woodside, Frank G., and Uren, Richard F., 3,543,944.
U.S. Automation Company: *See—*
Borodin, Daniel J., 3,543,609.
U.S. Electric Manufacturing Company: *See—*
Ross, Donald R., Sr., and Ross, Donald R., Jr., 3,543,893.
U.S. Philips Corporation: *See—*
deBitetto, Dominick John, 3,544,711.
Dijksterhuis, Popko Reinder, 3,544,695.
Esseling, Ludovicus Augustinus Lambertus, 3,543,395.
Holsten, Karl-Georg, 3,543,583.
Kooi, Else, 3,544,858.
Kooi, Else, 3,544,861.
Moed, Hendrik Durk, 3,544,689.
Tijburg, Rudolf Paulus, and de Nobel, Dirk, 3,544,859.
Witterick, Petrus Johannes Julius, 3,544,827.
Zegers, Leo Eduard, and Kuilman, Jan, 3,544,912.
Ushioda, Tsunezo, Nonaka, Katsuhiko, Inoi, Takeshi, Shoji, Kenjiro, Matsunaga, Motoyoshi, and Kato, Hitoshi. Active-chlorine-containing compound. 3,544,683, Cl. 424-251.
Utitec Corporation: *See—*
Dal Molin, Guido A., 3,544,758.
Uyzkumny ustav Zdrayotnicke techniky: *See—*
Simurda, Jiri, 3,544,897.
Uzunoglu, Vasil, to United States of America, Navy, mesne. Multifunctional circuit. 3,544,809, Cl. 307-216.
Vaillant, Joh., KG: *See—*
Meier, Hans, and Muller, Max Albert, 3,544,005.
Vaills, Laurent M., to Ministrere de l'Agriculture-Service Veterinaire. Machines for making laboratory analyses. 3,544,272, Cl. 23-253.
Valeron Corporation, The: *See—*
Diemond, Leroy H., 3,543,363.
Valles, Benjamin V., to Litton Precision Products, Inc. Microwave oven having meshing microwave door seal. 3,544,751, Cl. 219-10.55
Valve Corporation of America: *See—*
Lehmann, Herbert G., 3,543,965.
Valyi, Emery I.: *See—*
Guelph, John, 3,543,340.
VanDale Corporation: *See—*
Buschbom, Floyd E., 3,543,728.
Vandenplas, Paul E., and Messiaen, Andre M. Plasma coated antenna. 3,544,998, Cl. 343-701.
van der Lely, Ary. Devices for spreading liquids. 3,544,011, Cl. 239-175.
van der Veen, Romke: *See—*
de Koning, Jan, and van der Veen, Romke, 3,543,565.
van Dijk, Christiaan P., to Pullman Incorporated. Alkylation process with a high excess of sulfuric acid. 3,544,652, Cl. 260-683.59
van Dijk, Christiaan P., and Siebentritt, Frank H., to Pullman Incorporated. Halogen production. 3,544,274, Cl. 23-219.
Van Driesen, Roger P., to Cities Service Research and Development Company. Heavy oil hydrocracking process. 3,544,447, Cl. 208-48.
vanElten, Gerrit Jan. Drum mixer for mixing wood wool with a binder. 3,544,077, Cl. 259-3.
Van Geen, John, to Stanford Research Institute. Teletype communication system. 3,544,721, Cl. 179-2.
Van Gilst, Carl W., to Bangor Punta Operations, Inc. Sow feed stall. 3,543,723, Cl. 119-27.
Van Huuksloot, Leendert, to Nemag N.V. Grab. 3,544,150, Cl. 294-71.
Vanover, Wallace F., and Flaig, Max, to Textron Inc. Expansible linkage for use in making a watch band or similar article of jewelry. 3,543,507, Cl. 59-79.
Van Tuyle, Robert W., to Emery Industries, Inc. Polyvinyl chloride resins plasticized with tetrahydrofurfuryl alcohol-polymerized fatty acid esters. 3,544,503, Cl. 260-30.4
Varian Associates: *See—*
Williams, Norman H., 3,544,923.
Varo, Inc.: *See—*
Cosper, David F., and Estes, Jerry R., 3,543,393.
Varta Aktiengesellschaft: *See—*
Spahrbier, Dieter, Wandschneider, Klaus, and Eckardt, Rudolf, 3,544,382.
Winsel, August, 3,544,279.
Justi, Eduard, and Wendtland, Ralf, 3,544,377.
Vasilatos, Anastasios J., to A.V./American Ventures, Inc. Buoyant swimming aid. 3,543,712, Cl. 115-6.1
Vasseur, Jean-Pierre: *See—*
Javaux, Gustave, and Vasseur, Jean-Pierre, 3,543,385.
Vazirani, Hargovind N., to Bell Telephone Laboratories, Incorporated. Process for the surface treatment of aluminum and its alloys. 3,544,356, Cl. 117-49.
Vazirani, Hargovind N., to Bell Telephone Laboratories, Incorporated. Process for surface treatment of copper and its alloys. 3,544,389, Cl. 148-6.14
Vazquez, Antia Cal: *See—*
Beiras Garcia, Antonio, 3,544,203.
VEB Carl Zeiss Jena: *See—*
Schanda, Kurt, 3,544,209.
VEB Pentacon Dresden Kamera- und Kinowerke: *See—*
Reimann, Hubertus, 3,543,658.
Vectrol, Inc.: *See—*
Muskovac, Nicholas G., 3,544,766.

Vehoc Corporation: *See—*
Berlin, Norton H., 3,544,289.
Veirs, Val R., to Zenith Radio Corporation. Dusting method of screening a cathode-ray tube. 3,544,350, Cl. 117-17.5
Venator, Walter E., Jr., to Litton Precision Products, Inc. Yig tuned gallium arsenide -limited space charge accumulation diode oscillator. 3,544,918, Cl. 331-107.
Venturino, Anthony J.: *See—*
Sletten, Andreas M., Uman, Martin A., Orville, Richard E., and Venturino, Anthony J., 3,544,843.
Vepa AG: *See—*
Fleissner, Heinz, 3,543,543.
Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft: *See—*
Thalhammer, Ferdinand, 3,544,095.
VerNooy, Burton, and Boshuizen, Cornelis, to Williamson, T. D., Inc. Split T. 3,544,136, Cl. 285-156.
Versnel, John, to Cities Service Company. Process for the production of solid multi- bromoalkane or cycloalkane addition products. 3,544,641, Cl. 260-648.
Verzeletti, Guido: *See—*
Golinelli, Paolo, Holtbecker, Helmut, Montagnani, Mario, Remmerswaal, Joost Louis, and Verzeletti, Guido, 3,543,387.
Vetco Offshore Industries, Inc.: *See—*
Haeber, John A., 3,543,847.
Victor Comptometer Corporation: *See—*
Joyce, Ronald W., Billingslea, Eugene E., Sage, Leopold C., and Marshall, Robert K., 3,543,427.
Vienat, Philippe, to Duval, Philippe Louis. Ignition system controlled by a pilot relay. 3,543,740, Cl. 123-148.
Vignon, Louis, to Hispano Suiza(Suisse)S.A. Combing machine. 3,543,352, Cl. 19-232.
Vilaplana, Tobias: *See—*
Egea, Liborio, and Vilaplana, Tobias, 3,543,328.
Vilter Manufacturing Corporation: *See—*
Scott, James C., 3,543,880.
Vitramon, Incorporated: *See—*
Swart, Robert, and Berlin, Irving, 3,544,925.
Vlock, Mark. Film developing magazine. 3,543,668, Cl. 95-100.
V-M Corporation: *See—*
Arent, John F., 3,544,037.
Vockenhuber, Karl: *See—*
Freudenschusz, Otto, 3,544,206.
Voeltzel, Jacques: *See—*
Ghali, Edward Labib, and Voeltzel, Jacques, 3,544,390.
Vollman, Hansjorg: *See—*
Gunther, Dieter, Hoyer, Ernst, Schmidt, Heinz, and Vollman, Hansjorg, 3,544,548.
Von Brachel, Hanswilli: *See—*
Rath, Hermann, Bredereck, Karl, Rieckert, Horst, Toepffer, Hans, Trosken, Otto, Von Brachel, Hanswilli, and Heid, Christian, 3,544,363.
vonBrecht, Forrest G., and Pratt, Ryder, to Radec Corporation. Plastic film packaging machine. 3,543,478, Cl. 53-182.
von Eiff, Ulrich C. Coupling assembly for conduits. 3,544,138, Cl. 285-336.
von Molnar, Stephan: *See—*
Holtzberg, Frederic, and von Molnar, Stephan, 3,544,865.
Voss, Brian E., to Northern Electric Company Limited. Trunk signalling and supervision control. 3,544,730, Cl. 179-18.
Vrabel, Edward A., to General Electric Company. Liquid filled fuse cutout with fluid pressure resistant base member formed of insulating material. 3,544,944, Cl. 337-204.
Vsesojuzny nauchno-issledovatelsky gornomerallur gischesky institut tsvetnykh metallov: *See—*
Junovich, Mark Iosifovich, and Kazakov, Nikolai Ivanovich, 3,544,168.
Vyhnalek, Milan: *See—*
Speglic, Franc, and Vyhnalek, Milan, 3,543,403.
Waaske, Heinz, to Rollei Werke Franke & Heidecke. Photographic camera. 3,543,660, Cl. 95-11.
Wacker-Werke KG: *See—*
Uebel, Philipp, 3,543,655.
Wagner, Eddie B., to Wagner Mining Scoop, Inc. Loader bucket with push plate ejector. 3,543,960, Cl. 214-767.
Wagner Mining Scoop, Inc.: *See—*
Wagner, Eddie B., 3,543,960.
Wagner, William Sherwood, and Roberts, John Drew, to Celanese Corporation. Apparatus for producing fibrous structures. 3,543,332, Cl. 18-8.
Wahl, Frank, to Western Electric Company, Incorporated. Silk screen apparatus for printed circuit boards. 3,543,679, Cl. 101-35.
Waite, Ralph D., to Ametek, Inc. Instrument assembly. 3,543,586, Cl. 73-431.
Wakeman, Reginald L. Method of disinfecting hard surfaces. 3,544,688, Cl. 424-329.
Walchli, Hans: *See—*
Garnitschnig, Gunter, Herrmann, Hans, and Walchli, Hans, 3,544,821.
Walczak, Wojciech: *See—*
Illg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk, 3,543,396.
Walhamlin, Inc.: *See—*
Stout, George W., 3,543,850.
Wallace, Jacob L., Jr., and Brown, Robert M., to Susquehanna Corporation, The. Signal level detector. 3,544,983, Cl. 340-213.
Wallace-Murray Corporation: *See—*
Stone, Richard L., 3,543,670.
Wallis, Richard D.: *See—*
Mattia, Donald J., and Wallis, Richard D., 3,543,929.
Wallrabenstein, Michael: *See—*
Magerlein, Helmut, Siggel, Erhard, Rupp, Hans-Dieter, Wallrabenstein, Michael, Schopf, Albert, and Meyer, Gerhard, 3,544,528.
Walsh, James H. Airplane hangar. 3,543,455, Cl. 52-64.
Walsh, Paul L.: *See—*
Hou, Shou-Ling, and Walsh, Paul L., 3,544,886.
Walter, Justus: *See—*
Diebold, Adolf, Walter, Justus, and Strehler, Hugo, 3,544,319.
Walters, Kenneth R.: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R., 3,544,727.
Walther, Gerhard: *See—*
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl, 3,544,578.
Walther-Buromaschinen B.m.b.H.: *See—*
Fischer, Hans-Dietrich, 3,544,776.
Walz, Alfred, to Dornier System G.m.b.H. Hydraulic regulating device. 3,544,237, Cl. 417-48.
Wandschneider, Klaus: *See—*
Spahrbier, Dieter, Wandschneider, Klaus, and Eckardt, Rudolf, 3,544,382.
Wang, Chun-Shan, and McGee, Thomas W., to Dow Chemical Company, The. Phenoxy- and substituted phenoxyphenoxarsine compounds. 3,544,610, Cl. 260-440.
Wangerin, Elmer O., to Eastman Kodak Company. Strip anchoring device. 3,544,028, Cl. 242-74.1
Wanskuck Company: *See—*
Schillebeeckx, Konrad C., 3,543,501.
Warburton, Dennis: *See—*
Davis, Michael, Parnell, Edgar William, Sharp, Brian William, and Warburton, Dennis, 3,544,686.
Ward, Kenneth L. Padded knee boards. 3,544,054, Cl. 248-350.
Ward, Morris V.: *See—*
Eckerlin, Herbert M., and Ward, Morris V., 3,543,779.
Warner, Louis A. Mechanical conversion device. 3,544,768, Cl. 235-88.
Warner-Lambert Pharmaceutical Company: *See—*
Hansen, Holger V., and Meltzer, Robert I., 3,544,623.
Warrick, Edward C., and Niehaus, Edward J., Jr., to Rockwell Manufacturing Company. Speed control for reversible motor with independently operated, reversible bypass switch. 3,544,871, Cl. 318-257.
Wasemann, William A., to Westinghouse Electric Corporation. Clothes washing machine apparatus. 3,543,541, Cl. 68-18.
Waser, Rudolf, and Ott, Hans, to Eidophor A.G. Apparatus for reproducing television pictures. 3,544,964, Cl. 350-161.
Wasson, Carroll M. Address projector. 3,544,208, Cl. 353-22.
Watabe, Kaname, Horimoto, Kohei, Muramatsu, Masahiro, and Ito, Mamoru, to Teijin Limited. Apparatus for winding a yarn. 3,543,503, Cl. 57-75.
Watanabe, Hideo, and Kusunoki, Yushi, to TDK Electronics Co., Ltd. Ferroelectric ceramic. 3,544,469, Cl. 252-62.9
Watanabe, Tadaaki: *See—*
Someya, Akira, Hanada, Teizo, and Watanabe, Tadaaki, 3,544,829.
Waterman, Neil S., and Borden, Philip H., to Perma-Sharp Manufacturing Corporation. Dispensing package container for new and used razor blades. 3,543,918, Cl. 206-16.
Watkins, Charles H.: *See—*
Jacobs, William L., and Watkins, Charles H., 3,544,448.
Watkins, Fred E., to Cameo, Incorporated. Turbine flow meter. 3,543,579, Cl. 73-231.
Watson, William R.: *See—*
Fowler, Vernon J., Schlafer, John Flushing, and Watson, William R., 3,544,201.
Watt, Roy A.: *See—*
Paulson, Rudolph M., and Watt, Roy A., 3,543,836.
Wattenburg, Willard H., Glaser, Donald A., and Conde, Hector O., to Berkeley Scientific Laboratories, Inc., mesne. Peak reading optical density measuring system. 3,544,225, Cl. 356-201.
Waybright, George Cleveland: *See—*
Eckenbrecht, Robert Roy, and Waybright, George Cleveland, 3,544,709.
Weaver, Charles S., to Research Corporation. Optical crosscorrelation. 3,544,197, Cl. 350-162.
Weaver, Paul J., to Graning-Weaver Company. Lathe. 3,543,617, Cl. 82-14.
Weaving, George Stewart: *See—*
Bowman, George Edward, and Weaving, George Stewart, 3,544,278.
Webb, Jervis B., Company: *See—*
Dehne, Clarence A., 3,543,689.
Webb, Orlando, Jr., Graham, Ward A., and Massa, Harry E., to Stratford Engineering Corporation. Preparation of olefin feeds for acid recovery processes. 3,544,653, Cl. 260-683.61

Weben, Bernard: *See—*
Caille, Georges Edouard Yvon E., and Weben, Bernard,3,543,828.
Weber, Horst, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of zirconium- vanadium blue pigments. 3,544,347, Cl. 106-299.
Weber, Joseph J.: *See—*
Freeman, George S. P., Jackson, Franklin D., and Weber, Joseph J.,3,543,383.
Weber, Laurance A.: *See—*
Rodkin, Dennis L., and Weber, Laurance A.,3,544,728.
Weber, Pierre Francois: *See—*
Besson, Jean Rene, and Weber, Pierre Francois,3,544,216.
Weeks, Richard C., to Campbell Soup Company. Apparatus for forming bread wrapper. 3,543,480, Cl. 53-210.
Wegler, Richard: *See—*
Timmler, Helmut, Wegler, Richard, Eue, Ludwig, and Hack, Helmuth,3,544,570.
Weibel, William A., to Joslyn Mfg. and Supply Co. Luminaire. 3,544,785, Cl. 240-25.
Weichel, Ernst. Crop carrying vehicle having plural crop receiving devices. 3,543,498, Cl. 56-364.
Weidinger, Hans, and Eisert, Manfred, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Imidazoanthraquinone dyes. 3,544,564, Cl. 260-240.
Weien, Paul. Control valve assembly. 3,543,563, Cl. 73-40.
Weier, Roman J., to Wyard Industries, Inc. Container depalletizing apparatus. 3,543,949, Cl. 214-8.5
Weigel, Jurgen, to Hamburger Flugzeugbau GmbH. Process for coating conductive substrates. 3,544,440, Cl. 204-181.
Weigert, Wolfgang: *See—*
Schwarze, Werner, and Weigert, Wolfgang,3,544,569.
Weiland, John H., to Hydrel A.G., mesne. Tool safety device. 3,543,621, Cl. 83-61.
Weinbaum, Hillel, to American Machine & Foundry Company. Calibration of multiple channel electronic systems. 3,544,970, Cl. 340-973.
Weinerth, Hans, to International Standard Electric Corporation. 3,544,397, Cl. 148-177.
Weinstein, Arnold: *See—*
Jaroff, David B., Litt, Donald D., and Weinstein, Arnold,3,543,476.
Weinstein, Berel, to Bio-Medical Sciences, Inc. Intra-venous infusion device. 3,543,753, Cl. 128-214.
Weirauch, Kurt: *See—*
Schnell, Hermann, Bottenbruch, Ludwig, Weirauch, Kurt, Hechelhammer, Wilhelm, Streib, Hugo, and Fritz, Gerhard,3,544,514.
Wendtland, Ralf: *See—*
Justi, Eduard, and Wendtland, Ralf,3,544,377.
Wenzel, Philip D., and Gallagher, Gerald L., to Case, J. I., Company. Trip mechanism for ground working implement. 3,543,862, Cl. 172-264.
Wenzel, Philip D., and Gallagher, Gerald L., to Case, J. I., Company. Tail wheel lifting mechanism. 3,543,864, Cl. 172-285.
Werner, Frank D., and Petersen, Paul S., to Sports Technology, Inc., mesne. Anti-friction device for ski boots and skis. 3,544,123, Cl. 280-11.35
Weschenfelder, Otto: *See—*
Muth, Gregor Nikolaus, Muth, Engelbert Michael, and Weschenfelder, Otto,3,544,454.
West, John B., to Maryland Cup Corporation. Lid construction. 3,543,996, Cl. 229-43.
West Laboratories, Inc.: *See—*
Goldberg, Raymond, and Shaw, Irving F., 3,544,020.
Western Electric Company, Incorporated: *See—*
Brown, Martin J., 3,544,790.
Gerhard, Allen R., 3,544,891.
Loughery, George B., 3,543,925.
Sharp, Donald Jex, 3,544,287.
Wahl, Frank, 3,543,679.
Westinghouse Air Brake Company: *See—*
Berk, Edward J., 3,543,916.
Westinghouse Electric Corporation: *See—*
Borck, Walter C., Jr., Gregory, John G., Hudson, James R., and Murtha, John C., 3,544,973.
Brown, Ralph D., and Johnson, Ernest K., 3,544,233.
DeAngelo, Gerald J., 3,544,749.
Frink, Russell E., 3,544,742.
Gallagher, Robert C., and Williams, David W., 3,544,862.
Gamble, James R., 3,544,707.
Graff, Eugene A., 3,544,478.
Hilsenbeck, Larry L., and Montoro, John, 3,543,620.
Kuhn, Edmund W., 3,544,741.
Kuhn, Edmund W., 3,544,932.
Lawrence, Robert J., 3,544,985.
Leahy, Henry C., 3,544,945.
Masters, Charles G., Jr., 3,544,778.
Nadalin, Robert J., 3,544,271.
O'Neill, Wilbur J., and Krasberg, Alan R., 3,543,526.
Oberdier, Robert W., 3,543,533.
Patel, Nagar J., 3,544,931.
Prescott, Herbert L., 3,544,884.
Price, David B., 3,543,412.
Rushing, Frank C., and Simon, Albert B., 3,543,806.
Sletten, Andreas M., Uman, Martin A., Orville, Richard E., and Venturino, Anthony J., 3,544,843.
Smith, Andrew W., Jr., 3,543,548.
Smith, Melvin W., and Kluth, Charles S., 3,543,527.
Smith, Melvin Wilmer, and Brun, Andre George, 3,543,846.
Swetlitz, Myron, 3,543,320.
Thompson, Francis T., 3,544,846.
Wasemann, William A., 3,543,541.
Weston Instruments, Inc.: *See—*
Richman, Peter L., 3,544,895.
Wheatley, Charles, Company: *See—*
Wheatley, Charles, 3,543,789.
Wheatley, Charles, to Wheatley, Charles, Company. Receiving valve. 3,543,789, Cl. 137-544.
Wheeler, Donald H.: *See—*
Nazy, John R., and Wheeler, Donald H.,3,544,495.
Whirlpool Corporation: *See—*
Brown, Gordon H., 3,543,676.
Whitaker, Fred Company: *See—*
Whitaker, Ralph, 3,543,359.
Whitaker, Ralph, to Whitaker, Fred Company. Method of producing multicolored yarn. 3,543,359, Cl. 28-72.16
White, George E., to Michael, Johanna A., d/b/a Michael Mfg. Co. Mobile wire roller apparatus. 3,544,031, Cl. 242-86.5
White, J. Samuel, & Company Limited: *See—*
Slade, Owen G., 3,543,713.
White, Jack Hans, to Fransicold Corporation. Cooling system for vehicle compartment. 3,543,838, Cl. 165-23.
White Motor Corporation: *See—*
Liles, Clarence E., 3,544,238.
Whitehead, Jack D., to International Products, Inc. Artificial log fireplace with flame and log position control. 3,543,741, Cl. 126-92.
Whitehouse, David John, to Rank Organisation Limited, The. Compensation for phase distortion in surface profile measuring apparatus. 3,543,571, Cl. 73-105.
Whiting Corporation: *See—*
Rushton, William E., 3,544,269.
Whyard, Robert Edward: *See—*
Wood, Peter, Hunter, David John, Whyard, Robert Edward, and Keats, Albert Brian,3,544,908.
Wieder, Irwin. Atomic absorption detection of given substances independent of absorption by background substances. 3,544,789, Cl. 250-43.5
Wiener Schwachstromwerke Gesellschaft m.b.H.: *See—*
Adamec, Alfred, 3,544,691.
Wienola, Oiva A.: *See—*
Delbridge, Wilfred Richard, Wienola, Oiva A., and Young, Robert K.,3,543,930.
Wigglesworth Limited: *See—*
Brown, Charles Leslie Meredith, 3,544,587.
Wight, Robert D., Rittenhouse, Owen R., and Glover, Earl W., deceased (by Glover, Ann P., executrix), to General Motors Corporation. Transmission control. 3,543,600, Cl. 74-484.
Wightman, Lawrance W., to Emerson Electric Co. Electric motor with end shield and bearing arrangement cooling system. 3,544,820, Cl. 310-42.
Wiklund, Bjorn Sture: *See—*
Fonden, Per Borje, and Wiklund, Bjorn Sture,3,543,686.
Wilcox, Chester M. Room cooling and heating apparatus. 3,543,837, Cl. 165-29.
Wild, James Harry: *See—*
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry,3,544,626.
Carr, John Eric, Kaye, Albert Edward, and Wild, James Harry,3,544,627.
Wilhelm Sihn jun K. G.: *See—*
Langheck, Richard, 3,544,140.
Wilk, Adrian S.: *See—*
Rapp, Lester M., and Wilk, Adrian S.,3,544,449.
Wilke, Gunther, and Heimbach, Paul. Novel nickel alcoholates and alcohols thereof and a process of their production. 3,544,604, Cl. 260-347.8
Wilkes, Donald F., to Rolamite Technology Incorporated. Snap action apparatus. 3,543,595, Cl. 74-100.
Wilkus, Edward V., and Berger, Abe, to General Electric Company. Aryl ketone containing organosilicon materials. 3,544,595, Cl. 260-332.3
Willett, Howard P., to Chemical Construction Corporation. Adjustable annular venturi scrubber. 3,544,086, Cl. 261-62.
Williams, Bradford A., Sr. Artificial tree. 3,544,783, Cl. 240-10.
Williams, David W.: *See—*
Gallagher, Robert C., and Williams, David W.,3,544,862.
Williams, Gerald Dennis: *See—*
Lemmon, Norman Frederick, and Williams, Gerald Dennis,3,544,133.
Williams, Norman H., to Varian Associates. Microwave waveguide water load employing a quarter wave window of reduced characteristic impedance. 3,544,923, Cl. 333-22.
Williamson, David Theodore Nelson, Crosland, Richard Graham, and Parke, Edward Henry, to Molins Machine Company Limited. Positioning devices. 3,543,375, Cl. 29-200.
Williamson, T. D., Inc.: *See—*
VerNooy, Burton, and Boshuizen, Cornelis, 3,544,136.

Wilson, Bobby L., to Mead Corporation, The. Self locking container. 3,543,995, Cl. 229-36.
Wilson, Laurence M.: *See—*
Applequist, Roy A., and Wilson, Laurence M.,3,544,980.
Wilson, Newton R., and Morgan, Bill T., to Phillips Petroleum Company. Double-wall blow molded carton. 3,544,021, Cl. 220-7.
Wilson, Reagan T., to Phillips Petroleum Company. Conversion of olefins. 3,544,648, Cl. 260-683.
Wimberly, Berry J., to American Telephone and Telegraph Company. Conference switching system. 3,544,726, Cl. 179-18.
Winderl, Siegfried: *See—*
Haarer, Erich, and Winderl, Siegfried,3,544,632.
Windmoller & Holscher: *See—*
Brockmuller, Friedrich Franz, 3,543,980.
Rochla, Kurt, 3,544,407.
Winget Limited: *See—*
Southwell, Stanley William, 3,543,643.
Winkler, Alfred: *See—*
Kremp, Rudolf, Friedlaender, Ernst, Winkler, Alfred, Engelsmann, Dieter, Ernst, Heinz, and Schroder, Rolf,3,543,664.
Winkler, Ted, to TRW Inc. Two memory self-correcting system. 3,544,777, Cl. 235-153.
Winsel, August, to Varta Aktiengesellschaft. Apparatus for the production of gas for galvanic fuel cells. 3,544,279, Cl. 23-288.
Winslow Product Engineering Corporation: *See—*
Borchert, Ernst, III, and Southland, John Robert, 3,543,445.
Winston, Eric, to Jerrold Electronics Corporation. Expandable cable bushing. 3,544,705, Cl. 174-75.
Winston, Eric, and Frank, Edward M., to Jerrold Electronics Corporation. Signal distribution system comprising a high frequency inductive coupler. 3,544,921, Cl. 333-6.
Wippel, Hans Guenter: *See—*
Lange, Guenter, and Wippel, Hans Guenter,3,544,260.
Wirstrom, Roland Torsten, to Orbo Aktiebolag. Machine for cutting strips. 3,543,623, Cl. 83-169.
Wistar Institute, The: *See—*
Plotkin, Stanley A., 3,544,680.
Wittcoff, Harold A., and Baldwin, William S., to General Mills, Inc. Electrophoretic coating process. 3,544,439, Cl. 204-181.
Witte, Josef, Pampus, Gottfried, Haas, Friedrich, Schon, Nikolaus, and Kuntz, Egon, to Farbenfabriken Bayer Aktiengesellschaft. Process for isolating cis-1,4-polyisoprene from hydrocarbon solutions. 3,544,542, Cl. 260-94.7
Witterick, Petrus Johannes Julius, to U.S. Philips Corporation, mesne. Mounting for semiconductor radiant energy source. 3,544,827, Cl. 313-108.
Wittrock, Ludwig. Thin-lead mechanical pencil. 3,544,228, Cl. 401-82.
Witzel, Homer Daniel, to Deere & Company. Variable-speed combine cylinder drive. 3,543,767, Cl. 130-27.
Wolf, Calvin N., to Ethyl Corporation. Process of preparing oxymethylene copolymers. 3,544,521, Cl. 260-73.
Wolf, Walter A., and Corn, Prentice R., to Switches, Incorporated. Elongated switch having spaced rib actuating means. 3,544,746, Cl. 200-86.
Wolfendale, Ray A., to Mesta Machine Company. Roll changing means and methods. 3,543,556, Cl. 72-238.
Wolpert, Tadeusz, and Hansson, Leif Tage, to Telefonaktiebolaget LM Ericsson. Arrangement for charging an accumulator battery. 3,544,878, Cl. 320-39.
Wood, Paul W., to General Motors Corporation. Radio volume and tone controls using field effect transistors. 3,544,901, Cl. 325-397.
Wood, Peter, Hunter, David John, Whyard, Robert Edward, and Keats, Albert Brian, to United Kingdom Atomic Energy Authority. Time correlation pulse coding technique for supervisory circuits. 3,544,908, Cl. 328-120.
Wood, Robert N.: *See—*
George, Philip R., and Wood, Robert N.,3,543,991.
Woodford, Joseph C. Vacuum breaker. 3,543,786, Cl. 137-218.
Woods, William A. Method of playing a cross-ball game. 3,544,109, Cl. 273-1.5
Woodside, Frank G., and Uren, Richard F., said Uren assor to said Woodside. Vehicle mounted hoist. 3,543,944, Cl. 212-66.
Woolever, Kenneth W., to Kaiser Aluminum & Chemical Corporation. Apparatus for coiling a web of rod-like material. 3,544,035, Cl. 242-158.
Wrede, Kenneth W. Anti-hydorplaning method for vehicles. 3,544,370, Cl. 134-37.
Wright, Donald Curtis: *See—*
Grove, Francis John, Wright, Donald Curtis, and Hamer, Francis Michael,3,543,979.
Wright, Gene P. Sanitary sewer manholes. 3,543,453, Cl. 52-20.
Wurlitzer Company, The: *See—*
Schwartz, Harold O., Machanian, William V., and Barry, Robert D., 3,544,698.
Wyandotte Chemicals Corporation: *See—*
Fisher, Robert K., Plant, George W., and Collins, Maurice J., 3,544,093.
Wyard Industries, Inc.: *See—*
Weier, Roman J., 3,543,949.
Wyckoff, Charles A., and Lindahl, John R. Connector for tubular golf club bag separators. 3,543,355, Cl. 24-81.
Wyss-Kuster, Johanna: *See—*
Kuster, Arthur, 3,544,765.
Xerox Corporation: *See—*
Moorhusen, Robert W., and Harper, David C., 3,544,190.
Sato, Masamichi, 3,544,458.
Yager, Victor. Safety razor with endless band blade. 3,543,399, Cl. 30-40.1
Yakimenko, Leonid Markovich: *See—*
Adaev, Evgeny Ivanovich, Blinov, Alexandr Vasilievich, Kamarian, Georgy Mikirtychevich, Novoselov, Viktor Alexandrovich, Suchkov, Vladimir Nikolaevich, and Yakimenko, Leonid Markovich,3,544,443.
Yamada, Yoshikazu, and Storm, Lester F. M. Stabilization of light sensitive film with a peroxide, perchlorate or perborate. 3,544,320, Cl. 96-48.
Yamada, Yoshikazu, and Storm, Lester F.M., to Bell & Howell Company. Stabilization of organic photosensitive material. 3,544,321, Cl. 96-48.
Yamada, Yoshikazu, and Storm, Lester F.M. Photosensitive dispersion in a hydrophilic binder incorporating a stabilizer. 3,544,322, Cl. 96-48.
Yamaguchi, Hachiro, to Nitto Chemical Industry Co., Ltd. Process for producing cyclohexylammonium N- cyclohexylsulfamate. 3,544,619, Cl. 260-501.12
Yamamoto, Hisao, and Nakao, Masaru, to Sumitomo Chemical Company, Ltd. Certain 3-indolyl-lower-alkanoic acid derivatives. 3,544,563, Cl. 260-240.
Yampolsky, Zhozef Alexandrovich. Device for determining the value and direction of the angular speed for rotation of machine parts. 3,544,842, Cl. 317-5.
Yeager, Marvin Leo, to AMP Incorporated. Pin and socket type electrical contact terminals. 3,544,954, Cl. 339-217.
Yodis, Anthony W., Michener, Aubrey W., Jr., and Karsay, Bela I., to Allied Chemical Corporation. Neutralization of perhaloacetones. 3,544,633, Cl. 260-593.
Yonezawa, Teruhiko, to Polychrome Corporation. Mixtures of diazonium compounds and carboxylated polymers in the making of a light-sensitive lithographic plate. 3,544,317, Cl. 96-33.
Yonezu, Hiroo, to Nippon Electric Company, Limited. Sandwich-structure-type alloyed semiconductor element. 3,544,856, Cl. 317-234.
York Gears Limited: *See—*
Stratford, Henry Ralph, 3,544,043.
Yoshida, Kazuaki: *See—*
Kadowaki, Yoshio, Shimokawa, Hayao, Yoshida, Kazuaki, and Saito, Eisuke,3,544,534.
Yoshida, Makoto, Okumura, Akio, and Imai, Shinichi, to Fuji Photo Film Co., Ltd. Light-sensitive color photographic elements. 3,544,326, Cl. 96-99.
Yoshikawa, Saburo: *See—*
Sadoshima, Akira, and Yoshikawa, Saburo,3,544,313.
Youmans, Albert P.: *See—*
Byrne, Robert C., King, Alan V., and Youmans, Albert P.,3,544,857.
Young, David John: *See—*
Friedlander, Erich Siegfried, and Young, David John,3,544,885.
Young, David W.: *See—*
Pratt, Richard J., and Young, David W.,3,544,344.
Young, Howard S.: *See—*
Anderson, G. Charles, Mc Daniel Edgar L., and Young, Howard S.,3,544,624.
Young, Patrick Richard: *See—*
Swett, Leo Ralph, Ratajczyk, James Daniel, and Young, Patrick Richard,3,544,585.
Young, Robert K.: *See—*
Delbridge, Wilfred Richard, Wienola, Oiva A., and Young, Robert K.,3,543,930.
Young, Robert R., to Kaiser Industries Corporation. Container handling and storage system. 3,543,952, Cl. 214-14.
Youngblood, Roy D.: *See—*
Dale, Ralph H., and Youngblood, Roy D.,3,543,983.
Youngman, Derek Henry, to Molins Machine Company Limited. Packaging. 3,543,471, Cl. 53-32.
Zachariasen, Karsten A.: *See—*
Huff, Byron J. L., and Zachariasen, Karsten A.,3,544,422.
Zachau, Frederick W.: *See—*
Reylek, Robert S., and Zachau, Frederick W.,3,544,733.
Zagar, Walter T.: *See—*
Inskeep, Mark D., and Zagar, Walter T.,3,544,673.
Zahlhaas, Siegfried: *See—*
Baur, Hans, Gerke, Peter, Rolle, Gerhard, Rutkowski, Karl, and Zahlhaas, Siegfried,3,544,725.
Zaluska, Jan: *See—*
Illg, Zbigniew, Walczak, Wojciech, Zaluska, Jan, Szymanski, Czeslaw, Seremak, Edward, and Domoslawski, Henryk,3,543,396.
Zambruski, Edwin A., to ACF Industries, Incorporated. Adjustable container support means for a railway flat car. 3,543,969, Cl. 105-366.
Zanetti, Joseph R., to National Steel Corporation. Method of manufacturing low carbon high tensile strength alloy steel. 3,544,393, Cl. 148-12.
Zbirovsky, Miroslav: *See—*
Masat, Jan, and Zbirovsky, Miroslav,3,544,625.
Zegers, Leo Eduard, and Kuilman, Jan, to U.S. Philips Corporation, mesne. Amplifier for trivalent pulse signals the pulses of which occur

at instants determined by a clock frequency, the peak values of the pulses only occurring separately. 3,544,912, Cl. 328-164.

Zeidler, Adolf: *See*—
Scheuerer, Guenter, Zeidler, Adolf, and Fischer, Adolf, 3,544,575.

Zeile, Karl: *See*—
Banholzer, Rolf, Heusner, Alex, Schulz, Werner, Sirrenberg, Walther, Walther, Gerhard, and Zeile, Karl, 3,544,578.

Zelichenko, Abram Simkhovich, Khvoles, Evgeny Arkadievich, and Sokolova, Elizaveta Alexandrovna. System for transposing the wires of a power transmission line, mainly of a high voltage power transmission. 3,544,701, Cl. 174-33.

Zeller, Robert G.: *See*—
Gulette, Ronald S., Zeller, Robert G., and Gonas, Albert J., 3,543,329.

Zenith Radio Corporation: *See*—
Adler, Robert, 3,544,718.
Adler, Robert, 3,544,750.
Catano, Aurelio, 3,544,468.
Kachel, Irwin, 3,544,354.
Korpel, Adrianus, 3,544,795.
Veirs, Val R., 3,544,350.

Zenkovich, Ivan Gavrilovich, and Kolenko, Nikolai Mitrofanovich. Apparatus for the preparation of pasty mixtures containing metals. 3,544,076, Cl. 259-2.

Zenre, Livio. Method of making multi-layer composite driving belt. 3,544,403, Cl. 156-137.

Zerlauth, Ferdinand, to Sulzer Brothers Limited. Stator-blade assembly for turbomachines. 3,544,231, Cl. 415-115.

Zerlauth, Ferdinand, to Sulzer Brothers Limited. Housing for turbomachines. 3,544,232, Cl. 415-219.

Ziegler, George E., to Thermal Conduits, Inc. Insulating structure for underground pipes. 3,543,804, Cl. 138-105.

Ziemek, Gerhard: *See*—
Lehnert, Gunther, Roderburg, Harald, and Ziemek, Gerhard, 3,544,752.

Zimmermann, Horst D. Clasp. 3,543,356, Cl. 24-230.

Zinkann, Peter, to Miele & Cie. Device for regenerating an ion exchanger, water softener in a dishwashing or other washing machine. 3,544,371, Cl. 134-93.

Zivi, Cacilia: *See*—
Schmidt, Detlev, Zivi, Cacilia, and Alberts, Fritz, 3,544,494.

Zlobin, Jury Petrovich: *See*—
Pavlov, Vladimir Vasilievich, Ivliev, Valery Alexandrovich, Zlobin, Jury Petrovich, Birnbaum, Oleg Ernstovich, and Trunov, Oleg Konstantinovich, 3,543,577.

Zoltok, Harry, to Motor Coach Industries Ltd. Remote clutch adjustment device. 3,543,898, Cl. 192-99.

Zornow, Albert B.: *See*—
Lynch, William P., Payne, Philip A., and Zornow, Albert B., 3,544,039.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 1ST DAY OF DECEMBER, 1970

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

Bard, Charleton C. Iodine bleach for color film processing. T881,006, 12–1–70, Cl. 96—60.

Claunch, Robert T.: *See*—
Williams, John, and Claunch. T881,012.

Cole, Harold E. Photographic film unit for diffusion transfer processing. T881,010, 12–1–70, Cl. 96—76.

Coney, Charles H., and D. A. Maxwell, Process for increasing the retention of paper fines and additives by using a linear, water-dissipatable, metable polyester prepared from mixed carboxylic acids and a glycol. T881,008, 12–1–70, Cl. 162—168.

Du Pont de Nemours, E. I., and Co.: *See*—
Herrman, Arthur J. T881,003.

Foster, Donald P.: *See*—
Yackel, Edward C., and Foster. T881,005.

Herrman, Arthur J., to E. I. du Pont de Nemours and Co. Process for bonding a nonwoven web of continuous filament. T881,003, 12–1–70, Cl. 156—181.

Imperial Chemical Industries Ltd.: *See*—
Small, William B. I. T881,004.

Jones, Jean E. Photoconductive materials. T881,002, 12–1–70, Cl. 96—1.6.

Joseph, Douglas C., and H. K. Reed. Antistatic composition with slip properties. T881,011, 12–1–70, Cl. 96—87.

Maxwell, Donald A.: *See*—
Coney, Charles H., and Maxwell. T881,008.

Meyer, August K. Fractured film product. T881,007, 12–1–70, Cl. 161—109.

Miller, Sidney B., Jr.: *See*—
Werts, Arthur P., III, and Miller. T881,001.

Reed, Harold K.: *See*—
Joseph, Douglas C., and Reed. T881,011.

Small, William B. I., to Imperial Chemical Industries Ltd. Reinforced foamed thermoplastic materials. T881,004, 12–1–70, Cl. 264—51.

Tinney, John R. Direct-print silver halide photographic processes. T881,009, 12–1–70, Cl. 96—45.2.

Werts, Arthur P., III, and S. B. Miller, Jr. Color stabilization of isocyanate ether solutions. T881,001, 12–1–70, Cl. 252—182.

Williams, John, and R. T. Claunch. Silver dye bleach process using chelated dyes. T881,012, 12–1–70, Cl. 96—73.

Yackel, Edward C., and D. P. Foster. Method of making a hydrolyzed cellulose ester printing plate. T881,005, 12–1–70, Cl. 96—33.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1ST DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AMP Inc.: *See*—
Fuller, Glenwood A., and Whitmoyer. Re. 26,994.

Fuller, Glenwood A., and K. L. Whitmoyer, to AMP Inc. Electrical connector having a resilient conductor-engaging area. Re. 26,994, 12–1–70, Cl. 174—84.

Guggemos, Kenneth F. Recessed hinged base standard. Re. 26,995, 12–1–70, Cl. 52—122.

Whitmoyer, Kenneth L.: *See*—
Fuller, Glenwood A., and Whitmoyer. Re. 26,994.

LIST OF DESIGN PATENTEES

Ajax Hardware Mfg. Corp.: *See*—
McCain, Lawrence, and Tintary. 219,329.
McCain, Lawrence, and Tintary. 219,330.
McCain, Lawrence, and Tintary. 219,331.

Amerock Corp.: *See*—
Morgan, John R. 219,328.

Anderson, Gregory D. Building. 219,335, 12–1–70, Cl. D13—1.

Anderson, Harlan J., to Clarke Floor Machine Division, Studebaker Corp. Floor scrubber. 219,348, 12–1–70, Cl. D37—3.

Beichler, Robert W.: *See*—
Shreve, Arthur L., III, Norris, and Beichler. 219,334.

Black and Decker Mfg. Co., The: *See*—
Shreve, Arthur L., III, Norris, and Beichler. 219,334.

Cathrineholm Ltd.: *See*—
Muller, Henry. 219,349.

Chance, A. B., Co.: *See*—
Curtis, Thomas E. 219,344.
Lewis, Paul E., and Harmon. 219,332.
Rinaldi, Joseph A. 219,343.

Clarke Floor Machine Division, Studebaker Corp.: *See*—
Anderson, Harlan J. 219,348.

Collman Industries, Inc.: *See*—
Goyne, Thomas E. 219,351.

Controlled Power Corp.: *See*—
Koltuniak, Michael A., Plantholt, and Mitchell. 219,342.

Curtis, Thomas E., to A. B. Chance Co. Encapsulated vacuum switch. 219,344, 12–1–70, Cl. D26—13.

Doblin, Jay, to The Gillette Co. Dispensing container. 219,333, 12–1–70, Cl. D9—9.

Downing, Jay E. Electric guitar. 219,353, 12–1–70, Cl. D56—1.

Federico, Joseph B., to Ford Industries, Inc. Housing for telephone answering device. 219,346, 12–1–70, Cl. D26—14.

Ford Industries, Inc.: *See*—
Federico, Joseph B. 219,346.

Gallagher, Fred J. Baby walker. 219,338, 12–1–70, Cl. D15—1.

Gillette Co., The: *See*—
Doblin, Jay. 219,333.

Goyne, Thomas E., to Collman Industries, Inc. Carpet and upholstery steam-vacuum cleaning system. 219,351, 12–1–70, Cl. D49—11.

Harmon, Robert W.: *See*—
Lewis, Paul E., and Harmon. 219,332.

Jacoby, David J., and R. A. Leymann. Combination wash basin and toilet. 219,341, 12–1–70, Cl. D23—49.

Koltuniak, Michael A., R. G. Plantholt, and C. Mitchell, Jr., to Controlled Power Corp. Heat sink for semiconductor rectifiers or similar article. 219,342, 12–1–70, Cl. D26—1.

Leonard, Lloyd H. Combined shoe cleaner and polisher. 219,357, 12–1–70, Cl. D86—12.

Letts, Charles W., Jr., 25% to E. S. Price and S. Neal. Golf tee. 219,347, 12–1–70, Cl. D34—5.

Lewis, Paul E., and R. W. Harmon, to A. B. Chance Co. Electrical conductor support. 219,332, 12–1–70, Cl. D8—230.

Leymann, Robert A.: *See*—
Jacoby, David J., and Leymann. 219,341.

McCain, Lawrence, and R. Tintary, to Ajax Hardware Mfg. Corp. Cabinet door pull. 219,329, 12–1–70, Cl. D8—166.

McCain, Lawrence, and R. Tintary, to Ajax Hardware Mfg. Corp. Backplate. 219,330, 12–1–70, Cl. D8—179.

McCain, Lawrence, and R. Tintary, to Ajax Hardware Mfg. Corp. Backplate. 219,331, 12–1–70, Cl. D8—179.

Mezin, Nicholas L., Jr. Combined rotatable sign and support. 219,359, 12–1–70, Cl. D96—12.

Mitchell, Claybourne, Jr.: *See*—
Koltuniak, Michael A., Plantholt, and Mitchell. 219,342.

Morgan, John R., to Amerock Corp. Pull. 219,328, 12–1–70, Cl. D8—166.

Muller, Henry, to Cathrineholm Ltd. Kettle or similar article. 219,349, 12–1–70, Cl. D44—25.

Monos, James G. Vehicle mirror. 219,336, 12–1–70, Cl. D14—6.

Monos, James G. Vehicle mirror. 219,337, 12–1–70, Cl. D14—6.

Norris, Lyell B., Jr.: *See*—
Shreve, Arthur L., III, Norris, and Beichler. 219,334.

Pelensky, Walter J. Stringed musical instrument. 219,354, 12–1–70, Cl. D56—1.

Perrin, Jack L.: *See*—
Tucker, Council A., and Perrin. 219,355.

Pierce, Paul C. Hand held rhythmic drum. 219,352, 12–1–70, Cl. D56—1.

Plantholt, Robert G.: *See*—
Koltuniak, Michael A., Plantholt, and Mitchell. 219,342.

Popell Bros., Inc.: *See*—
Popell, Samuel J. and R. 219,358.

Popeil, Raymond: *See*—
Popeil, Samuel J. and R. 219,358.
Popeil, Samuel J. and R., to Popeil Bros., Inc. Food cutting machine. 219,358, 12–1–70, Cl. D89—1.
Price, Elmer S.: *See*—
Letts, Charles W., Jr. 219,347.
Neal, S.: *See*—
Letts, Charles W., Jr. 219,347.
Rinaldi, Joseph A., to A. B. Chance Co. Electrical distribution pole structure. 219,348, 12–1–70, Cl. D26—12.
Rivenbark, Howard L. Bread tray. 219,350, 12–1–70, Cl. D44—29.
Seeburg Corp. of Delaware, The: *See*—
Sundberg, Carl W. 219,356.
Shreve, Arthur L., III, L. B. Norris, Jr., and R. W. Beichler, to The Black and Decker Mfg. Co. Display carton for power tools or the like. 219,334, 12–1–70, Cl. D9—191.
Snelling, Peter J., to Waratah Archer Pty. Ltd. Swimming pool filter control valve. 219,340, 12–1–70, Cl. D23—38.
Steiner, Hugues. Chair. 219,339, 12–1–70, Cl. D15—1.
Sundberg, Carl W., to The Seeburg Corp. of Delaware. Phonograph cabinet. 219,356, 12–1–70, Cl. D56—4.
Tintary, Raymond: *See*—
McCain, Lawrence, and Tintary. 219,329.
McCain, Lawrence, and Tintary. 219,330.
McCain, Lawrence, and Tintary. 219,331.
Towlsaver, Inc.: *See*—
Tucker, Council A., and Perrin. 219,355.
Tucker, Council A., and J. L. Perrin, to Towlsaver, Inc. Lever actuated roll towel dispenser. 219,355, 12–1–70, Cl. D52—2.
Tymshare, Inc.: *See*—
Wolf, Arnold. 219,345.
Waratah Archer Pty. Ltd.: *See*—
Snelling, Peter J. 219,340.
Wolf, Arnold, to Tymshare, Inc. Telephone data transceiver. 219,345, 12–1–70, Cl. D26—14.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 1, 1970

NOTE.—First number, class; second number, subclass; third number, patent number

2– 6	3,543,308	29–160	3,543,371	52– 20	3,543,453	68– 18	3,543,540	75–163	3,544,314	99–176	3,544,339
	3,543,308	195	3,544,285	36	3,543,454		3,543,541	171	3,544,315	178	3,544,340
4– 35	3,543,309	200	3,543,372	64	3,543,455		3,543,542	174	3,544,316	214	3,544,341
5–111	3,543,310		3,543,373	92	3,543,456	22	3,543,543	206	3,544,308	333	3,543,671
118	3,543,311		3,543,374	100	3,543,457	70– 57	3,543,544	76– 31	3,543,612	340	3,543,672
332	3,543,312		3,543,375	122	RE.26,995	71	3,543,545	77– 72	3,543,613	358	3,543,673
337	3,543,313	211	3,543,376	127	3,543,458	264	3,543,546	81– 9.5	3,543,614	403	3,543,674
8– 41	3,544,260	234	3,543,377	169	3,543,459	277	3,543,547		3,543,616	100– 17	3,543,675
108	3,544,261	243.57	3,543,378	232	3,543,460	71– 1	3,544,295	82– 14	3,543,615	52	3,543,676
115.5	3,544,262	400	3,543,379	237	3,543,461	24	3,544,296		3,543,617	66	3,543,677
9– 6	3,543,314	429	3,543,381	264	3,543,462	28	3,544,297	36	3,543,618	189	3,543,678
310	3,543,315	445	3,543,380	282	3,543,463	34	3,544,298	83– 24	3,543,619	101– 35	3,543,679
12– 21	3,543,317	470.1	3,543,383	475	3,543,464		3,544,299	37	3,543,620	40	3,543,680
142	3,543,316	471.1	3,543,384	716	3,543,465	38	3,544,300	61	3,543,621	44	3,543,681
13– 26	3,544,691	472.5	3,543,385	53– 14	3,543,466	39	3,544,301	117	3,543,622	366	3,543,682
14– 71	3,543,318	473.1	3,543,386	28	3,543,467	90	3,544,302	169	3,543,623	425	3,543,683
15– 21	3,543,319	474.3	3,543,387		3,543,468	94	3,544,303	288	3,543,624	102– 10	3,543,684
23	3,543,320	486	3,543,382	29	3,543,469	107	3,544,304	433	3,543,625	104– 23	3,543,685
50	3,543,321		3,543,388	30	3,543,470	118	3,544,305	449	3,543,626	35	3,543,686
93	3,543,322	488	3,543,389	32	3,543,471	72– 7	3,543,548	455	3,543,627	95	3,543,687
104.06	3,543,323	492	3,543,390	35	3,543,472	8	3,543,549	525	3,543,628	150	3,543,688
	3,543,324	509	3,543,391	48	3,543,473	56	3,543,550	84– 1.01	3,544,693	172	3,543,689
314	3,543,325	563	3,543,392		3,543,474	77	3,543,551	.11	3,544,694	105–163	3,543,690
16– 16	3,543,326	568	3,544,286	55	3,543,475	82	3,543,552	.13	3,544,695	241	3,543,691
49	3,543,327	583	3,543,393	62	3,543,476	91	3,543,553	.14	3,543,629	248	3,543,692
87.4	3,543,328	584	3,543,394	180	3,543,477	185	3,543,554	.15	3,544,696	366	3,543,969
121	3,543,329	588	3,543,395	182	3,543,478	224	3,543,555	.26	3,544,697	368	3,543,693
17– 37	3,543,330	603	3,543,396	186	3,543,479	238	3,543,556		3,544,698	106– 19	3,544,342
18– 5	3,543,339	604	3,543,397	210	3,543,480	263	3,543,557		3,544,699	54	3,544,330
	3,543,340	610	3,543,398	55– 96	3,543,481	306	3,543,558	177	3,543,630	65	3,544,343
	3,543,341	620	3,544,287	162	3,543,482	335	3,543,559	433	3,543,631	111	3,544,344
	3,543,342	30– 40.1	3,543,399	272	3,543,483	391	3,543,560	453	3,543,632	157	3,544,345
.3	3,543,331	280	3,543,400	387	3,543,484	392	3,543,561		3,543,633	299	3,544,346
8	3,543,332	294	3,543,401	398	3,543,485	73– 37.7	3,543,562	85– 36	3,543,634		3,544,347
12	3,543,333	346.53	3,543,402	56– 1	3,543,486	40	3,543,563	90– 11	3,543,635	107– 4	3,543,694
14	3,543,334	31– 89	3,543,403	21	3,543,487	41	3,543,564	13.2	3,543,636	17	3,545,007
	3,543,343	32– 14	3,543,404	23	3,543,488	61	3,543,565	.5	3,543,639	31	3,543,695
16	3,543,335	26	3,543,405	25.4	3,543,489	67.7	3,543,566	24	3,543,637	54	3,543,696
	3,543,344	33– 27	3,543,406		3,543,490		3,543,567	58	3,543,638	55	3,543,697
	3,543,345	180	3,543,407	192	3,543,491	88.5	3,543,568	91–189	3,543,640	68	3,543,698
.5	3,543,347	34– 1	3,543,408	327	3,543,493	95	3,543,569	361	3,543,641	108– 59	3,543,699
17	3,543,336	14	3,543,409	328	3,543,492	104	3,543,570		3,543,642	110– 8	3,543,700
30	3,543,346	18	3,543,410		3,543,494	105	3,543,571	401	3,543,643		3,543,701
	3,543,348	92	3,543,411	329	3,543,495	116	3,543,572	411	3,543,644	13	3,543,702
36	3,543,337	99	3,543,412	336	3,543,496	117.1	3,543,573	413	3,543,645	39	3,543,703
	3,543,349	130	3,543,415	345	3,543,497	.4	3,543,574	414	3,543,646	111– 52	3,543,704
42	3,543,338	164	3,543,413	364	3,543,498	133	3,543,575	420	3,543,647	112– 79	3,543,705
19– 50	3,543,350		3,543,414	57– 34	3,543,499	146	3,543,576	461	3,543,648	121.12	3,543,737
156.3	3,543,351	35– 4	3,543,416	58.89	3,543,500	170	3,543,577	507	3,543,649	150	3,543,706
232	3,543,352	9	3,543,417	59	3,543,501	204	3,543,578	93– 93	3,543,651	220	3,543,707
23– 2	3,544,263	10.2	3,544,692	62	3,543,502	231	3,543,579	94– 45	3,543,652	252	3,543,708
	3,544,264	22	3,543,418	75	3,543,503	313	3,543,580	46	3,543,653	114– 29	3,543,709
21	3,544,265	77	3,543,419	157	3,543,504	327	3,543,581		3,543,654	125	3,543,710
52	3,544,266	36– 2.5	3,543,420		3,543,505	339	3,543,582	48	3,543,655		3,543,711
86	3,544,267		3,543,421	58– 74	3,543,506	341	3,543,583	50	3,543,656	115– 6.1	3,543,712
151	3,544,268	37– 57	3,543,422	59– 79	3,543,507	388	3,543,584	95– 4.5	3,543,657	12	3,543,713
165	3,544,269	40– 2.2	3,543,423	60– 19	3,543,508	398	3,543,585	10	3,543,658	116– 67	3,543,714
190	3,544,270	31	3,543,424	29	3,543,509	431	3,543,586	11	3,543,659		3,543,715
219	3,544,274	158	3,543,426	30	3,543,510	74– 5.6	3,543,587		3,543,660	117– 2	3,544,348
230	3,544,271	42– 39.5	3,543,427	39.23	3,543,511	15.8	3,543,588		3,543,661	6	3,544,349
	3,544,275	71	3,543,428	51	3,543,512	54	3,543,589		3,543,662	17.5	3,544,350
253	3,544,272	77	3,543,429		3,543,513	87	3,543,590	13	3,543,663	21	3,544,351
	3,544,276	43– 42.05	3,543,430	52	3,543,515	88	3,543,591	31	3,543,664	23	3,544,352
	3,544,277	43.13	3,543,431		3,543,516	89.16	3,543,592	44	3,543,665	26	3,544,353
254	3,544,273	44.6	3,543,434	53	3,543,514		3,543,593	45	3,543,666	33.5	3,544,354
	3,544,278	54.5	3,543,432	54	3,543,517	.18	3,543,594		3,543,667	49	3,544,356
288	3,544,279	78	3,543,433	97	3,543,518	100	3,543,595	100	3,543,668	63	3,544,357
290	3,544,280	44– 68	3,544,288	254	3,543,519	128	3,543,596	96– 1.5	3,544,318		3,544,358
292	3,544,281	46–247	3,543,435	269	3,543,520	241	3,543,597	33	3,544,317	96	3,544,355
312	3,544,282	47– 1.44	3,543,436	61– 25	3,543,521	424.8	3,543,598	36.3	3,544,319	100	3,544,359
359	3,544,283	34	3,543,437	41	3,543,522	469	3,543,599	48	3,544,320		3,544,360
24– 16	3,543,353	.13	3,543,438	46	3,543,523	484	3,543,600		3,544,321	124	3,544,361
41	3,543,354	48–174	3,544,289	53	3,543,524	513	3,543,601		3,544,322	139.5	3,544,362
81	3,543,355	180	3,544,290	.66	3,543,525	526	3,543,602	75	3,544,323		3,544,363
230	3,543,356	206	3,544,291	69	3,543,526	527	3,543,603	78	3,544,324	143	3,544,364
28– 51	3,543,360	49– 7	3,543,439	72.3	3,543,527	531	3,543,604	84	3,544,325	118– 6	3,543,716
64	3,543,357		3,543,440	62– 22	3,543,528	553	3,543,605	99	3,544,326	7	3,543,717
72.12	3,543,358	450	3,543,441	23	3,543,529	562.5	3,543,606	109	3,544,327	211	3,543,718
.16	3,543,359	501	3,543,442	45	3,543,530	688	3,543,607		3,544,336	410	3,543,719
29– 25.13	3,543,361	51– 3	3,543,443	124	3,543,531	710.5	3,543,608	98– 40	3,543,669	637	3,543,720
33	3,544,284	7	3,544,292	256	3,543,532	818	3,543,609	122	3,543,670	638	3,543,721
78	3,543,362	8	3,543,444	262	3,543,533	867	3,543,610	99– 23	3,544,328	642	3,543,722
96	3,543,363	33	3,543,445	310	3,543,534		3,543,611	48	3,544,329	119– 27	3,543,723
	3,543,364	80	3,543,446	63– 29	3,543,535	75– 72	3,544,306	68	3,544,331	29	3,543,724
113	3,543,365	125	3,543,447	64– 4	3,543,536	84.1	3,544,307	83	3,544,332		3,543,725
	3,543,366	148	3,543,448	13	3,543,537	108	3,544,309	85	3,544,333	37	3,543,726
148.4	3,543,367	170	3,543,449		3,543,538	129	3,544,310	92	3,544,334	51.11	3,543,727
156.8	3,543,368	229	3,543,450	65– 2	3,544,293	134	3,544,311		3,544,335	52	3,543,728
157	3,543,369	267	3,543,451	40	3,544,294	135	3,544,312	102	3,544,337	80	3,543,729
.4	3,543,370	313	3,543,452	68– 12	3,543,539	157.5	3,544,313	171	3,544,338	122– 7	3,543,730

122– 33	3,543,731	141–148	3,543,813	178– 5.4	3,544,708	204–186	3,544,441	227– 7	3,543,985	251– 24	3,544,061
235	3,543,732	335	3,543,814		3,544,709	243	3,544,444	10	3,543,986	38	3,544,062
336	3,543,733	143– 6	3,543,815	6	3,544,710	275	3,544,442	136	3,543,987	149.9	3,544,063
123– 32	3,543,734		3,543,816	.5	3,544,711	279	3,544,443	228– 3	3,543,988	214	3,544,064
	3,543,735	135	3,543,817	.8	3,544,712	298	3,544,445	20	3,543,990	284	3,544,065
	3,543,736	144– 2	3,543,819	7.1	3,544,713		3,544,446	25	3,543,989	306	3,544,066
117	3,543,738	3	3,543,818	.3	3,544,714	206– 16	3,543,918	229– 15	3,543,991	344	3,544,067
119	3,543,739	219	3,543,820	.85	3,544,715	45.14	3,543,919	16	3,543,992	355	3,544,068
148	3,543,740	145– 30	3,543,821	69	3,544,716	59	3,543,920	17	3,543,993	252– 5	3,544,459
126– 92	3,543,741	146– 3	3,543,822	.5	3,544,717	62	3,543,921	23	3,543,994	8.5	3,544,460
110	3,543,742	221.9	3,543,823		3,544,718		3,543,922	36	3,543,995		3,544,461
128– 2	3,543,743	226	3,543,824	73	3,544,719	208– 48	3,544,447	43	3,543,996	.6	3,544,462
	3,543,744	148– 6.14:	3,544,388	179– 1	3,544,720	59	3,544,448	51	3,543,997	40.7	3,544,463
.05:	3,543,745		3,544,389	2	3,544,721	87	3,544,449		3,543,998	42.1	3,544,464
9	3,543,746	.15:	3,544,390	5	3,544,722	93	3,544,450	56	3,543,999	46.6	3,544,465
67	3,543,747	.27:	3,544,391	15	3,544,723	139	3,544,451	235– 60.15:	3,544,000	.7	3,544,466
78	3,543,748	11.5	3,544,392	16	3,544,724	216	3,544,452	61	3,544,001	51.5	3,544,467
92	3,543,749	12	3,544,393	18	3,544,725	321	3,544,453	.11:	3,544,770	62.3	3,544,468
156	3,543,750	.7	3,544,394		3,544,726	209– 11	3,543,923	.12:	3,544,771	.9	3,544,469
208	3,543,751	33	3,544,395		3,544,727	73	3,543,928	.9	3,544,769		3,544,470
214	3,543,752	111	3,544,396		3,544,728	74	3,543,924	88	3,544,768		3,544,471
	3,543,753	177	3,544,397		3,544,729		3,543,925	92	3,544,772	73	3,544,472
	3,543,754	186	3,544,398		3,544,730		3,543,926		3,544,773	99	3,544,473
263	3,543,755	187	3,544,399	84	3,544,731		3,543,929	96	3,544,002	131	3,544,474
272	3,543,756	150– 35	3,543,825	100.2	3,544,732	75	3,543,927	151.13:	3,544,774	161	3,544,475
284	3,543,256	151– 21	3,543,826	111	3,544,733	111.9	3,543,930	.31:	3,544,775	175	3,544,476
293	3,543,757	152–209	3,543,827	170	3,544,734	211	3,543,931	153	3,544,776	301.1	3,544,477
328	3,543,758	361	3,543,828	175.2	3,544,735		3,543,932		3,544,777	.4	3,544,478
349	3,543,759	156– 13	3,544,400	.3	3,544,736	210– 23	3,544,455		3,544,778		3,544,481
416	3,543,760	17	3,544,401	180– 6.7	3,543,871	54	3,544,456	155	3,544,779		3,544,482
421	3,543,761	58	3,544,402	27	3,543,872	65	3,544,457	194	3,544,780		3,544,483
422	3,543,762	137	3,544,403	65	3,543,873		3,544,458	236– 11	3,544,003	.6	3,544,479
535	3,543,763	148	3,544,404	78	3,543,874	73	3,543,933	15	3,544,004		3,544,480
581	3,543,764	164	3,544,405	181– 24	3,543,875	90	3,543,934	237– 8	3,544,005	408	3,544,484
588	3,543,765	174	3,544,406	43	3,543,876	130	3,543,935	238–283	3,544,006	477	3,544,485
130– 27	3,543,766	198	3,544,407	51	3,543,877	150	3,543,937	239– 60	3,544,007	520	3,544,486
	3,543,767	249	3,544,408	59	3,543,878	221	3,543,936	90	3,544,008	254–134.3	3,544,070
131–175	3,543,768	290	3,544,409	184– 6	3,543,879	229	3,543,938	167	3,544,009	168	3,544,069
268	3,543,769	351	3,544,410		3,543,880	273	3,543,939	168	3,544,010	256– 47	3,544,071
132– 7	3,543,770	353	3,544,411	7	3,543,881	490	3,543,940	175	3,544,011	59	3,544,072
9	3,543,771	360	3,544,412	15	3,543,882	211– 4	3,543,941	227	3,544,012	259– 1	3,544,073
33	3,543,772	363	3,544,413	187– 29	3,543,883	51	3,543,942	656	3,544,013		3,544,074
79	3,543,773	369	3,544,414	87	3,543,884	131	3,543,943	240– 1.3	3,544,781		3,544,075
134– 1	3,544,365	157– 1.28:	3,543,829	188– 71.4	3,543,886	212– 66	3,543,944	2	3,544,782	2	3,544,076
2	3,544,366	161– 44	3,544,415	73.4	3,543,887	67	3,543,945	10	3,544,783	3	3,544,077
	3,544,367	48	3,544,416	190	3,543,885	84	3,543,946	24	3,544,784	4	3,544,078
	3,544,368	50	3,544,417	196	3,543,888	214– 1	3,543,947	25	3,544,785	7	3,544,079
25	3,544,369	88	3,544,423	197	3,543,889	8.5	3,543,949	46.29:	3,544,786	45	3,544,080
37	3,544,370	92	3,544,418	190– 12	3,543,890	10	3,543,950	78	3,544,787	107	3,544,081
57	3,543,774	111	3,544,419	191– 22	3,544,737	.5	3,543,951	241– 41	3,544,014	260– 2	3,544,487
64	3,543,775	129	3,544,420	40	3,543,893	14	3,543,952	44	3,544,015	.2	3,544,488
93	3,544,371	144	3,544,421	192– .094	3,543,891	15	3,543,953	242– 18	3,544,016	.5	3,544,489
110	3,543,776	162– 82	3,544,422	11	3,543,892	17	3,543,948		3,544,017		3,544,490
136– 6	3,544,372	300	3,543,834	45.1	3,543,894		3,543,954	35.6	3,544,018		3,544,491
86	3,544,373	164– 82	3,543,830		3,543,895	21	3,543,955	43	3,544,019	4	3,544,492
	3,544,374	89	3,543,831	46	3,543,896	141	3,543,956	46.6	3,544,026	17.2	3,544,493
	3,544,375	203	3,543,832	53	3,543,897	146.5	3,543,957	68.3	3,544,027	.4	3,544,494
	3,544,376	274	3,543,833	99	3,543,898	522	3,543,958	74.1	3,544,028	18	3,544,495
	3,544,377	339	3,543,835	107	3,543,899	731	3,543,959	78.6	3,544,029	22	3,544,496
	3,544,378	165– 22	3,543,836		3,543,900	767	3,543,960	84.21:	3,544,030	23.7	3,544,497
	3,544,379	23	3,543,838		3,543,901	215– 12	3,544,020	86.5	3,544,031	28.5	3,544,576
	3,544,380	29	3,543,837	150	3,543,902	219– 10.55:	3,544,751	118.31:	3,544,033	29.2	3,544,498
	3,544,381	32	3,543,839	193– 36	3,543,903	60	3,544,752	.32:	3,544,034	.6	3,544,499
	3,544,382	39	3,543,840	194– 4	3,543,904	64	3,544,753	.8	3,544,032		3,544,500
133	3,544,383	80	3,543,841	195– 29	3,544,426	79	3,544,754	158	3,544,035		3,544,501
148	3,544,384	82	3,543,842	66	3,544,427	99	3,544,755	178	3,544,036	.7	3,544,502
155	3,544,385	111	3,543,843	196–111	3,544,428	121	3,544,756	189	3,544,037	30.4	3,544,503
175	3,544,386	155	3,543,844	197– 12	3,543,905		3,544,757	192	3,544,038	31.2	3,544,504
233	3,544,387	168	3,543,845	49	3,543,906	130	3,544,758	197	3,544,039	37	3,544,505
137– 67	3,543,778	166– .5	3,543,846	198– 1	3,543,907	131	3,544,759	206	3,544,040		3,544,506
81.5	3,543,779	.6	3,543,847	26	3,543,908	137	3,544,760	244– 1	3,544,041	39	3,544,507
	3,543,780	53	3,543,848	33	3,543,909		3,544,761	17.11:	3,544,047	41	3,544,508
	3,543,781	62	3,543,850	34	3,543,910	200	3,544,762	56	3,544,042	45.7	3,544,509
	3,543,782	106	3,543,851		3,543,911	271	3,544,763	104	3,544,043	.75:	3,544,510
101	3,543,783	128	3,543,849	38	3,543,912	293	3,544,764	114	3,544,044	.95:	3,544,511
116	3,543,784	155	3,543,852	129	3,543,913	459	3,544,765	129	3,544,045		3,544,512
209	3,543,785	228	3,543,854	167	3,543,914	501	3,544,766	137	3,544,046	46.5	3,544,513
218	3,543,786	264	3,543,853	203	3,543,915		3,544,767	246– 63	3,544,788	47	3,544,514
266	3,543,787	274	3,543,855	220	3,543,916	220– 7	3,544,021	169	3,545,005		3,544,515
318	3,543,788	281	3,543,856	233	3,543,917	23.4	3,544,022	248– 18	3,544,048		3,544,516
360	3,544,257	302	3,543,857	200– 5	3,544,738	27	3,544,023	68	3,544,049		3,544,517
544	3,543,789	303	3,543,858		3,544,739		3,544,024	119	3,544,050	49	3,544,519
551	3,543,777	169– 27	3,543,859	16	3,544,740	54	3,543,961	155	3,544,051	72	3,544,520
594	3,543,790	172– 6	3,543,860	48	3,544,741		3,544,025	188.8	3,544,052	73	3,544,521
599	3,543,791	66	3,543,861		3,544,742	67	3,543,963	221	3,544,053	75	3,544,522
612.1	3,543,792	264	3,543,862	61.54:	3,544,743	222– 41	3,543,964	350	3,544,054		3,544,523
614.2	3,543,793	273	3,543,863	83	3,544,744	94	3,543,965	354	3,544,055		3,544,525
624.14:	3,543,794	285	3,543,864		3,544,745		3,543,966	443	3,544,056	77.5	3,544,524
.18:	3,543,795	288	3,543,865	86	3,544,746	136	3,543,967	475	3,544,259	78	3,544,526
625.11:	3,543,796	548	3,543,866	148	3,544,747	146	3,543,968	249– 63	3,544,057		3,544,527
.62:	3,543,798	801	3,543,867	156	3,544,748	190	3,543,970	158	3,544,058		3,544,528
628	3,543,797	173– 21	3,543,868	167	3,544,749	192	3,544,258	219	3,544,059	.5	3,544,529
636.2	3,543,799	43	3,543,650	181	3,544,750	402.22:	3,543,971	250– 43.5	3,544,789		3,544,530
802	3,543,800	86	3,543,869	202–139	3,544,429	559	3,543,972	49.5	3,544,790	79.5	3,544,531
138– 89	3,543,801	174– 15	3,544,700	203– 29	3,544,430	571	3,543,973	83.3	3,544,791	.7	3,544,532
94	3,543,802	33	3,544,701	204– 12	3,544,431	223– 70	3,543,974		3,544,792	80.78:	3,544,533
103	3,543,803	42	3,544,702	20	3,544,432	224– 4	3,543,975	.6	3,544,793	88.2	3,544,534
105	3,543,804	66	3,544,703		3,544,433	5	3,543,976	199	3,544,794	89.5	3,544,535
141	3,543,805	68.5	3,544,704	38	3,544,434		3,543,977		3,544,795		3,544,536
156	3,543,806	75	3,544,705	47	3,544,435	225– 2	3,543,978	201	3,544,796		3,544,537
139–125	3,543,807	84	RE.26,994	74	3,545,006		3,543,979	216	3,544,797	91.3	3,544,538
	3,543,809	129	3,544,706	162	3,544,438	96	3,543,980	218	3,544,798	92.8	3,544,539
127	3,543,808	142	3,544,707	180	3,544,436	226– 11	3,543,981		3,544,799	94.7	3,544,541
140–147	3,543,810	175– 60	3,543,870		3,544,437	90	3,543,982	231	3,544,800		3,544,542
141– 9	3,543,811	176– 55	3,544,424	181	3,544,439	118	3,543,983	237	3,544,801	.9	3,544,540
103	3,543,812	58	3,544,425		3,544,440	196	3,543,984	251– 9	3,544,060	125	3,544,543

260–139	3,544,544	260–593	3,544,633	280– 11.35:	3,544,124	313– 77	3,544,826	328–164	3,544,912	343–701	3,544,998
145	3,544,546	594	3,544,634	31	3,544,125	108	3,544,827	267	3,544,913	776	3,545,001
146	3,544,547	604	3,544,635	41	3,544,126	109	3,544,828	330– 5	3,544,914	830	3,545,002
147	3,544,545	609	3,544,636	43.17:	3,544,127	178	3,544,829	331– 94.5	3,544,915	346– 74	3,545,003
152	3,544,548	613	3,544,637	81	3,544,128	271	3,544,830		3,544,916		3,545,004
207	3,544,549		3,544,638	106.5	3,544,129	278	3,543,962	98	3,544,917	350– 3.5	3,544,189
.1	3,544,550	618	3,544,639	412	3,544,130	348	3,544,831	107	3,544,918	6	3,544,190
210	3,544,551	645	3,544,640		3,544,131	315– 3.5	3,544,832	332– 16	3,544,919	8	3,544,191
	3,544,552	648	3,544,641	446	3,544,132	18	3,544,833	333– 1.1	3,544,920	96	3,544,192
.5	3,544,553	654	3,544,642	479	3,544,133		3,544,834	6	3,544,921	150	3,544,193
211.5	3,544,554	666	3,544,643	281– 33	3,544,134	22	3,544,835	17	3,544,922		3,544,194
215	3,544,555		3,544,644	285– 47	3,544,135	31	3,544,836	22	3,544,923	156	3,544,195
231	3,544,556	674	3,544,645	156	3,544,136	83	3,544,838	29	3,544,924		3,544,196
239	3,544,557		3,544,646	261	3,544,137	84.6	3,544,837	70	3,544,925	161	3,544,964
	3,544,558	683	3,544,647	336	3,544,138	200	3,544,839	72	3,544,926	162	3,544,197
	3,544,559		3,544,648	287– 20	3,544,139	205	3,544,840	73	3,544,927	189	3,544,198
.1	3,544,560		3,544,649		3,544,140	316– 20	3,544,188	97	3,544,928	255	3,544,199
.3	3,544,561	.3	3,544,650	52.01:	3,544,141	317– 2	3,544,841	335–126	3,544,929	285	3,544,200
	3,544,562	.45:	3,544,651	91	3,544,142	5	3,544,842	154	3,544,930		3,544,201
240	3,544,563	.59:	3,544,652	189.36:	3,544,143	11	3,544,843	174	3,544,931		3,544,202
	3,544,564	.61:	3,544,653	289– 2	3,544,144	16	3,544,844		3,544,932	351– 2	3,544,203
244	3,544,565	830	3,544,654	290– 3	3,544,802	33	3,544,845	179	3,544,933	118	3,544,204
	3,544,566		3,544,655	292– 54	3,544,145		3,544,846	206	3,544,934	352– 27	3,544,205
	3,544,567	850	3,544,656	87	3,544,146	61	3,544,847	229	3,544,935	72	3,544,206
247.2	3,544,568		3,544,657	169	3,544,147	99	3,544,848	245	3,544,936	109	3,544,207
248	3,544,569	857	3,544,658	336.3	3,544,148	132	3,544,849	336– 65	3,544,937	353– 22	3,544,208
	3,544,570	874	3,544,659	294– 67	3,544,149	137	3,544,850	92	3,544,938	41	3,544,209
250	3,544,571	878	3,544,660	71	3,544,150	139	3,544,851	135	3,544,939	86	3,544,210
	3,544,572	879	3,544,661	81	3,544,151	230	3,544,852	192	3,544,940	120	3,544,211
256.4	3,544,573	896	3,544,662	296– 23	3,544,152		3,544,853	337– 38	3,544,941	355– 42	3,544,212
.5	3,544,574	900	3,544,663	51	3,544,153	234	3,544,854	116	3,544,942	53	3,544,213
260	3,544,575	940	3,544,664	56	3,544,154		3,544,855	139	3,544,943	68	3,544,214
287	3,544,577	261– 19	3,544,082	57	3,544,155		3,544,856	204	3,544,944	78	3,544,215
292	3,544,578	23	3,544,083	137	3,544,156		3,544,857	338– 89	3,544,945	356– 5	3,544,216
294.3	3,544,579	29	3,544,084	297–118	3,544,157	235	3,544,858	174	3,544,946	29	3,544,217
301	3,544,583	39	3,544,085	254	3,544,158		3,544,859	179	3,544,947	36	3,544,218
302	3,544,580	62	3,544,086	303	3,544,159		3,544,860	300	3,544,948	106	3,544,219
306.7	3,544,581	81	3,544,087	355	3,544,160		3,544,861	339– 8	3,544,949	109	3,544,220
307	3,544,582	95	3,544,088	391	3,544,161		3,544,862	17	3,544,950	152	3,544,221
	3,544,584	263– 21	3,544,089	410	3,544,162		3,544,863	91	3,544,951	161	3,544,222
310	3,544,585	29	3,544,090	417	3,544,163		3,544,864	94	3,544,952	165	3,544,223
314.5	3,544,586	30	3,544,091	452	3,544,164	237	3,544,865	116	3,544,953	201	3,544,224
326	3,544,588	33	3,544,092	299– 14	3,544,165	318–118	3,544,866	217	3,544,954		3,544,225
.3	3,544,587	53	3,544,093	81	3,544,166		3,544,867	244	3,544,955	401– 28	3,544,226
	3,544,589	264– 40	3,544,665	302– 13	3,544,167	138	3,544,868	264	3,544,956	52	3,544,227
	3,544,631	48	3,544,518	14	3,544,168	221	3,544,869	340– 18	3,544,957	82	3,544,228
.5	3,544,590	66	3,544,666		3,544,169	227	3,544,870	31	3,544,958	199	3,544,229
327	3,544,591	89	3,544,667	28	3,544,170	257	3,544,871	43	3,544,959	402– 3	3,544,230
	3,544,592	135	3,544,668	303– 21	3,544,171	328	3,544,872	47	3,544,960	415–115	3,544,231
	3,544,593	174	3,544,669		3,544,172	376	3,544,873	53	3,544,961	126	3,544,233
	3,544,594	178	3,544,670	305– 34	3,544,174	380	3,544,874	67	3,544,962	219	3,544,232
332.1	3,544,597	210	3,544,671	306– 26	3,544,173	563	3,544,875	146.1	3,544,963	416–170	3,544,234
.3	3,544,595	230	3,544,672	307– 10	3,544,803	675	3,544,876	172.5	3,544,965	417– 18	3,544,235
.8	3,544,596	235	3,544,673		3,544,804	320– 2	3,544,877		3,544,966	32	3,544,236
340.9	3,544,598	255	3,544,674	88.3	3,544,805	39	3,544,878		3,544,967	48	3,544,237
	3,544,599	321	3,544,675		3,544,806	321– 5	3,544,879		3,544,968	397	3,544,238
343.5	3,544,600	346	3,544,676	112	3,544,807	69	3,544,880		3,544,969	403	3,544,239
345.9	3,544,601	266– 5	3,544,094	214	3,544,808	322– 25	3,544,881		3,544,970	416	3,544,240
	3,544,603	23	3,544,095	216	3,544,809	323– 4	3,544,882		3,544,971	418– 35	3,544,241
346.6	3,544,602	30	3,544,096	228	3,544,810	5	3,544,883		3,544,972	58	3,544,243
347.8	3,544,604	270– 21	3,544,454		3,544,811	43.5	3,544,884		3,544,973	258	3,544,245
403	3,544,605	54	3,544,097	229	3,544,812	61	3,544,885		3,544,974	424– 17	3,544,677
404	3,544,606	58	3,544,098	232	3,544,813	75	3,544,886		3,544,975	52	3,544,678
412.7	3,544,607	69	3,544,099	246	3,544,814	324– .5	3,544,887		3,544,976	80	3,544,679
429.7	3,544,608	86	3,544,107	270	3,544,815	32	3,544,888	173	3,544,977	89	3,544,680
.9	3,544,609	271– 10	3,544,100		3,544,816		3,544,889	174	3,544,978	180	3,544,681
440	3,544,610	64	3,544,101	273	3,544,817	34	3,544,890	.1	3,544,979	250	3,544,682
453	3,544,611	68	3,544,102	284	3,544,818	57	3,544,891		3,544,980	251	3,544,683
	3,544,612	272– 58	3,544,103	308– 2	3,544,175		3,544,892		3,544,981		3,544,684
458	3,544,613	66	3,544,104	3	3,544,176	62	3,544,893		3,544,982	253	3,544,685
462	3,544,614	83	3,544,105	73	3,544,177	77	3,544,894	213	3,544,983	258	3,544,686
465	3,544,615		3,544,106	78	3,544,178	99	3,544,895	.1	3,544,984	317	3,544,687
	3,544,617	273– 1.5	3,544,109	168	3,544,179	115	3,544,896	248	3,544,985	329	3,544,688
.3	3,544,616		3,544,110	237	3,544,180	120	3,544,897	253	3,544,986	330	3,544,689
482	3,544,618	8	3,544,108	310– 8.7	3,544,819	157	3,544,898	274	3,544,987	349	3,544,690
501.12:	3,544,619	24	3,544,111	42	3,544,820	325–346	3,544,899	282	3,544,988	403	3,544,239
502.6	3,544,620	101	3,544,112	54	3,544,821	363	3,544,900	323	3,544,989	349	3,544,254
505	3,544,621	106	3,544,113	83	3,544,822	397	3,544,901	336	3,544,990	431– 18	3,544,247
515	3,544,622	274– 4	3,544,114	89	3,544,823	411	3,544,902	339	3,544,991	93	3,544,248
519	3,544,623	15	3,544,115	185	3,544,824	459	3,544,903	347	3,544,992		3,544,249
530	3,544,624	277– 3	3,544,116	312–114	3,544,181	476	3,544,904		3,544,993		3,544,250
543	3,544,625	27	3,544,118	237	3,544,182	328– 14	3,544,906		3,544,994	95	3,544,251
544	3,544,626	206	3,544,119	250	3,544,183	63	3,544,907	343– 6	3,544,995	253	3,544,252
	3,544,627	279– 4	3,544,120	259	3,544,184	92	3,544,905	17.7	3,544,996		3,544,253
555	3,544,628	6	3,544,117	263	3,544,185	120	3,544,908	18	3,544,997	350	3,544,254
556	3,544,629	51	3,544,121	331	3,544,186	147	3,544,909	100	3,544,999		3,544,255
558	3,544,630	280– 11.35:	3,544,122		3,544,187	150	3,544,910	113	3,545,000	352	3,544,246
563	3,544,632		3,544,123	313– 65	3,544,825	155	3,544,911				

D 8–166	219,328	D 9–191	219,334	D23– 38	219,340	D26– 14	219,345	D44– 29	219,350	D56– 1	219,354
	219,329	D13– 1	219,335	49	219,341		219,346	D49– 11	219,351	4	219,356
179	219,330	D14– 6	219,336	D26– 1	219,342	D34– 5	219,347	D52– 2	219,355	D86– 12	219,357
	219,331		219,337	12	219,343	D37– 3	219,348	D56– 1	219,352	D89– 1	219,358
230	219,332	D15– 1	219,338	13	219,344	D44– 25	219,349		219,353	D96– 12	219,359
D 9– 9	219,333		219,339								

DEFENSIVE PUBLICATIONS APPLICATIONS

(Notice of Dec. 16, 1969, 869 O.G. 687)

1.6	T881,002	96– 45.2	T881,009	96– 73	T881,012	96– 87	T881,011	161–109	T881,007	252– 82	T881,001
.33	T881,005	60	T881,006	76	T881,010	156–181	T881,003	162–168	T881,008	264– 51	T881,004

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1	3,544,348	6	3,543,629	6	3,544,104	6	3,544,747	9	3,543,480	12	3,543,456
	3,543,318		3,543,636		3,544,117		3,544,755		3,543,485		3,543,458
	3,543,977		3,543,651		3,544,137		3,544,769		3,543,560		3,543,464
2	3,543,724		3,543,670		3,544,139		3,544,771		3,543,589		3,543,492
	3,543,725		3,543,681		3,544,146		3,544,777		3,543,604		3,543,493
4	3,543,520		3,543,685		3,544,175		3,544,789		3,543,625		3,543,673
	3,543,591		3,543,687		3,544,197		3,544,801		3,543,638		3,543,837
	3,543,797		3,543,726		3,544,217		3,544,813		3,543,700		3,544,165
	3,543,868		3,543,732		3,544,219		3,544,835		3,543,708		3,544,183
	3,544,067		3,543,735		3,544,221		3,544,852		3,543,718		3,544,243
	3,544,173		3,543,741		3,544,225		3,544,853		3,543,747		3,544,353
	3,544,704		3,543,746		3,544,226		3,544,857		3,543,792		3,544,474
	3,544,803		3,543,749		3,544,238		3,544,860		3,543,831		3,544,529
	3,544,817		3,543,754		3,544,256		3,544,879		3,543,910		3,544,680
	3,544,863		3,543,755		3,544,277		3,544,888		3,543,918		3,544,778
	3,544,880		3,543,762		3,544,290		3,544,896		3,543,947		3,544,866
	3,544,962		3,543,771		3,544,291		3,544,905		3,543,965		3,544,939
5	3,543,427		3,543,773		3,544,292		3,544,910		3,543,986		3,544,984
	3,544,051		3,543,778		3,544,297		3,544,913		3,544,080		3,544,997
	3,544,131		3,543,790		3,544,303		3,544,917		3,544,126	13	3,543,453
6	3,543,308		3,543,813		3,544,320		3,544,922		3,544,160		3,543,719
	3,543,308		3,543,838		3,544,321		3,544,923		3,544,220		3,544,135
	3,543,311		3,543,839		3,544,322		3,544,928		3,544,234		3,544,151
	3,543,315		3,543,840		3,544,341		3,544,936		3,544,242		3,544,253
	3,543,326		3,543,847		3,544,358		3,544,951		3,544,258		3,544,370
	3,543,337		3,543,850		3,544,398		3,544,959		3,544,264	14	3,544,049
	3,543,354		3,543,851		3,544,399		3,544,965		3,544,352		3,544,495
	3,543,355		3,543,860		3,544,400		3,544,966		3,544,365	16	3,543,536
	3,543,356		3,543,911		3,544,417		3,544,969		3,544,391		3,543,818
	3,543,369		3,543,917		3,544,436		3,544,971		3,544,434		3,544,001
	3,543,378		3,543,921		3,544,441		3,544,972		3,544,455	17	RE.26,994
	3,543,388		3,543,922		3,544,446		3,544,980		3,544,637		3,543,353
	3,543,394		3,543,928		3,544,452		3,544,996		3,544,749		3,543,391
	3,543,400		3,543,943		3,544,456		3,545,000		3,544,805		3,543,449
	3,543,401		3,543,952		3,544,467		3,545,003		3,544,806		3,543,488
	3,543,402		3,543,953		3,544,472	7	3,543,455		3,544,867		3,543,509
	3,543,413		3,543,958		3,544,530	8	3,543,419		3,544,911		3,543,525
	3,543,422		3,543,966		3,544,558		3,543,787		3,544,916		3,543,551
	3,543,428		3,543,985		3,544,603		3,543,795		3,544,925		3,543,559
	3,543,432		3,543,990		3,544,607		3,543,816		3,544,988		3,543,561
	3,543,445		3,543,994		3,544,630		3,543,853	10	3,543,358		3,543,570
	3,543,457		3,543,997		3,544,640		3,543,937		3,543,826		3,543,575
	3,543,461		3,544,003		3,544,703		3,543,983		3,543,963		3,543,578
	3,543,484		3,544,014		3,544,712		3,544,054		3,544,078		3,543,581
	3,543,487		3,544,038		3,544,713		3,544,059		3,544,330		3,543,596
	3,543,568		3,544,045		3,544,721		3,544,301		3,544,502		3,543,618
	3,543,582		3,544,056		3,544,722		3,544,314		3,544,540		3,543,619
	3,543,585		3,544,061		3,544,727		3,544,781		3,544,591		3,543,659
	3,543,616		3,544,073		3,544,732	9	3,543,363	12	3,543,376		3,543,666
	3,543,617		3,544,103		3,544,738		3,543,368		3,543,438		3,543,675

17 : 3,543,696
3,543,704
3,543,712
3,543,723
3,543,727
3,543,758
3,543,759
3,543,794
3,543,802
3,543,804
3,543,862
3,543,863
3,543,864
3,543,882
3,543,907
3,543,914
3,543,915
3,543,916
3,543,924
3,543,940
3,543,987
3,543,998
3,544,029
3,544,058
3,544,066
3,544,082
3,544,087
3,544,107
3,544,111
3,544,114
3,544,115
3,544,128
3,544,130
3,544,161
3,544,207
3,544,214
3,544,246
3,544,269
3,544,333
3,544,337
3,544,339
3,544,340
3,544,344
3,544,350
3,544,354
3,544,411
3,544,412
3,544,428
3,544,448
3,544,450
3,544,451
3,544,453
3,544,468
3,544,487
3,544,517
3,544,536
3,544,537
3,544,544
3,544,555
3,544,583
3,544,585
3,544,613
3,544,639
3,544,646
3,544,692
3,544,708
3,544,718
3,544,739
3,544,750
3,544,753
3,544,768
3,544,785
3,544,795
3,544,840
3,544,841
3,544,848
3,544,890
3,544,904
3,544,919
3,544,940
18 : 3,543,310
3,543,339
3,543,364
3,543,398
3,543,519
3,543,532
3,543,588
3,543,594
3,543,602
3,543,607
3,543,691
3,543,692
3,543,699
3,543,770
3,543,777
3,543,892
3,543,974
3,544,008
3,544,132
3,544,154
3,544,172
3,544,179
3,544,270
3,544,304
3,544,373
3,544,490
3,544,520
3,544,596
3,544,682
3,544,690
3,544,746
3,544,810
3,544,811
3,544,819
3,544,850
3,544,881
3,544,960
3,544,985
19 : 3,543,516
3,543,647
3,543,867
3,544,009
3,544,110
3,544,133
3,544,163
3,544,345
3,544,906
3,544,976
20 : 3,543,514
3,543,649
3,543,865
3,543,948
3,544,031
3,544,072
3,544,653
3,544,664
3,544,804
3,544,961
21 : 3,543,542
3,543,605
3,544,181
3,544,697
3,544,849
22 : 3,543,459
3,544,449
3,544,457
3,544,696
23 : 3,543,423
3,543,768
3,544,262
24 : 3,543,342
3,543,526
3,543,527
3,543,642
3,543,684
3,543,695
3,543,710
3,543,711
3,543,782
3,543,798
3,543,806
3,543,996
3,544,041
3,544,071
3,544,170
3,544,195
3,544,276
3,544,418
3,544,421
3,544,654
3,544,766
3,544,809
3,544,838
3,544,862
3,544,900
3,544,945
3,545,001
25 : 3,543,321
3,543,336
3,543,380
3,543,550
3,543,622
3,543,626
3,543,657
3,543,661
3,543,662
3,543,663
3,543,665
3,543,717
3,543,730
3,543,801
3,543,875
3,543,962
3,544,019
3,544,134
3,544,251
3,544,323
3,544,324
3,544,349
3,544,380
3,544,423
3,544,480
3,544,481
3,544,482
3,544,483
3,544,486
3,544,545
3,544,606
3,544,675
3,544,694
3,544,761
3,544,828
3,544,830
3,544,847
3,544,869
3,544,895
3,544,926
3,544,944
3,544,973
3,544,999
3,545,004
3,545,006
26 : 3,543,314
3,543,329
3,543,407
3,543,482
3,543,486
3,543,495
3,543,538
3,543,554
3,543,572
3,543,600
3,543,609
3,543,613
3,543,615
3,543,627
3,543,676
3,543,689
3,543,751
3,543,786
3,543,799
3,543,815
3,543,821
3,543,873
3,543,878
3,543,879
3,543,884
3,543,895
3,543,941
3,544,002
3,544,032
3,544,037
3,544,052
3,544,083
3,544,085
3,544,093
3,544,100
3,544,113
3,544,120
3,544,148
3,544,208
3,544,215
3,544,240
3,544,275
3,544,315
3,544,355
3,544,388
3,544,393
3,544,504
3,544,512
3,544,532
3,544,551
3,544,552
3,544,608
3,544,610
3,544,635
3,544,677
3,544,757
3,544,799
3,544,800
3,544,822
3,544,901
3,544,929
3,544,950
3,544,986
27 : Re.26,995
3,543,421
3,543,446
3,543,452
3,543,481
3,543,490
3,543,558
3,543,592
3,543,593
3,543,601
3,543,608
3,543,656
3,543,671
3,543,693
3,543,728
3,543,743
3,543,760
3,543,761
3,543,823
3,543,829
3,543,896
3,543,945
3,543,949
3,544,123
3,544,156
3,544,247
3,544,328
3,544,332
3,544,334
3,544,335
3,544,439
3,544,594
3,544,733
3,544,994
29 : 3,543,475
3,543,478
3,543,680
3,543,961
3,543,969
3,543,989
3,544,050
3,544,257
3,544,302
3,544,305
3,544,338
3,544,681
3,544,782
3,544,820
30 : 3,544,142
31 : 3,543,890
3,544,044
3,544,155
32 : 3,543,497
3,543,546
33 : 3,543,357
3,543,971
3,544,990
34 : 3,543,332
3,543,340
3,543,341
3,543,343
3,543,374
3,543,381
3,543,390
3,543,397
3,543,411
3,543,436
3,543,528
3,543,545
3,543,603
3,543,679
3,543,701
3,543,706
3,543,737
3,543,750
3,543,785
3,543,810
3,543,844
3,543,859
3,543,885
3,543,889
3,543,906
3,543,920
3,543,976
3,544,025
3,544,033
3,544,081
3,544,097
3,544,098
3,544,116
3,544,118
3,544,189
3,544,200
3,544,218
3,544,239
3,544,265
3,544,274
3,544,281
3,544,287
3,544,288
3,544,289
3,544,312
3,544,316
3,544,351
3,544,356
3,544,364
3,544,389
3,544,404
3,544,419
3,544,442
3,544,447
3,544,463
3,544,465
3,544,466
3,544,478
3,544,484
3,544,496
3,544,508
3,544,521
3,544,523
3,544,527
3,544,535
3,544,560
3,544,582
3,544,586
3,544,590
3,544,598
3,544,599
3,544,600
3,544,620
3,544,623
3,544,633
3,544,638
3,544,641
3,544,645
3,544,650
3,544,652
3,544,662
3,544,673
34 : 3,544,714
3,544,715
3,544,716
3,544,717
3,544,719
3,544,723
3,544,724
3,544,728
3,544,735
3,544,748
3,544,759
3,544,767
3,544,775
3,544,779
3,544,784
3,544,788
3,544,790
3,544,794
3,544,814
3,544,818
3,544,832
3,544,836
3,544,874
3,544,894
3,544,902
3,544,907
3,544,908
3,544,918
3,544,943
3,544,963
3,544,975
3,544,981
3,544,982
3,544,992
3,545,002
35 : 3,543,595
3,544,499
36 : 3,543,348
3,543,370
3,543,399
3,543,404
3,543,410
3,543,441
3,543,448
3,543,454
3,543,476
3,543,530
3,543,535
3,543,537
3,543,620
3,543,621
3,543,652
3,543,668
3,543,669
3,543,707
3,543,716
3,543,720
3,543,731
3,543,738
3,543,745
3,543,753
3,543,763
3,543,776
3,543,780
3,543,791
3,543,812
3,543,814
3,543,820
3,543,825
3,543,836
3,543,876
3,543,926
3,543,931
3,543,932
3,543,942
3,543,951
3,543,967
3,543,973
3,543,982
3,543,992
3,543,999
3,544,013
3,544,020
3,544,028
3,544,030
3,544,039
3,544,040
3,544,069
3,544,070
3,544,084
3,544,099
3,544,102
3,544,105
3,544,178
3,544,187
3,544,190
3,544,191
3,544,192
3,544,193
3,544,201
3,544,202
3,544,204
3,544,205
3,544,210
3,544,235
3,544,248
36 : 3,544,249
3,544,250
3,544,293
3,544,300
3,544,306
3,544,327
3,544,336
3,544,342
3,544,343
3,544,375
3,544,378
3,544,379
3,544,381
3,544,408
3,544,410
3,544,445
3,544,464
3,544,477
3,544,498
3,544,515
3,544,516
3,544,543
3,544,581
3,544,588
3,544,595
3,544,614
3,544,618
3,544,628
3,544,644
3,544,672
3,544,676
3,544,679
3,544,693
3,544,698
3,544,709
3,544,711
3,544,720
3,544,826
3,544,844
3,544,845
3,544,864
3,544,865
3,544,886
3,544,948
3,544,974
3,545,005
37 : 3,543,325
3,543,409
3,543,580
3,543,729
3,543,769
3,543,779
3,543,919
3,543,927
3,544,266
3,544,387
3,544,462
3,544,736
3,544,793
3,544,915
3,544,958
39 : 3,543,345
3,543,373
3,543,384
3,543,392
3,543,408
3,543,412
3,543,430
3,543,442
3,543,451
3,543,465
3,543,472
3,543,483
3,543,513
3,543,524
3,543,533
3,543,541
3,543,576
3,543,624
3,543,630
3,543,634
3,543,644
3,543,674
3,543,803
3,543,805
3,543,835
3,543,845
3,543,881
3,543,883
3,543,899
3,543,900
3,543,913
3,543,934
3,543,939
3,543,959
3,543,968
3,543,995
3,544,035
3,544,062
3,544,088
3,544,092
3,544,101
3,544,153
3,544,188
3,544,307
3,544,331

39 : 3,544,359
3,544,385
3,544,396
3,544,414
3,544,473
3,544,479
3,544,492
3,544,503
3,544,533
3,544,616
3,544,622
3,544,678
3,544,687
3,544,699
3,544,729
3,544,745
3,544,758
3,544,884
3,544,933
3,544,952
3,544,967
40 : 3,543,552
3,543,740
3,543,784
3,543,788
3,543,789
3,543,856
3,543,857
3,544,021
3,544,136
3,544,184
3,544,461
3,544,518
3,544,647
3,544,648
3,544,649
3,544,651
3,544,659
3,544,909
41 : 3,543,434
3,543,508
41 : 3,543,612
3,543,614
3,543,796
3,543,935
3,543,960
3,544,122
3,544,152
3,544,182
3,544,406
3,544,802
42 : 3,543,319
3,543,320
3,543,328
3,543,338
3,543,359
3,543,389
3,543,440
3,543,469
3,543,474
3,543,491
3,543,494
3,543,510
3,543,548
3,543,556
3,543,563
3,543,586
3,543,632
3,543,672
3,543,678
3,543,697
3,543,744
3,543,774
3,543,800
3,543,841
3,543,872
3,543,893
3,543,925
3,543,930
3,543,933
3,543,954
3,543,955
42 : 3,543,988
3,544,006
3,544,007
3,544,023
3,544,024
3,544,047
3,544,060
3,544,177
3,544,233
3,544,236
3,544,267
3,544,271
3,544,273
3,544,284
3,544,318
3,544,369
3,544,372
3,544,374
3,544,376
3,544,392
3,544,394
3,544,416
3,544,489
3,544,491
3,544,507
3,544,510
3,544,568
3,544,571
3,544,576
3,544,580
3,544,597
3,544,629
3,544,663
3,544,705
3,544,707
3,544,741
3,544,742
3,544,744
3,544,751
3,544,831
3,544,843
42 : 3,544,846
3,544,871
3,544,876
3,544,891
3,544,898
3,544,921
3,544,931
3,544,932
3,544,954
3,544,956
3,544,989
3,545,007
43 : 3,543,416
3,543,869
44 : 3,543,501
3,543,507
3,543,522
3,544,018
3,544,211
3,544,668
45 : 3,543,351
3,544,016
3,544,026
47 : 3,544,268
3,544,422
3,544,427
3,544,444
3,544,624
48 : 3,543,323
3,543,324
3,543,371
3,543,393
3,543,437
3,543,467
3,543,468
3,543,477
3,543,531
3,543,574
3,543,579
3,543,599
3,543,650
48 : 3,543,715
3,543,793
3,543,811
3,543,843
3,543,848
3,543,849
3,543,852
3,543,858
3,543,991
3,544,064
3,544,068
3,544,109
3,544,213
3,544,296
3,544,401
3,544,430
3,544,431
3,544,506
3,544,655
3,544,665
3,544,674
3,544,773
3,544,854
3,544,877
3,544,970
49 : 3,543,870
3,544,158
50 : 3,544,979
51 : 3,543,417
3,543,473
3,543,633
3,543,981
3,543,984
3,544,034
3,544,053
3,544,112
3,544,298
3,544,299
3,544,525
3,544,726
3,544,783
51 : 3,544,798
3,544,934
3,544,983
52 : 3,544,509
3,544,825
53 : 3,543,418
3,543,462
3,543,573
3,543,606
3,543,654
3,543,733
3,543,766
3,543,891
3,543,950
3,544,106
3,544,460
3,544,493
3,544,734
3,544,737
3,544,938
54 : 3,543,360
3,543,653
3,544,531
3,544,615
55 : 3,543,365
3,543,523
3,543,639
3,543,819
3,543,834
3,543,880
3,543,897
3,543,929
3,543,944
3,544,227
3,544,383
3,544,754
3,544,937
3,544,953
3,544,978
56 : 3,543,855

Design Patents

6 : 219,329
219,330
219,331
219,336
219,337
6 : 219,345
219,355
219,357
219,359
8 : 219,351
17 : 219,328
219,333
219,338
219,358
24 : 219,334
26 : 219,342
219,348
219,356
28 : 219,344
29 : 219,332
36 : 219,343
219,346
219,349
37 : 219,350
40 : 219,347
42 : 219,341
219,354
44 : 219,353
49 : 219,335
219,352

Defensive Publications Applications

(Notice of Dec. 16, 1969, 869 O.G. 687)

36 : T881,002
T881,005
36 : T881,006
T881,009
36 : T881,010
T881,011
36 : T881,012
47 : T881,001
47 : T881,003
T881,007
47 : T881,008
80 : T881,004

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 1, 1970 Volume 881 Number 1

TRADEMARKS

NOTICES

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 100,742. (See Reg. No. 425,967.)

Reg. No. 100,743. (See Reg. No. 425,967.)

Reg. No. 425,967 (EKCO), American Home Products Corporation, Kitchen and household tools and utensils—namely, Food choppers, ice picks, scoops, can openers, spoons, turners, peeling and coring tools, egg beaters, culinary forks, knife sharpeners, vegetable mashers, dough blenders, plate scrapers, ladles, food servers, spatulas, knives, base metal table flatware; **Reg. No. 100,742,** same, Ekco Products Company, Metallic bowls, pans, pots, kettles, and cake stands; funnels; strainers, mugs, dippers, jelly moulds, spoons, hooks, and metal dough-troughs; **Reg. No. 100,743,** same, Dough cutters, jaggers, mixers, dividers, and markers, dough and confectionery ornamenting instruments, culinary knives and scrapers, sifters, strainers, egg-beaters, cake-fillers, iron mortars, bakers' peels, rolling-pins, scoops; candy shears, hammers, and hatchets; ice shavers, breakers, and tongs; shovels, ice-cream dishers and molds, and oven hoes and pokers, **Reg. No. 641,028,** same, Glassware including beverage making and serving pitchers, drinking vessels, and mixing bowls for beater and bowl sets; **Reg. No. 648,136,** same, Hand carts for handling, transporting, storing, and displaying meats, produce, and other products; **Reg. No. 658,933,** same, Receptacles for handling, shipping, storing, and displaying meats, produce, and other products, to wit, trays, lugs, and similar containers, racks for storage of items such as culinary knives, kitchen tools, cups, dishes, pan covers, and bowls; **Reg. No. 432,093,** same, American Home Products Corporation, Kitchen strainers, base metal bake pan, and cooking hollow ware; **Reg. No. 622,156** (ETERNA), Ekco Products Company, Culinary tools—namely, paring knives, utility knives, French cook's knives, butcher knives, roast slicing knives, steak slicing knives, and ham and bread slicing knives, vegetable mashers, spoons, turners, forks, whips, scoops, spatulas and ladles; and flatware—namely, table knives and forks, soup spoons, teaspoons, tablespoons, iced tea spoons, butter knives, and sugar shells, of base metal, **filed** Sept. 4, 1970, D.C. S.D.N.Y., Doc. 70-3867, *American Home Products Corp.* v. *Sanyei New York Corp.*

Reg. No. 432,093. (See Reg. No. 425,967.)

CONDITION OF TRADEMARK APPLICATIONS AS OF OCTOBER 31, 1970

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	23,607
Date of oldest new application	September 17, 1969
Date of oldest amended application (filing date)	March 31, 1967

C. M. WENDT, Director, Trademark Examining Operation TRADEMARK EXAMINING DIVISION, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 3, 4, 5, 7, 8, 9, 10, 11, 17, 27, 28, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 50; Certification Marks, Classes A and B	12-24-69	3-31-67
(II) F. H. WETHERBEE, Classes 1, 6, 15, 18, 45, 46, 47, 48, 49, 51, 52; Collective Membership Mark, Class 200	12 16-69	12-11-67
(III) C. R. FOWLER, Classes 12, 16, 19, 21, 23, 26, 31, 34, 35, 36, 44	2-26-70	10-30-67
(IV) M. E. ABRAMSON, Classes 13, 14, 20, 22, 24, 25, 29; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, and 107	9-17-69	1-26-68
Renewals (All Classes)	9-21-70	----------
Sec. 12(c) Publications (All Classes)	10-8-70	----------

Applications filed during the month of October 1970—2,802

Registrations Issued ----------422—No. 903,263 to No. 903,684,
Renewals Issued ----------120

THE TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $20.50 per annum, foreign mailing $5.75 additional; single copies, 40 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C. 20231.

Reg. No. 579,529 (BACTI-VATED), Michigan Peat, Inc., Peat, peat moss and humus; **Reg. No. 645,963**, same, Soil conditioner; **Reg. No. 638,619** (BACCTO), same, Potting soil; **Reg. No. 645,964**, same; **Reg. No. 669,450** (IT'S BACTI-VATED AND DESIGN), same, Potting soil; **Reg. No. 669,489**, same, Peat used as a soil conditioner, filed Aug. 28, 1970, D.C., S.D. Tex. (Houston), Doc. CA 70–H–933, *Bay-Houston Towing Co.* v. *International Soil Conditioners Corp.*

Reg. No. 622,156. (See Reg. No. 425,967.)

Reg. No. 638,619. (See Reg. No. 579,529.)
Reg. No. 641,628. (See Reg. No. 425,967.)
Reg. No. 645,963. (See Reg. No. 579,529.)
Reg. No. 645,964. (See Reg. No. 579,529.)
Reg. No. 648,136. (See Reg. No. 425,967.)
Reg. No. 658,933. (See Reg. No. 425,967.)
Reg. No. 669,450. (See Reg. No. 579,529.)
Reg. No. 669,489. (See Reg. No. 579,529.)

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.106.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 292,237. Cain's Coffee Co., Oklahoma City, Okla. Filed Mar. 1, 1968.



Owner of Reg. Nos. 215,024 and 824,518.

Class 45—Soft Drinks and Carbonated Waters

For Syrups for Flavoring Soft Drinks (Int. Cl. 32).

Class 46—Foods and Ingredients of Foods

For Sauce for Meats, Fish, Gravies and Soups; Imitation Vanilla Flavor for Food Purposes; All Purpose Salad Oil; Distilled Colored and White Vinegar; Salad Dressings; Waffle Syrup; Mustard; Barbecue Sauce; and Beef and Chicken Flavored Soup Base (Int. Cls. 29 and 30).

First use on or about Aug. 26, 1967.

SN 296,735. Defensor (Defensor AG), Zurich, Switzerland. Filed Apr. 29, 1968.

DEFENSOR

Priority claimed under Sec. 44(d) on Swiss Reg. No. 228,273, dated Oct. 30, 1967. Owner of U.S. Reg. No. 644,104.

Class 26—Measuring and Scientific Appliances

For Mechanical, Electric and Electronic Measuring and Control Devices for Heating, Ventilating, Cooling, Humidifying and Dehumidifying Equipment—Namely, Hygrometers, and Humidostats (Int. Cl. 9).

Class 31—Filters and Refrigerators

For Filtering Equipment—Namely, Dust Filtering Units and Chemically Active Water-Demineralizing Units (Int. Cl. 11).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Humidifying Equipment—Namely, Atomizers, Steam Units, Disk and Drum Evaporators, and Space and Duct Humidifiers (Int. Cl. 11).

SN 300,474. Mountain States Wholesale Company, Boise, Idaho. Filed June 14, 1968.

KORT

Class 18—Medicines and Pharmaceutical Preparations

For Antiseptics, Germicides, Mineral Oil, Castor Oil, and Epsom Salt (Int. Cl. 5).

First use Jan. 10, 1966.

Class 46—Foods and Ingredients of Foods

For Food Additives—Namely, Saccharine (Int. Cl. 1).

First use during 1966.

SN 301,406. Chanson Cosmetics Inc., Shizuoka, Japan. Filed June 26, 1968.

CHANSON

The translation of the French Word "Chanson" means "song." Owner of Japanese Reg. No. 381,307, dated Feb. 17, 1950.

Class 51—Cosmetics and Toilet Preparations

For Non-Medicated Facial, Hand and Body Creams and Lotions, Toilet Water, Astringent Lotion, Make-Up Base, Face Powder, Eye Make-Up, Lipstick, Rouge, Hair Dressing Preparations and Hair Pomade, Cologne, Perfume, and Nail Polish Remover (Int. Cl. 3).

Class 52—Detergents and Soaps

For Hair Shampoo and Toilet Soap (Int. Cl. 3).

First use Oct. 30, 1948; in commerce May 21, 1968.

SN 303,047. The French Oil Mill Machinery Company, Piqua, Ohio. Filed July 18, 1968.

FRENCH

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Liquid Extraction Machinery for Liquid Bearing Animal and Vegetable Products—Namely, Seed Cracking Rolls; Hull Separators; Seed Flaking and Crushing Rolls; Mechanical Screw Pre-Presses; Stationary and Movable Basket Extractors; Mechanical Screw Presses; Extractors for Separating Water, Oil and Vapors from Vegetable and Animal Tissues by an Azeotropic Process, Without Self-Contained Heating Units; and Hydraulic Cage Presses; and Gear Drives; and Liquid Extraction Machinery for Liquid Bearing Natural and Synthetic Polymers—Namely, Mechanical Dewatering and Dewatering-Drying Screw Presses; and Hydraulic Presses for Laminating and Molding Polymer Materials and for Forming Metal Materials (Int. Cl. 7).

First use at least as early as June 9, 1937.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Vertical Pans With Self-Contained Heating Units for Cooking and Then Drying Vegetable Products Prior to Liquid Extraction Therefrom; Toasting Units for Heating Proteinaceous Vegetable Products To Deodorize and/or Toast the Same; Evaporating Units for Vaporizing Volatile Liquids in Vegetable and Animal Meal; Combined Evaporating and Toasting Units for Vaporizing Volatile Liquids in Vegetable Meal and for Deodorizing and/or Toasting the Same; Forced Draft Evaporative Air Coolers for Vegetable and Animal Meal; Rendering Melters for Dehydrating Animal Tissue and Melting Animal Fats; Rendering Cookers and Dryers With Self-Contained Heating Units for Hydrolysing and/or Cooking and Dehydrating Products Such as Meat Scrap, Offal, Fish and Poultry Wastes, Garbage, Waste Feathers or the Like; Burners for Incinerating the Fumes Emanating From Rendering Operations; Evaporative Condensers for Vapors Extracted From Vegetable or Animal Products; Evaporative Columns for Scrubbing and Recovering Condensable Vapors; and Evaporative Columns for Stripping Impurities From Vegetable and Animal Oils and Vapors (Int. Cl. 11).

First use at least as early as May 20, 1939.

SN 303,732. J. G. Boswell Company, Los Angeles, Calif. Filed July 29, 1968.



Class 1—Raw or Partly Prepared Materials

For Cotton Fibers—Namely, Cotton, Cotton Linters and Fly Cotton; Cotton Seed for Planting; and Barley, Safflower and Alfalfa Planting Seeds (Int. Cls. 22 and 31).
First use on or about Mar. 1, 1955.

Class 46—Foods and Ingredients of Foods

For Safflower Meal and Safflower Hulls Used as Animal Foodstuffs (Int. Cl. 31).
First use on or about August 1962.

SN 304,493. Orange Julius of America, Los Angeles, Calif. Filed Aug. 6, 1968.

ORANGE JULIUS

The word "Orange" is disclaimed apart from the mark. Owner of Reg. No. 513,225.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks (Int. Cl. 32).
First use Sept. 1, 1926.

Class 46—Foods and Ingredients of Foods

For Quiescently Frozen Confections and a Base for Making the Same (Int. Cl. 30).
First use Sept. 25, 1958.

SN 304,494. Orange Julius of America, Los Angeles, Calif. Filed Aug. 6, 1968.

JULIUS

Owner of Reg. No. 513,225.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks (Int. Cl. 32).
First use Sept. 1, 1926.

Class 46—Foods and Ingredients of Foods

For Quiescently Frozen Confections and a Base for Making the Same (Int. Cl. 30).
First use Sept. 25, 1958.

SN 304,496. Orange Julius of America, Los Angeles, Calif. Filed Aug. 6, 1968.



The words "Orange" and "A Devilish Good Drink" are disclaimed apart from the use of the mark as shown. Owner of Reg. No. 513,225.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks (Int. Cl. 32).
First use Sept. 1, 1926.

Class 46—Foods and Ingredients of Foods

For Quiescently Frozen Confections and a Base for Making the Same (Int. Cl. 30).
First use Sept. 25, 1958.

SN 305,593. The Cosmodyne Corporation, Torrance, Calif. Filed Aug. 21, 1968.

COSMODYNE

Class 2—Receptacles

For Containers—Namely, Cryogenic Liquid Storage Tanks and Gas Storage Tanks (Int. Cl. 6).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hardware and Plumbing Supplies—Namely, Vacuum Insulated Pipe Lines (Int. Cl. 6).

Class 19—Vehicles

For Trailers and Tank Cars for the Storage and Movement of Cryogenic Liquids (Int. Cl. 12).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Liquid Oxygen and Nitrogen Generation Plants and Pumps—Namely, Cryogenic Liquid Pumps (Int. Cl. 7).

Class 26—Measuring and Scientific Appliances

For Analyzers and Samplers—Namely, analyzers for determining the Purity of Oxygen and Nitrogen and Cryogenic Samplers (Int. Cl. 9).

Class 31—Filters and Refrigerators

For Refrigeration Systems—Namely, Liquid Nitrogen Refrigeration Systems for Commercial Cargo Transportation and Vaporizers for Vaporizing Cryogenic Fluids (Int. Cl. 11).

First use July 24, 1962.

SN 305,875. Carter-Wallace, Inc., New York, N.Y., assignee of Cardinal Laboratories, Inc., doing business as Arn-Ed Laboratories, a Division of Westwood Laboratories, Los Angeles, Calif. Filed Aug. 15, 1968.



Class 6—Chemicals and Chemical Compositions

For Insecticide and Repellant (Int. Cl. 5).
First use June 8, 1962.

Class 18—Medicines and Pharmaceutical Preparations

For Medicated Skin Cream for Animals (Int. Cl. 5).
First use June 8, 1962.

Class 51—Cosmetics and Toilet Preparations

For Animal Coat Rinse and Coat Grooming Spray (Int. Cl. 3).
First use Oct. 11, 1957.

Class 52—Detergents and Soaps

For Animal Shampoos (Int. Cl. 3).
First use Oct. 11, 1957.

SN 305,998. Tom Boy, Inc., St. Louis, Mo. Filed Aug. 26, 1968.



Class 6—Chemicals and Chemical Compositions

For Bleach (Int. Cl. 3).
First use July 30, 1964.

Class 46—Foods and Ingredients of Foods

For Fruits, Fruit Juices, Apple Sauce, Tomato Juice, Vegetables, Pork and Beans, Tomato Puree, Tomato Sauce, Mayonnaise, Salad Dressing, Sandwich Spread, Mustards, Vinegars, Catsup, Coffees, Tea, Waffle Syrup, Grape Jam, Jellies, Fruit Preserves, Vegetable Shortening, Cooking Oil, Peanut Butters, Potato Chips, and Evaporated Milk (Int. Cls. 29 30, and 32).
First use April 1964.

Class 52—Detergents and Soaps

For Detergents for Washing Dishes and Clothes (Int. Cl. 3).
First use September 1964.

SN 311,986. Staley Paint Mfg. Co., St. Louis, Mo. Filed Nov. 13, 1968.

STALEY PAINT

Applicant disclaims the word "Paint" apart from the mark as shown.

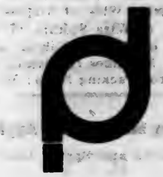
Class 16—Protective and Decorative Coatings

For Paints, Enamels, Varnishes, Primers, Surface Conditioners for Masonry Surfaces, Compositions for Coloring and Sealing Unpainted, Untreated Concrete and Masonry Surfaces and Waterproofing Compositions for Interior and Exterior Surfaces; Paint Solvents, Thinners (Int. Cl. 2).
First use November 1947.

Class 29—Brooms, Brushes, and Dusters

For Paint Brushes and Paint Rollers (Int. Cl. 16).
First use January 1956.

SN 312,326. Plasticos Incorporada, San Juan, Puerto Rico. Filed Nov. 15, 1968.



Class 100—Miscellaneous

For Designing Special Purpose Machines for the Plastic Industry (Int. Cl. 42).

Class 103—Construction and Repair

For Repairing Machines for the Plastic Industry (Int. Cl. 37).

First use Aug. 31, 1967.

SN 312,858. Information Systems Architectonics, Inc., Bethesda, Md. Filed Nov. 14, 1968.

DYADIC INTERACTIVE CONCEPT

Class 100—Miscellaneous

For Computer Hardware Systems Engineering (Int. Cl 42).

Class 101—Advertising and Business

For Analysis, Devising Accounting Systems and Computer Programs, Computer Program Operation and Auditing Operations for Others (Int. Cl. 35).

First use June 15, 1968.

SN 312,859. Information Systems Architectonics, Inc., Bethesda, Md., Filed Nov. 14, 1968.

ISA

Class 100—Miscellaneous

For Computer Hardware Systems Engineering (Int. Cl. 42).

Class 101—Advertising and Business

For Analysis, Devising Accounting Systems and Computer Programs, Computer Program Operation and Auditing Operations for Others (Int. Cl. 35).

First use Mar. 31, 1968.

SN 313,143. Wafios Maschinenfabrik Wagner, Ficker & Schmid, Reutlingen (Baden-Wurttemberg), Germany. Filed Nov. 26, 1968.

WAFIOS

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Machines for the Production of Wire Netting, of Crimped Mesh, of Barbed Wire, of Staples, of Rings, of Nails, of Sheetmetal Nails, of Wire Spirals, of Lattice Girders, of Formed Wire Parts, of Flexible Tubing, of Wire Springs, of Chains and of Clips; Machines for Straightening and Cutting of Wires; Machines for Packing Nails; Machines for Binding Wires (Int. Cl. 7).

Class 26—Measuring and Scientific Appliances

For Chain Calibrating and Spring Load Testing Machines (Int. Cl. 9).

First use April 1953; in commerce April 1953.

SN 317,374. Quantronix Corporation, Farmingdale, N.Y. Filed Jan. 28, 1969.

quanTronix

Class 21—Electrical Apparatus, Machines, and Supplies

For Laser Light Generators and Parts Therefor, Power Supplies, Electric Lamps (Int. Cl. 9).

Class 26—Measuring and Scientific Appliances

For Laser Light Measuring Apparatus (Int. Cl. 9).

First use on or before Nov. 15, 1968.

SN 319,932. Musitron Industries, Inc., New York, N.Y. Filed Feb. 24, 1969.

Musitron

Class 21—Electrical Apparatus, Machines, and Supplies

For Radios, Television Sets, Amplifiers, Walkie-Talkie (Int. Cl. 9).

Class 36—Musical Instruments and Supplies

For Phonographs, Tape Recorders, Cartridge Tape Players, Casette Tape Recorders, Drums, Tambourenes, Banjos, Ukeleles, Organs, Harmonicas, Mandolins, Guitars, Guitar Strings, Guitar Cases (Int. Cls. 9 and 15).

First use Dec. 1, 1968.

SN 320,119. August Thyssen-Huette Aktiengesellschaft, Duisburg-Hamborn, Germany. Filed Feb. 26, 1969. Owner of German Reg. No. 828,667, dated Oct. 13, 1966.

THYSSEN

Class 7—Cordage

For Steel Cables (Int. Cl. 6).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Seamless and Welded Metal Pipes and Tubes, Metal Bolts, Metal Nuts, Metal Nails (Int. Cl. 6).

Class 14—Metals and Metal Castings and Forgings

For Pig Iron, Metal Ingots, Metal Blooms, Metal Billets, Metal Slabs, Semi-Finished Metal Flats and Forgings, Metal Plates, Metal Sheets, Metal Rods and Rails for Railways, Steel Wire (Int. Cl. 6).

SN 322,117. The Badger Company, Inc., Cambridge, Mass. Filed Mar. 19, 1969.



Class 100—Miscellaneous

For Evaluation, Design, and Engineering of Processes and Plants for Manufacturing, Processing or Handling Chemicals and Materials or Generating Electrical Power, Including Initial Operation of Said Plants (Int. Cl. 42).

Class 103—Construction and Repair

For Construction of Industrial Plants, Such as Chemical Manufacturing and/or Process Plants, or Electrical Power Plants, Including the procurement of Construction Materials and Construction of Buildings, Ancillary to Said Plants (Int. Cl. 37).

First use on or about Jan. 1, 1965.

SN 325,533. Lykes-Pasco Packing Company, Dade City, Fla. Filed Apr. 25, 1969.

VITALITY

Owner of Reg. No. 322,283.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Concentrated Juice Dispensing Units (Int. Cl. 7). First use July 1957.

Class 45—Soft Drinks and Carbonated Waters

For Frozen Concentrated Lemonade (Int. Cl. 32). First use Mar. 5, 1935.

Class 46—Foods and Ingredients of Foods

For Frozen, Concentrated Orange Juice, Grapefruit Juice, Grape Juice, Apple Juice, and Iced Tea (Int. Cls. 30 and 32). First use Mar. 5, 1935.

SN 325,813. Alarm Data Corporation, Rockville, Md. Filed Apr. 29, 1969.



Class 100—Miscellaneous

For Providing Burglar and Fire Alarm Services and Other Remote Monitoring Services Including, but not Limited to, Television Monitoring, Process Control and Equipment Monitoring, Water Detection, Vibration Detection and Elevator Failure Detection (Int. Cl. 42).

Class 103—Construction and Repair

For Installation, Inspection and Servicing of Smoke, Burglar, Fire and Other Alarms and Annunciators and Detection, Control and Monitoring Equipment for Machinery, Industrial Plants, and Institutions (Int. Cl. 37).

First use Feb. 3, 1969.

SN 327,534. Harry Levy Co. New York, N.Y. Filed May 19, 1969.

LOFSTRAND

Class 41—Canes, Parasols, and Umbrellas

For Canes (Int. Cl. 18).

Class 44—Dental, Medical, and Surgical Appliances

For Crutches (Int. Cl. 10).

First use Oct. 15, 1945.

SN 327,535. Harry Levy Co., New York, N.Y. Filed May 19, 1969.

LOFSTRAND

Class 41—Canes, Parasols, and Umbrellas

For Canes (Int. Cl. 18).

Class 44—Dental, Medical, and Surgical Appliances

For Crutches (Int. Cl. 10).

First use Oct. 15, 1945.

SN 329,301. Cooper Laboratories, Inc., Bedford Hills, N.Y. Filed June 6, 1969.

SONAC

Class 44—Dental, Medical, and Surgical Appliances

For Denture Cleaning Devices—Namely, Denture Units Comprising a Container for Denture Cleaning Solutions and Mechanism for Vibrating Said Container at a High Frequency (Int. Cl. 10).

Class 51—Cosmetics and Toilet Preparations

For Denture Cleaning Solutions (Int. Cl. 3).

First use May 20, 1969.

SN 330,853. Semblex Corporation, Beacon Falls, Conn. Filed June 24, 1969.

SEMBLEX

Class 9—Explosives, Firearms, Equipments, and Projectiles

For Rivet Cartridges (Int. Cl. 13).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Rivets, Thread Inserts, Blind Bolts, Blind Rivets, Blind Thread Inserts, Blind Locking Fasteners, Expanding Fasteners, Fastener Setting and Installing Accessories (Int. Cl. 6).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Wrenches, Expanders, Mandrels, and Fastener Installation Tools Actuated by Pneumatic, Electrical or Mechanical Actuating Mechanisms (Int. Cl. 7).

First use May 13, 1969.
Subj. to Intf. with SN 350,427.

SN 332,059. Pall Corporation, Glen Cove, N.Y. Filed Apr. 10, 1969.

PTM

Class 26—Measuring and Scientific Appliances

For Temperature Sensing and Control Elements—Namely, Thermocouples, Thermocouple Assemblies, and Thermowells (Int. Cl. 9).

Class 31—Filters and Refrigerators

For Filters for Fluids—Namely, Filter Elements, Filter Housings, Filter Assemblies and Parts Therefor, Woven Wire Mesh Filters, Paper Filters, Porous Plastic Filters, Filters Having Microporous Layers, Coalescers, and Oil Removal Filters (Int. Cls. 11 and 16).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Gas Dryers—Namely, Desiccant and Refrigerant Gas Dryers and Components Therefor, Cycling Control and Timing Devices and Valves Sold as Components for Gas Dryers, Gas and Fluid Dehydrators and Components Therefor, Gas Purifiers, and Dry Air Systems Including as Components a Gas Dryer and Other Gas Purifying Equipment, Such as Filters and Adsorbers for Removal of Contaminant Vapors and Solids (Int. Cl. 11).

First use May 1963.

SN 332,404. Rohm and Haas Company, Philadelphia, Pa. Filed July 14, 1969.

DURAK

Class 1—Raw or Partly Prepared Materials

For Synthetic Plastic Film in Sheet Form for General Use in the Industrial Arts (Int. Cl. 17).

Class 5—Adhesives

For Synthetic Plastic Film in Sheet Form With Adhesive Surfaces for General Use in the Industrial Arts (Int. Cl. 17).

First use on or about June 4, 1969.

SN 332,572. George Leuders & Co., Incorporated, New York, N.Y. Filed July 15, 1969.

LUEDERS

Class 6—Chemicals and Chemical Compositions

For Aromatics, Aromatic Chemicals, Essences, Compound Oils and Colors for Use in Making Up the Following: Perfumes, Toilet Waters and Colognes, Creams, Powders, Hair Dressings, Soaps, and Soap Powders (Int. Cls. 2 and 3).

Class 46—Foods and Ingredients of Foods

For Food Flavors and Flavor Products—Namely, Flavors in Concentrate, Extract and Syrup Form; Flavor Bases and Emulsions; Oleoresin Blends and Mixes of Flavoring, Spices and Seasonings; Essential Oils, Salad Oils, Seed Oils, Fatty Substances and Colors, All Used for Food Purposes (Int. Cls. 2, 3, 29, and 30).

First use at least as early as Dec. 31, 1930.

SN 333,005. Tower Products, Inc., Wheeling, Ill., by change of name from Tower Packaging Company, Wheeling, Ill. Filed July 18, 1969.

TOWER TUF

Applicant disclaims the word "Tuf" apart from the mark as shown. Owner of Reg. Nos. 794,269, 855,751, and others.

Class 1—Raw or Partly Prepared Materials

For Polyethylene Sheeting; Polyethylene Tubing on a Roll; Polyethylene Cut-to-Length Sleeves (Int. Cl. 17).
First use June 6, 1968.

Class 2—Receptacles

For Plastic Bags (Int. Cl. 20).
First use Mar. 20, 1965.

SN 333,042. Oy Urheilu-Karhu Karhu-Sport AB, Helsinki, Finland. Filed July 22, 1969.

KARHU

The word "Karhu" is the Finnish word for "bear." Owner of Finnish Reg. No. 30,806, dated Dec. 28, 1968.

Class 22—Games, Toys, and Sporting Goods

For Ski, Track and Field Equipment Exclusive of Wearing Apparel, and Sporting Type Shoes—Namely, Spiked Shoes, Ski Boots, Weight Lifting Shoes, Bowling Shoes, Soccer Boots, Skate Boots, Wrestling Shoes and Boxing Shoes (Int. Cl. 25).

Class 39—Clothing

For Sporting and Gymnastic Suits and Jogging Shoes, Gymnastic Slippers, Tennis Shoes and Basketball Shoes (Int. Cl. 25).

SN 334,717. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Aug. 7, 1969.

DAY LEE

Owner of Reg. Nos. 706,707 and 808,893.

Class 44—Dental, Medical, and Surgical Appliances

For Sanitary Napkins (Int. Cl. 5).

Class 51—Cosmetics and Toilet Preparations

For Feminine Hygiene Deodorant (Int. Cl. 5).
First use June 16, 1969.

SN 334,718. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Aug. 7, 1969.

LIGHT 'N DRY

Applicant claims exclusive right to use of the word "Dry" as part of its mark but not otherwise.

Class 44—Dental, Medical, and Surgical Appliances

For Sanitary Napkins (Int. Cl. 5).

Class 51—Cosmetics and Toilet Preparations

For Feminine Hygiene Deodorant (Int. Cl. 5).
First use June 26, 1969.

SN 336,747. Metalex Corporation, Libertyville, Ill. Filed Sept. 2, 1969.

METALEX

Class 12—Construction Materials

For Decorative Metal Panels, Expanded Metals in the Form of Gratings, Stair Treads, Wall, Partition, and Cabinet Panels and Floor Grates (Int. Cl. 6).
First use at least as early as Aug. 2, 1961.

Class 13—Hardware and Plumbing and Steam-Fitting

For Metal Gutter Screens and Metal Screening (Int. Cl. 6).
First use no later than Jan. 1, 1965.

SN 337,374. Tennison Brothers of Texarkana, Inc., Texarkana, Tex. Filed Sept. 8, 1969.

TENNITEX OF TEXAS

The words "Of Texas" are disclaimed apart from the mark as shown.

Class 12—Construction Materials

For Metal Building and Roofing Materials—Namely, Valleys, Roof Edgings, Ridge Rolls, Gutters, Downspouts, Siding, Termite Shields, Truss Plates, Culvert Pipes, Well Casings, and Ventilator Ducts (Int. Cl. 6).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Ventilators (Int. Cl. 11).
First use Aug. 28, 1969.

SN 337,869. Seismic Computing Corp., Houston, Tex. Filed Sept. 15, 1969.

SEIS COM

Class 100—Miscellaneous

For Seismic Exploration (Int. Cl. 42).
First use at least as early as about December 1968.

Class 101—Advertising and Business

For Seismic Data Processing for Others (Int. Cl. 35).
First use at least as early as about August 1965.

SN 338,732. The Southland Corporation, Dallas, Tex. Filed Sept. 24, 1969.

CreMel

Class 45—Soft Drinks and Carbonated Waters

For Concentrate for Flavored Carbonated Slush Type Drinks, Soft Drink Bottlers' Concentrate, and Dairy Drink Base Containing Water (Int. Cl. 32).

Class 46—Foods and Ingredients of Foods

For Soda Fountain Syrups and Purees, Parfait Toppings in the Nature of Syrups, Eggnog Base, Sherbert Base, Egg Yellow Color, Flavored Concentrated for Ice Sticks (Int. Cls. 2, 30, and 32).
First use at least as early as Mar. 1, 1955.

SN 339,630. Avon Products, Inc., New York, N.Y. Filed Oct. 3, 1969.

LONGITUDE

Class 51—Cosmetics and Toilet Preparations

For Cologne (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).
First use July 31, 1969.

SN 339,676. Infoton, Incorporated, Burlington, Mass. Filed Oct. 3 1969.

Class 100—Miscellaneous

For Designing Computer-Peripheral and Remote-Terminal Equipment; Systems Analysis of Computer Hardware, Programs and Operating Procedures; and Development and Consulting Services in the Information, Mathematical and Communication (Int. Cl. 35).

Class 101—Advertising and Business

For Computer Programming and Research (Int. Cl. 42).
First use Aug. 10, 1969.

SN 341,241. Wenger Corporation, Owatonna, Minn. Filed Oct. 21, 1969.

WENGER

Owner of Reg. Nos. 771,787 and 834,331.

Class 12—Construction Materials

For Acoustical Reflectors, Acoustical Shells and Portable Sound Isolation Booths (Int. Cl. 19).
First use November 1960.

Class 19—Vehicles

For Trailer and Truck Mounted Mobile Stage Units (Int. Cl. 12).
First use June 10, 1959.

SN 346,547. Avon Products, Inc. New York, N.Y. Filed Dec. 18, 1969.

AVON OF THE AMERICAS

Owner of Reg. Nos. 506,046, 633,318, and 663,255.

Class 51—Cosmetics and Toilet Preparations

For Cologne (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).
First use Nov. 6, 1969.

SN 351,618. Hunter Products Corp., San Antonio, Tex. Filed Feb. 17, 1970.

MAGIC MIST

Applicant disclaims exclusive right to use of the word "Mist," aside and apart from the mark as shown. Owner of Reg. No. 443,764.

Class 6—Chemicals and Chemical Compositions

For Insecticides, Sanitizers and Room Deodorants (Int. Cl. 5).

Class 26—Measuring and Scientific Appliances

For Timed Metering Dispensing Units for Use in Connection with Aerosols (Int. Cl. 9).
First use at least as early as June 26, 1963.

SN 353,241. Les Fils de Louis Mulliez, Roubaix, France. Filed Mar. 6, 1970.

FERIA

Owner of French Reg. No. 9,982, dated May 22, 1965 (Roubaix); Natl. Inst. No. 252,892.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Woven Cloth of Wool and Other Animal Hair, of Silk, Hemp, Linen, Jute and Other Fibers and of Cotton (Int. Cl. 24).

Class 43—Thread and Yarn

For Threads and Yarns of Wool, etc. (Int. Cl. 23).

SN 354,760. Donald D. Gillen and Lawrence E. Gillen (partnership), d.b.a. Back Country Mountain Sports, La Mirada, Calif. Filed Mar. 23, 1970.

BACK COUNTRY

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

For Camping and Hiking Equipment—Namely, Packs, Knapsacks, Duffel Bags and Belt Bags (Int. Cl. 18).

Class 22—Games, Toys, and Sporting Goods

For Tents, Sleeping Bags and Sleeping Pads for Use With Sleeping Bags (Int. Cls. 20 and 22).

Class 32—Furniture and Upholstery

For Sleeping Pads for Use With Cots (Int. Cl. 20).

Class 39—Clothing

For Ponchos, Snow Anklets, Socks, Parkas, and Jackets (Int. Cl. 25).
First use January 1968.

SN 354,937. Kabushiki Kaisha Tanaka Seisakusho, Taito-ku, Tokyo, Japan. Filed Mar. 24, 1970.

TEWCO

Class 26—Measuring and Scientific Appliances

For Pressure Regulator Supplying Gases for Gas Welding or Cutting Machine (Int. Cl. 9).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Gas Welding and Gas Cutting Machine (Int. Cl. 7).
First use Nov. 15, 1969; in commerce Nov. 15, 1969.

SN 355,067. Kabushiki Kaisha Tanaka Seisakusho, Taito-ku, Tokyo, Japan. Filed Mar. 26, 1970.



Class 26—Measuring and Scientific Appliances

For Pressure Regulator Supplying Gases for Gas Welding or Cutting Machine (Int. Cl. 9).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Gas Welding and Gas Cutting Machine (Int. Cl. 7).

First use October 1921; in commerce Apr. 19, 1966.

SN 355,303. Standard Packaging Corporation, Stamford, Conn. Filed Mar. 30, 1970.



Owner of Reg. Nos. 326,725, 763,964, and others.

Class 2—Receptacles

For Baking Cups and Nut Cups Made of Wax Impregnated Paper (Int. Cl. 16).

First use June 30, 1969.

Class 37—Paper and Stationery

For Household Paper Products—Namely, All Purpose Household Paper, All Purpose Kraft Paper, Paper for Decorating the Inside of Cabinets, Drawers and Closets, for Covering Closets, Boxes, Books and Record Albums, and for Gift Wrapping and Other Decorative Household Uses, Shelf and Drawer Lining Paper, Plastic Coated Shelf and Drawer Lining Paper, Insecticide Coated Shelf and Drawer Lining Paper, Place Mats, Doilies, and Hot Plate Mats (Int. Cl. 16).

First use June 30, 1969.

Class 50—Merchandise Not Otherwise Classified

For Plastic Place Mats and Foil Place Mats and Doilies (Int. Cl. 27).

First use July 7, 1969.

SN 356,811. Clairol Incorporated, New York, N.Y. Filed Apr. 2, 1970.

THE LOVE MACHINE

Class 32—Furniture and Upholstery

For Electric Makeup Mirror (Int. Cl. 20).

Class 44—Dental, Medical, and Surgical Appliances

For Instant Hairsetter (Int. Cl. 11).

First use Mar. 5, 1970.

SECTION 2

The following marks are published in compliance with section 13(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 345,583. Apogee Chemical, Inc., Richmond, Calif. Filed Dec. 8, 1969.

APOGEN

For Epoxy Resins (Int. Cl. 1).

First use May 9, 1969.

SN 351,300. American Cyanamid Company, Wayne, N.J. Filed Feb. 13, 1970.

QUADRAMER

For Resin Polymer (Int. Cl. 1).

First use Dec. 24, 1969.

SN 353,166. Robert C. Cox, doing business as Indorlite Company, Emeryville, Calif. Filed Mar. 5, 1970.

INDORLITE

For Horticultural Planter and Plant Growth Medium (Int. Cl. 31).

First use on or about Jan. 15, 1970.

SN 353,764. Johns-Manville Corporation, New York, N.Y. Filed Mar. 11, 1970.

GARANMAT

For Chopped Strand Fiber Glass Mats for Use in Reinforcing Plastic Material (Int. Cl. 21).

First use at least on or about July 1, 1960.

SN 355,306. Bridgeport Industrial Products, Inc., Bridgeport, Conn. Filed Mar. 30, 1970.

MAIZORB

For Granular Cellulose Materials for General Use in the Industrial Arts, Specifically for Use as Absorbant Drying, Polishing, Burnishing, and Deburring Materials and as Granular Fillers and Carriers (Int. Cl. 1).

First use in or about March 1953.

SN 355,636. Engineering Technology, Inc., Salt Lake City, Utah. Filed Apr. 1, 1970.

EN-TEC

For Synthetic Filaments—Namely, Glass, Boron, Graphite, Quartz and Metallic Wire Reinforced Wound Resin Filaments (Int. Cl. 21).

First use on or before Aug. 10, 1962.

SN 361,538. Hervey E. Shannon, Naperville, Ill. Filed June 3, 1970.

CAT FLAT

Applicant disclaims the word "Cat" apart from the mark as shown, and without waiving any of applicant's common law rights therein.

For Litter Box Kit Containing Packaged Absorbent, Odor-Treated Animal Litter and a Receptable Therefor; and for Refills of Said Litter (Int. Cl. 31).

First use on or before Jan. 12, 1970.

SN 361,539. Hervey E. Shannon, Naperville, Ill. Filed June 3, 1970.

CLEAN CATS MAKE TRACKS FOR CAT FLATS

Applicant disclaims the words "Cat" and "Cats" apart from the mark as shown, and without waiving any of applicant's common law rights therein.

For Litter Box Kit Containing Packaged, Absorbent, Odor-Treated Animal Litter and a Receptacle Therefor; and for Refills of said Litter (Int. Cl. 31).

First use on or before Jan. 12, 1970.

SN 363,840. Penntube Plastics Company, Clifton Heights, Pa. Filed June 29, 1970.

PENNTUBE

For Plastics in Tube and Rod Form (Int. Cl. 17).

First use Sept. 25, 1959.

SN 366,246. Engelhard Minerals & Chemicals Corporation, Edison, N.J. Filed July 27, 1970.

SATINEX

For Clays for Coating and Filling Paper and Paperboard (Int. Cl. 1).

First use June 2, 1970.

SN 367,115. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Aug. 5, 1970.

TIMTEX

For Imitation Leather (Int. Cl. 18).

First use Oct. 29, 1968.

Class 2—Receptacles

SN 339,971. Unit Dose Systems, Inc., Clifton Heights, Pa. Filed Oct. 6, 1969.

USEPAK

For Blister Packaging Materials in the Form of a Combination Plastic and Cardboard Container for Packaging Pharmaceutical Pills, Tablets, Capsules and the Like in Separate Blisters for Use by Hospitals and Similar Institutions in Distributing Medicines to Patients (Int. Cl. 20).

First use July 28, 1969.

SN 354,997. Rochester Silo Co., Rochester, Minn. Filed Mar. 25, 1970.

MULTI-SYSTEM

For Storage Silos (Int. Cl. 19).

First use Feb. 28, 1970.

SN 364,346. Summit Container Corporation, Richmond, Va. Filed July 6, 1970.



The drawing is lined for the color green, but no claim is made to color.

For Corrugated Fiberboard Boxes (Int. Cl. 16).

First use Mar. 25, 1968.

SN 367,541. Pantry Queen Products Inc., Brooklyn, N.Y. Filed Aug. 10, 1970.

SPANITA

For Pantryware—Namely, Canister Sets, and Bread Boxes (Int. Cl. 21).

First use July 23, 1970.

SN 368,022. Gilman Paper Company, New York, N.Y. Filed Aug. 14, 1970.

DISPOZIT

Owner of Reg. No. 771,662.

For Refuse Bags (Int. Cl. 16).

First use July 1962.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 344,805. Alexander Sales Corporation, Mount Vernon, N.Y. Filed Nov. 28, 1969.

EXECU-FLIGHT BAG

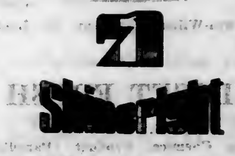
Applicant disclaims the word "Bag" separate and apart from the mark as shown.

For Flight Bags and Luggage (Int. Cl. 18).

First use Sept. 8, 1969.

Class 4—Abrasives and Polishing Materials

SN 328,946. The Barcolene Company, Holbrook, Mass. Filed June 3, 1969.



The drawing is lined for the colors red and blue.

For Shoe Shine Spray (Int. Cl. 3).

First use Mar. 14, 1969.

Class 5—Adhesives

SN 266,215. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Mar. 8, 1967.

SEIBERLING

Owner of Reg. Nos. 172,503, 677,346, and others.
For Rubber Cement (Int. Cl. 1).
First use Feb. 1, 1965.

SN 277,495. Midland International Corporation, North Kansas City, Mo. Filed Aug. 4, 1967.

MIDLAND

For Pressure Sensitive Friction Tape and Plastic Tape (Int. Cl. 17).
First use in or about August 1962.

SN 326,192. Becker-Davison Corporation, Seattle, Wash. Filed May 2, 1969.

TUFTEX

For Pressure Sensitive Tape for Industrial Use (Int. Cl. 17).
First use May 13, 1968.

Class 6—Chemicals and Chemical Compositions

SN 187,805. St. Louis Janitor Supply Co., d.b.a. Navy Brand Manufacturing Company, St. Louis, Mo. Filed Mar. 2, 1964.

NAVY BRAND

The word "Brand" is disclaimed apart from the mark as shown.
For Insecticides, Herbicides, Household Deodorants, Disinfectants, Bird Repellant Compositions, and Snow and Ice Removing Preparations (Int. Cls. 1 and 5).
First use 1916.

SN 309,555. Drew Chemical Corporation, New York, N.Y. Filed Oct. 14, 1968.

DREWPLEX

Owner of Reg. No. 628,085.
For Boiler Water Treatment Compounds With Sludge Prevention, Scale Prevention and Antifoam Properties (Int. Cl. 1).
First use May 8, 1968.

SN 300,196. Irwin-Willert Company, St. Louis, Mo. Filed June 11, 1968.

CLOSET FRESH

For Vaporizing Chemical Product (Paradichlorobenzene 99.75%), Useful in Enclosed Storage Spaces for Deodorizing (Int. Cl. 5).
First use Jan. 13, 1959.

SN 322,967. The Cello Chemical Company, Baltimore, Md. Filed Mar. 27, 1969.

FRESH-MIST

For Room Deodorants and Air Fresheners (Int. Cl. 5).
First use on or about Nov. 2, 1965.

SN 323,585. Master Chemical Corporation, Perrysburg, Ohio. Filed Apr. 3, 1969.



For Additive Anti-Foaming Agent for Use in Cutting Fluid Coolants (Int. Cl. 1).
First use January 1967.

SN 325,155. Amchem Products, Inc., Ambler, Pa. Filed Apr. 22, 1969.

FENAVAR

For Herbicides for General Control of Vegetation in Industrial Areas (Int. Cl. 5).
First use Apr. 2, 1969.

SN 325,324. Amchem Products, Inc., Ambler, Pa. Filed Apr. 23, 1969.

KLEER-LOT

For Herbicides for General Weed Control of Short Term Vegetation (Int. Cl. 5).
First use Dec. 20, 1968.

SN 326,303. Mask-Off Company, Monrovia, Calif. Filed May 5, 1969.

TEMPETHOX

For Chemical Composition Which Will Change Color When Either Heated or Subjected to Various Gases To Indicate Sterilization (Int. Cl. 1).
First use Feb. 21, 1969.

SN 332,025. Chemtrust Industries Corp., Maywood, Ill. Filed July 8, 1969.

TURF-TROL

For Fungicide for Lawns (Int. Cl. 5).
First use Aug. 11, 1968.

SN 332,141. Chemtrust Industries Corporation, Maywood, Ill. Filed July 9, 1969.

BROOT

For Lawn Selective Weed Killer (Int. Cl. 5).
First use Feb. 17, 1968.

SN 332,419. Mac's Super Gloss Co., Inc., Los Angeles, Calif. Filed July 14, 1969.



Applicant asserts no exclusive rights in the words "Moisture And Rust Control," without waiver of its common law rights in the manner of presentation of said words with the initial letters forming the trademark "Marc" as disclosed by this application. Owner of Reg. Nos. 648,046, 749,906, and others.
For Lubricant, Penetrant, Demoisturant, Rust, and Corrosion Control Preparation Sold in a Spray Container. (Int. Cl. 2).
First use May 1, 1969.

SN 336,217. Velsicol Chemical Corporation, Chicago, Ill. Filed Aug. 22, 1969.

PHOSVEL

For Insecticides (Int. Cl. 5).
First use Apr. 3, 1969.

SN 336,821. The Lubrizol Corporation, Cleveland, Ohio. Filed Sept. 2, 1969.

STRATAGUARD

Owner of Reg. No. 834,593.
For Phosphate Compositions for Application to Metal Surfaces (Int. Cl. 2).
First use Oct. 15, 1968.

SN 338,764. Ethicon, Inc., doing business as Arbrook, Somerville, N.J. Filed Sept. 24, 1969.

UNISEPT

For Disinfectants, Deodorizers, Disinfectant-Deodorant for Institutional and Household Use and Equipment Therefor (Int. Cl. 5).
First use July 28, 1969.

SN 338,771. Fisons Limited, Felixstow, Suffolk, England. Filed Sept. 24, 1969.

PESCOTOX

Owner of British Reg. No. 921,197, dated Feb. 16, 1968 and U.S. Reg. No. 719,830.
For Insecticides (Int. Cl. 5).

SN 345,832. Kem Manufacturing Corporation, Tucker, Ga. Filed Dec. 10, 1969.

KEMTROL

For Chemical Preparations Used to Liquefy Solids and Eliminate Odors in Industrial Sewage, Septic Tanks and Water Systems (Int. Cl. 1).
First use May 1964.

SN 346,106. One Stop, Incorporated, Los Angeles, Calif. Filed Dec. 12, 1969.



The drawing is lined for the color red.
For Room Fresheners and Deodorants (Int. Cl. 5).
First use Sept. 15, 1969.

SN 346,729. Communications Technology Corporation, Los Angeles, Calif. Filed Dec. 19, 1969.

ICKYPIC

For Petroleum Jelly Compound for Use in Cable Repair, Splice Encapsulation and Cable Capping (Int. Cl. 17).
First use Sept. 9, 1969.

SN 348,394. Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany. Filed Jan. 13, 1970.

STUDIONAL

Owner of German Reg. No. 843,738, dated Nov. 25, 1966.
For Photographic Developer (Int. Cl. 1).

SN 351,991. Joseph Stein, Phhiladelphia, Pa. Filed Feb. 20, 1970.

FOG-O

For Chemical Preparation Having Anti-Fogging Properties (Int. Cl. 1).
First use Dec. 15, 1969.

SN 352,362. Millmaster Onyx Corporation, New York, N.Y. Filed Feb. 25, 1970.

BTC

Owner of Reg. No. 407,496.
For Cationic Germicide for Use in the Manufacture of Industrial Chemicals (Int. Cl. 5).
First use August 1948.

SN 352,944. Chromo-Chem Corporation, Dalton, Ga. Filed Mar. 3, 1970.

CHROMO-CHEM

For Dyes and Dyestuffs (Int. Cl. 2).
First use Jan. 7, 1970.

SN 353,744. Luther Ford Products Company, doing business as Luther Ford Products Co., Minneapolis, Minn. Filed Mar. 11, 1970.



The original representation of the woman's head is fanciful. Owner of Reg. Nos. 199,108 and 216,610.
For Bluing (Int. Cl. 3).
First use Jan. 26, 1970; July 30, 1883, in a different form.

SN 355,513. Canadian Formwork Corporation, Laval, Quebec, Canada. Filed Mar. 31, 1970.

MONOSET

For Hardening and Curing Preparations for Cement in Liquid and Powder Form (Int. Cl. 1).
First use May 1968; in commerce May 1968.

SN 355,704. Becton, Dickinson and Company, East Rutherford, N.J. Filed Apr. 2, 1970.

FIBROTROL

For Laboratory Diagnostic Reagent For Use in Blood Coagulation Testing (Int. Cl. 1).
First use Oct. 22, 1968.

SN 355,705. Becton, Dickinson and Company, East Rutherford, N.J. Filed Apr. 2, 1970.

FIBROLET

For Laboratory Diagnostic Aeagent for Use in Blood Coagulation Testing (Int. Cl. 1).
First use Oct. 22, 1968.

SN 360,931. Certified Laboratories, Inc., Irving, Tex. Filed May 27, 1970.

3-D

For Household, Industrial, and Institutional Odor Control Agents (Int. Cl. 5).
First use on or before October 1966.

SN 361,286. Miles Laboratories, Inc., Elkhart, Ind. Filed June 1, 1970.

HEMA-ALBUSTIX

Owner of Reg. Nos. 500,720, 868,665, and others.
For Laboratory Diagnostic Reagent Strips To Test for Blood and Protein in Urine (Int. Cl. 1).
First use Feb. 17, 1970.

SN 365,006. Miles Laboratories, Inc., Elkhart, Ind. Filed July 13, 1970.

URO-LABSTIX

Owner of Reg. No. 672,033.
For Reagent Strips for Diagnostic Tests for pH, Protein, Glucose, Ketones, Blood, and Urobilinogen in Urine (Int. Cl. 1).
First use May 29, 1970.

SN 367,531. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 10, 1970.

CROMALIN

For Toners for Photopolymer Film (Int. Cl. 1).
First use June 5, 1970.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 367,273. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 6, 1970.

HI-DRIVE

For Gelatin Dynamite (Int. Cl. 13).
First use June 15, 1970.

Class 10 — Fertilizers

SN 344,965. Federal Employees' Distributing Company, d.b.a. Fedco, Inc., Los Angeles, Calif. Filed Dec. 1, 1969.

FED-GRO

For Home and Garden Fertilizers in Granular Form—Namely, All-Purpose Plant Food, Dichondra Food, Camellia Food, Rose Food, Citrus and Avocado Food, Blood Meal, Bone Meal, and Sulphate of Ammonia; and Liquid Garden Fertilizer Containing Added Insecticides (Int. Cl. 1).
First use at least as early as 1964.

Class 11 — Inks and Inking Materials

SN 346,222. Central Compounding Company, Chicago, Ill. Filed Dec. 15, 1969.

FORM-O-DYNE

For Additive for Printing Inks (Int. Cl. 1).
First use Apr. 17, 1969.

Class 12 — Construction Materials

SN 286,953. Noda Plywood Manufacturing Co., Ltd., Shimizu-shi, Shizuoka Prefecture, Japan. Filed Dec. 14, 1967.

NEW NODACO

Priority claimed under Sec. 44(d) on Japanese application filed Nov. 6, 1967; Reg. No. 850,597, dated Mar. 25, 1970.
For Plywood, Painted Plywood, Stained Plywood, Composition Board, Decorated Plywood, Painted and Decorated Composition Board (Int. Cl. 19).
First use Oct. 12, 1967; in commerce Oct. 12, 1967.

SN 306,171. Recreation Equipment Corp., Anderson, Ind. Filed Aug. 28, 1968.

ASTRA LINE

For Supporting Framework for Diving Boards and Lifeguard Chairs for Permanent Installation (Int. Cl. 19).
First use July 26, 1960.

SN 329,742. Novagard Corporation, Trenton, N.J. Filed June 11, 1969.

NOVACALK

For Caulking and Sealing Compositions Applied in a Flowable Form and Curing To Form a Seal for Use in Curtain Wall Panels, Expansion Joints, Window Channels, Flashings, Swimming Pools, Bridges, Boats, Patios, and the Like (Int. Cl. 17).
First use Jan. 10, 1969.

SN 330,749. Insulation Systems, Inc., Santa Ana, Calif. Filed June 23, 1969.

PLASTONIUM

For Insulation Materials Sold in Bulk in Containers or as Precast Insulation Units Prepared for Insulation (Int. Cl. 17).
First use on or about Feb. 25, 1969.

SN 330,900. The Biddle Company, St. Louis, Mo. Filed June 25, 1969.

PERMACRYLIC

Owner of Reg. No. 751,900.
For Acrylic Sealant for Joint Sealing, Glazing and Caulking (Int. Cl. 17).
First use on or about Apr. 10, 1969.

SN 331,363. Garner Enterprises, Inc., Eskridge, Kans. Filed June 30, 1969.

GARNITE

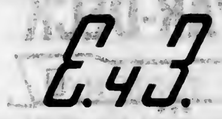
For Polyurethane Foam Building Insulation (Int. Cl. 17).
First use Apr. 5, 1969.

SN 332,550. Kornylak Corporation, Hamilton, Ohio. Filed June 20, 1969.

FOAMBOARDER

For Cellular Plastic Board Produced in Continuous Form for Use as Wall Panels, Flooring, Roofing Panels, Temperature Insulating Panels, and the Like (Int. Cl. 19).
First use June 19, 1964.

SN 334,313. Esteban y Bartolome Industrias de la Madera, S.A., Villaverde Alto, Madrid, Spain. Filed Aug. 4, 1969.



Priority claimed under Sec. 44(d) on Spanish application filed Mar. 26, 1969; Reg. No. 584,768, dated Jan. 10, 1970.
For Construction Materials—Namely, Doors, Windows, Panels, Staircases, Beams, and Lumber (Int. Cl. 19).

SN 334,474. Insulation Corporation of America (Georgia), Columbus, Ga. Filed Aug. 5, 1969.



For Insulation Materials in the form of Roll, Sheet and Rigid Board Consisting of Fiberglass Blanket, Urethane Board or Other Foams Faced or Laminated With Plastic Films, Aluminum Foil or a Combination of Both (Int. Cl. 17).
First use on or about Mar. 1, 1969.

SN 334,972. Boise Cascade Corporation, Boise, Idaho. Filed Aug. 11, 1969.

BEAM-LINE

For Ceiling Tile System, Including Fiberboard Ceiling Tiles and Wood Support Beams Therefor (Int. Cl. 19).
First use Feb. 29, 1969.

SN 336,287. The Celotex Corporation, Tampa, Fla., assignee of Luminous Ceilings, Inc., Chicago, Ill. Filed Aug. 12, 1969.

SQUIGGLE

For Suspended Ceiling System—Namely, Louvers and Metal Suspension Members (Int. Cl. 6).
First use Feb. 27, 1964.

SN 338,631. Vistron Corporation, Cleveland, Ohio. Filed Sept. 22, 1969.

FILOPLY

Owner of Reg. No. 708,288.
For Panels of a Laminate of Plywood and Flat Fiberglass Reinforced Plastic Sheeting (Int. Cl. 19).
First use on or about Aug. 18, 1969.

SN 338,861. Simpson Timber Company, Seattle, Wash. Filed Sept. 25, 1969.

CAPRICE

For Wood Doors for Interior and Exterior Use (Int. Cl. 19).
First use Dec. 14, 1967.

SN 340,997. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Oct. 17, 1969.

CASITA

Owner of Reg. No. 844,869.
For Plywood, Lumber, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Doors, Partitions, and Furniture (Int. Cl. 19).
First use in or about August 1969.

SN 341,126. American Metal Climax, Inc., New York, N.Y. Filed Oct. 20, 1969.

EN·TARA

For Building Entrances—Namely, Metal Doors and Frames (Int. Cl. 6).
First use Sept. 17, 1969.

SN 342,380. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Nov. 3, 1969.

VARIDOOR

For Sliding Interior Doors, and Associated Hardware Components Therefor, i.e., Metal Framing Members, Metal Tracks, Channels, and Thresholds, Gusset Plates, Wheels and Axles, Steel Guides, and Hangers, all Sold Principally as a Unit (Int. Cl. 19).
First use in or about July 1969.

SN 345,782. American Cyanamid Company, Wayne, N.J. Filed Dec. 10, 1969.

REFLECT-O-SEAL

For Resin Emulsion Spray Used as a Sealant in Mining (Int. Cl. 17).
First use June 16, 1969.

SN 350,769. Pluswood Industries, Oshkosh, Wis. Filed Jan. 21, 1970.

PLUSWOOD

Owner of Reg. No. 626,068.
For Plywood (Int. Cl. 19).
First use Dec. 31, 1969.

SN 350,940. National Gypsum Company, Buffalo, N.Y. Filed Feb. 9, 1970.

HURON

Owner of Reg. Nos. 136,833 and 864,817.
For Portland Cement (Int. Cl. 19).
First use January 1907.

SN 353,259. U.S. Plywood-Champion Papers, Inc., New York, N.Y. Filed Mar. 6, 1970.

MONMOUTH BIRCH

The exclusive right to use the word "Birch" is disclaimed except when used in connection with the mark as shown. Owner of Reg. No. 809,014.
For Plywood, Lumber, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Doors, Partitions, and Furniture (Int. Cl. 19).
First use on or about Jan. 26, 1970.

SN 353,877. Hungerford Homes, Inc., Leesburg, Fla. Filed Mar. 12, 1970.

THERM CRAFT
WEATHER-WALL

For Insulating Sheets (Int. Cl. 17).
First use Nov. 27, 1967.

SN 354,562. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Mar. 19, 1970.

CORTEZA

The Spanish word "Corteza" translated into English means "bark" or "crust."
For Plywood, Particleboard, Wood, Wood Particles, and Wood Fiber Products, Plain or Textured, Used in the Construction, Industrial and Furniture Fields, i.e., Decorative Panels for Interior and Exterior Sidings, Walls, Doors and Partitions (Int. Cl. 19).
First use on or about Jan. 28, 1970.

SN 355,304. Acosta Awning Corporation, Kenner, La. Filed Mar. 30, 1970.

Markee Patio Port

For Aluminum Awnings and Like Metallic Roofs (Int. Cl. 6).
First use Oct. 1, 1959.

SN 355,646. W. R. Grace & Co., Cambridge, Mass. Filed Apr. 1, 1970.

INSULVENT

For Polystyrene Insulation Board With Moisture Venting Means (Int. Cl. 17).
First use Mar. 16, 1970.

SN 357,190. Aluminum Company of America, Pittsburgh, Pa. Filed Apr. 17, 1970.

SNUG-RIB

For Metal Roofing and Siding (Int. Cl. 6).
First use Feb. 16, 1970.

SN 357,350. Forrest Industries, Ltd., Dillard, Oreg. Filed Apr. 20, 1970.

PAR-DECK

Applicant disclaims the representation of a mobile home apart from the mark as shown.
For Mobile Home Floor Decking (Int. Cl. 19).
First use Mar. 11, 1970.

SN 359,040. AA Wire Products Company, Chicago, Ill. Filed May 4, 1970.

FLUSH WELDED · PROVEN TO BE STRONGER ·

Applicant disclaims the words "Flush-Welded" and "Proven To Be Stronger" apart from the mark as shown. Owner of Reg. No. 683,873.
For Wire Masonry Reinforcing Wall Bonds and Ties (Int. Cl. 6).
First use at least as early as November 1953.

SN 359,144. Raynor Manufacturing Company, Dixon, Ill. Filed May 7, 1970.

RAYNOR

Owner of Reg. Nos. 529,300, 637,597, and others.
For Overhead Garage Doors and Parts Therefor (Int. Cl. 19).
First use on or before Jan. 5, 1966; Oct. 1, 1944 as to "Raynor."

SN 359,301. Matso, Loetscher & Williams, Inc., Dubuque, Iowa. Filed May 11, 1970.

SMOOTHE-FORM

For Plywood Sheets (Int. Cl. 19).
First use Jan. 15, 1970.

SN 359,546. DAP, Inc., Dayton, Ohio. Filed May 13, 1970. Owner of Reg. No. 582,264.

KWIK SEAL

For Plastic Caulking and Sealing Compositions (Int. Cl. 17).
First use February 1950.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 311,178. Robertshaw Controls Company, Richmond, Va. Filed Nov. 1, 1968.

FORMSET

For Metallic Bellows With Nesting Shape Convolutions Useful, for Example, in a Variety of Control Devices and Systems Such as Those Requiring Volume Expansion Compensators, Flexible Hermetic Seals, Expansion Joints, Couplings, and Bellows Motors (Int. Cl. 7).
First use Nov. 15, 1967.

SN 329,780. Vokes Limited, Guildford, near Surrey, England. Filed June 11, 1969.

GENSPRING

Owner of British Reg. No. 925,432, dated May 17, 1968.
For Manufacture and Sale of Power Plant Equipment, Including Pipe Hangers, Springs and Supports (Int. Cl. 6).
First use Aug. 11, 1933; in commerce Aug. 11, 1933.

SN 332,980. North American Rockwell Corporation, Pittsburgh, Pa. Filed July 18, 1969.

Owner of Reg. Nos. 890,815 and 891,505.
For Clip-Type Metal Fasteners, Coil and Leaf Springs (Int. Cl. 6).
First use Mar. 4, 1969.

SN 333,886. Advanced Thermal Systems, Inc., Tonawanda, N.Y. Filed July 30, 1969.

AS

For Expansion Joints for Use in Pipes Handling Fluid Under Pressure and at an Elevated Temperature Such as Steam; and Accessories for Such Expansion Joints—Namely, Semi-Plastic Packing Plugs Composed of Asbestos Fibers and Granules of Tetrafluoroethylene, and Molybdenum Disulfide Lubricant for Expansion Joint Packing (Int. Cls. 6 and 17).
First use on or about Dec. 9, 1968.

SN 334,340. Martin Johnson Water Works Supply Company, Tustin, Calif. Filed Aug. 4, 1969.

EVER-DURO

For Polyethylene Water Service Pipe (Int. Cl. 17).
First use Jan. 19, 1968.

SN 334,681. Amtec Corporation, Grand Rapids, Mich. Filed Aug. 7, 1969.

For Pipe Line Fittings (Int. Cl. 6).
First use on or about June 23, 1969.

SN 335,094. Vabco Italia S.p.A., Torbole Casaglia (Brescia), Italy. Filed Aug. 11, 1969.

VABCO

Priority claimed under Sec. 44(d) on Italian application filed June 19, 1969; Reg. No. 242,901, dated Feb. 18, 1970.
For Faucets, Valves, and Plumbing Fittings (Int. Cl. 11).

SN 338,616. Sentry Hardware Corporation, Cleveland, Ohio. Filed Sept. 22, 1969.

MINUTEMAN

Owner of Reg. Nos. 764,976, 880,336, and others.
For Plumbing Supplies—Namely, Valves, Faucets, Drains, Tubing, and Replacement and Repair Parts for Plumbing Fixtures, But Not To Be Interpreted as Being Fixtures (Int. Cls. 6 and 11).
First use July 21, 1969.

SN 340,946. Sabel Manufacturing Company, Charleston, S.C. Filed Oct. 16, 1969.

PERMAPOLE

For Metal Clothes Line Poles (Int. Cl. 6).
First use Sept. 15, 1969.

SN 347,330. Set Screw & Mfg. Co., Bartlett, Ill. Filed Dec. 29, 1969.

SETKO

Owner of Reg. No. 805,913 and others.
For Set Screws and Self-Locking Set Screws (Int. Cl. 6).
First use Nov. 14, 1969.

SN 351,958. Miller Supply Corp., White Plains, N.Y. Filed Feb. 20, 1970.

GRIP-RITE

For Nails and Brads (Int. Cl. 6).
First use in or about June 1967.

SN 353,070. Merriman Holbrook, Inc., Grand River, Ohio. Filed Mar. 4, 1970.

HYDRASTAY

For Marine Fittings (Int. Cl. 6).
First use at least as early as January 1970.

SN 353,359. Baker Drapery Corporation, Peoria, Ill. Filed Mar. 9, 1970.

SNAP-A-PLEAT

For Drapery Hardware and Accessories (Int. Cl. 6).
First use June 1965.

SN 353,799. Tidy Tube Corporation, Hempstead, N.Y. Filed Mar. 11, 1970.

Tidy Tube TUBE WINDER

The words "Tube Winder" are disclaimed apart from the mark.
For Device for Expelling the Contents of Collapsible Tubes and Winding and Storing said Tubes (Int. Cl. 6).
First use in or about June 1969.

SN 356,117. Northern Metal Products Company, Marshfield, Mo. Filed Apr. 6, 1970.

ASTRO CLAMP

Applicant claims the exclusive use to the word "Clamp" as a part of its mark, but not otherwise.
For Couplings for Cast Iron Piping (Int. Cl. 6).
First use Mar. 5, 1970.

SN 357,013. TSC Industries Inc., Chicago, Ill. Filed Apr. 15, 1970.

STOCKY

Owner of Reg. No. 761,712.
For Metal Farm Gates, Fencing and Steel Fence Posts (Int. Cl. 6).
First use summer 1960.

SN 360,087. Leonard Kian, Grand Rapids, Mich. Filed May 18, 1970.

ZIP-A-PIZZA

For Cooking Utensils, Particularly Adapted for Cooking Pizzas and Other Low-Silhouette Food Items (Int. Cl. 21).
First use on or about May 2, 1970.

SN 361,222. Merriman Holbrook, Inc., Grand River, Ohio. Filed June 1, 1970.

Owner of Reg. Nos. 598,078 and 755,368.
For Marine and Yacht Hardware—Namely, Deck Fittings and Rigging Fittings (Int. Cl. 6).
First use in 1949.

SN 365,091. Mildred Rose Haydock, doing business as Haydock Caster Company, Niles, Ill. Filed July 13, 1970.

STRAIGHT LINE

For Casters, for Use in Furniture (Int. Cl. 6).
First use May 1970.

Class 14—Metals and Metal Castings and Forgings

SN 325,150. American Cyanamid Company, Wayne, N.J. Filed Apr. 22, 1969.

DURA-CORE

For Aluminum Honeycomb Core for Use as a Component in the Manufacture of Various Parts of Aircraft and Aerospace Vehicles (Int. Cl. 6).
First use Apr. 2, 1969.

SN 327,517. St. Clair/Field Incorporated, Mountain View, Calif. Filed May 16, 1969.

ULTRABOND

For Aluminum Coated Metal-Alloy Substrates, Sold in Sheet and Strip Form, for Use in the Manufacture of Integrated Electronic Circuits (Int. Cl. 6).
First use Apr. 25, 1969.

SN 347,419. Jones & Laughlin Steel Corporation, Pittsburgh, Pa. Filed Dec. 30, 1969.

VAN 80

For High Yield Strength Structural Steel. (Int. Cl. 6).
First use Sept. 29, 1969.

SN 350,052. Carpenter Technology Corporation, Reading, Pa. Filed Jan. 30, 1970.

PYROTOOL

For Steel in the Form of Wire, Strips, Bars, Billets and Shapes (Int. Cl. 6).
First use July 21, 1969.

SN 353,318. Movible Offshore, Inc., Lafayette, La. Filed Mar. 6, 1970.

SEASTAPLE

For Explosively Embedded Deadman Type Underwater Anchors (Int. Cl. 6).
First use on or about July 26, 1960.

SN 356,631. Marion S. Cooley, doing business as Coolver Studios, Wyoming, Ohio. Filed Apr. 13, 1970.

COOLVER

For Cast Metals for Use in Arts and Crafts (Int. Cl. 6).
First use Mar. 1, 1970.

Class 15—Oils and Greases

SN 314,948. Blue Fox Industries, Inc., Brooklyn, N.Y. Filed Dec. 20, 1968.

Blue Fox

For Motor Oil and Motor Oil Additives, and Automobile Anti-Freeze Used as a Gasoline Additive and Starting Fluids for Internal Combustion Engines (Int. Cls. 1 and 4).
First use Oct. 8, 1968.

Class 16—Protective and Decorative Coatings

SN 345,168. Dorothy Harrower, doing business as Harrower House of Decoupage, Upper Black Eddy, Pa. Filed Dec. 8, 1969.

ANTIQUE LACE

For Liquid Paint for Decorative Use Under Glass (Int. Cl. 2).
First use July 28, 1969.

SN 356,042. The Craftint Manufacturing Company, Cleveland, Ohio. Filed Apr. 6, 1970.

CRAFTINE

Owner of Reg. Nos. 679,006, 821,162, and others.
For Turpentine Substitute for Artists' Oil Colors (Int. Cl. 4).
First use Feb. 20, 1970.

Class 17—Tobacco Products

SN 317,139. Sony Corporation, Shinagawa-ku, Tokyo, Japan. Filed Jan. 21, 1969.

SONY

Owner of Reg. Nos. 691,940, 797,113, 824,847, and others.
For Cigarettes (Int. Cl. 34).
First use June 11, 1968; in commerce June 11, 1968.

SN 326,893. Liggett & Myers Incorporated, New York, N.Y. Filed May 9, 1969.

VELVET'S STERLING

Owner of Reg. Nos. 136,516 and 796,640.
For Smoking Tobacco (Int. Cl. 34).
First use Feb. 27, 1969; in or about 1891 as to "Sterling."

SN 346,237. General Cigar Co., Inc., New York, N.Y. Filed Dec. 15, 1969.

TEE JAYS

For Cigars (Int. Cl. 34).
First use Nov. 25, 1969.

SN 350,417. Camacho Cigars, Inc., Miami, Fla. Filed Feb. 4, 1970.

JOYA DE NICARAGUA

The mark in its entirety, in the English language, means "jewel of Nicaragua." Applicant disclaims the word "Nicaragua" apart from the mark as shown, and without limitation of its common law rights relating to the same.
For Cigars (Int. Cl. 34).
First use Jan. 22, 1970.

SN 353,703. Sinesio Moro, Miami, Fla. Filed Mar. 11, 1970.

SINESIO MORO

"Sinesio Moro" is the name of the applicant, whose consent to use his name is of record.
For Cigars (Int. Cl. 34).
First use Sept. 30, 1968.

SN 356,582. R. J. Reynolds Tobacco Company, Winston-Salem, N.C. Filed Apr. 13, 1970.

DUTCH APPLE

Owner of Reg. No. 869,284.
For Smoking Tobacco (Int. Cl. 34).
First use Apr. 8, 1970.

Class 18—Medicines and Pharmaceutical Preparations

SN 343,479. Abbott Laboratories, North Chicago, Ill. Filed Nov. 14, 1969.

AQUAFRESH

For Vaginal Douche Preparation (Int. Cl. 5).
First use July 17, 1968.

SN 346,832. American Cyanamid Company, Wayne, N.J. Filed Dec. 22, 1969.

CYANAMILK

For Medicated Animal Feed Premix (Int. Cl. 5).
First use Dec. 10, 1969.

Class 19—Vehicles

SN 305,135. Hovermarine Limited, Six Dials, Southampton, England. Filed Aug. 14, 1968.

HOVERMARINE

Priority claimed under Sec. 44(d) on British Reg. No. B921,127, dated Feb. 15, 1968.
For Self-Propelled Air Cushion Marine Vehicles and Self-Propelled Air Cushion Amphibious Vehicles (Int. Cl. 12).

SN 305,186. Hovermarine Limited, Six Dials, Southampton, England. Filed Aug. 14, 1968.

HOVERCAT

Priority claimed under Sec. 44(d) on British Reg. No. B921,735, dated Feb. 28, 1968.
For Self-Propelled Air Cushion Ground Vehicles and Self-Propelled Air Cushion Amphibious Vehicles (Int. Cl. 12).

SN 313,691. Formula 1 Enterprises, Inc., New York, N.Y. Filed Dec. 5, 1968.

formula 1

Owner of Reg. No. 844,909.
For Automotive Components and Accessories Therefor—Namely, Steering Wheels, Car Wheels, Head Guards, Rear Mirrors, Seatbelts, and Windshield Wipers (Int. Cl. 12).
First use Mar. 31, 1966.

SN 332,444. Boatel Company, Inc., Mora, Minn. Filed July 14, 1969.

GRAND PRIX

For Snowmobiles (Int. Cl. 12).
First use June 27, 1969.
Subj. to Intf. with SN 333,715.

SN 333,715. Industries Bouchard, Inc., La Pocatiere, Quebec, Canada. Filed July 28, 1969.

GRAND PRIX

For Snowmobiles (Int. Cl. 12).
First use Jan. 17, 1969; in commerce Jan. 17, 1969.
Subj. to Intf. with SN 332,444.

SN 340,043. Pioneer Parachute Company, Inc., Manchester, Conn. Filed Oct. 7, 1969.

PARAFLYER

For Parachutes (Int. Cl. 12).
First use Sept. 3, 1969.

SN 346,151. Winston Industries, Inc., Birmingham, Ala. Filed Dec. 12, 1969.

Ashridge

For Mobile Homes (Int. Cl. 12).
First use Sept. 5, 1969.

SN 346,652. Reinell Boats, Inc., Marysville, Wash. Filed Dec. 18, 1969.

REINELL

For Small Motor Boats (Int. Cl. 12).
First use 1923.

SN 365,887. The Commodore Corporation, Omaha, Nebr. Filed July 22, 1970.

surfside

The lines in the drawing are not to indicate color, but they are an integral part of the mark.
For Motor Homes (Int. Cl. 12).
First use on or about Mar. 5, 1970.

Class 20—Linoleum and Oiled Cloth

SN 333,187. Rae Schwartz, d.b.a. Schwartz's Famous Tile & Linoleum, Bellmawr, N.J. Filed July 22, 1969.

Love is FAMOUS TILE·LINOLEUM·CARPET

Applicant disclaims any right to the words "Tile·Linoleum·Carpet" apart from the mark as shown.
For Tile, Linoleum and Carpet (Int. Cl. 27).
First use Feb. 20, 1967.

SN 348,787. Nairn-Williamson Limited, Lancaster, England. Filed Jan. 16, 1970.

KINGFISHER

Owner of British Reg. No. 885,503, dated Oct. 13, 1965.
For Sheets of Plastics in the Nature of Hangings for Use as Wall Coverings, all Backed With Paper Bonded Fibres, or Textile Materials (Int. Cl. 27).

Class 21—Electrical Apparatus, Machines, and Supplies

SN 324,473. Laser Systems Corporation, Ann Arbor, Mich. Filed Apr. 14, 1969.

MINI-SENTRY

For Intrusion Detection Systems for Buildings Using a Beam of Radiant Energy for Indicating the Presence of an Object (Int. Cl. 9).
First use Sept. 25, 1968.

SN 329,996. Molex Products Company, Downers Grove, Ill. Filed June 13, 1969.

SOLDERCON

For Electrical Connectors—Namely, Sockets and Terminals for Semi-Conductors Such as Diodes, Transistors and Integrated Circuits (Int. Cl. 9).
First use on or about Apr. 1, 1969.

SN 334,851. Leybold-Heraeus Gesellschaft mit beschrankter Haftung & Co., Cologne-Bayenthal, Germany. Filed Aug. 8, 1969.

VACUMATIC

Priority claimed under Sec. 44(d) on German application filed Feb. 11, 1969; Reg. No. 859,733, dated July 31, 1969.
For Automatic Control Units Incorporating Measuring and Switching Devices for High Vacuum Pump Systems (Int. Cl. 9).
First use 1966; in commerce Jan. 28, 1969.

SN 335,468. Ripley Company, Inc., Middletown, Conn. Filed Aug. 15, 1969.

TRANSFORMEX

For Power Transmission Equipment—Namely, Transformers, Distribution Lines and Cables (Int. Cl. 9).
First use June 25, 1969.

SN 343,984. K-S-H, Inc., St. Louis, Mo. Filed Nov. 19, 1969.
Owner of Reg. No. 639,495.

KSH-13

For Light Transmitting Plastic Panels Used Primarily as Enclosures for Lighting Fixtures and, Mounted Beneath Light Sources, in Luminous Ceilings (Int. Cl. 11).
First use Sept. 26, 1969.

SN 343,985. K-S-H, Inc., St. Louis, Mo. Filed Nov. 19, 1969.
Owner of Reg. No. 639,495.

KSH-15

For Light Transmitting Plastic Panels Used Primarily as Enclosures for Lighting Fixtures and, Mounted Beneath Light Sources, in Luminous Ceilings (Int. Cl. 11).
First use Sept. 26, 1969.

SN 347,208. Cartridge Television, Inc., New York, N.Y. Filed Dec. 29, 1969.

CARTRIVISION

For Video Cartridges for Use With Video Recorders and Reproducers (Int. Cl. 9).
First use Nov. 14, 1969.

SN 347,209. Cartridge Television, Inc., New York, N.Y. Filed Dec. 29, 1969.

CARTRIVISION

For Video Recorders and Reproducers, Components and Adaptors for Using Said Video Recorders and Reproducers in Conjunction With Television Receivers (Int. Cl. 9).
First use Nov. 14, 1969.

SN 367,090. Ballistics Control Corporation, Long Island City, N.Y. Filed Aug. 5, 1970.

ALERTALARM

For Electronic Burglar and Fire Alarms (Int. Cl. 9).
First use June 1969.

Class 22 — Games, Toys, and Sporting Goods

SN 335,615. Six Sixty Six Corporation, Clawson, Mich. Filed Aug. 18, 1969.



For Equipment Sold as a Unit for Playing a Board Game (Int. Cl. 28).
First use July 3, 1969.

SN 335,621. Benjamin L. Toler, doing business as The Toler Company, Vienna, Va. Filed Aug. 18, 1969.

FINGERPRINT EXPERT

For Equipment (or Apparatus), Sold as a Unit for Playing a Combination Board and Card Game (Int. Cl. 28).
First use at least as early as Jan. 24, 1969.

SN 335,992. Lifegard Mfg. Corp., East Syracuse, N.Y. Filed Aug. 22, 1969.

AQUA/MATIC

Life Preserver, Automatically Inflated Upon Immersion in Water (Int. Cl. 9).
First use Aug. 1, 1969.

SN 338,271. Slazengers Limited, Croydon, Surrey, England. Filed Sept. 18, 1969.

CHALLENGE

For Tennis and Squash Rackets and Frames (Int. Cl. 28).
First use since 1949; in commerce in 1949.

SN 338,405. James W. Lang, Mound, Minn. Filed Sept. 19, 1969.

ARITHMETIC-TAC-TOE

For Apparatus Consisting of a Game Board for Playing a Tic-Tac-Toe Type Arithmetic Game (Int. Cl. 28).
First use on or about Sept. 8, 1969.

SN 338,605. Playskool, Inc., Chicago, Ill. Filed Sept. 22, 1969.

LONE STAR

For Dominoes (Int. Cl. 28).
First use Dec. 31, 1956.

SN 340,682. Rainbow Crafts, Inc., Cincinnati, Ohio. Filed Oct. 14, 1969.

ZOOP-THE-LOOP

For Apparatus for Playing a Target Game (Int. Cl. 28).
First use on or prior to Sept. 9, 1969.

SN 341,020. Ralph M. De Weese, d.b.a. Wisconsin Lure Co., Fox Lake, Ill. Filed Oct. 17, 1969.



For Spoon-Type Fishing Lures (Int. Cl. 28).
First use Aug. 11, 1966.

SN 341,863. Sternco Industries, Inc., Harrison, N.J. Filed Oct. 27, 1969.

DELTA

For Toys for Use With Home Aquariums (Int. Cl. 28).
First use July 23, 1969.

SN 342,148. Die Casting Machine Tools Limited, London, England. Filed Oct. 30, 1969.

TUF-TOTS

For Miniature Toy Vehicles (Int. Cl. 28).
First use Jan. 24, 1969; in commerce Feb. 4, 1969.

SN 342,727. Milton Bradley Company, Springfield, Mass. Filed Nov. 5, 1969.



The drawing is lined for red and blue, but color is not claimed as a feature of the mark. Owner of Reg. Nos. 642,857 and 870,810.
For Toys, Board Games, Card Games, Skill and Action Games, Puzzles, Jig Saw Puzzles, Peg Boards, Dolls and Costumes Therefor, Toy Animals, Toy Sewing Sets, Toy Beads, Weaving Looms, Toy Blocks, Colored Sticks and Squares and Balls, Toy Wheeled Vehicles, Pull Toys, Toy Houses and Furniture Therefor; Children's Educational Materials—Namely, Modeling Clays, Finger Paints, Coloring Sets, and Counting Frames (Int. Cl. 28).
First use Nov. 18, 1968.

SN 345,775. E. T. Wright & Co., Inc., Rockland, Mass. Filed Dec. 10, 1969.

PERMA-SPIKE

For Spiked Plates for Golf Shoes (Int. Cl. 6).
First use Nov. 7, 1969.

SN 347,897. Etowah Manufacturing Company, Inc., Gadsden, Ala. Filed Dec. 30, 1969.



The drawing is lined for the colors blue and red, but no claim is made to color.
For Toy Electronic and Science Kits (Int. Cl. 28).
First use July 30, 1969.

SN 352,303. Rainbow Crafts, Inc., Cincinnati, Ohio. Filed Feb. 25, 1970.

FISH'N CATCH-IT

For Equipment Sold as a Unit for Playing a Parlor Type Amusement Game (Int. Cl. 28).
First use on or about Jan. 30, 1970.

SN 353,296. Elkton Sparkler Company, Inc., North East, Md. Filed Mar. 6, 1970.

SAN-TEE

For Fishing Tackle (Int. Cl. 28).
First use Apr. 19, 1969.

SN 357,683. Howard S. Garns, Indianapolis, Ind. Filed Apr. 23, 1970.

RESOLVE·A·DATE

For Equipment Sold as a Unit for Playing a Word Game (Int. Cl. 28).
First use Apr. 6, 1970.

SN 358,661. Lindy's Manufacturing Corporation, Brainerd, Minn. Filed May 4, 1970.

Lindy Rig

No claim of exclusive right is made to "Rig" for the goods recited.
For Fishing Tackle—Namely, a Set Comprising a Sinker, Swivel and Snell With Hook for Use on a Fishing Line (Int. Cl. 28).
First use at least as early as September 1966.

SN 360,644. Mattel, Inc., Hawthorne, Calif. Filed May 25, 1970.

BABY GO BYE-BYE

No claim of exclusive right is made to the word "Baby" apart from the mark.
For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use Feb. 17, 1970.

SN 361,229. Mattel, Inc., Hawthorne, Calif. Filed June 1, 1970.

CHATTY BABY

No claim of exclusive right is made to "Baby" for the goods recited. Owner of Reg. Nos. 704,555, 891,238, and others.
For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use Feb. 17, 1970.

SN 362,611. Mattel, Inc., Hawthorne, Calif. Filed June 15, 1970.

BUSY BECKY

Owner of Reg. No. 832,871.
For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use May 19, 1970.

SN 362,614. Mattel, Inc., Hawthorne, Calif. Filed June 15, 1970.

GOIN' DRAGGERS

No claim of exclusive right is made to the word "Dragger," apart from the mark.
For Toy Automobile and Hobby Kit for Making Same (Int. Cl. 28).
First use May 19, 1970.

SN 362,617. N.E.W.S. Enterprises, Inc., Houston, Tex. Filed June 15, 1970.

avanti SPORT

Applicant disclaims the word "Sport" apart from the mark.
For Specialized Spiked, Cleated or Hobbed Sport Shoes; Sport Uniforms—Namely, Baseball and Football Uniforms; and Protective Pads, and Other Accessories Adapted for the Safety, Protection and Improvement of a Player Utilizing Such Uniform (Int. Cls. 9 and 25).
First use About June 1, 1966.

SN 362,876. American Iguana, Inc., New York, N.Y. Filed June 17, 1970.

CLASS

For Equipment Sold as a Unit for Playing an Adult Type Board Game (Int. Cl. 28).
First use June 3, 1970.

SN 363,237. Parker Brothers, Inc., Salem, Mass. Filed June 22, 1970.

THE FLEEP HOUSE

For Equipment for Playing a Children's Parlor Game (Int. Cl. 28).
First use May 29, 1970.

SN 365,396. Mattel, Inc., Hawthorne, Calif. Filed July 16, 1970.

HOT LINE

For Toy Railroad Trains (Int. Cl. 28).
First use June 29, 1970.

SN 366,626. Urban Systems, Inc., Cambridge, Mass. Filed July 30, 1970.

ECOLOGY

For Equipment (or Apparatus), Sold as Unit for Playing a Board-Type Parlor Game (Int. Cl. 28).
First use at least as early as May 8, 1970.

SN 366,849. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

OPEN FIRE

For Toy Automobile (Int. Cl. 28).
First use June 26, 1970.

SN 366,855. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

STEFFIE

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 366,856. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

GURGLES

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 366,859. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

BEANIES

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 367,108. Mattel, Inc., Hawthorne, Calif. Filed Aug. 5, 1970.

SUPER COMPETITION

For Toy Kit Comprising Toy Tops, a Three Dimensional Game Board, Bowling Stilts, and Hoops (Int. Cl. 28).
First use Feb. 17, 1970.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 312,940. General Signal Corporation, New York, N.Y. Filed Oct. 9, 1968.

DYNAPOWER

Owner of Reg. No. 784,872.
For Hydraulic Starters, i.e., Rotary Hydraulic Motors Adapted to Accelerate Engines to Prescribed Speeds and Which Incorporate Overrunning Clutches and May Also Incorporate one or More of the Following Parts: Gear Boxes, Displacement Controls, Cut-Out Switches and Flow Control Valves; Hydraulic Motor-Pumps, i.e., Electric Motor-Driven Hydraulic Pumps; and Hydraulic Starting Systems Including Various Combinations of the Following Components, Some of Which May Be Assembled on a Self-Sustaining Frame or in an Enclosure; Pumps, Starters, Accumulators, Reservoirs, Valves, Filters, Heat Exchangers, Hoses, Tubes, Fittings, Electrical Generators, Electrical Controls, and Prime Movers—Namely, Electric Motors, Gas Turbines, Diesel Engines and Gasoline Engines, for Driving the Pumps and Generators (Int. Cl. 7).
First use Feb. 26, 1965.

SN 312,942. General Signal Corporation, New York, N.Y. Filed Oct. 9, 1968.

STRATOPOWER

Owner of Reg. Nos. 407,594, 635,894, and 661,897.
For Hydraulic Pumps of Both Fixed Displacement and Variable Displacement Types; Hydraulic Starters, i.e., Rotary Hydraulic Motors Adapted to Accelerate Engines to Prescribed Speeds and Which Incorporate Overrunning Clutches and May Also Incorporate one or More of the Following Parts: Gear Boxes, Displacement Controls, Cut-Out Switches and Flow Control Valves; Hydraulic Starter-Pumps, i.e., Hydraulic Units Adapted to be Both a Starter Motor and a Pump; Hydraulic Motor-Pumps, i.e., Electric Motor-Driven Hydraulic Pumps; Hydraulic Flow Control Valves Used for Limiting the Rate at which Fluid is Supplied to Hydraulic Starters; and Hydraulic Starting Systems—Namely, Combinations of Components, Including Hydraulic Starters, Which Constitute Systems Adapted to Utilize Hydraulic Power for Accelerating Engines (Int. Cl. 7).
First use Jan. 16, 1948.

SN 315,868. Anthony Pools, Inc., South Gate, Calif. Filed Jan. 6, 1969.



The drawing is lined for the color blue, but no claim is made as to color.
For Centrifugal Pumps for Use in Circulating Water in Swimming Pools (Int. Cl. 7).
First use February 1967.

SN 317,266. Wilkinson Sword Limited, London, England. Filed Jan. 22, 1969.



Priority claimed under Sec. 44(d) on British Reg. No. 928,485, dated July 24, 1968.
For Garden Tools and Parts of Garden Tools (Int. Cl. 8).

SN 321,265. Phelps Dodge Magnet Wire Corporation, Fort Wayne, Ind. Filed Mar. 10, 1969.

REELEZE

For Dereeler Units for Paying Out Magnet Wire and Similar Strand Material From Reels or Spools to Winding Machines (Int. Cl. 7).
First use Feb. 12, 1969.

SN 325,770. Miehle-Goss-Dexter, Incorporated, Chicago, Ill. Filed Apr. 28, 1969.

INJECTOR

For Automatic Ink Feeding Mechanism for Power Operated Printing Presses (Int. Cl. 7).
First use Apr. 17, 1969.

SN 326,876. Federal Sign and Signal Corporation, Chicago, Ill., by merger from Hayes Track Appliance Company, Richmond, Ind. Filed May 9, 1969.

Hayes

Owner of Reg. Nos. 507,346 and 522,602.
For Track Appliances—Namely, Railway Track Derails, Railway Derail Target Stands, and Railway Derail Target Mounts (Int. Cl. 6).
First use Aug. 9, 1965.

SN 332,953. Industrial Precision Products, Inc., Oswego, N.Y. Filed July 18, 1969.

KINGSFORD

For Pumps for Water Supply Systems and for the Chemical and Process Industries (Int. Cl. 7).
First use at least as early as May 1, 1911.

SN 333,472. Westinghouse Air Brake Company, Pittsburgh, Pa. Filed July 24, 1969.

"POWERMASTER"

For Pneumatic and Hydraulic Cylinders (Int. Cl. 7).
First use Apr. 7, 1961.

SN 334,326. Hydrapower Inc., Wadsworth, Ohio. Filed Aug. 4, 1969.

HYDRAPOWER

For Hydraulic Power Units for Industrial Use—Namely, Rotary Actuators, Rams, Accumulators, Shock Absorbers, and Cylinders (Int. Cl.7).
First use Aug. 13, 1968.

SN 335,118. Borg-Warner Corporation, Chicago, Ill. Filed Aug. 12, 1969.

WARNER-MOTIVE

For Hydraulic Pumps, Hydraulic Motors, Gear Boxes, Spin Resistant Differentials, and Power Wheels (Int. Cl. 7).
First use on or prior to Mar. 1, 1963.

SN 336,117. I. C. Herman & Company, Inc., New York, N.Y. Filed Aug. 25, 1969.

BRYSON

For Hem, Button and Buttonhole Sewing Equipment (Int. Cl. 7).
First use Aug. 18, 1969; 1943 as to "Bryson."

SN 339,529. Ampor Marine Corporation, Rochester, N.Y. Filed Oct. 2, 1969.

AMPOR MARINE

The drawing is lined for the color blue.
For Anchor Retractors (Int. Cl. 6).
First use at least as early as Feb. 21, 1968.

SN 339,703. Bird Machine Company, South Walpole, Mass. Filed Oct. 3, 1969.

MINI MIZER

For Centrifugal Separators (Int. Cl. 7).
First use Aug. 27, 1969.

SN 340,052. Turbo Machine Company, Lansdale, Pa. Filed Oct. 7, 1969.

SUPERSET

For Texturing Machines (Int. Cl. 7).
First use Sept. 27, 1969.

SN 346,318. Standard Products Corporation, Whitman, Mass. Filed Dec. 15, 1969.

VALMOR

Owner of Reg. Nos. 795,343 and 876,641.
For Electric Shavers (Int. Cl. 8).
First use on or about Mar. 20, 1968.

SN 347,157. Hewitt-Robins Incorporated, Stamford, Conn. Filed Dec. 29, 1969.

ALLETVEYOR

For Conveyor Systems With Horizontal Platforms (Int. Cl. 7).
First use May 7, 1962.

SN 348,424. Grob & Co. Limited, Horgen, Zurich, Switzerland. Filed Jan. 13, 1970.

GROBAMEXTEX

Owner of Swiss Reg. No. 239,995, dated July 10, 1969; and U.S. Reg. Nos. 840,839 and 879,896.
For Loom Components—Namely, Weaving Heddles, Heddle Frames, Weaving Harnesses, as Well as Drop Wires, Electric Warp Stop Motions (Int. Cl. 7).

SN 349,635. Hacker Instruments Inc., West Caldwell, N.J. Filed Jan. 26, 1970.

PERMA-SHARP

For Microtome Knife Sharpener (Int. Cl. 7).
First use Mar. 1, 1969.

SN 351,156. Southern Sanitation Service, Inc., Pompano Beach, Fla. Filed Feb. 11, 1970.

SOUTHERN

For Garbage and Waste Disposal Units (Int. Cl. 7).
First use 1962.

SN 353,487. The Harriman Manufacturing Company, Chattanooga, Tenn. Filed Mar. 9, 1970.

CHATTANOOGA

For Agricultural Implements—Namely, Ground Engaging Cultivator Sweeps (Int. Cl. 7).
First use July 26, 1962.

SN 355,136. Kimwood Corporation, Cottage Grove, Oreg. Filed Mar. 26, 1970.

KIMWOOD

For Plywood and Sawmill Machinery, and Parts Thereof (Int. Cl. 7).
First use May 31, 1958.

SN 355,189. MTD Products Inc., Cleveland, Ohio. Filed Mar. 26, 1970.

SNOW FLITE

Applicant disclaims "Snow" apart from the mark as a whole, reserving unto itself all common law rights. Owner of Reg. No. 777,816.
For Motorized Snow-Throwers (Int. Cl. 7).
First use on or about Oct. 15, 1968.

SN 357,169. Laconia Needle Manufacturing Co., Inc., Laconia, N.H. Filed Apr. 17, 1970.

The drawing is lined for the colors blue and red, but is not restricted to these particular colors.
For Needles for Textile Machines, Knitting Needles for Textile Machines, and Wire Products Which Include Tucking Needles, Inserts, Jacks, and Push Rods, for Such Textile Machines (Int. Cl. 7).
First use Feb. 20, 1970.

SN 357,172. Martin Engineering Company, Neponset, Ill. Filed Apr. 17, 1970.

VSR

For Machines for Providing Dimensional Stability in Ferrous and Non-Ferrous Metals by the Application of Vibratory Energy (Int. Cl. 7).
First use Sept. 10, 1969.

SN 357,294. Simer Pump Company, Minneapolis, Minn. Filed Apr. 20, 1970.

BLUE WATER

For Power-Operated Liquid Transfer Pumps (Int. Cl. 7).
First use in or about November 1968.

SN 361,221. Merriman Holbrook, Inc., Grand River, Ohio. Filed June 1, 1970.

Owner of Reg. Nos. 598,078 and 755,368.
For Blocks, Winches and Davits for Yachting Use (Int. Cl. 7).
First use in 1949.

SN 363,224. Bruning Company, Lincoln, Nebr. Filed June 22, 1970.

BIE

For Cylinders for Use in Fluid Power Systems (Int. Cl. 7).
First use May 26, 1970.

SN 363,621. Timex Corporation, Waterbury, Conn. Filed June 25, 1970.

TIMEX

For Horological Tools and Parts Thereof (Int. Cl. 8).
First use July 1969.

Class 25—Locks and Safes

SN 326,714. American Home Products Corporation, New York, N.Y. Filed May 8, 1969.

SAFE-T-LOCK

For Inter-Locking Safety Release Device for Floor Shampooing Machines (Int. Cl. 6).
First use Aug. 9, 1968.

Class 26—Measuring and Scientific Appliances

SN 281,957. H. L. Bouton Company, Inc., Buzzards Bay, Mass. Filed Oct. 6, 1967.

OPTIGARD

For Welding and Safety Lenses for Industrial Goggles (Int. Cl. 9).
First use June 29, 1961.

SN 321,217. Harmonic Reed Corporation, doing business as Nova Laboratories, West Conshohocken, Pa. Filed Mar. 10, 1969.

MOONSCOPE

For Telescopes (Int. Cl. 9).
First use November 1955.

SN 321,700. Laucks Laboratories, Inc., Redmond, Wash., assignee of Terra Tec Incorporated, Seattle, Wash. Filed Mar. 13, 1969.

Terra Tec

For Geophysical Instruments Such as Hydrostatic Pressure Instruments, Piezometer and Control Units (Int. Cl. 9).
First use Mar. 7, 1968.

SN 328,305. Kameco Electronics Ltd., Montreal, Quebec, Canada. Filed May 26, 1969.

TELEMAT

For Peripheral Equipment for Use in Data Transmission Systems—Namely, Communications Terminal Controllers, Code and Format Generators, Code Translators, Date and Time Generators, Automatic Addressers and Number Dialers, and Integrated Data Terminals (Int. Cl. 9).
First use Jan. 25, 1968; in commerce March 1969.

SN 330,534. Pratt & Whitney Inc., West Hartford, Conn. Filed June 19, 1969.

CHECKMATE

For Dimensional Gages (Int. Cl. 9).
First use June 1, 1963.
Subj. to Intf. with SN 335,209.

SN 332,013. GAF Corporation, New York, N.Y. Filed July 8, 1969.

LENTAR

For Optical and Photographic Apparatus and Devices and Parts Therefor, Particularly Cameras, Binoculars, Lenses and Accessories for Use Therewith (Int. Cl. 9).
First use on or about Oct. 1, 1964.

SN 332,753. Thiokol Chemical Corporation, Bristol, Pa. Filed July 16, 1969.

HY-TEL

For Meteorological and Hydrological Data Collection System Comprising: Base Station Equipment Including Control Consoles Having a Radio Transmitter, Radio Receiver, Address-Tone Generator, Subcarrier Discriminator, Analog-Digital Converter, Visual Data Display, Antenna and Tower; and Remote Site Equipment Including a Radio Transmitter, Radio Receiver, Address-Tone Decoder, Subcarrier Oscillator, Voltage Regulator, Power Module, Interface Module, Sensors, Transducers, Antenna, Tower and Field Communications Set (Int. Cl. 9).
First use Dec. 27, 1967.

SN 332,956. Ralph D. Kaiser, d.b.a. R. D. Kaiser Company, Washington, D.C. Filed July 18, 1969.

CALISTER

For Hand-Operated Dial Chart for Use as Mortgage Calculators and Computers (Int. Cl. 9).
First use May 17, 1969.

SN 334,484. Milton Roy Company, St. Petersburg, Fla. Filed Aug. 5, 1969.

CHEM ROY

Owner of Reg. Nos. 655,033, 770,690, and others.
For Controlled Volume Pumps, Particularly for Metering Fluid Flow in Chemical and Other Industrial Processes (Int. Cl. 9).
First use Feb. 21, 1969.

SN 335,209. Crounse Corporation, Paducah, Ky. Filed Aug. 13, 1969.

CHEK-MATE

For Precision Measuring Apparatus (Int. Cl. 9).
First use at least as early as Mar. 7, 1969.
Subj. to Intf. with SN 330,534.

SN 339,969. Tridea Electronics Company, El Monte, Calif. Filed Oct. 6, 1969.

ALDRAFT

For Automatic Drafting Equipment Consisting of a General Purpose Digital Computer Interfaced With a Drafting Machine (Int. Cl. 9).
First use June 26, 1967.

SN 339,976. Ventron Corporation, Beverly, Mass. Filed Oct. 6, 1969.

MILLIBALANCE

For Electromagnetic Mass Measuring Balances for Weighing Small Parts in Factories, Chemical Laboratories, Clinics, and Other Industrial and Scientific Establishments (Int. Cl. 9).
First use Aug. 22, 1969.

SN 342,504. Wilhelm Anger OHG, Traun, Austria. Filed Nov. 3, 1969.

VIENNALINE 21

Owner of Reg. No. 717,858.
For Eye Glasses of All Kinds, Eye Glass Frames and Sun Glasses, Sport Glasses, Protective Glasses, Particularly Those Made of Plastic, Metal and of Plastic-Metal Combinations (Int. Cl. 9).
First use on or about July 1, 1969; in commerce on or about July 22, 1969.

SN 342,515. Royal Industries, Inc., Pasadena, Calif. Filed Nov. 3, 1969.

AIR-FLOAT

For Wheel Balancers (Int. Cl. 9).
First use approximately Mar. 20, 1961.

SN 342,554. United States Banknote Corporation, New York, N.Y. Filed Nov. 3, 1969.

EASI TEMP

Applicant disclaims the word "Temp," apart from the mark as shown, without relinquishment of any of its common law rights in the same.
For Electronic Thermometers (Int. Cl. 9).
First use at least as early as May 5, 1969.

SN 344,882. E. Clifford Potter, d.b.a. Heliolux, San Francisco, Calif. Filed Nov. 28, 1969.

HELIOLUX

For Heliodons for Determining Shadow Patterns (Int. Cl. 9).
First use Oct. 28, 1969.

SN 345,754. Foto-Mem, Inc. Natick, Mass. Filed Dec. 10, 1969.

FOTO-VISION

For Computer or Keyboard Display Terminal for Entry, Correction, Verification, Retrieval and Display of Alphanumerical Information (Int. Cl. 9).
First use at least as early as October 1969.

SN 350,114. Opto/Graphics, Inc., Northbrook, Ill. Filed Jan. 30, 1970.

O G CHROMA

Without waiver of its common law rights, applicant makes no claim to the word "Chroma" apart from the mark.
For Kit and Components Thereof for Electrostatically Producing Color Prints (Int. Cl. 9).
First use on or about June 15, 1969.

SN 350,115. Opto/Graphics, Inc., Northbrook, Ill. Filed Jan. 30, 1970.

o g chroma

Without waiver of its common law rights, applicant makes no claim to the word "Chroma" apart from the mark.
For Kit and Components Thereof for Electrostatically Producing Color Prints (Int. Cl. 9).
First use on or about June 15, 1969.

SN 350,500. Minolta Corporation, New York, N.Y. Filed Feb. 4, 1970.

MINOLTAFAX

For Electrostatic Photocopiers and Reproduction Equipment, by Which Any Document Containing Alpha-Numeric and Graphic Information Can Be Reproduced by an Electrostatic Method on Photoconductor Medium (Int. Cl. 9).
First use Jan. 9, 1970.

SN 352,040. Sterling Engineers, Inc., Hopkins, Minn. Filed Feb. 24, 1970.

BALINDICATOR

For Wheel Balance Sensing and Measuring Apparatus (Int. Cl. 9).
First use Nov. 20, 1969.

SN 352,455. Controlotron Corporation, Farmingdale, N.Y. Filed Feb. 26, 1970.

HANDY-CAPPER

For Table-Top Electric Calculators (Int. Cl. 9).
First use January 1970.

SN 353,220. Pro Products, Incorporated, Rockford, Ill. Filed Mar. 5, 1970.

PRO

For Inclinometers (Int. Cl. 9).
First use January 1962.

SN 353,439. Copar Corporation, Oak Lawn, Ill. Filed Mar. 9, 1970.

COPAR

For Electrical Control Equipment for Corrugators—Namely, Electronic Counters, Corrugator Cut-Off Controls, Board Length Totalizers, Speed Indicators (Digital), Chart Recorders, Shear Controls and Position Indicators (Int. Cl. 9).
First use Feb. 28, 1969.

SN 355,838. Comress, Inc., Rockville, Md. Filed Apr. 3, 1970.

DYNAPROBE

For Machine, the Principal Components of Which are a Cabinet, Transistors, Wiring, and Electronic Counters, Which, When Connected to a Computer by Wires, Measures and Records the Computer's Activity in the form of Electronic Signals (Int. Cl. 9).
First use Dec. 29, 1969.

SN 357,917. International Telephone and Telegraph Corporation, New York, N.Y. Filed Apr. 27, 1970.

ENVOY

For Electronic Data Transmitter-Receiver for Use as an Integral Part of a Data System (Int. Cl. 9).
First use Apr. 17, 1970.

SN 360,260. Textron Inc., Rochester, N.Y. Filed May 19, 1970.

HIGHNESS

For Spectacle Frames and Parts Therefor (Int. Cl. 9).
First use Mar. 13, 1970.

SN 362,328. Systems Engineering and Manufacturing Corporation, Canton, Mass. Filed June 11, 1970

AC T

For Automatic Chemical Transfer Control System for the Treatment of Wastes (Int. Cl. 9).
First use May 7, 1970.

SN 363,063. Naturalike Photo Finishing Company, Inc., d.b.a. King Size Photo Service, Everett, Wash. Filed June 18, 1970.

NEGA-TAINER

For Container for Storing Photographic Prints and Negatives (Int. Cl. 9).
First use on or about Dec. 1, 1969.

SN 364,382. Ciba Limited, Basel, Switzerland. Filed July 6, 1970.

CIBACHROME-TRANSPARENT

Owner of Swiss Reg. No. 240,854, dated July 18, 1969.
For Photographic Films and Sensitised Photographic Papers (Int. Cl. 1).

SN 364,384. Ciba Limited, Basel, Switzerland. Filed July 6, 1970.

CIBACHROME-GRAPHIC

Owner of Swiss Reg. No. 229,893, dated Jan. 29, 1968.
For Photographic Films and Sensitized Photographic Papers (Int. Cl. 1).

SN 364,976. American Optical Corporation, Southbridge, Mass. Filed July 13, 1970.

PERMALON

For Eyeglass Frames (Int. Cl. 9).
First use June 30, 1970.

SN 365,003. Medequip Corporation, Park Ridge, Ill. Filed July 13, 1970.

REMPAC

For Magnetic Recording Tape Cassette for Use With a Computer (Int. Cl. 9).
First use Feb. 25, 1970.

Class 27 — Horological Instruments

SN 318,747. P. T. Barnard & Associates Limited, Bath, England. Filed Feb. 10, 1969.

CHRONOSPORT

For Watches, Stop Watches, Chronographs, Computer Watches, Calendar Watches, and Rotating Bezels (Int. Cl. 14).
First use May 1966; in commerce in October 1966.

SN 343,902. Aristo Import Co., Inc., New York, N.Y. Filed Nov. 19, 1969.

ARISTO

Owner of Reg. No. 608,720.
For Pocket Watches, Clocks, Stop Watches, and Pocket Watch and Stop Watch Combinations (Int. Cl. 14).
First use Aug. 20, 1920.

Class 28 — Jewelry and Precious-Metal Ware

SN 328,335. Plainville Stock Company, Plainville, Mass. Filed May 26, 1969.

Remember ring

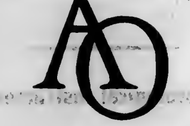
Applicant disclaims the word "Ring" Separate and apart from the mark as shown.
For Finger Rings (Int. Cl. 14).
First use on or about May 6, 1968.

SN 334,389. J. Solow & Son, New York, N.Y. Filed Aug. 4, 1969.



Applicant disclaims exclusive rights to the representation of cut jewels, except as shown in the mark.
For Finger Rings (Int. Cl. 14).
First use on or about Mar. 8, 1961.

SN 335,662. American Optical Corporation, Southbridge, Mass. Filed Aug. 19, 1969.



Owner of Reg. Nos. 268,217 and 855,168.
For Gold and Silver Eyeglass Frames and Gold Chains for Use Therewith (Int. Cl. 14).
First use before 1925.

SN 344,301. C. H. Stuart & Co., Inc., Newark, N.Y. Filed Nov. 24, 1969.

C. H. STUART

"C. H. Stuart" is the name of the founder of applicant, now deceased.
For Men's and Women's Costume Jewelry (Int. Cl. 14).
First use on or about Sept. 8, 1969.

SN 344,418. Peltan & Leru Corp., New York, N.Y. Filed Nov. 24, 1969.

HOPE CREATIONS

Applicant disclaims the word "Creations" separate and apart from the mark as shown.
For General Line of Inexpensive Costume Jewelry (Int. Cl. 14).
First use on or about Nov. 14, 1969.

SN 355,327. Accessocraft Products Corporation, New Rochelle, N.Y. Filed Mar. 30, 1970.

BAYADERE BY ACCESSOCRAFT

For Costume Jewelry Necklaces, Wherein the Necklace, Made Up of Chain or Beads or Pearls, Is Wrapped Around the Wearer's Neck Forming a Choker and Crossed in Front and Then Looped and/or Tied (Int. Cl. 14).
First use Dec. 29, 1969.

SN 356,733. Ralph D. Morris, Jr., d.b.a. Stuart Nye Silver Shop, Asheville, N.C. Filed Apr. 13, 1970.



For Hand Wrought Jewelry, Sterling Silver Flatware, and Sterling Silver Holloware (Int. Cls. 8 and 14).
First use Jan. 1, 1937.

SN 367,575. Black Hills Jewelry Manufacturing Co., Rapid City, S. Dak. Filed Aug. 10, 1970.

BLACK HILLS GOLD J CO.

Applicant disclaims the words "Black Hills Gold" apart from the mark as shown.
For Earrings, Finger Rings, Necklaces, Pendants, Crosses, Brooches, Bracelets, Bola Ties, Tie Clasps, Tie Bars, Tie Tacks, Cuff Links, Belt Buckles, and Money Clips of Precious Metal (Int. Cl. 14).
First use Jan. 15, 1962.

Class 29 — Brooms, Brushes, and Dusters

SN 325,046. Johnson & Johnson, New Brunswick, N.J. Filed Apr. 21, 1969.

TAKE OFF

Owner of Reg. No. 502,553.
For Cosmetic Wipes (Int. Cl. 21).
First use July 31, 1968.

SN 335,835. All-American Brush Mfg. Corp., Newark, N.J. Filed Aug. 21, 1969.

"FOLD-IT"

For Hair Brushes (Int. Cl. 21).
First use Feb. 12, 1969.

SN 336,951. South Eastern Cordage Co., Cleveland, Ohio. Filed Sept. 3, 1969.

THE SWINGER

For Mop Heads (Int. Cl. 21).
First use at least as early as Aug. 20, 1969.

SN 342,969. Gladding Corporation, South Otselic, N.Y. Filed Nov. 7, 1969.

BRUSH ALL

The word "Brush" is disclaimed apart from the remainder of the mark.
For Article Comprising Foamed Synthetic Material Fastened to a Rigid Support for Removing Foreign Particles, Such as Lint, From Fabrics or the Like (Int. Cl. 21).
First use Aug. 19, 1969.

SN 343,088. Consolidated Foods Corporation, Old Greenwich, Conn. Filed Nov. 10, 1969.

ELECTROLUX

Owner of Reg. Nos. 185,691, 562,427, and others.
For Cleaning Brushes (Int. Cl. 21).
First use in or before July 1969.

SN 355,819. Joseph A. Costa, d.b.a. Jay A. Costa, Lindenhurst, N.Y. Filed Apr. 2, 1970.

JIFFY

For Cloth for Buffing Bowling Balls (Int. Cl. 21).
First use Sept. 1, 1966.

SN 362,452. Kimberly-Clark Corporation, Neenah, Wis. Filed June 12, 1970.

KIMBIES

Owner of Reg. No. 862,792.
For Cellulose Sponges for Personal Use (Int. Cl. 21).
First use May 22, 1970.

Class 31 — Filters and Refrigerators

SN 325,128. Ice Industries International, Inc., Longwood, Fla. Filed Apr. 21, 1969.



For Ice Making Machines (Int. Cl. 11).
First use Jan. 13, 1969.

SN 335,089. United Industries, Inc., Wichita, Kans. Filed Aug. 11, 1969.

SWIM TIME

For Water Filters, Ammoniators, and Chlorinators (Int. Cl. 11).
First use on or about May 16, 1969.

SN 337,693. Rowe Auto Leasing Corporation, Louisburg, N.C. Filed Sept. 11, 1969.

RALCO

For Automatic Transmission Fluid Filters (Int. Cl. 7).
First use July 25, 1969.

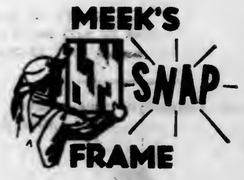
SN 344,793. Lawrence Macrow and Eleanor C. Macrow, d.b.a. Rotamist Company, Elma, N.Y. Filed Nov. 28, 1969.

ROTAMIST

For Air Pollution Control Equipment—Namely, Gas Conditioning and Filtering Devices Which Separate Entrained Solid and Liquid Particulates From a Gas (Int. Cl. 11).
First use Aug. 18, 1969.

Class 32 — Furniture and Upholstery

SN 262,901. Meek Manufacturing Co., Inc., Fort Smith, Ark. Filed Jan. 10, 1967.



For Theft-Proof Mirror Frame (Int. Cl. 20).
First use July 29, 1964.

SN 322,525. Jaybee Manufacturing Corporation, Los Angeles, Calif. Filed Mar. 24, 1969.

MINIMART

For Display Stands for Carded Hardware (Int. Cl. 20).
First use July 19, 1968.

SN 364,919. Joanna Western Mills Company, Chicago, Ill. Filed July 10, 1970.

CAMBRO

For Window Shades (Int. Cl. 20).
First use in 1906.

SN 364,920. Joanna Western Mills Company, Chicago, Ill. Filed July 10, 1970.

LUXOR

For Window Shades (Int. Cl. 20).
First use in 1904.

SN 367,411. Serta Associates, Inc., Chicago, Ill. Filed Aug. 7, 1970.

SERTAPEDIC

Owner of Reg. Nos. 582,463, 765,891, and others.
For Mattresses and Box Springs (Int. Cl. 20).
First use at least as early as Jan. 1, 1951.

SN 367,692. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 11, 1970.



Owner of Reg. Nos. 368,501, 827,620, and others.
For Pillows (Int. Cl. 20).
First use June 29, 1970.

Class 33 — Glassware

SN 255,817. Hodes-Lange Corporation, North Bergen, N.J. Filed Sept. 28, 1966.



The mark comprises a yellow band encircling the bulb of the ampul.
For Ampuls Formed of Glass (Int. Cl. 21).
First use Feb. 16, 1956.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 277,500. Midland International Corporation, North Kansas City, Mo. Filed Aug. 4, 1967.

MIDLAND

Owner of Reg. No. 895,483.
For Electric Soldering Irons and Soldering Guns (Int. Cl. 11).
First use in or about August 1962.

SN 315,024. Aerovent Fan Company, Inc., Piqua, Ohio. Filed Dec. 28, 1968.

AEROVENT

Owner of Reg. No. 682,481.
For Ventilating, Heating and Cooling Units, and Parts Thereof, for Domestic, Commercial, Agricultural and Industrial Use (Int. Cl. 11).
First use April 1926.

SN 325,105. Eutectic Corporation, Flushing, N.Y. Filed June 27, 1968.

UTP

For Welding Rods, Welding Electrodes, Cut or Continuous, Gas or Flux Shielded (Int. Cls. 6 and 9).
First use June 4, 1968.

SN 332,182. Pronto Manufacturing Company, Inc., Miami, Fla. Filed July 7, 1969.

PRONTO

For Surface Replacement Units and Switches for Electric Ranges, and Tubular Elements for Heating Water in Electric Water Heaters (Int. Cl. 11).
First use on or about May 1, 1968.

SN 340,554. Hollis Engineering, Inc., Nashua, N.H. Filed Oct. 13, 1969.

FINELINE

Owner of Reg. No. 837,938.
For Automatic Soldering Machines and Parts Therefor (Int. Cl. 7).
First use Sept. 15, 1969.

SN 345,462. Glenn Electric Heater Corporation, Erie, Pa. Filed Dec. 5, 1969.



For Electric Heaters and Heating Elements (Int. Cl. 11).
First use 1967.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 352,133. Gray Tech Industries, Inc., Mohnton, Pa. Filed Feb. 24, 1970.

SAF-T-BLOT

For Flexible Gasket Materials for Mounting Grinding Wheels on Spindles (Int. Cl. 17).
First use Jan. 1, 1966.

Class 36 — Musical Instruments and Supplies

SN 277,498. Midland International Corporation, North Kansas City, Mo. Filed Aug. 4, 1967.

MIDLAND

Owner of Reg. No. 895,483.
For Stereophonic and Monural Magnetic Tape Reproducers for Prerecorded Tape; Tape Splicers and Tape Erasers; Tape Head Demagnetizers; Guitars; Guitar Pickup Microphones and Amplifiers Therefor; and Ukuleles and Drums (Int. Cl. 9).
First use in or about August 1962.

SN 325,463. Chart Records, Inc., Nashville, Tenn. Filed Apr. 24, 1969.



Applicant disclaims the word "Music" and the representation of a stringed musical instrument apart from the mark as shown.
For Phonograph Records and Pre-Recorded Magnetic Tapes (Int. Cl. 9).
First use March 1968.

SN 330,515. Kraskin Baton Company, Minneapolis, Minn. Filed June 19, 1969.



The term "Batons" is disclaimed apart from the mark as shown.
For Twirling Batons (Int. Cl. 15).
First use Apr. 1, 1969.

SN 364,115. Young Management Corporation, d.b.a. Sacred Artists Records, and International Recording Studio, Baton Rouge, La. Filed July 1, 1970.



Applicant disclaims the word "Records."
For Phonograph Records (Int. Cl. 9).
First use May 1, 1969.

Class 37 — Paper and Stationery

SN 277,499. Midland International Corporation, North Kansas City, Mo. Filed Aug. 4, 1967.

MIDLAND

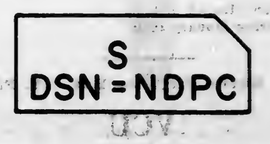
Owner of Reg. No. 895,483.
For Marking Pens (Int. Cl. 16.
First use in or about August 1962.

SN 306,660. Flamingo Paper Products, Inc., Hialeah, Fla. Filed Sept. 5, 1968.



For Printed Paper Specialties—Namely, Coasters, Cocktail Napkins, Dinner Napkins, Doilies, Place Mats, Wipes and Table Covers (Int. Cl. 16).
First use Oct. 1, 1957.

SN 318,058. Walter R. Lettieri, d.b.a. Drug Safety Numbers Systems Company, Trenton, N.J. Filed Jan. 31, 1969.



For Kit Containing Partially Printed Forms, Account Record Cards, and Pads (Int. Cl. 16).
First use Jan. 20, 1969.

SN 320,450. Defiance-Azon Corporation, Johnson City, N.Y. Filed Mar. 3, 1969.

TRAZON

Owner of Reg. No. 774,992.
For Tracing Paper (Int. Cl. 16).
First use Aug. 21, 1966.

SN 320,451. Defiance-Azon Corporation, Johnson City, N.Y. Filed Mar. 3, 1969.



Owner of Reg. No. 642,087.
For Tracing Paper (Int. Cl. 16).
First use Aug. 30, 1966.

SN 331,968. Yoken Chemical Ltd., Higashisumiyoshi-ku, Osaka, Japan. Filed July 7, 1969.

YOKEN

For Marking Pens (Int. Cl. 16).
First use Nov. 28, 1951; in commerce June 11, 1965.

SN 332,736. Potlatch Forests, Inc., San Francisco, Calif., assignee of The Northwest Paper Company, Cloquet, Minn. Filed July 16, 1969.

VANGUARD

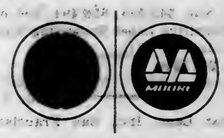
For Paper Toilet Seat Covers (Int. Cl. 16).
First use Apr. 11, 1969.

SN 336,931. Hammermill Paper Company, Erie, Pa. Filed Sept. 3, 1969.

DEEPLAKE PLUS

For Paper for Writing, Printing and Duplicating (Int. Cl. 16).
First use July 31, 1969.

SN 337,454. Moore Business Forms, Inc., Niagara Falls, N.Y. Filed Sept. 9, 1969.



Owner of Reg. No. 796,768.
For Paper Business Forms (Int. Cl. 16).
First use June 17, 1969; Aug. 9, 1946, as to the mark "Moore."

SN 338,015. The Procter & Gamble Company, Cincinnati, Ohio. Filed Sept. 16, 1969.

Squeezably soft

For Toilet Tissue (Int. Cl. 16).
First use June 1966.

SN 346,367. British Cellophane Limited, Bridgewater, Somerset, England. Filed Dec. 16, 1969.

PROPOPHANE

Owner of British Reg. Nos. 890,919 and 890,920, dated Feb. 18, 1966.
For Wrapping Film in the Form of Sheets and Tubes (Int. Cl. 16).
First use July 19, 1967; in commerce July 19, 1967.

SN 354,270. Standard Oil Company, Flemington, N.J. Filed Mar. 17, 1970.

STRETCH 'N SEAL

For All-Purpose Plastic Wrap (Int. Cl. 16).
First use Dec. 15, 1969.

SN 354,738. Morgan Adhesives Company, Stow, Ohio. Filed Mar. 20, 1970.

QUIK-SHADE

Owner of Reg. No. 785,618.
For Adhesive Transparent, Tinted, Plastic Sheet Material Coated on One Side With an Adhesive and Used on Glass Sheets (Int. Cl. 16).
First use Oct. 28, 1969.

SN 355,267. Scripto, Inc., Atlanta, Ga. Filed Mar. 27, 1970.

GLO FLO

For Pens for Writing and Marking (Int. Cl. 16).
First use Mar. 12, 1970.

SN 355,391. W. R. Grace & Co., New York, N.Y. Filed Mar. 30, 1970.

REPELLIT

For Disposable Towels (Int. Cl. 16).
First use Feb. 20, 1970.

SN 355,955. W. H. Brady Co., Milwaukee, Wis. Filed Apr. 6, 1970.

QUIK-LABEL

Owner of Reg. Nos. 543,064, 826,494, and others.
For Pressure Sensitive Label Embossing Tape and Pressure Sensitive Labels (Int. Cl. 16).
First use Sept. 25, 1944.

SN 364,012. Post Lane, Inc., San Francisco, Calif. Filed June 30, 1970.

POST LANE

For Sealing Wax and Seals (Int. Cl. 16).
First use Dec. 13, 1969.

SN 366,844. Kimberly-Clark Corporation, Neenah, Wis. Filed Aug. 3, 1970.

SIGNAL

For Facial Tissue (Int. Cl. 16).
First use June 29, 1970.

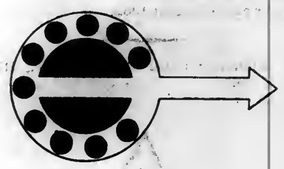
Class 38 — Prints and Publications

SN 316,972. Automation Industries, Inc., Los Angeles, Calif. Filed Jan. 21, 1969.



For Company-Sponsored Publications—Namely, Technical Bulletins and Brochures (Int. Cl. 16).
First use during March 1968.

SN 341,928. Kaiser Handi-Book Publishers, Inc., Port Chester, N.Y. Filed Oct. 28, 1969.



For Telephone Directories (Int. Cl. 16).
First use May 15, 1969.

SN 347,649. Slovene National Benefit Society, Chicago, Ill. Filed Jan. 2, 1970.

THE VOICE OF YOUTH

Owner of Reg. No. 423,912.
For Magazine (Int. Cl. 16).
First use Nov. 10, 1944.

SN 354,410. Sami Dodsworth Company, Kansas City, Kans. Filed Mar. 18, 1970.

TUXEDO

For Calendars (Int. Cl. 16).
First use during January 1970.

SN 358,903. Esquire, Inc., New York, N.Y. Filed May 6, 1970.

VCU

For Composite of Learning Material Comprising Teachers' Manual, Films, Transparencies, and Worksheet Masters (Int. Cl. 16).
First use Mar. 10, 1970.

SN 363,674. National Geographic Society, Washington, D.C. Filed June 25, 1970.



The drawing is lined for the color yellow.
For Books (Int. Cl. 16).
First use June 10, 1970.

SN 364,383. Ciba Limited, Basel, Switzerland. Filed July 6, 1970.

CIBACHROME-TRANSPARENT

Owner of Swiss Reg. No. 240,854, dated July 18, 1969.
For Black and White and Colored Photographs (Int. Cl. 9).

SN 364,385. Ciba Limited, Basel, Switzerland. Filed July 6, 1970.

CIBACHROME-GRAPHIC

Owner of Swiss Reg. No. 229,893, dated Jan. 29, 1968.
For Black and White and Colored Photographs (Int. Cl. 9).

SN 367,524. H. S. Crocker Co., Inc., San Bruno, Calif. Filed Aug. 10, 1970.

HOOK-STRIP

For Picture Post Cards (Int. Cl. 16).
First use July 28, 1970.

SN 368,421. Sensitivity Games, Inc., Boston, Mass. Filed Aug. 19, 1970.

SENSITIVITY

For Greeting Cards (Int. Cl. 16).
First use Oct. 14, 1969.

Class 39 — Clothing

SN 312,279. Converse Rubber Corporation, Malden, Mass. Filed Nov. 15, 1968.



The words "Cushion Heel" are disclaimed apart from the mark as a whole. The lining shown on the drawing is merely used to reproduce that which is shown on the specimens and not to denote color. Owner of Reg. No. 628,031.
For Rubber Soled Canvas Shoes (Int. Cl. 25).
First use at least as early as October 1946.

SN 329,103. Lytton's, Henry C. Lytton & Company, Chicago, Ill. Filed June 4, 1969.



For Mufflers, Gloves, Hosiery, Robes, Pajamas, Belts, Dresses, Suits, Skirts, Blouses, Slacks, Jackets, Hats, Overcoats, Topcoats, Shirts, Neckwear, Trousers, Sweaters, Rainwear, Underwear, Lingerie, and Shoes (Int. Cl. 25).
First use on or about Mar. 1, 1967.

SN 331,199. Horacio Scheimberg, d.b.a. H. Scheimberg Mfg. Co., Los Angeles, Calif. Filed June 27, 1969.

THE BIG FRONT

For Jabots (Int. Cl. 25).
First use May 28, 1969.

SN 335,136. Gimbel Brothers, Inc., New York, N.Y. Filed Aug. 12, 1969.

AU COURANT

The French wording "Au Courant" is an idiomatic phrase and may be translated into English to mean "at the present time" or "up to date."
For Women's Coats, Suits, Dresses, Skirts, Blouses, Sweaters, Pants, Jackets, and Bathing Suits (Int. Cl. 25).
First use Nov. 18, 1968.

SN 337,581. Blue Bell, Inc., Greensboro, N.C., assignee of Red Kap, Inc., Nashville, Tenn. Filed Sept. 10, 1969.

LADY KAP

The word "Kap" is disclaimed apart from the mark as shown.
For Uniform Type of Dresses, Smocks, Coats, Aprons, Scarves, Belts, Caps, Blouses, Skirts, Culottes and Slacks for Ladies (Int. Cl. 25).
First use Aug. 26, 1969.

SN 342,047. I. C. Herman & Co., Inc., New York, N.Y. Filed Oct. 29, 1969.

A SKANDIA PRINT

Applicant disclaims the word "Print" separate and apart from the mark as shown.
For Handkerchiefs (Int. Cl. 24).
First use Jan. 18, 1962.

SN 343,258. Day's Tailor'd Clothing, Inc., Tacoma, Wash. Filed Nov. 12, 1969.

WINDBLOCK

For Jackets for Men, Women, and Children (Int. Cl. 25).
First use on or about Nov. 15, 1942.

SN 344,279. Consolidated Foods Corporation, Chicago, Ill. Filed Nov. 24, 1969.

ISO MASSAGE

For Stretch Fabric Gloves (Int. Cl. 25).
First use Oct. 3, 1969.

SN 344,401. Miller & Co., Denver, Colo. Filed Nov. 24, 1969.
For Trousers (Int. Cl. 25).

Boot Bottoms

First use Apr. 16, 1969.

SN 350,029. International Playtex Corporation, Dover, Del. Filed Jan. 30, 1970.

IPC

For Foundation Garments (Int. Cl. 25).
First use Oct. 3, 1969.

SN 350,495. The Londontown Manufacturing Company, Baltimore, Md. Filed Feb. 4, 1970.

Maincoats

Owner of Reg. No. 653,111.
For Men's, Women's, and Children's Coats for Outerwear, Including Topcoats, Raincoats, Car Coats and Outer Jackets (Int. Cl. 25).
First use Nov. 20, 1956.

SN 351,223. Parklane Hosiery Company, Inc., Great Neck, N.Y. Filed Feb. 12, 1970.

parkspun

For Hosiery (Int. Cl. 25).
First use Jan. 5, 1970.

SN 351,706. Izod, Ltd., New York, N.Y. Filed Feb. 18, 1970.
For Slacks, Shirts, Sweaters, Walk Shorts, Socks, Golf

IS THERE ANY OTHER?

Gloves, and Swim Trunks (Int. Cl. 25).
First use Nov. 24, 1969.

SN 351,950. Justman Limited, d.b.a. Justman Ltd., Manchester, England. Filed Feb. 20, 1970.

MASTACUT

For Men's Suede, Leather and Cloth Coats, Jackets, and Trousers (Int. Cl. 25).
First use August 1964; in commerce autumn 1965.

SN 353,543. Ocean Trading, Inc., Miami, Fla. Filed Mar. 9, 1970.

Perro

"Perro" translated from Spanish means "dog."
For Men's Underwear, Shorts, Briefs and Athletic Shirts, and Balbrigand Shirts (Int. Cl. 25).
First use during August 1964.

SN 359,574. Regal Knitwear Co., Inc., New York, N.Y. Filed May 13, 1970.

YOUNG COUTURE

Owner of Reg. No. 674,768.
For Sweaters, Bathing Suits, and Polo Shirts (Int. Cl. 25).
First use November 1956.

SN 359,779. Consolidated Foods Corporation, Chicago, Ill. Filed May 15, 1970.

DRIVERS DELIGHT

For Gloves (Int. Cl. 25).
First use Mar. 3, 1970.

SN 359,912. The Simon's Co., Inc., New York, N.Y. Filed May 15, 1970.

can't tell

For Women's Hosiery (Int. Cl. 25).
First use on or about Apr. 1, 1968.

SN 360,356. Midwest Footwear Co., Inc., Sullivan, Mo. Filed May 20, 1970.

YAKETYS

For Women's Casual Footwear of Leather, Fabric, Rubber, Wood, Cork, Plastics, or Combinations of These Materials (Int. Cl. 25).
First use Mar. 5, 1970.

SN 361,934. Kops Bros., Inc., New York, N.Y. Filed June 8, 1970.

THE SHIRT-BRIEFERS

For Blouses and Jersey Tops (Int. Cl. 25).
First use Apr. 9, 1970.

SN 362,037. The Londontown Manufacturing Company, Baltimore, Md. Filed June 8, 1970.

MAINHAT

Owner of Reg. No. 653,111.
For Men's Women's and Children's Hats (Int. Cl. 25).
First use May 27, 1970.

SN 365,864. Nicholas Brecher, d.b.a. Brevoni, New York, N.Y. Filed July 22, 1970.

MOSTEST

For Panty Hose (Int. Cl. 25).
First use June 29, 1970.

SN 366,841. Hanes Corporation, Winston-Salem, N.C. Filed Aug. 3, 1970.

LITTLE SWING

For Hosiery and Panty Hose (Int. Cl. 25).
First use July 21, 1970.

SN 366,867. Union Carbide Corporation, New York, N.Y. Filed Aug. 3, 1970.

DRY CARE

For Disposable Baby Diapers (Int. Cl. 25).
First use on or about July 22, 1970.

SN 366,868. Union Carbide Corporation, New York, N.Y. Filed Aug. 3, 1970.

DRY DIPES

For Disposable Baby Diapers (Int. Cl. 25).
First use on or about July 22, 1970.

SN 366,869. Union Carbide Corporation, New York, N.Y. Filed Aug. 3, 1970.

EVER DRY

For Disposable Baby Diapers (Int. Cl. 25).
First use July 22, 1970.

SN 367,274. The Emotional Outlet, Inc., New York, N.Y. Filed Aug. 6, 1970.

EMOTIONAL OUTLET

For Articles of Feminine Wearing Apparel—Namely, Dresses, Pants Suits, Blouses, Sweaters, Skirts, Trousers of Assorted Lengths, Bathing Suits, Outer Shorts and Outer Shirts, Beach and Tennis Shoes, Scarves and Gloves (Int. Cl. 25).
First use Jan. 6, 1969, on dresses.

SN 367,384. Blue Bell, Inc., Greensboro, N.C. Filed Aug. 7, 1970.

LOOK FOR THE W ON THE POCKET

Owner of Reg. Nos. 618,701, 838,852, and others.
For Jeans and Shorts (Int. Cl. 25).
First use February 1955.

SN 367,386. Blue Bell, Inc., Greensboro, N.C. Filed Aug. 7, 1970.



Owner of Reg. Nos. 608,371, 862,789, and others.
For Jeans (Int. Cl. 25).
First use September 1964.

SN 368,036. Melville Shoe Corporation, New York, N.Y. Filed Aug. 14, 1970.

KULANI

For Sneakers (Int. Cl. 25).
First use Apr. 9, 1963.

SN 368,169. King's Department Stores, Inc., Newton, Mass. Filed Aug. 17, 1970.

BABY KINGSBURY

For Infant Undershirts, Infant Training Pant, Infant Gown, Infant Kimona, Toddlers' Grow-A-Size Sleeper, and Infant Blanket Sleeper (Int. Cl. 25).
First use July 1969.

SN 368,170. King's Department Stores, Inc., Newton, Mass. Filed Aug. 17, 1970.

L'IL MISS KINGSBURY

For Girls' Panties and Tights (Int. Cl. 25).
First use July 1968.

SN 368,793. Marketing & Planning Corporation, Brockton, Mass. Filed Aug. 24, 1970.

brief NOTES

For Women's Dresses (Int. Cl. 25).
First use July 1, 1970.

Class 40—Fancy Goods, Furnishings, and Notions

SN 284,942. Scovill Manufacturing Company, Waterbury, Conn. Filed Nov. 15, 1967.

SCOVILL

Owner of Reg. Nos. 284,266, 804,997, and others.
For Sewing Aids and Notions—Namely, Loop Turners, Seam Rippers, Skirt Markers, Bodkins, Seam Guides, Beeswax and Holder for Sewing Purposes, Pocket Makers, Apron Clips, Buttons, Thread Locks, Thimbles, Thread Boxes, Sewing Trays and Drawer Dividers, Sewing Pattern Files, Bobbin Boxes, Pins and Needles, Sewing Awls, Smock Ruler, Pleat Maker, Dressmaker's Weights, Maternity Stretch Panels, Boning, Braid, Pin Cushions, Needle Threaders, Tracing Aids, Tailor's Chalk and Holders, Tailor Tackers, Belt and Buckle Kits, Nylon Grip Fasteners, Eyelets and Snaps, Eyelet and Snap Fastener Kits, Snap Fastener Tape, Hooks, Eyes and Loops, Clothing Repair Kits, Darning Egg, Iron-On Mending Aids, Iron-On Rug Binding, and Pressure-Sensitive Felt (Int. Cls. 9 and 26).
First use at least as early as July 1, 1936, on snap fasteners.

SN 346,754. Jerrax Imports, Inc., New York, N.Y. Filed Dec. 19, 1969.

LOOP D' LOOP

For Hairpieces With Barette (Int. Cl. 26).
First use Nov. 15, 1969.

SN 355,264. Save Way Barber & Beauty Supplies, Inc., Hialeah, Fla. Filed Mar. 27, 1970.

TRAVELON

For Synthetic Hair Wigs (Int. Cl. 26).
First use on or about Sept. 1, 1969.

SN 355,416. Max Factor & Co., Hollywood, Calif. Filed Mar. 30, 1970.

LASH-A-DASHERY

For Artificial Eyelashes (Int. Cl. 3).
First use July 22, 1969.

SN 355,856. Avon Products, Inc., New York, N.Y. Filed Apr. 3, 1970.

DOUBLE FRINGE

For False Eyelashes (Int. Cl. 3).
First use Jan. 21, 1970.

Class 41—Canes, Parasols, and Umbrellas

SN 353,670. Polan, Katz & Company, Incorporated, Baltimore, Md. Filed Mar. 10, 1970.

TEENY POPPER

For Umbrellas (Int. Cl. 18).
First use Mar. 4, 1970.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 334,909. Marburn Stores Inc., West New York, N.J. Filed Aug. 8, 1969.

DYNAMIC DOMESTICS

No exclusive claim is made to "Domestics" apart from the mark as shown.
For Bedspreads, Sheets, Pillows, Pillowcases, Curtains, and Drapes (Int. Cl. 24).
First use on or about Oct. 31, 1964.

SN 348,596. B. E. Williams, San Mateo, Calif. Filed Jan. 14, 1970.

THREE HUNDRED (300) TRIPPER

Owner of Reg. Nos. 831,133 and 860,213.
For Beef Shrouds (Int. Cl. 24).
First use Nov. 3, 1969.

SN 353,191. Graniteville Company, Graniteville, S.C. Filed Mar. 5, 1970.

FURN-KNIT-TURE

For Knit Upholstery Fabrics Made of Olefin Polypropylene (Int. Cl. 24).
First use Feb. 9, 1970.

SN 353,564. University Patents, Inc., North Vernon, Ind. Filed Mar. 9, 1970.



Applicant disclaims the words "A" and "Design" apart from the mark.
For Rugs (Int. Cl. 27).
First use on or about Dec. 31, 1969.

SN 353,722. F. R. Benson & Partners Limited, London, England. Filed Mar. 11, 1970.

ROASTNET

Owner of British Reg. No. 906,948, dated Mar. 17, 1967.
For Nets for Packaging (Int. Cl. 24).

SN 353,995. Glen Raven Mills, Inc., Glen Raven, N.C. Filed Mar. 13, 1970.

LOOMNIT

For Fabrics of Natural and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Oct. 10, 1969.

SN 354,124. The Bunker-Ramo Corporation, Oak Brook, Ill. Filed Mar. 16, 1970.

HEBORG

For Pile Fabrics of Cotton, Wool, Synthetic Fibers, or Combinations Thereof (Int. Cl. 24).
First use at least as early as February 1968.

SN 354,126. The Bunker-Ramo Corporation, Oak Brook, Ill. Filed Mar. 16, 1970.

SHEBORG

For Pile Fabrics of Cotton, Wool, Synthetic Fibers, or Combinations Thereof (Int. Cl. 24).
First use at least as early as February 1968.

SN 354,614. The General Tire & Rubber Company, Akron, Ohio. Filed Mar. 19, 1970.

AQUARIUS

For Carpet Cushion (Int. Cl. 27).
First use Jan. 23, 1970.

SN 354,692. West Point-Pepperell, Inc., West Point, Ga. Filed Mar. 19, 1970.

KOLARUS

For Nonwoven and Woven Fabrics of Natural and Synthetic Fibers and Combinations Thereof, Both Finished and Unfinished (Int. Cl. 24).
First use Nov. 4, 1969.

SN 355,995. ACS Industries, Inc., Woonsocket, R.I. Filed Apr. 6, 1970.

FUN·TA·STIK

For Tiles and Carpeting (Int. Cl. 27).
First use Feb. 12, 1970.

SN 356,306. Thompson of California, Inc., Hermosa Beach, Calif. Filed Aug. 8, 1970.

Thompson of California

Owner of Reg. Nos. 843,282 and 888,091.
For Piece Goods for Making Into Wearing Apparel, Draperies, Tablecloths, and the Like (Int. Cl. 24).
First use Mar. 6, 1970.

SN 356,378. Cla-Mar, Inc., Topeka, Kans. Filed Apr. 9, 1970.
For Carpets (Int. Cl. 27).

Doubleday

First use Nov. 11, 1969.

SN 356,443. Texon, Inc., South Hadley, Mass. Filed Apr. 9, 1970.

VIKOFAB

For Vinyl Coated Textile Fabrics for Use in Making Tenting or Tarpaulin Material (Int. Cl. 24).
First use Feb. 20, 1970.

SN 356,948. David Crystal, Inc., New York, N.Y. Filed Apr. 15, 1970.

RAVELLO

For Fabric for Making Dresses (Int. Cl. 24).
First use Oct. 24, 1962.

SN 357,115. Henry Pollak Inc., New York, N.Y. Filed Apr. 16, 1970.

ALPAMERINO

For Rugs (Int. Cl. 27).
First use Apr. 2, 1970.

SN 357,117. Henry Pollak Inc., New York, N.Y. Filed Apr. 16, 1970.

PENTHOUSE

For Rugs (Int. Cl. 27).
First use Apr. 2, 1970.

SN 357,243. Pegulan-Werke Aktiengesellschaft, Frankenthal/Pfalz, Germany. Filed Apr. 17, 1970.

PEGULAN

Priority claimed under Sec. 44(d) on German application filed Oct. 25, 1969; Reg. No. 864,796, dated Jan. 7, 1970.
Owner of U.S. Reg. Nos. 773,001 and 769,856.
For Textile Floor Coverings and Textile Wall Coatings, in Sheet, Section and Tile Form, Especially all Tyypes of Carpeting, Carpets, Flocked Materials, Mats and Runners (Int. Cl. 27).

SN 361,920. Deering Milliken, Inc., New York, N.Y. Filed June 8, 1970.

CALRIDGE

For Textile Rugs, Carpets and Carpeting (Int. Cl. 27).
First use Dec. 12, 1964.

SN 365,476. J. P. Stevens & Co., Inc., New York, N.Y. Filed July 16, 1970.

TASTEMAKER

Owner of Reg. Nos. 670,661, 776,673, and 860,207.
For Piece Goods of one or More Natural Fibers, Including Wool and Cotton, or Synthetic Fibers or Cellulosic Fibers or Blends of the Foregoing (Int. Cl. 24).
First use Jan. 17, 1958.

SN 367,271. Deering Milliken, Inc., New York, N.Y. Filed Aug. 6, 1970.

MILLI-NOVA

Owner of Reg. No. 322,425, and others.
For Textile Rugs, Carpets and Carpeting (Int. Cl. 27).
First use July 14, 1970.

SN 367,272. Deering Milliken, Inc., New York, N.Y. Filed Aug. 6, 1970.

BOARDING PASS

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use June 30, 1970.

SN 368,162. Deering Milliken, Inc., New York, N.Y. Filed Aug. 17, 1970.

THE COLONEL

For Textile Rugs, Carpets and Carpeting (Int. Cl. 27).
First use Sept. 8, 1969.

SN 368,164. Deering Milliken, Inc., New York, N.Y. Filed Aug. 17, 1970.

PATIO PARK

For Textile Rugs, Carpets and Carpeting (Int. Cl. 27).
First use Oct. 7, 1969.

Class 43 — Thread and Yarn

SN 336,511. Beaunit Corporation, New York, N.Y. Filed Aug. 28, 1969.

CUPROFINO

For Man-Made Yarn (Int. Cl. 23).
First use October 1968.

SN 349,231. Threads-Incorporated, Gastonia, N.C. Filed Jan. 21, 1970.

AGAWAM

Owner of Reg. No. 523,788.
For Thread (Int. Cl. 23).
First use 1900.

SN 353,597. Teijin Limited, Kita-ku, Osaka, Japan. Filed Mar. 9, 1970.



The drawing is lined for the colors orange and gold. Owner of Japanese Reg. No. 751,084, dated Aug. 12, 1967.
For Yarns and Threads (Int. Cl. 23).

SN 353,890. Leon-Ferenbach Incorporated, Johnson City, Tenn. Filed Mar. 12, 1970.

Chromalloft

For Continuous Filament Yarns of Synthetic Fibers (Int. Cl. 23).
First use Feb. 16, 1970.

Class 44 — Dental, Medical, and Surgical Appliances

SN 335,659. American Optical Corporation, Southbridge, Mass. Filed Aug. 19, 1969.



Owner of Reg. Nos. 268,217 and 855,168.
For First Aid Kits and Snake Bite Kits, Including Dressings, Bandages, Compresses, Antiseptics, Syringes, Tourniquets, and Inhalants (Int. Cl. 5).
First use February 1954.

SN 345,360. Micro Mist Corporation, Hudson, Ohio. Filed Dec. 4, 1969.

MICRO SONIC

For Nebulizers or Atomizers for Medical Use (Int. Cl. 10).
First use Oct. 20, 1969.

SN 350,927. Laser Systems & Electronics, Inc., Tullahoma, Tenn. Filed Feb. 9, 1970.

TELEMASTER

For Transmitting Unit for a Cardiac Monitoring Apparatus for Producing Visual and Hard Copy of Patient's EKG Pattern (Int. Cl. 10).
First use at least as early as Nov. 12, 1969.

SN 356,108. Magnaflux Corporation, Chicago, Ill. Filed Apr. 6, 1970.

MINIDOP

For Ultrasonic Diagnostic Instrument for Detecting Fetal Life (Int. Cl. 10).
First use Jan. 10, 1970.

SN 356,141. E-Z Floss, Palm Springs, Calif. Filed Apr. 6, 1970.

E-Z-FLOSS

For Dental Floss Holder (Int. Cl. 10).
First use Apr. 21, 1969.

SN 365,041. Cardiovascular Electrodynamics, Inc., Baltimore, Md. Filed July 13, 1970.

DIAMITE

For Artificial Kidney (Int. Cl. 10).
First use Nov. 14, 1969.

Class 45 — Soft Drinks and Carbonated Waters

SN 310,360. Gregg Incorporated, Clearwater, Fla. assignee of Kenneth D. Sauder, Clearwater, Fla. Filed Oct. 23, 1968.

SOCK IT TO ME

For Carbonated and a Non-Carbonated Soft Drink and Syrups for Making Same (Int. Cl. 32).
First use Oct. 10, 1968.

SN 314,341. The Southland Corporation, Dallas, Tex. by merger from Gristede Bros., Inc., New York, N.Y. Filed Dec. 12, 1968.

GRISTEDE'S

Owner of Reg. Nos. 798,866, 811,903, and others.
For Carbonated Soft Drinks (Int. Cl. 32).
First use Oct. 13, 1967.

SN 319,387. The Squirt Company, Sherman Oaks, Calif. Filed Feb. 17, 1969.



The mark is the bottle having relatively large helical protrusions throughout the lower part thereof and used as a container for applicant's soft drink.
For Soft Drinks (Int. Cl. 32).
First use Dec. 10, 1957.

SN 322,925. Frank S. Tkac, Reading, Pa. Filed Mar. 26, 1969.

THEM

For Soft Drinks (Int. Cl. 32).
First use on or about Mar. 19, 1969.

Class 46 — Foods and Ingredients of Foods

SN 310,925. Gregg Incorporated, Clearwater, Fla., assignee of Kenneth D. Sauder, Clearwater, Fla. Filed Oct. 30, 1968.

SOCK IT TO ME

For Candy (Int. Cl. 30).
First use Oct. 29, 1968.

SN 312,781. Ajinomoto Kabushiki Kaisha, d.b.a. Ajinomoto Co., Inc., Chuo-ku, Tokyo, Japan. Filed Nov. 21, 1968.

PRO-AMI

For Hydrolysed Protein for Use as a Food Seasoning and Flavoring (Int. Cl. 30).
First use July 1965; in commerce April 1966.

SN 314,342. The Southland Corporation, Dallas, Tex., by merger from Gristede Bros., Inc., New York, N.Y. Filed Dec. 12, 1968.

GRISTEDE'S

Owner of Reg. Nos. 798,866, 811,903, and others.
For Canned Vegetables and Fruits; Canned and Bottled Fruit Juices; Bottled Cocktail Cherries; Canned Coffee; Tea; Bottled Ciders and Vinegars; Jellies, Preserves and Marmalades; Canned Fish; Butter; Assorted Pickles, Relishes, Olives; Mayonnaise; Catsup; Mustard; Chili Sauce; Tomato Juice; Apple Sauce; Honey; Peanut Butter; Dried Prunes; Bread, Rolls and Pastries (Int. Cls. 29, 30, 32, and 33).
First use May 27, 1964.

SN 314,345. The Southland Corporation, Dallas, Tex., by merger from Gristede Bros., Inc., New York, N.Y. Filed Dec. 12, 1968.

GRISTEDE'S

Owner of Reg. Nos. 798,866, 811,903, and others.
For Canned Vegetables and Fruits; Canned and Bottled Fruit Juices; Bottled Cocktail Cherries; Coffee; Tea; Bottled Ciders and Vinegars; Jellies, Preserves and Marmalades; Canned Soups, Consommes and Broths; Canned Fish; Butter; Assorted Pickles, Relishes, Olives; Mayonnaise; Catsup; Mustard; Chili Sauce; Tomato Juice; Apple Sauce; Honey, Peanut Butter; Dried Prunes; Bread, Rolls and Pastries (Int. Cls. 29, 30, 32, and 33).
First use Jan. 2, 1921.

SN 314,367. Sydney Flour Pty. Limited, Smithfield, New South Wales, Australia. Filed Dec. 12, 1968.

BETTY SYDNEY

The name "Betty Sydney" is fanciful.
For Biscuit Mixes, Chicken Mixes, Cake, Pie, Pudding and Dessert Mixes (Int. Cl. 30).
First use Mar. 31, 1968, in commerce July 31, 1968.

SN 314,630. Suma Corporation, d.b.a. The European Shop, Grand Rapids, Mich. Filed Dec. 16, 1968.

THE EUROPEAN SHOP

Applicant disclaims the word "Shop" apart from the composite mark.
For Gourmet Foods, Specifically, Cheeses; Pastries; Smoked and Cured Meats; Fancy Breads; Canned Fish; Stuffed and Unstuffed Olives; Pickles; Pate; Canned, Dried and Fresh Fruits and Vegetables; Shelled and Unshelled Nuts; Biscuits and Cookies; Candy; Preserves; and Gift Packs of the Same (Int. Cls. 29, 30, and 31).
First use on or about Sept. 26, 1968.

SN 330,150. Lafayette Pharmacal, Inc., Lafayette, Ind. Filed June 16, 1969.

CHOLA NOG

Applicant disclaims exclusive rights to the word "Nog" apart from the mark as shown.
For Liquid Dietary of a Dairy Nature (Int. Cl. 5).
First use Mar. 24, 1969.

SN 330,411. M. Polaner & Son, Inc., Newark, N.J. Filed June 18, 1969.

TV TREAT

Applicant disclaims the term "Great" apart from the mark as a whole and without waiving any of its common law rights therein.
For Jams and Jellies (Int. Cl. 29).
First use at least as early as September 1964.

SN 335,223. General Foods Corporation, White Plains, N.Y. Filed Aug. 13, 1969.

GOODLES

For Macaroni (Int. Cl. 30).
First use July 2, 1969.

SN 335,273. Taco King, Inc., St. Louis, Mo. Filed Aug. 13, 1969.

Royolé

For Mexican Foods—Namely, Beef, Taco Filling, Mexican Beans, Chili With Beans, Beef Enchiladas and Beef Tamales Sold in the Frozen State, and Non-Frozen Taco and Tostada Shells (Int. Cls. 29 and 30).
First use July 23, 1969.

SN 336,773. Co-Ord, Ltd., Fond Du Lac, Wis. Filed Sept. 2, 1969.

CO-ORD

Owner of Reg. No. 889,802.
For Spice Blends—Namely, Pizza Spice Blend, Italian Sausage Mix, Beef Seasoning Blend; and Dough Blend To Be Used in Making Pizza Pies (Int. Cl. 30).
First use Aug. 21, 1969.

SN 337,667. Kraftco Corporation, Chicago, Ill. Filed Sept. 11, 1969.

NUTRA BAR

The word "Bar" is disclaimed apart from the mark.
For Meal Substitute Bar Comprising Milk, Eggs, and Flour, With Added Flavoring or Varietal Characterizing Ingredients and Mineral or Vitamin Fortifying Components (Int. Cl. 29).
First use June 20, 1969.

SN 337,668. Kraftco Corporation, Chicago, Ill. Filed Sept. 11, 1969.

INSTA-BREAK

For Meal Substitute Bar Comprising Milk, Eggs, and Flour, With Added Flavoring or Varietal Characterizing Ingredients and Mineral or Vitamin Fortifying Components (Int. Cl. 29).
First use June 20, 1969.

SN 339,430. Helme Products, Inc., New York, N.Y. Filed Oct. 1, 1969.

BERMUDA RINGS

For Snack Products Consisting of Corn-Based, Onion Flavored Snacks (Int. Cl. 29).
First use June 24, 1969.

SN 339,809. Nebraska Consolidated Mills Company, Omaha, Nebr. Filed Oct. 6, 1969.

Double Donuts

Applicant disclaims the word "Donuts" apart from the mark as shown.
For Donut Flour, Sold Only in Bulk (Int. Cl. 30).
First use on or about June 16, 1969.

SN 342,237. Cumberland Packing Corp., Brooklyn, N.Y. Filed Oct. 31, 1969.

SWEET'N LOW

Owner of Reg. Nos. 599,748, 896,101, and 896,102.
For Candy (Int. Cl. 30).
First use June 1969.

SN 343,414. Michigan Cottage Cheese Inc., Kalamazoo, Mich. Filed Nov. 18, 1969.

CAP'N CARROT AND CREW

Applicant disclaims the word "Carrot" apart from the mark as shown.
For Refrigerated Gelatin Salad Containing Carrots (Int. Cl. 29).
First use October 1967.

SN 344,478. Ursin Seafoods, Inc., Kodiak, Alaska. Filed Nov. 24, 1969.

ALASKA CAPTAIN

For Frozen and Canned King Crab (Int. Cl. 29).
First use May 7, 1969.

SN 345,652. Marubeni-Iida (America), Inc., New York, N.Y. Filed Dec. 8, 1969.

MAYON

For Canned and Frozen Seafood and Fruits (Int. Cl. 29).
First use Nov. 26, 1956.

SN 345,805. Diane's Foods, Inc., McMinnville, Oreg. Filed Dec. 10, 1969.

AUNT LENA'S

For Scandinavian Food Product—Namely, Frozen Lefse (Int. Cl. 30).
First use Nov. 12, 1968.

SN 346,398. Quaker City Packing Company, Inc., Allentown, Pa. Filed Dec. 16, 1969.



For Cat Food (Int. Cl. 31).
First use Apr. 11, 1969.

SN 347,304. Norpac Growers, Inc., Dundee, Oreg. Filed Dec. 29, 1969.



The drawing is lined for the colors red and green. No claim of exclusive right is made to the words "Filbert," "Walnut," and "Oregon" apart from the mark.
For Shelled and Unshelled Edible Nuts (Int. Cls. 29 and 31).
First use Sept. 4, 1958.

SN 349,482. La Preferida, Inc., Chicago, Ill. Filed Jan. 23, 1970.

VILLA CLARA

For Fresh, Canned and Frozen Fruits, Fruit Preserves, Fruit Jellies, Fruit Nectars, Fruit Syrups for Food Purposes, Coco Syrup for Food Purposes, Fresh, Canned and Frozen Fruit Juices, and Fruit Pastes (Int. Cls. 29, 30, 31, and 32).
First use January 1970.

SN 348,383. Allied Mills, Inc., Chicago, Ill. Filed Jan. 13, 1970.

AUTUMN GOLD

For Frozen Turkeys (Int. Cl. 29).
First use at least as early as Nov. 10, 1965.

SN 349,061. Cal-Tex Citrus Juice, Inc., Houston, Tex. Filed Jan. 20, 1970.



No claim is made to the representation of whole and cut oranges apart from the mark shown.
For Bottled Orange Juice (Int. Cl. 32).
First use June 1, 1968.

SN 349,493. National Biscuit Company, New York, N.Y. Filed Jan. 23, 1970.

CHOCO CHEW

Applicant disclaims the word "Chew" apart from the mark as shown.
For Candy (Int. Cl. 30).
First use Oct. 23, 1968.

SN 349,494. National Biscuit Company, New York, N.Y. Filed Jan. 23, 1970.

CHOCO CHEW ME

Applicant disclaims the word "Chew" apart from the mark as shown.
For Candy (Int. Cl. 30).
First use Oct. 23, 1968.

SN 351,325. Geigy Chemical Corporation, Ardsley, N.Y. Filed Feb. 13, 1970.

GALBATOL

For Nutritional Mineral Additives for Livestock Feeds (Int. Cl. 31).
First use Feb. 4, 1970.

SN 352,199. P & C Food Markets, Inc., Syracuse, N.Y. Filed Feb. 24, 1970.

GOLDEN ACRES

Owner of Reg. No. 725,128.
For Dairy Products—Namely, Butter, Fresh Eggs, and Cheese; and Frozen Turkeys (Int. Cl. 29).
First use at least as early as Jan. 5, 1953, on dairy products.

SN 352,519. Regal Fruit Cooperative, Tonasket, Wash. Filed Feb. 26, 1970.

TOP RED

Applicant disclaims exclusive rights to the term "Red" apart from the mark as shown.
For Fresh Red Apples (Int. Cl. 31).
First use Mar. 11, 1969.

SN 352,768. Caffette, Inc., New York, N.Y. Filed Mar. 2, 1970.

CAFFETTE

For Powdered, Soluble Concentrate for Making an Instant Food Beverage (Int. Cl. 30).
First use Feb. 17, 1970.

SN 353,162. Colonial Stores Incorporated, d.b.a. Big Star Products Co., Atlanta, Ga. Filed Mar. 5, 1970.

GARDEN CHARM

For Canned and Frozen Vegetables and Vegetable Juices (Int. Cls. 29 and 32).
First use September 1968.

SN 353,163. Colonial Stores Incorporated, d.b.a. Big Star Products Co., Atlanta, Ga. Filed Mar. 5, 1970.

ORCHARD CHARM

For Canned and Frozen Fruits and Fruit Juices (Int. Cls. 29 and 32).
First use September 1968.

SN 353,716. Armour-Dial, Inc., Chicago, Ill., Filed Mar. 11, 1970.

MINI PUP

The word "Pup" is disclaimed apart from the mark as shown.
For Canned Dog Food (Int. Cl. 31).
First use on or prior to Feb. 12, 1970.

SN 354,688. Watson & Rae S.A., San Jose, Costa Rica. Filed Mar. 19, 1970.

LA VERBENA HACIENDA

"La Verbena Hacienda" is Spanish for "The Verbena Ranch."
For Coffee (Int. Cl. 30).
First use July 1969; in commerce July 7, 1969.

SN 354,775. The Pillsbury Company, Minneapolis, Minn. Filed Mar. 23, 1970.



All word matter except "Pillsbury" and "Poppin'" is disclaimed apart from the mark shown.
Owner of Reg. Nos. 45,179, 852,847, and others.
For Refrigerated Dough Products—Namely, Biscuits, Pizza, Sweet Rolls, Cookies, Coffee Cake, and Dinner Rolls (Int. Cl. 30).
First use June 10, 1969.

SN 354,776. The Pillsbury Company, Minneapolis, Minn. Filed Mar. 23, 1970.



Applicant disclaims "Fresh," "Best" and "XXXX" apart from the mark shown.
Owner of Reg. Nos. 45,179, 852,847, and others.
For Refrigerated Dough Products—Namely, Biscuits, Pizza, Sweet Rolls, Cookies, Coffee Cake, and Dinner Rolls (Int. Cl. 30).
Filed June 10, 1969.

SN 355,075. H. E. Butt Grocery Company, d.b.a. Park Products Company, Corpus Christi, Tex. Filed Mar. 26, 1970.

VILLAGE PARK

For Vinegar, Salad Oil, Pancake and Waffle Syrup, and Preserves (Int. Cls. 29 and 30).
First use Oct. 29, 1969.

SN 355,308. Creative Foods Corp., Cassopolis, Mich. Filed Mar. 30, 1970.



For Snacks—Namely, Fried Rye Chips (Int. Cl. 29).
First use on or about Feb. 26, 1970.

SN 355,913. Southern Belle Frozen Foods, Inc., Jacksonville, Fla. Filed Apr. 3, 1970.

SOUTHERN BELLE

For Stuffed Shrimp, Fish Patties, Shrimp Burgers, Stuffed Flounder, Breaded Oysters, Crab Patties, and Deviled Crab (Int. Cl. 29).
First use Oct. 10, 1947, on deviled crab.

SN 356,034. Brock Candy Company, Chattanooga, Tenn. Filed Apr. 6, 1970.

MEMORY

For Candy (Int. Cl. 30).
First use Jan. 1, 1967.

SN 356,036. Caffe A. Ferrara, Inc., New York, N.Y. Filed Apr. 6, 1970.



The mark comprises a stylized chef's head with the letter F Superimposed within the wreath on the hat. The drawing is lined for the colors green and red, but no claim is made as to the colors so named. Owner of Reg. No. 749,208.
For Cakes, Pastries, Cookies, Candies, Candy-Coated Almonds, Candied Fruits, and Coffee (Int. Cl. 30).
First use about June 1959, on candies.

SN 356,091. Industrial Enterprises Inc., Brooklyn, N.Y. Filed Apr. 6, 1970.

TUPI

For Canned Vegetables (Int. Cl. 29).
First use 1961.

SN 356,593. Arthur Treacher's Fish & Chips, Inc., Columbus, Ohio. Filed Apr. 13, 1970.

ARTHUR TREACHER'S

"Arthur Treacher" is the name of a particular living individual whose consent is of record. Owner of Reg. Nos. 891,740, 895,664, and 895,665.
For Malt Vinegar, Coffee, Fish and Chips (Int. Cls. 29 and 30).
First use on or about May 21, 1969.

SN 356,594. Arthur Treacher's Fish & Chips, Inc., Columbus, Ohio. Filed Apr. 13, 1970.



For purposes of registration, no claim is made to the exclusive right to the words "Fish and Chips" apart from the mark as shown, but applicant waives none of its common-law rights in the mark or any feature thereof. Arthur Treacher is the name of a particular living individual whose consent to register his name and portrait are of record. Owner of Reg. Nos. 891,740, 895,664, and 895,665.
For Malt Vinegar, Coffee, Fish and Chips (Int. Cls. 29 and 30).
First use on or about May 21, 1969.

SN 358,199. JFG Coffee Company, Knoxville, Tenn. Filed Apr. 28, 1970.

JFG

Owner of Reg. Nos. 529,840, 608,804, and 680,086.
For Tea (Int. Cl. 30).
First use Mar. 6, 1961.

SN 358,513. Dover and Watson, Inc., Maspeth, N.Y. assignee of Pet-Mil Food Corp., Maspeth, N.Y. Filed May 1, 1970.

SuperBowl

Owner of Reg. No. 886,823.
For Dog Food (Int. Cl. 31).
First use Jan. 30, 1970.

SN 362,624. The Pillsbury Company, Minneapolis, Minn. Filed June 15, 1970.

BREAKFAST LITES

Applicant disclaims the word "Breakfast" apart from the mark as shown.
For High Protein, Nutritionally Balanced Instant Breakfast in Solid Form (Int. Cl. 30).
First use Dec. 1, 1969.

SN 363,137. Roman Meal Company, d.b.a. Roman Meal Co., Tacoma, Wash. Filed June 19, 1970.

PUFF-OVERS

For Turnover-Like Foods for Restaurant and Home Use, Said Items Having Various Fillings—Namely, Cream Fillings, Seafood Fillings, Meat Fillings and Fruit Fillings (Int. Cl. 30).
First use Feb. 26, 1970.

SN 363,236. Nebraska Consolidated Mills Company, Omaha, Nebr. Filed June 22, 1970.

MOTHER'S BEST

Owner of Reg. Nos. 678,544, 697,877, and 798,613.
For Dried Beans, Peas, and Rice (Int. Cls. 29 and 30).
First use May 21, 1970.

SN 368,407. General Mills, Inc., Minneapolis, Minn. Filed Aug. 19, 1970.

GRAHAM DELIGHTS

For Ready To Eat Breakfast Cereal (Int. Cl. 30).
First use on or about July 30, 1970.

Class 47 — Wines

SN 311,286. Monarch Wine Company of Georgia, Atlanta, Ga. Filed Nov. 4, 1968.

WILD POLISH

No claim is made to the word "Polish" apart from the mark shown.
For Wines (Int. Cl. 33).
First use Sept. 26, 1968.

SN 315,268. Societe d'Elevage et de Diffusion des Grands Vins (S.E.D.G.V.), Paris, France. Filed Dec. 26, 1968.



Priority claimed under Sec. 44(d) on French Reg. No. 782,513, dated Oct. 30, 1968.
For Wines (Int. Cl. 33).

SN 332,726. Lanson Pere & Fils, Societe Anonyme, Reims (Marne), France. Filed Sept. 9, 1970.

LANSON

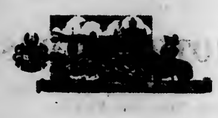
Owner of French Reg. No. 14,482, dated May 19, 1961 (Reims); Natl. Inst. No. 165,278; and U.S. Reg. Nos. 676,501 and 679,805.
For Champagne Wines (Int. Cl. 33).
First use Apr. 30, 1845; in commerce at least as early as Feb. 20, 1895.

SN 345,151. Josef Wehr, Berncastel-Kues (Mosel), Germany. Filed Dec. 3, 1969.

KARL MANHEIM

"Karl Manheim" is fictitious and not the name of a particular living individual.
For Wines (Int. Cl. 33).
First use Jan. 25, 1965; in commerce Jan. 25, 1965.

SN 345,152. Josef Wehr, Berncastel-Kues (Mosel), Germany. Filed Dec. 3, 1969.



The words "Bernkastel Anno 1550" are disclaimed apart from the mark as shown.
For Wines (Int. Cl. 33).
First use Jan. 25, 1965; in commerce Jan. 25, 1965.

SN 347,107. Mediterranean Importing Co., Inc., d.b.a. Mediterranean Wines, Long Island City, N.Y. Filed Dec. 24, 1969.

MOCARINO

For Wines (Int. Cl. 33).
First use Mar. 17, 1969.

SN 347,108. Mediterranean Importing Co., Inc., Long Island City, N.Y. Filed Dec. 24, 1969.

FRIZZALBA

Owner of Reg. No. 878,816.
For Wines (Int. Cl. 33).
First use July 2, 1969.

SN 353,085. Jack Poust & Company, Inc., New York, N.Y. Filed Mar. 4, 1970.

MELBA

For Wine Specialties (Int. Cl. 33).
First use Nov. 22, 1969.

SN 353,797. Tenner Brothers, Inc., Patrick, S.C. Filed Mar. 11, 1970.

SCUPPERDINE BRAND

The word "Brand" is disclaimed apart from the mark as shown.
For Wine (Int. Cl. 33).
First use Dec. 30, 1969.

SN 358,271. Bisceglia Brothers Wine Co., Fresno, Calif. Filed Apr. 29, 1970.

CANTERBURY

For Wine (Int. Cl. 33).
First use 1946.

Class 48 — Malt Beverages and Liquors

SN 326,863. Du Bois Brewing Company, Du Bois, Pa. Filed May 9, 1969.



The drawing is lined for the color red. The words "Burgundy Brau" and "Beer" are disclaimed apart from the mark as shown.
For Beer (Int. Cl. 32).
First use Mar. 5, 1969.

Class 49 — Distilled Alcoholic Liquors

SN 283,322. E. Delatour & Cie., S.A., Christiansted, St. Croix, Virgin Islands. Filed Oct. 25, 1967.

CAFE MOKA

For Liqueur (Int. Cl. 33).
First use July 15, 1947.

SN 307,189. Briones & Co., Inc., Woodside, N.Y. Filed Sept. 12, 1968.



For Gins and Blended Whiskeys (Int. Cl. 33).
First use May 21, 1968.

SN 343,864. Mediterranean Importing Co., Inc., Long Island City, N.Y. Filed Nov. 18, 1969.



For Liqueur (Int. Cl. 33).
Owner of Reg. No. 871,426.
First use Aug. 21, 1969.

SN 354,307. Glenmore Distilleries Company, Louisville, Ky. Filed Mar. 17, 1970.

CAPTAIN'S QUART

No claim is made to the word "Quart" apart from the mark as shown. Owner of Reg. Nos. 726,336 and 728,948.
For Bourbon Whiskey (Int. Cl. 33).
First use Jan. 1, 1968.

SN 367,917. Joseph E. Seagram and Sons, Inc., New York, N.Y. Filed Aug. 13, 1970.

PETER MALCOLM

"Peter Malcolm" is not the name of a particular living individual.
For Bourbon Whiskey (Int. Cl. 33).
First use July 29, 1970.

Class 50 — Merchandise Not Otherwise Classified

SN 292,661. Air-Sec, Choisy-le-Roi, Val-de-Marne, France. Filed Mar. 7, 1968.

AIR-SEC

Priority claimed under Sec. 44(d) on French Reg. No. 741,532, dated Oct. 27, 1967.
For Aluminum Plastic Dehydrating Stoppers and Capsules (Int. Cls. 6 and 20).

SN 319,857. The Franklin Mint, Inc., Yeadon, Pa. Filed Feb. 24, 1969.

MAXI-COINS

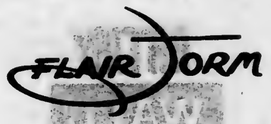
Applicant disclaims the word "Coins" apart from the mark as shown.
For Non-Monetary Coined Tokens (Int. Cl. 14).
First use Feb. 19, 1969.

SN 327,265. The Franklin Mint, Inc., Yeadon, Pa. Filed May 14, 1969.

ZODIAC

For Non-Monetary Coins; Tokens; Medals; and Medallions (Int. Cl. 14).
First use Mar. 30, 1968.

SN 332,330. Dixson Incorporated, Grand Junction, Colo. Filed July 11, 1969.



For Decorated and Undecorated Plastic Artware for Use as Functional and Decorative Accessories (Int. Cl. 21).
First use Apr. 1, 1968.

SN 345,076. The Hibbert Company, Trenton, N.J. Filed Dec. 2, 1969.

BIRDIE CLUB

For Plaques (Int. Cl. 20).
First use Sept. 2, 1969.

SN 346,734. The Franklin Mint, Inc., Yeadon, Pa. Filed Dec. 19, 1969.

THE MICHELANGELO QUINCENTENNIAL SERIES

"Series" is disclaimed apart from the mark as shown. "Michelangelo" is the name of a famous artist, now deceased.
For Commemorative Medals (Int. Cl. 14).
First use Dec. 10, 1969.

SN 347,095. The Franklin Mint, Inc., Yeadon, Pa. Filed Dec. 24, 1969.

FM

For Non-Monetary Coinage Products—Namely, Tokens, Medals, and Medallions (Int. Cl. 14).
First use at least as early as November 1968.

SN 347,713. Cadillac Foam Products Company, New York, N.Y. Filed Jan. 5, 1970.



The mark consists of a shield containing a stylized depiction of a man running made up of the words "Rug and Runner." The drawing is lined for the colors blue and red, but no claim to color is made. No registration rights are claimed herein for the words "Rug Runner" and "Floor Protector" apart from the mark as shown, but applicant waives none of its common law rights in said mark or any feature thereof.
For Plastic Runner Over Carpet (Int. Cl. 27).
First use at least as early as July 10, 1969.

SN 351,290. Western Litho Plate & Supply Co., d.b.a. Western Litho Plate and Supply Company, St. Louis, Mo. Filed Feb. 13, 1970.

SRP

For Lithographic Plates (Int. Cl. 16).
First use Mar. 1, 1969.

SN 360,654. The Photoplating Company, Minneapolis, Minn. Filed May 25, 1970.



For Placques (Int. Cl. 16).
First use Feb. 24, 1970.

Class 51 — Cosmetics and Toilet Preparations

SN 336,977. DuBarry, Inc., Morris Plains, N.J. Filed Sept. 4, 1969.

LIP THINGS

Applicant disclaims the word "Lip" apart from the mark as shown.
For Lipstick (Int. Cl. 3).
First use Aug. 26, 1969.

SN 343,172. Shiseido Co., Ltd., Chuo-ku, Tokyo, Japan. Filed Nov. 10, 1969.

SHISEIDO
BRAVAS

Owner of U.S. Reg. Nos. 691,052 and 686,446.
For Men's Toiletries—Namely, Facial Moisturizing Lotion, Skin Lotions and Creams, Liquid and Solid Brilliantines, Hair Lacquer, Hair Lotion, Colognes, and Toilet Waters (Int. Cl. 3).
First use September 1968; in commerce June 1969.

SN 343,333. A. H. Robins Company, Incorporated, Richmond, Va. Filed Nov. 12, 1969.

ROME BALLET

For Cream Sachet for Personal Use, Moisturizing Creams, and Colognes (Int. Cl. 3).
First use Aug. 15, 1969.

SN 344,788. Johnson & Johnson, New Brunswick, N.J. Filed Nov. 28, 1969.

TOMORROW

For Hand Lotion (Int. Cl. 3).
First use Oct. 24, 1969.

SN 344,962. Clinton Falconer, d.b.a. Clinton Beauty Products Co., West Haven, Conn. Filed Dec. 1, 1969.

Gro-Tein*

For Hair Dressings, Hair Conditioners, Hair Straighteners, Hair Sprays, Hair Rinses, Hair Pressing Oils and Creams (Int. Cl. 3).
First use Nov. 5, 1969.

SN 364,619. Swank, Inc., Attleboro, Mass. Filed July 8, 1970.

POLARIS

For All-Purpose Skin Lotion (Int. Cl. 3).
First use June 2, 1960.

SN 366,835. Daggett & Ramsdell International Corp., New York, N.Y. Filed Aug. 3, 1970.

DEBUTANTE BAL DE VERSAILLES

Owner of Reg. Nos. 297,827, 849,939, and others.
For Toilet Perfume (Int. Cl. 3).
First use July 27, 1970.

SN 367,097. Carter-Wallace, Inc., New York, N.Y. Filed Aug. 5, 1970.

DRY-PED

For Anti-Perspirant Foot Spray (Int. Cl. 5).
First use Apr. 29, 1970.

SN 367,098. Carter-Wallace, Inc., New York, N.Y. Filed Aug. 5, 1970.

PED I-DRY

For Anti-Perspirant Foot Spray (Int. Cl. 5).
First use Apr. 29, 1970.

Class 52 — Detergents and Soaps

SN 256,451. Kem Manufacturing Corporation, Tucker, Ga. Filed Oct. 14, 1966.

KEM

Owner of Reg. Nos. 565,956, 746,093, and 794,638.
For Detergent for Cleaning Concrete Surfaces, Floors and Like Surfaces; Synthetic Detergent; Glass Cleaner; Cleaner for Porcelain and Enamel Surfaces; Dry Cleaner; Dish Washing Compounds; White Wall Tire Cleaner; Cleaning and Degreasing Compounds for Cleaning Auto Parts and Similar Articles; Solvent Degreaser for Cleaning Electric Motors and Electrical Equipment; Cleaner for Removing Cement Lime and Concrete (Int. Cl. 3).
First use 1953.

SN 323,877. Economics Laboratory, Inc., St. Paul, Minn. Filed Apr. 4, 1969.

NU-KLEEN

For Acid Cleaner To Be Used on Equipment in Farm, Dairy, and Food Processing Plants (Int. Cl. 3).
First use January 1943.

SN 324,595. A. Arthur Jaffe, d.b.a. Artjay Products Co., Scranton, Pa. Filed Apr. 15, 1969.

ARTJAY
WALL TO WALL

The representation of the rug is disclaimed apart from the mark as shown. Owner of Reg. No. 330,779.
For Liquid Cleaning Composition for Rugs, Carpets, and Upholstery (Int. Cl. 3).
First use August 1962; June 1, 1931, as to "Artjay."

SN 324,804. The Drackett Company, Cincinnati, Ohio. Filed Apr. 17, 1969.

LEMON BRIGHT

Applicant disclaims the word "Lemon" apart from the mark as shown.
For Household Spray Cleaner (Int. Cl. 3).
First use Nov. 25, 1968.

SN 334,298. Bestline Products Inc., San Jose, Calif. Filed Aug. 4, 1969.

ZIF

For All-Purpose Liquid Household Cleaner (Int. Cl. 3).
First use Aug. 1, 1966.

SN 337,889. Chemcorps Corporation, Houston, Tex. Filed Sept. 15, 1969.

The drawing is lined for the colors blue and red.
For Chemical Mixture Used in the Cleaning of Cement and Concrete Surfaces, Such as Garage Floors, and the Like (Int. Cl. 3).
First use Mar. 17, 1969.

SN 338,549. Dermavet Laboratories, Inc., Syosset, N.Y. Filed Sept. 22, 1969.

SULTEX

For Medicated Shampoo for Veterinary Use (Int. Cl. 5).
First use July 7, 1969.

SN 339,700. Avon Products, Inc., New York, N.Y. Filed Oct. 3, 1969.

A PERSONAL NOTE

Owner of Reg. Nos. 890,230 and 890,332.
For Toilet Soap (Int. Cl. 3).
First use June 17, 1969.

SN 345,672. Ramrod-Polytran, Inc., Burlingame, Calif. Filed Dec. 8, 1969.

sani-blu

Owner of Reg. No. 783,359.
For Toilet Bowl Cleaner and Deodorant (Int. Cl. 5).
First use at least as early as February 1969.

SN 348,379. Wyandotte Chemicals Corporation, Wyandotte, Mich. Filed Jan. 12, 1970.

SPRAY ALDET

No claim is made to the word "Spray" apart from the mark as shown. Owner of Reg. No. 715,561.
For Spray Cleaner for Aluminum (Int. Cl. 3).
First use June 9, 1969.

SN 350,151. Wyandotte Chemicals Corporation, Wyandotte, Mich. Filed Jan. 30, 1970.

FERNAK

For High Alkaline Detergent Composition for Washing Bottles (Int. Cl. 3).
First use Mar. 18, 1964.

SN 350,533. Textron Inc., Providence, R.I. Filed Feb. 4, 1970.

GRANDE MARQUE

No claim is made to the word "Marque" apart from the mark as shown. The English translation of "Grande Marque" is "great brand."
For Toilet Soap (Int. Cl. 3).
First use Jan. 22, 1970.

SN 350,690. Certified Laboratories, Inc., Fort Worth, Tex. Filed Feb. 6, 1970.

GERMA-CERT

For Disinfectant Cleaner and Deodorizer (Int. Cl. 5).
First use April 1967.

SN 350,965. Sears, Roebuck and Co., Chicago, Ill. Filed Feb. 9, 1970.

ENZ-ACT

For Stain-Lifting Ingredient Incorporated in a Laundry Pre-Soak (Int. Cl. 3).
First use on or about Apr. 18, 1969.

SN 363,611. Colgate-Palmolive Company, New York, N.Y. Filed June 25, 1970.

GRIME OUT

For Laundry Pre-Spotter (Int. Cl. 3).
First use May 13, 1970.

SN 367,539. Lever Brothers Company, New York, N.Y. Filed Aug. 10, 1970.

LOGIC

For Household Detergent for General Washing and Cleansing (Int. Cl. 3).
First use Aug. 3, 1970.

SERVICE MARKS

Class 100 — Miscellaneous

SN 318,893. Compu-Share, Inc., Arlington, Va. Filed Feb. 11, 1969.



For Computer Time Sharing and Batch Processing Services for Others (Int. Cl. 42).
First use Dec. 29, 1968.

SN 324,099. Siracusa-Wandrocke, Inc., Santa Ana, Calif. Filed Apr. 9, 1969.

ANCIENT MARINER

For Restaurant and Bar Services (Int. Cl. 42).
First use Dec. 16, 1965.

SN 325,511. Rembrandt's Paint Factory Catering Service, Inc., Houston, Tex. Filed Apr. 24, 1969.

Rembrandt's Paint Factory
(body painting division)

For Night Club Services (Int. Cl. 42).
First use Apr. 15, 1968.

SN 327,023. Information Sciences, Inc., Portland, Oreg. Filed May 12, 1969.



For Providing of Multi-Access Computer Services (Int. Cl. 42).
First use Apr. 18, 1969.

SN 328,820. Mid-South Investment Company, Inc., Sikeston, Mo. Filed May 26, 1969.

LOUIE'S CATFISH KITCHEN

Applicant disclaims any exclusive rights in and to the words "Kitchen" and "Catfish," apart from the mark as shown.
For Restaurant Services (Int. Cl. 42).
First use May 3, 1969.

SN 332,207. Van Dusen Aircraft Supplies, Incorporated, Minneapolis, Minn. Filed July 10, 1969.

VAN DUSEN

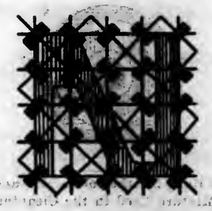
For Leasing of Radio and Other Equipment Utilized in Airplanes (Int. Cl. 42).
First use on or about Apr. 1, 1966.

SN 333,079. 'Arrys Fish and Chips Limited, Oklahoma City, Okla. Filed July 22, 1969.



The drawing is lined for the colors red and blue. No claim is made to the words "Authentic English Fish & Chips" apart from the mark shown in the drawing.
For Restaurant Services (Int. Cl. 42).
First use June 10, 1969.

SN 334,183. National Computer Franchise Corporation, Lincolnwood, Ill. Filed Aug. 1, 1969.



The drawing is lined for the color red, but the color is not in itself claimed as a feature of the mark.
For Computer Time-Sharing Services (Int. Cl. 42).
First use in or about April 1969.

SN 338,866. Argus Investigation & Security Research Agency, Inc., Los Angeles, Calif. Filed Sept. 25, 1969.



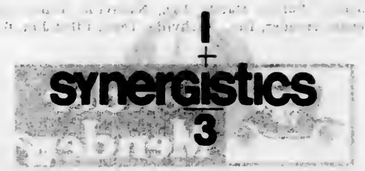
For Rendition of Private Investigation Services for Private, Professional and Business Entities Including the Gathering and Analysis of Electronic Data Processing and Advanced Communications Media and the Giving and Analyzing of Polygraph Tests (Int. Cl. 42).
First use June 27, 1961.

SN 338,868. Argus Investigation & Security Research Agency, Inc., Los Angeles, Calif. Filed Sept. 25, 1969.

ARGUS

For Rendition of Private Investigation Services for Private, Professional and Business Entities Including the Gathering and Analysis of Electronic Data Processing and Advanced Communications Media and the Giving and Analyzing of Polygraph Tests (Int. Cl. 42).
First use June 27, 1961.

SN 342,660. Robert L. Oliver, Decatur, Ga. Filed Nov. 4, 1969.



For Creative Writing (Int. Cl. 42).
First use Feb. 25, 1969.

SN 343,671. Cornshucker, Inc., Lakeland, Fla. Filed Nov. 17, 1969.



The word "Corn" and the representation of the ear of corn are disclaimed apart from the mark shown.
For Restaurant Services and Carryout Restaurant Services (Int. Cl. 42).
First use Aug. 15, 1968.

SN 356,734. Mr. Swiss of America, Inc., Oklahoma City, Okla. Filed Apr. 13, 1970.



For Restaurant Services (Int. Cl. 42).
First use on or about Jan. 28, 1970.

SN 364,315. Arizona Feeds, Tucson, Ariz. Filed July 6, 1970.

COMPUFORM

For Livestock Feed Consulting Services (Int. Cl. 42).
First use Apr. 16, 1970.

SN 364,316. Arizona Feeds, Tucson, Ariz. Filed July 6, 1970.



For Livestock Feed Consulting Services (Int. Cl. 42).
First use Apr. 16, 1970.

SN 364,330. Hollingsworth & Vose Company, East Walpole, Mass. Filed July 6, 1970.

FIBERNETICS

For Materials Technology Service, viz, Engineering Natural and Synthetic Fibers With Other Materials To Create Specialized Materials for Use in Place of Metals, Textiles, or Plastics (Int. Cl. 42).
First use on or before Apr. 30, 1970.

Class 101 — Advertising and Business

SN 324,818. Steven K. Herlitz, Inc., New York, N.Y. Filed Apr. 17, 1969.

RESPONDEX

For Publication and Distribution of Brochures Containing Advertisements for Others and Return-Mail Post Cards (Int. Cl. 35).
First use at least as early as April 1969.

SN 326,219. Marketing Control, Inc., New York, N.Y. Filed May 2, 1969.

SURPRISE HUNTER

For Market Research Services (Int. Cl. 35).
First use May 22, 1968.

SN 326,418. Olean Wholesale Grocery Coop., Inc., Olean, N.Y. Filed May 5, 1969.

SHOPWISE

For Retail Grocery Store Services (Int. Cl. 35).
First use May 10, 1967.

SN 332,485. International Systems and Computer Corporation, Dallas, Tex. Filed July 14, 1969.



Applicant disclaims the representation of the computer reel apart from the mark as shown.
For Computer Programming Services (Int. Cl. 35).
First use on or about Feb. 14, 1969.

SN 345,067. First National Stores Inc., Somerville, Mass. Filed Dec. 2, 1969.

FUSSY

For Retail Grocery Store Services (Int. Cl. 35).
First use on or about Sept. 5, 1967.

SN 345,192. New York Shopping & Dining Information, Inc., New York, N.Y. Filed Dec. 3, 1969.

"CITYPHONE"

For Promoting the Sale of Goods and Services of Business by Providing Answers to Specific Questions Concerning Shopping and Dining Via Telephone (Int. Cl. 35).
First use Aug. 1, 1969.

Class 102 — Insurance and Financial

SN 334,335. Interfinancial Inc., Atlanta, Ga. Filed Aug. 4, 1969.



For Fund Management Services—Namely, Providing for the Acquisition and Disposition of Insurance and Equity Investments of Others; Estate Planning Services; and Insurance Underwriting Services (Int. Cl. 36).
First use on or about July 31, 1969.

SN 336,790. First Brentwood Corporation, Los Angeles, Calif. Filed Sept. 2, 1969.

WILLPOWER

For Savings Account Services (Int. Cl. 36).
First use June 12, 1969.

SN 340,134. Fidelity Federal Savings and Loan Association, Glendale, Calif. Filed Oct. 8, 1969.

Money Gard

For Banking Services—Namely, Savings and Loan Association Services (Int. Cl. 36).
First use Sept. 11, 1969.

SN 361,799. United States Savings and Loan League, Chicago, Ill. Filed June 5, 1970.

SAVINGS-AND-LOAN-A-MATIC

For Financial Services Constituting a Plan for the Transfer of Credit From One Account to Another (Int. Cl. 36).
First use May 13, 1970.

Class 103 — Construction and Repair

SN 315,901. Skilled Hands, Inc., Nashville, Tenn., assignee of Fender Mender, Inc., Nashville, Tenn. Filed Jan. 6, 1969.



The words "Fender Mender" are disclaimed apart from the mark as shown.
For Automobile Body Repair Shop Services (Int. Cl. 37).
First use on or about Sept. 4, 1968.

SN 354,255. AC and S, Inc., Lancaster, Pa. Filed Mar. 17, 1970.

ACandS

For Thermal Insulation Contracting Services (Int. Cl. 37).
First use Aug. 1, 1969.

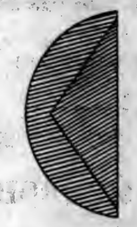
Class 105 — Transportation and Storage

SN 315,698. Meet the French, Paris, France, Filed Nov. 6, 1968.

A FRIEND IN PARIS

For Travel Agency Services, Sight Seeing Services, and Guiding Services (Int. Cl. 39).
First use November 1967; in commerce April 1968.

SN 324,970. Canadian Pacific Railway Company, Montreal, Quebec, Canada. Filed Dec. 9, 1968.



Priority claimed under Sec. 44(d) on Canadian application filed June 14, 1968; Reg. No. 163,385, dated June 6, 1969. The lining on the drawing is not intended to indicate color but is used to indicate contrast.
For Transportation of Goods and Persons by Air (Int. Cl. 39).

SN 359,545. Astra Engineering, Inc., El Segundo, Calif. Filed May 13, 1970.

COMPUTE-A-TRIP

For Travel Services—Namely, the Selection of Vacation Sites for Others Through the Use of Computer Processed Questionnaires (Int. Cl. 39).
First use Apr. 21, 1970.

SN 363,403. Suddath Van Lines, Inc., Jacksonville, Fla. Filed June 23, 1970.



For Packing, Moving, Trucking, Hauling, and Storage of Household Goods and Personal Effects (Int. Cl. 39).
First use Nov. 10, 1969.

Class 106 — Material Treatment

SN 337,506. American Waterproofing Corp., New Haven, Mo. Filed Sept. 10, 1969.

AMERFLAME

Owner of Reg. Nos. 512,923 and 581,392.
For Waterproofing, Mildewproofing, and Flameproofing Fabrics (Int. Cl. 40).
First use October 1953.

SN 361,630. The United Piece Dye Works, Lodi, N.J. Filed June 3, 1970.

UNIBOND

For Dyeing, Finishing and Fabric-to-Fabric Adhesive Bonding of Textile Fabrics Composed of Natural or Man-Made Fibers and/or Blends Thereof (Int. Cl. 40).
First use Oct. 7, 1968.

Class 107 — Education and Entertainment

SN 330,476. The Cathy Lord Career and Fashion School, Inc., Providence, R.I. Filed June 19, 1969.

cathy Lord

For Operation of a Career and Fashion School (Int. Cl. 41).
First use April 1968.

SN 337,661. International Business Machines Corporation, Armonk, N.Y. Filed Sept. 11, 1969.

IBM

Owner of Reg. No. 571,422.
For Educational and Instructional Services in the Operation, Maintenance, and Programming of Data Processing Equipment (Int. Cl. 41).
First use 1934.

SN 357,782. Columbia Pictures Industries, Inc., d.b.a. Screen Gems, New York, N.Y. Filed Apr. 24, 1970.



Owner of Reg. No. 802,409.
For Amusement Park Services (Int. Cl. 41.
First use May 1966.

COLLECTIVE MEMBERSHIP MARKS

Class 200

SN 320,278. National Particleboard Association, Washington, D.C. Filed Feb. 27, 1969.



No claim is made to the exclusive right to use an outline map of the United States, but aplicant waives none of its common law rights therein.
For Indicating Membership in Applicant.
First use Aug. 1, 1960.

SN 359,229. The International Association of Lions Clubs, Chicago, Ill. Filed May 8, 1970.



Owner of Reg. Nos. 642,444 and 760,173.
For Indicating Membership in Applicant.
First use Aug. 29, 1969.

SN 359,230. The International Association of Lions Clubs, Chicago, Ill. Filed May 8, 1970.

LEO

Owner of Reg. Nos. 642,444 and 760,173.
For Indicating Membership in Applicant.
First use Oct. 16, 1967.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

903,263. COLDSTREAM. Metallurgical International, Inc. MULTIPLE CLASS (Classes 1 and 14). SN 314,668. Pub. 9–15–70. Filed 10–22–68.

903,264. WILLIAMSBURG. Central States Products Company. SN 322,270. Pub. 9–15–70. Filed 3–20–69.

903,265. BP AND DESIGN. The British Petroleum Company Limited. SN 322,823. Pub. 9–15–70. Filed 3–26–69.

903,266. DISOFLEX. Disogrin Industries. SN 324,282. Pub. 9–15–70. Filed 4–11–69.

903,267. ULTRA COTE. Engelhard Minerals & Chemicals Corporation. SN 330,485. Pub. 9–15–70. Filed 6–19–69.

903,268. SRF. Soybean Research Foundation, Inc. SN 334,628. COLLECTIVE MARK. Pub. 9–15–70. Filed 8–6–69.

903,269. ANIMATE. Rohm and Haas Company. SN 334,742. Pub. 9–15–70. Filed 8–7–69.

903,270. HI-ZEX. Mitsui Toatsu Chemicals, Inc. SN 347,952. Pub. 9–15–70. Filed 1–7–70.

903,271. ECF. Fiber Industries, Inc. SN 348,025. Pub. 9–15–70. Filed 1–8–70.

903,272. USM AND CIRCLE DESIGN. USM Corporation. SN 348,066. Pub. 9–15–70. Filed 1–8–70.

903,273. ALICETA. Rayonier Canada Sales Limited. SN 361,075. Pub. 9–15–70. Filed 5–28–70.

Class 2 — Receptades

903,274. POLYCO AND DESIGN. Polyco, Incorporated. SN 310,918. Pub. 9–15–70. Filed 10–30–68.

903,275. GRAPHIC SYMBOL. Alton Box Board Company. SN 324,382. Pub. 9–15–70. Filed 4–14–69.

903,276. SHY-BELL HOBO SACKS TOBY AND DESIGN. Lee Shy-Bell Schauble. SN 325,400. Pub. 9–15–70. Filed 4–23–69.

903,277. ALTON PACKAGING. Alton Box Board Company. SN 326,614. Pub. 9–15–70. Filed 5–7–69.

903,278. ADAMSON. Adamson Company, Inc. MULTIPLE CLASS (Classes 2 and 34). SN 328,617. Pub. 9–15–70. Filed 5–29–69.

903,279. EVERYWARE. Republic Corporation. SN 343,157. Pub. 9–15–70. Filed 11–10–69.

903,280. PERMA-PHUSE. F. N. Burt Company Inc. SN 343,940. Pub. 9–15–70. Filed 11–19–69.

903,281. BPI AND CIRCLE DESIGNS. Basic Plastics. SN 344,210. Pub. 9–15–70. Filed 11–21–69.

903,282. PRODUCTS OF WOODPECKER CONTINENTAL GOURMET AND DESIGN. Continental Gourmet, Inc. SN 348,499. Pub. 9–15–70. Filed 1–14–70.

903,283. RUBBER QUEEN. Pretty Products, Inc. SN 350,523. Pub. 9–15–70. Filed 2–4–70.

903,284. KIMBIES. Kimberly-Clark Corporation. SN 362,453. Pub. 9–15–70. Filed 6–12–70.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

903,285. ESP. B. Rich's Sons, Inc. MULTIPLE CLASS (Classes 3 and 39). SN 320,673. Pub. 9–15–70. Filed 3–4–69.

903,286. BRYSON. Independent Retailers Syndicate, Inc. SN 329,984. Pub. 9–15–70. Filed 6–13–69.

903,287. HILL AND DALE. Dixon-Bartlett-Lambrecht, Inc. SN 341,267. Pub. 9–15–70. Filed 10–21–69.

903,288. B & B LORRYS AND DESIGN. Eagle Clothes, Inc., d.b.a. B & B Lorrys Stores. SN 362,810. Pub. 9–15–70. Filed 6–16–70.

Class 4 — Abrasives and Polishing Materials

903,289. FORMICA. Formica Corporation. SN 324,714. Pub. 9–15–70. Filed 4–16–69.

903,290. MOPSIE. Sterling Drug Inc. SN 357,521. Pub. 9–15–70. Filed 4–21–70.

Class 5 — Adhesives

903,291. ASBESTOGARD. Johns-Manville Corporation. SN 343,291. Pub. 9–15–70. Filed 11–12–69.

903,292. CORRUMASTIC. Johns-Manville Corporation. SN 354,958. Pub. 9–15–70. Filed 3–24–70.

Class 6 — Chemicals and Chemical Compositions

903,293. LUCTA AND DESIGN. Lucta, S.A. MULTIPLE CLASS (Classes 6 and 46). SN 291,271. Pub. 9–15–70. Filed 2–16–68.

903,294. THE ALL-AMERICAN. Dixi Chem of Greenville, Inc. MULTIPLE CLASS (Classes 6 and 18). SN 297,624. Pub. 9–15–70. Filed 5–8–68.

903,295. CHO CHO SAN AND DESIGN. Masanori Konaka. SN 306,253. Pub. 9–15–70. Filed 8–29–68.

903,296. ELLIPTICAL-LIKE DESIGN. Texize Chemicals, Inc. MULTIPLE CLASS (Classes 6 and 52). SN 307,375. Pub. 9–15–70. Filed 9–16–68.

903,297. TERALAN. Ciba Limited. SN 309,837. Pub. 9–15–70. Filed 10–17–68.

903,298. DASCO PA-COND. D. A. Stuart Oil Co., Limited. SN 314,471. Pub. 9–15–70. Filed 12–13–68.

903,299. SNUG & DRY. Dow Corning Corporation. SN 319,766. Pub. 9–15–70. Filed 2–24–69.

903,300. FAITH. Masanori Konaka. SN 320,159. Pub. 9–15–70. Filed 2–26–69.

903,301. TSI DESIGN. Testing Systems, Inc. MULTIPLE CLASS (Classes 6 and 15). SN 322,760. Pub. 9–15–70. Filed 3–25–69.

903,302. T TRIM AND DESIGN. Master Chemical Corporation. SN 323,586. Pub. 9–15–70. Filed 4–3–69.

903,303. RUTHENEX. Sel-Rex Corporation. SN 323,601. Pub. 9–15–70. Filed 4–3–69.

903,304. POT-NITE M.P. American Metal Climax, Inc., d.b.a. Southwest Potash Corporation. SN 324,156. Pub. 9–15–70. Filed 4–10–69.

903,305. ANTI-HEAT. Southern Auto Supply. SN 327,692. Pub. 9–15–70. Filed 5–19–69.

903,306. EP-AQUA. R. T. Vanderbilt Company, Inc. SN 327,705. Pub. 9–15–70. Filed 5–19–69.

903,307. FUNDAL. NOR-AM Agricultural Products, Inc., assignee of Schering Aktiengesellschaft. SN 329,011. Pub. 9–15–70. Filed 6–3–69.

903,308. EXCELCIDE. The Huge Company, Inc. SN 329,721. Pub. 9–15–70. Filed 6–11–69.

903,309. ARSONAX. Humphrey Chemical Corporation. SN 331,892. Pub. 9–15–70. Filed 7–7–69.

903,310. PADAN. Takeda Chemical Industries, Ltd. SN 332,880. Pub. 8–18–70. Filed 7–11–69.

903,311. ARGALUX. Schering Aktiengesellschaft. SN 332,996. Pub. 9–15–70. Filed 7–18–69.

903,312. STAR ROSE. The Conard-Pyle Company. MULTIPLE CLASS (Classes 6 and 10). SN 333,626. Pub. 9–15–70. Filed 7–28–69.

903,313. OILEX. Keltron AG. SN 336,453. Pub. 9–15–70. Filed 8–27–69.

903,314. SWI. Sumner Williams, Inc. MULTIPLE CLASS (Classes 6 and 50). SN 343,899. Pub. 9–15–70. Filed 11–19–69.

903,315. LUROL. George A. Goulston Company, SN 343,969. Pub. 9–15–70. Filed 11–19–69.

903,316. PYRONIL. George A. Goulston Company. SN 343,970. Pub. 9–15–70. Filed 11–19–69.

903,317. WEED-B-GON. Chevron Chemical Company. SN 346,224. Pub. 9–15–70. Filed 12–15–69.

903,318. LOK-SIZE. A. E. Staley Manufacturing Company. SN 346,779. Pub. 9–15–70. Filed 12–19–69.

903,319. GULF AND DESIGN. Gulf Oil Corporation. SN 346,897. Pub. 9–15–70. Filed 12–22–69.

903,320. GRAIN AND FLASK DESIGN. Research Products Company. SN 346,960. Pub. 9–15–70. Filed 12–22–69.

903,321. FRIDGE FRESH. Chemical Associates, Inc. SN 347,392. Pub. 9–15–70. Filed 12–30–69.

903,322. PROPLATE. Protex Industries, Inc. SN 347,781. Pub. 9–15–70. Filed 1–5–70.

903,323. PROCRON. Protex Industries, Inc. SN 347,782. Pub. 9–15–70. Filed 1–5–70.

903,324. TBF. Sunreco Chemical Company. SN 347,794. Pub. 9–15–70. Filed 1–5–70.

903,325. ENDURE. S. C. Jonson & Son, Inc. SN 349,800. Pub. 9–15–70. Filed 1–28–70.

903,326. CERTI-FOG. Certified Laboratories, Inc. SN 350,670. Pub. 9–15–70. Filed 2–6–70.

903,327. COM-KILL. Certified Laboratories, Inc. SN 350,697. Pub. 9–15–70. Filed 2–6–70.

903,328. ESCOFLEX. Standard Oil Company. SN 353,011. Pub. 9–15–70. Filed 3–4–70.

903,329. GAFQUAT. GAF Corporation. SN 359,786. Pub. 9–15–70. Filed 5–15–70.

Class 8 — Smokers' Artides, Not Including Tobacco Products

903,330. SWINGER. Paul Garrity. SN 353,184. Pub. 9–15–70. Filed 3–5–70.

903,331. MISCELLANEOUS DESIGN. Colibri Lighters Limited. SN 358,280. Pub. 9–15–70. Filed 4–29–70.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

903,332. NOSLER. Nosler Bullets, Inc. SN 326,416. Pub. 9–15–70. Filed 5–5–69.

903,333. TUG. Wilhelm Brenneke KG. SN 336,313. Pub. 9–15–70. Filed 8–26–69.

903,334. THIS IS JR. AND BOY'S FACE DESIGN. Jr. Food Stores, Inc. SN 338,681. Pub. 9–15–70. Filed 9–23–69.

903,335. HOLEX AND LEAF DESIGN. Holex Incorporated. MULTIPLE CLASS (Classes 9 and 100). SN 339,063. Pub. 9–15–70. Filed 9–29–69.

903,336. HOLEX. Holex Incorporated. MULTIPLE CLASS (Classes 9 and 100). SN 339,064. Pub. 9–15–70. Filed 9–29–69.

Class 10 — Fertilizers

903,312. (See Class 6 for this trademark.)

903,337. SCOTT'S PLUS 3 AND DESIGN. The O. M. Scott & Sons Company. SN 300,376. Pub. 9–15–70. Filed 6–13–68.

903,338. VITA-RICH. Excel-Mineral Company, Inc., d.b.a. Excel Mineral Co. SN 336,056. Pub. 9–15–70. Filed 8–25–69.

903,339. HOWARD JOHNSON'S. Howard B. Johnson. SN 342,934. Pub. 9–15–70. Filed 11–7–69.

903,340. FLORAMULL. Badische Anilin- & Soda-Fabrik Aktiengesellschaft. SN 345,127. Pub. 9–15–70. Filed 12–3–69.

Class 12 — Construction Materials

903,341. BLIT-ZIT. Armstrong Paint & Varnish Works, Inc. MULTIPLE CLASS (Classes 12 and 16). SN 322,139. Pub. 9–15–70. Filed 3–19–69.

903,342. CONWALL. Carew Corporation. SN 322,963. Pub. 9–15–70. Filed 3–27–69.

903,343. MAPLEXINE. Maplex, S.A. SN 328,343. Pub. 9–15–70. Filed 4–1–69.

903,344. TROPHY-WALL. American Plywood Association. SN 325,679. Pub. 9–15–70. Filed 4–28–69.

903,345. DIMENSION-WALL. Flangeklamp Corporation. SN 326,088. Pub. 9–15–70. Filed 5–1–69.

903,346. PARKWALL. Textron Inc. SN 330,215. Pub. 9–15–70. Filed 6–16–69.

903,347. ASBESTOGARD. Johns-Manville Corporation. SN 343,296. Pub. 9–15–70. Filed 11–12–69.

903,348. SNAPLUG. Burke Concrete Accessories, Inc. SN 344,050. Pub. 9–15–70. Filed 11–20–69.

903,349. SAFETY GUARD. Peachtree Doors, Inc. SN 345,197. Pub. 9–15–70. Filed 12–3–69.

903,350. CZ DESIGN. Crown Zellerbach Corporation. SN 347,153. Pub. 9–15–70. Filed 12–29–69.

903,351. ACANDS AND DESIGN. AC and S Inc. SN 354,256. Pub. 9–15–70. Filed 3–17–70.

903,352. AMEROCK. Amerock Corporation. MULTIPLE CLASS (Classes 12, 13, 23, and 25). SN 354,762. Pub. 9–15–70. Filed 3–23–70.

903,353. MILCOR. Inland-Ryerson Construction Products Company. SN 355,236. Pub. 9–15–70. Filed 3–27–70.

903,354. DURO-PATCH. Diamond Shamrock Corporation. SN 362,956. Pub. 9–15–70. Filed 6–18–70.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

903,352. (See Class 12 for this trademark.)

903,355. MISCELLANEOUS DESIGN. Home Interiors & Gifts, Inc. MULTIPLE CLASS (Classes 13, 30, 33, 34, 50, and 101). SN 282,465. Pub. 9–15–70. Filed 10–13–67.

903,356. WRIGHT-WAY PRODUCTS AND DESIGN. Wright Way Products, Inc. SN 294,105. Pub. 9–15–70. Filed 3–25–68.

903,357. KLEEBLATT ETC. AND DESIGN. W. Siebel. MULTIPLE CLASS (Classes 13, 23, and 28). SN 298,971. Pub. 9–15–70. Filed 5–23–68.

903,358. K DESIGN. Keystone Consolidated Industries, Inc. SN 336,454. Pub. 9–15–70. Filed 8–27–69.

903,359. DUA-PULL. Harvey Hubbell, Incorporated. SN 355,293. Pub. 9–15–70. Filed 3–24–70.

903,360. CALFAST. Central Screw Company. SN 362,954. Pub. 9–15–70. Filed 6–18–70.

Class 14—Metals and Metal Castings and Forgings

903,263. (See Class 1 for this trademark.)

903,361. SELECT-A-SIZE. Grinding Specialties Corporation. SN 334,581. Pub. 9–15–70. Filed 8–6–69.

903,362. MTC DESIGN. McConway & Torley Corporation. SN 336,344. Pub. 9–15–70. Filed 8–26–69.

903,363. CU-BITS. Diversified Industries, Inc. SN 344,694. Pub. 9–15–70. Filed 11–26–69.

Class 15—Oils and Greases

903,301. (See Class 6 for this trademark.)

903,364. GIBSON AND DESIGN. Gibson Greeting Cards, Inc. SN 332,477. Pub. 9–15–70. Filed 7–14–69.

903,365. MOTIVE AID. Motive Suppliers, Inc. SN 341,490. Pub. 9–15–70. Filed 10–28–69.

Class 16—Protective and Decorative Coatings

903,341. (See Class 12 for this trademark.)

Class 17—Tobacco Products

903,366. FILIGRAIN. International Sales & Import Corporation N.V. SN 325,264. Pub. 9–15–70. Filed 3–4–69.

903,367. SUCCES. Schimmelpenninck Sigarenfabrieken v/h Geurts & Van Schuppen N.V. SN 328,076. Pub. 9–15–70. Filed 5–22–69.

903,368. CALENDULA. Schimmelpenninck Sigarenfabrieken v/h Geurts & Van Schuppen N.V. SN 329,056. Pub. 9–15–70. Filed 6–2–69.

903,369. MISCELLANEOUS DESIGN. Jeno F. Paulucci, d.b.a. The Sentinel Company. SN 331,642. Pub. 9–15–70. Filed 7–2–69.

903,370. SANTOS DUMONT AND LABEL DESIGN. Rothmans of Pall Mall Limited. SN 333,440. Pub. 9–15–70. Filed 7–24–69.

Class 18—Medicines and Pharmaceutical Preparations

903,294. (See Class 6 for this trademark.)

903,371. DEPO-PROVERA 150. The Upjohn Company. SN 326,459. Pub. 9–15–70. Filed 5–5–69.

903,372. MISCELLANEOUS DESIGN. Plough, Inc. SN 331,674. Pub. 9–15–70. Filed 7–2–69.

903,373. PROPLEX. Baxter Laboratories, Inc. SN 338,990. Pub. 9–15–70. Filed 9–26–69.

903,374. LUBRACON. Conal Pharmaceuticals, Inc. SN 345,063. Pub. 9–15–70. Filed 12–2–69.

903,375. VIGOSAN. Gold Leaf Pharmacal Co., Inc. SN 345,073. Pub. 9–15–70. Filed 12–2–69.

903,376. EPLID. A. Nattermann & Cie. GmbH. SN 345,088. Pub. 9–15–70. Filed 12–2–69.

903,377. GEL-PILO. Allergan Pharmaceuticals. SN 345,121. Pub. 9–15–70. Filed 12–3–69.

903,378. ITISIL. USV Pharmaceutical Corporation. SN 345,517. Pub. 9–15–70. Filed 12–5–69.

903,379. PRESCOM. Geigy Chemical Corporation. SN 345,939. Pub. 9–15–70. Filed 12–11–69.

903,380. KEYQUIN. Key Pharmaceuticals, Inc. SN 350,550. Pub. 9–15–70. Filed 2–5–70.

903,381. THREE-EST. Rucker Pharmacal Co., Inc. SN 354,999. Pub. 9–15–70. Filed 3–25–70.

903,382. RU-CORT. Rucker Pharmacal Co., Inc. SN 355,000. Pub. 9–15–70. Filed 3–25–70.

903,383. PEDAMETH. S. F. Durst & Company, Inc. SN 355,496. Pub. 9–15–70. Filed 3–31–70.

903,384. SCORN. H. & F. Campbell Co., Inc. SN 358,232. Pub. 9–15–70. Filed 4–29–70.

903,385. TALODEX. Diamond Laboratories, Inc. SN 361,216. Pub. 9–15–70. Filed 6–1–70.

903,386. BETAPAR. Parke, Davis & Company. SN 361,241. Pub. 9–15–70. Filed 6–1–70.

Class 19—Vehicles

903,387. GROUND GRABBER. Ansen Automotive Engineering. SN 329,425. Pub. 7–28–70. Filed 6–9–69.

903,388. LASTOSPHERE. Lord Corporation. SN 330,939. Pub. 9–15–70. Filed 6–25–69.

903,389. ECONO-CAR. Americar, Inc. SN 338,518. Pub. 9–15–70. Filed 9–22–69.

903,390. LYNBROOK. The Commodore Corporation. SN 362,487. Pub. 9–15–70. Filed 6–12–70.

903,391. MALLARD. Mallard Coach Corporation. SN 363,661. Pub. 9–15–70. Filed 6–25–70.

Class 21—Electrical Apparatus, Machines, and Supplies

903,392. FIX-TRIM. Angstrohm Precision Incorporated. SN 321,142. Pub. 9–15–70. Filed 3–10–69.

903,393. SOLARSPOT. Mole-Richardson Co. SN 323,114. Pub. 9–15–70. Filed 3–28–69.

903,394. SEE 'N SERVE. Dart Industries Inc., by change of name from Rexall Drug and Chemical Company, d.b.a. The West Bend Company. SN 324,500. Pub. 9–15–70. Filed 4–14–69.

903,395. MISCELLANEOUS DESIGN. GCL Mercantile Corporation. SN 325,860. Pub. 9–15–70. Filed 4–29–69.

903,396. GRIPLOK. Superior Continental Corporation. SN 334,258. Pub. 9–15–70. Filed 8–1–69.

903,397. PIERCE AND DESIGN. Pierce Corporation. SN 335,052. Pub. 9–15–70. Filed 8–11–69.

903,398. GLEAM-LITES. Dependable Electric Mfg. Co. Inc. SN 340,527. Pub. 9–15–70. Filed 10–18–69.

903,399. IT'S FUN TO FLY CHAMPION AND DESIGN. Champion Spark Plug Company. SN 351,904. Pub. 9–15–70. Filed 2–20–70.

903,400. D.I.L. The Murdock Corporation. SN 352,364. Pub. 9–15–70. Filed 2–25–70.

903,401. ELECTRICOLOR. Dominion Electric Corporation. SN 354,409. Pub. 9–15–70. Filed 3–18–70.

903,402. CORO-FLEX. Essex International, Inc. SN 354,606. Pub. 9–15–70. Filed 3–19–70.

903,403. ENSOLON. Essex International, Inc. SN 354,607. Pub. 9–15–70. Filed 3–19–70.

903,404. ROAD AMERICA. Wells Mfg. Corp. SN 354,754. Pub. 9–15–70. Filed 3–20–70.

903,405. COLOR WHEEL DESIGN. Zenith Radio Corporation. SN 355,285. Pub. 9–15–70. Filed 3–27–70.

903,406. MARQUEE. The Feldman Company. SN 355,375. Pub. 9–15–70. Filed 3–30–70.

903,407. SECURITYFLEX. Anaconda Wire and Cable Company. SN 355,602. Pub. 9–15–70. Filed 4–1–70.

903,408. PITMO. The Pittman Corporation. SN 356,747. Pub. 9–15–70. Filed 4–13–70.

903,409. WINDSOR. Proctor-Silex Incorporated. SN 357,415. Pub. 9–15–70. Filed 4–20–70.

903,410. ACCUCOLOR AND DESIGN. RCA Corporation. SN 361,656. Pub. 9–15–70. Filed 6–4–70.

903,411. ACCUCOLOR. RCA Corporation. SN 361,657. Pub. 9–15–70. Filed 6–4–70.

903,412. SHERATON. Sterling Electronics Corporation. SN 362,202. Pub. 9–15–70. Filed 6–10–70.

903,413. B-M. Roach-Appleton Manufacturing Company. SN 362,626. Pub. 9–15–70. Filed 6–15–70.

903,414. FARMLAND. Farmland Industries, Inc. SN 363,388. Pub. 9–15–70. Filed 6–23–70.

Class 22—Games, Toys, and Sporting Goods

903,415. JET FIN. Georges Beuchat, assignee of Sports Industries, Inc. SN 305,349. Pub. 9–15–70. Filed 8–16–68.

903,416. ALL SEASONS. Brunswick Corporation. SN 310,847. Pub. 9–15–70. Filed 10–30–68.

903,417. THE LOVER. Falls Resources Corporation. SN 313,566. Pub. 9–15–70. Filed 12–4–68.

903,418. POW-R-PUCK. IMA Inventors Marketing of Canada Limited. SN 318,482. Pub. 9–15–70. Filed 2–4–69.

903,419. DEEKS. Deeks, Inc. SN 320,447. Pub. 9–15–70. Filed 3–3–69.

903,420. HEROES OF THE AMERICAN FRONTIER. The Franklin Mint, Inc. SN 320,543. Pub. 9–15–70. Filed 3–3–69.

903,421. SKAMPER AND DESIGN. Anthony J. Verbiscar and Robert J. Licher (joint venture), d.b.a. Sierra Madre Toy Company. SN 326,809. Pub. 9–15–70. Filed 5–8–69.

903,422. DOLL CLASSICS. Uneeda Doll Co., Inc. SN 329,641. Pub. 9–15–70. Filed 6–10–69.

903,423. PROGRESSIVE GOLF PGI AND DESIGN. Progressive Golf, Inc. SN 329,887. Pub. 9–15–70. Filed 6–12–69.

903,424. ULCERS. House of Games Corporation Limited. SN 330,139. Pub. 9–15–70. Filed 6–16–69.

903,425. GOLDEN KASTINGER AND DESIGN. Kastinger & Co. K.G., SN 330,513. Pub. 9–15–70. Filed 6–19–69.

903,426. FISH JOGGER. Dolphin, Inc. SN 332,464. Pub. 9–15–70. Filed 7–14–69.

903,427. SILLY JIG AND DESIGN. Walter C. Dette. SN 333,384. Pub. 9–15–70. Filed 7–24–69.

903,428. SCENE-O-RAMA. Pittman Products, Inc., d.b.a. Sportsways. SN 333,843. Pub. 9–15–70. Filed 7–29–69.

903,429. PRO-SHOT. Frabill Manufacturing Company. SN 335,011. Pub. 9–15–70. Filed 8–11–69.

903,430. ENDS 'N BLEND. Educational Games, Inc. SN 335,955. Pub. 9–15–70. Filed 8–22–69.

903,431. THE FIRST STEP DIAL. Moon River Corp. SN 337,235. Pub. 9–15–70. Filed 9–8–69.

903,432. TRUSTY-TIM. Mattel, Inc. SN 339,091. Pub. 9–15–70. Filed 9–29–69.

903,433. TEETER-TIME BABY. Mattel, Inc. SN 339,094. Pub. 9–15–70. Filed 9–29–69.

903,434. COLLECT-A-CAR RACEWAY. Eldon Industries, Inc. SN 339,670. Pub. 9–15–70. Filed 10–3–69.

903,435. CHECKERBOARD FUN-TOY ETC. AND DESIGN. Ralston Purina Company. SN 344,644. Pub. 9–15–70. Filed 11–26–69.

903,436. DYNA-SYN. G.P.I. SN 345,158. Pub. 9–15–70. Filed 12–3–69.

903,437. CHATTER CHUB. Fred Arbogast Company, Inc. SN 345,429. Pub. 9–15–70. Filed 12–5–69.

903,438. FLIP-N-SLIP. Fred Arbogast Company, Inc. SN 345,430. Pub. 9–15–70. Filed 12–5–69.

903,439. HOP-A-LONG. Fred Arbogast Company, Inc. SN 345,431. Pub. 9–15–70. Filed 12–5–69.

903,440. FM AND DESIGN. Federal Marine Products, Inc. SN 345,928. Pub. 9–15–70. Filed 12–11–69.

903,441. CHEMOLD. Chemold Corp. SN 346,062. Pub. 9–15–70. Filed 12–12–69.

903,442. STEER 'N SCORE. Eldon Industries, Inc. SN 350,996. Pub. 9–15–70. Filed 2–10–70.

903,443. CRAZY POP IT. Rainbow Crafts, Inc. SN 352,301. Pub. 9–15–70. Filed 2–25–70.

903,444. FLIPPITY FLYER. Tomy Kogyo Co., Ltd. SN 362,125. Pub. 9–15–70. Filed 6–9–70.

903,445. ANTEATER. Mattel, Inc. SN 362,605. Pub. 9–15–70. Filed 6–15–70.

903,446. HANDI. Mattel, Inc. SN 362,606. Pub. 9–15–70. Filed 6–15–70.

903,447. FEATHERHEAD. Mattel, Inc. SN 362,607. Pub. 9–15–70. Filed 6–15–70.

903,448. THE HOOD. Mattel, Inc. SN 362,608. Pub. 9–15–70. Filed 6–15–70.

903,449. SMUG BUG. Mattel, Inc. SN 362,609. Pub. 9–15–70. Filed 6–15–70.

903,450. HEAVIES. Mattel, Inc. SN 362,610. Pub. 9–15–70. Filed 6–15–70.

903,451. TEE-HEE. Mattel, Inc. SN 362,612. Pub. 9–15–70. Filed 6–15–70.

903,452. HO-HUM. Mattel, Inc. SN 362,613. Pub. 9–15–70. Filed 6–15–70.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

903,352. (See Class 12 for this trademark.)

903,357. (See Class 13 for this trademark.)

903,453. ZIPTRONIC 1 HUNDRED AND DESIGN. Universal Business Machines, Inc. SN 266,114. Pub. 9–15–70. Filed 3–6–67.

903,454. COUNTRY STYLE. Imperial Knife Associated Companies, Inc. SN 309,969. Pub. 9–15–70. Filed 10–18–68.

903,455. JETT MICRO MIST LUBRICATOR AND DESIGN. Jett Manufacturing Corporation. SN 310,462. Pub. 9–15–70. Filed 10–24–68.

903,456. LA ROSE. Oneida Ltd. SN 314,433. Pub. 9–15–70. Filed 12–13–68.

903,457. FLEX-O-KOOL. Flex-O-Kool. SN 326,254. Pub. 9–15–70. Filed 5–2–69.

903,458. P-S. Bio-Logics, Inc. SN 336,999. Pub. 9–15–70. Filed 9–4–69.

903,459. RODAC PNEUMATIC TOOLS AND DESIGN. Rodac Pneumatic Tools. SN 339,766. Pub. 9–15–70. Filed 10–3–69.

903,460. HEDMAN HEDDERS AND OVAL DESIGN. Hedman Manufacturing Corporation. SN 340,918. Pub. 9–15–70. Filed 10–16–69.

903,461. OPTOLINE. Hollis Engineering, Inc. SN 341,466. Pub. 9–15–70. Filed 10–20–69.

903,462. SPACE VAC. Studebaker Corporation. SN 342,534. Pub. 9–15–70. Filed 11–3–69.

903,463. AMCO. Ames Supply Company. SN 346,590. Pub. 9–15–70. Filed 12–18–69.

903,464. FROSTOP. Applied Technology Corporation. SN 351,183. Pub. 9–15–70. Filed 2–12–70.

903,465. DELICADO. Imperial Knife Associated Companies, Inc. SN 351,208. Pub. 9–15–70. Filed 2–12–70.

903,466. FLOWER DANCE. Imperial Knife Associated Companies, Inc. SN 351,209. Pub. 9–15–70. Filed 2–12–70.

903,467. CHARISMA. Imperial Knife Associated Companies, Inc. SN 351,210. Pub. 9–15–70. Filed 2–12–70.

903,468. ELYSEE. Imperial Knife Associated Companies, Inc. SN 351,211. Pub. 9–15–70. Filed 2–12–70.

903,469. SATINAIRE. Imperial Knife Associated Companies, Inc. SN 351,213. Pub. 9–15–70. Filed 2–12–70.

903,470. PORTEC. Portec, Inc. SN 351,531. Pub. 9–15–70. Filed 2–16–70.

903,471. FLICKER. Philip Morris Incorporated, d.b.a. American Safety Razor Company. SN 351,831. Pub. 9–15–70. Filed 2–19–70.

903,472. AMERICAN 74. Philip Morris Incorporated, d.b.a. American Safety Razor Company. SN 351,832. Pub. 9–15–70. Filed 2–19–70.

903,473. T.G. Technica-Guss G.m.b.H. SN 352,042. Pub. 9–15–70. Filed 2–24–70.

903,474. Q/T. The General Tire & Rubber Company. SN 353,480. Pub. 9–15–70. Filed 3–9–70.

903,475. SYNCROFORM. Midland-Ross Corporation. SN 353,528. Pub. 9–15–70. Filed 3–9–70.

903,476. STRINGMASTER. R. Olleo & Sons Machine Corp. SN 353,781. Pub. 9–15–70. Filed 3–11–70.

903,477. PLUSHMASTER. R. Olleo & Sons Machine Corp. SN 353,782. Pub. 9–15–70. Filed 3–11–70.

903,478. HARSH. Hydraulics Unlimited Mfg. Co. SN 354,314. Pub. 9–15–70. Filed 3–17–70.

903,479. SOIL SAVER. Portable Elevator Manufacturing Company. SN 354,661. Pub. 9–15–70. Filed 3–19–70.

903,480. M AND DESIGN. Midland Manufacturing Co., Inc. SN 355,143. Pub. 9–15–70. Filed 3–26–70.

903,481. SPEED-SET. Harris-Intertype Corporation. SN 355,393. Pub. 9–15–70. Filed 3–30–70.

903,482. CRANEMASTER. Abell-Howe Company. SN 362,952. Pub. 9–15–70. Filed 6–18–70.

903,483. ORBITOR 4000. The Gillette Company. SN 364,190. Pub. 9–15–70. Filed 7–2–70.

Class 24 — Laundry Appliances and Machines

903,484 CONNIE. Colmac Industries, Inc. SN 319,184. Pub. 9–15–70. Filed 2–14–69.

903,485. EXTRACTO-WASH. Gebr. Poensgen Gesellschaft mit beschrankter Haftung. SN 319,303. Pub. 9–15–70. Filed 2–17–69.

903,486. PORTA-PAIR. The Maytag Company. SN 343,148. Pub. 9–15–70. Filed 11–10–69.

Class 25 — Locks and Safes

903,352. (See Class 12 for this trademark.)

Class 26 — Measuring and Scientific Appliances

903,487. VAC AND DESIGN. Butler National Corporation. SN 302,389. Pub. 9–15–70. Filed 7–10–68.

903,488. ACCUFILE. Anagram Corporation. SN 330,895. Pub. 9–15–70. Filed 6–25–69.

903,489. DUAL-IQ. Nutting Industries, Ltd. SN 356,118. Pub. 9–15–70. Filed 4–6–70.

903,490. EXPO. Bushnell Optical Corporation. SN 356,616. Pub. 9–15–70. Filed 4–13–70.

903,491. THE SECRET'S IN THE GAP. National Sonics Corporation. SN 356,738. Pub. 9–15–70. Filed 4–13–70.

903,492. CHARGER. Delta Design, Inc. SN 356,865. Pub. 9–15–70. Filed 4–14–70.

903,493. THE SUNFIGHTERS. Foster Grant Co., Inc. SN 362,597. Pub. 9–15–70. Filed 6–15–70.

Class 27 — Horological Instruments

903,494. FONTOSPORT. Fabrique d'Horlogerie de Fontainemelon S.A. SN 336,107. Pub. 9–15–70. Filed 8–25–69.

903,495. FORTIS FLIPPER. Fortis Uhren AG., d.b.a. Fortis Watch Ltd. and Montreas Fortis S.A. SN 339,791. Pub. 9–15–70. Filed 10–6 69.

903,496. NATIONAL PARK. Jules Racine & Co., Inc. SN 355,322. Pub. 9–15–70. Filed 3–30–70.

Class 28 — Jewelry and Precious-Metal Ware

903,357. (See Class 13 for this trademark.)

903,497. CARDE. Boas Son Ltd. SN 325,572. Pub. 9–15–70. Filed 4–25–69.

903,498. FACES OF EVE. Tamraz Incorporated. SN 329,898. Pub. 9–15–70. Filed 6–12–69.

903,499. JOLIE AND DESIGN. Sidney S. Kampf, Inc., d.b.a. Western Manufacturing Jewelers. SN 346,758. Pub. 9–15–70. Filed 12–19–69.

903,500. VALENTINO. VB Creations, Inc. SN 351,006. Pub. 9–15–70. Filed 2–10–70.

Class 29 — Brooms, Brushes, and Dusters

903,501. B & B LORRYS AND DESIGN. Eagle Clothes, Inc., d.b.a. B & B Lorrys Stores. SN 362,814. Pub. 9–15–70. Filed 6–16–70.

Class 30 — Crockery, Earthenware, and Porcelain

903,355. (See Class 13 for this trademark.)

903,502. CROWN EMPIRE. Seymart Importing Co., Inc. SN 339,939. Pub. 9–15–70. Filed 10–6–69.

Class 32 — Furniture and Upholstery

903,503. PIPA. NOL Corporation. SN 331,062. Pub. 9–15–70. Filed 6–26–69.

903,504. DEVONSHIRE. Alma Desk Company. SN 359,805. Pub. 9–15–70. Filed 5–15–70.

903,505. POSTOMEDIC. Marks Fitzgerald Furniture Co. SN 361,587. Pub. 9–15–70. Filed 6–3–70.

Class 33 — Glassware

903,355. (See Class 13 for this trademark.)

903,506. MARGUERITE CARTER. Marguerite Carter World Enterprises, Inc. SN 350,355. Pub. 9–15–70. Filed 2–3–70.

Class 34 — Heating, Lighting, and Ventilating Apparatus

903,278. (See Class 2 for this trademark.)

903,355. (See Class 13 for this trademark.)

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

903,507. TIGER PAW. Uniroyal, Inc., by change of name from United States Rubber Company. SN 207,921. Pub. 5–24–66. Filed 12–10–64.

903,508. SWAB. Johns-Manville Corporation. SN 334,478. Pub. 9–15–70. Filed 8–5–69.

903,509. HR CO AND SHIELD DESIGN. Harrelson Rubber Company. SN 340,145. Pub. 9–15–70. Filed 10–8–69.

903,510. SILVOFLEX. Hi-Flex International Limited. SN 341,063. Pub. 9–15–70. Filed 10–17–69.

Class 36 — Musical Instruments and Supplies

903,511. AGAVOX. AGA Aktiebolag. SN 314,040. Pub. 6–24–69. Filed 12–10–68.

Class 37 — Paper and Stationery

903,512. CD-LOG. Paramed Incorporated. SN 310,355. Pub. 9–15–70. Filed 10–23–68.

903,513. NEENAH. Kimberly-Clark Corporation. SN 320,613. Pub. 9–15–70. Filed 3–3–69.

903,514. SCRIBBLER. Venus Esterbrook Corporation. SN 343,444. Pub. 9–15–70. Filed 11–13–69.

903,515. STAMARK. Diagraph-Bradley Industries, Inc. SN 350,071. Pub. 9–15–70. Filed 1–30–70.

903,516. DELISOFT. Kimberly-Clark Corporation. SN 360,641. Pub. 9–15–70. Filed 5–25–70.

Class 38 — Prints and Publications

903,517. TRAIN-AIDE. Train-Aide Corporation. SN 320,660. Pub. 9–15–70. Filed 3–3–69.

903,518. VISUAL ENCYCLOPEDIA. Penn-York Champion Co., Inc. SN 340,817. Pub. 9–15–70. Filed 10–15–69.

903,519. COM ED AND DESIGN. Chicago Province of the Society of Jesus, d.b.a. Loyola University Press. SN 346,060. Pub. 9–15–70. Filed 12–12–69.

903,520. GORDON'S AND DESIGN. Gordon's Turf Service. SN 349,436. Pub. 9–15–70. Filed 1–23–70.

903,521. POODLES. Norcross, Inc. SN 358,984. Pub. 9–15–70. Filed 5–6–70.

Class 39 — Clothing

903,285. (See Class 3 for this trademark.)

903,522. ADD ONE. Robert-Walters Corp. SN 327,956. Pub. 9–15–70. Filed 5–21–69.

903,523. SURFCASTER WHITE STAG AND DESIGN. White Stag Manufacturing Co. SN 338,506. Pub. 9–15–70. Filed 9–22–69.

903,524. GERARD. Marjorie Montgomery of California. SN 338,955. Pub. 9–15–70. Filed 9–25–69.

903,525. PLW. P.L.W., Inc. SN 339,924. Pub. 9–15–70. Filed 10–6–69.

903,526. FASHION BRAY FOOTWEAR AND DESIGN. J. W. Bray Company, Inc. SN 341,361. Pub. 9–15–70. Filed 10–22–69.

903,527. TRANQUILITY. The Larson Company, Inc. SN 341,399. Pub. 9–15–70. Filed 10–22–69.

903,528. MICHEL DANIEL. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes. SN 342,264. Pub. 9–15–70. Filed 10–31–69.

903,529. LANCOLA. Lansil Limited. MULTIPLE CLASS (Classes 39, 42, and 43). SN 342,923. Pub. 9–15–70. Filed 11–7–69.

903,530. MICHEL DANIEL. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes. SN 346,899. Pub. 9–15–70. Filed 12–22–69.

903,531. SNUGGLEDOWNS AND DESIGN. Hollywood Needlecraft, Incorporated. SN 348,291. Pub. 9–15–70. Filed 1–12–70.

903,532. MISS LEE. The H. D. Lee Company, Inc. SN 351,484. Pub. 9–15–70. Filed 2–16–70.

903,533. ESTEEM. Perfection Frocks, Inc. SN 351,969. Pub. 9–15–70. Filed 2–20–70.

903,534. NADIR DESIGN. Wembley Industries, Inc. SN 352,692. Pub. 9–15–70. Filed 2–27–70.

903,535. ZIPA-KINI. Merrimaid Manufacturing Co., Inc. SN 353,527. Pub. 9–15–70. Filed 3–9–70.

903,536. PRIVATEER. Manhattan Industries, Inc. SN 357,383. Pub. 9–15–70. Filed 4–20–70.

903,537. U-SHAPE IT. Knit Products Corporation. SN 358,660. Pub. 9–15–70. Filed 5–4–70.

903,538. LANDLUBBER. M. Hoffman & Co., Inc. SN 360,513. Pub. 9–15–70. Filed 5–22–70.

903,539. GINA MORETTI. Plymouth Wholesale Corporation. SN 360,524. Pub. 9–15–70. Filed 5–22–70.

903,540. GINO MORETTI. Plymouth Wholesale Corporation. SN 360,525. Pub. 9–15–70. Filed 5–22–70.

903,541. FUNN-EES. Charles H. Bacon Company, Inc. SN 361,212. Pub. 9–15–70. Filed 6–1–70.

903,542. WRAP-UP. International Playtex Corporation. SN 361,933. Pub. 9–15–70. Filed 6–8–70.

903,543. OCEAN POOL AND DESIGN. Ocean Pool Supply Company, Inc. SN 363,390. Pub. 9–15–70. Filed 6–23–70.

903,544. OCEAN BEAUTI. Ocean Pool Supply Company, Inc. SN 363,391. Pub. 9–15–70. Filed 6–23–70.

903,545. OCEAN POOL. Ocean Pool Supply Company, Inc. SN 363,393. Pub. 9–15–70. Filed 6–23–70.

Class 40 — Fancy Goods, Furnishings, and Notions

903,546. BRYNEL. Evelyn Hat Co. Inc. SN 315,900. Pub. 9–15–70. Filed 1–6–69.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

903,529. (See Class 39 for this trademark.)

903,547. AFRICANA. Continella Textile Corporation. SN 298,579. Pub. 9–15–70. Filed 5–20–68.

903,548. CROWNTEX. Crown Zellerbach Corporation. SN 327,863. Pub. 9–15–70. Filed 5–21–69.

903,549. ETHAN ALLEN. Baumritter Corporation. SN 330,702. Pub. 9–15–70. Filed 6–23–69.

903,550. "DESIREE." Desiree Kantrim. SN 332,184. Pub. 9–15–70. Filed 7–7–69.

903,551. AQUA-VINO. Burlington Industries, Inc. SN 341,308. Pub. 9–15–70. Filed 10–22–69.

903,552. HERE AND NOW. E. T. Barwick Industries, Inc. SN 359,774. Pub. 9–15–70. Filed 5–15–70.

903,553. HAWAIIAN SUNSET. E. T. Barwick Industries, Inc. SN 359,775. Pub. 9–15–70. Filed 5–15–70.

903,554. GUEST HOUSE. Deering Milliken, Inc. SN 360,416. Pub. 9–15–70. Filed 5–21–70.

903,555. AMERICAN HEARTH. Deering Milliken, Inc. SN 360,633. Pub. 9–15–70. Filed 5–25–70.

Class 43 — Thread and Yarn

903,529. (See Class 39 for this trademark.)

903,556. AWAKE. Glen Raven Mills, Inc. SN 333,399. Pub. 9–15–70. Filed 7–24–69.

Class 44 — Dental, Medical, and Surgical Appliances

903,557. FS AND DESIGN. Fritz Schwarzer GmbH. SN 314,624. Pub. 9–15–70. Filed 12–16–68.

903,558. FS SCHWARZER AND DESIGN. Fritz Schwarzer GmbH. SN 314,625. Pub. 9–15–70. Filed 12–16–68.

903,559. VENFLON. Viggo AB. SN 350,791. Pub. 9–15–70. Filed 2–6–70.

903,560. TEETHTALK AND DESIGN. Ceram-Dent, Inc. SN 351,018. Pub. 9–15–70. Filed 2–10–70.

903,561. SWIVELTRACH. The Harris Calorific Company. SN 351,458. Pub. 9–15–70. Filed 2–16–70.

903,562. VAXIMATIC. William Cooper & Nephews, Inc. SN 351,685. Pub. 9–15–70. Filed 2–18–70.

903,563. PUSH-MATIC. The Algonquin Corporation. SN 351,745. Pub. 9–15–70. Filed 2–16–70.

903,564. ULTRASAGE. General International Industries, Inc. SN 356,662. Pub. 9–15–70. Filed 4–13–70.

903,565. MONOSPAR. Parke, Davis & Company. SN 364,200. Pub. 9–15–70. Filed 7–2–70.

Class 45 — Soft Drinks and Carbonated Waters

903,566. BRIGHT'N EARLY ORANGE. The Coca-Cola Company. SN 340,876. Pub. 9–15–70. Filed 10–16–69.

Class 46 — Foods and Ingredients of Foods

903,293. (See Class 6 for this trademark.)

903,567. CHEEZ-OLA. Fisher Cheese Company. SN 295,727. Pub. 6–10–69. Filed 4–16–68.

903,568. HOURGLASS DESIGN. Foamat Foods, Corp. SN 316,197. Pub. 9–15–70. Filed 1–9–69.

903,569. BRUNCH. Heublein, Inc. SN 330,600. Pub. 9–15–70. Filed 6–20–69.

903,570. ETHAN ALLEN. Baumritter Corporation. SN 330,695. Pub. 9–15–70. Filed 6–23–69.

903,571. JERSEY BOUNCE. Harvey Smith Peeler, d.b.a. Peeler's Dairy. SN 333,745. Pub. 9–15–70. Filed 7–28–69.

903,572. FROSTLAND'S. Hilton Meat Company. SN 335,576. Pub. 9–15–70. Filed 8–18–69.

903,573. LOVE INITIALS AND DESIGN. Topps Chewing Gum, Incorporated. SN 335,784. Pub. 9–15–70. Filed 8–20–69.

903,574. BORDEN. Borden, Inc. SN 337,514. Pub. 9–15–70. Filed 9–10–69.

903,575. MERRY CHERRIES. Dalt International Inc. SN 340,129. Pub. 9–15–70. Filed 10–8–69.

903,576. CANTAB. Penick & Ford, Limited. SN 342,704. Pub. 9–15–70. Filed 11–5–69.

903,577. DELI-DILLS. SCM Corporation, d.b.a. Durkee Famous Foods. SN 343,758. Pub. 9–15–70. Filed 11–17–69.

903,578. BEEHIVE AND BEES DESIGN. Sucrest Corporation. SN 344,526. Pub. 9–15–70. Filed 11–25–69.

903,579. LACTINATE. Allen Baron, d.b.a. ABCO Laboratories. SN 351,890. Pub. 9–15–70. Filed 2–20–70.

903,580. GAYMEBIRDS. Pierce Pre-Cooked Foods, Inc. SN 356,223. Pub. 9–15–70. Filed 4–7–70.

903,581. LIFT OFFS. The Pillsbury Company. SN 362,623. Pub. 9–15–70. Filed 6–15–70.

903,582. HOUSE OF GOLD. House of Gold Cheese Co., Inc. SN 363,232. Pub. 9–15–70. Filed 6–22–70.

Class 47 — Wines

903,583. OCEAN SPRAY. Ocean Spray Cranberries, Inc. SN 344,879. Pub. 9–15–70. Filed 11–28–69.

Class 49 — Distilled Alcoholic Liquors

903,584. CHRISTY & BROOKS. Double Springs Distillers, Inc., d.b.a. Greenbrier, Bardstown Distillery. SN 291,596. Pub. 9–15–70. Filed 2–21–68.

903,585. LICOR 8 HERMANOS. Freixas & Cia, S.A.I. & C. SN 317,336. Pub. 9–15–70. Filed 1–23–69.

Class 50 — Merchandise Not Otherwise Classified

903,314. (See Class 6 for this trademark.)

903,355. (See Class 13 for this trademark.)

903,586. TRIO-WADE. Trio Manufacturing Co. SN 330,791. Pub. 9–15–70. Filed 6–23–69.

903,587. CIMEX. Cimex Limited. SN 348,884. Pub. 9–15–70. Filed 1–13–70.

Class 51 — Cosmetics and Toilet Preparations

903,588. MARABOU. Avon Products, Inc. MULTIPLE CLASS (Classes 51 and 52). SN 329,558. Pub. 9–15–70. Filed 6–10–69.

903,589. K DE K KREME DE KOKO AND DESIGN. Citroleum Company. SN 349,948. Pub. 9–15–70. Filed 1–29–70.

903,590. SONIA RYKIEL. Sonia, Annette Rykiel. SN 352,240. Pub. 9–15–70. Filed 2–24–70.

Class 52 — Detergents and Soaps

903,296. (See Class 6 for this trademark.)

903,588. (See Class 51 for this trademark.)

903,591. THE STAIN FIGHTER. Alberto-Culver Company. SN 318,516. Pub. 9–15–70. Filed 2–6–69.

903,592. BUDGETEER. The Scott & Fetzer Company. SN 328,643. Pub. 9–15–70. Filed 3–16–70.

903,593. FIDO AND ST. BERNARD DESIGN. The Fitch Dustdown Company. SN 329,233. Pub. 9–15–70. Filed 6–5–69.

903,594. FLEURS DE ROCAILLE. Caron Corporation. SN 334,982. Pub. 9–15–70. Filed 8–11–69.

903,595. 1 STROKE ENVIRON. W. R. Grace & Co. SN 338,001. Pub. 9–15–70. Filed 9–15–69.

903,596. TUN-O-FOAM. Chemtronics Inc. SN 340,250. Pub. 9–15–70. Filed 10–9–69.

903,597. MAGNUCARB. Economics Laboratory, Inc. SN 340,536. Pub. 9–15–70. Filed 10–13–69.

903,598. COLUV. Armour-Dial, Inc. SN 349,306. Pub. 9–15–70. Filed 1–22–70.

903,599. LAUD. Wyandotte Chemicals Corporation. SN 350,639. Pub. 9–15–70. Filed 2–5–70.

903,600. CHEMICAL SPECIALTIES AND CS DESIGN. Ralston Purina Company. SN 356,579. Pub. 9–15–70. Filed 4–13–70.

903,601. DOPEY SOAP. Carter-Wallace, Inc. SN 359,050. Pub. 9–15–70. Filed 5–7–70.

903,602. AUTOMATE. Economics Laboratory, Inc. SN 362,446. Pub. 9–15–70. Filed 6–12–70.

Service Marks

Class 100 — Miscellaneous

903,335. (See Class 9 for this trademark.)

903,336. (See Class 9 for this trademark.)

903,603. MISCELLANEOUS DESIGN. The Texan Drive-Ins Limited. SN 291,446. Pub. 9–15–70. Filed 2–19–68.

903,604. PONDEROSA. Ponderosa, Inc., assignee of Cartwright Enterprises, Inc. SN 294,261. Pub. 1–14–69. Filed 3–27–68.

903,605. FOUR T DESIGN. J. A. Terteling & Sons. MULTIPLE CLASS (Classes 100, 101, and 103). SN 303,716. Pub. 9–1–70. Filed 7–26–68.

903,606. B AND DESIGN. J. G. Boswell Company. MULTIPLE CLASS (Classes 100 and 101). SN 303,733. Pub. 9–15–70. Filed 7–29–68.

903,607. DESIGN OF FLYING C. Genway Corporation, by change of name from Chevway Corporation. MULTIPLE CLASS (Classes 100 and 101). SN 305,514. Pub. 7–29–69. Filed 8–20–68.

903,608. THE REAL MC COY, HARDI-GARDENS AND DESIGN. Hardi-Gardens, Inc., by merger from Garden Centers, Inc. MULTIPLE CLASS (Classes 100 and 101). SN 310,771. Pub. 9–15–70. Filed 10–29–68.

903,609. BOVINE DESIGN. Sizzler Family Steak Houses. SN 310,927. Pub. 9–15–70. Filed 10–30–68.

903,610. COOK'S CHICK INN AND DESIGN. James W. Cook and June H. Cook (joint owners). SN 311,464. Pub. 9–15–70. Filed 11–6–68.

903,611. THE HOSTEL X. The Hostels, Inc. SN 312,773. Pub. 9–15–70. Filed 11–21–68.

903,612. TOTAL COMMUNICATIONS AND DESIGN. Anaconda Wire and Cable Company. MULTIPLE CLASS (Classes 100 and 103). SN 315,000. Pub. 9–15–70. Filed 12–23–68.

903,613. MALE, BOAT, FISHING LINE DESIGN. Forrest W. Higgins and Richard B. Higgins (partnership), d.b.a. Jonah Club and Original Jonah Club. SN 315,479. Pub. 9–15–70. Filed 12–31–68.

903,614. ORIGINAL JONAH CLUB AND DESIGN. Forrest W. Higgins and Richard B. Higgins (partnership), d.b.a. Jonah Club and Original Jonah Club. SN 315,481. Pub. 9–15–70. Filed 12–31–68.

903,615. MPCC AND DESIGN. Marine Pollution Control Corporation. MULTIPLE CLASS (Classes 100 and 106). SN 316,446. Pub. 9–15–70. Filed 1–13–69.

903,616. NATIONAL BABY CARE COUNCIL. The Diaper Service Industry Association, d.b.a. National Baby Care Council. SN 317,936. Pub. 9–15–70. Filed 1–30–69.

903,617. HANDS (DESIGN). The Diaper Service Industry Association, d.b.a. National Baby Care Council. SN 317,937. Pub. 9–15–70. Filed 1–30–69.

903,618. CHAS. GOODLIGHT & SONS, LTD. Dunkin' Donuts Incorporated, d.b.a. Chas. Goodlight & Sons, Ltd. SN 323,438. Pub. 9–15–70. Filed 4–2–69.

903,619. DOCTOR LAWN. Seaboard Seed Company. SN 324,373. Pub. 9–15–70. Filed 4–14–69.

903,620. CP AND DESIGN. Canadian Pacific Railway Company. MULTIPLE CLASS (Classes 100, 104, and 105). SN 324,965. Pub. 9–15–70. Filed 12–9–68.

903,621. CP. Canadian Pacific Railway Company. MULTIPLE CLASS (Classes 100, 104, and 105). SN 324,966. Pub. 9–15–70. Filed 12–9–68.

903,622. GLOBE AND FLASK IN FRAME (DESIGN). International Research and Development Corporation. SN 325,201. Pub. 9–15–70. Filed 4–22–69.

903,623. REMBRANDT'S. Rembrandt's Paint Factory Catering Service, Inc. SN 325,510. Pub. 9–15–70. Filed 4–24–69.

903,624. REMBRANDT'S PAINT FACTORY. Rembrandt's Paint Factory Catering Service, Inc. SN 325,512. Pub. 9–15–70. Filed 4–24–69.

903,625. NEWPORT CLUB APARTMENTS. Hanover Development Corporation. SN 328,982. Pub. 9–15–70. Filed 6–3–69.

903,626. MULTIQUEST. Lippincott & Margulies, Inc. MULTIPLE CLASS (Classes 100 and 101). SN 329,100. Pub. 9–15–70. Filed 6–4–69.

903,627. SCOT'S INN MOTEL AND DESIGN. Scot's Inn Management Co. SN 330,956. Pub. 9–15–70. Filed 6–25–69.

903,628. HUDDLE HOUSE. Huddle House, Inc. SN 334,232. Pub. 9–15–70. Filed 8–1–69.

903,629. COMPUTER SLIM, INC. ETC. AND PUNCH CARD DESIGN. Computer Slim, Inc. SN 340,127. Pub. 9–15–70. Filed 10–8–69.

903,630. VA-RICE-ITY. Rice Council for Market Development. SN 340,602. Pub. 9–15–70. Filed 10–13–69.

903,631. COMPUTER INNOVATIONS AND DESIGN. Creative Computers Corporation. SN 343,904. Pub. 9–15–70. Filed 11–19–69.

903,632. UNICARE. Unicare Health Services, Inc. SN 347,179. Pub. 9–15–70. Filed 12–29–69.

903,633. MARRIOTT INN. Marriott Corporation. SN 347,555. Pub. 9–15–70. Filed 1–2–70.

Class 101 — Advertising and Business

903,355. (See Class 13 for this trademark.)

903,605. (See Class 100 for this trademark.)

903,606. (See Class 100 for this trademark.)

903,607. (See Class 100 for this trademark.)

903,608. (See Class 100 for this trademark.)

903,626. (See Class 100 for this trademark.)

903,634. TGC. Typographics Communications, Inc. MULTIPLE CLASS (Classes 101 and 106). SN 263,712. Pub. 9–15–70. Filed 1–31–67.

903,635. PEPCOR. Petroleum Energy Producing Corporation. MULTIPLE CLASS (Classes 101 and 103). SN 311,512. Pub. 9–15–70. Filed 11–6–68.

903,636. BARTER MART AND DESIGN. Barter Mart, Inc. SN 318,944. Pub. 9–15–70. Filed 2–12–69.

903,637. THE GOURMET SHOP AND DESIGN. Sullivan's of Liberty, Inc. SN 319,513. Pub. 9–15–70. Filed 2–18–69.

903,638. SHOEARAMA. Wohl Shoe Company. SN 323,166. Pub. 9–15–70. Filed 3–28–69.

903,639. THE MARKET IS MOST AND DESIGN. The Market Is Most® Ltd. SN 325,619. Pub. 9–15–70. Filed 4–25–69.

903,640. STRAWBRIDGE & CLOTHIER ETC. AND DESIGN. Strawbridge & Clothier. SN 334,257. Pub. 9–15–70. Filed 8–1–69.

903,641. JEAN NICOLE. The Miller-Wohl Company, Inc. SN 353,832. Pub. 9–15–70. Filed 3–12–70.

903,642. SKI-MEDIA. Ski-Media Ltd. SN 353,836. Pub. 9–15–70. Filed 3–12–70.

903,643. PICATAPE. Picatape International, Inc. SN 357,113. Pub. 9–15–70. Filed 4–16–70.

903,644. THE ARTISANS GUILD. The Artisans Guild, Inc. SN 357,780. Pub. 9–15–70. Filed 4–24–70.

903,645. MISCELLANEOUS DESIGN. R. R. Donnelley & Sons Company. SN 361,217. Pub. 9–15–70. Filed 6–1–70.

903,646. PET LODGE. Ralston Purina Company. SN 361,945. Pub. 9–15–70. Filed 6–8–70.

Class 102 — Insurance and Financial

903,647. COMP-U-TERM. Continental Assurance Company. SN 310,021. Pub. 3–18–69. Filed 10–21–68.

903,648. TRIANGLE DESIGN AND FINANCIAL ARCHITECTS. Shadur, La Vine & Gallop, Inc. SN 346,188. Pub. 9–15–70. Filed 12–15–69.

Class 103 — Construction and Repair

903,605. (See Class 100 for this trademark.)

903,612. (See Class 100 for this trademark.)

903,635. (See Class 101 for this trademark.)

903,649. GLASS ON WHEELS. T. C. Esser Company. SN 315,401. Pub. 9–15–70. Filed 12–30–68.

903,650. CINDERELLA. Cinderella Cleaners, Inc. MULTIPLE CLASS (Classes 103 and 105). SN 324,800. Pub. 9–15–70. Filed 4–17–69.

903,651. BLITZ. National Trade Industries, Inc. SN 326,225. Pub. 9–15–70. Filed 5–2–69.

903,652. TURBOTRIM. Chemogenics Division, Mobley Company, Inc. SN 326,993. Pub. 9–15–70. Filed 5–12–69.

903,653. MOBY DICK. Moby Dick Car Washes, Inc. SN 329,659. Pub. 9–15–70. Filed 6–11–69.

903,654. PIT STOP. Astro-Matic Lubricare, Inc. SN 336,221. Pub. 9–15–70. Filed 8–21–69.

Class 104 — Communication

903,620. (See Class 100 for this trademark.)

903,621. (See Class 100 for this trademark.)

Class 105 — Transportation and Storage

903,620. (See Class 100 for this trademark.)

903,621. (See Class 100 for this trademark.)

903,650. (See Class 103 for this trademark.)

903,655. KANGAROO. Allied Tube & Conduit Corporation. SN 311,107. Pub. 9–15–70. Filed 11–1–68.

903,656. GLOBAL. Global Van Lines, Inc. SN 318,184. Pub. 9–15–70. Filed 2–3–69.

Class 106 — Material Treatment

903,615. (See Class 100 for this trademark.)

903,634. (See Class 101 for this trademark.)

903,657. ZAYRE. Zayre Corp. SN 362,208. Pub. 9–15–70. Filed 6–10–70.

Class 107 — Education and Entertainment

903,658. MISCELLANEOUS DESIGN. Magazine Management Co., Inc., d.b.a. Marvel Comics Group. SN 325,366. Pub. 9–15–70. Filed 4–23–69.

903,659. THE JAMES GANG. The James Gang. SN 344,863. Pub. 9–15–70. Filed 11–28–69.

Collective Membership Mark

Class 200

903,660. ΦMA. Phi Mu Alpha Sinfonia. SN 342,797. Pub. 9–15–70. Filed 11–6–69.

Certification Marks

Class A — Goods

903,661. BHMA AND LABEL DESIGN. Builders Hardware Manufacturers Association. SN 334,810. Pub. 9–15–70. Filed 8–8–69.

903,662. TEFLON-S ETC. AND DESIGN. E. I. du Pont de Nemours and Company. SN 346,795. Pub. 9–15–70. Filed 12–22–69.

903,663. TEFLON ETC. AND DESIGN. E. I. du Pont de Nemours and Company. SN 346,796. Pub. 9–15–70. Filed 12–22–69.

903,664. TEFLON ETC. AND DESIGN. E. I. du Pont de Nemours and Company. SN 346,797. Pub. 9–15–70. Filed 12–22–69.

903,665. TEFLON ETC. AND DESIGN. E. I. du Pont de Nemours and Company. SN 346,798. Pub. 9–15–70. Filed 12–22–70.

903,666. TEFLON II ETC. AND DESIGN. E. I. du Pont de Nemours and Company. SN 346,799. Pub. 9–15–70. Filed 12–22–69.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 4 — Abrasives and Polishing Materials

903,667. S. C. Johnson & Son, Inc., Racine, Wis. SN 322,448. Filed P.R. 3–21–69; Am. S.R. 7–20–70.

THE SHINER

For Preparations for Polishing, Cleaning and Conditioning Synthetic and Leather Materials (Int. Cl. 3).
First use on or about Jan. 6, 1969.

903,668. Snap Chemical Company, Chicago, Ill. SN 325,232. Filed P.R. 4–22–69; Am. S.R. 8–31–70.



For Combined Preparation for Cleaning and Polishing Jewelry (Int. Cl. 3).
First use Mar. 6, 1965; Mar. 6, 1941, in a different form.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

903,669. Falcon Safety Products, Inc., Mountainside, N.J. SN 322,280. Filed P.R. 3–20–69; Am. S.R. 9–10–70.

LOUD'N CLEAR

For Gas-Powered Horns (Int. Cl. 9).
First use at least as early as Jan. 23, 1969.

Class 26 — Measuring and Scientific Appliances

903,670. I-T-E Imperial Corporation, Philadelphia, Pa., assignee of Imperial-Eastman Corporation, Chicago, Ill. SN 290,140. Filed P.R. 2–2–68; Am. S.R. 11–14–68.

CIRCUIT PANEL

For Experimental Fluidic Kit Including Fluidic Components Which May Be Connected in a Plurality of Circuit Configurations.
First use Sept. 29, 1967.

903,671. K-Hill Signal Company, Inc., Ubrichsville, Ohio. SN 339,054. Filed 11–7–69.

"PULSATER"

For Portable Testing Counters (Int. Cl. 9).
First use Apr. 1, 1967.

Class 39 — Clothing

903,672. Her Majesty Industries, Inc., Mauldin, S.C., by change of name from Her Majesty Underwear Company, Mauldin, S.C. SN 311,867. Filed P.R. 11–5–68; Am. S.R. 9–10–70.

PLAY-JAMA

For Pajama-Playsuit Combination Garment for Children (Int. Cl. 25).
First use Oct. 8, 1968.

903,673. Judy's Merchandising Corporation, Van Nuys, Calif. SN 327,631. Filed P.R. 5–19–69; Am. S.R. 9–8–70.



For Men's Slacks, Men's Shirts, Men's Sweaters, Men's Ties, and Men's Shoes (Int. Cl. 25).
First use Aug. 5, 1968.

903,674. California Lingerie, Inc., Los Angeles, Calif. SN 335,941. Filed P.R. 8–22–69; Am. S.R. 8–31–70.

TeeN
BiKiNi

For Young Girls' Panties (Int. Cl. 25).
First use July 1, 1969.

Class 46 — Foods and Ingredients of Foods

903,675. Chicago Dietetic Supply, Inc., La Grange, Ill. SN 309,025. Filed P.R. 10–7–68; Am. S.R. 8–19–70.

ALL-RYE

For Flour Wafers (Int. Cl. 30).
First use Aug. 28, 1968.

903,676. Leonard F. Berlo, d.b.a. Spring Valley Turkey Farm, North Swansea, Mass. SN 314,312. Filed P.R. 12–12–68; Am. S.R. 8–24–70.

BERLO'S ROASTN BAG

For Frozen Food Products—Namely, Frozen Poultry Such as Turkey, Chickens, etc., With or Without Bread Stuffing; and Frozen Meats Such as Beef and Pork, in Various Forms (Int. Cl. 29).
First use Oct. 15, 1967.

903,677. National Biscuit Company, New York, N.Y. SN 329,115. Filed P.R. 6–4–69; Am. S.R. 8–10–70.



For Cookies (Int. Cl. 30).
First use Mar. 24, 1969.

903,678. Chef-Reddy Foods Corporation, Othello, Wash. SN 331,028. Filed P.R. 6–26–69; Am. S.R. 4–13–70.

LIL' SPUDS

For Frozen Potatoes (Int. Cl. 29).
First use Nov. 13, 1965.

903,679. Ashe Laboratories Limited, Leatherhead, Surrey, England. SN 347,142. Filed P.R. 12–29–69; Am. S.R. 9–11–70.

SHERLEY'S

Owner of British Reg. No. 917,486, dated Nov. 21, 1967.
For Foodstuffs for Dogs and Cats (Int. Cl. 31).

903,680. The Quaker Oats Company, Chicago, Ill. SN 367,785. Filed 8–12–70.

SUPER CHIPS

For Cookies (Int. Cl. 30).
First use Mar. 13, 1969; May 28, 1966, on related goods in the same form.

Class 47 — Wines

903,681. Bodegas Rioja Santiago, S.A., d.b.a. Rioja Santiago, S.A., Haro (Logrono), Spain. SN 334,545, Filed P.R. 8–6–69; Am. S.R. 9–17–70.



The mark consists of the conformation of a bottle together with the labels, wording and designs thereon. The Spanish word "Espumante" means "sparkling." Owner of U.S. Reg. Nos. 829,219, 870,575, and others.
For Wine Specialty (Int. Cl. 33).
First use September 1967; in commerce Mar. 9, 1968.

903,682. Monsieur Henri Wines, Ltd., Brooklyn, N.Y. SN 339,446. Filed P.R. 10–1–69; Am. S.R. 8–27–70.

WEBER

For Wines (Int. Cl. 33).
First use July 29, 1969.

903,683. Valentin Bianchi, Sociedad Anonima Comercial, Industrial y Financiera, d.b.a. Valentin Bianchi S.A.C.I.F., San Rafael, Mendoza, Argentine Republic. SN 340,894. Filed 4–2–70.

BIANCHI

Owner of Argentine Reg. No. 439,562, dated July 11, 1960.
For Wines (Int. Cl. 33).

Class 49 — Distilled Alcoholic Liquors

903,684. Schieffelin & Co., New York, N.Y. SN 351,546. Filed P.R. 2–16–70; Am. S.R. 9–3–70.



For Cognac Brandy (Int. Cl. 33).
First use Aug. 22, 1969.

TRADEMARK REGISTRATIONS RENEWED

35,072. CARNATION BRAND AND DESIGN. Cl. 46 (Int. Cls. 29 and 30). 9–18–1900.
78,772. "XCD" AND DESIGN. Cl. 23 (Int. Cl. 8). 7–12–10.
79,549. REPRESENTATION OF BIRD AND BOW AND ARROW. Cl. 52 (Int. Cl. 1). 9–20–10.
79,612. REPRESENTATION OF ACORN. Cl. 14 (Int. Cl. 6). 9–20–10.
80,145. "OPAL" AND DESIGN. Cl. 13 (Int. Cl. 6). 11–8–10.
80,334. WINDSOR. Cl. 42 (Int. Cl. 24). 12–6–10.
81,180. DAMOSELLE. Cl. 42 (Int. Cl. 24). 3–7–11.
270,446. CEREGUMIL. Cl. 18 (Int. Cl. 5). 5–6–30.
274,575. DUKE. Cl. 13 (Int. Cl. 11). 9–2–30.
274,643. ANIDON. Cl. 18 (Int. Cl. 5). 9–2–30.
275,269. DELTA. Cl. 23 (Int. Cl. 7). 9–16–30.
275,382. PLEE-ZING. Cl. 46 (Int. Cls. 29 and 30). 9–28–30.
275,530. RED BUD. Cl. 46 (Int. Cl. 30). 9–23–30.
275,587. HAVE ONE! Cl. 46 (Int. Cl. 31). 9–23–30.
275,675. TOM'S. Cl. 46 (Int. Cls. 29 and 30). 9–30–30.
275,715. DUKE. Cl. 32 (Int. Cl. 20). 9–30–30.
275,717. "STEELCOTE" ETC. AND DESIGN. Cl. 12 (Int. Cls. 17 and 19). 9–30–30.
275,842. NATCO. Cl. 21 (Int. Cl. 9). 9–30–30.
276,556. RAYTEX. Cl. 26 (Int. Cl. 9). 10–21–30.
276,838. KARADIO. Cl. 21 (Int. Cl. 9). 10–28–30.
277,007. INGENUE. Cl. 39 (Int. Cl. 25). 11–4–30.
227,808. DURAMODE. Cl. 39 (Int. Cl. 25). 11–25–30.
279,016. NEPTO. Cl. 51 (Int. Cl. 3). 1–6–31.
279,234. GOLD RIM. Cl. 46 (Int. Cl. 31). 1–13–31.
279,257. DUOL. Cl. 11 (Int. Cl. 2). 1–13–31.
279,265. RED, WHITE AND BLUE PANEL. Cl. 14 (Int. Cl. 6). 1–13–31.
279,268. "UNIVAN." Cl. 14 (Int. Cl. 6). 1–13–31.
279,273. DUOL. Cl. 16 (Int. Cl. 2). 1–13–31.
280,068. CELARANDOM. Cl. 43 (Int. Cl. 23). 2–10–31.
280,119. TREASURE. Cl. 28 (Int. Cl. 14). 2–10–31.
444,219. LIQUA SHAVE. Cl. 51 (Int. Cl. 3). 9–12–50.
521,592. TRU-BALANCE. Cl. 22 (Int. Cl. 28). 2–28–50.
522,667. TIM ETC. AND DESIGN. Cl. 37. (Int. Cl. 16). 3–21–50.
523,269. COOKS WITH THE GAS TURNED OFF. Cl. 34 (Int. Cl. 11). 3–28–50.
524,562. COOKS WHILE THE COOK'S AWAY. Cl. 34 (Int. Cl. 11). 4–25–50.
524,563. COOK WITH THE GAS TURNED OFF. Cl. 34 (Int. Cl. 11). 4–25–50.
525,915. ERASIT. Cl. 37 (Int. Cl. 16). 6–6–50.
526,803. CHICK STARTENA. Cl. 46 (Int. Cl. 31). 6–27–50.
526,874. SUN COUNTRY. Cl. 42 (Int. Cl. 24). 6–27–50.
527,590. WT AND DESIGN. Cl. 100 (Int. Cl. 42). 7–11–50.
527,667. THE FIVE-FOOT SHELF OF BOOKS. Cl. 38 (Int. Cl. 16). 7–18–50.
527,669. THE JUNIOR CLASSICS THE YOUNG FOLK'S SHELF OF BOOKS. Cl. 38 (Int. Cl. 16). 7–18–50.
527,873. TORTUE AND DESIGN. Cl. 22 (Int. Cl. 28). 7–18–50.
528,008. HOLD-E-ZEE. Cl. 23 (Int. Cl. 8). 7–25–50.
528,680. CROWN DESIGN. Cl. 22 (Int. Cl. 28). 8–8–50.
528,808. B-K ROOT-BEER AND DESIGN. Cl. 45 (Int. Cl. 32). 8–8–50.
529,217. CLEAR-VUE. Cl. 37 (Int. Cl. 16). 8–15–50.
529,467. A DIVING BELLE CAP AND DESIGN. Cl. 39 (Int. Cl. 25). 9–22–50.
529,468. ELSIE COWHEAD AND DESIGN. Cl. 46 (Int. Cls. 29 and 30). 9–22–50.
529,821. Garbridder. Cl. 23 (Int. Cl. 7). 8–29–50.
530,137. STILLWATER. Cl. 46 (Int. Cl. 31). 9–5–50.
530,611. BERYLCO. Cl. 14 (Int. Cl. 6). 9–12–50.
530,622. CHIMNEY SWEEP. Cl. 15 (Int. Cl. 1). 9–12–50.
530,827. GLOLITE. Cl. 21 (Int. Cls. 11 and 28). 9–19–50.
530,843. SHUR-NUFF. Cl. 50 (Int. Cls. 20, 24, and 26). 9–19–50.
530,932. WELDERASER. Cl. 4 (Int. Cl. 7). 9–19–50.
530,965. KWIK LITE. Cl. 34 (Int. Cl. 11). 9–19–50.
530,969. KILLARNEY AND DESIGN. Cl. 17 (Int. Cl. 34). 9–19–50.
530,987. L-100. Cl. 6 (Int. Cl. 1). 9–19–50.
531,040. CROSSED ALE AND DESIGN. Cl. 48 (Int. Cl. 32). 9–19–50.
531,139. WRIGHT & DITSON. Cl. 22 (Int. Cl. 28). 9–26–50.
531,150. WHITE RIBBON. Cl. 46 (Int. Cl. 29). 9–26–50.
531,203. A.M.C. Cl. 13 (Int. Cl. 21). 9–26–50.
531,254. TEXTURED METAL. Cl. 14 (Int. Cl. 6). 9–26–50.
531,332. GARZA. Cl. 42 (Int. Cl. 24). 9–26–50.
531,333. WOLBROOK. Cl. 27 (Int. Cl. 14). 9–26–50.
531,357. COLPROVIA. Cl. 106 (Int. Cl. 40). 9–26–50.
531,358. COLPROVIA AND DESIGN. Cl. 106 (Int. Cl. 40). 9–26–50.
531,417. INTERNATIONAL. Cl. 16 (Int. Cl. 2). 10–3–50.
531,426. TEXAS PIONEER AND DESIGN. Cl. 46 (Int. Cl. 30). 10–3–50.
531,493. GOLD-MAN AND DESIGN. Cl. 24 (Int. Cl. 7). 10–3–50.
531,552. MAYPON. Cl. 6 (Int. Cl. 1). 10–3–50.
531,720. DAWN FRESH. Cl. 46 (Int. Cls. 29 and 30). 10–10–50.
531,724. PLASTIKLEER. Cl. 37 (Int. Cl. 16). 10–10–50.
531,984. VERTI-TRACER. Cl. 44 (Int. Cl. 10). 10–17–50.
531,990. WELL BUILT WB AND DESIGN. Cl. 25 (Int. Cl. 6). 10–17–50.
532,108. TRI-SURE. Cl. 23 (Int. Cl. 8). 10–17–50.
532,165. ORANIXON. Cl. 18 (Int. Cl. 5). 10–17–50.
532,360. MICROVAC. Cl. 23 (Int. Cl. 7). 10–24–50.
532,468. MILLAY. Cl. 39 (Int. Cl. 25). 10–24–50.
532,662. NASHUA. Cl. 23 (Int. Cl. 7). 10–31–50.
532,793. DRAMEX. Cl. 16 (Int. Cl. 2). 10–31–50.
533,009. NUT SHOP. Cl. 32 (Int. Cl. 20). 11–7–50.
533,068. MEXO. Cl. 52 (Int. Cl. 3). 11–7–50.
533,083. DAINTY-MAID AND DESIGN. Cl. 45 (Int. Cl. 32). 11–7–50.
533,338. EXPANDO. Cl. 13 (Int. Cl. 6). 11–14–50.
533,714. DOOR-EASE. Cl. 15 (Int. Cl. 4). 11–21–50.
534,073. MISTRON. Cl. 6 (Int. Cl. 1). 11–28–50.
534,198. BRYOTEX AND DESIGN. Cl. 46 (Int. Cl. 30). 12–5–50.
534,398. TOP BRACKET. Cl. 39 (Int. Cl. 25). 12–5–50.
534,526. STEELCASE. Cl. 32 (Int. Cl. 20). 12–12–50.
534,532. DUKE. Cls. 13, 21, and 32 (Int. Cls. 11 and 20). 12–12–50.
534,855. PURITY. Cl. 46 (Int. Cl. 30). 12–19–50.
534,973. DORRCO. Cl. 31 (Int. Cl. 7). 12–19–50.
535,314. KLASS. Cl. 52 (Int. Cl. 3). 12–26–50.
535,536. GIBSON'S GRIPPER CLIPS. Cl. 13 (Int. Cl. 6). 1–2–51.
535,544. HONORBILT. Cl. 32. (Int. Cl. 20). 1–2–51.
535,654. HANDI BUTLER. Cl. 23 (Int. Cl. 7). 1–2–51.
535,938. LONG GRIP. Cl. 13 (Int. Cl. 6). 1–9–51.
536,223. BALTUR. Cl. 26 (Int. Cl. 13). 1–9–51.
536,371. FROS TIME AND DESIGN. Cl. 39 (Int. Cl. 25). 1–16–51.
536,421. CAREY LASTIC. Cl. 12 (Int. Cl. 17). 1–16–51.
536,460. DIOKEM. Cl. 52 (Int. Cl. 5). 1–16–51.
536,529. TRIGGER. Cl. 52 (Int. Cl. 3). 1–16–51.
536,570. ALUMA CRAFT AND DESIGN. Cl. 12 (Int. Cl. 6). 1–16–51.
536,754. CHAMPION. Cl. 19 (Int. Cl. 12). 1–16–51.
536,877. BRICK WALL, GUN, PLACQUE ETC. AND DESIGN. Cl. 46 (Int. Cl. 29). 1–23–51.
536,940. BENCH TOWN. Cl. 39 (Int. Cl. 25). 1–23–51.
537,065. HAVANA. Cl. 51 (Int. Cl. 3). 1–30–51.
537,287. FUSETRON. Cl. 21 (Int. Cl. 9). 2–6–51.
537,302. CATS EYE AND DESIGN. Cl. 21 (Int. Cl. 11). 2–6–51.
537,438. GOLD DOLLAR. Cl. 44 (Int. Cl. 10). 2–6–51.
537,512. GOOD NEIGHBOUR. Cl. 46 (Int. Cl. 29). 2–13–51.
537,538. RED COMET. Cl. 23 (Int. Cl. 9). 2–13–51.
537,816. DU-OL AND DESIGN. Cl. 6 (Int. Cl. 1). 2–13–51.
537,981. HENRY THE VIII AND DESIGN. Cl. 46 (Int. Cl. 29). 2–20–51.
538,166. LONGHORN AND DESIGN. Cl. 46 (Int. Cls. 29 and 32). 2–20–51.
538,306. LOVABLE AND DESIGN. Cl. 39 (Int. Cl. 25). 2–20–51.
538,583. SYLOID. Cl. 6 (Int. Cl. 1). 2–27–51.
538,775. RIVIERA. Cl. 41 (Int. Cl. 18). 2–27–51.

TRADEMARK REGISTRATIONS CANCELED

Section 7(d)

384,495. SPIB. Cl. 12. 1-21-41.
649,604. PANALBASTATIN. Cl. 18. 8-6-57.
649,605. ALBACORTEF. Cl. 18. 8-6-57.
697,371. DEPO-ALBAMYCIN. Cl. 18. 5-10-60.
719,570. DEPO-PANALBA. Cl. 18. 8-8-61.
865,631. STALEY DAY-ONE AND DESIGN. Cl. 18. 3-4-69.
884,301. CELPHEDE. Cl. 51. 1-13-70.
891,265. WAFERFILL. Cl. 29. 5-19-70.
894,082. MB AND DESIGN. Cl. 23. 7-7-70.

Section 8

777,208. SNAP CURE. Cl. 7. 9-22-64.
778,014. JRC JAY LET JAY DO IT AND DESIGN. Cl. 4. 10-6-64.
778,101. SEA GUARD. Cl. 21. 10-6-64.
778,311. JRC JAY LET JAY DO IT AND DESIGN. Cl. 52. 10-6-64.

The following registrations issued Oct. 13, 1964

778,345. BI-POLY. Cl. 1.
778,347. INSTA MIX PAK AND ARROWS DESIGN. Cl. 2.
778,348. NU-KEGG AND DESIGN. Cl. 2.
778,350. BBF THE BAG THAT CAN BOX LIKE A CHAMPION AND DESIGN. Cl. 2.
778,351. CB. Cl. 2.
778,359. INSPECTO FLAP. Cl. 2.
778,370. TYMET. Cl. 6.
778,371. LUMINFOAM. Cl. 6.
778,372. LUMINAR. Cl. 6.
778,380. SHELLCOR. Cl. 6.
778,381. SIRIOGEN. Cl. 6.
778,391. THRIFTLINE. Cl. 12.
778,397. E-Z PLUMB. Cl. 13.
778,400. MEGAFLO. Cl. 13.
778,404. SEALLOY. Cl. 14.
778,405. TYPE DIVISION ATF AND DESIGN. Cl. 14.
778,406. VASCO 1741. Cl. 14.
778,407. VIKING AND DESIGN. Cl. 15.
778,410. PLY-O-GLAS. Cl. 16.
778,412. STEELSAVER 449. Cl. 16).
778,414. NELIO. Cl. 16.
778,416. CARPE DIEM ETC. AND DESIGN. Cl. 17.
778,417. E-E DOUBLE EASE AND DESIGN. Cl. 18.
778,421. THYRODIG. Cl. 18.
778,422. MARBORAN. Cl. 18.
778,423. STIMUNAIL. Cl. 18.
778,430. STOW-A-BELT. Cl. 19.
778,436. "MIGHTY 9." Cl. 21.
778,437. NORWICH DESIGN CORPORATION AND DESIGN. Cl. 21).
778,439. LEARSTAT. Cl. 21.
778,441. SONIC-SEAMER. Cl. 21.
778,442. SONICTRON. Cl. 21.
778,451. DIAL-A-LURE TACKLE BUKET AND DESIGN. Cl. 22.
778,452. KENNY-WAY. Cl. 22.
778,453. VENT-O. Cl. 22.
778,454. TRAJECTORY. Cl. 22.
778,456. WONDER WIGS. Cl. 22.
778,457. ASTROWHEEL. Cl. 22.
778,464. WAMPUM. Cl. 22.
778,465. PEPPERMINT. Cl. 22.
778,466. PRIDE & PREJUDICE. Cl. 22.
778,467. WAR & PEACE. Cl. 22.
778,468. SPEED TIP. Cl. 23.
778,472. CROPMASTER. Cl. 23.
778,476. UG. Cl. 23.
778,479. ASTRO JET-VAC AND DESIGN. Cl. 23.
778,483. IVI. Cl. 23.
778,484. NIGHT & DAY. Cl. 23.
778,486. DEEP-ACTION. Cl. 24.
778,489. CONVERTOKEY. Cl. 25.
778,490. KEY-BLOCK. Cl. 25.
778,491. KEY X. Cl. 25.
778,492. OBSTRUCTOKEY. Cl. 25.
778,494. ADCON. Cl. 26.
778,497. 3C ETC. AND DESIGN. Cl. 26.
778,502. MF AND DESIGN. Cl. 28.
778,509. BAKE-A-TWIST. Cl. 34.
778,515. VICTORIAN. Cl. 36.
788,520. COPYMATION. Cl. 37.
778,524. AMERICAN SUNBATHER. Cl. 38.
778,528. HASHIMOTO-SAN. Cl. 38.
778,529. TEXIN TOPICS. Cl. 38.
778,533. THE SIGNAL OILER AND DESIGN. Cl. 38.
778,534. E ETC. AND DESIGN. Cl. 38.
778,537. 'CAR'TOONS AND DESIGN. Cl. 38.
778,542. SPORT-JAC AND DESIGN. Cl. 39.
778,547. TAMARRA. Cl. 39.
778,552. BELLEBROOKE. Cl. 39.
778,562. ENDOMETRIC. Cl. 44.
778,563. SAN-PIN. Cl. 44.
778,567. HIGGS AND DESIGN. Cl. 44.
778,577. WEEKI-WACHEE CITRUS AND DESIGN. Cl. 46.
778,578. BAKAZYME. Cl. 46.
778,580. ASCO AND DESIGN. Cl. 46.
778,581. DEANO'S. Cl. 46.
778,584. AMMO. Cl. 46.
778,585. TOP SPEED. Cl. 46.
778,586. PLAINSMAN. Cl. 46.
778,587. EXACT. Cl. 46.
778,593. THEENG Z. Cl. 46.
778,596. BILTIN-CURVE. Cl. 50.
778,597. CONNOLLY AND DESIGN. Cl. 50.
778,598. PASCO MAGNI COPYSET BOARD AND DESIGN. Cl. 50.
778,599. BARTENDER'S HELPER. Cl. 50.
778,601. MR. EXECUTIVE. Cl. 50.
778,602. CROWN JEWEL AND DESIGN. Cl. 50.
778,603. DAPPLED SUNLIGHT. Cl. 51.
778,604. MODEL'S CHOICE. Cl. 51.
778,611. JUBILEE. Cl. 51.
778,612. STAR FALL. Cl. 51.
778,614. NOBILITY. Cl. 51.
778,615. HAPPY TISSUE. Cl. 51.
778,619. PHOS-MAT. Cl. 52.
778,620. COPYTRON. Cl. 52.
778,625. DESIGN OF AN OVERLAYED 1 AND O WITH A LINE PULSE. Cl. 100.
778,629. VU-A-PLAN. Cl. 100.
778,631. CREATIVE HOUSE. Cl. 101.
778,633. RELIANCE NATIONAL AND DESIGN. Cl. 102.
778,635. SILHOUETTE PORTRAIT (DESIGN). Cl. 102.
778,636. UI AND DESIGN. Cl. 102.
778,639. THE COST CUTTER BIRD AND DESIGN. Cl. 103.
778,643. CREATION GROSSE. Cl. 28.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

250,807. TRITON. Cl. 15. 12-18-28. Union Oil Company of California, Los Angeles, Calif. Amended to appear:

TRITON

529,164. RAYTHEON AND DESIGN. Cl. 26. 8-15-50. Raytheon Manufacturing Company. Raytheon Company, Lexington, Mass. Amended to appear:

RAYTHEON

535,687. GUARDOL. Cl. 15. 1-2-51. Union Oil Company of California, Los Angeles, Calif. Amended to appear:

GUARDOL

603,115. SWEET'NLOW. Cl. 46. 3-8-55. May MacGregor, doing business as Ann Delafield. Duffy-Mott Company, Inc., New York, N.Y. Amended: In the statement, column 2, lines 1 through 3, the description of goods is deleted and *canned fruits* is inserted.

606,874. MALRIN AND DESIGN. Cl. 6. 6-7-55. Agricultural Specialties. Thuron Industries, Inc., Dallas, Tex. Amended: In the statement, column 2, lines 5 and 6 are deleted, and the drawing is amended to appear:

MALRIN

625,216. GLASURIT AND DESIGN. Cl. 16. 4-17-56. Glasurit-Werke, N. Winkelmann, Aktiengesellschaft, Hamburg, Germany. Amended to appear:



631,175. GLASSO AND DESIGN. Cl. 16. 7-24-56. Glasurit-Werke, M. Winkelmann, Aktiengesellschaft, Hamburg, Germany. Amended to appear:



681,089. AEROHOT. Cls. 21 and 34. 6-30-59. Duke Manufacturing Co., St. Louis, Mo. Amended to appear:

Aerohot

690,369. HIDEAWAY. Cl. 2. 12-29-59. Jeffrey-Allen Industries, Inc., Chicago, Ill. Corrected: In the statement, column 1, line 1, "Jeffrey-Allen Industries, Inc." should be deleted and *Jeffrey Allan Industries Inc.* should be inserted.

774,333. SCM AND DESIGN. Cls. 6, 11, 26, 37 and 50. 8-4-64. SCM Corporation, New York, N.Y. Amended: In the statement, column 1, lines 4 through 7 are deleted and *For:* is inserted, in line 12, "inks" is deleted, in line 14, "stencils and lacquers" is deleted, in column 2, lines 1 through 5 are deleted, in line 6, "hectographic copy papers," is deleted and lines 11 through 14 are deleted.

785,705. BRADSHAW'S. Cl. 46. 2-23-65. Sioux Honey Association, Cooperative, Sioux City, Iowa. Corrected: In the statement, column 1, line 1, "Associates" should be deleted and *Association,* should be inserted.

794,958. A.D.T. Cl. 107. 8-24-65. American District Telegraph Company, New York, N.Y. Amended to appear:

ADT

798,555. MAT-O-BEL AND DESIGN. Cl. 33. 11-9-65. Glaverbel, Societe Anonyme, Brussels, Belgium. Amended: In the statement, column 1, line 2 is deleted and *166, chaussee de la Hulpe* is inserted.

892,320. NAVYOEK. Cl. 12. 6-9-70. Allied Compositions Corporation, Maspeth, N.Y. Corrected: In the statement, column 2, line 5, "1967" should be deleted and *1957* should be inserted.

895,324. HS AND DESIGN. Cl. 13. 7-28-70. Hoffman Specialty Mfg. Corp., Indianapolis, Ind. Corrected to appear:



896,517. PRE-LITH. Cl. 37. 8-11-70. The Progress Lithographing Co., Cincinnati, Ohio. Corrected: In the heading, "342,606" should be deleted and *324,606* should be inserted.

896,666. FAIRCO DRUG. Cl. 101. 8-11-70. Fairco Drug, Inc., Knoxville, Tenn. Corrected: In the statement, column 1, line 1, "Tennessee" should be deleted and *Florida* should be inserted.

896,702. RED LION. Cl. 3. 8-18-70. Gail Leather Products, Inc., New York, N.Y. Corrected: In the statement, column 2, line 3, "car" should be deleted and *card* should be inserted.

897,555. MISCELLANEOUS DESIGN. Cl. 102. 8-25-70. Conill Corporation, assignee of Continental Illinois National Bank and Trust Company of Chicago, Chicago, Ill. Corrected: In the statement, column 1, before line 1, *Conill Corporation (Delaware corporation), 231 S. LaSalle St., Chicago, Ill., assignee of* should be inserted.

897,733. AQUADYNE. Cl. 21. 8-1-70. Aquadyne, Inc., Teaticket, Mass. Corrected: In the statement, column 2, line 3, after "Units") should be inserted and in line 7, "Mar. 20" should be deleted and *Mar. 30* should be inserted.

898,540. METSO. Cls. 6 and 52. 9-15-70. Philadelphia Quartz Company, Philadelphia, Pa. Corrected: In the staatement, column 1, line 1, "Florida" should be deleted and *Pennsylvania* should be inserted.

899,584. GYM-EE. Cl. 22. 9-29-70. Gym Dandy, Inc., Bossier City, La. Corrected: In the statement, column 2, line 1, "Playing" should be deleted and *play* should be inserted.

900,284. TELL IT LIKE IT IS BY DUNAGIN. Cl. 38. 10-6-70. Field Enterprises, Inc., Chicago, Ill. Corrected: In the statement, column 2, lines 5 and 7, both occurrences, "Dunigan" should be deleted and *Dunagin* should be inserted.

REGISTRATIONS PUBLISHED UNDER SEC. 12(c)

The following marks registered under the act of 1905, or the act of 1881, are published under the provisions of section 12(c) of the Trademark Act of 1946. These registrations are not subject to opposition but are subject to cancellation under section 14 of the act of 1946.

Class 6—Chemicals and Chemical Compositions

215,273. July 13, 1926. The Dow Chemical Company, Midland, Mich. Pub. by registrant.

PARADOW

For Insecticidal Compositions.

Class 12—Construction Materials

301,895. Mar. 21, 1933. Quigley Company, Inc., New York, N.Y. Pub. by registrant.

CHROMIX

For Plastic Neutral Base for Monolithic Construction Composed of Chrome Ore and a Suitable Plasticizing Material.

Class 18—Medicines and Pharmaceutical Preparations

200,684. July 7, 1925. Edward Wesley & Co., Cincinnati, Ohio. Pub. by American Home Products Corporation, New York, N.Y.

HEET

For Liniment.

Class 21—Electrical Apparatus, Machines, and Supplies

426,987. Jan. 21, 1947. Yermie Stern, New York, N.Y. Pub. by Storecast Corporation of America, New York, N.Y.

STORECASTING

For Electrical Equipment—Namely, Loudspeakers, Amplifiers, and Telephone Wires.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

444,100. July 25, 1950. National Jet Company, Cumberland, Md. Pub. by National Jet Drill Company, Cumberland, Md.

NJ

For Drills, Punches, etc. (Int. Cls. 7 and 8).

Class 37—Paper and Stationery

444,143. Aug. 15, 1950. Southern Advance Bag & Paper Co., Inc., Bangor, Maine and Boston, Mass. Pub. by Continental Can Company, Inc., New York, N.Y.

White Rock

For Kraft Wrapping Paper (Int. Cl. 16).

Class 49—Distilled Alcoholic Liquors

442,316. Mar. 22, 1949. S.A. E Isolabella & Figlio, Milan, Italy. Pub. by Societa per Azioni E. Isolabella & Figlio, Milan, Italy.

For Alcoholic Liqueurs.

Class 50—Merchandise Not Otherwise Classified

444,174. Aug. 29, 1950. The Dobeckmun Company, Cleveland, Ohio. Pub. by The Dow Chemical Company, Midland, Mich.

METALAM

For Flexible Laminated Sheet Material, Composed Essentially of Metallic Foil Laminated on One or Both Sides To Regenerated Cellulosic or Like Films, With or Without a Colored Laminant.

Class 52—Detergents and Soaps

296,082. July 19, 1932. The Renofab Process, Inc., New York, N.Y. Pub. by Renofab Process Corp., Bronx, N.Y.

RENOFAB

For Dry Cleaning Fluid.

INDEX OF REGISTRANTS

DECEMBER 1, 1970

(Registered; Renewed; Canceled; Amended, Disclaimed, Corrected, etc.; New Certificates; 12c Publications.)

AC & S Inc., Lancaster, Pa. 903,351, pub. 9–15–70. Cl. 12.
AGA Aktiebolag, Lidingo, Sweden. 903,511, pub. 6–24–69. Cl. 36.
ATR Electronics, Inc., St. Paul, Minn. 276,838, ren. 12–1–70. Cl. 21.
Abell-Howe Co., Forest Park, Ill. 903,482, pub. 9–15–70. Cl. 23.
Achorn Steel Co., Cambridge, Mass. 79,612, ren. 12–1–70. Cl. 14.
Adamson Co., Inc., Richmond, Va. 903,278, pub. 9–15–70. Multiple Class (Classes 2 and 34).
Addressograph-Multigraph Corp., Cleveland, Ohio. 778,620, canc. Cl. 52.
Agricultural Specialties, Thuron Industries, Inc., Dallas, Tex. 606,874. Am. 7(d). Cl. 6.
Alberto-Culver Co., Melrose Park, Ill. 903,591, pub. 9–15–70. Cl. 52.
Algonquin Corp., The, Norridge, Ill. 903,563, pub. 9–15–70. Cl. 44.
Allergan Pharmaceuticals, Santa Ana, Calif. 903,377, pub. 9–15–70. Cl. 18.
Allied Compositions Corp., Maspeth, N.Y. 892,320, cor. Cl. 12.
Allied Stores Corp., New York, N.Y. 532,468, ren. 12–1–70. Cl. 39.
Allied Tube & Conduit Corp., Harvey, Ill. 903,655, pub. 9–15–70. Cl. 105.
Alma Desk Co., High Point, N.C. 903,504, pub. 9–15–70. Cl. 32.
Alton Box Board Co., Wilmington, Del. 903,275, pub. 9–15–70. Cl. 2.
Alton Box Board Co., Wilmington, Del. 903,277, pub. 9–15–70. Cl. 2.
Aluma Kraft Mfg. Co., St. Louis, Mo. 536,570, ren. 12–1–70. Cl. 12.
Amcrest Corp., New York, N.Y. 531,203, ren. 12–1–70. Cl. 13.
American Cyanamid Co., Wayne, N.J. 79,549, ren. 12–1–70. Cl. 52.
American District Telegraph Co., New York, N.Y. 794,958. Am. 7(d). Cl. 107.
American Flange & Mfg. Co. Inc., New York, N.Y. 532,108, ren. 12–1–70. Cl. 28.
American Grease Stick Co., Muskegon, Mich. 533,714, ren. 12–1–70. Cl. 15.
American Home Products Corp., New York, N.Y. 200,684, 12(c) pub. 12–1–70. Cl. 18.
American Metal Climax, Inc., d.b.a. Southwest Potash Corp., New York, N.Y. 903,304, pub. 9–15–70. Cl. 6.
American Plywood Association, Tacoma, Wash. 903,344, pub. 9–15–70. Cl. 12.
American Type Founders Co., Inc., Elizabeth, N.J. 778,405, canc. Cl. 14.
Americar, Inc., Daytona Beach, Fla. 903,389, pub. 9–15–70. Cl. 19.
Amerock Corp., Rockford, Ill. 903,352, pub. 9–15–70. Multiple Class (Classes 12, 13, 23, and 25).
Ames Supply Co., Downers Grove, Ill. 903,463, pub. 9–15–70. Cl. 23.
Anaconda Wire & Cable Co., New York, N.Y. 903,407, pub. 9–15–70. Cl. 21.
Anaconda Wire & Cable Co., New York, N.Y. 903,612, pub. 9–15–70. Multiple Class (Classes 100 and 103).
Anagram Corp., Springfield, Va. 903,488, pub. 9–15–70. Cl. 26.
Ansen Automotive Engineering, Gardena, Calif. 903,387, pub. 7–28–70. Cl. 19.
Angstrohm Precision Inc., Van Nuys, Calif. 903,392, pub. 9–15–70. Cl. 21.
Applied Technology Corp., Seattle, Wash. 903,464, pub. 9–15–70. Cl. 23.
Aquadyne, Inc., Teaticket, Mass. 897,733, cor. Cl. 21.
Arbogast, Fred, Co., Inc., Akron, Ohio. 778,464, canc. Cl. 22.
Arbogast, Fred, Co., Inc., Akron, Ohio. 903,437–9, pub. 9–15–70. Cl. 22.
Armour-Dial, Inc., Chicago, Ill. 903,598, pub. 9–15–70. Cl. 52.
Armstrong Paint & Varnish Works, Inc., Chicago, Ill. 903,341, pub. 9–15–70. Multiple Class (Classes 12 and 16).
Artisans Guild, Inc., The, Cambridge, Mass. 903,644, pub. 9–15–70. Cl. 101.
Ashe Laboratories Ltd., Leatherhead, Surrey, England. 903,679. Cl. 46.
Astro-Matic Lubricare, Inc., Nashville, Tenn. 903,654, pub. 9–15–70. Cl. 103.
Atlantic Refining Co., The, Philadelphia, Pa. 778,345, canc. Cl. 1.
Avon Products, Inc., New York, N.Y. 903,588, pub. 9–15–70. Multiple Class (Classes 51 and 52).
B-K Products, Inc., Michigan City, Ind. 528,808, ren. 12–1–70. Cl. 45.
Bacon, Charles H., Co., Inc., Lenoir City, Tenn. 903,541, pub. 9–15–70. Cl. 39.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany. 903,340, pub. 9–15–70. Cl. 10.
Bancroft Bag Factory, Inc., West Monroe, La. 778,350, canc. Cl. 2.
Baron, Allen, d.b.a. ABCO Laboratories, Walnut Creek, Calif. 903,579, pub. 9–15–70. Cl. 46.
Barter Mart, Inc., Rye, N.Y. 903,636, pub. 9–15–70. Cl. 101.
Barwick, E. T., Industries, Inc., Chamblee, Ga. 903,552–3, pub. 9–15–70. Cl. 42.
Basic Plastics, Baltimore, Md. 903,281, pub. 9–15–70. Cl. 2.
Bates Mfg. Co., Inc., Lewiston, Maine. 80,334, ren. 12–1–70. Cl. 42.
Bates Mfg. Co., Inc., Lewiston, Maine. 526,874, ren. 12–1–70. Cl. 42.
Baumritter Corp., New York, N.Y. 903,549, pub. 9–15–70. Cl. 42.
Baumritter Corp., New York, N.Y. 903,570, pub. 9–15–70. Cl. 46.
Bausch & Lomb Inc., Rochester, N.Y. 536,223, ren. 12–1–70. Cl. 26.
Baxter Laboratories, Inc., Morton Grove, Ill. 903,373, pub. 9–15–70. Cl. 18.
Bear Brand Hosiery Co., Chicago, Ill. 227,808, ren. 12–1–70. Cl. 39.
Berlo, Leonard F., d.b.a. Spring Valley Turkey Farm, North Swansea, Mass. 903,676. Cl. 46.
Beuchat, Georges, Marseilles, France, from Sports Industries, Inc., Gardena, Calif. 903,415, pub. 9–15–70. Cl. 22.
Bianchi, Valentin, Sociedad Anonima Comercial, Industrialy Financiera, d.b.a. Valentin Bianchi S.A.C.I.F., San Rafael, Mendoza, Argentine Republic. 903,683. Cl. 47.
Bio-Logics, Inc., Salt Lake City, Utah. 903,458, pub. 9–15–70. Cl. 23.
Blaw-Knox Co., Pittsburgh, Pa. 279,268, ren. 12–1–70. Cl. 14.
Boas Son Ltd., Chicago, Ill. 903,497, pub. 9–15–70. Cl. 28.
Boise Cascade Corp., Wallula, Wash. 778,359, canc. Cl. 2.
Borden, Inc., New York, N.Y. 529,468, ren. 12–1–70. Cl. 46.
Borden, Inc., New York, N.Y. 903,574, pub. 9–15–70. Cl. 46.
Boston Safe Deposit & Trust Co., Boston, Mass. 778,635, canc. Cl. 102.
Boswell, J. J., Co., Los Angeles, Calif. 903,606, pub. 9–15–70. Multiple Class (Classes 100 and 101).
Bray, J. W., Co., Inc., Dalton, Ga. 903,526, pub. 9–15–70. Cl. 39.
Brenneke, Wilhelm, KG, Berlin, Germany. 903,333, pub. 9–15–70. Cl. 9.
Bristol Seamless Ring Corp., New York, N.Y. 280,119, ren. 12–1–70. Cl. 28.
British Petroleum Co. Ltd., The, London, England. 903,265, pub. 9–15–70. Cl. 1.
Bro-Dart Industries, Newark, N.J. 531,724, ren. 12–1–70. Cl. 37.
Brunswick Corp., Chicago, Ill. 903,416, pub. 9–15–70. Cl. 22.
Brunswick Corp., Chicago, Ill. 521,592, ren. 12–1–70. Cl. 22.
Brunswick Corp., Chicago, Ill. 528,680, ren. 12–1–70. Cl. 22.
Builders Hardware Manufacturers Assn., New York, N.Y. 903,661, pub. 9–15–70. Cl. A.
Bunker Hill Co., The, Seattle, Wash. 778,101, canc. Cl. 21.
Burke Concrete Accessories, Inc., Burlingame, Calif. 903,348, pub. 9–15–70. Cl. 12.
Burlington Industries, Inc., New York, N.Y. 903,551, pub. 9–15–70. Cl. 42.
Burt, F. N., Co. Inc., Buffalo, N.Y. 903,280, pub. 9–15–70. Cl. 2.
Bushnell Optical Corp., Pasadena, Calif. 903,490, pub. 9–15–70. Cl. 26.
Butler National Corp., Minneapolis, Minn. 903,487, pub. 9–15–70. Cl. 26.
Buxbaum Co., The, Canton, Ohio. 778,601, canc. Cl. 50.
C & C Research Products, Inc., Philadelphia, Pa. 778,423, canc. Cl. 18.
CBS Films, Inc., New York, N.Y. 778,528, canc. Cl. 38.
California Lingerie, Inc., Los Angeles, Calif. 903,674. Cl. 39.
Calumet Abrasives Co., Inc., East Chicago, Ind. 530,932, ren. 12–1–70. Cl. 4.
Campbell, H. & F., Co., Inc., Indianapolis, Ind. 903,384, pub. 9–15–70. Cl. 18.
Canadian Pacific Railway Co., Montreal, Quebec, Canada. 903,620, pub. 9–15–70. Multiple Class (Classes 100, 104 and 105).
Carew Corp., York, Pa. 903,342, pub. 9–15–70. Cl. 12.
Carnation Co., Los Angeles, Calif. 35,072, ren. 12–1–70. Cl. 46.
Carou Corporation, New York, N.Y. 903,594, pub. 9–15–70. Cl. 52.
Carter, Marguerite, World Enterprises, Indianapolis, Ind. 903,506, pub. 9–15–70. Cl. 33.
Carter-Wallace, Inc., New York, N.Y. 903,601, pub. 9–15–70. Cl. 52.
Cartwright Enterprises, Inc., Delaplane, Va. 903,604, pub. 1–14–69. Cl. 100.
Cederroth, Christian Sten Sture, d.b.a. Cederroths Tekniska Fabrik AB, Stockholm-Vallingby, Sweden. 778,563, canc, Cl. 44.
Celanese Corp., New York, N.Y. 280,068, ren. 12–1–70. Cl. 43.
Center For The Gifted Child Inc., San Francisco, Calif. 778,466, canc. Cl. 22.
Central Screw Co., Broadview, Ill. 903,360, pub. 9–15–70. Cl. 13.
Central States Products Co., St. Louis, Mo. 903,264, pub. 9–15–70. Cl. 1.
Ceram-Dent, Inc., Phoenix, Ariz. 903,560, pub. 9–15–70. Cl. 44.
Certified Laboratories, Inc., Ft. Worth, Tex. 903,826–7, pub. 9–15–70. Cl. 6.

Chambers Corp., Cleburne, Tex. 523,269, ren. 12–1–70. Cl. 34.
Chambers Corp., Cleburne, Tex. 524,562–3, ren. 12–1–70. Cl. 34.
Chambliss, Hugh William, Brooksville, Fla. 778,577, canc. Cl. 46.
Champion Spark Plug Co., Toledo, Ohio. 903,399, pub. 9–15–70. Cl. 21.
Chef-Reddy Foods Corp., Othello, Wash. 903,678. Cl. 46.
Chemical Associates, Inc., Houston, Tex. 903,321, pub. 9–15–70. Cl. 6.
Chemogenics Division, Mobley Co., Inc., Kilgore, Tex. 903,652, pub. 9–15–70. Cl. 103.
Chemold Corp., Jamaica, N.Y. 903,441, pub. 9–15–70. Cl. 22.
Chemtronics Inc., Brooklyn, N.Y. 903,596, pub. 9–15–70. Cl. 52.
Chevron Chemical Co., San Francisco, Calif. 903,317, pub. 9–15–70. Cl. 6.
Chevway Corp., Chicago, Ill. 903,607, pub. 7–29–69. Multiple Class (Classes 100 and 101).
Chicag Province of the Society of Jesus, d.b.a. Loyola University Press, Chicago, Ill. 903,519, pub. 9–15–70. Cl. 38.
Chicago Dietetic Supply, Inc., La Grange, Ill. 903,675. Cl. 46.
Ciba Ltd., Basel, Switzerland. 903,297, pub. 9–15–70. Cl. 6.
Cimex Ltd., Orpington, Kent, England. 903,587, pub. 9–15–70. Cl. 50.
Cinderella Cleaners, Inc., Cincinnati, Ohio. 903,650, pub. 9–15–70. Multiple Class (Classes 103 and 105).
Citroleum Co., Miami, Fla. 903,589, pub. 9–15–70. Cl. 51.
Clinton Watch Co., Chicago, Ill. 531,333, ren. 12–1–70. Cl. 27.
Coca-Cola Co., The, Atlanta, Ga. 903,566, pub. 9–15–70. Cl. 45.
Colibri Lighters Ltd., London, England. 903,331, pub. 9–15–70. Cl. 8.
Colmac Industries, Inc., Colville, Wash. 903,484, pub. 9–15–70. Cl. 23.
Colprovia Roads, Inc., Rochester, N.Y. 531,357–8, ren. 12–1–70. Cl. 106.
Commodore Corp., The, Omaha, Nebr. 903,390, pub. 9–15–70. Cl. 19.
Computer Slim, Inc., Independence, Mo. 903,629, pub. 9–15–70. Cl. 100.
Conal Pharmaceuticals, Inc., Chicago, Ill. 903,374, pub. 9–15–70. Cl. 18.
Conard-Pyle Co., The, West Grove, Pa. 903,312, pub. 9–15–70. Multiple Class (Classes 6 and 10).
Conill Corp., from Continental Illinois National Bank & Trust Co. of Chicago, Chicago, Ill. 897,555, cor. Cl. 102.
Connolly Distributing Co., Baltimore, Md. 778,597, canc. Cl. 50.
Continella Textile Corp., New York, N.Y. 903,547, pub. 9–15–70. Cl. 42.
Continental Assurance Co., Chicago, Ill. 903,647, pub. 3–18–69. Cl. 102.
Continental Can Co., Inc., New York, N.Y. 444,143, 12(c) pub. 12–1–70. Cl. 37.
Continental Coatings Corp., New York, N.Y. 778,412, canc. Cl. 16.
Continental Gourmet, Inc., Los Angeles, Calif. 903,282, pub. 9–15–70. Cl. 2.
Contour Comfort Contact Lenses Inc., Waco, Tex. 778,497, canc. Cl. 26.
Cook, James W., and June H. Cook, Sarasota, Fla. 903,610, pub. 9–15–70. Cl. 100.
Cooper, William, and Nephews, Inc., Chicago, Ill. 903,562, pub. 9–15–70. Cl. 44.
Copymation, Inc., Elk Grove Village, Ill. 778,520, canc. Cl. 37.
Corn Belt Products Co., Inc., Omaha, Nebr. 778,407, canc. Cl. 15.
Creative Computers Corp., Chicago, Ill. 903,631, pub. 9–15–70. Cl. 100.
Crowell-Collier Educational Corp., New York, N.Y. 527,667, ren. 12–1–70. Cl. 38.
Crowell-Collier Educational Corp., New York, N.Y. 527,669, ren. 12–1–70. Cl. 38.
Crown Zellerbach Corp., San Francisco, Calif. 903,350, pub. 9–15–70. Cl. 12.
Crown Zellerbach Corp., San Francisco, Calif. 903,548, pub. 9–15–70. Cl. 42.
Cunningham, Robert D., Jr., Chicago, Ill. 778,631, canc. Cl. 101.
Curtis, Helene, Industries, Inc., Chicago, Ill. 778,615, canc. Cl. 51.
Cyprus Mines Corp., Rome, N.Y. 534,073, ren. 12–1–70. Cl. 6.
Dalt International Inc., Oradell, N.J. 903,575, pub. 9–15–70. Cl. 46.
Dart Industries Inc., from Rexall Drug & Chemical Co., d.b.a. The West Bend Co., Los Angeles, Calif. 903,394, pub. 9–15–70. Cl. 21.
Deblois Bros. Ltd., d.b.a. Deblois Likely Ltd., Charlottetown, Prince Edward Island, Canada. 537,512, ren. 12–1–70. Cl. 46.
Deeks, Inc., Salt Lake City, Utah. 903,419, pub. 9–15–70. Cl. 22.
Deering Milliken, Inc., New York, N.Y. 903,554–5, pub. 9–15–70. Cl. 42.
Delta Design, Inc., La Mesa, Calif. 903,492, pub. 9–15–70. Cl. 26.
Dependable Electric Mfg. Co. Inc., Brooklyn, N.Y. 903,398, pub. 9–15–70. Cl. 21.
Dette, Walter C., Roscoe, N.Y. 903,427, pub. 9–15–70. Cl. 22.
Diagraph-Bradley Industries, Inc., Herrin, Ill. 903,515, pub. 9–15–70. Cl. 37.
Diamond Laboratories, Inc., Des Moines, Iowa. 903,385, pub. 9–15–70. Cl. 18.
Diamond Shamrock Corp., Cleveland, Ohio. 903,354, pub. 9–15–70. Cl. 12.
Diaper Service Industry Association, The, d.b.a. National Baby Care Council, Philadelphia, Pa. 903,616–17, pub. 9–15–70. Cl. 100.
Disogrin Industries, Manchester, N.H. 903,266, pub. 9–15–70. Cl. 1.
Diversey Corp., The, Chicago, Ill. 536,460, ren. 12–1–70. Cl. 52.
Diversified Industries, Inc., Clayton, Mo. 903,363, pub. 9–15–70. Cl. 14.
Dixi Chem of Greenville, Inc., Greenville, S.C. 903,294, pub. 9–15–70. Multiple Class (Classes 6 and 18).
Dixon, Joseph, Crucible Co., The, Jersey City, N.J. 525,915, ren. 12–1–70. Cl. 37.
Dixon-Bartlett-Lambrecht, Inc., Baltimore, Md. 903,287, pub. 9–15–70. Cl. 3.
Dolphin, Inc., Anaheim, Calif. 903,426, pub. 9–15–70. Cl. 22.
Dominion Electric Corp., Mansfield, Ohio. 903,401, pub. 9–15–70. Cl. 21.
Donnelley, R. R., & Sons Co., Chicago, Ill. 903,645, pub. 9–15–70. Cl. 101.
Dorr-Oliver Inc., Stamford, Conn. 534,973, ren. 12–1–70. Cl. 31.
Double Springs Distillers, Inc., d.b.a. Greenbrier, Bardstown Distillery, Louisville, Ky. 903,584, pub. 9–15–70. Cl. 49.
Dow Chemical Co., The, Midland, Mich. 215,273, 12(c) pub. 12–1–70. Cl. 6.
Dow Chemical Co., The, Midland, Mich. 444,174, 12(c) pub. 12–1–70. Cl. 50.
Dow Corning Corp., Midland, Mich. 903,299, pub. 9–15–70. Cl. 6.
Duke Mfg. Co., St. Louis, Mo. 274,575, ren. 12–1–70. Cl. 13.
Duke Mfg. Co., St. Louis, Co. 275,715, ren. 12–1–70. Cl. 32.
Duke Mfg. Co., St. Louis, Mo. 534,532, ren. 12–1–70. Multiple Class (Classes 13, 21 and 32).
Duke Mfg. Co., St. Louis, Mo. 681,089, amen. Cl. 21.
Dunkin' Donuts Inc., Boston, Mass. 903,618, pub. 9–15–70. Cl. 100.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 279,257, ren. 12–1–70. Cl. 11.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 279,273, ren. 12–1–70. Cl. 16.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 903,662–6, pub. 9–15–70. Cl. A.
Durfee Fuels, Inc., Fall River, Mass. 530,965, ren. 12–1–70. Cl. 34.
Durham Duplex Razor Co. Ltd., Sheffield, England. 78,772, ren. 12–1–70. Cl. 28.
Durst, S. F., & Co., Inc., Philadelphia, Pa. 903,383, pub. 9–15–70. Cl. 18.
Dynamic Industrial Products Corp., Mount Vernon, N.Y. 537,816, ren. 12–1–70. Cl. 6.
E. E. Medicine Co., Greenville, S.C. 778,417, canc. Cl. 18.
Eagle Clothes, Inc., d.b.a. B&B Lorrys Stores, New York, N.Y. 903,288, pub. 9–15–70. Cl. 3.
Eagle Clothes, Inc. d.b.a. B&B Lorrys Stores, New York, N.Y. 903,501, pub. 9–15–70. Cl. 29.
Eastview Racquet Club, Inc., Demarkest, N.J. 778,453, canc. Cl. 22.
Economics Laboratory, Inc., St. Paul, Minn. 903,597, pub. 9–15–70. Cl. 52.
Economics Laboratory, Inc., St. Paul, Minn. 903,602, pub. 9–15–70. Cl. 52.
Educational Games, Inc., New York, N.Y. 903,430, pub. 9–15–70. Cl. 22.
Eldon Industries, Inc., Hawthorne, Calif. 903,434, pub. 9–15–70. Cl. 22.
Eldon Industries, Inc., Hawthorne, Calif. 903,442, pub. 9–15–70. Cl. 22.
Ellicon-National, Inc., Totawa, N.J. 536,754, ren. 12–1–70. Cl. 19.
Elliot, David J., & Son, Courtland, Calif. 275,587, ren. 12–1–70. Cl. 46.
Elliot, David J., & Son, Courtland, Calif. 530,137, ren. 12–1–70. Cl. 46.
Ely & Walker, Inc., Memphis, Tenn. 531,332, ren. 12–1–70. Cl. 42.
Engelhard Minerals & Chemicals Corp., Edison, N.J. 903,267, pub. 9–15–70. Cl. 1.
Entertainment Stamps Inc., New York, N.Y. 778,534, canc. Cl. 38.
Essential Chemicals Co., Merton, Wis. 536,529, ren. 12–1–70. Cl. 52.
Esser, T. C., Co., Milwaukee, Wis. 903,649, pub. 9–15–70. Cl. 103.
Essex International, Inc., Fort Wayne, Ind. 903,402–3, pub. 9–15–70. Cl. 21.
Essex Wire Corp., d.b.a. Precision Fittings, Inc., Fort Wayne, Ind. 778,397, canc. Cl. 13.
Euromarket Designs, Inc., Chicago, Ill. 778,351, canc. Cl. 2.
Evans, Robert B., d.b.a. M-B Co., New Holstein, Wis. 891,265, canc. Cl. 29.
Evans, Robert B., d.b.a. M-B Co., New Holstein, Wis. 894,082, canc. Cl. 23.
Evelyn Hat Co. Inc., Allston, Mass. 903,546, pub. 9–15–70. Cl. 40.
Excel-Mineral Co., Inc., d.b.a. Excel Mineral Co., Los Angeles, Calif. 903,338, pub. 9–15–70. Cl. 10.
Exotech Inc., Alexandria, Va. 778,457, canc. Cl. 22.
FMC Corp., San Jose, Calif. 778,472, canc. Cl. 23.
Fabrique d' Horlogerie de Fontaine- melon S.A., Fontainemelon, Neuchatel, Switzerland. 903,494, pub. 9–15–70. Cl. 27.
Fairco Drug, Inc., Knoxville, Tenn. 896,666, cor. Cl. 101.
Falcon Safety Products, Inc., Mountainside, N.J. 903,669. Cl. 23.
Falls Resources Corp., Jamaica, N.Y. 903,417, pub. 9–15–70. Cl. 22.

Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany. 778,381, canc. Cl. 6.
Farmland Industries, Inc., Kansas City, Mo. 903,414, pub. 9–15–70. Cl. 21.
Federal Marine Products, Inc., Farmingdale, N.Y. 903,440, pub. 9–15–70. Cl. 22.
Feeds, Inc., Tampa, Fla. 778,580, canc. Cl. 46.
Feldman Co., The, Los Angeles, Calif. 903,406, pub. 9–15–70. Cl. 21.
Fiber Industries, Inc., Charlotte, N.C. 903,271, pub. 9–15–70. Cl. 1.
Fiberite Corp., The, Winona, Minn. 77,208, canc. Cl. 7.
Field Enterprises, Inc., Chicago, Ill. 900,284, cor. Cl. 38.
Finkel Outdoor Products, Inc., Garfield, N.J., ren. 12–1–70. Cl. 41.
Fisher Cheese Co., Wapakoneta, Ohio. 903,567, pub. 6–10–69. Cl. 46.
Fitch Dustdown Co., The, Baltimore, Md. 903,593, pub. 9–15–70. Cl. 52.
Fitzgerald, Marks, Furniture Co., Birmingham, Ala. 903,505, pub. 9–15–70. Cl. 32.
Flangeklamp Corp., Buffalo, N.Y. 903,345, pub. 9–15–70. Cl. 12.
Flex-O-Kool, Sepulveda, Calif. 903,457, pub. 9–15–70. Cl. 23.
Flexoplate, Inc., Chicago, Ill. 778,596, canc. Cl. 50.
Foamat Foods, Corp., Corvallis, Oreg. 903,568, pub. 9–15–70. Cl. 46.
Formica Corp., Cincinnati, Ohio. 903,289, pub. 9–15–70. Cl. 4.
Forrest, Laurence E., d.b.a. L. E. Forrest's Diet Foods, Morganton, N.C. 778,593, canc. Cl. 46.
Fortis Uhren Ag., d.b.a. Fortis Watch Ltd. & Montreas Fortis S.A., Granchen, Switzerland. 903,495, pub. 9–15–70. Cl. 27.
Foster, Grant, Co., Inc., Leominster, Mass. 903,493, pub. 9–15–70. Cl. 26.
Fox, H., & Co., Inc., Brooklyn, N.Y. 533,083, ren. 12–1–70. Cl. 45.
Frabill Mfg. Co., Milwaukee, Wis. 903,429, pub. 9–15–70. Cl. 22.
Franklin Mint, Inc., The, Yeadon, Pa. 903,420, pub. 9–15–70. Cl. 22.
Freixas & Cia, S.A.I. & C., Buenos Aires, Argentina. 903,585, pub. 9–15–70. Cl. 49.
GAF Corp., New York, N.Y. 903,329, pub. 9–15–70. Cl. 6.
GCL Mercantile Corp., Hawthorne, N.J. 903,395, pub. 9–15–70. Cl. 21.
G.P.I., Franklin Lakes, N.J. 903,436, pub. 9–15–70. Cl. 22.
Gail Leather Products, Inc., New York, N.Y. 896,702, cor. Cl. 3.
Gallaher Ltd., Belfast, Northern Ireland. 530,969, ren. 12–1–70. Cl. 17.
Garden Centers, Inc., Nashville, Tenn. 903,608, pub. 9–15–70. Multiple Class (Classes 100 and 101).
Garrity, Paul, Stamford, Conn. 903,330, pub. 9–15–70. Cl. 8.
Gebr. Poensgen Gesellschaft mit beschrankter Haftung, Dusseldorf-Rath, Germany. 903,485, pub. 9–15–70. Cl. 24.
Geigy Chemical Corp., Ardsley, N.Y. 903,379, pub. 9–15–70. Cl. 18.
General Foods Corp., White Plains, N.Y. 778,584–7, canc. Cl. 46.
General International Industries, Inc., Oakbrook, Ill. 903,564, pub. 9–15–70. Cl. 44.
General Mills, Inc., Minneapolis, Minn. 534,855, ren. 12–1–70. Cl. 46.
General Motors Corp., Detroit, Mich. 778,486, canc. Cl. 24.
General Tire & Rubber Co., Akron, Ohio. 903,474, pub. 9–15–70. Cl. 23.
Genesco Inc., Nashville, Tenn. 277,007, ren. 12–1–70. Cl. 39.
Gibson Good Tools, Inc., Sidney, N.Y. 535,536, ren. 12–1–70. Cl. 13.
Gibson Greeting Cards, Inc., Cincinnati, Ohio. 903,364, pub. 9–15–70. Cl. 15.
Gillette Co., The, Boston, Mass. 903,483, pub. 9–15–70. Cl. 23.
Glasurit-Werke, N. Winkelmann Aktiengesellschaft, Hamburg, Germany. 625,216. Am. 7(d). Cl. 16.
Glasurit-Werke, M. Winkelmann Aktiengesellschaft, Hamburg, Germany. 631,175. Am. 7(d). Cl. 16.
Glaverbel, Societe Anonyme, Brussels, Belgium. 798,555. Am. 7(d). Cl. 33.
Glen Raven Mills, Inc., Glen Raven, N.C. 903,556, pub. 9–15–70. Cl. 43.
Global Van Lines, Inc., Anaheim, Calif. 903,656, pub. 9–15–70. Cl. 105.
Gold Leaf Pharmacal Co., Inc., Englewood, N.J. 903,375, pub. 9–15–70. Cl. 18.
Goldman Pressing Machine Corp., New York, N.Y. 531,493, ren. 12–1–70. Cl. 24.
Gordon's Turf Service, Chicago, Ill. 903,520, pub. 9–15–70. Cl. 38.
Gould Inc., Mendota Heights, Minn. 275,842, ren. 12–1–70. Cl. 21.
Goulston, George A., Co., Scituate, Mass. 903,315–16, pub. 9–15–70. Cl. 6.
Grace, W. R., & Co., New York, N.Y. 538,583, ren. 12–1–70. Cl. 6.
Grace, W. R., & Co., New York, N.Y. 903,595, pub. 9–15–70. Cl. 52.
Green Giant Co., Le Sueur, Minn. 531,720, ren. 12–1–70. Cl. 46.
Greene, Harry G., Chicago, Ill. 778,562, canc. Cl. 44.
Grinding Specialties Corp., Farmingdale, N.Y. 903,361, pub. 9–15–70. Cl. 14.
Guenther, C. H., & Son, Inc., d.b.a. Pioneer Flour Mills, San Antonio, Tex. 531,426, ren. 12–1–70. Cl. 46.
Gulf Distributing Co., Weslaco, Tex. 279,234, ren. 12–1–70. Cl. 46.
Gulf Oil Corp., Pittsburgh, Pa. 530,987, ren. 12–1–70. Cl. 6.
Gulf Oil Corp., Pittsburgh, Pa. 903,319, pub. 9–15–70. Cl. 6.
Gym Dandy, Inc., Bossier City, La. 899,584, cor. Cl. 22.
Haffenreffer & Co., Inc., Boston, Mass. 531,040, ren. 12–1–70. Cl. 46.
Hale-Halsell Co., Tulsa, Okla. 275,530, ren. 12–1–70. Cl. 46.
Hall, Robert, Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. 903,528, pub. 9–15–70. Cl. 39.
Hall, Robert, Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. 903,530, pub. 9–15–70. Cl. 39.
Hanover Development Corp., Chicago, Ill. 903,625, pub. 9–15–70. Cl. 100.
Harrelson Rubber Co., Asheboro, N.C. 903,509, pub. 9–15–70. Cl. 35.
Harris Calorific Co., The, Celveland, Ohio. 903,561, pub. 9–15–70. Cl. 44.
Harris-Intertype Corp., Cleveland, Ohio. 903,481, pub. 9–15–70. Cl. 23.
Harston, Gordon, Golden, Colo. 778,587, canc. Cl. 38.
Hedman Mfg. Corp., Culver City, Calif. 903,460, pub. 9–15–70. Cl. 23.
Henkel & Grosse, Pforzheim, Germany. 778,643, canc. Cl. 28.
Her Majesty Industries, Inc., from Her Majesty Underwear Co., Mauldin, S.C. 903,672. Cl. 39.
Her Majesty Underwear Co.: *See*—
Her Majesty Industries, Inc.
Henblein, Inc., Hartford, Conn. 903,569, pub. 9–15–70. Cl. 46.
Hi-Flex International Ltd., London, England. 903,510, pub. 9–15–70. Cl. 85.
Higgins, Forest W., and Richard B. Higgins, d.b.a. Jonah Club and Original Jonah Club, Warsaw, Ind. 903,613–14, pub. 9–15–70. Cl. 100.
Higgs, Homer, Associates, Inc., New York, N.Y. 778,567, canc. Cl. 44.
Hilton Meat Co., Brooklyn, N.Y. 903,572, pub. 9–15–70. Cl. 46.
Hodes, Alvin D., d.b.a. The M. A. Hodes Co., Chattanooga, Tenn. 534,398, ren. 12–1–70. Cl. 39.
Hoffman, M., & Co., Inc., Boston, Mass. 903,538, pub. 9–15–70. Cl. 39.
Hoffman Specialty Mfg. Corp., Indianapolis, Ind. 895,324, cor. Cl. 13.
Holex Inc., Hollister, Calif. 903,335–6, pub. 9–15–70. Multiple Class (Classes 9 and 100).
Hollis Engineering, Inc., Nashua, N.H. 903,461, pub. 9–15–70. Cl. 23.
Hollywood Needlecraft, Inc., Los Angeles, Calif. 903,531, pub. 9–15–70. Cl. 39.
Holophane Co., Inc., New York, N.Y. 537,302, ren. 12–1–70. Cl. 21.
Home Interiors & Gifts, Inc., Dallas, Tex. 903,355, pub. 9–15–70. Multiple Class (Classes 13, 30, 33, 34, 50 and 101).
Honorbilt Products, Inc., Philadelphia, Pa. 535,544, ren. 12–1–70. Cl. 32.
Hostels, Inc., The, Jackson Hole, Wyo. 903,611, pub. 9–15–70. Cl. 100.
Hotel Normandy, Inc., Minneapolis, Minn. 537,981, ren. 12–1–70. Cl. 46.
House of Games Corp. Ltd., Don Mills, Ontario, Canada. 903,424, pub. 9–15–70. Cl. 22.
House of Gold Cheese Co., Inc., Lena, Wis. 903,582, pub. 9–15–70. Cl. 46.
Hubbell, Harvey, Inc., Bridgeport, Conn. 903,359, pub. 9–15–70. Cl. 13.
Huddle House, Inc., Decatur, Ga. 903,628, pub. 9–15–70. Cl. 100.
Huge Co., Inc., The, St. Louis, Mo. 903,308, pub. 9–15–70. Cl. 6.
Humphrey Chemical Corp., Edgewood Arsenal, Md. 903,309, pub 9–15–70. Cl. 6.
Hydraulics Unlimited Mfg. Co., Eaton, Colo. 903,478, pub. 9–15–70. Cl. 23.
IMA Inventors Marketing of Canada Ltd., Toronto, Ontario, Canada. 903,418, pub. 9–15–70. Cl. 22.
I-T-E Imperial Corp., Philadelphia, Pa. 903,670. Cl. 26.
ITT General Controls Inc., Gleudale, Calif. 778,400, canc. Cl. 13.
Imperial Knife Associated Companies, Inc., Providence, R.I. 903,454, pub. 9–15–70. Cl. 23.
Imperial Knife Associated Co., Inc., Providence, R.I. 903,465–9, pub. 9–15–70. Cl. 28.
Independent Retailers Syndicate, Inc., New York, N.Y. 903,286, pub. 9–15–70. Cl. 3.
Industrial Biochemicals, Inc., Edison, N.J. 778,370, canc. Cl. 6.
Inland-Ryerson Construction Products Co., Milwaukee, Wis. 903,353, pub. 9–15–70. Cl. 12.
International Paint Co., Inc., New York, N.Y. 531,417, ren. 12–1–70. Cl. 16.
International Playtex Corp., New York, N.Y. 903,542, pub. 9–15–70. Cl. 39.
International Research & Development, Mattawan, Mich. 903,622, pub. 9–15–70. Cl. 100.
International Sales & Import Corp. N.V., Amsterdam, Netherlands. 903,366, pub. 9–15–70. Cl. 17.
James Gang, The, Cleveland, Ohio. 903,659, pub. 9–15–70. Cl. 107.
Jeffrey-Allen Industries, Inc., Chicago, Ill. 690,369, cor. Cl. 2.
Jeffrey, Galion, Inc., Columbus, Ohio. 529,821, ren. 12–1–70. Cl. 23.
Jett Mfg. Corp., Charlotte, N.C. 903,455, pub. 9–15–70. Cl. 23.
Johns-Manville Corp., New York, N.Y. 903,291–2, pub. 9–15–70. Cl. 5.
Johns-Manville Corp., New York, N.Y. 903,347, pub. 9–15–70. Cl. 12.
Johns-Manville Corp., New York, N.Y. 903,508, pub. 9–15–70. Cl. 35.

Johnson, Howard B., Viroqua, Wis. 903,339, pub. 9–15–70. Cl. 10.
Jonson, S. C., & Son, Inc., Racine, Wis. 903,325, pub. 9–15–70. Cl. 6.
Johnson, S. C., & Son, Inc., Racine, Wis. 903,667. Cl. 4.
Jud's Merchandising Corp., Van Nuys, Calif. 903,673. Cl. 39.
Jr. Food Stores, Inc., Panama City, Fla. 903,334, pub. 9–15–70. Cl. 9.
K & N Soft Pretzel Co., Norristown, Pa. 778,509, canc. Cl. 34.
Kahn, David, Inc., Deer Lake, Pa. 529,217, ren. 12–1–70. Cl. 37.
Kampf, Sidney S., d.b.a. Western Mfg. Jewelers, Los Angeles, Calif. 903,499, pub. 9–15–70. Cl. 28.
Kantrim, Desiree, West Hyattsville, Md. 903,550, pub. 9–15–70. Cl. 42.
Kastinger & Co. KG, Seewalchen am Attersee, Austria. 903,425, pub. 9–15–70. Cl. 22.
Kawecki Berylco Industries, Inc., Reading, Pa. 530,611, ren. 12–1–70. Cl. 14.
Keith, Ben E., Co., Fort Worth, Tex. 538,166, ren. 12–1–70. Cl. 46.
Kelling Nut Co., The, Chicago, Ill. 533,009, ren. 12–1–70. Cl. 32.
Keltron AG, Rumlang, Zurich, Switzerland. 903,313, pub. 9–15–70. Cl. 6.
Key Pharmaceuticals, Inc., Miami, Fla. 903,380, pub. 9–15–70. Cl. 18.
Keystone Consolidated Industries, Inc., Peoria, Ill. 903,358, pub. 9–15–70. Cl. 13.
K-Hill Signal Co., Inc., Uhrichsville, Ohio. 903,671. Cl. 26.
Kimberly-Clark Corp., Neenah, Wis. 903,284, pub. 9–15–70. Cl. 2.
Kimberly-Clark Corp., Neenah, Wis. 903,513, pub. 9–15–70. Cl. 37.
Kimberly-Clark Corp., Neenah, Wis. 903,516, pub. 9–15–70. Cl. 37.
Knit Products Corp., Belmont, N.C. 903,537, pub. 9–15–70. Cl. 39.
Lafayette Radio Electronics Corp., Jamaica, N.Y. 778,436, canc. Cl. 21.
Lansil Ltd., Lancaster, England. 903,529, pub. 9–15–70. Multiple Class (Classes 39, 42, and 43).
Larson Co., Inc., The, McLean, Va. 903,527, pub. 9–15–70. Cl. 39.
Latronics Corp., Latrobe, Pa. 778,404, canc. Cl. 14.
Lear Jet Corp., Wichita, Kans. 778,439, canc. Cl. 21.
Lee, H. D., Co., Inc., The, Shawnee Mission, Kans. 903,532, pub. 9–15–70. Cl. 39.
Lee Shy-Bell Schauble, Manteno, Ill. 903,276, pub. 9–15–70. Cl. 2.
Lehigh Trouser Co., Wilkes-Barre, Pa. 778,542, canc. Cl. 39.
Les Parfums de Dana, Inc., New York, N.Y. 537,065, ren. 12–1–70. Cl. 51.
Lever Bros. Co., New York, N.Y. 535,314, ren. 12–1–70. Cl. 52.
Lind, William, Co., Inc., New York, N.Y. 81,180, ren. 12–1–70. Cl. 42.
Lippincott & Margulies, Inc., New York, N.Y. 903,626, pub. 9–15–70. Multiple Class (Classes 100 and 101).
Lord Corp., Erie, Pa. 903,388, pub. 9–15–70. Cl. 19.
Lovable Co., The, Atlanta, Ga. 538,306, ren. 12–1–70. Cl. 39.
Lucta, S.A., Barcelona, Spain. 903,293, pub. 9–15–70. Multiple Class (Classes 6 and 46).
Lumin Chemical Co., Wilson, N.C. 778,371–2, canc. Cl. 6.
MacGregor, May, d.b.a. Ann Delafield Duffy-Mott Co., Inc., New York, N.Y. 603,115. Am. 7(d). Cl. 46.
Magazine Management Co., Inc., d.b.a. Marvel Comics Group, New York, N.Y. 903,658, pub. 9–15–70. Cl. 107.
Mallard Coach Corp., West Bend, Wis. 903,391, pub. 9–15–70. Cl. 19.
Manhattan Container Corp., Hazel Park, Mich. 778,348, canc. Cl. 2.
Manhattan Industries, Inc., New York, N.Y. 903,536, pub. 9–15–70. Cl. 39.
Maplex, S.A., Valencia, Spain. 903,343, pub. 9–15–70. Cl. 12.
Maradel Products, Inc., New York, N.Y. 778,614, canc. Cl. 51.
Marine Pollution Control Corp., Detroit, Mich. 903,615, pub. 9–15–70. Multiple Class (Classes 100 and 106).
Market Forge Co., Everett, Mass. 778,430, canc. Cl. 19.
Market Is Most* Ltd., The, New York, N.Y. 903,639, pub. 9–15–70. Cl. 101.
Markowitz & Friedman, Inc., Cleveland, Ohio. 778,502, canc. Cl. 28.
Markuze, Jehuda, d.b.a. M & J California Sportswear Mfg., Glendale, Calif. 778,547, canc. Cl. 39.
Marriott Corp., Washington, D.C. 903,633, pub. 9–15–70. Cl. 100.
Martin, Jean M., Paris, France. 522,667, ren. 12–1–70. Cl. 37.
Masanori Konaka, Tokyo, Japan. 903,295, pub. 9–15–70. Cl. 6.
Masanori Konaka, Tokyo, Japan. 903,300, pub. 9–15–70. Cl. 6.
Master Chemical Corp., Perrysburg, Ohio. 903,302, pub. 9–15–70. Cl. 6.
Mattel, Inc., Hawthorne, Calif. 903,432–3, pub. 9–15–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 903,445–52, pub. 9–15–70. Cl. 22.
Maytag Co., The, Newton, Iowa. 903,486, pub. 9–15–70. Cl. 24.
McConway & Torley Corp., Pittsburgh, Pa. 903,362, pub. 9–15–70. Cl. 14.
McCoy, Fred, & Co., Denver, Colo. 778,639, canc. Cl. 103.
McCulloch Corp., Los Angeles, Calif. 778,468, canc. Cl. 23.
McGraw-Edison Co., d.b.a. Bussmann Mfg. Co., Elgin, Ill. 537,287, ren. 12–1–70. Cl. 21.
Merrimaid Mfg. Co., Inc., Manchester, N.H. 903,535, pub. 9–15–70. Cl. 39.
Metallurgical International, Inc., New Shrewsbury, N.J. 903,263, pub. 9–15–70. Multiple Class (Classes 1 and 14).
Midland Mfg. Co., Inc., Electric Mills, Miss. 903,480, pub. 9–15–70. Cl. 23.
Midland-Ross Corp., Cleveland, Ohio. 903,475, pub. 9–15–70. Cl. 23.
Miller-Wohl Co., Inc., The, New York, N.Y. 903,641, pub. 9–15–70. Cl. 101.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 778,625, canc. Cl. 100.
Miracle Adhesives Corp., Bellmore, N.Y. 530,622, ren. 12–1–70. Cl. 15.
Mitsui Toatsu Chemicals, Inc., Tokyo, Japan. 903,270, pub. 9–15–70. Cl. 1.
Mobay Chemical Co., Pittsburgh, Pa. 778,529, canc. Cl. 38.
Moby Dick Car Washes, Inc., Franklin Park, Ill. 903,653, pub. 9–15–70. Cl. 103.
Mole-Richardson Co., Hollywood, Calif. 903,393, pub. 9–15–70. Cl. 21.
Monsieur Henri Wines, Ltd., Brooklyn, N.Y. 903,682. Cl. 47.
Montgomery, Marjorie, of California, Los Angeles, Calif. 903,524, pub. 9–15–70. Cl. 39.
Moon River Corp., Boston, Mass. 903,431, pub. 9–15–70. Cl. 22.
Morris, Philip, d.b.a. American Safety Razor Co., New York, N.Y. 903,471–2, pub. 9–15–70. Cl. 23.
Motive Suppliers, Inc., Philadelphia, Pa. 903,365, pub. 9–15–70. Cl. 15.
Murdock Corp., The, Chelsea, Mass. 903,400, pub. 9–15–70. Cl. 21.
Nashua Corp., Nashua, N.H. 532,662, ren. 12–1–70. Cl. 23.
National Bellas Hess, Inc., North Kansas City, Mo. 778,552, canc. Cl. 39.
National Biscuit Co., New York, N.Y. 903,677. Cl. 46.
National Jet Drill Co., Cumberland, Md. 444,100, 12(c) pub. 12–1–70. Cl. 23.
National Sonics Corp., Farmingdale, N.Y. 903,491, pub. 9–15–70. Cl. 26.
National Trade Industries, Inc., Houston, Tex. 903,651, pub. 9–15–70. Cl. 103.
Nattermann, A., & Cie. GmbH, Cologne, Braunsfeld, Germany. 903,376, pub. 9–15–70. Cl. 18.
New York Wire Co., York, Pa. 80,145, ren. 12–1–70. Cl. 13.
Nol Corp., Tokyo, Japan. 903,503, pub. 9–15–70. Cl. 32.
Noma-World Wide Inc., Chicago, Ill. 530,827, ren. 12–1–70. Cl. 21.
Nopco Chemical Co., Newark, N.J. 778,578, canc. Cl. 46.
Nor-Am Agricultural Products, Inc., Chicago, Ill. 903,307, pub. 9–15–70. Cl. 6.
Norcross, Inc., New York, N.Y. 903,521, pub. 9–15–70. Cl. 38.
Norwich Des. Corp., Norwich, N.Y. 778,437, canc. Cl. 21.
Nosler Bullets, Inc., Bend, Oreg. 903,332, pub. 9–15–70. Cl. 9.
Nutting Industries, Ltd., Milwaukee, Wis. 903,489, pub. 9–15–70. Cl. 26.
Ocean Pool Supply Co., Inc., Huntington Station, N.Y. 903,543–5, pub. 9–15–70. Cl. 39.
Ocean Spray Cranberries, Inc., Hanson, Mass. 903,583, pub. 9–15–70. Cl. 47.
Olleo, R., & Sons, Machine Corp., New York, N.Y. 903,476–7, pub. 9–15–70. Cl. 23.
Oneida Ltd., Oneida, N.Y. 903,456, pub. 9–15–70. Cl. 23.
Organon Inc., West Orange, N.J. 532,165, ren. 12–1–70. Cl. 18.
Original Toy Corp., Brooklyn, N.Y. 778,456, canc. Cl. 22.
Outdoor American Corp., Spokane, Wash. 778,524, canc. Cl. 38.
P.L.W., Inc., Kansas City, Mo. 903,525, pub. 9–15–70. Cl. 39.
Pancon Corp., Cincinnati, Ohio. 536,421, ren. 12–1–70. Cl. 12.
Paramed Inc., New York, N.Y. 903,512, pub. 9–15–70. Cl. 37.
Parke, Davis & Co., Detroit, Mich. 903,386, pub. 9–15–70. Cl. 18.
Parke, Davis & Co., Detroit, Mich. 903,565, pub. 9–15–70. Cl. 44.
Pasco, Inc., Lake Charles, La. 778,598, canc. Cl. 50.
Patterson, C. J., Co., Kansas City, Mo. 534,198, ren. 12–1–70. Cl. 46.
Paulucci, Jeno F., d.b.a. The Sentinal Co., Duluth, Minn. 903,369, pub. 9–15–70. Cl. 17.
Peachtree Doors, Inc., Atlanta, Ga. 903,349, pub. 9–15–70. Cl. 12.
Peck's Products Co., St. Louis, Mo. 778,619, canc. Cl. 52.
Peeler, Harvey Smith, d.b.a. Peeler's Dairy, Gaffney, S.C. 903,571, pub. 9–15–70. Cl. 46.
Penick & Ford, Ltd., Cedar Rapids, Iowa. 903,576, pub. 9–15–70. Cl. 46.
Peninsular Distributing Co., Detroit, Mich. 778,014, canc. Cl. 4.
Peninsular Distributing Co., Detroit, Mich. 778,311, canc. Cl. 52.
Pennwalt Corp., Philadelphia, Pa. 532,360, ren. 12–1–70. Cl. 23.
Penn-York Champion Co., Inc., Syracuse, N.Y. 903,518, pub. 9–15–70. Cl. 38.
Perfection Frocks, Inc., New York, N.Y. 903,533, pub. 9–15–70. Cl. 39.
Perkins, Dorothy, Cosmetics, Inc., St. Louis, Mo. 778,603–4, canc. Cl. 51.
Perkins, Dorothy, Cosmetics, Inc., St. Louis, Mo. 778,611–12. canc. Cl. 51.
Petroleum Energy Producing Corp., Chicago, Ill. 903,635, pub. 9–15–70. Multiple Class (Classes 101 and 103).
Phi Mu Alpha Sinfonia, Evansville, Ind. 903,660, pub. 9–15–70. Cl. 200.
Philadelphia Quartz Co., Philadelphia, Pa. 898,540, cor. (Multiple Class (Classes 6 and 52).
Picatape International, Inc., Oklahoma City, Okla. 903,643, pub. 9–15–70. Cl. 101.
Pierce Corp., River Falls, Wis. 903,397, pub. 9–15–70. Cl. 21.
Pierce Pre-Cooked Foods, Inc., Morefield, W. Va. 903,580, pub. 9–15–70. Cl. 46.

Pillsbury Co., The, Minneapolis, Minn. 903,581, pub. 9–15–70. Cl. 46.
Pincus Bros., Inc., Philadelphia, Pa. 536,871, ren. 12–1–70. Cl. 39.
Pittman Corp., The, Sellersville, Pa. 903,408, pub. 9–15–70. Cl. 21.
Pittman Products, Inc., d.b.a. Sportsways, Huntington Park, Calif. 903,428, pub. 9–15–70. Cl. 22.
Plee-Zing, Inc., Evanston, Ill. 275,382, ren. 12–1–70. Cl. 46.
Plough, Inc., Memphis, Tenn. 903,872, pub. 9–15–70. Cl. 18.
Plymouth Wholesale Corp., New York, N.Y. 903,539–40, pub. 9–15–70. Cl. 39.
Ply-O-Glas Co. of America, Inc., Great Neck, N.Y. 778,410, canc. Cl. 16.
Polyco, Inc., Englewood, Colo. 903,274, pub. 9–15–70. Cl. 2.
Portable Elevator Mfg., Co., Bloomington, Ill. 903,479, pub. 9–15–70. Cl. 23.
Portec, Inc., Oak Brook, Ill. 903,470, pub. 9–15–70. Cl. 23.
Pretty Products, Inc., Coshocton, Ohio. 529,467, ren. 12–1–70. Cl. 39.
Pretty Products, Inc., Coshocton, Ohio. 903,283, pub. 9–15–70. Cl. 2.
Proctor-Silex Inc., Philadelphia, Pa. 903,409, pub. 9–15–70. Cl. 21.
Progress Lithographing Co., The, Cincinnati, Ohio. 896,517, cor. Cl. 37.
Progressive Golf, Inc., Salem, Oreg. 903,423, pub. 9–15–70. Cl. 22.
Protex Industries, Inc., Denver, Colo. 903,322–3, pub. 9–15–70. Cl. 6.
Quaker Oats Co., The, Chicago, Ill. 903,680. Cl. 46.
Quigley Co., Inc., New York, N.Y. 801,895, 12(c) pub. 12–1–70. Cl. 12.
RCA Corp., New York, N.Y. 903,410–11, pub. 9–15–70. Cl. 21.
Racine, Jules, & Co., Inc., New York, N.Y. 903,496, pub. 9–15–70. Cl. 27.
Rainbow Crafts, Inc., Cincinnati, Ohio. 903,443, pub. 9–15–70. Cl. 22.
Ralston Purina Co., St. Louis, Mo. 526,803, ren. 12–1–70. Cl. 46.
Ralston Purina Co., St. Louis, Mo. 903,435, pub. 9–15–70. Cl. 22.
Ralston Purina Co., St. Louis, Mo. 903,600, pub. 9–15–70. Cl. 52.
Ralston Purina Co., St. Louis, Mo. 903,646, pub. 9–15–70. Cl. 101.
Ramon Fernandez-Canivell y Sanchez; Bernabe Fernandez-Canivell y Sanchez; Nieves Fernandez-Canivell y Sanchez; Jorge Gonzalez Fernandez-Canivell; and Blanca Gonzalez Fernandez-Canivell, Malaga, Spain. 270,446, ren. 12–1–70. Cl. 18.
Rayex Corp., Flushing, N.Y. 276,556, ren. 12–1–70. Cl. 26.
Rayonier Canada Sales Ltd., Vancouver, British Columbia, Canada. 903,273, pub. 9–15–70. Cl. 1.
Raytheon Mfg. Co. Raytheon Co., Lexington, Mass. 529,164. Am. 7(d). Cl. 26.
Red Comet Inc., Littleton, Colo. 537,538, ren. 12–1–70. Cl. 23.
Regan Bakeries, Inc., Minneapolis, Minn. 778,581, canc. Cl. 46.
Reliance National Life Insurance Co., Salt Lake City, Utah. 778,633, canc. Cl. 102.
Rembrandt's Paint Factory Catering Service, Inc., Houston, Tex. 903,623–4, pub. 9–15–70. Cl. 100.
Renofab Process Corp., Bronx, N.Y. 296,082, 12(c) pub. 12–1–70. Cl. 52.
Republic Corp., Century City, Calif. 903,279, pub. 9–15–70. Cl. 2.
Republic Powdered Metals, Brunswick, Ohio. 532,793, ren. 12–1–70. Cl. 16.
Research Products Co., Kansas City, Mo. 903,320, pub. 9–15–70. Cl. 6.
Revere Copper & Brass Inc., New York, N.Y. 279,265, ren. 12–1–70. Cl. 14.
Rice Council for Market Development, Houston, Tex. 903,630, pub. 9–15–70. Cl. 100.
Rich's, B., Sons, Inc., Washington, D.C. 903,285, pub. 9–15–70. Multiple Class (Classes 3 and 39).
Rigidized Metals Corp., Buffalo, N.Y. 531,254, ren. 12–1–70. Cl. 14.
Roach-Appleton Mfg. Co., South Bend, Ind. 903,413, pub. 9–15–70. Cl. 21.
Robert-Walters Corp., Chicago, Ill. 903,522, pub. 9–15–70. Cl. 39.
Rochester Germicide Co., Rochester, N.Y. 533,068, ren. 12–1–70. Cl. 52.
Rock-Ola Mfg. Corp., Chicago, Ill. 778,488, canc. Cl. 23.
Rockwell Mfg. Co., Pittsburgh, Pa. 275,269, ren. 12–1–70. Cl. 23.
Rodac Pneumatic Tools, Gardena, Calif. 903,459, pub. 9–15–70. Cl. 23.
Rohm & Haas Co., Philadelphia, Pa. 903,269, pub. 9–15–70. Cl. 1.
Rothmans of Pall Mall Ltd., Zurich, Switzerland. 903,370, pub. 9–15–70. Cl. 17.
Rubinstein, Helena, Inc., New York, N.Y. 884,301, canc. Cl. 51.
Rucker Pharmacal Co., Inc., Shreveport, La. 903,381–2, pub. 9–15–70. Cl. 18.
SCM Corp., New York, N.Y. 774,333. Am. 7(d). Multiple Class (Classes 6, 11, 26, 37, and 50).
SCM Corp., d.b.a. Durkee Famous Foods, Cleveland, Ohio. 903,577, pub. 9–15–70. Cl. 46.
Santiago, Bodegas Rioja, S.A., d.b.a. Rioja Santiago, S.A., Haro (Logrono), Spain. 903,681. Cl. 47.
Schering Aktiengesellschaft, Berlin, Germany. 903,311, pub. 9–15–70. Cl. 6.
Schieffelin & Co., New York, N.Y. 903,684. Cl. 49.
Schimmelpenninck Sigarenfabrieken v/h Geurts & Van Schuppen N.V., Wageningen, Netherlands. 903,367–8, pub. 9–15–70. Cl. 17.
Schneider, William S., d.b.a. The William Steven Co., Los Angeles, Calif. 778,347, canc. Cl. 2.
Schwarzer, Fritz, GmbH, Munich, Germany. 903,557–8, pub. 9–15–70. Cl. 44.
Scot's Inn Management Co., Columbus, Ohio. 903,627, pub. 9–15–70. Cl. 100.
Scott & Fetzer Co., The, Lakewood, Ohio. 535,654, ren. 12–1–70. Cl. 23.
Scott & Fetzer Co., The, Toledo, Ohio. 903,592, pub. 9–15–70. Cl. 52.
Scott, O. M., & Sons Co., The, Marysville, Ohio. 903,337, pub. 9–15–70. Cl. 10.
Seaboard Seed Co., Bristol, Ill. 903,619, pub. 9–15–70. Cl. 100.
Seibel, W., Mettmann, Rhineland, Germany. 903,357, pub. 9–15–70. Multiple Class (Classes 13, 28, and 28).
Sel-Rex Corp., Nutley, N.J. 903,303, pub. 9–15–70. Cl. 6.
Seymart Importing Co., Inc., Rockville Center, N.Y. 903,502, pub. 9–15–70. Cl. 30.
Shadur, La Vine ° Gallop, Inc., Encino, Calif. 903,648, pub. 9–15–70. Cl. 102.
Shell Oil Co., New York, N.Y. 778,380, canc. Cl. 6.
Shur-Nuff of Minneapolis, Inc., Minneapolis, Minn. 530,843, ren. 12–1–70. Cl. 50.
Sioux Honey Association Cooperative, Sioux City, Iowa. 785,705, cor. Cl. 46.
Sizzler Family Steak Houses, Los Angeles, Calif. 903,609, pub. 9–15–70. Cl. 100.
Ski-Media Ltd., New York, N.Y. 903,642, pub. 9–15–70. Cl. 101.
Smith & McLead Dental Laboratories, Inc., Cleveland, Ohio. 531,984, ren. 12–1–70. Cl. 44.
Smith, Miller & Patch, Inc., New Brunswick, N.J. 279,016, ren. 12–1–70. Cl. 51.
Snap Chemical Co., Chicago, Ill. 903,668. Cl. 4.
Societa' per Azioni E. Isolabella & Figlio, Milan, Italy. 442,316, 12(c) pub. 12–1–70. Cl. 49.
Societe Anonyme La Soie, Paris, France. 527,873, ren. 12–1–70. Cl. 22.
Sonia, Annette Rykiel, Paris, France. 903,590, pub. 9–15–70. Cl. 51.
Southern Auto Supply, Bakersfield, Calif. 903,305, pub. 9–15–70. Cl. 6.
Southern Pine Association, New Orleans, La. 384,495, canc. Cl. 12.
Soybean Research Foundation, Inc., Mason City, Ill. 903,268, pub. 9–15–70. Cl. 1.
Spalding, A. G., & Bros. Inc., Toledo, Ohio. 531,139, ren. 12–1–70. Cl. 22.
Sport Unlimited, Inc., Tucson, Ariz. 778,454, canc. Cl. 22.
Sports Aids, Inc., Huntington Park, Calif. 778,452, canc. Cl. 22.
Sports Industries, Inc.: *See*— Georges Beuchat
Stadler Packing Co., Inc., Columbus, Ind. 536,877, ren. 12–1–70. Cl. 46.
Staley, A. E., Mfg. Co., Decatur, Ill. 865,631, canc. Cl. 18.
Staley, A. E., Mfg. Co., Decatur, Ill. 903,318, pub. 9–15–70. Cl. 6.
Standard Oil Co., Flemington, N.J. 903,328, pub. 9–15–70. Cl. 6.
Standard Oil Co. of California, d.b.a. Signal Oil Co., Los Angeles, Calif. 778,533, canc. Cl. 38.
Steelcase, Inc., Grand Rapids, Mich. 534,526, ren. 12–1–70. Cl. 32.
Steelcote Mfg. Co., Saint Louis, Mo. 275,717, ren. 12–1–70. Cl. 12.
Stepan Chemical Co., Maywood, N.J. 531,552, ren. 12–1–70. Cl. 6.
Sterling Drug Inc., New York, N.Y. 903,290, pub. 9–15–70. Cl. 4.
Sterling Electronics Corp., Houston, Tex. 903,412, pub. 9–15–70. Cl. 21.
Storecast Corp. of America, New York, N.Y. 426,987, 12(c) pub. 12–1–70. Cl. 21.
Strawbridge & Clothier, Philadelphia, Pa. 903,640, pub. 9–15–70. Cl. 101.
Stuart, D. A., Oil Co., Ltd., Chicago, Ill. 903,298, pub. 9–15–70. Cl. 6.
Studebaker Corp., Muskegon, Mich. 903,462, pub. 9–15–70. Cl. 23.
Sucrest Corp., New York, N.Y. 903,578, pub. 9–15–70. Cl. 46.
Sullivan's of Liberty, Inc., Liberty, N.Y. 903,637, pub. 9–15–70. Cl. 101.
Sureway Service Corp., Los Angeles, Calif. 778,629, canc. Cl. 100.
Sunreco Chemical Co., Fresno, Calif. 903,324, pub. 9–15–70. Cl. 6.
Superior Continental Corp., Hickory, N.C. 903,396, pub. 9–15–70. Cl. 21.
Takeda Chemical Industries, Ltd., Osaka, Japan. 903,310, pub. 8–18–70. Cl. 6.
Takle Buket Corp., Waupum, Wis. 778,451, canc. Cl. 22.
Tamrax Inc., Chicago, Ill. 903,498, pub. 9–15–70. Cl. 28.
Technica-Guss G.m.b.H., Wurzburg, Germany. 903,473, pub. 9–15–70. Cl. 23.
Terteling, J. A., & Sons., Boise, Idaho. 903,605, pub. 9–1–70. Multiple Class (Classes 100, 101 and 103.
Testing Systems, Inc., Glenside, Pa. 903,301, pub. 9–15–70. Multiple Class (Classes 6 and 16).
Texan Drive-Ins Ltd., The, Vancouver, British Columbia, Canada. 903,603, pub. 9–15–70. Cl. 100.

Texize Chemicals, Inc., Greenville, S.C. 903,296, pub. 9–15–70. Multiple Class (Classes 6 and 52).
Textron Inc., Providence, R.I. 903,346, pub. 9–15–70. Cl. 12.
Tjaden, Wayne, d.b.a. Tjaden Wood Products, Grand Marais, Minn. 778,465, canc. Cl. 22.
Tom's Foods, Ltd., Minneapolis, Minn. 275,675, ren. 12–1–70. Cl. 46.
Tomy Kogyo Co., Ltd., Tokyo, Japan. 903,444, pub. 9–15–70. Cl. 22.
Topps Chewing Gum, Inc., Brooklyn, N.Y. 778,484, canc. Cl. 23.
Topps Chewing Gum, Inc., Brooklyn, N.Y. 903,573, pub. 9–15–70. Cl. 46.
Train-Aide Corp., Los Angeles, Calif. 903,517, pub. 9–15–70. Cl. 38.
Trio Mfg. Co., Griggsville, Ill. 903,586, pub. 9–15–70. Cl. 50.
Typographics Communications, Inc., New York, N.Y. 903,634, pub. 9–15–70. Multiple Class (Classes 101 and 106).
USM Corp., Boston, Mass. 903,272, pub. 9–15–70. Cl. 1.
USV Pharmaceutical Corp., New York, N.Y. 903,378, pub. 9–15–70. Cl. 18.
Uneeda Doll Co., Inc., Brooklyn, N.Y. 903,422, pub. 9–15–70. Cl. 22.
Unicare Health Services, Inc., Milwaukee, Wis. 903,632, pub. 9–15–70. Cl. 100.
Union Bag-Camp Paper, New York, N.Y. 778,414, canc. Cl. 16.
Union Oil Co. of California, Los Angeles, Calif. 250,807. Am. 7(d). Cl. 15.
Union Oil Co. of California, Los Angeles, Calif. 535,687, Am. 7(d). Cl. 15.
United Income Life Insurance Co., Ardmore, Okla. 778,636, canc. Cl. 102.
U.S. Astro Industries Corp., Lyons, Ill. 778,479, canc. Cl. 23.
United States Rubber Co., New York, N.Y. 903,507, pub. 5–24–66. Cl. 35.
United-Greenfield Corp., Chicago, Ill. 778,476, canc. Cl. 23.
Universal Business Machines, Inc., Columbia, S.C. 903,453, pub. 9–15–70. Cl. 23.
Universal Compounding Co., Akron, Ohio. 537,438, ren. 12–1–70. Cl. 44.
Upjohn Co., The, Kalamazoo, Mich. 649,604–5, canc. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 697,371, canc. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 719,570, canc. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 903,371, pub. 9–15–70. Cl. 18.
Upson Tools, Inc., Rochester, N.Y. 528,008, ren. 12–1–70. Cl. 28.
VB Creations, Inc., New York, N.Y. 903,500, pub. 9–15–70. Cl. 28.
Valley Fig Growers, Fresno, Calif. 531,150, ren. 12–1–70. Cl. 46.
Vanadium-Alloys Steel Co., Latrobe, Pa. 778,406, canc. Cl. 14.
Vanderbilt, R. T., Co., Inc., New York, N.Y. 903,306, pub. 9–15–70. Cl. 6.
Vega, Garcia y, Inc., New York, N.Y. 778,416, canc. Cl. 17.
Venus Esterbrook Corp., New York, N.Y. 903,514, pub. 9–15–70. Cl. 37.
Verbiscar, Anthony J., and Robert J. Licher, d.b.a. Sierra Madre Toy Co., Sierra Madre, Calif. 903,421, pub. 9–15–70. Cl. 22.
Victorian Electronics, Ltd., Peoria, Ill. 778,515, canc. Cl. 36.
Viggo AB, Halsingborg, Sweden. 903,559, pub. 9–15–70. Cl. 44.
Walgreen Laboratories, Inc., Chicago, Ill. 274,643, ren. 12–1–70. Cl. 18.
Ware, Gerard R., Jackson, Miss. 778,599, canc. Cl. 50.
Wayne-George Corp., Newton, Mass. 778,494, canc. Cl. 26.
Weiser Co., South Gate, Calif. 778,489–92, canc. Cl. 25.
Wellcome Foundation, Ltd., The, London, England. 778,422, canc. Cl. 18.
Wells Mfg. Corp., Fond Du Lac, Wis. 903,404, pub. 9–15–70. Cl. 21.
Wembley Industries, Inc., New Orleans, La. 903,534, pub. 9–15–70. Cl. 39.
West Bend Co., The: *See*— Dart Industries Inc.
Western Research Laboratories, Denver, Colo. 778,421, canc. Cl. 18.
Weyerhaeuser Co., Tacoma, Wash. 778,391, canc. Cl. 12.
White Stag Mfg. Co., Portland, Oreg. 903,523, pub. 9–15–70. Cl. 39.
White Tower Management Corp., Stamford, Conn. 527,590, ren. 12–1–70. Cl. 100.
Wieboldt Stores, Inc., Chicago, Ill. 586,940, ren. 12–1–70. Cl. 39.
Wilcox & Gibbs Sewing Machine Co., New York, N.Y. 778,442, canc. Cl. 21.
Wilcox & Gibbs Sewing Machine Co., New York, N.Y. 778,441, canc. Cl. 21.
Williams, J. B., Co., Inc., The, New York, N.Y. 444,219, ren. 12–1–70. Cl. 51.
Williams, Summer, Inc., East Boston, Mass. 903,314, pub. 9–15–70. Multiple Class (Classes 6 and 50).
Wilmsen, B., Inc., Philadelphia, Pa. 778,602, canc. Cl. 50.
Wilson Bohannan Co., The, Marion, Ohio. 531,990, ren. 12–1–70. Cl. 25.
Wohl Shoe Co., St. Louis, Mo. 903,638, pub. 9–15–70. Cl. 101.
Wolverine Industries, Inc., Grand Rapids, Mich. 533,338, ren. 12–1–70. Cl. 13.
Wolverine Industries, Inc., Grand Rapids, Mich. 535,938, ren. 12–1–70. Cl. 13.
Wright Way Products, Inc., Houston, Tex. 903,356, pub. 9–15–70. Cl. 13.
Wyandotte Chemicals Corp., Wyandotte, Mich. 903,599, pub. 9–15–70. Cl. 52.
Zayre Corp., Natick, Mass. 903,657, pub. 9–15–70. Cl. 100.
Zenith Radio Corp., Chicago, Ill. 903,405, pub. 9–15–70. Cl. 21.

U.S. GOVERNMENT PRINTING OFFICE: 0—1970

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 8, 1970 Volume 881 Number 2

PATENTS
NOTICES

Board of Appeals Decisions Rendered in the Month of October 1970

Examiner affirmed	119
Examiner affirmed in part	9
Examiner reversed	21
Total	149

Dedication

2,875,722.—*Lloyd P. Post*, Fond du Lac, Wis. OUTBOARD MOTOR REMOTE STEERING CONTROL. Patent dated Mar. 3, 1959. Dedication filed Oct. 30, 1970, by the assignee, *Brunswick Corporation*.

Hereby dedicates the entire remaining term of said patent to the Public.

Certificates of Correction for the Issue of Dec. 8, 1970

Re. 26,713	3,496,275	3,519,995	3,529,883
D. 216,688	3,498,411	3,520,416	3,530,060
D. 217,522	3,499,008	3,522,227	3,530,069
3,130,918	3,499,355	3,523,155	3,530,081
3,197,413	3,499,449	3,524,172	3,530,334
3,256,597	3,499,454	3,524,478	3,530,357
3,332,932	3,499,867	3,524,577	3,530,451
3,350,324	3,499,909	3,524,685	3,530,568
3,409,650	3,500,419	3,525,463	3,530,635
3,415,561	3,500,638	3,525,500	3,530,688
3,426,014	3,502,065	3,525,697	3,530,716
3,431,089	3,502,195	3,526,191	3,531,171
3,442,222	3,502,772	3,526,228	3,531,197
3,454,415	3,502,863	3,526,245	3,531,251
3,454,629	3,503,124	3,526,499	3,531,274
3,455,694	3,503,344	3,526,633	3,531,491
3,455,837	3,504,107	3,527,126	3,531,499
3,458,483	3,504,164	3,527,513	3,531,733
3,465,696	3,504,336	3,527,663	3,531,848
3,469,596	3,507,765	3,527,927	3,532,258
3,474,034	3,508,964	3,527,940	3,532,295
3,474,154	3,509,762	3,528,057	3,532,296
3,484,405	3,511,783	3,528,227	3,532,372
3,484,988	3,511,863	3,528,334	3,532,401
3,489,679	3,513,236	3,528,636	3,532,415
3,489,898	3,514,839	3,528,897	3,532,661
3,490,091	3,515,725	3,529,386	3,532,677
3,490,745	3,517,887	3,529,516	3,532,749
3,491,352	3,518,175	3,529,541	3,532,913
3,493,525	3,518,184	3,529,665	3,533,177
3,495,968	3,518,537	3,529,667	3,533,545
3,496,033	3,519,367	3,529,695	3,533,825

Service by Publication

Peter N. G. Murdock

In accordance with Rule 47(b) of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on March 14, 1968, of an application for patent entitled "Pig Figure For Playground Apparatus," on behalf of Peter N. G. Murdoch, whose last known address is 257 East 72nd Street, New York, New York. The application was made in compliance with Rule 47(b) and 35 U.S.C. 118 by Creative Parks and Playgrounds Inc. without execution by the said Peter N. G. Murdoch. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Peter N. G. Murdoch in connection with the said application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Howard I. Freeman

In accordance with Rule 47 of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on January 28, 1969, of an application for patent entitled "Process for Melt Spinning Polyoxymethylene Filaments Having Elastic Recovery," on behalf of Howard I. Freeman, whose last known address is 34 Livingston Road, Sharon, Massachusetts. The application was made in compliance with Rule 47(a) and 35 U.S.C. 116 by Myron J. Coplan and Joseph S. Panto without execution by the said Howard I. Freeman.

Any action to be taken by the said Howard I. Freeman in connection with the said application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Disclaimers

2,927,918.—*Arthur W. Anderson*, Midland, Mich. HYDROXYPROPYLATION OF HYDROXY COMPOUNDS. Patent dated Mar. 8, 1960. Disclaimer filed Oct. 30, 1970, by the assignee, *The Dow Chemical Company*.

Hereby enters this disclaimer to claims 1, 2, 8 and 10 of said patent.

New Applications Received During August 1970

Patents	8337
Designs	532
Plant Patents	5
Reissues	33
Total	8907

Issue—December 8, 1970

Patents	1700	No. 3,545,008 to No. 3,546,707, incl.
Designs	59	No. 219,360 to No. 219,418, incl.
Plant Patents	3	No. 3,008 to No. 3,010, incl.
Reissues	5	No. 26,996 to No. 27,000, incl.
Total	1767	

2,933,558.—*Donald Richman*, Fresh Meadows, N.Y. NOISE-IMMUNE SYNCHRONIZING-SIGNAL SEPARATOR FOR TELEVISION RECEIVERS. Patent dated Apr. 19, 1960. Disclaimer filed May 27, 1970, by the assignee, *Hazeltine Research Inc.*

Hereby enters this disclaimer to claim 3 of said patent.

2,993,527.—*Henry W. Moser*, Haddonfield, N.J., *Stephen J. Koniers*, Philadelphia, Pa., and *Edward B. Seeger*, Haddonfield, N.J. DOUBLE FACER MACHINES. Patent dated July 25, 1961. Disclaimer filed Aug. 10, 1970, by the assignee, *Harris-Intertype Corporation.*

Hereby enters this disclaimer to claims 1–4, 8, 9 and 13 of said patent.

3,084,061.—*Richard Harrison Hall*, Rochester, N.Y. METHOD FOR FORMULATION OF ELECTROSTATIC IMAGE. Patent dated Apr. 2, 1963. Disclaimer filed Aug. 20, 1970, by the assignee, *Xerox Corporation.*

Hereby enters this disclaimer to claim 11 of said patent.

3,123,993.—*George W. Cressman*, Chagrin Falls, and *Louis A. Demchock, Jr.*, Cleveland, Ohio. FLASH LAMP. Patent dated Mar. 10, 1964. Disclaimer filed Aug. 21, 1970, by the assignee, *General Electric Company.*

Hereby enters this disclaimer to all the claims of said patent.

3,338,509.—*Herbert A. McAninch*, Auburn, Ind. COMPRESSORS. Patent dated Aug. 20, 1967. Disclaimer filed Aug. 5, 1970, by the assignee, *Borg-Warner Corporation.*

Hereby enters this disclaimer to claims 1, 3, 4, 6, 7 and 8 of said patent.

3,339,707.—*Carl Ludwig*, Cleveland, Ohio. MATERIAL HANDLING APPARATUS. Patent dated Sept. 5, 1967. Disclaimer filed Oct. 16, 1970, by the assignee, *McDowell-Wellman Engineering Company.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

3,432,784.—*George A. Kim*, Chicago, Ill. MAGNETIC ACTUATOR AND LATCH. Patent dated Mar. 11, 1969. Disclaimer filed Apr. 9, 1970, by the assignee, *Teletype Corporation.*

Hereby enters this disclaimer to claim 11 of said patent.

3,437,201.—*Merle D. Tyler* and *Robert W. Bonnema*, Denver, and *Archie H. Higgins*, Arvada, Colo. CODED CARD READING AND SELECTING APPARATUS. Patent dated Apr. 8, 1969. Disclaimer filed Nov. 3, 1970, by the assignee, *Uptime Corporation.*

Hereby enters this disclaimer to claims 1, 2, 7, 8, 17, 18, 19 and 20 of said patent.

3,483,127.—*Julius Benko*, Quebec, Quebec, Canada. NITROGEN-CONTAINING ALDONIC ACID COMPOSITION AND PROCESS OF PRODUCTION. Patent dated Dec. 9, 1969. Disclaimer filed Aug. 13, 1970, by the assignee, *Dryden Chemicals Limited.*

Hereby enters this disclaimer to claims 1, 2, 3, 4 and 11 of said patent.

3,483,890.—*Dorrance Oldenburg*, Peoria, *James E. Scheidt*, Joliet, and *Donald L. Shook*, East Peoria, Ill. MULTI-SPOOL CONTROL VALVE WITH LIMITED SERIES OPERATION. Patent dated Dec. 16, 1969. Disclaimer filed Aug. 20, 1970, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,484,078.—*Norman H. Haenky*, Tulsa, Okla. VALVE. Patent dated Dec. 16, 1969. Disclaimer filed May 12, 1970, by the assignee, *FWI, Inc.*

Hereby disclaims the terminal portion of the term of the patent subsequent to May 30, 1984.

3,492,744.—*Louis E. Bernier*, Rockland, and *James P. Giblin*, Milton, Mass. GOLF SHOE AND BOTTOM THEREFOR. Patent dated Feb. 3, 1970. Disclaimer filed Apr. 30, 1970, by the assignee, *E. T. Wright & Co., Inc.*

Hereby enters this disclaimer to claims 1, 7, 8 and 16 of said patent.

3,494,413.—*Don P. Dixon*, San Antonio, Tex. AUTOMOBILE AIR-CONDITIONING SYSTEM. Patent dated Feb. 10, 1970. Disclaimer filed Aug. 3, 1970, by the inventor.

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,494,540.—*Don P. Dixon*, San Antonio, Tex. AUTOMOBILE AIR CONDITIONING SYSTEM. Patent dated Feb. 10, 1970. Disclaimer filed Aug. 3, 1970, by the inventor.

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,509,936.—*Joseph B. Kearfott*, Lincoln Park, and *Charles E. Baer, Jr.*, Birmingham, Mich. COATED ARTICLES AND METHOD OF REDUCING THE EROSION OF INGOT MOLD STOOLS. Patent dated May 5, 1970. Disclaimer filed Aug. 28, 1970, by the assignee, *Nalco Chemical Company.*

Hereby disclaims the terminal portion of the term of the patent subsequent to May 25, 1982.

3,516,044.—*James W. Barnes*, Drexel Hill, and *Rexford W. Van De Boe*, Broomall, Pa. CARRIER FOR TRANSISTOR OUTLINE SEMICONDUCTOR DEVICE. Patent dated June 2, 1970. Disclaimer filed Aug. 7, 1970, by the assignee, *Barnes Corporation.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF NOVEMBER 17, 1970

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-19-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—L. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	12-23-68
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	7-15-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-09-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-17-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	1-02-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-29-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-24-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	8-20-69
PHYSICS, GROUP 260—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	5-29-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	2-09-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-05-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	5-22-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	6-06-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	11-06-69
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	9-18-69

Total number of pending applications (excluding Designs)	183,677
Total number of Design applications pending	2,973

Expiration of patents: The patents within the range of numbers indicated below expire during November 1970, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 82nd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,660,723 to 2,664,561, inclusive
Plant Patents	Numbers 1,232 to 1,237, inclusive

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

DAVID W. PIEL, DECEASED, BY TILLIE MARGARET PIEL, EXECUTRIX
v.
EUGENE H. FALKNER

No. 8273. Decided May 28, 1970

[57 CCPA —; 426 F.2d 412; 165 USPQ 708]

1. APPEAL TO U.S. COURT OF CUSTOMS AND PATENT APPEALS—JURISDICTION—INTERFERENCE—ADMISSIBILITY OF EVIDENCE—35 U.S.C. 141.

Upon considering the issue whether the Board of Patent Interferences properly denied appellant's motion for judgment urging that testimony for appellee "be stricken for various reasons," *Held* that "a preliminary issue, raised in appellee's brief, is whether the aforestated question is so related to the question of priority as to be within this court's jurisdiction to review under 35 U.S.C. 141"; and that "We have decided that it is".

2. INTERFERENCE—NOTICE OF EXAMINATION OF WITNESSES—RULE 273.

"There can be no doubt that Falkner's notice, in failing to state the time of the taking of testimony or the addresses of the witnesses, did not comply with * * * rule [273]. His opposition paper to the Motion to Strike Notice of Taking Testimony, which did not identify the witnesses by address, but did give the room number and hour, was too late and inadequate to operate as a cure, making his Notice of Taking Testimony fatally defective. At this point Falkner should have perfected a new notice to take testimony."

3. SAME—SAME—SAME—35 U.S.C. 23.

"Congress, by 35 U.S.C. 23, gave the Commissioner authority to establish Patent Office Rule 273. Patent Office Rules, when not inconsistent with the statutes from which they are derived, have the effect of law. * * * The requirement of Rule 273 of the Patent Office that the *time* when and the *place* where the deposition will be taken and the *address* of *each witness* to be examined be given in writing to the opposing party is not without purpose. * * * We feel that the appellant was entitled to be notified of the time and place of the taking of deposition and addresses of witnesses to be examined and that, under the circumstances of this case, the provisions of Rule 273 should be strictly construed."

4. SAME—SAME—SAME.

"The Board of Patent Interferences, in denying Piel's motion [urging that Falkner's testimony be stricken because of a defective notice], indicated that it felt that Piel had waived any rights she had under Rule 273 by not filing the motion with 'reasonable promptness.' While we do not attempt to justify or condone the wait of more than three months [to file the motion after Falkner's testimony was filed], we must disagree with the implication that Piel lost his rights thereby. * * * By her timely objection to the defective notice, she had fully complied with the rules. Her right to object to the use of the disputed testimony was then fully established."

APPEAL from Patent Office. Interference No. 95,198.

REVERSED AND REMANDED.

Charles W. Coffee, for appellant.

Donald L. Dennison, Dennison and Dennison for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FORD, *Judge*, United States Customs Court, sitting by designation

BALDWIN, *J.*, delivered the opinion of the court.

This is an appeal from the decision of the Board of Patent Interferences, adhered to on reconsideration, awarding priority in Interference No. 95,198 to Eugene H. Falkner, appellee and junior party.

The single count of the interference corresponds to claim 2 of appellant Piel's patent[1] which was copied and added to Falkner's application[2] by amendment. The invention of the count relates to a closure for a freeze or expansion plug in the block of an internal combustion engine. Since it is not pertinent to the issues here, it will not be further described.

The issue here is whether the Board properly denied a motion for judgment filed by appellant, David W. Piel, decreased, by Tillie Margaret Piel, executrix, urging that the testimony for Falkner be striken for various reasons and Falkner restricted to his filing date.[3]

[1] A preliminary issue, raised in appellee's brief, is whether the aforestated question is so related to the question of priority as to be within this court's jurisdiction to review under 35 U.S.C. 141. We have decided that it is. Such a question is directly related to the admissibility of the evidence upon which the award of priority was granted. It would be absurd to hold that this court has the authority to review the evidence, including the weight to be accorded it, under the established rules regarding evidence, yet does not have the authority to decide whether such evidence was properly admitted.[4]

The facts before the court, many of which are stipulated, are the following:

On August 15, 1966, Falkner, appellee, mailed Piel, appellant, the following notice:

NOTICE OF TAKING TESTIMONY

In the above entitled Interference you are notified that the party Eugene H. Falkner will proceed to take testimony in chief on Thursday, August 25, 1966, at 523 Ocean Center Building, Long Beach, California. The witnesses will include Eugene H. Falkner, Eugene H. Falkner, Jr., Robert D. Falkner, Harold G. Miller, and others. Testimony will continue from day to day until completed.

On August 20, 1966, Piel filed in the Patent Office his objection to the Notice of Taking Testimony, alleging that it was defective in failing to set out the place (room number), the time (hour), and the identity (by address) of the witnesses, and moving that the notice be stricken.

On August 23, 1966, Falkner sent his opposition to the Motion to Strike Notice of Taking Testimony, which paper did recite the room number and hour at which the depositions were to be taken, but did not supply the missing addresses of the witnesses.[5]

Piel's attorney received the opposition paper on the afternoon of August 24, 1966. He determined that he did not have adequate time to travel from his office at Lubbock, Texas, to Long Beach, California, secure the necessary rest and be at the examination of witnesses by the specified hour of 10:00 a.m., August 25, 1966.

The testimony of the witnesses was taken at the specified time and place and Piel's attorney did not attend.

---

[1] U.S. Patent 3,175,727, issued Mar. 30, 1965, on a continuation of an application which was filed Apr. 28, 1961.

[2] Serial No. 201,588, filed June 11, 1962.

[3] As a result of the denial of that motion, consideration of which had been deferred to final hearing, the Board considered the testimony and found it to prove an actual reduction to practice by Falkner prior to Piel's entry into the field. Piel does not at this time contest the award of priority on the merits of that testimony.

[4] Cf. *Land v. Regan*, 52 CCPA 1048, 342 F.2d 92, 144 USPQ 661 (1965), where the court decided that the Board was in error in granting a motion to strike testimony and went on to consider such testimony in reversing the Board on the question of priority.

[5] The Patent Office Interference Examiner, in a letter dated Sept. 9, 1966, acknowledged receipt of Piel's objection to the notice but stated that no action could be taken on the motion to strike the notice "since the Office has no authority to supervise the taking of testimony." The Interference Examiner's further comments at this point bear repeating:

> If in fact testimony is improperly taken in this case Piel is not without a remedy, since *a timely motion to strike any such testimony* may be made at the appropriate time and *will be entertained when the testimony is filed.* [Emphasis ours].

On September 12, 1966, Piel's attorney was notified that the testimony of Falkner's witnesses had been filed. On September 19, 1966, the designated time for Falkner to take testimony expired.

The record indicates that Piel's attorney did nothing further concerning the disputed testimony until December 23, 1966, when he filed a motion for judgment urging that the testimony should be stricken, thus to restrict Falkner to his filing date. This motion was based primarily on the assertion that Falkner's original notice of taking the testimony was defective and this defect was not cured by the subsequent paper. The Board, in its decision, denied the motion and, considering the disputed testimony, awarded priority to the appellee, Falkner.

Patent Office Rule 273 states:

> Before the depositions of witnesses shall be taken by a party, due notice in writing shall be given the opposing party or parties, as provided in Rule 248, of the time when and the place where the deposition will be taken of the cause or matter in which they are used, and the name and address of each witness to be examined.

[2] There can be no doubt that Falkner's notice, in failing to state the time of the taking of testimony or the addresses of the witnesses, did not comply with this rule. His opposition paper to the Motion to Strike Notice of Taking Testimony, which did not identify the witnesses by address, but did give the room number and hour, was too late and inadequate to operate as a cure, making his Notice of Taking Testimony fatally defective. At this point Falkner should have perfected a new notice to take testimony. He chose not to do so.

[3] Congress, by 35 U.S.C. 23, gave the Commissioner authority to establish Patent Office Rule 273. Patent Office Rules, when not inconsistent with the statutes from which they are derived, have the effect of law. *In re Newton*, 56 CCPA 1463, 414 F.2d 1400, 163 USPQ 234 (1969); *Land* v. *Dreyer*, 33 CCPA 1108, 155 F.2d 383, 69 USPQ 602 (1946). The requirement of Rule 273 of the Patent Office that the *time* when and the *place* where the deposition will be taken and the *address* of *each witness* to be examined be given in writing to the opposing party is not without purpose. An opposing party should be provided adequate information as to time and place in order that he be available to confront his opponent's witnesses. The identity of the witnesses to be examined should be known, other than by mere name, in order that the opposing party might have the opportunity to confront them with preparation as to character, credibility, and qualification. We feel that the appellant was entitled to be notified of the time and place of the taking of deposition and addresses of witnesses to be examined and that, under the circumstances of this case, the provisions of Rule 273 should be strictly construed.

The language of Rule 273 quoted earlier is substantially the same as that of Rule 30(a) of the Federal Rules of Civil Procedure. The courts, in interpreting the requirements of that rule, have generally been stringent. See, e.g., *Mims* v. *Central Mfrs. Mutual Ins. Co.*, 178 F.2d 56 (5th Cir. 1949); *Struthers Scientific & Int'l Corp.* v. *General Foods Corp.*, 290 F.S. 122 (S.D. Tex. 1968); *Killian* v. *Stackpole Sons*, 98 F.S. 500 (M.D. Pa. 1951); *Associated Transport, Inc.* v. *Riss & Co.*, 8 FRD 99 (N.D. Ohio 1948). As the judge in the latter case stated: "It is not too much to expect parties to meet the formal requirements set out in the Federal Rules." When a notice under Rule 30(a) has been found defective, the effect has been to prevent the use of the testimony for any evidentiary purpose. *Mims* v. *Central Mfrs. Mutual Ins. Co.*, supra. Failure to comply with Patent Office Rule 273 must be treated no differently.

[4] The Board of Patent Interferences, in denying Piel's motion, indicated that it felt that Piel had waived any rights she had under Rule 273 by not filing the motion with "reasonable promptness." While we do not attempt to justify or condone the wait of more than three months, we must disagree with the implication that Piel lost his rights thereby. In the first place, Falkner's time for taking testimony had almost expired when Piel's attorney was notified that the testimony had been filed. Any action by Piel probably would not have prevented the necessity of reopening that testimony period. Falkner had been notified the Piel considered his notice deficient. Thus, whether Piel waited three days or three months, Falkner was in no way damaged. In the second place, we feel that Piel was under no burden to cure Falkner's defects by some positive action of her own. By her timely objection to the defective notice, she had fully complied with the rules. Her right to object to the use of the disputed testimony was then fully established. Compare 4 J. Moore Federal Practice ¶30.03[11] (2d ed. 1953).

We recognize that Piel is not without some responsibility for the matter of the admissibility of the Falkner depositions still being in issue at this late stage of the proceedings. Nevertheless we are reluctant to hold that Piel is sufficiently at fault to be deprived of the right to object to the defects in Falkner's notice. We therefore hold that the Board of Patent Interferences was in error to the extent that it failed to strike the depositions of Falkner. [6] However, the circumstances require that the interference be reopened to provide Falkner with an opportunity to retake his depositions upon proper notice in accordance with Rule 273 before any award of priority is made. Cf., *Clayton Chemical & Packaging Co.* v. *United States*, 383 U.S. 821 (1966). The Board's decision is reversed and the cause remanded for further proceedings not inconsistent with this opinion.

REVERSED AND REMANDED.

[6] We see no reason, either in law or in logic, why the Board could not have ignored Piel's request that judgment be granted in her favor and treated the motion simply as one to strike the testimony. While such action would have the immediate effect of leaving Falkner with no case, it would leave open the possibility of his filing a motion to reopen the interference for the taking of new testimony.

U.S. Court of Customs and Patent Appeals

IN RE ROSS E. VAN DYKE

No. 8325. Decided June 11, 1970

[57 CCPA —; 427 F.2d 817; 166 USPQ 27]

1. PATENTABILITY—COMBINING REFERENCES—OBVIOUSNESS—COMPARATIVE TESTS.

"Appellant's affidavit showed that tungsten, one of the Group VI–B metals [disclosed by the primary reference patent to Connolly], was taken up by the hydrogel only to the extent of 2% of the available tungsten in solution, whereas his specification states that uptake of nickel, for example, was about 80–85%. * * * this possible increased activity of the Group VIII metals does not detract from the fact that the use of Group VIII [as well as Group VI–B] was suggested by the prior art [secondary reference patent to Hansford]. We are not dealing here with a situation wherein the prior art suggestion was very broad as to suitable metals. The Hansford reference suggests the use of Group VIII metals or their oxides or sulfides. To select nickel from this group, as required by claims 7, 12 and 13, is not rendered unobvious by proof that nickel is superior in one respect to one of the metals disclosed by Connolly."

2. SAME—PARTICULAR SUBJECT MATTER—"PROCESS AND CATALYST FOR HYDROCRACKING HYDROCARBON OIL."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Process and Catalyst for Hydrocracking Hydrocarbon Oil," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 475,870.

AFFIRMED.

Frank R. La Fontaine, *Arthur B. Bakalar*, *Douglas Baldwin*, for appellant.

S. Wm. Cochran (*Jack E. Armore*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

LANE, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 3–7, 9–14 and 16–30 of application Serial No. 475,870, filed July 29, 1965, for Process and Catalyst for Hydrocracking Hydrocarbon Oil. Three claims have been allowed. We affirm.

Appellant's invention is a new catalyst for use in hydrocracking hydrocarbons, and a method of using such catalyst. Appellant states that his catalyst composition has an excellent balance between the hydrogenation and the cracking functions. The catalyst comprises an iron group metal (Fe, Co, or Ni, for example) and fluoride incorporated with amorphous acid-acting refractory oxide, the incorporation being effected by contacting a substantially sodium-free refractory oxide hydrogel with an aqueous solution of an iron group metal compound wherein the metal is present as a cation, and calcining the metal-containing hydrogel. Fluoride is incorporated into the hydrogel before calcination, e.g., as the hydrogel is being formed, or preferably in common solution with the metal cation.

The broadest composition claim is claim 1:

1. A catalyst suitable for hydrocracking hydrocarbon oils which comprises from about 0.1% to 14% by weight of an iron group metal and about 0.1% to 5% by weight fluorine incorporated into amorphous acid-acting refractory oxide, incorporation being effected by contacting a hydrogel of the acid-acting refractory oxide substantially free from sodium with an aqueous solution of an iron group metal compound wherein the metal is present as a cation, and calcining said contacted hydrogel, said fluorine being incorporated into the hydrogel prior to calcination.

Claims 3, 5, 6, 11 and 14 limit the calcination temperature to from 800° to 1200° F. Claim 7 specifies nickel as the metal used. Claim 12 also specifies nickel and recites that the atomic ratio of fluoride to nickel in the solution ranges from 1 : 1 to 5 : 1; claim 13 depends from claim 12 and adds the recitation that the pH of the solution is from 4 to 7. Claims 4, 6, and 9–11 recite that a transitional or Group VI–B metal is also incorporated in the hydrogel.

Claims 16–30 are drawn to the process of hydrocracking involving the use of catalysts defined variously as in the composition claims.

The following references were relied upon by the Board:

Connolly, 2,310,278, Feb. 9, 1943.

Hansford et al., 3,120,483, Feb. 4, 1964.

Connolly discloses a hydrocracking catalyst formed by contacting a calcined "mixed gel" of silica and alumina with a solution of a Group VI–B hydrogenation metal salt. The catalyst may, at some stage of preparation, be treated with a fluoride compound.

Hansford discloses a silica-zirconia catalyst for hydrocracking. The catalyst has both hydrogenating and cracking activity without addition of other metallic components, but it is disclosed that the catalyst may be further promoted by the addition of "conventional hydrogenating promoters" which include "the transitional metals of Groups VI–B, and VIII, as well as their oxides and/or sulfides."

The Board affirmed the Examiner's rejection of all the claims under 35 U.S.C. 103 as obvious over Connolly in view of Hansford. The Board's position was stated as follows:

We will sustain this rejection because we are convinced that the claimed process would have been obvious to any person of merely ordinary skill in the subject art from a consideration of the references. We agree with the Examiner that the Connolly patent describes the impregnation of an alumina silica hydrogel with the metallic hydrogenating component of a catalyst. We agree also that Hansford et al. describe the use of metals of both groups VI–B and VIII metals as promotors in a hydrocracking catalyst. Among other such promoting metals are tungsten, iron and nickel. We do not understand that appellant was the discoverer of the promoting effect of these well known catalytic components. Hansford et al. refer to the conventional cracking catalyst base as being a silica-alumina compound although they direct their invention to a zirconia type of catalyst base.

We do not agree with appellant that Connolly does not show the impregnation of a silica hydrogel with the metallic catalytic promoter. We note such a disclosure at page 2, column 1, lines 55–60, for instance, where the patentee describes the washing of a mixed silica and alumina gel in a solution of a thio-molybdate or thio-tungstate and the subsequent conversion to the sulphide by heating at a temperature of the order of 800° F., for example. We do not understand that Connolly requires two exclusive alternatives (1) coprecipitation of the promotor and the gel base or (2) the impregnation after *calcining*.

Appellant argues that Connolly's catalyst differs from appellant's catalyst as defined by claim 1 in that Connolly does not produce his catalyst by calcining *after* impregnation, as required by the claim. We disagree with this view of Connolly. The reference states that the hydrogenating component may be added to the gel by soaking the gel in the metal solution and "thereafter" converting to "the desired sulphide by heating to a temperature of the order of 800° F. for example." Even if this does not amount to an express disclosure of subsequent calcining we think that it renders subsequent calcining obvious as an alternative, especially since 800° F. is at the lower end of appellant's range of calcining temperatures, and since appellant has not given any evidence that prior calcining would make any difference in the final product.

Appellant urges that Connolly's use of a Group VI–B metal, which may be converted to the oxide or sulfide, does not suggest the use of a Group VIII metal as required by appellant's claims. Appellant asserts that the Group VIII metals in his catalyst do not convert to the oxide or sulfide. We find that this fact does not lend any unobviousness to appellant's claims, since the Hansford reference does teach the use of Group VI–B *or* Group VIII metals, *or* their oxides or sulfides, as hydrogenating agents in hydrocracking catalysts, and this would suggest the use of a Group VIII metal in the catalyst of Connolly. That possibly neither Connolly nor Hansford recognized that the Group VIII metal would have the *additional* advantage of being a good cracking agent does not detract from the fact that Hansford expressly suggests the use of such metals in hydrocracking catalysts. The same applies

to appellant's arguments that the Group VIII metals are superior in ability to react with the oxide hydrogel and that they do not convert to the oxide or sulfide.

The Board did not discuss separately the narrower claims or the process claims, but apparently adopted the Examiner's grounds with respect thereto. The Examiner viewed the added recitations of calcination temperature, use of nickel as the Group VIII metal, atomic ratios, pH range, and method of using the catalyst as not adding anything beyond the skill of the art. Appellant has not presented sufficient evidence to rebut this conclusion. [1] Appellant's affidavit showed that tungsten, one of the Group VI–B metals, was taken up by the hydrogel only to the extent of 2% of the available tungsten in solution, whereas his specification states that uptake of nickel, for example, was about 80–85%. As mentioned above, this possible increased activity of the Group VIII metals does not detract from the fact that the use of Group VIII metals was suggested by the prior art. We are not dealing here with a situation wherein the prior art suggestion was very broad as to suitable metals. The Hansford reference suggests the use of Group VIII metals or their oxides or sulfides. To select nickel from this group, as required by claims 7, 12 and 13, is not rendered unobvious by proof that nickel is superior in one respect to one of the metals disclosed by Connolly. As to the claims not limited to nickel, the proof is even less persuasive.

[2] The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE JOHN R. HAKALA

No. 8247. Decided May 28, 1970

[57 CCPA —; 425 F.2d 704; 165 USPQ 704]

1. PATENTABILITY—PARTICULAR SUBJECT MATTER—"PERFORATING MEANS FOR SAND CONTROL."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Perforating Means for Sand Control," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 461,941.

AFFIRMED.

Richards, Harris & Hubbard, D. Carl Richards, for appellant.

Joseph Schimmel (*Lutrelle F. Parker*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and MCMANUS, *Chief Judge*, Northern District of Iowa, sitting by designation

BALDWIN, *J.*, delivered the opinion of the court.

This appeal was taken from that part of the decision of the Patent Office Board of Appeals which affirmed the rejection of claims 6–9 of appellant's application [1] as being obvious over the prior art under 35 U.S.C. 103. At oral hearing, appellant withdrew the appeal as to claims 6 and 7, thus leaving only two claims for our consideration. The Board of Appeals reversed the rejection of five other claims.

[1] Serial No. 461,941, filed June 7, 1965, entitled "Perforating Means for Sand Control."

THE INVENTION

Appellant's specification discloses a combination device (for historical reasons, called a "gun") designed to be inserted into the bore of an oil well drill hole for the purpose of exploding "bullets" into the casing surrounding the bore, thereby penetrating and fracturing the earth formations around the bore hole. A better understanding of the invention will be provided by resort to the application drawings:

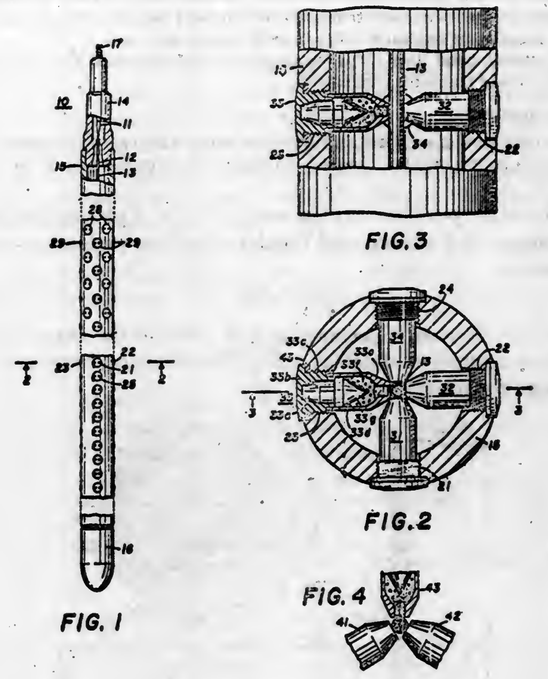


FIG. 1

FIG. 3

FIG. 2

FIG. 4

FIGURE 1 shows the perforator, or detonator gun [*10*], which appellant describes as being "of the jet perforating type." Spaced axially along the elongated gun barrel [*15*], are a number of "ports" (e.g., *28* and *29* in FIG. 1) which are positioned in sets, the ports of each set lying in substantially the same plane. Each port contains a separate shaped explosive charge unit containing a metal liner which explodes into fragments (the "bullets") when the charge is detonated. As further described by appellant:

[I]n accordance with the invention, the shaped charge units have casings with tapered ends. In each casing the base of a conical explosive charge faces a port closure member whose diameter is larger than the diameter of the casing whereby the unit may be inserted into the gun barrel through the explosion port. An elongated fuse extends through the gun barrel and is centered between and in contact with the ends of each of the units in each set.

FIGURE 2 of the drawing illustrates a set of four shaped charge units (*31*, *32*, *33*, *34*). A rejection of claims specifically describing the entire gun combination was reversed by the Board of Appeals.

The claims on appeal are drawn to the shaped charge units shown in FIGURES 2–4. Note that FIGURE 2 is a cross-section through

FIGURE 1, and FIGURE 3 is a cross-section elevation view of FIGURE 2. FIGURE 4 shows a set of three shaped charge units, which appellant says is an alternative embodiment. The elements of the shaped charge unit are recited in independent claim 6 [2] which recites [with reference to FIGURE 2]:

> 6. A shaped charge for a perforating gun having a plurality of threaded explosion ports in the wall thereof, which charge comprises:
> (*a*) a closure member [*33a*] adapted to be secured in one of said ports to form a fluid-tight seal,
> (*b*) a hollow tubular casing [*33d*] adapted to be secured at an open end thereof to said closure member and of diameter smaller than the diameter of said ports with a closed truncated conical end [*33e*] opposite said open end,
> (*c*) a quantity of explosive [*33f*] in said conical end, and
> (*d*) a conical metal liner [*33g*] engaging said explosive with the apex extending into said truncated conical end.

Claim 8 recites:

> 8. The combination set forth in claim 6 in which said closure member is provided with a hollow tubular extension frictionally to engage the open end of said casing.

Claim 9 further provides that the casing *33d* "is of plastic frictionally to encompass and engage said tubular extension to form a unitary charge unit."

PRIOR ART

Caldwell [3] discloses a perforating gun wherein the shaped charge assembly contains two different units. The reference drawing is here reproduced for comparison:

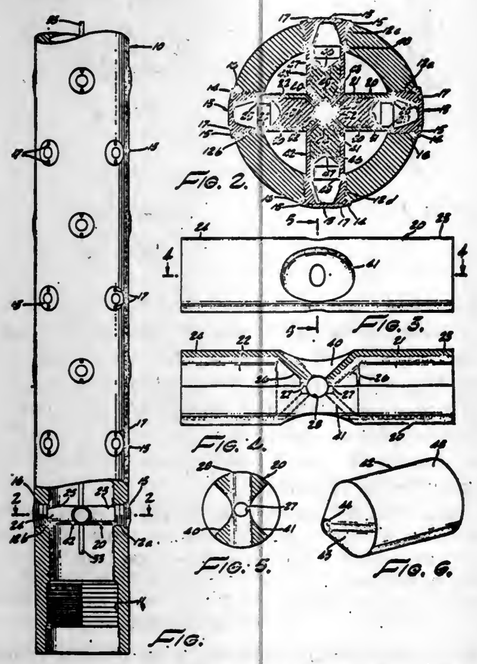


FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 1.

Caldwell's so-called primary unit *20* (shown in FIGURES 3 and 4) comprises an elongated tubular structure having a central aperture *28* through which the detonator fuse must be threaded and a double shaped charge, one on either end of the unit. At right angles to the axis of this central aperture and centrally located on opposite sides of the unit, are two recesses *40* and *41*. In practice, the primary units are inserted into the gun through one port hole and thereafter positioned between two opposite ports. The fuse is then threaded down through the center apertures and, finally, secondary charge units *42* are inserted into position within the recesses of the primary unit through the port holes at right angles to the primary units. After the four charges are properly positioned, the port closures *13* are threaded into place. It is to be noted from FIGURE 6 of the drawing that the secondary units *42* are comprised of hollow cylindrical casings terminating at one end in a frusto-conical shape. As is evident from FIGURES 2 and 4, the internal structure of the primary unit *20* is essentially the same as two secondary units with their cone points facing each other. Each unit is filled with a charge of explosive (30 in the primary units, *46* in the secondary units) and each contains a metallic liner ("bullet") mounted as a sheath over the charge (designated as *31* and *47*, respectively).

Udry [4] discloses a well perforator having a single shaped charge unit rather than an assembly of three or more. The reference was cited merely for its disclosure that the charge casing may be made of plastic material.

THE REJECTION

Claim 8 on appeal was rejected as unpatentable over Caldwell under 35 U.S.C. 103. Claim 9 was rejected over Caldwell in view of Udry. The Examiner's reasoning was as follows:

> * * * it is believed obvious to one skilled in the art to make the double charge unit 20 into two single units as this alteration would appear merely to be a matter of choice and design. Furthermore, the charge units of Caldwell are supported in the gun ports and abut their respective closure members. To have the closure members give additional support to the units would also be a matter of choice and design.

In affirming these rejections, the Board stated:

> Working from the Caldwell teachings, it appears to us that persons of ordinary skill in the art would find it obvious to connect the charge 42 to the associated closure member 13. Whether this connection be accomplished by adhesion or by frictional telescoping relationship appears to be no more than an obvious employment of known and obvious assembly expedient to expedite the employment of the Caldwell parts for the purposes taught in the reference. * * *

OPINION

Appellant argues that the rejections were based on hindsight reasoning. He points out that Caldwell's structure *requires* that his shaped charge units be *separate* from the explosion port caps and asserts that, if the cap were made integral with the charge unit, the patentee's device would be inoperable. Conversely, it is argued, the claimed structure

> is an integral unit which requires only one loading step and eliminates any possibility of an improper loaded relationship between the shaped charge unit and the closure cap. Appellant's integral shaped charge unit is only required to be served directly into the port with one loading operation, thereby effecting saving of time while eliminating any possibility of improper positioning or support of the shaped charge.

[2] Claims 8 and 9, the only remaining claims on appeal, are dependent on claim 6.
[3] U.S. Patent 2,873,676, issued February 17, 1959.
[4] U.S. Patent 2,782,715, issued February 26, 1957.

We will agree with appellant that Caldwell's double primary units and single secondary units were specifically designed to be inserted first and then positioned before the caps are to be placed on the explosion port holes and that the resulting relationship is one of direct abutment rather than interconnection. We will also assume arguendo, although there is some dispute, that the appealed claims define an interconnected structure which differs from Caldwell's secondary units as they are shown in spaced relationship with the port closures in place in FIGURE 2 of the patent, supra.

The issue thus becomes whether one skilled in this art, aware of the Caldwell disclosure, would consider it obvious to connect the port closure caps to the charge units of Caldwell and make them into a single structure. Here we must disagree with appellant and hold that the record fairly supports the conclusion that it would be obvious.

While the positions of both the Examiner and Board are long on assertions and rather short on reasoning, we feel it is fair to consider that the remarks of the Board were limited to its discussion of the secondary unit and not to the language of the Examiner referring to the double charge primary unit. It becomes clear then, that the Board's position was based on the presumption that there is nothing in the reference which requires that the *secondary* units be separated from the caps and it therefore would be obvious and, apparently, even desirable to connect the cap to the secondary charge unit. The employment of a frictional telescoping relationship would be only one of several obvious assembly expedients to accomplish the connection. Appellant has argued that having the secondary charge unit connected to the cap would prevent relative reorganization of the units to properly orient the secondary charge unit relative to the primary unit since the secondary unit would then be firmly threaded within the port. Based upon our own reading of the reference disclosure, we are not convinced that such assertion is correct and the reasoning of the Board, as we have interpreted it, must prevail.

The Examiner's reasoning, too, although it was somewhat incomplete, calls for the same conclusion. It appears that this position was based on a consideration of the entire structure disclosed by Caldwell, including the double primary charge units *and* the patentee's stated purpose for so designing his structure. Containing the missing premise, which we consider to have been obviously implied from the context of the Examiner's remarks (although we do not wish to condone such omission), this position may be stated as follows: "One of ordinary skill in the art, aware of Caldwell's disclosure but, unlike the patentee, who was concerned with simultaneous firing of the charges in precisely the same plane, being more concerned with simple and efficient loading and replacement of the shaped charge units into the explosion ports, would consider it obvious to split the double unit of Caldwell and connect the port closure caps directly to all the charge units." Our analysis of the record before us is that there is a substantial basis for reaching this conclusion as well. [1] Accordingly, the decision of the Board of Appeals affirming the rejection of claims 8 and 9 is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE ERNST RUEGG

No. 8301. Decided May 28, 1970

[57 CCPA —; 425 F.2d 405; 165 USPQ 711]

1. PATENTABILITY—OBVIOUSNESS—35 U.S.C. 102 AND 103.

"Were we to accept appellant's narrow definition of 'centrifuge,' his case would be none the stronger since the rejection here is under § 103, not § 102, and since one skilled in the art surely would not consider the teachings of Hewitt to be limited to the specific centrifugal machine with which he was concerned."

2. CLAIM—CONSTRUCTION OF CLAIMS—WORDS AND PHRASES—"SEPARATE."

"* * * we agree with the Examiner that appellant's term 'separate' as used in the claim to define the relationship of the 'container' and 'housing' does not proscribe all connection between the two."

3. PATENTABILITY—PARTICULAR SUBJECT MATTER—"PRESSURIZED CENTRIFUGE."

The refusal of a certain claim in an application entitled "Pressurized Centrifuge," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 542,695.

AFFIRMED.

Austin P. Dodge (*Dodge and Sons*), for appellant.

Joseph Schimmel (*Fred W. Sherling*, of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, RICH, ALMOND, BALDWIN, and LANE, *Associate Judges*

RICH, *J.*, delivered the opinion of the court.

This appeal is from a decision of the Patent Office Board of Appeals affirming the rejection of claim 1 of application Serial No. 542,695, filed April 14, 1966, and entitled "Pressurized Centrifuge." No claim is allowed. We affirm.

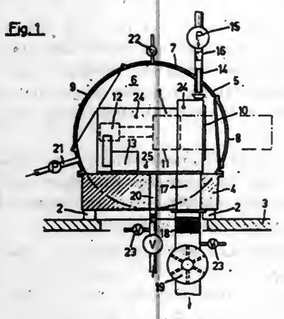
The claimed invention and background thereof are described in appellant's application as follows (emphasis ours):

> This invention relates to a centrifuge, in which the material to be centrifuged must be kept in an atmosphere of gas under pressure.
>
> In known centrifuges of this kind, the centrifuge housing containing the centrifugal drum is of pressure-tight construction and is filled with gas under pressure. A stuffing box is provided at the exit of the centrifugal drum shaft from this pressure-tight housing.
>
> Owing to the pressure-tight construction, the housing itself becomes complicated, all covers must be reinforced and their connection to the housing must be pressure-tight; the stuffing box at the exit of the centrifugal drum shaft is large, difficult of access and results in permanent frictional loss. Above all, however, the pressure-tight centrifuge is a special construction, which is much more expensive to produce than a standard machine.
>
> It is the aim of this invention to obviate all these disadvantages. *In a centrifuge of the kind hereinbefore described, there is provided for this purpose according to the invention a pressure container, surrounding the centrifuge, confining an atmosphere of gas under pressure and consisting of at least two parts.*
>
> In this way, a simple, cheap standard machine can be used for material which is to be centrifuged in an atmosphere of gas under pressure. In addition, the pressure container can be given directly a form which is favourable from the point of view of strength. For example, its wall may be spherical or the pressure container may have the shape of a boiler, i.e., a hollow cylinder with convex ends. Accordingly, the pressure container may be of light and cheap construction.

Appellant's brief further explains that he proposes placing a "*complete* conventional centrifuge" (one in which the housing is *not* sealed) within at least a two-part, vapor-tight pressure container and that the container be charged with gas under pressure. The gas leaks into the

interior of the unsealed housing of the centrifuge proper through access doors, shaft bearings and any other opening therein.

FIG. 1 is representative of the embodiments disclosed:



The most significant features of this embodiment are described as follows:

The centrifuge 1 is surrounded by a pressure container 5 confining an atmosphere 6 of gas under pressure, within which are situated both the interior and also the external surroundings of the centrifuge 1.

The pressure container 5, the walls of which are substantially spherical, is subdivided into four parts, namely a spherical part 7, its two spherical covers 8 and 9 and the foundation bed 4, acting as lower wall of the container 5. * * *

* * * * * * *

A pipe 14 for supplying the material to be centrifuged and passing through the wall of the spherical part 7 leads into the pressure container 5, and incorporated in said pipe outside the pressure container 5 are a pump 15 and a movable pipe part 16.

Passing through the foundation plate 4 is a pipe 17 for the discharge of the centrifuged solid material * * *. A correspondingly equipped pipe 20 serves for the discharge of the centrifuged liquid. The compressed gas can be admitted to the pressure container 5 through a pipe 21, the air in the container 5 escaping through vent valves 22 or 23. Suitable openings 24 and 25 in the centrifuge housing ensure that, in addition to the surroundings of the centrifuge, its interior is also definitely filled with gas.

The rejected claim reads:

1. In combination a centrifuge comprising a housing and a rotary centrifugal drum arranged in said housing, the housing providing flow paths for the leakage of gas to and from its interior; a vapor-tight pressure container consisting of at least two parts and which is separate from and encloses the housing of the centrifuge; and means for supplying gas under pressure into said container.

Claim 1 is rejected under 35 U.S.C. 103 as unpatentable over the following United States patent: [1]

Hewitt, 581,206, Apr. 20, 1897.

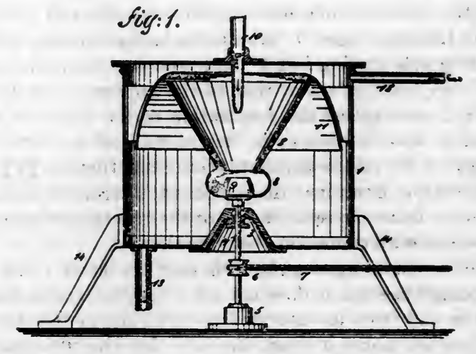
Hewitt discloses an apparatus intended "to thoroughly aerate * * * beer while it is in the form of a highly-attenuated film." The apparatus is described as "a *centrifugal machine* of peculiar construction adapted to reduce the liquid to the form of an extremely thin film, the centrifugal machine being operated in a *closed vessel* suitable for the

[1] Claim 1 is also rejected under 35 U.S.C. 103 as unpatentable over two other United States patents:

Bird et al., 2,312,829, Mar. 2, 1943.
Solvik, 3,013,005, Dec. 12, 1961.

In view of our disposition of the first of these rejections, we need not consider the second.

required pressure." [Emphasis ours.] The parties direct their attention to FIG. 1 of Hewitt:



The pressure vessel 1, which surrounds the "centrifugal machine," is provided at the bottom with a combined stuffing-box and journal-box 3 through which passes the upper end of the driving shaft 4. The centrifuge bowl 2 is carried by shaft 4. Supported by the pressure vessel 1 is a hood 11 which extends outwardly and downwardly from a point inside the rim of the centrifuge bowl. In operation, beer is supplied to the bowl 2 by pipe 10 extending through the top of the vessel. When the bowl is rotated with a sufficient velocity, the beer spreads out on the walls thereof and then apparently is discharged onto the undersurface of the hood 11.[2]

The Examiner and the Board were of the opinion that terms "centrifuge," "housing," and "pressure container" used in claim 1 "do not significantly define over" Hewitt's bowl 2, hood 11 and pressure vessel 1, respectively. Thus, the Examiner stated:

* * * the device of Hewitt utilizes centrifugal force and hence is deemed to be a centrifuge. The lack of separation of materials in Hewitt renders it no less a centrifuge since the use of the device is not structure. However, if materials of different density are introduced into the device of Hewitt, it is obviously adapted [to] and would separate the materials in the same manner as any conventional solid-bowl centrifuge. The device of Hewitt further meets the definition of the term centrifuge * * * since it causes the liquid in bowl 2 to follow an unnatural path in opposition to the force of gravity. * * * the vessel, and the hood 11 in Hewitt are "separate" *and* connected. The term "separate" does not prohibit connection between the parts. Further, the term "housing" does not necessarily require a closed structure. This term is readable on the open cover element 11 in Hewitt.

Appellant contends, first, that "even though Hewitt has a rotary bowl from which liquid is flung by centrifuge action, his machine is *not* a centrifuge within the meaning of that term as used in applicant's specification and claim." He then cites Webster's Seventh New Collegiate Dictionary wherein "centrifuge" is defined as "a machine utilizing centrifugal force for separating substances of different densities, for removing moisture, or for *simulating gravitational effects*" (our emphasis), and indicates that his invention is concerned only with a machine utilizing centrifugal force for the first of these purposes. [1] Were we to accept appellant's narrow definition of "centrifuge," his case would be none the stronger since the rejection here is under § 103, not § 102, and since one skilled in the art surely would not consider

[2] It will be observed that the source of power (not shown) for the apparatus is located outside the pressure vessel. This is also true of one embodiment shown in appellant's drawings.

the teachings of Hewitt to be limited to the specific centrifugal machine with which he was concerned.

Appellant also contends that Hewitt "shows no part which corresponds to the pressure container recited in applicant's claim" because removal of Hewitt's vessel 1 "eliminates lateral support for the combined bearing and stuffing box 3" and "removes support for the hood 11 * * *." We note, however, that in the apparatus shown in appellant's FIG. 1 removal of the foundation bed 4 which in appellant's application is said to act as the "lower wall of container 5" would remove support for all the apparatus contained therein. [2] Moreover, we agree with the Examiner that appellant's term "separate" as used in the claim to define the relationship of the "container" and "housing" does not proscribe all connection between the two.

Appellant's remaining argument is that the hood 11 of Hewitt is not a "housing" because it does not provide "flow paths for the leakage of gas to and from its interior" as called for by the claim. Appellant's application makes it clear, however, that the "flow paths" in the housing need not be of any particular form so long as the gas has access to and from its interior. It being apparent that in Hewitt the gas must and does have such access through the open ends of the hood, this argument clearly is without merit.

[3] The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE KENT B. RANDOL AND ROBERT L. REDFORD

No. 8315. Decided May 14, 1970

[57 CCPA —; 425 F.2d 1268; 165 USPQ 586]

1. PATENTABILITY—OBVIOUSNESS—35 U.S.C. 103.

"Relative to the rejection predicated on 35 U.S.C. 103, we are persuaded that application of the well-settled principle that prior patents are references only for what they clearly disclose or suggest and that it is not proper use of a patent as a reference to modify its structure to one which prior art references do not suggest, calls for reversal of this rejection."

2. PATENTABILITY—PARTICULAR SUBJECT MATTER—"TRASH PLATE."

The refusal of certain claims in an application for a trash plate on plows, as unpatentable over the prior art, is reversed.

APPEAL from Patent Office. Serial No. 443,029.

REVERSED.

Noel G. Artman, for appellant.

Joseph Schimmel (*S. Wm. Cochran*, *Irwin C. Cohen*, of counsel) for the Commissioner of Patents.

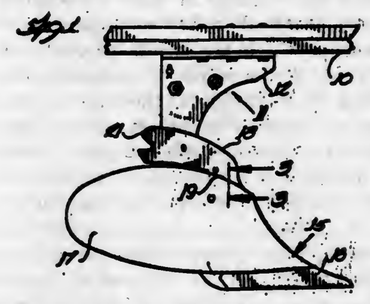
Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

ALMOND, *J.*, delivered the opinion of the court.

This is an appeal from the decision of the Patent Office Board of Appeals affirming the action of the Examiner in finally rejecting claims 7 and 8 of appellants' application [1] for a trash plate on plows. Claim 6 has been allowed. Claims 1–5 were also involved in the appeal to the Board. The reasons of appeal, however, and appellants' brief relate only to claims 7 and 8; therefore, our attention will be directed only to the two last-named claims.

[1] Serial No. 443,029, filed March 26, 1965, entitled "Trash Plate."

As disclosed in FIG. 1 of the application drawings, an attachment is provided for a plow bottom in the form of a plate 18 having a forward depending lower portion 19, which is recessed or offset from the main body of the plate to form a shoulder which rests upon or lies adjacent the upper edge of moldboard 17, the depending portion 19 being disposed against the rear face of the upper portion of the moldboard. Plate 18 is bent outwardly across the upper edge of the moldboard and is directed furrowwardly, terminating in a bifurcated tail 21 at the outer section of the plate. The specification points out that trash plate 18 is preferably of greater thickness than moldboard 17 and is made of relatively flexible plastic material, preferably a high density polyethylene synthetic material having a smooth and hard forward face adapted to engage dirt thrown upwardly and rearwardly by moldboard 17 with a minimum of frictional resistance and to turn the trash over in the furrow. It is stated that the inherent flexibility of plate 18 permits it to yield sufficiently against the pressure of the soil to inhibit the adherence of soil thereto.



Rejected claims 7 and 8 read as follows:

7. A trash plate attachment for a plow adapted to be propelled through the soil, said attachment formed of a plastic material and adapted to flex under the pressure of soil engagement to inhibit the tendency of soil to adhere thereto.

8. An earth working implement adapted to be propelled over the ground in engagement with the soil, said implement being formed of a flexible sheet material having a smooth soil engaging surface and sufficient rigidity to withstand the pressure of the soil thereagainst and sufficiently flexible under said pressure to inhibit the adherence of soil thereto.

The pertinent references are: [2]

Owen et al., 2,913,060, Nov. 17, 1959.
Sewell, 3,126,969, Mar. 31, 1964.

Sewell relates to moldboard plows of more or less conventional design and contour. The patent states that "thin steel sheet, which previously has been given a thin, tightly adherent coating of polytetrafluoroethylene (Teflon) and then formed to moldboard contour, is applied to the moldboard to provide a smooth surface of Teflon having a very low coefficient of friction in order to promote scouring." The invention "is equally applicable to the soil-contacting surface of plow jointers," and shows a trash plate or jointer having attached thereto a Teflon-coated metal sheet. The moldboard is rigid steel.

Owen is similar to Sewell in that the rigid steel moldboard is covered with Teflon. The patent states that "at least a portion of the earth engaging side of the moldboard * * * is covered with a strip of

[2] Another reference, British Patent No. 951,902 to Fielder, was cited in the case; however, since it was not applied in the rejection of either claim 7 or 8, it need not be considered.

Teflon * * * and such Teflon may be secured by conventional fastening means such as bolts." It is further stated that the "term Teflon is used in a generic sense and could include cementable Teflon sheets that are cemented on the moldboard * * *."

The claims here on appeal, 7 and 8, were held unpatentable by the Examiner under 35 U.S.C. 102. Also, for reasons separately stated, the claims were held unpatentable under 35 U.S.C. 103. The Board affirmed both rejections. With reference to claim 7 as being "fully met" by Sewell, the Examiner noted that the trash plate attachment of this reference has a coating formed of Teflon or plastic material which, in his opinion, "is adapted to flex along with its supporting base under pressure of soil engagement." Claim 8 was also rejected as fully met by Sewell as applied to claim 7, the Examiner finding that the thin coating of Teflon on the base defined flexible sheet material "as defined in the claim."

In its affirmance, the Board virtually adopted the Examiner's reasons for rejecting the appealed claims. Relative to the 102 rejection, the Board felt that the language in claim 7 describing the trash plate "formed of a plastic material" would encompass the Owen and Sewell prior art implements which are "made partially of such materials as well as appellants' device which is composed solely of such materials" and to define the flexibility of the plate as sufficient "to inhibit the adherence of soil thereto" is tantamount to stating a merely desired result defining no distinguishing degree of flexibility.

The Solicitor argues that the breadth of claims 7 and 8 is sufficient to support the 102 rejection, pointing out that the Sewell trash plate has attached thereto a Teflon-coated sheet and is thus, in part, "formed of a plastic material, " the deduction being that the quoted language in claim 7 would "encompass the Owen et al. and Sewell prior art implements which are made partially of such materials * * *." With reference to the requirement in claim 7 that the attachment be adapted "to flex under the pressure of soil engagement to inhibit the tendency of soil to adhere thereto," it is the position of the Patent Office that this is inherent in the Sewell structure inasmuch as Sewell's trash plate is a relatively narrow elongated strip fastened to the frame by bolts at its forward end only and that such an arrangement would obviously leave the other end of the plate free to flex under soil pressure.

In our view, this record falls short of substantiating the result reached by the Board in its application of the provisions of section 102 to sustain the rejection of the appealed claims. We find no warrant of record to support the conclusion of the Examiner, affirmed by the Board, that the Sewell trash plate attachment has a coating of Teflon or plastic material which is "adapted to flex along with its supporting base under pressure of soil engagement." Sewell clearly teaches that his moldboard is of "rigid steel." The trash plate is subjected to soil pressure as is part of the moldboard, and soil adhering thereto impairs its effectiveness. One conversant with the subject art apprised of the rigid quality of the Sewell moldboard would assume the same quality with respect to the trash plate which is but an extension of the moldboard. The function of the trash plate extending the height of the moldboard and securely attached at the top thereof by means of bolts on the frame of the plow is to turn trash and topsoil debris downwardly to bring about coverage by the heavier soil turned by the moldboard. The Teflon coating on the Sewell trash plate makes no contribution to the flexibility of the trash plate per se. While it

serves to reduce friction and the adherence of soil to the trash plate by reason of its surface smoothness, being firmly affixed to the solid backing of the trash plate, its capacity to flex is limited to the flexing of the trash plate.

It has been asserted by the Examiner and the Board that the trash plate would be free to flex relative to the moldboard by reason of the fact that it is a relatively narrow elongated strip fastened solely at its forward end. We find nothing in the applied references to support any rational concept of trash plate flexibility when used in its intended environment. Moreover, it appears that soil pressure against the trash plate is far less than that exerted against the moldboard. In fact, a reasonable construction of the over-all disclosure of Sewell yields a conclusion to the contrary.

We agree with appellants that the over-all record supports the contention that independently and beyond the disclosures of the references record their trash plate is made of material rigid enough to withstand soil pressure during operation with a flexible capacity to discourage soil adherence to its surface and to repel or eject soil tending to adhere thereto. Nor do we think that the claim terminology encompasses the prior art implements. We *reverse* the rejection predicated on the provisions of 35 U.S.C. 102.

[1] Relative to the rejection predicated on 35 U.S.C. 103, we are persuaded that application of the well-settled principle that prior patents are references only for what they clearly disclose or suggest and that it is not proper use of a patent as a reference to modify its structure to one which prior art references do not suggest, calls for reversal of this rejection.

In our opinion, the rigid moldboard or trash plate of Sewell taken separately or jointly with the rigid Teflon-covered moldboard of Owen would not reasonably suggest to one skilled in the subject art the substitution of a flexible trash plate such as defined in appellants' claims on appeal. We think that the analogy of flexing polyethylene ice trays to eject ice cubes, as suggested by the Board, is too remote to have material bearing on the issue presented. Nor do we accept the view under the facts of the instant appeal that a plastic and flexible trash plate as it relates to the area of plows would be obvious, as argued by the Solicitor, in view of alleged "well known advantageous properties of such plastics as polyethylene."

[2] We, therefore, reverse the decision of the Board.

REVERSED.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,463,328, D. O. Sproule, SYSTEM OF WAVE TRAINS, **filed** Aug. 11, 1970, Ct. of Cl., Washington, D.C., Doc. 278–70, *Kelvin & Hughes Limited, S. Smith and Sons Ltd.* v. *The United States of America.*

2,544,246, G. H. Butterfield, CORNEAL CONTACT LENS, **filed** Feb. 12, 1970, D.C., M.D. Tenn. (Nashville), Doc. 5648, *George H. Butterfield, Sr.* v. *Nashville Optical Dispensary.* **Same, filed** Feb. 12, 1970, D.C., M.D. Tenn. (Nashville), Doc. 5649, *George H. Butterfield* v. *Horner-Rausch Optical Co., Inc.* **Same, filed** Mar. 20, 1970, D.C., M.D. Tenn. (Nashville), Doc. 5680, *George H. Butterfield, Sr.* v. *John S. Milam Optical Co., Inc.* These cases being terminated, Sept. 30, 1970.

2,689,611, M. B. Martinson, MEANS FOR EXTRACTING THE LIQUID FROM A CASED WELL BELOW THE TOP END OF THE CASING, **filed** Jan. 6, 1969, D.C., E.D. Wis. (Milwaukee), Doc. 69–C–5, *Martinson Manufacturing Co., Inc.* v. *Herb Maass Service, Inc.* Final decree by consent, defendants infringed claims 1 and 2 of the patent and are permanently enjoined and restrained, Sept. 17, 1970.

2,827,731, G. M. Haynes, TRANSPARENT FISHING FLOAT, **filed** Sept. 17, 1970, D.C., N.D. Calif. (San Francisco), Doc. C70–2006 GSL, *Gerard M. Haynes* v. *The American Import Co. et al.*

2,958,872, F. J. Meyer, Jr., SWIMMING POOL COVER, **filed** Sept. 8, 1970, D.C.N.J. (Newark), Doc. C–1222–70, *Fred J. Meyer, Jr.* v. *Major Pool Equipment Corporation.*

3,016,441, Hackman and Jacobson, SPLIT STRAP SUPPORTING MEANS FOR ELECTRICAL INSULATORS, **filed** Sept. 8, 1970, D.C., M.D. Tenn. (Nashville), Doc. 5535, *Emerson*

Electric Company v. *Heatcraft, Inc. et al.* Plaintiff owner of patent; defendants permanently enjoined, Sept. 8, 1970.

3,045,102, P. J. Fessenden, COLD TERMINAL RESISTANCE WIRE, filed May 23, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c868, *Springfield Wire, Inc.* v. *General Electric Company (dismissed), Lyall Electric, Inc. (Intervening Defendant)*. Final judgment in favor of plaintiff, Sept. 23, 1970.

3,051,939, R. W. Gilbert, ANALOG-TO-DIGITAL CONVERTER; **3,316,547**, S. K. Ammann, INTEGRATING ANALOG-TO-DIGITAL CONVERTER, filed June 15, 1970, D.C. Mass. (Boston), Doc. 70-748-W, *Weston Instruments, Inc.* v. *Analogic Corp., The Gordon Engineering Co. and Bernard M. Gordon.*

3,078,397, Tummers and Haayman, TRANSISTOR, filed Sept. 8, 1970, D.C., S.D. Fla. (Miami), Doc. 70-1307-C-CF, *U.S. Philips Corp.* v. *Solitron Devices, Inc.*

3,086,297, L. A. Kantrowitz, TALKING BOOK, filed June 20, 1968, D.C., S.D. Tex. (Houston), Doc. CA 68-H-516, *Marvin Glass & Associates* v. *Mattel Inc., Sears, Roebuck & Co.* Judgment, patent valid and not infringed, Sept. 1, 1970.

3,146,598, M. F. Smith, APPARATUS FOR CONFINING FLOATING MATERIAL, filed Aug. 24, 1970, D.C., M.D. Fla. (Orlando), Doc. 70-174-Orl-C, *Millard F. Smith and Slickbar, Inc.* v. *American Marine Inc.*

3,228,413, F. F. Stevens, Jr., KEG TAPPING DEVICE, filed Aug. 2, 1967, D.C. Conn. (New Haven), Doc. 12100, *Mack Johnston, Inc., Long Beach Plastic Co., Inc.* v. *Franklyn R. Hoff, Frederick F. Stevens, Jr., and Hoff, Stevens, Faulk & Gannon, Inc.* Stipulation dismissing action with prejudice, Aug. 5, 1970.

3,247,757, W. I. Callaghan, INSPECTION APPARATUS FOR TURNING AND VIEWING COINS, filed Sept. 17, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2292, *Advanced Product Development Corporation et al.* v. *John Plain & Company et al.*

3,255,327, A. E. Wood, Jr., LIGHTWEIGHT HIGH-SPEED RELAY, filed Sept. 9, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2224, *Teledyne, Inc.* v. *C. P. Clare & Co.*

3,270,751, R. C. Tucker, SMOKING DEVICE, filed Sept. 22, 1970, D.C. Mass. (Boston), Doc. 70-12-78-F, *Delcron Products, Inc.* v. *Bandwagon, Inc. and John B. Crawford.*

3,316,547. (See 3,051,939.)

3,337,070, N. R. Guilbert, Jr., LOADING AND UNLOADING APPARATUS FOR DUMB WAITERS AND THE LIKE, filed Oct. 28, 1968, D.C., E.D. Mo. (St. Louis), Doc. 68C455(2), *Guilbert, Incorporated* v. *Security Fire Door Company.* Memo opinion, judgment entered decreeing judgment for defendant, Sept. 9, 1970.

3,341,884, B. Pryor, PORTABLE COMBINATION NAIL POLISH AND POLISH REMOVER HOLDER AND APPLICATOR, filed July 1, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c1223, *Barbara Pryor* v. *Chesebrough-Pond's, Inc.* By agreement, cause dismissed with prejudice, Sept. 22, 1970.

3,345,373, Gordon and Lafferty, 2-POLYMETHYLALLYL-5,9-DIMETHYL-6,7-BENSMORPHANS AND DERIVATIVES, filed July 15, 1970, D.C., E.D. Pa. (Philadelphia), Doc. 70-1943, *Sterling Drug Inc.* v. *Smith Kline & French Laboratories.*

3,353,770, W. Sondheim, UNIVERSAL PUMP BOX APPARATUS, filed Sept. 16, 1970, D.C., W.D. Tenn. (Memphis), Doc. C-70-363, *Permco Corp.* v. *Newberry Manufacturing Co. and James M. Newberry.*

3,409,224, Harp, Leible and McCort, FLEXIBLE DRINKING TUBE, filed Apr. 7, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c738, *Union Carbide Corporation* v. *National Soda Straw Company.* Order on stipulation for a voluntary dismissal with prejudice pursuant to Rule 41(a)(1)(ii), Feb. 17, 1970.

3,411,610, W. Bialo, LUGGAGE, filed Sept. 18, 1970, D.C., S.D.N.Y., Doc. 70-C-4060, *Ventura Travelware, Inc.* v. *Botany Industries, Inc.*

3,441,027, I. S. Lehman, COMPOUND SUPPORT, filed Sept. 17, 1970, D.C., S.D. Fla. (Miami), Doc. 70-1366-C-JE, *Ira S. Lehman* v. *Stephen Michelson et al.*

3,469,810, J. E. Dorris, BEAM CLAMP, filed Aug. 22, 1970, D.C., S.D. Ala. (Mobile), Doc. 6228-70-T, *Continental Clip Corporation et al.* v. *Unitec Industries, Inc. et al.*

3,499,245, Winsler and Richter, GLASS PANEL REFRIGERATOR DOOR AND FRAME, filed July 13, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-1517 WPG, *Anthony's Manufacturing Company* v. *Ardco, Inc.*

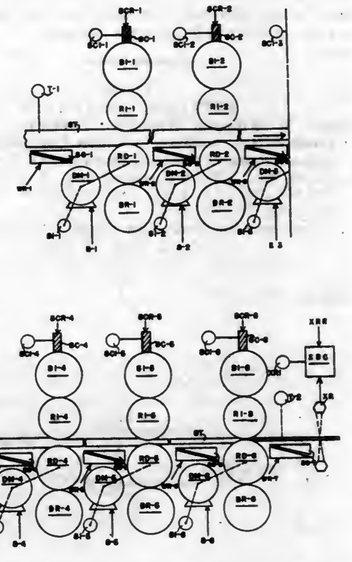
D. 212,864, R. Fraige, LENS FOR SPECTACLES, filed Sept. 18, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2301, *C & F Products of San Francisco, Inc.* v. *Popular Products Manufacturing Company et al.*

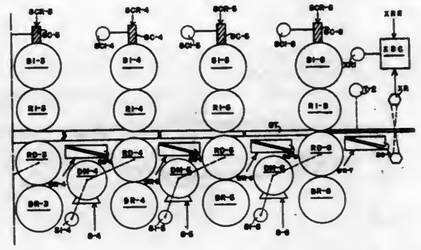
D. 216,486, R. J. Lipsitz, CAMERA STAND FOR PHOTOGRAPHIC ENLARGING, filed Mar. 20, 1970, D.C., E.D. Mo. (St. Louis), Doc. 70C134(1), *Bandwagon, Inc.* v. *Kalimar, Inc.* Consent judgment, plaintiff owner of patent; defendant infringed. Complaint and counterclaim dismissed with prejudice and granting plaintiff permanent injunction, Sept. 15, 1970.

REISSUES

DECEMBER 8, 1970

26,996
COMPUTER CONTROL SYSTEM FOR METALS ROLLING MILL
Robert G. Beadle, Schenectady, N.Y., Donald A. Lehr, Orange, Calif., and Hugh S. Maxwell, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
Original No. 3,332,263, dated July 25, 1967, Ser. No. 339,048, Dec. 10, 1963. Application for reissue July 11, 1969, Ser. No. 846,989
Int. Cl. B21b *37/12*
U.S. Cl. 72—7 **37 Claims**



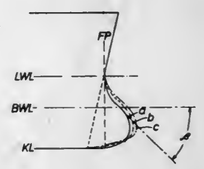


Methods and apparatus are disclosed for rolling hot steel strips in a multistand mill, preferably with a computer to perform multiple control functions rapidly. Performance is enhanced by determination of driving power for each stand and interstand gages are derived from stored data representing the appropriate one of a stored family of cumulative power curves, each applicable for a different range of delivery gages. Individual stand speeds are established from the mass flow relation based upon the desired final stand speed and delivery gage fed into the system, with forward slip taken into account. From the determined interstand gages, the forces to be exerted by the respective stands are derived from stored data representing the appropriate one of a family of cumulative force vs. thickness curves, each curve being applicable for a different range of delivery gages. Such force values are then used to derive from stored, nonlinear stretch curves, the individual stand stretches which are combined with the determined interstand gages to establish commands for screw setting servos, thereby to adjust the unloaded roll openings appropriately for the desired interstand gages. Screw settings can be corrected according to exponential functions of the times when hot metal is present or absent in the stands, thereby to compensate for thermal expansion or contraction.

The determined driving powers and speeds for the several stands are compared with stored values of rated or limit power and speed capabilities, and if the commanded values fall outside the limits, the setup commands are determined again with different power proportioning, or at different final stand speed, or the operation of the system is terminated if impossible operating conditions are called for.

Errors in interstand gages during actual rolling of a steel strip, as determined by comparing values derived from load cell signals (gagemeter gages and actual speed and delivery gage sensor signals (mass flow gages), are used to partially update factors included in the stored data, so that set-up determinations for subsequent strips will become progressively more accurate. This is called adaptive interstand gage feedback. Also, the sensed actual driving powers for the several stands during rolling of a strip are compared with the powers calculated from the appropriate one of the stored power curves based upon actual interstand gages, and any errors are used to partially update factors included in the stored data, so that set-up determinations for subsequent strips will become progressively more accurate. This is called adaptive load distribution feedback. For adaptive roll speed feedback, commanded roll speeds are compared with actually measured roll speeds during rolling of a strip, and any errors are employed to partially update factors included in the stored data, so that setup for subsequent strips will become progressively more accurate. Adaptive roll force feedback is accomplished by computations comparing actual roll forces sensed by load cells with predicted forces calculated from stored force curve data and interstand gages actually being rolled on a strip, and by utilizing any discrepancies to partially update factors included in the stored data, so that set-up for successive strips becomes more accurate. Such adaptive feedback corrections inherently reflect the particular characteristics of the steel being rolled and of the mill being controlled, and automatically compensate for the steel characteristics and for changes in mill characteristics due to aging or wear.

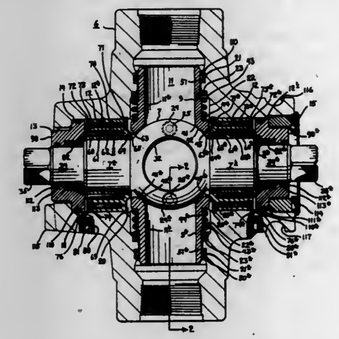
26,997
SHIP'S HULL CONSTRUCTION
Ernst Eckert, Grosshansdorf, Germany, assignor to Esso Research and Engineering Company, a corporation of Delaware
Original No. 3,302,603, dated Feb. 7, 1967, Ser. No. 389,157, Aug. 12, 1964. Application for reissue Dec. 17, 1968, Ser. No. 793,206
Int. Cl. B63b *1/04*
U.S. Cl. 114—56 **10 Claims**



A hull construction for a cargo vessel having a block coefficient of at least 0.75 and a Froude number of less than 0.25 which includes a protruding bulbous bow. The size of the bulbous bow is determined in accordance with a formula which establishes a preferred ratio between bulb

length forward of the forward prependicular and maximum beam of the bulb at the forward perpendicular and a preferred ratio (i.e. C valve) between the volume of the bulb relative to the volume of a specified portion of the forebody of the vessel.

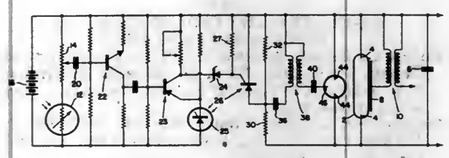
26,998
LOW FRICTION SEALED AND LOW TORQUE ACTUATED TRUNNION MOUNTED VALVE
Norman F. Brown, Fauldhouse West Lothian, Scotland, assignor to Otis Engineering Corporation, Dallas, Tex., a corporation of Delaware
Original No. 3,384,337, dated May 21, 1968, Ser. No. 405,744, Oct. 22, 1964. Application for reissue Jan. 27, 1969, Ser. No. 807,466
Int. Cl. F16k *5/14*
U.S. Cl. 251—172 **11 Claims**



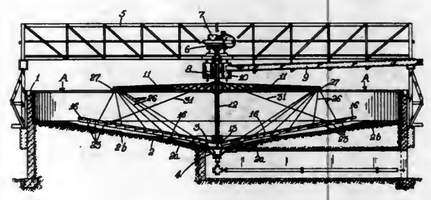
A plug valve having seat means provided with limited minimum interface engagement of seat means with valve plug means, and low friction sealed trunnion mounts assuring low torque actuation under high pressure conditions and long service intervals.

26,999
CONTROL SYSTEM FOR TERMINATING THE DISCHARGE THROUGH A FLASH LAMP
Franklin P. Elliott, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Original No. 3,340,426, dated Sept. 5, 1967, Ser. No. 453,080, May 4, 1965. Application for reissue July 22, 1969, Ser. No. 847,476
Int. Cl. G01j *1/28;* **H01j** *39/12;* **H05b** *41/38*
U.S. Cl. 315—151 **8 Claims**

A photocell, arranged to receive light reflected from an object to be photographed which is illuminated by a pulse of light from a flash tube, is connected to a silicon controlled rectifier and turns on the latter when the photocell has received a predetermined quantity of light. The turning on of the rectifier triggers a quench tube to terminate the light pulse prior to the expiration of its normal duration. A transistor connected to the photocell prevents it from turning on the rectifier unless a light activated silicon controlled rectifier has been made conductive by receiving light from the flash tube.



27,000
SETTLING APPARATUS
Daniel R. Klopper, Alberton, Transvaal, Republic of South Africa, assignor to Union Corporation Limited, Johannesburg, Transvaal, Republic of South Africa
Original No. 3,295,835, dated Jan. 3, 1967, Ser. No. 454,946, May 11, 1965. Application for reissue Jan. 2, 1969, Ser. No. 822,074
Claims priority, application Republic of South Africa, May 22, 1964, 64/2,420
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. B01f *7/16*
U.S. Cl. 259—108 **23 Claims**



Raking mechanisms for use in settling apparatus wherein at least one elongated rake arm extends radially outwardly from a vertical axis of rotation, the rake arm being rotated by at least one draught element extending forwardly and upwardly from the rake arm to a drive element which rotates about said vertical axis, the rake arm being mounted at its inner end to permit the arm to swing rearwardly and upwardly about its inner end in a path which is arcuate about the drive element.

PLANT PATENTS

GRANTED DECEMBER 8, 1970

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,008
VARIETY OF THE MILKWEED PLANT FAMILY
Lloyd S. Magnuson, Leesburg, Fla., assignor to B. L. Cobia, Inc., Winter Garden, Fla., a corporation of Florida
Filed July 31, 1968, Ser. No. 749,220
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—88 **1 Claim**

A new and distinct plant variety of the milkweed family developed from a mutation that appeared on a plant of the *Hoya Carnosa Exotica* variety is distinguished from its antecedents and known related varieties by a growth habit which combines the following distinctive characteristics:

(1) Leaf blades which have a solid green field and are broader in comparison to the parent variety, and which are wrinkled in appearance by dimples or depressions that occur in the upper surface of the leaf blade at opposite sides of midrib and with the depressions or dimples usually numbering from 6 to 10 in each blade,
(2) Stems, peduncles, and pedicels which are thicker in comparison to the parent variety and with the lengths of the peduncles and distances between nodes being shorter in comparison to the parent variety,
(3) Stems and peduncles which in color range from moderate olive brown to grayish reddish brown,
(4) Petioles which in color range from moderate olive to moderate yellow green, and
(5) Pedicels which in color range from strong brown to grayish reddish orange.

3,009
PEACH TREE
Arthur Wiebe, 1174 Vallombrosa Ave., Chico, Calif. 95926
Filed Aug. 30, 1968, Ser. No. 756,692
Int. Cl. A01h *5/03*
U.S. Cl. Plt.—42 **1 Claim**

1. A new and distinct variety of peach tree, substantially as illustrated and described, characteristized by its large green fluffy and ruffled leaf.

3,010
ROSE PLANT
Herbert C. Swim and O. L. Weeks, Ontario, Calif., assignors to O. L. Weeks, doing business as Weeks Wholesale Rose Grower, Ontario, Calif.
Filed Jan. 27, 1969, Ser. No. 794,428
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—21 **1 Claim**

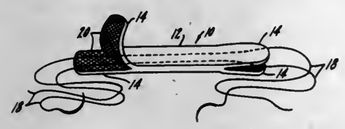
1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combinaion of an especially tall and vigorous plant habit, with stiff, long and erect stems which are clothed with persistent large foliage having average resistance to powdery mildew, a habit of bearing the flowers both singly and in clusters of up to five or sometimes more, with the individual stems in the clusters being unusually long and strong, a large flower size with the flowers having excellent substance or petal stiffness which gives the flowers good lasting quality on the plant, an unusual deep dark reddish purple flower color, a strong damask-rose flower fragrance, and better than average ability of the flowers to take up water as cut flowers, with consequent better than average vase-life when cut for indoor use.

PATENTS

GRANTED DECEMBER 8, 1970

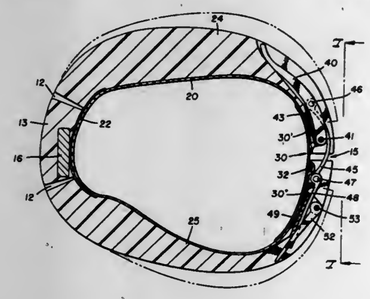
GENERAL AND MECHANICAL

3,545,008
TENDON PROSTHESIS
Karl F. Bader, Jr., Chicago, Ill.
(2300 N. Rockton Ave., Rockford, Ill. 61101)
Filed May 27, 1968, Ser. No. 732,404
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 **6 Claims**



A tendon prosthesis for use in tendon surgery particularly where there is complete or extensive loss of the tendon, structurally including an elongated member made from a flexible, chemically inert material having at least one flap at each end adapted to overlap the tendon and means for firmly anchoring the prosthesis to the tendon providing a strong, functional anastamotic union.

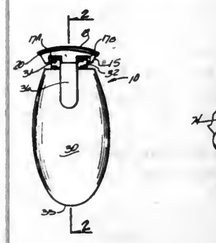
3,545,009
AMPUTEE SOCKET
Russell S. Colley, Cuyahoga Falls, Ohio, assignor to Ernest S. Ferry, Kent, Ohio
Filed Nov. 20, 1968, Ser. No. 777,410
Int. Cl. A61f *1/02*
U.S. Cl. 3—17 **6 Claims**



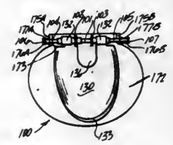
A socket for an amputee is provided with a slot which extends to the upper edge operated by a clamp, preferably a clamp with a variable bite so that the cavity within the socket can be adjusted to the size of a stump, and if the clamp has a variable bite the size of the socket can be varied from time to time without removal from the stump.

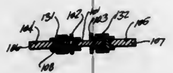
3,545,010
RODENT BARRIER ATTACHMENT FOR WATER CLOSETS
Robert E. Beebe, 2050 N. 94th St., Omaha, Nebr. 68134
Filed Feb. 26, 1968, Ser. No. 708,397
Int. Cl. A01k *69/06;* **A01m** *23/02*
U.S. Cl. 4—1 **16 Claims**

This invention provides a rodent barrier attachment that may be inserted into the discharge channel of a conventional water closet, and affixed therein, so as to prevent the entrance of sewer dwelling rodents into the bowl



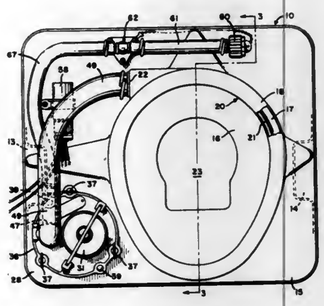






of the water closet; this without impairing the normal function of the water closet.

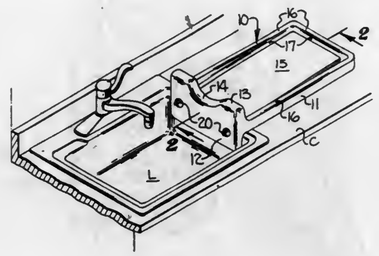
3,545,011
SEWAGE SYSTEM
Robert C. Helke, Dayton, Charles E. Van Gilder, Kettering, and Merlin S. Miller, Bradford, Ohio, assignors to Koehler-Dayton, Inc., Dayton, Ohio, a corporation of Ohio
Filed Dec. 9, 1968, Ser. No. 782,240
Int. Cl. E03d *1/00*
U.S. Cl. 4—10 **3 Claims**



A self-contained, recirculating toilet includes a main holding tank having a drain opening in the bottom thereof and an access opening in the top of the tank in substantially vertically spaced relation to the drain opening. A unitary pump, filter, and drain valve assembly is inserted through the access opening with said drain valve

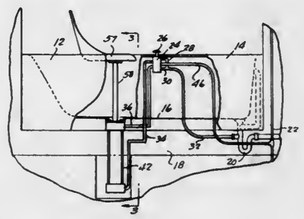
sealing the drain opening when the assembly is locked in place. The drain valve seal forms part of the filter and includes an outwardly extending lip which engages the surface of the tank to form one seal, and a circumferentially extending ridge axially spaced from the ridge which engages the inside of the drain opening to form a second seal.

3,545,012
INFANT'S SHAMPOO ACCESSORY
Carlos Alfonso Espin, 1016 Ilseworth Ave., Charlotte, N.C. 28200
Filed Jan. 6, 1969, Ser. No. 789,235
Int. Cl. A47k *3/12*
U.S. Cl. 4—159 **6 Claims**



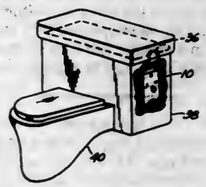
An infant's shampoo accessory for use in conjunction with a countertop and a lavatory for facilitating the washing of an infant's hair including a body support member for supporting an infant's body, a positioning member carried by one end portion of the body support member and extending downwardly therefrom, and a head and neck rest member carried by said one end portion of said body support member and extending upwardly therefrom with a concave portion in the upper portion thereof to receive the back of the neck of an infant therein.

3,545,013
HYDRO BATHTUB SAFETY AID
Harlen A. Discoe, P.O. Box 1511, Grand Island, Nebr. 68801
Filed May 23, 1969, Ser. No. 827,362
Int. Cl. A47k *3/12*
U.S. Cl. 4—185 **4 Claims**



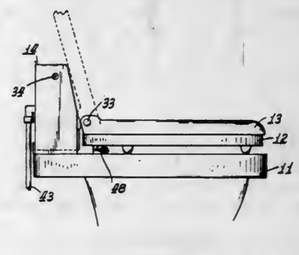
A hydro bathtub safety aid comprising a swivel chair which can be detachably connected to a hydraulic cylinder and raised and lowered in a bathtub by an invalid or injured party with valve means operatively connected to the cylinder for using the conventional water supply pressure in a home and the like for raising and lowering the chair.

3,545,014
SANITIZERS
Elbert Davis, 1611 Glenmont Drive, Glendale, Calif. 91207
Filed Feb. 5, 1968, Ser. No. 702,908
Int. Cl. E03d *9/02*
U.S. Cl. 4—228 **10 Claims**



This disclosure relates to sanitizers, and particularly to sanitizers for sanitizing toilet bowls.

3,545,015
HYGIENIC APPARATUS
Charles R. Richardson, Jr., Glenview, and James F. Fegen, Morton Grove, Ill., assignors to Sani-Seat Inc.
Filed Apr. 15, 1968, Ser. No. 721,417
Int. Cl. A47a *3/22*
U.S. Cl. 4—7 **14 Claims**



A hygienic apparatus comprised of a housing that is seated on a mounting plate secured to a toilet bowl and has the toilet seat and cover hingedly connected to journals integral with the mounting plate. The housing contains components for heating and directing a stream of water into the bowl below the seat and also contains blower-heater means for directing a flow of air into the bowl; the seat being fashioned to permit such air passage.

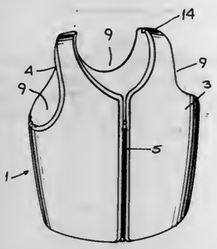
3,545,016
DEVICE FOR SUPPORTING INFANTS
Dorothy L. Schorken, 3629 Frederick Drive, Ann Arbor, Mich. 48105
Continuation-in-part of application Ser. No. 412,781, Nov. 20, 1964. This application June 8, 1967, Ser. No. 644,527
Int. Cl. A47a *3/12*
U.S. Cl. 4—185 **5 Claims**



A device for supporting an infant during bathing in which the infant is strapped to a platform and a head rest

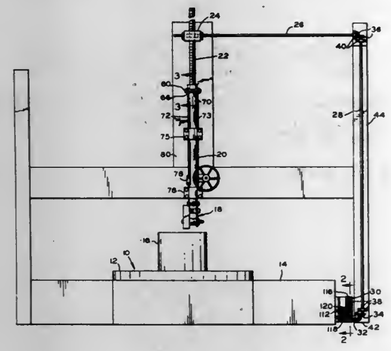
is pivotally mounted relative to the platform for movement between an upwardly inclined position for supporting the infant's head when the infant is supported on his back on the platform, a downwardly inclined position for supporting the infant's head during hair washing, and a substantially horizontal position when the infant is supported on the platform on his stomach. Leg brackets are removably mounted on the device at either end so that the end of the device can be supported in a stabilized position on the partition in a double tub sink so that the device can be used for bathing purposes in the kitchen sink.

3,545,017
ENCAPSULATED LIFE JACKET
H. Marvin Cohn, 31—74 Monterrey Drive, Merrick, N.Y. 11566
Filed Nov. 25, 1968, Ser. No. 778,506
Int. Cl. B63c *9/10*
U.S. Cl. 9—342 **3 Claims**



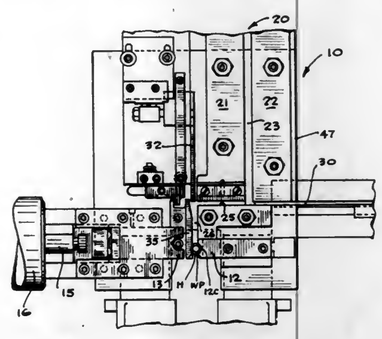
A life preservation device which comprises an inner filling of solid buoyant material that is encased inside a material which has been heat sealed to form an outer protective covering. Life jackets, life belts, buoyant seat cushions and the like are capable of being formed in this manner.

3,545,018
METHOD AND APPARATUS FOR CUTTING MULTIPLE THREADS IN LARGE WORKPIECES
Glenn H. Peterson, Lake Oswego, Oreg., assignor of one-half to Ardis Peterson, Lake Oswego, Oreg.
Filed Dec. 14, 1967, Ser. No. 690,473
Int. Cl. B23g *1/22;* **B23b** *29/00, 1/00;* **B23c** *3/28*
U.S. Cl. 10—101 **8 Claims**



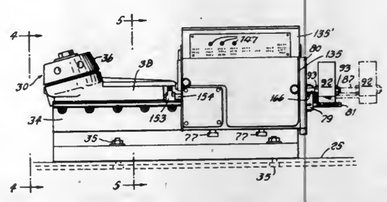
In a boring mill, the use of interchangeable index coupling spacer blocks of different thicknesses between the lead screw and the ram and a single thread cutting tool on the cutter head to cut multiple threads in a workpiece. The cutting tool is driven by a hydraulic motor mounted on the cutter head. The pitch of the threads can be varied by changing interchangeable gears on a speed-reducing unit which transmits rotary motion from a power source to a worm nut in driving engagement with the lead screw.

3,545,019
MACHINE TOOLS
Adolph V. Klancnik, 1020 Glenview Road, Glenview, Ill. 60025
Filed Apr. 9, 1968, Ser. No. 719,965
Int. Cl. B23g *1/00*
U.S. Cl. 10—107 **4 Claims**



In a machine tool where relatively small or thin-walled work pieces are located at a work station in position to have the tool presented to one end, the work piece is effectively clamped to resist the thrust and torque of the tool by pressure applied to the rear of the work piece. Such back pressure may be used in addition to side clamping pressure if the work piece is strong enough to withstand side clamping, or the back clamp may be used as the sole effective force-resisting means especially in the instance of thin-walled work pieces.

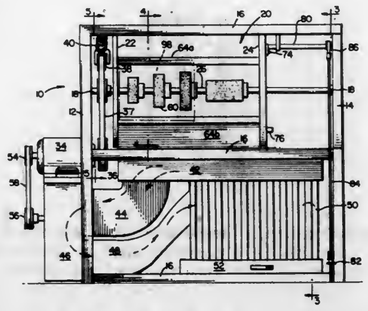
3,545,020
AUTOMATIC PROGRAMMED RECIPROCABLE CONTROL FOR MACHINE TOOLS
Thomas E. Patykula, Elmira, and Ernest P. Mann, Horseheads, N.Y., assignors to Hardinge Brothers, Inc., Elmira, N.Y.
Filed Sept. 13, 1968, Ser. No. 759,735
Int. Cl. B23g *1/00;* **B23b** *39/20, 39/10, 47/18*
U.S. Cl. 10—128 **8 Claims**



An improvement for an automatic machine whereby it may be programmed to operate in a selected reciprocating manner. The reciprocating device includes an extensible,

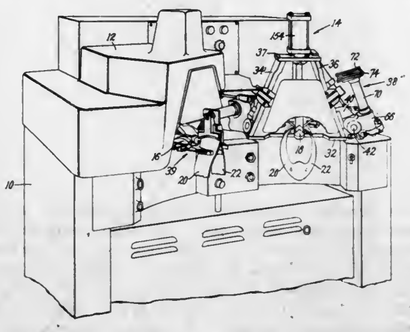
hydraulically activated plunger carrying a series of activator rings operating a stationary switch and a pair of coacting switches mounted on a rear movable stop. Said switches electrically interconnected for controlling the reciprocating cycles of said machine.

3,545,021
SHOE FINISHING MACHINE
John R. De Biase, 8509 Mount Vernon Hwy., Alexandria, Va. 22309
Filed Apr. 1, 1969, Ser. No. 811,863
Int. Cl. A43d
U.S. Cl. 12—1 **8 Claims**



A shoe finishing machine having a drum carrying a plurality of rotary tool shafts for sequential presentation of tools to a working position. Drive is provided to the presented shaft through pulleys mounted on the ends of each shaft and a drive belt encircling the shaft pulleys, a drive pulley and a tensioning pulley. As the drum is indexed, a vacuum system cooperates sequentially with baffles mounted around each shaft to provide for dust collection from the presented shaft.

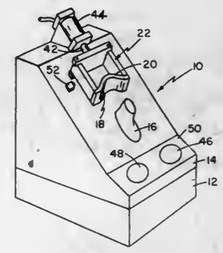
3,545,022
SHOE MACHINES
Dennis S. Hall, Leicester, England, assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed Sept. 12, 1969, Ser. No. 857,516
Claims priority, application Great Britain, Sept. 24, 1968, 45,251/68
Int. Cl. A43d *11/00*
U.S. Cl. 12—52 **8 Claims**



Apparatus for forming a seam between two components of plastic, plastic coated fabric material or other heat sealable material.

The apparatus is particularly adapted to form backseams in shoe uppers and comprises a form member and a presser member movable relative to said form member to clamp mating upper components therebetween. Means for creating a high frequency electric field between the form member and the presser member are provided. Orienting means comprising positioning means movable between a loading position and a releasing position and transfer means movable between a receiving position and an operative position are employed to introduce shoe upper components to the form member. The positioning means includes gauge means for precisely locating the upper components on the positioning means and clamp means for clamping said components on said positioning means. The positioning means, with upper components clamped therein, are pivoted from the loading position to the releasing position wherein the upper components are deposited on the transfer means. The transfer means comprises a temporary form member and means for clamping the upper components thereagainst. The transfer means is movable between a receiving position wherein it receives the upper components from the positioning means and an operative position wherein the upper components are deposited on the form member and released from the temporary form member and clamping means of the transfer means.

3,545,023
SHOE MANUFACTURING
George W. Foss, 3 Berkeley Ave., Haverhill, Mass. 01830; and Robert G. Leib, 316 Moul Ave.; James E. Campbell, R.D. 5; and Thomas G. Smith, 19 Northview Drive, all of Hanover, Pa. 17331
Filed Nov. 12, 1968, Ser. No. 774,641
Int. Cl. A43d *11/00, 95/00*
U.S. Cl. 12—54.3 **10 Claims**

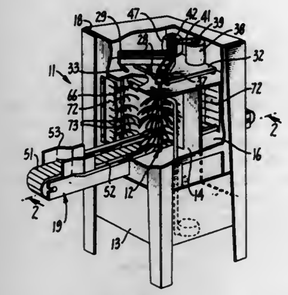


Dielectric heating apparatus for activating shoe stiffener material including an elastic electrode of flexible, elastic, electrically conductive material mounted for movement relative to a second electrode.

3,545,024
ROTARY CLEANING DEVICE AND APPARATUS FOR CLEANING
Benjamin F. Randrup, 423 Roberta Ave., Pleasant Hill, Calif. 94523
Filed May 27, 1968, Ser. No. 732,223
Int. Cl. B67c *1/08*
U.S. Cl. 15—60 **9 Claims**

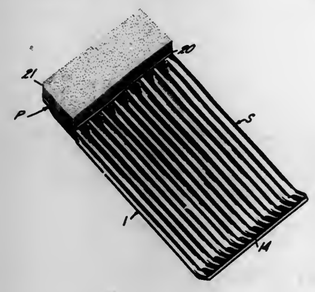
A rotary cleaning device and apparatus including same comprising a rotatable shaft, powered means for rotating the shaft, and a plurality of elongated cleaning elements attached to the shaft, said cleaning elements being sufficiently flexible to hang completely limp when at rest and extendable by centrifugal force whereby cleaning is

effected on rotation of the cleaning elements in wiping relation against a surface to be cleaned; said elements being attached to form straight ends or loops adapted for cleaning various surfaces including those having variable or irregular contours. The apparatus form utilizing said device within a wash housing having a conveyor formed to bring articles to be cleaned in position adjacent to the device; said apparatus also including means for directing cleaning solution against articles on the conveyor at or in front of the operative position of the clean-



ing device. A method of cleaning in which elongated wiping elements are wrapped around or against the surface to be cleaned and pulled thereacross to effect cleaning; one form of the method including the step of contacting the cleaned surface with a hot rinse capable of heating the cleaned surface sufficient to air dry same as well as a drying step in which gross moisture is removed by wiping with a device similar to the cleaning device but rotated fast enough to slough off the moisture picked up during wiping.

3,545,025
DENTAL CLEANING MEANS AND PROCESS FOR MAKING SAME
Thomas Brian O'Connell, 105-06 Metropolitan Ave., Forest Hills, N.Y. 11375
Filed Nov. 27, 1967, Ser. No. 685,813
Int. Cl. A46b *9/04*
U.S. Cl. 15—104.94 9 Claims



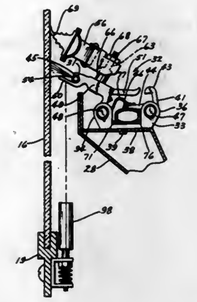
Dental cleaning means for temporary use comprises an elongate handle with a flat surface at one end and brushing means comprising sheet material bonded to said flat surface and a multiplicity of flexible resilient filaments united endwise with said sheet material and projecting approximately orthogonally therefrom. The cleaning means is preferably made by forming a corrugated sheet of plastic with flat marginal surfaces along one side edge, forming a pile material with resilient filaments projecting from a flexible base, bonding a strip of the pile material to the said marginal sheet and then severing the sheet along spaced corrugations to form a plurality of the dental cleaning means.

3,545,026
BRUSH
Carl C. Beer, Philadelphia, Pa., assignor to Sherman Car Wash Equipment Co., Palmyra, N.J., a corporation of New Jersey
Filed May 9, 1968, Ser. No. 727,964
Int. Cl. A46b *13/02*
U.S. Cl. 15—183 9 Claims



A centrifugal force- responsive brush whereby a plurality of brushes on a common shaft are mounted for pivotable movement between retracted and extended positions about axes which are generally parallel to the axis of rotation. If the brush is too close to the article being cleaned, the force of the article on the brushes causes them to partially retract. A brush of this construction can use shorter length bristles and substantially reduce bristle wear. The brushes may be latched in a retracted position.

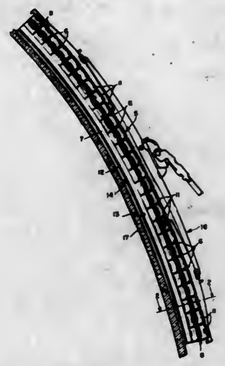
3,545,027
WINDOW CLEANING SYSTEM FOR THE TAILGATE WINDOW OF A VEHICLE
John E. Sargeant and Harry P. Rulapaugh, both of 7055 Fenkell Ave., Detroit, Mich. 48238
Filed Jan. 3, 1969, Ser. No. 788,740
Int. Cl. B60s *1/48*
U.S. Cl. 15—250.04 6 Claims



A system for cleaning the tailgate window of a station wagon wherein a wiper blade and fluid discharge unit extended transversely in a parallel relation along the outer surface of the window or supported within the tailgate for pivotal movement together toward and away from the window at a position opposite the upper portion of the window when the window is in a down position. On an upward movement of the window fluid is supplied to the discharge unit concurrently with the pivotal movement of the wiper blade into wiping engagement with the window outer surface. When the window reaches the up position

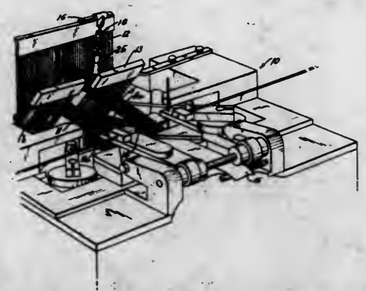
therefor the wiper blade is moved out of window wiping engagement concurrently with the shutting off of the fluid supply to the discharge unit.

3,545,028
WINDSHIELD WIPER REPLACEMENT BLADE
Maurice D. Poland, 2272 NW. 90th St., Miami, Fla. 33147
Filed Dec. 4, 1968, Ser. No. 781,206
Int. Cl. B60s *1/38*
U.S. Cl. 15—250.36 3 Claims



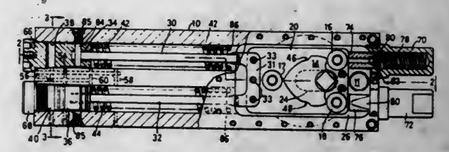
A replacement windshield wiper blate constituting a unitary structure capable of being applied over a worn-out wiper blade and attached to and supported by a part of the wiper blade assembly. The replacement blade is capable of flexing readily with the original wiper blade and the wiper blade assembly to conform to the curved contour of the vehicle windshield.

3,545,029
CLEANING OF LOOMS
Joseph Walmsley, Salisbury, and Charles F. Lamb, Cleveland, N.C., assignors to Grinnell Corporation, Providence, R.I., a corporation of Delaware
Filed June 12, 1968, Ser. No. 736,534
Int. Cl. B08b *5/00*
U.S. Cl. 15—314 3 Claims



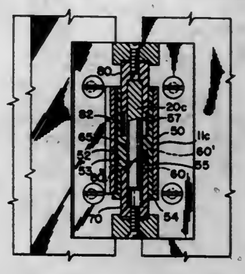
A method of and apparatus for cleaning looms, to avoid incorporation in the woven material of loose lint or the like, employs a stationarily-mounted tubular cleaning unit arranged to discharge a jet of air through a nozzle which automatically oscillates or rotates. The unit has a flexible tubular portion, preferably formed of a rubber-like material or a plastic which permits bending or flexing. Discharge outlets of the nozzle are offset from a longitudinal axis of the cleaning unit to bring about a swinging or rotary movement of the nozzle as it discharges air under pressure. Means are also provided for delivering compressed air intermittently and in succession to a number of groups of cleaning units each associated with a different group of looms; this reduces the rate of air supply required to carry out the desired cleaning action.

3,545,030
DOOR CLOSER DEVICES
Kenneth J. Perry, Leamington Spa, England, assignor to Dor-O-Matic (G.B.) Limited, Sydenham Industrial Estate, Warwickshire, England
Filed Oct. 28, 1968, Ser. No. 771,019
Claims priority, application Great Britain, Nov. 3, 1967, 50,057/67; Feb. 1, 1968, 5,203/68
Int. Cl. E05f *3/20*
U.S. Cl. 16—55 11 Claims



Door closer devices wherein opening of the door is resisted by spring pressure which constitutes energy storing means for closing the door and in which the closing is cushioned by a dashpot device. An auxiliary hydraulic dashpot device is provided for increasing resistance during the opening movement of the door, and it may be arranged to lock at a pre-determined position to prevent the door opening beyond a preset limit.

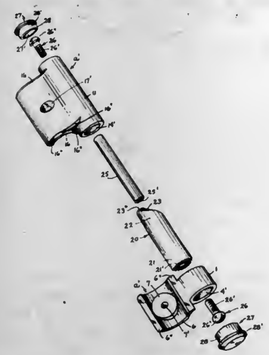
3,545,031
CAM OPERATED HINGE ASSEMBLIES
Harold J. Dielman, Lyndhurst, Ohio, assignor to The Sanymetal Products Company, Inc., Cleveland, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 432,950, Feb. 16, 1965. This application Oct. 4, 1967, Ser. No. 672,801
Int. Cl. E05f *1/06*
U.S. Cl. 16—153 23 Claims



The disclosure relates to cam operated hinge assemblies or gravity hinges in which the door and doorframe hinge parts are symmetrical with respect to a horizontal median plane and are thus adapted for reversible installation on either right or left hand swinging doors. Each hinge assembly is provided with a tubular riding sleeve on the door hinge part which is vertically shiftable on a pintle mounted on the doorframe hinge part. A nonrotatable cam member cooperates with a riding or rotating cam member carried on the tubular riding sleeve to raise the

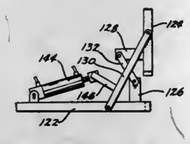
door on its hinge assemblies as it is swung from a predetermined residence position and to automatically return the door when released to the residence position.

3,545,032
CAM OPERATED HINGE ASSEMBLIES
Harold J. Dielman, Lyndhurst, Ohio, assignor to The Sanymetal Products Company, Inc., Cleveland, Ohio, a corporation of Ohio
Continuation of application Ser. No. 426,246, Jan. 18, 1965. This application Apr. 17, 1969, Ser. No. 830,175
Int. Cl. E05d 5/10; E05f 1/06
U.S. Cl. 16—153 **18 Claims**



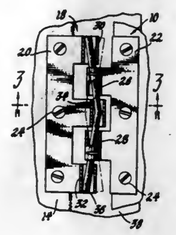
The present disclosure relates to a gravity hinge and more particularly to a hinge or hinge parts which are designed so as to satisfy both right and left hand swinging door conditions. In one embodiment the hinge part attached to the supporting frame and the hinge part attached to the door each have symmetrical supporting sleeves which present similar cam receiving pockets at opposite ends thereof which are generally defined on the opposite sides of a medial internal boss, the sleeve of the supported hinge part presenting similar riding cam tracks on opposite sides of the boss adapted to engage a cylindrical stationary cam member secured in the sleeve of the supporting hinge part. Characteristic of each of the hinge embodiments disclosed herein is that the stationary cylindrical cam member and hinge pintle are so designed as to journal the supported hinge part attached to the door regardless of whether a right or left hand hinge assembly is contemplated.

3,545,033
IMPLEMENT HINGE
Chester F. Couser, Zearing, Iowa 50278
Filed Apr. 16, 1968, Ser. No. 721,845
Int. Cl. E05d 3/06
U.S. Cl. 16—163 **9 Claims**



A device for interconnecting a pair of units to position them selectively at different positions relative to each other. The hinge device may be effectively used for connecting farm implement sections to transport carriers or to the tractor to raise and lower the implement section or to move the implement sections inwardly and outwardly to alter the effective width of the implement. The hinge in either of its two forms involves a pair of linkages having different lengths wherein one of the linkages extends between the two frame members and the second linkage extends between a pair of posts extending perpendicularly from the frame members. The hinges may be operated mechanically, hydraulically or manually and may be used in an infinite number of ways.

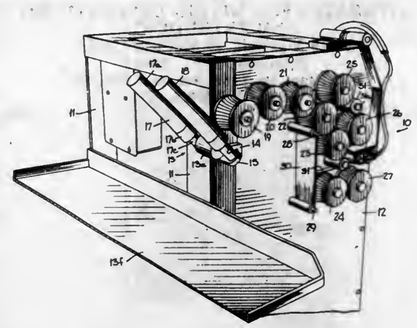
3,545,034
OVER-CENTER DOOR HINGE
Gene Paul Wright, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 31, 1969, Ser. No. 795,448
Int. Cl. E05f 1/12
U.S. Cl. 16—180 **2 Claims**



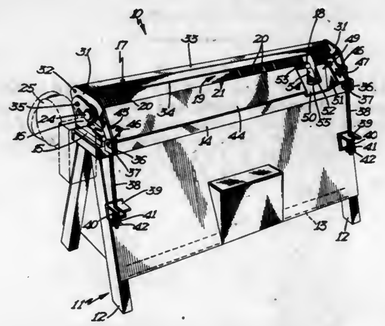
A hinge for a door includes a pair of hinge plates having axially offset pin-receiving sleeves with coplanar axes. A bowed pin extends through the sleeves and is, in a free form unstressed position, coplanar with the sleeve axes when the hinge plates are in a first predetermined position. Upon rotation of one hinge plate through an arc of less than or greater than 180° from the first predetermined position, the bowed pin is deformed or stressed to a position out of coplanar relationship with the sleeve axes. The force generated by the bowed pin attempting to return to its unstressed position applies a force on the offset sleeves tending to return the one plate to the first predetermined position. If the one hinge plate is rotated through an arc of substantially 180° to a second predetermined position, the sleeve axes and the pin axis are again coplanar as in the first predetermined position. The second predetermined position is a stable one. Although the bowed pin is deformed in the second position, the door will remain in this position until it is moved, then the door will return to the first predetermined position.

3,545,035
FRANKFURTER SEVERING MACHINE
Ludwig Piereder, Jacques-Cartier, Quebec, Canada, assignor to Hygrade Food Products Corporation, Detroit, Mich., a corporation of New York
Filed Nov. 21, 1967, Ser. No. 684,668
Int. Cl. A22c 11/00
U.S. Cl. 17—1 **10 Claims**

A machine to sever individual frankfurters from a chain of frankfurters at the junction of two adjacent frankfurters is disclosed. The chain of frankfurters is passed between parallel guide rollers and over idler rollers to be advanced through the machine by adjacent pairs of driven rollers. A sensing mechanism including a plurality of rollers is positioned with a portion of the plurality of rollers in contact with the outer surface of the frankfurters. When a junction between two adjacent frankfurters is reached, a sensing roller enters into the junction and thereby rotates a cam which is joined to the rollers. The cam upon rotation changes contact conditions in a switch which signals a switching relay to actuate a solenoid valve to advance and retract a piston. A knife connected to the piston through appropriate linkage then severs the junction between the frankfurters.

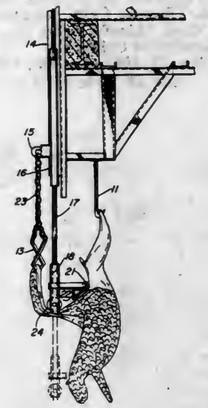


3,545,036
TOWNSEND SKINNER KNUCKLE BONE REMOVER
Nathan A. Fischer and George W. Hardwick, Austin, Minn., assignors to Geo. A. Hormel & Company, Austin, Minn., a corporation of Delaware
Filed Mar. 6, 1969, Ser. No. 804,862
Int. Cl. A22c 17/04, 17/12
U.S. Cl. 17—1 **5 Claims**



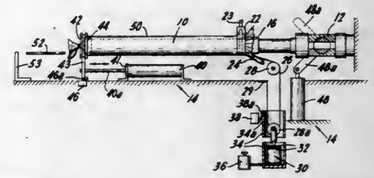
A skinning machine for removing skin from hams includes a driven roll mounted on a frame, the roll including first and second sets of serrated blades which are axially spaced apart. A plurality of stripper elements are positioned between adjacent blades of each set, and a pressure shoe having a skinning blade is positioned closely adjacent the driven roll. An elongate substantially flat guard member is also positioned closely adjacent the roll and is spaced from the pressure shoe, and includes a U-shaped portion which includes a substantially flat web disposed substantially parallel to the general plane of the guard member. The flat web is provided with a notch therein including a portion thereof slightly larger than the space between the two sets of blades thereby permitting insertion of the knuckle bone of a ham through the notch for engagement by the adjacent blades of the two sets and cooperating with the skinning blade to facilitate ready removal of the knuckle bone.

3,545,037
HIDE REMOVAL APPARATUS
James D. Anderson, Richton Park, Ill., assignor to Armour and Company, Chicago, Ill., a corporation of Delaware
Filed Mar. 4, 1968, Ser. No. 710,198
Int. Cl. A22b 5/16
U.S. Cl. 17—21 **5 Claims**



An apparatus and method for removing the hide from suspended livestock carcasses. A portion of the hide which has been previously removed from the carcass is secured by clamping means, and a separating member is passed between the hide and the suspended carcass to separate further portions of the hide from the carcass.

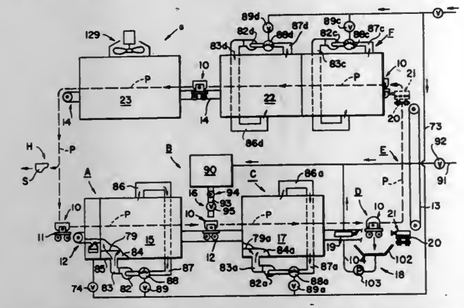
3,545,038
CONSTANT PRESSURE FILLING APPARATUS
Michael J. Myles, Downers Grove, Vytautas Kupcikevicius, Chicago, and John P. Spellman, Oak Lawn, Ill., assignors to Union Carbide Corporation, a corporation of New York
Original application Oct. 31, 1966, Ser. No. 590,566, now Patent No. 3,451,098, dated June 24, 1969. Divided and this application Feb. 19, 1969, Ser. No. 816,857
Int. Cl. A22c 11/00
U.S. Cl. 17—49 **3 Claims**



Food products having dimensional uniformity are prepared by a procedure wherein a food casing is automatically stuffed with a food emulsion which includes the steps of (a) admitting food emulsion under pressure into a food casing sheathed about and fully extended along the length of a stuffing means the food casing having a forwards closed end abutting the outlet end of the stuffing means and tensioning and restraining means attached to the open end of the casing sheathed about the stuffing means; (b) controlling the internal stuffing pressure of the food casing and progressive expansion of the stuffed portion of the food casing by the tensioning and restraining means attached to the open end of the food casing; (c) venting air from inside said food casing as it is being

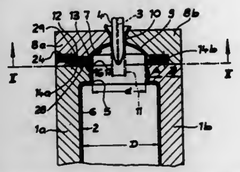
stuffed; (d) preventing food emulsion from backing up onto the outer surface of the stuffing means after the food casing has been stuffed; and (e) removing the stuffed food casing from the stuffing means and closing the open end of the stuffed food casing.

3,545,039
APPARATUS FOR MOLDING ARTICLES
John W. Duckett, Tiburon, Calif., assignor, by mesne assignments, to Ward Manufacturing Co., Inc., Sausalito, Calif., a corporation of California
Filed Jan. 12, 1968, Ser. No. 697,471
Int. Cl. B29c *5/10*
U.S. Cl. 18—4 **16 Claims**



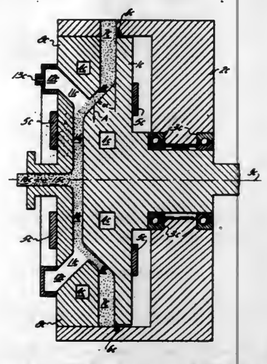
An apparatus for molding articles comprises a conveyor means for sequentially moving a mold assembly through a first heating means to heat the mold to a predetermined temperature and to a filling means whereat the mold is filled with a curable liquid material. The filled mold is then passed through a second heating means to solidify the material therein and through a curing means for heating the mold to a predetermined temperature to cure the material.

3,545,040
BLOW MOLDING APPARATUS
Horst Mehnert, Forddamm 91, Berlin 42, Germany
Filed Aug. 1, 1967, Ser. No. 657,574
Claims priority, application Germany, Aug. 17, 1966, M 56,006
Int. Cl. B29d *23/03*
U.S. Cl. 18—5 **20 Claims**



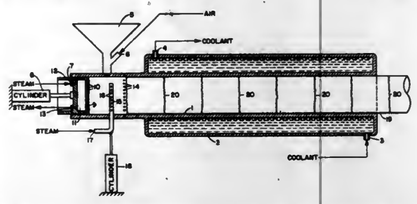
A cap-like or annular surplus portion can be separated from the main portion of a blow molded article in the cavity of the blow mold by one or more tools which are reciprocably received in channels provided in a preferably annular composite driving member surrounding a portion of the mold cavity and being turnable in an annular groove of the mold by a toothed rack, worm or the like. Each tool leaves a retracted position and penetrates into the material of the blow molded article in response to movement of the driving member from a starting position in which each of its arcuate portions is fully received in a separate section of the mold. Each tool can be installed to reciprocate radially or in parallelism with the axis of the driving member, depending upon whether its cutting edge is to sever a cylindrical or conical portion of the article (radial position of the tool) or a washer-like portion of the article (axially parallel position of the tool).

3,545,041
APPARATUS FOR MIXING DEVOLATIZING AND EXTRUDING
Bryce Maxwell, 19 McCosh Circle, Princeton, N.J. 08540
Filed Jan. 10, 1968, Ser. No. 696,792
Int. Cl. B29f *3/02*
U.S. Cl. 18—12 **7 Claims**



Ports or vents are formed through the stationary or rotary member of an elastic melt extruder for removing volatile material from the melt being extruded and for supplying additives to the melt. The surfaces between the members are surfaces of revolution and are contoured to provide an increasing space between them as the radius of the surface of revolution decreases.

3,545,042
APPARATUS FOR CONTINUOUS MOLDING
Norman J. Brozenick, Solon, and Fernando V. Guerrero, Chagrin Falls, Ohio, assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Nov. 8, 1968, Ser. No. 774,267
Int. Cl. B29f *3/014*
U.S. Cl. 18—12 **4 Claims**

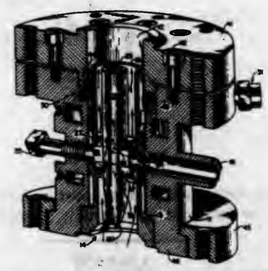


A device for incrementally forming a continuous bar of expanded plastic by softening pre-expanded plastic beads adjacent the roughened face of an existing plastic bar.

3,545,043
APPARATUS FOR PLASTIC FILM PRODUCTION
Robert Charles Schwindy, Terre Haute, Ind., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
Filed Nov. 6, 1967, Ser. No. 680,833
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 **5 Claims**

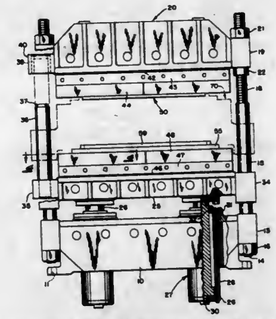
A coaxial adapter apparatus for the production of multilayer thermoplastic film. The adapter is coupled

between two plastic extruders and a tubular film die. A body member provides an axial opening in which is seated a mandrel assembly which divides a side entering stream of thermoplastic into an inner cylindrically shaped portion and an outer annular shaped coaxial layer surrounding an annular center layer of different thermoplastic material supplied by a second extruder through



the bottom opening of the body. An adjustable restrictor ring surrounds the upper potrion of the mandrel assembly and is positioned by means of a plurality of adjustable push-pull bolts in order to provide control of the thickness of the outer layer of the multilayer film. Precise control of the thickness of the inner and outer layers is essential to prevent curl of the multilayer film along the edges thereof.

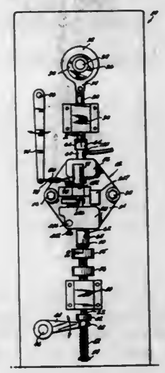
3,545,044
PRESS
Edward P. Rebovich, Jefferson, and Robert S. Morrison, Ashtabula, Ohio, assignors, by mesne assignments, to Morrison Industries, Inc., Ashtabula, Ohio, a corporation of Ohio
Filed July 5, 1968, Ser. No. 742,885
Int. Cl. B30b *7/02*
U.S. Cl. 18—16 **8 Claims**



A press for the molding of panels, sheets and other objects which has a head and table, magnetic chucks secured thereto and a die structure held by said chucks which includes male and female die plates with the female die plate including a ridge acting as a pinch-off bar to embrace the periphery of the male die plate.

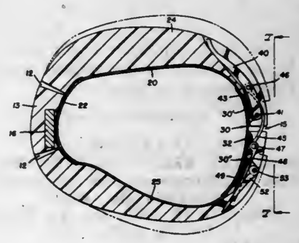
3,545,045
POWDER COMPACTING SUBPRESS
Paul Vinson, 10821 Meads Ave., Orange, Calif. 92667
Filed Sept. 4, 1968, Ser. No. 767,540
Int. Cl. B03b *11/00*
U.S. Cl. 18—16.5 **14 Claims**

The invention is a powder compacting press of the type wherein powder is fed into a die having a cylindrical bore, and is then compressed by punches that move downwardly and upwardly into the bore of the die. For making toroidal ferrite cores, a core rod is provided centrally positioned in the die and the powder is compacted in an annulus around the core rod. The press of this invention is constructed as a subpress, that is, an attachment which can be mounted on a conventional commercial press which may be mechanical, hydraulic, pneumatic or electrical. The subpress is constructed to provide an integral member having a portion line bored to receive aligned rams. The subpress is mounted so that its rams are driven by the rams of the main press. A die plate is positioned between the aligned bores of the subpress.



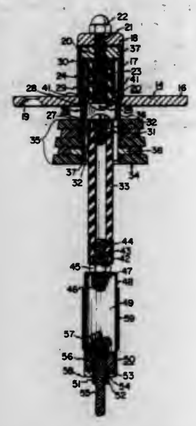
The tooling is carried directly by the rams of the subpress. The subpress has no upper or lower platen or guide pins for the rams. The subpress is of the type employing upper and lower punches cooperating with the die. Holding means are provided for the punches providing for horizontal float while setting up, that is, while aligning them with the die and improved means are provided for locking the punches in position after alignment when setting up. The lower punches continue to float horizontally after setup, maintaining their alignment by remaining in and seeking the center of the die while the upper punches are locked both horizontally and vertically after setup.

3,545,046
TOGGLE-TYPE CLAMP
Russell S. Colley, Cuyahoga Falls, Ohio, assignor to Ernest S. Ferry, Kent, Ohio
Original application Nov. 20, 1968, Ser. No. 777,410. Divided and this application Sept. 8, 1969, Ser. No. 855,845
Int. Cl. A43c *11/14;* **A61f** *1/02*
U.S. Cl. 24—68 **3 Claims**



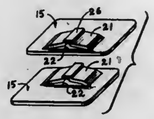
A toggle-type clamp having a variable bite.

3,545,047
TOWING CONNECTOR MEANS
Lee Triplett, 2878 South 8600 West, Salt Lake City, Utah 84109
Filed July 26, 1968, Ser. No. 747,885
Int. Cl. A44b *17/00*; B63b *21/00*
U.S. Cl. 24—201 10 Claims



The present invention comprises improved towing connector means constructed for securing the forward end of an elongate connector, such as a tow rope, to a moving object such as a boat. The device of the invention is easily mounted to the towing object and includes a novel handle and friction-lock construction by which the elongate connector or its adapter may be easily secured and released from the securement with the friction-lock mechanism of the device.

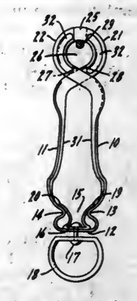
3,545,048
SNAP FASTENER
Domenic John Daddona, Jr., Waterbury, and Kenneth William Flisher, Middlebury, Conn., assignors to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Dec. 16, 1968, Ser. No. 784,006
Int. Cl. A44b *17/00*
U.S. Cl. 24—213 4 Claims



A snap fastener of very economical construction comprises two like parts each of a single thickness of sheet material having a rectangular portion cut through along opposite side margins and shaped upwardly into an arching bridge, bridging between the two other side margins to thereby present an upwardly facing head and a downwardly facing socket for snap engagement with the socket or head respectively of the other part.

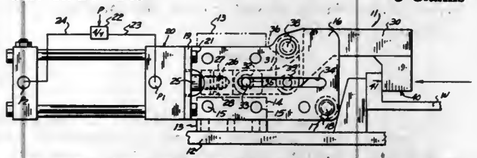
3,545,049
MANUALLY RELEASABLE CONNECTOR
John T. Brueggeman, 956 Deerfield Road, Deerfield, Ill. 60015
Filed Sept. 10, 1968, Ser. No. 758,775
Int. Cl. A44b *13/02*
U.S. Cl. 24—236 6 Claims

A connector including two generally semi-circular hooks biased together to define a holding loop, adapted to be separated to release anything held by the loop, with



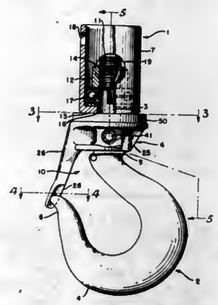
a tension member adapted to assist in holding the hooks together, the hooks being manually separable for release.

3,545,050
POWER CLAMP WITH PULL-BACK ACTION
Leland F. Blatt and Paul R. Williams, Grosse Pointe Woods, Mich., assignors to I.S.I Manufacturing, Inc., Warren, Mich.
Filed Jan. 30, 1969, Ser. No. 795,202
Int. Cl. B25b *5/08*, *5/12*
U.S. Cl. 24—248 5 Claims



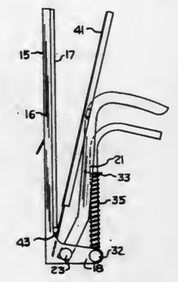
A power clamp with a pull-back action which includes a housing with slotted side plates, a power cylinder on the housing with piston rod extending therein, a clamp arm which is pivotally and guidably mounted intermediate its ends within the housing between "clamping" and "released" position and adjacent one end constrained to reciprocal rectilinear movements and with adapter means on the clamp arm limiting clamping to longitudinal forces coaxial of the piston rod.

3,545,051
SAFETY HOOK
Edward Kennard, St. Catharines, Ontario, Canada, assignor to Columbus McKinnon Corporation, Tonawanda, N.Y.
Filed Sept. 11, 1968, Ser. No. 758,996
Int. Cl. A44b *13/02*
U.S. Cl. 24—241 5 Claims



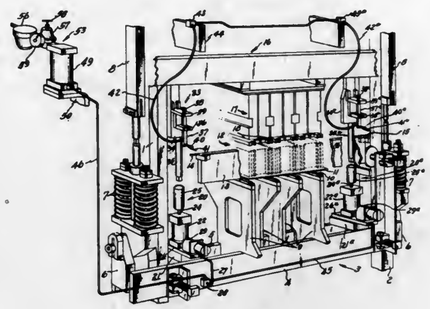
A safety hook including a gate rotatably supported for movement between hook mouth closed and open positions; the gate being normally locked in hook mouth closed position by manually releasable retaining pins.

3,545,052
GARMENT-VENT CLAMP
Walter P. Goodman, New Albany, Ind., assignor to W. M. Cissell Manufacturing Company, Louisville, Ky., a corporation of Ohio
Filed Feb. 18, 1969, Ser. No. 800,075
Int. Cl. A44b *21/00*; A41h *5/02*
U.S. Cl. 24—252 6 Claims



A clamp for closing the vent of a garment, during finishing operations on a garment finisher, having a pistol-grip type of handle for quick and convenient manipulation with portions of the clamp compactly arranged to avoid interference with bag of the finisher.

3,545,053
APPARATUS FOR CONTROLLING THE HEIGHT OF CONCRETE BLOCK DURING THEIR MANUFACTURE
Jesse Besser, Alpena, Mich., assignor to Besser Company, Alpena, Mich., a corporation of Michigan
Filed Mar. 8, 1967, Ser. No. 621,505
Int. Cl. B86b *7/12*
U.S. Cl. 25—41 12 Claims



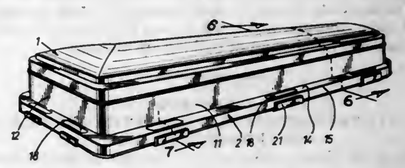
Concrete blocking apparatus having a mold frame and a stripper frame relatively movable toward one another including normally yieldable pressure means engageable with each other as the frames approach each other and electrically operable control means actuated in response to relative movement of the frames to a predetermined distance from one another to rigidify the stops and preclude further relative movement of the frames toward each other.

3,545,054
METHOD OF LONGITUDINALLY AND LATERALLY TENSIONING CLOTH
Yoshikazu Sando 215 Usu, and Hiroshi Ishidoshiro, 486 Wakanoura, both of Wakayama-shi, Wakayama-ken, Japan
Filed May 16, 1967, Ser. No. 638,971
Claims priority, application Japan, May 23, 1966, 41/32,872; Nov. 24, 1966, 41/77,123; Feb. 15, 1967, 42/9,732
Int. Cl. D06c *3/06*
U.S. Cl. 26—51 2 Claims



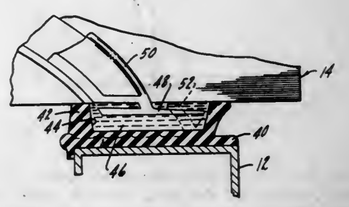
A method of processing and treating cloth comprising continuously passing cloth along a path of travel, gripping the opposite faces of the cloth and laterally tensioning the cloth as it passes along its path of travel, longitudinally tensioning the cloth, and immersing the cloth in a solution bath, whereby the cloth is tensioned in both the lateral and longitudinal direction during the same processing operation.

3,545,055
COFFIN
Donat S. Pare, Box 666, Black Lake, Megantic County, Quebec, Canada
Filed Sept. 17, 1968, Ser. No. 760,184
Int. Cl. A61g *17/00*
U.S. Cl. 27—7 6 Claims



A coffin made of separate molded elements assembled by cementing or glueing and characterized by a perfect sealing of the cover, and also by the provision of handle means integrally formed with the coffin.

3,545,056
STRUCTURE FOR SEALING CASKET LIDS
Leonard O. Schevenell, Niles, Ill., assignor to The Merit Company, a corporation of Illinois
Filed Dec. 26, 1967, Ser. No. 693,243
Int. Cl. A61g *17/00*
U.S. Cl. 27—16 6 Claims



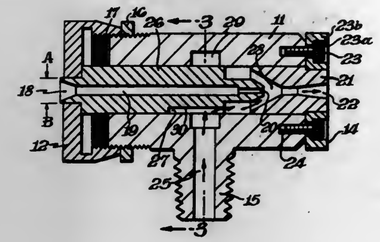
A method and structure for sealing a casket lid including an appropriate gasket having at least one pad with

a pocket for receiving an adhesive or glue therein. In addition, the pocket containing the adhesive is adapted to receive a foot of a cover gasket in air tight sealing relationship.

3,545,057
YARN TREATING APPARATUS

John Paul Lubach, Wilmington, Del., assignor, by mesne assignments, to E. I. du Pont de Nemours and Company, a corporation of Delaware

Continuation-in-part of application Ser. No. 741,045, June 28, 1968. This application Sept. 30, 1968, Ser. No. 763,561
Int. Cl. D02q *1/16*
U.S. Cl. 28—1.4 8 Claims

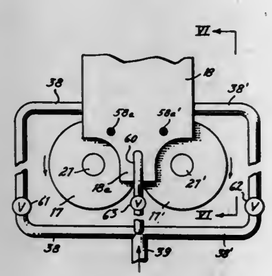


This invention provides a device for use in the production of a bulky yarn in which the air that is used in making the plurality of convoluted filaments is channeled in a direct fashion to the venturi. The control device comprises a yarn inlet element that coacts with the air inlet to concentrate the air in a substantially direct passage to the outlet through which the air and the yarn to be bulked passes. Very high rates of bulking are attained.

3,545,058
STUFFER CRIMPER WITH COOLING FLUID PRETREATMENT MEANS

Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Kennett Square, Pa., a corporation of Pennsylvania

Continuation-in-part of applications Ser. No. 650,762, July 3, 1967, and Ser. No. 675,919, Oct. 17, 1967. This application Jan. 22, 1968, Ser. No. 703,221
Int. Cl. D02g *1/12*
U.S. Cl. 28—1.6 10 Claims

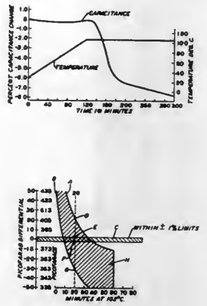


This invention provides for fluid cooling of the contacting surfaces of the feed rolls of stuffer crimpers, thereby enabling preheated material to be stuffer crimped without further raising the temperature thereof, and provides for guiding and maintaining a textile strand in a central position along the axes of the feed rolls by fluid means, thereby preventing snagging of the strand at the entrance to the stuffing chamber of the crimper.

3,545,059
METHOD AND APPARATUS FOR MANUFACTURE OF CAPACITORS

Joel C. Masland, Whippany, and Joseph A. Toro, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Aug. 22, 1967, Ser. No. 662,449
Int. Cl. H01g *3/26, 13/00;* B23p *21/00*
U.S. Cl. 29—25.42 1 Claim

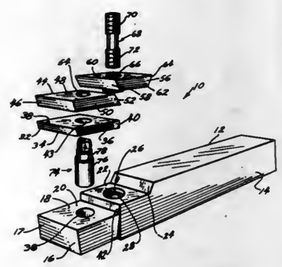


In the fabrication of plastic film capacitors, such as polystyrene capacitors, a plurality of capacitors is exposed to a heat source which is raised to and maintained at a preselected level. The capacitance of each individual capacitor is monitored substantially continuously during the heat treatment and a capacitor is removed from the heat source as soon as its capacitance reaches a desired value within a preselected tolerance.

3,545,060
INTERCHANGEABLE INSERT AND HOLDER ASSEMBLY

Mitchell Kezran, 1157 Narragansett Blvd., Cranston, R.I. 02920

Filed May 20, 1968, Ser. No. 725,232
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 8 Claims

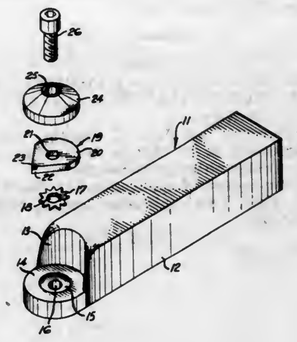


An interchangeable insert and holder assembly wherein the insert is positioned and held on a holder shank by means of a pin and a cooperating bore formation, the pin and the bore formation having cooperating finished surface formations which are dimensionally controlled to predeterminedly relate the positioning of the insert to the holder. A wedge is provided for wedging the cooperating surface formations together.

3,545,061
CUTTING TOOL

Kenneth S. Michael, 62 Madison St., Hackensack, N.J. 07601

Filed May 21, 1968, Ser. No. 730,725
Int. Cl. B26d *1/00*
U.S. Cl. 29—98 1 Claim

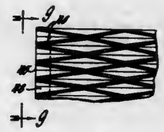


A cutting tool is shown having a support provided with a cut-out portion at one end and an adjacent projecting shelf portion. An opening is provided within the shelf portion. The opening is countersunk to receive a lock washer. A cutter having a projecting point of abrasive material is rotatably disposed within the support. The cutter is formed with an opening mating with the opening within the support. A holding member is also provided with an opening mating with the other openings and a screw passes through all openings and is adapted to lock the cutter in fixed positions upon the support.

3,545,062
METHOD OF FABRICATING A HEAT EXCHANGER FROM CORRUGATED SHEETS

Dean M. Cox, Whitestown, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Original application July 19, 1967, Ser. No. 654,606, now Patent No. 3,451,474, dated June 24, 1969. Divided and this application Oct. 28, 1968, Ser. No. 770,921
Int. Cl. B21d *53/02*
U.S. Cl. 29—157.3 3 Claims

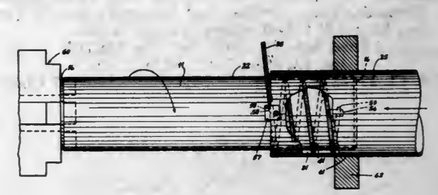


A heat exchanger and a method of making it. Corrugated sheets are folded into wafers, sealed, stacked, brazed together at the ends, and the braze metal and ends of the folded sheets cut away to open passages through the wafers from end to end. The stack is enclosed in a pressure-containing case which confines a fluid which flows between the wafers.

3,545,063
METHOD OF ASSEMBLING AN EVAPORATOR HAVING A HELICAL CHANNEL

Orville Mitchell, Dallas, Tex., assignor to John E. Mitchell Company, Inc., Dallas, Tex., a corporation of Missouri

Filed Dec. 17, 1968, Ser. No. 784,369
Int. Cl. B21d *53/02*
U.S. Cl. 29—157.3 7 Claims

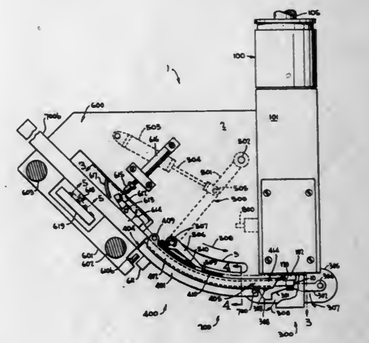


A heat exchanger comprising concentric tubes with a helical channel for heat exchange fluid between the tubes, the channel defined by a resilient sealing member squashed between the tubes in a helical position. A method of assembling the heat exchanger by rotating one cylinder relative to the other while moving the cylinders into concentricity and simultaneously feeding the resilient strip between the cylinder.

3,545,064
VARIABLE SIZE MODULE SEQUENCE AND INSERTION APPARATUS

Albert W. Zemek, Binghamton, N.Y., and Paul V. McDonald, Hallstead, Pa., assignors to Universal Instrument Corporation, Binghamton, N.Y., a corporation of New York

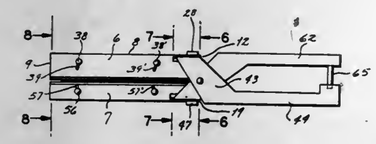
Filed Apr. 1, 1968, Ser. No. 717,627
Int. Cl. H05k *13/04;* B23q *17/00*
U.S. Cl. 29—203 14 Claims



An apparatus adapted to insert sequentially supplied variable sized modules into a circuit board which includes a module supply means; a module insertion means

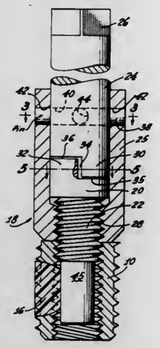
adapted to be reciprocated between a variable first position and a module insertion position; module feed means including module guide means adjustable to accommodate variable sized modules, the supply means being adapted to sequentially present one module at a time to the feed means and the feed means being adapted to feed the presented module to the insertion means when in the first position thereof; and means to vary the first position of the insertion means in accordance with the size of the module presented to the feed means, the insertion means functioning to adjust the module guide means in accordance with the first position of the insertion means.

3,545,065
FASTENER APPLYING TOOL
Theodore W. Medlin, New Madrid, Mo. (3045 Curtis, Memphis, Tenn. 38118), and Robert D. Uthoff, Fenton, Mo.; said Uthoff assignor to said Medlin
Filed June 10, 1968, Ser. No. 735,702
Int. Cl. B23q *7/10;* **B23p** *11/00*
U.S. Cl. 29—212 **7 Claims**



A tool for applying a fastener comprising cooperative components for retainingly gripping flexible materials therebetween, said tool having a magazine for each of said fastener components, there being means for feeding cooperating components toward each other into engaged condition upon opposite sides of the intervening gripped materials. Said tool being portable and having a portion for effecting disengagement of said fastener components for removal from engaged condition.

3,545,066
THREADED ELEMENT INSTALLATION TOOL
Donald W. Stillman, Playa Del Rey, and David W. Lang, Culver City, Calif., assignors to Whittaker Corporation, Los Angeles, Calif., a corporation of California
Filed Sept. 10, 1968, Ser. No. 758,887
Int. Cl. B23p *19/06;* **B25b** *27/14, 29/02*
U.S. Cl. 29—240 **10 Claims**



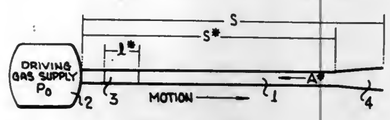
A tool for installing a threaded insert in a bore of a workpiece comprises a driven member having a threaded end to engage the insert and a driver for the driven member that screw-threadedly and frictionally engages the driven member, the driven member and driver having overlapping parts that provide a lost-motion connection therebetween. Initially with the driver at one limit of the lost-motion, the driver frictionally transmits relatively low torque to the driven member to screw the driven member into engagement with the insert and to draw the insert into effective binding pressure engagement with the driver. Subsequently, while the insert is being driven into the workpiece, the driver shifts to the opposite limit of the lost-motion connection for transmitting high torque to the driven member. When the insert is fully installed reverse rotation of the driver back to the second limit of the lost-motion breaks the binding pressure engagement of the driver with the insert and enables the driver to transmit high reverse torque to the stud for unscrewing the stud from the tubular insert.

3,545,067
METHOD OF MAKING PREOXIDIZED SILVER-CADMIUM OXIDE MATERIAL HAVING A FINE SILVER BACKING
Fredrik O. Haarbye, and Peter C. Murphy, Indianapolis, Ind., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware
Continuation-in-part of application Ser. No. 445,038, Apr. 2, 1965. This application Dec. 9, 1966, Ser. No. 600,621
Int. Cl. B22f *3/24*
U.S. Cl. 29—420.5 **7 Claims**



A preoxidized silver-cadmium oxide material having a microstructure wherein there is a random distribution of particle sizes of the cadmium oxide throughout the material with no depleted cores. A backing for example of fine silver is connected to the contact material by a hot rolling method.

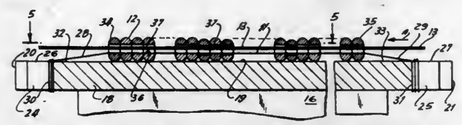
3,545,068
PRESSURE AMPLIFICATION
Romald E. Bowles, Silver Spring, Md., assignor to Bowles Engineering Corporation, Silver Spring, Md., a corporation of Maryland
Filed July 12, 1967, Ser. No. 652,860
Int. Cl. B23p *17/00*
U.S. Cl. 29—421 **19 Claims**



High impact pressures of liquids on a surface are produced with relatively low pressure gas sources by accelerating a slug of liquid to a velocity less than (subsonic), equal to (sonic), or greater than (supersonic) the velocity of sound in the driving gas. Total pressure

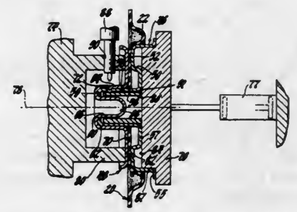
of the liquid on impact with a surface is approximately equal to one-half the density of the liquid times its velocity squared. The invention thus takes advantage of the difference in densities between gases and liquids to use relatively low pressure gas to accelerate a liquid to a high velocity and achieve high total pressures at impact as a result of the high density of the liquid.

3,545,069
METHOD AND MEANS OF STRINGING BEADS
Bernard L. Krieger, 200 S. Middle Neck Road, Great Neck, N.Y. 11021
Filed Apr. 30, 1968, Ser. No. 725,356
Int. Cl. B23g *3/08, 27/00;* **B23p** *19/04*
U.S. Cl. 29—433 **4 Claims**



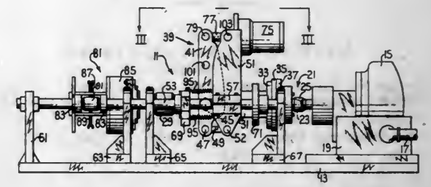
A method and means of restringing a row of beads supported on a thread by replacing the thread with a selected stringing element, such as a wire. The original thread supporting the beads is held in taut condition to maintain the apertured portions thereof in longitudinal alignment and provide a through passageway, the thread being positioned on one side of the passageway, thereby leaving the rest of the passageway unobstructed and thus providing a clear path for the insertion of the wire. The means for employing the method comprises anchors for gripping the ends of the thread and holding it in tension, and means for holding the thread in engagement with longitudinally aligned internal wall portions of the bead's apertures to provide the said clear path.

3,545,070
METHOD OF ASSEMBLING A VACUUM MODULATOR
Richard J. Bauer, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 30, 1968, Ser. No. 756,679
Int. Cl. B23p *19/04*
U.S. Cl. 29—454 **2 Claims**



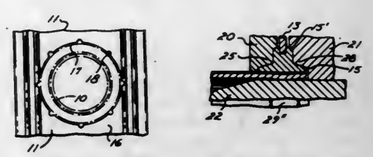
A vacuum modulator for an automotive automatic transmission control system is shown as having a subassembly including a diaphragm separating an atmospheric chamber from a vacuum chamber to which engine vacuum is applied for automatic transmission control purposes. Two stiff members sandwich the diaphragm in the subassembly, the member on the engine vacuum side serving as a seat for a spring providing the modulator's spring bias. The other member is on the atmospheric pressure side and has a socket receiving a control rod which is for transmitting the modulator's output force to a modulator valve in the transmission control system. The vacuum side member has a sleeve portion which extends through an aperture in the diaphragm and into an annular channel in the atmospheric pressure side member so that the sleeve portion is positioned between the channel's inner and outer wall. The outer channel wall is staked to the sleeve portion to provide mechanical connection in the subassembly. Apparatus is also shown for the staking operation which in cooperation with a radial section of the sleeve portion engaging the channel prevents crushing of the socket during the staking operation.

3,545,071
HIGH SPEED FRICTION WELDER
Calvin D. Loyd, Peoria, Theodore L. Oberle, Washington, and Ronald L. Satzler, Metamora, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Mar. 14, 1968, Ser. No. 713,050
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 **9 Claims**



An air turbine rotates a movable collet chuck through a cone and cup friction clutch. The collet chuck is driven toward an immovable four-jaw chuck and this movement causes simultaneous release of the clutch and contact of the workpieces held in the chucks.

3,545,072
METHOD OF JOINING A LADDER RUNG TO A LADDER RAIL
Harold R. Lindesmith, Greenville, Richard P. Sulecki, Transfer, Charles R. Tuck, Greenville, and Richard L. Werner, Sharon, Pa., assignors to R. D. Werner Co., Inc., Greenville, Pa., a corporation of Pennsylvania
Original application Oct. 19, 1967, Ser. No. 676,477, now Patent No. 3,484,931, dated Dec. 23, 1969. Divided and this application Apr. 24, 1969, Ser. No. 818,873
Int. Cl. B21d *39/00*
U.S. Cl. 29—516 **14 Claims**



A rung-to-side-rail ladder joint construction is made with a sleeve shaped ferrule blank having a substantial wall thickness, the blank being telescoped over an end portion of the rung and the assembled parts being projected through an orifice in the side rail. Flanges are formed against either side of the side rail by shearing away portions of the blank inwardly from the ends thereof, and one of the flanges may be preformed either prior to mounting the bank onto the rung or simultaneously with the mounting thereof.

3,545,073
METHOD OF MANUFACTURING A TELEPHONE DIAL GOVERNOR WEIGHT
Johnny Wilfred Walker, Corinth, Miss., assignor to International Telephone & Telegraph Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 16, 1968, Ser. No. 705,999
Int. Cl. B23p *17/00, 25/00*
U.S. Cl. 29—527.5 **5 Claims**

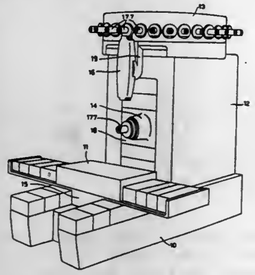


During manufacture, wear resistant studs are molded into weights used in telephone dial governors. The molding process comprises the steps of (A) forming the weights with an input channel and a stud receiving area (B) placing the weight in a mold having internal contours matching the external contours of said weight plus said wear resistant stud, and (C) injecting a plastic material into the input port to form a stud on the weight.

3,545,074
METHOD OF MAKING COPPER ALLOY PRODUCTS
George S. Foerster and Garth D. Lawrence, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 29, 1968, Ser. No. 748,176
Int. Cl. B23p *17/00, 25/00*
U.S. Cl. 29—527.7 **6 Claims**

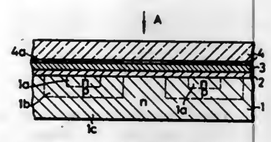
A method of preparing copper alloy products which comprises dissolving solid insoluble elements or compounds in molten copper or copper alloy in an amount sufficient to provide upon solidification from about 1 to about 30 percent by volume of dispersed second phase; rapidly solidifying the resultant copper alloy, thereby forming pellets; and working the pellets to form a copper alloy product.

3,545,075
MACHINE TOOL WITH AUTOMATIC TOOL CHANGING MECHANISM
Giorgio Ollearo, Ivrea, Torino, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Torino, Italy, a corporation of Italy
Filed Sept. 16, 1968, Ser. No. 759,915
Claims priority, application Italy, Sept. 16, 1967, 53,046/67
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 **8 Claims**



A machine tool having an automatic tool-changing mechanism and including a tool-driving spindle rotatable about a predetermined axis, a tool-storage magazine, a plurality of tool holders one of which is mounted on the spindle and the remainder of which are housed in the magazine, each of said tool holders having a tool affixed thereto, an arm pivotable about an axis parallel to the spindle axis for exchanging a spindle-mounted tool holder and tool affixed thereto for one of the magazine-housed tool holders and tool affixed thereto, and a pair of clamping devices mounted on the arm for simultaneously engaging the spindle-mounted tool holder and said one magazine-housed tool holder while the tool holders and tools affixed thereto are being exchanged.

3,545,076
PROCESS OF FORMING CONTACTS ON ELECTRICAL PARTS, PARTICULARLY SILICON SEMICONDUCTORS
Reinhard Schulten, Schorndorf, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 22, 1967, Ser. No. 662,476
Int. Cl. B01j *17/00;* **H01l** *5/00*
U.S. Cl. 29—578 **3 Claims**



Contacts of defined configuration are formed on an electrical part which essentially consists of silicon and has a top surface of silicon dioxide by a combination of the following steps:

(a) A photolacquer coating is applied to the part above the silicon dioxide layer;

(b) The intended contact areas are covered;

(c) The photolacquer coating is exposed and subsequently subjected to the action of a photographic developer, thereby dissolving the unexposed portions of the photolacquer and baring the silicon dioxide layer and the said contact areas;

(d) The surface of said part is etched with an etching agent suited to remove the bared silicon dioxide portions while leaving the developed portions of the photolacquer portion in contact;

(e) The remaining developed portions of the photolacquer coating are dissolving with the photolacqued solvent;

(f) A layer of a silicide forming metal is applied over all of the surface of the said part;

(g) The metal layer is subjected to a modifying treatment by tempering so as to partially embed it in and alloy it with the silicon in the surface of the said electrical part, thereby forming an acid insoluble silicide at said contact area; and

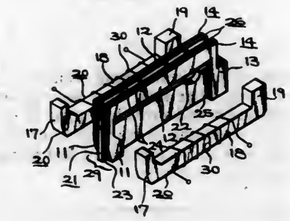
(h) The metal layer is then removed from the remaining unmodified portions of the silicon dioxide layer by treatment with a solvent for the metal.

The process is particularly applicable to a silicon semiconductor where the metal applied is a nickel layer.

Preferably another nickel layer is applied on top of the tempered nickel layer to form the the contacts proper of the semiconductor.

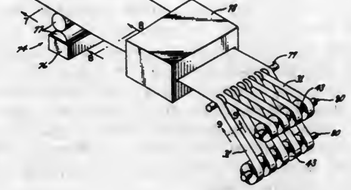
3,545,077
METHOD OF MAKING MULTIPLE-ELEMENT MAGNETIC HEAD
Toshi Suzuki, Kamakura, and Tsutomu Nishijima, Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Filed Dec. 2, 1968, Ser. No. 780,393
Claims priority, application Japan, Dec. 4, 1967, 42/77,390
Int. Cl. H01f *7/06*
U.S. Cl. 29—603 **3 Claims**

A multiple-element magnetic head comprising a plurality of magnetic head half-members arranged in face to face relation with each other at opposing end surfaces, with magnetic gaps being formed between them. Such magnetic head half-members are each made by holding non-magnetic members of substantially inverted U-shape each including a horizontal portion and oppositely disposed vertical portions between magnetic members identical in shape and configuration with said non-magnetic members, holding the assembly between substantially U-shaped cores including a horizontal portion and oppositely



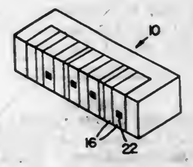
disposed vertical portions, cutting off said horizontal portions of said non-magnetic members and said magnetic members while leaving said oppositely disposed vertical portions, and grinding end surfaces of said oppositely disposed vertical portions of the non-magnetic members and magnetic members at which the horizontal portions have been cut off so that said end surfaces may be flush with end surfaces of the cores which are to be positioned in face to face relation with end surfaces of cores of the other magnetic head half-member.

3,545,078
METHOD FOR MAKING STRIP CONDUCTOR COILS AND PARTS THEREFOR
Robert B. Lightner, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Mar. 7, 1966, Ser. No. 532,451
Int. Cl. H01f *7/06*
U.S. Cl. 29—605 **4 Claims**



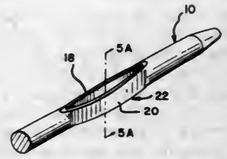
This disclosure relates to a method and apparatus for making a strip conductor coil from a strip of conductive material that has an epoxy resin coated on at least one side thereof so as to have the edges of the coating coextensive with the edges of the strip of conductive material. Thereafter, the side edges of the strip of conductive material are inwardly removed from the edges of the coating thereon by an etching operation so that when the etched and coated conductive strip is subsequently wound into a strip conductor coil, the side edges of the coating projecting beyond the adjacent edges of the strip of conductive material protect and prevent shorting across adjacent coils of the conductive strip. After such coated and etched conductive strip has been wound in coil form, the coating thereon is subsequently heated to heat seal together the adjacent coils in the strip conductor coil so as to form a substantially solid structure that cannot be unwound.

3,545,079
METHOD OF MAKING MULTILAYER CIRCUIT SYSTEM
Freddie Kossar, Norwalk, Conn., assignor to Vitramon Incorporated, Monroe, Conn., a corporation of Delaware
Filed May 2, 1968, Ser. No. 726,160
Int. Cl. H05k *3/30*
U.S. Cl. 29—626 **9 Claims**



The present invention relates to a method and apparatus for mechanically and electrically interconnecting electronic components into a circuit without the need for circuit boards and land-type connections. More particularly, the present invention discloses a three-dimensional, component-receiving and interconnecting motherboard and an arrangement for integrating discrete electrical components and the motherboard into a monolithic circuit system.

3,545,080
METHOD OF MAKING RESILIENT PINS
William Robert Evans, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Continuation-in-part of application Ser. No. 612,125, Jan. 27, 1967. This application May 16, 1967, Ser. No. 642,639
Int. Cl. H02g *15/00*
U.S. Cl. 29—629 **1 Claim**

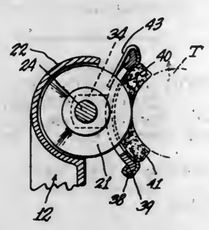


A length of bar stock is flattened and reformed to produce a section having spring characteristics whereby the bar is capable of resiliently mating with a nonresilient article. Alternatively, a length of flat stock is stamped or etched to produce resilient members, the flat stock being rolled or left flat depending on a particular use.

3,545,081
TUBING CUTTERS
David J. Butler, Girard, Ohio
(214 SE. 47th Terrace, Cape Coral, Fla. 33904)
Filed Jan. 29, 1968, Ser. No. 701,159
Int. Cl. B25f *3/00;* **B08b** *1/04*
U.S. Cl. 30—123 **7 Claims**

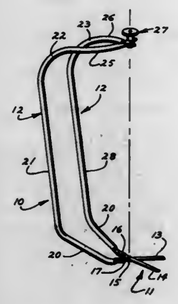
A workpiece cleaning attachment for a tube cutting tool including an abrasive pad to clean the peripheral surface

of the tubing as the tubing is being cut. The abrasive pad is carried adjacent the cutting wheel of a tubing cutter and is slotted to permit the cutter wheel to project through the



pad with the pad fully surrounding the exposed portion of the cutter wheel. The pad is carried by a supporting plate attached to the axle pin of the tubing cutter.

3,545,082
TRIMMING SHEARS WITH OPERATING HANDLE
Richard M. Lehtonen, 942 Edmund Ave., St. Paul, Minn. 55104
Filed June 5, 1968, Ser. No. 734,794
Int. Cl. B26b *13/12*
U.S. Cl. 30—248 **1 Claim**



This invention relates to shears for trimming grasses and the like and includes a pair of generally long upstanding handle members extending upwardly and rearwardly from the cutting portions of the shears to an approximate waist high position and then forwardly to a common pivot and connection point for the handles. This pivot point and connection point is generally in alignment vertical above the pivot point for the shearing blade connection. The upstanding handles permit the shears to be operated while the operator is in a standing position and the pivotal connection between the handles permits the opening and closing of the shear cutting blades from this waist high operative position.

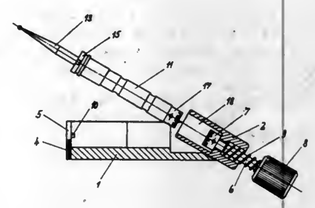
3,545,083
DENTAL APPLICATION OF SPECIAL POLYMER OF TETRAFLUORETHYLENE TUBING FOR MASKING AND CUSHIONING METAL CLASPS AND ORTHODONTIC WIRES
Lawrence B. Krasne, Madison Bldg., 1005 NE. 125th St., North Miami Beach, Fla. 33158
Filed May 7, 1969, Ser. No. 822,496
Int. Cl. A61c *13/22*
U.S. Cl. 32—5 **7 Claims**

A plastic sheath is applied to various types of clasps and wires for removable partial dentures and orthodontic appliances, said sheath being of a specific color that matches the teeth for the primary purpose of aesthetics by masking the metal and a further purpose of preventing galvanic shock and providing a cushion between the clasps or wires and the teeth. The plastic sheath is applied



in the form of pre-sized tubing which is slid over the clasps and wires, after they have been pre-heated to facilitate application and provide a tight fit of said tubing thereon. The sheathing is applied after the removable partial denture is fully constructed and forms no part of the vital construction thereof.

3,545,084
DEVICE FOR FIXING AND UNFIXING TOOLS FOR A DENTAL HANDPIECE
Erich Hoffmeister, Biberach an der Riss, Germany, assignor to Kaltenbach & Voight, Biberach an der Riss, Germany, a company of Germany
Filed Sept. 23, 1968, Ser. No. 761,618
Claims priority, application Germany, Oct. 23, 1967, 1,566,241
Int. Cl. A61c *1/08*
U.S. Cl. 32—26 **9 Claims**

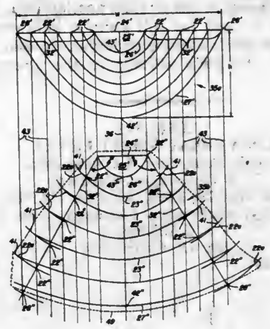


A device which comprises a holding member on a support for the reception of a guide bearing or dental handpiece sleeve to which a dental tool is to be secured, the bearing or sleeve having a built-in collet chuck rotatable by a driving wheel to secure or release the tool. The holding member has a mating drive wheel which is rotatable and longitudinally displaceable for operating the chuck, means being provided on the support for restraining displacement of said bearing or sleeve so that a tool can be secured or released by appropriate rotation of the mating drive wheel.

3,545,085
METHOD FOR SHAPING AND HANGING DRAPERY MATERIAL
Halbert C. Stewart, 1991 McClelland, Salt Lake City, Utah 84115
Filed May 19, 1967, Ser. No. 639,845
Int. Cl. G01b *3/14;* **A47h** *1/00*
U.S. Cl. 33—12 **7 Claims**

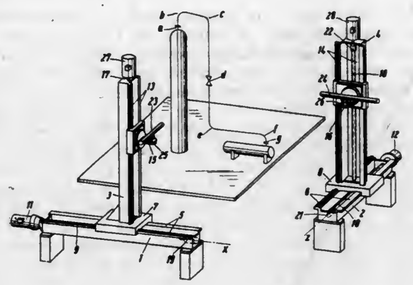
Method and apparatus for shaping and hanging drapery material as festoons. A scale pattern is formed and points are determined from which catenary folds in the drapery

material must be suspended. The drapery material is cut to form in accordance with the pattern and is hung from



the predetermined points such that the folds thereof fall into catenary curves.

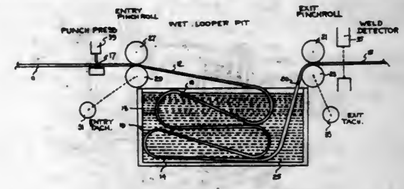
3,545,086
SURVEYING SPACE COORDINATES IN AN ENGINEERING MODEL
Bruno Brill, Muhlheim (Main), and Karlheinz Zölzer, Korbach, Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Continuation of application Ser. No. 685,703, Nov. 24, 1967. This application Oct. 16, 1969, Ser. No. 867,432
Claims priority, application Germany, Nov. 26, 1966, M 71,787
Int. Cl. G01c *1/00*
U.S. Cl. 33—63 **14 Claims**



The space coordinates for an engineering model such as a pipework model are determined by sighting each point on the model through two telescopes slidably displaceable along two coordinates of a three dimensional coordinate system. The distances from the system's zero point are measured by counting the revolutions of the threaded shafts used to move the telescopes. The revolutions are converted to linear distances trigonometrically corrected if necessary, and are then automatically recorded.

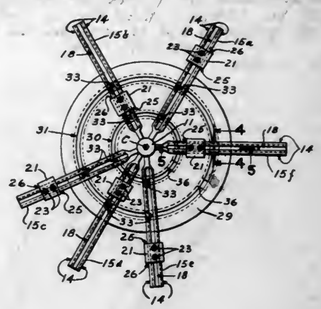
3,545,087
DIGITAL CONTROL CALIBRATION SYSTEM FOR STRIP LENGTH GAUGE
Bruce I. Doyle III, Roanoke, Va., and Constantine Vontsolos, Cincinnati, Ohio, assignors to General Electric Company, a corporation of New York
Filed July 8, 1969, Ser. No. 839,838
Int. Cl. G01b *5/04*
U.S. Cl. 33—132 **4 Claims**

An electrical system for calibrating a first counter which contains the algebraic sum of the output pulses of an entry tachometer and an exit tachometer representing the instant length of a metal strip passing through a wet looper pit. The algebraic sum, being in error due to slippage of the metal strip during exit from the looper



pit, is periodically replaced by the contents of a memory list accumulated in a second counter during entry of the metal strip into the wet looper pit, this being the correct quantity due to lack of slippage of the strip at the entry end of the pit.

3,545,088
GAGE SETTING DEVICE
Lowell C. Johnson, West Granby, Conn., assignor to The Johnson Gage Company, Bloomfield, Conn., a corporation of Connecticut
Filed Aug. 20, 1968, Ser. No. 754,039
Int. Cl. G01b *3/30*
U.S. Cl. 33—174 **8 Claims**

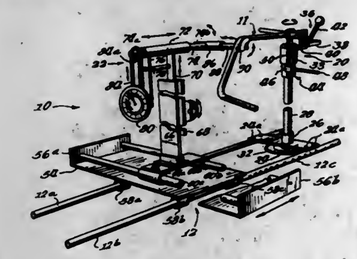


The gage setting device comprises a central post, preferably mounted on a base, and a plurality of guideways extending radially therefrom. Each guideway carries a gage setting member having one and preferably two radially spaced gage setting surfaces extending at right angles with respect to the guideway axis. A setting member which has two gage setting surfaces, the surfaces are spaced apart a precise radial dimension for setting both internal and external gages. The setting device may have anywhere from two to six guideways to be used for setting a gage or gages having two gaging elements engaging across a diameter or three gaging elements spaced apart 180 degrees. The preferred construction includes a setting device having at least three guideways with at least two guideways being adjustable angularly with respect to the third guideway which may be fixed or angularly adjustable.

3,545,089
DEVICE FOR MEASURING ANGULAR DEVIATION OF PORTIONS OF A WORKPIECE
George Beckwell, Sugar Grove, Ill., assignor to Pines Engineering Co., Inc., a corporation of California
Filed Jan. 21, 1969, Ser. No. 792,630
Int. Cl. G01b *5/24*
U.S. Cl. 33—174 **11 Claims**

A mechanism for measuring the angular and planar disposition of bends in tubular stock and the linear distance

between such bends or planar variations, characterized by a workpiece gripping area having angular deviation measuring means associated therewith and a workpiece receiving element spaced therefrom and connected to scale



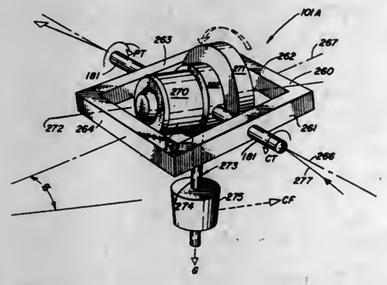
means for measuring the angular disposition of the bend received thereat and for measuring the distance between the tube bends responsive to the orientation of the gripping and receiving elements to secure adjacent bends of the tube.

3,545,090

AIRCRAFT ATTITUDE INDICATOR DEVICES

Myron L. Anthony, La Grange, Ill., assignor of ten percent to Thomas E. Dorn, Clarendon Hills, Ill.

Original application Apr. 1, 1964, Ser. No. 356,462, now Patent No. 3,344,665, dated Oct. 3, 1967. Divided and this application Sept. 11, 1967, Ser. No. 666,905
Int. Cl. G01c *21/00*
U.S. Cl. 33—204 9 Claims



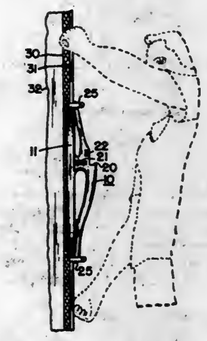
A control system for actuating a unified display indicator that presents both roll and pitch attitude of an aircraft from the viewpoint of a pilot flying by visual observation with the aircraft taken as a fixed reference representative of the environment, including specific roll and pitch indicator devices. The roll attitude indicator comprises a simple pendulum limited to pivotal movement about an axis parallel to the longitudinal axis of the aircraft and a semi-rigid gyro having a rotational axis parallel to the transverse axis of the aircraft and limited to pivotal movement about an axis parallel to the longitudinal axis of the aircraft. The precession torque of the gyro is proportional to the angular velocity of the aircraft about its vertical axis. An indicator is coupled to both the pendulum and the gyro for movement to display the instantaneous roll attitude of the aircraft as the vector sum of the precession torque of the gyro and the free pivotal movement of the pendulum. The pitch attitude indicator again comprises a simple pendulum, this pendulum being limited to pivotal movement about an axis parallel to the transverse axis of the aircraft. The output of a speed sensing device is differentiated to develop a signal representative of acceleration of the aircraft along its longitudinal axis and this signal drives an electrical motor that applies a correction torque to the pendulum proportional to the aircraft acceleration. The same indicator that is used for roll attitude indication is also actuated by the pitch attitude pendulum so that its movement displays the pitch attitude of the aircraft to the pilot.

3,545,091

UNIVERSAL SPIRIT LEVEL

Martin Sebastiani, 1 Owingerstr., 7770 Uberlingen, Germany

Filed May 29, 1968, Ser. No. 732,990
Claims priority, application Germany, June 6, 1967, 1,623,550
Int. Cl. G01c *9/24*
U.S. Cl. 33—207 4 Claims



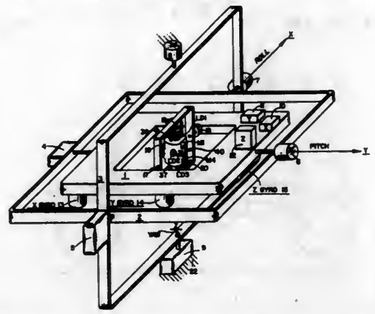
A leveling device is provided with a longitudinally-extending main body of angular or V-shape, with its recess or open portion facing towards a structural member to be aligned. The open portion has inner faces along its opposed sides that are planar and in about a 90° or right-angular relation. The outer edges of the faces are also planar and lie on a common plane. The device may either rest along its outer edges against the member to be aligned if the member is flat, or along the inner faces if the member is of convex shape or has an edge or corner along which the device is to be positioned. A primary handle extends at its outer end from one end of the body in a window-defining spaced relation therewith and is at its inner end connected to a central shoulder that extends transversely-outwardly from the body. A secondary handle extends at its outer end from the opposite end of the body in a window-defining spaced relation therewith and is connected at its inner end to the shoulder and in a transversely-inwardly or step-defining relation with the inner end of the primary handle. Tubular spirit level sight elements for horizontal and vertical alignment readings are carried in an adjacent relation by the shoulder and the secondary handle to provide rough alignment readings, and a block or cylindrical type of spirit level is positioned in a hollow portion of the adjacent inner end of the primary handle, so that it can be viewed looking upwardly or downwardly substantially along the tool device and may be employed for a final, full alignment determination from the standpoint of both vertical and horizontal planes and basically, in all directions. The outer ends of the primary and secondary handles are provided with openings or hole portions to removably-receive a pin of mounting means that may be employed to clamp on or grip the structural member being aligned for holding the device in a reading position, in order that a craftsman may have his hands free to adjust the structural member and secure it in place at an aligned position.

3,545,092

METHOD FOR ALIGNING A NAVIGATION SYSTEM

Wilson T. King, Westminster, Calif., assignor to North American Rockwell Corporation, a corporation of Delaware

Filed July 1, 1965, Ser. No. 468,729
Int. Cl. G01c *19/38*
U.S. Cl. 33—226 3 Claims



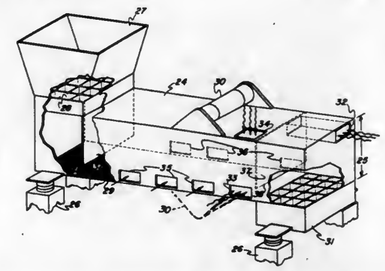
This method is directed to aligning an inertial navigator platform about its azimuth axis by utilizing a four-position gyrocompassing technique, applied to an additional gyroscope which is mounted on the inertial navigator platform which carries level detectors used in leveling the platform. The gyrocompass provides an accurate indication of the direction of a true east-west line with respect to the platform's reference axis enabling the platform to be positioned accurately to any position about the azimuth axis.

3,545,093

MICROWAVE VIBRATING RESONATING CAVITY AND DRYING PROCESS

Eric O. Forster, Scotch Plains, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

Continuation-in-part of application Ser. No. 675,155, Oct. 10, 1967. This application Dec. 23, 1968, Ser. No. 785,982
Int. Cl. H05b *9/06*
U.S. Cl. 34—1 20 Claims



A microwave resonating cavity comprising a vibrated enclosure having a height of about $\lambda/2$ to about λ, wherein λ is the wave length of the microwaves being introduced into the cavity, is used to remove volatile polar vehicles from nonpolar materials. The equipment is operated at a microwave frequency of about 600 to about 50,000 mHz. and includes radiation suppressors at the inlet and outlet.

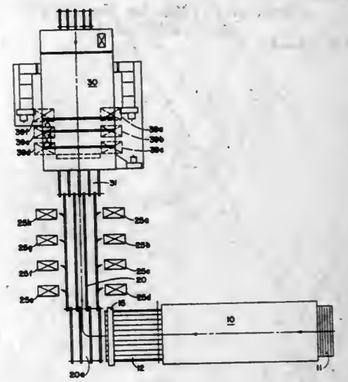
This vibrating resonating cavity is especially suitable for the drying of such polymers as butyl rubber, styrene butadiene, or polyvinyl chloride. The volatile content of such materials is readily reduced to 0.5 wt. percent, and where desired, to as low as less than 1 p.p.m.

3,545,094

MULTIPLE-DRYER SYSTEM FOR VENEER AND LIKE MATERIAL HAVING WIDELY VARYING MOISTURE CONTENT

Henry W. Schuette and Albert H. Barnes, Portland, Oreg., assignors to Moore Dry Kiln Company of Oregon, North Portland, Oreg., a corporation of Oregon

Filed Mar. 27, 1969, Ser. No. 810,996
Int. Cl. F26b *7/00*
U.S. Cl. 34—13.4 6 Claims



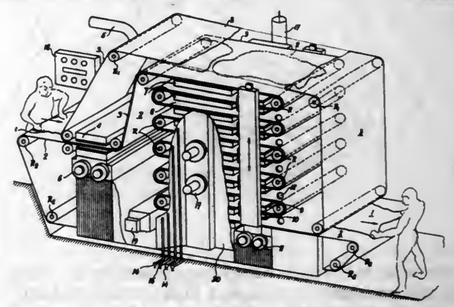
A continuous dryer system for wood veneer and similar sheet material having widely varying initial moisture content comprised of a high capacity primary dryer for drying the large bulk of material to a predetermined moisture content, and a lower capacity secondary dryer receiving that portion of material which is underdried after passage through the primary dryer. The secondary dryer is arranged in a closed loop configuration so that underdried material is automatically recycled therethrough by an endless conveyor until the desired degree of final moisture content is achieved.

3,545,095

METHOD AND APPARATUS FOR TREATING LEATHER

Jiří Dokoupil, Jiří Zubik, and Jiří Zdráhal, Krnov, Czechoslovakia, assignors, by mesne assignments, to Svit, narodni podnik, Gottwaldov, Czechoslovakia, a corporation of Czechoslovakia

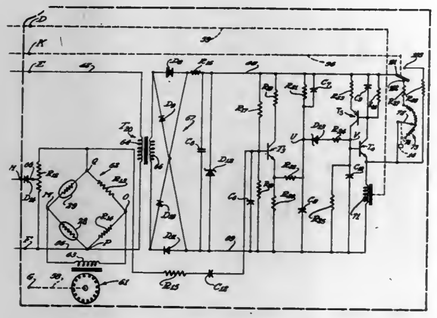
Filed Sept. 17, 1968, Ser. No. 760,235
Int. Cl. F26b *5/14*
U.S. Cl. 34—14 7 Claims



With a leather treating method and apparatus for drying and smoothing leather, the leather is continuously conveyed through vibratory and heating elements so that

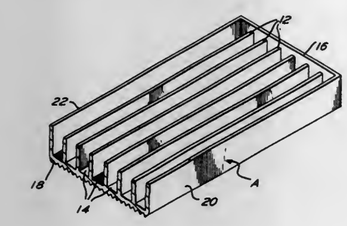
the treatment takes place in a single pass. During this treatment, vibratory elements provide the leather with the desired physical condition, and in addition through heating and the vibratory elements moisture is removed so that the leather is finally put from an initial relatively wet condition into a relatively dry condition.

3,545,096
HOLD CIRCUIT FOR A DRYER
Keith D. Salisbury, Arlington, Mass., and William F. Robandt, St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware
Filed Apr. 3, 1968, Ser. No. 718,432
Int. Cl. F26b *13/10*
U.S. Cl. 34—44 7 Claims



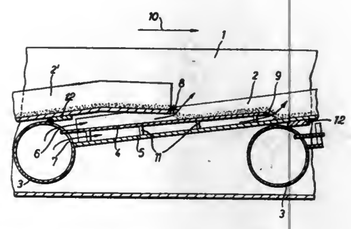
A hold system for a dryer which, upon preselection dries articles to a preset moisture level and allows the dryer to continue to operate without further drying until the operator restarts the heater to complete the drying cycle.

3,545,097
HIGH THERMAL CONDUCTIVITY PLASTIC TRAY FOR FREEZE DRYING OF PRODUCTS
Paul Francis Waltrich, Roslyn, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Dec. 9, 1968, Ser. No. 782,088
Int. Cl. F26b *25/10*
U.S. Cl. 34—238 5 Claims



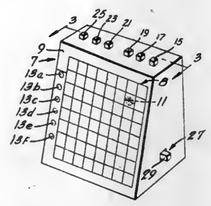
An extended surface ribbed tray, especially for freeze drying of products, comprising a high thermal conductivity plastic composition molded or extruded with a high thermal conductivity filler and including an appropriate pigment for radiant or conductive heating.

3,545,098
OSCILLATING CONVEYOR
Gunter Eichholz, Cologne-Mulheim, and Horst Kerzel, Cologne-Bayenthal, Germany, assignors to Klockner-Humboldt - Deutz Aktiengesellschaft, Cologne-Deutz, Germany, a corporation of Germany
Filed Feb. 27, 1969, Ser. No. 802,959
Claims priority, application Germany, Mar. 15, 1968, 1,556,745
Int. Cl. B65g *27/16*
U.S. Cl. 34—164 2 Claims



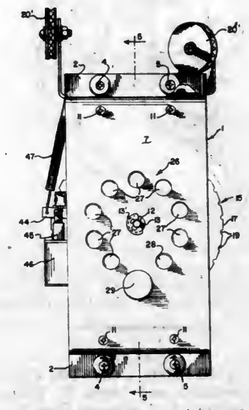
An oscillating conveyor for granular material comprising a plurality of individual trough sections, the adjacent ends of which are arranged in a vertically spaced overlapping relation. Each trough section has over a part of its length a hollow bottom forming a passage through which a gaseous heating or cooling medium is forced from a supply pipe through the material deposited in the trough for conveyance. Above this hollow bottom a second passage is formed between the lower side of the discharge end of the preceding trough section and the upper side of the hollow bottom. This second passage is also connected with the supply pipe and discharges gaseous heating and cooling medium into the trough at a point ahead of the point where the first passage terminates in the trough.

3,545,099
DISPLAY UNIT
Alan Jamieson, 4845 Orchard St., St. Hubert 1, Quebec, Canada
Filed Feb. 26, 1968, Ser. No. 708,239
Int. Cl. G09b *5/02*
U.S. Cl. 35—6 7 Claims



An apparatus to be used as an aid in learning to read punched paper tape. The apparatus has a series of buttons arranged in a row equal in number to the number of possible hole positions in a single row of tape. The apparatus also has a display screen capable of displaying all the items of information which can be coded into the tape. The apparatus is electrically wired in such a manner that when the buttons are operated in a pattern corresponding to the pattern of holes in the row of tape being read, the item of information represented by the hole pattern will be displayed on the screen.

3,545,100
SELECTOR MECHANISM
Stanley D. Fishman and Charles W. Lanham, Jr., Silver Spring, Md., assignors to Sargent-Welch Scientific Company, Skokie, Ill., a corporation of Illinois
Filed June 26, 1968, Ser. No. 740,172
Int. Cl. G09b *3/00*
U.S. Cl. 35—9 16 Claims



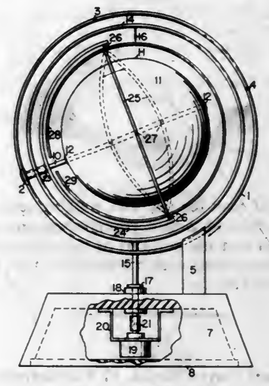
An electrically initiated and stopped selector mechanism for controlling the feeding of photographic film through a viewing machine. A lockout mechanism is provided to prevent further actuation of the selector mechanism while the selector mechanism is running in response to a previous selection. Logic circuitry which includes a sensing mechanism that is operable in response to code contained on the film is provided for controlling actuation of the lockout mechanism and for limiting the number of selections which are available at any film frame location.

3,545,101
EDUCATIONAL GAME BOARD
Mary L. Fike, Rte. 1, Box 240, Lakeland, Fla. 33803
Filed July 29, 1968, Ser. No. 748,421
Int. Cl. G09b *3/04*
U.S. Cl. 35—31 4 Claims

ARITHMETIC CHALLENGE							
A	B	C	D	E	F	G	H
6	2	7	5	8	9	4	3
69	68	16	15	20	18	17	75
12	21	30	36	33	35	40	32
10	24	45	49	48	50	44	42
13	22	60	55	63	64	56	54
52	25	70	77	81	80	66	72
14	27	88	90	96	132	121	144
11	28	84	99	100	108	110	120

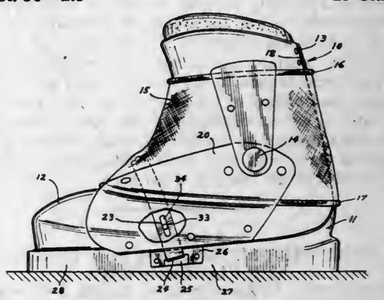
A teaching apparatus comprising a game board having on one side a plurality of numerical answers randomly arranged in rows and columns and on the other side a plurality of word answers randomly arranged in rows and columns. An instructor calls out problems, and each student marks the answers on his game board until a complete row or a complete column of answers is marked. Since the answers are randomly arranged, the student must correctly solve the problem in order to mark the correct answer. Because each student has an identical game board, the winner is the student first correctly solving the required number of problems, with no element of chance.

3,545,102
WORLD GLOBE DEVICE
James R. De Baun, Rte. 1, Box 19, Oakland, Oreg. 97462
Filed May 1, 1969, Ser. No. 820,992
Int. Cl. G09b *27/08*
U.S. Cl. 35—46 2 Claims



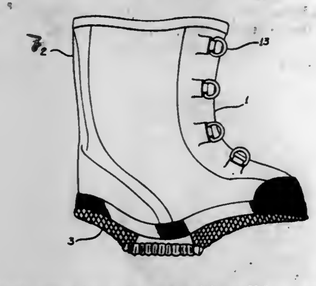
A simplified device for determining true great circle path and ancillary information with respect to any selected location on the world globe. Auxiliary elements automatically orient other means, such as an antenna, to any selected great circle path. The true direction to the sun for any selected time is also obtainable, and therefrom the hemispheres of light and darkness.

3,545,103
CLOSURE FOR BOOT DOOR
Roger D. Bloomfield, St. Louis Park, Paul S. Petersen, Minnetonka, and Robert W. Wiele, Minneapolis, Minn., assignors, by mesne assignments, to Sports Technology, Inc., Eden Prairie, Minn., a corporation of Delaware
Filed Feb. 5, 1969, Ser. No. 796,742
Int. Cl. A43b
U.S. Cl. 36—2.5 15 Claims



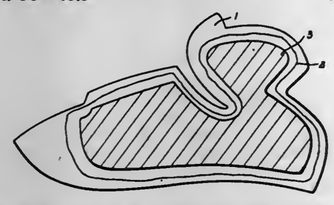
A door fastener for a rigid shell ski boot having a door with a hinge, and comprising a clamp which has a movable strap that exerts a downward closing force on the door to hold the door watertight along its bottom edge and also hold the door closed across the instep of the boot.

3,545,104
WALKING CAST PROTECTING BOOT
Veldon E. Laurie, Granby, Quebec, Canada, assignor to The Miner Company Ltd., Granby, Quebec, Canada
Filed Feb. 10, 1969, Ser. No. 797,956
Claims priority, application Canada, Jan. 20, 1969, 40,653
Int. Cl. A43b *1/10*
U.S. Cl. 36—7.3 6 Claims



A waterproof boot for use with walking casts, the boot having a sole formed with a ground engaging region intermediate heel and toe portions of the sole and an inner pad in the sole formed with a depression for receiving a buffer of the walking cast.

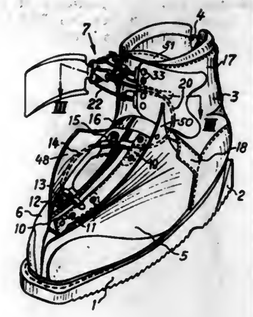
3,545,105
SKI BOOT
Michael Mayer-Rieckh, 11 Lastenstrasse, A-8021 Graz, Austria
Filed June 10, 1968, Ser. No. 735,668
Claims priority, application Austria, June 16, 1967, A 5,655/67; Apr. 16, 1968, A 3,694/68
Int. Cl. A43b *23/00*
U.S. Cl. 36—46.5 9 Claims



A ski boot wherein at least the upper consists at least in part of a plurality of precut sections of laminated sheet material comprised of a plurality of alternating layers of fabric and natural or synthetic resin. The sheet material sections are warmed to enhance their deformability, and are then press-formed in warmed condition so as to conform to the contour of that part of the foot with which they are to be associated when the boot is completed. They are subsequently maintained under pressure in their deformed state until they have cooled whereupon they are joined into the form of a ski boot.

3,545,106
SKI BOOT WITH MECHANISM FOR TIGHTENING THE CLOSURE FLAPS
Hans Martin, Volkmarstrasse 6, Zurich, Switzerland
Filed Apr. 19, 1968, Ser. No. 722,593
Claims priority, application Switzerland, Apr. 26, 1967, 5,995/67
Int. Cl. A43b *23/00*
U.S. Cl. 36—50 14 Claims

A mechanism for drawing together the closure flaps of a boot, especially a ski boot which comprises at least one traction member at the region of the instep of the boot. This traction member is guided over both of the closure flaps. A single pivotal tensioning lever means cooperates



with each such traction member in order to tighten or loosen, as desired, the closure flaps over their entire length.

3,545,107
BOOT AND SHOE CONSTRUCTION
Vincent E. Cinquegrana and Lloyd W. Eckes, Chippewa Falls, Wis., assignors to Chippewa Shoe Co., Chippewa Falls, Wis., a corporation of Wisconsin
Filed Aug. 28, 1969, Ser. No. 853,691
Int. Cl. A43b *23/00*; A61f *5/00*
U.S. Cl. 36—50 7 Claims

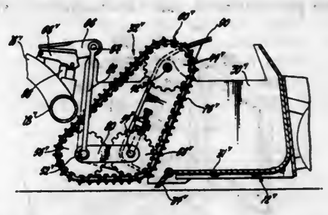


A boot and shoe construction is disclosed having a padded back part insert for providing a cushioned upper back portion for reducing and substantially eliminating chafing or binding thereby improving the wear comfort characteristics of the boot and shoe construction.

3,545,108
COMBINATION LOADING AND TRACTION DEVICE FOR SCRAPER
Russell C. Williams, Rocky River, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 19, 1968, Ser. No. 746,155
Int. Cl. B60p *1/36*
U.S. Cl. 37—8 5 Claims

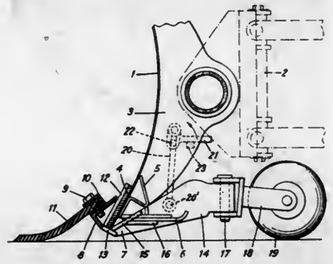
A combination loading and traction device supported within a scraper bowl having an open front defined by a pair of laterally spaced side walls and a transverse cutting blade extending between the side walls. The loading and traction device takes the form of a conveyor and is mounted between the side walls and has an endless track, the lower portion of which is adapted to engage the ground to serve as a traction means for driving the

scraper. The track extends transversely across the open front of the bowl and has a rear portion leading up-



wardly for assisting the loading of the bowl during a digging operation.

3,545,109
ATTACHMENT FOR REMOVING WET SNOW AND SLUSH, FOR DETACHABLE COUPLING TO A RAISABLE AND LOWERABLE SNOW PLOW
Marcel Boschung, Ried, Schmitten, Switzerland
Filed Dec. 18, 1967, Ser. No. 691,596
Claims priority, application Switzerland, Dec. 19, 1966, 18,140/66; Dec. 1, 1967, 16,956/67
Int. Cl. E01h *5/00*
U.S. Cl. 37—41 9 Claims

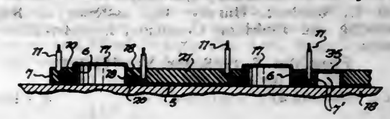


An attachment for removing wet snow and slush adapted to be detachably coupled to a raisable and lowerable snow plow is disclosed. The novel attachment comprises an oblong frame which defines two ends and a front and rear when attached to a snow plow. A flexible strip is fixed to the length of the frame at the front thereof for moving over the surface so as to remove wet snow and slush. Members are incorporated in the frame between the front and rear thereof on which the lower portions of the snow plow rest. Wheels are mounted on the frame and located behind the rear thereof so as to support the attachment for rolling movement over the surface. Detachable coupling of the attachment to the snow plow is achieved via coupling means. By virtue of the instant invention, the employment of snow plows for the removal of wet snow and slush is simplified and made more efficient, all without danger to the street pavement.

3,545,110
ILLUMINATED PANEL AND METHOD OF MAKING THE SAME
Richard W. Coolbaugh, East Aurora, and Floyd W. Engels, Colden, N.Y., assignors to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio
Filed Jan. 2, 1968, Ser. No. 694,967
Int. Cl. G09f *13/22*
U.S. Cl. 40—130 11 Claims

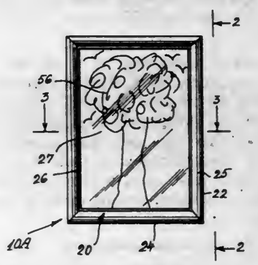
An electroluminescent panel having a shell formed of light-transmitting material and having an indicia bearing face to be illuminated. An electroluminescent member is positioned adjacent the face within the shell which

is filled with potting compound to a level encapsulating the member. The shell can be formed with an open-ended



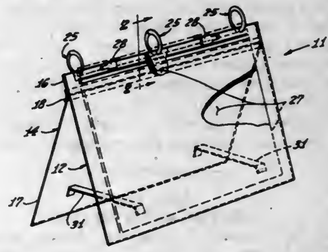
well extending inwardly from the indicia bearing face to provide a socket for a control member.

3,545,111
CONVERTIBLE DISPLAY BOX PICTURE FRAME
Herbert Spiegel, 101 Deerfield Lane, Tenafly, N.J. 07670, and Isaac Zelcer, 23—62 Corporal Kennedy St., Bayside, N.Y. 11360
Filed Mar. 27, 1969, Ser. No. 811,020
Int. Cl. G09f *1/12*
U.S. Cl. 40—152.1 9 Claims



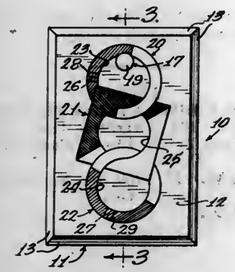
A display box for merchandise is provided with a frame formed as a one-piece shell made of molded plastic material. The frame holds a transparent sheet in place over an open tray containing merchandise displayed for sale. After the merchandise is removed, the tray can be reversed and inserted into the frame with a picture disposed between the back of the tray and transparent sheet. A flat panel inside the tray can be folded out to form an easel to support the framed picture in upright position.

3,545,112
FLIP CHART
Harold W. Pershing, Palos Verdes Estates, and Gaston Meuleman, Hawthorne, Calif., assignors to Northrop Corporation, Beverly Hills, Calif., a corporation of California
Filed Nov. 18, 1968, Ser. No. 776,378
Int. Cl. B42f *3/04*
U.S. Cl. 40—104.18 4 Claims



A display fixture adapted to have sheet material displayed thereon and including features of construction rendering the fixture self-supporting and enabling material to be easily positioned and removed therefrom.

3,545,113
DISPLAY DEVICE
Marion G. Babberl, Harvey, Ill., assignor to Rapid Mounting and Finishing Company, a corporation of Illinois
Filed Mar. 7, 1968, Ser. No. 711,361
Int. Cl. G09f *19/00*
U.S. Cl. 40—106.41 4 Claims



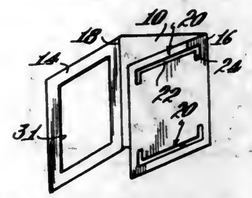
A display device consisting of a plurality of interleaved display members, each display member having a circumferentially continuous circular drive surface frictionally engaging the drive surface on an adjacent display member, so that when the uppermost display member is rotated, each of the other display members will also be rotated. The uppermost display member is preferably suspended upon a frictional driving member coupled with a display motor.

3,545,114
OPTICAL READOUT APPARATUS
John F. Hurst, Audubon, and Joseph S. Bodri, Southampton, Pa., assignors to Oppenheimer, Inc., Willow Grove, Pa., a corporation of Pennsylvania
Filed May 28, 1969, Ser. No. 828,531
Int. Cl. G09f *13/00*
U.S. Cl. 40—130 12 Claims

A modular optical read-out for alpha-numeric characters and symbols, preferably of the type in which numerals are displayed by means of seven separately-controllable lamps and seven corresponding translucent segments in a mask covering a lamp. Each character module comprises a rear socket assembly suitable for mounting on the rear of a supporting panel and contains seven pairs of lamp sockets into which the seven lamps can be plugged, and later unplugged, from the front of the panel by way of corresponding openings through the panel; the lamps protrude sufficiently through the front panel to permit their easy grasping for replacement purposes.

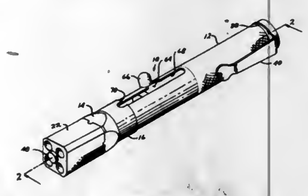
3,545,115
PHOTOGRAPH FRAME
Gordon E. Nichols, Middleboro, Mass., assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass., a corporation of Massachusetts
Filed June 28, 1968, Ser. No. 741,136
Int. Cl. G09f *1/12*
U.S. Cl. 40—152.1 2 Claims

A composite frame for holding a photograph or the like comprising back, intermediate and front plies hinged to each other so that when folded the intermediate ply lies between the back and front plies and wherein the intermediate ply contains a slot for engagement with an



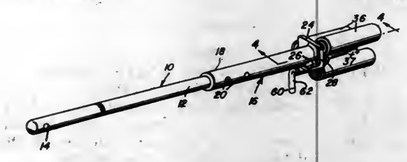
edge of the photograph to hold it against lateral displacement and the front ply contains a window opening through which the photograph can be seen.

3,545,116
FIREARM WITH AN ANGULARLY INDEXED FIRING PIN AND NONROTATABLE MAGAZINE
Charles E. Babington, 35 Locust Drive, Springboro, Ohio 45066
Filed Aug. 9, 1968, Ser. No. 751,511
Int. Cl. F41c *9/00, 9/02*
U.S. Cl. 42—1 17 Claims



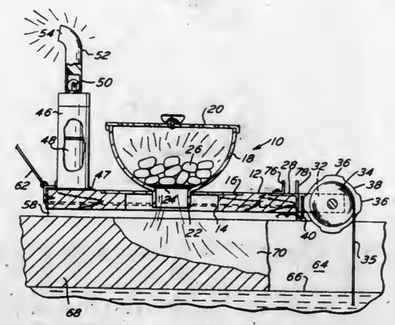
Two embodiments of a spring powered, multiple cartridge, tear gas gun are disclosed, one a compact device for personal use, and the other a larger device shaped as a billy club for police use. Both embodiments include a single firing pin mounted on an axially movable firing member. The firing pin is located off center from the axis of the magazine and the firing member is rapidly indexed whereupon the firing pin, when the gun is fired, successively advances toward different cartridges. Indexing the firing member is accomplished at each end of the stroke thereof. Both devices can be easily reloaded after use, with the parts of the billy club device especially arranged to permit rapid reloading.

3,545,117
MULTISHOT UNDERWATER POWER HEAD
Steven C. Van Voorhees, Box 1107, Ormond Beach, Fla. 32074
Filed Nov. 8, 1968, Ser. No. 774,373
Int. Cl. F41c *1/00*
U.S. Cl. 42—59 8 Claims



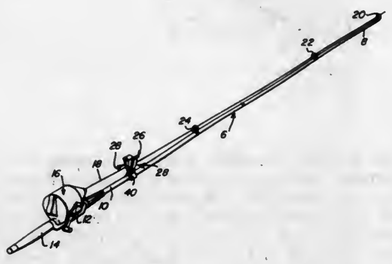
A multibarrel head for rotatable securement to and indexing on the head end of an elongated shaft. Each of the barrels is adapted to have a shotgun shell chambered therein and each of the barrels may be selectively indexed in proper registry with a firing pin on the head end of the shaft for engagement by the firing pin upon the shaft being forwardly advanced to contact the power head with the body of a fish, whereby the associated shotgun shell will be fired when its supporting barrel is in contact with the target fish and the rapidly expanding gases of the fired shotgun shell will blow through the contacted portion of the target fish to kill the target fish or render it defenseless by shock, the shotgun shells not necessarily having a slug or buckshot therein.

3,545,118
ICE FISHING EQUIPMENT
John J. Stelmach, 1621 Dounton St., Philadelphia, Pa. 19140
Filed Sept. 9, 1968, Ser. No. 758,547
Int. Cl. A01k *97/12*
U.S. Cl. 43—17 9 Claims



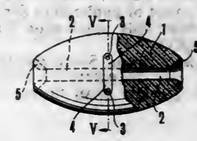
The ice fishing equipment includes a flat substrate having a hole therethrough. A heating means is supported by the substrate for directing heat downwardly through the hole for melting ice below the substrate. A reel is removably supported by the substrate. A visual indicator supported by the substrate is responsive to rotation of the reel.

3,545,119
ATTACHMENT FOR PREVENTING TWIST IN MONOFILAMENT FISHLINES
Kenneth E. Murnan, Oklahoma City, Okla., assignor of fifty percent to Henry E. Ford, Oklahoma City, Okla.
Filed Feb. 12, 1969, Ser. No. 798,735
Int. Cl. A01k *87/00*
U.S. Cl. 43—25 2 Claims



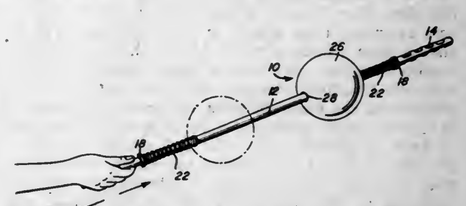
A pair of confronting mechanical fingers are pivotally connected intermediate their ends. One end portion of the fingers is formed to grip a fishing rod and the other end portion is lined with a resilient material flared outwardly at its end to provide a line guiding and retention surface.

3,545,120
FLOAT FOR GILL NET
Yasunori Takaoka, Kobe-shi, Japan, assignor to Naigai Rubber Industry Co., Ltd., Akashi-shi, Hyogo-ken, Japan, and Ohmi Netting Co., Ltd., Shiga-ken, Japan, both corporations of Japan
Filed May 23, 1969, Ser. No. 827,392
Int. Cl. A01k *93/00*
U.S. Cl. 43—44.9 4 Claims



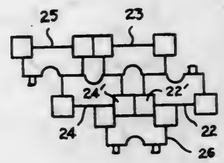
A float for gill net characterized in that the float is provided with a bore for receiving therein a float line and two bores for receiving hanging lines which are formed at right angles with respect to the former bore.

3,545,121
TOY AND EXERCISING CAPTIVE BALL
Stephen R. Misko, New Orleans, La. (4709 Kawanee Ave., Metairie, La. 70002)
Filed Aug. 14, 1968, Ser. No. 752,679
Int. Cl. A63h *33/00*
U.S. Cl. 46—1 3 Claims



An amusement device or toy for concentration and expending of energy by reciprocating a sphere on a defined length of a shaft. Compression springs at each end of the defined length of the shaft speed up the return of the sphere and intensify the action involved.

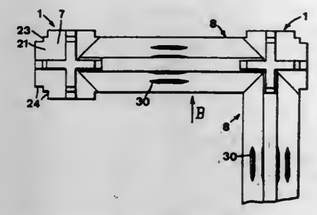
3,545,122
CUBE AND PARALLELEPIPED HALF BLOCKS FORMING MODULAR ELEMENTS CONNECTABLE IN VARIOUS WAYS
Richard A. Onanian, 105 Wildwood Ave., Arlington, Mass. 02174
Filed Jan. 11, 1967, Ser. No. 608,529
Int. Cl. A63h *33/08*
U.S. Cl. 46—25 10 Claims



A construction toy set including whole blocks which are cubic shaped, rectangular parallelepiped shaped and right prism shaped which couple together. Each whole

block is made by joining two half blocks which have pins and holes that fit together and are arranged so that different kinds of half blocks can be joined together to provide additional variety of block shape and form.

3,545,123
CRUCIFORM MALE AND FEMALE CONNECTORS
Hermann E. Muller, 43 Zugerstrasse, 6330 Cham, Switzerland
Continuation-in-part of application Ser. No. 391,422, Aug. 24, 1964. This application May 24, 1968, Ser. No. 731,833
Claims priority, application Switzerland, Aug. 26, 1963, 10,519
Int. Cl. A63h *33/10*
U.S. Cl. 46—29 5 Claims



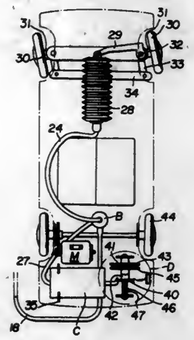
A toy construction set comprising a male connector including three panels of substantially constant thickness extending from a core in three intersecting planes and forming a body with six sides, each of substantially cruciform outline, an elongated female connector of substantially cruciform cross-section including a main body portion and end means defining an internal space adapted to receive complementary portions of said male connector to form a friction joint. Said end means comprise a plurality of end faces inclined rearwardly towards the main body portion at angles of substantially 45° with reference to the longitudinal axis of the female connector, thereby to avoid interference of said end means with an end means of a similar female connector when two such are adjacently joined to said male connector. Plates can be fitted between parallel male connectors and connected thereto by interengageable means on said plates and connectors.

3,545,124
TOY
Marius M. Schwartz, 27155 Fairfax, Southfield, Mich. 48075
Filed Dec. 3, 1968, Ser. No. 780,669
Int. Cl. A63h *27/12*
U.S. Cl. 46—61 7 Claims



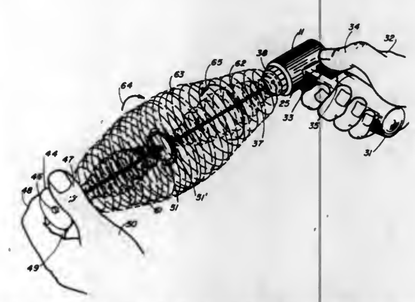
A Yo-Yo with a handle that is attached to the operator's hand, and has a flexible socket for receiving the spool as it is wound on the cord.

3,545,125
APPARATUS FOR PNEUMATICALLY EFFECTING REMOTE CONTROL OF MOVABLE TOYS
Kisaburo Okuma, Saitama-ken, Japan, assignor to Okumaseisakujo Co., Ltd.
Filed Apr. 16, 1968, Ser. No. 721,853
Claims priority, application Japan, Feb. 15, 1968, 43/9,661
Int. Cl. A63h *30/00*
U.S. Cl. 46—210 2 Claims



A toy car is equipped with an electric motor driving the rear wheels and steerable front wheels. The motor and the steering gear are controlled by bellows which receive air from a flexible tube through a valve transmitting the air to the steering control at low flow rate and to the motor control at high flow rate. The air is supplied by a remote hand-operated bellows through the flexible tube.

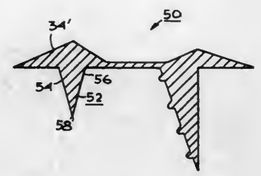
3,545,126
VIBRATORY MULTI-WAVE TOY
Paul L. Brown, 100 McAllister St., San Francisco, Calif. 94102 (% Corps of Engineers)
Filed Sept. 23, 1968, Ser. No. 761,659
Int. Cl. A63h *33/26*
U.S. Cl. 46—243 8 Claims



The invention comprises a reversible motor including a rotatable shaft thereon, a source of electrical energy in driving connection with said reversible motor, a switch between said source and said motor for controlling the direction of rotation of said shaft, together with an indeterminate length of cord, a mount on one end of said cord for eccentrically mounting said cord on said motor shaft for rotation therewith in both directions of rotation, a member on the other end of said cord for holding the same in various degrees of slackness and tautness in respect to said mount whereby an indeterminate number of wave forms can be engendered during rotation of said cord in

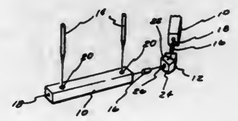
both directions of rotation, a button freely mounted on said cord between said mount and said member for movement in both directions along said cord, and a finger element on said member which upon engagement with the finger causes said button to move along said cord.

3,545,127
LAWN EDGING ARRANGEMENT
Harry L. Jensen, Clark County, Nev. (2300 Marlin Ave., Las Vegas, Nev. 89101)
Filed Aug. 30, 1968, Ser. No. 756,460
Int. Cl. E01c *11/22*; A01g *1/08*
U.S. Cl. 47—33 6 Claims



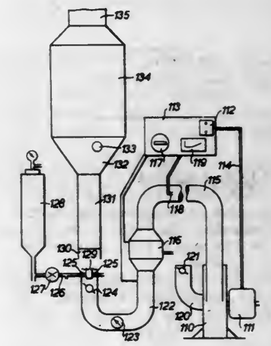
There is disclosed herein an improved lawn edging arrangement for positioning adjacent, for example, a sidewalk to provide a neat and trim appearance of the lawn in the regions adjacent the sidewalk. The lawn edging arrangement is an elongated strip-like member that may be joined together in sections as desired to provide any desired contour and has a leg member insertable in the ground adjacent, for example, the portion of the sidewalk below the top level of the soil and another portion extending outwardly from the leg portion to overlie the top surface of the soil. A body member is coupled to this other portion remote from the leg and the web member joins the body member to the leg. The body member has a thickness greater than the web member to define a lawnmower wheel track along the top surface of the web member. The thickened body member provides rigidity to the structure for maintaining the lawn edger in place on the top of the soil and the flexibility of the web allows the body member to be raised slightly and then replaced on the top surface to kill any grass that may be immediately adjacent thereto.

3,545,128
LAWN EDGING
Allyn L. La Fontaine and Edward J. Chrzan, Warren, Mich., assignors, by mesne assignments, to General Hardwood Company, Detroit, Mich., a corporation of Michigan
Filed Oct. 15, 1968, Ser. No. 767,746
Int. Cl. A01g *1/00*; E04b *1/10*
U.S. Cl. 47—33 8 Claims



A system for constructing lawn edging, or similar structures that are anchored to the ground, is disclosed. The system incorporates a set of wooden members, similar to miniature railroad ties, wooden stakes for anchoring the ties to the ground, and wooden dowels for connecting the ties to one another to form any of a variety of structures.

3,545,129
MANUFACTURE OF DORMANT PELLETED SEEDS
Kurt Schreiber and Lucien J. La Croix, Winnipeg, Manitoba, Canada, assignors to Canadian Patent and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
Filed June 20, 1968, Ser. No. 738,584
Claims priority, application Canada, June 28, 1967, 994,190
Int. Cl. A01c *1/06*
U.S. Cl. 47—57.6 23 Claims



Novel multiple coated seeds are provided by a novel process, the seeds including an inner coating which is slowly permeable to water, an intermediate coating which also is semi-permeable to water, and an outer coating which is substantially impermeable to moisture but is fissionable at frost temperatures.

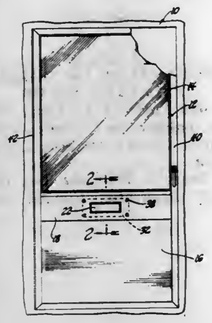
3,545,130
SOIL CONDITIONING AND EROSION CONTROL
Greene W. Strother, Jr., and William P. Coker, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 21, 1967, Ser. No. 655,006
Int. Cl. A01n *7/02*; E02d *3/12*
U.S. Cl. 47—58 10 Claims

It has been discovered that combinations of water-soluble polymers which interact in aqueous solution to form a gel can be fluidized and applied to soil to produce excellent erosion control as well as soil conditioning for improved plant life.

3,545,131
STORM DOOR PRESSURE AND VACUUM RELEASE VALVE
Anthony R. Paytas, 27750 Roan, Warren, Mich. 48093
Filed Nov. 12, 1968, Ser. No. 774,677
Int. Cl. E06b *7/28*
U.S. Cl. 49—171 2 Claims

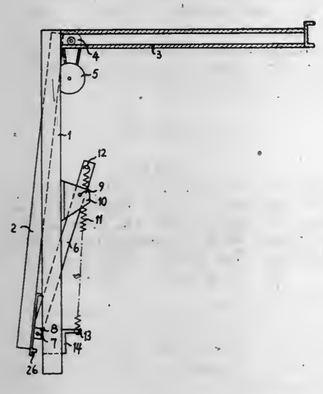
A storm door having a vent opening with a valve mounted in the vent opening for relieving vacuum pres-

sure between the storm door and house door when the doors move away from each other and for relieving high



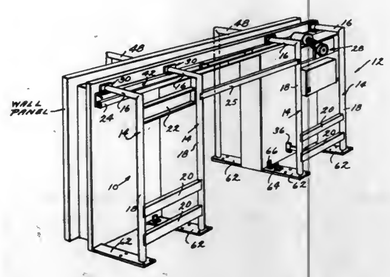
pressure between the storm door and house door when the doors move toward each other.

3,545,132
DOOR FOR A GARAGE AND THE LIKE SWINGABLE OVERHEAD
Hermann Hormann, Amshausen, Steinhagen, Westphalia, and Karl Osthushenrich, Woltorf, near Peine, Germany, assignors to Hormann KG, Amshausen, Steinhagen, Westphalia, Germany
Filed Jan. 10, 1969, Ser. No. 790,365
Claims priority, application Germany, Jan. 12, 1968, O 9,792; July 8, 1968, H 63,270
Int. Cl. E05f *11/54*
U.S. Cl. 49—200 **5 Claims**



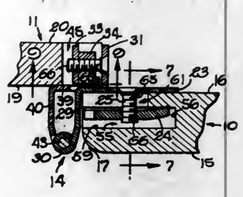
A tiltable door mounted in a door frame for swinging movement overhead comprises rotatably mounted drivable rollers adjacent the upper edge of the door. The rollers are engaged in horizontally extending stationary guide rails, and a compensating arm is provided on each side of the door and pivotally connected to the door frame portions adjacent the respective sides of the door. One end of each compensating arm is hingedly connected adjacent the lower edge of the door. The effective length of the lever arm of each compensating arm can be varied between its hinged connection to the door and is pivotal connection to the door frame. The ends of each compensating arm adjacent the door are mounted on a two armed intermediate lever. One arm of the intermediate lever is connected to the door and the other arm is engaged by an adjustable spring connected to the compensating arm.

3,545,133
INSTALLATION PACKAGE FOR PREFABRICATED DOOR
Fortune Odend'hal and Patrick J. Duffy, Hagerstown, Md., assignors to Jamison Door Company, Hagerstown, Md., a corporation of Maryland
Filed Nov. 15, 1968, Ser. No. 776,099
Int. Cl. E06b *1/52, 3/42*
U.S. Cl. 49—380 **13 Claims**



A complete installation package for installing doors includes (a) prefabricated door means which has been initially erected, tested, and adjusted at the point of manufacture prior to shipment and sale, and (b) support frame units which are pre-cut and assembled for providing full support of an installed door without a requirement for an installation of heavy load supporting structures in a wall through which a door opening is formed.

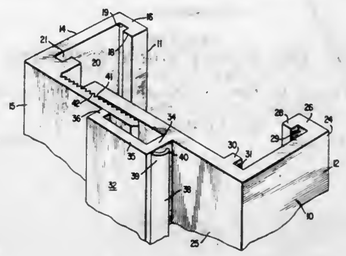
3,545,134
CABINET FRAME AND DOOR FOR USE WITH QUICKLY ATTACHABLE AND DETACHABLE HINGES
Carl J. Dargene, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Connecticut
Original application June 6, 1968, Ser. No. 735,127. Divided and this application June 24, 1968, Ser. No. 739,245
Int. Cl. E06b *3/00*
U.S. Cl. 49—501 **10 Claims**



A cabinet includes a frame and a door each formed with specially designed slots for receiving the mounting elements of a quickly attachable and detachable hinge

adapted to connect the door swingably to the frame. The slots permit attachment of the hinge to the door and the frame with a simple slip-in motion and enable quick and easy clamping of the hinge to the door and the frame.

3,545,135
DOOR JAMB
Philip Ben Lieber, 1151 Prospect Ave., Apt. 2, Shreveport, La. 71105
Continuation-in-part of application Ser. No. 797,369, Jan. 29, 1969, which is a continuation of application Ser. No. 621,725, Mar. 1, 1967. This application Apr. 10, 1969, Ser. No. 815,079
Int. Cl. E06b *1/10*
U.S. Cl. 49—505 **7 Claims**

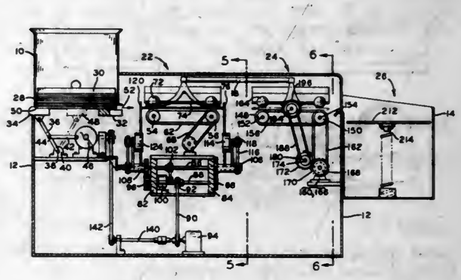


An extruded plastic door jamb fabricated in two sections having interengaging serrated surfaces for holding the two sections in tight engagement with the wall section to which the door jamb is to be attached. Each of the two sections has an elongated longitudinal slot therein for receiving a cam lock mechanism having an attaching strap extending therefrom for anchoring the door jamb to the wall structure. An elongated strip of noise deadening or weather stripping is integrally formed on one of the two sections. A hinge is provided for cooperation with the door jamb and has a pair of hinge leaves, one of which is smaller in width than the other and has a perpendicular flange formed on the free end thereof for accurately placing the door within the door jamb so that it properly engages the weather stripping means. In the alternative, an elongated aperture extends adjacent one edge of one of the door jamb sections with spaced recesses cut into the edge portion to expose the aperture at various positions for receiving ring knuckles of a single hinge plate having a perpendicular flange on the free edge thereof.

In the second alternative, the door leaf of the hinge is shaped in such a manner that from the point where it leaves contact with the door, it conforms exactly to the shape of the door jamb and the return trim. When the jamb and the door leaf of the hinge are alternatively notched so that they will inter-leaf and a rod is inserted into an extruded hole in the jamb, it will interlock with the holes in the leaf. The jamb may be cut-away if so desired such that the jamb and leaf will provide a smooth surface.

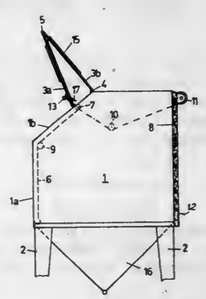
3,545,136
ENVELOPE OPENING APPARATUS
Luther G. Simjian, Laurel Lane, Greenwich, Conn. 06830
Filed June 10, 1968, Ser. No. 735,888
Int. Cl. B24b *7/00, 9/00, 1/00*
U.S. Cl. 51—3 **19 Claims**

An envelope opening apparatus comprises means for receiving an envelope and conveying it past two opening stations. Each opening station is provided with a set of cutting means for operating on two opposite edges of the envelope, causing opening of the envelope by an abrasive action along the four edges of the envelope. Gas flow



means are provided to rigidify the envelope edge portions engaged by the cutting means.

3,545,137
SANDBLAST CABINET
Miroslav Vrana, Zurich, Switzerland, assignor to H. A. Dietiker AG, Zollikon, Switzerland, a corporation of Switzerland
Filed Aug. 21, 1968, Ser. No. 754,186
Claims priority, application Switzerland, Sept. 21, 1967, 13,206/67
Int. Cl. B24c *3/00*
U.S. Cl. 51—8 **8 Claims**

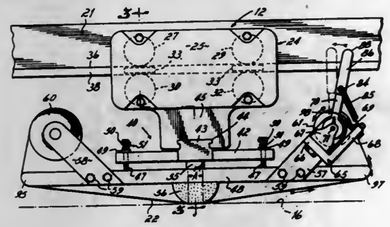


The sandblast cabinet has a folding door guided on rails and a counterweight for holding the door open and balancing its weight.

3,545,138
METAL POLISHING APPARATUS
Russell F. Houston, Hamilton, Ohio, assignor to The Mosier Safe Company, Hamilton, Ohio, a corporation of New York
Filed June 17, 1968, Ser. No. 737,431
Int. Cl. B24b *7/00*
U.S. Cl. 51—59 **8 Claims**

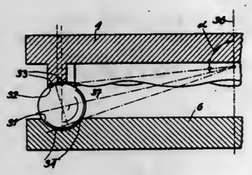
Method and apparatus for finishing a metal surface so as to obtain a metallic satin grain finish consisting of numerous parallel striations. This finish is achieved by grinding the metal surface with a coarse grain abrasive so as to achieve a striated surface having numerous parallel short bright striations. The surface is then polished by a unique reciprocating band polisher in which the abrasive band is backed by a resilient element and

is regularly indexed during the polishing operation. This polishing then converts the short bright striations pro-



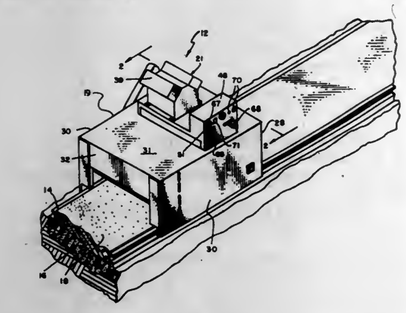
duced during grinding to long dull or satin striations having a wood grain type of appearance.

3,545,139
METHOD AND APPARATUS FOR THE MANUFACTURE OF SPHERICAL BODIES
Jaroslav Brany, Prague, Czechoslovakia, assignor to Vyzkumny ustav strojirenske technologie a ekonomiky, Prague, Czechoslovakia
Filed Sept. 17, 1968, Ser. No. 760,192
Int. Cl. B24b *1/00, 11/02*
U.S. Cl. 51—117 **14 Claims**



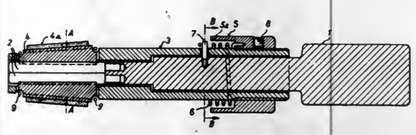
A spherical body is machined first along a system of meridians, the angular spacings of which are positively controlled, whereupon the body is turned and machined along another system of meridians whose poles are angularly spaced from the poles of the previously machined meridian system.

3,545,140
SLAB PLANER APPARATUS AND METHOD
Cordis W. Jones, Hastings, Nebr., assignor to Hastings Dynamold Corporation, Hastings, Nebr., a corporation of Nebraska
Filed Sept. 23, 1968, Ser. No. 761,563
Int. Cl. B24b *23/00*
U.S. Cl. 51—170 **9 Claims**



This invention is a slab planer apparatus movable down a given path over material to be worked upon including main housing means; power means connected to the housing means providing drive means through hydraulic fluid motors; a surface treating means rotatable through the power means to provide a grinding action to the material worked upon; a sprayer assembly operable to provide cutting and/or coolant fluid to the surface being worked upon; and spring loader apparatus mounted on the housing means operable to provide the necessary reaction force to maintain the entire apparatus in contact with the material being worked upon. Additionally, this invention relates to a control means operable on a movable mechanism to maintain a given drive load thereon so as to correlate the rotational speed and power of the drive means relative to the surface treating means therein to provide for automatic compensation in a grinding or surface treating operation. Also, this invention is a method of finishing a concrete object by grinding and/or cutting through controlled movement of a machine mechanism thereover.

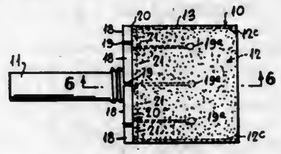
3,545,141
METHOD AND DEVICE FOR THE HONING OF CONICAL BORES
Alfred Rohr, Im Bruel 15, Schaffhausen, Switzerland
Filed Jan. 15, 1968, Ser. No. 697,920
Int. Cl. B24b *9/02*
U.S. Cl. 51—353 **11 Claims**



Method and means for honing conical bores wherein the workpiece is rotated and the honing tool includes honing stones which are initially retracted and subsequently expanded within the conical bore to adapt themselves to the configuration of the bore. The honing tool includes an outer body with a rotatable central spindle. One end of the spindle carries expanding means, preferably in the form of longitudinally extending, eccentrically arranged pins which operatively engage honing stone holders resiliently carried in guide slots in the outer body. By relative rotation of the outer body and the spindle the expanding means can be moved between a first position wherein the honing stone holders are retracted and a second position wherein the honing stone holders are expanded relative to the central axis of the outer body. A clamping nut is rotatably carried on the outer body and carries one end of a torsion spring which surounds the outer body. The other end of the torsion spring engages over a securing pin fixed to the spindle and extending through a transverse slot in the outer body. A set screw is also carried by the clamping nut for securing the same in a selected adjusted position to the outer body. The outer body and the spindle are tensioned for relative rotation by the torsion spring and engagement of the securing pin against the extremities of the transverse slot limits the relative rotation between the spindle and the outer body.

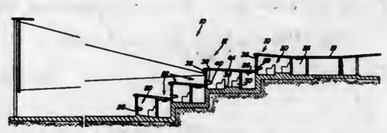
3,545,142
ABRADING IMPLEMENTS
William E. Sullenberger, Rte. 1, Box 127E, Linden, Pa. 17744
Filed May 24, 1968, Ser. No. 731,879
Int. Cl. B24d *9/02*
U.S. Cl. 51—374 **7 Claims**

A rotary abrading implement composed of a mandrel having a radially expansible drum upon which a circumferentially endless abrasive band is axially insertable. The drum is characterized by a concentric outer band-supporting surface formed from axially extending flexible fingers cantilevered from the outer end of the mandrel and extending axially inwardly from said mandrel end. Centrifugal force generated by rotation of the drum radially expands the fingers against the intermediate inner surface



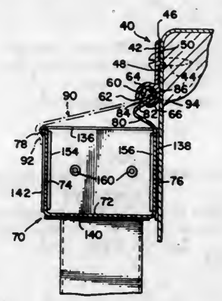
of the band to anchor it in position. Additional anchorage is produced by effecting a relatively lesser expansion of the insertion marginal band end concurrently with said expansion at the intermediate band portion.

3,545,143
THEATER CONSTRUCTION
Earl E. Bankston, 1310 Hollywood Drive, Jackson, Tenn. 38301
Filed Feb. 6, 1969, Ser. No. 796,952
Int. Cl. E04h *3/10*
U.S. Cl. 52—6 **3 Claims**



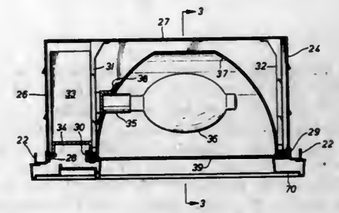
A theater wherein the audience is seated within separate viewing booths arranged in tiers. Each of the tiers is located immediately to the rear of the adjacent lower tier and elevated approximately four feet thereabove. The booths, as well as the access ramps and hallways thereto, are roofed while the screen, located forward of the tiers can be located outdoors in the nature of a drive-in movie screen or can be enclosed within a roof-like structure which extends from the tiered booths to the top of the screen.

3,545,144
GUTTER SYSTEM FOR MOBILE HOMES
Raymond W. Sickler, R.D. 2, Wellsburg, N.Y. 14894
Filed May 9, 1968, Ser. No. 727,892
Int. Cl. E04d *13/00*
U.S. Cl. 52—11 **9 Claims**



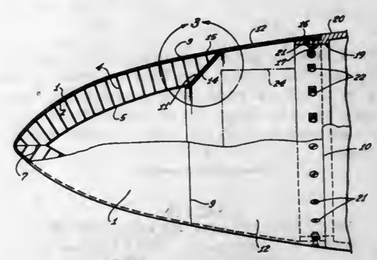
A hanger means is detachably secured to the side of a mobile home adjacent the roof thereof, and sealing means is provided between the hanger means and the side of the mobile home to provide a water-tight seal therebetween. The hanger means includes an elongated open channel. A trough means is provided with a support portion along an upper edge thereof received in said channel for removably supporting the trough means on said hanger means. Connecting means is provided for connecting adjacent lengths of the trough means, and end cap means is provided for closing the ends of the trough means. Support brackets may be secured between portions of the trough means to rigidify the structure.

3,545,145
APPARATUS FOR USE IN MOUNTING AN OBJECT FROM A SUSPENDED CEILING
Yul J. Yousefpor, Houston, Tex., assignor to Esquire, Inc., New York, N.Y.
Filed Apr. 10, 1969, Ser. No. 814,958
Int. Cl. E04b *5/52;* **F21s** *1/02*
U.S. Cl. 52—28 **7 Claims**



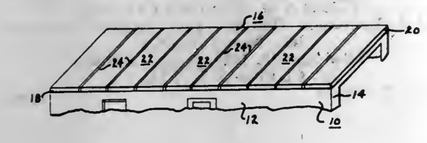
Apparatus is provided for mounting an object from a suspended ceiling having an opening therethrough and a supporting surface on the periphery of at least two opposite sides of the opening. The apparatus comprises a frame on which the object may be mounted and having an outer periphery which is substantially symmetrical with but somewhat smaller than the inner periphery of the ceiling to permit the frame to be moved through the ceiling opening with relatively small tolerances between their peripheries. The apparatus also includes a pair of supporting clips mounted on the lower face of the frame for swinging between the gravity assumed positions in which their outer ends are substantially aligned with the frame periphery and other positions in which their outer ends are extended beyond said periphery a distance greater than the tolerances between the sides of the frame and the corresponding sides of the ceiling opening.

3,545,146
CERAMIC-PLASTIC RADOME
John N. Kerr, Thousand Oaks, Calif., assignor to Northrop Corporation, Beverly Hills, Calif., a corporation of California
Filed Jan. 29, 1965, Ser. No. 428,981
Int. Cl. E04b *1/32. 1/76;* **H01q** *1/42*
U.S. Cl. 52—80 **10 Claims**



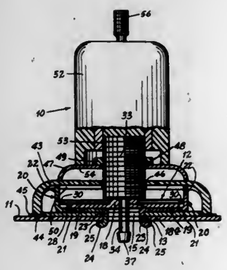
A radome assembly of a thin outer ceramic shell with a plastic honeycomb inner strengthening wall construction bonded thereto and a resin-treated glass fiber material transition section fixed to the base thereof for attachment to a supporting body.

3,545,147
SHEET METAL ROOFING PANEL
Ray Eastham and Irvin E. Goertzer, Halstead, Kans., assignors to Winbro Incorporated, Michigan City, Ind., a corporation of Indiana
Filed July 25, 1968, Ser. No. 747,705
Int. Cl. B61d 17/12; E04d 1/36
U.S. Cl. 52—96 10 Claims



Sheet metal roofing material for mobile homes, trailers and similar shaped structures in which the sheet metal is preformed and is provided with angularly extending flanges along each side for folding over the upper edge of the side walls of the structure to which it is to be applied. The flanges are formed at such an angle, relative to the plane of the center portion of the material, that the material can readily be rolled into a coil for shipping and handling.

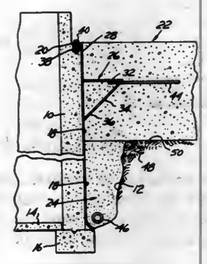
3,545,148
ANTENNA MOUNTING DEVICE
Joseph J. Mandino, Bridgeton, Mo., assignor to Mosley Electronics, Inc., St. Louis, Mo., a corporation of Missouri
Filed Sept. 5, 1968, Ser. No. 757,704
Int. Cl. E04h 12/22; H01q 1/12
U.S. Cl. 52—110 7 Claims



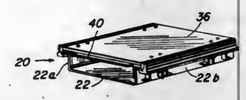
A vehicle antenna mount comprising spring-biased latch members received through and then engaged beyond an opening in a vehicle panel with a connecting stud on which other parts of the mount are installed and on which a nut is tightened to draw the latch members against the vehicle panel.

3,545,149
CONCRETE GRADE BEAM SUPPORT
Joseph S. Trudeau, Jr., 28158 Fontana, Southfield, Mich. 48075
Filed Aug. 26, 1968, Ser. No. 755,241
Int. Cl. E02d 27/00; E04b 1/14
U.S. Cl. 52—169 10 Claims

A concrete trench footing grade beam for a building structure, comprising a hanger bracket attached to the wall of the building structure and having a supporting leg depending therefrom downwardly towards said wall to support said bracket in horizontal position, said hanger bracket adapted to be embedded in the concrete trench footing to support and retain said trench footing against said wall.



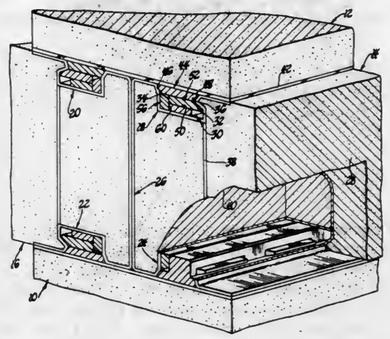
3,545,150
UNDERFLOOR WIRING TRENCH DUCT
De Forest D. Butler, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Oct. 16, 1968, Ser. No. 768,007
Int. Cl. E04f 19/00
U.S. Cl. 52—220 13 Claims



A channel-shaped body has two outwardly flanged side extensions nested therein respectively adjacent opposite side wall portions. Two cover plate mounting rails are secured respectively to the flanges of the side extensions by a plurality of screws threaded respectively into a plurality of generally U-shaped brackets. A plurality of nut-holding brackets are secured to the outer surfaces of the side wall portions of the channel-shaped body, and a plurality of adjusting screws are threaded respectively into the nuts in the nut-holding brackets, the adjusting screws having head portions disposed in the cover plate mounting rails and trapped between the flanges of the side extensions and the respective U-shaped brackets. A cover plate is removably secured in position by a plurality of screws threaded respectively into the U-shaped brackets. Each cover plate mounting rail has a lateral projection serving to anchor the assembly in concrete, and each generally U-shaped bracket has the free end portions of its legs bent to extend parallel to the bight portion so as to anchor the assembly in concrete.

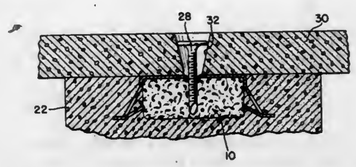
3,545,151
JOINT CONSTRUCTION FOR BUILDING ELEMENTS
John H. Suhr, 1920 Graefield, Birmingham, Mich. 48008
Filed June 20, 1968, Ser. No. 738,578
Int. Cl. E04b 1/54
U.S. Cl. 52—285 11 Claims

There is provided an improvement in joining systems for building elements wherein such building elements are to be secured together to form a load bearing structure, as in a building or the like, and wherein such building elements may be precast panels, beams, posts or other components. The improvement comprises a recess formed in a first building element, such recess having an outwardly directed angular surface formed thereon. The recess may extend longitudinally of the building element or may take the form of a series of spaced recesses disposed along a line longitudinally of the element. A rib extends from a second building element and is adapted to be secured to the first element, such rib being receivable in the recess in the first building element. The rib may extend longitudinally of the second building element or may consist of a series of spaced rib members disposed along a line longitudinally of the building element. The rib is provided with a transverse slot to receive and retain a slider member adapted to be moved into engagement with the angular surface on the recess when the rib is received therein. When the slider member is moved into such engagement, a secure



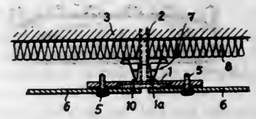
lock is provided between the first and second building elements. An actuating strip, disposed in the recess and oppositely located from the angular surface, is also provided with an angular surface adapted to be engaged by a corner of the slider member. Such engagement of the slider member on the angular surface of the actuating element causes outward movement of the slider member to locking engagement with the angular surface on the recess. The locking member is slidable in the recess so that spaced grooves, so located as to receive the slider member upon such movement of the actuating member, permit retraction of the rib from the recess and disengagement of the joint construction.

3,545,152
CONCRETE INSERT
Friedrich Karl Knohl, Roselle, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed July 3, 1968, Ser. No. 742,437
Int. Cl. E04b 2/20, 2/48
U.S. Cl. 52—367 11 Claims



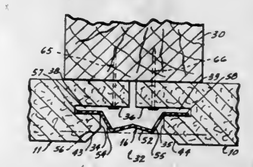
An insert for pre-cast concrete or the like provides an exposed surface relative to one face of the concrete for attachment to a fastening element which secures a wood, metal or concrete section to the pre-cast concrete, the exposed surface of the insert having a concrete void immediately behind it which offers substantially no resistance to the fastening element which is attached to the insert.

3,545,153
WALL PANEL MOUNTING DEVICE
Franz Bach, Marktplatz 9, Dusseldorf, Germany, and Adam Jung, Dusseldorfer Strasse 10/12, Cologne-Mulheim, Germany
Filed Feb. 28, 1968, Ser. No. 708,975
Claims priority, application Germany, Mar. 1, 1968, B 91,411
Int. Cl. E04b 2/28; E04c 1/40
U.S. Cl. 52—407 5 Claims



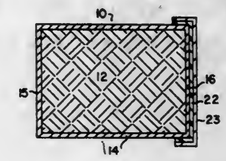
A wall panel mounting device, in particular for panelling the facade of a building, that includes an anchor extending into the wall and a plate having a recess formed by reinforced portions on the plate to receive a strip that covers the spacing that normally exists between the panels. A spacer is mounted on the anchor to resiliently urge the insulation layer against the wall.

3,545,154
SURFACE PANEL ASSEMBLY WITH RIGID STRIPS TO CONCEAL FASTENERS
James E. Bobzin, Clearwater, and Charles W. Sawyer, Seminole, Fla., assignors to The Celotex Corporation, Tampa, Fla., a corporation of Delaware
Filed Nov. 19, 1968, Ser. No. 776,904
Int. Cl. E04f 19/02; E04b 1/40
U.S. Cl. 52—460 7 Claims



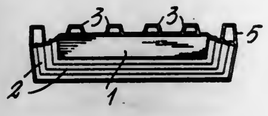
An improved surface panel support assembly in which fasteners are concealed by a rigid strip which has outwardly extending flanges engaging spaced parallel grooves in the surface panels and a central portion spaced from the base of the grooves to clear the fasteners upon insertion.

3,545,155
CONFINED SOIL BRICKS
George W. Church, Jr., 113 Moss Drive, San Antonio, Tex. 78213
Filed Sept. 17, 1965, Ser. No. 488,129
Int. Cl. E04c 1/04
U.S. Cl. 52—596 1 Claim



A confined soil brick including a preformed container of desired configuration with a compacted soil filler therein; a water repellant coating or sheet material may be applied to at least one side of said container.

3,545,156
CERAMIC UNIT WITH HOLLOW MONOLITHIC RIBS
Franco Ascari, Via S. Giacomo 7, Carpi, Italy
Filed July 5, 1968, Ser. No. 742,620
Claims priority, application Italy, Aug. 11, 1967, 19,422/67
Int. Cl. E04c *2/02, 2/38*
U.S. Cl. 52—602 6 Claims



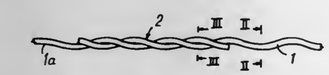
A ceramic panel having stiffening ribs, wherein said panel is of a substantially uniform thickness and said ribs are internally hollow and defined by walls of a substantially uniform thickness and the same as the panel thickness.

3,545,157
SECTION BAR
Kurt Cziptschirsch, Am Heckendorn 43, Wuppertal-Barmen, Germany, and Willi O. Treber, Ober-Str. 18, Wuppertal-Elberfeld, Germany
Filed Oct. 1, 1965, Ser. No. 492,149
Claims priority, application Germany, Nov. 14, 1964, 1,475,022
Int. Cl. E04f *19/02*
U.S. Cl. 52—717 3 Claims



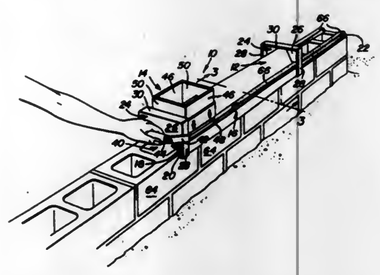
A section bar, bead or molding strip having a U-shaped channel cross-section with a sheet metal outer portion and a resilient material inner lining. The sheet metal outer portion has reversely bent outer ends which are protected from marring the plate or plates to which the section bar is attached by immediately adjacent beads of the resilient material. The resilient material has one or more outwardly tapered sealing lips extending inwardly toward the web of the channel.

3,545,158
REINFORCING IRON
Jacques Mizrahi, Chilly-Mazarin, France, assignor to Societe d'Appareillage Auxiliaire pour l'Electricite, a French society
Filed Apr. 23, 1968, Ser. No. 723,414
Claims priority, application France, May 5, 1967, 105,442
Int. Cl. E04c *5/01*; E04f *13/12*
U.S. Cl. 52—726 1 Claim



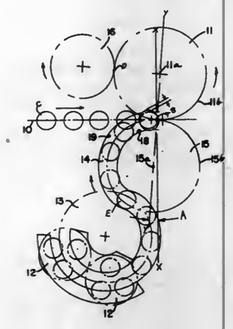
Reinforcing iron, a portion of which is twisted into a spiral insuring a better fastening in the concrete and allowing the assembling of two reinforcing irons by overlapping one of the spiral with that of the other iron.

3,545,159
MORTAR SPREADER
Max E. Brewer, 10226 Don Pico Road, Spring Valley, Calif. 92077
Filed July 23, 1968, Ser. No. 746,925
Int. Cl. E04g *21/20*
U.S. Cl. 52—749 6 Claims



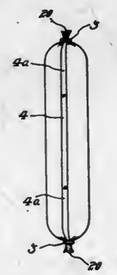
A device to aid in the construction of walls of bricks, blocks or other building units that lays two even ribbons of mortar on the previous course of brick or block that allows the ensuing course to be placed thereon. The ribbons of mortar are spaced inside the edge of the previous course so that a brick or block jig may be placed thereon to further facilitate the building of the wall.

3,545,160
METHOD AND APPARATUS FOR PURGING HEADSPACES OF FILLED CANS
Clyde E. Jantze, Riverside, Edward A. Arnott, Blue Island, and Earle V. Scott, La Grange Highlands, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Dec. 5, 1968, Ser. No. 781,426
Int. Cl. B65b *31/02*
U.S. Cl. 53—7 10 Claims



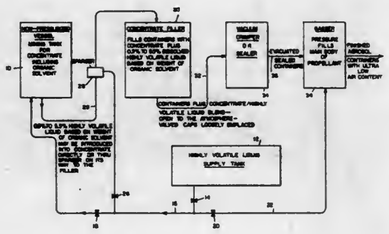
A can intake arrangement and gassing nozzle to purge air from the headspaces of filled cans as they approach chucking position on the seaming turret. The body infeed conveyor, infeed turret and seaming table are positioned for maximum effective gassing travel. A slot along the end feed guide delivers a gas jet which sweeps under the flanges of ends approaching the infeed position. A gas nozzle adjacent the infeed turret pocket delivers inert gas into the pocket through two banks of ports partially surrounding the pocket. One bank along the upper face of the nozzle case directs gas jets to sweep the headspace, while gas jets from a lower bank sweep under the body flange. A by-pass slot between the port banks diverts a portion of the flow in a fan jet, to preclude induction of air into blind spaces between ports.

3,545,161
METHOD OF AND APPARATUS FOR CONTINUOUSLY FORMING A SERIES OF PACKAGES WITH OPENING TAPE MEANS
Shohei Hoshino, Toshiyuki Yoneda, Hidenobu Uezono, and Shizuo Kawano, Suzuka-shi, Japan, assignors to Asahi Dow Limited, Tokyo, Japan
Filed Feb. 1, 1968, Ser. No. 702,310
Claims priority, application Japan, Mar. 1, 1967, 42/12,554
Int. Cl. B65b *61/18*
U.S. Cl. 53—14 4 Claims



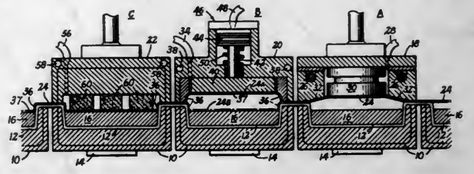
In the process of forming a continuous string of connected packages, a continuous tape of pliable resin material is continuously fed to extend along the tubular casing as it is formed to receive meat or other fluent material and is welded to the casing at regular intervals to form film-tearing means on each of the connected packages.

3,545,162
SYSTEM FOR FILLING INTERNALLY PRESSURIZED DISPENSING CONTAINER
Clarence P. Clapp, Milford, Conn., assignor to Aerosol Techniques Research Center, Incorporated, Milford, Conn., a corporation of New York
Filed June 11, 1968, Ser. No. 736,198
Int. Cl. B65b *31/00*
U.S. Cl. 53—22 8 Claims



A system for filling aerosol type containers (containers the contents of which are discharged through a valve as a spray or a foam by internal pressure generated by a liquified material that is a gas at room temperature and pressure) wherein a very substantial amount of the air in the head space of a container is purged by incorporating a small amount of dichlorodifluoromethane in the concentrate. The concentrate contains an organic solvent in which the dichlorodifluoromethane is soluble. The concentrate, including the solvent and the dichlorodifluoromethane, are introduced into the container while the interior of the container is exposed to the atmosphere. Subsequently the interior of the container is subjected to a vacuum equal to or somewhat lower than the vapor pressure of the blend including the solvent and the dichlorodifluoromethane whereby enough of the dichlorodifluoromethane evaporates to displace most of the air in the container over the concentrate. Thereafter while the interior of the container is still under the aforesaid vacuum a valved cap is sealed to the container as by crimping. The valved cap is placed on (but not sealed to) the container prior to subjecting the interior of the container to the vacuum but the vacuum must be present prior to introduction of the propellant gas so that air purging precedes propellant gas introduction. The propellant gas may be introduced either under the valved cap prior to the crimping or through the dispensing tube after crimping of the valved cap to the container.

3,545,163
PACKAGE FORMING METHODS AND APPARATUS
Reid A. Mahaffy, Montclair, and Joel A. Hamilton, Garfield, N.J., assignors to Mahaffy & Harder Engineering Company, Totowa, N.J.
Continuation of application Ser. No. 672,146, Oct. 2, 1967, which is a continuation-in-part of application Ser. No. 620,070, Mar. 2, 1967. This application July 30, 1969, Ser. No. 849,248
Int. Cl. B65b *31/04*
U.S. Cl. 53—22 41 Claims

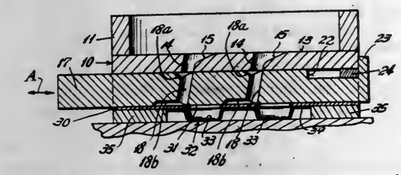


Automatic packaging machine for applying a flexible film closure to a semirigid cup-like receptacle and including means for (1) stretching the film at an elevated temperature prior to evacuation of the package, (2) cooling the film while maintained in stretched condition to make the stretched dimension relatively permanent, and (3) evacuating the package with the film closure sealed to the semirigid receptacle, so as to force the film by atmospheric pressure against the packaged articles.

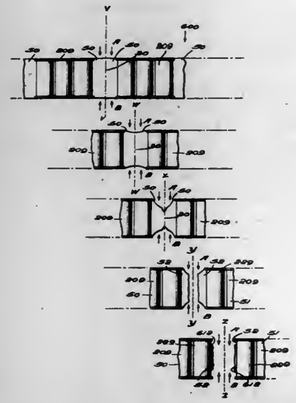
3,545,164
APPARATUS AND METHOD FOR FILLING PACKAGING RECEPTACLES
Earl Middleton, Weston, Conn., assignor to Warnaco, Inc., Bridgeport, Conn., a corporation of Connecticut
Filed Aug. 22, 1968, Ser. No. 754,621
Int. Cl. B65b *35/30*
U.S. Cl. 53—26 10 Claims

An apparatus and method for segregating, orienting and packaging elongate articles, such as capsules, wherein the articles are separated and turned from a horizontal position to a substantially vertical position and fed to and stored in a substantially vertical position in

a transfer plate. They are moved by the transfer plate to a position over a receptacle and disposed in the receptacle to lie in a predetermined horizontal position therein. The receptacles are then closed and sealed.



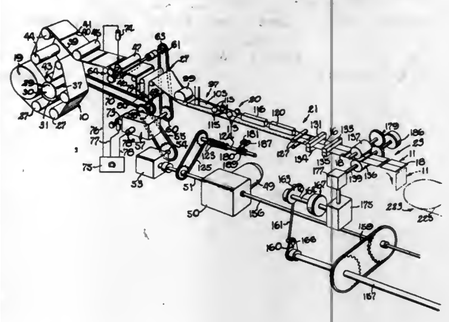
3,545,165
PACKAGING METHOD AND APPARATUS
Joseph Daniel Greenwell, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,844
Int. Cl. B65b *35/54, 53/06*
U.S. Cl. 53—26 **27 Claims**



Method of continuously packaging articles in a web of heat shrinkable film wherein the web is wrapped around the articles to form an open-ended tube thereabout and the articles are arranged in spaced package groups or units within such tube including the steps of weakening the web or the tube or both at spaced zones therealong, separating the tube between spaced package groups and along a weakened zone by shrinking the tube adjacent this zone thereby to form a tube section having open end portions extending beyond the ends of a package group of articles, shrinking the open end portions of the tube section into engagement with the articles at the ends of the package group, and finally shrinking the entire tube section into engagement with all the articles in the package group thereby to form a package. Apparatus is provided for performing the above described method of packaging.

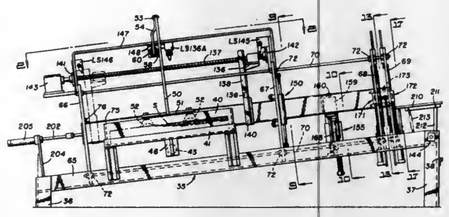
3,545,166
METHOD AND MACHINE FOR FORMING AND FILLING BAGS
Kenneth R. Johnson and Robert F. Lense, Rockford, Ill., assignors to Riegel Paper Corporation, a corporation of Delaware
Filed Dec. 8, 1967, Ser. No. 689,177
Int. Cl. B65b *43/04, 43/30*
U.S. Cl. 53—29 **14 Claims**

For forming bags from a continuous web of flexible material and for filling the bags with a quantity of loosely compacted and irregularly shaped particles, the web first is advanced continuously through a coating station where a rotatable drum prints adhesive strips on the web, is advanced step-by-step along a horizontal path through a forming station where the web is folded gradually into a tube with an upwardly facing seam, and then is advanced through a sealing station where some of the adhesive strips are activated to seal the seam and to form the bottom seals of the ultimate bags. Thereafter, the tube is severed along the leading edge of each bottom seal to separate the tube into a number of bags with hori-



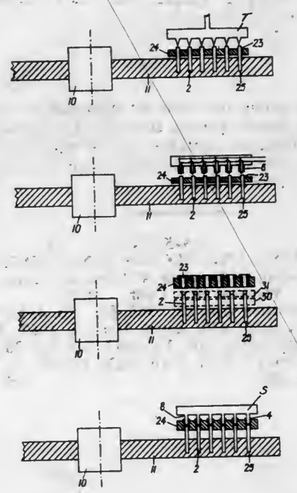
zontally facing open ends, the bags are turned into upright positions with the open ends facing upwardly, and then are advanced in spaced relation through a filling station to receive a measured charge of the particles. Before being filled, the body of each bag is expanded with air and the open end of the bag is formed into a generally circular mouth to accommodate a rapidly flowing particle stream of large cross-section. After the bag has been filled, the circular mouth is stretched and flattened and the remaining adhesive strip is activated to seal the mouth and enclose the particles in the bag.

3,545,167
PACKAGING SYSTEM FOR MERCHANDISE RECEIVING CONTAINERS OF VARIOUS VOLUMES
Francis J. Lawler, 3054 Norwood St., Columbus, Ohio 43224
Filed June 4, 1968, Ser. No. 734,311
Int. Cl. B65b *47/06*
U.S. Cl. 53—29 **27 Claims**



A system for use in packaging articles or groups of articles of merchandise or material requiring differences in volumetric space for packaging. The system is embodied in a machine which receives a sheet of fiberboard or other formable material, forms it into an elongated tube of square or rectangular cross section and predetermined girth, and joins its leading end to the trailing end of a previously formed tube; and while the tube is still in the machine permits the operator to pack in the leading end of the continuously joined tube sections material or merchandise of assorted size, shape or quantity, after which the machine adjusts to the exact length required, cuts and scores the tube so that it is of the required length and volume with closure flaps formed on each end so that the operator can complete the closure by folding and sealing the flaps.

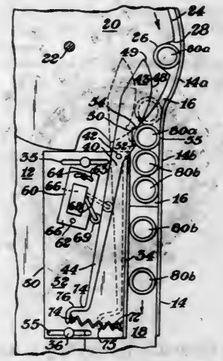
3,545,168
SEALING OF TUBES OF PLASTIC MATERIAL
William John Day, Gosport, England, assignor to E. S. Perry Limited, Gosport, England, a British company
Filed Oct. 30, 1967, Ser. No. 682,705
Int. Cl. B65b *3/04*
U.S. Cl. 53—37 **4 Claims**



In sealing the end of a tube of heat sealable plastic material the tube is first inserted in a die so as to be freely slidable therethrough. It is thereafter brought into contact with or adjacent to a heater so that the end to be sealed is softened into a pliable state. The softened end is then withdrawn into the die by moving either the die or the tube. Thereafter the end is sealed by the application of a forming tool to the softened end while it is still within the die.

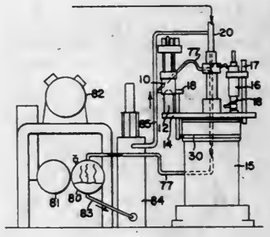
3,545,169
INDEXING ACTUATOR
James R. Nash, Zionsville, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Nov. 4, 1968, Ser. No. 772,996
Int. Cl. B23q *5/22;* **B65b** *57/02;* **B65g** *47/80*
U.S. Cl. 53—67 **10 Claims**

An indexing apparatus for removing articles from an indexing device such as a pocket wheel and operating a switch when the article so removed reaches a predetermined location with respect to the apparatus as described. The apparatus includes a pivotally-mounted actuator arm having a cam-like guide surface on a head portion thereof for urging individual articles out of the indexing apparatus toward the location and a notch portion thereon adjacent the predetermined location, the notch portion being adapted to fit about a portion of the periphery of an



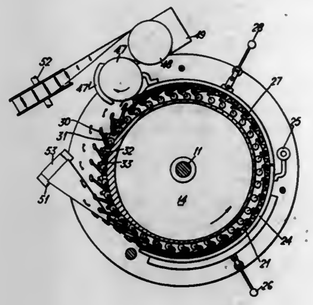
article to arrest the article when the actuator arm moves to one pivotal position and a switch sensitive to the position of the pivot arm so that actuation of an individual operating mechanism is accomplished when an article is so engaged.

3,545,170
CONTAINER FILLING APPARATUS
George E. Leonard, Davenport, Iowa, assignor to The Kartridg Pak Co., Davenport, Iowa, a corporation of Iowa
Filed Dec. 26, 1967, Ser. No. 693,229
Int. Cl. B65b *31/02*
U.S. Cl. 53—88 **7 Claims**



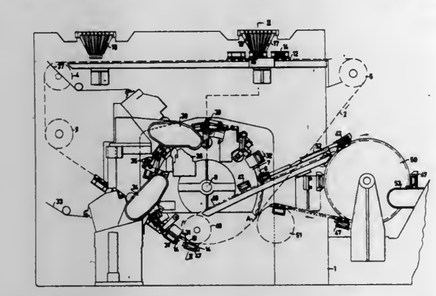
An apparatus for filling aerosol containers with a predetermined quantity of a propellant-forming material under pressure which is characterized by a filling head having a sealing bell which houses mechanism for lifting a closure cap and valve assembly while propellant under pressure is fed into the container through the bell from a propellant supply line connected thereto and the bell is provided with an exhaust line having a hydraulically controlled valve for opening the line when the closure cap is crimp sealed to close the container so as to enable the propellant left in the bell to boil off into the exhaust line through which it is carried to a chiller tank where it is converted from a gas to a liquid and thereafter pumped under high pressure through a connecting line to the propellant supply line.

3,545,171
HEAT-SEALING APPARATUS
Jacob Salomon, 10 Weizman Square, Holon, Israel
Filed Nov. 16, 1967, Ser. No. 683,672
Int. Cl. B65b 9/12
U.S. Cl. 53—180 11 Claims



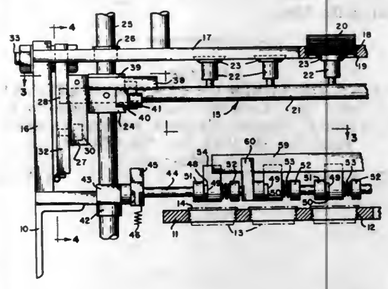
A heat-sealing apparatus for sealing a web at spaced intervals, e.g. in the production of tea bags, in which a wheel has outward projections on its periphery and the web is fed between the projections and a heated member extending around some of the periphery. The web may be folded to form a channel prior to feeding, and funnels carried by the wheel may rotate with the wheel to feed tea into the channel as the latter passes against the heated member.

3,545,172
CIGARETTE PACKETING MACHINE
Ragnar Osterdahl, Stockholm, Sweden, assignor to Arenco Aktiebolag, Stockholm-Vallingby, Sweden
Filed Oct. 31, 1967, Ser. No. 679,425
Claims priority, application Sweden, Nov. 11, 1966, 15,504/66
Int. Cl. B65b 5/02, 19/24
U.S. Cl. 53—192 3 Claims



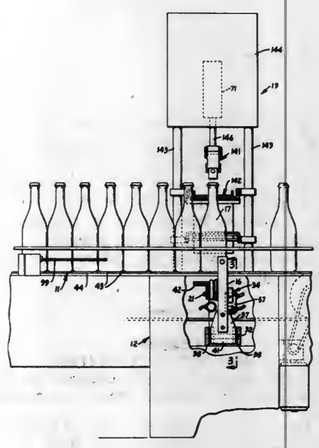
A cigarette packeting machine comprising a first endless conveying means provided with cigarette portion holders, a second endless conveying means provided with container forming mandrels, means for forming container on said mandrels and a third endless conveying means provided with means for receiving filled containers, said conveying means being driven continuously and having a common conveying path in which said cigarette portion holders, said mandrels and said container receiving means travel positioned in register with each other and in cooperation with rams adapted to push cigarette portions from said holders through said mandrels and, together with said containers, into said container receiving means.

3,545,173
CONTAINER LID SPOT SEALER
William C. Christine, Catasauqua, and Joseph E. Pierce, Allentown, Pa., assignors to A.E.I. Corporation, Bethlehem, Pa., a corporation of Delaware
Filed Oct. 30, 1968, Ser. No. 771,895
Int. Cl. B65b 7/28
U.S. Cl. 53—307 4 Claims



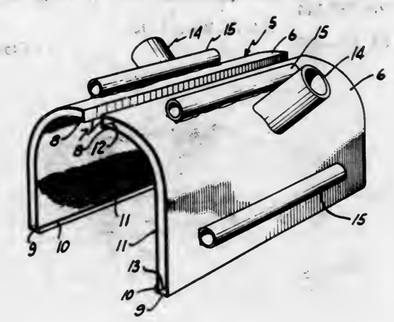
A lid spot sealing apparatus having means for removing a lid from a supply, placing such lid on a container and sealing the lid to the container in one spot to retain the lid and container in fixed position relative to each other until permanently sealed.

3,545,174
INDEXING AND DECROWNING DEVICE
Benjamin F. Randrup, 423 Roberta Ave., Pleasant Hill, Calif. 94523
Original application Apr. 28, 1965, Ser. No. 451,524, now Patent No. 3,355,856, dated Dec. 5, 1967. Divided and this application Nov. 13, 1967, Ser. No. 706,734
Int. Cl. B67h 7/16; B23p 19/04
U.S. Cl. 53—381 5 Claims



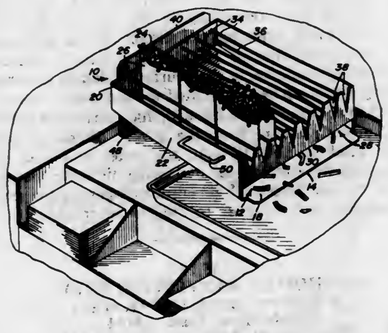
An indexing device and decrowner comprising a conveyor for carrying bottles along a horizontal path, an indexing mechanism for holding bottles in an accurately fixed position over the moving conveyor, a decrowner mounted on the conveyor over the indexed position, an opener head assembly on the decrowner operated for vertical reciprocating motion by a fluid cylinder to engage a bottle cap on an indexed bottle and remove same, a chute cooperating with the decrowner to hold the bottle during decrowning and carry away removed caps, and control means for synchronizing the indexing mechanism with the decrowner.

3,545,175
SUCTION ARC BAG HOLDER FOR AUTOMATIC BREAD BAGGER
Nils A. Lillund, 1113 Springingsguth Road, Schaumburg, Ill. 60172
Filed Aug. 9, 1968, Ser. No. 751,400
Int. Cl. B65b 43/36
U.S. Cl. 53—386 3 Claims



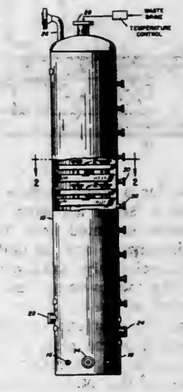
This invention relates to the packaging art; more particularly, to that branch of the art that deals with the packaging of loaves of bread in bakeries.

3,545,176
BAG HOLDING AND DISPENSING RACK
Herbert J. Wheelock, 1529 Cora St., Wyandotte, Mich. 48192
Filed Apr. 4, 1968, Ser. No. 718,831
Int. Cl. B65b 67/12
U.S. Cl. 53—390 11 Claims



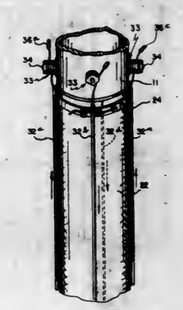
A rack including an inclined base having elongated seat forming rods positioned thereover and orientated in a manner so as to support upwardly opening bags which receive foodstuff, the overflow or spillage falling through the supporting seats and onto the base for discharge at one end thereof.

3,545,177
GAS DEHYDRATION PROCESS
Robert A. Hodgson, Tulsa, Okla., assignor to Maloney-Crawford Tank Corporation, Tulsa, Okla., a corporation of Delaware
Continuation-in-part of application Ser. No. 770,207, Oct. 24, 1968. This application Sept. 15, 1969, Ser. No. 864,257
Int. Cl. B01d 53/28
U.S. Cl. 55—30 11 Claims



Brine is caused to pass, once through and without regeneration, countercurrent to a wet gas stream to dehydrate the latter.

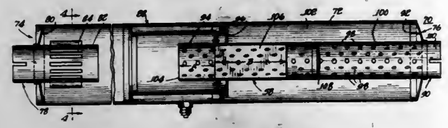
3,545,178
BAG TYPE SEPARATOR APPARATUS HAVING CLEANING MEANS THEREFOR
John James Sheehan, Berea, Ohio, assignor to Buell Engineering Company, Inc., Lebanon, Pa., a corporation of Delaware
Filed July 6, 1967, Ser. No. 651,609
Int. Cl. B01d 46/46
U.S. Cl. 55—272 8 Claims



A dust collecting apparatus for use in removing solids from a gaseous stream comprising, one or more collecting units having one or more filter members, such as fabric

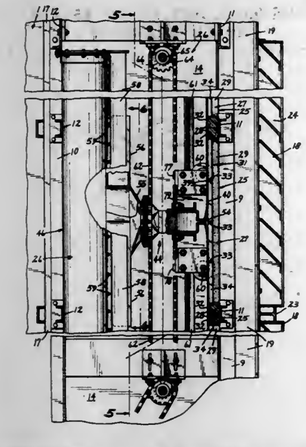
bags or the like, disposed in dust separating and/or collecting communication with each of the units for removing dust or the like from the gaseous stream, and electrically actuatable means including a plurality of electrically energizable conductor elements associated with the filter members for selectively deflecting the filter members so as to remove the collected dust therefrom.

3,545,179
SILENCER
Ralph H. Nelson and Eddy J. Sells, Stoughton, Wis., assignors to Nelson Muffler Corporation, Stoughton, Wis., a corporation of Wisconsin
Filed June 25, 1968, Ser. No. 739,747
Int. Cl. B01d *45/12; B04c 3/00*
U.S. Cl. 55—276 **6 Claims**



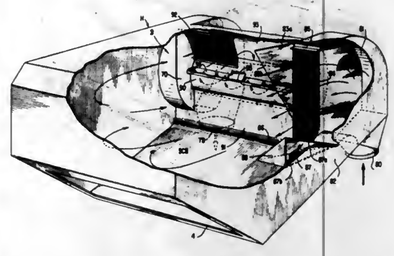
A baffling means for a solid particle eliminating gas flow device, such as a "spark arresting" muffler, including gas rotating means mounted near the inlet thereof, solid particle trapping means and an outlet tube for expelling the rotating, relatively solid particle-free gases therefrom. The baffling means comprises a flat or planar plate member mounted within the outlet tube a predetermined distance from the inner end and along the central axis thereof. The length of the plate member may vary. The plate member serves to eliminate whistling sounds caused by the passage of the rotating gases over the inner edge of the outlet tube.

3,545,180
DUST COLLECTOR AND FILTER THEREFOR
Maurice P. Schrag, Minneapolis, Minn., assignor to Carter-Day Company, Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 26, 1968, Ser. No. 755,072
Int. Cl. B01d *46/12*
U.S. Cl. 55—284 **3 Claims**



An air filter including a frame defining an opening and a generally vertical mounting surface surrounding the opening, and a vertically disposed flexible porous screen covering the opening and having a marginal edge secured to said mounting surface. The screen is disposed in a substantially neutral state without sagging under its own weight in its vertical position, but is adapted to be stretched and deflected to a predetermined degree by pressure of air moving through said opening. A filter cleaner includes a suction head movable parallel to the plane of the screen and operative to deflect adjacent portions of the screen away from the neutral condition thereof responsive to negative air pressure in the suction head.

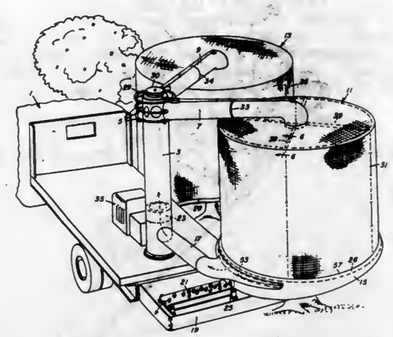
3,545,181
AIR CLEANING APPARATUS
Bernard W. Young, P.O. Box 2369, Waco, Tex. 76701
Original application Aug. 30, 1966, Ser. No. 576,063. Divided and this application May 7, 1968, Ser. No. 727,244
Int. Cl. B04c *5/04*
U.S. Cl. 55—432 **11 Claims**



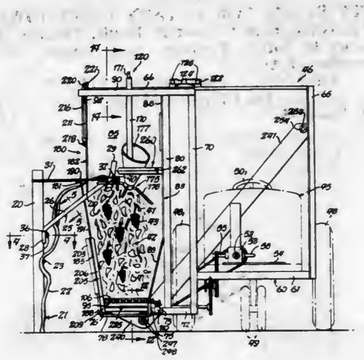
Air cleaning apparatus for separating air from particulate solid matter entrained therein comprises a wall defining a generally cylindrical chamber having an open end, a substantially tangential air entrance opening in said wall extending parallel to the axis of said chamber, and a solids discharge slit in said chamber wall angularly spaced from said entrance opening about the axis of said chamber; and a blower for causing air to flow in a stream entering said chamber through said entrance opening and to swirl and move axially in said chamber and out of said open end thereof, the entrained particulate solid matter other than some very light particles being thrown out centrifugally from the swirling air and thereby discharged through said solids discharge slit, some very light solid particles remaining in the air stream within said chamber and rendering the stream heavier than completely clean air. This air cleaning apparatus is disclosed in combination with an air flow surface cleaning apparatus including a pick-up head mounted for movement over and adjacent to a surface to be cleaned, duct means for delivering air under pressure from the blower discharge to the pick-up head to flow through the latter and over said surface, and duct means for delivering air from the pick-up head to said tangential air entrance opening for return flow through said chamber to the blower intake.

3,545,182
METHOD OF HARVESTING FRUIT
Fritz Bernshausen, 1109 W. G St., Elizabethton, Tenn. 37643
Filed Feb. 21, 1968, Ser. No. 707,237
Int. Cl. A01g *19/00*
U.S. Cl. 56—1 **7 Claims**

A free fruit harvesting system is provided wherein a flexible air-permeable container is positioned over a fruit tree and the container is filled with particulate cushioning material, so that when the fruit is detached from the tree by some means such as shaking, the fruit does not fall and incur surface bruises. A retriever member is provided for attachment to the bottom of the container to facilitate the removal of fruit and cushioning material from the container. The system includes a second, identical container for positioning over a second fruit tree, means for conveying the cushioning material from the first container to the second container, and means for transferring the containers from tree to tree, whereby the harvesting operation is performed sequentially on each tree in a row.

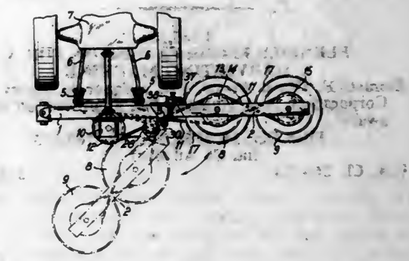


3,545,183
METHOD FOR HARVESTING GRAPES
Edwin Stanley Shepardson, Ithaca, N.Y., assignor to New York State Concord Grape Production Research Fund, Inc.
Original application Apr. 16, 1965, Ser. No. 449,394, now Patent No. 3,380,236, dated Apr. 30, 1968. Divided and this application Apr. 25, 1968, Ser. No. 834,914
Int. Cl. A01g *19/00*
U.S. Cl. 56—1 **7 Claims**



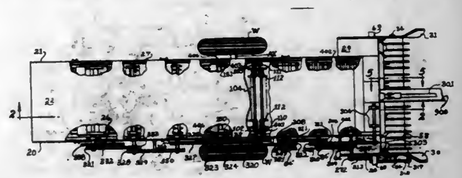
Clustered fruit is harvested from plants, such as grape vines, which have been trained into the form of a curtain suspended from a generally horizontal wire by projecting from one side of the wire a generally horizontal arm endwise into the curtain, and moving the arm transversely of itself to remove inertially the fruit from the plants.

3,545,184
MECHANISM FOR MOWING OR HARVESTING VARIOUS CROPS
Adolf Liepold, Schwarzenbruck, near Nuremberg, and Karl-Heinz Kuntze, Feucht, near Nuremberg, Germany, assignors to Fella-Werke Gesellschaft mit beschrankter Haftung, Feucht, near Nuremberg, Germany, a corporation of Germany
Filed Aug. 15, 1968, Ser. No. 753,003
Claims priority, application Germany, Aug. 23, 1967, 1,582,220
Int. Cl. A01d *75/30, 35/26*
U.S. Cl. 56—6 **4 Claims**



A mowing machine for attachment to a tractor and which has a two piece carrier bar, one piece being attached to the hitch of the tractor while the other piece extends to one side of the tractor and can be pivoted about a vertical axis relative to the first piece. On the second piece is mounted a pair of rotary cutting members having vertical axes and horizontally positioned pulleys having a crossed power driving belt provided for driving the rotary members from a mitre-gear arrangement attached to the power take-off shaft of the tractor. Both pieces of the carrier bar are held in alignment by a spring loaded locking device. The crossed belt arrangement, the pivot point between the two pieces, and the support for the belt are all arranged in proper relative position so as to permit operation of the various parts without binding or malfunction.

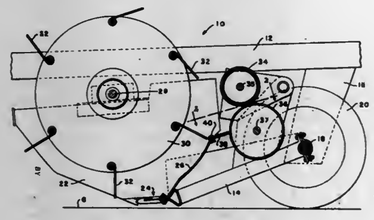
3,545,185
PEANUT COMBINE
Carroll J. Whitfield, Columbus, Ga., and Wendell E. Dorsett, Gering, Nebr., assignors to Lilliston Corporation, Albany, Ga., a corporation of Georgia
Application Sept. 21, 1966, Ser. No. 581,119, now Patent No. 3,404,517, dated Oct. 8, 1968, which is a continuation of application Ser. No. 329,404, Dec. 10, 1963. Divided and this application Aug. 21, 1968, Ser. No. 754,313
Int. Cl. A01d *89/00*
U.S. Cl. 56—19 **8 Claims**



This invention relates to a peanut combine including means for picking up peanut-laden vines arranged in windrows. More particularly, this invention includes a

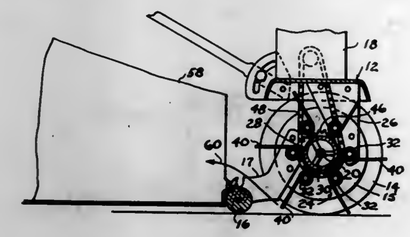
main frame having a picking cylinder positioned for rotation therein. Mounted on the main frame forward of the picking cylinder is a pickup section including a rotatably mounted pickup drum having a series of spring fingers. Supported on the main frame intermediate the picking cylinder and pickup drum is a rotatably mounted feed drum having a pair of opposed helical flange means and a series of spring fingers. The pickup section and feeder drum are detailed in width to be wider than the picking cylinder for picking up peanut-laden vines from windrows having a composite width greater than the width of the picking cylinder and for reducing the width of the picked up vines and transferring the vines to the picking cylinder.

3,545,186
FLEXIBLE FLOOR EXTENSION FOR A HARVESTING MACHINE
Emmett F. Glass, Akron, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,235
Int. Cl. A01d *43/10*
U.S. Cl. 56—23 **2 Claims**



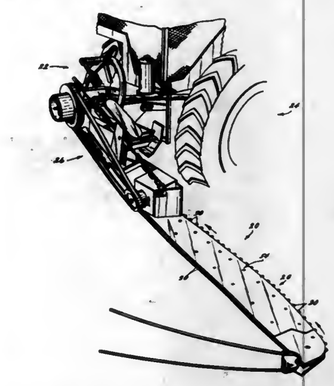
A flexible floor extension for a harvesting machine having conditioning rolls therein, which extension will yield in response to heavy objects passing thereover to separate those objects from the crop material and drop them to the ground before they pass through the conditioning rolls, but will not yield in response to the passage of crop material thereover so that light crop material will not fall to the ground prior to passing through the conditioning rolls.

3,545,187
POWER LAWN RAKE
Donald G. Whitney, 1411 Rebecca Lane, Apt. 218, Norman, Okla. 73069
Filed Apr. 30, 1969, Ser. No. 820,501
Int. Cl. A01d *51/00, 77/02*
U.S. Cl. 56—27 **3 Claims**



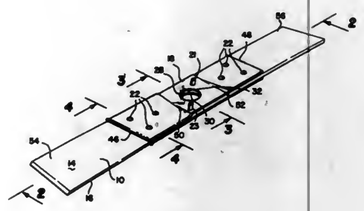
A motor supporting downwardly open mobile frame journals a reel driven by the motor. The reel includes a plurality of radial outwardly projecting tines. A control handle and debris receptacle is connected with the frame.

3,545,188
IMPACT MOWING APPARATUS AND SYSTEM
Norman C. Locati, Lake Oswego, Oreg., assignor to Omark Industries, Inc., Portland, Oreg., a corporation of Oregon
Filed Sept. 16, 1968, Ser. No. 759,831
Int. Cl. A01d *55/24*
U.S. Cl. 56—245 **7 Claims**



An apparatus and system for mowing vegetation and the like including a cutter bar adapted to mount a driven flexible belt having attached thereto a plurality of cutter elements. Said apparatus and system including means to automatically sharpen the cutter elements with said cutter bar supporting the cutter belt in a horizontally disposed and forwardly projected convex curve. The cutter bar has retaining rails for retaining the cutter belt on the cutter bar during the mowing operation and further includes sheaves that support the cutter belt in a manner whereby clogging is avoided. An accumulator tightening mechanism maintains the belt under a constantly desired tension. Said apparatus and system further includes means whereby the cutter elements are protected from hard objects lying in the path of the mower.

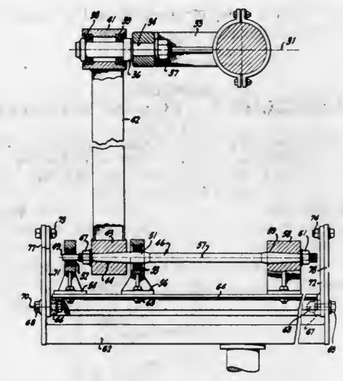
3,545,189
SAFETY BLADE FOR ROTARY LAWNMOWERS
Robert E. Gillaspie and Elmer R. Houle, Phoenix, Ariz., assignors to Safeco Products, Inc., Tempe, Ariz., a corporation of Arizona
Filed Nov. 1, 1968, Ser. No. 772,577
Int. Cl. A01d *55/18*
U.S. Cl. 56—295 **6 Claims**



A safety blade for rotary lawnmowers comprising a strap-like blade of rubber-like material having relatively rigid clamp plates riveted or otherwise secured to opposite sides of the blade; the clamp plates being helically twisted in spaced relation from said openings in order to hold opposite ends of said rubber-like blade in helically

disposed position; opposite ends of said plates being disposed in outwardly diverging relation with opposite sides of said blade to prevent galling of said blade when it flexes from side to side in upward and downward directions.

3,545,190
TREE SHAKER SUSPENSION
Robert B. Fridley, Davis, and Bruce M. Shawver, Woodland, Calif., and Emmett R. Holekamp, deceased, late of Bozeman, Mont., by Eloise B. Holekamp, legal representative and sole heir, Bozeman, Mont., assignors to The Regents of the University of California, Berkeley, Calif.
Filed Apr. 2, 1968, Ser. No. 718,040
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 **9 Claims**



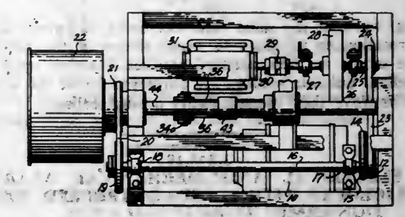
A tree shaker suspension includes a base on which there is provided a platform that can be rotated with respect to the base about a substantially horizontal transverse axis. A torsion bar at one end is journalled on the platform and at the other end is fixed to the platform. A radial arm is secured to the torsion bar adjacent the journal end thereof and extends upwardly to a journal carrying a mounting extending parallel to the torsion bar and adapted to engage a longitudinally extending tree shaker.

3,545,191
METHOD AND DEVICE FOR MANUFACTURING A CABLE
Constant Bienfait, Delft, Netherlands, assignor to N.V. Nederlandsche Kabelfabrieken, Delft, Netherlands
Filed Jan. 6, 1969, Ser. No. 789,290
Claims priority, application Netherlands, Jan. 11, 1968, 6800433
Int. Cl. B65h *81/06*
U.S. Cl. 57—9 **9 Claims**



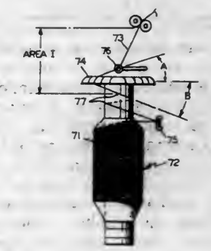
A method and a device for manufacturing a cable having a plurality of three-dimensional serpentine patterned wires wound about an elongated core member. A mat comprising a planar array of serpentine patterned wires is folded over the core and the wire-covered core is then wrapped to fix the mat on the core.

3,545,192
APPARATUS FOR WINDING ROVING
Howard M. Hickman, Overland Park, Kans., assignor, by mesne assignments, to Certain-Teed Products Corporation, Ardmore, Pa., a corporation of Maryland
Original application June 29, 1966, Ser. No. 561,477, now Patent No. 3,383,851, dated May 21, 1968. Divided and this application Mar. 7, 1968, Ser. No. 711,364
Int. Cl. B65h *55/00;* **D01h** *1/04*
U.S. Cl. 57—71 **5 Claims**



Apparatus for winding a strand of roving into a roving package formed on a nonrotatable, reciprocal mandrel. A guide member mounted on a rotatable cylindrical drum guides the strand onto the roving package and imparts a 360° twist to the strand per each revolution of the guide member around the mandrel to provide a package of roving in which the strand may be withdrawn without the twist.

3,545,193
BALLOON CONTROL DEVICES
Harry E. New and Boyer D. Hall, Newport News, Va., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Mar. 21, 1968, Ser. No. 714,979
Int. Cl. D01h *1/42*
U.S. Cl. 57—73 **9 Claims**

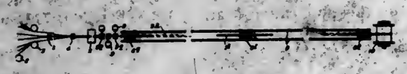


Balloon control during the spinning or twisting of yarns is accomplished by a device attached to or forming a part of the top of the bobbin. The device includes a notched cap at the end of the bobbin, having a diameter greater than that of the bobbin.

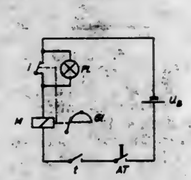
3,545,194
REELING PREASSEMBLED PARALLEL WIRE STRANDS FOR BRIDGES AND OTHER STRUCTURAL APPLICATIONS
Robert W. Fish, South Russell Village, Ohio, and Wallace F. Stack, Middletown Township, Bucks County, and Craig J. Welch, Ross Township, Allegheny County, Pa., assignors to United States Steel Corporation, a corporation of Delaware
Continuation of application Ser. No. 662,163, Aug. 21, 1967. This application May 22, 1969, Ser. No. 828,438
Int. Cl. B65h *54/00, 59/10*
U.S. Cl. 57—156 **8 Claims**

Compact reeling of long lengths of preassembled parallel steel wire strands for suspension construction, such as suspension bridges and roofs, for example, is permitted

by imparting a periodic pattern of alternate right-lay and left-lay twists to the strands in preparation for reeling. This twisting is gauged to assure that equal lengths of individual wires are put onto the reel in spite of the varying radii of the individual wire loops created by the reeling, while at the same time not being so severe in deformation as to preclude ready return of the wires of the strand to their original parallel structure upon unreeling. Suitable seizings are employed about the strands to improve their manageability during reeling.



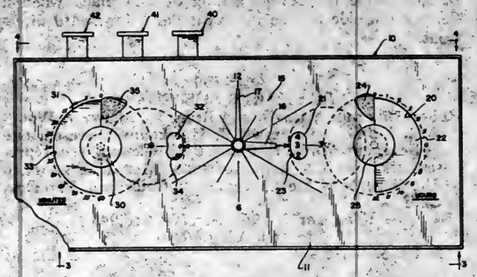
3,545,195
ELECTRICAL AND MECHANICAL ALARM CLOCKS WITH PULSE-CONTROLLED POSITION LAMP
Joseph Krischker, Affalterbach, Germany, assignor to Blessing-Werke KG., Feinbau, Waldkrich im Breisgau, Germany
Filed Apr. 11, 1968, Ser. No. 721,567
Claims priority, application Germany, Apr. 29, 1967, K 62,185
Int. Cl. G04c *21/16*
U.S. Cl. 58—19 6 Claims



An arrangement in alarm clocks for flashing a lamp in conjunction with the alarm. At a predetermined instant of time when the alarm is to be sounded, a sequence of audible sounds is emitted at a predetermined frequency. A lamp is provided which flashes in between these intervals at which the audible sounds are emitted. A switching arrangement controls the flashing of the lamp in relation to the acoustical mechanism which emits the audible sounds for the alarm. This switching arrangement can be in the form of a mechanical switch actuated by the alarm device for emitting the audible sounds, or a transistor circuit. In the latter case, a capacitor is used in conjunction with the transistor. An auxiliary capacitor may also be applied to realize audible sounds and light flashes at different frequencies. The switching arrangement forms either a short-circuit path or an open circuit path across the lamp in a controlled fashion so that the lamp may flash at predetermined intervals.

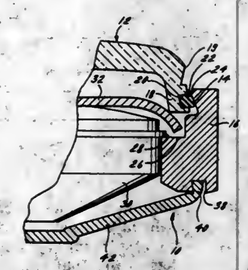
3,545,196
COMPUTER CLOCK TIMER
Philip Vazzano, Des Plaines, and William A. Wagner, Park Ridge, Ill., assignors to Warwick Electronics Inc., a corporation of Delaware
Filed Aug. 5, 1968, Ser. No. 750,153
Int. Cl. G04c *21/16*; G04f *3/04*; G04b *13/00*
U.S. Cl. 58—19 17 Claims

A computer clock timer having mechanism and a control circuit controlling an electrical device, such as a radio, for turning on and off the device including manually settable mechanism for setting an amount of elapsed time in either hours or minutes with visual indication of the elapsed time set both as an absolute time in the future and as an interval of time from the present and, additionally, with means for controlling an alarm with a snooze control mechanism operating in conjunction with



the minute setting time mechanism and a master control for the electrical device.

3,545,197
WATERTIGHT WATCH CASE WITH OVAL CRYSTAL
Ludwig Fischer, Waterbury, Conn., assignor to Benrus Corporation, a corporation of Delaware
Filed July 5, 1968, Ser. No. 742,768
Int. Cl. G04b *37/08*
U.S. Cl. 58—90 13 Claims



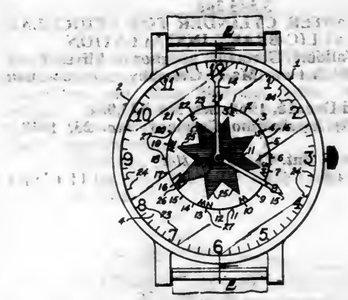
A watertight watch case comprises a non-circular crystal having a groove formed in its peripheral surface. A bezel has an inwardly and upwardly sloping bezel surface of a size and shape generally corresponding to the non-circular peripheral surface of the crystal and a deformable sealing element, received in the crystal surface groove, is compressed between the crystal and bezel surface, thereby to retain the crystal and the bezel in substantially watertight engagement.

3,545,198
WRISTWATCH CASE
Richard Loftus, London, England, assignor to Old England Watches Limited, London, England
Filed Nov. 5, 1968, Ser. No. 773,432
Claims priority, application Switzerland, Nov. 6, 1967, 15,468/67; Oct. 18, 1968, 15,640/68
Int. Cl. G04b *37/08*
U.S. Cl. 58—90 11 Claims



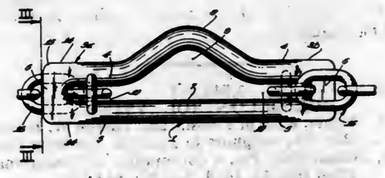
A watchcase comprising an upper and a lower cover each having a radially protruding rib, the ribs mating with each other along a common interface and being secured together, a bracelet having a bead portion which grips about said ribs.

3,545,199
COMBINED TIMEPIECE AND COMPASS
William Rice, Jr., Box D, Paintsville, Ky. 41240
Filed May 16, 1969, Ser. No. 825,329
Int. Cl. G04b *47/00*
U.S. Cl. 58—152 3 Claims



The invention provides a timepiece, typically a wristwatch, which also serves as a solar compass and in which a compass pointer serves the additional function of indicating time on a 24-hour basis. Advantageously, the device includes both a 12-hour set of time indicia and a 24-hour set of time indicia, and employs a circular compass card driven at half the speed of the hour hand, the 24-hour set of time indicia being arranged on the dial in a location around the periphery of the compass card so that the north pointer of the compass card also cooperates with the 24-hour set of time indicia to indicate time on a 24-hour basis.

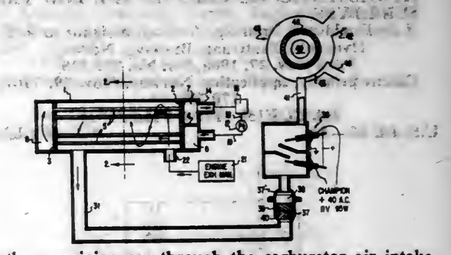
3,545,200
LINK CHAIN CONNECTOR
William D. Fagan, P.O. Box 50, Chicago Ridge, Ill. 60415
Filed June 14, 1968, Ser. No. 737,104
Int. Cl. F16g *15/00*
U.S. Cl. 59—93 8 Claims



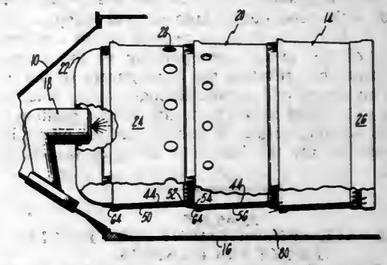
A connector for link chain comprising a body member constructed to receive an intermediate chain link and interlock with adjacent transversely extending links of the chain, and provided with an opening of a size to permit passage of the chain links therethrough to enable interlocking engagement of such chain links with the body member.

3,545,201
EXHAUST GAS TREATMENT
Bjarne Pedersen, Industry, Maine (P.O. Box 528, Farmington, Maine 04938)
Continuation-in-part of application Ser. No. 788,309, Dec. 31, 1968, which is a continuation-in-part of application Ser. No. 656,261, July 26, 1967. This application Aug. 22, 1969, Ser. No. 852,437
Int. Cl. F01n *3/10*; F02m *31/08*
U.S. Cl. 60—30 6 Claims

An exhaust gas treatment system connected between the exhaust manifold and the carburetor air intake housing of an engine and arranged for treating the gas issuing from the exhaust manifold by reacting it with additional air to burn carbon monoxide and unburned hydrocarbons, passing the resulting gas through a filter, and then delivering the remaining gas through the carburetor air intake housing from where it exits into the atmosphere.



3,545,202
WALL STRUCTURE AND COMBUSTION HOLES FOR A GAS TURBINE ENGINE
Richard W. Batt, Wethersfield, Perry Goldberg and Alexander Kurti, West Hartford, and Irwin Segalman, Bloomfield, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 2, 1969, Ser. No. 812,748
Int. Cl. F02c *3/00*; F23d *11/00*
U.S. Cl. 60—39.65 6 Claims



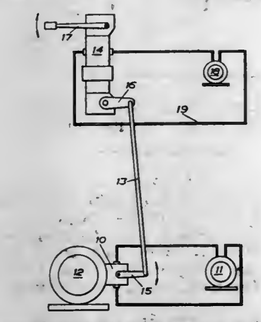
A combustion wall and liner construction which utilizes a unique wall geometry to maintain the liner wall exposed to the combustion gases at an acceptable operating temperature. Additionally, a construction wherein air dilution conduits or flow passageways for conducting the flow of dilution air into the combustion chamber is described. The construction is such that it maintains the cooling flow through a plurality of flow channels which are intersected by the conduits.

3,545,203
ABLATIVE INJECTORS
Sidney G. Rumbold, Claremont, Calif., assignor to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
Filed Oct. 29, 1968, Ser. No. 771,535
Int. Cl. F02k *9/02*
U.S. Cl. 60—39.74 10 Claims



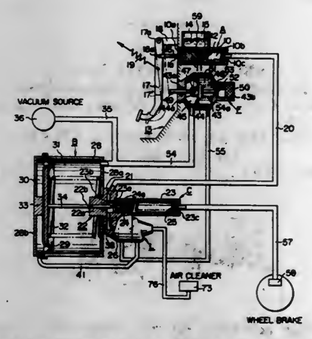
An injector according to the present disclosure comprises an ablative body forming an injector face of the combustion chamber of a rocket engine. Injection means is supported by the body for injecting propellant into the combustion chamber.

3,545,204
ARRANGEMENTS IN THE CONTROL SYSTEM OF HYDROSTATIC WINCHES OF THE LOW PRESSURE TYPE
Leiv Roaldsnes, Brattvag, Norway, assignor to A/S Hydraulik Brattvaag, Brattvag, Norway
Filed Nov. 27, 1968, Ser. No. 779,528
Claims priority, application Norway, Nov. 29, 1967, 170,738
Int. Cl. F15b *11/08*; F16d *31/06*
U.S. Cl. 60—53 16 Claims



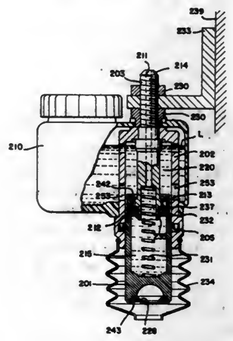
A hydraulic control system wherein an operating handle axially displaces an auxiliary slide arranged in a piston from a neutral position, the slide and the piston being provided with cooperating grooves and passages for the flow of a driving medium respectively to and from the sides of the piston corresponding to the original displacement, thus effecting the displacement of the piston and an operatively connected main valve slide, the auxiliary slide being forced back into neutral position by a double-operating spring. A housing for the piston has radial openings for the inlet and outlet of the driving medium.

3,545,205
FAIL SAFE ARRANGEMENT FOR VEHICLE BRAKE MECHANISMS
Saburo Fujita, Toshiharu Adachi, and Yoichi Furuta, Kariya-shi, Aichi-ken, Japan, assignors to Aisin Seiki Company Limited, Asahi-machi, Kariya-shi, Aichi-ken, Japan
Filed Sept. 23, 1968, Ser. No. 761,517
Claims priority, application Japan, Sept. 23, 1967, 42/61,400
Int. Cl. F01b *25/02*; F15b *7/00*; B60t *15/16*
U.S. Cl. 60—54.5 4 Claims



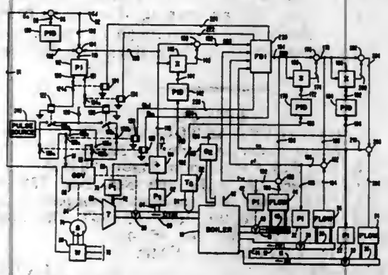
A vehicle brake system provided with a fail safe emergency apply means comprising a safety valve assembly and a control valve mechanism which is actuated by movement of a brake apply pedal beyond a predetermined stroke length and adapted for delivery of atmospheric air to said control valve mechanism for hydraulically actuating the wheel brake system through a conventional pneumatic and hydraulic booster assembly.

3,545,206
UPRIGHT MASTER CYLINDER FOR VEHICULAR HYDRAULIC-BRAKE INSTALLATION
Juan Belart, Walldorf, Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Germany, a corporation of Germany
Filed Dec. 16, 1968, Ser. No. 783,981
Claims priority, application Germany, Jan. 23, 1968, T 35,745
Int. Cl. F15b *7/08*
U.S. Cl. 60—54.6 11 Claims



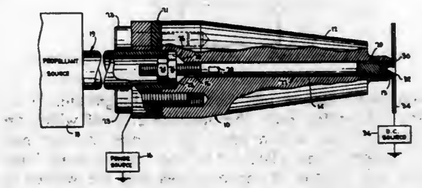
A compact master cylinder having a cylinder and a piston member one of which is fixed and the other of which is shiftable along an upright axis with respect to the fixed member. The shiftable member is provided with a passage serving as bypass port that allows the pressurizable chamber in the cylinder to communicate at its uppermost end with a brake-fluid reservoir mounted on either the shiftable or fixed member. This passage is blocked on actuation of the brakes to allow pressurization of the chamber.

3,545,207
BOILER CONTROL SYSTEM
Justus C. Barber, King of Prussia, and Theron W. Jenkins, Jr., Ambler, Pa., assignors to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed July 23, 1969, Ser. No. 843,946
Int. Cl. F23n *1/10*
U.S. Cl. 60—106 10 Claims



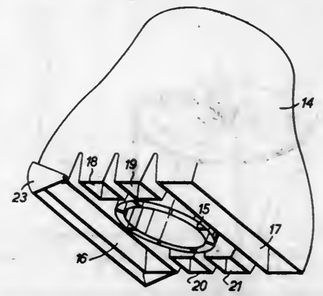
A control system responding to the energy demand of the turbine to provide separate demand signals for each of the boiler inputs as required to meet the turbine demand and modifying the boiler inputs when one of them deviates from its demand value by a predetermined allowable limit so as to maintain all inputs in the proper relationship and magnitude. Also, when the deviations occur, the turbine input is modified to keep the turbine input in balance with the boiler input.

3,545,208
ANNULAR SLIT COLLOID THRUSTOR
Kenneth W. Stark, Hyattsville, William A. Burton, New Carrollton, and Allan Sherman, Silver Spring, Md., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Jan. 15, 1969, Ser. No. 791,288
Int. Cl. F03h *5/00*; B05b *5/02*
U.S. Cl. 60—202 9 Claims



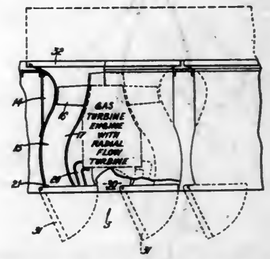
This disclosure relates to the field of microthrustors utilizing the technique of flowing a slightly conductive propellant through an annular slit and the application of a high voltage causing a force on the fluid, resulting in the ejection of multimolecular particles at the meniscus of the fluid. Various configurations used include concentric bodies, windings of wire around a slit surface and groups of thrustor arrays producing beams of opposite polarities thereby eliminating the requirement for a neutralizer.

3,545,209
GAS TURBINE BY-PASS ENGINE
James Millward, Nuthall, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England, a British company
Filed June 7, 1968, Ser. No. 735,413
Claims priority, application Great Britain, June 19, 1967, 28,252/67
Int. Cl. F02k *1/20*; B64c *15/06*
U.S. Cl. 60—226 4 Claims



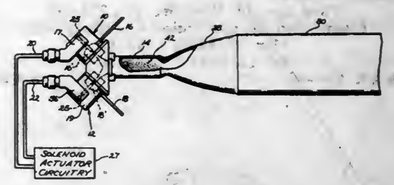
A gas turbine by-pass engine having a fixed nozzle for the turbine exhaust gases coplanar with a plurality of nozzles for the by-pass air and deflector means which are movable between an inoperative position, in which the turbine exhaust gases and by-pass air pass out axially from the said nozzles, and an operative position in which at least part of the by-pass air is deflected without there being any substantial simultaneous deflection of the turbine exhaust gases.

3,545,210
GAS TURBINE POWER PLANT
Roger Anthony Cresswell, Derby, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England, a British company
Filed Aug. 21, 1968, Ser. No. 754,201
Claims priority, application Great Britain, Sept. 1, 1967, 40,136/67
Int. Cl. F02k *3/04*; B64c *15/06, 29/00*
U.S. Cl. 60—226 8 Claims



A gas turbine power plant for an aircraft comprises an engine housing within which is vertically mounted one or more gas turbine engines. Each engine has several separate nozzles which have a space between them and which are arranged at the lower end of the housing so that ambient air flows directly to the space whereby base drag is reduced.

3,545,211
RESONANT PULSE ROCKET
James L. Harp, Jr., Canoga Park, Calif., assignor to The Marquardt Corporation, Van Nuys, Calif., a corporation of California
Filed Jan. 27, 1967, Ser. No. 612,200
Int. Cl. F02k *9/00, 7/04*
U.S. Cl. 60—247 4 Claims

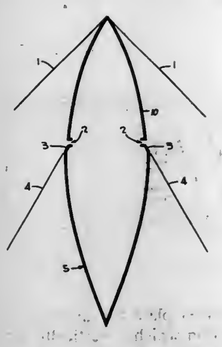


A resonant pulse rocket having a pair of injectors for injecting fuel and oxidizer into a combustion chamber and a nozzle connected with the combustion chamber. The nozzle is mated to the propulsion system and the injecting system is pulsed at about the resonant frequency of the complete pulse rocket.

3,545,212
SPINDLE-SHAPED SUPERSONIC PROJECTILE WITH ADDITIONAL PROPULSION BY STERN-FIRING
Günter Ludwig, Kiel, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Bezirk Cologne, Germany
Filed Dec. 14, 1967, Ser. No. 690,539
Claims priority, application Switzerland, Dec. 16, 1966, 18,132/66
Int. Cl. F02k *7/10*
U.S. Cl. 60—270 1 Claim

A supersonic projectile capable of driving through external combustion along its aft surfaces comprising a

spindle-shaped body having a forward section, an aft section, and a conical enlargement section located between the forward and aft sections, each of the forward and aft sections being defined by the revolution of a slightly curved line segment so as to present both a pointed forward end and a pointed aft end and ends of greatest



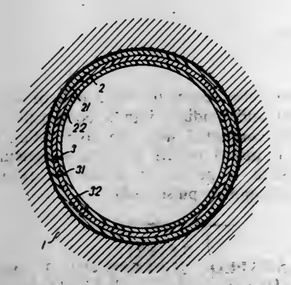
diameter for each of the forward and aft sections. Fuel exit openings are provided at the largest end of the forward section immediately upstream from the conical enlargement section whereby, in addition to the compression shock emanating from the pointed forward end, a second, weaker oblique shock-wave is produced by reason of the conical enlargement section.

3,545,213

STRUCTURE FOR LINING UNDERGROUND SPACES

Gustav Sebor, 1 Vezovy dum, Kladno, Czechoslovakia, and Ivo Hofbauer, 260 Basta svatcho Jiri, Prague, Czechoslovakia

Filed Apr. 10, 1968, Ser. No. 720,235
Claims priority, application Czechoslovakia, Mar. 22, 1967, 2,115/67
Int. Cl. E01g *5/08, 5/10*
U.S. Cl. 61—45 6 Claims



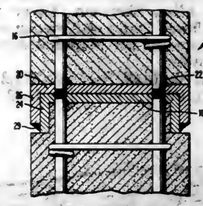
A structure for lining underground spaces such as tunnels and the like. The structure engages the underground surface which defines the underground space and includes a number of layers made up of elastic and concrete layers which engage each other. The elastic layers are preferably asphalt rubber while the concrete layers are preferably Gunite, and they are alternately arranged in engagement with each other to form a strong elastic multilayer crust body.

3,545,214

CONCRETE PILE SECTIONS AND JOINTS THEREFOR

John Grazel, Santurce, Puerto Rico, assignor to John Grazel, Inc., San Juan, Puerto Rico, a corporation of Puerto Rico

Filed Oct. 2, 1968, Ser. No. 764,418
Int. Cl. E02d *5/12, 5/30*
U.S. Cl. 61—53 12 Claims



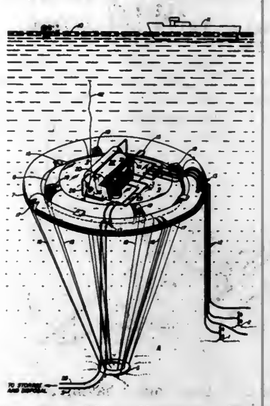
Each cast concrete pile section has longitudinally extending reinforcing rods, the opposite ends of which are partially received within openings formed through normally disposed end plates. The rod ends extend intermediate the lengths of the openings and are welded to the end plates along the inside faces of the plates about the openings. Weld is also applied within the openings from the outer faces of the plates. The end plates have flanges which extend in like axial directions. To secure the pile sections in end-to-end relation, the end plate of one pile section is received within the recess formed by the flanges of the end plate of the adjoining pile section.

3,545,215

FIELD PROCESSING EQUIPMENT FOR OIL WELLS MOUNTED AT A SUBSEA LOCATION

Bill S. Burrus, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 5, 1968, Ser. No. 781,541
Int. Cl. B63c *11/00*
U.S. Cl. 61—69 6 Claims



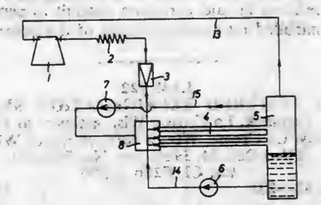
Portions of subsea equipment are covered by inverted bell-like structure and filled with gas to provide a dry environment for the equipment. A source of environmental gas at the subsea location is indicated and means for purging and replacing fluids within the bell-like structure is disclosed.

3,545,216

REFRIGERANT CYCLE FOR REFRIGERATION UNITS

Jogindar Mohan Chawla, Karlsruhe, Germany, assignor to The Battelle Development Corporation, Columbus, Ohio

Filed May 31, 1968, Ser. No. 733,698
Int. Cl. F25b *41/00*
U.S. Cl. 62—117 2 Claims



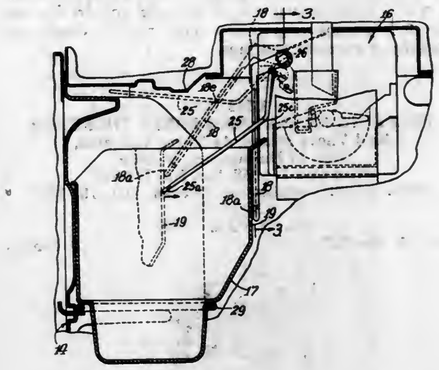
A refrigerant cycle includes a compressor that provides compressed refrigerant flowing to the high pressure end of an evaporator for evaporation and flow to a container and then back from the container to the compressor. A bypass is provided from said container to the high pressure end of the evaporator for moving controlled amounts of vapour directly to said evaporator high pressure end from said container. The container contains also a liquid refrigerant, and there is a second bypass circuit for feeding controlled amounts of the liquid refrigerant from the container to the high pressure end of said evaporator.

3,545,217

SENSING ARM MECHANISM FOR ICEMAKER

William J. Linstromberg, Evansville, Ind., assignor to Whirlpool Corporation, a corporation of Delaware

Filed Apr. 10, 1969, Ser. No. 814,902
Int. Cl. F25c *5/18*
U.S. Cl. 62—137 13 Claims



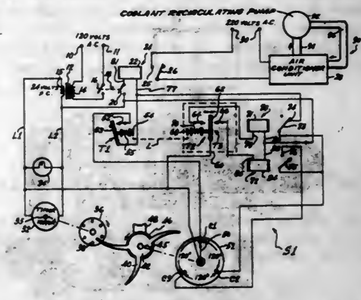
A refrigeration apparatus having an automatic icemaker including a collecting bin mounted on the door of the refrigeration apparatus cabinet. The icemaker includes a sensing mechanism having an arm adapted to swing into the collecting bin to sense the level of collected ice bodies therein. The mechanism further includes apparatus for automatically withdrawing the sensing arm from the collecting bin when the door is opened thereby preventing damage to the sensing arm and or raking of the ice bodies from the bin by such movement. The mechansm includes improved means for biasing the arm responsive to the door position to effect an improved selective withdrawal of the sensing arm.

3,545,218

THERMOSTATIC CONTROL FOR AIR CONDITIONING SYSTEM

Gerald B. Gromberg, Bronx, N.Y. (63—60 102nd St., Rego Park, N.Y. 11374)

Filed Sept. 20, 1968, Ser. No. 761,209
Int. Cl. F25d *21/06*
U.S. Cl. 62—157 9 Claims



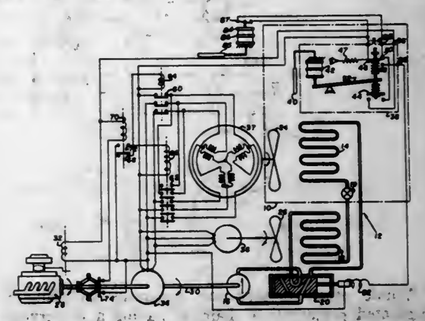
A programmed thermostatic control device for an air conditioning unit is described. The device has three thermostat stages set to three different temperatures. Two of the stages overlap, while one is discrete. A sequence cycle timer provides timed switching in sequence, of the pilot control circuit of the air conditioning unit, to each of the three thermostat stages. The device controls the air conditioning unit so as to operate it intermittently for precisely conrolled short periods of time so that the comfort of the occupants of the temperature controlled environment is maintained. The device, further, provides more uniform temperature distribution and tighter temperature control. Also because it increases the comfort of the occupants, it permits the temperature setting to be higher; thus, it increases the relative capacity of the air conditioning equipment, permitting savings in the installation of new equipment and producing operating economy.

3,545,219

THERMOSTATIC CONTROL FOR REFRIGERATION SYSTEMS

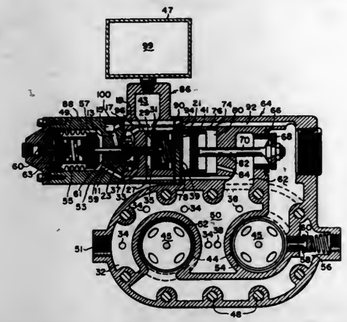
George L. Falk, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin

Filed Nov. 15, 1968, Ser. No. 776,134
Int. Cl. F25b *13/00*
U.S. Cl. 62—160 7 Claims



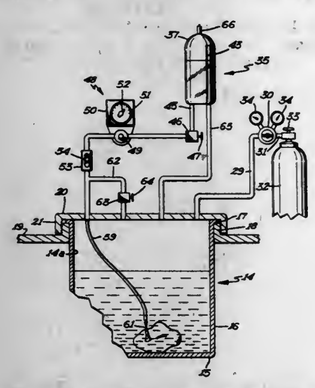
An engine driven air conditioning system for a transportation container having a first thermostat responsive to the container temperature for operating said system in the high speed cooling, low speed cooling, or heating modes, and a second thermostat responsive to outdoor temperature for controlling said heating mode between high and low speeds.

3,545,220
CAPACITY CONTROLLED REFRIGERATION SYSTEM
Arlo F. Teegarden, Onalaska, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Nov. 29, 1968, Ser. No. 779,867
Int. Cl. F25b *41/00*
U.S. Cl. 62—196 10 Claims



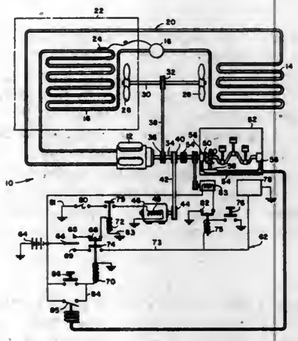
A refrigeration system involving a multi-cylinder reciprocal refrigerant compressor provided with means for bypass unloading of the refrigerant discharged from at least one of the compressor cylinders to the suction side of the compressor including a pilot operated bypass value driven to the open and closed positions by refrigerant discharge from the cylinder unloaded and including dashpot means for delaying movement of the pilot valve.

3,545,221
APPARATUS FOR MAINTAINING ORGANS IN VITRO IN A COMPLETELY VIABLE STATE
Emil S. Swenson, Coon Rapids, and William L. Koski, Minnneapolis, Minn., assignors to Swenko Research & Development, Incorporated, Minnneapolis, Minn., a corporation of Minnesota
Filed May 22, 1967, Ser. No. 640,265
Int. Cl. C12k *9/00*
U.S. Cl. 62—231 4 Claims



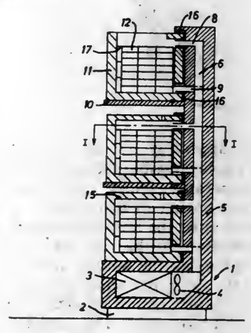
Whole organ preservation apparatus including a refrigerated preservation chamber having a preserving solution therein, which is maintained at a temperature of approximately 0–4° C. and in which the organ to be transplanted is immersed. The preservation chamber being connected to a source of oxygen under pressure so that the interior of the chamber which is sealed from the exterior is subjected to oxygen pressure of approximately 3 atmospheres, and the perfusion container adapted to contain a liquid perfusate and being connected by a pressure conduit with the preservation chamber to equalize the pressure therebetween. A perfusion conduit connected to the perfusion chamber and extending into the preservation chamber and having a cannula at its end for insertion into the blood vessel of an organ to be preserved, whereby the organ may be perfused with a cold perfusate by action of gravity. And control means interposed in flow controlling relation in said perfusion conduit to permit automatic controlled intermittent fusion of the organ.

3,545,222
DUAL POWERED REFRIGERATION SYSTEM
David J. Petranek, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Oct. 14, 1968, Ser. No. 767,260
Int. Cl. F25b *27/00*
U.S. Cl. 62—236 10 Claims



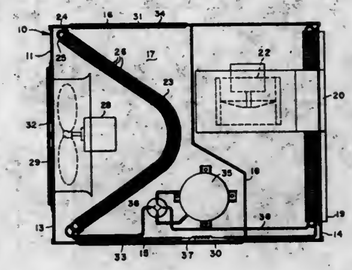
A refrigeration system of the vapor compression type alternatively driven by an engine or an electric standby motor in which means is provided to prevent the standby motor from driving the refrigeration compressor and fans until after the engine has been drivingly disengaged from the compressor and fans.

3,545,223
FREEZING PLANTS AND BOXES THEREFOR
Karl Yngve Elland, 44 Norra Vallgatan, 252 34 Halsingborg, Sweden
Filed Oct. 7, 1968, Ser. No. 765,569
Claims priority, application Sweden, Oct. 10, 1967, 13,829/67
Int. Cl. F25d *15/00*
U.S. Cl. 62—237 3 Claims



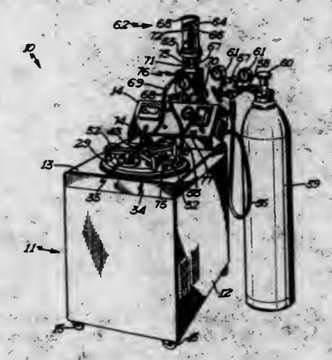
A freezing plant having a vertical wall with passages for leading cooling air from a freezing unit to a box located adjacent said wall on a horizontal support and recycling cooling air from the box to the freezing unit.

3,545,224
HEAT PUMP APPARATUS
Thomas J. Nicoski, Albert Lea, Minn., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Dec. 18, 1968, Ser. No. 784,626
Int. Cl. F25d *23/12*
U.S. Cl. 62—262 1 Claim



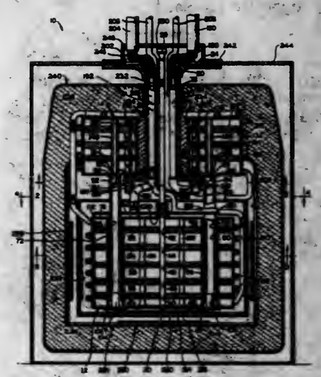
A self-contained reverse cycle heat pump unit employing a generally V-shaped outdoor air-to-refrigerant heat exchanger disposed deeply within the confines of a rectangular casing to mitigate the accumulation of ice and snow thereon during operation of the heat pump and to facilitate heat exchanger frosting.

3,545,225
APPARATUS FOR MAINTAINING WHOLE ORGANS IN A VIABLE STATE
Emil S. Swenson, Coon Rapids, and William L. Koski, Minnneapolis, Minn., assignors to Swenko Research & Development, Incorporated of Minneapolis, Minnesota, Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 16, 1968, Ser. No. 753,220
Int. Cl. A61b *19/00*
U.S. Cl. 62—265 7 Claims



Apparatus for preserving and maintaining whole organs in a viable state in preparation of transplanting, such organs including a cabinet having a hypothermia tank for cooling a preservation vessel, the latter having an open top, closed by a closure which is releasably locked in place by quick-acting ready releasable means to permit the closure to be quickly removed and applied as desired. The preservation receptacle having a plurality of fittings therein, one of which is connected to a source of oxygen under pressure and another fitting being connected to a pressure release valve mechanism to permit controlled depressurization of the interior of the preservation receptacle. A perfusing container is connected in communicating relation with the receptacle and having cooling means to permit the contents thereof to be cooled to a predetermined temperature.

3,545,226
DUAL SOLID CRYOGENS FOR SPACECRAFT REFRIGERATION
Homer E. Newell, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Robert P. Caren, Palo Alto, and Robert M. Coston, San Jose, Calif.
Filed Jan 17, 1969, Ser. No. 791,888
Int. Cl. F25b *19/00*; F25d *3/12*
U.S. Cl. 62—384 6 Claims

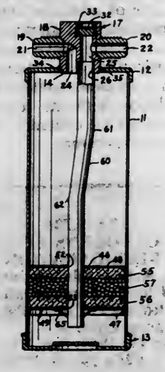


A solid cryogen refrigeration system utilizing a second cryogen in combination with a surrounding multi-layer insulation encasing an evacuated cryogen container for thermal isolation thereof, a stable temperature level of the system being maintained by passive temperature regulation created by strict control over the venting rate of the subliming cryogen to the surrounding space environment.

3,545,227
RECEIVER-DRYER FOR REFRIGERATION SYSTEMS
Darwin R. Grahl, 15129 Hook Hollow Road, Novelty, Ohio 44072
Filed Jan. 6, 1969, Ser. No. 789,176
Int. Cl. F25b *43/00*
U.S. Cl. 62—474 11 Claims

A refrigeration receiver-dryer cylinder having a fitting with an axially extending body portion attached to the top of the cylinder. The axial body portion has side by side inlet and outlet passage portions that permit the axial body portion to be of minimum cross section dimension. The fitting body is centered on the cylinder top and the passage portions are each offset from the center of the cylinder. A tube has its upper end attached to the outlet passage at the latter's off-center location and is

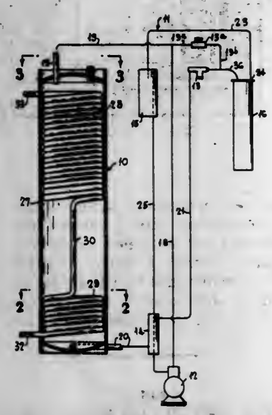
bent so that its lower end is central of the cylinder and passes through centrally located openings in desiccant supporting baffle plates within the cylinder. One of the baffle plates is supported by a self-locking clip on the tube.



3,545,228
LIMITED SUBCOOLING CONDENSER-RECEIVER ASSEMBLY FOR REFRIGERATING SYSTEMS

Paul H. Dinger and James T. Staltz, Orlando, Fla., assignors to Ice Industries International, Inc., Longwood, Fla., a corporation of Florida

Filed Dec. 4, 1968, Ser. No. 781,046
Int. Cl. F25b 39/04
U.S. Cl. 62—506 4 Claims

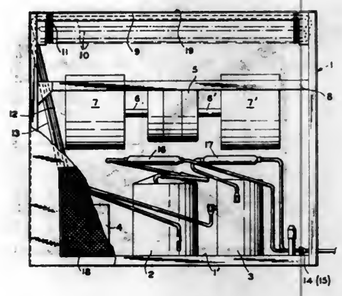


A condenser-receiver assembly for ice-making refrigerating systems including an expansion valve and an evaporator, comprising a vertically disposed refrigerant conduit having an upper condensing region and a lower subcooling region therein, in combination with a cooling media conduit having vertically spaced coil portions located respectively in said upper and lower regions, the proximate ends of said portions being connected by a conduit length having a reduced heat exchange area as compared with the subcooling coil portion. The reduced heat exchange area in the space between the coil portions limits the temperature reduction in the subcooling region to the heat exchange potential of the subcooling coil portion.

3,545,229
CONDENSING UNIT

Keiichi Kimura, Osakabe 304-2, Osaka-fu, Yao, Japan

Filed Nov. 12, 1968, Ser. No. 774,929
Claims priority, application Japan, July 12, 1968, 43/49,374
Int. Cl. F25b 39/04
U.S. Cl. 62—508 1 Claim

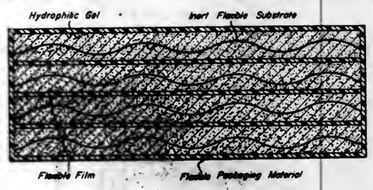


Condensing unit in which the compressor and receiving tank are located in the lower portion of the container, the blower and motor are located above the foregoing, and the condenser is located above the blower and motor whereby the blower can draw air through a bottom portion vent to contact the compressor and receiving tank and the condenser before exhausting through a top portion vent.

3,545,230
FLEXIBLE COOLING DEVICE AND USE THEREOF

Frederick J. Morse, Monroe, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed Aug. 20, 1968, Ser. No. 753,849
Int. Cl. F25d 3/08
U.S. Cl. 62—530 9 Claims



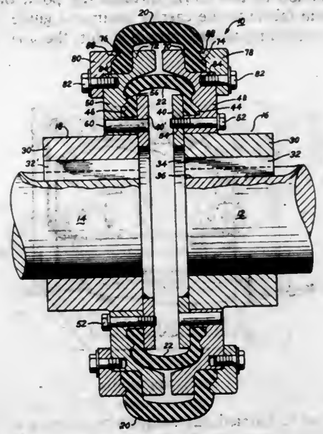
A novel, flexible cooling device comprised of an insoluble hydrophilic gel, which when frozen can be molded to various geometric shapes and retain that particular configuration.

3,545,231
MULTIPLE FLEXIBLE ELEMENT COUPLING

Holmes A. Downey, South Bend, Ind., assignor to Reliance Electric Company, Cleveland, Ohio, a corporation of Delaware

Filed Feb. 7, 1969, Ser. No. 797,387
Int. Cl. F16d 3/68
U.S. Cl. 64—11 12 Claims

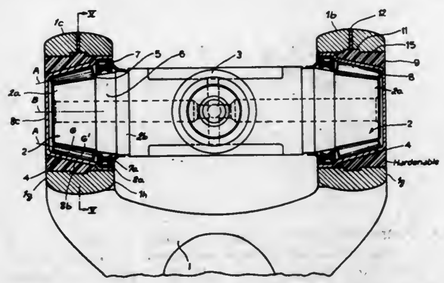
A multiple flexible element coupling for connecting two rotating shafts in end-to-end relation, in which two flanges are mounted on the ends of the two shafts and are connected by two torsional elements in parallel relation. The two elements are clamped to the flanges and the elements are arranged radially to one another, and the two elements may be interchanged with similar elements to vary the torque rating of the couplings to satisfy operational requirements.



3,545,232
HOOKE'S TYPE UNIVERSAL JOINT

Gerhard Neese, Grossdornberg, and Alfred Witte, Bielefeld, Germany, assignors to Durkoppwerke G.m.b.H., Bielefeld, Germany, a corporation of Germany

Filed Dec. 26, 1968, Ser. No. 787,061
Claims priority, application Germany, Jan. 17, 1968, 1,675,125; Feb. 14, 1968, 1,675,129
Int. Cl. F16d 3/26
U.S. Cl. 64—17 8 Claims

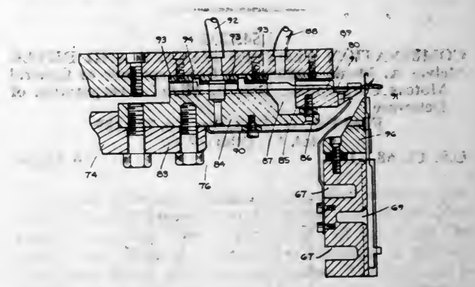


A Hooke's type universal joint in which a pair of yokes lying generally in mutually perpendicular planes are interconnected by cross pins journaled in respective bearings in the lobes of the yoke. The tapered roller bearings surround a frustoconical end of each pin converging outwardly and forming the inner bearing race. The outer bearing race is constituted by a frustoconically drawn self-metal cap fitting over the tapered bearings and held in the respective cylindrical bore or eye of each lobe by a filler body having a frustoconical inner cavity engaging the sheet-metal cap and a cylindrical outer wall anchored to the wall of the bore. The cross-section of the filler body, which may be preformed or constituted of a hardenable material cast in place, tapers from the outer end to the inner end to constitute a wedge taking up all play in the bearing.

3,545,233
CYLINDER AND DIAL CONSTRUCTION FOR KNITTING MACHINES

Victor J. Lombardi, 2715 Charlotte Lane, Burlington, N.C. 27215

Filed June 19, 1967, Ser. No. 646,949
Int. Cl. D04b 35/28, 35/32
U.S. Cl. 66—8 19 Claims

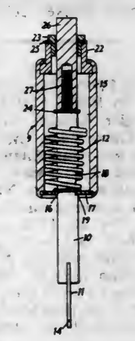


Grooves and passageways are formed in cylinder and dial constructions associated with circular knitting machines, and the grooves and passageways are arranged to (a) facilitate the heat-treatment of such constructions during their manufacture, (b) to improve heat transfer away from portions of the machine at which frictional heat is produced by high speed operation of sinkers, needles, or other knitting instrumentalities, and (c) to facilitate the cleaning and maintenance of knitting machines during opertion. Also, a provision is made for an improved bearing surface and the ledge of a cylinder, and the bearing surface is adjustable, removable, and more easily heat-treated than known prior constructions. Further, a provision is made to include lubricant reservoirs in a surface portion of a cylinder construction for the purpose of supplying lubricant to needles associated with the cylinder.

3,545,234
CIRCULAR KNITTING MACHINE

John S. Forrester, Leicester, England, assignor to Wildt Mellor Bromley Limited, Leicester, England, a British company

Filed May 2, 1968, Ser. No. 726,024
Claims priority, application Great Britain, May 10, 1967, 21,614/67
Int. Cl. D04b 27/10, 35/10
U.S. Cl. 66—125 6 Claims



A circular knitting machine especially of the multi-feed cylinder and dial type adapted for producing float yarn effects in knitted fabric having float controlling units

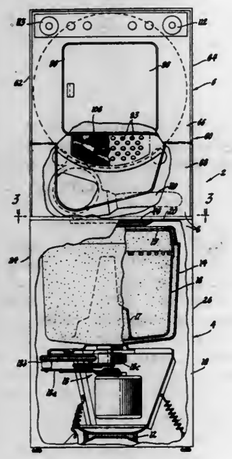
designed not only to ensure engagement of floating yarn by needles intended to take and knit the same at a feed, but also to function as a detector capable of being deflected and withdrawn to an inoperative position in consequence of the exertion laterally thereon of a relatively light pressure as by a broken needle or an undesirable foreign body, or by deliberate manual action.

3,545,235

COMBINATION CLOTHES WASHER AND DRYER

Melvin A. Menk, Englewood, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Feb. 11, 1969, Ser. No. 798,289
Int. Cl. D06f 29/00
U.S. Cl. 68—19.2 **6 Claims**



In the preferred form, a vertically stacked combination of top loading clothes washer and front loading clothes dryer, wherein a cabinet for the clothes dryer has a lower slanted front surface providing a spacial relationship between the dryer cabinet and a portion of the top surface of the washing machine permitting a sufficiently partial opening of a washing machine lid thereon to provide sufficient access to the washing machine, and wherein the lower slanted surface permits a reduced height of the vertically stacked combination.

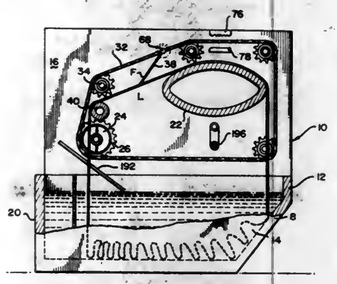
3,545,236

APPARATUS FOR TREATING FABRICS IN ROPE FORM

George Edward Ziegler, Balloch, Alexandria, and Gilbert Innes Kilgour, Gartocharn, Scotland, assignors to United Merchants and Manufacturers, Inc., New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 722,667, Apr. 19, 1968, which is a continuation-in-part of applications Ser. No. 405,888, Oct. 20, 1964, and Ser. No. 630,154, Jan. 11, 1967, which in turn is a division of applications Ser. No. 405,888, and Ser. No. 713,119, Mar. 14, 1968. This application June 25, 1969, Ser. No. 836,271
The portion of the term of the patent subsequent to Aug. 12, 1986, has been disclaimed
Int. Cl. B65h 75/02; D06f 35/00
U.S. Cl. 68—176 **20 Claims**

A "Spiral Apparatus" of the Ziegler et al. type described in U.S. Pat. No. 3,308,639, granted Mar. 14, 1967, and U.S. Pat. No. 3,379,494, granted Apr. 23, 1968, wherein a roller arrangement is provided in association with the spiral guide member and feed reel to eliminate frictional drag on the roped fabric and means is associated with the carrier chain to impart a positive detwisting action to the fabric through the point of attachment of the fabric to the carrier chain and guide and control and stop means are provided for the loading and



operation to be carried out without tangling or fouling of the roped fabric on the feed reel or overloading of the apparatus and a variable geometry spiral guide member is provided wherein the number of turns of the helix of the spiral guide member in the apparatus may be varied for a particular cloth density and load of fabric.

3,545,237

POWER ACTIVATED MANACLE

Verne P. Thompson and Stephen L. Gardella, Jr., San Diego, and Artemas M. Larkin, Glendale, Calif., assignors of twenty-five percent to Wilson W. Wied, San Diego, Calif.

Filed Sept. 26, 1968, Ser. No. 762,823
Int. Cl. E05b 65/00, 75/00
U.S. Cl. 70—16 **2 Claims**



A restraining device which retains the wrists of a person without direct manual assistance. A motor moves the restraining members, to hold the wrists and release them by remote control.

3,545,238

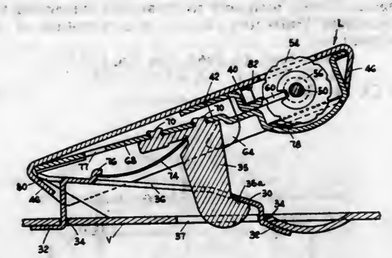
COMBINATION LOCKS

Charles S. Gehrie, Montclair, and Irving Feinberg, Saddle Brook, N.J., assignors, by mesne assignments, to Presto Lock Co., Inc., Garfield, N.J., a corporation of Delaware

Filed Feb. 10, 1969, Ser. No. 797,894
Int. Cl. E05b 37/02, 65/50, 65/52
U.S. Cl. 70—312 **22 Claims**

A combination lock for a latching device of the pivoted or lift-up type which employs a plug member carried by a rotatably mounted latch member. The plug member is mounted for linear movement with respect to the rotatable latch member. The plug member is constructed to cooperate with sleeve means for the respective dials to

lock the latch member in its latched position, or selectively, to permit the latch member to be rotated to unlatch position depending upon the orientation of the sleeve means with respect to the plug member. The sleeve means are provided with radial slots which allow or prevent movement of the plug member depending upon whether means provided by the plug member and the



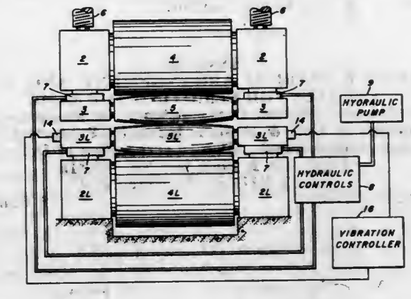
radial slots are in alignment ("on combination") or out of alignment ("off combination"). Cooperable means are provided by the plug member and a plate member, which is adapted to connect the device to a support, for imparting movement to the plug member responsive to the rotation of the pivoted latch member, rotation being permitted only when the device is "on combination."

3,545,239

METHOD AND APPARATUS FOR CONTROLLING FLATNESS OF ROLLED STRIP

George E. Kennedy, Churchill Borough, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Oct. 2, 1968, Ser. No. 764,560
Int. Cl. B21b 37/00
U.S. Cl. 72—10 **7 Claims**



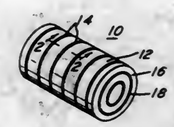
Apparatus for automatically controlling hydraulically actuated adjustable roll contour mechanism in strip rolling mills including a vibration transducer mounted on the rolling mill and operable by vibrations due to undulations in the rolled strip, means for rectifying the signal, and null seeking means for receiving the vibration signal as input and driving the hydraulic actuator to vary the adjustable roll contour mechanism toward a minimum vibration State. A method of controlling the flatness in rolling steel products in an adjustable roll contour rolling mill including the steps of obtaining a signal proportional to vibrations due to undulations in the product, and adjusting the contour of the roll to reduce the signal so as to obtain minimum undulation in the product.

3,545,240

BILLET FOR EXTRUSION AND METHOD OF LUBRICATING THE SAME

Francis J. Kent, Wallingford, Pa., assignor to Baldwin-Lima-Hamilton Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Oct. 25, 1966, Ser. No. 589,443
Int. Cl. B21c 23/32
U.S. Cl. 72—41 **3 Claims**



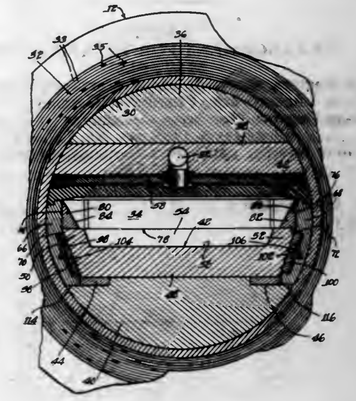
A metal billet for extrusion is provided within a plurality of circumferential and, if desired, also longitudinal grooves extending about the periphery of the billet. The grooves are adapted to receive a lubricant to provide lubrication during the extrusion process. The lubricant is maintained within the grooves to provide continuous lubrication of the die where it is needed most. Lubrication is also provided for the liner walls. The billet may be provided with grooves on the end face thereof which contacts the die. Also, wherein a billet is normally formed with an axial hole in the center thereof, grooves may be provided within the billet hole, and provided with lubricant to control the friction on the mandril during extrusion.

3,545,241

HYDRAULIC PRESS

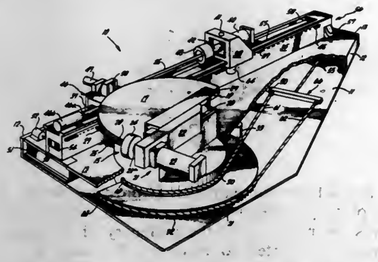
Eugene E. Grankowski and Lambros Pappas, Chicago, Ill., assignors to Verson Allsteel Press Company, Chicago, Ill., a corporation of Delaware

Filed Apr. 22, 1968, Ser. No. 723,118
Int. Cl. B21d 22/12
U.S. Cl. 72—63 **7 Claims**



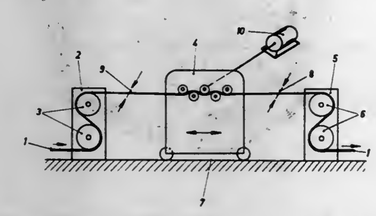
There is disclosed a hydraulic press comprising cylinder or body means defining a chamber in which a hydraulically expandable rubber diaphragm is disposed for engagement with work disposed on a supporting tray. Hydraulically operable piston and cylinder means are located between portions of the tray and the body means and are actuated for distributing reaction forces on the cylinder means more uniformly.

3,545,242
ROTARY STRETCH-FORMING MACHINE
Donald Edwin Dean, San Pedro, Calif., assignor to Sheridan-Gray, Inc., Huntington Park, Calif., a corporation of California
Filed Oct. 14, 1968, Ser. No. 767,279
Int. Cl. B21d 7/04
U.S. Cl. 72—151 10 Claims



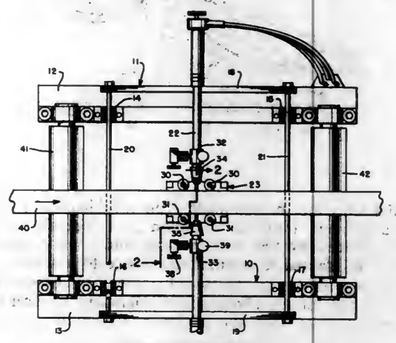
A balanced-force machine for stretch forming an elongated metal part around a die secured to a table rotatably mounted on a base. The part is gripped at one end by a clamp on the table, and at the other end by a second clamp secured to a tension cylinder which is mounted on the base to be movable toward and away from the table and die. A main cable or other flexible member is secured to the tension cylinder and extends away from the table to pass over a turnaround wheel and then extend back toward the table to be secured to a crossbar. A pair of tension-distributing cables are secured to opposite ends of the crossbar, and then cables are wrapped around winding surfaces of different radii on the table. Torque applied to the table by the tensioned part during stretch forming is counterbalanced by torque applied through the tension-distributing cables such that the energy required to operate the machine is substantially reduced. Dies of different radii are accommodated by adjusting the attachment point of the main cable on the crossbar.

3,545,243
ARRANGEMENT FOR TREATING STRIP MATERIAL
Fritz Ungerer, deceased, late of Pforzheim, Germany, by Irma Ungerer, heir, Pforzheim, Germany, assignor to Irma Ungerer, Pforzheim, Germany
Filed May 8, 1968, Ser. No. 727,589
Claims priority, application Germany, May 31, 1967, U 13,930
Int. Cl. B21d 1/02
U.S. Cl. 72—160 10 Claims



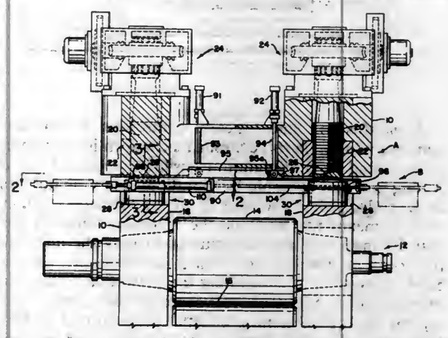
An arrangement for treating continuously advancing sheet material strip includes a strip pay-out and a strip take-up which withdraws strip from the pay-out in a predetermined path and at a predetermined tension. A strip flexing and straightening unit engages the strip intermediate the pay-out and the take-up for flexing and straightening the strip and is so constructed and arranged as not to affect the predetermined tension exerted on the strip by the take-up.

3,545,244
PROXIMITY YOKE APPARATUS
Peter J. Kabelka, Torrington, and Luis J. Lozano, Southington, Conn., assignors to Anaconda American Brass Company, Waterbury, Conn., a corporation of Connecticut
Filed Sept. 26, 1968, Ser. No. 762,825
Int. Cl. B21c 37/02; B21d 31/00, 37/16
U.S. Cl. 72—260 5 Claims



This invention relates to a proximity yoke apparatus for controlling spacing between the sides of a moving strip and some means intended to impart an edge treatment to the moving strip. The apparatus has particular application in contouring the edges of metal strip being drawn through an edge contouring station defined by a heat source. The heat source is mounted on a yoke that moves in response to the lateral thrust of the metal strip as it oscillates from side to side and means are provided to maintain the heat source at a fixed distance from the edge of the strip during oscillation.

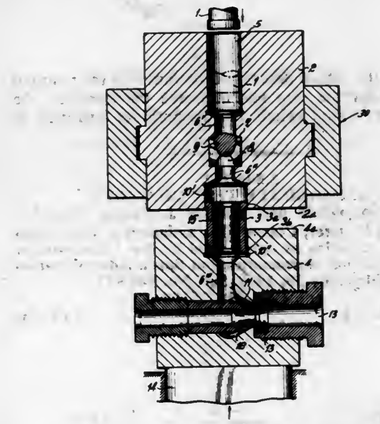
3,545,245
THRUST BEARING ARRANGEMENT AND APPARATUS FOR REMOVING THE SAME
John R. Buta, Salem, Oreg., assignor, by mesne assignments, to Gulf & Western Industrial Products Company, Grand Rapids, Mich., a corporation of Delaware
Filed Aug. 2, 1968, Ser. No. 749,816
Int. Cl. B21g 31/10; F16c 29/00
U.S. Cl. 72—238 8 Claims



A thrust bearing assembly especially suited for use in rolling mills for transmitting rolling force from the

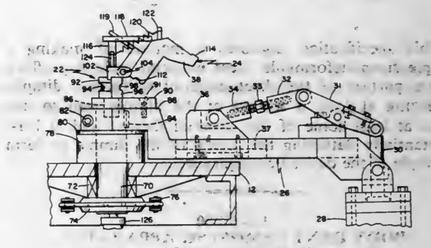
screw-down screws to the bearing chocks. The assembly disclosed includes a generally cylindrical bearing surface formed on the lower end of the screw; a first bearing member positioned between the screw and the chock and having a top bearing surface formed to mate with the lower end of the screw and a generally planar lower surface; means for continuously biasing the first member into engagement with the screw; and, a horizontally slidable anti-friction type thrust bearing cartridge having generally planar upper and lower surfaces and positioned between the first member and the chock.

3,545,246
EXTRUSION PRESS
Heinz Riemann, Duisburg, Germany, assignor to Hydraulik G.m.b.H., Duisburg, Germany
Filed Jan. 26, 1968, Ser. No. 700,801
Claims priority, application Germany, Feb. 11, 1967, H 61,824
Int. Cl. B21c 31/00
U.S. Cl. 72—270 6 Claims



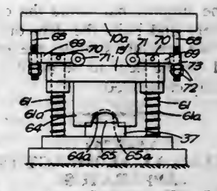
A continuously operating extrusion press particularly for the sheathing of cable includes a main piston which is movable in a feed bore of a receiver to force extrusion material through a passage which is closed by a valve, and to displace the valve and to cause the material to flow into a feed bore leading to a storage chamber which is partially defined within the receiver and partially within a power-driven holder. The power-driven holder provides a mounting for a mandrel through which an element such as a cable to be sheathed is passed. The storage zone communicates with a feed conduit defined in the power-driven holder which supplies the extrusion material in an annular path around the cable which is fed through the hollow mandrel so that the extruded material is formed over the cable as it is delivered through the mandrel. A feature of the construction is the provision of a hollow auxiliary stem which is floatingly held between the storage zone defined partially in the receiver and partially in the power-driven holder. During the movement of the main piston in the bore of the receiver the auxiliary stem is displaced away from the piston in the storage zone to push a partial quantity of the extrusion material ahead of it into the extrusion chamber surrounding the mandrel of the holder. By permitting the hollow auxiliary stem to float within the storage zone, it is possible to charge and discharge the quantity of extrusion material which comes from the valve chamber under optimum conditions of resistance and at the most favorable resistance conditions the power loss is the lowest. In addition, the floating arrangement of the auxiliary stem makes it easier to seal the storage area.

3,545,247
BENDING MACHINE
Raymond John Fazzani, Pawtucket, R.I., assignor to Maclodyne Corporation, East Providence, R.I., a corporation of Rhode Island
Filed Oct. 8, 1968, Ser. No. 765,916
Int. Cl. B21d 5/04
U.S. Cl. 72—310 11 Claims



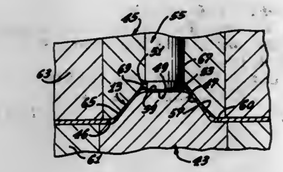
A machine for bending tubular stock includes a cylindrical forming die and a cooperating clamping die that are mounted for rotation on a radius arm. The clamping die is hingedly mounted for rotation about an axis above the forming die and is moved into clamping position by actuation of a piston rod that is coaxial with the forming die. A clamp is slid along ways by a pneumatic cylinder four inches in diameter to engage a depending arm of the clamp die and clamp stock positioned between the clamping and forming dies.

3,545,248
APPARATUS FOR FORMING ARTICLES FROM STRIP METAL
John Whiteside, Naphill, England, assignor to Vandervell Products Limited, London, England, a British company
Filed June 19, 1967, Ser. No. 647,122
Claims priority, application Great Britain, June 21, 1966, 27,744/66
Int. Cl. B21d 43/28, 53/10; B21k 27/06
U.S. Cl. 72—324 5 Claims



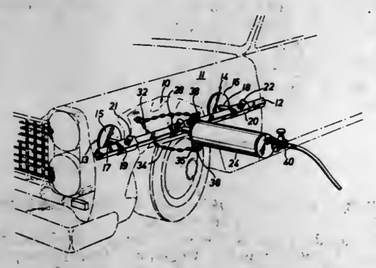
A plant for making thin wall flexible bearing liners from strip material comprising three separate pieces of apparatus the first of which forms separated arcuate portions from the strip, the second of which pierces oil holes in the separate arcuate portions and the third forms locating notches on the arcuate portions.

3,545,249
DIMPLE AND METHOD OF FORMING SAME
Omar L. Brown, Dayton, Ohio, assignor to Dayton Reliable Tool & Mfg. Company, Dayton, Ohio, a corporation of Ohio
Filed Apr. 8, 1968, Ser. No. 719,459
Int. Cl. B21d *22/00*
U.S. Cl. 72—354 **21 Claims**



This specification discloses a method of making a dimple from deformable sheet material including offsetting a portion of the sheet material to form a dimple, squeezing at least a section of the dimple wall to displace at least some of the material thereof and at least substantially flattening the region of the dimple to form a dimple of the desired configuration.

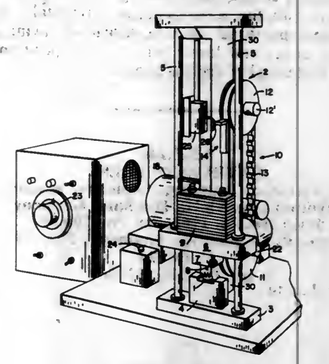
3,545,250
BODY DENT REMOVING APPARATUS
George Curtis Jones, 804 Marten, 48, Houston, Tex. 77018
Filed Oct. 3, 1968, Ser. No. 764,796
Int. Cl. B21d *9/05*
U.S. Cl. 72—705 **7 Claims**



The apparatus removes a dent from a vehicle body by spanning the dent with a support bar that is spaced from the dent. An eyebolt is connected to the dent and a chain connects the eyebolt to the cylinder of a pneumatic powered cylinder assembly. The rod of the assembly pushes against the support bar while the cylinder moves away from the dent and pulls the dent out of the metal panel. Regulated air pressure supplies the power allowing the force exerted on the dent to be applied continuously and to be accurately controlled.

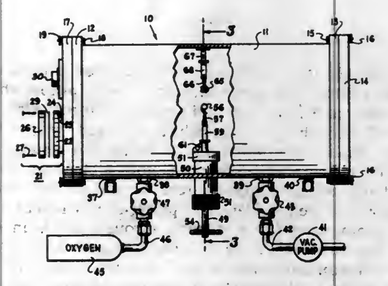
3,545,251
CONTROLLED AXIAL IMPACT TESTING APPARATUS
Alfred J. Munn, Lyndhurst, N.J., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Dec. 24, 1968, Ser. No. 786,712
Int. Cl. G01n *3/08*
U.S. Cl. 73—12 **3 Claims**

An impact apparatus for axially testing an integrated circuit package terminal under simulated shock conditions. The apparatus includes a weighted carriage provided with a ram for impacting the terminal. The carriage is lowered under control of an arm secured to a belt driven by a motor. The motor speed is governed by a control device to



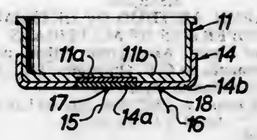
insure that the rate of descent of the ram is at the required velocity. After the ram has impacted the terminal, the arm actuates a stop switch that discontinues operation of the motor.

3,545,252
FLAMMABILITY TEST CHAMBER
Carlos L. Springfield and William J. Paton, Titusville, and John D. Jeter, Cocoa, Fla., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed July 30, 1969, Ser. No. 845,973
Int. Cl. G01n *25/00*
U.S. Cl. 73—15 **3 Claims**



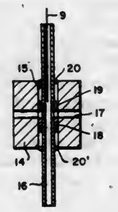
A flammability test chamber for testing materials in certain predetermined environments. The test chamber includes an elongated chamber having a transparent hermetically sealed shield adjacent one end. A plurality of cutouts are carried on the other end with a rupture disk positioned over one of said cutouts which prevents build up of pressure within the chamber beyond a given level. The chamber can be evacuated by a vacuum pump and gas can be inserted therein to produce a desired environment. A probe extends through the wall of the chamber for rotating an implement carried on the end thereof, as well as moving such forward and backward during a test.

3,545,253
TEMPERATURE MEASURING DEVICES FOR THERMAL ANALYSIS
Shigeo Iwata and Harumi Morikawa, Kyoto, Japan, assignors to Chyo Balance Corporation, Kyoto, Japan, a corporation of Japan
Filed Mar. 23, 1967, Ser. No. 625,514
Claims priority, application Japan, Mar. 30, 1966, 41/29,403; Oct. 25, 1966, 41/99,210
Int. Cl. G01n *25/00*
U.S. Cl. 73—15 **3 Claims**



An improved temperature measuring device for thermal analysis which utilizes the combination of a particular sample vessel with a particular saucer for receiving the sample vessel, the saucer being provided with a thermocouple hot junction.

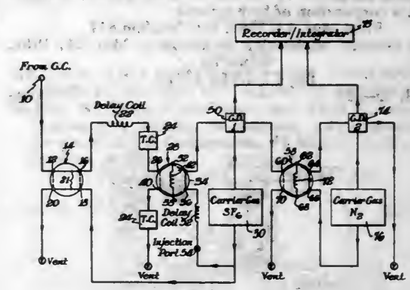
3,545,254
CLOUD POINT DETECTOR
Pierre C. Chassagne and Emmanuel E. Neel, Sotteville, les Rouen, France, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Feb. 13, 1968, Ser. No. 705,157
Int. Cl. G01n *25/02*
U.S. Cl. 73—17 **2 Claims**



The detector operates by directing polarized light through a sample liquid. The light emerging from the sample liquid is directed onto a polarizing filter oriented to pass only unpolarized light. Unpolarized light is caused by the appearance of anisotropic crystals in the liquid and is detected by a photocell behind the polarizing filter. The improvement consists of a new means for cooling the sample liquid consisting of heat conducting collars thermally contacting the sample liquid on either side of the point at which the polarized light is directed therethrough.

3,545,255
METHOD AND APPARATUS FOR DETERMINING THE MOLECULAR WEIGHT OF VOLATILE COMPOUNDS
Eugene J. Levy, Oxford, and Donald G. Paul, Kennett Square, Pa., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Oct. 23, 1968, Ser. No. 769,912
Int. Cl. G01n *31/08, 9/00*
U.S. Cl. 73—30 **10 Claims**

A system is described in which a vaporized, volatile sample is passed through a first gas density balance using a first carrier gas. The volatile ample is then trapped and passed through a second density balance using another carrier gas different than the first carrier gas. By measuring the unequal responses (normally the peak area) of each of the gas density balances to the same sample, and

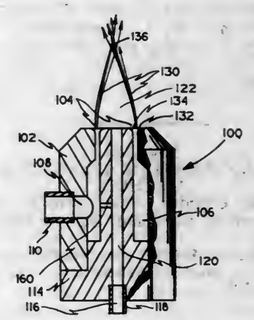


with a knowledge of the molecular weights of the respective carrier gases, the molecular weight of the sample may be determined.

ERRATUM

For Class 73—35 see:
Patent No. 3,545,919

3,545,256
HIGH SENSITIVITY FLUIDIC PROXIMITY DETECTOR
Basil B. Beeken, New Haven, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware
Filed Feb. 10, 1969, Ser. No. 797,900
Int. Cl. G01b *13/12*
U.S. Cl. 73—37.5 **9 Claims**

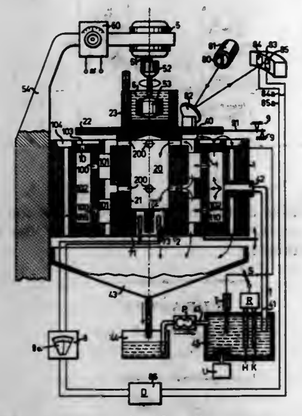


A fluidic proximity detector comprises a housing with an annular orifice from which emerges a generally conical jet of air having a tendency to create a low pressure zone within the interior of the cone. Inside the housing is a conduit through which the air supply reaches the annular orifice. There is also an output port which is connected by means of a hollow tube to sense the reduced pressure in the interior of the cone. The connecting tube passes through the interior of the supply conduit, and is formed with a bleed hole allowing a restricted flow from the supply conduit to the interior of the connecting tube. This restricted flow keeps the pressure in the interior of the connecting tube at ambient so as to prevent pulling a partial vacuum from the output port, and makes the proximity detector compatible with fluid amplifier devices which respond only to positive signal pressures.

3,545,257
VISCOSIMETER

Georg Zemp, Zurich, and Robin Zangger, Opfikon, Switzerland, assignors to Contraves AG, Zurich, Switzerland, a corporation of Switzerland

Filed Mar. 13, 1969, Ser. No. 806,811
Claims priority, application Switzerland, Mar. 20, 1968, 4,166/68
Int. Cl. G01n 11/14
U.S. Cl. 73—59 7 Claims

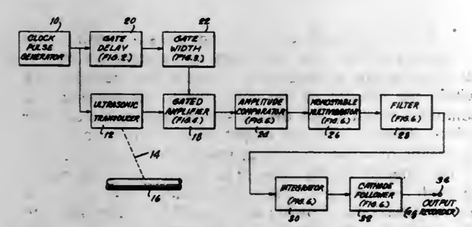


A viscosimeter incorporates a measuring body member rotatably driven by a drive motor, the measuring body member exerting a moment of rotation via the substance to be measured upon a measuring container which is secured to a support arrangement mounted for substantially frictionless rotation. The exerted moment of rotation is compensated by means of a counter-moment of rotation generated by a compensation or balancing mechanism. The measurable physical magnitude required for generating the counter-rotational moment provides a measure for the viscosity of the substance to be analyzed or measured.

3,545,258
SIGNAL GENERATING APPARATUS AND METHOD

Tyler W. Judd, Chardon, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Sept. 1, 1966, Ser. No. 581,417
Int. Cl. G01n 29/04
U.S. Cl. 73—67.9 5 Claims

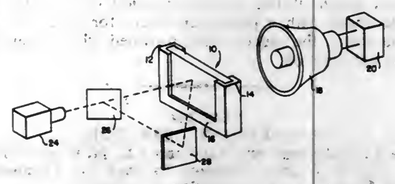


Method and apparatus for generating a signal representative of the duration of a series of discrete pulses. In response to a series of any number of discrete pulses a single pulse is generated whose duration is the same as that of the series of discrete pulses. This single pulse is integrated to provide an output signal the amplitude of which is representative of the duration of the series of discrete pulses. The single pulse may be generated by a multivibrator which generates pulse signals, each of which corresponds to an individual one of the discrete pulses and which is of a duration slightly less than the elapsed time between consecutive ones of the discrete pulses. The pulse signals may be filtered to generate the single pulse.

3,545,259
HOLOGRAPHIC METHOD OF DETERMINING PROPERTIES OF MATERIALS

Ralph Maynard Grant, Ann Arbor, Mich., assignor, by mesne assignments, to G.C. Optronics, Inc., Ann Arbor, Mich., a corporation of Delaware

Filed June 19, 1967, Ser. No. 647,102
Int. Cl. G01n 29/00
U.S. Cl. 73—69 9 Claims



A plurality of samples of a material having at least one property such as hardness, ductility, alloy and content, etc, differing from one another, are rigidly supported and caused to regularly vibrate. Holograms are made of each of them during vibration by known means which includes the photographic recordation of the interference pattern between light reflected from the member and light directly from a source, and developing the photographic plate. The optical reconstructions of the articles which may be observed by viewing through the resulting hologram will reveal fringe families which represent contours of equal amplitude of vibration resulting from the time averaging effect of the photographic plate. These fringe families will differ from one another on each member because of minute differences in vibration resulting from the members different properties. A similar member having unknown properties is then similarly supported and caused to vibrate and a hologram is made of it. The optical reconstruction of the unknown member is then viewed through the developed hologram and the fringe family exhibited is compared with the fringe families of the samples to determine the properties of the unknown members.

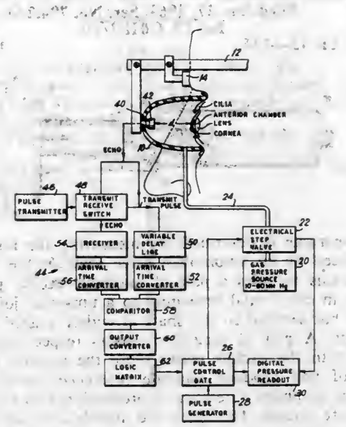
3,545,260
MEANS AND METHOD FOR DETECTION OF GLAUCOMA

Bernard Lichtenstein, Tustin, Calif., and Bruce G. Kroger, Rye, N.Y., assignors to Technicon Corporation, Ardsley, N.Y., a corporation of New York

Filed Oct. 31, 1967, Ser. No. 679,379
Int. Cl. A61b 3/16
U.S. Cl. 73—80 10 Claims

A system for measuring the intraocular pressure of an eye utilizes a cup-shaped member sealed over the front part of the eye. Gas pressure is increased within the cup-shaped member to apply pressure to the cornea of the eye, until a deflection in the curvature of the cornea is detected by an acoustic pulse transmitting and echo receiving system based on a transponder within the cup-shaped member.

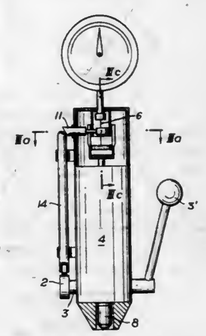
Another system for measuring the intraocular pressure of an eye, is based on such pressure being responsive to the acoustic impedance of the cornea. The acoustic impedance of the cornea is measured by comparing the energy it reflects with the energy reflected by a calibrated, variable impedance member.



3,545,261
CLAMPING CHUCK AND HARDNESS TESTER PROVIDED WITH SUCH CHUCK

Josef Maleschew and Karl Brutmann, Salzburg, and Fritz Gartner, Wien, Austria, assignors to Maier & Co., Fabrik für Spezialmaschinen, Salzburg, Austria, a corporation of Austria

Filed Oct. 11, 1966, Ser. No. 585,876
Claims priority, application Austria, Oct. 12, 1965, 9,236/65
Int. Cl. G01n 3/48
U.S. Cl. 73—81 10 Claims

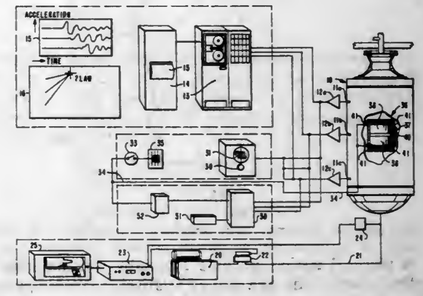


Two cooperating units, such as a hardness tester and an associated gauge, are temporarily interconnectable by a coupling device comprising a clamp with a pair of jaws adapted to grip a ball freely suspended therebetween by a flexible element such as a steel wire, the jaws being either closable around the ball or spreadable away therefrom by an actuator which operates, in a predetermined reference position of the parts to be interconnected, to have the clamp grip the ball from two sides.

3,545,262
METHOD AND APPARATUS FOR NONDESTRUCTIVE TESTING OF PRESSURE VESSELS

Richard K. Steele, Carmichael, and Allen T. Green and Charles S. Lockman, Sacramento, Calif., assignors to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio

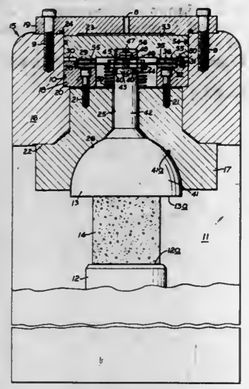
Filed May 9, 1967, Ser. No. 637,249
Int. Cl. G01n 3/12
U.S. Cl. 73—88.5 12 Claims



This disclosure concerns a method and apparatus for nondestructively testing pressure vessels to detect the presence and location of any flaws in the walls thereof. In practicing the method, a plurality of stress-wave sensors, such as accelerometers, for example, are attached to the external surface of a pressure vessel in spaced relationship with respect to each other so as to be arranged over a substantial portion of the pressure vessel. Pressure fluid is then introduced into the pressure vessel to continually increase the internal pressure therewithin. If a flaw is present in a wall of the pressure vessel, the extension of the flaw under load by the continually increasing internal pressure propagates a stress wave which is detected by the plurality of stress-wave sensors. The flaw-propagated stress wave travels through the wall of the pressure vessel at the velocity of sound in the material of which the wall of the pressure vessel is made. Signals are emitted by the stress-wave sensors as the stress wave arrives at various sensor locations, and the location of the flaw in the wall of the pressure vessel is determined by a triangulation technique which relies upon the time differences as to the arrival of the stress wave at various sensor locations.

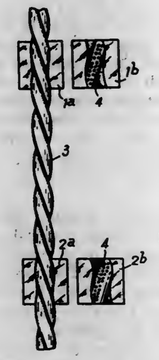
For each particular pressure vessel whose wall structure is made of a given material, a critical stress-wave signature is inscribed in a translucent template which may be overlaid on an oscilloscope to permit an operator to visually observe when the pressure vessel undergoing testing has been internally pressurized to the danger point, whereupon the operator manually actuates a mechanism relieving the internal pressure within the pressure vessel. Alternately, the critical stress-wave signature of the pressure vessel is inscribed on an opaque template attached to an oscilloscope such that coincidence between the signal level received by the oscilloscope and the critical stress-wave signature etched in the template will be detected by a photocell which automatically actuates the mechanism for relieving the internal pressure of the pressure vessel undergoing testing.

3,545,263
COMPRESSION TESTING MACHINE
Herbert Roy Hadley, Harrowgate, and Denis Kaye, Leeds, England, assignors to Saml. Denison & Son Limited, Leeds, England, a British company
Filed Jan. 21, 1969, Ser. No. 792,627
Claims priority, application Great Britain, Jan. 26, 1968, 4,106/68
Int. Cl. G01n *3/08*
U.S. Cl. 73—94 **13 Claims**



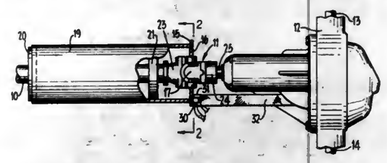
A physical testing machine especially for compression testing wherein one of a pair of relatively movable platens has a ball-joint engagement with a bearing member for permitting limited angular adjustment of the platen, including releasable means for locking the platen relative to the bearing member in any of its angular positions.

3,545,264
METHOD AND APPARATUS FOR TENSILE TESTING OF STEEL BARS
Robert Bourgeois, Maubeuge, and Adolphe Lesure, Anzin, France, assignors to Societe dite: Usinor, Paris, France, a company of France
Filed May 3, 1968, Ser. No. 726,385
Int. Cl. G01n *3/04*
U.S. Cl. 73—103 **8 Claims**



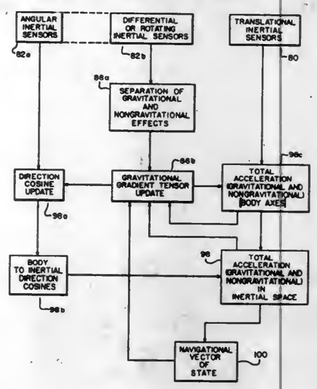
Jaws for gripping cold twisted steel bar during tensile test on bar have internal profile matching surface of bar. Jaws made by drilling hole in block having twice the thickness of a jaw, cutting block in half through the hole form jaw blanks, heating blank, and stamping blank with a portion of twisted bar serving as a stamping die.

3,545,265
HORSEPOWER MEASURING APPARATUS
Terry E. McIlraith, 5880 Chabot Court, Oakland, Calif. 94618, and Charles A. Kingsford-Smith, Rte. 2, Box 325D1, Loveland, Colo. 80537
Filed Jan. 27, 1969, Ser. No. 794,240
Int. Cl. G01l *3/10*
U.S. Cl. 73—136 **13 Claims**



Apparatus is described for measuring the horsepower produced by an automobile drive shaft or the like. The apparatus includes a pair of magnetic exciter plates located in close axial proximity to a universal joint in the shaft but secured to the shaft at widely spaced axial locations. A pair of magnetic sensors respectively associated with the exciter plates sense the angular positions thereof and produce separate reference signals, whose change in phase difference is proportional to the change in shaft torque. The reference signals are compared in a phase detector which produces an output torque signal proportional to the torque developed along the shaft, and one of the reference signals is analyzed in a pulse counter which produces in accordance with the frequency of such signal an output velocity signal proportional to the angular velocity of the drive shaft. The torque signal and velocity signal are combined in a multiplier to provide a product signal proportional to the horsepower produced by the shaft.

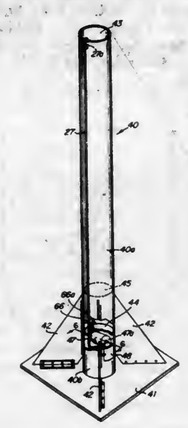
3,545,266
NONINERTIAL STRAPPING-DOWN GRAVITY GRADIENT NAVIGATION SYSTEM
Thomas L. Wilson, Hanszen College, Rice University, Houston, Tex. 77001
Filed Feb. 17, 1964, Ser. No. 345,384
Int. Cl. G01c *21/12, 23/00*
U.S. Cl. 73—151 **7 Claims**



An acceleration sensor unit which is not inertial employing strapped-down differential or rotating inertial sensors in the presence of nonuniform gravitational field phenomena as well as employing means for separation of spatial variations in nonuniform acceleration effects to determine directly nonuniform gravitational acceleration. A navigation system for determining the equations of motion of a vehicle or other object in the presence of any

acceleration phenomena, utilizing purely inertial sensing means to determine directly effects due to nonuniform gravitational acceleration. A well surveying and gravitational mapping device for indicating the course of a well wherein said navigation system is employed.

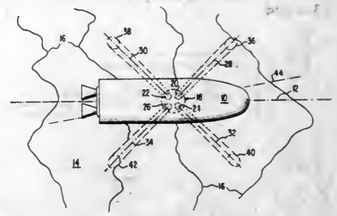
3,545,267
FLUID PRESSURE TRANSDUCER
Bruce K. Reid and Frank W. Christensen, Ogden, Utah, assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Oct. 22, 1968, Ser. No. 769,554
Int. Cl. G01w *1/14*
U.S. Cl. 73—171 **17 Claims**



A device for producing electrical output signals in response to fluid-pressure input. A bellows serves to receive a fluid under pressure and to expand in accordance with the pressure. The bellows is housed within a canister, being secured and supported at one of its ends and carrying a projecting magnetic core piece at its other end. This core piece projects from the bellows into an aligned hollow core of an electrical induction coil for friction-free movement relative to such coil; both bellows and core piece can be mounted as a cantilever. The coil is adapted to be encountered into an electrical output circuit, whose output varies in accordance with the value of inductance in the circuit. This depends upon the extent to which the core piece has been pushed into the coil, or, for a different coil-core piece relationship, the extent to which it has been pushed out of the coil, by reason of fluid pressure in the bellows. The coil is mounted on a movable bulkhead internally of the canister, the bulkhead being adjustable in position from outside the conister for pre-setting the electrical relationship from time to time as desired. Optional novel features are the pre-charging of the bellows and of an intercommunicating pressure-input chamber with an antifreeze liquid, and the provision of a variable inductance in series with the coil to enable optimization of the transducer scale factor.

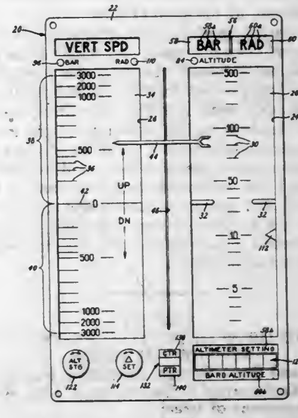
3,545,268
GROUND TRACK ALIGNMENT SENSING SYSTEM
Henry C. Von Struve III, Littleton, Colo., assignor to Martin-Marietta Corporation, New York, N.Y., a corporation of Maryland
Filed May 5, 1966, Ser. No. 547,916
Int. Cl. G01c *21/00*
U.S. Cl. 73—178 **9 Claims**

An artificial satellite or space vehicle alignment sensor system is disclosed which employs four sensors having divergent axes that intersect the surface of an orbited body at two forward and two rearward points. When each rearward point is directly behind an associated forward point, the heading deviation is zero. The amount of deviation is determined by correlating the outputs of



a rearward sensor and its associated forward sensor. The direction of the deviation is determined by correlating the outputs of each rearward sensor and its diametrically opposed forward sensor and comparing the magnitude of the resulting correlations.

3,545,269
DISPLAY APPARATUS
Archie T. Sherbert, Jr., Media, Pa., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,169
Int. Cl. G01c *21/00*
U.S. Cl. 73—178 **22 Claims**

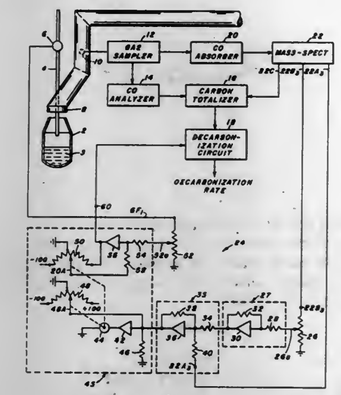


Apparatus for displaying information relating to the operation of a vehicle such as an aircraft. A first display provides information representing values of first operating conditions of the vehicle, a second display adjacent the first display provides information representing values of second operating conditions of the vehicle as time derivatives of the first operating conditions, and reference pointers simultaneously indicate specific values of the first and second operating conditions in an interrelated manner. In one embodiment, the displays are rectilinear scales in side-by-side relationship indicating altitude and vertical speed, respectively, and in another embodiment, the displays are concentric circular scales indicating heading and turn rate, respectively.

3,545,270
METHOD AND APPARATUS FOR MEASURING EFFLUENT GAS FLOW RATE

Yi-Chung Chang, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Dec. 19, 1968, Ser. No. 785,214
Int. Cl. G01p 5/00
U.S. Cl. 73—194 9 Claims

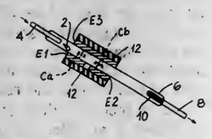


In a system wherein a pair of streams unite to form a single stream and wherein a pair of streams are formed by a single stream and wherein at least two homogenously distributed components are common to and exclusively confined to each of the streams and wherein the sum of each component in the pair of streams is equal to that component in the single streams, the method of obtaining the rate of flow of one stream based upon a specific equation having as known quantities the flow rate of one of the other streams and the volumetric concentration of each of the components in each of the three streams. Apparatus for determining the flow rate of the effluent gas exiting a basic oxygen process vessel including a gas sampler, a carbon monoxide absorber, a mass spectrometer for measuring the volumetric concentrations of the component gases, and means for computing the flow rate of the effluent gas including a first multiplier, a summer assembly, a second multiplier and a divider to continuously solve the flow rate equation.

3,545,271
LIQUID DROP DETECTING SYSTEM AND SENSOR THEREFOR

Yoel Amir and Omri Talmon, Beersheva, Israel, assignors to Beta Engineering & Development Ltd., Beersheva, Israel, a company of Israel

Filed Apr. 8, 1969, Ser. No. 814,241
Int. Cl. A61m 5/16
U.S. Cl. 73—194 9 Claims

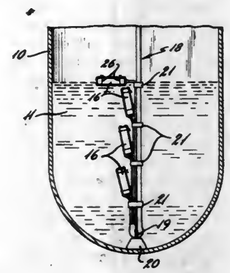


A liquid drop sensor comprises electrodes defining two closely spaced capacitors one above the other adapted to be supported in the path of the drop so that it first passes through one and then through the other thereby first changing the capacitance of one and then that of the other while the capacitance of both are affected substantially at the same time and extent by extraneous effects. A detector circuit for detecting the change in capacitance of at least one of the capacitors comprises a bridge including the two capacitors in separate arms thereof, an oscillator whose amplitude is changed by unbalance of the bridge, a slow variation compensating circuit, and a fast variation amplification circuit.

3,545,272
LIQUID LEVEL WARNING DEVICE

Landon G. McGill, P.O. Box 127, St. Pauls, N.C. 28384

Filed Apr. 25, 1969, Ser. No. 819,326
Int. Cl. G01f 23/10
U.S. Cl. 73—311 5 Claims

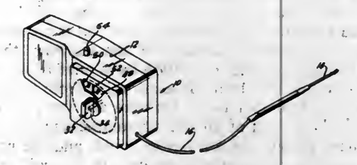


Apparatus located within a tank or container and having a buoyant portion swingably mounted in a predetermined position within such container. The buoyant portion includes switch means for actuating an indicator when the liquid within the container reaches a predetermined level.

3,545,273
ELECTRONIC THERMOMETER

Vincent P. Friberg, Leonia, Donald F. Wiseman, Wayne, and John Chesney, Roselle Park, N.J., assignors to General Instrument Corporation, Newark, N.J., a corporation of New Jersey

Filed June 13, 1968, Ser. No. 736,682
Int. Cl. G01k 7/24
U.S. Cl. 73—362 8 Claims

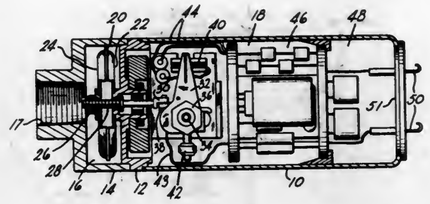


A temperature measuring and indicating device comprises a sensor adapted to be exposed to the measured temperature and having a resistance which varies with the measured temperature. A variable resistance is driven from a first toward a second resistance value and is stopped when the resistances of the sensor and the variable resistance reach a predetermined relationship. An indicator is operatively connected to the driving means to provide an indication or readout of the measured temperature as a function of the resistance value of the variable resistance when it is stopped.

3,545,274
SEA WATER DEPTH TRANSDUCER AND SYSTEM

William M. Derr and Bill J. Harper, Albuquerque, N. Mex., assignors to Sparton Corporation, Jackson, Mich., a corporation of Ohio

Filed Oct. 3, 1968, Ser. No. 764,737
Int. Cl. G01l 9/02
U.S. Cl. 73—393 4 Claims

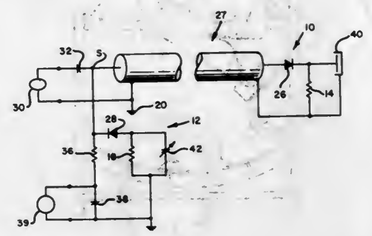


A sea water depth transducer and system for use in determining underwater pressures and pressure fluctuations, particularly suitable for use in geological explorations wherein calibration and inaccuracies due to conductor loss is minimized as current, rather than voltage, is sensed as regulated by a transducer potentiometer resistance element. A current amplifier, and temperature compensation means are incorporated in the circuitry, along with readout apparatus in the form of a current sensing gauge. The current output to resistance curve is maintained substantially linear by relating the tap of the potentiometer to its resistance coil in a unique manner to compensate for the usual nonlinearity of the current to resistance relationship.

3,545,275
TRANSDUCER CIRCUIT AND CATHETER TRANSDUCER

Dean R. Harrison and William J. Kerwin, Sunnyvale, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and and Space Administration

Filed Sept. 12, 1968, Ser. No. 759,460
Int. Cl. G01l 9/12
U.S. Cl. 73—398 8 Claims

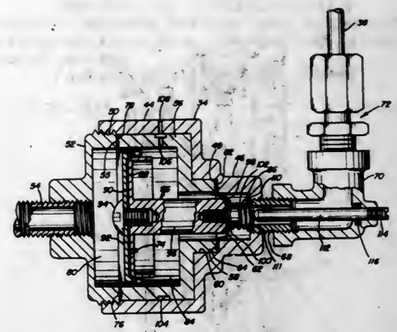


This invention is an improved transducer circuit having a pair of impedance means each energized with a like carrier voltage of opposite polarity. At least one impedance means includes a variable impedance element adapted for external influence whereby a differential output voltage is produced proportional to such influence. The circuit requires only one coaxial cable for energization and return of output so as to be particularly directed to highly miniaturized devices, and the invention includes a catheter transducer incorporating this circuit.

3,545,276
INDICATOR AND A PRESSURE INDICATING SYSTEM

Edward L. Parr, El Cajon, Calif., assignor to Wendell L. Thompson, Burbank, Calif.

Filed May 24, 1968, Ser. No. 731,842
Int. Cl. G01l 7/08
U.S. Cl. 73—407 2 Claims

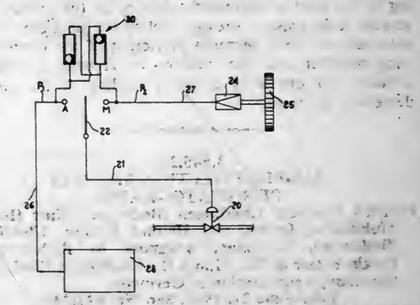


A system for indicating pressure including a pressure responsive indicator and two variable capacity chambers, one being of different capacity than the other, one being connected with a source of variable pressure and the other being connected to the indicator, the latter chamber being varied in capacity to thereby vary the pressure therein by variation in capacity in the former chamber and also varied in pressure by adjusting the effect of a spring in the second mentioned chamber from the exterior thereof.

3,545,277
DETECTING DIFFERENTIAL PRESSURE LEVELS

Gianfranco Bianchi and Luigi Marucci, Milan, Italy, assignors to Kent-Tieghi S.p.A., Milan, Italy

Filed Aug. 27, 1968, Ser. No. 755,540
Claims priority, application Italy, Sept. 8, 1967, 813,882
Int. Cl. G01l 7/16
U.S. Cl. 73—419 6 Claims

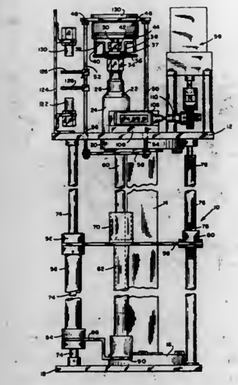


A system and device for detecting differences in the pressure level of two pneumatic signals, wherein two indicating elements are airtightly fitted freely movable within vertical sealed housings, to the ends of which the pneumatic signals are fed in respective opposite directions, in such a manner that a pneumatic force directly proportional to the difference between the pressure levels acts in respective opposite directions on the indicating elements. When a pneumatic force overcomes the gravity force, the element on which the pneumatic force acts upwardly is correspondingly lifted upwards and indicates an unbalanced condition of the pressure signals.

3,545,278
AUTOMATIC DEAD WEIGHT PRESSURE GAUGE

Alanson W. Chandler, 7707 E. 38th, Tulsa, Okla. 74145

Filed Dec. 30, 1968, Ser. No. 787,869
Int. Cl. G01l 7/16
U.S. Cl. 73—419 10 Claims



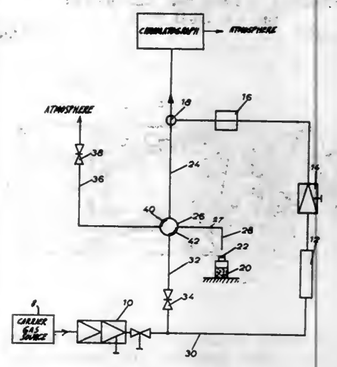
An automatic dead weight gauge for measuring fluid pressures wherein a counterbalance member is operably connected with a pressure sensitive piston whereby compensation is automatically made upon any pressure change acting on the piston. In addition, means are provide wherein a direct visual reading of the pressure is constantly available. The counterbalance member is suspended in a liquid reservoir and the normal position thereof maintains the pressure sensitive piston at a known position for the normal fluid pressure acting thereon. In the event of a pressure increase on the piston, the weight of the counterbalance member is automatically instantaneously increased in accordance with the pressure change and a counter device is activated which provides a direct reading of the new or increased pressure on the piston. Conversely, a decrease in pressure acting on the piston results automatically in a decrease of weight of the counterbalance member and the counter or recording device is actuated for providing a visual reading of the new or decreased pressure.

3,545,279
SAMPLE INJECTION FOR GAS CHROMATOGRAPHS

Dietrich Jentzsch, Uberlingen (Bodensee), Kurt Henker, Muhlhofen, Baden, and Helmut Kruger, Uberlingen (Bodensee), Germany, assignors to Bodenseewerk Perkin-Elmer & Co., G.m.b.H., Uberlingen (Bodensee), Germany, a corporation of Germany

Filed June 21, 1967, Ser. No. 647,744
Claims priority, application Germany, June 24, 1966, 1,284,660
Int. Cl. G01n 1/00
U.S. Cl. 73—422 8 Claims

A sample injection apparatus for a preparative gas chromatograph includes a vessel containing a sample and having a self-sealing closure member. Carrier gas flows from a source to an inlet of the chromatograph and a coupling line, extending into the vessel, couples the vessel to the inlet. A quick acting valve for altering carrier gas flow is positioned in the carrier gas line upstream from a point at which the vessel is coupled to the inlet. Means are provided for selectively causing the carrier gas to flow through the coupling line to atmosphere for purging the line of residue sample material. Means are provided

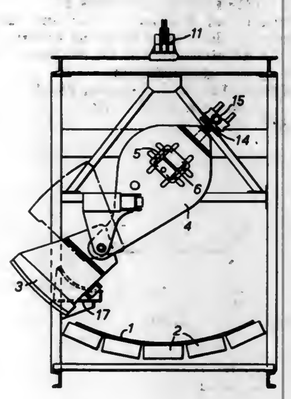


for restricting the flow of purging carrier gas to atmosphere thereby conserving carrier gas.

3,545,280
SAMPLING DEVICES FOR BULK MATERIALS

Warner Barry Gosney, Chesterfield, England, assignor to The Birmingham Small Arms Company Limited, Birmingham, England, a British company

Filed Nov. 18, 1968, Ser. No. 776,485
Int. Cl. G01n 1/02
U.S. Cl. 73—423 7 Claims

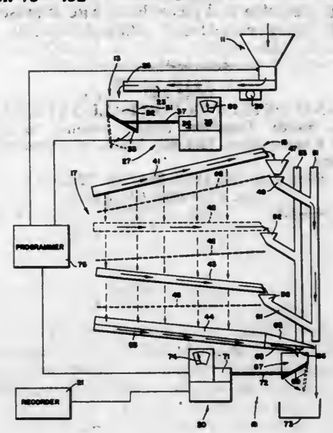


A device adapted for taking a sample from bulk material on a moving conveyor belt has a sample collecting bucket mounted on one end of an arm which is rotatable about the axis of, and movable longitudinally along, a beam disposed above and in longitudinal alignment with the belt. The bucket is held to one side of the belt while the arm is accelerated from rest to a speed equal to that of the belt, swings across the belt and collects a transverse sample therefrom while moving at the same speed as the belt, and is held to the other side of the belt while the arm is decelerated back to rest.

3,545,281
METHOD AND APPARATUS FOR ANALYZING A PARTICULATE MATERIAL

John A. Johnston, Deephaven, Minn., assignor to Cargill, Incorporated, a corporation of Delaware

Filed Dec. 12, 1968, Ser. No. 783,369
Int. Cl. G01n 5/00, 15/02
U.S. Cl. 73—432 11 Claims

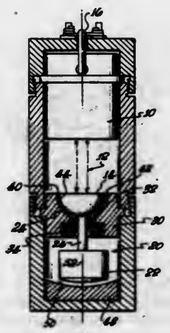


A method and apparatus may be used to determine the percentage of a fraction of a particular size or range of sizes for a particulate material from a weighed, discrete sample of the particulate material. An automatically operated apparatus is controlled by a programmer to automatically weigh a sample, transfer the discrete weighed sample to a size separating means, and to automatically weigh and determine the percentage of the particles of a given size or sizes in the sample. At a given time in the cycle as determined by the programmer, the fraction is released and a new sample is formed and/or transferred for subsequent one of a series of analyses.

3,545,282
ACCELEROMETER

Joe Bartlett Kennedy, Saugus, and Thomas Rhys Edmonds, Woodland Hills, Calif., assignors to Conductron Corporation, Ann Arbor, Mich., a corporation of Delaware

Filed Apr. 14, 1965, Ser. No. 447,993
Int. Cl. G01p 15/08
U.S. Cl. 73—514 6 Claims

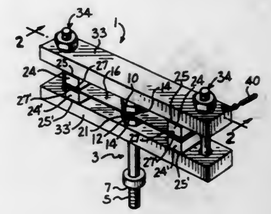


A pendulous acceleration sensor having a substantially monolithic structure is disclosed. The sensor is capable of sensing acceleration or other body characteristics along two axes. The pendulum is supported by an elastomer mount which enables movement equally about the two axes and thereby provides a rugged sensor with no articulate moving parts.

3,545,283
NON-LINEAR ACCELEROMETER

Richard D. McGunigle, Fullerton, Calif., assignor to Electra Scientific Corporation, Fullerton, Calif., a corporation of California

Filed July 25, 1966, Ser. No. 567,695
Int. Cl. G01p 15/08
U.S. Cl. 73—517 10 Claims

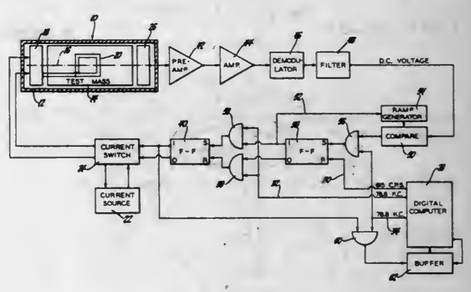


A non-linear accelerometer unit comprising a resilient arm extending in a reference plane in its unstressed state and anchored at one portion thereof so at least an end portion thereof is free to flex under acceleration forces. A measurement is obtained of the square of the acceleration imparted thereto by means for measuring the change in the distance between the projection of the flexing end portion of the arm on said reference plane and the initial position thereof in its unstressed state as the arm flexes over small angles.

3,545,284
ACCELERATION MEASURING SYSTEM

Oliver R. Clement, Milwaukee, Lynn David Lewis, Brookfield, and James F. Thompson, Wauwatosa, Wis., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

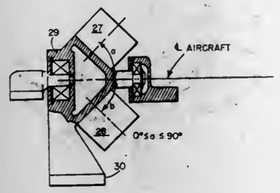
Filed Jan. 13, 1967, Ser. No. 609,037
Int. Cl. G01p 15/08
U.S. Cl. 73—517 4 Claims



Acceleration measuring apparatus including a test mass and forcer means for continuously cycling the mass about a reference point with a fixed period of cyclical displacement and the feedback loop includes a pulse width modulator synchronized with the fixed period for providing

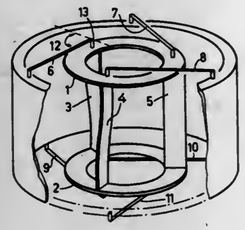
an indication of the extent of displacement of the mass about the reference point. The pulse width modulator determines the number of pulses accumulated by a digital counter. Phase displaced signals are used to allow switching devices in the loop to reach an acceptable state of quiescence before current switching takes place.

3,545,285
ACCELERATION MEASUREMENT SYSTEM
Robert L. Hall, Marblehead, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts
Filed Aug. 14, 1967, Ser. No. 660,317
Int. Cl. G01p *15/08*
U.S. Cl. 73—517 **5 Claims**



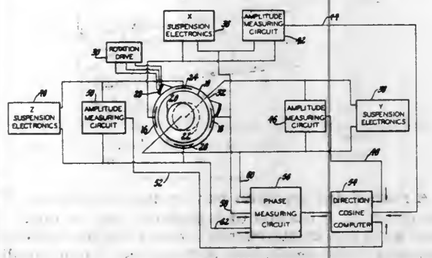
A system for measuring the acceleration of a moving body along a preselected direction in which a pair of accelerometers are fixedly attached to the body so that the input axis of one accelerometer intersects the preselected direction at a first angle and the input axis of the second accelerometer intersects such direction at a second angle. Further, the accelerometers are so mounted that their input axes are and remain perpendicular to each other. The output signals from the accelerometers are utilized in an appropriate analog computation system to produce a measurement of the acceleration along such preselected direction.

3,545,286
HOLDER WHICH IS DISPLACEABLE ALONG ONE AXIS
Lennart Arvid Stenstrom, Huddinge, Sweden, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed June 27, 1968, Ser. No. 740,496
Claims priority, application Sweden, July 7, 1967, 10,387/67
Int. Cl. G01p *15/08*
U.S. Cl. 73—517 **3 Claims**



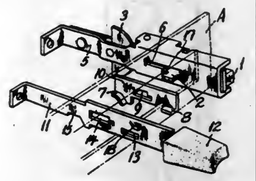
A support displaceable along one axis and using two end pieces concentric with and perpendicular to an axis and interconnected with symmetrically arranged leaf springs each having a plane radially disposed with respect to the axis. Each end piece is connected to a fundament by means of a group of axially symmetrical straight flexible wires extending non-radially between each end piece and the fundament and lying in a plane parallel to the respective end piece. The group of wires connecting one end piece form angles with radii from the axis which are opposite to the corresponding angles formed by the wires connecting the other end piece. Each wire is prestressed, the energy being stored as a tortional moment in the springs.

3,545,287
SPIN AXIS DETECTOR FOR BALL-TYPE GYRO
Arthur E. Smith, Topsfield, Mass., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 30, 1968, Ser. No. 725,336
Int. Cl. G01c *19/08*
U.S. Cl. 74—5.6 **4 Claims**



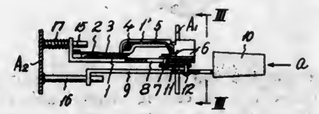
An inertial attitude reference comprising a spherical rotor in which the centers of mass and geometry are noncoincidental. Rotation about the mass center causes periodic displacement relative to diametrically opposite electrode pairs adjacent the rotor. A change in attitude of the rotor spin axis relative to the electrodes is determined by the change in amplitude and phase of signals capacitively induced on the electrode pairs.

3,545,288
PUSHBUTTON TYPE TUNING APPARATUS
Tamaki Ohashi, 1629 Tanashi-shi, Tokyo, Japan
Filed Oct. 7, 1968, Ser. No. 765,434
Claims priority, application Japan, Oct. 7, 1967, 42/64,363
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.33 **9 Claims**



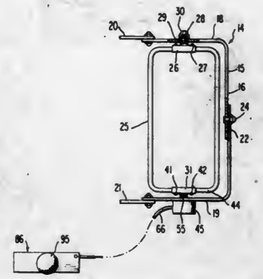
A pushbutton type tuning aparatus in which a connecting member is engaged with a projection on an actuating member which is slidable in a first arm to operate a locking member for a movable setting plate on the first arm, a second arm with a pushbutton being engaged with the connecting member through oblique surfaces so that when the pushbutton is pushed horizontally, an oblique force with a vertical component is applied to the actuating member and first arm through the intermediary of the connecting member.

3,545,289
PUSHBUTTON CONSTRUCTION FOR PUSHBUTTON-TYPE TUNING APPARATUS
Tamaki Ohashi, 2-chome, Tanashi-shi, Tokyo, Japan
Filed Nov. 26, 1968, Ser. No. 779,100
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.33 **7 Claims**



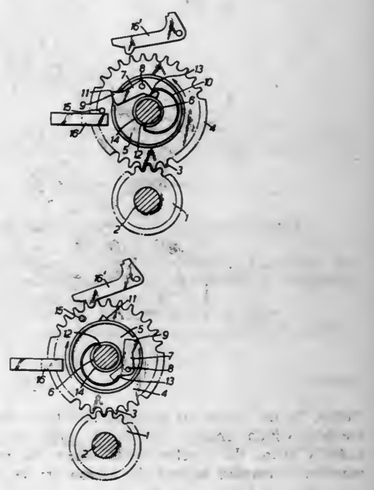
An improved pushbutton apparatus is provided in which displacement given to one arm is transferred to a second arm on which there is mounted a pivotable segment which is locked into position to control tuning. The transfer of force from the first arm to the second arm is transferred through a link which is pivotally connected to both of the arms and which is arranged in inclined attitude so that a displacement movement is given to both of the arms which is translatory to the directions of movement of these arms.

3,545,290
REMOTELY CONTROLLED VEHICLE MIRROR
Jesse L. McCord, Covington, Ga., and Carl Heinle, Jr., 962 Canterbury Road NE., Atlanta, Ga. 30324; said McCord assignor to said Heinle
Filed May 21, 1968, Ser. No. 730,769
Int. Cl. F16h *21/40*
U.S. Cl. 74—98 **7 Claims**



A remotely controlled vehicle mirror assembly comprising a frame connected to the vehicle for supporting a mirror head, a servo mechanism connected to the frame, and a bracket connectable to the mirror head and including a stud inserted into the servo mechanism. A control mechanism is positioned inside the vehicle and functions to actuate the servo mechanism. The control mechanism includes a rotatable knob which is lockable into various positions, and a rack engaging the knob. A Bowden wire extends between the control mechanism and the servo mechanism, and functions to transmit the movement of the rack of the control mechanism to the servo mechanism, which functions to rotate the bracket, and the mirror received in the bracket.

3,545,291
IMPROVEMENTS RELATING TO PRINT WHEEL SETTING MECHANISMS
Alan Holdsworth, Essex County, England, assignor to The Plessey Company Limited, Ilford, England, a British company
Filed Aug. 15, 1968, Ser. No. 752,838
Claims priority, application Great Britain, Aug. 16, 1967, 37,759/67
Int. Cl. F16h *27/10*
U.S. Cl. 74—125.5 **5 Claims**

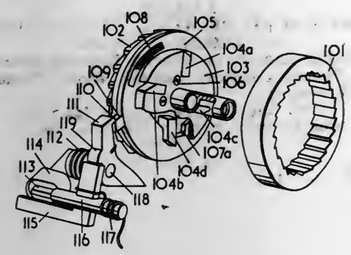


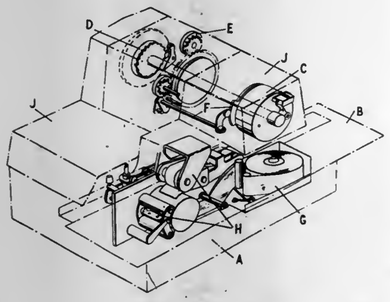
A print wheel setting mechanism comprising a print wheel having teeth bearing print type, which is driven through a clutch arrangement from a driving shaft so that when a print wheel tooth bearing a selected print type character is selected by stopping the print wheel at a particular angular position, continued rotation of the driving shaft is facilitated.

3,545,292
POSTAL FRANKING MACHINE
Leslie Harrold Smith, Romford, and Peter John MacLeod, Letchworth, England, assignors to Roneo Limited, Croydon, England, a British company
Filed Aug. 7, 1968, Ser. No. 750,876
Claims priority, application Great Britain, Aug. 17, 1967, 37,992/67
Int. Cl. F16h *27/00*
U.S. Cl. 74—142 **10 Claims**

A dog clutch, preferably for use in a franking machine, having a plurality of pawls upon a driven member, each pawl being movable under the action of a spring to engage ratchet teeth upon a driving member, the ratchet teeth being of equal pitch while the pawls are unevenly spaced in a circumferential direction, so that only one of the pawls drivingly engages a tooth at any relatively rotational positioning of the driving and driven members. When there are four pawls, the circumferential difference between the spacing between the pawls is equal to ¼

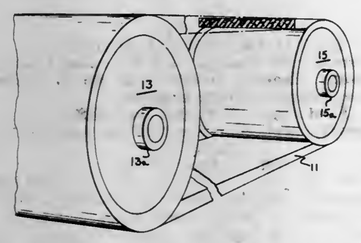
of the pitch of the teeth on the driving member. The clutch may have a pawl control member rotatable relative to the driven member in the normal direction of rotation of the clutch, about the axis of rotation of the





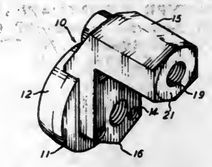
clutch, by the action of a spring and have cam members thereon which engage the pawls and withdraw them radially from the ratchet teeth when the pawl control member is rotated against the action of the spring.

3,545,293
INDUSTRIAL BELT CONSTRUCTION
Alfred Marzocchi and David E. Leary, Cumberland, R.I., assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Dec. 27, 1968, Ser. No. 787,409
Int. Cl. F16g *1/10*
U.S. Cl. 74—231 **8 Claims**



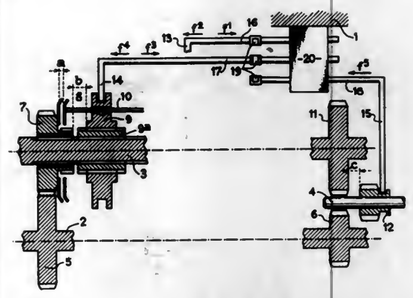
An industrial belt construction which has embedded, interiorly therein, glass, in any one of a variety of forms, serving as an interior reinforcement, a heat barrier and a fire resistant skeleton, reducing and/or precluding belt failure due to repeated contact with articles which are hot and normally cause belt deterioration and/or failure.

3,545,294
DRIVE BELT TENSIONER
Gerhard Dankowski, 3530 Dilido Road, Dallas, Tex. 75218
Filed Apr. 10, 1969, Ser. No. 815,095
Int. Cl. F16h *7/12*
U.S. Cl. 74—242.1 **1 Claim**



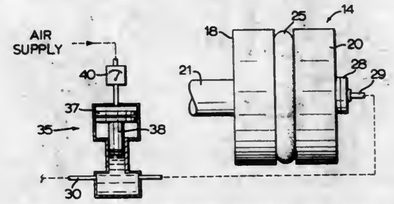
An eccentric arm and assembly for tightening a drive belt and including a die casting having a hub, a flat friction ring around the hub, a lateral arm on the side of the hub opposite the friction ring and a hexagonal spaced on the extending end of the arm. Opposite sides of the arm are flat and parallel so as to provide wrench surfaces. The assembly includes a pulley on the spacer and a friction disc on a supporting member. In its preferred form, the construction includes a threaded axial opening in the hub and receives a bolt which extends through the supporting member and the friction disc.

3,545,295
GEARBOX HAVING SYNCHRONIZERS AND AT LEAST ONE UNSYNCHRONIZED SPEED
Henri Ravello, Sochaux, France, assignor to Automobiles Peugeot, Paris, France, and Regie Nationale des Usines Renault, Billancourt, France, both French bodies corporate
Filed Oct. 31, 1968, Ser. No. 772,145
Claims priority, application France, Nov. 14, 1967, 128,034
Int. Cl. F16h *3/38*; G05g *5/10*; F6d *23/04*
U.S. Cl. 74—339 **7 Claims**



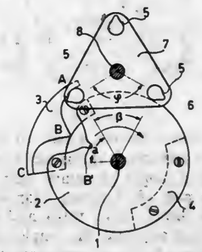
Gearbox having synchronizers but at least one speed unsynchronized, the synchronizers and the movable element for engaging the unsynchronized speed being actuated through parallel rods. The rod for the unsynchronized speed is connected to the rod of one of the synchronizers by automatically withdrawable unilateral connecting means which are such that the start of the movement of the unsynchronized speed rod from its position of rest automatically shifts the rod of said one of the synchronizers, this movement preceding the engagement of the unsynchronized speed and of such extent that it merely actuates said one of said synchronizers without engaging the corresponding speed.

3,545,296
VARIABLE GEAR TOOTH CONTACT ARRANGEMENT
Douglas Walter Eggins, Scarborough, Ontario, Canada, assignor to Dominion Engineering Works, Limited, Lachine, Quebec, Canada, a corporation of Canada
Filed Dec. 9, 1968, Ser. No. 782,363
Claims priority, application Canada, Dec. 30, 1967, 008,901
Int. Cl. F16h *57/00, 55/18, 37/06*
U.S. Cl. 74—410 **6 Claims**



The drive to a large machine having a large gear wheel driven by two or more independent motors includes split pinions driving the gear wheel. The halves of the split pinions being relatively movable to change the effective loading of a respective pinion as compensation for irregularities in the large gear.

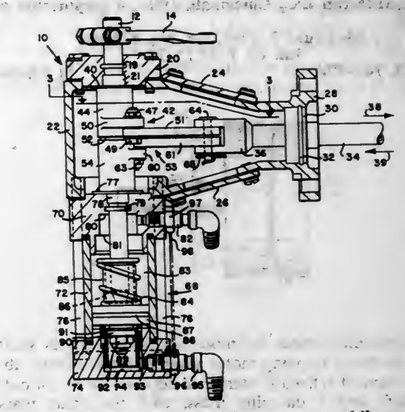
3,545,297
TRANSMISSION GEAR
Herbert Mahn, Hamburg, Germany, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 16, 1968, Ser. No. 767,959
Claims priority, application Germany, Oct. 26, 1967, 1,650,811
Int. Cl. F16h *27/04, 55/04*
U.S. Cl. 74—437 **8 Claims**



A transmission gear for converting uniform rotary motion of a driving shaft into nonuniform motion of a parallel driven shaft. On the driving shaft a disc has a curved groove including a kink, and on the driven shaft are teeth that cooperate with both the cylindrical edge of the disc and the groove therein to provide the desired motion, while preventing reverse relative motion of the shafts.

3,545,298
REVERSING LINKAGE
Donald F. Christofferson, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed Sept. 19, 1968, Ser. No. 760,907
Int. Cl. G05g *1/00*
U.S. Cl. 74—469 **11 Claims**

A mechanism having a pair of arms and a pair of links connecting an actuating shaft with a control rod so that rotation of the shaft in a clockwise direction causes the control rod to move longitudinally outward, while counterclockwise rotation of the shaft moves the control rod longitudinally inward, and longitudinal movement of the shaft reverses the mechanism so that clockwise shaft rotation causes inward control rod movement, while counterclockwise shaft rotation results in outward control rod movement.



3,545,299
SAFETY STEERING DEVICE FOR MOTOR VEHICLES
Hans O. Scherenberg, Stuttgart-Heumaden, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed July 29, 1968, Ser. No. 748,386
Claims priority, application Germany, July 29, 1967, 1,630,326
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **2 Claims**



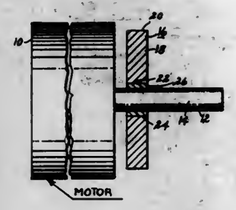
A safety steering device for motor vehicles in which the steering spindle consists of two parts adapted to telescope one into the other whereby, for purposes of achieving a play-free entrainment in the circumferential direction, these parts are mutually stressed in the circumferential direction.

3,545,300
COLLAPSIBLE STEERING COLUMN FOR VEHICLES
Hirosuke Furusho, Takarazuka-shi, Japan, assignor to Daihatsu Kogyo Co. Ltd., Osaka, Japan, a corporation of Japan
Filed Jan. 31, 1969, Ser. No. 795,444
Claims priority, application Japan, Feb. 15, 1968, 43/9,718
Int. Cl. B62d *1/18*
U.S. Cl. 74—492 **4 Claims**



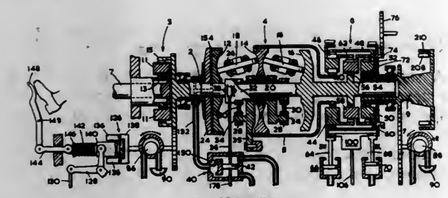
A collapsible steering column assembly for a vehicle includes a collapsible member in the form of an energy absorbing plastic tube which can be made of lead, zinc, copper or aluminum. The tube yields structurally in an axial direction upon impact and in a controlled manner.

3,545,301
STEPPING MOTOR DAMPER
Robert C. Richter, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio
Filed June 2, 1969, Ser. No. 829,604
Int. Cl. F16f 15/12
U.S. Cl. 74—574 11 Claims



A vibration damper for mounting on the output shaft of an electrical stepping motor wherein a viscoelastic absorber element is fixedly interposed between the motor output shaft and a damping mass, with the polar mass moment of inertia of the latter being a function of the polar mass moment of inertia of the motor armature.

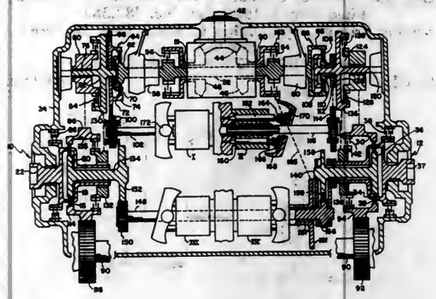
3,545,302
VEHICLE TRANSMISSION SYSTEMS
Clifford Raymond Schofield, Bradford, England, assignor to The English Electric Company Limited, London, England, a British company
Claims priority, application Great Britain, Oct. 10, 1967, Filed Oct. 10, 1968, Ser. No. 766,577
46,319/67
Int. Cl. F16h 37/06; B60k 19/00
U.S. Cl. 74—691 5 Claims



This invention is concerned with a variable-speed transmission system, especially for vehicles, including a steplessly variable unit and a planetary gear train. By locking one or other of two parts of the planetary gear train, two regimes of operation can be achieved. In one regime, which is the low gear regime for vehicles, and can also include a reverse drive, the planetary gear train acts as a sort of differential gear. In the other regime this differential effect is absent and the variable unit drives the output direct. The specification is particularly concerned with arrangements for changing over automatically from one regime of operation to the other.

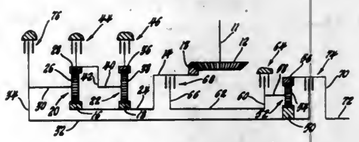
3,545,303
STEERING APPARATUS FOR TRANSMISSIONS COUPLED TO A FREE POWER TURBINE
John F. Whelahan, Monroe, Conn., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Sept. 27, 1968, Ser. No. 763,131
Int. Cl. F16h 37/08, 47/04; B60k 21/12
U.S. Cl. 74—720.5 3 Claims

Steering apparatus for a differential transmission coupled to a free power turbine in which the steering pump is driven from the transmission input and the steering motor is of the variable displacement type controlled by transmission input speed to provide maximum steering



motor displacement at maximum turbine speed and reduced displacement in direct proportion to reduced turbine speed.

3,545,304
ANGLE INPUT POWER TRANSMISSION
Jack W. Schmidt, Robert M. Tuck, and Marion D. Smith, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 1, 1969, Ser. No. 820,829
Int. Cl. F16 57/10
U.S. Cl. 74—759 20 Claims

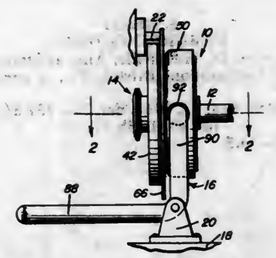


A power transmission having a pair of planetary gear sets which provide reduction ratios or a reduction and an overdrive ratio, a single planetary gear set drivingly connected with the pair of planetary gear sets to provide a reverse ratio, a direct drive ratio and an overdrive ratio, an output shaft adjacent the single planetary gear set coaxial with the planetary gear sets for delivering power from the transmission, and an input member nonparallel with the output shaft for delivering power to the transmission. The input shaft is disposed intermediate the ends of the transmission between the pair of planetary gear sets and the single planetary gear set. The ratios of the pair of planetary gear sets are effective in both forward and reverse drives. Thus, the transmission provides four forward speed ratios and two reverse ratios and is particularly useful with gas turbine engines.

3,545,305
TWO-SPEED CLUTCH TRANSMISSION
Frederick C. Friend, 769 Forest Drive, Mansfield, Ohio 44905
Filed Oct. 4, 1968, Ser. No. 765,175
Int. Cl. F16h 57/10; F16d 43/24
U.S. Cl. 74—789 8 Claims

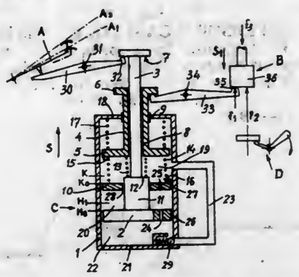
An input shaft coupled to a drive member by a centrifugal clutch above a minimum speed, transmits torque to an output member at a reduction drive ratio through intermeshed idler gears rotatably mounted on a carrier plate

held stationary by a brake element from which the carrier plate may be disengaged for direct drive. An actuator axially displaces the carrier plate from brake en-



gagement to a direct drive position against a spring bias, to couple the carrier plate to the drive member through a clutch disk.

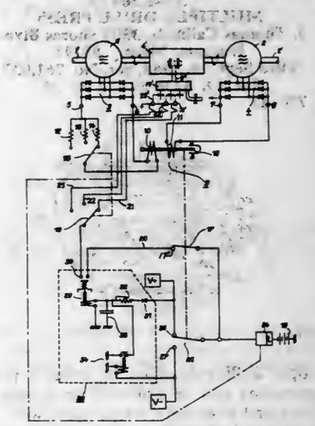
3,545,306
HYDRAULIC CORRECTORS, NOTABLY FOR TRANSMISSION CONTROL MEMBERS
Jacques Fleury, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France
Filed Dec. 12, 1968, Ser. No. 783,381
Claims priority, application France, Dec. 20, 1967, 133,111
Int. Cl. G05g 13/00
U.S. Cl. 74—843 10 Claims



The hydraulic corrector comprises a mechanical-transmission hydraulic device responsive to an actuator representing a first parameter and transmits a first force to said member, and a detector representing a second parameter which transmits to said member another force parallel to said first force and acting in the same direction, said member being on the other hand responsive to a third force representing a third parameter and applied in a direction opposite to that of said first and second forces, said member making the comparison between said forces, the state of unbalance resulting from said comparison involving, in one or the other direction, the displacement of said member and therefore its action.

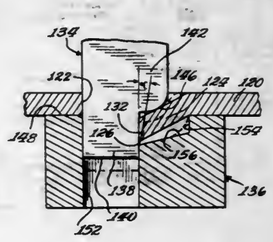
3,545,307
MEANS FOR THE SYNCHRONIZED SHIFTING OF TRANSMISSIONS IN MOTOR VEHICLES
Benno Bildat, Erlangen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany, a limited corporation of Germany
Filed Apr. 11, 1968, Ser. No. 720,578
Claims priority, application Germany, Apr. 27, 1967, Sch 40,622
Int. Cl. F16h 3/38; B60k 21/04
U.S. Cl. 74—858 6 Claims

A device for automatically shifting gears by a reversing mechanism coupled with a comparison device, over which a circuit starting the deceleration of the engine is energized at a too high engine speed, related to the synchronism of the gear members to be coupled, and a circuit starting the acceleration of the engine is energized at a too low engine speed. A blocking circuit is connected with the reversing mechanism so as to block the transmission of a signal indicating the synchronisms on the gear shift motor or to prevent the formation of this signal



when changing from the acceleration of the engine to the deceleration of the engine, but which permits the direct transmission of the above-mentioned signal and the formation of this signal when changing from the deceleration of the engine to the acceleration of the engine. The switching arrangement has the effect that the engagement of a preselected gear is never effected, at least for an adjustable time period, during operating states with increasing engine speed.

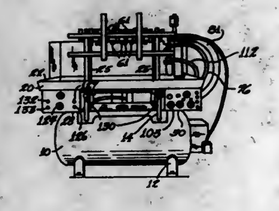
3,545,308
TOOL DEVICE AND METHOD AND APPARATUS FOR MAKING THE SAME
Robert E. Stutzke, Louisville, Ky., assignor to Vermont American Corporation, Louisville, Ky., a corporation of Kentucky
Filed Oct. 4, 1967, Ser. No. 672,860
Int. Cl. B23d 73/04, 71/00; B21k 21/00
U.S. Cl. 76—24 8 Claims



A tool for use in reducing work pieces and the like comprising a generally planar body member having a plurality of apertures formed therein by punch and die means, a cutting tooth struck from the body member by the punch and die means adjacent each of the apertures and having a cutting edge formed on the depending end

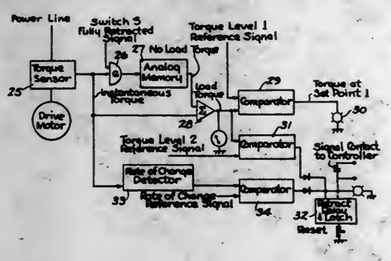
portion thereof, each cutting tooth being defined by parallel upper and lower surfaces and having rake and clearance angles selectively formed thereon, the apertures, depending cutting teeth, cutting edges, rake and clearance angles being formed by a single continuous cooperative engagement of the punch and die means.

3,545,309
MULTIPLE DRILL PRESS
J. Thomas Calhoun, 3305 Shores Blvd., Wayzata, Minn. 55391
Filed Sept. 20, 1968, Ser. No. 761,037
Int. Cl. B23b *39/22, 39/16*
U.S. Cl. 77—21 **9 Claims**



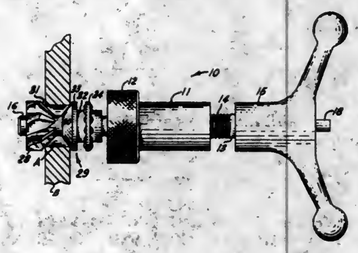
A multiple drilling machine in which a plurality of boring operations may be provided on a work piece simultaneously and from different positions with respect to the work piece and on varying surfaces of the work piece. The work piece is mounted in a jig fixture which also mounts the drill motors with associated feed and reverse actuators as well as coolant supplies for the drill bits and a clamping structure to hold the work piece in the jig fixture. The fluid or air supplies for the drill motors and actuators and the coolant source are provided through manifolds on the drill frame into which air and coolant under pressure is supplied under the control of valves for manual and automatic operation.

3,545,310
ADAPTIVE MACHINE TOOL CONTROL SYSTEM
Gordon H. Porath, Brighton Livingstone County, Philip J. Rosen, Oak Park, and Myron L. Greenberg, Union Lake, Mich., assignors to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed June 14, 1968, Ser. No. 737,217
Int. Cl. B23b *47/24*
U.S. Cl. 77—32.7 **49 Claims**



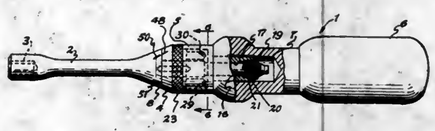
A machine control system wherein a tool on a tool support is movable toward and away from the workpiece and the torque on the tool is measured and continuously compared with the instantaneous value of no-load torque on the device that moves the tool and a warning signal is produced in the event that the torque differential exceeds a predetermined value. Means are also provided for comparing the rate of change of torque on the tool with a predetermined standard and producing a warning signal if the standard is exceeded.

3,545,311
DEBURRING TOOL
James T. Messer, Jr., Huntsville, Ala., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Aug. 12, 1968, Ser. No. 751,819
Int. Cl. B23b *51/16*
U.S. Cl. 77—73.5 **3 Claims**



A tool for deburring the rough edge of a drilled hole on the reverse or rear face of a piece of material through which the hole has been drilled.

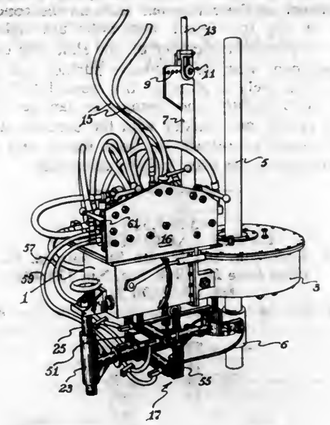
3,545,312
REVERSIBLE CAM LOCK DRIVER
Torsten F. Angquist, Jamestown, N.Y., assignor to Crescent Niagara Corporation, Buffalo, N.Y.
Filed Nov. 6, 1968, Ser. No. 773,706
Int. Cl. B25b *13/00*
U.S. Cl. 81—59.1 **6 Claims**



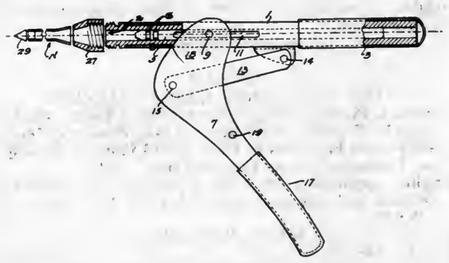
A reversible cam lock driver including a handle, a cup-shaped mounting member affixed to the handle, a tool supporting shank rotatably received within the mounting member, a plurality of wedging rollers disposed within the mounting member and adapted to lock the shank to the mounting member, and a shank mounted adjustment member having pins which serve to control positioning of the wedging rollers so as to permit reversal of the direction of driving rotation imparted by the handle to the shank.

3,545,313
COMBINED GRAPPLE AND BACK-UP TONG
Benjamin F. Kelley, 2711 E. 13th Place, Tulsa, Okla. 74104
Filed Oct. 30, 1969, Ser. No. 872,506
Int. Cl. B25b *13/50*
U.S. Cl. 81—57.34 **3 Claims**

In gas and oil field practice, a combined grapple for rotating a drill pipe or tubing and a back-up tong for holding a coupling on the tubing against rotation. The frame that carries the grapple also prevents the back-up tong from rotating about the axis of rotation of the grapple, but the back-up tong and grapple frame are movable relative to each other along that axis, and the back-up tong is slidable toward and away from that axis. The tong has specially articulated and hydraulically actuated gripping jaws to engage and grip in principal portion of the periphery of coupling.



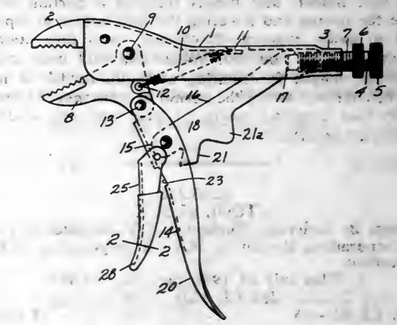
3,545,314
TIRE PLUGGER
Charles J. Docter, % Whale Art. Co. Inc., 6119 Virginia Ave., St. Louis, Mo. 63111
Filed Apr. 8, 1968, Ser. No. 719,557
Int. Cl. B60c *25/16*
U.S. Cl. 81—15.7 **4 Claims**



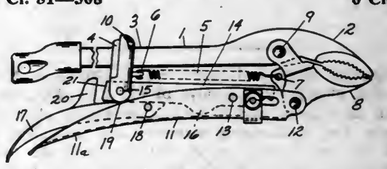
This disclosure relates to construction and use of a hand tool for inserting a puncture repair plug into a tire casing, from the exterior of the casing, the plug being of T-shape with a cylindrical shank and a relatively wide flat flexible head which is foldable toward the shank axis to be inserted into the tool and to be projected from the tool and inserted into the puncture. Separable members are used to shape the plug head and guide the plug while it is being inserted as indicated.

3,545,315
PLIERS
Frank Patrick, Meadville, Pa., assignor to Channellock, Inc., Meadville, Pa., a corporation of Pennsylvania
Filed May 9, 1968, Ser. No. 727,815
Int. Cl. B25b *7/12*
U.S. Cl. 81—368 **8 Claims**

The shock of releasing toggle pliers is reduced by cushion bumpers on the release lever which take effect when the toggle links reach the opening side of dead center. The effect is a two stage release where the heavy pressure is dissipated before the parts are allowed to move to the full open position. In a preferred form, the bumper of the release lever is squeezed against the actuating lever which comprises one of the toggle links.

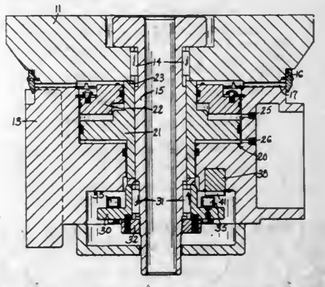


3,545,316
PLIERS
Frank Patrick, Meadville, Pa., assignor to Channellock, Inc., Meadville, Pa., a corporation of Pennsylvania
Filed July 11, 1968, Ser. No. 744,189
Int. Cl. B25b *7/12*
U.S. Cl. 81—368 **6 Claims**



The shock of releasing toggle pliers is reduced by a stop on the release lever which engages one of the toggle links when the knee of the toggle passes from the pressure to the opening side of dead center. The effect is a two stage release where the heavy pressure is dissipated before the parts are allowed to move to the fully released position. In a preferred form, the release lever is pivoted to the actuating level and has a stop engaging the toggle link associated with the actuating lever to arrest the parts at the first stage of release.

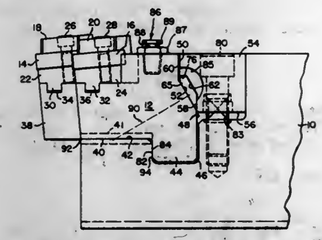
3,545,317
TURRET INDEXING MECHANISM
Walter Shultz, Newport, N.H., and Harmon Langdon, Springfield, Vt., assignors to Textron, Inc., Providence, R.I., a corporation of Rhode Island
Filed Dec. 4, 1967, Ser. No. 687,694
Int. Cl. B23b *29/32*
U.S. Cl. 82—36 **3 Claims**



This invention is directed to a mechanism for positioning a tool carrier of a turret lathe. In the preferred

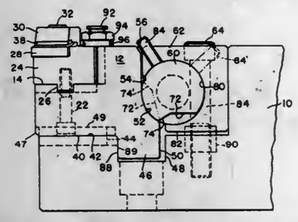
embodiment the invention comprises a base, a tool holder, tooth face coupling means on both the base and the tool holder, and means forming a portion of the base for raising and lowering the tool holder to separate and to cause engagement of said tooth face coupling means on both said tool holder and said base and, in addition, means for rotating said tool holder to index the mechanism during the period of time that the mating tooth face coupling means of said base and said tool holder are separated.

3,545,318
TOOL BLOCK
George B. Anderson, Rochester, N.Y., assignor to Farrel Corporation, Rochester, N.Y., a corporation of Connecticut
Filed July 25, 1968, Ser. No. 747,693
Int. Cl. B23b *29/06*
U.S. Cl. 82—36 **5 Claims**



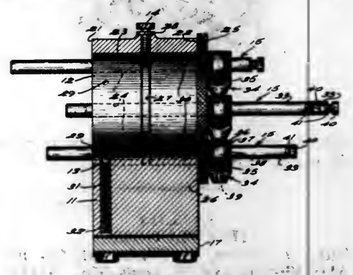
This tool block is formed with a tongue or projection that engages in a groove of the cross-slide, for instance, of a lathe, and is held releasably in place by a wedging bar, a clamping member, and bolts. The tool block has an inclined plane surface above the tongue or projection and inclined with reference to both the front side and the bottom of the groove. The wedging member has parallel top and bottom plane faces, and its bottom surface seats on the inclined plane surface of the block. When the bolts are tightened, the clamping member causes the wedging member to wedge the tool block against the front side of the groove. To remove the tool block, the bolts need only be loosened; the wedging member can then be slipped out; and the block lifted off the slide.

3,545,319
TOOL BLOCK
George B. Anderson, Rochester, and Frederic William Young, Canadaigua, N.Y., assignors to USM Corporation, Rochester, N.Y., a corporation of New Jersey
Filed Feb. 3, 1969, Ser. No. 795,819
Int. Cl. B23b *29/26*
U.S. Cl. 82—36 **7 Claims**



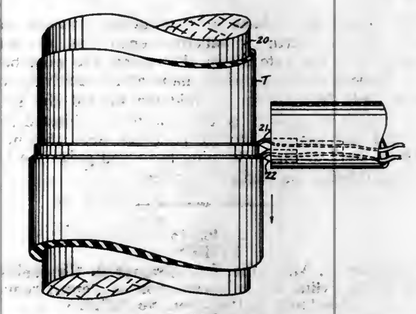
This tool block is formed with a tongue or projection that engages in a groove of the cross-slide, for instance of a lathe. It is held releasably in place by a clamp bar or cam that is rotatable in a clamping member. The tool block has a concave rear surface above the tongue or projection. The clamp bar or cam has a cylindrical surface around part of its periphery, but is recessed around the rest of its periphery. When the cylindrical portion of the periphery of the clamp bar seats on the concave rear surface of the tool block and bolts are tightened to tighten the clamping member on the slide, the clamp bar by engagement with said concave surface will lock the tool block securely in place on the cross-slide. By loosening the bolts slightly, the clamp bar can be rotated to bring its recess into registry with the concave surface of the tool block to release the tool block; and the tool block can readily be lifted off the cross-slide.

3,545,320
LATHE CARRIAGE STOP
Edwin J. Anderson, 102 N. 4th St., Aurora, Ill. 60505
Filed June 20, 1968, Ser. No. 738,498
Int. Cl. B23b *3/36*
U.S. Cl. 82—34 **6 Claims**



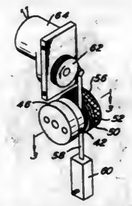
A lathe carriage stop includes a housing, a block rotatably and reversibly supported therein at predetermined angular positions, and a series of stop rods of adjustable effective length carried by the block and slidably removable therefrom without disturbing said effective length.

3,545,321
CLOSE TOLERANCE GASKET MAKING
Vernon A. Phelps, 1006 Avon, Ann Arbor, Mich. 48104; Merwin F. Read, Half Moon Lake, Pinckney, Mich. 48169; and Frederick E. Read, 23615 Filmore, St., Taylor Township, Wayne County, Mich. 48180
Original application Mar. 25, 1959, Ser. No. 801,918. Divided and this application May 13, 1963, Ser. No. 279,939
Int. Cl. B23b *1/00*
U.S. Cl. 82—47 **7 Claims**



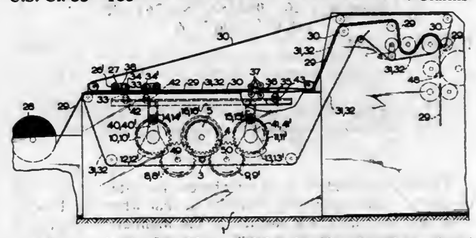
Making square cut gaskets from a tube of soft rubber having a hardness of less than 80 durometer on the A scale wherein the tube is first subjected to a turning operation utilizing a diamond cutting tool and thereafter severed into a plurality of gaskets.

3,545,322
SLITTING APPARATUS
Edward Zychal, Cornwells Heights, Pennsylvania, assignor to Zyco Manufacturing, Inc., Cornwells Heights, Pennsylvania a corporation of Pennsylvania
Filed Nov. 12, 1968, Ser. No. 774,720
Int. Cl. B26d *1/46*
U.S. Cl. 83—61 **11 Claims**



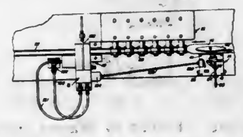
The apparatus slits tape by directing the tape to slitting stations disposed in series. The slitting stations may be disposed one above the other. At each station a narrow strip is slit from the tape by means of a strip blade which is adjustable so as to vary the cutting edge contact area. The apparatus is particularly adapted for slitting magnetic tape with great accuracy. In another embodiment a single slitting station is provided by slitting a predetermined width of movie film into two identical half portions.

3,545,323
PUNCHING APPARATUS FOR WORK ON CONTINUOUSLY MOVING WEBS IN BAG-MAKING MACHINES
Kurt Rochla and Karl-Heinz Trautmann, Lengerich, Westphalia, Germany, assignors to Windmoller & Holscher, Lengerich, Westphalia, Germany
Filed Jan. 15, 1968, Ser. No. 697,829
Claims priority, application Germany, Feb. 13, 1967, W43348
Int. Cl. B26d *1/56*
U.S. Cl. 83—185 **4 Claims**



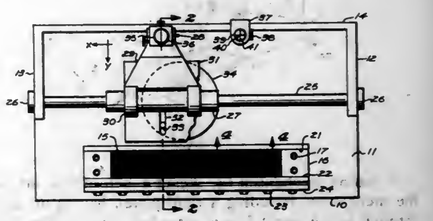
A flat carrier is movable parallel to itself and to the web on revolving carrying elements and carries the punching tools for producing all punched cuts which are to be formed in a workpiece section and spaced in the direction of travel of the web.

3,545,324
AUTOMATIC SHEARING DEVICE
Joseph C. Rauscher, Houston, Texas (322 S. Main St., Pasadena, TX 77502)
Filed Nov. 8, 1966, Ser. No. 592,887
Int. Cl. B26d *5/24, 5/40*
U.S. Cl. 83—363 **4 Claims**



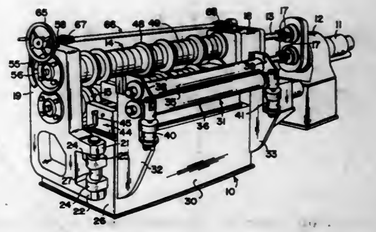
An automatic measuring and shearing device that allows fast moving continuous linear material to be cut into any length segments desired while maintaining the flow of the material.

3,545,325
CUTTING APPARATUS
Joseph R. Camasta, Covina, California, assignor to Aerojet-General Corporation, El Monte, California a corporation of Ohio
Filed Feb. 28, 1969, Ser. No. 804,056
Int. Cl. B26d *7/02*
U.S. Cl. 83—412 **14 Claims**



Cutting apparatus according to the present disclosure comprises a blade pack having a plurality of cutting blades mounted to a frame. A wafer support is supported by said frame for supporting a wafer, and adjustment means provided for adjusting the position of the wafer to the apparatus. Means is provided for moving the wafer support between a first position wherein a wafer supported thereon is in abutment with the blades and a second position wherein the wafer is spaced from the blade pack. Drive means is provided for moving the wafer support in a direction parallel to the cutting blades.

3,545,326
SWING TYPE ARBOR ATTACHMENT FOR QUICK TOOL CHANGES
John F. Madachy, 804 E. 254th St., Cleveland, Ohio
Filed May 16, 1968, Ser. No. 729,734
Int. Cl. B26d *1/24;* **B23d** *19/06;* **F16c** *35/06*
U.S. Cl. 83—433 **15 Claims**

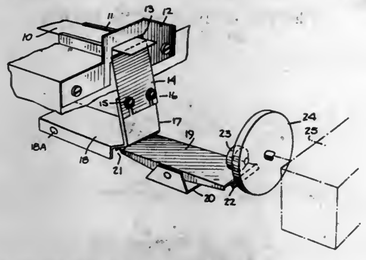


The disclosure relates to an arbor rotating machine having a base and end supports extending upwardly from the base at its ends. One of the end supports comprises a hinged horizontally swinging housing while the other end support is stationary. An arbor is rotatably mounted between the supports on eccentrics for movement toward and away from the base. The arbor has one end with a self-releasing taper to fit a complementarily shaped socket on the swinging end support. Tools mounted on the arbor may be rapidly changed by swinging the hinged housing into and out of alined supporting engagement with the tapered portion of the arbor.

3,545,327
FILM-CUTTING MECHANISM

Isidore Dorman, Whitestone, New York, assignor to NB Jackets Corporation, Woodside, New York a corporation of New York

Filed May 9, 1969, Ser. No. 823,261
Int. Cl. B26d *1/38, 5/08*
U.S. Cl. 83—542 6 Claims

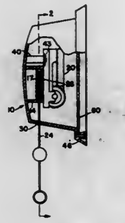


A cutting mechanism for slicing a web of film into strips, the mechanism including a rigid platen having an aperture through which uncut film is extended. Cooperating with the platen is a blade formed of flat spring metal, the blade being mounted on a rocker which, in its retracted or unraised position, lies in a plane parallel to the film below said platen, the blade extending upwardly from the rocker and being angularly disposed with respect to the platen so that only the cutting edge thereof is in contact therewith at a point below the film. When the rocker is raised by an operating element, the blade then flexes and presses against the platen as it slides upwardly thereagainst, to slice the film. When the operating element is withdrawn from the rocker, the spring tension on the blade is released to cause the rocker to resume its initial retracted position.

3,545,328
DOOR CHIME MUSIC BOX

Andrew Abrams, Freeport, New York (156 E. 52nd St., New York, NY 10022)

Filed Sept. 17, 1968, Ser. No. 760,747
Int. Cl. G10f 1/06, 33/04
U.S. Cl. 84—94 2 Claims

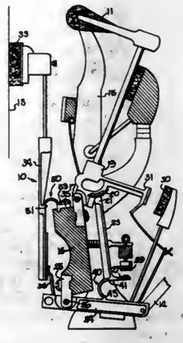


The invention relates to the use of Swiss music boxes as door chimes and the particular feature resides in providing a housing and mount for a music box which is simple and economical in manufacture and readily installed on a door or in conjunction with a door so as to be operated upon opening of the door. In particular, the invention comprises a housing of molded plastic having integral posts for the mounting of a conventional music box therein and a guard collar for a string wound pulley which winds up the music box. In addition, the housing provides integral elements usable as wells for receiving screws to fasten the device to a door or wall and also functioning as clips to hold a closure disk or plate across the otherwise open rear of the housing as a dust and protective cover.

3,545,329
PIANO ACTION

Phillip J. Roehrig, Kenmore, New York, assignor to Aurora Corporation of Illinois, Chicago, Illinois a corporation of Illinois

Filed March 28, 1969, Ser. No. 811,457
Int. Cl. G10c 3/16
U.S. Cl. 84—251 7 Claims



The whip and jack of a piano action are formed from plastic and are molded integrally with and interconnected swingably by a resiliently flexible hinge which is biased to urge the jack toward a normal rest position. The damper lever and supporting flange of the action also are molded of plastic and are interconnected swingably by a similar resiliently flexible hinge.

3,545,330
VIOLIN BOW TEACHING ATTACHMENT

Jeanne M. Nosco, 2418 Yale Ave., Royal Oak, Michigan

Filed Sept. 20, 1968, Ser. No. 761,175
Int. Cl. G10d *3/16*
U.S. Cl. 84—282 11 Claims

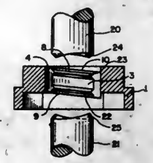


A violin bow including an attachment mounted on the end of the bow for supporting markers so that when the bow is manipulated adjacent a surface in the manner of playing a violin, the markers make a mark on the surface.

3,545,331
PREFORMED GROOVE CUTTING FASTENER STRUCTURE

George A. Tinnerman, Lakewood, Ohio (3600 Stewart Ave., Miami, FL 33133)

Filed April 22, 1968, Ser. No. 723,163
Int. Cl. F16b *37/00*
U.S. Cl. 85—32 8 Claims



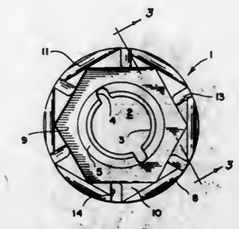
A fastener structure is formed by swaging groove cutting or self-tapping ribs or threads in the wall of an aperture, so the ribs will cut a groove or grooves in a stud rotated in the aperture. The walls surrounding the aperture are first deformed to provide helicoidal surfaces bordering the end of the aperture, and the wall is then swaged from the inclined edge to form a rib or thread from each surface of uniform height, or tapering in height according to the angle of the helicoidal surfaces.

The ribs may be formed at each end of the aperture, and the ribs or threads may also be formed to lie on the same helical path, so that the fastener may cut a single groove on a smooth shank or may engage a threaded shank.

3,545,332
THREADED FASTENER FORMATION

George A. Tinnerman, Lakewood, Ohio (3600 Stewart Ave., Miami, Florida 33133)

Filed Dec. 16, 1968, Ser. No. 783,880
Int. Cl. F16b *31/04; 39/282*
U.S. Cl. 85—62 6 Claims

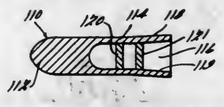


The clamping face of a nut is formed with a raised, rounded portion to provide rounded surface contact and reduce initial friction, and sharp projections to engage the member clamped to increase torque resistance when the applied torque is excessive. This formation may be applied specifically to the skirted wall of the nut which provides a cavity for a sealing compound.

3,545,333
METHODS OF MANUFACTURING CASELESS AMMUNITION FOR AIR IGNITION SYSTEMS

Jules Edmond Van Langenhoven, Benton County, Arkansas, assignor to Victor Comptometer Corporation, Chicago, Illinois a corporation of Illinois, by mesne assignments

Original application July 7, 1965, Ser. No. 473,556, which is a continuation-in-part of application Ser. No. 189,621, April 23, 1962, now abandoned. Divided and this application July 18, 1968, Ser. No. 760,109
Int. Cl. F42b *5/18*
U.S. Cl. 86—1 21 Claims



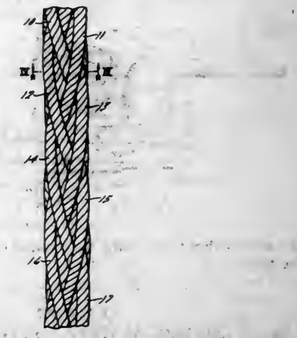
Caseless ammunition, propellant, and methods of manufacture thereof comprising a lead projectile to which a relatively large solid one-piece porous homogenous nitrocellulose colloid is attached after mixing nitrocellulose and nitrocellulose solvent and a filler to form a wet doughy mixture of colloided nitrocellulose and filler of particular size and amount providing a predetermined degree of porosity and from which a relatively large one piece body of colloided nitrocellulose and filler is formed into a size and shape corresponding to the size and shape of the caseless ammunition propellant with the filler being thereafter removed from the formed body.

3,545,334
BRAIDED ROPE SLING

Raymond F. Dudley, 11527 Maxwell, Warren, Michigan

Filed Dec. 4, 1969, Ser. No. 881,956
Int. Cl. D04c *1/12*
U.S. Cl. 87—8 1 Claim

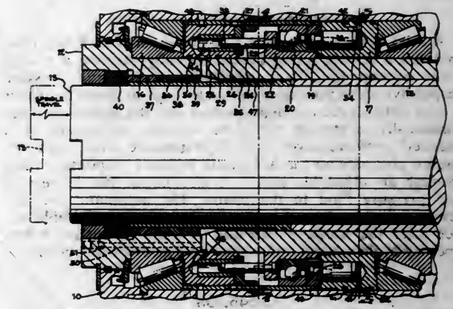
A flexible sling for heavy loads consists of eight ropes braided together in a manner which provides a member of square cross section having its greatest density and greatest strength per unit volume along its four corners, successive ropes being repeatedly and alternately plaited in a generally helical path at opposite but equal helix angles and each rope passing always under the same two of the other ropes and then around the other five of the ropes. Lateral displaceability of the ropes tends to distribute loadings among the several ropes and permits limited stretching to reduce shock.



3,545,335
SPINDLE CLAMP

Robert A. Lehmkuhl, Cincinnati, Ohio, assignor to The Carlton Machine Tool Company, Cincinnati, Ohio a corporation of Ohio

Filed Dec. 5, 1968, Ser. No. 781,567
Int. Cl. B23c *1/02*; B23b *39/02*
U.S. Cl. 90—11 5 Claims



A spindle clamp for a machine tool for centering the spindle with sufficient rigidity in the radial direction to resist cutting loads and with sufficient rigidity to resist axial cutting loads utilizing a pressure cylinder for distorting the sleeve in which said spindle is carried and circular wedges for centering the spindle.

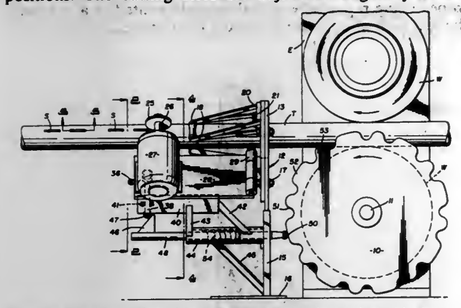
3,545,336
APPARATUS FOR FORMING SLITS IN AN ELONGATED LINEARLY MOVING TUBE

Charley Savko, 726 E. Lincoln Ave., Columbus, Ohio

Filed April 8, 1969, Ser. No. 814,331
Int. Cl. B23c *3/00*; B26d *3/06*
U.S. Cl. 90—15 5 Claims

Apparatus operated in timed sequence to an extruded tube to slit the tube at longitudinally-spaced intervals with radially-disposed cutting discs which are movable radially in and

out relative to the tube between operative and inoperative positions. The cutting discs are adjustable angularly about



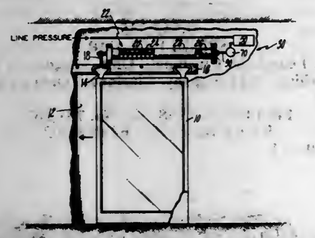
the tube without disturbing their radial orientation relative to the tube.

3,545,337

FLUID CONTROL SYSTEMS FOR POWERED PANELS

Harold W. Ferguson, New Hartford, Connecticut, assignor to The Stanley Works, New Britain, Conn. a corporation of Connecticut

Filed Aug. 6, 1968, Ser. No. 750,633
Int. Cl. F15b *21/02*
U.S. Cl. 91—38 **10 Claims**



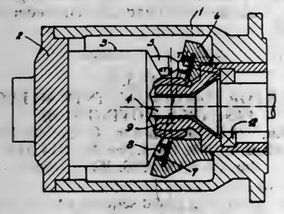
A fluid control system for a powered panel such as a door includes a double-acting piston normally exerting a closing force against the door, wherein an automatic pressure responsive valve provides fluid under high pressure to deliver a high initial force to open the door and the system then automatically continues the door opening movement at a reduced pressure level. The high-pressure fluid from the source also acts on the automatic pressure responsive valve through an adjustable orifice to discontinue the delivery of high-pressure fluid to the piston. The automatic pressure responsive valve is reset gradually through the adjustable orifice after the traffic passes and is ready to initiate a new opening cycle without completion of a prior closing cycle.

3,545,338

HYDRAULIC ROTARY BARREL PUMPS OR MOTORS

Rene Lucien, Neuilly sur Seine, France, assignor to Societe Anonyme dite: Messier, Paris, France

Filed Dec. 1, 1966, Ser. No. 598,410
Claims priority, application France, Dec. 3, 1965, 40,932
Int. Cl. F04b *1/02*
U.S. Cl. 91—507 **5 Claims**



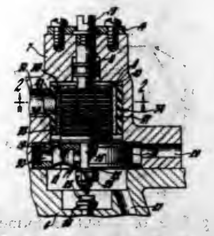
A hydraulic pump or motor of the so-called rotating and floating barrel type wherein a bearing is placed between a fixed support and the barrel, the bearing being of small diameter and disposed at the point of application on the geometric axis of the barrel of the resultant of the shearing forces applied to the barrel so as to absorb said shearing forces and permit the barrel to make slight angular movements with respect to the geometric axis.

3,545,339

DAMPING

Edgar W. Sickmeier, Greenwood, Indiana, assignor to General Motors Corporation, Detroit, Michigan a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 780,066
Int. Cl. F01b *19/04*; F16j *3/00*
U.S. Cl. 92—41 **1 Claim**



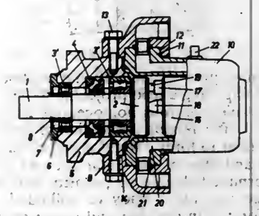
An arrangement for damping vibration of an aneroid bellows fixed at one end mounted in a chamber. In one form, a rubber cup lining the chamber has ridges which extend axially of the bellows and engage the convolutions of the bellows. In another form, rubber rods mounted on the wall of the housing engage the convolutions of the bellows.

3,545,340

AXIAL PISTON UNIT

Gerhard Bobst, Oensingen and Walter Kaser, Niederbipp, Switzerland, assignors to Von Roll AG., Gerlafingen, Switzerland a corporation of Switzerland

Filed June 3, 1968, Ser. No. 734,152
Claims priority, application Switzerland, June 14, 1967, 8390/67
Int. Cl. F01b *13/04*; F04b *1/02*
U.S. Cl. 92—57 **7 Claims**



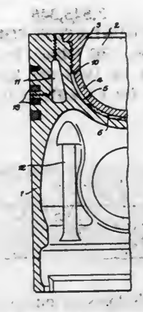
An axial piston unit of the type having an inclined axis, comprising a support body means and a pivotal head means. A pivotal body means including pivot pin means serves to mount the pivotal body means by means of such pivot pin means at the aforesaid pivotal head means, said pivotal body means being pivotable relative to said support body means. Means serve for detachably connecting the pivotal head means with the support body means through the provision of a frictional contact connection.

3,545,341

INTERNAL COMBUSTION ENGINE PISTON COOLING

Hans Fischer, Nurnberg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany

Filed July 11, 1968, Ser. No. 744,017
Claims priority, application Germany, July 15, 1967, 1,576,733
Int. Cl. F01b *31/08*
U.S. Cl. 92—176 **1 Claim**



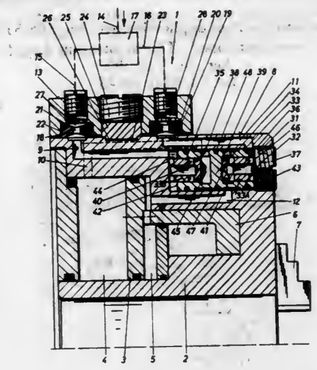
An internal combustion engine piston has an inner cooling space partially filled with a coolant having a melting point from about 180 °to 250°C, and a separate outer cooling space in which the coolant is lubricating oil. This facilitates cold starting.

3,545,342

PRESSURE FLUID SUPPLY APPARATUS

Karl Hiestand, Pfullendorf, Musserer, Germany, assignor to Firma SMW Spanneinrichtungen Schneider, Manz und Weisshaupt OHG, Friedrichshafen, Germany a partnership of Germany

Filed Aug. 16, 1968, Ser. No. 753,265
Claims priority, application Germany, Sept. 9, 1967, H63,836
Int. Cl. F01b *31/00*; F16l *15/00*
U.S. Cl. 92—106 **9 Claims**



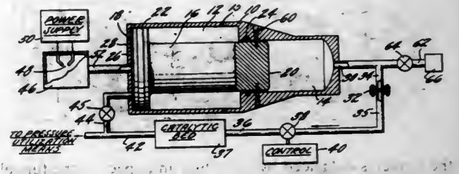
Admitting means for a pressure fluid to a pressure fluid actuated apparatus, the apparatus having a cylinder element containing pressure fluid actuated means and having a cylindrical outer surface. The admitting means comprise a ring that surrounds said cylinder element and is slightly spaced from the outer surface. The ring has one (or more) annular groove that faces the outer surface of the cylinder element, with pressure fluid conduits connected thereto. The cylinder element has pressure fluid channels terminating in said cylindrical surface opposite said groove. For sealing said groove against said cylindrical surface, an annular seal is placed in said groove.

3,545,343

WELDED FLUID SEAL

Einar M. Orbeck, West Hartford, Connecticut, assignor to United Aircraft Corporation, East Hartford, Connecticut a corporation of Delaware

Filed April 15, 1968, Ser. No. 721,328
Int. Cl. F16j *15/02, 15/16*
U.S. Cl. 92—165 **5 Claims**



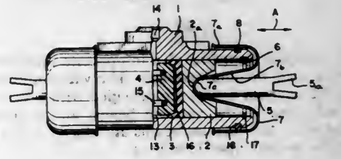
A deep weld between a piston and a cylinder provides a metallic seal for fluid to be stored over a long period of time. The dimension of the weld is chosen so that it will shear in response to a determined force on the piston; a frangible disk may seal the other end of the fluid holding cylinder chamber. Inserts may be provided having a lower shear constant than that of the metal of which the cylinder or the piston need be formed. Preshaping of the joined area provides close tolerance of force required to shear with less tolerance on the weld itself.

3,545,344

WHEEL-BRAKE CYLINDER OR THE LIKE

Walter Fuchs, Bad Homburg, Vonder Hohe, Erich Runge, Frankfurt am Main, Juan Belart, and Gert Schrader, Walldorf, Hessen, Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Germany a corporation of Germany

Filed Feb. 28, 1968, Ser. No. 708,955
Claims priority, application Germany, March 1, 1967, T33318
Int. Cl. F16j *11/04, 15/44*
U.S. Cl. 92—165 **6 Claims**



A hydraulic cylinder whose piston is coupled with a rod via a link member, especially a wheel-brake cylinder for internal-expansion or drum-type brakes, in which a pressure link is received in a socket in the end of the piston turned toward the open end of the cylinder, comprising a metallic dust-excluding cap closing this end of the cylinder and engaging the outer periphery thereof while being axially shiftable relatively to the cylinder jointly with the piston and having a craterlike inwardly extending portion held in the socket of the piston by the pressure member.

3,545,345

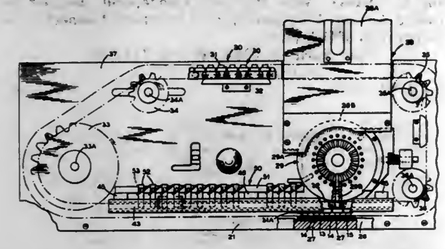
METHOD AND APPARATUS FOR MAKING CIGARETTE FILTER TIPS

Theodore F. Aronson, Glen Cove, N.Y., assignor to Perry Industries, Inc., Hicksville, N.Y. a corporation of Delaware

Filed Oct. 17, 1968, Ser. No. 768,416
Int. Cl. B31d
U.S. Cl. 93—1 **12 Claims**

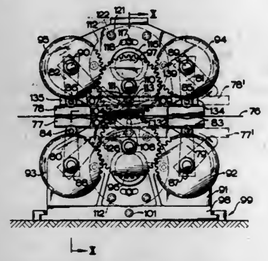
This disclosure relates to a method and apparatus for making cigarette filter tips having a portion thereof formed of a readily absorbent type of filter material, as for example granulated charcoal or the like in which a predetermined amount of the flowable absorbent filtering material are successively disposed in the spaces defined between filter plugs spaced along a moving strip of wrapper material by means of

an endless line of funnel means moving in unison with the strip of wrapper material. The flow of filter material through



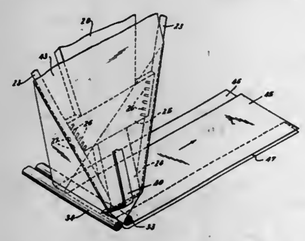
the funnel is enhanced by imparting an impact to the funnels as the funnels move with the wrapper.

3,545,346
APPARATUS FOR PULLING OPEN THE ENDS OF TUBE SECTIONS OF PLASTICS MATERIAL
Fritz Achelpohl, Lengerich, Westphalia, Germany, assignor to Windmoler & Holscher, Lengerich, Westphalia, Germany
Filed April 25, 1968, Ser. No. 723,991
Claims priority, application Germany, May 2, 1967, W43900
Int. Cl. B31b *1/76*
U.S. Cl. 93—28 **8 Claims**



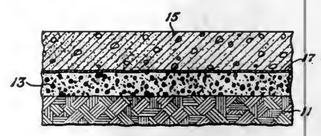
Two vacuum beams revolve in opposite directions and are provided with vacuum openings. The vacuum conduits leading to the vacuum beams are provided with a valve, which is disposed close to the vacuum beams and is automatically opened when the vacuum beams are closed and is held open during the pulling-open operation.

3,545,347
WEB-FEED ARRANGEMENT FOR PRODUCING GUSSETED BAGS
John D. Sylvester, Garden City, New York and John D. Keenan, Jr., Caldwell, New Jersey, assignors to Amsco Packaging Machinery, Inc., a corporation of New York
Filed April 10, 1969, Ser. No. 815,103
Int. Cl. B31b *45/00;* **B31d** *5/04;* **B31f** *1/00*
U.S. Cl. 93—84 **9 Claims**



Web of bagmaking sheet material is drawn over a sheet-folding device, including a pair of converging rods spaced apart at the delivery end of the device, to initiate longitudinal folding of the web into two overlapping plies. Folded web bent around roller spaced in direction of web movement from delivery end of sheet-folding device. Guide finger projects into space between roller and delivery end of device to push central portion of web between two overlapping plies to initiate formation of a relatively narrow four-ply web portion which ultimately forms gusset at one end of each bag.

3,545,348
RESILIENT FOUNDATION FOR CONCRETE
Sylvester L. Anderson, 1502 Edison, Bridgeport, Tex. 76026
Filed Feb. 18, 1969, Ser. No. 800,076
Int. Cl. E01c *7/10*
U.S. Cl. 94—10 **11 Claims**



This specification discloses an improvement in a method of constructing a concrete slab over a relatively flat base between retaining walls, characterized by:

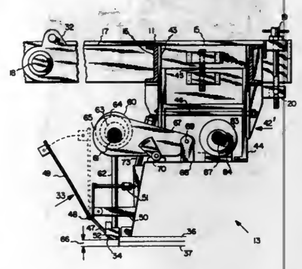
(*a*) depositing on the base a layer of solid particles that are resilient and hydrophobic. the layer being of sufficient thickness to effect a discrete layer of the particles at the top of the base:

(*b*) pouring a concrete slurry over the layer of particles: and

(*c*) allowing the concrete to set.

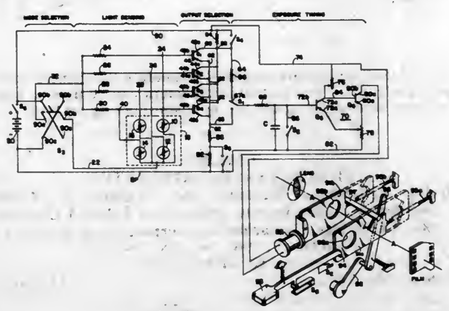
Moreover, the resulting article of manufacture, as well as specific limitations on the properties of the particles are disclosed.

3,545,349
SELF-PROPELLING PAVING MACHINE
Hans-Gert Otterman, 6 Hammelstein 325, Hameln and Gottfried Henrich, 15 Friedrick-Grabbe-str. 3251, Klein Berkel, Germany
Continuation-in-part of application Ser. No. 508,519, Nov. 18, 1965, now abandoned . This application Aug. 1, 1968, Ser. No. 749,399
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 **4 Claims**



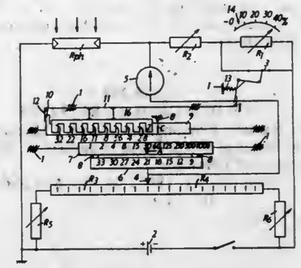
Automotive road finishing machine for a mechanized distribution and compacting of road building material for road construction having a frame with a front plate secured thereon and a tamping beam movable vertically and arranged on the frame together with a smoothing screed. The impact height of the tamping beam is adjustable and a plurality of vibrators on the smoothing screed are operable as to their frequency which is maintained independent of the impact rhythm of the tamping beam.

3,545,350
EXPOSURE CONTROL SYSTEM FOR PHOTOGRAPHIC APPARATUS
Thomas A. O. Gross, Lincoln, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed May 1, 1968, Ser. No. 725,882
Int. Cl. G03b *7/08;* **G01j** *1/44*
U.S. Cl. 95—10 **16 Claims**



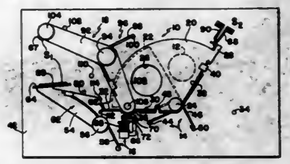
A photographic exposure control system using a plurality of photoconductive devices, each of which gauges light intensity over a portion of the scene being photographed. The system selects the output signal of that photoconductor representing an extreme of light intensity. This selected signal is then incorporated within the exposure value adjustment mechanism of a camera. The system may be switched to select the output of the photoconductor receiving the least intensity of illumination or that receiving the highest intensity of illumination.

3,545,351
PHOTOGRAPHIC CAMERA WITH EXPOSURE METER
Erich Hahn and Lothar Brust, Dresden, Germany, assignors to VEB Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany
Filed Feb. 19, 1968, Ser. No. 706,238
Int. Cl. G01j *1/16;* **G03b** *7/00*
U.S. Cl. 95—10 **8 Claims**



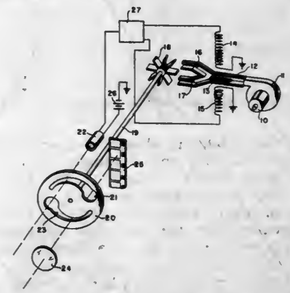
A photographic camera having an exposure meter device in which a photoelectric cell thereof, within the camera housing is illuminated by image rays of an objective lens of the camera. The rays pass through a lens diaphragm prior to illumination of the photoelectric cell, which is settable in a fully open position or a partly closed position to any desired diaphragm aperture. The exposure meter device includes a reference value selector for providing a reference for the device according to the setting of the lens diaphragm, balance or shutter speed ring adjustable relative to the reference value selector and an indicator for determining the point of balance of the device, whereby camera exposure factors are obtained relative to the reference.

3,545,352
EXPOSURE CONTROL APPARATUS FOR A PHOTOGRAPHIC CAMERA
Alfred H. Bellows, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed May 24, 1968, Ser. No. 731,942
Int. Cl. G03b *7/08, 9/16*
U.S. Cl. 95—10 **3 Claims**



A shutter arrangement for photographic apparatus in which a manually operated shutter actuator member is designed to perform two functions during an exposure sequence. As the actuator member is manually depressed. it first contacts a holding latch which. in turn. causes the independent and exposure causing release of spring driven shutter blades. Manual release of the spring loaded actuator member permits its engagement of the released shutter blades and causes their return to an initial. preexposure position. The spring load upon the actuator member is sufficient to overcome the forces exerted by springs driving the shutter. The arrangement is characterized in providing for somewhat consistent and undeviating manual release pressures throughout an exposure sequence.

3,545,353
PNEUMATIC EXPOSURE CONTROL
Allen G. Stimpson, Rochester, New York, assignor to Eastman Kodak Company, Rochester, New York a corporation of New Jersey
Filed Sept. 19, 1968, Ser. No. 760,818
Int. Cl. G03b *7/08, 9/04, 19/18*
U.S. Cl. 95—10 **9 Claims**

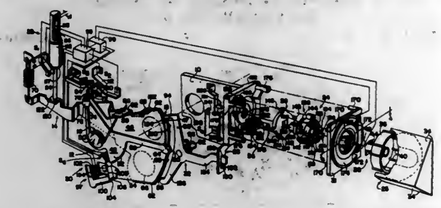


An exposure control diaphragm for a movie camera is controlled by rotation of an air motor. The motor is driven alternatively in opposite directions by a stream of air generated from a fan or blower connected to the camera film drive motor. A photocell generates a signal in response to ambient light conditions which is transmitted to a transducer having a vane in the air stream. The vane is moved in response to the signal to deflect the air stream to one side or the other of the air motor to adjust the position of the exposure control diaphragm.

3,545,354
PHOTOGRAPHIC EXPOSURE CONTROL APPARATUS
William J. McCune, Jr., South Lincoln, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed March 6, 1968, Ser. No. 710,922
Int. Cl. G03b *15/035*
U.S. Cl. 95—11 **9 Claims**

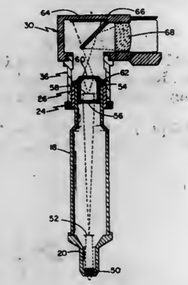
This disclosure involves photographic exposure control apparatus usable with a multilamp photoflash assembly. The ap-

paratus is operable according to an ambient mode and a photoflash mode and is capable of sequentially advancing each of a plurality of lamps of the multilamp photoflash assembly to a position for ignition in timed relationship to sequential photographic exposures during operation accord-



ing to the flash mode. When a first lamp is located for ignition, the apparatus is conditioned for operation according to the flash mode; and when the last lamp moves from the position for ignition, the apparatus is automatically conditioned for operation according to the ambient mode.

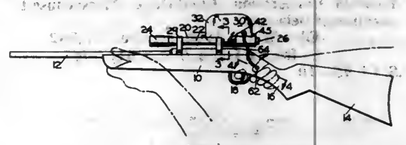
3,545,355
PHOTOMICROGRAPHY SYSTEM
Walter Lawrence Cahall, Jr., Box 424, South Duxbury, Massachusetts
Filed Aug. 30, 1968, Ser. No. 756,508
Int. Cl. G03b *29/00*
U.S. Cl. 95—12 **8 Claims**



Apparatus for facilitating photomicrography comprises a plurality of microscopes and a camera. A compensating structure is permanently secured to the tube of each microscope. Each compensating structure includes a seating surface and an outer cylindrical surface of predetermined dimension greater than the maximum dimension of the microscope eyepiece that is located above the seating surface. The camera has an adapter member attached to its lens mount. The adapter member has a barrel portion with an interior cylindrical surface that mates with the outer cylindrical surfaces of all of the compensating structures and a seating surface at the end remote from the lens mount coupling that seats on the seating surface of the compensating structure. A photomicrograph of a specimen on the stage of the microscope may be taken by the camera through the eyepiece lens, or the specimen on the stage may be viewed visually through the eyepiece lens merely by lifting the camera to slide the attached adapter member off the compensating structure.

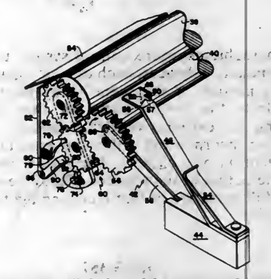
3,545,356
CAMERA TELESCOPE APPARATUS FOR GUNS
Jens C. Nielsen, 3910 S. E. 65th Ave., Portland, Oregon
Continuation of application Ser. No. 562,875, July 5, 1966, now abandoned. This application April 7, 1969, Ser. No. 816,158
Int. Cl. G03b *29/00*
U.S. Cl. 95—12 **2 Claims**

The invention includes a camera-telescope in combination with a gun. To accomplish the object of the invention, a camera is combined in structure with a telescope and this combination is attached to a gun. In such attached position, the camera is arranged to photograph the image of the telescope. Control means are provided adjacent to the hand



grip of the gun and are arranged to operate the camera independently of the gun so that said camera can be used to take pictures while sighting the gun or when shooting, or both.

3,545,357
FILM ADVANCING APPARATUS
Irving Erlichman, Wayland and William J. Rosen, Dorchester, Massachusetts, assignors to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 764,142
Int. Cl. G03b *17/50*
U.S. Cl. 95—13 **11 Claims**



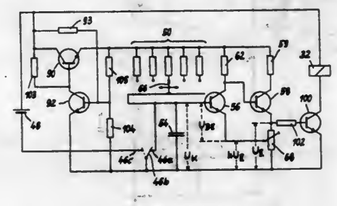
A selfdeveloping camera including an exit opening, structure for supporting a film unit in position for exposure, a reciprocating pick for engaging and moving the film unit subsequent to exposure into the nip of a pair of processing rolls and means for driving the rolls and the pick. Mounted between the exit opening and the processing rolls is a member which functions as (1) a light barrier, (2) a means for gripping and retaining the trailing end of the film unit within the camera, and (3) a means for uncoupling the pick from the drive means.

3,545,358
MOLDED CAMERA BELLOWS
Robert H. Russell, Framingham Center, Massachusetts, assignor to Polaroid Corporation, Cambridge, Massachusetts a corporation of Delaware
Filed Oct. 11, 1967, Ser. No. 674,390
Int. Cl. G03b *17/04*
U.S. Cl. 95—39 **7 Claims**



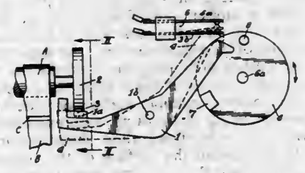
A camera bellows structure molded of a plastic material in such a way that fold lines are formed on either side of a central hinge connecting portion to facilitate controlled bending of the bellows.

3,545,359
PHOTOGRAPHIC SHUTTER
Paul Fahlenberg, Baierbrunn, near Munich, Wilhelm Pross, Munich, and Heinrich Wildfeuer, Munich-Aubing, Germany, assignors to Compur-Werk Gesellschaft mit beschrankter Haftung & Co., Munich, Germany a German firm
Filed May 6, 1968, Ser. No. 726,695
Claims priority, application Germany, May 8, 1967, C42258
Int. Cl. G03b *9/00*
U.S. Cl. 95—53 **3 Claims**



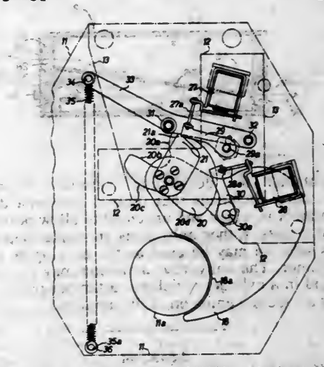
A photographic shutter is arranged to have the exposure time controlled by an electronic circuit including a plurality of transistors. To avoid timing errors which might otherwise be caused by changes in the characteristics of the transistors as a result of changes in temperature, the circuit is so arranged that the temperature gradient of one transistor is compensated by the temperature gradient of another transistor.

3,545,360
DEVICE FOR THE ELECTRONIC CONTROL OF CURTAIN SHUTTERS
Willi Guenther, Gammertinger Strasse 7, Stuttgart-Mohringen and Werner Zink, Uhloergstrasse 12, Aich Kreis, Nurtingen, Germany
Filed Jan. 4, 1968, Ser. No. 695,718
Claims priority, application Germany, Jan. 10, 1967, Z12,635
Int. Cl. G03b *9/28*
U.S. Cl. 95—57 **5 Claims**



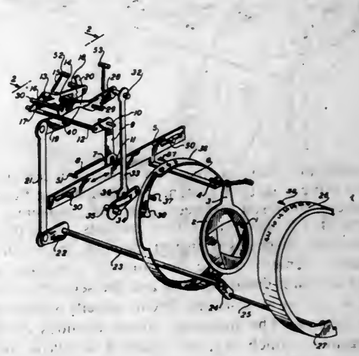
A single lens mirror reflex camera is equipped with a curtain shutter suitable for making exposures of very short durations, such as one five-hundredth and one one-thousandth of a second. The mechanism for operating the automatic diaphragm and reflecting mirror is operatively coupled with a control member which controls the release of the two curtains of the curtain shutter, whereby the release of the second curtain is electronically controlled in relation to the desired short exposure time by a device providing an electronically produced magnetic field. This device includes a switch connected with an RC circuit and operated by the control member, and a control stop in the mirror operating mechanism of the camera effects an operation of the control member for unlocking the first curtain and also controls in timely relationship thereto the switch for the RC-means to control said magnetic field, in which the switch has contacts which are adjustable with respect to time so as to form a contact control of the switch member.

3,545,361
APPARATUS FOR ACTUATING SHUTTER BLADES OR THE LIKE
Hans-Ado Brandt, Munich, Germany, assignor to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 24, 1968, Ser. No. 739,481
Claims priority, application Germany, June 23, 1967, 56,075
Int. Cl. G03b *9/20*
U.S. Cl. 95—61 **15 Claims**



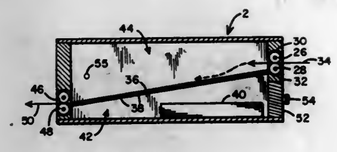
A shutter blade or a group of filters is moved across and away from the path of light in a camera or printer by a rotary member biased by two springs one of which acts upon the rotary member by way of a cam and follower assembly. The one spring dissipates energy during a first stage of movement of the rotary member to accelerate the latter, and stores energy during the next following stage to thus decelerate the rotary member. The other spring is stressed by a motor and biases the rotary member with a force which suffices to compensate for friction.

3,545,362
AUTOMATIC EXPOSURE CONTROL DEVICE IN THE FLASH LIGHT PHOTOGRAPHY
Kiyoshi Kitai, Tokyo, Japan, assignor to Kabushiki Kaisha Hattori Tokeiten
Filed June 6, 1967, Ser. No. 643,892
Claims priority, application Japan, June 10, 1966, 41/37035
Int. Cl. G03b *7/00*
U.S. Cl. 95—64 **5 Claims**



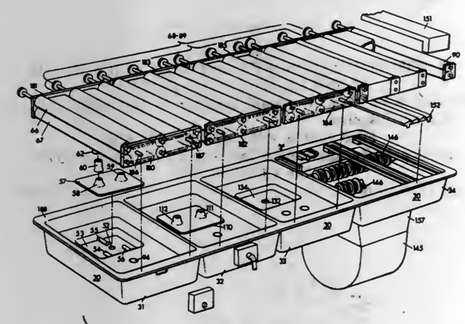
This invention relates to cameras and comprises an automatic exposure control device for setting camera shutter in accordance with movement of first and second control members, such as numbered rings, so that the operator, by adjusting the position of the rings, will in turn actuate sensing means, correspondingly moving a translating lever connected to the camera shutter mount, thus moving the camera shutter to the degree so determined.

3,545,363
DEVELOPING CONTAINER
Charles W. Bricher, 531 Raymond Ave. and James E. Hawley, 1000 Seminary Ave., St. Paul, Minnesota
Filed July 15, 1968, Ser. No.
Int. Cl. G03d 7/00
U.S. Cl. 95—89 11 Claims



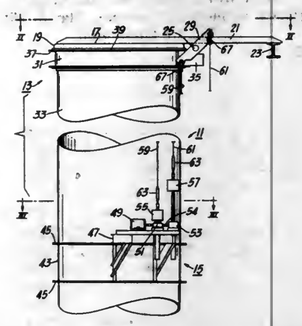
A container for developing materials having coated thereon diazo chemicals that require ammonia developing. The container is sealed and unvented to allow portable use in confined spaces. Either anhydrous ammonia or ammonia in aqueous solution may be used as the developing agent with the container. The anhydrous ammonia may be compressed as a liquid in a cylinder which has a tamper-proof valve that prevents accidental emission of the ammonia.

3,545,364
PHOTOGRAPHIC PROCESSING APPARATUS
Richard C. Reedy, Melrose; and Donald V. Baker III, Brighton, Massachusetts, assignors to Cordell Engineering, Incorporated, Everett, Massachusetts
Filed May 4, 1967, Ser. No. 636,097
Int. Cl. G03d 3/12
U.S. Cl. 95—89 23 Claims



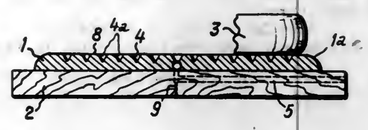
Automatic photographic film processor having a horizontal drive transport system with processing fluid plenum chambers disposed between pairs of resiliently bearing rollers. The transport system consists of a plurality of sequentially disposed transport elements in which the first transport element of the horizontally arranged system is driven at a first linear velocity and the second transport element is driven at a second linear velocity which is greater than the first. The transport system includes a slip clutch arrangement which may be adjusted to allow the second transport element to slip when it engages the film being transported through the processor. Recirculation pumps direct processing fluids across the photographic film along a plane parallel to the film and opposing curtains of processing fluid across the film in a plane perpendicular to the direction of motion of the film. A dryer couples opposing curtains of dry heated air to the film in a plane perpendicular to the direction of film motion. A random access loading box has separate compartments for separably loading the film.

3,545,365
CLOSURE FOR EXHAUST STACK
Earle S. Snader, Ellicott City, Maryland, assignor to Koppers Company, Inc., a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,397
Int. Cl. F23l 17/10
U.S. Cl. 98—59 2 Claims



A closure for an exhaust stack includes a hinged member that is counterweighted and is pivoted by cables connected to screwjacks. The screwjacks are motor-driven or they may be manually driven in case of a power failure.

3,545,366
APPARATUS FOR STORING WHEELS OF CHEESES
Hans Bruhin, Siebnen, Switzerland
Filed Sept. 11, 1967, Ser. No. 666,675
Int. Cl. A23c 19/00
U.S. Cl. 99—243 4 Claims

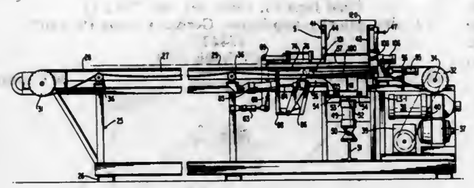


A method of and apparatus for storing wheels of cheeses. The method contemplates the steps of placing a wheel of cheese upon a support, and forming by means of a pressurized fluid medium at the underside of the wheel of cheese a fluid circulation or a fluid cushion. The apparatus for carrying out the method of storing wheels of cheeses comprises at least one support member for a wheel of cheese, such support member having an upper surface provided with at least one groove means for distributing the pressurized fluid medium. Further, a pressurized fluid medium-conduit means emerges from beneath the surface of the support member, and said pressurized fluid medium-conduit means is adapted to be connected to a source of pressurized fluid medium for delivering the latter to the aforesaid support member.

3,545,367
CLEAT STACKING APPARATUS
Bonner L. Smith, North Augusta and Joe D. Smith, Orangeburg, South Carolina, assignors to Still-Water Tool & Manufacturing Company, Orangeburg, South Carolina a corporation of South Carolina
Filed May 1, 1969, Ser. No. 820,858
Int. Cl. B65g 57/30
U.S. Cl. 100—7 16 Claims

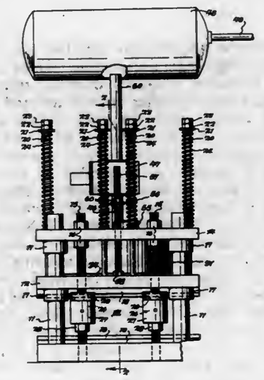
A continuously moving endless belt bed conveys cleats from a sawing machine to a stacking station where individual layers of cleats are elevated to produce a multiple layer stack containing the desired total number of cleats. The resulting stack is shifted by an ejecting means to a tying station where the stack is tightly bound with a tying element for subsequent handling or shipment. The apparatus includes means for counting the number of cleats in a single layer and for truing

or straightening the procession of cleats periodically on the conveyor belt bed and also means for assuring complete entry of each layer into the stacking hopper regardless of



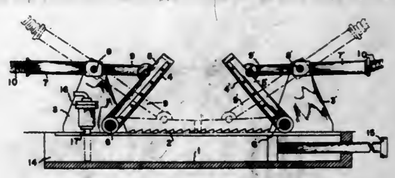
splintering or other irregularities in the cleats. The various apparatus components are timed in their operation by simplified electrical controls.

3,545,368
PNEUMATIC PRESS
Robert Paul Lickliter, 113 Buffalo St.; Earl Abbott, 18 Dudley Ave., Hamburg, N.Y. and John F. Reeves, Tonawanda, N. Y., said Reeves assignor to said Lickliter and said Abbott
Original application Dec. 27, 1966, Ser. No. 604,955, now Patent No. 3,450,037, dated June 17, 1969. Divided and this application March 10, 1969, Ser. No. 805,411
Int. Cl. B30b 15/16
U.S. Cl. 100—49 5 Claims



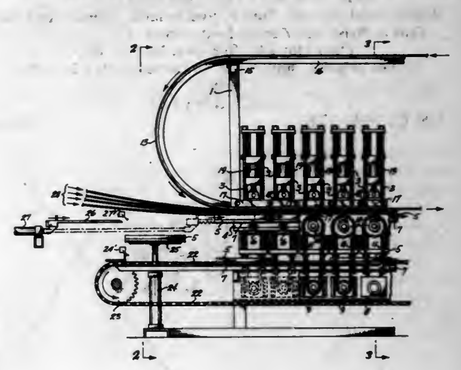
The press has a pneumatically operated piston and cylinder mounted between a height adjustable upper plate and a ram plate for driving the latter downwardly on guideposts into a dieset area against resilient, height adjustable, stops whereby the ram plate rebounds upwardly to assist the spring retraction thereof. The piston face carries resilient stops which, together with the dieset area stops, reduce the noise at both ends of the ram plate stroke. A control includes a first electrical circuit having a latching relay for conditioning a second electrical circuit which operates an air valve to introduce air to the cylinder and thereby move the ram plate when the presence of a workpiece causes a switch to interrupt the first circuit and complete the second circuit. A height adjustable control switch is actuated by the ram plate before the end of the downstroke to complete a third electrical circuit to release the latching relay to interrupt the second circuit and thereby to stop inflow of air into the cylinder.

3,545,369
CUTTING AND DISPOSING APPARATUS FOR IRON SCRAPS AND THE LIKE
Sataro Tokushima, No. 8, 4-chome, Fukagawa-Takahashi, Koto-Ku, Tokyo, Japan
Filed April 10, 1968, Ser. No. 720,202
Int. Cl. B30b 9/32; B02c 18/02, 1/04
U.S. Cl. 100—98 2 Claims



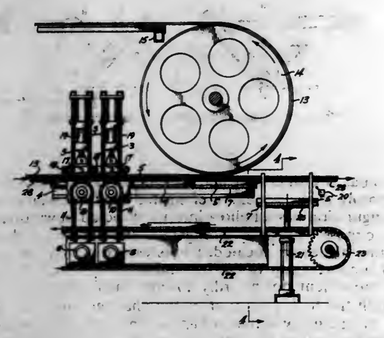
Apparatus for cutting and crushing iron scrap as well as for disposing of the same. An elongated shell of channel-shaped configuration has a hollow interior directed upwardly, and it has opposed upper side edges where a pair of elongated cutting blades are located. Pivots extend across this channel and support a pair of cutting and crushing blocks for swinging movement downwardly toward each other as they approach the hollow interior of the channel, and these blocks are hydraulically actuated and are themselves provided with blades for cutting the scrap which initially is situated over the hollow interior of the channel to be cut and crushed by the blocks and by the blades. The cut and crushed material which is within the shell is pushed out of the latter by a suitable push rod. The shell has an outlet end where a vertically movable blade is provided to cut through the treated material.

3,545,370
CONTINUOUS PRESS FOR LAMINATING MATERIALS
Robert A. Caughey, Antrim, New Hampshire, assignor to Weyerhaeuser Company, Tacoma, Wash. a corporation of Washington
Filed July 1, 1968, Ser. No. 741,755
Int. Cl. B30b 5/04
U.S. Cl. 100—144 8 Claims



An improved continuous press for the manufacture of laminated wood materials and other wood products which has a lower platen consisting of a number of contiguous, unconnected rigid members and an upper platen parallel to but spaced from the lower platen consisting of an endless belt driven solely by transmission of force to it from the lower platens through the material fed between the two platens. The upper surface of the upper platen is in sliding contact with a series of keyed-together plates, each of the keyed-together plates having separate hydraulic rams acting

downwardly on each plate to furnish the required pressure necessary to laminate or consolidate the materials fed into the press. The lower, unconnected platen members are driven by a series of hydraulically operated driving pinions located along each side of the press and engageable with gear racks on the underside of the unconnected platen members. The driving pinions are spaced a distance apart less than the length of the individual, unconnected platen members. The unconnected platen members are returned from the outfeed



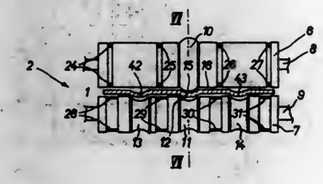
end of the conveyor to the infeed end by means of a hydraulically operated elevator which lowers each of the plates at the outfeed end onto a conveying chain running in a direction opposite the travel of the press. The conveying chain returns the platen member to the infeed end where it is raised into operating position. A hydraulically operated crowder advances it into contact with the first set of driving pinions which advance it into the press. Switches or other sensing devices are used to coordinate operation of the elevating and crowding mechanisms.

3,545,371

DEVICE FOR THE PRESSING OF FLEXIBLE SHEETS ARRIVING IN A CONTINUOUS STREAM

Walter Reist, Hinwil, Zurich, Switzerland, assignor to Ferag, Fehr & Reist AG, Zurich, Switzerland

Filed May 24, 1968, Ser. No. 731,855
Claims priority, application Switzerland, May 26, 1967, 7460/67
Int. Cl. B30b *3/04*
U.S. Cl. 100—176 **11 Claims**



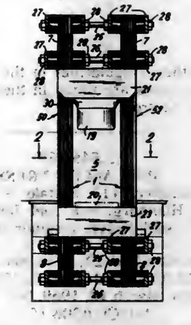
A device for pressing flexible sheets, particularly newspapers, during conveyance of the same in a continuous overlapping or imbricated succession comprises a pair of upper and lower rollers between which the overlapping or imbricated formation of newspapers is passed, each roller having a freely rotatable roller section, the two sections being provided with mating bead and channel profiles adapted to impress a corrugation into the newspapers passing therebetween.

3,545,372

FRAME STRUCTURE AND HYDRAULIC PRESS CONSTRUCTION

Ernst Mueller, 18 Kongisberger Strasse 5484, Bad Niederbreisig (Rhine), Germany

Filed June 18, 1968, Ser. No. 737,877
Claims priority, application Germany, June 19, 1967, M74423
Int. Cl. B30b *1/00*
U.S. Cl. 100—214 **20 Claims**



An apparatus subjected to large tonnage loads and/or high pressures comprising a press frame formed of two oppositely arranged C-shaped vertically disposed transverse stacks of plates which abut together at each top and bottom leg portion in a manner such that they define a frame opening therebetween. The two C-shaped stacks of sheets or plates are held together in a frame forming orientation by interconnecting belt elements or preferably by encircling shrinking rings which also consist of a stack of plates which are arranged in a vertical stack with their major dimension in a horizontal plane. Means such as holding bolts are provided for orienting the sheets of each stack in an abutting relationship which comprises for example securing bolts. Transverse members are arranged within the frame for absorbing the reaction pressures of a press which includes a piston member displaceable within the frame opening toward a fixed member carried on one of the said transverse members. The transverse members advantageously comprise horizontal stacks of plates having their major axes vertically oriented. The transverse members may also be carried in cutout portions of the C-shaped frame forming members and thus provide a considerable savings in vertical space.

The C-shaped frame forming stacks of sheets may also be held together in a frame forming orientation by transverse extending bolts. The construction may also be varied by interposing an intermediate member between the C-shaped stacks of sheets in order to increase with width dimension if it becomes necessary or desirable.

3,545,373

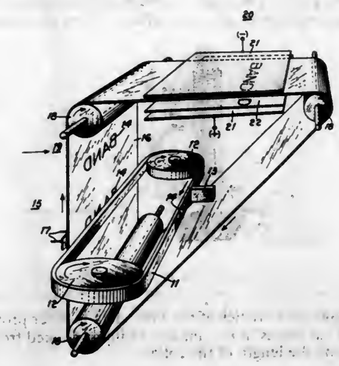
PRINTING TRANSFER AND DISPLAY ARRANGEMENT

David B. Spaulding, Carlisle, Massachusetts, assignor to International Telephone and Telegraph Corporation, Nutley, New Jersey a corporation of Delaware, by mesne assignments

Filed April 10, 1968, Ser. No. 720,277
Int. Cl. B41j ; B41l
U.S. Cl. 101—1 **1 Claim**

A printing transfer and display arrangement is provided

which includes a primary transfer band and a secondary transfer band which is movable in a transverse direction from



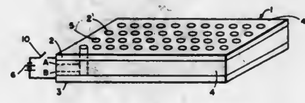
said primary transfer band and which provides for visual display and the production of a permanent record copy.

3,545,374

HIGH-SPEED PRINTER EMPLOYING A GAS DISCHARGE MATRIX

Charles D. Hendricks, Jr., Chestnut Hill, Massachusetts, assignor to Massachusetts Institute of Technology, Cambridge, Massachusetts a corporation of Massachusetts

Filed April 26, 1968, Ser. No. 724,499
Int. Cl. G01d *15/18*
U.S. Cl. 101—1 **22 Claims**



Apparatus for high-speed printing in which a perforated insulating material is provided with inner electrodes within each perforation to initiate ionization of a gas therein in response to an electrical signal, the gas being maintained in the ionized state thereafter by an electric potential connected between outer electrodes. At least one end of the perforations is open thereby to allow the ionized gas to emit therefrom and to impinge upon a web in a determined fashion to imprint a pattern upon the web.

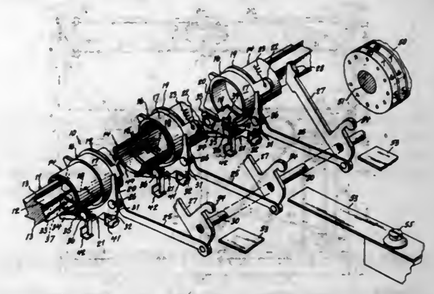
3,545,375

PRINT HAMMER CONTROL MEANS IN HIGH SPEED PRINTERS

Matthew J. Costello, Larchmont, New York; Frank J. Zlron, 3rd, Stratford, Henry Bleggi, Fairfield and Allen C. Berg, Wilton, Connecticut, assignors to Sperry Rand Corporation, New York, New York a corporation of Delaware

Filed Aug. 27, 1968, Ser. No. 755,619
Int. Cl. B41j *1/34, 9/36*
U.S. Cl. 101—93 **10 Claims**

A high speed printer for printing output data of an electronic desk calculator or similar device. A print wheel having type characters arranged in a plurality of columns forming rows of like characters is continuously rotated in synchronism with a toothed shaft. A like plurality of print initiating latch mechanisms each having a print hammer are disposed about the shaft to permit one or more latch mechanisms to engage a selected tooth to cause its associated hammer to strike a character in a selected row. Each like character is printed on a print line simultaneously and all characters to be printed are printed during one revolution of the print wheel. The output data to be printed is inserted unit by unit in a register of the calculator and each unit is compared with the encoded next upcoming print wheel character. For each true comparison a solenoid associated with a particular latch mechanism is energized to cause simultaneous printing of like characters on a line. For the



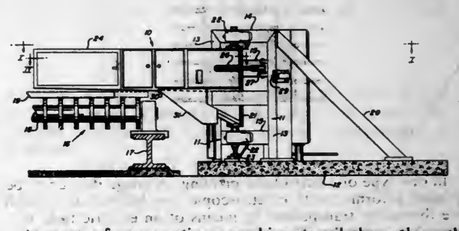
next upcoming character on the print wheel the data units which compare to that character are simultaneously printed in their places on the print line. This comparison is made for each character on the print wheel so that after one complete revolution of the print wheel all characters of the number have been printed.

3,545,376

APPARATUS FOR STENCIL-MARKING TRAVELING PRODUCT

Gerald A. Francis, Jerry A. Henkener, Joseph H. McNinch, Jr., Howard B. Printz and Michael U. Widman, Columbus, Ohio, assignors to United States Steel Corporation, Monroeville, Pennsylvania a corporation of Delaware

Filed Feb. 15, 1968, Ser. No. 705,734
Int. Cl. B41l *13/00*
U.S. Cl. 101—121 **7 Claims**



Apparatus for supporting a marking stencil above the path of a traveling plate and discharging a spray jet onto the stencil when the plate is in registry therewith, comprises a housing movable into marking position and retractable therefrom. The housing contains a plurality of rotatable stencils, remotely controlled, and power means for setting them. A nozzle above each stencil is connected by a valve to a source of marking fluid under high pressure. A power-driven actuator common to all valves operates them rapidly and simultaneously whereby characters are formed on the plate below the stencils. After marking has been completed, water sprays are turned on to wash the stencils and air jets to dry them.

3,545,377

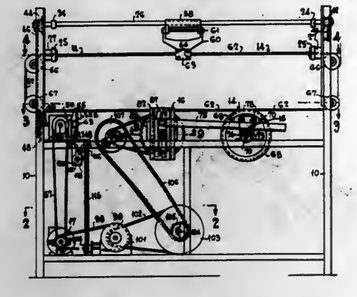
SCREEN PRINTING APPARATUS

Roy M. Harwell, Jr. and David W. Yoder, Gastonia, North Carolina, assignors to Harwell Enterprises, Incorporated, Gastonia, North Carolina a corporation of North Carolina

Filed Dec. 14, 1967, Ser. No. 690,656
Int. Cl. B41l *27/00*
U.S. Cl. 101—123 **6 Claims**

A screen-squeegee printing apparatus in which relative reciprocatory movement between the screen and squeegee is effected by a crankshaft through a rack and pinion connec-

tion. The apparatus is specifically characterized by: mechanism for adjusting the relative contact pressure between the screen and squeegee; mechanism for effecting right angular engaging motion between the screen and



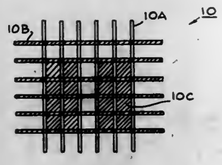
squeegee at the beginning of the printing stroke and right angular separation motion at the end of the stroke; mechanism for adjusting the stroke length; and rotatable mechanism movable coaxially of the crankshaft for actuating and locking said stroke adjusting mechanism in each adjusted position.

3,545,378

IMAGE ELECTRODE FOR ELECTROSTATIC PRINTING

Clyde O. Childress, Palo Alto, California, assignor to Monsanto Graphics Systems, Inc., St. Louis, Missouri a corporation of Delaware

Filed June 12, 1968, Ser. No. 736,352
Int. Cl. B41m *1/24*
U.S. Cl. 101—127 **8 Claims**



In one type of electrostatic printing an image desired to be printed is formed with electroscopic powder particles which are thereafter transported by means of an electric field to a receiving substrate. The image forming electrode may be a screen having closed apertures and open apertures which are in the form of the desired image, or may be a plate which has surface indentations or wells arranged in the form of an image. The electroscopic powder is first deposited in the wells and thereafter transferred to the substrate. In accordance with this invention an image electrode is conductive along one axis and resistive along the other axis. Stated another way, there is provided in accordance with this invention an anisotropic conductive image electrode for electrostatic printing.

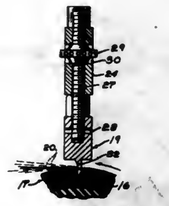
3,545,379

LITHOGRAPHIC DAMPENER WITH FOUNTAIN BRUSH DEFLECTION MEANS

Robert K. Norton, Twinsburg, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio a corporation of Delaware

Filed Jan. 18, 1968, Ser. No. 698,876
Int. Cl. B41l *23/00*
U.S. Cl. 101—148 **3 Claims**

Disclosed herein is a dampener for a lithographic printing press. The dampener is provided with a rotating brush roller which dips into an ink repellent liquid and thereafter has its surface contacted by an adjustably distortable deflector bar



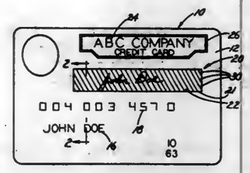
which engages the bristles of the brush in a manner providing controlled variations in the amount of liquid flicked from the bristles along the length of the roller.

3,545,380

IDENTIFICATION AND PRINTING DEVICE WITH FRAUD PREVENTING MEANS

Courtney L. Comegys, Wyncote, Pennsylvania; Jackson S. Freundlich, South Orange and William C. Roebuck, Kearny, New Jersey, assignors to Addressograph Multigraph Corporation, Cleveland, Ohio a corporation of Delaware

Continuation of application Ser. No. 608,845, Jan. 12, 1967, now abandoned. This application Nov. 24, 1969, Ser. No. 879,299
Int. Cl. B41n *1/00*; **G09f** *3/02*
U.S. Cl. 101—369 **7 Claims**



This specification describes a plastic card, such as a credit card, with a surface which normally rejects signature inks, and having a signature receptive strip with a nonreproducible pattern formed on the surface of the signature strip so that any attempt to overlay the signature strip area with a substitute strip by a casual forger will be defeated. Also described is a modified form of credit card in which a protective or translucent film overlies the pattern. Also described are methods of placing such patterned signature strips by printing the pattern on the surface of a carrier, coating the carrier with signature strip material and then transferring the signature strip, with its pattern, to the surface of the plastic card by applying heat and pressure.

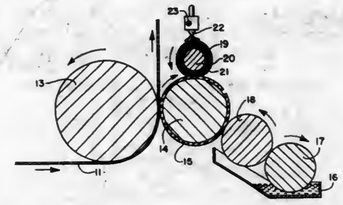
3,545,381

METHOD OF CLEANING PRINTING SURFACES AFTER PRINTING SOFT TISSUE PAPER

Jorgen L. Jorgensen, Forest Park, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio a corporation of Ohio

Filed Feb. 20, 1968, Ser. No. 706,894
Int. Cl. B41l *41/00*
U.S. Cl. 101—425 **4 Claims**

A method of printing soft tissue paper and immediately cleaning the printing surfaces by contacting the printing surfaces with a cleaning roll having a resilient, absorbent outer sleeve which is moistened with an ink-compatible solvent. The cleaning roll is brought into contact with the roll or surface having the printing elements thereon and by pressing the two together to provide sufficient contact pressure, a portion



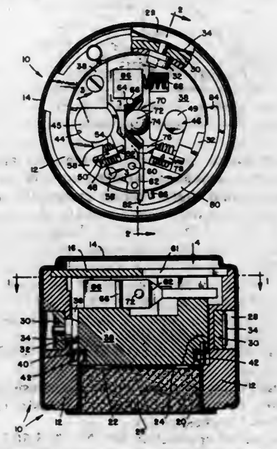
of the solvent in the sleeve of the cleaning roll is deposited on the printing surface to prevent the ink thereon from drying, and thereby pulling loose fibers from the paper which is to be printed. The roll also serves to remove any of the fibers which may have been deposited on the printing surfaces.

3,545,382

AIR-ARMING PYRO DELAY FUZE

Edgar J. Abt, Hopkins, Minn., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Aug. 16, 1968, Ser. No. 753,190
Int. Cl. F42c *9/10, 15/18, 15/24*
U.S. Cl. 102—79 **8 Claims**



Fuze which fires a delay train when an air dropped ordnance device reaches predetermined spin speed and is also sensitive to omnidirectional impact to fire an instantaneous train in event of failure of the delay train. Characterized by a rotor, centrifugal responsive weights for unlocking the rotor, a spring for rotating the rotor and mechanism for preventing premature firing of both trains until the ordnance device attains the predetermined spin speed.

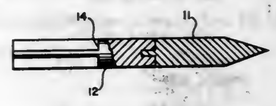
3,545,383

FLECHETTE

Carl F. Lucy, Mountain View, California, assignor to Singer General Precision, Inc., a corporation of Delaware

Filed Oct. 27, 1965, Ser. No. 505,392
Int. Cl. F42b *11/00*
U.S. Cl. 102—92.6 **3 Claims**

A projectile is disclosed which is formed of a relatively heavy tip section and a relatively light tail section. The tail section is of cruciform cross section at one end thereof and substantially conformably shaped to the cross section of the tip section at the other end thereof. The tip section is joined to the tail section by structure which is rupturable upon impact with a body, which rupturable structure may take the form of a short extension on one of the sections which is



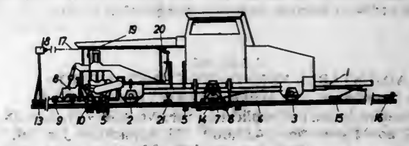
pressed fit within the other section or a relatively short pin extending between the sections. Mating flat surfaces on the tip and tail section absorb substantially greater axial force than the lateral force which can be absorbed by the rupturable structure joining the flat surfaces.

3,545,384

METHOD AND APPARATUS FOR CORRECTING THE POSITION OF A TRACK

Franz Plasser and Josef Theurer, Johannesgasse 3, Vienna, Austria

Filed May 14, 1968, Ser. No. 729,093
Claims priority, application Austria, May 22, 1967, A4785/67;A4784/67
Int. Cl. E01b *27/17, 33/02*
U.S. Cl. 104—7 **28 Claims**



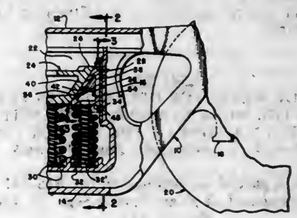
The position of a track is corrected in two phases. In the first phase, the track is moved by a track engaging means and this movement is terminated before the correct track position has been reached. The movement of the track to the correct position is then continued in a second phase solely by tamping the ballast.

3,545,385

REINFORCED BOLSTER DAMPENING FRICTION SHOE

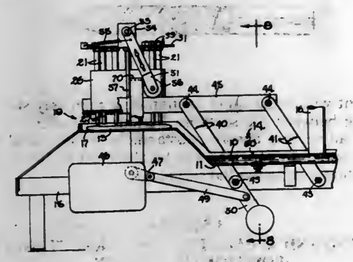
Otto W. Neumann, Chicago, Illinois, assignor to Amsted Industries Incorporated, Chicago, Illinois a corporation of Delaware

Filed Aug. 21, 1968, Ser. No. 754,216
Int. Cl. B61f *5/12, 5/24*
U.S. Cl. 105—197 **4 Claims**



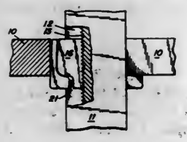
In a railway truck wherein friction shoes are operatively carried in wedge-shaped pockets of the bolster and urged upwardly and outwardly by one or more springs between the bottom of the friction shoe and the truck side frame, a pair of depending side flanges on the bottom of the shoe provides for positive positioning of the springs and prevents undesirable interference from the adjacent springs supporting the bolster.

3,545,386
MACHINE FOR DISPENSING LIQUID
Donald E. Westling, 2432 Iva Court, Beloit, Wisconsin
Filed Dec. 18, 1968, Ser. No. 784,651
Int. Cl. A23g 3/02
U.S. Cl. 107—1 7 Claims



A dispensing pump is moved automatically between a reservoir of sauce and a pizza to suck up a quantity of sauce from the reservoir and to discharge the sauce onto the pizza. The pump is formed by loosely telescoped sleeves and tubes defining chambers which are sealed by water. When the sleeves are alternately shifted away from and toward the tubes, the chambers are expanded and then contracted to cause sauce first to be sucked into and then discharged out of a series of lower nozzles communicating with the tubes.

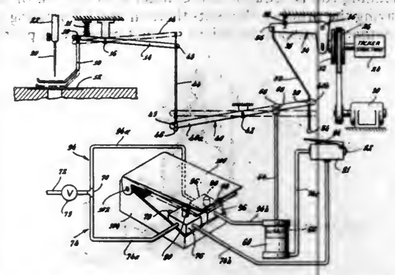
3,545,387
ADJUSTABLE FURNITURE CONSTRUCTION
Joseph Giambalvo, 1118 Willoughby Ave., Brooklyn, N. Y.
Continuation-in-part of application Ser. No. 656,939, July 28, 1967, now Patent No. 3,437,060. This application Jan. 10, 1969, Ser. No. 790,293
Int. Cl. A47b 57/06; F16m 13/02
U.S. Cl. 108—151 7 Claims



An adjustable furniture construction having an apertured horizontal member and a vertical columnar member, said vertical member being receivable through the aperture of said horizontal member. An adjustable wedge, whose sides can be made more divergent, is inserted between the horizontal and vertical members to hold them in fixed relation to each other.

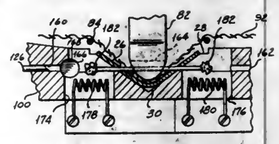
3,545,388
CONTROL MEANS FOR OPERATING IN TIMED RELATION THE WORK CLAMP AND THE NEEDLE OF A SEWING MACHINE OF THE TACKER TYPE
Arthur C. Wokeck, 2 Lindewoods Road, Norwalk, Connecticut
Continuation-in-part of application Ser. No. 615,041, Feb. 3, 1967, now abandoned. This application Sept. 20, 1968, Ser. No. 761,144
Int. Cl. D05b 69/08, 69/20
U.S. Cl. 112—67 5 Claims

For raising the work clamp and closing the clutch of the needle driving means of a sewing machine of the tacker type, a pivoted operating arm is provided and its ends, which act through rods connected to work clamp and clutch actuating members respectively, are alternately raised and lowered by means of a single fluid cylinder the piston of which is alternately raised and lowered by fluid pressure alternately applied on opposite sides of the piston through two fluid, valve controlled conduits. The valve means permit fluid to be exhausted from, as well as supplied to, opposite sides of the piston in timed relation, one of the valve means being



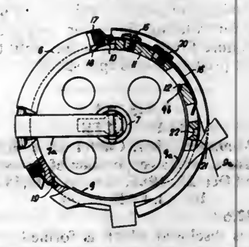
responsive to closing and opening of the clutch for synchronizing the operation of the fluid system with the duration of a sewing operation.

3,545,389
MERCHANDISE TAGGING APPARATUS
Frederick N. Stephens, Leawood; Robert R. Vetter and Stuart J. Burhans, Kansas City, Missouri, assignors to Stephens Industries, Inc., Kansas City, Missouri a corporation of Missouri
Filed Dec. 31, 1964, Ser. No. 422,643
Int. Cl. B65c 5/00, 9/12; G09f 3/14
U.S. Cl. 112—104 14 Claims



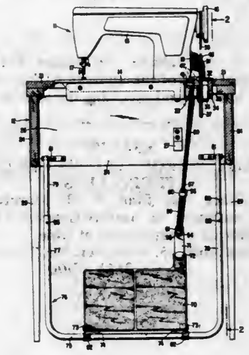
Automatic apparatus for securing tags to articles of merchandise, such as articles of wearing apparel, in which a length of normally solid thermoplastic material is advanced from a supply through a deflected assembly of a superposed tag and fabric, is cut, and the ends of the length are heated to melt the material to form retaining heads on the ends thereof which prevent the tag from being removed from the article without tearing the tag or removing one of the heads.

3,545,390
METHOD AND APPARATUS FOR SEWING ANGULAR SEAMS
Alois Kucera and Vilem Hlavon, Brno, Czechoslovakia, assignors to Elitex Zavody Textilniho Strojirenstri Generalni Reditelstvi, Brno, Czechoslovakia
Continuation-in-part of application Ser. No. 735,507, June 6, 1968, now abandoned. This application Oct. 30, 1969, Ser. No. 881,789
Int. Cl. D05b 1/12, 57/14
U.S. Cl. 112—164 11 Claims



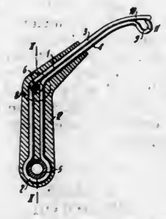
Formation of a loop of a bottom thread at the apex of an angular seam requiring turning of the fabric, is prevented by braking the bobbin and temporarily supplying a piece of the bottom thread by resiliently displacing a movable control means supporting the leading end of the bottom thread for movement along a path which is shortened in the displaced position of the guide means.

3,545,391
TREADLE SUPPORT FOR SEWING MACHINE DRIVE
Karl D. Schweers, Spring Valley, New York, assignor to The Singer Company, New York, New York a corporation of New Jersey
Filed June 6, 1969, Ser. No. 831,186
Int. Cl. D05b 69/00
U.S. Cl. 112—220 4 Claims



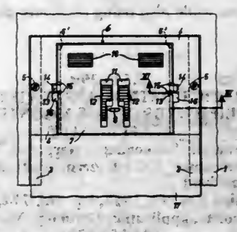
A treadle drive for a sewing machine is disclosed in combination with a treadle construction for use with a sewing machine cabinet of the "drop head" type in which the sewing machine is pivotally supported and may be dropped beneath the cabinet top for storage. The treadle construction includes a telescoping treadle support which may be folded into compact form for storage beneath the dropped sewing machine in the cabinet. A unique connection between the treadle and the treadle drive accommodates the telescoping arrangement of the treadle support.

3,545,392
THREAD TAKE-UP LEVER FOR A SEWING MACHINE
Marcel Fresard, Petit-Lancy, Geneva, Switzerland, assignor to Mefina S.A., Fribourg, Switzerland a company of Switzerland
Filed Nov. 8, 1968, Ser. No. 774,395
Claims priority, application Switzerland, Dec. 20, 1967, 17997/67
Int. Cl. D05b 49/00
U.S. Cl. 112—241 5 Claims



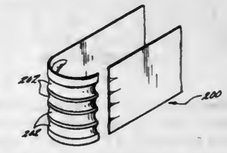
The thread takeup lever comprises a wire mounted in a synthetic plastic member. The wire includes two resilient arms that project from the member, the free ends of which define the thread eye.

3,545,393
SEWING MACHINE WITH REMOVABLE STITCHING PLATE
Gunter Meier, Weingarten, Germany, assignor to G. M. Pfaff, A.G. Kaiserslautern, Pfalz, Germany a corporation of Germany
Claims priority, application Germany, Dec. 18, 1967, P30589
Int. Cl. D05b 35/00
U.S. Cl. 112—260 9 Claims



The stitching plate of a sewing machine is slidably supported, between an operative and an inoperative position and flush with the sewing table, by shoulders extending along a pair of opposite edges of a rectangular opening in said table. A pair of mounting lugs, extending from the opposite edges of the plate adjoining said shoulders, are adapted to loosely fit lateral recesses of said edges in the inoperative position of the plate and to resiliently lock, in the operative position of the plate, with corresponding abutments of the table adjoining said recesses.

3,545,394
METHOD OF BENDING STRIP CONTAINING INFLATABLE PASSAGEWAYS
Richard A. Shive, Madison, Illinois, assignor to Olin Corporation, a corporation of Virginia
Filed March 1, 1968, Ser. No. 709,636
Int. Cl. B21d 53/02
U.S. Cl. 113—118 16 Claims

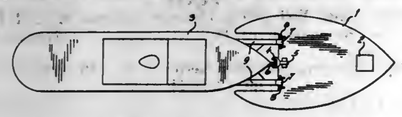


A process of bending strip containing at least one inflatable passageway which comprises embossing the strip to provide grooves in correspondence to the passageway in the strip. The strip may be bent during the embossing or subsequent thereto to any desired angle, with the bending taking place in the region of the embossment. Following the bending operation, the passageways in the strip are inflated. By using this process, it is possible to eliminate kinking of the inside radii of the inflated tubular passageway and also eliminate the reduction in tube height of the outside radii of the tubular passageway.

3,545,395
SHIP WITH ICE-BREAKING ATTACHMENT
Vladislav Vladimirovich Rastorguev, Sosnovaya polyana, Georgievskaya ul. 52, kv. 15; Artur Mikhailovich Ter-Akopov, Ul. Kuibysheva 29, kv. 66; Nikolai Melitonovich Ivashkov, Primorsky prosp 53, kv. 11; Alexandr Ivanovich Begunkov, Ul. Zaitseva 32, kv. 47; Alexandr Borisovich Belkin, Ul. Marata 72, kv. 60, and Ilia Nusinovich Vexklyarsky, Ul. Zaitseva 32, kv. 7, Leningrad, U.S.S.R.
Filed June 12, 1968, Ser. No. 736,530
Int. Cl. B63b 35/08
U.S. Cl. 114—41 2 Claims

A ship is provided with an icebreaking attachment at the bow thereof, the attachment carrying a vibrating mechanism and being connected to the ship so that they are secured in

alinement along a common longitudinal axis while being relatively rotatable about this longitudinal axis as well as about

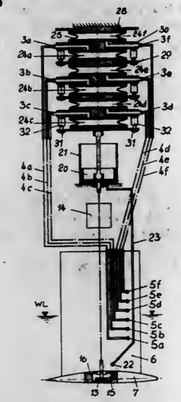


transverse axes, while also being relatively displaceable vertically.

3,545,396
AUTOMATIC CONTROL APPARATUS FOR AIR SUPPLIED HYDROFOILS MOUNTED AT A WATERCRAFT

Hanns von Schertel, Sonnenberg, Hergiswil, Switzerland, assignor to Supramar A.G., Luzern, Switzerland a corporation of Switzerland

Filed Nov. 12, 1968, Ser. No. 774,965
Claims priority, application Germany, March 8, 1968, 81,556,832
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 **11 Claims**



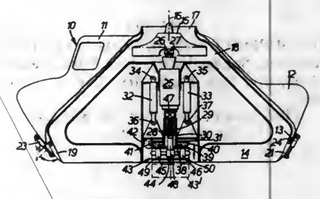
There is disclosed for a hydrofoil mounted to a watercraft, a control apparatus for automatically maintaining the immersion depth of the hydrofoil. This control apparatus comprises air control valve means provided for the hydrofoil in order to influence lift by admitting a controlled quantity of air to the surface of said hydrofoil, and there are means providing a number of suction openings arranged above one another, partially above and partially below the normal water level during cruising. The suction openings function as command elements. Additionally, there is provided self-enclosed control body means capable of being contracted, a respective conduit for connecting each suction opening individually with said control body means in such a manner that the suction force prevailing at each suction opening appearing below the water level shortens the length of said control body means by a respective predetermined unit of length, said control body means including a movable portion operably connected with said air control valve means such that said movable portion of said control body means actuates the air control valve means in its closing direction.

3,545,397
AIR-CUSHION VEHICLES AND LIKE CRAFT

Thomas D. H. Andrews, Cheltenham, England, assignor to Dowty Technical Developments Limited, Cheltenham, England a British Company

Continuation of application Ser. No. 633,897, April 26, 1967, now abandoned. This application March 17, 1969, Ser. No. 808,014
U.S. Cl. 114—67 **9 Claims**

An air-cushion vehicle is provided with jet propulsion apparatus for propelling it across water. The apparatus may be retracted into the vehicle when its operation is no longer required, to enable the vehicle to operate over surfaces other than water. An engine which drives the apparatus also drives

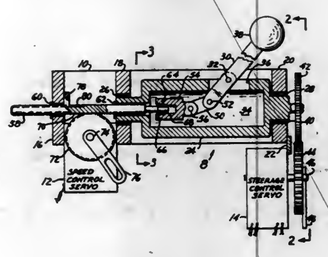


the lift fan of the vehicle and means are provided for directional adjustment of the apparatus when operative to afford steering, braking and reversing the vehicle.

3,545,398
MANEUVER CONTROL SYSTEMS FOR CYCLOIDAL PROPELLERS

William E. Fisher and John A. H. Morrison, Glendora, California, assignors to Aerojet-General Corporation, El Monte, California a corporation of Ohio

Filed April 15, 1968, Ser. No. 721,307
Int. Cl. B65h *25/00*
U.S. Cl. 114—144 **7 Claims**



This disclosure relates to maneuver control systems for use with cycloidal propellers on marine vessels.

A control system according to the present disclosure includes control means located at each of a plurality of control stations. Control apparatus is associated with each control means to effectuate steerage and speed control of the propeller.

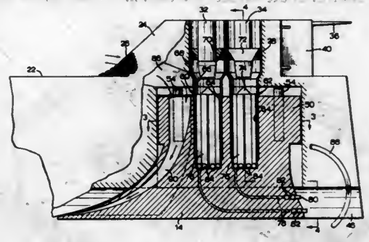
Optional and desirable features of the present disclosure include selector means for selecting one of the plurality of control stations to control the maneuvering of the vessel. Drive means may be associated with at least some of the control stations so that the control means at the noncontrolling stations follow the position of the control means at the controlling station. Preferably, the control means are lever arms which are capable of pivoting about each of two mutually perpendicular axes. Pivotal movement of the lever arm about one axis causes operation of speed control apparatus, while pivotal movement about the other axis causes operation of steering control apparatus.

3,545,399
HYDROFOIL

Herbert A. Adam, P.O. Box 457, Guayama, Puerto Rico

Filed Oct. 9, 1968, Ser. No. 766,121
Int. Cl. B63b *1/22*
U.S. Cl. 114—66.5 **6 Claims**

A jet engine-propelled boat has a delta-shaped hydrofoil carried in the lower part of the hull with hydraulically operated rams lifting and lowering the foil in relation to the hull, the foil having exhaust louvers at its trailing edge connected to the jet engine with movable thrust plates at the rear

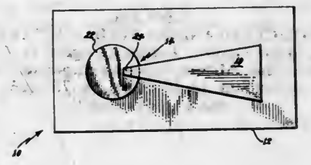


of the boat in line with the exhaust louvers to permit directional control.

3,545,400
FREEZE AND THAW INDICATOR

Von L. Smith, 2632 Barbera Way, Rancho Cordova, California

Filed March 25, 1969, Ser. No. 810,262
Int. Cl. G01k *1/02*
U.S. Cl. 116—114.5 **1 Claim**

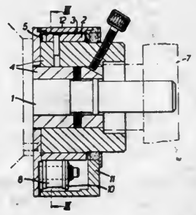


A freeze and thaw indicator having a base portion which is affixed to an article to be frozen and an indicating means mounted on the base portion. The indicating means being a container filled with liquid and an absorbent pad adjacent thereto. Freezing of the container expands the liquid therein, rupturing the container. When thawing occurs the liquid in the container flows onto the absorbent pad providing a positive indication thawing took place.

3,545,401
SCALE CONVERSION DEVICE

Beaumont J. Davies, Putnoe, England, assignor to George Richards & Company Limited, Broadheath, Altrincham, Cheshire, England a company of Great Britain

Filed Feb. 19, 1968, Ser. No. 706,242
Claims priority, application Great Britain, Feb. 21, 1967, 8119/67
Int. Cl. B23q *17/00*
U.S. Cl. 116—115.5 **10 Claims**

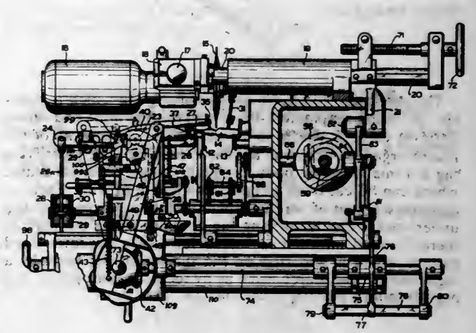


This invention is a device for fitting to machine tools enabling graduations in inches to be converted into graduations on the metric system by use of a belt which runs over the drum carrying the inch graduations as a pulley.

3,545,402
SCORING AND MARKING APPARATUS

Jakob Dichter, deceased, late of Berlin-Schoeneberg, Germany, by Martha Dichter, Berlin-Schoeneberg, Germany, sole heiress, assignor to Hans-Joachim Dichter, heir of Martha L. M. Dichter, nee Meinchke, deceased, Berlin-Schmargendorf, Germany

Continuation-in-part of Ser. No. 364,984, May 5, 1964. This application May 27, 1968, Ser. No. 734,839
Int. Cl. B05c *11/12*
U.S. Cl. 118—35 **12 Claims**

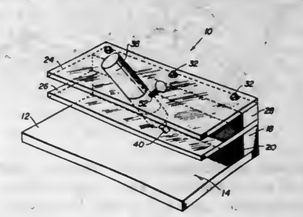


In a device for local or punctiform scoring of ampoules, the position at which each ampoule is scored is marked thereon by a marking member moved into contact with the ampoule from a position located away from the ampoule and at which the marking member picks up an ink drop from an ink supplying mechanism for transfer to the ampoule.

3,545,403
EDGE MARKING DEVICE

Carl E. Beers, Dayton, Ohio (Ohio University USAID, A.T.C. Kano, P. M.B. 3045, Kano, Nigeria)

Filed Nov. 25, 1968, Ser. No. 778,615
Int. Cl. B05c *11/12*
U.S. Cl. 118—76 **9 Claims**



Transparent shelflike means fixedly position a marker element with respect to a substrate support and guide means whereby the substrate may be moved in a predetermined path to mark a stripe thereon.

3,545,404
METHOD AND COMPOSITION FOR TREATING LIVE BAIT WORMS

Lester R. Loftus, Aurora, Ill. (P.O. Box 1217, Estes Park, Colo.

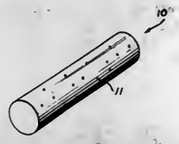
No Drawing. **Filed March 6, 1969, Ser. No. 805,023**
Int. Cl. A01k *05/00, 11/00*
U.S. Cl. 119—1 **5 Claims**

A method of enhancing the iridescence of live bait worms by adding to a cultivation bed for live worms containing suitable media for supporting worm life a composition comprising an aqueous slurry of comminuted paper and clam shells together with 1,2-propylene glycol, benzoic acid, methylparaben and wintergreen oil.

3,545,405
APPARATUS FOR INVESTIGATING THE MIGRATORY HABITS OF MACRO-ORGANISMS

Keith B. Jefferts, 82 Blackburn Road, Summit, New Jersey

Filed March 24, 1969, Ser. No. 809,650
Int. Cl. A01k 61/00
U.S. Cl. 119—3 8 Claims

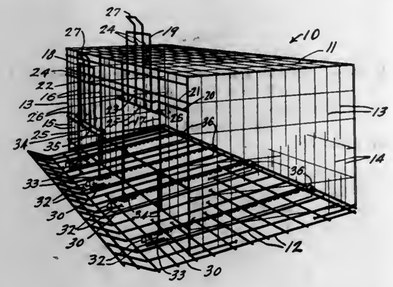


The disclosure relates to an identifying tag which is capable of being implanted in a macro-organism and upon retrieval thereof aids in determining the movements of the macro-organism from one habitat to another. The identifying tag is a small metallic body, preferably of a cylindrical shape, which can be cut from a continuous length of wire. Each individual segment of wire is implanted into a macro-organism under study. The identifying tag contains along the surface thereof coded information in the form of a predetermined pattern which is imparted on the surface of the body by a high-energy heat source, such as by focusing laser pulses in a predetermined pattern on the surface of the body.

3,545,406
BREEDER CAGE

Denis L. Osborn, Hicksville, Ohio, assignor to National Service Industries, Inc., Atlanta, Georgia a corporation of Delaware

Filed July 2, 1968, Ser. No. 741,961
Int. Cl. A01k 31/00
U.S. Cl. 119—17 3 Claims



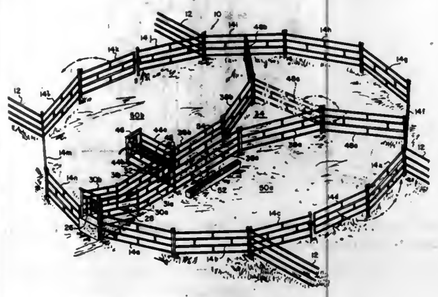
A breeder cage having a top, a bottom, opposed sidewalls, a rear wall and a front wall. The front wall has a gate opening and a rectangular gate is provided for opening and closing the opening. A pair of resisting detents are provided on the gate which must be forced over a portion of the front wall when the gate is moved to its open position. A plurality of floor support members having arcuate upper surfaces are positioned beneath and adjacent the bottom. Each floor support member is fastened to the front wall by a hanger and to the rear wall by an integral hook. Adjacent ones of the floor support members serve as force reaction members for the span portion of the bottom which is located between the adjacent floor support members.

3,545,407
ANIMAL PEN

William T. Moore, Rte. 4, Box 252, Minden, Louisiana

Filed Jan. 8, 1969, Ser. No. 789,818
Int. Cl. A01k 01/02
U.S. Cl. 119—20 6 Claims

An animal control pen by means of which a single operator can segregate one or more animals from a large group. A plurality of identical fence sections enclose a relatively large pen area. Animals entering the area are then urged to move in the desired direction by means of swinging gates which gradually reduce the area in which the animals are able to roam. A control chute directs the animals either into a small



enclosed control area in which a single animal can be confined for the performance of various animal husbandry operations or to a loading platform from which the animals can be loaded onto a truck for shipment.

3,545,408
CONTROLLED ANIMAL FEEDER APPARATUS

John M. Wert, Goshen, Indiana, assignor to Chore-Time Equipment, Inc., Milford, Indiana a corporation of Indiana

Filed Sept. 13, 1968, Ser. No. 759,605
Int. Cl. A01k 39/00
U.S. Cl. 119—51.11 13 Claims

There is disclosed an apparatus for feeding animals such as poultry controlled amounts of feed at predetermined time intervals. The apparatus has an elongated conduit including a feed conveying portion and feed storage portions and a plurality of feeding trays suspended beneath apertures in a lower side of the conduit. An auger is operated within the conduit for advancing feed along the conveying portion and a second auger is operated within the lower storage portions for dispensing predetermined quantities of feed from the storage portions into the pans.

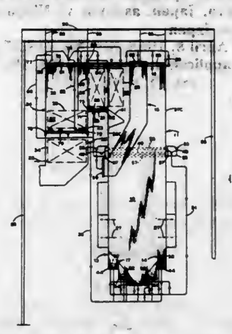
3,545,409
OFFSET MIX TUBES

Fred W. Young, West Point, Mississippi, assignor to The Babcock & Wilcox Company, New York, New York a corporation of New Jersey

Filed May 7, 1969, Ser. No. 822,622
Int. Cl. F22b 37/66
U.S. Cl. 122—6 8 Claims

A forced flow vapor generator wherein the upright boundary walls of the furnace are subdivided into a plurality of separate continuous upflow fluid-heating passes, with the parallel flow tubes of the heating passes being interlaced and coextensive with each other, and provisions for interconnecting the tubes of the fluid-heating passes including having inlet and outlet portions of the tubes bent out of plane of the wall

with the bent tube sections being oval in cross section so that overlapping tubes may be accommodated in the plane of the

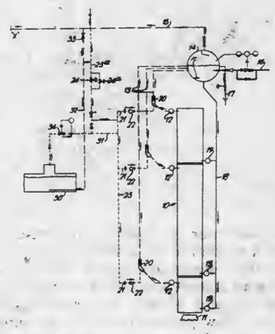


wall while retaining the full complement of wall tubes within the prescribed overall dimension.

3,545,410
STEAM GENERATING INSTALLATIONS

Eric Maurice Woolley, Saltburn; George Wright, Durham; Roy Crisp, Hartburn, Stockton-on-Tees and Robert Dennis Atkinson, Middlesborough, England, assignors to Head Wrightson and Company Limited, Stockton-on-Tees, Teesside, England a corporation of the United Kingdom

Filed Oct. 17, 1968, Ser. No. 768,390
Claims priority, application Great Britain, Oct. 20, 1967, Dec. 20, 1967, 47881/67;57772/67
Int. Cl. F22d 7/04
U.S. Cl. 122—7 19 Claims



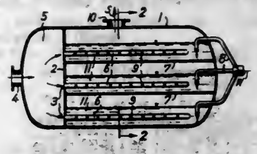
A method and installation for generating steam in which, immediately prior to a firing cycle, steam is injected into the circuit by means of assistant circulators which steam is effective to raise the temperature in the circuit and promote more vigorous circulation so that, when the firing cycle is commenced, the parts of the circuit are already heated and thermal stresses therein are therefore reduced.

3,545,411
SATURATED-STEAM GENERATOR

Jurgen Vollradt, Frankfurt am Main-Niederrad, Germany, assignor to Licentia Patent - Verwaltungs G.m.b.H., Theodor-Stern-Kai, Frankfurt am Main, Germany

Filed April 18, 1967, Ser. No. 631,737
Claims priority, application Germany, April 20, 1966, L53,389
Int. Cl. F22b 1/16
U.S. Cl. 122—31 13 Claims

A saturated steam generator of the Loeffler type having a plurality of water levels disposed in a vessel, with each water

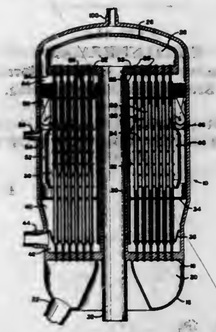


level being provided with a separate superheated steam delivery system and a separate water inlet.

3,545,412
MOLTEN SALT OPERATED GENERATOR-SUPERHEATER USING FLOATING HEAD DESIGN

Brice W. Kinyon, Chattanooga, Tennessee, assignor to Combustion Engineering, Inc., Windsor, Connecticut a corporation of Delaware

Filed June 4, 1968, Ser. No. 734,322
Int. Cl. F22b 1/02
U.S. Cl. 122—34 8 Claims



A vapor generator organization in the form of a shell and tube-type heat exchanger for producing superheated vapor and particularly adapted for use of molten metal or molten metal salts as a heating medium. The heating medium is circulated through the tubes of a tube bundle that is immersed in vaporizable liquid transforming some of it to vapor that flows to a vapor space in the unit. Each of the tubes is enclosed by sleeves forming annular passages about the tubes. These passages communicate with the vapor space and conduct vapor from that space along paths parallel with the tubes of the tube bundle such that the flowing vapor acts as an intermediate heat transfer agent between the high temperature heating medium flowing through the tubes and the vaporizable fluid that immerses the tube bundle. Additional means are provided such that the vapor, after passing through the section of the unit that contains vaporizable liquid, is permitted to extract additional heat from the heating medium in order to have its temperature raised to a predetermined superheat temperature.

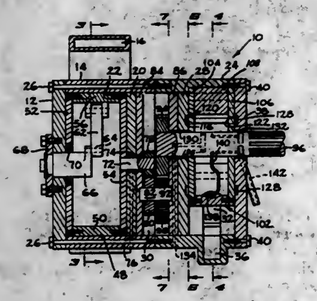
3,545,413
ROTARY ENGINE

Daniel A. Freitas, 2312 Palmira Way, San Jose, California

Filed June 20, 1968, Ser. No. 738,551
Int. Cl. F02b 53/08
U.S. Cl. 123—8.01 6 Claims

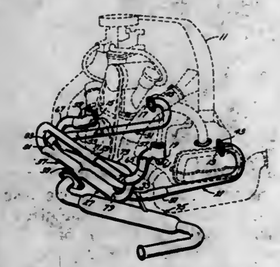
A rotary engine includes separate compression and expansion chambers that are connected in flow communication by an ignition chamber. Within the compression chamber, a first rotor is provided for compressing a measured charge of fuel-air mixture into the ignition chamber. There the charge is fired and expanding gases from the ignition chamber flow through the expansion chamber driving a second rotor. The

first and second rotors are connected by gear means for rotation relative to each other so that a measured charge of fuel-



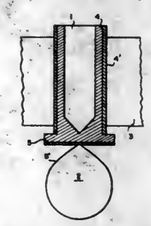
air mixture is compressed and ignited for a given amount of rotation of the second rotor.

3,545,414
EXHAUST HEADER
Marion L. Thompson, Rolling Hills, California, assignor to Modern Tube Bending & Manufacturing, Long Beach, California
Filed May 21, 1969, Ser. No. 826,625
Int. Cl. F02b 75/24; F01n 7/10; F02b 77/00
U.S. Cl. 123—52 **3 Claims**



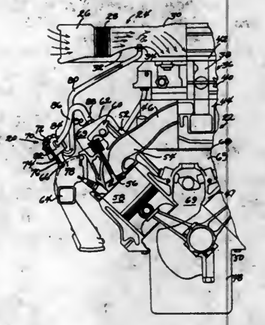
An exhaust header for connection with an internal combustion engine having first and second pairs of exhaust ports leading from sequentially firing cylinders, the first exhaust port of each pair being disposed forwardly on opposite sides of said engine and the second port of each pair being disposed rearwardly on said engine and on the respective sides opposite the first ports of the respective pairs. The exhaust header includes first and second pairs of exhaust conduits, the first condult of each pair being connected with the respective first exhaust ports of each pair and extending rearwardly along opposite sides of the engine and connecting with the upstream end of horizontally arranged primary collectors disposed at the rear of the engine. The second conduits of each pair of conduits have their upstream ends connected with said second exhaust ports and crossover behind the engine to connect with the respective upstream ends of the respective primary collectors, the downstream ends of such primary collectors being joined to form a main collector. With this arrangement, the collective resistance provided by the respective flow paths defined by the exhaust conduits, primary collectors and main collector produce sufficient pressure drop to provide the desired back pressure at the respective exhaust ports and presents an uncluttered configuration for convenient installation without interference with other components on the engine.

3,545,415
VALVE LIFTER WITH THIN PLASTIC COATING
Yoshio Mori, Tokyo, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan
Filed April 8, 1968, Ser. No. 719,371
Claims priority, application Japan, April 8, 1967, 42-28929
Int. Cl. F24c 3/00
U.S. Cl. 123—90 **2 Claims**



A valve lifter having mutually sliding surfaces requiring little or no lubrication, wherein at least one of said surfaces is coated with polytetrafluoroethylene.

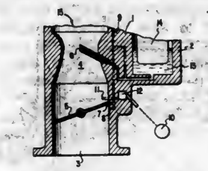
3,545,416
CRANKCASE VENTILATOR
Joe W. Von Brimer, 1209 Commerce, Las Vegas, Nevada
Filed Aug. 30, 1968, Ser. No. 756,591
Int. Cl. F02m 25/06; F04f 5/16
U.S. Cl. 123—119 **10 Claims**



A crankcase ventilator or positive crankcase ventilation system in which a portion of the exhaust gases created by an internal combustion engine are passed through a vacuum chamber wherein an at least partially curvilinear flow pattern is imparted thereto, and wherein the centrifugal force associated with such flow pattern creates a vacuum which is used to draw vapors, fumes, and the like from the engine crankcase and entrain them into the exhaust gas stream flowing through the chamber, and wherein the vapor-gas stream thus formed is directed to the intake airstream of the engine for recirculation through the combustion chamber and exhaust system of the engine. Thus, when the engine is operated at high throttle settings, high vacuum is created, so that when maximum crankcase pressure would otherwise tend to build up, and when crankcase vapors are being generated in the greatest amounts, exhaust recirculation and vapor extraction from the crankcase are also at a high level.

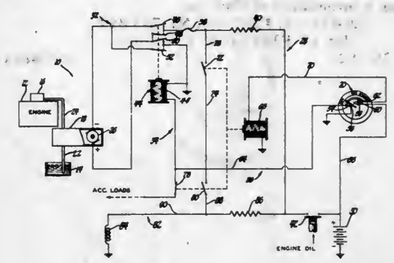
3,545,417
CARBURETOR
Kenichi Yamamoto, Hiroshima-shi, Japan, assignor to Toyo Kogyo Kabushiki Kaisha
Filed Nov. 22, 1968, Ser. No. 778,115
Int. Cl. F02m 13/06; F02b 75/02, 33/04
U.S. Cl. 123—127 **2 Claims**

In a carburetor for feeding both a fuel and air mixture and lubricating oil to the engine, the lubricating oil is fed to the carburetor by an engine-driven oil pump via a lubricating oil delivery port which opens up into the carburetor air passage upstream of the throttle valve when in closed position but



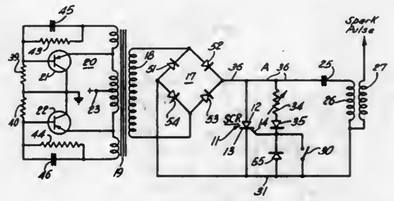
downstream of the throttle valve when in slightly open position, and circumferentially offset from the slow speed and idling fuel ports.

3,545,418
FUEL SUPPLY SYSTEM
Richard P. Ballou, Howell and John A. McDougal, Flint, Michigan, assignors to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed April 21, 1969, Ser. No. 817,790
Int. Cl. F02m 59/42
U.S. Cl. 123—136 **13 Claims**



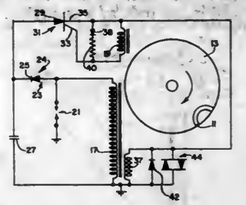
A fuel supply system for transferring fuel between a reservoir and an engine. The apparatus incorporates a reversible electric fuel pump and a pump control circuit for controlling the transfer of fuel by the pump in accordance with the setting of a plural setting engine controller. The fuel pump transfers fuel to the engine to facilitate starting and operating the engine and withdraws fuel from the engine to stop the engine. A bypass network is provided for operating the pump and an ignition coil at increased voltages when starting the engine.

3,545,419
HIGH FREQUENCY SPARK DISCHARGE SYSTEM
Jerry L. Nolting, Fishkill, New York, assignor to Texaco Inc., New York, New York a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,681
Int. Cl. F02p 3/06
U.S. Cl. 123—148 **9 Claims**



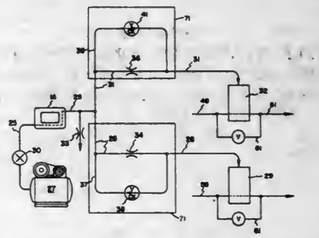
An ignition system of the type applicable to internal combustion engines in general. The system employs a silicon controlled rectifier having a simplified oscillatory circuit to provide a high frequency spark discharge.

3,545,420
CAPACITOR DISCHARGE IGNITION SYSTEM
Roland J. Foreman, Franklin Park and Arthur G. Hufton, Elk Grove, Illinois, assignors to Motorola Inc., Franklin Park, Illinois a corporation of Illinois
Filed Nov. 27, 1968, Ser. No. 779,563
Int. Cl. F02p 3/06
U.S. Cl. 123—149 **4 Claims**



A capacitor discharge ignition system for an internal combustion engine wherein one generator winding is used both as a secondary winding for a step-up transformer and as a charge winding for charging the ignition capacitor.

3,545,421
ENGINE CONTROL SYSTEM
Don S. Strader, Salt Lake City, Utah, assignor to Envirotech Corporation, Palo Alto, California a corporation of Delaware. by mesne assignments
Continuation-in-part of application Ser. No. 729,653, May 16, 1968, now abandoned. This application June 20, 1968, Ser. No. 738,706
Int. Cl. F01p 11/14; F02b 77/08
U.S. Cl. 123—198 **10 Claims**

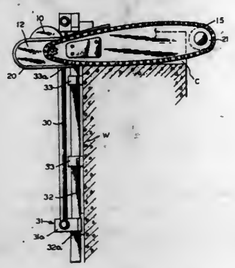


A control system for automatically reducing speed of an overheated internal combustion engine. The system includes gas-operated normally closed fuel and air valves which are urged to the open position by control gas maintained at operative pressure. A conduit for conducting control gas to the valves is provided and has associated therewith control elements that are in heat exchange relationship with the engine exhaust and which vary the rate of control gas flow to the valves inversely to variations in the engine exhaust temperature. Means are also provided to reduce gas pressure as gas flow rate reduces thereby allowing the fuel and air valves to move toward the closed position when the engine overheats. When the engine cools, full control gas flow is restored to completely reopen the fuel and air valves. The system may be arranged to operate the valves sequentially so the air valve closes last and opens first thus reducing fire danger. The system also provides basic cooling means comprising water injection into the exhaust gases from each cylinder at a rate proportional to engine speed.

3,545,422
CHAIN SAW APPARATUS FOR SAWING REINFORCED CONCRETE
John V. McNulty, Norwich, New York, assignor to George P. Kingsley, Holland Patent, New York by mesne assignments
Filed Sept. 17, 1968, Ser. No. 760,241
Int. Cl. B28d 1/08, 1/12; B27b 17/00
U.S. Cl. 125—21 **13 Claims**

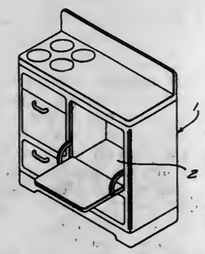
An apparatus for sawing very hard materials, such as reinforced concrete, stone and the like. A chain saw having saw

oscillating means is mounted on a saw supporting framework adapted to be mounted on the surface of a body to be cut. The framework has guide rods and a platform movable along said guide rods and on which said motor means is mounted. The framework supports said guide rods in one of two position, one position being parallel to the surface of said body and the other position being perpendicular to the surface of said body. Platform feed means is provided for driving said platform along said guide rods at a controlled rate of feed.



The chain has teeth which are generally oval shape and having a central body portion and opposite end portions, the central body portion having a peaked top surface and being a matrix having particles of hard cutting material embedded therein and projecting therefrom, the opposite end portions having a partially conical top surface joining the peaked top surface of the central body portion in lines and being a matrix having a highly abrasive finely divided material therein.

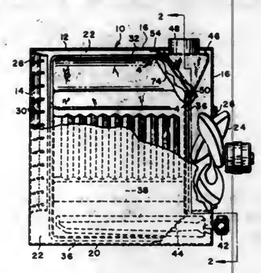
3,545,423
SELF-CLEANING COOKING APPARATUS
Curtis L. Morgan, Sigel, Illinois, assignor to Fedders Corporation, Edison, New Jersey a corporation of New York
Filed Jan. 13, 1969, Ser. No. 790,772
Int. Cl. A21b *1/00*
U.S. Cl. 126—19 **5 Claims**



A self-cleaning surface for a cooking apparatus comprising a two-layer coating on a metal surface, the first coating being a mixture of a ceramic and catalytically active material with a second coating of catalytically active material. A method for forming a self-cleaning surface for a cooking apparatus including the application of the catalyst in a slurry having a material convertible to a high-temperature binding material.

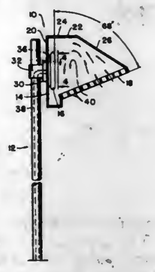
3,545,424
HOT AIR FURNACE
Harry C. Lohman, La Crosse, Wisconsin, assignor to The Trane Company, La Crosse, Wisconsin a corporation of Wisconsin
Filed Dec. 19, 1968, Ser. No. 785,074
Int. Cl. F24h *3/06*
U.S. Cl. 126—91 **9 Claims**

A hot air furnace having clamshell heat exchangers sealingly connected to a combustion products manifold by way of a ceramic fiber gasket interposed and secured



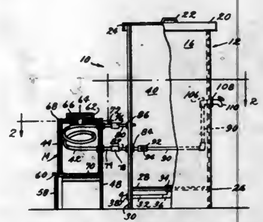
between rims of the heat exchanger outlets and rims at the manifold inlets.

3,545,425
INFRARED HEATER
Gary L. Dikin, Warren and Alan F. Karpus, Detroit, Michigan, assignors to Insto-Gas Corporation, Detroit, Michigan a corporation of Michigan
Filed Oct. 8, 1968, Ser. No. 765,899
Int. Cl. F23d *13/12*; **F24c** *3/04*
U.S. Cl. 126—92 **10 Claims**



A space heater for patios and the like having a gas-operated heating element within the housing and a grid providing a multiplicity of passages for the entry of air to the housing. The grid is disposed at a substantial angle to the heating element to prevent the heating element from being extinguished by direct impingement of the entering air.

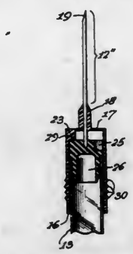
3,545,426
PORTABLE FLUID HEATER
Salvatore Escaldi, 71 Sheffield Ave., North Babylon, New York
Continuation-in-part of application Ser. No. 680,189, Nov. 2, 1967, now abandoned. This application Aug. 27, 1969, Ser. No. 853,277
Int. Cl. F24h *1/00*
U.S. Cl. 126—344 **3 Claims**



This invention relates to a portable fluid heater consisting of a tank reservoir unit and a heating unit. The heating unit, which contains a coil, is adapted to receive combustible

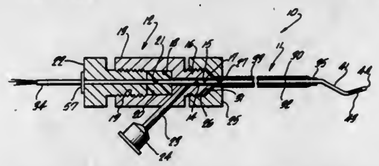
material, such as charcoal. The ends of the coil are disposed so as to be connected with the ends of two conduits extending from the tank reservoir. One of the conduits extending from the tank is in direct communication with a dispensing valve connected to the side wall of the tank. When the dispensing valve is closed fluid will flow within the tank reservoir through the conduits, allowing the heated fluid to recirculate through the coil to thus maintain a constant high temperature. When the dispensing valve is opened, fluid flow in the coil is reversed and water is drawn off from a relatively hot zone in the tank reservoir, thereby increasing the efficiency of the heater.

3,545,427
BLOOD-COLLECTING ASSEMBLY
George R. Ryan, 1431 Henry Place, Waukegan, Illinois
Filed Nov. 27, 1968, Ser. No. 779,478
Int. Cl. A61b *5/10*; **A61m** *1/00*
U.S. Cl. 128—2 **12 Claims**



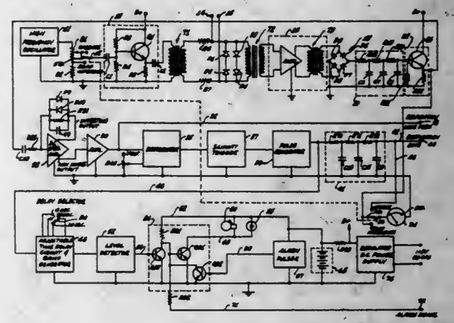
A blood-collecting assembly includes an evacuated tube having a stopper closing off its one end, a holder having a tube-receiving portion into which the stopper and tube can be freely inserted in any angular position, and a cannula secured to the holder and having a stopper-piercing marginal end extending into the space within the tube-receiving portion and terminating at a stopper-piercing end and another marginal end extending outwardly of the holder and terminating at a flesh-piercing end. A stop formed in part by the holder and in part by the stopper enables partial penetration and thereafter complete penetration of said stopper-piercing end through the stopper.

3,545,428
MASSFLOWMETER CATHETER
Wilton W. Webster, Jr., 1388 Crest Drive, Altadena, California
Continuation-in-part of application Ser. No. 472,240, July 15, 1965, now Patent No. 3,405,708. This application Oct. 10, 1968, Ser. No. 766,487
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 **12 Claims**



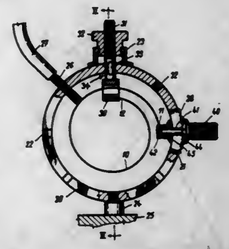
A double lumen flowmeter catheter including two concentric lumens, the inner one of which extends beyond the anterior end of the outer one which is sealed at its anterior end to the inner lumen, defining a coolant flow passage therebetween. Means are coupled to the posterior end of the outer lumen for injecting coolant liquid into the flow passage, and exit means are provided from the passage adjacent its anterior end. A first electrical temperature sensing device is mounted adjacent the coolant exit means, but toward the posterior end of the outer lumen from the exit means, for sensing the temperature of liquid flowing through the passage toward the exit means, and a second electrical temperature sensing device is mounted to the inner lumen beyond the anterior end of the outer lumen for sensing the temperature of liquid flowing therepast.

3,545,429
RESPIRATION MONITOR
Edmond R. Pelta, 71 Sheffield Ave., Pacific Palisades and Kenneth S. Gold, Canoga Park, California, assignors to Becton, Dickinson and Company, Rutherford, New Jersey a corporation of New Jersey. by mesne assignments to
Filed March 30, 1967, Ser. No. 627,097
Int. Cl. A61b *5/05*
U.S. Cl. 128—2.1 **5 Claims**



An impedance pneumograph apparatus for monitoring respiration and detecting apnea, i.e., cessation of respiration. A high frequency carrier signal is impressed on a pair of biopotential electrodes applied to the subject whose respiration is being monitored. The respiration signal representing tidal volume impedance changes in the lungs of the subject modulates the high frequency carrier and is subsequently amplified and demodulated. The demodulated output is used to standardize the high frequency source and derive a direct impedance reading on a galvanometer. The demodulated output is also processed to provide respiration waveform and respiration rate information. Cessation of respiration for a preselected period of time is automatically sensed, and audio and visual alarms are activated to indicate the occurrence of apnea.

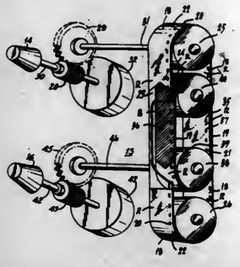
3,545,430
ADJUSTABLE ELECTRODE ARRANGEMENT FOR CAPACITANCE PLETHYSMOGRAPHY
Stepan Figar, Prague, Czechoslovakia, assignor to Ceskoslovenska akademic ved, Prague, Czechoslovakia
Filed March 5, 1968, Ser. No. 710,585
Int. Cl. A61b *5/02*; **A61n** *1/40*
U.S. Cl. 128—2.05 **8 Claims**



An electrode arrangement for taking plethysmographic capacitance measurements on a finger and the like having a supporting ring in which a flat spring metal strip is coiled in a radial plane to form a spiral whose ends overlap each other and are fastened to the ring by fastening assemblies of which one can be shifted circumferentially on the ring and the other radially. Abutments threaded on the ring for radial move-

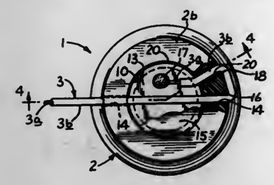
ment permit the shape of the spiral to be modified and are remotely operated by tubular handles of insulating material.

3,545,431
MONITORING DISPLAY
Ulrich A. Frank, Yardley, Pennsylvania and Bernard C. Wollmeringer, Willingboro, New Jersey, assignors to Hoffmann-La Roche Inc., Nutley, New Jersey a corporation of New Jersey. by mesne assignments
Filed June 18, 1968, Ser. No. 737,949
Int. Cl. A61b 5/02
U.S. Cl. 128—2.05 **9 Claims**



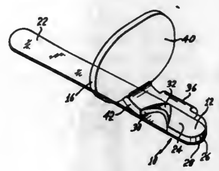
A monitoring display which provides a visual indication of the high and low systolic blood pressure alarm settings of a sphygmomanometer is accomplished by using two driven tapes, one overlapping the other alongside the manometer tube. The tape which is nearest the viewer has a transparent portion through which a portion of the second tape is viewable and has an opaque portion of one color which designates with respect to the manometer tube the high systolic pressure alarm region. The second or inner tape has an opaque portion of a color differing from the one color which relates with respect to the manometer tube and the first tape the permissible region of the systolic alarm settings. The second tape also has an opaque region of the one color which designates with respect to the manometer tube the low systolic alarm region. Movement of the tape nearest the viewer changes the viewable opaque portion of the first tape of the one color and correspondingly changes the high systolic alarm setting. The movement of the inner tape to change the viewable opaque portion of the inner tape of the same one color correspondingly changes the low systolic alarm setting.

3,545,432
BODY ELECTRODE ASSEMBLY
Richard M. Berman, Dresher, Pennsylvania, assignor to Gulton Industries, Inc., a corporation of Delaware
Filed July 24, 1967, Ser. No. 655,508
Int. Cl. A61b 5/04
U.S. Cl. 128—2.06 **7 Claims**



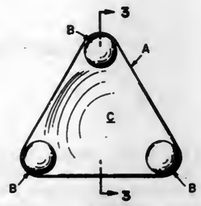
The electrode assembly of the invention most advantageously comprises an electrode housing made of molded insulating material and having a base portion with a skin-contacting surface interrupted by a conductive paste-receiving recess located completely within the margins of said skin-contacting surface. The housing has a head portion with a cavity therein intersecting the recess in the base portion thereof. A conductive electrode-forming disk closes the opening between the recess in the base portion of the housing and the cavity in the head portion thereof. An insulated signal lead extends through the head portion of the housing and said cavity therein and then bends tightly back into the housing around two corners where the ends of the signal lead terminate in the cavity in the head portion of the housing. The conductor of the signal lead is soldered to the electrode-forming disk and the cavity is filled with an encapsulation material. To apply the electrode assembly, the paste-receiving recess in the housing is filled with a conductive paste and the electrode assembly is placed upon the patient's skin and secured and sealed thereto by a patch of cushioning material which envelopes the housing. The patch has a pressure sensitive adhesive layer which holds the patch tightly around the electrode housing and prevents any drying of the paste from the electrode assembly.

3,545,433
PROTECTIVE DEVICE FOR TONGUE DEPRESSORS
Paul C. Horn, Jacksonville, Florida (323 Rogers Terrace, Lakeland, FL 33803)
Filed Oct. 17, 1967, Ser. No. 675,974
Int. Cl. A61b 13/00
U.S. Cl. 128—15 **5 Claims**



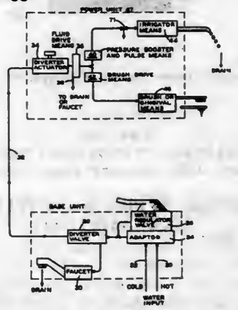
A protective device for use with a tongue depressor comprising a transparent deflector closely adjacent to and generally covering the mouth of a patient. The deflector is of a size and shape to protect the examiner from droplet contamination eminating from the patient's mouth during visual examination. An elongated handle supports the lower portion of the deflector and an elongated member is connected to the handle and extends therebelow and includes a portion which is parallel to and spaced from the handle and forming a slot for the reception of a tongue depressor. The vertical dimension of the slot is less than the tongue depressor thickness frictionally and releaseably maintaining the depressor within the slot. The handle is provided with a cutout portion above the member portion to accommodate the middle finger of the examiner and provide an area of finger contact of the tongue depressor to restrain relative movement between the depressor and the handle.

3,545,434
SCALP MASSAGER
Roy P. Woodruff, 927 Amador St., Vallejo, California
Filed Oct. 31, 1968, Ser. No. 772,278
Int. Cl. A61h 7/00
U.S. Cl. 128—62 **4 Claims**



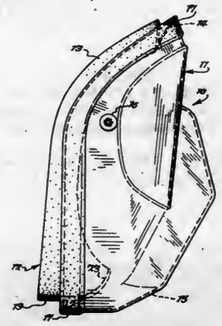
A hand-held scalp massage unit triangular in plan and formed with a concave undersurface approximating the contour of the human head. Equidistantly spaced contact pads protruding outwardly from the undersurface at the corners of the triangular body are separated by three times their respective diameter for stablilizing the unit against rocking motion and transmitting uniform pressure to the scalp.

3,545,435
ORAL HYGIENE CENTER
Milton B. Hollander, Stamford, Connecticut and Paul M. Augenstein, Madison, New Jersey, assignors to American Standard, Inc., New York, New York a corporation of Delaware
Filed May 20, 1968, Ser. No. 730,279
Int. Cl. A61h 9/00
U.S. Cl. 128—66 **6 Claims**



Speed controlled structure for driving a toothbrush or a gingival stimulator and which can supply a pulsating jet of temperature controlled water at a desired pressure for use as a tooth irrigator and gum stimulator, the structure being driven hydraulically by water main pressure.

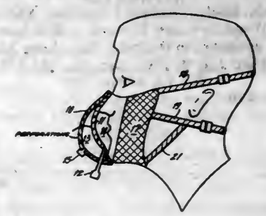
3,545,436
FACE SEAL
Robert L. Holloway, Snyder, New York, assignor to "Automatic" Sprinkler Corporation of America, Cleveland, Ohio a corporation of Ohio. by mesne assignments to
Filed July 21, 1967, Ser. No. 655,191
Int. Cl. A62b 18/00
U.S. Cl. 128—141 **10 Claims**



A resiliently flexible sealing element conformable to the face of a wearer is supported by and spaced from a mask body by a resiliently flexible web, the sealing element and web extending perimetrically around the open side of the mask body with the hinge web connected at one side to the sealing element and at its other side to a flange secured to the mask body.

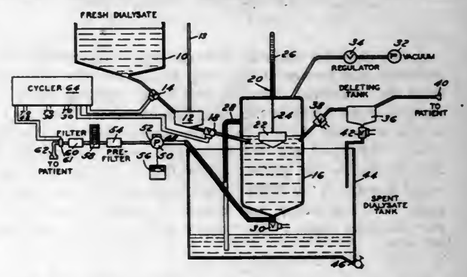
3,545,437
DISPOSABLE COOLED OXYGEN MASK
John J. Quackenbush, Monroe, Connecticut, assignor to National Distillers and Chemical Corporation, New York, New York a corporation of Virginia
Filed Dec. 28, 1967, Ser. No. 694,128
Int. Cl. A62b 7/00
U.S. Cl. 128—146.7 **12 Claims**

A disposable oxygen mask formed of a dual-walled thermoplastic material shaped to be sealed around the nose and mouth of a wearer. The interior pocket received a coolant medium such as alcohol or a forced airflow while the region



between the interior mask panel and the wearer's mouth and nose receives an oxygen or air conduit.

3,545,438
INTERMITTENT DIALYSIS METHOD AND APPARATUS THEREFOR
James H. De Vries, Ann Arbor, Michigan, assignor to Sarns, Inc., Ann Arbor, Michigan a corporation of Michigan
Filed Feb. 12, 1968, Ser. No. 704,729
Int. Cl. A61m 5/00, 37/00
U.S. Cl. 128—213 **11 Claims**



This invention relates to an improved method and apparatus for performing peritoneal dialysis treatments which uses an initially unsterilized dialysis liquid and reuses a major portion of the dialysis liquid for several cycles of the treatment. The apparatus comprises a plurality of receptacles, a vacuum pump, a pressure pump, a bacterial filter and a system of valves; the various components of the system being automatically cycled to accomplish the steps of the improved method.

3,545,439
MEDICATED DEVICES AND METHODS
Gordon W. Duncan, Kalamazoo, Michigan, assignor to The Upjohn Company, Kalamazoo, Michigan a corporation of Delaware
Filed Jan. 4, 1968, Ser. No. 696,011
Int. Cl. A61m 7/00
U.S. Cl. 128—260 **19 Claims**

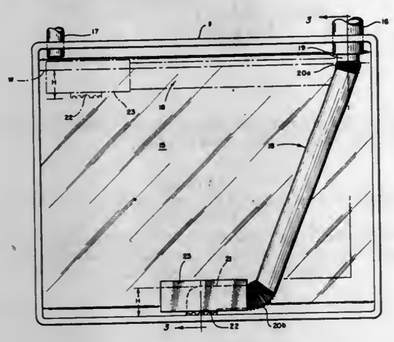


An improved resilient annular device for intravaginal placement and retention as required and formed of a compatible nonabsorbable polymeric substance such as an organopolysiloxane, nylon, natural or synthetic rubber, Dacron, Teflon, polyurethane and polyethylene and containing an effective amount of a medicament which is capable of passage through the drug-permeable polymeric material. The device is useful to provide a readily inserted, readily retained and readily removable source of continued medication for sustained beneficial effects in female mammals, human and animal.

3,545,440
SINGLE CHAMBER UNDERWATER DRAINAGE APPARATUS

Sidney Mishkin, Roslyn; Robert E. Bidwall, Melville; Leonard D. Kurtz, Woodmere and Edward J. Hallstein, Smithtown, New York, assignors to Deknatel, Inc., Long Island

Filed July 9, 1968, Ser. No. 743,395
Int. Cl. A61m 1/00
U.S. Cl. 128—276 8 Claims

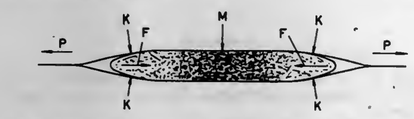


A one-chamber drainage bottle having a constant level underwater seal formed at the lower end of the tube extending from the collection chamber inlet to an opening below the surface of the liquid in the collection chamber. The tube has a float attached thereto for causing the tube to follow the level of the liquid and thereby keep the tube opening a fixed distance below the surface of the liquid. A housing is provided to support the bottle, which housing includes a vacuum gage, a vacuum pump, and means for connecting the collection chamber outlet to the vacuum pump and the thoracotomy tube.

3,545,441
ABSORBENT CORE

Gunnar Gravdahl, Haslum, Norway, assignor to A/S Saba, Tonsberg, Norway

Filed Jan. 29, 1968, Ser. No. 701,379
Claims priority, application Norway, Feb. 8, 1967, 166,765
Int. Cl. A61f 13/16
U.S. Cl. 128—284 3 Claims



An absorbent, pillow-shaped core, intended for use in a sanitary napkin, a diaper, compresses or the like, made of fibrous material, the fibrous material provided with gradually varying mass density, such that a greater number of fibers per volume is present in the portion of the core having the greatest need for absorption power, the mass density gradually reduced in direction away from said portion, the core having substantially the same thickness all over.

3,545,442
BANDAGING AND DRESSING MATERIAL

Dan B. Wicker, Loudonville, New York; James G. Bennett, Jr., Pittsfield, Massachusetts and Lowell G. Ward, East Greenbush, New York, assignors to Huyck Corporation, Rensselaer, New York a corporation of New York

Filed Sept. 23, 1964, Ser. No. 398,593
Int. Cl. A61f 13/00
U.S. Cl. 128—296 10 Claims

This invention relates to medical dressings which are absorbent of body exudates, yet are made nonadherent to body portions with which they are placed in contact by means of a

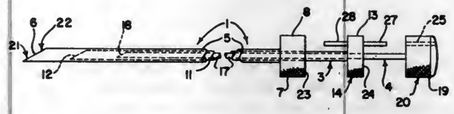


foraminous contact layer having hydrophobic thermoplastic fibers.

3,545,443
SUPRAPUBIC CYSTOSTOMY NEEDLE

Amir H. Ansari, 2484 Stratford Road, Cleveland Heights, Ohio

Filed Sept. 26, 1968, Ser. No. 762,814
Int. Cl. A61b 17/34
U.S. Cl. 128—347 7 Claims

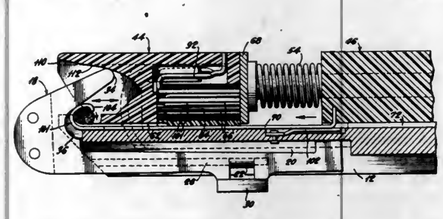


A hollow needle for performing a suprapubic bladder tap through which a flexible catheter may be fed into the bladder for retention, the needle suited for withdrawal from the suprapubic wound while the catheter remains in the bladder whereupon the needle may be opened along its entire length and removed laterally from the free end of the catheter rather than passing over the catheter's distal end, such needle characterized by a hollow inner member, a hollow outer member telescopically receiving the inner member, and a stylet telescopically received in the inner member, both the inner and outer members being open at both ends and with a longitudinal aperture communicating between said open ends to expose the hollow interiors of the members.

3,545,444
WIRE SUTURE WRAPPING INSTRUMENT

David T. Green, Norwalk, Connecticut, assignor to United States Surgical Corporation, Baltimore, Md. a corporation of Maryland

Filed Oct. 2, 1967, Ser. No. 672,362
Int. Cl. A61b 17/12, 17/32
U.S. Cl. 128—305 8 Claims

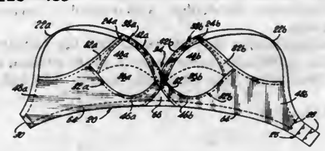


A medical suture and cutting instrument including an elongated rail assembly supporting a resilient anvil which extends therefrom. A wire suture carriage assembly and a pusher are mounted on the rails for reciprocation and are separated by a spring force. An anvil finger assists gathering the tubular structure in the anvil bending surface and the pusher is driven forward until the wire carriage meets a calculated resistance following which the pusher continues toward the anvil to eject an elongated wire suture for shaping by the anvil bending surface and wrapping or coiling about the tubular structure. The suture carriage includes inclines which engage the anvil to automatically adjust the wrapping radius to the diameter of the tube.

3,545,445
BRASSIERES

Murray Freedman, Great Neck; Arthur E. Vale and Peter R. Vale, New York, New York, assignors to La Trique Brassiere Company, Inc., New York, New York a corporation of New York

Filed April 9, 1969, Ser. No. 814,751
Int. Cl. A41c 3/00
U.S. Cl. 128—483 1 Claim

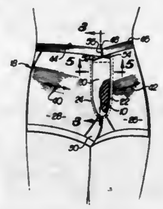


A brassiere capable of providing the wearer with a high degree of freedom of movement while at the same time remaining in its proper position. The brassiere has at its cups upper cup portions extending from the bottom ends of the straps to a central region of the brassiere where these upper cup portions intersect. At least one of the upper cup portions forms an extension of an underbust band portion with the upper cup part of one cup connected with the underbust band portion of the other cup. The underbust band portions are in turn connected with back portions which terminate at a rear releasable fastener for the brassiere. The upper cup portions are not connected to each other where they cross over each other at the central region of the brassiere, and these upper parts of the upper cup portions as well as the underbust band portions and the back portions are all made of a stretch fabric which has at least a one-way stretch.

3,545,446
GIRDLE

Vestal L. Nobbs, 3334 Hacienda Blvd., Hacienda Heights, California

Filed Aug. 26, 1968, Ser. No. 755,126
Int. Cl. A41c 1/00
U.S. Cl. 128—522 7 Claims

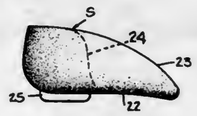


The girdle incorporating the present invention carries a pad conformable to the sacrum and adjacent vertebrae. Pressure is applied to the pad to maintain it anchored and in firm engagement by a combination of design features.

3,545,447
HEEL STABILIZER

Jack J. Silverman, 15 Cypress Road, Eastchester, New York

Filed July 17, 1968, Ser. No. 745,531
Int. Cl. A43b 7/24
U.S. Cl. 128—583 7 Claims



A heel stabilizer having a cuplike formation to receive the heel of a foot, the interior wall of the stabilizer being contoured to conform accurately to the heel of the foot of the wearer, a moldable plastic body being attached to the base of the exterior wall to conform the stabilizer to the heel seat of the shoe in which the stabilizer is inserted.

3,545,448
PROCESS FOR MAKING A MODIFIED CARBOHYDRATE MATERIAL FOR SMOKING MIXTURES AND THE MATERIAL MADE THEREBY

James Forrester Morman, Troon and James Brown Parker, Kilwinning, Scotland, assignors to Imperial Chemical Industries Limited, London, England a corporation of Great Britain

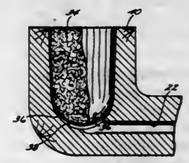
Filed Dec. 1, 1969, Ser. No. 876,219
Claims priority, application Great Britain, May 19, 1966, 22,270/66
Int. Cl. A24b 15/00; A24d 01/18
U.S. Cl. 131—2 15 Claims

A tobacco replacement material suitable as a smoking material is produced by the catalytic degradation of carbohydrate material. The degradation is carried out at temperatures of between 100° and 250° and involves a water loss to the extent that the degraded material is less than 90 percent of the weight of the original corbohydrate. Strong mineral acids, basic salts of these acids, alkali hydroxides and alkali salts of weak acids serve in the capacity of the catalyst.

3,545,449
PIPE SMOKER'S TOBACCO PACKAGE

James G. Pecor, 8832 Anthony, Garden Grove, California

Filed April 18, 1969, Ser. No. 817,542
Int. Cl. A24d 01/14; A24f 01/26, 09/16
U.S. Cl. 131—3 1 Claim



A package of pipe smoker's tobacco including a container and a charge of tobacco of size and shape to fit within the bowl recess. The container is structured from a flat sheet of metal foil and has generally cylindrical, gathered sides, formed without ironing, including an outwardly extending crushable flange at the upper end of the container. The container also has a removable or combustible cover which overlies the upper end of the container and its flange. The structure of the container is such as to permit air flow through the tobacco charge while impeding air flow around it, to hold the tobacco charge away from the pipe bowl bottom and, by use of the crushable flange, to facilitate disposal of the tobacco ash.

3,545,450
TOBACCO PRODUCT INCLUDING RELEASABLE FLAVORANT

Robert R. Johnson and Ezra Dempsey Alford, Louisville, Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky. a corporation of Delaware

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,219
Int. Cl. A24b 15/04
U.S. Cl. 131—17 4 Claims

An organoleptically improved tobacco product having added thereto 1-pyrrolidinecarboxaldehyde.

3,545,451
FLAVORANT FOR TOBACCO PRODUCTS

John E. Kennedy, Jr. and Tilford F. Riehl, Jr., Louisville, Kentucky, assignors to Brown & Williamson Tobacco Corporation, Louisville, Kentucky a corporation of Delaware

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,238
Int. Cl. A24b 15/04
U.S. Cl. 131—17 4 Claims

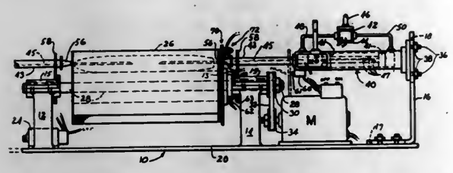
An additive for smoking tobacco product which enhances and fortifies the natural tobacco flavor of tobacco smoke in

which the tobacco product has added thereto a small amount of piperitenone.

3,545,452
TOBACCO PRODUCT INCLUDING RELEASABLE FLAVORANT
Robert R. Johnson and Ezra Dempsey Alford, Lousiville, Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky. a corporation of Delaware
No Drawing. **Filed Nov. 29, 1968, Ser. No. 780,239**
Int. Cl. A24b *15/04*
U.S. Cl. 131—17 **7 Claims**

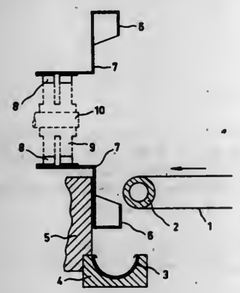
An organoleptically improved tobacco product having added thereto cis-3-hexen-l-ol.

3,545,453
PROCESS FOR PRESERVING CIGARS AND TOBACCO
Stewart Hoffman, 144—24 72nd Ave., Flushing, New York
Filed Oct. 11, 1968, Ser. No. 777,950
Int. Cl. A24b *09/00, 15/04*
U.S. Cl. 131—25 **1 Claim**



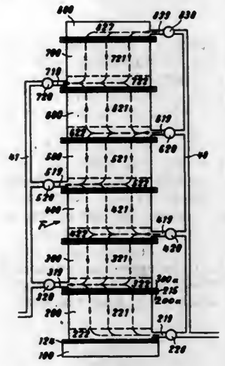
A process for preserving cigars. The process employs a heated mixture of equal parts by weight of orange juice, pineapple juice and honey. While heated at a temperature between 100° F. and 150° F. the mixture is injected into the cigars before they are cellophane wrapped and sealed. The process may also be used for preserving tobacco.

3,545,454
DEVICE IN A MACHINE FOR PRODUCING CIGAR BUNCHES OR CIGARS
Ian Kjaer, Allerod, Denmark and Dieter Neuber, Jakobsberg, Sweden, assignors to Arenco Aktiebolag
Filed Oct. 8, 1968, Ser. No. 765,844
Claims priority, application Sweden, Oct. 13, 1967, 14,080/67
Int. Cl. A24c *01/02, 05/18, 05/39*
U.S. Cl. 131—61 **1 Claim**



An arrangement in a machine for manufacturing cigar bunches to produce an interrupted rod of tobacco, said rod including portions covered with tobacco alternating with portions lacking tobacco. The arrangement comprises a feed means and a conveying belt means, said feed means continuously passing tobacco to the conveying belt means. A continuous chain conveyor is arranged below the feed means and in the tobacco flow from said feed means but above the conveying means. The chain conveyor has a plurality of tobacco-collecting containers arranged with a uniform spaced relationship. The chain conveyor moves in a plane perpendicular to the transverse dimension of the conveying means and also moves synchronously with said conveying means. The distance between two adjacent containers is equal to the length of a desired cigar.

3,545,455
PROCESS FOR THE FERMANTATION OF TOBACCO
Laszlo Egri, Basel, Switzerland, assignor to Tamag Basel AG, Ruhrbergstrasse, Birsfelden, Switzerland, a corporation of Switzerland
Original application July 28, 1966, Ser. No. 568,457, now Patent No. 3,399,680, dated Sept. 3, 1968. Divided and this application May 10, 1968, Ser. No. 728,247
Int. Cl. A24b *03/02, 03/12*
U.S. Cl. 131—140 **5 Claims**

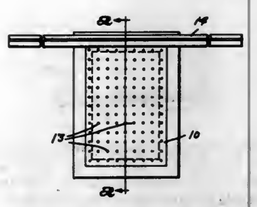


Process for the fermentation of tobacco wherein air is passed through the tobacco at least substantially uniformly, the air is recirculated after passage through the tobacco and during recirculation desired components are selectively removed from the recirculated air. Preferably, the tobacco is stacked in a plurality of layers of small height and the air is passed through each of the layers across the entire cross-sectional area thereof.

3,545,456
CIGARETTE FILTERS CONTAINING SELECTIVE ADSORBENTS
Henry Gabriel, Bartlesville, Oklahoma, assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. **Filed April 18, 1968, Ser. No. 722,164**
Int. Cl. A24d *01/06*
U.S. Cl. 131—266 **11 Claims**

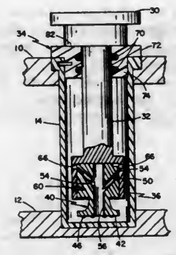
This invention relates to the removal of tars from tobacco smoke employing a filter containing sulfolane or sulfalane derivatives.

3,545,457
HAIR CURLING PACKAGES
Nunziato Schepis, 34 Charles River Road, Watertown, Mass.
Filed Sept. 26, 1968, Ser. No. 762,686
Int. Cl. A01d *4/14*
U.S. Cl. 132—33 **9 Claims**



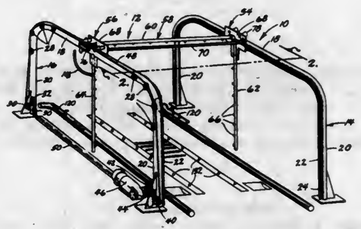
Flat hair curling packages are disclosed that are sufficiently flexible to be formed into a roll when used, each package being in the form of an envelope having outer, water repellent layers, inner aluminum foil layers, and an intermediate absorbent layer including exothermic material reacting, when wetted, with the aluminum, the package being further provided with means insuring, in use, that the package contains less water than the absorbent layer will carry.

3,545,458
CONTACT LENS HANDLING APPARATUS
Donald R. Korb, 80 Boylston St., Boston and Harold R. Shurtleff, Sagmore, Massachusetts, assignors to said Shurtleff assignor to said Korb.
Filed Sept. 30, 1968, Ser. No. 763,619
Int. Cl. A45c *11/04*; **B08b** *3/02*
U.S. Cl. 134—86 **8 Claims**



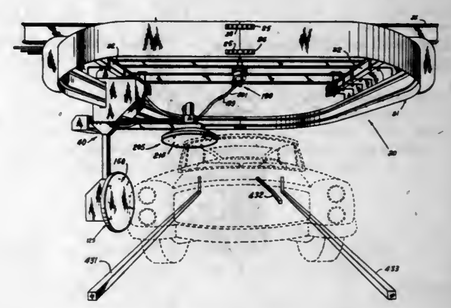
A contact lens support assembly includes a lens holding structure defining a pair of slots, the sides of which are open so that lenses may be inserted into and removed from the slots by grasping their edges. A lens protecting structure fits over the upper ends of the slots to secure the lenses in the slots and an actuator cooperates with a container in which the lens holding structure is disposed for moving that structure in the container to cause fluid flow across the lens surfaces in a cleaning action.

3,545,459
VEHICLE WASHING APPARATUS
James P. Phillips, Marshalltown, Iowa, assignor to Jet Cit Thru, Inc., Marshalltown, Iowa a corporation of Iowa. by direct and mesne assignments
Filed Jan. 27, 1966, Ser. No. 523,471
Int. Cl. B60s *3/04*
U.S. Cl. 134—123 **14 Claims**



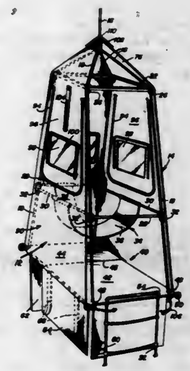
Vehicle washing apparatus including a pair of parallel arcuate standards positioned on opposite sides of a vehicle washing station. A U-shaped spray wand is mounted between the two standards and adapted for movement in an arcuate path thereover.

3,545,460
VEHICLE-WASHING APPARATUS
John L. Daum and Ray B. Spurgin, Dallas, Tex., assignors to Delta Manufacturing and Engineering Corporation, Dallas, Texas a corporation of Texas
Continuation-in-part of application Ser. No. 545,496, April 26, 1966, now Patent No. 3,400,727. This application Sept. 14, 1967, Ser. No. 667,780
Int. Cl. B60s *3/04*
U.S. Cl. 134—123 **6 Claims**



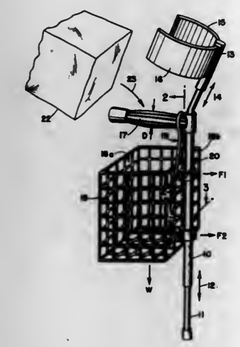
A vehicle-washing apparatus having a carriage movable on a track about a vehicle and having a top rotatable nozzle assembly rotatable about a vertical axis for directing sprays of liquid downwardly on an upwardly facing surface of the vehicle and a side nozzle assembly rotatable about a substantially horizontal axis for directing sprays of liquid at substantially vertical surfaces of the vehicle.

3,545,461
TREE SUSPENDED ENCLOSURE
Everett R. Carlson, Pottersville, N.Y., 940 Lashley, Boulder, Colorado
Filed Aug. 20, 1968, Ser. No. 754,026
Int. Cl. A45f *01/00, 03/04, 04/04*
U.S. Cl. 135—1 **13 Claims**



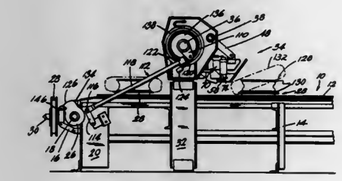
A device when suspended from a tree in an upright position above the ground forms a shelter for a person and when supported on the ground in an upright position may serve as a blind or other similar-type shelter for a hunter or sportsman. The device when supported in a horizontal position from a tree or other upright support provides a shelter hammock for campers or sportsmen. The exterior of the device may carry designs such as a rocket ship or other space vehicle to be attractive to children to thereby be used as a toy.

3,545,462
SINGLE POLE FOREARM CRUTCH AND BASKET
Richard A. O'Mahoney, Hollywood, California, assignor to Velcor, a corporation of California. by direct and mesne assignments
Filed Jan. 2, 1969, Ser. No. 788,575
Int. Cl. A45b 3/00
U.S. Cl. 135—47 2 Claims



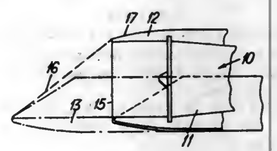
A single pole forearm-type crutch is provided with a basket removably securable to the crutch below the normal handle extending from an intermediate portion of the crutch itself. A link is secured to the upper rear wall portion of the basket and arranged to loop over the handle to suspend the basket. Other portions of the rear wall include clip means resiliently frictionally engaging the pole proper so that the basket is secured in a convenient position for carrying articles.

3,545,463
TIRE MOUNTING HEAD
John L. Mueller, Detroit, Michigan, assignor to Sparton Corporation, a corporation of Ohio
Filed June 14, 1968, Ser. No. 737,119
Int. Cl. B60c 25/08
U.S. Cl. 157—1.24 14 Claims



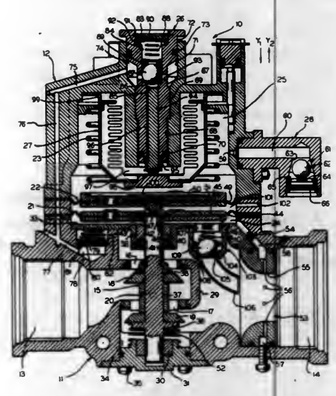
The invention pertains to apparatus for mounting vehicle tires upon wheels, and the apparatus is particularly suitable for mounting tires of a relatively "stiff" nature such as those using polyester and fiber glass cords and internal components. The tire mounting head is mounted upon a fixed frame for movement toward and away from a conveyor which moves the wheels and tires past the head to produce the mounting operation. Unique holddown and compression means are utilized to accomplish the mounting.

3,545,464
AIR INTAKE DUCT FOR A GAS TURBINE ENGINE
David Morris Brown, Derby, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England a British Company
Original application April 6, 1967, Ser. No. 628,902, now Patent No. 3,485,752, dated Dec. 23, 1969. Divided and this application Nov. 18, 1968, Ser. No. 776,625
Int. Cl. F02b 27/02; F02k 1/26; B64d 33/02
U.S. Cl. 137—15.1 4 Claims



An air inlet duct to selectively reduce downward transmission of compressor-generated noise or the like therefrom, the air inlet duct being for a gas turbine engine and at whose upstream end the bottom of the duct is extensible forwardly of the top thereof, thereby rendering the plane of the inlet of the duct oblique to the engine axis to reduce the noise by blocking the egress of noise transmitted downwards from the air inlet duct.

3,545,465
PRESSURE REGULATOR
Vijay K. Zadoo, Mount Prospect, Illinois, assignor to Vapor Corporation, Chicago, Illinois a corporation of Delaware
Filed Nov. 29, 1967, Ser. No. 686,544
Int. Cl. F16k 17/36
U.S. Cl. 137—38 7 Claims

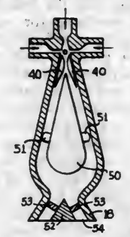


Pressure regulator for pressurizing pressure suits of aircraft personnel, whereby precise pressure regulation is maintained over a wide range of input pressures, temperatures and output flows, and including means for converting the output pressure from gage to absolute at a predetermined altitude.

3,545,466
FLUID OPERATED VALVE
Romald E. Bowles, Silver Spring, Maryland, assignor to Bowles Engineering Corporation, Silver Spring, Maryland a corporation of Maryland
Filed Feb. 25, 1965, Ser. No. 435,167
Int. Cl. F15c 1/14
U.S. Cl. 137—81.5 15 Claims

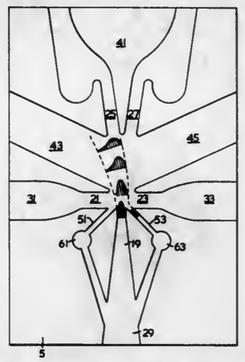
There is disclosed a three-dimensional fluidic valve of the boundary layer type having a diverging-converging reversing chamber downstream of the control fluid interaction region.

The chamber terminates downstream in a narrow throat which is substantially filled by the power stream of the device



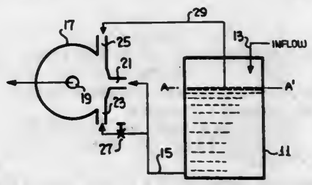
so that the boundary layer and static pressures of the device are isolated from pressures downstream of the throat.

3,545,467
FLUIDIC SYSTEM TRIMMABLE ELEMENTS
Clyde C. K. Kwok and George H. Sharp, Montreal, Quebec, Canada, assignors to Aviation Electric Limited, St. Laurent, Montreal, Canada
Filed Aug. 8, 1968, Ser. No. 751,091
Claims priority, application Canada, Aug. 9, 1967, 997415
Int. Cl. F15c 1/04
U.S. Cl. 137—81.5 6 Claims



A fluidic system control element having a body with a first duct for the discharge of a power jet and a second duct for the reception of part of the power jet stream. A third duct and a compensating jet means direct a control stream which can be adjusted initially and set to compensate for differences in manufacturing tolerances.

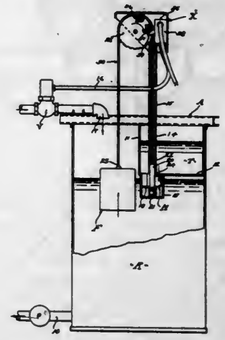
3,545,468
LIQUID LEVEL CONTROLLER EMPLOYING VORTEX VALVE
Peter A. Freeman, Baltimore and Robert A. Bean, Rockville, Maryland, assignors to Bowles Engineering Corporation, Silver Spring, Maryland a corporation of Maryland
Filed May 6, 1969, Ser. No. 822,272
Int. Cl. F15c 1/16
U.S. Cl. 137—81.5 8 Claims



Liquid level control in a boiler or other pressurized liquid container is achieved with a vortex valve. Outflow from the container is split between supply and bias inlets at the periphery of the vortex valve chamber, the supply flow issuing radially into the chamber and the bias flow issuing tangentially into the chamber. A sensor tube has its sensing end disposed at a predetermined level in the tank and is connected to a control inlet at the chamber periphery from which control flow issues tangentially into the chamber in opposition to the bias flow. Liquid above the predetermined level flows through the control inlet with sufficient momentum to balance the bias flow, causing the supply, bias and control flows to flow radially and unimpeded to an axial outlet passage. When the liquid is below the predetermined level, vapor in the container flows through the control inlet with insufficient momentum to overcome the bias flow which deflects the supply flow into a throttled vortical flow path to the outlet passage.

Liquid level is similarly achieved in an unpressurized liquid container, the vortex valve chamber being disposed lower than said predetermined level and the sensor tube being oriented to permit liquid above said predetermined level to flow from the tank to the control inlet of the valve.

3,545,469
LIQUID PROPORTIONER
Harry L. Cissell, 46705 No. 70th E., Lancaster, Calif.
Filed June 7, 1968, Ser. No. 735,353
U.S. Cl. 137—101.27 10 Claims

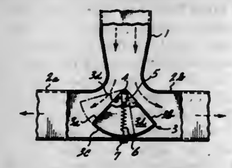


This invention relates to improvements in the proportioning of liquids wherein one fluid is the vehicle and the other fluid is the concentrate having special utility by virtue of its chemical and/or biological properties. A continuously operating batching apparatus is involved and the improvements reside in the positive control over the concentric fluid as it is measured and added to the vehicle fluid that is gauged, the fluids being measured and gauged accurately and adjusted as circumstances require. Generally, the concentrate fluid of know value is added by measure to a gauged volume of vehicle fluid and the admixture is contained in a reservoir from which it is drawn as circumstances require. It is the new and positive and adjustable admixture control over both fluids which is provided.

3,545,470
DIFFERENTIAL-PRESSURE FLOW-CONTROLLING VALVE MECHANISM
Hamilton Neil King Paton, 4603 118th SE, Bellevue, Washington
Filed July 24, 1967, Ser. No. 655,605
Int. Cl. G05d 16/04
U.S. Cl. 137—111 16 Claims

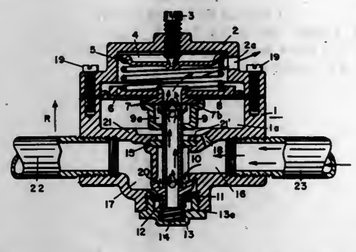
A valve exposed to the pressures in two adjacent conduits is mounted to be moved by higher pressure in one conduit resulting from reduced flow through it into the other conduit for reducing the flow through it, tending to equalize the flows through the two conduits. In one form, the junction between a common conduit and two branch conduits houses a sector valve having its apex pivoted at the center of the common conduit to form a splitter valve for fluid flowing from the

common conduit toward the branch conduits. Alternatively, a cylindrical valve sealed by spaced rolling collars in a casing



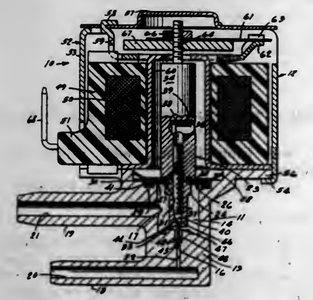
connecting adjacent conduits can reciprocate into one or the other of such conduits to restrict flow through it.

3,545,471
PRESSURE REGULATOR
John F. Taplin, 15 Sewall St., West Newton, Massachusetts
Filed June 2, 1969, Ser. No. 829,204
Int. Cl. G05d *16/06*
U.S. Cl. 137—116.5 **10 Claims**



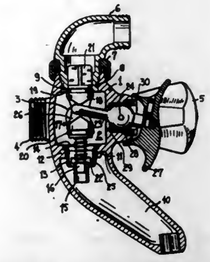
An improvement of the pressure regulator disclosed in U.S. Pat. No. 2,707,966 to John F. Taplin, May 10, 1955 for PRESSURE REGULATOR VALVE having substantially the same performance characteristic as that pressure regulator valve but being made up of considerably fewer parts, involving considerably smaller cost of manufacture, and having a significantly smaller bulk. The improvement consists, in essence, in a single means performing the dual function of establishing a fluid passage for venting fluid from the outflow passage of the device to reduce excess pressure therein and of establishing a mechanical tie between a pressure relief pintle and a pressure supply pintle.

3,545,472
TRANSDUCER
Rudolph J. Franz, Arlington Heights, Illinois, assignor to Eaton Yale & Towne Inc., a corporation of Ohio
Filed May 24, 1967, Ser. No. 640,935
Int. Cl. G05d *16/18*
U.S. Cl. 137—116.5 **11 Claims**



An electromechanical transducer for regulating the level of vacuum form a vacuum source to a point of use. Included is a housing having a vacuum port for connection to the source of vacuum, a control port for connection to the point of use and a vacuum chamber communicating the two ports. A valve mechanism extends into the vacuum chamber and is movable between two positions for varying the level of vacuum at the control port as a function of the position of the valve mechanism. A pressure differential diaphragm is mounted on the valve mechanism and is exposed on one side to the vacuum chamber and on the other side to atmosphere for biasing the valve mechanism as a function of the pressure differential thereacross. A spring biases the valve mechanism in one direction and an electric solenoid coil serves to urge the valve mechanism in an opposite direction with a force which varies as a function of the flow of current through the coil. A rheostat is connected in series with the coil for varying the current therethrough. The spring may comprise a bimetal element and an electric resistance heater may be mounted on the bimetal and a rheostat or a thermistor may be connected in series therewith for varying the force acting on the valve mechanism in said one direction. The level of vacuum in the vacuum chamber and thus at the control port will be maintained at a level whereby the forces acting on the valve mechanism by the diaphragm and the sole plate equal the force acting on the valve mechanism by the spring.

3,545,473
COMBINED BLENDING AND CHANGEOVER VALVE FOR FLUIDS
Armand Moia, Geneva, Switzerland, assignor to Kugler Fonderie Et Robinetterie S.A., a firm of Switzerland
Filed Oct. 17, 1968, Ser. No. 768,304
Claims priority, application Switzerland, Oct. 17, 1967, 14571/67
Int. Cl. G05d *11/00*
U.S. Cl. 137—119 **5 Claims**

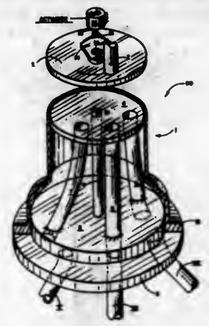


A combined blending and changeover valve comprises a casing having a distribution chamber to which hot and cold water is supplied. A double-acting valve member in the distribution chamber is displaceable between a first end position in which it closes a first outlet to a shower and a second end position in which it closes a second outlet to a spout discharging into a bath. The valve member is movable into its second end position against the action of a spring biasing the valve member into its first end position by a freely pivotable actuating lever which engages in a recess in the body of the valve member. The valve member is adapted to be held in the second end position by pressure in the distribution chamber and the spring acts to return the valve member and the actuating lever to the first end position if a predetermined drop of pressure subsequently occurs in the distribution chamber.

3,545,474
TOOL DIVERTER AND SYSTEM FOR DIRECTING TFL TOOLS
Walter Brown, Long Beach, California, assignor to North American Rockwell Corporation
Filed July 1, 1968, Ser. No. 741,397
Int. Cl. E21b *23/00*; **F16k** *11/00*
U.S. Cl. 137—610 **18 Claims**

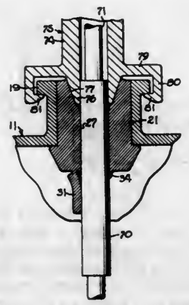
Apparatus for operation in a system using TFL (through the flowline) tools, wherein it is desirable to direct the tool into one of a plurality of paths. To divert the tool, a rotatable

member is provided which is capable of lining up an inflow tube with one of a plurality of outflow tubes depending upon



its rotated position. A number of such deflectors connected in series, and remotely actuated, can automatically direct a TFL tool into a selected one of a plurality of wells.

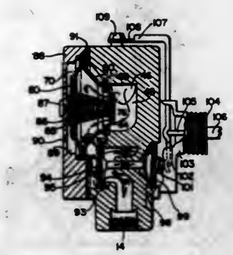
3,545,475
TAP ASSEMBLY
Arthur L. Johnson, Jr., Rockford and Marlow W. Dodge, Loves Park, Illinois, assignors to Johnson Enterprises Inc., Rockford, Illinois a corporation of Illinois
Filed May 22, 1967, Ser. No. 640,292
Int. Cl. B65d *83/00*; **B67d** *5/54*
U.S. Cl. 137—212 **3 Claims**



A tap for tapping an initially sealed keg of draft beer and including a draw tube, a gas tube, a tap body, and a coupling constructed as a unitary assembly, the draw tube remaining in the same position relative to the tap body before, during and after tapping of the keg. A yieldable sealing membrane in a plug in the tap hole of the keg is punctured as the draw tube is inserted into the keg, and then seals around the gas tube to establish an automatic seal between the tap and the plug. A taper at the lower end of the tap body wedges into the plug to hold the tap body and the tubes on the keg after the latter has been tapped and to establish a secondary seal between the tap and the plug.

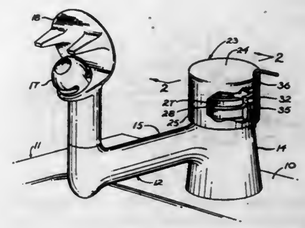
3,545,476
THERMOSTATIC CONTROL DEVICE
Theodore J. Dykzeul, Rolling Hills and Richard W. McKinney, Lakewood, California, assignors to Robertshaw Controls Company, Richmond, Virginia a corporation of Delaware
Original application Feb. 17, 1967, Ser. No. 616,841, now Patent No. 3,467,119, dated Sept. 16, 1969. Divided and this application Feb. 28, 1969, Ser. No. 803,283
Int. Cl. F16k *27/00*
U.S. Cl. 137—315 **4 Claims**

A control device having a pressure regulator for regulating the pressure of a fluid flow wherein the regulator structure is embodied in a housing for unitary assembly in the control device casing; the housing includes a valve slot for a



frustoconical regulating valve member integrally formed on the regulating diaphragm.

3,545,477
WATER BUBBLER ASSEMBLY
Allen C. Wright, Moraga, California, assignor to Haws Drinking Faucet Company, Berkeley, California a corporation of California
Filed Dec. 3, 1968, Ser. No. 780,839
Int. Cl. F16k *43/00*; **F16b** *21/00*
U.S. Cl. 137—327 **10 Claims**

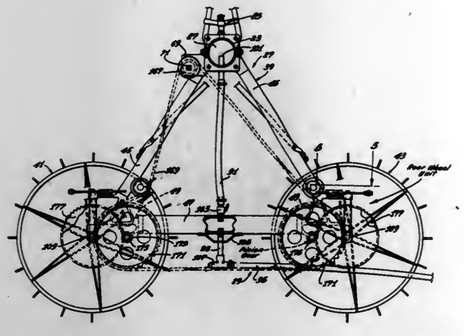


A valve-controlled water bubbler assembly characterized by being substantially tamper-proof. The bubbler assembly includes a housing equipped with a nozzle through which water is discharged for drinking; and the housing has a supply passage communicating with the nozzle and provided therealong with a normally closed valve controlled by a push-button mounted upon the housing adjacent one end thereof. The pushbutton totally conceals the valve and the mechanism by which the pushbutton is confined upon the housing, and it can be removed from the housing only by special means known to skilled repairmen.

3,545,478
IRRIGATION SYSTEM
Elmer H. Etgen, P.O. Box 4539, Lubbock, Tex.
Filed Feb. 26, 1968, Ser. No. 708,157
Int. Cl. B60p *3/30*
U.S. Cl. 137—344 **12 Claims**

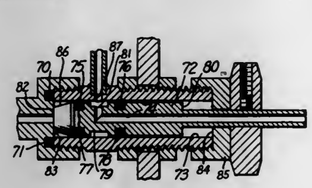
This disclosure describes an irrigation system which is movable intermittently through a first lane or swath and then shiftable to an adjacent swath and moved intermittently

therethrough. The system is self-propelled and may include a plurality of mobile carriage units for supporting an elongated



main irrigation pipe and a plurality of drag lines pulled behind the carriage units.

3,545,479
FLOW-DIVERTING DEVICE FOR GAS CHROMATOGRAPHS
Winston C. Loe, Mountain View, California, assignor to Loenco Inc., Altadena, California a corporation of California
Original application June 12, 1967, Ser. No. 645,435, now Patent No. 3,473,557. Divided and this application July 7, 1969, Ser. No. 839,279
Int. Cl. F16k *11/07*; **F16l** *5/00*
U.S. Cl. 137—360 **2 Claims**



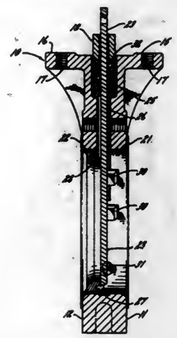
An in-line flow diverting device for diverting a stream through a panel or other bulkhead of a gas chromatograph or similar instrument for flow measurement or other purposes. The device includes an inlet connection, an outlet connection, and a divert connection which is accessible from the front of the panel.

A valve stem is slidably mounted for reciprocal movement within an opening in a valve body. The valve stem has an opening which is adapted to connect the inlet connection to the divert connection when the valve stem is in its inward position. In this position, the inner end of the valve stem seals off the outlet connection.

When the valve stem is in its outward position, the inner end of the valve stem is withdrawn so that the inlet connection is connected to the outlet connection, while the divert connection is sealed off. The device can be operated manually or automatically.

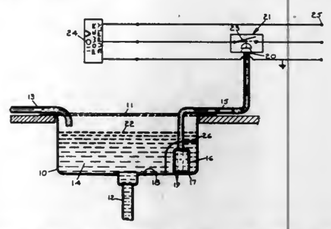
3,545,480
LINED GATE VALVE
Lloyd E. Gustafson, St. Cloud, Minnesota, assignor to Dezurik Corporation, Sartell, Minnesota 0
Filed June 19, 1968, Ser. No. 738,347
Int. Cl. F16k *27/00, 3/02*
U.S. Cl. 137—375 **2 Claims**

A lined gate valve comprising a cast body having a sleeve passage, and a throat passage in perpendicular alinement with the sleeve passage. The valve further comprising preformed, corrosion-resistant throat and sleeve liner sec-



tions contiguous with and supported by the inner surface of the body material.

3,545,481
LIQUID LEVEL CONTROL DEVICE
Angelo R. Fratalia, South Boston, Massachusetts, assignor to Frank H. Luckiewicz, Dorchester, Massachusetts a part interest
Filed Nov. 3, 1967, Ser. No. 680,432
Int. Cl. E03b *1/232*
U.S. Cl. 137—387 **1 Claim**



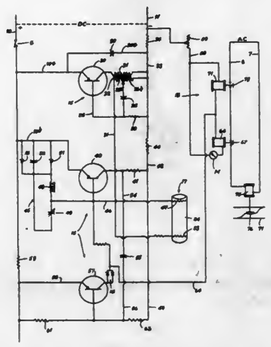
A control device for a clothes or dishwasher wherefrom liquid is discharged into a sink or other receptacle having an outlet for the removal of said liquid to a sewage or other line and effective to disconnect the power input to said washer when the liquid in said sink reaches a predetermined level.

3,545,482
ELECTRONIC NONCONTACT INDICATING APPARATUS
Melvin Paull, 8001 Rosilene, St. Louis, Missouri
Continuation-in-part of application Ser. No. 284,659, May 21, 1963, now abandoned. This application Sept. 20, 1967, Ser. No. 669,126
Int. Cl. G05d *9/00*
U.S. Cl. 137—392 **10 Claims**

The apparatus here illustrated incorporates a transmitter with an oscillator, preferably of low frequency (ca. 4000—15,000 cycles), a transmitter "antenna" probe, a receiver with a receiver "antenna" probe between them, the two probes being physically separated and arranged in out-of-contact proximity to a medium to be tested, which medium fills to varying extents a space between the probes. The medium may be solid or liquid, conductive or nonconductive. In the preferred embodiment illustrated, the medium is water in a glass tube with the probes at different levels adjacent the outside of the tube. As the medium moves into or out of the space between the probes, current flows in the receiver circuit, varying in amount with the amount of penetration of the space by the medium. Also the characteristic current curves developed for varying penetrations of different media into the space demonstrate individual peculiarities. The circuitry

illustrated includes a reversing network that reverses the direction of current change produced by changing penetration of the medium into the space, e.g. from increasing current with increasing penetration, to decreasing current with increasing penetration. This affords a safety factor as will appear.

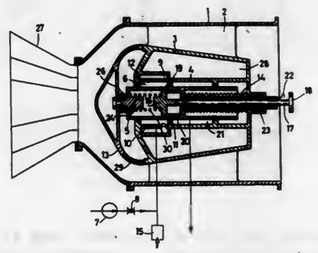
The output of the receiver is amplified, metered, and put into an actuating apparatus. Illustrated here is a liquid level control. The medium between the probes is a liquid such as water. The output operates a liquid supply valve. When the



liquid level falls to a predetermined low, the signal through the receiver reaches a value causing the circuit to open the supply valve. When the liquid level is restored, the receiver signal attains an opposite value, and closes the supply valve. The circuit also includes a normally closed relay switch that opens to prevent operation in the event of excess signal current.

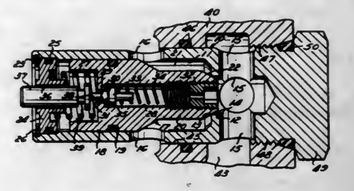
In the preferred form of the invention, the transmitter and receiver circuits are connected together to a single power source. In another embodiment, the two circuits are separate d.c. circuits.

3,545,483
SELF-ACTING, TELECONTROLLED ANTIEXPLOSION VALVE
Luigi Giovanni Valdenazzi, Via Antonini 2, Genoa, Italy
Filed March 24, 1969, Ser. No. 811,279
Claims priority, application Italy, March 23, 1968, 6,906-A/68
Int. Cl. F16k *17/32*
U.S. Cl. 137—487.5 **13 Claims**



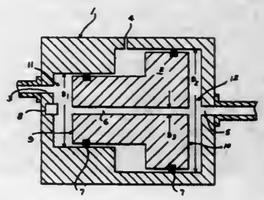
An antiblast valve for pipelines is disclosed, having a plunger which is kept open by the pressure obtaining in said pipeline, movable pressure responsive members being provided internally of the valve body for causing a quick closure of the valve by a plug whose closing movement is properly braked.

3,545,484
PILOT-OPERATED VALVE
John D. Allen, South Euclid, Ohio, assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio a corporation of Ohio
Filed Dec. 6, 1967, Ser. No. 688,513
Int. Cl. F16k *17/10*
U.S. Cl. 137—490 **5 Claims**



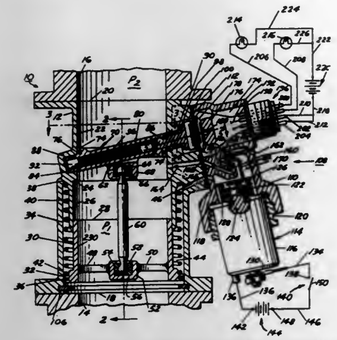
The present valve has a normally closed main valve which is pressure-unbalanced to an open position when its pilot valve opens. A control pin is slidable in a passageway leading into a pressure chamber at the inlet side of the pilot valve. The outer end of the control pin is exposed to the inlet fluid pressure acting on the main valve and it has a clearance in the passageway which provides an orifice passage for maintaining the control pin holding the pilot valve open after it is opened initially by the fluid pressure in the pressure chamber. The outer end of the control pin has a substantially larger cross-sectional area than the seated area of the pilot valve so that the valve, once opened, will not close until the inlet pressure drops substantially below the pressure at which it opened.

3,545,485
GAS PARTITIONING PRESSURE REGULATOR
Robert O. Clark, Albuquerque, New Mexico, assignor to the United States of America, as represented by the Secretary of the Air Force
Filed Jan. 29, 1969, Ser. No. 794,965
Int. Cl. F16k *31/363*
U.S. Cl. 137—508 **1 Claim**



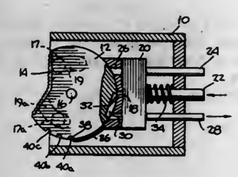
A gas partitioning regulator which allows a predetermined fraction of applied pressure to be passed. The regulator utilizes a piston having two ends of differing areas and a connecting orifice between them. Two chambers are formed, one adjacent to each end of the piston, and the fraction of pressure which will be passed from the first chamber to the second chamber depends upon the areas selected for the piston ends and for the connecting orifice.

3,545,486
IN-LINE VALVING ASSEMBLY
William C. Larson, Utica, Michigan, assignor to Holley Carburetor Company, Warren, Michigan a corporation of Michigan
Filed Jan. 31, 1969, Ser. No. 795,465
Int. Cl. F16k 37/00, 1/20
U.S. Cl. 137—554 10 Claims



A flow-through conduit has situated therein a pivotally mounted valve operatively connected to a resiliently biased tubular differential area piston slidably guided within the conduit so as to be in alinement with the conduit.

3,545,487
MECHANICAL FLUIDIC SWITCH
Hans-Dieter Kinner, Attleboro, Massachusetts, assignor to North East Fluidics, Inc., Bethany, Connecticut a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,472
Int. Cl. F16k 37/00, 11/02
U.S. Cl. 137—556 6 Claims



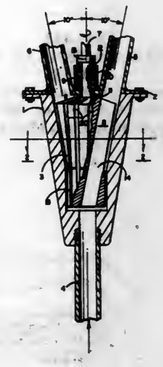
This disclosure is directed to a mechanical fluidic switch for directing a fluid flow from an input path, to a selected output path while at the same time indicating, by means of a color indication, which output path has been selected. The input path is adjacent to a rotatable element which contains a communicating path, in contact with the input path. The rotatable element is positioned to contact a selected output path. Thus, the fluid flow from the input path is communicated through the communicating path to the selected output path. As the rotatable element contacts a selected output path it also activates a color indicator which corresponds to that output path.

3,545,488
DIP TUBES FOR AEROSOL VALVE ASSEMBLIES
Frank Venus, Jr., Watertown, Connecticut, assignor to The Risdon Manufacturing Company, Naugatuck, Connecticut a corporation of Connecticut
Filed July 19, 1967, Ser. No. 654,547
Int. Cl. F17d 1/12
U.S. Cl. 137—590 12 Claims

A dip tube assembly for an aerosol or similar fluid dispensing valve, wherein the assembly incorporates gravity operated shuttle valve means secured to the dip tube at substantially its effective midpoint to provide a first inlet point, and wherein a portion of the tube is effectively folded back upon the rest of the tube to provide a second inlet point remote from the first.

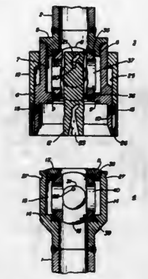


3,545,489
TOOL DIVERTER FOR DIRECTING TFL TOOLS
Walter Brown, Long Beach and Peter Hood, Canoga Park, Calif., assignors to North American Rockwell Corporation
Filed July 2, 1968, Ser. No. 741,958
Int. Cl. F16k 11/00
U.S. Cl. 137—610 6 Claims



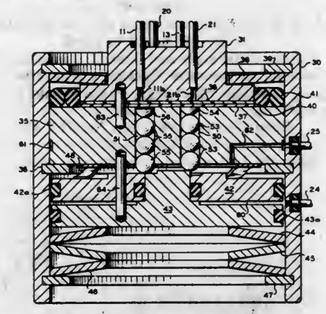
Apparatus for operation in a system using TFL (through the flow line) tools, wherein it is desirable to direct the tool into one of a plurality of paths. To divert the tool, a rotatable member is provided which is capable of alining an inflow tube with one of a plurality of outflow tubes depending upon its rotated position. The flow of TFL fluid or gas is controlled by external valving which prevents any interconnection between the systems of each of the paths thus allowing the use of a simpler, less expensive diverter design.

3,545,490
FLUID CONDUIT COUPLING
Bill S. Burrus, Tulsa, Oklahoma, assignor to Combustion Engineering Inc., New York, New York a corporation of Delaware
Filed Oct. 11, 1967, Ser. No. 674,410
Int. Cl. F16k 31/528
U.S. Cl. 137—614.06 1 Claim



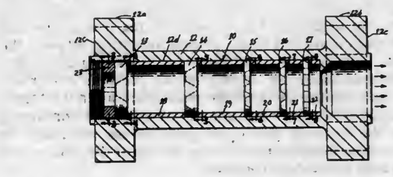
A pair of heads, each attached to a section of fluid conduit having movable parts which mechanically lock the heads together before valves within each head aline to communicate the fluid conduit sections.

3,545,491
CHROMATOGRAPHIC ANALYZER SAMPLE VALVE
Arthur B. Broerman, Bartlesville, Oklahoma, assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Feb. 5, 1969, Ser. No. 796,718
Int. Cl. F16k 11/00
U.S. Cl. 137—625.48 4 Claims



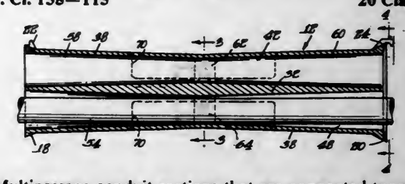
A sample valve for a chromatographic analyzer is actuated by a pair of pistons which move plungers to block communication between selected valve ports. The valve components are contained within a cylindrical housing by split rings and spring washers.

3,545,492
MULTIPLE PLATE THROTTLING ORIFICE
Charles H. Scheid, Jr., Middletown, Ohio, assignor to Armco Steel Corproation, Middletown, Ohio a corporation of Ohio
Filed May 16, 1968, Ser. No. 729,709
Int. Cl. F15d 1/02
U.S. Cl. 138—42 7 Claims



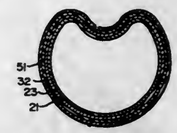
A throttling device for hydraulic systems which prevents the cavitation of metal conduits by liquids under differential pressure comprising a series of orifice plates spaced at intervals along the axis of the conduits, each plate having one or more orifices therein to lower the pressure of the liquid passing therethrough, the axes of the orifices being displaced radially and circumferentially about the plate centers so as to be in misalinement with the axes of the orifices in adjacent plates.

3,545,493
CONDUIT SECTIONS
Jerry H. Freeman, Mt. Prospect, Illinois, assignor to Phone-Ducs, Inc., Chicago, Illinois a corporation of Illinois
Filed Dec. 2, 1968, Ser. No. 780,542
Int. Cl. F16l 9/18
U.S. Cl. 138—115 20 Claims



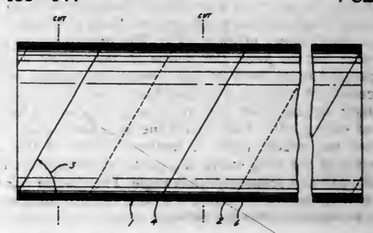
Multipassage conduit sections that are connected together and buried beneath the earth's surface to provide extended sealed support passages for transmission lines such as telephone and telegraph cables. The conduit sections are of molded high impact plastic such as linear polyethylene which can be formed in a tapered mold to fashion the inner surface of each passage diverging outwardly from the center of the section to both ends thereof. Hook means are provided at each end of a section to facilitate connecting one section to the next.

3,545,494
FORMING TUBE FOR GLASS FIBERS
McCleery B. Cunningham, Hartsville, South Carolina, assignor to Sonoco Products Company, Hartsville, South Carolina a corporation of South Carolina
Filed Sept. 30, 1968, Ser. No. 763,618
Int. Cl. F16l 9/16
U.S. Cl. 138—144 5 Claims



A spirally wound, collapsible forming tube for glass fibers including at least one inner paper ply, an intermediate ply of woven textile material impregnated with an elastomeric material, and resin impregnated outer paper ply having a hard, smooth external winding surface for glass fibers.

3,545,495
TUBING
Rocco Falcomato, Brooklyn and Jacob A. Almouli, Forest Hills, New York, assignors to Niemand Bros. Inc., Elmhurst, New York a corporation of New York
Filed May 20, 1968, Ser. No. 730,235
Int. Cl. F16l 9/16
U.S. Cl. 138—144 7 Claims



A dimensionally stable tube, particularly for use with a voice coil, formed of three layers, a first layer having struc-

tural integrity and dimensional stability, a second layer acting synergistically with the first to retain the structural integrity.

3,545,496
FOLD FLANGE TUBE AND PROCESS AND INSTALLATION FOR PRODUCING SUCH FOLD FLANGE TUBES

Alfred Wogerbauer, Linz, Austria, assignor to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria a company of Austria

Filed July 7, 1967, Ser. No. 651,836
Claims priority, application Austria, Aug. 9, 1966, A7605/66
Int. Cl. F16l *9/22*
U.S. Cl. 138—171 **1 Claim**

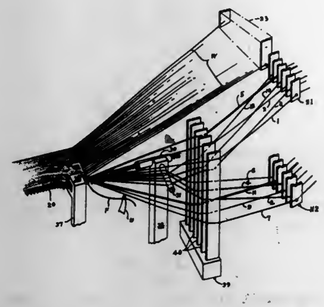


The invention relates to fold flange tubes made from two component sections joined by welding, at least one of said component sections comprising one or several fold flanges, and provides a process for producing such fold flange tubes from strip stock in a continuous manner and in a single plant, and an installation for carrying out this process.

3,545,497
SHUTTLELESS LOOM

John Emerson Burbank, Middlebury, Connecticut, assignor to Scovill Manufacturing Company, Waterbury, Connecticut a corporation of Connecticut

Filed March 17, 1969, Ser. No. 807,562
Int. Cl. D03d *41/00*
U.S. Cl. 139—11 **5 Claims**

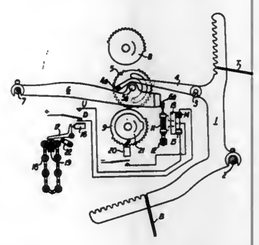


An improved shuttleless loom produces a woven zipper fastener stringer with a preformed fastener element strip and woven wing sections which extend from the web of the tape over the fastener element strip. The improvement includes a divider bar to keep the warps in the upper wing section separated from those of the lower wing section without the necessity of bulky and special harnesses. The divider bar has a slight up and down movement in unison with a fastener element strip guide which moves the strip alternately above and below the needle path. A further feature of the improved control of the wing warps is a guide which delivers the warps to the fell at a relatively wide angle. The divider bar may also carry a finger for directing the weft thread into proper position around the fastener element strip.

3,545,498
LOOM DOBBIES

Thomas Hindle, Blackburn, England, assignor to Hindle, Son & Company Limited, Blackburn, England

Filed Sept. 13, 1968, Ser. No. 759,653
Claims priority, application Great Britain, Oct. 3, 1967, 44,853/67
Int. Cl. D03c *1/12*
U.S. Cl. 139—77 **9 Claims**

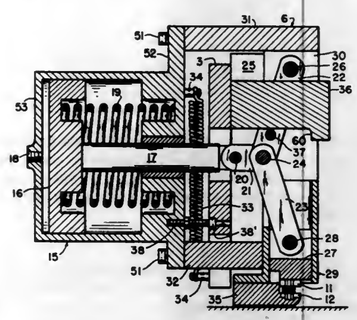


In a loom head-motion or dobby of the "Knowles-type," an electrohydraulic or electropneumatic relay is provided whereby the vibrator lever is caused to pivot to engage the vibrator wheel caused thereby with one or other of the driving cylinders according to pattern requirements. A toggle lock is created at each extreme position of the vibrator lever to maintain a positive drive engagement between the vibrator wheel and the selected driving cylinder, and a timing switch ensures that the relay is inoperative in pivoting the vibrator lever whilst the vibrator wheel and a driving cylinder are drivingly engaged.

3,545,499
SEALER HEAD MECHANISM OF AN AUTOMATIC STRAPPING MACHINE

Jack J. Dalton, Pittsburgh and John J. Linehan, Bridgeville, Pennsylvania, assignors to Cyclops Corporation, Allegheny Strapping Division, Pittsburgh, Pennsylvania a corporation of Pennsylvania

Filed Oct. 14, 1968, Ser. No. 767,417
Int. Cl. B21f *9/02*
U.S. Cl. 140—93.2 **6 Claims**

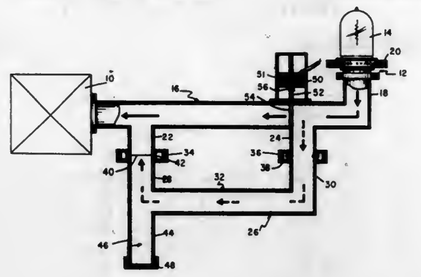


A sealer for an automatic strapping machine in which a frame carrying a slidable upper die and a stationary lower die is pivotally mounted to a stationary main plate. A pneumatically actuated toggle joint is mounted in the frame, one link thereof being connected to the pivotal mounting between the main plate and the frame and the other link being connected to the slidable upper die. A stop means prevents movement of the toggle joint relative to the main plate after the toggle joint has passed through the alined position. The continuing force on the knee of the toggle joint causes the frame to pivot about the main plate whereby the lower die is removed from beneath the sealed strapping.

3,545,500
VACUUM SYSTEM

Robert J. Bovio, Lowell and Arnold E. Westlund, Jr., Gloucester, Massachusetts, assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Dec. 21, 1967, Ser. No. 692,499
Int. Cl. B65b *31/04*
U.S. Cl. 141—65 **4 Claims**

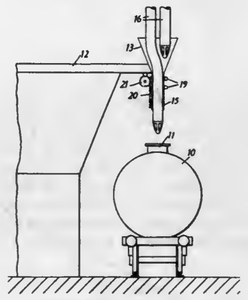


A vacuum system comprising a two-phase pumping arrangement that is connected over a main conduit to a remotely disposed evacuation system. The main conduit is normally closed-off during the first phase of evacuation by a plunger associated with an electrical solenoid. A screened detour conduit is provided around the blocked main conduit. Thereby, the first pump phase evacuates air from the article over the screened detour path, filtering out unwanted particles that are collected in a trap well positioned adjacent the screen area. The second and final phase of evacuation is initiated after the solenoid is energized to remove the block from the main conduit.

3,545,501
TANKER FILLING APPARATUS

Theodor Josef Maria Hohlbaum, 52 St. George's Road, Ilford, England

Filed March 13, 1968, Ser. No. 712,659
Claims priority, application Great Britain, April 5, 1967, 15737/67
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—104 **4 Claims**

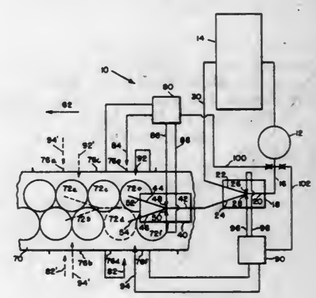


A tanker filling apparatus having a guide device and a plurality of flexible pipes located above the guide device and movable upwards and downwards, said guide device being large enough at its upper end to receive each of the pipes said guide device being smaller at its lower end than at its upper end, the smaller end being located in the required liquid supply position, said pipes when raised being offset from said position, said pipes being deflected by the guide as they are lowered so as to be brought into the supply position.

3,545,502
FLUIDIC FILLING MACHINE

Erwin J. Nunlist, Rochester, New York, assignor to Sybron Corporation, Rochester, New York a corporation of New York

Filed Aug. 24, 1967, Ser. No. 662,977
Int. Cl. B65b *43/42*
U.S. Cl. 141—131 **11 Claims**

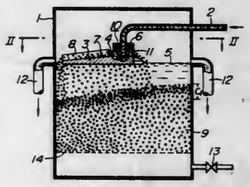


A filling machine having a conveyor for transporting at least two rows of the containers to be filled with a liquid through the filling station of the machine at a constant speed. A positive displacement rotary pump operating at a speed synchronized with the speed of the conveyor continuously pumps a steady, constant volume, flow of the liquid to a fluidic valve which has a pair of outlets, one located over each row. A control means acting responsive to container position indicators shifts the flow from one of the outlets to the other so that successive containers in the two rows are filled alternately. A second fluidic valve having a pair of outlets connected in series with the first valve acts as a no-can no-fill mechanism to divert flow of the liquid away from the first valve if a container is absent from either of the rows.

3,545,503
GRANULAR SUBSTANCE FILLING APPARATUS

Ryoichiro Oshima and Sigeru Tanaka, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan a corporation of Japan

Filed Nov. 7, 1968, Ser. No. 774,024
Claims priority, application Japan, Nov. 17, 1967, 42/73,656
Int. Cl. B65b *1/14*; **B01f** *7/18*; **F04d** *25/04*
U.S. Cl. 141—286 **4 Claims**



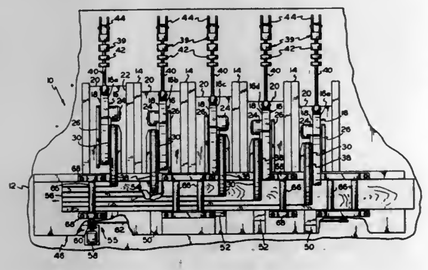
A granular substance filling apparatus capable of filling a granular substance in a container uniformly, said apparatus including granular substance spreading means disposed in

said container and being rotated at a substantially constant rate of speed while having the granular substance being supplied to the center of rotation thereof, and said spreading means having a sloped surface expanding radially from the center of rotation thereof and such a peripheral edge profile which substantially satisfies the equation

$$r^2 = r_1^2 + \frac{\theta}{n\pi}(r_2^2 - r_1^2)$$

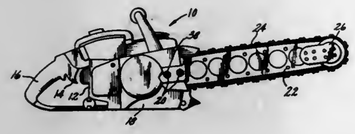
wherein n is 1 or 2, r the distance from the center of rotation to the peripheral edge of the spreading means at θ, r_1 the radius of a projection formed at the center of the spreading means, r_2 the maximum value of r as determined by the inner diameter of the container and θ the angle of rotation of r from the center of rotation of the spreading means.

3,545,504
MULTIPLE BAND SAW
Arthur M. Ferrari, P.O. Box 315, Corning, California
Filed Dec. 13, 1968, Ser. No. 783,613
Int. Cl. B27b *15/08*
U.S. Cl. 143—22 **10 Claims**



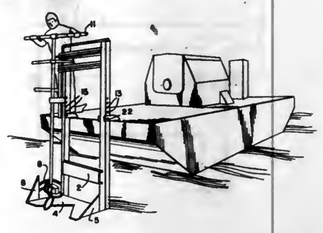
A multiple band saw apparatus having a work supporting surface mounted in front of the band saw frames, said surface having open transverse guideways therethrough in which slotted table members attached to the band saw frames and supporting the saw bands can slide during transverse adjustment of the band saw frames with respect to the work supporting surface.

3,545,505
LAMINATED GUIDE BAR FOR CHAIN SAW
William R. DeWeese, Park Forest, and Louis J. Bucha, Lansing, Illinois, assignors to Remington Arms Company, Inc., Bridgeport, Connecticut a corporation of Delaware
Filed April 17, 1968, Ser. No. 721,957
Int. Cl. B27b *27/02*
U.S. Cl. 143—32 **8 Claims**



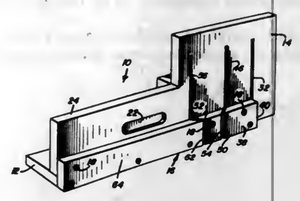
A composite plastic-metal laminated guide bar for a chain saw made by placing two hardened metal inserts in a mold and injecting plastic into the mold cavity. The metal inserts have a substantial network of openings therein, all of which are filled with plastic during molding, thus reducing the weight of the unit. At least some of the openings are chamfered or recessed on the outer face of the metal inserts so that upon cooling of the plastic, the enlarged plastic heads formed in the chamfered or recessed space will shrink to act in tension against the metal inserts, thus forming a rigid laminated unit.

3,545,506
SUPPORT STRUCTURE
Edward Hopper, 1723 St. Louis, Hot Springs, Arkansas
Filed Feb. 14, 1969, Ser. No. 799,239
Int. Cl. B27b *17/02*
U.S. Cl. 143—32 **2 Claims**



This invention concerns a support structure capable of being mounted upon a small boat and capable of carrying a sealed pneumatic saw to be used to eliminate underwater obstacles by cutting off the underwater obstacles below the waterline.

3,545,507
MITER BOX
Thomas J. Brownrigg, P.O. Box 571, Mount Pearl, Newfoundland, Canada
Filed Jan. 27, 1969, Ser. No. 794,263
Int. Cl. B27b *27/06*
U.S. Cl. 143—86 **5 Claims**

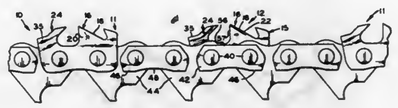


A miter box having a single vertical wall with slits formed therein for allowing the cutting of perpendicular and miter edges. Saw guide blocks are attached to the wall on the opposite edges of each slit to support a saw blade during a cutting operation. The slits in the wall continue through the base member of the miter box thereby permitting full cutting of a workpiece. A slitted reinforcement strip is disposed along the lower end portion of the wall and provides guiding support for the serrated edge of a saw blade.

3,545,508
DUAL ELEMENT TOP SHARPENING SAW CHAINS
Myron D. Tupper, Portland, Oregon, assignor to Omark Industries, Inc., Portland, Oregon a corporation of Oregon
Filed Feb. 5, 1968, Ser. No. 702,870
Int. Cl. B27b *33/14*
U.S. Cl. 143—135 **24 Claims**

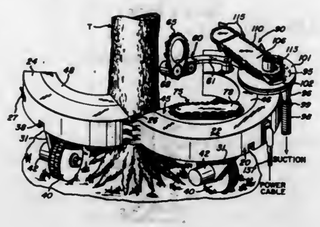
Right-handed and left-handed dual element, top sharpening cutter links 11 and 12 (FIGS. 1 to 6) of a top sharpening saw chain 10 each includes a forwardly positioned depth gage 14, a thinned, centrally positioned side slitter 16 having a cutting edge 18 formed by a chromed, laterally outward

face 20 and an unchromed, beveled edge 22, and a rearwardly positioned top plate 24 defining a raker and having a cutting edge 26 formed by a chromed forward face 28 and an unchromed, beveled, sharpening top edge surface 30, the face 28 and side edges 32 and 34 being chromed. A saw chain 70 (FIGS. 7 to 11) includes right-handed and left-handed cutter links 71 and 72 each having a thin side slitter



76 forming a continuation of a thicker depth gage 74 and also having a top plate 84 like the top plates 24. A saw chain 110 (FIGS. 12 to 14) includes cutter links 111 and 112 having depth gages 114 and side slitters 116, and also includes half-width raker, center slitter links 117 having depth gages 119, slitters 121 and top plates or rakers 124. Thin side links 125 having depth gages 127 and U-shaped wire links 129 staked at 131 complete the chain.

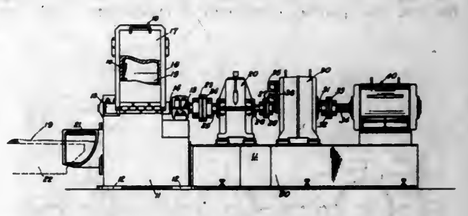
3,545,509
TREE HARVESTER
Joseph Baxter, Jr., Franklin, Ohio, assignor to The Black Clawson Company, Hamilton, Ohio a corporation of Ohio
Division of application Ser. No. 812,564, Mar. 28, 1969, abandoned. Continuation of application of Ser. No. 549,924, May 13, 1966, now abandoned. This application Sept. 22, 1969, Ser. No. 859,905
Int. Cl. A01g *23/02*
U.S. Cl. 144—309 **21 Claims**



Standing trees are converted directly into chips by progressively delimbing the tree from the bottom to the top, topping the tree, progressively debarking the tree trunk from the top towards the bottom followed by progressively converting the tree trunk into chips from the top toward the bottom. Endless chains are employed for the delimbing, chipping and debarking operations, and the chipping chain employs knives which cut the trunk in such a manner to produce chips having long fibers and to direct the chips upwardly out of the path of the knives.

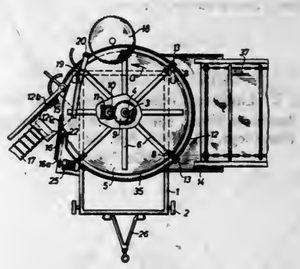
3,545,510
METHOD AND APPARATUS FOR CHIPPING LOGS
Thomas P. Bush, Jr., 133 Red Oak Road, Birmingham, Alabama and Samuel E. Grant, 7254 Sandy Bluff Drive, Jacksonville, Florida
Filed Sept. 30, 1968, Ser. No. 763,521
Int. Cl. B27l *11/02*
U.S. Cl. 144—323 **7 Claims**

A method and apparatus for chipping logs wherein the apparatus uses a log chipper having a plurality of radially spaced chipper blades carried by a heavy flywheel. The flywheel and chipper blades are rotatably driven by a prime mover such as an electric motor connected thereto through



an eddy current clutch coupling. The method includes storing a large amount of kinetic energy in the flywheel of the chipper and using this energy to absorb the overload on the prime mover.

3,545,511
PROCESS AND APPARATUS FOR BREAKING UP A MASS OF PRODUCE
Ernst Weichel, Bahnhofstrasse 1, Heiningen Ueber Goeppingen, Germany
Filed May 12, 1966, Ser. No. 549,546
Claims priority, application Germany, May 15, 1965, W39156
Int. Cl. A01f *29/00;* **B26d** *4/22*
U.S. Cl. 146—78 **35 Claims**

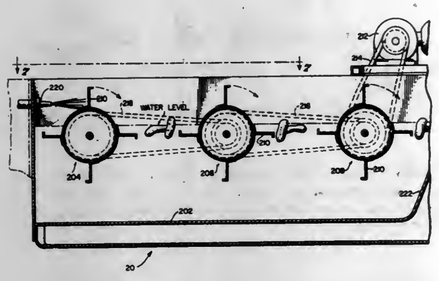


Method and apparatus for intermediate storage and separation of a mass of stalk or leaf-type crops, including feeding the crops into a receptacle, the base of which is rotating and causes the mass to be set into rotation about a vertical axis, continuously severing from the peripheral rim of the mass layers or skeins of predetermined dimensions, the severing being effected at least in a substantially vertical cutting plane by means of a driven cutting element or a fixed cutting element, and removing the separated layers or skeins in a direction substantially tangential to the mass within the receptacle, said removal being effected, either continuously or batch-wise, along the side of the vertical cutting element which faces away from the rotational axis of the mass within the receptacle.

3,545,512
MUSHROOM HANDLING APPARATUS
William H. Baker, Wilmington, Del., assignor to American Mushroom Corporation, Wilmington, Del.
Continuation-in-part of application Ser. No. 722,267, April 18, 1968, now abandoned. This application Feb. 28, 1969, Ser. No. 803,394
Int. Cl. A23n *15/04*
U.S. Cl. 146—81 **12 Claims**

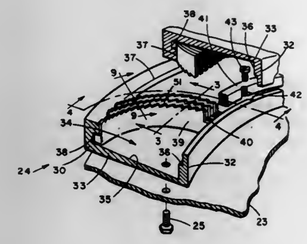
An improved apparatus is provided for handling mushrooms hydraulically in a tank or series of tanks by

generally flowing the mushrooms from a mushroom reservoir in an upstream location through a series of devices to a final downstream location where the mushrooms are cut to remove the roots and to separate the stems from the caps. The apparatus includes an improved device for controlling the rate and quantity movement of mushrooms which are



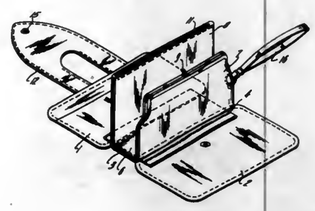
being hydraulically fed; an improved device for axially orienting the mushrooms into axial rows; an improved device for directionally orienting the axially oriented mushroom so that the caps face in the same direction; a device for receiving the directionally oriented mushrooms and for uniformly refeeding them sequentially in timed relationship in an improved manner; and a cutting device.

3,545,513
GRINDING ELEMENT
Leslie Palyi, 23 Larabee Crescent, Dons Mills and Nicholas Pora, 98 Banmoor Blvd., Toronto, Ontario, Canada
Filed Sept. 12, 1968, Ser. No. 759,345
Int. Cl. B02c *7/02*
U.S. Cl. 146—182 **13 Claims**



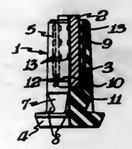
This specification discloses a grinding disk or milling burr of the type used in rotary disk grinders and mills for grinding up grain and a wide variety of other material, said disk having a grinding surface formed of a plurality of separate blade members spaced apart by spacer means which are replaceable for reconditioning of the grinding disk by merely removing the blade members and spacer means from a support member and replacing them with new blade members, and also discloses such a grinding disk having a particular arrangement of separate blade members incorporating teeth of graded sizes on the edge of the blade and being arranged together to form a grinding surface of a particularly effective grinding action.

3,545,514
LADY'S HAND OR SHOULDER BAG
Murray Wolf, Union, New Jersey, assignor to Evans-Aristocrat Industries Inc., Elizabeth, New Jersey a corporation of New Jersey
Filed Jan. 22, 1969, Ser. No. 792,922
Int. Cl. A45c *3/06*
U.S. Cl. 150—30 **10 Claims**



A lady's bag includes a pair of outer side members foldably connected to each other in spaced relation and having inner surfaces. The side members are movable to and from positions in which their inner surfaces are in spaced confronting relation and define a space within the bag and are releasably secured in such positions. One or more receptacles are affixed to the bag in the space.

3,545,515
SPIKE FOR MOTOR VEHICLE TIRES
Georg Gottauf, Munich, Germany, assignor to Stahlgruber Otto Gruber & Company, Munich, Germany
Filed June 13, 1968, Ser. No. 736,616
Claims priority, application Germany, June 15, 1967, St 27011
Int. Cl. B60c *11/16*
U.S. Cl. 152—210 **11 Claims**

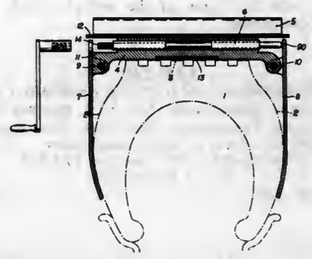


Spikes for motor vehicle tires, such as snow tires, are in the form of hard metal pins concentrically held by inwardly projecting ribs, reinforcing seams, or the like in synthetic castings.

3,545,516
EMERGENCY TRACTION DEVICE FOR VEHICLE WHEELS
Albert Strelli, Rebengasse 19, Graz, Austria
Filed June 20, 1968, Ser. No. 738,502
Claims priority, application Austria, June 23, 1967, A5850/67
Int. Cl. B60c *27/04*
U.S. Cl. 152—213 **9 Claims**

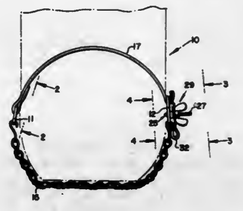
A nonskid device comprises two jaws, which are engageable with the sidewalls of the tire and can be clamped against the tire with the aid of a screw, which is rotatably mounted in a carrier, which extends across the tread of the tire and carries the nonskid elements. Each of the gripping jaws is

pivotally connected to the carrier with pivots mounted on opposite end portions of said carrier. One of the jaws has an ex-



tension which is engageable with the screw at a distance from the pivot of this jaw.

3,545,517
STRAP-ON TYPE TIRE CHAINS
Henry Sauer, Sickle Hill Road, Box 143, Berne, New York
Filed Feb. 3, 1969, Ser. No. 796,123
Int. Cl. B60c *27/02*
U.S. Cl. 152—233 **6 Claims**



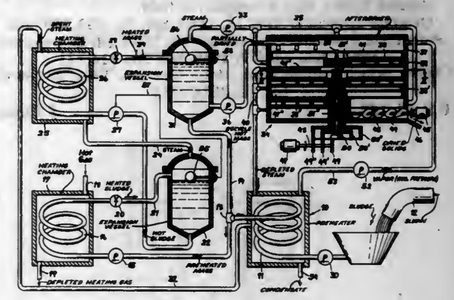
A simple retaining means for the free end portion of the strap which is passed around the wheel felloe, consists of a hinge ear hinged to the adjacent chain-holding plate, wherein said end portion is doubled back between the plate and the hinge ear with the bight of the fold in the strap positioned beyond the edges of the hinge ear and plate, the hinge ear being clamped down tightly against the plate with the two-layer strap end therebetween by a self-locking wing nut thereby preventing loosening of the mounted device.

ERRATUM

For Class 157—1.24 see:
Patent No. 3,545,463

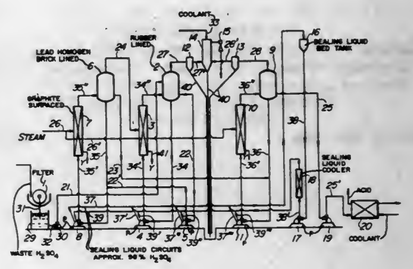
3,545,518
PROCESS AND APPARATUS FOR CONCENTRATING AND DRYING SLUDGE
Hans Kohlmann, Siebenbuchen 17, Hamburg-Blankenese, Germany
Filed March 5, 1968, Ser. No. 710,507
Claims priority, application Germany, March 7, 1967, K61624
Int. Cl. B01d *1/02, 1/24, 1/26*
U.S. Cl. 159—2 **5 Claims**

Wet sludge is heated under pressure to a temperature above 100° C. and is then admitted into an expansion vessel where some of the water evaporates; the residue is subjected to further drying on a set of heated platforms whose tempera-



ture may be controlled by the hot vapors from the expansion vessel.

3,545,519
PROCESS AND APPARATUS FOR THE TREATMENT OF WASTE SULFURIC ACID
Koichi Kawamura, Ichihara-shi; Miyoshi Ishikawa, Sakai-shi; Teruji Yoshii, Takatsuki-shi; Sigehiko Sugiyama, Kobe-shi and Hiroshi Kato, Osaka, Japan, assignors to Maruzen Oil Company, Ltd., Osaka, Japan a corporation of Japan and Kimura Kakoki Co., Ltd., Amagasaki-shi, Japan a corporation of Japan
Filed July 28, 1969, Ser. No. 845,438
Claims priority, application Japan, Aug. 6, 1968, 43/55631
Int. Cl. B01d *1/26, 1/100*
U.S. Cl. 159—17 **4 Claims**

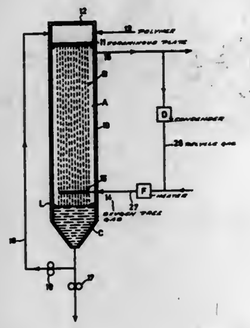


A process and apparatus for continuously recovering sulfuric acid in a high concentration of 75 to 85 percent by weight from a waste sulfuric acid which has been used as a catalyst, solvent or dehydrating agent in various organic synthetic reactions in the field of petroleum and chemical industries. The process comprises filtering off the impurities from the waste sulfuric acid, degassing and subsequently forcing the waste sulfuric acid to successively flow into a H_2SO_4-sealed system, followed by a stepwise vacuum concentration.

3,545,520
APPARATUS FOR REMOVING SUBSTANCES AND FRACTIONS FROM POLYMERS

Francesco Siclari, Cesano Maderno and Sergio Fulmini, Milan, Italy, assignors to Snia Viscosa Societa Nazionale Industria, Milan, Italy a company of Italy

Original application Oct. 19, 1965, Ser. No. 497,709, now Patent No. 3,469,618, dated Sept. 30, 1969. Divided and this application April 9, 1969, Ser. No. 814,771
Claims priority application, Italy, Oct. 30, 1964, 23,346/64
Int. Cl. B01d 1/16
U.S. Cl. 159—4 5 Claims



Apparatus is disclosed for stripping volatile fractions from polyamides and polyesters to increase their viscosity. The liquid polyamide or polyester to be treated is fed into the top of a container at a temperature above the melting point of the material, and the material is passed through a foraminous plate to subdivide it into liquid threads, and then allowed to fall freely in nitrogen, which is counterflowed to the falling material. The falling material separates into droplets to provide the maximum surface exposure of the material to the counterflowing nitrogen. The fallen material is then transferred into a separate zone and agitated therein to increase the exposure to the inert gas.

3,545,521
WICKET DOOR SCREEN

Marshall V. Noecker, Grosse Pointe, Michigan, assignor to Kaufman Window and Door Cooporation, Detroit, Michigan a corporation of Michigan

Filed Oct. 22, 1969, Ser. No. 868,392
Int. Cl. E06b 9/17
U.S. Cl. 160—180 6 Claims

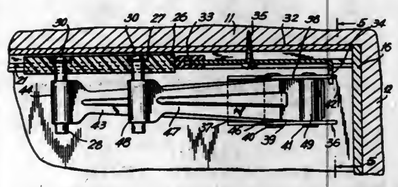


A closure structure, particularly a screen, having a movable wicket slideably mounted between a pair of channels formed within guide members, which guide members are fixedly positioned on the frame of the screen and additionally function as retaining members for securing the screen cloth to the frame. The guide members are preferably constructed of a low friction nonmetallic material to freely slideably cooperate with the frame of the wicket, which frame is generally of aluminum.

3,545,522
FOLDING DOOR HANGER ASSEMBLY

Robert R. Stein, Mamaroneck, New York, assignor to Instrument Systems Corporation, New York, New York a corporation of New York, by mesne assignments

Filed April 17, 1969, Ser. No. 822,848
Int. Cl. E05d 15/26
U.S. Cl. 160—199 10 Claims

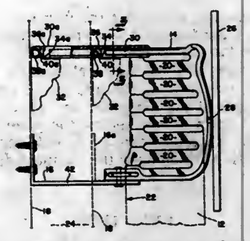


A folding door structure includes at least a pair of mutually hinged panels, and an overhead track which slideably supports a follower. A pair of spaced arms are pivoted at their front ends to the upper free corner of a door panel and at their rear ends to the follower, the vertical pivotal axes on the follower being longitudinally spaced a distance greater than that between the axes on the door panel. The rear face of a fixed stop member is engaged by an outwardly directed finger on the door panel rear when the door panels are in closed condition, and the pivotal axes lie in a common longitudinal plane.

3,545,523
DRAPERY HOLDER

Douglass R. Falkenberg, Rocky River, Ohio, assignor to Douglas Manufacturing Company, a corporation of Ohio

Filed Aug. 26, 1968, Ser. No. 755,189
Int. Cl. A47h 13/14
U.S. Cl. 160—248 6 Claims



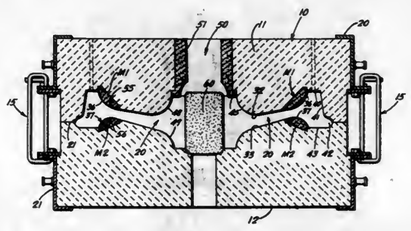
A drapery holder mounted on a wall for holding drapery material in pleated fashion adjacent the wall, and around a window or door opening in the wall.

3,545,524
METHOD OF CASTING A WHEEL

Robert H. Beetle, Mountain Lakes and John B. Dabney, Ridgewood, New Jersey, assignors to Abex Corporation, New York, New York a corporation of Delaware

Original application Feb. 16, 1967, Ser. No. 616,570, now Patent No. 3,480,070, dated Nov. 25, 1969. Divided and this application Feb. 24, 1969, Ser. No. 833,213
Int. Cl. B22d 25/02; B22c 9/28
U.S. Cl. 164—33 2 Claims

A railroad wheel having an inner hub portion and an outer tread portion joined by a thinner plate is cast in a permanent mold having a yieldable and relatively thick lining at the fillets near the tread portion of the wheel. As the casting cools and contracts, the lining yields which allows wheels with fillets of sharp radii to be produced.



3,545,525
METHOD OF MANUFACTURING MAGNETICALLY ANISOTROPIC PERMANENT MAGNETS WITH A CRYSTAL ORIENTATION

Albertus Antonie Aldenkamp, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y. a corporation of Delaware. by mesne assignments

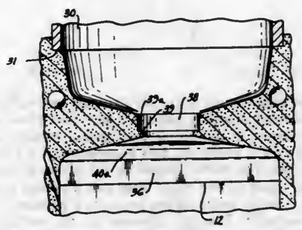
No Drawing. Filed Oct. 19, 1967, Ser. No. 676,642
Claims priority, application Netherlands, Oct. 20, 1966, 6614748
Int. Cl. H01f 1/04, 7/02
U.S. Cl. 164—82 2 Claims

An Fe-Co-Ni-Al alloy suitable for continuous casting of crystal oriented magnetically anisotropic permanent magnets containing not more than 0.15 percent of silicon which is continuously cast in a tube and cooled at such a rate as to prevent the formation of a γ-phase.

3,545,526
METHOD FOR CLADDING METAL

Charles F. Funk, Metairie, Louisiana, assignor to Shapeweld, Inc., New Orleans, Louisiana a corporation of Louisiana. by mesne assignments

Filed Sept. 18, 1967, Ser. No. 668,486
Int. Cl. B22d 19/00
U.S. Cl. 164—98 1 Claim

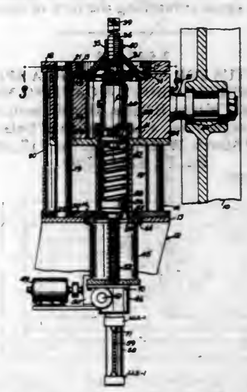


In the metal-cladding method disclosed a body of molten metal is located above the surface of the base metal to be clad. The metal is allowed to flow downwardly toward the surface through a restriction that shapes the metal striking the surface into an elongated narrow stream. The stream is about as long as the longest dimension of the surface being clad. The apparatus of the invention includes a mold having a crucible to hold the molten metal and a slot for restricting the flow of the molten metal into the mold cavity enclosing the surface being clad. The slot shapes the metal into an elongated, narrow stream that is about as long as the longest dimension of the surface being clad.

3,545,527
WHEELBAND CONTINUOUS CASTING MACHINE HAVING A SINGLE POINT BAND-TENSIONING DEVICE

Thomas L. Bray, Birmingham, Alabama; George C. Ward and Daniel B. Cofer, Carrollton, Georgia, assignors to Southwire Company, Carrollton, Georgia a corporation of Georgia

Filed May 9, 1968, Ser. No. 727,887
Int. Cl. B22d 11/06
U.S. Cl. 164—154 10 Claims

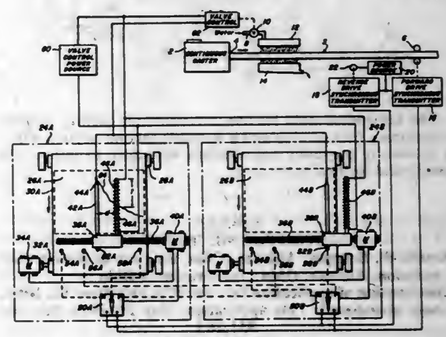


The invention disclosed is a casting machine including a casting wheel with a peripheral groove, a band to close a portion of the groove and form a closed casting mold, a plurality of band-support wheels to position the band relative to the casting wheel, and a band-tensioning device having a wheel-supporting means which is for supporting a band-support wheel through a single point and which includes a positioning means for positioning and urging the band-support wheel against the band with a substantially constant resilient force applied through the single point. The positioning means includes a resilient means for providing a resilient force and an adjusting means for maintaining the resilient force substantially constant in spite of changing operating conditions.

3,545,528
APPARATUS FOR DETERMINING TRAVEL TIME OF MOVING MATERIAL

Yi Chung Chang, Franklin Township, Westmoreland County, Pennsylvania, assignor to United States Steel Corporation, a corporation of Delaware

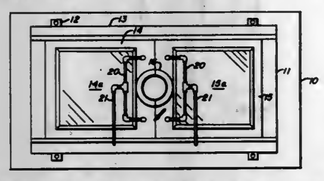
Filed April 5, 1968, Ser. No. 719,177
Int. Cl. B22c 19/04; G04f 9/00
U.S. Cl. 164—154 8 Claims



A writing head using electrically conductive ink is moved laterally across a uniformly moving chart paper a distance proportional to the distance a steel slab moves from a casting

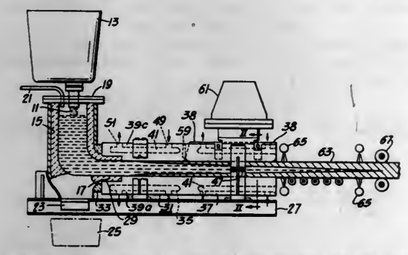
mold to a cooling station thereby drawing a time-distance curve. A reading head consisting of a coil of resistance wire connected across a voltage source is adapted to contact the chart paper and is spaced away from the writing head a distance representing the spacing from the mold to the cooling station. When the reading head contacts the curve, the writing head acts as a voltage divider and provides a voltage signal proportional to the time required for the slab to travel the distance from the mold to the cooling station. Preferably a pair of such devices operate alternately to provide a continuous voltage signal controlling the flow of cooling water.

3,545,529
APPARATUS FOR MAINTAINING A SPECIAL ATMOSPHERE ABOVE A CASTING MOLD
Robert J. Keene, Chicago Heights, Illinois, assignor to United States Steel Corporation, a corporation of Delaware
Filed March 29, 1968, Ser. No. 717,200
Int. Cl. B22d *27/00*
U.S. Cl. 164—259 **5 Claims**



A frame dimensioned to fit the top of a slab mold for continuous casting is fitted with a pair of sliding closure plates which jointly engage and support a ring or collar through which a teeming nozzle is introduced. Each plate carries a manifold extending thereacross and connected to an inert-gas supply. Gas nozzles spaced along the manifold discharge jets sweeping the surface of liquid metal in the mold. The plates have observation windows therein. Protective hoods are removably disposed over the windows.

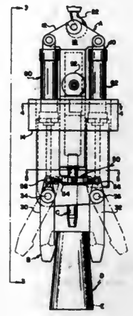
3,545,530
HORIZONTAL CONTINUOUS CASTING MOLD
Joseph J. Ciochetto, Allison Park, Pennsylvania, assignor to Koppers Company, Inc., a corporation of Delaware
Filed June 4, 1968, Ser. No. 734,332
Int. Cl. B22d *27/08*
U.S. Cl. 164—260 **8 Claims**



The horizontal mold for use in continuous casting includes a stationary first portion and a movable second portion which is resiliently mounted and vibrates vertically to impact the cast strand formed in the mold.

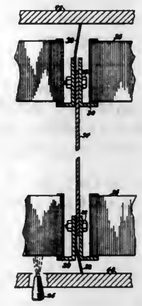
3,545,531
STRIPPER MECHANISM
Donald W. Schaper, Alliance, Ohio, assignor to Kerma Corporation, Alliance, Ohio a corporation of Ohio
Continuation of application Ser. No. 578,740, Sept. 12, 1966, now abandoned. This application May 29, 1969, Ser. No. 831,265
Int. Cl. B22d *29/06*
U.S. Cl. 164—408 **8 Claims**

A mechanism for stripping a mold from an ingot having a carrying frame adapted to be supported from an overhead support such as a crane hook, a fixed ram supported by said frame to engage an ingot, tongs carried by the frame to grip a



mold that surrounds the ingot, and means for moving the tongs vertically relative to the frame and ram to strip the mold from the ingot.

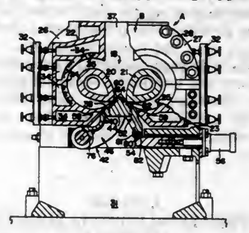
3,545,532
ROTARY REGENERATOR CLEANING ARRANGEMENT
Joseph Waitkus, Wellsville, New York, assignor to The Air Preheater Company, Inc., Wellsville, New York a corporation of Delaware
Filed March 7, 1969, Ser. No. 805,159
Int. Cl. F28d *19/04*
U.S. Cl. 165—5 **1 Claim**



An arrangement for the rotor of a rotary regenerative heat exchanger whereby a highly effective heat absorbent element thereof is arranged in axially spaced layers closely adjacent opposite ends of the rotor. By this arrangement a pressurized cleaning fluid such as water, steam or air projected on to the element at the ends of the rotor does not lose any significant portion of its energy while being projected between the nozzle and the element. Foreign deposits on the surface of the element accordingly receive near maximum shock effect from the cleaning fluid and are thus effectively removed from the element so that a clean element may be maintained.

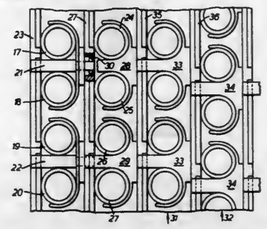
3,545,533
DISCHARGE DOOR WITH FLUID-CIRCULATING PASSAGES FOR MIXING MACHINE
James T. Matsuoka, Brecksville, Ohio, assignor to Intercole Automation, Inc., Cleveland, Ohio a corporation of Ohio
Filed Dec. 10, 1968, Ser. No. 782,565
Int. Cl. F24h *3/00*
U.S. Cl. 165—47 **6 Claims**

A discharge door for a mixing machine for rubber, plastic and the like with drilled passageways closely adjacent the inside surface of the door and with a chamber in a web that in part connects the door to supporting apparatus, both the



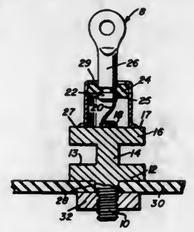
passageways and the chamber being constructed for circulation of heat exchange fluid to aid in controlling the temperature of material within the mixer.

3,545,534
HEAT EXCHANGERS
Harold John Coles, Kenton, Harrow, assignor to Atomic Power Constructions Limited, Sutton, Surry, England, a British company
Filed Nov. 29, 1968, Ser. No. 779,898
Claims priority, application Great Britain, Dec. 1, 1967, 54900/67
Int. Cl. F28f *9/00*
U.S. Cl. 165—67 **4 Claims**



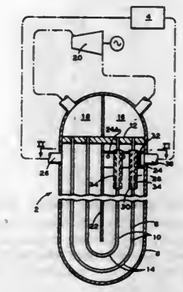
A heat exchanger comprising helically wound tubes mounted upon a support structure comprising striplike support members apertured and slotted at intervals along their length, and attachment members which are mounted upon the support members by entering arms on the attachment members through the slots and sliding the former to a desired position on the support member. The attachment members have supporting surfaces for receiving the tubes and a boss which fits into an aperture into an adjacent support member.

3,545,535
STUD MOUNTED DIODE
Harold A. Hinkens, 3343 E. Van Norman Ave., Cudahy, Wisconsin
Filed Oct. 10, 1968, Ser. No. 766,430
Int. Cl. F28f *7/00*
U.S. Cl. 165—80 **3 Claims**



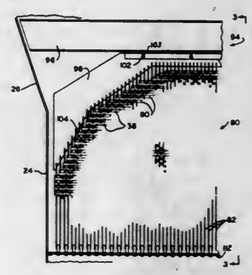
A component housing including an electronic element enclosed within a jacket which mounts a stud extending therefrom. The stud includes an integrally attached fastener head disposed in coaxial spaced relation to said jacket. The stud has a spacing shank portion, intermediate the jacket and fastener head, which includes a heat radiating surface thereon.

3,545,536
HEAT EXCHANGERS
Martin C. Peters and Alfred J. Perrin, London, England, assignors to Babcock & Wilcox, Ltd., London, England a corporation of Great Britain
Filed March 22, 1968, Ser. No. 715,339
Claims priority, application Great Britain, March 22, 1967, 13596/67
Int. Cl. F28f *13/00*
U.S. Cl. 165—134 **4 Claims**



A tubulous heat exchanger arranged to transfer heat from a heating fluid flowing over the tubes to a heat-absorbing fluid flowing within tubes and including shielding means over a portion of the tubes to reduce the rate of heat transfer therethrough. The main embodiment includes an inert gas space communicating with the shielding means to provide a blanket of gas between the tube and shielding means and an inlet compartment to confine the crossflow path of the heating fluid to the shielded portion of the tubes. An alternate embodiment uses the shielding means in combination with a flow diverting plate.

3,545,537
ANTI-VIBRATION TUBE SUPPORT FOR VERTICAL STEAM GENERATOR
Forrest B. Hill, Jr., Chattanooga, Tennessee, assignor to Combustion Engineering Inc., Windsor, Connecticut a corporation of Delaware
Filed Dec. 13, 1968, Ser. No. 791,844
Int. Cl. F28f *9/00*
U.S. Cl. 165—162 **5 Claims**

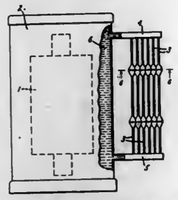


Tube support structure especially adapted for suspendedly supporting the freestanding, laterally extended portion of U-tubes of a shell and tube heat exchanger against the effects of flow-induced and/or mechanically-induced vibrations. Elongated, thin plate members are disposed between adjacent tube layers to spacingly engage the tubes along one plane of support. The tubes are engaged along the other plane of support by elongated tube support bars that are retained by the plates and which contain arcuate recesses to engage the tubes. The arrangement of the tube support bars along the plate members is such as will not seriously impede lateral or vertical flow of vaporizable fluid through the tube bundle.

3,545,538
SELF-SUPPORTING PARALLEL TUBULAR STRUCTURE AND METHOD OF FORMING THE SAME

Donald R. Hinnant, Rome and Carl Wilson, Cartersville, Georgia, assignors to General Electric Company, a corporation of New York

Filed April 16, 1969, Ser. No. 816,515
Int. Cl. F28f 9/02
U.S. Cl. 165—175 5 Claims

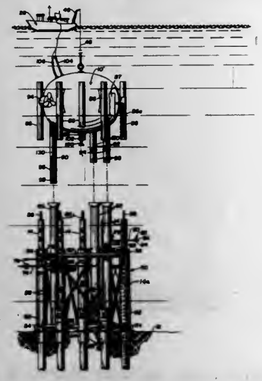


A plurality of heat exchanger tubes disposed in parallel planar spaced relation between spaced-apart headers are deformed into mutually supporting engagement along one or more transverse lines intermediate the ends of the tubes. By partially collapsing the tubes simultaneously between opposed linear dies a short length or region of each tube is expanded laterally in the plane of the tubes and into abutting relation with adjacent tubes. Preferably the planar expansion is sufficient to fold the abutting tubes into interlocking engagement. Constriction of the tubular cross section may be minimized or avoided by utilizing tubes of initially flattened or elliptical cross section disposed with their minor axes in the plane of the tubes, whereby lateral compression applies along the major axes substantially reverses the orientation of major and minor cross-sectional axes at the partially collapsed region of each tube.

3,545,539
SUBSEA SATELLITE FOUNDATION UNIT AND METHOD FOR INSTALLING SATELLITE BODY THEREWITHIN

William F. Manning, Dallas, Texas, assignor to Mobil Oil Corporation, a corporation of New York

Filed Aug. 28, 1967, Ser. No. 663,798
Int. Cl. E21b 33/035, 43/01
U.S. Cl. 166—.5 28 Claims

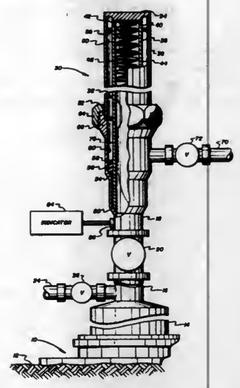


This specification discloses a method and apparatus for lowering a satellite body through a body of water to a foundation unit rigidly fixed on a marine bottom while preventing the motion of the surface handling vessel, from which the satellite body is being lowered, from being transferred to the satellite body as it comes into contact with the installed foundation unit. The apparatus comprises corresponding elements on the foundation unit and the satellite body which telescope together, trapping water therebetween. A remotely controlled bleeding off of the trapped water permits the satellite body to settle at a controlled rate in the foundation unit, the telescoping elements automatically locking together to insure that the satellite body is rigidly fixed in the foundation unit. The telescoping elements also orient the satellite body on the foundation unit so that stab connections between the satellite body and subsea wellheads, mounted on the foundation unit, come into registry and interlock to connect subaqueous wells drilled through the foundation unit, with production equipment within the satellite body. The subsea operations are assisted by a submersible work vehicle in attendance at the underwater site.

3,545,540
THROUGH-THE-FLOWLINE(TFL) TOOL CARTRIDGE ASSEMBLY

Stoddard S. Waldron, Woodland Hills, California, assignor to North American Rockwell Corporation

Filed July 22, 1969, Ser. No. 843,433
Int. Cl. E21b 33/05; B08b 9/04
U.S. Cl. 166—70 12 Claims

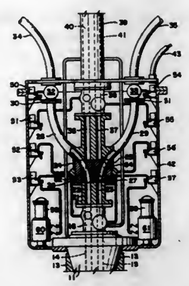


A through-the-flowline (TFL) tool cartridge assembly for rapid attachment to and removal from a production well tubing that facilitates storing and handling TFL tools, and permits storage of TFL tools in a controlled environment.

3,545,541
WELLHEAD ASSEMBLY INCLUDING DIVERTER MEANS

Douwe DeVries, Metairie, Louisiana, assignor to Shell Oil Company, New York, New York a corporation of Delaware

Filed Aug. 8, 1968, Ser. No. 751,262
Int. Cl. E21b 33/03, 33/035
U.S. Cl. 166—95 7 Claims

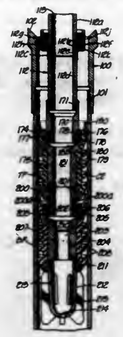


A wellhead assembly for use with oil or gas wells, said assembly including diverter means selectively positionable to (1) provide access to the well for "through-the-flowline" operations or (2) permit vertical entry into the well for maintenance or other operations.

3,545,542
CEMENTING PLUG LAUNCHING APPARATUS

Lyle B. Scott, South Gate, California, assignor to Byron Jackson, Inc., Long Beach, California a corporation of Delaware

Filed June 10, 1968, Ser. No. 735,685
Int. Cl. E21b 33/12, 33/16
U.S. Cl. 166—155 7 Claims



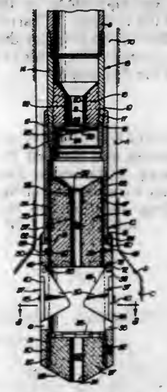
Cementing plug launching apparatus for use in cementing a casing string in a well in which a casing closure is releasably attached to the upper end of the casing string, the closure having a cement conduit opening therethrough and in which a cementing plug is releasably supported below the closure by the cement conduit, the plug being separable from the cement conduit upon introduction of a ball into the cement flowing into the casing through the conduit. Such apparatus in which a combination of top and bottom plugs are releasably supported by the cement conduit, the bottom plug being releasable from the top plug in response to the introduction of a first ball into the cement flowing through the cement conduit into the casing and the top plug being released from the cement conduit in response to the introduction of a second ball into the cement flowing through the cement conduit into the well casing, a float shoe being provided at the lower end of the casing for arresting downward movement of the bottom and top plugs, respectively. Such apparatus in which the casing closure includes releasable latch means for latching the same to a well head structure at the bottom of a body of water. Such apparatus in which the casing closure comprises an adaptor threadedly engageable in a casing coupling.

3,545,543
CASING APPARATUS AND METHOD FOR TENSIONING CASING STRINGS

Archer W. Kammerer, Jr., Fullerton and Gary R. Johnson, Anaheim, California, assignors to Rotary Oil Tool Company, Buena Park, California a corporation of California

Filed Nov. 25, 1968, Ser. No. 778,403
Int. Cl. E21b 23/00, 33/00, 17/14
U.S. Cl. 166—212 30 Claims

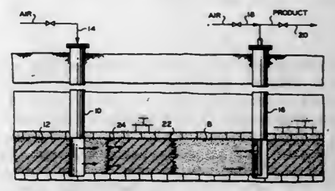
A well-casing shoe or collar-forming part of a casing string and having circumferentially spaced holding members or feet initially retracted within the external confines of the shoe or collar body. A piston member is shifted hydraulically downwardly in the body to engage and expand the holding members laterally outwardly in underlying relation to a preformed formation shoulder, allowing tension to be taken on the casing string, the piston member being disposed behind the holding members to prevent the formation from returning the holding members to their retracted position.



3,545,544
RECOVERY OF HYDROCARBONS BY IN SITU COMBUSTION

Dixon W. Peacock, Bartlesville, Oklahoma, assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Oct. 24, 1968, Ser. No. 770,249
Int. Cl. E21b 43/24
U.S. Cl. 166—256 9 Claims



An in situ combustion process for recovery of hydrocarbons wherein in a first stage of the process hydrocarbons are produced from an underground formation by countercurrent drive in situ combustion and in a second stage of the process hydrocarbons are produced from said formation by direct drive in situ combustion. Said direct drive in situ combustion is deliberately initiated prior to completion of said countercurrent in situ combustion.

3,545,545
METHOD FOR RECOVERY OF HYDROCARBONS FROM A SUBTERRANEAN FORMATION PREVIOUSLY PRODUCED BY SOLUTION GAS DRIVE

Joseph C. Allen, Bellaire, Texas, assignor to Texaco, Inc., New York, New York a corporation of Delaware

No Drawing. Filed Sept. 26, 1968, Ser. No. 786,790
Int. Cl. E21b 43/20
U.S. Cl. 166—273 3 Claims

In a subterranean hydrocarbon-bearing formation which previously has undergone a solution gas drive, improved recovery of hydrocarbons is effected by repressuring the formation by the injection of a gas, followed by water injection, followed by injection of carbon dioxide, followed by a water flood.

3,545,546
FLUID DESIGN FOR WELL STIMULATION APPLICATIONS

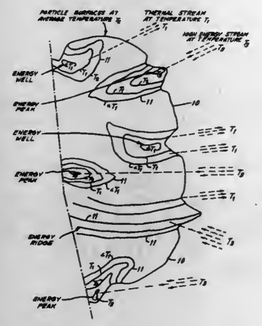
Harry Surkalo, Findlay, Ohio and Marion O. Son, Jr., Littleton, Colorado, assignors to Marathon Oil Company, Findlay, Ohio a corporation of Ohio

No Drawing. Filed April 1, 1969, Ser. No. 812,366
Int. Cl. E21b 43/25
U.S. Cl. 166—305 12 Claims

Stimulation of a permeable, oil-bearing subterranean for-

mation is effected by designing a micellar dispersion to have a mobility at least about two times the mobility of the combination of water and oil connate to the reservoir, then injecting from about 0.1 to about 10 barrels per vertical foot of oil bearing formation of the micellar dispersion into the formation and then injecting drive water to displace the micellar dispersion out into the formation.

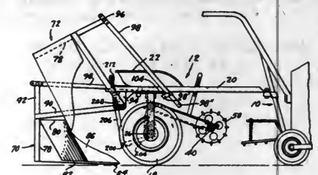
3,545,547
FIRE AND/OR EXPLOSION SUPPRESSION
Joseph Irgon, Flanders and Howard W. Cole, Jr., Mountain Lakes, New Jersey, assignors to Proteus, Inc., Mountain Lakes, New Jersey a corporation of New Jersey
Filed Aug. 20, 1968, Ser. No. 753,933
Int. Cl. A62c *1/08*
U.S. Cl. 169—1 **11 Claims**



A marked suppression and inhibition of highly exothermic chemical reactions is indicated when finely divided particulate matter of special physical structure is present in small or even trace amounts. The particulate matter has a composition or makeup which optimizes the combination of properties of density, heat capacity, heats of fusion and vaporization, thermal conductivity, exothermic heat of formation and particle size. Specifically, the particulate matter is structurally skeletonized for porosity and its surface is distinguished by a high incidence of peaks, edges, pores and cavities, such as cavities in the size range $3\text{–}4 \times 10^{-4}$ Mμ, multiple connected surfaces and preferably a measurable incidence of lattice defects such as in the form of missing atoms at or near the surface. Numerous materials, organic and/or inorganic, may comprise the particulate matter of this invention, e.g. boron, boric acid, boron carbide, lithium oxide, lithium hydroxide, lithium carbide, lithium nitride, lithium fluoride and particularly the inorganic compounds of such elements as magnesium, aluminum, potassium, calcium, titanium, vanadium, chromium, manganese, nickel and zinc and related organometallic compounds. Also particularly useful are organic compounds, such as the polymeric organic compounds and agglomerates thereof, especially those exhibiting a highly skeletal or reticular structure. These materials may be employed to suppress or inhibit a highly exothermic chemical reaction, such as a flame or an explosion within a closed space or substantially closed space by dispersing and/or suspending therein these materials in the form of a dust, cloud or smoke.

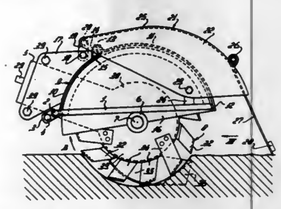
3,545,548
MEANS FOR ROLLING SOD AND FOR POSITIONING THE ROLLS FORMED
Glen R. Hadfield, 4643 Sherwood, Oxford, Michigan
Filed Feb. 2, 1968, Ser. No. 702,742
Int. Cl. A01b *45/04*
U.S. Cl. 172—19 **6 Claims**

A reel responsive to forward movement of the vehicle on which it is placed for accelerating the rolling of sod at a rate greater than the forward movement of the vehicle, including plowlike members following the vehicle for turning each roll of sod from a transverse position axially across the path of



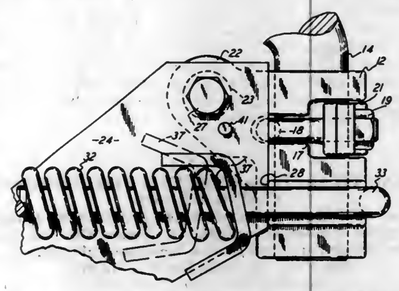
the vehicle to a position in which the axis of the sod roll is parallel to the direction of advance of the vehicle.

3,545,549
SOIL CULTIVATING EMPLEMENTS
Ary van der Lely, 10, Weverskade, Maasland and Cornelis Johannes Gerardus Bom, 36, Esdoornlaan, Rozenburg, Netherlands
Filed March 15, 1967, Ser. No. 623,356
Claims priority, application Netherlands, March 30, 1966, 6604152
Int. Cl. A01b *33/16*
U.S. Cl. 172—32 **6 Claims**



According to the present invention there is provided a soil cultivating implement comprising a frame, a rotary shaft journalled in the frame and extending substantially transversely of the intended direction of operative travel of the implement, working members carried by the rotary shaft, and a prime mover for moving the implement in operation, the rotary shaft being arranged to be driven in operation so that during their passage through the soil the working members move in the direction of travel of the implement.

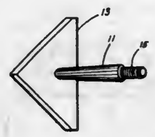
3,545,550
PIVOTAL COULTER LOCK-OUT ASSEMBLY
Philip D. Wenzel, Rockford, Illinois, assignor to J.I. Case, Company, Racine, Wisconsin a corporation of Wisconsin
Filed May 9, 1968, Ser. No. 727,930
Int. Cl. A01b *15/16*
U.S. Cl. 172—271 **1 Claim**



A pivotal coulter lockout assembly including an agricultural implement draft frame having a pivotal member included in the frame and moveable about a vertical axis. A coulter is connected to the frame by means of support arms which are vertically pivotally mounted on the pivotal member. Cushioning means in the form of springs are shown

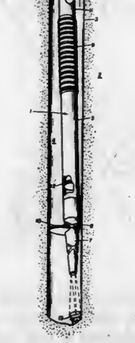
to yieldingly urge the coulter downwardly for cutting into the ground and for riding over obstructions on the ground. A lockout means is disposed to be operative between the support arms and the pivotal member for securing the coulter in the downward position.

3,545,551
INTERCHANGEABLE BLADE HOE KIT
Roelf Niemeyer, P.O. Box 21, Vancouver Island, British Columbia, Canada
Filed Jan. 26, 1968, Ser. No. 700,951
Claims priority, application Canada, Nov. 9, 1967, 4,658
Int. Cl. A01b *1/22*
U.S. Cl. 172—371 **1 Claim**



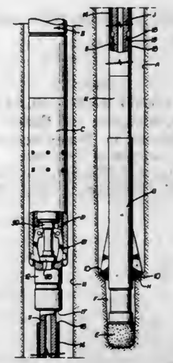
An interchangeable blade hoe kit is herein provided. It includes a handle which is provided with means for detachably securing interchangeable blades thereto. The hoe blade of the kit is triangular in plan and, in elevation, is secured to the handle at an obtuse angle to the handle. The lawn edger blade is elliptical in elevation and, in elevation, is secured to the handle at an acute angle to the handle. By these means, both hoeing, weeding and lawn edging may be accomplished by engagement of the blade with the ground to be acted on and applying a simple push-pull action to the handle.

3,545,552
CAVITATIONAL DRILLING UTILIZING AN ACOUSTIC GENERATOR AND AN ACOUSTIC CONCENTRATOR
Frank A. Angona, Dallas, Texas, assignor to Mobil Oil Corporation, a corporation of New York
Filed Dec. 12, 1968, Ser. No. 783,226
Int. Cl. E21b *7/18*
U.S. Cl. 175—65 **3 Claims**



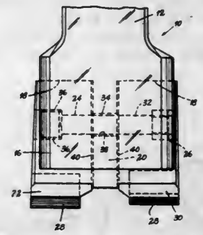
This specification discloses an improved method and apparatus for drilling a liquid-filled borehole into the earth's crust with cavitational energy. Acoustic energy is generated at a first region in the borehole of an amplitude less than that required to produce cavitation in this region. This acousitc energy is then focused to a second region downhole of the first region and concentrated to an amplitude greater than the amplitude required to produce cavitation in the second region. The second region is moved about the bottom of the borehole to effect cavitational drilling of the borehole.

3,545,553
RETRIEVABLE WELL DRILLING APPARATUS
Archer W. Kammerer, Jr., Fullerton, Gary R. Johnson, Anaheim, and Alan C. Sampson, Huntington Beach, California, assignors to Rotary Oil Tool Company, Buena Park, California a corporation of California
Filed Dec. 31, 1968, Ser. No. 788,162
Int. Cl. E21b *9/26*
U.S. Cl. 175—258 **28 Claims**



Well bore drilled with casing as the drill string drilling tools are lowered through the casing and releasably locked to the casing shoe by expanding coupling members into shoe slots and wedging them between the shoe and the coupling apparatus, enabling drilling torque to be transmitted directly from the casing to the drilling mechanism extending therebelow, as well as drilling weight, without imposing torque and drilling weight on hinge pins pivotally supporting the coupling members on the main body of the coupling apparatus. The coupling apparatus is releasable for withdrawal with the drilling tool through the casing to the top of the well bore.

3,545,554
DRILL BIT WITH STAGGERED TEETH
Allen E. Bardwell, Princeton, New Jersey, assignor to Trident Industries Inc., Princeton, New Jersey a corporation of Delaware, by mesne assignments
Filed Dec. 3, 1968, Ser. No. 780,753
Int. Cl. F21c *13/00, 13/06*
U.S. Cl. 175—398 **8 Claims**

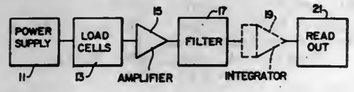


A drill bit for gravity drop drills and other percussion drills in which teeth extend outwardly from the end of the bit different distances, that is, the teeth are of or are at different drilling heights.

3,545,555
METHOD AND APPARATUS FOR DYNAMICALLY WEIGHING OBJECTS IN MOTION
George R. Cass, Montreal, Quebec, Canada, assignor to Canadian National Railway Company, Montreal, Quebec, Canada
Filed Feb. 24, 1969, Ser. No. 801,306
Claims priority, application Canada, Jan. 27, 1969, 41,271
Int. Cl. G01g *19/04, 3/14*
U.S. Cl. 177—1 **25 Claims**

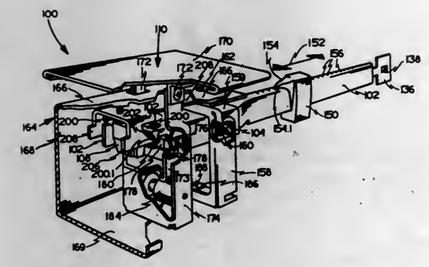
Apparatus for weighing moving objects such as railway

cars, including a filter circuit having poles and zeros at approximately the lowest resonant bounce frequency of the



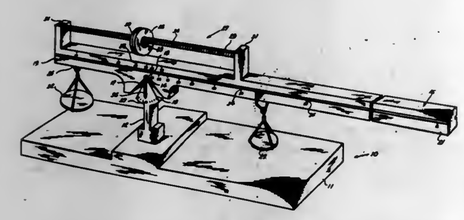
system and optionally additional poles and zeros at a higher frequency.

3,545,556
WEIGHT RANGE SCALE
Herbert Tramposch, Riverside and Henry Korth, Greenwich, Connecticut, assignors to Pitney-Bowes, Inc., Stamford, Connecticut a corporation of Delaware
Filed May 5, 1969, Ser. No. 821,836
Int. Cl. G01g *23/18, 1/28*
U.S. Cl. 177—45 **11 Claims**



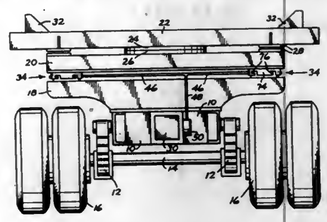
A scale for classifying letters according to postal weight ranges, in which a single auxiliary weight is suspended from the weighing beam by means of a lost motion coupling on the same side of the fulcrum as the weighing pan, and is decoupled from the beam by an adjustable support in order to arrest the beam when the weight of a letter on the pan is within a postal range. There is also a sliding counterweight for use with letters falling into different postal ranges.

3,545,557
PERCENTAGE SCALE AND METHOD OF WEIGHING TO INDICATE DIRECTLY PERCENTAGE PROPORTIONS OF WEIGHED MATERIAL
Cornelius J. Dykstra, 2410 30th St., Des Moines, Iowa
Filed Dec. 6, 1968, Ser. No. 781,900
Int. Cl. G01g *19/00*
U.S. Cl. 177—200 **4 Claims**



The determination of a relative or proportional weight of a material being weighed is usually accomplished by first weighing 100 percent of the material, then weighing a part of such total material weight, and with such two weights known then mathematically determining the percentage which such part of the weight bears to the total weight. The present invention comprises a beam scale that is graduated to indicate directly thereon the percentage by weight which one portion of the material being weighed bears to the total weight of the material being weighed.

3,545,558
HYDRAULIC LOAD WEIGHING SCALE AND MOUNTING THEREFOR
Murrel C. Maugh, 2537 Wood Ave., Eugene, Oregon
Filed Sept. 20, 1968, Ser. No. 761,102
Int. Cl. G01g *5/04, 19/10*
U.S. Cl. 177—208 **17 Claims**

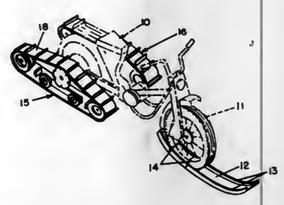


A hydraulic load weighing scale, comprising upper and lower plates sealed together peripherally and containing hydraulic fluid between them, is mounted between upper and lower relatively movable members of a vehicle by means of a universal connecter. The weighing scale is compensated for temperature variations by the arrangement wherein the maximum thickness of at least one of the scale plates is established by the ratio

$$T^2 = \frac{A}{K}$$

wherein A is the area of the plate subjected to hydraulic pressure and K is a constant ranging between 400 and 600, preferably about 450.

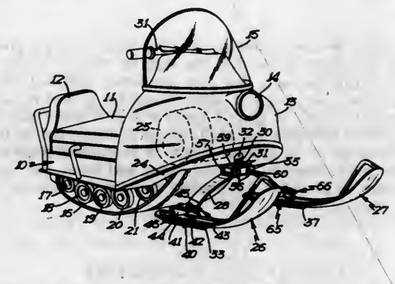
3,545,559
ENDLESS TRACK ATTACHMENT FOR MOTORCYCLES
William A. Jones, P.O. 954, and Robert R. Swaner, P.O. 371, Hailey, Idaho
Filed Oct. 17, 1968, Ser. No. 768,366
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **4 Claims**



This invention consists of two endless tracks that are mounted on supporting and rotating mechanisms that are both secured to, and support a rear axle of a motorcycle. One endless track is mounted on each side and at the rear end of the motorcycle. Each endless track embodies an endless belt to the outside of which is bolted a plurality of equally spaced angle irons. Each outer end of the equally spaced angle irons has a bolt secured thereto on which is located a steel roller having a bronze liner therein. Each roller is adapted to fit into one of the U-shaped recesses in the periphery of a combination sprocket and wheel that is mounted on each end of the aforesaid axle. Actually, there are two sprockets and wheels for each of the endless tracks.

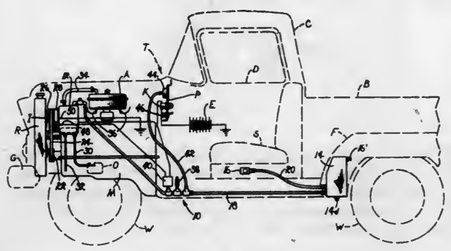
Each aforesaid supporting and rotating mechanism embodies framework adapted to support not only the aforesaid axle but also a plurality of bogie wheels that in turn give rotating support to the endless track. The track is prevented from slipping off its supporting and rotating structure by means of a plurality of inverted U-shaped straps that are bolted to each belt in equal and parallel spaced relation to one another.

3,545,560
MOTORIZED SNOW VEHICLE
Anthony Fox, Bloomington, Minnesota, assignor to Sports Power, Inc., a corporation of Minnesota
Filed Nov. 18, 1968, Ser. No. 776,463
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **11 Claims**



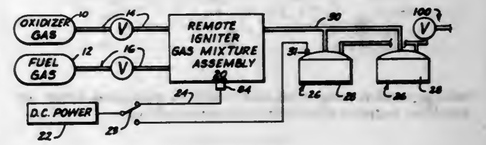
Motorized snow vehicle having the usual motor operated traction belt and a pair of skis at the front of the vehicle in which both skis are mounted on a transversely extending leaf spring having a central upwardly bowed portion detachably secured to a central kingpin which is a actuated by the steering mechanism. The skis are mounted on the ends of the leaf spring by pivotal connections allowing the front ends of the skis to swing upwardly more than the rear ends.

3,545,561
AIR COMPRESSOR SYSTEM FOR SERVICE TRUCK
Woody Bradley, P.O. Box 955, Winton and Zac R. Keck, 16389 Avenue 184, Strathmore, California
Filed Feb. 6, 1969, Ser. No. 797,108
Int. Cl. B60k *25/02*
U.S. Cl. 180—53 **11 Claims**



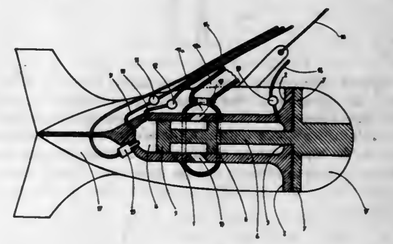
An air compressor apparatus mounted on an automotive vehicle in a manner which does not occupy load space thereon and includes a compressor unit and an accumulator with a quick coupling attachment air outlet. The unit is mounted on the vehicle engine and is driven thereby through pulleys and a magnetic clutch. Air is drawn into the unit through the air cleaner of the engine and delivered by an air line to the accumulator which is housed in a fender well or the like. The clutch is energized by circuitry including switches on an instrument panel in the operator's cab and a pressure responsive switch in the air line. The unit is lubricated by an oil line connected with the oil circulating system of the engine.

3,545,562
GAS EXPLODER SYSTEM
William J. Gundlach, Fulshear, Texas, assignor to Geo Space Corproation, Houston, Texas a corporation of Texas
Continuation of application Ser. No. 766,412, Oct. 10, 1968. This application Nov. 28, 1969, Ser. No. 876,189
Int. Cl. G01v *1/04*
U.S. Cl. 181—0.5 **8 Claims**



This invention relates generally to gas exploders including a combustion chamber, for receiving a mixture of combustible gases, and a flexible conduit coupled to the chamber and adapted for carrying a detonating shock wave into the combustion chamber, thereby igniting the gases in the combustion chamber, and/or carrying a uniformly mixed gas mixture into the combustion chamber.

3,545,563
DEVICE FOR EMITTING ACOUSTIC WAVES IN WATER
Jacques Cholet, Rueil Malmaison, France, assignor to Institut Francais du Petrole, Des Carburants et Lubrifiants, (Hauts de Seine), France
Filed Jan. 14, 1969, Ser. No. 790,966
Claims priority, application France, Jan. 18, 1968, 136.593
Int. Cl. G01v *1/04, 1/38*
U.S. Cl. 181—0.5 **3 Claims**

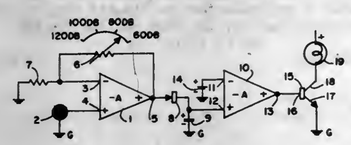


Method and apparatus for emitting acoustic waves in water by forcefully separating a pair of plates by means of a piston and cylinder arrangement providing a combustion chamber and a counter pressure chamber on respective sides of the piston, a pressure being provided in said counter pressure chamber to simultaneously position one plate against the other plate and compress the gases in the combustion chamber so that ignition of the compressed gas produces a separation of the plates.

3,545,564
SOUND LEVEL INDICATOR FOR THE PRECISE DETERMINATION OF SOUND LEVELS
Alfred W. Barber, Bayside, New York (32-44 Francis Lewis Bldg., Flushing, N.Y. 11358)
Continuation-in-part of application Ser. No. 815,285, April 11, 1969. This application July 2, 1969, Ser. No. 838,444
Int. Cl. G01v *1/00*
U.S. Cl. 181—.5 **8 Claims**

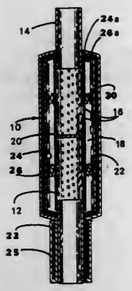
Precise determination of predetermined sound levels is provided by the combination of a microphone of known sensitivity, one or more amplifiers in cascade each having a

predetermined gain, a sensitive voltage comparator for comparing the amplifier rectified output with a know reference



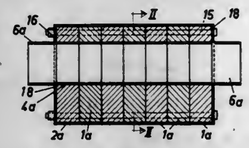
voltage, and a lamp indicator which is energized when the amplifier output exceeds the reference voltage.

3,545,565
SOUND ATTENUATING STRUCTURE
Horace McCaffrey, Jr., 9920 West Edgerton Ave., Hales Corners, Wisconsin
Filed Nov. 20, 1969, Ser. No. 878,304
Int. Cl. F01n *1/10, 7/16*
U.S. Cl. 181—35 **11 Claims**



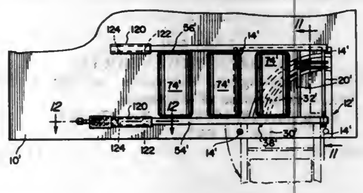
A sound attenuating structure including an inner wall, and outer wall secured to the inner wall to define a confined space therebetween and a high density metallic material confined within the space between the walls. The material being liquid at the temperature of the noise source. At low operating temperatures mercury can be used and at high operating temperatures, lead or bismuth can be used as the metallic material.

3,545,566
MUFFLER WITH ECCENTRIC PASSAGE THROUGH BAFFLE BODIES
Thore Johannes Abrahamsson, Vastra Frolunda, Sweden, assignor to AB Teem-Incorporated, Stockholm, Sweden
Filed Dec. 9, 1968, Ser. No. 782,035
Claims priority, application Sweden, Dec. 13, 1967, 17,134/67
Int. Cl. F01n *1/10, 7/18*
U.S. Cl. 181—50 **9 Claims**



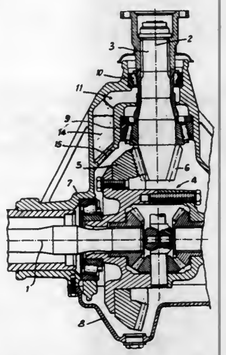
An elongated muffler body comprising an outer shell and an internal passage is subdivided perpendicularly to its longitudinal axis into a number of bodies. The passage part in at least some of the bodies is located eccentrically with respect to the longitudinal axis, and an adjustment of the damping and/or throttling capacity of the muffler is brought about by an angular displacement of the bodies.

3,545,567
RETRACTABLE FOLDING STEPS
Charles A. Dohrman, P.O. Box 128, Sunnyside, Washington
Filed Dec. 19, 1968, Ser. No. 785,272
Int. Cl. E06c *1/383*
U.S. Cl. 182—97 **12 Claims**



A support means includes a fixed portion carrying a pivot pin and an arcuate guide slot. The support means includes a second portion having a first part connected with said fixed pivot pin and a second part which is slidably guided by said arcuate slot. A pair of spaced upper side rails and a pair of lower spaced side rails are each swingably supported by the second portion of the support means. A plurality of steps are movably interconnected with the upper and lower side rails and means is provided for holding the arrangement in its stored position.

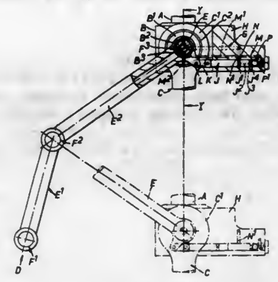
3,545,568
MOTOR VEHICLE GEARBOXES
Gerard H. Lacoste, Saint-Maur, France, assignor to Societe Herwaythorn S.A., Paris, France
Filed July 10, 1968, Ser. No. 743,845
Claims priority, application France, July 25, 1967, 115,527
Int. Cl. F16n *7/26;* **F01m** *1/12*
U.S. Cl. 184—6 **7 Claims**



A motor vehicle differential gearbox in which, for the lubrication of the bearings of the transmission shaft, there are two channels separated from each other by one common partition and arranged symmetrically in respect of a substantially horizontal plane which contains the axis of the transmission shaft.

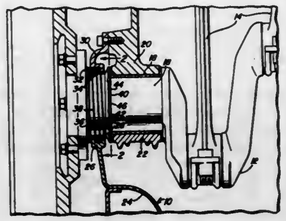
3,545,569
LUBRICATION OF BEARINGS OF RECIPROCATING ENGINES OR PUMPS
John Forster Alcock, Lancing, Sussex, England, assignor to Ricardo & Co., Engineers Ltd., Shoreham-by-sea, Sussex, England
Filed Aug. 15, 1968, Ser. No. 752,967
Claims priority, application Great Britain, Aug. 16, 1967, 37812/67
Int. Cl. F01m *1/06*
U.S. Cl. 184—6 **2 Claims**

A reciprocating piston mechanism in which the piston or piston rod is pivotally connected by a small end bearing to an angularly oscillating connecting rod and which includes a displacement-type lubricating pump actuated independently of the oscillation of the connecting rod by the reciprocating



movement of the piston or piston rod to deliver a timed feed of lubricant under pressure to the bearing during a selected portion of the reciprocating cycle.

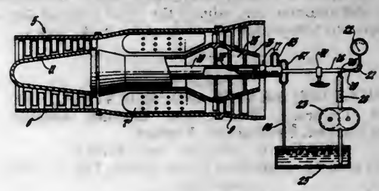
3,545,570
SHAFT FLANGE WITH OIL RETURN GROOVES
Charles H. Schrader, R.R.2,, Naperville, Illinois
Filed Nov. 27, 1968, Ser. No. 779,472
Int. Cl. F16n *7/36*
U.S. Cl. 184—6 **10 Claims**



A circumferentially extending radially outwardly projecting flange on a journalled shaft portion to be rotated in one direction and having first and second wet and damp lubricated end portions, respectively. The flange is disposed between the first and second end portions of the shaft portion and includes circumferentially spaced diagonal peripheral grooves formed therein tending, during rotation of the shaft portion in the one direction, to pump lubricating oil disposed on the damp lubricated end portion side of the flange through the grooves toward the wet lubricated end portion side of the flange.

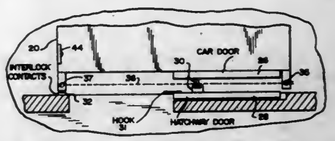
3,545,571
PRESSURE TRANSFER DEVICE
John W. Kirkpatrick, Indianapolis, Indiana, assignor to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed Dec. 19, 1968, Ser. No. 785,211
Int. Cl. F01m *9/00*
U.S. Cl. 184—6 **6 Claims**

A device for transmitting pressures from within a rotating machine includes nonrotating oil supply and pressure readout tubes which are connected to the rotating body by spherical and slip bearings, one of which is relatively rotatable. The bearings are sealed and lubricated by oil. The oil on the inner side of the bearing with respect to the rotating structure is vented through a centrifugal trap to preserve a pressure seal



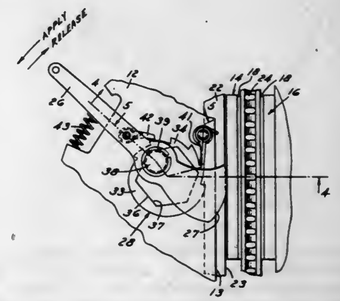
on the readout device. The tubes are additionally supported in a second support including a spherical bearing.

3,545,572
ELEVATOR DOOR CONTROL
Alan M. Hallene; Henry J. Holuba and John J. Drexler, Moline, Illinois, assignors to Montgomery Elevator Company, a corporation of Delaware
Original application Aug. 18, 1967, Ser. No. 661,655, now Patent No. 3,450,232. Divided and this application March 7, 1969, Ser. No. 805,287
Int. Cl. B66b *13/02*
U.S. Cl. 187—52 **10 Claims**



An elevator control continuously moves a car door through an opening and closing operation, without pausing at a full open position, and moves the car door at substantially different speeds to control the total door open time. The breaking of a photobeam across the doorway modifies the speed and direction of movement of the door. When the door photobeam circuit becomes inoperative, the speed of operation of the car door is modified until the condition is remedied. Should a door lock fail to unlatch, opening direction power is discontinued and closing direction power is applied to the car door motor to reestablish electrical interlock contacts in the hoistway.

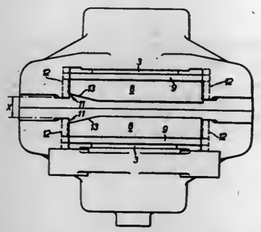
3,545,573
AUTOMATICALLY ADJUSTABLE DISC BRAKE
David W. Barton, Birmingham, Michigan, assignor to Ford Motor Company, Dearborn, Michigan a corporation of Delaware
Filed April 25, 1969, Ser. No. 819,327
Int. Cl. F16d *65/52*
U.S. Cl. 188—72.9 **7 Claims**



A mechanically actuated floating caliper disc brake having an actuating lever pivotally mounted to a fulcrum member

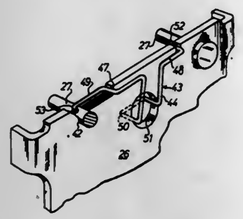
which, in turn, is rotatable relative to the caliper member. The lever pivot is eccentric to the center of rotation of the fulcrum member. A ratchet mechanism rotates the fulcrum member and automatically adjusts the pivot point of the actuating lever to compensate for wear of the brake shoes.

3,545,574
VEHICLE DISC BRAKES AND SHOE STRUCTURE
Robin A. Cochrane, Birmingham, England, assignor to Girling Limited, Birmingham, England
Filed Feb. 6, 1969, Ser. No. 797,003
Claims priority, application Great Britain, Feb. 9, 1968, 6659/68
Int. Cl. F16d *65/02*
U.S. Cl. 188—73.1 **3 Claims**



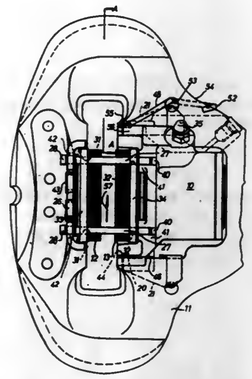
A caliper-type disc brake having renewable brake pads which are accommodated in opposed recesses formed in the caliper body on opposite sides of the gap in the body which receives the brake disc the recesses and pads being complementarily shaped, so that, without the need for providing fastener means such as pins or screws, the pads are guided for movement towards and away from one another and are restrained against any substantial movement in planes parallel to that of the brake disc the pads have a thickness greater than the width of the gap in the caliper body, so that they have a long working life; to make it possible to insert new pads without the need to dismantle the caliper body, each of the pad-receiving recesses is formed on the side nearer to the centre of the brake disc with an opening whose length, while less than the length of the pad, is greater than the width of the pad, and the pad is formed with one end portion of reduced thickness, less than the width of the gap in the caliper body.

3,545,575
DISC BRAKES AND SHOE RETAINING MEANS
Friedrich Wilhelm Pinnhammer, Neuwied, Germany, assignor to Girling Limited, Birmingham, England
Filed Dec. 19, 1968, Ser. No. 785,104
Claims priority, application Great Britain, Dec. 30, 1967, 59,260/67
U.S. Cl. 188—73.6 **3 Claims**



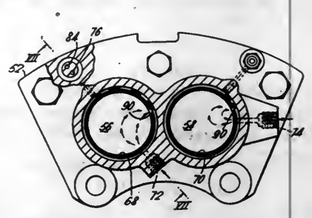
A disk brake comprises a body member containing a pair of opposed hydraulic pistons, one of which acts on a directly operated pad and the other of which acts on a yoke slidably received on the body member and engaging an indirectly operated pad. Pad retaining pins pass through apertures in the pad backplates and are received in alined apertures in the body member and a bracket attached to the yoke. To normally prevent withdrawal of the pins and to bias the pins against the sidewalls of the apertures in the bracket, the ends of a spring releasably engage in holes in the pins. The spring embraces the bracket and has a portion received in a further aperture in the bracket to hold the spring captive on the bracket.

3,545,576
MOUNTING FOR DISC BRAKES WITH SPRING BIAS
Gerard Franz Josef Sahs, Halsenbach, Germany, assignor to Girling Limited, Birmingham, England a British Company
Filed Feb. 27, 1969, Ser. No. 803,529
Claims priority, application Great Britain, Feb. 28, 1968, 9567/68
Int. Cl. F16d *65/02*
U.S. Cl. 188—73.5 **6 Claims**



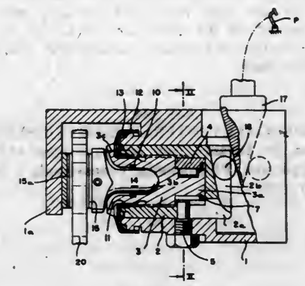
A spot-type disk brake has a body member containing an opposed piston-type hydraulic actuator operative between a directly operated pad and a yoke which is adapted to support an indirectly operated pad and is slidably guided with clearance in grooves extending along opposite sides of the body member. A solid resilient member, such as a wire spring, biasses the yoke against the base of one of the grooves to prevent "klonk." The wire spring is attached to the yoke and one end rests resiliently against the body member.

3,545,577
BLEEDING HYDRAULIC SYSTEMS
Anthony W. Harrison, Birmingham, England, assignor to Girling Limited, Tyseley, Birmingham, England
Filed Feb. 25, 1969, Ser. No. 802,126
Claims priority, application Great Britain, March 2, 1968, 10242/68
Int. Cl. B60t *11/30*
U.S. Cl. 188—152 **3 Claims**



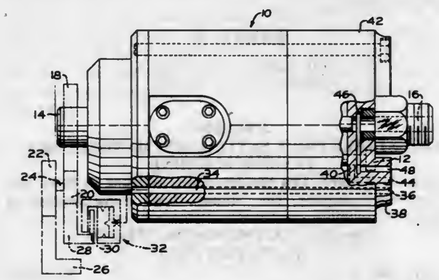
In a fixed caliper disk brake having independent pairs of operating cylinders for connection to dual circuits, each pair having a feed and bleed connection to one of the cylinders, and wherein the bleed outlet is below at least part of the working space of at least one of the cylinders, passage means at least part of which lies within the working space within the cylinder and communicating with the bleed outlet and port means connecting the substantially vertically highest region of the working space above the bleed with the passage means.

3,545,578
WEAR-COMPENSATING BRAKE ADJUSTMENT MECHANISM
Juan Belart, Walldorf, Hessen, Germany, assignor to Alfred Teves G.m.b.H., Frankfurt am Main, Germany, a corporation of Germany
Filed July 17, 1968, Ser. No. 745,441
Claims priority, application Germany, July 25, 1967, T34406
Int. Cl. F16d *65/56, 55/18*
U.S. Cl. 188—196 **9 Claims**



A wear-compensating brake adjustment mechanism with an internally threaded sleeve engaged by a threaded member and connected to a clutch and cam arrangement that rotates the member relatively to the sleeve as the brakes are released to adjust the brakeshoe travel.

3,545,579
HYDRAULIC MOTOR WITH COUPLING CONTROL VALVE
James M. Kostas, Peoria, Illinois, assignor to Caterpillar Tractor Co., Peoria, Illinois a corporation of California
Filed Nov. 18, 1968, Ser. No. 776,740
Int. Cl. F16d *47/00*
U.S. Cl. 192—3 **7 Claims**



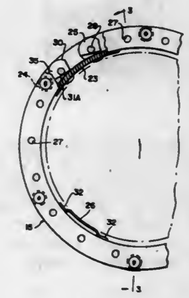
A valve for a hydraulic wheel assist motor which is mounted on the motor. A valve spool in the valve is actuated by the hydraulic pressure which drives the motor and a portion of that fluid is delivered, at a reduced pressure, through the valve to actuate a brake in the assist gear train. A manifold may be situated between the hydraulic motor housing and the valve so that the valve may be offset relative to the fluid passages in the hydraulic motor housing and so as to clear retaining bolts and other protuberances on the housing.

3,545,580
STOP COLLAR ADJUSTMENT FOR CLUTCH
John S. Baer, Medford Lakes, New Jersey, assignor to Precision Specialties, Inc., Pitman, New Jersey a corporation of Missouri
Filed Dec. 6, 1968, Ser. No. 781,761
Int. Cl. F16d *11/06*
U.S. Cl. 192—26 **4 Claims**



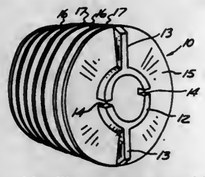
This stop collar construction permits adjustment of a stop on the collar and consists of two relatively rotatable tubular members, one of which is fixed to the clutch structure and the other of which carries a stop. Worm drive means is provided by means of a helically threaded cylindrical screw rotatably supported in a fixed position relative to the other member tangent to a circumferential groove extending at least part way around the circumference of the outer face of the inner member and engaging the threads which form that groove. Preferably access to the screw at one end permits rotation of the screw by a suitable tool for relative rotational adjustment of the inner and outer collar members.

3,545,581
SPRAG ASSEMBLY FOR ONE-WAY CLUTCHES
Bryan P. Kent, Ithaca, New York, assignor to Borg-Warner Corporation, Chicago, Illinois a corporation of Delaware
Filed Dec. 19, 1968, Ser. No. 785,103
Int. Cl. F16d *41/07, 43/06*
U.S. Cl. 192—45.1 **10 Claims**



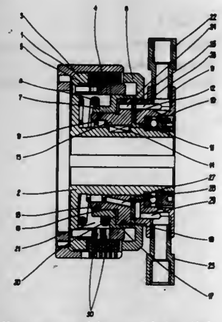
An overrunning clutch is disclosed herein providing a structure whereby a drive and driven member are interconnected to provide a drive condition therebetween in one direction, of relative rotation thereof and an overrunning condition therebetween in the other direction of relative rotation thereof. A sprag assembly is shown in conjunction with the overrunning clutch and possesses a structure which provides for total disengagement of the sprags from the overrun portion of the clutch during the overrunning thereof.

3,545,582
CONVEYOR CUSHION ROLLER
Edward Kimmen, Pointe Shores, Michigan, assignor to Stilson Corporation, Roseville, Michigan
Filed Sept. 12, 1968, Ser. No. 759,453
Int. Cl. B21b 27/02; B65g 13/00; F16h 55/48
U.S. Cl. 193—37 7 Claims



A self-cleaning rubberlike, conveyor cushion roller having a central mounting hole extending therethrough and an integral, narrow hub formed on each end surrounding the hole, and integral, diametrically extending fins also formed on the ends, with the exposed faces of the hub and fins being coplanar for abutting against another identical roller and forming a substantial gap between adjacent rollers. The peripheral surface of the rollers may be configured to scrub and better cling to a workpiece rested upon and conveyed by the roller.

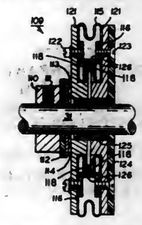
3,545,583
HYDRAULICALLY ENGAGEABLE MULTIPLE-DISK CLUTCH
Janusz Cieszewski, Broniwoja 8/70, Warsaw and Jan Czuba, Szopena 7/12, Pruszkow, Poland
Filed Aug. 27, 1968, Ser. No. 755,629
Claims priority, application Poland, Aug. 30, 1967, P-122 389
Int. Cl. F16d 25/00
U.S. Cl. 192—85 7 Claims



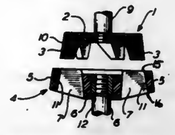
A hydraulically engageable multiple disk clutch having a hydraulic distributor including a fixed part mounted on a rotatable sleeve and a second part rotatable with the sleeve and bearing against the fixed part; the second part forms a portion of a pressure chamber, and supports an axially movable member which also forms a portion of the pressure chamber and which comprises a clamp to cause clutch engagement.

3,545,584
SLIP CLUTCH
Victor Takata, Cambridge, Massachusetts, assignor to Artisan Industries Inc., Waltham, Massachusetts a corporation of Massachusetts
Original application Sept. 12, 1966, Ser. No. 578,768, now Patent No. 3,475,945. Divided and this application June 25, 1969, Ser. No. 836,240
Int. Cl. F16d 19/00
U.S. Cl. 192—88 2 Claims

A bellows-type slip clutch for use in association with and as part of the drive system of a rotatable shaft, for example, a shaft carrying film spools in an apparatus for processing striplike photographic film, this clutch being adapted to receive rotational driving impulse from a prime mover and to have its bellows element expand under pressure and contract through resiliency with changes in fluid pressure signals to increase and decrease correspondingly its frictional driving engagement with said shaft through a pressure plate freely rotatably mounted on the shaft and turned by the prime mover and a friction disk axially movably but nonrotatably mounted on the shaft.



3,545,585
CENTRIFUGALLY INTERLOCKED COUPLING
John L. Eaton, Jr., Delanco, New Jersey, assignor to Proctor-Silex Incorporated, Philadelphia, Pennsylvania a corporation of New York
Filed Apr. 10, 1969, Ser. No. 814,968
Int. Cl. F16d 11/04
U.S. Cl. 192—108 4 Claims



A coupling for a pair of alined shafts comprising male and female members, the male member having a base element connectable to one of the shafts and at least one resilient protrusion extending from the base element, and the female member having a hub element connectable to the other of the shafts and an internal surface connected to the hub element, the at least one protrusion of the male member being forced into contact with the internal surface of the female member during rotation with a resultant vertical force component acting on the female member in a direction to more firmly hold the coupling members together and the shafts in stable alinement

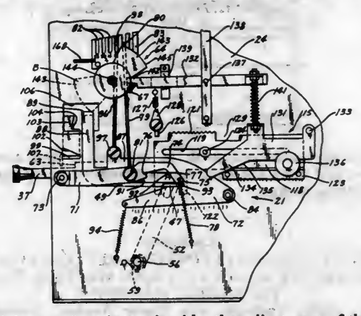
---

ERRATUM

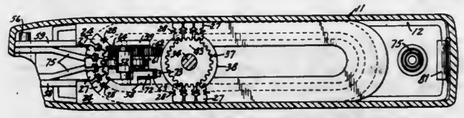
For Class 193—37 see:
Patent No. 3,545,582

3,545,586
ADJUSTABLE PRICE SETTING MECHANISM FOR A VENDING MACHINE
Francis A. Wittern, Des Moines, Iowa, assignor to Fawn Engineering Company, Des Moines, Iowa a corporation of Iowa
Filed June 18, 1968, Ser. No. 738,015
Int. Cl. G07f 11/00
U.S. Cl. 194—2 3 Claims

The price setting mechanism includes a coin operated means which produces information indicative of the value of coins inserted therein. An adjustable linkage means responsive to the information produced by the coin operated means is operably associated with high and low priced article vending members of the vending machine, to selectively lock such vending members in a nonvending position in accordance with the value of the coins received by the coin operated means. The machine thus functions to separately vend either a high or a low priced article. The linkage means is adjustable relative to a coin information cam unit of the coin operated means to regulate the monetary difference between the low and the high priced article. The cam unit in turn is adjustable to vary, between predetermined limits, the price range of the low and high priced articles. The price limits of the articles are thus determined by the adjustment of the cam unit and the monetary difference between the high and low priced articles, within such price limits, is determined by the adjustment of the linkage means.



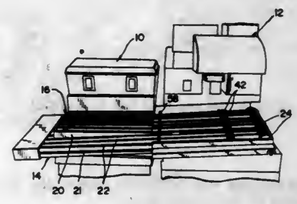
3,545,587
EMBOSSING TOOL WITH DIE MEMBERS FORMED IN ENDLESS CHAIN
Otto R. Urbach, Dusseldorf, Germany and Hans Kraayenhof, Son, Netherlands, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minnesota a corporation of Delaware
Filed Jan. 10, 1968, Ser. No. 696,937
Int. Cl. B41j 1/24
U.S. Cl. 197—6.2 7 Claims



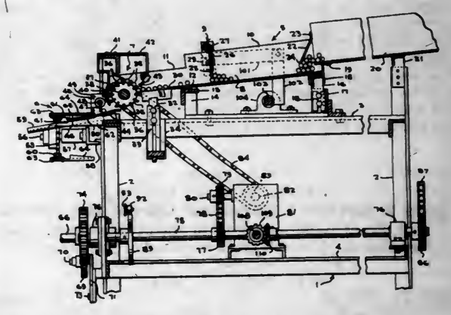
A tool for use in embossing a polymeric strip material to form labels including relatively movable housings within which is supported a selection and embossing device including an endless chain formed of individual die members connected by flexible links and positioned to follow an oval-shaped path. The housings are separable to insert the strip material within the housings and within the oval path. A driven feed roller is biased into engagement with an idler roller to feed the tape and is separable from the idler roller upon separating the housings to permit threading of the strip material. The selection and embossing device is driven by an external knob journaled on one of the housings and engaging the chain.

3,545,588
SCALE TO LABELLER FEED
John P. Corley, deceased, late of Winnetka, Ill., by Helen Emily Corley, Executrix, Winnetka, Illinois, assignors to Corley-Miller, Inc., a corporation of Ohio
Filed Jan. 15, 1968, Ser. No. 697,999
Int. Cl. B65g 67/00
U.S. Cl. 198—19 16 Claims

A package weighing and labeling system in which a scale has a scale platform for weighing packages and a labeling machine has a position for labeling packages. A power driven conveyor is disposed to move a package from the scale platform to the labeling machine and a movable package stop means is provided for holding the package at the labeling position. A drive means operates the conveyor and the package stop means in timed relation through a cycle so as to move a weighed package from the scale platform to the labeling machine automatically in response to a completed weighing operation of a package at the scale. The package stop means operates in the cycle so as to permit the previously weighed and labeled package to be moved by the conveyor from the labeling position before the newly weighed package arrives at the labeling machine, and to subsequently stop the newly weighed package at the labeling position. The drive means is stopped automatically at the end of the cycle. The functioning of the conveyor, the movement of the package stop means, and the stopping of the drive means at the end of the cycle are all controlled by a common driven shaft which carries a plurality of cams arranged to effect the timed cycle of operation.



3,545,589
STICK ASSORTMENT GATHERING MACHINE
Gregory H. Keller, St. Bernard College, St. Bernard, Alabama
Filed Dec. 2, 1968, Ser. No. 780,421
Int. Cl. B65g 47/56; B15h 3/44
U.S. Cl. 198—26 12 Claims

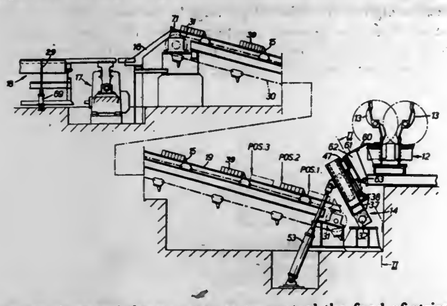


A stick assortment-gathering machine wherein stick objects of different kinds are picked singly from a number of individual kind supply channels and fed, one of each kind, to a vaned accumulator traveling at right angles to the direction of single stick feed sequentially across the outlets from the several channels, whereby one stick from each channel is released to roll between each pair of vanes on the vaned accumulator as the vanes move across the channel outlets.

3,545,590
CONVEYING SYSTEM
Derek Stubbins, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England
Filed Sept. 22, 1967, Ser. No. 669,878
Claims priority, application Great Britain, Sept. 23, 1966, 42537/66
Int. Cl. B65g 47/26
U.S. Cl. 198—31 4 Claims

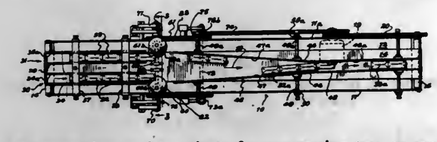
A conveyor system for thin strips comprises a movable conveyor having means at its receiving area for feeding the strips which are arranged parallel to the conveyor length individually onto the conveyor in a direction transverse to

the conveyor length and at least one retractable stop which separates the receiving area of the conveyor lengthwise into



two sections and the stop serves to control the feed of strips to one or other of the two sections.

3,545,591
CONVERGING PACKAGE TIMER
Victor Del Rosso, Ithaca, New York, assignor to HI Speed Checkweigher Co., Inc., Ithaca, New York
Filed Oct. 11, 1968, Ser. No. 766,838
Int. Cl. B65g *47/26*
U.S. Cl. 198—32 **9 Claims**



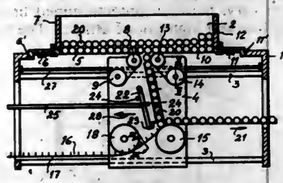
A converging package timer for converging two or more input lines of packages into one output line of packages, wherein indexing wheels associated with each input line are sequentially operated to release groups of packages from the input lines for movement through the output line. The number of packages per group to be released upon operation of the indexing wheels may be varied by adjusting the speed of rotation of the indexing wheels with respect to the speed at which the packages are conveyed.

3,545,592
AUTOMATIC BALE ALIGNER
James R. Burkholder, Ephrata and Albert M. Best, New Holland, Pennsylvania, assignors to Sperry Rand Corporation, New Holland, Pennsylvania a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,280
Int. Cl. B60p *1/36;* **B65g** *47/24*
U.S. Cl. 198—33 **20 Claims**

This invention relates to article-aligning devices for receiving and aligning randomly discharged articles, and more particularly to the unloading of previously randomly loaded hay bales, and to automatically aligning said bales in end to end fashion for delivery to bale elevators disposed in association with storage facilities.

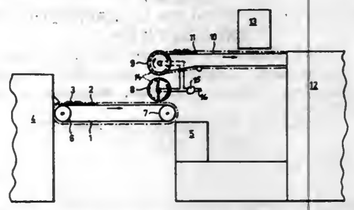
3,545,593
FEEDING OUT DEVICE IN STORAGE CONTAINERS FOR ROD-LIKE PARALLEL ARTICLES
Nils Wallenborn, Johannesbov, Sweden, assignor to Arenco Aktiebolag, Stockholm-Vallingby, Sweden
Filed Oct. 1, 1968, Ser. No. 764,132
Claims priority, application Sweden, Oct. 13, 1967, 14077/67
Int. Cl. B65d *47/18*
U.S. Cl. 198—53 **12 Claims**

An arrangement for discharging rod-shaped objects lying parallel to each other, especially cigars, cigar bunches or cigarettes, from a storage container provided with a discharge shaft in the bottom of the container, said bottom comprising two support members made of flexible material and extending in the transverse direction of the objects from two opposite sidewalls of the container towards each other and around two shafts forming spaced-apart rollers located parallel to the objects and rotatably mounted on a stand sec-



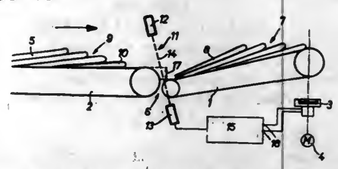
tion moving back and forth in relation to the container between said sidewalls, each support member being kept taut by stretching means.

3,545,594
DEVICE FOR CONVEYING CIGARETTES FROM A CIGARETTE MANUFACTURING MACHINE TO A PACKAGING MACHINE
Lennart Stahl, Vallingby and Dieter Neuber, Jakobsberg, Sweden, assignors to Arenco Aktiebolag, Stockholm-Vallingby, Sweden
Filed Oct. 22, 1968, Ser. No. 769,593
Claims priority, application Sweden, Oct. 31, 1967, 14949/67
Int. Cl. B65g *37/00, 47/26*
U.S. Cl. 198—75 **3 Claims**



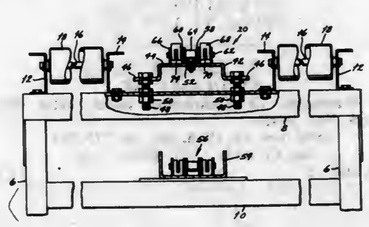
A device for conveying cigarettes from a cigarette manufacturing machine to a cigarette packaging machine, comprising a conveyor for the cigarettes, a first container for the cigarettes, a switchover means adapted to actuate the conveyor to deliver the cigarettes, in dependence of the condition of the switchover means, alternatively to the packaging machine or to said first container, a second container for cigarettes, and means for alternatively feeding the packaging machine with cigarettes from said second container.

3,545,595
CONTROL DEVICE FOR A TWO SECTION BELT CONVEYOR
Walter Reist, Hinwil, Zurich, Switzerland, assignor to Ferag, Fehr & Reist AG, Zurich, Switzerland
Filed May 24, 1968, Ser. No. 731,856
Claims priority, application Switzerland, May 26, 1967, 7465/67
Int. Cl. B65g *37/00*
U.S. Cl. 198—76 **7 Claims**



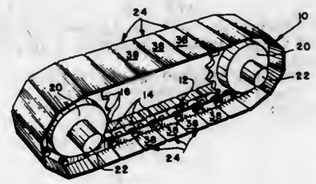
A control device for a two-section belt conveyor particularly for transporting newspapers in a continuous imbricated or overlapping formation, comprises feeling device for detecting a gap in the continuous formation and an electric control circuit including switching means actuated upon detection of a gap in the continuous formation for stopping the leading portion of the continuous formation until the gap has been filled up by the continuously advancing lagging portion of the continuous formation.

3,545,596
CONVEYOR
Harold L. Turnbough, Lemay and Thomas J. Schuette, Webster Groves, Missouri, assignors to Alvey, Inc., St. Louis, Missouri a corporation of Missouri
Filed May 15, 1968, Ser. No. 729,197
Int. Cl. B65g *15/00*
U.S. Cl. 198—129 **10 Claims**



A conveyor including a load-supporting bed and a draw chain having floating pads resiliently mounted thereon. The pads engage the undersurfaces of loads on the bed and draw them along the bed when such loads are not obstructed. When a load encounters an impediment, the pads depress or yield and pass beneath the load without damaging it.

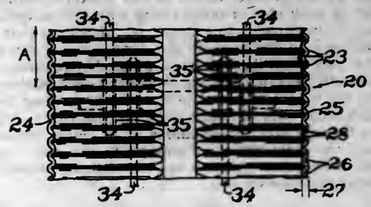
3,545,597
TOP PLATE ASSEMBLY FOR CONVEYOR CHAIN
Baird E. Resener, Indianapolis, Indiana, assignor to Amsted Industries Incorporated, Chicago, Illinois a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,475
Int. Cl. B65g *15/30;* **B65a** *17/00*
U.S. Cl. 198—195 **3 Claims**



A top plate assembly is secured to a roller chain having spaced pin and roller links interconnected by pivots. The assembly includes a rectangular locator block positioned between the spaced link plates having a width that is approximately equal to the space between the roller link plates and a length that is approximately equal to the space between the pin link plates. Pins transverse the space between two opposed link plates and are secured thereto. Each pin is engaged with a groove located along the block's length or width depending upon the block's position between the link plates. The upper surface of each positioned block is proximate the upper edge of the chain and is fused to a flat article carrying plate that defines a segment of an article carrying surface along the chain.

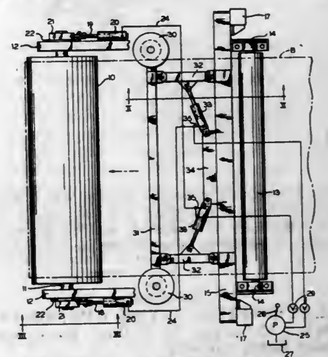
3,545,598
LATERALLY FLEXIBLE BELT CONVEYOR
Hebert E. McGinnis, Akron, Ohio, assignor to The B.F. Goodrich Company, New York, New York a corporation of New York
Filed Dec. 4, 1967, Ser. No. 687,557
Int. Cl. B65g *15/40*
U.S. Cl. 198—201 **12 Claims**

A belt conveyor capable of sharp lateral curvature, including a belt with a central inextensible flexible spine and corrugations extending from the spine transversely to the edges, supported on moving surfaces extending at an angle to the corrugations for bridging the grooves of the corrugations. Preferably the corrugations are at a trailing angle to the



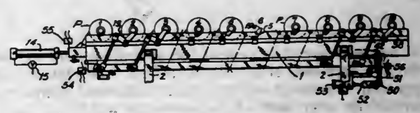
spine, and the edges of the belt are at an angle to the flat center to form a trough, and the supports are transverse rolls.

3,545,599
AUTOMATIC BELT CENTERING METHOD AND APPARATUS
Fred T. Smith; Harry A. Barber and Ben J. Zink, Aurora, Illinois, assignors to Barber-Greene Company, Aurora, Illinois a corporation of Illinois
Filed Mar. 15, 1968, Ser. No. 713,359
Int. Cl. B65g *39/16*
U.S. Cl. 198—202 **26 Claims**



An endless belt is maintained in substantially running alinement with a pulley over which it is trained by sensing offcentered shifting of the belt through sensors in the form of rotary feelers along the opposite edges of the belt. These control translation, through a correctional hydraulic servosystem, into skewing of the pulley away from the shift for running return of the belt to the preferred substantially centered running alinement with respect to the pulley. Respective hydraulic pistons connected to the opposite ends of the pulley shaft control belt-tensioning action of the pulley and a respective hydraulic servomotor for each hydraulic piston is responsive to the sensor at the adjacent side of the belt.

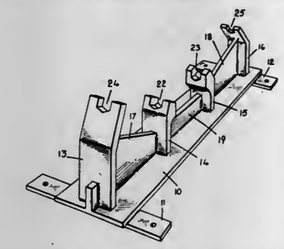
3,545,600
CONVEYOR
John Louis Rudlaff, Plymouth, Michigan, assignor to Ajem Laboratories, Inc., Livonia, Michigan
Continuation-in-part of application Ser. No. 730,758, May 21, 1968, now abandoned . This application Jan. 29, 1969, Ser. No. 794,851
Int. Cl. B65g *15/00*
U.S. Cl. 198—221 **30 Claims**



An accumulating conveyor is disclosed having a plurality of stations, a reciprocating mechanism for advancing parts

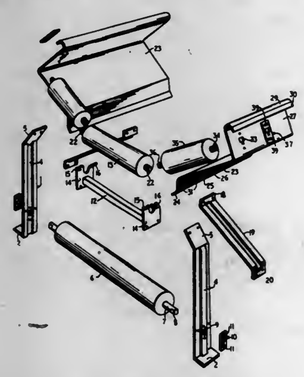
and a mechanically operated control for advancing parts rearwardly of an empty station and preventing the advancement of parts forwardly of the empty station comprising, a link-bar at each station cooperating with the reciprocating mechanism to cause it to engage and advance a part when the link-bar is in one position and disengage and move relative to a part when the link-bar is in another position, and a mechanically operated sensing element at each station actuated by the weight of a part to move a cooperating link-bar into alinement with the next adjacent link-bar to transmit motion through successive stations to an empty station and interrupt the transmission of motion to the next adjacent link-bar at any empty station to control the position of the link-bar at each station.

3,545,601
CONVEYOR BRACKET
Fred D. Cressman, Waterloo, Ontario, Canada, assignor to Canada Barrels & Kegs Limited, Waterloo, Ontario, Canada a corporation of Canada
Filed Aug. 19, 1968, Ser. No. 753,633
Int. Cl. B65g *15/08*
U.S. Cl. 198—192 **1 Claim**



A molded one piece conveyor bracket which is made of a laminate consisting of fiberglass and resin and a method of making the laminate in separately molded pieces and then bonding them together to form the one piece bracket.

3,545,602
BELT CONVEYORS HAVING WING ROLLERS
Morris Behan McCullagh, 23 Wallaroy Road, Double Bay, New South Wales, Australia
Filed Aug. 21, 1968, Ser. No. 754,212
Claims priority, application Australia, Aug. 23, 1967, 26,325
Int. Cl. B65g *15/08*
U.S. Cl. 198—192 **4 Claims**



A belt conveyor has central belt support rollers and wing rollers on each side of the central rollers, a continuous being supported as a trough on the rollers. Sheet steel members are provided on each side of the conveyor which act both as windshields and as structural elements of the conveyor, supporting the outside ends of the wing rollers and also providing runways for a servicing trolley or for transporting sections of the conveyor during its construction. The distance between the supporting uprights can be increased considerably, and the windshield constructional elements can be made in lengths of 60 feet or more, and such that they can be nested for transportation.

ERRATUM

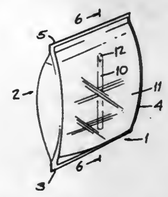
For Class 199—12 see:
Patent No. 3,546,400

3,545,603
EYEGLASS CASE
Rubin Warsager, 72 Tuddington Road, West Orange, Newark, New Jersey
Filed Nov. 14, 1968, Ser. No. 775,789
Int. Cl. A45c *11/20;* **B65d** *79/00*
U.S. Cl. 206—5 **2 Claims**



An eyeglass case having a relatively large opening at one end for the insertion of eyeglasses, and a smaller opening spaced from the relatively large opening through which an eyeglass cleaning cloth may be extracted when the cloth is located at the smaller opening.

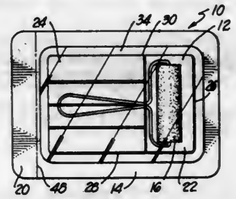
3,545,604
PACKAGE
William H. Gunther, Jr., Guilford, Connecticut, assignor to Conn Med Corp., Madison, Connecticut a corporation of Connecticut
Filed Jan. 23, 1969, Ser. No. 793,425
Int. Cl. B65d *77/08, 77/28, 85/80*
U.S. Cl. 206—47 **9 Claims**



The present invention is directed to a package made of a plastic puncturable material. The package has a straw associated therewith so that when the package is sterilized, the straw and the contents of the package remain in a sterile condition until the package is to be used.

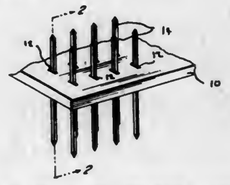
3,545,605
PAINT ROLLER PACKAGE
Ruth Robins, c/o Packaging Techniques, P.O. Box 6, El Segundo, California
Filed Jan. 24, 1969, Ser. No. 793,664
Int. Cl. B65d *79/00;* **A46b** *17/00*
U.S. Cl. 206—47 **2 Claims**

A paint roller package including a container member having a bottom and sidewalls, and a backing member, said container member adapted to be mounted to said backing member to encase a paint roller. A section of said backing member is removable to provide access to said container member to remove the paint roller and to utilize said container member as a reservoir for a supply of paint for the roller. The backing member extends outwardly from said



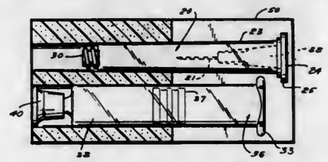
sidewalls and provides lateral support for said container member when said section is removed.

3,545,606
FLEXIBLE TAPE TERMINAL ASSEMBLY
Benny Morris Bennett, 6 Pennsylvania Ave., R.D. 1, Harrisburg and Linn Stephen Lightner, 1 Boxwood Lane, Camp Hill, Pennsylvania
Continuation-in-part of application Ser. No. 692,344, Dec. 21, 1967, now abandoned . This application June 11, 1968, Ser. No. 736,191
Int. Cl. B65d *73/02*
U.S. Cl. 206—56 **7 Claims**



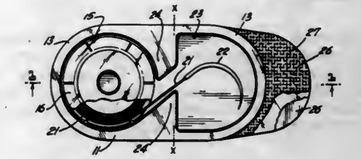
Terminals for use in an insulating component carrying board are disclosed mounted in a general position of use on a flexible and resilient carrier tape with the ends thereof removably embedded therein and with the carrier tape having characteristics permitting reeling of the terminal-carrier assembly. Tools for precisely positioning the free ends of terminals as mounted on the carrier tape in alinement for insertion into holes in component boards are disclosed in several embodiments including one where the tool is removed axially after installation of the terminals and only after the carrier tape has been removed from the terminals. In a second embodiment the tool is hinged to be freed from the terminal-carrier assembly by an opening movement thereof. In a third embodiment the tool can be withdrawn in a transverse sense relative to terminals mounted in a component carrying board.

3,545,607
SELF-CONTAINED PACKAGED NEEDLE ASSEMBLY
George H. Keller, Ridgewood, New Jersey, assignor to Becton, Dickinson and Company, East Rutherford, New Jersey a corporation of New Jersey
Filed Aug. 29, 1968, Ser. No. 756,151
Int. Cl. A61b *17/06;* **A61m** *5/18, 5/32*
U.S. Cl. 206—63.2 **10 Claims**



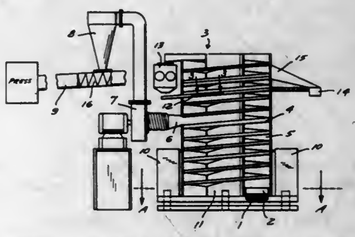
A self-contained packaged needle assembly is provided for connection to a syringe to form a syringe assembly. A needle is mounted on a hub which in turn is adapted to be mounted on the forward end of a syringe barrel having a stopper therein. Shield means having an open end portion is removably mounted on the hub so as to encompass the needle. The open end of the shield means is adapted to receive a removable closure to thereby form a sealed package for the needle and hub. A portion of the shield means is also adapted to protect the needle when the closure is removed and the syringe barrel is connected to the hub. Finally, a portion of the shield means is adapted to be connected to the stopper to thereby form a plunger for the syringe assembly.

3,545,608
SUTURE PACKAGE
Alan Berger, Wyncote, Pennsylvania and Alfred L. Schneider, Jr., Milford, New Jersey, assignors to Ethicon, Inc., Bridgwater Township, New Jersey a corporation of New Jersey by mesne assignments
Filed June 28, 1968, Ser. No. 740,876
Int. Cl. A61 *17/02*
U.S. Cl. 206—63.3 **10 Claims**



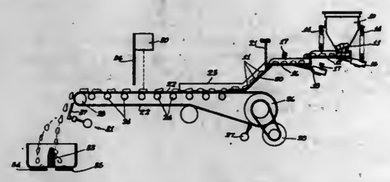
A sterile surgical suture package comprising an elongated suture or sutures wound upon one or more flat cylindrical reels enclosed within a correspondingly flat permanently formed compartment having fixed axial and radial dimensions greater than those of said reel, and means for retaining the reel enclosed in said package after it is partially opened while allowing the reel to rotate freely therein for dispensing the suture therefrom. The reel may be mounted on an axle integral with the package for this purpose. A transverse stop also is provided to minimize the possibility of exposing the reel when the package is to be opened by stripping and to provide a fold line to position the package for dispensing after it has been opened. A special thin flat reel construction for sutures also is disclosed.

3,545,609
METHOD AND APPARATUS FOR PROCESSING DISCRETE COMMODITIES
Pietro Carrera, Milano and Giovanni Erba, Monaz-Milano, Italy, assignors to General Design S.R.L., Milano, Italy
Continuation of application Ser. No. 679,501, Oct. 31, 1967, now abandoned . This application July 16, 1969, Ser. No. 847,506
Int. Cl. B07b *3/00*
U.S. Cl. 209—3 **16 Claims**



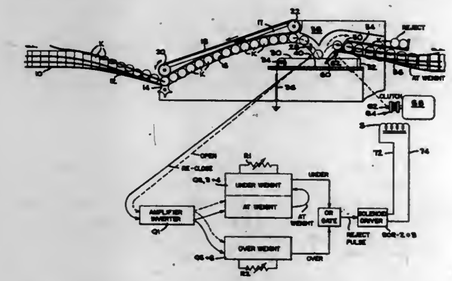
The invention relates to the processing of discrete commodities wherein the commodities are conveyed along a confined path in a predetermined direction from an inlet towards an outlet end of the path, and wherein the commodities are contacted in the path with two streams of gas, one of which flows concurrently with the predetermined direction and the other of which flows in countercurrent to the predetermined direction so that the commodities are cooled while separable solid particles adhering or admixed with the commodities are simultaneously withdrawn by these streams of gas.

3,545,610
PHOTOMETRIC SORTING APPARATUS
Leonard Kelly; James F. Hutter, Peterborough and George R. Mounce, Willowdale, Ontario, Canada, assignors to Sphere Investments Limited, Nassau
No Drawing. Filed Jan. 9, 1969, Ser. No. 789,999
Claims priority, application Great Britain, Feb. 2, 1968, 5527/68
Int. Cl. B07c 5/342
U.S. Cl. 209—73 20 Claims



An apparatus for sorting irregularly shaped objects by making repeated scans across each object to detect light reflected from the object's surface. The apparatus derives from the reflected light at least 3 parameters and compares the parameters in a predetermined manner. An object is accepted or rejected according to the comparison.

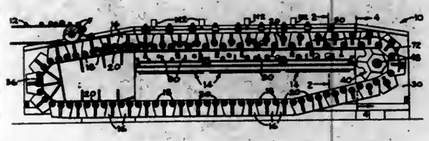
3,545,611
REBOUND TYPE CHECKWEIGHER
Robert G. Husome, 12500 Woodside Court, Saratoga, California
Filed Jan. 15, 1969, Ser. No. 791,421
Int. Cl. B07c 5/20
U.S. Cl. 209—74 18 Claims



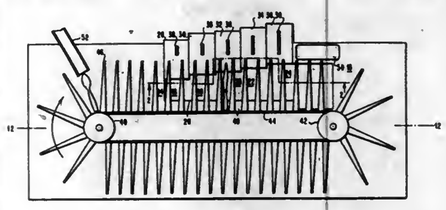
The degree of filling of cans is checked by dropping the cans on a preloaded spring wire which deflects the wire from a contact pin. The cans rebound and the wire reengages the pin. The deflection time of the wire is measured and underweight or overweight cans have their rebound trajectory altered by flippers actuated in accordance with the measurement of the aforesaid deflection time of the wire.

3,545,612
FRUIT SIZING APPARATUS
Harold J. Mumma, Riverside, California, assignor to FMC Corporation, San Jose, California a corporation of Delaware
Filed Feb. 24, 1969, Ser. No. 801,304
Int. Cl. B01d 21/00
U.S. Cl. 209—84 12 Claims

A sizing apparatus for fruit or vegetables of generally rounded shape comprises a plurality of uniformly spaced rollers arranged in fixed positions between a pair of endless chains which are adapted to be continuously driven. Between each pair of fixed rollers is a movable roller which is mounted between the endless chains for movement upwardly away from the fixed rollers as the chains are carried horizontally over a sizing zone. As the movable roller is moved away from the fixed rollers the spacing between the rollers is thereby progressively increased and a fruit received upon the rollers will be deposited upon a particular underlying take-away conveyor at a position along said sizing zone in accordance with the diameter of said fruit.

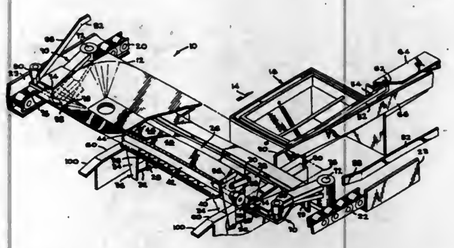


3,545,613
SORTING VARIOUS PIECES OF SILVERWARE BY KIND AND SIZE
David L. Nystuen, Burnsville, Minnesota, assignor to Economics Laboratory, Inc., St. Paul, Minnesota a corporation of Delaware
Filed Oct. 11, 1968, Ser. No. 766,861
Int. Cl. B07c 1/14
U.S. Cl. 209—85 4 Claims



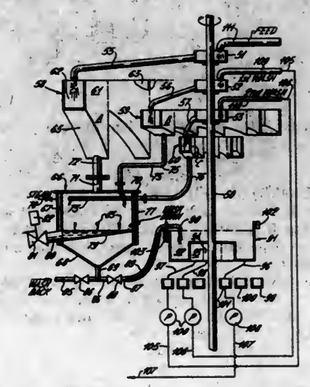
Apparatus for sorting silverware utensils of various kinds which conveys individual silverware utensils along a path on a table provided with slots such that the utensils are separately graded by lengths alone, or combined with apparatus for thereafter orienting the separated utensils of each kind uniformly.

3,545,614
WEIGHT GRADING MACHINE
Charles E. Sheetz, Woodstock, Virginia, assignor to FMC Corporation, San Jose, California a corporation of Delaware
Filed Feb. 28, 1969, Ser. No. 803,228
Int. Cl. B07b 13/08
U.S. Cl. 209—121 8 Claims



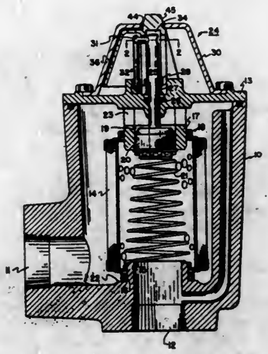
An improved article holding tray for a weight grading machine of the type which conveys the trays over fixed scale units, each of which is arranged to weigh and dump articles of a given weight range. The trays are mounted on parallelogram linkage and on a torsionally rigid support member so that the position of an article in the tray, or the weight distribution or symmetry of the article do not affect accurate weight measurement.

3,545,615
HANDLING OF FLOWABLE MATERIALS
George H. Duffield, Heys Head, Hedgerow, Pott Shrigley, Macclesfield, Cheshire, England
Filed March 1, 1968, Ser. No. 709,755
Claims priority, application Great Britain, March 3, 1967, 10284/67
Int. Cl. B01d 33/38
U.S. Cl. 210—73 10 Claims



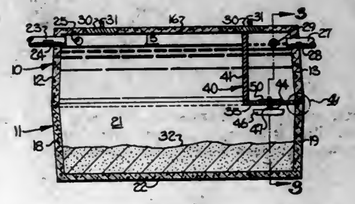
Material-handling apparatus, such as filtration and extraction plants, normally include large, heavy units which undergo movement. The invention improves on known apparatus by providing a distributor arrangement in a material-handling apparatus, in which a rotating or other moving supply outlet for the material discharges it to a compartmented vessel, so that the material is divided into a number of portions which are subjected successively to filtration, extraction or other treatment. The moving parts are small in relation to the overall apparatus.

3,545,616
FILTER AND INDICATOR MEANS
Ronald A. Aspinwall, Detroit and MacKellar K. Graham, Birmingham, Michigan, assignors to Sperry Rand Corporation, Troy, Michigan a corporation of Delaware
Filed Sept. 5, 1969, Ser. No. 855,692
Int. Cl. B01d 27/10
U.S. Cl. 210—90 15 Claims



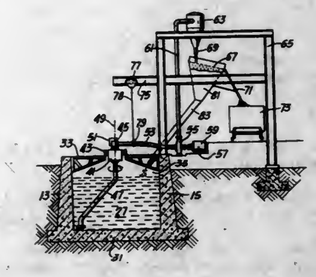
A filter including a cylindrical filter element which is arranged to normally have fluid pass therethrough. A linear bypass valve is provided to bypass fluid directly to the outlet when the pressure at the inlet becomes excessive. Linear movement of the bypass valve causes external indicator means to indicate that the bypass valve has moved to an open position.

3,545,617
PRECAST SEPTIC TANK
Wellington Hamrick, P.O. Box 755, Boiling Springs, North Carolina
Filed July 3, 1968, Ser. No. 742,237
Int. Cl. B01d 21/02, 21/24
U.S. Cl. 210—109 5 Claims



Substantially identical upper and lower tank halves are joined together and support a vertical baffle wall having a lower edge resting on a horizontal baffle wall to form an internal distribution and separation chamber at the outlet end of the tank. A float-type valve is provided in a liquid passage opening in the horizontal baffle wall to prevent the heavy sludge precipitate from passing into the internal distribution and separation chamber and out into the lines of the septic tank field.

3,545,618
APPARATUS TO RECLAIM COKE BREEZE FROM A QUENCHING STATION SUMP
Victor V. Greg, Lakewood, New Jersey and George R. Cain, Pittsburgh, Pennsylvania, assignors to Koppers Company, Inc., a corporation of Delaware
Filed Feb. 24, 1969, Ser. No. 801,653
Int. Cl. B01d 21/04, 21/24
U.S. Cl. 210—167 8 Claims

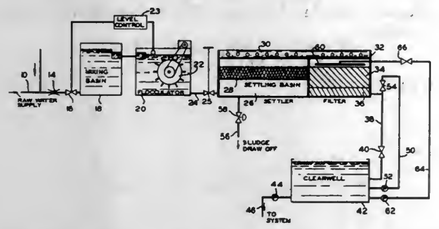


Coke breeze in a quenching station sump is removed by rotating a suction pipe mounted to a carriage adapted to traverse the length of the sump. A flexible hose carries coke breeze and water from the suction pipe to a dewatering station where the breeze is separated from the liquid. The breeze passes into a truck or railway car and the liquid returns to the sump.

3,545,619
WATER TREATMENT PLANT

William F. Ettlich and Andrew Kou-Ying Hsiung, Corvallis, Oregon, assignors to Neptune Microfloc, Incorporated, Corvallis, Oregon, a corporation of Oregon

Filed April 9, 1969, Ser. No. 814,740
Int. Cl. B01d 23/16
U.S. Cl. 210—196 3 Claims

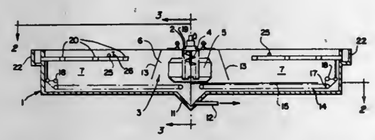


A water treatment plant having a mixing basin, settling basin and filter is arranged so that backwash from filter is returned directly to settling basin for recirculation.

3,545,620
WASTE WATER TREATMENT PLANT

Ewald R. Thorn, Ruchershausen, Germany, assignor to Passavant-Werke, Michelbacher Hutte, Germany

Filed Dec. 5, 1969, Ser. No. 882,434
Claims priority, application Germany, Dec. 13, 1968, 1,814,631
Int. Cl. B01d 21/12, 21/16
U.S. Cl. 210—208 18 Claims



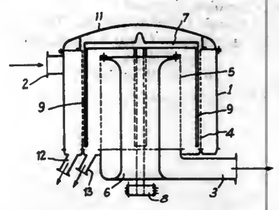
A waste water treatment plant comprising a central mixing chamber surrounded by a flocculation reaction chamber, both chambers located in a rectangular sedimentation basin for both flocculating and settling solid pollutants from waste water. The basin is rectangular with the chambers preferably located in the longitudinal center thereof, the two ends of the basin constituting a sedimentation zone. The chambers may be mounted on a beam extending across the basin. The reaction chambers may extend for the full transverse width of the basin. A chain scraper may be provided on the bottom of the basin to move settled sludge to a sludge sump. An adjustable scum remover is provided above the sedimentation zone.

3,545,621
APPARATUS FOR PURIFYING LIQUIDS CARRYING SUSPENDED SOLID PARTICLES, CHIEFLY PULP FOR PAPER MILLS

Jean P. Lamort, Vitry-Le-Francois, France, assignor to Etablissements E. & M. Lamort Fils, Vitry-Le-Francois, France

Filed June 14, 1968, Ser. No. 737,160
Claims priority, application France, June 12, 1967, 110,268
Int. Cl. B01d 35/22, 29/38
U.S. Cl. 210—298 5 Claims

The apparatus includes a vat inside which the liquid to be purified is caused to flow through two successive coaxial sieves, one of said sieves being arranged within or above the other. In the first case, the liquid passes radially through both sieves and in the second case longitudinally inside the alined sieves. A single bladed rotor revolves inside the vat between the two coaxial sieves or inside the alined sieves so as to produce surges of increased and/or reduced pressures on the downstream side of one sieve and on the upstream side of the other sieve, which surges lead to local return flow through



the openings of the sieves and thereby to a cleaning of the latter.

3,545,622
PERMEABLE FILTER AND DRIER BLOCK

Alexander A. Sakhnovsky; Walter O. Walker, Miami, Florida and Ralph B. Tilney, Clayton, Missouri, assignors to Alco Controls Corporation, Creve Coeur, Missouri a corporation of Missouri

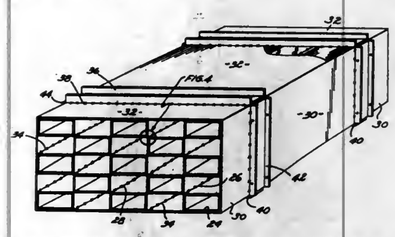
Continuation-in-part of application Ser. No. 25,868, May 2, 1960, now abandoned, which is a continuation-in-part of Ser. No. 611,775, Jan. 25, 1967, now abandoned. This application July 27, 1967, Ser. No. 656,346
Int. Cl. B01d 39/20, 53/26
U.S. Cl. 210—496 3 Claims

The present invention comprises a permeable filter and drier block comprised of silica gel and other inorganic desiccants, such as sodium aluminum silicate, bound together into a self-supporting block, not subject to decrepitation, by an organic plastic binder, such as an epoxy resin, a silicone, or polyvinyl alcohol resin. The block does not char at temperatures of 300° to 450° F. and can be reactivated at high temperatures and is temperature stable. The block can be compacted at relatively low pressures, such as 200 pounds. In the preferred embodiment, larger sodium aluminum silicate particles, which are difficult to bind, are mechanically trapped in the organic resin-bonded silica gel mass. The composition of this invention finds an important use in the drying of various fluids and the removal of water therefrom and in filtering out solid contaminants. It is especially useful as a drier in refrigeration systems.

3,545,623
STORAGE RACK

Donald C. Andreasson, Birmingham, Michigan, assignor to Detroit Reamer & Tool Company, Birmingham, Michigan a corporation of Michigan

Filed Aug. 5, 1968, Ser. No. 750,261
Int. Cl. A47b 87/02; F16b 12/36
U.S. Cl. 211—126 1 Claim

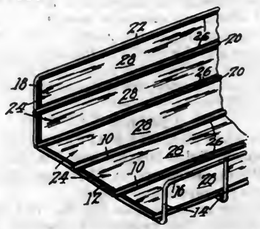


A modular storage rack in which each module is formed from a plurality of generally rectangular hollow steel tubes which are abutted in a checkerboard pattern and welded together along their longitudinal edges with the resulting structure being circumscribed by four steel plates which are welded to the outer tubes and to each other. Generally U-shaped channels are connected to the top and one side of the module and steel bars are connected to the bottom and other side of the module so that the modules can be interlocked when they are stacked adjacent to and on top of each other.

3,545,624
WIRE SHELVING AND BASKET HAVING SNAP-IN SURFACE FORMING MEMBERS

George Krikorian, 64 Main St., Spencer, Massachusetts

Filed Oct. 9, 1968, Ser. No. 766,233
Int. Cl. A47f 5/01; B65d 7/20
U.S. Cl. 211—126 4 Claims

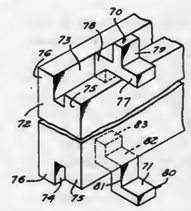


Wire shelving and baskets including a series of paralleled spaced wires with elongated members having beveled edges snapping in between selected pairs of wires, forming solid surfaces.

3,545,625
MODULAR CONSTRUCTION FRAME

Daniel G. MacMillan, Route 1, Box 856, Winter Haven, Florida

Original application Nov. 22, 1967, Ser. No. 685,064, now abandoned. Divided and this application June 20, 1969, Ser. No. 842,770
Int. Cl. A47f 5/00; F16b 7/00
U.S. Cl. 211—148 4 Claims



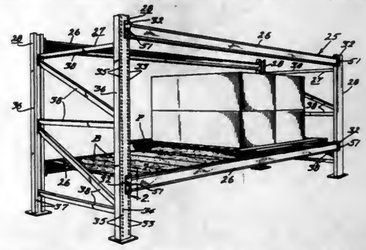
A modular construction frame for use in the assembly of furniture display cases, and the like wherein the structure is to be readily assembled to a predetermined configuration and then readily collapsed for transportation or reassembly. The frame consists of at least one corner lock-joint which has at least one expandable prong extending from its base portion. A tube which is substantially hollow is slidably mounted on the prong which has means within to expand it so that its outer surface engages the inner surface of the tube and locks the tube in position. There is access means on the tube and on the prong to allow the operator to activate the expansion means. When it is desired, the expansion means may be returned to its initial position thereby closing the prong and allowing the tube to be removed therefrom during disassembly of the frame. A plurality of corner lock-joints and tubes may be interconnected to provide a modular frame structure of a predetermined size and configuration. Self support means and panel clips are also provided with the modular construction frame to facilitate its employment in the construction of furniture, display cases, or similar articles.

3,545,626
STORAGE STRUCTURE

Edward Selz, 136 E. 3rd St., Lansdale, Pennsylvania

Filed May 10, 1968, Ser. No. 728,182
Int. Cl. A47f 5/10
U.S. Cl. 211—176 13 Claims

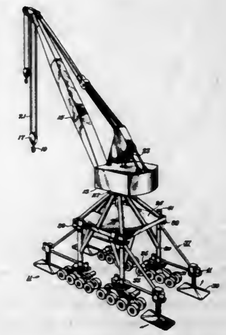
A storage structure including at least two uprights and a cross beam releasably and adjustably mounted on said uprights. The front plates of the uprights have a series of holes at spaced intervals along their length and the beam is supported by a support clip having pins snugly received in the holes by axial engagement therein. A clip is anchored against displacement from the holes by a latch element having a portion passing through a free hole and engaging behind the front plate to prevent outward displacement of the clip. A novel box beam structure formed by interlocking two channel members without separate fasteners or welded connections.



3,545,627
HEAVY DUTY CRANE FOR USE IN A NARROW LOADING AREA

Ted L. LeTourneau, Longview, Texas, assignor to R. G. LeTourneau, Inc., Longview, TX

Filed Dec. 30, 1968, Ser. No. 787,859
Int. Cl. B66c 23/36
U.S. Cl. 212—38 9 Claims



A heavy duty mobile crane having the capability of maneuvering in close quarters, such as a narrow lineal loading area typical of ship dock loading areas. The crane has a plurality of multiple wheeled bogies which can be rotated about substantially vertical axes, and a plurality of outrigger pads capable of lifting the crane to permit rotation of the bogies. The bogies and outrigger pads can be manipulated to effect steering direction changes while the crane remains stationary. Means are provided to adjust the positions of the outrigger pads such that the weight of the crane and its load are shared by the bogies and outrigger pads. The bogies and outrigger pads are capable of alinement so as to present a narrow crane profile and consequently minimize requisite space requirements and obstruction to traffic. Limit means are provided to assure that the bogies and outrigger pads may be automatically stopped at predetermined positions. Means are provided to automatically rotate the bogies in parallel so as to effect substantially the same degree steer for each bogie.

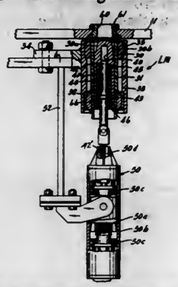
3,545,628
CRANE WITH TURNTABLE LOCKING MEANS

Max J. Dechantsreiter, Milwaukee, Wisconsin, assignor to Harnischfeger Corporation, West Milwaukee, Wisconsin a corporation of Wisconsin

Filed Oct. 24, 1968, Ser. No. 770,164
Int. Cl. B66c 19/00
U.S. Cl. 212—124 7 Claims

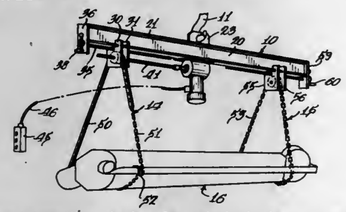
A crane having a rotatable turntable and locking means for accurately positioning and releasably locking the turntable in

any one of a number of predetermined positions relative to the rest of the crane. The locking means includes means for



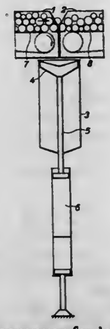
cushioning the shock load on the locking pin due to momentum of the rotating turntable, and also for insuring alinement of the interengaging, releasably locking parts.

3,545,629
LOAD HANDLING DEVICE
Reuben A. Kaplan and Jan H. Boers, Owatonna, Minnesota, assignors to Owatonna Tool Company, a corporation of Minnesota
Filed Oct. 18, 1968, Ser. No. 768,742
Int. Cl. B65g *69/00*
U.S. Cl. 214—1 **3 Claims**



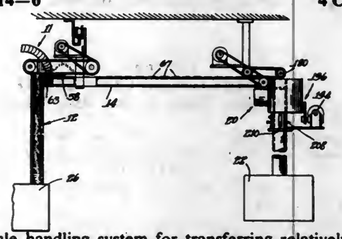
A load handling device for relatively heavy parts which may have irregular shapes wherein the part is suspended above the ground by a pair of chain slings which wrap about the part and with one of the slings being power indexed for rotation of the sling by lengthwise movement of the chain. The powered sling is effectively attached to the part whereby the part can be rotated to a desired position while suspended from the ground and the other chain sling supports the part and is free for rotational movement to accommodate the powered rotative positioning of the part.

3,545,630
CONVEYOR FOR LOGS
Osmo Juhani Ivanto, Poehj Puistokatu 10, Hyvinkaa, Finland
Filed Sept. 10, 1968, Ser. No. 758,734
Int. Cl. B65g *57/11*
U.S. Cl. 214—6 **6 Claims**



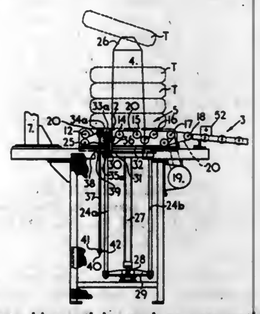
An arrangement in a conveyor for logs, the conveyor route comprising a number of conveyors arranged in sequence, and on which the logs are moved from one conveyor to the other, the distance between each conveyor subject to being increased so that the logs can be fed vertically downwards from the conveyor to the corresponding points of use; a feeding hopper being arranged under the feeding station and in which an adjustable platform is supported subject to being lowered by means of a pressure cylinder as the logs are fed into the hopper from the conveyors. According to the invention the pressure cylinder is designed as a double cylinder, the cylinders of which are coaxially mounted, the stroke of one cylinder corresponding to the height of the batch of logs fed into the hopper and the stroke of the other cylinder being such that a batch of logs lowered in the hopper by means of the same can be lowered completely below the conveyors.

3,545,631
CAN END TRANSFER APPARATUS
Wallace W. Mojden, Palos Heights and Norman J. Chivas, Naperville, Illinois, assignors to Fleetwood Systems, Inc., Lyons, Illinois a corporation of Illinois
Continuation-in-part of application Ser. No. 703,303, Feb. 6, 1968, now abandoned. This application April 16, 1969, Ser. No. 825,096
Int. Cl. B65g *57/04, 59/04*
U.S. Cl. 214—6 **4 Claims**



An article handling system for transferring relatively flat articles, such as can ends, from a first station wherein said articles are in stacked relation to a second station where the articles are restacked for processing by a testing machine, or the like, associated with said second station. The handling system includes transfer apparatus which unstacks and conveys individual can ends from the first station to a point where the can ends are restacked for use at the second station. This transfer apparatus includes a feeder arrangement which receives the can ends in stacked relationship, while permitting only one can end at a time to be unstacked and conveyed. In addition, the transfer apparatus may include means for restacking the individual can ends prior to processing at said second station.

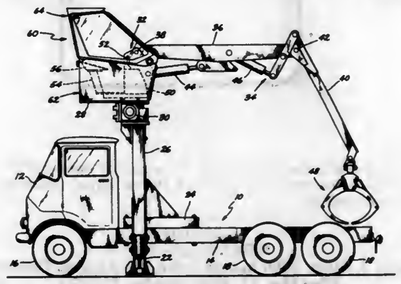
3,545,632
STACKING DEVICES
Gordon R. Cooper, Erdington, Birmingham, England, assignor to The Dunlop Company Limited, London, England a British Company
Filed Oct. 28, 1968, Ser. No. 771,014
Claims priority, application Great Britain, Nov. 15, 1967, 51,916/67
Int. Cl. B65g *57/03*
U.S. Cl. 214—8 **16 Claims**



A device for stacking articles such as pneumatic tires comprising conveyors for feeding articles to and from a stacking

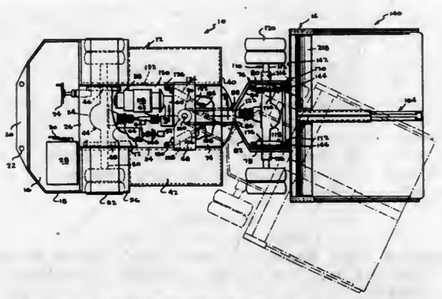
area and a reciprocable member for engagement with the articles to stack them in piles in the stacking area. Means may be provided for detecting when a predetermined number of articles have been stacked or when a pile of given size has been formed, these means actuating the reciprocable member to disengage it from the stacked pile of articles and allow the pile to be moved away from the stacking area.

3,545,633
FOLDING CAB FOR TRUCK-MOUNTED LOADERS
John P. Lundberg, Washburn, Wisconsin, assignor to Beloit Corporation, Beloit, Wisconsin a corporation of Wisconsin
Filed April 9, 1969, Ser. No. 814,714
Int. Cl. B66c *23/00*
U.S. Cl. 214—147 **8 Claims**



A cab for protecting the operator of a truck-mounted loader comprises lower and upper closure units. The lower closure is suitably mounted on an elevated platform above the truck. The upper closure unit is pivotally connected to the lower closure unit so that it can be swung or folded downwardly to clear overhead obstructions as the truck moves along a highway.

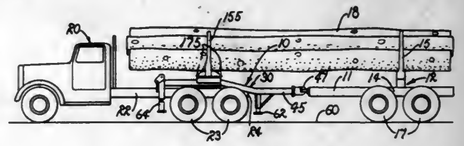
3,545,634
WORK VEHICLE
David M. Reed, Box 652, Martin, Kentucky
Filed Sept. 18, 1968, Ser. No. 760,587
Int. Cl. B60p *1/04*
U.S. Cl. 214—510 **2 Claims**



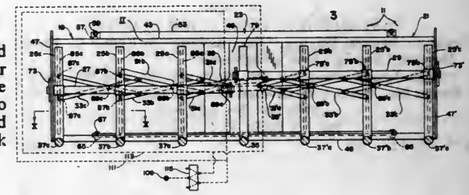
A work vehicle has two body sections articulated to one another and has a bucket assembly on one of the sections which is equipped with an unloading mechanism.

3,545,635
PRELOAD FOR HAULING LOGS AND THE LIKE
Carl S. Montan, 18806 E. Dino Ave., Reedley, California
Filed Aug. 31, 1968, Ser. No. 749,114
Int. Cl. B60p *1/64*
U.S. Cl. 214—515 **9 Claims**

A preload adapted independently to support loads of logs and the like and supportably to connect such loads to a prime mover having an elongated frame mounting a fifth wheel providing a plurality of legs elevationally positionable between a lowered load supporting position permitting such a truck frame to be maneuvered beneath the preload and a raised transport position on the truck frame and connecter means on the preload engageable with said fifth wheel automatically to effect a load supporting draft connection therebetween and to permit raising of the legs to their transport positions.



3,545,636
MULTIELEMENT LATERALLY MOVABLE LIFTING APPARATUS
Robert W. Yarbrough, Jr., Louisville, Mississippi, assignor to Taylor Machine Works, Louisville, Mississippi a corporation of Mississippi
Filed Jan. 28, 1969, Ser. No. 794,552
Int. Cl. B66f *9/14*
U.S. Cl. 214—731 **7 Claims**

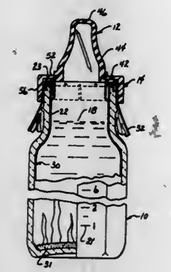


Apparatus for handling pipe or conduit sections, concrete blocks or the like or for handling long flexible sheet objects or the like. The apparatus preferably is in the form of a prong attachment for attaching to the lift carriage of an industrial forklift truck. The apparatus preferably includes a left and right series of load engaging prongs arranged generally horizontally coplanar and symmetrically on opposite left and right sides of the lift truck vehicle centerline. The apparatus includes progressional movement lazy tong type linkage means operably interconnecting the load engaging prongs of the left and right series of prongs for convergingly divergingly adjustably moving the prongs toward and away from the centerline of the lift truck thereby changing the incremental spacing between the lift prongs while maintaining uniform equal incremental spacing between each adjacent two prongs of the left and right series of prongs. The lift carriage apparatus is particularly useful for handling a gang or batch of apertured load objects arranged in stacks of load objects. The incremental spacing between the series of prong projections of the multiprong lifting apparatus may be adjusted to correspond with the spacing between the apertured load objects of a stack of load objects. The multiplicity of prong projections may be simultaneously inserted in the apertures of the load objects for handling or manipulating simultaneously a batch or series of load objects.

3,545,637
NURSING UNIT WITH VENTING MEANS
Arthur C. Barr, 111 King St., Madison, Wisconsin
Continuation-in-part of application Ser. No. 744,537, July 12, 1968, now Patent No. 3,471,050. This application Oct. 1, 1969, Ser. No. 862,840
Int. Cl. A61j *9/04*
U.S. Cl. 215—11 **10 Claims**

An impervious baby bottle is provided with a plastic liner, a nursing nipple and a retaining cap. A venting insert is provided at the bottle mouth, between the lip and the liner, to

vent the area between the bottle and liner to atmosphere so the liner collapses as liquid is dispensed therefrom. The bot-



tle is provided with an annular recess into which the venting insert fits to position and hold the insert at the bottle lip.

3,545,638
EASY-OPENING CONTAINER CLOSURE
Omar L. Brown, Dayton, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio by mesne assignments
Original application Jan. 10, 1968, Ser. No. 696,902, now Patent No. 3,485,196. Divided and this application July 30, 1969, Ser. No. 862,566
Int. Cl. B65d *43/02, 17/24*
U.S. Cl. 215—46 **6 Claims**

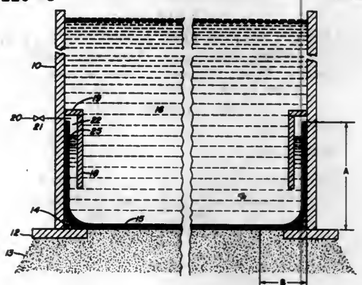


This disclosure describes a dual cap closure assembly for use on the open top of a container. The outer cap is scored to form a removable tear strip to permit the removal and discarding of the outer cap. The outer cap has an end wall and a peripheral wall and the scoring operation is carried out on the outer cap after the cap has been formed to define such end wall and peripheral wall.

3,545,639
CERAMIC-METAL BONDING COMPOSITION AND COMPOSITE ARTICLE OF MANUFACTURE
Richard J. Charles and Paul J. Jorgensen, Schenectady, New York, assignors to General Electric Company, a corporation of New York
No Drawing. Filed Oct. 21, 1965, Ser. No. 500,350
Int. Cl. H01j *61/36;* **C03c** *3/30*
U.S. Cl. 220—2.3 **12 Claims**

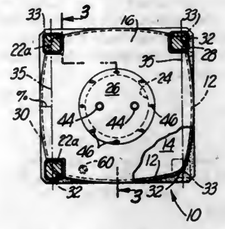
Glass bonding compositions consisting of barium oxide, calcia, magnesia and alumina are disclosed. These compositions are useful in the construction of alkali metal vapor lamps.

3,545,640
PROTECTIVE GAS SEALS FOR NON-METALLIC TANK BOTTOMS
John F. Delahunt, Florham Park and John J. Turney, Chester, New Jersey, assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Sept. 12, 1968, Ser. No. 759,429
Int. Cl. B65d *7/02*
U.S. Cl. 220—5 **3 Claims**



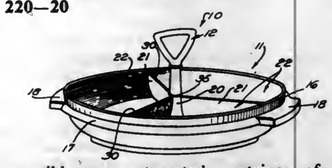
A gas seal is used to protect the edges of nonmetallic tank bottoms to prevent contact with stored liquid contents and prevent leakage.

3,545,641
FIBERGLASS BIN
Rodney I. Olson, 2080 Balmer Drive, Los Angeles, California
Filed May 27, 1968, Ser. No. 732,373
Int. Cl. B65d *21/02, 87/02*
U.S. Cl. 220—97 **5 Claims**



A fiberglass bin including a continuous solid fiberglass and resin enclosure having four slightly bowed sides of uniform thickness and a supported bottom, with the sides including a layer of stretched fiberglass cloth. A fiberglass and resin top may be formed integrally with said enclosure or may be preformed and joined thereto, said top including an opening with a removable cover. The bottom support may consist of a wooden skid coated with fiberglass and resin integrally adhered to the bottom and with four legs adapted to be received by the top of another bin permitting stacking of a number of the bins.

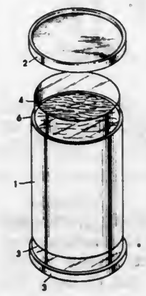
3,545,642
COMPARTMENTED DISH
James B. Swett, Barrington, Rhode Island, assignor to Dart Industries, Inc., Los Angeles, California a corporation of Delaware
Continuation of application Ser. No. 372,913, June 5, 1964, now abandoned. This application April 30, 1968, Ser. No. 725,543
Int. Cl. B65d *1/24, 25/28*
U.S. Cl. 220—20 **3 Claims**



A convertible compartmented container of the type adapted to employ a centrally positioned removable threaded

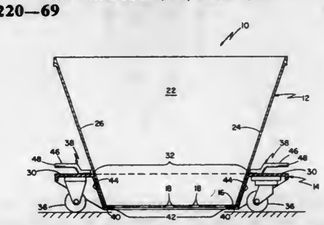
handle in one mode of application or to accommodate a hermetically sealing closure in an other mode when the handle is removed. The threaded portions of the container and handle being further constructed so that the bottom of the handle stem and a boss positioned there along will approximately simultaneously abut portions of the container as the handle is attached thereto.

3,545,643
PACKAGE FOR HIGHLY VISCOUS TACKY MATERIALS
John J. Higgins and Nova E. Stucker, Westfield, New Jersey, assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Oct. 18, 1967, Ser. No. 676,097
Int. Cl. B65d *25/14*
U.S. Cl. 220—63 **2 Claims**



A packaging container for highly viscous low molecular weight tacky polymers comprising a container having at least one removable end and a removable polymeric liner coated with a release agent.

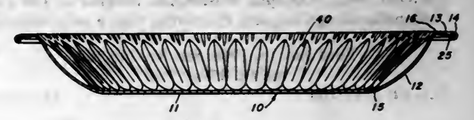
3,545,644
LAUNDRY EQUIPMENT
Hiro Toyama, Skokie and Arthur B. Aurbach, Chicago, Illinois, assignors to Hydraxtor Division "Automatic" Sprinkler Corporation of America, Cleveland, Ohio a corporation of Ohio
Filed April 3, 1968, Ser. No. 718,556
Int. Cl. B65d *7/42;* **B66c** *1/12*
U.S. Cl. 220—69 **5 Claims**



A laundry tub comprising a sling-molding container open at the top and of generally trapezoidal cross section and having a pair of diverging, sling-molding walls extending upwardly from the container bottom to provide a container top larger in area than the container bottom.

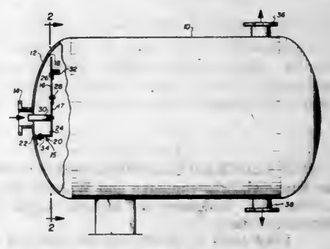
3,545,645
HIGH STRENGTH RECEPTACLE
James D. Smith, Lower Burrell, Pennsylvania, assignor to Aluminum Company of America, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Original application Sept. 13, 1967, Ser. No. 667,512, now Patent No. 3,496,896, dated Feb. 24, 1970. Divided and this application Sept. 15, 1969, Ser. No. 871,031
Int. Cl. B65d *7/44, 1/42*
U.S. Cl. 220—74 **3 Claims**

A metal foil receptacle such as a pie pan having high strength imparted to it and the method of making such a pan by drawing a sheet of metal foil to form the pan with corrugations in the sidewall, forming a circumferential



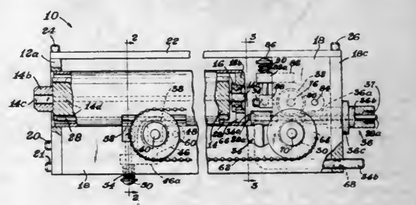
downwardly concave rim flange, and curling the outer edge of said flange to form a bead.

3,545,646
DECANTER INLET DISTRIBUTOR
Henry N. La Croix, East Orange, New Jersey, assignor to Foster Wheeler Corporation, Livingston, New Jersey a corporation of New Jersey
Filed Jan. 21, 1969, Ser. No. 792,591
Int. Cl. B65b *3/00*
U.S. Cl. 220—86 **3 Claims**



The instant invention relates to a distributor comprised of vertical and horizontal partitions positioned proximate the end head of a cylindrical decanter vessel. The partitions are located to form a clearance opening with respect to the head and the vertical partition has radial slots.

3,545,647
APPARATUS FOR SUPPLYING METAL TO AN EVAPORATION SOURCE IN A METALLIZING OPERATION
Raymond D. Bowdey and Theodore VanVorous, Boulder, Colorado, assignors to The Dow Chemical Company, Midland, Michigan a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,887
Int. Cl. G07f *11/00*
U.S. Cl. 221—81 **9 Claims**

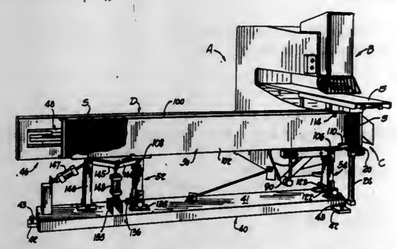


Apparatus for feeding metal strands into an evaporation source in a vacuum system for vapor deposition on a substrate, such as metal. Short sections of wire are positioned in grooves located on the periphery of a rotatable drum. An indexing motor rotates the drum one groove at a time to position a wire strand in contact with a feed roller mechanism. The feed roller mechanism which is operated by a sprocket and bead chain drive, advances the wire through a guide means and into the evaporation source. With this apparatus a number of short wire sections may be sequentially fed into an evaporation source in a semiautomatic operation.

3,545,648
PATCHING APPARATUS AND METHOD

Per Olof Skogg, Olympia, Washington, assignor to The Coe Manufacturing Company, Painesville, Ohio a corporation of Ohio

Filed July 16, 1968, Ser. No. 745,309
Int. Cl. B59g 59/00
U.S. Cl. 221—106 15 Claims

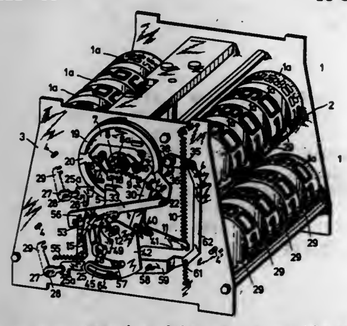


A patching apparatus including a vertical single-stack magazine adapted to hold a stack of veneer patch blanks and a horizontal multiple-stack magazine adapted to hold a plurality of stacks of veneer patch blanks and feed a stack to said single-stack magazine upon depletion of a stack therein.

3,545,649
INTERLOCKED CLEARING MECHANISM

Dietmar Hummel, Schwenningen and Wilhelm Haupt, Villingen, Germany, assignors to Kienzle Apparate GmbH, Villingen, Germany

Filed April 21, 1969, Ser. No. 818,204
Claims priority, application Germany, April 20, 1968, 1,774,147
Int. Cl. B67d 5/26
U.S. Cl. 222—33 18 Claims



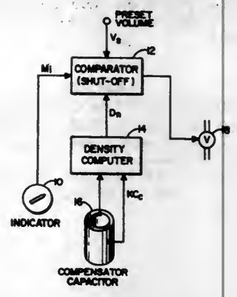
In order to prevent starting of the pump motor of a service station during the clearing of the volume counter, a control member is shifted between a blocking position blocking rotation of clearing control means, but permitting opening and closing of the pump motor switch, and a locking position sliding on the rotary clearing control means and locking the switch in the open position so that the pump motor cannot be started during clearing of the counter. Additional interlock means for preventing operations leading to errors are provided.

3,545,650
CAPACITIVE LIQUID QUANTITY INDICATING AND SHUT-OFF SYSTEM

Jimmy R. Williams, Minneapolis, Minnesota, assignor to Honeywell Inc., Minneapolis, Minnesota a corporation of Delaware

Filed Oct. 30, 1968, Ser. No. 771,968
Int. Cl. B67d 5/08
U.S. Cl. 222—56 3 Claims

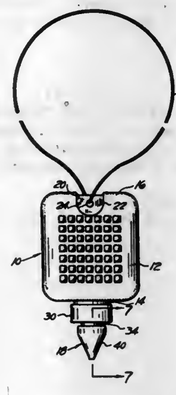
A capacitive fuel quantity indicating and shutoff system wherein a signal from a compensator capacitor in the system is used in computing the fuel density which is then multiplied by a factor corresponding to a predetermined volume. The product of density and the predetermined volume is compared to the actual mass of fuel which is indicated by the system, and a refueling valve is shut off when the actual mass exceeds the product of density and the predetermined volume.



3,545,651
LIQUID SOAP DISPENSING BOTTLE

James H. Lewis, 23210 Masch, Warren, Michigan

Filed Oct. 2, 1968, Ser. No. 764,536
Int. Cl. B67d 5/06
U.S. Cl. 222—181 4 Claims



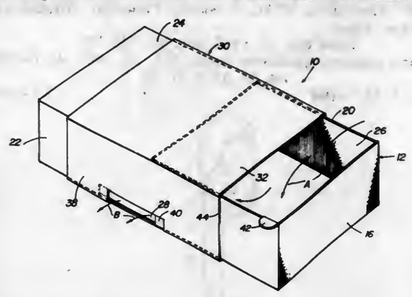
A bottle for dispensing liquid soaps and the like having an apertured web to receive a cord for suspending the bottle in an inverted position about the neck of the user with the web in one embodiment being recessed within the bottom of the bottle so that it can be stood upright when not in use. A valved dispenser top is provided and the bottle is formed of flexible material such as plastic or the like with the outer surface roughened to facilitate gripping and handling.

3,545,652
SOAP DISPENSING DEVICE FOR AUTOMATIC DISHWASHERS

Eugene W. Davis, 425 Kerr Road, Tipp City, Ohio

Filed Dec. 4, 1968, Ser. No. 781,068
Int. Cl. B67d 3/00
U.S. Cl. 222—484 3 Claims

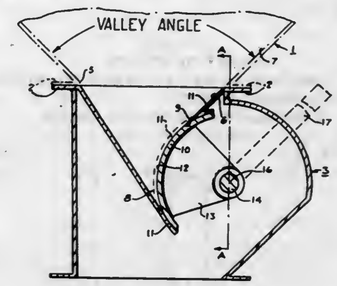
A simple, inexpensive device for mixing and discharging cleansing powders in water solutions is disclosed, the device comprising a tray and a sleeve encircling the tray. The sleeve and the tray have appropriate openings for water inlet and discharge. The areas of the water inlet and discharge openings are simultaneously changed by movement of the sleeve on the tray.



3,545,653
HOPPERS

Donald Eric Blackmore, London, England, assignor to Westinghouse Brake and Signal Company, Limited, London, England

Filed Oct. 10, 1968, Ser. No. 766,594
Claims priority, application Great Britain, Oct. 16, 1967, 46,989/67
Int. Cl. B65d 47/08
U.S. Cl. 222—556 3 Claims



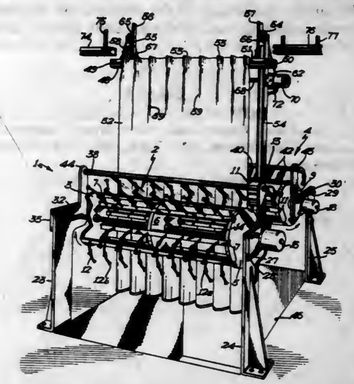
A hopper tapers in the direction of its height to an inverted apex at the bottom of the hopper. Adjacent the apex in a sidewall of the hopper is an aperture closable by a valve element mounted for rotation about a horizontal axis into and out of its position in which it closes the aperture, the valve element having a surface facing internally of the hopper which surface is part cylindrical in shape and is centered about the horizontal axis, the axis lying outside the hopper. The interior surface of said sidewall of the hopper extends upwardly from the aperture substantially tangentially of the part cylindrical surface in smooth continuation of that part-cylindrical surface, whereby the valley or flow angle of material in the hopper is not increased as the valve element moves in the aperture closing direction. Preferably the opposed sidewall provides a seat for the valve element in its fully closed position, and the interior surface of the further sidewall meets the part-cylindrical surface of the element when in its closed position, substantially tangentially.

3,545,654
DRAPERY FINISHING MACHINE

Eldred E. Soeffker, 2805 Sycamore Lane N., Minneapolis, Minnesota

Filed June 24, 1968, Ser. No. 739,282
Int. Cl. D06j 1/10; D06g 1/00
U.S. Cl. 223—32 10 Claims

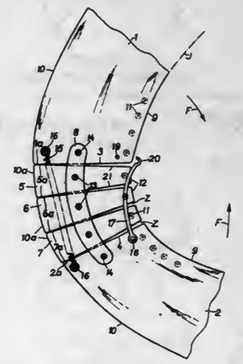
A drapery finishing machine having a pair of spaced apart, horizontally disposed rotors on each of which a plurality of flexible fingers are supported, and an overhead track section on which a drapery is slidably supported, the track section being movable vertically with respect to said rotors in order to carry the drapery between the rotating, flexible fingers which engage the opposite sides of the drapery. The flexible fingers are staggered on the rotors and are so spaced as to engage the opposite faces of the drapery in the folds where pleats are to be formed. Apertured steam conduits serve to inject dry steam onto a drapery as it is being carried between the rotating, flexible fingers to assist in setting the pleats and removing wrinkles. Drapery ingress and egress track sections are provided in horizontal alinement with the aforesaid overhead track section and are preferably interconnected in a continuous conveyor arrangement.



3,545,655
GATHERING TEMPLATE FOR USE IN APPAREL MANUFACTURE

Otto Kraushofer, Herford, Germany, assignor to G. M. Pfaff AG, Kaiserslautern, Pfalz, Germany a corporation of Germany

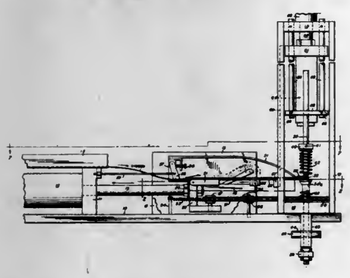
Filed June 3, 1969, Ser. No. 830,036
Claims priority, application Germany, June 6, 1968, 1,760,573
Int. Cl. A41h 43/00
U.S. Cl. 223—35 9 Claims



A device for the gathering of a fabric workpiece along a predetermined line subsequently fixed by a stitching seam comprises a pair of flat and opposed outer holding members and a plurality of trapezoidal-shaped and juxtaposed intermediate gathering members interposed between said holding members and being connected thereto and to each other by a bridging member disposed centrally of and connected by individual pivot joints to each of said holding and gathering members. Corresponding first edge portions of the gathering

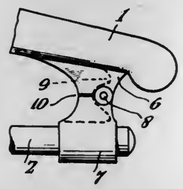
members at one side of the device are normally urged into mutual engagement by a return spring having its ends connected to said holding members, whereby the normally spread end portions of the members at the opposite side of the device, upon deflection by the holding members towards one another against the action of the return spring, are operated into mutual engagement with each other, resulting thereby in the gathering of the material of the workpiece, frictionally engaging the underside of the device, along a line determined by one of the outer contour of the members.

3,545,656
BOW MAKING MACHINE
Eugene Jacobson, Englewood, New Jersey, assignor to Sun Chemical Corporation, New York, New York a corporation of Delaware
Filed April 4, 1960, Ser. No. 19,904
Int. Cl. A41h *43/00*
U.S. Cl. 223—46 **15 Claims**



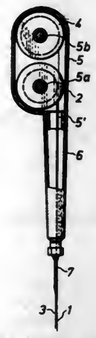
In a machine for making decorative bows from a continuous length of ribbon, rotatable loop retaining means and loop forming means, said retaining means being adapted to retain in a fixed position relative thereto and rotatively therewith ribbon applied thereagainst said loop forming means being adapted for movement successively toward said retaining means to successively apply portions of ribbon spaced along the continuous length thereof against said retaining means successively to form loops of ribbon radiating from the rotation axis of said retaining means, said forming means operating alternately to move towards said retaining means and in substantially the same direction as said axis just prior to the application of said portions against said retaining means and to move away from said axis in a direction lateral to said axis.

3,545,657
GARMENT HANGERS
Lawrence Hamilton Howard Holroyd, 100 Park Road, Teddington, England
Filed May 15, 1967, Ser. No. 638,285
Int. Cl. A47j *51/08*
U.S. Cl. 223—88 **2 Claims**



A garment hanger of the plastic type having an upwardly bowed portion for supporting a coat or jacket and a crossbar for supporting a pair of trousers or a skirt. The crossbar is resiliently supported on one end to one end of the bowed portion in a cantilever manner with the other end of the crossbar spaced below the other end of the bowed portion leaving a gap for hanging the trousers or skirt on the crossbar.

3,545,658
METHOD AND APPARATUS FOR EMBROIDERY
Sigero Tanemura, 17-11, 1 chome Chuo-cho, Meguro-ku, Tokyo, Japan
Filed July 18, 1968, Ser. No. 745,721
Claims priority, application Japan, Feb. 28, 1968, 43-14500
Int. Cl. A41h *31/00*
U.S. Cl. 223—104 **2 Claims**



The present embroidery device contains a bobbin for an embroidery thread and a second bobbin for a thermofusibility thread and feeds said two threads from said bobbins through a handle and needle during the use of the device for embroidering the threads in a given pattern on a cloth surface where they are fixed by the application of heat to the opposite surface of the cloth.

3,545,659
CARRYING DEVICE
William J. Libby, Bellows Air Force Station, Hawaii (2587 Siesta Ave. Las Vegas NV 89109)
Filed Aug. 30, 1968, Ser. No. 756,470
Int. Cl. A45c *3/10*
U.S. Cl. 224—5 **8 Claims**

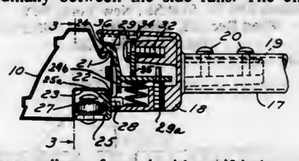


A carrying device adapted to be suspended from the shoulder of a person which comprises a container within which can be placed valuables or small loose items and an elongated loop by which the container is suspended which can be used to string articles to be carried thereon. The elongated loop can be withdrawn through the bottom of the container to clamp other articles to be carried therein.

3,545,660
LUGGAGE RACK FOR AUTOMOBILES
James Stephen, Royal Oak, Michigan, assignor to Helm Design & Manufacturing, Inc., Detroit, Michigan a corporation of Michigan
Filed June 6, 1968, Ser. No. 734,950
Int. Cl. B60r *9/04*
U.S. Cl. 224—42.1 **10 Claims**

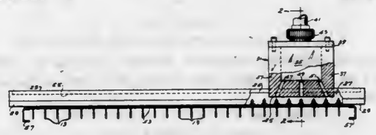
A luggage rack comprising side rails that are supported on the top of the automobile by stanchions and include a front

fixed cross rail extending between the forward ends of the side rails and a movable rear cross rail extending and movable longitudinally between the side rails. The ends of the



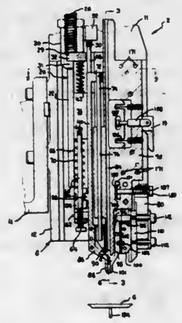
movable cross rail are formed with antifriction means that facilitate the movement of the cross rail with respect to the side rail and with a manually operable lock for locking and quickly releasing the cross rail with respect to the side rails.

3,545,661
METHOD OF AND APPARATUS FOR REMOVING WIRE PIGTAILS
Tommy Dale Cody, Garland, Texas, assignor to Texas Instruments Incorporated, Dallas, Texas a corporation of Delaware
Filed Sept. 5, 1968, Ser. No. 757,701
Int. Cl. B26f *3/00*
U.S. Cl. 225—1 **23 Claims**



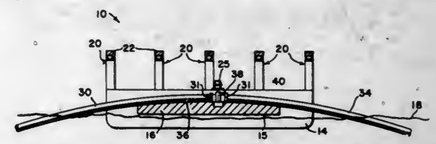
A method of and apparatus for removal of pigtails of wire which result from ball bonding of wires to a semiconductor element on a transistor header and stitch bonding of the wires to the upper ends of leads extending through the header. The method involves repeatedly subjecting the pigtails to vacuum to effect repetitive bending of the pigtails until they break off, and the apparatus involves a vacuum head slidable on a combination header clamp and vacuum head guide for effecting the repetitive bending of the pigtails.

3,545,662
TERMINAL INSERTION APPARATUS
Willard Le Roy Busler, Harrisburg, Pennsylvania, assignor to AMP Incorporated, Harrisburg, Pennsylvania
Filed April 26, 1968, Ser. No. 724,422
Int. Cl. B27f *7/00*
U.S. Cl. 227—95 **5 Claims**



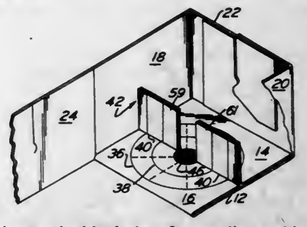
Terminal insertion apparatus for inserting boxlike terminals into printed circuit boards has strip feeding means for feeding a continuous strip of end-to-end terminals towards the surface of the board. Leading terminal of strip is severed from the strip at a location above the surface of the board and gripped by an insertion slide which carries the terminal downwardly and inserts it through an opening in the board. Thereafter, legs of this leading terminal, which extend through the board, are bent outwardly to lock the terminal in place. Towards the end of the operating cycle, severing blades, which are movable laterally towards each other and towards the strip of terminals, move inwardly and sever the next adjacent terminal from the strip. This next adjacent terminal is picked up by the inserting means and carried to the board during the next succeeding operating cycle.

3,545,663
OFF-SHORE WELDING STATION
Walter J. Bloemhard, Hicksville, New York, assignor to Columbia Gas System Service Corporation, New York, New York a corporation of Delaware
Filed Jan. 29, 1968, Ser. No. 701,298
Int. Cl. B23k *1/00, 5/00*
U.S. Cl. 228—6 **4 Claims**



An apparatus and method are disclosed for welding pipe sections in offshore pipeline systems wherein a welding platform is provided on a barge. The barge is provided with davits and sliding carriages which grasp and lift the pipe sections from the water and places the pipe ends in position to be welded on the barge. After the welding operation has been completed the pipe is moved from the barge into the water.

3,545,664
CONTAINER AND BLANK THEREFOR
Herman E. Robinson, Wynnewood, Pennsylvania, assignor to Boas Box Company, Ardmore, Pennsylvania a corporation of Pennsylvania
Filed Jan. 29, 1969, Ser. No. 794,972
Int. Cl. B65d *5/44*
U.S. Cl. 229—14 **10 Claims**

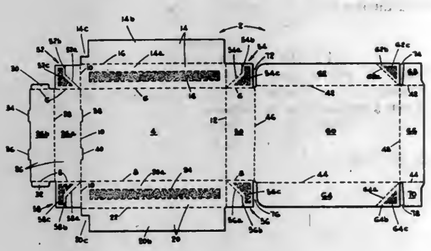


A container and a blank therefor are disposed in a manner whereby a variety of objects may be supported therewithin. The blank has overlapping end panels each containing a transverse fold line to define an accommodation zone. The accommodation zone is divided into sections by perforation lines with the central section of each zone being readily removable to define a notch having a curved periphery at its inner end. The distance between an end of the bottom panel and the fold line on the end panels corresponds to approximately one-half the length of the bottom panel whereby the accommodation zone on each panel may overlie the bottom panel or be upright with respect thereto.

3,545,665
BOX AND BLANK THEREFOR
Alexander Nimaroff, South Orange, New Jersey, assignor to Nimrow Paper Products Co., Elizabeth, New Jersey a corporation of New Jersey
Filed April 29, 1968, Ser. No. 724,737
Int. Cl. B65d *5/24*
U.S. Cl. 229—31 **4 Claims**

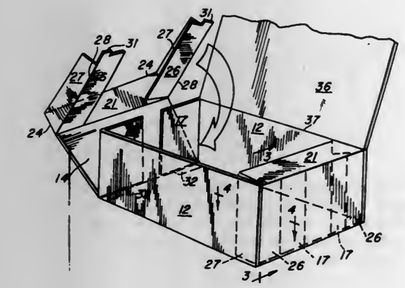
A box, and integral blank for forming it, comprising a main base panel with double-front and sidewall panels and a single

rear wall panel. The two thicknesses of each double sidewall panel are glued together. The foregoing wall panels are connected by bellows fold panels, each having an adhesive section on one side of its fold line. A main cover panel is connected to the single rear wall panel. Cover side panels, and a



cover front panel which can be used for display purposes, are provided for the main cover panel. Side flaps of the cover front panel cooperate with adjacent glued folded segments of the cover side panels to connect together said side and front panels.

3,545,666
CONTAINER HAVING CORNER POST FOR TOP TO BOTTOM STACKING
Pranas Visvydas, South Gate, California, assignor to Container Corporation of America, Chicago, Illinois a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,280
Int. Cl. B65d *5/22, 57/00*
U.S. Cl. 229—34 **5 Claims**



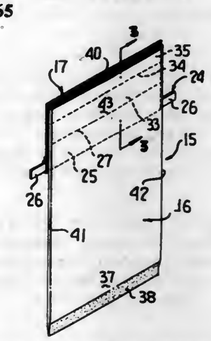
A self-locking container formed from a unitary blank of paper board and characterized by a bottom panel with side and end panels connected to the bottom panel, the ends of the side panels having fold-in flaps extending along the inside of the end panels, each end panel being coextensive with a top panel which when folded into position is coplanar with the top edges of the side and end panels, each top panel having at each end thereof a corner post member capable of being folded along a score line and when in position at the folded juncture of the side panels and flaps thereof providing stiffening of the container. The lower ends of the corner post member may be arranged to enter slots or cut and crushed scores in the bottom panel. The top panels provide good stacking of the container.

3,545,667
SELF-SECURED CONTAINERS
Paul Vjecsner, 350 W. 51st St., New York, N.Y.
Filed Dec. 31, 1968, Ser. No. 788,298
Int. Cl. B65d *5/26*
U.S. Cl. 229—35 **1 Claim**



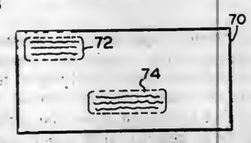
In a paper container an integral lock used without external fasteners by folding flap attached to end of wall panel over extension of other wall panel, inserting it in slit therein. Insertion of flap is in direction opposed to stress on joined wall panels, thereby securing structure.

3,545,668
EASY OPENING AND RECLOSABLE BAG
Wayne M. Hultberg, Glenview, Illinois, assignor to Continental Can Company, Inc., New York, New York a corporation of New York
Filed Feb. 10, 1969, Ser. No. 798,019
Int. Cl. B65d *33/14*
U.S. Cl. 229—65 **15 Claims**



This disclosure relates to an easy opening and reclosable flexible package to which is secured a sheet material header having a tin tie, the header including a pair of weakening lines setting off an attachment panel, a medial panel, and a dead fold panel, the header being so secured to a top end portion of the package that the same may be folded to bring the dead fold panel in sandwiched relationship between the attachment and medial panels such that the tin tie can be bent into overlapped relationship at the dead fold to maintain the package effectively sealed.

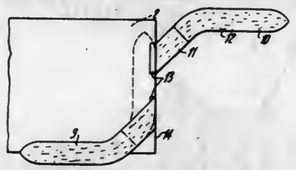
3,545,669
ENVELOPE CONSTRUCTION
Louis G. Kinkade and Sharon A. Kinkade, P.O. Box 605, Madras, Oregon
Filed Aug. 30, 1968, Ser. No. 756,572
Int. Cl. B65d *27/06*
U.S. Cl. 229—73 **2 Claims**



A mailing envelope having a removable return-address tab portion on one panel defined by a perforate tear line except

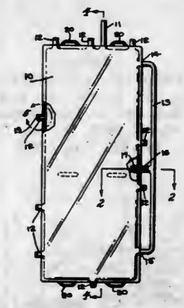
for die-cut line portions for facilitating removal of the return-address tab from the panel. The back side of the tab is coated with pressure-sensitive adhesive which also extends in surrounding relationship to the tab. The adhesive coating is covered with a release paper sheet which also extends in surrounding relationship to the tab to reinforce the envelope at this point and thereby prevent premature separation of the tab from the envelope.

3,545,670
FOLDABLE SHEET WITH SEALABLE STRIPS FOR FORMING ITS OWN MAILING ENVELOPE
Virgile Raymond Habegger, 9, Chemia Degallier, Versoix-Geneva, Switzerland
Filed Sept. 24, 1968, Ser. No. 761,945
Claims priority, application Switzerland, July 18, 1968, Oct. 13, 1967, 10776/68;14357/67
Int. Cl. B65d *27/00*
U.S. Cl. 229—92.5 **3 Claims**



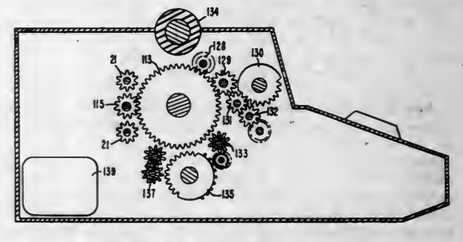
A foldable sheet of paper is provided with a head part containing the sender's address to one side and the recipient's address to the other side, the sheet having a fold along at least one horizontal line below the head part and a fold along the vertical center line of the sheet so that the head part is visible when the sheet is folded along the folds with the recipient's address on the front and the sender's address on the back. Two strips are fixed to the back side of the sheet along one vertical margin of the head part and the strips are laterally extendible beyond a common edge of the folded sheet, so as to be foldable against the common edge and along respective top and bottom edges of the folded sheet for overlying and being secured to the front and back surfaces of the folded sheet at the top and bottom edges thereof, whereby to form an envelope.

3,545,671
APPARATUS FOR AND METHOD OF COLLECTING, STORING, SEPARATING AND DISPENSING BLOOD AND BLOOD COMPONENTS
Eugene D. Ross, Elkins Park, Pennsylvania, assignor to Eugene Ross Laboratories, Inc., Southampton, Pennsylvania a corporation of Pennsylvania
Filed Feb. 14, 1967, Ser. No. 616,005
Int. Cl. B04b *5/00*
U.S. Cl. 233—26 **16 Claims**



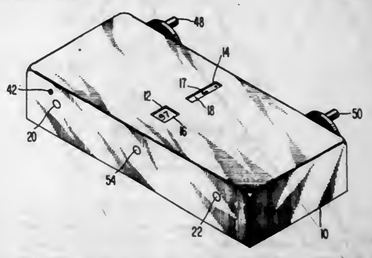
An apparatus for and method of collecting and dividing whole blood into separated portions and fractionating the same into selected component parts thereof all within a single deformable bag formed of flexible plastic sheet material and providing a completely closed system requiring no reentry from outside of the bag for the purpose of dividing or fractionating the collected blood, separated portions of the whole blood and fractionated components thereof being self-contained in sealed apart sections of the bag which may be severed from the bag as individual self-contained sealed units each having at least one or more needle-pierceable ports for introducing or administering the bag content; the bag being further integrally provided with a side connecting tube affording communication between certain selected sealed sections of the bag for reconstituting the collected blood or a constitutent portion thereof as desired.

3,545,672
ROTARY TRANSFER MEANS FOR RECEIVING AND DISTRIBUTING AMOUNTS IN A PRINTING CALCULATOR
Bernard Deleuze, Paris, and Rene Francois Lucas, Noisy-Le-sec, France, assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Nov. 5, 1968, Ser. No. 773,435
Int. Cl. G06c *23/00, 13/00*
U.S. Cl. 235—60 **17 Claims**



A plurality of ordinally arranged wheels are provided with a sufficient number of teeth to engageably accommodate a plurality of exterior processing and storage means which may be disposed along the perimeters thereof. A shaft supporting the wheels is rotatable one complete revolution during each cycle of operation to thereby advance and return the wheels a nine tooth or lesser distance, depending upon whether the zeroizing of pinions associated with the exterior means serves to restrict their advancement. By activating selected ones of the exterior means into timely engagement and disengagement with and from corresponding teeth of the wheels, digital information is transferred between such exterior means for processing or storage purposes.

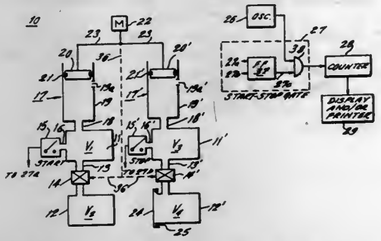
3,545,673
APPARATUS FOR CORRELATING TWO VARIABLES WHOSE RELATIONSHIP IS AFFECTED BY A THIRD
Charles B. Haentze, Scottsdale, Arizona, assignor to Burroughs Corporation, Detroit, Michigan a corporation of Michigan
Filed May 8, 1969, Ser. No. 823,089
Int. Cl. G06c *27/00, 3/00*
U.S. Cl. 235—86 **14 Claims**



A conversion table apparatus which utilizes two members representative, respectively, of an independent variable and a

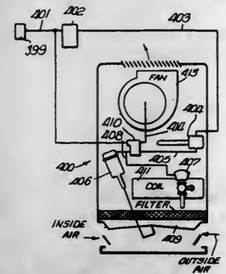
dependent variable and determines the relationship of these variables as it is affected by a second independent variable represented by the environment to which the two members are exposed.

3,545,674
PNEUMATICALLY OPERATED COUNTING DEVICE
Richard B. Hanbicki, Princeton Junction, New Jersey, assignor to Madatron Corporation, Rocky Hill, New Jersey a corporation of New Jersey
Filed Oct. 4, 1968, Ser. No. 765,152
Int. Cl. G06m *11/00*
U.S. Cl. 235—98 **14 Claims**



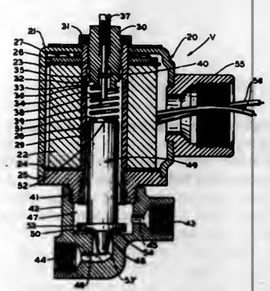
Apparatus for counting articles employing a pneumatic technique. Components of substantially uniform size which are to be counted are placed within a container of known volume and a small sample batch of such components are placed within a smaller container also of known volume. A constant pressure source is caused to fill the smaller container until a predetermined pressure is reached, at which time the time duration required for this operation is reported, preferably by electronic means. The constant pressure source is then introduced into the larger container until the same pressure value is reached during which time the electronic recording of time duration divided by the time duration necessary to pressurize the smaller volume container, is compared against the larger time duration to thereby provide a direct reading of the quantity of parts being measured. The pressure sources may be piston driven means operated in such a manner as to cause the procedure to be adiabatic.

3,545,675
UNIT VENTILATOR CONTROL SYSTEM
Wesley L. Taylor, Glenview, Illinois, assignor to Powers Regulator company, Skokie, Ill. a corporation of Delaware. by mesne assignments
Continuation-in-part of application Ser. No. 571,829, Aug. 11, 1966, now abandoned . This application March 9, 1967, Ser. No. 631,108
Int. Cl. F15c *1/18*; F24f *11/08*
U.S. Cl. 236—38 **1 Claim**



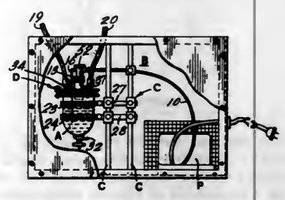
A pure fluid amplifier which projects a laminar power stream and includes a control section for developing a pressure differential across the projected laminar power stream for a substantial portion of the length of the power stream (preferably a portion of the length of the power stream at least equal to four times the width of the power stream emission orifice) so as to angularly displace the power stream while maintaining the power stream laminar at all points in advance of the receiver aperture. Preferably, there is a venting region immediately in advance of the receiver aperture which is relieved in all directions in a plane perpendicular to the plane of angular displacement. A system for biasing the laminar deflector (or other pressure-operated pure fluid amplifier) by aspirating fluid from the control section in a quantity substantially equal to the quiescent input flow to the amplifier. A unit ventilator control using a laminar deflector is shown. A proportional controller using a biased laminar deflector is shown.

3,545,676
TEMPERATURE CONTROL SYSTEM
George E. Barker, St. Louis, Missouri, assignor to Monsanto Company, St. Louis, Missouri a corporation of Delaware
Original application Oct. 17, 1966, Ser. No. 587,236, now Patent No. 3,469,590. Divided and this application April 1, 1969, Ser. No. 842,744
Int. Cl. G05d *23/24*
U.S. Cl. 236—75 **11 Claims**



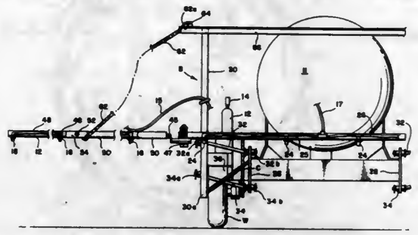
A furnace control system employing a unique type of control valve for regulating the flow of fuel to the heating member. The valve includes a movable plunger which will move from the valve seat to the open position when a control signal to the solenoid coil of the valve exceeds a predetermined set point value. The plunger will move to a position of minimum modulation which is established between the upper limit of plunger travel and the valve seat. The upper limit of the plunger movement is defined by a nonmagnetic element. When the plunger reaches the position of minimum modulation, it can thereafter be modulated by signals to the solenoid coil. During the travel from the valve seat to the position of minimum modulation, the plunger moves through a magnetically unstable region and during the position of modulation the plunger moves through a magnetically stable region. A second type of valve plunger including two sections which are attached but nevertheless movable with respect to each other is also disclosed.

3,545,677
METHOD OF CLOUD SEEDING
Bernard A. Power, 255 Touzin Ave. and Robert F. Power, 510 Lakeside Drive, Apt. 19, Dorval, Quebec, Canada
Filed May 3, 1968, Ser. No. 726,476
Int. Cl. A01g *15/00*
U.S. Cl. 239—2 **9 Claims**



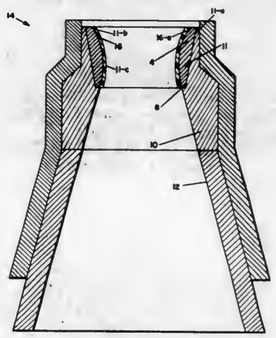
A precipitation-amenable atmosphere is seeded with an aerosol of an aqueous solution of silver iodide and a substance effective to solubilize silver iodide. The aerosol forms fine particles in the atmosphere which act as nuclei to cause precipitation.

3,545,678
FLOATING BOOM
Lawrence N. Tangeman, Beatrice, Nebraska, assignor to Dempster Industries, Inc., Beatrice, Nebraska a corporation of Nebraska
Filed Jan. 4, 1968, Ser. No. 695,642
Int. Cl. B65d *5/74*
U.S. Cl. 239—166 **9 Claims**



An applicator tank-carrying spraying vehicle includes a nozzle-mounting elongate boom resiliently mounted on the vehicle through a pivotable parallel linkage arrangement and support springs. The outboard ends of the boom are pivotably connected to the sections of the boom inboard thereof and are chain-connected to upright sections of the boom structure at points inboard of these pivotable connections.

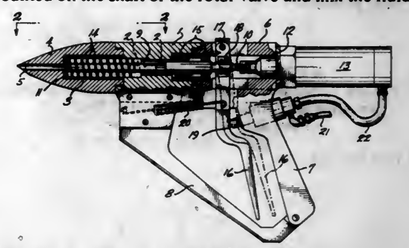
3,545,679
REFRACTORY ARTICLE
Patrick V. McAllister, Salt Lake City and James D. McGregor, Logan, Utah, assignors to Thiokol Chemical Corporation, Bristol, Pennsylvania a corporation of Delaware
Original application Nov. 17, 1964, Ser. No. 411,738, now Patent No. 3,419,441, dated Dec. 3, 1968. Divided and this application Sept. 10, 1968, Ser. No. 805,913
Int. Cl. B64d *33/04*
U.S. Cl. 239—265.15 **8 Claims**



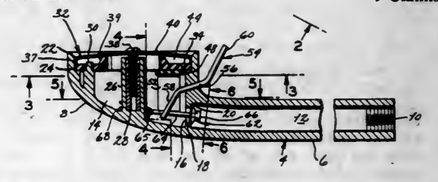
A rocket motor nozzle throat insert assembly prepared from tungsten, said tungsten having surfaces coated with an oxide to improve its resistance to thermal shock upon subjection thereof to hot gases from a rocket motor combustion gases.

3,545,680
ANTIDRIP MIXING HEAD FOR VISCOUS MATERIAL
James N. Ottaway, Saratoga, California, assignor to Weyerhaeuser Company, Tacoma, Washington a corporation of Washington
Filed June 10, 1968, Ser. No. 735,875
Int. Cl. B05b *7/12*
U.S. Cl. 239—413 **6 Claims**

An antidrip apparatus for delivering a fluid, particularly a viscous fluid such as a synthetic resin, comprising a stationary housing having an annular passageway therethrough into which is placed an elongated rotor valve slidable along its axis. A dispensing nozzle is attached to one end of the housing and communicates with the annular passage. The rotor valve is unique in several respects: (1) It functions as a valve to control exit of the fluid or fluids from the passageway. (2) Vanes or flutes closely fitting the interior of the passageway are mounted on the shaft of the rotor valve and mix the fluids entering the passageway. (3) These same vanes are pitched so as to oppose the flow of fluid through the passageway on rotation of the rotor and tend to cause a reverse flow of fluid in the dispensing nozzle when the supply pressure on the fluid in the passageway is reduced, thereby preventing dripping. Inlet openings are provided in the housing for entry of resin components or other fluids which are supplied under pressure. An air motor or other suitable driving means is connected to the rotor valve.

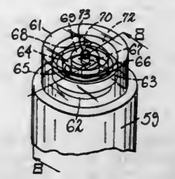


3,545,681
SHOWER HEAD
Buckley Crist, Plainfield, New Jersey, assignor to Jaclo, Inc., Brooklyn, New York a corporation of New York
Filed Aug. 27, 1968, Ser. No. 755,562
Int. Cl. B05b *1/30*
U.S. Cl. 239—449 **9 Claims**



A shower head having a body provided with an outwardly opening cavity across which a perforated disk extends. The disk is divided into inner and outer segments by an underlying diaphragm element which further creates a chamber inwardly from the second segment. A valve is provided for optionally admitting fluid into the second chamber from the cavity and another valve is provided for admitting fluid into the cavity. Both values are operable by a single control lever.

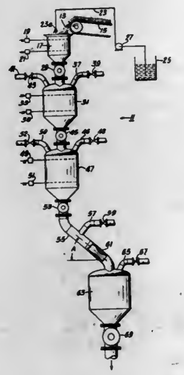
3,545,682
DISPENSING DEVICE
Walter C. Beard, South St., Middlebury, Connecticut
Continuation-in-part of application Ser. No. 629,224, April 7, 1967, now abandoned . This application Oct. 9, 1968, Ser. No. 772,453
Int. Cl. B05b *1/34*
U.S. Cl. 239—469 **15 Claims**



A dispensing device for use with a pressurized or aerosol can or the like for dispensing fluids, comprising a hollow

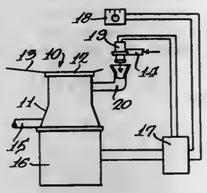
body member of rigid material and a first member positioned on one end of said hollow member, wherein said first member has a central raised portion. A resilient top wall having an opening for dispensing fluids is positioned above the top of said central raised portion, such that the top wall and the top of said central raised portion form a swirl chamber. The opening in the top wall is opened and sealed by means of fluid pressure.

3,545,683
EXPLOSIVE SHATTERING METHOD
Elwood V. Schulte, Pittsburgh, Pennsylvania, assignor to Koppers Company, Inc., a corporation of Delaware
Filed July 30, 1968, Ser. No. 748,759
Int. Cl. B02c *19/06, 19/18*
U.S. Cl. 241—1 **8 Claims**



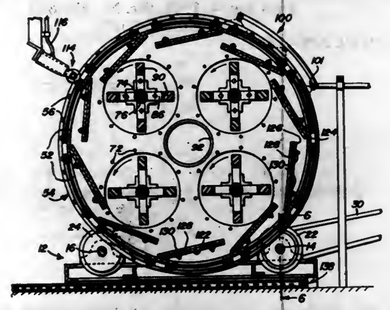
The improved method for explosive shattering of particulate material includes adjusting the moisture content of the material in a first pressure vessel; heating and pressurizing the material to a range of 500—3000 p.s.i.g. and then flowing the material at this pressure through a system including a velocity increasing section and into a vessel wherein conditions are such that all of the moisture in the pores and crevices of the particulate material instantly becomes gaseous and effects explosive shattering of the material.

3,545,684
FOOD WASTE DISPOSER
James G. Ruspino, St. Joseph, Michigan and James R. Hilmanowski, St. Paul, Minnesota, assignors to Whirlpool Corporation, a corporation of Delaware
Filed Sept. 22, 1967, Ser. No. 669,776
Int. Cl. B02c *25/00*
U.S. Cl. 241—33 **5 Claims**



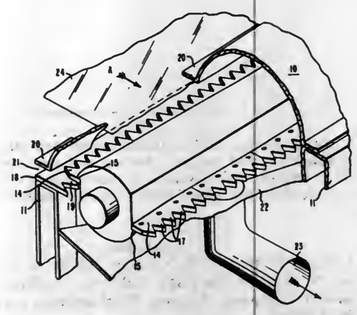
A food waste disposer having a control for automatically controlling the operation of the disposer. The control includes structure for reversing the grinding means in the event the grinding means becomes jammed, and for terminating the operation of the grinding means of the disposer automatically upon completion of the grinding of food waste thereby.

3,545,685
RESILIENT PADDLE IMPACT MILL
Archie Q. Adams, Central Point, Oregon, assignor to Alf M. Jacobsen, Goldendale, Washington a part interest and I. Allen Brown, Vancouver, Washington a part interest
Filed May 16, 1968, Ser. No. 729,629
Int. Cl. B02c *17/02*
U.S. Cl. 241—38 **14 Claims**



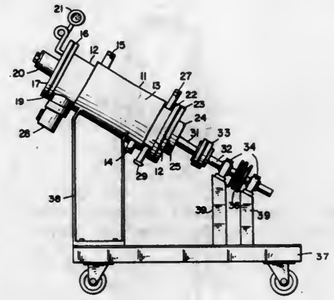
A horizontally disposed rotary drum provided with opposite end wall portions and delivery means for delivering material generally axially into one end of the drum and means for withdrawing pulverized material from the drum. The drum is designed to rotate at low speed and includes internal high speed rotary impact means journaled for rotation about axes generally paralleling the axis of rotation of the drum. The peripheral wall portion of the drum includes circumferentially spaced screened outlet openings defining the means for withdrawing pulverized material from the drum and the drum further includes baffle plates spaced about the inner surface portions of the peripheral wall of the drum disposed in planes lying generally along cords of the drum with the plates including base edge portions supporting from the peripheral wall portions of the drum and free end portions spaced slightly inwardly from the base edge portions of the adjacent plates, the plates overlying the screened outlet opening of the drum.

3,545,686
SHREDDER
George Nelson Brown, Wilmington, Delaware, assignor to E. I. du Pont de Nemours and Company, Wilmington, Delaware a corporation of Delaware
Filed March 15, 1968, Ser. No. 713,533
Int. Cl. B02c *18/44*
U.S. Cl. 241—47 **5 Claims**



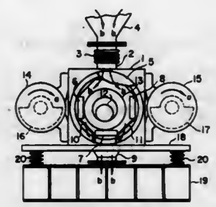
An apparatus for shredding sheets of polymeric materials is provided comprising a movable cutting blade having a sawtooth cutting edge and a stationary cutting blade having a sawtooth cutting edge disposed in a horizontal plane below and parallel to said movable cutting blade whereby the cutting edges of said blades interdigitate upon moving said movable cutting blade for piercing and tearing a sheet of polymeric material advanced across the stationary cutting blade.

3,545,687
MEDIA MILL
William R. Mosby, Savannah, Georgia, assignor to Martin Marietta Corporation, New York, New York a corporation of Maryland
Filed June 27, 1968, Ser. No. 740,504
Int. Cl. B02c *17/04, 17/16*
U.S. Cl. 241—66 **3 Claims**



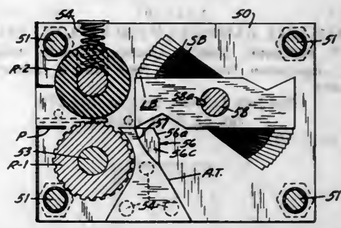
A media mill for dispersing particulate solids or liquids in a continuous liquid phase having a closed cylindrical body with entrance and exit ports. An agitator driven by a shaft passing through sealed bearings is provided along with an element to restrict flow of dispersion through the exit port so as to permit pressure buildup in the mill and avoid whipping of air or other ambient atmosphere into the dispersion being produced.

3,545,688
VIBRATION MILL
Goro Oshima; Hiroshi Hirata and Kenichiro Tokunaga, Kitakyushu-shi, Japan, assignors to Kabushiki Kaisha Yaskawa Denki Seisakusho, Kitakyushu-shi, Japan a corporation of Japan
Filed June 13, 1968, Ser. No. 736,669
Claims priority, application Japan, July 25, 1967, 42/47,988
Int. Cl. B02c *19/00, 17/10*
U.S. Cl. 241—69 **6 Claims**



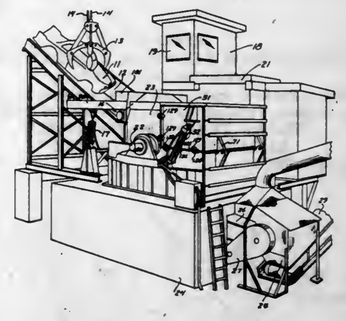
The interior of a vibration mill shell with a horizontal axis is provided with side and bottom grinding plates, which transmit vibration to several rings freely moving between and against the grinding plates thereby to accomplish grinding of feed material, a single free round bar of a diameter substantially less than the inner diameters of the rings being passed through the rings, and perforated plates are interposed between the side and bottom grinding plates to pass ground products of a desired maximum particle size to a discharge outlet.

3,545,689
MACHINE FOR COMMINUTING SHEET AND MULTI-SHEET SCRAP MATERIALS
Gene A. Luscombe, R.R. 1, Dolliver, Iowa 50531
Filed Sept. 26, 1967, Ser. No. 670,706
Int. Cl. B02c *13/00*
U.S. Cl. 241—186 **4 Claims**



An economical machine for comminuting various sheet and multisheet scrap materials, such as collapsed metal containers, scraps of plastic, cardboard, and metal materials, which essentially comprises a stationary cutting die having a series of small stationary teeth disposed transversely of the machine in combination with a rapidly moving cutting die opposed to the stationary die and having stationary, similar but alternatively disposed, cutting teeth working in cooperation and interspersion with the said first-mentioned series of teeth. The invention is further characterized by feed means synchronized with the cutting operations to move sheet material longitudinally into the machine for cutting with intermittent movement interspersed between the rapid times of cooperating action on the part of the cutter dies.

3,545,690
SHREDDER TYPE HAMMERMILL
Wencil J. Burian; Donald E. Herman; Robert M. Stepanek and Paul R. Vifian, Cedar Rapids, Iowa, assignors to Pettibone Corporation, Chicago, Illinois a corporation of Delaware
Filed Sept. 15, 1966, Ser. No. 579,728
Int. Cl. B02c *13/04, 13/286*
U.S. Cl. 241—186 **13 Claims**



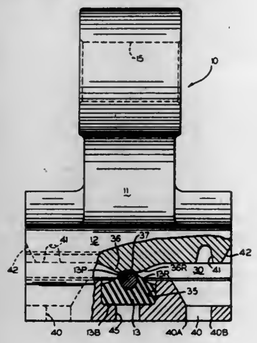
In a shredder for car bodies the bodies are fed over a notched cutter bar. A rotor has swing hammers of two lengths, one set passing through the notches and the other passing close to the teeth between the notches. Just beyond the cutter bar spaced bars and inward projections cooperate to let brittle material escape. Beyond these, escape of fragments is aided by sloping the sides of the bars which they will strike outwardly and in the direction of movement. The bodies are fed down a chute with feed controlled by a driven toothed roller which can move up and downwardly, being carried by a frame that is remotely pivoted. The rear upper portion of the housing for the hammermill is a hood hinged at its rear edge and swinging past a balanced position. Hydraulic cylinder means are provided for the feeder and the

hood each double-acting. A joint hydraulic system is provided with separate manual valves for the two functions and a selector valve for choice between the functions. The hood is closed by bolts held taut by wedges which rest on surfaces sloping in a direction such that vibration tends to tighten the wedges.

3,545,691
HAMMER MILL HAMMERS WITH REPLACEABLE TIP

Robert P. Arsenault, Joliette, Quebec, Canada, assignor to Abex Corporation, New York, New York a corporation of Delaware

Filed July 1, 1968, Ser. No. 741,576
Int. Cl. B02c 13/28
U.S. Cl. 241—197 7 Claims

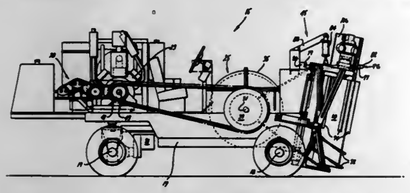


A two-piece hammer assembly for use in a hammer mill comprises a replaceable tip supported at the bottom of a shank, preferably by a tongue-and-groove interfit enabling the parts to be slid together in the course of assembly. The two are secured by a rubber block which also helps maintain good bearing contact between the two; in fact, the rubber lock presents a holding force of sufficient magnitude as to require forced leverage in completing the assembly, and the parts are so constructed as to enable such leverage to be readily achieved by a prise.

3,545,692
FEED AND GUIDANCE CONTROL APPARATUS FOR A TREE HOGGER UNIT

Routhford J. Burkett, Indio, California, assignor to Coachella Valley Organic Fertilizer Co., a corporation of California

Filed Jan. 22, 1968, Ser. No. 699,687
Int. Cl. B02c 19/12, 23/02, 4/00
U.S. Cl. 241—281 8 Claims

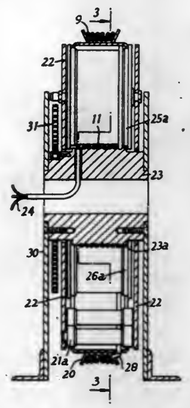


An improved feed and guidance control for feeding tree parts to a masticator assembly which comprises a part of a tree hogger unit. The feed apparatus includes a pair of spaced-apart rotatable drums having a series of blades thereon adapted, when said drums are rotated, to engage, lift and move tree parts between the drums. An essentially smooth walled chute is provided between the drums and masticator assembly, converging toward the latter, and adapted to guide tree parts smoothly to the assembly. A member is also provided which is adjustably positioned with respect to the drums to deflect branches and other tree parts extending thereabove, and confine them to the area swept by the rotating drums.

3,545,693
REELING APPARATUS

John Raymond Gurner; William Henry Fletcher and Roger Martin Pedley, Ilford, England, assignors to The Plessey Company Limited, Ilford, England a British Company

Filed March 18, 1968, Ser. No. 713,711
Claims priority, application Great Britain, March 17, 1967, 12652/67
Int. Cl. B65h 75/00
U.S. Cl. 242—54 8 Claims



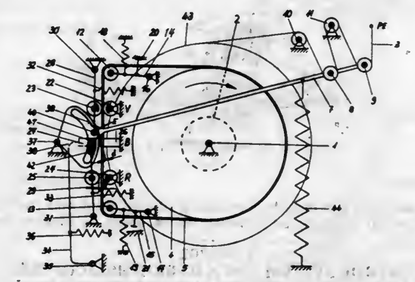
To prevent, without the use of slip rings or rotary glands, twist in the connection between a cable or hose end fixed to a winding drum and a stationary part of the cable or hose, the connection is effected via a coil of auxiliary cable which during the winding and unwinding movement of the cable on the drum passes from a portion of the drum at which it is wound in closely adjacent large-diameter turns to a portion of the drum in which it is stored in small-diameter turns. In the simplest form the auxiliary cable is arranged similarly to a watch spring, but less auxiliary cable is required if its direction of winding is reversed between the large-diameter and small-diameter turns by forming a loop supported by a guide roller in a roller cage on whose rollers the large-diameter turns are supported, but which rotates relative to the large-diameter turns at the rate at which auxiliary cable is added to or withdrawn from these turns.

3,545,694
APPARATUS FOR WINDING AND UNWINDING STRIP MATERIAL

Kurt Ehrat, Zurich, Switzerland, assignor to Ciba Limited, Basel, Switzerland a company of Switzerland

Filed April 22, 1968, Ser. No. 723,155
Claims priority, application Switzerland, April 28, 1967, 6107/67
Int. Cl. B65h 25/22, 59/38, 17/14
U.S. Cl. 242—67.4 11 Claims

Apparatus for winding and unwinding strip material from a spool includes a belt-driven pulley coupled to the spool, two pairs of rollers for driving the belt in one direction or the other respectively and a brake for stopping the belt. The pairs of driving rollers and the brake are controlled in an alternative manner by means of a cam arrangement associated with and actuated by a spring-loaded tension lever including a strip tensioning roller around which the strip material passes on its way to or from the spool. As the tension in the strip material varies, the tensioning lever will move in one direction or the other from an intermediate position in which the cam means applies the brake to the belt. Movement of the tensioning lever in one direction puts one pair of driving rollers into operation thus to drive the belt and pulley in one direction, and movement of the lever in the opposite

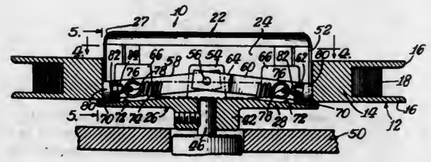


direction puts the other pair of driving rollers into operation to drive the belt and pulley in the opposite direction.

3,545,695
REEL MOUNTING DEVICE

Charles C. Patton, Springfield, Illinois, assignor to Sangamo Electric Company, Springfield, Illinois a corporation of Delaware

Filed Aug. 28, 1968, Ser. No. 755,913
Int. Cl. B65h 17/02
U.S. Cl. 242—68.3 16 Claims

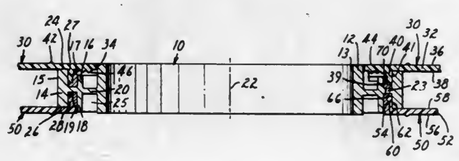


A reel-mounting device including a hub adapted to receive the internal supporting surface of a reel thereover, a pair of radially opposed pivotal bracket members having outer end portions adapted for selective outward extension from the hub, resilient pads mounted on the outer end portions of the bracket members to frictionally engage the internal supporting surface of the reel when mounted on the hub, and a tension spring interconnecting the opposed bracket members and urging them to reel hold-on positions when the reel is mounted on the hub.

3,545,696
ADHESIVE-ASSEMBLED MAGNETIC-TAPE REEL

David F. Berkey, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn. a corporation of Delaware

Filed Oct. 8, 1968, Ser. No. 765,824
Int. Cl. B65h 75/18
U.S. Cl. 242—71.8 2 Claims

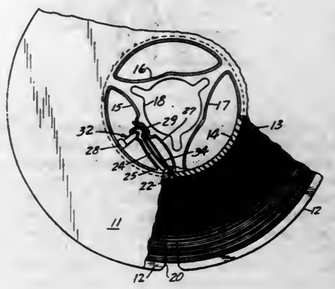


A tape reel for mounting magnetic recording tape thereon wherein two plastic flanges are alined with and adhesively affixed to a metal hub.

3,545,697
FILM REEL

Cedric C. Sovia, Forest Lake and Brian L. Birch, Mendota Heights, Minnesota, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn. a corporation of Delaware

Filed April 28, 1969, Ser. No. 819,835
Int. Cl. B65h 75/28
U.S. Cl. 242—74.1 4 Claims

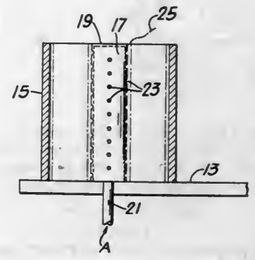


A film reel to which film can be anchored to make the reel useful as a supply reel in certain automatic-rewind film-transport devices. The film is anchored within a recess in the hub of the reel by inserting the film through a slot in the hub rim and then gripping the film between a locking member and an internal hub wall against which the locking member can be moved and held.

3,545,698
METHOD AND APPARATUS FOR PREVENTING THE COLLAPSE OF A SPOOL OF FILAMENT REINFORCEMENTS

Jonas Medney, Oceanside, New York, assignor to Koppers Company, Inc., a corporation of Delaware

Filed July 30, 1968, Ser. No. 748,842
Int. Cl. B65h 49/00
U.S. Cl. 242—128 6 Claims

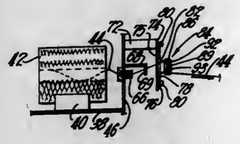


A spool of filament reinforcing roving material is inserted into a container having a central hollow perforated tube. Air jetting from holes in the central tube impinges on the filament reinforcings and presses them against the wall of the container, which is porous, to maintain the filament rovings in position until all of the filament rovings have been removed from the spool.

3,545,699
APPARATUS FOR PACKAGING STRAND MATERIAL

Jerome P. Klink, Newark; James C. Belue, Sylvania, Ohio and James H. Sears, Anderson, South Carolina, assignors to Owens-Corning Fiberglass Corporation, a corporation of Delaware

Filed Dec. 28, 1967, Ser. No. 694,326
Int. Cl. B65h 59/26
U.S. Cl. 242—153 5 Claims

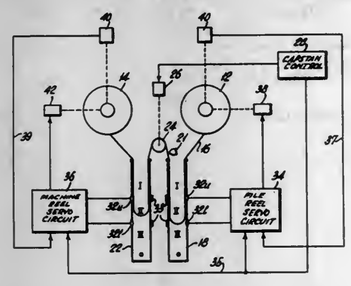


The disclosure embraces an apparatus for withdrawing strands or rovings from packages thereof to form a composite roving wound into a package, the apparatus withdrawing the strands embodying an adjustable means for each of the strands or rovings for regulating the tension in each of the individual strands or rovings, each of the tension regulating means having a further adjustment for the angularity of each strand or roving moving away from the tension regulating means to facilitate convergence of the strands or rovings toward a feed roll in advance of convergence of the strands or rovings into a composite roving.

3,545,700
REEL SERVO SYSTEM

Daniel M. Klang, Huntington Station, New York, assignor to Potter Instrument Company, Inc., Plainview, New York a corporation of New York

Continuation of application Ser. No. 684,703, Nov. 21, 1967, now abandoned. This application May 9, 1969, Ser. No. 824,390
Int. Cl. G11b 15/58
U.S. Cl. 242—184 6 Claims



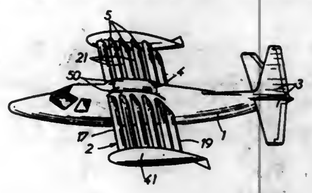
A reel servo for a tape transport employing short vacuum buffers in which the reel is energized to rotate in the reverse direction whenever both the reel and capstan are feeding tape into or withdrawing tape from the vacuum buffers.

3,545,701
LIFT OR LIFT/PROPULSION SYSTEM FOR AIRCRAFT

Jean Henri Bertin, Neuilly-sur-Seine; Marcel Pierre Le Nabour, Maisons-Laffitte and Jean Lucien Charles Cayla, Versailles, France, assignors to Bertin & Cie, Plaisir, France a company of France

Filed May 24, 1968, Ser. No. 731,869
Claims priority, application France, May 24, 1967, Feb. 26, 1968, 107,669;141,237
Int. Cl. B64c 21/04, 3/00
U.S. Cl. 244—12 11 Claims

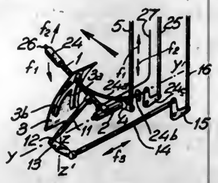
Lift and propulsion system for aircraft. A set of hollow elements is carried within the wings. A fluid under pressure flows through the elements and is allowed to escape therefrom in such manner that its flow entrains with it part of the surrounding atmosphere air after the fashion of an ejector and that the mixture consisting of said fluid and the entrained air be directed downwardly in order to support the aircraft.



3,545,702
CONTROL SYSTEM FOR A HYBRID HELICOPTER-AUTOGYRO OF THE JET LIFT AND PROPULSION TYPE, AND CONTROLS THEREFOR

Andre Henri Laville, Enghien-Les-Bains and Francis Henri Marie Joseph Maillard, Courbevoie, France, assignors to Sud Aviation Societe Nationale de Constructions Aeronautiques, Paris, France

Filed Jan. 26, 1968, Ser. No. 700,904
Claims priority, application France, Feb. 16, 1967, 94,446
Int. Cl. B64c 27/72, 27/74, 27/76
U.S. Cl. 244—17.19 11 Claims

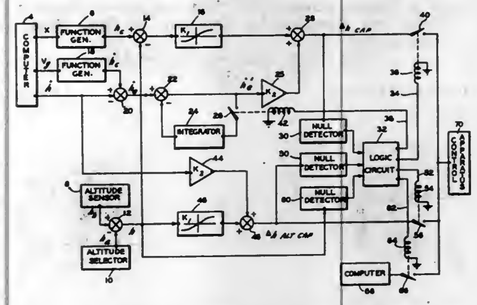


A control system for a hybrid helicopter-autogyro, in which a single lever-type control permits flight control in the helicopter and autogyro modes, transitions therebetween, and deceleration, which single control is adapted to be capable of describing two paths of motion, of which one lies in the pivotal plane of the lever and the other is substantially helicoid.

3,545,703
SYSTEM FOR CONTROLLING FLIGHT OF AIRCRAFT TO ATTAIN A PREDETERMINED ALTITUDE

Jerry Doniger, Montvale and Joseph F. McLaughlin, Boonton, New Jersey, assignors to The Bendix Corporation, a corporation of Delaware

Filed Nov. 1, 1967, Ser. No. 679,757
Int. Cl. G01c 21/00
U.S. Cl. 244—77 6 Claims

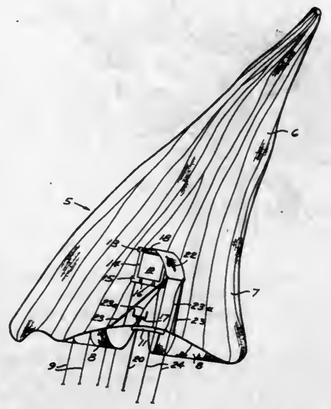


A system for controlling an aircraft to follow a programed flight path from its present altitude to a predetermined altitude over an aimpoint, The craft is controlled in response to altitude signals, altitude command signals, altitude rate signals and altitude rate command signals for first capturing and then following the predetermined flight path, and controlled in response to altitude signals and altitude rate signals for first capturing the predetermined altitude and then leveling at said altitude.

3,545,704
PARACHUTE OPENING DEVICE

Sigmund P. Rose, 25-03 Steinway St., Astoria, Long Island, New York

Filed May 12, 1969, Ser. No. 823,871
Int. Cl. B64d 17/70
U.S. Cl. 244—149 7 Claims

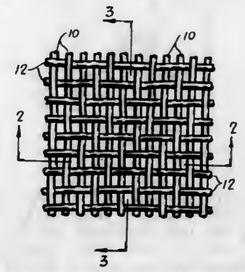


This invention is directed to a parachute in which the canopy is provided with a pair of opposed relatively deep gore-shaped notches extending upwardly from its periphery. An outwardly displaceable extended gore segment has its upper end secured adjacent the closed inner end of each notch and its free outer end connected to a periphery of the canopy by symmetrically disposed lift lines. Resiliently biased plates are located adjacent the upper portion of the gore segment to positively displace outwardly at least a portion of same after the parachute has become fully deployed from its pack and means are provided for rendering the biased plates ineffective until after the parachute has become fully deployed from its pack.

3,545,705
STAINLESS STEEL FOURDRINIER CLOTH

John B. Hodgson, Hampstead, Quebec, Canada, assignor to JWI Limited, Montreal, Quebec, Canada

Continuation-in-part of application Ser. No. 548,568, May 9, 1966, now abandoned. This application April 14, 1967, Ser. No. 641,088
Int. Cl. B21f 27/18
U.S. Cl. 245—8 8 Claims

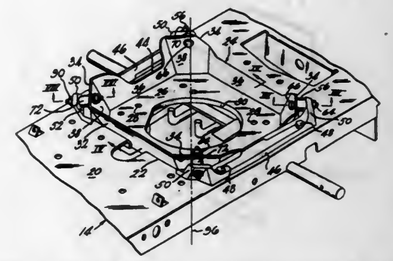


A woven fourdrinier belt for paper making machinery, the belt having interwoven warp and weft strands of corrosion resistant wire which possesses substantial tensile strength and a high resistance to fatigue. The wire is made of a drawn and annealed stainless steel alloy and the warp strands have a flattened cross section to facilitate weaving.

3,545,706
VIBRATION SUPPRESSING ENGINE MOUNT

Milton M. Harshman, Sullivan, Illinois, assignor to Yard-Man of Illinois, Incorporated, Sullivan, Illinois

Filed Oct. 25, 1968, Ser. No. 770,619
Int. Cl. F16f 15/06
U.S. Cl. 248—15 7 Claims

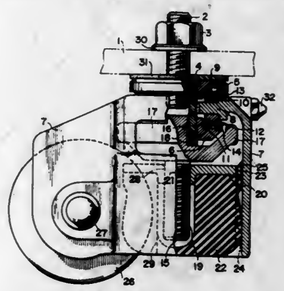


A mount for an internal combustion engine for particular use with relatively small engines, and of particular advantage with vertically oriented crankshaft engines having a horizontally disposed mounting bracket, including means for anchoring and mounting the engine to a supporting member to effectively suppress and absorb engine vibrations, the anchoring means for the engine including mounting structure specifically related to the engine center of gravity.

3,545,707
DEVICE FOR SUPPORTING AN OBJECT FOR DISPLACEMENT ON A SUPPORTING SURFACE OR FOR BEING LOCKED AND LEVELED IN POSITION ON THE SUPPORTING SURFACE

Sho Orii, 2102-1, Oaza Higashi-Hongo, Kawaguchi-shi, Saitama-Ken, Japan

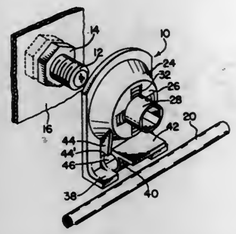
Filed Oct. 14, 1968, Ser. No. 767,148
Claims priority, application Japan, April 15, 1968, 43-24787
Int. Cl. B60b 33/06; B61l 24/04
U.S. Cl. 248—24 10 Claims



A device having a main shaft fixed to an object to be supported and a housing rotatably supported on the main shaft, the main shaft supporting a level adjustment shaft for rotation on a fixed longitudinal position, a bracket being threadably engaged on the level adjustment shaft and engaging the housing so as to move along the level adjustment shaft as the same is rotated in the main shaft, said bracket carrying a friction block which travels therewith and is positioned relative to a rotatable wheel, supported by the housing and resting on a support surface, such that the block can

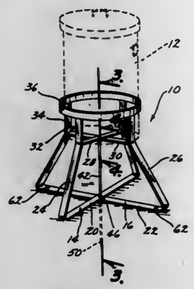
contact the support surface and have the weight of the object shifted thereto from the wheel while the housing is lifted and the wheel is raised from the supporting surface while the object is leveled.

3,545,708
RETAINING CLIP DEVICE
George E. Gross, Holly, Michigan, assignor to Illinois Tool Works, Inc., Chicago, Illinois a corporation of Delaware
Filed July 22, 1969, Ser. No. 843,537
Int. Cl. F16l 3/02
U.S. Cl. 248—74 11 Claims



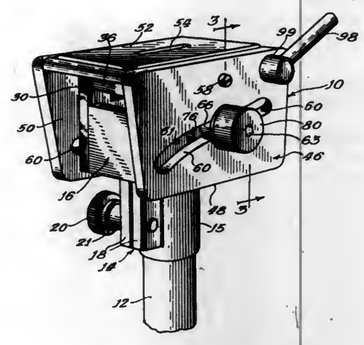
Device formed of resilient plastic for supporting articles such as wires is adapted to be pressed onto a stud member having protuberances thereon such as threads for example. The device also provides a protective covering for the stud. The device includes a frustoconical body portion which surrounds a nut or other radially extending member located on the stud. The frustoconical body portion is tapered inwardly from a workpiece contacting base to a web portion which joins it to a tubular outer portion having an internal diameter slightly smaller than the outer diameter of the stud. The web portion has bellowslike segments which are resiliently compressed when the clip is pushed onto the stud and which exert a bias on the tubular portion when the device is in place against a workpiece to slightly deform the tubular portion and move it into conforming relation to the protuberances of the stud to anchor the device. An integral holding member formed on the clip permits it to support articles such as wiring harnesses.

3,545,709
GARBAGE CAN HOLDER
Richard N. Harvey, 413 Main St., Ida Grove, Iowa
Filed May 22, 1968, Ser. No. 731,146
Int. Cl. B65f 1/00
U.S. Cl. 248—146 7 Claims



A device including a pair of U-shaped upstanding members in nesting relationship such that their base portions form a cross. The upstanding legs of the U-shaped members are interconnected near their upper ends by a second pair of crossed members and provide a support base for a garbage can. A circular band interconnects the upper ends of the upstanding U-shaped members. A stake may be threadably secured to the top pair of cross members at their point of intersection and extend freely through the base portions of the lower U-shaped members for anchoring engagement with the ground-supporting surface.

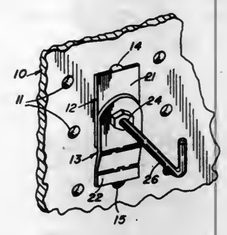
3,545,710
CAM-HEAD STRUCTURE FOR CAMERA SUPPORT
Paul C. Mooney, Skokie, Illinois, assignor to Quick-Set Incorporated, a corporation of Illinois
Filed June 25, 1968, Ser. No. 739,795
Int. Cl. F16m 11/12
U.S. Cl. 248—183 14 Claims



A device for supporting equipment in vertical tilting relationship without unbalancing the equipment relative to the device. A mechanical movement is provided which includes a pivoted link and a cam set for operatively maintaining a horizontal path of movement of the center of gravity of the equipment during tilting of the equipment through its prescribed arc of movement.

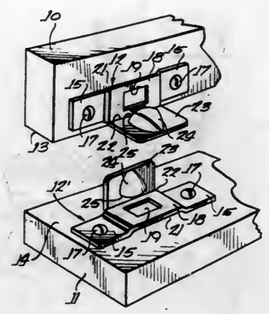
The mechanical movement is designed and constructed so as to maintain a substantially even balance throughout the full arc of vertical tilt movement. The type of equipment being supported can be TV cameras, movie cameras or projectors, gun mounts, optical equipment and the like.

3,545,711
SUPPORT BRACKET FOR ENGAGEMENT WITH PERFORATE PANELS
Henry F. Scheneman, 8358 Alpine Ave. NW, Sparta, Michigan
Filed Feb. 25, 1969, Ser. No. 802,073
Int. Cl. A47f 5/00
U.S. Cl. 248—223 4 Claims



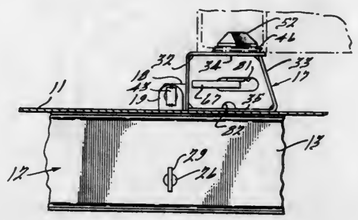
A support arm is engageable with separable members provided with offset tabs adapted to enter spaced holes in a perforate panel of the type commonly referred to as "peg board." These members. when fully engaged with the peg board and by the support arm, generate a solid clamping action on the opposite faces of the panel, and prevent accidental displacement of the arm.

3,545,712
ASSEMBLY BRACKET
Leslie M. Ellis, Carpon, Illinois, assignor to Keystone Consolidated Industries, Inc., Peoria, Illinois a corporation of Delaware
Filed Sept. 26, 1968, Ser. No. 762,802
Int. Cl. F16b 12/02
U.S. Cl. 248—224 5 Claims



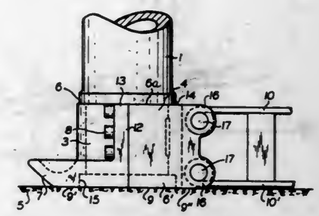
An assembly bracket for use in cabinets and for shelves where a pair of identical bracket members are utilized with one bracket member being reversed relative to the other member; each bracket member having a mounting portion with a raised central portion provided with an opening. A flange is integral with an edge of the raised central portion and has an embossment with a detent edge. In use, the flange of one bracket member is received in the pocket formed by the raised central portion of the opposite bracket member with the embossment on the flange received in the opening in the raised portion of the opposite bracket member to retain the bracket members assembled.

3,545,713
TIEDOWN APPARATUS
Rolf Mowatt-Larssen, Kinnelon and Samuel C. Hamilton, Clifton, New Jersey, assignors to Magor Railcar Division, Fruehauf Corporation, Clifton, New Jersey a corporation of Michigan
Filed Jan. 25, 1968, Ser. No. 700,399
Int. Cl. B61d 45/00; B65j 1/22
U.S. Cl. 248—361 11 Claims



A housing is provided carrying a locking head which is spring biased to lock position and retained in unlock position by a spring-pressed plunger. When the aperture in the corner of a container is placed over the locking head, the plunger is depressed to unlock the locking head which is automatically moved to lock position by the spring. The housing is pivoted on a pivot means which is vertically movable above and below an associated support surface so that the housing can be moved to a retracted position below the support surface.

3,545,714
STANCHION FOOT CONNECTION
Egon Wojaczek, Bockum-Hoevel and Kunibert Becker, Werl, Westphalia, Germany, assignors to Gewerkschaft Eisenhutte Westphalia, Wethmar bei Lunen, Westphalia, Germany a corporation of Germany
Filed Sept. 17, 1968, Ser. No. 760,221
Claims priority, application Germany, Oct. 21, 1967, G51401
Int. Cl. E21d 15/44
U.S. Cl. 248—357 5 Claims



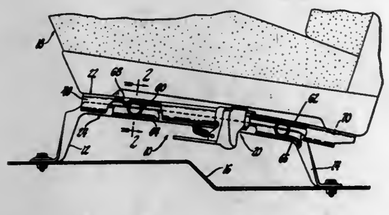
A connecting device for mine support assemblies connecting horizontal members of a movable support assembly to hydraulic support props of a shiftable support assembly.

3,545,715
ELONGATE-EXTENSIBLE MEMBER
Lee Triplett, Salt Lake City, Utah, assignor to Expando Products Company, Magna, Utah, a corporation of Utah
Filed July 26, 1968, Ser. No. 747,898
Int. Cl. F16m 11/26
U.S. Cl. 248—411 1 Claim



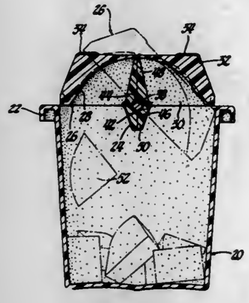
The present invention comprises an elongate extensible device employing one or more compression-type friction-lock devices within the design. These are utilized to permit selectable mounting of the device, selectable extension thereof, and so forth. The elongate structure of the present invention is suitable for incorporation in a variety of contexts, such as microphone stands, camera and projector stands, extensible legs, pointers, and so forth.

3,545,716
TRACK STRUCTURE FOR SEAT ADJUSTER
Albert J. Colautti, Windsor, Ontario, Canada, assignor to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed May 15, 1968, Ser. No. 729,274
Int. Cl. F16m 13/00
U.S. Cl. 248—430 2 Claims



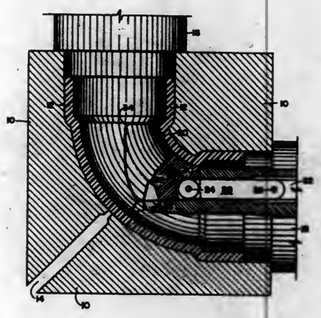
A track structure for a vehicle seat adjusting mechanism having opposed and relatively slidable upper and lower channel members. The channel members are provided with laterally extending flanges that are interlocked and have bearing means interposed therebetween. Spring means which take the form of a cylindrical roller serve to continuously bias the channel members apart so as to preload the bearing means and compensate for wear and/or manufacturing deficiencies.

3,545,717
ICE TRAY AND BIN COMBINATION
Joe P. Pietrzak, Kettering; Robert M. Strahan, Vandalia and Bruce S. Albright, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich. a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,640
Int. Cl. F25c 1/24
U.S. Cl. 249—69 4 Claims



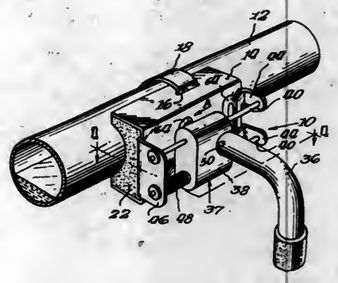
In the preferred form a rounded plastic ice container has integral transverse partitions and a longitudinal pivot rod. An ejecting means is pivoted on the rod with longitudinal ejecting partitions normally extending from the rod into the container between the partitions. This ejecting means has a set of projections at its opposite ends which, when the tray is inverted over a receiving bin, is adapted to engage notches in the rim at the ends of the bin. The twisting or rocking of the container relative to the ejecting means and the bin causes the frozen contents to be delivered into the bin.

3,545,718
REMOVABLE MOLD CORE
Kenneth A. Shale, Garrettsville, Ohio, assignor to Continental Oil Company, Ponca City, Oklahoma a corporation of Delaware
Filed Feb. 1, 1968, Ser. No. 702,466
Int. Cl. B28b 7/30
U.S. Cl. 249—185 3 Claims



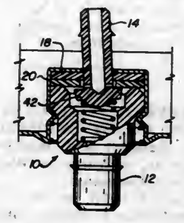
An improved segmented mold core for forming hollow curved articles, comprising two reciprocal and only one articulated segment per radius; the articulated segment is retained in position by a friction device. In a preferred embodiment, segments are maintained in alinement by a tongue-and-groove arrangement.

3,545,719
MILK LINE VALVE
Robert J. Shulick, St. Charles, Illinois and Raymond Stachowski, Chicago, Illinois, assignors to Babson Bros. Co., a corporation of Illinois
Filed Dec. 26, 1967, Ser. No. 693,201
Int. Cl. F16k 51/00
U.S. Cl. 251—146 5 Claims



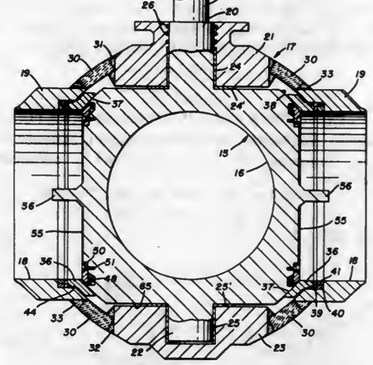
A milk pipeline valve which includes a resilient valve seat secured to the pipeline, the valve seat having a circular opening aligned with an opening in the pipeline. A valve assembly is supported on guide rods for movement in a plane parallel to the pipeline between a first position in which the assembly overlies the opening in the valve seat and a second position in which the valve assembly is removed from the valve seat. The valve assembly includes a body portion which has a recess with a closure member housed therein which is spring biased for engagement with the valve seat about the opening. A connector nipple is insertable into the opening in the valve seat for communication with the pipeline opening, and the valve seat fits snugly about the nipple to seal the connection.

3,545,720
TILT VALVE
Ronald F. Ewald, 2700 Cardinal Drive, Rolling Meadows, Illinois
Continuation-in-part of application Ser. No. 646,586, June 16, 1967, now abandoned. This application Aug. 29, 1969, Ser. No. 857,288
Int. Cl. F16k 1/16; B65d 83/00
U.S. Cl. 251—303 2 Claims



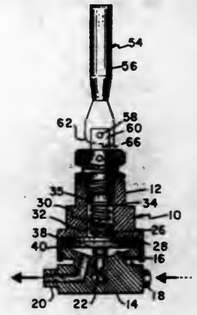
An aerosol valve having a valve body, a valve stem, a sealing gasket and valve stem-biasing means. The valve stem has an enlarged diameter inner end which is reciprocally disposed in the valve stem cavity in the valve body and its top wall is normally biased against the sealing gasket, by the biasing means, to form a seal. The valve stem has a dispensing port in it and the sealing gasket has an annular groove which surrounds the dispensing port. The seal which normally prevents the product from flowing into the annular groove, and hence the dispensing port, is broken when the valve stem is depressed and/or tilted, thereby permitting the product to be dispersed.

3,545,721
WELDED BALL VALVE AND METHOD OF MAKING
Homer J. Shafer, P.O. Box 83, Mansfield, Ohio
Filed Nov. 6, 1967, Ser. No. 680,633
Int. Cl. F16k 5/06
U.S. Cl. 251—309 6 Claims



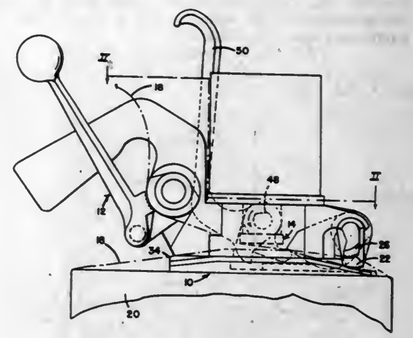
A ball valve structure comprising a valve element having an integral stem and a surface formed spherically around the stem axis, mating housing parts welded in a longitudinal plane passing through said stem axis to form a tubular domed housing around the ball with the stem bearing located within and welded to the housing, flow tubes welded in the ends of said tubular housing in accurate alignment with the flow port in the ball and embodying valve seating rings in sealing contact with improved resilient ring seals on the ball, said sealing rings and retaining means therefor insertable through the flow tubes after welding.

3,545,722
VACUUM VALVE WITH SPRING BIASED PLASTIC DIAPHRAGM
Robert J. Bovio, Lowell and William A. Finch, Marblehead, Massachusetts, assignors to Sylvania Electric Product Inc., a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,511
Int. Cl. F16k 7/16
U.S. Cl. 251—331 2 Claims



An improved diaphragm arrangement for mechanical valves for vacuum systems where corrosive gases are present. The diaphragm and its related tip are made in a one-piece construction from a fluorocarbon plastic composition. This improved molded structure provides a diaphragm closure that is unaffected by corrosive gases and can be flexed almost indefinitely without rupturing.

3,545,723
STRAP GRIPPER FOR STRAP TENSIONING TOOL
Philip W. Raley, Claymont, Delaware and Michael O. Derrickson, Norwood, Pennsylvania, assignors to FMC Corporation, Philadelphia, Pennsylvania a corporation of Delaware
Filed Aug. 22, 1968, Ser. No. 754,610
Int. Cl. B66f 3/00
U.S. Cl. 254—79 5 Claims



A strapping tool has a pair of strap gripping members mounted for swinging about a common axis. An end of the strapping is gripped by one of the members against a stationary foot and another portion of the strapping is gripped between the two members so that it can be pulled in tensioning direction but cannot loosen. There is a single lever for sequentially releasing the two gripping members.

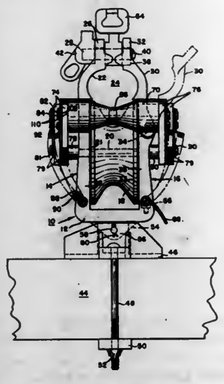
ERRATUM

For Class 254—132 see:
Patent No. 3,545,855

3,545,724
CONDUCTOR STRINGING GROUNDING BLOCK

Clarence J. Wright, 3336 Acton Road, Baltimore, Maryland

Filed Dec. 3, 1968, Ser. No. 780,657
Int. Cl. B65h *59/00*
U.S. Cl. 254—134.3 12 Claims

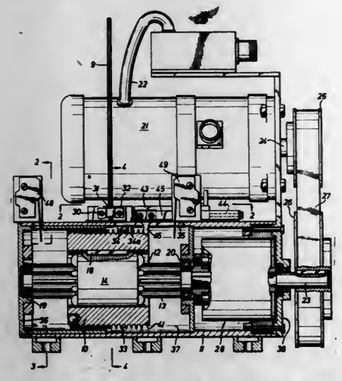


A wire or cable stringing block having a frame provided with a grounding connection, a sheave mounted in the frame for rotation about a fixed axis over which the conductor passes, and a pair of swing arm mounted guide rollers on opposite sides of the sheave which bear downwardly on the conductor under the influence of tension springs, the positions of the guide rollers being independently adjustable relative to the sheave so that the conductor may assume different sag angles on the opposite sides of the sheave and still be positively grounded and maintained in proper alignment.

3,545,725
WINCH HAVING CABLE POSITION AND LOAD INDICATORS

Joseph A. Chandler, Dickinson and Thomas M. Grubbs, Houston, Tex., assignors to the United States of America as represented by the administrator of the National Aeronautics and Space Administration

Filed Oct. 24, 1968, Ser. No. 770,371
Int. Cl. B66d *1/30*
U.S. Cl. 254—150 10 Claims

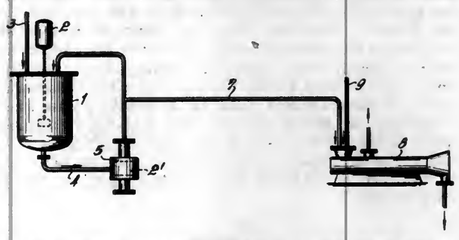


A winch is disclosed that pays out and reels in cable through a fixed guide. The cable is wound on a helically grooved drum that is free to move axially along the longitudinal axis of its supporting shaft as required to maintain the cable coming off the drum in line with the cable guide. The bearings supporting the cable drum are located equal distances from the cable guide on opposite sides thereof so that the force imposed on the shaft by the cable is equally divided between the bearings. A strain gage is mounted on one bearing cap to indicate the reaction at this bearing due to the cable load to provide a continuous measurement of the force on the cable. The contact of a linear potentiometer is moved by the drum as it moves axially to vary an electrical signal, which is used to indicate drum position and the amount of cable payed out at any given time.

3,545,726
METHOD OF PREPARING MIXTURES OF SYNTHETIC MATERIALS AND ADDITIVES DISPERSED THEREIN

Heinz Herrmann, Stuttgart and Joachim Kurt Herzberg, Beihingen, Germany, assignors to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany

Filed July 1, 1968, Ser. No. 741,704
Claims priority, application Germany, July 1, 1968, W44295
Int. Cl. B01f *11/02*
U.S. Cl. 259—1 8 Claims

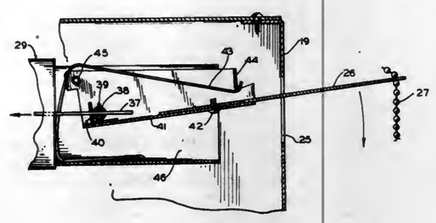


The invention provides a method of and apparatus for producing such fine dispersions, which comprises adding to pulverulent synthetic material at least twice the proportion of pulverulent additive that is required in the final mixture, to obtain a concentrated mixture; adding liquid to the said concentrated mixture to obtain a liquid-containing mixture, and subjecting the said liquid-containing mixture to ultrasonic sound vibrations whereby the additive is finely dispersed in the said liquid-containing mixture; and subjecting the liquid-containing mixture thus obtained to one or more treating stages whereby the desired final mixture is obtained.

3,545,727
CONCENTRATE DILUTION APPARATUS

Herbert E. Morissette, Beaverton, Oregon, assignor to Monsanto Company, St. Louis, Missouri a corporation of Delaware

Filed Aug. 30, 1968, Ser. No. 756,605
Int. Cl. B01f *5/02*
U.S. Cl. 259—4 6 Claims

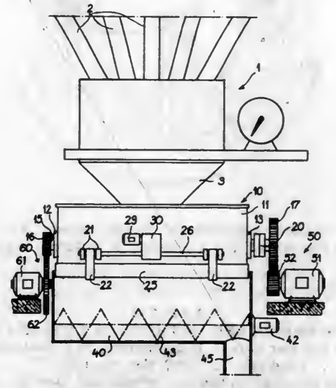


Dilution apparatus adapted for mounting on a shipping container of liquid concentrate and energized by the kinetic energy of the diluent, with automatic shutoff means actuated by depletion of the liquid concentrate.

3,545,728
MIXING APPARATUS AND METHOD OF OPERATING SAME

Richard Uzwil Schultz, Switzerland, assignor to Gebruder Buhler AG, Gall, Switzerland

Filed Aug. 13, 1968, Ser. No. 752,310
Claims priority, application Switzerland, Aug. 18, 1967, 11,669/67
Int. Cl. B01f *7/02*
U.S. Cl. 259—10 12 Claims

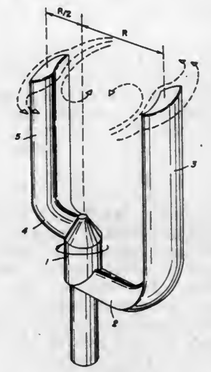


A mixer for the batch or charge mixing of plural components has at least one mixer shaft rotating in a mixer trough and provided with mixing tools. The mixer shaft is rotated at a first relatively low speed during mixing of the components and, during at least the latter part of the discharge of the mixture, is rotated at a very substantially higher speed.

3,545,729
ANCHOR-AGITATOR

Karl Wisseroth, Ludwigshafen, and Richard Scholl, Gruenstadt, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine) Germany

Filed Dec. 13, 1968, Ser. No. 783,608
Claims priority, application Germany, Dec. 14, 1967, 1,557,042
Int. Cl. B01f *7/16*
U.S. Cl. 259—182 2 Claims

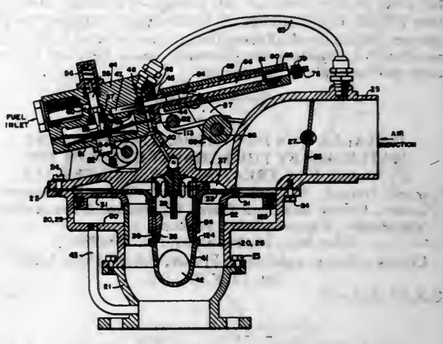


A two-armed anchor agitator for mixing pulverulent material in a stirred vessel, whose arms are rotatable about the center line of the vessel and are disposed parallel to, and at different distances from, the center line, the outer arm being longer and closer to the bottom of the vessel than the inner arm and both arms having a streamlined cross section.

3,545,730
FUEL CONTROL AND FUEL FEEDER UNIT FOR INTERNAL COMBUSTION ENGINES

Joseph A. Bascle, Jr., Baton Rouge, Louisiana, assignor to Associated Consultants, Inc., Baton Rouge, Louisiana a corporation of Louisiana

Filed Nov. 27, 1967, Ser. No. 685,926
Int. Cl. F02m *7/12*
U.S. Cl. 261—46 12 Claims

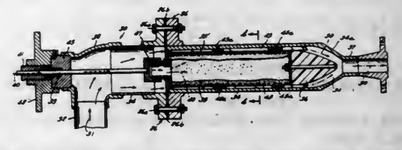


Two air valves, biased to closed positions, and automatically opened by the differential pressures of engine suction and throttle-controlled atmospheric air induction when the internal combustion engine is started in operation, control the admission of air to two separate carburetor channels, one of which delivers air to the conventional manifold and the other of which delivers air to a fuel nozzle and the resulting air-fuel mixture to a supplemental manifold, the fuel supply being controlled by at least two fuel valves so associated with the closing mechanism for at least one of the air valves that on opening of such air valve the primary fuel valve will be proportionally opened to fully meet current suction demands, while the other fuel valve is subject to both accelerator and manual control, all contributing to a coordinated system by which greatly improved carburation is achieved particularly for meeting conjoint factors of variable load and speed conditions encountered in current vehicle operation. In short, the disclosure is to an updated carburation system.

3,545,731
APPARATUS FOR PRODUCING BUBBLES OF VERY SMALL, MICROSCOPIC SIZE

Donald S. McManus, Groton Long Point, Connecticut, assignor to General Dynamics Corporation, New York, New York a corporation of Delaware

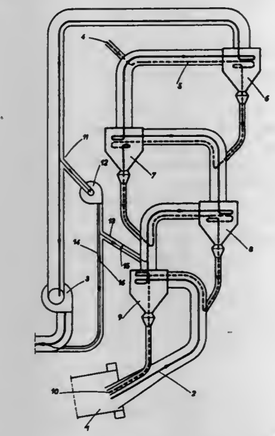
Filed Nov. 8, 1966, Ser. No. 592,872
Int. Cl. C02c *1/02*; B01f *3/04*, *5/04*
U.S. Cl. 261—122 7 Claims



An apparatus is provided for producing bubbles of 5 to 10 micron size in a liquid by a sparger inside a pipe wherein the clearance between the sparger and the pipe is maintained in relation to the velocity of the liquid passing over the sparger such that the height of the laminar sublayer in the liquid is maintained less than 10 microns. The bubbles are produced by pressure perturbations in the turbulent layer above the laminar sublayer such that as gas issues from the sparger

through the laminar sublayer the pressure perturbations will snap off the bubbles before they can grow larger than 10 microns in size. A narrow annular passageway is provided between the sparger and pipe. This annular passageway is provided with an increasing taper in the downstream direction of the liquid stream. The taper increase in flow cross section produces a corresponding pressure increase in the liquid stream in the direction of flow which is sufficient to compensate for the pressure drop due to friction losses. The liquid flow pressure over the surface of the sparger is maintained uniform. A stream lined tail cone portion is attached to the downstream end of the sparger. A convergence in the inner wall of the shell member in juxtaposition with the tail cone portion forms an exit passage of reduced cross section for the liquid stream. A handwheel is attached to the sparger for axially displacing the sparger relative to the shell member for adjusting the clearance space between the tail cone portion and the exit passage.

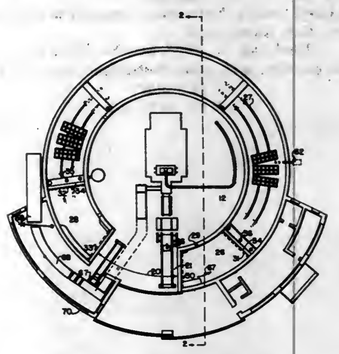
3,545,732
INSTALLATION FOR PREHEATING POWDERY MATERIALS BY THE EXHAUST GASES OF THE FURNACE FOR TREATING THESE MATERIALS
Gerard Deynat, 8 Quai St. Cosme, Chalon-Sur-Saone-et. Loure, France and Jean Pierre Lippmann, 2 rue Aubriet, Vaucresson, Hauts-de-Seine, France
Filed Sept. 16, 1968, Ser. No. 759,986
Claims priority, application France, Feb. 7, 1968, 138951
Int. Cl. F27b *3/00*
U.S. Cl. 263—21 **2 Claims**



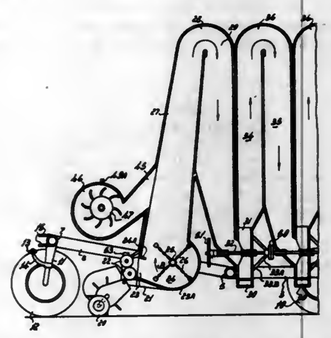
An installation for preheating pulverulent material by counterflow through a plurality of heaters in series with exhaust gas, a separator downstream of each heater, a general blower downstream of the heaters in relation to the exhaust gas and a blower having a two-way delivery duct to reintroduce gases from downstream of the last heater to either a point downstream of the first heater relative to the exhaust gas, or a point downstream of the general blower.

3,545,733
KILN FOR HEAT TREATMENT OF ARTICLES ON A CONTINUOUS BASIS
Leeming Anderson, 1861 McGregor Ave., Fort William, Ontario, Canada
Continuation-in-part of application Ser. No. 662,142, Aug. 21, 1967, now abandoned . This application April 21, 1969, Ser. No. 818,010
Int. Cl. F27b *9/00*
U.S. Cl. 263—28 **4 Claims**

A circular housing defining an annular kiln tunnel and a central chamber which contains a block making machine. An endless block carrier is movable in the annular tunnel and means are provided for loading blocks from the block making machine on the carrier and for unloading blocks from the carrier to the outside of the housing, at block loading and unloading stations, respectively, in the tunnel. Air curtains separate the tunnel into a plurality of different temperature zones.



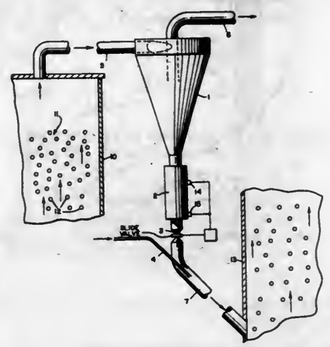
3,545,734
CROP DRIERS AND METHODS OF DRYING CROP
Cornelis Van Der Lely, 7, Bruschenrain, Zug, Switzerland
Filed Dec. 13, 1967, Ser. No. 690,227
Claims priority, application Netherlands, Dec. 20, 1966, 66 17827; Jan. 23, 1967, 6601000
Int. Cl. F27b *5/02*
U.S. Cl. 263—37 **49 Claims**



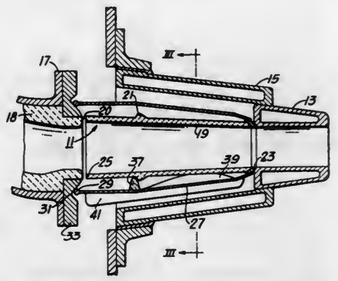
A mobile crop drier which gathers and moves cut crop into a hot air path through an enclosure, the crop being continually tossed upwardly as it is carried along the path; the crop also being crushed as it moves into the path. The progress of the crop along the air path may be augmented by endless belts which may also serve for tossing the crop.

3,545,735
CONVEYANCE OF DUSTY MATERIAL IN MULTISTAGE FLUIDIZED-BED PLANT
Herbert Wolf, Wilhelm Goesele, and Siegfried Schreiner, Ludwigshafen, and Friedrich Hettler, Bad Duerkheim, and Hans Stumpfl, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellshaft, Ludwigshafen(Rhine)Land-Pfalz, Germany
Filed Sept. 12, 1968, Ser. No. 759,315
Claims priority, application Germany, Sept. 15, 1967, 1,667,392
Int. Cl. F27b *15/00*; **B04c** *5/04*
U.S. Cl. 266—20 **2 Claims**

The dust entrained from a previous fluidized-bed reactor with the offgas in a multistage plant for the production of gases containing sulfur dioxide by roasting materials-containing arsenic and antimony as well as roastable sulfur, is separated in a cyclone. The dust separated is supplied to the next fluidized-bed reactor. An intermediate chamber is interposed between the discharge from the cylone and the next fluidized-bed reactor and this intermediate chamber is capable of being closed at its lower end by a slide which is actuable in dependence on the level of the material in the intermediate container.

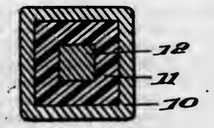


3,545,736
BLOWPIPE FOR BLAST FURNACE
Robert E. Zimmermann, Pittsburgh, Pennsylvania, assignor to Koppers Company, Inc., a corporation of Delaware
Filed April 12, 1968, Ser. No. 721,036
Int. Cl. C21b *7/16*
U.S. Cl. 266—41 **7 Claims**



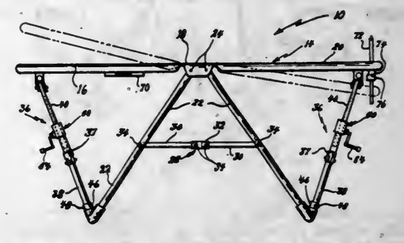
A blowpipe for a blast furnace comprises a ceramic inner conduit that is surrounded by a metallic outer conduit. The ends of the outer conduit seals against the tuyere and the tuyere stock elbow, and the hot blast air pressure and temperature act on both sides of the ceramic inner conduit.

3,545,737
TORSIONAL ENERGY ABSORPTION DEVICE
Richard V. Lamprey, 169 1/2 E. State St., Athens, Ohio and Karl J. Otto, 405 William St., Somerville, New Jersey
Filed April 29, 1968, Ser. No. 724,895
Int. Cl. F16g *1/14*
U.S. Cl. 267—141 **9 Claims**



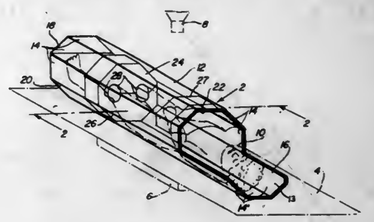
A torsional energy absorption device which may be used in the suspension system of various vehicles and industrial equipment is provided by filling the entire space between a hollow outer member and an inner shaft member with an elastomeric material such as polyurethane.

3,545,738
MEDICAL EXAMINING AND TREATMENT TABLE
Paul A. Stagg, 5413 16th Place, Lubbock, Texas
Filed June 17, 1968, Ser. No. 737,660
Int. Cl. A61g *13/00*
U.S. Cl. 269—325 **5 Claims**



A medical examining and treatment table having a pair of adjustable supporting members for adjusting the positions of the table top. The table further being capable of being folded for storage or transportation.

3,545,739
IMMOBILIZATION DEVICE
Marc B. D'Avignon, 75 Columbus St., Manchester, Conn.
Filed Jan. 15, 1968, Ser. No. 697,815
Int. Cl. A61g *13/00*
U.S. Cl. 269—328 **19 Claims**

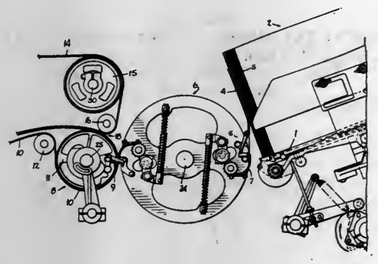


There is disclosed a device for containing the body of a patient to immobilize him and to allow positional control of his body, which comprises a shell and retaining means associated therewith. The shell has an interior cell for the body of the patient and a peripheral cross section of polygonal configuration defining a multiplicity of planes extending longitudinally thereof about its periphery. The patient, secured in the cell by the retaining means, can be placed in a multiplicity of prone or recumbent positions by turning the device about its longitudinal axis to positions of support on a relatively planar surface.

3,545,740
SIGNATURE FEED FOR HIGH-SPEED SIGNATURE GATHERING MACHINE
Victoriano F. Rana, Easton and Joseph C. Roseman, Bethlehem, Pennsylvania, assignors to T. W. & C. B. Sheridan Company, Easton, Pennsylvania, a corporation of New York
Filed June 18, 1968, Ser. No. 737,933
Int. Cl. B65h *39/02*
U.S. Cl. 270—54 **5 Claims**

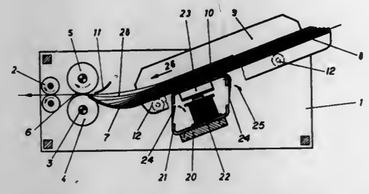
A high-speed signature gathering machine has a rotary signature gripper drum which grips the foremost signature of a stack of signatures and pulls the signature from the stack downwardly and forwardly around the drum to a transfer location. Here a transfer rotary signature gripper drum rotating in an opposite direction grips the signature and transfers it forwardly without reversal or pause. The transfer drum pulls the signature positively into the nip of two forwardly moving

belt spans which are superimposed to grip the signature between them. In this fashion the signature is pulled from the



stack and while positively held at all times is conveyed forwardly without pause, change in velocity or reversal, permitting high-speed travel for ultimate gathering.

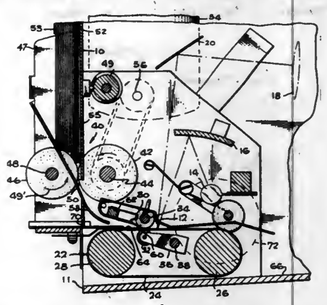
3,545,741
COLLATOR WITH SHEET FEEDERS ASSISTED BY VIBRATION
Erwin Porth, St. Georgen, Black Forest, Germany, assignor to Mathias Bauerle Gesellschaft Mit Beschrankter Haftung, St. Georgen, Black Forest, Germany a German Company
Filed April 3, 1967, Ser. No. 628,048
Claims priority, application Germany, April 29, 1966, B86887
Int. Cl. B65h *39/02, 3/00*
U.S. Cl. 270—58 **15 Claims**



A device for dispensing single sheets of paper from a stack of sheets of paper for use in paper converting and collating machines and the like which includes an inclined stacking table for supporting a stack of paper with a curved lower end and a vibratory oscillating means including an electromagnet and an armature, the latter being disposed on the underside of the stacking table and springs situated between the electromagnet and the stacking table for moving the sheets of paper down the inclined stacking table in overlapping fashion.

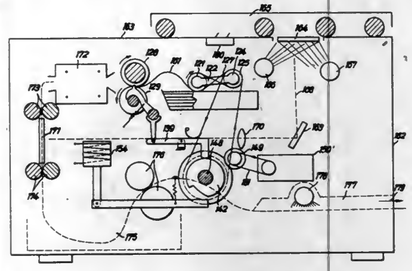
3,545,742
AUTOMATIC PAPER FEEDER
Alex M. Muller, Redondo Beach, California and Kunio A. Sumida, Los Angeles, California, assignors to Telautograph Corporation, Los Angeles, California a corporation of California
Filed July 12, 1968, Ser. No. 744,583
Int. Cl. B65h *5/06, 7/18*
U.S. Cl. 271—10 **9 Claims**

Apparatus for feeding individual sheets of paper from a stack through a facsimile transmitter with a minimum spacing between succeeding sheets. The apparatus comprises a feed roller which rapidly moves a sheet from the stack along a feed path to a slow moving belt, and a paper sensing switch which stops rotation of the feed roller as soon as the leading edge of the sheet reaches the belt. When the trailing edge of the sheet leaves the position of the paper sensing switch, the



feed roller is again driven to remove another sheet and send it rapidly to the belt.

3,545,743
APPARATUS FOR DRAWING IN TEMPLATES INTO A PROCESSING DEVICE, MORE PARTICULARLY FOR COPYING MACHINES AND THE LIKE
Walter Limberger, Hamburg-Poppenbuttel, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany
Filed April 12, 1968, Ser. No. 721,017
Claims priority, application Germany, April 20, 1967, L56303
Int. Cl. B65h *3/06, 9/06*
U.S. Cl. 271—53 **10 Claims**

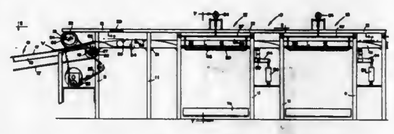


An improved apparatus for drawing templates and paper sheets into a processing device, particularly in copying and transfer printing, in synchronism with a sheet of paper triggering off a starting impulse at another point of the apparatus, using a transport means forming simultaneously a limit stop, at which a template, supplied by means of a feed roller, is retained for a certain period of time and where it forms a loop under the action of the continuing feeding action, until it is drawn into the apparatus by the transport means in synchronism with the sheet of paper.

3,545,744
VENEER GRADE LINE APPARATUS
Emil A. Herman, Star Rte., Box C 124, Westfir, Oregon
Filed Nov. 25, 1968, Ser. No. 778,694
Int. Cl. B65h *29/60*
U.S. Cl. 271—64 **7 Claims**

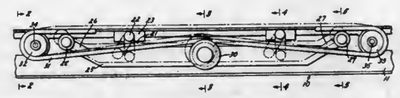
A sorting apparatus for flexible sheet material is disclosed embodying an elongate framework along which the sheets being sorted are consecutively moved by overlying slack belts. A first belt system as shown delivers sheets to said slack belts. Raisable diverter arms within a grading station selectively divert an oncoming sheet downwardly onto movable supports which receive and hold a quantity of like sheets of material for subsequent deposit onto a stack. The overlying belts are in frictional moving contact with the sheets both

during passage along the framework and throughout the downward diverting onto the supports. Control means are



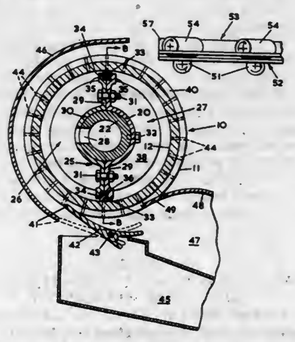
provided for automatic sheet diverting and for release of a quantity of sheets from said movable supports.

3,545,745
PAPER TRANSPORT FOR PHOTOCOPIES
David L. Herman, 63 Catherine Road, Scarsdale, New York
Filed Sept. 27, 1968, Ser. No. 763,241
Int. Cl. B65h *29/16*
U.S. Cl. 271—75 **1 Claim**



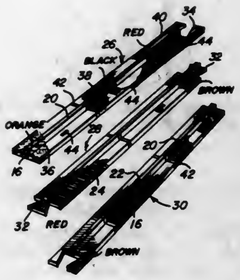
Paper transport means for use in conjunction with a photocopier for transporting sheets into and out of contact with a generally horizontally disposed surface serving as a focal plane, the surface having elongated openings, there being endless belts having continuous segments thereof disposed within said openings, and selectively projectible upwardly to engage the undersurface of a sheet of copy paper for transport thereof, said segments returning to a position within said slots at or slightly below the surface when movement of the paper has been completed.

3,545,746
DOCUMENT TRANSFER DEVICES
Howard Roberts Ledger, High Wycombe and Ronald Clayton, Stoke-on-Trent, England, assignors to English Electric Computers Limited, London, England a British Company
Filed June 12, 1968, Ser. No. 736,379
Claims priority, application Great Britain, June 15, 1967, 27760/67
Int. Cl. B65h *29/34, 29/38*
U.S. Cl. 271—83 **2 Claims**



A document transfer device suitable for changing the direction of travel of moving documents or for picking documents successively from a pile and dispatching them in a required direction. The device comprises a hollow cylindrical drum formed with holes communicating the drum interior with the cylindrical outside surface and, within the drum, a static partition which divides the interior of the drum into two pneumatically independent compartments. In operation, with the drum rotated and a reduced pressure applied to one of the compartments, a document presented to the drum above the evacuated compartment adheres to the drum and is carried round with it to a limited extent determined by the size of the evacuated compartment.

3,545,747
WALKING AND BALANCE TRAINING AID
Richard A. Thomas, Tallahassee, Florida (11302 SW 104 Ave., Miami, FL 33156)
Filed Jan. 30, 1968, Ser. No. 701,663
Int. Cl. A63b *1/02, 71/04*
U.S. Cl. 273—1 **4 Claims**



A walking and balancing training aid. Three elongate inverse T-shaped elements are placed on the ground in abutting longitudinal relationship. The abutting ends of the elements are connected by mortise and tenon joints. The elements are provided with colored zones numerically marked for score keeping to render the device amusing for rival participants.

3,545,748
ADJUSTABLE EXERCISE SLANT BOARD
Jack E. Delinger, 5255 College Ave., Oakland, California
Continuation-in-part of application Ser. No. 597,492, Nov. 28, 1966, now abandoned. This application May 21, 1969, Ser. No. 826,648
Int. Cl. A63b *23/02, 21/00*
U.S. Cl. 272—58 **10 Claims**

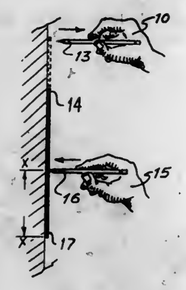


An exercise board adjustable to varying degrees of slant having a base, a support frame and a top board member in which the board is fixedly hinged to the base at one end and releasably fixedly hinged at the other end and the support frame is fixedly hinged at the other end to the base for 180° rotation. The support frame is provided for selectively elevating the board at varying positions and weights may be attached to the support frame to increase the resistance to rotational movement.

ERRATUM

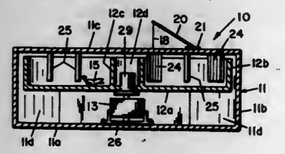
For Class 273—1 see:
Patent No. 3,545,747

3,545,749
REACTION MEASURING METHOD
Edgar Schmued, 5051 Palos Verdes Drive N., Rolling Hills Estates, California
Filed April 16, 1968, Ser. No. 721,652
Int. Cl. A61b 5/18
U.S. Cl. 273—1 4 Claims



A method wherein a portable scalelike instrument is suspended against a vertical surface by manual pressure applied thereto by a first person and suddenly released to fall freely down said surface and subsequently arrested by a second person and compressed against the vertical surface to measure the reacting time of the second person as indicated by the distance the instrument falls from the time of release by the first person to the time the second person is able to arrest and compress the instrument against the vertical surface.

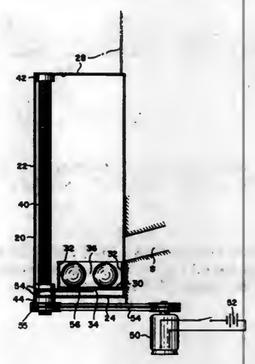
3,545,750
SIMULATED FISHING GAMES
John Joseph Stachnik, Sr, R.D. 1, Hallstead, Pennsylvania
Filed July 12, 1968, Ser. No. 744,463
Int. Cl. A63f 9/00
U.S. Cl. 273—1 5 Claims



A housing containing a rotatable receptacle with simulated fish therein, the housing having a top provided with openings through which access to the receptacle may be had. Agitating members depend from the top of the housing into the receptacle so as to shift the position of the fish as the receptacle rotates. Fishing poles are movably positioned on top of the housing and have lines insertable through the top openings into the receptacle for engaging and catching the fish.

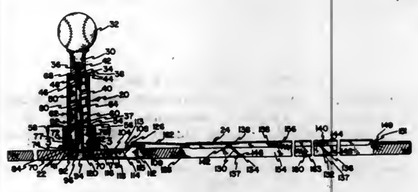
3,545,751
BALL HANDLING APPARATUS FOR BILLIARD AND POOL TABLES
Nicasio Hernandez Berrios, C/O Billares, Nicherber, Inc., Calle Marginal A-7 Forest Hills, Bayamon, Puerto Rico
Filed July 29, 1968, Ser. No. 748,290
Int. Cl. A63d 15/00
U.S. Cl. 273—11 1 Claim

A billiard or pool table having a downwardly inclined runway leading from each pocket and discharging into an open container which is attached to a nut on a screw shaft, which when rotated causes the container to move from a lower position where it receives balls from the runways to an upper

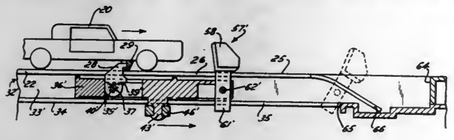


position adjacent the playing surface of the table from which balls can be easily replaced on the playing surface.

3,545,752
BATTING TRAINER APPARATUS AND METHOD
Max E. Hill, St. Paul; Dean A. Fjeldstad, Minneapolis and Jerome E. Schmitt, Northfield, Minnesota, assignors to Kilebrew Inc., Salt Lake City, Utah a corporation of Utah, by mesne assignments
Filed Sept. 4, 1968, Ser. No. 757,300
Int. Cl. A63b 69/40
U.S. Cl. 273—26 15 Claims

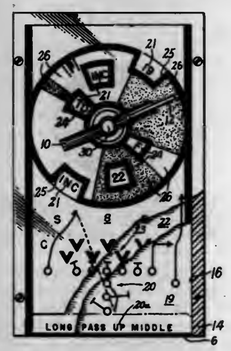


vehicle-driving member is located beneath, and moves along, each propulsion region in response to movement of a handle operated by a player. The driving member carries a means,



e.g., a pawl, for engaging and moving a vehicle on the track propulsion region. The driving member also carries a means, e.g., an abutment, for arresting or slowing the movement of a vehicle which moves on to the track propulsion region.

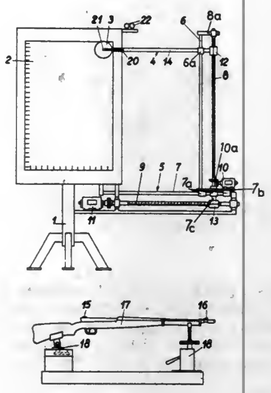
3,545,758
STRATEGY GAME DEVICE
Calvin L. Payne, Jr., Hastings-on-Hudson, New York, assignor to Tudor Metal Products Corporation, Brooklyn, New York a corporation of New York
Continuation-in-part of application Ser. No. 475,156, July 27, 1965, now Patent No. 3,399,893, dated Sept. 3, 1968. This application Aug. 30, 1968, Ser. No. 756,662
Int. Cl. A63f 7/06
U.S. Cl. 273—94 **1 Claim**



Game components which in combination are adapted to be used in the play of a simulated game of football and the like. The principal components comprise a housing block and transparent cover therefor with an arrow indicator mounted in the cover. In the preferred embodiment of the invention, football game strategy cards selected according to one's knowledge of offensive and defensive game strategy and tactics are disposed in a slot defined by the cover and housing. The offensive card contains indicia representing a play and possible outcomes. The defensive card is opaque and carries indicia representing a defense. The defensive card overlies the offensive card and has apertures selectively revealing a plurality of the offensive card outcome indicia. The two cards are placed in the housing block so that the revealed outcome indicia underlie the arrow indicator, which is spun to select a particular one of the revealed outcome indicia by chance.

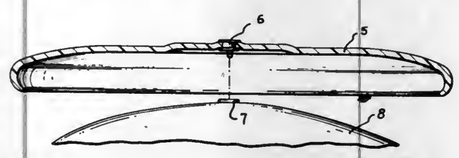
3,545,759
TARGET PRACTICE DEVICE
Arnold Stossl, Neustift Gasse, 131, Vienna and Josef Eichberger, Vosslauer Strasse 18, Baden, near Vienna, Austria; said Eichberger assignor to said Stossl
Filed June 10, 1968, Ser. No. 735,596
Claims priority, application Austria, June 20, 1967, A5,734/67
Int. Cl. A63f 9/02
U.S. Cl. 273—101.2 **4 Claims**

A target practice device is described for use in fixed aiming target practice, comprising a target disk movable in front of a target sheet and formed with a central opening for marking, a pair of rails extending perpendicular to each other, the target disk being movable on one rail, in one direction while the latter rail is movable with the target disk on the second rail in a perpendicular direction, and a remotely-controlled electric drive for moving each of the foregoing along its



respective rails, each drive including a screw shaft rotated in either direction by an electric motor and a nut connected to the assembly moved by its drive. Also described are means, e.g. the trigger of the rifle aiming device, for actuating a marking device, and means for automatically restoring the target disk to its initial position.

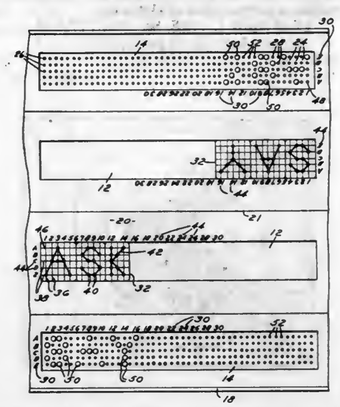
3,545,760
COMBINED CAP AND AERIAL PROJECTOR
Henry Allen Wilson, 4630 Leona St., Tampa, Florida
Filed Jan. 30, 1968, Ser. No. 701,597
Int. Cl. A63b 65/00
U.S. Cl. 273—106 **1 Claim**



An aerial projectory toy detachably connected to the top central portion of a child's cap of the beanie type to act as a head protecting crown portion. The connection is of an easily attachable and detachable type whereby the plastic disk-shaped aerial toy will reliably remain attached to the central area of the child's cap during play with the inwardly thickened perimeter always properly positioned to be readily grasped for hurling it.

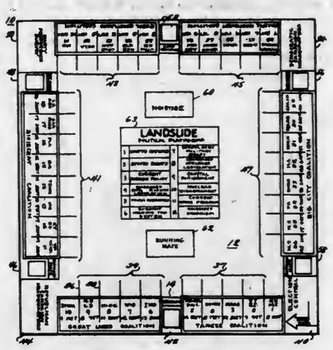
3,545,761
COORDINATE WORD GAME APPARATUS
Howard A. Brooks and Thaddeus B. Curtz, Ann Arbor, Michigan, assignors to KMS Industries, Inc., Ann Arbor, Michigan a corporation of Delaware
Filed Feb. 5, 1968, Ser. No. 703,129
Int. Cl. A63f 3/00
U.S. Cl. 273—130 **7 Claims**

A coordinate word game with a rectangular case with grids on a wall thereof having indicia of the ordinates and abscissae of the grids, a cover for the case with receptacles therein adapted to receive a plurality of plaques having grid segments with a letter superimposed thereon, the receptacles having indicia for the ordinates and abscissae of the plaques;



and a plurality of markers for indicating points of intersection of the ordinates and abscissae of the grids.

3,545,762
POLITICAL CAMPAIGN GAME APPARATUS
Robert H. Atkinson, Washington, District of Columbia (3220 Dunster Court, Cambridge Station Fairfax VA 22030)
Filed Jan. 8, 1968, Ser. No. 696,227
Int. Cl. A63f 3/02
U.S. Cl. 273—134 **13 Claims**

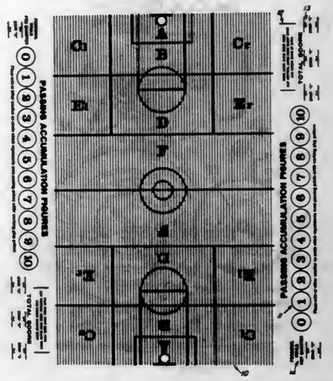


A political campaign game apparatus comprising a board having a main course marked thereon. The main course includes a plurality of spaces where some of the spaces correspond to voting units, such as one or more states of the United States of America. Further, the voting units are divided into groups or coalitions. A spinner is used to determine the number of spaces a player moves. When a player's piece moves to one of the voting units, he consults a vote calculator which indicates the percentage of the total unit vote which is won or lost in that voting unit as a result of a position that player took on a particular issue. Each voting unit space, in addition to containing indicia corresponding to the total unit vote, also contains indicia identifying the unit, which typically is a state of the United States; a number indicating the numerical order of the position of the unit with respect to other units on the main course; and a number indicating 10 percent of the electorate of the unit.

The main course of the game board also includes other spaces such as Decision and Running Mate spaces which respectively correspond to Decision and Running Mate cards

piled, face-downward, in the central portion of the game board. Upon landing upon such a space, a player must select one of these cards and follow the instructions thereon. A Party Preference Survey space is also provided to allow a player landing thereon to select a particular coalition favoring him.

3,545,763
BASKETBALL GAME
John R. Seitz, 915 Wheaton Drive, Lancaster, Pennsylvania
Filed April 4, 1967, Ser. No. 628,323
Int. Cl. A63f 3/02
U.S. Cl. 273—134 **9 Claims**



A simulated basketball game having a playing court with sections laid off; a gamepiece movable on the gameboard to represent the ball; cards representing opposing team players, each card having performance evaluations of the player and a group of entry numbers thereon opposite three sets of indicia; two dice; a finder chart having a column of numbers corresponding to the group of numbers on the cards and columns correlated thereto comprising indicia for determining which player and which team receives a rebound, jump ball or foul a number of charts (tables) for passing and dribbling plays having column headings designating areas of the court, an entry correlated column having numbers corresponding with numbers on the player's card and indicia in each column for determining the result of a play; and similar charts for fast break play and field goal shots.

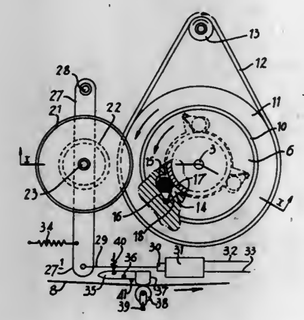
3,545,764
TRAINING DEVICE FOR GOLFERS
Thomas F. Broderick, 697 Cambridge St., Brighton, Boston, Massachusetts
Filed Jan. 13, 1969, Ser. No. 790,653
Int. Cl. A63b 69/36
U.S. Cl. 273—183 **3 Claims**



A golfer is compelled to hold his head properly by wearing a mask including two apertures through which his field of vision is restricted. A flexible cord has one of its ends secured

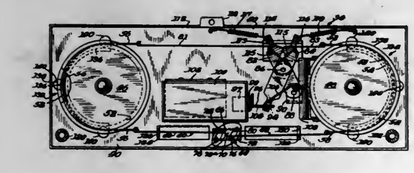
to the mask centrally of the apertures, while the other end of the cord is connected to a plumblike weight which is suspended below the mask in the golfer's restricted field of view while addressing a golf ball.

3,545,765
DEVICE FOR ENABLING THE DRIVING SPEED OF MAGNETIC TAPE TO BE INCREASED MOMENTS IN RECORDING AND PLAYBACK APPARATUSES
Marcel Jules Helene Staar, 479, avenue Louise, Brussels, Belgium
Filed March 22, 1968, Ser. No. 715,406
Claims priority, application Belgium, March 22, 1967, 695,955
Int. Cl. G11b *15/44*
U.S. Cl. 274—4 8 Claims



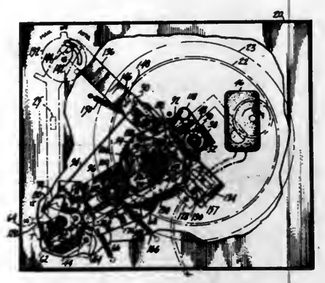
A magnetic tape recording and playback apparatus includes a capstan to engage a magnetic tape, a flywheel coaxial with the capstan and a one-way clutch between the capstan and the flywheel. The flywheel is driven by a belt connected to a motor and it normally drives the capstan through the clutch. The capstan can be driven at a higher speed than the flywheel, causing the clutch to disengage, by means of a stepped pulley which can be moved so that one step engages the belt around the edge of the flywheel and another step engages a driving wheel fixed to the capstan.

3,545,766
TAPE RECORDER CONTROLS
Lloyd Osborn, Stevensville, Michigan, assignor to V-M Corporation, Benton Harbor, Michigan a corporation of Michigan
Filed July 26, 1967, Ser. No. 656,206
Int. Cl. G11b *15/22*
U.S. Cl. 274—4 19 Claims



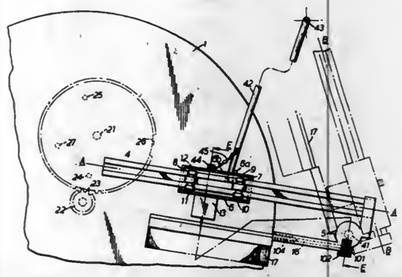
A tape recording and/or playing machine having a reel, driving means and braking means for the reel, a play-record head, and driving means for the tape together with mechanism and switching means for timely relating the initiation of movement of the reel, the play-record head and the tape driving means with the release of braking means for the reel, for assuring that in transferring from one mode of operation to another the reel will be stopped between said modes before the succeeding mode can be made effective.

3,545,767
AUTOMATIC RECORD CHANGER
John A. Tourtellot, Indianapolis, Indiana, assignor to RCA Corporation, a corporation of Delaware
Filed April 1, 1968, Ser. No. 717,614
Int. Cl. G11b *17/00*
U.S. Cl. 274—10 4 Claims



A simplified phonograph record changer mechanism is provided wherein after the last record has been played, the changer's reciprocating cycling slide is caused to be shifted sideways and coact with means operable to effect power shutoff.

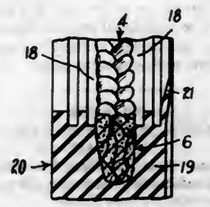
3,545,768
RECORD PLAYERS
Henry James Fortune, Swindon, England, assignor to The Plessey Company Limited, Ilford, England a British Company
Filed Dec. 16, 1968, Ser. No. 783,814
Claims priority, application Great Britain, Dec. 22, 1967, 58,386/67
Int. Cl. G11b *3/58*
U.S. Cl. 274—47 6 Claims



A record cleaning brush for an automatic changer includes means for moving a brush or pad from the position clear of the turntable to a position where it extends across the playing surface. The brush can be moved into cleaning engagement with the playing surface by a downward movement and preferably is moved away again before playing of the record takes place.

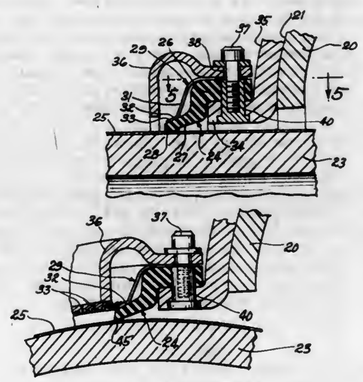
The cleaning operation takes place in about three revolutions of the turntable and a dwell is introduced into the normal record changing sequence to enable cleaning to take place under full power and without speeding up the other operations of the changing cycle. The sequence of operations is accomplished by the use of two gapped cam gears driven from a single turntable pinion, the normal cam gear having an extra gap so that it is arrested during rotation of the other cam gear for brush operation, after which the brush operating cam gear sets the normal cam gear in motion again to complete the record changing cycle.

3,545,769
OIL SEAL FOR JOURNAL BEARINGS
Frederick L. Berridge, Montreal, Quebec, Canada, assignor to Joseph Robb & Company Limited, Montreal, Quebec, Canada
Filed April 5, 1967, Ser. No. 628,692
Int. Cl. F16j *15/16*
U.S. Cl. 277—131 1 Claim



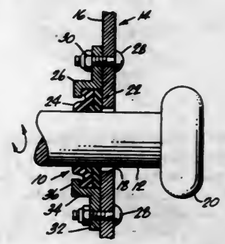
An oil and dust guard seal for railroad car journal boxes comprising a body member formed of an elastomeric material having an aperture through which the car journal passes and a tightly braided annular insert, which has first been coated on three sides with a vulcanizable material, is moulded integral with the body member so that the uncoated surface of the annular insert projects radially inwards from the peripheral surface of the aperture in the body member to provide an oil-absorbent journal sealing surface.

3,545,770
SEAL FOR GUN PORT
Edward A. Wheelock, Lake Zurich, Illinois, assignor to Crane Packing Company, Morton Grove, Illinois a corporation of Illinois
Filed July 21, 1967, Ser. No. 655,052
Int. Cl. F16k *41/00*
U.S. Cl. 277—152 5 Claims



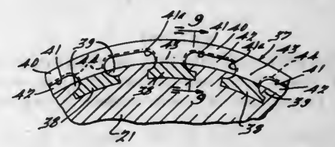
An endless lip seal of molybdenum disulphide filled polyurethane attached to the continuous edge of a gun port in a gun turret and pressed by finger springs upon a molybdenum disulphide filled polytetrafluoroethylene sheet secured to the gun shield. The lip cross section varies in accordance with the direction of relative movement between the lip and the sheet against which it bears to avoid grooving the sheet.

3,545,771
FLUID SEAL HAVING CONJUGATE SPLIT ELEMENTS
James W. Downing, Buena Park and Teunes Verhoeven, Lakewood, California, assignors to McDonnell Douglas Corporation, a corporation of Maryland
Filed Dec. 4, 1968, Ser. No. 781,054
Int. Cl. F16j *15/00, 9/16*
U.S. Cl. 277—187 2 Claims



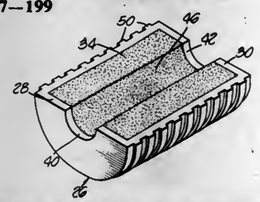
An easily installable and removable seal for precluding leakage of fluid through the clearance space between a shaft and a panel opening through which the shaft extends. The seal includes a split, ring-shaped, base element fitted on the shaft and positioned axially against the panel about the opening, a conjugate split, ring-shaped, cover element fitted on the shaft and nested axially against the base element, and a disk-shaped bracket secured to the panel about the shaft for applying axial pressure to the peripheral portions of the nested seal elements and retaining the same continuously in proper sealing position.

3,545,772
ANNULAR PISTON RING BEARING MEANS
Fred Zollner, Fort Wayne, Indiana, assignor to Zollner Corporation, Ft Wayne, Indiana a corporation of Indiana
Continuation of application Ser. No. 258,421, Feb. 14, 1963, now abandoned, which is a continuation-in-part of application Ser. No. 768,950, Oct. 22, 1958, now abandoned. This application Nov. 1, 1968, Ser. No. 775,992
Int. Cl. F16j *9/22, 9/00*
U.S. Cl. 277—189.5 6 Claims



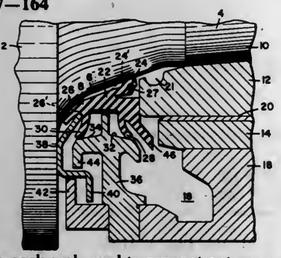
An engine piston having a piston head formed with an annular groove receiving a piston ring. A bearing member is embedded in the piston head and extends continuously around the head at one of the piston ring groove surfaces and is provided with inwardly extending interlocking portions adapted to hold the bearing member in the piston head. The bearing member is formed so as to be sufficiently yieldable to respond to the expansion and contraction of the piston head consequent to changes in length of the bearing member as measured in the circumferential direction of this member. Preferably said interlocking portions of the bearing member are annularly spaced apart within the ring groove a different amount than the annular spacing of the portions of the piston head disposed therebetween.

3,545,773
END SEAL FOR SPLICE CASE
Stephen J. Smith, Woodland Hills, California, assignor to Smith-Schreyer & Assoc., Inc., a corporation of California
Filed Jan. 23, 1969, Ser. No. 793,319
Int. Cl. F16k *41/00*
U.S. Cl. 277—199 **5 Claims**



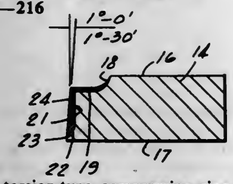
An end seal for a splice case for protecting cable in which an end piece comprising a shell of rigid plastic filled with foamed plastic material has a channel cut therethrough for receiving a cable. The channel is covered with a strip of sealing material, the cable laid in place, the cable covered with a second strip of sealing material, and a mating end piece positioned over the cable.

3,545,774
NECK SEAL WITH EXTERNAL REINFORCING BAND BONDED IN POSITION
Samuel S. Rickley, West Boylston, Massachusetts, assignor to Morgan Construction Company, Worcester, Massachusetts a corporation of Massachusetts
Filed April 1, 1968, Ser. No. 717,679
Int. Cl. F16j *15/32*
U.S. Cl. 277—164 **4 Claims**



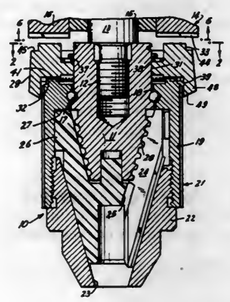
A flexible neck seal, used to prevent entrance of water and scale to the lubrication areas of a rotating element, is reinforced externally by a circumferential steel band to prevent stretching of the seal under operative conditions. The band is affixed permanently to the seal through the use of self-setting resins.

3,545,775
PISTON RING AND METHOD OF MAKING SAME
Herbert F. Prasse, Town and Country, Missouri, assignor to Ramsey Corporation, St. Louis, Missouri a corporation of Ohio
Original application Dec. 8, 1965, Ser. No. 512,347, now Patent No. 3,421,198, dated Jan. 14, 1969, which is a continuation of application Ser. No. 371,231, May 29, 1964, now Patent No. 3,337,938, dated Aug. 29, 1967. Divided and this application July 24, 1967, Ser. No. 667,874
Int. Cl. F16j *9/00*
U.S. Cl. 277—216 **1 Claim**



A unitary torsion-type compression ring in the form of a split annulus of a foundation metal having parallel upper and lower annular planar surfaces with a stepped peripheral edge profile therebetween, the peripheral edge profile including a fillet intersecting the upper planar surface and terminating in a substantially planar annular radially extending surface intermediate said upper and lower annular planar surfaces, a peripheral wall portion extending from said intermediate planar annular surface toward but short of the lower annular planar surface to leave exposed an annular flange portion adjacent the lower annular planar surface, and a coating of a wear-resistant metal over said peripheral wall portion so arranged and contoured as to provide a ring of unbalanced cross section with a peripheral annular flange portion of the foundation metal projecting radially outwardly of the exposed surface of the wear-resistant metal.

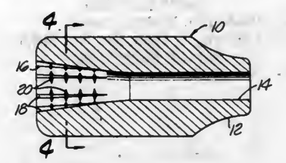
3,545,776
COMBINED CHUCK SPINDLE AND CHUCK LOCKING COLLAR
Girard S. Haviland, West Hartford, Connecticut, assignor to The Jacobs Manufacturing Company, West Hartford, Connecticut a corporation of New Jersey
Filed June 18, 1968, Ser. No. 738,020
Int. Cl. B23b *31/06*
U.S. Cl. 279—63 **6 Claims**



A portable power drill having a driving spindle carrying a keyless slidable jaw chuck provided with a jaw-actuating unit which is selectively rotatable while the spindle is held stationary to adjust a set of jaws to open or closed condition. A locking collar limited to axial sliding movement along the body of the chuck and restrained against relative rotation has a spring biased normal position locking the jaw-actuating unit against rotation in a reverse direction relative to the chuck body so as to prevent loosening of the jaws during reverse operation or reverse actions of the chuck, but allowing rotation of the unit in a positive direction for maintaining the tightness of the jaws during operation of the tool. The collar has a manually moved position against the spring bias free of the unit, in which position the collar is in locking relation with the casing of the tool preventing rotation of the driving spindle. The extent of the movement required to shift the collar from one locking position to the other is limited so that it can be effected with one hand and while the hand remains in full gripping relation with the jaw-actuating unit.

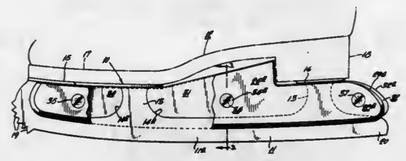
3,545,777
RAPID-CHANGE CHUCK OR TOOL HOLDER
Max Friedheim, 8652 Le Berthon, Los Angeles, California
Filed Feb. 9, 1968, Ser. No. 704,409
Int. Cl. B25g *3/30*
U.S. Cl. 279—99 **2 Claims**

The invention is a rapid-change or universal chuck or tool holder adapted for use on spindles of motors for holding tools, such as buffing tools or dental brushes, and the like. The device may be referred to as a chuck or a chuck adapter. It is made of a soft material, such as aluminum. It has an axial bore which is tapered at one end. In one end of this bore is fitted the hardened steel chuck or spindle on which the tool is attached, such as by threading. The other end of the bore is tapered and is provided with equiangularly spaced axial grooves or notches, and also a plurality of interrupted circumferential notches or grooves that intersect the axial grooves at axially spaced intervals. This makes it possible to



fit the chuck or adapter onto a threaded spindle and to cut threads into the tapered bore of the chuck so that it is held on to the threaded spindle or shaft. This makes it easy to remove and attach the chuck or adapter and it is adapted for use on different size threaded spindles, including tapered spindles.

3,545,778
SAFETY AND DECORATIVE COVER FOR ICE SKATES
Russell A. Weidenbacker, 32 S. Wyoming Ave., Box 153, Haverford, Pennsylvania
Filed May 5, 1969, Ser. No. 821,883
Int. Cl. A63c *3/00*
U.S. Cl. 280—11.12 **17 Claims**



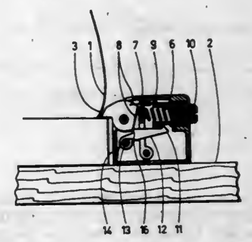
A decorative safety cover is provided to span the apertures between the runner and the shoe of a figure skate to prevent a skater from inadvertently inserting the runner of one skate in the apertures of the other skate while skating. In addition, the cover has a downwardly and rearwardly sloping portion which overlies the runner extension below the heel of the shoe to prevent the skater from inadvertently stepping thereon and possibly falling while skating. If desired, the cover may carry decorative matter such as bright metal to provide a unique and pleasing appearance for the skate.

3,545,779
WHEELED SKI
Thomas S. Simms, 7715 Trailwind Drive, Cincinnati, Ohio
Filed May 10, 1968, Ser. No. 728,134
Int. Cl. A63c *17/04*
U.S. Cl. 280—11.28 **13 Claims**



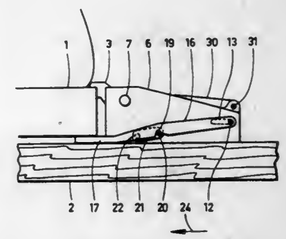
A wheeled ski including an elongated frame carrying a front wheeled truck and a rear wheeled truck; each of the wheeled trucks includes a first axle carrying a pair of spaced-apart wheels thereon and a second axle supporting a roller thereon between the wheels, the first and second axles being mounted for turning movement with respect to the truck when the frame is tilted; and a safety boot binding mounted on the frame.

3,545,780
SAFETY BOOT HEEL CLAMP FOR SKIS
Georges P. J. Salomon, 34 de Loverchy Ave., Haute-Savoie, Annecy, France
Filed April 25, 1968, Ser. No. 724,000
Claims priority, application France, May 3, 1967, 105,234; Jan. 10, 1968, 135,564
Int. Cl. A63c *9/084*
U.S. Cl. 280—11.35 **11 Claims**



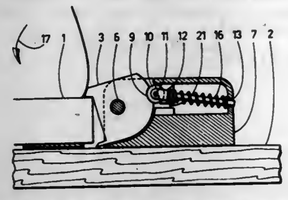
This invention concerns a safety boot heel clamp for skis having a heel retaining jaw and comprising one or more organs, of which at least one element in contact with the boot heel and with an elastic means put under tension when the boot is clamped and maintained in tension by the presence of the boot heel, is released by the removal of the boot heel which has not caused the safety opening of the jaw, this release causing the retraction of a reaction piece of the jaw safety locking mechanism enabling said jaw to automatically take an open position.

3,545,781
SAFETY BOOT HEEL CLAMP FOR SKIS WITH RELEASE AND RECOCKING MEANS
Georges P. J. Salomon, 34 de Loverchy Ave., Haute-Savoie, Annecy, France
Filed May 27, 1968, Ser. No. 732,277
Claims priority, application France, June 2, 1967, PV 108,953; Sept. 27, 1967, PV 122,488
Int. Cl. A63c *9/084*
U.S. Cl. 280—11.35 **10 Claims**



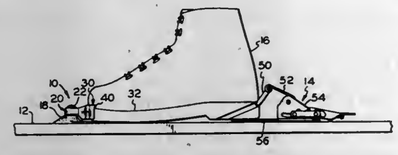
A safety boot heel clamp for skis provided with means to easily release the clamp and second means to automatically recock the clamp by simple downward pressure exerted by the boot heel.

3,545,782
CLAMPING DEVICE FOR SAFETY SKI HARNESS
Georges P. J. Salomon, 34 de Loverchy Ave., Haute-Savoie, Annecy, France
Filed July 15, 1968, Ser. No. 744,758
Claims priority, application France, July 21, 1967, Aug. 21, 1967, 115,296;118,500
Int. Cl. A63c *9/084*
U.S. Cl. 280—11.35 **11 Claims**



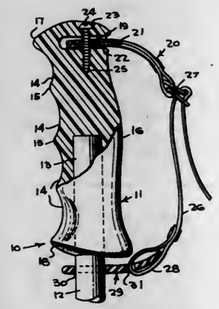
A clamp for use on a safety ski harness wherein the clamp has a free motion or play before disengaging the ski boot so that normal raising and lowering of the ski boot can take place without disengaging the safety clamp.

3,545,783
SELF-COMPENSATING TOΣ BINDING
Hjalmar Hvam, Rte 1, Box 404, Beaverton, Oregon
Filed Oct. 24, 1968, Ser. No. 770,350
Int. Cl. A63c *9/085*
U.S. Cl. 280—11.35 **7 Claims**



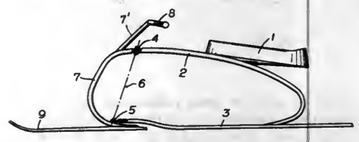
A sole-engaging cup pivotal on a base has gripping ribs for engaging the end of the sole of a ski boot and having upper, wedging portions which wedge the toe end of the sole downwardly against the ski. The wedging portions are adapted to press soles of a wide range of thicknesses against the ski merely by pushing the boot forwardly into tight engagement with the cup.

3,545,784
SKI POLE GRIP
Ivor John Allsop, P.O. Box 23, Bellingham, Washington
Filed June 27, 1968, Ser. No. 740,745
Int. Cl. A63c *11/22*
U.S. Cl. 280—11.37 **3 Claims**



A ski pole grip wherein there is provided a handle which is connected to an end of a pole, and wherein there is provided an adjustable strap which is adapted to surround or engage a portion of the user's hand rather than the wrist, and wherein the adjustable strap is connected to the ski pole by means of an adapter.

3,545,785
SNOW RUNNER
Erich Brenter, Haide 163, Hallein, Austria
Filed March 21, 1968, Ser. No. 714,910
Int. Cl. B62b *13/04*
U.S. Cl. 280—16 **7 Claims**



Snow-running vehicle with a supporting rear ski carrying a seat and with a dirigible front ski connected to a steering post, the rear ski being part of a looped frame lying in a vertical plane, the front ski being resiliently mounted for swinging in a vertical plane by elastic means which may also serve to bias the front ski into alinement with the rear ski.

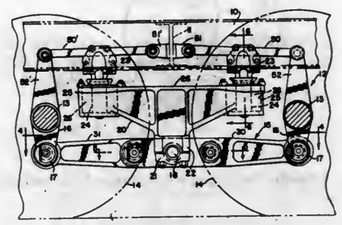
3,545,786
CART WITH ADJUSTABLE HANDLE
Stanley W. Yoder, 4805 Crestwood Drive, Little Rock, Arkansas
Filed Aug. 7, 1968, Ser. No. 750,948
Int. Cl. B62b *1/02*
U.S. Cl. 280—47.24 **5 Claims**

A two-wheeled carriage and storage cart for outboard motors and the like having a tubular upright frame with a forwardly extending base portion, and an outboard motor mount attached to the upright frame. The cart has an adjustable pivotally mounted handle attached to the upper portion of the upright frame by a cam lock comprising two opposing crown collars, connected by an axial fastener, and which cooperate with an eccentric clamping lever and a spring for moving the collars into and out of engagement.

3,545,787
VEHICLE SUSPENSION
Ronald Earl Miller, Rockford, Illinois, assignor to Hendrickson Mfg. Co., Lyons, Illinois a corporation of Illinois
Filed July 1, 1968, Ser. No. 741,641
Int. Cl. B60g *19/00*
U.S. Cl. 280—104.5 **7 Claims**

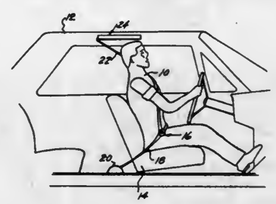
A tandem axle suspension system for road vehicles such as heavy-duty trucks, trailers, and the like, which is characterized by a pair of longitudinally extending load equalizing beams connecting the ends of the axle assemblies on opposite

sides of the vehicle and pivotally mounted on saddle assemblies which are resiliently connected in depending relation with side frame members on the vehicle chassis and the



equalizing beams each being formed in two sections with telescoping portions connected by resilient bushings on opposite sides of the pivotal connection with the respective saddle assembly.

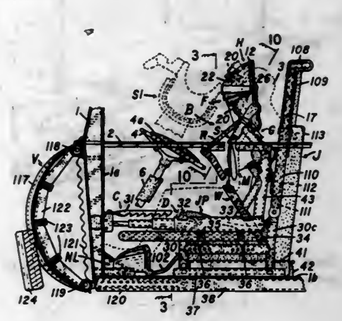
3,545,788
OVERHEAD MOUNTED BELT RETRACTOR WITH LATCH MEANS
Frederick A. Brawner, Detroit and William L. Pringle, Grosse Pointe, Michigan, assignors to Jim Robbins Seat Belt Co., Troy, Michigan
Filed Nov. 13, 1967, Ser. No. 682,428
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 **5 Claims**



An overhead retractor for a vehicle shoulder belt having a spring-loaded latch preventing the belt's retraction when it is fully extended from the retractor. A manually operated button permits the operator to deliberately release the belt for retraction when it is not employed as a body restraining element.

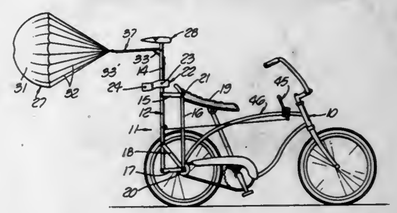
3,545,789
VEHICLE OCCUPANT SAFETY BARRIER
Phillip Graham, 2825 Glenmore Ave., Pittsburgh, Pennsylvania
Continuation-in-part of application Ser. No. 549,835, May 13, 1966, now Patent No. 3,392,989, which is a continuation-in-part of application Ser. No. 462,993, June 10, 1965, now Patent No. 3,262,716, which is a continuation-in-part of application Ser. No. 355,568, March 30, 1964, now abandoned , which is a division of application Ser. No. 97,658, March 22, 1961, now Patent No. 3,129,017, which is a continuation-in-part of application Ser. No. 662,700, May 31, 1957, now Patent No. 2,977,135. This application March 4, 1968, Ser. No. 709,999
Int. Cl. B60r *21/00*
U.S. Cl. 280—150 **47 Claims**

This invention pertains to a cushioning barrier that has shielding mounted closely in front of an operator or a passenger of an automobile or the like, to furnish a high degree of cushioning to the occupant when momentum forces him against the barrier during an accident. The barrier includes head and chest shields that can be folded and be moved laterally and downwardly to inconspicuous positions against a door, so they cannot obscure or obstruct the occupant while



they are retracted. The head and chest shields can be triggered to quickly move them into protective positions in front of the occupant when a dangerous highway condition develops.

3,545,790
DRAG CHUTE FOR LAND VEHICLES
Glenn G. Davis and Robert W. Dahlin, Palm Springs, California, assignors to Morris Lavine, Los Angeles, California a part interest
Filed March 19, 1968, Ser. No. 714,308
Int. Cl. B62j *27/00*
U.S. Cl. 280—289 **11 Claims**

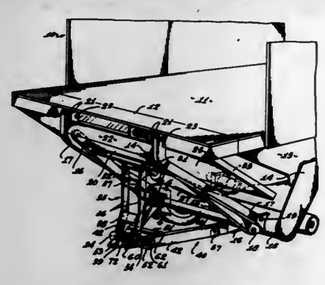


The invention includes a device for tethering a parachute to the rear of a bicycle. The device is releasable and adapted to hold the parachute in folds and then to throw the parachute up into the air when released. An airfoil is also provided to keep the parachute in a stable position when it is filled with air.

3,545,791
COLLAPSIBLE TRAILER HITCH FOR TRUCK LOADERS
Max J. Lugash, Los Angeles, California, assignor to Maxon Industries, Inc., Los Angeles, California
Filed March 10, 1969, Ser. No. 805,781
Int. Cl. B60d *1/06*
U.S. Cl. 280—491 **7 Claims**

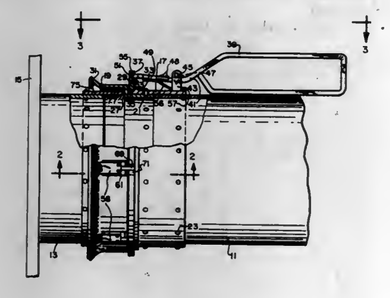
A collapsible trailer hitch attachment for truck power loaders of the type in which a load platform is mounted on the swingable rear end of a lifting arm framework that, in turn, is pivotally connected at its forward end to a supporting frame, the lifting arm framework at opposite ends pivotally mounting a pair of oppositely swingable trailer hitch members which may alternatively be disposed generally within the plane of the lifting arm framework or projecting downwardly

and rearwardly from the lifting arm framework, the members in lowered condition being coupled together and at the junc-



ture of their coupled ends mounting a ball hitch to receive the ball socket of a trailer tow bar.

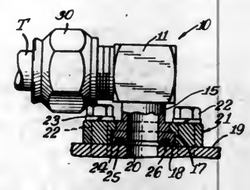
3,545,792
DUCT COUPLING FOR SINGLE-HANDED OPERATION
William N. Myers, Huntsville, Ala., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 5, 1969, Ser. No. 830,715
Int. Cl. F16l *37/10*
U.S. Cl. 285—38 **6 Claims**



A quick disconnect coupling for a pair of duct sections which coupling may be operated with the use of one hand. A first duct section carries spring-urged latches that engage a second duct section. The latches are spring-biased toward the locking position and are moved to the unlocking position by the rotation of a ring rotatably mounted on the first duct section. The ring is rotated by manipulation of a handle that is associated with the ring and the first duct section.

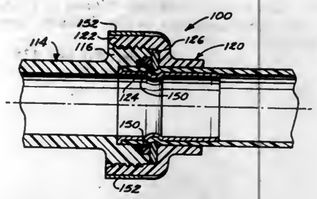
3,545,793
FLANGE BREAKAWAY FITTING
Thomas F. Graffy, Chicago, Ill., assignor to I-T-E Imperial Corporation, a corporation of Delaware
Filed June 20, 1968, Ser. No. 738,712
Int. Cl. F16l *27/00*
U.S. Cl. 285—158 **1 Claim**

A hydraulic flange fitting for connection of a duct such as a tube, pipe or hose to a port. The flanged connection permits swivel adjustability of the fitting relative to the port. The body of the fitting is provided with one or more connectors for providing a breakaway connection of the duct thereto. The breakaway connection may comprise a threaded reusable connection, abrazed seal connection, and the like. The threaded connection may comprise a constrictible sleeve



connector wherein the sleeve is permanently associated with the duct end.

3,545,794
COMPRESSION JOINT
Eugene H. Wise, Saugus and Jon J. McDowell, North Hollywood, Calif., assignors to R. & G. Sloane Manufacturing Company, Inc., a corporation of Delaware. by mesne assignment
Filed May 6, 1969, Ser. No. 822,274
Int. Cl. F16l *33/22*
U.S. Cl. 285—248 **8 Claims**



A compression joint for flexible tubing, comprising a female coupling having an end counterbore in which the flexible tubing is received, and a packing nut surrounding the flexible tubing and being threadably secured to the female coupling. An annular sealing member is disposed between the female coupling and the flexible tubing, and a deformable locking ring is positioned adjacent the sealing member between the female coupling and the packing nut. An insert having an annular recess is positioned within the end of the flexible tubing adjacent the female coupling. When the packing nut is threaded onto the female coupling, the locking ring is pressed against the annular sealing member to provide a seal between the female coupling and the flexible tubing, and the flexible tubing is deformed by the locking ring into the recess in the insert to firmly retain the flexible tubing within the female coupling and the packing nut.

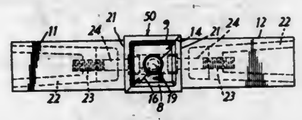
3,545,795
JOINT
Heinrich Hertel, Tannenbergalle 36, Berlin, and Olaf Volkersen, Oberneulander Landstr. 44, Bremen, Germany; said Volkersen assignor to said Hertel
Filed Jan. 7, 1969, Ser. No. 789,561
Int. Cl. F16b *5/00*
U.S. Cl. 287—20.92 **10 Claims**



A joint between two overlapping plate-shaped structural elements. The structural elements have portions which overlap one another and a layer of adhesive material is located between the overlapping portions bonding the same together.

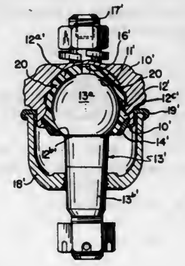
The layer of adhesive material has two marginal zones each extending along one edge of the overlap and at least one of these marginal zones has a thickness which is greater than the thickness of the major zone of the adhesive layer intermediate the marginal zones.

3,545,796
FRAMEWORK CONSTRUCTION CONNECTOR
John William Nicholls, 9, Denbigh Road, Ealing, London, W. 13, England
Filed Jan. 22, 1969, Ser. No. 797,721
Int. Cl. F16b *2/04*
U.S. Cl. 287—54 **11 Claims**



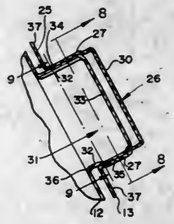
A joint for making frameworks comprises a cubic or rectangular block divided diagonally each having a projecting spigot member so that the two spigot members together form a spigot which can engage in a tube. A wedge block can urge the two half spigots apart into tight engagement with the tube. The half blocks have integral connecting means whereby they can be fixed together directly or by a connecting member.

3,545,797
BALL JOINT WITH PLASTIC SEAT
Allan J. Korecky, Cleveland, Ohio, assignor to Barmatic Machines, Inc., Cleveland, Ohio a corporation of Ohio
Filed Aug. 22, 1968, Ser. No. 754,609
Int. Cl. F16c *11/06*
U.S. Cl. 287—87 **4 Claims**



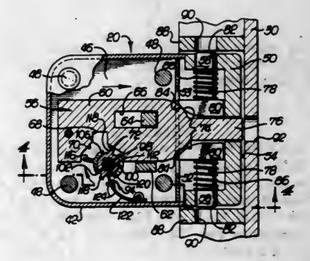
A ball joint assembly includes a socket having an open end and a substantially hemispherical recess in which is seated the generally hemispherical head of a stud mounted for rotational and pivotal movement relative to the socket. A synthetic resin seat is provided between the stud head and the socket. This seat has a generally hemispherical portion snugly fitting the head of the stud and a generally cylindrical skirt portion extending generally tangentially away from the hemispherical portion before the parts are assembled. The seat has an annular bead extending radially outwardly from the seat where the hemispherical portion joins the skirt portion. When the parts are assembled, the head of the stud is placed inside the hemispherical portion of the seat which in turn is fitted into the hemispherical recess in the socket. The shank of the stud extends out the open end of the socket. An annular seat retaining ring of generally segmental spherical shape embraces the skirt portion of the seat around the outwardly extending shank of the stud and this ring is tightly pressed against the seat holding it firmly against the spherical head and compressing the skirt inwardly against the head and held in place by peening over the socket member around the upper edge of the retaining ring. Preferably, the retaining ring has an outwardly flared upper edge which fits snugly against the bead of the seat.

3,545,798
ANIMAL-SHAPED TOY HAVING READILY DISASSEMBLEABLE PARTS
James B. Swett, Barrington, R.I. and William R. Kershaw, Brookfield, Mass., assignors to Dart Industries Inc., a corporation of Delaware
Filed Nov. 10, 1966, Ser. No. 593,407
Int. Cl. F16b *7/00*
U.S. Cl. 287—119 **3 Claims**



An interlock comprising a projection engaged in a depression. The projection having ribs interlocked behind the stiffened upper entrance periphery of the depression. The interlock is particularly suited for a construction set having readily engageable and separable members.

3,545,799
MULTIPLE BOLT MECHANISM
Abraham Gertsfeld, 744 Beacon Ave. apt. 518, Los Angeles, California
Continuation-in-part of application Ser. No. 727,478, May 8, 1968, now abandoned. This application Dec. 1, 1969, Ser. No. 881,091
Int. Cl. E05b *1/06*
U.S. Cl. 292—34 **7 Claims**

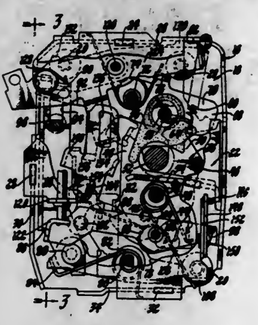


A multiple lock mechanism including a plurality of cam actuated bolt members. The bolts are adapted for simultaneous movement to a locking or unlocking position. The simultaneous movement of the respective bolt members is accomplished through a single actuating sliding cam. Additionally, retaining means are provided to prevent disengagement of the bolt members when in a locked position.

3,545,800
CLOSURE LATCH
Alfonsas Arlauskas, Livonia and Wieslaw S. Zaydel, Hamtramck, Mich., assignors to General Motors Corporation, Detroit, Mich. a corporation of Delaware
Filed May 6, 1968, Ser. No. 726,973
Int. Cl. E05c *3/06*
U.S. Cl. 292—216 **7 Claims**

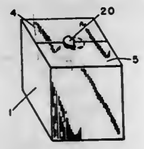
A door lock includes a main frame mounting an inverted fork bolt, main and secondary detents and a transfer link interconnecting the detents. The auxiliary frame mounts the

outside operating member which is pivoted to an intermittent member slidably connected to a locking lever. The outside operating member is connected to both the outside handle and inside handle. The main detent is engageable with the



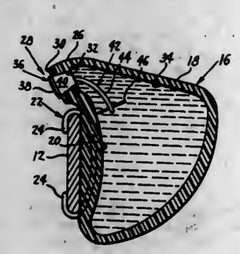
leading or outboard leg of the bolt while the secondary detent is engageable with a bolt shoulder located on the body of the bolt generally diametrically opposite the shoulder on the leading leg engaged by the main detent.

3,545,801
BOX CLOSURE FASTENING
John G. Barsness, 2121 Van Hise Ave., Madison, Wisconsin
Filed Sept. 9, 1968, Ser. No. 758,341
Int. Cl. B65d *45/00*; E65c *19/18*; A44b *21/00*
U.S. Cl. 292—288 **5 Claims**



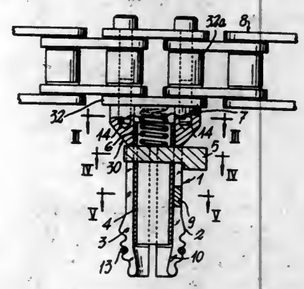
Fastening means at substantially the center of a cardboard of corrugated board box grasps two or preferably four flaps and holds them closed.

3,545,802
LIQUID SHOCK ABSORBING BUFFER
John W. Rich, Sacramento, Calif., assignor to John Rich Enterprises, Inc., Dover, Del. a corporation of Delaware
Continuation-in-part of application Ser. No. 420,314, Dec. 22, 1964, now Patent No. 3,284,122, dated Nov. 8, 1966. This application Feb. 24, 1966, Ser. No. 529,738
Int. Cl. B60r *19/02*; B61f *19/04*; F16f *9/10*
U.S. Cl. 293—1 **10 Claims**



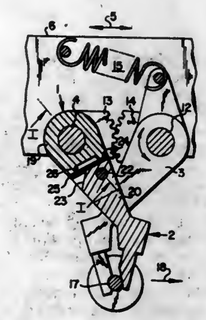
A deformable opening and a commensurately deformable closure plug for reception therein for a liquid filled shock absorbing buffer of the bumper type for automobiles which will permit the closure plug to be removed from the opening even though both are deformed by an impact is disclosed.

3,545,803
SUPPORTING DEVICE FOR AEROSOL BOMBS OR SIMILAR CONTAINERS
Tomaso Ruscitti, Via Amedeo d'Aosta, 11, Milan, Italy
Filed July 26, 1968, Ser. No. 748,015
Claims priority, application Italy, Aug. 2, 1967, 19124A/67
Int. Cl. B66c *1/00*
U.S. Cl. 294—94 **2 Claims**



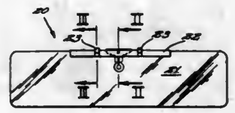
A container-supporting apparatus capable of holding a container at an upper portion thereof so that the remainder of the container can be introduced into a medium such as a liquid while the container is supported at its upper part. The apparatus has arms which can be spread apart to engage the container, and the spreading of these arms is brought about by way of a tube which has a transverse member extending across and transversely beyond the tube to engage controls. A spring is compressed between this transverse member and an abutment of a body from which the arms extend so as to act through the transverse member on the tube to urge the latter in the direction tending to spread the arms apart to a container-supporting position.

3,545,804
TRANSPORTING TONGS
Hans Richner, Basel, Switzerland, assignor to F. B. Hatebur A. G., Basel, Switzerland
Filed Dec. 23, 1968, Ser. No. 786,310
Claims priority, application Netherlands, Dec. 29, 1967, 6717821
Int. Cl. B66c *1/42*
U.S. Cl. 294—116 **3 Claims**



This invention relates to transporting tongs for transporting workpieces during the shaping thereof. The tongs comprise two pivotally connected tong arms, at least one of which is adapted to be opened and closed periodically. Further, one of the tong arms is subdivided into two portions, the two portions being pivotally interconnected. At the interconnection of these two portions there is arranged an elastic element. Thus with such an arrangement if the tong arms collide with an obstacle during the transporting of a workpiece, the interconnected arm portions allow the tong arms to be deflected out of the path of the obstacle. When the tongs have passed the obstacle the elastic member will permit the tong arms to return to their former position.

3,545,805
AUXILIARY SUN VISOR
Lorenzo D. Wilson, P.O. Box 121, RFD 1, Necedah, Wisconsin
Filed Dec. 13, 1968, Ser. No. 783,661
Int. Cl. B60j *3/02*
U.S. Cl. 296—97 **10 Claims**



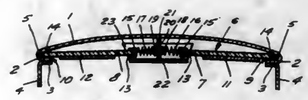
An auxiliary visor for use with either or both of two main visors at a vehicle windshield or with a front side window of the vehicle. The auxiliary visor comprises a transparent colored sheet, a supporting strip therefor, two clips on one side of the strip, and a strong T-shaped spring clamp pivoted on the other side thereof. The spring clamp supports the auxiliary visor in operative depending position on one main visor, and when rotated 180°, supports the auxiliary visor in inoperative overlying position on the main visor. The auxiliary visor has another operative position in which it bridges the space between the main visors and is supported by engagement of the clips with a rearview mirror. The auxiliary visor has still another operative position in which it overlies the upper portion of the front side window and is supported by engagement of the clips with the upper edge of the side window.

3,545,806
ELECTRIC CURRENT SUPPLY SYSTEMS
Pierre Ventre, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France and Automobiles Peugot, Paris, France
Filed March 1, 1968, Ser. No. 709,725
Claims priority, application France, April 5, 1967, 101645
Int. Cl. B60j *7/02*
U.S. Cl. 296—137 **4 Claims**



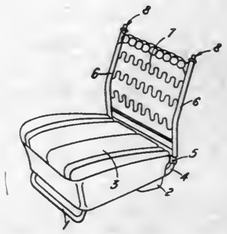
Device for supplying electric current to a motor mounted on a movable panel and adapted to drive said panel, characterized in that a set of pivotally-mounted collector-shoes carried by the movable panel and electrically connected to the motor mounted on said panel, are constantly urged by resilient means against current-supplying slide-bars forming an integral part of an assembly solid with the fixed structure in which said movable panel is adapted to travel.

3,545,807
ELECTRODE ARRANGEMENT
Constantin Graf von Berckheim, Friedrichstrasse 9, an der Bergstrasse, Weinheim, Germany
No Drawing. Filed May 6, 1969, Ser. No. 822,283
Claims priority, application Germany, May 7, 1968, 1,755,419
Int. Cl. B60j *7/10*
U.S. Cl. 296—137 **12 Claims**



An electrode mounting arrangement for use in combination with a roof of airconditioned vehicles, including two spaced electrode carrying plates, each having opposed inner and outer edges, with the outer edges adapted to firmly engage oppositely spaced abutment means on the roof in response to pressure received from a spring arrangement located intermediate the plates and biassed against the inner edges thereof.

3,545,808
MOTOR VEHICLE SEAT
Ernst Gescheidle, Gross-Gerau, Germany, assignor to General Motors Corporation, Detroit, Mich. a corporation of Delaware
Filed Sept. 27, 1968, Ser. No. 763,188
Claims priority, application Germany, Nov. 8, 1967, P 1,630,891.1
Int. Cl. A47c *7/02*; B60v *21/00*; B60n *1/02*
U.S. Cl. 297—216 **7 Claims**

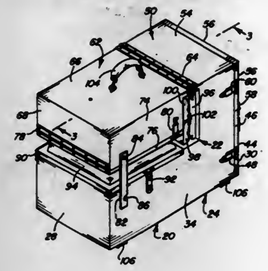


A vehicle seat having a backrest provided with laterally spaced uprights which extend substantially up to the top edge of the backrest and possess a resistance moment of a certain magnitude matching the pressure exerted by the back of the seat occupant upon the backrest. The seat is characterized in that the uprights are provided with energy absorbing means which, during impact on the uprights in the direction of their longitudinal axis, cause them to become shortened.

3,545,809
COMBINATION TACKLE BOX AND CHAIR
Richard W. Krenz, 1404 Grand Ave., San Diego, Calif.
Filed Nov. 13, 1968, Ser. No. 775,270
Int. Cl. A47c *4/00*
U.S. Cl. 297—217 **10 Claims**

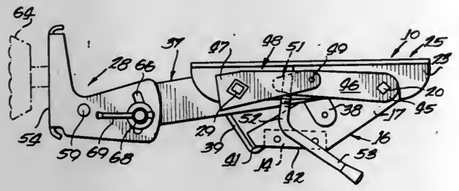
A combination tackle box and chair having an L-shaped cabinet forming a plurality of compartments, a horizontal leg of the cabinet forming a seat and a vertical leg of the cabinet forming a backrest. An additional compartment is hingedly

connected with the cabinet which, when in compacted relationship with the cabinet, cooperates with the cabinet to



form a rectangularly shaped structure, and which is movable to an upright position to form an upper backrest.

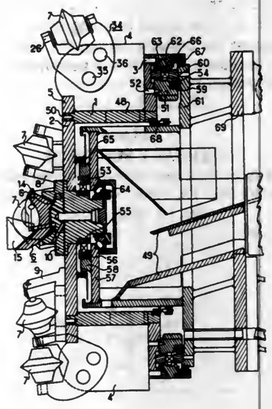
3,545,810
LOCKING MEANS FOR CHAIR CONTROLS
Ralph F. Anderson and Richard C. Henson, Rockford, Illinois, assignors to Keystone Consolidated Industries, Inc., Peoria, Illinois a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,424
Int. Cl. A47c *1/025*
U.S. Cl. 297—373 **3 Claims**



In a chair control of the type having tiltable back and tension-adjusting means, the chair back having a pivotally mounted back bracket with locking means including a pair of adjustment slides each having inwardly projecting and radially extending serrations for interlocking engagement with radially extending serrations on the adjacent sides of the pivotally mounted back bracket, and manual adjusting means for forcing the serrations on the slides into interlocking engagement with the serrations on the sides of the back bracket and thereby securely retaining the bracket and the chair back in the desired adjusted position.

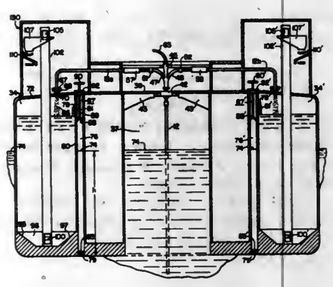
3,545,811
REINFORCED ROTATING HEAD FOR A TUNNEL BORING MACHINE
Marcel Montacie, Paris, France, assignor to Union Industrielle Blanzy-Ouest, Paris, France a corporation of FRance
Filed Nov. 18, 1968, Ser. No. 776,644
Claims priority, application France, Nov. 17, 1967, P.V.128.753
Int. Cl. E21b *9/12*; **E21c** *37/26*
U.S. Cl. 299—56 **5 Claims**

In a reinforced rotating head for a tunnel-boring machine brackets are welded radially to the exterior to reinforce the structure and to help in the mounting of peripheral tools, at desired locations, along with collecting troughs. Radial and



axial forces to which it is subjected are borne separately, i.e. the former by roller bearings and the latter by an abutment.

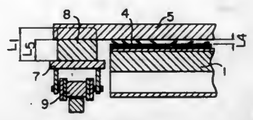
3,545,812
UNDERWATER MINING APPARATUS
Melvin W. Smith, Edgewater and Charles S. Kluth, Baltimore, Maryland, assignors to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed July 24, 1968, Ser. No. 747,199
Int. Cl. B65g *53/04*
U.S. Cl. 302—14 **17 Claims**



A surface vessel for an underwater mining system which utilizes (a) a bottom collector, (b) conduit extending between the vessel and the bottom collector for transporting collected material, and (c) a gas lift system for raising collected material. The surface vessel includes a plurality of receiver bins connected to the conduit for receipt of collected material. Associated with each bin is an air vent trunk open to the upper part of the receiver bin and extending downwardly through the surface vessel where it is communicative with the ambient sea water at the bottom of the surface vessel.

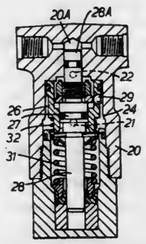
After selected receiver bins are full, the collected material is removed, dried and transported via conveyors to storage areas aboard the surface vessel.

3,545,813
AIR-FILM CONVEYING APPARATUS
Mikio Matsumoto, Hyogo-ken, Japan, assignor to The Tsubakimoto Chain Mfg. Co. Ltd, Osaka, Japan
Original application May 26, 1967, Ser. No. 641,525, now abandoned. Divided and this application April 18, 1969, Ser. No. 817,381
Int. Cl. B65g *53/04*
U.S. Cl. 302—29 **8 Claims**



The disclosed air-film conveying apparatus has a platform plate, an air chamber provided underneath the platform plate, a protecting member for the platform plate surface mounted on the surface of the platform plate, and a plurality of air valves opening though the plate and member. And this apparatus has driving equipment for the load thereon.

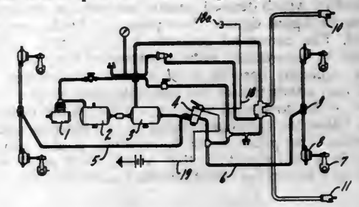
3,545,814
BRAKE PRESSURE CONTROL VALVES
Hugh Grenville Margetts, Birmingham, England, assignor to Girling Limited, Birmingham, England
Filed Oct. 17, 1968, Ser. No. 768,305
Claims priority, application Great Britain, Oct. 29, 1967, 48286/67
Int. Cl. B60t *8/26*
U.S. Cl. 303—6 **1 Claim**



A fluid pressure operated dual braking system including two sources of fluid pressure arranged for simultaneous operation and respectively connected by separate pressure lines to the actuators for two brakes, or sets of brakes, has one of the pressure lines provided with a control valve which in response to pressure in the second pressure line operates to close the first pressure line. The control valve may be of the pressure limiting type, it may operate to reduce the rate of pressure increase at the outlet of the valve relative to that at the inlet. In either case, failure of the brakes controlled by the second pressure line results in the valve opening or remaining open, so that full pressure can be applied to the brakes controlled by the first pressure line.

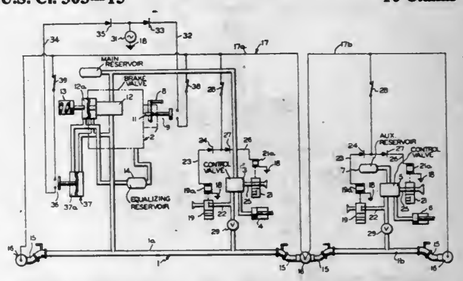
3,545,815
TRACTOR-TRAILER BRAKE SYSTEM
Arthur A. Berg, Lincolnwood, Ill., assignor to Berg Mfg. & Sales Co., Des Plaines, Ill. a corporation of Illinois
Filed July 15, 1968, Ser. No. 744,880
Int. Cl. B60t *13/68*, *13/36*, *7/06*
U.S. Cl. 303—7 **3 Claims**

A tractor-trailer brake system including an electrical signal generator controlled by the tractor brake pedal and initiating application of trailer brakes with or before tractor brake application to reduce jackknifing tendencies of tractor and trailer, the system providing trailer braking in event of failure of either tractor pressure or the signal generator, the signal



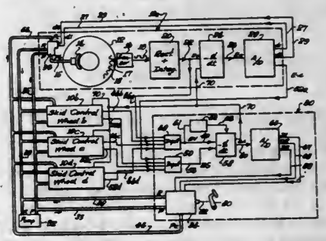
generator providing trailer brake application in proportion to the movement of the brake pedal.

3,545,816
ELECTRICALLY ASSISTED AUTOMATIC AIR BRAKE FOR TRAINS
Thomas H. Engle, Cape Vincent, New York, assignor to General Signal Corporation, a corporation of New York
Filed April 25, 1969, Ser. No. 819,367
Int. Cl. B60t *68*
U.S. Cl. 303—15 **10 Claims**



An electropneumatic train braking system employing a generally conventional automatic airbrake and an electrically operated airbrake-assisting scheme including a pair of solenoid valves on each car which control, respectively, a direct bleed from the brake pipe and the exhaust connection of the car's control valve. The electrical circuit includes a single trainlined control wire whose constituent portions are joined through the hose couplings of the trainlined brake pipe, and a return path consisting of the rails and metal portions of the cars. The control wire is energized by supply circuits associated with the brake valve, and its polarity governs which set of solenoid valves is actuated.

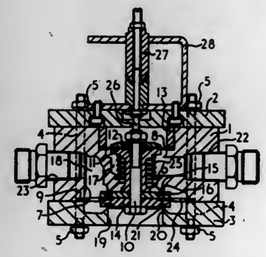
3,545,817
BRAKE CONTROL MECHANISM
Gordon W. Yarber, 6070 Ramirez Canyon Road, Malibu, California
Filed Jan. 21, 1969, Ser. No. 792,344
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 **32 Claims**



In the described brake control system an electrical control signal, typically an analog representation of a function of some physical variable, is converted to digital form, and the

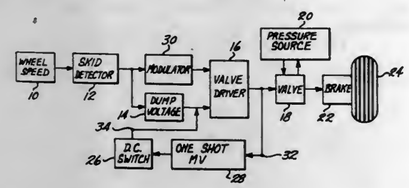
brake pressure is modified stepwise under control of the resulting digital signals. A variety of valve structures is described by which desired control actions are obtainable in response to digital signals. Two phases of brake control are imposed. The command pressure for the entire vehicle is modified in accordance with a measured function of road friction, typically derived from vehicle deceleration. Such control may either reduce the available pressure to a variable fraction of the command pressure, or permit the brake pressure to follow the command signal up to a limiting value that is variable. The pressure for each wheel is also subject to control by a skid signal for that wheel. Each phase of such control may be further modified under control of the other.

3,545,818
CONTROL VALVES
John Walter Davis, Coventry, England, assignor to The Dunlop Company Limited, London, England a corporation of Great Britain
Filed May 1, 1969, Ser. No. 820,990
Claims priority, application Great Britain, May 3, 1968, 20986/68
Int. Cl. B60t *15/00, 8/00*
U.S. Cl. 303—21 **14 Claims**



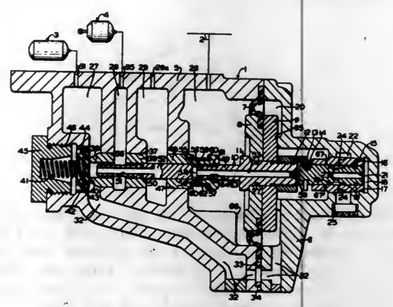
Solenoid operated control valve for a vehicle antiskid system having a valve member supported in a valve chamber by means of two spaced apart flexible annular diaphragms, one diaphragm having apertures formed therein to permit flow of fluid from one side to the other side of the diaphragm.

3,545,819
ANTISKID CONTROL SYSTEM
Willian Charles Gaffney, Renton and Ervin G. Romero, Seattle, Washington, assignors to The Boeing Company, Seattle, Washington a corporation of Delaware
Filed April 16, 1969, Ser. No. 816,724
Int. Cl. B60t *8/08*
U.S. Cl. 303—21 **16 Claims**



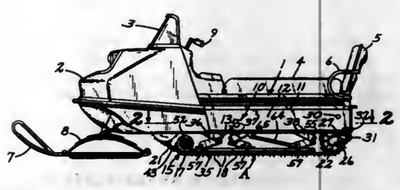
An antiskid control system which includes means for preventing interaction between the system and the natural oscillation of the landing gear. A frequency clamping circuit arrangement includes a one shot multivibrator which controls a switch in the path of the valve dump voltage. The multivibrator is set by the removal of an antiskid control signal, the set state of the multivibrator exists for a time period sufficient to prevent the application of a second dump voltage antiskid control signal to the valve within the natural resonant frequency period of the landing gear. This prevents the antiskid system from sustaining an oscillation of the gear and stabilizes the skid control system.

3,545,820
BRAKE CONTROL VALVE
Daniel G. Scott, Apollo and Fred Temple, Pittsburgh, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa. a corporation of Pennsylvania
Filed Dec. 31, 1968, Ser. No. 788,239
Int. Cl. B60t *8/00, 15/12*
U.S. Cl. 303—35 **8 Claims**



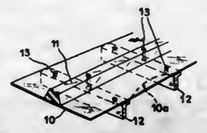
A simple and inexpensive diaphragm-operated spool-type freight car brake control valve device, the initial movement of which toward an application position, in response to variations of the pressure in a brake pipe, from a release position in which one end of the spool valve is subject to atmospheric pressure thereby inhibiting operation by a slight variation of pressure in the brake pipe, effects sequentially the cutoff of said one end from atmospheric pressure and thereafter subjects it to the pressure in an auxiliary reservoir to increase the differential fluid pressure force for causing positive unseating of a spring-biased supply valve to establish a communication between the auxiliary reservoir and a brake cylinder to effect a brake application. When the spool valve is moved to a lap position upon the pressure in the auxiliary reservoir reducing slightly below that in the brake pipe as the result of flow from the auxiliary reservoir reducing slightly below that in the brake pipe as the result of flow from the auxiliary reservoir to the brake cylinder via the above-mentioned communication, a communication of limited flow capacity is established between the brake pipe and the auxiliary reservoir via the spool valve to maintain the auxiliary reservoir notwithstanding leakage therefrom.

3,545,821
TRACK SUSPENSION SYSTEM FOR SNOWMOBILES
Albin R. Erickson, Roseau, Minn., assignor to Textron, Inc., Providence, R.I. a corporation of Delaware. by mesne assignments
Filed Jan. 24, 1969, Ser. No. 793,704
Int. Cl. B62d *55/10*
U.S. Cl. 305—24 **13 Claims**



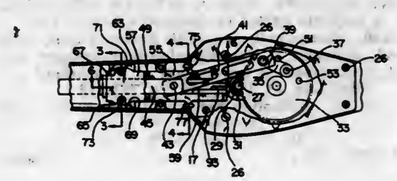
A drive track suspension including one or more elongated slide rails for sliding engagement with the lower ground-engaging run of an endless flexible drive track for a snowmobile or like vehicle, and support structure mounting a slide rail for generally vertical movements relative to the vehicle frame. The slide rail includes an elongated upper resilient backing section superimposed on an elongated lower drive run engaging skid section.

3,545,822
DRIVE APPARATUS WITH A FLEXIBLE, ENDLESS BAND
Henri Gremeret, 1 Avenue de Verdun, Mento, Alpes-Maritimes, France
Filed May 10, 1968, Ser. No. 728,202
Claims priority, application France, Apr. 11, 1968, 68/91
Int. Cl. B62d *55/24*
U.S. Cl. 305—38 **6 Claims**



An endless flexible band having at least one longitudinal strip on the inner surface of the band adapted to engage in corresponding grooves in a drive and reversing pulley whereby the band is driven and simultaneously transversely guided.

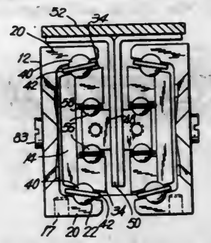
3,545,823
BEARING FOR SLIDE MEMBER
Leonard U. Alsruhe, Towson, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed Oct. 1, 1968, Ser. No. 764,202
Int. Cl. F16c *21/00;* **B27b** *19/08*
U.S. Cl. 308—3 **9 Claims**



The device disclosed herein is a portable power operated sabre saw which includes a housing encasing an electric motor and transmission adapted to impart reciprocatory movement to a slide to which a saw blade is attached. The transmission is constructed to provide different length blade strokes and different blade speeds when the motor is reversed. The slide is guided by novel bearing means supported in a novel fashion within the housing.

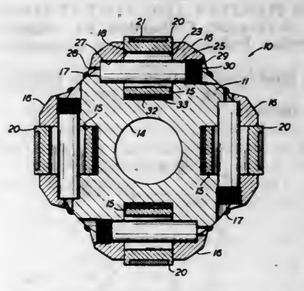
3,545,824
SHOCK AND VIBRATION RESISTING SLIDE ASSEMBLY
Joseph T. Del Vecchio, Nanuet, N.Y., assignor, by mesne assignments, to Instrument Systems Corporation, New York, N.Y., a corporation of New York
Filed June 21, 1968, Ser. No. 739,006
Int. Cl. A47b *88/04;* **F16c** *29/02*
U.S. Cl. 308—3.8 **10 Claims**

A shock and vibration resistant slide assembly that requires little or no separating force to open the slide assembly, includes an outer and an inner slide member telescopically moveable relatively on anti-friction bearing means. Each member has, adjacent its forward and rearwards ends, a pair of surfaces lying in different planes, with one surface of each pair of one member cooperatively abutting a mating surface of the other member, when the slide members are in closed position, for removing the weight of the slide members and supporting structure off the bearing elements and reducing vibration-transmissibility between the inner and outer slide members. One of the surfaces of each of the mating pairs of surfaces at each end is moveable so as to adjust the degree



of contact between mating surfaces, when the slides are in closed position.

3,545,825
ADJUSTABLE DRILL PIPE STABILIZER TOOL
James E. Hamilton, Rte. 1, Box 97B, Holden, La. 70744
Filed May 1, 1968, Ser. No. 725,620
Int. Cl. F16c *19/10*
U.S. Cl. 308—6 **1 Claim**



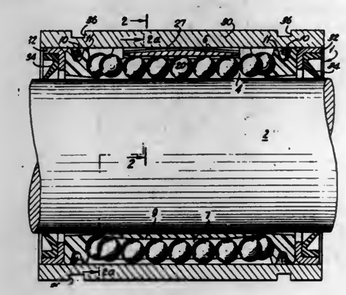
A drill pipe stabilizer tool for stabilizing the position of a drill string relative to the wall of a well bore during the drilling of the well bore. The tool includes a plurality of circumferentially spaced bearing members which extend laterally from the drill string and which are adapted to bear against the wall of the well bore when the portion of the drill string in the vicinity of such members moves too close to the wall of the well bore. The tool includes means for adjusting the lateral distance by which the bearing members extend out from the drill string.

3,545,826
COMPLIANT AND SELF-ALINING BALL BEARING FOR LINEAR MOTION
Robert C. Magee, Manhasset, N.Y., and John B. Thomson, 1029 Plandome Road, Manhasset, N.Y. 11030; said Magee assignor to said Thomson
Filed May 7, 1969, Ser. No. 822,504
Int. Cl. F16c *29/06*
U.S. Cl. 308—6 **12 Claims**

A complaint and self-aligning, linear motion ball bearing is provided which is a modification of, and improvement over the non-self-aligning, linear motion ball bearing disclosed in the prior U.S.A. application of Heinrich Weisel, Ser. No. 699,070 filed Jan. 19, 1968, and in German Pat. No. 1,268,442.

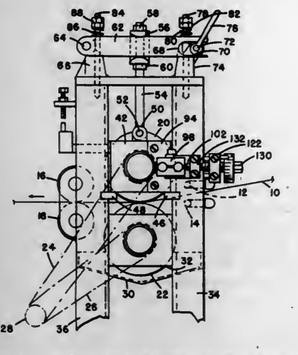
The load carrying plates of the Weisel bearing embedded in a resilient plastic sleeve are modified and are each exteriorly tapered from their central portion towards their longitudinal ends whereby the plates may rock as there is relative displacement between the shaft and the

bore in which the bearing is mounted. The present bearings thus provide for angular displacement of the shaft in all directions. In addition, the load bearing plates are compliant along both the lateral and longitudinal axis. The



two axes compliance provides springiness, better ball conformity and uniform distribution of load which combine to substantially increase load capacity and life in addition to that obtained from self-alignment.

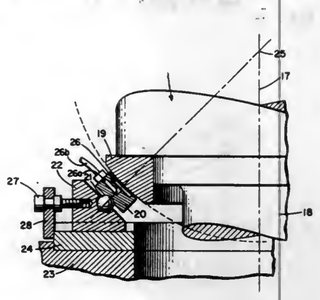
3,545,827
ROLLER POSITION ADJUSTMENT MECHANISM
Henry J. McDermott, Collingdale, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed June 25, 1968, Ser. No. 739,791
Int. Cl. F16c *29/12*
U.S. Cl. 308—58 4 Claims



Mechanism for rapidly and precisely positioning the axis of a first roller in a desired skewed relationship with respect to the axis of a second roller with which the first roller cooperates in carrying out some operation such as coating a web or film. The mechanism is so arranged that under certain circumstances the first roller may move bodily away from the second roller.

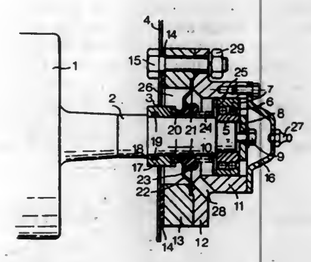
3,545,828
PLAIN BEARING
Heinrich Korrenn, Schweinfurt, Germany, assignor to Kugelfischer Georg Schafer & Co., Schweinfurt, Germany
Continuation of application Ser. No. 567,195, July 22, 1966. This application May 15, 1969, Ser. No. 824,972
Claims priority, application Germany, July 30, 1965, K 56,771
Int. Cl. F16c *17/06*
U.S. Cl. 308—160 5 Claims

A hydrostatically operating spherically shaped plain bearing having a rotatable bearing member supported with respect to a stationary bearing member through the medium of a fluid layer. At least three pads are adjustably mounted on the stationary member between the rotatable and stationary members. A face portion of each pad adjacent the rotatable bearing member has a trough formed



therein, and is spherically shaped to conform to a complementary spherically shaped surface of the rotatable bearing member. Means are provided to feed to the trough fluid under pressure which will overflow the peripheral walls of each pad to establish the fluid support layer.

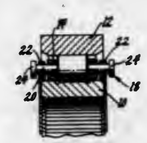
3,545,829
SUPPORT BEARING FOR A ROLLER ROTATING IN A LIQUID CONTAINING RECEPTACLE
Oskar Stoll, Niederuzwil, and Willi Probst, Uzwil, Switzerland, assignors to Maschinenfabrik Benninger AG, Uzwil, Switzerland, a corporation of Switzerland
Filed Sept. 23, 1968, Ser. No. 761,418
Claims priority, application Switzerland, Sept. 26, 1967, 13,474/67
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.1 7 Claims



A support bearing for a roller rotating in a liquid containing receptacle is disclosed, the support bearing being provided with shaft stubs or journals which extend through openings in the receptacle wall. A bearing member as well as sealing members therefor are provided on each side of the rotating roller mounted outside of the receptacle within a cup attached to the receptacle. The sealing members for each support bearing comprise a rotating and a stationary sealing ring, the rotating sealing ring being disposed on the shaft stub of the roller and being rotatable therewith. The stationary sealing ring is supported by a ring diaphragm or membrane. The frictional sealing surface of the stationary sealing ring is pressed against the associated sealing surface of the rotating sealing ring

by a spring support ring also mounted outside of the receptacle within the cup. With the inventive embodiment, the position of both the rotating and stationary sealing rings is each determined exclusively by the position of the shaft stub and thus, the sealing function of the support bearing cannot adversely be affected by deformations in the roller or shaft stub, flexures of the receptable wall or the like, the stationary sealing ring always remaining in the same relative position with respect to the rotating sealing ring, changes in actual position of the stationary sealing ring being absorbed by the flexible ring diaphragm or membrane.

3,545,830
HIGH SPEED ROLLER BEARING WITH EPICYCLIC CAGE PRELOAD
Lubomyr O. Hewko, Port Clinton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 14, 1969, Ser. No. 807,296
Int. Cl. F16c *19/00*
U.S. Cl. 308—202 4 Claims



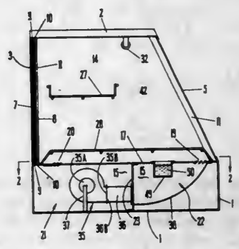
A high speed roller bearing assembly including an elastic ring to bias cage supported rollers into continual rolling contact with the bearing inner race. The elastic ring preloads the cage supported roller members into engagement with the inner race with a predetermined force and is configured to contact preferably three equally circumferentially spaced rollers. In a static condition the elastic ring is noncircular in form and its initial rotation is imparted to the bearing assembly. The ring rotates slower than the cage in an epicyclic fashion. This epicyclic rotation ensures sufficient preload so that a pure rolling contact between the rollers and the inner race exists during all stages of operation. As bearing speed increases, the elastic ring tends to assume a circular form due to the centrifugal forces which in turn produces a radially inward reaction force on the three rollers engaged by the elastic ring to provide a substantially constant preloading force.

3,545,831
JOURNAL BEARING
Günter Köpke, Heilbronn, Alfons Denz, Neckarsulm, Eckehardt Grau, Marbach, and Erwin Strasser, Heilbronn, Germany, assignors to Karl Schmidt GmbH, Neckarsulm, Germany
Filed Nov. 18, 1968, Ser. No. 784,508
Claims priority, application Germany, Nov. 24, 1967, 1,625,627
Int. Cl. F16c *33/12*
U.S. Cl. 308—239 4 Claims



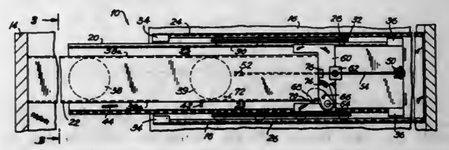
A bearing surface-carrying member has a metal surface formed by a material of the class consisting of aluminum and aluminum alloys. Said surface is formed with depressions at least partly filled with low-friction plastics material forming at least part of a bearing surface.

3,545,832
HEATED DISPLAY CASE
George Levenback, Swampscott, Mass., assignor to Jos. M. Linsey Corporation, Somerville, Mass., a corporation of Massachusetts
Filed July 3, 1968, Ser. No. 742,405
Int. Cl. A47b *47/00, 87/02*
U.S. Cl. 312—114 6 Claims



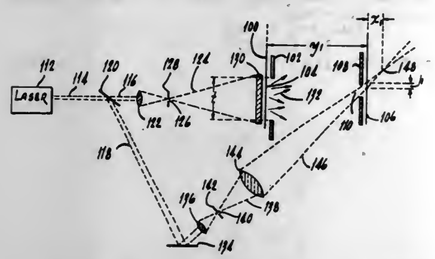
A display case for displaying hot foods comprising enclosing transparent sidewalls, a bottom and a top. A horizontally extending divider separates the casing into upper and lower sections with the upper section adapted to receive hot food for display. The lower section is divided by a vertically extending divider into a first and a second plenum. Each plenum is connected by an aperture to the upper section. A heater and pump positioned in one plenum is designed to pump heated air directly into the second plenum for circulation therefrom into the upper section and thence back to the first plenum.

3,545,833
PROGRESSIVE SLIDE ASSEMBLY
Robert R. Stein, Mamaroneck, and Stanley H. Coe, Sloatsburg, N.Y., assignors, by mesne assignments, to Instrument Systems Corporation, New York, N.Y., a corporation of New York
Filed Feb. 14, 1969, Ser. No. 799,405
Int. Cl. A47b *88/00*
U.S. Cl. 312—341 10 Claims



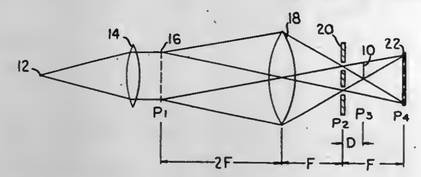
A progressive three section drawer slide assembly has a continuous flexible strand loop interconnecting the cabinet track and intermediate track, so as to allow the intermediate track relative reciprocal movement. A latch coupled to the strand for movement with it, removably interconnects the drawer track and the intermediate track. The latch automatically uncouples the drawer track when the slide assembly is fully extended, so as to allow removal of the drawer, if desired.

3,545,834
SEQUENTIAL INFORMATION HOLOGRAM RECORD
Hendrik J. Gerritsen, Princeton Junction, N.J., and David L. Greenaway, Bassersdorf, Switzerland, assignors to RCA Corporation, a corporation of Delaware
Filed Apr. 27, 1966, Ser. No. 545,754
Int. Cl. G02b 27/00
U.S. Cl. 350—3.5 3 Claims



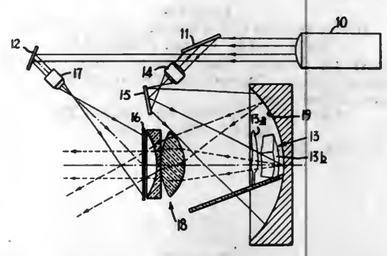
A technique for recording and reading out a series of contiguous non-overlapping moving micro-holograms, such as may be used for recording and playing back the sound track of motion pictures, in a manner such that without the use of a shutter the respective positions of magnified reconstructed images of adjacent micro-holograms remain in non-overlapping contiguous relationship with respect to each other despite the occurrence of translational motion of the adjacent micro-holograms being read out in a direction transverse to the readout beam. This is accomplished by utilizing a convergent reference beam in recording each of the series of micro-holograms and then utilizing a divergent readout beam having a degree of divergence which is determined by the degree of convergence of the reference beam.

3,545,835
TWO-BEAM HOLOGRAPHY WITH REDUCED SOURCE COHERENCE REQUIREMENTS
Emmett N. Leith, Plymouth, and Juris Upatnieks, Ann Arbor, Mich., assignors to Holotron Corporation, Wilmington, Del., a corporation of Delaware
Filed May 16, 1967, Ser. No. 638,828
Int. Cl. G02b
U.S. Cl. 350—3.5 15 Claims



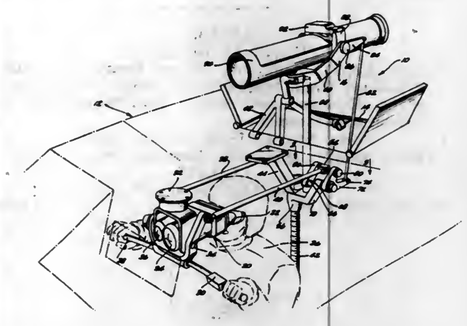
A method of making holograms of transparent objects with the two beam off-axis technique wherein the coherence requirement of the illuminating source is lessened, in one case even to that of the in-line holographic technique, by means of inserting a diffraction grating in the path of the parent illuminating beam to produce beams of diffracted orders. These beams are focused and filtered such that one diffracted order (object beam) is caused to pass through the transparent object and to a hologram plane positioned at the image plane of the diffraction grating and another (reference beam) passes directly to the hologram plane to produce an interference pattern whcih is recorded to produce a hologram. By deriving the object and the reference beam from diffracted orders of a parent source passed through a diffraction grating, and then recombining them at the hologram plane, the coherence requirement of the source is significantly reduced.

3,545,836
HOLOGRAPHIC PICTURES
Dennis Gabor, London, England, assignor to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York
Filed Dec. 11, 1967, Ser. No. 689,501
Int. Cl. G02b 27/22
U.S. Cl. 350—3.5 12 Claims



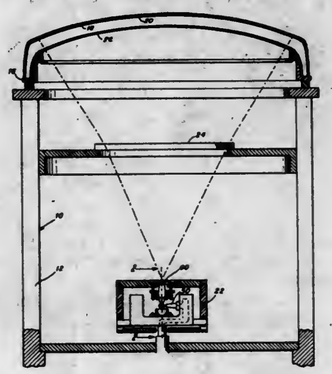
As described herein, a hologram is provided in which the recorded scene is displayed as having unlimited depth. This unlimited depth effect is achieved by initially constructing a model of the scene to be displayed and reducing and distorting the model in such a way that its depth dimensions are at most a small multiple of the laser coherence length. Thereafter, this model is interposed between a corrected achromatic lens and a concave focal surface background and laser light is directed thereagainst. The light reflected by the model and the focal surface is then imaged onto one side of a thick emulsion photographic plate through the lens, the other side of the plate having a reference laser light directed thereagainst.

3,545,837
SIGHTING INTERLOCK
Arthur S. Chapman, Rolling Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Dec. 9, 1968, Ser. No. 782,303
Int. Cl. G02b 21/24, 23/16
U.S. Cl. 350—83 2 Claims



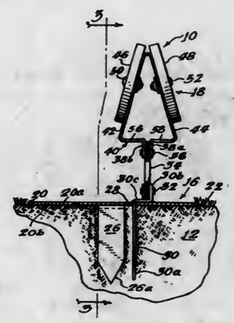
An optical sight is mechanically coupled to a missile launching device for both azimuthal and elevational guidance of the launching device for optical tracking. Disconnectable latches in the mechanical connection permit disconnection of the launching device from the optical tracking device after launch to permit reloading or retraction of the launching device while continuing tracking of the target and/or missile with the optical device.

3,545,838
TEMPERATURE COMPENSATED COLLIMATOR HOLDER ASSEMBLY
Nathan D. Levin, Highland Park, and Angelos A. Potakis, Chicago, Ill., assignors to Admiral Corporation, Chicago, Ill., a corporation of Delaware
Filed Mar. 28, 1966, Ser. No. 538,054
Int. Cl. G02b 5/14
U.S. Cl. 350—96 10 Claims



A holder assembly securing a generally bullet shaped light collimator to permit slight movements of supporting points in response to temperature variation. A C ring encircles the collimator body near its base and rests in a tapered opening in the holder which is larger than the base. The C ring supports the collimator without shadowing its base and moves relative to the holder to compensate for temperature variation.

3,545,839
REFLECTOR FOR LANDING STRIPS, DRIVEWAYS, OR THE LIKE
James E. Hadley, Wichita, Kans., assignor to Miro-Flex Company, Inc.
Filed Aug. 1, 1968, Ser. No. 749,495
Int. Cl. G02b 5/12
U.S. Cl. 350—97 6 Claims

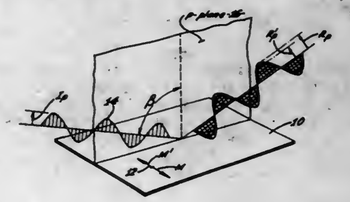


A reflector assembly for use alongside vehicle lanes, such as runways, driveways or the like, and characterized in that the assembly includes a marker element which remains in position during mowing or other maintenance work, and a removable reflector element having a column flexible in only one plane, with two reflectors supported on the column in an upwardly converging back-to-back relationship so they are tilted for optimum reflection of vehicle lights.

ERRATUM

For Class 350—102 see:
Patent No. 3,546,350

3,545,840
ENHANCED TRANSVERSE KERR MAGNETO-OPTICAL TRANSDUCER
Patrick E. Ferguson, Torrance, Calif., assignor to The Magnavox Company, Torrance, Calif., a corporation of Delaware
Filed July 29, 1968, Ser. No. 748,302
Int. Cl. G02f 1/34
U.S. Cl. 350—151 12 Claims

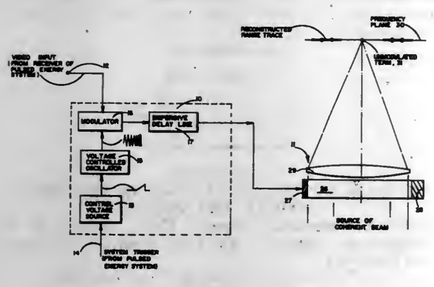


The present invention relates to a magneto-optical transducer and more specifically relates to the enhancement of the transverse Kerr magneto-optical effect. Specifically, the invention is directed to a magneto-optical transducer using the transverse Kerr magneto-optic effect and wherein the transducer includes a layer of magnetic material of a critical thickness so as to provide a maximum change in the reflectivity of an optical wave directed to the thin magnetic film. Specifically, the thin magnetic film is deposited on one surface of an optical prism and the optical wave is directed toward the prism so as to produce a total internal reflection of the light energy. The thin magnetic film, however, frustrates the total internal reflection, but of the light that is reflected a change in the reflectivity is experienced in accordance with the direction of magnetization of the thin magnetic film. The invention also includes the use of a layer of dielectric material deposited over the thin magnetic film so as to increase the light which is reflected.

3,545,841
NONSCANNING OPTICAL PROCESSOR FOR DISPLAY OF VIDEO SIGNALS
Mauro J. Dentino, Placentia, and Eugene A. Reitz, Tustin, Calif., assignors to North American Rockwell Corporation
Filed Apr. 9, 1968, Ser. No. 719,955
Int. Cl. G02f 1/28
U.S. Cl. 350—161 15 Claims

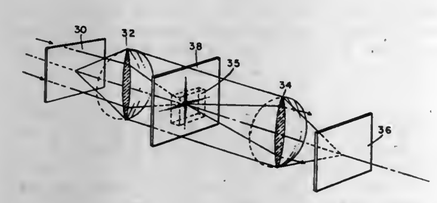
A non-scanning optical processor for display of video signals. A time-domain-to-frequency domain transform device, responsive to the video receiver output of a sample data system, such as for example a pulsed energy system, provides a spectral output having a spectral power distribution, or spectral density function, which is a frequency analog of the time-domain periodic history of the video output. Spatial-frequency light-modulation means, responsive to the spectral output of the transform device,

modulates a coherent light beam in a focused optical system, whereby the time-history of the periodic video signal



is optically reconstructed in the frequency plane of the optical system.

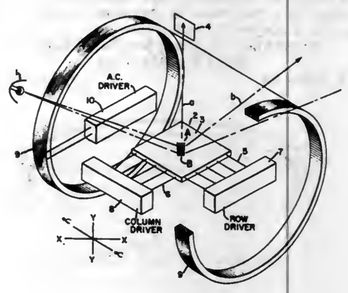
3,545,842
ANALYSIS AND PROCESSING OF INCOHERENT RADIATION FIELDS WITH CROSS-CORRELATED COMPOUND IMAGE DETERMINING MEANS
George O. Reynolds, Waban, and David J. Cronin, Sudbury, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass., a corporation of Delaware
Filed Nov. 25, 1968, Ser. No. 778,662
Int. Cl. G02b *5/18*
U.S. Cl. 350—162 **6 Claims**



This disclosure depicts the use of cross-correlated compound image-determining structures for analyzing and processing information carried by wavefront propagating from an object. Great freedoms in determining image spatial frequency constitution are obtained. Methods are shown for obtaining spatial distributions characterizing coherence functions of analyzed radiation fields.

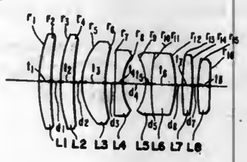
3,545,843
MAGNETO-OPTICAL DISPLAY SYSTEM
Lewis E. Somers, La Fayette, and Robert E. Glusick, Liverpool, N.Y., assignors to General Electric Company, a corporation of New York
Filed Jan. 9, 1969, Ser. No. 790,030
Int. Cl. G02b *5/18*
U.S. Cl. 350—162 **10 Claims**

A magneto-optical display system wherein optical grating lines formed within a magnetic film structure are oriented by means of an alternating or pulsating magnetic field simultaneously applied to each of the display elements of said film structure in combination with a D.C. magnetic field selectively applied to individual elements by means of intersecting current conductors. The alternating magnetic field is applied by a Helmholtz coil or equivalent structure. Light directed towards the film is diffracted by the optical gratings in accordance with the orientation of said grating lines. In one embodiment the alternating and D.C. fields are combined for orienting the optical grating lines along one of two axes so as to selectively establish both write and erase states within



the display. In a second embodiment the D.C. field in combination with the alternating field provide a selective write operation and a modulation component of the alternating field alone controls the erase operation so as to provide an adjustable persistence of the written information.

3,545,844
HIGH RESOLUTION OBJECTIVE LENS SYSTEM
Yasuo Takahashi, Tokyo-to, and Fujio Tazumi, Fukuoka-machi, Iruma-gun, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan, a corporation of Japan
Filed June 26, 1968, Ser. No. 740,316
Claims priority, application Japan, July 19, 1967, 42/46,487
Int. Cl. G02b *9/00, 9/64*
U.S. Cl. 350—214 **1 Claim**

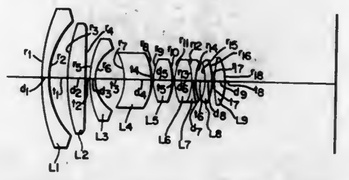


A high resolution large aperture objective lens system comprises eight consecutively designated lenses and satisfies the following conditions:

$$F/0.9<F_{1,2}<F/0.6$$
$$F/1.6<F_{1,2,3}<F/1.2$$
$$F/0.5<F_{1,2,3,4}<F/0.3$$
$$0.38F<|r_9|<0.45F,\ r_9<0$$
$$F<r_{10}<2.5F$$
$$0.15<n_6-n_5<0.3$$
$$F/0.8<F_{1,2,3,4,5,6,7}<F/0.65$$

wherein F is the resultant focal length of the lens system; $F_{1,2,\ldots i}$ is the resultant focal length of the first to the ith lens; r_9 and r_{10} are the radii of curvature of the front and rear faces respectively of the fifth lens; and n_5 and n_6 are the indices of refraction of the fifth and sixth lenses respectively.

3,545,845
COMPACT WIDE ANGLE OBJECTIVE LENS SYSTEM WITH LONG BACK FOCAL LENGTH
Yasuo Takahashi, Tokyo-to, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan, a corporation of Japan
Filed July 10, 1968, Ser. No. 743,854
Claims priority, application Japan, July 24, 1967, 42/47,511
Int. Cl. G02b *1/00, 9/00*
U.S. Cl. 350—214 **1 Claim**

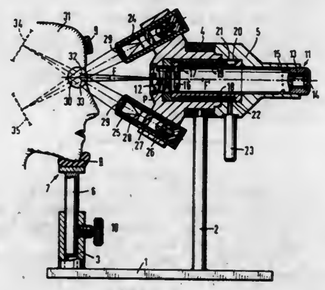


A compact long rear focus wide angle lens system includes a negative meniscus first and third lenses, positive meniscus eighth lens, negative seventh lens and positive second, fifth, sixth and ninth lenses, the sixth and seventh lenses being cemented to form a unitary group, the lens system satisfying the following conditions.

$$\infty \geqq |r_7| > 0.8F,\ r_7<0$$
$$F/0.5 > |F_{1,2,3}| > F,\ F_{1,2,3}<0$$
$$|F_{1,2,3,4,5}| > F/0.1$$
$$0.7F > r_{14} > 0.55F$$
$$F > |r_{16}| > 0.5F,\ r_{16}<0$$
$$n_7 - n_6 > 0.1$$
$$1.5F > |r_{12}| > 0.9F,\ r_{12}<0$$
$$0.7F > k > 0.45F$$

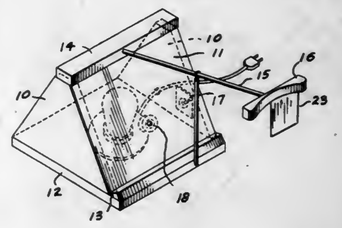
wherein F is the resultant focal length of the lens system; $F_{1,2\ldots i}$ is the resultant focal length of the first to the i-th lens; r_j is the radius of curvature of the j-th lens face; n_i is the index of refraction of the i-th lens; and k is the axial distance between the seventh and tenth lens faces.

3,545,846
COMPENSATING OPHTHALMOMETER
Karl-Heinz Wilms, Dachau, Germany, assignor to Optische Werke G. Rodenstock, Munich, Germany
Filed Nov. 6, 1967, Ser. No. 680,725
Claims priority, application Germany, Nov. 4, 1966, O 12,058
Int. Cl. A61b *3/10*
U.S. Cl. 351—13 **6 Claims**



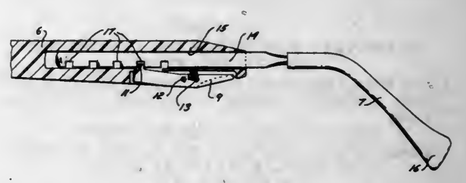
A compensating ophthalmometer in which the head rest and the measuring microscope for measuring the apparent spacing of virtual images of two test marks or mires reflected by the tested cornea are arranged and located in such a manner that the planes in which real images of the test marks are projected in the absence of the tested eye are so far behind the position of the cornea as the entrance pupil of the microscope is before the cornea. If the test marks are luminous and directly viewed by the tested eye, the entrance pupil of the microscope is located as far behind the cornea as the test marks are located forward of the position of a cornea determined by the head rest. No significant errors in the measured curvature of the cornea occurs when the cornea deviates from the nominal position between the microscope pupil and the test marks or their real images by as much as 10% of the nominal distance.

3,545,847
VISUAL FUSION TRAINING INSTRUMENT
Rachael M. Pietrini, 567 Ridgedale, Birmingham, Mich. 48008
Filed Nov. 27, 1964, Ser. No. 414,112
Int. Cl. A61b *3/08*
U.S. Cl. 351—2 **10 Claims**



A fusion training device for detecting binocular vision deficiencies and facilitating corrective eye exercises including a focal light objective for binochlar viewing, a differential color filter for at least one of the eyes to facilitate detection and indentification of subconscious suppression in one of the eyes and a variable auxiliary objective moveable between the first light objective and the viewer to facilitate binocular exercise in focusing on an object of variable distance from the viewer with a conscious differential double image of the first light objective to verify lack of suppression.

3,545,848
MANUALLY ADJUSTABLE TEMPLES FOR EYEGLASSES
Peter T. Sebastian, Chestnut St., Leesport, Pa. 19533
Filed July 16, 1968, Ser. No. 745,233
Int. Cl. G02c *5/20;* **F16b** *7/14*
U.S. Cl. 351—118 **10 Claims**



Eyeglass frames are provided that are adapted to fit comfortably on and be properly worn by individuals having different facial features and measurements. The frames

feature an adjustable temple and may include a universal self-aligning bridge.

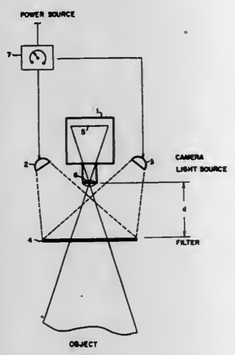
The adjustable temple is comprised of a notched paddle section adapted to slide in telescoping relationship with the butt section. A spring-loaded pawl mounted in the butt section engages the notches in the paddle section to secure the alignment between the paddle and the butt sections.

The nose bearing surface of the self-aligning bridge is a compound curve generated from a series of intersections of the human nose with parallel planes tilted slightly forward with respect to the vertical.

3,545,849
METHOD AND APPARATUS FOR ADDING A DOMINANT COLOR TO AN IMAGE OF AN OBJECT

Aurel Miheles, Bucharest, Rumania, assignor to Comitetul de Stat Pentru Cultura si Arta, Bucharest, Rumania

Filed July 12, 1967, Ser. No. 652,895
Claims priority, application Rumania, July 12, 1966, 51,853
Int. Cl. G03b *15/00*
U.S. Cl. 352—45 **4 Claims**



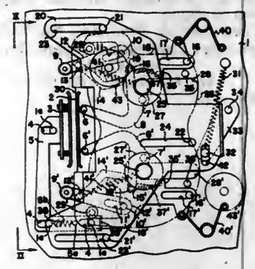
Method and apparatus for adding a dominant color to an image of an object. A filter, comprising a net made of cotton or synthetic fiber threads which is painted with the desired dominant color, is arranged between an image-forming camera and the object at a distance from the camera which does not exceed the zone of nonclarity of the camera lens. A supplementary source of light illuminates that side of the filter which faces the camera with an intensity which approximates the amount of light coming from the object. The supplementary source of light is made adjustable in intensity so that the strength of the dominant color may be controlled.

3,545,850
MACHINERY FOR HANDLING CARTRIDGE-CONTAINED FILM

Teruel Hara, Ohmiya-shi, Japan, assignor to Fuji Shashin Koki Kabushiki Kaisha, Ohmiya-shi, Saitame-ken, Japan

Filed Mar. 22, 1968, Ser. No. 715,437
Claims priority, application Japan, Mar. 28, 1967, 42/18,831, 42/18,832, 42/25,101
Int. Cl. G03b *23/02*
U.S. Cl. 352—72 **6 Claims**

Apparatus such as cartridge-type motion-picture projectors or motion-picture cameras, which comprise a film gate, a cartridge supporting plate mounted on a frame and movable between a non-operative position and an operative position, and a lever machanism operative in such manner as to form a loop of film automatically between a cartridge on the cartridge support-

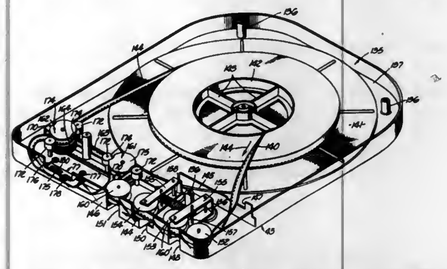


ing plate and the film gate when the cartridge supporting plate is moved from the non-operative position to the operative position.

3,545,851
CARTRIDGE FOR CONTINUOUS LOOP FILM

Mitchell J. Bogdanowicz, New York, N.Y., assignor to Jayark Instruments Corporation, New York, N.Y., a corporation of New York

Filed Nov. 28, 1967, Ser. No. 686,036
Int. Cl. G03b *23/02*
U.S. Cl. 352—78 **5 Claims**



A cartridge for storing motion picture film having a sound track thereon, the film being disposed in a continuous loop. The film is moved past a sound reproducing device and subsequently past a picture projecting gate. The film moves past the sound reproducer in a plane parallel to a plane tangential to the film loop and past the picture gate at right angles thereto. The film is positively driven at right angles thereto. The film is positively driven by a pair of sprocket wheels disposed ahead of and beyond the picture gate. The film is tensioned ahead of the sound reproducer by two spring-biased idler rollers between which an idler drum may be forced, the latter being mounted on the film projector.

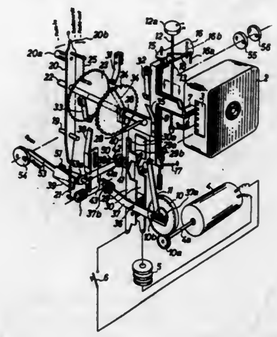
3,545,852
MOTION PICTURE CAMERA

Alfred Winkler, Munich, Germany, and Richard Denk, Bad Voeslau, Austria, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Feb. 1, 1968, Ser. No. 702,383
Claims priority, application Germany, Feb. 4, 1967, A 54,817
Int. Cl. G03b *21/36*
U.S. Cl. 352—91 **19 Claims**

A motion picture camera for making fade-in and fade-out shots comprises an electric motor which drives a reversible film transporting mechanism. When the camera is

set to make fade-out shots, an arresting device opens a control switch in the motor circuit after the transporting mechanism advances a predetermined length of film and while an auxiliary diaphragm moves gradually into the path of incoming light. The arresting device opens the

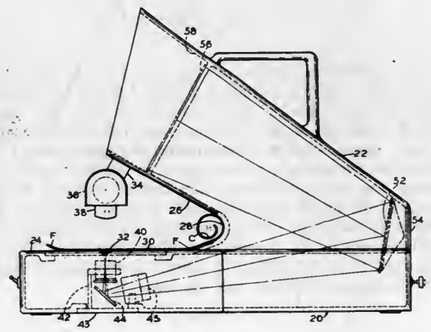


control switch upon completed transport of an identical length of film when the transporting mechanism is set to move the film backwards, and the diaphragm moves gradually away from the path of incoming light when the film is thereupon transported forwardly during fade-in.

3,545,853
GRAPHIC PROJECTOR

Ralph C. Wicker, 17 Hillcrest Drive, Fairport, N.Y. 14605

Filed Nov. 28, 1967, Ser. No. 686,237
Int. Cl. G03b *21/22*
U.S. Cl. 353—78 **10 Claims**

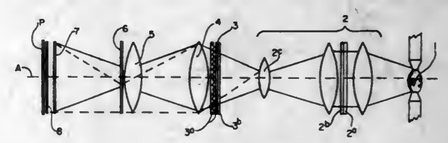


Projector for use in the photographic arts for examining and correcting film comprising a flat work surface over a hollow base for supporting a film for examination, and having an inclined upwardly and forwardly projecting light tunnel housing secured to the upper rear portion of the base projecting over and above the work surface, a light beam directed downwardly toward a small transparent area in the surface, a lens and reflectors disposed below the table and on the rear wall for transmitting and enlarging a selected area of a film disposed over the transparent area and producing a greatly enlarged oriented image on a screen in the forward end of the light tunnel.

3,545,854
SEMICONDUCTOR MASK MAKING

Raymond G. Olsson, Jamesville, N.Y., assignor to General Electric Company, a corporation of New York

Filed June 17, 1966, Ser. No. 558,386
Int. Cl. G03b *27/44*
U.S. Cl. 355—46 **20 Claims**

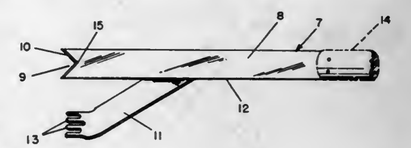


An optical system for simultaneously producing a plurality of identical, extended area images of an object. The extended area images of the object are focused onto an image plane by a plurality of identical zone plate diffraction gratings, each comprising alternate opaque and transparent concentric zones disposed normal to an axis of the system.

3,545,855
WEEDING TOOL

Thomas I. Mendenhall, 500 N. Richmond Ave., Westmont, Ill. 60559

Filed Apr. 30, 1968, Ser. No. 725,344
Int. Cl. B66f *3/00*
U.S. Cl. 254—132 **5 Claims**



This invention consists of a strip of rigid steel that has one end suitably fastened to a handle that is approximately 42 inches long. The other end of the aforesaid strip of steel is provided with a V-shaped recess, thereby providing a V-shaped cutting edge to the tool. A second strip of rigid steel is secured by one end to the first mentioned strip of steel at a predetermined distance from the aforesaid cutting edge at an angle of approximately 45 degrees. The outer end of the last mentioned strip of steel terminates in a plurality of equally spaced and parallel teeth for the purpose that will hereinafter be described.

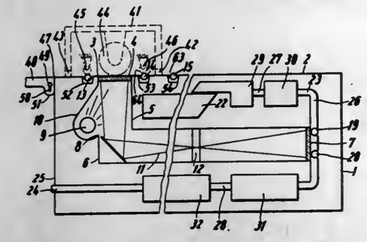
3,545,856
APPARATUS FOR MAKING COPIES

Walter Limberger, Hamburg, Poppenbuttel, Germany, assignor to Lumoprint Zindler KG, Hamburg, Germany

Filed Apr. 12, 1968, Ser. No. 720,876
Claims priority, application Germany, Apr. 12, 1968, L 56,311
Int. Cl. G03b *27/50, 27/70*
U.S. Cl. 355—51 **2 Claims**

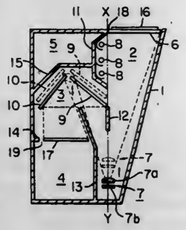
An apparatus for making copies comprises a housing, exposure means arranged within the interior of the housing including an exposure opening provided in the housing's upper cover wall, and an exposure passage communicating with a guide path for the sheets of copying material stored in a stack holder arranged within the interior of the housing. The location for applying an original copy is arranged on the upper cover wall of the housing adjacent the elongated exposure opening which extends transversely to the guide path and in parallelly spaced relation to one edge of the cover

wall. The stack holder for the sheets of copying material, which having their layer sides facing downwardly, is disposed adjacent the exposure opening below the applying location for the original copies and below the upper cover wall of the housing. The guide path for the



sheets of copying material includes substantially horizontal sections extending in parallelly spaced relation to each other and to the upper cover wall below the latter and connected by a substantially vertically extending section of the guide path.

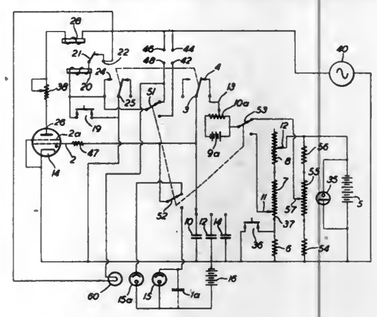
3,545,857
VARIABLE MAGNIFICATION EXPOSURE DEVICE FOR A REPRODUCTION APPARATUS
Yutaka Koizumi, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Sept. 20, 1968, Ser. No. 761,124
Claims priority, application Japan, Sept. 29, 1967, 42/62,690
Int. Cl. G03b *27/34*
U.S. Cl. 355—57 **3 Claims**



A reproduction apparatus comprises a reproduction lens system in a housing facing an original supported on a transparent plate covering an aperture, the reproduction lens system having a front lens and a rear mirror and being mounted for up-and-down movement on a vertical optical axis passing through one end of the aperture. A light source is positioned in the housing adjacent the aperture and on a side opposite the same respect to the optical axis for illuminating the original. A movable unit is mounted in the housing for reflecting an image from the lens system to photosensitive paper which is supported in the housing parallel to the original. The lens system and the mirrors of the movable unit are moved in the same direction to obtain variable magnification of reproduction.

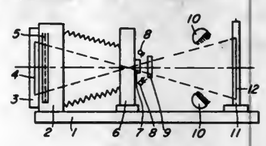
3,545,858
PHOTOGRAPHIC TIMING APPARATUS RESPONSIVE TO OPTICAL DENSITY
Warren Childers, 2518 South Blvd., Houston, Tex. 77006
Filed Mar. 11, 1968, Ser. No. 712,020
Int. Cl. G03b *27/76*
U.S. Cl. 355—68 **15 Claims**

In preparing a halftone, the optical density range of the image may exceed the optical density range of the halftone screen. The apparatus controls the exposure of the film dependent on the excess optical density. The excess optical density is set into the apparatus and an RC timing circuit controls firing of a thyratron to turn on



the lamp. A photocell measures the light falling on the film. The RC circuit discharges, as detected by the thyratron, which terminates the exposure when the photocell has viewed a measured amount of light.

3,545,859
FLASH MEANS FOR PROCESS CAMERAS AND ENLARGERS
Ernst E. Schumacher, Postfach 3113, Frankfurt am Main, Germany
Filed May 20, 1968, Ser. No. 730,560
Claims priority, application Germany, May 25, 1967, K 62,379
Int. Cl. G03b *27/76*; G01n *21/16, 21/38*
U.S. Cl. 355—71 **8 Claims**

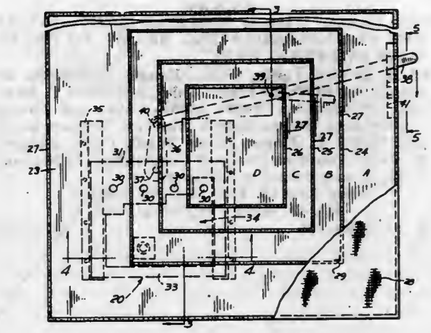


A supplemental flash-exposure system for process cameras and enlargers, including a clear transparent fluorescent member mounted in the path of the light rays passing from the object to a lens focused on the light sensitive image plane, and a momentarily energized source of radiation for activating fluorescence in the fluorescent element. The radiation sources are located laterally of the path of the image producing light rays to avoid the rays from the radiation sources reaching the lens; and in one embodiment of the invention, a filter capable of absorbing rays from the radiation sources is disposed between the fluorescent element and the lens.

3,545,860
ZONE CONTROL VALVE FOR VACUUM FILM HOLDER
Loren W. Hutchins, Detroit, Mich., assignor to Douthitt Corporation, Detroit, Mich.
Filed July 15, 1968, Ser. No. 744,891
Int. Cl. G03b *27/20*
U.S. Cl. 355—91 **4 Claims**

An open face vacuum film holder having a vacuum source and a vacuum board which includes a pan and a series of partitions therein defining a plurality of concentric vacuum chambers, each having a vacuum inlet. A rigid porous sheet is sealed over said pan and partition to define a series of independent vacuum zones. A slide valve is provided under and bearing against the pan, has

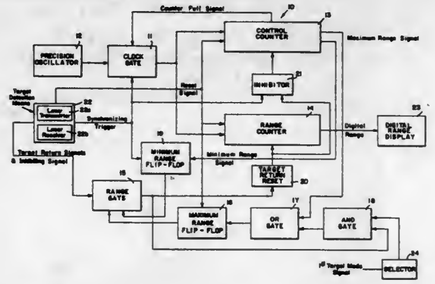
an inlet connected to the vacuum source and a stepped zone control chamber. Manually controlled movement of the valve selectively connects the vacuum source with one or a plurality of said zones successively. Heretofore in vacuum holders of this nature, a photosensitive unexposed film of a predetermined dimension is centrally applied to the open face vacuum board being correctly located for its dimension. There is directly applied to the said film



a positive or a negative print and wherein by the use of the vacuum bed both are pulled flat against each other and flat against the bed during the exposure process using a high intensity lamp for a short predetermined period.

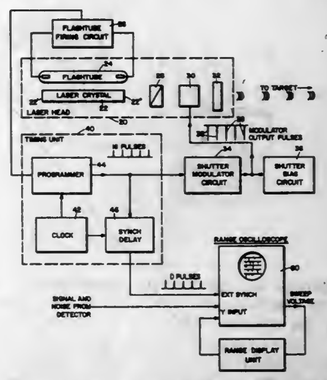
In holders of this type, the print may be of a small size as for example 4 x 5 inches, 5 x 7 inches or 8 x 10 inches, or may be larger in the range of 14 x 17 inches, 20 x 24 inches or 32 x 32 inches.

3,545,861
SELECTIVE TARGET RANGING SYSTEM
Robert P. Farnsworth, Los Angeles, and Edward J. Kapp, San Pedro, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Apr. 8, 1966, Ser. No. 541,218
Int. Cl. G01c *3/08*
U.S. Cl. 356—5 **10 Claims**



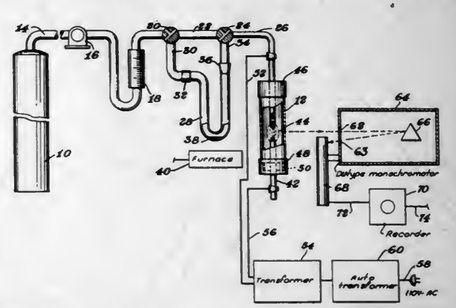
A selective ranging system where, in one embodiment, an electric pulse circuit means causes a control and a range counter to start counting at the time a transmitter is fired. The control counter determines the minimum and maximum range limits that a target range circuit means may process target return signals from remote targets. A logic circuit means selects either the first or the last target return signal within the predetermined minimum and maximum range limits as the last target that the target range circuit means may process for range determination by the range counter. The output of the range counter is applied to a range display circuit for a visual indication of the range of the selected target.

3,545,862
MULTI-PULSE LASER RANGING SYSTEM
Sumner Ackerman, Lexington, Mass., assignor to EG & G, Inc., Bedford, Mass., a corporation of Massachusetts
Filed Jan. 26, 1968, Ser. No. 700,954
Int. Cl. G01c *3/08*
U.S. Cl. 356—5 **5 Claims**



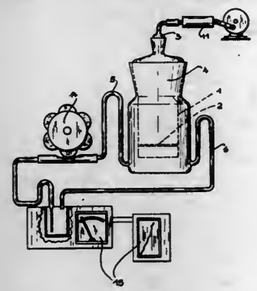
Laser ranging system having an electro-optical Q-switched laser activated to produce a predetermined number of giant laser pulses during a single pumping period by a modulator triggered by an equal number of pulses furnished by a programmable pulse generator, and an oscilloscope display system whose sweep is controlled by the same pulses through a pulse delay circuit to display in an equal number of sweeps the noise and reflected laser signals detected by the receiver.

3,545,863
METHOD FOR DETECTION OF MERCURY IN A HELIUM GLOW DISCHARGE
Eldon F. Ault, Ralph E. Mansell, and Harry DeVere Ruhl, Jr., Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Jan. 15, 1968, Ser. No. 698,030
Int. Cl. G01n *1/00*; G01j *3/30*
U.S. Cl. 356—86 **2 Claims**



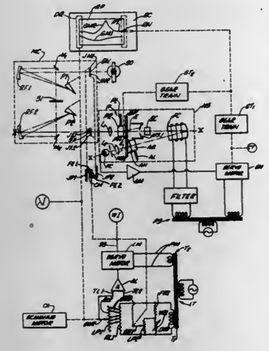
This invention relates generally to detection of mercury. More specifically, the invention is directed to a novel method for detecting nanogram concentrations (i.e. parts per billion) of mercury by excitation of a mercury vapor in a helium glow arc sustained by an AC discharge.

3,545,864
APPARATUS AND METHOD FOR DETERMINING GASTRO-ENTERAL ABSORPTION QUOTA
Hans-Werner Dibbern, Kelkheim, Taunus, Germany, assignor to C. Desaga G.m.b.H., Heidelberg, Germany
Filed July 19, 1967, Ser. No. 654,560
Int. Cl. G01j *3/00*; G01n *11/00, 31/06*
U.S. Cl. 356—96 14 Claims



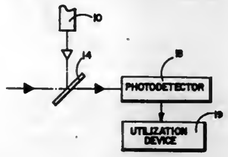
Substances are checked for gastro-enteral absorption quota by dissolving the substances in an aqueous phase, passing the solution through a frit filter, establishing a buffer of clear aqueous solution downstream of the frit filter and contacting the buffer with a lipoid phase. Apparatus includes two concentric vessels the inner of which opens downwardly into the other. An agitator is provided for both vessels and a pressure device places the aqueous phases continuously under pressure changing from positive pressure to vacuum pressure and vice versa. Samples are taken from lipoid phase and checked in a spectral photometer or the like.

3,545,865
SPECTROPOLARIMETER
Paige B. Hooper, 737 E. Dover, Glendora, Calif. 91740
Continuation of application Ser. No. 800,040, Feb. 11, 1969. This application Nov. 10, 1969, Ser. No. 871,668
Int. Cl. G01n *21/44*; G01j *3/00*
U.S. Cl. 356—96 14 Claims



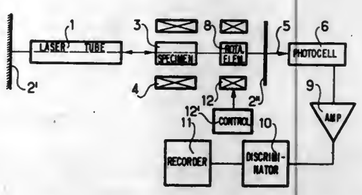
A spectropolarimeter is provided in which the distribution of a beam across a surface transverse to the optical path along which the beam travels does not depend upon the presence or absence of a sample. Two motor driven means intercoupled by a multipot are employed to change the wavelength setting of a monochromator and the widths of the monochromator slits to scan the spectrum and at the same time to control a characteristic, such as the intensity of the emerging monochromatic radiation. The distribution of the beam is reproducible from one run to another. Great accuracy in the measurement of optical activity as a function of wavelength, is achieved.

3,545,866
RING LASER WHICH UTILIZES ONLY ONE OF THE COUNTERROTATING BEAMS TO DETERMINE ROTATION RATE
Earl D. Jacobs, Tustin, Calif., Ronald H. Durrett, deceased, late of Yorba Linda, Calif., by Hubert C. Swanson, administrator, Yorba Linda, Calif., and Thomas J. Hutchings, Orange, Joseph Winocur, Newport Beach, and Wilbur L. Zingery, Long Beach, Calif., assignors to North American Rockwell Corporation, El Segundo, Calif., a corporation of Delaware
Filed June 15, 1967, Ser. No. 648,531
Int. Cl. G01b *9/02*; H01s *3/00*
U.S. Cl. 356—106 11 Claims



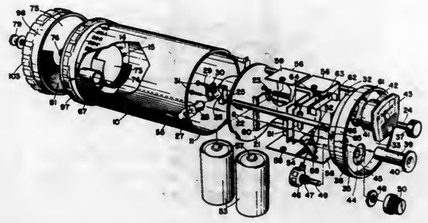
A pickoff for a ring laser gyroscope having two beams of light travelling in opposite directions around a closed optical path in which a small fraction of one of the rotating beams is directed out of the optical path onto a photodetector in order to detect the intensity variations of said one beam to determine the beat frequency between the oppositely rotating beams.

3,545,867
METHOD OF AND APPARATUS FOR MEASURING THE DENSITY OF A PLASMA OR TRANSPARENT SEMICONDUCTOR
François Rostas, Chatenay-Malabry, France, assignor to Compagnie Generale d'Electricite, Paris, France, a French corporation
Filed July 3, 1968, Ser. No. 742,307
Claims priority, application France, July 4, 1967, 112,932
Int. Cl. G02f *1/22*; G01n *21/22*
U.S. Cl. 356—114 4 Claims



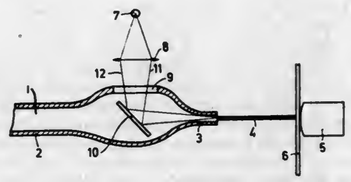
Apparatus and method for measuring the magnetic rotational dispersion of a transparent body and in particular for measuring the electron density of a plasma or a transparent semiconductor comprising measuring the optical beat frequency obtained from the output of a laser in the cavity of which is placed a plasma or said body and means for creating an axial magnetic field.

3,545,868
OPTICAL COLOUR FILTER SELECTING DEVICE
William Lutton Duncan, 60 Chestnut Park Road, Toronto, Ontario, Canada
Filed Apr. 10, 1967, Ser. No. 629,687
Int. Cl. G01j *5/08*; G01n *21/20*
U.S. Cl. 356—175 4 Claims



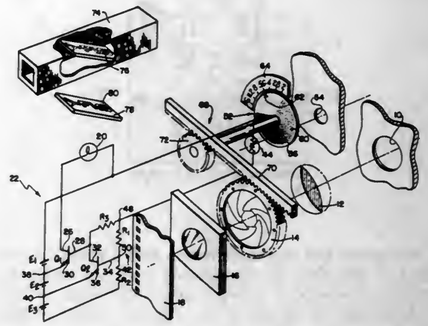
This specification discloses a chromascope to be used in selecting the correct colour filter to be employed in photography under any particular condition of illumination. The chromascope comprises a standard light source in the form of an electric lamp with which are associated a diffuser and a colour filter; a casing enclosing the light source and having an end wall formed with an aperture that receives natural light from the scene to be photographed; an eyepiece mounted on an end wall of the casing remote from that having the aperture and in alignment therewith; a lens assembly within the casing associated with the eyepiece; a mirror having a central opening in the path of alignment of said aperture and eyepiece and arranged at a 45° angle with respect thereto with the mirror receiving light from the standard source; an adjustable neutral density filter operatively associated with each of said source and aperture; and a circularly arranged assembly of graduated colour filters rotatably mounted on said casing and adapted to be indexed into any of a plurality of positions in which one of the colour filters aligns with the aperture.

3,545,869
DEVICE FOR THE COLORIMETRIC ANALYSIS OF LIQUIDS
Michel Auphan, Neuilly-sur-Seine, France, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 21, 1967, Ser. No. 624,945
Claims priority, application France, Apr. 4, 1966, 56,241
Int. Cl. G01j *3/50*; G01n *21/24, 33/16*
U.S. Cl. 356—181 5 Claims



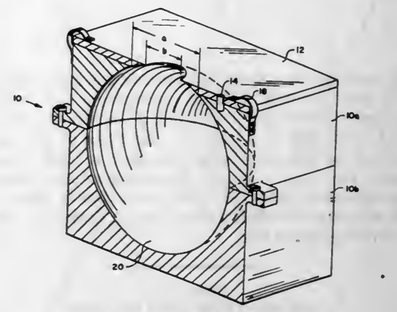
A device for the colorimetric analysis of liquids, especially blood employing a cuvette which directs the liquid in the form of a jet at a photosensor, light for analysis being supplied only via the jet of liquid.

3,545,870
PHOTOMETRIC APPARATUS INCORPORATING LIGHT RESPONSIVE TRANSISTORIZED SWITCHING CIRCUIT
John P. Burgarella, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Dec. 27, 1965, Ser. No. 516,240
Int. Cl. G01j *1/42, 1/44*
U.S. Cl. 356—226 13 Claims



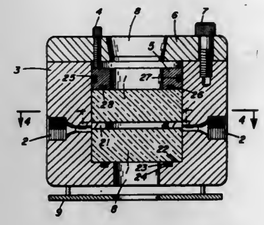
Photometric apparatus for determining a photometric value corresponding to the brightness of a field of illumination. The apparatus utilizes a signal lamp which is coupled with a transistorized switching circuit. The switching circuit is actuated by a light sensitive voltage dividing network. Energization of the lamp by the circuitry indicates that a proper exposure factor value has been selected.

3,545,871
DIFFERENTIAL-PORT SPHERE FOR ABSOLUTE DIFFUSE SPECTRAL REFLECTANCE MEASUREMENTS AND METHOD
Franklyn L. Waska, Chino, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed May 31, 1968, Ser. No. 733,480
Int. Cl. G01j *1/04*
U.S. Cl. 356—236 4 Claims



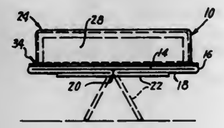
A differential-port sphere for absolute diffuse spectral reflectance measurements is disclosed. The sphere has a diffuse cavity surface and two ports of different areas. By obtaining spectroreflectometer instrument readings of the sphere with both ports, the absolute wall reflectance of the differential-port sphere may be computed. This wall reflectance may then be used to calibrate the spectroreflectometer or other instrument standard.,

3,545,872
HIGH PRESSURE OPTICAL CELL FOR FLUIDS
Klaus Noack, Geneva, Switzerland, assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed Mar. 18, 1968, Ser. No. 713,908
Int. Cl. G01n *21/26, 23/12*
U.S. Cl. 356—246 2 Claims



An optical cell and combination with a miniature autoclave is described for monitoring reactions under high pressures, particularly between gases and liquids, by means of absorption of spectra in the infrared, visible or ultraviolet region. Liquid from the autoclave in which the reaction is proceeding is pumped by a solenoid driven pump which also effects mixing. The solenoid drive permits circulation without presenting problems of seals in moving pumps.

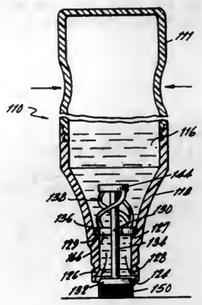
3,545,873
BUTTER STORING AND SPREADING PACKAGE
Asad F. Isaf, 3 Hamlin St., Cortland, N.Y. 13045
Filed Oct. 25, 1968, Ser. No. 770,602
Int. Cl. B65d *15/22*
U.S. Cl. 401—98 3 Claims



A package for storing and spreading a spreadable material such as butter or the like including a base receiving a quantity of spreadable material, a transparent cover secured to the base by a tear cord and a pair of tab handles on the base that may be positioned in a stored position against the base, a handle forming position depending perpendicularly from the base, and a display stand position with the tab handles depending in diverging relation to form supporting legs.

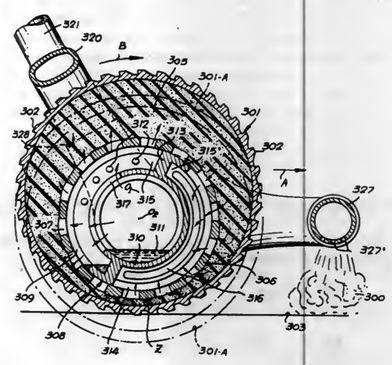
3,545,874
BRUSH-TYPE APPLICATOR
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y. 10583
Filed May 31, 1968, Ser. No. 733,425
Int. Cl. B43m *11/06*
U.S. Cl. 401—186 1 Claim

A brush headed applicator comprising a squeeze container having a valve member disposed in the container neck. The valve member includes an outwardly flared resilient valve head and a ring of larger diameter than the neck opening with means in the container for holding the ring in a predetermined position spaced from a valve seat so that helical coil springs integrally interconnecting



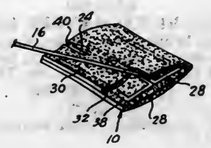
the valve head and ring are continuously maintained under compression.

3,545,875
PROCESS AND APPARATUS FOR PRODUCING GAS/LIQUID MIXTURES
Helmut Schneider, Mainz (Rhine), Germany, assignor to Werner & Mertz G.m.b.H., Mainz (Rhine), Germany, a corporation of Germany
Filed Jan. 4, 1968, Ser. No. 695,654
Claims priority, application Germany, Jan. 5, 1967, 1,557,240; Apr. 20, 1967, 1,557,245
Int. Cl. B44d *3/28*
U.S. Cl. 401—197 15 Claims



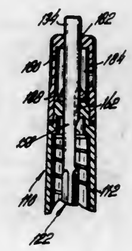
To produce a gas/liquid mixture, particularly a foaming substance to be used for cleaning or other purposes, a gas (preferably air) and a foamable liquid are introduced into the interior of a tubular roller of spongy material, the roller being subjected to recurrent peripherally progressive local deformation with alternate radial compression and expansion whereby the two constituents are aspirated into the interstices thereof and then expelled as a mixture. The discharge of the mixture may take place through the outer periphery of the roller or through a special channel near the roller axis separated by a partition from another channel connected to the fluid inlet; in the latter case, the roller body turns on a perforated tubular shaft containing the channels so as to communicate with the inlet channel when expanding and with the discharge channel when undergoing compression. Specific utility: Cleaning of carpets and upholstered furniture.

3,545,876
DISPOSABLE SWAB AND HOLDER
Ragnvald G. Leland, 2334 W. 241st St., Lomita, Calif. 90717
Filed Jan. 10, 1969, Ser. No. 790,340
Int. Cl. A47l *13/03, 13/17*
U.S. Cl. 401—201 7 Claims



A disposable swab and holder, the swab comprising a flat, flexible member having a pair of spaced openings in at least one side edge thereof, and a narrow portion adjacent one end of the swab, with slot means therein, to prevent the swab from coming off a holder upon which it is disposed, the holder comprising a pair of U-shaped members whose sides form outer tines with the inner sides of the U-shaped members, being disposed adjacent the lower end of a handle which is provided with a section forming another U-shaped member with the handle and having a reversed bend on the portion of the U-shaped member disposed away from the lower end of the handle to retain the swab thereon. The swab may be disposed on the tines and the handle by placing it on the handle tines and thereafter folding the swab back over the central U-shaped section formed on the lower end of the handle. Preferably, the swab has a thin upper layer and a corrugated lower layer for receiving a detergent to be dispensed through tiny apertures in the corrugations while cleaning. After a limited period of use, the upper layer will dissolve or disintegrate, in water, and the swab may be disposed of by flushing.

3,545,877
DRAFTING PEN WITH CLEANSING VENT VALVE STEM
Edward Bok, Falls Church, Va., assignor to Dike, Inc., Washington, D.C., a corporation of the District of Columbia
Continuation-in-part of application Ser. No. 774,097, Nov. 7, 1968. This application Dec. 11, 1968, Ser. No. 783,032
Int. Cl. B43k *1/10*
U.S. Cl. 401—259 5 Claims



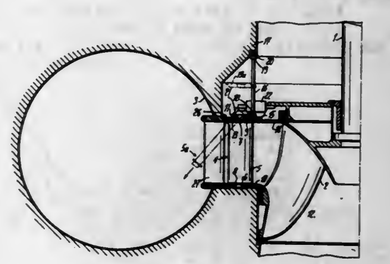
Stylographic drafting pens of the type having a writing nib communicating with a vented ink reservoir via a capillary passage, particularly a vent valve stem reciprocably supported within the reservoir and at one end for the capillary passage and at the other end having a flange for cleansing dried ink from the vent valve area on top of the ink reservoir.

3,545,878
STYLOGRAPHIC PEN WITH VENT STEM SCRAPER
Edward Bok, 819 Tucker Road, North Dartmouth, Mass. 02747
Filed Feb. 27, 1969, Ser. No. 802,914
Int. Cl. B43k *1/06*
U.S. Cl. 401—260 10 Claims



Stylographic writing or drafting pen having a valve venting stem extending into a scraper mounted in the pen barrel to contact the venting stem and scrape off dried ink, as the reservoir is vented.

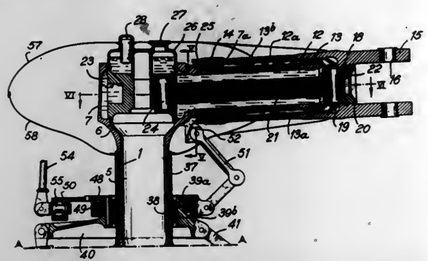
3,545,879
HYDRAULIC MACHINE
Pierre Piguet, Onex, Geneva, Switzerland, assignor to Ateliers des Charmilles S.A., Geneva, Switzerland, a company of Switzerland
Filed Jan. 31, 1969, Ser. No. 795,653
Claims priority, application Switzerland, Feb. 22, 1968, 2,668/68
Int. Cl. F04d *1/00, 29/40*
U.S. Cl. 415—160 2 Claims



The invention is applicable to a pump, turbine or turbopump of the type including a distributor between the covers of which the guide vanes are pivotally fitted under suitable control means. To eliminate the drawback of a heavy reinforcement of the cover remote from the suction pipe and the difficult accessibility of the guide vanes, the stresses to which the covers are subjected are transmitted directly to the solid mass of masonry in which the turbine is built. This can be done by means of an annular series

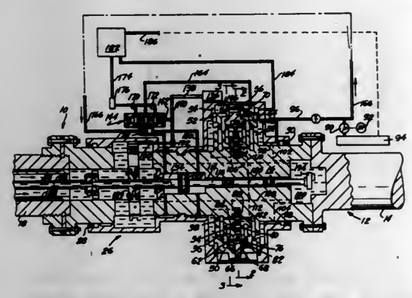
of arms fitted between the masonry and an outer ring forming part of said remote cover and in which the corresponding ends of the guide vanes are pivotally carried.

3,545,880
ROTOR FOR ROTARY-WING AIRCRAFT
René Louis Mouille, Aix-en-Provence, France, assignor to Sud-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France
Filed July 23, 1968, Ser. No. 746,852
Claims priority, application France, July 31, 1967, 116,262
Int. Cl. B64c 27/48
U.S. Cl. 416—114 5 Claims



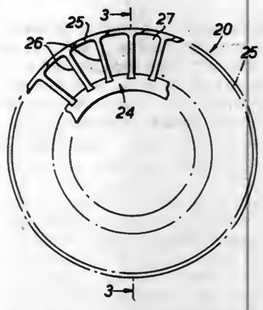
A rotor for rotary-wing aircraft which is devoid of flapping and lead-lag hinges in the connection between the blades and the hub and in which are combined, with a hollow one-piece rotor mast forming at once a shaft, a hub and rotorblade supporting arms, an arrangement for mounting a rotor blade for free rotation and sliding on each arm and restraining means formed by a non-extensible but rotationally elastic attachment for the blade root to a central core housed in the upper flared portion of said mast.

3,545,881
CONTROLLABLE PITCH PROPELLER WITH HYDRAULIC POWER SUPPLY AND CONTROL
Albert M. Naulty, Springfield, Pa., assignor to Baldwin-Lima-Hamilton Corporation, Philadelphia, Pa., a corporation of Delaware
Filed July 24, 1968, Ser. No. 747,327
Int. Cl. B64c 11/38
U.S. Cl. 416—157 9 Claims



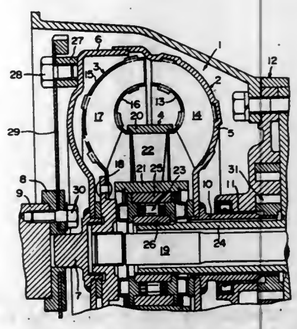
A controllable pitch propeller of the type employing a hydraulically actuated servomotor mechanism for adjusting blade pitch, wherein fluid pressure for adjusting blade pitch is provided by apparatus within and driven by the propeller shaft, thereby obviating the need for high pressure overshaft seals between fixed structure and the shaft. The fluid pressure providing apparatus is so arranged that only the pressure and volume needed to maintain pitch is provided during steady state operation. An eccentric cam ring, against which radially disposed shaft-mounted pistons ride, controls the stroke of the pistons to regulate the volume delivered to the pitch change servomotor.

3,545,882
PRESSURE EXCHANGER ROTOR
Douglas Herbert Williamson, Derby, England, assignor to Rolls-Royce Limited, Derby, England
Filed Jan. 14, 1969, Ser. No. 791,107
Int. Cl. F01d 5/22
2,545/68
Claims priority, application Great Britain, Jan. 17, 1968,
U.S. Cl. 416—190 10 Claims



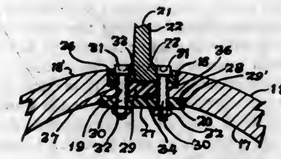
A pressure exchanger rotor has radially spaced apart inner and outer shrouds between which extend a plurality of angularly spaced apart vanes to define therewith pressure exchanger cells, the vanes having shroud portions which collectively constitute at least one of the said shrouds and which slidingly abut each other at all times to accommodate differential thermal expansion between the said shrouds and vanes.

3,545,883
HYDRODYNAMIC COUPLING
Tetsuya Iijima, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan
Filed Dec. 5, 1968, Ser. No. 781,321
Claims priority, application Japan, Dec. 20, 1967, 42/81,429
Int. Cl. F04d 29/18
U.S. Cl. 416—197 1 Claim



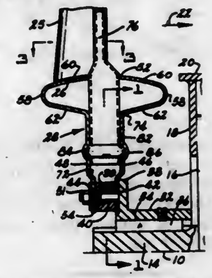
A fabricated hydrodynamic coupling device each vane being connected by tabs to slots of an impeller outer shell and a core element and is assembled without flexing the vanes, without other retainer means nor retaining devices, only by folding tabs to the core element.

3,545,884
ADJUSTABLE FAN CONSTRUCTION
Joachim W. Schroeter, Depew, and Derrel N. Stewart, Hamburg, N.Y., assignors to Buffalo Forge Company, Buffalo, N.Y., a corporation of New York
Filed Sept. 12, 1968, Ser. No. 759,483
Int. Cl. B64c 11/06
U.S. Cl. 416—205 11 Claims



An adjustable fan construction including a plurality of blade assemblies mounted on an associated hub and each having a base assembly for sandwiching the hub including an upper base portion and a retaining disk fastened by a plurality of prestressed bolts with a spacer therebetween, and a resilient member interposed between the base assembly and the hub for holding the blade in any adjusted position but permitting it to be manually moved to any other desired position, without loosening of any retaining or locking members.

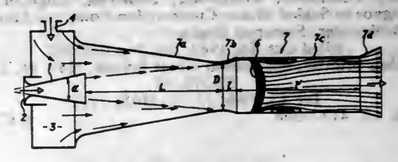
3,545,885
FAN BLADE SECUREMENTS
Harry R. Killam, Livonia, Mich., assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 17, 1968, Ser. No. 760,174
Int. Cl. B64c 11/06
U.S. Cl. 416—207 6 Claims



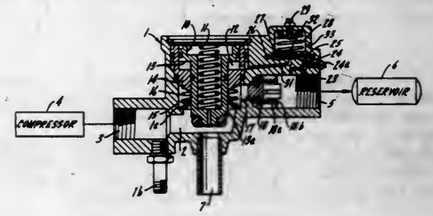
A vane-axial fan wherein the blades are mounted on a sheet metal hub structure formed by two metal discs. The discs are clamped together to retain certain blade-retention struts in radial sockets formed by channels in the facing surfaces of the discs. Peripheral portions of the discs are bulged or deformed to define a strengthening rib for the discs; the outer peripheral surface of the rib has a spherical contour which conforms to the inner edge contours on the blades, thus preventing air leakage or turbulence. Blades can be adjusted to provide different pitch angles without disturbing the rib-blade inner edge relationship.

3,545,886
EJECTOR
Joseph Aron Chalom, Suresnes, France, assignor to Condenseurs Delas, Paris, France, a French company
Filed June 13, 1968, Ser. No. 736,851
Int. Cl. F04f 5/00, 5/16, 5/48
U.S. Cl. 417—196 4 Claims

An ejector which includes means for directing a high velocity gas stream into a convergent-divergent diffusor, within which the gas stream is compressed, the divergent portion of the diffusor including a first section which is divergent, a second section which is substantially cylindrical and within which a shock wave is created and a third section which is divergent.

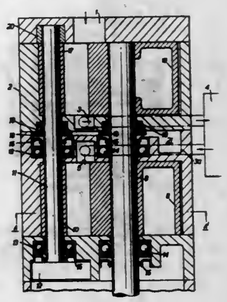


3,545,887
COMPRESSOR GOVERNOR
Werner Kobnick, 6 Oppelner Str., 6900 Heidelberg-Kirchheim, Germany
Filed July 3, 1968, Ser. No. 742,227
Int. Cl. F04b 49/00; F16k 31/12
U.S. Cl. 417—307 3 Claims



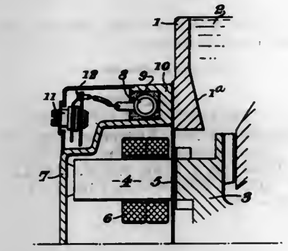
A compressor governor having means communicating a compressor alternatively with atmosphere and a reservoir in automatic response to predetermined pressure levels in said reservoir, means for adjusting said predetermined pressure levels and means for dampening pulsations of said governor.

3,545,888
MULTISTAGE ROTARY PUMPS
Henryk Wycliffe, Crawley, and Basil Dixon Power, Horsham, England, assignors to Edwards High Vacuum International Limited, Crawley, Sussex, England, a British company
Filed Sept. 16, 1968, Ser. No. 759,955
Int. Cl. B01d 39/00; F04c 23/00; F25j 3/00
U.S. Cl. 417—310 10 Claims



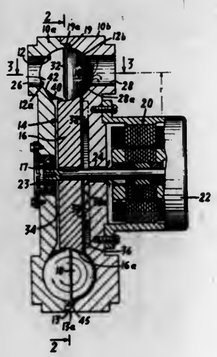
A multistage rotary vacuum pumping arrangement in which a low vacuum stage is oil lubricated and a high vacuum stage is "dry" or non-lubricated in the conventional sense. The "dry" stage is driven in phase to follow the lubricated stage. An oil vapour trap is suitably situated in an interstage region.

3,545,889
CENTRIFUGAL PUMPS
Philip Pensabene, Bridgwater, Somerset, England, assignor to Sealed Motor Construction Company Limited, Bridgwater, Somerset England
Filed Oct. 21, 1968, Ser. No. 769,092
Claims priority, application Great Britain, Nov. 16, 1967, 52,272/67
Int. Cl. F04d *13/02;* **H02k** *1/22*
U.S. Cl. 417—366 **1 Claim**



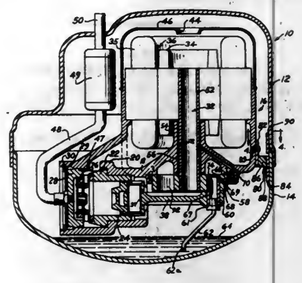
For varying the head to output ratio of an electric motor driven water circulating pump unit while at the same time increasing the overall efficiency, there is provided in the stator winding circuit of the motor an adjustable resistance device having at least one resistance element mounted on the unit in heat conducting connection with the water circulating channel therein.

3,545,890
REGENERATIVE COMPRESSOR
Albert B. Hubbard, John C. Larson, and Bohumir A. Larys, Woodstock, and Lewis F. Smith, Schenectady, N.Y., assignors to Mechanical Technology, Incorporated, Latham, N.Y., a corporation of New York, and Rotron Manufacturing Company, Inc., Woodstock, N.Y., a corporation of New York
Filed Dec. 29, 1967, Ser. No. 694,602
Int. Cl. F04d *17/08, 25/06, 29/40*
U.S. Cl. 417—368 **42 Claims**



A regenerative compressor including a stationary housing having an annular compressor chamber comprised of adjacent cavity and blade pass portions and an impeller supported for rotation in the housing about the axis of the compressor chamber and including a succession of spaced radially projecting blades occupying the blade pass chamber portion. The blades are shaped to conform to the cross-sectional geometry of the blade pass portion of the chamber and are unshrouded so that adjacent blades and the wall of the blade pass chamber portion define a series of peripheral cavities which induce vortex motion of the fluid in the chamber about the line of fluid transport between inlet and outlet ports. One of the inlet and outlet ports communicates with the cavity portion of the compressor chamber, and the other of the ports communicates with the blade pass portion permitting porting of the fluid from one side of the housing to the other. A flow stripper interrupts the cavity portion of the chamber to preserve a pressure gradient in the transport direction that results in flow of the compressed fluid through the outlet port, which is located to set up a counter-vortex to straighten the exit flow.

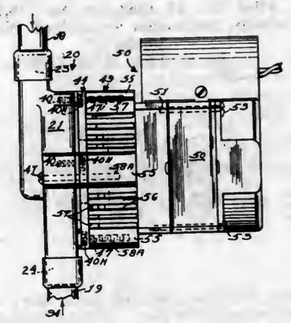
3,545,891
COMPRESSOR CRANKSHAFT ARRANGEMENT
Sidney A. Parker, Fort Worth, Tex., assignor to Lennox Industries Inc., a corporation of Iowa
Filed Nov. 1, 1968, Ser. No. 772,496
Int. Cl. F04b *39/02;* **B23b** *15/00*
U.S. Cl. 417—372 **9 Claims**



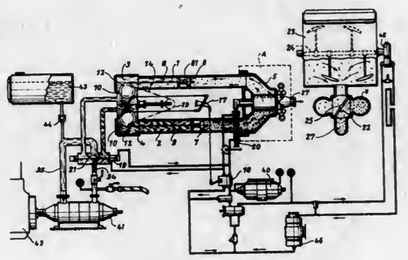
A crankshaft arrangement for a refrigerant compressor formed from relatively inexpensive components, including shaft parts prehardened and centerless ground, and then bonded to one another by electron beam welding, rather than being formed in unitary form from a forging or casting as in the prior art.

3,545,892
MAGNETICALLY-COUPLED PUMP
Frederick N. Zimmermann, Glenview, Ill., assignor to March Manufacturing Company, Glenview, Ill., a corporation of Illinois
Continuation of application Ser. No. 710,958, Mar. 6, 1968. This application July 7, 1969, Ser. No. 845,639
Int. Cl. F04d *13/02*
U.S. Cl. 417—373 **20 Claims**

In rotary pumps of the magnetically-coupled type, the pump is formed in separable sections one of which constitutes a body portion and the other a closure portion, there being a protuberant inlet chamber and duct formation projecting from the side of one section, and a protuberant magnet well and surrounding alignment formation on the side of the other section adapted to be circumscribed by a driving magnet rotated thereabout by a motor unit removably conjoined with the pump, there being a rigid non-metallic ring member interposed between the pump and motor units and having annular flange and socket formations cooperative with the pump and motor to align the latter and the driving magnet accurately for very close air-gap clearance about the magnet well, the ring member being non-metallic and having low heat conductivity to serve as a barrier to conductive heat transfer between the pump and motor unit, such heat transfer being further reduced by supporting the driving magnet in a carrier formation which is an integral part of a fan structure proximate to both the motor and pump.



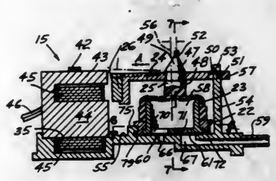
3,545,893
RECIPROCATING DUPLEX SLURRY PUMP
Karl Schlecht, Bernhausen, Germany, assignor to Putzmeister G.m.b.H., Chur, Switzerland
Filed Apr. 2, 1969, Ser. No. 812,744
Claims priority, application Germany, Apr. 3, 1968, 1,703,112; Aug. 3, 1968, 1,703,946
Int. Cl. F04b *7/00, 17/00*
U.S. Cl. 417—382 **8 Claims**



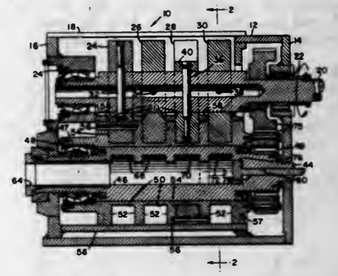
The two pistons of a reciprocating duplex slurry pump are pushed in the associated cylinders in one direction by hydraulic fluid and are pulled in the opposite direction by cables or ropes wound on drums in pressure chambers at the cylinder ends and linked by a chair trained over sprockets on the drum trunnions outside the chamber. The power valve which reverses the pistons is mounted directly on the pressure chambers to minimize the inertial load on the cables or ropes during piston reversal.

3,545,894
AIR PUMP
David D. Lovitz, Short Hills, N.J., assignor to Sternco Industries, Inc., Harrison, N.J., a corporation of New Jersey
Filed Apr. 15, 1969, Ser. No. 816,190
Int. Cl. F04b *35/04;* **F16k** *15/14*
U.S. Cl. 417—412 **6 Claims**

A vibrator air pump comprising a bellows connected to a vibratory armature actuated by an A.C. electromagnet and communicating with a valve housing and a diaphragm valve member operatively associated with respective inlet and outlet passageways, whereby alternate suction and pressure conditions are produced within the housing. The said diaphragm valve member is, in its preferred form, a thin flat disc having two spaced narrow flexible slotted portions constituting inlet and outlet valves, the suction within the housing pulling one of said slotted portions out of the plane of the disc towards the interior of the housing to draw in air from the inlet passageway, and the pressure within the housing forcing the other of the slotted portions out of said disc's plane away from the interior of the housing to discharge air into the outlet passageway, whereby a continuous pumping action is produced.



3,545,895
ROTARY INFLOW COMPRESSORS AND THE LIKE
Roger C. Weatherston, Williamsville, and George R. Duryea, Buffalo, N.Y., assignors to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y.
Filed Sept. 18, 1968, Ser. No. 760,454
Int. Cl. F01c *1/12;* **F02b** *53/00*
U.S. Cl. 417—440 **9 Claims**

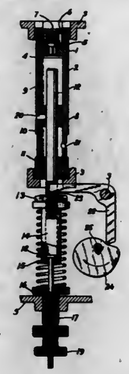


A rotary inflow compressor and/or expander having one or more piston members rotating in an annular chamber, the inner wall of which comprises a rotary sleeve valve adjacent the piston and cooperating with one or more abutment members rotating in timed relation with the piston members.

3,545,896
RECIPROCATING PUMP
Stanislav Zahradnik, Roztoky u Jilemnice, Czechoslovakia, assignor to Elitex, Zavody textilniho strojirenstvi, generalni reditelstvi, Liberec, Czechoslovakia
Filed Nov. 13, 1968, Ser. No. 775,374
Claims priority, application Czechoslovakia, Nov. 15, 1967, 8,083/67
Int. Cl. F04b *29/00*
U.S. Cl. 417—471 **7 Claims**

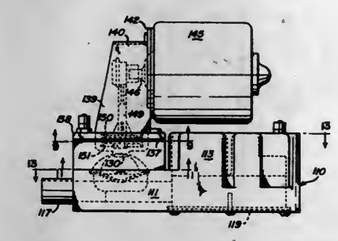
A pump for discharging air in pulses of precisely controlled volume, velocity, and timing has a cylinder divided by an annular collar into a working chamber and a

lubricant chamber. A plunger passes through a cylinder end wall into the lubricant chamber and thence through the collar into the working chamber to draw air into the latter, and to compress the air and discharge it through suction and pressure valves respectively. The plunger is



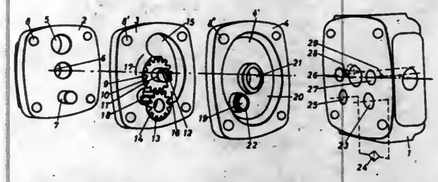
guided in axially short, conforming bores of the collar and of the end wall which are protected against dust by the lubricant which is held in the lubricant chamber under a pressure normally higher than that of the working chamber.

3,545,897
PUMP
Linus E. Russell, Springfield, Ohio, assignor to Peters and Russell, Inc., Springfield, Ohio, a corporation of Ohio
Continuation of applications Ser. No. 381,103, July 8, 1964, and Ser. No. 566,139, July 18, 1966. This application Sept. 18, 1968, Ser. No. 773,683
Int. Cl. F04b *11/00, 21/02, 39/10*
U.S. Cl. 417—542 **33 Claims**



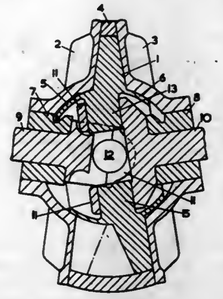
The invention covers an improved diaphragm pump distinguished by a simple stacked relation of parts rendering it small and compact and providing a positive displacement of fluid with minimal wear and maximum efficiency. A unified pump construction is provided wherein its low line base structure has a shell form molded to incorporate offset from the flow path an integrated surge chamber facilitating a smoothing of the pump flow and eliminating pulsation normally incident to pump operation. A modification of the invention provides for improvements in the pump power head affording a shallow pumping chamber by means of a block structure so apertured to induce optimal flow conditions, the chamber having one wall formed by the diaphragm which is flexed in short strokes to enable a high speed pump, operating thereby under conditions requiring low power consumption.

3,545,898
MODULAR HYDRAULIC FLUID SUPPLY PUMP
Gerhard Bobst, Oensingen, Switzerland, assignor to Von Roll A.G., Gerlafingen, Switzerland, a corporation of Switzerland
Filed Nov. 22, 1968, Ser. No. 778,198
Claims priority, application Switzerland, Nov. 30, 1967, 16,826/67
Int. Cl. F04c *15/00, 1/08*
U.S. Cl. 418—39 **4 Claims**



A group of aligned, stacked plates carry a gear pump unit at an intermediate plate, with openings for supply of fluid arranged along an axis of symmetry so that by reversing the plate carrying the gears of the pump, and turning associated plates carrying fluid ducts, about the axis of symmetry, different directions of rotation of the drive to the pump can be accommodated, and the modular unit readily associated at an inlet supply pump to a pressure pumping system.

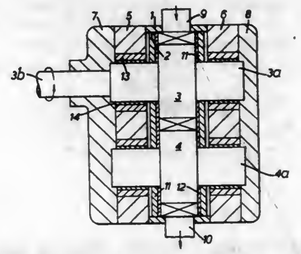
3,545,899
ROTARY MACHINES
John Michael Clarke, Dogmersfield, England, assignor to National Research Development Corporation, Victoria, London, England
Filed Oct. 11, 1968, Ser. No. 766,783
Claims priority, application Great Britain, Oct. 16, 1967, 46,962/67
Int. Cl. F04c *3/00, 17/00, 23/00*
U.S. Cl. 418—68 **13 Claims**



A casing comprises two end housings having flat surfaced faces inclined towards each other and joined at their peripheries by a ring housing so as to define a circumferentially convergent-divergent channel within the casing which encloses a disc-like rotor. The rotor is coupled to two shafts, which are inclined relative to each other at the same angle as the flat faces, to form a variety of Hooke's joint so that the rotor will sweep over the channel in the casing during rotation. Lobes on the faces of the rotor bear against the sides of the channel (i.e., the flat faces of the end housings) at all times to define chambers whose volumes are varied during rotation. By suitable placing of ports in the channel, the machine can operate as an engine or a pump. In a variation, the casing is in two parts rotatable relative to each other and arranged so that the angle between the two shafts is varied by such rotation. In another variation, two rotor and casting assemblies are

connected through a common shaft to achieve balancing of thrust and inertial loads. Ports are arranged to enable the machine to operate as an air compressor with high rotational speeds; rotor and casing have conical side surfaces.

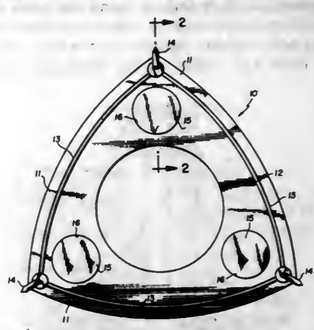
3,545,900
GEAR PUMPS, MORE PARTICULARLY FOR USE WITH HOT FLUIDS
Derek G. Viner and John S. Thompson, Ilford, England, assignors to The Plessey Company Limited, Ilford, England, a British company
Filed Aug. 12, 1968, Ser. No. 752,053
Claims priority, application Great Britain, Sept. 2, 1967, 40,211/67
Int. Cl. F04c *27/00, 15/00*
U.S. Cl. 418—131 **6 Claims**



To provide a low friction gear pump suitable for delivery of hydro-carbon liquids at temperatures between 150 and 250° C. the side faces of the metal housing members or side plates which are in contact with the gears are lined with anti-friction carbon, preferably applied by an epoxy adhesive resistant to the relevant temperatures, and similar coatings may be provided as lining in the journal bearings. The specification also describes a method of making the carbon lined journal bearings by forcing a solid carbon plug into a socket bore of the metal body into the bottom of which a quantity of adhesive has been inserted and which allows clearance round the plug so that the adhesive becomes extruded through the gap to fill the latter completely, and after setting of the adhesive the two end surfaces are re-machined, the carbon plug is bored to convert it into a carbon liner, and the two end surfaces of the body are machined to remove the closed end portion of the socket bore.

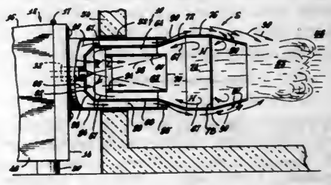
3,545,901
ROTOR FOR ROTARY PISTON ENGINES
Adolf Belzner, Heilbronn-Neckargartach, Germany, assignor to NSU Motorenwerke Aktiengesellschaft, Neckarsulm, and Wankel G.m.b.H., Lindau (Bodensee), Germany
Filed Jan. 27, 1969, Ser. No. 793,952
Claims priority, application Germany, Feb. 16, 1968, 1,601,826
Int. Cl. F01c *21/00, 21/02;* **F16c** *17/04*
U.S. Cl. 418—179 **3 Claims**

An improved rotor for a rotary-piston engine which rotor is supported for rotation and axial movement between spaced end walls of the housing of the rotary piston engine. The rotor has a body portion formed to have a plurality of circumferentially spaced apex portions about its periphery and opposite end faces lying in planes perpendicular to the axis of rotation. A plurality of removable wear members are receivable in complementary shaped recesses formed in each of the end faces of the rotor. Each of the wear members is dimensioned in relation to its associated recess so that a distal portion of the wear member lies slightly beyond the plane of the end face so as to engage the end walls of the housing and thereby limit axial movement of the



rotor. Each of the wear members is composed of a material having self-lubricating characteristics.

3,545,902
BLUE-FLAME GUN BURNER PROCESS AND APPARATUS FOR LIQUID HYDROCARBON FUEL
Frank W. Bailey, 663 Black Rock Road, Wayne, N.J. 07470
Filed Sept. 23, 1968, Ser. No. 761,503
Int. Cl. F23m *9/00*
U.S. Cl. 431—9 **20 Claims**

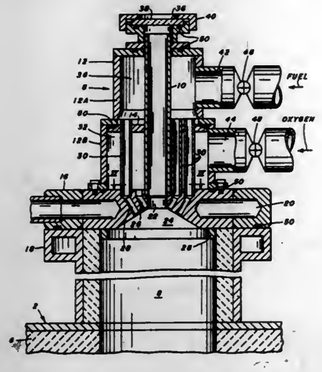


Blue-flame gun burner process and apparatus for burning liquid hydrocarbon fuel, such as fuel oil to produce a stable blue flame which is quiet and sootless for air pollution reduction purposes and has numerous other advantages. A compact inexpensive burner unit is described adapted to be used in new home furnace installations and to be used as a replacement unit capable of being inserted into existing furnace fireboxes to replace conventional gun-type yellow flame burners. Also a blue-flame water heater system is disclosed suitable for providing convenience hot water or for use as a home heating furnace, which recovers the heat of vaporization of the water vapor (H_2O gas) which is present in the gaseous combustion products resulting from burning fuel oil, thus increasing thermal efficiency substantially above that obtained for conventional water heaters or furnaces. Moreover, the invention provides a multi-fuel blue flame burner unit which is capable of burning fuel oil, kerosene or gasoline interchangeably while providing substantially the same blue flame characteristics thereby being convenient for mobile home applications, etc.

3,545,903
BURNER FOR PREHEATING A REFRACTORY LINED VESSEL
Marshall J. McCullough, Hazel Crest, Ill., assignor to United States Steel Corporation, a corporation of Delaware
Filed Mar. 12, 1969, Ser. No. 806,448
Int. Cl. F23d *5/12*
U.S. Cl. 431—13 **7 Claims**

A burner for injecting a fluid hydrocarbon fuel and oxygen into a refractory lined vessel includes coaxial

inner and outer tubes with a transverse partition between the inside of the outer tube and the outside of the inner tubes intermediate their ends dividing the outer tube into a fuel receiving chamber at the end remote from the vessel and an oxygen receiving chamber at the end adjacent the vessel. A transverse collar at the discharge end of the



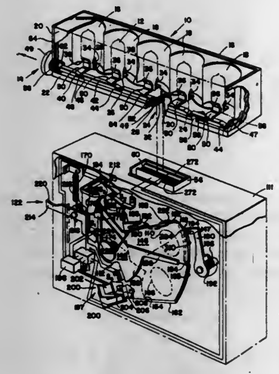
burner has an inner ring of spaced apart ports extending therethrough inwardly toward the discharge end of the burner and an outer ring of spaced apart ports extending therethrough inwardly toward the discharge end of the burner. Long tubes extend through the partition and communicate with alternate ports of both rings.

3,545,904

APPARATUS FOR SEQUENTIALLY SELECTING PHOTOFLASH LAMPS FOR IGNITION

Edison R. Brandt, Cohasset, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Oct. 3, 1968, Ser. No. 764,814
Int. Cl. F21k *5/02*
U.S. Cl. 431—95 **9 Claims**



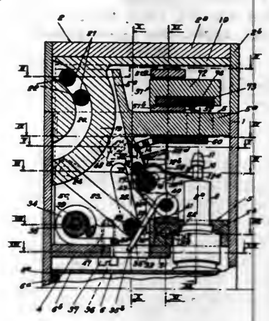
A photoflash lamp assembly supports a plurality of photoflash lamps for simultaneous direction toward a scene to be photographed and includes indexable electrical conductor means responsive to ignition of one lamp for selecting another lamp for subsequent ignition.

3,545,905

GAS LIGHTER WITH CONCEALED OPERATING MECHANISM

Robert Raymond Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine Francispam, Paris, France, a corporation of France

Filed Mar. 26, 1969, Ser. No. 810,531
Claims priority, application France, Mar. 29, 1968, 146,320
Int. Cl. F23q *2/16*
U.S. Cl. 431—131 **7 Claims**



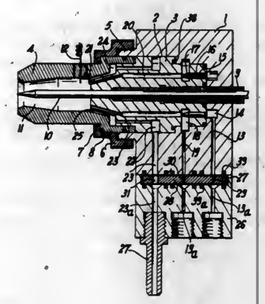
A gas-lighter having concealed operating mechanism responsive to opening of the hinged cap of the lighter, said operating mechanism effecting, simultaneously, lifting of the valve burner head to permit passage of combustible gas through the valve and movement of a driver, which carries a flint-wheel and which is both invisible and inaccessible to the user whilst the lighter cap is closed, to a position thereof in which part of the periphery of said driver projects outwardly from the lighter body and thereby becomes accessible for actuation by the user's thumb.

3,545,906

FLAME SPRAYING GUNS

Jean Meneret and Bernard Spite, Sevres, Paul Laffitte, Paris, Raymond Foulatier, Houilles, and Ralph Delbourgo, Paris, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Apr. 14, 1969, Ser. No. 815,716
Claims priority, application France, Apr. 22, 1968, 148,926
Int. Cl. F23r *1/00*
U.S. Cl. 431—158 **5 Claims**



A gun for use in a flame-spray process in which a recessed body accommodates a nozzle for mixing fuel gas and oxidant and a spray nozzle forming a combustion chamber into which said mixture is delivered with spray

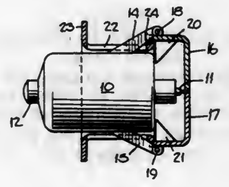
fluid and which is fitted with ignition means, said mixing nozzle and spray nozzle being maintained in concentric relation by means of a clamping member. Respective annular ducts for the fluids which pass through the nozzles are connected to fluid supply ducts provided within the gun body. The flow outlets of the supply ducts are selectively controlled by distribution means constituted by a slide valve mounted within the gun.

3,545,907

SAFETY MECHANISM FOR HANDLING PYROPHORIC CARTRIDGES

Ronald J. Christmas, Leatherhead, Douglas S. Fuller, Ockham, and Bruce Lestock Reid, London, England, and Leandre André Guenin and Conrad J.-J. Zellweger, Geneva, Switzerland, assignors to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey

Filed July 10, 1968, Ser. No. 743,871
Claims priority, application Great Britain, July 11, 1967, 31,922/67
Int. Cl. F23q *2/16*
U.S. Cl. 431—267 **4 Claims**



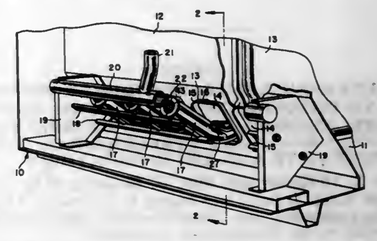
A mechanism for use with a pyrophoric cartridge containing a substance therein which is spontaneously combustible in which the mechanism includes a mask which normally covers the outlet end of the cartridge when the cartridge is not mounted in an ignition mechanism such as a cigarette lighter and also incorporates structure to remove the mask when the cartridge is mounted in an ignition mechanism.

3,545,908

GAS BURNER

Harry C. Lohman, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin

Filed Oct. 16, 1968, Ser. No. 767,965
Int. Cl. F23d *13/36*
U.S. Cl. 431—286 **7 Claims**



An "inshot" gas burner formed from two connected vertically oriented allochiral sheet metal shells or plates which are spaced from each other along their forward and upper edges to provide contiguous port areas for discharging a fluid fuel both vertically upward and horizontally forward into a clamshell heat exchanger.

CHEMICAL

3,545,909

POLYAMINOALKYLSILANES COLOR FIXATION AND ARTICLES SO COLORED

Domenick D. Gagliardi, East Greenwich, R.I., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 774,675, June 26, 1958. This application Apr. 8, 1959, Ser. No. 804,870
Int. Cl. D06m *15/66*; D06p *1/52*
U.S. Cl. 8—3 **6 Claims**

1. In a process for coloring solid, fibrous and pulverulent substrate materials with a coloring agent selected from the group consisting of anionic dyestuffs and pigment colors, the improvement that comprises promoting enhanced affinity of the substrate material for the coloring agent by applying to the substrate an aminoalkyl silicone coloring assistant selected from the group consisting of monomeric aminoalkylsilanes, aminoalkylpolysiloxanes, copolymers of aminoalkylpolysiloxanes with at least one other polysiloxane free of aminoorgano groups, such aminoalkyl silicone coloring assistant contains one amino substituent for each aminoalkyl group therein and the nitrogen atom of the amino is connected to a silicon atom of the silicone directly through a divalent hydrocarbon radical and the amino nitrogen atom is separated by at least three carbon atoms from the silicon atom.

3,545,910

PROCESS FOR DYEING MIXTURES OF CELLULOSIC AND POLYESTER FIBERS WITH REACTIVE AND DISPERSE DYESTUFFS

Sien Ling Ong, Steinheim am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 21, 1967, Ser. No. 617,477
Claims priority, application Germany, Feb. 23, 1966, F 49,498
Int. Cl. D06p *3/82*
U.S. Cl. 8—21 **8 Claims**

A process for dyeing mixtures of cellulosic fibers and high molecular weight linear polyester fibers which comprises using an aqueous dyebath which contains both reactive and disperse dyestuffs, an alkaline compound to give the bath an initial alkaline pH and an acid donator which reacts with water, when heated, to split off a hydrogen halide and thereby reduce the pH of the bath during the dyeing process. The reactive and disperse dyestuffs used are conventional. The alkaline compound may be, for example, an alkali metal carbonate, bicarbonate, triphosphate or hydroxide. The acid donator may be any of a wide variety of halogenated compounds, typically salts, amides or anilides of mono- and di-halogenated acetic and propionic acids, e.g., chloracetamide. The bath is heated to a temperature of, e.g., 125° C. to cause the acid donator to split off the hydrogen halide and reduce the pH of the bath. Uniform dyeing of both types of fibers is achieved.

3,545,911
VAPOROUS POLYISOCYANATE TREATMENT OF NYLON SHAPED ARTICLES

Patrick V. Papero, Chester, Va., James M. Kosmala, Tonawanda, N.Y., and Maurice S. Moore, Hopewell, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Apr. 6, 1965, Ser. No. 445,958
Int. Cl. D06p *3/24, 5/12*
U.S. Cl. 8—115.5 11 Claims

A process for modification of a shaped polyamide article using an organic polyisocyanate which comprises contacting the polyamide article with organic polyisocyanate vapor at an elevated temperature of at least about 150° C. while maintaining the article under tension which prevents it retraction. The shaped polyamide article is maintained under tension and at a temperature of at least 150° C. for a period of from about 0.1 minute to about 10 minutes after the article has contacted the isocyanate.

3,545,912
SIMULTANEOUS INTRODUCTION OF NITROGEN AND CHLORINE INTO COTTON TO PRODUCE DRY WRINKLE RECOVERY BY TREATMENT WITH UREA, A UREA PRECURSOR OR A UREA DERIVATIVE AND EPICHLOROHYDRIN

John B. McKelvey and Ruth R. Benerito, New Orleans, and Ralph J. Berni and Judith A. O'Connor, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,299
Int. Cl. D06m *13/40, 13/38, 13/10*
U.S. Cl. 8—116.2 5 Claims

Improving the dry and wet creasing recovery of cellulosic fabrics by impregnating said fabrics with an aqueous solution of ammonium cyanate, urea or a urea derivative and thereafter causing epichlorohydrin to react therewith.

3,545,913
UNCATALYZED VAPOR PHASE CROSSLINKING REACTION OF COTTON CELLULOSE WITH FORMALDEHYDE

Golam K. Joarder, Newark, Del., and Stanley P. Rowland and John D. Guthrie, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

Filed Nov. 19, 1968, Ser. No. 777,046
Int. Cl. D06m *13/14;* C08b *11/02*
U.S. Cl. 8—116.4 2 Claims

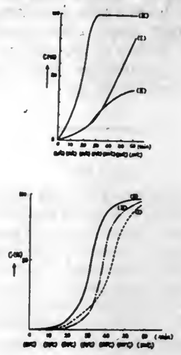
Cellulosic materials having high resilience and abrasion resistance are produced through uncatalyzed vapor phase reaction with formaldehyde.

3,545,914
METHOD OF DYEING ACRYLIC FIBERS

Genichi Hayashi and Tomoji Ookubo, Saidaiji, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

Filed Mar. 24, 1967, Ser. No. 625,845
Claims priority, application Japan, Mar. 30, 1966, 41/20,175
Int. Cl. D06p *3/70*
U.S. Cl. 8—169 6 Claims

Acrylic fiber is evenly and fast dyed with a cationic dye in a dye bath containing a salt of a saturated or unsaturated monocarboxylic acid with not less than 11 carbon atoms or a salt of a saturated dicarboxylic acid with not less than 6 carbon atoms, and a nonionic surface active agent. The initial pH is 8–9, the temperature is

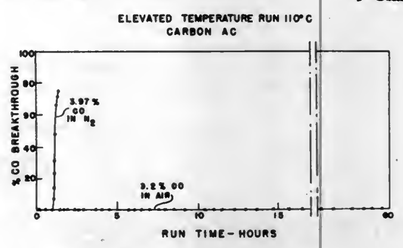


gradually increased and at about 100° C. the pH is gradually lowered to 3–4.

3,545,915
METHOD OF REMOVING CARBON MONOXIDE FROM GASES

John R. Lutchko, Pittsburgh, and George R. Stoneburner, Coraopolis, Pa., assignor, by mesne assignments, to Calgon Corporation, a corporation of Delaware

Filed July 19, 1967, Ser. No. 654,618
Int. Cl. B01d *53/00*
U.S. Cl. 23—2 9 Claims



Carbon monoxide is removed from a gas mixture continuously at elevated temperature by passing the gas mixture over a mixture of copper and hexavalent chrome compound impregnated on a support of high surface area, preferably activated carbon, by introducing sufficient oxygen to stoichiometrically convert the CO to CO_2. The oxygen is preferably introduced as air.

Copper-chrome-silver impregnated supports also can be used.

3,545,916
PROCESS FOR INHIBITING SULPHUR DEPOSITS IN NATURAL GAS WELL RISERS

Oskar Deicher, Ehlershausen, Siegfried Peter, Hannover-Buchholz, and Otto Buchholz, Aligse, Germany, assignors to Gewerkschaft Elwerath, Hannover, Germany

No Drawing. Filed Oct. 2, 1967, Ser. No. 672,019
Claims priority, application Germany, Dec. 27, 1966, G 48,859
Int. Cl. B01d *47/00*
U.S. Cl. 23—2 13 Claims

Sulphur deposits in natural gas well risers from gases containing hydrogen sulfide and dissolved elementary sulphur are prevented by adding to the rising gas stream

an aqueous solution of an organic base in an amount sufficient to completely dissolve the entrained sulphur and then separating the solution from the gas.

An example of a suitable organic base is ethylamine. The ethylamine polysulfide solution thus formed may be decomposed later by distillation or by stripping of the solution with air or gas.

3,545,917
METHOD OF DECOMPOSING NITROGEN OXIDES

Ruth E. Stephens, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

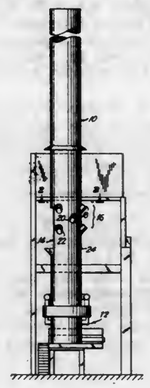
No Drawing. Filed Oct. 10, 1967, Ser. No. 674,110
Int. Cl. B01d *53/00*
U.S. Cl. 23—2 8 Claims

The nitric oxide content of a gas stream containing nitric oxide is reduced by contacting the gas stream with either a praseodymium oxide or lanthanum oxide catalyst at a temperature above about 400° C.

3,545,918
AFTERBURNER SYSTEM FOR CUPOLA FURNACE

Ronald J. Frundl, Livonia, Victor W. Hanson, Westland, Robert M. Jamison, Detroit, and Orlan M. Arnold, Grosse Pointe Park, Mich., assignors to Ajem Laboratories, Inc., Livonia, Mich.

Filed Feb. 21, 1968, Ser. No. 707,250
Int. Cl. F23c *9/04*
U.S. Cl. 23—2 11 Claims



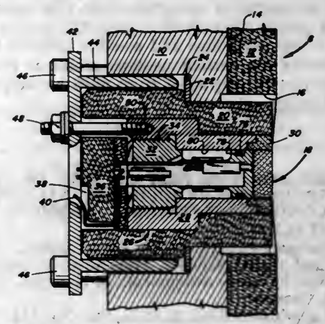
An afterburner system and arrangement for cupola furnaces wherein a series of burners are arranged near the charging opening of the cupola stack and ignite and combust the carbon monoxide gas emitted during furnace operation as it leaves the furnace bed. The afterburning raises the stack gas temperature thereby permitting complete combustion of high molecular weight organic compositions and minimizing the amount of free air pulled in through the charging opening.

3,545,919
RADIATION COMPENSATING PRESSURE SENSOR

Philip M. Aronson and Ronald M. Culpepper, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed May 15, 1968, Ser. No. 729,284
Int. Cl. G01n *33/22;* G01l *9/04*
U.S. Cl. 73—35 4 Claims

A pressure responsive apparatus having a hollow cylindrical beam which is subjected to strain in response to a fluid pressure force when exerted on a piston integrally formed on the front of the beam while the rear end of the beam is held against movement. A pair of active semiconductor strain gages are bonded to the outer

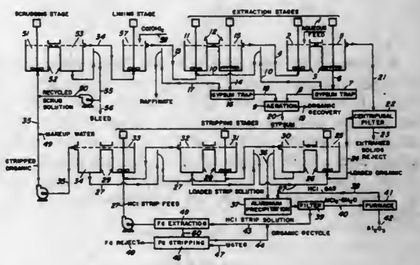


surface of the beam, and a pair of inactive semiconductor strain gages are housed within the hollow cylindrical beam adjacent the rear end theref and disassociated from the strain sensitive portion of the beam.

3,545,920
PROCESS FOR EXTRACTING ALUMINUM FROM SOLUTIONS

D'Arcy R. George, Salt Lake City, and Samuel Ralph Borrowman, Bountiful, Utah, assignors to the United States of America as represented by the Secretary of the Interior

Filed Feb. 26, 1968, Ser. No. 708,010
Int. Cl. C01f *7/56, 7/66*
U.S. Cl. 23—92 8 Claims



A process for extracting aluminum from aqueous solutions with organic alkyl phosphoric acids is presented. The organic extractant is contacted with the aluminum containing feed at a pH of from about 2–4, stripped with acid to form an aluminum compound which can, if desired, be conventionally treated to produce alumina.

3,545,921
SYNTHETIC HARMOTOME FROM DE-EXOTHERMED KAOLIN

James E. McEvoy, Morton, Pa., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Sept. 7, 1967, Ser. No. 665,961
Int. Cl. C01b *33/28*
U.S. Cl. 23—112 3 Claims

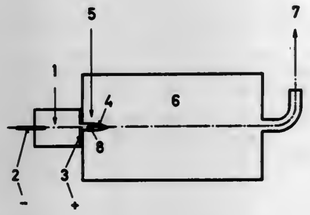
An aluminosilicate composition comprising a zeolitic component resembling the natural zeolite identified as harmotome, is prepared from a precursor mixture of

specially calcined kaolin, water and potassium hydroxide, such preparation further including as one of the precursors a small amount of crystalline zeolite selected from the group consisting of wellsite, phillipsite and/or harmotome. The wellsite, phillipsite and harmotome additive may be of natural or synthetic origin. The mixture prepared in proper porportions is subjected to an aging operation of extended time and possibly elevated temperature whereby the harmotome-type zeolite is synthesized in an amount ranging from 10 to 80% by weight of the calcined kaolin precursor.

3,545,922
PROCESS FOR THE PREPARATION OF FINELY DIVIDED, NON-PYROPHORIC NITRIDES OF ZIRCONIUM, HAFNIUM, NIOBIUM AND TANTALUM

Ernst Neuenschwander, Basel, Klaus Schuett, Zollikerberg, and Walter Scheller, Munchenstein, Switzerland, assignors, by mesne assignments, to Hermann C. Starck, Berlin, Germany

Original application Dec. 2, 1965, Ser. No. 511,182, now Patent No. 3,429,661, dated Feb. 25, 1969. Divided and this application Nov. 24, 1967, Ser. No. 701,504
Claims priority, application Switzerland, Dec. 10, 1964, 15,999/64
Int. Cl. C01b *21/06*; C22b *61/02*
U.S. Cl. 23—191 **2 Claims**



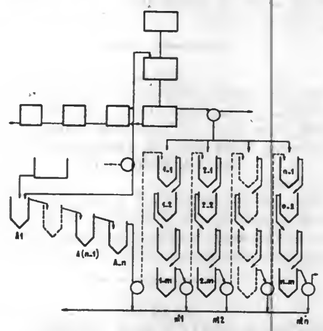
A process is provided for the preparation of finely divided, non-pyrophoric nitrides of the elements zirconium, hafnium, niobium and tantalum. The nitrides have an average particle size within a range of from .01 to .1 micron, a specific surface of 12 to 40 square meters per gram, and a bulk weight of .2 to .8 gram per cubic centimeter. The nitrides are produced in a plasma jet from a corresponding halide, at temperatures of 2000 to 5000° C.

3,545,923
PREPARATION OF ALUMINUM TRIHYDRATE CRYSTALS

Henri Mercier and Joseph Cohen, Gardanne, France, assignors to Pechiney, Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France

Filed Feb. 12, 1968, Ser. No. 704,685
Claims priority, application France, Feb. 17, 1967, 95,297
Int. Cl. C01f *7/02, 7/04*
U.S. Cl. 23—143 **14 Claims**

A process for the preparation of crystals of aluminum trihydrate by hydrolysis of solutions of sodium aluminate of the type obtained by leaching bauxite with alkaline solutions in which fine seed crystals are formed by decomposition of a dilute solution of sodium aluminate in the presence of alumina gel, decomposing a first portion of a concentrated solution of sodium aluminate in the presence of the seed crystals, separating the crystals of trihydrate from this first portion of sodium aluminate subjected to decomposition, decomposing a second portion of concentrated solution of sodium aluminate in the presence of the crystals separated from the first portion, separating the trihydrate crystals from the second portion of sodium aluminate subjected to decomposition and continuing the use of the trihydrate crystals separated from



previous decompositions for seed with a fresh portion of sodium aluminate solution until the grains of trihydrate are of the desired dimension after which they are separated as product.

3,545,924
METHOD OF PREPARING CHLORYL FLUORIDE

John P. Faust, Hamden, Albert W. Jache, North Haven, and Andrew J. Klanica, Cheshire, Conn., assignors to Olin Mathieson Chemical Corporation

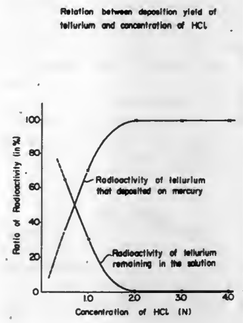
No Drawing. Filed Oct. 21, 1965, Ser. No. 500,342
Int. Cl. C01b *7/24, 11/00*
U.S. Cl. 23—203 **3 Claims**

Chloryl fluoride is prepared by heating a mixture of gaseous oxygen and chlorine monofluoride in a closed container at a temperature of 80 to 200° C. and at autogenous pressure for at least one hour.

3,545,925
METHOD FOR PRODUCING RADIOACTIVE TELLURIUM

Hirokazu Umezawa, Mito-shi, and Hiroshi Okashita, Ibaragi-ken, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Sept. 23, 1966, Ser. No. 581,494
Claims priority, application Japan, Oct. 25, 1965, 40/62,164
Int. Cl. C01b *19/00, 9/02*
U.S. Cl. 23—209 **3 Claims**

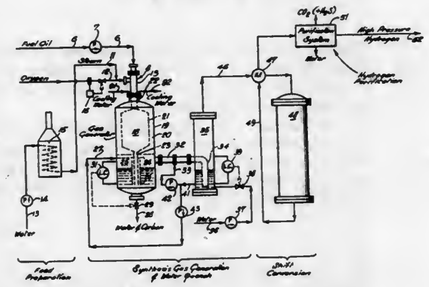


Radioactive tellurium is produced by dissolving a nuclear fission product containing radioactive tellurium in an aqueous hydrogen halide or thiocyanate solution, introducing Ni, Cu, Bi, Hg or Ag into the solution to deposit radioactive tellurium selectively thereon, separating the metal with it tellurium deposit from the solution, and recovering radioactive tellurium from the metal.

3,545,926
PRODUCTION OF SYNTHESIS GAS AND HYDROGEN

Warren G. Schlinger, Pasadena, and William L. Slater and Roger M. Dille, La Habra, Calif., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 510,038, Nov. 26, 1965, which is a continuation-in-part of application Ser. No. 285,868, June 6, 1963. This application May 29, 1968, Ser. No. 732,941
Int. Cl. C01b *1/28, 2/16*
U.S. Cl. 23—213 **5 Claims**

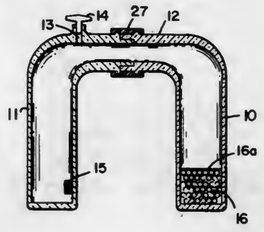


Improved process for generation of hydrogen from liquid hydrocarbons at very high pressures, i.e. pressures in the range of 1000 to 3000 p.s.i.g. by partial oxidation followed by water gas shift reaction and carbon dioxide removal at pressures above 1000 p.s.i.g.

3,545,927
MEASUREMENT OF CELL MEMBRANE KINETICS

Kenneth G. Scott, 111 Wildomar, Mill Valley, Calif. 94941

Filed July 14, 1967, Ser. No. 653,420
Int. Cl. G01n *31/00, 31/04*
U.S. Cl. 23—230 **8 Claims**



Measurement of cell membrane kinetics and its use in cancer detection and treatment as well as evaluation of other chronic disorders such as anemia and schizophrenia through the quantitation of radioactive cation transport by cells. The method includes the establishment of the equilibrium point where passive diffusive movement of ions into and out of the cells is substantially equal, at which time the pumping or active transport rate of the cells can be determined. The passive rate in terms of outward diffusion is then determined based upon the previously determined active rate. Apparatus employing ion exchange resins for making the measurements needed for determining the active and passive rates is also provided.

3,545,928
INHIBITOR DETECTION COMPOSITION

James L. Dunn, Jr., and James C. Renfro, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

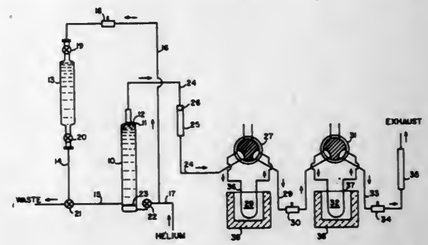
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,055
Int. Cl. C09k *3/00*; G01n *31/22*
U.S. Cl. 23—230 **4 Claims**

An indicator composition comprising methyl orange, xylene cyanol and hydrobromic acid useful to detect, by color indication, the concentration of acid-acceptor type inhibitors in chlorinated solvents.

3,545,929
MEASUREMENT OF TRACE AMOUNTS OF CARBON MONOXIDE IN WATER SOLUTION

Victor J. Linnenbom, Hyattsville, Md., and John W. Swinnerton, Fairfax County, Va., assignors to the United States of America as represented by the Secretary of the Navy

Filed Nov. 15, 1968, Ser. No. 776,054
Int. Cl. B01d *19/00, 53/04*; G01n *31/12*
U.S. Cl. 23—230 **4 Claims**



A method of measuring trace amounts of carbon monoxide dissolved in water along with light hydrocarbons including methane. The carbon monoxide is stripped from the water sample with a stream of helium, the effluent gas stream dried and passed through a pair of cold traps with joint adsorption of the methane and carbon monoxide in the second cold trap. The methane and carbon monoxide are collected from the second cold trap in a stream of helium and separated in a molecular sieve chromatograph from which the gas stream passes through a reduction zone in which the carbon monoxide is quantitatively reduced to methane and then to a hydrogen flame-ionization detector in which the carbon monoxide is detected as methane.

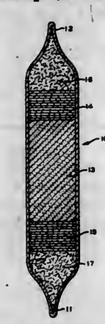
3,545,930
COLORIMETRIC OXYGEN DETECTION

Darrell W. Walker and Edward L. Czenkusch, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 7, 1967, Ser. No. 688,880
Int. Cl. C07f *7/28*; G01n *31/22*
U.S. Cl. 23—232 **16 Claims**

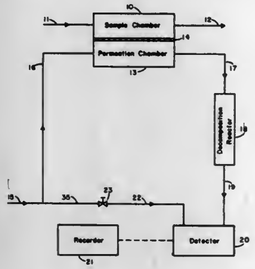
Colorimetric qualitative and quantitative detection of oxygen in gaseous streams is effected by contacting at least a portion of the gaseous streams with a composition

of a bis(cyclopentadienyl)titanium chloride on a solid support such as, for example, silica-alumina, and observ-



ing a color change which is indicative of the presence of oxygen, and its quantitative content in the gaseous stream.

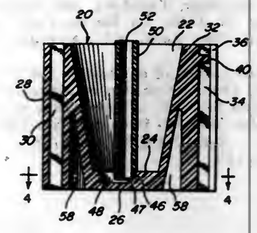
3,545,931
AMMONIA ANALYSIS SYSTEM
James J. McKinley, Jr., Texas City, Tex., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Aug. 28, 1968, Ser. No. 756,039
Int. Cl. G01n *31/06, 1/22, 27/18*
U.S. Cl. 23—232 **9 Claims**



A system for the continuous analysis of ammonia in process streams comprising a sample chamber and a permeation chamber, said chambers being separated by a membrane permeable to ammonia, a decomposition means for decomposing ammonia into hydrogen and nitrogen, said decomposition means being in open communication with said permeation chamber and a detecting and measuring means in open communication with said decomposition means for detecting and measuring the hydrogen formed.

3,545,932
BIOLOGICAL FLUID SAMPLE PROCESSING APPARATUS
Saul R. Gilford, Oberlin, Ohio, assignor to Gilford Instrument Laboratories, Inc., Oberlin, Ohio, a corporation of Ohio
Filed Dec. 19, 1967, Ser. No. 691,783
Int. Cl. G01n *1/00, 1/14*
U.S. Cl. 23—253 **27 Claims**

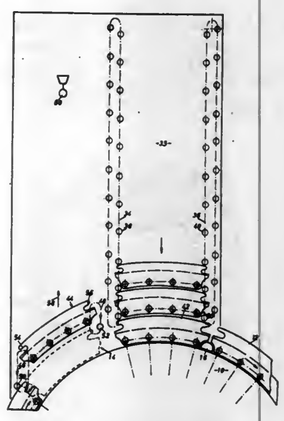
A fluid sample container constructed with a central hollow standard into the barrel of which there is introduced a section of capillary tubing having a precise volume of entrained raw fluid, the bottom end of the standard being open to the interior of the cavity of the container at the bottom thereof and the top end adapted to receive a connector so as to enable liquid reagent to be introduced into the barrel of the standard. The flow of reagent dilutes the raw fluid and washes the same out of the capillary tube section, mixing the same with the reagent within the cavity so that sampling of the diluted raw fluid may proceed thereafter. Well or gallery means are provided at the bottom of the cavity connected to the barrel and serving the functions of supporting the standard and the section of capillary tubing while permitting ready flow of the reagent and raw fluid.



The container as above having the additional structure which enables indexing of the container relative to a carrier or rack, and which also permits attachment of identifying members to the container.

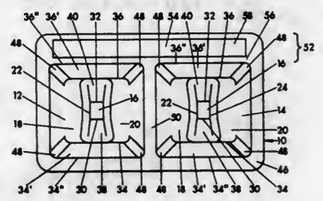
Structure for feeding lengths of capillary tubing into the barrel of the standard and for supplying the reagent to the container, the latter including means for conveying the containers past reagent supply stations and means for connecting desired stations to containers.

3,545,933
SAMPLE CONVEYING ARRANGEMENT FOR CHEMICAL ANALYSIS APPARATUS
Gerhard Podschadly and Detlev Siemon, Uberlingen (Bodensee), and Rolf Tamm, Mimmenhausen, Germany, assignors to Bodenseewerk Perkin-Elmer & Co. G.m.b.H., Uberlingen (Bodensee), Germany
Filed Oct. 3, 1968, Ser. No. 764,792
Claims priority, application Germany, Oct. 19, 1967, B 95,040
Int. Cl. B67c *3/02;* **B65d** *43/42;* **B65g** *47/80*
U.S. Cl. 23—253 **8 Claims**



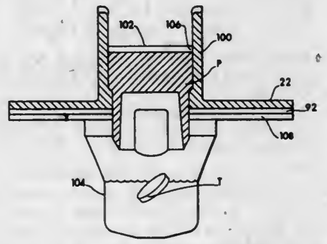
In an automatic analytical apparatus, a first conveying means is provided for sample vessel holders at a first position adjacent the periphery of a rotary transport and is adapted for conveying the sample vessel holders toward the transport in a radial direction. The transport includes means positioned near an outer circumference of the transport adapted for receiving and supporting the sample vessel holders which are conveyed thereto. A second conveying means is provided at a second position adjacent the transport periphery and is adapted for withdrawing vessel holders from the receptacle space and for conveying the vessel holders away from the transport. The movement of the first and second conveying means is synchronized with the movement of the rotary transport.

3,545,934
CHEMICAL PACKAGE
Vernon W. Dryden, Pasadena, and Donald L. Johnston, Arcadia, Calif., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 3, 1968, Ser. No. 764,850
Int. Cl. B01l *3/00;* **G01n** *33/16*
U.S. Cl. 23—253 **47 Claims**



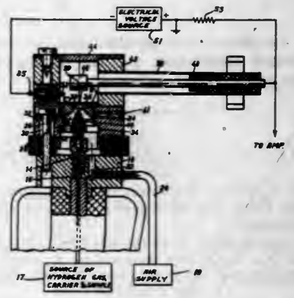
This application relates to the lower reaction compartment section of a disposable reaction container having a unique configuration adapted to promote coupling of the ultrasonic energy from an ultrasonic generating means adjacent thereto with materials held within the reaction compartment. The unique design includes a flat portion at the bottom of each reaction compartment, and upwardly extending bottom wall portions connecting said flat portion to the four side walls of the reaction compartment whereby said flat portion is positioned as the lowest point within the reaction compartment. Solid materials, especially in tablet form, added to the reaction compartment will be preferentially positioned over the flat portion such that highly effective coupling is attained when the flat portion is properly positioned over the adjacent ultrasonic generating means.

3,545,935
DISPOSABLE REACTION CONTAINER FOR AN AUTOMATIC CHEMICAL ANALYZER
William J. Kearns, Arcadia, Calif., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 22, 1968, Ser. No. 778,185
Int. Cl. B01l *3/00;* **G01n** *33/16*
U.S. Cl. 23—253 **47 Claims**



Disposable reaction container comprising a lower section having at least one compartment for the admixing of materials added thereto; an upper storage section having at least one separate, rigid cylindrical reagent storage chamber associated with each reaction compartment, each of said storage chambers having a piston therein for dispensing tableted reagents therefrom; and restraining means to prevent the premature movement of prepackaged reagents from the plurality of storage chambers. Each piston has a cavity in the lower portion thereof suitable for surrounding a tableted reagent within the storage chamber during the downward stroke of the piston, whereby the force necessary to break the restraining means, normally in the form of a thin plastic layer, is not transmitted to the restraining means through the tableted reagent.

3,545,936
FLAME IONIZATION DETECTOR
Dietrich Jentzsch and Helmut Kruger, Uberlingen (Bodensee), and Horst Rohl, Meersburg (Bodensee), Germany, assignors to Bodenseewerk Perkin-Elmer & Co. G.m.b.H., Uberlingen (Bodensee), Germany, a corporation of Germany
Filed Sept. 11, 1967, Ser. No. 666,898
Claims priority, application Germany, Oct. 1, 1966, B 89,172
Int. Cl. G01n *31/12*
U.S. Cl. 23—254 **7 Claims**

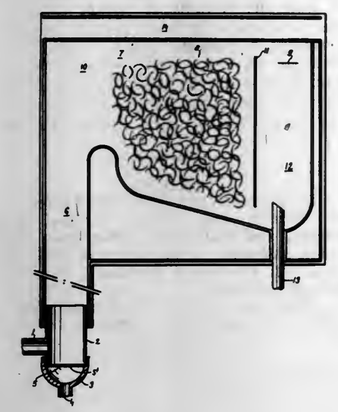


A flame ionization detector includes an air guide member and a burner nozzle which are maintained at a same electrical potential and which are supported on, and insulated from a detector support means. The air guide member defines an internal frusto-conically shaped passageway. An orifice of the burner nozzle is positioned in the passageway in a manner for causing air to flow toward and converge near the orifice. Means are provided for conveying a combustion and a carrier gas to the burner nozzle and for introducing air for combustion between the air guide member and burner nozzle. With this arrangement, the dependence of the detector sensitivity upon flow rates is advantageously reduced.

3,545,937
BLOOD OXYGENATION APPARATUS
Jaroslav Rozhold and Zdenek Rozhold, Bratislava, Czechoslovakia, assignors to Chirana Zavody vdravotnickej techniky, odborovy podnik, Stara Tura, Czechoslovakia
Filed Jan. 31, 1967, Ser. No. 612,923
Claims priority, application Czechoslovakia, Feb. 2, 1966, 650/66
Int. Cl. A61n *1/03*
U.S. Cl. 23—258.5 **3 Claims**

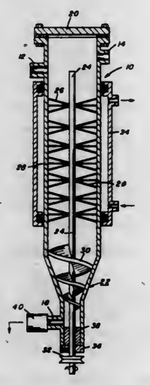
Blood oxygenation apparatus in which blood flows sequentially through a normally vertical oxygenation conduit, a defoaming chamber at the upper end of the conduct, and a collection chamber partly separated from the defoaming chamber by a partition, but communicating

therewith at the top and bottom of the partition, the conduit, chambers, and partition being formed by two plastic sheets welded along elongated seams. Blood and



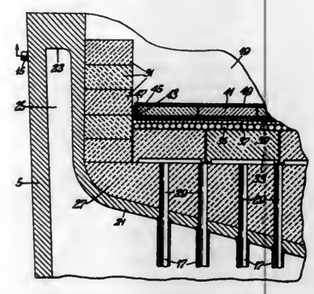
oxygen are mixed in a metallic inlet tube equipped with a perforated membrane, and are discharged separately from the collection chamber.

3,545,938
APPARATUS FOR PRODUCING AND PROCESSING VISCOUS MATERIALS
Edmond S. Perry, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Original application Aug. 16, 1962, Ser. No. 217,381, now Patent No. 3,425,993, dated Feb. 4, 1969. Divided and this application Sept. 18, 1968, Ser. No. 760,602
Int. Cl. B01d *1/22*
U.S. Cl. 23—285 **1 Claim**



In carrying out certain chemical reactions in which it is desirable (a) for a liquid reactant to be continuously exposed to a gas or to a vacuum, and (b) for a large surface area of the liquid reactant to be so exposed, a useful apparatus comprises a cylindrical reactor having flexible "fingers" disposed along a shaft mounted in the center of the reactor. The "fingers" are so arranged that, upon being rotated, they slide around the inside wall, in contact with the surface of the wall, efficiently agitating the liquid reactant, but nevertheless permitting a significant amount of the reactant to remain in position on the reactor walls. The apparatus can also advantgeously contain means for densifying the resulting chemical product.

3,545,939
CATALYST SYSTEM FOR MAKING HYDROGEN CYANIDE
John A. Cox, Jr., St. Albans, George R. Glaser, Jr., South Charleston, and Merlyn J. Shoger, St. Albans, W. Va., assignors to Union Carbide Corporation, a corporation of New York
Original application Mar. 30, 1965, Ser. No. 443,838. Divided and this application Nov. 8, 1968, Ser. No. 794,817
Int. Cl. B01j *9/04;* **C01c** *3/02*
U.S. Cl. 23—288 **1 Claim**

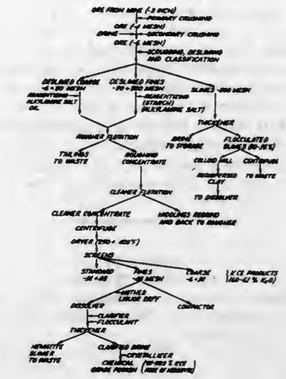


An improvement in a catalyst support system for the production of hydrogen cyanide in a conventional reactor comprising supporting platinum-rhodium catalyst layers upon corrugated ceramic support material which consists essentially of about 94 to about 98 weight percent aluminum oxide, the remainder being essentially silicon oxide, and which corrugated ceramic support material contains from about 65 to about 92 percent open area, said catalyst-support system being disposed so as to define a clearance with the inner walls of said heat exchanger, said corrugated ceramic support material being itself supported by pelleted ceramic material and said clearance being filled with pelleted ceramic material at least one layer of which is catalyst coated.

3,545,940
COPPER CHLORIDE CRYSTAL GROWTH IN SILICA GEL MATRIX
John J. O'Connor, Arlington, Bernard Rubin, Belmont, and Alton F. Armington, Lexington, Mass., assignors to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Sept. 21, 1967, Ser. No. 669,669
Int. Cl. B01d *9/02;* **C01b** *9/02;* **C01g** *3/04*
U.S. Cl. 23—300 **2 Claims**

A method for forming single crystals within a gel matrix using a complexed crystal producing material as the source for crystal growth. Growth of a desired crystal is accomplished by placing a saturated solution of an appropriate crystal growing material and a compatible acid complexing agent in contact with a porous gel. The solution is then allowed to diffuse through the gel. The complexing agent diffuses through the gel at a more rapid rate than the crystal growing material thus enabling the crystal growing material to precipitate out as single crystals.

3,545,941
SETTLING OF HEMATITE SLIMES
Martin Wilson, Anaheim, Calif., assignor to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
Continuation-in-part of application Ser. No. 603,860, Dec. 22, 1966. This application Mar. 19, 1969, Ser. No. 808,624
Int. Cl. B01d *11/02, 21/01;* **C01d** *3/14*
U.S. Cl. 23—312 **21 Claims**



Pinkness contributed to potash brines by hematite slime is eliminated by adding clarifying amounts of dispersed clay, $C_{14}+$ primary alklyamines, or mixtures thereof before addition of flocculants to the brine.

3,545,942
LINEAR PHOSPHONITRILIC CHLORIDE DERIVATIVES CONTAINING TERMINAL ORGANIC GROUPS
Rip G. Rice and Robert M. Murch, Ashton, and Dorothy C. de Vore, Baltimore, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
No Drawing. Filed Oct. 12, 1967, Ser. No. 674,744
Int. Cl. C01b *25/10;* **C08f** *27/08;* **C07d** *105/02*
U.S. Cl. 23—357 **12 Claims**

Linear phosphonitrilic chloride derivatives are prepared which are hydrolytically and thermally stable. These derivatives contain organic groups co-valently bonded to the terminal phosphorous atoms on the chain, the terminal groups chosen from aryloxy, alkoxy, amino, and imino substituents.

3,545,943
ALUMINUM-LEAD BASED ALLOYS AND METHOD OF PREPARATION
Mark F. Miller, Wyandotte, and Fred J. Webbere, Orchard Lake, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Mar. 16, 1966, Ser. No. 534,768, now Patent No. 3,410,331, dated Nov. 12, 1968. Divided and this application June 17, 1968, Ser. No. 737,520
Int. Cl. B32b *15/00;* **F16c** *33/12;* **C22c** *21/00*
U.S. Cl. 29—191.2 **4 Claims**

An aluminum-lead based bearing alloy and a method of its preparation is disclosed. In a preferred embodiment a cast strip is formed comprising a major portion of aluminum, a minor portion of lead, and other suitable alloying constituents. The lead is present as fine discrete particles in the aluminum matrix and distributed therein such that the concentration of lead increases in a direction from one surface of the strip to the other.

3,545,944
COMPOSITE METAL ARTICLE HAVING AN INTERMEDIATE BONDING LAYER OF NICKEL ALUMINIDE
Roger C. Emanuelson, Glastonbury, and William F. Witherell, Rockville, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
No Drawing. Original application Mar. 10, 1965, Ser. No. 438,734, now Patent No. 3,413,136, dated Nov. 26, 1968. Divided and this application May 10, 1968, Ser. No. 751,629
Int. Cl. B32b *15/00*
U.S. Cl. 29—197 **1 Claim**

In a jet engine assembly, an abradable sealing surface between the tips of rotating elements and the surrounding assembly, featuring the use of a bonding medium and a porous nickel abradable coating wherein a graded sealing surface is achieved.

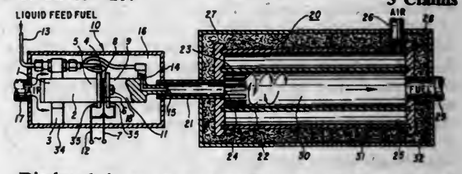
3,545,945
WELDING COPPER-NICKEL ALLOYS
Walter A. Petersen, Ridgewood, N.J., assignor to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 26, 1968, Ser. No. 707,967
Int. Cl. B32b *15/20;* **C22c** *9/06*
U.S. Cl. 29—199 **6 Claims**

A welding material for use in welding chromium-strengthened copper-nickel-base alloys of prescribed composition, the welding material containing copper, nickel, chromium, manganese, silicon and small amounts of titanium and zirconium. Chromium does not exceed 2.8% and is specially controlled in relation to the percentage of chromium in the copper-nickel-base alloy such that the total chromium is less than 6.4%.

3,545,946
GELLED PETROLEUM DISTILLATE FUELS
Gordon D. Hiatt and Oliver W. Kaul, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed May 1, 1968, Ser. No. 725,904
Int. Cl. C10l *7/02*
U.S. Cl. 44—7 **4 Claims**

The present invention provides petroleum distillate fuel compositions comprising a petroleum distillate fuel having a paraffinic hydrocarbon gelling agent dispersed therein, which compositions are gelled at room temperature and liquid at elevated temperatures of about 55° C. The invention further provides a method for producing the above-described petroleum distillate fuel compositions, comprising the steps of: (1) dispersing the above-described gelling agent in the petroleum distillate fuel, (2) warming the resulting mixture at elevated temperatures to form a gellable fuel dispersion and (3) cooling the fuel dispersion.

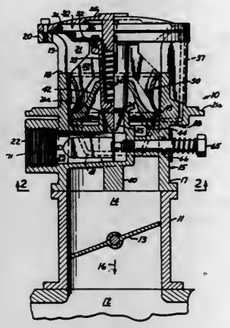
3,545,947
LIQUID FUEL-AIR PARTIAL OXIDATION SYSTEM
Foster L. Gray, Dallas, and Rodney D. Wood, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Aug. 25, 1967, Ser. No. 663,283
Int. Cl. B01f *11/02;* **C01b** *2/14;* **C10g** *9/00*
U.S. Cl. 48—107 **3 Claims**



Disclosed is an apparatus for partially oxidizing a liquid carbonaceous feed-fuel by first atomizing the liquid

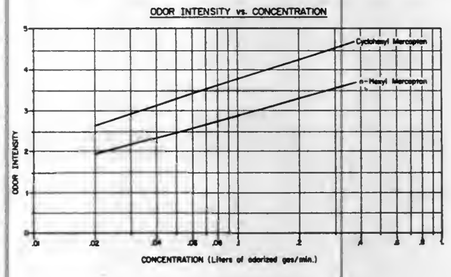
feed-fuel in an ultrasonic atomizer, mixing the atomized feed-fuel with air vaporizing the mixture, and then igniting the vaporized feed-fuel-air mixture in a reaction chamber to form a fuel containing free hydrogen.

3,545,948
APPARATUS FOR CARBURETION OF GASEOUS FUELS AND AIR
Richard Baverstock, Long Beach, Calif., assignor to Imperial Machine Products Company, South Gate, Calif., a corporation of California
Filed Sept. 27, 1967, Ser. No. 670,955
Int. Cl. F02m *21/04, 3/00, 17/08*
U.S. Cl. 48—184 **17 Claims**



A mixing unit for providing a combustible mixture, and has two principal features, one of which is an idling adjustment which enables the mixture to be readily trimmed at low flow rates, so as to provide an efficiently operating device with a minimum of critical dimensions. Another feature resides in an air valve which requires markedly less force and energy to operate the same, and which is resistant to backfires. This air valve includes a pair of axially spaced-apart sets of valve seats, two of which are stationary and two of which are movable, whereby the length of axial motion of the valving element is significantly reduced. The mixing unit comprises a housing having a central axis, a peripheral air inlet and a mixture discharge passage downstream of the air inlet with a direction of outlet flow. A fuel inlet conduit terminates inside the housing at a fuel valve seat. An axially shiftable fuel valve head makes a closed operative seal with the fuel inlet. Conduit by bearing on the fuel valve seat in a first position and opens the fuel inlet conduit by moving off the fuel valve seat to a second position axially spaced from the first. A spring axially biases the valve head toward the first position. An actuator moves the fuel valve head to the second position as a function of downstream pressure and flow conditions downstream of the mixing unit. The air valve is positioned between the air inlet and mixture discharge passage. The air valve comprises a pair of peripheral continuous coaxial, axially spaced-apart and axially centered stationary valve seats in the housing. Both of the valve seats are downstream from the air inlet. A ring-shaped impermeable axially centered valve element is mounted to the fuel valve head and axially movable therewith relative to the stationary air valve seats. A pair of movable air valve seats is carried by the element which are axially spaced apart from each other by the same spacing as the air valve seats making operative seals in pairs with the stationary air valve seats when the fuel valve head is in its first position. The movable air valve seats stand axially spaced from the respective stationary air valve seats when the fuel valve head is in its second position so as to leave two annular openings from the air inlet to the mixture discharge passage between separated sets of air valve seats. A peripheral recessed wall on the valve element clears the upstream one of the stationary valve seats when the fuel valve head is in the second position. Fuel from the fuel valve seat discharges into the airstream downstream from both of the valve seats. The idle adjustment comprises an idle supply passage in communication with the fuel inlet conduit, an idle valve seat at an end of the idle supply passage and an idle valve closure to open and close the idle valve seat. A pivotal member consisting of backing plates and a diaphragm mounts the idle valve closure. The diaphragm is movable in response to pressure in the mixture conduit and at relative low air flow corresponding to relatively low down stream demand opening the idle supply passage to provide a source of fuel supplementary to that provided by the fuel inlet conduit past the fuel valve.

3,545,949
ODORIZED GAS
William Harry Oister, Pennsauken, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 3, 1968, Ser. No. 718,621
Int. Cl. C01j *1/28;* **C09k** *3/02;* **G01n** *33/00*
U.S. Cl. 48—195 **3 Claims**

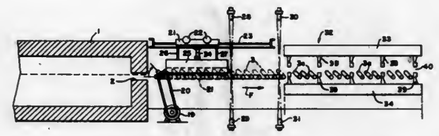


Use of cyclohexyl mercaptan as a gas odorant.

3,545,950
METHOD OF MAKING A GLASS-TO-METAL SEAL
John A. Earl, Alhambra, Calif., assignor to Physical Sciences Corporation, Arcadia, Calif., a corporation of California
Filed June 28, 1967, Ser. No. 649,581
Int. Cl. C03c *29/00*
U.S. Cl. 65—59 **12 Claims**

A method for sealing a pin within an outer coaxial housing member wherein the outer housing is formed with an opening extending therethrough, and a sealing member is formed with an opening therethrough and further formed with a cutout portion in one end surrounding the opening in the sealing member; the cutout portion being tapered inwardly of the sealing member. The sealing member is disposed within the opening in the outer housing and a pin is disposed through the opening in the sealing member. The assembly is heated to seal the pin member within the outer housing with the material of the sealing member flowing into the cutout portion but not flowing along the pin member to produce a meniscus.

3,545,951
METHOD AND APPARATUS FOR SHAPING SHEET MATERIAL
Maurice Nedelec, Paris, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
Filed Feb. 27, 1967, Ser. No. 618,798
Claims priority, application France, Mar. 1, 1966, 51,472; Feb. 20, 1967, 95,637
Int. Cl. C03b *23/02*
U.S. Cl. 65—104 **36 Claims**



A plurality of arcuately curved rods are mounted for rotation each about its own chordal axis. The axes are coplanar, parallel and spaced, and the rods are interconnected for pivoting in unison each about its own axis, from a first position wherein they are coplanar in a common plane through all axes, to a second position wherein they conjointly define a curved surface whose curvature is variable in dependence upon the angle of rotation of the rods. Sheets in bendable form are moved onto the rods in first position. The rods are then pivoted to second position and shaping means complemental to the curved surface defined by the rods, are pressed down onto the sheet to conform it to the rods, while the sheet moves continuously and after shaping passes to a cooling and tempering chamber or other processing procedure.

3,545,952
GREEN GLASS MANUFACTURE
Malcolm A. Conrad, Sylvania, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,149
Int. Cl. C03b *5/16*
U.S. Cl. 65—121 **13 Claims**

An improvement in forehearth addition techniques for producing green-colored glass, wherein the coloring agent consists essentially of chromic oxide and calcium oxide, the generally contemplated range of chromic oxide being about 26–56 percent by weight, and the preferred range being about 46–53 weight percent.

3,545,953
PROCESS FOR THE PREPARATION OF SOIL IMPROVERS, CONTAINING Ca-HUMATE, FROM FERMENTATION SLOPS AND PEATS, AND PRODUCT THEREOF
Kinya Hirano and Tsuneo Sejima, Hofu-shi, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan, a Japanese corporation
No Drawing. Filed Feb. 3, 1967, Ser. No. 613,745
Claims priority, application Japan, Feb. 5, 1966, 41/6,370
Int. Cl. C05f *11/02*
U.S. Cl. 71—24 **7 Claims**

A process for the preparation of soil improvers, containing Ca-humate, from fermentation slops and peats which comprises mixing a fermentation slop with a peat to obtain a mixture, adjusting the pH of the mixture to more than 6, adding to the mixture a calcium source in an amount of more than that which is equivalent to the cation exchange capacity of the peat used and heating the mixture at 100 to 120° C. to yield a soil improver.

3,545,954
PRODUCTION OF AMMONIUM NITRATE-PHOSPHATE FERTILIZER
Robert E. Alston, Medicine Hat, Alberta, Canada, assignor to Northwest Nitro Chemicals, Ltd., Medicine Hat, Alberta, Canada, a corporation
No Drawing. Filed Aug. 29, 1967, Ser. No. 663,940
Int. Cl. C05b *7/00*
U.S. Cl. 71—35 **4 Claims**

A process for the production of ammonium nitrate-phosphate by compacting finely ground ammonium nitrate and finely ground ammonium phosphate to form a compacted sheet and grinding in a granulating mill to produce a nonsegregating ammonium nitrate-phosphate fertilizer.

3,545,955
PLANT GROWTH INHIBITION WITH 4-HYDROXY-TETRAFLUOROPYRIDINE AND DERIVATIVES THEREOF
Edwin Francis George, Bracknell, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed July 17, 1968, Ser. No. 745,362
Claims priority, application Great Britain, July 24, 1967, 33,974/67
Int. Cl. A01n *5/00, 9/22*
U.S. Cl. 71—76 **7 Claims**

A process for stunting the growth of monocotyledons which comprises applying to the monocotyledons an inhibitor which is 4-hydroxytetrafluoropyridine, or a salt, ether or ester thereof, in amount sufficient to inhibit the growth of but insufficient to kill the monocotyledons.

3,545,956
METHOD OF INHIBITING PLANT GROWTH
Hilary F. Goonewardene, Moorestown, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Original application Jan. 15, 1965, Ser. No. 425,938, now Patent No. 3,471,612, dated Oct. 7, 1969. Divided and this application May 19, 1969, Ser. No. 842,042
Int. Cl. A01n *9/20, 17/00*
U.S. Cl. 71—121 **2 Claims**

Herbicidal, nematocidal and fungicidal method using 1,3-diphenylisoalkylamines.

3,545,957
METHOD OF INDURATING BALLED CONCENTRATES CONTAINING IRON ORE
William M. Aubrey, Richard P. Ketter, and Ezekiel C. Dominguez, Bethlehem, Pa., assignors to Bethlehem Steel Corporation, a corporation of Delaware
Filed Sept. 6, 1967, Ser. No. 665,814
Int. Cl. C21b *1/00*
U.S. Cl. 75—3 **6 Claims**

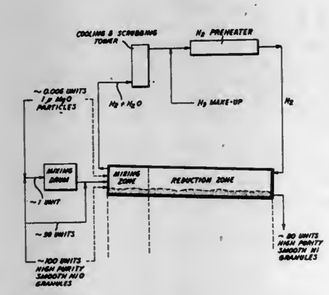
A method of indurating green balls of iron ore concentrates in which a mixture of green balls and a solid carbonaceous fuel not incorporated in or rolled into the surface of the balls is fed to the vertical shaft furnace in a specific feed pattern and is heated to a temperature between 2200° F. and 2500° F. for a time sufficient to indurate the balls. The throughput of the furnace is increased over that obtained without the addition of solid fuel. The solid carbonaceous fuel may have a particle size of about 9/16 inch to 100 mesh Tyler Sieve size and

may be added in amounts between 8 pounds and 30 pounds per ton of green balled concentrate.

3,545,958
PROCESS OF RECOVERING IRON ORE FROM IRON PYRITES WITH ACID LEACHANT
Angel V. Ortuno, Vicente Martin Municio, and Federico Lopez Mateos, Madrid, Spain, assignors to Empresa Auxiliar de la Industria S.A., Madrid, Spain
No Drawing. Filed Sept. 27, 1968, Ser. No. 763,366
Claims priority, application Spain, Sept. 30, 1967, 345,622
Int. Cl. C21b *21/04*; C22b *1/12, 3/00*
U.S. Cl. 75—3 14 Claims

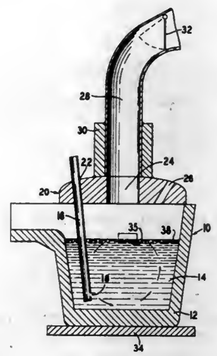
Iron ore suitable for reduction in the blast furnace is obtained from iron pyrites by subjecting the pyrites to roasting and then subjecting the cinders from the roasting to lixiviation with the aid of an acid leaching liquor to eliminate non-ferrous components, recovering at least part of the leaching liquor and subjecting the ore obtained from the lixiviation to pelletizing in the presence of a moistening agent and using at least part of the recovered leaching liquor to form the said moistening agent, additionally subjecting another part of the leaching liquor to a precipitation treatment to obtain iron oxides and hydroxides and pelletizing the thus obtained iron compounds to obtain a substantially uniform size purple ore product.

3,545,959
REDUCTION OF HIGH PURITY METAL OXIDE PARTICLES
Leif Reidar Hougen and Erling Olav Stensholt, Kristiansand, Norway, assignors to Falconbridge Nickel Mines, Limited, Toronto, Ontario, Canada, a company
Filed Mar. 14, 1968, Ser. No. 713,238
Int. Cl. B22f *9/00*
U.S. Cl. 75—.5 14 Claims



A process for the preparation of smooth, dense, free-flowing high purity metal granules by reduction of smooth, dense, free-flowing high purity metal oxide granules. The oxide granules are contacted by a reducing gas at an elevated temperature and reduced as a moving body in the presence of minute refractory oxide particles that adhere to the smooth surfaces of the metal oxide granules and substantially prevent sintering together thereof during reduction. The concentration of minute refractory particles required to prevent intergranular sintering is so small that the purity of the reduced metal granules is similar to that of the metal oxide granules without the need for any treatment to separate refractory particles from the granules after reduction.

3,545,960
ALLOY ADDITION PROCESS
Melvin L. McClellan, Marietta, Ohio, and Donald S. Kozak, Kenmore, N.Y., assignors to Union Carbide Corporation, a corporation of New York
Filed Apr. 25, 1967, Ser. No. 633,529
Int. Cl. C21c *7/02*
U.S. Cl. 75—51 8 Claims



A method for homogeneously intermixing a metal bath and a solid additive by means of gas agitation. A non-reactive gas is fed through a refractory tube at an angle into a molten bath to impart a rolling motion to the bath in a vertical plane. A solid material is then added to the bath and is evenly dispersed therein by the motion of the bath.

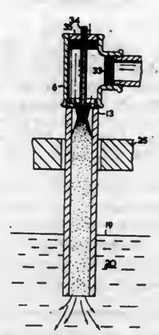
3,545,961
REFINING OF COPPER
Charles Arentzen and John T. O'Donnell, Anaconda, Mont., assignors to The Anaconda Company, New York, N.Y., a corporation of Montana
No Drawing. Filed Nov. 25, 1966, Ser. No. 596,812
Int. Cl. C22b *15/14*
U.S. Cl. 75—76 4 Claims

A process is provided for refining molten copper containing copper oxide which comprises adding to the molten copper sufficient cuprous sulfide to react with substantially all the copper oxide therein. The molten metal is then subjected to a subatmospheric pressure until substantially all the sulfur dioxide formed by reaction of the copper oxide with the cuprous sulfide has been removed. The subatmospheric pressure may be applied by immersing into a bath of the molten copper one end of a pipe which is connected at its other end to a source of subatmospheric pressure.

3,545,962
PROCESS FOR THE GASEOUS DEOXIDATION OF ANODE COPPER
Nickolas J. Themelis, Beaconsfield, Quebec, and Paul R. Schmidt, Hudson, Quebec, Canada, assignors to Noranda Mines Limited, Toronto, Ontario, Canada
Filed Apr. 3, 1967, Ser. No. 627,779
Claims priority, application Great Britain, Apr. 15, 1966, 16,744/66
Int. Cl. C22b *15/00, 15/04, 15/14*
U.S. Cl. 75—76 10 Claims

A process for the gaseous deoxidation of molten copper in which a reformable hydrocarbon and steam is substantially simultaneously injected beneath the surface

of molten metal in a furnace through water cooled lances in which partial reforming of the hydrocarbon with the



water vapour to carbon monoxide takes place in the lance prior to its introduction into and dispersion within the molten copper in the furnace.

3,545,963
METHOD OF RECOVERING RHODIUM VALUES OF A SPENT RHODIUM BEARING CATALYST
Hachiro Wakamatsu, Tokyo, and Masahiko Takesada and Yuichi Tsuchitani, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
No Drawing. Filed Apr. 12, 1967, Ser. No. 630,208
Claims priority, application Japan, Apr. 14, 1966, 41/23,763
Int. Cl. C22b *11/04*
U.S. Cl. 75—83 7 Claims

Rhodium is recovered as a metal or an insoluble compound from reaction mixtures in which organic compounds were prepared in the presence of a rhodium bearing soluble catalyst by contacting the mixture with aluminum, antimony, cadmium, cobalt, chromium, copper, iron, mercury, manganese, molybdenum, nickel, lead, palladium, rhodium, tin, titanium, vanadium, tungsten, or zinc in the metallic state. Acids, if present, may accelerate the separation of the rhodium.

3,545,964
GOLD RECOVERY PROCESS
Spenst M. Hansen, Denver, Colo., and David F. Snoeberger, Oakland, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,209
Int. Cl. C22b *11/04*
U.S. Cl. 75—101 4 Claims

Process wherein fragmented or comminuted gold ore is contacted with an acidic chloride leach liquor containing sodium azide, ethanolamine, ethylene diamine or potassium thiocyanate as a covalent-bonding complexing agent in the presence of an oxidizing agent to leach gold from the ore. The leach liquor is circulated to a processing plant to recover the gold and the barren liquor is recycled. In the presence of such complexing agent greater proportions of the gold are leached and the leach liquor is stabilized against loss of the gold therefrom in the presence of ore thereby facilitating recovery of gold even from a low grade ore during long contact times.

3,545,965
CHEMICAL GOLD MINING
Albert L. Jacobs, 521 5th Ave., New York, N.Y. 10017
No Drawing. Filed June 27, 1968, Ser. No. 740,460
Int. Cl. C22b *3/00, 11/04*
U.S. Cl. 75—101 6 Claims

Gold-containing material such as ores, mineral or alluvial deposits and "tailings" from present day modes of gold recovery are treated with H_2SeO_4 in a sufficient amount to combine with or extract the gold which is in a free state from the ores, deposits and "tailings," etc., all of which contain free gold in small but varying amounts. When gold and selenic acid are brought into contact with one another they form auric selenate with the evolution of hydrogen. The hydrogen is collected for subsequent reuse in bringing about reduction of the auric selenate to reform the selenic acid and deposit its gold content. Selenic acid H_2SeO_4 is normally a solid crystalline material which can be used in the present invention by raising its temperature out of contact with moisture to the melting point (48° C.) by means of waste heat but since selenic acid is deliquescent, it is for practical purposes used in the form of a 40% aqueous solution. By carrying out the procedure in a closed system or area out of contact with moisture where solid H_2SeO_4 is used and in a continuous manner with recovery of selenic acid and hydrogen for reuse, the economics of the invention are acceptable even though selenic acid is presently relatively expensive.

3,545,966
MANUFACTURE OF IMPROVED NUCLEAR FUELS
Michel Colombie, Champigny, and Michel Foure, Romans-sur-Isere, France, assignors to Compagnie pour l'Etude la Realisation de Combustibles Atomiques (C.E.R.C.A.), Paris, France
Continuation-in-part of application Ser. No. 544,897, Apr. 25, 1966. This application Feb. 27, 1968, Ser. No. 708,692
Int. Cl. C22b *61/04*
U.S. Cl. 75—122.7 18 Claims

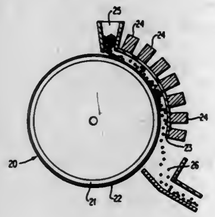
Fine grained nuclear fuels having stable dimensions under working conditions in nuclear reactors are made from uranium and its alloys with metals such as molybdenum, chromium, silicon and germanium by alloying it with small amounts of boron and beryllium by a process which involves controlled cooling in a particular temperature range. Advantages are secured by multiplying the number of grains per unit volume in the fuel.

3,545,967
METAL-SEMICONDUCTOR ALLOYS FOR THIN-FILM RESISTORS
Robert P. Mandal, Valinda, Calif., assignor to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
No Drawing. Filed Sept. 28, 1966, Ser. No. 582,499
Int. Cl. C22c *15/00, 31/00*; H01b *1/02*
U.S. Cl. 75—134 7 Claims

This patent describes a novel solid evaporated thin-film resistor having uniform operating characteristics up to at least 150° F. comprising an alloy of a high melting metal which is not a semiconductor with an elemental semiconductor of high melting point; said metal and said semiconductor having similar vapor pressures at the evaporation temperature as indicated by uniformity of composition in the liquid and vapor states. The method of preparing novel solid evaporated thin-film resistors having uniform operating characteristics up to at least 150° F. which comprises heating to melting a finely divided high melting metal which is not a semiconductor and a finely divided high melting elemental semiconductor to form an alloy, evaporating said alloy onto a substrate, heated to

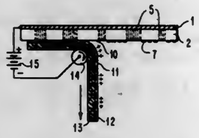
a temperature at least 25° C. above the intended operating temperature of said resistor, and permitting said alloy to solidify and cool on said substrate in the form of a thin film.

3,545,968
DEVELOPING A LATENT ELECTROSTATIC IMAGE WITH FERROMAGNETIC CARRIER AND TONER BY EMPLOYING A VARYING MAGNETIC FIELD
Masamichi Sato, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Feb. 9, 1968, Ser. No. 704,296
Int. Cl. G03g
U.S. Cl. 96—1 3 Claims



This invention relates to a method and apparatus for cascade developing electrostatic latent images by feeding a cascade developer containing ferromagnetic carriers through a developing space between an insulating material which bears the latent image and a non-ferromagnetic developing electrode. A varying magnetic field is induced in the developing space to alternately cause the carrier to move towards and away from the insulating material and the developing electrode.

3,545,969
METHOD OF INDUCING AN ELECTROSTATIC CHARGE PATTERN ON AN INSULATING SURFACE
Clifford E. Herrick, Jr., Los Gatos, and Alfred H. Sporer and Clayton V. Wilbur, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Continuation of application Ser. No. 474,583, July 26, 1965. This application July 14, 1969, Ser. No. 847,493
Int. Cl. G03g 13/22
U.S. Cl. 96—1 5 Claims

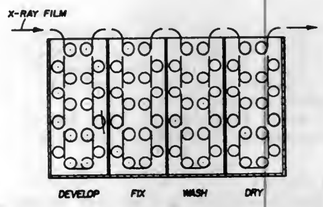


A reproduction process in which an uncharged persistent photoconductive member is exposed to a pattern of light and dark, and then brought into contact or near contact with an insulating surface while a uniform external voltage is applied across and at least during the separation of the insulating surface from the photoconductive member. An electrostatic charge pattern is formed on the insulating surface in which the areas of electrostatic charges correspond to the light exposed areas of the photoconductive member. If desired prior to bringing the photoconductive member into contact with the insulating surface, the photoconductive member can be electrostatically charged of such a polarity so as to prevent charge formation on the areas of the insulating surface corresponding to the dark exposed areas of the photoconductive member.

3,545,970
PHOTOGRAPHIC PROCESSES UTILIZING SILOXANE WATER SPOTTING INHIBITORS
Edward J. Giorgianni, Peter J. Drago, Jr., and Charles E. Groves, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,147
Int. Cl. G03c 7/00
U.S. Cl. 96—55 4 Claims

The treatment of hydrophilic colloids, e.g., gelatin, with alkoxypoly(ethyleneoxy)siloxanes containing from about 10 to 15 percent by weight silicon and/or 57.5–72.5 percent by weight alkoxypoly(ethyleneoxy) groups, for example, in a final rinse for perforated color film, substantially inhibits water spotting.

3,545,971
RAPID PROCESSING OF PHOTOGRAPHIC X-RAY FILM
John C. Barnes, Chester C. Wilt, and William W. Rees, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed June 28, 1966, Ser. No. 561,265
Int. Cl. G03c 5/24, 5/38
U.S. Cl. 96—61 10 Claims



A combination of X-ray sensitive photographic emulsions, processing solutions and processing conditions are used in roller transport systems to provide processes which result in processed X-ray film of excellent quality in very short periods of time. Only about 30 to about 90 seconds actual processing time or about 60 to 120 seconds total time including time of transport between solutions and drying chambers are required for conventional X-ray film, e.g., X-ray film 14 by 17 inches square. This process produces image quality which is reproducible.

3,545,972
ADHESIVE SUBBING LAYER FOR A PHOTOGRAPHIC EMULSION
Alex Wasy D'Cruz, Somerset, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 547,152, May 3, 1966. This application Jan. 14, 1969, Ser. No. 791,164
Int. Cl. G03c 1/80
U.S. Cl. 96—87 8 Claims

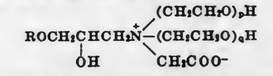
Photographic films comprising an organic polymer film bearing a sublayer of a tricomponent copolymer of (a) an alkyl acrylate or methacrylate, (b) an aliphatic difunctional monomeric compound with at least two unsaturated groups, e.g., vinyl or allyl such as allyl acrylate and diallyl malonate, and (c) itaconic, fumaric, acrylic or methacrylic acid and a water-permeable silver halide emulsion layer. The films have excellent adherence between layers.

3,545,973
PHOTOSENSITIVE POLYVINYLBUTYRAL LACQUER
Theo Tjalke Boersma, Hendrikes Johannes Veenendaal, and Hendrikus Cornelis Nicolaas van der Sanden, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 18, 1967, Ser. No. 631,578
Claims priority, application Netherlands, Apr. 20, 1966, 6605244
Int. Cl. G03c 1/66
U.S. Cl. 96—93 2 Claims

Photosensitive materials comprising a polyvinylbutyral lacquer and an aliphatic alkaryl, dimethyl ammonium bichromate. An example is dimethyllaurylbenzyl ammonium bichromate.

3,545,974
METHOD FOR PREPARING PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS
Fumihiko Nishio, Masakazu Yoneyama, Minoru Yamada, and Kameji Nagao, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
No Drawing. Filed Mar. 18, 1968, Ser. No. 714,020
Claims priority, application Japan, Mar. 17, 1967, 42/16,790
Int. Cl. G03c 1/04
U.S. Cl. 96—114.5 16 Claims

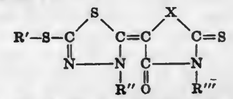
A method and product resulting therefrom for incorporating a wetting agent into a silver halide emulsion, said wetting agent having the general formula:



whereby the coating properties of said emulsion is improved without reducing the fastness of the color images produced on developing.

3,545,975
OPTICALLY SENSITIZED LIGHT-SENSITIVE MATERIAL
Helmut Kampfer, Cologne-Stammheim, Marie Hase, Schildgen-Bergisch Gladbach, and Harald von Rintelen and Oskar Riester, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Feb. 29, 1968, Ser. No. 709,194
Claims priority, application Germany, Mar. 11, 1967, A 55,135
Int. Cl. G03c 1/08
U.S. Cl. 96—121 4 Claims

Dyes having the formula

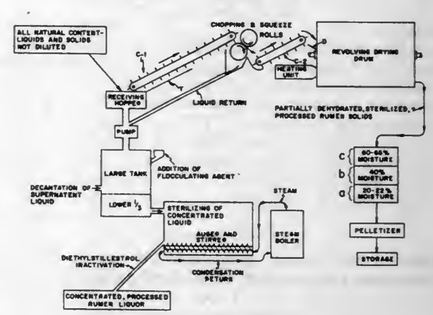


as defined below are effective sensitizers for silver halide emulsions and electrophotographic layers. Their sensitization maximum is at 450 to 480 millimicrons with a sharp drop-off at longer wave lengths.

3,545,976
PHOTOGRAPHIC EMULSIONS CONTAINING ALKOXYDIHYDROMEROCYANINES
Frank G. Webster, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Nov. 30, 1967, Ser. No. 686,817
Int. Cl. G03c 1/36
U.S. Cl. 96—126 33 Claims

Photographic silver halide emulsions are provided which contain compounds having 2-arylindole joined by an alkoxymethylene linkage to isoxazoline or pyrazoline.

3,545,977
PRODUCTION OF VALUABLE ANIMAL FEED COMPONENTS THROUGH PROCESSING OF THE RUMEN CONTENT OF SLAUGHTERED CATTLE AND PRODUCTS
Paul A. Stahler, R.R., Jordan, Minn.
Filed Sept. 7, 1967, Ser. No. 667,324
Int. Cl. A23k 1/00
U.S. Cl. 99—7 3 Claims



A method of treating the rumen content of slaughtered cattle to produce a nutritive animal feed composition. The liquid fraction of the rumen content is separated from the solid material, subjected to flocculation to concentrate solids, suspensions, and coagulants contained therein, and the concentrated portion is thereafter sterilized by heat and treated to inactivate diethyl-stilbesterol.

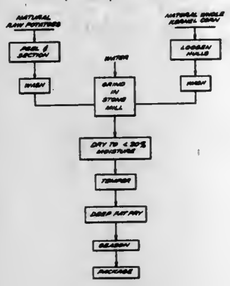
3,545,978
METHOD OF PRODUCING CHAMPAGNE
Georgy Gerasimovich Agabaliants, Ul. Aviamotornaya 51, kv. 36, Moscow, U.S.S.R; Artemy Arutjunovich Merzhanian, Ul. Novokuznechnaya 10, kv. 12, Krasnodar, U.S.S.R.; and Sergei Alexeevich Brusilovsky, Tsvetnoi bulvar 20, kv. 10; and Naskid Grigorievich Sarishvili, Proektirovanny proezd 2, korp. 4, kv. 52, both of Moscow, U.S.S.R.
Filed Feb. 28, 1967, Ser. No. 619,294
Int. Cl. C12g 1/06
U.S. Cl. 99—41 1 Claim

A method and system for continuously producing champagne wherein deaeration of the wine blend is carried out in continuous flow, part of the flow being used as a nutrient medium for cultivating yeast which is carried out in continuous flow, said yeast flow being divided into two parts, one of which is added continuously to the wine blend before deaeration while the other part of the yeast flow is fed into the flow of blend before it undergoes secondary fermentation.

3,545,979
SNACK CHIP AND METHOD OF MAKING
Abdul R. Ghafoori, 1220 Burt Place, Fullerton, Calif. 92634
Filed Mar. 18, 1968, Ser. No. 713,764
Int. Cl. A21d 8/02
U.S. Cl. 99—83 12 Claims

A process for preparing a snack chip from potatoes and corn. The process comprises simultaneously grinding peeled, diced raw potatoes and whole corn kernels in a stone grinding mill. The resultant dough is sheeted out,

sliced into chips, dried, deep fat fried, dusted with seasoning, and bagged for distribution. The snack chip thus pre-



pared from natural nondehydrated ingredients is a nourishing food product of distinctive flavor.

3,545,980
COMBINATION STRAW AND FLAVORING
Mildred H. Stanger, 2118 Haybarger Road, Erie, Pa. 16502
Filed Dec. 1, 1966, Ser. No. 598,475
Int. Cl. A23g *3/00*
U.S. Cl. 99—138 **1 Claim**

A straw for sipping a drink. A straw being made of a relatively long hollow member, having a piece of candy supported on the end that is to be received in the mouth of the drinker. The candy is in the shape of a tear-drop so that it can be comfortably received in the mouth of the drinker and the drink can be sipped through the straw while the candy engages the lips.

3,545,981
METHOD OF MAKING CANDY
Stephen Klein and George Klein, New York, N.Y., assignors to Barton's Candy Corporation, Brooklyn, N.Y., a corporation of New York
Filed June 1, 1967, Ser. No. 642,863
Int. Cl. A23g *1/00*
U.S. Cl. 99—138 **4 Claims**

Molded chocolates having a base of one type of chocolate, e.g., dark chocolate, and a raised top decoration of another type or color of chocolate, e.g., milk chocolate, which are integral and have a smooth outer surface at the juncture of the decoration and the base are described. The chocolates are formed in a mold having a bottom and sides and having in the botom a depression corresponding to the raised design. Molten chocolate for the raised design is deposited in the depression in an amount not greater than the volume of the depression and, after at least a film has formed on the surface of the molten chocolate, chocolate for the base is deposited in an amount sufficient to fill the mold. The chocolate is then allowed to solidify. If desired, a shell is formed by allowing solidification of the second-deposited chocolate only at the surface of the mold cavity, and decanting the still molten chocolate prior to complete solidification. The chocolate may be replaced by coating materials other than chocolate, such as the known cocoa butter or vegetable fat based materials generally referred to by the term "compound."

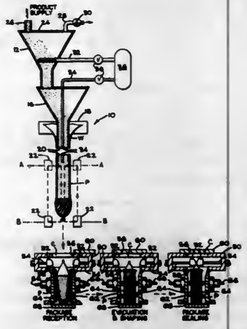
3,545,982
FOODSTUFF WITH PHOSPHATE PEROXIDE ADDITIVE
Hiromi Nakatani, Kyoto, and Kiyoshi Katagiri, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan
No Drawing. Filed Feb. 8, 1968, Ser. No. 703,908
Claims priority, application Japan, Feb. 10, 1967, 42/8,671
Int. Cl. A23b *1/01*
U.S. Cl. 99—150 **13 Claims**

The properties of foodstuff, particularly its preservability, are enhanced by the incorporation thereinto of about 0.01 to about 5% by weight of di(alkali metal) hydrogenphosphate peroxide

$$M_2HPO_4.H_2O_2$$

wherein M is Na or K.

3,545,983
METHOD OF DEOXYGENATING AND PACKAGING OF FOOD PRODUCTS
Quentin T. Woods, Huntingdon Valley, Pa., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed July 15, 1968, Ser. No. 744,751
Int. Cl. B65b *31/02*
U.S. Cl. 99—171 **6 Claims**

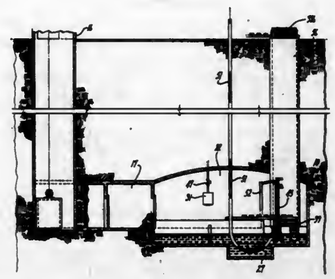


A free flowing granular food product is packaged in packages made of suitable thermoplastic web material. The product is stripped of a major portion of its oxygen by the action of an inert gas, such as nitrogen, before it is deposited in the package. The package is of the type produced by a form, fill and seal machine and it is provided with an upper interim seal which allow flow of fluid from the package. Further reduction of the oxygen content is achieved by putting the package in a vacuumizing chamber, which includes sealing tools therein, for hermetically sealing the package while flow of fluid is occurring from the package to the chamber.

3,545,984
FOOD PROCESSING METHOD AND EQUIPMENT
Richard D. Mathews, Mountain View, Calif., assignor to Del Monte Corporation, San Francisco, Calif., a corporation of New York
Filed Oct. 11, 1968, Ser. No. 766,707
Int. Cl. A23l *3/04;* **B65b** *31/02*
U.S. Cl. 99—214 **15 Claims**

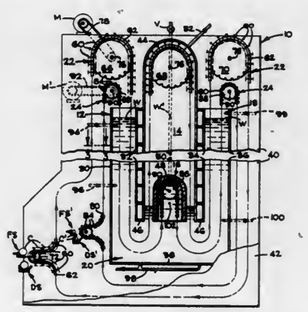
Food processing equipment and method making use of high temperature short time heat sterilization. Container filling and sealing operations take place within a pressurized chamber with the food at an elevated sterilizing temperature above 212° F. After a holding period to complete sterilization, the sealed containers are conveyed out of the chamber through a hydrostatic column with simultaneous cooling of the containers. Empty containers

(e.g., cans) are conveyed into the chamber through a hydrostatic column. Some types of containers (e.g.,



flexible packages) can be brought into the chamber through air locks.

3,545,985
DOUBLE CHAIN HYDROSTATIC COOKER AND STERILIZING PROCESS
Samuel A. Mencacci, Antwerp, and Emile de Bruyn, St. Niklaas-Waas, Belgium, assignors to International Machinery Corporation S.A., St. Niklaas-Waas, Belgium, a Belgian corporation
Filed Feb. 20, 1969, Ser. No. 800,939
Int. Cl. A23l *3/04*
U.S. Cl. 99—214 **19 Claims**



A hydrostatic cooker and process for simultaneously sterilizing two products at different temperatures and having two processing conveyors which pass through common inlet and outlet hydrostatic legs of the cooker. One of the processing conveyors passes through a cooking chamber having a gaseous heat treatment medium therein maintained at a high temperature and pressure, while the other conveyor passes through a second cooking chamber having a cooking liquid therein maintained at a high pressure but at a lower temperature. The carriers on the two conveyors may be of different sizes so as to accommodate containers of different sizes.

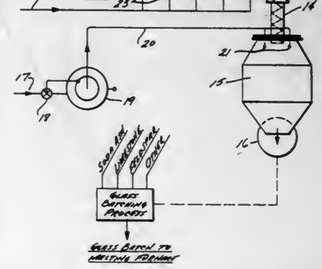
3,545,986
NOVEL SILVER COMPOSITIONS AND CAPACITORS THEREFROM
Oliver A. Short, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Feb. 26, 1968, Ser. No. 707,958
Int. Cl. C09d *5/24;* **H01b** *1/02*
U.S. Cl. 106—1 **4 Claims**

Silver compositions, adapted to be applied to and fired on a reduced titanate ceramic substrate to form thereon electrically conductive, adherent fired on films, comprise 1–30% of a bismuth resinate, 40–75% of finely divided silver, and 10–70% of an inert vehicle system. Reduced titanate capacitors are prepared from the silver compositions.

3,545,987
TRANSPARENT YTTRIA-BASED CERAMICS AND METHOD FOR PRODUCING SAME
Richard C. Anderson, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 28, 1966, Ser. No. 582,755
Int. Cl. C04b *33/00*
U.S. Cl. 106—39 **4 Claims**

The manufacture of high density yttria-base polycrystalline ceramic bodies containing from about 2 to 15 mol percent of an oxide selected from the group consisting of ThO_2, ZrO_2, HfO_2 and combinations thereof is disclosed. These bodies are substantially transparent and exhibit an in-line transmission per millimeter thickness of not less than 10 percent of all radiant energy of all wavelengths in the range of about 0.25 micron to 8.0 microns and at least 60 percent transmission of some wavelength within the range.

3,545,988
GLASS MANUFACTURING METHOD
Woodrow W. Slade, Walnut Creek, Calif., assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Sept. 21, 1966, Ser. No. 581,026
Int. Cl. C03c *3/04, 1/02;* **C03b** *1/00*
U.S. Cl. 106—52 **4 Claims**



The method of making a glass by agglomerating at elevated temperatures a batch containing sand and light soda ash by partial hydration of said soda ash to form a free flowing agglomerate, mixing said agglomerate with other batch ingredients, introducing the bath into a melting furnace and then melting the batch.

3,545,989
LOW LOSS LEAD FLUORIDE SEALING GLASSES
Masanari Mikoda, Hirakata-shi, and Tadashi Hikino, Takatsuki-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
No Drawing. Filed Mar. 17, 1967, Ser. No. 623,844
Claims priority, application Japan, Dec. 12, 1966, 41/82,322
Int. Cl. C03c *3/04*
U.S. Cl. 106—53 **2 Claims**

The PbO conventionally used in B_2O_3-PbO-ZnO sealing glass is replaced by PbF_2 to give glass of superior properties: lower sealing temperature, lower dissipation factor,

homogeneous crystallization, coefficient of linear expansion compatible with materials to be sealed together (e.g. color grid parts, etc.).

3,545,990

PLASTICIZED RESIN COMPOSITIONS CONTAINING ESTERS OF N-SUBSTITUTED o-CARBOXYHIPPURIC ACID

James Kern Sears, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 10, 1968, Ser. No. 735,518
Int. Cl. C08b *27/42*
U.S. Cl. 106—182 **17 Claims**

Esters of N-substituted o-carboxyhippuric acid which are useful as plasticizers for thermoplastic resins.

3,545,991

TACK COMPOSITION FOR ELASTOMERIC POLYMERS

Ralph W. Body, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 1, 1967, Ser. No. 634,847
Int. Cl. C08h *11/04*
U.S. Cl. 106—239 **10 Claims**

A composition of matter comprised of (A) a stabilized rosin such as hydrogenated rosin, (B) rosin amine, and (C) an oil such as a naphthenic oil is used to provide a tacky surface on elastomeric polymers such as EPR and EPDM. The tacky surface provides adequate building tack for the manufacture of automobile tires and the like.

3,545,992

RED DYE-PIGMENTS

Otto Christmann, Ludwigshafen (Rhine), Claus Bernhard, Mannheim, and Erwin Plankenhorn, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Feb. 9, 1967, Ser. No. 614,820
Claims priority, application Germany, Feb. 19, 1966, 1,544,395
Int. Cl. C08h *17/14*
U.S. Cl. 106—288 **2 Claims**

New red calcium and barium complexes of azo dyes which lend themselves admirably for use as dye-pigments owing to their valuable tinctorial properties.

Red pigments are known which are metal complexes of azo dyes and which may be produced by reacting azo compounds obtained from o-amino-benzenesulfonic acids and β-hydroxynaphthoic acid with calcium or barium salts. As these pigments do not satisfy exacting requirements with regard to tinctorial strength and fastness to light, there has been a desire to find new red pigments of the azo series having high tinctorial strength and fastness to light.

3,545,993

PIGMENT

Eugene Wainer, Shaker Heights, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated, a corporation of Ohio

No Drawing. Filed Aug. 2, 1967, Ser. No. 657,799
Int. Cl. C08h *17/04;* **C09c** *1/28*
U.S. Cl. 106—288 **11 Claims**

A composite pigment comprising particles exhibiting substantially complete water insolubility and consisting of a core of calcium sulphophosphate resulting when crushed wollastonite ($CaSiO_3$) is treated with sulfuric and phosphoric acids in water solution, said core being enveloped in an encasement based on the reaction of the surface layer of the core particle with a hydrate, oxide or hydrous oxide of Al, Zn, Fe, Co, Ni, Mn or Cr or mixtures thereof and the process by which said pigment is produced.

3,545,994

PROCESS FOR COATING PIGMENTARY METAL OXIDES

Harry Lott, Jr., and Robert H. Walsh, Akron, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 491,447, Sept. 29, 1965. This application Nov. 7, 1969, Ser. No. 874,970
Int. Cl. C08h *17/00;* **C09c** *1/00, 3/00*
U.S. Cl. 106—308 **14 Claims**

Pigmentary metal oxides, e.g., titanium dioxide are coated while in aqueous slurry with hydrous metal oxides, e.g., hydrous oxides of titanium, aluminum and silicon. Homogeneous coatings are obtained by adjusting the slurry pH with a weak acid or weak base which is generated in situ. The hydrolysis of urea to generate a weak acid or weak base is described.

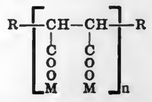
3,545,995

METHOD OF DISPERSING FINE POWDERS

Kenichi Hattori, Masataka Dehara, and Katuo Sugimoto, Wakayama-shi, Japan, assignors to Kao Soap Co., Ltd., Chuo-ku, Tokyo, Japan and Sugai Chemical Industry Co., Ltd., Wakayama-shi, Japan, both corporations of Japan

No Drawing. Filed July 31, 1967, Ser. No. 657,078
Claims priority, application Japan, Aug. 1, 1966, 41/50,753
Int. Cl. C09c *3/02*
U.S. Cl. 106—308 **2 Claims**

A method of dispersing hydrophilic fine solid particles in which a polymaleic acid or its water-soluble salt represented by the following formula:



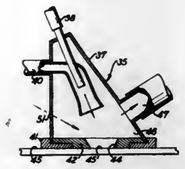
wherein *n* is an integer of about 4 to 50, M is hydrogen, an alkali metal or ammonium and R is an initiator radical or a solvent fragment is used as a dispersing agent.

3,545,996

METHOD AND APPARATUS FOR PRODUCING A DECORATIVE EFFECT ON STAINLESS STEEL AND OTHER SURFACE

Leon L. Duncan, Washington, Mo., assignor to Zero Manufacturing Company, Washington, Mo., a company of Missouri

Continuation of application Ser. No. 332,230, Dec. 20, 1963. This application Feb. 25, 1969, Ser. No. 804,364
Int. Cl. B44d *1/94;* **B44c** *1/06;* **B74c** *1/04*
U.S. Cl. 117—8 **7 Claims**



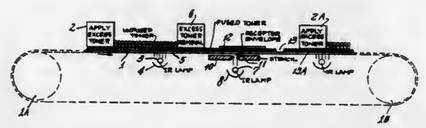
A method of peening a metallic surface with microscopic glass beads in a partial vacuum wherein the beads are removed from the surface undergoing peening by introducing an air stream on one side of the surface and exhausting it on the other side together with the spent beads and debris. Placing a plurality of units to carry out the foregoing method on a crankshaft and rotating same on the metallic surface which is moving relative to the crankshaft. Spacing a stencil above the metallic surface, peening the surface through the stencil while at the same time removing spent peening material and debris by means of an air stream flowing between the metallic surface and the stencil. Plating the surface either before or after peening same with microscopic glass beads whereby part of the plating may be removed. Introducing embedding materials with the peening materials so that the embedding materials are peened into the surface being treated.

3,545,997

METHOD FOR COATING ON A SUBSTRATE

David Louis Hochberg, New York, N.Y., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware

Filed Jan. 26, 1966, Ser. No. 523,054
Int. Cl. B41m *5/18;* **B44d** *1/94, 1/50*
U.S. Cl. 117—17 **2 Claims**



This invention relates to a method of producing a thermographic transfer printing member which comprises applying thermographic ink particles to the topside of a substrate, irradiating the ink from the underside of the substrate and through the substrate, whereby a layer of ink is fused to the topside of the substrate and then transferring the fused ink layer to a receiving substrate which comprises placing the receiving substrate in contact with the fused ink layer, irradiating the ink layer from the underside of the substrate through a stencil means and through the substrate, whereby portions of the ink layer are transferred to the receiving substrate.

3,545,998,

LOWER ALIPHATIC ALCOHOL TREATMENT OF LIGHT POLARIZING FILM

Harold O. Buzzell, Wollaston, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Filed Mar. 28, 1968, Ser. No. 716,983
Int. Cl. B44d *5/06, 1/92*
U.S. Cl. 117—33.3 **2 Claims**

Uniformity of dyeing of molecularly oriented hydroxyl containing vinyl polymers is increasd bey washing the said oriented polymer with a lower aliphatic alcohol prior to treatment with an electrolyte and subsequent dyeing.

3,545,999

TRANSFER SHEET SYSTEM

Donald Firth, Skelmanthorpe, near Huddersfield, England, assignor to Datacopy Limited, Huddersfield, England, a British company

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,296
Claims priority, application Great Britain, Dec. 16, 1966, 56,377/66
Int. Cl. B41m *5/10*
U.S. Cl. 117—36.4 **3 Claims**

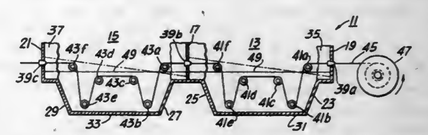
The invention relates to transfer sheets formed of a backing sheet having coated on one side of thereof a layer of transfer composition which sheets are characterised in that they have a covering layer coated over at least part of the transfer layer. Optionally, these transfer sheets may be coated on the other side of the backing sheet with a layer of receptor composition.

3,546,000

METHOD FOR IMPREGNATING GLASS FILAMENT REINFORCEMENT ROVINGS

Jonas Medney, Oceanside, N.Y., assignor to Koppers Company, Inc., a corporation of Delaware

Filed Jan. 23, 1968, Ser. No. 699,825
Int. Cl. B44d *1/44;* **C03c** *25/02*
U.S. Cl. 117—62.2 **5 Claims**



Method for prolonging the pot life of heat hardenable resins of the type used in filament winding comprises passing the glass filament rovings through a first mixture containing resin hardener and then through a second mixture containing a resin activator. The resin coating on the rovings, being a combination of the first and second mixtures, sets rapidly, but the pot life of each mixture is extended considerably.

3,546,001

METHOD OF PRODUCING TOUGH BREATHABLE COATING OF POLYURETHANE ON FABRICS

Charles Giannone, Brooklyn, N.Y., Charles A. Kumins, Barrington Hills, Ill., and Frederick H. Schwacke, Jr., Farmingdale, and John L. Egitto, West Islip, N.Y., assignors to Inmont Corporation, New York, N.Y., a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 550,135, May 16, 1966. This application Feb. 11, 1969, Ser. No. 798,471
Int. Cl. B44d *1/44;* **D06n** *3/04*
U.S. Cl. 117—65.2 **7 Claims**

Breathable coated fabrics wherein the coating is thermoplastic polyurethane are toughened by applying heat and pressure to the breathable coating to reduce the thickness to 40 to 60% of its original thickness. The toughened coated fabric is especially useful as a leather substitute material.

3,546,002

PROCESS OF APPLYING BLENDED UNSATURATED ACID ESTERIFIED COPOLYMER SURFACE COATINGS INCLUDING CROSSLINKING THE BLENDED COPOLYMERS WITH IONIZING RADIATION

Sol B. Radlove, Chicago, and Abraham Ravve, Lincolnwood, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York

No Drawing. Filed Aug. 7, 1968, Ser. No. 750,750
Int. Cl. C08f *1/24*
U.S. Cl. 117—93.31 **12 Claims**

A process for coating articles wherein a polymerizable prepolymer blend of an unsaturated ester of a vinyl aromatic hydrocarbon unsaturated alcohol copolymer such as styrene/allyl alcohol copolymer and a polymerizable interpolymer ester such as an unsaturated ester of a styrene/hydroxyalkyl acrylate/alkyl acrylate terpolymer is applied

to the surface of the article to be coated and the prepolymer blend polymerized to form the coating using ionizing radiation.

3,546,003
PHOSPHORS FOR COLOR DISPLAY SYSTEMS
Lee R. Reid, Richardson, Samuel R. Shortes, Dallas, and Frederick G. Kennedy, Garland, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 19, 1967, Ser. No. 643,015
Int. Cl. H01j *31/20*
U.S. Cl. 117—100 3 Claims

A thin layer of zinc sulfide-containing phosphor particles is positioned in a quartz container supported on a slab of silicon carbide coated graphite material in a reaction chamber in an atmosphere of oxygen and heat is periodically supplied to cyclically vary the temperature of the particles from about 350° C. to 600° C. The barrier layer of zinc oxide thereby formed on the surface of the particles, or a surface layer of zinc sulfide subsequently formed in situ, increases the electron energization threshold of the particles. These particles are utilized together with other phosphor particles with a lower energization threshold in an energy modulated color display system.

3,546,004
METHOD OF PRODUCING WATER VAPOR AND AIR PERMEABLE FILMS OF POLYMERIC MATERIAL
Theodor Schachowskoy and Jürgen Knoke, Weinheim an der Bergstrasse, Germany, assignors to Carl Freudenberg, Weinheim an der Bergstrasse, Germany, a German corporation
No Drawing. Filed Feb. 24, 1966, Ser. No. 540,780
Claims priority, application Germany, Mar. 9, 1965, F 45,455
Int. Cl. B44d *1/08;* D06n *3/14*
U.S. Cl. 117—104 11 Claims

Process of producing water vapor and air permeable films of a polymeric material particularly suitable for use as synthetic leather including dissolving a polymer having a torsion modulus of at least 30 kg./sq. cm. in a solvent for such polymer, adding to the solution a coagulant for such polymer from such solution wherein the solvent and the coagulant are suitably miscible with each other and wherein the proportion of coagulant added to the solution is from about one half to less than the amount necessary to cause coagulation of said polymer from said solution, and depositing such admixture into a suitable substrate under such conditions that a portion of the solvent evaporates preferentially with respect to said coagulant during such deposition whereby causing said polymer to coagulate from said mixture onto said substrate.

3,546,005
ORIENTED CrO_2 FILMS AND METHOD OF PRODUCING SAME
Robert C. de Vries, Burnt Hills, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed June 20, 1966, Ser. No. 558,573
Int. Cl. H01f *10/02, 10/04*
U.S. Cl. 117—106 4 Claims

Plate-like bodies of CrO_2 of uniquely large areas and of predetermined desired crystallographic orientation are made by a method which involves polishing part of a substrate crystal of a desired crystallographic plane and then epitaxially growing CrO_2 on the prepared surface until a CrO_2 deposit covers this surface to a thickness up to five microns.

3,546,006
WET-FIXATION PROCESS FOR CELLULOSIC FABRICS USING LOW ADD-ONS OF RESINS
Gerald B. Verburg and Alvin H. P. Young, Metairie, and Frank W. Snowden and Sidney L. Vail, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Continuation-in-part of application Ser. No. 712,392, Mar. 12, 1968. This application Nov. 13, 1968, Ser. No. 775,548
Int. Cl. B44d *1/48;* D06m *15/54*
U.S. Cl. 117—119.8 3 Claims

The purpose of this invention is to fix or deposit N-methylol resins in cellulosic fabrics by the action of heat and steam to produce abrasion resistant fabrics capable of resisting wrinkling or mussing throughout a reasonable wear life. Fixation is accomplished in a rapid one-step process. Fixed fabrics may be cured immediately or may be used in a delayed cure.

3,546,007
MASONRY SEALING COMPOUND
Gordon G. Douglas, Glen Mills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Sept. 16, 1968, Ser. No. 760,080
Int. Cl. C04b *41/32*
U.S. Cl. 117—123 21 Claims

Cinder blocks, concrete blocks, reinforced concrete, brick and stone foundations can be sealed to prevent seepage and ground water from penetrating through masonry foundations by applying as a thin coating to the outside of the foundation a composition prepared from a major amount of a mineral lubricating oil, a minor amount of a soap thickener and a minor amount of an oil soluble polymer from the group of atactic polypropylene, atactic propylene-ethylene copolymer and ethylene vinyl acetate copolymer.

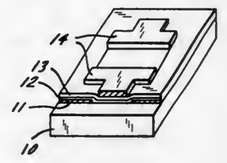
3,546,008
SIZING COMPOSITIONS AND FIBROUS ARTICLES SIZED THEREWITH
Donald J. Shields, James M. Hawkins, and Willis C. Wooten, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed May 27, 1968, Ser. No. 732,042
Int. Cl. C08j *1/40;* C08q *51/04*
U.S. Cl. 117—138.8 21 Claims

Fibrous articles (such as textile yarn, hemp rope, and tire cord) are sized with sizing compositions comprising linear, water-dissipatable polyesters derived from at least one dicarboxylic acid component, at least one diol component, at least 20 mole percent of said diol component being a poly(ethylene glycol), and a difunctional monomer containing a $—SO_3M$ group attached to an aromatic nucleus, wherein M is hydrogen or a metal ion.

3,546,009
METALLIZATION OF INSULATING SUBSTRATES
Frederick W. Schneble, Jr., Oyster Bay, Edward John Leech, Oyster Bay, and John Francis McCormack, Roslyn Heights, N.Y., assignors to Photocircuits Division of Kollmorgen Corporation, Hartford, Conn., a corporation of New York
Filed Jan. 3, 1967, Ser. No. 606,918
Int. Cl. B44d *1/14, 1/34*
U.S. Cl. 117—212 18 Claims

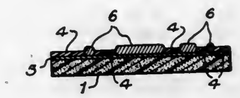
A new insulating base is provided which has incorporated therein a catalytic filler which comprises inert, finely divided solid particles of a base exchangeable material which contains a cation of a metal selected from Groups I–B and VIII of the Periodic Table of Elements, such metal cation being chemisorbed on the exchangeable material in place of replaceable cations present in such material.

3,546,010
METHOD OF PRODUCING MULTILAYER BODIES OF PREDETERMINED ELECTRIC CONDUCTIVITY
Gustav Gärtner, Gerlingen, Max Keller, Leonberg-Etlingen, and Ernst Zehender, Hohenacker, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Mar. 6, 1968, Ser. No. 711,104
Int. Cl. H05k *3/06*
U.S. Cl. 117—212 14 Claims



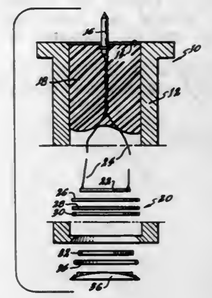
Printed circuits including superposed layer portions of selective electric conductivity are produced by forming on a partially masked face of a support two superposed metal layers of different composition arranged directly adjacent and in contact with each other, masking a portion only of the free upper face of the upper of the two superposed metal layers, removing the unmasked portion of the upper metal layer preferably by etching without attacking the underlying metal layer, and dissolving the masking which underlies a portion of the lower of the two metal layers so as to remove such portion of the lower metal layer together with the dissolved masking, whereby predetermined portions of the two contacting metal layers corresponding, respectively, to the mask-free portion of the face of the support and the masked portion of the upper metal layer will be retained in contact with each other.

3,546,011
PROCESS FOR THE PRODUCTION OF ELECTRICITY CONDUCTING SURFACES ON A NONCONDUCTING SUPPORT
Helmut Knorre, Hainstadt am Main, Eugen Meyer-Simon, Frankfurt, Gottfried Kallrath, Bruhl-Vochem, and Hanns Biegler, Wesseling, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Filed Apr. 5, 1968, Ser. No. 719,017
Claims priority, application Germany, Apr. 12, 1967, D 52,769
Int. Cl. B44d *1/18;* C23c *3/02*
U.S. Cl. 117—212 17 Claims



Electricity conducting surfaces and circuits are produced on insulation or nonconducting supports by preparing the support with a fine particle sized active filler which contains active groups for bonding ions of electricity conducting metals, roughening the surfaces of the thus filled support, adherently metallizing the roughened surface with an electricity conducting metal by means of a nonelectrolytic deposition of the metal whereby ions of the metal are chemically bonded to the active filler, and then, if desired, printing a circuit on portions of the metal coating.

3,546,012
LITHIUM SULPHATE ULTRASONIC TRANSDUCER
Norman E. Dixon and William J. Coleman, Pasco, Wash., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 27, 1968, Ser. No. 716,592
Int. Cl. B44d *1/20*
U.S. Cl. 117—213 7 Claims



An ultrasonic lithium sulphate transducer is fabricated by vapor depositing a backing material under vacuum on one side of a lithium sulphate crystal and etching the other side with water. After etching is completed, a quartz lens is vapor deposited under vacuum on the other side of the crystal and a destructive interference lens is applied to the quartz lens.

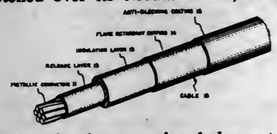
3,546,013
METHOD OF PROVIDING PROTECTIVE COVERINGS FOR SEMICONDUCTORS
John A. Perri and Jacob Riseman, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Division of application Ser. No. 141,669, Sept. 29, 1961, now Patent No. 3,247,428. Continuation of application Ser. No. 521,466, Sept. 27, 1965. This application Sept. 18, 1968, Ser. No. 776,842
Int. Cl. C23b *5/50;* H01b *1/14*
U.S. Cl. 117—215 10 Claims

A method of providing a protective covering for a semiconductor member having at least a portion of a PN junction extending to the surface thereof which includes the steps of (1) establishing on the surface an adherent metal oxide having a thickness in the range of 1,000 to 30,000 angstroms and (2) forming a glass coating over the metal oxide film.

3,546,014
METHOD FOR MAKING THIN WALL INSULATED WIRE
Paul O. Nicodemus, Chelmsford, Mass., assignor to General Electric Company, a corporation of New York
Filed Mar. 1, 1967, Ser. No. 619,717
Int. Cl. B44d *1/14;* H01b *3/30, 7/02*
U.S. Cl. 117—218 8 Claims

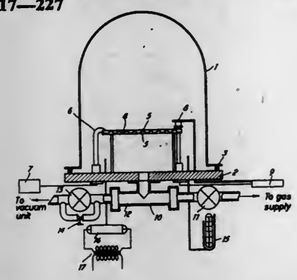
A method of manufacturing thin wall wire by first providing an insulation layer of chemically cross-linked poly-

ethylene over a metal conductor. The surface of the insulation is etched over its circumference, and a flame re-



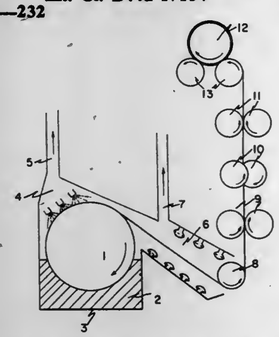
tardant coating of a thermosetting, halogenated polyolefin is applied uniformly over the polyehylene insulation.

3,546,015
THIN LAYER RESISTORS
Georges François Vulliez, 151 Avenue Jean-Jaures, 92 Montrouge, France, and Jean-Claude Georges Henri Marquet, 21 Rue des Epinettes, 94 L'Hay-les-Roses, France
Filed June 11, 1968, Ser. No. 736,206
Claims priority, application France, June 12, 1967, 110,045
Int. Cl. H01l *19/00*
U.S. Cl. 117—227 **6 Claims**



The resistance value of resistors formed of a thin metal layer is adjusted by means of a three step thermal oxidation process, each step succeeding the other in time without interruption, the first step consisting in heating the resistors at high temperature in a neutral atmosphere, the second step consisting in a controlled oxidation of said resistors in an atmosphere of oxygen gas and the third step consisting in cooling said resistors in a neutral atmosphere.

3,546,016
METHOD OF COATING A METAL ARTICLE WITH POLYMERIC MATERIAL
William A. Pavelich, Kent, Ohio, and Charles F. Mosier, Jr., Overland Park, Kans., assignors to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 15, 1965, Ser. No. 464,132
Int. Cl. B44d *1/134*
U.S. Cl. 117—232 **7 Claims**



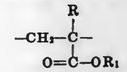
1. A method of manufacturing a coated electrically conducting solid article comprising the steps:

(a) initiating gelation of a solvated polymer at the positively charged surface of an electrically conducting solid article in an aqueous solvent system, said polymer having a hydrocarbon chain structure, possessing at least two carboxy substituents per molecule, said structure corresponding to a uniform random copolymer of ethylene containing 67–99 mol percent of units (a) and, correspondingly, 33–1 mol percent of a mixture of units (b), (c) and (d); said units (b) constituting 5–70 mol percent of the total of units (b), (c) and (d); and said units (c) constituting 20–80 mol percent of the total of units (b), (c) and (d); and said units (d) constituting a maximum of 75 mol percent of the total units of (b), (c) and (d);

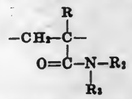
said units (a) having the structure

$$-CH_2-CH_2-$$

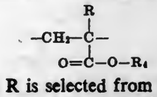
said units (b) having the structure



said units (c) having the structure



and said units (d) having the structure



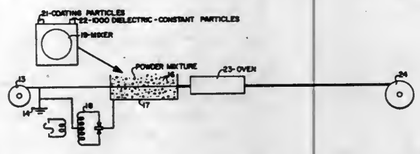
wherein R is selected from the group consisting of hydrogen and hydrocarbon groups, R_1 is selected from the group consisting of hydrogen and cations, R_2 and R_3 are independently selected from the group consisting of hydrogen, hydrocarbon groups and hydroxyalkyl groups, and R_4 is a hydrocarbon group, said units (b) and (c) being present in quantities sufficient to render the polymers dispersible in aqueous solvent systems;

(b) accumulating a body of polymer gel adjacent to the locus of initiation of gelation;

(c) removing from the aqueous solvent system the electrically conducting solid article bearing thereon the accumulated polymer gel; and

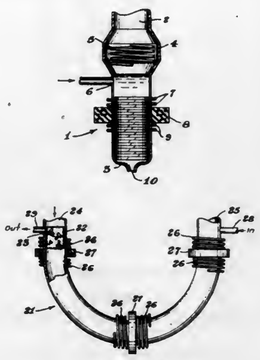
(d) removing water from the polymer gel to yield a solid coating on the surface of the electrically conducting solid article.

3,546,017
ELECTRODEPOSITION OF PARTICULATE COATING MATERIAL
Wesley W. Pendleton and William W. Ulmer, Muskegon, Mich., assignors to Anaconda Wire and Cable Company, a corporation of Delaware
Filed Nov. 7, 1967, Ser. No. 681,198
Int. Cl. H01b *3/00;* **B44d** *1/094*
U.S. Cl. 117—232 **10 Claims**



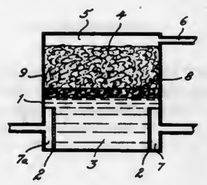
Dielectric particles for electrostatic deposition are mixed with a small proportion of barium titanate or other high-dielectric-constant particles to increase the rate and efficiency of a coating process.

3,546,018
SMALL PARTS CLEANING PROCESS
George T. Hittel and Herman Knierlem, Jr., Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed May 9, 1968, Ser. No. 727,871
Int. Cl. B08b *7/00*
U.S. Cl. 134—1 **5 Claims**



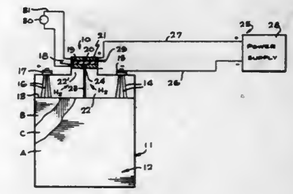
Apparatus and method for cleaning small metal and plastic parts by causing the same to rotate in a confined zone in a vaporizable cleaning liquid, treating said parts to induce vaporization of the cleaning liquid at the surface of the part and withdrawing the part clean and dry.

3,546,019
FUEL CELL AND FUEL CELL BATTERY
Hans Hermann von Doehren, Frankfurt am Main, and Hans Alfred Schultze, Neuenhain, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany, a German corporation
Filed Aug. 4, 1966, Ser. No. 570,297
Claims priority, application Germany, Aug. 17, 1965, V 29,133
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 **14 Claims**



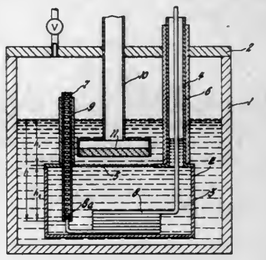
A fuel cell including an electrolyte chamber with electrolyte which includes a solid cellular material with intercommunication cells which is capable of taking up the excess volume of electrolyte formed during the reaction.

3,546,020
REGENERABLE FUEL CELL
Carl Berger, Santa Ana, Calif., assignor, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland
Filed May 9, 1966, Ser. No. 548,591
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 **15 Claims**



A rechargeable battery-fuel cell combination in which said fuel cell comprises wick means in contact with the electrolyte of said battery and functions as a sealing and pressure relief means.

3,546,021
GALVANIC CELL AND METHOD OF OPERATION
Gale M. Craig, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Continuation of application Ser. No. 557,954, June 16, 1966. This application Apr. 2, 1969, Ser. No. 812,927
Int. Cl. H01m *27/20*
U.S. Cl. 136—86 **12 Claims**

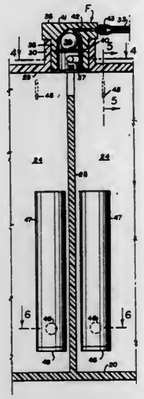


A reversible electrode assembly for a liquid reactant of a regenerative fuel cell in which the assembly contains a reservoir for receiving and dispensing the liquid reactant, means for buoying the reactant up on cell discharge and means for effecting a differential pressure in the direction of the reservoir during cell recharge.

3,546,022
VOLTAIC CELLS
Daryle H. Busch, Columbus, Ohio, and Wade H. Jordan, Jr., New Castle, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed July 15, 1968, Ser. No. 744,689
Int. Cl. H01m *17/00*
U.S. Cl. 136—100 **7 Claims**

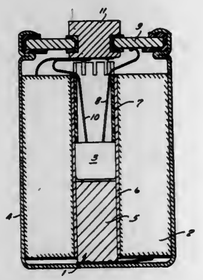
A primary voltaic cell including a sodium anode, an alkali metal hexafluorophosphate-polyether electrolyte having a specific conductance of at least 0.001 $ohm^{-1}/cm.^{-1}$ and an elemental sulfur cathode in electrical contact with an inert conductive material.

3,546,023
STORAGE BATTERY WITH TRANSPARENT TOP AND BAFFLED HOLES BETWEEN CELLS
Douglas V. Halter, 112 Park Ave., Cheyenne, Wyo. 82001, and Richard J. Teeter, Box 413, La Porte, Colo. 80535
Filed Dec. 29, 1966, Ser. No. 605,771
Int. Cl. H01m *1/02, 1/06*
U.S. Cl. 136—166 **12 Claims**



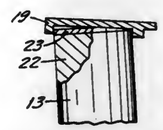
Storage battery having transparent case and top, single filler cap with valve limiting vapor release and preventing liquid loss on tipping, vent tube from filler cap to remote position, cell partitions molded with case and baffled cell communication holes in partitions, upper vapor holes in partitions, and cell bars encased and accommodated by upper partition slots.

3,546,024
CHARGEABLE CELL
Hans Niklas, Duisburg, Germany, assignor to Varta Aktiengesellschaft, Frankfurt am Main, Germany
Filed July 18, 1968, Ser. No. 745,746
Claims priority, application Germany, July 28, 1967, V 20,632
Int. Cl. H01m *31/04*
U.S. Cl. 136—182 **10 Claims**



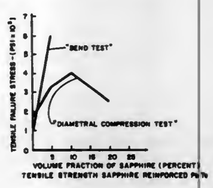
A chargeable galvanic cell has a housing, a rolled-foil electrode assembly accommodated therewithin and surrounding an inner free space, and a temperature-responsive switch arranged within this inner free space and electrically so connected as to be capable of operative association with an external source of electrical energy used for charging the cell and to control the operation of this source dependent upon the temperature of the cell during charging of the latter as sensed by the temperature-responsive switch.

3,546,025
THERMOELECTRIC GENERATOR APPARATUS
Russell E. Fredrick, White Bear Lake, and Thomas L. Nystrom, St. Paul Park, Minn., assignors to Minnesota Mining and Manufacturing Company, a corporation of Delaware
Filed Apr. 14, 1966, Ser. No. 542,636
Int. Cl. H01v *1/06*
U.S. Cl. 136—205 **3 Claims**



Thermoelectric generator apparatus in which the thermoelectric legs are electrically connected to at least one of their electrodes by pressure-contact apparatus. A thin layer of electrically conductive, non-deleterious, plastically deformable material is disposed between the leg and the electrode against which the leg is biased to increase the area of contact between the leg and the electrode.

3,546,026
FIBER STRENGTHENED THERMOELECTRIC MATERIAL
Edwin K. Beauchamp and James E. Morenz, Albuquerque, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 20, 1968, Ser. No. 761,057
Int. Cl. H01l *3/00;* **H01v** *1/18*
U.S. Cl. 136—238 **5 Claims**



A thermoelectric element wherein the element includes a lead telluride thermoelectric composition and fibers having a Young's modulus of not less than about 60×10^6 p.s.i. evenly dispersed throughout said composition, the composition having a tensile failure strength of not less than about 6,000 p.s.i.

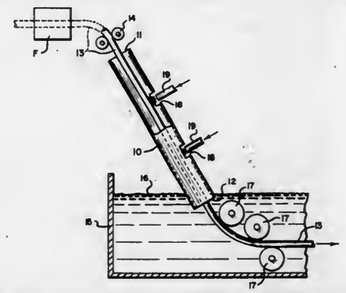
3,546,027
PRODUCTION OF SINGLE CRYSTAL MATERIAL
Donald Thomas James Hurle and John Brian Mullin, Malvern, England, assignors to National Research Development Corporation, London, England
Continuation-in-part of application Ser. No. 442,934, Mar. 26, 1965. This application May 5, 1969, Ser. No. 821,936
Claims priority, application Great Britain, Mar. 31, 1964, 13,164/64
Int. Cl. B01j *17/00*
U.S. Cl. 148—1.6 **4 Claims**

A system for growing a metastable phase of a material at the expense of a stable phase of the same material by the use of a thin liquid alloy zone and the use of an externally imposed thermodynamic driving force.

3,546,028
PROCESS OF IMPROVING CORROSION RESISTANCE OF COLORED OXIDE COATINGS ON TITANIUM-RICH ZINC ALLOYS AND RESULTING PRODUCT
John Armstrong, Winnipeg, Manitoba, Canada, assignor to Cominco Ltd., Montreal, Quebec, Canada, a company of Canada
No Drawing. Filed Mar. 22, 1968, Ser. No. 715,195
Int. Cl. C23f *7/02, 7/26*
U.S. Cl. 148—6.2 **11 Claims**

A process for improving the corrosion resistance of a coloured oxide coating formed on a titanium-rich zinc base alloy surface comprising immersing the oxide coated alloy surface in an aqueous salt solution of alkali and dichromate ions, and the product produced thereby.

3,546,029
DESCALING COPPER RODS
Clermont J. Snyder and Jack P. Moore, Hastings-on-Hudson, N.Y., assignors to Anaconda Wire and Cable Company
Filed July 31, 1968, Ser. No. 749,013
Int. Cl. C21d *1/74*
U.S. Cl. 148—13.2 **8 Claims**

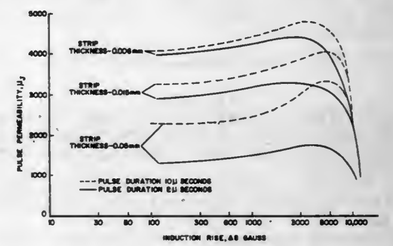


Scale is removed from a copper rod by continuously introducing the copper rod at a temperature below 1000° F. into a descaling zone wherein the rod is exposed to a reducing atmosphere and is heated in such atmosphere to a temperature above 1100° F. (preferably between 1200° F. and 1400° F.) to effect substantially complete reduction to metallic copper of the oxide scale. Immediately thereafter the rod is quenched in a liquid (preferably aqueous) coolant to a temperature below that at which any substantial reoxidation can occur before exposing the rod to an oxidizing environment. Apparatus for carrying out such descaling operation comprises a tubular descaling chamber through which the rod is passed, burners positioned to direct a reducing flame into the interior of the chamber, and a coolant vessel containing a liquid coolant in which the rod exit end of the descaling chamber is immersed.

3,546,030
PERMANENT MAGNETS BUILT UP OF M_5R
Kurt Heinz Jurgen Buschow and Wilhelmus Antonius Johannes Josephus Velge, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 7, 1967, Ser. No. 644,101
Claims priority, application Netherlands, June 16, 1966, 6608335
Int. Cl. H01f *1/08;* **C22c** *19/00, 31/02*
U.S. Cl. 148—31.57 **5 Claims**

A permanent magnet constituted of particles having a component essential to the magnetic properties the compound M_5R where M is cobal and may include the addition to cobalt, iron, nickel and copper, and R is lanthanum, or thorium, or at least three rare earth metals or thorium in combination with one or more rare earth metals.

3,546,031
PROCESS FOR TREATING NICKEL-IRON-MOLYBDENUM ALLOY TO INCREASE INDUCTION RISE AND PULSE PERMEABILITY
Friedrich Pfeifer, Oberissigheim, and Rudolf Deller, Hainstadt, Germany, assignors to Vacuumschmelze G.m.b.H., Hanau, Germany, a corporation of Germany
Filed Oct. 18, 1967, Ser. No. 676,116
Claims priority, application Germany, Oct. 21, 1966, V 32,175
Int. Cl. C21d *1/04;* **C22f** *1/10;* **H01f** *1/00*
U.S. Cl. 148—108 **5 Claims**



Nickel-iron-molybdenum alloy strip which has been previously subjected to an annealing treatment at a temperature between 950° C. and 1,220° C., is reheated to a temperature above the Curie point and then rapidly cooled to 200° C. or below. The alloy strip is then subjected to a final anneal at a temperature of about 400° C. to 500° C. This final anneal may be carried out on the alloy strip in a magnetic field wherein the lines of force are transverse to the direction in which the magnetic flux will travel in the strip when it is in use in a magnetic core.

3,546,032
METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES ON SUBSTRATES CONSISTING OF SINGLE CRYSTALS
Johan Charles Marie Basart, Heeze, and Wilhelmus Franciscus Knippenberg and Gerrit Verspui, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 26, 1967, Ser. No. 678,438
Claims priority, application Netherlands, Nov. 1, 1966, 6615376
Int. Cl. H01l *7/00, 7/38*
U.S. Cl. 148—171 **5 Claims**

A method of growing epitaxial layer portions on selected areas of a single crystal semiconductive substrate is described. The epitaxial layer is grown from a solution of the semiconductor in a volatile solvent. After melting of the solution, it is heated until the solvent is completely evaporated causing the semiconductor remaining behind to grow epitaxially on the substrate.

3,546,033
LOW MELTING BINARY NITRONIUM PERCHLORATE PROPELLANT MIXTURES
John P. Longwell, Scotch Plains, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed June 20, 1960, Ser. No. 37,514
Int. Cl. C06d *5/00*
U.S. Cl. 149—5 **15 Claims**

15. In a solid rocket propellant containing a fuel and an oxidizer for said fuel, the improvement which comprises using as said oxidizer a solid blend of about 55

to 70 wt. percent nitronium perchlorate and of about 30 to 45 wt. percent lithium perchlorate, said solid blend having a melting point below 120° C., and a protective aluminum coating covering said solid blend in the form of pellets.

3,546,034
AMMONIUM NITRATE-NITROMETHANE TYPE BLASTING AGENT CONTAINING UREA AS A CRYSTALLIZATION INHIBITOR
James W. Francis, Marion, Ill., assignor to Commercial Solvents Corporation, New York, N.Y., a corporation of Maryland
No Drawing. Filed June 19, 1968, Ser. No. 738,100
Int. Cl. C06b *1/04*
U.S. Cl. 149—47 **2 Claims**

Crystallization-resistant blasting slurries of the ammonium nitrate-nitromethane type having a urea as the crystallization inhibitor.

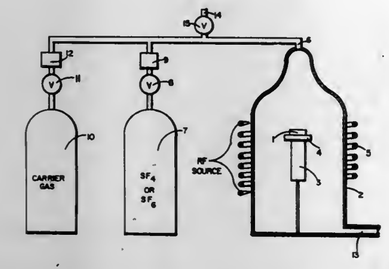
3,546,035
AMMONIUM NITRATE-SMOKELESS POWDER BLASTING AGENT CONTAINING SODIUM NITRATE-UREA AS A CRYSTALLIZATION INHIBITOR
James W. Francis, Marion, Ill., assignor to Commercial Solvents Corporation, New York, N.Y., a corporation of Maryland
No Drawing. Filed June 19, 1968, Ser. No. 738,101
Int. Cl. C06b *1/04*
U.S. Cl. 149—50 **4 Claims**

Crystallization-resistant blasting slurries of the ammonium nitrate-smokeless powder type having, in combination, sodium nitrate and urea as the crystallization inhibitor.

ERRATUM

For Class 156—8 see:
Patent No. 3,546,075

3,546,036
PROCESS FOR ETCH-POLISHING SAPPHIRE AND OTHER OXIDES
Harold M. Manasevit, Anaheim, Calif., assignor to North American Rockwell Corporation, a corporation of Delaware
Filed June 13, 1966, Ser. No. 556,977
Int. Cl. C09g *1/00;* **C23f** *3/00, 7/24*
U.S. Cl. 156—17 **9 Claims**



The invention is directed to a process for improving the quality of surfaces of refractory inorganic oxide materials comprising etch-polishing of the surfaces of the material by the steps of heating the material to an elevated temperature and exposing the surface of the material to a fluoride containing gas.

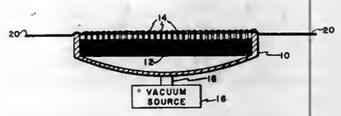
3,546,037
POLISHING CRYSTAL GLASS
Erich Sälzle, 134a Georgenstrasse, 8 Munich 13, Germany
No Drawing. Continuation-in-part of application Ser. No. 322,048, Mar. 26, 1963, now Patent No. 3,290,193. This application May 24, 1966, Ser. No. 552,425
Claims priority, application Germany, May 26, 1965, S 97,315
Int. Cl. C03c *15/02*
U.S. Cl. 156—24 **8 Claims**

Glass articles are polished by being contacted with a bath containing sulfuric acid of at least 63% concentration and also containing hydrofluoric acid in which the concentration of fluorosilicic acid formed in the bath is maintained at below saturation.

3,546,038
METHOD OF BONDING TWO PLASTIC LAMINAS FACE-TO-FACE AND WITHIN A FRAME STRUCTURE
Lester L. Smith and Frank E. Randall, Peoria, Ill., assignors, by mesne assignments, to Home Comfort Products Co., Princeville, Ill., a corporation of Illinois
Original application Feb. 15, 1966, Ser. No. 527,571. Divided and this application Dec. 23, 1968, Ser. No. 798,557
Int. Cl. B32b *31/14*
U.S. Cl. 156—83 **10 Claims**

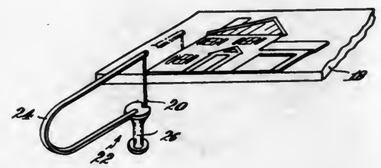
A method of fabricating panels adapted to use in walls, or as doors or sections thereof and the like, and in which one relatively flexible plastic surface skin is marginally secured to a relatively stiff and rigid peripheral frame of greater thickness than the surface skin, after which a predetermined quantity of an uncured, expandable foam type plastic filler capable of curing to a stiff and lightweight state is distributed on the surface of the skin within the frame; a second relatively flexible plastic skin then being secured to the face of the frame opposite the first skin to confine the filler material within the frame and between the skins, and thereafter curing the filler material to substantially fill the space within the frame and between the skins while confining the outer surfaces of the skins between opposed rigid surfaces. Desirably, the filler material bonds itself to both the frame and skin surfaces. When heat is used in effecting the curing of the filler material, it is preferable to preheat the skins to cause processing expansion thereof and to keep them warm during the processing, thereby to avoid buckling of the skins during processing and to have the skins become taut when cooled after processing.

3,546,039
METHOD FOR MAKING PUNCTURE RESISTANT MATERIAL
Richard L. Cook, 4841 W. Elm, Phoenix, Ariz. 85031
Filed Feb. 17, 1967, Ser. No. 616,853
Int. Cl. B31f *1/20*
U.S. Cl. 156—210 **6 Claims**



A method for making a puncture resistant material of a crinkled sheet of plastic laminated to a ballistic belt. A technique for crinkling the plastic sheet to a greatly reduced overall surface area is provided. The plastic sheet is a thermoplastic material and the crinkled relation is permanently set therein.

3,546,040
METHOD OF MAKING THREE-DIMENSIONAL OBJECTS FROM POLYSTYRENE
Ernest Frankl, Middleboro, Mass., assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass., a corporation of Massachusetts
Filed May 16, 1967, Ser. No. 638,985
Int. Cl. B32b *31/18*
U.S. Cl. 156—250 **5 Claims**



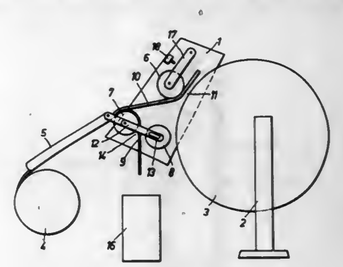
Making three-dimensional figures or objects by adhesively attaching a pattern sheet, corresponding in plan to the figure or object to be reproduced, to one side of a sheet of polystyrene foam, and cutting through the sheet around the edge of the pattern using the latter as a guide to separate from the sheet the portion thereof to which the pattern is attached.

3,546,041
METHODS OF PREPARING LAMINATES AND REINFORCED PLASTICS
Eugene A. Burns, Palos Verdes Estates, John F. Jones, Torrance, Hyman R. Lubowitz, Redondo Beach, and Joseph R. Spraul, Palos Verdes Estates, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
No Drawing. Filed June 20, 1967, Ser. No. 647,308
Int. Cl. C09j *5/02*
U.S. Cl. 156—308 **4 Claims**

This invention relates to novel laminated articles comprising a multiplicity of sheets of reinforcing materials bonded by interstitial layers of hard, stiff resinous material produced by the reaction of dihydroxy or dicarboxy substituted 1,2-polybutadiene or 3,4-polyisoprene, a polyfunctional organic chain extender, and a peroxide free radical initiator. These laminated articles are formed by sandwiching layers of reinforcing sheets and layers of an intermediate elastomeric material produced by the chain extension of the polydiene prepolymer. The layers of material are bonded together by the application of heat and moderate mechanical pressure.

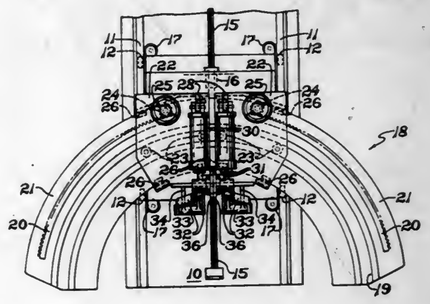
3,546,042
DEVICE FOR FEEDING BLANK TREAD STRIPS TO VEHICLE TIRES
Karl Beer, Fischbach-Weierbach (Nahe), Germany; Doris Heck, administratrix of the estate of said Karl Beer, deceased
Filed Oct. 14, 1966, Ser. No. 603,070
Int. Cl. B29h *17/20*
U.S. Cl. 156—395 **7 Claims**

A device for feeding blank tread strip to vehicle tires which require retreading comprising a pair of rollers for removing support strip from the blank tread strip, and a guide roller for guiding blank tread strip onto a tire, the rollers being mounted on means movable toward and away from a tire to be retreaded, the arrangement being such that when the rollers are moved towards the tire to be retreaded rotation of the tire causes rotation of the pair of rollers and consequent movement of support strip between the pair of rollers and rotation of the



guide roller for guiding the blank tread strip onto the tire.

3,546,043
TIRE STITCHING APPARATUS
Robert H. Miksch, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Apr. 17, 1969, Ser. No. 816,983
Int. Cl. B29h *17/08*
U.S. Cl. 156—410 **4 Claims**

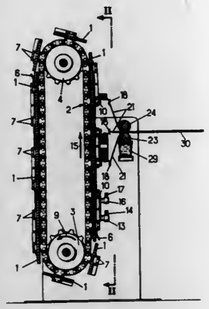


A tire stitching apparatus having a longitudinally movable carriage supporting a pair of cross slides with radially movable stitching wheels thereon. The cross slides are movable in opposite arcuate directions patterned after the outside contour of the tire to be stitched.

3,546,044
MACHINE FOR MAKING UNWOVEN SHEET MATERIAL
Jean-Claude Cousin, La Sapiniere, Wervicq-Sud, Nord, France
Filed Dec. 8, 1967, Ser. No. 689,020
Claims priority, application France, Dec. 12, 1966, 87,116
Int. Cl. B65h *54/24, 54/30, 59/10*
U.S. Cl. 156—441 **7 Claims**

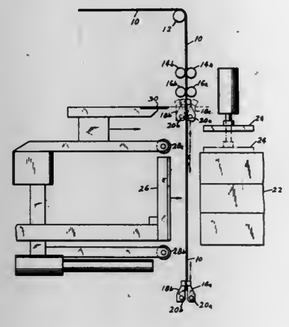
A machine for manufacturing unwoven sheet material which comprises an effective endless serpentine track mounted to be advanced along an annular path, said track being symmetrical with half thereof lying on each side of the center of said path. A chain of thread guides is movably mounted on said track, but restrained from advancing with it along the annular path, so that advancement of the track causes the thread guides to move back and forth transversely of the track. The chain is so long

that some thread guides are always moving in a direction opposite to that in which the remainder move, thus



causing the threads to cross each other, even though they are not interwoven.

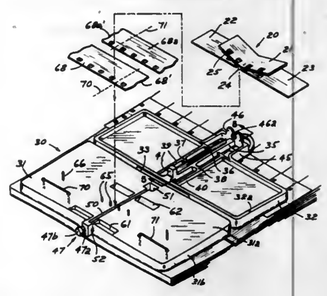
3,546,045
AUTOMATIC STACKING AND TAPING MACHINE
Frank L. Califano, Hackensack, and Paul N. Shutak, Madison, N.J., assignors to The Flintkote Company, Whippany, N.J.
Filed July 28, 1967, Ser. No. 656,720
Int. Cl. B32b *31/04*; B65c *9/36*
U.S. Cl. 156—486 **14 Claims**



An apparatus for binding stacks of sheet material wherein a suitable length of binding material is applied to a compressed stack of the sheet material and is firmly adhered to the compressed stack of sheet material to form a compact bundle.

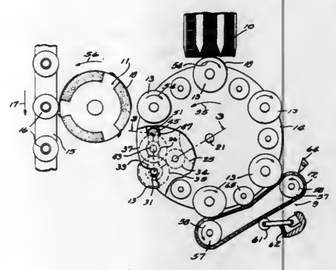
3,546,046
SPLICER FOR BUTT SPLICING MOTION PICTURE FILM
Dexter H. MacQueston, Winchendon, Mass., assignor to The Kalart Company Inc., Plainville, Conn., a corporation of New York
Filed July 28, 1967, Ser. No. 656,838
Int. Cl. B31f *5/00*; G03d *15/04*
U.S. Cl. 156—505 **11 Claims**

A splicer for splicing, particularly for butt splicing the ends of two lengths of motion picture film, which comprises two hingedly connected parts in which are embedded a splicing blade and registration pins and which can be folded upon each other. The pins hold both film ends to be spliced firmly in mutual positions such that by a single motion effected by folding the two parts of the splicer



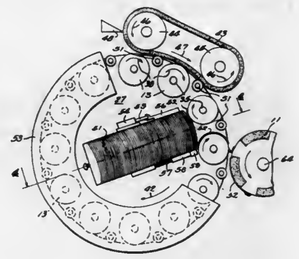
upon each other, both film ends are correctly trimmed and positioned for butt splicing and ready for applying a splicing tape or patch to the trimmed film ends.

3,546,047
HIGH SPEED LABELING DEVICE
Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany
Filed Mar. 4, 1969, Ser. No. 804,107
Claims priority, application Germany, Mar. 15, 1968, 1,611,911
Int. Cl. B65c *9/08, 9/20*
U.S. Cl. 156—571 **7 Claims**



This disclosure relates to an automatic labeling machine having a label magazine, a rotary labeling cylinder for applying labels to containers and a label transfer mechanism for tranferring labels from the magazine to the rotary labeling cylinder. The transfer mechanism comprises a series of rotary label transfer shoes and a rotating shoe carrier on which the shoes orbit past the magazine and labeling cylinder to sequentially roll over the foremost label in the magazine to pick said foremost label out of the magazine and roll past the rotary labeling cylinder in the course of transferring the said label thereto. The disclosure improves on the prior art by varying the speed of rotation of said shoes to match shoe surface speed respectively to the label magazine and to the labeling cylinder surface speed as the shoe respectively coacts therewith. The improvement comprises variable speed gear transmission to each shoe. Each transmission has an adjustable gear carrier, the movement of which varies the speed of shoe rotation. A cam follower is connected to each gear carrier and follows a cam having a profile along the shoe carrier orbit to produce shoe speed variations as required to match shoe surface speed respectively to the label magazine and to the labeling cylinder.

3,546,048
LABELING AND TRANSFERRING DEVICE
Karl Dullinger and Norbert Jorss, Neutraubling, Germany, assignors to Hermann Kronseder, Neutraubling, Germany
Filed Mar. 11, 1969, Ser. No. 806,083
Claims priority, application Germany, Mar. 21, 1968, 1,761,014
Int. Cl. B65c *9/08, 9/20*
U.S. Cl. 156—571 **11 Claims**



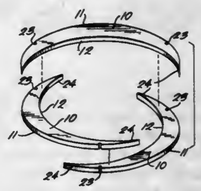
This disclosure relates to an automatic labeling machine having a label magazine, a rotary labeling cylinder for applying labels to containers, and a label transfer mechanism for transferring labels from the magazine to the rotary labeling cylinder. The transfer mechanism comprises a series of rotary label transfer shoes or rollers and a rotating shoe carrier on which the shoes orbit past the magazine and the labeling cylinder to sequentially roll over the foremost label in the magazine to pick said foremost label out of the magazine and roll past the rotary labeling cylinder in the course of transferring the label thereto. The labeling cylinder and magazine are disposed on opposite sides of the orbit whereby the shoes rotate about their axes in the same direction when passing the magazine and the labeling cylinder.

3,546,049
SYMMETRICAL NON-CARTESIAN MULTIPLE-AXIS JOINING OF BEAMS
John M. Kostick, Roxbury, Mass., assignor to Omniversal Design, Roxbury, Mass., a partnership
Filed May 25, 1967, Ser. No. 641,291
Int. Cl. A47q *33/08*
U.S. Cl. 161—7 **15 Claims**



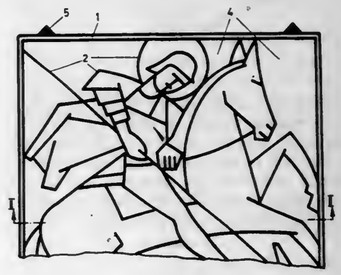
Joining at least four beams oriented on non-Cartesian axes with rigidity or foldability as required, each beam having elongated component elements, the axes of the beams joined preferably meeting at a common point, the elements crossing but not intersecting in a region of beam intersection, the beams being interleaved in fixed and regular patterns.

3,546,050
WREATH RING
Lloyd H. Vanden Bush, 2525 N. 58th St., Milwaukee, Wis. 53210
Filed Apr. 21, 1967, Ser. No. 632,684
Int. Cl. A47q *33/08*
U.S. Cl. 161—15 **5 Claims**



Disclosed herein is a frame or ring for a floral or evergreen wreath, the frame comprising an assembly of at least three crescent shaped flat segments cut from hardboard or the like. The segments when assembled to form an annular ring have overlapping ends which are secured together. The crescent shaped segments may have end uses other than as component parts of a wreath ring.

3,546,051
METHOD FOR THE PRODUCTION OF TRANSPARENT COLOURED PICTORIAL PANES AND THE PICTORIAL PANES PRODUCED THEREBY
Rudolf Utz, Zufikon, Switzerland, assignor to Georg Utz A.G., Auhof, Bremgarten, Switzerland
Filed Dec. 20, 1967, Ser. No. 692,201
Claims priority, application Switzerland, Dec. 21, 1966, 18,316/66
Int. Cl. B44f *7/00*
U.S. Cl. 161—18 **3 Claims**



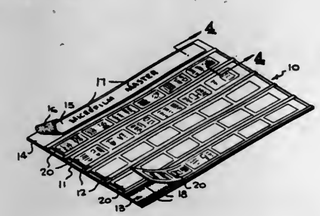
The frame and the outline of the figurative representation located therein are injection moulded as an integral unit, the front of the resulting article is metallized, and a glass pane which has areas suitably coloured and in registry with the outlines of the figurative representation is secured in a recess in the rear of the frame.

3,546,052
ARTIFICIAL ROCKS HAVING SHELLS FILLED WITH FLUENT MATERIAL
Julie H. McNamara, 31 Bellevue Place, New London, Conn. 06301
Filed May 11, 1967, Ser. No. 637,712
Int. Cl. B44f 7/00
U.S. Cl. 161—19 2 Claims



The disclosure pertains to man-made rock in the form of boulders and stones suitable for decorative applications and to the method of formation thereof. The disclosed artificial boulders and stones are formed having a molded outer shell, the exterior surface thereof being conformed, textured and colored in simulation of their natural counterparts. The shell is collapsible for convenient shipment to the site of decorative use. An aperture is formed in the shell through which a fluid or suitable particulate material is introduced to fill out the shell, giving it the three-dimensional conformation of boulders and stones. A plug removably inserted in the aperture retains the fill substance within the shell.

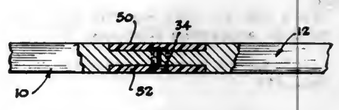
3,546,053
STRIP UP MICROFICHE MASTER
George Goldberg, Jericho, N.Y., and Benjamin R. Mascolo, Brownsville, Tenn., assignors to Kleer-Vu Industries, Inc., New York, N.Y.
Filed Oct. 11, 1967, Ser. No. 674,584
Int. Cl. B32b 3/16
U.S. Cl. 161—38 1 Claim



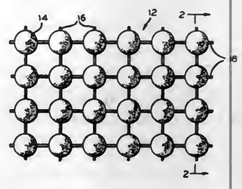
A method of and means for converting roll films to a microfiche master wherein a group of microfilm images are adapted to be placed on a single sheet rather than along a film roll so that, for example, a microfiche can be conveniently provided for incorporating on a single reproducible sheet, documents or other information relating to a particular subject matter or the like.

3,546,054
SPLICED CONVEYOR BELT AND METHOD OF MAKING SAME
William H. Ross, P.O. Box 54, Glenwood, Ill. 60425
Filed June 20, 1968, Ser. No. 738,430
Int. Cl. B32b 7/08
U.S. Cl. 161—38 11 Claims

Belts are spliced by removing surface portions on both sides of the belting near the ends to be joined, pre-stressing the cord-laced splice and embedding the joint to the original surface of the belting in a tough resin to hold the lacing cord and protect it from wear and to moisture-proof the joint.

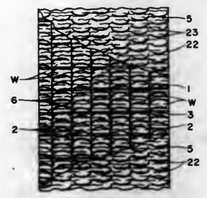


3,546,055
PACKAGING MATERIAL
Maurice Spertus, Highland Park, Ill. (1840 N. Clybourn Ave., Chicago, Ill. 60614)
Filed Dec. 13, 1968, Ser. No. 790,499
Int. Cl. B32b 3/10, 5/20; B65d 25/26, 65/44, 85/30
U.S. Cl. 161—55 3 Claims



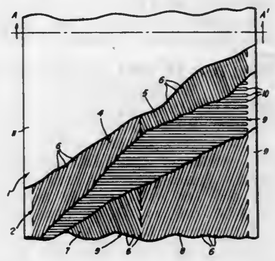
Relatively small, individual, shaped pieces of shock-absorbent deformable materials such as expanded polystyrene foam are joined together in spaced relationship by flexible means to afford strands, mats or similar assemblies capable of readily conforming to the contours of an article packed or packaged in a container such as a carton.

3,546,056
HIGH BULK WIPING PRODUCT
Gordon D. Thomas, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Apr. 29, 1968, Ser. No. 725,067
Int. Cl. A47l 17/00; B32b 5/12, 5/26
U.S. Cl. 161—57 7 Claims



An absorbent flexible laminated sheet material in which a single ply of creped high stretch wet strengthened cellulosic wadding is carried on each side of an open mesh scrim and is secured in the composite only by adhesive on the threads of the scrim. The wadding is high stretch due to the high degree of retained crepe and therefore imparts high weight per unit area in the finished product. In a preferred modification the windows of the scrim incorporate puff zones of cellulosic wadding superimposed on the high stretch crepe structure to provide for improved characteristics particularly as to liquid absorption, dry and wet bulk, and structure toughness. In another preferred modification pin embossments provide for further improved wet and dry bulk, oil absorbency characteristics and particularly flexibility as well as providing a more roughened surface on one side of the sheet.

3,546,057
REINFORCED MECHANICAL BELTING
Peter John Jenkins, Burscough, England, assignor to The Dunlop Company Limited, London, England, a British company
Filed Aug. 28, 1964, Ser. No. 392,869
Claims priority, application Great Britain, Sept. 18, 1963, 36,670/63
Int. Cl. B32b 5/12; F16g 1/12, 1/16
U.S. Cl. 161—58 8 Claims



Mechanical belting comprising a flexible composition having embedded therein a reinforcement layer comprising two strips of parallel cord fabric arranged side by side in an edge to edge relationship. The cords of each strip are biased with respect to the longitudinal axis of the belting in opposite senses so that the cords of the two strips are arranged in a herringbone configuration.

3,546,058
PROTECTIVE PADDING AND METHOD FOR MAKING THE SAME
Theodore Loew, Schenectady, N.Y., assignor, by mesne assignments, to The Standard Products Company, a corporation of Ohio
Filed Apr. 17, 1968, Ser. No. 722,092
Int. Cl. B32b 5/18, 5/24
U.S. Cl. 161—59 9 Claims



The disclosure relates to a protective padding consisting of a central core of foam plastic material which is covered by a layer of criss-cross non-woven fabric material, such as scrim, and an outer layer of an embossed decorative extruded sheet vinyl material enwrapping and encasing the same. This materal is cut in strips and then sealed at its ends. The padded material may also be attached to the edges of the interior of an automotive vehicle by heat or adhesive connection with edge bindings fitting on suitable connections thereon. Harnesses may readily be made up which will be applicable to the interior of an automotive vehicle for carrying this padding, or protective material or strips.

3,546,059
COMPOSITE FIBROUS ARTICLE BONDED WITH NOVEL COPOLYMER COMPOSITIONS AND METHOD OF MAKING SAME
Irving E. Isgur, Framingham, and John L. Ohlson, Bedford, Mass., assignors to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
No Drawing. Continuation-in-part of application Ser. No. 680,003, Nov. 2, 1967, now Patent No. 3,472,808, which is a continuation-in-part of application Ser. No. 587,657, Oct. 19, 1966, which in turn is a continuation-in-part of application Ser. No. 364,752, May 4, 1964. This application Oct. 9, 1969, Ser. No. 865,196
Int. Cl. B32b 5/06
U.S. Cl. 161—81 12 Claims

Composite fibrous articles are disclosed having a surface filamentary layer (e.g. polypropylene) extending through a base fabric layer (e.g. a woven polypropylene scrim), the portions of the filaments extending through the base fabric being bonded to the base fabric by a copolymer containing (1) a conjugated diene, (2) styrene and/or acrylonitrile, (3) vinylidene chloride and (4) a functional monomer, which can be acrylamide, methacrylamide, octyl acid maleate or a monoethylenically unsaturated mono- or dicarboxylic acid (e.g. acrylic or itaconic acid).

3,546,060
FIBER-REINFORCED FOAM PLASTIC SHAPED ARTICLES
Peter Hoppe, Troisdorf, Karl August Essig, Dormagen, Goetz-Gotmar Dornheim, Leichlingen, Erich Bendler, Solingen-Ohligs, Karl-Arnold Weber, Cologne-Stammheim, and Wolfram von Langenthal, Cologne-Bickendorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed May 10, 1967, Ser. No. 637,403
Claims priority, application Germany, May 11, 1966, F 49,177
Int. Cl. B32b 5/22; C08g 22/44
U.S. Cl. 161—156 4 Claims



Reinforcement of foam plastics with crimped synthetic monofilaments of a denier of at least about 40. The crimped monofilaments are disposed in a foam plastic article so as to form a reinforcing web. They may be arranged principally next to one or more layers of covering material or substrate.

3,546,061
MOLDED BUILDING BLOCKS OF DIFFERENT FOAMED GLASS LAYERS AND PROCESS FOR MAKING SAME
Stefan Kraemer, Essen, and Alois Seidl, Post Lam, Lower Bavaria, Germany, assignors to Wasag-Chemie Aktiengesellschaft, Essen, Germany
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,896
Claims priority, application Germany, Mar. 11, 1967, W 43,539
Int. Cl. B32b 3/26
U.S. Cl. 161—159 5 Claims

A molded building block resulting from heating to 700–900° C. stratified layers of about 90–10% (preferably 80%) powdered glass, the major constituent of which

glass consists of either boron oxide or lead oxide, containing a foaming agent and about 10–90% by weight (preferably 20%) of a granular powdered siliceous material produced by dissolving about 0.02–0.7 parts by weight of a fibrous silicate in 1 part by weight of aqueous alkali silicate solution and then drying and granulating the same. The block is molded by introducing the foamable mixture into molds or onto travelling belts which are then moved through an oven.

3,546,062
UNBONDED NONWOVEN WEB OF POLYPROPYLENE FIBERS

Arthur John Herrman, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

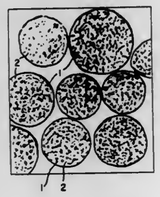
Continuation-in-part of application Ser. No. 390,134, Aug. 17, 1964. This application Dec. 9, 1969, Ser. No. 883,652
Int. Cl. B32b *5/02;* **D04h** *1/04*
U.S. Cl. 161—169 **4 Claims**

Nonwoven webs of polypropylene fibers having low sensitivity to fluctuations in heat-bonding conditions are particularly useful as precursors for carpet backings. To possess these qualities, the fibers of the web should have a crystallinity index of between about 30 and 70, a coefficient of variation in fiber-birefringence of at least 5% and greater than 75% by weight of the fibers should have a birefringence of at least 0.02.

3,546,063
MICROFIBERS AND SHAPED STRUCTURES CONTAINING MICROFIBERS

Alvin L. Breen, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Original application Oct. 29, 1954, Ser. No. 465,538, now Patent No. 3,382,305, dated May 7, 1968. Divided and this application Mar. 1, 1968, Ser. No. 709,571
Int. Cl. D01d *5/28;* **D02g** *3/04*
U.S. Cl. 161—176 **8 Claims**



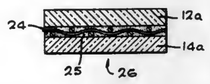
A filament is disclosed comprising molecularly oriented microfibers having a diameter of about 0.01 micron to 3 microns and formed of a synthetic condensation polymer, said microfibers being dispersed in a matrix of fiber-forming polymer.

3,546,064
ADHESIVE AND GLASS LAMINATE BONDED THEREWITH

Vern E. Hamilton, Palos Verdes Estates, and Luther M. Roseland, Santa Ana, Calif., assignors, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

Filed Oct. 6, 1966, Ser. No. 584,912
Int. Cl. B32b *17/10, 27/38, 27/40*
U.S. Cl. 161—185 **13 Claims**

Glass laminate, e.g., a high strength safety glass or acoustical glass, adhesively bonded together by a cured urethane polymer containing epoxy resin and a member selected from the group consisting of dialkyl adipates, dialkyl sebacates, and dialkyl azelates; and an adhesive formulation particularly designed for bonding such glass laminate at room temperature, containing urethane polymer, epoxy resin, a polyamine or polyol curing agent,

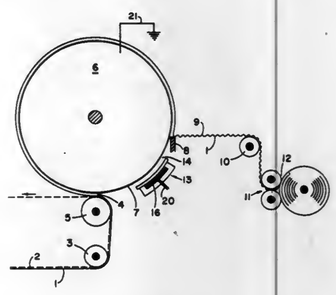


and such member noted above, the amount of curing agent employed being only sufficient to react stoichiometrically with the urethane polymer, the epoxy resin and such member functioning as plasticizers.

3,546,065
CORONA DISCHARGE APPLIED DIRECTLY TO CREPING SURFACE TO INCREASE ADHESION OF WEB TO SURFACE

Kurt W. Ostermeier, Harrison, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware

Filed Dec. 29, 1967, Ser. No. 694,681
Int. Cl. B31f *1/12*
U.S. Cl. 162—111 **7 Claims**



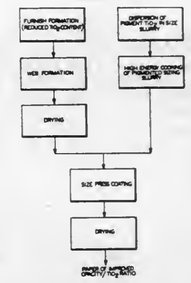
A method and apparatus for the production of creped tissue paper. The normal adhesion of paper which is dried on the surface of a crepe wadding dryer is increased, and controllably so, by applying a corona discharge to the dryer surface in advance of the application of the wet web. As is customary in such operations, the dryer is most suitably a rotating cylinder and the wet web is fed continuously to and creped from the cylinder. The adhesion of the web may be increased or decreased in the course of a creping operation to control the crepe structure of the paper product. The extent of the effect of the corona treatment on adhesion is related to the degree of adhesion which would normally occur in the drying of the sheet on the dryer surface.

3,546,066
SIZE PRESS COATING PAPER WITH TiO_2-STARCH PASTE TO IMPROVE OPACITY

Franklyn O. Ware, Appleton, and Charles L. Soukup and Wilbur W. Krueger, Wausau, Wis., assignors by direct and mesne assignments, to Paper Production Aids, Inc., a corporation of Wisconsin

Filed Nov. 1, 1967, Ser. No. 679,706
Int. Cl. D21d *3/00*
U.S. Cl. 162—175 **8 Claims**

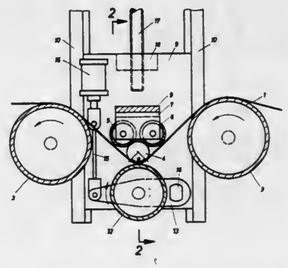
Opacity increases in paper achieved by the addition of titanium dioxide are improved by adding at least a portion of the titanium dioxide to the paper as a sizing coating comprising starch and a stable suspension of titanium dioxide therein produced by cooking an aqueous mixture comprising starch and titanium dioxide with steam at a temperature above 212° F. while subjecting the mixture to mechanical energy in excess of that provided by the steam required to cook the mixture at the selected temperature.



3,546,067
APPARATUS FOR BREAKING THE CURL IN TRAVELING MATERIAL WEBS FORMED OF PAPER, CARDBOARD OR THE LIKE

Walter Heidepriem, Duisburg, Germany, assignor to Jagenberg-Werke AG, Dusseldorf, Germany

Filed Mar. 10, 1967, Ser. No. 622,328
Claims priority, application Germany, Mar. 24, 1966, J 30,428
Int. Cl. D21f *7/00*
U.S. Cl. 162—271 **3 Claims**



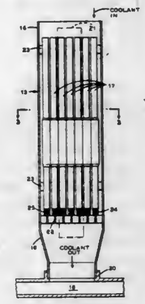
Apparatus for breaking the curl or curvature in continuously moving material webs formed of paper, cardboard or the like and paid-off a supply roll. Such apparatus advantageously incorporates a freely rotatable round bar about which the web is partially wrapped, and such bar is supported to be freely rotatable at at least two backing rolls or groups of backing rolls bearing against the peripheral surface of the round bar. The invention further contemplates employing a control mechanism for continuously changing the breaking action automatically as a function of the changing diameter of the supply roll.

3,546,068
NUCLEAR REACTOR CORE CONSTRUCTION

Donald C. Schluderberg, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

Filed Nov. 1, 1967, Ser. No. 679,756
Int. Cl. G21c *1/02, 3/28*
U.S. Cl. 176—50 **7 Claims**

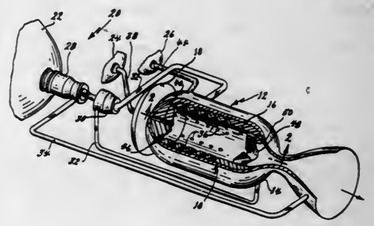
A steam-cooled nuclear reactor core defined by a lattice of radially spaced parallel, fuel-containing pins that have exterior surfaces radially dimensioned to reduce the coolant flow area, and thereby increase the flow velocity and heat transfer rate along axial length zones of the pins where the rate of heat generation is above a certain value.



3,546,069
GASEOUS NUCLEAR ROCKET ENGINE

George H. McLafferty, Manchester, Conn., assignor to the United States of America as represented by the Secretary of the Air Force

Filed May 15, 1968, Ser. No. 729,472
Int. Cl. G21c *15/00*
U.S. Cl. 176—52 **11 Claims**



A vortex stabilized gaseous nuclear rocket engine in which helium gas is injected into a vortex tube to form a buffer layer between the outer periphery of a fuel and the inner surface of a propellant.

3,546,070
FERMENTATIVE METHOD OF PRODUCING L-SERINE FROM DL-SERINE

Fumihiro Yoshinaga, Kawasaki-shi, Michiko Kimura, Tokyo, Masao Shibuya, Kawasaki-shi, and Shinji Okumura, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 591,087, Nov. 1, 1966. This application May 1, 1969, Ser. No. 821,061
Claims priority, application Japan, Nov. 2, 1965, 40/67,182
Int. Cl. C12d *13/06*
U.S. Cl. 195—2 **12 Claims**

L-serine substantially free from D-serine is obtained by selective decomposition of the D-serine in an aqueous solution of DL-serine by atmospheric oxygen in the presence of an enzyme available from known and newly discovered microorganisms.

3,546,071
AEROBIC FERMENTATION PROCESS

John D. Douros, Jr., Littleton, Colo., Lars A. Naslund, Roselle Park, N.J., and William J. Lahl, Marysville, Ohio, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,925
Int. Cl. C12d *13/06*
U.S. Cl. 195—28 7 Claims

Aerobic fermentation process for the production of a high protein content product which uses as a primary source of carbon an oxygenated hydrocarbon with an aqueous, inorganic salt growth medium, an oxygen-containing gas, and a microorganism capable of growth on said oxygenated hydrocarbon, said process being conducted in the presence of cellulose. It is preferred that the oxygenated hydrocarbon be the sole source of carbon in the process. Preferred oxygenated hydrocarbon comprises linear alcohols and their derivatives, such as ethyl alcohol and its derivatives.

3,546,072
PREPARATION OF 5-DEHYDRO-SHIKIMIC ACID BY FERMENTATION

Kazumi Araki, Hiroyuki Ueda, and Masahiko Ikumo, Hofu-shi, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha (Kyowa Hakko Kogyo Company Limited), Tokyo-to, Japan, a body corporate of Japan

No Drawing. Filed May 3, 1968, Ser. No. 726,565
Claims priority, application Japan, June 9, 1967, 42/36,478
Int. Cl. C12d *1/02*; C12b *1/00*
U.S. Cl. 195—47 5 Claims

5-dehydroshikimic acid is prepared by culturing a 5-dehydroshikimic acid-producing microorganism of the genus Corynebacterium in a culture medium containing a carbon source, a nitrogen source, inorganic material and nutrients. *Corynebacterium glutamicum* ATCC 21,179 is a particularly suitable microorganism for use in the process. 5-dehydroshikimic acid is useful as a precursor of aromatic amino acids and as a medicament.

3,546,073
FUSARIUM FERMENTATION

Ralph Henry Evans, Jr., River Vale, N.J., Martin Paul Kunstmann, Pearl River, N.Y., Chester Eric Holmlund, Silver Spring, Md., and George Alfred Ellestad, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 710,623, Mar. 5, 1968. This application Aug. 13, 1968, Ser. No. 752,143
Int. Cl. C12d *9/04*
U.S. Cl. 195—81 1 Claim

New compounds of Formulae I–VI are prepared by the cultivation under controlled aerobic conditions of Fusarium species Z1272. Two of these compounds (Compounds V and VI) are transformed by chemical methods to new Compounds VII and VIII, respectively. All the compounds of this invention have antimicrobial activity, and selected members also have analgesic and hypocholesteremic activities.

3,546,074
REAGENT FOR ASSAYING GLUTAMATE OXALOACETATE TRANSAMINASE

Alfred Deutsch, Los Angeles, Calif., assignor to Calbiochem, Los Angeles, Calif., a corporation of California

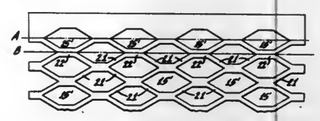
No Drawing. Application June 30, 1966, Ser. No. 561,757, which is a continuation-in-part of application Ser. No. 320,004, Oct. 30, 1963. Divided and this application June 11, 1968, Ser. No. 735,994
Int. Cl. G01n *31/14*
U.S. Cl. 195—103.5 2 Claims

Substantially anhydrous, solid assay materials for the determination, inter alia, of reagent for assaying glutamate oxaloacetate transaminase, are rendered storage stable by the presence of certain polyhydric compounds preferably mannitol, sorbitol, lactose or polyvinyl alcohol.

3,546,075
EXPANDABLE METAL STRUCTURE MAKING BY ETCHING

Harry J. Sheetz, Trenton, and Robert T. Molloy, South River, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Mar. 23, 1967, Ser. No. 625,472
Int. Cl. C23f *1/02*
U.S. Cl. 156—8 4 Claims

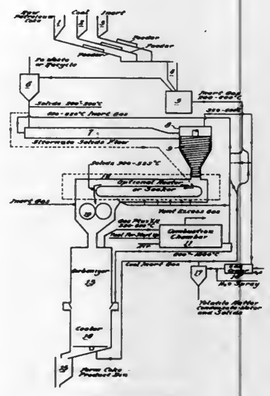


This disclosure describes an expandable, thread-like, metal web structure of high packing density, and the method of making such structure by photomasking and etching.

3,546,076
METHOD OF PRODUCING METALLURGICAL COKE

Nathan William Muller, Clarendon Hills, Ill., and Anton R. Novy and Frederick L. Shea, Jr., Johnson City, Tenn., assignors to Great Lakes Carbon Corporation, New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 641,087, Apr. 12, 1967, which is a continuation-in-part of application Ser. No. 449,829, Apr. 21, 1965. This application July 16, 1969, Ser. No. 847,504
Int. Cl. C10b *57/04*
U.S. Cl. 201—6 13 Claims

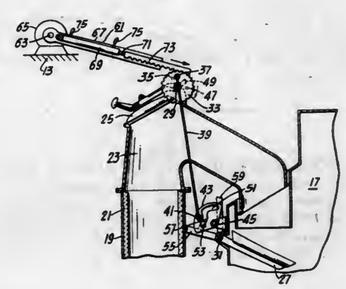


The process comprises heating selected carbonaceous particles to a suitable temperature between 300° C. and 525° C.; compressing the heated particles while they are still hot into green bodies of desired shape and specified maximum porosity and minimum density; and carbonizing the formed green bodies while they are still hot, employing a controlled carbonization process. Care is taken to avoid any substantial amount of oxidation of the particles and/or of the formed green bodies during most of the aforesaid heating, pressing and carbonizing steps, particularly while the particles or bodies are at substantially elevated temperatures.

3,546,077
COKE OVEN STANDPIPE LID AND DAMPER VALVE OPERATING MECHANISM

Linwood G. Tucker, Pittsburgh, Pa., assignor to Koppers Company, Inc., a corporation of Delaware

Filed Oct. 21, 1968, Ser. No. 769,006
Int. Cl. C10b *27/06*
U.S. Cl. 202—270 7 Claims

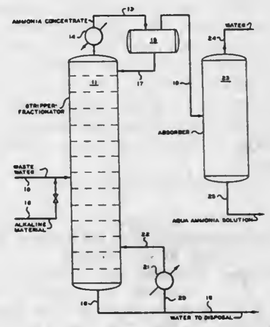


An extendable and retractable rack mounted on a larry car engages a gear freely rotatable on the pivot shaft of a standpipe lid. When the rack extends and rotates the gear, a connecting rod mounted to the gear and to a cam first closes the damper valve, and then protrusions on the gear engage the lid to open it. When the rack re-engages the gear and is retracted, the protrusions on the gear first engage the lid and close it, and thereafter movement of the cam opens the damper valve.

3,546,078
METHOD FOR SEPARATING AND RECOVERING AMMONIA FROM WASTE WATER CONTAINING PHENOL

Leroy C. Kahre and Donald M. Haskell, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Nov. 30, 1967, Ser. No. 686,846
Int. Cl. B01d *3/26*
U.S. Cl. 203—42 4 Claims

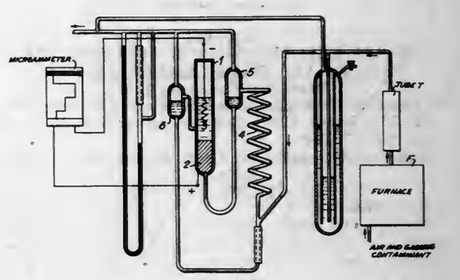


Waste water containing small amounts of ammonia and other impurities such as phenol and other materials is passed to a fractionation-stripping zone operated under conditions such that an overhead product containing substantially only ammonia and a bottoms product comprising water and the other impurities followed by dilution of the overhead product with water to produce salable aqua ammonia.

3,546,079
METHOD FOR DETERMINING CONTINUOUSLY SMALL CONCENTRATIONS OF GASEOUS HALOGENATED COMPOUNDS AND OF HYDROGEN HALIDES IN AIR AND IN OTHER GASES

Jerzy Waclawik, Kasprowicza 59m8, Warsaw, Poland, and Stefan Waszak, Lechilow 14–16, Piaseczno-Golkow k. Warszawy, Poland

Filed Feb. 8, 1967, Ser. No. 614,537
Claims priority, application Poland, Feb. 8, 1966, P 112,839
Int. Cl. G01n *27/00, 27/42*
U.S. Cl. 204—1 6 Claims



A method in which a gas contaminated with a small concentration of gaseous halogenated organic compounds or hydrogen halides or both is continuously passed through a furnace at 800° C. filled with a palladium catalyst whereby the contaminants are burned to form a combustion product which is a hydrogen halide, a halogen or both. Thereafter, the combustion product is passed into contact with a bromide-bromate mixture or an iodide-iodate mixture whereby the combustion produtcs are quantitatively converted into the free halogen, which can be determined by known continuous methods, preferably in the galvanic cell of a gas analyzer.

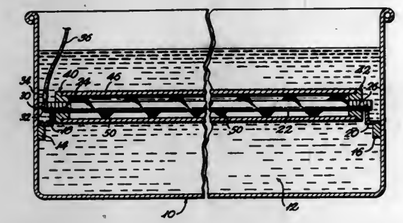
3,546,080
METHOD OF COATING STAINLESS STEEL TUBE WITH COPPER

Samuel J. Iannone, 15 W. Willow St., Beacon, N.Y. 12508

Original application Aug. 26, 1966, Ser. No. 575,416. Divided and this application Sept. 5, 1968, Ser. No. 794,430
Int. Cl. C23b *5/56, 5/46, 1/00*
U.S. Cl. 204—25 5 Claims

1. The method of manufacturing composite tubing for use as a substitute for copper tubing and which can be used with the same fittings and mounted in the same manner as copper tubing, comprising providing a tube of stainless steel open at the opposite ends thereof, plugging the opposite open ends of said tube to provide a fluid-tight seal therewith, then cleaning said tube to remove oils and soils therefrom, then rinsing said tube, immersing said tube in a nickel bath and electrolytically depositing a layer of nickel thereon, then removing the tube from said bath and rinsing the tube, then immersing said tube in a copper bath and electrolytically depositing

a layer of copper on said layer of nickel, whereby a composite tube is provided including an innermost continuous layer of stainless steel defining a bore therewithin having



an intermediate continuous layer of nickel electrolytically deposited thereon and also including an outermost continuous layer of copper electrolytically deposited on said layer of nickel.

3,546,081
NICKEL ELECTROPLATING ELECTROLYTE
Malcolm J. Law, Dorking, England, assignor to Permalite Chemicals, Ltd.
No Drawing. Continuation-in-part of application Ser. No. 423,309, Jan. 4, 1965. This application Nov. 15, 1968, Ser. No. 776,240
Claims priority, application Great Britain, Jan. 14, 1964, 1,606/64
Int. Cl. C23b *5/08, 5/46*
U.S. Cl. 204—49 **4 Claims**

An aqueous acidic electrolyte for electrodepositing bright nickel comprising as brightener dimethylaminopropyne hydrochloride. The electrolyte may additionally contain various other additives such as sulfo-oxygen compounds and coumarin. Such a solution is more tolerant of zinc contamination.

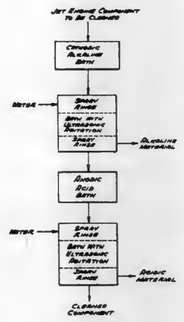
3,546,082
OXIDATION PROCESS
John Rickard Mansfield, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,181
Claims priority, application Great Britain, May 5, 1967, 21,027/67
Int. Cl. C07f *15/00;* **B01k** *1/00*
U.S. Cl. 204—72 **7 Claims**

A Group VIII noble metal, e.g., palladium, is converted to a carboxylate by electrolysing a slurry of the metal in the anode compartment of a cell comprising anode and cathode compartments separated by an anion exchange membrane or salt bridge. The cathode compartment contains an electrically conducting carboxylic acid solution and the noble metal carboxylate is withdrawn from the anode compartment.

3,546,083
POLYMERIZATION OF OLEFINIC COMPOUNDS AND CATALYSTS THEREFOR
Morris R. Ort, Kirkwood, Edward H. Mottus, Ballwin, Manuel M. Baizer, St. Louis, and Don E. Carter, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Mar. 6, 1967, Ser. No. 621,035
Int. Cl. B01k *3/06*
U.S. Cl. 204—131 **14 Claims**

An electrolytic method is described for making olefin, e.g., ethylene, polymerization catalysts. These catalysts are made electrolytically from anodes of transition metals such as vanadium or manganese and metals such as aluminum or alloys of aluminum and vanadium or manganese, a methylene dihalide especially methylene dichloride and an electrolyte such as $HOAlCl_2$. Also, the transition metal, e.g., V or Mn, catalyst component can be made separately as can the non-transition metal, e.g., Al component. Preferably, a small amount of an olefin substantially inert toward polymerization, i.e.. a non-reactive olefin such as cyclohexene, is used during the electrolysis to promote conductivity. Also, preferably all materials are substantially pure and are dry during electrolysis and polymerization, except for small known amounts of water which may be added to promote conductivity in electrolysis and/or the polymerization. It is also preferred to blanket the electrolysis cell with an inert gas, such as nitrogen, to exclude oxygen which may tend to poison some of the catalysts. The catalysts are normally soluble in the methylene dihalide medium in which they are made at least in sufficient concentration to be useful as polymerization catalysts.

3,546,084
CLEANING METHOD FOR JET ENGINE PARTS
Charles L. Dohogne, San Pedro, and James C. Harrington, Cypress, Calif., assignors to Purex Corporation Ltd., Lakewood, Calif., a corporation of California
Continuation-in-part of application Ser. No. 782,055, Dec. 9, 1968. This application May 19, 1969, Ser. No. 830,913
Int. Cl. C23b *1/00*
U.S. Cl. 204—141 **10 Claims**



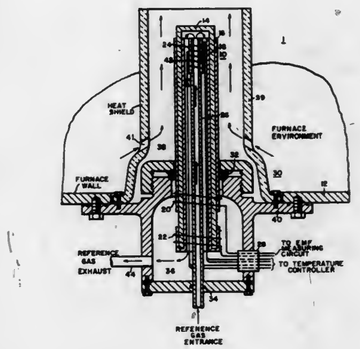
Metal parts such as jet engine components having obdurate formations of metal oxides, nitrides, carbides and the like which have often proved irremovable in the past without unacceptable damage to the underlying component are cleaned and polished quickly by a method which sequentially subjects the component to cathodic and anodic treatment at elevated temperatures in strongly alkaline and acidic baths respectively followed by cavitational processing of the treated part and water washing after each bath.

3,546,085
PHOTOELECTROPHORETIC IMAGING PROCESS AND SUSPENSION
Lester Weinberger, Penfield, and Warren E. Solodar, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Jan. 30, 1967, Ser. No. 612,539
Int. Cl. B01k *5/00*
U.S. Cl. 204—181 **7 Claims**

An electrophoretic imaging system which is capable of polychromatic or monochromatic imaging is disclosed,

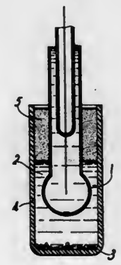
using in at least a portion of the imaging material certain substituted pyrene compounds. A preferred compound is 1,3,6,8-tetracyanopyrene.

3,546,086
DEVICE FOR OXYGEN MEASUREMENT
Donald A. Sayles, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 30, 1968, Ser. No. 771,709
Int. Cl. G01n *27/46*
U.S. Cl. 204—195 **12 Claims**



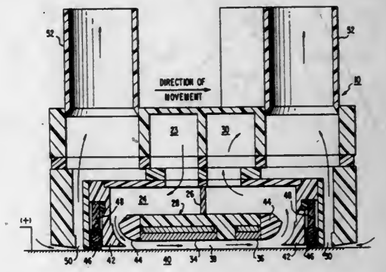
The invention is an improved solid state oxygen measuring electrochemical cell utilizing an internal heating element to establish the required cell operating temperature and provide an oxygen measuring system for in situ monitoring of the oxygen partial pressure of gases.

3,546,087
STORAGE OF ELECTRODES FOR THE MEASUREMENT OF pH VALUES
Claude Friconneau, Manosque, and Alain Leboutet, Aix-en-Provence, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Apr. 29, 1968, Ser. No. 725,051
Claims priority, application France, May 8, 1967, 105,601
Int. Cl. G01n *27/30, 27/36*
U.S. Cl. 204—195 **6 Claims**



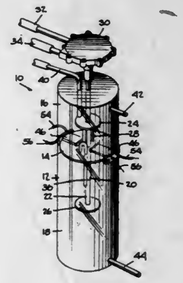
The conditions of storage of glass electrodes for the measurement of pH values are improved by dipping the bulb (measuring electrode) or the junction (reference electrode) in a saturated salt solution contained in a small cup, then in sealing the contents of the cup with an elastic resin.

3,546,088
ANODIZING APPARATUS
Erik F. Barkman, Harold J. Coats, and Garth Sanford Jones, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Mar. 14, 1967, Ser. No. 623,134
Int. Cl. B23p *1/02;* **C23b** *5/76*
U.S. Cl. 204—224 **6 Claims**



Aluminum or other anodizable metal workpieces, particularly those of a size too large for treatment in an anodizing tank, are anodized by means of apparatus adapted to maintain an enclosed electrolyte-containing compartment adjacent successive portions of the workpiece. A hard corrosion-resistant coating is produced by applying an anodizing current to the metal as anode while rapidly flowing electrolyte through the compartment at a rate of at least about 50 feet per minute.

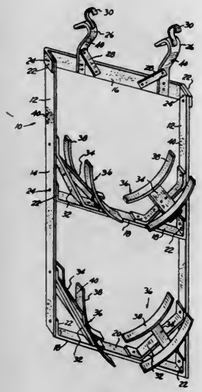
3,546,089
APPARATUS FOR THE CONTINUOUS ELECTROLYTIC PRODUCTION OF CHLORINE FOR THE STERILIZATION OF WATER
Frank L. Schneider, Port Washington, N.Y., assignor of one-half to Albert Young, Miami, Fla.
Filed June 4, 1969, Ser. No. 830,273
Int. Cl. B01k *3/00*
U.S. Cl. 204—278 **10 Claims**



An apparatus for continuous electrolytic production of chlorine to sterilize water, comprising a non-conductive housing divided into an upper chamber and a lower

chamber, a motor-turned shaft disposed through both chambers provided with a rotative disc for each chamber, a syphon affording liquid communication between the chambers, electrodes disposed in the upper chamber, a water inlet line disposed over the upper disc, the syphon outlet disposed over the lower disc, a gas exhaust line in the upper chamber and a water outlet line at the base of the lower chamber. The method of electrolyzing an electrically conductive solution by fragmentizing it before it reaches the electrodes, gathering the drops back into solution in the presence of the electrodes, refragmentizing the solution on leaving the electrodes and regathering the drops into solution.

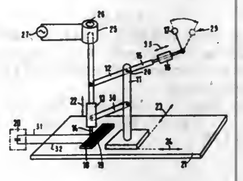
3,546,090
ELECTROPLATING RACK
Benjamin P. Freedland, 4965 E. 9 Mile Road, Detroit, Mich. 48091
Filed Sept. 11, 1968, Ser. No. 759,076
Int. Cl. C23b *5/70*
U.S. Cl. 204—297 **2 Claims**



An electrically conductive plating rack having a frame with sides and cross pieces, a hook to support the frame, a support on one of the cross pieces and an elongated upwardly concave shaped saddle means on the support and lying in a plane generally paralleled to the plane of the frame and corresponding to surface areas of a workpiece for supporting the same by gravity within and upon said frame.

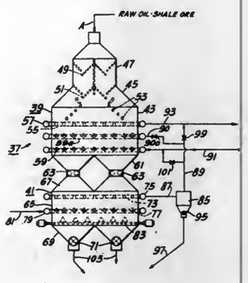
3,546,091
SPUTTERING DEVICE FOR DEPOSITING WEAR RESISTANT COATINGS ON WORK SURFACES
Elfriede Rossner and Ludwig Rossner, both of Comeniusstr. 10, Nuremberg, Germany, and Wolfgang Rossner, deceased, late of Nuremberg, Germany, by Elisabeth Rossner, legal guardian of heirs, Hombuchel 38, Wuppertal-Elberfeld, Germany
Filed May 15, 1968, Ser. No. 729,301
Claims priority, application Germany, May 19, 1967, S 109,936
Int. Cl. B23k *9/04;* **C23c** *15/00*
U.S. Cl. 204—298 **4 Claims**

A sputtering device for applying thin wear resistant coatings to work surfaces with two sets of parallel members pivotally connected in the form of a parallelogram. Displaceable weights mounted on one member serve to adjust the pressure with which a ceramic electrode contacts the work surface. Particles are separated from the



electrode by vibration and capacitor discharge for deposition and heating on the work surface to be coated.

3,546,092
OIL SHALE RETORTING METHOD AND APPARATUS
Robert W. Whiteacre 3rd, Verona, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
Filed June 4, 1968, Ser. No. 734,398
Int. Cl. C10g *1/00*
U.S. Cl. 208—11 **10 Claims**

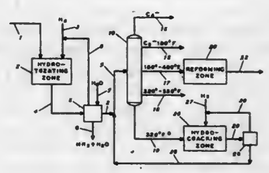


The improved method for retorting shale oil particles includes the additional steps of comminuting shale oil particles that have been retorted in a first stage and are hot; passing a gaseous fluid through the comminuted particles; removing the product gases and oil; separating the product gases and oil from ore fines; flowing the product gases and oils into a products collecting conduit or burning the product gases at a fuel distributor in the first stage retorting process.

3,546,093
RUBBER OILS FROM LAGOMEDIO CRUDE
William W. Wentzheimer, Drexel Hill, Pa., and Edward T. Minka, Claymont, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Dec. 31, 1968, Ser. No. 788,343
Int. Cl. C10g *43/08*
U.S. Cl. 208—33 **17 Claims**

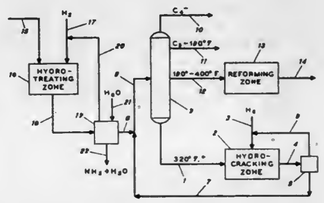
A process for preparing rubber oils from Lagomedio crude by solvent extracting a lube oil fraction thereof with a solvent having preferential solubility for aromatics, such as furfural, and then cooling the extract to a temperature at least as low as 170° F. to form a wax phase and a solvent-oil phase, then recovering the oil from the solvent phase.

3,546,094
HYDROTREATING CATALYST AND PROCESS
Joseph Jaffe, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Filed Aug. 5, 1968, Ser. No. 750,283
Int. Cl. C10g *13/00*
U.S. Cl. 208—59 **13 Claims**



A catalyst comprising a layered synthetic crystalline aluminosilicate cracking component, preferably substantially free of any catalystic metal or metals, a silica-alumina gel component, a Group VI hydrogenating component and a Group VIII hydrogenating component, and processes using said catalyst.

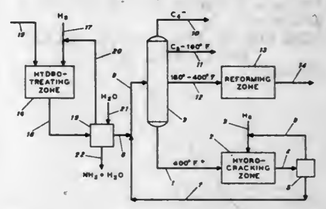
3,546,095
CATALYST BODY CONSISTING OF PHYSICAL MIXTURE OF DIFFERENT CATALYSTS
James R. Kittrell, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Filed Nov. 4, 1968, Ser. No. 773,097
Int. Cl. C10g *13/00*
U.S. Cl. 208—60 **12 Claims**



(A) A catalyst body consisting of a physical mixture of pellets or other particles of different catalysts, said different catalysts comprising: a first catalyst comprising a crystalline zeolitic molecular sieve cracking component and a hydrogenating component selected from the group consisting of rhenium and compounds of rhenium; and a second catalyst comprising a crystalline zeolitic molecular sieve component, a component selected from silica-alumina gel, silica-alumina-titania gel and silica-alumina-zirconia gel, and a component selected from Group VIII metals and compounds thereof.

(B) Processes using said catalyst body.

3,546,096
HYDROCARBON CONVERSION CATALYST AND PROCESS
James R. Kittrell, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Continuation-in-part of application Ser. No. 759,601, Sept. 13, 1968. This application Nov. 14, 1968, Ser. No. 775,627
The portion of the term of the patent subsequent to Aug. 27, 1985, has been disclaimed
Int. Cl. C10g *23/00*
U.S. Cl. 208—60 **8 Claims**



A hydrocarbon conversion catalyst consisting essentially of an ultra-stable crystalline zeolitic molecular sieve component, a component selected from nickel and compounds thereof, and a component selected from tin and compounds thereof, and processes using said catalyst.

3,546,097
FOULING INHIBITORS AND PROCESSES FOR USING THEM
George B. Tupper, Groves, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 27, 1968, Ser. No. 787,564
Int. Cl. C10g *9/16;* **C10i** *1/14*
U.S. Cl. 208—48 **20 Claims**

A process for inhibiting fouling in chemical processing and oil refining equipment comprising incorporating into said equipment an anti-fouling amount of an admixture comprising:

(a) an alkyl methacrylate polymer selected from the group consisting of co-, ter-, and tetrapolymers containing at least one basic amino nitrogen addition type polymer, prepared by the complete polymerization of at least one amine-free alkyl methacrylate monomer and at least one basic nitrogen-containing dialkylaminoalkyl monomer, the ratio of said alkyl methacrylate monomer to said dialkylaminoalkyl monomer in the polymer ranging from about 10:1 to about 25:1, and

(b) at least one nitrogen-containing additive selected from the group consisting of N,N'-disalicylidene-1,2-ethane diamine, N,N'-disalicylidene-1,2-propane diamine and p - aminodiphenylamine dialkanoates, wherein the dialkanoate moiety contains from 4 to 20 carbon atoms.

3,546,098
MAKING A LUBE OIL BY HYDROCRACKING AND SOLVENT EXTRACTION
Byron G. Spars, Mill Valley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
No Drawing. Filed July 24, 1968, Ser. No. 747,101
Int. Cl. C10q *37/00*
U.S. Cl. 208—96 **11 Claims**

A process for the production of lubricating oil which is stable in ultraviolet light, which comprises hydrocrack-

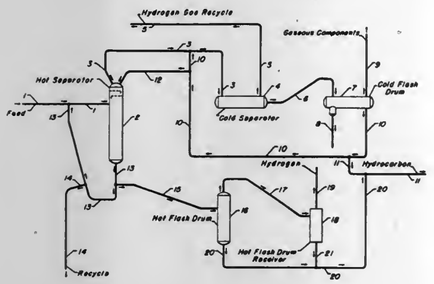
ing a heavy oil under specified conditions to produce a lubricating oil fraction and then treating the fraction with anhydrous or aqueous N,N-dimethylformamide or dimethylsulfoxide to produce an ultraviolet-light-stable lubricating oil. Treating conditions are specified. High yields of stable oil are obtained.

3,546,099

METHOD FOR SEPARATING THE EFFLUENT FROM A HYDROCARBON CONVERSION PROCESS REACTION ZONE

Robert E. Sutherland, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,425
Int. Cl. B01d *3/06*
U.S. Cl. 208—102 8 Claims



The effluent from a hydrocarbon conversion process reaction zone is separated into selected fractions utilizing an enrichment stream recycle technique.

3,546,100

HYDROCRACKING ACTIVITY AND SELECTIVITY OF A RARE EARTH CRYSTALLINE ZEOLITE

Tsoung-Yuan Yan, Pitman, N.J., assignor to Mobil Oil Corporation, a corporation of New York

Filed Oct. 30, 1968, Ser. No. 771,823
Int. Cl. C10g *13/04*
U.S. Cl. 208—111 1 Claim

A rare earth exchanged crystalline aluminosilicate hydrocracking catalyst may be improved with respect to its cracking activity and selectivity by using water in controlled amounts to activate the catalyst cracking sites.

3,546,101

CRACKING CATALYST

Christopher John Leonard Metcalfe, Sunbury, and Kenneth Hugh Bourne, Knaphill, England, assignors to The British Petroleum Company Limited, London, England, a corporation of England

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,450
Claims priority, application Great Britain, Apr. 11, 1967, 16,437/67
Int. Cl. C10g *11/02*
U.S. Cl. 208—120 20 Claims

A low coking cracking catalyst consists of a Group IV metal oxide gel containing up to 3% Group III metal ions, none of which are on the surface of the gel. Usually a silica gel containing aluminum is used. The catalyst is prepared by precipitating a co-gel of the two elements and acid washing to remove surplus aluminum.

3,546,102

CATALYST AND REFORMING PROCESS EMPLOYING SAME

Ralph J. Bertolacini, Chesterton, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Continuation-in-part of application Ser. No. 491,017, Sept. 28, 1965. This application Sept. 26, 1969, Ser. No. 861,474
Int. Cl. C10g *35/08*; B01j *11/40*
U.S. Cl. 208—138 25 Claims

The catalyst comprises a co-catalytic solid support and a Group VIII metal. The support consists essentially of (1) an adsorbent refractory inorganic oxide and (2) mordenite, the mordenite having been introduced into the adsorbent refractory inorganic oxide by blending the mordenite in a finely divided state into a sol or gel of the adsorbent refractory inorganic oxide prior to drying to form a mordenite-inorganic-oxide blend and the Group VIII metal having been incorporated into the mordenite-inorganic-oxide blend after the blending and prior to drying and calcining. The preferred inorganic oxide is alumina and the preferred Group VIII metal is platinum. The reforming process comprises contacting the hydrocarbons under hydroforming conditions with the above catalyst.

3,546,103

HYDROGENATION CATALYSTS ON CHARCOAL IN GUARD CHAMBER FOR REMOVING METALS FROM PETROLEUM RESIDUA

Glen P. Hamner, Baton Rouge, and Ralph B. Mason, Denham Springs, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,213
Int. Cl. C10g *23/02*, *31/14*
U.S. Cl. 208—211 9 Claims

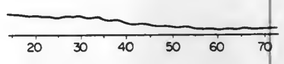
Metals and coke precursors are removed from petroleum residua prior to hydrodesulfurization by contacting the residua with a hydrodesulfurization catalyst supported on charcoal or activated carbon so that the metals may be easily recovered by gasifying or burning the carbon base.

3,546,104

HYDRODESULFURIZATION OF PETROLEUM HYDROCARBONS CONTAINING ASPHALTENES

Tsutomu Kuwata and Yutaka Oguchi, Tokyo, and Hirotsugu Nomura, Kawasaki-shi, Japan, assignors to Nippon Oil Company Ltd., Tokyo, Japan, a corporation of Japan

Filed May 8, 1968, Ser. No. 727,463
Int. Cl. C10g *23/02*, *23/04*
U.S. Cl. 208—216 10 Claims



A petroleum hydrocarbon containing asphaltenes is contacted with hydrogen and a catalyst, which is either an amorphous alumina or silica-alumina carrier, with a metal, such as, copper, platinum, nickel, cobalt or molybdenum. The carrier is obtained by gelling an aqueous colloidal solution of (1) basic aluminum sulfate having the composition represented by the formula,

$$Al_2O_3 \cdot (0.8\text{–}1.6)SO_3$$

or (2) a mixed solution of said basic aluminum sulfate and an aqueous sol of silica at a temperature of 40–100° C. to form hydrogels. Water is added to the hydrogels to adjust molar ratio of Al_2O_3:SO_3 to 1:0.4–0.7 and the hydrogels are then treated with a base to remove sulfate radicals therefrom. The carrier and metal component are calcined at 350–800° C.

3,546,105

HYDRODESULFURIZATION PROCESS

Joseph Jaffe, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 671,994, Oct. 2, 1967. This application Aug. 8, 1969, Ser. No. 848,723
Int. Cl. C10g *23/02*
U.S. Cl. 208—216 2 Claims

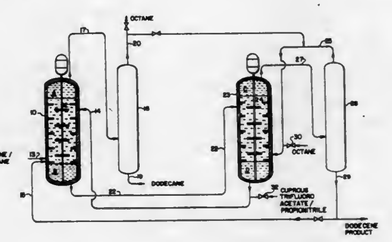
Hydrodesulfurization process using a catalyst consisting essentially of alumina, a component selected from titanium and zirconium and compounds thereof, a component selected from phosphorus and compounds thereof, a component selected from nickel and cobalt and compounds thereof, and a component selected from molybdenum and tungsten and compounds thereof.

3,546,106

DECOMPOSING CUPROUS TRIFLUOROACETATE-OLEFIN COMPLEX WITH A PARAFFIN COUNTER-SOLVENT

George C. Blytas, Kensington, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Mar. 27, 1969, Ser. No. 811,045
Int. Cl. C07c *11/02*
U.S. Cl. 208—308 7 Claims



Monoolefins are separated from mixtures with closely boiling paraffins by contact with a propionitrile solution of cuprous trifluoroacetate followed by contact of the resulting monoolefin-cuprous complex with a paraffin counter-solvent having a boiling point different from the boiling point of the monoolefin.

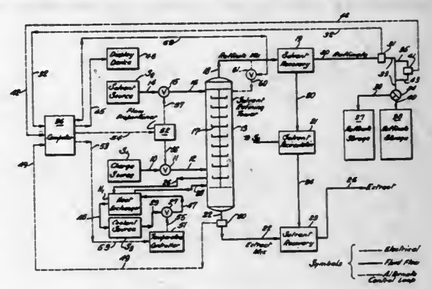
3,546,107

PROCESS AND APPARATUS TO CONTROL VI OF SOLVENT REFINED OIL

William F. Brown, Wappingers Falls, Charles H. Brodeur, Hyde Park, and William E. Crockett, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Jan. 11, 1968, Ser. No. 697,117
Int. Cl. C10g *21/00*; B01d *11/00*
U.S. Cl. 208—311 13 Claims

A method and apparatus for monitoring a physical characteristic of a process, or of a material treated in a process, and for control of the process in response to the average value or error of the measured characteristic, such as the viscosity index of a lubricating oil stock following treatment in a solvent refining process. A first signal is generated in response to a measurement of a physical characteristic which is representative of the viscosity index of the treated oil, such as, for example, the refractive index thereof. The treated oil is collected in a temporary storage container and a second signal representative of the average refractive index error of the oil collected in the container is generated by integration and comparison of the first signal with a reference specification value signal substantially concurrent with the flow of the treated oil to the container. In response corrections



are computed of a controllable process variable such as the solvent dosage, and corrective commands are issued, to suitable process controls, which are programmed over a time interval at least shorter than the filling time of the container, whereby the average quality of the product is accurately controlled to the specification. In one embodiment apparatus is provided for control of a solvent refining process.

3,546,108

NOVEL SOLVENT FOR THE EXTRACTION OF AROMATIC HYDROCARBONS FROM HYDROCARBON MIXTURES AND THE PROCESS FOR USE THEREOF

Thomas E. Skarada, Nether Providence Township, Delaware, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,939
Int. Cl. C10g *21/02*
U.S. Cl. 208—323 4 Claims

By using as a selective solvent a mixture of furfural dimethylformamide and water, it is now possible to extract aromatics particularly dicyclic aromatics from a hydrocarbon stream in a single extraction in yields as high as prior art method but with greater purity. Thus, in the overall process giving higher yields at the same degree of purity as the prior art. For example, a particular catalytic gas oil stream was previously extracted with furfural and water in a conventional manner gave a recovery of 81% total aromatics having a purity of 88%. In order to achieve a higher degree of purity, i.e., 90+%, a second extraction with a light saturate solvent was necessary. The final purity was 91% total aromatics with a recovery of only 64%. By using furfural dimethylformamide and water solvent in a single extraction of this same catalytic gas oil stream under essentially the same conditions the purity of total aromatices was 93% and the total recovery of aromatics was 75%.

3,546,109

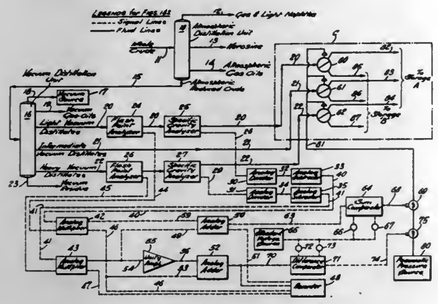
METHOD AND APPARATUS FOR CHARACTERIZATION OF HYDROCARBON MIXTURES

Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,444
Int. Cl. B01d *3/42*; C10g *7/00*
U.S. Cl. 208—347 14 Claims

Disclosed are various methods and apparatus for the characterization of petroleum hydrocarbon mixtures based on paraffinicity being substantially synonymous

to, but more simplified than, the Watson-Nelson characterization. An API gravity-flash point characterization method and apparatus is disclosed which employs on-stream measurements of flash point and specific gravity. The specific gravity measurements are converted to API gravity by applying a conversion equation, and the characterization is obtained by providing a signal corresponding to the product of API gravity and flash point. Also disclosed are methods and apparatus for improving the



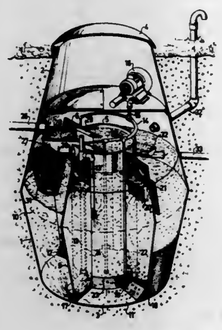
accuracy of the API gravity-flash point characterization by compensation for the depth of distillation between the light and heavy fractions of distillation units. The compensation is in accordance with the average and the difference of the API gravity-flash point characterization of the light and heavy distillation fractions. Also disclosed are methods and apparatus for segregating the distillates for selected up-stream processing based on the aforementioned compensated characterization.

3,546,110

METHOD AND APPARATUS FOR TREATING SEWAGE WATER BY MEANS OF FLOCCULATION AND AERATION

Sixten Englesson, Djursholm, and Sven Gustaf Yngve Gamer, Norrkoping, Sweden, assignors to Stenberg-Flygt AB, Solna, Sweden, a corporation of Sweden

Filed May 31, 1968, Ser. No. 733,536
Claims priority, application Sweden, June 2, 1967, 3,326/68
Int. Cl. C02c *1/12*
U.S. Cl. 210—5 **5 Claims**



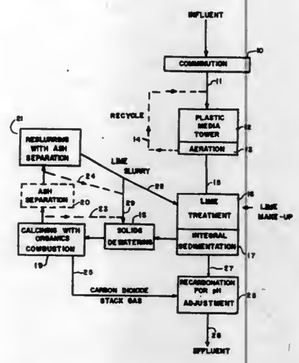
Sewage water is purified by flocculating it using regenerated sludge as flocculating substance, by enriching and stagnating the sludge and by aerating the same by means of a uniform laminar air flow spread out over the main part of the bottom of a sludge chamber, said air flow giving a large relative movement between each individual air bubble and the sludge particles.

3,546,111

WASTE TREATMENT

Arthur W. Busch, Houston, Tex., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

Filed May 13, 1968, Ser. No. 739,603
Int. Cl. C02c *1/04, 5/02*
U.S. Cl. 210—10 **5 Claims**



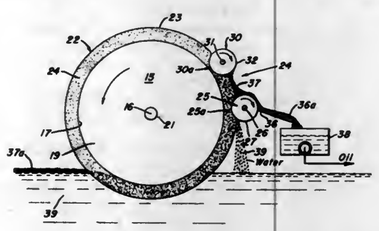
A process for the treatment of waste waters, particularly waste waters of domestic origin. A variable volume of influent waste material is passed over a plastic packed trickling filter to remove the dissolved bio-degradable organic material. The treated stream is held in an aeration basin and a constant flow is taken therefrom to a lime treatment basin where inorganic salts such as phosphates are precipitated and where solid material is coagulated and settled. Solid material is removed and dewatered and then calcined to recover the lime therefrom. Ash from the organic constituents may then be removed and the lime recycled to the lime basin. Carbon dioxide from the calciner stack gas is used to adjust the pH of the effluent to optimum before release.

3,546,112

ABSORPTION OIL SKIMMER

Robert G. Will, Munster, and William F. Swiss, Jr., Highland, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Filed Jan. 29, 1968, Ser. No. 701,395
Int. Cl. B01d *15/06, 17/04*
U.S. Cl. 210—30 **11 Claims**



A power driven apparatus having a rotation means with a closed supporting surface, absorber means for absorbing water and oil supported on the surface, removal means for sequentially removing water and oil from the absorber means, the removal means being a plurality of rollers exerting different pressures against the absorber means, and wiper means for effectuating the withdrawal of the oil.

3,546,113

METHOD FOR PURIFYING FRESH AND WASTE WATERS BY FLOCCULATION IN AN AMPHOTERIC PHASE

René-Rodolphe Seiler, Lausanne, Switzerland, assignor to Wilhelm Squindo, Lausanne, Switzerland

No Drawing. Filed June 25, 1968, Ser. No. 739,663
Claims priority, application Switzerland, June 27, 1967, 8,907/67; Dec. 8, 1967, 17,121/67
Int. Cl. B01d *21/01*
U.S. Cl. 210—52 **11 Claims**

A method for the purification of waste waters by flocculation in an amphoteric medium with the use of a water-soluble zinc salt, e.g. zinc chloride, in an environment whose pH is adjusted within the range 7.8–8.5 by employing a buffering solution of alkali metal salts of boric acid. Sodium tetraborate and sodium metaborate are preferred. The preliminary pH adjustment can be made with a strong alkali: this is the case with slightly acidic waters.

3,546,114

OZONATION OF INDUSTRIAL WASTE WATER

Max R. Dietz and Charles R. Moller, Jr., Fremont, Mich., assignors to Gerber Products Company, Fremont, Mich.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,827
Int. Cl. C02b *1/38*
U.S. Cl. 210—63 **4 Claims**

A process for sterilizing industrial waste water so that it will be suitable for reuse, through the introduction of ozone. Sterilization is accomplished even though the industrial waste water is maintained at elevated temperatures and under alkaline conditions.

3,546,115

FABRIC SOFTENER

Norman W. Gill, Minneapolis, and Roscoe S. Smith, Minnetonka, Minn., assignors to Cargill, Incorporated, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Feb. 28, 1967, Ser. No. 619,176
Int. Cl. D06m *13/46*
U.S. Cl. 252—8.8 **5 Claims**

A dry, powdered, freeflowing, dispersible fabric softener composition free from objectionable odor which is a mixture of a cationic quaternary softening agent and a boric acid.

3,546,116

LUBRICANT COMPOSITION

Quentin E. Thompson, Belleville, Ill., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,280
Int. Cl. C10m *1/20*
U.S. Cl. 252—42.7 **9 Claims**

Compositions of the class which exhibit improved oxidation resistance by the incorporation of certain alkali metal compounds into a class of base stocks, representative of which are monoesters, diesters, triesters, polyesters, complex esters and mixtures thereof. The composition have many uses, among which are jet engine lubricants and hydraulic fluids.

3,546,117

THIO COMPOUNDS AS ADDITIVES IN FLUIDS USED IN ENGINES

Donald J. Anderson, San Anselmo, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Original application June 3, 1965, Ser. No. 461,163, now Patent No. 3,449,440, dated June 10, 1969. Divided and this application Aug. 15, 1968, Ser. No. 761,387
Int. Cl. C10m *1/32, 1/38*
U.S. Cl. 252—47.5 **2 Claims**

A lubricating oil composition is disclosed comprising an oil of lubricating viscosity and a detergency component of 25–250 carbon atoms, having the formula

$$Q\{A[S(O)_nQ']_m\}$$

wherein the oxygen is bonded to the sulfur, Q is a C_{20}–C_{245} aliphatic hydrocarbon radical, A is a C_1–C_7 polyvalent hydrocarbon radical, Q' is either a C_1–C_8 hydrocarbon radical or a substantially hydrocarbonaceous radical having 1–12 carbon atoms and an oxygen or nitrogen atom, *n* is 1 or 2, and *m* is 1, 2, or 3.

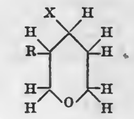
3,546,118

METAL WORKING OPERATIONS AND LUBRICANTS

Marvin M. Johnson and Paul R. Stapp, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Nov. 25, 1968, Ser. No. 778,746
Int. Cl. C10m *1/30*
U.S. Cl. 252—54 **3 Claims**

Cyclic ethers having the formula



where R is hydrogen or an alkyl or cycloalkyl radical or combination thereof such as alkylcycloalkyl having up to and including 17 carbon atoms and where X is a halogen are lubricants used in metal working operations.

3,546,119

ELECTROLYTES FOR CAPACITORS

Bernard François Gustave Chesnot, Paris, France, assignor to Les Condensateurs Sic-Safco, Colombes, France

No Drawing. Filed Jan. 29, 1968, Ser. No. 701,075
Claims priority, application France, Feb. 13, 1967, 94,639
Int. Cl. H01g *9/02*
U.S. Cl. 252—62.2 **6 Claims**

The present invention relates to an electrolyte for capacitors which is substantially non-aqueous, characterized by the fact that it contains a dissolved chemical compound capable, as a result of the high operating temperatures of the capacitor, of decomposing while at the same time giving off water and leaving a residue which remains dissolved, both the proportion and the solvent of this compound being so chosen that the dehydration of the latter substantially compensates for the water loss in the capacitor without affecting the electrochemical functioning of the electrolyte at these temperatures.

3,546,120
PIEZOELECTRIC CERAMIC COMPOSITIONS
Hiromu Ouchi, Toyonaka-shi, Osaka-fu, and Masamitsu Nishida, Osaka-shi, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 15, 1968, Ser. No. 752,833
Claims priority, application Japan, Aug. 16, 1967, 42/53,104
Int. Cl. C04b *35/46, 35/48*
U.S. Cl. 252—62.9 8 Claims

Piezoelectric ceramic compositions are provided which are polycrystalline ceramics of the type of the ternary system:

$$Pb(Zn_{1/3}Nb_{2/3})O_3—PbTiO_3—PbZrO_3$$

modified with NiO(0.1 to 5% by weight) and MnO_2 (0.1 to 5%) by weight. These compositions have high mechanical quality factors (Q_M) high planar coupling coefficients (K_p), and are useful in ceramic transducers.

3,546,121
PIEZOELECTRIC CERAMIC COMPOSITIONS
Hiromu Ouchi, Toyonaka-shi, and Masamitsu Nishida, Osaka-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed July 25, 1968, Ser. No. 747,547
Int. Cl. C04b *35/46, 35/48*
U.S. Cl. 252—62.9 8 Claims

Piezoelectric ceramic compositions which comprise the ternary system

$$Pb(Mg_{1/3}Ta_{2/3})O_3\text{-}PbTiO_3\text{-}PbZrO_3$$

and which contain, as additives, up to 5% by weight of MnO_2 and NiO, are particularly useful in the manufacture of electromechanical transducers.

3,546,122
METHOD OF MAKING OXIDE MAGNETIC MATERIAL
Minoru Nishizawa, Tokyo, and Shigehisa Harada and Yoshimi Tanuma, Kawasaki-shi, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.), Tokyo, Japan, a corporation of Japan
Filed Aug. 23, 1967, Ser. No. 662,620
Claims priority, application Japan, Aug. 26, 1966, 41/56,230
Int. Cl. C04b *35/36, 35/38*
U.S. Cl. 252—62.62 6 Claims

The method of making a magnetic ferrite in which material consisting of alpha Fe_2O_3 and different components selected from the group consisting of Mn-Zn, Mn-Mg and Mn-Ca is heated to a temperature of at least about 1000° C. under a gas pressure of at least about 100 atmospheres provided by a gaseous atmosphere made up largely of an inert gas and a small proportion of oxygen.

3,546,123
GRANULAR PRODUCTS CONTAINING DISODIUM NITRILOTRIACETATE AND PROCESS FOR PRODUCING SAME
Norman Earl Stahlheber, Columbia, Ill., and Chung Yu Shen, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 709,877, Mar. 4, 1968. This application Apr. 15, 1969, Ser. No. 816,396
Int. Cl. C11d *3/04, 3/30, 11/00*
U.S. Cl. 252—137 12 Claims

Caking-resistant granular products are disclosed comprising from about 10% to about 87% by weight of the disodium salt of nitrilotriacetic acid and from about 1.5% to about 30% by weight of a soluble sodium salt of a second acid; the product having a bulky density of from 0.4 g./cc. to about 0.8 g./cc. and having greater than 50% of its particles larger than the openings in a U.S. Standard 80 mesh screen and smaller than the openings in a U.S. Standard 4 mesh screen and having a pH in a 1% aqueous solution of above about 6. A process is also disclosed for producing the foregoing products comprising (1) forming a reaction mixture comprising (a) a water dispersible acidic material, (b) trisodium nitrilotriacetate and (c) from about 5% to about 25% by weight of water based upon the weight of the total reaction medium, said reaction medium having from about 10% to about 100% of a molar equivalent amount of acidic material based upon the amount of trisodium nitrilotriacetate present in said reaction medium, (2) agglomerating the resulting mixture and (3) drying the resulting mixture to obtain the foregoing detergent additives. Typical water dispersible acidic materials include the fatty acids, alkyl sulfonic acids, alkyl aryl sulfonic acids, amino acids, organo-phosphoric acids, water-soluble inorganic acids and the acid salts of the foregoing acids. Detergent compositions containing the foregoing detergent additive are also disclosed.

3,546,124
CLEANSING SOLUTIONS
Joseph Fleischer, 210 Yale Ave., New Haven, Conn. 06515
No Drawing. Continuation of application Ser. No. 504,138, Oct. 23, 1965. This application Nov. 18, 1968, Ser. No. 778,009
Int. Cl. C11d *7/32, 7/50;* C23g *5/02*
U.S. Cl. 252—153 7 Claims

Improved cleansing solutions, and method of use, for the rapid and effective residue-free removal of contaminants from glass, metal or other surfaces. The solution is formed by dissolving three types of volatile organic compounds in water: (1) a lower aliphatic or halosubstituted aliphatic acid, (2) an amine in substantially equivalent molar proportions, preferably in excess, with respect to the acid, and (3) a water-soluble oxygen-containing neutral solvent, e.g. an alcohol, ether, ether-alcohol, ketone or mixture thereof. All the organic ingredients should have normal boiling points between about 50° C. and 150° C. for use of the cleaner at ordinary temperatures, and up to about 275° C. for use at higher temperatures.

3,546,125
STABILIZATION OF 1,1,1-TRICHLOROETHANE
Wesley L. Archer, Midland, and Elbert L. Simpson, Auburn, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,120
Int. Cl. C09d *9/00;* C11d *7/50;* C23g *5/02*
U.S. Cl. 252—171 5 Claims

The reaction of 1,1,1-trichloroethane with aluminum is inhibited by the presence in the 1,1,1-trichloroethane of a small amount of a dissolved aromatic diamine of which at least one amine group is a tertiary amine. Concentrations of the order of 0.005–1 gram mole per liter provide significant inhibition.

3,546,126
REAGENT FOR USE IN LITHOGRAPHY COMPRISING AN ALKALI AND A TERMINAL ETHYNYL COMPOUND
Otto Bruno Wendt, Mount Prospect, Ill., assignor to American Photocopy Equipment Company, Evanston, Ill., a corporation of Illinois
No Drawing. Original application Aug. 29, 1966, Ser. No. 575,564, now Patent No. 3,454,398, dated July 8, 1969. Divided and this application Sept. 25, 1968, Ser. No. 801,881
Int. Cl. C09k *3/00*
U.S. Cl. 252—182 3 Claims

A reagent for use in the production of lithographic plates from silver halide photographic emulsion, said reagent comprising an alkali and a terminal ethynyl compound.

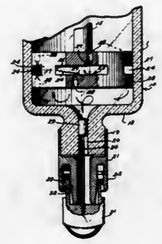
3,546,127
FLUORESCENT PENETRANT FOR AND METHOD OF DETECTING SURFACE DISCONTINUITIES
Adolf Miot-Fijalkowski, Elmwood Park, Ill., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Nov. 24, 1967, Ser. No. 685,252
Int. Cl. C09k *1/00*
U.S. Cl. 252—301.2 1 Claim

A colored fluorescent liquid penetrant for and method of detecting surface discontinuities in test pieces in which the penetrant is oil-based and contains a sufficient proportion of aromatic hydrocarbon solvents and/or other good solvents to dissolve a high content of the principal dye that is used in the penetrant. The principal dye is an isomer of a styryl-substituted naphthoxazole, the substitution being in the beta position of the styryl radical. This particular dye has exceptional fluorescent brightness, especially when combined with solvents that have a yellowing effect and with yellow dyes capable of cascading therewith, and exceptional stability toward untraviolet radiations and heat.

3,546,128
LANTHANUM AND GADOLINIUM OXYBROMIDE LUMINESCENT MATERIALS ACTIVATED WITH ERBIUM
Jacob G. Rabatin, Chardon, Ohio, assignor to General Electric Company, a corporation of New York
Filed Oct. 23, 1968, Ser. No. 769,860
Int. Cl. C09k *1/08*
U.S. Cl. 252—301.4 5 Claims

Lanthanum and gadolinium oxybromides activated with erbium are found to be bright blue-green phosphors useful in X-ray image convertors, in lamps and in cathode ray tubes.

3,546,129
APPARATUS FOR MAKING EMULSIONS
Robert H. Berg and Carl Arthur Youngdahl, Elmhurst, and Lynn E. Ellison, Crystal Lake, Ill., assignors, by mesne assignments, to Roberta V. Berg, Elmhurst, Ill.
Continuation of application Ser. No. 170,749, Feb. 2, 1962. This application Mar. 11, 1968, Ser. No. 712,305
Int. Cl. B01f *3/08, 5/08;* A61m *5/00*
U.S. Cl. 252—359 10 Claims



Apparatus for emulsifying in which the emulsifiable mixture is forced through an emulsifying head with opposite end faces, at least one slot in the head providing opposed spaced surfaces, an emulsifying orifice in one of the surfaces leading from one of the end faces and directed toward the other of the surfaces, and an opening from the slot through the other of the faces of the head. Means are provided for effecting movement of the emulsifiable mixture under pressure through the orifice. In a syringe the head is on a stem reciprocable through the usual reciprocable plunger in one end of the barrel. Either two-way or one-way check valved emulsifying action of the head in the barrel may be provided for. Multipass emulsification is effected through a plurality of emulsifying heads in another form.

3,546,130
FLAW DETECTION METHOD USING A STRIPPABLE ACRYLIC RESIN AEROSOL FIXER
Christie S. Magdalin, Des Plaines, Ill., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed June 12, 1967, Ser. No. 645,504
Int. Cl. G01n *21/16, 33/32*
U.S. Cl. 252—408 4 Claims

A pressurized aerosol type of non-flammable liquid composition for use in fixing an already developed color indication on the surface of a workpiece that has been treated with a colored liquid penetrant for the detection of surface discontinuities. The fixer compositon is a solution in a common solvent of an acrylic type of film-forming resin, which is not readily strippable, and a liquid release agent, such as modified phthalic glycerol alkyd resins, petroleum lubricating oils and long chain fatty oils and fatty acids. The release agent, while miscible with the film-forming resin in the common non-flammable solvent, tends to become immiscible as the solvent evaporates and to form an oil surface on the underside of the film as it dries out on the surface undergoing test, thereby imparting to the dried film the property of being easily stripped.

3,546,131
STABILIZED CYANMETHEMOGLOBIN REAGENT CONTAINING FERRICYANIDE, CYANIDE AND POLYVINYLPYRROLIDONE
Harold Stern, West Orange, N.J., and John E. Reardon, Los Angeles, Calif., assignors to Uni-Tech Chemical Manufacturing Company, Sun Valley, Calif., a corporation of California
No Drawing. Filed July 5, 1968, Ser. No. 747,762
Int. Cl. C08h *17/58;* G01n *33/16*
U.S. Cl. 252—408 9 Claims

A dry formulated reagent containing ferricyanide and cyanide for use in the photometric determination of hemoglobin in human and animal blood comprising a water soluble macromolecular desiccant, such as polyvinylpyrrolidone, to enhance markedly its resistance to light, heat and cold, and aging.

3,546,132
STEAM-OXYGEN REGENERATION OF SILICA-GROUP III-A—GROUP IV-B CATALYSTS
James B. Godin, Borger, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 27, 1967, Ser. No. 685,781
Int. Cl. B01j *11/04, 11/68*
U.S. Cl. 252—419 6 Claims

Catalyst beds of silica promoted by incorporation of oxides of a metal of Group III-A or IV-B of the Periodic Table are regenerated by the steps of (1) heating and flushing the bed with an inert material to remove the more volatile components therefrom; (2) passing a mixture of steam and air through the bed to effect oxidative stripping of contaminants from the bed; (3) burning the residue of contaminants in the bed; and (4) removing free oxygen and water from the bed.

3,546,133
POLYMERIZATION CATALYST CONTAINING ALKYL ALUMINUM DIHALIDE

Karl Ziegler, Kaiser-Wilhelm-Platz 1, Mulheim (Ruhr), Germany, and Heinz Breil, Heinz Martin and Erhard Holzkamp, Mulheim (Ruhr), Germany; said Breil, said Martin, and said Holzkamp assignors to said Ziegler

Continuation-in-part of applications Ser. No. 482,412, Jan. 17, 1955, and Ser. No. 770,484, Oct. 29, 1958. This application Mar. 4, 1968, Ser. No. 710,304
Claims priority, application Germany, Jan. 19, 1954, Z 3,941; Aug. 3, 1954, Z 4,348; Aug. 16, 1954, Z 4,375; Dec. 11, 1954, Z 4,603; Dec. 13, 1954, Z 4,604
Int. Cl. C08d *1/14*
U.S. Cl. 252—429 14 Claims

Polymerization catalysts for polymerizing olefins such as ethylene and its homologs comprising the product formed by mixing a heavy metal compound with an alkyl aluminum dihalide. The heavy metal compound is a compound of a metal of Groups IV–B, V–B, VI–B or VIII of the Periodic System or manganese, such as the salts, freshly precipitated oxide or hydroxide. The alkyl aluminum dihalide may be an admixture with a monohalide such as in the form of a sesquihalide.

3,546,134
CATALYST SYSTEM COMPRISING AN ORGANO-ALUMINUM, A METAL SALT OF A BETA-DIKETONE AND WATER

Clinton F. Wofford, William R. Busler, and Henry L. Hsieh, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Original application June 7, 1965, Ser. No. 462,113, now Patent No. 3,396,125, dated Aug. 6, 1968. Divided and this application May 8, 1968, Ser. No. 727,707
Int. Cl. C08g *23/06*
U.S. Cl. 252—431 7 Claims

A polymerization catalyst comprising (a) an organo-aluminum compound, (b) a metal salt of a beta-diketone, and (c) water.

3,546,135
OXIDATION CATALYST CONTAINING MOLYBDENUM OXIDE, TELLURIUM OXIDE AND A COPPER PHOSPHATE

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Original application Jan. 21, 1966, Ser. No. 522,032, now Patent No. 3,493,608. Divided and this application Aug. 9, 1968, Ser. No. 763,472
The portion of the term of the patent subsequent to June 24, 1986, has been disclaimed
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 4 Claims

Useful oxidation catalysts for preparing unsaturated aldehydes and unsaturated carboxylic acids by oxidation of unsaturated hydrocarbons at an elevated temperature comprise molybdenum oxide, tellurium oxide and a copper phosphate.

3,546,136
CATALYST AND METHOD OF PREPARING UNSATURATED ACIDS AND ALDEHYDES

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Original application Aug. 30, 1965, Ser. No. 483,867, now Patent No. 3,456,003, dated July 15, 1969. Divided and this application Jan. 21, 1969, Ser. No. 822,759
Int. Cl. B01j *11/82*
U.S. Cl. 252—437 6 Claims

Catalyst for the oxidation of olefins to unsaturated aldehydes and carboxylic acids which consists essentially of molybdenum oxide, tellurium oxide and zinc or cadmium phosphate.

3,546,137
HYDROCARBON CONVERSION CATALYST AND PROCESS FOR MAKING SAME

Elroy M. Gladrow and Warren M. Smith, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 570,441, Aug. 5, 1966. This application Apr. 18, 1969, Ser. No. 817,579
Int. Cl. B01j *11/40;* C01b *33/28*
U.S. Cl. 252—455 8 Claims

An improved process for preparing hydrocarbon conversion catalyst comprising synthetic crystalline aluminosilicate zeolites distributed throughout a siliceous matrix. The hydrocarbon conversion catalyst is prepared with a minimum of process steps such as filtration and exhibits catalytic properties which are easily reproduced. The improved results are associated with an added step to a conventional process comprising contacting a previously exchanged zeolite with a volatile ammonium compound.

3,546,138
PROMOTED ANTIMONY-IRON OXIDATION CATALYST

James L. Callahan, Bedford Heights, Robert K. Grasselli, Warrensville Heights, and Warren R. Knipple, Bedford, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 507,715, Nov. 15, 1965, now abandoned, which is a continuation-in-part of application Ser. No. 311,630, Sept. 26, 1963, now abandoned. This application June 5, 1968, Ser. No. 734,527
Int. Cl. B01j *11/06*
U.S. Cl. 252—456 4 Claims

Catalysts are provided which are useful in the oxidation of olefins to aldehydes and conjugated dienes and in the ammoxidation of olefins to nitriles, and which are composed of antimony oxide, iron oxide and oxides of certain promoter elements on a silica carrier.

3,546,139
MOLYBDENUM, NIOBIUM, TANTALUM, ARSENIC IN CATALYSTS FOR VAPOR PHASE PRODUCTION OF ALPHA,BETA-UNSATURATED ACIDS

Howard S. Young, Kingsport, George C. Anderson, Johnson City, and Edgar L. McDaniel, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Continuation of application Ser. No. 653,340, July 14, 1967, which is a continuation-in-part of abandoned application Ser. No. 482,263, Aug. 24, 1965. This application Nov. 3, 1969, Ser. No. 873,668
Int. Cl. B01j *11/06, 11/32*
U.S. Cl. 252—456 12 Claims

A novel catalyst for the oxidative conversion of propylene to acrylic acid by contacting a mixture of vaporized propylene and oxygen at a temperature from about 300° C. to about 500° C. therewith, comprising oxidized molybdenum, arsenic and at least one of oxidized niobium and oxidized tantalum. The acrylic acid may be subsequently converted to lower alkyl esters for use in preparing polymers for the plastics industry.

3,546,140
LOW TEMPERATURE SHIFT REACTIONS

William R. Gutmann, Louisville, and Raymond E. Johnson, Anchorage, Ky., assignors to Catalysts & Chemicals Inc., Louisville, Ky., a corporation of Delaware

No Drawing. Filed Sept. 14, 1967, Ser. No. 667,667
Int. Cl. B01j *11/06*
U.S. Cl. 252—466 8 Claims

Copper-zinc oxide catalysts permit the water gas shift reaction to be conducted at temperatures below 500° F. The catalyst precursor is known to be sensitive to steam during reduction. Precursors are provided herein which can be reduced with steam present without loss of activity.

3,546,141
PHOSPHORUS-NITROGEN POLYMERS AND PROCESS

Robert M. Washburn, Whittier, and Dennis W. Karle, Los Angeles, Calif., assignors, by mesne assignments, to McDonnell Douglas Corporation, Santa Monica, Calif., a corporation of Maryland

No Drawing. Filed Aug. 8, 1966, Ser. No. 570,774
Int. Cl. C08g *25/00, 33/16*
U.S. Cl. 260—2 19 Claims

A novel phosphorous-nitrogen polymers derived from (A) a dialkylamino phosphorus amide or thiophosphorus amide, e.g., bis-dimethylaminophenylphosphine oxide or hexamethylphosphoroamide, and (B) an aryl- or alkyl-polyamine, e.g., p-phenylenediamine, ethylenediamine, 1,3,5-triaminobenzene, and characterized by their thermal, hydrolytic and oxidative stability. A mixture of compound (A) and compound (B) in a molar ratio of at least 1 to 1 respectively are heated, e.g., at substantially reflux temperature, until gelling or solidification of the mixture occurs. Polymer products obtained, for example, can be used to impregnate fibrous material, e.g., fiber glass, to form laminates.

3,546,142
POLYELECTROLYTE STRUCTURES

Alan S. Michaels, Lexington, and Richard G. Mlekka, East Natick, Mass., assignors to Amicon Corporation, Cambridge, Mass., a corporation of Massachusetts

Continuation-in-part of application Ser. No. 341,834, Jan. 24, 1964, which is a continuation-in-part of application Ser. No. 147,320, Oct. 24, 1961. This application Jan. 19, 1967, Ser. No. 610,266
Int. Cl. C08f *27/06*
U.S. Cl. 260—2.1 21 Claims

Dissolving a polycation polymer and a polyanion polymer in a mixture of water and electrolyte and optionally a water-miscible organic solvent, forming the solution into the desired shape, and reducing the activity of the electrolyte until a gel forms. The activity of the solution is reduced by dilution or cooling or removing electrolyte or evaporating solvent. The electrolyte may be volatile and removed by evaporation, or it may be acidic or basic, and its activity may be reduced by neutralization. The shaped articles are useful as ion sorbing resins, selectively permeable and semi-permeable membranes, protective coatings, artificial biological tissues, microporous sponges and filters, semi-conductor elements, and humidity sensitive conductive elements.

3,546,143
PRODUCTION OF A FOAMED PRODUCT FROM A BLEND OF THERMOPLASTIC POLYMER AND CELLULOSE FIBERS

Herbert O. Corbett, Bridgeport, Conn., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Oct. 31, 1966, Ser. No. 590,539
Int. Cl. C08f *47/10;* C08j *1/18*
U.S. Cl. 260—2.5 5 Claims

A mixture of a finely divided resin powder and a cellulose fiber filler having a moisture content of 2–15% is extruded at elevated temperatures and pressures to produce a foamed composite product in which at least 90% of the surface of the filler is coated with resin.

3,546,144
CELLULAR POLYSULFONE RESINS AND METHOD OF MANUFACTURE

Jean Chatelain, Massy-Palaiseau, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Mar. 14, 1966, Ser. No. 533,784
Claims priority, application France, Mar. 15, 1965, 9,242
Int. Cl. C08f *13/06, 47/10*
U.S. Cl. 260—2.5 16 Claims

Polysulfone resins being copolymers of sulfur dioxide and at least one unsaturated hydrocarbon having at least three C atoms selected from the group consisting of aliphatic and aromtaic hydrocarbons, in the form of pearls of 0.5 to 2 mm. size having low hygroscopicity, thermally expansible and containing 5 to 10% of a volatile agent selected from the group consisting of unsaturated aliphatic, saturated aliphatic and cycloaliphatic hydrocarbons, are made by a method which comprises copolymerizing SO_2 and an unsaturated hydrocarbon having at least three C atoms selected from the group consisting of aliphatic and aromatic hydrocarbons, in aqueous suspension which includes a catalyst for the reaction which is soluble in the organic compound and a water soluble stabilizing colloid, and incorporating in the polysulfone during the process of its formation, a blowing agent from the class of unsaturated aliphatic, saturated aliphatic and cycloaliphatic hydrocarbons which are soluble in the polysulfone.

3,546,145
POLYURETHANE FOAMS PREPARED FROM MIXTURES OF POLYETHER POLYOLS

Camille Granger, Lavera, Gerard Repiquet, Martigues, Michel Buisson, Lavera, and Jean Dausque, Boulogne, France, assignors to Naphtachimie, Paris, France

No Drawing. Filed May 12, 1967, Ser. No. 637,939
Claims priority, application France, May 26, 1966, 63,065
Int. Cl. C08g *22/46*
U.S. Cl. 260—2.5 6 Claims

The preparation of a foamed polyurethane by reaction of an organic polyisocyanate and a mixture of (1) polyetherpolyols having an equivalent molecular weight of 300 to 2000 per terminal hydroxyl group and formed by the reaction of ethylene oxide, 1,2-propylene oxide and/or 1,2-butylene oxide and a polyol with ethylene oxide constituting 20–60% of the oxide component and (2) a polyether-polyol having an equivalent molecular weight between 300 and 2000 per terminal hydroxyl group and formed by the reaction of 1,2-propylene oxide and a polyol, with 10–75% by weight of the mixtures of (1) and (2) having groups derived from ethylene oxide and foaming the mixture of polyisocyanate and the polyether-polyols.

3,546,146
FILMS OF IMPROVED UNIFORMITY AND PROCESSES AND COMPOSITIONS THEREFOR

Max Sockloff, Coral Gables, Fla., and William Singer, Teaneck, N.J., assignors to Troy Chemical Corporation, Newark, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 471,439, July 12, 1965. This application May 5, 1969, Ser. No. 822,016
Int. Cl. C08f *45/34;* C08g *51/34*
U.S. Cl. 260—17 18 Claims

Films of improved uniformity, compositions for applying said films to surfaces from non-aqueous systems and processes for producing said films, said compositions being nonaqueous and comprising driable polymeric organic

compositions containing a small but effective amount and not more than 0.5% by weight of a polyvinyl ether characterized by having repeating units of the formula

wherein R is a branched hydrocarbon chain; and said polyvinyl ether has a molecular weight of not less than 30,000, processes for applying such nonaqueous compositions and films produced thereby and therefrom.

3,546,147

BINDERS FOR THE PRODUCTION OF PROCESSED WOOD MATERIALS COMPRISING CYCLIC ACETALS

Bruno Sander, Ludwigshafen (Rhine), Friedrich Becke, Heidelberg, Helmuth Hagen, Ludwigshafen (Rhine), Ernst-Heinrich Pommer, Limburgerhof, Pfalz, and Otto Wittmann, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,061
Claims priority, application Germany, Jan. 24, 1967, B 90,864
Int. Cl. C08g *37/08, 37/24*
U.S. Cl. 260—17.2 **5 Claims**

Binders for the production of processed wood materials and based on mixtures of wood adhesives, wood preservatives and organic solvents which additionally contain a cyclic acetal of an aliphatic diol having five to eight ring members; and processed wood materials prepared therewith.

3,546,148

POLYURETHANE COMPOSITION AND SURFACING

James H. Diamond, St. Paul, and George E. Noponen, Birchwood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Oct. 17, 1966, Ser. No. 586,958
Int. Cl. C08g *22/08*
U.S. Cl. 260—18 **4 Claims**

Hard cured in situ polyurethane flooring formed by a reaction of polyisocyanate and polyol, containing at least 10% by weight polyalkyleneether polyol and at least 5% by weight of urethane grade castor oil or a castor oil polyol having an average of more than 4 hydroxy groups per molecule, the reaction mixture being substantially 100% solids, the polyol component being incompatible with water to the extent that addition thereto of less than 15% by weight water at 25° C. causes a distinct increase in turbidity, the surface having a room temperature Shore D hardness between about 30 and 90, the reaction mixture being curable into a noncellular solid even under conditions greater than about 40% relative humidity.

3,546,149

METHOD OF RECLAIMING THE BASE OF PHOTOGRAPHIC FILM

Josef Fabian, Prague, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Prague, Czechoslovakia

No Drawing. Continuation-in-part of application Ser. No. 677,869, Oct. 25, 1967. This application June 7, 1968, Ser. No. 735,187
Claims priority, application Czechoslovakia, Nov. 3, 1966, 6,980/66; Mar. 31, 1967, 2,328/67
Int. Cl. C08g *53/22*
U.S. Cl. 260—2.3 **7 Claims**

The gelatin layer of photographic film is stripped from the plastic base by immersing the film in a very dilute aqueous solution of potassium carbonate, hypochlorite, and alcohol, the chlorine is reduced in a dilute sodium sulfite bath, loosely adhering remnants of the gelatin layer and residual inorganic chemicals are rinsed off with water, and the stripped film base is dried, preferably after dipping in a water-miscible volatile organic solvent. It is then clean and ready for reuse, for example, in lacquers. The method can be performed in continuous operation.

3,546,150

POLYMER ADDITIVES COATED WITH WAX AND HYDROXYL-CONTAINING FATTY MATERIALS, PROCESSES THEREFOR, AND POLYMER COMPOSITIONS CONTAINING SAME

Edward L. White, Freehold, N.J., and Adrian R. Pitrot, Uniondale, N.Y., assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 4, 1966, Ser. No. 591,964
Int. Cl. C08j *1/48;* **C08c** *11/28*
U.S. Cl. 260—28.5 **23 Claims**

Coated particulate additives for polymers (for instance, vinyl chloride polymers) including a solid substrate (for instance, dehydrated tribasic lead sulfate, titanium dioxide, or antimony oxide, and the like) having a coating of a wax (for instance, paraffin wax) and 5% or more of a hydroxyl containing fatty material (for instance, a fatty alcohol such as stearyl or lauryl alcohol), the process for applying said coatings, and the polymer compositions containing the coated particulate additives.

3,546,151

WATER REPELLENT CORROSION INHIBITING COMPOSITION

Hayward R. Baker, Silver Spring, Md., and Robert N. Bolster, Fairfax County, Va., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed June 10, 1968, Ser. No. 735,550
Int. Cl. C08f *45/52*
U.S. Cl. 260—28.5 **4 Claims**

Liquid compositions which are solutions in a volatile aliphatic hydrocarbon solvent of from about 35 to 40% by weight of n-butanol and a small proportion each of mixed isomers of a long chain alkylamine salt of a C_8 to C_{22} alkyl or alkenyl succinic acid long chain alkylmonoamide, paraffin wax, an ethylene-vinylacetate copolymer having a vinylacetate component of from about 25 to 33% by weight, and, optionally, an antioxidant. The liquid compositions are useful for displacing water from and providing a dry, water repellent, corrosion-inhibiting coating on electrical insulator mountings, particularly when they are in direct association with steel parts.

3,546,152

PROCESS FOR REDUCING VISCOSITY OF POLYTRIMELLITAMIDE-IMIDE SOLUTION

Benjamin A. Bolton, Chester, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Filed Aug. 6, 1968, Ser. No. 750,661
Int. Cl. C08g *51/24*
U.S. Cl. 260—29.2 **8 Claims**

A process for reducing the viscosity of an aromatic polytrimellitamide-imide polymer solution, thus increasing the storage stability of the polytrimellitamide-imide solution and providing smooth coatings from solutions and reducing the volatile contents in a resin-fiberglass laminate. The polytrimellitamide-imide solutions are useful for producing wire enamel coatings and fiberglass laminates.

3,546,153

STABILIZED ALKALI SOLUBLE RESINS

Herbert J. Mellan, Buffalo, and Joseph A. Pawlak, Town of Cheektowaga, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Continuation-in-part of applications Ser. No. 357,820, Apr. 6, 1964, and Ser. No. 652,678, July 12, 1967. This application July 9, 1968, Ser. No. 743,321
Int. Cl. C08g *51/24*
U.S. Cl. 260—29.3 **8 Claims**

A discoloration resistant thermoplastic alkali soluble resin selected from the group consisting of (a) an esterified hydroxyalkylated phenol-aldehyde novolac containing less than about 0.5 percent of the phenolic hydroxyls unreacted, (b) polyester resin having chemically combined terpene therein, (c) shellac, and (d) mixtures thereof, containing as a discoloration inhibitor between about 0.5 percent and about 4.5 percent by weight of a sulfur-containing compound selected from the group consisting of a compound of the formula RSH wherein R is selected from the group consisting of alkyl, aryl and alkylaryl and an alkali metal salt wherein the anion is selected from the group consisting of sulfite, bisulfite and hydrosulfite.

3,546,154

EMULSION POLYMERIZATION OF VINYL COMPOUNDS

Jesse C. H. Hwa, Stamford, Conn., Paul Kraft, Yonkers, N.Y., and Sheldon F. Gelman, Danbury, Conn., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 27, 1966, Ser. No. 582,260
Int. Cl. C08f *1/13, 3/30, 15/30*
U.S. Cl. 260—29.6 **11 Claims**

A process of polymerizing vinyl monomers or mixture of monomers in an aqueous medium as described herein. The polymerization of the vinyl monomer is carried out initially in the presence of a short chain surfactant which is added either in increments or continuously therein. The short chain surfactant is an ammonium or alkaline metal salt of an alkanoate or an alkyl sulfate or sulfonate containing between 5 and 9 carbon atoms. After the monomers have been polymerized to a predetermined amount, a second surfactant is added incrementally to the reaction system which surfactant is an ammonium or alkyl metal salt of an alkyl or alkalene sulfate or sulfonate containing at least 10 carbon atoms.

3,546,155

CATHODIC PROTECTIVE COATINGS OF METAL POWDER AND TITANATE ESTER-ORTHOSILICATE POLYMER BASED VEHICLE

John W. Chandler, Westfalls, N.Y., assignor, by mesne assignments, to Hempel's Marine Paints, Inc., New York, N.Y., a corporation of New York

No Drawing. Original application May 12, 1967, Ser. No. 637,930, now Patent No. 3,442,824, dated May 6, 1969. Divided and this application Sept. 6, 1968, Ser. No. 778,893
Int. Cl. C09d *3/82, 3/84, 5/10*
U.S. Cl. 260—37 **9 Claims**

This invention relates to polymeric compositions formed by the interaction of a tetraalkyl titanate ester with low molecular weight polymers resulting from the partial hydrolysis of tetraethyl orthosilicate in acid solutions. These polymer compositions are particularly adapted for use as liquid vehicles to which powdered metal may be added to form protective compositions for application to ferrous surfaces.

3,546,156

ORGANOSILICON RESINS CONTAINING VINYL GROUPS

Jean Baronnier and Jean Boissieras, Lyon, France, assignors to Rhone-Poulenc, Paris, France, a French body corporate

No Drawing. Filed Nov. 20, 1968, Ser. No. 777,457
Claims priority, application France, Nov. 21, 1967, 129,062
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 **6 Claims**

The invention provides novel, liquid, storage-stable organosilicon resins consisting of units of formulae: $C_6H_5SiO_{1.5}(CH_3)_3SiO_{0.5}$, $(C_6H_5)_2SiO$,

$$(CH_3)(CH_2{:}CH)SiO$$

and $(CH_3)_2SiO$ in specified proportions which are curable with organic peroxides.

3,546,157

FILLED PHENOLIC RESIN COMPOSITIONS CONTAINING A MINOR AMOUNT OF A POLYOLEFIN

Robert S. Mercer, Newark, Del., assignor to Haveg Industries, Inc., Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,231
Int. Cl. C08k *1/78*
U.S. Cl. 260—38 **12 Claims**

The addition of a small amount of a mono-olefin polymer to a filled phenol-aldehyde resin composition reduces the cracking of the product and improves the chemical resistance.

3,546,158

FLOORING COMPOSITION

William C. Champion, Jr., Flemington, and Elliott Farber, Trenton, N.J., assignors to Tenneco Chemicals, Inc., a corporation of Delaware

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,313
Int. Cl. C08k *1/14*
U.S. Cl. 260—41 **7 Claims**

A flooring composition that is characterized by excellent processing characteristics, good heat stability and other valuable properties comprises (a) a terpolymer prepared from a monomer mixture containing from 65% to 95% by weight of vinyl chloride, from 4% to 25% by weight of a vinyl ester of a lower alkanoic acid, and from 1% to 10% by weight of an α-olefin having 10 to 22 carbon atoms and (b) 50%–80%, based on the weight of the composition, of a fibrous filler and/or a non-fibrous filler.

3,546,159

METHOD FOR THE REDUCTION OF PHOTOCHEMICAL DEGRADATION IN POLYMERIC MATERIALS

Albert Thomas Betts, Waltham Abbey, and Norbert Uri, Southgate, England, assignors to National Research Development Corporation, London, England

No Drawing. Filed July 12, 1967, Ser. No. 652,698
Claims priority, application Great Britain, July 12, 1966, 31,155/66
Int. Cl. C08g *51/56*
U.S. Cl. 260—45.7 **7 Claims**

Polar polymers, particularly polyamides, are given improved photochemical stability by the incorporation

therein of a small proportion of a soluble alkali metal fluoride.

3,546,160

SELF-EXTINGUISHING STYRENE/ACRYLONITRILE-COPOLYMERS

Franz-Josef Dany, Hurth, near Cologne, Joachim Kandler, Lechenich, Klaus Frank, Hermulheim, near Cologne, and Hans Welden, Rodenkirchen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed May 31, 1968, Ser. No. 733,308

Claims priority, application Germany, June 6, 1967, K 62,479

Int. Cl. C08f *45/56*

U.S. Cl. 260—45.7 **1 Claim**

Self-extinguishing styrene/acrylonitrile-copolymers obtained by polymerizing the corresponding monomeric compounds in aqueous emulsion with the resultant formation of a latex, precipitating the copolymer from the latex, isolating and drying the copolymer, which comprises stirring into the latex pulverulent red phosphorus as a flame-retarding agent and isolating later from the latex a mixture consisting of the copolymer and red phosphorus.

3,546,161

POLYOLEFINS WITH IMPROVED LIGHT STABILITY

Joseph B. Wolheim, Brooklyn, N.Y., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,310

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 **5 Claims**

A polyolefin resin such as polyethylene or polypropylene containing as stablizers small amounts of both a benzophenone, a phenyl salicylate, or a resorcinol monobenzoate compound and an alkyl amine. The stabilized resins are light stable and color stable for prolonged periods.

3,546,162

ORTHO-ESTER STABILIZED POLYVINYLCHLORIDE RESINS

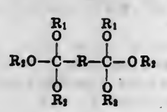
Louis L. Wood, Potomac, Md., assignor to W. R. Grace & Co., Clarksville, Md., a corporation of Connecticut

No Drawing. Continuation-in-part of application Ser. No. 750,688, May 22, 1968, which is a division of application Ser. No. 612,066, Dec. 12, 1966, which in turn is a continuation-in-part of application Ser. No. 499,093, Oct. 20, 1965, which also in turn is a continuation-in-part of application Ser. No. 403,353, Oct. 12, 1964. This application Dec. 19, 1969, Ser. No. 886,745

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.85 **5 Claims**

Polyvinylchloride resins are thermally stabilized by the addition of an ortho ester having the formula



wherein R is alkylene and R_1, R_2 and R_3 are selected from the group consisting of alkyl, phenyl, phenylalkyl and alkylphenylalkyl. The resin may be further stabilized by the addition of a polyhydric alcohol in a concentration of from 1 percent to 10 percent.

3,546,163

POLYMERS CONTAINING SULPHUR-CONTAINING ANTIOXIDANTS

Hans Jakob Peterli, Fullinsdorf, Basel-Land, and Hansjörg Heller, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

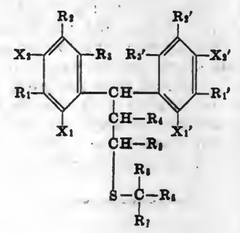
No Drawing. Original application Feb. 3, 1967, Ser. No. 613,730. Divided and this application Mar. 6, 1969, Ser. No. 822,344

Claims priority, application Switzerland, Feb. 8, 1966, 1,759/66

Int. Cl. C08f *45/58*

U.S. Cl. 260—45.95 **5 Claims**

Diphenylalkylmercaptans of the formula



wherein

one of X_1 and X_2 and one of X_1' and X_2' represents the hydroxyl group and the other represents hydrogen,

R_1 and R_1' each represent an alkyl group having, in all, 3 to 20 carbon atoms in a chain which is branched at the α-carbon atom, which alkyl group can contain a phenyl radical which may be substituted, or they each represent a cycloalkyl group having 5 to 20 carbon atoms and a 5 to 12 membered ring;

R_2 and R_2' each represent hydrogen, a lower straight chain alkyl group, an optionally substituted phenyl group or the same as R_1;

R_3 and R_3' and also R_4 and R_5 each represent hydrogen or a lower alkyl group;

R_6 represents hydrogen, an alkyl group having 1 to 19 carbon atoms, or an oxa-alkyl or thia-alkyl group having 2–19 carbon atoms;

R_7 represents hydrogen or the methyl group; and

R_8 represents hydrogen or the methyl group and, in addition, when R_7 is hydrogen, it also represents an alkyl group having 2 to 6 carbon atoms,

which compounds are useful as antioxidants, especially for the protection of oxidation-sensitive organic materials such as polyolefins, as well as such materials protected therewith and the use of such compounds for such protection.

3,546,164

POLYESTER RESINS STABILIZED WITH SULFONES

Mary J. Stewart, Riddlewood, Media, and Otto K. Carlson, Marcus Hook, Pa., assignors to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Apr. 19, 1968, Ser. No. 722,542

Int. Cl. C08g

U.S. Cl. 260—45.95 **10 Claims**

A thermal stabilized polyester comprising a highly polymeric linear polyester and a compound selected from those represented by the formula



wherein R_1 and R_2 are radicals selected from the group consisting of alkyl containing from 1 to 10 carbon atoms,

phenyl and chlorine, hydroxyl or lower alkyl para substituted phenyl.

3,546,165

SOLUBLE HIGH-MELTING, THERMALLY STABLE LINEAR POLYESTERS

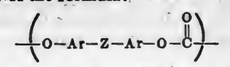
Paul Winthrop Morgan, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Feb. 1, 1966, Ser. No. 523,927

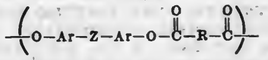
Int. Cl. C08g *17/05, 17/08, 33/10*

U.S. Cl. 260—47 **4 Claims**

The application discloses certain gem-bisphenols and soluble, high-melting, thermally stable, linear film- and fiber-forming polycarbonate polymers and polyester polymers prepared from gem-bisphenols whose phenylene rings are connected to bulky planar fused ring bridging radicals and to shaped articles prepared from these polymers. At least 80% of the repeating units of the polycarbonates are of the formula:



while at least 80% of the repeating units of the polyesters are of the formula:



wherein Ar represents a p-phenylene radical; Z represents a gem-bivalent radical having from 1 to 2 aromatic hydrocarbon rings, and the halo-, phenyl, and lower alkyl derivatives thereof, each of which is fused to a gem-bivalent carbon-containing non-aromatic ring of 5 to 6 carbon atoms that may be lower alkyl substituted, with the proviso that one of the carbon atoms in said non-aromatic ring may be replaced by oxygen or may bear an oxo radical; R represents a divalent organic radical containing from 4 to 15 carbon atoms and which may also contain from 1 to 4 atoms selected from the group of halogen, oxygen and sulfur, or mixtures of these radicals.

3,546,166

THERMOSTABLE NITROGEN-CONTAINING RESINS CONTAINING AMIDE FUNCTIONS AND BENZIMIDAZOLE RINGS

Guy Rabilloud, Bernard Sillion, and Gabriel de Gaudemaris, Grenoble, France, assignors to Institut Francais du Petrole des Carburants et Lubrifiants, Rueil-Malmaison,, Hauts-de-Seine, France

No Drawing. Filed July 7, 1967, Ser. No. 651,670

Claims priority, application France, July 7, 1966, 68,652

Int. Cl. C08g *20/00*

U.S. Cl. 260—47 **15 Claims**

Thermostable nitrogen-containing resins are prepared by reacting a diester of an aromatic diacid, a triester of an aromatic triacid, an aromatic diamine and an aromatic tetraamine to give polymers containing amide functions and benzimidazole groups. The resultant three-dimensional polymers are thermally stable and can be used as adhesives or as binding agents for laminates.

3,546,167

POLYXANTHONES

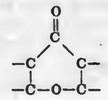
Roland Darms, Fairfax, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 1, 1967, Ser. No. 679,643

Int. Cl. C08g *15/00, 17/04*

U.S. Cl. 260—47 **7 Claims**

Polyxanthones, new polymers having at least one



ring in each repeating unit prepared by ring closure of certain polyketones, and useful in high temperature applications and as electrical insulation.

3,546,168

POLYESTERS OF POLYARYL DIOLS

Michael George Allen, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 572,895, Aug. 17, 1966. This application Sept. 11, 1969, Ser. No. 857,240

Int. Cl. C08g *17/08*

U.S. Cl. 260—47 **7 Claims**

Polyesters of aliphatic and aromatic diacids with polyaryl diols containing at least 8 phenyl rings in tetraphenyl methan configuration, said polyesters being characterized by useful solubility in organic solvents and good stability at moderately high temperature.

3,546,169

CURABLE COMPOSITIONS BASED ON OXIRANE POLYEPOXIDES AND LIQUID EUTECTIC MIXTURES OF o-TOLYLENEDIAMINE, m-TOLYLENEDIAMINE, AND BIS(AMINOPHENYL)METHANE

Louis F. Cole, Piscataway, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Apr. 4, 1967, Ser. No. 628,263

Int. Cl. C08g *30/14*

U.S. Cl. 260—47 **8 Claims**

This invention relates to curable compositions, based on oxirane polyepoxides and liquid eutectic mixtures of o-tolylenediamine, m-tolylenediamine, and bis(aminophenyl)methane, whiche are characterized by excellent storage life and which when used in the desired manner, as for example, in casting applications to form articles of desired shape, are characterized by improved properties.

3,546,170

STABILIZED METHYLTHIO AND METHYLTHIOMETHYLENE SUBSTITUTED POLY(PHENYLENE OXIDE) COPOLYMERS

Allan S. Hay, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

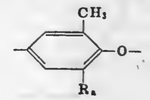
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,412

Int. Cl. C08g *23/18*

U.S. Cl. 260—47 **4 Claims**

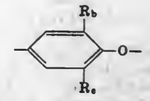
Poly(phenylene oxide) copolymers having a molecular weight of at least 10,000 whose repeating units have both the formula

A



and the formula

B



where R_a is methyl or phenyl, R_b is $CH_3—S—$ or $CH_3—S—CH_2—$ and R_c is methyl or phenyl and, in addition, $CH_3—S—CH_2—$ when R_b is also $CH_3—S—CH_2—$, the number of B units being from 0.5 to 10 mole percent of the total of A and B units, have been found to be stable towards thermal degradation. Because of their stability, these compositions can be used to prepare molded or other shaped objects for high temperature applications.

3,546,171
SCHIFF-BASES OF PYRIDOXAL AND HIGH MOLECULAR POLYMERS AND THE PREPARATION THEREOF
Yasuo Fujimoto and Masao Tanaka, Machida-shi, Tokyo-to, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha (Kyowa Hakko Kogyo Company Limited), Tokyo-to, Japan, a body corporate of Japan
No Drawing. Filed June 2, 1967, Ser. No. 643,037
Claims priority, application Japan, June 2, 1966, 41/35,087
Int. Cl. C07c *95/04*; C08b *15/06, 25/00*; C08g *13/00*
U.S. Cl. 260—51 14 Claims
The present invention relates to a process for preparing Schiff-bases composed of pyridoxal and high molecular polymers which are produced by the reaction of pyridoxal with a high molecular weight polymer containing at least one amino group.

3,546,172
ETHYLENE UREA TERMINATED PHENOLIC RESINS
Calvin Keith Johnson, Palos Heights, and David Ray Armbruster, Addison, Ill., assignors to CPC International Inc., a corporation of Delaware
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,220
Int. Cl. C08g *5/18, 9/24*
U.S. Cl. 260—51.5 19 Claims
Phenolic resins terminated by more than one ethylene urea group and thus having more than one unreacted >NH group are disclosed. These resins find specific utility in such fields as adhesives, insulation, encapsulation, lamination, castings, building structures and the like. When such resins are formulated so that the basic phenolic structure to which the ethylene urea groups are attached has a molecular weight between about 100 and about 5000, curing of these resins may be effected almost instantaneously by a method which comprises contacting a resin-acid catalyst system with an aldehyde. Curing by this method may be accomplished at room temperature or at temperatures slightly elevated above room temperature.

3,546,173
PROCESS FOR PREPARING CONDENSATES OF PARA-ALKYL PHENOLS AND DIVINYL AROMATIC COMPOUNDS
Oliver Larry Hunt, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 10, 1968, Ser. No. 720,372
Int. Cl. C08g *33/10*
U.S. Cl. 260—62 5 Claims
A linear resinous condensate of a p-alkyl phenol and a divinyl aromatic compound is prepared by adding a mixture of the divinyl aromatic compound and a minor proportion of the p-alkyl phenol to a solution of the p-alkyl phenol containing a catalyst and a minor proportion of the divinyl aromatic compound.

3,546,174
DIGUANAMINE-ALDEHYDE CONDENSATION PRODUCTS
Robert K. Grasselli, Cleveland, and James L. Callahan, Bedford Heights, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Continuation of application Ser. No. 588,665, Sept. 30, 1966. This application July 22, 1969, Ser. No. 843,854
Int. Cl. C08g *9/28, 9/30*
U.S. Cl. 260—67.6 1 Claim
Novel diguanamines are formed from aromatic dinitriles and a process for their preparation is disclosed. A typical diguanamine is 1,4-bis-[2,6-diamino-s-triazinyl]-1-phenyl-1,2,3,4-tetrahydronaphthalene, more commonly referred to as atroponitrile dimer diguanamine, which is particularly useful in imparting stain resistance to articles molded from a heat curable aminoplast.

3,546,175
SOLUBLE POLYIMIDES PREPARED FROM 2,4-DIAMINOISOPROPYLBENZENE AND PYROMELLITIC DIANHYDRIDE AND 3,4,3',4'-BENZOPHENONETETRACARBOXYLIC DIANHYDRIDE
Rudolph J. Angelo, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 660,903, Aug. 16, 1967, which is a continuation of application Ser. No. 323,232, Nov. 13, 1963. This application June 9, 1969, Ser. No. 831,746
Int. Cl. C08g *20/32*
U.S. Cl. 260—65 2 Claims
Soluble polyimides and solutions thereof, of pyromellitic dianhydride or 3,4,3',4'-benzophenonetetracarboxylic dianhydride and 2,4-diaminoisopropylbenzene, said polyimides being useful in coating compositions, as films, and the like.

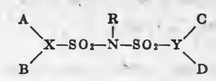
3,546,176
PRODUCTION OF UNSATURATED POLYESTERS
John Herbert Umfreville, Wellingborough, England, assignor to Scott Bader & Co., Ltd., Wellingborough, England, a company of Great Britain and Northern Ireland
No Drawing. Filed Dec. 8, 1966, Ser. No. 600,022
Claims priority, application Great Britain, Dec. 13, 1965, 52,836/65, Patent 1,101,247
Int. Cl. C08f *3/70*; C08g *17/10*
U.S. Cl. 260—75 6 Claims
An unsaturated polyester compound is prepared by the reaction of an alkylene oxide component with an anhydride component which comprises at least one anhydride of an unsaturated dicarboxylic acid. The process requires a reaction initiator and an organometallic catalyst which is at least partially soluble in said anhydride component. The catalyst for the process may be a compound of titanium, zirconium or cerium wherein said metal is linked through an oxygen atom to an alkyl group or an acyl group.

3,546,177
POLYESTERS CONTAINING STERICALLY HINDERED TRIALKYL PHOSPHATES
Charles J. Kibler and Frederick W. Voigt, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Mar. 7, 1968, Ser. No. 711,193
Int. Cl. C08g *17/133*
U.S. Cl. 260—75 10 Claims
Highly polymeric, linear polyesters, such as polyethylene terephthalate, which contain sterically hindered trialkyl phosphates have good thermal stability and good color characteristics.

3,546,178
PREPARATION OF LINEAR POLY(ESTER-AMIDES)
John R. Caldwell and Russell Gilkey, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 445,745, Apr. 5, 1965. This application Dec. 23, 1968, Ser. No. 786,457
Int. Cl. C08g *20/02*
U.S. Cl. 260—75 15 Claims
A process for preparing linear poly(ester-amides), said process comprising heating compounds containing carboxylic acid groups, amino groups, and hydroxy groups as the sole reactive groups (for example, dicarboxylic acids, diamines, diols, amino acids, amino alcohols, and hydroxy acids) in the presence of a catalyst which is a tin compound (for example, dibutyl tin oxide, dibutyl tin dilaurate, and tin tetrabutoxide).

3,546,179
PROCESS FOR THE CATALYTIC POLYCONDENSATION OF BIS-HYDROXYALKYL ESTERS OF DICARBOXYLIC ACIDS
Walter Koller, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Apr. 10, 1968, Ser. No. 720,366
Claims priority, application Germany, Apr. 19, 1967, F 52,183
Int. Cl. C08g *17/015*
U.S. Cl. 260—75 12 Claims
A process is provided for preparing polyesters and copolyesters by polycondensation of bis-hydroxyalkyl esters of dicarboxylic acids in the presence of compounds containing silicon and phosphorus as catalysts. The polymers so obtained can be used for making fibers and films.

3,546,180
POLYESTERS CONTAINING DISULFONAMIDO COMPOUNDS HAVING IMPROVED DYEING PROPERTIES
John R. Caldwell and Glenn C. Jones, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed June 25, 1968, Ser. No. 739,652
Int. Cl. C08g *17/08*
U.S. Cl. 260—76 16 Claims
Disulfonamido compounds when incorporated into polyester molecules greatly improve the dyeability of the polyester. The disulfonamido compounds are defined as



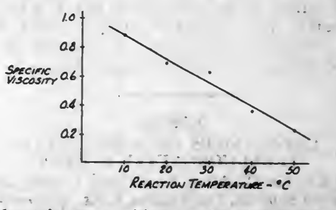
wherein R is —H or an alkali metal, X and Y are the same or different radicals selected from the group consisting of divalent and trivalent arylene radicals of 6 to about 12 carbons and divalent and trivalent alkarylene radicals of 7 to about 18 carbons, said radicals being unsubstituted or substituted with chlorine atoms, A, B, C, and D are the same or different and selected from the group consisting of —H, —COOR" and

$$R_1CHR_1$$

wherein R" is alkyl of from 1 to about 8 carbons, or aryl of from 6 to about 14 carbons, R_1 is alkyl of from 1 to about 8 carbons, and wherein either two or three of A, B, C, and D are —H.

3,546,181
THERMALLY STABLE POLYMER PREPARED BY REACTING AN AROMATIC TETRACARBOXYLIC ACID WITH A TETRAAMINO PYRENE DERIVATIVE
Fred E. Arnold, Dayton, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Apr. 16, 1969, Ser. No. 816,839
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 12 Claims
This invention comprises new thermally stable polymeric compositions, starting compounds and intermediates and methods for preparing the same. The polymers are prepared by the condensation of an aromatic tetra-acid, such as 1,4,5,8-naphthalene tetracarboxylic acid, and a tetraamino fused ring compound, namely 2,3,11,12-tetraamino-diquinoxal(2,3-e, 2'3'-l)pyrene. This fused ring tetraamino compound is prepared by the reaction of 1,2-ditosylate of 1,2,4,5-tetraaminobenzene with 1,2,6,7-tetraketopyrene to give a tetratosylated derivative which after treatment with concentrated H_2SO_4 followed by base gives the desired fused ring tetraamino compound. The tetratosylate and the tetraamino fused ring compound and the ditosylated tetraamino benzene intermediate are new compounds. The latter can be prepared by the reduction of 1,2-dinitro-4,5-(p-toluene sulfamido)-benzene. With appropriate tetraacids or their derivatives and with sufficient reaction of the reagents, ladder polymers can be formed.

3,546,182
LINER POLYMERIC COMPOSITIONS, METHOD OF MANUFACTURING THEM AND PRODUCTS MADE FROM THEM
Masahiro Izumi and Hiroshi Shima, Osaka, Shigeru Matsumura, Nishinomiya-shi, and Nobuyuki Asano, Takarazuka-shi, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, a company of Japan
Continuation-in-part of application Ser. No. 410,782, Nov. 12, 1964. This application Dec. 18, 1967, Ser. No. 691,500
Int. Cl. B44d *1/42*; C08g *20/00*
U.S. Cl. 260—78.4 7 Claims



A polymeric composition produced by dissolving a tricarboxyl acid anhydride mono-acid halide or a tricarboxyl acid mono-ester diacid halide in an organic solvent separate reactions, and thereafter permitting their synthesis under controlled temperature conditions to eliminate fluctuation of the specific viscosity of the polymer and the formation of an adduct therefrom.

3,546,183
ELASTOMER POLYMERS DERIVED FROM BICYCLO 2.2.1 HEPTENE-2
Jean Vergne, Leon Solaux, Jean-Claude Robinet, and Philippe Lacroix, Verneuil-en-Halatte, France, assignors to Charbonnages de France, Paris, France, a public institution of France
No Drawing. Filed Aug. 12, 1968, Ser. No. 751,763
Claims priority, application France, Aug. 18, 1967, 118,349
Int. Cl. C08f *1/72, 5/00, 17/00*
U.S. Cl. 260—78.4 8 Claims
New elastomer homopolymers and copolymers having in their structural formula units of alkyl-5 bicyclo [2.2.1] heptene-2 or alkoxy-5 bicyclo [2.2.1] heptene-2.

3,546,184
ADDUCTS FROM MALEIC ANHYDRIDE AND LOW-MOLECULAR WEIGHT POLYBUTADIENE AND THE METHOD OF PREPARATION
Klaus Heidel and Walter Dittmann, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany
No Drawing. Filed Feb. 18, 1966, Ser. No. 528,376
Claims priority, application Germany, Feb. 20, 1965, C 35,140
Int. Cl. C08f *15/36*
U.S. Cl. 260—78.4 8 Claims
Adducts of high-cis polybutadiene of 30–30,000 centipoises at 50° C. and maleic anhydride are prepared in the

presence of a copper inhibitor, resulting in drying oils of relatively low viscosities and relatively rapid drying times.

3,546,185

INHIBITING PREMATURE VULCANIZATION OF DIENE RUBBERS

Aubert Yaucher Coran, Creve Coeur, Mo., and Joseph Edward Kerwood, Saint Albans, W. Va., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 459,466, May 27, 1965; Ser. No. 549,730, May 12, 1966; and Ser. No. 579,493, Sept. 15, 1966. This application Mar. 20, 1968, Ser. No. 714,445

Int. Cl. C08f *27/06*; C07d *49/34*; C07g *153/00*

U.S. Cl. 260—79.5 **59 Claims**

Sulfenamides characterized by carbonyl adjacent to the sulfenamide nitrogen, the characteristic nucleus of which is



where the dangling valence on the nitrogen may be linked to a second carbonyl, alkyl, aryl, cycloalkyl, hydrogen, alkylene carbon, or arylene carbon, and R is alkyl, aryl, or cycloalkyl. The compounds, many of which are new, inhibit premature vulcanization of vulcanizable elastomers and stabilize styrene-butadiene rubber.

3,546,186

COPOLYMERS OF SUBSTITUTED PERFLUOROVINYL ETHERS

Edward Karcher Gladding, New Castle County, Del., and Raymond Sullivan, Los Angeles, Calif., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 527,725, Feb. 16, 1966. This application Sept. 30, 1968, Ser. No. 763,953

Int. Cl. C08f *15/40*

U.S. Cl. 260—80.73 **16 Claims**

Copolymers are prepared from two ethylenically unsaturated comonomers and a substituted perfluorovinyl ether having the formula $CF_2{=}CF{-}O{-}(CF_2)_n{-}X$ wherein —X can be —CN, —COF, —COOH, —$COOR_1$, —COOM, or —$CONR_2R_3$; wherein —M is an alkali metal; R_1 is an alkyl radical of 1 to 10 carbons (preferably 1 to 3), and R_2 and R_3 can be R_1, hydrogen, or combinations thereof; and n is from 2 to 12, preferably 2 to 4. Preferred comonomers are tetrafluoroethylene, hexafluoropropylene, and $CF_2{=}CF{-}O{-}R_f$ wherein R_f is perfluoroalkyl of from 1 to 3 carbons. The substituted perfluorovinyl ether is preferably present in the amount of about 0.5 to 5 mole percent.

3,546,187

OIL- AND WATER-REPELLENT POLYMERIC COMPOSITIONS

Thomas K. Tandy, Jr., Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,814

Int. Cl. C08f *15/26*

U.S. Cl. 260—80.76 **22 Claims**

An oil- and water-repellent polymer consisting essentially of:

(a) from 75% to 98% by weight of units derived from monomers of structure $R_fCH_2CH_2O_2CCH{=}CH_2$ wherein R_f is a perfluoroalkyl group of from four to fourteen carbons;

(b) from 25% to 2% by weight of units derived from monomers selected from the class consisting of

(1) $ROCH{=}CH_2$ wherein R is selected from $X(CF_2)_n{-}CH_2{-}$, X being F or H and n one or two, and $(CF_3)_2CH{-}$, and

(2) $R'OCF{=}CF_2$ wherein R' is selected from R, as defined above, and $F(CF_2)_m{-}$, m being from one to three; and

(c) from 0% to 5% by weight of units derived from monomers selected from the class consisting of

(1) $CH_2{=}CR^2CONHR^3OH$,

(2) $CH_2{=}CR^2CO_2R^4OH$, and

(3) $CH_2{=}CR^2CO_2R^5$ wherein R^2 is H or CH_3, R^3 is an alkylene group of from one to four carbons, R^4 is an alkylene group of from two to about four carbons and R^5 is epoxyalkyl of at least three carbons; or

(4) mixtures of the above;

and wherein the total percent by weight of units present in the copolymer is 100%.

Preferably the polymers have an inherent viscosity as 0.5% solutions in trichlorotrifluoroethane at 30° C. not in excess of 0.8, and most preferably in the range of 0.1 to 0.35.

3,546,188

DEGRADED VINYL CHLORIDE RESINS DECOLORIZED WITH TRIALKYL ORTHOFORMATES

George Kesslin, Teaneck, N.J., and Charles M. Orlando, Schenectady, and Herbert W. Blohm, Garnerville, N.Y., assignors to Kay-Fries Chemicals, Inc., West Haverstraw, N.Y., a corporation of New York

No Drawing. Filed Sept. 27, 1967, Ser. No. 671,124

Int. Cl. C08f *45/58*, *47/22*

U.S. Cl. 260—86.3 **2 Claims**

Chlorine-containing vinyl resins, such as polyvinyl chloride, are stabilized against heat degradation by incorporating an effective amount of an orthoester, such as trialkyl orthoester, wherein the alkyl group contains from 4 to 18 carbon atoms, or two alkyl groups together form a cyclic structure. The orthoesters form synergistic mixtures with primary stabilizers to form clear vinyl plastics, and stabilize vinyl resin compositions against the degradative effects of zinc oxide contained therein, and can also be used to decolorize degraded vinyl resins.

3,546,189

METHOD FOR MAKING ETHYL POLYMERISATES OR ETHYL COPOLYMERISATES IN TUBE REACTORS

Manfred Rätzsch, Leuna, Reinhard Nitzsche, Merseburg, and Claus-Dieter Ebster, Leuna, Germany, assignors to VEB Leuna-Werke "Walter Ulbricht," Leuna, Germany

No Drawing. Filed Jan. 20, 1967, Ser. No. 610,463

Int. Cl. 08f *1/06*

U.S. Cl. 260—88.1 **6 Claims**

In the polymerization of ethylene or ethylene with comonomers in a tube reactor at pressures above 400 atmospheres and temperatures of 50 to 400° C., yields are increased by feeding into the reactor sidestreams of additional monomer and initiator, the latter being fed downstream along the reactor from the former at a point at which the temperature in the reactor is 20 to 200° C. higher than the temperature in the reactor immediately after the introduction of the sidestream of monomer.

3,546,190

COMPLEX COPPER CATALYZED POLYMERIZATION OF PYRROLE AND PYRROLE DERIVED COMPOUNDS

Louis de Vries, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Mar. 30, 1966, Ser. No. 538,534

Int. Cl. C08f *5/00*

U.S. Cl. 260—88.3 **1 Claim**

Compounds having an acidic hydrogen bonded to carbon or nitrogen, wherein the carbon or nitrogen is bonded to carbon-to-carbon unsaturation, are polymerized to low order polymers with a complex copper containing catalyst.

3,546,191

SOLID POLYPERFLUOROSTYRENE AND METHOD OF PREPARATION

Leo A. Wall, Colonial Beach, Va., and Daniel W. Brown, Bethesda, and Joseph M. Antonucci, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed June 29, 1967, Ser. No. 650,133

Int. Cl. C08f *3/32*

U.S. Cl. 260—91.5 **2 Claims**

Solid polymers of perfluorostyrene are formed by subjecting the monomer in the absence of oxygen to heat at temperatures in the range of from about 25 to 200° C. and pressures of from about 10,000 to 25,000 atmospheres. The polymerization may be conducted with the application of hard radiation, such as gamma rays.

3,546,192

PROCESS FOR THE CONTINUOUS RECOVERY OF POLYVINYLCHLORIDE FROM A CONTINUOUS LOW TEMPERATURE POLYMERIZATION

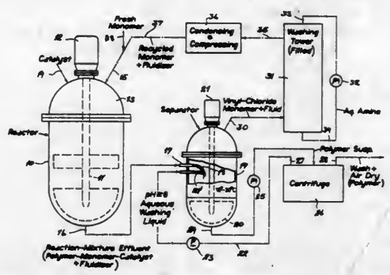
Giancarlo Borsini, Francesco Visani, Luciano Lodi, and Luigi Ciligot Magagnin, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed June 8, 1966, Ser. No. 556,148

Claims priority, application Italy, June 14, 1965, 13,276/65

Int. Cl. C08f *1/06*, *3/30*, *47/24*

U.S. Cl. 260—92.8 **5 Claims**



A process for preparing vinylchloride polymers in which vinylchloride is continuously polymerized at a temperature below 25° C. and preferably between 0° C. and —80° C. in the presence of a catalyst component based on a trialkylboron, and, optionally, in the presence of fluidizing substances for the reaction mixture, by continuously feeding the monomeric component and the catalyst component into a reaction vessel. The reaction mixture is continuously withdrawn and treated with an aqueous washing solution having a pH of at least 8 at a temperature between 10° and 30° C. The unconverted monomer is continuously vaporized by heat exchange with the washing solution and is treated with a basic solution adapted to retain the traces of catalyst contained in the monomer which is recycled to the reaction vessel to constitute at least part of the monomeric component introduced thereto.

3,546,193

PROCESS OF POLYMERIZATION IN AQUEOUS EMULSION FOR OBTAINING VINYL CHLORIDE POLYMERS OR COPOLYMERS ADAPTED TO FORM FLUID EASILY DEAERATABLE PASTES

Gianni Benetta, Mestre, Valerio Bresquar, Padova, Giorgio Gatta, Mestre, and Francesco Testa, Padova, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation of application Ser. No. 257,874, Feb. 12, 1963. This application Feb. 15, 1968, Ser. No. 705,859

Claims priority, application Italy, Feb. 19, 1962, 683,981; Oct. 19, 1962, 20,588/62

Int. Cl. C08f *1/13*, *3/30*

U.S. Cl. 260—92.8 **3 Claims**

The invention is a process for polymerization in aqueous emulsion of vinyl chloride by the technique of seeding and in the presenie of a water-soluble persulfate as a catalyst, in which a mixture of at least two emulsifiers is used, at least one being selected from the group consisting (1) of alkali metal alkyl sulphates, where the number of carbon atoms in the alkyl radical is between 12 and 17, (2) of alkali metal salts of alkyl naphthalines and alkyl benzines, where the number of carbon atoms in the alkyl radical is between 3 and 12, and (3) of alkali metal salts of sulfonated paraffins, and the other is selected from the group consisting of alkali metal salts and ammonium salts of esters of sulfo-carboxylic acids, the emulsifier mixture being added continuously during the course of polymerization.

3,546,194

PROCESS OF ALKYLATING STYRENE POLYMERS

Josef Dasch, Haltern, and Anton Schick, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Filed Apr. 19, 1966, Ser. No. 543,550

Claims priority, application Germany, Apr. 23, 1965, 1,570,348

Int. Cl. C08f *7/04*, *15/04*

U.S. Cl. 260—93.5 **3 Claims**

1. In a process for the production of thermoplastic polymers of alkyl-substituted styrene having high softening temperatures, said process comprising:

reacting a polymer of styrene selected from the group consisting of polystyrene and copolymers of styrene with α-methyl-styrene with tert.-butyl chloride at 20–40° C. in the presence of catalytic amounts of boron trifluoride, the mol ratio of reactants being about 0.25–1.5 mol of tert.-butyl chloride per basic mol of polystyrene.

3,546,195

HALOGENATED BUTENE-1 POLYMERS

Thomas H. Shepherd, Hopewell, and Walter Polovina, Princeton, N.J., assignors to Princeton Chemical Research, Inc., Princeton, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 17, 1966, Ser. No. 595,014

Int. Cl. C08f *3/20*

U.S. Cl. 260—93.7 **8 Claims**

Improvements in the production of chlorinated polybutene-1 whereby a chlorinated polybutene is formed

having improved thermostability. The chlorination is carried out with the polymer in true solution in a suitable solvent between about 45 and 58° C. with a butene-1 polymer having a melt index of about 0.1 to 60.

3,546,196

PROCESS FOR THE PRODUCTION OF LINEAR POLYETHYLENES OF HIGH CRYSTALLINITY AND CATALYST THEREFOR

Antonio Vandi, Saronno, and Francesco Valeretto and Mario Ragazzini, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,574
Claims priority, application Italy, Jan. 3, 1966, 21/66
Int. Cl. C08f *1/72, 3/06*
U.S. Cl. 260—94.9 **7 Claims**

A process for producing linear polyethylene by polymerizing ethylene at a temperature between 0° C. and 250° C. (preferably 50° C. to 200° C.) and atmospheric pressure or superatmospheric pressure in the presence of a catalyst system consisting of a Lewis acid (preferably aluminum chloride, titanium tetrachloride and tin tetrachloride) in association with at least one halide of a metal from Group VIII, Period IV of the Werner Periodic Arrangement ofg the Elements (preferably cobalt dichloride, $CoCl_2$, or nickel dichloride, $NiCl_2$) the reaction being effected generally in the presence of a liquid medium in which the polyethylene is soluble but which is inert to the polymerization system and the catalyst. The molar ratio of Lewis acid (LA) to metal halide (MH), LA:MH=0.01 to 0.15 (preferably 0.05 to 0.1), the liquid medium being an aliphatic or cycloaliphatic hydrocarbon. The reaction is initiated by rupturing a vial containing the catalyst system in a reaction vessel (e.g. autoclave) containing ethylene and liquid medium at a superatmospheric pressure and a temperature between 50 C. and 200° C. The catalyst system is produced by precipitation of Lewis acid on the metal halide (e.g. by dissolving one or both components in a solvent and thereafter evaporating the solvent).

3,546,197

LIGNIN SULPHONATE DISPERSING AGENTS AND METHODS OF MAKING THE SAME

Julius Benko, Sillery, Quebec, Quebec, Canada, assignor by mesne assignments, to Dryden Chemicals Limited, Oakville, Ontario, Canada, a Canadian company

No Drawing. Continuation-in-part of application Ser. No. 582,229, Sept. 27, 1966. This application Jan. 23, 1969, Ser. No. 793,607
Int. Cl. C07g *1/00;* **C09b** *67/00*
U.S. Cl. 260—124 **14 Claims**

This invention relates to the production of ammonium and alkali metal lignosulphonate dispersing agents from spent sulphite liquor solids by a combination of a heat treatment step carried out at a temperature from about 130° C. to 175° C. and a fractionation step.

3,546,198

PROCESS FOR THE SYNTHESIS OF BRADYKININ AND OTHER ARGININE CONTAINING PEPTIDES

Robert H. Mazur, Deerfield, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Mar. 26, 1968, Ser. No. 715,950
Int. Cl. C07c *101/04, 103/52, 129/00*
U.S. Cl. 260—112.5 **3 Claims**

A process and intermediates for the manufacture of arginine or peptides containing one or more arginine residues which comprises contacting the corresponding N^G-hydrocarbonsulfonyl intermediates with hydrogen fluoride. A specific example of this process is the conversion of N^G,N^G-ditosylbradykinin to bradykinin.

3,546,199

PROCESS FOR PRODUCING POLYOXYALKYLENE ETHER-POLYOLS FROM LIGNIN

Daniel T. Christian, San Leandro, Melvin Look, El Cerrito, and Albert Nobell and Thomas S. Armstrong, Coloma, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

No Drawing. Filed Feb. 6, 1967, Ser. No. 614,043
Int. Cl. C07c *69/76;* **C07g** *1/00;* **C08g** *22/08*
U.S. Cl. 260—124 **8 Claims**

A process for producing polyoxyalkylene ether-polyols from lignin or tannin by reacting lignin or tannin with an oxyalkylating agent thereby producing a polyoxyalkylene ether-polyol adapted to be reacted with isocyanates having at least 2 NCO groups per molecule to produce a urethane product.

3,546,200

LIGNIN PRECIPITATION FROM BLACK LIQUOR IN THE PRESENCE OF CHLORO, BROMO OR NITRO CONTAINING HYDROCARBONS

David M. Whalen, Washington Crossing, Pa., and Emery G. Tokoli, Rochester, N.Y., assignors to Union Camp Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed June 18, 1968, Ser. No. 737,843
Int. Cl. C07g *1/00*
U.S. Cl. 260—124 **13 Claims**

To eliminate the slimy, gelatinous and hard to filter form of the precipitated acid lignin from lignin-containing liquids, as encountered in paper manufacture, a small amount of a water immiscible solvent such as chloroform, 1,1,2-trichloroethane, methylene chloride, 1,2-dichloroethane, methylene bromide, 1- or 2-nitropropane or the like is mixed with the lignin-containing liquid to change the precipitate into a crystalline, easily filtered and quick settling precipitate.

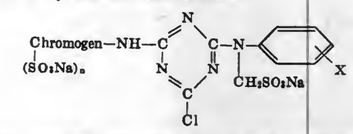
3,546,201

REACTIVE AZO DYESTUFFS CONTAINING AN N-OMEGA METHANE SULFONIC ACID-N-TRIAZINYL ANILINE GROUP

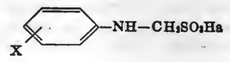
Mario Bertin and Ugo Molso, Cesano Maderno, Milan, Giulio Craia, Seregno, Milan, and Aldo Pasquarelli, Seveso, Milan, Italy, assignors to Aziende Colori Nazionali Affini ACNA S.p.A., Milan, Italy, a corporation of Italy

No Drawing. Application June 7, 1965, Ser. No. 462,072, which is a continuation-in-part of application Ser. No. 313,451, Oct. 3, 1963. Divided and this application July 31, 1968, Ser. No. 748,938
Claims priority, application Italy, Oct. 4, 1962, 19,584/62; May 14, 1963, 10,027/63
Int. Cl. C09b *62/06, 62/08 62/10*
U.S. Cl. 260—146 **23 Claims**

Reactive dyestuffs of the formula



wherein *n* ranges from 1 to 4, X is selected from the group consisting of H, $—CH_3$, $—OCH_3$ and $—OC_2H_5$ and Y is the residue of a dyestuff selected from the group consisting of azo-, metallized azo-, anthraquinone and phthalocyanine dyestuffs. Preparing the foregoing dyestuffs by condensing cyanuric chloride with a sodium salt of anilino methanesulfonic acid at a temperature ranging from about 0–5° to obtain an intermediate product with a dyestuff at a temperature ranging up to about 50° C. and at a pH ranging from about 6 to 6.5; said sulfonic acid salt having the formula



wherein X is selected from the group consisting of H, $—CH_3$, $—OCH_3$, and $—OC_2H_5$. These dyestuffs are effective for dyeing cellulose, wool, silk and polyamide fibers. Dyeings having very good fastness to wet treatments are obtained.

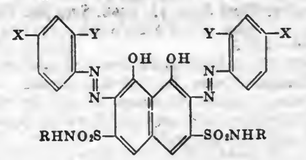
3,546,202

2,7-BISPHENYLAZOCHROMOTROPIC ACID DIAMIDE DERIVATIVES AND METHOD OF PREPARATION THEREOF

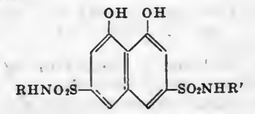
Břetislav Buděšinský and Karel Haas, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed July 6, 1966, Ser. No. 563,047
Claims priority, application Czechoslovakia, July 8, 1965, 4,367/65
Int. Cl. C09b *33/04, 45/12*
U.S. Cl. 260—185 **15 Claims**

2,7-bisphenylazo derivatives of chromotropic acid diamides of the general formula:



wherein R is selected from the group consisting of hydrogen, $(CH_2)_{17}CH_3$ and C_6H_5, X is selected from the group consisting of hydrogen, chlorine, CH_3 and NO_2, and Y is selected from the group consisting of AsO_3H_2, PO_3H_2, SO_3H and OH, are produced by treating portionwise a cold solution in water and an organic base and containing a suspension of excess calcium hydroxide or calcium oxide, of a substituted chromotropic acid diamide of the formula:



wherein R and R' each, respectively, has the same meaning as R above, with a solution of a diazotized primary amine of the general formula $C_6H_3XYNH_2$, wherein X and Y respectively, have the same meanings as above. The compounds are useful particularly as extractive and spectrophotometric reagents for the determination of various ions, particularly of heavy metal ions.

3,546,203

NON-METALLIZABLE ARYLAZOAMINONAPHTHALENE SULPHONAMIDE OR SULPHONIC ACID ARYL ESTER DYESTUFFS

Werner Bossard and Hans E. Wegmuller, Riehen, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Application Ser. No. 547,730, May 5, 1966, which is a continuation-in-part of applications Ser. No. 193,306, May 8, 1962, Ser. No. 225,844, Sept. 24, 1962, and Ser. No. 300,640, Aug. 7, 1963, as a continuation-in-part of application Ser. No. 193,306, and Ser. No. 433,796, Feb. 18, 1965, as a continuation-in-part of application Ser. No. 225,844. This application June 6, 1967, Ser. No. 663,464
Claims priority, application Switzerland, May 9, 1961, 5,453/61; Mar. 26, 1962, 3,691/62, 3,693/62
Int. Cl. D06p *1/04, 1/08;* **C09b** *29/06*
U.S. Cl. 260—196 **8 Claims**

Non-metallizable phenylazonaphthalene dyestuffs, free from sulfonic acid and carboxylic acid radicals are described. The dyestuffs are characterized by having

(a) in the 1-position of the naphthalene nucleus a nitro- or cyano-substituted benzeneazo radical optionally containing further substituents,

(b) in the 2-position of the naphthalene nucleus an unsubstituted amino group, and

(c) in one of the 3-, 4-, 5-, 6-, 7- or 8-positions of the naphthalene nucleus an amino- or substituted aminosulphonyl group, a phenoxy or substituted phenoxy sulphonyl group, a naphthyl-(1)-oxy sulphonyl group, a naphthyl-(2)-oxy sulphonyl group, a pyridyl-(3)-oxy sulphonyl group, a morpholinyl-(1)-sulphonyl group or a piperidyl-(1)-sulphonyl group. The said dyestuffs are suitable for the dyeing of polyesters, and particularly polyethylene glycol terephthalate fibers, the dyeing produced being distinguished by outstanding fastness to sublimation and light.

3,546,204

PHENYL-AZO-PHENYL DYES COMPOUNDS

Max A. Weaver and David J. Wallace, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 567,081, July 22, 1966. This application Oct. 23, 1968, Ser. No. 770,108
Int. Cl. C07c *107/06;* **C09b** *29/06, 29/24*
U.S. Cl. 260—205 **11 Claims**

Water-insoluble monoazo compounds having a benzene diazo component and an aniline coupling component in which the aniline nitrogen atom is substituted with an alkyl- cycloalkyl-, or aryl, sulfonamidoalkyl group whose nitrogen atom is substituted with an organic radical. The monoazo compounds are particularly useful for dyeing polyester textile materials.

3,546,205

STABILIZING METHOD AND THE PREPARATION STABILIZED THEREBY

Naoki Hotta and Akira Namiuchi, Tokyo, and Masahiko Arita, Yamato-machi, Saitama-ken, Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Filed Apr. 3, 1968, Ser. No. 718,349
Claims priority, application Japan, Apr. 6, 1967, 42/21,528
Int. Cl. C07c *69/68*
U.S. Cl. 260—209 **16 Claims**

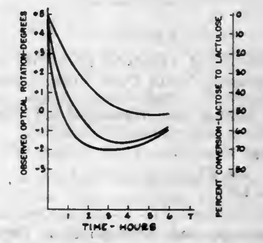
D-glucaro-1,4-lactone or a salt thereof is stabilized by adding methionine as a stabilizer, preferably in the presence of SO_3— ion to yield a product which is suitable for use in drug manufacturing.

3,546,206

METHOD OF MAKING LACTULOSE

Jules H. Guth, Mount Prospect, and Leon Tumerman, Deerfield, Ill., assignors to Kraftco Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 20, 1967, Ser. No. 669,181
Int. Cl. C13k *9/00;* **C07c** *47/18;* **C13d** *3/02*
U.S. Cl. 260—209 **7 Claims**



A method for making lactulose from lactose wherein a lactose solution is maintained for a predetermined time at a predetermined temperature in the presence of an alkaline or alkaline earth aluminate.

3,546,207
NEOMYCIN CITRATE
João G. Szyszka, Sao Paulo, Brazil, assignor to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,722
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 1 Claim

This application relates to a novel salt of neomycin, namely, neomycin citrate. This salt has certain unobvious advantages over other salts of neomycin in that it is practically tasteless, it being impossible to detect even an aftertaste upon oral administration.

The neomycin citrate of the invention is an active antibiotic possessing the same spectrum of activity as neomycin sulfate.

In addition, a process is provided for reducing the unpleasant taste as well as the unpleasant aftertaste of neomycin by reacting a neomycin base with citric acid.

3,546,208
PROSCILLARIDIN KETALS
Walter Steidle, Limburgerhof, Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany
No Drawing. Filed July 27, 1967, Ser. No. 656,356.
Claims priority, application Germany, July 27, 1966, 1,568,924
Int. Cl. C07c *173/00*
U.S. Cl. 260—210.5 10 Claims

Di-lower alkyl and cycloalkyl ketal derivatives of proscillaridin having significantly higher enteral resorption coefficient upon oral administration than unaltered proscillaridin, and the preparation thereof.

3,546,209
PROCESS FOR THE FABRICATION OF A CELLULOSE HOLLOW FIBER SEPARATORY CELL
Ben J. Lipps, Jr., Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Oct. 10, 1968, Ser. No. 766,618
Int. Cl. B01d *13/00*; B29d *23/00*
U.S. Cl. 260—214 7 Claims

A process is described for making separatory cells which utilize permeable cellulose hollow fibers wherein in said process cellulose acetate hollow fibers are converted to cellulose fibers. The process involves hydrolysis of the fibers followed by plasticization of the fibers while still wet with a water soluble, non-volatile plasticizer such as glycerine, and then drying of the fibers before fabrication of the separatory cell.

3,546,210
SUSTITUTED AZEPINE COMPOUNDS
Jerry E. Robertson, North Oaks Village, and Alvin C. Conway, North St. Paul Village, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Dec. 4, 1967, Ser. No. 687,448
Int. Cl. C07d *51/70, 53/02*
U.S. Cl. 260—239 9 Claims

5 - {[4-(polyfluoroalkyl) - 1 - piperazinyl]lower alkyl} dibenz[b,f]azepines, the corresponding dihydrodibenz-[b,f]azepines and homopiperazinyl compounds and salts, thereof with pharmaceutically acceptable acids. These compounds possess certain actions on the central nervous system.

3,546,211
POLYCYCLIC B-LACTAMS
Ajay K. Bose, Mountain Lakes, N.J., assignor to Research Corporation, New York, N.Y., a nonprofit corporation of New York
No Drawing. Filed June 22, 1967, Ser. No. 647,921
Int. Cl. C07d *25/02, 91/18, 93/08*
U.S. Cl. 260—239 2 Claims

Polycyclic β-lactams active as anti-inflammatory agents are prepared by the condensation of azidoacetyl chloride with a cyclic imine.

3,546,212
OXIDATION OF BENZODIAZEPINES WITH RUTHENIUM TETROXIDE
Arthur Martin Felix, Clifton, Rodney Ian Fryer, North Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Filed June 12, 1968, Ser. No. 736,250
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 8 Claims

Conversion of 1,4-benzodiazepines (A) and tetrahydro-1,4-benzodiazepin-2-ones (B) into 2,3-dihydro-1,4-benzodiazepin-2-ones (C) by oxidation of (A) or (B) with ruthenium tetroxide. (C) are useful as anticonvulsants, muscle relaxants and sedatives.

3,546,213
2 - (BROMOMETHYL) - 2,3,4,5 - TETRAHYDRO - 7-(o - HYDROXYPHENYL) - 5 - OXO - 1,4 - OXAZEPINE-6-CARBOXYLIC ACID δ-LACTONE
John S. McIntyre, Sarnia, Ontario, and Allan R. Knight, Petrolia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed June 24, 1968, Ser. No. 739,200
Int. Cl. C07d *87/54*
U.S. Cl. 260—239.3 1 Claim

The present disclosure is directed to the compound 2-(bromomethyl) - 2,3,4,5 - tetrahydro - 7 - (o-hydroxyphenyl)-5-oxo-1,4-oxazepine-6-carboxylic acid δ-lactone, its method of preparation as well as its use as a bactericide and fungicide.

3,546,214
AMINO-SUBSTITUTED DIBENZ[b,f][1,4]OXAZEPIN-11(10H)-ONES
Günther Schmidt, Biberach an der Riss, Germany, assignor to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany, a corporation of Germany
No Drawing. Filed July 10, 1968, Ser. No. 743,601
Claims priority, application Germany, July 11, 1967, 1,695,900
Int. Cl. C07d *87/54*
U.S. Cl. 260—239.3 8 Claims

The compounds are amino-substituted dibenz[b,f][1,4] oxazepin-11(10H)-ones and acid addition salts thereof, useful as analgesics, antipyretics and sedatives in warm-blooded animals.

3,546,215
6-GEM-DIFLUORO STEROIDS
John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama, a corporation of Panama
No Drawing. Continuation-in-part of application Ser. No. 676,060, Oct. 18, 1967. This application Sept. 30, 1968, Ser. No. 763,918
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 23 Claims

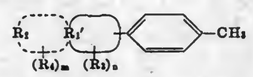
6α,6β-difluoropregn-4-en-3-ones (substituted at C–11 with hydroxy or chloro, at C–21 with hydroxy, fluoro, chloro or the hydroxy esters thereof, optionally substituted at C–9 with chloro or fluoro, at C–16 with methyl, at C–17 with hydroxy or the esters thereof, optionally, C–16 and C–17 are bridged by a cyclic acetal or ketal, optionally there is a double bond between C–1,2), exhibit antiinflammatory and glucocorticoid activity.

3,546,216
SCHIFF BASES OF AMINO-SUBSTITUTED TETRAHYDROTHIOPHENE 1,1-DIOXIDES
Howard E. Dunn, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Mar. 21, 1967, Ser. No. 624,693
Int. Cl. C07d *63/02*
U.S. Cl. 260—240 2 Claims

Amino-substituted tetrahydrothiophene 1,1-dioxides are reacted with aldehydes to produce Schiff bases.

3,546,217
NOVEL SYMMETRICAL HETEROCYCLICLY SUBSTITUTED STILBENES AND PROCESS THEREFOR
Adolf Emil Siegrist, Basel, Peter Liechti, Binningen, Erwin Maeder, Aesch, Basel-Land, and Leonardo Guglielmetti, Birsfelden, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Filed Nov. 29, 1966, Ser. No. 597,529
Claims priority, application Switzerland, Dec. 2, 1965, 16,621/65
Int. Cl. C09b *23/00*
U.S. Cl. 260—240 11 Claims

A process for the manufacture of symmetrical heterocyclicly substituted stilbenes which comprises reacting a compound of the formula



wherein R_1' represents a heterocyclic moiety of aromatic character containing 5 to 6 atoms in the ring, wherein the atoms in the ring are carbon and 1 or more atoms selected from the group consisting of oxygen, sulphur and nitrogen provided that

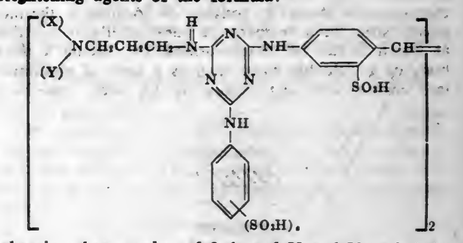
(A) said cyclic moiety contains from 1 to 4 nitrogen atoms in the ring,
(B) said cyclic moiety is free from hydrogen atoms which
  (1) are bonded to the nitrogen atoms of the ring
  (2) are replaceable by alkali metal atoms;

R_2 is hydrogen, benzo or naphtho
R_3 and R_4 are hydrogen or phenyl
n is 0 or an integer from 1 to q, where q is the number of hydrogen atoms attached to carbon atoms on R_1'
m is 0 in an integer from 1 to p, where p is the number of hydrogens attached to carbon atoms on R_2,

with molecular oxygen in dimethylformamide in the presence of an alkali selected from the group consisting of sodium hydroxide and potassium hydroxide containing from 0 to 15 percent by weight of water at a temperature of between 10° and 150 ° C.

3,546,218
SUBSTITUTED BIS-TRIAZINYLAMINO STILBENE COMPOUNDS AND COMPOSITIONS THEREOF
Christopher Johannes Tscharner, Warwick, R.I., assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware
No Drawing. Filed June 29, 1966, Ser. No. 561,330
Int. Cl. C07d *55/22*
U.S. Cl. 260—240 2 Claims

The invention relates to novel triazinyl stilbene optical brightening agents of the formula:



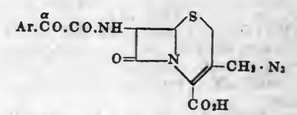
wherein z has a value of 0–1, and X and Y each independently are:

$$(CH_2)_a—(OH)_b—(H)_c—(NH_2)_d$$

and a has a value of 1–3, b has a value of 0–1, c has a value of 0–1, d has a value of 0–1; or X and Y taken together may form a morpholino ring. These compounds maintain their brightening effect on fabrics which are treated with cationic softeners either after, or concurrently, with the application of the brightener agent.

3,546,219
3-AZIDOMETHYL - 7-ARYLGLYOXAMIDOCEPH-3-EM-4-CARBOXYLIC ACIDS AND THEIR SALTS AND α-CARBONYL DERIVATIVES
Alan Gibson Long, Greenford, Edward McKenzie Wilson, Hayes, and William Graham, Pinner, England, assignors to Glaxo Laboratories Limited, Greenford, England, a British company
No Drawing. Filed Mar. 14, 1968, Ser. No. 712,963
Claims priority, application Great Britain, Mar. 23, 1967, 13,868/67
Int. Cl. C07d *99/24*
U.S. Cl. 260—243 5 Claims

The invention relates to antibiotics which are compounds of the formula



in which Ar represents an aromatic group, and their pharmaceutically acceptable salts and α-carbonyl derivatives.

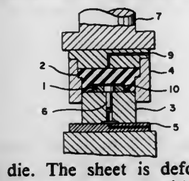
3,546,220
2,3-DIHYDRO-1H-PYRIDO-[2,3-b][1,4]THIAZINES
Robert George Stein and Leo Ralph Swett, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois
No Drawing. Filed Aug. 1, 1966, Ser. No. 569,073
Int. Cl. C07d *93/12*
U.S. Cl. 260—243 7 Claims

New 2,3-dihydro - 1H - pyrido-[2,3-b][1,4]-thiazines, optionally carrying single ring substituents and their method for preparation are described. The new compounds and their non-toxic acid addition salts are useful as anti-inflammatories.

3,546,221
FORMING THERMOPLASTIC ARTICLES
Herbert G. Johnson, Havertown, Pa., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 561,871, June 30, 1966. This application June 23, 1969, Ser. No. 835,607
The portion of the term of the patent subsequent to Sept. 30, 1986, has been disclaimed
Int. Cl. B29d *7/14*; B32b *31/20*
U.S. Cl. 264—249 18 Claims

A method is disclosed for the shaping of plastic sheet into shaped articles of moderate draw depth. The method

is suitable for large scale production of thick-walled thermoplastic items. It consists of forming a thermoplastic sheet at a temperature substantially below that at which it can be thermoformed, by forcing a thick body of a yieldable mass, such as a body of elastomer, into contact with one surface of the sheet, opposite a



non-yielding die. The sheet is deformed under tensile stress as the mass tends to move with the sheet. The sheet is held in contact with the die until stress is substantially relieved. The formed articles conform substantially to the shape of the die, exhibiting little or no shrinkage or springback.

3,546,222

N,N'-TRIAZINYL PERYLENE-3,4,9,10-TETRACARBOXYLINE ACID BIS IMIDES

Francis Irving and Donald Graham Wilkinson, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,883
Claims priority, application Great Britain, Mar. 15, 1968, 12,172/67
Int. Cl. C07d *55/22*
U.S. Cl. 260—249.6 **6 Claims**

Perylene-3,4,9,10-tetracarboxylic acid bis-imides, valuable as pigments, are prepared by interaction of perylene-3,4,9,10-tetracarboxylic acid or a functional derivative thereof and 2-amino-1,3,5-triazines carrying amino, substituted amino or aryl substituents in the 4 and 6 positions.

3,546,223

N-METHYLOLSILYLETHERS OF MELAMINES

Ferdinand Senge, Krefeld, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Original application July 11, 1967, Ser. No. 652,413. Divided and this application June 30, 1969, Ser. No. 837,920
Claims priority, application Germany, July 26, 1966, F 49,786
Int. Cl. C07d *55/32*
U.S. Cl. 260—249.6 **6 Claims**

N-methylolsilylethers formed by reacting N-methylol compounds with hexalkyldisilazanes in a molar ratio of about 1:1 to 1:8 at temperatures of 20–130° C. and their utility in modifying polymeric products.

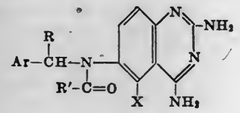
3,546,224

NOVEL QUINAZOLINE COMPOUNDS AND PROCESS MEANS FOR PRODUCING THE SAME

John Davoll, Shepperton, England, assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed Sept. 9, 1968, Ser. No. 767,028
Claims priority, application Great Britain, Sept. 11, 1967, 41,436/67
Int. Cl. C07d *51/48*
U.S. Cl. 260—256.4 **10 Claims**

2,4-diamino - 6 - (substituted acylamino)quinazoline compounds (I)



and their salts are provided by N-acylation of the corresponding 6-(substituted amino)quinazolines; where R and R' each can be hydrogen or lower alkyl, X is H, Cl or CH_3, and Ar is a group such as phenyl, substituted phenyl, naphthyl, furyl, thienyl or pyridyl. The compounds have pharmacological properties and are antiparasitic agents and antibacterial agents.

3,546,225

7,8-DIMETHOXY-2-OXOPYRIMIDO[1,2-a]INDOLES

Vasken Paragamian, Dresher, Pa., assignor to McNeil Laboratories, Incorporated, a corporation of Pennsylvania

No Drawing. Filed Oct. 11, 1967, Ser. No. 674,629
Int. Cl. C07d *51/46*
U.S. Cl. 260—251 **15 Claims**

The compounds are of the class of 3-carbethoxy-7,8-dimethoxypyrimido[1,2-a]indole-2(1H)-ones and 1,2,3,4-tetrahydro-7,8-dimethoxy - 2-oxopyrimido - [1,2-a]indole carboxylates and carboxylic acids, useful for their ultraviolet absorption properties. A novel method for preparing 3-carbalkoxy-pyrimido-[1,2-a]indole-2(1H)-ones is provided by treating dialkyl [(2-cyanomethyl-4,5-dimethoxy)anilino]-methylenemalonate with sodium ethoxide in refluxing ethanol.

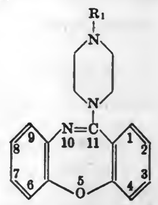
3,546,226

11-BASIC-SUBSTITUTED DIBENZOXAZEPINES

Jean Schmutz, Muri, near Bern, and Fritz Hunziker and Franz Martin Künzle, Bern, Switzerland, assignors to Dr. A. Wander, S.A., Bern, Switzerland, a corporation of Switzerland

No Drawing. Continuation-in-part of applications Ser. No. 371,123, May 28, 1964, and Ser. No. 712,956, Mar. 14, 1968. This application Feb. 6, 1969, Ser. No. 797,281
Claims priority, application Switzerland, May 30, 1963, 6,762/63; Sept. 27, 1963, 11,907/63; Mar. 13, 1967, 3,582/67; Mar. 22, 1967, 4,103/67; May 9, 1967, 6.557/67; July 14, 1967, 10,115/67; Nov. 3, 1967, 15,453/67
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 **9 Claims**

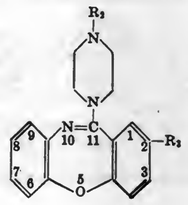
(A) 11-basic substituted dibenzoxazepines having the general Formula A:



wherein R_1 is a member of the class consisting of hydrogen, lower alkyl, lower hydroxyalkyl, acetylated lower hydroxyalkyl, and alkoxyalkyl having not more than 5 carbon atoms; and

(B) Derivatives of A substituted in the benzene nuclei by at least one member of the class consisting of halogen, trifluoromethyl, lower alkyl, lower alkoxy, and lower alkylthio; and

(C) 11-basic substituted dibenzoxazepines having the general Formula C:



wherein R_2 represents a member of the group consisting of hydrogen, allyl, alkyl containing not more than 3 carbon atoms, hydroxyalkyl containing not more than 3 carbon atoms, alkoxyalkyl containing not more than 6 carbon atoms and alkoyloxyalkyl containing not more than 6 carbon atoms; and R_3 is a member of the group consisting of nitro, amino, aminosulphonyl of the formula $—SO_2NR_4R_5$ wherein R_4 and R_5 are the same or different members of the group consisting of hydrogen and methyl, alkyl-sulphinyl of the formula $—SOR_6$ wherein R_6 denotes alkyl with not more than 3 carbon atoms, and alkylsulphonyl of the formula $—SO_2R$ wherein R_6 denotes alkyl with not more than 3 carbon atoms; and

(D) The non-toxic pharmaceutically acceptable acid-addition salts of A, B and C.

These compounds have a pronounced therapeutic effect on the central nervous system and are particularly active as neuroplegics, neuroleptics, neuroleptic antidepressants, antimetics, analgesics and sedatives.

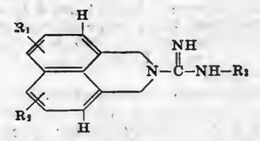
3,546,227

2,3-DIHYDRO-1H-BENZ[d,e]ISOQUINOLINE CARBOXAMIDINES

John Gmünder, Muttenz, and Richard Berthold, Reinach, Basel-Land, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,321
Claims priority, application Switzerland, Dec. 1, 1966, 17,194/66; May 29, 1967, 7,546/67
Int. Cl. C07d *39/00*
U.S. Cl. 260—288 **8 Claims**

The present invention provides compounds of the formula:



wherein either R_1 is hydrogen and R_2 is halogen, hydroxy, lower alkoxy of 1 to 4 carbon atoms, or amino, or R_1 and R_2 are the same and each is hydrogen, halogen, hydroxy, lower alkoxy of 1 to 4 carbon atoms, or amino, and R_3 is hydrogen, or lower alkyl of 1 to 4 carbon atoms, and the pharmaceutically acceptable acid addition salts thereof.

The compounds are useful in the treatment of hypertonia and heart and other circulatory illnesses.

The production of these compounds is furthermore described.

3,546,228

SUBSTITUTED 9,10-DIHYDROSPIRO[CYCLOPROPANE-1,10-ANTHRACENE] DERIVATIVES

Carl Kaiser, Haddon Heights, N.J., Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,885
Int. Cl. C07d *51/70*
U.S. Cl. 260—293 **12 Claims**

9,10 - dihydrospiro[cyclopropane-1,10-anthracene] derivatives in which the anthracene nucleus may have chloro, bromo, methyl, methoxy or trifluoromethyl substituents and the 9-position is substituted either by a tertiary aminopropyl or a 4-piperidyl moiety have antidepressant activity. The compounds are generally prepared by reaction of the appropriate amino Grignard reagent with a spiro-[cyclopropane-1,10-anthracene]-9-one followed by treatment of the 9-hydroxy intermediate with lithium aluminum hydride.

3,546,229

DERIVATIVES OF ACETIC ACID

Rudolf Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed July 14, 1967, Ser. No. 653,350
Int. Cl. C07d *29/24*
U.S. Cl. 260—294.3 **3 Claims**

The compounds are of the class of bis-(4-trifluoromethylphenoxy)acetic acid compounds, e.g., bis-(4-trifluoromethylphenoxy)acetic acid 1-methyl-4-piperidyl ester. The compounds are useful as hypocholesteremic/hypolipemic agents.

3,546,230

VINYL ESTER AMIDE OF PINIC ACID

Glen W. Hedrick, 2921 Inglewood Ave., Lake City, Fla. 32055, and Frank C. Magne, 2223 Franklin Ave., New Orleans, La. 70117

No Drawing. Original application June 30, 1967, Ser. No. 647,343. Divided and this application Aug. 6, 1969, Ser. No. 870,849
Int. Cl. C07d *29/24*
U.S. Cl. 260—294.3 **1 Claim**

This invention relates to some vinyl ester amides of pinic acid, methods for preparing same and to certain copolymers thereof. More particularly, this invention relates to the preparation of vinyl 2,2-dimethyl-3-morpholinocarbonylcyclobutane acetate, vinyl 2,2 - dimethyl-3-piperidinocarbonylcyclobutane acetate, and vinyl 2,2-dimethyl-3-di-n-butylaminocarbonylcyclobutane acetate by selective amination followed by vinyl interchange and the preparation of several vinyl chloride copolymers derived therefrom.

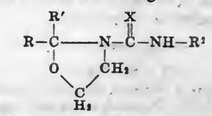
3,546,231

CERTAIN 2-[PYRIDYL-3-THIOCARBAMOYL-1,3-OXAZOLIDINES]

George G. King, Guilford, and Joseph V. Karabinos, Orange, Conn., assignors, by mesne assignments, to The Ansul Company, a corporation of Wisconsin

No Drawing. Filed May 3, 1968, Ser. No. 726,568
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 **4 Claims**

Substituted oxazolidines having the formula



wherein R is aryl, nitroaryl, haloaryl, alkoxyaryl, pyridyl, alkylenedioxyaryl, cycloaliphatic, hydroxycycloaliphatic, aryloxyalkyl or alkylcarbamoyloxyaryl; R' is hydrogen or alkyl; R^2 is alkyl, cycloaliphatic, alkenyl or carbalkoxyalkyl; and X is oxygen or sulfur are prepared by reacting N-(2-hydroxyethyl)-substituted imines with various isocyanates and isothiocyanates. These substituted oxazolidines are particularly valuable insecticides and herbicides.

3,546,232

3 - PHENYL - 8 - THIANAPHTHENYLALKYL DERIVATIVES OF NORTROPINE AND NORTROPIDINE

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,799
Int. Cl. C07d *43/06*
U.S. Cl. 260—292 **8 Claims**

3-phenyl-8-thianaphthenylalkyl or 8-benzofuranylalkyl derivatives of nortropine and nortropidine in which either or both the phenyl and benzoheterocyclic moieties may be substituted by chloro, bromo, fluoro, trifluoromethyl, methyl or methoxy as well as the corresponding lower alkanoyl nortropine esters have neuroleptic activity. The

compounds are generally prepared by condensation of a 3-phenylnortropine with an active derivative of the benzoheterocyclic alkanoic acid, such as the acid halide, to give an amide intermediate which is reduced to the 8-substituted alkyl nortropine product. Dehydration of the latter with acid gives the corresponding nortropidine whereas acylation with an appropriate acyl derivative gives the corresponding nortropine ester.

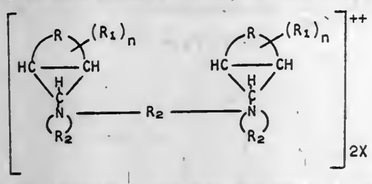
3,546,233

BIS- AND MONO-QUATERNARY SALTS OF 1-(CYCLICAMINO)CYCLOPROPACYCLOALKANES

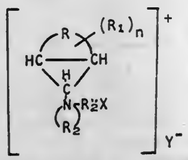
Jacob Szmuszkovicz, Kalamazoo, and Elisabeth Cerda, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed May 15, 1967, Ser. No. 638,562
Int. Cl. C07d *29/10*
U.S. Cl. 260—293 6 Claims

Bisquaternary ammonia compounds of the formula



and mono-quaternary ammonia compounds of the formula



wherein R is polymethylene of 3 to 7 carbon atoms, R_1 is alkyl of not more than 2 carbon atoms, *n* is zero or an integer not greater than 1, R_2 is lower alkylene of from 2 to 6 carbon atoms, X is halogen and Y is an anion. These compounds are useful as disinfectants.

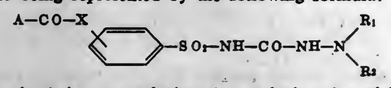
3,546,234

BENZENE-SULFONYL-SEMICARBAZIDES

Erich Fauland, Felix Helmut Schmidt, and Kurt Stach, Mannheim-Waldhof, and Helmut Weber, Frankfurt am Main-Schwanheim, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, Mannheim-Waldhof, Germany, a corporation of Germany

No Drawing. Filed June 19, 1967, Ser. No. 654,386
Claims priority, application Germany, Aug. 2, 1966, B 88,290
Int. Cl. C07c *143/78*
U.S. Cl. 260—293.4 9 Claims

A novel class of antidiabetic agents is disclosed, the same being represented by the following formula:



wherein A is an unsubstituted or substituted straight or branched chain, saturated or unsaturated aliphatic or cycloaliphatic hydrocarbon radical, an unsubstituted or substituted aryl, aralkyl, aryloxyalkyl, arylmercaptoalkyl or heterocyclic radical, X is a straight or branched chain saturated or unsaturated divalent hydrocarbon radical and R_1 and R_2 are each a straight or branched chain, saturated or unsaturated aliphatic, cycloaliphatic or araliphatic radical or taken together form an alkylene radical which can be substituted by alkyl, alkoxy or endoalkylene radicals or can be interrupted by hetero atoms. The alkali metal, alkaline earth metal and ammonium salts of the above compounds are equally effective as blood sugar reducing agents.

3,546,235

CERTAIN SUBSTITUTED 1,2-DITHIOL-3-ONES

Jörg Bader, Arlesheim, Basel-Land, and Karl Gätzi, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 555,994, June 8, 1966. This application June 5, 1967, Ser. No. 643,359
Claims priority, application Switzerland, June 18, 1965, 8,566/65; May 23, 1966, 7,421/66
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 3 Claims

1,2-dithiol-3-ones having substituents which comprise certain organic radicals bonded to the 5-position of the dithiolone nucleus via a sulphur atom which may be mono- or dioxidized, which are of excellent microbicidal activity especially against fungi and bacteria; a novel process for the production of those of the new compounds in which the bridge is a sulphur or mono-oxidized sulphur bridge; methods of inhibiting microbial growth with the aid of the novel compounds, and antimicrobial compositions containing the latter as active ingredients.

3,546,236

1-(BENZOHETEROCYCLIC CYCLOPROPYLMETHYL)-4-PHENYL-1,2,5,6-TETRAHYDROPYRIDINES

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 15, 1968, Ser. No. 767,840
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 6 Claims

1-(benzoheterocyclic cyclopropylmethyl)-4-phenyl-1,2,5,6-tetrahydropyridines in which the benzoheterocyclic moiety is 2- or 3-thianaphthenyl, benzofuryl or indolyl and said moiety and/or the phenyl group may be substituted by chloro, bromo, fluoro, methyl, methoxy or trifluoromethyl have central nervous system depressant and neuroleptic activity. The compounds are generally prepared from a benzoheterocyclic cyclopropanecarboxylic acid via the acid chloride or the lower alkyl mixed anhydride by condensation with a 4-phenyl-4-piperidinol to give a corresponding amide. The amide is reduced to the cyclo-propylmethyl derivative which is dehydrated with acid to the tetrahydropyridine product. The amides and cyclopropylmethyl derivatives are useful intermediates.

3,546,237

PHENYLPYRIDYL-ALKANOIC ACID DERIVATIVES

Peter Doyle and Gilbert Joseph Stacey, Macclesfield, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,593
Claims priority, application Great Britain, Dec. 2, 1966, 54,135/66
Int. Cl. C07d *31/34*
U.S. Cl. 260—295 7 Claims

This disclosure relates to phenyl-pyridyl-alkanoic acids and derivatives which possess anti-inflammatory, analgesic and antipyretic activity, and which reduce the concentration of fibrinogen, chloesterol and triglycerides in blood. It also relates to processes for making said compounds, to pharmaceutical compositions, and to methods of treatment involving said compounds. A representative of said compounds is 6-(4-chlorophenyl)-2-methylpyrid-3-ylacetic acid.

3,546,238

N-PYRIDYL-1,4,5,8-TETRAHYDRO-4a,8a-NAPHTHALENEDICARBOXIMIDES

Eugene R. Wagner, Zionsville, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed May 24, 1968, Ser. No. 731,744
Int. Cl. C07d *31/36, 31/44*
U.S. Cl. 260—295 4 Claims

N-substituted-1,4,5,8-tetrahydro-4a,8a-naphthalenedicarboximides wherein the N-substituent is phenyl, monohalophenyl, pyridyl, tolyl or xylyl are prepared by the reaction of an amine such as an aminopyridine or a haloaniline with 1,4,5,8-tetrahydro-4a,8a-naphthalene dicarboxylic acid anhydride. The novel compounds are useful as central nervous system depressants and sedatives.

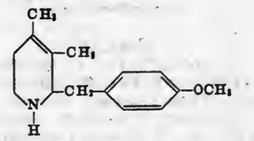
3,546,239

CERTAIN 1,2,3,6-TETRAHYDRO-PYRIDINE DERIVATIVES

Willy Leimgruber, Montclair, and Albert Ziering, Nutley, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,844
Int. Cl. C07d *31/28*
U.S. Cl. 260—297 4 Claims

The compound of the formula



and its acid addition salts, useful as an intermediate for the preparation of pharmaceutically active benzomorphans and processes for its preparation are disclosed.

3,546,240

NITROGEN HETEROCYCLIC DERIVATIVES OF TRICYCLOHEXYLTIN

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed July 31, 1968, Ser. No. 748,976
Int. Cl. C07d *49/36, 55/04*
U.S. Cl. 260—299 6 Claims

Nitrogen heterocyclic derivatives of tricyclohexyltin wherein the nitrogen heterocycle is benzotriazole, benzimidazole, imidazole, or substituted imidazole containing up to three substituents selected from lower alkyl and phenyl, said derivatives being useful as pesticides.

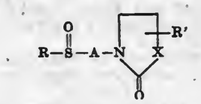
3,546,241

N-(ALKYLSULFINYL) ETHYL-PYRROLIDINONES AND OXAZOLIDINONES

Richard A. Hickner and Edgar E. Moore, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed May 21, 1968, Ser. No. 730,952
Int. Cl. C07d *85/28*
U.S. Cl. 260—307 8 Claims

New compounds having the structure



wherein R is an alkyl group of 1 to 18 carbon atoms, R′ is H or an alkyl group of from 1 to 6 carbon atoms, X is —O— or —CH_2—, and A is an alkylene group of about 2 or 3 carbon atoms.

All these compounds have antimicrobial activity. Those in which R contains 1 to 8 carbons are useful as plasticizers, while those where R contains 8 to 18 carbons are useful as nonionic surfactants. The pyrrolidinone derivatives are quite surface active, while the oxazolidinone derivatives are less surface active, but are foam boosters.

3,546,242

2-(4′-CHLORO-NAPHTHYL(1′)-METHYL)-IMIDAZOLINE

Elena Massarani, Milan, Italy, assignor to Societe d'Exploitations Chimiques et Pharmaceutiques Seceph S.A., Lugano, Switzerland

No Drawing. Filed May 10, 1968, Ser. No. 728,342
Claims priority, application Switzerland, May 25, 1967, 7,415/67
Int. Cl. C07d *49/34*
U.S. Cl. 260—309.6 2 Claims

2-(4′-chloro-naphthyl(1′)-methyl)-imidazoline, its acid addition salts and quaternary ammonium salts. Also methods of preparation, preferably reacting 4-chloronaphthyl(1)-acetonitrile with ethylenediamine or a salt of the latter. The compound exhibits substantial vasoconstrictive activity and can be used in the treatment of inflammatory conditions of the conjunctival or nasal mucosa.

3,546,243

REACTION PRODUCTS OF DIKETENE WITH CERTAIN SUBSTITUTED N-(ALKYLAMINO) SUCCINIMIDES

Keith Coupland, Hornsea, England, assignor, by mesne assignments, to Orobis Limited, Piccadilly, London, England, a British company

No Drawing. Filed Sept. 21, 1967, Ser. No. 669,405
Claims priority, application Great Britain, Oct. 1, 1966, 43,969/66
Int. Cl. C07d *27/10*
U.S. Cl. 260—326.3 6 Claims

The invention is novel compounds produced by reaction of diketene with certain alkyl or alkenyl substituted derivatives of N-(alkylamino) succinimide of specified formula. The additives find application as lubricant additives.

3,546,244

THIOCYANOINDOLE DERIVATIVES

Stig Hjalmar Johannes Akerstrom, Uppsala, Sweden, Albert Tempel, Van Houtenlaan, Weesp, Netherlands, and Bengt Hjalmar Gullfeldt, Vallmerley, Sweden, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 3, 1968, Ser. No. 695,352
Claims priority, application Sweden, Jan. 4, 1967, 193/67; June 2, 1967, 7,722/67
Int. Cl. C07d *27/56*
U.S. Cl. 260—326.12 17 Claims

Substituted 3-thiocyanoindole compounds useful for combatting fungi and bacteria harmful to wood products. Examples of the compounds are 1-methyl-3-thiocyanoindole, 6-chloro-3-thiocyanoindole and 4-hydroxy-3,7-dithiocyanoindole.

3,546,245

2-(1-LOWER-ALKYL-3-PYRROLIDINYL)-1,3-PROPANEDIOL DICARBAMATES

Grover Cleveland Helsley, Richmond, Va., assignor to A. H. Robins Company, Incorporated, Richmond, Va., a corporation of Virginia

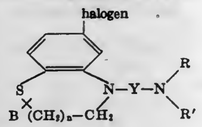
No Drawing. Filed Aug. 2, 1968, Ser. No. 749,604
Int. Cl. C07d *27/04*
U.S. Cl. 260—326.3 9 Claims

2-(1-lower alkyl-3-pyrrolidinyl)-1,3-propanediol dicarbamates having tranquilizing activity are disclosed. The compounds are produced by (1) reaction of 1-lower alkyl-

3-chloropyrrolidines with diethyl malonate, (2) metal hydride reduction of the diethyl 2-(1-lower alkyl-3-pyrrolidinyl)-malonates and (3) reaction of the 2-(1-lower alkyl-3-pyrrolidinyl)-1,3-propanediols with isocyanates.

3,546,246
N-AMINOALKYL-BENZOTHIAZOCINES
Henri Morren, Forest, Belgium, assignor to UCB (Union Chimique-Chemische Bedriuven), S.A., Saint-Gilles-Brussels, Belgium
No Drawing. Continuation-in-part of application Ser. No. 579,232, Sept. 14, 1966. This application Oct. 23, 1968, Ser. No. 770,107
Int. Cl. A61k *27/00*; C07d *99/00*
U.S. Cl. 260—327 13 Claims

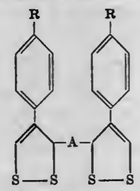
N-aminoalkyl-benzothiazacycloalkanes of the formula



wherein *n* is 3
halogen is chlorine or fluorine
B is H or lower alkyl
Y is an alkylene and
R and R′ are the same or different, each being H, alkyl, alkenyl or R and R′ together with the N atom, form a heterocyclic ring (e.g. pyrrolidono, 4-(2-hydroxyethyl)-piperazino). They have both imipramine-like and thiazesim-like antidepressive activity, and are therefore useful in the treatment of mental depression. Methods of preparing the compounds of said formula are disclosed.

3,546,247
FUNGICIDAL AND BACTERICIDAL BISDITHIOLE COMPOUNDS
Howard Newman, Spring Valley, and Robert Bruce Angier, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Oct. 12, 1967, Ser. No. 674,742
Int. Cl. C07d *71/00*
U.S. Cl. 260—327 3 Claims

This invention provides antifungal and antibacterial bis-dithiole compounds of the formula:



wherein A is selected from the group consisting of oxygen and sulfur, the R's can be the same or different and are selected from the group consisting of hydrogen and methoxy.

3,546,248
1,3-THIAZETIDINONES
Adnan A. R. Sayigh, North Haven, and Henri Ulrich, Northford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Original application Jan. 18, 1965, Ser. No. 426,414, now Patent No. 3,467,651, dated Sept. 16, 1969. Divided and this application June 6, 1969, Ser. No. 831,240
Int. Cl. C07d *91/02*
U.S. Cl. 260—327 2 Claims

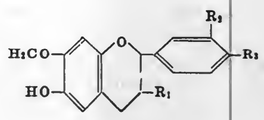
3 - aryl - 4-hydrocarbylsulfonylimino-1,3-thiazetidine-2-ones are prepared by phosgenation of the appropriate 1-hydrocarbylsulfonyl-3-arylthioureas. The thiazetidine-2-ones are intermediates, by thermal decomposition, in the preparation of the corresponding hydrocarbylsulfonylisothiocyanates and sulfonylcarbodiimides.

3,546,249
PEROXIDIC COMPOSITIONS AND PROCESS FOR THE PREPARATION THEREOF
Hans G. Gerritsen and Arnold Schroeder, Deventer, Netherlands, assignors to Koninklijke Industrieele Maatschappij Noury & van der Lande N.V., Deventer, Netherlands, a corporation of the Netherlands
No Drawing. Filed Feb. 19, 1968, Ser. No. 706,608
Claims priority, application Netherlands, Feb. 21, 1967, 6702570
Int. Cl. C07d *19/00*; C07c *73/00, 73/06*
U.S. Cl. 260—338 8 Claims

Peroxidic compositions are provided which are useful, e.g., as initiators for polymerizing unsaturated polyester resins from unsaturated polyesters and monomers containing one or more $CH_2{=}C<$ groups such as, e.g., styrene. The peroxidic compositions are obtained by reacting diacetone alcohol with an aqueous solution of hydrogen peroxide under certain rather closely specified reaction conditions.

3,546,250
6-HYDROXY-7-METHOXY FLAVANE DERIVATIVES AND ESTERS THEREOF
Josef Krämer, Klaus Irmscher, Herbert Halpaap, and Karl-Otto, Freisberg, Darmstadt, Germany, assignors to E. Merck A.G., Darmstadt, Germany
No Drawing. Filed July 27, 1967, Ser. No. 656,348
Claims priority, application Germany, Aug. 18, 1966, M 70,625
Int. Cl. C07d *13/10*
U.S. Cl. 260—340.5 15 Claims

Agents for lowering the cholesterol level with little or no estrogenic effect, or build-up of desmosterol or 7-dehydrocholesterol, said agent being compounded of the following formula, esters and ester salts thereof:



wherein:

R_1 represents alkyl or alkoxy of 1–3 carbon atoms, respectively;
R_2 is hydrogen;
R_3 is hydrogen or alkoxy of 1–5 carbon atoms; and
wherein R_2 and R_3 together can also represent methylenedioxy.

3,546,251
PROCESS FOR PRODUCING CAPROLACTONE
Satoshi Matsumoto and Etsuo Tanaka, Yokohama-shi, Japan, assignors to Chisso Corporation, Osaka, Japan, a corporation of Japan
No Drawing. Filed May 24, 1967, Ser. No. 640,821
Claims priority, application Japan, May 25, 1966, 41/33,326
Int. Cl. C07d *9/00*; C08g *12/02*
U.S. Cl. 260—343 9 Claims

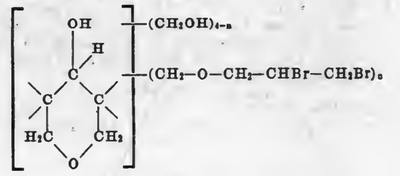
A method for producing ε-caprolactone from the corresponding polymers of ε-caprolactone by depolymerizing them with heat in the presence of a suitable catalyst and at a temperature of 210°–320° C. The starting materials, polymers of epsilon-caprolactone may contain ε-caprolactone and/or ε-hydroxy-caproic acid.

3,546,252
DIMETHYL OXA-STEROIDS
Milan Radoje Uskokovic, Upper Montclair, N.J., assignor to Hoffmann-La Roche, Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 680,308, Nov. 3, 1967. This application Oct. 31, 1968, Ser. No. 772,385
Int. Cl. C07d *7/06*
U.S. Cl. 260—343.2 10 Claims

Various preparative routes to the 6-substituted or unsubstituted-17,17-dimethyl - 4 - oxa-18-norandrost-13-en-3-ones are described. The end products are useful as antiandrogens.

3,546,253
BROMINE-CONTAINING POLYOL ETHERS AND METHOD OF PREPARATION
Sammy Carpenter, Bolckow, Mo., Enrique R. Witt, Corpus Christi, Tex., and Joseph J. Cahill, Jr., Colonia, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Original application Mar. 12, 1965, Ser. No. 439,466, now Patent No. 3,385,900. Divided and this application Oct. 30, 1967, Ser. No. 712,873
Int. Cl. C07d *7/04*
U.S. Cl. 260—345.9 4 Claims

A brominated compound represented by the general formula:



and a method of producing said compound which comprises contacting an allyl ether of anhydroenneaheptitol with bromine in at least the stoichiometrical amount required to convert from 1 to 4 allyl ether groups of said anhydroenneaheptitol to a corresponding number of 2,3-dibromopropyl ether groups. The brominated polyol ethers are useful in the production of flame-retardant polyurethane foams.

3,546,254
CATALYTIC DEHYDROCYCLIZATION OF ORTHO-SUBSTITUTED PHENOLS
Gerassimos Frangatos, Haddon Township, Camden County, N.J., assignor to Mobil Oil Corporation, a corporation of New York
No Drawing. Continuation-in-part of application Ser. No. 391,009, Aug. 20, 1964. This application Mar. 6, 1969, Ser. No. 804,973
The portion of the term of the patent subsequent to Jan. 7, 1986, has been disclaimed
Int. Cl. C07d *5/42*
U.S. Cl. 260—346.2 12 Claims

The presence of the gaseous substance containing sulfur (e.g., H_2S) and of a sulfur-resistant dehydrocyclization catalyst (e.g., sulfided nickel-tungsten) improves the selectivity and yields in the production of aromatic furan compounds (e.g., benzofuran) by the dehydrogenation and cyclization of a phenol substituted in the ortho position with an organic radical containing at least two carbon atoms in the alpha and beta positions (e.g., o-ethylphenol) by heating the phenolic compound at dehydrocyclization temperatures (e.g., 575–625° C.).

3,546,255
FURAN-2,5-DICARBOXYLIC ACID DIAMIDES
Max Duennenberger, Frenkendorf, and Max Schellenbaum, Muttenz, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Filed Feb. 13, 1968, Ser. No. 705,011
Claims priority, application Switzerland, Feb. 20, 1967, 2,415/67
Int. Cl. C07d *5/14*
U.S. Cl. 260—347.3 6 Claims

The present invention relates to novel furan-2,5-dicarboxylic acid diamides and their use in preparations for combating harmful bacteria. These furan-2,5-dicarboxylic acid diamides are particularly valuable because of their broad antibacterial activity spectrum. Thus they may be used in bacterial control quite generally.

3,546,256
PROCESS FOR SEPARATING ORGANIC MIXTURES CONTAINING NF_2 GROUPS
Abraham A. Zimmerman, New York, N.Y., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Feb. 1, 1962, Ser. No. 170,862
Int. Cl. C07d *5/16*
U.S. Cl. 260—347.4 6 Claims

1. Process for separating mixtures of organic compounds containing NF_2 groups according to their structures and NF_2 content by a chromatographic method which comprises, concentrating at least one fraction of said mixture by adsorption on siliceous adsorbent particles, and desorbing said adsorbed fraction by a lower boiling desorbing liquid of approximately similar affinity for the adsorbent, then recovering the concentrated NF_2-containing fraction.

5. The process set forth in claim 3, wherein the adducts in the liquid mixture are tetrakis-(NF_2) and bis-(NF_2) adducts of furfuryl acetate.

3,546,257
OXIDATION OF ALIPHATIC DIENES TO PRODUCE FURALDEHYDES
Theodor Vrbaski, Harvey, Ill., and Thomas David Sheehan, Kalamazoo, Mich., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,492
Int. Cl. C07d *5/22, 5/14*
U.S. Cl. 260—347.8 13 Claims

A process for the catalytic, vapor phase oxidation of a 1,3-diene selected from the group consisting of 1,3-pentadiene and 2-methyl-1,3-butadiene to produce a furaldehyde which comprises oxidizing said 1,3-diene in the vapor phase at a temperature of about 350 to 550° C. with molecular oxygen-containing gas in the presence of an oxidation catalyst containing oxides of copper, arsenic, tellurium, and molybdenum. The metals are present in the catalyst in the following atomic ratios:

$$Cu_aAs_bTe_cMo_d$$

wherein *a* is about 2 to 20, *b* is about 0.1 to 15, *c* is about 0.1 to 5, and *d* is about 20 to 30.

3,546,258
1,4-DIAMINO - 5 - (p-AMINO PHENYL) AMINO ANTHRAQUINONES, THE ACID ADDITION AND QUATERNARY AMMONIUM SALTS THEREOF
Gregoire Kalopissis, Paris, Jack Bertrand, Tremblay-les-Gonesses, and Andree Bugaut, Boulogne-sur-Seine, France, assignors to Societe Anonyme dite: L'OREAL, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 426,366, Jan. 18, 1965. This application Mar. 5, 1969, Ser. No. 804,657
Claims priority, application France, Jan. 27, 1964, 961,661
Int. Cl. C09b *1/32*
U.S. Cl. 260—378 7 Claims

Hair dye compounds containing 1,4-diamino-5-substituted aminoanthraquinones.

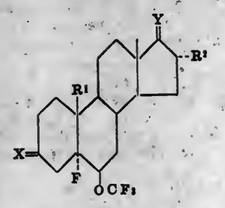
3,546,259

SELECTED 6β- AND 6α-TRIFLUOROMETHOXYL ANDROSTANE, ESTRANE AND PREGNANE DERIVATIVES

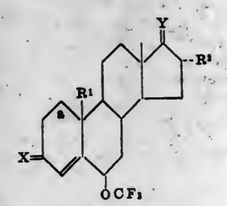
George A. Boswell, Jr., Wilmington, and William C. Ripka, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,531
Int. Cl. C07c 169/06
U.S. Cl. 260—397.4 20 Claims

Described and claimed are the 6α- and 6β-trifluoromethoxyl steroids of the formulas



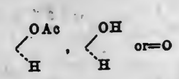
and



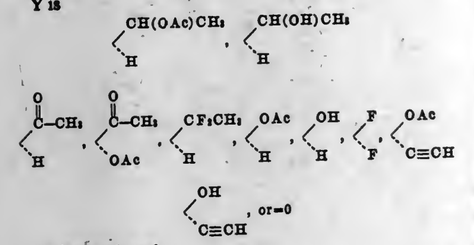
wherein

R^1 and R^2, which may be the same or different, are hydrogen or methyl;

X is



Y is



Ac is acetyl; and

a is a single or a double carbon-carbon bond, with the proviso that when *a* is a double bond, R^1 is methyl.

The trifluoromethoxyl androstanes of this invention possess anti-androgenic activity while the corresponding estrane and pregnane derivatives of this invention possess progestational, anti-fertility and anti-estrogenic activity.

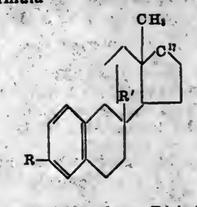
3,546,260

AROMATIZED A-RING STEROID

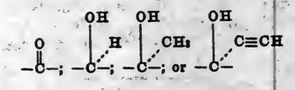
Samuel C. Pan, Metuchen, Pacifico A. Principe, South River, and Leonard J. Lerner, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,862
Int. Cl. C07c 169/08
U.S. Cl. 260—397.45 12 Claims

The invention disclosed herein relates to aromatization of the A-ring in a cyclopentanophenanthrene nucleus by microorganisms. The novel steriods of this invention have the following formula



wherein R is hydroxy or acyloxy; R' is hydroxy and C^{17} is



These compounds are prepared by subjecting 8β-hydroxy phenanthrene derivatives to the action of various microorganisms. Both the hydroxy and the acyloxy derivatives of the instant invention possess estrogenic activity and may be utilized in humans and in animals.

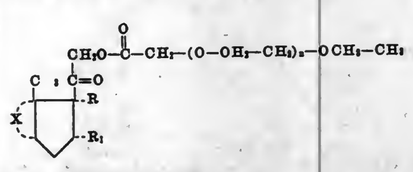
3,546,261

NOVEL ETHOXYLATED ACETIC ACID ESTERS OF PREGNANE-21-OLS

André Allais, Les Lilas, and Michel Paturet, Sucy-en-Brie, France, assignors to Roussel-UCLAF, Paris, France, a corporation of France

No Drawing. Continuation of application Ser. No. 770,889, Oct. 15, 1968, which is a continuation of application Ser. No. 649,354, June 27, 1967, which in turn is a continuation of application Ser. No. 499,050, Oct. 20, 1965. This application Nov. 26, 1969, Ser. No. 873,745
Int. Cl. C07c 169/32
U.S. Cl. 260—397.45 4 Claims

Esters of pregnane-21-ols of the formula



I

wherein R is selected from the group consisting of hydrogen, hydroxy and OAc, Ac is an acyl radical of an organic carboxylic acid having 1 to 7 carbon atoms, R_1 is selected from the group consisting of hydrogen and lower alkyl of 1 to 7 carbon atoms, *n* is an integer from 1 to 2 and X represents the A, B and C rings of a pregnane steroid and to novel intermediates therefor. The invention also relates to a novel process for the preparation of the said novel steroid esters. The invention also relates to novel anti-inflammatory compositions and to a novel method of reducing inflammation.

3,546,262

DIVALENT METAL OXIDE ACYLATES

Jacobus Rinse, Essex Bldg., Bernardsville, N.J. 07924

No Drawing. Filed Oct. 11, 1968, Ser. No. 766,976
Int. Cl. C08h 17/36
U.S. Cl. 260—414 20 Claims

Divalent metal oxide acylates are prepared simply from virtually any divalent metal or combination of two such metals. They are soluble in numerous organic solvents, with which liquid solutions containing from 60 to 90 percent (by weight) solids have been frequently obtained. When such solutions are applied to a solid substrate, they dry to tack-free, glossy protective coatings having excellent adherence.

3,546,263

PROCESS OF PRODUCING LEAD-, CADMIUM- AND DIVALENT TIN SALTS OF CARBOXYLIC ACIDS

Erich Ruf, Essen, Germany, assignor to Th. Goldschmidt A.G., Essen, Germany

No Drawing. Filed Apr. 16, 1969, Ser. No. 816,780
Claims priority, application Netherlands, May 3, 1968, 6806265
Int. Cl. C08h 17/36
U.S. Cl. 260—414 5 Claims

Lead-, cadmium-, and divalent tin salts of carboxylic acids having more than 6 carbon atoms, are prepared by reacting lead oxide, cadmium oxide or stannous oxide with carboxylic acid anhydrides at elevated temperatures that are above the melting point of the carboxylic acid anhydride.

3,546,264

PROCESS FOR PRODUCTION OF ALLYL RUTHENIUM TRICARBONYL HALIDES

Piero Pino, Zurich, Switzerland, and Glauco Sbrana and Giuseppe Braca, Pisa, Italy, assignors to Lonza Ltd., Gampel, Valais, Switzerland, a corporation of Switzerland

No Drawing. Filed Sept. 16, 1968, Ser. No. 762,345
Claims priority, application Switzerland, Sept. 15, 1967, 12,944/67
Int. Cl. C07c 39/08; C07f 15/00
U.S. Cl. 260—429 7 Claims

A process for the production π-allyl ruthenium tricarbonyl halides wherein ruthenium tetracarbonyl trimer is reacted with allyl halides in an organic solvent at temperatures within the range 50–90° C. and an inert atmosphere. The compounds have utility as catalysts in carbonylization reactions.

3,546,265

PREPARATION OF CYCLIC SILOXANES

Richard Louis Schank, Brewster, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,052
Int. Cl. C07d 103/04; C07f 7/08
U.S. Cl. 260—448.2 21 Claims

A process for preparing cyclic siloxanes selected from the group consisting of hexamethylphenylhydrocarboncyclictetrasiloxane and octamethylphenylhydrocarboncyclicpentasiloxane which comprises cohydrolyzing at least three moles of a dimethyldihalosilane monomer and one mole of a phenylhydrocarbondihalosilane monomer at a temperature ranging from 40° C. to 70° C. in the presence of a diisopropylether solvent and wherein the mole amount of water employed is at least sufficient to provide a two phase hydrolysis system.

3,546,266

PROCESS FOR THE PREPARATION OF AN ORGANIC SILICON COMPOUND BY REACTING IN THE PRESENCE OF A RHODIUM CATALYST

Robert Stevenson Coffey, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Aug. 18, 1966, Ser. No. 573,174
Claims priority, application Great Britain, Sept. 3, 1965, 37,692/65
Int. Cl. C07f 7/08, 7/18
U.S. Cl. 260—448.25 7 Claims

A process is provided for the preparation of an organic silicon compound, which process comprises reacting a compound containing at least one silicon to hydrogen bond with a compound containing at least one unsaturated bond in the presence of a rhodium catalyst of the formula $RhX(R'R''R''')_3$ where X is an anionic element and the R's are organic groups and Y is arsenic, antimony or phosphorus.

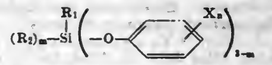
3,546,267

PRODUCTION OF HALOGENATED PHENOXYSILANES

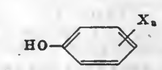
Roshdy Ismail, Spich, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany, a corporation of Germany

No Drawing. Continuation-in-part of application Ser. No. 601,288, Dec. 7, 1966. This application July 1, 1969. Ser. No. 838,333
Claims priority, application Germany, July 9, 1968, 1,768,863; Dec. 7, 1965, D 48,848
Int. Cl. C07f 7/06, 7/18
U.S. Cl. 260—448.8 18 Claims

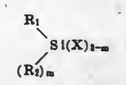
Halogenated phenoxysilanes of the formula:



wherein R_1 is alkenyl, alkyl, cycloalkyl or aryl, R_2 is alkyl, cycloalkyl, aryl, alkoxy or aryloxy, X is fluorine, chlorine or bromine and *n* is a whole number of from 1 to 5 and *m* is 0 or 1 and process of preparing the same comprising condensing at a temperature of from 40 to 250° C. a halogenated phenol of the formula:



with a halogen silane of the formula:



wherein R_1, R_2, X, *n* and *m* are as above defined in the presence of at least one member of the group consisting of tertiary amines, the amino group of which may be a component of an aromatic ring system, N-mono- and disubstituted and unsubstituted acid amides, or a hydrochloride thereof.

3,546,268

METHOD FOR PRODUCING UNSATURATED NITRILES

Yoneichi Ikeda and Masaharu Tashiro, Yokohama, and Kantaro Yamada and Toshio Nakamura, Tokyo, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed July 9, 1968, Ser. No. 743,310
Claims priority, application Japan, July 13, 1967, 42/44,689
Int. Cl. C07c 121/02, 121/32
U.S. Cl. 260—465.3 9 Claims

Acrylonitrile or methacrylonitrile is produced with reduction of the amount of ammonia used and increase of yield of desired product by a method which comprises contacting a mixture of propylene or isobutylene, ammonia and oxygen in vapor phase with an oxidizing fluidized solid catalyst which is also active to ammonia at a high temperature, wherein a part of the starting ammonia is fed into a reactor at a position higher than the feed position of the other starting gases.

3,546,269
METHOD OF PREPARING γ-HYDROXY-BUTYRONITRILE

Hachiro Wakamatsu, Tokyo, Susumu Tatsumi, Seiichi Sato, and Jiro Sato, Kawasaki-shi, and Mikio Nomura, Yokohama-shi, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,617
Claims priority, application Japan, Apr. 27, 1967, 42/27,200
Int. Cl. C07c *121/34*
U.S. Cl. 260—465.6 4 Claims

γ-Hydroxybutyronitrile is formed in high yields by reacting acrylonitrile with hydrogen and carbon monoxide in the presence of a cobalt catalyst in a solvent medium mainly consisting of normally liquid aromatic hydrocarbons, cyclic ethers, or alkyl esters of alkanoic acids having no more than ten carbon atoms, at temperatures between 160° C. and 250° C.

3,546,270
BIS-METHYLENE MALONIC ACID NITRILES

Rudolf Kirchmayr, Binningen, Basel-Land, Hans Jakob Peterli, Fullinsdorf, Basel-Land, and Hansjörg Heller, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed July 18, 1966, Ser. No. 565,725
Claims priority, application Switzerland, July 23, 1965, 10,366/65; July 15, 1966, 10,201/66
Int. Cl. C07c *69/76, 103/24, 121/70*
U.S. Cl. 260—465 10 Claims

Bis-methylene malonic acid nitriles, useful as UV absorbers.

3,546,271
PROCESS FOR THE PRODUCTION OF AMINEACETONITRILES

Edward E. Harris, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed June 27, 1968, Ser. No. 740,484
Int. Cl. C07c *121/42, 121/44*
U.S. Cl. 260—465.5 9 Claims

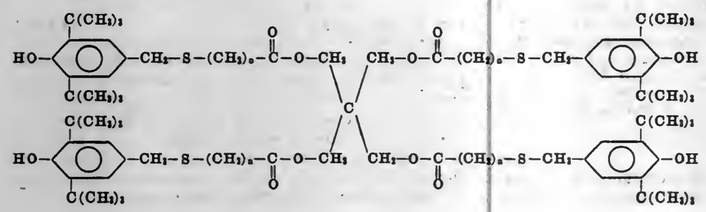
There is described a process for the preparation of compounds of the formula: $H_bN(CH_2CN)_c$, wherein b is from 0 to 2, c is from 1 to 3, and the sum of b plus c is 3, comprising reacting a compound of the formula: $H_dN(CH_2SO_3H)_e$, wherein d is from 0 to 2, e is from 1 to 3, and the sum of d plus e is 3, with hydrogen cyanide and with formaldehyde.

3,546,272
PENTAERYTHRITOLTETRAKIS-(3,5-DI-t-BUTYL-4-HYDROXY-BENZYLTHIOACETATE)

Harry Braus, Springdale, and Jay R. Woltermann, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,546
Int. Cl. C07c *149/40*
U.S. Cl. 260—470 1 Claim

Organic materials can be stabilized with compounds having the formula



wherein all of the n's are equal to each other and are within the range of 1 to 22.

3,546,273
ESTER DERIVATIVES OF 2-(4-HALOPHENOXY) ALKANOIC ACIDS

William A. Bolhofer, Frederick, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed June 1, 1967, Ser. No. 642,733
Int. Cl. C07c *69/76, 93/16*
U.S. Cl. 260—473 8 Claims

2-(4-halophenoxy)alkanoic acid ester products (I) which contain an amido, ureido or benzoyl group in the alkanol portion of the molecule. The said esters are obtained from their corresponding 2-(4-halophenoxy) alkanoic acid halides via the reaction with an appropriate amido, ureido or benzoyl substituted alkanol; or the said benzoyl substituted esters may be obtained via the reaction of a 2-(4-halophenoxy)alkanoic acid with an appropriate phenacyl halide. The said ester products (I) are useful as hypocholesterolemics in the treatment of atherosclerosis.

3,546,274
PROCESS FOR PREPARING ESTERS

Walter L. Borkowski, Media, and William D. Vanderwerff, West Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 337,547, Jan. 14, 1964. This application Jan. 27, 1967, Ser. No. 612,096
Int. Cl. C07c *69/76*
U.S. Cl. 260—475 8 Claims

Improvements in the preparing of dialkyl esters of naphthalene carboxylic acids from dialkyl naphthalenes in which separation of the intermediate carboxylic acid and the subsequent esters from by-products is facilitated in the respective stages by using at least some lithium chromate as the alkali metal chromate oxidizing agent and carrying out both the oxidation and the esterification under a CO_2 atmosphere. The separation is facilitated because of the formation of water soluble carboxylic acid salts and water insoluble inorganic salts as by-products in the oxidation step and the formation of alcohol soluble esters and alcohol insoluble by-product salts in the esterification step of the process. The dialkyl naphthalenes can be obtained as a gas oil extract. The oxidation is carried out at about 100 to 300° C. The esterification is carried out with an alcohol of about 1 to 12 carbon atoms and at about 50° to 200° C.

3,546,275
DIBENZO(a,d)CYCLOHEPTENE-5'-YLIDENE) HYDROXYLAMINES

Herbert Schröter, Reinach, and Daniel A. Prins, Oberwil, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Original application May 3, 1965, Ser. No. 452,872, now Patent No. 3,358,026. Divided and this application July 6, 1967, Ser. No. 662,234
Int. Cl. C07d *29/26*
U.S. Cl. 260—477 4 Claims

Dibenzo[a,d]cycloheptene - 5' - ylidene]hydroxylamine derivatives and 10',11'-dihydro-5'H-dibenzo[a,d]cyclohep-

tene-5'-ylidene]hydroxylamine derivatives possess useful action in the central nervous system and calmative action. A specific embodiment of this class of compounds is N-[3-(10',11' - dihydro - 5'H - dibenzo[a,d]cycloheptene-5'-ylidene)propyl]-N-methyl-O-benzoyl hydroxylamine.

3,546,276
β-AMINO - β,β - BIS(FLUOROALKYL)CARBONYL COMPOUNDS AND PROCESS FOR PREPARING THE SAME

David M. Gale, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 22, 1965, Ser. No. 502,611
Int. Cl. C07c *101/00, 121/42*
U.S. Cl. 260—482 4 Claims

Fluoroalkylideneimines can be reacted with compounds containing a methylene group activated by an adjacent carbonyl group in the presence of a Friedel-Crafts catalyst to give β-amino-β,β-bis(fluoroalkyl)carbonyl compounds. The β-amino-β,β-bis(fluoroalkyl)carbonyl compounds are useful as degreasing agents for metals.

3,546,277
METHOD OF PREPARING 1,1-DIALKOXY-4,4-DIACYLOXYBUTANES

Itsutoshi Maeda, Tokyo, and Masahiko Takesada and Ryonosuke Yoshida, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Mar. 20, 1967, Ser. No. 624,184
Int. Cl. C07c *67/00*
U.S. Cl. 260—491 3 Claims

1,1-di-lower-alkoxy-4,4-diacyloxybutanes are obtained directly from the corresponding 1,1-diacyloxy-2-propenes by reaction with carbon monoxide, hydrogen, and lower alkanol under the temperature and pressure conditions of the oxo reaction and in the presence of a cobalt-bearing catalyst which is converted to cobalt carbonyl under the reaction conditions. The yields are sharply increased if lower alkyl orthoformates are present in the reaction mixture in a mol ratio of 0.1:1 to 3:1 relative to the diacyloxypropene.

3,546,278
PREPARATION OF UNSATURATED ESTERS

Percy Hayden and Donald Wright, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed June 16, 1967, Ser. No. 646,490
Claims priority, application Great Britain, July 6, 1966, 30,287/66
Int. Cl. C07c *67/04*
U.S. Cl. 260—497 13 Claims

Unsaturated organic compounds such as alpha-olefines, particularly ethylene and propylene, are oxidised to aldehydes or ketones, unsaturated esters, or unsaturated ethers in the presence of water, carboxylic acids, or alcohols or phenols respectively, the oxidation being catalysed by a palladium compound and an ionisable cyanate. By use of a redox system and molecular oxygen to maintain the palladium compound in its oxidised state a continuous process may be obtained. The process may be carried out in an essentially halide-free medium without loss of reaction rate. The process is of particular use in the production of vinyl acetate from ethylene.

3,546,279
PREPARATION OF 3,3,5-TRIMETHYL CYCLOHEPTANOL AND ESTERS THEREOF

Jack H. Blumenthal, Oakhurst, N.J., assignor to International Flavors & Fragrances Inc., New York, N.Y., a corporation of New York

No Drawing. Filed Feb. 2, 1967, Ser. No. 613,425
Int. Cl. C07c *67/04*
U.S. Cl. 260—497 3 Claims

This disclosure describes a process for the conversion of 5,7-dimethyl-1,6, octadiene to a lower alkanoyl ester of 3,3,5-trimethyl cycloheptanol, by cyclization of the diene with an acid such as formic or acetic acid in the presence of a strong acid catalyst, preferably at the reflux temperature of the mixture. The esters can be hydrolysed to the alcohol, which in turn can be converted to the ketone. The compounds are useful as ingredients in perfume compositions.

3,546,280
PROCESS FOR THE PREPARATION OF NAPHTHALENE DISULFONIC ACID

Hans Dressler, Pitcairn, and Kenneth G. Reabe, Delmont, Pa., assignors to Koppers Company, Inc., a corporation of Delaware

Filed May 15, 1967, Ser. No. 638,397
Int. Cl. C07c *143/24*
U.S. Cl. 260—505 3 Claims

Naphthalene disulfonic acid, a useful intermediate for the production of naphthalene diol, is produced by passing a mixture of naphthalene and concentrated sulfuric acid through an evaporation zone as a wiped thin film at a temperature of 220–270° C. and a pressure below 10 mm. Hg. The naphthalene and sulfuric acid react within the evaporation zone to form naphthalene disulfonic acid. The excess sulfuric acid is evaporated from the reaction product and collected in a condensation zone. The resulting naphthalene disulfonic acid is essentially free of sulfuric acid. The recovered sulfuric acid may be recycled for further reaction with fresh naphthalene.

3,546,281
METHOD OF PRODUCING NOVEL POLYENE COMPOUND

Hans Heinz Haeck and Teunis Kralt, Van Houtenlaan, Weesp, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 31, 1967, Ser. No. 627,316
Claims priority, application Netherlands, Apr. 1, 1966, 6604324
Int. Cl. C07c *61/22*
U.S. Cl. 260—514 10 Claims

Prepare polyene derivatives such as β-carotene-dicarboxylic acid -14,15 and γ-carotene-dicarboxylic acid-10',11' and esters thereof. The compounds are useful for food coloring. This abstract is not intended to be a description of the invention defined by the claims.

3,546,282
PROCESS FOR THE PRODUCTION OF ALKALI AROMATIC DICARBOXYLATES
Tamotsu Murase and Ichiro Mikami, both of 30 Tokumaru-cho, Itabashi-ku, Tokyo, Japan, and Moriyoshi Tamura and Masaoki Matsuda, both of 4918 Kanoezuka-machi, Ohi, Shinagawa-ku, Tokyo, Japan
No Drawing. Filed Feb. 10, 1965, Ser. No. 431,708
Claims priority, application Japan, Feb. 18, 1964, 39/8,373
Int. Cl. C07c *63/28*
U.S. Cl. 260—515 9 Claims

Process for producing alkali terephthalate by the reaction of alkali benzoate with alkali carbonate and carbon monoxide at a relatively high temperature under pressure of a gaseous mixture of carbon monoxide and carbon dioxide and in the presence of a catalyst, while avoiding the presence of oxygen and water in the reaction system.

3,546,283
RECOVERY OF TEREPHTHALIC ACID FROM METHANOLIC MOTHER LIQUOR
Ferdinand List and Helmut Alfs, Marl, Germany, assignors to Chemische Werke Hulls A.G., Marl, Germany
No Drawing. Filed Oct. 2, 1967, Ser. No. 672,020
Claims priority, application Germany, Oct. 12, 1966, C 40,368
Int. Cl. C07c *51/42*
U.S. Cl. 260—525 9 Claims

Methanolic mother liquor obtained from the esterification of terephthalic acid with methanol is saponified at elevated temperature with aqueous alkali. The saponification mixture is distilled to separate methanol from aqueous salt solution. Adding mineral acid to the aqueous salt solution permits the separation of organic acid therefrom. The organic acid may be conventionally oxidized to terephthalic acid.

3,546,284
PURIFICATION OF COMMERCIAL TEREPHTHALIC ACID
Ferdinand List and Helmut Alfs, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany
No Drawing. Filed Oct. 2, 1967, Ser. No. 672,023
Claims priority, application Germany, Oct. 12, 1966, C 40,369
Int. Cl. C07c *51/42*
U.S. Cl. 260—525 9 Claims

Terephthalaldehydic acid contamination of commercial terephthalic acid is virtually eliminated by dissolving the commercial acid in aqueous alkali and treating the resulting solution at elevated temperature with hydrogen peroxide.

3,546,285
PROCESS OF PURIFYING AROMATIC DICARBOXYLIC ACIDS
Enrique R. Witt, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 20, 1967, Ser. No. 647,347
Int. Cl. C07c *51/42*
U.S. Cl. 260—525 14 Claims

A process for purifying aromatic dicarboxylic acids, and particularly terephthalic acid, to provide, in a single stage, a fiber grade acid, which process involves catalytically hydrogenating the acid to be purified at an elevated temperature, e.g., above about 250° C., in a solvent which is, at least in major part, an aliphatic saturated fatty acid, e.g., acetic acid, and cooling the hydrogenated solution to crystallize the purified acid, leaving hydrogenated impurities in solution.

3,546,286
OXIDATION OF POLYACROLEINS
Heinz Hartel and Ilse Ursula Nebel, Oberlar, Germany, assignors to Dynamit Aktiengesellschaft, Troisdorf, Germany, a corporation of Germany
No Drawing. Filed Oct. 11, 1965, Ser. No. 494,970
Claims priority, application Germany, Oct. 15, 1964, D 45,640
The portion of the term of the patent subsequent to June 4, 1985, has been disclaimed
Int. Cl. C07c *51/26*
U.S. Cl. 260—530 7 Claims

An oxidation process wherein at least one of acrolein and methacrolein is polymerized in an aqueous medium in the presence of a redox polymerization catalyst following which the polymerization reaction product containing the polymerized monomeric material is brought into reactive contact with alkali and Cu(II)O or Cu(II)OH.

3,546,287
SYNTHESIS OF 1,2,3,4 - TETRAHYDRO - 5 - NAPHTHALENE SULFONYLFLUORIDE (I) AND 1,2,3,4-TETRAHYDRO - 6 - NAPTHALENE SULFONYLFLUORIDE
Ronald D. Bushick, Glen Mills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Jan. 24, 1966, Ser. No. 522,391
Int. Cl. C07c *143/00*
U.S. Cl. 260—543 4 Claims

A method of producing a mixture of isomers of 1,2,3,4-tetrahydro naphthalene sulfonylfluoride which comprises contacting 1,2,3,4-tetrahydro naphthalene with BF_3 and an excess of fluorosulfonic acid for a time of from 15 minutes to 3 hours at a temperature of from —5 to 160° C.

3,546,288
PROCESS FOR MAKING 1,1-DIMETHYL-3-TETRAHYDRODICYCLOPENTADIENYL UREA
George A. Buntin, Faulkland Woods, Wilmington, and Andrew John, Jr., North Star, Newark, Del., assignors to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 1, 1968, Ser. No. 709,792
Int. Cl. C07c *127/00*
U.S. Cl. 260—553 7 Claims

In a process for making a product consisting essentially of 1,1-dimethyl-3-tetrahydrodicyclopentadienyl urea by catalytically hydrogenating material consisting essentially of 1,1-dimethyl-3-dihydrodicyclopentadienyl urea, the formamide content of the product is substantially reduced by admixing said material with dimethyl amine, the quantity of said dimethyl amine being at least substantially molecularly equivalent to said formamide content in the absence of dimethyl amine.

3,546,289
PROCESS FOR PREPARATION OF ACRYLAMIDE
Oliver A. Kilkka, Willoughby, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed July 26, 1967, Ser. No. 656,054
Int. Cl. C07c *103/08*
U.S. Cl. 260—561 3 Claims

The process for preparing acrylamide, as described herein, includes the following steps:

(1) Treating acrylonitrile with sulfuric acid and water in the presence or absence of a polymerization inhibitor,

(2) Neutralizing the reaction mixture in the presence of an aprotic solvent,

(3) Removing the aprotic solvent from solid reaction products,

(4) Dissolving soluble solid reaction products in a hydrocarbon solvent, such as acetone,

(5) Separating the hydrocarbon solvent from nonsoluble products, and

(6) Evaporating or distilling the hydrocarbon solvent to obtain solid acrylamide.

For the most part, above process is conventional. The novel feature of the process is in the neutralizing step which is effected in presence of an aprotic solvent, defined as a straight-chain or branch-chain hydrocarbon or its halogen derivative, which is neither a proton acceptor nor a proton donor.

3,546,290
BICYCLO[2.2.2]OCTANE-1-AMINES AND BICYCLO [2.2.2]OCTANE-1-METHYLAMINES
James C. Kauer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 529,935, Feb. 25, 1966, which is a continuation-in-part of application Ser. No. 375,337, June 15, 1964, which in turn is a continuation-in-part of application Ser. No. 277,141, May 1, 1963. This application July 17, 1968, Ser. No. 745,378
Int. Cl. C07c *87/40;* C07d *27/24;* A61k *27/00*
U.S. Cl. 260—563 6 Claims

Bicyclo[2.2.2]octane-1-amines and bicyclo[2.2.2]octane-1-methylamines inhibit and deter the incidence and growth of a variety of harmful viruses.

3,546,291
BICYCLO[3.2.1]OCTANE AMINES
Alfred W. Chow, Radnor, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Original application Aug. 9, 1966, Ser. No. 571,189, now Patent No. 3,439,101. Divided and this application Nov. 6, 1968, Ser. No. 773,960
Int. Cl. C07c *87/40;* A61k *27/00*
U.S. Cl. 260—563 7 Claims

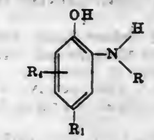
Bicyclo[3.2.1]octanes, substituted with an amino, aminomethyl, or a α-aminoethyl group, are prepared, formulated, and administered to warm-blooded mammals to combat influenza infections.

3,546,292
B-NORESTRATRIENES
Vlasios Georgian, Belmont, Mass., and Francis R. Pfeiffer, Delran, N.J., assignors to Trustees of Tufts College, Medford, Mass., a corporation of Massachusetts
No Drawing. Filed Nov. 2, 1967, Ser. No. 680,035
Int. Cl. C07c *131/08*
U.S. Cl. 260—566 2 Claims

8α - B - norestradiols and B-norestral-1,3,5(10),8,14-pentaene 17-oximes are prepared by a series of steps from 5-alkoxy-1-vinylindan-1-ols and 2-methyl or ethylcyclopentane-1,3-dione. The products have blood cholesterol-lowering activity.

3,546,293
AMINO PHENOLS
Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne-sur-Seine, France, assignors to Societe Anonyme dite: L'Oreal, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 574,860, July 11, 1966, which is a division of application Ser. No. 293,282, July 8, 1963. This application June 12, 1967, Ser. No. 645,522
Claims priority, application France, July 11, 1962, 903,703; July 3, 1963, 940,212
Int. Cl. C07c *91/44*
U.S. Cl. 260—574 9 Claims

New compounds suitable for use in one step hair and keratin fiber dyeing compositions which do not require the use of separate dye modifiers and are exceptionally color stable, having the formula:



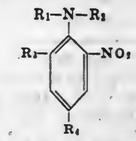
in which R is selected from the group consisting of hydrogen and alkyl, R_1 is selected from the group consisting of hydroxy and alkyl, and R_4 which can be in position 5 or 6 on the ring is selected from the group consisting of hydrogen, halogen, hydroxy and alkyl.

3,546,294
2,5-DIHYDROXY-MONOMETHYL- OR -DIETHYL-AMINO BENZENE AND THE SALTS THEREOF
Gregoire Kalopissis, Paris, France, assignor to L'Oreal, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 207,090, July 2, 1962. This application Sept. 29, 1967, Ser. No. 671,620
Claims priority, application France, Sept. 25, 1961, 874,113
Int. Cl. A61k *7/12;* C07c *91/18, 91/42*
U.S. Cl. 260—574 4 Claims

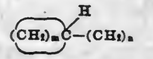
Dye compounds having improved chemical and color stability selected from the group consisting of 2,5-dihydroxy-mono and dialkyl amino benzene, said alkyl groups having up to 4 carbon atoms.

3,546,295
N-CYCLOALKYL ANILINES
Lester L. Maravetz, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Aug. 1, 1968, Ser. No. 749,326
Int. Cl. C07c *87/34, 121/52, 143/38*
U.S. Cl. 260—577 13 Claims

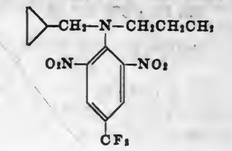
Cycloalkane derivatives of nitrated aryl compounds useful as herbicides, such as those, e.g., of the general formula



wherein (1) R_1 is a cycloalkyl containing group characterized by the following structural formula



in which the cycloalkyl ring itself may be optionally substituted with C_1–C_6 alkyl or C_2–C_6 alkenyl; n is either 0 or 1; m is a positive integer ranging from 2 to 4 when n is 1, however when n is 0, m is 2; (2) R_2 is C_1–C_6 straight or branched chain alkyl, C_2–C_6 alkenyl, cyclopropyl, C_4 cycloalkylalkyl or C_2–C_6 alkylmercaptoalkyl; (3) R_3 is hydrogen or NO_2; (4) R_4 is hydrogen, C_1–C_6 alkyl, CF_3, $CH_3S(O)_x$, $C_2H_5S(O)_x$, or $C_3H_7S(O)_x$, wherein x is 0, 1 or 2. Exemplary of an especially preferred nitrated aryl cyclopropane derivative is the compound of the formula



3,546,296
CONTINUOUS PROCESS FOR REDUCING AROMATIC NITRO COMPOUNDS TO AROMATIC AMINES
Georges Gobron and Robert Pipon, Melle, Deux-Sevres, France, assignors to Melle-Bezons, Melle, Deux-Sevres, France, a corporation of France
Filed Mar. 9, 1967, Ser. No. 621,881
Claims priority, application France, Mar. 10, 1966, 52,904
Int. Cl. C07b *1/00, 5/00;* C07c *85/10*
U.S. Cl. 260—580 5 Claims

This disclosure describes a process and apparatus for continuously carrying out a reaction of the type in which a gaseous phase is dispersed throughout a liquid phase to maintain a particulate solid suspended in the liquid phase. The reaction is carried out in an elongated reaction vessel while continuously introducing liquid phase, and continuously withdrawing liquid phase containing solid phase and dissolved products. A portion of the liquid phase containing the dissolved products is continuously collected and a portion, together with the solid phase is returned to the reaction mixture. The reaction apparatus is designed so that under the conditions of the reaction there is a continuous flow of the liquid phase throughout the apparatus without pumping.

3,546,297
PROCESS FOR PREPARATION OF AROMATIC CHLOROAMINES
John Richard Kosak, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 612,796, Jan. 31, 1967. This application July 1, 1969, Ser. No. 838,357
Int. Cl. C07c *85/10*
U.S. Cl. 260—580 8 Claims

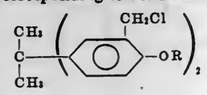
The present invention relates to a process for the preparation of chloro-substituted anilines by the catalytic reduction of nitro monocarbocyclic aromatic hydrocarbons having one or two chlorine atoms in the presence of a platinum catalyst, a nitrogen base and an effective amount of divalent nickel and trivalent chromium, the nickel and chromium being optionally deposited on the catalyst. When the nitrogen base compound is ammonia, the nickel and chromium may be omitted.

3,546,298
PRODUCTION OF ALKANOLAMINES
John B. Tindall, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y., a corporation of Maryland
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,288
Int. Cl. C07c *89/00, 89/04;* C07d *85/00*
U.S. Cl. 260—584 3 Claims

An improved process for the production of primary aminoalkanediols having substantially reduced secondary aminoalkanediol content by condensing a primary nitroalkane and formaldehyde in a mole ratio of 0.52–0.55:1 to produce a nitroalkanediol having minimal free formaldehyde, and reducing the nitroalkanediol to produce primary aminoalkanediol in high purity and yield.

3,546,299
CHLOROMETHYL BISPHENOL A ETHERS
Duane B. Priddy, Lansing, and Henry E. Hennis, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,212
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 6 Claims

Compounds corresponding to the formula

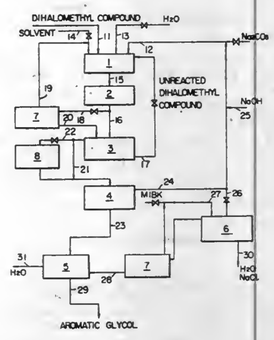


wherein R represents a lower alkyl, lower alkenyl or benzyl group. They are prepared by chloromethylating the lower alkyl, lower alkenyl or benzyl ethers of bisphenol A. The compounds are useful as microbicides.

3,546,300
CONVERSION OF GEM-DIALKOXY COMPOUNDS TO UNSATURATED ETHERS USING $CaCl_2$
Roger C. Williamson, Allison Park, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed July 5, 1968, Ser. No. 742,515
Int. Cl. C07c *43/16, 43/02*
U.S. Cl. 260—614 8 Claims

A gem-dialkoxy compound is catalytically cracked to an unsaturated ether and an alcohol at a temperature of at least 225° C. using $CaCl_2$ as the catalyst. For example, dimethylacetal can be cracked to methyl vinyl ether and methanol using $CaCl_2$ either supported or unsupported.

3,546,301
PROCESS FOR THE PREPARATION OF AROMATIC GLYCOLS
Ching Yun Huang, Minoo-shi, and Tamotsu Maeno, Suita-shi, Japan, assignors to Japan Gas-Chemical Company, Inc., Tokyo, Japan, a corporation of Japan
Filed Feb. 6, 1967, Ser. No. 614,347
Int. Cl. C07c *29/00, 31/02, 31/18*
U.S. Cl. 260—618 5 Claims



A process for the preparation of aromatic glycols which comprises saponifying an aromatic hydrocarbon dihalomethyl compound by dispersing said compound as an oily substance or a water-soluble organic solvent solution into an aqueous solution of saponifying agent such as hydroxide of an alkali metal, if desired in the presence of an ultrasonic vibration or a tough shearing stirring, to form an oil-in-water emulsion.

3,546,302
PROCESS FOR BROMINATING PHENOLS
Arthur A. Asadorian, Midland, and Ronald G. Tigner, North Bradley, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Apr. 3, 1964, Ser. No. 357,259
Int. Cl. C07c *37/12, 37/18, 39/16*
U.S. Cl. 260—619 11 Claims

A process for brominating phenols in the ortho- and para-positions by reacting a phenol with a brominating agent in the presence of a solvent system consisting essentially of an organic solvent phase and an aqueous phase.

3,546,303
OXIDATION OF CYCLOALKANES
Paul Hornberger, Hermann Suessenguth, and Heinrich Tritschler, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Dec. 28, 1966, Ser. No. 610,210
Claims priority, application Germany, Jan. 7, 1966, 1,568,064
Int. Cl. C07c *35/08*
U.S. Cl. 260—631 3 Claims

A process for the continuous oxidation of cycloalkanes in liquid phase at elevated temperature and under pressure in which a current of oxygen (air), or the liquid hydrocarbon or an auxiliary solvent, is introduced in the lower portion of the oxidation zone and directed either along the bottom of the vessel or against the bottom and the adjacent wall, so that any solids which are present or which form during the reaction are kept in motion. The oxidation products are valuable intermediates, e.g. for the production of polymers of the polyamide type.

3,546,304
PROCESS FOR STABILIZING AGAINST DECOMPOSITION HALOGENATED HYDROCARBONS, AND IN PARTICULAR CHLORINATED ALIPHATIC HYDROCARBONS
Germano Patron, Venice, Italy, assignor to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy
No Drawing. Filed Apr. 19, 1968, Ser. No. 722,808
Claims priority, application Italy, Apr. 20, 1967, 15,168/67
The portion of the term of the patent subsequent to Dec. 17, 1985, has been disclaimed
Int. Cl. C07c *17/40*
U.S. Cl. 260—652.5 3 Claims

Liquid halogenated hydrocarbons (and particularly chlorinated aliphatic hydrocarbons such as trichloroethylene and perchloroethylene used as metal degreasing solvents, dry-cleaning solvents, and oil- and fats-extraction solvents) are stabilized against decomposition by means of a stabilizing composition consisting essentially of stated small concentrations of the following four components: butylene oxide, di-isobutylene, thymol and dimethylbenzalhydrazone. A small quantity of an alkylhydrazine may also be present.

3,546,305
STABILIZATION OF 1,1,1-TRICHLOROETHANE
Wesley L. Archer, Midland, and Elbert L. Simpson, Auburn, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Original application Dec. 1, 1967, Ser. No. 687,123, now Patent No. 3,468,966, dated Sept. 23, 1969. Divided and this application Jan. 27, 1969, Ser. No. 833,209
Int. Cl. C07c *17/40, 17/42*
U.S. Cl. 260—652.5 2 Claims

The reaction of 1,1,1-trichloroethane with aluminum is inhibited by the presence in the 1,1,1-trichloroethane of a small amount of a dissolved diketone compound. Concentrations of the order of 0.005–1 gram mole per liter provide significant inhibition.

3,546,306
PRODUCTION OF ALKYLENE DIHALIDES
Donal E. McCarthy, 9104 Chickawane Court, Alexandria, Va. 22309
No Drawing. Filed Aug. 22, 1967, Ser. No. 662,289
Int. Cl. C07c *17/08*
U.S. Cl. 260—663 5 Claims

Process for the production of alkylene dihalides which comprises passing an aliphatic hydrocarbon, such as propane or propylene, a hydrogen halide and an oxygen-containing gas in a reactor having a first portion containing a molecular sieve zeolite alumina silicate catalyst and second and third portions devoid of catalyst, said first and second portions maintained at a temperature of 900° F. to 1100° F., and said third portion maintained at a temperature of about 140° F. to 210° F., wherein intermediate products are not isolated or recovered, and recovering the alkylene dihalides, such as 1,6-dibromohexane, produced.

3,546,307
PRODUCTION OF ETHYLCYCLOHEXENE
Donald C. Tabler, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,907
Int. Cl. C07c *5/16*
U.S. Cl. 260—666 5 Claims

Selective hydrogenation of 4-vinylcyclohexene using a nickel sulfide catalyst to obtain high yields of ethylcyclohexene.

3,546,308
ALKYLATION OF HYDROXYADAMANTANES
Robert E. Moore, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Mar. 17, 1969, Ser. No. 807,946
Int. Cl. C07c *3/54, 13/28*
U.S. Cl. 260—666 17 Claims

The process for the alkylation of adamantane compounds with C_4–C_{30} alcohols and olefins is improved to give greatly increased yields in relatively short reaction times, i.e., 10–60 minutes, by employing a bridgehead hydroxadamantane as the material to be alkylated. For example, 3,5-dimethyl-1-adamantane was reacted with a 1:1 mole ratio of isopropanol in 96% concentrated H_2SO_4 at 10–25° C. for 15 minutes to give a yield of 63 weight percent of 1-n-propyl-3,5-dimethyladamantane. The prior art process employing 3,5-dimethyladamantane in a somewhat similar procedure gave a yield of 12.6 weight percent 1-n-isopropyladamantane after 30 minutes reaction. At acid concentrations in the range of 80 to 94% only the C_3 agent produces alkenylation to give 1-(3,5-dimethyladamantyl) propene.

3,546,309
TRIMERIZATION OF BUTADIENE
Theodore Augur Koch and Herbert Sousa Eleuterio, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed May 29, 1969, Ser. No. 829,140
Int. Cl. C07c *3/00*
U.S. Cl. 260—666 15 Claims

The present invention relates to a process for the trimerization of butadiene to cyclododecatriene-(1,5,9) (CDDT) using a catalyst prepared from an organoaluminum sesquichloride, certain tetravalent titanium compounds, and an aldehyde, ketone, epoxide or anhydride.

3,546,310
ISOMERIZATION OF ACYCLIC TRIENES
Carlos G. Cardenas, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Mar. 24, 1969, Ser. No. 809,933
Int. Cl. B01j *11/82;* C07c *5/22*
U.S. Cl. 260—677 8 Claims

Acyclic trienes undergo double bond isomerization upon contact with a catalyst system prepared by admixing tetrahydrocarbylammonium hydroxides in aprotic polar solvent.

3,546,311
CONVERSION OF OLEFIN HYDROCARBONS
Louis F. Heckelsberg, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Apr. 3, 1967, Ser. No. 627,618
Int. Cl. C07c 3/62
U.S. Cl. 260—683 7 Claims
Olefins are converted into other olefins having different numbers of carbon atoms by contact with a catalyst, active for disproportionating propylene into ethylene and butene, in the presence of a hydrocarbon derivative of phosphorous, arsenic, antimony or bismuth.

3,546,312
OLEFIN CONVERSION AND CATALYST THEREFOR
Louis F. Heckelsberg and Robert L. Banks, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Apr. 3, 1967, Ser. No. 627,637
Int. Cl. C07c 3/62
U.S. Cl. 260—683 6 Claims
Olefins are converted into other olefins having different numbers of carbon atoms per molecule by contact with a catalyst, active for disproportionating propylene into ethylene and butene, comprising silica associated with a promoting amount of an oxide of tellurium.

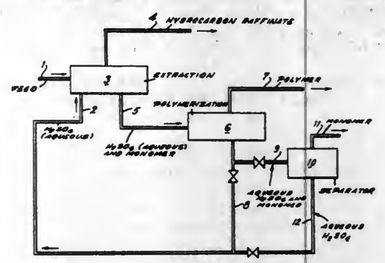
3,546,313
CONVERSION OF OLEFINS
Robert L. Banks, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Apr. 3, 1967, Ser. No. 627,629
Int. Cl. C07c 3/00
U.S. Cl. 260—683 11 Claims
Olefins are converted into other olefins having different numbers by contact with magnesium oxide which has been rendered active for disproportionating propylene into ethylene and butene by treatment with hydrogen or carbon monoxide at elevated temperature.

3,546,314
CONVERSION OF OLEFINS
Lewis G. Larson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Apr. 3, 1967, Ser. No. 627,633
Int. Cl. C07c 3/62
U.S. Cl. 260—683 9 Claims
In the conversion of an olefin into other olefins having different numbers of carbon atoms by contact with a catalyst active for disproportionating propylene into ethylene and butene wherein the catalyst has an initial activity which is quite high, the activity is controlled by pretreating the catalyst with air, containing a minor amount of water, at elevated temperature.

3,546,315
OLEFIN PURIFICATION
Joseph W. Davison, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,282
Int. Cl. C07c 3/62, 13/00, 7/00
U.S. Cl. 260—683 6 Claims
An olefin is separated from a saturated hydrocarbon having the same number of carbon atoms per molecule by converting the olefin by the olefin reaction to a different olefin which can be readily separated from the saturated hydrocarbon and then reconverting the different olefin to the original olefin.

3,546,316
PREVENTION OF COKE FORMATION IN STEAM CRACKING PROCESSES
Ihor Koszman, Parsippany, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Feb. 9, 1968, Ser. No. 704,256
Int. Cl. C10g 1/16; C07c 3/08
U.S. Cl. 260—683 14 Claims
The thermal cracking of arsenic containing petroleum fractions in admixture with steam to produce valuable olefinic products, e.g., ethylene, leads to the undesirable formation of coke within the cracking zones, which, in turn, leads to the periodic shutdown of these cracking zones for decoking; the periods between decoking, i.e., on-stream times, are increased by removing substantially all of the arsenic from the petroleum feed.

3,546,317
SEPARATION AND POLYMERIZATION OF OLEFINS
Andre Gislon, Paris, Andre Valet, Fontenay-aux-Roses, and Jean-Pierre Michaux and Jean-Jacques Bellec, Le Havre, France, assignors to Compagnie Francaise de Raffinage, Paris, France
Continuation of application Ser. No. 257,958, Feb. 12, 1963. This application Dec. 29, 1967, Ser. No. 694,753
Int. Cl. C07c 3/14
U.S. Cl. 260—683.15 2 Claims



Methods are provided for the separation of tertiary olefins from mixtures including other hydrocarbons by sulfuric acid extraction, but under conditions where polymerization of the olefins is avoided. Thereafter, and in the same extract medium, selective polymerization is obtained of a portion only of said tertiary olefins with separate recovery of the polymer and unpolymerized monomer and the sulfuric acid solution substantially without dilution for direct recycling in another extraction. A feature of primary importance is that the selected proportion of tertiary olefins in said extract which is to be polymerized and that which is not to be polymerized are controlled and predetermined from time to time as desired merely by varying the time-temperature conditions of the polymerization step and without other variation or alteration in that or other steps of the process or the starting materials fed thereto.

3,546,318
POLYSILICIC ACID/HYDROXYALKYL VINYL ETHER-POLYFLUOROOLEFIN COPOLYMER/ ALKALI METAL COMPOSITIONS CONTAINING CYCLIC POLYETHERS
Robert D. Vest, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 9, 1967, Ser. No. 614,915
Int. Cl. C08g 47/10
U.S. Cl. 260—827 8 Claims
Coating compositions comprising polysilicic acid/hydroxyalkyl vinyl ether-polyfluoroolefin copolymer/alkali metal compositions having improved resistance to attack by water obtained by the addition thereto of the macrocyclic polyethers known as "crown" compounds.

3,546,319
BLENDS OF POLYAMIDES, POLYESTER AND POLYOLEFINS CONTAINING MINOR AMOUNTS OF ELASTOMERS
Dusan C. Prevorsek, Morristown, and George E. R. Lamb, Mendham, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Sept. 10, 1968, Ser. No. 758,662
Int. Cl. C08g 39/10, 41/04
U.S. Cl. 260—857 14 Claims
The specification discloses improved blends of at least two polymers of the group of polyesters, polyamides and polyolefins wherein the blend is modified by incorporating therein a minor amount of a suitable elastomer. These blends form films which show improved tear resistance and fibers which show superior resistance to splitting when compared to similar articles from conventional polymer blends in which the elastomer is omitted.

3,546,320
POLYALKYLENE TEREPHTHALATE MOLDING COMPOSITION
Irl N. Duling, West Chester, Richard S. Stearns, Malvern, and Kenneth A. Scott, Swarthmore, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,573
Int. Cl. C08g 39/10
U.S. Cl. 260—860 11 Claims
It is possible to obtain crystalline molded articles from polyalkylene terephthalates by employing a polymer comprising 94 to 60 weight percent of polkalkylene terephthalate and 6 to 40 weight percent of a polyalkylene naphthalene-2,6-dicarboxylate said polymer having at least 5 percent crystallinity. For example, a polymer having 8 percent crystallinity is prepared by blending 80 parts by weight polyethylene terephthalate and 20 parts by weight polyethylene naphthalene-2,6-dicarboxylate for 1 hour at 280° C. The resulting copolymer will contain polymer chains with discrete segments of each of the two blended polymers. The copolymer is then extruded at 260° C., which is above the melting point of the polyethylene terephthalate polymer and segments, but below the melting point of the polyethylene naphthalene-2,6-dicarboxylate polymer and segments thus the crystallinity of the latter polymer and segments is substantially preserved and in addition provides sites for inducing polyethylene terephthalate to crystallize.

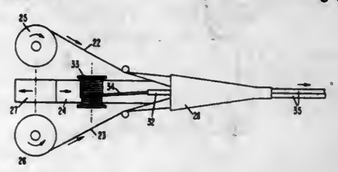
3,546,321
POLYETHER GRAFT COPOLYMERS
Harold Jabloner and Edwin J. Vandenberg, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Feb. 8, 1967, Ser. No. 614,546
Int. Cl. C08g 1/18, 23/20; C08f 35/06
U.S. Cl. 260—874 7 Claims
Graft copolymers of polyethers, such as poly(epoxide)s and poly(aldehyde)s, with monomers capable of free radical polymerization, such as vinylidene compounds, wherein the grafts are attached through an ether oxygen to carbon alpha to ether oxygen in the polymer backbone. These graft copolymers are prepared from polyether hydroperoxides.

3,546,322
REDUCTION OF OXYGEN FUNCTIONS IN GRAFT COPOLYMERS
Tad L. Patton, Baytown, Tex., assignor to Esso Research and Engineering Company
No Drawing. Filed Apr. 26, 1967, Ser. No. 633,699
Int. Cl. C08f 27/24
U.S. Cl. 260—878 6 Claims
A process for reducing the oxygen functions in graft copolymers or oxidized polymer which comprises treating the polymer with a reducing agent in a water slurry.

3,546,323
GRAFT POLYMERS OF VINYL HALIDE MONOMERS AND MERCAPTO-FUNCTIONAL DIENE POLYMERS
Jesse C. H. Hwa and Stanley B. Mirviss, Stamford, Conn., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 7, 1967, Ser. No. 681,120
Int. Cl. C08f 15/04, 27/06
U.S. Cl. 260—879 33 Claims
Vinyl halide polymers which exhibit improved processing characteristics without sacrificing physical properties are prepared by polymerizing vinyl halide monomer in the presence of a minor amount and preferably from about 0.05% to about 10.0% by weight based on the total weight of monomer of a polymerizable, organosolvent soluble, unsaturated diene polymer having pendant mercaptan groups. The polymers can be based on aliphatic diene polymers such as polybutadiene, styrene/butadiene copolymer, synthetic polyisoprene, or natural rubber. The monomer is preferably 100% vinyl chloride though minor amounts of other ethylenically unsaturated monomers can also be used.

3,546,324
AMINE SALTS OF DITHIOPHOSPHORIC ACIDS
Kurt Pollak, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed May 11, 1967, Ser. No. 637,646
Int. Cl. C07d 105/04; C07f 9/16; C10m 7/46
U.S. Cl. 260—925 7 Claims
Lubricating oil additives having antiwear and detergent-inhibitor properties are prepared by P_2S_5 treating the reaction product of a high molecular weight carboxylic acid, e.g. polyisobutenyl propionic acid, with an aminohydroxy compound, e.g. 2,2'-iminodiethanol, and neutralizing the thus produced dithiophosphoric acid with a mono or polyamine.

3,546,325
METHOD OF MANUFACTURING FILTER ROPES
Paul Adolf Muller, Triesenberg, Liechtenstein, assignor to Celfil Company Establishment, Vaduz, Liechtenstein, a corporation of Liechtenstein
Continuation-in-part of application Ser. No. 476,099, July 30, 1965. This application Nov. 19, 1968, Ser. No. 789,628
Int. Cl. A24c 5/50; B29d 27/00; B29f 3/10
U.S. Cl. 264—47 6 Claims



A method of forming an endless filter rope is disclosed wherein a supply of endless lengths of gas-permeable filtering material is assembled about at least one substantially

endless core having at least one unobstructed capillary duct extending longitudinally thereof but other than said duct being gas-impermeable, shaping the assembly into a cylindrical rod-like configuration, adjusting the cross-sectional area of the running lengths of filtering material to preserve continuously along the running length thereof the said gas-permeability of the filtering material while minimizing the formation of unobstructed longitudinal channels therebetween and finally enclosing the resultant cylindrical assembly in a wrapper.

3,546,326
CONCURRENT EXTRUSION AND CROSS-LINKING OF POLYMERS

Friedrich Seifert, Marl, Josef Bittscheidt, Datteln, and Johannes Plenikowski, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Filed May 26, 1966, Ser. No. 553,014
Claims priority, application Germany, May 28, 1965, 1,544,704
Int. Cl. B29g *2/00*; C08f *45/48, 47/12*
U.S. Cl. 264—176 **9 Claims**

Polybutene-1 is compounded with sulfur and an organic peroxide which decomposes at 140–220° C. Granules are formed and then extruded by passing same through a compression zone at 130–180° C. and through a nozzle zone at 180–240° C., whereby the peroxide is decomposed in the latter zone. The resulting product is a cross-linked continuously shaped article.

3,546,327
METHOD OF MAKING A VENTILATED PLASTIC BAG

Raymond J. Ruda, Chicago, Ill., assignor to Bagcraft Corporation of America, Chicago, Ill., a corporation of Illinois

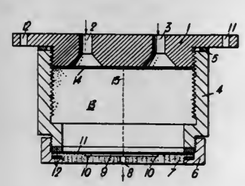
Filed Sept. 22, 1967, Ser. No. 669,780
Int. Cl. B29c *23/00*
U.S. Cl. 264—156 **1 Claim**

A bag of polyolefin film has an arrangement of openings each surrounded by a grommet-like formation of fused plastic. This formation is provided by inserting a heated set of needle-like rods through the film. Adjacent layers of film are separated by loosely woven cloth during formation of the openings to prevent adherence of plastic sheets to each other at the holes.

3,546,328
METHODS FOR THE PRODUCTION OF HETEROFILAMENTS

Reginald M. Lodge, The Rectory, Bryn, and Dewi M. Jones, Chapa, 22 Belgrave Road, both of Abergavenny, England

Continuation of application Ser. No. 297,305, July 24, 1963. This application June 4, 1968, Ser. No. 740,767
Claims priority, application Great Britain, July 31, 1962, 29,295/62
Int. Cl. B29f *3/10*
U.S. Cl. 264—171 **8 Claims**



Process for manufacturing a heterotextile yarn by spinning at least two different synthetic polymer components fed separately to a spinneret assembly including a housing and screening and filtering means, the polymer components being brought together to form a liquid interface within the housing, the components being forced through the housing, including the filtering means, and spun into yarn while maintaining the interface.

3,546,329
PROCESS FOR HEAT-TREATING POLYAMIDE FILAMENTS

Koyu Hirono and Ken Kuwano, Mihara-shi, Japan, assignors to Teijin Limited, Umeda, Osaka, Japan, a corporation of Japan

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,167
Claims priority, application Japan, Dec. 16, 1966, 41/82,468
Int. Cl. B29c *25/00*
U.S. Cl. 264—235 **5 Claims**

A drawn polyamide filament is subjected to one or more tensions applied in positive increments at a filament temperature of between about 180° C. and about 210° C. so that the initial tension on the filament lies within the range of between about 0.20 gram/denier and about 2.0 grams/denier while the final tension on the filament lies within the range of about 0.50 gram/denier and about 2.0 grams/denier. The filament is heated by means of an inert atmosphere and each tension is applied to the filament for a period of time of between about 1 second and about 10 seconds. Filaments so treated have enhanced dimensional stability, heat resistance, moisture resistance, and fatigue resistance as well as undiminished tensile strength.

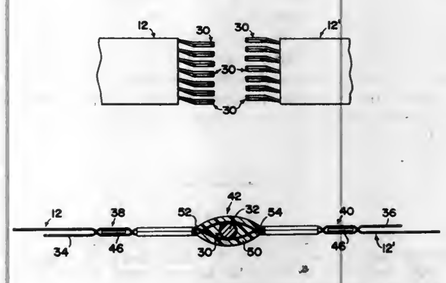
ERRATUM

For Class 264—249 see:
Patent No. 3,546,221

3,546,330
METHOD OF MAKING A TAPE SPLICE

Charles S. Thompson, Vincentown, Burlington, N.J., assignor, by mesne assignments, to Gulf + Western Industrial Products Company, Grand Rapids, Mich., a corporation of Delaware

Filed Aug. 2, 1968, Ser. No. 749,793
Int. Cl. B29d *29/00*; B32b *31/08*
U.S. Cl. 264—258 **7 Claims**



A method for splicing together two sections of tape wherein the weft strands are removed from each tape in an area of the tape spaced from the tape end. The tapes are bent backwards to provide loops in the weft-free areas, and the loops of the respective tapes are then brought together into intermeshing relationship. A pin or similar member is provided extending through the loops to hold the loops in intermeshed relationship, and to secure one tape to the other.

3,546,331
SURFACE CRYSTALLIZATION OF POLY(2,2,4,4-TETRAMETHYLCYCLOBUTANEDIOL-1,3) CARBONATES BY ORGANIC SOLVENT/ORGANIC NONSOLVENT LIQUID SOLUTIONS

Walter D. Niegisch, Watchung, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,094
Int. Cl. B29c *25/00*
U.S. Cl. 264—343 **4 Claims**

A method of preparing a shaped, transparent, nonoriented carbonate polymer containing the esterification residue of 2,2,4,4-tetramethylcyclobutanediol-1,3 having a crystalline surface and an amorphous interior and which is resistant to attack by solvating organic liquids, such as conventional solvents for the polymer and body oils, which involves immersing the amorphous polymer in a liquid solution consisting of an organic solvent for the polymer diluted with a miscible organic nonsolvent for the polymer, the liquid solution being maintained at such a concentration and the immersion period being for such a time sufficient to crystallize the surfaces of the polymer in contact therewith without adversely affecting the transparency of the polymer and thereafter annealing the polymer by heating to a temperature below its glass transition temperature for a period of time sufficient to remove stresses.

3,546,332
SURFACE CRYSTALLIZATION OF POLY(2,2,4,4-TETRAMETHYLCYCLOBUTANEDIOL-1,3) CARBONATES

Charles N. Merriam, Martinsville, Robert H. Snedeker, Piscataway, and Herbert G. Stine, Millington, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,102
Int. Cl. B29c *25/00*
U.S. Cl. 264—343 **7 Claims**

Method of preparing a shaped transparent, nonoriented carbonate polymer containing the esterification residue of 2,2,4,4-tetramethylcyclobutanediol-1,3 having a crystalline surface and an amorphous interior and which is resistant to attack by solvating organic liquids, such as conventional solvents for the polymer and fatty acids and the like usually found in body oils, without adversely affecting their transparency which method involves immersing the amorphous shaped polymer in a liquid aqueous solution of acetone, the solution being maintained at such a concentration and the immersion period being for such a time sufficient to crystallize the surfaces of the polymer in contact therewith without adversely affecting the transparency of the polymer, and thereafter annealing the polymer by heating to a temperature below its glass transition temperature for a period of time sufficient to remove stresses.

3,546,333
D-GLUCOFURANO AMIDAZOLINE ANTI-INFLAMMATORY AGENTS

Charles Morel, Arlesheim, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Application Mar. 14, 1968, Ser. No. 712,969, which is a continuation-in-part of application Ser. No. 461,185, June 3, 1965. Divided and this application May 14, 1969, Ser. No. 844,696
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 **9 Claims**

Phenyl substituted 3-phenyl-4,5-D-glucofurano-Δ^1-imidazolines are prepared from 2-thiono-3-phenyl-4,5-D-glucofurano-imidazolidines or 2-alkylthio-3-phenyl-4,5-D-glucofurano-Δ^1-imidazolines; these compounds as well as pharmaceutically acceptable acid addition salts thereof have antinflammatory, analgesic and antipyretic properties; methods for treatment of inflammatory diseases and therapeutical compositions containing said compounds are provided; an illustrative embodiment is 3-(3,4-dichlorophenyl)-4,5-D-glucofurano-Δ^1-imidazoline.

3,546,334
COMPOSITION FOR FIXING AND PROTECTING A SMEAR OF BODY CELLS AND METHOD OF APPLYING SAME

Irwin S. Lerner, Greenwich, Conn., and Hugh J. Davis, Baltimore, Md., assignors to Lerner Laboratories, Inc., Greenwich, Conn., a corporation of Connecticut

No Drawing. Filed May 21, 1965, Ser. No. 457,842
Int. Cl. G01n *1/00, 1/30*
U.S. Cl. 424—3 **10 Claims**

Cytological fixative and protective composition that includes a liquid solution of an alcohol, water, a polyalkylene glycol, and a ketone. The composition may also contain a dye.

3,546,335
COMPOSITIONS FOR CARIES PROPHYLAXIS CONTAINING INDIUM FLUOROGERMANATE $In_2(GeF_6)_3$

Joseph C. Muhler, Indianapolis, Ind., assignor to Indiana University Foundation, Bloomington, Ind., a not for profit corporation of Indiana

No Drawing. Original application Jan. 15, 1968, Ser. No. 697,618. Divided and this application July 16, 1969, Ser. No. 862,558
Int. Cl. A61r *7/16*
U.S. Cl. 424—52 **10 Claims**

A new composition of matter comprising indium, germanium, and fluorine, namely, indium fluorogermanate, $In_2(GeF_6)_3$, has been discovered. This compound when incorporated into oral compositions for caries prophylaxis (e.g., as a constituent of a dentifrice or prophylaxis paste) has demonstrated substantial utility as a topical anticariogenic agent.

3,546,336
METHOD FOR SETTING HAIR

Giffin D. Jones, Midland, and Harold H. Roth, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,931
Int. Cl. A61k *7/10*
U.S. Cl. 424—71 **3 Claims**

Improved methods for holding hair in desired forms and shapes, wherein the holding agent is a partial amide of a low molecular weight ethylenimine polymer.

3,546,337
METHOD OF TREATING PATIENTS WITH THERAPEUTIC PRODUCTS CONTAINING ANTHOCYANIDIN GLUCOSIDES

Jean Henri Francois Chibret, Clermont-Ferrand, France, assignor to Laboratoires Chibret, Clermont-Ferrand, Puy-de-Dome, France

Application Aug. 22, 1963, Ser. No. 303,789, now Patent No. 3,254,000, which is a continuation-in-part of application Ser. No. 186,855, Apr. 12, 1962. Divided and this application Aug. 20, 1965, Ser. No. 481,270
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 **4 Claims**

A pharmaceutical product consisting essentially of anthocyanidin glucosides extracted from bilberries, black currants or blackberries, the product being useful for reducing capillary permeability in a human patient, and to improve night visual acuity.

3,546,338

HEPARIN COMPOSITION

Robert Henry Engel, Suffern, and Marvin Jay Fahrenbach, Tomkins Cove, N.Y., and Richard Lansing Webb, Darien, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Mar. 30, 1967, Ser. No. 626,962
Int. Cl. A61k *17/18*
U.S. Cl. 424—183 10 Claims

The novel compositions of matter herein disclosed comprise a combination of heparin, a metabolizable vegetable oil, water and a solid dispersing agent. Furthermore, compositions in which the above metabolizable vegetable oil and water are in particular phase relationships are also disclosed, as well as a method of effecting the absorption of heparin in the alimentary canal of mammals.

3,546,339

STABLE DIMETHYL SULFOXIDE SOLUTIONS OF TETRACYCLINE ANTIBIOTICS FOR PARENTERAL USE

Lewis Joseph Leeson and Robert Arnold Nash, Spring Valley, and Lawrence Ritter, Suffern, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 215,766, Aug. 7, 1962. This application Sept. 6, 1968, Ser. No. 758,100
Int. Cl. A61k *21/00*
U.S. Cl. 424—227 10 Claims

Stable solutions of a tetracycline antibiotic which render high blood levels by the intramuscular route of administration, are prepared by complexing the tetracycline antibiotic with an alkaline earth salt of a weak organic acid in dimethylsulfoxide at an apparent pH of from 7 to 10.

3,546,340

OXYGEN-TREATED N-SUBSTITUTED PIPERAZINES AS BIRD REPELLENTS

Lyle D. Goodhue, Bartlesville, Kenneth E. Cantrel, Dewey, and Andrew J. Reinert, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed July 21, 1966, Ser. No. 566,770
Int. Cl. A01n *9/22*
U.S. Cl. 424—250 7 Claims

The bird repellent properties of selected nitrogen-substituted piperazines and morpholines are improved by treating or contacting these compounds with oxygen or an oxygen-containing gas, such as air, prior to applying the compound to a surface from which birds are to be repelled.

3,546,341

COMPLEXES OF 2-SUBSTITUTED BENZIMIDAZOLES AND BIS-HALOGENATED PHENOLS IN ANTHELMINTIC COMPOSITIONS AND METHODS

Raymond J. La Pierre, Iselin, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Application Feb. 18, 1966, Ser. No. 528,382, now Patent No. 3,475,444, dated Oct. 28, 1969, which is a continuation-in-part of application Ser. No. 336,342, Jan. 8, 1964. Divided and this application Feb. 19, 1969, Ser. No. 828,405
Int. Cl. A61k *27/00*
U.S. Cl. 424—270 12 Claims

Complexes of certain 2-substituted benzimidazoles and bis-halogenated phenols are prepared by reacting a 2-substituted benzimidazole with a bis-halogenated phenol. Compositions active as anthelmintics, in which a 2-substituted benzimidazole-bis-halogenated phenol complex is the active ingredient, are provided.

3,546,342

METHOD OF RELIEVING INFLAMMATION BY ADMINISTRATION OF 2,4 - DIARYLTHIAZOLE-5 - ALKANOIC ACIDS AND DERIVATIVES THEREOF

Kevan Brown, Woodley, England, asisgnor, by mesne assignments, to John Wyeth & Brother Limited, Taplow, Maidenhead, England, a British company

No Drawing. Original application Nov. 2, 1967, Ser. No. 679,999, now Patent No. 3,476,766, dated Nov. 4, 1969. Divided and this application May 21, 1969, Ser. No. 851,111
Claims priority, application Great Britain, Nov. 18, 1966, 51,823/66; May 31, 1967, 25,076/67
Int. Cl. A61k *27/00*
U.S. Cl. 424—270 1 Claim

2,4-diarylthiazoles substituted at position 5 by a polycarbon carboxylic acid group are useful as anti-inflammatory agents. The aryl groups may be phenyl, tolyl, anisyl, halophenyl, naphthyl, thienyl or furyl, and the acid group may be an acetic, propionic, or higher acid group. The products appear to be less ulcerogenic than anti-inflammatory agents now in general use.

3,546,343

4-(METHYLCARBAMOYLOXY) CARBANILATES AS INSECTICIDES AND NEMATOCIDES

Linwood K. Payne, Jr., Charleston, W. Va., and Mathias H. J. Welden, Raleigh, N.C., assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Original application Jan. 18, 1966, Ser. No. 521,410, now Patent No. 3,450,745, dated June 17, 1969. Divided and this application Apr. 17, 1969, Ser. No. 817,198
Int. Cl. A01n *9/20*
U.S. Cl. 424—300 14 Claims

A series of alkyl and aryl 4-(methylcarbamoyloxy) carbanilates have been found to be exceptionally active insecticides particularly against larval stages of lepidopterous pests. These compounds are effective systemic insecticides and possess desirable residual properties.

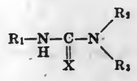
3,546,344

PREPARATIONS CONTAINING UREA OR THIOUREA DERIVATIVES FOR USE AS MOLLUSCICIDES

Henry Martin and Dieter Duerr, Basel, Hans-Rudolf Hitz, Muttenz, and Marcus Von Orelli, Muenchenstein, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Original application Feb. 15, 1967, Ser. No. 616,196, now abandoned. Divided and this application Dec. 12, 1968, Ser. No. 804,032
Claims priority, application Switzerland, Mar. 8, 1966, 3,294/66
Int. Cl. A01n *9/20*
U.S. Cl. 424—322 3 Claims

A method for combating molluscs which comprises applying as active principle to the area where said effect is desired a molluscicidal amount of a compound of the formula



in which R_1 represents a member selected from the group consisting of a (a) phenyl, (b) phenyl substituted at up to two places by a member selected from the group consisting of chlorine, bromine, $-CF_3$, lower alkyl, $-NO_2$, $-CN$, $-SCN$ and $-SCH_3$, (c) lower alkyl phenyl, (d) lower alkyl phenyl substituted in the phenyl nucleus by a radical as set forth above under (a), (b) and (c), (e) naphthyl, and (f) phenylloweralkylene; R_2 represents a member selected from the group consisting of the radicals set forth above under (a), (b), (c), (d) and (f), alkyl containing up to 8 carbon atoms, lower chloroalkylene, lower alkoxy, phenoxyphenyl and phenoxyphenyl substituted in the phenyl nuclei by at most 2 chlorine atoms, R_3 represents a member selected from the group consisting of hydrogen and lower alkyl, and X represents a member selected from the group consisting of oxygen and sulfur.

3,546,345

METHOD FOR CONTROLLING RICE BLAST

Teruzo Asahara, Tokyo, Jiro Hirano, Ichikawa, and Masaru Kado, Shimizu, Japan, assignors to Nippon Oils and Fats Company Limited and Kumiai Chemical Industries Co., Ltd., both of Tokyo, Japan

No Drawing. Filed Sept. 16, 1966, Ser. No. 579,823
Int. Cl. A01n *9/00, 9/12*
U.S. Cl. 424—336 4 Claims

A method for protecting rice plant from fungus attacks which comprises using a fungicidally effective amount of a compound having the general formula

$$[Cl_mCCH_{m-1}(CH_2)_n]_2S_x$$

wherein x is an integer of 1 or 2, m is an integer of 2 or 3 and n is an integer of 1, 3, 5 or 7.

3,546,346

SYSTEMIC PLANT AND SEED FUNGICIDE COMPRISING 1,1,1 - TRICHLORO - 2 - HYDROXY-3-NITROPROPANE

Constantine Katsaros and William Calvin Martin, Crystal Lake, Ill., assignors to Morton International, Inc., Chicago, Ill., a corporation of Delaware

No Drawing. Original application Mar. 11, 1968, Ser. No. 711,849. Divided and this application Mar. 24, 1969, Ser. No. 833,222
Int. Cl. A01n *9/20*
U.S. Cl. 424—343 3 Claims

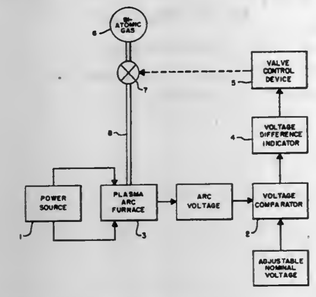
A method of systemically controlling fungal infections of plants and seeds by the application of 1,1,1-trichloro-2-hydroxy-3-nitropropane.

ELECTRICAL

3,546,347
METHOD AND DEVICE FOR CONTROLLING PERFORMANCE OF PLASMA ARC FURNACES

Andreas Hausig; Helmfried Jeske, Henningsdorf and Karl Spiegelberg, Berlin, Germany, assignors to VEB Qualitaets- und Edelstahlkombinat, Henningsdorf, Germany

Filed June 18, 1969, Ser. No. 834,357
Int. Cl. H05b 7/18
U.S. Cl. 13—12 — 7 Claims

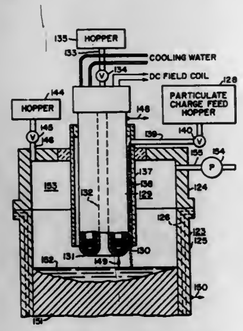


The voltage and thus the performance of the plasma arc in a plasma arc furnace is controlled by a qualitatively regulated continuous or intermittent introduction of a biatomic gas either into a monoatomic working gas of the plasma-arc burner unit or directly into the furnace atmosphere. A valve in the gas feeding conduit is actuated by a voltage comparator in dependency on the voltage difference between the actual voltage across the arc and a predetermined nominal voltage.

3,546,348
NON-CONSUMABLE ELECTRODE VACUUM ARC FURNACES FOR STEEL, ZIRCONIUM, TITANIUM AND OTHER METALS AND PROCESSES FOR WORKING SAID METALS

Serafino M. DeCorso, Media, Pennsylvania, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania

Filed April 1, 1968, Ser. No. 717,560
Int. Cl. H05b 7/18
U.S. Cl. 13—31 — 13 Claims

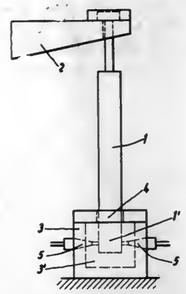


Vacuum furnace apparatus employing one or more non-consumable electrodes and controlled material feed at one or more locations; coordinated material feed and ingot movement which provides for continuous casting; and new and improved feeding mechanism including separate material feed hoppers where alloys are being cast.

3,546,349
PROCESS AND APPARATUS FOR USE IN THE ELECTRIC SLAG REFINING OF METALS

Karl Swoboda, Vienna and Otmar Kleinhagauer, Kapfenberg, Austria, assignors to Gebr. Bohler & Co., Kapfenberg, Austria

Filed Jan. 29, 1969, Ser. No. 794,955
Claims priority, application Austria, Feb. 6, 1968, A1103/68
Int. Cl. F27d 23/00
U.S. Cl. 13—34 — 6 Claims

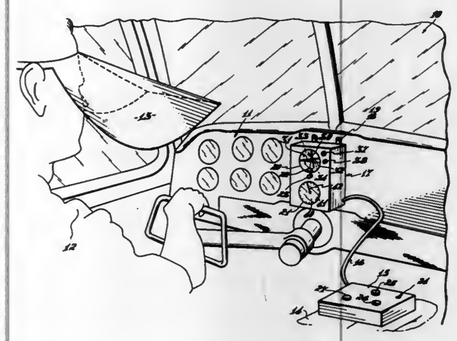


A plurality of electrodes consisting of the metal to be remelted are fused in succession in a mold under a slag layer. Each of said electrodes is strongly preheated before it is introduced into said slag layer at least at that end portion of said electrode at which the same is to be introduced into said slag layer.

3,546,350
TRAINING METHOD AND APPARATUS FOR ILS LANDINGS

James C. Reynolds, 5534 Plymouth Court, Downers Grove, Illinois

Filed Dec. 14, 1967, Ser. No. 690,511
Int. Cl. G09b 19/16
U.S. Cl. 35—10.2 — 4 Claims

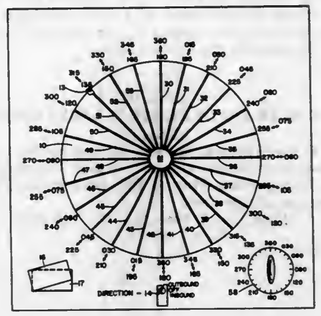


A self-contained independently powered training device including an instrument panel mountable on an aircraft so as to be visible to a student pilot and a control console connected to said instrument panel by electrical conductors, the control console being operable by an instructor seated in a plane adjacent the student pilot.

3,546,351
NAVIGATION TRAINING DEVICE

Harry E. Bryan, 2817 Fondren, Dallas, Texas

Filed May 28, 1968, Ser. No. 732,685
Int. Cl. G09b 9/02
U.S. Cl. 35—10.2 — 6 Claims

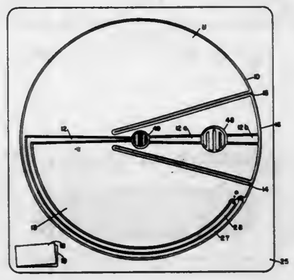


Disclosed is a navigation training device for use in teaching the principles and proper use of airborne radio automatic direction finding equipment and navigation. The device includes a surface plane with a magnetic center and a plurality of illuminatable lines radiating outwardly from the center. The lines are labeled to indicate compass courses with respect to the center. The device includes a moveable facsimile aircraft with a pointer mounted thereon which is attracted toward the magnetic center. A set of instruction and guidance procedures are provided to instruct the student in operation and understanding of the training device and automatic direction finding navigation.

3,546,352
TRAINING DEVICE

Harry E. Bryan, 2817 Fondren, Dallas, Texas

Filed June 6, 1968, Ser. No. 735,150
Int. Cl. G09b 9/02
U.S. Cl. 35—10.2 — 8 Claims

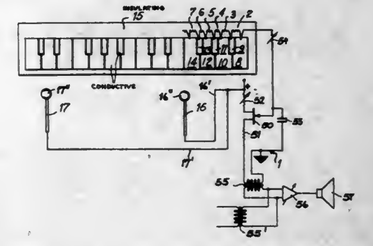


Disclosed is a training device for use in teaching the principles and proper use of instrument landing radio equipment. The training device includes a flat surface which simulates the radiation field adjacent a controlled runway and a hinged surface which represents the path of an aircraft when approaching the runway for landing. The device also includes a facsimile aircraft to be moved along the simulated flight path and electrical means for displaying positional information to the student pilot, and may include a set of instruction cards for presenting navigation problems, quizzes, and solutions for the student.

3,546,353
MONODIC ELECTRONIC MUSICAL INSTRUMENT MANUALLY PLAYABLE WITHOUT DEPRESSION OF KEYS

Georges Jenny, Paris, France, assignor to Societe a Responsabilite Limitee dite: ONDIOLINE, Quessigny Eure, France a corporation of France

Filed Oct. 21, 1968, Ser. No. 769,220
Claims priority, application France, Oct. 25, 1967, 125768; Oct. 3, 1968, 168,588
Int. Cl. G10d 15/00; G10h 5/04
U.S. Cl. 84—1.01 — 19 Claims

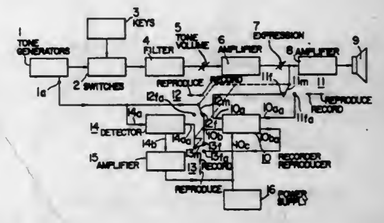


A keyboard of an electronic musical instrument consists of a set of conductive plaques connected to respective taps on a voltage divider which forms part of the tuning circuit of an audio frequency oscillator, the tuning circuit being completed upon the touching of any plaque by a metal bar or other mobile conductor connected to potential whereby the oscillator generates a note of a pitch corresponding to the selected plaque.

3,546,354
AUTOMATIC SYNCHRONIZATION OF PITCHES IN ELECTRONIC MUSICAL INSTRUMENTS WITH MAGNETIC RECORDING-REPRODUCING APPARATUS

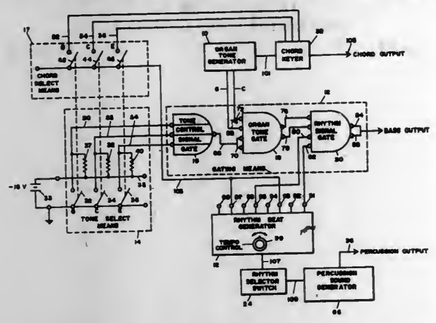
Yasuji Uchiyama, Hamakita-shi, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Aug. 21, 1968, Ser. No. 754,348
Claims priority, application Japan, Aug. 29, 1967, 42/73458;42/73459
Int. Cl. 179 100.2; G10h 1/02; G11b 31/02
U.S. Cl. 84—1.02 — 4 Claims



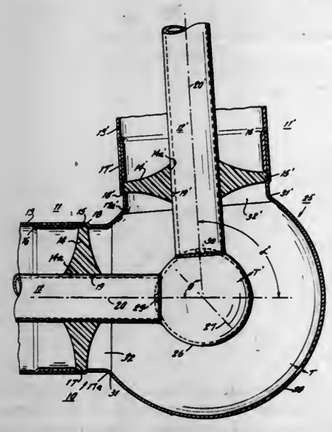
A reference tone signal is recorded in a specific channel of a multiple-channel recorder-reproducer incorporated within an electronic musical instrument simultaneously with recording of music played on the instrument. During reproduction, this reference signal is also reproduced and automatically compared with the corresponding tone signal directly from a tone generator of the instrument to produce a comparison output, which is used to accomplish automatic equalization of the pitches of the music being reproduced and those of the corresponding tones of the tone generators of the instrument.

3,546,355
AUTOMATIC TONE GENERATING SYSTEM FOR AN ELECTRONIC ORGAN
Fred B. Maynard, Phoenix, Arizona, assignor to Motorola, Inc., Franklin Park, Illinois a corporation of Illinois
Filed June 24, 1968, Ser. No. 739,387
Int. Cl. G10f 1/00; G10h 1/02
U.S. Cl. 84—1.03 10 Claims



An electrical system for automatically controlling the play of organ music and referred to hereinafter as the "auto-bass". The system includes tone select means for providing a control potential indicative of a selected organ tone and means for gating an organ bass tone signal through a cascaded digital type gate arrangement in response to the control potential and in response to a rhythm beat signal.

3,546,356
ELBOW CONSTRUCTION FOR HIGH VOLTAGE COMPRESSED-GAS-INSULATED CONDUCTORS
Howard W. Graybill and Eli J. Faye, Greensburg, Pennsylvania, assignors to I-T-E Imperial Corporation, Philadelphia, Pennsylvania a corporation of Delaware
Filed April 3, 1969, Ser. No. 813,168
Int. Cl. H02g 15/24; H01b 9/04
U.S. Cl. 174—21 5 Claims



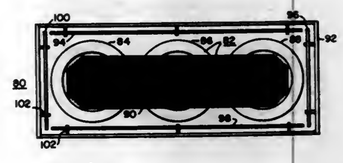
An elbow structure for gas-insulated conductor assemblies of the high voltage type wherein substantially universal components are employed. In joining sections of bus runs at locations where bends or turns are necessitated due to the terrain or other practical considerations, substantially concentrically alined inner and outer conductive spheres are provided. The spacing between opposing surfaces of the spheres is at least equal to the spacing of the inner conductor and outer enclosure of the bus run sections which they join. The outer spherical member has a radius which greatly exceeds the natural radius of curvature of the bend or curved portion which is to be joined to thereby maintain uniformly high withstand and corona inception voltages. The outer spherical shape member may be machined at any predetermined locations for joining bus run sections at the location of a "bend" or turn to enable the provision of a universal angle elbow assembly which may be utilized to join adjacent bus run sections at substantially any desired angle.

3,546,357
CABLE WITH FULLY CONTROLLABLE PAIR TWIST LENGTH
William F. Mac Pherson, Martinsville and Alfred S. Windeler, Madison, New Jersey, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed Jan. 3, 1969, Ser. No. 788,756
Int. Cl. H01b 11/02
U.S. Cl. 174—34 3 Claims

N-PAIR NUMBER	N-SECTIONS (EQUALS ONE SPAN)						
	1	2	3	4	5	6	7
I	A	B	C	D	E	F	G
II	B	C	D	E	F	G	A
III	C	D	E	F	G	A	B
IV	D	E	F	G	A	B	C
V	E	F	G	A	B	C	D
VI	F	G	A	B	C	D	E
VII	G	A	B	C	D	E	F

Attenuation deviation and crosstalk deviation in a communications cable are reduced to low FIGS. by a pair twist scheme in which pairs undergo different twist lengths from section to section of the line. All pairs experience ultimately the same degree of twist and hence are of substantially the same conductor length. Apparatus for realizing such twist includes stationary pair-twisting motors and a rotating takeup capstan.

3,546,358
SHIELDED ELECTRICAL INDUCTIVE APPARATUS
Dieter Pohl, Nurnberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany, a corporation of Germany
Filed March 25, 1968, Ser. No. 715,620
Claims priority, application Germany, April 7, 1967, S 109,230
Int. Cl. H01f 15/04; H05k 9/00
U.S. Cl. 174—35 6 Claims



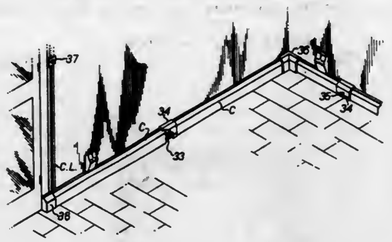
Electrical inductive apparatus having a flux producing component disposed within a casing formed of a metallic, magnetic material, and shielding means disposed between the flux producing component and the casing. The shielding means is formed of at least one layer of a woven fabric, with the fabric strands which run parallel with one another in a first direction being formed of metallic wire. The fabric strands which run parallel with one another in a second direction, and which are woven with the metallic strands of the first direction, are formed either of an electrical insulating material, or of metallic wires which are electrically insulated from the metallic wires of the first direction.

3,546,359
RFI SHIELDED VENT
William E. Ciccarelli, York, Pennsylvania and Phillip A. Kaufman, Randallastown, Maryland, assignors to Gichner Mobile Systems, Inc., a corporation of Pennsylvania
Filed June 18, 1969, Ser. No. 834,469
Int. Cl. H05k 9/00
U.S. Cl. 174—35 3 Claims



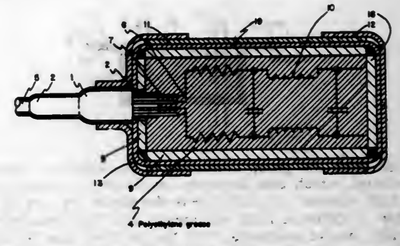
A vent for use in a shelter unit for communication equipment or the like constructed to provide an RFI shield, a blackout louver, and a raintight louver while admitting and exhausting air incorporating back-to-back honeycomb panels of conductive material secured together with conductive adhesive with the cells of the honeycomb panels being upwardly and inwardly inclined toward the juncture between the panels with the cells having nonreflecting surfaces with the panels being connected with the metallic construction of the shelter for RFI shielding.

3,546,360
ELECTRICAL WIRING SYSTEM PRINCIPALLY FOR BUILDINGS
Kenneth Jeffrey Bailey, Handforth, England, assignor to North Western Specialities Limited, Stalybridge, Cheshire, England
Filed July 26, 1967, Ser. No. 656,226
Int. Cl. H02g 3/04
U.S. Cl. 174—48 6 Claims



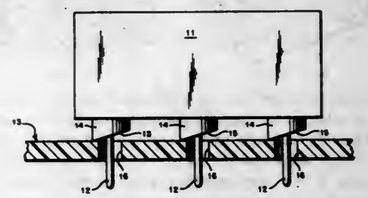
An electric wiring system including casing sections of an extruded plastic material for fixing to a wall and constructed to hold electric wiring, with means for connecting casing sections together with the wiring fully protected, and take off points mounted on the casing sections. The system provides an arrangement which can be prefabricated to standard dimensions for easy fixing in a building, the wiring at section ends being connected together and shrouded in junction pieces.

3,546,361
LOADING COIL ENCAPSULATION
Louis Ance, Hickory, North Carolina, assignor to Superior Continental, Hickory, North Carolina a corporation of Delaware
Filed July 22, 1968, Ser. No. 746,538
Int. Cl. H05k 5/00
U.S. Cl. 174—52 23 Claims



The instant invention discloses the concept of placing a mass of essentially nongelatinous, greaselike polyethylene in intimate physical contact with telecommunication loading coils, said loading coils being connected to electrical conductors contained in a cable sheath. Enclosing the grease, coils, and a portion of said conductors is a first container, which is completely enveloped by a second container composed of a shrunken plastic material possessing an elastic memory. The grease encapsulating the load coils fills the first container and extends for a predetermined length into that volume created by the sheath of the cable not otherwise occupied by the insulated electrical conductors.

3,546,362
ELECTRONIC MODULE
Raymond H. Berger, Ellicott City, Maryland, assignor to the United States of America, as represented by the Secretary of the Navy, a mesne assignment
Filed April 25, 1969, Ser. No. 819,315
Int. Cl. H05k 5/00, 9/00
U.S. Cl. 174—52 2 Claims

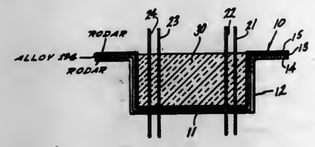


A shielded electronic module for complementary use with a printed circuit board having a sloping cylindrical boss concentric with each base pin on the module to provide electrical isolation therefor from the printed circuit board and to allow the passage of air through the associated through holes on said board.

3,546,363
COMPOSITE GLASS-TO-METAL SEAL
Michael J. Pryor, Woodbridge and Damian V. Gulliotti, West Haven, Conn., assignors to Olin Corporation, a corporation of Virginia
Continuation-in-part of application Ser. No. 608,617, Jan. 11, 1967, now abandoned. This application May 25, 1967, Ser. No. 641,228
Int. Cl. H01j 5/46; H05k 5/06
U.S. Cl. 174—52 33 Claims

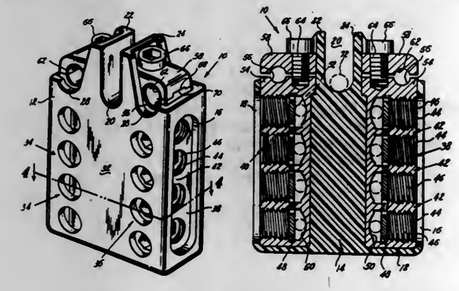
A composite metal product, and glass or ceramic to metal seals using the composite, wherein the composite has the properties of a low coefficient of expansion, approximating that of the glass or ceramic, good thermal conductivity, and fine grain size in the annealed condition. This is achieved by

cladding an alloy having a low coefficient of expansion on either side of a copper alloy core having thermal conductivity of at least 90 B.t.u./sq. ft./ft./hr./° F. The copper alloy contains at least one metal selected from the group consisting of iron, cobalt, zirconium and chromium and has a grain size of no more than .05 milimeters after annealing of the composite. The copper alloy core also may contain a deoxidizer



selected from the group consisting of phorsphorus, boron, and silicon, which also improves its thermal conductivity. The high thermal conductivity is developed by any of a number of different heat treatments. The heat treatments generally involve annealing, with fast or slow, heat up and cool down, and preferably an additional thermal treatment at a temperature lower than the annealing temperature.

3,546,364
MIDSPAN SERVICE CONNECTOR
Jack D. O'Neel, 5420 SW 18th, Des Moines, Iowa
Filed Feb. 10, 1969, Ser. No. 797,823
Int. Cl. H02g *3/00*; H01r *7/12*
U.S. Cl. 174—72 **10 Claims**



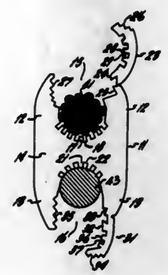
A midspan connector for multiplex electrical cables particularly adapted for use with the triplex cable. This new connector features a single unit to connect the electrically energized or hot wires and the neutral wire of one or more service lines to the corresponding wires in the secondary or main cable with all connections being made in the same plane to improve the aesthetic appearance of such connection locations. All connections are secured by a single type Allen screw requiring only the use of a single size Allen wrench. A neutral connector of an improved design is used in combination with the secondary midspan connector in improving the ease and facility for effecting these midspan connections. This connector unit is designed to accommodate at least four service connections.

3,546,365
GROUNDING CONNECTOR FOR CONNECTION ONTO A SHIELD OF A CONDUCTOR MEANS
John Covell Collier, Farnworth, England, assignor to AMP Incorporated, Harrisburg, Pennsylvania
Continuation of application Ser. No. 750,423, July 24, 1968, now abandoned, which is a continuation of application Ser. No. 242,973, Dec. 7, 1962, now abandoned. This application Nov. 20, 1969, Ser. No. 872,445
Int. Cl. H01r *5/08*
U.S. Cl. 174—78 **7 Claims**

A trough-shaped metal ferrule comprises inwardly directed lances disposed in staggered relationship so that when the ferrule is crimped into position onto a shield of a coaxial cable the lances are embedded in the shield without penetrating the insulation under the shield and a grounding wire disposed between the ferrule and the shield is formed into a serpentine configuration around respective lances.

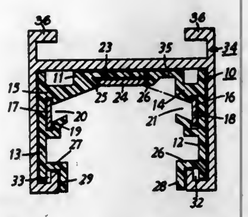


3,546,366
COMPRESSIBLE ELECTRICAL CONNECTERS
John A. Toedtman, St. Louis and Francis E. Stephens, Webster Groves, Missouri, assignors to International Telephone & Telegraph Corporation, New York, New York a corporation of Delaware
Filed March 14, 1969, Ser. No. 807,281
Int. Cl. H02g *15/08*
U.S. Cl. 174—94 **5 Claims**



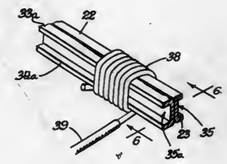
Compressible electrical connecters have integral enclosure tabs which lock in place and provide electrically and mechanically secure joints.

3,546,367
TRACK FOR DISTRIBUTION OF ELECTRICITY
Derek James Hart and Robert Davis, London, England, assignors to British Lighting Industries Limited, London, England
Filed May 26, 1969, Ser. No. 827,656
Claims priority, application Great Britain, July 22, 1968, 34943/68
Int. Cl. H02g *5/04*; B60m *1/34*
U.S. Cl. 174—99 **10 Claims**



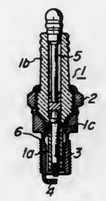
An electricity distribution track suitable for overhead use has a substantially U-shaped cross section and has ledges upon which electrical connecters and outlet adapters can be slidably positioned, the track body having longitudinally extending conducting strips mounted therein which are accessible from the interior of the track by way of slots, the slots effectively shielding the conducting strips from being inadvertently touched thereby preventing personnel receiving shocks therefrom.

3,546,368
CONSTRUCTION OF ELECTRICAL CONTACT
Mitchell J. Zaleski, Northbrook, Illinois, assignor to Pylon Tool Corporation, a corporation of Illinois
Filed May 12, 1969, Ser. No. 823,813
Int. Cl. H02g *15/08*
U.S. Cl. 174—94 **3 Claims**



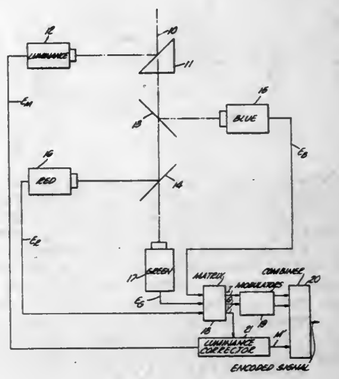
An electrical contact made from a thin sheet metal stamping including a channel portion and the channel portion bent back upon itself to form an end with four sharp corners about which a wire conductor is wrapped to make electrical contact without further fastening means.

3,546,369
SPARK PLUG HAVING COMPOSITE INSULATOR
Masami Ouki, Nagoya and Masatoshi Suzuki, Okazaki-shi, Japan, assignors to Nippondenso Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan a corporation of Japan
Continuation-in-part of Ser. No. 730,305, May 20, 1968, abandoned. This application Jan. 16, 1970, Ser. No. 3,342
Int. Cl. H01t *13/38*
U.S. Cl. 174—152 **9 Claims**



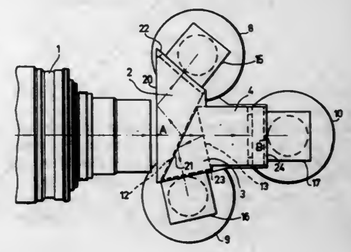
A spark plug having a composite insulator comprising a leg portion and a head portion formed of ceramic materials of different properties and compositions. In the insulator, the leg portion is formed of the first ceramic material consisting essentially of beryllium oxide which has a high heat conductivity and the head portion is formed of the second ceramic material consisting essentially of aluminum oxide which has a high mechanical strength, these portions being firmly chemically bonded to each other through at least one intermediate layer having a composition of 1—55 percent by weight of beryllium oxide, 30—89 percent by weight of aluminum oxide and 5—25 percent by weight of an additive, provided that, in the compositions of the respective layers, the sum of BeO and Al_2O_3 is larger than 75 percent by weight and smaller than 95 percent by weight. The compositions change gradually from said first ceramic material to said second ceramic material. Said additive generally consists of at least one member selected from the group consisting of MgO, SiO_2, CaO, BaO, TiO_2, ZrO_2, Fe_2O_3, NiO and MnO and preferably consists of about 5— 25 percent by weight of two to three members selected from the group consisting of MgO, SiO_2 and CaO.

3,546,370
LUMINANCE CORRECTOR FOR COLOR ENCODER
James L. Kimball, La Mesa, California, assignor to Cohu Electronics, Inc., San Diego, California a corporation of California
Filed Jan. 3, 1967, Ser. No. 606,822
Int. Cl. H04n *9/08*
U.S. Cl. 178—5.4 **16 Claims**



A television color encoder having four image conversion tubes for producing red, green, blue and monochrome video signals, together with an adjustable time constant network by means of which the luminance signal is determined by the Y signal during steady state operation and by the monochrome signal during luminance transition periods.

3,546,371
COLOUR CAMERA, IN WHICH A COLOUR-SEPARATING PRISM SYSTEM IS ARRANGED BETWEEN THE OBJECTIVE AND THE CAMERA TUBES
Sing Liong Tan, Emmasingel, Eindhoven, Netherlands, assignor to U. S. Philips Corporation, New York, New York a corporation of Delaware
Filed Nov. 13, 1967, Ser. No. 682,414
Claims priority, application Netherlands, Nov. 26, 1966, 6616679
Int. Cl. H04n *9/08*
U.S. Cl. 178—5.4 **3 Claims**

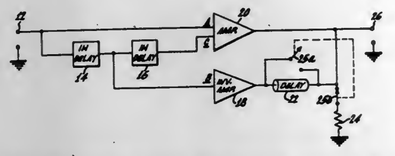


A color television camera employing camera tubes each responsive to a primary color and a color separating prism arranged between the objective and the camera tubes, a light deflection system being arranged between the color separating prism system and each of the camera tubes to compensate for the influence of the earth's magnetic field on the electron beams in the respective camera tubes so that the position of the camera tubes is independent of that magnetic field.

3,546,372
VERTICAL AND HORIZONTAL APERTURE EQUALIZATION

Robert A. Dischert, Burlington; Robert R. Brooks, Willingboro and William J. Cosgrove, Marlton, New Jersey, assignors to RCA Corporation, a corporation of Delaware

Filed April 1, 1968, Ser. No. 717,597
Int. Cl. H04n 3/16, 5/38
U.S. Cl. 178—5.4 11 Claims

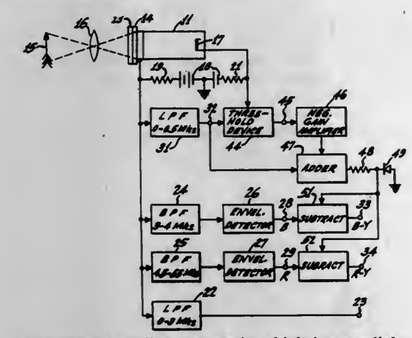


In television systems which reproduce an image in successive fields having interlaced scanning lines, aperture distortion of the image is caused by the finite spots of the scanning beam employed in camera tubes and image-reproducing tubes, and lens aberration in the optical systems used in conjunction with the camera tubes. By providing aperture distortion correction apparatus which provides linear phase-versus-frequency peaking of video signals and which "combs" the aperture correction signal at the color subcarrier frequency, an aperture distortion correction signal is produced which will symmetrically restore detail in both the vertical and horizontal directions without adding noise to a color video signal.

3,546,373
COLOR TELEVISION CAMERA OVERLOAD COMPENSATING SYSTEM

Albert Macovski, Palo Alto, California, assignor to RCA Corporation, a corporation of Delaware

Filed Nov. 20, 1968, Ser. No. 777,364
Int. Cl. H04n 9/04
U.S. Cl. 178—5.4 12 Claims



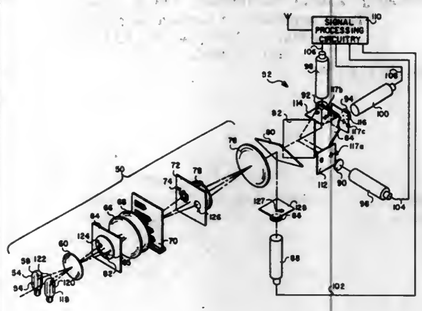
In a color-encoding camera in which intense light causes the luminance signal to become predominantly green, beam current is sampled and applied to a threshold circuit which disables the luminance signal channel during overload periods. In another embodiment the threshold signal is utilized as a color correction signal to maintain proper colorimetry during overload periods.

3,546,374
IMAGE PROCESSING SYSTEM AND METHOD

Michael Graser, Jr., Bedford, Massachusetts, assignor to Technical Operations, Incorporated, Burlington, Massachusetts a corporation of Delaware

Filed Dec. 28, 1967, Ser. No. 694,174
Int. Cl. G02b 27/38; H04n 9/08
U.S. Cl. 178—5.4 13 Claims

This disclosure depicts methods and apparatus for retrieving and processing photostored information which involves forming a diffraction pattern of a record, generating a plurality of conjugate images of the diffraction pattern, providing a filtering operation on at least one of the diffraction pattern images thus formed, and retransforming the diffraction

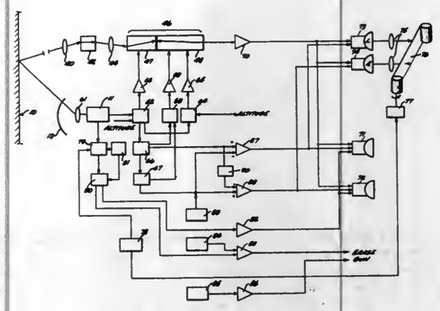


pattern to produce one or more record reconstruction images. More particularly, this disclosure depicts particular methods and apparatus applying such concepts in color television film reproduction and in image contrast enhancement.

3,546,375
THREE-DIMENSIONAL TERRAIN MAPPING SYSTEM

George G. Vitt, Jr., Los Angeles, California, assignor to Hughes Aircraft Company, Culver City, California a corporation of Delaware

Filed Sept. 20, 1965, Ser. No. 488,440
Int. Cl. H04n 7/18, 9/54
U.S. Cl. 178—6.5 9 Claims

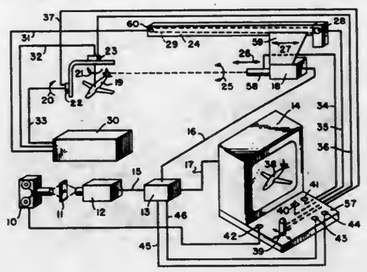


An airborne system for obtaining three-dimensional, real-time round maps. The system utilizes a source of repetitive high intensity light pulses which are directed in fan-shaped beams having arcuate wave-fronts directly downward to illuminate sequential parallel strips of the terrain under observation. The ground velocity of the points of intersection of the wave fronts along the terrain is observed by appropriate imaging devices. Operation is based on the principle that the ground velocity of an intersecting wave front is predictable for flat and level terrain. The ground velocity for irregular terrain can be compared with the predicted ground velocity for flat terrain to yield information which is then displayed for stereoscopic viewing.

3,546,376
ATTITUDE AND RANGE DETERMINING SYSTEM

John D. Crecelius, Ridgecrest; William A. Arriola; Howard I. Sumnicht; Ephraim Regelson, and George G. Silberberg, China Lake, California, assignors to the United States of America, as represented by the Secretary of the Navy

Filed Jan. 31, 1968, Ser. No. 701,930
Int. Cl. H04n 5/30
U.S. Cl. 178—6.8 10 Claims

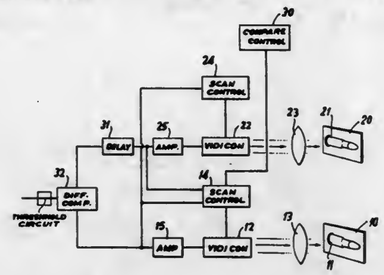


A method of determining the orientation of an object in flight wherein the television image of a scale model of the object of interest and a television image of the filmed record of the same object are superimposed by rotating the model until the orientation of the scale model matches that of the filmed record.

3,546,377
VIDEO COMPARATOR USING VIDICONS WITH DELAYED SCANNING

John Troll, Ridgefield, Connecticut, assignor to Ovitron Corporation, Cheshire, Connecticut a corporation of Delaware

Filed June 12, 1968, Ser. No. 736,305
Int. Cl. H04n 3/30, 7/18
U.S. Cl. 178—6.8 2 Claims



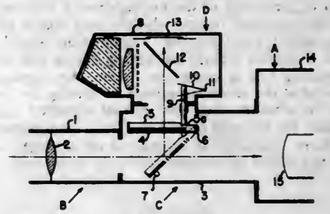
A pair of vidicons are employed to scan sample and standard profiles, respectively. The two vidicon outputs are synchronized in time and compared through a differential comparator. A comparator signal which is above a predetermined threshold is employed to indicate the lack of coincidence and rejection of the sample.

3,546,378
TELEVISING AND PHOTOGRAPHING APPARATUS

Toru Karikawa, Tokyo-to, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan a corporation of Japan

Filed Nov. 24, 1967, Ser. No. 685,385
Claims priority, application Japan, Dec. 20, 1966, 42/21,039
Int. Cl. H04n 5/26
U.S. Cl. 178—7.1 5 Claims

A mirror is swingably supported in a housing between the objective lens and image tube of a television camera and is movable between an advanced position at an angle to the lens optical axis between the lens and image tube and spring urged to a retracted position. A single lens reflex camera box with an automatic diaphragm-actuating element is mounted on the mirror housing and supports the film at the objective

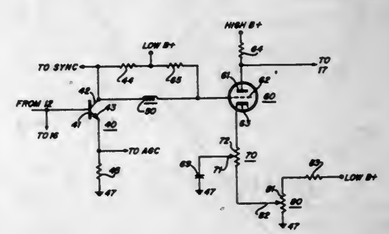


lens advanced mirror reflected focal plane, with the diaphragm-actuating element engaging the mirror. The picture viewed on the television receiver may thus be directly photographed through the television camera objective lens without the intervention of the television system.

3,546,379
DC COUPLED HYBRID AMPLIFIER

James G. S. Chua, Roselle, Illinois, assignor to Admiral Corporation, Chicago, Illinois a corporation of Delaware

Filed Nov. 24, 1967, Ser. No. 685,647
Int. Cl. H04n 5/16
U.S. Cl. 178—7.3 6 Claims

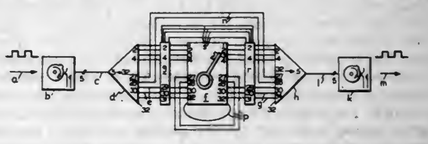


A hybrid color television receiver having a d.c. coupling between a low B+ operated transistor video amplifier and a high B+ operated vacuum tube video amplifier. The high B+ voltage is coupled to the plate terminal of the vacuum tube and the low B+ voltage is coupled to the collector terminal of the transistor and the grid and cathode terminals of the vacuum tube to provide constant cathode to grid bias potential notwithstanding spontaneous fluctuations in either B+ voltage source.

3,546,380
CIPHERING AND DECIPHERING APPARATUS

Oskar Sturzinger, Baar Zurich, Switzerland, assignor to Anstalt Europaische Handelsgesellschaft, Vaduz, Principality of Liechtenstein

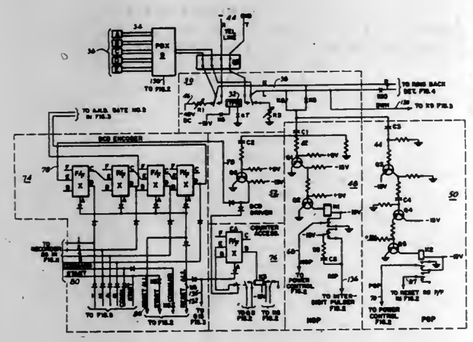
Continuation-in-part of application Ser. No. 426,890, Jan. 21, 1965, now abandoned. This application Sept. 4, 1968, Ser. No. 757,337
Claims priority application Switzerland, Jan. 21, 1964, 669/64
Int. Cl. H04l 9/00
U.S. Cl. 178—22 4 Claims



In a signal-mixing apparatus for ciphering and deciphering in which signals other than alphabet letters (in particular

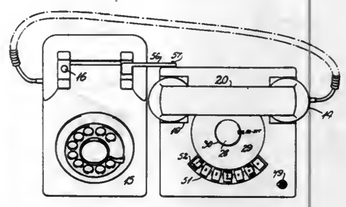
CCITT Combination No. 4 which is used to trigger the answer-back device of a receiving station) may occur as a result of the ciphering of signals, certain signals (including the said Combination No. 4) should be prevented from being transmitted as such. To that end, the apparatus comprises, in connection with a keying device, a detector for such signal connected to the outlet of the keying device, bypassing conductors and switching means whereby any signal which on ciphering would produce the combination signal to be avoided, is bypassed around the keying device and delivered to the outgoing line in unciphered form. Arrangements are also provided at the receiving station for testing the incoming signals as to whether they are normal ciphered signals or signals which for the said reason had been transmitted in unciphered form. These latter are passed on without deciphering, while the others are deciphered in the usual way.

3,546,381
TELEPHONE MESSAGE DATA DEVICE
Daniel E. Foley, Nutley, New Jersey and William F. Hogan, Scarsdale, New York, assignors to Data Presentations, Inc., Scarsdale, New York a corporation of New York
Filed July 5, 1968, Ser. No. 742,686
Int. Cl. H04m *15/20*
U.S. Cl. 179—7.1 **25 Claims**



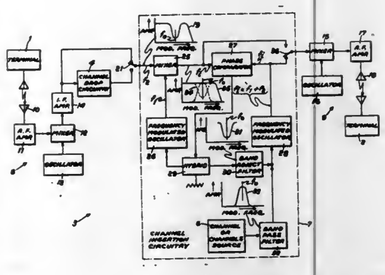
The present apparatus is used by a volume telephone subscriber to record the local extension that is calling, the outside number that is being called, the length of the call, and if desired the time and date of the call, all without direct connection into the telephone line, which is usually a flat rate line. The voice message is not monitored or tapped. The present apparatus comprises a dial signal detector, a recorder, and a sensor responsive to off-hook to connect the dial signal detector and to start the recorder. There is means to translate and encode the dialed signal into a signal compatible with the recorder. The apparatus may time as well as record the call, and a timing device is used which also has an output compatible with the recorder, and which includes switch means to start and stop the recorder. The apparatus has means responsive to answerback to start the timing device, and means responsive to on-hook to stop the timing device. It is usually desired to identify and record the extension making the call, and for this purpose the caller must dial an extension identification signal before it can be connected to the line. The timing device cannot record the terminal time and the elapsed time until after on-hook, and therefore delay means is provided to hold the busy condition at the PBX for a time sufficient for recording of the timer output. The subscriber may need operator assistance, and in such case the program is canceled out, except for a response to on-hook. The switching equipment in the telephone exchange causes a series of "hits" which spuriously resemble on-hook. The response to on-hook is therefore disabled for a delay period sufficient for the dialing operation. Even on hanging up there may be hits and transients, and precaution is taken against them. The apparatus may be modified to handle "Touch-Tone" dialing instead of rotary dialing.

3,546,382
TELEPHONE ACTUATING ALARM ASSEMBLY
Lloyd E. Embury, 169 Oakdale Road, Downsview, Ontario, Canada
Filed June 17, 1968, Ser. No. 737,607
Claims priority, application Great Britain, June 16, 1967, 27967/67
Int. Cl. H04m *11/04, 1/44*
U.S. Cl. 179—5 **6 Claims**



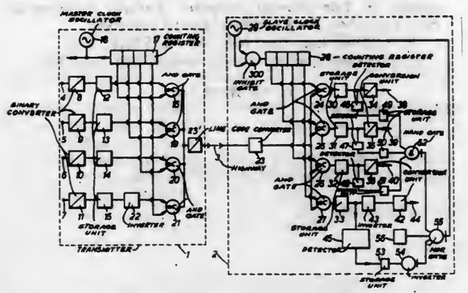
A telephone call is caused to operate as an alarm when it originates from a source recognized by the receiver of such call, such call being automatically made following a change of state in an alarm circuit, the making of such call being effected by pulsing the receiver button or hook of a telephone set in correspondence to the pulsing which conventionally occurs in dialing a given number, the device being structured electromechanically so that the instructed recipient of such a call at any preselected number can be alerted.

3,546,383
REPEATER TERMINAL
Zeno G. Lyon, Scotch Plains, New Jersey, assignor to International Telephone and Telegraph Corporation, Nutley, New Jersey a corporation of Delaware
Filed July 5, 1968, Ser. No. 742,665
Int. Cl. H04j *1/10*
U.S. Cl. 179—15 **10 Claims**



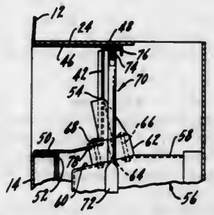
FDM channel insertion circuitry includes a mixer having an FDM channel signal including one or more blank frequency channels coupled thereto with its other input supplied by a first frequency modulated oscillator. A phase comparator is coupled to the output of the mixer having its other input coupled to a second frequency-modulated oscillator which is modulated by the channel signal or signals to be inserted in the blank channel or channels of the FDM signal. The control signal from the comparator is coupled directly to the first oscillator and through a band rejection filter to the second oscillator. The output signal from the circuitry is coupled from the output of the second oscillator or the output of the mixer.

3,546,384
MULTIPLEX SYNCHRONIZING SYSTEM
Eric Richard Brigham, Essex, England, assignor to The Marconi Company Limited, London, England a British Company
Filed Sept. 23, 1968, Ser. No. 761,552
Claims priority, application Great Britain, Nov. 6, 1967, 50,362/67
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 **13 Claims**



In a multiplexing system wherein two or more combination signals which are to be multiplexed each includes a synchronising code combination which is the same for each of the code combination signals. There is provided, at the transmitter, means for inverting the synchronising code combination of one of the code combination signals prior to combining the signals for transmission, and, in one of the receiver channels, means selectively responsive to the inverted synchronising code combination.

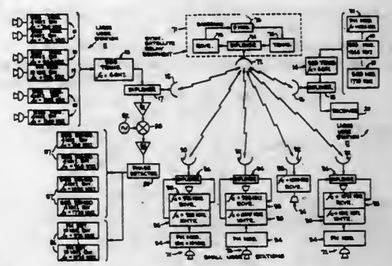
3,546,385
COIN TELEPHONE HOUSING AND ASSEMBLY
Edward S. Ertl, McHenry and Leslie A. Hannula, Waukegan, Illinois, assignors to Acoustics Development Corporation, Northbrook, Illinois a corporation of Illinois
Filed Sept. 5, 1967, Ser. No. 665,500
Int. Cl. H04m *17/02*
U.S. Cl. 179—6.3 **7 Claims**



This invention relates to a coin telephone unit and housing, and particularly to an improved assembly for supporting the coin receiver permitting ready access to the interior of the unit. The coin receiver, normally mounted directly on the telephone unit, is mounted above the telephone unit, there being a connecting member supporting the coin receiver. By thus raising the coin receiver, a removable front panel may be utilized in the housing, which removable front panel may be quickly taken out of the housing, for access to the interior of the unit.

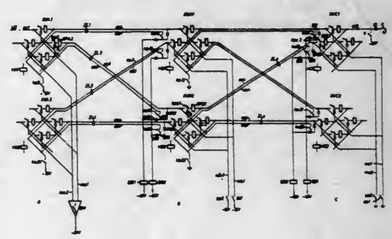
3,546,386
SATELLITE COMMUNICATION SYSTEM AND METHOD
Robert J. Darcey, Lanham, Maryland, assignor to the United States of America, as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 12, 1968, Ser. No. 783,375
Int. Cl. H04j *1/20*
U.S. Cl. 179—15 **14 Claims**

A communication system and method including a synchronous satellite as a relay station includes large and small user transmission and reception sites. Large and small users are respectively defined as transmission and receiving sites having receiving antennas with apertures greater than 40 feet and less than 20 feet. From the large user sites a multiplicity of 3.1 kHz. frequency multiplexed channels, at 4 kHz. spacing, each having a suppressed subcarrier which is single sideband AM modulated, is single sideband modulated on a suppressed carrier transmitted to the satellite. A plurality of adjacent SSB channels at the large user site is omitted.



From small and/or large user sites in the portion of the spectrum where the omitted channels would lie, signals are FM modulated on a subcarrier displaced from the suppressed carrier and transmitted to the satellite. At the satellite the AM and FM channels are converted to a spectrum including a pair of phase modulated side bands and a carrier. At small user receiver sites, one of the FM subcarriers relayed by the satellite in each sideband transmitted from the satellite is recovered and combined with the FM modulation thereon to derive the FM transmitted information signal.

3,546,387
REED RELAY SWITCHING NETWORK
Kurt Strunk, Graf-Eberhard and Heinrich Halfmann, Korntal, Germany, assignors to International Standard Electric Corporation, New York, N.Y. a corporation of Delaware
Filed Jan. 9, 1968, Ser. No. 696,627
Claims priority, application Germany, Jan. 25, 1967, ST26406
Int. Cl. H04q *3/42*
U.S. Cl. 179—18 **4 Claims**

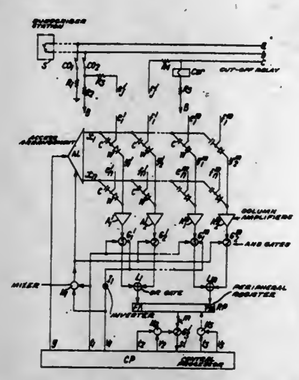


A cross-point switching method simultaneously operates all switching stages. There are individual starting circuits for the cross-point relays. A potential, emitted by a switching multiple via the positioning wires of all links connected thereto is returned by the selected switching multiple of the next following switching stage via the switching wire of the link to be used. This determines the row to be marked of the second switching multiple.

3,546,388
LINE SCANNING SYSTEM WITH STORED PROGRAM CONTROL

Stanislas Kobus, Antwerp, Belgium and Adelin Eugene Gaston Salle, Paris, France, assignors to International Standard Electric Corporation, New York, New York a corporation of Delaware

Filed Jan. 18, 1968, Ser. No. 698,960
Claims priority, application Netherlands, Jan. 23, 1967, 6701053
Int. Cl. H04m 3/22
U.S. Cl. 179—18 10 Claims

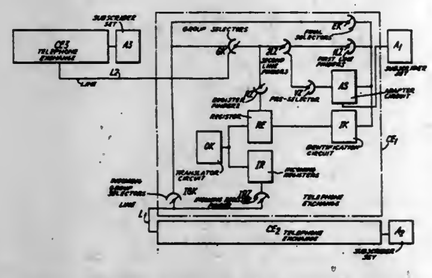


A line scanning system for detecting the appearance of new line conditions. The line condition changes are detected by an exclusive OR function $Z=\overline{X}Y+X\overline{Y}$, where $\overline{Y}$ is the OR function L + Cor (L = the line loop state: Cor = the cut-off relay state) obtained from the line scanning operation and where X is the value of the function y at the previous scan obtained from a memory element associated with the considered line. Only one core or other type memory element is needed to store the previous condition X of the line even though both the line loop and cutoff relay state are monitored. Note that line condition change involves the recognition of a two bit code. (Z = exclusive OR between X and Y.

3,546,389
TELECOMMUNICATION SWITCHING SYSTEM

Egide Jacob Hendrik De Raedt, Hoboken; Andreas Michiel Cyriel Corneel Peeters, Patrijzenlei Schoten and George Pieter Adolf Mathildis Debruyne, Lebbeke, Belgium, assignors to International Standard Electric Corporation

Filed Dec. 1, 1966, Ser. No. 598,370
Claims priority, application Belgium, Dec. 13, 1965, 673,621
Int. Cl. H04m 15/06
U.S. Cl. 179—18 23 Claims

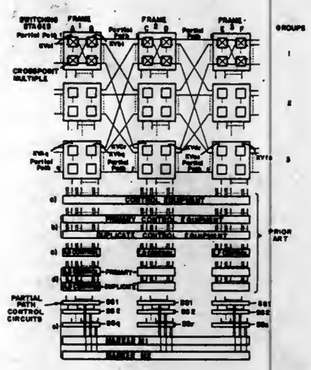


The invention provides a circuit for trapping malicious calls and identifying the station making the call, as to an order clerk, for example. The system does this by classifying subscriber lines. Then, depending upon the classification, identity of the calling line is recorded as soon as the call is received.

3,546,390
CONTROL EQUIPMENT FOR MULTI-STAGE CROSSPOINT ARRANGEMENTS

Walter Hackenberg, Hirschlanden; Heinz Schluter, Kornwestheim and Hilmar Schonemyer, Ditzingen, Germany, assignors to International Standard Electric Corporation, New York, New York a corporation of Delaware

Filed Aug. 11, 1966, Ser. No. 571,833
Claims priority, application Germany, Aug. 14, 1965, ST24270
Int. Cl. H04q 3/42
U.S. Cl. 179—18 6 Claims

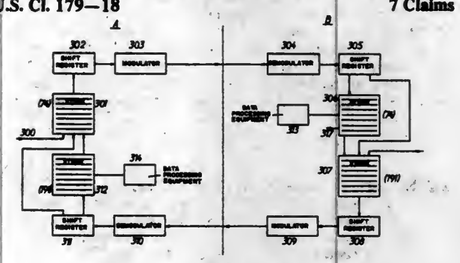


Equipment for controlling multistage crosspoint arrangement wherein the crosspoint switching multiples are arranged in switching stages, and pairs of switching stages are grouped in vertical sections or frames. In addition, the switching multiples are arranged in horizontal groups of highways or pathways through the switching arrangement. A central marker controls the plurality of control circuits with there being a control circuit unique at least to each highway per frame. This arrangement minimizes the wiring and maximizes the efficiency and reliability of the control arrangement.

3,546,391
SATELLITE TELEPHONE SYSTEMS WITH SEPARATE MESSAGE CIRCUITS AND SIGNALLING CHANNELS

Martinus den Hertog, Brasschaat, Belgium, assignor to International Standard Electric Corporation, New York, N.Y. a corporation of Delaware

Filed Jan. 16, 1967, Ser. No. 609,598
Claims priority, application Great Britain, Jan. 18, 1966, 2275/66
Int. Cl. H04q 3/56
U.S. Cl. 179—18 7 Claims

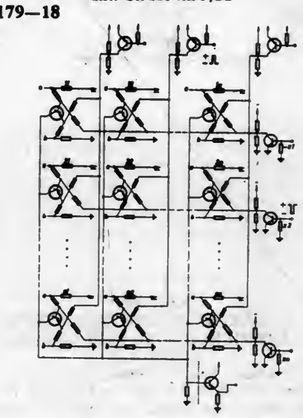


A variable address satellite system wherein: (a) every channel (i.e. one-half of a 4-wire circuit) can be seized at a switching center at only one of its extremities, e.g. the transmitting end; (b) the two channels required to permit conversation in either direction for a call need not be permanently associated but are seized independently from any free channels available in each direction, one at each, to constitute a random pair; (c) the system depends on the use of a common signalling channel. It is useful for both satellite and surface circuits to avoid double seizures, which are liable to occur on bothway circuits with long propagation time.

3,546,392
COORDINATE MATRIX ARRANGEMENT FOR SUPERVISION OF LOOP CONDITIONS AND FOR DISCERNING LOOP RESISTANCES IN A PLURALITY OF LOOPS

Eberhard Herter, Stuttgart, Germany, assignor to International Standard Electric Corporation, New York, N.Y. a corporation of Delaware

Continuation-in-part of application Ser. No. 555,913, June 7, 1966, now Patent No. 3,525,816. This application April 20, 1967, Ser. No. 632,312
Claims priority, application Germany, Apr. 23, 1966, St 25,275
Int. Cl. H04m 3/22
U.S. Cl. 179—18 6 Claims

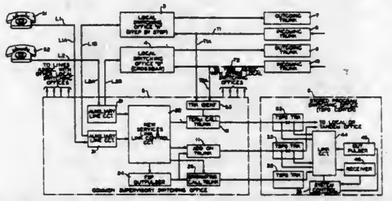


A group supervision circuit in which six-pole bridge-type circuits are combined in a multidimensional matrix of columns and rows. A line is coupled to each of the bridge-type circuits making up the matrix. The desired line is tested in the arrangement on a time multiplex basis by operating the particular bridge-type circuit that is coupled to the line. The arrangement is advantageous because even though the time multiplex signal is applied for an arbitrary time, nonetheless transients are negligible.

3,546,393
TELEPHONE SWITCHING SYSTEM

Amos E. Joel, Jr., South Orange, New Jersey, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, New Jersey a corporation of New York

Filed Sept. 18, 1967, Ser. No. 668,530
Int. Cl. H04m 3/42
U.S. Cl. 179—18 57 Claims

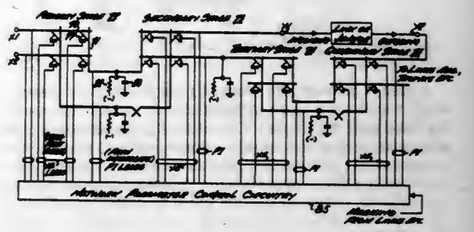


An arrangement for providing special services to telephone stations served by diverse switching centers without modification of such centers by the employment of a supervisory switching system operable to monitor control signals associated with each connection within such centers. The supervisory switching system is associated with a stored-program switching center operable to provide call processing information directly related to each connection as determined by the station involved. Under control of such information, the supervisory switching system directs the establishment of the respective connections so as to provide the specific special service feature required.

3,546,394
ELECTRONIC SWITCHING TELEPHONE SYSTEM USING MOS DEVICES

Eric G. Platt, Westmont and Marvin F. Thompson, Palos Heights, Ill., assignors to International Telephone and Telegraph Corporation

Filed Dec. 5, 1967, Ser. No. 688,110
Int. Cl. H04g 3/42
U.S. Cl. 179—18 7 Claims

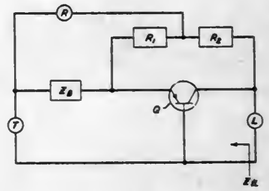


A switching network includes a cascade of matrices, each matrix comprising an MOS-PNPN diode connected across each intersection of a vertical and a horizontal multiple. The potentials of vertical busses in the matrices change as a function of busy and idle conditions. These potentials are fed back from the vertical busses to the MOS layers of the diodes connected to those busses to enable or inhibit those diodes as a function of the cross-point availability. Various circuits are provided for gating the feedback signal to allow a selection of possible paths while enabling a random cross-point selection.

3,546,395
ACTIVE TELEPHONE SET SPEECH NETWORK EMPLOYING TRANSISTOR FEEDBACK LOOP FOR SIDETONE BALANCE AND EQUALIZATION

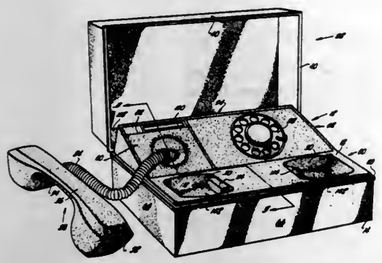
Peter O. Schuh, Indianapolis, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J. a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,785
Int. Cl. H04m 1/58
U.S. Cl. 179—81 12 Claims



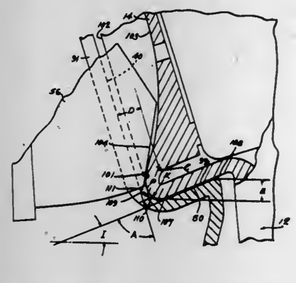
In an active network employed as the speech circuit for a subscriber's telephone set, interconnected transistors avoid the need for inductive hybrid coils by utilizing a feedback loop to provide sidetone balance, and gain equalization is employed to compensate for changes in line impedance.

3,546,396
ENCLOSED TELEPHONE HAVING A RACEWAY FOR ITS CORD
Henry Marcheschi, Los Angeles and George D. Perkins, Pasadena, California, assignors to American Telecommunication Corporation, Los Angeles, California a corporation of California
Filed July 20, 1967, Ser. No. 654,778
Int. Cl. H04m 1/02
U.S. Cl. 179—100 9 Claims



A base is provided for mounting the telephone's chassis. A boxlike enclosure which includes a cover plate is mounted on the base over the chassis. One end of a conventional coiled telephone cord is connected to the chassis and the other end to a receiver. The receiver may be nested in indentations in the cover. A raceway within the enclosure houses the cord. The raceway terminates at one end at an outlet through which the cord extends for its connection to the receiver. The configuration of the raceway is such that the cord automatically retracts into it when the phone is not in service. A low-friction actuating mechanism energizes and deenergizes the receiver and transmitter portion of the chassis. A lid is secured by a hinge to the enclosure to cover the outlet, the receiver, and a telephone dial mounted in the cover.

3,546,397
SHOCK DISSIPATING TELEPHONE INSTRUMENT
Graham S. Laing and Harry M. Coumans, London, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed March 28, 1968, Ser. No. 716,713
Int. Cl. H04m 1/06
U.S. Cl. 179—100 7 Claims



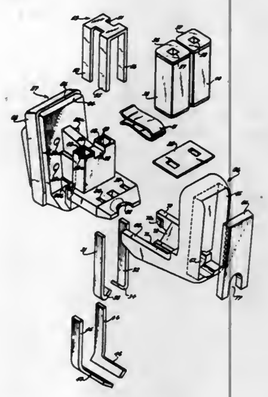
A socket of the telephone instrument comprises a first end surface for retaining the receiver end portion and a second end surface for retaining the transmitter end portion of the handset. The receiver end portion has at its lower end a convex lip edge which engages an upwardly and outwardly inclined shelf surface provided at the lower end of the first end socket surface when the instrument is used in its vertical orientation as a wall instrument. To prevent any shocks onto the wall on which the instrument is installed from being directly transmitted to the handset and causing the handset to fall off the socket, an inwardly and upwardly curved surface is provided to form a smooth inward continuation of the shelf surface, the curvature of such continuation surface being more gradual than the curvature of the convex lip edge, so that upon occurrence of an impact on the socket, the lip edge is first caused to climb up the continuation surface so that only part of the shock energy is transmitted as kinetic energy in the horizontal direction.

3,546,398
MAGNETIC TAPE HEAD WITH A MOVABLE POLE PIECE TO MAINTAIN A CONSTANT GAP
Walter K. French, New York, New York, assignor to Creative Systems, Inc., New York, New York a corporation of New York
Filed Feb. 28, 1968, Ser. No. 708,987
Int. Cl. G11b 5/24
U.S. Cl. 179—100.2 3 Claims



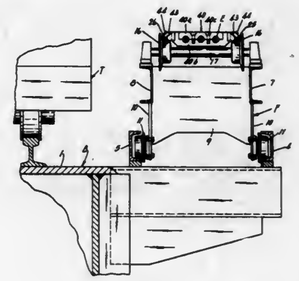
A magnetic tape head for magnetic recording, reproduction and obliteration or the like, comprising a pair of pole pieces having edge portions defining a gap, the separation of said pole pieces increasing at areas of said pole pieces progressively more remote from said gap and characterized by one said pole piece being movable and yieldably urged toward the other said pole piece, to maintain said gap essentially at a constant.

3,546,399
INDUCED MAGNETIC MOVING IRON STEREOPHONIC PHONOGRAPH PICKUP WITH REPLACEABLE STYLUS ASSEMBLY
Walter O. Stanton, Laurel Hollow and John P. Kuehn, Huntington, New York, assignors to Pickering & Company, Inc., Plainview, Long Island, New York a corporation of New York
Continuation-in-part of application Ser. No. 725,457, April 30, 1968, now abandoned. This application Jan. 29, 1969, Ser. No. 794,921
Int. Cl. H04r 11/12
U.S. Cl. 179—100.41 9 Claims



A magnetic stereophonic phonograph pickup is disclosed wherein the stereophonic output is produced by an elongated tubular armature of permeable material pivotally mounted at one end for movement of its opposite end within a quadrangular cluster of four pole pieces, said four pole pieces forming the terminal portions of two closed path magnetic circuits each completed through a core with a voltage generating coil mounted thereon, magnetomotive force being provided by a stationary permanent magnet magnetically coupled with the pivotally mounted end of the moving armature to minimize motion between the permanent magnet and armature in the region of the magnetic coupling and to maintain the armature tube in substantially magnetically saturated condition, and wherein a shorted turn device is electromagnetically coupled with each magnetic circuit to improve high frequency response and in the preferred embodiment additionally provide crosstalk compensation.

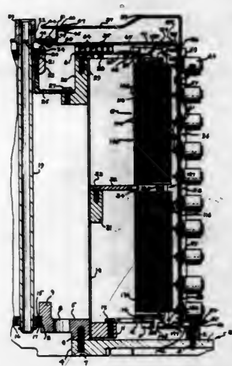
3,546,400
SUPPORTING MEANS FOR FLEXIBLE MEMBERS
Max J. Dechantsreiter, Milwaukee, Wisconsin, assignor to Harnischfeger Corporation, Milwaukee, Wisconsin a corporation of Wisconsin
Filed Jan. 2, 1969, Ser. No. 788,470
Int. Cl. H02g 11/00
U.S. Cl. 191—12 6 Claims



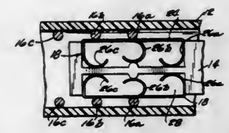
On a movable frame for handling power cables which extend between a stationary point and a vehicle movable along the direction of movement of the frame, a pair of carrier cables are provided to relieve the mechanical stress from the power cables resulting from movement of the frame, and guide means which are detachably connected to the carrier cables are provided for the power cables.

3,546,401
SELECTOR SWITCH PROVIDED WITH SELECTABLY ACTUABLE CONTACT MEANS
Raymond Melvin Carlisle, Linglestown and Winfield Warren Loose, Reading, Pennsylvania, assignors to AMP Incorporated, Harrisburg, Pennsylvania
Original application Aug. 21, 1964, Ser. No. 391,192, now Patent No. 3,436,696, dated April 1, 1969. Divided and this application Dec. 26, 1968, Ser. No. 786,906
Int. Cl. H01h 3/00, 9/00, 67/14
U.S. Cl. 200—1 4 Claims

A programing system comprises a matrix of conductors arranged in rows and levels, contact means adapted to interconnect rows with levels, movable means mounted adjacent the matrix of conductors, control means connected to the movable means to move the movable means to selected positions opposite the matrix of conductors, operating means on the movable means and additional control means connected to the operating means to selectively operate the operating means to move contact means opposite thereto into engagement with conductors of the matrix at the selected positions.



3,546,402
SLIDING CONTACTS FOR PUSH BUTTON SWITCHES
Willis Edwin Spaeth; George Peter Piotrowski, Milwaukee and Edward Marion Sadowski, Brookfield, Wisconsin, assignors to Globe-Union Inc., Milwaukee, Wisconsin a corporation of Delaware
Filed April 4, 1969, Ser. No. 813,613
Int. Cl. H01h 15/00
U.S. Cl. 200—16 7 Claims

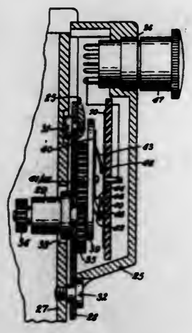


A pushbutton switch having a stator housing, in which fixed contacts are mounted in spaced relationship, and a slider bar, carrying sliding contacts arranged to bridge adjacent fixed contacts, slidably mounted in the housing. The sliding contacts are arranged in recesses in the slider bar and biasing means disposed in the recesses provide at least three independent sources of force to urge the conductive portion of the sliding contacts into engagement with the fixed contacts to insure positive electrical contact therebetween during a changeover of switch positions resulting from movement of the slider bar.

3,546,403
MOTION PICTURE APPARATUS WITH IMPROVED IMPULSE TRANSMITTER CONTACT STRUCTURE
Rudolf Taesler, Stuttgart, Germany, assignor to Zeiss Ikon Aktiengesellschaft, Stuttgart, Germany a corporation of Germany
Filed Feb. 28, 1968, Ser. No. 709,005
Claims priority, application Germany, March 4, 1967, Z 12724
Int. Cl. H01h 39/00
U.S. Cl. 200—24 8 Claims

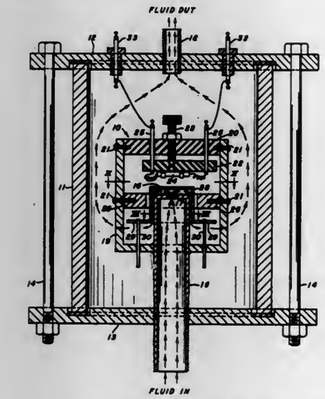
A motion picture apparatus provided with an impulse transmitter driven by the film drive mechanism and transmitting synchro-impulses for controlling a sound apparatus. The impulse transmitter is adapted to be used selectively with any one of a number of different synchronizing methods and is provided with a slidable contact member and a number of groups of transmitter contacts which are spaced and offset

from each other in the direction of movement of said slidable contact member. This slidable contact member is adapted to



be alternately connected to a current supply conductor and selectively to at least one of a plurality of electric conductors which transmit the synchronizing impulses.

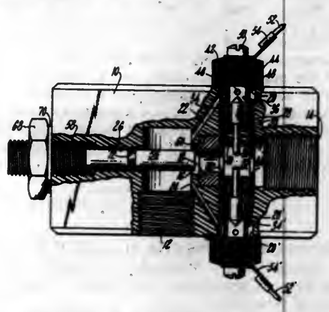
3,546,404
SWITCH ACTUATED BY FLUID FLOW
Frank L. Whiteman, Elizabeth Township, Allegheny County and William L. Zemberry, Swissvale Borough, Pennsylvania, assignors to United States Steel Corporation, a corporation of Delaware
Filed May 1, 1969, Ser. No. 820,844
Int. Cl. H01h *35/24*
U.S. Cl. 200—81.9 **7 Claims**



A pipe length disposed generally vertically has a cup on the upper end liftable by the force of fluid flow therethrough. A magnet induces flux transversely through the cup and pipe. A magnetically operated switch is mounted above the upper end of the pipe. When the cup is lifted by fluid flow, it shifts the path of the induced flux so as to cause operation of the switch.

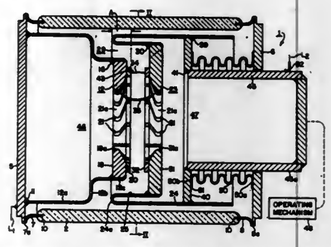
3,546,405
FLUID FLOW DETECTOR
Raymond Carignan, 94 W. Main St., Stafford Springs, Connecticut
Filed Dec. 31, 1968, Ser. No. 788,218
Int. Cl. H01h *35/24*
U.S. Cl. 200—82 **14 Claims**

Electromechanical devices sensitive to fluid flow rate or pressure are disclosed. These detector devices are characterized by a pair of oppositely disposed, electrically conductive, differential area piston members which are exposed to the fluid flow to be monitored. The flow rate at which the separating bias on the pistons is overcome and the members



caused to contact one another to thereby provide an indication of abnormal flow is adjustable via valve means in the devices. The devices may also be made responsive to both under and over pressure or flow rates.

3,546,406
VACUUM-TYPE CIRCUIT INTERRUPTER WITH HOLLOW CONTACTS
Russell E. Frink, Forest Hills, Pittsburgh, assignor to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania a corporation of Pennsylvania
Filed Nov. 21, 1966, Ser. No. 595,836
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 **6 Claims**



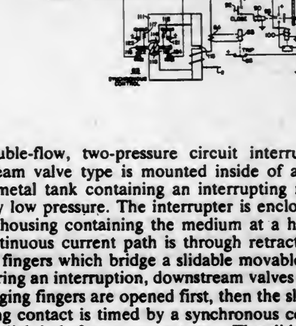
A vacuum-type circuit interrupter is provided having a pair of separable generally tubularly-shaped contacts disposed within an evacuated enclosure, and having confronting inner arcing-ring portions, with the arcing-ring portions being generally normal to the longitudinal axis of the interrupter. Preferably, the arcing-ring portions have laterally-disposed radial slots, which open into the inner periphery of the respective apertures provided by the arcing-ring portions.

Additionally, the disclosed vacuum-type circuit interrupter utilizes a nested construction, wherein one of the cooperable contacts has a reverse-bend portion to cause an overlapping relationship between the cooperable ring-shaped contacts.

Modifications include a ceramic condensing shield, insulating ribs disposed on the outer insulating casing, or a cylindrical metallic shield taken in conjunction with the aforesaid particularly-configured contact structure.

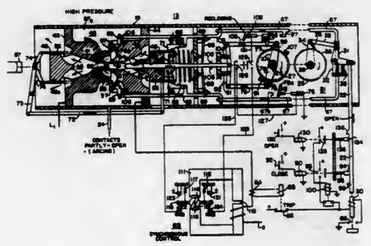
3,546,407
VACUUM-TYPE CIRCUIT INTERRUPTER
Harold N. Schneider, Springfield, Pa., assignor to General Electric Company, a corporation of New York
Filed Aug. 15, 1967, Ser. No. 660,809
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 **8 Claims**

A vacuum-type circuit interrupter comprising magnetic means for forcing low current arcs from an arc-initiation region onto a separate first region made of a metal having a low effective current chopping level. High current arcs are



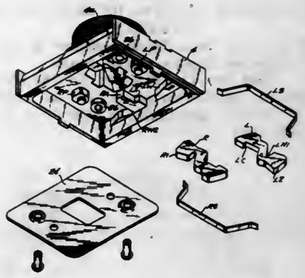
forced in an opposite direction from the arc-initiation region onto a separate second region made of a nonrefractory metal well suited for high current interruptions.

3,546,408
DUAL-PRESSURE COMPRESSED GAS CIRCUIT BREAKER WITH A DOWNSTREAM BLAST VALVE COOPERATIVE WITH INTERRUPTER HOUSING IN DEFINING HIGH-PRESSURE REGION AND WITH SPACED BREAKER TERMINAL DISPOSED WITHIN SAID HIGH-PRESSURE REGION
William H. Fischer, Penn Hills, Pittsburgh and Robert G. Colclaser, Jr., Delmont, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa. a corporation of Pennsylvania
Filed May 18, 1967, Ser. No. 639,407
Int. Cl. H01h *33/86*
U.S. Cl. 200—148 **19 Claims**



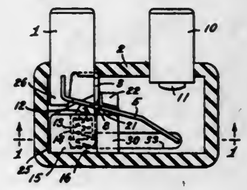
A double-flow, two-pressure circuit interrupter of the downstream valve type is mounted inside of and insulated from a metal tank containing an interrupting medium at a relatively low pressure. The interrupter is enclosed in an insulating housing containing the medium at a high pressure. The continuous current path is through retractable contact bridging fingers which bridge a slidable movable arcing contact. During an interruption, downstream valves and the contact bridging fingers are opened first, then the slidable movable arcing contact is timed by a synchronous control device to open slightly before a current zero. The slidable movable arcing contact is driven by a mechanical energy storage mechanism.

3,546,409
TOGGLE SWITCH WITH PAWL MEANS FOR MOMENTARILY ARRESTING IT IN INTERMEDIATE POSITION
Clyde F. Robbins, Milwaukee, Wisconsin, assignor to Cutler-Hammer, Inc., Milwaukee, Wisconsin a corporation of Delaware
Filed Nov. 14, 1968, Ser. No. 775,656
Int. Cl. H01h *21/50;* **G05g** *5/00*
U.S. Cl. 200—153 **12 Claims**



A double-throw switch is provided with a latch mechanism that blocks continuous movement of its toggle lever from either position through center to the other position thereby to allow the switch arc to extinguish before reversing or "plugging" of a motor. The handle of the toggle lever must be released in the center position or slightly moved back before the movement to the other position can be continued. This slight "hesitation" at the center position allows the latch mechanism to release and provides time for the arc to extinguish before reverse contacts are closed. The latch mechanism is a compact flat structure built into the upper portion of the switch and occupies no more space than has sometimes been used for a "momentary" action return spring.

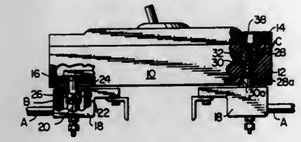
3,546,410
ELECTRICAL SAFETY SWITCH PARTICULARLY USEFUL WITH APPLIANCES HAVING DOOR-LIKE MEMBERS
Norberto Brighenti, Naples, Italy, assignor to Texas Instruments Incorporated, Dallas, Texas a corporation of Delaware
Filed April 2, 1969, Ser. No. 812,702
Claims priority, application Italy, April 5, 1968, 36098A
Int. Cl. H01h *3/16*
U.S. Cl. 200—153 **15 Claims**



A safety switch for controlling the deenergization and energization of appliances when a certain parameter exists such as the complete closing of the appliance door comprising a housing mounting a pivotally mounted contact arm and a slide member which biases the contact arm toward or away from a stationary contact. The slide member is connected to an operating lever which is caused to be moved by the movement of the appliance door upon closing thereof. The slide member is provided with a stop which precludes the contact

arm from engaging the stationary contact when the slide member moves in a first direction or forward stroke in a first orientation but permits the contact arm to engage the stationary contact when moving in the opposite direction or return stroke in a second orientation. The contacts are in engagement only when the slide member is in the first portion of the return stroke which occurs only after the appliance door is locked.

3,546,411
DETACHABLY LOCKING DEVICE FOR CIRCUIT INTERRUPTER
Yoshio Kobayashi, Nara, Japan, assignor to Terasaki Denki Sangyo Kabushiki Kaisha, Osaka, Japan
Filed Dec. 13, 1968, Ser. No. 783,551
Claims priority, application Japan, Dec. 26, 1967, 42/108,202
Int. Cl. H01h *9/08*
U.S. Cl. 200—168 **3 Claims**



A plug-in-type circuit interrupter is plugged into two terminal blocks connected to opposite ends of a bus line. One bolt planted between each pair of terminals on each block extends through and projects beyond a through hole formed in the interrupter. One cap nut is screwed onto the projecting portion of each nut to lock the interrupter to the terminal blocks. When the nut is being unscrewed it exerts upon the interrupter a force tending to separate the interrupter from the blocks until it is ready for being manually removed from the blocks. The nuts are retained in the interrupter so as to fall out from the latter.

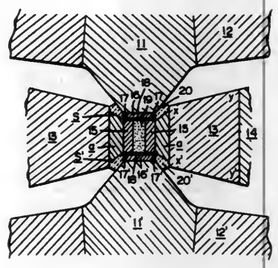
3,546,412
ELECTRIC SWITCH WITH IMPROVED TOGGLE MOUNTING MEANS
Carlton E. Sanford, Riverside, Rhode Island, assignor to Texas Instruments Incorporated, Dallas, Texas a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,641
Int. Cl. H01h *9/04*
U.S. Cl. 200—168 **10 Claims**



An electric switch having a conventional toggle mechanism mounted in an improved yoke which is drawn from flat stock metal and shaped in such a way to provide the required structural strength and rigidity. In one embodiment, the yoke structure forms the cover of the switch while in another it is mounted on a conventional cover member.

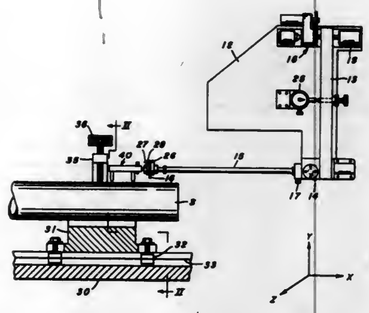
3,546,413
HIGH TEMPERATURE HIGH PRESSURE APPARATUS
Hiroshi Ishizuka, 19-2, 6-Chome, Ebara, Shinagawa-Ku, Tokyo, Japan
Filed May 1, 1968, Ser. No. 725,630
Claims priority, application Japan, May 14, 1967, May 16, 1967, May 16, 1967, 42/28327;42/31024;44/31025
Int. Cl. H05b *1/00;* **B29c** *1/00*
U.S. Cl. 219—50 **9 Claims**

High-temperature high-pressure apparatus comprising pair of opposed tapered pistons having truncated flat end surface, annular die member having straight cylindrical inner wall, said wall defining aperture into which said pistons converge, rigid hollow cylindrical body made of material having relatively low compressibility coefficient said body being coaxially placed in said aperture, reaction chamber formed by piston ends and inner wall of the body, gaskets placed upon the ends of said cylindrical body and sealing gaps between said pistons and die inner cylindrical wall, and means for



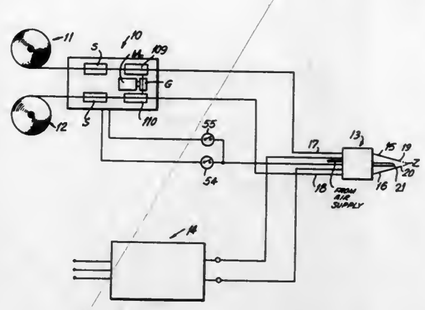
electrically heating reactant in said reaction chamber, the temperature and pressure caused in the reaction chamber being damped by said cylindrical body, thereby lowering the pressure and temperature transmitted to said die member, said gaskets pressing the ends surface of the body whereby the body walls are prevented from rupturing at pressure higher than that induced by the material of the body itself characterized in that the opposite ends of the rigid hollow cylindrical body is formed with tapered surface.

3,546,414
GAGES FOR ALIGNING WORKPIECES IN AN ELECTROEROSIVE FLAW-CUTTING MACHINE
William L. Zemberry, Swissvale Borough, Pennsylvania, assignor to United States Steel Corporation, a corporation of Delaware
Filed May 9, 1968, Ser. No. 727,800
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 **3 Claims**



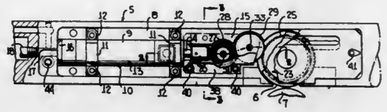
A method and apparatus for aligning a cylindrical workpiece in a machine which electroerosively cuts circumferential simulated flaws. Workpiece forms a standard specimen to be used in calibrating a flaw-detection device. Longitudinal, horizontal and vertical diametrical guide lines are marked on the workpiece. Longitudinal and circumferential positioning gages are installed successively on and in alignment with the free end of a horizontally disposed and vertically swingable electrode arm, and the workpiece adjusted to position the guide lines on these gages.

3,546,415
ELECTRIC ARC METALLIZING DEVICE
Daniel R. Marantz, Port Washington, New York, assignor to Flame Spray Industries, Inc., Port Washington, New York a corporation of New York
Filed Nov. 7, 1968, Ser. No. 774,036
Int. Cl. B23k *9/04, 9/00*
U.S. Cl. 219—76 **9 Claims**



An improved spray metallizing device of the electric arc type in which a pair of wires are advanced progressively to an arc-forming station, the molten wires being atomized by a gas jet forcing the particles away from the station, characterized by novel wire feed means automatically effective, upon interruption of the spraying cycle, to retract the wires from the arc zone to predetermined positions whereat reinitiation of the metallizing cycle will be effected properly to position the wires in the arc zone.

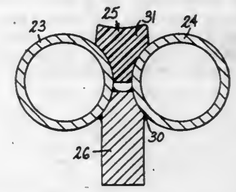
3,546,416
INTERNAL ELECTRODE DRIVE
Eli Rosets and Lawrence M. Rogers, Chicago, Illinois, assignors to Continental Can Company, Inc., New York, New York a corporation of New York
Filed July 25, 1967, Ser. No. 655,806
Int. Cl. B23k *11/06*
U.S. Cl. 219—81 **8 Claims**



This disclosure has to do with a drive for an internal roller electrode of a seam welding apparatus. A power unit is coupled to the roller electrode for driving the same substantially at the same speed as the tubular member being welded with the power unit being of the combined slip and overrunning type whereby there will be automatic compensation for a differential in speed between a workpiece and the roller electrode.

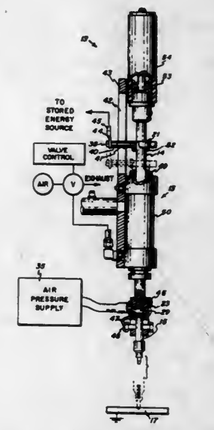
3,546,417
SHOTGUN BARREL CONSTRUCTION
Robert L. Hillberg, Cheshire, Connecticut, assignor to Bellmore-Johnson Tool Company, Hamden, Connecticut
Filed Jan. 22, 1968, Ser. No. 699,476
Int. Cl. B23k *9/28, 11/10*
U.S. Cl. 219—93 **10 Claims**

This disclosure relates to the assembly of barrels of a double-barreled shotgun. The barrels are joined at the muzzle ends thereof by a member which spaces and rigidly holds the



barrels in fixed relation. A rib of molded nonmetallic material is so formed as to be locked to the barrel assembly.

3,546,418
STUD WELDING APPARATUS
Harold J. Graham, Sharon, Massachusetts, assignor to AGM Industries, Inc., Canton, Massachusetts a corporation of Massachusetts
Filed May 21, 1968, Ser. No. 730,694
Int. Cl. B23k *9/22*
U.S. Cl. 219—95 **7 Claims**

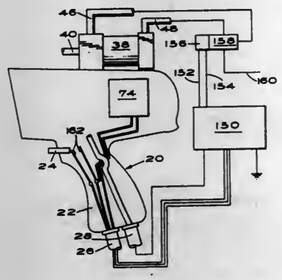


A stud welding apparatus in which the stud supporting means comprises an upper section of relatively large mass, a lower independently movable, stud holder section of relatively small mass which is flexibly coupled to the upper section, and an air gap therebetween. The percussive impact force at the weld is due essentially to the mass of the lower section only and air supplied under pressure to the air gap prevents a rebounding of the stud away from the workpiece to which it is being welded.

3,546,419
SELF-LOADING STUD WELDING APPARATUS
Engelbert A. Meyer, Union Lake, Michigan, assignor to Warren Fastener Corporation, Mt. Clemens, Michigan a corporation of Michigan
Filed May 21, 1964, Ser. No. 369,115
Int. Cl. B23k *9/20*
U.S. Cl. 219—98 **4 Claims**

In a self-loading gun for welding buttons or the like to metal surfaces, a gun body, an electrode mounted in the body for reciprocal movement having a projecting button holding forward end portion, a manifold block supported in spaced relation to said gun body having a longitudinal bore therethrough accommodating said electrode forward end and

a transverse button passage communicating with said bore intermediate opposite ends of the latter, button delivery means for delivering buttons to said button passage, motive means on the gun body coupled to said electrode through a lost motion connection intermediate the gun body and the manifold block operable to shift the electrode between a forward welding position and a rearward button loading position adjacent said passage, a solenoid on the gun body coupled to said electrode means operable independently of said motive



means to momentarily retract the same to strike an arc between a button carried thereby and a metal surface to which the button is to be welded, means on the gun body for plunging the button against said metal surface after retraction by said solenoid, and control means coupled to said gun and to said motive means causing the latter to shift the electrode rearwardly to load a button thereon and thence forwardly to dispose the button at a welding position upon the expiration of each welding cycle.

3,546,420

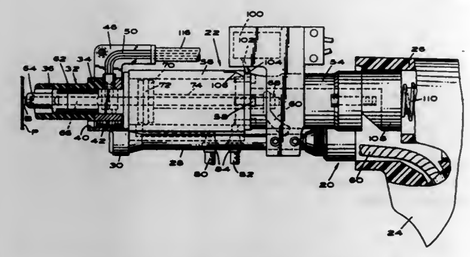
STUD WELDING APPARATUS HAVING STUD POSITION RESPONSIVE MEANS

Donald H. Ettinger, Royal Oak, and Engelbert A. Meyer, Union Lake, Michigan, assignors to Warren Fastener Corporation, Mt. Clemens, Michigan a corporation of Michigan

Original application Sept. 3, 1965, Ser. No. 485,007, which is a continuation-in-part of application Ser. No. 378,507, June 29, 1964, now abandoned, and Ser. No. 451,958, Apr. 29, 1965, abandoned. Divided and this application Mar. 22, 1968, Ser. No. 715,353

Int. Cl. B23k 9/20, 11/26

U.S. Cl. 219—98 12 Claims



A welding gun for securing relatively small studs or buttons to panels in rapid succession, which buttons are fed to the gun by an automatic feeding mechanism through a flexible base coupled to a transfer chamber on the gun. Means are provided on the gun in the form of a switch connected in the electrical control circuit for the gun. The switch contacts being closed to enable firing of the gun when the gun is properly positioned with respect to the panel and a button is correctly oriented in the gun collet. Misalignment of the gun with respect to the panel or absence of a button properly held in the gun collet prevents closure of the switch contacts, and the gun cannot be fired.

3,546,421

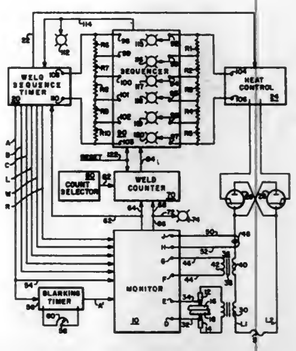
CONTROL FOR COMPENSATING FOR THE EFFECTS OF PROGRESSIVE MUSHROOMING OF THE ELECTRODES IN A RESISTANCE WELDER APPARATUS

Charles F. Meyer, Wauwatosa, and Marvin A. Guettel, Milwaukee, Wis., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed July 18, 1968, Ser. No. 745,866

Int. Cl. B23k 11/24

U.S. Cl. 219—110 10 Claims



A control for a resistance welder apparatus which will detect the deterioration in quality of successive spot welds as caused by progressive mushrooming of the welder electrodes and will automatically change the weld schedule of the apparatus to compensate for the effect on the weld quality produced by the mushroomed electrodes.

3,546,422

DEVICE FOR PLASMA ARC TREATMENT OF MATERIALS

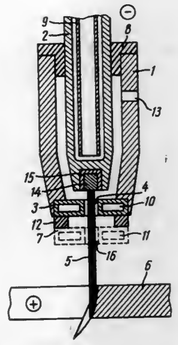
David Grigorievich Bykhovsky, Konjushenny perulok 1/6, kv. 18; Alexandr Yakovlevich Medvedev, Ulitsa Kalaeva 3, kv. 17; Yakov Vulfovich Rossomakho, Ulitsa Trefoleva 32, kv. 14, and Valery Alexandrovich Koss, Ulitsa Besstuzhevskaya II, kv. 56, all of Leningrad, U.S.S.R.

Filed Feb. 11, 1969, Ser. No. 798,303

Claims priority, application U.S.S.R., Feb. 15, 1968, 1,218,054

Int. Cl. B23k 9/26

U.S. Cl. 219—121 4 Claims



A device for plasma-arc machining of materials in active media, preferably for cutting metals, wherein the cathode holder and cathode are separated by a gasket which increases the cathode life up to 6 hours at an allowable arc current of

up to 350. The gasket material is inert with respect to the cathode material (zirconium) and the cathode holder material (copper or copper alloy) and is preferably selected from the following: tungsten, tantalum, molybdenum, niobium, vanadium or chromium.

3,546,423

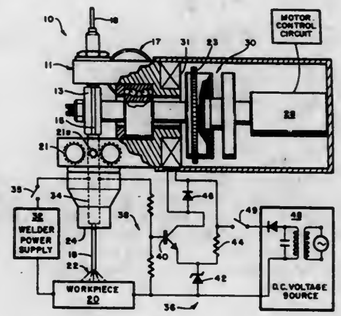
WELD WIRE FEED CONTROL

John A. Chopp, Lake Jackson, Texas; Morrough O'Brien, Boulder; Mack O. Roberts, North Glen and Hubert Scholz, Arvada, Colorado, assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 7, 1969, Ser. No. 789,575

Int. Cl. B23k 9/00

U.S. Cl. 219—130 1 Claim



A welding apparatus comprising rollers driven through a clutch to feed weld wire to a workpiece, electrical means for detecting an arc between the wire and workpiece and engaging the clutch on arc initiation such that weld wire feed rate is rapidly accelerated to equilibrium velocity and substantially synchronized with said arc initiation.

3,546,424

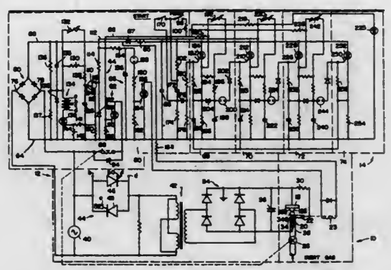
AUTOMATIC ARC WELDER

H. Robert Howie, Jr., Watertown, Massachusetts, assignor to Dynatech Corporation, Cambridge, Massachusetts

Filed Aug. 30, 1967, Ser. No. 664,499

Int. Cl. B23k 9/00

U.S. Cl. 219—131 14 Claims



An inert gas welder strikes a pilot arc between a pilot electrode and a main electrode and uses the inert gas to transfer the arc to the workpiece. A novel electronic control unit automatically proceeds through this sequence and then extinguishes the arc after a prearranged duration. The control unit employs a shift register in which each stage controls one of the functions in the operating sequence. The durations of the active intervals of the respective stages are independently adjustable, thereby providing complete flexibility in tailoring the welding operation to the work to be performed.

3,546,425

CONSTANTLY SUPPLIED WIRE ELECTRODE AND SUPPLEMENTAL WELDING METAL

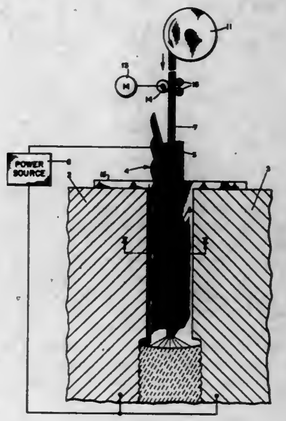
Willem F. Idsenga, Nijmegen and Pieter G. Weeber, Beek Ubbergen, Netherlands, assignors to Smit Nijmegen Electrotechnische Fabrieken N.V., Nijmegen, Netherlands

Filed July 1, 1968, Ser. No. 741,353

Claims priority, application Netherlands, June 29, 1967, 67/09071

Int. Cl. B23k 9/00

U.S. Cl. 219—131 2 Claims



Supplemental welding metal in the form of a welding wire coiled in a helix is provided. The coiled wire is placed around a constantly supplied wire electrode fed to a welding arc formed between the work piece and the wire electrode. Additional welding metal may be supplied from one or more additional welding wires coiled in a helix and placed around the first coiled welding wire.

3,546,426

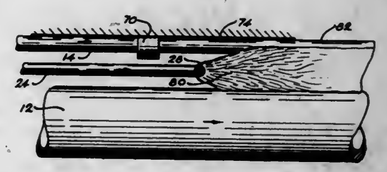
METHOD FOR WELDING LONGITUDINAL LOBES OR FINS TO TUBES

Pembroke O. Leach; William P. Jackson and Vernon W. Camp, Chattanooga, Tennessee, assignors to Combustion Engineering, Inc., Windsor, Connecticut a corporation of Delaware

Filed May 19, 1969, Ser. No. 852,956

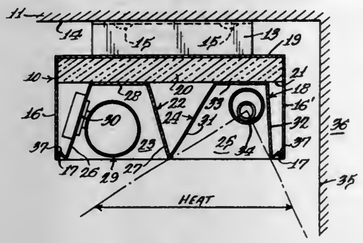
Int. Cl. B23k 9/00

U.S. Cl. 219—137 1 Claim



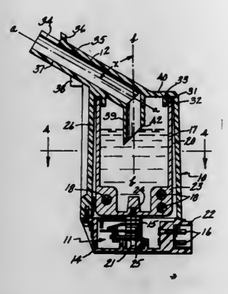
Welding method for forming longitudinal fins or lobes on tubes by continuously moving a tube and a slightly spaced cylindrical rod, or bar of other cross-sectional geometry, past stationary consumable welding electrodes, which deposit molten metal between the tube and rod, thereby fusing these two members together.

3,546,427
COMBINATION FOODWARMER AND LIGHT
Claude S. Farrell, Jr., Northbrook, Ill., assignor to Cory Corporation, a corporation of Delware
Filed Oct. 11, 1968, Ser. No. 766,930
Int. Cl. H05b 3/02
U.S. Cl. 219—220 4 Claims



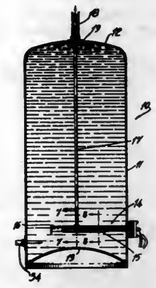
A combination foodwarmer and light for installation under an elevated cabinet such as a kitchen cabinet. The unit includes a housing carrying a bifurcated reflector having one portion adapted to reflect light from an illumination source and a second portion adapted to reflect heat from a heat source. The heat reflector is further arranged to control the delivery of heat from the unit to avoid overheating of a rearwardly adjacent surface, such as a wall surface. The reflector is still further arranged to preclude cross radiation between the two reflector portions while yet disposing the portions in contiguous relationship. The unit includes electrical control means for concurrently energizing the heat illumination means and selectively solely the illumination means.

3,546,428
STEAM GENERATOR
William A. Omohundro, Westport, Conn., assignor to General Electric Company, a corporation of New York
Filed Oct. 24, 1968, Ser. No. 770,374
Int. Cl. F22b 1/28; A45d 7/00
U.S. Cl. 219—271 7 Claims



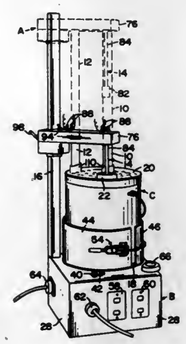
The disclosure herein concerns a self-contained steam generator including a water tank, electric heating unit and a spout that both expels steam from the water tank and receives water for introduction into the water tank. The steam generator is constructed such that a predetermined amount of water is automatically retained in the water tank by having a portion of the spout extend into the water tank and spaced from the walls of the water tank a distance sufficient to permit retention of the predetermined amount of water within the water tank after filling the water tank and then inverting the steam generator.

3,546,429
WATER HEATING DEVICE
Ralph G. Fleet, St. Brigitte de Laval, Charles deJersey Phillips, Richelieu and Stuart H. Fleet, Ste. Foy, Quebec, Canada, assignors to Phydrex Limited, Quebec-Ouest, Quebec, Canada
Filed April 16, 1969, Ser. No. 816,623
Int. Cl. F24h 1/18
U.S. Cl. 219—312 4 Claims



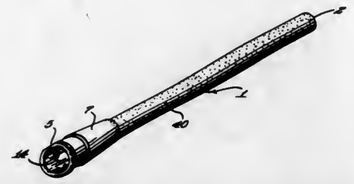
A water heating device comprising a closed tank, a heating element attached to the vertical wall of the tank and projecting inwardly into the tank, a hood also attached to the wall of the tank and overlying said heating element in spaced relation thereto, the under side of the hood being open for free circulation of water around the heating element, and a discharge tube connected to the hood and terminating at a point adjacent to the top of the tank for discharging the water heated by the heating element directly into the upper portion of the tank.

3,546,430
APPARATUS FOR HEATING CAULKING MATERIALS
James Merel Kane, Shaker Heights, Ohio, assignor to The Tremco Manufacturing Company, Cleveland, Ohio a corporation of Ohio
Filed Dec. 31, 1968, Ser. No. 788,184
Int. Cl. H05b 3/78
U.S. Cl. 219—316 8 Claims



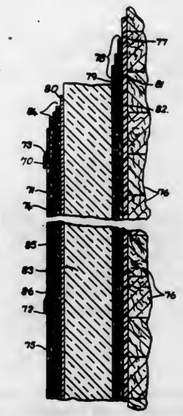
An apparatus for heating calking materials from an ambient temperature to a usable temperature preparatory to use. The apparatus comprises a container, an elongated heater blade, means for supporting the blade generally vertically in the container, means for electrically energizing the blade, and means for causing relative rotation between the container and the blade. The method includes the steps of placing the elongated heater blade in a container of calking material, producing relative rotation between the container and heater blade, increasing the temperature of the heater blade above the usable temperature, maintaining the heater blade at this temperature until the material reaches the usable temperature, and thereafter reducing the temperature of the heater blade.

3,546,431
IMMERSION HEATER AND METHOD OF MAKING THE SAME
Erich L. Gibbs, 3001 Martin Luther King Drive, Chicago, Ill.
Filed April 25, 1969, Ser. No. 819,293
Int. Cl. F24h 1/00
U.S. Cl. 219—335 16 Claims



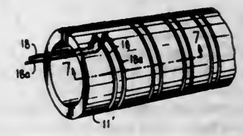
A heating device, particularly for scientific usage as an immersion heater, which employs an electrical element for generating radiant energy, in which the electrical element is enclosed in a shell, which, for example, may be of suitable glass having a relatively low coefficient of absorption with respect to such radiant energy, such shell having disposed at the exterior surface thereof a material with a relatively high coefficient of absorption of such energy whereby such radiant energy from said element will be converted to heat at the exterior surface of said shell and available thereat for substantially direct heating of a fluid in which the shell may be immersed.

3,546,432
WALL COVERING MATERIAL FOR USE IN SPACE HEATING
Paul Eisler, 57 Exeter Road, London, NW. 2, England
Continuation-in-part of application Ser. No. 458,914, May 26, 1965, now Patent No. 3,473,003. This application Aug. 8, 1968, Ser. No. 751,219
Int. Cl. H05b 3/36
U.S. Cl. 219—345 8 Claims



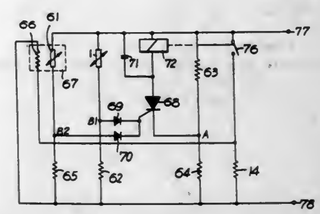
A multilayer wall covering material for use in space heating by means of an electric resistance heating film sandwiched between two other layers is a rollable structure (produced at latest when applied to a wall) comprising a three section structure. The first section incorporates the film sandwich, the second is an adhesive surface, and the third section is on the space side of the first. The adhesion constituting the second section can be sufficiently weakened by an externally applied agent e.g. heat or a solvent to enable the third section to be stripped without damaging the first. The third section is penetrable by the agent, the first section is undamaged thereby; in the case of a solvent, it suffices for the layer of the third section adjacent to the second section to be impenetrable to the solvent. The material may include two surfaces weakenable by different agents. It may also incorporate two heating films, a heat reflector layer, various kinds of thermal insulation, be flexible so that it can be rolled up, or have an inflatable rear layer so that the spacing of the film from the wall can be varied.

3,546,433
ROLL HEATER DEVICE
Ewing Alfred Johnson, Fairmont, West Virginia, assignor to Electronic Control Systems, Inc., Fairmont, West Virginia a corporation of West Virginia
Filed Feb. 25, 1969, Ser. No. 802,048
Int. Cl. H05b 3/02; B21b 27/06
U.S. Cl. 219—469 4 Claims



A roll heater device comprising a stationary inner roll having a continuous variable pitch spiral groove along its outer surface of a depth sufficient to accommodate a resistance element, and a rotating sleeve provided over the inner roll in close proximity with the resistance element.

3,546,434
REGULATING SYSTEM FOR HEATING ELEMENTS
Konstantin Apel, Meersburg/Bodensee, Lehrenweg 8, Germany
Filed May 20, 1969, Ser. No. 826,232
Int. Cl. H05b 1/02
U.S. Cl. 219—499 6 Claims

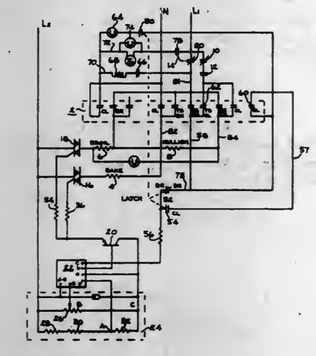


A regulating circuit which having first and second bridge circuits with common first and second branches connected at a common junction. The bridge circuits each respectively include two further branches connected by the aforesaid first and second branches to the common junction. Each of the branches includes a resistive element and each of the diagonals includes a diode. The resistive elements of one of the additional branches of each bridge circuit is constituted by a thermistor. One of the thermistors is temperature dependent and the other is output dependent. A source of voltage is connected across the bridges. A heating element is provided which is switched into a closed circuit with the source by a relay or an arrangement of a triac and resistor, or an arrangement of counterparallel thyristors. A thyristor is provided which is connected to the diodes and to the aforesaid common junction and is adapted to control the switching operation.

3,546,435
PURE SOLID STATE SELF-CLEANING OVEN CONTROL

Stanley B. Welch, Louisville, Kentucky, assignor to General Electric Company, a corporation of New York

Filed July 25, 1969, Ser. No. 844,969
Int. Cl. H05b *1/02*
U.S. Cl. 219—501 10 Claims

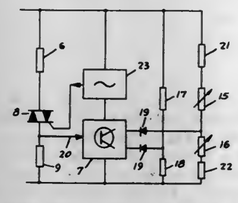


An oven temperature control circuit for use with a self-cleaning oven. A bake oven resistive heating element is connected in parallel with the series combination of a broil and a mullion oven resistive heating element. The power output to the oven resistive heating elements is controlled by a pair of TRIACS connected in series with the oven resistive heating elements. The control circuit includes a zero voltage switch which, in response to a voltage from a temperature-sensitive resistance network, provides a gating signal through a transistor to control the conduction of each of the two TRIACS. The temperature-sensitive resistance network includes a linear potentiometer for selecting a desired oven temperature which potentiometer is connected in parallel with a series combination of a diamond thermistor temperature sensor and a pair of fixed resistors.

3,546,436
ELECTRONIC HEAT REGULATION

Walter K. Holzer, Drosteweg 19, Meersburg, Bodensee, Germany

Filed Nov. 8, 1967, Ser. No. 681,495
Claims priority, application Germany, Nov. 11, 1966, Jan. 26, 1967, H60973;H61664
Int. Cl. H05b *1/02*
U.S. Cl. 219—504 4 Claims

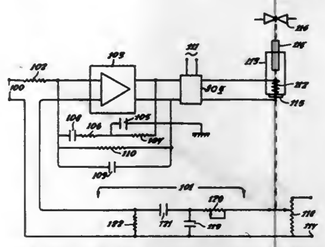


A system for the electronic regulation of electric resistance heating elements of the positive temperature coefficient of resistance type for washing machines, stove heating units, and the like. Heating is regulated by contact-free electronic circuits activated responsive to variations in resistance of the heating element which bear a predetermined relation to heating element temperature. The circuits terminate the supply of heating current to the heating element when its resistance, and therefore temperature, reaches a preselected upper value and reestablish supply of heating current to the heating element when its resistance drops to a preselected lower value.

3,546,437
AUTOMATIC CONTROL SYSTEMS

Peter Bruno Steghart, Buckinghamshire, England, assignor to Aktiengesellschaft fuer Technische Studien, Zurich, Switzerland a company of Switzerland

Filed Nov. 24, 1967, Ser. No. 685,345
Claims priority, application Great Britain, Dec. 5, 1966, 54,. 317/66; Jan. 18, 1967, 2, 661/67; and May 23, 1967, 23, 806/67.
Int. Cl. H05b *1/02*
U.S. Cl. 219—511 19 Claims

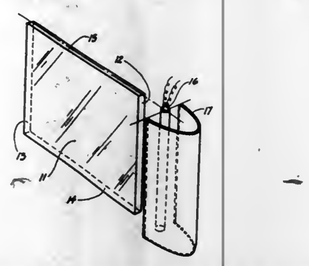


A control system including either an electronic or a mechanical controller and an electrothermal actuator which is controlled from the output of the controller to effect the control of a physical magnitude of a process, the controller receiving an error signal from a detector measuring the physical magnitude and a feedback signal from the actuator. The actuator has an actuating element partly protruding from a gland in one end thereof, electrical heaters provided at the other end thereof operated in accordance with a time-modulated mode from the output of the controller, a wax located within the casing of the actuator which is caused to expand or contract in accordance with the time-modulated mode to effect the desired control of the physical magnitude, this being achieved by maintaining a sufficient temperature difference between a localized area heated by the heaters of the actuator and the gland so that the melting point of the wax is not reached in the region of the gland.

3,546,438
ILLUMINATION SYSTEM

George L. Buc, Fairfax and David N. Michael, Alexandria, Virginia, assignors to Farrington Electronics Inc., Springfield, Va. a corporation of Massachusetts

Filed May 25, 1967, Ser. No. 641,340
Int. Cl. F21v *7/08*; G02b *5/14*; G06k *7/10*
U.S. Cl. 235—61.11 3 Claims

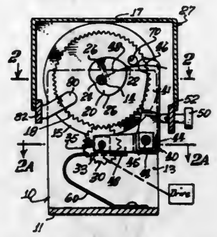


Optical apparatus for illuminating items of information represented by the presence or absence of data in the form of characters, marks or holes arranged on documents, comprising a light guide, a light source partially enclosed by a reflector for directing light rays emitted from the light source in one general direction and through the light guide, a section of the reflector characterized by an elliptical configuration, whereby the light source is positioned at one focal center of the ellipse and an end of the light guide is positioned at the remaining and second focal center of the ellipse.

3,546,439
MAGNETIC CAM RESET POSITIONER

Howard J. Sampson, Deep River and Thomas W. Rogerson, Old Lyme, Connecticut, assignors to Conrac Corporation, New York, New York a corporation of New York

Filed April 30, 1969, Ser. No. 820,562
Int. Cl. G06c *15/42*
U.S. Cl. 235—144 7 Claims

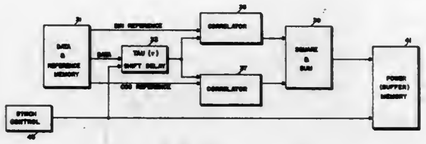


In a counting wheel that is resettable to zero by means of a heart-shaped cam, the cam is shifted away from dead center position before engagement by the cam follower by mounting cooperating magnetic elements, one on the wheel and the other in suitable rotational relation to the path of movement of the cam follower, to produce a torque on the wheel when it is in dead center position. The cam follower and its support structure may form the second magnetic element. By providing a third magnetic element cooperating with one of the antidead-center elements, the wheel can be held in zero position while the reset mechanism is returned to normal idle condition.

3,546,440
SPECTRUM ANALYZER WHEREIN AN ANALOG WAVEFORM IS SAMPLED EXPONENTIALLY IN TIME WITH TWO FIXED REFERENCE SEQUENCES

Kenneth J. Fawcett, Jr., Falls Church, Virginia, assignor to Scope, Incorporated, Reston, Virginia a corporation of New Hampshire

Filed May 24, 1968, Ser. No. 731,872
Int. Cl. G06j *1/00*; G06f *15/34*
U.S. Cl. 235—150.5 6 Claims



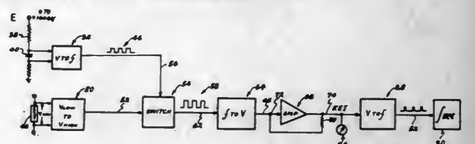
A system is disclosed for deriving a constant percentage power spectrum of an analog waveform by performing a sliding cross correlation of the digital sequence obtained by sampling the analog waveform exponentially in time with each of two fixed reference sequences, and summing the squares of the two correlation products. Additionally, there is disclosed a means for generating an exponential pulse train using a digital counter of specified modulus, a slow binary counter and a fast binary counter.

3,546,441
LOCOMOTIVE ENGINE PERFORMANCE SYSTEM INCLUDING THE MULTIPLICATION OF ANALOG AND DIGITAL SIGNALS

Thomas A. Brendle, Hamburg, New York, assignor to Audn Corporation, Hamburg, New York

Filed Jan. 21, 1969, Ser. No. 792,667
Int. Cl. G06g *7/16*; G06j *1/00*
U.S. Cl. 235—150.52 19 Claims

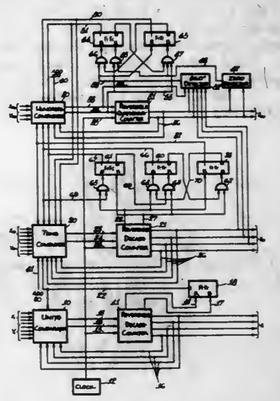
Signals indicative of voltage and ampere input to an electric motor as well as power input and the time integral of power input which may vary over wide ranges are developed for display and/or recording and/or transmission. Isolation of the high voltage input as well as linearization of the voltage input signal are achieved by cyclically charging a capacitor to a predetermined value very much less than the voltage input and returning it to a reference potential by means of a trigger driving a pulse output transformer, in which the pulse output transformer also controls an auxiliary switch to assure returning the capacitor to the reference potential. The digital voltage input signal and an analog current input signal are multiplied by a circuit assuring linearization to analog form and this signal, in turn, is converted to a digital signal for obtaining the time integral of power input.



3,546,442
DIGITAL SUBTRACTOR WITH MEANS FOR PROVIDING CONJUGATE ANGLE

William R. Reader, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed July 3, 1967, Ser. No. 650,682
Int. Cl. G06f *7/02*, *7/385*, *15/20*
U.S. Cl. 235—177 6 Claims



A digital subtractor, primarily for use in an antenna azimuth control system, which produces the conjugate angle (360° complement) when necessary for most efficient control. A fixed bias is added to the input signals so that the resulting error signal is always positive. Any excursion of the error signal beyond the range 0 — 359° is detected and an additional bias signal of 360° added or subtracted to restore the error signal to the range 0 — 359°

3,546,443
ANALOGUE COMPUTER FOR LINEAR PROGRAMING

William John Niblock, Castlebellingham, Ireland, assignor to Oeleg Limited, Dublin, Ireland

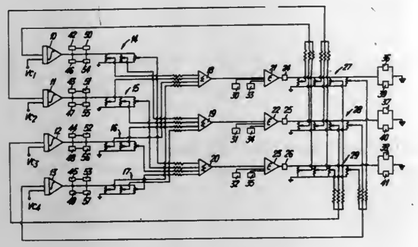
Filed May 14, 1968, Ser. No. 729,008
Claims priority, application Great Britain, May 17, 1967, 22844/67
Int. Cl. G06g *7/34*
U.S. Cl. 235—180 11 Claims

An analogue computer arranged for the solution of linear-programing problems by the method of steepest ascents

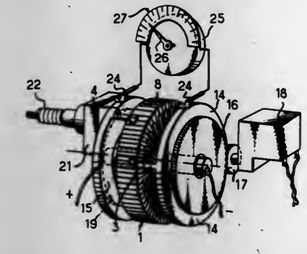
solves the set of differential equations in the form

$$\frac{dX_i}{dt} = -K_1(A_1 f_{i1} + A_2 f_{i2} + \ldots + A_N f_{iN}) - K_2 C_i$$

In order to optimise the value of an objective function which is represented by C_i. When the objective function is optimised the parameter A_i is zero for all values of i and specific values of X_i are determined. A_i is zero when values of $\sum_{i=1}^{N} f_{ij}$ lie within predetermined limits. The invention provides detectors associated with each amplifier of the computer having limit-setting means whereby the operator can determine immediately if a limit has been set on the output signal from a specific amplifier and if the output signal therefrom is in fact constrained by that limit, by means of lamps forming part of each detector.



3,546,444
DEVICE FOR REGISTERING MEAN OR AVERAGE VALUES INCLUDING A LOGARITHMIC RESTISTANCE
Paul Roussopoulos, 38 Avenue George V 8eme, and Gregoire Kalopissis, 64 rue Vauvenargues 18 eme, Paris, France
Filed Oct. 10, 1968, Ser. No. 766,428
Claims priority, application France, Oct. 13, 1967, 124449
Int. Cl. G01p 3/10; G06g 7/00
U.S. Cl. 235—193 4 Claims



A device for measuring an average value comprising a logarithmic resistance connected to a source of electric power and consisting of a plurality of individual resistors connected in series. A measuring instrument is connected between two sliding contacts, one of which moves along junctions of the resistors with the length of the path of travel proportional to the magnitude of the divisor, while the other one moves along the junctions with the path of travel proportional to the magnitude of the dividend.

3,546,445
HEADLAMP ASSEMBLY
Joseph R. Marchant, Detroit and Vilho Koljonen, Warren, Michigan, assignors to General Motors Corporation, Detroit, Michigan a corporation of Delaware
Filed Nov. 1, 1968, Ser. No. 772,635
Int. Cl. F21v 7/00
U.S. Cl. 240—41.6 4 Claims

A headlamp assembly for a motor vehicle wherein a headlamp is universally adjustably supported on the vehicle by a pair of aiming screws and a pivot pin. The aiming screws are oppositely disposed with respect to the headlamp in a longitudinal plane inclined 45° from a transverse horizontal axis of the vehicle and the pivot is horizontally alined with one of the aiming screws and vertically alined with the other of the aiming screws. A compression spring serves to continuously bias the headlamp into engagement with the aiming screws and against the pivot pin. By selectively rotating one aiming screw, the headlamp is positioned about a vertical axis in a horizontal aiming plane and, by selectively rotating the other aiming screw, the headlamp is positioned about a horizontal axis in a vertical aiming plane.

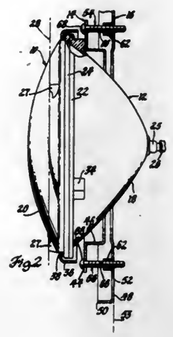
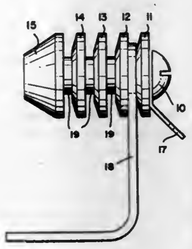


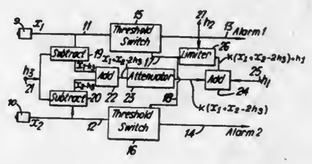
Fig. 2

3,546,446
HEAT DISSIPATING LAMP HOLDER
Gil C. Sanchez, Bronx, New York, assignor to Leecraft Manufacturing Company, Inc., Long Island City, New York
Filed April 26, 1968, Ser. No. 724,471
Int. Cl. F21v 29/00
U.S. Cl. 240—47 5 Claims



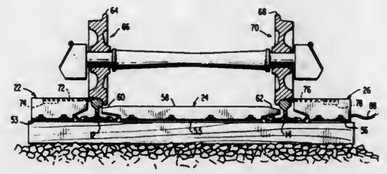
An apparatus for dissipating heat from a lamp holder by the use of bushings which act as baffles providing large skin areas exposed to the air or surrounding media. The bushings are made of two dissimilar materials and are alternately positioned on the lamp holder so that the dissimilar materials are in juxtaposition with each other. The dissimilar materials are beryllia and steatite which have excellent heat dissipating properties especially when they are placed next to each other.

3,546,447
DETECTION OF OVERHEATED AXLE BOXES
Lionel Raymond Frank Thompson, Hatfield, and Leslie Bullock, Ware, England, assignors to Howker Siddeley Dynamics Limited, Hatfield, England, a British company
Filed June 3, 1968, Ser. No. 734,149
Claims priority, application Great Britain, June 8, 1967, 26,618/67
Int. Cl. B61k 9/06; B61l 1/10
U.S. Cl. 246—169 3 Claims



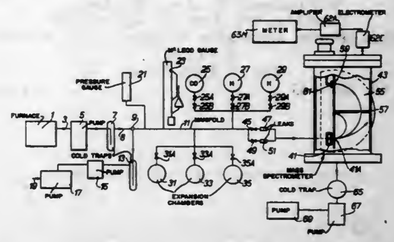
In equipment for detecting hot axle boxes on running railroad rolling stock and locomotives, two detectors derive two separate signals representing the temperature levels of the two axle boxes at opposite ends of the same axle. Each of these signals is applied to a respective one of two threshold lever switches controlling respective alarm output channels. An alarm signal appears on the respective output if a temperature level signal exceeds a variable threshold level control signal applied in common to each threshold level switch. The derivation of the variable threshold level control switch is as follows: Each temperature level signal has the same preset fixed signal subtracted from it and then the two remaining portions of the temperature level signals are summed with one another, attenuated and then summed again with a further preset fixed signal. The signal resulting from this second summation is passed through a limiter, which prevents the signal passed from exceeding a third preset fixed value, and the limiter output is applied as the threshold level control signal.

3,546,448
RAILWAY SIGNALING SYSTEM
William M. Pelino, Richmond, Va., assignor to Railtron Corporation, Richmond, Va.
Filed Sept. 5, 1968, Ser. No. 757,738
Int. Cl. B61k 13/00
U.S. Cl. 246—246 13 Claims



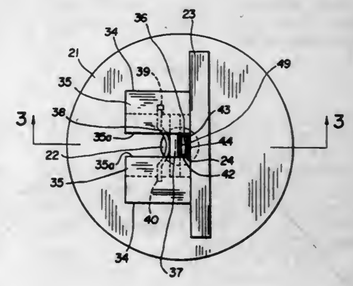
A railway signaling system including electromagnetic transducer means mounted adjacent a railroad track and adapted to provide no response to the vibrations attendant the passage of a normal vehicle but providing an electrical output in response to an impact by an improperly protruding vehicle member.

3,546,449
MEASUREMENT OF THE GAS CONTENT OF METALS BY MASS SPECTROSCOPY
Michael Leslie Aspinal, Rugby, England, assignor to Associated Electrical Industries Limited, London, England, a British company
Filed Jan. 17, 1966, Ser. No. 520,991
Claims priority, application Great Britain, Jan. 21, 1965, 2,730/65
Int. Cl. H01j 39/34
U.S. Cl. 250—41.9 26 Claims



A method and apparatus for measuring the gas content of metals. An oven is provided in which a sample is melted under evacuated conditions to liberate gases. Liberated gases are conducted through a manifold system of variable volume into a mass spectrometer. The value of the mass charge ratio of a selected peak is monitored until a step-like rise in the magnitude of that peak takes place and the magnitude of that step-like rise is measured. The amount of the gaseous constituent present in the sample is determined from this measurement. The disclosure also includes an improved oven for melting a sample under evacuated conditions.

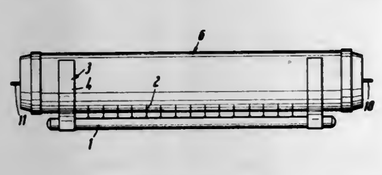
3,546,450
APERTURE DEVICES FOR MASS SPECTROMETERS
Peter Burns, Stockport, England, assignor to Associated Electrical Industries Limited, London, England, a British company
Filed Dec. 26, 1967, Ser. No. 693,559
Claims priority, application Great Britain, Dec. 28, 1966, 57,970/66
Int. Cl. H01j 39/34
U.S. Cl. 250—41.9 12 Claims



An aperture device of a mass spectrometer, comprising a pair of parallel, cylindrical slit-forming members. One

of the members has, adjacent each end, an enlarged portion which is circumferentially continuous and abuts the other member of the pair, thereby maintaining respective central portions of the members in spaced, at least two slit-forming relationship. The enlarged portions can be coaxial cylinders or can be of cam-form cross section so that on rotation of the one member, the width of the slit will be changed.

3,546,451
ION-PRODUCING DEVICE
Herbert Jahnke, Unterthingau, Allgau, Germany, assignor to Constantin Graf von Berckheim
Filed Mar. 19, 1968, Ser. No. 714,288
Claims priority, application Germany, Mar. 20, 1967, B 91,695
Int. Cl. H01j *37/08*
U.S. Cl. 250—43 **10 Claims**



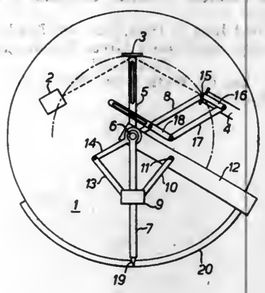
In a device for producing unipolar ions in air, an electrically energizable electrode is mounted on a gas discharge tube and comprises a plurality of resilient filament portions having free ends which engage the glass wall of the tube exteriorly thereof. The tube is connected to a source of alternating current. The electrode is connected to one pole of a high-voltage source of direct current, and the ballast for the tube is connected with the other pole of the source of direct current.

3,546,452
METHOD OF PRODUCING SAMPLES FOR X-RAY FLUORESCENCE ANALYSIS
Popko Reinder Dijksterhuis and Hermanus Arnoldus Verharen, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 10, 1967, Ser. No. 652,027
Claims priority, application Netherlands, July 9, 1966, 6609665
Int. Cl. G01n *23/22*
U.S. Cl. 250—51.5 **4 Claims**

A method of producing a sample suitable for X-ray analysis in which a mixture of the substance and a vitreous material is formed, melted, and after melting is cooled to form a body. During cooling an electric current is passed through the body in the direction of a holder to free the body from the holder.

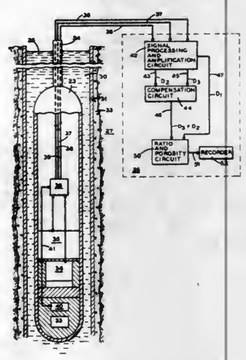
3,546,453
X-RAY ANALYZING APPARATUS HAVING A PLURALITY OF CRYSTALS MOUNTED ON A CRYSTAL CHANGING CARRIER
George William Browning, Sale, Lambert George Marien Albert Van Groos, Timperley, Harold Proctor, Stockport, and Ian Kay Openshaw, Sale, England, assignors to Associated Electrical Industries Limited, London, England, a British company
Filed Mar. 28, 1967, Ser. No. 626,576
Claims priority, application Great Britain, Mar. 30, 1966, 14,127/66
Int. Cl. G01n *23/22*
U.S. Cl. 250—51.5 **20 Claims**

X-ray analyzing apparatus of the kind in which a solid is bombarded to emit X-rays which are reflected by a crystal and the angle of reflection is measured to determine the nature of the element emitting the X-rays. Sev-



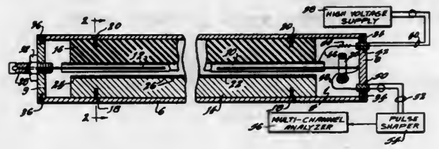
eral crystals are mounted on a crystal changing carrier so that by changing the crystal, elements over different bands of the periodic table may be detected.

3,546,454
MULTIPLE DETECTOR NEUTRON LOGGING APPARATUS
Nick A. Schuster, Darien, Conn., assignor to Schlumberger Limited, New York, N.Y., a corporation of the Netherlands Antilles
Filed Nov. 29, 1967, Ser. No. 686,404
Int. Cl. G01t *3/00*; G01v *5/00*
U.S. Cl. 250—83.1 **2 Claims**



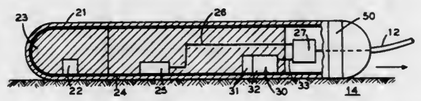
An illustrative embodiment of the invention discloses a borehole effects compensation technique for a neutron logging tool. A third neutron detector (or its physical equivalent) is joined to a two-neutron detector formation porosity logging tool. The third detector equivalent is positioned within the tool a distance relative to the neutron source and the other detectors that enables changes in the signal from the third detector caused by variations in the borehole environment to be generally distinguishable from changes in the signal from at least one of the other detectors. The signals from the third detector and one of the two other detectors are combined in order to compensate for the influence of the borehole environment.

3,546,455
NEUTRON FLUX PLOTTING DEVICE
Karl G. Porges, Evanston, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Jan. 28, 1969, Ser. No. 794,501
Int. Cl. G01t *3/00*
U.S. Cl. 250—83.1 **4 Claims**



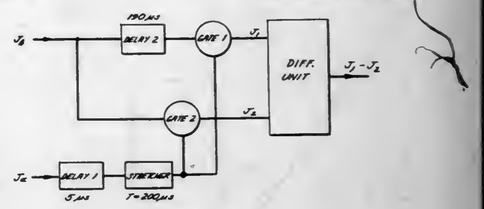
A spark chamber, placed in a flux of neutrons the spatial distribution of which is to be plotted, includes a pair of electrodes one of which is formed of a resistive wire. A high voltage supply is connected across the pair of electrodes to provide a potential difference therebetween. Disposed in the spark chamber are a fission foil for emitting fission fragments in response to receipt of neutrons, and a fission fragment collimator placed between the fission foil and the pair of electrodes and comprising a shield with holes cut therethrough for only passing fission fragments from the fission foil having a predetermined trajectory. One end of the resistive wire electrode is connected to a reference potential. The other end of the resistive wire electrode is connected to the same reference potential via a pulse coupling circuit including an output terminal. Pulses produced on the resistive wire electrode in response to spark discharges initiated by fission fragments passing the collimator each have an amplitude proportional to the position of the spark along the resistive wire electrode, and are coupled to a multichannel pulse height analyzer via the output terminal and the pulse coupling circuit.

3,546,456
MULTIPLE DETECTOR SUBMARINE RADIOACTIVITY LOGGING SYSTEM
Charles Fitzhugh Grice, Houston, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Jan. 5, 1968, Ser. No. 695,978
Int. Cl. G01v *5/00*
U.S. Cl. 250—83.3 **5 Claims**



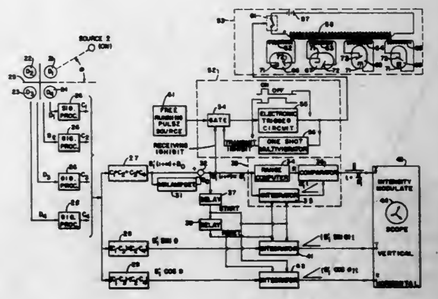
An illustrative embodiment of the invention shows a radioactivity logging device for measuring the density of the sediment on the bottom of a body of water. A housing containing a neutron or gamma radiation source is towed along the bottom to irradiate the sediment. Also within the housing, a pair of radiation counters that are spaced at different distances from the source respond to neutron reactions or those source radiations that are back-scattered to the housing by the sediment. These two counters indicate the sediment density, the quality of the contact with the bottom, and the homogeneity of the sediment.

3,546,457
RADIATION MONITORING SYSTEM UTILIZING PSEUDO-COINCIDENCE TECHNIQUES
Rainer Kurz, Oak Ridge, Tenn., assignor to Laboratorium Dr. Berthold, Wildbad, Germany, a company of Germany
Filed June 6, 1967, Ser. No. 644,013
Claims priority, application Germany, June 8, 1966, L 53,799
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 **3 Claims**



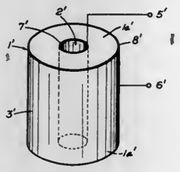
A radiation monitoring system with two input channels and pseudo-coincidence circuitry comprises means for delaying the pulses which arrive first in one input channel and means for stretching the other pulses in the other input channel whereon both channels are fed to an instrument forming the pseudo-coincidence.

3,546,458
POSITION DETECTING SYSTEM AND METHOD UTILIZING PULSED PENETRATING RADIATION
Charles Edgar Krause, Westerville, Ohio, assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 20, 1966, Ser. No. 588,205
Int. Cl. G01t *1/16*
U.S. Cl. 250—83.3 **21 Claims**



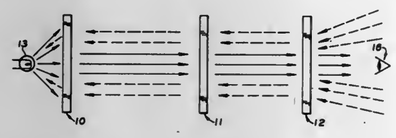
Disclosed are a system and method for detecting the position of objects, wherein each object includes a pulsed penetrating radiation source. The pulsed energy is transmitted between the objects and detected on each, processed and displayed on a PPI oscilloscope in a single time shared channel. The pulse repetition rate on each object is normally related by a prime number to the rate on other objects. In response to reception of a pulse on one of the objects, the generation of a pulse from that object is precluded for a predetermined time period.

3,546,459
SINGLE-CRYSTAL, DRIFTED SEMI-CONDUCTOR RADIATION DETECTOR HAVING A BORE THERETHROUGH
Michael J. Higatsberger and Harald Hick, Vienna, Austria, assignors to Osterreichische Studiengesellschaft fur Atomenergie Ges. m.b.H., Vienna, Austria, a corporation of Austria
Filed Mar. 17, 1967, Ser. No. 624,086
Claims priority, application Austria, Mar. 18, 1966, A 2,625/66
Int. Cl. G01t *1/16*; H01j *39/00*
U.S. Cl. 250—83.3 5 Claims



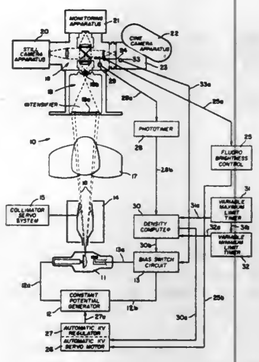
A method of producing a drifted semi-conductor detector which comprises the steps of producing a single-crystal which is bored through to form by the entire outer face of the single-crystal a first electrode and the face of the bore in the crystal a second electrode. Drift material is applied to one of the electrodes and a drifting process is brought about by applying a voltage to the respective electrodes.

3,546,460
NONRECIPROCAL RADIATION FILTER DEVICE HAVING FLUORESCENT MATERIAL FOR WAVELENGTH CONVERSION
Kenneth P. Lally, Smithtown, N.Y., assignor, by mesne assignments, to Hartman Systems Co., Inc., Huntington Station, N.Y., a corporation of Ohio
Filed Oct. 16, 1967, Ser. No. 675,409
Int. Cl. G21h *13/00*
U.S. Cl. 250—86 11 Claims



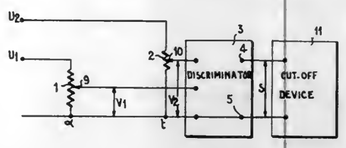
Nonreciprocal filtering of radiation is effected by an assembly of filter elements with the several elements transmitting and absorbing radiation in dissimilar wavelength bands and with one filter element also effecting conversion of an absorbed wavelength band to a transmitted wavelength band. Wavelength conversion is effected by fluorescent material excited by incident, absorbed radiation within one wavelength band to emit radiation within the other wavelength band. One filter element only transmits radiation within one wavelength band while another filter element only transmits radiation within the other wavelength band. With these two filter elements disposed at opposite sides of the fluorescent material, radiation will be transmitted through the filter in one direction only since incident radiation in the other wavelength band will be ineffective in exciting the fluorescent material to an emission state, and will be further totally absorbed by the two end filters.

3,546,461
AUTOMATIC CONTROL OF A NONSYNCHRONOUS CINE FLUORORADIOGRAPHIC APPARATUS
James R. Craig, Glenview, Ill., assignor to Litton Medical Products, Inc., Des Plaines, Ill., a corporation of Delaware
Filed Sept. 13, 1968, Ser. No. 759,643
Int. Cl. H05g *1/28*
U.S. Cl. 250—95 14 Claims



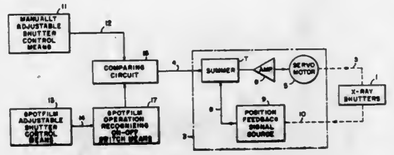
A cine fluororadiographic apparatus for providing automatic regulation of the kv. applied across the secondary of the X-ray high voltage transformer. The apparatus is of a nonsynchronous type and is capable of operating at relatively high frame rates. A density computer is utilized to compare outputs from a phototimer, a maximum limit timer, and a minimum limit timer to provide a signal for automatic positioning of the kv. regulator to a desired setting.

3,546,462
SECURITY CUT-OFF DEVICE FOR X-RAY TOMOGRAPHY APPARATUS
Jean Cesar, Issy-les-Moulineaux, France, assignor to Compagnie Generale de Radiologie, Paris, France, a corporation of France
Filed Oct. 18, 1968, Ser. No. 768,673
Claims priority, application France, Oct. 20, 1967, 125,219
Int. Cl. G03b *41/16*
U.S. Cl. 250—95 10 Claims



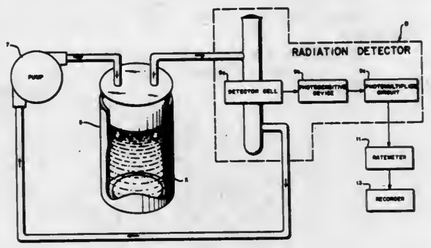
A security device for a tomograph wherein the wiper arms of two potentiometers are coupled to the knobs adjusting the angle of sweep and exposure time of the tomograph. The potentiometers are further coupled to sources of voltage which have values such that the signal taken between the wiper arms will exceed a predetermined value when the ratio of sweep angle to exposure time exceeds a predetermined maximum value which depends upon the physical characteristics of the tomograph. This signal is then fed to apparatus for inhibiting the operation of the tomograph when the predetermined value is exceeded. Further disclosed is a potentiometer circuit coupled to the adjustment knobs for providing a signal proportional to the ratio of sweep angle to exposure time to the drive motors for the tomograph.

3,546,463
SERVOMOTOR-OPERATED X-RAY SHUTTER CONTROL SYSTEM FOR USE WITH A SPOTFILM DEVICE
Nicholas G. Fekete, Laurel, and Harry E. Koerner, Catonsville, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 22, 1968, Ser. No. 778,110
Int. Cl. G21f *5/04*; H01j *35/16*
U.S. Cl. 250—105 2 Claims



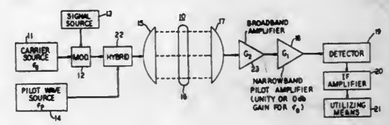
Described is an improved control system for servo-operated X-ray shutters in which the signal outputs from a manually-adjustable shutter control and from a spot-film-adjustable shutter control are automatically fed to an auctioneering circuit upon initiating operation of the spot-film device, and the output signal from the auctioneering circuit, which represents the higher of its two inputs, is fed as the command signal to the servomotor means which actuates the X-ray shutters to separation distances in inverse proportion to such command signal. In effect, the system honors the control signal that calls for the smaller aperture size defined by the shutters.

3,546,464
RADIOACTIVE PROCESS FOR MONITORING THE RATE OF DEPOSITION OR REMOVAL OF A SUBSTANCE ON A BASE SURFACE
Alfred L. Glass, Philadelphia, Pa., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 23, 1968, Ser. No. 723,482
Int. Cl. G01t *1/17*
U.S. Cl. 250—106 1 Claim



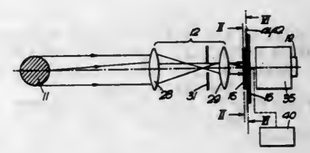
The present invention relates to a novel and improved procedure for continuously monitoring the rate at which a material or composition is deposited on or removed from a base surface. The procedure involves the use of a radioactive isotope as one of the ingredients of the material or composition and the maintenance of a continuous record of the concentration of the radioactive isotope in the fluid environment in which the material or composition is exposed.

3,546,465
LIGHT COMMUNICATION SYSTEM UTILIZING TANDEM BROADBAND AND PILOT FREQUENCY AMPLIFICATION
Jacques A. Arnaud, Matawan Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed May 13, 1968, Ser. No. 728,417
Int. Cl. H01s *3/10*; H04b *9/00*
U.S. Cl. 250—199 5 Claims



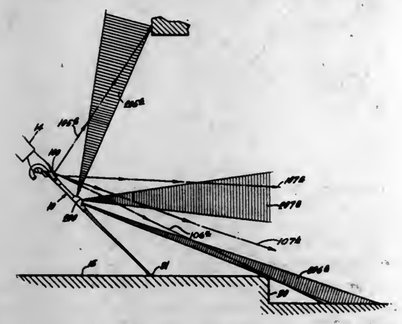
An optical frequency carrier transmission system is disclosed in which heterodyne detection is used. A pilot signal is transmitted along with the amplitude-modulated signal, and both signals arrive at the receiving station with similar phasefront and amplitude distortion. Broadband amplification of the signal and pilot followed by narrowband amplification of the pilot signal prior to detection permits heterodyne operation with a significantly improved signal-to-noise ratio.

3,546,466
RADIANT SENSITIVE APPARATUS FOR MEASURING LINEAR DIMENSIONS
Lionel Richard Baker, Chislehurst, Kent, England, assignor to British Scientific Instrument Research Association, Sira, South Hill, Chislehurst, Kent, England, a British company
Continuation-in-part of application Ser. No. 524,339, Feb. 1, 1966. This application Aug. 16, 1968, Ser. No. 753,146
Claims priority, application Great Britain, Aug. 21, 1967, 38,481/67
Int. Cl. G01d *5/36*; H01j *39/12*; H03k *3/42*
U.S. Cl. 250—209 12 Claims



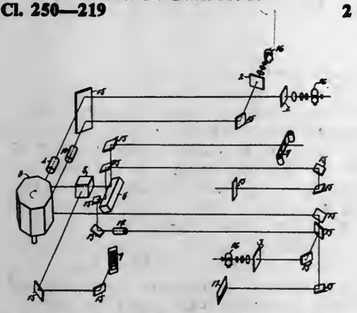
Apparatus for measuring a linear dimension of an object which emits, transmits, absorbs, or reflects radiation. A lens system forms an image of the object on a slit. A radial grating scans the image, the regions of the grating scanning the image in a direction in which the linear dimension is to be measured. A photocell senses the radiation from the grating and provides an A.C. signal representing the response of the regions of the grating to the image, the degree of modulation of the electrical signal being a measure of the linear dimension. A measuring means, which is responsive to limited frequencies of the A.C. signal, measure the degree of modulation and thereby the linear dimension. The limited frequencies may be determined by the frequency of a further A.C. signal derived by the scanning by the grating of a second image of the object. The measuring means may include an induction motor one set of windings of which are fed from the said A.C. signal and another set of windings of which are fed from the further signal.

3,546,467
TYPHLOCANE WITH RANGE EXTENDING OBSTACLE SENSING DEVICES
Joel Malvern Benjamin, Jr., Philadelphia, Duane Ridgely Bolgiano, Bala Cynwyd, Edwin Donnell Meeks, Jr., Philadelphia, and Thomas A. Benham, Haverford, Pa., assignors to Bionic Instruments, Inc., Bala Cynwyd, Pa., a corporation of Pennsylvania
Filed Apr. 21, 1967, Ser. No. 632,665
Int. Cl. A45b *3/00*; G08b; H01j *39/12*
U.S. Cl. 250—215 10 Claims



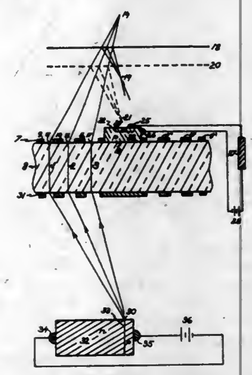
A typhlocane having a long extended body, which is preferably separable into pieces, for use by persons having impairment of visual acuity, the cane having a tubular crook and upper shank portion for housing laser transmitters including optics, and spaced longitudinally therefrom along the shank there being optical sensors, each associated with a particular transmitter, the lasers and sensors positioned so that by triangulation the presence of an obstacle, both overhanging, and straight ahead will be detected, and the absence of an object, such as a drop-off from ground level will also be detected. Each sensor is connected to circuitry which actuates an associated stimulator so that the presence of an obstacle in the former cases and the absence of the ground in the latter case give stimuli in the form of sound and feel to the holder of the cane.

3,546,468
FLYING SPOT SCANNER FOR FILM WITH SCALES WHICH INDICATE POSITION OF SPOT
Masaaki Takahashi, 1313 Takada-machi, Kohoku-ku, Yokohama, Japan
Filed May 24, 1967, Ser. No. 640,992
Int. Cl. G06k *11/60*
U.S. Cl. 250—219 2 Claims



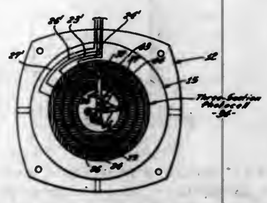
The present invention utilizes an optical scanner sweeping the film by a flying spot. An electronic device associated with the optical scanner detects the light transmission variance and measures the *x*, *y* axes on the swept direction. The resultant output signals, i.e. light transmittance and spot position information, are amplified by an amplifier, then fed to a logic circuit, which records digitally the information contained in the output, onto a magnetic tape. The complete analysis of the photographic film recorded data is thus obtained by using a digital computer which reads the magnetic tape.

3,546,469
ELECTRO-OPTICAL DISPLACEMENT MEASURER USING ZONE PLATES
Kurt Lehovec, Williamstown, Mass., assignor to Inventors and Investors, Inc., Williamstown, Mass., a corporation of Massachusetts
Filed Dec. 20, 1967, Ser. No. 692,051
Int. Cl. G01b *11/02*
U.S. Cl. 250—219 18 Claims



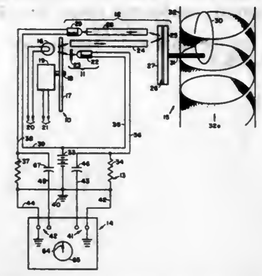
The position of a photocell is varied along the optical axis of the light distribution generated by a zone plate optics. The variation of the position of the photocell is caused by the displacement of a surface area element thereby translating said displacement into an electrical signal. Two or more of the three components of the above-mentioned arrangement, i.e. light source, zone plate optics and photocell, can be combined into a compact integrated structure.

3,546,470
APPARATUS FOR ELECTRICALLY SCANNING INSTRUMENT DIALS
Kenneth G. Junkert, El Segundo, and Woodrow W. Ne Smith, Claremont, Calif., assignors to Northrop Corporation, Beverly Hills, Calif., a corporation of California
Filed Oct. 10, 1968, Ser. No. 766,461
Int. Cl. G06k *11/00*
U.S. Cl. 250—219 9 Claims



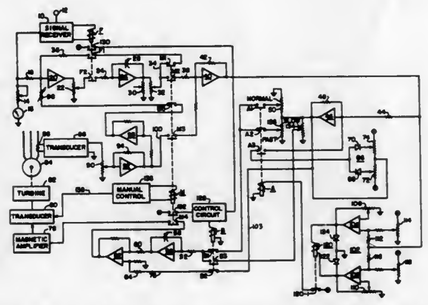
An instrument of the dial type, including one or more indicating members, mounted for rotation with respect to the dial of the instrument, and including apparatus associated and cooperating therewith adapted to provide a plurality of electric pulses enabling the respective positions of the indicating members to be determined with respect to a predetermined position on the dial of the instrument. In turn, the aforementioned electric pulses may be transmitted to conventional logic apparatus where they are presented in digital form.

3,546,471
FLOW ANGLE SENSOR AND READ OUT SYSTEM
Victor S. Peterson, Sandusky, and Irving G. Hansen, Bellevue, Ohio, assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 30, 1966, Ser. No. 606,463
Int. Cl. H03k *13/00*
U.S. Cl. 250—225 10 Claims



A flow angle read-out system having a polarizing filter disc interposed between a source of rotating plane-polarized light and, a light sensitive resistor connected in circuit with a resistor and a D.C. source to produce a timewise variable voltage of cyclically varying magnitude controlled by the position of a flow vane attached to the polarizing filter disc and subject to a swirling fluid in a duct. A phase meter is connected to the resistor and to a reference source of varying amplitude voltage to measure the phase angle between the voltages thereof, which phase angle is indicative of the flow vane position and the fluid flow angle.

3,546,472
CONTROL FOR HYDROELECTRIC GENERATORS INCLUDING VARIABLE RESPONSE RATE
Arthur G. Hoffmann, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 29, 1966, Ser. No. 597,667
Int. Cl. H02p *9/04*
U.S. Cl. 290—40 7 Claims



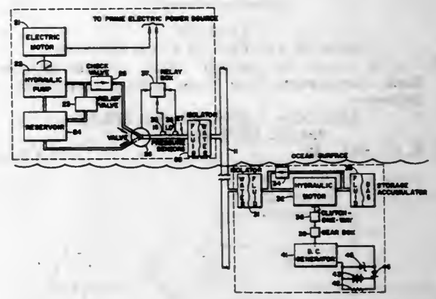
A power control system for a hydroelectric generator that variably responds as a function of changes in a variable frequency assigned power signal and is operative to change the power output of the generator gradually when changing between manual and automatic modes of control operation and rapidly for fast automatic operation.

3,546,473
OCEANOGRAPHIC GENERATOR
Alan H. Rich, 9910 Jacqueline Drive, Oxon Hill, Md. 20021
Filed Feb. 24, 1969, Ser. No. 801,646
Int. Cl. F03b *13/12*
U.S. Cl. 290—42 9 Claims



The invention consists of a device for generating electrical energy by utilizing the motion of the surface of a body of water. It comprises two floats, one which follows the displacement of the water surface and another which remains in a substantially stable position independent of the motion of the water. By attaching a permanent magnet and a coil to the floats, an electromotive force can be induced in the coil upon the occurrence of relative motion between the floats.

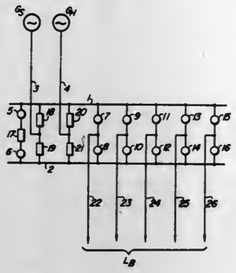
3,546,474
METHOD OF AND APPARATUS FOR ELECTRO-HYDRAULIC TRANSMISSION OF POWER
Daniel J. De Courcy, Chelmsford, and Patrick J. Scamaton, Lawrence, Mass., assignors to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Aug. 29, 1968, Ser. No. 756,200
Int. Cl. F01d *15/10*
U.S. Cl. 290—52 8 Claims



A method of an apparatus for electrohydraulic transmission of power to submerged locations such as oil wells and the like, which utilizes a control unit located above water and a second or remote unit located at each of one or more such locations or wellheads and coupled to the control unit by a suitable pipeline. The remote unit includes a battery pack, hydraulic motor-electric generator

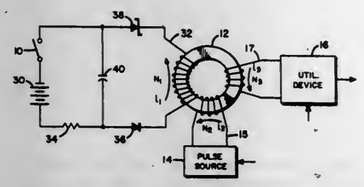
set, an isolating tank coupled to the pipeline, and a storage accumulator. The control unit includes a hydraulic pump, valve means, and an isolating tank coupled to the pipeline.

3,546,475
SYSTEM FOR SEPARATING STEAM POWER PLANT FROM LARGE ELECTRIC POWER SYSTEM
Takao Kubo and Katsuji Mural, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Feb. 17, 1969, Ser. No. 799,870
Claims priority, application Japan, Feb. 19, 1968, 43/10,066; Apr. 3, 1968, 43/22,346
Int. Cl. H02j *3/41*
U.S. Cl. 307—85 **15 Claims**



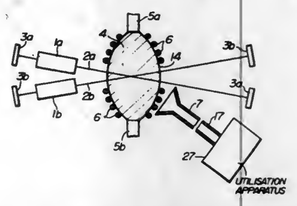
A system for separating a steam power plant from a large electric power system in which a signal representing the output from a steam turbine generator that can continue to stably operate even when it is separated from the large electric power system is transmitted through pilot wires to electrical stations connected in cascade. In each electrical station, signals representing the load of feeders are successively deducted from the above signal. When the frequency of the electric power system drops below a predetermined value, the steam turbine generator is separated from the large electric power system at an electrical station which is nearest to the steam power plant among those stations in which the result of deduction gives a negative value, and a predetermined limitation is imposed on the load of the electrical station.

3,546,476
REMOTE SWITCH STATUS SENSOR
Sylvan H. Frase, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed May 1, 1969, Ser. No. 820,913
Int. Cl. H03k *17/18, 17/80*
U.S. Cl. 307—88 **10 Claims**



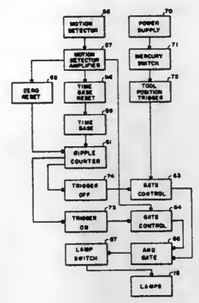
A circuit for determining the status, i.e., whether opened or closed, of a remotely located switch; the switch may be representative of an ON, OFF electronic circuit such as a bistable multivibrator or a set of contacts on an electro-mechanical relay. The switch status initially establishes the magnetic state of a core of low residual magnetism in a low or, alternatively, in a high steady-state of magnetic flux density. A second signal source inductively coupled to the core induces a large or, alternatively, a small flux change in the core due to its low or high steady-state magnetic flux density, which flux change is detected by an inductively coupled utilization device as being indicative of the status of the switch.

3,546,477
LASER FREQUENCY CONVERSION DEVICE USING MAGNETOGAS PLASMA
Noboru Hokkyo, Sagamihara-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Feb. 7, 1969, Ser. No. 797,494
Claims priority, application Japan, Feb. 28, 1968, 43/12,214
Int. Cl. H03f *7/00;* **H02m** *5/06*
U.S. Cl. 307—88.3 **6 Claims**



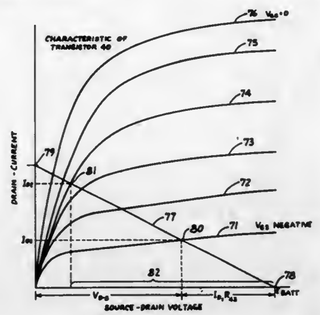
A frequency conversion device for the conversion of laser frequency in which a plurality of laser beams of different frequencies are irradiated to a gas plasma applied with a magnetic field, the frequency of the hybrid plasma oscillation of the electrons in the plasma is tuned to the difference frequency between the frequencies of the laser beams, so the above oscillation of the electrons is excited resonately by the beat wave of the laser beams, and the microwave radiation of the beat frequency is emitted from the plasma.

3,546,478
BOREHOLE TOOL
James M. Lindsey, Houston, Tex., assignor to Sperry Sun Well Surveying Company, Sugar Land, Tex., a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,184
Int. Cl. E21b *47/022*
U.S. Cl. 307—116 **12 Claims**



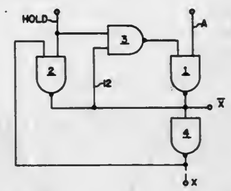
The particular embodiment described herein as illustrative of one form of the invention utilizes a motion sensing device to control the operation of a timing circuit in a downhole well tool. The absence of motion which is indicative of the tool being at its operating position, permits an electronic counting circuit to initiate signals for operating the tool. The tool will also not be operated when in a nearly horizontal or upside down position even in the absence of motion.

3,546,479
LONG PERIOD ELECTRONIC TIMER FOR AEROSOL DISPENSER OR THE LIKE
Robert S. Lundin, Thomaston, Klaus Wallentowitz, Waterbury, and Edward T. Bosman, Middlebury, Conn., assignors to General Time Corporation, Stamford, Conn., a corporation of Delaware
Filed Feb. 9, 1968, Ser. No. 704,485
Int. Cl. H01h *47/18, 51/34;* **H02p** *1/04*
U.S. Cl. 307—132 **11 Claims**



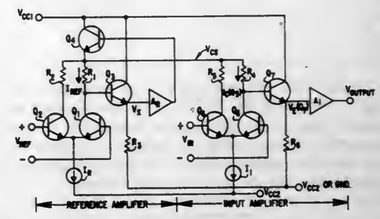
A timing arrangement for periodic actuation of an aerosol dispenser or the like at relatively long intervals which includes a field effect transistor having a high impedance resistance-capacitance (RC) circuit at its input connected for charging by a load resistor at its output with means for responding to the output voltage to signal the end of the timed interval and to discharge the capacitor for initiation of a new timing cycle. A motor is actuated at the end of timed interval for re-cocking the triggering means and for releasing a measured "shot" of aerosol, following which the motor turns itself off in readiness for the ensuing cycle.

3,546,480
MONITOR CIRCUIT FOR ASYNCHRONOUS DIGITAL SIGNALS FOR MAINTAINING OUTPUT SIGNAL LEVEL FOR DURATION OF APPLIED HOLD SIGNAL
Gerard J. Dunnigan, Baltimore, and Marvin E. French, Glen Burnie, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 29, 1968, Ser. No. 748,461
Int. Cl. H03k *19/36*
U.S. Cl. 307—215 **6 Claims**



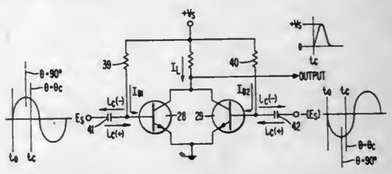
Described is circuitry for permitting an asynchronous input digital signal to appear at the output of the circuitry at random until, at a predetermined time and in response to a HOLD signal, the output of the circuit will remain at its last ON or OFF condition regardless of changes in the input signal. This condition persists until the HOLD signal is removed, whereupon the output from the circuit continues to follow the asynchronous input signal. The foregoing is accomplished by NAND circuit components which can be combined into a single microelectronic device.

3,546,481
THRESHOLD CIRCUIT FOR COMPARING VARIABLE AMPLITUDE VOLTAGES
James R. Talley, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Oct. 18, 1967, Ser. No. 676,334
Int. Cl. H03k *5/20*
U.S. Cl. 307—235 **5 Claims**



Disclosed is a low level comparison circuit which may be used in computer systems or in any application where accurate comparison of low level signals is required, the circuit having stable operation over a wide temperature range and a wide range of power supply levels.

3,546,482
SIGNAL PEAK DETECTION SYSTEM
Clifford J. Bader, West Chester, and Richard L. Fussell, Chester Springs, Pa., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Oct. 27, 1967, Ser. No. 679,965
Int. Cl. H03k *5/20*
U.S. Cl. 307—235 **9 Claims**

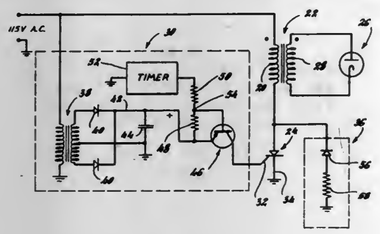


The present disclosure deals with a peak detector utilizing solid state electronic devices and being capable of receiving an input signal of varying amplitude and of generating an output signal in the nature of a pulse or DC level transition indicative of the passage of said input signal through its peak absolute amplitude.

3,546,483
CONTROL CIRCUITRY FOR A TRANSFORMER SUPPLIED UNIDIRECTIONALLY-CONDUCTIVE LOAD
Robert S. Lundin, Thomaston, Conn., assignor to General Time Corporation, Stamford, Conn., a corporation of Delaware
Filed Apr. 26, 1967, Ser. No. 633,985
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **3 Claims**

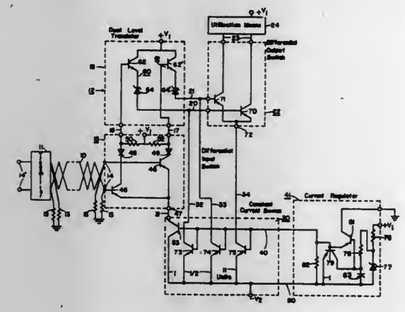
A circuit for supplying a unidirectionally-conductive load through a transformer. A controlled rectifier gates

current to a transformer primary winding from an AC source, driving the transformer core toward saturation in one direction, and supplying current to a unidirectionally-conductive load through the transformer secondary winding. A diode shunts the controlled rectifier and is oppo-



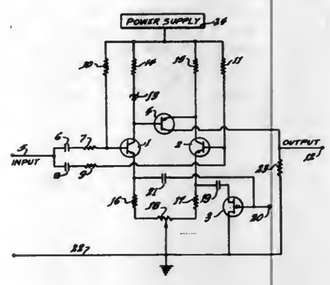
sitely poled with respect thereto, to pass the necessary current for resetting the transformer core toward opposite saturation during the half-cycles when the unidirectionally-conductive load is not conducting. A current limiting resistor may be connected in series with the diode to limit current during certain operating conditions.

3,546,484
TWO-STATE SWITCHOVER AMPLIFIER SYSTEM WITH PLURAL CURRENT SOURCES
William R. Fowler, Scottsdale, and Thomas W. Hart, Jr., Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Sept. 26, 1969, Ser. No. 861,276
Int. Cl. H03k *17/00*
U.S. Cl. 307—254 **5 Claims**



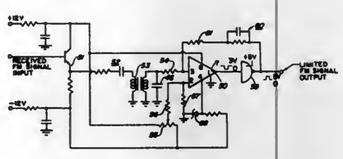
An input differential switch drives two dual level voltage translators each having a predetermined threshold of responsiveness. The dual level translators supply digital signals to a differential output switch which supplies the two level output signals of the amplifying system. A current source regulator supplies a constant control signal to a plurality of independent semiconductor current sources. Each of the current sources is independently connected to the differential input switch, the two dual level voltage translators and a differential output switch for supplying constant current therethrough in accordance with the requirements thereof. The current amplitude is predetermined by the emitter-base junction area of the current source semiconductor devices.

3,546,485
BIDIRECTIONAL ANALOG GATE
Thomas J. Davis, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 22, 1968, Ser. No. 778,103
Int. Cl. H03k *17/00*
U.S. Cl. 307—255 **6 Claims**



A bidirectional analog gate responsive to a binary control signal includes a pair of differentially coupled balanced amplifier circuits, an impedance means, and switch means responsive to first and second values of the binary control signal for respectively connecting and disconnecting the impedance means in one of the pair of amplifier circuits.

3,546,486
LIMITER CIRCUIT
Charles L. Jacobson, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Dec. 15, 1967, Ser. No. 690,990
Int. Cl. H03b *3/02*
U.S. Cl. 307—264 **5 Claims**

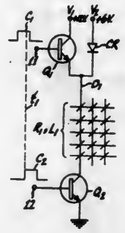


A limiter circuit for use in amplitude limiting frequency modulating signals. In conjunction with a high speed differential comparator, a rectangular shaped pulse the width of the positive half cycles of the incoming frequency modulated signal is generated. Noise is therefore effectively suppressed while preserving the frequency modulated signal transitions.

3,546,487
DRIVE CIRCUIT FOR DIGIT LINES
Daniel Espinal, Franklin, Mass., assignor to RCA Corporation, a corporation of Delaware
Filed Apr. 15, 1966, Ser. No. 542,801
Int. Cl. G11c *5/02, 7/00;* **H03k** *1/00*
U.S. Cl. 307—270 **1 Claim**

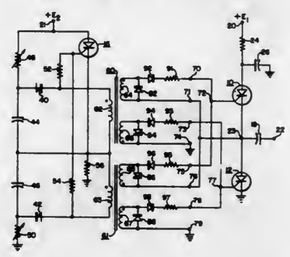
A digit driver circuit involving about 80% less power dissipation than prior art arrangements includes, in series, a first bias source, a first current switch, a memory digit

line, and a second current switch. The first switch is closed to charge the line, the second switch is closed to permit a steeply-rising current through the line; then the



first switch is opened and a continuing current through the line is supplied through a diode from a second lower-voltage source.

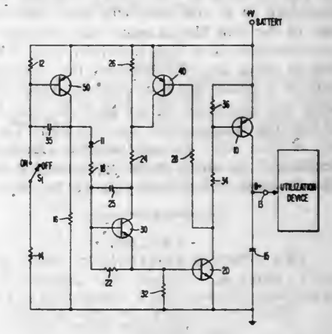
3,546,488
PULSE AMPLIFIER CIRCUIT FOR CONTROLLING A GATE CONTROLLED SWITCH
John W. Motto, Jr., Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 387,822, Aug. 6, 1964. This application May 5, 1967, Ser. No. 636,525
Int. Cl. H03k *3/26*
U.S. Cl. 307—284 **2 Claims**



A control pulse source and an amplifier including gate controlled switches for driving a slave operated gate controlled switch circuit. Two gate controlled switches are alternately charged to charge and discharge a capacitor from a power supply source to generate high level peak current pulses necessary to control a plurality of series connected gate controlled switches.

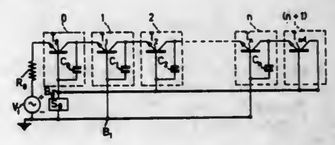
3,546,489
COMPLEMENTARY BISTABLE CIRCUIT HAVING DELAYED TURN-ON AND TURN-OFF
Herbert J. White, Narberth, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed July 18, 1968, Ser. No. 745,788
Int. Cl. H03k *3/286*
U.S. Cl. 307—288 **7 Claims**

The present disclosure describes a complementary bistable circuit which serves as a power switch and utilizes solid state components to provide current to load circuits after a fixed delay from the time of switch turn-on and to maintain such current for a predetermined period after switch turn-off—the purpose of such action being to preclude or minimize transient electrical noise in the



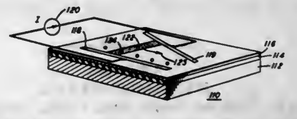
load current, which might adversely affect the load circuits.

3,546,490
MULTI-STAGE DELAY LINE USING CAPACITOR CHARGE TRANSFER
Frederik Leonard Johan Sangster, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 17, 1967, Ser. No. 675,883
Claims priority, application Netherlands, Oct. 25, 1966, 6615057, 6615058; Aug. 18, 1967, 6711463
Int. Cl. H03k *5/159, 17/28, 17/60*
U.S. Cl. 307—293 **14 Claims**



A multi-stage delay line where each stage a capacitor is connected directly across the base and collector terminals of a transistor. Each stage uses the transistor emitter for an input terminal, the collector for an output terminal, and the base as a control terminal for driving the transistor into conduction in response to a switching voltage applied to alternate stages.

3,546,491
SOLID STATE SCANNER UTILIZING A THERMAL FILAMENT
Carl N. Berglund, 1855 Watchung Ave., Plainfield, N.J. 07062
Filed Nov. 16, 1967, Ser. No. 683,550
Int. Cl. H03k *17/56*
U.S. Cl. 307—298 **11 Claims**



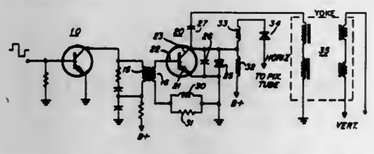
A scanning device includes a thin film of a material characterized by a negative temperature coefficient of resistivity (e.g. a thermoresistive material such as VO_2) upon which have been deposited a pair of spaced electrodes. A current source connected across the electrodes heats the thin film, but, because the current is maintained

between a pair of critical values, produces only a narrow filament of heated material extending betweeen the electrodes. The filament is above the transition temperature and therefore in a low resistivity state, whereas the remainder of the thin film is below the transition temperature and therefore in a high resistivity state. The filament is made to move laterally between the electrodes in the direction of a power gradient created in the thin film by disposing the electrodes at an angle to one another or by grading the thickness of the thin film. The traveling filament is then made to scan contacts (located between the electrodes) to which might be connected the electroluminescent diodes of a display panel, for example.

3,546,492
TRANSISTOR SWITCHING CIRCUIT

Donald J. Barchok, Chicago, Ill., assignor to Admiral Corporation, Chicago, Ill., a corporation of Delaware

Filed Oct. 10, 1967, Ser. No. 674,237
Int. Cl. H03k *3/26*
U.S. Cl. 307—300 **7 Claims**

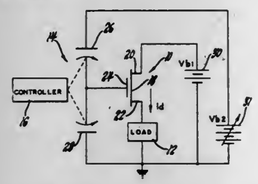


A circuit arrangement for speeding up the actual switching time of a transistor including an inductance in series with the drive pulse source and the base-emitter junction of the transistor. The inductance controls the flow of base current during switching so that reverse base current flows over the entire period of collector current decay.

3,546,493
VARIABLE CAPACITANCE DIRECT CURRENT REGULATOR CIRCUIT

James E. Kauppila, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Sept. 20, 1968, Ser. No. 761,111
Int. Cl. H01l *1/14*
U.S. Cl. 307—304 **8 Claims**



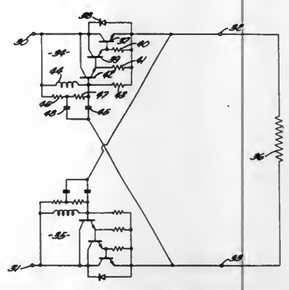
A direct current regulator circuit including a variable capacitance network and an insulated-gate transistor. The variable capacitance network controls the voltage applied to operate the insulated-gate transistor thereby regulating the flow of direct current through the insulated-gate transistor.

3,546,494
DYNAMIC FILTER

Cravens L. Wanlass, Santa Ana, Calif., assignor to Wanlass Electric Company, Santa Ana, Calif., a corporation of California

Filed July 28, 1966, Ser. No. 568,613
Int. Cl. H03k *1/12*
U.S. Cl. 307—297 **20 Claims**

A filter for removing the ripple from a DC voltage in which the base biasing network of a series transistor is provided with two different time constants, a long time constant to permit the base to peak follow the input and a long time constant to prevent the base from following negative going transients in the input. Also disclosed is a dynamic AC filter in which the collector-base circuit

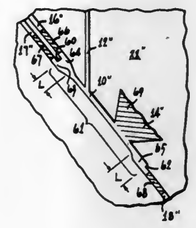


of each of a pair of series transistors biases the transistor into saturation except when a high frequency transient is present to the input, a capacitor in the base circuit preventing the base voltage from following the collector voltage in such an instance.

3,546,495
SEMICONDUCTOR LASER LOGIC APPARATUS

Roy H. Cornely, Skillman, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Feb. 7, 1968, Ser. No. 703,669
Int. Cl. H03k *19/14*
U.S. Cl. 307—312 **5 Claims**

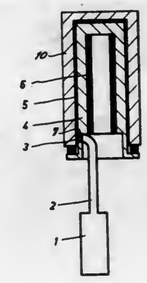


An optical laser inverter logic unit formed on a single semiconductor crystal wafer having a planar p-n junction near the top surface thereof. The top surface of the crystal is selectively removed to a depth below the p-n junction to leave junction material forming an elongated oscillator channel having reflective sides and at least partially reflective ends, an integral elongated input amplifier channel angularly related at about 30 degrees to the elongated oscillator channel near one end thereof, and an integral amplifier signal attenuator on one side of the elongated oscillator channel near the opposite end thereof. A source of biasing or pumping electrical power is connected to a first integral electrode on the exposed top surface over the oscillator channel and the amplifier channel, and to a second electrode on the bottom surface of the semiconductor crystal. The logic unit and other units are constructed by etching. The removed material is replaced by silicon oxide to provide additional support for the first integral electrode.

3,546,496
OVERHEATING PROTECTION DEVICE FOR THERMIONIC ELEMENTS HEATED BY NUCLEAR ENERGY

Franz Gross, Neckargemund, and Rudolf Krapf, Leimen, Germany, assignors to Brown, Boveri & Cie A.G., Mannheim-Kafertal, Germany, a German corporation

Filed Dec. 4, 1967, Ser. No. 692,257
Claims priority, application Germany, Dec. 9, 1966, B 90,224
Int. Cl. H02n *3/00;* **H01j** *45/00*
U.S. Cl. 310—4 **5 Claims**

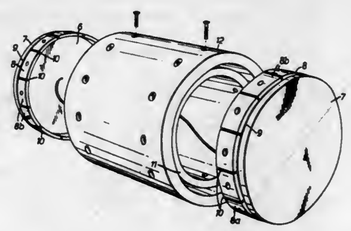


An overheating protection device for thermionic converters which are heated by nuclear energy. A container 1 filled with a highly heat-conducting fluid, e.g. a gas having great thermal conductivity, such as helium, is connected with a discharge or electrode interspace 5 through a sealing means 3 of determined melting point and having thermal contact with the emitter. When the temperature of the thermionic element rises above the melting point of a fusible joint, such as of solder, this causes the fluid, e.g. helium contained within the container 1, to flow into the electrode interspace and to cause the excess heat of the emitter to flow into the collector.

3,546,497
PIEZOELECTRIC TRANSDUCER ELEMENT

William Craster, Ilford, Essex, England, assignor to The Plessey Company Limited, Ilford, England, a British company

Filed Nov. 4, 1968, Ser. No. 772,992
Claims priority, application Great Britain, Nov. 8, 1967, 50,825/67
Int. Cl. H02v *7/00*
U.S. Cl. 310—8.2 **2 Claims**

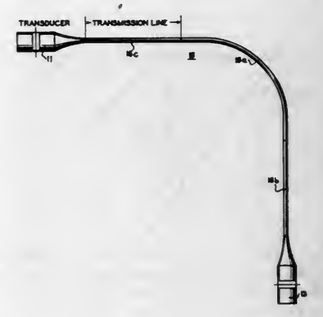


A hybrid transducer comprising a ceramic piezoelectric disc secured to a circular base plate of a container-like support structure having a thin cylindrical wall or flange by means of which the base plate which carries the piezoelectric disc is mounted, thereby to provide a transducer affording high conversion efficiency.

3,546,498
CURVED SONIC TRANSMISSION LINE

Robert C. McMaster and Charles C. Libby, Columbus, and Hildegard M. Minchenko, Reynoldsburg, Ohio, assignors to The Ohio State University, Columbus, Ohio, an institution of higher learning

Continuation-in-part of application Ser. No. 508,804, Nov. 19, 1965. This application June 13, 1969, Ser. No. 833,072
Int. Cl. H04r *17/00*
U.S. Cl. 310—8.2 **10 Claims**

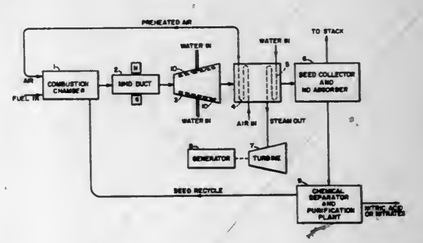


Electromechanical transducers having a high Q and an improved structural arrangement for delivering from a source-over given lengths-extremely high power outputs with a minimum of power loss. Specifically, data is correlated with various embodiments in the transmission of ultrasonic energy through extended nonlinear, i.e., curved or bent, transmission lines of various wavelengths.

3,546,499
COMBINATION PROCESS FOR ELECTRICAL POWER GENERATION AND NITROGEN FIXATION

Edward V. Somers, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

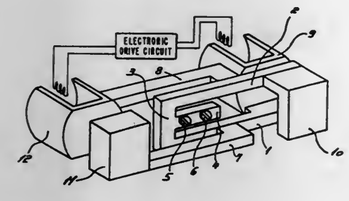
Filed July 6, 1965, Ser. No. 469,670
Int. Cl. H02n *4/02*
U.S. Cl. 310—11 **3 Claims**



A method and means for generating electricity and producing and recovering nitrogen compounds by injecting a water spray into a diffusing structure receiving hot exhaust gases from an MHD generating duct, said spray

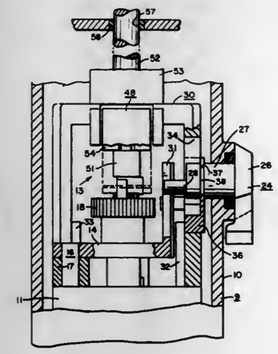
being effective to rapidly quench the hot gases and thereby fix the nitrogen compounds before they have a chance to disassociate.

3,546,500
ELASTIC RESONATOR FOR TIMEKEEPING INSTRUMENTS
Werner R. Baumgartner, Bienne, Switzerland, assignor to Bulova Watch Company, Inc., New York, N.Y., a corporation of New York
Filed May 27, 1969, Ser. No. 828,211
Claims priority, application Switzerland, May 29, 1968, 7,973/68
Int. Cl. H02k *33/02*
U.S. Cl. 310—25 **6 Claims**



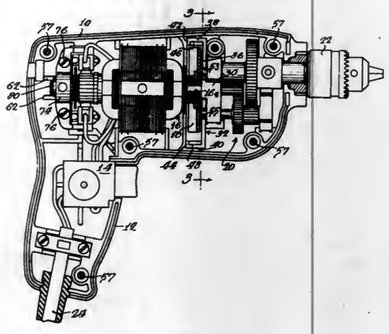
An elastic resonator of the tuning-fork type for timekeeping instruments, the resonator including a pair of tines extending from a common base, the tines in their static condition lying in a common plane. A weight is attached to the free end of each tine, driving means being provided to actuate the tines to effect push-pull oscillation thereof in directions normal to said common plane.

3,546,501
DUAL MOTION TOOTHBRUSH
Paul J. Kircher, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 27, 1968, Ser. No. 787,371
Int. Cl. H02k *7/14*
U.S. Cl. 310—50 **8 Claims**



A power operated toothbrush capable of two distinct modes of operation without the necessity of motor reversal. A shiftable gear frame supporting a pair of gears is mounted such that one or the other of the gears can be brought into engagement with a drive pinion attached to the output shaft of the motor. Each of the gears is provided with an eccentrically located pin for imparting movement to either a bell crank or a lever depending on which gear is being driven. The bell crank serves to impart reciprocatory motion to the brush while the lever effects oscillatory movement thereof.

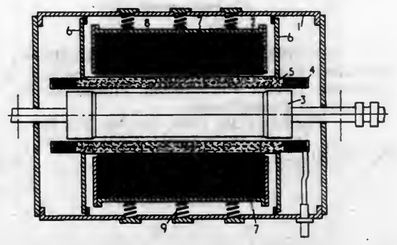
3,546,502
ELECTRIC HAND TOOL WITH HEAT CONDUCTIVE THRUST BEARING MEANS
Harold R. Botefuhr, Bensenville, and Richard F. Stavenhagen, St. Charles, Ill., assignors to G. W. Murphy Industries, Inc., a corporation of Texas
Filed Feb. 19, 1969, Ser. No. 800,528
Int. Cl. H02k *7/14*
U.S. Cl. 310—50 **9 Claims**



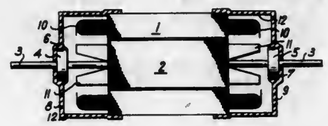
An electric tool or the like having a two-piece housing separable along a center line and a motor mounted in the housing with the motor shaft received in front and rear bearings. The front bearing is mounted against a heat-conductive thrust bearing member having flanges provided with in-turned ends encircling lugs molded in one-half of the housing, and having a web portion between the flanges nested in a molded slot in the same housing half. The web portion has one edge cut out laterally for receiving said front bearing and for optionally receiving shaft ends for elements of a gear train. The bearing mounting member absorbs thrust loads from the bearing, conducts heat away from the bearing, thereby avoiding warpage of the housing, and has an exposed surface for heat exchange with cooling air being drawn through the housing and into contact with the mounting member by means of an adjacent fan blade driven by the motor. The rear bearing can be received in a heat dissipating insert embedded in the housing, which insert is not susceptible to load distortion normally associated with plastic housings.

3,546,503
DYNAMO-ELECTRIC MACHINE WITH RADIAL AIR GAP WINDING AND A VIBRATION REDUCING ARRANGEMENT BETWEEN THE STATOR CORE AND WINDING
Philip Richardson, Newcastle-upon-Tyne, England, assignor to C. A. Parsons & Company Limited, Newcastle-upon-Tyne, England, a British company
Filed Sept. 23, 1968, Ser. No. 761,739
Claims priority, application Great Britain, Sept. 28, 1967, 44,245/67
Int. Cl. H02k *3/46, 5/24*
U.S. Cl. 310—51 **5 Claims**

Antivibration arrangement for electrical machines whether synchronous or asynchronous, and particularly though not exclusively for large turbo-generators of the kind used in modern power stations. In such machines vibration can be produced as a result of distortions of a stator core by magnetic forces set up in a rotor and the stator and by electromagnetic forces between current carrying conductors in the core slots and in the end windings. To reduce or minimize these vibrations the stator core and the stator winding are mechanically connected to an outer casing independently of one another with the stator winding located in an annular gap between the stator core and the rotor and spaced from the stator core.



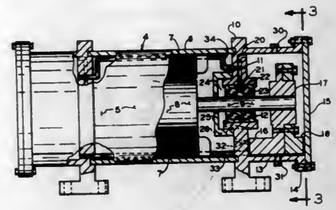
3,546,504
NOISE REDUCING ARRANGEMENT FOR ELECTRIC MOTORS
Hans-Joachim Janssen, Hundsmuhlen, and Peter Böttle, Oldenburg, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Nov. 4, 1968, Ser. No. 773,134
Claims priority, application Germany, Nov. 2, 1967, 1,613,283
Int. Cl. H02k *5/02, 5/24*
U.S. Cl. 310—51 **10 Claims**



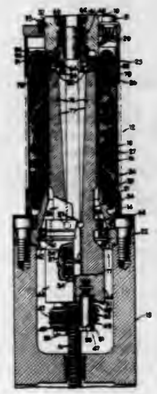
The resonant vibrations of an elongated miniature electric motor of the type not having a separate housing are substantially eliminated by forming all of the supporting and connecting members of the motor utilized to mount the rotor and stator thereof in their operative relationships, other than those components which for operational reasons can only be formed of a material having a low inherent damping characteristic, of a low-resonant material having an extremely high damping characteristic. In order to damp the vibrations from those components which can not be formed of a material having a high inherent damping characteristic, a layer of vibration damping material is placed between such components and the adjacent portions of the motor.

3,546,505
VIBRATOR MOTOR WITH SELF-CONTAINER LUBRICANT CIRCULATOR
John M. Morris, Louisville, Ky., assignor to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed May 6, 1968, Ser. No. 726,989
Int. Cl. H02k *7/00*
U.S. Cl. 310—81 **8 Claims**

This invention relates to motors for driving vibratory apparatus and more particularly to an arrangement in which eccentric weights carried on the motor shaft serve as an impeller of a centrifugal pump for pumping lubricant contained in a housing surrounding the weights through a circuit that includes ball or roller bearings for the purpose of lubricating such bearings. The invention further employs connecting means, when eccentric weights are mounted at each end of the motor, for equalizing the quantity of lubricating fluid contained in each of the eccentric weight housings.

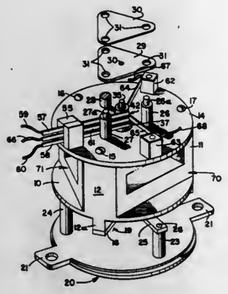


3,546,506
ELECTRIC MOTOR WITH ROTARY-TO-LINEAR MOTION CONVERSION
Otis J. Olson, Decatur, and Thomas W. Dittmer, Macon, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Continuation of application Ser. No. 640,230, May 22, 1967. This application Sept. 22, 1969, Ser. No. 860,114
Int. Cl. H02k *7/06*
U.S. Cl. 310—83 **3 Claims**



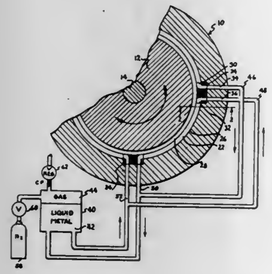
A linear motion device which includes a rotor assembly having pivotal arms operable to engage an expandable roller nut drive with a lead screw. The pivotal arms surround the lead screw and additionally form the rotor pole pieces. The arms are supported for rotation and axial location by a bearing adjacent the fulcrum point. Portions of the rotor arms form the rotor pole pieces. These portions are retained in appropriately spaced relation with respect to the motor stator by a bearing operatively connected to the free ends of the pole piece portions of the rotor arms. Pivotal movement of the arms is synchronized by the bearing associated with the free ends of the arms through a physical connection between a portion of the bearing and the free ends of the arms.

3,546,507
ELECTRIC MOTOR
Sheldon M. Wengel, 240 S. Oak, Reedsburg, Wis. 53859
Filed Oct. 17, 1966, Ser. No. 587,052
Int. Cl. H02k *21/38*
U.S. Cl. 310—156 **4 Claims**



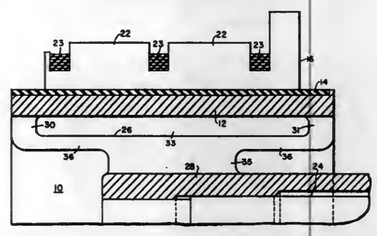
An impulse-type direct current electric motor adapted to be driven by small direct current batteries. The motor comprises a rotatably mounted permanent magnet, a plurality of at least three open-core field coils symmetrically disposed circumferentially about the path of rotation of the permanent magnet, and means for selectively and intermittently energizing the field coils to rotatatively drive the permanent magnet. The field coils are spaced radially outwardly from an axis of rotation of the permanent magnet, at a distance such that the opposite ends of the permanent magnet pass through the open ends of the field coils during rotation of the magnet.

3,546,508
SELF-PUMPING LIQUID METAL CURRENT COLLECTOR
Luke M. Harvey, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Continuation of application Ser. No. 575,859, Aug. 29, 1966. This application Dec. 29, 1969, Ser. No. 888,159
Int. Cl. H02k *13/00*
U.S. Cl. 310—219 **1 Claim**



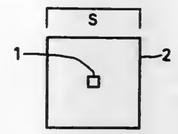
A self-pumping liquid metal current collector includes a rotor having a stationary current transfer surface and a stator having a stationary current transfer surface spaced from said peripheral current transfer surface by a predetermined clearance. The clearance defines a gap adapted to be charged with conducting liquid metal during operation. A first nozzle and a second nozzle are in the stator communicating with the gap. The nozzles are directed in opposite circumferential directions relative to the peripheral current transfer surface. There is a source of conductive liquid metal communicating with the nozzles, so that circulation of the liquid metal through the gap is established in response to rotation of the rotor regardless of the direction of rotation.

3,546,509
FLEXIBLE COMMUTATOR BUSHING
Chen-Kuo Chang, Cheektowaga, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 30, 1968, Ser. No. 771,708
Int. Cl. H01r *39/04;* **H02k** *13/04*
U.S. Cl. 310—236 **6 Claims**



A flexible drum bushing for a commutator in a dynamoelectric machine, the flexible characteristic being provided by elongated, resilient rib portions supporting the bushing at axially and circumferentially spaced apart locations on the rotatable shaft of the machine.

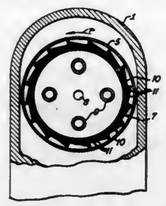
3,546,510
SQUARE CATHODE FOR ION GETTER PUMPS
Anton Martin Klopfer and Horst Flunkert, Aachen, Germany, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 30, 1967, Ser. No. 687,064
Int. Cl. F04b *37/02;* **H01j** *1/50, 7/18*
U.S. Cl. 313—7 **9 Claims**



An ionization pump with a cold cathode in the form of a rod, tube, or the like of polygonal cross-section.

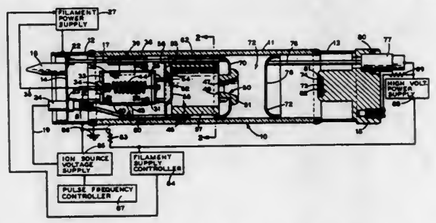
3,546,511
COOLING SYSTEM FOR A ROTATING ANODE OF AN X-RAY TUBE
Yoshihiro Shimula, Tokyo, Japan, assignor to Rigaku Denki Company Limited, Tokyo, Japan
Filed July 31, 1967, Ser. No. 657,225
Int. Cl. F28d *11/02;* **H01j** *1/44*
U.S. Cl. 313—32 **9 Claims**

A cooling system in which a cylindrical hollow stationary member is positioned within a cylinder rotary anode, a conduit for a cooling fluid being connected to the stationary member to cause discharge of cooling fluid through openings in the periphery of the stationary member, in the form of jets, towards the inner peripheral surface of the anode, the periphery of the stationary member having successive inclined surfaces forming a serrated outer



surface for the stationary member in which the apexes thereof are in close proximity with the inner surface of the anode.

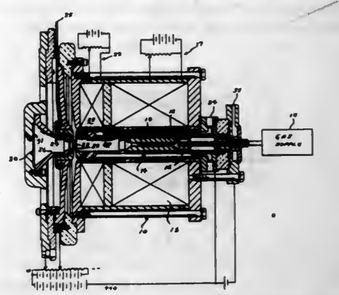
3,546,512
NEUTRON GENERATOR INCLUDING AN ION SOURCE WITH A MASSIVE FERROMAGNETIC PROBE ELECTRODE AND A PERMANENT MAGNET-ELECTRODE
Arthur H. Frentrop, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Feb. 13, 1967, Ser. No. 615,638
Int. Cl. H01j *3/20;* **G21q** *3/00*
U.S. Cl. 313—61 **1 Claim**



A permanent magnet is outgassed for use in a controlled atmosphere by heating a ferromagnetic material to a temperature at which an irreversible loss of remanence takes place, but below the temperature at which material effects substantially reduce or remove all remanence without further special heat treatment. Gases emitted from the heated surfaces of the magnet then are evacuated. Permanent magnetic properties are not destroyed by this heat treatment, and a magnetic field of substantial strength subsequently is produced by magnetizing the outgassed material. A specific embodiment of the invention enables a hollow cyclindrical ion source magnet to be placed within the envelope of a small neutron generator to provide both a magnetic field and an ion source electrode. The assembled generator then is outgassed and sealed. Subsequent magnetization enables the electrode to produce the high intensity magnetic field needed for ion generation.

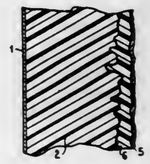
3,546,513
HIGH YIELD ION SOURCE
Peter Henning, Summit, N.J., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Mar. 11, 1968, Ser. No. 712,197
Int. Cl. H05h *1/00*
U.S. Cl. 313—63 **1 Claim**

A gas such as hydrogen or a mixture of gases is supplied to an arc region to produce an ion stream. A first magnet to provide optimum ionization in the arc region. An enlarged space is provided near the exit aperture of the diode structure to provide low energy secondary electrons to provide space charge neutralization. A second adjustable magnet operated in an aiding sense to the first magnet is provided near the enlarged space near the exit aperture which, because of the space charge neutraliza-



tion, can be adjusted to provide greatly increased yields with focusing being maintained within the desired limits.

3,546,514
SECONDARY-EMISSION CONDUCTIVITY TARGET COMPRISING HIGHLY POROUS STORAGE LAYER AND LESS POROUS INTERMEDIATE LAYER AS BASE FOR METAL FILM
Michel Blamoutier, Paris, France, assignor to Compagnie Francaise Thomson-Houston-Hotchkiss Brandt, Paris, France, a corporation
Filed Apr. 24, 1967, Ser. No. 633,060
Claims priority, application France, May 5, 1966, 60,347, Patent 1,491,300
Int. Cl. H01j *31/28, 31/48*
U.S. Cl. 313—65 **2 Claims**

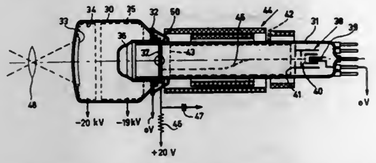


SEC-type target including the usual conductive signal plate and storage layer of porous, highly resistive, secondary emissive material bonded to one side thereof. Bonded to the outer side of the main storage layer is a surface layer of restrictive secondary-emissive material wherein the threshold voltage for which the secondary emission ratio exceeds unity is substantially higher than that in the material of the main layer. The electrons of the read beam scanning the exposed surface of the target will then be less likely to excite spurious secondary emission, permitting higher voltage excursions in the output signal.

3,546,515
PHOTOCATHODE CONTROL OF ELECTRON FLOW THROUGH LEAD MONOXIDE, BOMBARDMENT-INDUCED CONDUCTIVITY LAYER
Alfred Bril and Edward Fokko de Haan, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Continuation of application Ser. No. 563,918, July 8, 1966. This application Jan. 10, 1969, Ser. No. 792,206
Claims priority, application Netherlands, July 15, 1965, 6509140
Int. Cl. H01j *31/26, 31/38*
U.S. Cl. 313—65 **1 Claim**

A device for detecting "fast" charge carrying particles, i.e. electrons, protons and α-particles is disclosed which employs a target consisting of a "bombardment induced

conductive material," i.e. a material whose electrical conductivity varies in accordance with the intensity of the bombardment and energy of the particles. A material suitable for this purpose is lead monoxide having a zone of intrinsic conductivity between a zone of p-type con-



ductivity adjacent a negative terminal and a zone of n-type conductivity adjacent a positive terminal. The target may be connected to a suitable measuring circuit, or may be incorporated in a cathode-ray tube where it may be scanned by a beam of slow velocity electrons.

3,546,516

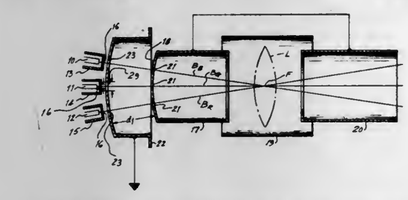
SINGLE-GUN, PLURAL-BEAM CATHODE RAY TUBE HAVING ALL BEAMS FOCUSED BY THE PASSAGE THEREOF THROUGH THE OPTICAL CENTER OF A COMMON ELECTRON LENS

Susumu Yoshida and Akio Ohgoshi, Tokyo, Senri Miyaoka, Kanagawa-ken, and Yoshiharu Katagiri, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan

Continuation-in-part of application Ser. No. 697,414, Jan 12. 1968, This application June 2, 1969, Ser. No. 829,294

Int. Cl. H01j *29/46, 31/00*

U.S. Cl. 313—69 **5 Claims**



A single gun plural cathode ray tube having a plurality of grids at varying potentials in which an electrostatic focusing lens is provided for focusing on an electron receiving screen all of the beams passed thereto from the cathodes and associated grids, and the plural beams are made to cross each other at the optical center of the lens for minimizing aberrations of the beam thereby, a grid is provided between the electrostatic focusing lens and the associated grids which is at ground potential to eliminate the deleterious effects of intergrid interference. The provided grid also has enlarged electron beam receiving apertures therein in relation to the associated grids which are adjacent thereto to facilitate the placement of the apertures in the provided grid in the path of the electron beam thereby obviating the need for close tolerances.

3,546,517

COLOR TUBE HAVING VENETIAN BLIND-TYPE COLOR SELECTION GRID AND INTEGRALLY FORMED BAFFLES ON DISPLAY SCREEN

Werner Veith, Munich, Germany, assignor to Siemens Aktiengesellschaft, a corporation of Germany

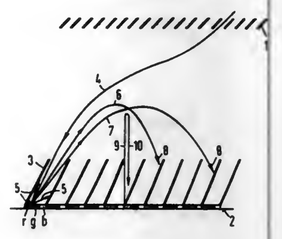
Filed June 6, 1968, Ser. No. 735,025

Claims priority, application Germany, June 27, 1967, S 110,521

Int. Cl. H01j *29/80, 29/74*

U.S. Cl. 313—77 **6 Claims**

An electron tube with one beam for the reproduction of color television images using the system of color selection by a grid in the form of a Venetian blind which eliminates the disturbing and erratic luminescence caused



by secondary and elastically reflected electrons returning to the screen.

3,546,518

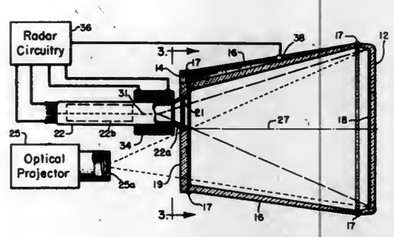
IMAGE PROJECTION THROUGH REAR WINDOW OF CATHODE RAY TUBE TO DISPLAY SCREEN

Peter E. Dunn, Evanston, Ill., assignor to The Rauland Corporation, Chicago, Ill., a corporation of Illinois

Filed Apr. 23, 1968, Ser. No. 723,472

Int. Cl. H01j *31/12, 61/35, 29/00*

U.S. Cl. 313—92 **6 Claims**



The separation between the neck and the projection window of a rear projection CRT may be minimized by forming the window in a flat rear glass plate, which is parallel to the tube's phosphor display screen, and by frit sealing the neck to the periphery of an aperture in the rear plate. Frit sealing produces no appreciable distortion in the rear plate and thus the window, which should be optically flat and clear, may be positioned immediately adjacent to the neck. Such minimum spacing simplifies the optics required and enhances the registeration or alignment between a video presentation, developed on the display screen by the tube's electron beam, and a related visual image which is projected through the window onto the display screen and superimposed on the video pattern.

3,546,519

FLUORESCENT LAMPS WITH COIL ELECTRODES AND ELECTRODE SUPPORT STRUCTURE

Tsunekazu Hashimoto, Tokyo, Akira Someya, Yokohama-shi, and Teizo Hanada, Saitama-ken, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan

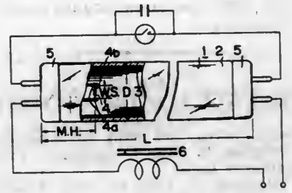
Filed Aug. 21, 1968, Ser. No. 754,302

Int. Cl. H01j *61/06, 61/12, 61/30*

U.S. Cl. 313—109 **5 Claims**

In a straight type fluorescent lamp having the total length of 400 mm. to 1,500 mm. and exchangeable with conventional lamps including sealed glass tubes of 38 mm. outer diameter, the pressure of the sealed rare gas is selected to a value ranging from 0.5 to 3.2 mm. Hg, preferably from 0.5 to 2.5 mm. Hg for a tube outer diameter

of 29 mm., from 0.5 to 2.8 mm. Hg for tube outer diameters ranging from 29 to 32 mm., and 0.5 to 3.2 mm. Hg for tube outer diameters ranging from 32 to 35 mm. to



increase the total lumen output. The welds spacing across a sealed coil electrode is selected to a value ranging from 11.4 mm. to 14.5 mm. to decrease the blackening phenomenon.

3,546,520

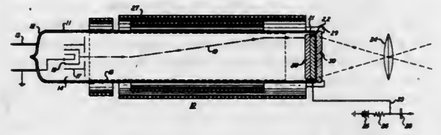
VIDICON TARGET COMPRESING INFRARED ABSORBER

Ram P. Anand, Reading, and Albert Savage, Sinking Spring, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Dec. 20, 1967, Ser. No. 692,023

Int. Cl. H01j *5/16;* **H01k** *1/26*

U.S. Cl. 313—112 **2 Claims**



Photosensitive films, such as those used in the target of vidicon tubes, lose photoconductivity when exposed to intense illumination. The phenomenon is termed burn-in. It has been discovered that radiation having wavelengths greater than approximately 0.7μ in the infrared region is harmful. The invention comprises positioning an appropriate infrared filter between the photosensitive film and the harmful light source in order to prevent harmful infrared radiation from being incident upon the photosensitive film. For example, the filter may be an external one removably affixed to the face of the vidicon tube or may comprise a layer of infrared reflecting material deposited on the exterior surface of the vidicon window. Alternatively, the filter may be a thin film of an infrared absorbing material incorporated in the target structure of the vidicon tube.

3,546,521

LOW-PRESSURE GAS DISCHARGE LAMP FOR PRODUCING RESONANCE RADIATION

Zeger van Gelder, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

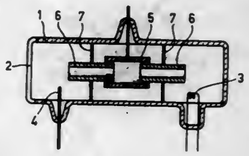
Filed Aug. 9, 1968, Ser. No. 751,474

Claims priority, application Netherlands, Aug. 25, 1967, 6711757

Int. Cl. H01j *61/10*

U.S. Cl. 313—192 **6 Claims**

A low-pressure gas discharge lamp for producing resonance radiation employing a pair of electrodes with an envelope containing a rare gas. A positive column is maintained between the electrodes during operation of the lamp, the column having an axis which intersects a window in the envelope for transmitting the radiation. An atom source containing an element the resonance radiation of which is desired surrounds the positive column while a ring around the discharge path between the atom source and the window is provided which is spaced



from the atom source a distance which is smaller than the length of the atom source and the inner surface of which has a perpendicular section which is smaller than that of the inner surface of the atom source. The length of this ring is at least equal to the largest dimension of the perpendicular section of the inner surface.

3,546,522

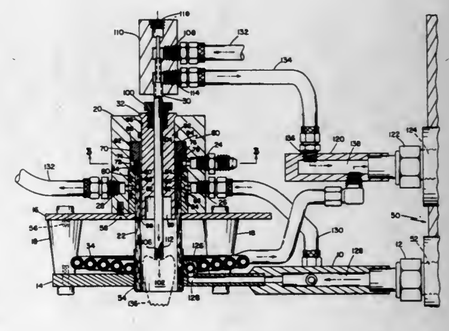
INDUCTION PLASMA GENERATOR WITH GAS SHEATH FORMING CHAMBER

Merle L. Thorpe, Suncook, N.H., assignor to Humphreys Corporation, Concord, N.H., a corporation of New Hampshire

Filed June 21, 1967, Ser. No. 647,790

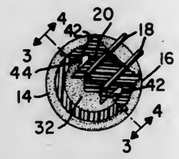
Int. Cl. H01j *7/24*

U.S. Cl. 313—231 **8 Claims**



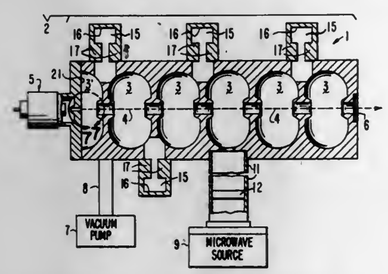
A thermal plasma generator including a one inch I.D. quartz tube 3¼ inches long encompassed near one end by a water cooling jacket and near the other end by a water cooled pancake coil having a 1$\frac{5}{16}$ inch I.D. A gas distributor having six radial passages is disposed in a housing structure which also receives in adjacent relation the jacket encompassed portion of the quartz tube. A gas sheath forming chamber having an annular width of $\frac{1}{16}$ inch and an axial length of two inches, is formed by the I.D.'s of the gas distributor and the quartz tube and the O.D. of an insert. Two parallel, spaced, flat plates, through which the quartz tube extends, are secured to and supported by the housing perpendicular to the axis of the tube and the water-cooled pancake coil is disposed between the plates and is supported by one of the plates in precise coaxial relation to the gas sheath forming chamber.

3,546,523
CIRCULAR LAMP BASE
Marcellus N. Gilbert, Jr., Lynnfield, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,402
Int. Cl. H01j *5/48*
U.S. Cl. 313—318 **8 Claims**



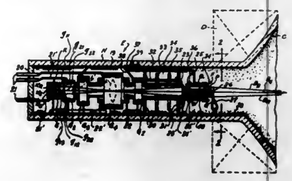
A base bridging the adjacent ends of a circular fluorescent lamp comprising a pair of half sections, one of which includes connector pins to which the lamp lead-in wires are mechanically connected and the other of which comprises a cap which is snapped closed without the need for screws or the like to join the two half sections to one another.

3,546,524
LINEAR ACCELERATOR HAVING THE BEAM INJECTED AT A POSITION OF MAXIMUM R.F. ACCELERATING FIELD
Peter G. Stark, Menlo Park, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Nov. 24, 1967, Ser. No. 685,466
Int. Cl. H01j *25/10*
U.S. Cl. 315—5.41 **9 Claims**



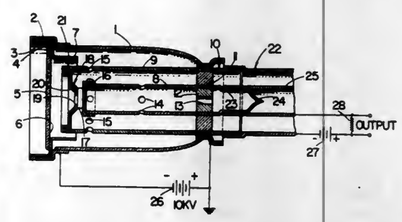
A microwave linear particle accelerator is disclosed. The accelerator includes an accelerating section formed by a plurality of coupled cavities successively disposed along the beam path for electromagnetic interaction between the microwave electric fields of the cavity resonators and an injected stream of charged particles for accelerating the charged particles to nearly the velocity of light. The first upstream cavity resonator of the accelerator section, into which the charged particles are injected is formed and arranged such that the injected beam enters the accelerating microwave field of the first cavity at a position of nearly maximum electric field of the spatial distribution of the electric field. In this manner, subsequent charged particles injected into the electric field of the resonator, within the acceptance angle of the time-varying electric field over which the accelerating field is increasing with time, tend to be more rapidly accelerated, thereby forming a tighter bunch of charged particles than would otherwise be obtained if the particles were not injected into a position in the cavity of maximum electric field. In addition, this method of injection permits the charged particles to be injected into the first cavity with initial velocities corresponding to 0 kv. beam voltage on up to much higher initial velocities, whereby a relatively inexpensive beam injection gun may be employed and hereby the output beam current of the accelerator may be easily controlled by varying the anode voltage on the beam injection gun.

3,546,525
ELECTRON GUN ELECTRICAL CONNECTION APPARATUS
Akio Obgoshi, Tokyo, and Senri Miyaoka, Fujisawa-shi, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Jan. 21, 1969, Ser. No. 792,421
Int. Cl. H01j *5/00, 29/50*
U.S. Cl. 315—13 **12 Claims**



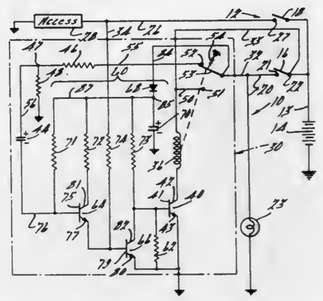
The gun structure of a color picture tube of the single-gun, plural-beam type is provided with a resilient contact to engage a conductive member which extends through the tube neck portion, and a tube-contained conductive layer, respectively, for applying operating voltages to the electron beam deflection plates of the gun disposed within the tube. In addition, the conductive member is located to inhibit electrical discharge between such conductive member and the externally disposed deflection yoke, and the external and internal surfaces of the tube neck portion are maintained substantially free of projections or the like to facilitate tube manufacture.

3,546,526
ELECTRON DISCHARGE DEVICE HAVING COAXIAL MOUNTING STRUCTURE
Lozure G. Wolfgang, Fort Wayne, Ind., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Delaware
Filed Apr. 18, 1967, Ser. No. 631,641
Int. Cl. H01j *7/46, 1/36*
U.S. Cl. 315—39 **14 Claims**



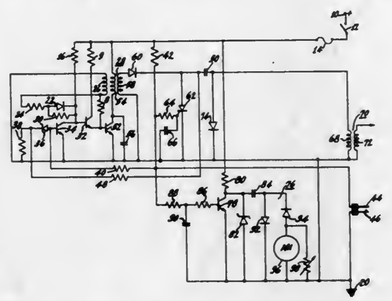
An electron discharge device comprising an evacuated envelope having a cathode and an anode therein; a rigid, coaxial-line section mounted inside said envelope with one of its ends juxtaposed with respect to said cathode and the other end portion being affixed to the wall of the envelope; said anode being mounted on the end of the coaxial-line section in position to receive electrons from said cathode, said anode being in the form of a solid-state diode or the like, and a mounting structure for the diode which provides for low impedance connections to the coaxial line and furthermore is rugged but flexible in response to movement of the various parts due to temperature changes and the like.

3,546,527
HEADLAMP TIME DELAY CIRCUIT CONTROLLER
Gary A. Chunn and William M. Summers, Huntsville, Ala., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,701
Int. Cl. B60q *1/02*
U.S. Cl. 315—82 **13 Claims**



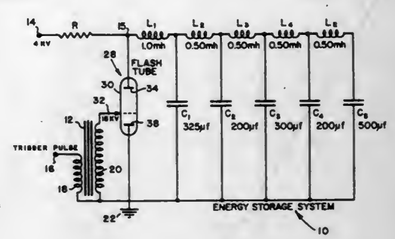
A headlamp time delay circuit controller featuring a charge level sensing and threshold switching circuit between an RC timing network and a transistor controlled relay switching means, which provide an auxiliary energizing circuit about the vehicle headlamp switch when the latter is displaced from its closed to its open position. The sensing circuit is responsive to the charge level attained by the timing capacitor network during the charging interval thereof initiated upon the opening of the headlamp switch. During the delay period, constant base current drive is supplied to the transistor enabling accurate control of the timing period of the controller substantially independent of temperature and voltage variations.

3,546,528
CAPACITOR DISCHARGE IGNITION CIRCUIT
Michael S. Fisher, Flemington, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Jan. 24, 1968, Ser. No. 700,279
Int. Cl. H05b *41/36*
U.S. Cl. 315—209 **6 Claims**



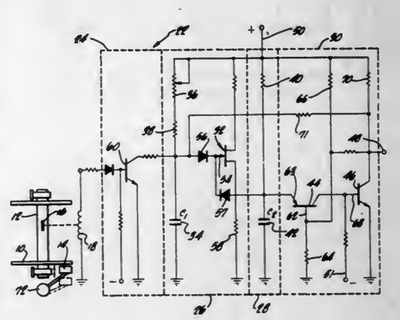
A capacitor discharge ignition circuit for an internal combustion engine in which the capacitor is charged to the same voltage between discharges thereof to produce ignition sparks of the same high intensity independently of the interval between the production of sparks up to a given engine speed.

3,546,529
HIGH INTENSITY SHAPED PULSE ELECTRONIC LIGHT SOURCE FOR HIGH SPEED CAMERAS
William C. Griffin, Ridgecrest, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 16, 1968, Ser. No. 767,936
Int. Cl. H05b *37/00*
U.S. Cl. 315—241 **2 Claims**



A pulse former is provided to modify the shape of the light output from an electronic flash lamp. The circuit, which provides a 5.0 millisecond interval, is a modified Guillemin type B voltage-fed network. The circuit is designed to be used with a gaseous discharge tube of the type often referred to as the "Edgerton" flash lamp.

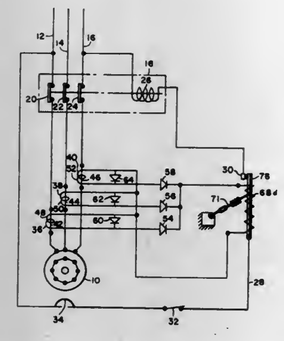
3,546,530
DIGITAL TACHOMETER CIRCUIT
Richard C. Simonsen, South Pasadena, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Mar. 30, 1967, Ser. No. 627,094
Int. Cl. G01p *3/00*
U.S. Cl. 317—5 **10 Claims**



A tachometer circuit for sensing the speed of a rotating member. The circuit utilizes a detector for sensing the frequency of passage of a point on the member past the detector. Output pulses from the detector are used to control the operation of a switching circuit which in turn controls the output from the circuit. When the rotating member is below a predetermined speed, the switching circuit, periodically discharges a control capacitor. When the rotating member reaches a first predetermined speed, the switching circuit discontinues operation allowing the

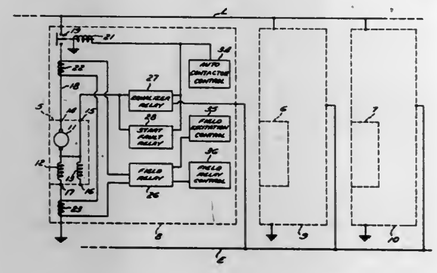
control capacitor to charge to a predetermined level causing a change in the output signal from the tachometer circuit. The output signal is then transmitted to a control mechanism such as a solenoid. A reduction in speed to a second speed below the first speed causes the output of the circuit to revert to its original level.

3,546,531
OVERCURRENT PROTECTION SYSTEM FOR POLYPHASE DYNAMOELECTRIC MACHINES
Robert G. Miner, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Aug. 4, 1967, Ser. No. 658,543
Int. Cl. H02h *7/06*
U.S. Cl. 317—13 **2 Claims**



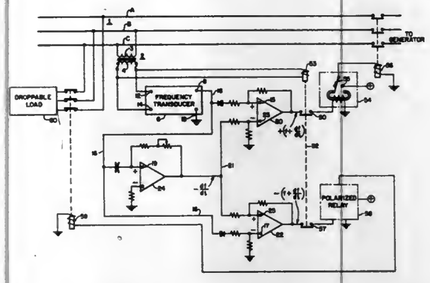
An overcurrent protection system for a polyphase dynamoelectric machine which responds to substantially the sum of the currents in all phases of the machine. A small transformer is connected in series with each phase winding. The additory effect of the output of the secondary windings of the transformers is then applied to operate the machine contractor control relay.

3,546,532
D.C. PROTECTION AND CONTROL PANEL
David L. Eisenstadt, Bedford, Ohio, assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Dec. 4, 1967, Ser. No. 687,667
Int. Cl. H02h *3/00, 7/00*
U.S. Cl. 317—13 **5 Claims**



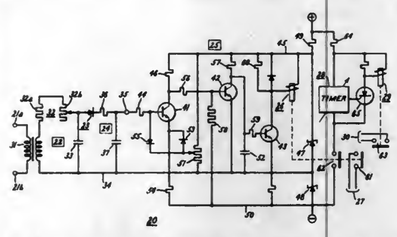
A system for controlling the operation of and protecting a D.C. generator alone and in a parallel system of D.C. generators. The system performs the general control functions of voltage regulation, generator paralleling, load equalization, and the general protection functions of fault detection, overvoltage protection, and including the taking of appropriate action such as disconnecting or preventing the disconnection of the controlled generator from a parallel system.

3,546,533
FREQUENCY RELAY WITH RATE-OF-CHANGE OF FREQUENCY COMPENSATION
Henry W. Lydick, Tucson, Ariz., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 20, 1968, Ser. No. 777,257
Int. Cl. H02h *7/06*
U.S. Cl. 317—13 **14 Claims**



A protecting relay for an alternating potential power system wherein there is provided means to disconnect at least a portion of the load connected to the system when a frequency signal or the sum of the frequency signal and a rate-of-change of frequency signal reaches a first critical magnitude representative of an undesired low system frequency and means to disconnect at least a portion of the source of energy from such system when the frequency signal or the sum of the frequency signal and a rate of change of frequency signal reaches a second critical magnitude representative of an undesired high system frequency.

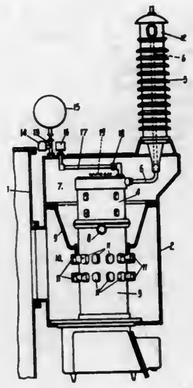
3,546,534
OVEREXCITATION RELAY
Peter Kotos, Havertown, Pa., assignor to General Electric Company, a corporation of New York
Filed Jan. 31, 1968, Ser. No. 702,104
Int. Cl. H02h *7/04*
U.S. Cl. 317—14 **8 Claims**



To indicate over-excitation of an electric power transformer, a relay responsive to volts-per-hertz is provided. The relay comprises a resistive component in series with a reactive component, and a level detector designed to operate whenever the magnitude of the average voltage across a certain one of said components attains a predetermined threshold level. The components are energized in accordance with transformer voltage, and the impedance of said one component is substantially lower than

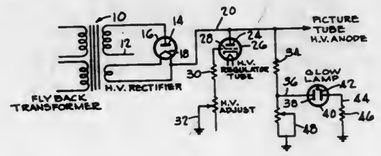
that of the other over a relatively wide range of frequencies, whereby level detector operation is dependent upon the magnitude-to-frequency ratio of the transformer voltage.

3,546,535
TRANSFORMERS AND COMPOSITE TAP CHANGERS ASSOCIATED THEREWITH
Gerardus A. van Riemsdijk, Nijmegen, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabrieken N.V., Nijmegen, Netherlands, a company of the Netherlands
Filed Oct. 2, 1968, Ser. No. 764,386
Claims priority, application Netherlands, Oct. 10, 1967, 6713730
Int. Cl. H01f *27/40*
U.S. Cl. 317—14 **2 Claims**



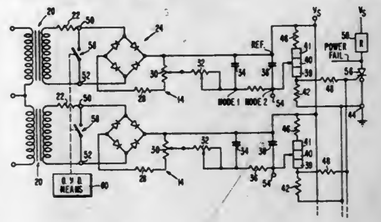
A transformer and a composite tap changer with a selector switching unit housed in adjacent metal vessels. The vessels are filled with insulating liquid and form a common metal envelope to be connected to earth. Provided in the vessel containing the tap changer is an inner container substantially made of insulating material, and being divided into compartments. One of the compartments contains the selector switching unit and the other compartment contains the change-over switching unit. The compartments are separated from one another and from the transformer vessel in a liquid tight manner and are filled with insulating liquid.

3,546,536
MEANS TO INDICATE, CONTROL AND CUT OFF EXCESSIVE X-RADIATION FROM TELEVISION SETS
Stanley Umin, 2500 S. 6th St., Philadelphia, Pa. 19148
Filed Mar. 28, 1968, Ser. No. 716,772
Int. Cl. H02h *3/20, 7/20*
U.S. Cl. 317—31 **6 Claims**



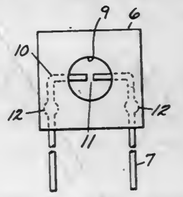
In a television set, a circuit including a glow lamp indicating when the voltage to the picture tube exceeds a level at which excessive X-radiation emanates therefrom, the circuit including means to reduce the overvoltage to a safe level and if the overvoltage exceeds a predetermined value to cut off the B^+ supply to the set while the glow lamp remains lit.

3,546,537
MULTIPHASE POWER FAILURE DETECTION CIRCUIT
William L. Jump and Jack L. Quanstrom, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed June 14, 1968, Ser. No. 737,048
Int. Cl. H02h *3/24;* **H01h** *47/18*
U.S. Cl. 317—31 **9 Claims**



A power failure detection circuit is provided whose characteristics can be set to match the system failure characteristics of the associated system. The circuit comprises branches coupled across two phases of the input power system. Each branch circuit comprises a transformer and a full wave rectifier the output of which is coupled to a level setting potentiometer, an RC response shaping network and to the emitter of a unijunction transistor. The unijunction transistor functions as a level detecting means, and an output to a utilization circuit is produced when the voltage at the emitter of the unijunction transistor exceeds a predetermined level. The characteristics of each branch circuit are set by disconnecting the utilization circuit, adjusting a potentiometer placed across the transformer secondary to reduce the effective input voltage to the desired detection level, adjusting the level setting potentiometer until the unijunction transistor just starts conducting, removing the AC input voltage, and measuring the rate of the resultant oscillation at the emitter of the unijunction transistor and, setting the response potentiometer for the period corresponding to the desired time-to-detection response based on the mathematical relation between voltage ratio and the time constant of the response circuit.

3,546,538
SPARK GAP
Nello Coda, Erie, Pa., assignor to Erie Technological Products, Inc., Erie, Pa., a corporation of Pennsylvania
Filed Apr. 12, 1967, Ser. No. 630,349
Int. Cl. H02h *9/06*
U.S. Cl. 317—61 **3 Claims**



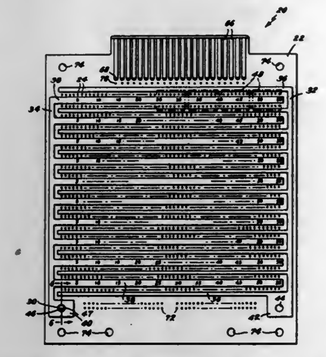
A spark gap having a body of insulating material in which is molded a continuous lead wire which may be

slotted intermediate the ends of the body to provide a gap which will break down whenever the voltage is excessive.

3,546,539
INTEGRATED CIRCUIT MOUNTING PANEL

Russell E. Wilcox, Jr., Norton, and John C. Sarazen, Mansfield, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed May 28, 1968, Ser. No. 732,716
Int. Cl. H05k *1/04*
U.S. Cl. 317—101 **7 Claims**

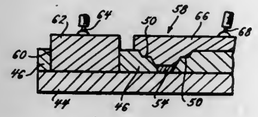


An integrated circuit mounting panel is shown to comprise a sheet of dielectric material having a multiplicity of rows of holes to receive the terminals of connectors, integrated circuit components and the like to be mounted on the panel. A massive electrically conductive ground plane formed on one side of the dielectric sheet surrounds the individual terminal mounting holes to provide ground shielding for component terminals inserted in the holes. A conductive power plane and an additional conductive ground plane are formed on the opposite side of the dielectric sheet, portions of these power and additional ground planes being interleaved with each other between alternate rows of the terminal mounting holes. The ground planes of the panel are electrically interconnected through the dielectric sheet. In this arrangement, connector and other component terminals inserted into the terminal mounting holes from the massive ground plane side of the panel are positioned to be conveniently connected to an interleaved portion of either the power or ground plane or to be wire-wrapped or the like, as desired, from the same side of the panel.

3,546,540
CONTROL SYSTEM

Siri R. Bhola, St. Louis, Mo., assignor to Conductron Corporation, St. Charles, Mo., a corporation of Delaware

Filed Jan. 27, 1969, Ser. No. 794,283
Int. Cl. H03k *17/30*
U.S. Cl. 317—101 **14 Claims**

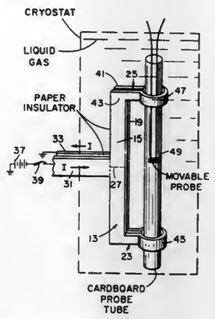


A voltage actuated switch comprises a conductor, an essentially defect-free layer of insulating material which has a portion thereof that overlies and engages at least a part of a surface of that conductor and that has a predetermined thickness and resistivity to enable it to have a relatively high breakdown voltage, a tiny area of that layer of insulating material which has a thickness and resistivity that enable it to have a predetermined lower breakdown voltage, and an electrode which overlies and engages said tiny area of said layer of insulating material. The tiny area of the layer of insulating material will normally insulate the electrode from the conductor; but it will respond to a voltage, which is higher than the predetermined breakdown voltage of that tiny area but which is lower than said relatively high breakdown voltage, and which is applied across that electrode and that conductor, to break down and permit an irreversible, low-resistance connection to form that electrode and that conductor.

3,546,541
SUPERCONDUCTING CURRENT LOOP HAVING PREFERENTIAL CURRENT FLOW

Donald G. Schweitzer, Bayport, and Peter D. Adams, Shoreham, N.Y., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed July 10, 1968, Ser. No. 743,700
Int. Cl. G11c *11/44;* **H01f** *7/22, 7/18*
U.S. Cl. 317—123 **4 Claims**

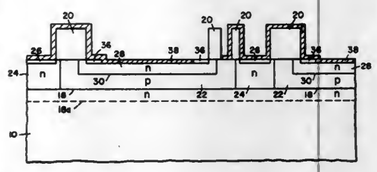


Superconducting current loop provided with strained and unstrained legs for producing preferential current flow in the strained leg thereof.

3,546,542
INTEGRATED HIGH VOLTAGE SOLAR CELL PANEL

Robert K. Riel, Greensburg, Krishan S. Tarneja, Pittsburgh, Frederick G. Ernick, Youngwood, and Paul M. Kisinko, Greensburg, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 30, 1967, Ser. No. 612,482
Int. Cl. H01l *15/04*
U.S. Cl. 317—234 **7 Claims**



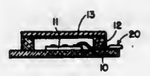
This invention relates to high voltage solar cell panels. A body of semiconductor material is employed as a continuous substrate upon which an epitaxial layer is grown.

The epitaxial layer is divided into a plurality of isolated areas effectively resulting in individual solar cells. The solar cells are then electrically joined together by evaporated metal electrical contacts to form a high voltage solar cell panel.

3,546,543
HERMETICALLY SEALED ELECTRONIC PACKAGE FOR SEMICONDUCTOR DEVICES WITH HIGH CURRENT CARRYING CONDUCTORS

Philip S. Hessinger, West Caldwell, N.J., assignor to National Beryllia Corp., Haskell, N.J., a corporation of New Jersey

Filed Aug. 30, 1968, Ser. No. 756,587
Int. Cl. H01l *3/00, 5/00*
U.S. Cl. 317—234 **2 Claims**

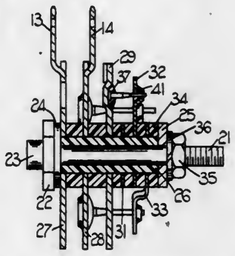


The combination of an hermetically sealed electronic package with a sealed-in conductor of high current-carrying capacity extending from the interior of the package to the exterior thereof, is obtained by flattening and slotting the conductor in the region where it passes between two of the parts of the package which are sealed together.

3,546,544
FULL WAVE RECTIFIER ASSEMBLIES

Frank Hudman and Brian Bedford, Sutton Coldfield, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England, a British company

Filed Oct. 21, 1968, Ser. No. 769,186
Int. Cl. H01l *1/14*
U.S. Cl. 317—234 **1 Claim**

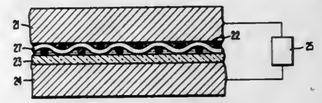


A full wave rectifier assembly includes an axially extending support member having a pair of axially spaced terminal plates mounted thereon with each plate carrying a number of diodes equal in number to the number of phases of the supply to be rectified. The diodes on one terminal plate have their cathodes electrically connected to said one terminal plate, and the diodes on the other terminal plate have their anodes electrically connected to said other terminal plate. A plurality of phase plates equal in number to the number of phases to be rectified are carried by the support member and are mounted in axially spaced relationship on one side of the pair of terminal plates. Leads extend from the diodes in a generally axial direction, and are secured to the phase plates so that upon connection of the phase plates to the phases of an A.C. source a rectified supply will be available at the terminal plates.

3,546,545
METHOD OF CHARGING A PHOTOCONDUCTIVE INSULATING LAYER

Masamichi Sato and Satoru Houjo, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kami-gun, Kanagawa, Japan

Filed Sept. 24, 1968, Ser. No. 762,069
Claims priority, application Japan, Sept. 28, 1967, 42/62,530
Int. Cl. G03g *13/02*
U.S. Cl. 317—262 **6 Claims**

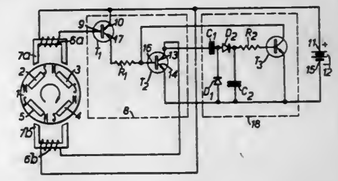


An improvement in the method of charging photoconductive insulating layers which includes placing a mesh screen between an electrode and the insulating layer so that insulating liquid is in contact with the layer and the electrode. An electrical potential is placed between the electrode and on the backing of the insulating layer to charge the layer.

3,546,546
BRUSHLESS ELECTRIC MOTORS

Jack Levison, Ilford, England, assignor to The Plessey Company Limited, Ilford, England, a British company

Filed Nov. 13, 1967, Ser. No. 681,999
Claims priority, application Great Britain, Nov. 11, 1966, 50,805/66
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **1 Claim**



A brushless D.C. motor in which permanent magnetic poles on a rotor induce successive voltages into a first stator winding wound on a soft iron core in response to rotation of the rotor, the induced voltages being applied to a transistor switching and amplifier circuit the outputs of which are fed to a second stator winding wound on another soft iron core to produce a magnetic field which interacts with the permanent magnetic poles on the rotor to assist rotation of the rotor.

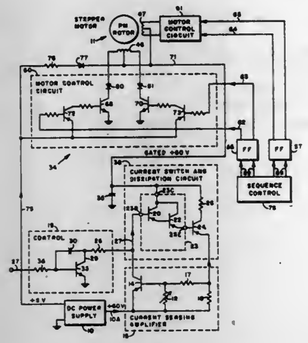
3,546,547
STEPPER MOTOR CONTROL CIRCUITS

Joseph Thomas Wallace, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Aug. 12, 1968, Ser. No. 752,001
Int. Cl. H02k *29/00*
U.S. Cl. 318—138 **8 Claims**

A current switch selectively supplies high-voltage limited-amplitude-current power to a motor control circuit used to step a stepper motor. The current switch is

constructed to accommodate varying power dissipation caused by a variable load of the stepper motor winding. A power dissipating resistor proportionally dissipates more power at higher voltage drops across the current switch, i.e., at high load conditions. The motor control circuits

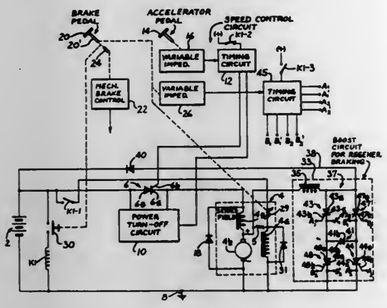


have isolation devices and semiconductor switching devices which permit large fly-back voltages in the winding for reducing magnetic field decay time. The stepper motor is held to a desired position by a lower power holding circuit.

3,546,548
CONTROL APPARATUS FOR ELECTRIC AUTOMOTIVE VEHICLES

Victor Wouk, New York, N.Y., assignor to Gulton Industries, Inc., Metuchen, N.J., a corporation of New Jersey

Filed Apr. 5, 1968, Ser. No. 719,015
Int. Cl. H02p *3/14*
U.S. Cl. 318—139 23 Claims

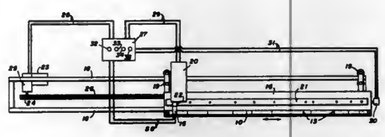


A braking and battery recharging system for an electric motor driven and battery powered automotive vehicle comprising a motor circuit modifying means responsive to operation of a braking control member by converting the electric motor to an electric generator to produce a D.C. voltage substantially in excess of the battery voltage for car speeds extending from a normal cruising speed down to a given relatively low speed which is a fraction of the cruising speed, means responsive to opeartion of said braking control member by boosting the output of the electric generator and coupling the current resulting from the boosted voltage to said battery to charge the same and effect regenerative braking of the automotive vehicle, normally inoperative mechanical braking means for stopping the car below said given relatively low speed and means rendering said mechanical braking means operative below said given relatively low speed.

3,546,549
CONTROL SYSTEM FOR MACHINE TOOLS

H. L. Burnett, Hurst, Tex., assignor to General Construction Automation Inc., Fort Worth, Tex., a corporation of Texas

Filed Aug. 21, 1967, Ser. No. 662,024
Int. Cl. G05b *19/04*
U.S. Cl. 318—162 1 Claim

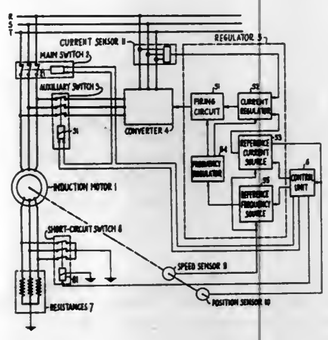


A control system for a machine tool for performing accurately spaced repeat operations on an elongate workpiece in which a tape carrying markings readable by an electric eye is fixed parallel to the workpiece on a carriage propelled by a drive responsive to the electric eye and in which the machine tool performs its operation on the workpiece at a location corresponding to each mark on the tape.

3,546,550
CONTROL CIRCUIT FOR BRAKING SPEED CONTROL OF INDUCTION MOTOR

Jiří Bádal, Jan Holý, and Josef Parlesák, Prague, Czechoslovakia, assignors to CKD Praha, oborovy podnik, Prague, Czechoslovakia

Filed Mar. 24, 1969, Ser. No. 809,564
Claims priority, application Czechoslovakia, Mar. 27, 1968, 2,348/68
Int. Cl. H02p *3/24*
U.S. Cl. 318—212 8 Claims



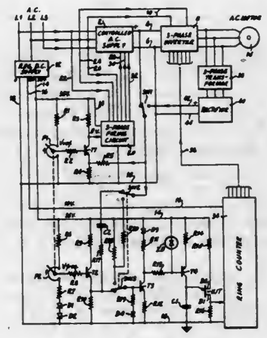
A converter connects an electrical power source to the stator winding of an induction motor via an auxiliary switch and applies to the motor a variable voltage from direct voltage to an alternating voltage of variable frequency. A control unit is connected to the converter via a regulator for regulating direct and alternating voltages

to specific reference levels. The control unit controls the converter in accordance with specific operating conditions of the motor to apply direct voltage to the stator winding of the motor to brake the motor when it is operating at high speed and to apply a variable frequency voltage to the stator winding to brake the motor when it is operating at low speed.

3,546,551
ADJUSTABLE FREQUENCY CONTROL SYSTEM HAVING FEEDBACK FOR VOLTAGE AND FREQUENCY REGULATION

Robert L. Risberg, Milwaukee, and Charles E. Smith, Wauwatosa, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed Mar. 27, 1969, Ser. No. 810,942
Int. Cl. H02p *5/40*
U.S. Cl. 318—227 10 Claims

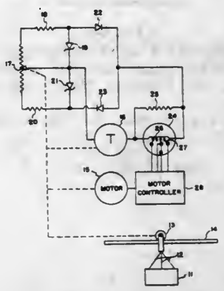


An adjustable frequency control system supplied from a three-phase A.C. source for controlling the speed of a three-phase A.C. motor by concurrent voltage and frequency control. For voltage control, rectifying means supplied from the source is controlled by a selectively adjustable voltage error signal circuit to provide an adjustable D.C. voltage to a three-phase inverter that supplies the motor. The voltage error signal is obtained from a first manually adjustable device and a voltage reference circuit that provides a voltage proportional to the steady state D.C. voltage and a circuit providing a feedback voltage signal proportional to power output voltage. For frequency control, a resettable voltage integrator circuit having a periodic output, determinative of the frequency control to a ring counter, controls firing of the inverter switching devices thereby to control the output frequency to the motor. The voltage to be integrated is obtained from a second manually adjustable device, coupled to the first manually adjustable device for operation in unison, and a frequency reference circuit that provides a voltage proportional to steady state frequency, and a RC coupling circulit between power output voltage and the integrator that provides a voltage signal proportional to the variation in power output voltage. For either voltage control or frequency control the power output voltage signal may be obtained from the adjustable D.C. voltage as modified by motor speed feedback or from the inverter output through an isolating transformer and rectifier. Alternatively, direct coupling may be used to couple a voltage output signal from the inverter output through such isolating transformer and rectifier to the resettable voltage integrator circuit in place of both the steady state frequency reference and RC coupling.

3,546,552
VELOCITY LIMITING SAFETY SYSTEM

Harlan K. Holmes, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed July 8, 1969, Ser. No. 839,935
Int. Cl. H02p *5/00*
U.S. Cl. 318—265 7 Claims

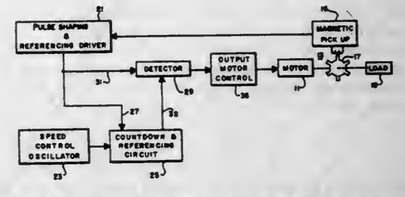


A safety system that limits the velocity of a vehicle that is moved by a motor. The limiting velocity is determined by the position of the moving vehicle. The motor in addition to being connected to the vehicle is coupled to a generator and to the slider of a potentiometer. The generator and the potentiometer are connected in an electrical circuit with two switching diodes and a meter relay such that the current through the coil of the meter is dependent on both the position and velocity of the vehicle. Whenever the current through the coil exceeds a predetermined value, a switch is actuated causing the power to the motor to be cut off.

3,546,553
SYSTEM FOR MAINTAINING A MOTOR AT A PREDETERMINED SPEED UTILIZING DIGITAL FEEDBACK MEANS

Clayton Loyd, Huntsville, Ala., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

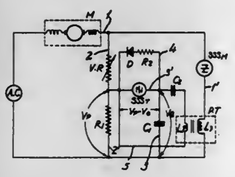
Filed Sept. 6, 1968, Ser. No. 757,875
Int. Cl. H02p *5/06*
U.S. Cl. 318—318 3 Claims



This disclosure is a control system for maintaining a motor constant at a prescribed speed and involves a feedback generator for providing digital pulses at a frequency dependent on the speed of the motor and a variable speed control oscillator for providing control signal pulses having a frequency in accordance with a predetermined desired speed of the motor. A countdown and referencing circuit is provided for counting down the control pulses to the desired frequency and is designed to be reset to zero on the occurrence of each feedback pulse so as to only produce an output pulse when the frequency of the feedback pulses is lower than the desired frequency. The outputs of the feedback generator and countdown and referencing circuit are fed to a detector circuit. The detector is arranged to produce a first output voltage level

signal on the occurrence of a pulse from the countdown and referencing circuit and a second output voltage level signal if two pulses arrive from the feedback generator before another pulse arrives from the countdown and referencing circuit. The detector is designed to drive an output motor control which supplies power to the motor in accordance with the output voltage level of the detector circuit to return the motor to the prescribed speed.

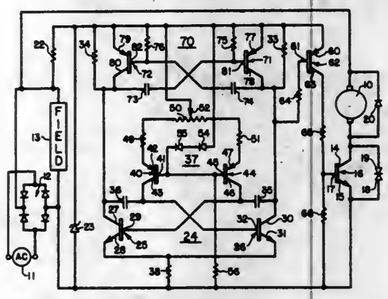
3,546,554
PHASE DEPENDENT MOTOR SPEED CONTROL
Kenzi Kato, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Chuo-ku, Tokyo, Japan, a corporation of Japan
Filed Apr. 25, 1967, Ser. No. 633,589
Claims priority, application Japan, Dec. 29, 1966, 42/85,706
Int. Cl. H02p *7/62*
U.S. Cl. 318—341 **5 Claims**



The present system is for controlling the speed of a motor and a circuit therefor employing symmetrical semiconductor switching elements, and is more particularly directed to a circuit for providing especially a spaced wave control of the input terminal voltage of the motor at a low speed drive thereof so as to heighten the low speed control of a load having a torque characteristic such as a sewing machine. A series circuit is constituted by an alternating power source, a motor, a symmetrical semiconductor switching element for a main circuit and the secondary winding of a pulse transformer. A variable resistor and a first resistor are connected in parallel to the series circuit of the alternating power source and the motor, and a series circuit of a symmetrical semiconductor switching element for ignition and a first condenser is connected in parallel to the first resistor and a series circuit of a second condenser and the primary winding of a pulse transformer and a series circuit of a diode and a second resistor are respectively connected in parallel to the semiconductor switching element for ignition, so that the first condenser is charged with a direct current through the series circuit of the diode and the second resistor, and the alternating voltage applied to the semiconductor switching element for ignition through the first resistor, the diode, the second resistor and the first condenser is made positively and negatively asymmetrical, whereby the alternating voltage to the input terminal of the motor is subjected to a spaced wave control as well as to a half wave phase control and a full wave phase control.

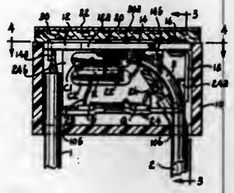
3,546,555
MOTOR SPEED CONTROL
R John Morgan and Robert Nelson Shilling, Jr., Fort Collins, Colo., assignors to Scintillonics, Inc., Fort Collins, Colo., a corporation of Colorado
Filed Apr. 17, 1968, Ser. N. 722,110
Int. Cl. H02p *5/16*
U.S. Cl. 318—341 **17 Claims**

The speed of a unidirectional-current motor is controlled by governing the duration of pulsations of its supply of rectified alternating current. That duration is established by control pulses developed by an astable multivibrator, the timing of which is selectively adjustable to vary the control-pulse width. However, the multi-vibrator by itself effects interruption of the motor current only within a finite time period. That time period is reduced by effectively shorting out each control-pulse upon the occurrence of each interruption; this is achieved by use



of a pseudomonostable multi-vibrator activated upon occurrence of the interruption and which is self-deactivating prior to the next occurrence. The arrangements are such as to achieve compensation for line voltage changes and otherwise to act in a manner maintaining constant the motor speed at a selectively adjustable value.

3,546,556
UNIVERSAL POWER CONTROL MODULE FOR PORTABLE TOOL OR APPLIANCE CONTROL SYSTEMS
Lawrence B. Benkert, Brookfield, and Merlin R. Dummer, Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Nov. 29, 1967, Ser. No. 686,606
Int. Cl. H02p *5/06*
U.S. Cl. 318—345 **5 Claims**

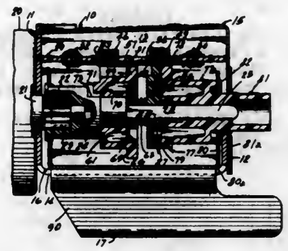


A self-enclosed solid state electric power control module of universal application adapted to be inserted in any available space within the housing of a portable electric tool or appliance. The module has electric conductors extending out from the insulated housing. A variable resistor and a switch are separately mounted on the tool or appliance in locations for easy manipulation when the tool is being used and connect an electric power supply to the module conductors.

3,546,557
INTERVAL TIMER
Joe Bowman, Kokomo, and Lowell Keith Baber, Carmel, Ind., assignors, by mesne assignments, to The Scott & Fetzer Company, Lakewood, Ohio, a corporation of Ohio
Filed May 9, 1967, Ser. No. 637,191
Int. Cl. H02p *3/00*
U.S. Cl. 318—484 **14 Claims**

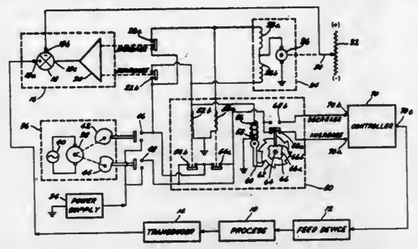
Interval timer having reset lever, setting a timer motor energizing cam, to effect starting of a timer motor, and having an interval control cam energizing a circuit. The reset lever is manually actuated and rotates the timer

motor energizing cam through a pawl and single toothed ratchet to start the timer motor after the completion of a timing cycle. Repeated actuation of the reset lever is ineffective to lengthen the cycle of energization of the timer motor, and is thereby ineffective to vary the time interval



of energization of the circuit determined by the interval control cam. An interval modifying cam having clutching engagement with the interval control cam and adjustable by a knob independently of the timer motor cam is provided to vary the time interval.

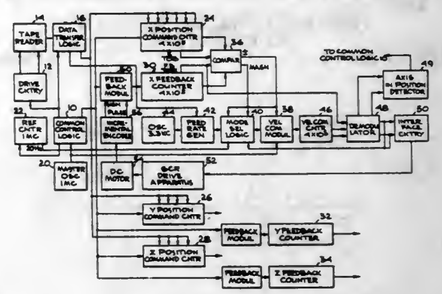
3,546,558
OPTIMISING APPARATUS
Barry L. Lawler, Johannesburg, Transvaal, Republic of South Africa, assignor to Ramsey Engineering Company, St. Paul, Minn., a corporation of Minnesota
Filed June 6, 1968, Ser. No. 734,948
Int. Cl. G05b *13/02*
U.S. Cl. 318—561 **9 Claims**



A first memory is adapted to store the value of a measured variable at a specific instant of time. A second memory is adapted to store information regarding the direction in which the last change was made to the input variable. A comparator compares the value of the measured variable at a specific instant of time with the value stored in the first memory. Means responsive to the output from the comparator and the value stored in the second memory adjusts the value of the input variable.

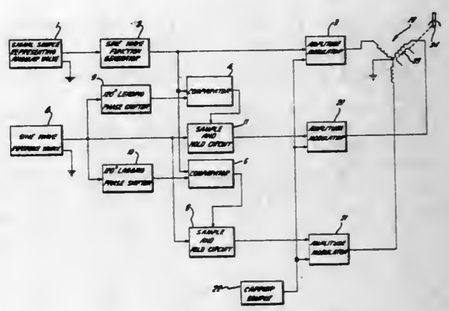
3,546,559
DIGITAL FINE AND COARSE CONTROL WHEREIN THE COMMAND AND POSITION FEEDBACK ARE COMPARED IN SERIAL FASHION
Marion Kosem, Willoughby Hills, Ohio, assignor, by mesne assignments, to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed May 2, 1968, Ser. No. 725,992
Int. Cl. G05b *11/18*
U.S. Cl. 318—594 **5 Claims**

In a system wherein the motion of a machine tool is controlled by comparing, for each axis, the present location of the machine tool with a desired commanded location and generating error signals responsive to any difference between the two, this invention provides an arrangement including fine and coarse position command dynamic counters, fine and coarse position feedback dynamic counters wherein the command and feedback signals are serial digital numbers and the comparison is



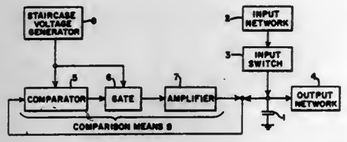
made in serial fashion. The fine and coarse arrangement allows for obtaining comparison samples at a higher rate than was previously possible whereby more accurate control as well as higher operating speeds are made possible.

3,546,560
APPARATUS AND METHOD FOR PRODUCING PHASE SHIFTED ELECTRICAL SIGNALS AND SELF-SYNCHRONOUS MOTOR ACTUATED THEREBY
Earl Le Vell Tippetts, Reno, Nev., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,735
Int. Cl. G05b *11/12*
U.S. Cl. 318—690 **14 Claims**



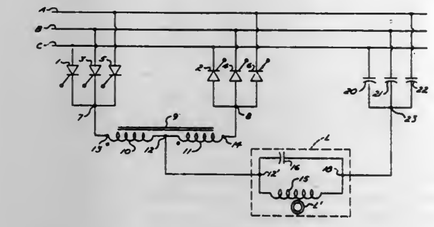
A signal is generated that represents a periodic function of a variable quantity other than time, e.g., an angle, shifted in phase by a predetermined amount. This is accomplished in the following way: an electrical reference signal is generated that varies as the same periodic function of time; a portion of the reference signal is shifted in phase by the predetermined amount and compared in amplitude with a signal representing the periodic function of the variable quantity without a phase shift; and when the compared signals are equal in amplitude, another portion of the reference signal is sampled. The amplitudes of the sampled portions of the reference signal represent the periodic function of the variable quantity shifted in phase by the predetermined amount. The invention can be used to simulate inputs to a synchro receiver.

3,546,561
CAPACITOR CHARGE REPLACEMENT CIRCUIT FOR MAINTAINING A STORED VOLTAGE
Harold W. Abbott, Syracuse, Vernon P. Mathis, Baldwinsville, and William Pell, Syracuse, N.Y., assignors to General Electric Company, a corporation of New York
Filed Jan. 4, 1968, Ser. No. 695,671
Int. Cl. H02j 1/00
U.S. Cl. 320—1 9 Claims



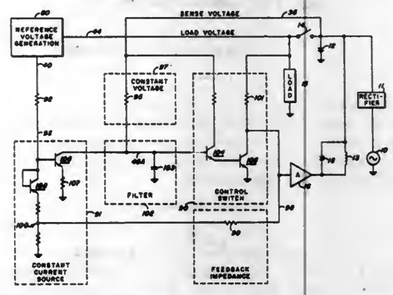
A circuit for maintaining charge across a capacitor at a predetermined level of voltage by periodically performing a comparison of the capacitor voltage with an incremental reference voltage and charging the capacitor to the closest voltage increment as a function of the difference between the capacitor and reference voltages. A staircase generator of discrete voltage steps is contemplated as the reference voltage source, the circuit responding to adjust charge on the capacitor only when the closest voltage increment is reached. In one embodiment of the invention the reference voltage source is free running and can be readily employed for a parallel operation of plural capacitors having stored voltage levels within the voltage range swept by said source. In a second embodiment, the reference voltage source is reset upon the capacitor level being reached, which may be desirable when only a single capacitor is employed or for a sequential operation of plural capacitors.

3,546,562
FREQUENCY CONVERTER FOR CONVERTING THREE-PHASE LOW FREQUENCY ALTERNATING CURRENT INTO SINGLE-PHASE HIGHER FREQUENCY ALTERNATING CURRENT
George Havas, Youngstown, Ohio, and Shashi Bhushan Dewan, Toronto, Ontario, Canada, assignors to Ajax Magnethermic Corporation, Warren, Ohio, a corporation of Ohio
Filed June 17, 1968, Ser. No. 737,639
Int. Cl. H02m 5/14
U.S. Cl. 321—7 8 Claims



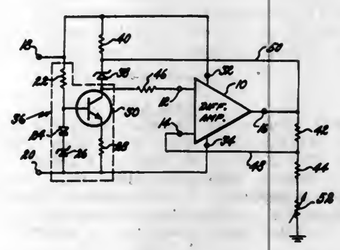
There is disclosed herein a frequency converter for converting electrical power from a three phase low frequency alternating current source into single phase higher frequency alternating current power particularly adapted to supply power to induction heating or melting loads where the load is composed of a parallel resonant combination of inductance and capacitance and the energy is delivered to the output circuit at a relatively constant rate, means energizing a switching device alternately each half cycle of the operating frequency.

3,546,563
ALTERNATOR VOLTAGE REGULATION UTILIZING A CONSTANT CURRENT SOURCE
James E. Thompson, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Mar. 4, 1968, Ser. No. 710,050
Int. Cl. H02p 9/30; H02j 1/04
U.S. Cl. 322—28 5 Claims



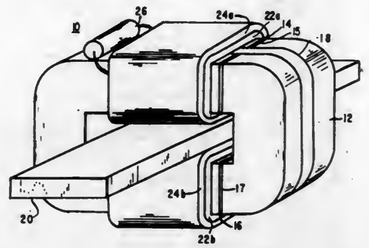
A vehicular alternator control circuit having a temperature responsive reference voltage generator establishing a temperature control reference voltage compared with a battery or alternator generated voltage. A constant current source receives the reference voltage as well as the voltage being generated. A constant current and therefore constant voltage is developed across a resistor. As the alternator voltage changes, the change is transmitted through the resistor to a control loop which reacts to alter the field current of the alternator to adjust the generator voltage in accordance with the reference voltage. The regulator is of the on-off type.

3,546,564
STABILIZED CONSTANT CURRENT APPARATUS
William A. Denny, Surfside, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Nov. 25, 1968, Ser. No. 778,568
Int. Cl. G05f 1/46
U.S. Cl. 323—1 4 Claims



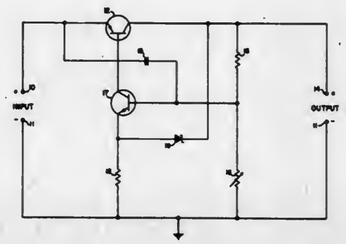
A constant current apparatus utilizing a high gain integrated-circuit differential amplifier to supply variable, ground referenced loads without the need of isolated power supplies and to minimize the effects of bias currents in the load currents.

3,546,565
COMPENSATION OF INPUT DIRECT CURRENT COMPONENT IN A CURRENT TRANSFORMER
William C. Downing, Jr., and Robert E. Koll, Springfield, Ill., assignors to Sangamo Electric Company, Springfield, Ill., a corporation of Delaware
Filed Oct. 29, 1968, Ser. No. 771,507
Int. Cl. G05f 1/14
U.S. Cl. 323—6 5 Claims



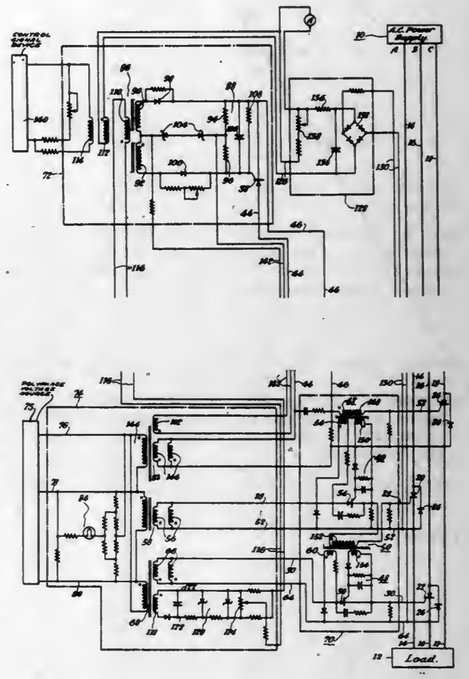
A current transformer for use in the measurement of a current supplied to a load having direct current components of appreciable magnitude, comprising primary and secondary windings, an air gap in the magnetic circuit of the transformer, and a compensating circuit including a third winding and a capacitor for cancelling the effect of the linear reluctance of the air gap regardless of the load current, the primary winding and third winding having a number of turns and said capacitor being of a value to provide the relationship $N_c I_c = N_1 I_g$ in which N_c is the number of turns on the compensating winding, I_c is the capacitor current, N_1 is the number of turns of the primary winding, and I_g is the exciting current for the gap.

3,546,566
D.C. VOLTAGE REGULATOR EMPLOYING A ZENER DIODE
Joseph M. Marzolf, Falls Church, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 27, 1968, Ser. No. 779,408
Int. Cl. G05f 1/58
U.S. Cl. 323—9 2 Claims



A voltage regulator including a transistor which acts as a variable series impedance in response to a feedback signal generated by a circuit including a Zener diode, a voltage divider and a single additional transistor. The circuit inherently provides short-circuit overload protection for the components. Also, by adjustment of the voltage divider, the regulated output voltage can be varied without replacement of the Zener diode.

3,546,567
TIME-PROPORTIONING SINGLE AND POLYPHASE POWER CONTROLLERS
Alan B. Shimp, Pittsburgh, Pa., assignor to Norbatrol Electronic Corporation, Murrysville, Pa., a corporation of Pennsylvania
Filed Mar. 29, 1968, Ser. No. 717,272
Int. Cl. G05f 1/44
U.S. Cl. 323—18 8 Claims

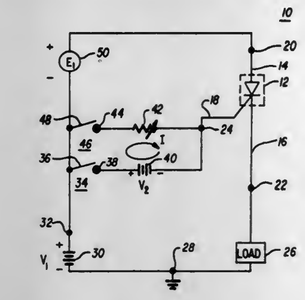


The power controller switches and proportions current flows between an A.C. source and an A.C. load. The controller incorporates a number of controlled semi-conductors coupled between the load and source with each of the controlled semi-conductors having a gate circuit. A pilot SCR is connected in each of the gate circuits and to a static switch circuit for firing the pilot SCR's to trigger the controlled semi-conductors in advance of current reversals. Logic circuit means are provided for interrelating the activity of the pilot semi-conductors. Accordingly, the controlled semi-conductors are fired respectively and precisely at the instant of such reversals.

3,546,568
THRESHOLD DEVICE ENERGIZER
Lemuel D. Groom III, Houston, and James M. Garrett, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 22, 1968, Ser. No. 731,105
Int. Cl. G05f 3/00
U.S. Cl. 323—19 29 Claims

A control circuit which has a semiconductor controlled rectifier (SCR) which is energized by the energizing signal after a predetermined time period. Connected to the gate of the rectifier are two batteries in series which may

be of equal magnitude and opposite in polarity with an impedance (for example, a resistor) connected in parallel across one of said batteries. After the predetermined time period, the battery having the impedance in parallel there-

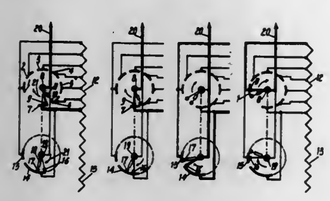


with is discharged sufficiently such that the combined voltage output of the batteries is sufficient to produce the energizing signal to the gate of the SCR, energizing said SCR and thereby energizing the load.

3,546,569
ROTATABLE TAP CHANGER WITH BRIDGING IMPEDANCES

Gerardus A. van Riemsdijk, Nijmegen, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabrieken, Nijmegen, Groenestraat, Netherlands, a company of the Netherlands

Filed June 16, 1969, Ser. No. 833,256
Claims priority, application Netherlands, June 20, 1968, 6808657
Int. Cl. H01h *19/58*
U.S. Cl. 323—43.5 **5 Claims**



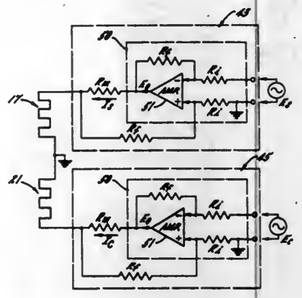
A tap changer for regulating a transformer which eliminates the need to frequently switch on and off a large power and the mechanical wear and the time loss resulting therefrom, by providing the tap changer with two selector switches each having fixed and rotatable switching contacts, the rotatable contacts of both selector switches being mechanically positively coupled with each other and electrically connected to each other in a special way.

3,546,570
METHOD FOR DRIVING CONTROLLED CURRENTS THROUGH THE STATOR WINDINGS OF A POSITION MEASURING TRANSFORMER

Thomas B. Bullock, Fond du Lac, Wis., assignor to Giddings & Lewis, Inc., Fond du Lac, Wis., a corporation of Wisconsin

Filed Apr. 19, 1968, Ser. No. 722,652
Int. Cl. G05f *1/12*
U.S. Cl. 323—48 **4 Claims**

A pair of high gain amplifiers, each with negative current feedback, are used individually to drive a pair of stator windings of a position measuring transformer, sold under the trademark "Inductosyn," in response to a pair

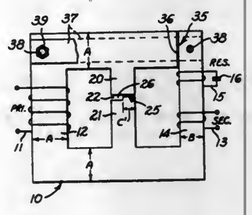


of voltages respectively representing the sine and cosine functions of a physical variable.

3,546,571
CONSTANT VOLTAGE FERRORESONANT TRANSFORMER UTILIZING UNEQUAL AREA CORE STRUCTURE

Taylor C. Fletcher, Fullerton, Lawrence M. Silva, Portuguese Bend, and Bruce L. Wilkinson, Torrance, Calif., assignors to Varo, Inc.

Filed June 21, 1968, Ser. No. 739,044
Int. Cl. G05f *3/06*
U.S. Cl. 323—60 **42 Claims**



A ferroresonant transformer with unequal primary and secondary saturation characteristics for operation with smaller capacitance and smaller resonant winding, a shunt which saturates as the load increases, an adjustable gap for matching core and capacitance, and a grain oriented design with selected core dimensions for controlling location of flux saturation.

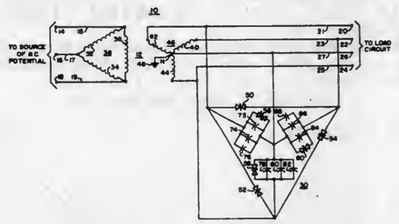
3,546,572
THREE-PHASE TRANSFORMER POWER SUPPLY EMPLOYING CAPACITORS AND CLAMPING DEVICES TO SUPPRESS VOLTAGE SURGES

Theodore R. Specht, Sharon, and Gilbert D. Throop, West Middlesex, Pa., and Robert V. Bruce, Masury, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 10, 1968, Ser. No. 782,519
Int. Cl. H02p *13/04;* **G05f** *3/00*
U.S. Cl. 323—61 **8 Claims**

A three-phase power supply, including a transformer, and a filter network for limiting the magnitude of transient and surge voltages in the output of the transformer. The filter network includes capacitors for absorbing energy

from transient or surge voltages having a relatively short time duration, and voltage clamping devices having Zener

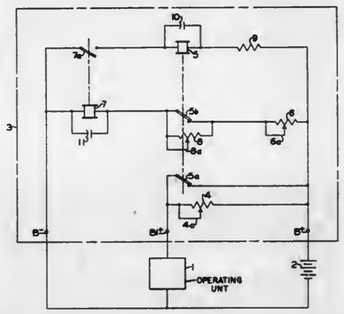


type characteristics for absorbing the longer time, high voltage transients.

3,546,573
VOLTAGE RANGE LIMITING CIRCUITRY MEANS

Rudolph A. Coccia, North Versailles, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed Apr. 30, 1968, Ser. No. 725,455
Int. Cl. G05f *3/08, 5/00*
U.S. Cl. 323—96 **4 Claims**



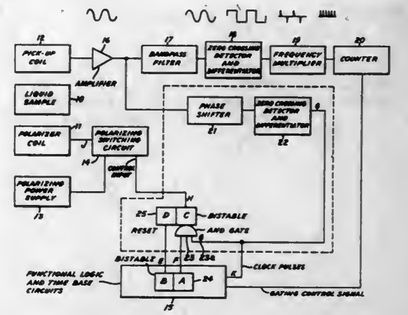
A voltage range limiting circuitry comprising circuitry including a voltage responsive control relay for controlling insertion and removal of resistance in a control circuit for regulating a specific range of voltage applied to an operating unit from a variable voltage source. Additional circuitry includes variable resistance for regulating the pick-up and drop-out voltage operating limits of the voltage responsive control relay to a relatively small operating range in a manner to maintain a relatively constant value of the aforesaid applied voltage.

3,546,574
PROTON PRECESSION MAGNETOMETER WITH SYNCHRONOUS PUMPING

Anthony Rene Barringer, Willowdale, Ontario, and Volker Grimm, Weston, Ontario, Canada, assignors to Barringer Research Limited, Rexdale, Ontario, Canada, a corporation

Filed Mar. 2, 1967, Ser. No. 620,106
Claims priority, application Great Britain, Mar. 12, 1966, 10,964/66
Int. Cl. G01r *33/08*
U.S. Cl. 324—.5 **1 Claim**

A proton precession magnetometer wherein the polarizing field is carefully timed so that it is applied at an instant when the magnetic moment of the freely precessing protons is substantially aligned with the polarizing field. Repeated applications of the polarizing field causes the



precession signals to build or pump up to a level considerably greater than the level after the initial application of the polarizing field.

3,546,575
METHOD AND APPARATUS FOR ENHANCEMENT OF NUCLEAR POLARIZATION BY OPTICAL PUMPING IN SOLIDS AND LIQUIDS

Carson D. Jeffries and Linn F. Mollenauer, Berkeley, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 30, 1968, Ser. No. 771,795
Int. Cl. G01n *27/78*
U.S. Cl. 324—.5 **1 Claim**

This invention is a means for producing sizable nuclear polarizations in normal density matter at both room and low temperatures. By irradiating a crystal with circularly polarized light in combination with preferential relaxation and microwave resonance, enhancement is obtained of the polarizations of nuclei in hyperfine interaction with paramagnetic ions as well as of abundant nuclei at diamagnetic sites throughout the crystal.

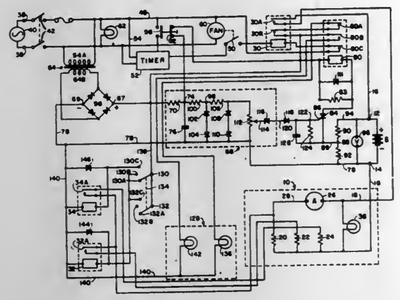
3,546,576
BATTERY ANALYZER AND DISCHARGE DEVICE INCLUDING MEANS FOR COMPARING THE BATTERY POTENTIAL WITH A REFERENCE POTENTIAL

James A. Frezzolini, Bronx, N.Y., assignor, by mesne assignments, to Ogden Technology Laboratories, Inc., Farmingdale, N.Y.

Filed Nov. 17, 1966, Ser. No. 595,115
Int. Cl. G01n *27/46;* **G01r** *11/44*
U.S. Cl. 324—29.5 **10 Claims**

A battery analyzer comprising means for deriving a signal indicative of the battery potential, means deriving a

reference signal of predetermined level but of opposite direction to the battery signal and control means to which the signals are connected, the control means being adapted



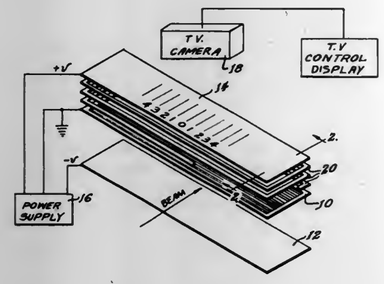
to pass the reference signal only when the battery signal decreases below the level of the reference signal as a response to the decrease in the terminal potential of the battery.

3,546,577

APPARATUS FOR NONDESTRUCTIVELY MEASURING THE POSITION AND PARTICLE-DENSITY PROFILE OF AN ACCELERATOR BEAM

Fred Hornstra, Jr., Naperville, and William H. de Luca, Hinsdale, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed June 26, 1968, Ser. No. 740,207
Int. Cl. G01n *27/62*
U.S. Cl. 324—33 **12 Claims**



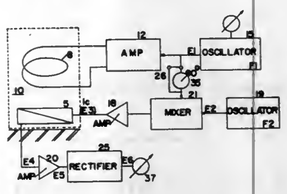
An apparatus for nondestructively measuring the position and particle-density profile of an accelerator beam operating in a residual gas of a partial pressure wherein the accelerator beam ionizes the residual gas includes a pair of electrodes mounted parallel to the plane of the accelerator beam on opposing sides thereof. A voltage source applies a potential between the electrodes to generate an electric field normal to the plane of the accelerator beam wherein the residual gas ions are accelerated. Ion-collecting means are mounted to intercept the accelerated residual gas ions to provide a profile measure of the accelerator beam.

3,546,578

HETERODYNED FREQUENCY NONDESTRUCTIVE TESTING SYSTEM UTILIZING A HALL EFFECT DEVICE FOR MAGNETIC FIELD SENSING OF AN EDDY CURRENT REACTION MAGNETIC FIELD

Edwin D. Sisson, Worthington, and Richard M. Chapman, Columbus, Ohio, assignors to F. W. Bell, Inc., Columbus, Ohio

Filed July 21, 1967, Ser. No. 655,123
Int. Cl. G01r *33/06*
U.S. Cl. 324—45 **6 Claims**



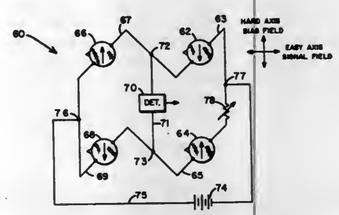
The present invention relates to a system for the measurement of the magnetic permeability and electrical conductivity properties of metallic materials. Specifically, the system utilizes a Hall effect device in the analysis of the magnetic field and eddy current induction within the test material. A variable frequency oscillator signal driving the Hall effect device is heterodyned with a variable frequency oscillator signal providing the magnetizing current for the magnetic coil probe. The system further encompasses presenting the output voltage of the Hall effect device in X–Y coordinates of the net field (H_n) and the reaction field (H_r).

3,546,579

THIN-FERROMAGNETIC-FILM MAGNETORESISTANCE MAGNETOMETER SENSITIVE TO EASY AXIS FIELD COMPONENTS AND BIASED TO BE INSENSITIVE TO HARD AXIS FIELD COMPONENTS

Maynard C. Paul, Gerald F. Sauter, and Paul E. Oberg, Minneapolis, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 22, 1968, Ser. No. 769,489
Int. Cl. G01r *33/02*
U.S. Cl. 324—46 **10 Claims**



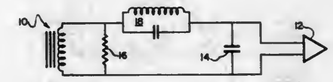
A magnetometer that utilizes four anisotropic thin-ferromagnetic-films arranged in a Wheatstone bridge configuration. The films' magnetoresistive properties are utilized to provide a resistance change in the bridge arms when subjected to a to-be-measured magnetic field. The four films are arranged with their easy axes aligned orthogonal to a constant hard axis bias field. Films in balancing legs are subjected to bias fields of opposite polarities whereby the bridge network is rendered substantially insensitive to ambient or other hard axis field components.

3,546,580

MAGNETIC FIELD VARIOMETER USING A LOW NOISE AMPLIFIER AND A COIL-CORE ARRANGEMENT OF MINIMUM WEIGHT AND MAXIMUM SENSITIVITY

Donald P. Williams, Los Angeles, Calif., assignor to North American Rockwell Corporation, a corporation of Delaware

Filed June 6, 1967, Ser. No. 643,873
Int. Cl. G01r *33/02*
U.S. Cl. 324—47 **16 Claims**



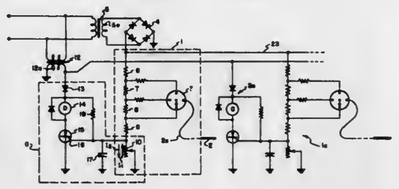
A magnetic field variometer of extreme sensitivity with a relatively high resonant frequency that permits use of an extremely low noise amplifier. There is provided a sensor comprising a multi-layer coil or series of coils of a large number of windings having minimum weight and maximum sensitivity. These characteristics are achieved by an arrangement of a high permeability magnetic core having a weight substantially equal to the weight of the windings. Inductance of the windings and core is minimized by employing a number of series connected coil portions physically displaced from each other, either on the same core or on a number of mutually displaced parallel cores. Still further decrease in inductance of the extremely sensitive coils is achieved by a variable geometry winding having a substantially triangular cross-section and portions wound upon adjacent bobbins of successively different diameter.

3,546,581

INSULATION CONTINUITY TESTER INCLUDING A GROUNDED DETECTOR RESISTANCE AND GROUNDED VOLTAGE SOURCE

Jerry L. Herrendeen, Muskegon, and Norman W. Halverson, Grand Haven, Mich., assignors to Anaconda Wire and Cable Company

Filed Mar. 2, 1967, Ser. No. 620,053
Int. Cl. G01r *31/02*
U.S. Cl. 324—54 **6 Claims**



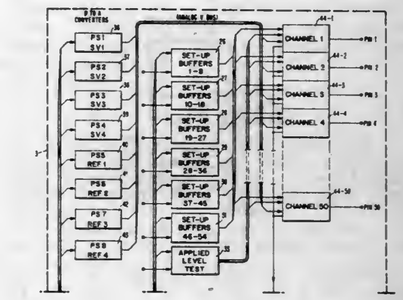
An insulation fault detector is provided such that it can detect any flaws which exceed a preset threshold magnitude affecting the insulation properties of the test material. The detector includes a first circuit including at least a portion of the insulation, and a probe located in the vicinity of the insulation which is connected in circuit with a grounded detector resistance and a grounded voltage source; a second circuit is provided including a fault indicator and threshold means capable of activating the fault indicator when the voltage across the detector exceeds a predetermined voltage threshold. This detector allows accurate detection of insulation faults while permitting a plurality of such detectors to be connected in parallel to a common energy source.

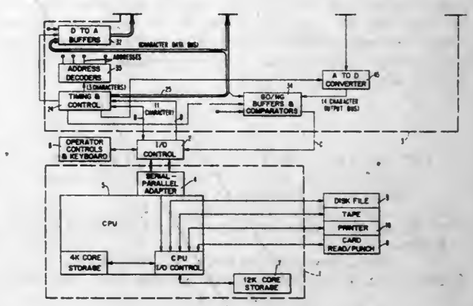
3,546,582

COMPUTER CONTROLLED TEST SYSTEM FOR PERFORMING FUNCTIONAL TESTS ON MONOLITHIC DEVICES

John D. Barnard, Wappingers Falls, Carl C. Gaito, Hopewell Junction, Gary R. Gledd, Wappingers Falls, Thomas G. Greene, Lagrangeville, James W. Lind, Hyde Park, and Merlyn H. Perkins, Hopewell Junction, N.Y., and Charles M. Pross, Arlington, Mass., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,676
Int. Cl. G01r *31/00*
U.S. Cl. 324—73 **35 Claims**



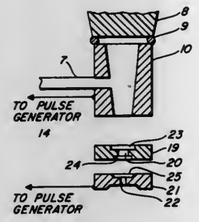


A test system is provided for performing functional tests on combinatorial and sequential monolithic devices with the testing automatically programmed under control of a computer processing unit. The test results can be printed out on a printer, logged on tape and/or punched on cards.

Tests are performed by the system under the control of an operational test program comprised of a plurality of interrelated subprograms. The operational test program is run by a computer processing unit which processes the programmed instructions through an input-output logic control section which sets up the test circuit configurations in and commands to an analog section. The analog section provides the required bias, pin resistor loads and signal levels to a device under test. The test parameter data is sensed by a digital voltmeter for conversion from analog-to-digital data form, and for optional visual display if desired. The digital test parameter data is inserted in a comparator for pass/fail logic comparison. High, Low and/or No-Fail information is added by the comparator

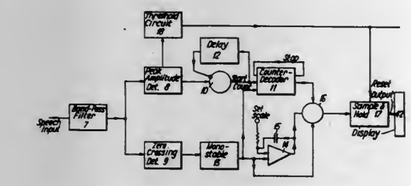
and sent with the converted digital information to the input-output logic control section where the data is serialized and fed to the computer processing unit for logging or analysis.

3,546,583
ELECTRODE ASSEMBLY FOR DETECTING PARTICLES IN FLUID SUSPENSION
James D. Perrings, Los Alamos, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 9, 1968, Ser. No. 758,561
Int. Cl. G01n *27/00*
U.S. Cl. 324—71 **4 Claims**



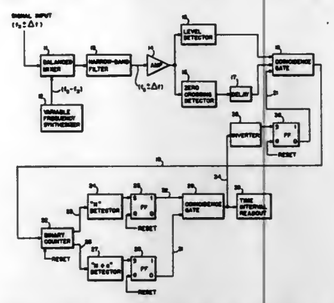
An improvement in an electrode assembly for detecting particles. Such an electrode assembly is used in a particle counter or a particle separator for sorting minute particles present in a suspension fluid in accordance with a selected characteristic such as size, conductivity or any other characteristic that can be translated into an analogous electrical quantity. An improved form of the electrodes in the sensor prevents spurious modulations of the current due to gas bubble accumulation at the electrodes from interferring with the sensor signal.

3,546,584
APPARATUS FOR ANALYZING A COMPLEX WAVEFORM CONTAINING PITCH SYNCHRONOUS INFORMATION
Robert Walter Alister Scarr, Stansted, England, assignor to Standard Telephone and Cables Limited, London, England
Filed Nov. 17, 1967, Ser. No. 684,903
Claims priority, application Great Britain, Nov. 30, 1966, 53,636/66
Int. Cl. G01r *23/16;* **G10l** *1/04*
U.S. Cl. 324—77 **4 Claims**



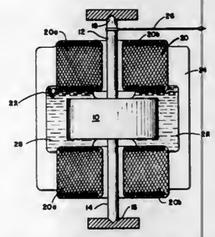
Apparatus is provided for analyzing a complex waveform containing pitch synchronous information including means for detecting a first occurrence of a selected pitch synchronous characteristic of the waveform, means for detecting a second occurrence of the characteristic, and means for measuring and recording or displaying the time elapsed between the first and second occurrences of the characteristic.

3,546,585
SHORT DURATION SIGNAL BURST FREQUENCY METER
Lawrence M. Leibowitz, Fairfax, Va., and Bernard A. Tretick, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 21, 1968, Ser. No. 769,341
Int. Cl. G01r *23/14*
U.S. Cl. 324—79 **4 Claims**



A frequency meter for measuring the error in frequency of short signal bursts, especially multiplexed Teletype signals, which device converts the frequency of the signals to be measured, counts the number of zero-crossings of the converted signal, measures the difference in time of occurrence between two predetermined counts, and displays the resultant frequency error signal in a readout device.

3,546,586
METER MOVEMENT UTILIZING MAGNETIC FLUID FOR DAMPING
Allen G. Stimson and Donald G. Cameron, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed July 17, 1968, Ser. No. 745,449
Int. Cl. G01r *1/14, 1/16*
U.S. Cl. 324—125 **6 Claims**

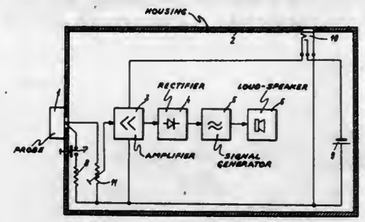


Damping for a meter movement such as a galvanometer is provided by a magnetic fluid held in the gap of the movement by a permanent magnetic field.

3,546,587
CAPACITIVE SENSING PORTABLE HIGH VOLTAGE DETECTING APPARATUS WITH MEANS FOR CHECKING OPERABILITY OF THE DETECTING APPARATUS
Jan Tureček, Bratislava, Czechoslovakia, assignor to Tesla, narodni podnik, Prague, Czechoslovakia
Filed Apr. 25, 1968, Ser. No. 724,161
Claims priority, application Czechoslovakia, May 24, 1967, 3,761/67
Int. Cl. G01r *19/16*
U.S. Cl. 324—133 **4 Claims**

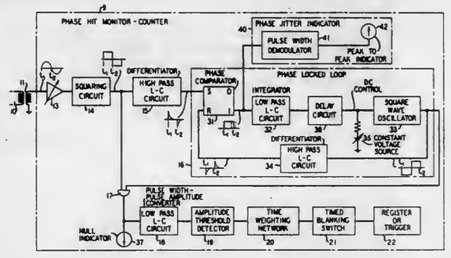
A capacitive sensing device of portable high voltage detecting apparatus produces an electrical signal upon detecting electric or electromagnetic fields. The signal is

amplified, rectified, converted into an audio frequency signal and then radiated as an audible alarm signal. A manually operable switch connects a source of DC voltage



to an amplifier which amplifies the signal. A circuit for testing the apparatus for operability comprising a manually operable switch connecting the DC voltage source to the input of the amplifier.

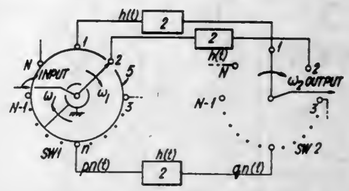
3,546,588
PHASE HIT MONITOR-COUNTER
Loran W. Campbell, Jr., Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Sept. 17, 1968, Ser. No. 760,186
Int. Cl. H04l *1/00*
U.S. Cl. 325—42 **11 Claims**



A survey and trouble-shooting instrument monitors a test tone transmitted on a voiceband data transmission path and detects phase hits and phase jitter which would adversely affect data transmission on the path. A phase locked loop is used to phase-synchronize an internally produced signal with the tone. Comparison of the tone and internal signal produces an indication of a rapid phase variation of the tone. The indication, if of a selected magnitude and duration, is recorded as a hit. The internal signal is adjusted to the substantially identical frequency of the tone to avoid erroneous indications of phase hits due to frequency differences between the tone and the signal. Phase jitter is constantly indicated by monitoring the phase locked loop error signal.

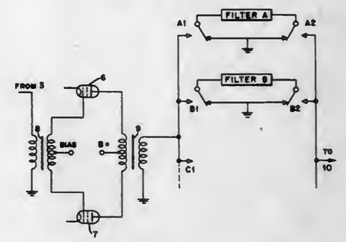
3,546,589
FREQUENCY CHARACTERISTIC SHAPING CIRCUITS
Michael John Gingell, Harlow, England, assignor to International Standard Electric Corporation
Filed June 1, 1967, Ser. No. 645,093
Claims priority, application Great Britain, June 3, 1966, 24,792/66
Int. Cl. H04b *1/00*
U.S. Cl. 325—59 **9 Claims**

An N-path frequency translation system comprising a single polyphase modulation unit common to N inputs having N output paths which are identical and connected in parallel. Each of the N output paths which comprises a filter unit and at least one output modulator unit, sample in turn a given input frequency spectrum for a period of time determined by N. The input and output modulators



are unbalanced. The output from the N output paths are summed to provide output frequency spectrums which are either an erect or inverted translation of the input frequency spectrum.

3,546,590
WIDE BAND RADIO TRANSMITTER
Dennis H. Covill, Hacketts Cove, Halifax County, Nova Scotia, Canada, assignor to E.M.I.-Cossor Electronics Limited, Dartmouth, Nova Scotia, Canada, a company of Canada
Filed June 14, 1965, Ser. No. 463,659
Claims priority, application Great Britain, June 13, 1964, 24,634/64
Int. Cl. H04b *1/04*
U.S. Cl. 325—171 **2 Claims**

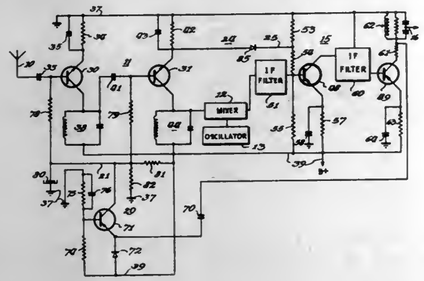


A wide band radio transmitter especially adapted for handling teletype traffic comprises a radio frequency generator tunable to a plurality of different frequency channels. The generator is coupled to the final amplifier by way of a driver amplifier and respective coupling circuits. The driver amplifier, the final amplifier and the circuits coupling them to the radio frequency generator and to one another are substantially linear over a frequency band including the different channels to which the generator can be tuned. However the final amplifier is coupled to the antenna by coupling means which comprises a plurality of band pass filters each having a semi-octave pass band including different frequency channels, and the band pass filters can be switched selectively to couple the final amplifier to the antenna.

3,546,591
FORWARD AND DELAYED REVERSE AUTOMATIC GAIN CONTROL CIRCUIT
Per T. Overlie, Chicago, Ill., assignor to Warwick Electronics Inc., a corporation of Delaware
Filed May 22, 1967, Ser. No. 639,978
Int. Cl. H03f *1/34;* **H04b** *1/24*
U.S. Cl. 325—319 **4 Claims**

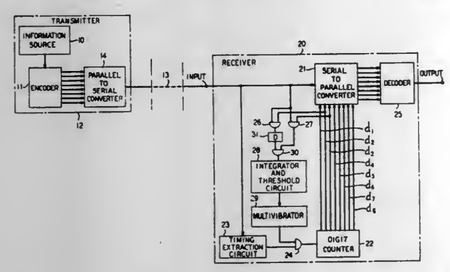
An AGC circuit for an FM receiver provides fixed AGC bias for no received signal, forward AGC bias to the RF stage for intermediate strength signals, and both forward

AGC bias to the RF stage and reverse AGC bias to the IF stage for strong signals. The forward AGC bias is



generated from the received signal, while the reverse AGC bias is generated in proportion to the forward AGC bias.

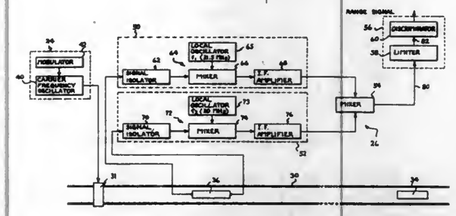
3,546,592
SYNCHRONIZATION OF CODE SYSTEMS
John S. Mayo, Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Nov. 20, 1967, Ser. No. 684,245
Int. Cl. H04b *1/16*
U.S. Cl. 325—321 **3 Claims**



Framing of reflected binary code signals into code words is accomplished by monitoring the rate of occurrence of "0's" in both the second and third time slots of each such code word. The probability statistics for certain types of coded signals are such that the probability of receiving "0's" in both the second and third time slots is far less than the probability of receiving "0's" in both of any two other consecutive time slots. When the rate of occurrence of "0's" in a provisionally chosen pair of consecutive time slots exceeds a predetermined value determined by the probability statistics of receiving "0's" in the second and third time slots, the code signals are regrouped in order to accomplish framing until the chosen pair of time slots are the second and third of each code word.

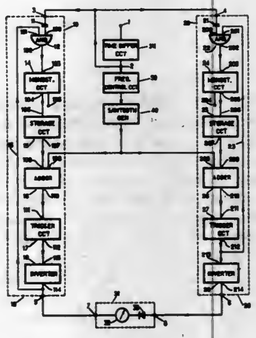
3,546,593
RECEIVER FOR FREQUENCY MODULATED RADIO-FREQUENCY SIGNALS
Norman C. Gittinger, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed May 3, 1967, Ser. No. 635,838
Int. Cl. H04b *1/06, 1/26*
U.S. Cl. 325—344 **5 Claims**

A receiver, for a vehicle separation ranging system of the type employing a wayside transmission line, wherein a signal extracted from transmitted FM energy in the line is converted to a first intermediate frequency signal and a signal extracted from reflected FM energy in the line is converted to a different intermediate frequency signal, which two intermediate frequency signals are then multi-



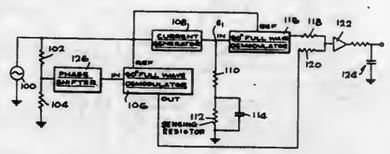
plied together in a mixer circuit. The output of the mixer circuit is demodulated to provide a signal which is a direct measure of the distance between the vehicle transmitting the energy in the line and the vehicle from which such energy is reflected.

3,546,594
ANALOG DISTORTION MEASUREMENT APPARATUS FOR ISOCHRONOUS CODED TELEGRAPH AND DATA SIGNALS
Jacques Meile, Paris, France, assignor to Lignes Telegraphiques & Telephoniques, Paris, France
Filed Apr. 5, 1968, Ser. No. 719,179
Claims priority, application France, Apr. 11, 1967, 102,264
Int. Cl. H04b *1/00*
U.S. Cl. 325—363 **11 Claims**



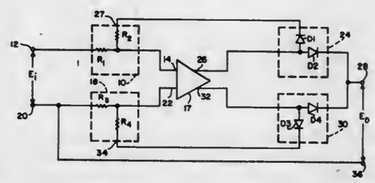
A device for measuring in analog form the isochronous distortion of a bivalent modulation, comprising means for deriving from each transition of said modulation a short duration pulse, means for synchronizing a periodic reference signal by said pulses, first and second transmission channels each having an input receiving all of said pulses and an output delivering a direct-current voltage the value of which depends, for one of said channels, on the maximum lead, and for the other on the maximum lag of said transitions with respect to reference instants in said reference signal, and a circuit in which the direct-current voltages at the outputs of both said channels cause an average current of intensity proportional to said distortion to flow through an indicator apparaus.

3,546,595
NOISE REJECTION CIRCUIT
Roger W. Blakely, Jr., Los Angeles, Calif., assignor to Litton Systems, Inc., Beverly Hills, Calif., a corporation of Maryland
Filed July 10, 1967, Ser. No. 652,259
Int. Cl. G01n *27/00*
U.S. Cl. 328—1 **10 Claims**



A circuit for sensing changes in a small immittance which is connected in a circuit with a large immittance, and particularly where the immittance is capacitive, e.g. sensing of small changes in capacitance of a capacitor upon an air-bearing-suspended member wherein said capacitor has a smaller capacitance than the capacitance across the suspension air bearing and wherein the air bearing capacitance is used to carry signals across the air bearing.

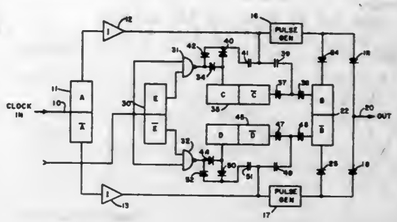
3,546,596
ABSOLUTE VALUE AMPLIFIER CIRCUIT
Richard A. Beaudette, Tewksbury, Mass., assignor to Sylvania Electric Products, Inc., a corporation of Delaware
Filed June 24, 1968, Ser. No. 739,338
Int. Cl. H03k *5/00*
U.S. Cl. 328—26 **2 Claims**



An operational amplifier, having differential outputs, is employed in combination with two feedback networks and two gates to yield a full-wave rectified output signal with gain.

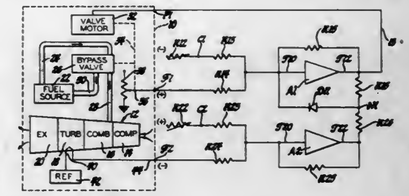
3,546,597
FREQUENCY DIVIDER CIRCUIT
Donald L. Lipke, Richardson, Tex., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Mar. 28, 1968, Ser. No. 716,767
Int. Cl. H03k *19/36, 21/36*
U.S. Cl. 328—46 **2 Claims**

A divide by two or three frequency divider circuit includes a binary-connected flip-flop connected to receive an input clock signal and perform a divide by two function. The outputs of the flip-flop are connected to pulse generators which generate pulses at one-half the clock frequency. Clamping means are provided for clamping off the output of the first pulse generator and allowing the second pulse generator to provide a divided by two signal to an output terminal. A divide by three function is achieved by controlling the clamping means whereby the



first pulse generator is released and the second pulse generator is clamped in response to a control signal.

3,546,598
CONTROL CIRCUIT FOR LIMITING OUTPUT PARAMETERS
Charles F. McCauley, Speedway, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 22, 1969, Ser. No. 843,658
Int. Cl. F02c *9/04*
U.S. Cl. 328—71 **6 Claims**



A circuit for varying a primary input parameter to a system to limit the primary and one or more secondary system output parameters dependent upon the primary input parameter. A separate operational amplifier is associated with each different output parameter. Of these amplifiers, one is a primary amplifier that receives the feedback of the primary output parameter as an input and provides an output operative to alter the primary input parameter, and the other amplifiers are secondary amplifiers that receive feedback of the secondary output parameters as inputs. In addition to being connected to means feeding back the actual magnitude of the associated parameter, the input terminal of each amplifier is also connected to means for limiting each output parameter. A pair of output resistors connects the output terminal of each secondary amplifier to the output of the primary amplifier. A diode is connected from the junction of the output resistors to the input of the primary amplifier, thereby allowing the output of a secondary amplifier to slave the output of the primary amplifier when the feedback signal to a secondary amplifier exceeds its commanded limit. The control circuit is then operative to cause the output from the primary amplifier to change the primary input parameter until the feedback signal associated with the out-of-limit output parameter is restored within its limit.

3,546,599
APPARATUS FOR SEPARATING SIGNALS HAVING A COMMON PULSE REPETITION FREQUENCY

John A. Konotchick, Jr., Hudson, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

Filed Jan. 10, 1968, Ser. No. 696,886
Int. Cl. H03k 17/02, 5/18, 5/20
U.S. Cl. 328—105 14 Claims

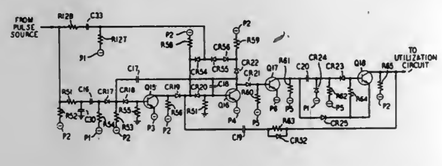


Apparatus for sorting pulse trains of common PRF according to time of arrival of the pulses includes a series of sorting channels comprising flip-flops, diode gates and logic circuitry for selectively applying first pulses of the pulse trains to be sorted to one of a number of outputs. Subsequent pulses bypass the sorting channels and are more directly applied to said outputs. The sorting channels are bypassed by inhibiting an "inhibited OR" gate preceding the sorting chains.

3,546,600
SIGNAL FREQUENCY DETECTOR CIRCUIT

Charles J. Del Riesgo, Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Jan. 3, 1968, Ser. No. 695,447
Int. Cl. H03k 5/20
U.S. Cl. 328—109 6 Claims



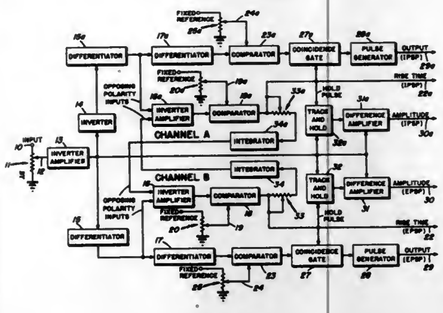
Frequency selectivity in a low frequency pulse detecting circuit is attained by establishing an acceptance window on the incoming pulse period by the employment of a monopulser circuit to guard against pulse rates higher than desired in combination with a responsive delay timer to guard against pulse rates lower than desired.

3,546,601
NEURONAL EVENT RECOGNIZER

Frederick F. Hiltz, Kensington, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Jan. 22, 1968, Ser. No. 699,726
Int. Cl. H03k 5/20
U.S. Cl. 328—116 10 Claims

The present invention generally relates to circuit apparatus capable of detecting and properly identifying opposite polarity pulses of a complex input pulse waveform and, more particularly, which is adapted for use as an analog type neuronal event recognizer capable of being used "on-line" to accurately detect and identify subthreshold, intracellular neuronal activity, including both excitatory and inhibitory events. More specifically, the proposed circuit apparatus comprises a pair of detection channels each assigned to detect the occurrence of one polarity of input pulse and to provide a suitable output demarcating pulse each time its associated polarity input pulse occurs. Moreover, means are provided in each of the detection channels for producing outputs indicative of both the rise time and amplitude of the corresponding polarity of input pulse. Another important feature of the proposed apparatus is that the detection channels are inter-

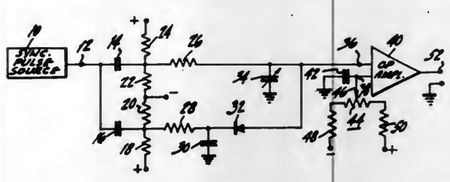


connected so that the trailing edge of one polarity of input pulse will not cause the other detection channel to produce a faulty indication that the opposite polarity input pulse is occurring.

3,546,602
BURST FLAG GENERATOR

John F. Monahan, Moorestown, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Oct. 18, 1968, Ser. No. 768,769
Int. Cl. H03b 1/00
U.S. Cl. 328—139 11 Claims



In the NTSC color television system a burst of eight or more cycles of the color subcarrier frequency is included in the transmitted signal following each horizontal line synchronizing pulse. This burst is suppressed during vertical blanking intervals. Apparatus is provided for deriving burst "flag" pulses from differentiated horizontal synchronizing pulses and for inhibiting the burst flag pulses during vertical blanking intervals by deriving an inhibiting waveform from integrated vertical synchronizing pulses.

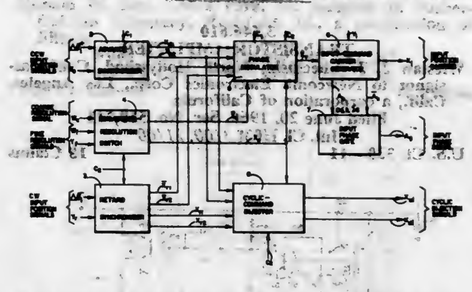
3,546,603
DUAL-RESOLUTION SIGNAL CONVERTER

Charles E. Lenz, Honolulu, Hawaii, assignor to North American Rockwell Corporation, a corporation of Delaware

Filed June 26, 1967, Ser. No. 648,722
Int. Cl. H03b 3/04
U.S. Cl. 328—155 7 Claims

A device for providing variable resolution in the transmission link between the position output of a digital command source and the error-detecting element of a phase-comparison servomechanism. In proportion to the position output of the command source, the dual-resolution signal converter varies the relative phase of a command carrier either by full-cycle increments with a pulse-injection means to obtain coarse resolution or by fractional-

cycle increments with a phase modulator to obtain fine resolution. In the servomechanism, the relative phase of the command carrier is compared with another relative

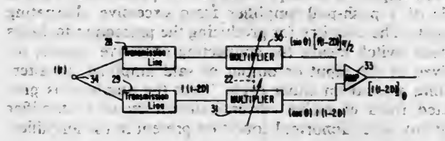


carrier phase proportional to the actual angle of the output shaft and attached load to derive an error signal which drives the output shaft to the required position.

3,546,604
PHASE SHIFTERS

James E. White, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio

Original application June 9, 1964, Ser. No. 373,684. Divided and this application Feb. 19, 1969, Ser. No. 813,366
Int. Cl. H03k 5/18
U.S. Cl. 328—155 8 Claims

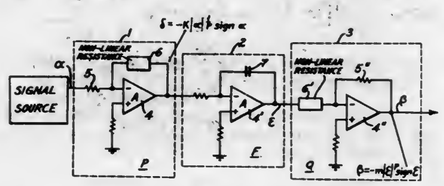


A phase shifter using two reflecting transmission lines. The lines may be mechanical, acoustical or lumped electrical elements generally tapered physically or electrically. An input signal is applied in common to both lines which may include sine and cosine multipliers with the outputs being summed.

3,546,605
SEMI-LINEAR CORRECTOR NETWORK

Bernard Hamel, Paris, France, assignor to Societe Francaise d'Equipements pour la Navigation Aerienne, Neuilly-sur-Seine, Hauts-de-Seine, France, a joint-stock company of France

Filed Mar. 1, 1968, Ser. No. 709,731
Claims priority, application France, Mar. 31, 1967, 101,120
Int. Cl. H03b 1/04
U.S. Cl. 328—167 8 Claims

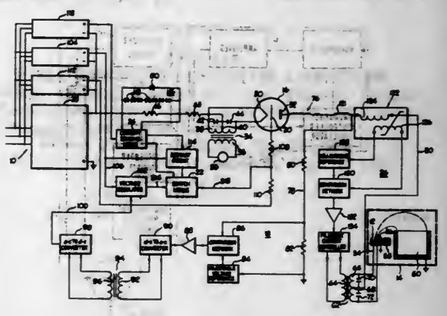


A corrector network filter comprising a semi-linear cell, in which a linear filter is placed between an operator which raises the input signal to a certain power and another operator which raises the output signal of said filter to the inverse power, in which the phase-shift is that of the filter, the gain effect obtained by the cell being a function of the frequency of the signal different from that introduced by the filter.

3,546,606
ELECTRON GUN POWER REGULATION METHOD AND APPARATUS

Emmett R. Anderson, Berkeley, and Clifford G. Wallace, Alameda, Calif., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Continuation-in-part of applications Ser. No. 546,851, May 2, 1966, and Ser. No. 642,686, May 3, 1967. This application Oct. 13, 1969, Ser. No. 868,284
Int. Cl. H03k 17/00
U.S. Cl. 328—267 15 Claims

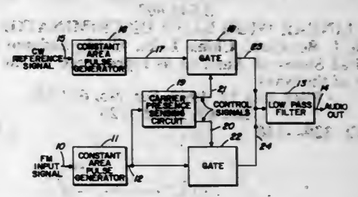


A method and apparatus are described for regulating the power of an electron gun employed in an electron beam furnace. A rise in current to the electron gun due to an arc is sensed and gun current is cut back quickly in a manner which starves any arcs in their incipiency. As a result, power may be rapidly restored to the electron gun without coincident restoration of arcs.

3,546,607
NOISE IMMUNE MUTING CIRCUIT FOR PULSE COUNTING DETECTORS

Charles E. Dixon, Richardson, Tex., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

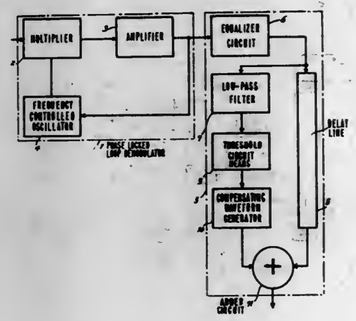
Filed Dec. 8, 1967, Ser. No. 689,022
Int. Cl. H03d 3/04
U.S. Cl. 329—126 7 Claims



Frequency modulation detectors employing pulse counting detection techniques develop a DC reference output in the presence of unmodulated carrier signal. In systems employing carrier cut-off between modulation sequences, this type of detection causes audio noise perturbation. A gating arrangement may automatically supply a constant area pulse train generated from a reference carrier signal to the detection integrating means under the control of

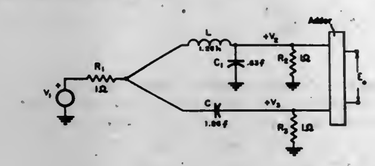
a carrier presence sensing circuit which monitors the input signal. In the absence of carrier input, a carrier reference pulse train is applied to the integrator to eliminate the DC transient normally generated by the integrator as the input FM signal carrier is turned on and off.

3,546,608
METHOD AND DEVICE FOR RECOGNIZING AND COMPENSATING PHASE STEPS IN ANGLE DEMODULATORS
Francesco Carassa and Fabio Rocca, Milan, Italy, assignors, by direct and mesne assignments, to Consiglio Nazionale Delle Ricerche, Piazzale delle Scienze, Rome, Italy, an Italian Government Institute
Filed May 14, 1968, Ser. No. 728,989
Claims priority, application Italy, May 22, 1967, 16,348/67
Int. Cl. H03d 3/24
U.S. Cl. 329—131 **3 Claims**



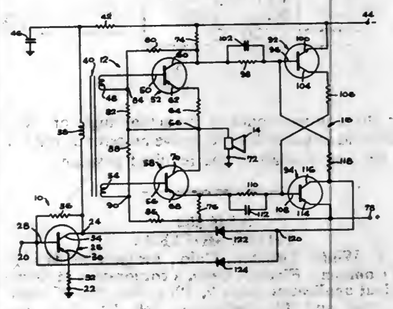
Method and apparatus for processing the output signal of a phase-lock-loop demodulator of the type including loop means responsive to the loss of locking of a local oscillator relative to the input oscillation for subsequent relocking in a position phase shifted by steps of 2π radians or multiples thereof. In order to reduce total noise power and to distribute it evenly over the signal band, there is filtered from the demodulator output signal the frequency band below the spectrum of the modulating signal, whereby the occurrence time and amplitude of the transients are determined, and signals having substantially the same occurrence and the same phase are derived, which signals are then inverted in polarity and are added to the output signal from the demodulator to cancel out the noise due to the phase steps.

3,546,609
LINEAR WIDE BAND DISCRIMINATOR
Joseph J. Boyajian, China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 12, 1967, Ser. No. 653,303
Int. Cl. H03d 3/26
U.S. Cl. 329—140 **2 Claims**



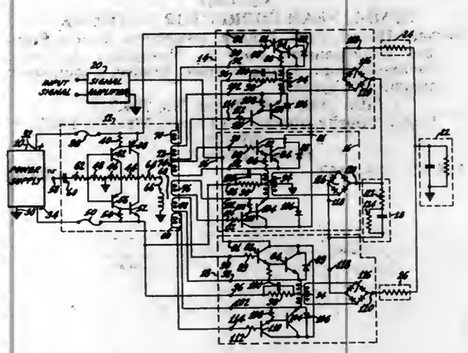
A frequency sensitive system, approaching 100% linearity, comprises two tuned circuits constructed so as to have linear attenuation bands of opposite polarity with identical attenuation rates over a specified frequency range.

3,546,610
TRANSISTOR AMPLIFIER
Wieslaw J. J. Checinski, North Hollywood, Calif., assignor to Newcomb Electronics Corp., Los Angeles, Calif., a corporation of California
Filed June 20, 1966, Ser. No. 558,711
Int. Cl. H03f 3/00, 21/00
U.S. Cl. 330—11 **18 Claims**



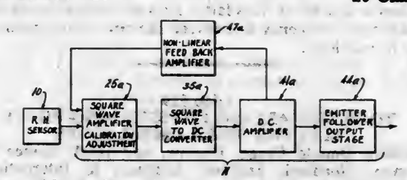
The improved concept resides in the protection of either side of a push-pull amplifier from excessive alternating signals. The circuitry for producing the protection includes biased switch means for connecting excessive signals, received at the input or output of said amplifier, to alternating ground on either cycle. Thus the amplifier is protected from excessive currents drawn by said amplifier and any other abnormal condition present in the amplifier.

3,546,611
HIGH VOLTAGE WIDE BAND AMPLIFIER
Leonard P. Dague, Cherry Hill, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,618
Int. Cl. H03f 3/26, 3/04
U.S. Cl. 330—13 **3 Claims**



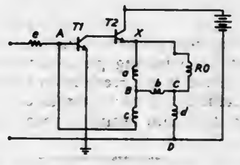
A solid state amplifier, including a plurality of DC-to-DC converters, particularly suitable for feeding a capacitive load, and having a frequency range of DC to about 100 kilocycles per second or higher and which may provide an output of up to 10,000 or more volts.

3,546,612
NON-LINEAR CONDITION SENSOR AND COMPENSATING AMPLIFIER THEREFOR
Donald W. Day, Loves Park, Ill., assignor to Barber-Colman Company, Rockford, Ill., a corporation of Illinois
Filed Sept. 16, 1968, Ser. No. 762,267
Int. Cl. G01n 27/00; H03f 1/34, 3/18
U.S. Cl. 330—17 **10 Claims**



An electrical signal transmitter incorporating selectively effective negative feedback in an amplifier substantially to linearize the amplified output of a non-linear condition sensing element.

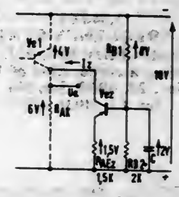
3,546,613
CONNECTION FOR REDUCING THE LOSS OF EFFECT IN A FEED-BACK CONNECTED TRANSISTOR AMPLIFIER
Hans-Jürgen Breuer, Alvsjo, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden
Filed May 29, 1968, Ser. No. 733,183
Claims priority, application Sweden, June 29, 1967, 9,645/67
Int. Cl. H03f 1/14
U.S. Cl. 330—20 **2 Claims**



A transistor amplifier comprises two transistors connected in cascade. The input transistor receives a signal to be amplified and a feedback signal. The output transistor is in a grounded-collector configuration with its emitter connected to two parallel impedance branches. The first branch comprises a load impedance and a balance impedance with the free end of the latter grounded. The second branch comprises another balance impedance and a load matching impedance with the free end of the latter connected to the input transistor. A diagonal impedance interconnects the series junctions of the impedance branches The balance impedances have such values that substantially no current flows through the diagonal impedance in the absence of signal reflections.

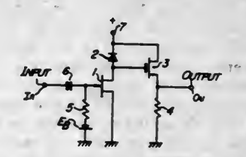
3,546,614
TRANSISTOR AMPLIFIER CIRCUITS WITH CONSTANT CURRENT SOURCE SUPERIMPOSED THEREON
Horst Lochstampfer, Mannheim-Lindenhof, Germany, assignor of one-half to REGA Regelungs- und Steuerungstechnik GmbH & Co. KG, Siegburg-Kaldauen, Germany
Filed Feb. 26, 1968, Ser. No. 708,179
Claims priority, application Germany, Feb. 28, 1967, 1,512,721
Int. Cl. H03f 3/04
U.S. Cl. 330—22 **8 Claims**

The current from a constant current source of high internal resistance is superimposed upon a transistor in the same direction as the operating direct current effected by the input signal. This relationship is used in a transistor amplifier circuit to control certain internal resistance



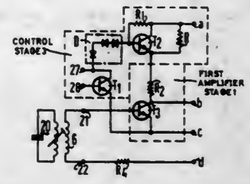
characteristics of a transistor so that the amplifier characteristics may be made largely independent of the transistor, and to increase gain.

3,546,615
FIELD EFFECT TRANSISTOR AMPLIFIER
Shin-Ichi Ohashi, Kodaira-shi, and Hiroshi Nomoto, Hachioji-shi, Japan, assignors to Hitachi Ltd., Tokyo, Japan, a corporation of Japan
Filed Feb. 26, 1969, Ser. No. 802,487
Claims priority, application Japan, Mar. 1, 1968, 43/12,912
Int. Cl. H03f 3/16, 3/68
U.S. Cl. 330—24 **3 Claims**



A field effect transistor amplifier using an element having a high internal impedance at a given low current region (e.g. less than 10 μA.), as a load whereby a sufficiently large gain is obtained even by the field effect transistor of low mutual conductance.

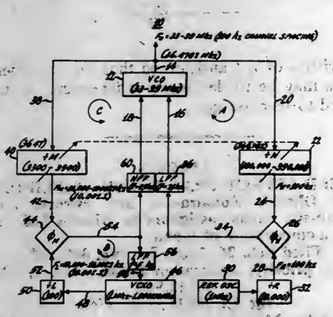
3,546,616
DC COUPLED MULTISTAGE AMPLIFIER HAVING CONTROLLABLE AMPLIFICATION
Hans Hargasser, Eckart Schatter, and Ulrich Renk, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany
Filed June 30, 1969, Ser. No. 837,614
Claims priority, application Germany, July 8, 1968, 1,762,561
Int. Cl. H03g 3/30
U.S. Cl. 330—29 **3 Claims**



A feedback circuit coupling the output of the additional amplifier stages to the input of a first amplifier stage regulates the working point of the first stage. The amplification of the additional stages is independent of the

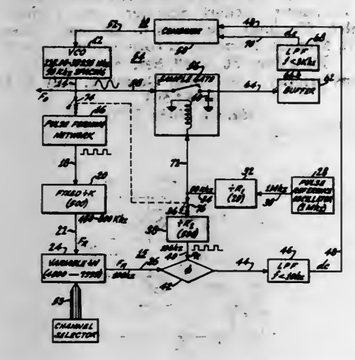
working point regulation. A control circuit connected to the operational voltage branch of the first stage applies a control voltage to the first stage to vary the operational voltage thereof.

3,546,617
DIGITAL FREQUENCY SYNTHESIZER
David H. Westwood, Cherry Hill, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Nov. 26, 1968, Ser. No. 779,080
Int. Cl. H03b 3/04
U.S. Cl. 331—2 10 Claims



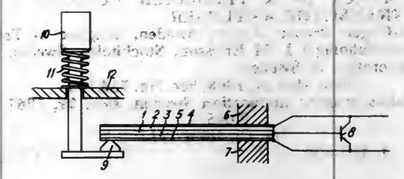
In a frequency synthesizer having three phase locked loops, the output of the voltage controlled oscillator (VCO) is corrected at a rate greater than the channel spacing of the synthesizer. The first loop determines the VCO frequency and corrects the VCO at the channel spacing frequency rate. The second and third loops operate together to correct the VCO at a much greater rate; the second loop doing the correcting; and, the third loop providing the second loop with a variable reference frequency that is a submultiple of the VCO frequency.

3,546,618
LOW POWER, HIGH STABILITY DIGITAL FREQUENCY SYNTHESIZER
Elchanan Dove Menkes, Westmont, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,759
Int. Cl. H03b 3/04
U.S. Cl. 331—10 9 Claims



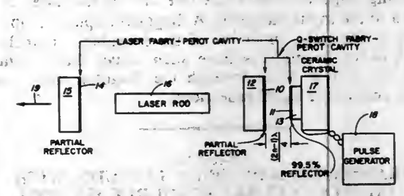
A digital frequency synthesizer includes a digital frequency correction loop for a voltage controlled oscillator (VCO), the output of which is applied to a variable ÷N frequency dividing network, and then to a phase comparator which compares the output of the ÷N network with a fixed reference frequency to determine whether an error exists in the output frequency of the VCO. The output of the VCO is further applied through a pulse reference loop which includes a sampling gate that samples the magnitude of the VCO output signal at a second fixed reference rate and applies a second correction signal proportional to the change in magnitude of successive sampled values to the VCO. This latter loop maintains the VCO at the proper frequency in between the corrections made by the former loop.

3,546,619
TONE SIGNALLING DEVICE USING PIEZO-ELECTRIC REED OSCILLATORS
William Donald Cragg, Harlow, and Hugh Spence Leman, Stortford, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 3, 1968, Ser. No. 764,853.
Claims priority, application Great Britain, Oct. 19, 1967, 47,644/67
Int. Cl. H03b 5/36
U.S. Cl. 331—49 9 Claims



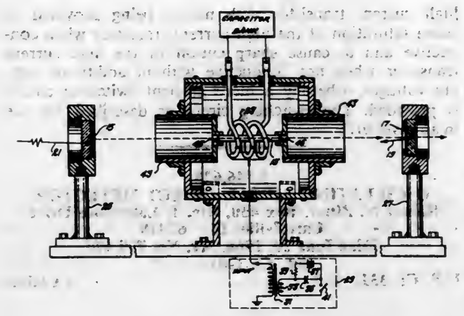
A contactless form of tone signalling device in which the oscillators are vibrating piezo-electric reds. Positive feedback is applied to the reeds from transistors, but the gain is only sufficient to excite the reeds into self-oscillation when dampers are removed from their associated reeds.

3,546,620
SCANNING FABRY-PEROT LASER "Q" SWITCH
Allen M. Erickson, Silver Spring, and Bernard V. Kessler, Greenbelt, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 26, 1967, Ser. No. 612,301
Int. Cl. H01s 3/11
U.S. Cl. 331—94.5 3 Claims



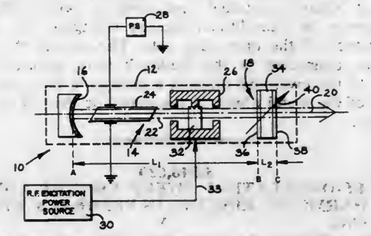
Apparatus for Q-switching a laser which operates on the scanning Fabry-Perot principle to effect laser switching. The switching action is accomplished electrically for demand synchronization with external events. When the laser rod is pumped beyond threshold, lasing action is held off due to the transmission-reflection characteristics of the scanning Fabry-Perot "Q" switch. Q-switching is accomplished at the appropriate moment by moving one of the dielectric mirrors with respect to the other to change the transmission-reflection characteristics of the scanning Fabry-Perot optical cavity thereby permitting lasing action to occur. This movement is produced by a piezoelectric crystal which acts on the dielectric mirror pair in response to a voltage pulse from a pulse generator.

3,546,621
LASER BRIGHTNESS GAIN AND MODE CONTROL BY OPTICAL COMPENSATION FOR DISTORTION
Carlisle M. Stickley, Sudbury, Mass., assignor to the United States of America as represented by the Secretary of the Air Force
Filed May 15, 1967, Ser. No. 639,938
Int. Cl. H01s 3/08
U.S. Cl. 331—94.5 1 Claim



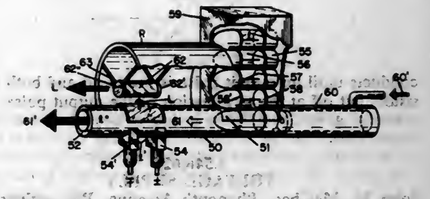
A technique for reducing the beam divergence and correspondingly increasing the mode intensity of a long pulse ruby laser by compensating for the optical distortion produced in the rod brought about by the non-uniform absorption of the pump light. An external mirror having a curvature opposite to that induced in the rod compensates for pump induced distortion and produces a brightness gain of about 100 with single transverse mode operation at pump energies up to 60 percent over threshold.

3,546,622
LASER HAVING CONTROLLED FREQUENCY TRANSLATION
Don G. Peterson, Palo Alto, and Amnon Yariv, Altadena, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Oct. 29, 1965, Ser. No. 505,656
Int. Cl. H01s 3/00; G01b 9/02
U.S. Cl. 331—94.5 5 Claims



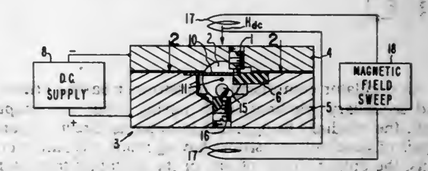
A parametric optical modulator is disposed within the laser cavity to modulate the cavity energy, which cooperates with a tunable solid state etalon. The tunable solid state etalon functions as a laser cavity end mirror and as an output coupling means.

3,546,623
APPARATUS FOR SEPARATING LIGHT ENERGY FROM SHOCK WAVE ENERGY INCLUDING THE PUMPING OF A LASER WITH AN EXPLODING WIRE
Jack De Ment, 4847 SE. Division St., Portland, Oreg. 97206
Original application Jan. 7, 1963, Ser. No. 254,536, now Patent No. 3,300,734, dated Jan. 24, 1967. Divided and this application Nov. 25, 1966, Ser. No. 597,506
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 3 Claims



An electrically exploding conductor light wave generator for separating shock and light energies comprising an apertured barrel through which is passed a dielectric, transparent projectile enstructuring an explodable conductor at a velocity such that light energy from the explosion of the conductor exits the aperture and optically couples with a laser or like irradiable target, the velocity of the explodable conductor projectile being such that shock energy is carried away from the aperture.

3,546,624
ELECTRONICALLY TUNED SOLID STATE OSCILLATOR
Masahiro Omori, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Nov. 22, 1968, Ser. No. 778,112
Int. Cl. H03b 7/14
U.S. Cl. 331—107 5 Claims

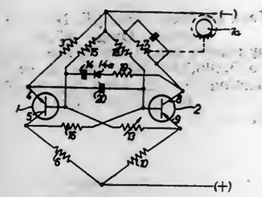


The use of thin conductive strips of rectangular cross-section for the input and output loops of Gunn microwave oscillators and in particular, electrically floating the output loop has resulted in achieving substantially uniform output power levels over a wide frequency range, as 8–14 gHz.

3,546,625
ELECTRONIC CLOCK WITHOUT MECHANICAL VIBRATOR OR REGULATOR
Robert Walter Reich, 143 Merzhauser St., Freiburg im Breisgau, Germany
Continuation of application Ser. No. 616,976, Feb. 17, 1967. This application Feb. 7, 1969, Ser. No. 800,034
Int. Cl. H03b 5/26
U.S. Cl. 331—110 5 Claims

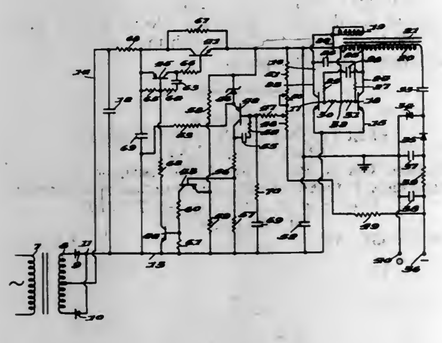
An electronic timing circuit is disclosed in the form of a bridge with two transistors, each collector-emitter circuit forming two branches of the bridge. The circuit is

designed so that a first transistor controls the timing of the other. The circuit is so designed that neither transistor



conducts until an output pulse is produced and both transistors cut off at the termination of the output pulse.

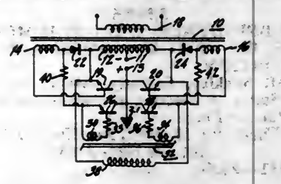
3,546,626
VOLTAGE SUPPLY
John D. McGhee, Plymouth Meeting, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 9, 1968, Ser. No. 704,442
Int. Cl. H02m *3/28*
U.S. Cl. 331—113 **2 Claims**



An oscillator comprising a transformer having primary and secondary windings, each having input and output ends, the windings being poled in opposite directions; and a pair of push-pull transistors having input and output circuits, the output circuit of one of the push-pull transistors connected to the output end of the primary winding and the output circuit of the other connected to the secondary winding such that the push-pull transistors are alternatively driven conductive and non-conductive thereby developing an A.C. potential in the transformer. In a preferred embodiment the oscillator is employed to produce a D.C. voltage by rectifying and filtering the A.C. potential in the secondary winding.

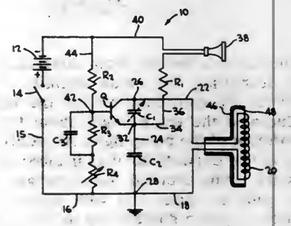
3,546,627
TRANSISTOR HIGH CURRENT SWITCHING AND INVERTER CIRCUITS
Dale M. Baugher, Flemington, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Aug. 26, 1968, Ser. No. 755,363
Int. Cl. H03k *3/30*
U.S. Cl. 331—113 **8 Claims**

A solid state high current switching circuit using at least one high current transistor is provided in which the transistor is alternately rendered conductive and non-conductive. Such control of a high current transistor normally requires a large control current. Furthermore, energy is wasted when the transistor which should be non-conductive remains conductive. Circuit elements including a further transistor are provided to reduce the control current required by the switching circuit including the



high current transistor with means being provided to cause saturation of the high current transistor when conductive and to cause sharp cut-off of the high current transistor when not conductive without additional supply voltages, whereby a more efficient switching circuit is provided. The switching circuit is described for use in an inverter.

3,546,628
OSCILLATING METAL OBJECT DETECTOR
Robert N. Zitter, Box 450, Rte. 1, Lakeshore Drive, Carterville, Ill. 62918
Filed June 20, 1968, Ser. No. 738,476
Int. Cl. G01v *3/12*
U.S. Cl. 331—117 **3 Claims**

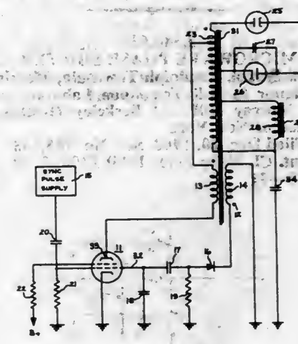


The invention relates to an oscillator circuit for use as a metal object detector and includes a tank circuit normally oscillating above the audible range and a feedback circuit normally oscillating in resonance with the tank circuit. The feedback oscillations are quenched at an audible rate or frequency in such a manner that the quenching frequency will be dependent upon a variation in either the frequency or amplitude of the inaudible oscillations of the tank circuit. Upon the presence of a metal object in the magnetic field of the tank circuit, the tank circuit becomes detuned and oscillates with a different frequency and amplitude, thereby changing the audible frequency of the quenching rate. The output of an earphone, connected in the feedback loop, indicates to a user of the invention through a change in pitch the presence of the metal object in the magnetic field of the tank circuit.

3,546,629
SELF-OSCILLATING SWEEP CIRCUIT USING HARMONIC RINGING IN FEEDBACK WINDING
Rollie J. Walker, Jr., Owensboro, Ky., assignor to General Electric Company, a corporation of New York
Filed Sept. 18, 1968, Ser. No. 760,648
Int. Cl. H03k *4/34*
U.S. Cl. 331—147 **6 Claims**

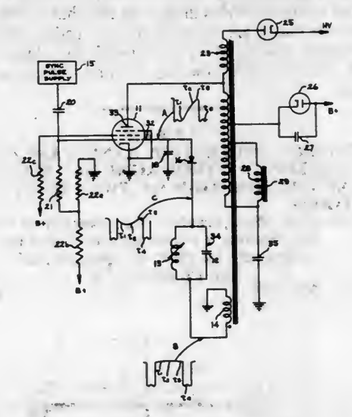
A self-oscillating horizontal sweep circuit comprising a vacuum tube with the primary of a feedback transformer

coupled to the plate and to a horizontal sweep autotransformer. The primary of the feedback transformer and the autotransformer are wound on a single core along



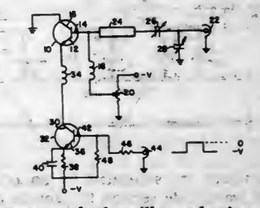
with a feedback transformer secondary which is coupled to the grid of the electron tube through a diode and a first capacitor. A second capacitor couples the grid to ground.

3,546,630
SELF-OSCILLATING SWEEP CIRCUIT HAVING A RINGING CIRCUIT CONNECTED IN SERIES WITH A FEEDBACK WINDING
John D. Jordan, Chesapeake, Va., assignor to General Electric Company, a corporation of New York
Filed Sept. 18, 1968, Ser. No. 760,649
Int. Cl. H03k *3/16*
U.S. Cl. 331—147 **3 Claims**



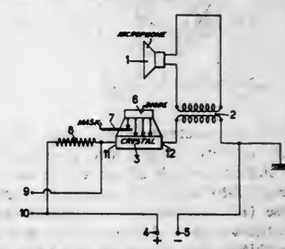
A self-oscillating horizontal sweep circuit comprising a vacuum tube with the plate connected to a horizontal sweep autotransformer. A feedback winding is coupled to the autotransformer through a common core and to the grid of the vacuum tube through a feedback path comprising a diode, a ringing circuit, and a capacitor.

3,546,631
PULSED COHERENT OSCILLATOR
Benjamin Falleiko, Norwood, Mass., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
No Drawing. Filed Sept. 5, 1968, Ser. No. 761,008
Int. Cl. H03b *5/00*
U.S. Cl. 331—172 **5 Claims**



Ultra-high frequency pulsed oscillators having pulse-to-pulse coherency are herein disclosed. In one embodiment an oscillator employing strip-line circuitry is gated on by a switching transistor which is turned-on by a fast rise time drive pulse.

3,546,632
METHOD FOR CONVERTING AN AMPLITUDE MODULATED ELECTRICAL SIGNAL INTO A FREQUENCY MODULATED ELECTRICAL SIGNAL
Francois Buchy, Fontenay-aux-Roses, and Philippe Bauduin, Caen, France, assignors to Anvar Agence Nationale de Valorisation de la Recherche, Puteaux, France
Filed July 17, 1967, Ser. No. 653,816
Claims priority, application France, July 19, 1966, 69,940
Int. Cl. H03c *3/38*; H04b *9/00*; G02f *1/38*
U.S. Cl. 332—16 **12 Claims**

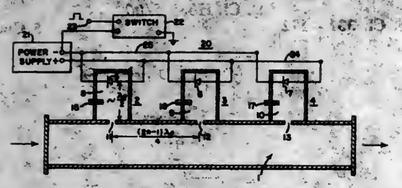


Method for converting amplitude modulated signals into frequency modulated signals by irradiating part of a face of a single crystal made from a piezo-electric photo-conductive semi-conducting material, said crystal being supplied with an amplitude modulated D.C. voltage extending parallel to the face of its crystallizing hexagon, through a negative contact on a surface smaller than that carrying its positive contact thus causing said crystal to emit frequency modulated signals which are taken from the terminals of a resistor introduced in said supply circuit.

3,546,633
ELECTRICALLY TUNABLE MICROWAVE BAND-STOP SWITCH
Harry J. Peppiatt, Lynchburg, Va., assignor to General Electric Company, a corporation of New York
Continuation-in-part of application Ser. No. 414,596, Nov. 30, 1964. This application Jan. 4, 1966, Ser. No. 532,013
Int. Cl. H03h *7/10*
U.S. Cl. 333—7 **7 Claims**

A narrowband waveguide switch is described which utilizes a plurality of resonators coupled to a main waveguide. Each of the resonators includes a switching diode

which, when placed in the conducting state, controls the electrical length of the resonator in a manner such that the resonator acts as a band-stop switch terminating passage of the electromagnetic energy down the waveguide.



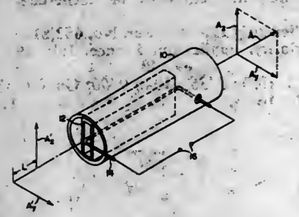
The resonators are separated by an odd quarter wavelength of waveguide section to provide impedance transformations which enhance the attenuating characteristics of the switch.

3,546,634

FERRITE POLARIZERS COMPRISING LATCHABLE FERRITE BODIES

Leonard Dubrowsky, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 31, 1968, Ser. No. 749,138
Int. Cl. H03h 7/18; H01p 1/16
U.S. Cl. 333—21 9 Claims



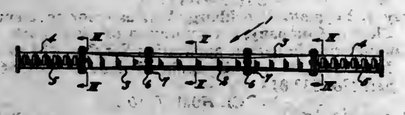
Described are electromagnetic wave transmission devices, such as wave guides, incorporating latchable ferrite phase shifters capable of converting linearly polarized wave energy into circularly polarized wave energy of either sense (i.e., clockwise or counterclockwise rotation of the electric vectors). Also described is a latchable ferrite phase shifter capable of reversing the sense of rotation of circularly polarized wave energy or for converting circularly polarized wave energy into linearly polarized wave energy of either sense.

3,546,635

WAVEGUIDE MODE SELECTIVE ABSORBER

John P. Quine, Schenectady, and Cousby Younger, Scotia, N.Y., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Aug. 13, 1968, Ser. No. 752,229
Int. Cl. H01p 1/16
U.S. Cl. 333—21 4 Claims



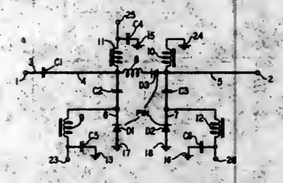
The invention comprehends a waveguide component adapted to selectively absorb unwanted TE_{mn}, TM_{mn} (LSE_{mn}) modes propagating in high power oversized waveguide systems. A section of unslotted hexagonal waveguide is used to convert $(LSE_{mn})_V$ modes of electromagnetic wave energy to $(LSE_{mn})_H$ modes. The hexagonal waveguide is combined with a section or sections of rectangular waveguide having transverse sidewall slots which effectively couple out the $(LSE_{mn})_H$ modes.

3,546,636

MICROWAVE PHASE SHIFTER

Gerald C. di Piazza, Randolph Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Dec. 20, 1968, Ser. No. 785,588
Int. Cl. H01p 1/18; H03l 7/04, 7/18
U.S. Cl. 333—31 9 Claims



A digital, microwave phase shifter having a plurality of phase shift sections in which each section contains three diodes preferably connected in a pi network with two of the diodes connected in the two shunt branches and the third diode in the series branch. The series branch of the pi network in each section is adapted for assuming an inductive reactance in response to the forward biasing of its diode and for alternatively assuming a capacitive reactance in response to the reverse biasing of its diode. The two shunt branches of the pi network in each section are adapted for assuming capacitive reactances in response to the forward biasing of their diodes and for alternatively assuming inductive reactances in response to the reverse biasing of their diodes. A biasing circuit is provided for either forward biasing or reverse biasing the three diodes in each of the phase shift sections. When the biases are reversed in any section, that section is switched from a low-pass network to a high-pass network, or vice versa, thereby shifting the phase of that section.

3,546,637

TUNABLE MICROSTRIP BAND PASS FILTER UTILIZING GYROMAGNETIC MATERIAL AT THE JUNCTION OF TWO CONDUCTIVE LOOPS

Cheng P. Wen, Trenton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed July 18, 1968, Ser. No. 745,787
Int. Cl. H01p 1/20
U.S. Cl. 333—73 6 Claims



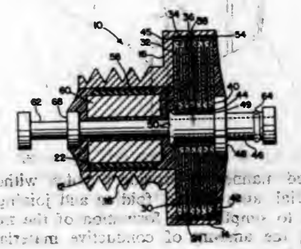
A simplified tunable microstrip band pass filter is disclosed which includes a pair of loops having a portion in common. A ball of ferri- or ferro-magnetic material is positioned adjacent the common portion of the loops, the common portion acting as an isolation means between the loops. The tuning of the band pass filter can be varied by varying a magnetic field which is applied to the ball.

3,546,638

COMPACT FILTER FOR BROADBAND ELECTROMAGNETIC INTERFERENCE SUPPRESSION

William O. Park, Cardiff-By-The-Sea, Calif., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed Nov. 1, 1968, Ser. No. 772,607
Int. Cl. H01h 7/14
U.S. Cl. 333—79 4 Claims



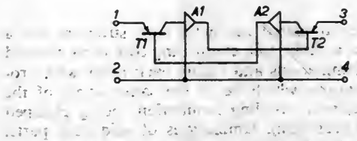
Broadband filter providing high insertion loss in very small package includes a thin multilayer, disc, ceramic feed-through capacitor in a shouldered enlarged diameter portion of the filter shell and an impedance member such as a ferrite core inside a reduced diameter threaded portion of the filter shell.

3,546,639

GYRATOR NETWORK

Anthony John Drew, Sidcup, and Jerzy Gorski-Popiel, London, England, assignors to Associated Electrical Industries Limited, London, England, a British company

Filed Oct. 27, 1967, Ser. No. 678,582
Claims priority, application Great Britain, Nov. 1, 1966, 48,937/66
Int. Cl. H03h 7/44, 11/00
U.S. Cl. 333—80 6 Claims



A gyrator network in which its transfer impedances $-Z_{12}$ and Z_{21} are afforded by respective current controlled voltage amplifiers which are realised using operational amplifiers.

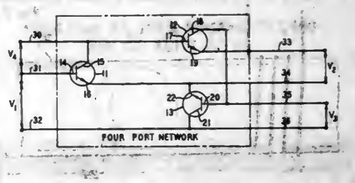
3,546,640

NONRECIPROCAL TRANSISTOR NETWORK

Richard W. Daniels, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Feb. 26, 1969, Ser. No. 802,417
Int. Cl. H03h 7/44; H03f 3/00
U.S. Cl. 333—80 5 Claims

Two alternative gyrator circuit configurations are formed from a basic four-port network which contains three transistors. In the basic network the collector of a first transistor is connected directly to the base of a second transistor and the collector of the second transistor is connected directly to the base of a third transistor, while the emitter of the first transistor is connected directly to the emitter of the third transistor. In both alternative circuits two of the ports are terminated in resistors and two are used as the input and output ports which produce gyrator action.

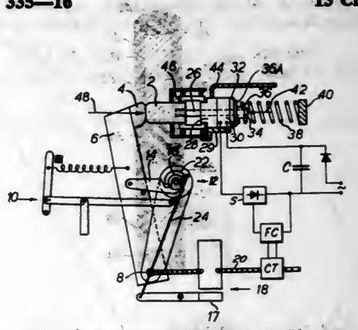


3,546,641

ELECTRIC CIRCUIT BREAKERS

Alan Twemlow Freeman, Rugby, England, assignor to Associated Electrical Industries Limited, London, England, a British company

Filed Feb. 23, 1968, Ser. No. 707,536
Claims priority, application Great Britain, Mar. 9, 1967, 11,070/67
Int. Cl. H01h 77/10
U.S. Cl. 335—16 13 Claims



An electric circuit breaker in which contact-separation is achieved by retracting one of a pair of co-operating contacts from the other by means of the force of repulsion between a conductive ring or disc and an electromagnetic coil in which a current is suddenly caused to flow in response to a trip signal, the retractable contact being mechanically connected to one of these members, preferably the ring or disc. Means for retaining the retractable contact in its retracted position and means for automatically releasing it on withdrawal of the other contact. A mechanical trip mechanism, responsive to the motion of the retractable contact, for initiating withdrawal of the other contact.

3,546,642

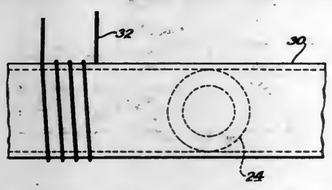
PIGGING DEVICE

George A. Frederick, Wheaton, and Leonard E. Burchard, Oak Forest, Ill., assignors, by mesne assignments, to The Peoples Gas Light and Coke Company, Chicago, Ill., a corporation of Illinois

Filed May 10, 1968, Ser. No. 728,107
Int. Cl. H01f 7/02
U.S. Cl. 335—305 11 Claims

A pigging device for use in a pigging device launch and detection system of the type which includes a carrying line and electrical sensing means positioned exterior of the carrying line and responsive to the passage of a

pigging device having magnet means contained therein. The pigging device is a spherical or cylindrical flexible member that has an outer peripheral portion which



has magnet means uniformly distributed therein so that the magnet means will be as close as possible to the electrical sensing means.

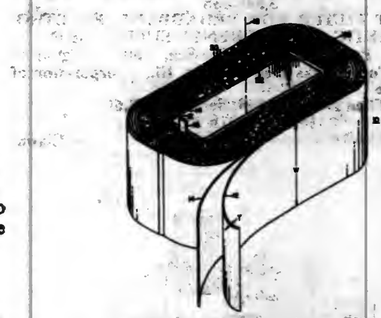
3,546,643
PAD FOR SURGICAL INSTRUMENTS OR THE LIKE
Catherine A. Virostek, 3148 Yorkshire Road, Cleveland Heights, Ohio 44118
Filed Jan. 16, 1969, Ser. No. 791,627
Int. Cl. H01f 7/02
U.S. Cl. 335—303 10 Claims



A pad for surgical instruments or the like comprising a flexible pad-like body with parallel surfaces and a plurality of magnets in the body for maintaining metallic instruments on one of the major surfaces. The body carries a plurality of magnets and includes a sheath over the magnets. The magnets are cylindrical. The sheath is fabric reinforced rubber sheets. The sheets additionally include embedded electrically conductive material defining electrically conductive paths through which the pad may be grounded in use and unable to sustain the static electric charge.

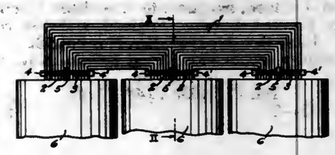
3,546,644
ELECTRICAL WINDING HAVING TRANSPOSED SHEET CONDUCTORS
Garlington C. Wilburn and George P. Michel, Sharpsville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 5, 1968, Ser. No. 742,722
Int. Cl. H01f 27/28
U.S. Cl. 336—223 7 Claims

An electrical winding having a plurality of superposed conductor turns formed of at least first and second electrically conductive sheet materials wound together about a common axis. Predetermined adjacent conductor turns are notched on opposite edges, to transpose the relative radial positions of the first and second sheet conductors. The first sheet conductor proceeds to its transposed position through the notch in the second sheet conductor, and the second sheet conductor proceeds to its transposed position through the notch in the first sheet conductor. Methods of forming the notch in the sheet conductors include cutting the desired notch configuration, and removing the material; folding the sheet material in a pre-



determined manner to provide a notch without cutting the material; and, cutting, folding and joining the sheet materials to simplify the formation of the notch, while minifying the amount of conductive material removed from the sheet.

3,546,645
DIVISIBLE LAMINATED MAGNETIC CORE STRUCTURES FOR TRANSFORMERS OR CHOKE COILS OF GREAT POWER
Egbertus A. Frowein, Arnhem, Netherlands, assignor to Smit Nijmegen Electrotechnische Fabriken N.V., Nijmegen, Netherlands, a company of the Netherlands
Filed Dec. 17, 1968, Ser. No. 784,416
Claims priority, application Netherlands, Dec. 21, 1967, 6717462
Int. Cl. H01f 27/08, 27/24
U.S. Cl. 336—60 4 Claims

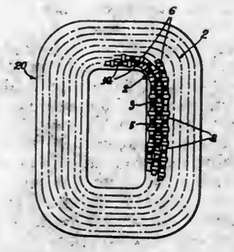


A divisable laminated magnetic core structure for a transformer or a choke coil, comprising core parts coupled by coupling laminations and facing each other with protruding laminations which lie in the same layers of the core structure, said coupling laminations being clamped between said protruding laminations of said core parts, the planes of division between said core parts extending in the leg portions of the core structure in places between the windings mounted on said leg portions and the yoke portions of the core structure.

3,546,646
TRANSFORMER COILS WITH INSULATING SPACER
Frank W. Heinrichs, Jr., McMurray, Lawrence R. Toothman, and Charles C. Honey, Pittsburgh, and Anthony J. Jonnatti, Glenshaw, Pa., assignors to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware
Filed Feb. 19, 1969, Ser. No. 800,474
Int. Cl. H01j 27/10
U.S. Cl. 336—60 12 Claims

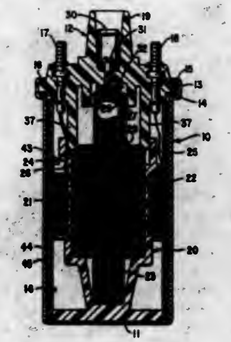
An insulating spacer strip is provided for spacing apart transformer coils. The spacer strip has a plurality of

spacers formed at spaced apart intervals in a continuous length of insulating strip material. Lengths of the strip between spacers have relatively narrow widths. Each spacer comprises one or more loops in the strip folded



parallel to the strip. The spacer strip is spirally wound with its wide sides facing the transformer coils and with spacers in one strip turn inserted into narrow strip lengths between spacers of an adjacent strip turn.

3,546,647
ELECTRIC COIL CONSTRUCTION
James M. Roddy, Sarnia, Ontario, Canada, and Sam Lovalenti, Toledo, Ohio, assignors to Eltra Corporation, Toledo, Ohio, a corporation of New York
Filed Aug. 8, 1969, Ser. No. 848,451
Int. Cl. H01f 27/30
U.S. Cl. 336—92 11 Claims



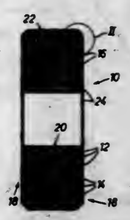
A construction for an electric coil which includes a one-piece hollow coil spool of a molded plastic material for positioning and supporting the primary and secondary windings within the coil can. The spool has a hollow cylindrical surface with spaced-apart circular flanges to define a support surface for the primary winding and a hollow interior having a closed lower end for receiving and supporting the secondary winding. A supporting leg at the lower end of the spool extends a radial distance substantially equal to the diameter of the coil can to coaxially position and support the spool and windings within the coil can.

3,546,648
LINEAR VARIABLE DIFFERENTIAL TRANSFORMER
Jacob Chass, Forest Hills, N.Y., assignor to Pickering & Company, Inc., Plainview, N.Y., a corporation of New York
Filed Dec. 27, 1968, Ser. No. 787,400
Int. Cl. H01f 21/06
U.S. Cl. 336—136 4 Claims



A nonsymmetrical differential transformer having a null position at one end and an output voltage which is a linear function of the displacement of an armature core from the null position.

3,546,649
CONVOLUTED CONDUCTOR ASSEMBLY AND METHOD OF MAKING THE SAME
Helmut Herrmann, Cologne-Braunsfeld, Germany, assignor to Metalloxyd G.m.b.H., Cologne-Braunsfeld, Germany
Filed May 28, 1969, Ser. No. 828,608
Claims priority, application Germany, May 29, 1968, 1,764,387
Int. Cl. H01f 27/34
U.S. Cl. 336—223 16 Claims

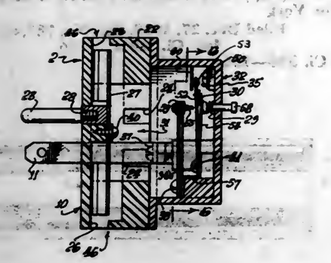


A convoluted conductor assembly and a method of making the same. An elongated tape of electrically conductive material is convoluted lengthwise to form a tubular coil. A layer of electrically insulating oxide is formed on at least on major surface of the tape so as to be located between adjacent convolutions of the tape. Opposite longitudinally extending edge portions of the tape, but not of the oxide layer, are bevelled in direction transversely to the elongation of the tape. The end faces and the outer and/or inner circumferential surface of the coil may be coated with electrically insulating material.

3,546,650
ELECTRICAL ADAPTER
Phillip Purer, 415 Walker Drive, Beverly Hills, Calif. 90210
Filed Mar. 19, 1969, Ser. No. 808,567
Int. Cl. H01h 37/60, 37/74
U.S. Cl. 337—91 5 Claims

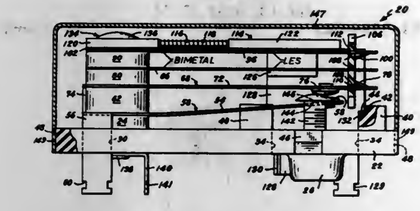
An electrical adapter which provides circuit protection against overloads and short circuits. The adapter contains a plug and receptacle suitable for use with standard, office and household electrical equipment. A circuit breaker,

connected between the plug and the receptacles, is contained within a housing to which the plug and receptacles are coupled. The plug of the adapter contains a ground



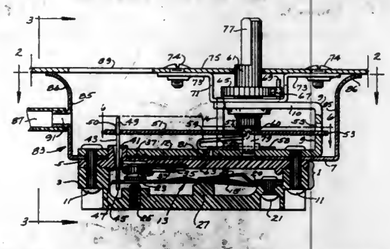
pin which is readily removable from the plug when the plug is to enagage an outlet or receptacle not adaptable for receiving a ground pin.

3,546,651
THERMAL TIME DELAY RELAY
John O. Moorhead, Lexington, and Claude P. Charamond, Versailles, Ky., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Dec. 8, 1967, Ser. No. 689,021
Int. Cl. H01h 37/04, 37/52
U.S. Cl. 337—102 17 Claims



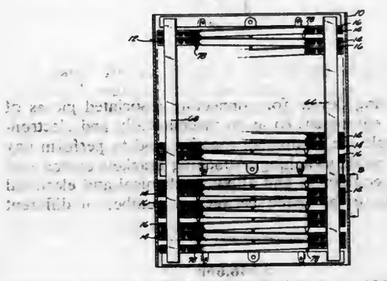
A thermal time delay relay particularly adapted for use in systems for degaussing color television receivers is shown to comprise an insulating base; a post structure upstanding from the base; at least one resilient blade mounted in cantilever relation on the post structure to extend over the base, the blade supporting a fixed contact at its distal end and having an integral terminal portion fitted into a slot in the base for locating the fixed contact with respect to the base; thermally-responsive means mounted in cantilever relation on the post structure to support at least one movable contact above the blade contact at the distal end of the thermally-responsive means, the thermally-responsive means also preferably having integral terminal means fitted into a slot in the base for locating the movable contact relative to the fixed contact; heater means having terminal means at one end mounted on the post structure and having terminal means at its opposite end fitted into a slot in the base for locating the heater means in selected heat-transfer relation to the thermally-responsive means; and adjusting means threadedly engaged in the base to bear against the resilient blade for resiliently positioning the fixed contact in selected spaced relation to the movable contact. In this arrangement, the thermally-responsive means move in response to heat generated by the heater means to close a circuit through the fixed and movable contacts, this circuit being closed a selected period of time after closing of a circuit through the heater means. Various embodiments of the relay are shown to provide ambient-compensation, high-current-conducting capacity, double-pole operation, sequencing operation and other advantageous features. In one embodiment of the relay, the thermally-responsive means supporting the movable relay contact and the resilient blade supporting the fixed relay contact each incorporate integral auxiliary blade means, these auxiliary blade means extending into a chamber formed in the insulating base to hold a thermistor therebetween to provide an auxiliary circuit in parallel with the relay heater means and with the circuit to be formed between the fixed and movable relay contacts. In this embodiment of the relay, self-heating of the resistor in the auxiliary circuit in response to current therethrough, gradually increases the current in the auxiliary circuit, and movement of the thermally-responsive means in response to heat generated by the heater means closes a circuit to shunt the auxiliary circuit in a selected period of time after a circuit is closed through the auxiliary circuit and heater means. When a degaussing coil of a color television receiver is connected in parallel with said relay circuits, increasing current in the auxiliary circuit provides a decreasing current in the degaussing coil and subsequent closing of the relay contacts shunts the degaussing coil after a selected period of time.

3,546,652
THERMOSTATIC CONTROL FOR ROOM AIR CONDITIONERS AND THE LIKE
James B. Allen and John T. Hancock, Versailles, Ky., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 6, 1968, Ser. No. 727,108
Int. Cl. H01h 31/04, 37/20
U.S. Cl. 337—347 5 Claims



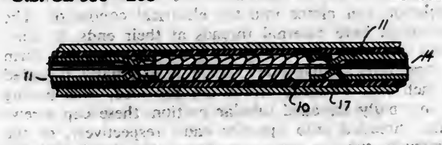
A high-accuracy thermostatic switch is designed for location in an electrical components compartment behind the control panel of a room air conditioner, and through which compartment a minor portion of room air being cooled flows so as to bypass the cooling evaporator element of the conditioner. The switch has a spring blade formed to snap and operate contacts in the electrical circuit for starting and stopping the cooling mechanism of the conditioner. The blade and contacts are located in an enclosing housing of the switch. Mounted on a bracket on and outside of the housing is a bimetallic thermostatic strip linked at one end to the snap blade through a small opening in the housing for controlling snap operation of the latter. The bracket provides means for attachment to the control panel of the conditioner. Threaded through the bracket is a control stem for the thermostatic strip. This stem extends through an opening in the panel for exterior access to adjust it. The electrical components compartment has an opening for by-pass air intended for heat-exchange with the switch. A heat-insulating shroud forms an integral part of the switch. It is cup-shaped and surrounds the bracket and thermostatic strip. It includes a bottom-wall layer interposed between the switch bracket and the switch housing. The cup-shaped shroud has side walls extending toward the panel on which the switch is mounted. If desired, one or more openings may be provided to assure proper air flow across the thermostatic strip. The margins of these walls are provided with resilient lips for engaging the panel so as effectively to seal off the thermostatic strip inside of the shroud from the interior of said electrical components compartment. The extent of the shroud is such as to cover said by-pass air opening. A nipple is provided through one wall of the shroud for connection with an air hose which extends from the nipple for connection with the air circuit of the conditioner.

3,546,653
RESISTOR ASSEMBLY
Melbourne G. Jawelak, McMurray, Pa., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed June 2, 1969, Ser. No. 829,456
Int. Cl. H01c 1/08
U.S. Cl. 338—231 12 Claims



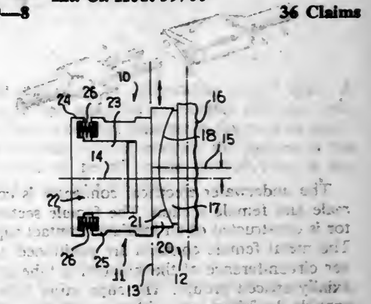
A number of aligned resistor cards are stacked within a casing. The cards are elongated and each is spaced from an adjacent card and supports a coiled resistance wire. A cover is disposed over each card. Longitudinally extending ribs project from a common side of the card and are relatively staggered so that alternate ribs terminate in ends which are spaced inwardly from the ends of its next adjacent ribs. The resistance wire is generally undulating having sections between each pair of adjacent ribs and portions extending over and engaging the inwardly spaced rib ends. The cover fits over the ribs defining wire channels open only at the longitudinal ends of the cards. The wire sections are held under tension in the wire channels. The longitudinal ends of the cards are spaced from the casing to define oil spaces, when the casing is oil filled extending along and communicating with the open ends of the wire channels.

3,546,654
ELECTRICAL RESISTANCE ELEMENTS AND METHOD OF MAKING
Barry Rogal and William Henry Bales, Bognor Regis, England, assignors to Rosemount Engineering Company Limited, Bognor Regis, England, a British company
Filed Feb. 24, 1969, Ser. No. 801,549
Int. Cl. H01c 1/02
U.S. Cl. 338—268 15 Claims



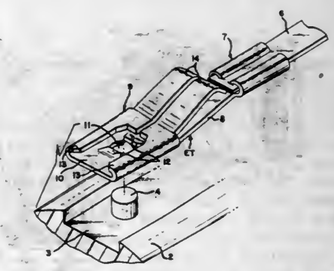
A helical electrical resistance element assembly has at least one strand of insulating fibre, e.g. quartz, passing through the helical element and through tubular lead-outs which are crimped to grip the strand and to secure them to the wire which is threaded through transverse holes in the lead-outs. A woven insulating sleeve, e.g. of quartz, is drawn over the helical element and lead-outs and then a metal tube is drawn down onto the insulating sleeve.

3,546,655
ROTARY ELECTRICAL JOINT
Oliver J. Tyver, Chicago Heights, Oliver C. Tate, Westmont, and Richard E. Prendergast, Western Springs, Ill., assignors to Continental Can Company, New York, N.Y., a corporation of New York
Filed Jan. 15, 1969, Ser. No. 791,455
Int. Cl. H01t 39/00
U.S. Cl. 339—8 36 Claims



This disclosure relates to a rotary electrical joint for coupling a fixed conductor to a rotatable shaft. The joint is particularly adapted to transmit high currents and is of a construction to compensate for both misalignment of the rotatable member with the fixed conductor and any wobble which may occur during the rotation of the rotatable member.

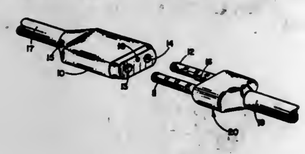
3,546,656
ELECTRICAL CONNECTOR ASSEMBLY
James Pritulsky, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Apr. 2, 1969, Ser. No. 812,721
Int. Cl. H01r 3/04
U.S. Cl. 339—16 10 Claims



An electrical connector assembly comprises a tubular member having longitudinal channels disposed in a dielectric end, electrical rings secured on an exterior surface of the dielectric end in an axially spaced manner and in communication with the longitudinal channels, electrical terminals disposed in respective ones of the channels and having first sections electrically connected to insulated electrical conductors disposed along an inside surface of

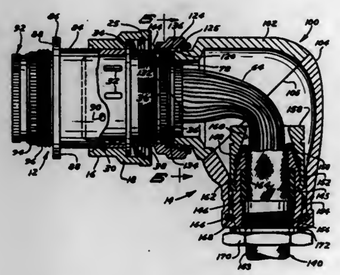
the tubular member and second spring contact means in spring-biased electrical engagement with respective ones of the rings, and means provided by the dielectric end and the terminals securing the terminals in position in the channels.

3,546,657
HIGH CONTACT DENSITY UNDERWATER CONNECTOR
Robert G. Cook, San Pedro, Calif., assignor to North American Rockwell Corporation
Filed July 29, 1968, Ser. No. 748,522
Int. Cl. H01r *13/52*
U.S. Cl. 339—60 12 Claims



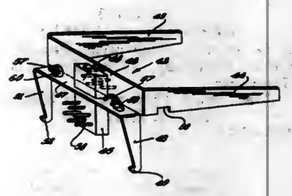
The underwater electrical connector is comprised of a male and female section. The female section or connector is constructed of an insulated contact supporting tube. The metal female contacts are positioned around the inner circumference of the supporting tube in one or more axially spaced groups. The supporting tube is slotted to provide flexibility and pressure to all the contacts through an interference fit between the male and female connectors. The male connector in one embodiment is comprised of two male probes, each having positioned around its outer circumference a number of contacts corresponding in number and position to the contacts on the female connector. The end of each probe is enlarged to provide a squeegee action to remove the water from the female contacts before final electrical and mechanical connection is made.

3,546,658
CONNECTOR WITH SPLINED BACKSHELL
Arden D. Van Horssen, Ottomar H. Vetter, and Millard A. Olson, Minneapolis, Minn., assignors to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed Apr. 22, 1968, Ser. No. 723,170
Int. Cl. H01r *13/54*
U.S. Cl. 339—90 5 Claims



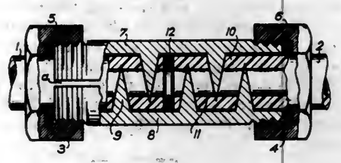
A backshell has an internally splined section that interfits with an externally splined section on the electrical connector to which it is to be attached. A coupling nut is rotatably mounted on the backshell by means of ball bearings and has threads engageable with threads on the connector so that the two splined sections can be pulled into their interfitting relationship. A spring clutch allows the coupling nut to be readily rotated when advancing the splined sections together but resists reverse rotation.

3,546,659
COUPLING DEVICE
Richard J. Powers, 40 E. Erie St., Elmhurst, Ill. 60126
Filed Jan. 14, 1969, Ser. No. 790,914
Int. Cl. H01r *13/54*
U.S. Cl. 339—91 3 Claims



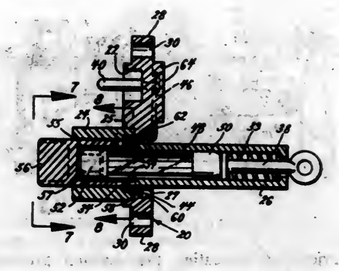
A coupling device for connecting associated pieces of electronic equipment so as to mechanically and electronically couple the equipment together and to perform any necessary mode switching. Attaching brackets extend into electronic equipment and allow mechanical and electrical connections to be made between a number of different units.

3,546,660
ELECTRICAL CONNECTOR WITH INSULATION PIERCING MEANS
Klaus Wilhelm, and Bodo Bottcher, Berlin, Germany, assignors to Vereinigte Draht- und Kabelwerke Aktiengesellschaft, Berlin and Duisburg, Germany
Filed Feb. 10, 1969, Ser. No. 798,075
Claims priority, application Germany, Feb. 10, 1968, 1,690,464
Int. Cl. H01r *7/04, 7/10*
U.S. Cl. 339—94 8 Claims



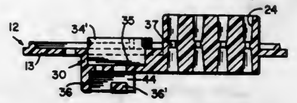
A connector arrangement for cables having an electrical conductor and insulation surrounding the conductor, the connector arrangement incorporating two half-shells each having an inner surface which engages the insulation of a cable between the half-shells. The half-shells have inwardly extending, pointed prongs which, during placement of the half-shells on the cable, penetrate the insulation and pierce into the electrical conductor. The half-shells have external threads at their ends, so that, when the two half-shells are in place, they together form a composite tubular body which is externally threaded at each end. Two cap screws are provided, each having an internally threaded tubular portion, these cap screws being threaded onto opposite ends, respectively, of the composite tubular body constituted by the half-shells. Sealing means are provided between the cap screws and the composite tubular body constituted by the half-shells.

3,546,661
PROTECTORS FOR ELECTRIC CIRCUITS
Angelo Urani, St. Louis, Mo., assignor to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware
Filed June 26, 1968, Ser. No. 740,246
Int. Cl. H01r *13/68, 33/06*
U.S. Cl. 339—132 5 Claims



A panel, for use in an electric device equipped with a removable wall to which the female plug of a "line" cord is attached, has prongs which extend into that female plug, has a socket for an electric fuse, and has a short conductor which extends between one of those prongs and one of the terminals of that socket and which has a current-carrying capacity greater than that of any electric fuse which can be connected in series with that electric device by means of that socket.

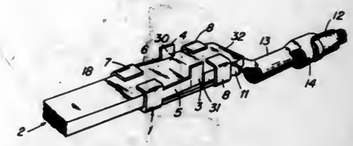
3,546,662
PLUG FOR WIRING OF DIFFERENT VOLTAGE LEVELS
Arden L. Munson, Logansport, Ind., assignor to P. L. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,483
Int. Cl. H01r *33/72*
U.S. Cl. 339—192 13 Claims



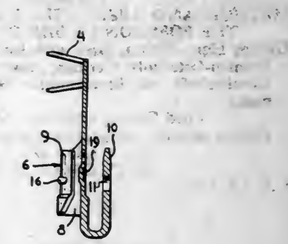
A plug connecting an electro-mechanical device to a junction box. The plug has means to receive male terminals from the electro-mechanical device and electrical wiring so as to electrically connect the wiring to the male terminals, means to receive groups of wiring, means to direct one of the groups of wiring to the means to receive the male terminals, and means to direct another of the groups of wiring in a predetermined direction.

3,546,663
CONNECTOR ASSEMBLY AND TOOL
Centre William Holmberg, Jr., Melville Park Road, Melville, N.Y. 11746
Filed Dec. 19, 1968, Ser. No. 785,081
Int. Cl. H01r *11/22, 15/12*
U.S. Cl. 339—223 11 Claims

An electrical connector assembly for use with panel boards comprises a post member affixed to the board and a female contact member carried by a wire. The post member is provided with notches which, in cooperation with spring locking tabs on the female contact member, lock the two members together to prevent inadvertent disconnection. To remove the female contact member, the spring locking tabs must be deliberately spread apart. A tool for removal and assembly cooperates with the locking tabs. The female contact member is designed to establish electrical contact without marring the surface of the post member and to permit reuse thereof after it has been removed from a post member.

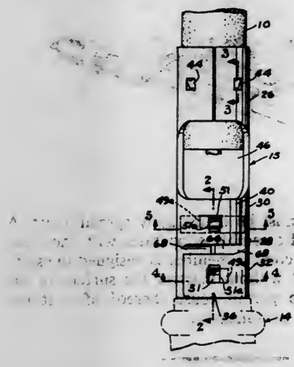


3,546,664
DETACHABLE ELECTRICAL CONNECTOR MEANS
Edwin Stanton De Bolt, Carlisle, and Charles Frederick Meyers, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 10, 1968, Ser. No. 766,426
Int. Cl. H01r *13/12*
U.S. Cl. 339—256 10 Claims



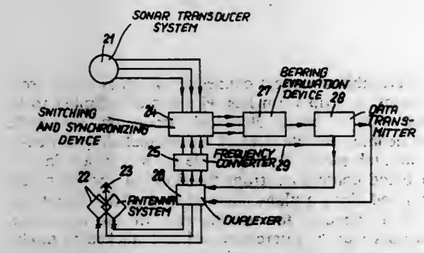
A detachable electrical connector which is made from sheet stock in strip form has wire barrels adapted to be swaged onto a bared electrical conductor, receptacle means defining female contact means including curled-in sides, and tab means defining male contact means including a blade continuous from the floor of the connector and formed along a plane adjacent that of the receptacle. The tab is directed toward the rear of the connector. Connectors may be interconnected and stacked in modular form, or they may receive other conventional tabs or receptacles which are secured to conductors. Stock material from which the connector is made is of two thicknesses so that the barrels are thin and deformable, most of the receptacle is thin and flexible, and the tab and the forward part of the receptacle are thick and sturdy. Transition of metal thickness is disposed at a suitable place on the receptacle so as to provide additional strength at the lead-in end of the receptacle. The receptacle has further strengthening means thereon to prevent it from overflexing due to repeated insertions and withdrawals of a tab.

3,546,665
IGNITION CABLE CONNECTOR
Alfred M. Zak, 6110 Camere Ave., Detroit, Mich., 48212
Filed Feb. 24, 1969, Ser. No. 801,657
Int. Cl. H01r 13/12
U.S. Cl. 339—256 19 Claims



A connector for releasably connecting an ignition cable to a terminal of a spark plug or distributor of an internal combustion engine. The terminal engaging end of the connector is formed as a tubular body with two axially adjacent sections having their longitudinal edge portions spirally overlapped in opposite directions.

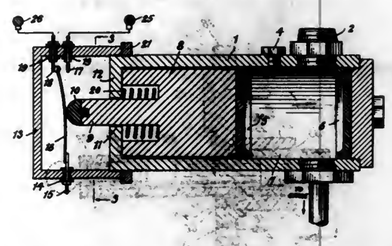
3,546,666
METHOD AND APPARATUS FOR DETERMINING THE POSITION OF OBJECTS IN WATER
Günter Hans Ziehm, Kiel, and Karl-Friedrich Triebold, Bremen-Osterholz, Germany, assignors to Fried. Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed Dec. 5, 1968, Ser. No. 781,429
Claims priority, application Germany, Dec. 5, 1967, 1,623,492
Int. Cl. G01s 3/00, 9/68
U.S. Cl. 340—2 6 Claims



Method and apparatus for determining the position of sound-reflecting or radiating objects in water, such as submarines or the like, with the aid of waterborne buoys and an aircraft.

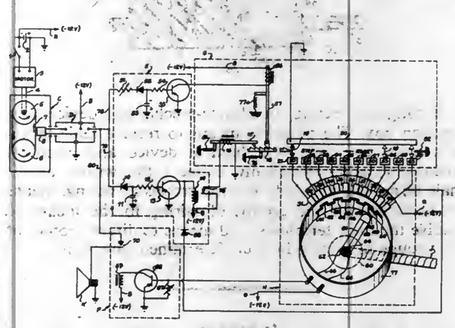
The apparatus employs two sonobuoys spaced apart on the surface of the water which continuously determine the angular horizontal bearings of both the objects in the water and the aircraft with respect to an earth-fixed reference direction such as north. The buoys also continuously transmit this bearing information to the aircraft via radio.

3,546,667
HYDRAULIC BRAKE SYSTEM
Edward M. Thomas, 122 Bement Ave., Staten Island, N.Y. 10310
Filed Oct. 25, 1968, Ser. No. 772,470
Int. Cl. B60t 17/22
U.S. Cl. 340—53 3 Claims



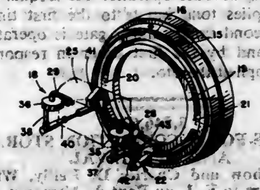
A device for indicating the residual pressure in a hydraulic brake system so that the driver of a vehicle will be apprized, even before the application of his foot to a brake pedal, whether the brake system is in a properly operating condition. The device includes a cylinder coupled to the brake system and in which residual pressure is normally maintained at a given value. The cylinder contains a piston which is moved to a certain position against spring bias when the pressure within the cylinder is maintained at the required level and at which time a "favorable" signal is operated by the movement of the piston under the required pressure. An unfavorable signal will be actuated by movement of the piston when the spring bias overcomes the lowered residual pressure. A valve is also provided by means of which a reduced gasoline flow to the carbureter will take place at such time as the lowered residual pressure becomes existent in the cylinder.

3,546,668
TALKING SPEEDOMETER
Frank C. Legler, 639 Azalea Drive, Rockville, Md. 20853, and James L. Legler, 1402 E. Douglas Ave., Nashville, Tenn. 37206
Filed Sept. 11, 1967, Ser. No. 666,787
Int. Cl. B60q 5/00
U.S. Cl. 340—62 6 Claims



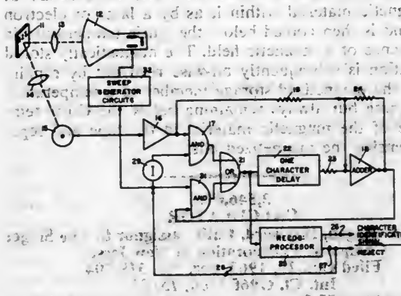
A multicontact switch connected to a speedometer cable makes a separate contact for each given speed of a vehicle. A tape recording has spoken words of the speeds corresponding to the switch contacts. The switch and tape are electrically interconnected so that, when a tape recorded word coincides with its corresponding switch contact, that word is announced by a loud speaker.

3,546,669
FLASHING EMERGENCY SIGNAL LIGHT
Jeremiah D. Kennelly, Oak Park, Ill., assignor to Mars Signal Light Company, Bellwood, Ill., a corporation of Illinois
Filed June 23, 1969, Ser. No. 835,565
Int. Cl. B60q 1/26, 1/46
U.S. Cl. 340—84 4 Claims



An emergency signal light having a pair of trunnion-like ring mountings for a sealed beam lamp. A motor mounting is provided immediately behind the lamp with oppositely extending worms linked to the trunnion rings to develop a "figure 8" light pattern.

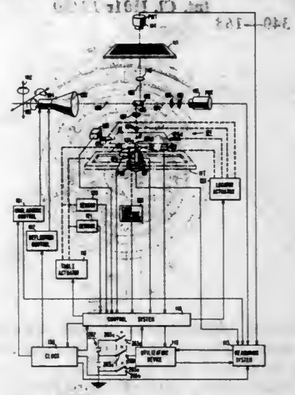
3,546,670
READING APPARATUS INCLUDING MEANS FOR RE-SENSING AN ITEM WHICH IS DIFFICULT TO RECOGNIZE
Harold C. Glass and Vinson C. Alwin, Fairfax, Va., assignors to Farrington Electronics, Incorporated, Springfield, Va., a corporation of Massachusetts
Filed Mar. 15, 1966, Ser. No. 534,503
Int. Cl. G06r 9/00
U.S. Cl. 340—146.3 10 Claims



An automatic character reading device for reading characters at a fast rate. Each character is scanned a first time and upon non-recognition thereof it is rescanned. The signal resulting from the first scan of the character is stored and added to the first rescan thereof to thus increase the signal-to-noise ratio of the signal. Further, rescans are effected until recognition takes place.

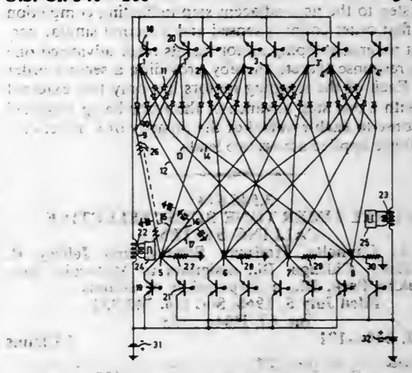
3,546,671
APPARATUS FOR DETERMINING ONE OR MORE GEOMETRICAL PROPERTIES
Hugh E. Rogert, Vestal, and Joseph H. Shanis, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Mar. 17, 1967, Ser. No. 624,027
Int. Cl. G06k 9/00
U.S. Cl. 340—146.3 31 Claims

Apparatus for determining one or more geometrical properties, such as size and/or location, of an object that has a scanner which employs a radial scanning pattern. A reference member is positioned with respect to the object such that the scanning element of the scanner simultaneously scans the object and the member. A sensor system detects the respective traversement by the scanning element of a predetermined spatial characteristic of the object and the traversement of a reference indicium carried by the reference member. The sensor



system provides output signals at the particular traversements which are indicative of the property to be determined. The object and reference member are further positioned with respect to each other such that the particular traversements occur on the linear portion of the radial scan.

3,546,672
PULSE-SUPPLYING ARRANGEMENTS
Johannes Van Baardewijk, Hilversum, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 4, 1966, Ser. No. 592,092
Claims priority, application Netherlands, Nov. 19, 1965, 6515022
Int. Cl. H04q 3/00, 5/00
U.S. Cl. 340—166 3 Claims

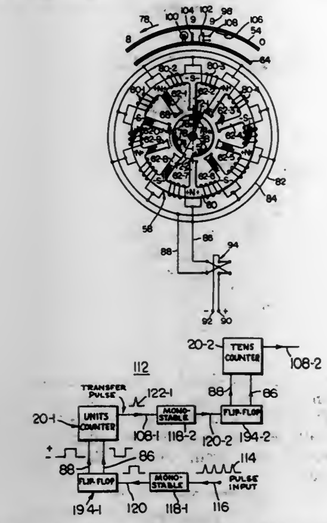


The disclosure herein describes a pulse supplying arrangement in a memory matrix having a plurality of coordinate read and write lines. Each of the lines includes a suitable unilaterally conducting device, and pulses are routed to selected lines by means of switches located at each end of the respective lines. In order to improve the pulse response characteristics of each selected line, each non-selected line is electrically decoupled from the switch which is shared commonly with a selected line by means of a blocking potential applied to each unilateral conducting device in each non-selected line.

3,546,673
ELECTROMAGNETIC COUNTING APPARATUS

Phillip L. Harden and Samuel M. Thomas, Jr., Fort Wayne, Ind., assignors to Bowmar Instrument Corporation, Fort Wayne, Ind., a corporation of Indiana

Filed Dec. 30, 1968, Ser. No. 787,937
Int. Cl. H01r 13/50
U.S. Cl. 340—168 24 Claims

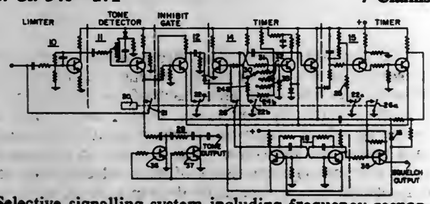


Electromagnetic counting apparatus for counting events, such as pulses of a pulse train or revolutions of a shaft. A first permanent magnet stepping motor is provided with its rotor having a plurality of discrete positions corresponding to a first order of the number to be counted, the motor being advanced one step in the same direction to the next adjacent position in response to the occurrence of each such event. Advance of the rotor from one predetermined step to the next adjacent step indicating completion of the first order count is sensed and a second similar permanent magnet stepping motor has its rotor advanced one step in response thereto thereby providing a second order count. Each of the stepping motors has only two external leads with a one step advance of the rotor being provided in response to each reversal of the polarity of a direct current voltage applied across two leads.

3,546,674
PLURAL TIMER TONE BURST SELECTIVE CALLING SYSTEM

Gary A. Cannalte, Hoffman Estates, and Jeffrey R. Kanofsky, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed July 5, 1968, Ser. No. 742,731
Int. Cl. H04q 1/18
U.S. Cl. 340—171 7 Claims

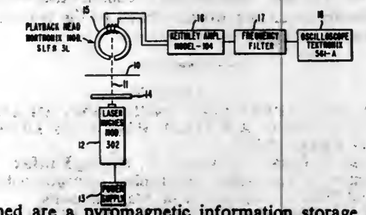


Selective signalling system including frequency responsive circuit operable to select a particular frequency and used with feedback circuit to provide oscillations at such frequency. A control system includes first and second timers with the first timer having a first period and starting the second timer to provide a second period after the first period. For encoder operation, bursts of tone are provided when the first timer is released separated by longer time periods when first timer is operated. The frequency of the bursts and the time therebetween provides the code. During decoder operation the frequency responsive circuit applies tone bursts to the first timer which actuates the second timer, and a gate is operated by the second timer and by the first timer in response to the second burst applied thereto.

3,546,675
PROCESS FOR INFORMATION STORAGE AND RETRIEVAL

Che Chung Chow and Charles D. Reilly, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Oct. 31, 1967, Ser. No. 679,346
Int. Cl. G01d 15/12; G11b 5/02
U.S. Cl. 340—174.1 14 Claims

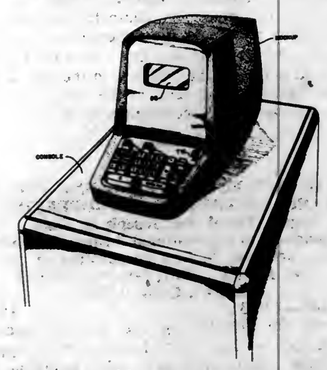


Claimed are a pyromagnetic information storage and retrieval process and apparatus capable of operating at a high packing density. A magnetic storage member, e.g., tape, is bit-wise heated above the Curie temperature of the magnetic material within it as by a laser or electron beam and is then cooled below the Curie temperature in the presence of a magnetic field. The magnetically stored information is subsequently bit-wise read out by rapidly heating the magnetized storage member to a temperature approaching but always remaining below the Curie temperature of the magnetic material in the tape and separately sensing the magnetized bits.

3,546,676
CALCULATOR

Robert A. Ragen, Hayward, Calif., assignor to The Singer Company, a corporation of New Jersey

Filed Oct. 29, 1963, Ser. No. 319,704
Int. Cl. G06f 3/00, 15/02
U.S. Cl. 340—172.5 10 Claims

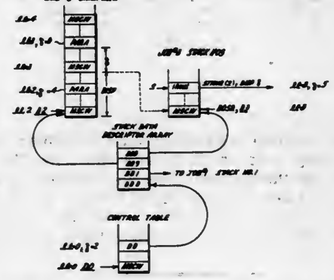


A calculator having a processor comprising an arithmetic unit and a control unit, a last-in-first-out storage, a keyboard unit for entering data words into the storage and instructions, designating computing steps to be performed by the arithmetic unit, into the control unit, and a visual display for indicating the contents of the LIFO storage. The processor includes control circuitry for entering data words resulting from computing steps performed in accordance with instructions into the entry register of the storage. The processor also includes shifting circuitry for shifting the contents of each of the registers in the LIFO storage to the next adjacent register in a direction away from the entry register in response to the actuation of a digit key representing the first digit of a number.

3,546,677
DATA PROCESSING SYSTEM HAVING TREE STRUCTURED STACK IMPLEMENTATION

Robert S. Barton, Salt Lake City, Utah, and Bobby A. Creech, Glendora, Benjamin A. Dent, Altadena, Erwin A. Hauck, Arcadia, and William M. McKeeman, Palo Alto, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Oct. 2, 1967, Ser. No. 672,226
Int. Cl. G06f 9/20
U.S. Cl. 340—172.5 30 Claims



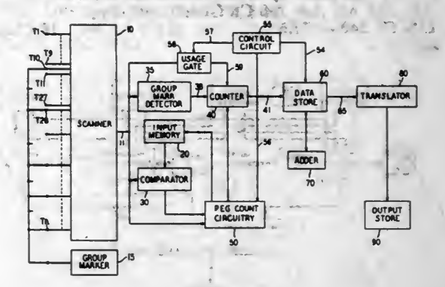
A data processing system having a main memory for storing stacks of information and operators for processing. An additional memory has individually selectable display registers each containing a different absolute address of a base of a stack area or other memory storage area. One such display register contains the address of the base of a stack area used to store segment descriptor words. Another display register contains the address of the base of a memory area storing a descriptor word which contains an address of the base of a stack area containing data descriptor words. A segment descriptor contains an address referencing a particular procedure and a data descriptor contains an address referencing a particular stack. A group of registers are provided for storing various information, including reference words. One type of reference word contains a level value designating a particular display register and an index value. An address adder combines various values together to obtain the addresses of desired parameters, control words and reference words. A gating and control unit causes the system to be sequenced in a manner that uses the registers, stacks and adder to obtain the segment and data descriptors which, in turn are used to obtain the desired program procedures and parameters.

3,546,678
TELEPHONE TRAFFIC DATA RECORDER

William B. Callaway and Andrew A. Deltuvia, Jr., Lincroft, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Mar. 29, 1968, Ser. No. 717,173
Int. Cl. G06f 9/18
U.S. Cl. 340—172.5 10 Claims

A portable electronic traffic data recorder employs a flying head input scanner rotating in synchronism with a magnetic storage medium for accumulating both peg count and usage data in a form suitable for processing by electronic data processing equipment. Peg counts are obtained by comparing current scan with previous scan.



The accumulated data is automatically processed, via memory table look-up, into output coded form concurrently with the accumulation of new data. Input grouping is completely flexible, via selective group marks, and is not recorder-oriented.

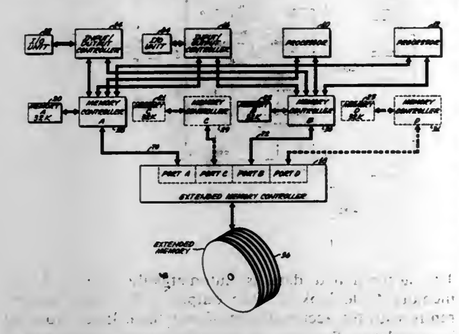
3,546,679
METHOD FOR DYNAMIC CONTROLLING OF MAGNETIC CORE REGISTER

Akira Yokoyama, Harunaga Neya, Yoshinori Yoshimune, Nobuhiro Tomabechi, and Toshio Imai, Kawasaki-shi, Japan, assignors to The General Corporation, Kawasaki-shi, Japan

Filed May 8, 1968, Ser. No. 727,506
Int. Cl. G11c 7/00
U.S. Cl. 340—172.5 2 Claims

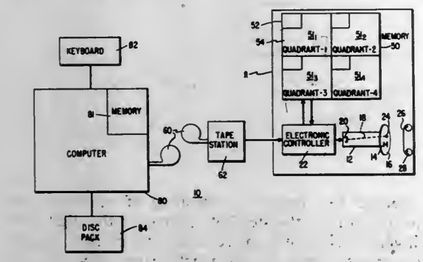
A method for dynamic controlling of magnetic core register comprising the steps of: preparing the digit drive circuit which drives only the required unit of each register, and the register drive circuit which drives only the fixed register for selecting of the required unit of the needed register, operating the selection of the digit drive circuit by one ring counter stepping in synchronization with digit-selecting digit pulses having a constant period, preparing the counters for digit-selecting, setting the counters at fixed position by the standard timing of the digit pulse, putting the digit pulse into the counters as an input, and working the register drive circuits by the outputs of the counters.

3,546,680
PARALLEL STORAGE CONTROL SYSTEM
David L. Bahrs, Parish, and Albert L. Beard, Liverpool, N.Y., assignors to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts
Filed May 1, 1968, Ser. No. 725,862
Int. Cl. G06f *13/00*
U.S. Cl. 340—172.5 18 Claims



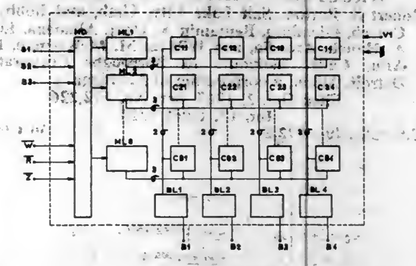
A data processing system having a plurality of working store units with addressable locations for storing information and system components capable of communicating with any of the store units wherein separate control apparatus simultaneously selects, requests access and controls in parallel the transfer of information between a plurality of the store units and one of the components and wherein the control apparatus further simultaneously assigns in parallel manner consecutive addresses to different ones of the plural store units for scattering the information being transferred among the plural stores, thereby optimizing the rate of information transfer and the availability of each of the plural stores of the system.

3,546,681
PROGRAMMED METHOD FOR MANIPULATING ELECTRONIC FONTS IN ELECTRONIC PHOTOCOMPOSITION SYSTEMS
Traugott A. Korn, Princeton Junction, and Paul E. Justus, Englishtown, N.J., assignors to RCA Corporation, a corporation of Delaware
Filed Jan. 30, 1969, Ser. No. 795,186
Int. Cl. G06f *3/14*
U.S. Cl. 340—172.5 7 Claims



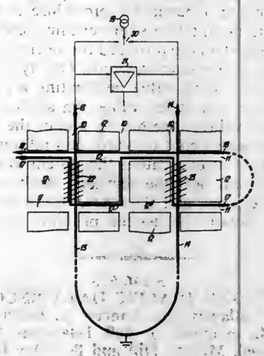
A programming method is described which permits an electronic photocomposing unit to efficiently photocompose all the characters of a particular typographic font, even though the memory of the unit is insufficient to store all of the electronic signals necessary to create all of the characters of the particular font on an imaging device. The method includes a division of each font into a plurality of subsets of sizes that may be stored in the memory and the automatic monitoring of the memory to keep track of the subsets stored therein, so as to update the memory when a different subset is required.

3,546,682
MEMORY USING INTEGRATED CIRCUITS AS UNITARY CROSSPOINTS
Thérèse Marie Leonie Cagnac, Alain Pierre Le Gall, and Raphael Guy Yelloz, Paris, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 28, 1967, Ser. No. 619,452
Claims priority, application France, Mar. 8, 1966, 52,421
Int. Cl. G11b *11/40, 7/00;* H03h *3/286*
U.S. Cl. 340—173 2 Claims



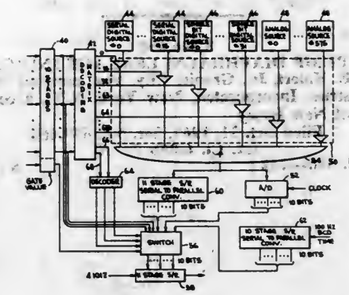
A word-organized integrated circuit elementary memory comprising a matrix of memory unit cells. The control signals of the memory cells are supplied by word logical circuits and by digit logical circuits. A word decoding circuit, in response to binary code signals, enables the selection of one of the word lines for a given operation.

3,546,683
MAGNETIC STORAGE ARRANGEMENTS
Geoffrey George Pullum, Sawbridgeworth, and William Ralph Knowles, Harlow, England, assignors to Standard Telephones and Cables Limited, London, England, a company of Great Britain
Filed Mar. 26, 1968, Ser. No. 716,194
Claims priority, application Great Britain, Apr. 7, 1967, 15,991/67
Int. Cl. G11c *11/08, 5/02*
U.S. Cl. 340—174 3 Claims



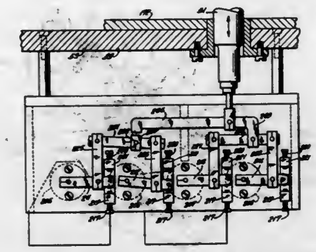
This is a variation of the waffle iron type magnetic storage, this invention using two cores per bit, and the actual arrangement is such that the information is stored by producing different magnetic states in each of the two cells associated with the stored bit.

3,546,684
PROGRAMMABLE TELEMETRY SYSTEM
Marvin S. Maxwell, Silver Spring, Paul M. Feinberg, Rockville, Eugene A. Czarcinski, Bowie, Joseph R. Silverman, Silver Spring, and John G. Lesko, Jr., Cheverly, Md., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 20, 1968, Ser. No. 754,055
Int. Cl. G06f *3/00;* H04q *7/00*
U.S. Cl. 340—172.5 49 Claims



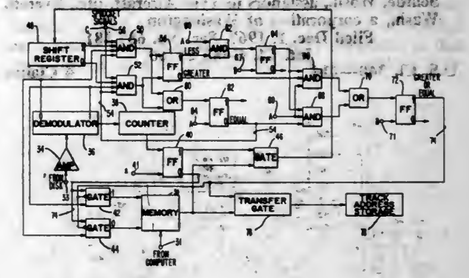
A telemetry data controller includes a switch for time division multiplexing a plurality of analog and digital inputs to a transmitter. The switch is under the control of a programmable, computer type memory, certain portions of which can be changed at will. The memory controls the switches so that different data sources can be sampled at different rates. The analog signals are fed to an analog-to-digital converter, whereby all transmission is of digital signals.

3,546,685
WHIPPLETREE LINKAGE UTILIZED TO POSITION A TRANSDUCER
Andrew Gabor, Bedford, Mass., assignor to Potter Instrument Company, Inc., Plainview, N.Y., a corporation of New York
Original application July 28, 1964, Ser. No. 385,727, now Patent No. 3,378,826, dated Apr. 16, 1968. Divided and this application Mar. 8, 1968, Ser. No. 711,666
Int. Cl. G11b *21/08*
U.S. Cl. 340—174.1 2 Claims



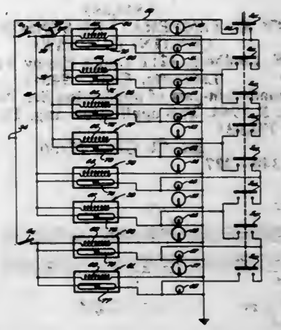
A transducer positioning mechanism consisting of rotary solenoids and interconnecting linkage. Actuation of selected solenoids, because of the linkage utilized, imparts differing amounts of linear movement to the transducer to position the transducer at a selected position.

3,546,686
RANDOM ACCESS SYSTEM
Frank H. McPherson, Rosemont, and Ernesto G. Sevilla, Norristown, Pa., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Continuation of application Ser. No. 518,142, Jan. 3, 1966. This application Sept. 22, 1969, Ser. No. 862,154
Int. Cl. G11b *5/48, 27/36, 25/04*
U.S. Cl. 340—174.1 4 Claims



This device deals with a means for readily determining upon which track of a multi-track recording medium there is found the information which is being sought. The information is arranged on the tracks in segments and a certain part of the processable information in each segment is related to a corresponding part of the processable information in every other segment such that, for instance, the corresponding parts of information become progressively higher in value as they are laid out around the track in a direction which is opposite to the direction in which the record medium is being rotated. Accordingly, the system attempts to detect a condition wherein said corresponding parts or information are first "less than" the information being sought and thereafter either "equal to" or "greater than" the information being sought. At this latter time the system makes a decision that is in the track of corresponding information last compared that the information being sought is to be found.

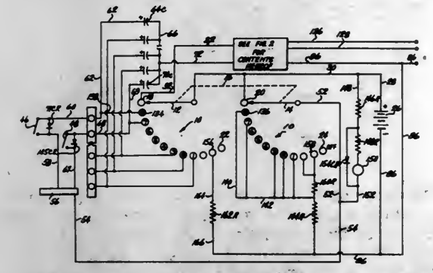
3,546,687
LAMP FAILURE INDICATOR
Joseph Rojek, 7925 S. Lorel, Oak Lawn, Ill. 60459, and Joseph Csoke, 9336 Avalon, Chicago, Ill. 60619
Filed Oct. 17, 1967, Ser. No. 675,971
Int. Cl. G08b *21/00, 29/00*
U.S. Cl. 340—214 2 Claims



Monitoring apparatus for indicating the condition of a plurality of electrical lamps and includes an indicator lamp test circuit for simultaneously testing all indicator lamps. Each electrical lamp has a lamp failure indicator

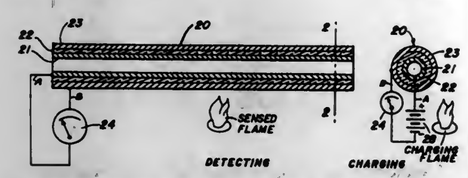
circuit kit including a reed switch responsive to current in existing lamp wiring, and which is connected to control an indicator.

3,546,688
ELECTRONIC BURGLAR ALARMS AND TESTING CIRCUITRY THEREFOR
Charles R. Jensen, Lynnwood, and Robert K. Dent, Seattle, Wash., assignors to Tyee Aircraft, Inc., Everett, Wash., a corporation of Washington
Filed Dec. 1, 1967, Ser. No. 687,281
Int. Cl. G08b 29/00
U.S. Cl. 340—214 4 Claims



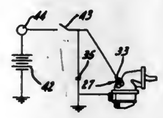
This invention relates to an electronic burglar alarm circuitry and testing circuitry therefor. Particulars of this invention include circuitry normally in an operating mode but in a nonconducting mode and which circuitry is triggered by, and changes to conducting mode upon, the closing of normally open burglar alarm switch means, as by burglars or other intruders. Such switch means are associated in combination with input capacitors which are charged upon closing of said switch means and the charging of said capacitors causes a triggering impulse changing the circuitry from nonconducting mode to conducting mode. Preferably, there are a plurality of said switch means and associated capacitor combinations so that if one combination should become inoperative, or not operated by the intruder, others will provide adequate protection for the premises. Another feature of the invention is the use of a combination alarm switch means and a diode means coupled therewith for testing the circuitry by the flow of direct current in a reverse direction and thus permitting testing of the circuitry with said switch means remaining in normal open position.

3,546,689
CRITICAL-TEMPERATURE SENSOR OF THE CONTINUOUS TYPE
John E. Lindberg, 1211 Upper Happy Valley Road, Lafayette, Calif. 94549
Continuation-in-part of application Ser. No. 599,212, Dec. 5, 1966. This application Aug. 12, 1968, Ser. No. 777,931
Int. Cl. G08b 17/00
U.S. Cl. 340—227 1 Claim



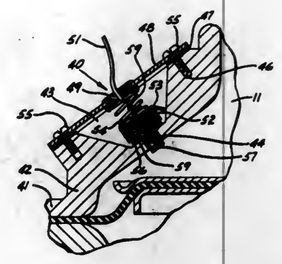
Between two metallic conductors is a thin glass layer, preferably bonded to both conductors. The preferred form has an inner conductor in a tubular outer conductor with only the glass separating them. When heated to a temperature dependent on the characteristics of the glass, this structure undergoes a change in the resistance between the two conductors, apparently due to metal ions flowing in softened or melted glass. When the sensor is heated to render it electrically conductive, unidirectional current is passed through it. Later, when cooled, an electrically actuated indicator is placed across the two conductors in a non-powered circuit, so that when the sensor is later heated again, the indicator can indicate the temperature at which the glass becomes conductive.

3,546,690
FUEL PUMP DIAPHRAGM LEAKAGE INDICATOR
Ralph E. Kalert, Jr., Granite City, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Oct. 31, 1967, Ser. No. 679,462
Int. Cl. G08b 21/00
U.S. Cl. 340—242 6 Claims



This invention relates to a mechanically actuated diaphragm fuel pump which includes an electrically operated alarm system adapted to provide warning or indication that the diaphragm or other part of the pump is damaged to the extent that leaking fuel has passed the diaphragm. The fuel leak sensor comprises in effect a switch connected to a source of electricity, and an alarm mechanism. The alarm is actuated in response to the deformation or deterioration of a retaining member which, when sufficiently deformed or deteriorated due to contact with fuel or fuel vapors will permit the switch to close and actuate the alarm circuit.

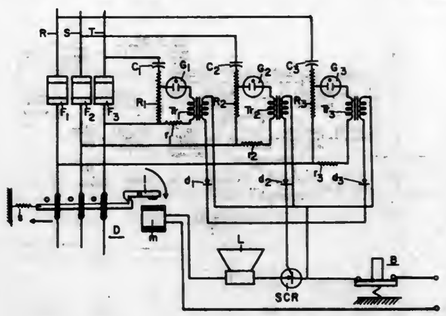
3,546,691
FUEL PUMP DIAPHRAGM LEAKAGE INDICATOR
Russell Frederick Smith, Ferguson, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Oct. 31, 1967, Ser. No. 679,461
Int. Cl. G08b 21/00
U.S. Cl. 340—242 5 Claims



This invention relates to a mechanically actuated diaphragm fuel pump which includes an electrically operated alarm system adapted to provide warning or indication that the diaphragm or other part of the pump is damaged to the extent that leaking fuel has passed the diaphragm. The fuel leak sensor comprises in effect a switch connected

to a source of electricity, and an alarm mechanism. The alarm is actuated in response to the deformation or deterioration of a retaining member which, when sufficiently deformed or deteriorated due to contact with fuel or fuel vapors will permit the switch to close and actuate the alarm circuit.

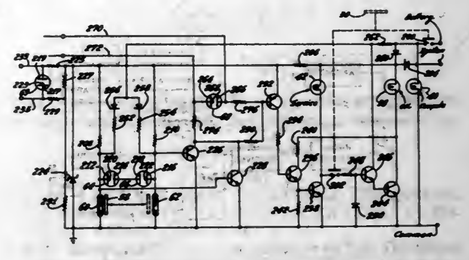
3,546,692
COMBINED OPTICAL AND ACOUSTICAL BLOWN FUSE INDICATOR
Erwin Salzer, Waban, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Dec. 16, 1968, Ser. No. 784,071
Int. Cl. G08b 21/00
U.S. Cl. 340—250 5 Claims



An electric polyphase system, or other electric circuitry including a plurality of conductors for carrying current, is provided with an electric fuse in each of its phases, or in each of its conductors for carrying current, respectively. The system further includes a plurality of glow-lamp blown fuse indicators each operatively related to a fuse to pinpoint any particular fuse that may have blown. In addition the system includes an acoustic blown fuse indicator for calling the attention of an attendant whose vision might not be directed to the glow-lamp blown fuse indicators at the time one or more fuses blow to the fact that a fault occurred, resulting in blowing of one or more fuses. Each glow-lamp blown fuse indicator circuit is provided with coupling means insulatingly interposed between the same and a solid state switching device controlling the acoustic blown fuse indicator for indicating operation of the latter by a pulse occurring concomitant with firing of any glow-lamp blown fuse indicator. Thus each glow-lamp blown fuse indicator performs the dual function of indicating blowing of a fuse, and of initiating, by being fired, the operation of the acoustic blown fuse indicator.

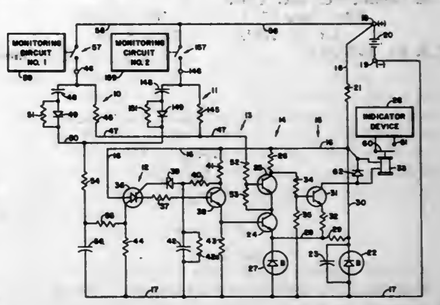
3,546,693
HEAVY MAINTENANCE SERVICE COMPUTER
Thomas B. Bissett and Harold Blair, Malibu, and John B. Murphy, Culver City, and Martin S. Tatch, San Diego, Calif., assignors to The Bissett-Berman Corporation, Santa Monica, Calif., a corporation of California
Filed Oct. 26, 1967, Ser. No. 678,236
Int. Cl. G08b 5/00
U.S. Cl. 340—309.1 24 Claims

This invention relates to a heavy maintenance service computer for monitoring the operation of a device requiring periodic servicing, and wherein the service computer is card controlled so that the service computer is automatically reset upon the insertion of a new card. Specifically, the service computer of the present invention may include a pair of electrochemical storage elements which provide for a transfer of an active material in accordance with the passage of current through the storage elements, and wherein one of the storage elements contains an initial charge of active material which is discharged in accordance with the operation of the device. As the one of the electrochemical storage elements is discharged, the other of the electrochemical storage elements is charged. Upon the discharge of all of the active material from the one of the electrochemical storage elements, the resistance of the one storage element rises, thereby controlling means to produce an output indication. The service computer may include a card holder containing a plurality of stacked cards and wherein the cards are visually alternated so that each time a card is removed and the card holder is re-



inserted into the service computer, the card holder must be rotated 180° to produce the proper visual orientation. The card holder may include means such as a permanent magnet which operates switches such as reed switches in the service computer to control the direction of the flow of current through both electrochemical storage elements. Each time a card is removed and the card holder is reinserted into the service computer, the flow of current is controlled to be opposite to the previous direction of the flow of current, thereby resetting the service computer. The present invention also includes the use of other means such as a plurality of notches in a control card to control the resetting of the computer.

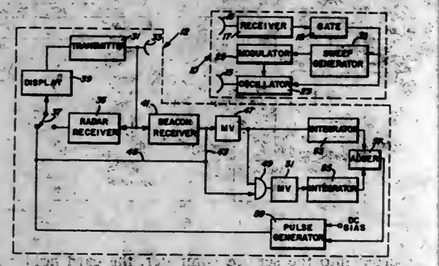
3,546,694
MULTIALARM SUMMARY ALARM
James D. Heckelman, Huron, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 17, 1967, Ser. No. 632,152
Int. Cl. G08b 19/00
U.S. Cl. 340—412 7 Claims



An alarm circuit having an indicating device which becomes activated by the opening of a gate circuit having two signal inputs. One of the gate signal inputs is connected to a plurality of fault contact sets. A normally conducting semiconductor switch is connected to the other gate signal inputs. The semiconductor switch is connected

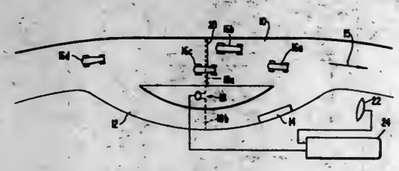
through respective pulse forming networks to the fault contact sets in order that the conduction of the semiconductor switch will be briefly interrupted each time a fault contact set closes.

3,546,695
RADAR TRANSPONDOR SYSTEM
Nathan Freedman, West Newton, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Mar. 3, 1969, Ser. No. 803,549
Int. Cl. G01s 9/56
U.S. Cl. 343—6.5 4 Claims



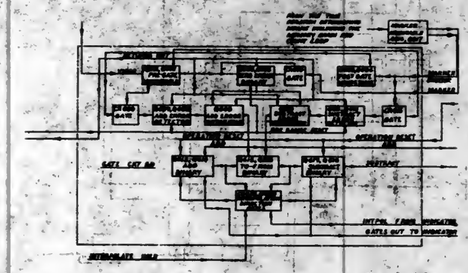
An improved radar transpondor system in which a radar beacon, in response to receipt of a proper interrogating signal, or signal train, produces at least one frequency modulated reply signal. In one embodiment such reply signal is linearly varied from a first limit to a second limit and back to the first limit so that any receiver responsive to signals within the two limits produces two responses with the center point between the two always delayed a predetermined amount from the time of occurrence of the echo signal from the radar beacon. In another embodiment, the receiver for the radar beacon reply signal is arranged to track on such signal, permitting frequency modulation thereof in any desired manner.

3,546,696
SPORTS COMPUTER SYSTEM
Michael F. Waters, Utica, Roy J. Spry, Sauquoit, Vaughn K. Munn, Utica, Tracy B. Gunderman, Clinton, and Harold F. Wood, Frankfort, N.Y.; said Waters assignor to Digimetrics, Inc., Utica, N.Y.
Filed June 17, 1969, Ser. No. 833,987
Int. Cl. G01s 9/56; G06f 3/00
U.S. Cl. 343—6.5 25 Claims



A system and method of electronically scoring a race. In response to signals generated when the race cars pass a lap line on the track, the system calculates such items as total time between start of race and crossing lap line, number of laps completed, average speed, race lap speed, and relative position in race. The signals are generated by signal radiating devices on the cars; each one generates a unique signal. A backup system, manually actuated when each car crosses the lap line, provides a check of the electronically generated signals. Calculation is performed by a programmed digital computer which stores the most recent calculated data pertaining to each car.

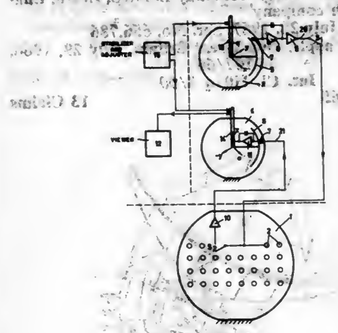
3,546,697
METHOD AND APPARATUS FOR INTERPOLATING DME INFORMATION
John L. Aker, Olathe, Kans., assignor to King Radio Corporation, Olathe, Kans., a corporation of Kansas
Original application Aug. 25, 1966, Ser. No. 574,701, now Patent No. 3,412,400, dated Nov. 19, 1968. Divided and this application Aug. 28, 1968, Ser. No. 755,415
Int. Cl. G01s 9/14
U.S. Cl. 343—7.3 5 Claims



A method and apparatus for interpolating distance and/or ground speed in distance measuring equipment (DME) when the Returns signal from a ground station is lost during the track mode of operation. The circuitry for accomplishing same includes the necessary elements for producing and maintaining continuous DME information even though the Returns are momentarily lost and the method comprises the steps of producing an electrical signal representative of the time duration between the instant of transmission of an interrogation pulse and the reception of a Return from the ground station, producing an interpolation signal which is usable in the event the Returns are lost, and causing said representative signal to be changeable by said interpolation signal when no Returns are received over a predetermined time period.

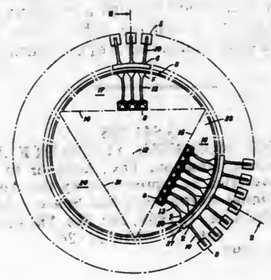
3,546,698
DEVICE FOR ANGULAR ADJUSTMENT OF THE DIRECTIONAL CHARACTERISTIC OF AN ANTENNA INSTALLATION
Horst Kaltschmidt, Neuhiberg, Germany, assignor to Bolkow Gesellschaft mit beschraenkter Haftung, Ottobrunn, Munich, Germany
Filed Oct. 28, 1968, Ser. No. 770,913
Claims priority, application Germany, Nov. 3, 1967, 1,566,855
Int. Cl. G01s 9/02, 9/66
U.S. Cl. 343—16 8 Claims

A device for angular adjustment of the directional characteristic of an antenna installation includes a first hollow sphere having preferably flattened ends and with a plurality of individual emitters arranged circumferentially thereof and actuable by a capacitive goniometer. A second hollow sphere is separate from and smaller than the first hollow sphere and has arranged, on its inner surface, respective first plates of the coupling condensers of the goniometer. A third hollow sphere is within and smaller than the second hollow sphere and has arranged, on its surface, the respective second plates of the coupling condensers. Means mount the third hollow sphere for angular displacement, in the second hollow sphere, about at least one of three mutually perpendicular axes of the second hollow sphere. Preferably, the first and second hollow spheres are fixed relative to a carrying



vehicle, such as a waterborne vehicle, which may pitch or roll. The third or inner hollow sphere is stabilized to be stationary relative to a fixed reference system.

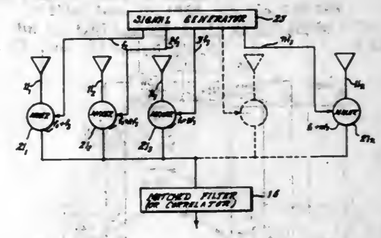
3,546,699
SCANNING ANTENNA SYSTEM
Phillip H. Smith, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 19, 1960, Ser. No. 76,974
Int. Cl. H04b 7/00; H01q 3/02
U.S. Cl. 343—100 8 Claims



1. A scanning antenna system comprising a fixed array of separate sources of in-phase electromagnetic energy arranged in the arc of a circle, a transducer having an arcuate input contour matching and adjacent to the arc, a linear output contour, and transmission properties such that all of the output energy radiated by the transducer is in phase, and means for rotating the transducer in the plane of the circle about the center of the circle.

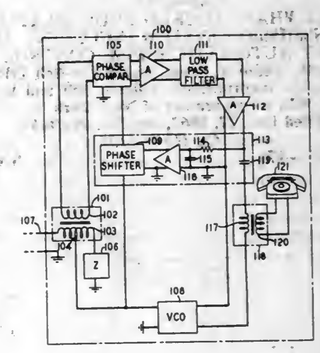
3,546,700
RADAR BEAM DEFLECTION SYSTEM
August W. Rihaczek, Rolling Hills, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Apr. 10, 1968, Ser. No. 721,139
Int. Cl. H01q 3/26
U.S. Cl. 343—100 3 Claims

A Chirp radar deflection and steering system having a series of antennas with each antenna having a signal phase difference controlled by mixers in each antenna line with each mixer fed by a succession of signals, the signals



being a sequence of harmonics of a particular fundamental frequency. All lines are then fed into a matched-filter.

3,546,701
PHASE LOCKED LOOP BILATERAL TRANSMISSION SYSTEM INCLUDING AUXILIARY AUTOMATIC PHASE CONTROL
Carl F. Kurth, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 27, 1967, Ser. No. 693,904
Int. Cl. H04b 1/56
U.S. Cl. 343—179 7 Claims

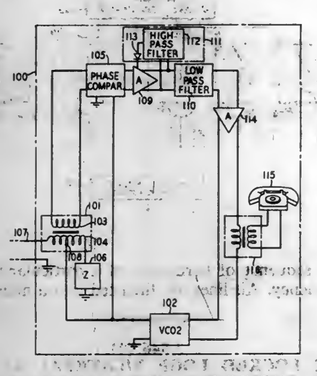


A bilateral transmission system is disclosed which comprises a transceiver at each end connected by a transmission medium which introduces signficant phase shift to a modulated carrier passing therethrough. One transceiver comprises a phase locked loop and the other transceiver comprises a phase locked loop and an auxiliary control circuit to increase the phase variation tracking range of the other transceiver and of the bilateral transmission system.

3,546,702
PHASE LOCKED LOOP BILATERAL TRANSMISSION SYSTEM INCLUDING AUTOMATIC GAIN CONTROL
Carl F. Kurth, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 27, 1967, Ser. No. 693,905
Int. Cl. H04b 1/58, 3/04
U.S. Cl. 343—179 9 Claims

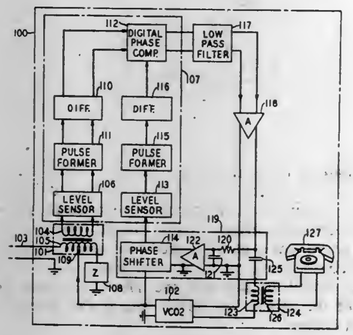
An FM bilateral transmission system is disclosed which includes a first transceiver at one end comprising a phase

locked loop and a second transceiver at the other end connected by a lossy transmission medium. The second transceiver comprises a phase locked loop and an auto-



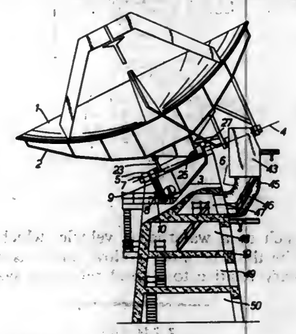
matic gain control circuit to compensate for attenuation suffered in the transmission medium by the frequency modulated carrier.

3,546,703
DIGITAL PHASE LOCKED LOOP BILATERAL TRANSMISSION SYSTEM INCLUDING AUXILIARY AUTOMATIC PHASE CONTROL
Carl F. Kurth, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 27, 1967, Ser. No. 693,906
Int. Cl. H04b *1/56*
U.S. Cl. 343—179 8 Claims



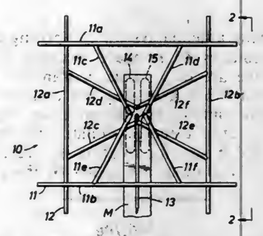
An FM digital bilateral transmission system is disclosed comprising a transceiver at each end connected by a lossy transmission medium. Each transceiver comprises a digital phase locked loop having a limited phase tracking capability which converts the received analog modulated carrier to a series of pulses representative of the analog modulated carrier. An auxiliary control circuit is included in one of the transceivers to extend its phase variation tracking range and that of the digital bilateral transmission system.

3,546,704
SATELLITE TRACKING DISH ANTENNA WITH COURSE AND FINE DRIVING MECHANISM
Ronald P. Selby and Clement J. Richards, Ilford, England, assignors to The Plessey Company Limited, Ilford, England, a British company
Filed July 28, 1967, Ser. No. 656,786
Claims priority, application Great Britain, July 29, 1966, 34,107/66
Int. Cl. H01q *3/00*
U.S. Cl. 343—765 13 Claims



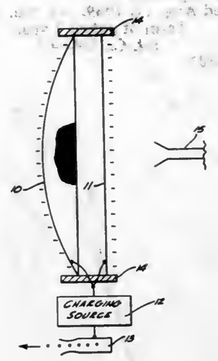
A synchronous satellite tracking arrangement comprising means for producing or facilitating coarse equatorial movement of an aerial dish structure in conjunction with means for locking the dish against such movement when the focal axis of the dish intersects the satellite being tracked and means being provided for moving the dish in azimuth and elevation through a relatively small angle sufficiently large to permit the dish to track the satellite over its figure eight configuration of movement.

3,546,705
BROADBAND MODIFIED TURNSTILE ANTENNA
Paul H. Lemson, Houston, Tex., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 1, 1969, Ser. No. 881,039
Int. Cl. H01q *21/26*
U.S. Cl. 343—797 7 Claims



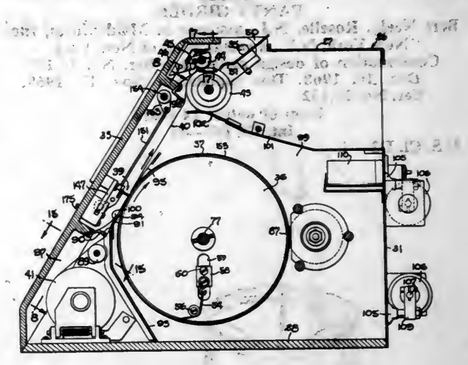
An antenna element is provided with two resonant half-wave dipoles energized through feeders connected to the dipoles with a delta match. The feeders to each dipole cooperate with the dipoles and each other to form a half-wave wire slot. Two antenna elements may be combined and fed in phase quadrature to develop circular polarization.

3,546,706
LIGHTWEIGHT REFLECTING STRUCTURES UTILIZING ELECTROSTATIC INFLATION
John H. Cover, Jr., Woodland Hills, Wolfgang Knauer, Malibu, and Hans A. Maurer, Tarzana, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Oct. 31, 1966, Ser. No. 590,593
Int. Cl. H01q *15/20*
U.S. Cl. 343—840 12 Claims



This invention concerns a technique for deploying reflecting structures by means of electrostatic forces. The electrostatic inflation technique is especially suited to large-scale parabolic reflectors for spacecraft or satellite antennas. A preferred embodiment utilizes a preformed mesh of thin, lightweight conductors, such as aluminum-coated quartz fibers, supported at its periphery, for example, by an articulated ring. The preformed contour of the mesh is maintained by electrostatic forces of attraction or repulsion which, in turn, are produced by means of a similar mesh or contouring grid disposed in close proximity to the reflecting mesh and electrostatically charged with respect thereto.

3,546,707
FACSIMILE RECORDER
Paul H. Dixon, Belvidere, and Jerry M. Zilka, Winnebago, Ill., assignors to Dixon Automatic Tool, Inc., Rockford, Ill., a corporation of Illinois
Filed June 25, 1968, Ser. No. 739,767
Int. Cl. G01d *15/06*; G11b *21/04*; H04n *1/24*
U.S. Cl. 346—74 6 Claims



For producing a facsimile of a master document scanned line-by-line by a transmitter, a facsimile recorder comprises a rotatable drum carrying a helical conductor which cooperates with a metal writing bar to create the facsimile through an electrolytic process by changing the shading of an electrolyte-treated web of paper as the web is advanced between the writing bar and the conductor along a precisely determined path and at a rate synchronized with the operation of the transmitter. The recorder includes mechanism for delivering the completed facsimile at a rapid feed-out rate much faster than the normal rate of advance undertaken by the web during printing; means for controlling the humidity of the atmosphere surrounding the web before, during and after printing; and means mounting the writing bar for adjustable pressure contact with the web, for retraction away from the web, for reciprocation across the web, and for adjustment into parallelism with the web and the axis of the drum.

DESIGNS

DECEMBER 8, 1970

219,360
PANTY GIRDLE
Bert Neely, Roselle, N.J., assignor to Maidenform, Inc., New York, N.Y., a corporation of New York
Continuation of design application Ser. No. 16,173, Dec. 10, 1968. This application Nov. 17, 1969, Ser. No. 20,132
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—4



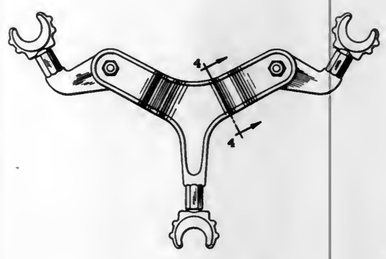
219,361
BOOT
Vincent E. Cinquegrana and Lloyd W. Eckes, Chippewa Falls, Wis., assignors to Chippewa Shoe Co., Chippewa Falls, Wis., a corporation of Wisconsin
Filed Sept. 4, 1969, Ser. No. 18,999
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—275



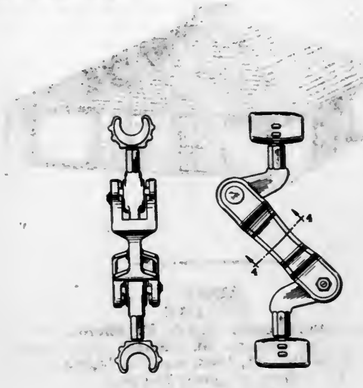
219,362
SECURITY DOOR-POST
Gerson Snyder, Philadelphia, Pa., assignor to Snyder Manufacturing Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 11, 1969, Ser. No. 18,645
Term of patent 7 years
Int. Cl. D8—*03*
U.S. Cl. D8—203



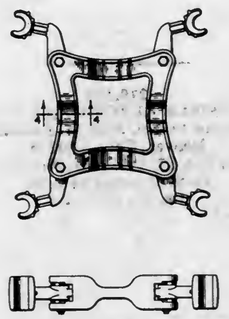
219,363
SUPPORT FOR BUNDLED CABLES
Clive R. Mackness, Sefton, New South Wales, Australia, assignor to Dulmison (Australia) Pty. Limited, Sefton, New South Wales, Australia
Filed Sept. 11, 1969, Ser. No. 19,101
Claims priority, application Australia Mar. 11, 1969
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—230



219,364
SUPPORT FOR BUNDLED CABLES
Clive R. Mackness, Sefton, New South Wales, Australia, assignor to Dulmison (Australia) Pty. Limited, Sefton, New South Wales, Australia
Filed Jan. 13, 1970, Ser. No. 20,902
Claims priority, application Australia July 25, 1969
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—230



219,365
SUPPORT FOR BUNDLED CABLES
Clive R. Mackness, Sefton, New South Wales, Australia, assignor to Dulmison (Australia) Pty. Limited, Sefton, New South Wales, Australia
Filed Jan. 13, 1970, Ser. No. 20,901
Claims priority, application Australia July 25, 1969
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—230



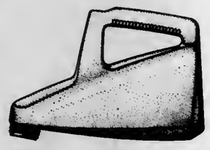
219,366
BOTTLE
Dan Lewis, Jr., Champaign, Ill., and Harold Robert Day, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed June 26, 1969, Ser. No. 17,893
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—46



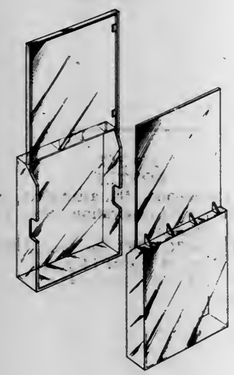
219,367
BOTTLE
Dan Lewis, Jr., Champaign, Ill., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed June 26, 1969, Ser. No. 17,897
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—46



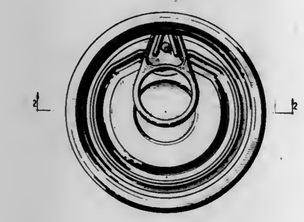
219,368
BOTTLE OR SIMILAR ARTICLE
Charles G. Campbell, Miamisburg, Ohio, assignor to The Huffman Manufacturing Company, Miamisburg, Ohio, a corporation of Ohio
Filed Aug. 8, 1969, Ser. No. 18,601
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—66



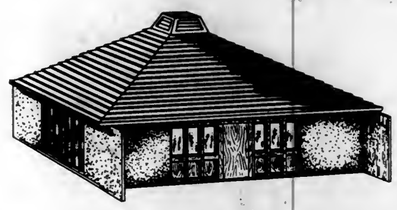
219,369
COMBINED DISPLAY PANEL AND PACKAGING BOX FOR A TAPE CARTRIDGE
Maxwell Silverstein, New York, N.Y., assignor to Arlans Dept. Stores, Inc., New York, N.Y., a corporation of New York
Filed Nov. 10, 1969, Ser. No. 20,015
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—191



219,370
END CLOSURE FOR A CONTAINER
William T. Saunders, Weirton, W. Va., assignor to National Steel Corporation, a corporation of Delaware
Filed Dec. 3, 1969, Ser. No. 20,346
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—255



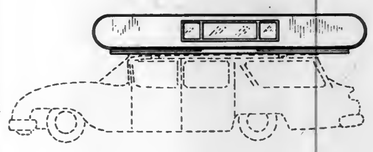
219,371
HOUSE
Delp Waldo Johnson, 240 Oakview Drive, San Carlos, Calif. 94070
Filed Oct. 3, 1969, Ser. No. 19,410
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



219,372
SAIL CAR
Leon M. Levy, 2023 N. Dayton St., Chicago, Ill. 60614
Filed Dec. 11, 1968, Ser. No. 14,893
Term of patent 7 years
Int. Cl. D12—*13*
U.S. Cl. D14—3



219,373
COLLAPSIBLE AUTOMOBILE CAMPER
Andrew Serino, 3660 W. Eastman, Denver, Colo. 80236
Filed Oct. 27, 1969, Ser. No. 19,731
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3



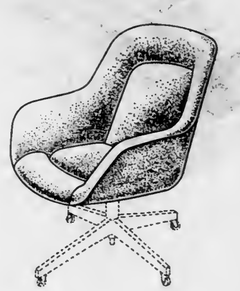
219,374
BABY SEAT ATTACHMENT FOR SHOPPING CARTS
Donald Gugler, 10208 Swinton Ave., Los Angeles, Calif. 91343
Filed Dec. 11, 1969, Ser. No. 20,451
Term of patent 14 years
Int. Cl. D12—*02*; D6—*01*
U.S. Cl. D14—3



219,375
WHEEL
Alexander Brede III, East Lansing, Mich., assignor to Motor Wheel Corporation, Lansing, Mich., a corporation of Ohio
Filed Oct. 9, 1969, Ser. No. 19,485
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—30



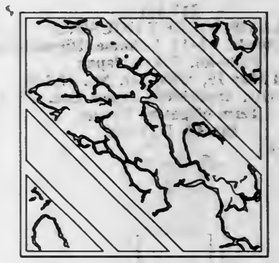
219,376
CHAIR
Maxwell E. Pearson, Zionsville, Pa., assignor to Art Metal-Knoll Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 16, 1968, Ser. No. 13,539
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



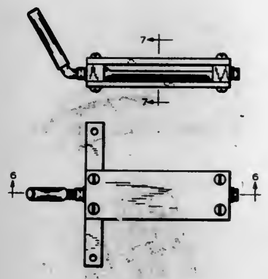
219,377
COMBINED PORTABLE BEACH CHAIR AND UMBRELLA THEREFOR
William W. Peery, 6649 Van Gorden Court, Arvada, Colo. 80002
Filed Aug. 6, 1969, Ser. No. 18,553
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—8



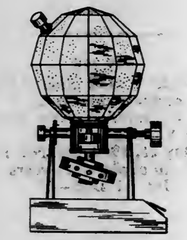
219,378
FLOOR COVERING OR SIMILAR ARTICLE
Joseph Robert Cecchine, Manville, N.J., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed May 26, 1969, Ser. No. 17,322
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D18—2



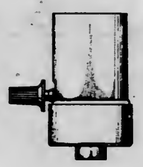
219,379
CAM VALVE FOR FLEXIBLE TUBING
Robert L. Gelby, 2511 N. Duke St., Durham, N.C. 27704
Filed Nov. 6, 1969, Ser. No. 19,957
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



219,380
MINIATURE PLANETARIUM
Shin Obayashi, 41 W. 83rd St., New York, N.Y. 10024
Filed Oct. 28, 1969, Ser. No. 19,757
Term of patent 14 years
Int. Cl. D19—*08*
U.S. Cl. D25—1



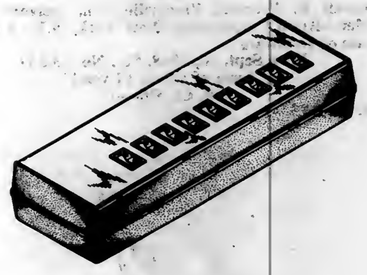
219,381
LAMP SOCKET HOUSING
Sadahiro Ishizaki, 27–11 1-chome, Higashi-Ueno, Taito-ku, Tokyo, Japan
Filed May 19, 1969, Ser. No. 17,206
Claims priority, application Japan Dec. 26, 1968
Term of patent 7 years
Int. Cl. D13—*03*
U.S. Cl. D26—1



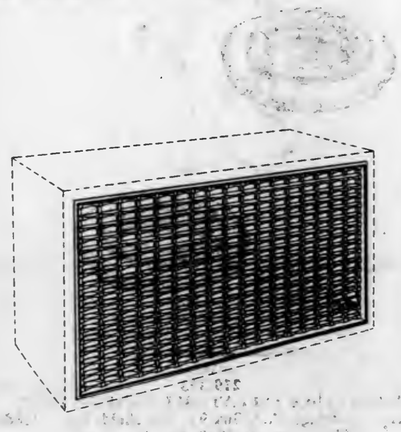
219,382
ELECTRICAL SWITCH
Robert F. Blaha, Dedham, and John D. Mayall, Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 7, 1969, Ser. No. 17,059
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13



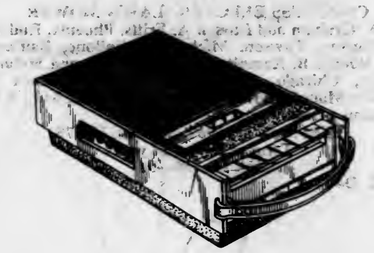
219,383
MULTIPLE INPUT SWITCHING UNIT FOR A COMMUNICATION SYSTEM
Calvin L. Fox, New York, N.Y., assignor to Scanfax Systems Corporation, New York, N.Y., a corporation of New York
Filed Nov. 19, 1969, Ser. No. 20,182
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13



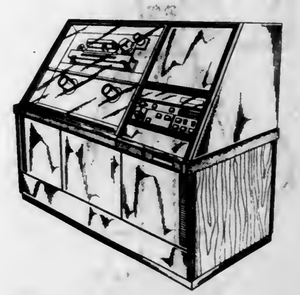
219,384
DECORATIVE GRILLE FOR A LOUDSPEAKER CABINET
Donald H. Palmquist, Newport Beach, Calif., and George R. Wagner, Los Angeles, Calif., assignors, by mesne assignments, to LTV Ling Altec, Inc., Richardson, Tex., a corporation of Delaware
Filed July 17, 1969, Ser. No. 18,236
Term of patent 14 years
Int. Cl. D14—*99*; D25—*01*
U.S. Cl. D26—14



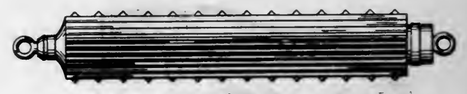
219,385
CASSETTE TAPE RECORDER
Robert W. Becker, Naperville, and David P. Chuboff, North Barrington, Ill., assignors to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Oct. 21, 1969, Ser. No. 19,661
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



219,386
TELEVISION TAPE TRANSPORT
Jack R. Goodrich, Newark, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Nov. 28, 1969, Ser. No. 20,309
Term of patent 14 years
Int. Cl. D14—*02, 03*
U.S. Cl. D26—14



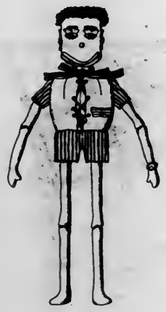
219,387
CATTLE GROOMER
Robert M. Minock, 1235 S. Clay St., Denver, Colo. 80204
Filed Sept. 29, 1969, Ser. No. 19,323
Term of patent 14 years
Int. Cl. D30—*99*
U.S. Cl. D30—40



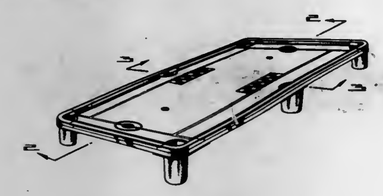
219,388
TEACHING DOLL
Sallie Ann Coltharp, 9128 E. 49th St., Tulsa, Okla. 74145
Filed Nov. 14, 1969, Ser. No. 20,091
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—4



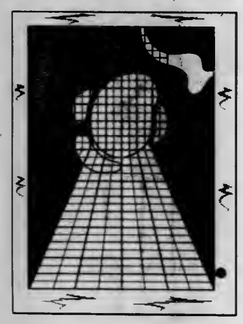
219,389
TEACHING DOLL
Sallie Ann Coltharp, 9128 E. 49th St., Tulsa, Okla. 74145
Filed Nov. 14, 1969, Ser. No. 20,092
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—4



219,390
GAME TABLE
Roy B. Johnson, 1615 Willow St., Alameda, Calif. 94501
Filed Aug. 28, 1969, Ser. No. 18,905
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. 34—5



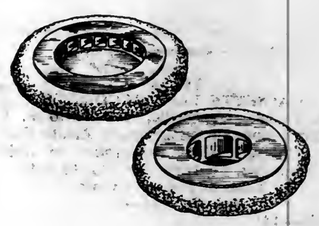
219,391
GOLF GAME BOARD
Paul Posnick, 330 E. 79th St., New York, N.Y. 10021
Filed Oct. 20, 1969, Ser. No. 19,638
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



219,392
ROTATABLE SANDER
Robert J. Doherty, 231 N. Washington St., Hinsdale, Ill. 60521
Filed Aug. 28, 1968, Ser. No. 13,304
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D37—1



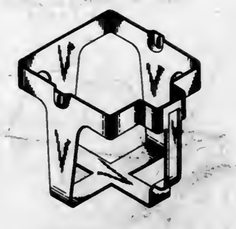
219,393
ROTATABLE INFLATABLE SANDER TOOL
Melvin J. Briggs, P.O. Box 92, Wakefield, R.I. 02880
Filed Apr. 10, 1969, Ser. No. 16,668
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D37—1



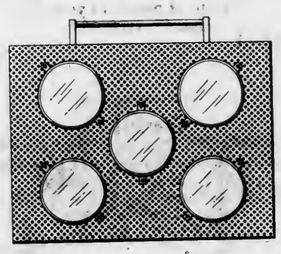
219,394
CORDLESS ELECTRIC LAWN MOWER
John W. Graham and Russell A. Fritts, Phoenix, Roderick F. Bunyea, Towson, Michael P. Ballone, Baltimore, and Ronald B. Kemnitzer, Towson, Md., and Stefan A. Unger, Chicago, Ill., assignors to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed Sept. 17, 1969, Ser. No. 19,178
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D40—1



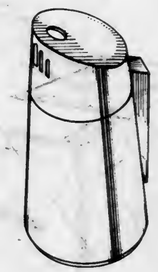
219,395
MILK CARTON HOLDER
Gilbert W. Didion, 1432 Tiffin Ave., Sandusky, Ohio 44870
Filed Apr. 15, 1969, Ser. No. 16,752
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—21



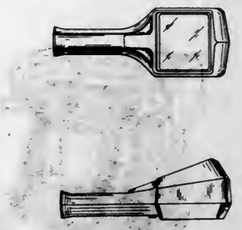
219,396
FILTER PANEL FOR PHOTOGRAPHIC LIGHTING FIXTURES OR THE LIKE
Arthur I. Bodkins, 77 Summer St., Winthrop, Mass. 02110
Filed May 7, 1969, Ser. No. 17,043
Term of patent 14 years
Int. Cl. D26—*06, 02*
U.S. Cl. D48—16



219,397
TABLE LIGHTER
Cecil B. Woofter, Newton, Iowa, assignor to The Vernon Company, Newton, Iowa 50208
Filed Sept. 4, 1969, Ser. No. 19,003
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27



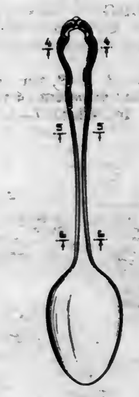
219,398
HOUSING FOR TEMPERATURE INDICATING MEANS OR THE LIKE
John Tymkewicz, % Marlin Manufacturing Co., 12404 Triskett Road, Fairview Park, Ohio 44126
Filed Sept. 18, 1969, Ser. No. 19,206
Term of patent 14 years
Int. Cl. D10—*09*
U.S. Cl. D52—7



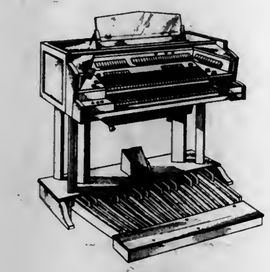
219,399
WALL PANEL
William C. Heirich, 515 S. 15th St., Muskogee, Okla. 74401
Filed Sept. 4, 1969, Ser. No. 18,996
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D54—2



219,400
SPOON OR SIMILAR ARTICLE
Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y., a corporation of New York
Filed Mar. 18, 1969, Ser. No. 16,302
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12



219,401
ORGAN CONSOLE
Winsor D. White, Jr., Blowing Rock, N.C., assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Oct. 1, 1969, Ser. No. 19,361
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—2



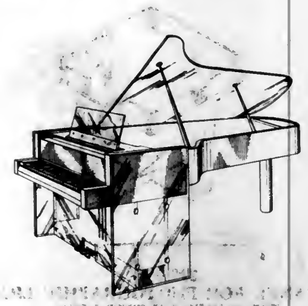
219,402
ORGAN CONSOLE
Winsor D. White, Jr., Blowing Rock, N.C., assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Oct. 2, 1969, Ser. No. 19,391
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—2



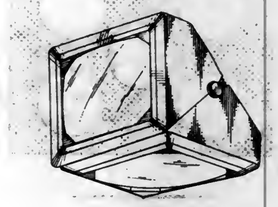
219,403
ORGAN CONSOLE
Thomas E. Kimble, Covington, Ky., assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 3, 1969, Ser. No. 20,347
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—2



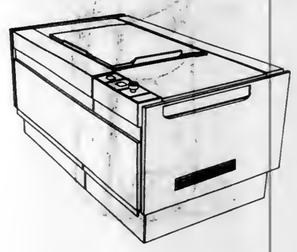
219,404
PIANO CASE
Winsor D. White, Jr., Blowing Rock, N.C., assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 12, 1969, Ser. No. 20,486
Term of patent 14 years
Int. Cl. D17—*01*
U.S. Cl. D56—9



219,405
AN OVERHEAD PROJECTOR HEAD
John C. Nemesnyik, Maplewood, N.J., assignor to Charles Beseler Company, East Orange, N.J., a partnership
Filed Nov. 13, 1968, Ser. No. 14,427
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1



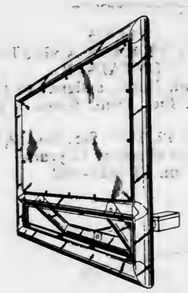
219,406
COPYING MACHINE
Robert C. Zimmerman, Manlius, and James R. Lindsay, Syracuse, N.Y., assignors to SCM Corporation, New York, N.Y., a corporation of New York
Filed Apr. 23, 1969, Ser. No. 16,857
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D61—1



219,407
CAMERA
Masahiro Fukuda, Kawasaki-shi, and Teruei Hara and Tadamasa Manome, Ohmiya-shi, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Nakanuma, Minamiashigara-machi, Ashigarakami-gun, Kanagawa-ken, Japan, a corporation of Japan
Filed Sept. 17, 1969, Ser. No. 19,186
Claims priority, application Japan Apr. 15 1969
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D61—1



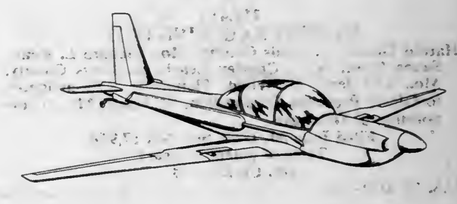
219,408
INFLATABLE PROJECTION SCREEN
Stephen L. Frish, 14137 Glenridge Road, Minnetonka, Minn. 55343
Filed Sept. 22, 1969, Ser. No. 19,250
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D61—1



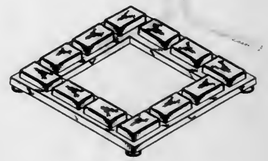
219,409
DIE CUTTER FOR DEVELOPED FILM OR SIMILAR ARTICLE
Roger J. Kuhns, Lincoln, Mass., assignor to Avant Incorporated, Lincoln, Mass., a corporation of Massachusetts
Filed Feb. 16, 1970, Ser. No. 21,461
Term of patent 14 years
Int. Cl. D16—*07*
U.S. Cl. D61—1



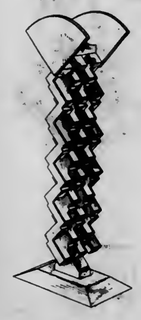
219,410
AIRCRAFT
Stanley A. Hall, Sunnyvale, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Sept. 23, 1969, Ser. No. 19,262
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D71—1



219,411
FLASHING SIGNAL UNIT
Robert D. Kahn, Rockville Centre, N.Y., assignor to Fedtro, Inc., Long Island, N.Y., a corporation of New York
Original design application Nov. 13, 1967, Ser. No. 9,385, now Patent No. 212,722, dated Nov. 12, 1968. Divided and this application May 23, 1968, Ser. No. 12,592
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D72—1



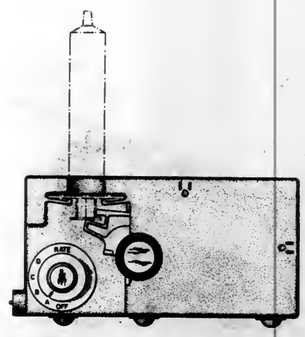
219,412
DISPLAY STAND
Ettore Neglia, San Giorgio, Italy, assignor to P. Ferrero & C.S.p.A., Alba, Cuneo, Italy, an Italian joint stock company
Filed June 27, 1969, Ser. No. 17,923
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9

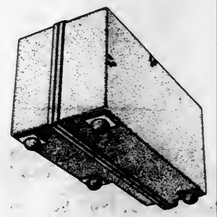


219,413
BARBECUE COOKING UNIT
Harold Glaser, St. Louis County, Mo., Richard L. Keats, Sands Point, N.Y., Charley Leach, St. Louis County, Mo., and Jerry D. Wood, Plainfield, N.J., assignors to Glaser Products Corporation, St. Louis, Mo., a corporation of Delaware
Filed June 30, 1969, Ser. No. 17,968
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10

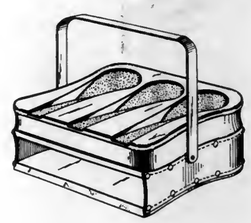


219,414
SYRINGE PUMP FOR MEDICAL AND LABORATORY USE
David Rosenberg, Glen Cove, N.Y., assignor to Pall Corporation, Glen Cove, N.Y., a corporation of New York
Filed June 4, 1969, Ser. No. 17,942
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1





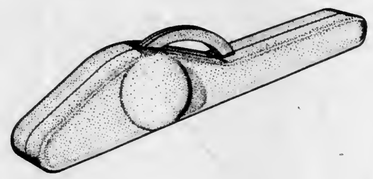
219,415
COMBINED PIPE RACK AND STORAGE CONTAINER
Brette R. Riley, Pratt, Kans., assignor to Divisible Packaging Enterprises, Inc., Pratt, Kans., a corporation of Kansas
Filed May 12, 1969, Ser. No. 17,112
Term of patent 14 years
Int. Cl. D27—*02*
U.S. Cl. D85—8



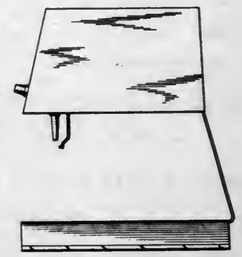
219,416
TOTE BAG
Leo A. Wonsavage, 1075 E. 76th St., Cleveland, Ohio 44103
Filed Aug. 7, 1969, Ser. No. 18,574
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1

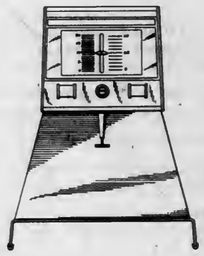


219,417
CARRYING CASE FOR A FISHING ROD AND REEL
Albert G. Heidtman and Albert H. Tietjen, both of 515 Colonial Way, Reno, Nev. 89502
Filed Aug. 27, 1969, Ser. No. 18,862
Term of patent 14 years
Int. Cl. D3—*99*
U.S. Cl. D87—1



219,418
FLUID DISPENSING APPARATUS
Michael E. Croslin, Forest Hills, N.Y., assignor to International Applied Science Laboratory, Inc., Nassau, N.Y., a corporation of New York
Filed Sept. 17, 1969, Ser. No. 19,187
Term of patent 14 years
Int. Cl. D15—*12*
U.S. Cl. D94—3





LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Teem-Incorporated: *See—*
Abrahamsson, Thore Johannes, 3,545,566.
Abbott, Earl: *See—*
Lickliter, Robert Paul, Abbott, Earl, and Reeves, John F.,3,545,368.
Abbott, Harold W., Mathis, Vernon P., and Peil, William, to General Electric Company. Capacitor charge replacement circuit for maintaining a stored voltage. 3,546,561, Cl. 320-1.
Abbott Laboratories: *See—*
Stein, Robert George, and Swett, Leo Ralph, 3,546,220.
Abex Corporation: *See—*
Arsenault, Robert P., 3,545,691.
Beetle, Robert H., and Dabney, John B., 3,545,524.
Abrahamsson, Thore Johannes, to AB Teem-Incorporated. Muffler with eccentric passage through baffle bodies. 3,545,566, Cl. 181-50.
Abrams, Andrew. Door chime music box. 3,545,328, Cl. 84-94.
Abt, Edgar J., to United States of America, Navy. Air-arming pyro delay fuze. 3,545,382, Cl. 102-79.
ACF Industries, Incorporated: *See—*
Kalert, Ralph E., Jr., 3,546,690.
Smith, Russell Frederick, 3,546,691.
Achelpohl, Fritz, to Windmoller & Holscher. Apparatus for pulling open the ends of tube sections of plastics material. 3,545,346, Cl. 93-28.
Ackerman, Sumner, to EG & G, Inc. Multi-pulse laser ranging system. 3,545,862, Cl. 356-5.
Acoustics Development Corporation: *See—*
Ertl, Edward S., and Hannula, Leslie A., 3,546,385.
Adachi, Toshiharu: *See—*
Fujita, Saburo, Adachi, Toshiharu, and Furuta, Yoichi,3,545,205.
Adam, Herbert A. Hydro foil. 3,545,399, Cl. 114-66.5
Adams, Archie Q., 15% to Jacobsen, Alf M., and 15% to Brown, I. Allen. Resilient paddle impact mill. 3,545,685, Cl. 241-38.
Adams, Peter D.: *See—*
Schweitzer, Donald G., and Adams, Peter D.,3,546,541.
Addressograph Multigraph Corporation: *See—*
Comegys, Courtney L., Freundlich, Jackson S., and Roebuck, William C., 3,545,380.
Admiral Corporation: *See—*
Barchok, Donald J., 3,546,492.
Chua, James G. S., 3,546,379.
Levin, Nathan D., and Potakis, Angelos A., 3,545,838.
A.E.I. Corporation: *See—*
Christine, William C., and Pierce, Joseph E., 3,545,173.
Aerojet-General Corporation: *See—*
Camasta, Joseph R., 3,545,325.
Fisher, William E., and Morrison, John A. H., 3,545,398.
Mandal, Robert P., 3,545,967.
Rumbold, Sidney G., 3,545,203.
Steele, Richard K., Green, Allen T., and Lockman, Charles S., 3,545,262.
Aerosol Techniques Research Center Incorporated: *See—*
Clapp, Clarence P., 3,545,162.
Agabaliants, Georgy Gerasimovich, Merzhanian, Artemy Arutjunovich, Brusilovsky, Sergei Alexeevich, and Sarishvili, Naskid Grigorievich. Method of producing champagne. 3,545,978, Cl. 99-41.
Agfa-Gevaert Aktiengesellschaft: *See—*
Brandt, Hans-Ado, 3,545,361.
Kampfer, Helmut, Hase, Marie, von Rintelen, Harald, and Riester, Oskar, 3,545,975.
Winkler, Alfred, and Denk, Richard, 3,545,852.
AGM Industries, Inc.: *See—*
Graham, Harold J., 3,546,418.
Air Preheater Company, Inc., The: *See—*
Waitkus, Joseph, 3,545,532.
Air Products and Chemicals, Inc.: *See—*
McEvoy, James E., 3,545,921.
Air Reduction Company, Incorporated: *See—*
Anderson, Emmett R., and Wallace, Clifford G., 3,546,606.
Aisin Seiki Company Limited: *See—*
Fujita, Saburo, Adachi, Toshiharu, and Furuta, Yoichi, 3,545,205.
Ajax Magnethermic Corporation: *See—*
Havas, George, and Dewan, Shashi Bhushan, 3,546,562.
Ajem Laboratories, Inc.: *See—*
Frundl, Ronald J., Hanson, Victor W., Jamison, Robert M., and Arnold, Orlan M., 3,545,918.
Rudlaff, John Louis, 3,545,600.
Ajinomoto Co., Inc.: *See—*
Maeda, Itsutoshi, Takesada, Masahiko, and Yoshida, Ryonosuke, 3,546,277.
Wakamatsu, Hachiro, Takesada, Masahiko, and Tsuchitani, Yuichi, 3,545,963.
Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio, 3,546,269.
Yoshinaga, Fumihiro, Kimura, Michiko, Shibuya, Masao, and Okumura, Shinji, 3,546,070.
Aker, John L., to King Radio Corporation. Method and apparatus for interpolating DME information. 3,546,697, Cl. 343-7.3
Akerstrom, Stig Hjalmar Johannes, Tempel, Albert, and Gullfeldt, Bengt Hjalmar, to U.S. Philips Corporation, mesne. Thiocyanoindole derivatives. 3,546,244, Cl. 260-326.12
Aktiengesellschaft Fuer Technische Studien: *See—*
Steghart, Peter Bruno, 3,546,437.
Albright, Bruce S.: *See—*
Pietrzak, Joe P., Strahan, Robert M., and Albright, Bruce S.,3,545,717.
Alco Controls Corporation: *See—*
Sakhnovsky, Alexander A., Walker, Walter O., and Tilney, Ralph B., 3,545,622.
Alcock, John Forster, to Ricardo & Co., Engineers Ltd. Lubrication of bearings of reciprocating engines or pumps. 3,545,569, Cl. 184-6.
Aldenkamp, Albertus Antonie, to U.S. Philips Corporation, mesne. Method of manufacturing magnetically anisotropic permanent magnets with a crystal orientation. 3,545,525, Cl. 164-82.
Alford, Ezra Dempsey: *See—*
Johnson, Robert R., and Alford, Ezra Dempsey,3,545,450.
Johnson, Robert R., and Alford, Ezra Dempsey,3,545,452.
Alfs, Helmut: *See—*
List, Ferdinand, and Alfs, Helmut,3,546,283.
List, Fredinand, and Alfs, Helmut,3,546,284.
Allais, Andre, and Paturet, Michel, to Roussel-Uclaf. Novel ethoxylated acetic acid esters of pregnane-21-ols. 3,546,261, Cl. 260-397.45
Allen, James B., and Hancock, John T., to Texas Instruments, Incorporated. Thermostatic control for room air conditioners and the like. 3,546,652, Cl. 337-347.
Allen, John D., to Eaton Yale & Towne, Inc. Pilot-operated valve. 3,545,484, Cl. 137-490.
Allen, Joseph C., to Texaco Inc. Method for recovery of hydrocarbons from a subterranean formation previously produced by solution gas drive. 3,545,545, Cl. 166-273.
Allen, Michael George, to Minnesota Mining and Manufacturing Company. Polyesters of polyaryl diols. 3,546,168, Cl. 260-47.
Allen-Bradley Company: *See—*
Kosem, Marion, 3,546,559.
Allied Chemical Corporation: *See—*
Papero, Patrick V., Kosmala, James M., and Moore, Maurice S., 3,545,911.
Prevorsek, Dusan C., and Lamb, George E. R., 3,546,319.
Wolheim, Joseph B., 3,546,161.
Allsop, Ivor John. Ski pole grip. 3,545,784, Cl. 280-11.37
Almouli, Jacob A.: *See—*
Falcomato, Rocco, and Almouli, Jacob A.,3,545,495.
Alsruhe, Leonard U., to Black and Decker Manufacturing Company, The. Bearing for slide member. 3,545,823, Cl. 308-3.
Alston, Robert E., to Northwest Nitro Chemicals, Ltd. Production of ammonium nitrate-phosphate fertilizer. 3,545,954, Cl. 71-35.
Aluminum Company of America: *See—*
Smith, James D., 3,545,645.
Alvey, Inc.: *See—*
Turnbough, Harold L., and Schuette, Thomas J., 3,545,596.
Alwin, Vinson C.: *See—*
Glass, Harold C., and Alwin, Vinson C.,3,546,670.
American Cyanamid Company: *See—*
Engel, Robert Henry, Fahrenbach, Marvin Jay, and Webb, Richard Lansing, 3,546,338.
Evans, Ralph Henry, Jr., Kunstmann, Martin Paul, Holmlund, Chester Eric, and Ellestad, George Alfred, 3,546,073.
Leeson, Lewis Joseph, Nash, Robert Arnold, and Ritter, Lawrence, 3,546,339.
Newman, Howard, and Angier, Robert Bruce, 3,546,247.
Noack, Klaus, 3,545,872.
American Mushroom Corporation: *See—*
Baker, William H., 3,545,512.
American Photocopy Equipment Company: *See—*
Wendt, Otto Bruno, 3,546,126.
American Standard Inc.: *See—*
Hollander, Milton B., and Augenstein, Paul M., 3,545,435.
Killam, Harry R., 3,545,885.
American Telecommunication Corporation: *See—*
Marcheschi, Henry, and Perkins, George D., 3,546,396.

Amerock Corporation: *See—*
Dargene, Carl J., 3,545,134.

Amicon Corporation: *See—*
Michaels, Alan S., and Miekka, Richard G., 3,546,142.

Amir, Yoel, and Talmon, Omri, to Beta Engineering & Development Ltd. Liquid drop detecting system and sensor therefor. 3,545,271, Cl. 73-194.

AMP Incorporated: *See—*
Busler, Willard Le Roy, 3,545,662.
Carlisle, Raymond Melvin, and Loose, Winfield Warren, 3,546,401.
Collier, John Covell, 3,546,365.
deBolt, Edwin Stanton, and Meyers, Charles Frederick, 3,546,664.
Evans, William Robert, 3,545,080.
Pritulsky, James, 3,546,656.

Amsco Packaging Machinery, Inc.: *See—*
Sylvester, John D., and Keenan, John D., Jr., 3,545,347.

Amsted Industries, Incorporated: *See—*
Neumann, Otto W., 3,545,385.
Resener, Baird E., 3,545,597.

Anaconda American Brass Company: *See—*
Kabelka, Peter J., and Lozano, Luis J., 3,545,244.

Anaconda Company, The: *See—*
Arentzen, Charles, and O'Donnell, John T., 3,545,961.

Anaconda Wire and Cable Company: *See—*
Herrendeen, Jerry L., and Halverson, Norman W., 3,546,581.
Pendleton, Wesley W., and Ulmer, William W., 3,546,017.
Snyder, Clermont J., and Moore, Jack P., 3,546,029.

Anand, Ram P., and Savage, Albert, to Bell Telephone Laboratories, Incorporated. Vidicon target comprising infrared absorber. 3,546,520, Cl. 313-112.

Ance, Louis, to Superior Continental Corporation. Loading coil encapsulation. 3,546,361, Cl. 174-52.

Anderson, Donald J., to Chevron Research Company. Thio compounds additives in fluids used in engines. 3,546,117, Cl. 252-47.5

Anderson, Edwin J. Lathe carriage stop. 3,545,320, Cl. 82-34.

Anderson, Emmett R., and Wallace, Clifford G., to Air Reduction Company, Incorporated. Electron gun power regulation method and apparatus. 3,546,606, Cl. 328-267.

Anderson, George B., to Farrel Corporation. Tool block. 3,545,318, Cl. 82-36.

Anderson, George B., and Young, Frederic William, to USM Corporation. Tool block. 3,545,319, Cl. 82-36.

Anderson, George C.: *See—*
Young, Howard S., Anderson, George C., and McDaniel, Edgar L.,3,546,139.

Anderson, James D., to Armour and Company. Hide removal apparatus. 3,545,037, Cl. 17-21.

Anderson, Leeming. Kiln for heat treatment of articles on a continuous basis. 3,545,733, Cl. 263-28.

Anderson, Ralph F., and Henson, Richard C., to Keystone Consolidated Industries, Inc. Locking means for chair controls. 3,545,810, Cl. 297-373.

Anderson, Richard C., to General Electric Company. Transparent yttria-based ceramics and method for producing same. 3,545,987, Cl. 106-39.

Anderson, Sylvester L. Resilient foundation for concrete. 3,545,348, Cl. 94-10.

Andreasson, Donald C., to Detroit Reamer & Tool Company. Storage rack. 3,545,623, Cl. 211-126.

Andrews, Thomas D. H., to Dowty Technical Developments Limited. Air-cushion vehicles and like craft. 3,545,397, Cl. 114-67.

Angelo, Rudolph J., to Du Pont de Nemours, E. I., and Company. Soluble polyimides prepared from 2,4-di- aminoisopropylbenzene and pyromellitic di- anhydride and 3,4,3',4'-benzophenonetetracarboxylic dianhydride. 3,546,175, Cl. 260-65.

Angier, Robert Bruce: *See—*
Newman, Howard, and Angier, Robert Bruce,3,546,247.

Angona, Frank A., to Mobil Oil Corporation. Cavitational drilling utilizing an acoustic generator and an acoustic concentrator. 3,545,552, Cl. 175-65.

Angquist, Torsten F., to Crescent Niagara Corporation. Reversible cam lock driver. 3,545,312, Cl. 81-59.1

Ansari, Amir H. Suprapubic cystostomy needle. 3,545,443, Cl. 128-347.

Anstalt Europaische Handelsgesellschaft: *See—*
Sturzinger, Oskar, 3,546,380.

Ansul Company, The: *See—*
King, Georg e J., and Kirabinos, Joseph V., 3,546,231.

Anthony, Myron L., 109 to Dorn, Thomas E. Aircraft altitude indicator devices. 3,545,090, Cl. 33-204.

Antonucci, Joseph M.: *See—*
Wall, Leo A., Brown, Daniel W., and Antonucci, Joseph M.,3,546,191.

Anvar Agence Nationale de Valoisation de La Recherche: *See—*
Buchy, Francois, and Bauduin, Philippe, 3,546,632.

Apel, Konstantin. Regulating system for heating elements. 3,546,434, Cl. 219-499.

Araki, Kazumi, Ueda, Hiroyuki, and Ikumo, Masahiko, to Kyowa Hikko Kogyo Kabushiki Kaisha. Preparation of 5-dehydro-shikimic acid by fermentation. 3,546,072, Cl. 195-47.

Archer, Wesley L., and Simpson, Elbert L., to Dow Chemical Company, The. Stabilization of 1, 1, 1-trichloroethane. 3,546,125, Cl. 252-171.

Archer, Wesley L., and Simpson, Elbert L., to Dow Chemical Company, The. Stabilization of 1,1,1-trichloroethane. 3,546,305, Cl. 260-652.5

Arenco Aktiebolag: *See—*
Kjaer, Ian, and Neuber, Dieter, 3,545,454.
Osterdahl, Ragnar, 3,545,172.
Stahl, Lennart, and Neuber, Dieter, 3,545,594.
Wallenborn, Nils, 3,545,593.

Arentzen, Charles, and O'Donnell, John T., to Anaconda Company, The. Refining of copper. 3,545,961, Cl. 75-76.

Arita, Masahiko: *See—*
Hotta, Naoki, Namiuchi, Akira, and Arita, Masahiko,3,546,205.

Arlauskas, Alfonsas, and Zaydel, Wieslaw S., to General Motors Corporation. Closure latch. 3,545,800, Cl. 292-216.

Armbruster, David Ray: *See—*
Johnson, Calvin Keith, and Armbruster, David Ray,3,546,172.

Armco Steel Corporation: *See—*
Scheid, Charles H., Jr., 3,545,492.

Armington, Alton F.: *See—*
O'Connor, John J., Rubin, Bernard, and Armington, Alton F.,3,545,940.

Armour and Company: *See—*
Anderson, James D., 3,545,037.

Armstrong, John, to Cominco Ltd. Process of improving corrosion resistance of colored oxide coatings on titanium-rich zinc alloys and resulting product. 3,546,028, Cl. 148-6.2

Armstrong, Thomas S.: *See—*
Christian, Daniel T., Look, Melvin, Nobell, Albert, and Armstrong, Thomas S.,3,546,199.

Arnaud, Jacques A., to Bell Telephone Laboratories, Incorporated. Light communication system utilizing tandem broadband and pilot frequency amplification. 3,546,465, Cl. 250-199.

Arnold, Fred E., to United States of America, Air Force. Thermally stable polymer prepared by reacting an aromatic tetracarboxylic acid with a tetraamino pyrene derivative. 3,546,181, Cl. 260-78.

Arnold, Orlan M.: *See—*
Frundl, Ronald J., Hanson, Victor W., Jamison, Robert M., and Arnold, Orlan M.,3,545,918.

Arnott, Edward A.: *See—*
Jantze, Clyde E., Arnott, Edward A., and Scott, Earle V.,3,545,160.

Aronson, Philip M., and Culpepper, Ronald M., to United States of America, Navy. Radiation compensating pressure sensor. 3,545,919, Cl. 73-35.

Aronson, Theodore F., to Perry Industries, Inc. Method and apparatus for making cigarette filter tips. 3,545,345, Cl. 93-1.

Arriola, William A.: *See—*
Crecelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G.,3,546,376.

Arsenault, Robert P., to Abex Corporation. Hammer mill hammers with replaceable tip. 3,545,691, Cl. 241-197.

Artisan Industries Inc.: *See—*
Takata, Victor, 3,545,584.

A/S Hydraulik Brattvaag: *See—*
Roaldsnes, Leiv, 3,545,204.

A/S Saba: *See—*
Gravdahl, Gunnar, 3,545,441.

Asadorian, Arthur A., and Tigner, Ronald G., to Dow Chemical Company, The. Process for brominating phenols. 3,546,302, Cl. 260-619.

Asahara, Teruzo, Hirano, Jiro, and Kado, Masaru, to Nippon Oils and Fats Company Limited, and Kumiai Chemical Industries Co., Ltd. Method for controlling rice blast. 3,546,345, Cl. 424-336.

Asahi Dow Limited: *See—*
Hoshino, Shohei, Yoneda, Toshiyuki, and Uezono, Hidenobu, 3,545,161.

Asahi Kogaku Kabushiki Kaisha: *See—*
Takahashi, Yasuo, 3,545,845.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Karikawa, Toru, 3,546,378.
Takahashi, Yasuo, and Tazumi, Fujio, 3,545,844.

Asano, Nobuyuki: *See—*
Izumi, Masahiro, Shima, Hiroshi, Matsumura, Shigeru, and Asano, Nobuyuki,3,546,182.

Ascari, Franco. Ceramic unit with hollow monolithic ribs. 3,545,156, Cl. 52-602.

Aspinal, Michael Leslie, to Associated Electrical Industries Limited. Measurement of the gas content of metals by mass spectroscopy. 3,546,449, Cl. 250-41.9

Aspinwall, Ronald A., and Graham, Mac Kellar K., to Sperry Rand Corporation. Filter and indicator means. 3,545,616, Cl. 210-90.

Associated Consultants, Inc.: *See—*
Bascle, Joseph A., Jr., 3,545,730.

Associated Electrical Industries Limited: *See—*
Aspinal, Michael Leslie, 3,546,449.
Browning, George William, Van Groos, Lambert George Marien Albert, Proctor, Harold, and Openshaw, Ian Kay, 3,546,453.
Burns, Peter, 3,546,450.
Drew, Anthony John, and Gorski-Popiel, Jerzy, 3,546,639.
Freeman, Alan Twemlow, 3,546,641.

Ateliers des Charmilles S.A.: *See—*
Piguet, Pierre, 3,545,879.

Atkinson, Robert Dennis: *See—*
Woolley, Eric Maurice, Wright, George, Crisp, Roy, and Atkinson, Robert Dennis,3,545,410.

Atkinson, Robert H. Political compaign game apparatus. 3,545,762, Cl. 273b134.

Atomic Power Constructions Limited: *See—*
Coles, Harold John, 3,545,534.

Aubrey, William M., Ketter, Richard P., and Dominguez, Ezekiel C., to Bethlehem Steel Corporation. Method of indurating balled concentrates containing iron ore. 3,545,957, Cl. 75-3.

Audn Corporation: *See—*
Brendle, Thomas A., 3,546,441.

Augenstein, Paul M.: *See—*
Hollander, Milton B., and Augenstein, Paul M.,3,545,435.

Ault, Eldon F., Mansell, Ralph E., and Ruhl, Harry deVere, Jr., to Dow Chemical Company, The. Method for detection of mercury in a helium glow discharge. 3,545,863, Cl. 356-86.

Auphan, Michel, to U.S. Philips Corporation, mesne. Device for the colorimetric analysis of liquids. 3,545,869, Cl. 356-181.

Aurach, Arthur B.: *See—*
Toyama, Hiro, and Aurach, Arthur B.,3,545,644.

Aurora Corporation: *See—*
Roehrig, Phillip J., 3,545,329.

Automatic Sprinkler Corporation of America: *See—*
Coolbaugh, Richard W., and Engels, Floyd W.,3,545,110.
Holloway, Robert L., 3,545,436.

Automobiles Peugeot: *See—*
Ventre, Pierre, 3,545,806.
Ravello, Henri, 3,545,295.

Avco Corporation: *See—*
DeCourcy, Daniel J., and Scamaton, Patrick J., 3,546,474.
Whelahan, John F., 3,545,303.

Aviation Electric Limited: *See—*
Kwok, Clyde C. K., and Sharp, George H., 3,545,467.

Aziende Colori Nazionali Affini ACNA S.p.A.: *See—*
Bertin, Mario, Moiso, Ugo, Craia, Giulio, and Pasquarelli, Aldo, 3,546,201.

Babberl, Marion G., to Rapid Mounting and Finishing Company. Display device. 3,545,113, Cl. 40-106.41

Babcock & Wilcox Company, The: *See—*
Porath, Gordon H., Rosen, Philip J., and Greenberg, Myron L., 3,545,310.
Schluderberg, Donald C., 3,546,068.
Young, Fred W., 3,545,409.

Babcock & Wilcox, Ltd.: *See—*
Peters, Martin C., and Perrin, Alfred J., 3,545,536.

Baber, Lowell Keith: *See—*
Bowman, Joe, and Baber, Lowell Keith,3,546,557.

Babington, Charles E. Firearm with an angularly indexed firing pin and non-rotatable magazine. 3,545,116, Cl. 42-1.

Babson Bros. Co.: *See—*
Shulick, Robert J., and Stachowski, Raymond, 3,545,719.

Bach, Franz, and Jung, Adam. Wall panel mounting device. 3,545,153, Cl. 52-407.

Badal, Jiri, Holy, Jan, and Parlesak, Josef, to CKD Praha, oborovy podnik. Control circuit for braking speed control of induction motor. 3,546,550, Cl. 318-212.

Bader, Clifford J., and Fussell, Richard L., to Burroughs Corporation. Signal peak detection system. 3,546,482, Cl. 307-235.

Bader, Jorg, and Gatzi, Karl, to Geigy Chemical Corporation. Certain substituted 1,2-dithiol-3-ones. 3,546,235, Cl. 260-294.8

Bader, Karl F., Jr. Tendon prosthesis. 3,545,008, Cl. 3-1.

Bader, Scott, & Co., Ltd.: *See—*
Umfreville, John Herbert, 3,546,176.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Christmann, Otto, Bernhard, Claus, and Plankenhorn, Erwin, 3,545,992.
Hornberger, Paul, Suessenguth, Hermann, and Tritschler, Heinrich, 3,546,303.
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto, 3,546,147.
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfi, Hans, 3,545,735.

Baer, John S., to Precision Specialties, Inc. Stop collar adjustment for clutch. 3,545,580, Cl. 192-26.

Bagcraft Corporation of America: *See—*
Ruda, Raymond J., 3,546,327.

Bahrs, David L., and Beard, Albert L., to Massachusetts Institute of Technology. Parallel storage control system. 3,546,680, Cl. 340-172.5

Bailey, Frank W. Blue-flame gun burner process and apparatus for liquid hydrocarbon fuel. 3,545,902, Cl. 431-9.

Bailey, Kenneth Jeffrey, to North Western Specialities Limited. Electrical wiring system principally for buildings. 3,546,360, Cl. 174-48.

Baizer, Manuel M.: *See—*
Ort, Morris R., Mottus, Edward H., Baizer, Manuel M., and Carter, Don E.,3,546,083.

Baker, Donald V., III: *See—*
Reedy, Richard C., and Baker, Donald V., III,3,545,364.

Baker, Hayward R., and Bolster, Robert N., to United States of America, Navy. Water repellent corrosion inhibiting composition. 3,546,151, Cl. 260-28.5

Baker, Lionel Richard, to British Scientific Instrument Research Association. Radiant sensitive apparatus for measuring linear dimensions. 3,546,466, Cl. 250-209.

Baker, William H., to American Mushroom Corporation. Mushroom handling apparatus. 3,545,512, Cl. 146-81.

Baldwin-Lima-Hamilton Corporation: *See—*
Kent, Francis J., 3,545,240.
Naulty, Albert M., 3,545,881.

Bales, William Henry: *See—*
Rogal, Barry, and Bales, William Henry,3,546,654.

Ballou, Richard P., and McDougal, John A., to General Motors Corporation. Fuel supply system. 3,545,418, Cl. 123-136.

Banks, Robert L.: *See—*
Heckelsberg, Louis F., and Banks, Robert L.,3,546,312.

Banks, Robert L., to Phillips Petroleum Company. Conversion of olefins. 3,546,313, Cl. 260-683.

Bankston, Earl E. Theater construction. 3,545,143, Cl. 52-6.

Barber, Alfred W. Sound level indicator for the precise determination of sound levels. 3,545,564, Cl. 181-0.5

Barber, Harry A.: *See—*
Smith, Fred T., Barber, Harry A., and Zink, Ben J.,3,545,599.

Barber, Justus C., and Jenkins, Theron W., Jr., to Leeds & Northrup Company. Boiler control system. 3,545,207, Cl. 60-106.

Barber-Colman Company: *See—*
Day, Donald W., 3,546,612.

Barber-Greene Company: *See—*
Smith, Fred T., Barber, Harry A., and Zink, Ben J., 3,545,599.

Barchok, Donald J., to Admiral Corporation. Transistor switching circuit. 3,546,492, Cl. 307-300.

Bardwell, Allen E., to Trident Industries, Inc., mesne. Drill bit with staggered teeth. 3,545,554, Cl. 175-398.

Barker, George E., to Monsanto Company. Temperature control system. 3,545,676, Cl. 236-75.

Barkman, Erik F., Coates, Harold J., and Jones, Garth Sanford, to Reynolds Metals Company. Anodizing apparatus. 3,546,088, Cl. 204-224.

Barmatic Machines, Inc.: *See—*
Korecky, Allan J., 3,545,797.

Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M., to International Business Machines Corporation. Computer controled test system for performing functional tests on monolithic devices. 3,546,582, Cl. 324-73.

Barnes, Albert H.: *See—*
Schuette, Henry W., and Barnes, Albert H.,3,545,094.

Barnes, John C., Wilt, Chester C., and Rees, William W., to Eastman Kodak Company. Rapid processing of photographic X-ray film. 3,545,971, Cl. 96-61.

Baronnier, Jean, and Boissieras, Jean, to Rhone-Poulenc. Organosilicon resins containing vinyl groups. 3,546,156, Cl. 260-37.

Barr, Arthur C. Nursing unit with venting means. 3,545,637, Cl. 215-11.

Barringer, Anthony Rene, and Grimm, Volker, to Barringer Research Limited. Proton precession magnetometer with synchronous pumping. 3,546,574, Cl. 324-0.5

Barringer Research Limited: *See—*
Barringer, Anthony Rene, and Grimm, Volker, 3,546,574.

Barsness, John G. Box closure fastening. 3,545,801, Cl. 292-288.

Barton, David W., to Ford Motor Company. Automatically adjustable disc brake. 3,545,573, Cl. 188-129.

Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M., to Burroughs Corporation. Data processing system having tree structured stack implementation. 3,546,677, Cl. 340-172.5

Barton's Candy Corporation: *See—*
Klein, Stephen, and Klein, George, 3,545,981.

Basart, Johan Charles Marie, Knippenberg, Wilhelmus Franciscus, and Verspui, Gerrit, to U.S. Philips Corporation, mesne. Method of manufacturing semi-conductor devices on substrates consisting of single crystals. 3,546,032, Cl. 148-171.

Bascle, Joseph A., Jr., to Associated Consultants, Inc. Fuel control and fuel feeder unit for internal combustion engines. 3,545,730, Cl. 261-46.

Batt, Richard W., Goldberg, Perry, Kurti, Alexander, and Segalman, Irwin, to United Aircraft Corporation. Wall structure and combustion holes for a gas turbine engine. 3,545,202, Cl. 60-39.65

Battelle Development Corporation, The: *See—*
Chawla, Jogindar Mohan, 3,545,216.

Bauduin, Philippe: *See—*
Buchy, Francois, and Bauduin, Philippe,3,546,632.

Bauer, Richard J., to General Motors Corporation. Method of assembling a vacuum modulator, 3,545,070, Cl. 29-454.

Baugher, Dale M., to RCA Corporation. Transistor high current switching and inverter circuits. 3,546,627, Cl. 331-113.

Baumgartner, Werner R., to Bulova Watch Company, Inc. Elastic resonator for timekeeping instruments. 3,546,500, Cl. 310-25.

Baverstock, Richard, to Imperial Machine Products Company. Apparatus for carburetion of gaseous fuels and air. 3,545,948, Cl. 48-184.

Baxter, Joseph, Jr., to Black Clawson Company, The. Tree harvester. 3,545,509, Cl. 144-309.

Bean, Robert A.: *See—*
Freeman, Peter A., and Bean, Robert A.,3,545,468.

Beard, Albert L.: *See—*
Bahrs, David L., and Beard, Albert L.,3,546,680.

Beard, Walter C. Dispensing device. 3,545,682, Cl. 239-469.

Beauchamp, Edwin K., and Morenz, James E., to United States of America, Atomic Energy Commission. Fiber strengthened thermoelectric material. 3,546,026, Cl. 136-238.

Beaudette, Richard A., to Sylvania Electric Products, Inc. Absolute value amplifier circuit. 3,546,596, Cl. 328-26.

Becke, Friedrich: *See—*
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto,3,546,147.

Becker, Kunibert: *See—*
Wojaczek, Egon, and Becker, Kunibert,3,545,714.

Beckman Instruments, Inc.: *See—*
Waska, Franklyn L.,3,545,871.

Beckwell, George, to Pines Engineering Co., Inc. Device for measuring angular deviation of portions of a work piece. 3,545,089, Cl. 33-174.

Becton, Dickinson and Company: *See—*
Keller, George H., 3,545,607.
Pelta, Edmond R., and Gold, Kenneth S., 3,545,429.

Bedford, Brian: *See—*
Hidman, Frank, and Bedford, Brian,3,546,544.

Beebe, Robert E. Rodent barrier attachment for water closets. 3,545,010, Cl. 4-1.

Beeken, Basil B., to Pitney-Bowes, Inc. High sensitivity fluidic proximity detector. 3,545,256, Cl. 73-37.5

Beer, Carl C., to Sherman Car Wash Equipment Co. Brush. 3,545,026, Cl. 15-183.

Beer, Karl, and Heck, Doris, administratrix of the estate of Beer, Karl, deceased. Device for feeding blank tread strips to vehicle tires. 3,546,042, Cl.

Beers, Carl E. Edge marking device. 3,545,403, Cl. 118-76.

Beetle, Robert H., and Dabney, John B., to Abex Corporation. Method of casting a wheel. 3,545,524, Cl. 164-33.

Begunkov, Alexandr Ivanovich: *See—*
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich,3,545,395.

Belart, Juan: *See—*
Fuchs, Walter, Runge, Erich, Belart, Juan, and Schrader, Gert,3,545,344.

Belart, Juan, to Teves, Alfred, GmbH. Upright master cylinder for vehicular hydraulic- brake installation. 3,545,206, Cl. 60-54.6

Belart, Juan, to Teves, Alfred, GmbH. Wear-compensating brake adjustment mechanism. 3,545,578, Cl. 188-196.

Belkin, Alesandr Borisovich: *See—*
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich,3,545,395.

Bell, F. W., Inc.: *See—*
Sisson, Edwin D., and Chapman, Richard M., 3,546,578.

Bell Telephone Laboratories, Incorporated: *See—*
Anand, Ram P., and Savage, Albert, 3,546,520.
Arnaud, Jacques A., 3,546,465.
Callaway, William B., and Deltuvia, Andrew A., Jr., 3,546,678.
Campbell, Loran W., Jr., 3,546,588.
Daniels, Richard W., 3,546,640.
Del Riesgo, Charles J., 3,546,600.
Di Piazza, Gerald C., 3,546,636.
Joel, Amos E., Jr., 3,546,393.
Kurth, Carl F., 3,546,701.
Kurth, Carl F., 3,546,702.
Kurth, Carl F., 3,546,703.
Mac Pherson, William F., and Windeler, Alfred S., 3,546,357.
Masland, Joel C., and Toro, Joseph A., 3,545,059.
Mayo, John S., 3,546,592.
Schuh, Peter O., 3,546,395.
Smith, Phillip H., 3,546,699.

Bellec, Jean-Jacques: *See—*
Gislon, Andre, Valet, Andre, Michaux, Jean-Pierre, and Bellec, Jean-Jacques,3,546,317.

Bellmore-Johnson Tool Company: *See—*
Hillberg, Robert L., 3,546,417.

Bellows, Alfred H., to Poloroid Corporation. Exposure control apparatus for a photographic camera. 3,545,352, Cl. 95-10.

Beloit Corporation: *See—*
Lundberg, John P., 3,545,633.

Belue, James C.: *See—*
Klink, Jerome P., Belue, James C., and Sears, James H.,3,545,699.

Belzner, Adolf, to NSU Motorenwerke Aktiengesellschaft. Rotor for rotary piston engines. 3,545,901, Cl. 418-179.

Bendix Corporation, The: *See—*
Doniger, Jerry, and McLaughlin, Joseph F., 3,545,703.

Bendler, Erich: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram,3,546,060.

Benerito, Ruth R.: *See—*
McKelvey, John B., Benerito, Ruth R., Berni, Ralph J., and O'Connor, Judith A.,3,545,912.

Benetta, Gianni, Bresquar, Valerio, Gatta, Giorgio, and Testa, Francesco, to Montecatini Edison S.p.A. Process of polymerization in aqueous emulsion for obtaining vinyl chloride polymers or copolymers adapted to form fluid easily deaeratable pastes. 3,546,193, Cl. 260-92.8

Benham, Thomas A.: *See—*
Benjamin, Joel Melvern, Jr., Bolgiano, Duane Ridgely, Meeks, Edwin Donnell, Jr., and Benham, Thomas A.,3,546,467.

Benjamin, Joel Melvern, Jr., Bolgiano, Duane Ridgely, Meeks, Edwin Donnell, Jr., and Benham, Thomas A., to Bionic Instruments, Inc. Typhlocane with range extending obstacle sensing devices. 3,546,467, Cl. 250-215.

Benkert, Lawrence B., and Dummer, Merlin R., to Cutler-Hammer, Inc. Universal power control module for portable tool or appliance control systems. 3,546,556, Cl. 318-345.

Benko, Julius, to Dryden Chemicals Limited, mesne. Lignin sulphonate dispersing agents and methods of making the same. 3,546,197, Cl. 260-124.

Bennett, Benny Morris, and Lightner, Linn Stephen. Flexible tape terminal assembly. 3,545,606, Cl. 206-56.

Bennett, James G., Jr.: *See—*
Wicker, Dan B., Bennett, James G., Jr., and Ward, Lowell G.,3,545,442.

Benrus Corporation: *See—*
Fischer, Ludwig, 3,545,197.

Berg, Allen C.: *See—*
Costello, Matthew J., Ziron, Frank J., 3rd, Bleggi, Henry, and Berg, Allen C.,3,545,375.

Berg, Arthur A., to Berg Mfg. & Sales Co. Tractor-trailer brake system. 3,545,815, Cl. 303-7.

Berg Mfg. & Sales Co.: *See—*
Berg, Arthur A., 3,545,815.

Berg, Robert H., Youngdahl, Carl Arthur, and Ellison, Lynn E., to Berg, Roberta V., mesne. Apparatus for making emulsions. 3,546,129, Cl. 252-359.

Berg, Roberta V.: *See—*
Berg, Robert H., Youngdahl, Carl Arthur, and Ellison, Lynn E., 3,546,129.

Berger, Alan, and Schneider, Alfred L., Jr., to Ethicon, Inc., mesne. Suture package. 3,545,608, Cl. 206-63.3

Berger, Carl, to McDonnell Douglas Corporation, mesne. Regenerable fuel cell. 3,546,020, Cl. 136-86.

Berger, Raymond H., to United States of America, Navy, mesne. Electronic module. 3,546,362, Cl. 174-52.

Berglund, Carl N. Solid state scanner utilizing a thermal filament. 3,546,491, Cl. 307-298.

Berkey, David F., to Minnesota Mining and Manufacturing Company. Adhesive-assembled magnetic-tape reel. 3,545,696, Cl. 242-71.8

Berman, Richard M., to Gulton Industries, Inc. Body electrode assembly. 3,545,432, Cl. 128-2.06

Bernhard, Claus: *See—*
Christmann, Otto, Bernhard, Claus, and Plankenhorn, Erwin,3,545,992.

Berni, Ralph J.: *See—*
McKelvey, John B., Benerito, Ruth R., Berni, Ralph J., and O'Connor, Judith A.,3,545,912.

Bernshausen, Fritz. Method of harvesting fruit. 3,545,182, Cl. 56-1.

Berridge, Frederick L., to Robb, Joseph, & Company Limited. Oil seal for journal bearings. 3,545,769, Cl. 277-131.

Berrios, Nicasio Hernandez. Ball handling apparatus for billiard and pool tables. 3,545,751, Cl. 273-11.

Berthold, Richard: *See—*
Gmunder, John, and Berthold, Richard,3,546,227.

Bertin & Cie: *See—*
Bertin, Jean Henri, Le Nabour, Marcel Pierre, and Cayla, Jean Lucien Charles, 3,545,701.

Bertin, Jean Henri, Le Nabour, Marcel Pierre, and Cayla, Jean Lucien Charles, to Bertin & Cie. Lift or lift/propulsion system for aircraft. 3,545,701, Cl. 244-12.

Bertin, Mario, Moiso, Ugo, Craia, Giulio, and Pasquarelli, Aldo, to Aziende Colori Nazionali Affini ACNA S.p.A. Reactive azo dyestuffs containing an N-omega methane sulfonic acid-N-triazinyl aniline group. 3,546,201, Cl. 260-146.

Bertolacini, Ralph J., to Standard Oil Company. Catalyst and reforming process employing same. 3,546,102, Cl. 208-138.

Bertrand, Jack: *See—*
Kalopissis, Gregoire, Bertrand, Jack, and Bugant, Andree,3,546,258.

Besser Company: *See—*
Besser, Jesse, 3,545,053.

Besser, Jesse, to Besser Company. Apparatus for controlling the height of concrete block during their manufacture. 3,545,053, Cl. 25-41.

Best, Albert M.: *See—*
Burkholder, James R., and Best, Albert M.,3,545,592.

Beta Engineering & Development Ltd.: *See—*
Amir, Yoel, and Talmon, Omri, 3,545,271.

Bethlehem Steel Corporation: *See—*
Aubrey, William M., Ketter, Richard P., and Dominguez, Ezekiel C.,3,545,957.

Betts, Albert Thomas, and Uri, Norbert, to National Research Development Corporation. Method for the reduction of photochemical degradation in polymeric materials. 3,546,159, Cl. 260-45.7

Bhola, Siri R., to Conductron Corporation. Control system. 3,546,540, Cl. 317-101.

Bianchi, Gianfranco, and Marucci, Luigi, to Kent-Tieghi S.p.A. Detecting differential pressure levels. 3,545,277, Cl. 73-419.

Bidwell, Robert E.: *See—*
Mishkin, Sidney, Bidwell, Robert E., Kurtz, Leonard D., and Hallstein, Edward J.,3,545,440.

Biegler, Hanns: *See—*
Knorre, Helmut, Meyer-Simon, Eugen, Kallrath, Gottfried, and Biegler, Hanns,3,546,011.

Bienfait, Constant, to N.V Nederlandsche Kabelfabrieken. Method and device for manufactoring a cable. 3,545,191, Cl. 57-9.

Bildat, Benno, to Bosch, Robert, GmbH. Means for the synchronized shifting of transmissions in motor vehicles. 3,545,307, Cl. 74-858.

Bionic Instruments, Inc.: *See—*
Benjamin, Joel Melvern, Jr., Bolgiano, Duane Ridgely, Meeks, Edwin Donnell, Jr., and Benham, Thomas A.,3,546,467.

Birch, Brian L.: *See—*
Sovis, Cedric C., and Birch, Brian L.,3,545,697.

Birmingham Small Arms Company Limited, The: *See—*
Gosney, Warner Barry, 3,545,280.

Bissett, Thomas B., Blair, Harold, Murphy, John B., and Tatch, Martin S., to Bissett-Berman Corporation, The. Heavy maintenance service computer. 3,546,693, Cl. 340-309.1

Bissett-Berman Corporation, The: *See—*
Bissett, Thomas B., Blair, Harold, Murphy, John B., and Tatch, Martin S., 3,546,693.

Bittscheidt, Josef: *See—*
Seifert, Friedrich, Bittscheidt, Josef, and Plenikowski, Johannes,3,546,326.

Black and Decker Manufacturing Company, The: *See—*
Alsruhe, Leonard U., 3,545,823.

Black Clawson Company, The: *See—*
Baxter, Joseph, Jr., 3,545,509.

Blackmore, Donald Eric, to Westinghouse Brake and Signal Company, Limited. Hoppers. 3,545,653, Cl. 222-556.

Blair, Harold: *See—*
Bissett, Thomas B., Blair, Harold, Murphy, John B., and Tatch, Martin S.,3,546,693.

Blakely, Roger W., Jr., to Litton Systems, Inc. Noise rejection circuit. 3,546,595, Cl. 328-1.

Blamoutier, Michel, to Compagnie Francaise Thomson Houston-Hotchkiss Brandt. Secondary-emission conductivity target comprising highly porous storage layer and less porous intermediate layer as base for metal film. 3,546,514, Cl. 313-65.

Blatt, Leland F., and Williams, Paul R., to I.S.I. Manufacturing, Inc. Power clamp with pull-back action. 3,545,050, Cl. 24-248.

Bleggi, Henry: *See—*
Costello, Matthew J., Ziron, Frank J., 3rd, Bleggi, Henry, and Berg, Allen C.,3,545,375.

Blessing-Werke KG.: *See—*
Krischker, Joseph, 3,545,195.

Bloemhard, Walter J., to Columbia Gas System Service Corporation. Off-shore welding station. 3,545,663, Cl. 228-6.

Blohm, Herbert W.: *See—*
Kesslin, George, Orlando, Charles M., and Blohm, Herbert W.,3,546,188.

Bloomfield, Roger D., Petersen, Paul S., and Wiele, Robert W., to Sports Technology, Inc., mesne. Closure for boot door. 3,545,103, Cl. 36-2.5

Blumenthal, Jack H., to International Flavors & Fragrances Inc. Preparation of 3,3,5-trimethyl cycloheptanol and esters thereof. 3,546,279, Cl. 260-497.

Blytas, George C., to Shell Oil Company. Decomposing cuprous trifluoroacetate- olefin complex with a paraffin counter solvent. 3,546,106, Cl. 208-308.

Boas Box Company: *See—*
Robinson, Herman E., 3,545,664.

Bobst, Gerhard, to Von Roll AG. Modular hydraulic fluid supply pump. 3,545,898, Cl. 418-39.

Bobst, Gerhard, and Kaser, Walter, to Von Roll AG. Axial piston unit. 3,545,340, Cl. 92-57.

Bobzin, James E., and Sawyer, Charles W., to Celotex Corporation, The. Surface panel assembly with rigid strips to conceal fasteners. 3,545,154, Cl. 52-460.

Bodenseewerk Perkin-Elmer & Co., G.m.b.H.: *See—*
Jentzsch, Dietrich, Henker, Kurt, and Kruger, Helmut, 3,545,279.
Jentzsch, Dietrich, Kruger, Helmut, and Rohl, Horst, 3,545,936.
Podschadly, Gerhard, Siemon, Detlev, and Tamm, Rolf, 3,545,933.

Bodri, Joseph S.: *See—*
Hurst, John F., and Bodri, Joseph S.,3,545,114.

Body, Ralph W., to Hercules Incorporated. Tack composition for elastomeric polymers. 3,545,991, Cl. 106-239.

Boehringer Ingeleheim GmbH: *See—*
Schmidt, Gunther, 3,546,214.

Boehringer Mannheim Gesellschaft mit beschrankter Haftung: *See—*
Fauland, Erich, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut, 3,546,234.

Boeing Company, The: *See—*
Gaffney, William Charles, and Romero, Ervin G., 3,545,819.
Sherbert, Archie T., Jr., 3,545,269.

Boers, Jan H.: *See—*
Kaplan, Reuben A., and Boers, Jan H.,3,545,629.

Boersma, Theo Tjalke, Veenendaal, Hendrikes Johannes, and Van Der Sanden, Hendrikus Cornelis Nicolaas, to U.S. Philips Corporation, mesne. Photosensitive polyvinylbutyral lacquer. 3,545,973, Cl. 96-93.

Bogdanowicz, Mitchell J., to Jayark Instruments Corporation. Cartridge for continuous loop film. 3,545,851, Cl. 352-78.

Boissieras, Jean: *See—*
Baronnier, Jean, and Boissieras, Jean,3,546,156.

Bok, Edward, to Dike, Inc. Drafting pen with cleansing vent valve stem. 3,545,877, Cl. 401-259.

Bok, Edward. Stylographic pen with vent stem scraper. 3,545,878, Cl. 401-260.

Bolgiano, Duane Ridgely: *See—*
Benjamin, Joel Melvern, Jr., Bolgiano, Duane Ridgely, Meeks, Edwin Donnell, Jr., and Benham, Thomas A.,3,546,467.

Bolhofer, William A., to Merck & Co., Inc. Ester derivatives of 2-(4-halophenoxy)alkanoic acids. 3,546,273, Cl. 260-473.

Bolkow Gesellschaft mit beschrankter Haftung: *See—*
Kaltschmidt, Horst, 3,546,698.

Bolster, Robert N.: *See—*
Baker, Hayward R., and Bolster, Robert N.,3,546,151.

Bolton, Benjamin A., to Standard Oil Company. Process for reducing viscosity of polytrimellit- amide-imide solution. 3,546,152, Cl. 260-29.2

Bom, Cornelis Johannes Gerardus: *See—*
Van der Lely, Ary, and Bom, Cornelis Johannes Gerardus,3,545,549.

Borg-Warner Corporation: *See—*
Kent, Bryan P., 3,545,581.
Olson, Otis J., and Dittmer, Thomas W., 3,546,506.

Borkowski, Walter L., and Vanderwerff, William D., to Sun Oil Company. Process for preparing esters. 3,546,274, Cl. 260-475.

Borrowman, Samuel Ralph: *See—*
George, D'Arcy R., and Borrowman, Samuel Ralph,3,545,920.

Borsini, Giancarlo, Visani, Francesco, Lodi, Luciano, and Magagnin, Luigi Ciligot, to Montecatini Edison S.p.A. Process for the continous recovery of polyvinyl- chloride from a continuous low temperature polymerization. 3,546,192, Cl. 260-92.8

Bosch, Robert, GmbH: *See—*
Bildat, Benno, 3,545,307.
Gartner, Gustav, Keller, Max, and Zehender, Ernst, 3,546,010.
Schulten, Reinhard, 3,545,076.

Boschung, Marcel, Attachment for removing wet snow and slush, for detachable coupling to a raisable and lowerable snow plow. 3,545,109, Cl. 37-41.

Bose, Ajay K., to Research Corporation. Polycyclic B-lactams. 3,546,211, Cl. 260-239.

Bosman, Edward T.: *See—*
Lundin, Robert S., Wallentowitz, Klaus, and Bosman, Edward T.,3,546,479.

Bossard, Werner, and Wegmuller, Hans E., to Geigy, J. R., A.G. Nonmetallizable arylazoaminonaphthalene sulphonamide or sulphonic acid aryl ester dyestuffs. 3,546,203, Cl. 260-196.

Boswell, George A., Jr., and Ripka, William C., to Du Pont de Nemours, E. I., and Company. Selected 6 β-and 6 α-trifluoromethoxyl androstane, estrane and pregnane derivatives. 3,546,259, Cl. 260-397.4

Botefuhr, Harold R., and Stavenhagen, Richard F., to Murphy, G.W., Industries, Inc. Electric hand tool with heat conductive thrust bearing means. 3,546,502, Cl. 310-50.

Bottcher, Bodo: *See—*
Wilhelm, Klaus, and Bottcher, Bodo,3,546,660.

Bottle, Peter: *See—*
Janssen, Hans-Joachim, and Bottle, Peter,3,546,504.

Bourgeois, Robert, and Lesure, Adolphe, to Societe dite: Usinor. Method and apparatus for tensile testing of steel bars. 3,545,264, Cl. 73-103.

Bourne, Kenneth Hugh: *See—*
Metcalfe, Christopher John Leonard, and Bourne, Kenneth Hugh,3,546,101.

Bovio, Robert J., and Finch, William A., to Sylvania Electric Products, Inc. Vacuum valve. 3,545,722, Cl. 251-331.

Bovio, Robert J., and Westlund, Arnold E., Jr., to Sylvania Electric Products, Inc. Vacuum system. 3,545,500, Cl. 141-65.

Bowdey, Raymond D., and VanVorous, Theodore, to Dow Chemical Company, The. Apparatus for supplying metal to an evaporation source in a metallizing operation. 3,545,647, Cl. 221-81.

Bowles Engineering Corporation: *See—*
Bowles, Ronald E., 3,545,068.
Bowles, Ronald E., 3,545,466.
Freeman, Peter A., and Bean, Robert A., 3,545,468.

Bowles, Ronald E., to Bowles Engineering Corporation. Pressure amplification. 3,545,068, Cl. 29-421.

Bowles, Ronald E., to Bowles Engineering Corporation. Fluid operated valve. 3,545,466, Cl. 137-81.5

Bowman, Joe, and Baber, Lowell Keith, to Scott & Feizer Company, The, mesne. Interval timer. 3,546,557, Cl. 318-484.

Bowmar Instrument Corporation: *See—*
Harden, Phillip L., and Thomas, Samuel M., Jr., 3,546,673.

Boyajian, Joseph J., to United States of America, Navy. Linear wide band discriminator. 3,546,609, Cl. 329-140.

Boydman, Hyman P.: *See—*
Tepper, Sidney, and Boydman, Hyman P.,3,545,757.

Braca, Giuseppe: *See—*
Pino, Piero, Sbrana, Glauco, and Braca, Giuseppe,3,546,264.

Bradley, Woody, and Keck, Zack R. Air compressor system for service truck. 3,545,561, Cl. 180-53.

Brandt, Edison R., to Polaroid Corporation. Apparatus for sequentially selecting photoflash lamps for ignition. 3,545,904, Cl. 10-3.68

Brandt, Hans-Ado, to Agfa-Gevaert Aktiengesellschaft. Apparatus for actuating shutter blades or the like. 3,545,361, Cl. 95-61.

Brany, Jaroslav, to Vuzkumny ustav. strojirenske technologie a ekonomiky. Method and apparatus for the manufacture of spherical bodies. 3,545,139, Cl. 51-117.

Braus, Harry, and Woltermann, Jay R., to National Distillers and Chemical Corporation. Pentaerythritoltetrakis-(3,5-di-t-butyl-4-hydroxy- benzylthio-acetate). 3,546,272, Cl. 260-470.

Brawner, Frederick A., and Pringle, William L., to Robbins, Jim, Seat Belt Co. Overhead mounted belt retractor with latch means. 3,545,788, Cl. 280-150.

Bray, Thomas L., Ward, George C., and Cofer, Daniel B., to Southwire Company. Wheel-band continuous casting machine having a single point band tensioning device. 3,545,527, Cl. 164-154.

Breen, Alvin L., to Du Pont de Nemours, E. I., and Company. Microfibers and shaped structures containing microfibers. 3,546,063, Cl. 161-176.

Breil, Heinz: *See—*
Ziegler, Karl, Breil, Heinz, Martin, Heinz, and Holzkamp, Erhard,3,546,133.

Brendle, Thomas A., to Audn Corporation. Locomotive engine performance system including the multiplication of analog and digital signals. 3,546,441, Cl. 235-150.52

Brenter, Erich. Snow runner. 3,545,785, Cl. 280-16.

Bresquar, Valerio: *See—*
Benetta, Gianni, Bresquar, Valerio, Gatta, Giorgio, and Testa, Francesco,3,546,193.

Breuer, Hans-Jurgen, to Telefonaktiebolaget LM Ericsson. Connection for reducing the loss of effect in a feed-back connected transistor amplifier. 3,546,613, Cl. 330-20.

Brewer, Max E. Mortar spreader. 3,545,159, Cl. 52-749.

Bricher, Charles W., and Hawley, James E. Developing container. 3,545,363, Cl. 95-89.

Brigham, Eric Richard, to Marconi Company Limited, The. Multiplex synchronizing system. 3,546,384, Cl. 179-15.

Brighenti, Norberto, to Texas Instruments, Incorporated. Electrical safety switch particularly useful with appliances having door-like members. 3,546,410, Cl. 200-153.

Bril, Alfred, and De Haan, Edward Fokko, to U.S. Philips Corporation, mesne. Photocathode control of electron flow through lead monoxide, bombardment-induced conductivity layer. 3,546,515, Cl. 313-65.

Brill, Bruno, and Zolzer, Karlheinz, to Metallgesellschaft Aktiengesellschaft. Surveying space coordinates in an engineering model. 3,545,086, Cl. 33-63.

British Lighting Industries Limited: *See—*
Hart, Derek James, and Davis, Robert, 3,546,367.

British Petroleum Company Limited, The: *See—*
Metcalfe, Christopher John Leonard, and Bourne, Kenneth Hugh, 3,546,101.

British Scientific Instrument Research Association: *See—*
Baker, Lionel Richard, 3,546,466.

Broderick, Thomas F. Training device for golfers. 3,545,764, Cl. 273-183.

Brodeur, Charles H.: *See—*
Brown, William F., Brodeur, Charles H., and Crockett, William E.,3,546,107.

Broerman, Arthur B., to Phillips Petroleum Company. Chromatographic analyzer sample valve. 3,545,491, Cl. 137-625.48

Brooks, Howard A., and Curtz, Thaddeus B., to KMS Industries, Inc. Coordinate woard game apparatus. 3,545,761, Cl. 273-130.

Brooks, Robert R.: *See—*
Dischert, Robert A., Brooks, Robert R., and Cosgrove, William J.,3,546,372.

Brown & Williamson Tobacco Corporation: *See—*
Johnson, Robert R., and Alford, Ezra Dempsey, 3,545,450.
Johnson, Robert R., and Alford, Ezra Dempsey, 3,545,452.
Kennedy, John E., Jr., and Riehl, Tilford F., Jr., 3,545,451.

Brown Boveri & Cie A.G.: *See—*
Gross, Franz, and Krapf, Rudolf, 3,546,496.

Brown, Daniel W.: *See—*
Wall, Leo A., Brown, Daniel W., and Antonucci, Joseph M.,3,546,191.

Brown, David Morris, to Rolls-Royce Limited. Air intake duct for a gas turbine engine. 3,545,464, Cl. 137-15.1

Brown, George Nelson, to Du Pont de Nemours, E. I., and Company. Shredder. 3,545,686, Cl. 241-47.

Brown, I. Allen: *See—*
Adams, Archie Q., 3,545,685.

Brown, Kevan, to Wyeth, John, & Brother Limited, mesne. Method of relieving inflammation by administration of 2,4-diarylthiazole-5-alkanoic acids and derivatives thereof. 3,546,342, Cl. 424-270.

Brown, Omar L., to Dayton Reliable Tool & Mfg. Company. Dimple and method of forming same. 3,545,249, Cl. 72-354.

Brown, Omar L., to Fraze, Ermal C., mesne. Easy-opening container closure. 3,545,638, Cl. 215-46.

Brown, Paul L. Vibratory multi-wave toy. 3,545,126, Cl. 46-243.

Brown, Walter, to North American Rockwell Corporation. Tool diverter and system for directing TFL tools. 3,545,474, Cl. 137-610.

Brown, Walter, and Hood, Peter, to North American Rockwell Corporation. Tool diverter for directing TFL tools. 3,545,489, Cl. 137-610.

Brown, William F., Brodeur, Charles H., and Crockett, William E., to Texaco Inc. Process and apparatus to control VI of solvent refined oil. 3,546,107, Cl. 208-311.

Browning, George William, Van Groos, Lambert George Marien Albert, Proctor, Harold, and Openshaw, Ian Kay, to Associated Electrical Industries Limited. X-ray analyzing apparatus having a plurality crystals mounted on a crystal changing carrier. 3,546,453, Cl. 250-51.5

Brownrigg, Thomas J. Miter box. 3,545,507, Cl. 143-86.

Brozenick, Norman J., and Guerrero, Fernando V. Apparatus for continuous molding. 3,545,042, Cl. 18-12.

Bruce, Robert V.: *See—*
Specht, Theodore R., Throop, Gilbert D., and Bruce, Robert V.,3,546,572.

Brueggeman, John T. Manually releasable connector. 3,545,049, Cl. 24-236.

Bruhin, Hans. Apparatus for storing wheels of cheeses. 3,545,366, Cl. 99-243.

Brusilovsky, Sergei Alexeevich: *See—*
Agabaliants, Georgy Gerasimovich, Merzhanian, Artemy Arutjunovich, Brusilovsky, Sergei Alexeevich, and Sarishvili, Naskid Grigorievich,3,545,978.

Brust, Lothar: *See—*
Hahn, Erich, and Brust, Lothar,3,545,351.

Brutmann, Karl: *See—*
Maleschew, Josef, Brutmann, Karl, and Gartner, Fritz,3,545,261.

Bryan, Harry E. Navigation training device. 3,546,351, Cl. 35-10.2

Bryan, Harry E. Training device. 3,546,352, Cl. 35-10.2

Bublitz, Donald E., to Dow Chemical Company, The. Nitrogen heterocyclic derivatives of tricyclohexyltin. 3,546,240, Cl. 260-299.

Buc, George L., and Michael, David N., to Farrington Electronics Inc. Illumination system. 3,546,438, Cl. 235-61.11

Bucha, Louis J.: *See—*
DeWeese, William R., and Bucha, Louis J.,3,545,505.

Buchholz, Otto: *See—*
Deicher, Oskar, Peter, Siegfried, and Buchholz, Otto,3,545,916.

Buchy, Francois, and Bauduin, Philippe, to Anvar Agence Nationale de Valoisation de La Recherche. Method for converting an amplitude modulated electrical signal into a frequency modulated. 3,546,632, Cl. 332-16.

Budesinsky, Bretislav, and Haas, Karel, to Ceskoslovenska Akademie Ved. 2,7-Bisphenylazochromotropic acid diamide derivatives and method of preparation thereof. 3,546,202, Cl. 260-185.

Buell Engineering Company, Inc.: *See—*
Sheehan, John James, 3,545,178.

Buffalo Forge Company: *See—*
Schroeter, Joachim W., and Stewart, Derrel N., 3,545,884.

Bugaut, Andree: *See—*
Kalopissis, Gregoire, Bertrand, Jack, and Bugaut, Andree,3,546,258.
Kalopissis, Gregoire, and Bugaut, Andree,3,546,293.

Buisson, Michel: *See—*
Granger, Camille, Repiquet, Gerard, Buisson, Michel, and Dausque, Jean,3,546,145.

Bullock, Leslie: *See—*
Thompson, Lionel Raymond Frank, and Bullock, Leslie,3,546,447.

Bullock, Thomas B., to Giddings & Lewis, Inc. Method for driving controlled currents through the stator windings of a position measuring transformer. 3,546,570, Cl. 323-48.

Bulova Watch Company, Inc.: *See—*
Baumgartner, Werner R., 3,546,500.

Buntin, George A., and John, Andrew, Jr., to Hercules Incorporation. Process for making 1,1-dimethyl-3- tetrahydrodicyclopentadienyl urea. 3,546,288, Cl. 260-553.

Burbank, John Emerson, to Scovill Manufacturing Company. Shuttleless loom. 3,545,497, Cl. 139-11.

Burchard, Leonard E.: *See—*
Frederick, George A., and Burchard, Leonard E.,3,546,642.

Burgarella, John P., to Polaroid Corporation. Photometric apparatus incorporating light responsive transistorized switching circuit. 3,545,870, Cl. 356-226.

Burhans, Stuart J.: *See—*
Stephens, Frederick N., Vetter, Robert R., and Burhans, Stuart J.,3,545,389.

Burian, Wencil J., Herman, Donald E., Stepanek, Robert M., and Vifian, Paul R., to Pettibone Corporation. Shredder type hammermill. 3,545,690, Cl. 241-186.

Burkett, Routhford J., to Coachella Valley Organic Fertilizer Co. Feed and guidance control apparatus for a tree hogger unit. 3,545,692, Cl. 241-281.

Burkholder, James R., and Best, Albert M., to Sperry Rand Corporation. Automatic bale aligner. 3,545,592, Cl. 198-33.

Burnett, H. L., to General Construction Automation, Inc. Control system for machine tools. 3,546,549, Cl. 318-162.

Burns, Eugene A., Jones, John F., Lubowitz, Hyman R., and Spraul, Joseph R., to TRW Inc. Methods of preparing laminates and reinforced plastics. 3,546,041, Cl. 156-308.

Burns, Peter, to Associated Electrical Industries Limited. Aperture devices for mass spectrometers. 3,546,450, Cl. 250-41.9

Burroughs Corporation: *See—*
Bader, Clifford J., and Fussell, Richard L., 3,546,482.
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M., 3,546,677.
Deleuze, Bernard, and Lucas, Rene Francois, 3,545,672.
Haentze, Charles B., 3,545,673.
Simonsen, Richard C., 3,546,530.
White, Herbert J., 3,546,489.

Burrus, Bill S., to Combustion Engineering, Inc. Field processing equipment for oil wells mounted at a subsea location. 3,545,215, Cl. 61-69.

Burrus, Bill S., to Combustion Engineering, Inc. Fluid conduit coupling. 3,545,490, Cl. 137-614.06

Burton, William A.: *See—*
Stark, Kenneth W., Burton, William A., and Sherman, Allan,3,545,208.

Busch, Arthur W., to Ethyl Corporation. Waste treatment. 3,546,111, Cl. 210-10.

Busch, Daryle H., and Jordan, Wade H., Jr., to Du Pont de Nemours, E. I., and Company. Voltaic cells. 3,546,022, Cl. 136-100.

Buschow, Kurt Heinz Jurgen, and Velge, Wilhelmus Antonius Johannes Josephus, to U.S. Philips Corporation, mesne. Permanent magnets built up of M_5 R. 3,546,030, Cl. 148-31.57

Bush, Thomas P., Jr., and Grant, Samuel E. Method and apparatus for chipping logs. 3,545,510, Cl. 144-323.

Bushick, Ronald D., to Sun Oil Company. Synthesis of 1,2,3,4-tetrahydro-5-naphthalene sulfonylfluoride (I) and 1,2,3,4-tetrahydro-6- naphthalene sulfonylfluoride. 3,546,287, Cl. 260-543.

Busler, Willard Le Roy, to AMP Incorporated. Terminal insertion apparatus. 3,545,662, Cl. 227-95.

Busler, William R.: *See—*
Wofford, Clinton F., Busler, William R., and Hsieh, Henry L.,3,546,134.

Buta, John R., to Gulf & Western Industrial Products Company, mesne. Thrust bearing arrangement and apparatus for removing the same. 3,545,245, Cl. 72-238.

Butler, David J. Tubing cutters. 3,545,081, Cl. 30-123.

Butler, De Forest D., to Square D Company. Underfloor wiring trench duct. 3,545,150, Cl. 52-220.

Buzzell, Harold O., to Polaroid Corporation. Lower aliphatic alcohol treatment of light polarizing film. 3,545,998, Cl. 117-33.3

Bykhovsky, David Grigorievich, Medvedev, Alexandr Yakovlevich, Rossomakho, Yakov Vulfovich, and Koss, Valery Alexandrovich. Device for plasma arc treatment of materials. 3,546,422, Cl. 219-121.

Cagnac, Therese Marie Leonie, LeGall, Alain Pierre, and Yelloz, Raphael Guy, to International Standard Electric Corporation. Memory using integrated circuits as unitary crosspoints. 3,546,682, Cl. 340-173.

Cahall, Walter Lawrence, Jr. Photomicrography system. 3,545,355, Cl. 95-12.

Cahill, Joseph J., Jr.: *See—*
Carpenter, Sammy, Witt, Enrique R., and Cahill, Joseph J., Jr.,3,546,253.

Cain, George R.: *See—*
Greg, Victor V., and Cain, George R.,3,545,618.

Calbiochem: *See—*
Deutsch, Alfred, 3,546,074.

Caldwell, John R., and Gilkey, Russell, to Eastman Kodak Company. Preparation of linear poly(ester-amides). 3,546,178, Cl. 260-75.

Caldwell, John R., and Jones, Glenn C., to Eastman Kodak Company. Polyesters containing disulfonamide compounds having improved dyeing properties. 3,546,180, Cl. 260-76.

Calgon Corporation: *See—*
Lutchko, John R., and Stoneburner, George R., 3,545,915.

Calhoun, J. Thomas. Multiple drill press. 3,545,309, Cl. 77-21.

Califano, Frank L., and Shutak, Paul N., to Flintkote Company, The. Automatic stacking and taping machine. 3,546,045, Cl. 156-486.

Callahan, James L.: *See—*
Grasselli, Robert K., and Callahan, James L.,3,546,174.

Callahan, James L., Grasselli, Robert K., and Knipple, Warren R., to Standard Oil Company, The (Ohio). Promoted antimony-iron oxidation catalyst. 3,546,138, Cl. 252-456.

Callaway, William B., and Deltuvia, Andrew A., Jr., to Bell Telephone Laboratories, Incorporated. Telephone traffic data recorder. 3,546,678, Cl. 340-172.5

Camasta, Joseph R., to Aerojet-General Corporation. Cutting apparatus. 3,545,325, Cl. 83-412.

Cameron, Donald G.: *See—*
Stimson, Allen G., and Cameron, Donald G.,3,546,586.

Camp, Vernon W.: *See—*
Leach, Pembroke O., Jackson, William P., and Camp, Vernon W.,3,546,426.

Campbell, James E.: *See—*
Foss, George W., Leib, Robert G., Campbell, James E., and Smith, Thomas G.,3,545,023.

Campbell, Loran W., Jr., to Bell Telephone Laboratories, Incorporated. Phase hit monitor-counter. 3,546,588, Cl. 325-42.

Canada Barrels & Kegs Limited: *See—*
Cressman, Fred D., 3,545,601.

Canadian National Railway Company: *See—*
Cass, George R., 3,545,555.

Canadian Patent and Development Limited: *See—*
Schreiber, Kurt, and LaCroix, Lucien J., 3,545,129.

Cannalte, Gary A., and Kanofsky, Jeffrey R., to Motorola, Inc. Plural timer tone burst selective calling system. 3,546,674, Cl. 340-171.

Cantrel, Kenneth E.: *See—*
Goodhue, Lyle D., Cantrel, Kenneth E., and Reinert, Andrew J.,3,546,340.

Carassa, Francesco, and Rocca, Fabio, to Consiglio Nazionale Delle Ricerche, Piazzale Delle Scienze, mesne. Method and device for recognizing and compensating phase steps in angle demodulators. 3,546,608, Cl. 329-131.

Cardenas, Carlos G., to Phillips Petroleum Company. Isomerization of acyclic trienes. 3,546,310, Cl. 260-677.

Caren, Robert P.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,545,226.

Cargill, Incorporated: *See—*
Gill, Norman W., and Smith, Roscoe S., 3,546,115.
Johnston, John A., 3,545,281.

Carignan, Raymond. Fluid flow detector. 3,546,405, Cl. 200-82.

Carlisle, Raymond Melvin, and Loose, Winfield Warren, to AMP Incorporated. Selector switch provided with selectably actuable contact means. 3,546,401, Cl. 200-1.

Carlson, Everett R. Tree suspended enclosure. 3,545,461, Cl. 135-1.

Carlson, Otto K.: *See—*
Stewart, Mary J., and Carlson, Otto K.,3,546,164.

Carlton Machine Tool Company, The: *See—*
Lehmkuhl, Robert A., 3,545,335.

Carpenter, Sammy, Witt, Enrique R., and Cahill, Joseph J., Jr., to Celanese Corporation. Bromine-containing polyol ethers and method of preparation. 3,546,253, Cl. 260-345.9

Carrera, Pietro, and Erba, Giovanni, to General Design S.R.L. Method and apparatus for processing discrete commodities. 3,545,609, Cl. 209-3.

Carter, Don E.: *See—*
Ort, Morris R., Mottus, Edward H., Baizer, Manuel M., and Carter, Don E.,3,546,083.

Carter-Day Company: *See—*
Schrag, Maurice P., 3,545,180.

Case, J. I., Company: *See—*
Wenzel, Philip D., 3,545,550.

Cass, George R., to Canadian National Railway Company. Method and apparatus for dynamically weighing objects in motion. 3,545,555, Cl. 177-1.

Catalysts & Chemicals Inc.: *See—*
Gutmann, William R., and Johnson, Raymond E., 3,546,140.

Caterpillar Tractor Company: *See—*
Kostas, James M., 3,545,579.
Loyd, Calvin D., Oberle, Theodore L., and Satzler, Ronald L., 3,545,071.

Caughey, Robert A., to Weyerhaeuser Company. Continuous press for laminating materials. 3,545,370, Cl. 100-144.

Cayla, Jean Lucien Charles: *See—*
Bertin, Jean Henri, Le Nabour, Marcel Pierre, and Cayla, Jean Lucien Charles,3,545,701.

Celanese Corporation: *See—*
Carpenter, Sammy, Witt, Enrique R., and Cahill, Joseph J., Jr., 3,546,253.
Witt, Enrique R., 3,546,285.

Celfil Company Establishment: *See—*
Muller, Paul Adolf, 3,546,325.

Celotex Corporation, The: *See—*
Bobzin, James E., and Sawyer, Charles W., 3,545,154.

Cerda, Elisabeth: *See—*
Szmuszkovicz, Jacob, and Cerda, Elisabeth,3,546,233.

Certain-teed Products Corporation: *See—*
Hickman, Howard M., 3,545,192.

Cesar, Jean, to Compagnie Generale de Radiologie. Security cut-off device for X-ray tomography apparatus. 3,546,462, Cl. 250-95.

Ceskoslovenska Akademie Ved: *See—*
Budesinsky, Bretislav, and Haas, Karel, 3,546,202.
Fabian, Josef, 3,546,149.
Figar, Stepan, 3,545,430.

Chalom, Joseph Aron, to Condenseurs Delas. Ejector. 3,545,886, Cl. 417-196.

Champion, William C., Jr., and Farber, Elliott, to Tenneco Chemicals, Inc. Flooring composition. 3,546,158, Cl. 260-41.

Chandler, Alanson W. Automatic dead weight pressure gauge. 3,545,278, Cl. 73-419.

Chandler, John W., to Hempel's Marine Paints, Inc., mesne. Cathodic protective coatings of metal powder and titanate ester-orthosilicate polymer based vehicle. 3,546,155, Cl. 260-37.

Chandler, Joseph A., and Grubbs, Thomas M., to United States of America, National Aeronautics and Space Administration. Winch having cable position and load indicators. 3,545,725, Cl. 254-150.

Chang, Chen-Kuo, to Westinghouse Electric Corporation. Flexible commutator bushing. 3,546,509, Cl. 310-236.

Chang, Yi-Chung, to United States Steel Corporation. Method and apparatus for measuring effluent gas flow rate. 3,545,270, Cl. 73-194.

Chang, Yi Chung, to United States Steel Corporation. Apparatus for determining travel time of moving material. 3,545,528, Cl. 164-154.

Channellock, Inc.: *See—*
Patrick, Frank, 3,545,315.
Patrick, Frank, 3,545,316.

Chapman, Arthur S., to Hughes Aircraft Company. Sighting interlock. 3,545,837, Cl. 350-83.

Chapman, Richard M.: *See—*
Sisson, Edwin D., and Chapman, Richard M.,3,546,578.

Charamond, Claude P.: *See—*
Moorhead, John O., and Charamond, Claude P.,3,546,651.

Charbonnages de France: *See—*
Vergne, Jean, Solaux, Leon, Robinet, Jean-Claude, and Lacroix Philippe, 3,546,183.

Charles, Richard J., and Jorgensen, Paul J., to General Electric Company. Ceramic-metal bonding composition and composite article of manufacture. 3,545,639, Cl. 220-2.3

Chase-Shawmut Company, The: *See—*
Salzer, Erwin, 3,546,692.

Chass, Jacob, to Pickering & Company, Inc. Linear variable differential transformer. 3,546,648, Cl. 336-136.

Chassagne, Pierre C., and Neel, Emmanuel E., to Shell Oil Company. Cloud point detector. 3,545,254, Cl. 73-17.

Chatelain, Jean, to Produits Chimiques Pechiney-Saint-Gobain. Cellular polysulfone resins and method of manufacture. 3,546,144, Cl. 260-2.5

Chawla, Jogindar Mohan, to Battelle Development Corporation, The. Refrigerant cycle for refrigeration units. 3,543,216, Cl. 62-117.

Checinski, Wieslaw J. J., to Newcomb Electronics Corporation. Transistor amplifier. 3,546,610, Cl. 330-11.

Chemische Werke Huels A.G.: *See—*
List, Fredinand, and Alfs, Helmut, 3,546,284.

Chemische Werke Hulls A.G.: *See—*
List, Ferdinand, and Alfs, Helmut, 3,546,283.

Chemische Werke Hula A.G.: *See—*
Dasch, Josef, and Schick, Anton, 3,546,194.
Heidel, Klaus, and Dittmann, Walter, 3,546,184.
Seifert, Friedrich, Bittscheidt, Josef, and Plenikowski, Johannes, 3,546,326.

Chesney, John: *See—*
Friberg, Vincent P., Wiseman, Donald P., and Chesney, John, 3,545,273.

Chesnot, Bernard Francois Gustave, to Les Condensateurs Sic-Sifco. Electrolytes for capacitors. 3,546,119, Cl. 252-62.2

Chevron Research Company: *See—*
Anderson, Donald J., 3,546,117.
deVries, Louis, 3,546,190.
Jaffe, Joseph, 3,546,094.
Jaffe, Joseph, 3,546,105.
Kittrell, James R., 3,546,095.
Kittrell, James R., 3,546,096.
Spars, Byron G., 3,546,098.

Chibret, Jean Henry Francois, to Laboratoires Chibret. Method of treating patients with therapeutic products containing anthocyanidin glucosides. 3,546,337, Cl. 424-180.

Childers, Warren. Photographic timing apparatus responsive to optical density. 3,545,858, Cl. 355-68.

Childress, Clyde O., to Monsanto Graphic Systems, Inc. Image electrode for electrostatic printing. 3,545,378, Cl. 101-127.

Chippewa Shoe Co.: *See—*
Cinquegrana, Vincent E., and Eckes, Lloyd W., 3,545,107.

Chirana, zavody vdravotnickej techniky, odborovy podnik: *See—*
Rozhold, Jaroslav, and Rozhold, Zdenek, 3,545,937.

Chisso Corporation: *See—*
Matsumoto, Satoshi, and Tanaka, Etsuo, 3,546,251.

Chivas, Norman J.: *See—*
Mojden, Wallace W., and Chivas, Norman J., 3,545,631.

Cholet, Jacques, to Institut Francais du Petrole, des Carburants et Lubrifiants. Device for emitting acoustic waves in water. 3,545,563, Cl. 181-0.5

Chopp, John A., O'Brien, Morrough, Roberts, Mack O., and Scholz, Hubert, to United States of America, Atomic Energy Commission. Weld wire feed control. 3,546,423, Cl. 219-130.

Chore-Time Equipment, Inc.: *See—*
Wert, John M., 3,545,408.

Chow, Alfred W., to Smith Kline & French Laboratories. Bicyclo[3.2.1]octane amines. 3,546,291, Cl. 260-563.

Chow, Che Chung, and Reilly, Charles D., to Du Pont de Nemours, E. I., and Company. Process for information storage and retrieval. 3,546,675, Cl. 340-174.1

Christensen, Frank W.: *See—*
Reid, Bruce K., and Christensen, Frank W., 3,545,267.

Christian, Daniel T., Look, Melvin, Nobell, Albert, and Armstrong, Thomas S., to Kaiser Aluminum & Chemical Corporation. Process for producing polyoxyalkylene ether-polyols from lignin. 3,546,109, Cl. 260-124.

Christine, William C., and Pierce, Joseph E., to A.E.I. Corporation. Container lid spot sealer. 3,545,173, Cl. 53-307.

Christmann, Otto, Bernhard, Claus, and Plankenhorn, Erwin, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Red dye-pigments. 3,545,992, Cl. 106-288.

Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.-J., to Ronson Corporation. Safety mechanism for handling pyrophoric cartridges. 3,545,907, Cl. 431-267.

Christofferson, Donald F., to FMC Corporation. Reversing linkage. 3,545,298, Cl. 74-469.

Chrysler Corporation: *See—*
Chunn, Gary A., and Summers, William M., 3,546,527.

Chrzan, Edward J.: *See—*
La Fontaine, Allyn L., and Chrzan, Edward J., 3,545,128.

Chua, James G. S., to Admiral Corporation. DC coupled hybrid amplifier. 3,546,379, Cl. 178-7.3

Chugai Seiyaku Kabushiki Kaisha: *See—*
Hotta, Naoki, Namiuchi, Akira, and Arita, Masahiko, 3,546,205.

Chunn, Gary A., and Summers, William M., to Chrysler Corporation. Headlamp time delay circuit controller. 3,546,527, Cl. 315-82.

Church, George W., Jr. Confined soil bricks. 3,545,155, Cl. 52-596.

Chyo Balance Corporation: *See—*
Iwata, Shigeo, and Morikawa, Harumi, 3,545,253.

Ciba Limited: *See—*
Duennenberger, Max, and Schellenbaum, Max, 3,546,255.
Ehrat, Kurt, 3,545,694.
Martin, Henry, Duerr, Dieter, Hitz, Hans-Rudolf, and Von Orelli, Marcus, 3,546,344.

Siegrist, Adolf Emil, Liechti, Peter, Maeder, Erwin, and Guglielmetti, Leonardo, 3,546,217.

Ciccarelli, William E., and Kaufman, Phillip A., to Gichner Mobile Systems, Inc. RFI shielded vent. 3,546,359, Cl. 174-35.

Cieszewski, Janusz, and Czuba, Jan. Hydraulically engegcable multiple-disk clutch. 3,545,583, Cl. 192-85.

Cincinnati Milacron Inc.: *See—*
Richter, Robert C., 3,545,301.

Cinquegrana, Vincent E., and Eckes, Lloyd W., to Chippewa Shoe Co. Boot and shoe construction. 3,545,107, Cl. 36-50.

Ciochetto, Joseph J., to Koppers Company, Inc. Horizontal continuous casting mold. 3,545,530, Cl. 164-260.

Cissell, Harry L. Liquid proportioner. 3,545,469, Cl. 137-101.27

Cissell, W. M., Manufacturing Company: *See—*
Goodman, Walter P., 3,545,052.

CKD Praha, oborovy podnik: *See—*
Badal, Jiri, Holy, Jan, and Parlesak, Josef, 3,546,550.

Clapp, Clarence P., to Aerosol Techniques Research Center Incorporated. System for filling internally pressurized dispensing container. 3,545,162, Cl. 53-22.

Clark, Robert O., to United States of America, Air Force. Gas partitioning pressure regulator. 3,545,485, Cl. 137-508.

Clarke, John Michael, to National Research Development Corporation. Rotary machines. 3,545,899, Cl. 418-68.

Clayton, Ronald: *See—*
Ledger, Howard Roberts, and Clayton, Ronald, 3,545,746.

Clement, Oliver R., Lewis, Lyan David, and Thompson, James F., to General Motors Corporation. Acceleration measuring system. 3,545,284, Cl. 73-517.

Coachella Valley Organic Fertilizer Co.: *See—*
Burkett, Routhford J., 3,545,692.

Coates, Harold J.: *See—*
Barkman, Erik F., Coates, Harold J., and Jones, Garth Sanford, 3,546,088.

Coccia, Rudolph A., to Westinghouse Air Brake Company. Voltage range limiting circuitry means. 3,546,573, Cl. 323-96.

Cochrane, Robin A., to Girling Limited. Vehicle disc brakes and shoe structure. 3,545,574, Cl. 188-73.1

Coda, Nello, to Erie Technological Products, Inc. Spark gap. 3,546,538, Cl. 317-61.

Cody, Tommy Dale, to Texas Instruments, Incorporated. Method of and apparatus for removing wire pigtails. 3,545,661, Cl. 225-1.

Coe Manufacturing Company, The: *See—*
Skoog, Per Olof, 3,545,648.

Coe, Stanley H.: *See—*
Stein, Robert R., and Coe, Stanley H., 3,545,833.

Cofer, Daniel B.: *See—*
Bray, Thomas L., Ward, George C., and Cofer, Daniel B., 3,545,527.

Coffey, Robert Stevenson, to Imperial Chemical Industries Limited. Process for the preparation of an organic silicon compound by reacting in the presence of a rhodium catalyst. 3,546,266, Cl. 260-448.2

Cohen, Joseph: *See—*
Mercier, Henri, and Cohen, Joseph, 3,545,923.

Cohn, H. Marvin. Encapsulated life jacket. 3,545,017, Cl. 9-342.

Cohu Electronics, Inc.: *See—*
Kimball, James L., 3,546,370.

Coker, William P.: *See—*
Strother, Greene W., Jr., and Coker, William P., 3,545,130.

Colautti, Albert J., to General Motors Corporation. Track structure for seat adjuster. 3,545,716, Cl. 248-430.

Colclaser, Robert G., Jr.: *See—*
Fischer, William H., and Colclaser, Robert G., Jr., 3,546,408.

Cole, Howard W., Jr.: *See—*
Irgon, Joseph, and Cole, Howard W., Jr., 3,545,547.

Cole, Louis F., to Union Carbide Corporation. Curable compositions based on oxirane polyepoxides and liquid eutectic mixtures of o-tolylenediamine, m-tolylenediamine, and bis(aminophenyl) methane. 3,546,169, Cl. 260-47.

Coleman, William J.: *See—*
Dixon, Norman E., and Coleman, William J., 3,546,012.

Coles, Harold John, to Atomic Power Constructions Limited. Heat exchangers. 3,545,534, Cl. 165-67.

Colley, Russell S., to Ferry, Ernest S. Amputee socket. 3,545,009, Cl. 3-17.

Colley, Russell S., to Ferry, Ernest S. Toggle-type clamp. 3,545,046, Cl. 24-68.

Collier, John Covell, to AMP Incorporated. Grounding connector for connection onto a shield of a conductor means. 3,546,365, Cl. 174-78.

Collins Radio Company: *See—*
Dixon, Charles E., 3,546,607.
Lipke, Donald L., 3,546,597.

Colombie, Michel, and Foure, Michel, to Compagnie Pour l'Etude la Realisation de Kombustibles Atomiques (C.E.R.C.A.). Manufacture of improved nuclear fuels. 3,545,966, Cl. 75-122.7

Columbia Broadcasting Systems, Inc.: *See—*
Gabor, Dennis, 3,545,836.

Columbia Gas System Service Corporation: *See—*
Bloemhard, Walter J., 3,545,663.

Columbus McKinnon Corporation: *See—*
Kennard, Edward, 3,545,051.

Combustion Engineering, Inc.: *See—*
Burrus, Bill S., 3,545,215.
Burrus, Bill S., 3,545,490.

Hill, Forrest B., Jr., 3,545,537.
Kinyon, Brice W., 3,545,412.
Leach, Pembroke O., Jackson, William P., and Camp, Vernon W., 3,546,426.

Comegys, Courtney L., Freundlich, Jackson S., and Roebuck, William C., to Addressograph Multigraph Corporation. Identification and printing device with fraud preventing means. 3,545,380, Cl. 101-369.

Cominco Ltd.: *See—*
Armstrong, John, 3,546,028.

Comitetul de Stat Pentru Cultura si Arta: *See—*
Miheles, Aurel, 3,545,849.

Commercial Solvents Corporation: *See—*
Francis, James W., 3,546,034.
Tindall, John B., 3,546,298.

Commercijl Solvents Corporation: *See—*
Francis, James W., 3,546,035.

Commissariat a l'Energie Atomique: *See—*
Friconneau, Claude, and Leboutet, Alain, 3,546,087.
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph, 3,545,906.

Compagnie de Saint-Gobain: *See—*
Nedelec, Maurice, 3,545,951.

Compagnie Francaise de Raffinage: *See—*
Gislon, Andre, Valet, Andre, Michaux, Jean-Pierre, and Bellec, Jean-Jacques, 3,546,317.

Compagnie Francaise Thomson Houston-Hotchkiss Brandt: *See—*
Blamoutier, Michel, 3,546,514.

Compagnie Generale de Radiologie: *See—*
Cesar, Jean, 3,546,462.

Compagnie Generale d'Electricite: *See—*
Rostas, Francois, 3,545,867.

Compagnie Pour l'Etude la Realisation de Kombustibles Atomiques (C.E.R.C.A.): *See—*
Colombie, Michel, and Foure, Michel, 3,545,966.

Compur-Werk Gesellschaft mit beschrankter Haftung & Co.: *See—*
Fahlenberg, Paul, Pross, Wilhelm, and Wildfeuer, Heinrich, 3,545,359.

Condenseurs Delas: *See—*
Chalom, Joseph Aron, 3,545,886.

Conductron Corporation: *See—*
Bhola, Siri R., 3,546,540.
Kennedy, Joe Bartlett, and Edmonds, Thomas Rhys, 3,545,282.

Conn Med Corporation: *See—*
Gunther, William H., Jr., 3,545,604.

Conrac Corporation: *See—*
Sampson, Howard J., and Rogerson, Thomas W., 3,546,439.

Conrad, Malcolm A., to Owens-Illinois, Inc. Green glass manufacture. 3,545,952, Cl. 65-121.

Consiglio Nazionale Delle Ricerche, Piazzale Delle Scienze: *See—*
Carassa, Francesco, and Rocca, Fabio, 3,546,608.

Constantin Graf Von Berckheim: *See—*
Jahnke, Herbert, 3,546,451.

Container Corporation of America: *See—*
Visvydas, Pranas, 3,545,666.

Continental Can Company: *See—*
Tysver, Oliver J., Tate, Oliver C., and Prendergast, Richard E., 3,546,655.
Hultberg, Wayne M., 3,545,668.
Jantze, Clyde E., Arnott, Edward A., and Scott, Earle V., 3,545,160.
Radlove, Sol B., and Ravve, Abraham, 3,546,002.
Roseta, Eli, and Rogers, Lawrence M., 3,546,416.

Continental Oil Company: *See—*
Shale, Kenneth A., 3,545,718.

Contraves AG: *See—*
Zemp, Georg, and Zangger, Robin, 3,545,257.

Conway, Alvin C.: *See—*
Robertson, Jerry E., and Conway, Alvin C., 3,546,210.

Cook, Richard L. Method for making puncture resistant material. 3,546,038, Cl. 156-210.

Cook, Robert G., to North American Rockwell Corporation. High contact density underwater connector. 3,546,657, Cl. 339-60.

Coolbaugh, Richard W., and Engels, Floyd W., to Automatic Sprinkler Corporation of America. Illuminated panel and method of making the same. 3,545,110, Cl. 40-130.

Cooper, Gordon R., to Dunlop Company Limited, The. Stacking devices. 3,545,632, Cl. 214-8.

Coran, Aubert Yaucher, and Kerwood, Joseph Edward, to Monsanto Company. Inhibiting premature vulcanization of diene rubbers. 3,546,185, Cl. 260-79.5

Corbett, Herbert O., to National Distillers and Chemical Corporation. Production of a foamed product from a blend of thermoplastic polymer and cellulose fibers. 3,546,143, Cl. 260-2.5

Cordell Engineering, Incorporated: *See—*
Reedy, Richard C., and Baker, Donald V., III, 3,545,364.

Corley, Helen Emily: *See—*
Corley, John P., 3,545,588.

Corley, John P., deceased (by Corley, Helen Emily, executrix), to Corley-Miller, Inc. Scale to labeller feed. 3,545,588, Cl. 198-19.

Corley-Miller, Inc.: *See—*
Corley, John P., 3,545,588.

Cornell Aeronautical Laboratory, Inc.: *See—*
Weatherston, Roger C., and Duryea, George R., 3,545,895.

Cornely, Roy H., to RCA Corporation. Semiconductor laser logic apparatus. 3,546,495, Cl. 307-312.

Cory Corporation: *See—*
Farrell, Claude S., Jr., 3,546,427.

Cosgrove, William J.: *See—*
Dischert, Robert A., Brooks, Robert R., and Cosgrove, William J., 3,546,372.

Costello, Matthew J., Ziron, Frank J., 3rd, Bleggi, Henry, and Berg, Allen C., to Sperry Rand Corporation. Print hammer control means in high speed printers. 3,545,375, Cl. 101-93.

Coston, Robert M.: *See—*
United States of America, National Aeronautics and Space Administration, Administrator, 3,545,226.

Coumans, Harry M.: *See—*
Laing, Graham S., and Coumans, Harry M., 3,546,397.

Coupland, Keith, to Orobis Limited, meane. Reaction products of diketene with certain substituted N-(alkylamino) succinimides. 3,546,243, Cl. 260-326.3

Couser, Chester F. Implement hinge. 3,545,033, Cl. 16-163.

Cousin, Jean-Claude. Machine for making unwoven sheet material. 3,546,044, Cl. 156-441.

Cover, John H., Jr., Knauer, Wolfgang, and Maurer, Hans A., to Hughes Aircraft Company. Lightweight reflecting structures utilizing electrostatic inflation. 3,546,706, Cl. 343-840.

Covill, Dennis H., to E.M.I.-Cassor Electronics Limited. Wide band radio transmitter. 3,546,590, Cl. 325-171.

Cox, Dean M., to General Motors Corporation. Method of fabricating a heat exchanger from corrugated sheets. 3,545,062, Cl. 29-157.3

Cox, John A., Jr., Glaser, George R., Jr., and Shoger, Merlyn J., to Union Carbide Corporation. Catalyst system for making hydrogen cyanide. 3,545,939, Cl. 23-288.

CPC International Inc.: *See—*
Johnson, Calvin Keith, and Armbruster, David Ray, 3,546,172.

Cragg, William Donald, and Leman, Hugh Spence, to International Standard Electric Corporation. Tone signalling device using piezoelectric reed oscillators. 3,546,619, Cl. 331-49.

Craia, Giulio: *See—*
Bertin, Mario, Moiso, Ugo, Craia, Giulio, and Pasquarelli, Aldo, 3,546,201.

Craig, Gale M., to General Motors Corporation. Galvanic cell and method of operation. 3,546,021, Cl. 136-86.

Craig, James R., to Litton Medical Products, Inc. Automatic control of a nonsynchronous cine fluororadiographic apparatus. 3,546,461, Cl. 250-95.

Crane Packing Company: *See—*
Wheelock, Edward A., 3,545,770.

Craster, William, to Plessey Company Limited, The. Piezoelectric transducer element. 3,546,497, Cl. 310-8.2

Creative Systems, Inc.: *See—*
French, Walter K., 3,546,398.

Crecelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G., to United States of America, Navy. Attitude and range determining system. 3,546,376, Cl. 178-6.8

Creech, Bobby A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M., 3,546,677.

Crescent Niagara Corporation: *See—*
Angquist, Torsten F., 3,545,312.

Cressman, Fred D., to Canada Barrels & Kegs Limited. Conveyor bracket. 3,545,601, Cl. 198-192.

Cresswell, Roger Anthony, to Rolls-Royce Limited. Gas turbine power plant. 3,545,210, Cl. 60-226.

Crisp, Roy: *See—*
Woolley, Eric Maurice, Wright, George, Crisp, Roy, and Atkinson, Robert Dennis, 3,545,410.

Crist, Buckley, to Jaclo, Inc. Shower head. 3,545,681, Cl. 239-449.

Crockett, William E.: *See—*
Brown, William F., Brodeur, Charles H., and Crockett, William E., 3,546,107.

Cronin, David J.: *See—*
Reynolds, George O., and Cronin, David J., 3,545,842.

Csoke, Joseph: *See—*
Rojek, Joseph, and Csoke, Joseph, 3,546,687.

Culpepper, Ronald M.: *See—*
Aronson, Philip M., and Culpepper, Ronald M., 3,545,919.

Cunningham, McCleery B., to Sonoco Products Company. Forming tube for glass fibers. 3,545,494, Cl. 138-144.

Curtz, Thaddeus B.: *See—*
Brooks, Howard A., and Curtz, Thaddeus B., 3,545,761.

Cutler-Hammer, Inc.: *See—*
Benkert, Lawrence B., and Dummer, Merlin R., 3,546,556.
Risberg, Robert L., and Smith, Charles E., 3,546,551.
Robbins, Clyde F., 3,546,409.

Cyclops Corporation, Allegheny Strapping Division: *See—*
Dalton, Jack J., and Linehan, John J., 3,545,499.

Czarcinski, Eugene A.: *See—*
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugene A., Silverman, Joseph R., and Lesko, John G., Jr., 3,546,684.

Czenkusch, Edward L.: *See—*
Walker, Darrell W., and Czenkusch, Edward L., 3,545,930.

Cziptschirsch, Kurt, and Treber, Willi O. Section bar. 3,545,157, Cl. 32-717.

Czuba, Jan: *See—*
Cieszewski, Janusz, and Czuba, Jan,3,545,583.

Dabney, John B.: *See—*
Beetle, Robert H., and Dabney, John B.,3,545,524.

Daddona, Domenic John, Jr., and Flisher, Kenneth William, to Scovill Manufacturing Company. Snap fastener. 3,545,048, Cl. 24-213.

Dague, Leonard P., to RCA Corporation. High voltage wide band amplifier. 3,546,611, Cl. 330-13.

Dahlin, Robert W.: *See—*
Davis, Glenn G., and Dahlin, Robert W.,3,545,790.

Daihatsu Kogyo Co., Ltd.: *See—*
Furusho, Hirosuke, 3,545,300.

Daimler-Benz Aktiengesellschaft: *See—*
Scherenberg, Hans O.,3,545,299.

Dalton, Jack J., and Linehan, John J., to Cyclops Corporation, Allegheny Strapping Division. Sealer head mechanism of an automatic strapping machine. 3,545,499, Cl. 140-93.2

Daniels, Richard W., to Bell Telephone Laboratories, Incorporated. Nonreciprocal transistor network. 3,546,640, Cl. 333-80.

Dankowski, Gerhard. Drive belt tensioner. 3,545,294, Cl. 74-242.1

Dany, Franz-Josef, Kandler, Joachim, Frank, Klaus, and Weiden, Hans, to Knapsack Aktiengesellschaft. Self-extinguishing styrene/acrylonitrile- copolymers. 3,546,160, Cl. 260-45.7

Darcey, Robert J., to United States of America, National Aeronautics and Space Administration. Satellite communication system and method. 3,546,386, Cl. 179-15.

Dargene, Carl J., to Amerock Corporation. Cabinet frame and door for use with quickly attachable and detachable hinges. 3,545,134, Cl. 49-501.

Darms, Roland, to Du Pont de Nemours, E. I., and Company. Polyxanthones. 3,546,167, Cl. 260-47.

Dart Industries Inc.: *See—*
Swett, James B., 3,545,642.
Swett, James B., and Kershaw, William R., 3,545,798.

Dasch, Josef, and Schick, Anton, to Chemische Werke Huls A.G. Process of alkylating styrene polymers. 3,546,194, Cl. 260-93.5

Data Presentations, Inc.: *See—*
Foley, Daniel E., and Hogan, William F., 3,546,381.

Datacopy Limited: *See—*
Firth, Donald, 3,545,999.

Daum, John L., and Spurgin, Ray B., to Delta Manufacturing and Engineering Corporation. Vehicle washing apparatus. 3,545,460, Cl. 134-123.

Dausque, Jean: *See—*
Granger, Camille, Repiquet, Gerard, Buisson, Michel, and Dausque, Jean,3,546,145.

Davies, Beaumont J., to Richards, George, & Company Limited. Scale conversion device. 3,545,401, Cl. 116-115.5

D'Avignon, Marc B. Immobilization device. 3,545,739, Cl. 269-328.

Davis, Elbert. Sanitizers. 3,545,014, Cl. 4-228.

Davis, Eugene W. Soap dispensing device for automatic dishwashers. 3,545,652, Cl. 222-484.

Davis, Glenn G., and Dahlin, Robert W., 1/2 to Lavine, Morris. Drag chute for land vehicles. 3,545,790, Cl. 280-289.

Davis, Hugh J.: *See—*
Lerner, Irwin S., and Davis, Hugh J.,3,546,334.

Davis, John Walter, to Dunlop Company Limited, The. Control valves. 3,545,818, Cl. 303-21.

Davis, Robert: *See—*
Hart, Derek James, and Davis, Robert,3,546,367.

Davis, Thomas J., to United States of America, Atomic Energy Commission. Bidirectional analog gate. 3,546,485, Cl. 307-255.

Davison, Joseph W., to Phillips Petroleum Company. Olefin purification. 3,546,315, Cl. 260-683.

Davoll, John, to Parke, Davis & Company. Novel quinazoline compounds and process means for producing the same. 3,546,224, Cl. 260-256.4

Davy and United Engineering Company Limited: *See—*
Stubbins, Derek, 3,545,590.

Day, Donald W., to Barber-Colman Company. Non-linear condition sensor and compensating amplifier therefor. 3,546,612, Cl. 330-17.

Day, William John, to Perry, E.S., Limited. Sealing of tubes of plastic material. 3,545,168, Cl. 53-37.

Dayton Reliable Tool & Mfg. Company: *See—*
Brown, Omar L., 3,545,249.

D'Cruz, Alex Wasy, to Du Pont de Nemours, E. I., and Company. Adhesive subbing layer for a photographic emulsion. 3,545,972, Cl. 96-87.

Dean, Donald Edwin, to Sheridan-Gray, Inc. Rotary stretch-forming machine. 3,545,242, Cl. 72-151.

DeBaun, James R. World globe device. 3,545,102, Cl. 35-46.

De Biase, John R. Shoe finishing machine. 3,545,021, Cl. 12-1.

deBolt, Edwin Stanton, and Meyers, Charles Frederick, to AMP Incorporated. Detachable electrical connector means. 3,546,664, Cl. 339-256.

DeBruyn, Emile: *See—*
Mencacci, Samuel A., and DeBruyn, Emile,3,545,985.

Debruyne, Pieter Adolf Mathildis: *See—*
De Raedt, Egide Jacob Hendrik, Peeters, Andreas Michiel Cyriel Corneel, and Debruyne, Pieter Adolf Mathildis,3,546,389.

Dechantsreiter, Max J., to Harnischfeger Corporation. Crane with turntable locking means. 3,545,628, Cl. 212-124.

Dechantsreiter, Max J., to Harnischfeger Corporation. Supporting means for flexible members. 3,546,400, Cl. 199-12.

DeCorso, Serafino M., to Westinghouse Electric Corporation. Nonconsumable electrode vacuum arc furnaces for steel, zirconium, titanium and other metals and processes for working said metals. 3,546,348, Cl. 13-31.

DeCourcy, Daniel J., and Scamaton, Patrick J., to Avco Corporation. Method of and apparatus for electrohydraulic transmission of power. 3,546,474, Cl. 290-52.

De Gaudemaris, Gabriel: *See—*
Rabilloud, Guy, Sillion, Bernard, and De Gaudemaris, Gabriel,3,546,166.

De Haan, Edward Fokko: *See—*
Bril, Alfred, and De Haan, Edward Fokko,3,546,515.

Dehara, Masataka: *See—*
Hattori, Kenichi, Dehara, Masataka, and Sugimoto, Katuo,3,545,995.

Deicher, Oskar, Peter, Siegfried, and Buchholz, Otto, to Gewerkschaft Elwerath. Process for inhibiting sulphur deposits in natural gas well risers. 3,545,916, Cl. 23-2.

deJersey Phillips, Charles: *See—*
Fleet, Ralph G., deJersey Phillips, Charles, and Fleet, Stuart H.,3,546,429.

Deknatel, Inc.: *See—*
Mishkin, Sidney, Bidwell, Robert E., Kurtz, Leonard D., and Hallstein, Edward J., 3,545,440.

Delahunt, John F., and Turney, John J., to Esso Research and Engineering Company. Protective gas seals for non-metallic tank bottoms. 3,545,640, Cl. 220-5.

Delbourgo, Ralph: *See—*
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph,3,545,906.

Deleuze, Bernard, and Lucas, Rene Francois, to Burroughs Corporation. Rotary transfer means for receiving and distributing amounts in a printing calculator. 3,545,672, Cl. 235-60.

Delinger, Jack E. Adjustable exercise slant board. 3,545,748, Cl. 272-58.

Deller, Rudolf: *See—*
Pfeifer, Friedrich, and Deller, Rudolf,3,546,031.

Del Monte Corporation: *See—*
Mathews, Richard D., 3,545,984.

Del Riesgo, Charles J., to Bell Telephone Laboratories, Incorporated. Signal frequency detector circuit. 3,546,600, Cl. 328-109.

Del Rosso, Victor, to Hi Speed Checkweigher Co., Inc. Converging package timer. 3,545,591, Cl. 198-32.

Delta Manufacturing and Engineering Corporation: *See—*
Daum, John L., and Spurgin, Ray B., 3,545,460.

Deltuvia, Andrew A., Jr.: *See—*
Callaway, William B., and Deltuvia, Andrew A., Jr.,3,546,678.

De Luca, William H.: *See—*
Hornstra, Fred, Jr., and De Luca, William H.,3,546,577.

DelVecchio, Joseph T., to Instrument Systems Corporation, mesne. Shock and vibration resisting slide assembly. 3,545,824, Cl. 308-3.8

de Ment, Jack. Apparatus for separating light energy from shock wave energy including the pumping of a laser with an exploding wire. 3,546,623, Cl. 331-94.5

Dempster Industries, Inc.: *See—*
Tangeman, Lawrence N., 3,545,678.

den Hertog, Martinus, to International Standard Electric Corporation. Satellite telephone systems with separate message circuits and signalling channels. 3,546,391, Cl. 179-18.

Denison, Saml., & Son Limited: *See—*
Hadley, Herbert Roy, and Kaye, Denis, 3,545,263.

Denk, Richard: *See—*
Winkler, Alfred, and Denk, Richard,3,545,852.

Denny, William A., to United States of America, Air Force. Stabilized constant current apparatus. 3,546,564, Cl. 323-1.

Dent, Benjamin A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M.,3,546,677.

Dent, Robert K.: *See—*
Jensen, Charles R., and Dent, Robert K.,3,546,688.

Dentino, Mauro J., and Reitz, Eugene A., to North American Rockwell Corporation. Non-scanning optical processor for display of video signals. 3,545,841, Cl. 350-161.

Denz, Alfons: *See—*
Kopke, Gunter, Denz, Alfons, Grau, Eckehardt, and Strasser, Erwin,3,545,831.

De Raedt, Egide Jacob Hendrik, Peeters, Andreas Michiel Cyriel Corneel, and Debruyne, Pieter Adolf Mathildis, to International Standard Electric Corporation. Telecommunication switching system. 3,546,389, Cl. 179-18.

Derr, William M., and Harper, Bill J., to Sparton Corporation. Sea water depth transducer and system. 3,545,274, Cl. 73-393.

Derrickson, Michael O.: *See—*
Raley, Philip W., and Derrickson, Michael O.,3,545,723.

Desaga, C., G.m.b.H.: *See—*
Dibbern, Hans-Werner, 3,545,864.

Detroit Reamer & Tool Company: *See—*
Andreasson, Donald C., 3,545,623.

Deutsch, Alfred, to Calbiochem. Reagent for assaying glutamate oxaloacetate transaminase. 3,546,074, Cl. 195-103.5

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See—*
Knorre, Helmut, Meyer-Simon, Eugen, Kallrath, Gottfried, and Biegler, Hanns, 3,546,011.

de Vore, Dorothy C.: *See—*
Rice, Rip G., Murch, Robert M., and de Vore, Dorothy C.,3,545,942.

deVries, Douwe, to Shell Oil Company. Wellhead assembly including diverter means. 3,545,541, Cl. 166-95.

DeVries, James H., to Sarns, Inc. Intermittent peritoneal dialysis method and apparatus therefor. 3,545,438, Cl. 128-213.

deVries, Louis, to Chevron Research Company. Complex copper catalyzed polymerization of pyrolle and pyrolle derived compounds. 3,546,190, Cl. 260-88.3

De Vries, Robert C., to General Electric Company. Oriented Cr_2O_3 films and method of producing same. 3,546,005, Cl. 117-106.

Dewan, Shashi Bhushan: *See—*
Havas, George, and Dewan, Shashi Bhushan,3,546,562.

DeWeese, William R., and Bucha, Louis J., to Remington Arms Company, Inc. Laminated guide bar for chain saw. 3,545,505, Cl. 143-32.

Deynat, Gerard, and Lippmann, Jean Pierre. Installation for preheating powdery materials by the exhaust gases of the furnace for treating these materials. 3,545,732, Cl. 263-21.

Dezurik Corporation: *See—*
Gustafson, Lloyd E., 3,545,480.

Diamond, James H., and Noponen, George E., to Minnesota Mining and Manufacturing Company. Polyurethane composition and surfacing. 3,546,148, Cl. 260-18.

Dibbern, Hans-Werner, to Desaga, C., G.m.b.H. Apparatus and method for determining gastroenteral. 3,545,864, Cl. 356-96.

Dichter, Hans-Joachim: *See—*
Dichter, Jakob, 3,545,402.

Dichter, Jakob, deceased (by Dichter, Martha, sole heiress), to Dichter, Hans-Joachim, heir of Dichter, Martha L. M. nee Meinichke, deceased. Scoring and marking apparatus. 3,545,402, Cl. 118-35.

Dichter, Martha: *See—*
Dichter, Jakob,3,545,402.

Dichter, Martha L. M. nee Meinichke, deceased: *See—*
Dichter, Jakob, 3,545,402.

Dielman, Harold J., to Sanymetal Products Company, Inc., The. Cam operated hinge assemblies. 3,545,031, Cl. 16-153.

Dielman, Harold J., to Sanymetal Products Company, Inc., The. Cam operated hinge assemblies. 3,545,032, Cl. 16-153.

Dietiker, H. A., AG: *See—*
Vrana, Miroslav, 3,545,137.

Dietz, Max R., and Moller, Charles R., Jr., to Gerber Products Company. Ozonation of industrial waste water. 3,546,114, Cl. 210-63.

Digimetrics, Inc.: *See—*
Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F., 3,546,696.

Dijksterhuis, Popko Reinder, and Verharen, Hermanus Arnoldus, to U.S. Philips Corporation, mesne. Method of producing samples for X-ray fluorescence analysis. 3,546,452, Cl. 250-51.5

Dike, Inc.: *See—*
Bok, Edward, 3,545,877.

Dikin, Gary L., and Karpus, Alan F., to Insto-Gas Corporation. Infrared heater. 3,545,425, Cl. 126-92.

Dille, Roger M.: *See—*
Schlinger, Warren G., Slater, William L., and Dille, Roger M.,3,545,926.

Dinger, Paul H., and Stultz, James T., to Ice Industries International, Inc. Limited subcooling condenser-receiver assembly for refrigerating systems. 3,545,228, Cl. 62-506.

Di Piazza, Gerald C., to Bell Telephone Laboratories, Incorporated. Microwave phase shifter. 3,546,636, Cl. 333-31.

Dischert, Robert A., Brooks, Robert R., and Cosgrove, William J., to RCA Corporation. Vertical and horizontal aperture equalization. 3,546,372, Cl. 178-5.4

Discoe, Harlen A. Hydro bathtub safety aid. 3,545,013, Cl. 4-185.

Dittmann, Walter: *See—*
Heidel, Klaus, and Dittmann, Walter,3,546,184.

Dittmer, Thomas W.: *See—*
Olson, Otis J., and Dittmer, Thomas W.,3,546,506.

Dixon Automatic Tool, Inc.: *See—*
Dixon, Paul H., and Zilka, Jerry M., 3,546,707.

Dixon, Charles E., to Collins Radio Company. Noise immune muting circuit for pulse counting detectors. 3,546,607, Cl. 329-126.

Dixon, Norman E., and Coleman, William J., to United States of America, Atomic Energy Commission. Lithium sulphate ultrasonic transducer. 3,546,012, Cl. 117-213.

Dixon, Paul H., and Zilka, Jerry M., to Dixon Automatic Tool, Inc. Facsimile recorder. 3,546,707, Cl. 346-74.

Docter, Charles J. Tire plugger. 3,545,314, Cl. 81-15.7

Dodge, Marlow W.: *See—*
Johnson, Arthur L., Jr., and Dodge, Marlow W.,3,545,475.

Dohogne, Charles L., and Harrington, James C., to Purex Corporation Ltd. Cleaning method for jet engine parts. 3,546,084, Cl. 204-141.

Dohrman, Charles A. Retractable folding steps. 3,545,567, Cl. 182-97.

Dokoupil, Jiri, Zubik, Jiri, and Zdrahal, Jiri, to Svit, narodni podnik, mesne. Method and apparatus for treating leather. 3,545,095, Cl. 34-14.

Dominguez, Ezekiel C.: *See—*
Aubrey, William M., Ketter, Richard P., and Dominguez, Ezekiel C.,3,545,957.

Dominion Engineering Works, Limited: *See—*
Eggins, Douglas Walter, 3,545,296.

Doniger, Jerry, and McLaughlin, Joseph F., to Bendix Corporation, The. System for controlling flight of aircraft to attain a predetermined altitude. 3,545,703, Cl. 244-77.

Dorman, Isidore, to NB Jackets Corporation. Film-cutting mechanism. 3,545,327, Cl. 83-542.

Dorn, Thomas E.: *See—*
Anthony, Myron L., 3,545,090.

Dornheim, Goetz-Gotmar: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram,3,546,060.

Dor-O-Matic (G.B.) Limited: *See—*
Perry, Kenneth J., 3,545,030.

Dorsett, Wendell E.: *See—*
Whitfield, Carroll J., and Dorsett, Wendell E.,3,545,185.

Douglas, Gordon G., to Sun Oil Company. Masonry sealing compound. 3,546,007, Cl. 117-123.

Douglas Manufacturing Company: *See—*
Falkenberg, Douglass R., 3,545,523.

Douros, John D., Jr., Naslund, Lars A., and Lahl, William J., to Esso Research and Engineering Company. Aerobic fermentation process. 3,546,071, Cl. 195-28.

Douthitt Corporation: *See—*
Hutchins, Loren W., 3,545,860.

Dow Chemical Company, The: *See—*
Archer, Wesley L., and Simpson, Elbert L., 3,546,125.
Archer, Wesley L., and Simpson, Elbert L., 3,546,305.
Asadorian, Arthur A., and Tigner, Ronald G., 3,546,302.
Ault, Eldon F., Mansell, Ralph E., and Ruhl, Harry deVere, Jr., 3,545,863.
Bowdey, Raymond D., and VanVorous, Theodore, 3,545,647.
Bublitz, Donald E., 3,546,240.
Dunn, James L., Jr., and Renfro, James C., 3,545,928.
Foerster, Geroge S., and Lawrence, Garth D., 3,545,074.
Hickner, Richard A., and Moore, Edgar E., 3,546,241.
Hittel, George T., and Knieriem, Herman, Jr., 3,546,018.
Jones, Giffin D., and Roth, Harold H., 3,546,336.
Lipps, Ben J., Jr., 3,546,209.
Mc Intyre, John S., and Knight, Allan R., 3,546,213.
Nash, James R., 3,545,169.
New, Harry E., and Hall, Boyer D., 3,545,193.
Priddy, Duane B., and Hennis, Henry E., 3,546,299.
Strother, Greene W., Jr., and Coker, William P., 3,545,130.
Wagner, Eugene R., 3,546,238.

Downey, Holmes A., to Reliance Electric Company. Multiple flexible element coupling. 3,545,231, Cl. 64-11.

Downing, James W., and Verhoeven, Teunes, to McDonnell Douglas Corporation. Fluid seal having conjugate split elements. 3,545,771, Cl. 277-187.

Downing, William C., Jr., and Koll, Robert E., to Sangamo Electric Company. Compensation of input direct current component in a current transformer. 3,546,565, Cl. 323-6.

Dowty Technical Developments Limited: *See—*
Andrews, Thomas D. H., 3,545,397.

Doyle, Bruce I., III, and Vontsolos, Constantine, to General Electric Company. Digital control calibration system for strip length gauge. 3,545,087, Cl. 33-132.

Doyle, Peter, and Stacey, Gilbert Joseph, to Imperial Chemical Industries Limited. Phenylpyridyl-alkanoic acid derivatives. 3,546,237, Cl. 260-295.

Drago, Peter J., Jr.: *See—*
Giorgianni, Edward J., Drago, Peter J., Jr., and Groves, Charles E.,3,545,970.

Dressler, Hans, and Reabe, Kenneth G., to Koppers Company, Inc. Process for the preparation of naphthalene disulfonic acid. 3,546,280, Cl. 260-505.

Drew, Anthony John, and Gorski-Popiel, Jerzy, to Associated Electrical Industries Limited. Gyrator network. 3,546,639, Cl. 333-80.

Drexler, John J.: *See—*
Hallene, Alan M., Holuba, Henry J., and Drexler, John J.,3,545,572.

Dryden Chemicals Limited: *See—*
Benko, Julius, 3,546,197.

Dryden, Vernon W., and Johnston, Donald L., to Xerox Corporation. Chemical package. 3,545,934, Cl. 23-253.

Dubrowsky, Leonard, to Westinghouse Electric Corporation. Ferrite polarizers comprising latchable ferrite bodies. 3,546,634, Cl. 333-21.

Duckett, John W., to Ward Manufacturing Co., Inc. Apparatus for molding articles. 3,545,039, Cl. 18-4.

Dudley, Raymond F. Braided rope sling. 3,545,334, Cl. 87-8.

Duennenberger, Max, and Schellenbaum, Max, to Ciba Limited. Furan-2,5-dicarboxylic acid diamides. 3,546,255, Cl. 260-347.3

Duerr, Dieter: *See—*
Martin, Henry, Duerr, Dieter, Hitz, Hans-Rudolf, and Von Orelli, Marcus,3,546,344.

Duffield, George H. Handling of flowable materials. 3,545,615, Cl. 210-73.

Duffy, Patrick J.: *See—*
Odend'Hal, Fortune, and Duffy, Patrick J.,3,545,133.

Duling, Irl N., Stearns, Richard S., and Scott, Kenneth A., to San Oil Company. Polyalkylene terephthalate molding composition. 3,546,320, Cl. 260-860.

Dullinger, Karl, to Kronseder, Hermann. High speed labeling device. 3,546,047, Cl. 156-571.
Dullinger, Karl, and Jorss, Norbert, to Kronseder, Hermann. Labeling and transferring device. 3,546,048, Cl. 156-571.
Dummer, Merlin R.: *See—*
Benkert, Lawrence B., and Dummer, Merlin R., 3,546,556.
Duncan, Gordon W., to Upjohn Company, The. Medicated devices and methods. 3,545,439, Cl. 128-2.60
Duncan, Leon L., to Zero Manufacturing Company. Method and apparatus for producing a decorative effect on stainless steel and other surface. 3,545,996, Cl. 117-8.
Duncan, Williim Lutton. Optical colour filter selecting device. 3,545,868, Cl. 356-175.
Dunlop Company Limited: *See—*
Jenkins, Peter John, 3,546,057.
Cooper, Gordon R., 3,545,632.
Davis, John Walter, 3,545,818.
Dunn, Howard E., to Phillips Petroleum Company. Schiff bases of amino-substituted tetrahydrothiophene 1, 1-dioxides. 3,546,216, Cl. 260-240.
Dunn, James L., Jr., and Renfro, James C., to Dow Chemical Company, The. Inhibitor detection composition. 3,545,928, Cl. 23-230.
Dunn, Peter E., to Rauland Corporation, The. Image projection through rear window of cathode ray tube to display screen. 3,546,518, Cl. 313-92.
Dunnigan, Gerard J., and French, Marvin E., to Westinghouse Electric Corporation. Monitor circuit for asynchronous digital signals for maintaining output signal level for duration of applied hold signal. 3,546,480, Cl. 307-215.
Du Pont de Nemours, E. I., and Company: *See—*
Angelo, Rudolph J., 3,546,175.
Boswell, George A., Jr., and Ripka, William C., 3,546,259.
Breen, Alvin L., 3,546,063.
Brown, George Nelson, 3,545,686.
Busch, Daryle H., and Jordan, Wade H., Jr., 3,546,022.
Chow, Che Chung, and Reilly, Charles D., 3,546,675.
D'Cruz, Alex Wasy, 3,545,972.
Darms, Roland, 3,546,167.
Gale, David M., 3,546,276.
Gladding, Edward Karcher, and Sullivan, Raymond, 3,546,186.
Greenwell, Joseph Daniel, 3,545,165.
Herrman, Arthur John, 3,546,062.
Hunt, Oliver Larry, 3,546,173.
Kauer, James C., 3,546,290.
Koch, Theodore Augur, and Eleuterio, Herbert Sousa, 3,546,309.
Kosak, John Richard, 3,546,297.
Lubach, John Paul, 3,545,057.
McGhee, John D., 3,546,626.
Morgan, Paul Winthrop, 3,546,165.
Short, Oliver A., 3,545,986.
Tandy, Thomas K., Jr., 3,546,187.
Vest, Robert D., 3,546,318.
Durkoppwerke GmbH: *See—*
Neese, Gerhard, and Witte, Alfred, 3,545,232.
Durrett, Ronald H.: *See—*
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L., 3,545,866.
Duryea, George R.: *See—*
Weatherston, Roger C., and Duryea, George R., 3,545,895.
Dykstra, Cornelius J. Percentage scale and method of weighing to indicate directly percentage proportions of weighed material. 3,545,557, Cl. 177-200.
Dykzeul, Theodore J., and McKinney, Richard W., to Robertshaw Controls Company. Thermostatic control device. 3,545,476, Cl. 137-315.
Dynamit Aktiengesellschaft: *See—*
Hurtel, Heinz, and Nebel, Ilse Ursula, 3,546,286.
Dynamit Nobel Aktiengesellschaft: *See—*
Ismail, Roshdy, 3,546,267.
Ludwig, Gunter, 3,545,212.
Dynatech Corporation: *See—*
Howie, H Robert, Jr., 3,546,424.
Earl, John A., to Physical Sciences Corporation. Method of making a glass-to-metal seal. 3,545,950, Cl. 65-59.
Eastham, Ray, and Goertzer, Irvin E., to Wimbro Incorporated. Sheet metal roofing panel. 3,545,147, Cl. 52-96.
Eastman Kodak Company: *See—*
Barnes, John C., Wilt, Chester C., and Rees, William W., 3,545,971.
Caldwell, John R., and Gilkey, Russell, 3,546,178.
Caldwell, John R., and Jones, Glenn C., 3,546,180.
Giorgianni, Edward J., Drago, Peter J., Jr., and Groves, Charles E., 3,545,970.
Kibler, Charles J., and Voigt, Frederick W., Jr., 3,546,177.
Perry, Edmond S., 3,545,938.
Shields, Donald J., Hawkins, James M., and Wooten, Willis C., Jr., 3,546,008.
Stimson, Allen G., 3,545,353.
Stimson, Allen G., and Cameron, Donald G., 3,546,586.
Weaver, Max A., and Wallace, David J., 3,546,204.
Webster, Frank G., 3,545,976.
Young, Howard S., Anderson, George C., and McDaniel, Edgar L., 3,546,139.
Eastmin Kodak Company: *See—*
Hiatt, Gordon D., and Kaul, Oliver W., 3,545,946.
Eaton, John L. J., to Proctor-Silex Incorporated. Centrifugally interlocked coupling. 3,545,585, Cl. 192-108.
Eaton Yale & Towne, Inc.: *See—*
Allen, John D., 3,545,484.
Franz, Rudolph J., 3,545,472.
Ebster, Claus-Dieter: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, and Ebster, Claus-Dieter, 3,546,189.
Eckes, Lloyd W.: *See—*
Cinquegrana, Vincent E., and Eckes, Lloyd W., 3,545,107.
Economics Laboratory, Inc.: *See—*
Nystuen, David L., 3,545,613.
Eden, Jamal S., to Goodrich, B. F., Company, The. Oxidation catalyst containing molybdenium oxide, tellurium oxide and a copper phosphate. 3,546,135, Cl. 252-437.
Eden, Jamal S., to Goodrich, B. F., Company, The. Catalyst and method of preparing unsaturated acids and aldehydes. 3,546,136, Cl. 252-437.
Edmonds, Thomas Rhys: *See—*
Kennedy, Joe Bartlett, and Edmonds, Thomas Rhys, 3,545,282.
Edwards High Vacuum International Limited: *See—*
Wycliffe, Henryk, and Power, Basil Dixon, 3,545,888.
EG & G, Inc.: *See—*
Ackerman, Sumner, 3,545,862.
Eggins, Douglas Walter, to Dominion Engineering Works, Limited. Variable gear tooth contact arrangement. 3,545,296, Cl. 74-410.
Egitto, John L.: *See—*
Giannone, Charles, Kumins, Charles A., Schwacke, Frederick H., Jr., and Egitto, John L., 3,546,001.
Egri, Laszlo, to Tamag Basel AG. Process for the fermentation of tobacco. 3,545,455, Cl. 131-140.
Ehrat, Kurt, to Ciba Limited. Apparatus for winding and unwinding strip material. 3,545,694, Cl. 242-67.4
Eichberger, Josef: *See—*
Stossl, Arnold, and Eichberger, Josef, 3,545,759.
Eichholz, Gunter, and Kerzel, Horst, to Klockner-Humboldt-Deutz Aktiengesellschaft. Oscillating conveyor. 3,545,098, Cl. 34-164.
Eisenstadt, David L., to Lear Siegler, Inc. D. C. protection and control panel. 3,546,532, Cl. 317-13.
Eisler, Paul. Wall covering material for use in space heating. 3,546,432, Cl. 219-345.
Electra Scientific Corporation: *See—*
McGunigle, Richard D., 3,545,283.
Electric Control Systems, Inc.: *See—*
Johnson, Ewing Alfred, 3,546,433.
Eleuterio, Herbert Sousa: *See—*
Koch, Theodore Augur, and Eleuterio, Herbert Sousa, 3,546,309.
Elitex, zavody textilniho strojirenstvi: *See—*
Zahradnik, Stanislav, 3,545,896.
Kucera, Alois, and Hlavon, Vilem Brno, 3,545,390.
Elland, Karl Yngve. Freezing plants and boxes therefor. 3,545,223, Cl. 62-237.
Ellestad, George Alfred: *See—*
Evans, Ralph Henry, Jr., Kunstmann, Martin Paul, Holmlund, Chester Eric, and Ellestad, George Alfred, 3,546,073.
Ellis, Leslie M., to Keystone Consolidated Industries, Inc. Assembly bracket. 3,545,712, Cl. 248-224.
Ellison, Lynn E.: *See—*
Berg, Robert H., Youngdahl, Carl Arthur, and Ellison, Lynn E., 3,546,129.
Eltra Corporation: *See—*
Roddy, James M., and Lovalenti, Sam, 3,546,647.
Emanuelson, Roger C., and Witherell, William F., to United Aircraft Corporation. Composite metal article having an intermediate bonding layer of nickel aluminide. 3,545,944, Cl. 29-197.
Embury, Lloyd E. Telephone actuating alarm assembly. 3,546,382, Cl. 179-5.
E.M.I.-Cassor Electronics Limited: *See—*
Covill, Dennis H., 3,546,590.
Empresa Auxiliar de la Industria S.A.: *See—*
Ortuno, Angel V., Municio, Vicente Martin, and Mateos, Federico Lopez, 3,545,958.
Engel, Robert Henry, Fahrenbach, Marvin Jay, and Webb, Richard Lansing, to American Cyanamid Company. Heparin composition. 3,546,338, Cl. 424-183.
Engels, Floyd W.: *See—*
Coolbaugh, Richard W., and Engels, Floyd W., 3,545,110.
Engle, Thomas H., to General Signal Corporation. Electrically assisted automatic air brake for trains. 3,545,816, Cl. 303-15.
Englesson, Sixten, and Gamer, Sven Gustaf Yngve, to Stenberg-Flygt AB. Method and apparatus for treating sewage water by means of flocculation and aeration. 3,546,110, Cl. 210-5.
English Electric Company Limited, The: *See—*
Schofield, Clifford Raymond, 3,545,302.
English Electric Computers Limited: *See—*
Ledger, Howard Roberts, and Clayton, Ronald, 3,545,746.
Envirotech Corporation: *See—*
Strader, Don S., 3,545,421.
Erba, Giovanni: *See—*
Carrera, Pietro, and Erba, Giovanni, 3,545,609.
Erickson, Albin R., to Textron Inc., mesne. Track suspension system snowmobiles. 3,545,821, Cl. 305-24.

Erickson, Alen M., and Kessler, Bernard V., to United States of America, Navy. Scanning fabry-perot laser 'Q' switch. 3,546,620, Cl. 331-94.5
Erie Technological Products, Inc.: *See—*
Coda, Nello, 3,546,538.
Erlichman, Irving, and Rosen, William J., to Poloroid Corporation. Film advancing apparatus. 3,545,357, Cl. 95-13.
Ernick, Frederick G.: *See—*
Riel, Robert K., Tarneja, Krishan S., Ernick, Frederick G., and Kisinko, Paul M., 3,546,542.
Ertl, Edward S., and Hannula, Leslie A., to Acoustics Development Corporation. Coin telephone housing and assembly. 3,546,385, Cl. 179-6.3
Escaldi, Salvatore. Portable fluid heater. 3,545,426, Cl. 126-344.
Espin, Carlos Alfonso. Infant's shampoo accessory. 3,545,012, Cl. 4-152.
Espinal, Daniel, to RCA Corporation. Drive circuit for digit lines. 3,546,487, Cl. 307-270.
Esquire, Inc.: *See—*
Yousefpor, Yul J., 3,545,145.
Essig, Karl August: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram, 3,546,060.
Esso Research and Engineering Company: *See—*
Delahunt, John F., and Turney, John J., 3,545,640.
Douros, John D., Jr., Naslund, Lars A., and Lahl, William J., 3,546,071.
Forster, Eric O., 3,545,093.
Gladrow, Elroy M., and Smith, Warren M., 3,546,137.
Higgins, John J., and Stucker, Nova E., 3,545,643.
Koszman, Ihor, 3,546,316.
Longwell, John P., 3,546,833.
Maravetz, Lester L., 3,546,295.
Patton, Tad L., 3,546,322.
Pollak, Kurt, 3,546,324.
Zimmerman, Abraham A., 3,546,256.
Esso Rescirch and Engineering Company: *See—*
Hamner, Glen P., and Mason, Ralph B., 3,546,103.
Etablissements E. & M. Lamort Fils: *See—*
Lamort, Jean P., 3,545,621.
Etgen, Elmer H. Irrigation system. 3,545,478, Cl. 137-344.
Ethicon, Inc.: *See—*
Berger, Alan, and Schneider, Alfred L., Jr., 3,545,608.
Ethyl Corporation: *See—*
Busch, Arthur W., 3,546,111.
Schwindy, Robert Charles, 3,545,043.
Stephens, Ruth E., 3,545,917.
Ettinger, Donald H., and Meyer, Engelbert A., to Warren Fastener Corporation. Stud welding apparatus having stud position responsive means. 3,546,420, Cl. 219-98.
Ettlich, William F., and Hsiung, Andrew Kou-Ying, to Neptune Microfloc, Incorporated. Water treatment plant. 3,545,619, Cl. 210-196.
Evans, Ralph Henry, Jr., Kunstmann, Martin Paul, Holmlund, Chester Eric, and Ellestad, George Alfred, to American Cyanamid Company. Fusarium fermentation. 3,546,073, Cl. 195-81.
Evans, William Robert, to AMP Incorporated. Method of making resilient pins. 3,545,080, Cl. 29-629.
Evans-Aristocrat Industries, Inc.: *See—*
Wolf, Murray, 3,545,514.
Ewald, Ronald F. Tilt valve. 3,545,720, Cl. 251-303.
Expando Products Company: *See—*
Triplett, Lee, 3,545,715.
Fabian, Josef, to Ceskoslovenska akademie ved. Method of reclaiming the base of photographic film. 3,546,149, Cl. 260-2.3
Fagan, William D. Link chain connector. 3,545,200, Cl. 59-93.
Fahlenberg, Paul, Pross, Wilhelm, and Wildfeuer, Heinrich, to Compur-Werk Gesellschaft mit beschrankter Haftung & Co. Photographic shutter. 3,545,359, Cl. 95-53.
Fahrenbach, Marvin Jay: *See—*
Engel, Robert Henry, Fahrenbach, Marvin Jay, and Webb, Richard Lansing, 3,546,338.
Falcomato, Rocco, and Almouli, Jacob A., to Niemand Bros. Inc. Tubing. 3,545,495, Cl. 138-144.
Falconbridge Nickel Mines, Limited: *See—*
Hougen, Leif Reidar, and Stensholt, Erling Olav, 3,545,959.
Falk, George L., to Trane Company, The. Thermostatic control for refrigeration systems. 3,545,219, Cl. 62-160.
Falkenberg, Douglass R., to Douglas Manufacturing Company. Drapery holder. 3,545,523, Cl. 160-348.
Fangatos, Geassimos, to Mobil Oil Corporation. Catalytic dehydrocyclization of ortho-substituted phenols. 3,546,254, Cl. 260-346.2
Farbenfabriken Bayer Aktiengesellschaft: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram, 3,546,060.
Senge, Ferdinand, and Schnell, Hermann, 3,546,223.
Farber, Elliott: *See—*
Champion, William C., Jr., and Farber, Elliott, 3,546,158.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Koller, Walter, 3,546,179.
Ong, Sien Ling, 3,545,910.
Farnsworth, Robert P., and Knapp, Edward J., to Hughes Aircraft Company. Selective target ranging system. 3,545,861, Cl. 356-5.
Farrel Corporation: *See—*
Anderson, George B., 3,545,318.
Farrell, Claude S., Jr., to Cory Corporation. Combination foodwarmer and light. 3,546,427, Cl. 219-220.
Farrington Electronics Inc.: *See—*
Buc, George L., and Michael, David N., 3,546,438.
Glass, Harold C., and Alwin, Vinson C., 3,546,670.
Fauland, Erich, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut, to Boehringer Mannheim Gesellschaft mit beschrankter Haftung. Benzene-sulfonyl-semicarbazides. 3,546,234, Cl. 260-293.4
Faust, John P., Jache, Albert W., and Klanica, Andrew J., to Olin Mathieson Chemical Corporation. Method of preparing chloryl fluoride. 3,545,924, Cl. 23-203.
Fawcett, Kenneth J., Jr., to Scope, Incorporated. Spectrum analyzer wherein an analog waveform is sampled exponentially in time with two fixed reference sequences. 3,546,440, Cl. 235-150.5
Fawn Engineering Company: *See—*
Wittern, Francis A., 3,545,586.
Faye, Eli J.: *See—*
Graybill, Howard W., and Faye, Eli J., 3,546,356.
Fazzani, Raymond John, to Maclodyne Corporation. Bending machine, 3,545,247, Cl. 72-310.
Fedders Corporation: *See—*
Morgan, Curtis L., 3,545,423.
Fegem, James F.: *See—*
Richardson, Charles R., Jr., and Fegem, James F., 3,545,015.
Feinberg, Irving: *See—*
Gehrie, Charles S., and Feinberg, Irving, 3,545,238.
Feinberg, Paul M.: *See—*
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugene A., Silverman, Joseph R., and Lesko, John G., Jr., 3,546,684.
Fekete, Nicholas G., and Koerner, Harry E., to Westinghouse Electric Corporation. Servomotor-operated X-ray shutter control system for use with a spotfilm device. 3,546,463, Cl. 250-105.
Felix, Arthur Martin, Fryer, Rodney Ian, and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. Oxidation of benzodiazepines with ruthenium tetroxide. 3,546,212, Cl. 260-239.3
Fella-Werke Gesellschaft mit beschrankter Haftung: *See—*
Liepold, Adolf, and Kuntze, Karl-Heinz, 3,545,184.
Ferag, Fehr & Reist AG: *See—*
Reist, Walter, 3,545,371.
Reist, Walter, 3,545,595.
Ferguson, Harold W., to Stanley Works, The. Fluid control systems for powered panels. 3,545,337, Cl. 91-38.
Ferguson, Patrick E., to Magnavox Company, The. Enhanced transverse Kerr magneto-optical transducer. 3,545,840, Cl. 350-151.
Ferrari, Arthur M. Multiple band saw. 3,545,504, Cl. 143-22.
Ferry, Ernest S.: *See—*
Colley, Russell S., 3,545,009.
Colley, Russell S., 3,545,046.
Figar, Stepan, to Ceskoslovenska akademie ved. Adjustable electrode arrangement for capacitance plethysmography. 3,545,430, Cl. 128-2.05
Fike, Mary L. Educational game board. 3,545,101, Cl. 35-31.
Finch, William A.: *See—*
Bovio, Robert J., and Finch, William A., 3,545,722.
Firma SMW Spanneinrichtungen Schneider Manz und Weisshaupt OHG: *See—*
Hiestand, Karl, 3,545,342.
Firth, Donald, to Datacopy Limited. Transfer sheet system. 3,545,999, Cl. 117-36.4
Fischer, Hans, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Internal combustion engine piston cooling. 3,545,341, Cl. 92-176.
Fischer, Ludwig, to Benrus Corporation. Watertight watch case with oval crystal. 3,545,197, Cl. 58-90.
Fischer, Nathan A., and Hardwick, George W., to Hormel, Geo A., & Company. Townsend skinner knuckle bone remover. 3,545,036, Cl. 17-1.
Fischer, William H., and Colclaser, Robert G., Jr. Westinghouse Electric Corporation Dual-pressure compressed-gas circuit breaker with a downstream blast valve cooperative with interrupter housing in defining high-pressure region and with spaced breaker terminal disposed with said high pressure region. 3,546,408, Cl. 200-148.
Fish, Robert W., Stack, Wallace F., and Welch, Craig J., to United States Steel Corporation. Reeling preassembled parallel wire strands for bridges and other structural applications. 3,545,194, Cl. 57-156.
Fisher, Michael S., to RCA Corporation. Capacitor discharge ignition circuit. 3,546,528, Cl. 315-209.
Fisher, William E., and Morrison, John A. H., to Aerojet-General Corporation. Maneuver control systems for cycloidal propellers. 3,545,398, Cl. 114-144.
Fishman, Stanley D., and Lanham, Charles W., Jr., to Sargent-Welch Scientific Company. Selector mechanism. 3,545,100, Cl. 35-9.
Fjeldstad, Dean A.: *See—*
Hill, Max E., Fjeldstad, Dean A., and Schmitt, Jerome E., 3,545,752.
Flame Spray Industries, Inc.: *See—*
Marantz, Daniel R., 3,546,415.
Fleet, Ralph G., deJersey Phillips, Charles, and Fleet, Stuart H., to Phydrex Limited. Water heating device. 3,546,429, Cl. 219-312.

Fleet, Stuart H.: *See—*
Fleet, Ralph G., deJersey Phillips, Charles, and Fleet, Stuart H.,3,546,429.
Fleetwood Systems, Inc.: *See—*
Mojden, Wallace W., and Chivas, Norman J., 3,545,631.
Fleischer, Joseph. Cleansing solutions. 3,546,124, Cl. 252-153.
Fletcher, Taylor C., Silva, Lawrence M., and Wilkinson, Bruce L., to Varo, Inc. Constant voltage ferroresonant transformer utilizing unequal area core structure. 3,546,571, Cl. 323-60.
Fletcher, William Henry: *See—*
Gurner, John Raymond, Fletcher, William Henry, and Pedley, Roger Martin,3,545,693.
Fleury, Jacques, to Societe Anonyme Automobiles Citroen. Hydraulic correctors, notably for transmission control members. 3,545,306, Cl. 74-843.
Flintkote Company, The: *See—*
Califano, Frank L., and Shutak, Paul N., 3,546,045.
Flisher, Kenneth William: *See—*
Daddona, Domenic John, Jr., and Flisher, Kenneth William,3,545,048.
Flunkert, Horst: *See—*
Klopfer, Anton Martin, and Flunkert, Horst,3,546,510.
FMC Corporation: *See—*
Christofferson, Donald F., 3,545,298.
McDermott, Henry J., 3,545,827.
Mumma, Harold J., 3,545,612.
Raley, Philip W., and Derrickson, Michael O., 3,545,723.
Sheetz, Charles E., 3,545,614.
Stewart, Mary J., and Carlson, Otto K., 3,546,164.
Woods, Quentin T., 3,545,983.
Foerster, Geroge S., and Lawrence, Garth D., to Dow Chemical Company, The. Method of making copper alloy products. 3,545,074, Cl. 29-527.7
Foley, Daniel E., and Hogan, William F., to Data Presentations, Inc. Telephone message data device. 3,546,381, Cl. 179-7.1
Ford, Henry C.: *See—*
Murnan, Kenneth E., 3,545,119.
Ford Motor Company: *See—*
Barton, David W., 3,545,573.
Foreman, Roland J., and Hufton, Arthur G., to Motorola, Inc. Capacitor discharge ignition system. 3,545,420, Cl. 123-149.
Forrester, John S., to Wildt Mellor Bromley Limited. Circular knitting machine. 3,545,234, Cl. 66-125.
Forster, Eric O., to Esso Research and Engineering Company. Microwave vibrating resonating cavity and drying process. 3,545,093, Cl. 34-1.
Fortune, Henry James, to Plessey Company Limited, The. Record players. 3,545,768, Cl. 274-47.
Foss, George W., Leib, Robert G., Campbell, James E., and Smith, Thomas G. Shoe manufacturing. 3,545,023, Cl. 12-54.3
Foster Wheeler Corporation: *See—*
La Croix, Henry N., 3,545,646.
Foulatier, Raymond: *See—*
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph,3,545,906.
Foure, Michel: *See—*
Colombie, Michel, and Foure, Michel,3,545,966.
Fowler, William R., and Hart, Thomas W., Jr., to Motorola, Inc. Two-state switchover amplifier system with plural current sources. 3,546,484, Cl. 307-254.
Fox, Anthony, to Sports Power, Inc. Motorized snow vehicle. 3,545,560, Cl. 180-5.
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U., to United States Steel Corporation. Apparatus for stencil-marking traveling product. 3,545,376, Cl. 101-121.
Francis, James W., to Commercial Solvents Corporation. Ammonium nitrate-nitromethane type blasting agent containing urea as a crystallization inhibitor. 3,546,034, Cl. 149-47.
Francis, James W., to Commerciil Solvents Corporation. Ammonium nitrate-smokeless powder blasting agent containing sodium nitrate-urea as a crystallization inhibitor. 3,546,035, Cl. 149-50.
Frank, Klaus: *See—*
Dany, Franz-Josef, Kandler, Joachim, Frank, Klaus, and Weiden, Hans,3,546,160.
Frank, Ulrich A., and Wollmeringer, Bernard C., to Hoffmann-La Roche Inc., mesne. Monitoring display. 3,545,431, Cl. 128-2.05
Frankl, Ernest, to Winthrop-Atkins Co., Inc. Method of making three-dimensional objects from polystyrene. 3,546,040, Cl. 156-250.
Franz, Rudolph J., to Eaton Yale & Towne, Inc. Transducer. 3,545,472, Cl. 137-116.5
Frase, Sylvan H., to Sperry Rand Corporation. Remote switch status sensor. 3,546,476, Cl. 307-88.
Fratalia, Angelo R., 1/2 to Luckiewicz, Frank H. Liquid level control device. 3,545,481, Cl. 137-387.
Fraze, Ermal C.: *See—*
Brown, Omar L., 3,545,638.
Frederick, George A., and Burchard, Leonard E., to Peoples Gas Light and Coke Company, The, mesne. Pigging device. 3,546,642, Cl. 335-305.
Frederick, Russell E., and Nystrom, Thomas L., to Minnesota Mining and Manufacturing Company. Thermoelectric generator apparatus. 3,546,025, Cl. 136-205.
Freedland, Benjamin P. Electroplating rack. 3,546,090, Cl. 204-297.
Freedman, Murray, Vale, Arthur E., and Vale, Peter R., to La Trique Brassiere Company, Inc. Brassieres. 3,545,445, Cl. 128-483.
Freedman, Nathan, to Raytheon Company. Radar transpondor system. 3,546,695, Cl. 343-6.5
Freeman, Alan Twemlow, to Associated Electrical Industries Limited. Electric circuit breakers. 3,546,641, Cl. 335-16.
Freeman, Jerry H., to Phone-Ducs, Inc. Conduit sections. 3,545,493, Cl. 138-115.
Freeman, Peter A., and Bean, Robert A., to Bowles Engineering Corporation. Liquid level controller employing vortex valve. 3,545,468, Cl. 137-81.5
Freisberg, Karl-Otto: *See—*
Kramer, Josef, Irmscher, Klaus, Halpaap, Herbert, and Freisberg, Karl-Otto,3,546,250.
Freitas, Daniel A. Rotary engine. 3,545,413, Cl. 123-8.01
French, Marvin E.: *See—*
Dunnigan, Gerard J., and French, Marvin E.,3,546,480.
French, Walter K., to Creative Systems, Inc. Magnetic tape head with a movable pole piece to maintain a constant gap. 3,546,398, Cl. 179-100.2
Frentrop, Arthur H., to Schlumberger Technology Corporation. Neutron generator including an ion source with a massive ferromagnetic probe electrode and a permanent magnet-electrode. 3,546,512, Cl. 313-61.
Fresard, Marcel, to Mefina S.A. Thread take-up lever for a sewing machine. 3,545,392, Cl. 112-241.
Freudenberg, Carl: *See—*
Schachowskoy, Theodor, and Knoke, Jurgen, 3,546,004.
Freundlich, Jackson S.: *See—*
Comegys, Courtney L., Freundlich, Jackson S., and Roebuck, William C.,3,545,380.
Frezzolini, James A., to Ogden Technology Laboratories, Inc., mesne. Battery analyzer and discharge device including means for comparing the battery potential with a reference potential. 3,546,576, Cl. 324-29.5
Friberg, Vincent P., Wiseman, Donald F., and Chesney, John, to General Instrument Corporation. Electronic therometer. 3,545,273, Cl. 73-362.
Friconneau, Claude, and Leboutet, Alain, to Commissariat a l'Energie Atomique. Storage of electrodes for the measurement of pH values. 3,546,087, Cl. 204-195.
Fridley, Robert B., Shawver, Bruce M., and Holekamp, Emmett R., deceased (by Holekamp, Eloise B., legal representative and sole heir), to University of California, The Regents of the. Tree shaker suspension. 3,545,190, Cl. 56-328.
Fried, John H., to Syntex Corporation. 6-Gem-difluoro steroids. 3,546,215, Cl. 260-239.55
Friedheim, Max. Rapid-change chuck or tool holder. 3,545,777, Cl. 279-99.
Friend, Frederick C. Two speed clutch transmission. 3,545,305, Cl. 74-789.
Frink, Russell E., to Westinghouse Electric Corporation. Vacuum-type circuit interrupter with hollow contacts. 3,546,406, Cl. 200-144.
Frowein, Egbertus A., to Smit Nijmegen Electrotechnische Fabriken N.V. Divisible laminated magnetic core structures for transformers or choke coils of great power. 3,546,645, Cl. 336-60.
Frundl, Ronald J., Hanson, Victor W., Jamison, Robert M., and Arnold, Orlan M., to Ajem Laboratories, Inc. Afterburner system for cupola furnace. 3,545,918, Cl. 23-2.
Fryer, Rodney Ian: *See—*
Felix, Arthur Martin, Fryer, Rodney Ian, and Sternbach, Leo Henryk,3,546,212.
Fuchs, Walter, Runge, Erich, Belart, Juan, and Schrader, Gert, to Teves, Alfred, G.m.b.H. Wheel-brake cylinder or the like. 3,545,344, Cl. 92-165.
Fuji Photo Film Co., Ltd.: *See—*
Sato, Masamichi, 3,545,968.
Sato, Masamichi, and Honjo, Satoru, 3,546,545.
Fuji Shashin Film Kabushiki Kaisha: *See—*
Nishio, Fumihiko, Yoneyama, Masakazu, Yamada, Minoru, and Nagao, Kameji, 3,545,974.
Fuji Shashin Koki Kabushiki Kaisha: *See—*
Hara, Teruei, 3,545,850.
Fujimoto, Yasuo, and Tanaka, Masao, to Kyowa Hakko Kogyo Kabushiki Kaisha (Kyowa Hakko Kogyo Company Limited). Schiff-bases of pyridoxal and high molecular polymers and the preparation thereof. 3,546,171, Cl. 260-51.
Fujita, Saburo, Adachi, Toshiharu, and Furuta, Yoichi, to Aisin Seiki Company Limited. Fail safe arrangement for vehicle brake mechanisms. 3,545,205, Cl. 60-54.5
Fuller, Douglas S.: *See—*
Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.-J.,3,545,907.
Fulmini, Sergio: *See—*
Siclari, Francesco, and Fulmini, Sergio,3,545,520.
Funk, Charles F., to Shapeweld, Inc., mesne. Method for cladding metal. 3,545,526, Cl. 164-98.
Furusho, Hirosuke, to Daihatsu Kogyo Co., Ltd. Collapsible steering column for vehicles. 3,545,300, Cl. 74-492.
Furuta, Yoichi: *See—*
Fujita, Saburo, Adachi, Toshiharu, and Furuta, Yoichi,3,545,205.
Fussell, Richard L.: *See—*
Bader, Clifford J., and Fussell, Richard L.,3,546,482.
Gabor, Andrew, to Potter Instrument Company, Inc. Whippletree linkage utilized to position a transducer. 3,546,685, Cl. 340-174.1

Gabor, Dennis, to Columbia Broadcasting Systems, Inc. Holographic pictures. 3,545,836, Cl. 350-3.5
Gabriel, Henry, to Phillips Petroleum Company. Cigarette filters containing selective adsorbents. 3,545,456, Cl. 131-266.
Gaffney, William Charles, and Romero, Ervin G., to Boeing Company, The. Anti-skid control system. 3,545,819, Cl. 303-21.
Gagliardi, Domenick D., to Union Carbide Corporation. Polyaminoalkylsilanes color fixation and articles so colored. 3,545,909, Cl. 8-3.
Gaito, Carl C.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.
Gale, David M., to Du Pont de Nemours, E. I., and Company. β-Amino-β,β-bis(fluoroalkyl)carbonyl compounds and process for preparing the same. 3,546,276, Cl. 260-482.
Gamer, Sven Gustaf Yngve: *See—*
Englesson, Sixten, and Gamer, Sven Gustaf Yngve,3,546,110.
Gardella, Stephen L., Jr.: *See—*
Thompson, Verne P., Gardella, Stephen L., Jr., and Larkin, Artemas M.,3,545,237.
Garrett, James M.: *See—*
Groom, Lemuel D., III, and Garrett, James M.,3,546,568.
Gartner, Fritz: *See—*
Maleschew, Josef, Brutmann, Karl, and Gartner, Fritz,3,545,261.
Gartner, Gustav, Keller, Max, and Zehender, Ernst, to Bosch, Robert, GmbH. Method of producing multilayer bodies of predetermined electric conductivity. 3,546,010, Cl. 117-211.
Gatta, Giorgio: *See—*
Benetta, Gianni, Bresquar, Valerio, Gatta, Giorgio, and Testa, Francesco,3,546,193.
Gatzi, Karl: *See—*
Bader, Jorg, and Gatzi, Karl,3,546,235.
G. C. Optronics, Inc.: *See—*
Grant, Ralph Maynard, 3,545,259.
Gebr. Bohler & Co.: *See—*
Swoboda, Karl, and Kleinhagauer, Otmar, 3,546,349.
Gebruder Buhler AG: *See—*
Schultz, Richard, 3,545,728.
Gehrie, Charles S., and Feinberg, Irving, to Presto Lock Co., Inc., mesne. Combination locks. 3,545,238, Cl. 70-312.
Geigy Chemical Corporation: *See—*
Bader, Jorg, and Gatzi, Karl, 3,546,235.
Kirchmayr, Rudolf, Peterli, Hans Jakob, and Heller, Hansjorg, 3,546,270.
Morel, Charles, 3,546,333.
Peterli, Hans Jakob, and Heller, Hansjorg, 3,546,163.
Schroter, Herbert, and Prins, Daniel A., 3,546,275.
Tscharner, Christopher Johannes, 3,546,218.
Geigy, J. R., A.G.: *See—*
Bossard, Werner, and Wegmuller, Hans E., 3,546,203.
Gelman, Sheldon F.: *See—*
Hwa, Jesse C. H., Kraft, Paul, and Gelman, Sheldon F.,3,546,154.
General Construction Automation, Inc.: *See—*
Burnett, H. L., 3,546,549.
General Corporation, The: *See—*
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio, 3,546,679.
General Design S.R.L.: *See—*
Carrera, Pietro, and Erba, Giovanni, 3,545,609.
General Dynamics Corporation: *See—*
McManus, Donald S., 3,545,731.
General Electric Company: *See—*
Abbott, Harold W., Mathis, Vernon P., and Peil, William, 3,546,561.
Anderson, Richard C., 3,545,987.
Charles, Richard J., and Jorgensen, Paul J., 3,545,639.
De Vries, Robert C., 3,546,005.
Doyle, Bruce I., III, and Vontsolos, Constantine, 3,545,087.
Gittinger, Norman C., 3,546,593.
Harvey, Luke M., 3,546,508.
Hay, Allan S., 3,546,170.
Hinnant, Donald R., and Wilson, Carl, 3,545,538.
Jordan, John D., 3,546,630.
Kotos, Peter, 3,546,534.
Nicodemus, Paul O., 3,546,014.
Olsson, Raymond G., 3,545,854.
Omohundro, William A., 3,546,428.
Peppiatt, Harry J., 3,546,633.
Rabatin, Jacob G., 3,546,128.
Schneider, Harold N., 3,546,407.
Somers, Lewis E., and Glusick, Robert E., 3,545,843.
Walker, Rollie J., Jr., 3,546,629.
Welch, Stanley B., 3,546,435.
General Hardwood Company: *See—*
La Fontaine, Allyn L., and Chrzan, Edward J., 3,545,128.
General Instrument Corporation: *See—*
Friberg, Vincent P., Wiseman, Donald F., and Chesney, John, 3,545,273.
General Motors Corporation: *See—*
Arlauskas, Alfonsas, and Zaydel, Wieslaw S., 3,545,800.
Ballou, Richard P., and McDougal, John A., 3,545,418.
Bauer, Richard J., 3,545,070.
Clement, Oliver R., Lewis, Lynn David, and Thompson, James F., 3,545,284.
Colautti, Albert J., 3,545,716.
Cox, Dean M., 3,545,062.
Craig, Gale M., 3,546,021.
Gescheidle, Ernst, 3,545,808.
Hewko, Lubomyr O., 3,545,830.
Kauppila, James E., 3,546,493.
Kirkpatrick, John W., 3,545,571.
Marchant, Joseph R., and Koljonen, Vilho, 3,546,445.
McAuley, Charles F., 3,546,598.
Menk, Melvin A., 3,545,235.
Miller, Mark F., and Webbere, Fred J., 3,545,943.
Pietrzak, Joe P., Strahan, Robert M., and Albright, Bruce S., 3,545,717.
Schmidt, Jack W., Tuck, Robert M., and Smith, Marion D., 3,545,304.
Sickmeier, Edgar W., 3,545,339.
Smith, Arthur E., 3,545,287.
Williams, Russell C., 3,545,108.
Wright, Gene Paul, 3,545,034.
General Signal Corporation: *See—*
Engle, Thomas H., 3,545,816.
General Time Corporation: *See—*
Lundin, Robert S., Wallentowitz, Klaus, and Bosman, Edward T., 3,546,479.
Lundin, Robert S., 3,546,483.
Geo Space Corporation: *See—*
Gundlach, William J., 3,545,562.
George, D'Arcy R., and Borrowman, Samuel Ralph, to United States of America, Interior. Process for extracting aluminum from solutions. 3,545,920, Cl. 23-92.
George, Edwin Francis, to Imperial Chemical Industries Limited. Plant growth inhibition with 4- hydroxytetrafluoropyridine and derivatives thereof. 3,545,955, Cl. 71-76.
Georgian, Vlasios, and Pfeiffer, Francis R., to Trustees of Tufts College. B-norestratrienes. 3,546,292, Cl. 260-566.
Gerber Products Company: *See—*
Dietz, Max R., and Moller, Charles R., Jr., 3,546,114.
Gerritsen, Hans G., and Schroeder, Arnold, to Koninklijke Industrieele Maatschappij Noury & van der Lande N.V. Peroxidic compositions and process for the preparation thereof. 3,546,249, Cl. 260-338.
Gerritsen, Hendrik J., and Greenaway, David L., to RCA Corporation. Sequential information hologram record. 3,545,834, Cl. 350-3.5
Gertsfeld, Abraham. Multiple bolt mechanism. 3,545,799, Cl. 292-34.
Gescheidle, Ernst, to General Motors Corporation. Motor vehicle seat. 3,545,808, Cl. 297-216.
Gewerkschaft Eisenhutte Westfalia: *See—*
Wojaczek, Egon, and Becker, Kunibert, 3,545,714.
Gewerkschaft Elwerath: *See—*
Deicher, Oskar, Peter, Siegfried, and Buchholz, Otto, 3,545,916.
Ghafoori, Abdul R. Snack chip and method of making. 3,545,979, Cl. 99-83.
Giambalvo, Joseph. Adjustable furniture construction. 3,545,387, Cl. 108-151.
Giannone, Charles, Kumins, Charles A., Schwacke, Frederick H., Jr., and Egitto, John L., to Inmont Corporation. Method of producing tough breathable coating of polyurethane on fabrics. 3,546,001, Cl. 117-65.2
Gibbs, Erich L. Immersion heater and method of making the same. 3,546,431, Cl. 219-335.
Gichner Mobile Systems, Inc.: *See—*
Ciccarelli, William E., and Kaufman, Phillip A., 3,546,359.
Giddings & Lewis, Inc.: *See—*
Bullock, Thomas B., 3,546,570.
Giedd, Gary R.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.
Gilbert, Marcellus N., Jr., to Sylvania Electric Products, Inc. Circular lamp base. 3,546,523, Cl. 313-318.
Gilford Instrument Laboratories, Inc.: *See—*
Gilford, Saul R., 3,545,932.
Gilford, Saul R., to Gilford Instrument Laboratories, Inc. Biological fluid sample processing apparatus. 3,545,932, Cl. 23-253.
Gilkey, Russell: *See—*
Caldwell, John R., and Gilkey, Russell,3,546,178.
Gill, Norman W., and Smith, Roscoe S., to Cargill, Incorporated. Fabric softener. 3,546,115, Cl. 252-8.8
Gillaspie, Robert E., and Houle, Elmer R., to Safeco Products, Inc. Safety blade for rotary lawnmowers. 3,545,189, Cl. 56-295.
Gingell, Michael John, to International Standard Electric Corporation. Frequency characteristic shaping circuits. 3,546,589, Cl. 325-59.
Giorgianni, Edward J., Drago, Peter J., Jr., and Groves, Charles E., to Eastman Kodak Company. Photographic processes utilizing siloxane water spotting inhibitors. 3,545,970, Cl. 96-55.
Girling Limited: *See—*
Cochrane, Robin A., 3,545,574.
Harrison, Anthony W., 3,545,577.
Margetts, Hugh Grenville, 3,545,814.
Pinnhammer, Friedrich Wilhelm, 3,545,575.
Sahs, Gerhard Franz Josef, 3,545,576.
Gislon, Andre, Valet, Andre, Michaux, Jean-Pierre, and Bellec, Jean-Jacques, to Compagnie Francaise de Raffinage. Separation and polymerization of olefins. 3,546,317, Cl. 260-683.15
Gittinger, Norman C., to General Electric Company. Receiver for frequency modulated radio-frequency signals. 3,546,593, Cl. 325-344.

Gladding, Edward Karcher, and Sullivan, Raymond, to Du Pont de Nemours, E. I., and Company. Copolymers of substituted perfluorovinyl ethers. 3,546,186, Cl. 260-80.73

Gladrow, Elroy M., and Smith, Warren M., to Esso Research and Engineering Company. Hydrocarbon conversion catalyst and process for making same. 3,546,137, Cl. 252-455.

Glaser, George R., Jr.: *See—*
Cox, John A., Jr., Glaser, George R., Jr., and Shoger, Merlyn J.,3,545,939.

Glass, Alfred L., to United States of America, Navy. Radioactive process for monitoring the rate of deposition or removal of a substance on a base surface. 3,546,464, Cl. 250-106.

Glass, Emmett F., to Sperry Rand Corporation. Flexible floor extension for a harvesting machine. 3,545,186, Cl. 56-23.

Glass, Harold C., and Alwin, Vinson C., to Farrington Electronics, Incorporated. Reading apparatus including means for re-sensing an item which is difficult to recognize. 3,546,670, Cl. 340-146.3

Glaxo Laboratories Limited: *See—*
Long, Alan Gibson, Wilson, Edward McKenzie, and Graham, William, 3,546,219.

Globe-Union Inc.: *See—*
Spaeth, Willis Edwin, Piotrowski, George Peter, and Sadowski, Edward Marion, 3,546,402.

Glusick, Robert E.: *See—*
Somers, Lewis E., and Glusick, Robert E.,3,545,843.

G.M. Pfaff AG: *See—*
Meier, Gunter, 3,545,393.

Gmunder, John, and Berthold, Richard, to Sandoz Ltd., a/k/a Sandoz AG. 2,3 Dihydro-1H-benz[d,e]isoquinoline carboxamidines. 3,546,227, Cl. 260-288.

Gobron, Georges, and Pipon, Robert, to Melle-Bezons. Continuous process for reducing aromatic nitro compounds to aromatic amines. 3,546,296, Cl. 260-580.

Godin, James B., to Phillips Petroleum Company. Steam-oxygen regeneration of silica-group III-A- group IV-B catalysts. 3,546,132, Cl. 252-419.

Goertzer, Irvin E.: *See—*
Eastham, Ray, and Goertzer, Irvin E.,3,545,147.

Goesele, Wilhelm: *See—*
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfl, Hans,3,545,735.

Gold, Kenneth S.: *See—*
Pelta, Edmond R., and Gold, Kenneth S.,3,545,429.

Goldberg, George, and Mascolo, Benjamin R., to Kleer-Vu Industries, Inc. Strip up microfiche master. 3,546,053, Cl. 161-38.

Goldberg, Perry: *See—*
Batt, Richard W., Goldberg, Perry, Kurti, Alexander, and Segalman, Irwin,3,545,202.

Goldschmidt, Th., A.G.: *See—*
Ruf, Erich, 3,546,263.

Goodhue, Lyle D., Cantrel, Kenneth E., and Reinert, Andrew J., to Phillips Petroleum Company. Oxygen-treated N-substituted piperazines as bird repellents. 3,546,340, Cl. 424-250.

Goodman, Walter P., to Cissell, W. M., Manufacturing Company. Garment-vent clamp. 3,545,052, Cl. 24-252.

Goodrich, B. F., Company, The: *See—*
Eden, Jamal S., 3,546,135.
Eden, Jamal S., 3,546,136.
McGinnis, Herbert E., 3,545,598.
Miksch, Robert H., 3,546,043.

Goonewardene, Hilary F., to Smith Kline & French Laboratories. Method of inhibiting plant growth. 3,545,956, Cl. 71-121.

Gorski-Popiel, Jerzy: *See—*
Drew, Anthony John, and Gorski-Popiel, Jerzy,3,546,639.

Gosney, Warner Barry, to Birmingham Small Arms Company Limited, The. Sampling devices for bulk materials. 3,545,280, Cl. 73-423.

Gottauf, Georg, to Stahlgruber Otto Gruber & Company. Spike for motor vehicle tires. 3,545,515, Cl. 152-210.

Grace, W. R., & Co.: *See—*
Isgur, Irving E., and Ohlson, John L., 3,546,059.
Rice, Rip G., Murch, Robert M., and de Vore, Dorothy C., 3,545,942.
Wood, Louis L., 3,546,162.

Graffy, Thomas F., to I-T-E Imperial Corporation. Flange breakaway fitting. 3,545,793, Cl. 285-158.

Graham, Harold J., to AGM Industries, Inc. Stud welding apparatus. 3,546,418, Cl. 219-95.

Graham, Mac Kellar K.: *See—*
Aspinwall, Ronald A., and Graham, Mac Kellar K.,3,545,616.

Graham, Phillip. Vehicle occupant safety barrier. 3,545,789, Cl. 280-150.

Graham, William: *See—*
Long, Alan Gibson, Wilson, Edward McKenzie, and Graham, William,3,546,219.

Grahl, Darwin R. Receiver-dryer for refrigeration systems. 3,545,227, Cl. 62-474.

Granger, Camille, Repiquet, Gerard, Buisson, Michel, and Dausque, Jean, to Naphtachimie. Polyurethane foams prepared from mixtures of polyether polyols. 3,546,145, Cl. 260-2.5

Grankowski, Eugene E., and Pappas, Lambros, to Verson Allsteel Press Company, Hydraulic press. 3,545,241, Cl. 72-63.

Grant, Ralph Maynard, to G. C. Optronics, Inc., mesne. Holographic method of determining properties of materials. 3,545,259, Cl. 73-69.

Grant, Samuel E.: *See—*
Bush, Thomas P., Jr., and Grant, Samuel E.,3,545,510.

Graser, Michael, Jr., to Technical Operations, Incorporated. Image processing system and method. 3,546,374, Cl. 178-5.4

Grasselli, Robert K.: *See—*
Callahan, James L., Grasselli, Robert K., and Knipple, Warren R.,3,546,138.

Grasselli, Robert K., and Callahan, James L., to Standard Oil Company, The (Ohio). Diguanamine-aldehyde condensation products. 3,546,174, Cl. 260-67.6

Grau, Eckehardt: *See—*
Kopke, Gunter, Denz, Alfons, Grau, Eckehardt, and Strasser, Erwin,3,545,831.

Gravdahl, Gunnar, to A/S Saba. Absorbent core. 3,545,441, Cl. 128-284.

Gray, Foster L., and Wood, Rodney D., to Texas Instruments, Incorporated. Liquid fuel-air partial oxidation system. 3,545,947, Cl. 48-107.

Graybill, Howard W., and Faye, Eli J., to I-T-E Imperial Corporation. Elbow construction for high voltage compressed-gas- insulated conductors. 3,546,356, Cl. 174-21.

Grazel, John, Inc.: *See—*
Grazel, John, 3,545,214.

Grazel, John, to Grazel, John, Inc. Concrete pile sections and joints therefor. 3,545,214, Cl. 61-53.

Great Lakes Carbon Corporation: *See—*
Muller, Nathan William, Novy, Anton R., and Shea, Frederick L., Jr., 3,546,076.

Green, Allen T.: *See—*
Steele, Richard K., Green, Allen T., and Lockman, Charles S.,3,545,262.

Green, David T., to United States Surgical Corporation. Wire suture wrapping instrument. 3,545,444, Cl. 128-305.

Greenaway, David L.: *See—*
Gerritsen, Hendrik J., and Greenaway, David L.,3,545,834.

Greenberg, Gerald B. Thermostatic control for air conditioning system. 3,545,218, Cl. 62-157.

Greenberg, Myron L.: *See—*
Porath, Gordon H., Rosen, Philip J., and Greenberg, Myron L.,3,545,310.

Greene, Thomas G.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.

Greenwell, Joseph Daniel, to Du Pont de Nemours, E. I., and Company. Packaging method and apparatus. 3,545,165, Cl. 53-26.

Greg, Victor V., and Cain, George R., to Koppers Company, Inc. Apparatus to reclaim coke breeze from a quenching station sump. 3,545,618, Cl. 210-167.

Gremeret, Henri. Drive apparatus with a flexible, endless band. 3,545,822, Cl. 305-38.

Grice, Charles Fitzhugh, to Schlumberger Technology Corporation. Multiple detector submarine radioactivity logging system. 3,546,456, Cl. 250-83.3

Griffin, William C., to United States of America, Navy. High intensity shaped pulse electronic light source for high speed cameras. 3,546,529, Cl. 315-241.

Grimm, Volker. *See—*
Barringer, Anthony Rene, and Grimm, Volker,3,546,574.

Grinnell Corporation: *See—*
Walmsley, Joseph, and Lamb, Charles F., 3,545,029.

Griot, Rudolf, to Sandoz-Wander, Inc. Derivatives of acetic acid. 3,546,229, Cl. 260-294.3

Groom, Lemuel D., III, and Garrett, James M., to Texas Instruments, Incorporated. Threshold device energizer. 3,546,568, Cl. 323-19.

Gross, Franz, and Krapf, Rudolf, to Brown Boveri & Cie A.G. Overheating protection device for thermionic elements heated by nuclear energy. 3,546,496, Cl. 310-4.

Gross, George E., to Illinois Tool Works Inc. Retaining clip device. 3,545,708, Cl. 248-74.

Gross, Thomas A. O., to Poloroid Corporation. Exposure control system for photographic apparatus. 3,545,350, Cl. 95-10.

Groves, Charles E.: *See—*
Giorgianni, Edward J., Drago, Peter J., Jr., and Groves, Charles E.,3,545,970.

Grubbs, Thomas M.: *See—*
Chandler, Joseph A., and Grubbs, Thomas M.,3,545,725.

Guenin, Leandre Andre: *See—*
Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.,3,545,907.

Guerrero, Fernando V.: *See—*
Brozenick, Norman J., and Guerrero, Fernando V.,3,545,042.

Guettel, Marvin A.: *See—*
Meyer, Charles F., and Guettel, Marvin A.,3,546,421.

Guglielmetti, Leonardo: *See—*
Siegrist, Adolf Emil, Liechti, Peter, Maeder, Erwin, and Guglielmetti, Leonardo,3,546,217.

Gulf & Western Industrial Products Company: *See—*
Buta, John R., 3,545,245.
Thompson, Charles S., 3,546,330.

Gulf Oil Corporation: *See—*
Pavelich, William A., and Mosier, Charles F., Jr., 3,546,016.

Gulf Research & Development Company: *See—*
Williamson, Roger C., 3,546,300.

Gullfeldt, Bengt Hjalmar: *See—*
Akerstrom, Stig Hjalmar Johannes, Tempel, Albert, and Gullfeldt, Bengt Hjalmar,3,546,244.

Gullotti, Damian V.: *See—*
Pryor, Michael J., and Gullotti, Damian V.,3,546,363.

Gulton Industries, Inc.: *See—*
Berman, Richard M., 3,545,432.
Wouk, Victor, 3,546,548.

Gunderman, Tracy B.: *See—*
Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F.,3,546,696.

Gundlach, William J., to Geo Space Corporation. Gas exploder system. 3,545,562, Cl. 181-0.5

Gunther, William H., Jr., to Conn Med Corporation. Package. 3,545,604, Cl. 206-47.

Gunther, Willi, and Zink, Werner. Device for the electronic control of curtain shutters. 3,545,360, Cl. 95-57.

Gurner, John Raymond, Fletcher, William Henry, and Pedley, Roger Martin, to Plessey Company Limited, The. Reeling apparatus. 3,545,693, Cl. 242-54.

Gustafson, Lloyd E., to Dezurik Corporation. Lined gate valve. 3,545,480, Cl. 137-375.

Guth, Jules H., and Tumerman, Leon, to Kraftco Corporation. Method of making lactulose. 3,546,206, Cl. 260-209.

Guthrie, John D.: *See—*
Joarder, Golam K., Rowland, Stanley P., and Guthrie, John D.,3,545,913.

Gutmann, William R., and Johnson, Raymond E., to Catalysts & Chemicals Inc. Low temperature shift reactions. 3,546,140, Cl. 252-466.

Haarbye, Fredrik O., to Mallory, P. R., & Co., Inc. Method of making pre-oxidized silver-cadmium oxide material having a fine silver backing. 3,545,067, Cl. 29-420.5

Haas, Karel: *See—*
Budesinsky, Bretislav, and Haas, Karel,3,546,202.

Habegger, Virgile Raymond. Foldable sheet with sealable strips for forming its own mailing envelope. 3,545,670, Cl. 229-92.5

Hackenberg, Walter, Schluter, Heinz, and Schonemeyer, Hilmar, to International Standard Electric Corporation. Control equipment for multi-stage crosspoint arrangements. 3,546,390, Cl. 179-18.

Hadfield, Glen R. Means for rolling sod and for positioning the rolls formed. 3,545,548, Cl. 172-19.

Hadley, Herbert Roy, and Kaye, Denis, to Denison, Saml., & Son Limited. Compression testing machine. 3,545,263, Cl. 73-94.

Hadley, James E., to Miro-Flex Company, Inc. Reflector for landing strips, driveways, or the like. 3,545,839, Cl. 350-97.

Haeck, Hans Heinz, and Kralt, Teunis, to U.S. Philips Corporation, mesne. Method of producing novel polyene compound. 3,546,281, Cl. 260-514.

Haentze, Charles B., to Burroughs Corporation. Apparatus for correlating two variable whose relationship is affected by a third. 3,545,673, Cl. 235-86.

Hagen, Helmuth: *See—*
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto,3,546,147.

Hahn, Erich, and Brust, Lothar, to VEB Pentacon Dresden Kamera- und Kinowerke. Photographic camera with exposure meter. 3,545,351, Cl. 95-10.

Halfmann, Heinrich: *See—*
Strunk, Kurt, and Halfmann, Heinrich,3,546,387.

Hall, Boyer D.: *See—*
New, Harry E., and Hall, Boyer D.,3,545,193.

Hall, Dennis S., to USM Corporation. Shoe machines. 3,545,022, Cl. 12-52.

Hall, Robert L., to Massachusetts Institute of Technology. Acceleration measurement system. 3,545,285, Cl. 73-517.

Hallene, Alan M., Holuba, Henry J., and Drexler, John J., to Montgomery Elevator Company. Elevator door control. 3,545,572, Cl. 187-52.

Hallstein, Edward J.: *See—*
Mishkin, Sidney, Bidwell, Robert E., Kurtz, Leonard D., and Hallstein, Edward J.,3,545,440.

Halpaap, Herbert: *See—*
Kramer, Josef, Irmscher, Klaus, Halpaap, Herbert, and Freisberg, Karl-Otto,3,546,250.

Halter, Douglas V., and Teeter, Richard J. Storage battery with transparent top and baffled holes between cells. 3,546,023, Cl. 136-166.

Halverson, Norman W.: *See—*
Herrendeen, Jerry L., and Halverson, Norman W.,3,546,581.

Hamel, Bernard, to Societe Francaise d'Equipements pour la Navigation Aerienne. Semi-linear corrector network. 3,546,605, Cl. 328-167.

Hamilton, James E. Adjustable drill pipe stabilizer tool. 3,545,825, Cl. 308-6.

Hamilton, Joel A.: *See—*
Mahaffy, Reid A., and Hamilton, Joel A.,3,545,163.

Hamilton, Samuel C.: *See—*
Mowatt-Larssen, Rolf, and Hamilton, Samuel C.,3,545,713.

Hamilton, Vern E., and Roseland, Luther M., to McDonnell Douglas Corporation, mesne. Adhesive and glass laminate bonded therewith. 3,546,064, Cl. 161-185.

Hamner, Glen P., and Mason, Ralph B., to Esso Reseirch and Engineering Company. Hydrogenation catalysts on charcoal in guard chamber for removing metals from petrolium residua. 3,546,103, Cl. 208-211.

Hamrick, Wellington. Pre-cast septic tank. 3,545,617, Cl. 210-109.

Hanada, Teizo: *See—*
Hashimoto, Tsunekazu, Someya, Akira, and Hanada, Teizo,3,546,519.

Hanbicki, Richard B., to Madatron Corporation. Pneumatically operated counting device. 3,545,674, Cl. 235-98.

Hancock, John T.: *See—*
Allen, James B., and Hancock, John T.,3,546,652.

Hannula, Leslie A.: *See—*
Ertl, Edward S., and Hannula, Leslie A.,3,546,385.

Hansen, Irving G.: *See—*
Peterson, Victor S., and Hansen, Irving G.,3,546,471.

Hansen, Spenst M., and Snoeberger, David F., to United States of America, Atomic Energy Commission. Gold recovery process. 3,545,964, Cl. 75-101.

Hanson, Victor W.: *See—*
Frundl, Ronald J., Hanson, Victor W., Jamison, Robert M., and Arnold, Orlan M.,3,545,918.

Hara, Teruei, to Fuji Shashin Koki Kabushiki Kaisha. Machinery for handling cartridge-contained film. 3,545,850, Cl. 352-72.

Harada, Shigehisa: *See—*
Nishizawa, Minoru, Harada, Shigehisa, and Tanuma, Yoshimi,3,546,122.

Harden, Phillip L., and Thomas, Samuel M., Jr., to Bowmar Instrument Corporation. Electromagnetic counting apparatus. 3,546,673, Cl. 340-168.

Hardinge Brothers, Inc.: *See—*
Patykula, Thomas E., and Mann, Ernest P., 3,545,020.

Hardwick, George W: *See—*
Fischer, Nathan A., and Hardwick, George W,3,545,036.

Hargasser, Hans, Schatter, Eckart, and Renk, Ulrich, to Siemens Aktiengesellschaft. DC coupled multistage amplifier having controllable amplification. 3,546,616, Cl. 330-29.

Harnischfeger Corporation: *See—*
Dechantsreiter, Max J., 3,545,628.
Dechantsreiter, Max J., 3,546,400.

Harp, James L., Jr., to Marquardt Corporation, The. Resonant pulse rocket. 3,545,211, Cl. 60-247.

Harper, Bill J.: *See—*
Derr, William M., and Harper, Bill J.,3,545,274.

Harrington, James C.: *See—*
Dohogne, Charles L., and Harrington, James C.,3,546,084.

Harris, Edward E., to Hooker Chemical Corporation. Process for the production of amineacetonitriles. 3,546,271, Cl. 260-465.5

Harris-Intertype Corporation: *See—*
Norton, Robert K., 3,545,379.

Harrison, Anthony W., to Girling Limited. Bleeding hydraulic systems. 3,545,577, Cl. 188-152.

Harrison, Dean R., and Kerwin, William J., to United States of America, National Aeronautics and Space Administration. Transducer circuit and catheter transducer. 3,545,275, Cl. 73-398.

Harshman, Milton M., to Yard-Man of Illinois, Incorporated. Vibration suppressing engine mount. 3,545,706, Cl. 248-15.

Hart, Derek James, and Davis, Robert, to British Lighting Industries Limited. Track for distribution of electricity. 3,546,367, Cl. 174-99.

Hart, Thomas W., Jr.: *See—*
Fowler, William R., and Hart, Thomas W., Jr.,3,546,484.

Hartel, Heinz, and Nebel, Ilse Ursula, to Dynamit Aktiengesellschaft. Oxidation of polyacroleins. 3,546,286, Cl. 260-530.

Hartman Systems Co., Inc.: *See—*
Lally, Kenneth P., 3,546,460.

Harvey, Luke M., to General Electric Company. Self-pumping liquid metal current collector. 3,546,508, Cl. 310-219.

Harvey, Richard N. Garbage can holder. 3,545,709, Cl. 248-146.

Harwell Enterprises, Incorporated: *See—*
Harwell, Roy M., Jr., and Yoder, David W., 3,545,377.

Harwell, Roy M., Jr., and Yoder, David W., to Harwell Enterprises, Incorporated. Screen printing apparatus. 3,545,377, Cl. 101-123.

Hase, Marie: *See—*
Kampfer, Helmut, Hase, Marie, von Rintelen, Harald, and Riester, Oskar,3,545,975.

Hashimoto, Tsunekazu, Someya, Akira, and Hanada, Teizo, to Tokyo Shibaura Electric Co., Ltd. Fluorescent lamps with coil electrodes and electrode support structure. 3,546,519, Cl. 313-109.

Hastings Dynamold Corporation: *See—*
Jones, Cordis W., 3,545,140.

Hatebur, F. B., A.G.: *See—*
Richner, Hans, 3,545,804.

Hattori, Kenichi, Dehara, Masataka, and Sugimoto, Katuo, to Kio Soap Co., Ltd., and Sugai Chemical Industry Co., Ltd. Method of dispersing fine powders. 3,545,995, Cl. 106-308.

Hauck, Erwin A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M.,3,546,677.

Haupt, Wilhelm: *See—*
Hummel, Dietmar, and Haupt, Wilhelm,3,545,649.

Hausig, Andreas, Jeske, Helmfried, and Spiegelberg, Karl, to VEB Qualitats- und Edelstahlkombinat. Method and device for controlling performance of plasma arc furnaces. 3,546,347, Cl. 13-12.

Havas, George, and Dewan, Shashi Bhushan, to Ajax Magnethermic Corporation. Frequency converter for converting three-phase low frequency alternating current into single- phase higher frequency alternating current. 3,546,562, Cl. 321-7.

Haveg Industries, Inc.: *See—*
Mercer, Robert S.,3,546,157.

Haviland, Girard S., to Jacobs Manufacturing Company, The. Combined chuck spindle and chuck locking collar. 3,545,776, Cl. 279-63.
Hawkins, James M.: *See—*
Shields, Donald J., Hawkins, James M., and Wooten, Willis C., Jr.,3,546,008.
Hawley, James E.: *See—*
Bricher, Charles W., and Hawley, James E.,3,545,363.
Haws Drinking Faucet Company: *See—*
Wright, Allen C., 3,545,477.
Hay, Allan S., to General Electric Company. Stabilized methylthio and methylthiomethylene substituted poly(phenylene oxide)copolymers. 3,546,170, Cl. 260-47.
Hayashi, Genichi, and Ookubo, Tomoji, to Japan Exlan Company Limited. Method of dyeing acrylic fibers. 3,545,914, Cl. 8-169.
Hayden, Percy, and Wright, Donald, to Imperial Chemical Industries Limited. Preparation of unsaturated esters. 3,546,278, Cl. 260-497.
Head, Wrightson and Company Limited: *See—*
Woolley, Eric Maurice, Wright, George, Crisp, Roy, and Atkinson, Robert Dennis, 3,545,410.
Heck, Doris, administratrix of the estate of Beer, Karl: *See—*
Beer, Karl, and Heck, Doris, administratrix of the estate of Beer, Karl, deceased,3,546,042.
Heckelman, James D., to United States of America, National Aeronautics and Space Administration. Multi-alarm summary alarm. 3,546,694, Cl. 340-412.
Heckelsberg, Louis F., to Phillips Petroleum Company. Conversion of olefin hydrocarbons. 3,546,311, Cl. 260-683.
Heckelsberg, Louis F., and Banks, Robert L., to Phillips Petroleum Company. Olefin conversion and catalyst therefor. 3,546,312, Cl. 260-683.
Hedrick, Glen W., and Magne, Frank C. Vinyl ester amide of pinic acid. 3,546,230, Cl. 260-294.3
Heidel, Klaus, and Dittmann, Walter, to Chemische Werke Huls A.G. Adducts from maleic anhydride and low- molecular weight polybutadiene and the method of preparation. 3,546,184, Cl. 260-78.5
Heideprem, Walter, to Jagenberg-Werke AG. Apparatus for breaking the curl in traveling material webs formed of paper, cardboard or the like. 3,546,067, Cl. 162-271.
Heinle, Carl, Jr.: *See—*
Mc Cord, Jesse L., and Heinle, Carl, Jr.,3,545,290.
Heinrich, Gottfried: *See—*
Ottermann, Hans-Gert, and Heinrich, Gottfried,3,545,349.
Heinrichs, Frank W., Jr., Toothman, Lawrence R., Honey, Charles C., and Jonnatti, Anthony J., to McGraw-Edison Company. Transformer coils with insulating spacer. 3,546,646, Cl. 336-60.
Helke, Robert C., Van Gilder, Charles E., and Miller, Merlin S., to Koehler-Dayton, Inc. Sewage system. 3,545,011, Cl. 4-10.
Heller, Hansjorg: *See—*
Peterli, Hans Jakob, and Heller, Hansjorg,3,546,163.
Kirchmayr, Rudolf, Peterli, Hans Jakob, and Heller, Hansjorg,3,546,270.
Helm Design & Manufacturing, Inc.: *See—*
Stephen, James, 3,545,660.
Helsley, Grover Cleveland, to Robins, A. H., Company, Incorporated. 2-(1-Lower-alkyl-3-pyrrolidinyl)-1, 3-propanediol dicarbamates. 3,546,245, Cl. 260-326.3
Hempel's Marine Paints, Inc.:*See—*
Chandler, John W., 3,546,155.
Hendricks, Charles D., Jr., to Massachusetts Institute of Technology. High-speed printer employing a gas discharge matrix. 3,545,374, Cl. 101-1.
Hendrickson Mfg., Co.: *See—*
Miller, Ronald Earl, 3,545,787.
Henkener, Jerry A.: *See—*
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U.,3,545,376.
Henker, Kurt: *See—*
Jentzsch, Dietrich, Henker, Kurt, and Kruger, Helmut,3,545,279.
Henning, Peter, to United States of America, Air Force. High yield ion source. 3,546,513, Cl. 313-63.
Hennis, Henry E.: *See—*
Priddy, Duane B., and Hennis, Henry E.,3,546,299.
Henson, Richard C.: *See—*
Anderson, Ralph F., and Henson, Richard C.,3,545,810.
Hercules Incorporated: *See—*
Body, Ralph W., 3,545,991.
Jabloner, Harold, and Vandenberg, Edwin J., 3,546,321.
Hercules Incorporation: *See—*
Buntin, George A., and John, Andrew, Jr., 3,546,288.
Herman, David L. Paper transport for photocopies. 3,545,745, Cl. 271-75.
Herman, Donald E.: *See—*
Burian, Wencil J., Herman, Donald E., Stepanek, Robert M., and Vifian, Paul R.,3,545,690.
Herman, Emil A. Veneer grade line apparatus. 3,545,744, Cl. 271-64.
Hermann KG: *See—*
Hormann, Hermann, and Osthushenrich, Karl, 3,545,132.
Herrendeen, Jerry L., and Halverson, Norman W., to Anaconda Wire and Cable Company. Insulation continuity ester including a grounded detector resistance and grounded voltage source. 3,546,581, Cl. 324-54.
Herrick, Clifford E., Jr., Sporer, Alfred H., and Wilbur, Clayton V., to International Business Machines Corporation. Method of inducing an electrostatic charge pattern on an insulating surface. 3,545,969, Cl. 96-1.
Herrman, Arthur John, to Du Pont de Nemours, E. I., and Company. Unbonded nonwoven web of polypropylene fibers. 3,546,062, Cl. 161-169.
Herrmann, Heinz, and Herzberg, Joachim Kurt, to Werner & Pfleiderer. Method of preparing mixtures of synthetic materials and additives dispersed therein. 3,545,726, Cl. 259-1.
Herrmann, Helmut, to Metalloxyd GmbH. Convoluted conductor assembly and method of making the same. 3,546,649, Cl. 336-223.
Hertel, Heinrich, and Volkersen, Olaf, said Volkersen assor. to said Hertel. Joint. 3,545,795, Cl. 287-20.92
Herter, Eberhard, to International Standard Electric Corporation. Coardinate matrix arrangement for supervision of loop conditions and for discerning loop resistance in a plurality of loops. 3,546,392, Cl. 179-18.
Herzberg, Joachim Kurt: *See—*
Herrmann, Heinz, and Herzberg, Joachim Kurt,3,545,726.
Hessinger, Philip S., to National Beryllia Corporation. Hermetically sealed electronic package for semiconductor devices with high current carrying conductors. 3,546,543, Cl. 317-234.
Hettler, Friedrich: *See—*
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfi, Hans,3,545,735.
Hewko, Lubomyr O., to General Motors Corporation. High speed roller bearing with epicyclic cage preload. 3,545,830, Cl. 308-202.
Hewlett-Packard Company: *See—*
Levy, Eugene J., and Paul, Donald G., 3,545,255.
Hi Speed Checkweigher Co., Inc.: *See—*
Del Rosso, Victor, 3,545,591.
Hiatt, Gordon D., and Kaul, Oliver W., to Eastmin Kodak Company. Gelled petroleum distillate fuels. 3,545,946, Cl. 44-7.
Hick, Harald: *See—*
Higatsberger, Michael J., and Hick, Harald,3,546,459.
Hickman, Howard M., to Certain-teed Products Corporation, mesne. Apparatus for winding roving. 3,545,192, Cl. 57-71.
Hickner, Richard A., and Moore, Edgar E., to Dow Chemical Company, The. N-(alkylsulfinyl) ethyl-pyrrolidinones and oxazolidinones. 3,546,241, Cl. 260-307.
Hidman, Frank, and Bedford, Brian, to Lucas, Joseph, (Industries) Limited. Full wave rectifier assemblies. 3,546,544, Cl. 317-234.
Hiestand, Karl, to Firma SMW Spanneinrichtungen Schneider Manz und Weisshaupt OHG. Pressure fluid supply apparatus. 3,545,342, Cl. 92-106.
Higatsberger, Michael J., and Hick, Harald, to Osterreichische Studiengesellschaft fur Atomenergie Ges. mbH. Single-crystal, drifted semi-conductor radiation detector having a bore therethrough. 3,546,459, Cl. 250-83.3
Higgins, John J., and Stucker, Nova E., to Esso Research and Engineering Company. Package for highly viscous tacky materials. 3,545,643, Cl. 220-63.
Hikino, Tadashi: *See—*
Mikoda, Masanari, and Hikino, Tadashi,3,545,989.
Hill, Forrest B., Jr., to Combustion Engineering Inc. Anti-vibration tube support for vertical steam generator. 3,545,537, Cl. 165-162.
Hill, Max E., Fjeldstad, Dean A., and Schmitt, Jerome E., to Killebrew, Inc., mesne. Batting trainer apparatus and method. 3,545,752, Cl. 273-26.
Hillberg, Robert L., to Bellmore-Johnson Tool Company. Shotgun barrel construction. 3,546,417, Cl. 219-93.
Hilmanowski, James R.: *See—*
Ruspino, James G., and Hilmanowski, James R.,3,545,684.
Hiltz, Frederick F., to United States of America, Navy, mesne. Neuronal event recognizer. 3,546,601, Cl. 328-116.
Hindle, Son & Company Limited: *See—*
Hindle, Thomas, 3,545,498.
Hindle, Thomas, to Hindle, Son & Company Limited. Loom dobbies. 3,545,498, Cl. 139-77.
Hinkens, Harold A. Stud mounted diode. 3,545,535, Cl. 165-80.
Hinnant, Donald R., and Wilson, Carl, to General Electric Company. Self-supporting parallel tubular structure and method of forming the same. 3,545,538, Cl. 165-175.
Hirano, Jiro: *See—*
Asahara, Teruzo, Hirano, Jiro, and Kado, Masaru,3,546,345.
Hirano, Kinya, and Sejima, Tsuneo, to Kyowa Hakko Kogyo Kabushiki Kaisha. Process for the preparation of soil improvers, containing Ca-humate, from fermentation slops and peats, and product thereof. 3,545,953, Cl. 71-24.
Hirata, Hiroshi: *See—*
Oshima, Goro, Hirata, Hiroshi, and Tokunaga, Kenichiro,3,545,688.
Hirono, Koyu, and Kuwano, Ken, to Teijin Limited. Process for heat-treating polyamide filaments. 3,546,329, Cl. 264-235.
Hiskell, Donald M.: *See—*
Kabre, Le Roy C., and Hiskell, Donald M.,3,546,078.
Hitachi, Ltd.: *See—*
Hokkyo, Noboru, 3,546,477.
Kubo, Takao; and Murai, Katsuji, 3,546,475.
Ohashi, Shin-Ichi, and Nomoto, Hiroshi, 3,546,615.
Oshima, Ryoichiro, and Tanaka, Sigeru, 3,545,503.
Hittel, George T., and Knieriem, Herman, Jr., to Dow Chemical Company, The. Small parts cleaning process. 3,546,018, Cl. 134-1.

Hitz, Hans-Rudolf: *See—*
Martin, Henry, Duerr, Dieter, Hitz, Hans-Rudolf, and Von Orelli, Marcus,3,546,344.
Hlavon, Vilem Brno: *See—*
Kucera, Alois, and Hlavon, Vilem Brno,3,545,390.
Hochberg, David Louis, to Pitney-Bowes, Inc. Method for coating on a substrate. 3,545,997, Cl. 117-17.
Hocq, Robert Raymond, to Societe Franco-Hispano-Americaine Francispam. Gas lighter with concealed operating mechanism. 3,545,905, Cl. 431-131.
Hodgson, John B., to JWI Limited. Stainless steel fourdrinier cloth. 3,545,705, Cl. 245-8.
Hodgson, Robert A., to Maloney-Crawford Tank Corporation. Gas dehydration process. 3,545,177, Cl. 55-30.
Hofbauer, Ivo: *See—*
Sebor, Gustav, and Hofbauer, Ivo,3,545,213.
Hoffman, Stewart. Process for preserving cigars and tobacco. 3,545,453, Cl. 131-25.
Hoffman-La Roche Inc.: *See—*
Leimgruber, Willy, and Ziering, Albert, 3,546,239.
Hoffmann, Arthur G., to Westinghouse Electric Corporation. Control for hydroelectric generators including variable response rate, 3,546,472, Cl. 290-40.
Hoffmann-La Roche Inc.: *See—*
Felix, Arthur Martin, Fryer, Rodney Ian, and Sternbach, Leo Henryk, 3,546,212.
Frank, Ulrich A., and Wollmeringer, Bernard C., 3,545,431.
Uskokovic, Milan Radoje, 3,546,252.
Hoffmeister, Erich, to Kaltenbach & Voight,. Device for fixing and unfixing tools for a dental handpiece. 3,545,084, Cl. 32-26.
Hogan, William F.: *See—*
Foley, Daniel E., and Hogan, William F.,3,546,381.
Hohlbaum Theodor Josef Maria. Tanker filling apparatus. 3,545,501, Cl. 141-104.
Hokkyo, Noboru, to Hitachi, Ltd. Laser frequency conversion device using magnetogas plasma. 3,546,477, Cl. 307-88.3
Holdsworth, Alan, to Plessey Company Limited, The. Improvements relating to print wheel setting mechanisms. 3,545,291, Cl. 74-125.5
Holekamp, Eloise B.: *See—*
Fridley, Robert B., Shawver, Bruce M., and Holekamp, Emmett R.,3,545,190.
Holekamp, Emmett R.: *See—*
Fridley, Robert B., Shawver, Bruce M., and Holekamp, Emmett R.,3,545,190.
Hollander, Milton B., and Augenstein, Paul M., to American Standard Inc. Oral hygiene center. 3,545,435, Cl. 128-66.
Holley Carburetor Company: *See—*
Larson, William C., 3,545,486.
Holloway, Robert L., to Automatic Sprinkler Corporation of America, mesne. Face seal. 3,545,436, Cl. 128-141.
Holmberg, Centre William, Jr. Connector assembly and tool. 3,546,663, Cl. 339-223.
Holmes, Harlan K., to United States of America, National Aeronautics and Space Administration. Velocity limiting safety system. 3,546,552, Cl. 318-265.
Holmlund, Chester Eric: *See—*
Evans, Ralph Henry, Jr., Kunstmann, Martin Paul, Holmlund, Chester Eric, and Ellestad, George Alfred,3,546,073.
Holotron Corporation: *See—*
Leith, Emmett N., and Upatnieks, Juris, 3,545,835.
Holroyd, Lawrence Hamilton Howard. Garment hangers. 3,545,657, Cl. 223-88.
Holuba, Henry J.: *See—*
Hallene, Alan M., Holuba, Henry J., and Drexler, John J.,3,545,572.
Holy, Jan: *See—*
Badal, Jiri, Holy, Jan, and Parlesak, Josef,3,546,550.
Holzer, Walter K. Electronic heat regulation. 3,546,436, Cl. 219-504.
Holzkamp, Erhard: *See—*
Ziegler, Karl, Breil, Heinz, Martin, Heinz, and Holzkamp, Erhard,3,546,133.
Home Comfort Products Co.: *See—*
Smith, Lester L., and Randall, Frank E., 3,546,039.
Honey, Charles C.: *See—*
Heinrichs, Frank W., Jr., Toothman, Lawrence R., Honey, Charles C., and Jonnatti, Anthony J.,3,546,646.
Honeywell Inc.: *See—*
Williams, Jimmy R., 3,545,650.
Honjo, Satoru: *See—*
Sato, Masamichi, and Honjo, Satoru,3,546,545.
Hood, Peter: *See—*
Brown, Walter, and Hood, Peter,3,545,489.
Hooker Chemical Corporation: *See—*
Harris, Edward E., 3,546,271.
Mellan, Herbert J., and Pawlak, Joseph A., 3,546,153.
Hooper, Paige, B. Spectropolarimeter. 3,545,865, Cl. 356-96.
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram, to Farbenfabriken Bayer Aktiengesellschaft. Fiber-reinforced foam plastic shaped articles. 3,546,060, Cl. 161-156.
Hopper, Edward. Support structure. 3,545,506, Cl. 143-32.
Horizons Incorporated: *See—*
Wainer, Eugene, 3,545,993.
Horizons Research Incorporated: *See—*
Wainer, Eugene, 3,545,993.
Hormann, Hermann, and Osthushenrich, Karl, to Hermann KG. Door for a garage and the like swingable overhead. 3,545,132, Cl. 49-200.
Hormel, Geo A., & Company: *See—*
Fischer, Nathan A., and Hardwick, George W., 3,545,036.
Horn, Paul C. Protective device for tongue depressors. 3,545,433, Cl. 128-15.
Hornberger, Paul, Suesenguth, Hermann, and Tritschler, Heinrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Oxidation of cycloalkanes. 3,546,303, Cl. 260-631.
Hornstra, Fred, Jr., and De Luca, William H., to United States of America, Atomic Energy Commission. Apparatus for nondestructively measuring the position and particle-density profile of an accelerator beam. 3,546,577, Cl. 324-33.
Hoshino, Shohei, Yoneda, Toshiyuki, and Uezono, Hidenobu, to Asahi Dow Limited. Method of and apparatus for continuously forming a series of packages with opening tape means. 3,545,161, Cl. 53-14.
Hotta, Naoki, Namiuchi, Akira, and Arita, Masahiko, to Chugai Seiyaku Kabushiki Kaisha. Stabilizing method and the preparation stabilized thereby. 3,546,205, Cl. 260-209.
Hougen, Leif Reidar, and Stensholt, Erling Olav, to Falconbridge Nickel Mines, Limited. Reduction of high purity metal oxide particles. 3,545,959, Cl. 75-0.5
Houle, Elmer R.: *See—*
Gillaspie, Robert E., and Houle, Elmer R.,3,545,189.
Houston, Russell F., to Mosler Safe Company, The. Metal polishing apparatus. 3,545,138, Cl. 51-59.
Howie, H Robert, Jr., to Dynatech Corporation. Automatic arc welder. 3,546,424, Cl. 219-131.
Howker Siddeley Dynamics Limited: *See—*
Thompson, Lionel Raymond Frank, and Bullock, Leslie, 3,546,447.
Hsieh, Henry L.: *See—*
Wofford, Clinton F., Busler, William R., and Hsieh, Henry L.,3,546,134.
Hsiung, Andrew Kou-Ying: *See—*
Ettlich, William F., and Hsiung, Andrew Kou-Ying,3,545,619.
Huang, Ching Yun, and Maeno, Tamotsu, to Japan Gas-Chemical Company, Inc. Process for the preparation of aromatic glycols. 3,546,301, Cl. 260-618.
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F., to Mechanical Technology, Incorporated, and Rotron Manufacturing Company, Inc. Regenerative compressor. 3,545,890, Cl. 417-368.
Hufton, Arthur G.: *See—*
Foreman, Roland J., and Hufton, Arthur G.,3,545,420.
Hughes Aircraft Company: *See—*
Chapman, Arthur S., 3,545,837.
Cover, John H., Jr., Knauer, Wolfgang, and Maurer, Hans A., 3,546,706.
Farnsworth, Robert P., and Knapp, Edward J., 3,545,861.
Vitt, George G., Jr., 3,546,375.
Hultberg, Wayne M., to Continental Can Company, Inc. Easy opening and reclosable bag. 3,545,668, Cl. 229-65.
Hummel, Dietmar, and Haupt, Wilhelm, to Kienzle Apparate GmbH. Interlocked clearing mechanism. 3,545,649, Cl. 222-33.
Humphreys Corporation: *See—*
Thorpe, Merle L., 3,546,522.
Hunt, Oliver Larry, to Du Pont de Nemours, E. I., and Company. Process for preparing condensates of para alkyl phenols and divinyl aromatic compounds. 3,546,173, Cl. 260-62.
Hunziker, Fritz: *See—*
Schmutz, Jean, Hunziker, Fritz, and Kunzle, Franz Martin,3,546,226.
Hurle, Donald Thomas James, and Mullin, John Brian, to National Research Development Corporation. Production of single crystal material. 3,546,027, Cl. 148-1.6
Hurst, John F., and Bodri, Joseph S., to Oppenheimer, Inc. Optical readout apparatus. 3,545,114, Cl. 40-130.
Husome, Robert G. Rebound type checkweigher. 3,545,611, Cl. 209-74.
Hutchings, Thomas J.: *See—*
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L.,3,545,866.
Hutchins, Loren W., to Douthitt Corporation. Zone control valve for vacuum film holder. 3,545,860, Cl. 355-91.
Hutter, James F.: *See—*
Kelly, Leonard, Hutter, James F., and Mounce, George R.,3,545,610.
Huyck Corporation: *See—*
Wicker, Dan B., Bennett, James G., Jr., and Ward, Lowell G., 3,545,442.
Hvam, Hjalmar. Self-compensating toe binding. 3,545,783, Cl. 280-11.35
Hwa, Jesse C., H, and Mirviss, Stanley B., to Stauffer Chemical Company. Graft polymers of vinyl halide monomers and mercapto-functional diene polymers. 3,546,323, Cl. 260-879.
Hwa, Jesse C. H., Kraft, Paul, and Gelman, Sheldon F., to Stauffer Chemical Company. Emulsion polymerization of vinyl compounds. 3,546,154, Cl. 260-29.6
Hydraulik GmbH: *See—*
Riemann, Heinz, 3,545,246.

Hydraxtor Division 'Automatic' Sprinkler Corporation of America: *See—*
Toyama, Hiro, and Aurach, Arthur B., 3,545,644.
Hygrade Food Products Corporation: *See—*
Piereder, Ludwig, 3,545,035.
Iannone, Samuel J. Method of coating stainless steel tube with copper. 3,546,080, Cl. 204-25.
Ice Industries International, Inc.: *See—*
Dinger, Paul H., and Stultz, James T., 3,545,228.
Idsenga, Willem F., and Weeber, Pieter G., to Smit Nijmegen Elektrotechnische Fabrieken N.V. Constantly supplied wire electrode and supplemental welding metal. 3,546,425, Cl. 219-131.
Iijima, Tetsuya, to Nissan Jidoshi Kabushiki Kaisha. Hydrodynamic coupling. 3,545,883, Cl. 416-197.
Ikeda, Yoneichi, Tashiro, Masaharu, Yamada, Kantaro, and Nakamura, Toshio, to Nitto Chemical Industry Co., Ltd. Method for producing unsaturated nitriles. 3,546,268, Cl. 260-465.3
Ikumo, Masahiko: *See—*
Araki, Kazumi, Ueda, Hiroyuki, and Ikumo, Masahiko, 3,546,072.
Illinois Tool Works Inc.: *See—*
Gross, George E., 3,545,708.
Knohl, Friedrich Karl, 3,545,152.
Park, William O., 3,546,638.
Imai, Toshio: *See—*
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio, 3,546,679.
Imperial Chemical Industries Limited: *See—*
Coffey, Robert Stevenson, 3,546,266.
Doyle, Peter, and Stacey, Gilbert Joseph, 3,546,237.
George, Edwin Francis, 3,545,955.
Hayden, Percy, and Wright, Donald, 3,546,278.
Irving, Francis, and Wilkinson, Donald Graham, 3,546,222.
Mansfield, John Rickard, 3,546,082.
Morman, James Forrester, and Parker, James Brown, 3,545,448.
Imperial Machine Products Company: *See—*
Baverstock, Richard, 3,545,948.
Indiana University Foundation: *See—*
Muhler, Joseph C., 3,546,335.
Inmont Corporation: *See—*
Giannone, Charles, Kumins, Charles A., Schwacke, Frederick H., Jr., and Egitto, John L., 3,546,001.
Institut Francais du Petrole, des Carburants et Lubrifiants: *See—*
Cholet, Jacques, 3,545,563.
Rabilloud, Guy, Sillion, Bernard, and De Gaudemaris, Gabriel, 3,546,166.
Insto-Gas Corporation: *See—*
Dikin, Gary L., and Karpus, Alan F., 3,545,425.
Instrument Systems Corporation: *See—*
DelVecchio, Joseph T., 3,545,824.
Stein, Robert R., 3,545,522.
Stein, Robert R., and Coe, Stanley H., 3,545,833.
Intercole Automation, Inc.: *See—*
Matsuoka, James T., 3,545,533.
International Business Machines Corporation: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M., 3,546,582.
Herrick, Clifford E., Jr., Sporer, Alfred H., and Wilbur, Clayton V., 3,545,969.
Jump, William L., and Quanstrom, Jack L., 3,546,537.
Perri, John A., and Riseman, Jacob, 3,546,013.
Rogert, Hugh E., and Shanis, Joseph H., 3,546,671.
International Flavors & Fragrances Inc.: *See—*
Blumenthal, Jack H., 3,546,279.
International Machinery Corporation S.A.: *See—*
Mencacci, Samuel A., and DeBruyn, Emile, 3,545,985.
International Nickel Company, Inc., The: *See—*
Petersen, Walter A., 3,545,945.
International Standard Electric Corporation: *See—*
Cagnac, Therese Marie Leonie, LeGall, Alain Pierre, and Yelloz, Raphael Guy, 3,546,682.
Cragg, William Donald, and Leman, Hugh Spence, 3,546,619.
De Raedt, Egide Jacob Hendrik, Peeters, Andreas Michiel Cyriel Corneel, and Debruyne, Pieter Adolf Mathildis, 3,546,389.
den Hertog, Martinus, 3,546,391.
Gingell, Michael John, 3,546,589.
Hackenberg, Walter, Schluter, Heinz, and Schonemeyer, Hilmar, 3,546,390.
Herter, Eberhard, 3,546,392.
Kobus, Stanislas, and Salle, Adelin Eugene Gaston, 3,546,388.
Strunk, Kurt, and Halfmann, Heinrich, 3,546,387.
International Telephone & Telegraph Corporation: *See—*
Toedtman, John A., and Stephens, Francis E., 3,546,366.
Walker, Johnny Wilfred, 3,545,073.
International Telephone and Telegraph Corporation: *See—*
Lyon, Zeno G., 3,546,383.
Platt, Eric, and Thompson, Marvin F., 3,546,394.
Spaulding, David B., 3,545,373.
Wolfgang, Lozure G., 3,546,526.
Inventors and Investors, Inc.: *See—*
Lehovec, Kurt, 3,546,469.
Irgon, Joseph, and Cole, Howard W., Jr., to Proteus, Inc. Fire and/or explosion supression. 3,545,547, Cl. 169-1.
Irmscher, Klaus: *See—*
Kramer, Josef, Irmscher, Klaus, Halpaap, Herbert, and Freisberg, Karl-Otto, 3,546,250.
Irving, Francis, and Wilkinson, Donald Graham, to Imperial Chemical Industries Limited. N,N'-Triazinyl perylene-3,4,9,10-tetracarboxyline acid bis imides. 3,546,222, Cl. 260-249.6
Isaf, Asad F. Butter storing and spreading package. 3,545,873, Cl. 401-98.
Isgur, Irving E., and Ohlson, John L., to Grace, W. R., & Co. Composite fibrous article bonded with novel copolymer compositions and method of making same. 3,546,059, Cl. 161-81.
Ishidoshiro, Hiroshi: *See—*
Sando, Yoshikazu, and Ishidoshiro, Hiroshi, 3,545,054.
Ishikawa, Miyoshi: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi, 3,545,519.
Ishizuka, Hiroshi. High temperature high pressure apparatus. 3,546,413, Cl. 219-50.
I.S.I. Manufacturing, Inc.: *See—*
Blatt, Leland F., and Williams, Paul R., 3,545,050.
Ismail, Roshdy, to Dynamit Nobel Aktiengesellschaft. Production of halogenated phenoxysilanes. 3,546,267, Cl. 260-448.8
I-T-E Imperial Corporation: *See—*
Graffy, Thomas F., 3,545,793.
Graybill, Howard W., and Faye, Eli J., 3,546,356.
Ivanto, Osmo Juhani. Conveyor for logs. 3,545,630, Cl. 214-6.
Ivashkov, Nikolai Melitonovich: *See—*
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich, 3,545,395.
Iwata, Shigeo, and Morikawa, Harumi, to Chyo Balance Corporation. Temperature measuring devices for thermal analysis. 3,545,253, Cl. 73-15.
Izumi, Masahiro, Shima, Hiroshi, Matsumura, Shigeru, and Asano, Nobuyuki, to Sumitomo Electric Industries, Ltd. Liner polymeric compositions, method of manufacturing them and products made from them. 3,546,182, Cl. 260-78.
Jabloner, Harold, and Vandenberg, Edwin J., to Hercules Incorporated. Polyether graft copolymers. 3,546,321, Cl. 260-874.
Jache, Albert W.: *See—*
Faust, John P., Jache, Albert W., and Klanica, Andrew J., 3,545,924.
Jackson, Byron, Inc.: *See—*
Scott, Lyle B., 3,545,542.
Jackson, William P.: *See—*
Leach, Pembroke O., Jackson, William P., and Camp, Vernon W., 3,546,426.
Jaclo, Inc.: *See—*
Crist, Buckley, 3,545,681.
Jacobs, Albert L. Chemical gold mining. 3,545,965, Cl. 75-101.
Jacobs, Earl D., Durrett, Ronald H., deceased (by Swanson, Hubert C., administrator), Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L., to North American Rockwell Corporation. Ring laser which utilizes only one of the counter- rotating beams to determine rotation rate. 3,545,866, Cl. 356-106.
Jacobs Manufacturing Company, The: *See—*
Haviland, Girard S., 3,545,776.
Jacobsen, Alf M.: *See—*
Adams, Archie Q., 3,545,685.
Jacobson, Charles L., to Xerox Corporation. Limiter circuit. 3,546,486, Cl. 307-264.
Jacobson, Eugene, to Sun Chemical Corporation. Bow making machine. 3,545,656, Cl. 223-46.
Jaffe, Joseph, to Chevron Research Company. Hydrotreating catalyst and process. 3,546,094, Cl. 208-59.
Jaffe, Joseph, to Chevron Research Company. Hydrodesulfurization process. 3,546,105, Cl. 208-216.
Jagenberg-Werke AG: *See—*
Heidepriem, Walter, 3,546,067.
Jahnke, Herbert, to Constantin Graf Von Berckheim. Ion-producing device. 3,546,451, Cl. 250-43.
Jamieson, Alan. Display unit. 3,545,099, Cl. 35-6.
Jamison Door Company: *See—*
Odend'Hal, Fortune, and Duffy, Patrick J., 3,545,133.
Jamison, Robert M.: *See—*
Frundl, Ronald J., Hanson, Victor W., Jamison, Robert M., and Arnold, Orlan M., 3,545,918.
Janssen, Hans-Joachim, and Bottle, Peter, to Licentia Patent-Verwaltungs-G.m.b.H. Noise reducing arrangement for electric motors. 3,546,504, Cl. 310-51.
Jantze, Clyde E., Arnott, Edward A., and Scott, Earle V., to Continental Can Company, Inc. Method and apparatus for purging headspaces of filled cans. 3,545,160, Cl. 53-7.
Japan Atomic Energy Research Institute: *See—*
Umezawa, Hirokazu, and Okashita, Hiroshi, 3,545,925.
Japan Exlan Company Limited: *See—*
Hayashi, Genichi, and Ookubo, Tomoji, 3,545,914.
Japan Gas-Chemical Company, Inc.: *See—*
Huang, Ching Yun, and Maeno, Tamotsu, 3,546,301.
Jawelak, Melbourne G., to McGraw-Edison Company. Resistor assembly. 3,546,653, Cl. 338-231.
Jayark Instruments Corporation: *See—*
Bogdanowicz, Mitchell J., 3,545,851.

Jefferts, Keith B. Apparatus for investigating the migratory habits of micro-organisms. 3,545,405, Cl. 119-3.
Jeffries, Carson D., and Mollenauer, Linn F., to United States of America, Atomic Energy Commission. Method and apparatus for enhancement of nuclear polarization by optical pumping in solids and liquids. 3,546,575, Cl. 324-0.5
Jenkins, Peter John, to Dunlop Company Limited. Reinforced mechanical belting. 3,546,057, Cl. 161-58.
Jenkins, Theron W., Jr.: *See—*
Barber, Justus C., and Jenkins, Theron W., Jr., 3,545,207.
Jenny, Georges, to Societe a Responsabilite Limitee dite: ONDIOLINE. Monodic electronic musical instrument manually playable without depression of keys. 3,546,353, Cl. 84-1.01
Jensen, Charles R., and Dent, Robert K., to Tyee Aircraft, Inc. Electronic burglar alarms and testing circuitry therefor. 3,546,688, Cl. 340-214.
Jensen, Harry L. Lawn edging arrangement. 3,545,127, Cl. 47-33.
Jentzsch, Dietrich, Henker, Kurt, and Kruger, Helmut, to Bodenseewerk Perkin-Elmer & Co., G.m.b.H. Sample injection for gas chromatographs. 3,545,279, Cl. 73-422
Jentzsch, Dietrich, Kruger, Helmut, and Rohl, Horst, to Bodenseewerk Perkin-Elmer & Co., G.m.b.H. Flame ionization detector. 3,545,936, Cl. 23-254.
Jeske, Helmfried: *See—*
Hausig, Andreas, Jeske, Helmfried, and Spiegelberg, Karl, 3,546,347.
Jet Cit Thru, Inc.: *See—*
Phillips, James P., 3,545,459.
Jeter, John D.: *See—*
Springfield, Carlos L., Paton, William J., and Jeter, John D., 3,545,252.
Joarder, Golam K., Rowland, Stanley P., and Guthrie, John D., to United States of America, Agriculture. Uncatalyzed vapor phase crosslinking reaction of cotton cellulose with formaldehyde. 3,545,913, Cl. 8-116.4
Joel, Amos E., Jr., to Bell Telephone Laboratories, Incorporated. Telephone switching system. 3,546,393, Cl. 179-18.
John, Andrew, Jr.: *See—*
Buntin, George A., and John, Andrew, Jr., 3,546,288.
Johnson, Arthur L., Jr., and Dodge, Marlow W., to Johnson Enterprises, Inc. Tap assembly. 3,545,475, Cl. 137-212.
Johnson, Calvin Keith, and Armbruster, David Ray, to CPC International Inc. Ethylene urea terminated phenolic resins. 3,546,172, Cl. 260-51.5
Johnson Enterprises, Inc.: *See—*
Johnson, Arthur L., Jr., and Dodge, Marlow W., 3,545,475.
Johnson, Ewing Alfred, to Electric Control Systems, Inc. Roll heater device. 3,546,433, Cl. 219-469.
Johnson Gage Company, The: *See—*
Johnson, Lowell C., 3,545,088.
Johnson, Gary R.: *See—*
Kammerer, Archer W., Jr., and Johnson, Gary R., 3,545,543.
Kammerer, Archer W., Jr., Johnson, Gary R., and Sampson, Alan C., 3,545,553.
Johnson, Herbert G., to Shell Oil Company. Forming thermoplastic articles. 3,546,221, Cl. 264-249.
Johnson, Kenneth R., and Lense, Robert F., to Riegel Paper Corporation. Method and machine for forming and filling bags. 3,545,166, Cl. 53-29.
Johnson, Lowell C., to Johnson Gage Company, The. Gage setting device. 3,545,088, Cl. 33-174.
Johnson, Marvin M., and Stapp, Paul R., to Phillips Petroleum Company. Metal working operations and lubricants. 3,546,118, Cl. 252-54.
Johnson, Raymond E.: *See—*
Gutmann, William R., and Johnson, Raymond E., 3,546,140.
Johnson, Robert R., and Alford, Ezra Dempsey, to Brown & Williamson Tobacco Corporation. Tobacco product including releasable flavorant. 3,545,450, Cl. 131-17.
Johnson, Robert R., and Alford, Ezra Dempsey, to Brown & Williamson Tobacco Corporation. Tobacco product including releasable flavorant. 3,545,452, Cl. 131-17.
Johnston, Donald L.: *See—*
Dryden, Vernon W., and Johnston, Donald L., 3,545,934.
Johnston, John A., to Cargill, Incorporated. Method and apparatus for analyzing a particulate material. 3,545,281, Cl. 73-432.
Jones, Cordis W., to Hastings Dynamold Corporation. Slab planer apparatus and method. 3,545,140, Cl. 51-170.
Jones, Dewi M.: *See—*
Lodge, Reginald M., and Jones, Dewi M., 3,546,328.
Jones, Garth Sanford: *See—*
Barkman, Erik F., Coates, Harold J., and Jones, Garth Sanford, 3,546,088.
Jones, George Curtis. Body dent removing apparatus. 3,545,250, Cl. 72-705.
Jones, Giffin D., and Roth, Harold H., to Dow Chemical Company, The. Method for setting hair. 3,546,336, Cl. 424-71.
Jones, Glenn C.: *See—*
Caldwell, John R., and Jones, Glenn C., 3,546,180.
Jones, John F.: *See—*
Burns, Eugene A., Jones, John F., Lubowitz, Hyman R., and Spraul, Joseph R., 3,546,041.
Jones, William A., and Swaner, Robert R. Endless track attachment for motorcycles. 3,545,559, Cl. 180-5.
Jonnatti, Anthony J.: *See—*
Helmrichs, Frank W., Jr., Toothman, Lawrence R., Honey, Charles C., and Jonnatti, Anthony J., 3,546,646.
Jordan, John D., to General Electric Company. Self-oscillating sweep circuit having a ringing circuit connected in series with a feedback winding. 3,546,630, Cl. 331-147.
Jordan, Wade H., Jr.: *See—*
Busch, Daryle H., and Jordan, Wade H., Jr., 3,546,022.
Jorgensen, Jorgen L., to Proctor & Gambie Company, The. Method of cleaning printing surfaces after printing soft tissue paper. 3,545,381, Cl. 101-425.
Jorgensen, Paul J.: *See—*
Charles, Richard J., and Jorgensen, Paul J., 3,545,639.
Jorss, Norbert: *See—*
Dullinger, Karl, and Jorss, Norbert, 3,546,048.
Judd, Tyler W., to Republic Steel Corporation. Signal generating apparatus and method. 3,545,258, Cl. 73-67.9
Jump, William L., and Quanstrom, Jack L., to International Business Machines Corporation. Multi-phase power failure detection circuit. 3,546,537, Cl. 317-31.
Jung, Adam: *See—*
Bach, Franz, and Jung, Adam, 3,545,153.
Junkert, Kenneth G., and Ne Smith, Woodrow W., to Northrop Corporation. Apparatus for electrically scanning instrument dials. 3,546,470, Cl. 250-219.
Justus, Paul E.: *See—*
Korn, Traugott A., and Justus, Paul E., 3,546,681.
JWI Limited: *See—*
Hodgson, John B., 3,545,705.
Kabelka, Peter J., and Lozano, Luis J., to Anaconda American Brass Company. Proximity yoke apparatus. 3,545,244, Cl. 72-200.
Kabushiki Kaisha Hattori Tokeiten: *See—*
Kitai, Kiyoshi, 3,545,362.
Kabushiki Kaisha Ricoh: *See—*
Koizumi, Yutaka, 3,545,857.
Kabushiki Kaisha Yaskawa Denki Seisakusho: *See—*
Oshima, Goro, Hirata, Hiroshi, and Tokunaga, Kenichiro, 3,545,688.
Kado, Masaru: *See—*
Asahara, Teruzo, Hirano, Jiro, and Kado, Masaru, 3,546,345.
Kahre, Le Roy C., and Hiskell, Donald M. Phillips Petroleum Company Method for separating and recovering ammoniz from waste water containing phenol. 3,546,078, Cl. 203-42.
Kaiser Aluminum & Chemical Corporation: *See—*
Christian, Daniel T., Look, Melvin, Nobell, Albert, and Armstrong, Thomas S., 3,546,199.
Kaiser, Carl, and Zirkle, Charles L., to Smith Kline & French Laboratories. Substituted 9,10-dihydrospiro[cyclopropane-1,10-anthracene] derivatives. 3,546,228, Cl. 260-293.
Kaiser, Carl, and Zirkle, Charles L., to Smith Kline & French Laboratories. 3-Phenyl-8-thianaphthenylalkyl derivatives of nortropine and nortropidine. 3,546,232, Cl. 260-292.
Kaiser, Carl, and Zirkle, Charles L., to Smith Kline & French Laboratories. 1-(Benzoheterocyclic cyclopropylmethyl)-4-phenyl- 1,2,5,6-tetrahydropyridines. 3,546,236, Cl. 260-294.8
Kalart Company Inc., The: *See—*
MacQueston, Dexter H., 3,546,046.
Kalert, Ralph E., Jr., to ACF Industries, Incorporated. Fuel pump diaphragm leakage indicator. 3,546,690, Cl. 340-242.
Kallrath, Gottfried: *See—*
Knorre, Helmut, Meyer-Simon, Eugen, Kallrath, Gottfried, and Biegler, Hanns, 3,546,011.
Kalopissis, Gregoire: *See—*
Roussopoulos, Paul, and Kalopissis, Gregoire, 3,546,444.
Kalopissis, Gregoire, to L'Oreal. 2,5-Dihydroxy-monomethyl-or-diethyl-amino benzene and the salts thereof. 3,546,294, Cl. 260-574.
Kalopissis, Gregoire, Bertrand, Jack, and Bugaut, Andree, to Societe Anonyme dite: L'Oreal. 1,4-Diamino-5-(p-amino phenyl) amino anthraquinones, the acid addition and quaternary ammonium salts thereof. 3,546,258, Cl. 260-378.
Kalopissis, Gregoire, and Bugaut, Andree. Societe Anonyme dite: L'Oreal Amino phenols. 3,546,293, Cl. 260-574.
Kaltenbach & Voight.: *See—*
Hoffmeister, Erich, 3,545,084.
Kaltschmidt, Horst, to Bolkow Gesellschaft mit beschrankter Haftung. Device for angular adjustment of the directional characteristic of an antenna installation. 3,546,698, Cl. 343-16.
Kammerer, Archer W., Jr., and Johnson, Gary R., to Rotary Oil Tool Company. Casing apparatus and method for tensioning casing strings. 3,545,543, Cl. 166-212.
Kammerer, Archer W., Jr., Johnson, Gary R., and Sampson, Alan C., to Rotary Oil Tool Company. Retrievable well drilling apparatus. 3,545,553, Cl. 175-258.
Kampfer, Helmut, Hase, Marie, von Rintelen, Harald, and Riester, Oskar, to Agfa-Gevaert Aktiengesellschaft. Optically sensitized light-sensitive material. 3,545,975, Cl. 96-102.
Kandler, Joachim: *See—*
Dany, Franz-Josef, Kandler, Joachim, Frank, Klaus, and Weiden, Hans, 3,546,160.
Kane, James Merel, to Tremco Manufacturing Company, The. Apparatus for heating caulking materials. 3,546,430, Cl. 219-316.
Kanofsky, Jeffrey R.: *See—*
Cannalte, Gary A., and Kanofsky, Jeffrey R., 3,546,674.

Kaplan, Reuben A., and Boers, Jan H., to Owatonna Tool Company. Load handling device. 3,545,629, Cl. 214-1.
Karikawa, Toru, to Asahi Kogaku Kogyo Kabushiki Kaisha. Televising and photographing apparatus. 3,546,378, Cl. 178-7.1
Karle, Dennis W.: *See—*
Washburn, Robert M., and Karle, Dennis W.,3,546,141.
Karpus, Alan F.: *See—*
Dikin, Gary L., and Karpus, Alan F.,3,545,425.
Kartridg Pak Co., The: *See—*
Leonard, George E., 3,545,170.
Kaser, Walter: *See—*
Bobst, Gerhard, and Kaser, Walter,3,545,340.
Katagiri, Kiyoshi: *See—*
Nakatani, Hiromi, and Katagiri, Kiyoshi,3,545,982.
Katagiri, Yoshiharu: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu,3,546,516.
Kato, Hiroshi: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi,3,545,519.
Katsaros, Constantine, and Martin, William Calvin, to Morton International, Inc. Systemic plant and seed fungicide comprising 1,1,1-trichloro-2-hydroxy-3-nitropropane. 3,546,346, Cl. 424-343.
Kauer, James C,, to Du Pont de Nemours, E. I., and Company. Bicyclo[2.2.2]octane-1-amines and bicyclo- [2.2.2]octane-1-methylamines. 3,546,290, Cl. 260-563.
Kaufman, Phillip A.: *See—*
Ciccarelli, William E., and Kaufman, Phillip A.,3,546,359.
Kaufman Window and Door Corporation: *See—*
Noecker, Marshall V., 3,545,521.
Kaul, Oliver W.: *See—*
Hiatt, Gordon D., and Kaul, Oliver W.,3,545,946.
Kauppila, James E., to General Motors Corporation. Variable capacitance direct current regulator circuit. 3,546,493, Cl. 307-304.
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi, to Maruzen Oil Company, Ltd., and Kimura Kakoki Co. Process for apparatus for the treatment of waste sulfuric acid. 3,545,519, Cl. 159-17.
Kaye, Denis: *See—*
Hadley, Herbert Roy, and Kaye, Denis,3,545,263.
Kay-Fries Chemicals, Inc.: *See—*
Kesslin, George, Orlando, Charles M., and Blohm, Herbert W., 3,546,188.
Kearns, William J., to Xerox Corporation. Disposable reaction container for an automatic chemical analyzer. 3,545,935, Cl. 23-253.
Keck, Zack R.: *See—*
Bradley, Woody, and Keck, Zack R.,3,545,561.
Keenan, John D., Jr.: *See—*
Sylvester, John D., and Keenan, John D., Jr.,3,545,347.
Keene, Robert J., to United States Steel Corporation. Apparatus for maintaining a special atmosphere above a casting mold. 3,545,529, Cl. 164-259.
Keller, George H., to Becton, Dickinson and Company. Self-contained packaged needle assembly. 3,545,607, Cl. 206-63.2
Keller, Gregory H. Stick assortment gathering machine. 3,545,589, Cl. 198-26.
Keller, Max: *See—*
Gartner, Gustav, Keller, Max, and Zehender, Ernst,3,546,010.
Kelley, Benjamin F. Combined grapple and back-up tong. 3,545,313, Cl. 81-57.34
Kelly, Leonard, Hutter, James F., and Mounce, George R., to Sphere Investments Limited. Photometric sorting apparatus. 3,545,610, Cl. 209-73.
Kennard, Edward, to Columbus McKinnon Corporation. Safety hook. 3,545,051, Cl. 24-241.
Kennedy, Frederick G.: *See—*
Reid, Lee R., Shortes, Samuel R., and Kennedy, Frederick G.,3,546,003.
Kennedy, George E., to United States Steel Corporation. Method and apparatus for controlling flatness of rolled strip. 3,545,239, Cl. 72-10.
Kennedy, Joe Bartlett, and Edmonds, Thomas Rhys, to Conductron Corporation. Accelerometer. 3,545,282, Cl. 73-514.
Kennedy, John E., Jr., and Riehl, Tilford F., Jr., to Brown & Williamson Tobacco Corporation. Flavorant for tobacco products. 3,545,451, Cl. 131-17.
Kennelly, Jeremiah D., to Mars Signal Light Company. Flashing emergency signal light. 3,546,669, Cl. 340-84.
Kent, Bryan P., to Borg-Warner Corporation. Sprag assembly for one-way clutches. 3,545,581, Cl. 192-45.1
Kent, Francis J., to Baldwin-Lima-Hamilton Corporation. Billet for extrusion and method of lubricating the same. 3,545,240, Cl. 72-41.
Kent-Tieghi S.p.A.: *See—*
Bianchi, Gianfranco, and Marucci, Luigi, 3,545,277.
Kerma Corporation: *See—*
Schaper, Donald W., 3,545,531.
Kerr, John N. Ceramic-plastic radome. 3,545,146, Cl. 52-80.
Kershaw, William R.: *See—*
Swett, James B., and Kershaw, William R.,3,545,798.
Kerwin, William J.: *See—*
Harrison, Dean R., and Kerwin, William J.,3,545,275.
Kerwood, Joseph Edward: *See—*
Coran, Aubert Yaucher, and Kerwood, Joseph Edward,3,546,185.
Kerzel, Horst: *See—*
Eichholz, Gunter, and Kerzel, Horst,3,545,098.
Kessler, Bernard V.: *See—*
Erickson, Alen M., and Kessler, Bernard V.,3,546,620.
Kesslin, George, Orlando, Charles M., and Blohm, Herbert W., to Kay-Fries Chemicals, Inc. Degraded vinyl chloride resins decolorized with trialkylorthoformates. 3,546,188, Cl. 260-86.3
Ketter, Richard P.: *See—*
Aubrey, William M., Ketter, Richard P., and Dominguez, Ezekiel C.,3,545,957.
Keystone Consolidated Industries, Inc.: *See—*
Anderson, Ralph F., and Henson, Richard C., 3,545,810.
Ellis, Leslie M., 3,545,712.
Kezran, Mitchell. Interchangeable insert and holder assembly. 3,545,060, Cl. 29-96.
Kibler, Charles J., and Voigt, Frederick W., Jr., to Eastman Kodak Company. Polyesters containing sterically hindered trialkyl phosphates. 3,546,177, Cl. 260-75.
Kienzle Apparate GmbH: *See—*
Hummel, Dietmar, and Haupt, Wilhelm, 3,545,649.
Kiikka, Oliver A., to Standard Oil Company, The. Process for preparation of acrylamide. 3,546,289, Cl. 260-561.
Kilgour, Gilbert Innes: *See—*
Ziegler, George Edward, and Kilgour, Gilbert Innes,3,545,236.
Killam, Harry R., to American Standard Inc. Fan blade securements. 3,545,885, Cl. 416-207.
Killebrew, Inc.: *See—*
Hill, Max E., Fjeldstad, Dean A., and Schmitt, Jerome E., 3,545,752.
Kimball, James L., to Cohu Electronics, Inc. Luminance corrector for color encoder. 3,546,370, Cl. 178-5.4
Kimberly-Clark Corporation: *See—*
Ostermeier, Kurt W., 3,546,065.
Thomas, Gordon D., 3,546,056.
Kimmen, Edward, to Stitson Corporation. Conveyor cushion roller. 3,545,582, Cl. 193-37.
Kimura Kakoki Co.: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi, 3,545,519.
Kimura, Keiichi. Condensing unit. 3,545,229, Cl. 62-508.
Kimura, Michiko: *See—*
Yoshinaga, Fumihiro, Kimura, Michiko, Shibuya, Masao, and Okumura, Shinji,3,546,070.
King, Georg e J., and Kirabinos, Joseph V., to Ansul Company, The, mesne. Certain 2-[(pyridyl-3-thiocarbomoyl)-1,3- axazolidines]. 3,546,231, Cl. 260-294.8
King Radio Corporation: *See—*
Aker, John L., 3,546,697.
King, Wilson T., to North American Rockwell Corporation. Method for aligning a navigation system. 3,545,092, Cl. 33-226.
Kingsford-Smith, Charles A.: *See—*
McIlraith, Terry E., and Kingsford-Smith, Charles A.,3,545,265.
Kingsley, George P.: *See—*
McNulty, John V., 3,545,422.
Kinkade, Louis G., and Kinkade, Sharon A. Envelope construction. 3,545,669, Cl. 229-73.
Kinkade, Sharon A.: *See—*
Kinkade, Louis G., and Kinkade, Sharon A.,3,545,669.
Kinner, Hans-Dieter, to North East Fluidics, Inc. Mechanical fluidic switch. 3,545,487, Cl. 137-556.
Kinyon, Brice W., to Combustion Engineering, Inc. Molten salt operated generator-superheater using floating head design. 3,545,412, Cl. 122-34.
Kio Soap Co., Ltd.: *See—*
Hattori, Kenichi, Dehara, Masataka, and Sugimoto, Katuo, 3,545,995.
Kirabinos, Joseph V.: *See—*
King, Georg e J., and Kirabinos, Joseph V.,3,546,231.
Kircher, Paul J., to Westinghouse Electric Corporation. Dual motion toothbrush. 3,546,501, Cl. 310-50.
Kirchmayr, Rudolf, Peterli, Hans Jakob, and Heller, Hansjorg, to Geigy Chemical Corporation. Bis-methylene malonic acid nitriles. 3,546,270, Cl. 260-465.
Kirkpatrick, John W., to General Motors Corporation. Pressure transfer device. 3,545,571, Cl. 184-6.
Kisinko, Paul M.: *See—*
Riel, Robert K., Tarneja, Krishan S., Ernick, Frederick G., and Kisinko, Paul M.,3,546,542.
Kitai, Kiyoshi, to Kabushiki Kaisha Hattori Tokeiten. Automatic exposure control device in the flash light photography. 3,545,362, Cl. 95-64.
Kittrell, James R., to Chevron Research Company. Catalyst body consisting of physical mixture of different catalysts. 3,546,095, Cl. 208-60.
Kittrell, James R., to Chevron Research Company. Hydrocarbon conversion catalyst and process. 3,546,096, Cl. 208-60.
Kjaer, Ian, and Neuber, Dieter, to Arenco Aktiebolag. Device in a machine for producing cigar bunches or cigars. 3,545,454, Cl.
Klancnik, Adolph V. Machine tools. 3,545,019, Cl. 10-107.
Klang, Daniel M., to Potter Instrument Company, Inc. Reel servo system. 3,545,700, Cl. 242-55.12
Klanica, Andrew J.: *See—*
Faust, John P., Jache, Albert W., and Klanica, Andrew J.,3,545,924.

Kleer-Vu Industries, Inc.: *See—*
Goldberg, George; and Mascolo, Benjamin R., 3,546,053.
Klein, George: *See—*
Klein, Stephen, and Klein, George,3,545,981.
Klein, Stephen, and Klein, George, to Barton's Candy Corporation. Method of making candy. 3,545,981, Cl. 99-138.
Kleinhagauer, Otmar: *See—*
Swoboda, Karl, and Kleinhagauer, Otmar,3,546,349.
Klink, Jerome P., Belue, James C., and Sears, James H., to Owens-Corning Fiberglass Corporation. Apparatus for packaging strand material. 3,545,699, Cl. 242-153.
Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Eichholz, Gunter, and Kerzel, Horst, 3,545,098.
Klopfer, Anton Martin, and Flunkert, Horst, to U.S. Philips Corporation, mesne. Square cathode for ion getter pumps. 3,546,510, Cl. 313-7.
Kluth, Charles S.: *See—*
Smith, Melvin W., and Kluth, Charles S.,3,545,812.
KMS Industries, Inc.: *See—*
Brooks, Howard A., and Curtz, Thaddeus B., 3,545,761.
Knapp, Edward J.: *See—*
Farnsworth, Robert P., and Knapp, Edward J.,3,545,861.
Knapsack Aktiengesellschaft: *See—*
Dany, Franz-Josef, Kandler, Joachim, Frank, Klaus, and Weiden, Hans, 3,546,160.
Knauer, Wolfgang: *See—*
Cover, John H., Jr., Knauer, Wolfgang, and Maurer, Hans A.,3,546,706.
Knieriem, Herman, Jr.: *See—*
Hittel, George T., and Knieriem, Herman, Jr.,3,546,018.
Knight, Allan R.: *See—*
Mc Intyre, John S., and Knight, Allan R.,3,546,213.
Knippenberg, Wilhelmus Franciscus: *See—*
Basart, Johan Charles Marie, Knippenberg, Wilhelmus Franciscus, and Verspui, Gerrit,3,546,032.
Knipple, Warren R.: *See—*
Callahan, James L., Grasselli, Robert K., and Knipple, Warren R.,3,546,138.
Knohl, Friedrich Karl, to Illinois Tool Works Inc. Concrete insert. 3,545,152, Cl. 52-367.
Knoke, Jurgen: *See—*
Schachowskoy, Theodor, and Knoke, Jurgen,3,546,004.
Knoll AG. Chemische Fabriken: *See—*
Steidle, Walter, 3,546,208.
Knorre, Helmut, Meyer-Simon, Eugen, Kallrath, Gottfried, and Biegler, Hanns, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of electricity conducting surfaces on a non-conducting support. 3,546,011, Cl. 117-212.
Knowles, William Ralph: *See—*
Pullum, Geoffrey George, and Knowles, William Ralph,3,546,683.
Kobayashi, Yoshio, to Terasaki Denki Sangyo Kabushiki Kaisha. Detachably locking device for circuit interrupter. 3,546,411, Cl. 200-168.
Kobnick, Werner. Compressor governor. 3,545,887, Cl. 417-307.
Kobus, Stanislas, and Salle, Adelin Eugene Gaston, to International Standard Electric Corporation. Line scanning system with stored program control. 3,546,388, Cl. 179-18.
Koch, Theodore Augur, and Eleuterio, Herbert Sousa, to Du Pont de Nemours, E. I., and Company. Trimerization of butadiene. 3,546,309, Cl. 260-666.
Koehler-Dayton, Inc.: *See—*
Helke, Robert C., Van Gilder, Charles E., and Miller, Merlin S., 3,545,011.
Koerner, Harry E.: *See—*
Fekete, Nicholas G., and Koerner, Harry E.,3,546,463.
Kohlmann, Hans. Process and apparatus for concentrating and drying sludge. 3,545,518, Cl. 159-2.
Koizumi, Yutaka, to Kabushiki Kaisha Ricoh. Variable magnification exposure device for a reproduction apparatus. 3,545,857, Cl. 355-57.
Koljonen, Vilho: *See—*
Marchant, Joseph R., and Koljonen, Vilho,3,546,445.
Koll, Robert E.: *See—*
Downing, William C., Jr., and Koll, Robert E.,3,546,565.
Koller, Walter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the catalytic polycondensation of bis- hydroxyalkyl esters of dicarboxylic acids. 3,546,179, Cl. 260-75.
Kollmorgen Corporation: *See—*
Schneble, Frederick W., Jr., Leech, Edward John, and McCormack, John Francis, 3,546,009.
Koninklijke Industrieele Maatschappij Noury & van der Lande N.V.: *See—*
Gerritsen, Hans G., and Schroeder, Arnold, 3,546,249.
Konotchick, John A., Jr., to Sanders Associates, Inc. Apparatus for separating signals having a common pulse repetition frequency. 3,546,599, Cl. 328-105.
Kopke, Gunter, Denz, Alfons, Grau, Eckehardt, and Strasser, Erwin, to Schmidt, Karl, GmbH. Journal bearing. 3,545,831, Cl. 308-239.
Koppers Company, Inc.: *See—*
Ciochetto, Joseph J., 3,545,530.
Dressler, Hans, and Reabe, Kenneth G., 3,546,280.
Greg, Victor V., and Cain, George R., 3,545,618.
Medney, Jonas, 3,545,698.
Medney, Jonas, 3,546,000.
Schulte, Elwood V., 3,545,683.
Snader, Earle S., 3,545,365.
Tucker, Linwood G., 3,546,027.
Whiteacre, Robert W., 3rd, 3,546,092.
Zimmermann, Robert E., 3,545,736.
Korb, Donald R., and Shurtleff, Harold R., said Shurtleff assor. to said Korb. Contact lens handling apparatus. 3,545,458, Cl. 134-86.
Korecky, Allan J., to Barmatic Machines, Inc. Ball joint with plastic seat. 3,545,797, Cl. 287-87.
Korn, Traugott A., and Justus, Paul E., to RCA Corporation. Programmed method for manipulating electronic fonts in electronic photocomposition systems. 3,546,681, Cl. 340-172.5
Korrenn, Heinrich, to Kugelfischer Georg Schafer & Co. Plain bearing. 3,545,828, Cl. 308-160.
Korth, Henry: *See—*
Tramposch, Herbert, and Korth, Henry,3,545,556.
Kosak, John Richard, to Du Pont de Nemours, E. I., and Company. Process for preparation of aromatic chloroamines. 3,546,297, Cl. 260-580.
Kosem, Marion, to Allen-Bradley Company, mesne. Digital fine and coarse control wherein the command and position feedback are compared in serial fashion. 3,546,559, Cl. 318-18.
Koski, William L.: *See—*
Swenson, Emil S., and Koski, William L.,3,545,221.
Swenson, Emil S., and Koski, William L.,3,545,225.
Kosmala, James M.: *See—*
Papero, Patrick V., Kosmala, James M., and Moore, Maurice S.,3,545,911.
Koss, Valery Alexandrovich: *See—*
Bykhovsky, David Grigorievich, Medvedev, Alexandr Yakovlevich, Rossomakho, Yakov Vulfovich, and Koss, Valery Alexandrovich,3,546,422.
Kossar, Freddie, to Vitramon Incorporated. Method of making multilayer circuit system. 3,545,079, Cl. 29-626.
Kostas, James M., to Caterpillar Tractor Company. Hydraulic motor with coupling control valve. 3,545,579, Cl. 192-3.
Kostick, John M., to Omniversal Design. Symmetrical non-cartesian multiple-axis joining of geams. 3,546,049, Cl. 161-7.
Koszman, Ihor, to Esso Research and Engineering Company. Prevention of coke formation in steam cracking processes, 3,546,316, Cl. 260-683.
Kotos, Peter, to General Electric Company. Overexcitation relay. 3,546,534, Cl. 317-14.
Kozak, Donald S.: *See—*
Mc Clellan, Melvin L., and Kozak, Donald S.,3,545,960.
Kraayenhof, Hans: *See—*
Urbach, Otto R., and Kraayenhof, Hans,3,545,587.
Kraemer, Stefan, and Seidl, Alois, to Wasag-Chemie Aktiengesellschift. Molded building blocks of different foamed glass layers and process for making same. 3,546,061, Cl. 161-159.
Kraft, Paul: *See—*
Hwa, Jesse C. H., Kraft, Paul, and Gelman, Sheldon F.,3,546,154.
Kraftco Corporation: *See—*
Guth, Jules H., and Tumerman, Leon, 3,546,206.
Kralt, Teunis: *See—*
Haeck, Hans Heinz, and Kralt, Teunis,3,546,281.
Kramer, Josef, Irmscher, Klaus, Halpaap, Herbert, and Freisberg, Karl-Otto. Merck E., A.G. 6-Hydroxy-7-methoxy flavane derivatives and esters thereof. 3,546,250, Cl. 260-340.5
Krapf, Rudolf: *See—*
Gross, Franz, and Krapf, Rudolf,3,546,496.
Krasne, Lawrence B. Dental application of special teflon tubing for masking and cushioning metal clasps and orthodontic wires. 3,545,083, Cl. 32-5.
Krause, Charles Edgar, to United States of America, Atomic Energy Commission, mesne. Position detecting system and method utilizing pulsed penetrating radiation. 3,546,458, Cl. 250-83.3
Kraushofer, Otto, to Pfaff, G. M., AG. Gathering template for use in apparel manufacture. 3,545,655, Cl. 223-35.
Krenz, Richard W. Combination tackle box and chair. 3,545,809, Cl. 297-217.
Krieger, Bernard L. Method and means of stringing beads. 3,545,069, Cl. 29-433.
Krikorian, George. Wire shelving and baskets having snap-in surface forming members. 3,545,624, Cl. 211-126.
Krischker, Joseph, to Blessing-Werke KG. Electrical and mechanical alarm clocks with pulse- controlled position lamp. 3,545,195, Cl. 58-19.
Kroger, Bruce G.: *See—*
Lichtenstein, Bernard, and Kroger, Bruce G.,3,545,260.
Kronseder, Hermann: *See—*
Dullinger, Karl, 3,546,047.
Dullinger, Karl, and Jorss, Norbert, 3,546,048.
Krueger, Wilbur W.: *See—*
Ware, Franklyn O., Soukup, Charles L., and Krueger, Wilbur W.,3,546,066.
Kruger, Helmut: *See—*
Jentzsch, Dietrich, Henker, Kurt, and Kruger, Helmut,3,545,279.
Jentzsch, Dietrich, Kruger, Helmut, and Rohl, Horst,3,545,936.
Krupp, Fried., Gesellschaft mit beschrankter Haftung: *See—*
Ziehm, Gunter Hans, and Triebold, Karl-Friedrich, 3,546,666.
Kubo, Takao, and Murai, Katsuji, to Hitachi, Ltd. System for separating steam power plant from large electric power system. 3,546,475, Cl. 307-85.

Kucera, Alois, and Hlavon, Vilem Brno, to Elitex Zavody Textilniho Strojirenstvi Generalni Reditelstvi. Method and apparatus for sewing angular seams. 3,545,390, Cl. 112-164.

Kuehn, John P.: *See—*
Stanton, Walter O., and Kuehn, John P.,3,546,399.

Kugelfischer Georg Schafer & Co.: *See—*
Korrenn, Heinrich,3,545,828.

Kugler Fonderie et Robinetterie S.A.: *See—*
Moia, Armand, 3,545,473.

Kumiai Chemical Industries Co., Ltd.: *See—*
Asahara, Teruzo, Hirano, Jiro, and Kado, Masaru, 3,546,345.

Kumins, Charles A.: *See—*
Giannone, Charles, Kumins, Charles A., Schwacke, Frederick H., Jr., and Egitto, John L.,3,546,001.

Kunstmann, Martin Paul: *See—*
Evans, Ralph Henry, Jr., Kunstmann, Martin Paul, Holmlund, Chester Eric, and Ellestad, George Alfred,3,546,073.

Kuntze, Karl-Heinz: *See—*
Liepold, Adolf, and Kuntze, Karl-Heinz,3,545,184.

Kunzle, Franz Martin: *See—*
Schmutz, Jean, Hunziker, Fritz, and Kunzle, Franz Martin,3,546,226.

Kupcikevicius, Vytautas: *See—*
Myles, Michael J., Kupcikevicius, Vytautas, and Spellman, John P.,3,545,038.

Kurth, Carl F., to Bell Telephone Laboratories, Incorporated. Phase locked loop bilateral transmission system including auxiliary automatic phase control. 3,546,701, Cl. 343-179.

Kurth, Carl F., to Bell Telephone Laboratories, Incorporated. Phase locked loop bilateral transmission system including automatic gain control. 3,546,702, Cl. 343-179.

Kurth, Carl F., to Bell Telephone Laboratories, Incorporated. Digital phase locked loop bilateral transmission system including auxiliary automatic phase control. 3,546,703, Cl. 343-179.

Kurti, Alexander: *See—*
Batt, Richard W., Goldberg, Perry, Kurti, Alexander, and Segalman, Irwin,3,545,202.

Kurtz, Leonard D.: *See—*
Mishkin, Sidney, Bidwell, Robert E., Kurtz, Leonard D., and Hallstein, Edward J.,3,545,440.

Kurz, Rainer, to Laboratorium Dr. Berthold. Radiation monitoring system utilizing pseudo- coincidence techniques. 3,546,457, Cl. 250-83.3

Kuwano, Ken: *See—*
Hirono, Koyu, and Kuwano, Ken,3,546,329.

Kuwata, Tsutomu, Oguchi, Yutaka, and Nomura, Hirotsugu, to Nippon Oil Company Ltd. Hydrodesulfurization of petroleum hydrocarbons containing asphaltenes. 3,546,104, Cl. 208-216.

Kwok, Clyde C. K., and Sharp, George H., to Aviation Electric Limited. Fluidic system trimmable elements. 3,545,467, Cl. 137-81.5

Kyowa Hakko Kogyo Kabushiki Kaisha: *See—*
Hirano, Kinya, and Sejima, Tsuneo, 3,545,953.
Fujimoto, Yasuo, and Tanaka, Masao, 3,546,171.

Kyowa Hikko Kogyo Kabushiki Kaisha: *See—*
Araki, Kazumi, Ueda, Hiroyuki, and Ikumo, Masahiko, 3,546,072.

Laboratoires Chibret: *See—*
Chibret, Jean Henry Francois, 3,546,337.

Laboratorium Dr. Berthold: *See—*
Kurz, Rainer, 3,546,457.

Lacoste, Gerard H., to Societe Herwaythorn S.A. Motor vehicle gearboxes. 3,545,568, Cl. 184-6.

La Croix, Henry N., to Foster Wheeler Corporation. Decanter inlet distributor. 3,545,646, Cl. 220-86.

LaCroix, Lucien J.: *See—*
Schreiber, Kurt, and LaCroix, Lucien J.,3,545,129.

Lacroix Philippe: *See—*
Vergne, Jean, Solaux, Leon, Robinet, Jean-Claude, and Lacroix Philippe,3,546,183.

Laffitte, Paul: *See—*
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph,3,545,906.

La Fontaine, Allyn L., and Chrzan, Edward J., to General Hardwood Company, mesne. Lawn edging. 3,545,128, Cl. 47-33.

Lahl, William J.: *See—*
Douros, John D., Jr., Naslund, Lars A., and Lahl, William J.,3,546,071.

Laing, Graham S., and Coumans, Harry M., to Northern Electric Company Limited. Shock dissipating telephone instrument. 3,546,397, Cl. 179-100.

Lally, Kenneth P., to Hartman Systems Co., Inc., mesne. Non-reciprocal radiation filter device having fluorescent material for wavelength conversion. 3,546,460, Cl. 250-86.

Lamb, Charles F.: *See—*
Walmsley, Joseph, and Lamb, Charles F.,3,545,029.

Lamb, George E. R.: *See—*
Prevorsek, Dusan C., and Lamb, George E. R.,3,546,319.

Lamort, Jean P., to Etablissements E. & M. Lamort Fils. Apparatus for purifying liquids carrying suspended solid particles, chiefly pulp for paper mills. 3,545,621, Cl. 210-298.

Lamprey, Richard V., and Otto, Karl J. Torsional energy absorption device. 3,545,737, Cl. 267-1.

Lang, David W.: *See—*
Stillman, Donald W., and Lang, David W.,3,545,066.

Langdon, Harmon: *See—*
Shultz, Walter, and Langdon, Harmon,3,545,317.

Lanham, Charles W., Jr.: *See—*
Fishman, Stanley D., and Lanham, Charles W., Jr.,3,545,100.

La Pierre, Raymond J., to Merck & Co., Inc. Complexes of 2-substituted benzimidazoles and bis-halogenated phenols in anthelmintic compositions and methods. 3,546,341, Cl. 424-270.

Larkin, Artemas M.: *See—*
Thompson, Verne P., Gardella, Stephen L., Jr., and Larkin, Artemas M.,3,545,237.

Larson, John C.: *See—*
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F.,3,545,890.

Larson, Lewis G., to Phillips Petroleum Company. Conversion of olefins. 3,546,314, Cl. 260-683.

Larson, William C., to Holley Carburetor Company. In-line valving assembly. 3,545,486, Cl. 137-554.

Larys, Bohumir A.: *See—*
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F.,3,545,890.

La Trique Brassiere Company, Inc.: *See—*
Freedman, Murray, Vale, Arthur E., and Vale, Peter R., 3,545,445.

Laurie, Veldon E., to Miner Company, The. Walking-cast protecting boot. 3,545,104, Cl. 36-7.3

Laville, Andre Henri, and Maillard, Francis Henri Marie Joseph, to Sub-Aviation Societe Nationale de Constructions Aeronautiques. Control system for a hybrid helicopter-autogyro of the jet lift and propulsion type, and controls therefor. 3,545,702, Cl. 244-17.19

Lavine, Morris: *See—*
Davis, Glenn G., and Dahlin, Robert W., 3,545,790.

Law, Malcolm J., to Permalite Chemicals, Ltd. Nickel electroplating electrolyte. 3,546,081, Cl. 204-49.

Lawler, Barry L., to Ramsey Engineering Company. Optimising apparatus. 3,546,558, Cl. 318-561.

Lawler, Francis J. Packaging system for merchandise receiving containers of various volumes. 3,545,167, Cl. 53-29.

Lawrence, Garth D.: *See—*
Foerster, Geroge S., and Lawrence, Garth D.,3,545,074.

Leach, Pembroke O., Jackson, William P., and Camp, Vernon W., to Combustion Engineering, Inc. Method for welding longitudinal lobes or fins to tubes. 3,546,426, Cl. 219-137.

Lear Siegler, Inc.: *See—*
Eisenstadt, David L., 3,546,532.
Tippetts, Earl LeVell, 3,546,560.

Leary, David E.: *See—*
Marzocchi, Alfred, and Leary, David E.,3,545,293.

Leboutet, Alain: *See—*
Friconneau, Claude, and Leboutet, Alain,3,546,087.

Ledger, Howard Roberts, and Clayton, Ronald, to English Electric Computers Limited. Document transfer devices. 3,545,746, Cl. 271-83.

Leech, Edward John: *See—*
Schneble, Frederick W., Jr., Leech, Edward John, and McCormack, John Francis,3,546,009.

Leecraft Manufacturing Company, Inc.: *See—*
Sanchez, Gil C., 3,546,446.

Leeds & Northrup Company: *See—*
Barber, Justus C., and Jenkins, Theron W., Jr., 3,545,207.

Leeson, Lewis Joseph, Nash, Robert Arnold, and Ritter, Lawrence, to American Cyanamid Company. Stable dimethyl sulfoxide solutions of tetracycline antibiotics for parenteral use. 3,546,339, Cl. 424-227.

LeGall, Alain Pierre: *See—*
Cagnac, Therese Marie Leonie, LeGall, Alain Pierre, and Yelloz, Raphael Guy,3,546,682.

Legler, Frank C., and Legler, James L: Talking speedometer. 3,546,668, Cl. 340-62.

Legler, James L.: *See—*
Legler, Frank C., and Legler, James L.,3,546,668.

Lehmkuhl, Robert A., to Carlton Machine Tool Company, The. Spindle clamp. 3,545,335, Cl. 90-11.

Lehovec, Kurt, to Inventors and Investors, Inc. Electro-optical displacement measurer using zone plates. 3,546,469, Cl. 250-219.

Lehtonen, Richard M. Trimming shears with operating handle. 3,545,082, Cl. 30-248.

Leib, Robert G.: *See—*
Foss, George W., Leib, Robert G., Campbell, James E., and Smith, Thomas G.,3,545,023.

Leibowitz, Lawrence M., and Tretick, Bernard A., to United States of America, Navy. Short duration signal burst frequency meter. 3,546,585, Cl. 324-79.

Leimgruber, Willy, and Ziering, Albert, to Hoffman-La Roche Inc. Certain 1,2,3,6-tetrahydro-pyridine-derivatives. 3,546,239, Cl. 260-297.

Leith, Emmett N., and Upatnieks, Juris, to Holotron Corporation. Two beam holography with reduced source coherence requirements. 3,545,835, Cl. 350-3.5

Leland, Ragnvald G. Disposable swab and holder. 3,545,876, Cl. 401-201.

Leman, Hugh Spence: *See—*
Cragg, William Donald, and Leman, Hugh Spence,3,546,619.

Lemson, Paul H., to United States of America, National Aeronautics and Space Administration. Broadband modified turnstile antenna. 3,546,705, Cl. 343-797.

Le Nabour, Marcel Pierre: *See—*
Bertin, Jean Henri, Le Nabour, Marcel Pierre, and Cayla, Jean Lucien Charles,3,545,701.

Lenhart, Ronald A. Bowling machine cushion mount and actuator mechanism. 3,545,753, Cl. 273-43.

Lenhart, Ronald A. Bowling ball cushion control mechanism. 3,545,754, Cl. 273-43.

Lennox Industries Inc.: *See—*
Parker, Sidney A., 3,545,891.

Lense, Robert F.: *See—*
Johnson, Kenneth R., and Lense, Robert F.,3,545,166.

Lenz, Charles E., to North American Rockwell Corporation. Dual-resolution signal converter. 3,546,603, Cl. 328-155.

Leonard, George E., to Kartridg Pak Co., The. Container filling apparatus. 3,545,170, Cl. 53-88.

Lerner, Irwin S., and Davis, Hugh J., to Lerner Laboratories, Inc. Composition for fixing and protecting a smear of body cells and method of applying same. 3,546,334, Cl. 424-3.

Lerner Laboratories, Inc.: *See—*
Lerner, Irwin S., and Davis, Hugh J., 3,546,334.

Lerner, Leonard J.: *See—*
Pan, Samuel C., Principe, Pacifico A., and Lerner, Leonard J.,3,546,260.

Les Condensateurs Sic-Sifco: *See—*
Chesnot, Bernard Francois Gustave, 3,546,119.

Lesko, John G., Jr.: *See—*
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugene A., Silverman, Joseph R., and Lesko, John G., Jr.,3,546,684.

Lesure, Adolphe: *See—*
Bourgeois, Robert, and Lesure, Adolphe,3,545,264.

LeTourneau, R. G., Inc.: *See—*
LeTourneau, Ted L., 3,545,627.

LeTourneau, Ted L., to LeTourneau, R. G., Inc. Heavy duty crane for use in a narrow loading area. 3,545,627, Cl. 212-38.

Levenback, George, to Linsey, Jos. M., Corporation. Heated display case. 3,545,832, Cl. 312-114.

Levin, Nathan D., and Potakis, Angelos A., to Admiral Corporation. Temperature compensated collimator holder assembly. 3,545,838, Cl. 350-96.

Levison, Jack, to Plessey Company Limited, The. Brushless electric motors. 3,546,546, Cl. 318-138.

Levy, Eugene J., and Paul, Donald G., to Hewlett-Packard Company. Method and apparatus for determining the molecular weight of volatile compounds. 3,545,255, Cl. 73-30.

Lewis, James H. Liquid soap dispensing bottle. 3,545,651, Cl. 222-181.

Lewis, Lynn David: *See—*
Clement, Oliver R., Lewis, Lynn David, and Thompson, James F.,3,545,284.

Libby, Charles C.: *See—*
McMaster, Robert, Libby, Charles C., and Minchenko, Hildegard M.,3,546,498.

Libby, William J. Carrying device. 3,545,659, Cl. 224-5.

Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Janssen, Hans-Joachim, and Bottle, Peter, 3,546,504.
Vollradt, Jurgen, 3,545,411.

Lichtenstein, Bernard, and Kroger, Bruce G., to Technicon Corporation. Means and method for detecting of glaucoma. 3,545,260, Cl. 73-80.

Lickliter, Robert Paul, Abbott, Earl, and Reeves, John F., said Reeves assor. to said Lickliter and said Abbott. Pneumatic press. 3,545,368, Cl. 100-49.

Lieber, Philip Ben. Door jamb. 3,545,135, Cl. 49-505.

Liechti, Peter: *See—*
Siegrist, Adolf Emil, Liechti, Peter, Maeder, Erwin, and Guglielmetti, Leonardo,3,546,217.

Liepold, Adolf, and Kuntze, Karl-Heinz, to Fella-Werke Gesellschaft mit beschrankter Haftung. Mechanism for mowing or harvesting various crops. 3,545,184, Cl. 56-6.

Lightner, Linn Stephen: *See—*
Bennett, Benny Morris, and Lightner, Linn Stephen,3,545,606.

Lightner, Robert B., to Reynolds Metals Company. Method for making strip conductor coils and parts therefor. 3,545,078, Cl. 29-605.

Lignes Telegraphiques & Telephoniques: *See—*
Meile, Jacques, 3,546,594.

Lilliston Corporation: *See—*
Whitfield, Carroll J., and Dorsett, Wendell E., 3,545,185.

Lillund, Nils A. Suction arc bag holder for automatic bread bagger. 3,545,175, Cl. 53-386.

Limberger, Walter, to Lumoprint Zindler KG. Apparatus for drawing in templates into a processing device, more particularly for copying machines and the like. 3,545,743, Cl. 271-53.

Limberger, Walter, to Lumoprint Zindler KG. Apparatus for making copies. 3,545,856, Cl. 355-51.

Lind, James W.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.

Lindberg, John E. Critical-temperature sensor of the continuous type. 3,546,689, Cl. 340-227.

Lindesmith, Harold R., Sulecki, Richard P., Tuck, Charles R., and Werner, Richard L., to Werner, R. D., Co., Inc. Method of joining a ladder rung to a ladder rail. 3,545,072, Cl. 29-516.

Lindsey, James M., to Sperry Sun Well Surveying Company. Borehole tool. 3,546,478, Cl. 307-116.

Linehan, John J.: *See—*
Dalton, Jack J., and Linehan, John J.,3,545,499.

Linnenbom, Victor J., and Swinnerton, John W., to United States of America, Navy. Measurement of trace amounts of carbon monoxide in water solution. 3,545,929, Cl. 23-230.

Linsey, Jos. M., Corporation: *See—*
Levenback, George, 3,545,832.

Linstromberg, William J., to Whirlpool Corporation. Sensing arm mechanism for ice maker. 3,545,217, Cl. 62-137.

Lipke, Donald L., to Collins Radio Company. Frequency divider circuit. 3,546,597, Cl. 328-46.

Lippmann, Jean Pierre: *See—*
Deynat, Gerard, and Lippmann, Jean Pierre,3,545,732.

Lipps, Ben J., Jr., to Dow Chemical Company, The. Process for the fabrication of a cellulose hollow fiber separatory cell. 3,546,209, Cl. 260-214.

List, Ferdinand, and Alfs, Helmut, to Chemische Werke Hüls A.G. Recovery of terephthalic acid from methanolic mother liquor. 3,546,283, Cl. 260-525.

List, Fredinand, and Alfs, Helmut, to Chemische Werke Huels A.G. Purification of commercial terephthalic acid. 3,546,284, Cl. 260-525.

Litton Medical Products, Inc.: *See—*
Craig, James R., 3,546,461.

Litton Systems, Inc.: *See—*
Blakely, Roger W., Jr., 3,546,595.

Locati, Norman C., to Omark Industries, Inc. Impact mowing apparatus and system. 3,545,188, Cl. 56-245.

Lochstampfer, Horst, 1/2 to REGA Regelungs- und Steuerngstechnik GmbH & Co. Transistor amplifier circuits with constant current source superimposed thereon. 3,546,614, Cl. 330-22.

Lockheed Aircraft Corporation: *See—*
Peterson, Don G., and Yariv, Amnon, 3,546,622.

Lockman, Charles S.: *See—*
Steele, Richard K., Green, Allen T., and Lockman, Charles S.,3,545,262.

Lodge, Reginald M., and Jones, Dewi M. Methods for the production of heterofilaments. 3,546,328, Cl. 264-171.

Lodi, Luciano: *See—*
Borsini, Giancarlo, Visani, Francesco, Lodi, Luciano, and Magagnin, Luigi Ciligot,3,546,192.

Loe, Winston C., to Loenco, Inc. Flow diverting device for gas chromatographs. 3,545,479, Cl. 137-360.

Loenco, Inc.: *See—*
Loe, Winston C., 3,545,479.

Loew, Theodore, to Standard Products Company, The, mesne. Protective padding and method for making the same. 3,546,058, Cl. 161-59.

Loftus, Lester R. Method and composition for treating live bait worms. 3,545,404, Cl. 119-1.

Loftus, Richard, to Old England Watches Limited. Wristwatch case. 3,545,198, Cl. 58-90.

Lohman, Harry C., to Trane Company, The. Hot air furnace. 3,545,424, Cl. 126-91.

Lohman, Harry C., to Trane Company, The. Gas burner. 3,545,908, Cl. 431-286.

Lombardi, Victor J. Cylinder and dial construction for knitting machines. 3,545,233, Cl. 66-8.

Long, Alan Gibson, Wilson, Edward McKenzie, and Graham, William, to Glaxo Laboratories Limited. 3-Azidomethyl-7-arylglyoxamidoceph-3-em-4- carboxylic acids and their salts and α- carbonyl derivatives. 3,546,219, Cl. 260-243.

Longwell, John P., to Esso Research and Engineering Company. Low melting binary nitronium perchlorate propellant mixtures. 3,546,033, Cl. 149-5.

Lonza Ltd.: *See—*
Pino, Piero, Sbrana, Glauco, and Braca, Giuseppe, 3,546,264.

Look, Melvin: *See—*
Christian, Daniel T., Look, Melvin, Nobell, Albert, and Armstrong, Thomas S.,3,546,199.

Loose, Winfield Warren: *See—*
Carlisle, Raymond Melvin, and Loose, Winfield Warren,3,546,401.

L'Oreal: *See—*
Kalopissis, Gregoire, 3,546,294.

Lott, Harry, Jr., and Walsh, Robert H., to PPG Industries, Inc. Process for coating pigmentary metal oxides. 3,545,994, Cl. 106-308.

Lovalenti, Sam: *See—*
Roddy, James M., and Lovalenti, Sam,3,546,647.

Lovitz, David D., to Sternco Industries, Inc. Air pump. 3,545,894, Cl. 417-412.

Loyd, Calvin D., Oberle, Theodore L., and Satzler, Ronald L., to Caterpillar Tractor Company. High speed friction welder. 3,545,071, Cl. 29-470.3

Loyd, Clayton, to United States of America, National Aeronautics and Space Administration. System for maintaining a motor at a predetermined speed utilizing digital feedback means. 3,546,553, Cl. 318-318.

Lozano, Luis J.: *See—*
Kabelka, Peter J., and Lozano, Luis J.,3,545,244.

Lubach, John Paul, to Du Pont de Nemours, E. I., and Company. Yarn treating apparatus. 3,545,057, Cl. 28-1.4

Lubowitz, Hyman R.: *See—*
Burns, Eugene A., Jones, John F., Lubowitz, Hyman R., and Spraul, Joseph R.,3,546,041.

Lucas, Joseph, (Industries) Limited: *See—*
Hidman, Frank, and Bedford, Brian, 3,546,544.
Lucas, Rene Francois: *See—*
Deleuze, Bernard, and Lucas, Rene Francois,3,545,672.
Lucien, Rene, to Societe Anonyme dite: Messier. Hydraulic rotary barrel pumps or motors. 3,545,338, Cl. 91-507.
Luckiewicz, Frank H.: *See—*
Fratalia, Angelo R., 3,545,481.
Lucy, Carl F., to Singer-General Precision, Inc. Flechette. 3,545,383, Cl. 102-92.6
Ludwig, Gunter, to Dynamit Nobel Aktiengesellschaft. Spindle-shaped supersonic projectile with additional propulsion by stern-firing. 3,545,212, Cl. 60-270.
Lugash, Max J., to Maxon Industries, Inc. Collapsible trailer hitch for truck loaders. 3,545,791, Cl. 280-491.
Lumoprint Zindler KG: *See—*
Limberger, Walter, 3,545,743.
Limberger, Walter, 3,545,856.
Lundberg, John P., to Beloit Corporation. Folding cab for truck-mounted loaders. 3,545,633, Cl. 214-147.
Lundin, Robert S., to General Time Corporation. Control circuitry for a transformer supplied unidirectionally-conductive load. 3,546,483, Cl. 307-252.
Lundin, Robert S., Wallentowitz, Klaus, and Bosman, Edward T., to General Time Corporation. Long period electronic timer for aerosol dispenser or the like. 3,546,479, Cl. 307-132.
Luscombe, Gene A. Machine for comminuting sheet and multi-sheet scrap materials. 3,545,689, Cl. 241-186.
Lutchko, John R., and Stoneburner, George R., to Calgon Corporation, mesne. Method of removing carbon monoxide from gases. 3,545,915, Cl. 23-2.
Lydick, Henry W., to Westinghouse Electric Corporation. Frequency relay with rate-of-change of frequency compensation. 3,546,533, Cl. 317-13.
Lyon, Zeno G., to International Telephone and Telegraph Corporation. Repeater terminal. 3,546,383, Cl. 179-15.
MacLeod, Peter John: *See—*
Smith, Leslie Harrold, and MacLeod, Peter John,3,545,292.
Maclodyne Corporation: *See—*
Fazzani, Raymond John, 3,545,247.
MacMillan, Daniel G. Modular construction frame. 3,545,625, Cl. 211-148.
Macovski, Albert, to RCA Corporation. Color television camera overload compensating system. 3,546,373, Cl. 178-5.4
Mac Pherson, William F., and Windeler, Alfred S., to Bell Telephone Laboratories, Incorporated. Cable with fully controllable pair twist length. 3,546,357, Cl. 174-34.
MacQueston, Dexter H., to Kalart Company Inc., The. Splicer for butt splicing motion picture film. 3,546,046, Cl. 156-505.
Madachy, John F. Swing type arbor attachment for quick tool changes. 3,545,326, Cl. 83-433.
Madatron Corporation: *See—*
Hanbicki, Richard B., 3,545,674.
Maeda, Itsutoshi, Takesada, Masahiko, and Yoshida, Ryonosuke, to Ajinomoto Co., Inc. Method of preparing 1,1-dialkoxy-4,4- diacyloxybutanes. 3,546,277, Cl. 260-491.
Maeder, Erwin: *See—*
Siegrist, Adolf Emil, Liechti, Peter, Maeder, Erwin, and Guglielmetti, Leonardo,3,546,217.
Maeno, Tamotsu: *See—*
Huang, Ching Yun, and Maeno, Tamotsu,3,546,301.
Magagnin, Luigi Ciligot: *See—*
Borsini, Giancarlo, Visani, Francesco, Lodi, Luciano, and Magagnin, Luigi Ciligot,3,546,192.
Magdalin, Christie S., to Magnaflux Corporation. Flaw detection method using a strippable acrylic resin aerosol fixer. 3,546,130, Cl. 252-408.
Magee, Robert C., and Thomson, John B., said Magee assor. to said Thomson. Compliant and self-alining ball bearing for linear motion. 3,545,826, Cl. 308-6.
Magnaflux Corporation: *See—*
Magdalin, Christie S., 3,546,130.
Mlot-Fijalkowski, Adolf, 3,546,127.
Magnavox Company, The: *See—*
Ferguson, Patrick E., 3,545,840.
Magne, Frank C.: *See—*
Hedrick, Glen W., and Magne, Frank C.,3,546,230.
Magor Railcar Division: *See—*
Mowatt-Larssen, Rolf, and Hamilton, Samuel C., 3,545,713.
Mahaffy & Harder Engineering Company: *See—*
Mahaffy, Reid A., and Hamilton, Joel A., 3,545,163.
Mahaffy, Reid A., and Hamilton, Joel A., to Mahaffy & Harder Engineering Company. Package forming methods and apparatus. 3,545,163, Cl. 53-22.
Mahn, Herbert, to U.S. Philips Corporation, mesne. Transmission gear. 3,545,297, Cl. 74-437.
Maillard, Francis Henri Marie Joseph: *See—*
Laville, Andre Henri, and Maillard, Francis Henri Marie Joseph,3,545,702.
Mair & Co., Fabrik fur Spezialmaschinen: *See—*
Maleschew, Josef, Brutmann, Karl, and Gartner, Fritz, 3,545,261.
Maleschew, Josef, Brutmann, Karl, and Gartner, Fritz, to Mair & Co., Fabrik fur Spezialmaschinen. Clamping chuck and hardness tester provided with such chuck. 3,545,261, Cl. 73-81.
Mallory, P. R., & Co., Inc.: *See—*
Haarbye, Fredrik O., 3,545,067.
Munson, Arden L., 3,546,662.
Maloney-Crawford Tank Corporation: *See—*
Hodgson, Robert A., 3,545,177.
Manasevit, Harold M., to North American Rockwell Corporation. Process for etch-polishing sapphire and other oxides. 3,546,036, Cl. 156-17.
Mandal, Robert P., to Aerojet-General Corporation. Metal-semiconductor alloys for thin-film resistors. 3,545,967, Cl. 75-134.
Mandino, Joseph J., to Mosley Electronics, Inc. Antenna mounting device. 3,545,148, Cl. 52-110.
Mann, Ernest P.: *See—*
Patykula, Thomas E., and Mann, Ernest P.,3,545,020.
Manning, William F., to Mobil Oil Corporation. Subsea satellite foundation unit and method for installing a satellite body therewithin. 3,545,539, Cl. 166-0.5
Mansell, Ralph E.: *See—*
Ault, Eldon F., Mansell, Ralph E., and Ruhl, Harry deVere, Jr.,3,545,863.
Mansfield, John Rickard, to Imperial Chemical Industries Limited. Oxidation process. 3,546,082, Cl. 204-72.
Marantz, Daniel R., to Flame Spray Industries, Inc. Electric arc metallizing device. 3,546,415, Cl. 219-76.
Marathon Oil Company: *See—*
Surkalo, Harry, and Son, Marion O., Jr., 3,545,546.
White, James E., 3,546,604.
Maravetz, Lester L., to Esso Research and Engineering Company. N-cycloalkyl anilines. 3,546,295, Cl. 260-577.
March Manufacturing Company: *See—*
Zimmermann, Frederick N., 3,545,892.
Marchant, Joseph R., and Koljonen, Vilho, to General Motors Corporation. Headlamp assembly. 3,546,445, Cl. 240-41.6
Marcheschi, Henry, and Perkins, George D., to American Telecommunication Corporation. Enclosed telephone having a raceway for its cord. 3,546,396, Cl. 179-100.
Marconi Company Limited, The: *See—*
Brigham, Eric Richard, 3,546,384.
Margetts, Hugh Grenville, to Girling Limited. Brake pressure control valves. 3,545,814, Cl. 303-6.
Marquardt Corporation, The: *See—*
Harp, James L., Jr., 3,545,211.
Marquet, Jean-Claude Georges Henri: *See—*
Vulliez, Georges Francois, and Marquet, Jean-Claude Georges Henri,3,546,015.
Mars Signal Light Company: *See—*
Kennelly, Jeremiah D., 3,546,669.
Martin, Hans. Ski boot with mechanism for tightening the closure flaps. 3,545,106, Cl. 36-50.
Martin, Heinz: *See—*
Ziegler, Karl, Breil, Heinz, Martin, Heinz, and Holzkamp, Erhard,3,546,133.
Martin, Henry, Duerr, Dieter, Hitz, Hans-Rudolf, and Von Orelli, Marcus, to Ciba Limited. Preparations containing urea or thiourea derivatives for use as molluscicides. 3,546,344, Cl. 424-322.
Martin Marietta Corporation: *See—*
Mosby, William R., 3,545,687.
Martin, William Calvin: *See—*
Katsaros, Constantine, and Martin, William Calvin,3,546,346.
Martin-Marietta Corpotation: *See—*
Von Struve, Henry C., III, 3,545,268.
Marucci, Luigi: *See—*
Bianchi, Gianfranco, and Marucci, Luigi,3,545,277.
Maruzen Oil Company, Ltd.: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi, 3,545,519.
Marzocchi, Alfred, and Leary, David E., to Owens-Corning Fiberglas Corporation. Industrial belt construction. 3,545,293, Cl. 74-231.
Marzolf, Joseph M., to United States of America, Navy. D.C. voltage regulator employing a Zener diode. 3,546,566, Cl. 323-9.
Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Fischer, Hans, 3,545,341.
Maschinenfabrik Benninger AG: *See—*
Stoll, Oskar, and Probst, Willi, 3,545,829.
Mascolo, Benjamin R.: *See—*
Goldberg, George, and Mascolo, Benjamin R.,3,546,053.
Masland, Joel C., and Toro, Joseph A., to Bell Telephone Laboratories, Incorporated. Method and apparatus for manufacture of capacitors. 3,545,059, Cl. 29-25.42
Mason, Ralph B.: *See—*
Hamner, Glen P., and Mason, Ralph B.,3,546,103.
Massachusetts Institute of Technology: *See—*
Bahrs, David L., and Beard, Albert L., 3,546,680.
Hall, Robert L., 3,545,285.
Hendricks, Charles D., Jr., 3,545,374.
Massarani, Elena, to Societe d'Exploitations Chimiques et Pharmaceutiques Seceph S.A.2-(4'-Chloro-naphthyl (1')-methyl)-imidazoline. 3,546,242, Cl. 260-309.6
Mateos, Federico Lopez: *See—*
Ortuno, Angel V., Municio, Vicente Martin, and Mateos, Federico Lopez,3,545,958.
Mathews, Richard D., to Del Monte Corporation. Food processing method and equipment. 3,545,984, Cl. 99-214.

Mathias Bauerle Gesellschaft mit beschrankter Haftung: *See—*
Porth, Erwin, 3,545,741.
Mathis, Vernon P.: *See—*
Abbott, Harold W., Mathis, Vernon P., and Peil, William,3,546,561.
Matsuda, Masaoki: *See—*
Murase, Tamotsu, Mikami, Ichiro, Tamura, Moriyoshi, and Matsuda, Masaoki,3,546,282.
Matsumoto, Mikio, to Tsubakimoto Chain Mfg., Co., Ltd., The. Air-film conveying apparatus. 3,545,813, Cl. 302-29.
Matsumoto, Satoshi, and Tanaka, Etsuo, to Chisso Corporation. Process for producing caprolactone. 3,546,251, Cl. 260-343.
Matsumura, Shigeru: *See—*
Izumi, Masahiro, Shima, Hiroshi, Matsumura, Shigeru, and Asano, Nobuyuki,3,546,182.
Matsuoka, James T., to Intercole Automation, Inc. Discharge door with fluid circulating passages for mixing machine. 3,545,533, Cl. 165-47.
Matsushita Electric Industrial Co., Ltd.: *See—*
Mikoda, Masanari, and Hikino, Tadashi, 3,545,989.
Ouchi, Hiromu, and Nishida, Masamitsu, 3,546,121.
Maugh, Murrel C. Hydraulic load weighing scale and mounting therefor. 3,545,558, Cl. 177-208.
Maurer, Hans A.: *See—*
Cover, John H., Jr., Knauer, Wolfgang, and Maurer, Hans A.,3,546,706.
Maxon Industries, Inc.: *See—*
Lugash, Max J., 3,545,791.
Maxwell, Bryce. Apparatus for mixing devolatizing and extruding. 3,545,041, Cl. 18-12.
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugenc A., Silverman, Joseph R., and Lesko, John G., Jr., to United States of America, National Aeronautics and Space Administration. Programmable telemetry system. 3,546,684, Cl. 340-172.5
Mayer-Rieckh, Michael. Ski boot. 3,545,105, Cl. 36-46.5
Maynard, Fred B., to Motorola, Inc. Automatic tone generating system for an electronic organ. 3,546,355, Cl. 84-1.03
Mayo, John S., to Bell Telephone Laboratories, Incorporated. Synchronization of code systems. 3,546,592, Cl. 325-321.
Mazur, Robert H., to Searle, G. D., & Co. Process for the synthesis of bradykinin and other arginine containing peptides. 3,546,198, Cl. 260-112.5
McAllister, Patrick T., and McGregor, James D., to Thiokol Chemical Corporation. Refractory article. 3,545,679. Cl. 239-265.15
McAuley, Charles F., to General Motors Corporation. Control circuit for limiting output parameters. 3,546,598, Cl. 328-71.
McCaffrey, Horace, Jr. Sound attenuating structure. 3,545,565, Cl. 181-35.
Mc Carthy, Donal E. Production of alkylene dihalides. 3,546,306, Cl. 260-663.
Mc Clellan, Melvin L., and Kozak, Donald S., to Union Carbide Corporation. Alloy addition process. 3,545,960, Cl. 75-51.
Mc Cord, Jesse L., and Heinle, Carl, Jr., said Mc Cord assor to said Heinle. Remotely controlled vehicle mirror. 3,545,290, Cl. 74-98.
McCormack, John Francis: *See—*
Schneble, Frederick W., Jr., Leech, Edward John, and McCormack, John Francis,3,546,009.
McCullagh, Morris Behan. Belt conveyors having wing rollers. 3,545,602, Cl. 198-192.
McCullough, Marshall J., to United States Steel Corporation. Burner for pre-heating a refractory lined vessel. 3,545,903, Cl. 431-13.
McCune, William J., Jr., to Poloroid Corporation. Photographic exposure control apparatus. 3,545,354, Cl. 95-11.
McDaniel, Edgar L.: *See—*
Young, Howard S., Anderson, George C., and McDaniel, Edgar L.,3,546,139.
McDermott, Henry J., to FMC Corporation. Roller position adjustment mechanism. 3,545,827, Cl. 308-58.
McDonald, Paul V.: *See—*
Zemek, Albert W., and McDonald, Paul V.,3,545,064.
McDonnell Douglas Corporation: *See—*
Berger, Carl, 3,546,020.
Downing, James W., and Verhoeven, Teunes, 3,545,771.
Hamilton, Vern E., and Roseland, Luther M., 3,546,064.
Washburn, Robert M., and Karle, Dennis W., 3,546,141.
McDougal, John A.: *See—*
Ballou, Richard P., and McDougal, John A.,3,545,418.
McDowell, Jon J.: *See—*
Wise, Eugene H., and McDowell, Jon J.,3,545,794.
McEvoy, James E., to Air Products and Chemicals, Inc. Synthetic harmotome from de-exothermed kaolin. 3,545,921, Cl. 23-112.
McGhee, John D., to Du Pont de Nemours, E. I., and Company. Voltage supply. 3,546,626, Cl. 331-113.
McGill, Landon G. Liquid level warning device. 3,545,272, Cl. 73-311.
McGinnis, Herbert E., to Goodrich, B. F., Company, The. Laterally flexible belt conveyor. 3,545,598, Cl. 198-201.
McGraw-Edison Company: *See—*
Heinrichs, Frank W., Jr., Toothman, Lawrence R., Honey, Charles C., and Jonnatti, Anthony J., 3,546,646.
Jawelak, Melbourne G., 3,546,653.
Urani, Angelo, 3,546,661.
McGregor, James D.: *See—*
McAllister, Patrick T., and McGregor, James D.,3,545,679.
McGunigle, Richard D., to Electra Scientific Corporation. Non-linear accelerometer. 3,545,283, Cl. 73-517.
McIlraith, Terry E., and Kingsford-Smith, Charles A. Horsepower measuring apparatus. 3,545,265, Cl. 73-136.
Mc Intyre, John S., and Knight, Allan R., to Dow Chemical Company, The. 2-(Bromomethyl)-2,3,4,5,-tetrahydro-7-(α- hydroxyphenyl)-5-oxo-1,4-oxazepine-6-carboxylic acid α-lactone. 3,546,213, Cl. 260-239.3
McKeeman, William M.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and McKeeman, William M.,3,546,677.
McKelvey, John B., Benerito, Ruth R., Berni, Ralph J., and O'Connor, Judith A., to United States of America, Agriculture. Simultaneous introduction of nitrogen and chlorine into cotton to produce dry wrinkle recovery by treatment with urea, a urea precursor or a urea derivative and epichlorohydrin. 3,545,912, Cl. 8-116.2
McKinley, James J., Jr., to Monsanto Company. Ammonia analysis system. 3,545,931, Cl. 23-232.
McKinney, Richard W.: *See—*
Dykzeul, Theodore J., and McKinney, Richard W.,3,545,476.
McLafferty, George H., to United States of America, Air Force. Gaseous nuclear rocket engine. 3,546,069, Cl. 176-52.
McLaughlin, Joseph F.: *See—*
Doniger, Jerry, and McLaughlin, Joseph F.,3,545,703.
McManus, Donald S., to General Dynamics Corporation. Apparatus for producing bubbles of very small, microscopic size. 3,545,731, Cl. 261-122.
McMaster, Robert, Libby, Charles C., and Minchenko, Hildegard M., to Ohio State University, The. Curved sonic transmission line. 3,546,498, Cl. 310-8.2
McNamara, Julie H. Artificial rocks having shells filled with fluent material. 3,546,052, Cl. 161-19.
McNeil Laboratories, Incorporated: *See—*
Paragamian, Vasken, 3,546,225.
McNinch, Joseph H., Jr.: *See—*
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U.,3,545,376.
McNulty, John V., to Kingsley, George P., mesne. Chain saw apparatus for sawing reinforced concrete. 3,545,422, Cl. 125-21.
McPherson, Frank H., and Sevilla, Ernesto G., to Sperry Rand Corporation. Random access system. 3,546,686, Cl. 340-174.1
Mechanical Technology, Incorporated: *See—*
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F., 3,545,890.
Medlin, Theodore W., and Uthoff, Robert D., said Uthoff assor. to said Medlin. Fastener applying tool. 3,545,065, Cl. 29-212.
Medney, Jonas, to Koppers Company, Inc. Method and apparatus for preventing the collapse of a spool of filament reinforcements. 3,545,698, Cl. 242-128.
Medney, Jonas, to Koppers Company, Inc. Method for impregnating glass filament reinforcement rovings. 3,546,000, Cl. 117-62.2
Medvedev, Alexandr Yakovlevich: *See—*
Bykhovsky, David Grigorievich, Medvedev, Alexandr Yakovlevich, Rossomakho, Yakov Vulfovich, and Koss, Valery Alexandrovich,3,546,422.
Meeks, Edwin Donnell, Jr.: *See—*
Benjamin, Joel Melvern, Jr., Bolgiano, Duane Ridgely, Meeks, Edwin Donnell, Jr., and Benham, Thomas A.,3,546,467.
Mefina S.A.: *See—*
Fresard, Marcel, 3,545,392.
Mehnert, Horst. Blow molding apparatus. 3,545,040, Cl. 18-5.
Meier, Gunter, to G.M. Pfaff AG. Sewing machine with removable stitching plate. 3,545,393, Cl. 112-260.
Meile, Jacques, to Lignes Telegraphiques & Telephoniques. Analog distortion measurement apparatus for isochronous coded telegraph and data signals. 3,546,594, Cl. 325-363.
Meilan, Herbert J., and Pawlak, Joseph A., to Hooker Chemical Corporation. Stabilized alkali soluble resins. 3,546,153, Cl. 260-29.3
Melle-Bezons: *See—*
Gobron, Georges, and Pipon, Robert, 3,546,296.
Mencacci, Samuel A., and DeBruyn, Emile, to International Machinery Corporation S.A. Double chain hydrostatic cooker and sterilizing process. 3,545,985, Cl. 99-214.
Mendenhall, Thomas I. Weeding tool. 3,545,855, Cl. 254-132.
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph, to Commissariat a l'Energie Atomique. Flame spraying guns. 3,545,906, Cl. 431-158.
Menk, Melvin A.,, to General Motors Corporation. Combination clothes washer and dryer. 3,545,235, Cl. 68-19.2
Menkes, Elchanan Dove, to RCA Corporation. Low power, high stability digital frequency synthesizer. 3,546,618, Cl. 331-10.
Mercer, Robert S., to Haveg Industries, Inc. Filled phenolic resin compositions containing a minor amount of a polyolefin. 3,546,157, Cl. 260-38.
Mercier, Henri, and Cohen, Joseph, to Pechiney, Compignie de Produits Chimiques et Electrometallurgiques. Preparation of aluminum trihydrate crystals. 3,545,923, Cl. 23-143.
Merck & Co., Inc.: *See—*
Bolhofer, William A., 3,546,273.
La Pierre, Raymond J., 3,546,341.
Merit Company, The: *See—*
Schevenell, Leonard O., 3,545,056.

Merriam, Charles N., Snedeker, Robert H., and Stine, Herbert G., to Union Carbide Corporation. Surface crystallization of poly(2,2,4,4-tetramethylcyclobutanediol-1,3) carbonates. 3,546,332, Cl. 264-343.

Merzhanian, Artemy Arutjunovich: *See—*
Agabaliants, Georgy Gerasimovich, Merzhanian, Artemy Arutjunovich, Brusilovsky, Sergei Alexeevich, and Sarishvili, Naskid Grigorievich,3,545,978.

Messer, James T., Jr., to Thiokol Chemical Corporation. Deburring tool. 3,545,311, Cl. 77-73.5

Metallgesellschaft Aktiengesellschaft: *See—*
Brill, Bruno, and Zolzer, Karlheinz, 3,545,086.

Metalloxyd GmbH: *See—*
Herrmann, Helmut, 3,546,649.

Metcalfe, Christopher John Leonard, and Bourne, Kenneth Hugh, to British Petroleum Company Limited, The. Cracking catalyst. 3,546,101, Cl. 208-120.

Meuleman, Gaston: *See—*
Pershing, Harold W., and Meuleman, Gaston,3,545,112.

Meyer, Charles F., and Guettel, Marvin A., to Square D Company. Control for compensating for the effects of progressive mushrooming of the electrodes in a resistance welder apparatus. 3,546,421, Cl. 219-110.

Meyer, Engelbert A.: *See—*
Ettinger, Donald H., and Meyer, Engelbert A.,3,546,420.

Meyer, Engelbert A., to Warren Fastener Corporation. Self-loading stud welding apparatus. 3,546,419, Cl. 219-98.

Meyers, Charles Frederick: *See—*
deBolt, Edwin Stanton, and Meyers, Charles Frederick,3,546,664.

Meyer-Simon, Eugen: *See—*
Knorre, Helmut, Meyer-Simon, Eugen, Kallrath, Gottfried, and Biegler, Hanns,3,546,011.

Michael, David N.: *See—*
Buc, George L., and Michael, David N.,3,546,438.

Michael, Kenneth S. Cutting tool. 3,545,061, Cl. 29-98.

Michaels, Alan S., and Miekka, Richard G., to Amicon Corporation. Polyelectrolyte structures. 3,546,142, Cl. 260-2.1

Michaux, Jean-Pierre: *See—*
Gislon, Andre, Valet, Andre, Michaux, Jean-Pierre, and Bellec, Jean-Jacques,3,546,317.

Michel, George P.: *See—*
Wilburn, Garlington C., and Michel, George P.,3,546,644.

Middleton, Earl, to Warnaco, Inc. Apparatus and method for filling packaging receptacles. 3,545,164, Cl. 53-26.

Miekka, Richard G.: *See—*
Michaels, Alan S., and Miekka, Richard G.,3,546,142.

Miheles, Aurel, to Comitetul de Stat Pentru Cultura si Arta. Method and apparatus for adding a dominant color to an image of an object. 3,545,849, Cl. 352-45.

Mikami, Ichiro: *See—*
Murase, Tamotsu, Mikami, Ichiro, Tamura, Moriyoshi, and Matsuda, Masaoki,3,546,282.

Mikoda, Masanari, and Hikino, Tadashi, to Matsushita Electric Industrial Co., Ltd. Low loss lead fluoride sealing glasses. 3,545,989, Cl. 106-53.

Miksch, Robert H., to Goodrich, B. F., Company, The. Tire stitching apparatus. 3,546,043, Cl. 156-410.

Miller, Mark F., and Webbere, Fred J., to General Motors Corporation. Aluminum-lead based alloys and method of preparation. 3,545,943, Cl. 29-191.2

Miller, Merlin S.: *See—*
Helke, Robert C., Van Gilder, Charles E., and Miller, Merlin S.,3,545,011.

Miller, Ronald Earl, to Hendrickson Mfg., Co. Vehicle suspension. 3,545,787, Cl. 280-104.5

Millward, James, to Rolls-Royce Limited. Gas turbine by-pass engine. 3,545,209, Cl. 60-226.

Minchenko, Hildegard M.: *See—*
McMaster, Robert, Libby, Charles C., and Minchenko, Hildegard M.,3,546,498.

Miner Company, The: *See—*
Laurie, Veldon E., 3,545,104.

Miner, Robert G., to Trane Company, The. Overcurrent protection system for polyphase dynamoelectric machines. 3,546,531, Cl. 317-13.

Minka, Edward T.: *See—*
Wentzheimer, William W., and Minka, Edward T.,3,546,093.

Minnesota Mining and Manufacturing Company: *See—*
Allen, Michael George, 3,546,168.
Berkey, David F., 3,545,696.
Diamond, James H., and Noponen, George E., 3,546,148.
Frederick, Russell E., and Nystrom, Thomas L., 3,546,025.
Robertson, Jerry E., and Conway, Alvin C., 3,546,210.
Sovia, Cedric C., and Birch, Brian L., 3,545,697.
Urbach, Otto R., and Kraayenhof, Hans, 3,545,587.

Miro-Flex Company, Inc.: *See—*
Hadley, James E., 3,545,839.

Mirviss, Stanley B.: *See—*
Hwa, Jesse C., H, and Mirviss, Stanley B.,3,546,323.

Mishkin, Sidney, Bidwell, Robert E., Kurtz, Leonard D., and Hallstein, Edward J., to Deknatel, Inc. Single chamber underwater drainage apparatus. 3,545,440, Cl. 128-276.

Misko, Stephen R. Toy and exercising captive ball. 3,545,121, Cl. 46-1.

Mitchell, John E., Company, Inc.: *See—*
Mitchell, Orville, 3,545,063.

Mitchell, Orville, to Mitchell, John E., Company, Inc. Method of assembling an evaporator having a helical channel. 3,545,063, Cl. 29-157.3

Miyaoka, Senri: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu,3,546,516.
Ohgoshi, Akio, and Miyaoka, Senri,3,546,525.

Mizrahi, Jacques, to Societe d'Appareillage Auxiliaire Pour l'Electricite. Reinforcing iron. 3,545,158, Cl. 52-726.

Mlot-Fijalkowski, Adolf, to Magnaflux Corporation. Fluorescent penetrant for and method of detecting surface discontinuities. 3,546,127, Cl. 252-301.2

Mobil Oil Corporation: *See—*
Angona, Frank A., 3,545,552.
Fangatos, Geassimos, 3,546,254.
Manning, William F., 3,545,539.
Weisz, Paul B., 3,546,097.
Yan, Tsoung-Yuan, 3,546,100.

Modern Tube Bending & Manufacturing: *See—*
Thompson, Marion L., 3,545,414.

Moia, Armand, to Kugler Fonderie et Robinetterie S.A. Combined blending and changeover valve for fluids. 3,545,473, Cl. 137-119.

Moiso, Ugo: *See—*
Bertin, Mario, Moiso, Ugo, Craia, Giulio, and Pasquarelli, Aldo,3,546,201.

Mojden, Wallace W., and Chivas, Norman J., to Fleetwood Systems, Inc. Can end transfer apparatus. 3,545,631, Cl. 214-6.

Mollenauer, Linn F.: *See—*
Jeffries, Carson D., and Mollenauer, Linn F.,3,546,575.

Moller, Charles R., Jr.: *See—*
Dietz, Max R., and Moller, Charles R., Jr.,3,546,114.

Molloy, Robert T.: *See—*
Sheetz, Harry J., and Molloy, Robert T.,3,546,075.

Monahan, John F., to RCA Corporation. Burst flag generator. 3,546,602, Cl. 328-139.

Monsanto Company: *See—*
Barker, George E., 3,545,676.
Coran, Aubert Yaucher, and Kerwood, Joseph Edward, 3,546,185.
McKinley, James J., Jr., 3,545,931.
Morissette, Herbert E., 3,545,727.
Ort, Morris R., Mottus, Edward H., Baizer, Manuel M., and Carter, Don E., 3,546,083.
Sears, James Kern, 3,545,990.
Stahlheber, Norman Earl, and Shen, Chung Yu, 3,546,123.
Thompson, Quentin E., 3,546,116.

Monsanto Graphic Systems, Inc.: *See—*
Childress, Clyde O., 3,545,378.

Montacie, Marcel, to Union Industrielle Blanzy-Quest. Reinforced rotating head for a tunnel boring machine. 3,545,811, Cl. 299-56.

Montan, Carl S. Preload for hauling logs and the like. 3,545,635, Cl. 214-515.

Montecatini Edison S.p.A.: *See—*
Benetta, Gianni, Bresquar, Valerio, Gatta, Giorgio, and Testa, Francesco, 3,546,193.
Borsini, Giancarlo, Visani, Francesco, Lodi, Luciano, and Magagnin, Luigi Ciligot, 3,546,192.
Patron, Germano, 3,546,304.
Vandi, Antonio, Valeretto, Francesco, and Ragazzini, Mario, 3,546,196.

Montgomery Elevator Company: *See—*
Hallene, Alan M., Holuba, Henry J., and Drexler, John J., 3,545,572.

Mooney, Paul C., to Quick-Set Incorporated. Cam-head structure for camera support. 3,545,710, Cl. 248-183.

Moore Dry Kiln Company of Oregon: *See—*
Schuette, Henry W., and Barnes, Albert H., 3,545,094.

Moore, Edgar E.: *See—*
Hickner, Richard A., and Moore, Edgar E.,3,546,241.

Moore, Jack P.: *See—*
Snyder, Clermont J., and Moore, Jack P.,3,546,029.

Moore, Maurice S.: *See—*
Papero, Patrick V., Kosmala, James M., and Moore, Maurice S.,3,545,911.

Moore, Robert E., to Sun Oil Company. Alkylation of hydroxyadamantanes. 3,546,308, Cl. 260-666.

Moore, William T. Animal pen. 3,545,407, Cl. 119-20.

Moorhead, John O., and Charamond, Claude P., to Texas Instruments, Incorporated. Thermal time delay relay. 3,546,651, Cl. 337-102.

Morel, Charles, to Geigy Chemical Corporation. D-glucofurano amidazoline anti- inflammatory agents. 3,546,333, Cl. 424-80.

Morenz, James E.: *See—*
Beauchamp, Edwin K., and Morenz, James E.,3,546,026.

Morgan Construction Company: *See—*
Rickley, Samuel S., 3,545,774.

Morgan, Curtis L., to Fedders Corporation. Self-cleaning cooking apparatus. 3,545,423, Cl. 126-19.

Morgan, Paul Winthrop, to Du Pont de Nemours, E. I., and Company. Soluble, high-melting, thermally-stable linear polyesters. 3,546,165, Cl. 260-47.

Morgan, R. John, and Shilling, Robert Nelson, Jr., to Scintillonics, Inc. Motor speed control. 3,546,555, Cl. 318-341.

Mori, Yoshio, to Nippon Piston Ring Co., Ltd. Valve lifter with thin plastic coating. 3,545,415, Cl. 123-90.

Morikawa, Harumi: *See—*
Iwata, Shigeo, and Morikawa, Harumi,3,545,253.

Morissette, Herbert E., to Monsanto Company. Concentrate dilution apparatus. 3,545,727, Cl. 259-4.

Morman, James Forrester, and Parker, James Brown, to Imperial Chemical Industries Limited. Process for making a modified carbohydrate material for smoking mixtures and the material made thereby. 3,545,448, Cl. 131-2.

Morren, Henri, to UCB, (Union Chimique-Chemische Bedriuven) S.A. N-Aminoalkyl-benzothiazocines. 3,546,246, Cl. 260-327.

Morris, John M., to Rex Chainbelt Inc. Vibrator motor with self-container lubricant circulator. 3,546,505, Cl. 310-81.

Morrison Industries, Inc.: *See—*
Rebovich, Edward P., and Morrison, Robert S., 3,545,044.

Morrison, John A. H.: *See—*
Fisher, William E., and Morrison, John A. H.,3,545,398.

Morrison, Robert S.: *See—*
Rebovich, Edward P., and Morrison, Robert S.,3,545,044.

Morse, Frederick J., to Union Carbide Corporation. Flexible cooling device and use thereof. 3,545,230, Cl. 62-530.

Morton International, Inc.: *See—*
Katsaros, Constantine, and Martin, William Calvin, 3,546,346.

Mosby, William R., to Martin Marietta Corporation. Media mill. 3,545,687, Cl. 241-66.

Mosier, Charles F., Jr.: *See—*
Pavelich, William A., and Mosier, Charles F., Jr.,3,546,016.

Mosler Safe Company, The: *See—*
Houston, Russell F., 3,545,138.

Mosley Electronics, Inc.: *See—*
Mandino, Joseph J., 3,545,148.

Motorola, Inc.: *See—*
Cannalte, Gary A., and Kanofsky, Jeffrey R., 3,546,674.
Foreman, Roland J., and Hufton, Arthur G., 3,545,420.
Fowler, William R., and Hart, Thomas W., Jr., 3,546,484.
Maynard, Fred B., 3,546,355.
Thompson, James E., 3,546,563.
Wallace, Joseph Thomas, 3,546,547.

Motto, John W., Jr., to Westinghouse Electric Corporation. Pulse amplifier circuit for controlling a gate controlled switch. 3,546,488, Cl. 307-284.

Mottus, Edward H.: *See—*
Ort, Morris R., Mottus, Edward H., Baizer, Manuel M., and Carter, Don E.,3,546,083.

Mouille, Rene Louis, to Sud-Aviation Societe Nationale de Constructions Aeronautiques. Rotor for rotary-wing aircraft. 3,545,880, Cl. 416-114.

Mounce, George R.: *See—*
Kelly, Leonard, Hutter, James F., and Mounce, George R.,3,545,610.

Mowatt-Larssen, Rolf, and Hamilton, Samuel C., to Magor Railcar Division. Tiedown apparatus. 3,545,713, Cl. 248-361.

Mueller, John L., to Sparton Corporation. Tire mounting head. 3,545,463, Cl. 157-1.24

Muhler, Joseph C., to Indiana University Foundation. Compositions for caries prophylaxis containing indium fluorogermanate $In_2(GeF_6)_3$. 3,546,335, Cl. 424-52.

Muller, Alex M., and Sumida, Kunio A., to Telautograph Corporation. Automatic paper feeder. 3,545,742, Cl. 271-10.

Muller, Ernst. Frame structure and hydraulic press construction. 3,545,372, Cl. 100-214.

Muller, Hermann E. Cruciform male and female connectors. 3,545,123, Cl. 46-29.

Muller, Nathan William, Novy, Anton R., and Shea, Frederick L., Jr., to Great Lakes Carbon Corporation. Method of producing metallurgical coke. 3,546,076, Cl. 201-6.

Muller, Paul Adolf, to Celfil Company Establishment. Method of manufacturing filter ropes. 3,546,325, Cl. 264-47.

Mullin, John Brian: *See—*
Hurle, Donald Thomas James, and Mullin, John Brian,3,546,027.

Mumma, Harold J., to FMC Corporation. Fruit sizing apparatus. 3,545,612, Cl. 209-84.

Municio, Vicente Martin: *See—*
Ortuno, Angel V., Municio, Vicente Martin, and Mateos, Federico Lopez,3,545,958.

Munn, Alfred J., to United States of America, Army, mesne. Controlled axial impact testing apparatus. 3,545,251, Cl. 73-12.

Munn, Vaughn K.: *See—*
Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F.,3,546,696.

Munson, Arden L., to Mallory, P. R., & Co., Inc. Plug for wiring of different voltage levels. 3,546,662, Cl. 339-192.

Murai, Katsuji: *See—*
Kubo, Takao, and Murai, Katsuji,3,546,475.

Murase, Tamotsu, Mikami, Ichiro, Tamura, Moriyoshi, and Matsuda, Masaoki. Process for the production of alkali aromatic dicarboxylates. 3,546,282, Cl. 260-515.

Murch, Robert M.: *See—*
Rice, Rip G., Murch, Robert M., and de Vore, Dorothy C.,3,545,942.

Murnan, Kenneth E., 50% to Ford, Henry C. Attachment for preventing twist in monofilament fishlines. 3,545,119, Cl. 43-25.

Murphy, G.W., Industries, Inc.: *See—*
Botefuhr, Harold R., and Stavenhagen, Richard F., 3,546,502.

Murphy, John B.: *See—*
Bissett, Thomas B., Blair, Harold, Murphy, John B., and Tatch, Martin S.,3,546,693.

Myers, William N., to United States of America, National Aeronautics and Space Administration. Duct coupling for single-handed operation. 3,545,792, Cl. 285-38.

Myles, Michael J., Kupcikevicius, Vytautas, and Spellman, John P., to Union Carbide Corporation. Constant pressure filling apparatus. 3,545,038, Cl. 17-49.

Nagao, Kameji: *See—*
Nishio, Fumihiko, Yoneyama, Masakazu, Yamada, Minoru, and Nagao, Kameji,3,545,974.

Naigai Rubber Industry Co., Ltd.: *See—*
Takaoka, Yasunori, 3,545,120.

Nakamura, Toshio: *See—*
Ikeda, Yoneichi, Tashiro, Masaharu, Yamada, Kantaro, and Nakamura, Toshio,3,546,268.

Nakatani, Hiromi, and Katagiri, Kiyoshi, to Takeda Chemical Industries, Ltd. Foodstuff with phosphate peroxide additive. 3,545,982, Cl. 99-150.

Namiuchi, Akira: *See—*
Hotta, Naoki, Namiuchi, Akira, and Arita, Masahiko,3,546,205.

Naphtachimie: *See—*
Granger, Camille, Repiquet, Gerard, Buisson, Michel, and Dausque, Jean, 3,546,145.

Nash, Eugene W. Tennis racket with string supports of variable resiliency. 3,545,756, Cl. 273-73.

Nash, James R., to Dow Chemical Company, The. Indexing actuator. 3,545,169, Cl. 53-67.

Nash, Robert Arnold: *See—*
Leeson, Lewis Joseph, Nash, Robert Arnold, and Ritter, Lawrence,3,546,339.

Naslund, Lars A.: *See—*
Douros, John D., Jr., Naslund, Lars A., and Lahl, William J.,3,546,071.

National Beryllia Corporation: *See—*
Hessinger, Philip S., 3,546,543.

National Distillers and Chemical Corporation: *See—*
Braus, Harry, and Woltermann, Jay R., 3,546,272.
Corbett, Herbert O., 3,546,143.
Quackenbush, John J., 3,545,437.

National Lead Company: *See—*
White, Edward L., and Pitrot, Adrian R., 3,546,150.

National Research Development Corporation: *See—*
Betts, Albert Thomas, and Uri, Norbert, 3,546,159.
Clarke, John Michael, 3,545,899.
Hurle, Donald Thomas James, and Mullin, John Brian, 3,546,027.

National Service Industries, Inc.: *See—*
Osborn, Denis L., 3,545,406.

Naulty, Albert M., to Baldwin-Lima-Hamilton Corporation. Controllable pitch propeller with hydraulic power supply and control. 3,545,881, Cl. 416-157.

NB Jackets Corporation: *See—*
Dorman, Isidore, 3,545,327.

Ne Smith, Woodrow W.: *See—*
Junkert, Kenneth G., and Ne Smith, Woodrow W.,3,546,470.

Nebel, Ilse Ursula: *See—*
Hartel, Heinz, and Nebel, Ilse Ursula,3,546,286.

Nedelec, Maurice, to Compagnie de Saint-Gobain. Method and apparatus for shaping sheet material. 3,545,951, Cl. 65-104.

Neel, Emmanuel E.: *See—*
Chassagne, Pierre C., and Neel, Emmanuel E.,3,545,254.

Neese, Gerhard, and Witte, Alfred, to Durkoppwerke GmbH. Hooke's-type universal joint. 3,545,232, Cl. 64-17.

Neimeyer, Roelf. Interchangeable blade hoe kit. 3,545,551, Cl. 172-371.

Nelson Muffler Corporation: *See—*
Nelson, Ralph H., and Seils, Eddy J., 3,545,179.

Nelson, Ralph H., and Seils, Eddy J., to Nelson Muffler Corporation. Silencer. 3,545,179, Cl. 55-276.

Neptune Microfloc, Incorporated: *See—*
Ettlich, William F., and Hsiung, Andrew Kou-Ying, 3,545,619.

Neuber, Dieter: *See—*
Kjaer, Ian, and Neuber, Dieter,3,545,454.
Stahl, Lennart, and Neuber, Dieter,3,545,594.

Neuenschwander, Ernst, Schuett, Klaus, and Scheller, Walter, to Starck, Hermann C. Process for the preparation of finely divided, non-pyrophoric nitrides of zirconium, hafnium, niobium and tantalum. 3,545,922, Cl. 23-191.

Neumann, Otto W., to Amsted Industries, Incorporated. Reinforced bolster dampening friction shoe. 3,545,385, Cl. 105-197.

New, Harry E., and Hall, Boyer D., to Dow Chemical Company, The. Balloon control devices. 3,545,193, Cl. 57-73.

New York State Concord Grape Production Research Fund, Inc.: *See—*
Shepardson, Edwin Stanley, 3,545,183.

Newcomb Electronics Corporation: *See—*
Checinski, Wieslaw J. J., 3,546,610.

Newman, Howard, and Angier, Robert Bruce, to American Cyanamid Company. Fungicidal and bactericidal bisdithiole compounds. 3,546,247, Cl. 260-327.

Neya, Harunaga: *See—*
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio,3,546,679.

Niblock, William John, to Qeleq Limited. Analogue computer for linear programming. 3,546,443, Cl. 235-180.
Nicholls, John William. Framework construction connector. 3,545,796, Cl. 287-54.
Nichols, Gordon E., to Winthrop-Atkins Co., Inc. Photograph frame. 3,545,115, Cl. 40-152.1
Nicodemus, Paul O., to General Electric Company. Method for making thin wall insulated wire. 3,546,014, Cl. 117-218.
Nicoski, Thomas J., to Trane Company, The. Heat pump apparatus. 3,545,224, Cl. 62-262.
Niegisch, Walter D., to Union Carbide Corporation. Surface crystallization of poly (2,2,4,4-tetra- methylcyclobutanediol-1,3) carbonates by organic solvent/organic non-solvent liquid solutions. 3,546,331, Cl. 264-343.
Nielsen, Jens C. Camera telescope apparatus for guns. 3,545,356, Cl. 95-12.
Niemand Bros. Inc.: *See—*
Falcomato, Rocco, and Almouli, Jacob A., 3,545,495.
Niklas, Hans, to Varta Aktiengesellschaft. Chargeable cell. 3,546,024, Cl. 136-182.
Nimaroff, Alexander, to Nimrow Paper Products Co. Box, and blank therefor. 3,545,665, Cl. 229-31.
Nimrow Paper Products Co.: *See—*
Nimaroff, Alexander, 3,545,665.
Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.): *See—*
Nishizawa, Minoru, Harada, Shigehisa, and Tanuma, Yoshimi, 3,546,122.
Nippon Gappi Seizo Kabushiki Kaisha: *See—*
Uchiyama, Yasuji, 3,546,354.
Nippon Oil Company Ltd.: *See—*
Kuwata, Tsutomu, Oguchi, Yutaka, and Nomura, Hirotsugu, 3,546,104.
Nippon Oils and Fats Company Limited: *See—*
Asahara, Teruzo, Hirano, Jiro, and Kado, Masaru, 3,546,345.
Nippon Piston Ring Co., Ltd.: *See—*
Mori, Yoshio, 3,545,415.
Nippondenso Kabushiki Kaisha: *See—*
Ouki, Masami, Nagoya, and Suzuki, Masatoshi, 3,546,369.
Nishida, Masamitsu: *See—*
Ouchi, Hiromu, and Nishida, Masamitsu, 3,546,120.
Ouchi, Hiromu, and Nishida, Masamitsu, 3,546,121.
Nishijima, Tsutomu: *See—*
Suzuki, Toshi, and Nishijima, Tsutomu, 3,545,077.
Nishio, Fumihiko, Yoneyama, Masakazu, Yamada, Minoru, and Nagao, Kameji, to Fuji Shashin Film Kabushiki Kaisha. Method for preparing photographic light- sensitive elements. 3,545,974, Cl. 96-114.5
Nishizawa, Minoru, Harada, Shigehisa, and Tanuma, Yoshimi, to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.). Method of making oxide magnetic material. 3,546,122, Cl. 252-62.62
Nissan Jidoshi Kabushiki Kaisha: *See—*
Iijima, Tetsuya, 3,545,883.
Nitto Chemical Industry Co., Ltd.: *See—*
Ikeda, Yoneichi, Tashiro, Masaharu, Yamada, Kantaro, and Nakamura, Toshio, 3,546,268.
Nitzsche, Reinhard: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, and Ebster, Claus-Dieter, 3,546,189.
Noack, Klaus, to American Cyanamid Company. High pressure optical cell for fluids. 3,545,872, Cl. 356-246.
Nobbs, Vestal L. Girdle. 3,545,446, Cl. 128-522.
Nobell, Albert: *See—*
Christian, Daniel T., Look, Melvin, Nobell, Albert, and Armstrong, Thomas S., 3,546,199.
Noecker, Marshall V., to Kaufman Window and Door Corporation. Wicket door screen. 3,545,521, Cl. 160-180.
Nolting, Jerry L., to Texaco Inc. High frequency spark discharge system. 3,545,419, Cl. 123-148.
Nomoto, Hiroshi: *See—*
Ohashi, Shin-Ichi, and Nomoto, Hiroshi, 3,546,615.
Nomura, Hirotsugu: *See—*
Kuwata, Tsutomu, Oguchi, Yutaka, and Nomura, Hirotsugu, 3,546,104.
Nomura, Mikio: *See—*
Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio, 3,546,269.
Noponen, George E.: *See—*
Diamond, James H., and Noponen, George E., 3,546,148.
Noranda Mines Limited: *See—*
Themelis, Nickolas J., and Schmidt, Paul R., 3,545,962.
Norbatrol Electronic Corporation: *See—*
Shimp, Alan B., 3,546,567.
North American Rockwell Corporation: *See—*
Brown, Walter, 3,545,474.
Brown, Walter, and Hood, Peter, 3,545,489.
Cook, Robert G., 3,546,657.
Dentino, Mauro J., and Reitz, Eugene A., 3,545,841.
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L., 3,545,866.
King, Wilson T., 3,545,092.
Lenz, Charles E., 3,546,603.
Manasevit, Harold M., 3,546,036.
Waldron, Stoddard S., 3,545,540.
Williams, Donald P., 3,546,580.
North East Fluidics, Inc.: *See—*
Kinner, Hans-Dieter, 3,545,487.
North Western Specialities Limited: *See—*
Bailey, Kenneth Jeffrey, 3,546,360.
Northern Electric Company Limited: *See—*
Laing, Graham S., and Coumans, Harry M., 3,546,397.
Reader, William R., 3,546,442.
Northrop Corporation: *See—*
Junkert, Kenneth G., and Ne Smith, Woodrow W., 3,546,470.
Pershing, Harold W., and Meuleman, Gaston, 3,545,112.
Northwest Nitro Chemicals, Ltd.: *See—*
Alston, Robert E., 3,545,954.
Norton, Robert K., to Harris-Intertype Corporation. Lithographic dampener with fountain brush deflection means. 3,545,379, Cl. 101-148.
Nosco, Jeanne M. Violin bow teaching attachment. 3,545,330, Cl. 84-282.
Novy, Anton R.: *See—*
Muller, Nathan William, Novy, Anton R., and Shea, Frederick L., Jr., 3,546,076.
NSU Motorenwerke Aktiengesellschaft: *See—*
Belzner, Adolf, 3,545,901.
Nunlist, Erwin J., to Sybron Corporation. Fluidic filling machine. 3,545,502, Cl. 141-131.
N.V Nederlandsche Kabelfabrieken: *See—*
Bienfait, Constant, 3,545,191.
Nystrom, Thomas L.: *See—*
Frederick, Russell E., and Nystrom, Thomas L., 3,546,025.
Nystuen, David L., to Economics Laboratory, Inc. Sorting various pieces of silverwave by kind and size. 3,545,613, Cl. 209-85.
Oberg, Paul E.: *See—*
Paul, Maynard C., Sauter, Gerald F., and Oberg, Paul E., 3,546,579.
Oberle, Theodore L.: *See—*
Loyd, Calvin D., Oberle, Theodore L., and Satzler, Ronald L., 3,545,071.
O'Brien, Morrough: *See—*
Chopp, John A., O'Brien, Morrough, Roberts, Mack O., and Scholz, Hubert, 3,546,423.
O'Connell, Thomas Brian. Dental cleaning means and process for making same. 3,545,025, Cl. 15-104.94
O'Connor, John J., Rubin, Bernard, and Armington, Alton F., to United States of America, Air Force. Copper chloride crystal growth in silica gel matrix. 3,545,940, Cl. 23-300.
O'Connor, Judith A.: *See—*
McKelvey, John B., Benerito, Ruth R., Berni, Ralph J., and O'Connor, Judith A., 3,545,912.
Odend'Hal, Fortune, and Duffy, Patrick J., to Jamison Door Company. Installation package for prefabricated door. 3,545,133, Cl. 49-380.
O'Donnell, John T.: *See—*
Arentzen, Charles, and O'Donnell, John T., 3,545,961.
Ogden Technology Laboratories, Inc.: *See—*
Frezzolini, James A., 3,546,576.
Oguchi, Yutaka: *See—*
Kuwata, Tsutomu, Oguchi, Yutaka, and Nomura, Hirotsugu, 3,546,104.
Ohashi, Shin-Ichi, and Nomoto, Hiroshi, to Hitachi Ltd. Field effect transistor amplifier. 3,546,615, Cl. 330-24.
Ohashi, Tamaki,. Pushbutton type tuning apparatus. 3,545,288, Cl. 74-10.33
Ohashi, Tamaki. Pushbutton construction for pushbutton-type tuning apparatus. 3,545,289, Cl. 74-10.33
Ohgoshi, Akio: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu, 3,546,516.
Ohgoshi, Akio, and Miyaoka, Senri, to Sony Corporation. Electron gun electrical connection apparatus. 3,546,525, Cl. 315-13.
Ohio State University, The: *See—*
McMaster, Robert, Libby, Charles C., and Minchenko, Hildegard M., 3,546,498.
Ohlson, John L.: *See—*
Isgur, Irving E., and Ohlson, John L., 3,546,059.
Ohmi Netting Co., Ltd.: *See—*
Takaoka, Yasunori, 3,545,120.
Oister, William Harry, to Pennwalt Corporation. Odorized gas. 3,545,949, Cl. 48-195.
Okashita, Hiroshi: *See—*
Umezawa, Hirokazu, and Okashita, Hiroshi, 3,545,925.
Okuma, Kisaburo, to Okumaseisakujo Co., Ltd. Apparatus for pneumatically effecting remote control of movable toys. 3,545,125, Cl. 46-210.
Okumaseisakujo Co., Ltd.: *See—*
Okuma, Kisaburo, 3,545,125.
Okumura, Shinji: *See—*
Yoshinaga, Fumihiro, Kimura, Michiko, Shibuya, Masao, and Okumura, Shinji, 3,546,070.
Old England Watches Limited: *See—*
Loftus, Richard, 3,545,198.
Olin Corporation: *See—*
Pryor, Michael J., and Gullotti, Damian V., 3,546,363.
Shive, Richard A., 3,545,394.
Olin Mathieson Chemical Corporation: *See—*
Faust, John P., Jache, Albert W., and Klanica, Andrew J., 3,545,924.

Olivetti, Ing., C., & C., S.p.A.: *See—*
Ollearo, Giorgio, 3,545,075.
Ollearo, Giorgio, to Olivetti, Ing., C., & C., S.p.A. Machine tool with automatic tool changing mechanism. 3,545,075, Cl. 29-568.
Olson, Millard A.: *See—*
Van Horssen, Arden D., Vetter, Ottomar H., and Olson, Millard A., 3,546,658.
Olson, Otis J., and Dittmer, Thomas W., to Borg-Warner Corporation. Electric motor with rotary-to-linear motion conversion. 3,546,506, Cl. 310-83.
Olson, Rodney I. Fiberglass bin. 3,545,641, Cl. 220-97.
Olsson, Raymond G., to General Electric Company. Semiconductor mask making. 3,545,854, Cl. 355-46.
O'Mahoney, Richard A., to Velcor, mesne. Single pole forearm crutch and basket. 3,545,462, Cl. 135-47.
Omark Industries, Inc.: *See—*
Locati, Norman C., 3,545,188.
Tupper, Myron D., 3,545,508.
Omniversal Design: *See—*
Kostick, John M., 3,546,049.
Omohundro, William A., to General Electric Company. Steam generator. 3,546,428, Cl. 219-271.
Omori, Masahiro, to Varian Associates. Electronically tuned solid state oscillator. 3,546,624, Cl. 331-107.
Onanian, Richard A. Cube and parallelipiped half blocks forming modular elements connectable in ways. 3,545,122, Cl. 46-25.
O'Neel, Jack D. Midspan service connector. 3,546,364, Cl. 174-72.
Ong, Sien Ling, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for dyeing mixtures of cellulosic and polyester fibers with reactive and disperse dyestuffs. 3,545,910, Cl. 8-21.
Ookubo, Tomoji: *See—*
Hayashi, Genichi, and Ookubo, Tomoji, 3,545,914.
Openshaw, Ian Kay: *See—*
Browning, George William, Van Groos, Lambert George Marien Albert, Proctor, Harold, and Openshaw, Ian Kay, 3,546,453.
Oppenheimer, Inc.: *See—*
Hurst, John F., and Bodri, Joseph S., 3,545,114.
Optische Werke G. Rodenstock: *See—*
Wilms, Karl-Heinz, 3,545,846.
Orbeck, Einar M., to United Aircraft Corporation. Welded fluid seal. 3,545,343, Cl. 92-165.
Orii, Sho. Device for supporting an object for displacement on a supporting surface or for being locked and leveled in position on the supporting surface. 3,545,707, Cl. 248-24.
Orlando, Charles M.: *See—*
Kesslin, George, Orlando, Charles M., and Blohm, Herbert W., 3,546,188.
Orobis Limited: *See—*
Coupland, Keith, 3,546,243.
Ort, Morris R., Mottus, Edward H., Baizer, Manuel M., and Carter, Don E., to Monsanto Company. Polymerization of olefinic compounds and catalysts therefor. 3,546,083, Cl. 204-131.
Ortuno, Angel V., Municio, Vicente Martin, and Mateos, Federico Lopez, to Empresa Auxiliar de la Industria S.A. Process of recovering iron ore from iron pyrites with acid leachant. 3,545,958, Cl. 75-3.
Osborn, Denis L., to National Service Industries, Inc. Breeder cage. 3,545,406, Cl. 119-17.
Osborn, Lloyd, to V-M Corporation. Tape recorder controls. 3,545,766, Cl. 274-4.
Oshima, Goro, Hirata, Hiroshi, and Tokunaga, Kenichiro, to Kabushiki Kaisha Yaskawa Denki Seisakusho. Vibration mill. 3,545,688, Cl. 241-69.
Oshima, Ryoichiro, and Tanaka, Sigeru, to Hitachi, Ltd. Granular substance filling apparatus. 3,545,503, Cl. 141-286.
Osterdahl, Ragnar, to Arenco Aktiebolag. Cigarette packeting machine. 3,545,172, Cl. 53-192.
Ostermeier, Kurt W., to Kimberly-Clark Corporation. Corona discharge applied directly to creping surface to increase adhesion of web to surface. 3,546,065, Cl. 162-111.
Osterreichische Studiengesellschaft fur Atomenergie Ges. mbH: *See—*
Higatsberger, Michael J., and Hick, Harald, 3,546,459.
Osthushenrich, Karl: *See—*
Hormann, Hermann, and Osthushenrich, Karl, 3,545,132.
Ottaway, James N., to Weyerhaeuser Company. Anti-drip mixing head for viscous material. 3,545,680, Cl. 239-413.
Ottermann, Hans-Gert, and Heinrich, Gottfried. Self-propelling paving machine. 3,545,349, Cl. 94-46.
Otto, Karl J.: *See—*
Lamprey Richard V., and Otto, Karl J., 3,545,737.
Ouchi, Hiromu, and Nishida, Masamitsu. Piezoelectric ceramic compositions. 3,546,120, Cl. 252-62.9
Ouchi, Hiromu, and Nishida, Masamitsu, to Matsushita Electric Industrial Co., Ltd. Piezoelectric ceramic compositions. 3,546,121, Cl. 252-62.9
Ouki, Masami, Nagoya, and Suzuki, Masatoshi, to Nippondenso Kabushiki Kaisha. Spark plug having composite insulator. 3,546,369, Cl. 174-152.
Overlie, Per T., to Warwick Electronics Inc. Forward and delayed reverse automatic gain control circuit. 3,546,591, Cl. 325-319.
Ovitron Corporation: *See—*
Troll, John, 3,546,377.
Owada, Haruo. Racket with an inclined frame and twisted handle. 3,545,755, Cl. 273-73.
Owatonna Tool Company: *See—*
Kaplan, Reuben A., and Boers, Jan H., 3,545,629.
Owens-Corning Fiberglas Corporation: *See—*
Marzocchi, Alfred, and Leary, David E., 3,545,293.
Owens-Corning Fiberglass Corporation: *See—*
Klink, Jerome P., Belue, James C., and Sears, James H., 3,545,699.
Owens-Illinois, Inc.: *See—*
Conrad, Malcolm A., 3,545,952.
Slade, Woodrow W., 3,545,988.
Palleniko, Benjamin, to Sanders Associates, Inc. Pulsed coherent oscillator. 3,546,631, Cl. 331-172.
Palyi, Leslie, and Pora, Nicholas. Grinding element. 3,545,513, Cl. 146-182.
Pan, Samuel C., Principe, Pacifico A., and Lerner, Leonard J., to Squibb, E. R., & Sons, Inc. Aromatized a-ring steroid. 3,546,260, Cl. 260-397.45
Paper Production Aids, Inc.: *See—*
Ware, Franklyn O., Soukup, Charles L., and Krueger, Wilbur W., 3,546,066.
Papero, Patrick V., Kosmala, James M., and Moore, Maurice S., to Allied Chemical Corporation. Vaporus polyisocyanate treatment of nylon shaped articles. 3,545,911, Cl. 8-115.5
Pappas, Lambros: *See—*
Grankowski, Eugene E., and Pappas, Lambros, 3,545,241.
Paragamian, Vasken, to McNeil Laboratories, Incorporated. 7,8-Dimethoxy-2-oxo-pyrimido[1,2-a]indoles. 3,546,225, Cl. 260-251.
Pare, Donat S. Coffin. 3,545,055, Cl. 27-7.
Park, William O., to Illinois Tool Works Inc. Compact filter for broad band electromagnetic interference suppression. 3,546,638, Cl. 333-79.
Parke, Davis & Company: *See—*
Davoll, John, 3,546,224.
Parker, James Brown: *See—*
Morman, James Forrester, and Parker, James Brown, 3,545,448.
Parker, Sidney A., to Lennox Industries Inc. Compressor crank shaft arrangement. 3,545,891, Cl. 417-372.
Parlesak, Josef: *See—*
Badal, Jiri, Holy, Jan, and Parlesak, Josef, 3,546,550.
Parr, Edward L., to Thompson, Wendell L. Indicator and a pressure indicating system. 3,545,276, Cl. 73-407.
Parsons, C. A., & Company Limited: *See—*
Richardson, Philip, 3,546,503.
Pasquarelli, Aldo: *See—*
Bertin, Mario, Moiso, Ugo, Craia, Giulio, and Pasquarelli, Aldo, 3,546,201.
Passavant-Werke: *See—*
Thorn, Ewald R., 3,545,620.
Paton, Hamilton Neil King. Differential-pressure flow-controlling valve mechanism. 3,545,470, Cl. 137-111.
Paton, William J.: *See—*
Springfield, Carlos L., Paton, William J., and Jeter, John D., 3,545,252.
Patrick, Frank, to Channellock, Inc. Pliers. 3,545,315, Cl. 81-368.
Patrick, Frank, to Channellock, Inc. Pliers. 3,545,316, Cl. 81-368.
Patron, Germano, to Montecatini Edison S.p.A. Process for stabilizing against decomposition halogenated hydrocarbons, and in particular chlorinated aliphatic hydrocarbons. 3,546,304, Cl. 260-652.5
Patton, Charles C., to Sangamo Electric Company. Reel mounting device. 3,545,695, Cl. 242-68.3
Patton, Tad L., to Esso Research and Engineering Company. Reduction of oxygen functions in graft copolymers. 3,546,322, Cl. 260-878.
Paturet, Michel: *See—*
Allais, Andre, and Paturet, Michel, 3,546,261.
Patykula, Thomas E., and Mann, Ernest P., to Hardinge Brothers, Inc. Automatic programmed reciprocable control for machine tools. 3,545,020, Cl. 10-128.
Paul, Donald G.: *See—*
Levy, Eugene J., and Paul, Donald G., 3,545,255.
Paul, Maynard C., Sauter, Gerald F., and Oberg, Paul E., to Sperry Rand Corporation. Thin-ferromagnetic-filmmagnetoresistance magneto- meter sensitive to easy axis field components and biased to be insensitive to hard axis field components. 3,546,579, Cl. 324-46.
Paull, Melvin. Electronic non-contact indicating apparatus. 3,545,482, Cl. 137-392.
Pavelich, William A., and Mosier, Charles F., Jr., to Gulf Oil Corporation. Method of coating a metal article with polymeric material. 3,546,016, Cl. 117-232.
Pawlak, Joseph A.: *See—*
Mellan, Herbert J., and Pawlak, Joseph A., 3,546,153.
Payne, Calvin L., Jr., to Tudor Metal Products Corporation. Strategy game device. 3,545,758, Cl. 273-94.
Payne, Linwood K., Jr., and Weiden, Mathias H. J., to Union Carbide Corporation. 4-(Methylcarbamoyloxy) carbanilates as insecticides and nematocides. 3,546,343, Cl. 424-300.
Paytas, Anthony R. Storm door pressure and vaccum release valve. 3,545,131, Cl. 49-171.
Peacock, Dixon W., to Phillips Petroleum Company. Recovery of hydrocarbons by in situ combustion. 3,545,544, Cl. 166-256.
Pechiney, Compignie de Produits Chimiques et Electrometallurgiques: *See—*
Mercier, Henri, and Cohen, Joseph, 3,545,923.
Pecor, James G. Pipe smoker's tobacco package. 3,545,449, Cl. 131-3.

Pedersen, Bjarne. Exhaust gas treatment. 3,545,201, Cl. 60-30.
Pedley, Roger Martin: *See—*
Gurner, John Raymond, Fletcher, William Henry, and Pedley, Roger Martin,3,545,693.
Peeters, Andreas Michiel Cyriel Corneel: *See—*
De Raedt, Egide Jacob Hendrik, Peeters, Andreas Michiel Cyriel Corneel, and Debruyne, Pieter Adolf Mathildis,3,546,389.
Peil, William: *See—*
Abbott, Harold W., Mathis, Vernon P., and Peil, William,3,546,561.
Pelino, William M., to Railtron Corporation. Railway signaling system. 3,546,448, Cl. 246-246.
Pelta, Edmond R., and Gold, Kenneth S., to Becton, Dickinson and Company, mesne. Respiration monitor. 3,545,429, Cl. 128-2.1
Pendleton, Wesley W., and Ulmer, William W., to Anaconda Wire and Cable Company. Electrodeposition of particulate coating material. 3,546,017, Cl. 117-232.
Pennwalt Corporation: *See—*
Oister, William Harry, 3,545,949.
Waltrich, Paul Francis, 3,545,097.
Pensabene, Philip, to Sealed Motor Construction Company Limited. Centrifugal pumps. 3,545,889, Cl. 417-366.
Peoples Gas Light and Coke Company, The: *See—*
Frederick, George A., and Burchard, Leonard E., 3,546,642.
Peppiatt, Harry J., to General Electric Company. Electrically tunable microwave band-stop switch. 3,546,633, Cl. 333-7.
Perkins, George D.: *See—*
Marcheschi, Henry, and Perkins, George D.,3,546,396.
Perkins, Merlyn H.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.
Permalite Chemicals, Ltd.: *See—*
Law, Malcolm J., 3,546,081.
Perri, John A., and Riseman, Jacob, to International Business Machines Corporation. Method of providing protective coverings for semiconductors. 3,546,013, Cl. 117-215.
Perrin, Alfred J.: *See—*
Peters, Martin C., and Perrin, Alfred J.,3,545,536.
Perrings, James D., to United States of America, Atomic Energy Commission. Electrode assembly for detecting particles in fluid supension. 3,546,583, Cl. 324-71.
Perry, Edmond S., to Eastman Kodak Company. Apparatus for producing and processing viscous materials. 3,545,938, Cl. 23-285.
Perty, E.S., Limited: *See—*
Day, William John, 3,545,168.
Perry Industries, Inc.: *See—*
Aronson, Theodore F., 3,545,345.
Perry, Kenneth J., to Dor-O-Matic (G.B.) Limited. Door closer devices. 3,545,030, Cl. 16-55.
Pershing, Harold W., and Meuleman, Gaston, to Northrop Corporation. Flip chart. 3,545,112, Cl. 40-104.18
Peter, Siegfried: *See—*
Deicher, Oskar, Peter, Siegfried, and Buchholz, Otto,3,545,916.
Peterli, Hans Jakob: *See—*
Kirchmayr, Rudolf, Peterli, Hans Jakob, and Heller, Hansjorg,3,546,270.
Peterli, Hans Jakob, and Heller, Hansjorg, to Geigy Chemical Corporation. Polymers containing sulphur-containing antioxidants. 3,546,163, Cl. 260-45.95
Peters and Russell, Inc.: *See—*
Russell, Linus E., 3,545,897.
Peters, Martin C., and Perrin, Alfred J., to Babcock & Wilcox, Ltd. Heat exchangers. 3,545,536, Cl. 165-134.
Petersen, Paul S.: *See—*
Bloomfield, Roger D., Petersen, Paul S., and Wiele, Robert W.,3,545,103.
Petersen, Walter A., to International Nickel Company, Inc., The. Welding copper-nickel alloys. 3,545,945, Cl. 29-199.
Peterson, Ardis: *See—*
Peterson, Glenn H., 3,545,018.
Peterson, Don G., and Yariv, Amnon, to Lockheed Aircraft Corporation. Laser having controlled frequency translation. 3,546,622, Cl. 331-94.5
Peterson, Glenn H., 1/2 to Peterson, Ardis. Method and apparatus for cutting multiple threads in large workpieces. 3,545,018, Cl. 10-101.
Peterson, Victor S., and Hansen, Irving G., to United States of America, National Aeronautics and Space Administration. Flow angle sensor and read out system. 3,546,471, Cl. 250-225.
Petranek, David J., to Trane Company, The. Dual powered refrigeration system. 3,545,222, Cl. 62-236.
Pettibone Corporation: *See—*
Burian, Wencil J., Herman, Donald E., Stepanek, Robert M., and Vifian, Paul R., 3,545,690.
Pfaff, G. M., AG: *See—*
Kraushofer, Otto, 3,545,655.
Pfeifer, Friedrich, and Deller, Rudolf, to Vacuumschmelze GmbH. Process for treating nickel-iron-molybdenum alloy to increase induction rise and pulse permeability. 3,546,031, Cl. 148-108.
Pfeiffer, Francis R.: *See—*
Georgian, Vlasios, and Pfeiffer, Francis R.,3,546,292.
Phelps, Vernon A., Read, Merwin F., and Read, Frederick E. Close tolerance gasket making. 3,545,321, Cl. 82-47.
Phillips, James P., to Jet Cit Thru, Inc., mesne. Vehicle washing apparatus. 3,545,459, Cl. 134-123.
Phillips Petroleum Company: *See—*
Banks, Robert L., 3,546,313.
Broerman, Arthur B., 3,545,491.
Cardenas, Carlos G., 3,546,310.
Davison, Joseph W., 3,546,315.
Dunn, Howard E., 3,546,216.
Gabriel, Henry, 3,545,456.
Godin, James B., 3,546,132.
Goodhue, Lyle D., Cantrel, Kenneth E., and Reinert, Andrew J., 3,546,340.
Heckelsberg, Louis F., 3,546,311.
Heckelsberg, Louis F., and Banks, Robert L., 3,546,312.
Johnson, Marvin M., and Stapp, Paul R., 3,546,118.
Larson, Lewis G., 3,546,314.
Peacock, Dixon W., 3,545,544.
Tabler, Donald C., 3,546,307.
Walker, Darrell W., and Czenkusch, Edward L., 3,545,930.
Wofford, Clinton F., Busler, William R., and Hsieh, Henry L., 3,546,134.
Phone-Ducs, Inc.: *See—*
Freeman, Jerry H., 3,545,493.
Photocircuits: *See—*
Schneble, Frederick W., Jr., Leech, Edward John, and McCormack, John Francis, 3,546,009.
Phydrex Limited: *See—*
Fleet, Ralph G., deJersey Phillips, Charles, and Fleet, Stuart H., 3,546,429.
Physical Sciences Corporation: *See—*
Earl, John A., 3,545,950.
Pichering & Company, Inc.: *See—*
Stanton, Walter O., and Kuehn, John P., 3,546,399.
Pickering & Company, Inc.: *See—*
Chass, Jacob, 3,546,648.
Pierce, Joseph E.: *See—*
Christine, William C., and Pierce, Joseph E.,3,545,173.
Piereder, Ludwig, to Hygrade Food Products Corporation. Frankfurter severing machine. 3,545,035, Cl. 17-1.
Pietrini, Rachael M. Visual fusion training instrument. 3,545,847, Cl. 351-2.
Pietrzak, Joe P., Strahan, Robert M., and Albright, Bruce S., to General Motors Corporation. Ice tray and bin combination. 3,545,717, Cl. 249-69.
Piguet, Pierre, to Ateliers des Charmilles S.A. Hydraulic machine. 3,545,879, Cl. 415-160.
Pines Engineering Co., Inc.: *See—*
Beckwell, George, 3,545,089.
Pinnhammer, Friedrich Wilhelm, to Girling Limited. Disc brakes and shoe retaining means. 3,545,575, Cl. 188-73.6
Pino, Piero, Sbrana, Glauco, and Braca, Giuseppe, to Lonza Ltd. Process for production of allyl ruthenium tricarbonyl halides. 3,546,264, Cl. 260-429.
Piotrowski, George Peter: *See—*
Spaeth, Willis Edwin, Piotrowski, George Peter, and Sadowski, Edward Marion,3,546,402.
Pipon, Robert: *See—*
Gobron, Georges, and Pipon, Robert,3,546,296.
Pitney-Bowes, Inc.: *See—*
Beeken, Basil B., 3,545,256.
Hochberg, David Louis, 3,545,997.
Tramposch, Herbert, and Korth, Henry, 3,545,556.
Pitrot, Adrian R.: *See—*
White, Edward L., and Pitrot, Adrian R.,3,546,150.
Plankenhorn, Erwin: *See—*
Christmann, Otto, Bernhard, Claus, and Plankenhorn, Erwin,3,545,992.
Plasser, Franz, and Theurer, Josef. Method and apparatus for correcting the position of a track. 3,545,384, Cl. 104-7.
Platt, Eric, and Thompson, Marvin F., to International Telephone and Telegraph Corporation. Electronics switching telephone system using mos devices. 3,546,394, Cl. 179-18.
Plenikowski, Johannes: *See—*
Seifert, Friedrich, Bittscheidt, Josef, and Plenikowski, Johannes,3,546,326.
Plessey Company Limited, The: *See—*
Craster, William, 3,546,497.
Fortune, Henry James, 3,545,768.
Gurner, John Raymond, Fletcher, William Henry, and Pedley, Roger Martin, 3,545,693.
Holdsworth, Alan, 3,545,291.
Levison, Jack, 3,546,546.
Selby, Ronald P., and Richards, Clement J., 3,546,704.
Viner, Derek G., and Thompson, John S., 3,545,900.
Podschadly, Gerhard, Siemon, Detlev, and Tamm, Rolf, to Bodenseewerk Perkin-Elmer & Co., G.m.b.H. Sample conveying arrangement for chemical analysis apparatus. 3,545,933, Cl. 23-253.
Pohl, Dieter, to Siemens Aktiengesellschaft. Shielded electrical inductive apparatus. 3,546,358, Cl. 174-35.
Poland, Maurice D. Windshield wiper replacement blade. 3,545,028, Cl. 15-250.36
Polaroid Corporation: *See—*
Brandt, Edison R., 3,545,904.
Burgarella, John P., 3,545,870.
Buzzell, Harold O., 3,545,998.
Pollak, Kurt, to Esso Research and Engineering Company. Amine salts of dithiophosphoric acids. 3,546,324, Cl. 260-925.

Poloroid Corporation: *See—*
Bellows, Alfred H., 3,545,352.
Erlichman, Irving, and Rosen, William J., 3,545,357.
Gross, Thomas A. O., 3,545,350.
McCune, William J., Jr., 3,545,354.
Russell, Robert H., 3,545,358.
Polovina, Walter: *See—*
Shepherd, Thomas H., and Polovina, Walter,3,546,195.
Pommer, Ernst-Heinrich: *See—*
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto,3,546,147.
Pora, Nicholas: *See—*
Palyi, Leslie, and Pora, Nicholas,3,545,513.
Porath, Gordon H., Rosen, Philip J., and Greenberg, Myron L., to Babcock & Wilcox Company, The. Adaptive machine tool control system. 3,545,310, Cl. 77-32.7
Porges, Karl G., to United States of America, Atomic Energy Commission. Neutron flux plotting device. 3,546,455, Cl. 250-83.1
Porth, Erwin, to Mathias Bauerle Gesellschaft mit beschrankter Haftung. Collator with sheet feeders assisted by vibration. 3,545,741, Cl. 270-58.
Potakis, Angelos A.: *See—*
Levin, Nathan D., and Potakis, Angelos A.,3,545,838.
Potter Instrument Company, Inc.: *See—*
Gabor, Andrew, 3,546,685.
Klang, Daniel M., 3,545,700.
Power, Basil Dixon: *See—*
Wycliffe, Henryk, and Power, Basil Dixon,3,545,888.
Power, Bernard A., and Power, Robert F. Method of cloud seeding. 3,545,677, Cl. 239-2.
Power, Robert F.: *See—*
Power, Bernard A., and Power, Robert F.,3,545,677.
Powers Regulator Company: *See—*
Taylor, Wesley L., 3,545,675.
Powers, Richard J. Coupling device. 3,546,659, Cl. 339-91.
PPG Industries, Inc.: *See—*
Lott, Harry, Jr., and Walsh, Robert H., 3,545,994.
Prasse, Herbert F., to Ramsey Corporation. Piston ring and method of making same. 3,545,775, Cl. 277-216.
Precision Specialties, Inc.: *See—*
Baer, John S., 3,545,580.
Prendergast, Richard E.: *See—*
Tysver, Oliver J., Tate, Oliver C., and Prendergast, Richard E.,3,546,655.
Presto Lock Co., Inc.: *See—*
Gehrie, Charles S., and Feinberg, Irving, 3,545,238.
Prevorsek, Dusan C., and Lamb, George E. R., to Allied Chemical Corporation. Blends of polyamides, polyester and polyolefins containing minor amounts of elastomers. 3,546,319, Cl. 260-857.
Priddy, Duane B., and Hennis, Henry E., to Dow Chemical Company, The. Chloromethyl bisphenol A ethers. 3,546,299, Cl. 260-613.
Princeton Chemical Research, Inc.: *See—*
Shepherd, Thomas H., and Polovina, Walter, 3,546,195.
Principe, Pacifico A.: *See—*
Pan, Samuel C., Principe, Pacifico A., and Lerner, Leonard J.,3,546,260.
Pringle, William L.: *See—*
Brawner, Frederick A., and Pringle, William L.,3,545,788.
Prins, Daniel A.: *See—*
Schroter, Herbert, and Prins, Daniel A.,3,546,275.
Pritulsky, James, to AMP Incorporated. Electrical connector assembly. 3,546,656, Cl. 339-16.
Pritz, Howard B.: *See—*
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U.,3,545,376.
Probst, Willi: *See—*
Stoll, Oskar, and Probst, Willi,3,545,829.
Proctor & Gamble Company, The: *See—*
Jorgensen, Jorgen L., 3,545,381.
Proctor, Harold: *See—*
Browning, George William, Van Groos, Lambert George Marien Albert, Proctor, Harold, and Openshaw, Ian Kay,3,546,453.
Proctor-Silex Incorporated: *See—*
Eaton, John L. J., 3,545,585.
Produits Chimiques Pechiney-Saint-Gobain: *See—*
Chatelain, Jean, 3,546,144.
Pross, Charles M.: *See—*
Barnard, John D., Gaito, Carl C., Giedd, Gary R., Greene, Thomas G., Lind, James W., Perkins, Merlyn H., and Pross, Charles M.,3,546,582.
Pross, Wilhelm: *See—*
Fahlenberg, Paul, Pross, Wilhelm, and Wildfeuer, Heinrich,3,545,359.
Proteus, Inc.: *See—*
Irgon, Joseph, and Cole, Howard W., Jr., 3,545,547.
Pryor, Michael J., and Gullotti, Damian V., to Olin Corporation. Composite glass-to-metal seal. 3,546,363, Cl. 174-52.
Pullum, Geoffrey George, and Knowles, William Ralph, to Standard Telephones and Cables Limited. Magnetic storage arrangements. 3,546,683, Cl. 340-174.
Purer, Phillip. Electrical adapter. 3,546,650, Cl. 337-91.
Purex Corporation Ltd.: *See—*
Dohogne, Charles L., and Harrington, James C., 3,546,084.
Putzmeister GmbH: *See—*
Schlecht, Karl, 3,545,893.
Pylon Tool Corporation: *See—*
Zaleski, Mitchele J., 3,546,368.
Qeleq Limited: *See—*
Niblock, William John, 3,546,443.
Quackenbush, John J., to National Distillers and Chemical Corporation. Disposable cooled oxygen mask. 3,545,437, Cl. 128-146.7
Quanstrom, Jack L.: *See—*
Jump, William L., and Quanstrom, Jack L.,3,546,537.
Quick-Set Incorporated: *See—*
Mooney, Paul C., 3,545,710.
Quine, John P., and Younger, Cousby, to United States of America, Air Force. Waveguide mode selective absorber. 3,546,635, Cl. 333-21.
Rabatin, Jacob G., to General Electric Company. Lanthanum and gadolinium oxybromide luminescent materials activated with erbium. 3,546,128, Cl. 252-301.4
Rabilloud, Guy, Sillion, Bernard, and De Gaudemaris, Gabriel, to Institut Francais du Petrole des Carburants et Lubrifiants. Thermostable nitrogen-containing resins containing amide functions and benzimidazole rings. 3,546,166, Cl. 260-47.
Radlove, Sol B., and Ravve, Abraham, to Continental Can Company, Inc. Process of applying blended unsaturated acid esterified copolymer surface coatings including crosslinking the blended copolymers with ionizing radiation. 3,546,002, Cl. 117-93.31
Ragazzini, Mario: *See—*
Vandi, Antonio, Valeretto, Francesco, and Ragazzini, Mario,3,546,196.
Ragen, Robert A., to Singer Company, The. Calculator. 3,546,676, Cl. 340-172.5
Railtron Corporation: *See—*
Pelino, William M., 3,546,448.
Raley, Philip W., and Derrickson, Michael O., to FMC Corporation. Strap gripper for strap tensioning tool. 3,545,723, Cl. 254-79.
Ramsey Corporation: *See—*
Prasse, Herbert F., 3,545,775.
Ramsey Engineering Company: *See—*
Lawler, Barry L., 3,546,558.
Rana, Victoriano F., and Roseman, Joseph C., to Sheridan, T. W., & C. B., Company. Signature feed for high-speed signature gathering machine. 3,545,740, Cl. 270-54.
Randall, Frank E.: *See—*
Smith, Lester L., and Randall, Frank E.,3,546,039.
Randrup, Benjamin F. Rotary cleaning device and apparatus for cleaning. 3,545,024, Cl. 15-60.
Randrup, Benjamin F. Indexing and decrowning device. 3,545,174, Cl. 53-381.
Rapid Mounting and Finishing Company: *See—*
Babberl, Marion G., 3,545,113.
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich. Ship with ice-breaking attachment. 3,545,395, Cl. 114-41.
Ratzsch, Manfred, Nitzsche, Reinhard, and Ebster, Claus-Dieter, to VEB Luena-Werke 'Walter Ulbricht'. Method for making ethyl polymerisates or ethyl copolymerisates in tube reactors. 3,546,189, Cl. 260-88.1
Rauland Corporation, The: *See—*
Dunn, Peter E., 3,546,518.
Rauscher, Joseph C. Automatic shearing device. 3,545,324, Cl. 83-363.
Ravello, Henri, to Automobiles Peugeot, and Regie Nationale des Usines Renault. Gearbox having synchronizers and at least one unsynchronized speed. 3,545,295, Cl. 74-339.
Ravve, Abraham: *See—*
Radlove, Sol B., and Ravve, Abraham,3,546,002.
Raytheon Company: *See—*
Freedman, Nathan, 3,546,695.
RCA Corporation: *See—*
Baugher, Dale M., 3,546,627.
Cornely, Roy H., 3,546,495.
Dague, Leonard P., 3,546,611.
Dischert, Robert A., Brooks, Robert R., and Cosgrove, William J., 3,546,372.
Espinal, Daniel, 3,546,487.
Fisher, Michael S., 3,546,528.
Gerritsen, Hendrik J., and Greenaway, David L., 3,545,834.
Korn, Traugott A., and Justus, Paul E., 3,546,681.
Macovski, Albert, 3,546,373.
Menkes, Elchanan Dove, 3,546,618.
Monahan, John F., 3,546,602.
Sheetz, Harry J., and Molloy, Robert T., 3,546,075.
Tourtellot, John A., 3,545,767.
Wen, Cheng P., 3,546,637.
Westwood, David H., 3,546,617.
Reabe, Kenneth G.: *See—*
Dressler, Hans, and Reabe, Kenneth G.,3,546,280.
Read, Frederick E.: *See—*
Phelps, Vernon A., Read, Merwin F., and Read, Frederick E.,3,545,321.
Read, Merwin F.: *See—*
Phelps, Vernon A., Read, Merwin F., and Read, Frederick E.,3,545,321.
Reader, William R., to Northern Electric Company Limited. Digital subtractor with means for providing conjugate angle. 3,546,442, Cl. 235-177.

Reardon, John E.: *See—*
Stern, Harold, and Reardon, John E.,3,546,131.
Rebovich, Edward P., and Morrison, Robert S., to Morrison Industries, Inc., mesne. Press. 3,545,044, Cl. 18-16.
Reed, David M. Work vehicle. 3,545,634, Cl. 214-510.
Reedy, Richard C., and Baker, Donald V., III, to Cordell Engineering, Incorporated. Photographic processing apparatus. 3,545,364, Cl. 95-89.
Rees, William W.: *See—*
Barnes, John C., Wilt, Chester C., and Rees, William W.,3,545,971.
Reeves, John F.: *See—*
Lickliter, Robert Paul, Abbott, Earl, and Reeves, John F.,3,545,368.
REGA Regelungs- und Steuerngstechnik GmbH & Co.: *See—*
Lochstampfer, Horst, 3,546,614.
Regelson, Ephraim: *See—*
Creccelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G.,3,546,376.
Regie Nationale des Usines Renault: *See—*
Ravello, Henri, 3,545,295.
Ventre, Pierre, 3,545,806.
Reich, Robert Walter. Electronic clock without mechanical vibrator or regulator. 3,546,625, Cl. 331-110.
Reid, Bruce K., and Christensen, Frank W., to Thiokol Chemical Corporation. Fluid pressure transducer. 3,545,267, Cl. 73-171.
Reid, Bruce Lestock: *See—*
Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.-J.,3,545,907.
Reid, Lee R., Shortes, Samuel R., and Kennedy, Frederick G., to Texas Instruments, Incorporated. Phosphors for color display systems. 3,546,003, Cl. 117-100.
Reilly, Charles D.: *See—*
Chow, Che Chung, and Reilly, Charles D.,3,546,675.
Reinert, Andrew J.: *See—*
Goodhue, Lyle D., Cantrel, Kenneth E., and Reinert, Andrew J.,3,546,340.
Reist, Walter, to Ferag, Fehr & Reist AG. Device for the pressing of flexible sheets arriving in a continuous stream. 3,545,371, Cl. 100-176.
Reist, Walter, to Ferag, Fehr & Reist AG. Control device for a two section belt conveyer. 3,545,595, Cl. 198-76.
Reitz, Eugene A.: *See—*
Dentino, Mauro J., and Reitz, Eugene A.,3,545,841.
Reliance Electric Company: *See—*
Downey, Holmes A., 3,545,231.
Remington Arms Company, Inc.: *See—*
DeWeese, William R., and Bucha, Louis J., 3,545,505.
Renfro, James C.: *See—*
Dunn, James L., Jr., and Renfro, James C.,3,545,928.
Renk, Ulrich: *See—*
Hargasser, Hans, Schatter, Eckart, and Renk, Ulrich,3,546,616.
Repiquet, Gerard: *See—*
Granger, Camille, Repiquet, Gerard, Buisson, Michel, and Dausque, Jean,3,546,145.
Republic Steel Corporation: *See—*
Judd, Tyler W., 3,545,258.
Research Corporation: *See—*
Bose, Ajay K., 3,546,211.
Resener, Baird E., to Amsted Industries Incorporated. Top plate assembly for conveyor chain. 3,545,597, Cl. 198-195.
Rex Chainbelt Inc.: *See—*
Morris, John M., 3,546,505.
Reynolds, George O., and Cronin, David J., to Technical Operations, Incorporated. Analysis and processing of incoherent radiation fields with cross-correlated compound image determining means. 3,545,842, Cl. 350-162.
Reynolds, James C. Training method and apparatus for ILS landings. 3,546,350, Cl. 35-10.2
Reynolds Metals Company: *See—*
Barkman, Erik F., Coates, Harold J., and Jones, Garth Sanford, 3,546,088.
Lightner, Robert B., 3,545,078.
Rhone-Poulenc: *See—*
Baronnier, Jean, and Boissieras, Jean, 3,546,156.
Ricardo & Co., Engineers Ltd.: *See—*
Alcock, John Forster, 3,545,569.
Rice, Rip G., Murch, Robert M., and de Vore, Dorothy C., to Grace, W. R., & Co. Linear phosphonitrilic chloride derivatives containing terminal organic groups. 3,545,942, Cl. 23-357.
Rice, William, Jr. Combined timepiece and compass. 3,545,199, Cl. 58-152.
Rich, Alan H. Oceanographic generator. 3,546,473, Cl. 290-42.
Rich, John, Enterprises, Inc.: *See—*
Rich, John W., 3,545,802.
Rich, John W., to Rich, John, Enterprises, Inc. Liquid shock absorbing buffer. 3,545,802, Cl. 293-1.
Richards, Clement J.: *See—*
Selby, Ronald P., and Richards, Clement J.,3,546,704.
Richards, George, & Company Limited: *See—*
Davies, Beaumont J., 3,545,401.
Richardson, Charles R., Jr., and Fegem, James F., to Sani-Seat Inc. Hygienic apparatus. 3,545,015, Cl. 4-7.
Richardson, Philip, to Parsons, C. A., & Company Limited. Dynamoelectric machine with radial air gap winding and a vibration reducing arrangement between the stator core and winding. 3,546,503, Cl. 310-51.
Richner, Hans, to Hatebur, F. B., A.G. Transporting tongs. 3,545,804, Cl. 294-116.
Richter, Robert C., to Cincinnati Milacron Inc. Stepping motor damper. 3,545,301, Cl. 74-574.
Rickley, Samuel S., to Morgan Construction Company. Neck seal with external reinforcing band bonded in position. 3,545,774, Cl. 277-164.
Riegel Paper Corporation: *See—*
Johnson, Kenneth R., and Lense, Robert F., 3,545,166.
Riehl, Tilford F., Jr.: *See—*
Kennedy, John E., Jr., and Riehl, Tilford F., Jr.,3,545,451.
Riel, Robert K., Tarneja, Krishan S., Ernick, Frederick G., and Kisinko, Paul M., to Westinghouse Electric Corporation. Integrated high voltage solar cell panel. 3,546,542, Cl. 317-234.
Riemann, Heinz, to Hydraulik GmbH. Extrusion press. 3,545,246, Cl. 72-270.
Riester, Oskar: *See—*
Kampfer, Helmut, Hase, Marie, von Rintelen, Harald, and Riester, Oskar,3,545,975.
Rigaku Denki Company Limited: *See—*
Shimula, Yoshihiro, 3,546,511.
Rihaczek, August W., to United States of America, Air Force. Radar beam deflection system. 3,546,700, Cl. 343-100.
Rinse, Jacobus. Divalent metal oxide acylates. 3,546,262, Cl. 260-414.
Ripka, William C.: *See—*
Boswell, George A., Jr., and Ripka, William C.,3,546,259.
Risberg, Robert L., and Smith, Charles E., to Cutler-Hammer, Inc. Adjustable frequency control system having feedback for voltage and frequency regulation. 3,546,551, Cl. 318-227.
Risdon Manufacturing Company, The: *See—*
Venus, Frank, Jr., 3,545,488.
Riseman, Jacob: *See—*
Perri, John A., and Riseman, Jacob,3,546,013.
Ritter, Lawrence: *See—*
Leeson, Lewis Joseph, Nash, Robert Arnold, and Ritter, Lawrence,3,546,339.
Roaldsnes, Leiv, to A/S Hydraulik Brattvaag. Arrangements in the control system of hydrostatic winches of the low pressure type. 3,545,204, Cl. 60-53.
Robandt, William F.: *See—*
Salisbury, Keith D., and Robandt, William F.,3,545,096.
Robb, Joseph, & Company Limited: *See—*
Berridge, Frederick L., 3,545,769.
Robbins, Clyde F., to Cutler-Hammer, Inc. Toggle switch with pawl means for momentarily arresting it in intermediate position. 3,546,409, Cl. 200-153.
Robbins, Jim, Seat Belt Co.: *See—*
Brawner, Frederick A., and Pringle, William L., 3,545,788.
Roberts, Mack O.: *See—*
Chopp, John A., O'Brien, Morrough, Roberts, Mack O., and Scholz, Hubert,3,546,423.
Robertshaw Controls Company: *See—*
Dykzeul, Theodore J., and McKinney, Richard W., 3,545,476.
Robertson, Jerry E., and Conway, Alvin C., to Minnesota Mining and Manufacturing Company. Substituted azepine compounds. 3,546,210, Cl. 260-239.
Robinet, Jean-Claude: *See—*
Vergne, Jean, Solaux, Leon, Robinet, Jean-Claude, and Lacroix Philippe,3,546,183.
Robins, A. H., Company, Incorporated: *See—*
Helsley, Grover Cleveland, 3,546,245.
Robins, Ruth. Paint roller package. 3,545,605, Cl. 206-47.
Robinson, Herman E., to Boas Box Company. Container and blank therefor. 3,545,664, Cl. 229-14.
Rocca, Fabio: *See—*
Carassa, Francesco, and Rocca, Fabio,3,546,608.
Rochla, Kurt, and Trautmann, Karl-Heinz, to Windmiller & Holscher. Punching apparatus for work on continuously moving webs in bag-making machines. 3,545,323, Cl. 83-185.
Roddy, James M., and Lovalenti, Sam, to Eltra Corporation. Electric coil construction. 3,546,647, Cl. 336-92.
Roebuck, William C.: *See—*
Comegys, Courtney L., Freundlich, Jackson S., and Roebuck, William C.,3,545,380.
Roehrig, Phillip J., to Aurora Corporation. Piano action. 3,545,329, Cl. 84-251.
Rogal, Barry, and Bales, William Henry, to Rosemount Engineering Company Limited. Electrical resistance elements and method of making. 3,546,654, Cl. 338-268.
Rogers, Lawrence M.: *See—*
Roseta, Eli, and Rogers, Lawrence M.,3,546,416.
Rogerson, Thomas W.: *See—*
Sampson, Howard J., and Rogerson, Thomas W.,3,546,439.
Rogert, Hugh E., and Shanis, Joseph H., to International Business Machines Corporation. Apparatus for determining one or more geometrical properties. 3,546,671, Cl. 340-146.3
Rohl, Horst: *See—*
Jentzsch, Dietrich, Kruger, Helmut, and Rohl, Horst,3,545,936.
Rohr, Alfred. Method and device for the honing of conical bores. 3,545,141, Cl. 51-353.

Rojek, Joseph, and Csoke, Joseph. Lamp failure indicator. 3,546,687, Cl. 340-214.
Rolls-Royce Limited: *See—*
Brown, David Morris, 3,545,464.
Cresswell, Roger Anthony, 3,545,210.
Millward, James, 3,545,209.
Williamson, Douglas Herbert, 3,545,882.
Romero, Ervin G.: *See—*
Gaffney, William Charles, and Romero, Ervin G.,3,545,819.
Roneo Limited: *See—*
Smith, Leslie Harrold, and MacLeod, Peter John, 3,545,292.
Ronson Corporation: *See—*
Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.-J., 3,545,907.
Rose, Sigmund P. Parachute opening device. 3,545,704, Cl. 244-149.
Roseland, Luther M.: *See—*
Hamilton, Vern E., and Roseland, Luther M.,3,546,064.
Roseman, Joseph C.: *See—*
Rana, Victoriano F., and Roseman, Joseph C.,3,545,740.
Rosemount Engineering Company Limited: *See—*
Rogal, Barry, and Bales, William Henry, 3,546,654.
Rosen, Philip J.: *See—*
Porath, Gordon H., Rosen, Philip J., and Greenberg, Myron L.,3,545,310.
Rosen, William J.: *See—*
Erlichman, Irving, and Rosen, William J.,3,545,357.
Roseta, Eli, and Rogers, Lawrence M., to Continental Can Company, Inc. Internal electrode drive. 3,546,416, Cl. 219-81.
Ross, Eugene D., to Ross, Eugene, Laboratories, Inc. Apparatus for and method of collecting, storing, separating and dispensing blood and blood components. 3,545,671, Cl. 233-26.
Ross, Eugene, Laboratories, Inc.: *See—*
Ross, Eugene D., 3,545,671.
Ross, William H. Spliced conveyor belt and method of making same. 3,546,054, Cl. 161-38.
Rossner, Elfriede, Rossner, Ludwig, and Rossner, Wolfgang, deceased (by Rossner, Elisabeth, legal guardian of heirs). Sputtering device for depositing wear resistant coatings on work surfaces. 3,546,091, Cl. 204-298.
Rossner, Elisabeth: *See—*
Rossner, Elfriede, Rossner, Ludwig, and Rossner, Wolfgang,3,546,091.
Rossner, Ludwig: *See—*
Rossner, Elfriede, Rossner, Ludwig, and Rossner, Wolfgang,3,546,091.
Rossner, Wolfgang: *See—*
Rossner, Elfriede, Rossner, Ludwig, and Rossner, Wolfgang,3,546,091.
Rossomakho, Yakov Vulfovich: *See—*
Bykhovsky, David Grigorievich, Medvedev, Alexandr Yakovlevich, Rossomakho, Yakov Vulfovich, and Koss, Valery Alexandrovich,3,546,422.
Rostas, Francois, to Compagnie Generale d'Electricite. Method of and apparatus for measuring the density of a plasma or transparent semiconductor. 3,545,867, Cl. 356-114.
Rotary Oil Tool Company: *See—*
Kammerer, Archer W., Jr., and Johnson, Gary R., 3,545,543.
Kammerer, Archer W., Jr., Johnson, Gary R., and Sampson, Alan C., 3,545,553.
Roth, Harold H.: *See—*
Jones, Giffin D., and Roth, Harold H.,3,546,336.
Rotron Manufacturing Company, Inc.: *See—*
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F., 3,545,890.
Roussel-Uclaf: *See—*
Allais, Andre, and Paturet, Michel, 3,546,261.
Roussopoulos, Paul, and Kalopissis, Gregoire. Device for registering mean or average values including a logarithmic resistance. 3,546,444, Cl. 235-193.
Rowland, Stanley P.: *See—*
Joarder, Golam K., Rowland, Stanley P., and Guthrie, John D.,3,545,913.
Rozhold, Jaroslav, and Rozhold, Zdenek, to Chirana, zavody vdravotnickej techniky, odborovy podnik. Blood oxygenation apparatus. 3,545,937, Cl. 23-258.5
Rozhold, Zdenek: *See—*
Rozhold, Jaroslav, and Rozhold, Zdenek,3,545,937.
Rubin, Bernard: *See—*
O'Connor, John J., Rubin, Bernard, and Armington, Alton F.,3,545,940.
Ruda, Raymond J., to Bagcraft Corporation of America. Method of making a ventilated plastic bag. 3,546,327, Cl. 264-156.
Rudlaff, John Louis, to Ajem Laboratories, Inc. Conveyor. 3,545,600, Cl. 198-221.
Ruf, Erich, to Goldschmidt, Th., A.G. Process of producing lead-, camium- and divalent tin salts of carboxylic acids. 3,546,263, Cl. 260-414.
Ruhl, Harry deVere, Jr.: *See—*
Ault, Eldon F., Mansell, Ralph E., and Ruhl, Harry deVere, Jr.,3,545,863.
Rulapaugh, Harry P.: *See—*
Sargeant, John E., and Rulapaugh, Harry P.,3,545,027.
Rumbold, Sidney G., to Aerojet-General Corporation. Ablative injectors. 3,545,203, Cl. 60-39.74
Runge, Erich: *See—*
Fuchs, Walter, Runge, Erich, Belart, Juan, and Schrader, Gert,3,545,344.
Ruscitti, Tomaso. Supporting device for aerosol bombs or similar containers. 3,545,803, Cl. 294-94.
Ruspino, James G., and Hilmanowski, James R., to Whirlpool Corporation. Food waste disposer. 3,545,684, Cl. 241-33.
Russell, Linus E., to Peters and Russell, Inc. Pump. 3,545,897, Cl. 417-542.
Russell, Robert H., to Poloroid Corporation. Molded camera bellows. 3,545,358, Cl. 95-39.
Ryan, George R. Blood collecting assembly. 3,545,427, Cl. 128-2.
Sadowski, Edward Marion: *See—*
Spaeth, Willis Edwin, Piotrowski, George Peter, and Sadowski, Edward Marion,3,546,402.
Safeco Products, Inc.: *See—*
Gillaspie, Robert E., and Houle, Elmer R., 3,545,189.
Sahs, Gerhard Franz Josef, to Girling Limited. Mounting for disc brakes with spring bias. 3,545,576, Cl. 188-73.5
Sakhnovsky, Alexander A., Walker, Walter O., and Tilney, Ralph B., to Alco Controls Corporation. Permeable filter and drier block. 3,545,622, Cl. 210-496.
Salisbury, Keith D., and Robandt, William F., to Whirlpool Corporation. Hold circuit for a dryer. 3,545,096, Cl. 34-44.
Salle, Adelin Eugene Gaston: *See—*
Kobus, Stanislas, and Salle, Adelin Eugene Gaston,3,546,388.
Salomon, Georges P. J. Safety boot heel clamp for skis. 3,545,780, Cl. 280-11.35
Salomon, Georges P. J. Safety boot heel clamp for skis with release and recocking means. 3,545,781, Cl. 280-11.35
Salomon, Georges P. J. Clamping device for safety ski harness. 3,545,782, Cl. 280-11.35
Salomon, Jacob. Heat-sealing apparatus. 3,545,171, Cl. 53-180.
Salzer, Erwin, to Chase-Shawmut Company, The. Combined optical and acoustical blown fuse indicator. 3,546,692, Cl. 340-250.
Salzle, Erich. Polishing crystal glass. 3,546,037, Cl. 156-24.
Sampson, Alan C.: *See—*
Kammerer, Archer W., Jr., Johnson, Gary R., and Sampson, Alan C.,3,545,553.
Sampson, Howard J., and Rogerson, Thomas W., to Conrac Corporation. Magnetic cam reset positioner. 3,546,439, Cl. 235-144.
Sanchez, Gil C., to Leecraft Manufacturing Company, Inc. Heat dissipating lamp holder. 3,546,446, Cl. 240-47.
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Binders for the production of processed wood materials comprising cyclic acetals. 3,546,147, Cl. 260-17.2
Sanders Associates, Inc.: *See—*
Konotchick, John A., Jr., 3,546,599.
Palleniko, Benjamin, 3,546,631.
Sando, Yoshikazu, and Ishidoshiro, Hiroshi. Method of longitudinally and laterally tensioning cloth. 3,545,054, Cl. 26-51.
Sandoz AG: *See—*
Gmunder, John, and Berthold, Richard, 3,546,227.
Sandoz Ltd.: *See—*
Gmunder, John, and Berthold, Richard, 3,546,227.
Sandoz-Wander, Inc.: *See—*
Griot, Rudolf, 3,546,229.
Sanford, Carlton E., to Texas Instruments, Incorporated. Electric switch with improved toggle mounting means. 3,546,412, Cl. 200-168.
Sangamo Electric Company: *See—*
Downing, William C., Jr., and Koll, Robert E., 3,546,565.
Patton, Charles C., 3,545,695.
Sangster, Frederik Leonard Johan, to U.S. Philips Corporation, mesne. Multi-stage delay line using capacitor charge transfer. 3,546,490, Cl. 307-293.
Sani-Seat Inc.: *See—*
Richardson, Charles R., Jr., and Fegem, James F., 3,545,015.
Sanymetal Products Company, Inc., The: *See—*
Dielman, Harold J., 3,545,031.
Dielman, Harold J., 3,545,032.
Sarazen, John C.: *See—*
Wilcox, Russell E., Jr., and Sarazen, John C.,3,546,539.
Sargeant, John E., and Rulapaugh, Harry P. Window cleaning system for the tailgate window of a vehicle. 3,545,027, Cl. 15-250.04
Sargent-Welch Scientific Company: *See—*
Fishman, Stanley D., and Lanham, Charles W., Jr., 3,545,100.
Sarishvili, Naskid Grigorievich: *See—*
Agabaliants, Georgy Gerasimovich, Merzhanian, Artemy Arutjunovich, Brusilovsky, Sergei Alexeevich, and Sarishvili, Naskid Grigorievich,3,545,978.
Sarns, Inc.: *See—*
DeVries, James H., 3,545,438.
Sato, Jiro: *See—*
Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio,3,546,269.
Sato, Masamichi, to Fuji Photo Film Co., Ltd. Developing a latent electrostatic image with ferromagnetic carrier and toner by employing a varying magnetic field. 3,545,968, Cl. 96-1.
Sato, Masamichi, and Honjo, Satoru, to Fuji Photo Film Co., Ltd. Method of charging a photoconductive insulating layer. 3,546,545, Cl. 317-262.

Sato, Seiichi: *See—*
Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio,3,546,269.

Satzler, Ronald L.: *See—*
Loyd, Calvin D., Oberle, Theodore L., and Satzler, Ronald L.,3,545,071.

Sauer, Henry. Strap-on type tire chains. 3,545,517, Cl. 152-233.

Sauter, Gerald F.: *See—*
Paul, Maynard C., Sauter, Gerald F., and Oberg, Paul E.,3,546,579.

Savage, Albert: *See—*
Anand, Ram P., and Savage, Albert,3,546,520.

Savko, Charley. Apparatus for forming slits in an elongated linearly moving tube. 3,545,336, Cl. 90-15.

Sawyer, Charles W.: *See—*
Bobzin, James E., and Sawyer, Charles W.,3,545,154.

Sayigh, Adnan A. R., and Ulrich, Henri, to Upjohn Company, The. 1,3-Thiazetidinones. 3,546,248, Cl. 260-327.

Sayles, Donald A., to Westinghouse Electric Corporation. Device for oxygen measurement. 3,546,086, Cl. 204-195.

Sbrana, Glauco: *See—*
Pino, Piero, Sbrana, Glauco, and Braca, Giuseppe,3,546,264.

Scamaton, Patrick J.: *See—*
DeCourcy, Daniel J., and Scamaton, Patrick J.,3,546,474.

Scarr, Robert walter Alister, to Standard Telephone and Cables Limited. Apparatus for analyzing a complex waveform containing pitch synchronous information. 3,546,584, Cl. 324-77.

Schachowskoy, Theodor, and Knoke, Jurgen, to Freudenberg, Carl. Method of producing water vapor and air permeable films of polymeric material. 3,546,004, Cl. 117-104.

Schank, Richard Louis, to Union Carbide Corporation. Preparation of cyclic siloxanes. 3,546,265, Cl. 260-448.2

Schaper, Donald W., to Kerma Corporation. Stripper Mechanism. 3,545,531, Cl. 164-408.

Schatter, Eckart: *See—*
Hargasser, Hans, Schatter, Eckart, and Renk, Ulrich,3,546,616.

Scheid, Charles H., Jr., to Armco Steel Corporation. Multiple plate throttling orifice. 3,545,492, Cl. 138-42.

Schellenbaum, Max: *See—*
Duennenberger, Max, and Schellenbaum, Max,3,546,255.

Scheller, Walter: *See—*
Neuenschwander, Ernst, Schuett, Klaus, and Scheller, Walter,3,545,922.

Scheneman, Henry F. Support bracket for engagement with perforate panels. 3,545,711, Cl. 248-223.

Schepis, Nunziato. Hair curling packages. 3,545,457, Cl. 132-33.

Scherenberg, Hans O., to Daimler-Benz Aktiengesellschaft. Safety steering device for motor vehicles. 3,545,299, Cl. 74-492.

Schevenell, Leonard O., to Merit Company, The. Structure for sealing casket lids. 3,545,056, Cl. 27-16.

Schick, Anton: *See—*
Dasch, Josef, and Schick, Anton,3,546,194.

Schlecht, Karl, to Putzmeister GmbH. Reciprocating duplex slurry pump. 3,545,893, Cl. 417-382.

Schlinger, Warren G., Slater, William L., and Dille, Roger M., to Texaco Inc. Production of synthesis gas and hydrogen. 3,545,926, Cl. 23-213.

Schluderberg, Donald C., to Babcock & Wilcox Company, The. Nuclear reactor core construction. 3,546,068, Cl. 176-50.

Schlumberger Limited: *See—*
Schuster, Nick A., 3,546,454.

Schlumberger Technology Corporation: *See—*
Frentrop, Arthur H., 3,546,512.
Grice, Charles Fitzhugh, 3,546,456.

Schluter, Heinz: *See—*
Hackenberg, Walter, Schluter, Heinz, and Schonemeyer, Hilmar,3,546,390.

Schmidt, Felix Helmut: *See—*
Fauland, Erich, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut,3,546,234.

Schmidt, Gunther, to Boehringer Ingeleheim GmbH. Amino-substituted dibenz[b,f] [1,4] oxazepin-11(10H)-ones. 3,546,214, Cl. 260-239.3

Schmidt, Jack W., Tuck, Robert M., and Smith, Marion D., to General Motors Corporation. Angle input power transmission. 3,545,304, Cl. 74-759.

Schmidt, Karl, GmbH: *See—*
Kopke, Gunter, Denz, Alfons, Grau, Eckehardt, and Strasser, Erwin, 3,545,831.

Schmidt, Paul R.: *See—*
Themelis, Nickolas J., and Schmidt, Paul R.,3,545,962.

Schmitt, Jerome E.: *See—*
Hill, Max E., Fjeldstad, ,Dean A., and Schmitt, Jerome E.,3,545,752.

Schmued, Edgar. Reaction measuring method. 3,545,749, Cl. 273-1.

Schmutz, Jean, Hunziker, Fritz, and Kunzle, Franz Martin, to Wander, A., Dr., S.A. 11-Basic-substituted dibenzoxazepines. 3,546,226, Cl. 260-268.

Schneble, Frederick W., Jr., Leech, Edward John, and McCormack, John Francis, to Photocircuits, division of Kollmorgen Corporation. Metallization of insulating substrates. 3,546,009, Cl. 117-212.

Schneider, Alfred L., Jr.: *See—*
Berger, Alan, and Schneider, Alfred L., Jr.,3,545,608.

Schneider, Frank L., 1/2 to Young, Albert. Apparatus for the continuous electrolytic production of chlorine for the sterilization of water. 3,546,089, Cl. 204-278.

Schneider, Harold N., to General Electric Company. Vacuum-type circuit interrupter. 3,546,407, Cl. 200-144.

Schneider, Helmut, to Werner & Mertz GmbH. Process and apparatus for producing gas/liquid mixtures. 3,545,875, Cl. 401-197.

Schnell, Hermann: *See—*
Senge, Ferdinand, and Schnell, Hermann,3,546,223.

Schofield, Clifford Raymond, to English Electric Company Limited, The. Vehicle transmission systems. 3,545,302, Cl. 74-691.

Scholl, Richard: *See—*
Wisseroth, Karl, and Scholl, Richard,3,545,729.

Scholz, Hubert: *See—*
Chopp, John A., O'Brien, Morrough, Roberts, Mack O., and Scholz, Hubert,3,546,423.

Schonemeyer, Hilmar: *See—*
Hackenberg, Walter, Schluter, Heinz, and Schonemeyer, Hilmar,3,546,390.

Schorken, Dorothy L. Device for supporting infants. 3,545,016, Cl. 4-185.

Schrader, Charles H. Shaft flange with oil return grooves. 3,545,570, Cl. 184-6.

Schrader, Gert: *See—*
Fuchs, Walter, Runge, Erich, Belart, Juan, and Schrader, Gert,3,545,344.

Schrag, Maurice P., to Carter-Day Company. Dust collector and filter therefor. 3,545,180, Cl. 55-284.

Schreiber, Kurt, and LaCroix, Lucien J., to Canadian Patent and Development Limited. Manufacture of dormant pelleted seeds. 3,545,129, Cl. 47-57.6

Schreiner, Siegfried: *See—*
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfi, Hans,3,545,735.

Schroeder, Arnold: *See—*
Gerritsen, Hans G., and Schroeder, Arnold,3,546,249.

Schroeter, Joachim W., and Stewart, Derrel N., to Buffalo Forge Company. Adjustable fan construction. 3,545,884, Cl. 416-205.

Schroter, Herbert, and Prins, Daniel A., to Geigy Chemical Corporation. Dibenzo(a,d) cycloheptene-5'ylidene) hydroxylamines. 3,546,275, Cl. 260-477.

Schuett, Klaus: *See—*
Neuenschwander, Ernst, Schuett, Klaus, and Scheller, Walter,3,545,922.

Schuette, Henry W., and Barnes, Albert H., to Moore Dry Kiln Company of Oregon. Multiple-dryer system for veneer and like material having widely varying moisture content. 3,545,094, Cl. 34-13.4

Schuette, Thomas J.: *See—*
Turnbough, Harold L., and Schuette, Thomas J.,3,545,596.

Schuh, Peter O., to Bell Telephone Laboratories, Incorporated. Active telephone set speech network employing transistor feedback loop for sidetone balance and equalization. 3,546,395, Cl. 179-81.

Schulte, Elwood V., to Koppers Company, Inc. Explosive shattering method. 3,545,683, Cl. 241-1.

Schulten, Reinhard, to Bosch, Robert, GmbH. Process of forming contacts on electrical parts, particularly silicon semiconductors. 3,545,076, Cl. 29-578.

Schultz, Richard, to Gebruder Buhler AG. Mixing apparatus and method of operating same. 3,545,728, Cl. 259-10.

Schultze, Hans Alfred: *See—*
VonDoehren, Hans Hermann, and Schultze, Hans Alfred,3,546,019.

Schumacher, Ernst E. Flash means for process cameras and enlargers. 3,545,859, Cl. 355-71.

Schuster, Nick A., to Schlumberger Limited. Multiple detector neutron logging apparatus. 3,546,454, Cl. 250-83.1

Schwacke, Frederick H., Jr.: *See—*
Giannone, Charles, Kumins, Charles A., Schwacke, Frederick H., Jr., and Egitto, John L.,3,546,001.

Schwartz, Marius M. Toy. 3,545,124, Cl. 46-61.

Schwartzman, Gilbert. Brush-type applicator. 3,545,874, Cl. 401-186.

Schweers, Karl D., to Singer Company, The. Treadle support for sewing machine drive. 3,545,391, Cl. 112-220.

Schweitzer, Donald G., and Adams, Peter D., to United States of America, Atomic Energy Commission. Superconducting current loop having preferential current flow. 3,546,541, Cl. 317-123.

Schwindy, Robert Charles, to Ethyl Corporation. Apparatus for plastic film production. 3,545,043, Cl. 18-14.

Scintillonics, Inc.: *See—*
Morgan, R. John, and Shilling, Robert Nelson, Jr., 3,546,555.

Scope, Incorporated: *See—*
Fawcett, Kenneth J., Jr., 3,546,440.

Scott & Felzer Company, The: *See—*
Bowman, Joe, and Baber, Lowell Keith, 3,546,557.

Scott, Daniel G., and Temple, Fred, to Westinghouse Air Brake Company. Brake control valve. 3,545,820, Cl. 303-35.

Scott, Earle V.: *See—*
Jantze, Clyde E., Arnott, Edward A., and Scott, Earle V.,3,545,160.

Scott, Kenneth A.: *See—*
Duling, Irl N., Stearns, Richard S., and Scott, Kenneth A.,3,546,320.

Scott, Kenneth G. Measurement of cell membrane kinetics. 3,545,927, Cl. 23-230.

Scott, Lyle B., to Jackson, Byron, Inc. Cementing plug launching apparatus. 3,545,542, Cl. 166-155.

Scovill Manufacturing Company: *See—*
Burbank, John Emerson, 3,545,497.
Daddona, Domenic John, Jr., and Flisher, Kenneth William, 3,545,048.

Sealed Motor Construction Company Limited: *See—*
Pensabene, Philip, 3,545,889.

Searle, G. D., & Co.: *See—*
Mazur, Robert H., 3,546,198.

Sears, James H.: *See—*
Klink, Jerome P., Belue, James C., and Sears, James H.,3,545,699.

Sears, James Kern, to Monsanto Company. Plasticized resin compositions containing esters of N-substituted o-carboxyhippuric acid. 3,545,990, Cl. 106-182.

Sebastaini, Martin. Universal spirit level. 3,545,091, Cl. 33-207.

Sebastian, Peter T. Manually adjustable temples for eyeglasses. 3,545,848, Cl. 351-118.

Sebor, Gustav, and Hofbauer, Ivo. Structure for lining underground spaces. 3,545,213, Cl. 61-45.

Segalman, Irwin: *See—*
Batt, Richard W., Goldberg, Perry, Kurti, Alexander, and Segalman, Irwin,3,545,202.

Seidl, Alois: *See—*
Kraemer, Stefan, and Seidl, Alois,3,546,061.

Seifert, Friedrich, Bittscheidt, Josef, and Plenikowski, Johannes, to Chemische Werke Huls A.G. Concurrent extrusion and cross-linking of polymers. 3,546,326, Cl. 264-176.

Seiler, Rene-Rodolphe, to Squindo, Wilhelm. Method for purifying fresh and waste waters by flocculation in an amphoteric phase. 3,546,113, Cl. 210-52.

Seils, Eddy J.: *See—*
Nelson, Ralph H., and Seils, Eddy J.,3,545,179.

Seitz, John R. Basketball game. 3,545,763, Cl. 273-134.

Seiz, Edward A. Storage structure. 3,545,626, Cl. 211-176.

Sejima, Tsuneo: *See—*
Hirano, Kinya, and Sejima, Tsuneo,3,545,953.

Selby, Ronald P., and Richards, Clement J., to Plessey Company Limited, The. Satellite tracking dish antenna with course and wind driving mechanism. 3,546,704, Cl. 343-765.

Senge, Ferdinand, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. N-methylolsilylethers of melamines. 3,546,223, Cl. 260-249.6

Sevilla, Ernesto G.: *See—*
McPherson, Frank H., and Sevilla, Ernesto G.,3,546,686.

Shafer, Homer J. Welded ball valve and method of making. 3,545,721, Cl. 251-309.

Shale, Kenneth A., to Continental Oil Company. Removable mold core. 3,545,718, Cl. 249-185.

Shanis, Joseph H.: *See—*
Rogert, Hugh E., and Shanis, Joseph H.,3,546,671.

Shapeweld, Inc.: *See—*
Funk, Charles F., 3,545,526.

Sharp, George H.: *See—*
Kwok, Clyde C. K., and Sharp, George H.,3,545,467.

Shawver, Bruce M.: *See—*
Fridley, Robert B., Shawver, Bruce M., and Holekamp, Emmett R.,3,545,190.

Shea, Frederick L., Jr.: *See—*
Muller, Nathan William, Novy, Anton R., and Shea, Frederick L., Jr.,3,546,076.

Sheehan, John James, to Buell Engineering Company, Inc. Bag type separator apparatus having cleaning means therefor. 3,545,178, Cl. 55-272.

Sheehan, Thomas David: *See—*
Vrbaski, Theodor, and Sheehan, Thomas David,3,546,257.

Sheetz, Charles E., to FMC Corporation. Weight grading machine. 3,545,614, Cl. 209-121.

Sheetz, Harry J., and Molloy, Robert T., to RCA Corporation. Expandable metal structure making by etching. 3,546,075, Cl. 156-8.

Shell Oil Company: *See—*
Blytas, George C., 3,546,106.
Chassagne, Pierre C., and Neel, Emmanuel E., 3,545,254.
deVries, Douwe, 3,545,541.
Johnson, Herbert G., 3,546,221.

Shen, Chung Yu: *See—*
Stahlheber, Norman Earl, and Shen, Chung Yu,3,546,123.

Shepardson, Edwin Stanley, to New York State Concord Grape Production Research Fund, Inc. Method for harvesting grapes. 3,545,183, Cl. 56-1.

Shepherd, Thomas H., and Polovina, Walter, to Princeton Chemical Research, Inc. Halogenated butene-1 polymers. 3,546,195, Cl. 260-93.7

Sherbert, Archie T., Jr., to Boeing Company, The. Display apparatus. 3,545,269, Cl. 73-178.

Sheridan, T. W., & C. B., Company: *See—*
Rana, Victoriano F., and Roseman, Joseph C., 3,545,740.

Sheridan-Gray, Inc.: *See—*
Dean, Donald Edwin, 3,545,242.

Sherman, Allan: *See—*
Stark, Kenneth W., Burton, William A., and Sherman, Allan,3,545,208.

Sherman Car Wash Equipment Co.: *See—*
Beer, Carl C., 3,545,026.

Shibuya, Masao: *See—*
Yoshinaga, Fumihiro, Kimura, Michiko, Shibuya, Masao, and Okumura, Shinji,3,546,070.

Shields, Donald J., Hawkins, James M., and Wooten, Willis C., Jr., to Eastman Kodak Company. Sizing compositions and fibrous articles sized therewith. 3,546,008, Cl. 117-138.8

Shilling, Robert Nelson, Jr.: *See—*
Morgan, R. John, and Shilling, Robert Nelson, Jr.,3,546,555.

Shima, Hiroshi: *See—*
Izumi, Masahiro, Shima, Hiroshi, Matsumura, Shigeru, and Asano, Nobuyuki,3,546,182.

Shimp, Alan B., to Norbatrol Electronic Corporation. Time-proportioning single and polyphase power controllers. 3,546,567, Cl. 323-18.

Shimula, Yoshihiro, to Rigaku Denki Company Limited. Cooling system for a rotating anode of an X-ray tube. 3,546,511, Cl. 313-32.

Shive, Richard A., to Olin Corporation. Method of bending strip containing inflatable passageways. 3,545,394, Cl. 113-118.

Shoger, Merlyn J.: *See—*
Cox, John A., Jr., Glaser, George R., Jr., and Shoger, Merlyn J.,3,545,939.

Short, Oliver A., to Du Pont de Nemours, E. I., and Company. Novel silver compositions and capacitors therefrom. 3,545,986, Cl. 106-1.

Shortes, Samuel R.: *See—*
Reid, Lee R., Shortes, Samuel R., and Kennedy, Frederick G.,3,546,003.

Shulick, Robert J., and Stachowski, Raymond, to Babson Bros. Co. Milk line valve. 3,545,719, Cl. 251-146.

Shultz, Walter, and Langdon, Harmon, to Textron, Inc. Turret indexing mechanism. 3,545,317, Cl. 82-36.

Shurtleff, Harold R.: *See—*
Korb, Donald R., and Shurtleff, Harold R.,3,545,458.

Shutak, Paul N.: *See—*
Califano, Frank L., and Shutak, Paul N.,3,546,045.

Sickler, Raymond W. Gutter system for mobile homes. 3,545,144, Cl. 52-11.

Sickmeier, Edgar W., to General Motors Corporation. Damping. 3,545,339, Cl. 92-41.

Siclari, Francesco, and Fulmini, Sergio, to Snia Viscosa Societa Nazionale Industria. Apparatus for removing substances and fractions from polymers. 3,545,520, Cl. 159-4.

Siegrist, Adolf Emil, Liechti, Peter, Maeder, Erwin, and Guglielmetti, Leonardo, to Ciba Limited. Novel symmetrical heterocyclicly substituted stilbenes and process therefor. 3,546,217, Cl. 260-240.

Siemens Aktiengesellschaft: *See—*
Hargasser, Hans, Schatter, Eckart, and Renk, Ulrich, 3,546,616.
Pohl, Dieter, 3,546,358.
Veith, Werner, 3,546,517.

Siemon, Detlev: *See—*
Podschadly, Gerhard, Siemon, Detlev, and Tamm, Rolf,3,545,933.

Silberberg, George G.: *See—*
Crecelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G.,3,546,376.

Sillion, Bernard: *See—*
Rabilloud, Guy, Sillion, Bernard, and De Gaudemaris, Gabriel,3,546,166.

Silva, Lawrence M.: *See—*
Fletcher, Taylor C., Silva, Lawrence M., and Wilkinson, Bruce L.,3,546,571.

Silverman, Jack J. Heel stabilizer. 3,545,447, Cl. 128-583.

Silverman, Joseph R.: *See—*
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugene A., Silverman, Joseph R., and Lesko, John G., Jr.,3,546,684.

Simijian, Luther G. Envelope opening apparatus. 3,545,136, Cl. 51-3.

Simms, Thomas S. Wheeled ski. 3,545,779, Cl. 280-11.28

Simonsen, Richard C., to Burroughs Corporation. Digital tachometer circuit. 3,546,530, Cl. 317-5.

Simpson, Elbert L.: *See—*
Archer, Wesley L., and Simpson, Elbert L.,3,546,125.
Archer, Wesley L., and Simpson, Elbert L.,3,546,305.

Sinclair Research Inc.: *See—*
Vrbaski, Theodor, and Sheehan, Thomas David, 3,546,257.

Singer Company, The: *See—*
Ragen, Robert A., 3,546,676.
Schweers, Karl D., 3,545,391.

Singer, William: *See—*
Sockloff, Max, and Singer, William,3,546,146.

Singer-General Precision, Inc.: *See—*
Lucy, Carl F., 3,545,383.

Sisson, Edwin D., and Chapman, Richard M., to Bell, F. W., Inc. Heterodyned frequency nondestructive testing system utilizing a hall effect device for magnetic field sensing of an eddy current reaction magnetic field. 3,546,578, Cl. 324-45.

Skarada, Thomas E., to Sun Oil Company. Novel solvent for the extraction of aromatic hydrocarbons from hydrocarbon mixtures and the process for use thereof. 3,546,108, Cl. 208-323.

Skoog, Per Olof, to Coe Manufacturing Company, The. Patching apparatus and method. 3,545,648, Cl. 221-106.

Slade, Woodrow W., to Owens-Illinois, Inc. Glass manufacturing method. 3,545,988, Cl. 106-52.

Slater, William L.: *See—*
Schlinger, Warren G., Slater, William L., and Dille, Roger M.,3,545,926.

Sloane, R. & J., Manufacturing Inc.: *See—*
Wise, Eugene H., and McDowell, Jon J., 3,545,794.
Smit Nijmegen Electrotechnische Fabrieken: *See—*
van Riemsdijk, Gerardus A., 3,546,569.
van Riemsdijk, Gerardus A., 3,546,535.
Smit Nijmegen Electrotechnische Fabriken N.V.: *See—*
Frowein, Egbertus A., 3,546,645.
Smit Nijmegen Elektrotechnische Fabrieken N.V.: *See—*
Idsenga, Willem F., and Weeber, Pieter G., 3,546,425.
Smith, Arthur E., to General Motors Corporation. Spin axis detector for ball-type gyro. 3,545,287, Cl. 74-5.6
Smith, Bonner L., and Smith, Joe D., to Still-Water Tool & Manufacturing Company. Cleat stacking apparatus. 3,545,367, Cl. 100-7.
Smith, Charles E.: *See—*
Risberg, Robert L., and Smith, Charles E., 3,546,551.
Smith, Fred T., Barber, Harry A., and Zink, Ben J., to Barber-Greene Company. Automatic belt centering method and apparatus. 3,545,599, Cl. 198-202.
Smith, James D., to Aluminum Company of America. High strength receptacle. 3,545,645, Cl. 220-74.
Smith, Joe D.: *See—*
Smith, Bonner L., and Smith, Joe D., 3,545,367.
Smith Kline & French Laboratories: *See—*
Chow, Alfred W., 3,546,291.
Goonewardene, Hilary F., 3,545,956.
Kaiser, Carl, and Zirkle, Charles L., 3,546,228.
Kaiser, Carl, and Zirkle, Charles L., 3,546,232.
Kaiser, Carl, and Zirkle, Charles L., 3,546,236.
Smith, Leslie Harrold, and MacLeod, Peter John, to Roneo Limited. Postal franking machine. 3,545,292, Cl. 74-142.
Smith, Lester L., and Randall, Frank E., to Home Comfort Products Co., mesne. Method of bonding two plastic laminas fact-to-face and within a frame structure. 3,546,039, Cl. 156-83.
Smith, Lewis F.: *See—*
Hubbard, Albert B., Larson, John C., Larys, Bohumir A., and Smith, Lewis F., 3,545,890.
Smith, Marion D.: *See—*
Schmidt, Jack W., Tuck, Robert M., and Smith, Marion D., 3,545,304.
Smith, Melvin W., and Kluth, Charles S., to Westinghouse Electric Corporation. Underwater mining apparatus. 3,545,812, Cl. 302-14.
Smith, Phillip H., to Bell Telephone Laboratories, Incorporated. Scanning antenna system. 3,546,699, Cl. 343-100.
Smith, Roscoe S.: *See—*
Gill, Norman W., and Smith, Roscoe S., 3,546,115.
Smith, Russell Frederick, to ACF Industries, Incorporated. Fuel pump diaphragm leakage indicator. 3,546,691, Cl. 340-242.
Smith, Stephen J., to Smith-Schreyer & Assoc., Inc. End seal for splice case. 3,545,773, Cl. 277-199.
Smith, Thomas G.: *See—*
Foss, George W., Leib, Robert G., Campbell, James E., and Smith, Thomas G., 3,545,023.
Smith, Von L. Freeze and thaw indicator. 3,545,400, Cl. 116-114.5
Smith, Warren M.: *See—*
Gladrow, Elroy M., and Smith, Warren M., 3,546,137.
Smith-Schreyer & Assoc., Inc.: *See—*
Smith, Stephen J., 3,545,773.
Snader, Earle S., to Koppers Company, Inc. Closure for exhaust stack. 3,545,365, Cl. 98-59.
Snedeker, Robert H.: *See—*
Merriam, Charles N., Snedeker, Robert H., and Stine, Herbert G., 3,546,332.
Snia Viscosa Societa Nazionale Industria: *See—*
Siclari, Francesco, and Fulmini, Sergio, 3,545,520.
Snoeberger, David F.: *See—*
Hansen, Spenst M., and Snoeberger, David F., 3,545,964.
Snowden, Frank W.: *See—*
Verburg, Gerald B., Young, Alvin H. P., Snowden, Frank W., and Vail, Sidney L., 3,546,006.
Snyder, Clermont J., and Moore, Jack P., to Anaconda Wire and Cable Company. Descaling copper rods. 3,546,029, Cl. 148-13.2
Societe a Responsabilite Limitee dite: ONDIOLINE: *See—*
Jenny, Georges, 3,546,353.
Societe Anonyme Automobiles Citroen: *See—*
Fleury, Jacques, 3,545,306.
Societe Anonyme dite: L'Oreal: *See—*
Kalopissis, Gregoire, Bertrand, Jack, and Bugaut, Andree, 3,546,258.
Societe Anonyme dite: Messier: *See—*
Lucien, Rene, 3,545,338.
Societe d'Appareillage Auxiliaire Pour l'Electricite: *See—*
Mizrahi, Jacques, 3,545,158.
Societe d'Exploitations Chimiques et Pharmaceutiques Seceph S.A.: *See—*
Massarani, Elena, 3,546,242.
Societe dite: Usinor: *See—*
Bourgeois, Robert, and Lesure, Adolphe, 3,545,264.
Societe Francaise d'Equipements pour la Navigation Aerienne: *See—*
Hamel, Bernard, 3,546,605.
Societe Franco-Hispano-Americaine Francispam: *See—*
Hocq, Robert Raymond, 3,545,905.
Societe Herwaythorn S.A.: *See—*
Lacoste, Gerard H., 3,545,568.
Sockloff, Max, and Singer, William, to Troy Chemical Corporation. Films of improved uniformity and processes and compositions therefor. 3,546,146, Cl. 260-17.
Soeffker, Eldred E. Drapery finishing machine. 3,545,654, Cl. 223-32.
Solaux, Leon: *See—*
Vergne, Jean, Solaux, Leon, Robinet, Jean-Claude, and Lacroix Philippe, 3,546,183.
Solodar, Warren E.: *See—*
Weinberger, Lester, and Solodar, Warren E., 3,546,085.
Somers, Edward V., to Westinghouse Electric Corporation. Combination process for electrical power generation and nitrogen fixation. 3,546,499, Cl. 310-11.
Somers, Lewis E., and Glusick, Robert E., to General Electric Company. Magneto-optical display system. 3,545,843, Cl. 350-162.
Someya, Akira: *See—*
Hashimoto, Tsunekazu, Someya, Akira, and Hanada, Teizo, 3,546,519.
Son, Marion O., Jr.: *See—*
Surkalo, Harry, and Son, Marion O., Jr., 3,545,546.
Sonoco Products Company: *See—*
Cunningham, McCleery B., 3,545,494.
Sony Corporation: *See—*
Ohgoshi, Akio, and Miyaoka, Senri, 3,546,525.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu, 3,546,516.
Soukup, Charles L.: *See—*
Ware, Franklyn O., Soukup, Charles L., and Krueger, Wilbur W., 3,546,066.
Southwire Company: *See—*
Bray, Thomas L., Ward, George C., and Cofer, Daniel B., 3,545,527.
Sovia, Cedric C., and Birch, Brian L., to Minnesota Mining and Manufacturing Company. Film reel. 3,545,697, Cl. 242-74.1
Space Administration: *See—*
Stark, Kenneth W., Burton, William A., and Sherman, Allan, 3,545,208.
Spaeth, Willis Edwin, Piotrowski, George Peter, and Sadowski, Edward Marion, to Globe-Union Inc. Sliding contacts for push button switches. 3,546,402, Cl. 200-16.
Spars, Byron G., to Chevron Research Company. Making a lube oil by hydrocracking and solvent extraction. 3,546,098, Cl. 208-96.
Sparton Corporation: *See—*
Derr, William M., and Harper, Bill J., 3,545,274.
Mueller, John L., 3,545,463.
Spaulding, David B., to International Telephone and Telegraph Corporation, mesne. Printing transfer and display arrangement. 3,545,373, Cl. 101-1.
Specht, Theodore R., Throop, Gilbert D., and Bruce, Robert V., to Westinghouse Electric Corporation. Three-phase transformer power supply employing capacitors and clamping devices to suppress voltage surges. 3,546,572, Cl. 323-61.
Spellman, John P.: *See—*
Myles, Michael J., Kupcikevicius, Vytautas, and Spellman, John P., 3,545,038.
Sperry Rand Corporation: *See—*
Aspinwall, Ronald A., and Graham, Mac Kellar K., 3,545,616.
Burkholder, James R., and Best, Albert M., 3,545,592.
Costello, Matthew J., Ziron, Frank J., 3rd, Bleggi, Henry, and Berg, Allen C., 3,545,375.
Frase, Sylvan H., 3,546,476.
Glass, Emmett F., 3,545,186.
McPherson, Frank H., and Sevilla, Ernesto G., 3,546,686.
Paul, Maynard C., Sauter, Gerald F., and Oberg, Paul E., 3,546,579.
Sperry Sun Well Surveying Company: *See—*
Lindsey, James M., 3,546,478.
Spertus, Maurice. Packaging material. 3,546,055, Cl. 161-55.
Sphere Investments Limited: *See—*
Kelly, Leonard, Hutter, James F., and Mounce, George R., 3,545,610.
Spiegel, Herbert, and Zelcer, Isaac. Convertible display box picture frame. 3,545,111, Cl. 40-152.1
Spiegelberg, Karl: *See—*
Hausig, Andreas, Jeske, Helmfried, and Spiegelberg, Karl, 3,546,347.
Spite, Bernard: *See—*
Meneret, Jean, Spite, Bernard, Laffitte, Paul, Foulatier, Raymond, and Delbourgo, Ralph, 3,545,906.
Sporer, Alfred H.: *See—*
Herrick, Clifford E., Jr., Sporer, Alfred H., and Wilbur, Clayton V., 3,545,969.
Sports Power, Inc.: *See—*
Fox, Anthony, 3,545,560.
Sports Technology, Inc.: *See—*
Bloomfield, Roger D., Petersen, Paul S., and Wiele, Robert W., 3,545,103.
Spraul, Joseph R.: *See—*
Burns, Eugene A., Jones, John F., Lubowitz, Hyman R., and Spraul, Joseph R., 3,546,041.
Springfield, Carlos L., Paton, William J., and Jeter, John D., to United States of America, National Aeronautics and Space Administration. Flammability test chamber. 3,545,252, Cl. 73-15.

Spry, Roy J.: *See—*
Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F., 3,546,696.
Spurgin, Ray B.: *See—*
Daum, John L., and Spurgin, Ray B., 3,545,460.
Square D Company: *See—*
Butler, De Forest D., 3,545,150.
Meyer, Charles F., and Guettel, Marvin A., 3,546,421.
Squibb, E. R., & Sons, Inc.: *See—*
Pan, Samuel C., Principe, Pacifico A., and Lerner, Leonard J., 3,546,260.
Szyszka, Joao G., 3,546,207.
Squindo, Wilhelm: *See—*
Seiler, Rene-Rodolphe, 3,546,113.
Staar, Marcel Jules Helene. Device for enabling the driving speed of magnetic tape to be in-creased moments in recording and playback apparatuses. 3,545,765, Cl. 274-4.
Stacey, Gilbert Joseph: *See—*
Doyle, Peter, and Stacey, Gilbert Joseph, 3,546,237.
Stach, Kurt: *See—*
Fauland, Erich, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut, 3,546,234.
Stachnik, John Joseph, Sr. Simulated fishing games. 3,545,750, Cl. 273-1.
Stachowski, Raymond: *See—*
Shulick, Robert J., and Stachowski, Raymond, 3,545,719.
Stack, Wallace F.: *See—*
Fish, Robert W., Stack, Wallace F., and Welch, Craig J., 3,545,194.
Stagg, Paul A. Medical examining and treatment table. 3,545,738, Cl. 269-325.
Stahl, Lennart, and Neuber, Dieter, to Arenco Aktiebolag. Device for conveying cigarettes from a cigarette manufacturing machine to a packaging machine. 3,545,594, Cl. 198-75.
Stahler, Paul A. Production of valuable animal feed components through processing of the rumen content of slaughtered cattle and products. 3,545,977, Cl. 99-7.
Stahlgruber Otto Gruber & Company: *See—*
Gottauf, Georg, 3,545,515.
Stahlheber, Norman Earl, and Shen, Chung Yu, to Monsanto Company. Granular products containing disodium nitrilotriacetate and process for producing same. 3,546,123, Cl. 252-137.
Standard Oil Company: *See—*
Bertolacini, Ralph J., 3,546,102.
Bolton, Benjamin A., 3,546,152.
Will, Robert G., and Swiss, William F., Jr., 3,546,112.
Kiikka, Oliver A., 3,546,289.
Callahan, James L., Grasselli, Robert K., and Knipple, Warren R., 3,546,138.
Grasselli, Robert K., and Callahan, James L., 3,546,174.
Standard Products Company, The: *See—*
Loew, Theodore, 3,546,058.
Standard Telephone and Cables Limited: *See—*
Scarr, Robert walter Alister, 3,546,584.
Standard Telephones and Cables Limited: *See—*
Pullum, Geoffrey George, and Knowles, William Ralph, 3,546,683.
Stanger, Mildred H. Combination straw and flavoring. 3,545,980, Cl. 99-138.
Stanley, Robert K., to Techniservice Corporation. Stuffer crimper with cooling fluid pretreatment means. 3,545,058, Cl. 28-1.6
Stanley Works, The: *See—*
Ferguson, Harold W., 3,545,337.
Stanton, Walter O., and Kuehn, John P., to Pichering & Company, Inc. Induced magnetic moving iron sterophonic phonograph pickup with replaceable stylus assembly. 3,546,399, Cl. 179-100.41
Stapp, Paul R.: *See—*
Johnson, Marvin M., and Stapp, Paul R., 3,546,118.
Starck, Hermann C.: *See—*
Neuenschwander, Ernst, Schuett, Klaus, and Scheller, Walter, 3,545,922.
Stark, Kenneth W., Burton, William A., and Sherman, Allan, to United States of America, National Acronautics and Space Administration. Annular slit colloid thrustor. 3,545,208, Cl. 60-202.
Stark, Peter G., to Varian Associates. Linear accelerator having the beam injected at a position of maximum R.F. accelerating field. 3,546,524, Cl. 315-5.41
Stauffer Chemical Company: *See—*
Hwa, Jesse C. H., Kraft, Paul, and Gelman, Sheldon F., 3,546,154.
Hwa, Jesse C., H, and Mirviss, Stanley B., 3,546,323.
Stavenhagen, Richard F.: *See—*
Botefuhr, Harold R., and Stavenhagen, Richard F., 3,546,502.
Stearns, Richard S.: *See—*
Duling, Irl N., Stearns, Richard S., and Scott, Kenneth A., 3,546,320.
Steele, Richard K., Green, Allen T., and Lockman, Charles S., to Aerojet-General Corporation. Method and apparatus for non-destructive testing of pressure vessels. 3,545,262, Cl. 73-88.5
Steghart, Peter Bruno, to Aktiengesellschaft Fuer Technische Studien. Automatic control systems. 3,546,437, Cl. 219-511.
Steidle, Walter, to Knoll AG. Chemische Fabriken. Proscillaridin ketals. 3,546,208, Cl. 260-210.5
Stein, Robert George, and Swett, Leo Ralph, to Abbott Laboratories. 2,3-Dihydro-1H-pyrido-[2,3-b] [1,4] thiazines. 3,546,220, Cl. 260-243.
Stein, Robert R., to Instrument Systems Corporation, mesne. Folding door hanger assembly. 3,545,522, Cl. 160-199.
Stein, Robert R., and Coe, Stanley H., to Instrument Systems Corporation, mesne. Progressive slide assembly. 3,545,833, Cl. 312-341.
Stelmach, John J. Ice fishing equipment. 3,545,118, Cl. 43-17.
Stenberg-Flygt AB: *See—*
Englesson, Sixten, and Gamer, Sven Gustaf Yngve, 3,546,110.
Stensholt, Erling Olav: *See—*
Hougen, Leif Reidar, and Stensholt, Erling Olav, 3,545,959.
Stenstrom, Lennart Arvid, to U.S. Philips Corporation, mesne. Holder which is displaceable along one axis. 3,545,286, Cl. 73-517.
Stepanek, Robert M.: *See—*
Burian, Wencil J., Herman, Donald E., Stepanek, Robert M., and Vifian, Paul R., 3,545,690.
Stephen, James, to Helm Design & Manufacturing, Inc. Luggage rack for automobiles. 3,545,660, Cl. 224-42.1
Stephens, Francis E.: *See—*
Toedtman, John A., and Stephens, Francis E., 3,546,366.
Stephens, Frederick N., Vetter, Robert R., and Burhans, Stuart J., to Stephens Industries, Inc. Merchandise tagging apparatus. 3,545,389, Cl. 112-104.
Stephens Industries, Inc.: *See—*
Stephens, Frederick N., Vetter, Robert R., and Burhans, Stuart J., 3,545,389.
Stephens, Ruth E., to Ethyl Corporation. Method of decomposing nitrogen oxides. 3,545,917, Cl. 23-2.
Stern, Harold, and Reardon, John E., to Uni-Tech Chemical Manufacturing Company. Stabilized cyanmethemoglobin reagent containing ferricyanide, cyanide and polyvinylpyrrolidone. 3,546,131, Cl. 252-408.
Sternbach, Leo Henryk: *See—*
Felix, Arthur Martin, Fryer, Rodney Ian, and Sternbach, Leo Henryk, 3,546,212.
Sternco Industries, Inc.: *See—*
Lovitz, David D., 3,545,894.
Stewart, Derrel N.: *See—*
Schroeter, Joachim W., and Stewart, Derrel N., 3,545,884.
Stewart, Halbert C. Method for shaping and hanging drapery material. 3,545,085, Cl. 33-12.
Stewart, Mary J., and Carlson, Otto K., to FMC Corporation. Polyester resins stabilized with sulfones. 3,546,164, Cl. 260-45.95
Stickley, Carlisle M., to United States of America, Air Force. Laser brightness gain and mode control by optical compensation for distortion. 3,546,621, Cl. 331-94.5
Stillman, Donald W., and Lang, David W., to Whittaker Corporation. Threaded element installation tool. 3,545,066, Cl. 29-240.
Still-Water Tool & Manufacturing Company: *See—*
Smith, Bonner L., and Smith, Joe D., 3,545,367.
Stimson, Allen G., to Eastman Kodak Company. Pneumatic exposure control. 3,545,353, Cl. 95-10.
Stimson, Allen G., and Cameron, Donald G., to Eastman Kodak Company. Meter movement utilizing magnetic fluid for damping. 3,546,586, Cl. 324-125.
Stine, Herbert G.: *See—*
Merriam, Charles N., Snedeker, Robert H., and Stine, Herbert G., 3,546,332.
Stitson Corporation: *See—*
Kimmen, Edward, 3,545,582.
Stoll, Oskar, and Probst, Willi, to Maschinenfabrik Benninger AG. Support bearing for a roller rotating in a liquid containing receptacle. 3,545,829, Cl. 308-187.1
Stoneburner, George R.: *See—*
Lutchko, John R., and Stoneburner, George R., 3,545,915.
Stossl, Arnold, and Eichberger, Josef, said Eichberger assor. to said Stossl. Target practice device. 3,545,759, Cl. 273-101.2
Strader, Don S., to Envirotech Corporation, mesne. Engine control system. 3,545,421, Cl. 123-198.
Strahan, Robert M.: *See—*
Pietrzak, Joe P., Strahan, Robert M., and Albright, Bruce S., 3,545,717.
Strasser, Erwin: *See—*
Kopke, Gunter, Denz, Alfons, Grau, Eckehardt, and Strasser, Erwin, 3,545,831.
Strelli, Albert. Emergency traction device for vehicle wheels. 3,545,516, Cl. 152-213.
Strother, Greene W., Jr., and Coker, William P., to Dow Chemical Company, The. Soil conditioning and erosion control. 3,545,130, Cl. 47-58.
Strunk, Kurt, and Halfmann, Heinrich, to International Standard Electric Corporation. Reed relay switching network. 3,546,387, Cl. 179-18.
Stubbins, Derek, to Davy and United Engineering Company Limited. Conveying system. 3,545,590, Cl. 198-31.
Stucker, Nova E.: *See—*
Higgins, John J., and Stucker, Nova E., 3,545,643.
Stultz, James T.: *See—*
Dinger, Paul H., and Stultz, James T., 3,545,228.
Stumpfi, Hans: *See—*
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfi, Hans, 3,545,735.

Sturzinger, Oskar, to Anstalt Europaische Handelsgesellschaft. Ciphering and deciphering apparatus. 3,546,380, Cl. 178-22.

Stutzke, Robert E., to Vermont American Corporation. Tool device and method and apparatus for making the same. 3,545,308, Cl. 76-24.

Sub-Aviation Societe Nationale de Constructions Aeronautiques: *See—*
Laville, Andre Henri, and Maillard, Francis Henri Marie Joseph, 3,545,702.

Sud-Aviation Societe Nationale de Constructions Aeronautiques: *See—*
Mouille, Rene Louis, 3,545,880.

Suessenguth, Hermann: *See—*
Hornberger, Paul, Suessenguth, Hermann, and Tritschler, Heinrich,3,546,303.

Sugai Chemical Industry Co., Ltd.: *See—*
Hattori, Kenichi, Dehara, Masataka, and Sugimoto, Katuo, 3,545,995.

Sugimoto, Katuo: *See—*
Hattori, Kenichi, Dehara, Masataka, and Sugimoto, Katuo,3,545,995.

Sugiyama, Sigehiko: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi,3,545,519.

Suhr, John H. Joint construction for building elements. 3,545,151, Cl. 52-285.

Sulecki, Richard P.: *See—*
Lindesmith, Harold R., Sulecki, Richard P., Tuck, Charles R., and Werner, Richard L.,3,545,072.

Sullenberger, William E. Abrading implements. 3,545,142, Cl. 51-374.

Sullivan, Raymond: *See—*
Gladding, Edward Karcher, and Sullivan, Raymond,3,546,186.

Sumida, Kunio A.: *See—*
Muller, Alex M., and Sumida, Kunio A.,3,545,742.

Sumitomo Electric Industries, Ltd.: *See—*
Izumi, Masahiro, Shima, Hiroshi, Matsumura, Shigeru, and Asano, Nobuyuki, 3,546,182.

Summers, William M.: *See—*
Chunn, Gary A., and Summers, William M.,3,546,527.

Sumnicht, Howard I.: *See—*
Crecelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G.,3,546,376.

Sun Chemical Corporation: *See—*
Jacobson, Eugene, 3,545,656.

Sun Oil Company: *See—*
Borkowski, Walter L., and Vanderwerff, William D., 3,546,274.
Bushick, Ronald D., 3,546,287.
Douglas, Gordon G., 3,546,007.
Duling, Irl N., Stearns, Richard S., and Scott, Kenneth A., 3,546,320.
Moore, Robert E., 3,546,308.
Skarada, Thomas E., 3,546,108.
Wentzheimer, William W., and Minka, Edward T., 3,546,093.

Superior Continental Corporation: *See—*
Ance, Louis, 3,546,361.

Supramar A.G.: *See—*
Von Schertel, Hanns, 3,545,396.

Surkalo, Harry, and Son, Marion O., Jr., to Marathon Oil Company. Fluid design for well stimulation applications. 3,545,546, Cl. 166-305.

Sutherland, Robert E., to Universal Oil Products Company. Method for separating the effluent from a hydrocarbon conversion process reaction zone. 3,546,099, Cl. 208-102.

Suzuki, Masatoshi: *See—*
Ouki, Masami, Nagoya, and Suzuki, Masatoshi,3,546,369.

Suzuki, Toshi, and Nishijima, Tsutomu, to Victor Company of Japan, Limited. Method of making multiple-element magnetic head. 3,545,077, Cl. 29-603.

Svit, narodni podnik: *See—*
Dokoupil, Jiri, Zubik, Jiri, and Zdrahal, Jiri, 3,545,095.

Swaner, Robert R.: *See—*
Jones, William A., and Swaner, Robert R.,3,545,559.

Swanson, Hubert C.: *See—*
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L.,3,545,866.

Swenko Research & Development, Incorporated: *See—*
Swenson, Emil S., and Koski, William L., 3,545,221.
Swenson, Emil S., and Koski, William L., 3,545,225.

Swenson, Emil S., and Koski, William L., to Swenko Research & Development, Incorporated. Apparatus for maintaining organs in vitro in a completely viable state. 3,545,221, Cl. 62-231.

Swenson, Emil S., and Koski, William L., to Swenko Research & Development, Incorporated. Apparatus for maintaining whole organs in a viable state. 3,545,225, Cl. 62-265.

Swett, James B., to Dart Industries Inc. Compartmented dish. 3,545,642, Cl. 220-20.

Swett, James B., and Kershaw, William R., to Dart Industries Inc. Animal-shaped toy having readily disassembleable parts. 3,545,798, Cl. 287-119.

Swett, Leo Ralph: *See—*
Stein, Robert George, and Swett, Leo Ralph,3,546,220.

Swinnerton, John W.: *See—*
Linnenbom, Victor J., and Swinnerton, John W.,3,545,929.

Swiss, William F., Jr.: *See—*
Will, Robert G., and Swiss, William F., Jr.,3,546,112.

Swoboda, Karl, and Kleinhagauer, Otmar, to Gebr. Bohler & Co. Process and apparatus for use in the electric slag refining of metals. 3,546,349, Cl. 13-34.

Sybron Corporation: *See—*
Nunlist, Erwin J., 3,545,502.

Sylvania Electric Products, Inc.: *See—*
Beaudette, Richard A., 3,546,596.
Bovio, Robert J., and Westlund, Arnold E., Jr., 3,545,500.
Bovio, Robert J., and Finch, William A., 3,545,722.
Gilbert, Marcellus N., Jr., 3,546,5..3.

Sylvester, John D., and Keenan, John D., Jr., to Amsco Packaging Machinery, Inc. Web-feed arrangement for producing gusseted bags. 3,545,347, Cl. 93-84.

Syntex Corporation: *See—*
Fried, John H., 3,546,215.

Szmuszkovicz, Jacob, and Cerda, Elisabeth, to Upjohn Company, The. Bis-and mono-quaternary salts of 1-(cyclicamino) cyclopropacycloalkanes. 3,546,233, Cl. 260-293.

Szyszka, Joao G., to Squibb, E. R., & Sons, Inc. Neomycin citrate. 3,546,207, Cl. 260-210.

Tabler, Donald C., to Phillips Petroleum Company. Production of ethylcyclohexene. 3,546,307, Cl. 260-666.

Taesler, Rudolf, to Zeiss Ikon Aktiengesellschaft. Motion picture apparatus with improved impulse transmitter contact structure. 3,546,403, Cl. 200-24.

Takahashi, Masaaki. Flying spot scanner for film with scales which indicate position of spot. 3,546,468, Cl. 250-219.

Takahashi, Yasuo, to Asahi Kogaku Kabushiki Kaisha. Compact wide angle objective lens system with long back focal length. 3,545,845, Cl. 350-214.

Takahashi, Yasuo, and Tazumi, Fujio, to Asahi Kogaku Kogyo Kabushiki Kaisha. High resolution objective lens system. 3,545,844, Cl. 350-214.

Takaoka, Yasunori, to Naigai Rubber Industry Co., Ltd., and Ohmi Netting Co., Ltd. Float for gill net. 3,545,120, Cl. 43-44.9

Takata, Victor, to Artisan Industries Inc. Slip clutch. 3,545,584, Cl. 192-88.

Takeda Chemical Industries, Ltd.: *See—*
Nakatani, Hiromi, and Katagiri, Kiyoshi, 3,545,982.

Takesada, Masahiko: *See—*
Wakamatsu, Hachiro, Takesada, Masahiko, and Tsuchitani, Yuichi,3,545,963.
Maeda, Itsutoshi, Takesada, Masahiko, and Yoshida, Ryonosuke,3,546,277.

Talley, James R., to Texas Instruments, Incorporated. Threshold circuit for comparing variable amplitude voltages. 3,546,481, Cl. 307-235.

Talmon, Omri: *See—*
Amir, Yoel, and Talmon, Omri,3,545,271.

Tamag Basel AG: *See—*
Egri, Laszlo, 3,545,455.

Tamm, Rolf: *See—*
Podschadly, Gerhard, Siemon, Detlev, and Tamm, Rolf,3,545,933.

Tamura, Moriyoshi: *See—*
Murase, Tamotsu, Mikami, Ichiro, Tamura, Moriyoshi, and Matsuda, Masaoki,3,546,282.

Tan, Sing Liong, to U.S. Philips Corporation, mesne. Colour camera, in which a colour-separating prism system is arranged between the objective and the camera tubes. 3,546,371, Cl. 178-5.4

Tanaka, Etsuo: *See—*
Matsumoto, Satoshi, and Tanaka, Etsuo,3,546,251.

Tanaka, Masao: *See—*
Fujimoto, Yasuo, and Tanaka, Masao,3,546,171.

Tanaka, Sigeru: *See—*
Oshima, Ryoichiro, and Tanaka, Sigeru,3,545,503.

Tandy, Thomas K., Jr., to Du Pont de Nemours, E. I., and Company. Oil-and water-repellent polymeric compositions. 3,546,187, Cl. 260-80.76

Tanemura, Sigero. Method and apparatus for embroidery. 3,545,658, Cl. 223-104.

Tangeman, Lawrence N., to Dempster Industries, Inc. Floating boom. 3,545,678, Cl. 239-166.

Tanuma, Yoshimi: *See—*
Nishizawa, Minoru, Harada, Shigehisa, and Tanuma, Yoshimi,3,546,122.

Taplin, John F. Pressure regulator. 3,545,471, Cl. 137-116.5

Tarneja, Krishan S.: *See—*
Riel, Robert K., Tarneja, Krishan S., Ernick, Frederick G., and Kisinko, Paul M.,3,546,542.

Tashiro, Masaharu: *See—*
Ikeda, Yoneichi, Tashiro, Masaharu, Yamada, Kantaro, and Nakamura, Toshio,3,546,268.

Tatch, Martin S.: *See—*
Bissett, Thomas B., Blair, Harold, Murphy, John B., and Tatch, Martin S.,3,546,693.

Tate, Oliver C.: *See—*
Tysver, Oliver J., Tate, Oliver C., and Prendergast, Richard E.,3,546,655.

Tatsumi, Susumu: *See—*
Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio,3,546,269.

Taylor Machine Works: *See—*
Yarbrough, Robert W., Jr., 3,545,636.

Taylor, Wesley L., to Powers Regulator Company, mesne. Unit ventilator control system. 3,545,675, Cl. 236-38.

Tazumi, Fujio: *See—*
Takahashi, Yasuo, and Tazumi, Fujio,3,545,844.

Technical Operations, Incorporated: *See—*
Graser, Michael, Jr., 3,546,374.
Reynolds, George O., and Cronin, David J., 3,545,842.

Technicon Corporation: *See—*
Lichtenstein, Bernard, and Kroger, Bruce G., 3,545,260.

Techniservice Corporation: *See—*
Stanley, Robert K., 3,545,058.

Teegarden, Arlo F., to Trane Company, The. Capacity controlled refrigeration system. 3,545,220, Cl. 62-196.

Teeter, Richard J.: *See—*
Halter, Douglas V., and Teeter, Richard J.,3,546,023.

Teijin Limited: *See—*
Hirono, Koyu, and Kuwano, Ken, 3,546,329.

Telautograph Corporation: *See—*
Muller, Alex M., and Sumida, Kunio A., 3,545,742.

Telefonaktiebolaget LM Ericsson: *See—*
Breuer, Hans-Jurgen, 3,546,613.

Tempel, Albert: *See—*
Akerstrom, Stig Hjalmar Johannes, Tempel, Albert, and Gullfeldt, Bengt Hjalmar,3,546,244.

Temple, Fred: *See—*
Scott, Daniel G., and Temple, Fred,3,545,820.

Tenneco Chemicals, Inc.: *See—*
Champion, William C., Jr., and Farber, Elliott, 3,546,158.

Tepper, Sidney, and Boydman, Hyman P. Racing toy having vehicle propelling and arresting means. 3,545,757, Cl. 273-86.

Ter-Akopov, Artur Mikhailovich: *See—*
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich,3,545,395.

Terasaki Denki Sangyo Kabushiki Kaisha: *See—*
Kobayashi, Yoshio, 3,546,411.

TESLA, narodni podnik: *See—*
Turecek, Jan, 3,546,587.

Testa, Francesco: *See—*
Benetta, Gianni, Bresquar, Valerio, Gatta, Giorgio, and Testa, Francesco,3,546,193.

Teves, Alfred, GmbH: *See—*
Belart, Juan, 3,545,206.
Belart, Juan, 3,545,578.

Teves, Alfred, G.m.b.H.: *See—*
Fuchs, Walter, Runge, Erich, Belart, Juan, and Schrader, Gert, 3,545,344.

Texaco Inc.: *See—*
Allen, Joseph C., 3,545,545.
Brown, William F., Brodeur, Charles H., and Crockett, William E., 3,546,107.
Nolting, Jerry L., 3,545,419.
Schlinger, Warren G., Slater, William L., and Dille, Roger M., 3,545,926.
Woodle, Robert A., 3,546,109.

Texas Instruments, Incorporated: *See—*
Allen, James B., and Hancock, John T., 3,546,652.
Brighenti, Norberto, 3,546,410.
Cody, Tommy Dale, 3,545,661.
Gray, Foster L., and Wood, Rodney D., 3,545,947.
Groom, Lemuel D., III, and Garrett, James M., 3,546,568.
Moorhead, John O., and Charamond, Claude P., 3,546,651.
Reid, Lee R., Shortes, Samuel R., and Kennedy, Frederick G., 3,546,003.
Sanford, Carlton E., 3,546,412.
Talley, James R., 3,546,481.
Wilcox, Russell E., Jr., and Sarazen, John C., 3,546,539.

Textron Inc.: *See—*
Erickson, Albin R., 3,545,821.
Shultz, Walter, and Langdon, Harmon, 3,545,317.

Themelis, Nickolas J., and Schmidt, Paul R., to Noranda Mines Limited. Process for the gaseous deoxidation of anode copper. 3,545,962, Cl. 75-76.

Theurer, Josef: *See—*
Plasser, Franz, and Theurer, Josef,3,545,384.

Thiokol Chemical Corporation: *See—*
McAllister, Patrick T., and McGregor, James D., 3,545,679.
Messer, James T., Jr., 3,545,311.
Reid, Bruce K., and Christensen, Frank W., 3,545,267.

Thomas, Edward M. Hydraulic brake system. 3,546,667, Cl. 340-53.

Thomas, Gordon D., to Kimberly-Clark Corporation. High bulk wiping product. 3,546,056, Cl. 161-57.

Thomas, Richard A. Walking and balance training aid. 3,545,747, Cl. 273-1.

Thomas, Samuel M., Jr.: *See—*
Harden, Phillip L., and Thomas, Samuel M., Jr.,3,546,673.

Thompson, Charles S., to Gulf & Western Industrial Products Company, mesne. Method of making a tape splice. 3,546,330, Cl. 264-258.

Thompson, James E., to Motorola, Inc. Alternator voltage regulation utilizing a constant current source. 3,546,563, Cl. 322-28.

Thompson, James F.: *See—*
Clement, Oliver R., Lewis, Lynn David, and Thompson, James F.,3,545,284.

Thompson, John S.: *See—*
Viner, Derek G., and Thompson, John S.,3,545,900.

Thompson, Lionel Raymond Frank, and Bullock, Leslie, to Howker Siddeley Dynamics Limited. Detection of overheated axle boxes. 3,546,447, Cl. 246-169.

Thompson, Marion L., to Modern Tube Bending & Manufacturing. Exhaust header. 3,545,414, Cl. 123-52.

Thompson, Marvin F.: *See—*
Platt, Eric, and Thompson, Marvin F.,3,546,394.

Thompson. Quentin E., to Monsanto Company. Lubricant composition. 3,546,116, Cl. 252-42.7

Thompson, Verne P., Gardella, Stephen L., Jr., and Larkin, Artemas M., 25% to Wied, Wilson W. Power activated manacle. 3,545,237, Cl. 70-16.

Thompson, Wendell L.: *See—*
Parr, Edward L., 3,545,276.

Thomson, John B.: *See—*
Magee, Robert C., and Thomson, John B.,3,545,826.

Thorn, Ewald R., to Passavant-Werke. Waste water treatment plant. 3,545,620, Cl. 210-208.

Thorpe, Merle L., to Humphreys Corporation. Induction plasma generator with gas sheath forming chamber. 3,546,522, Cl. 313-231.

Throop, Gilbert D.: *See—*
Specht, Theodore R., Throop, Gilbert D., and Bruce, Robert V.,3,546,572.

Tigner, Ronald G.: *See—*
Asadorian, Arthur A., and Tigner, Ronald G.,3,546,302.

Tilney, Ralph B.: *See—*
Sakhnovsky, Alexander A., Walker, Walter O., and Tilney, Ralph B.,3,545,622.

Tindall, John B., to Commercial Solvents Corporation. Production of alkanolamines. 3,546,298, Cl. 260-584.

Tinnerman, George A. Preformed groove cutting fastener structure. 3,545,331, Cl. 85-32.

Tinnerman, George A. Threaded fastener formation. 3,545,332, Cl. 85-62.

Tippetts, Earl LeVell, to Lear Siegler, Inc. Apparatus and method for producing phase shifted electrical signals and self synchronous motor actuated thereby. 3,546,560, Cl. 318-23.

Toedtman, John A., and Stephens, Francis E., to International Telephone & Telegraph Corporation. Compressible electrical connectors. 3,546,366, Cl. 174-94.

Tokoli, Emery G.: *See—*
Whalen, David M., and Tokoli, Emery G.,3,546,200.

Tokunaga, Kenichiro: *See—*
Oshima, Goro, Hirata, Hiroshi, and Tokunaga, Kenichiro,3,545,688.

Tokushima, Sataro. Cutting and disposing apparatus for iron scraps and the like. 3,545,369, Cl. 100-98.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Hashimoto, Tsunekazu, Someya, Akira, and Hanada, Teizo, 3,546,519.

Tomabechi, Nobuhiro: *See—*
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio,3,546,679.

Toothman, Lawrence R.: *See—*
Heinrichs, Frank W., Jr., Toothman, Lawrence R., Honey, Charles C., and Jonnatti, Anthony J.,3,546,646.

Toro, Joseph A.: *See—*
Masland, Joel C., and Toro, Joseph A.,3,545,059.

Tourtellot, John A., to RCA Corporation. Automatic record changer. 3,545,767, Cl. 274-10.

Toyama, Hiro, and Aurach, Arthur B., to Hydraxtor Division 'Automatic' Sprinkler Corporation of America. Laundry equipment. 3,545,644, Cl. 220-69.

Toyo Kogyo Kabushiki Kaisha: *See—*
Yamamoto, Kenichi, 3,545,417.

Tramposch, Herbert, and Korth, Henry, to Pitney-Bowes, Inc. Weight range scale. 3,545,556, Cl. 177-45.

Trane Company, The: *See—*
Falk, George L., 3,545,219.
Lohman, Harry C., 3,545,424.
Lohman, Harry C., 3,545,908.
Miner, Robert G., 3,546,531.
Nicoski, Thomas J., 3,545,224.
Petranek, David J., 3,545,222.
Teegarden, Arlo F., 3,545,220.

Trautmann, Karl-Heinz: *See—*
Rochla, Kurt, and Trautmann, Karl-Heinz,3,545,323.

Treber, Willi O.: *See—*
Cziptschirsch, Kurt, and Treber, Willi O.,3,545,157.

Tremco Manufacturing Company, The: *See—*
Kane, James Merel, 3,546,430.

Tretick, Bernard A.: *See—*
Leibowitz, Lawrence M., and Tretick, Bernard A.,3,546,585.

Trident Industries, Inc.: *See—*
Bardwell, Allen E., 3,545,554.

Triebold, Karl-Friedrich: *See—*
Ziehm, Gunter Hans, and Triebold, Karl-Friedrich,3,546,666.

Triplett, Lee. Towing connector means. 3,545,047, Cl. 24-201.

Triplett, Lee, to Expando Products Company. Elongate-extensible member. 3,545,715, Cl. 248-411.
Tritschler, Heinrich: *See—*
Hornberger, Paul, Suessenguth, Hermann, and Tritschler, Heinrich,3,546,303.
Troll, John, to Ovitron Corporation. Video comparator using videcons with delayed scanning. 3,546,377, Cl. 178-6.8
Troy Chemical Corporation: *See—*
Sockloff, Max, and Singer, William, 3,546,146.
Trudeau, Joseph S., Jr. Concrete grade beam. 3,545,149, Cl. 52-169.
Trustees of Tufts College: *See—*
Georgian, Vlasios, and Pfeiffer, Francis R., 3,546,292.
TRW Inc.: *See—*
Burns, Eugene A., Jones, John F., Lubowitz, Hyman R., and Spraul, Joseph R., 3,546,041.
Tscharner, Christopher Johannes, to Geigy Chemical Corporation. Substituted bis-triazinylamino stilbene compounds and compositions thereof. 3,546,218, Cl. 260-240.
Tsubakimoto Chain Mfg., Co., Ltd., The: *See—*
Matsumoto, Mikio, 3,545,813.
Tsuchitani, Yuichi: *See—*
Wakamatsu, Hachiro, Takesada, Masahiko, and Tsuchitani, Yuichi,3,545,963.
Tuck, Charles R.: *See—*
Lindesmith, Harold R., Sulecki, Richard P., Tuck, Charles R., and Werner, Richard L.,3,545,072.
Tuck, Robert M.: *See—*
Schmidt, Jack W., Tuck, Robert M., and Smith, Marion D.,3,545,304.
Tucker, Linwood G., to Koppers Company, Inc. Coke oven standpipe lid and damper valve operating mechanism. 3,546,077, Cl. 202-270.
Tudor Metal Products Corporation: *See—*
Payne, Calvin L., Jr., 3,545,758.
Tumerman, Leon: *See—*
Guth, Jules H., and Tumerman, Leon,3,546,206.
Tupper, Myron D., to Omark Industries, Inc. Dual element top sharpening saw chains. 3,545,508, Cl. 143-135.
Turecek, Jan, to TESLA, narodni podnik. Capacitive sensing portable high voltage detecting apparatus with means for checking operability of the detecting apparatus. 3,546,587, Cl. 324-133.
Turnbough, Harold L., and Schuette, Thomas J., to Alvey, Inc. Conveyor. 3,545,596, Cl. 198-129.
Turney, John J.: *See—*
Delahunt, John F., and Turney, John J.,3,545,640.
Tyee Aircraft, Inc.: *See—*
Jensen, Charles R., and Dent, Robert K., 3,546,688.
Tysver, Oliver J., Tate, Oliver C., and Prendergast, Richard E., to Continental Can Company. Rotary electrical joint. 3,546,655, Cl. 339-8.
UCB, (Union Chimique-Chemische Bedriuven) S.A.: *See—*
Morren, Henri, 3,546,246.
Uchiyama, Yasuji, to Nippon Gappi Seizo Kabushiki Kaisha. Automatic synchronization of pitches in electronic musical instruments with magnetic recording-reproducing apparatus. 3,546,354, Cl. 84-1.02
Ueda, Hiroyuki: *See—*
Araki, Kazumi, Ueda, Hiroyuki, and Ikumo, Masahiko,3,546,072.
Uezono, Hidenobu: *See—*
Hoshino, Shohei, Yoneda, Toshiyuki, and Uezono, Hidenobu,3,545,161.
Ulmer, William W.: *See—*
Pendleton, Wesley W., and Ulmer, William W.,3,546,017.
Ulrich, Henri: *See—*
Sayigh, Adnan A. R., and Ulrich, Henri,3,546,248.
Umezawa, Hirokazu, and Okashita, Hiroshi, to Japan Atomic Energy Research Institute. Method for producing radioactive tellurium. 3,545,925, Cl. 23-209.
Umfreville, John Herbert, to Bader, Scott, & Co., Ltd. Production of unsaturated polyesters. 3,546,176, Cl. 260-75.
Umin, Stanley. Means to indicate, control and cut-off excessive X-radiation from television sets. 3,546,536, Cl. 317-31.
Ungerer, Fritz, deceased (by Ungerer, Irma, heir), to Ungerer, Irma. Arrangement for treating strip material. 3,545,243, Cl. 72-160.
Ungerer, Irma: *See—*
Ungerer, Fritz,3,545,243.
Ungerer, Irma: *See—*
Ungerer, Fritz, 3,545,243.
Union Camp Corporation: *See—*
Whalen, David M., and Tokoli, Emery G., 3,546,200.
Union Carbide Corporation: *See—*
Cole, Louis F., 3,546,169.
Cox, John A., Jr., Glaser, George R., Jr., and Shoger, Merlyn J., 3,545,939.
Gagliardi, Domenick D., 3,545,909.
Mc Clellan, Melvin L., and Kozak, Donald S., 3,545,960.
Merriam, Charles N., Snedeker, Robert H., and Stine, Herbert G., 3,546,332.
Morse, Frederick J., 3,545,230.
Myles, Michael J., Kupcikevicius, Vytautas, and Spellman, John P., 3,545,038.
Niegisch, Walter D., 3,546,331.
Payne, Linwood K., Jr., and Weiden, Mathias H. J., 3,546,343.
Schank, Richard Louis, 3,546,265.
Union Industrielle Blanzy-Quest: *See—*
Montacie, Marcel, 3,545,811.
Uni-Tech Chemical Manufacturing Company: *See—*
Stern, Harold, and Reardon, John E., 3,546,131.
United Aircraft Corporation: *See—*
Batt, Richard W., Goldberg, Perry, Kurti, Alexander, and Segalman, Irwin, 3,545,202.
Emanuelson, Roger C., and Witherell, William F., 3,545,944.
Orbeck, Einar M., 3,545,343.
United Merchants and Manufacturers, Inc.: *See—*
Ziegler, George Edward, and Kilgour, Gilbert Innes, 3,545,236.
United States Borax & Chemical Corporation: *See—*
Wilson, Martin, 3,545,941.
United States of America
Agriculture: *See—*
Joarder, Golam K., Rowland, Stanley P., and Guthrie, John D., 3,545,913.
McKelvey, John B., Benerito, Ruth R., Berni, Ralph J., and O'Connor, Judith A., 3,545,912.
Verburg, Gerald B., Young, Alvin H. P., Snowden, Frank W., and Vail, Sidney L., 3,546,006.
Air Force: *See—*
Arnold, Fred E., 3,546,181.
Clark, Robert O., 3,545,485.
Denny, William A., 3,546,564.
Henning, Peter, 3,546,513.
McLafferty, George H., 3,546,069.
O'Connor, John J., Rubin, Bernard, and Armington, Alton F., 3,545,940.
Quine, John P., and Younger, Cousby, 3,546,635.
Rihaczek, August W., 3,546,700.
Stickley, Carlisle M., 3,546,621.
Army: *See—*
Munn, Alfred J., 3,545,251.
Atomic Energy Commission: *See—*
Beauchamp, Edwin K., and Morenz, James E., 3,546,026.
Chopp, John A., O'Brien, Morrough, Roberts, Mack O., and Scholz Hubert, 3,546,423.
Davis, Thomas J., 3,546,485.
Dixon, Norman E., and Coleman, William J., 3,546,012.
Hansen, Spenst M., and Snoeberger, David F., 3,545,964.
Hornstra, Fred, Jr., and De Luca, William H., 3,546,577.
Jeffries, Carson D., and Mollenauer, Linn F., 3,546,575.
Krause, Charles Edgar, 3,546,458.
Perrings, James D., 3,546,583.
Porges, Karl G., 3,546,455.
Schweitzer, Donald G., and Adams, Peter D., 3,546,541.
Interior: *See—*
George, D'Arcy R., and Borrowman, Samuel Ralph, 3,545,920.
National Aeronautics and Space Administration, Administrator, with respect to an invention of:
Caren, Robert P., and Coston, Robert M. Dual solid cryogens for spacecraft refrigeration. 3,545,226, Cl. 62-384.
National Aeronautics and Space Administration: *See—*
Chandler, Joseph A., and Grubbs, Thomas M., 3,545,725.
Darcey, Robert J., 3,546,386.
Harrison, Dean R., and Kerwin, William J., 3,545,275.
Heckelman, James D., 3,546,694.
Holmes, Harlan K., 3,546,552.
Lemson, Paul H., 3,546,705.
Loyd, Clayton, 3,546,553.
Maxwell, Marvin S., Feinberg, Paul M., Czarcinski, Eugene A., Silverman, Joseph R., and Lesko, John G., Jr., 3,546,684.
Myers, William N., 3,545,792.
Peterson, Victor S., and Hansen, Irving G., 3,546,471.
Springfield, Carlos L., Paton, William J., and Jeter, John D., 3,545,252.
National Aeronautics and: *See—*
Stark, Kenneth W., Burton, William A., and Sherman, Allan, 3,545,208.
Navy: *See—*
Abt, Edgar J., 3,545,382.
Aronson, Philip M., and Culpepper, Ronald M., 3,545,919.
Baker, Hayward R., and Bolster, Robert N., 3,546,151.
Berger, Raymond H., 3,546,362.
Boyajian, Joseph J., 3,546,609.
Crecelius, John D., Arriola, William A., Sumnicht, Howard I., Regelson, Ephraim, and Silberberg, George G., 3,546,376.
Erickson, Alen M., and Kessler, Bernard V., 3,546,620.
Glass, Alfred L., 3,546,464.
Griffin, William C., 3,546,529.
Hiltz, Frederick F., 3,546,601.
Leibowitz, Lawrence M., and Tretick, Bernard A., 3,546,585.
Linnenbom, Victor J., and Swinnerton, John W., 3,545,929.
Marzolf, Joseph M., 3,546,566.
Wall, Leo A., Brown, Daniel W., and Antonucci, Joseph M., 3,546,191.
United States Steel Corporation: *See—*
Chang, Yi-Chung, 3,545,270.
Chang, Yi Chung, 3,545,528.
Fish, Robert W., Stack, Wallace F., and Welch, Craig J., 3,545,194.
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U., 3,545,376.
Keene, Robert J., 3,545,529.
Kennedy, George E., 3,545,239.
McCullough, Marshall J., 3,545,903.

Whiteman, Frank L., and Zemberry, William L., 3,546,404.
Zemberry, William L., 3,546,414.
United States Surgical Corporation: *See—*
Green, David T., 3,545,444.
United-Carr Incorporated: *See—*
Van Horssen, Arden D., Vetter, Ottomar H., and Olson, Millard A., 3,546,658.
Universal Instrument Corporation: *See—*
Zemek, Albert W., and McDonald, Paul V., 3,545,064.
Universal Oil Products Company: *See—*
Sutherland, Robert E., 3,546,099.
University of California, The Regents of the: *See—*
Fridley, Robert B., Shawver, Bruce M., and Holekamp, Emmett R., 3,545,190.
Upatnieks, Juris: *See—*
Leith, Emmett N., and Upatnieks, Juris,3,545,835.
Upjohn Company, The: *See—*
Duncan, Gordon W., 3,545,439.
Sayigh, Adnan A. R., and Ulrich, Henri, 3,546,248.
Szmuszkovicz, Jacob, and Cerda, Elisabeth, 3,546,233.
Urani, Angelo, to McGraw-Edison Company. Protectors for electric circuits. 3,546,661, Cl. 339-132.
Urbach, Otto R., and Kraayenhof, Hans, to Minnesota Mining and Manufacturing Company. Embossing tool with die members formed in endless chain. 3,545,587, Cl. 197-6.2
Uri, Norbert: *See—*
Betts, Albert Thomas, and Uri, Norbert,3,546,159.
U.S. Philips Corporation: *See—*
Akerstrom, Stig Hjalmar Johannes, Tempel, Albert, and Gullfeldt, Bengt Hjalmar, 3,546,244.
Aldenkamp, Albertus Antonie, 3,545,525.
Auphan, Michel, 3,545,869.
Basart, Johan Charles Marie, Knippenberg, Wilhelmus Franciscus, and Verspui, Gerrit, 3,546,032.
Boersma, Theo Tjalke, Veenendaal, Hendrikes Johannes, and Van Der Sanden, Hendrikus Cornelis Nicolaas, 3,545,973.
Bril, Alfred, and De Haan, Edward Fokko, 3,546,515.
Buschow, Kurt Heinz Jurgen, and Velge, Wilhelmus Antonius Johannes Josephus, 3,546,030.
Dijksterhuis, Popko Reinder, and Verharen, Hermanus Arnoldus, 3,546,452.
Haeck, Hans Heinz, and Kralt, Teunis, 3,546,281.
Klopfer, Anton Martin, and Flunkert, Horst, 3,546,510.
Mahn, Herbert, 3,545,297.
Sangster, Frederik Leonard Johan, 3,546,490.
Stenstrom, Lennart Arvid, 3,545,286.
Tan, Sing Liong, 3,546,371.
Van Baardewijk, Johannes, 3,546,672.
Van Gelder, Zeger, 3,546,521.
Uskokovic, Milan Radoje, to Hoffmann-La Roche, Inc. Dimethyl oxasteroids. 3,546,252, Cl. 260-343.2
USM Corporation: *See—*
Anderson, George B., and Young, Frederic William, 3,545,319.
Hall, Dennis S., 3,545,022.
Uthoff, Robert D.: *See—*
Medlin, Theodore W., and Uthoff, Robert D.,3,545,065.
Utz, Georg AG: *See—*
Utz, Rudolf, 3,546,051.
Utz, Rudolf, to Utz, Georg AG. Method for the production of transparent coloured pictorial panes and the pictorial panes produced thereby. 3,546,051, Cl. 161-18.
Vacuumschmelze GmbH: *See—*
Pfeifer, Friedrich, and Deller, Rudolf, 3,546,031.
Vail, Sidney L.: *See—*
Verburg, Gerald B., Young, Alvin H. P., Snowden, Frank W., and Vail, Sidney L.,3,546,006.
Valdenazzi, Luigi Giovanni. Self-acting, telecontrolled antiexplosion valve. 3,545,483, Cl. 137-487.5
Vale, Arthur E.: *See—*
Freedman, Murray, Vale, Arthur E., and Vale, Peter R.,3,545,445.
Vale, Peter R.: *See—*
Freedman, Murray, Vale, Arthur E., and Vale, Peter R.,3,545,445.
Valeretto, Francesco: *See—*
Vandi, Antonio, Valeretto, Francesco, and Ragazzini, Mario,3,546,196.
Valet, Andre: *See—*
Gislon, Andre, Valet, Andre, Michaux, Jean-Pierre, and Bellec, Jean-Jacques,3,546,317.
Van Baardewijk, Johannes, to U.S. Philips Corporation, mesne. Pulse-supplying arrangements. 3,546,672, Cl. 340-166.
Vanden Bush, Lloyd H. Wreath ring. 3,546,050, Cl. 161-15.
Vandenberg, Edwin J.: *See—*
Jabloner, Harold, and Vandenberg, Edwin J.,3,546,321.
Van der Lely, Ary, and Bom, Cornelis Johannes Gerardus. Soil cultivating implements. 3,545,549, Cl. 172-32.
van der Lely, Cornelis. Crop driers and methods of drying crop. 3,545,734, Cl. 263-37.
Van Der Sanden, Hendrikus Cornelis Nicolaas: *See—*
Boersma, Theo Tjalke, Veenendaal, Hendrikes Johannes, and Van Der Sanden, Hendrikus Cornelis Nicolaas,3,545,973.
Vandervell Products Limited: *See—*
Whiteside, John, 3,545,248.
Vanderwerff, William D.: *See—*
Borkowski, Walter L., and Vanderwerff, William D.,3,546,274.
Vandi, Antonio, Valeretto, Francesco, and Ragazzini, Mario, to Montecatini Edison S.p.A. Process for the production of linear polyethylenes of high crystallinity and catalyst therefor. 3,546,196, Cl. 260-94.9
Van Gelder, Zeger, to U.S. Philips Corporation, mesne. Low-pressure gas discharge lamp for producing resonance radiation. 3,546,521, Cl. 313-192.
Van Gilder, Charles E.: *See—*
Helke, Robert C., Van Gilder, Charles E., and Miller, Merlin S.,3,545,011.
Van Groos, Lambert George Marien Albert: *See—*
Browning, George William, Van Groos, Lambert George Marien Albert, Proctor, Harold, and Openshaw, Ian Kay,3,546,453.
Van Horssen, Arden D., Vetter, Ottomar H., and Olson, Millard A., to United-Carr Incorporated. Connector with splined backshell. 3,546,658, Cl. 339-90.
Van Langenhoven, Jules Edmond, to Victor Comptometer Corporation, mesne. Methods of manufacturing caseless ammunition for air ignition systems. 3,545,333, Cl. 86-1.
van Riemsdijk, Gerardus A., to Smit Nijmegen Electrotechnische Fabrieken N.V. Transformers and composite tap changers associated therewith. 3,546,535, Cl. 317-14.
van Riemsdijk, Gerardus A., to Smit Nijmegen Electrotechnische Fabrieken. Rotatable tap changer with beidging impedances. 3,546,569, Cl. 323-43.5
Van Voorhees, Steven C. Multi-shot underwater power head. 3,545,117, Cl. 42-59.
VanVorous, Theodore: *See—*
Bowdey, Raymond D., and VanVorous, Theodore,3,545,647.
Vapor Corporation: *See—*
Zadoo, Vijay K., 3,545,465.
Varian Associates: *See—*
Omori, Masahiro, 3,546,624.
Stark, Peter G., 3,546,524.
Varo, Inc.: *See—*
Fletcher, Taylor C., Silva, Lawrence M., and Wilkinson, Bruce L., 3,546,571.
Varta Aktiengesellschaft: *See—*
Niklas, Hans, 3,546,024.
VonDoehren, Hans Hermann, and Schultze, Hans Alfred, 3,546,019.
Vazzano, Philip, and Wagner, William A., to Warwick Electronics Inc. Computer clock-timer. 3,545,196, Cl. 58-19.
VEB Luena-Werke 'Walter Ulbricht': *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, and Ebster, Claus-Dieter, 3,546,189.
VEB Pentacon Dresden Kamera- und Kinowerke: *See—*
Hahn, Erich, and Brust, Lothar, 3,545,351.
VEB Qualitats- und Edelstahlkombinat: *See—*
Hausig, Andreas, Jeske, Helmfried, and Spiegelberg, Karl, 3,546,347.
Veenendaal, Hendrikes Johannes: *See—*
Boersma, Theo Tjalke, Veenendaal, Hendrikes Johannes, and Van Der Sanden, Hendrikus Cornelis Nicolaas,3,545,973.
Veith, Werner, to Siemens Aktiengesellschaft. Color tube having venetian blind-type color selection grid and integrally formed baffles on display screen. 3,546,517, Cl. 313-77.
Velcor: *See—*
O'Mahoney, Richard A., 3,545,462.
Velge, Wilhelmus Antonius Johannes Josephus: *See—*
Buschow, Kurt Heinz Jurgen, and Velge, Wilhelmus Antonius Johannes Josephus,3,546,030.
Ventre, Pierre, to Regie Nationale des Usines Renault, and Automobiles Peugeot. Electric current supply systems. 3,545,806, Cl. 296-137.
Venus, Frank, Jr., to Risdon Manufacturing Company, The. Dip tubes for aerosol valve assemblies. 3,545,488, Cl. 137-590.
Verburg, Gerald B., Young, Alvin H. P., Snowden, Frank W., and Vail, Sidney L., to United States of America, Agriculture. Wet-fixation process for cellulosic fabrics using low add-ons of resins. 3,546,006, Cl. 117-119.8
Vereinigte Draht-und Kabelwerke Aktiengesellschaft: *See—*
Wilhelm, Klaus, and Bottcher, Bodo, 3,546,660.
Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft: *See—*
Wogerbauer, Alfred, 3,545,496.
Vergne, Jean, Solaux, Leon, Robinet, Jean-Claude, and Lacroix Philippe, to Charbonnages de France. Elastomer polymers derived from bicyclo 2.2.1 heptene-2. 3,546,183, Cl. 260-78.4
Verharen, Hermanus Arnoldus: *See—*
Dijksterhuis, Popko Reinder, and Verharen, Hermanus Arnoldus,3,546,452.
Verhoeven, Teunes: *See—*
Downing, James W., and Verhoeven, Teunes,3,545,771.
Vermont American Corporation: *See—*
Stutzke, Robert E., 3,545,308.
Verson Allsteel Press Company: *See—*
Grankowski, Eugene E., and Pappas, Lambros, 3,545,241.
Verspui, Gerrit: *See—*
Basart, Johan Charles Marie, Knippenberg, Wilhelmus Franciscus, and Verspui, Gerrit,3,546,032.

Vest, Robert D., to Du Pont de Nemours, E. I., and Company. Polysilicic acid[hydroxyalkyl vinyl ether- polyfluoroolefin copolymer]alkali metal compositions containing cyclic polyethers. 3,546,318, Cl. 260-827.

Vetter, Ottomar H.: *See—*
Van Horssen, Arden D., Vetter, Ottomar H., and Olson, Millard A.,3,546,658.

Vetter, Robert R.: *See—*
Stephens, Frederick N., Vetter, Robert R., and Burhans, Stuart J.,3,545,389.

Vexklyarsky, Ilia Nusinovich: *See—*
Rastorguev, Vladislav Vladimirovich, Ter-Akopov, Artur Mikhailovich, Ivashkov, Nikolai Melitonovich, Begunkov, Alexandr Ivanovich, Belkin, Alesandr Borisovich, and Vexklyarsky, Ilia Nusinovich,3,545,395.

Victor Company of Japan, Limited: *See—*
Suzuki, Toshi, and Nishijima, Tsutomu, 3,545,077.

Victor Comptometer Corporation: *See—*
Van Langenhoven, Jules Edmond, 3,545,333.

Vifian, Paul R.: *See—*
Burian, Wencil J., Herman, Donald E., Stepanek, Robert M., and Vifian, Paul R.,3,545,690.

Viner, Derek G., and Thompson, John S., to Plessey Company Limited, The. Gear pumps, more particularly for use with hot fluids. 3,545,900, Cl. 418-131.

Vinson, Paul. Powder compacting sub-press. 3,545,045, Cl. 18-16.5

Virostek, Catherine A. Pad for surgical instruments or the like. 3,546,643, Cl. 335-303.

Visani, Francesco: *See—*
Borsini, Giancarlo, Visani, Francesco, Lodi, Luciano, and Magagnin, Luigi Ciligot,3,546,192.

Visvydas, Pranas, to Container Corporation of America. Container having corner post for top to bottom stacking. 3,545,666, Cl. 229-34.

Vitramon Incorporated: *See—*
Kossar, Freddie, 3,545,079.

Vitt, George G., Jr., to Hughes Aircraft Company. Three-dimensional terrain mapping system. 3,546,375, Cl. 178-6.5

Vjecsner, Paul. Self-secured containers. 3,545,667, Cl. 229-35.

V-M Corporation: *See—*
Osborn, Lloyd, 3,545,766.

Voigt, Frederick W., Jr.: *See—*
Kibler, Charles J., and Voigt, Frederick W., Jr.,3,546,177.

Volkersen, Olaf: *See—*
Hertel, Heinrich, and Volkersen, Olaf,3,545,795.

Vollradt, Jurgen, to Licentia Patent-Verwaltungs-G.m.b.H. Saturated-steam generator. 3,545,411, Cl. 122-31.

von Berckheim, Constantin Graf. Electrode arrangement. 3,545,807, Cl. 296-137.

von Brimer, Joe W. Crankcase ventilator. 3,545,416, Cl. 123-119.

VonDoehren, Hans Hermann, and Schultze, Hans Alfred, to Varta Aktiengesellschaft. Fuel cell and fuel cell battery. 3,546,019, Cl. 136-86.

Von Langenthal, Wolfram: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram,3,546,060.

Von Orelli, Marcus: *See—*
Martin, Henry, Duerr, Dieter, Hitz, Hans-Rudolf, and Von Orelli, Marcus,3,546,344.

von Rintelen, Harald: *See—*
Kampfer, Helmut, Hase, Marie, von Rintelen, Harald, and Riester, Oskar,3,545,975.

Von Roll AG.: *See—*
Bobst, Gerhard, and Kaser, Walter, 3,545,340.
Bobst, Gerhard, 3,545,898.

Von Schertel, Hanns, to Supramar A.G. Automatic control apparatus for air supplied hydrofoils mounted at a watercraft. 3,545,396, Cl. 114-66.5

Von Struve, Henry C., III, to Martin-Marietta Corporation. Ground track alignment sensing system. 3,545,268, Cl. 73-178.

Vontsolos, Constantine: *See—*
Doyle, Bruce I., III, and Vontsolos, Constantine,3,545,087.

Vrana, Miroslav, to Dietiker, H. A., AG. Sandblast cabinet. 3,545,137, Cl. 51-8.

Vrbaski, Theodor, and Sheehan, Thomas David, to Sinclair Research Inc. Oxidation of aliphatic dienes to produce furaldehydes. 3,546,257, Cl. 260-347.8

Vulliez, Georges Francois, and Marquet, Jean-Claude Georges Henri. Thin layer resistors. 3,546,015, Cl. 117-227.

Vuzkumny ustav strojirenske technologie a ekonomiky: *See—*
Brany, Jaroslav, 3,545,139.

Waclawik, Jerzy, and Waszak, Stefan. Method for determining continuously small concentrations of gaseous halogenated compounds and of hydrogen halides in air and in other gases. 3,546,079, Cl. 204-1.

Wagner, Eugene R., to Dow Chemical Company, The. N-Pyridyl-1,4,5,8-tetrahydro-4a,8a- naphthalenedicarboximides. 3,546,238, Cl. 260-295.

Wagner, William A.: *See—*
Vazzano, Philip, and Wagner, William A.,3,545,196.

Wainer, Eugene, to Horizons Incorporated, division of Horizons Research Incorporated. Pigment. 3,545,993, Cl. 106-288.

Waitkus, Joseph, to Air Preheater Company, Inc., The. Rotary regenerator cleaning arrangement. 3,545,532, Cl. 165-5.

Wakamatsu, Hachiro, Takesada, Masahiko, and Tsuchitani, Yuichi, to Ajinomoto Co., Inc. Method of recovering rhodium values of a spent rhodium bearing catalyst. 3,545,963, Cl. 75-83.

Wakamatsu, Hachiro, Tatsumi, Susumu, Sato, Seiichi, Sato, Jiro, and Nomura, Mikio, to Ajinomoto Co., Inc.Method of preparing γ-hydroxybutyronitrile. 3,546,269, Cl. 260-465.6

Waldron, Stoddard S., to North American Rockwell Corporation. Through-the-flowline (TFL) tool cartridge assembly. 3,545,540, Cl. 166-70.

Walker, Darrell W., and Czenkusch, Edward L., to Phillips Petroleum Company. Colorimetric oxygen detection. 3,545,930, Cl. 23-232.

Walker, Johnny Wilfred, to International Telephone & Telegraph Corporation. Method of manufacturing a telephone dial governor weight. 3,545,073, Cl. 29-527.50

Walker, Rollie J., Jr., to General Electric Company. Self-oscillating sweep circuit using harmonic ringing in feedback winding. 3,546,629, Cl. 331-147.

Walker, Walter O.: *See—*
Sakhnovsky, Alexander A., Walker, Walter O., and Tilney, Ralph B.,3,545,622.

Wall, Leo A., Brown, Daniel W., and Antonucci, Joseph M., to United States of America, Navy. Solid polyperfluorostyrene and method of preparation. 3,546,191, Cl. 260-91.5

Wallace, Clifford G.: *See—*
Anderson, Emmett R., and Wallace, Clifford G.,3,546,606.

Wallace, David J.: *See—*
Weaver, Max A., and Wallace, David J.,3,546,204.

Wallace, Joseph Thomas, to Motorola, Inc. Stepper motor control circuits. 3,546,547, Cl. 318-138.

Wallenborn, Nils, to Arenco Aktiebolag. Feeding out device in storage containers for rod- like parallel articles. 3,545,593, Cl. 198-53.

Wallentowitz, Klaus: *See—*
Lundin, Robert S., Wallentowitz, Klaus, and Bosman, Edward T.,3,546,479.

Walmsley, Joseph, and Lamb, Charles F., to Grinnell Corporation. Cleaning of looms. 3,545,029, Cl. 15-314.

Walsh, Robert H.: *See—*
Lott, Harry, Jr., and Walsh, Robert H.,3,545,994.

Waltrich, Paul Francis, to Pennwalt Corporation. High thermal conductivity plastic tray for freeze drying of products. 3,545,097, Cl. 34-238.

Wander, A., Dr., S.A.: *See—*
Schmutz, Jean, Hunziker, Fritz, and Kunzle, Franz Martin, 3,546,226.

Wanlass, Cravens L., to Wanlass Electric Company. Dynamic filter. 3,546,494, Cl. 307-297.

Wanlass Electric Company: *See—*
Wanlass, Cravens L., 3,546,494.

Ward, George C.: *See—*
Bray, Thomas L., Ward, George C., and Cofer, Daniel B.,3,545,527.

Ward, Lowell G.: *See—*
Wicker, Dan B., Bennett, James G., Jr., and Ward, Lowell G.,3,545,442.

Ward Manufacturing Co., Inc.: *See—*
Duckett, John W., 3,545,039.

Ware, Franklyn O., Soukup, Charles L., and Krueger, Wilbur W., to Paper Production Aids, Inc., mesne. Size press coating paper with TiO starch paste to improve opacity. 3,546,066, Cl. 162-175.

Warnaco, Inc.: *See—*
Middleton, Earl, 3,545,164.

Warren Fastener Corporation: *See—*
Ettinger, Donald H., and Meyer, Engelbert A., 3,546,420.
Meyer, Engelbert A., 3,546,419.

Warsager, Rubin. Eyeglass case. 3,545,603, Cl. 206-5.

Warwick Electronics Inc.: *See—*
Overlie, Per T., 3,546,591.
Vazzano, Philip, and Wagner, William A., 3,545,196.

Wasag-Chemie Aktiengesellschift: *See—*
Kraemer, Stefan, and Seidl, Alois, 3,546,061.

Washburn, Robert M., and Karle, Dennis W., to McDonnell Douglas Corporation, mesne. Phosphorus-nitrogen polymers and process. 3,546,141, Cl. 260-2.

Waska, Franklyn L., to Beckman Instruments, Inc. Differential-port sphere for absolute diffuse spectral reflectance measurements and method. 3,545,871, Cl. 356-236.

Waszak, Stefan: *See—*
Waclawik, Jerzy, and Waszak, Stefan,3,546,079.

Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F., said Waters assor. to Digimetrics, Inc. Sports computer system. 3,546,696, Cl. 343-6.5

Weatherston, Roger C., and Duryea, George R., to Cornell Aeronautical Laboratory, Inc. Rotary inflow compressors and the like. 3,545,895, Cl. 417-440.

Weaver, Max A., and Wallace, David J., to Eastman Kodak Company. Phenyl-azo-phenyl dyes compounds. 3,546,204, Cl. 260-205.

Webb, Richard Lansing: *See—*
Engel, Robert Henry, Fahrenbach, Marvin Jay, and Webb, Richard Lansing,3,546,338.

Webbere, Fred J.: *See—*
Miller, Mark F., and Webbere, Fred J.,3,545,943.

Weber, Helmut: *See—*
Fauland, Erich, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut,3,546,234.

Weber, Karl-Arnold: *See—*
Hoppe, Peter, Essig, Karl August, Dornheim, Goetz-Gotmar, Bendler, Erich, Weber, Karl-Arnold, and Von Langenthal, Wolfram,3,546,060.

Webster, Frank G., to Eastman Kodak Company. Photographic emulsions containing alkoxydihydromerocyanines. 3,545,976, Cl. 96-106.

Webster, Wilton W., Jr. Massflowmeter catheter. 3,545,428, Cl. 128-2.05

Weeber, Pieter G.: *See—*
Idsenga, Willem F., and Weeber, Pieter G.,3,546,425.

Wegmuller, Hans E.: *See—*
Bossard, Werner, and Wegmuller, Hans E.,3,546,203.

Weichel, Ernst. Process and apparatus for breaking up a mass of produce. 3,545,511, Cl. 146-78.

Weiden, Hans: *See—*
Dany, Franz-Josef, Kandler, Joachim, Frank, Klaus, and Weiden, Hans,3,546,160.

Weiden, Mathias H. J.: *See—*
Payne, Linwood K., Jr., and Weiden, Mathias H. J.,3,546,343.

Weidenbacker, Russell A. Safety and decorative cover for ice skates. 3,545,778, Cl. 280-11.12

Weinberger, Lester, and Solodar, Warren E., to Xerox Corporation. Photoelectrophoretic imaging process and suspension. 3,546,085, Cl. 204-181.

Weisz, Paul B., to Mobil Oil Corporation. Shape selective naphtha processing. 3,546,097, Cl. 208-62.

Welch, Craig J.: *See—*
Fish, Robert W., Stack, Wallace F., and Welch, Craig J.,3,545,194.

Welch, Stanley B., to General Electric Company. Pure solid state self-cleaning oven control. 3,546,435, Cl. 219-501.

Wen, Cheng P., to RCA Corporation. Tunable microstrip band pass filter utilizing gyromagnetic material at the junction of two conductive loops. 3,546,637, Cl. 333-73.

Wendt, Otto Bruno, to American Photocopy Equipment Company. Reagent for use in lithography comprising an alkali and a terminal ethynyl compound. 3,546,126, Cl. 252-182.

Wengel, Sheldon M. Electric motor. 3,546,507, Cl. 310-156.

Wentzheimer, William W., and Minka, Edward T., to Sun Oil Company. Rubber oils from Lagomedio crude. 3,546,093, Cl. 208-33.

Wenzel, Philip D., to Case, J. I., Company. Pivotal coulter lock-out assembly. 3,545,550, Cl. 172-271.

Werner & Mertz GmbH: *See—*
Schneider, Helmut, 3,545,875.

Werner & Pfleiderer: *See—*
Herrmann, Heinz, and Herzberg, Joachim Kurt, 3,545,726.

Werner, R. D., Co., Inc.: *See—*
Lindesmith, Harold R., Sulecki, Richard P., Tuck, Charles R., and Werner, Richard L., 3,545,072.

Werner, Richard L.: *See—*
Lindesmith, Harold R., Sulecki, Richard P., Tuck, Charles R., and Werner, Richard L.,3,545,072.

Wert, John M., to Chore-Time Equipment, Inc. Controlled animal feeder apparatus. 3,545,408, Cl. 119-51.11

Westinghouse Air Brake Company: *See—*
Coccia, Rudolph A., 3,546,573.
Scott, Daniel G., and Temple, Fred, 3,545,820.

Westinghouse Brake and Signal Company, Limited: *See—*
Blackmore, Donald Eric, 3,545,653.

Westinghouse Electric Corporation: *See—*
Chang, Chen-Kuo, 3,546,509.
DeCorso, Serafino M., 3,546,348.
Dubrowsky, Leonard, 3,546,634.
Dunnigan, Gerard J., and French, Marvin E., 3,546,480.
Fekete, Nicholas G., and Koerner, Harry E., 3,546,463.
Frink, Russell E., 3,546,406.
Hoffmann, Arthur G., 3,546,472.
Kircher, Paul J., 3,546,501.
Lydick, Henry W., 3,546,533.
Motto, John W., Jr., 3,546,488.
Riel, Robert K., Tarneja, Krishan S., Ernick, Frederick G., and Kisinko, Paul M., 3,546,542.
Sayles, Donald A., 3,546,086.
Smith, Melvin W., and Kluth, Charles S., 3,545,812.
Somers, Edward V., 3,546,499.
Specht, Theodore R., Throop, Gilbert D., and Bruce, Robert V., 3,546,572.
Wilburn, Garlington C., and Michel, George P., 3,546,644.

Westling, Donald E. Machine for dispensing liquid. 3,545,386, Cl. 107-1.

Westlund, Arnold E., Jr.: *See—*
Bovio, Robert J., and Westlund, Arnold E., Jr.,3,545,500.

Westwood, David H., to RCA Corporation. Digital frequency synthesizer. 3,546,617, Cl. 331-2.

Weyerhaeuser Company: *See—*
Caughey, Robert A., 3,545,370.
Ottaway, James N., 3,545,680.

Whalen, David M., and Tokoli, Emery G., to Union Camp Corporation. Lignin precipitation from black liquor in the presence of chloro, bromo or nitro containing hydrocarbons. 3,546,200, Cl. 260-124.

Wheelock, Edward A., to Crane Packing Company. Seal for gun port. 3,545,770, Cl. 277-152.

Wheelock, Herbert J. Bag holding and dispensing rack. 3,545,176, Cl. 53-390.

Whelahan, John F., to Avco Corporation. Steering apparatus for transmissions coupled to a free power turbine. 3,545,303, Cl. 74-720.5

Whirlpool Corporation: *See—*
Linstromberg, William J., 3,545,217.
Ruspino, James G., and Hilmanowski, James R., 3,545,684.
Salisbury, Keith D., and Robandt, William F., 3,545,096.

White, Edward L., and Pitrot, Adrian R., to National Lead Company. Polymer additives coated with wax and hydroxyl- containing fatty materials, processes therefor, and polymer compositions containing same. 3,546,150, Cl. 260-28.5

White, Herbert J., to Burroughs Corporation. Complementary bistable circuit having delayed turn-on and turn-off. 3,546,489, Cl. 307-288.

White, James E., to Marathon Oil Company. Phase shifters. 3,546,604, Cl. 328-155.

Whiteacre, Robert W., 3rd, to Koppers Company, Inc. Oil shale retorting method and apparatus. 3,546,092, Cl. 208-11.

Whiteman, Frank L., and Zemberry, William L., to United States Steel Corporation. Switch actuated by fluid flow. 3,546,404, Cl. 200-81.9

Whiteside, John, to Vandervell Products Limited. Apparatus for forming articles from strip metal. 3,545,248, Cl. 72-324.

Whitfield, Carroll J., and Dorsett, Wendell E., to Lilliston Corporation. Peanut combine. 3,545,185, Cl. 56-19.

Whitney, Donald G. Power lawn rake. 3,545,187, Cl. 56-27.

Whittaker Corporation: *See—*
Stillman, Donald W., and Lang, David W., 3,545,066.

Wicker, Dan B., Bennett, James G., Jr., and Ward, Lowell G., to Huyck Corporation. Bandaging and dressing material. 3,545,442, Cl. 128-296.

Wicker, Ralph C. Graphic projector. 3,545,853, Cl. 353-78.

Widman, Michael U.: *See—*
Francis, Gerald A., Henkener, Jerry A., McNinch, Joseph H., Jr., Pritz, Howard B., and Widman, Michael U.,3,545,376.

Wied, Wilson W.: *See—*
Thompson, Verne P., Gardella, Stephen L., Jr., and Larkin, Artemas M., 3,545,237.

Wiele, Robert W.: *See—*
Bloomfield, Roger D., Petersen, Paul S., and Wiele, Robert W.,3,545,103.

Wilbur, Clayton V.: *See—*
Herrick, Clifford E., Jr., Sporer. Alfred H., and Wilbur, Clayton V.,3,545,969.

Wilburn, Garlington C., and Michel, George P., to Westinghouse Electric Corporation. Electrical winding having transposed sheet conductors. 3,546,644, Cl. 336-223.

Wilcox, Russell E., Jr., and Sarazen, John C., to Texas Instruments, Incorporated. Integrated circuit mounting panel. 3,546,539, Cl. 317-101.

Wildfeuer, Heinrich: *See—*
Fahlenberg, Paul, Pross, Wilhelm, and Wildfeuer, Heinrich,3,545,359.

Wildt Mellor Bromley Limited: *See—*
Forrester, John S., 3,545,234.

Wilhelm, Klaus, and Bottcher, Bodo, to Vereinigte Draht-und Kabelwerke Aktiengesellschaft. Electrical connector with insulation piercing means. 3,546,660, Cl. 339-94.

Wilkinson, Bruce L.: *See—*
Fletcher, Taylor C., Silva, Lawrence M., and Wilkinson, Bruce L.,3,546,571.

Wilkinson, Donald Graham: *See—*
Irving, Francis, and Wilkinson, Donald Graham,3,546,222.

Will, Robert G., and Swiss, William F., Jr., to Standard Oil Company. Absorption oil skimmer. 3,546,112, Cl. 210-30.

Williams, Donald P., to North American Rockwell Corporation. Magnetic field variometer using a low noise amplifier and a coil-core arrangement of minimum weight and maximum sensitivity. 3,546,580, Cl. 324-47.

Williams, Jimmy R., to Honeywell Inc. Capacitive liquid quantity indicating and shut-off system. 3,545,650, Cl. 222-56.

Williams, Paul R.: *See—*
Blatt, Leland F., and Williams, Paul R.,3,545,050.

Williams, Russell C., to General Motors Corporation. Combination loading and traction device for scraper. 3,545,108, Cl. 37-8.

Williamson, Douglas Herbert, to Rolls-Royce Limited. Pressure exchanger rotor. 3,545,882, Cl. 416-190.

Williamson, Roger C., to Gulf Research & Development Company. Conversion of gem-dialkoxy compounds to unsaturated ethers using. 3,546,300, Cl. 260-614.

Wilms, Karl-Heinz, to Optische Werke G. Rodenstock. Compensating opthalmometer. 3,545,846, Cl. 351-13.

Wilson, Carl: *See—*
Hinnant, Donald R., and Wilson, Carl,3,545,538.

Wilson, Edward McKenzie: *See—*
Long, Alan Gibson, Wilson, Edward McKenzie, and Graham, William,3,546,219.

Wilson, Henry Allen. Combined cap and aerial projector. 3,545,760, Cl. 273-106.

Wilson, Lorenzo D. Auxiliary sun visor. 3,545,805, Cl. 296-97.

Wilson, Martin, to United States Borax & Chemical Corporation. Settling of hematite slimes. 3,545,941, Cl. 23-312.
Wilson, Thomas L. Noninertial strapped down gravity gradient navigation system. 3,545,266, Cl. 73-151.
Wilt, Chester C.: *See—*
Barnes, John C., Wilt, Chester C., and Rees, William W.,3,545,971.
Wimbro Incorporated: *See—*
Eastham, Ray, and Goertzer, Irvin E., 3,545,147.
Windeler, Alfred S.: *See—*
Mac Pherson, William F., and Windeler, Alfred S.,3,546,357.
Windmiller & Holscher: *See—*
Rochla, Kurt, and Trautmann, Karl-Heinz, 3,545,323.
Windmoller & Holscher: *See—*
Achelpohl, Fritz, 3,545,346.
Winkler, Alfred, and Denk, Richard, to Agfa-Gevaert Aktiengesellschaft. Motion picture camera. 3,545,852, Cl. 352-91.
Winocur, Joseph: *See—*
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L.,3,545,866.
Winthrop-Atkins Co., Inc.: *See—*
Frankl, Ernest, 3,546,040.
Nichols, Gordon E., 3,545,115.
Wise, Eugene H., and McDowell, Jon J., to Sloane, R. & J., Manufacturing Inc., mesne. Compression joint. 3,545,794, Cl. 285-248.
Wiseman, Donald F.: *See—*
Friberg, Vincent P., Wiseman, Donald F., and Chesney, John,3,545,273.
Wisseroth, Karl, and Scholl, Richard. Badische Anilin- & Soda-Fabrik Aktiengesellschaft Anchor-agitator. 3,545,729, Cl. 259-182.
Witherell, William F.: *See—*
Emanuelson, Roger C., and Witherell, William F.,3,545,944.
Witt, Enrique R.: *See—*
Carpenter, Sammy, Witt, Enrique R., and Cahill, Joseph J., Jr.,3,546,253.
Witt, Enrique R., to Celanese Corporation. Process of purifying aromatic dicarboxylic acids. 3,546,285, Cl. 260-525.
Witte, Alfred: *See—*
Neese, Gerhard, and Witte, Alfred,3,545,232.
Wittern, Francis A., to Fawn Engineering Company. Adjustable price setting mechanism for a vending machine. 3,545,586, Cl. 194-2.
Wittmann, Otto: *See—*
Sander, Bruno, Becke, Friedrich, Hagen, Helmuth, Pommer, Ernst-Heinrich, and Wittmann, Otto,3,546,147.
Wofford, Clinton F., Busler, William R., and Hsieh, Henry L., to Phillips Petroleum Company. Catalyst system comprising an organoaluminum, a metal salt of a beta-diketone and water. 3,546,134, Cl. 252-431.
Wogerbauer, Alfred, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Fold flange tube and process and installation for producing such fold flange tube. 3,545,496, Cl. 138-171.
Wojaczek, Egon, and Becker, Kunibert, to Gewerkschaft Eisenhutte Westfalia. Stanchion foot connection. 3,545,714, Cl. 248-357.
Wokeck, Arthur C. Controls means for operating in timed relation the work clamp and the needle of a sewing machine of the tacker type. 3,545,388, Cl. 112-67.
Wolf, Herbert, Goesele, Wilhelm, Schreiner, Siegfried, Hettler, Friedrich, and Stumpfl, Hans, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Conveyance of dusty material in multistage fluidized-bed plant. 3,545,735, Cl. 266-20.
Wolf, Murray, to Evans-Aristocrat Industries, Inc.Lady's hand or shoulder bag. 3,545,514, Cl. 150-30.
Wolfgang, Lozure G., to International Telephone and Telegraph Corporation. Electron discharge device having coaxial mounting structure. 3,546,526, Cl. 315-39.
Wolheim, Joseph B., to Allied Chemical Corporation. Polyolefins with improved light stability. 3,546,161, Cl. 260-45.85
Wollmeringer, Bernard C.: *See—*
Frank, Ulrich A., and Wollmeringer, Bernard C.,3,545,431.
Woltermann, Jay R.: *See—*
Braus, Harry, and Woltermann, Jay R.,3,546,272.
Wood, Harold F.: *See—*
Waters, Michael F., Spry, Roy J., Munn, Vaughn K., Gunderman, Tracy B., and Wood, Harold F.,3,546,696.
Wood, Louis L., to Grace, W. R., & Co. Ortho-ester stabilized polyvinylchloride resins. 3,546,162, Cl. 260-45.85
Wood, Rodney D.: *See—*
Gray, Foster L., and Wood, Rodney D.,3,545,947.
Woodle, Robert A., to Texaco Inc. Method and apparatus for characterization of hydrocarbon mixtures. 3,546,109, Cl. 208-347.
Woodruff, Roy P. Scalp massager. 3,545,434, Cl. 128-62.
Woods, Quentin T., to FMC Corporation. Method of deoxygenating and packaging of food products. 3,545,983, Cl. 99-171.
Woolley, Eric Maurice, Wright, George, Crisp, Roy, and Atkinson, Robert Dennis, to Head, Wrightson and Company Limited. Steam generating installations. 3,545,410, Cl. 122-7.
Wooten, Willis C., Jr.: *See—*
Shields, Donald J., Hawkins, James M., and Wooten, Willis C., Jr.,3,546,008.
Wouk, Victor, to Gulton Industries, Inc. Control apparatus for electric automotive vehicles. 3,546,548, Cl. 318-139.
Wright, Allen C., to Haws Drinking Faucet Company. Water bubbler assembly. 3,545,477, Cl. 137-327.
Wright, Clarence J. Conductor stringing grounding block. 3,545,724, Cl. 254-134.3
Wright, Donald: *See—*
Hayden, Percy, and Wright, Donald,3,546,278.
Wright, Gene Paul, to General Motors Corporation. Over-center door hinge. 3,545,034, Cl. 16-180.
Wright, George: *See—*
Woolley, Eric Maurice, Wright, George, Crisp, Roy, and Atkinson, Robert Dennis,3,545,410.
Wycliffe, Henryk, and Power, Basil Dixon, to Edwards High Vacuum International Limited. Multistage rotary pumps. 3,545,888, Cl. 417-310.
Wyeth, John, & Brother Limited: *See—*
Brown, Kevan, 3,546,342.
Xerox Corporation: *See—*
Dryden, Vernon W., and Johnston, Donald L., 3,545,934.
Jacobson, Charles L., 3,546,486.
Kearns, William J., 3,545,935.
Weinberger, Lester, and Solodar, Warren E., 3,546,085.
Yamada, Kantaro: *See—*
Ikeda, Yoneichi, Tashiro, Masaharu, Yamada, Kantaro, and Nakamura, Toshio,3,546,268.
Yamada, Minoru: *See—*
Nishio, Fumihiko, Yoneyama, Masakazu, Yamada, Minoru, and Nagao, Kameji,3,545,974.
Yamamoto, Kenichi, to Toyo Kogyo Kabushiki Kaisha. Carburetor. 3,545,417, Cl. 123-127.
Yan, Tsoung-Yuan, to Mobil Oil Corporation. Hydrocracking activity and selectivity of a rare earth crystalline zeolite. 3,546,100, Cl. 208-111.
Yarber, Gordon W. Brake control mechanism. 3,545,817, Cl. 303-21.
Yarbrough, Robert W., Jr., to Taylor Machine Works. Multi-element laterally movable lifting apparatus. 3,545,636, Cl. 214-731.
Yard-Man of Illinois, Incorporated: *See—*
Harshman, Milton M., 3,545,706.
Yariv, Amnon: *See—*
Peterson, Don G., and Yariv, Amnon,3,546,622.
Yelloz, Raphael Guy: *See—*
Cagnac, Therese Marie Leonie, LeGall, Alain Pierre, and Yelloz, Raphael Guy,3,546,682.
Yoder, David W.: *See—*
Harwell, Roy M., Jr., and Yoder, David W.,3,545,377.
Yoder, Stanley W. Cart with adjustable handle. 3,545,786, Cl. 280-47.24
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio, to General Corporation, The. Method for dynamic controlling of magnetic core register. 3,546,679, Cl. 340-172.5
Yoneda, Toshiyuki: *See—*
Hoshino, Shohei, Yoneda, Toshiyuki, and Uezono, Hidenobu,3,545,161.
Yoneyama, Masakazu: *See—*
Nishio, Fumihiko, Yoneyama, Masakazu, Yamada, Minoru, and Nagao, Kameji,3,545,974.
Yoshida, Ryonosuke: *See—*
Maeda, Itsutoshi, Takesada, Masahiko, and Yoshida, Ryonosuke,3,546,277.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu, to Sony Corporation. Single-gun, plural-beam cathode ray tube having all beams focused by the passage thereof through the optical center of a common electron lens. 3,546,516, Cl. 313-69.
Yoshii, Teruji: *See—*
Kawamura, Koichi, Ishikawa, Miyoshi, Yoshii, Teruji, Sugiyama, Sigehiko, and Kato, Hiroshi,3,545,519.
Yoshimune, Yoshinori: *See—*
Yokoyama, Akira, Neya, Harunaga, Yoshimune, Yoshinori, Tomabechi, Nobuhiro, and Imai, Toshio,3,546,679.
Yoshinaga, Fumihiro, Kimura, Michiko, Shibuya, Masao, and Okumura, Shinji, to Ajinomoto Co., Inc. Fermentative method of producing L-serine from DL-serine. 3,546,070, Cl. 195-2.
Young, Albert: *See—*
Schneider, Frank L., 3,546,089.
Young, Alvin H. P.: *See—*
Verburg, Gerald B., Young, Alvin H. P., Snowden, Frank W., and Vail, Sidney L.,3,546,006.
Young, Bernard W. Air cleaning apparatus. 3,545,181, Cl. 55-432.
Young, Fred W., to Babcock & Wilcox Company, The. Offset mix tubes. 3,545,409, Cl. 122-6.
Young, Frederic William: *See—*
Anderson, George B., and Young, Frederic William,3,545,319.
Young, Howard S., Anderson, George C., and McDaniel, Edgar L., to Eastman Kodak Company. Molybdenum, niobium, tantalum, arsenic in catalysts for vapor phase production of alpha, beta-unsaturated acids. 3,546,139, Cl. 252-456.
Youngdahl, Carl Arthur: *See—*
Berg, Robert H., Youngdahl, Carl Arthur, and Ellison, Lynn E.,3,546,129.
Younger, Cousby: *See—*
Quine, John P., and Younger, Cousby,3,546,635.
Yousefpor, Yul J., to Esquire, Inc. Apparatus for use in mounting an object from a suspended ceiling. 3,545,145, Cl. 52-28.
Zadoo, Vijay K., to Vapor Corporation. Pressure regulator. 3,545,465, Cl. 137-38.

Zahradnik, Stanislav, to Elitex, zavody textilniho strojirenstvi. Reciprocating pump. 3,545,896, Cl. 417-471.
Zak, Alfred M. Ignition cable connector. 3,546,665, Cl. 339-256.
Zaleski, Mitchele J., to Pylon Tool Corporation. Construction of electrical contact. 3,546,368, Cl. 174-94.
Zangger, Robin: *See—*
Zemp, Georg, and Zangger, Robin,3,545,257.
Zaydel, Wieslaw S.: *See—*
Arlauskas, Alfonsas, and Zaydel, Wieslaw S.,3,545,800.
Zdrahal, Jiri: *See—*
Dokoupil, Jiri, Zubik, Jiri, and Zdrahal, Jiri,3,545,095.
Zehender, Ernst: *See—*
Gartner, Gustav, Keller, Max, and Zehender, Ernst,3,546,010.
Zeiss Ikon Aktiengesellschaft: *See—*
Taesler, Rudolf, 3,546,403.
Zelcer, Isaac: *See—*
Spiegel, Herbert, and Zelcer, Isaac,3,545,111.
Zellweger, Conrad J.-J.: *See—*
Christmas, Ronald J., Fuller, Douglas S., Reid, Bruce Lestock, Guenin, Leandre Andre, and Zellweger, Conrad J.-J.,3,545,907.
Zemberry, William L.: *See—*
Whiteman, Frank L., and Zemberry, William L.,3,546,404.
Zemberry, William L., to United States Steel Corporation. Gages for aligning workpieces in an electroerosive flaw-cutting machine. 3,546,414, Cl. 219-69.
Zemek, Albert W., and McDonald, Paul V., to Universal Instrument Corporation. Variable size module sequence and insertion apparatus. 3,545,064, Cl. 29-203.
Zemp, Georg, and Zangger, Robin, to Contraves AG. Viscosimeter. 3,545,257, Cl. 73-59.
Zero Manufacturing Company: *See—*
Duncan, Leon L., 3,545,996.
Ziegler, George Edward, and Kilgour, Gilbert Innes, to United Merchants and Manufacturers, Inc. Apparatus for treating fabrics in rope form. 3,545,236, Cl. 68-176.
Ziegler, Karl, Breil, Heinz, Martin, Heinz, and Holzkamp, Erhard, said Breil and said Martin and said Holzkamp assor to said Ziegler. Polymerization catalyst containing alkyl aluminum dihalide. 3,546,133, Cl. 252-429.
Ziehm, Gunter Hans, and Triebold, Karl-Friedrich, to Krupp, Fried., Gesellschaft mit beschrankter Haftung. Method and apparatus for determining the position of objects in water. 3,546,666, Cl. 340-2.
Ziering, Albert: *See—*
Leimgruber, Willy, and Ziering, Albert,3,546,239.
Zilka, Jerry M.: *See—*
Dixon, Paul H., and Zilka, Jerry M.,3,546,707.
Zimmerman, Abraham A., to Esso Research and Engineering Company. Process for separating organic mixtures containing NF_2 groups. 3,546,256, Cl. 260-347.4
Zimmermann, Frederick N., to March Manufacturing Company. Magnetically-coupled pump. 3,545,892, Cl. 417-373.
Zimmermann, Robert E., to Koppers Company, Inc. Blowpipe for blast furnace. 3,545,736, Cl. 266-41.
Zingery, Wilbur L.: *See—*
Jacobs, Earl D., Durrett, Ronald H., Hutchings, Thomas J., Winocur, Joseph, and Zingery, Wilbur L.,3,545,866.
Zink, Ben J.: *See—*
Smith, Fred T., Barber, Harry A., and Zink, Ben J.,3,545,599.
Zink, Werner: *See—*
Gunther, Willi, and Zink, Werner,3,545,360.
Zirkle, Charles L.: *See—*
Kaiser, Carl, and Zirkle, Charles L.,3,546,228.
Kaiser, Carl, and Zirkle, Charles L.,3,546,232.
Kaiser, Carl, and Zirkle, Charles L.,3,546,236.
Ziron, Frank J., 3rd: *See—*
Costello, Matthew J., Ziron, Frank J., 3rd, Bleggi, Henry, and Berg, Allen C.,3,545,375.
Zitter, Robert N. Oscillating metal object detector. 3,546,628, Cl. 331-117.
Zollner Corporation: *See—*
Zollner, Fred, 3,545,772.
Zollner, Fred, to Zollner Corporation. Annular piston ring bearing means. 3,545,772, Cl. 277-189.5
Zolzer, Karlheinz: *See—*
Brill, Bruno, and Zolzer, Karlheinz,3,545,086.
Zubik, Jiri: *See—*
Dokoupil, Jiri, Zubik, Jiri, and Zdrahal, Jiri,3,545,095.
Zychal, Edward, to Zyco Manufacturing, Inc. Slitting apparatus. 3,545,322, Cl. 83-61.
Zyco Manufacturing, Inc.: *See—*
Zychal, Edward, 3,545,322.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 8TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Beadle, Robert G., D. A. Lehr, and H. S. Maxwell, to General Electric Co. Computer control system for metals rolling mill. Re. 26,996, 12–8–70, Cl. 72—7.

Brown, Norman F., to Otis Engineering Corp. Low friction sealed and low torque actuated trunnion mounted valve. Re. 26,998, 12–8–70, Cl. 251—172.

Eckert, Ernst, to Esso Research and Engineering Co. Ship's hull construction. Re. 26,997, 12–8–70, Cl. 114—56.

Elliott, Franklin P., to Honeywell Inc. Control system for terminating the discharge through a flash lamp. Re. 26,999, 12–8–70, Cl. 315—151.

Esso Research and Engineering Co.: *See*—
Eckert, Ernst. Re. 26,997.

General Electric Co.: *See*—
Beadle, Robert G., Lehr, and Maxwell. Re. 26,996.

Honeywell Inc.: *See*—
Elliott, Franklin P. Re. 26,999.

Klopper, Daniel R., to Union Corp. Ltd. Settling apparatus. Re. 27,000, 12–8–70, Cl. 259—108.

Lehr, Donald A.: *See*—
Beadle, Robert G., Lehr, and Maxwell. Re. 26,996.

Maxwell, Hugh S.: *See*—
Beadle, Robert G., Lehr, and Maxwell. Re. 26,996.

Otis Engineering Corp.: *See*—
Brown, Norman F. Re. 26,998.

Union Corp. Ltd.: *See*—
Klopper, Daniel R. Re. 27,000.

LIST OF PLANT PATENTEES

Cobia, B. L., Inc.: *See*—
Magnuson, Lloyd S. 3,008.

Magnuson, Lloyd S., to B. L. Cobia, Inc. Variety of the milkweed plant family. 3,008, 12–8–70, Cl. 88.

Swim, Herbert C., and O. L. Weeks; said Swim assor. to said Weeks, d.b.a. Weeks Wholesale Rose Grower. Rose plant. 3,010, 12–8–70, Cl. 21.

Weeks, O. L.: *See*—
Swim, Herbert C., and Weeks. 3,010.

Weeks Wholesale Rose Grower: *See*—
Swim, Herbert C., and Weeks. 3,010.

Wiebe, Arthur. Peach tree. 3,009, 12–8–70, Cl. 42.

LIST OF DESIGN PATENTEES

Ampex Corp.: *See*—
Goodrich, Jack R. 219,386.

Arlans Dept. Stores, Inc.: *See*—
Silverstein, Maxwell. 219,369.

Art Metal-Knoll Corp.: *See*—
Pearson, Maxwell E. 219,376.

Avant Inc.: *See*—
Kuhns, Roger J. 219,409.

Baldwin, D. H., Co.: *See*—
Kimble, Thomas E. 219,403.
White, Winsor D., Jr. 219,401.
White, Winsor D., Jr. 219,402.
White, Winsor D., Jr. 219,404.

Ballone, Michael P.: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Becker, Robert W., and D. P. Chuboff, to Zenith Radio Corp. Cassette tape recorder. 219,385, 12–8–70, Cl. D26—14.

Beseler, Charles, Co.: *See*—
Nemesnyik, John C. 219,405.

Black and Decker Mfg. Co., The: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Blaha, Robert F., and J. D. Mayall, to Texas Instruments Inc. Electrical switch. 219,382, 12–8–70, Cl. D26—13.

Bodkins, Arthur I. Filter panel for photographic lighting fixtures or the like. 219,396, 12–8–70, Cl. D48—16.

Brede, Alexander, III, to Motor Wheel Corp. Wheel. 219,375, 12–8–70, Cl. D14—30.

Briggs, Melvin J. Rotatable inflatable sander tool. 219,393, 12–8–70, Cl. D37—1.

Bunyea, Roderick F.: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Campbell, Charles G., to The Huffman Mfg. Co. Bottle or similar article. 219,368, 12–8–70, Cl. D9—66.

Cecchine, Joseph R., to Johns-Manville Corp. Floor covering or similar article. 219,378, 12–8–70, Cl. D18—2.

Chippewa Shoe Co.: *See*—
Cinquegrana, Vincent E., and Eckes. 219,361.

Chuboff, David P.: *See*—
Becker, Robert W., and Chuboff. 219,385.

Cinquegrana, Vincent E., and L. W. Eckes, to Chippewa Shoe Co. Boot. 219,361, 12–8–70, Cl. 12—275.

Coltharp, Sallie A. Teaching doll. 219,388, 12–8–70, Cl. D34—4.

Coltharp, Sallie A. Teaching doll. 219,389, 12–8–70, Cl. D34—4.

Croslin, Michael E., to International Applied Science Laboratory, Inc. Fluid dispensing apparatus. 219,418, 12–8–70, Cl. D94—3.

Day, Harold R.: *See*—
Lewis, Dan, Jr., and Day. 219,366.

Didion, Gilbert W. Milk carton holder. 219,395, 12–8–70, Cl. D44—21.

Divisible Packaging Enterprises, Inc.: *See*—
Riley, Brette R. 219,415.

Doherty, Robert J. Rotatable sander. 219,392, 12–8–70, Cl. D37—1.

Dulmison (Australia) Pty., Ltd.: *See*—
Mackness, Clive R. 219,363.
Mackness, Clive R. 219,364.
Mackness, Clive R. 219,365.

Eckes, Lloyd W.: *See*—
Cinquegrana, Vincent E., and Eckes. 219,361.

Fedtro, Inc.: *See*—
Kahn, Robert D. 219,411.

Ferrero, P., & C., S.p.A.: *See*—
Neglia, Ettore. 219,412.

Fox, Calvin L., to Scanfax Systems Corp. Multiple input switching unit for a communication system. 219,383, 12–8–70, Cl. D26—13.

Frish, Stephen L. Inflatable projection screen. 219,408, 12–8–70, Cl. D61—1.

Fritts, Russell A.: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Fuji Shashin Film Kabushiki Kaisha: *See*—
Fukuda, Masahiro, Hara, and Manome. 219,407.

Fukuda, Masahiro, T. Hara, and T. Manome, to Fuji Shashin Film Kabushiki Kaisha. Camera. 219,407, 12–8–70, Cl. D61—1.

Glaser Products Corp.: *See*—
Laser, Harold, Keats, Leach, and Wood. 219,413.

Golby, Robert L. Cam valve for flexible tubing. 219,379, 12–8–70, Cl. D23—19.

Goodrich, Jack R., to Ampex Corp. Television tape transport. 219,386, 12–8–70, Cl. D26—14.

Graham, John W., R. A. Fritts, R. F. Bunyea, M. P. Ballone, R. B. Kemnitzer, and S. A. Unger, to The Black and Decker Mfg. Co. Cordless electric lawn mower. 219,394, 12–8–70, Cl. D40—1.

Gugler, Donald. Baby seat attachment for shopping carts. 219,374, 12–8–70, Cl. D14—3.

Hall, Stanley A., to Lockheed Aircraft Corp. Aircraft. 219,410. 12–8–70, Cl. D71—1.

Hara, Teruel: *See*—
Fukuda, Masahiro, Hara, and Manome. 219,407.

Heidtman, Albert G., and A. H. Tietjen. Carrying case for a fishing rod and reel. 219,417, 12–8–70, Cl. D87—1.

Heirich, William C. Wall panel. 219,399, 12–8–70, Cl. D54—2.

Huffman Mfg. Co., The: *See*—
Campbell, Charles G. 219,368.

International Applied Science Laboratory, Inc.: *See*—
Croslin, Michael E. 219,418.

Ishizaki, Shadahiro. Lamp socket housing. 219,381, 12–8–70, Cl. D26—1.

Johns-Manville Corp.: *See*—
Cacchine, Joseph R. 219,378.

Johnson, Delp W. House. 219,371, 12–8–70, Cl. D13—1.

Johnson, Roy B. Game table. 219,390, 12–8–70, Cl. D34—5.

Kahn, Robert D., to Fedtro, Inc. Flashing signal unit. 219,411, 12–8–70, Cl. D72—1.

Keats, Richard L.: *See*—
Laser, Harold, Keats, Leach, and Wood. 219,413.

Kemnitzer, Ronald B.: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Kimble, Thomas E., to D. H. Baldwin Co. Organ console. 219,403, 12–8–70, Cl. D56—2.

Kuhns, Roger J., to Avant Inc. Die cutter for developed film or similar article. 219,409, 12–8–70, Cl. D61—1.

LTV Ling Altec, Inc.: *See*—
Palmquist, Donald H., and Wagner. 219,384.

Laser, Harold, R. L. Keats, C. Leach, and J. D. Wood, to Glaser Products Corp. Barbecue cooking unit. 219,413, 12–8–70, Cl. D81—10.

Leach, Charley: *See*—
Laser, Harold, Keats, Leach, and Wood. 219,413.

Levy, Leon M. Sail car. 219,372, 12–8–70, Cl. D14—3.

Lewis, Dan, Jr., and H. R. Day, to National Distillers and Chemical Corp. Bottle. 219,366, 12–8–70, Cl. D9—46.

Lewis, Dan, Jr., to National Distillers and Chemical Corp. Bottle. 219,367, 12–8–70, Cl. D9—46.

Lindsay, James R.: *See*—
Zimmerman, Robert C., and Lindsay. 219,406.

Lockheed Aircraft Corp.: *See*—
Hall, Stanley A. 219,410.

Mackness, Clive R., to Dulmison (Australia) Pty., Ltd. Support for bundled cables. 219,363, 12–8–70, Cl. D8—230.

Mackness, Clive R., to Dulmison (Australia) Pty., Ltd. Support for bundled cables. 219,364, 12–8–70, Cl. D8—230.

Mackness, Clive R., to Dulmison (Australia) Pty., Ltd. Support for bundled cables. 219,365, 12–8–70, Cl. D8—230.

Maidenform, Inc.: *See*—
Neely, Bert. 219,360.

Manderfield, Ellen B., to Oneida Ltd. Spoon or similar article. 219,400, 12–8–70, Cl. D54—12.

Manome, Tadamasa: *See*—
Fukuda, Masahiro, Hara, and Manome. 219,407.

Mayall, John D.: *See*—
Blaha, Robert F., and Mayall. 219,382.

Minock, Robert M. Cattle groomer. 219,387, 12–8–70, Cl. D30—40.

Motor Wheel Corp.: *See*—
Brede, Alexander, III. 219,375.

National Distillers and Chemical Corp.: *See*—
Lewis, Dan, Jr., and Day. 219,366.
Lewis, Dan, Jr. 219,367.

National Steel Corp.: *See*—
Saunders, William T. 219,370.

Neely, Bert, to Maidenform, Inc. Panty girdle. 219,360, 12–8–70, Cl. D2—4.

Neglia, Ettore, to P. Ferrero & C., S.p.A. Display stand. 219,412, 12–8–70, Cl. D80—9.

Nemesnyik, John C., to Charles Beseler Co. Overhead projector head. 219,405, 12–8–70, Cl. D61—1.

Obayashi, Shin. Miniature planetarium. 219,380, 12–8–70, Cl. D25—1.

Oneida Ltd.: *See*—
Manderfield, Ellen B. 219,400.

Pall Corp.: *See*—
Rosenberg, David. 219,414.

Palmquist, Donald H., and G. R. Wagner, to LTV Ling Altec, Inc. Decorative grille for a loudspeaker cabinet. 219,384, 12–8–70, Cl. D26—14.

Pearson, Maxwell E., to Art Metal-Knoll Corp. Chair. 219,376, 12–8–70, Cl. D15—1.

Perry, William W. Combined portable beach chair and umbrella therefor. 219,377, 12–8–70, Cl. D15—8.

Posnick, Paul. Golf game board. 219,391, 12–8–70, Cl. D34—5.

Riley, Brette R., to Divisible Packaging Enterprises, Inc. Combined pipe rack and storage container. 219,415, 12–8–70, Cl. D85—8.

Rosenberg, David, to Pall Corp. Syringe pump for medical and laboratory use. 219,414, 12–8–70, Cl. D83—1.

SCM Corp.: *See*—
Zimmerman, Robert C., and Lindsay. 219,406.

Saunders, William T., to National Steel Corp. End closure for a container. 219,370, 12–8–70, Cl. D9—255.

Scanfax Systems Corp.: *See*—
Fox, Calvin L. 219,383.

Serino, Andrew. Collapsible automobile camper. 219,373, 12–8–70, Cl. D14—3.

Silverstein, Maxwell, to Arlans Dept. Stores, Inc. Combined display panel and packaging box for a tape cartridge. 219,369, 12–8–70, Cl. D9—191.

Snyder, Gerson, to Snyder Mfg. Co. Security door-post. 219,362, 12–8–70, Cl. D8—208.

Snyder Mfg. Co.: *See*—
Snyder, Gerson. 219,362.

Texas Instruments Inc.: *See*—
Blaha, Robert F., and Mayall. 219,382.

Tietjen, Albert H.: *See*—
Heidtman, Albert G., and Tietjen. 219,417.

Tymkewicz, John. Housing for temperature indicating means or the like. 219,398, 12–8–70, Cl. D52—7.

Unger, Stefan A.: *See*—
Graham, John W., Fritts, Bunyea, Ballone, Kemnitzer, and Unger. 219,394.

Vernon Co., The: *See*—
Woofter, Cecil B. 219,397.

Wagner, George R.: *See*—
Palmquist, Donald H., and Wagner. 219,384.

White, Winsor D., Jr., to D. H. Baldwin Co. Organ console. 219,401, 12–8–70, Cl. D56—2.

White, Winsor D., Jr., to D. H. Baldwin Co. Organ console. 219,402, 12–8–70, Cl. D56—2.

White, Winsor D., Jr., to D. H. Baldwin Co. Piano case. 219,404, 12–8–70, Cl. D56—9.

Wonsavage, Leo A. Tote bag. 219,416, 12–8–70, Cl. D87—1.

Wood, Jerry D.: *See*—
Laser, Harold, Keats, Leach, and Wood. 219,413.

Woofter, Cecil B., to The Vernon Co. Table lighter. 219,397, 12–8–70, Cl. D48—27.

Zenith Radio Corp.: *See*—
Becker, Robert W., and Chuboff. 219,385.

Zimmerman, Robert C., and J. R. Lindsay, to SCM Corp. Copying machine. 219,406, 12–8–70, Cl. D61—1.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 8, 1970

NOTE.—First number, class; second number, subclass; third number, patent number

3— 1	3,545,008	
17	3,545,009	
4— 1	3,545,010	
7	3,545,015	
10	3,545,011	
159	3,545,012	
185	3,545,013	
	3,545,016	
228	3,545,014	
8— 3	3,545,909	
21	3,545,913	
115.5	3,545,911	
116.2	3,545,912	
.4	3,545,913	
169	3,545,914	
9—342	3,545,017	
10—101	3,545,018	
107	3,545,019	
128	3,545,020	
12— 1	3,545,021	
52	3,545,022	
54.3	3,545,023	
13— 12	3,546,347	
31	3,546,348	
34	3,546,349	
15— 60	3,545,024	
104.94	3,545,025	
183	3,545,026	
250.04	3,545,027	
.36	3,545,028	
314	3,545,029	
16— 55	3,545,030	
153	3,545,031	
	3,545,032	
163	3,545,033	
180	3,545,034	
17— 1	3,545,035	
	3,545,036	
21	3,545,037	
49	3,545,038	
18— 4	3,545,039	
5	3,545,040	
12	3,545,041	
	3,545,042	
14	3,545,043	
16	3,545,044	
.5	3,545,045	
23— 2	3,545,915	
	3,545,916	
	3,545,917	
	3,545,918	
92	3,545,920	
112	3,545,921	
143	3,545,923	
191	3,545,922	
203	3,545,924	
209	3,545,925	
213	3,545,926	
230	3,545,927	
	3,545,928	
	3,545,929	
232	3,545,930	
	3,545,931	
253	3,545,932	
	3,545,933	
	3,545,934	
	3,545,935	
254	3,545,936	
258.5	3,545,937	
285	3,545,938	
288	3,545,939	
300	3,545,940	
312	3,545,941	
357	3,545,942	
24— 68	3,545,046	
201	3,545,047	
213	3,545,048	
236	3,545,049	
241	3,545,051	
248	3,545,050	
252	3,545,052	
25— 41	3,545,053	
26— 51	3,545,054	
27— 7	3,545,055	
16	3,545,056	
28— 1.4	3,545,057	
.6	3,545,058	
29— 25.42	3,545,059	
96	3,545,060	
98	3,545,061	
29—157.3	3,545,062	
	3,545,063	
191.2	3,545,943	
197	3,545,944	
199	3,545,945	
203	3,545,064	
212	3,545,065	
240	3,545,066	
420.5	3,545,067	
421	3,545,068	
433	3,545,069	
454	3,545,070	
470.3	3,545,071	
516	3,545,072	
527.5	3,545,073	
.7	3,545,074	
568	3,545,075	
578	3,545,076	
603	3,545,077	
605	3,545,078	
626	3,545,079	
629	3,545,080	
30—123	3,545,081	
248	3,545,082	
32— 5	3,545,083	
26	3,545,084	
33— 12	3,545,085	
63	3,545,086	
132	3,545,087	
174	3,545,088	
	3,545,089	
204	3,545,090	
207	3,545,091	
226	3,545,092	
34— 1	3,545,093	
13.4	3,545,094	
14	3,545,095	
44	3,545,096	
164	3,545,098	
238	3,545,097	
35— 6	3,545,099	
9	3,545,100	
10.2	3,546,350	
	3,546,351	
	3,546,352	
31	3,545,101	
46	3,545,102	
36— 2.5	3,545,103	
7.3	3,545,104	
46.5	3,545,105	
50	3,545,106	
	3,545,107	
37— 8	3,545,108	
41	3,545,109	
40—104.18	3,545,112	
106.41	3,545,113	
130	3,545,110	
	3,545,114	
152.1	3,545,111	
	3,545,115	
42— 1	3,545,116	
59	3,545,117	
43— 17	3,545,118	
25	3,545,119	
44.9	3,545,120	
44— 7	3,545,946	
46— 1	3,545,121	
25	3,545,122	
29	3,545,123	
61	3,545,124	
210	3,545,125	
243	3,545,126	
47— 33	3,545,127	
	3,545,128	
57.6	3,545,129	
58	3,545,130	
48—107	3,545,947	
184	3,545,948	
195	3,545,949	
49—171	3,545,131	
200	3,545,132	
380	3,545,133	
501	3,545,134	
505	3,545,135	
51— 3	3,545,136	
8	3,545,137	
59	3,545,138	
117	3,545,139	
170	3,545,140	
353	3,545,141	
51—374	3,545,142	
52— 6	3,545,143	
11	3,545,144	
28	3,545,145	
80	3,545,146	
96	3,545,147	
110	3,545,148	
169	3,545,149	
220	3,545,150	
285	3,545,151	
367	3,545,152	
407	3,545,153	
460	3,545,154	
596	3,545,155	
602	3,545,156	
717	3,545,157	
726	3,545,158	
749	3,545,159	
53— 7	3,545,160	
14	3,545,161	
22	3,545,162	
	3,545,163	
26	3,545,164	
	3,545,165	
29	3,545,166	
	3,545,167	
37	3,545,168	
67	3,545,169	
88	3,545,170	
180	3,545,171	
192	3,545,172	
307	3,545,173	
381	3,545,174	
386	3,545,175	
390	3,545,176	
55— 30	3,545,177	
272	3,545,178	
276	3,545,179	
284	3,545,180	
432	3,545,181	
56— 1	3,545,182	
	3,545,183	
6	3,545,184	
19	3,545,185	
23	3,545,186	
27	3,545,187	
245	3,545,188	
295	3,545,189	
328	3,545,190	
57— 9	3,545,191	
71	3,545,192	
73	3,545,193	
156	3,545,194	
58— 19	3,545,195	
	3,545,196	
90	3,545,197	
	3,545,198	
152	3,545,199	
59— 93	3,545,200	
60— 30	3,545,201	
39.65	3,545,202	
.74	3,545,203	
53	3,545,204	
54.5	3,545,205	
.6	3,545,206	
106	3,545,207	
202	3,545,208	
226	3,545,209	
	3,545,210	
247	3,545,211	
270	3,545,212	
61— 45	3,545,213	
53	3,545,214	
69	3,545,215	
62—117	3,545,216	
137	3,545,217	
157	3,545,218	
160	3,545,219	
196	3,545,220	
231	3,545,221	
236	3,545,222	
237	3,545,223	
262	3,545,224	
265	3,545,225	
384	3,545,226	
474	3,545,227	
506	3,545,228	
508	3,545,229	
530	3,545,230	
64— 11	3,545,231	
64— 17	3,545,232	
65— 59	3,545,950	
104	3,545,951	
121	3,545,952	
66— 8	3,545,233	
125	3,545,234	
68— 19.2	3,545,235	
176	3,545,236	
73— IX	3,545,037	
312	3,545,238	
71— 24	3,545,953	
35	3,545,954	
76	3,545,955	
121	3,545,956	
72— 7	RE.26,996	
10	3,545,239	
41	3,545,240	
63	3,545,241	
151	3,545,242	
160	3,545,243	
200	3,545,244	
238	3,545,245	
270	3,545,246	
310	3,545,247	
324	3,545,248	
354	3,545,249	
705	3,545,250	
73— 12	3,545,251	
15	3,545,252	
	3,545,253	
17	3,545,254	
30	3,545,255	
35	3,545,919	
37.5	3,545,256	
59	3,545,257	
67.9	3,545,258	
69	3,545,259	
80	3,545,260	
81	3,545,261	
88.5	3,545,262	
94	3,545,263	
103	3,545,264	
136	3,545,265	
151	3,545,266	
171	3,545,267	
178	3,545,268	
	3,545,269	
194	3,545,270	
	3,545,271	
311	3,545,272	
362	3,545,273	
393	3,545,274	
398	3,545,275	
407	3,545,276	
419	3,545,277	
	3,545,278	
422	3,545,279	
423	3,545,280	
432	3,545,281	
514	3,545,282	
517	3,545,283	
	3,545,284	
	3,545,285	
	3,545,286	
74— 5.6	3,545,287	
10.33	3,545,288	
	3,545,289	
98	3,545,290	
125.5	3,545,291	
142	3,545,292	
231	3,545,293	
242.1	3,545,294	
339	3,545,295	
410	3,545,296	
437	3,545,297	
469	3,545,298	
492	3,545,299	
	3,545,300	
574	3,545,301	
691	3,545,302	
720.5	3,545,303	
759	3,545,304	
789	3,545,305	
843	3,545,306	
858	3,545,307	
75— .5	3,545,959	
3	3,545,957	
	3,545,958	
51	3,545,960	
76	3,545,961	
75— 76	3,545,962	
83	3,545,963	
101	3,545,964	
	3,545,965	
122.7	3,545,966	
134	3,545,967	
76— 24	3,545,308	
77— 21	3,545,309	
32.7	3,545,310	
73.5	3,545,311	
81— 15.7	3,545,314	
57.34	3,545,313	
59.1	3,545,312	
368	3,545,315	
	3,545,316	
82— 34	3,545,320	
36	3,545,317	
	3,545,318	
	3,545,319	
47	3,545,321	
83— 61	3,545,322	
185	3,545,323	
363	3,545,324	
412	3,545,325	
433	3,545,326	
542	3,545,327	
84— 1.01	3,546,353	
.02	3,546,354	
.03	3,546,355	
94	3,545,328	
251	3,545,329	
282	3,545,330	
85— 32	3,545,331	
62	3,545,332	
86— 1	3,545,333	
87— 8	3,545,334	
90— 11	3,545,335	
15	3,545,336	
91— 38	3,545,337	
507	3,545,338	
92— 41	3,545,339	
57	3,545,340	
106	3,545,342	
165	3,545,343	
	3,545,344	
176	3,545,341	
93— 1	3,545,345	
28	3,545,346	
84	3,545,347	
94— 10	3,545,348	
46	3,545,349	
95— 10	3,545,350	
	3,545,351	
	3,545,352	
	3,545,353	
11	3,545,354	
12	3,545,355	
	3,545,356	
13	3,545,357	
39	3,545,358	
53	3,545,359	
57	3,545,360	
61	3,545,361	
64	3,545,362	
89	3,545,363	
	3,545,364	
96— 1	3,545,968	
	3,545,969	
12	3,545,975	
55	3,545,970	
61	3,545,971	
87	3,545,972	
93	3,545,973	
114.5	3,545,974	
126	3,545,976	
98— 59	3,545,365	
99— 7	3,545,977	
41	3,545,978	
83	3,545,979	
138	3,545,980	
	3,545,981	
150	3,545,982	
171	3,545,983	
214	3,545,985	
243	3,545,366	
100— 7	3,545,367	
49	3,545,368	
98	3,545,369	
144	3,545,370	
176	3,545,371	
100—214	3,545,372	
101— 1	3,545,373	
	3,545,374	
93	3,545,375	
121	3,545,376	
123	3,545,377	
127	3,545,378	
148	3,545,379	
369	3,545,380	
425	3,545,381	
102— 79	3,545,382	
92.6	3,545,383	
104— 7	3,545,384	
105—197	3,545,385	
106— 1	3,545,986	
39	3,545,987	
52	3,545,988	
53	3,545,989	
182	3,545,990	
239	3,545,991	
288	3,545,992	
	3,545,993	
308	3,545,994	
	3,545,995	
107— 1	3,545,386	
108—151	3,545,387	
112— 67	3,545,388	
104	3,545,389	
164	3,545,390	
220	3,545,391	
241	3,545,392	
260	3,545,393	
113—118	3,545,394	
114— 41	3,545,395	
56	RE.26,997	
66.5	3,545,396	
	3,545,399	
67	3,545,397	
144	3,545,398	
116—114.5	3,545,400	
115.5	3,545,401	
117— 8	3,545,996	
17	3,545,997	
33.3	3,545,998	
36.4	3,545,999	
62.2	3,546,000	
65.2	3,546,001	
93.31	3,546,002	
100	3,546,003	
104	3,546,004	
106	3,546,005	
119.8	3,546,006	
123	3,546,007	
138.8	3,546,008	
212	3,546,009	
	3,546,010	
	3,546,011	
213	3,546,012	
215	3,546,013	
218	3,546,014	
227	3,546,015	
232	3,546,016	
	3,546,017	
118— 35	3,545,402	
76	3,545,403	
119— 1	3,545,404	
3	3,545,405	
17	3,545,406	
20	3,545,407	
51.11	3,545,408	
122— 6	3,545,409	
7	3,545,410	
31	3,545,411	
34	3,545,412	
123— 8.01	3,545,413	
52	3,545,414	
90.51	3,545,415	
119	3,545,416	
127	3,545,417	
136	3,545,418	
148	3,545,419	
149	3,545,420	
198	3,545,421	
125— 21	3,545,422	
126— 19	3,545,423	
91	3,545,424	
92	3,545,425	
344	3,545,426	
128— 2	3,545,427	
.05	3,545,428	

128 – 2.05 : 3,545,430
3,545,431
.06 : 3,545,432
.1 : 3,545,429
15 : 3,545,433
62 : 3,545,434
66 : 3,545,435
141 : 3,545,436
146.7 : 3,545,437
213 : 3,545,438
260 : 3,545,439
276 : 3,545,440
284 : 3,545,441
296 : 3,545,442
305 : 3,545,444
347 : 3,545,443
483 : 3,545,445
522 : 3,545,446
583 : 3,545,447
131 – 2 : 3,545,448
3 : 3,545,449
17 : 3,545,450
3,545,451
3,545,452
25 : 3,545,453
61 : 3,545,454
140 : 3,545,455
266 : 3,545,456
132 – 33 : 3,545,457
134 – 1 : 3,546,018
86 : 3,545,458
123 : 3,545,459
3,545,460
135 – 1 : 3,545,461
47 : 3,545,462
136 – 86 : 3,546,019
3,546,020
3,546,021
100 : 3,546,022
166 : 3,546,023
182 : 3,546,024
205 : 3,546,025
238 : 3,546,026
137 – 15.1 : 3,545,464
38 : 3,545,465
81.5 : 3,545,466
3,545,467
3,545,468
101.27 : 3,545,469
111 : 3,545,470
116.5 : 3,545,471
3,545,472
119 : 3,545,473
212 : 3,545,475
315 : 3,545,476
327 : 3,545,477
344 : 3,545,478
360 : 3,545,479
375 : 3,545,480
387 : 3,545,481
392 : 3,545,482
487.5 : 3,545,483
490 : 3,545,484
508 : 3,545,485
554 : 3,545,486
556 : 3,545,487
590 : 3,545,488
610 : 3,545,474
3,545,489
614.06 : 3,545,490
625.48 : 3,545,491
138 – 42 : 3,545,492
115 : 3,545,493
144 : 3,545,494
3,545,495
171 : 3,545,496
139 – 11 : 3,545,497
77 : 3,545,498
140 – 93.2 : 3,545,499
141 – 65 : 3,545,500
104 : 3,545,501
131 : 3,545,502
286 : 3,545,503
143 – 22 : 3,545,504
32 : 3,545,505
3,545,506
86 : 3,545,507
135 : 3,545,508
144 – 309 : 3,545,509
323 : 3,545,510
146 – 78 : 3,545,511
81 : 3,545,512
182 : 3,545,513
148 – 1.6 : 3,546,027
6.2 : 3,546,028
13.2 : 3,546,029
31.57 : 3,546,030
108 : 3,546,031
171 : 3,546,032
149 – 5 : 3,546,033
47 : 3,546,034
50 : 3,546,035
150 – 30 : 3,545,514
152 – 210 : 3,545,515
213 : 3,545,516
233 : 3,545,517

156 – 8 : 3,546,075
17 : 3,546,036
24 : 3,546,037
83 : 3,546,038
210 : 3,546,039
250 : 3,546,040
308 : 3,546,041
395 : 3,546,042
410 : 3,546,043
441 : 3,546,044
486 : 3,546,045
505 : 3,546,046
571 : 3,546,047
3,546,048
157 – 1.24 : 3,545,463
159 – 2 : 3,545,518
4 : 3,545,520
17 : 3,545,519
160 – 180 : 3,545,521
199 : 3,545,522
348 : 3,545,523
161 – 7 : 3,546,049
15 : 3,546,050
18 : 3,546,051
19 : 3,546,052
38 : 3,546,053
3,546,054
55 : 3,546,055
57 : 3,546,056
58 : 3,546,057
59 : 3,546,058
81 : 3,546,059
156 : 3,546,060
159 : 3,546,061
169 : 3,546,062
176 : 3,546,063
185 : 3,546,064
162 – 111 : 3,546,065
175 : 3,546,066
271 : 3,546,067
164 – 33 : 3,545,524
82 : 3,545,525
98 : 3,545,526
154 : 3,545,527
3,545,528
259 : 3,545,529
260 : 3,545,530
408 : 3,545,531
165 – 5 : 3,545,532
47 : 3,545,533
67 : 3,545,534
80 : 3,545,535
134 : 3,545,536
162 : 3,545,537
175 : 3,545,538
166 – .5 : 3,545,539
70 : 3,545,540
95 : 3,545,541
155 : 3,545,542
212 : 3,545,543
256 : 3,545,544
273 : 3,545,545
305 : 3,545,546
169 – 1 : 3,545,547
172 – 19 : 3,545,548
32 : 3,545,549
271 : 3,545,550
371 : 3,545,551
174 – 21 : 3,546,356
34 : 3,546,357
35 : 3,546,358
3,546,359
48 : 3,546,360
52 : 3,546,361
3,546,362
3,546,363
72 : 3,546,364
78 : 3,546,365
94 : 3,546,366
3,546,368
99 : 3,546,367
152 : 3,546,369
175 – 65 : 3,545,552
258 : 3,545,553
398 : 3,545,554
176 – 50 : 3,546,068
52 : 3,546,069
177 – 1 : 3,545,555
45 : 3,545,556
200 : 3,545,557
208 : 3,545,558
178 – 5.4 : 3,546,370
3,546,371
3,546,372
3,546,373
3,546,374
6.5 : 3,546,375
.8 : 3,546,376
3,546,377
7.1 : 3,546,378
.3 : 3,546,379
22 : 3,546,380
179 – 5 : 3,546,382
6.3 : 3,546,385
7.1 : 3,546,381
15 : 3,546,383

179 – 15 : 3,546,384
3,546,386
18 : 3,546,387
3,546,388
3,546,389
3,546,390
3,546,391
3,546,392
3,546,393
3,546,394
81 : 3,546,395
100 : 3,546,396
3,546,397
.2 : 3,546,398
.41 : 3,546,399
180 – 5 : 3,545,559
3,545,560
53 : 3,545,561
181 – .5 : 3,545,562
3,545,563
3,545,564
35 : 3,545,565
50 : 3,545,566
182 – 97 : 3,545,567
184 – 6 : 3,545,568
3,545,569
3,545,570
3,545,571
187 – 52 : 3,545,572
188 – 72.9 : 3,545,573
73.1 : 3,545,574
.5 : 3,545,576
.6 : 3,545,575
152 : 3,545,577
196 : 3,545,578
191 – 12 : 3,546,400
192 – 3 : 3,545,579
26 : 3,545,580
45.1 : 3,545,581
85 : 3,545,583
88 : 3,545,584
108 : 3,545,585
193 – 37 : 3,545,582
194 – 2 : 3,545,586
195 – 2 : 3,546,070
28 : 3,546,071
47 : 3,546,072
81 : 3,546,073
103.5 : 3,546,074
197 – 6.2 : 3,545,587
198 – 19 : 3,545,588
26 : 3,545,589
31 : 3,545,590
32 : 3,545,591
33 : 3,545,592
53 : 3,545,593
75 : 3,545,594
76 : 3,545,595
129 : 3,545,596
192 : 3,545,601
3,545,602
195 : 3,545,597
201 : 3,545,598
202 : 3,545,599
221 : 3,545,600
200 – 1 : 3,546,401
16 : 3,546,402
24 : 3,546,403
81.9 : 3,546,404
82 : 3,546,405
144 : 3,546,406
3,546,407
148 : 3,546,408
153 : 3,546,409
3,546,410
168 : 3,546,411
3,546,412
201 – 6 : 3,546,076
202 – 270 : 3,546,077
203 – 42 : 3,546,078
204 – 1 : 3,546,079
25 : 3,546,080
49 : 3,546,081
72 : 3,546,083
141 : 3,546,084
181 : 3,546,085
195 : 3,546,086
3,546,087
224 : 3,546,088
278 : 3,546,089
297 : 3,546,090
298 : 3,546,091
206 – 5 : 3,545,603
47 : 3,545,604
3,545,605
56 : 3,545,606
63.2 : 3,545,607
.3 : 3,545,608
208 – 11 : 3,546,092
33 : 3,546,093
48 : 3,546,097
59 : 3,546,094
60 : 3,546,095
3,546,096
96 : 3,546,098

208 – 102 : 3,546,099
111 : 3,546,100
120 : 3,546,101
138 : 3,546,102
211 : 3,546,103
216 : 3,546,104
3,546,105
308 : 3,546,106
311 : 3,546,107
323 : 3,546,108
347 : 3,546,109
209 – 3 : 3,545,609
73 : 3,545,610
74 : 3,545,611
84 : 3,545,612
85 : 3,545,613
121 : 3,545,614
210 – 5 : 3,546,110
10 : 3,546,111
30 : 3,546,112
52 : 3,546,113
63 : 3,546,114
73 : 3,545,615
90 : 3,545,616
109 : 3,545,617
167 : 3,545,618
196 : 3,545,619
208 : 3,545,620
298 : 3,545,621
496 : 3,545,622
211 – 126 : 3,545,623
3,545,624
148 : 3,545,625
176 : 3,545,626
212 – 38 : 3,545,627
124 : 3,545,628
214 – 1 : 3,545,629
6 : 3,545,630
3,545,631
8 : 3,545,632
147 : 3,545,633
510 : 3,545,634
515 : 3,545,635
731 : 3,545,636
215 – 11 : 3,545,637
46 : 3,545,638
219 – 50 : 3,546,413
69 : 3,546,414
76 : 3,546,415
81 : 3,546,416
93 : 3,546,417
95 : 3,546,418
98 : 3,546,419
3,546,420
110 : 3,546,421
121 : 3,546,422
130 : 3,546,423
131 : 3,546,424
3,546,425
137 : 3,546,426
220 : 3,546,427
271 : 3,546,428
312 : 3,546,429
316 : 3,546,430
335 : 3,546,431
345 : 3,546,432
469 : 3,546,433
499 : 3,546,434
501 : 3,546,435
504 : 3,546,436
511 : 3,546,437
220 – 2.3 : 3,545,639
5 : 3,545,640
20 : 3,545,642
63 : 3,545,643
69 : 3,545,644
74 : 3,545,645
86 : 3,545,646
97 : 3,545,641
221 – 81 : 3,545,647
106 : 3,545,648
222 – 33 : 3,545,649
56 : 3,545,650
181 : 3,545,651
484 : 3,545,652
556 : 3,545,653
223 – 32 : 3,545,654
35 : 3,545,655
46 : 3,545,656
88 : 3,545,657
104 : 3,545,658
224 – 5 : 3,545,659
42.1 : 3,545,660
225 – 1 : 3,545,661
227 – 95 : 3,545,662
228 – 6 : 3,545,663
229 – 14 : 3,545,664
31 : 3,545,665
34 : 3,545,666
35 : 3,545,667
65 : 3,545,668
73 : 3,545,669
92.5 : 3,545,670
233 – 26 : 3,545,671
235 – 60 : 3,545,672
61.11 : 3,546,438

235 – 86 : 3,545,673
98 : 3,545,674
144 : 3,546,439
150.5 : 3,546,440
.52 : 3,546,441
177 : 3,546,442
180 : 3,546,443
193 : 3,546,444
236 – 38 : 3,545,675
75 : 3,545,676
239 – 2 : 3,545,677
166 : 3,545,678
265.15 : 3,545,679
413 : 3,545,680
449 : 3,545,681
469 : 3,545,682
240 – 41.6 : 3,546,445
47 : 3,546,446
241 – 1 : 3,545,683
33 : 3,545,684
38 : 3,545,685
47 : 3,545,686
66 : 3,545,687
69 : 3,545,688
186 : 3,545,689
3,545,690
197 : 3,545,691
281 : 3,545,692
242 – 54 : 3,545,693
67.4 : 3,545,694
68.3 : 3,545,695
71.8 : 3,545,696
74.1 : 3,545,697
128 : 3,545,698
153 : 3,545,699
184 : 3,545,700
244 – 12 : 3,545,701
17.19 : 3,545,702
77 : 3,545,703
149 : 3,545,704
245 – 8 : 3,545,705
246 – 169 : 3,546,447
246 : 3,546,448
248 – 15 : 3,545,706
24 : 3,545,707
74 : 3,545,708
146 : 3,545,709
183 : 3,545,710
223 : 3,545,711
224 : 3,545,712
357 : 3,545,714
361 : 3,545,713
411 : 3,545,715
430 : 3,545,716
249 – 69 : 3,545,717
185 : 3,545,718
250 – 41.9 : 3,546,449
3,546,450
43 : 3,546,451
51.5 : 3,546,452
3,546,453
83.1 : 3,546,454
3,546,455
.3 : 3,546,456
3,546,457
3,546,458
3,546,459
86 : 3,546,460
95 : 3,546,461
3,546,462
105 : 3,546,463
106 : 3,546,464
199 : 3,546,465
209 : 3,546,466
215 : 3,546,467
219 : 3,546,468
3,546,469
3,546,470
225 : 3,546,471
251 – 146 : 3,545,719
172 : RE.26,998
303 : 3,545,720
309 : 3,545,721
331 : 3,545,722
252 – 8.8 : 3,546,115
42.7 : 3,546,116
47.5 : 3,546,117
54 : 3,546,118
62.2 : 3,546,119
.62 : 3,546,122
.9 : 3,546,120
3,546,121
137 : 3,546,123
153 : 3,546,124
171 : 3,546,125
182 : 3,546,126
301.2 : 3,546,127
.4 : 3,546,128
359 : 3,546,129
408 : 3,546,130
3,546,131
419 : 3,546,132
429 : 3,546,133
431 : 3,546,134
437 : 3,546,135
3,546,136

252 – 455 : 3,546,137
456 : 3,546,138
3,546,139
466 : 3,546,140
254 – 79 : 3,545,723
132 : 3,545,855
134.3 : 3,545,724
150 : 3,545,725
259 – 1 : 3,545,726
4 : 3,545,727
10 : 3,545,728
108 : RE.27,000
182 : 3,545,729
260 – 2 : 3,546,141
.1 : 3,546,142
.3 : 3,546,149
.5 : 3,546,143
3,546,144
3,546,145
17 : 3,546,146
.2 : 3,546,147
18 : 3,546,148
28.5 : 3,546,150
3,546,151
29.2 : 3,546,152
.3 : 3,546,153
.6 : 3,546,154
37 : 3,546,155
3,546,156
38 : 3,546,157
41 : 3,546,158
45.7 : 3,546,159
3,546,160
.85 : 3,546,161
3,546,162
.95 : 3,546,163
3,546,164
47 : 3,546,165
3,546,166
3,546,167
3,546,168
3,546,169
3,546,170
51 : 3,546,171
.5 : 3,546,172
62 : 3,546,173
65 : 3,546,175
67.6 : 3,546,174
75 : 3,546,176
3,546,177
3,546,178
3,546,179
76 : 3,546,180
78 : 3,546,181
.4 : 3,546,182
3,546,183
3,546,184
79.5 : 3,546,185
80.73 : 3,546,186
.76 : 3,546,187
86.3 : 3,546,188
88.1 : 3,546,189
.3 : 3,546,190
91.5 : 3,546,191
92.8 : 3,546,192
3,546,193
93.5 : 3,546,194
.7 : 3,546,195
94.9 : 3,546,196
112.5 : 3,546,198
124 : 3,546,197
3,546,199
3,546,200
146 : 3,546,201
185 : 3,546,202
196 : 3,546,203
205 : 3,546,204
209 : 3,546,205
3,546,206
210 : 3,546,207
.5 : 3,546,208
214 : 3,546,209
239 : 3,546,210
3,546,211
.3 : 3,546,212
3,546,213
3,546,214
.55 : 3,546,215
240 : 3,546,216
3,546,217
3,546,218
243 : 3,546,219
3,546,220
249.6 : 3,546,222
3,546,223
251 : 3,546,225
256.4 : 3,546,224
268 : 3,546,226
288 : 3,546,227
292 : 3,546,232
293 : 3,546,228
3,546,233
.4 : 3,546,234
294.3 : 3,546,229
3,546,230
.8 : 3,546,231

260 – 294.8 : 3,546,235
3,546,236
295 : 3,546,237
3,546,238
297 : 3,546,239
299 : 3,546,240
307 : 3,546,241
309.6 : 3,546,242
326.12 : 3,546,244
.3 : 3,546,243
3,546,245
327 : 3,546,246
3,546,247
3,546,248
338 : 3,546,249
340.5 : 3,546,250
343 : 3,546,251
.2 : 3,546,252
345.9 : 3,546,253
346.2 : 3,546,254
347.3 : 3,546,255
.4 : 3,546,256
.8 : 3,546,257
378 : 3,546,258
397.4 : 3,546,259
.45 : 3,546,260
3,546,261
414 : 3,546,262
3,546,263
429 : 3,546,264
448.2 : 3,546,265
3,546,266
.8 : 3,546,267
465 : 3,546,270
.3 : 3,546,268
.5 : 3,546,271
.6 : 3,546,269
470 : 3,546,272
473 : 3,546,273
475 : 3,546,274
477 : 3,546,275
482 : 3,546,276
491 : 3,546,277
497 : 3,546,278
3,546,279
505 : 3,546,280
514 : 3,546,281
515 : 3,546,282
525 : 3,546,283
3,546,284
3,546,285
530 : 3,546,286
543 : 3,546,287
553 : 3,546,288
561 : 3,546,289
563 : 3,546,290
3,546,291
566 : 3,546,292
574 : 3,546,293
3,546,294
577 : 3,546,295
580 : 3,546,296
3,546,297
584 : 3,546,298
613 : 3,546,299
614 : 3,546,300
618 : 3,546,301
619 : 3,546,302
631 : 3,546,303
652.5 : 3,546,304
3,546,305
663 : 3,546,306
666 : 3,546,307
3,546,308
3,546,309
677 : 3,546,310
683 : 3,546,311
3,546,312
3,546,313
3,546,314
3,546,315
3,546,316
.15 : 3,546,317
827 : 3,546,318
857 : 3,546,319
860 : 3,546,320
874 : 3,546,321
878 : 3,546,322

260 – 879 : 3,546,323
925 : 3,546,324
261 – 46 : 3,545,730
122 : 3,545,731
263 – 21 : 3,545,732
28 : 3,545,733
37 : 3,545,734
264 – 47 : 3,546,325
156 : 3,546,327
171 : 3,546,328
176 : 3,546,326
235 : 3,546,329
249 : 3,546,221
258 : 3,546,330
343 : 3,546,331
3,546,332
266 – 20 : 3,545,735
41 : 3,545,736
267 – 141 : 3,545,737
269 – 325 : 3,545,738
328 : 3,545,739
270 – 54 : 3,545,740
58 : 3,545,741
271 – 10 : 3,545,742
53 : 3,545,743
64 : 3,545,744
75 : 3,545,745
83 : 3,545,746
272 – 58 : 3,545,748
273 – 1 : 3,545,747
3,545,749
3,545,750
11 : 3,545,751
26 : 3,545,752
43 : 3,545,753
3,545,754
73 : 3,545,755
3,545,756
86 : 3,545,757
94 : 3,545,758
101.2 : 3,545,759
106 : 3,545,760
130 : 3,545,761
134 : 3,545,762
3,545,763
183 : 3,545,764
274 – 4 : 3,545,765
3,545,766
10 : 3,545,767
47 : 3,545,768
277 – 131 : 3,545,769
152 : 3,545,770
164 : 3,545,774
187 : 3,545,771
189.5 : 3,545,772
199 : 3,545,773
216 : 3,545,775
279 – 63 : 3,545,776
99 : 3,545,777
280 – 11.12 : 3,545,778
.28 : 3,545,779
.35 : 3,545,780
3,545,781
3,545,782
3,545,783
.37 : 3,545,784
16 : 3,545,785
47.24 : 3,545,786
104.5 : 3,545,787
150 : 3,545,788
3,545,789
289 : 3,545,790
491 : 3,545,791
285 – 38 : 3,545,792
158 : 3,545,793
248 : 3,545,794
287 – 20.92 : 3,545,795
54 : 3,545,796
87 : 3,545,797
119 : 3,545,798
290 – 40 : 3,546,472
42 : 3,546,473
52 : 3,546,474
292 – 34 : 3,545,799
216 : 3,545,800
288 : 3,545,801
293 – 1 : 3,545,802
294 – 94 : 3,545,803

294 – 116 : 3,545,804
296 – 97 : 3,545,805
137 : 3,545,806
3,545,807
297 – 216 : 3,545,808
217 : 3,545,809
373 : 3,545,810
299 – 56 : 3,545,811
302 – 14 : 3,545,812
29 : 3,545,813
303 – 6 : 3,545,814
7 : 3,545,815
15 : 3,545,816
21 : 3,545,817
3,545,818
3,545,819
35 : 3,545,820
305 – 24 : 3,545,821
38 : 3,545,822
307 – 85 : 3,546,475
88 : 3,546,476
.3 : 3,546,477
116 : 3,546,478
132 : 3,546,479
215 : 3,546,480
235 : 3,546,481
3,546,482
252 : 3,546,483
254 : 3,546,484
255 : 3,546,485
264 : 3,546,486
270 : 3,546,487
284 : 3,546,488
288 : 3,546,489
293 : 3,546,490
297 : 3,546,494
298 : 3,546,491
300 : 3,546,492
304 : 3,546,493
312 : 3,546,495
308 – 3 : 3,545,823
.8 : 3,545,824
6 : 3,545,825
3,545,826
58 : 3,545,827
160 : 3,545,828
187.1 : 3,545,829
202 : 3,545,830
239 : 3,545,831
310 – 4 : 3,546,496
8.2 : 3,546,497
3,546,498
11 : 3,546,499
25 : 3,546,500
50 : 3,546,501
3,546,502
51 : 3,546,503
3,546,504
81 : 3,546,505
83 : 3,546,506
156 : 3,546,507
219 : 3,546,508
236 : 3,546,509
312 – 114 : 3,545,832
341 : 3,545,833
313 – 7 : 3,546,510
32 : 3,546,511
61 : 3,546,512
63 : 3,546,513
65 : 3,546,514
3,546,515
69 : 3,546,516
77 : 3,546,517
92 : 3,546,518
109 : 3,546,519
112 : 3,546,520
192 : 3,546,521
231 : 3,546,522
318 : 3,546,523
315 – 5.41 : 3,546,524
13 : 3,546,525
39 : 3,546,526
82 : 3,546,527
151 : RE.26,999
209 : 3,546,528
241 : 3,546,529
317 – 5 : 3,546,530
13 : 3,546,531

317 – 13 : 3,546,532
3,546,533
14 : 3,546,534
3,546,535
31 : 3,546,536
3,546,537
61 : 3,546,538
101 : 3,546,539
3,546,540
123 : 3,546,541
234 : 3,546,542
3,546,543
3,546,544
262 : 3,546,545
318 – 138 : 3,546,546
3,546,547
139 : 3,546,548
162 : 3,546,549
212 : 3,546,550
227 : 3,546,551
265 : 3,546,552
318 : 3,546,553
341 : 3,546,554
3,546,555
345 : 3,546,556
484 : 3,546,557
561 : 3,546,558
594 : 3,546,559
690 : 3,546,560
320 – 1 : 3,546,561
321 – 7 : 3,546,562
322 – 28 : 3,546,563
323 – 1 : 3,546,564
6 : 3,546,565
9 : 3,546,566
18 : 3,546,567
19 : 3,546,568
43.5 : 3,546,569
48 : 3,546,570
60 : 3,546,571
61 : 3,546,572
96 : 3,546,573
324 – .5 : 3,546,574
3,546,575
29.5 : 3,546,576
33 : 3,546,577
45 : 3,546,578
46 : 3,546,579
47 : 3,546,580
54 : 3,546,581
71 : 3,546,583
73 : 3,546,582
77 : 3,546,584
79 : 3,546,585
125 : 3,546,586
133 : 3,546,587
3,546,588
59 : 3,546,589
171 : 3,546,590
319 : 3,546,591
321 : 3,546,592
344 : 3,546,593
363 : 3,546,594
3,546,595
26 : 3,546,596
46 : 3,546,597
71 : 3,546,598
105 : 3,546,599
109 : 3,546,600
116 : 3,546,601
139 : 3,546,602
155 : 3,546,603
3,546,604
167 : 3,546,605
267 : 3,546,606
329 – 126 : 3,546,607
131 : 3,546,608
140 : 3,546,609
330 – 11 : 3,546,610
13 : 3,546,611
17 : 3,546,612
20 : 3,546,613
22 : 3,546,614
24 : 3,546,615
29 : 3,546,616
331 – 2 : 3,546,617
10 : 3,546,618
49 : 3,546,619

331 – 94.5 : 3,546,620
3,546,621
3,546,622
3,546,623
107 : 3,546,624
110 : 3,546,625
113 : 3,546,626
3,546,627
117 : 3,546,628
147 : 3,546,629
3,546,630
172 : 3,546,631
332 – 16 : 3,546,632
333 – 7 : 3,546,633
21 : 3,546,634
3,546,635
31 : 3,546,636
73 : 3,546,637
79 : 3,546,638
80 : 3,546,639
3,546,640
335 – 16 : 3,546,641
303 : 3,546,643
305 : 3,546,642
336 – 60 : 3,546,645
3,546,646
92 : 3,546,647
136 : 3,546,648
223 : 3,546,644
3,546,649
3,546,650
337 – 91 : 3,546,651
102 : 3,546,652
347 : 3,546,653
338 – 231 : 3,546,654
268 : 3,546,655
339 – 8 : 3,546,656
16 : 3,546,657
60 : 3,546,658
90 : 3,546,659
91 : 3,546,660
94 : 3,546,661
132 : 3,546,662
192 : 3,546,663
223 : 3,546,664
256 : 3,546,665
3,546,666
340 – 2 : 3,546,667
53 : 3,546,668
62 : 3,546,669
84 : 3,546,670
146.3 : 3,546,671
3,546,672
166 : 3,546,673
168 : 3,546,674
171 : 3,546,676
172.5 : 3,546,677
3,546,678
3,546,679
3,546,680
3,546,681
3,546,684
173 : 3,546,682
174 : 3,546,683
.1 : 3,546,675
3,546,685
3,546,686
214 : 3,546,687
3,546,688
227 : 3,546,689
242 : 3,546,690
3,546,691
250 : 3,546,692
309.1 : 3,546,693
412 : 3,546,694
329 – 126 : 3,546,607
343 – 6.5 : 3,546,695
3,546,696
7.3 : 3,546,697
16 : 3,546,698
100 : 3,546,699
3,546,700
179 : 3,546,701
3,546,702
3,546,703
765 : 3,546,704
797 : 3,546,705
840 : 3,546,706
3,546,707

350 – 3.5 : 3,545,834
3,545,835
3,545,836
83 : 3,545,837
96 : 3,545,838
97 : 3,545,839
151 : 3,545,840
161 : 3,545,841
162 : 3,545,842
3,545,843
214 : 3,545,844
3,545,845
351 – 2 : 3,545,847
13 : 3,545,846
118 : 3,545,848
352 – 45 : 3,545,849
72 : 3,545,850
78 : 3,545,851
91 : 3,545,852
353 – 78 : 3,545,853
355 – 46 : 3,545,854
51 : 3,545,856
57 : 3,545,857
68 : 3,545,858
71 : 3,545,859
91 : 3,545,860
356 – 5 : 3,545,861
3,545,862
86 : 3,545,863
96 : 3,545,864
3,545,865
106 : 3,545,866
114 : 3,545,867
175 : 3,545,868
181 : 3,545,869
226 : 3,545,870
236 : 3,545,871
246 : 3,545,872
401 – 98 : 3,545,873
186 : 3,545,874
197 : 3,545,875
201 : 3,545,876
259 : 3,545,877
260 : 3,545,878
415 – 160 : 3,545,879
416 – 114 : 3,545,880
157 : 3,545,881
190 : 3,545,882
197 : 3,545,883
205 : 3,545,884
207 : 3,545,885
417 – 196 : 3,545,886
307 : 3,545,887
310 : 3,545,888
366 : 3,545,889
368 : 3,545,890
372 : 3,545,891
373 : 3,545,892
382 : 3,545,893
412 : 3,545,894
440 : 3,545,895
471 : 3,545,896
542 : 3,545,897
418 – 39 : 3,545,898
68 : 3,545,899
131 : 3,545,900
179 : 3,545,901
424 – 3 : 3,546,334
52 : 3,546,335
71 : 3,546,336
180 : 3,546,333
3,546,337
183 : 3,546,338
227 : 3,546,339
250 : 3,546,340
270 : 3,546,341
3,546,342
300 : 3,546,343
322 : 3,546,344
336 : 3,546,345
343 : 3,546,346
246 : 3,545,872
401 – 98 : 3,545,873
186 : 3,545,874
197 : 3,545,875
201 : 3,545,876
259 : 3,545,877
260 : 3,545,878
415 – 160 : 3,545,879
416 – 114 : 3,545,880
157 : 3,545,881
190 : 3,545,882
197 : 3,545,883
205 : 3,545,884
207 : 3,545,885
417 – 196 : 3,545,886
307 : 3,545,887
310 : 3,545,888
366 : 3,545,889
368 : 3,545,890
372 : 3,545,891
373 : 3,545,892
382 : 3,545,893
412 : 3,545,894
440 : 3,545,895
471 : 3,545,896
542 : 3,545,897
418 – 39 : 3,545,898
68 : 3,545,899
131 : 3,545,900
179 : 3,545,901
424 – 3 : 3,546,334
52 : 3,546,335
71 : 3,546,336
180 : 3,546,333
3,546,337
183 : 3,546,338
227 : 3,546,339
250 : 3,546,340
270 : 3,546,341
3,546,342
300 : 3,546,343
322 : 3,546,344
336 : 3,546,345
343 : 3,546,346
431 – 9 : 3,545,902
13 : 3,545,903
95 : 3,545,904
131 : 3,545,905
158 : 3,545,906
267 : 3,545,907
286 : 3,545,908

CLASSIFICATION OF DESIGNS

D 2– 4	219,360	D 9–255	219,370	D25– 1	219,380	D34– 5	219,390	D54– 12	219,400	D71– 1	219,410
275	219,361	D13– 1	219,371	D26– 1	219,381		219,391	D56– 2	219,401	D72– 1	219,411
D 8–203	219,362	D14– 3	219,372	13	219,382	D37– 1	219,392		219,402	D80– 9	219,412
230	219,363		219,373		219,383		219,393		219,403	D81– 10	219,413
	219,364		219,374	14	219,384	D40– 1	219,394	9	219,404	D83– 1	219,414
	219,365	30	219,375		219,385	D44– 21	219,395	D61– 1	219,405	D85– 8	219,415
D 9– 46	219,366	D15– 1	219,376		219,386	D48– 16	219,396		219,406	D87– 1	219,416
	219,367	8	219,377	D30– 40	219,387	27	219,397		219,407		219,417
66	219,368	D18– 2	219,378	D34– 4	219,388	D52– 7	219,398		219,408	D94– 3	219,418
191	219,369	D23– 19	219,379		219,389	D54– 2	219,399		219,409		

CLASSIFICATION OF PLANTS

P. – 21	3,010	P. – 42	3,009	P. – 88	3,008

DEFENSIVE PUBLICATIONS APPLICATIONS

(Notice of Dec. 16, 1969, 869 O.G. 687)

28– 19	T881,021	96– 33	T881,023	96– 76	T881,020	96–108	T881,022	96–120	T881,018	260– 41	T881,015
61– .5	T881,013	45.2	T881,024	82	T881,014	109	T881,019	117– 49	T881,017	615	T881,016

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

	3,545,930	6	3,545,414	6	3,545,927	6	3,546,638	9	3,546,248	12	3,545,760
1	3,545,311		3,545,428		3,545,934		3,546,650		3,546,323		3,546,146
	3,545,510		3,545,429		3,545,935		3,546,657		3,546,334		3,546,230
	3,545,527		3,545,434		3,545,941		3,546,676		3,546,363		3,546,359
	3,545,589		3,545,446		3,545,948		3,546,689		3,546,377	13	3,545,185
	3,545,792		3,545,449		3,545,950		3,546,693		3,546,405		3,545,290
	3,546,527		3,545,462		3,545,967		3,546,700		3,546,417		3,545,538
	3,546,553		3,545,469		3,545,969		3,546,706		3,546,428		3,545,687
2	3,545,915		3,545,474		3,545,979	8	RE.26,999		3,546,439	15	3,545,659
4	3,545,189		3,545,476		3,545,988		3,545,268		3,546,454		3,546,603
	3,545,293		3,545,477		3,546,020		3,545,647		3,546,479	16	3,545,559
	3,545,673		3,545,479		3,546,036		3,545,753		3,546,483	17	3,545,008
	3,546,038		3,545,489		3,546,041		3,545,754		3,546,512		3,545,015
	3,546,355		3,545,504		3,546,064		3,545,964	10	3,545,057		3,545,019
	3,546,484		3,545,540		3,546,074		3,546,071		3,545,165		3,545,037
	3,546,533		3,545,542		3,546,084		3,546,555		3,545,512		3,545,038
	3,546,547		3,545,543		3,546,094		3,546,604		3,545,686		3,545,049
	3,546,563		3,545,553		3,546,095	9	3,545,048		3,545,723		3,545,056
5	3,545,333		3,545,561		3,546,096		3,545,079		3,545,913		3,545,071
	3,545,786		3,545,605		3,546,098		3,545,088		3,545,986		3,545,089
6	3,545,014		3,545,611		3,546,105		3,545,136		3,545,991		3,545,090
	3,545,024		3,545,612		3,546,106		3,545,162		3,546,063		3,545,113
	3,545,039		3,545,635		3,546,117		3,545,164		3,546,157		3,545,134
	3,545,066		3,545,641		3,546,141		3,545,202		3,546,167		3,545,152
	3,545,092		3,545,666		3,546,190		3,545,244		3,546,175		3,545,166
	3,545,112		3,545,680		3,546,199		3,545,256		3,546,186		3,545,175
	3,545,126		3,545,692		3,546,209		3,545,303		3,546,187		3,545,196
	3,545,146		3,545,742		3,546,215		3,545,337		3,546,259		3,545,200
	3,545,159		3,545,748		3,546,240		3,545,343		3,546,276		3,545,231
	3,545,174		3,545,749		3,546,370		3,545,388		3,546,288		3,545,241
	3,545,190		3,545,756		3,546,373		3,545,435		3,546,290		3,545,320
	3,545,197		3,545,771		3,546,375		3,545,437		3,546,297		3,545,385
	3,545,203		3,545,773		3,546,376		3,545,444		3,546,308		3,545,394
	3,545,211		3,545,777		3,546,396		3,545,488		3,546,309		3,545,404
	3,545,237		3,545,790		3,546,470		3,545,497		3,546,318		3,545,420
	3,545,242		3,545,791		3,546,494		3,545,556		3,546,321		3,545,423
	3,545,260		3,545,794		3,546,524		3,545,604		3,546,675		3,545,427
	3,545,262		3,545,799		3,546,529		3,545,682	11	3,545,226		3,545,465
	3,545,265		3,545,802		3,546,530		3,545,688		3,545,762		3,545,472
	3,545,275		3,545,809		3,546,537		3,545,731	12	3,545,028		3,545,475
	3,545,276		3,545,817		3,546,564		3,545,739		3,545,083		3,545,493
	3,545,282		3,545,837		3,546,571		3,545,776		3,545,101		3,545,505
	3,545,283		3,545,840		3,546,575		3,545,924		3,545,117		3,545,529
	3,545,298		3,545,841		3,546,580		3,545,944		3,545,154		3,545,550
	3,545,325		3,545,861		3,546,595		3,546,052		3,545,228		3,545,570
	3,545,378		3,545,865		3,546,606		3,546,069		3,545,252		3,545,572
	3,545,383		3,545,866		3,546,609		3,546,124		3,545,433		3,545,579
	3,545,398		3,545,871		3,546,610		3,546,143		3,545,622		3,545,588
	3,545,400		3,545,876		3,546,622		3,546,154		3,545,625		3,545,599
	3,545,413		3,545,926		3,546,624		3,546,231		3,545,747		3,545,631

17 : 3,545,644
3,545,668
3,545,675
3,545,695
3,545,706
3,545,710
3,545,712
3,545,719
3,545,720
3,545,770
3,545,787
3,545,793
3,545,810
3,545,815
3,545,838
3,545,855
3,545,892
3,545,903
3,546,002
3,546,034
3,546,035
3,546,039
3,546,054
3,546,055
3,546,076
3,546,099
3,546,116
3,546,123
3,546,126
3,546,127
3,546,129
3,546,130
3,546,172
3,546,198
3,546,206
3,546,220
3,546,257
3,546,327
3,546,346
3,546,350
3,546,368
3,546,379
3,546,385
3,546,394
3,546,416
3,546,427
3,546,431
3,546,455
3,546,461
3,546,492
3,546,502
3,546,506
3,546,518
3,546,565
3,546,577
3,546,591
3,546,612
3,546,628
3,546,642
3,546,655
3,546,659
3,546,669
3,546,674
3,546,687
3,546,707
18 : 3,545,034
3,545,043
3,545,052
3,545,062
3,545,067
3,545,169
3,545,217
3,545,304
3,545,339
3,545,408
3,545,571
3,545,597
3,545,767
3,545,772
3,546,021
3,546,102
3,546,112
3,546,152
3,546,238
3,546,298
3,546,335
3,546,395
3,546,526
3,546,557
3,546,598
3,546,662
3,546,673
19 : 3,545,033
3,545,160
3,545,170
3,545,557
3,545,586
3,545,689
3,545,690
3,545,709
3,546,364
20 : 3,545,147
3,545,192
3,545,389
3,545,839
3,546,016
20 : 3,546,697
21 : 3,545,150
3,545,199
3,545,308
3,545,450
3,545,451
3,545,452
3,545,634
3,546,140
3,546,435
3,546,505
3,546,629
3,546,651
3,546,652
22 : 3,545,121
3,545,135
3,545,407
3,545,526
3,545,541
3,545,730
3,545,825
3,545,912
3,546,006
3,546,103
3,546,137
23 : 3,545,201
3,545,784
24 : 3,545,068
3,545,100
3,545,133
3,545,172
3,545,208
3,545,365
3,545,466
3,545,468
3,545,724
3,545,812
3,545,823
3,545,919
3,545,929
3,545,942
3,546,151
3,546,162
3,546,362
3,546,386
3,546,463
3,546,473
3,546,480
3,546,601
3,546,620
3,546,634
3,546,668
3,546,684
25 : 3,545,023
3,545,096
3,545,115
3,545,122
3,545,141
3,545,285
3,545,287
3,545,350
3,545,352
3,545,354
3,545,355
3,545,357
3,545,358
3,545,364
3,545,373
3,545,374
3,545,457
3,545,458
3,545,471
3,545,481
3,545,487
3,545,500
3,545,506
3,545,584
3,545,624
3,545,722
3,545,764
3,545,774
3,545,832
3,545,842
3,545,862
3,545,870
3,545,878
3,545,904
3,545,940
3,545,998
3,546,014
3,546,040
3,546,046
3,546,049
3,546,059
3,546,142
3,546,292
3,546,374
3,546,418
3,546,424
3,546,469
3,546,474
3,546,487
3,546,523
3,546,539
3,546,596
3,546,621
25 : 3,546,631
3,546,640
3,546,685
3,546,692
3,546,695
3,546,701
3,546,702
3,546,703
26 : 3,545,016
3,545,027
3,545,050
3,545,053
3,545,070
3,545,074
3,545,124
3,545,128
3,545,131
3,545,149
3,545,151
3,545,176
3,545,259
3,545,310
3,545,321
3,545,330
3,545,334
3,545,418
3,545,425
3,545,438
3,545,439
3,545,463
3,545,486
3,545,521
3,545,548
3,545,573
3,545,582
3,545,600
3,545,616
3,545,623
3,545,651
3,545,660
3,545,684
3,545,708
3,545,711
3,545,761
3,545,766
3,545,788
3,545,800
3,545,835
3,545,847
3,545,860
3,545,863
3,545,885
3,545,917
3,545,918
3,545,943
3,546,017
3,546,018
3,546,090
3,546,114
3,546,125
3,546,233
3,546,241
3,546,299
3,546,302
3,546,305
3,546,336
3,546,419
3,546,420
3,546,445
3,546,493
3,546,581
3,546,665
27 : 3,545,036
3,545,073
3,545,082
3,545,103
3,545,180
3,545,221
3,545,224
3,545,225
3,545,281
3,545,309
3,545,363
3,545,382
3,545,480
3,545,560
3,545,613
3,545,629
3,545,650
3,545,654
3,545,696
3,545,697
3,545,752
3,545,821
3,545,977
3,546,025
3,546,115
3,546,148
3,546,210
3,546,476
3,546,579
3,546,658
28 : 3,545,409
3,545,636
29 : 3,545,065
3,545,148
29 : 3,545,314
3,545,459
3,545,482
3,545,596
3,545,676
3,545,775
3,545,990
3,545,996
3,546,083
3,546,185
3,546,253
3,546,366
3,546,540
3,546,661
3,546,690
3,546,691
30 : 3,545,961
31 : 3,545,010
3,545,013
3,545,140
3,545,678
32 : 3,545,097
3,545,127
3,545,416
3,546,560
33 : 3,545,317
3,545,370
3,546,599
34 : 3,545,041
3,545,059
3,545,061
3,545,093
3,545,111
3,545,163
3,545,238
3,545,251
3,545,273
3,545,405
3,545,514
3,545,524
3,545,547
3,545,554
3,545,580
3,545,585
3,545,603
3,545,607
3,545,618
3,545,640
3,545,643
3,545,646
3,545,656
3,545,665
3,545,674
3,545,681
3,545,703
3,545,713
3,545,757
3,545,834
3,545,894
3,545,902
3,545,945
3,545,949
3,545,956
3,545,972
3,546,033
3,546,045
3,546,073
3,546,075
3,546,100
3,546,131
3,546,150
3,546,158
3,546,169
3,546,188
3,546,195
3,546,211
3,546,212
3,546,228
3,546,229
3,546,232
3,546,236
3,546,239
3,546,252
3,546,254
3,546,260
3,546,262
3,546,279
3,546,295
3,546,316
3,546,319
3,546,324
3,546,330
3,546,331
3,546,332
3,546,341
3,546,357
3,546,372
3,546,383
3,546,393
3,546,465
3,546,491
3,546,495
3,546,513
3,546,528
3,546,543
3,546,592
34 : 3,546,600
3,546,602
3,546,611
3,546,617
3,546,618
3,546,627
3,546,636
3,546,637
3,546,678
3,546,681
3,546,699
35 : 3,545,274
3,545,485
3,546,026
3,546,583
36 : RE.26,996
3,545,017
3,545,020
3,545,025
3,545,064
3,545,069
3,545,110
3,545,144
3,545,183
3,545,218
3,545,230
3,545,312
3,545,318
3,545,319
3,545,327
3,545,328
3,545,329
3,545,345
3,545,347
3,545,353
3,545,368
3,545,375
3,545,387
3,545,391
3,545,419
3,545,422
3,545,426
3,545,436
3,545,440
3,545,442
3,545,445
3,545,447
3,545,453
3,545,461
3,545,495
3,545,502
3,545,517
3,545,522
3,545,532
3,545,564
3,545,581
3,545,591
3,545,639
3,545,663
3,545,667
3,545,698
3,545,700
3,545,704
3,545,745
3,545,758
3,545,816
3,545,824
3,545,826
3,545,833
3,545,843
3,545,851
3,545,853
3,545,854
3,545,873
3,545,874
3,545,884
3,545,890
3,545,895
3,545,938
3,545,946
3,545,965
3,545,970
3,545,971
3,545,976
3,545,981
3,545,987
3,545,997
3,546,000
3,546,001
3,546,005
3,546,009
3,546,013
3,546,029
3,546,053
3,546,058
3,546,080
3,546,085
3,546,089
3,546,107
3,546,153
3,546,155
3,546,161
3,546,170
3,546,247
3,546,256
3,546,265
36 : 3,546,271
3,546,338
3,546,339
3,546,381
3,546,398
3,546,399
3,546,415
3,546,441
3,546,446
3,546,460
3,546,486
3,546,508
3,546,509
3,546,541
3,546,548
3,546,561
3,546,576
3,546,582
3,546,586
3,546,588
3,546,593
3,546,635
3,546,648
3,546,663
3,546,667
3,546,671
3,546,680
3,546,696
37 : 3,545,012
3,545,029
3,545,233
3,545,272
3,545,377
3,545,617
3,546,361
38 : 3,545,116
3,546,522
39 : 3,545,009
3,545,011
3,545,031
3,545,032
3,545,042
3,545,044
3,545,046
3,545,081
3,545,108
3,545,138
3,545,167
3,545,178
3,545,194
3,545,227
3,545,235
3,545,249
3,545,258
3,545,301
3,545,305
3,545,326
3,545,331
3,545,332
3,545,335
3,545,336
3,545,376
3,545,379
3,545,381
3,545,403
3,545,406
3,545,443
3,545,484
3,545,492
3,545,509
3,545,523
3,545,531
3,545,533
3,545,546
3,545,598
3,545,638
3,545,652
3,545,699
3,545,717
3,545,718
3,545,721
3,545,737
3,545,779
3,545,797
3,545,830
3,545,897
3,545,932
3,545,952
3,545,960
3,545,993
3,545,994
3,546,022
3,546,043
3,546,128
3,546,135
3,546,136
3,546,138
3,546,174
3,546,181
3,546,272
3,546,289
3,546,430
3,546,458
3,546,471
3,546,498
3,546,501

39 : 3,546,532
3,546,559
3,546,562
3,546,578
3,546,643
3,546,694
40 : 3,545,119
3,545,177
3,545,187
3,545,215
3,545,278
3,545,313
3,545,456
3,545,490
3,545,491
3,545,544
3,546,078
3,546,118
3,546,134
3,546,216
3,546,307
3,546,310
3,546,311
3,546,312
3,546,313
3,546,314
3,546,315
3,546,340
41 : 3,545,018
3,545,078
3,545,102
3,545,188
3,545,245
3,545,356
3,545,508
3,545,558
3,545,619
3,545,669
3,545,685
3,545,727
3,545,744
3,545,783
3,546,623
42 : 3,545,026
3,545,058
3,545,072
3,545,080
42 : 3,545,094
3,545,114
3,545,118
3,545,142
3,545,173
3,545,186
3,545,207
3,545,239
3,545,240
3,545,255
3,545,269
3,545,270
3,545,315
3,545,316
3,545,322
3,545,380
3,545,431
3,545,432
3,545,499
3,545,528
3,545,530
3,545,592
3,545,606
3,545,608
3,545,626
3,545,645
3,545,662
3,545,664
3,545,671
3,545,683
3,545,736
3,545,740
3,545,750
3,545,763
3,545,778
3,545,789
3,545,820
3,545,827
3,545,848
3,545,881
3,545,921
3,545,957
3,545,980
3,545,983
3,546,007
3,546,077
42 : 3,546,086
3,546,092
3,546,093
3,546,097
3,546,108
3,546,164
3,546,165
3,546,200
3,546,221
3,546,225
3,546,273
3,546,274
3,546,280
3,546,287
3,546,291
3,546,300
3,546,320
3,546,348
3,546,356
3,546,401
3,546,404
3,546,406
3,546,407
3,546,408
3,546,414
3,546,464
3,546,467
3,546,472
3,546,482
3,546,488
3,546,489
3,546,499
3,546,520
3,546,534
3,546,536
3,546,538
3,546,542
3,546,567
3,546,572
3,546,573
3,546,626
3,546,644
3,546,646
3,546,653
3,546,656
3,546,664
42 : 3,546,686
43 : 3,545,214
3,545,399
3,545,751
44 : 3,545,060
3,545,247
3,545,642
3,545,798
3,545,909
3,546,218
3,546,412
45 : 3,545,367
3,545,494
47 : 3,545,143
3,545,182
3,545,412
3,545,537
3,546,008
3,546,062
3,546,139
3,546,177
3,546,178
3,546,180
3,546,204
3,546,426
3,546,457
48 : 3,545,063
3,545,130
3,545,145
3,545,155
3,545,181
3,545,250
3,545,266
3,545,294
3,545,324
3,545,348
3,545,460
3,545,478
3,545,539
3,545,545
3,545,552
3,545,562
3,545,627
3,545,661
3,545,725
3,545,738
48 : 3,545,858
3,545,891
3,545,928
3,545,931
3,545,947
3,546,003
3,546,109
3,546,111
3,546,132
3,546,285
3,546,322
3,546,351
3,546,352
3,546,423
3,546,456
3,546,478
3,546,481
3,546,549
3,546,568
3,546,597
3,546,607
3,546,705
49 : 3,545,047
3,545,085
3,545,267
3,545,421
3,545,715
3,545,920
3,546,677
50 : 3,545,679
51 : 3,545,021
3,545,087
3,545,193
3,545,614
3,545,877
3,545,911
3,546,068
3,546,088
3,546,173
3,546,191
3,546,245
3,546,306
3,546,438
3,546,440
3,546,448
3,546,552
51 : 3,546,566
3,546,585
3,546,630
3,546,633
3,546,670
53 : 3,545,470
3,545,567
3,545,648
3,545,819
3,546,012
3,546,485
3,546,688
54 : 3,545,939
3,546,343
3,546,433
55 : 3,545,107
3,545,179
3,545,219
3,545,220
3,545,222
3,545,284
3,545,386
3,545,424
3,545,535
3,545,565
3,545,628
3,545,633
3,545,637
3,545,801
3,545,805
3,545,908
3,546,050
3,546,056
3,546,065
3,546,066
3,546,168
3,546,400
3,546,402
3,546,409
3,546,421
3,546,507
3,546,531
3,546,551
3,546,556
3,546,570
56 : 3,546,023

Design Patents

6 : 219,371
219,374
219,384
219,386
219,390
219,410
8 : 219,373
219,377
219,387
17 : 219,367
219,372
219,385
219,392
18 : 219,366
19 : 219,397
20 : 219,415
21 : 219,403
24 : 219,394
25 : 219,382
219,396
219,409
26 : 219,375
27 : 219,408
29 : 219,395
219,413
32 : 219,417
34 : 219,360
34 : 219,378
219,405
36 : 219,369
219,380
219,383
219,391
219,400
219,406
219,411
36 : 219,414
219,418
37 : 219,379
219,401
219,402
219,404
39 : 219,368
219,398
219,416
40 : 219,388
219,389
219,399
42 : 219,362
219,376
44 : 219,393
54 : 219,370
55 : 219,361

Plant Patents

6 : 3,008
6 : 3,009
12 : 3,010

Defensive Publications Applications

(Notice of Dec. 16, 1969, 869 O.G. 687)

36 : T881,014
T881,015
36 : T881,018
T881,019
36 : T881,020
T881,022
36 : T881,023
T881,024
40 : T881,013
46 : T881,017
48 : T881,016
51 : T881,021

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 8, 1970 Volume 881 Number 2

TRADEMARKS

NOTICES

Errata

In the OFFICIAL GAZETTE of Sept. 1, 1970, at page TM 45, under Registration No. 897,681 "SN 232,496" should be *SN 323,496;* at page TM 50 under Registration No. 897,934 "SN 369,267" should be *309,267.*

In the OFFICIAL GAZETTE of Oct. 6, 1970, at page TM 46, under Registration No. 900,469 "SN 294,998" should be *294,992.*

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 536,703 (STARBILT), Star Manufacturing Co. of Oklahoma, Pre-fabricated steel buildings; **Reg. No. 787,015** (STAR AND DESIGN), Star Manufacturing Company, Metal building products—namely, metal siding, metal panels, metal deck, structural members of metal, and prefabricated buildings—namely, prefabricated industrial, farm, amusement, and religious and like buildings, **filed** Aug. 26, 1970, D.C. Okla. (Oklahoma City), Doc. 70–417–C, *Star Manufacturing Company of Oklahoma, Inc. and Star Construction Co. v. Star Builders, Inc. and Star Builders of Oklahoma City, Inc.*

Reg. No. 628,497 (SCRUBBEE), Scrubee Products Corp., Plastic foam sponge containing an abrasive for cleaning pots, pans, and the like; **Reg. No. 782,234** (SCRUB-STIK), same, Abrasive pot cleaning device, **filed** Aug. 28, 1970, D.C., S.D.N.Y., Doc. 70–C–3756, *The Brackett Company v. Purex Corporation, Ltd.*

Reg. No. 763,573 (HANG TEN AND DESIGN), Doris Moore of California, Bathing suits, jackets, and shirts; **Reg. No. 877,451** (GOLDEN FEET DESIGN), same, **filed** Aug. 7, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–1741–F, *Doris Moore of Calif., Inc. v. Go Barefoot Inc. and Clarence M. Hara.*

Reg. No. 782,234. (See Reg. No. 628,497.)

Reg. No. 787,015. (See Reg. No. 536,703.)

Reg. No. 790,126 (AMERICANA NURSING HOME AND DESIGN), Americana Nursing Homes, Inc., Making feasibility studies and market site analyses for clients proposing to construct and operate nursing homes; **Reg. No. 856,209** (AMERICANA), Americana Nursing Centers, Inc., Operating nursing homes, convalescent hospitals, extended care facilities, health care facilities, and the like, and consulting services to others for the design and operation thereof; **Reg. No. 860,308** (AMERICANA NURSING CENTER AND DESIGN), same, **filed** Aug. 28, 1970, D.C. Md. (Baltimore), Doc. 70–1018, *Americana Nursing Centers, Inc. v. Americana Nursing Home and Convalescent Center, Inc.*

Reg. No. 821,322 (DIVERSIFIED INDUSTRIES), Diversified Industries Realtors, General real estate business, both as brokers and as principals, **filed** Sept. 2, 1970, D.C., S.D.N.Y., Doc. 70–C–3840, *Diversified Industries International v. Diversified Industries, Inc.*

Reg. No. 830,219 (SANTA MOUSE), J. C. Penney Company, Children's and infants' robes, sleepers, sleeper sets, two-piece diaper sets and play suits; **Reg. No. 859,113,** same,

CONDITION OF TRADEMARK APPLICATIONS AS OF OCTOBER 31, 1970

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	23, 607
Date of oldest new application	September 17, 1969
Date of oldest amended application (filing date)	March 31, 1967

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISION, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 3, 4, 5, 7, 8, 9, 10, 11, 17, 27, 28, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 50; Certification Marks, Classes A and B	12-24-69	3-31-67
(II) F. H. WETHERBEE, Classes 1, 6, 15, 18, 45, 46, 47, 48, 49, 51, 52; Collective Membership Mark, Class 200	12-16-69	12-11-67
(III) C. R. FOWLER, Classes 12, 16, 19, 21, 23, 26, 31, 34, 35, 36, 44	2-26-70	10-30-67
(IV) M. E. ABRAMSON, Classes 13, 14, 20, 22, 24, 25, 29; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, and 107	9-17-69	1-26-68
Renewals (All Classes)	9-21-70	----------
Sec. 12(c) Publications (All Classes)	10-8-70	----------

Applications filed during the month of October 1970—2,802

Registrations Issued ---------- 399—No. 903,685 to No. 904,083
Renewals Issued ---------- 120

THE TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $20.50 per annum, foreign mailing $5.75 additional; single copies, 40 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C. 20231.

Stuffed toys, **filed** Aug. 14, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–1798–F, *J. C. Penney Company Inc.* v. *William C. Jones, doing business as W. J. Jones Publishing Co., W. C. Jones 3-D Ltd., W. C. Jones Intertype Service.*

Reg. No. 841,225 (COLD CHEK), Thexton Manufacturing Company, Antifreeze solution tester; **Reg. No. 842,750** (THEXTON), same, Automotive shock absorber attachment devices, and automotive hand brake cable repair kit (Class 19); Automotive light socket attachments; battery cable lug gripping devices; and electrical repair terminals for automotive generators (Class 21); Piston expanders, oil pressure regulators, regrooving tools, timing plates for automotive engines, rocker arm oiler kits, choke tube repair kits for automotive engines, choke conversion kits, rivet removers, springs for automotive carburetors, plug extractors, peening tools, and automotive fuel feed systems (Class 23); Anti-freeze testers, battery testers, and martini alcoholic content testers; top dead center indicators, and speedometer cable repair kits (Class 26), **filed** Oct. 30, 1968, D.C.N.J. (Newark), Doc. 1140–68, *Thexton Manufacturing Company* v. *Perfect Parts, Inc.* Stipulation and order of dismissal, Sept. 3, 1970.

Reg. No. 842,750. (See Reg. No. 841,225.)

Reg. No. 848,245 (GATORADE), Stokely-Van Camp, Inc., Fruit flavored soft drink and powder for making the same, **filed** Aug. 24, 1970, D.C., W.D. Pa. (Pittsburgh), Doc. 70–1016 CA, *Stokely-Van Camp, Inc.* v. *Pittsburgh Brewing Company.*

Reg. No. 854,529 (RONDEC), Abbott Laboratories, doing business as Ross Laboratories, Cough-cold preparation, **filed** Mar. 28, 1969, D.C.N.J. (Newark), Doc. 370–69, *Rondex Laboratories, Inc.* v. *Abbott Laboratories.* Stipulation and order of dismissal, July 10, 1969.

Reg. No. 856,209. (See Reg. No. 790,126.)

Reg. No. 859,113. (See Reg. No. 830,219.)

Reg. No. 860,308. (See Reg. No. 790,126.)

Reg. No. 862,013 (BRIDES SHOWCASE), Brides Showcase International, Inc., Bridal gowns, **filed** Feb. 19, 1970, D.C.N.J. (Newark), Doc. 204–70, *Brides Showcase International Inc.* v. *Brides Showcase International.* Consent judgment for permanent injunction, Aug. 17, 1970.

Reg. No. 864,372. (See Reg. No. 867,698.)

Reg. No. 867,698 (MASTER CHARGE AND DESIGN), Western States Bankcard, Operation of system involving the extension of credit by subscribing banks to customers of those banks who purchase at subscribing establishments, performance of clearing house operation, providing to the subscribing establishments and banks credit information concerning the customers of these banks, and advertising services relative thereto; **Reg. No. 864,372** (MASTER CHARGE), same, **filed** Sept. 4, 1970, D.C., M.D. Fla. (Tampa), Doc. 70–393–C, *Interbank Card Association* v. *Master Discard Corp. et al.* Consent decree, permanent injunction in favor of plaintiffs, Sept. 11, 1970.

Reg. No. 877,451. (See Reg. No. 763,573.)

Reg. No. 886,081 (COOK'S PEST CONTROL AND DESIGN), Cook's Pest Control, Inc., Termite, insect and pest exterminating and control service, **filed** July 20, 1970, D.C., M.D. Tenn. (Nashville), Doc. 5817, *Hot Shot Quality Products, Inc.* v. *Cook's Pest Control, Inc.*

Reg. No. 889,782 (TOPSIDE), Burlington Industries, Inc., Textile rugs and carpets, **filed** Oct. 9, 1969, D.C., N.D. Ga. (Rome), Doc. 2131, *Burlington Industries, Inc.* v. *Atlantic Rugs, Inc.* This case was closed by consent decree against the defendant on Oct. 29, 1969.

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 188,652. Nippon Electric Company Limited, Minato-ku, Tokyo, Japan. Filed Mar. 13, 1964.

NEC

Owner of U.S. Reg. No. 768,118.

Class 21—Electrical Apparatus, Machines, and Supplies

For Telephone, Teletype, Telegraph, Radio, and Communication Generating, Transmitting and Receiving Apparatus, Equipment, Components and Systems; Radios; Transistor Radios, Television Receivers, Tape Recorders, Hi-Fidelity Stereo Equipment and Tubes and Parts for Same, Batteries, Fluorescent Lamps, Flashlights, Lanterns, Mercury Vapor Lamps, Electro-Luminescent Lamps, Electric Rice Cookers, and Parts for All of the Foregoing (Int. Cl. 9).

Class 26—Measuring and Scientific Appliances

For Data Processing and Computing Systems, Apparatus, Components and Equipment (Int. Cl. 9).

First use Oct. 10, 1948; in commerce Nov. 20, 1957.

SN 261,103. Regiscope Corporation of America, New York, N.Y. Filed Dec. 19, 1966.



Class 100—Miscellaneous

For Rental of Photographic Equipment—Namely, Automatic Security Systems, Identification Systems, and Automatic Book Charging Systems (Int. Cl. 42).

Class 103—Construction and Repair

For Installation and Maintenance of Photographic Equipment—Namely, Automatic Security Systems, Identification Systems, and Automatic Book Charging Systems (Int. Cl. 37).

First use June 14, 1965.

SN 286,967. James Varley & Sons, Inc., St. Louis, Mo. Filed Dec. 15, 1967.

VARCO

Class 4—Abrasives and Polishing Materials

For Floor Polishes (Int. Cl. 3).
First use at least as early as Nov. 10, 1955.

Class 6—Chemicals and Chemical Compositions

For Insecticides, Germicides, Disinfectants, and Deodorants for Household and Industrial Use (Int. Cl. 5).
First use at least as early as Nov. 15, 1952.

Class 52—Detergents and Soaps

For All-Purpose Cleaner, Combination Deodorant and Solvent Cleaner, and Carburetor and Parts Cleaner (Int. Cl. 3).
First use at least as early as April 1948.

SN 290,344. Smiths Industries Limited, London, England. Filed Feb. 5, 1968.

SMITHS

Owner of U.S. Reg. Nos. 561,162, 761,324, and others.

Class 21—Electrical Apparatus, Machines, and Supplies

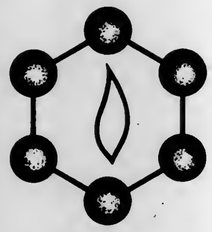
For Electric Devices—Namely, Warning Lights, Being Instrument Panel Indicators, Traffic Signal Lights; Magnetos; Electric Batteries; Lamps for Vehicles; Hand Lamps; Lamp Brackets; and Electric Horns, Sparking Plugs, Aerials, Car Rdios, and Electric Window-Winding Mechanisms (Int. Cls. 9 and 11).

Class 26—Measuring and Scientific Appliances

For Revolution Indicators, Altimeters, Compasses, Artificial Horizons for Navigation Purposes, Engine Speed Indicators, Air Speed Indicators, Turn and Bank Indicators, Rate of Climb Indicators, Under-Carriage Position Indicators, Electrical Position Indicators, Accelerometers, Directional Gyroscopes, Ice Detectors, and Position Indicators for Remote Control Systems All for Aircraft, Fuel Gauges, Pressure Gauges for Measuring the Pressure of Liquids, Boost Gauges of the Single Pointer Type and the Twin Pointer Type, Mechanical Pressure Gauges, Gauges of the Capillary Type, Pressure Gauge Indicators, Speedometers, Thermometers, Thermostats, Automatically Operated Timing Mechanisms, Automatically Operated Switching Mechanisms for Domestic Appliances, Including Gas, Electric and Solid Fuel Cookers, Combined Automatically Operated Timing and Switching Mechanisms, Battery Condition Indicators, Oil Pressure Gauges, Panels and Combined Instruments, Voltage Regulators and Ammeters, Altitude Switches, Para-Visual Directors, Pressure Switches, Sextants, Stall Detectors, Synchroscopes, Tachometers, Air Data Computers, Automatic Pilots, Auto-Throttle Systems, Flight Control Systems, Radio Navigation Instruments, Torque Switches, Servoed Synchro Transmitter Receivers, A.C. Voltage Injectors, R & Q Potentiometers (Multiturn), Counters, Ammeters, and Battery Condition Indicators (Int. Cls. 9 and 11).

First use Before 1951; in commerce since 1952.

SN 302,358. Thermotech Industries, Inc., Hopkins, Minn. Filed July 10, 1968.



Class 2—Receptacles

For Molded Plastic Winding Bobbins for Wire Winding in the Formation of Electrical Coils for Use in Electrical Power Units (Int. Cl. 20).

Class 106—Material Treatment

For Custom Plastic Molding Services for Others (Int. Cl. 40).

First use 1961.

SN 303,984. C-Line Products, Inc., Des Plaines, Ill. Filed July 31, 1968.

C-LINE

Owner of Reg. Nos. 553,537.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Library Sets Consisting of Letter Opener and Shears (Int. Cl. 16).

Class 37—Paper and Stationery

For Attaching Strips for Mounting Paper Sheets in Binders; Desk Accessories—Namely, Letter Trays; Pen Sets; Memo Style Calendars; Book Covers; Memo Holders; Correspondence Folders and Pads; a Desk Holder and Divider for Paper; Double and Single Letter Racks; Pencil Cups; Clear Plastic Pads; Magazine Covers, Report Covers; Pressure Sensitive Paper; File Jackets; Brief Covers; and Desk Blotters (Int. Cl. 16).

First use 1950.

SN 306,837. The Boye Needle Company, Chicago, Ill. Filed Sept. 9, 1968.

BOYE

Owner of Reg. Nos. 505,254, 557,804, and others.

Class 2—Receptacles

For Knitting Tubes, Knitting Bags, Knitting Stands, Knitting Needle Cases and Tote Bags (Int. Cl. 18).
First use in or before June 1965.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Key Chains Made of Non-Precious Metal (Int. Cl. 6).
First use in or before February 1923.

Class 15—Oils and Greases

For Lubricating Oil (Int. Cl. 4).
First use in or before April 1908.

Class 21—Electrical Apparatus, Machines, and Supplies

For Sewing Machine Light Bulbs (Int. Cl. 11).
First use in or before January 1963.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Scissors, Shears, Sewing Machine Needles, Sewing Machine Bobbins and Shuttles (Int. Cls. 7 and 8).
First use in or before February 1906.

Class 26—Measuring and Scientific Appliances

For Rulers, Needle Gauges, Knitting Gauges, Tape Measures, Yardsticks, and Magnifiers (Int. Cl. 9).
First use in or before 1946.

Class 28—Jewelry and Precious-Metal Ware

For Zippers, Curtain Holders, Curtain Holder Couplers, and Coat Chains (Int. Cl. 14).
First use in or before April 1912.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Sewing Machine Belts (Int. Cl. 7).
First use in or before February 1909.

Class 40—Fancy Goods, Furnishings, and Notions

For Art Needlework Products and Sewing Notions—Namely, Straight Knitting Needles, Circular Knitting Needles, Jumper Knitting Needles, Knitting Needle Points, Knitting Needle Point Protectors, Rug Needles, Cable Stitch Needles, Embroidery Needles, Weaving Needles, Tapestry Needles, Hand Sewing Needles, Rug Latch Hooks, Crochet Hooks, Crochet Forks, Afghan Hooks, Stitch Holders, Yarn Needles, Yarn Bobbins, Buttons, Covered Button and Buckle Kits, Ribbon, Knit Tallys, Stitch Marker Rings, Stitch Counters, Cabone Rings, Embroidery Hoops, Tatting Shuttles, Knitting Spools, Hem Markers for Measuring and Marking Garment Hems, Garment Pattern Markers, Namely, Tracing Wheels and Tracing Tackers, Tailors' Chalk, Press Cloths, Dressmakers' Pins, Safety Pins, Diaper Pins, Hat Pins, Seam Rippers, Hand Pleat Makers, Bodkins, Fastener Hooks and Eyes and Loops, Snap Fasteners and Snap Fastener Tape, Snap Stud-and-Socket Dress Fasteners, Pin Cushions, Needle Threaders, Thimbles, Thread Locks, Zipper Repair Kits, Laundry Marking Pens, and Pom Pom Makers, namely, Frames for Winding Yarn (Int. Cl. 26).
First use in or before October 1907.

Class 44—Dental, Medical, and Surgical Appliances

For Fingernail Clippers, Toenail Clippers, Nail Files, and Tweezers (Int. Cl. 10).
First use on or before Aug. 1, 1962.

SN 306,838. The Boye Needle Company, Chicago, Ill. Filed Sept. 9, 1968.



Owner of Reg. Nos. 507,382, 757,410, and others.

Class 2—Receptacles

For Knitting Tubes, Knitting Bags, Knitting Stands, Knitting Needle Cases and Tote Bags (Int. Cl. 18).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Key Chains Made of Non-Precious Metal (Int. Cl. 6).

Class 15—Oils and Greases

For Lubricating Oil (Int. Cl. 4).

Class 21—Electrical Apparatus, Machines, and Supplies

For Sewing Machine Light Bulbs (Int. Cl. 11).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Scissors, Shears, Sewing Machine Needles, Sewing Machine Bobbins and Shuttles (Int. Cls. 7, 8, and 26).

Class 26—Measuring and Scientific Appliances

For Rulers, Needle Gauges, Knitting Gauges, Tape Measures, Yardsticks, and Magnifiers (Int. Cl. 9).

Class 28—Jewelry and Precious-Metal Ware

For Zippers, Curtain Holders, Curtain Holder Couplers, and Coat Chains (Int. Cl. 14).

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Sewing Machine Belts (Int. Cl. 7).

Class 40—Fancy Goods, Furnishings, and Notions

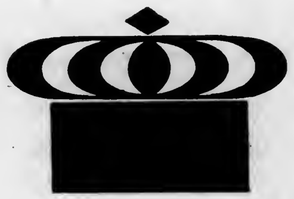
For Art Needlework Products and Sewing Notions—Namely, Straight Knitting Needles, Circular Knitting Needles, Jumper Knitting Needles, Knitting Needle Points, Knitting Needle Point Protectors, Rug Needles, Cable Stitch Needles, Embroidery Needles, Weaving Needles, Tapestry Needles, Hand Sewing Needles, Rug Latch Hooks, Crochet Hooks, Crochet Forks, Afghan Hooks, Stitch Holders, Yarn Needles, Yarn Bobbins, Buttons, Covered Button and Buckle Kits, Ribbon, Knit Tallys, Stitch Marker Rings, Stitch Counters, Cabone Rings, Embroidery Hoops, Tatting Shuttles, Knitting Spools, Hem Markers for Measuring and Marking Garment Hems, Garment Pattern Markers, Namely, Tracing Wheels and Tracing Tackers, Tailors' Chalk, Press Cloths, Dressmakers' Pins, Safety Pins, Diaper Pins, Hat Pins, Seam Rippers, Hand Pleat Makers, Bodkins, Fastener Hooks and Eyes and Loops, Snap Fasteners and Snap Fastener Tape, Snap Stud-and-Socket Dress Fasteners, Pin Cushions, Needle Threaders, Thimbles, Thread Locks, Zipper Repair Kits, Laundry Marking Pens, and Pom Pom Makers, namely, Frames for Winding Yarn (Int. Cl. 26).

Class 44—Dental, Medical, and Surgical Appliances

For Fingernail Clippers, Toenail Clippers, Nail Files, and Tweezers (Int. Cl. 10).

First use on or before Aug. 1, 1962.

SN 309,496. Puppy Palace Enterprises, Inc., Philadelphia, Pa. Filed Oct. 14, 1968.



Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

For Leashes, Collars, Feeding Bowls, Cat and Dog Baskets and Beds, Trimming and Grooming Equipment for Pets, and Bird Cages (Int. Cl. 18).

Class 18—Medicines and Pharmaceutical Preparations

For Proprietary Preparations for the Treatment of Minor Ailments of Eyes, Ears, Skin, Internal Disorders, Worms, Motion Sickness, and Diarrhea in Animals (Int. Cl. 5).

Class 46—Foods and Ingredients of Foods

For Foods and Food Supplements—Namely, Wheat Germ, Oil, Milk Substitutes, Cod Liver Oil, Mynah Bird Meal, Mynah Bird Pellets, Canary Seed, Keet Seed With Fruit, Canary Moulting Food, Song Food, Canary Conditioning Food, Malt and Malt Food Supplements (Int. Cls. 5 and 31).

Class 52—Detergents and Soaps

For Preparations To Remove Animal Stains From Rugs and Carpets, and Pads Impregnated With Dry Cleaning Preparation, as Well as Dry Cleaning Preparations for Use on Animals (Int. Cl. 3).

First use May 1, 1968.

SN 309,739. Associated Spring Corporation, Bristol, Conn. Filed Oct. 16, 1968.



Class 2—Receptacles

For Drill Set Cases (Int. Cl. 20).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Screws, Dowel Pins, Nuts, Bolts, Washers, Blind Rivets, Threaded Rods, Cotter Pins, Lock Washers, Keys (for Slots), Spring Pins, Studs, Clevis Pins and Anchor Bolts (Int. Cl. 6).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Hex Keys, Drill Screw Chuck, Drills, and Hack Saw Blades (Int. Cls. 7 and 8).

Class 32—Furniture and Upholstery

For Storage Cabinets (Int. Cl. 20).

First use Dec. 18, 1958.

SN 317,176. Pirelli S.p.A., Milan, Italy. Filed Jan. 22, 1969.

PIRELLI

Owner of Italian Reg. No. 217,489, dated June 28, 1963.

Class 19—Vehicles

For Pneumatic Boats (Int. Cl. 12).

Class 21—Electrical Apparatus, Machines, and Supplies

For Electric Cables (Int. Cl. 9).

Class 22—Games, Toys, and Sporting Goods

For Skindivers' and/or Swimmers' Masks and Diving Suits (Int. Cls. 9 and 28).

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Tires, Rubber Hose, and Belting (Int. Cls. 12 and 17).

Class 39—Clothing

For Waterproof Cloaks and Household Gloves (Int. Cl. 25).

Class 44—Dental, Medical, and Surgical Appliances

For Surgical Gloves and Hot water and Clyster Bags (Int. Cl. 10).

SN 319,991. White Stores, Inc., Wichita Falls, Tex. Filed Feb. 24, 1969.

CLOVIS

Class 21—Electrical Apparatus, Machines, and Supplies

For Radio and Television Sets (Int. Cl. 9).

Class 36—Musical Instruments and Supplies

For Record Players and Magnetic Tape Records (Int. Cl. 9).

First use Oct. 14, 1968.

SN 320,120. August Thyssen-Huette Aktiengesellschaft, Duisburg-Hamborn, Germany. Filed Feb. 26, 1969.

THYSSEN

Owner of German Reg. No. 837,714, dated May 11, 1967.

Class 7—Cordage

For Steel Cables (Int. Cl. 6).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Seamless and Welded Metal Pipes and Tubes, Metal Bolts, Metal Nuts, and Metal Nails (Int. Cl. 6).

Class 14—Metals and Metal Castings and Forgings

For Pig Iron, Metal Ingots, Metal Blooms, Metal Billets, Metal Slabs, Semi-Finished Metal Flats and Forgings, Metal Plates, Metal Sheets, Metal Rods and Rails for Railways, and Steel Wire (Int. Cl. 6).

SN 322,774. Murray Corporation, Cockeysville, Md. Filed Mar. 26, 1969.

MURRAY

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hose Clamps; Auto Air Conditioning Parts—Namely, Pressure, Temperature, Expansion, Regulating and Dispensing Valves; Valve Repair Kits, Hose Adapter Fittings Comprising Slicers, Unions, Swivels, Couplings, Connectors of Transparent and Nontransparent Types; Refrigeration, Bulkhead, Compressor and Installation Fittings (Int. Cl. 6).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Auto Air Conditioning Repair Tools—Namely, Seal Installers and Removers; Valve Installers and Removers; Valve Wrenches; Retaining Ring Pliers; Plier Tips; Clutch Removing Bolts; Pulley and Bearing Installers and Removers; Clutch Holding Wrenches and Clutch Brushes and Clutch and Pulley Bearings for Air Conditioners (Int. Cl. 8).

Class 26—Measuring and Scientific Appliances

For Auto Air Conditioning Parts—Namely, Pressure, Compressor and Compound Gauges; Thermometers, Pressure Regulating Testers (Int. Cl. 9).

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For O-Rings, Compressor Gaskets and Shaft Seals (Int. Cl. 17).

First use 1963; July 1, 1932, on hose clamps.

SN 323,618. Juvena Produits de Beauté S.A., Volketswil, Zurich, Switzerland. Filed Apr. 4, 1969.

JUVENESCENCE

Priority claimed under Sec. 44(d) on Swiss Reg. No. 234,426, dated Oct. 4, 1968.

Class 51—Cosmetics and Toilet Preparations

For Skin Creams and Perfumeries (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soaps (Int. Cl. 3).
Subj. to Intf. with SN 321,288.

SN 324,959. The Charles River Breeding Laboratories, Inc., North Wilmington, Mass. Filed Apr. 21, 1969.



Owner of Reg. Nos. 680,956 and 718,756.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

For Containers for Laboratory Animals—Namely, Isolators and Cages (Int. Cl. 18).

Class 46—Foods and Ingredients of Foods

For Foods for Laboratory Animals (Int. Cl. 31).

First use in September 1967.

SN 324,983. Lighting Corporation of America, Philadelphia, Pa. Filed Apr. 21, 1969.

PROGRESS

Owner of Reg. No. 617,160.

Class 21—Electrical Apparatus, Machines, and Supplies

For Lighting Fixtures Operated by Electricity (Int. Cl. 11).
First use December 1932.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Lighting Fixtures Operated by Gas (Int. Cl. 11).
First use Nov. 5, 1968.

SN 326,579. Polychrome Corporation, Yonkers, N.Y. Filed May 7, 1969.



Owner of Reg. Nos. 542,664, 704,376, and others.

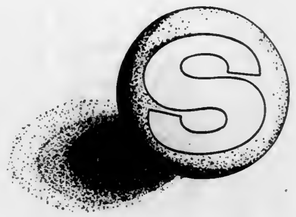
Class 11—Inks and Inking Materials

For Lithographic and Letterpress Inks (Int. Cl. 2).
First use April 1968.

Class 26—Measuring and Scientific Appliances

For Graphic Arts Films—Namely, Light-Sensitive Films for Use in Making Offset Plates, Color Proofs, and Visual Aid (Int. Cl. 1).
First use May 1968.

SN 327,695. Tuthill Pump Company, New Haven, Ind. Filed May 19, 1969.



Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Swivels (Int. Cl. 6).

Class 19—Vehicles

For Steering Linkages (Int. Cl. 12).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Ball Joints, Rods and Rod Ends, and Crank Arms (Int. Cl. 7).

First use Mar. 24, 1969.

SN 328,236. Chrysler Corporation, Highland Park, Mich. Filed May 26, 1969.

INTROL

Class 19—Vehicles

For Vehicle Instrument Panels and Covers (Int. Cl. 12).

Class 26—Measuring and Scientific Appliances

For Fluid Level and Pressure Measuring Appliances and Components—Namely, Fluid Level Sensing Units and Regulators Therefor, and Oil Pressure Sensing Units (Int. Cl. 9).

First use at least as early as Aug. 1, 1968.

SN 330,874. Textron Inc., Providence, R.I. Filed June 25, 1969.

POLARIS

Owner of Reg. Nos. 644,435 and 767,029.

Class 2—Receptacles

For Auxiliary Gas Tanks and Spark Plug Containers (Int. Cl. 12).
First use as early as May 1966.

Class 15—Oils and Greases

For Engine Oil (Int. Cl. 4).

First use as early as May 1967.

Class 16—Protective and Decorative Coatings

For Spray Paint (Int. Cl. 2).
First use as early as May 1964.

Class 19—Vehicles

For Fitted Protective Covers and Saddling Bags for Snowmobiles (Int. Cl. 22).
First use as early as May 1968.

Class 22—Games, Toys, and Sporting Goods

For Sleds for Amusement and Sporting Purposes (Int. Cl. 28).
First use as early as May 1967.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Internal Combustion Engines and Mufflers (Int. Cl. 7).
First use as early as May 1968.

Class 39—Clothing

For Coveralls (Int. Cl. 25).
First use as early as May 1964.

SN 333,372. Ceramics Ltd., Kilrush, Ireland. Filed July 24, 1969.

CELTIC

Class 8—Smokers' Articles, Not Including Tobacco Products

For Ashtrays (Int. Cl. 34).
First use Feb. 11, 1969; in commerce April 8, 1969.

Class 30—Crockery, Earthenware, and Porcelain

For Earthenware—Namely, Dinnerware, Mugs, Vases, Ornamental Boxes and Bowls (Int. Cl. 21).
First use April 1965; in commerce April 1965.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Candlesticks (Int. Cl. 21).
First use Feb. 11, 1969; in commerce April 8, 1969.

SN 334,716. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Aug. 7, 1969.

ANY DAY

Class 44—Dental, Medical, and Surgical Appliances

For Sanitary Napkins (Int. Cl. 5).

Class 51—Cosmetics and Toilet Preparations

For Feminine Hygiene Deodorant (Int. Cl. 5).

First use May 23, 1969.

SN 336,194. Ultrasystems, Inc., Newport Beach, Calif. Filed Aug. 25, 1969.

ultra systems

Class 100—Miscellaneous

For Program Management Services, Systems Engineering Services, and Computer Hardware System Design Services in the Fields of: Missile and Space Technology; Anti-Poverty Support System; Air and Water Pollution Control; Medicine, Specifically Hospital Planning; Transportation; Education; and Housing and Urban Development (Int. Cl. 42).

Class 101—Advertising and Business

For Computer Program Services (Int. Cl. 35).

First use Feb. 10, 1969.

SN 337,313. Inca Metal Products Corporation, Carrollton, Tex. Filed Sept. 8, 1969.

INCA-MATIC

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Metal Clips (Int. Cl. 6).

Class 32—Furniture and Upholstery

For Metal Clip-Type Adjustable Shelving and Shelf Hardware Sold as a Unit (Int. Cl. 20).

First use on or about Sept. 1, 1969.

SN 338,654. Lister & Company Limited, Bradford, England. Filed Sept. 23, 1969.

MINQUILLA

Owner of British Reg. No. 750,211, dated Jan. 23, 1956.

Class 39—Clothing

For Men's and Ladies' Coats (Int. Cl. 25).
First use 1958; in commerce April 1969.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Cotton, Rayon, Silk, Acrylic, Mod-Acrylic or Polyester, Polymide or Other Textile Fibers for Textile Piece Goods for Making Articles of Clothing—Namely, Men's and Ladies' Coats, and Linings and Trimmings Therefor (Int. Cl. 24).
First use 1958; in commerce Sept. 21, 1965.

SN 338,707. Learning Systems Corporation, Hamden, Conn. Filed Sept. 24, 1969.

MINISYSTEM

Class 36—Musical Instruments and Supplies

For Prerecorded Audio Magnetic Tapes for Educational Purposes (Int. Cl. 9).

Class 38—Prints and Publications

For Booklets, Instruction Books, Guide Books and Workbooks for Educational Purposes (Int. Cl. 16).

First use on or about Jan. 18, 1969.

SN 338,834. Leatherwood Manufacturing Co., Inc., Clarksville, Tenn. Filed Sept. 25, 1969.



Class 2—Receptacles

For Boating Boxes for Tools (Int. Cl. 6).
First use during August 1969.

Class 14—Metals and Metal Castings and Forgings

For Boat Anchors for Skillet Weights To Hold Skillets in Place on Boats (Int. Cl. 6).
First use during August 1968.

Class 19—Vehicles

For Oars, Paddles, Boarding Ladders and Boat Hooks (Int. Cl. 12).
First use during September 1953.

Class 22—Games, Toys, and Sporting Goods

For Tackle Boxes, Fish Baskets, Fishing Poles, and Fish and Game Holders (Int. Cl. 28).
First use during August 1967.

SN 339,268. Charlen, Inc., Chicago, Heights, Ill. Filed Sept. 30, 1969.



Class 38—Prints and Publications

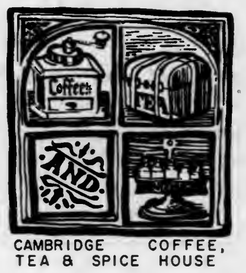
For Booklets and Pamphlets Dealing With Bridal Information (Int. Cl. 16).

Class 101—Advertising and Business

For Formulating and Advertising Programs for Merchants (Int. Cl. 35).

First use on or before Mar. 1, 1969.

SN 339,497. Cambridge Coffee, Tea & Spice House, Inc., Allston, Mass. Filed Oct. 2, 1969.



Class 37—Paper and Stationery

For Packaging Material—Namely, Labels Which Are Not Fully Printed, Such as Address Labels, Wrapping Paper, and Paper Merchandise Envelopes (Int. Cl. 16).

Class 38—Prints and Publications

For Fully Printed Labels (Int. Cl. 16).

First use November 1965.

SN 340,292. Takiron Kagagu Kabushiki Kaisha (Takiron Chemical Co., Ltd.), Higashi-ku, Osaka-shi, Osaka-fu, Japan. Filed Oct. 9, 1969.



The mark is a fanciful representation of a twisted and distorted loop of flat tape. Owner of Japanese Reg. Nos. 615,015, 631,111, 649,095, and 798,523, dated May 28, 1963, Dec. 6, 1963, July 31, 1964, and Nov. 27, 1968, respectively.

Class 12—Construction Materials

For Plastic Plate for Commercial and Industrial Use, Plastic Corrugated Panel (Int. Cl. 19).

Class 14—Metals and Metal Castings and Forgings

For Plastic Coated Steel Sheet, and Plastic Coated Iron Wire for General Use (Int. Cl. 6).

SN 340,511. Chamberlain Manufacturing Corporation, d.b.a. Perma-Power Company, Chicago, Ill. Filed Oct. 13, 1969.



Class 21—Electrical Apparatus, Machines, and Supplies

For Public Address Systems and Parts Thereof; and Electronic Lecterns and Parts Thereof (Int. Cl. 9).

Class 36—Musical Instruments and Supplies

For Audio Learning Devices and Teaching Aids—Namely, Transcription Players, Phonograph Record Players, Magnetic Tape Recording Units and Tape Playback Units, Cassette Recorder/Player Units, Combination Record-Cassette Units for Recording and Playback, and Parts Thereof (Int. Cl. 9).

First use March 1969.

SN 343,619. Xerographic Copy Service, Inc., Rochester, N.Y. Filed Nov. 17, 1969.

XCS

Class 4—Abrasives and Polishing Materials

For Dust Cloths Impregnated With a Polishing Solution (Int. Cl. 21).
First use Aug. 10, 1969.

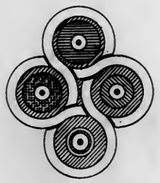
Class 6—Chemicals and Chemical Compositions

For Toner for Copying Machine (Int. Cl. 16).
First use Nov. 10, 1969.

Class 52—Detergents and Soaps

For Cleaning Preparation for Use on Office Furniture and Equipment, and Type and Machine Cleaner (Int. Cl. 3).
First use Aug. 10, 1969.

SN 344,045. Clairol Incorporated, New York, N.Y. Filed Nov. 20, 1969.



The drawing is lined for the colors brown, blue, green and yellow, but colors are not claimed as features of the mark.

Class 44—Dental, Medical, and Surgical Appliances

For Electrical Apparatus for Heating Hair Curlers Used for Curling, Drying and Setting Hair, and Hair Curlers for Use With Such Apparatus (Int. Cl. 11).

Class 51—Cosmetics and Toilet Preparations

For Hair Setting Mist (Int. Cl. 3).

First use Sept. 15, 1969.

SN 344,783. Harper & Row, Publishers, Inc., New York, N.Y. Filed Nov. 28, 1969.

HARPER & ROW

Owner of Reg. Nos. 638,797, 799,910 and others.

Class 36—Musical Instruments and Supplies

For Phonograph Records and Pre-Recorded Magnetic Tapes (Int. Cl. 9).

Class 38—Prints and Publications

For Books, Magazines and Educational Instructional and Illustrative Materials—Namely, Projectible Transparencies, Film Strips, Endless Film Loops, Story Cards and Charts (Int. Cls. 9 and 16).

First use Apr. 1, 1962.

SN 345,823. Hitachi Sales Corporation of America, Long Island City, N.Y. Filed Dec. 10, 1969.

MAXI-FI

Class 21—Electrical Apparatus, Machines, and Supplies

For Tuners, Amplifiers, Speakers, Radio Receivers, Headphones, and Microphones (Int. Cl. 9).
First use Oct. 7, 1969.

Class 36—Musical Instruments and Supplies

For Tape Recorders and Phonograph Record Players (Int. Cl. 9).
First use Oct. 21, 1969.

SN 346,678. Mason Marking Systems Corporation, Norfolk, Va. Filed Dec. 19, 1969.

MASON

Class 11—Inks and Inking Materials

For Marking and Duplicating Ink (Int. Cl. 16).
First use on or about Dec. 1, 1969.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Duplicating and Marking Handstamps (Int. Cl. 8).
First use on or about Dec. 3, 1969.

Class 37—Paper and Stationery

For Stencils (Int. Cl. 16).
First use on or about Nov. 26, 1969.

SN 346,821. H. G. Treacher Co., Fullerton, Calif. Filed Dec. 22, 1969.

TREAT

Class 22—Games, Toys, and Sporting Goods

For Postage Stamp Kits Comprising Albums, Postage Stamps and Mounting Hinges (Int. Cl. 16).
First use November 1967.

Class 38—Prints and Publications

For Postage Stamp Packets, Collections, Albums, and Posters (Int. Cl. 16).
First use on or about June 24, 1964.

SN 349,045. United Steel and Wire Company, Battle Creek, Mich. Filed Jan. 20, 1970.

O.T.C.

Class 19—Vehicles

For Merchandise Holding Carts (Int. Cl. 12).
First use Sept. 20, 1969.

Class 32—Furniture and Upholstery

For Checkout Counters (Int. Cl. 20).
First use Oct. 20, 1969.

SN 349,248. Avon Products, Inc., New York, N.Y. Filed Jan. 22, 1970.

MANIHIKI

"Manihiki" is the name of an island in the South Seas.

Class 51—Cosmetics and Toilet Preparations

For After Shave Lotion and Talcum Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Dec. 30, 1969.

SN 354,049. Clairol Incorporated, New York, N.Y. Filed Mar. 16, 1970.

THE BEAUTIFUL DIFFERENCE

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing and Coloring Preparations, Hair Lightener, Hair Conditioner, Hair Setting Lotion, and Hair Spray (Int. Cl. 3).

Class 52—Detergents and Soaps

For Hair Shampoo (Int. Cl. 3).

First use Feb. 26, 1970.

SN 358,253. Sico Incorporated, Minneapolis, Minn. Filed Apr. 29, 1970.

SICO

Owner of Reg. Nos. 578,824 and 748,458.

Class 12—Construction Materials

For Portable Floors (Int. Cl. 19).
First use at least as early as June 1965.

Class 32—Furniture and Upholstery

For Beds That Fold Upwardly Into Wall Enclosures (Int. Cl. 20).
First use at least as early as Apr. 10, 1970.

SN 361,432. Busy Beaver Building Centers, Inc., Clairton, Pa. Filed June 2, 1970.



Class 101—Advertising and Business

For Retail Lumber and Hardware Store Services (Int. Cl. 35).
First use at least as early as Apr. 25, 1962.

Class 103—Construction and Repair

For Remodeling Construction Services (Int. Cl. 37).
First use at least as early as Feb. 17, 1963.

SN 361,641. Estamar Jewelry Creations, Inc., New York, N.Y. Filed June 4, 1970.

SAVERILLE

Class 27—Horological Instruments

For Watches and Watch Movements (Int. Cl. 14).

Class 28—Jewelry and Precious-Metal Ware

For Rings With and Without Precious Stones, Bracelets, and Watch Bands (Int. Cl. 14).

First use May 26, 1970.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.
A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 319,355. Pennsylvania Christmas Tree Growers' Association, Fombell, Pa. Filed Feb. 17, 1969.

PENN-SYLVAN

For Christmas Trees, Ornamental Trees, Tree Cones, Clones, Seedlings, Transplants, Cuttings, and Nursery Stock in General (Int. Cl. 31).
First use Oct. 29, 1968.

SN 321,305. Vistron Corporation, Cleveland, Ohio. Filed Mar. 10, 1969.

SILMAR

For Polyester Resins (Int. Cl. 1).
First use in or about April 1962.

SN 345,587. Atkins & Durbrow, Inc., d.b.a. Trans-Continental Peat Moss Company, Port Colborne, Ontario, Canada. Filed Dec. 8, 1969.

PIONEER

For Peat Moss for General Use, Specifically for Use as a Soil Conditioner and Mulch, and for Use as a Stable-Bedding, Poultry Litter, and Packing Material (Int. Cl. 31).
First use Dec. 6, 1928, on poultry litter; in commerce Dec. 6, 1928.

SN 355,983. Nalco Chemical Company, Chicago, Ill. Filed Apr. 6, 1970.

CRYOCAST

For Colloidal Silica Based Binders and Refractory Grains for Foundry Use (Int. Cl. 1).
First use Feb. 24, 1970.

SN 367,113. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Aug. 5, 1970.

3M

For Imitation Leather (Int. Cl. 18).
First use Oct. 29, 1968.

Class 2—Receptades

SN 329,336. CTP Industries Inc., Brooklyn, N.Y. Filed June 6, 1969.

PIK-N-CARY

For Thermoplastic Bags (Int. Cl. 21).
First use May 8, 1969.

SN 330,775. Edwin Raphael Company, Inc., Holland, Mich. Filed June 23, 1969.

FABRI FILE

For Storage and Display Box for Fabric Samples (Int. Cl. 20).
First use on or about May 1, 1967.

SN 337,148. Boise Cascade Corporation, Boise, Idaho. Filed Sept. 5, 1969.

4 plus 4

For Corrugated Cardboard Blanks and Reinforced Corrugated Cardboard Cartons (Int. Cl. 16).
First use July 30, 1969.

SN 341,795. Crest Container Corporation, Fort Worth, Tex. Filed Oct. 27, 1969.

CRESCUP

For Plastic Drinking Cups (Int. Cl. 21).
First use Oct. 6, 1969.

SN 342,092. Weblomac, Inc., Berkeley, Ill. Filed Oct. 29, 1969.

BIG MOUTH BAG HOLDER

Without waiving any common law rights, applicant disclaims the words "Bag Holder" except as used in the mark.
For Frames for Retaining Large Bags in an Upright, Open Position (Int. Cl. 20).
First use Oct. 10, 1969.

SN 346,235. Fusion Rubbermaid Corporation, Statesville, N.C. Filed Dec. 15, 1969.

FUSION

Owner of Reg. Nos. 637,038, 766,950, and others.
For Baskets, Boxes, Bins, Tanks, Cans, Hoppers, Pans and Barrels of Molded Plastic and Fibrous Materials (Int. Cl. 21).
First use Feb. 21, 1969.

SN 353,039. Coulter Diagnostics, Inc., Hialeah, Fla. Filed Mar. 4, 1970.

ACCUVETTE

For Plastic Sample Vials for Use With Coulter Electronic Particle Analyzing Apparatus (Int. Cl. 21).
First use Aug. 18, 1969.

SN 354,640. Keyes Fibre Company, Waterville, Maine. Filed Mar. 19, 1970.

PROTECTOR

Owner of Reg. No. 786,560.
For Molded Cartons for Fragile Articles (Int. Cl. 16).
First use Dec. 3, 1963.

SN 355,937. Climax Manufacturing Company, Castorland, N.Y. Filed Apr. 3, 1970.

For Boxes and Cartons (Int. Cl. 16).
First use at least as early as 1910.

SN 356,596. The American Oil Company, Chicago, Ill. Filed Apr. 13, 1970.

AMOCO

Owner of Reg. Nos. 167,769, 730,612, and others.
For Plastic Housewares—Namely, Food Containers, Trays and Bins; Cups, Tumblers, Bowls, Plates, Dishes, and Salt and Pepper Shakers; Hampers and Baskets; Buckets, Bottles, Jars and Canisters; Insulated Jugs, Decanters and Cooler Chests; Tissue Dispensers; Dishpans; Waste-Baskets and Refuse Containers; Trays for Sewing Accessories, Tools and Cutlery (Int. Cl. 21).
First use Oct. 29, 1969.

SN 358,040. Liberty Plastics & Metals Co., Louisville, Ky. Filed Apr. 27, 1970.

L P M

For Bins, Hoppers and Tanks (Int. Cl. 6).
First use May 1, 1966.

SN 362,204. Zayre Corp., Natick, Mass. Filed June 10, 1970.

ZAYRE

For Drinking Cups Made of Plastic (Int. Cl. 21).
First use at least as early as January 1968.

SN 362,277. P. Puchkoff & Sons, Inc., Brooklyn, N.Y. Filed June 10, 1970.

THE Plastic Man

The word "Plastic" is disclaimed separate and apart from the mark as shown.
For Plastic Shopping Bags (Int. Cl. 20).
First use May 29, 1970.

SN 363,635. Robert W. Butler, d.b.a. The Brad Company, Ulysses, Kans. Filed June 25, 1970.

FLUITE

For Sealable Plastic Bag for Packaging Liquids and Transporting (e.g., Mailing) and Storing Tissue Specimens in Liquids for Medical Purposes (Int. Cl. 20).
First use Feb. 11, 1970.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 304,606. Tom Jones, Inc., New York, N.Y. Filed Aug. 7, 1968.

T. JONES

The mark "T. Jones" is fanciful.
For Handbags (Int. Cl. 18).
First use Mar. 4, 1965.

SN 325,738. Evans-Aristocrat Industries, Inc., Elizabeth, N.J. Filed Apr. 28, 1969.

CORFLEX

For Wallets and Clutch Bags (Int. Cl. 18).
First use Mar. 23, 1969.

SN 328,433. Lumured Plastics Corp., Woodbridge, N.J. Filed May 27, 1969.

Sculpta Bead

The word "Bead" is disclaimed apart from the mark as shown. Owner of Reg. No. 776,832.
For Beaded Handbags (Int. Cl. 18).
First use Apr. 1, 1969.

SN 333,846. Port-A-Hut, Inc., Storm Lake, Iowa. Filed July 29, 1969.

PORT-A-HUT

For Portable Pig Shelters (Int. Cl. 19).
First use Mar. 13, 1964.

Class 4—Abrasives and Polishing Materials

SN 278,389. Kem Manufacturing Corporation, Tucker, Ga. Filed Aug. 16, 1967.

KEM

Owner of Reg. Nos. 565,956, 746,093, and 794,638.
For Liquid and Paste Floor Wax, Dance Floor Wax in Powder Form, Furniture Polish, Cleansing Powder, Glass Polish, and Metal Polish (Int. Cl. 3).
First use 1953.

SN 333,739. Carlyle F. Molitor and James A. Shirley (partnership), d.b.a. Sure Brite Products Co., Orlando, Fla. Filed July 28, 1969.

SURE BRITE

For Polishing and Wax Preparations for Automobiles and Boats, and Combination Polishing and Cleaning Preparations for Automobiles (Int. Cl. 3).
First use June 1, 1969.

Class 6—Chemicals and Chemical Compositions

SN 284,019. Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan. Filed Nov. 2, 1967.

KHK

Priority claimed under Sec. 44(d) on Japanese application filed July 24, 1967; Reg. No. 816,463, dated May 12, 1969.
For Solvents, Plasticizers, and Froth Flotation Agents (Int. Cl. 1).

SN 314,550. The Southland Corporation, Dallas, Tex. by merger from Gristede Bros., Inc., New York, N.Y. Filed Dec. 16, 1968.

GRISTEDE'S

Owner of Reg. Nos. 798,866, 811,903, and others.
For Ammonia (Int. Cl. 3).
First use May 27, 1964.

SN 328,450. Sel-Rex Corporation, Nutley, N.J. Filed May 27, 1969.

HSR

For Photosensitive Polymers Resistant to Attack by Plating Chemicals (Int. Cl. 1).
First use Apr. 7, 1969.

SN 329,534. Chas. S. Tanner Co., Warwick, R.I. Filed June 9, 1969.

POLYSENE

For Chemical Sequestering Agent and Chelating Agent for Use on Textiles (Int. Cl. 1).
First use in or about Jan. 1, 1957.

SN 332,030. Chemtrust Industries, Corp., Maywood, Ill. Filed July 8, 1969.

STRAFE

For Insecticide (Int. Cl. 5).
First use Feb. 16, 1963.

SN 332,031. Chemtrust Industries Corp., Maywood, Ill. Filed July 8, 1969.

NEGATE

For Selective Weed Killer for Fine Turf Grasses (Int. Cl. 5).
First use Jan. 15, 1968.

SN 332,456. CPC International Inc., Englewood Cliffs, N.J. Filed July 14, 1969.

AMISET

For Starch Preparations for Paper Coating Purposes (Int. Cl. 1).
First use at least as early as May 24, 1968.
Subj. to Intf. with SN 339,111.

SN 333,094. The Clorox Company, Oakland, Calif. Filed July 22, 1969.

BLUOX

For Bleaching Composition With Antiseptic, Germicidal and Cleansing Properties (Int. Cl. 3).
First use May 5, 1969.

SN 333,095. The Clorox Company, Oakland, Calif. Filed July 22, 1969.

SNO BLU

For Bleaching Composition With Antiseptic, Germicidal and Cleansing Properties (Int. Cl. 3).
First use May 5, 1969.

SN 334,455. CPC International Inc., Englewood Cliffs, N.J. Filed Aug. 5, 1969.

CUTLAS

For Modified Starches for Use in the Textile Industry (Int. Cl. 1).
First use at least as early as May 18, 1964.
Subj. to Intf. with SN 345,623.

SN 339,222. Procida, Marseille, France. Filed Sept. 29, 1969.

PIROR

Owner of French Reg. No. 720,856, dated Sept. 20, 1966.
For Chemical Products—Namely, Biocides Useful in Paper-Making (Int. Cl. 5).

SN 339,527. American Cyanamid Company, Wayne, N.J. Filed Oct. 2, 1969.

CYPRES

Owner of Reg. Nos. 627,578 and 736,600.
For Surface Sizing of Rosin for Use in the Paper Industry (Int. Cl. 1).
First use May 2, 1969.

SN 340,305. Airwick Industries, Inc., Carlstadt, N.J. Filed Oct. 7, 1969.



For Odor Counteractant (Int. Cl. 5).
First use June 11, 1966.

SN 341,610. Airwick Industries, Inc., Carlstadt, N.J. Filed Oct. 24, 1969.



For Odor Counteractant (Int. Cl. 5).
First use June 11, 1966.

SN 342,050. Interport Trading Company, Los Angeles, Calif. Filed Oct. 29, 1969.

MAHARANI

For Incense (in All Forms, Sticks, Cakes, Cones, Logs, Liquids, etc.) (Int. Cl. 3).
First use Mar. 1, 1968.

SN 342,090. R. T. Vanderbilt Company, Inc., New York, N.Y. Filed Oct. 29, 1969.

VANAMINE

Owner of Reg. No. 838,147.
For Curing Agent for Epoxy Resin (Int. Cl. 1).
First use July 29, 1969.

SN 342,989. Mandoval Limited, London, England. Filed Nov. 7, 1969.

MANDOMIX

Priority claimed under Sec. 44(d) on British Reg. Nos. 945,726 and 945,727, dated July 16, 1969.
For Mixture of Slip Increasing Chemicals and Vermiculite Used as an Additive in Protective and Other Coating Materials (Int. Cl. 1).

SN 343,147. Marlenn Products Company, Inc., Baltimore, Md. Filed Nov. 10, 1969.

Mr. Teenie Weenie

For Air Fresheners (Int. Cl. 5).
First use Aug. 25, 1969.

SN 344,535. Baxter Laboratories, Inc., Morton Grove, Ill. Filed Nov. 25, 1969.

MONO-FLEX

For Flexible Plastic Mesh Impregnated With Agar Merium for Laboratory Use (Int. Cl. 1).
First use Aug. 13, 1969.

SN 345,799. Coastal Industries, Inc., d.b.a. Coastal Chemical Corp., Carlstadt, N.J. Filed Dec. 10, 1969.

COASTAL CAL JET

Owner of Reg. No. 749,993.
For Algaecide for Use in Swimming and Wading Pools (Int. Cl. 5).
First use Mar. 4, 1957.

SN 346,818. Ortho Pharmaceutical Corporation, d.b.a. Ortho Diagnostics, Raritan, N.J. Filed Dec. 22, 1969.

RARIGEN

For Reagent Red Blood Cells To Identify Antibodies in the Blood for Use in Laboratories and Clinics (Int. Cl. 1).
First use Nov. 4, 1969.

SN 347,875. American Hospital Supply Corporation, Evanston, Ill. Filed Jan. 7, 1970.

CH-35

For Diagnostic Reagent for Laboratory Use for the Purpose of Determining Red and White Blood Cell Counts and for Hemoglobin and Hematocrit Analysis (Int. Cl. 1).
First use on or before Nov. 10, 1969.

SN 348,647. Cagle Associates, Inc., Atlanta, Ga. Filed Jan. 15, 1970.

CHEMBLOCK

For Compound for Treatment of Cooling Water To Prevent Scale and Corrosion in Cooling Towers and Evaporative Condensers (Int. Cl. 1).
First use at least as early as Apr. 13, 1967.

SN 348,875. Arkansas Company, Inc., Newark, N.J. Filed Jan. 19, 1970.

CARBOPEN

For Wetting Agent With Detergent Properties (Int. Cl. 1).
First use Apr. 2, 1969.

SN 349,057. Albright & Wilson Limited, Birmingham, England. Filed Jan. 20, 1970.

CORINAC

For Anti-Corrosives for Use as Additives to Paints and Varnishes, and for Preservatives Against Rust (Int. Cl. 2).
First use Oct. 4, 1968; in commerce Oct. 4, 1968.

SN 349,923. Lever Brothers Company, New York, N.Y. Filed Jan. 29, 1970.

BREEZE

Owner of Reg. Nos. 332,021 and 831,605.
For Room Deodorant (Int. Cl. 5).
First use Jan. 16, 1970.

SN 351,401. Aladdin Industries, Incorporated, Chicago, Ill. Filed Feb. 16, 1970.

FRESH-UP

For Activated Charcoal Crystals Used as Refrigerator and Household Deodorizers (Int. Cl. 5).
First use on or about Oct. 13, 1969.

SN 351,495. Roderick McNair, d.b.a. Marinadox, Long Beach, Calif. Filed Feb. 16, 1970.

Marinadox

For Preparation for Purifying, Disinfecting, and Deodorizing Water (Int. Cl. 5).
First use Jan. 22, 1969.

SN 352,116. Farbenfabriken Bayer Aktiengesellschaft Leverkusen-Bayerwerk, Germany. Filed Feb. 24, 1970.

OPTUNAL

Owner of German Reg. No. 826,035, dated Sept. 2, 1965.
For Preparations for Killing Weeds and Destroying Vermin, Insecticides, Pesticides, Rodenticides, Herbicides, and Fungicides (Int. Cl. 5).

SN 355,195. Armour-Dial, Inc., Chicago, Ill. Filed Mar. 27, 1970.

ARMOSOL

For Fabric Softening Chemical (Int. Cl. 3).
First use on or prior to Jan. 24, 1962.

SN 355,218. Ferro Corporation, Cleveland, Ohio. Filed Mar. 27, 1970.

HIOTROL

Owner of Reg. Nos. 839,400 and 839,401.
For Commercial and Residential Agents for the Control and Reduction of Odors Associated With Latrines, Toilets, Lavatories, Locker and Shower Rooms, Kennels, Livestock Pens, Industrial Malodors, Sewage Wastes, Garbage, Land Fills and Lagoons (Int. Cl. 5).
First use on or about Feb. 13, 1970.

SN 355,333. Animal Repellants, Inc., Buffalo, N.Y. Filed Mar. 30, 1970.

TACK TRAP

For Chemical Composition for Trapping Insects (Int. Cl. 5).
First use on or about Feb. 16, 1970.

SN 355,371. Edwal Scientific Products Corporation, Chicago, Ill. Filed Mar. 30, 1970.

HV

For Lithographic Developer (Int. Cl. 1).
First use October 1966.

SN 355,460. Sun Oil Company, Philadelphia, Pa. Filed Mar. 30, 1970.

SOLGAS

For Liquified Petroleum Gas (Int. Cl. 4).
First use Aug. 24, 1934.

SN 355,703. Becton, Dickinson and Company, East Rutherford, N.J. Filed Apr. 2, 1970.

FIBROPLASTIN

For Laboratory Diagnostic Reagent for Use in Blood Coagulation Testing (Int. Cl. 1).
First use Oct. 22, 1968.

SN 356,051. Diamond Crystal Salt Company, St. Clair, Mich. Filed Apr. 6, 1970.

CAL-CHECK

For Rock Salt (Int. Cl. 1).
First use Mar. 6, 1970.

SN 366,101. Eli Lilly and Company, Indianapolis, Ind. Filed July 24, 1970.

PAARLAN

For Herbicide for Control of Weeds in Transplant Tobacco (Int. Cl. 5).
First use June 25, 1970.

SN 366,238. Allin Manufacturing Co., Inc., Skokie, Ill. Filed July 27, 1970.

FLO

For Chemical Dehydrant Additive Specifically for Refrigerants (Int. Cl. 1).
First use December 1949.

SN 366,273. The Upjohn Company, Kalamazoo, Mich. Filed July 27, 1970.

TGF

For Fungicide for Plants (Int. Cl. 5).
First use May 11, 1970.

SN 366,274. The Upjohn Company, Kalamazoo, Mich. Filed July 27, 1970.

ACTI-DIONE TGF

Owner of Reg. Nos. 435,146, 700,328, and others.
For Fungicide for Plants (Int. Cl. 5).
First use May 11, 1970.

SN 366,612. Continental Carbon Company, Houston, Tex. Filed July 30, 1970.



For Carbon Black (Int. Cl. 1).
First use on or about May 12, 1970.

Class 7 — Cordage

SN 309,128. Universal Wire Products, Inc., North Haven, Conn. Filed Oct. 7, 1968.



Applicant disclaims the representation of the wire rope apart from the mark as shown, without abandoning any common law rights. Mark consists of a black strand of one of the helical strands of the wire rope.
For Wire Rope (Int. Cl. 6).
First use April 1954.

SN 330,839. MacWhyte Company, Kenosha, Wis. Filed June 24, 1969.

SUPER-7

For Wire Rope (Int. Cl. 6).
First use Sept. 22, 1967.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 350,270. Interstate Safety Company, d.b.a. Interstate Security Systems, El Centro, Calif. Filed Feb. 2, 1970.

CEE-ESS

For Canisters Containing Orthochlorobenzalmalononitrile Tear Gas (Int. Cl. 13).
First use July 31, 1969.

Class 12 — Construction Materials

SN 299,583. Parkside Distributing Co. Inc. of New Jersey, d.b.a. Esther Williams All Aluminum Swimming Pool Company, Delair, N.J. Filed June 3, 1968.

ESTHER WILLIAMS

"Esther Williams" is the name of a living individual, whose consent is of record.
For Swimming Pools and Parts Thereof and Equipment Therefor, All Sold as a Unit (Int. Cl. 19).
First use Mar. 20, 1968.

SN 331,250. Technological Laboratories, Inc., Ozark, Mo. Filed June 27, 1969.



For Heavy Duty Floor and Wall Coating Which May be Applied by Trowelling or Other Means (Int. Cl. 19).
First use Mar. 8, 1968.

SN 334,991. Conger Industries, Inc., Green Bay, Wis. Filed Aug. 11, 1969.



For Railroad and Truck Dock Shelters for Providing Weather-Tight Seals While Loading and Unloading Cargo (Int. Cl. 19).
First use Sept. 9, 1967.

SN 339,836. Bolen International, Inc., Niles, Ill. Filed Oct. 6, 1969.

ADROX

Owner of Reg. Nos. 809,127 and 809,465.
For Simulated Stone and Masonry Panels for Covering Building Walls (Int. Cl. 19).
First use Sept. 24, 1969.

SN 344,368. General Products Company Incorporated, Fredericksburg, Va. Filed Nov. 24, 1969.

CHATEAU

For Doors for Buildings (Int. Cl. 19).
First use at least as early as Sept. 5, 1969.

SN 351,957. G. J. Miller Mfg. Co., Dubuque, Iowa. Filed Feb. 20, 1970.



For Self-Operating Doors for Domesticated Animals (Int. Cl. 19).
First use Mar. 16, 1964.

SN 353,501. Johns-Manville Corporation, New York, N.Y. Filed Mar. 9, 1970.

PSS

For Dry Adhesive Adapted To Be Preapplied to a Surface Such as a Jacket Lap and Butt Strip of Pipe Insulation; and a Solvent Activator To Make the Adhesive Tacky and Ready for Sealing (Int. Cl. 19).
First use at least on or about Sept. 24, 1969.

SN 356,586. The Robson Corporation, New York, N.Y. Filed Apr. 13, 1970.

BON-LASTIC

For Elastomeric Polyurethanes Used for Bonding in the Construction Industry (Int. Cl. 19).
First use on or before July 15, 1969.

SN 356,773. Swiss Laboratory, Inc., Bedford Heights, Ohio. Filed Apr. 13, 1970.

WHITE COMET

For Plastic Flexible Mender for Repairing and Sealing Materials for Industrial, Railroad, Aircraft, and Marine Applications as Well as Putty (Int. Cl. 19).
First use Apr. 23, 1964.

SN 360,048. Electro/Systems, Inc., Richmond, Calif. Filed May 18, 1970.

MULTI-WALL

For Prefabricated Walls and Parts Therefor (Int. Cl. 19).
First use Mar. 31, 1969.

SN 360,235. Lake Chemical Company, Chicago, Ill. Filed May 19, 1970.

NIK-STIK

For Composition for Filling in Nicks and Scratches on Surfaces (Int. Cl. 19).
First use on or about Apr. 24, 1970.

SN 360,529. Andersen Corporation, Bayport, Minn. Filed May 22, 1970.

NARROLINE

For Windows (Int. Cl. 19).
First use January 1930.

SN 367,529. Dub-L-Kleen Chemical Corporation, College Point, N.Y. Filed Aug. 10, 1970.

DUB-L-PATCH

For Floor Patching Compositions for Filling Holes in Concrete and Asphalt Surfaces (Int. Cl. 19).
First use Apr. 30, 1970.

SN 367,912. Penn-Dixie Cement Corporation, New York, N.Y. Filed Aug. 13, 1970.

P.D.Q.-100

Owner of Reg. No. 268,017.
For Portland Cement (Int. Cl. 19).
First use on or about July 8, 1970.

SN 367,918. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

ADOBE

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use in or about March 1967.

SN 367,919. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

BELMORE

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use on or about June 17, 1970.

SN 367,921. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

BUTCHERBLOC

For Lumber, Wood and Wood Fiber Products Used in the Construction, Building, Industrial and Furniture Fields, i.e., Panels and Flexible Veneers for Walls, Doors, and Partitions (Int. Cl. 19).
First use on or about Aug. 2, 1968.

SN 367,922. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

COLLAGE

For Lumber, Wood and Wood Fiber Products Used in the Construction, Building, Industrial and Furniture Fields, i.e., Panels for Walls, Doors, and Partitions (Int. Cl. 19).
First use in or about November 1969.

SN 367,925. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

ESTATE

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use on or about June 17, 1970.

SN 367,926. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

MORNINGSIDE

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use on or about June 17, 1970.

SN 367,929. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

TUNBRIDGE

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use on or about June 17, 1970.

SN 367,930. U.S. Plywood-Champion Papers Inc., New York, N.Y. Filed Aug. 13, 1970.

YONDERHILL

For Plywood, Wood, and Wood Fiber Products in the Construction, Building, Industrial, and Furniture Fields, i.e., Panels for Walls, Partitions, and Furniture (Int. Cl. 19).
First use on or about June 17, 1970.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 327,775. Modulus Corporation, Mount Pleasant, Pa. Filed May 20, 1969.

MODULUS

For Fasteners; Parts Thereof; Related Goods—Namely, Cotter Pins, Threaded Rods, Keys, Pins, Studs, Plugs, Washers, Set Screws, Rivets, Anchors; and Metal Shaped Parts—Namely, Clamps, Valve Stems, Hooks, Hanger Straps, and Collars (Int. Cl. 6).
First use Mar. 13, 1969.

SN 334,559. Continental Plastics Industries, Inc., Denver, Colo. Filed Aug. 6, 1969.

CPI

For Extruded Plastic Pipe, Profile and Fittings (Int. Cl. 17).
First use Apr. 1, 1963.

SN 340,097. Ideal Security Hardware Corporation, St. Paul, Minn. Filed Oct. 8, 1969.

IDEAL SECURITY

Owner of Reg. No. 747,796.
For Builders' Hardware—Namely, Hardware for Doors, Windows and Screens, Cabinet Hardware, Shelf Hardware, and Closet Hardware (Int. Cl. 6).
First use in or before October 1967.

SN 340,098. Ideal Security Hardware Corporation, St. Paul, Minn. Filed Oct. 8, 1969.

Ideal

Owner of Reg. No. 747,796.
For Builders' Hardware—Namely, Hardware for Doors, Windows and Screens, Cabinet Hardware, Shelf Hardware, and Closet Hardware (Int. Cl. 6).
First use in or before October 1967.

SN 346,937. Monogram Industries, Inc., Los Angeles, Calif. Filed Dec. 22, 1969.

MINI-MONOMATIC

Owner of Reg. No. 878,499.
For Toilet Systems—Namely, Self-Contained Toilet Systems (Int. Cl. 11).
First use June 20, 1969.

SN 356,137. Mildred Rabinowitz, Houston, Tex. Filed Apr. 6, 1970.

SOCK MATES

For Sock Clip Which Holds a Pair of Socks Together When Stored in a Drawer, or Placed in a Washing Machine or Clothes Drier (Int. Cl. 17).
First use February 1970.

SN 360,514. Ideal Security Hardware Corporation, St. Paul, Minn. Filed May 22, 1970.

BURGLAR BAFFLERS

For Door Hardware—Namely, Door Locks, Latches and Chains, and Stands or Display Units for Merchandising the Same (Int. Cl. 6).
First use on or before Dec. 22, 1969.

SN 363,576. SLM-Jetran, Inc., Perth Amboy, N.J. Filed June 24, 1970.

JETRAN

For Rollable and Foldable Plastic Tubing (Int. Cl. 17).
First use Feb. 3, 1967.

Class 14—Metals and Metal Castings and Forgings

SN 358,087. Reading Alloys, Inc., Robesonia, Pa. Filed Apr. 27, 1970.

READING ALLOYS

Applicant disclaims "Alloys" apart from the mark as a whole. Owner of Reg. No. 779,210.
For Alloys (Int. Cl. 6).
First use July 1, 1963.

Class 15—Oils and Greases

SN 364,182. Cheker Oil Company, South Chicago Heights, Ill. Filed July 2, 1970.



The drawing is lined for the colors red and blue.
For Gasoline, Motor Oil and Transmission Oil (Int. Cl. 4).
First use in or about August 1967.

SN 366,840. Garry Laboratories, Inc., Tonawanda, N.Y. Filed Aug. 3, 1970.

GOLDPLATE

For Automotive Oil Additive (Int. Cl. 1).
First use about June 8, 1970.

Class 16—Protective and Decorative Coatings

SN 329,290. Supro Corporation, Pomona, Calif. Filed June 5, 1969.

SUPRO

For Paints—Namely, Exterior Vinyl Paint, Interior Paints, and Enamels (Int. Cl. 2).
First use Nov. 4, 1966.

SN 329,702. The Dexter Corporation, Windsor Locks, Conn. Filed June 11, 1969.

DEXSTAR

For Protective and Decorative Coatings in the Nature of Paint Suitable for Coil Coating (Int. Cl. 2).
First use Feb. 1, 1969.

SN 345,494. Pratt & Lambert-Inc., Buffalo, N.Y. Filed Dec. 5, 1969.

PRO-HIDE

For Paints (Int. Cl. 2).
First use Jan. 17, 1964.

SN 355,755. General Electric Company, Schenectady, N.Y. Filed Apr. 2, 1970.



For Paints, Varnishes, Enamels, Lacquers and Thinners, and Additives and Ingredients for the Foregoing (Int. Cls. 1 and 2).
First use 1918.

SN 356,440. Steelcote Manufacturing Company, St. Louis, Mo. Filed Apr. 9, 1970.

ANTI-CHEM

For Epoxy-Type Penetrating Sealers and Finish Coatings (Int. Cl. 2).
First use Jan. 31, 1968.

Class 18—Medicines and Pharmaceutical Preparations

SN 296,399. Stratford Pharmaceuticals Ltd., Kelowna, British Columbia, Canada, by assignment and change of name from Britannia Holdings Ltd., Kelowna, British Columbia, Canada. Filed Apr. 24, 1968.

BARCELL

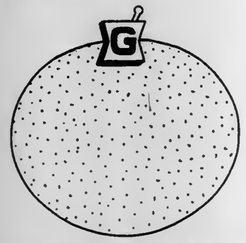
Priority claimed under Sec. 44(d) on Canadian application filed Feb. 5, 1968; Reg. No. 163,021, dated May 23, 1969.
For Colonic Content Emulsifier for Use in Radiodiagnostic Procedure in the Small and Large Bowel (Int. Cl. 5).

SN 300,493. Sun-Ray, Inc., Siloam Springs, Ark., assignee of Sun-Ray Drug Co., Chouteau, Okla. Filed June 14, 1968.

SUN-RAY

For Liniment Rub Preparation for Use on the Human Body (Int. Cl. 5).
First use July 10, 1967.

SN 320,582. Genovese Drug Stores, Inc., Long Island City, N.Y. Filed Mar. 3, 1969.



The stippling shown on the drawing is for shading purposes. The representation of a mortar and pestle are disclaimed apart from the mark as a whole.
For Individual Vitamin Compositions, Multi-Vitamin Preparations, Chewable Vitamin Compositions, Vitamin and Mineral Compositions, Yeast Tablets, Gelatin Capsules, Wheat Germ Oil Capsules and Mineral Compositions (Int. Cl. 5).
First use January 1968.

SN 321,498. International Chemical & Nuclear Corporation, Pasadena, Calif. Filed Mar. 12, 1969.

RIBAMINOL

For Salts of Ribonucleic Acid (Int. Cl. 5).
First use November 1967.

SN 332,601. Charles S. Ruckstuhl Co., Inc., St. Louis, Mo. Filed July 15, 1969.

CARBOZINE

For Medical Surgical Dressing and Ointment for Minor Wounds, Cuts, Burns, Chapped and Rough Skin, and Minor Skin Irritations (Int. Cl. 5).
First use April 1895.

SN 334,541. Aristocrat, Inc., d.b.a. Scalp Higene Drug Co., Columbus, Ohio. Filed Aug. 6, 1969.



No claim is made to the words "Scalp" and "Higene" apart from the mark as shown.
For Antiseptic for Dry Scalp and the Like (Int. Cl. 5).
First use Mar. 6, 1969.

SN 337,001. James W. Chaffee, d.b.a. Top Notch Fashions, Shawnee, Kans., assignee of Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany. Filed Sept. 4, 1969.

BISOLVOMYCIN

Owner of U.S. Reg. No. 771,763.
For Antibiotic Preparation (Int. Cl. 5).
First use Jan. 12, 1967; in commerce July 29, 1969.

SN 337,583. Richardson-Merrell Inc., New York, N.Y. Filed Sept. 10, 1969.

ACCEPT

For Medicated Preparation for Use in the Treatment of Acne, Pimples, and Other Skin Conditions (Int. Cl. 5).
First use Aug. 13, 1969.

SN 338,111. American Cyanamid Company, Wayne, N.J. Filed Sept. 17, 1969.

PAYZONMIX

Owner of Reg. No. 834,257.
For Animal Feed Premix of a Drug Nature (Int. Cl. 5).
First use Sept. 5, 1969.

SN 338,650. Squire Laboratories Inc., Revere, Mass. Filed Sept. 22, 1969.

STRESS-DEX

For Oral Electrolytes for Aiding in the Prevention of Dehydration (Int. Cl. 5).
First use Jan. 15, 1968.

SN 346,173. The Good Life, North Hollywood, Calif. Filed Dec. 15, 1969.

CYCLE-C

For Vitamin C Preparations (Int. Cl. 5).
First use During May 1960.

SN 346,823. Warner-Lambert Pharmaceutical Company, Morris Plains, N.J. Filed Dec. 22, 1969.

COMEND

For Antacid Tablets (Int. Cl. 5).
First use Dec. 15, 1969.

SN 347,765. Med Spec, Inc., La Grange, Ill. Filed Jan. 5, 1970.

SUPPRESS 300

Applicant claims the exclusive right to the numeral "300" as a part of its mark, but disclaims the numeral in other dissimilar combinations, and as a separate or individual numeral.
For Analgesic Compound (Int. Cl. 5).
First use Oct. 21, 1969.

SN 348,250. Barth Vitamin Corp., Valley Stream, N.Y. Filed Jan. 12, 1970.

ALL DAY

For Dietary Supplement Containing Vitamins and Minerals (Int. Cl. 5).
First use Feb. 18, 1958.

SN 348,307. Merck & Co., Inc., Rahway, N.J. Filed Jan. 12, 1970.

DUO-DECADRON

Owner of Reg. Nos. 673,426, 718,844, and 871,645.
For Hormonal Preparation for Medicinal and Pharmaceutical Use (Int. Cl. 5).
First use Nov. 28, 1969.

SN 351,874. Pioneer Laboratories, Inc., Pleasantville, N.J. Filed Feb. 20, 1970.

PETRO-PAD

For Surgical Bandages Impregnated With Petrolatum (Int. Cl. 5).
First use Sept. 25, 1969.

SN 352,041. Syntex Laboratories, Inc., Palo Alto, Calif. Filed Feb. 24, 1970.

STEMEX

For Steroid Hormone Preparation (Int. Cl. 5).
First use Feb. 13, 1970.

SN 361,939. Miles Laboratories, Inc., Elkhart, Ind. Filed June 8, 1970.

TRIDESILON

For Medicinal Preparations for External Use in the Treatment of Skin Infections and Other Skin Irritations (Int. Cl. 5).
First use on or before May 12, 1970.

SN 364,973. American Home Products Corporation, New York, N.Y. Filed July 13, 1970.

CANDIMON

For Fungicidal Preparation for Vaginal Use (Int. Cl. 5).
First use June 26, 1970.

SN 364,974. American Home Products Corporation, New York, N.Y. Filed July 13, 1970.

CANDISTAT

For Fungicidal Preparation for Vaginal Use (Int. Cl. 5).
First use June 26, 1970.

Class 19—Vehicles

SN 342,696. Worthington Corporation, Harrison, N.J. Filed Nov. 5, 1969.

MOP-CAT

For Self-Propelled, Multi-Function Service Vessels and Self-Propelled Oil Recovery (Int. Cl. 12).
First use Oct. 14, 1969.

SN 346,620. Heron Manufacturing Co., Inc., Pearland, Tex. Filed Dec. 18, 1969.



For Travel Trailers and Pick-Up Campers (Int. Cl. 12).
First use March 1964.

SN 349,065. Richard C. Cole, Coral Gables, Fla. Filed Jan. 20, 1970.

airslot

For Boats (Int. Cl. 12).
First use Sept. 10, 1969.
Subj. to Intf. with SN 354,924.

SN 353,355. Air Cushion Vehicles, Inc., Troy, N.Y. Filed Mar. 9, 1970.



For Air Cushion Vehicles for Traveling on Land or Water (Int. Cl. 12).
First use Jan. 21, 1970.

SN 354,924. Wellcraft Marine Corp., Sarasota, Fla. Filed Mar. 23, 1970.

airslot

For Boats (Int. Cl. 12).
First use Nov. 19, 1969.
Subj. to Intf. with SN 349,065.

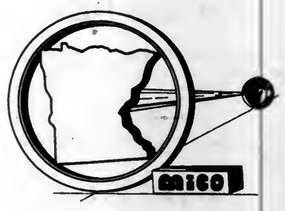
SN 359,106. Halvorson Incorporated, Duluth, Minn. Filed May 7, 1970.



Halvorson

The drawing is lined for the color green, but color is not claimed as an integral feature of the mark.
For Self-Propelled Vehicles and Trailers—Namely, Self-Propelled Water Vehicles, and Trailers for Water Vehicles, Both in the Nature of Boats, and Parts Thereof; Snowmobiles, and Trailers for Snowmobiles, and Parts Thereof; Overland Rough Terrain Vehicles in the Nature of Motor Cars, and Trailers for Overland Rough Terrain Vehicles, and Parts Thereof (Int. Cl. 12).
First use Feb. 12, 1970.

SN 362,458. Minnesota Automotive, Inc., Mankato, Minn. Filed June 12, 1970.



The representation of an outlined map of the State of Minnesota and the representation of a globe are disclaimed apart from the mark as shown. Owner of Reg. No. 528,723.
For Auxiliary Control System for Fluid Brakes of Automotive Vehicles (Int. Cl. 12).
First use January 1970.

SN 368,234. Explorer Motor Home Corporation, Costa Mesa, Calif. Filed Aug. 17, 1970.



For Motor Homes (Int. Cl. 12).
First use June 23, 1969.

SN 368,323. U.S. Industries, Inc., New York, N.Y. Filed Aug. 17, 1970.

RIVER QUEEN

Owner of Reg. No. 779,385.
For Boats (Int. Cl. 12).
First use in or about May 1968.

SN 368,431. AMF Incorporated, New York, N.Y. Filed Aug. 19, 1970.

SAILFISH

For Sailboats (Int. Cl. 12).
First use on or about Jan. 4, 1949.

Class 20—Linoleum and Oiled Cloth

SN 347,943. Kentile Floors Inc., Brooklyn, N.Y. Filed Jan. 7, 1970.

TOUCH-DOWN

For Hard Surface Floor Coverings of Vinyl, Vinyl Asbestos, and Similar Materials (Int. Cl. 27).
First use Dec. 5, 1969.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 277,496. Midland International Corporation (Delaware corporation), North Kansas City, Mo., by merger from Midland International Corporation (Missouri corporation), North Kansas City, Mo. Filed Aug. 4, 1967.

MIDLAND

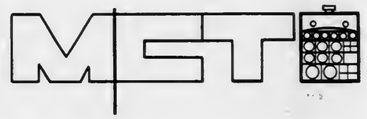
For Radio Receivers and Electric Clock-Radios; Radio Transceivers and Accessories Therefor; Television Receivers and Remote Controls Therefor; Radio and Television Interference Filters; VHF and UHF Converters for Radio and Television Receivers; Television Cameras and Accessories Therefor; Antennas; Antenna Plugs and Jacks; Tuned Antenna Couplers; IF Coils and Oscillator Coils; AC to DC Converters; Dry Cell Batteries; Battery Chargers; Flashlights; Electric Lanterns; Electrically Illuminated Magnifiers; Electric Lamps and Lamp Bulbs; Electric Lamp Flashers; Electric Motors; Electrical Tape; Electric Switches; Binding Posts; DC Power Supplies; Transistors; Capacitors; Transformers; Variable Resistors and Potentiometers; Rotary Control Knobs for Electronic Equipment; Crossover Networks for Loudspeaker Systems; Reverberation Units for Sound Systems; Telephone Plugs, Jacks and Extension Cords; Photoelectric Control Units for Door Openers, Surveillance Systems and Other Uses; Photoelectrically Controlled Automatic Headlight Dimmers; and Electrically Operated Fire Alarm and Burglar Alarm Units (Int. Cl. 9).
First use in or about August 1962.

SN 328,579. Oilituote Oy, Helsinki, Finland. Filed May 28, 1969.

OLLI

Owner of Finnish Reg. No. 49,516, dated Feb. 6, 1967.
For Electric Fencing Equipment—Namely, Transformers, Fence Testers, Fence Wire and Poles; and Traffic Safety Equipment—Namely, Warning Lights and Signals (Int. Cl. 9).

SN 331,294. Sola Basic Industries, Inc., Milwaukee, Wis. Filed June 30, 1969.



Without waiving any common law rights therein, the representation of the multi-cable transit is disclaimed apart from the mark as shown.
For Multi-Cable Transits—Namely, a Pressure-Tight Packing Assembly Utilizing a Modulus System of Elastomer Blocks, Arranged so as To Fill Up Spaces Between Cables and the Interior of a Frame (Int. Cl. 9).
First use Sept. 18, 1967.

SN 347,313. Petrolite Corporation, St. Louis, Mo. Filed Dec. 29, 1969.

PETROLITE

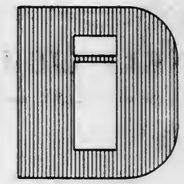
Owner of Reg. No. 522,485.
For Electrodes, Probes, Circuit Boards, and Probe Assemblies for Corrosion Rate Instruments (Int. Cl. 9).
First use Jan. 27, 1969.

SN 349,434. S.A.E.S. Getters S.p.A., Milan, Italy. Filed Jan. 23, 1970.

SORB-AC

For Gas Absorptive Devices Employing a Non-Evaporating Getter Metal—Namely, Zirconium, Titanium, Tantalum, or Niobium, Alloys of Two or More of These Metals With Each Other or With Other Metals (Int. Cl. 9).
First use Dec. 30, 1969; in commerce Dec. 30, 1969.

SN 351,689. Dionics, Incorporated, Westbury, N.Y. Filed Feb. 18, 1970.



The drawing is lined for the color red.
For Dielectric Isolation Slices for Integrated Circuits and Semiconductor Components (Int. Cl. 17).
First use August 1969.

SN 352,348. Illinois Tool Works, Inc., Chicago, Ill. Filed Feb. 25, 1970.

PAR MICA

Applicant disclaims the term "Mica" apart from the mark as shown.
For Capacitors (Int. Cl. 9).
First use as early as Feb. 12, 1970.

SN 352,448. Cartridge Television, Inc., New York, N.Y. Filed Feb. 26, 1970.

CTV

For Video Recorders and Reproducers, Video Cartridges Therefor, Components, and Adaptors for Using Said Video Recorders and Reproducers in Conjunction With Television Receivers (Int. Cl. 9).
First use Nov. 14, 1969.

SN 354,305. Environmental Industries, Incorporated, Alliance, Nebr. Filed Mar. 17, 1970.



The drawing is lined for the color green. Applicant disclaims the representation of the goods apart from the mark as shown, without waiving any common law rights therein.
For Electric Appliance Type Building Products—Namely, an Electric Central Power-Vacuum Building Cleaner (Int. Cl. 9).
First use January 1970.

SN 357,050. American Multi-Lert Corporation, Hershey, Pa. Filed Apr. 16, 1970.

MULTI-LERT

For Electronically Actuated Alarm Systems for Monitoring Fires, Burglaries, Hold-Ups, Moving Parts, and Equipment Failures and Transmitting a Warning Signal, Including Automatic Telephone Dialing Devices (Int. Cl. 9).
First use on or about Aug. 15, 1969.

SN 359,958. International Harvester Company, Chicago, Ill. Filed May 18, 1970.

FLEETRITE

For Electrical Ignition System and Parts Thereof for Vehicles—Namely, Distributors and Parts for Distributors, Point Sets, Condensors, Regulators, Alternators and Parts for Alternators, Generators and Parts for Generators, Starters and Parts for Starters, Solenoids, and Electrical Wiring Therefor (Int. Cls. 7, 9, and 12).
First use Mar. 13, 1970.

SN 360,200. Guilden Development Company, Inc., Linden, N.J. Filed May 19, 1970.

TINKLE LIGHT

Applicant disclaims the word "Light" apart from the mark as shown.
For Night Lights (Int. Cl. 11).
First use May 7, 1970.

SN 367,410. Technilab Instruments, Inc., Pequannock, N.J. Filed Aug. 7, 1970.

Thermajust

For Electrical Liquid Stirrer and an Electrical Immersion Heater (Int. Cl. 11).
First use June 5, 1970.

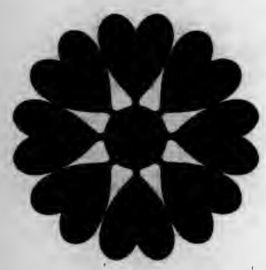
Class 22—Games, Toys, and Sporting Goods

SN 310,291. A.M.S. Distributing Co., d.b.a. American Sport Company, Oakland, Calif. Filed Oct. 23, 1968.

AQUA SPORT

The word "Sport" is disclaimed apart from the mark as shown.
For Fishing Equipment—Namely, Fishing Rods and Fish Hooks (Int. Cl. 28).
First use 1962.

SN 325,760. Kelmoore Industries, Redwood City, Calif., assignee of The Kelmon Company, Palo Alto, Calif. Filed Apr. 28, 1969.



No registration rights are claimed herein for the word "Legs" apart from the mark as shown; but applicant waives none of its common law rights in said mark or any feature thereof.
For Manually Operated Muscle Toning Board Type Exercising Device (Int. Cl. 28).
First use Apr. 15, 1969.

SN 329,700. Creative Education Systems, Edmonds, Wash. Filed June 11, 1969.

DART-A-GOLF

For Equipment Sold as a Unit for Playing a Board Game (Int. Cl. 28).
First use Feb. 28, 1969.

SN 333,153. Robert R. Maher, Healdsburg, Calif. Filed July 22, 1969.

MAHERAJAH

For Water Skis and Water Ski Bindings (Int. Cl. 28).
First use Mar. 1, 1952.

SN 333,722. La Lanne Incorporated, Hollywood, Calif. Filed July 28, 1969.

BIKETTE

For Manually Operated Body Exerciser Comprising a Metal Rod and Attached Rubber Loops Useful in Performing Physical Exercises (Int. Cl. 28).
First use June 2, 1969.

SN 337,347. Playskool, Inc., Chicago, Ill. Filed Sept. 8, 1969.

DRAGON DOMINOES

The word "Dominoes" is disclaimed apart from the mark as shown.
For Equipment (or Apparatus) Sold as a Unit for Playing a Domino-Type Parlor Game (Int. Cl. 28).
First use Dec. 31, 1931.

SN 337,806. Hasbro Industries, Inc., Pawtucket, R.I. Filed Sept. 12, 1969.

DIALArt

The drawing is lined for blue, orange, green, red and purple, but color forms no part of the mark.
For Toy Set Comprising a Drawing Machine, Stencils, Colored Pencils, and Paper for Making Designs and Pictures (Int. Cl. 28).
First use on or about Feb. 24, 1969.

SN 338,848. Mattel, Inc., Hawthorne, Calif. Filed Sept. 25, 1969.

FIRE ELEPHANT

No claim of exclusive right is made to the word "Elephant" apart from the mark.
For Toy Vehicle Four Wheeled Vehicle in the Form of a Fanciful Animal (Int. Cl. 28).
First use July 31, 1969.

SN 340,663. General Sportcraft Company Ltd., Bergenfield, N.J. Filed Oct. 14, 1969.

DUREX

For Game Rackets—Namely, Tennis and Badminton Rackets (Int. Cl. 28).
First use on or about Mar. 1, 1954.

SN 340,664. General Sportcraft Company Ltd., Bergenfield, N.J. Filed Oct. 14, 1969.

ROCKET DARTS

The term "Darts" is disclaimed apart from the mark as shown.
For Apparatus Sold as a Unit for Playing Indoor or Outdoor Dart-Type Game and Dart Used in Connection Therewith (Int. Cl. 28).
First use on or about Mar. 1, 1953.

SN 340,897. AAA Tent & Awning Company, Salt Lake City, Utah. Filed Oct. 16, 1969.

LEISURE PORT

For Tent-Like Shelters Made of Canvas or Other Fabric and Supported by a Frame (Int. Cl. 22).
First use at least as early as Apr. 15, 1969.

SN 341,864. Sternco Industries, Inc., Harrison, N.J. Filed Oct. 27, 1969.

PERMALIFE

For Toys for Use With Home Aquariums (Int. Cl. 28).
First use July 23, 1969.

SN 343,957. Dotyblocks, Chicago, Ill. Filed Nov. 19, 1969.

DOTY BLOCKS

Without Waiver of any common law rights for purposes of registration only, applicant disclaims any exclusive right to the word "Blocks" separate and apart from the mark as a whole.
For Play and Educational Concept Toys (Int. Cl. 28).
First use Oct. 1, 1967.

SN 344,403. RPM Games, Inc., Providence, R.I., assignee of Robert P. Mirando, d.b.a. R.P.M. Games, Providence, R.I. Filed Nov. 24, 1969.

DARTS 'N CARDS

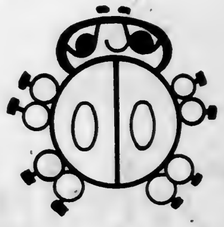
Applicant disclaims the word "Darts" separate and apart from the mark as shown.
For Equipment for Playing a Dart Game (Int. Cl. 28).
First use on or about Nov. 19, 1969.

SN 344,480. Venturi, Inc., San Francisco, Calif. Filed Nov. 24, 1969.

SPLASH DOWN

For Equipment (or Apparatus) Sold as a Unit for Playing a Dart-Type Parlor Game (Int. Cl. 28).
First use Oct. 29, 1969.

SN 345,116. Worldwide Computer Services Inc., Hartsdale, N.Y. Filed Dec. 3, 1969.



For Equipment Sold as a Unit for Playing an Educational Type Parlor Game (Int. Cl. 28).
First use Oct. 31, 1969.

SN 345,552. Mattel, Inc., Hawthorne, Calif. Filed Dec. 8, 1969.

TOP BURNERS

No claim of exclusive right is made to the word "Top" apart from the mark.
For Toy Tops (Int. Cl. 28).
First use Oct. 9, 1969.

SN 346,570. Mattel, Inc., Hawthorne, Calif. Filed Dec. 18, 1969.

MIRROR MANIA

No claim of exclusive right is made to the word "Mirror" apart from the mark.
For Equipment Sold as a Unit for Playing a Board Game (Int. Cl. 28).
First use Oct. 29, 1969.

SN 348,323. Parris Mfg. Co., Savannah, Tenn. Filed Jan. 12, 1970.

SQUARE 64

For Equipment for Playing a Puzzle-Type Game (Int. Cl. 28).
First use Dec. 10, 1969.

SN 350,154. Mattel, Inc., Hawthorne, Calif. Filed Jan. 28, 1970.

WIZ-Z-ZER

For Toy Tops, Trick Tips, a Stand, a Whirligig, and a Tray (Int. Cl. 28).
First use Oct. 24, 1969.

SN 353,198. James Industries, Inc., Hollidaysburg, Pa. Filed Mar. 5, 1970.

KOOKEY KRITTERS

For Sponge Rubber Toy Character Manually Distortable Into Various Shapes and Appearances (Int. Cl. 28).
First use Feb. 21, 1970.

SN 353,483. The Gyro Club Corporation, Albuquerque, N. Mex. Filed Mar. 9, 1970.

UP & IN

For Golf Clubs (Int. Cl. 28).
First use July 18, 1969.

SN 354,417. Firma Dr. Justus Rieker & Co., Tuttlingen, Wurttemberg, Germany. Filed Mar. 18, 1970.

Orbilan

For Ski Boot (Int. Cl. 25).
First use September 1969; in commerce October 1969.

SN 356,053. Eaton Yale & Towne Inc., Cleveland, Ohio. Filed Apr. 6, 1970.

CROWN

For Grips for Golf Clubs (Int. Cl. 28).
First use February 1970.

SN 356,634. James Earl Deaton, d.b.a. Jim Deaton Lures, Southaven, Miss. Filed Apr. 13, 1970.

FORKED DEVIL

For Fishing Lures (Int. Cl. 28).
First use Nov. 15, 1969.

SN 357,277. Dynamic Classics, Ltd., New York, N.Y. Filed Apr. 20, 1970.

yoga SLIM WHEEL

Owner of Reg. No. 882,439.
For Exercise Device—Namely, an Exercise Wheel Attached by Springs to a Pad, Used by Grasping the Device and Rolling It Back and Forth (Int. Cl. 28).
First use Feb. 20, 1970.

SN 357,337. Dart Industries Inc., d.b.a. The Seamless Rubber Company, Los Angeles, Calif. Filed Apr. 20, 1970.

DURABILT

For Inflatable Athletic Balls (Int. Cl. 28).
First use Feb. 27, 1970.

SN 365,495. Mattel, Inc., Hawthorne, Calif. Filed July 13, 1970.

ZOPTER-PORT

For Toy Helicopter Take Off and Landing Station (Int. Cl. 28).
First use May 25, 1970.

SN 365,498. Mattel, Inc., Hawthorne, Calif. Filed July 13, 1970.

BONESHAKER

For Toy Motorcycle (Int. Cl. 28).
First use June 11, 1970.

SN 366,853. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

TOOFUMS

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use June 29, 1970.

SN 366,858. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

CHAT-A-BIT

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 366,860. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

MERMINIS

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 367,110. Mattel, Inc., Hawthorne, Calif. Filed Aug. 5, 1970.

NATIONAL FINALS

For Toy Automobile Racing Set (Int. Cl. 28).
First use June 4, 1970.

SN 367,404. Mattel, Inc., Hawthorne, Calif. Filed Aug. 7, 1970.

BOSS BIRD

For Toy Airplanes (Int. Cl. 28).
First use July 15, 1970.

SN 368,028. Mattel, Inc., Hawthorne, Calif. Filed Aug. 14, 1970.

BYE-FOCAL

For Toy Automobile (Int. Cl. 28).
First use July 13, 1970.

SN 368,030. Mattel, Inc., Hawthorne, Calif. Filed Aug. 14, 1970.

DANGER-CHANGER

For Toy Track Lane Merger (Int. Cl. 28).
First use July 13, 1970.

SN 368,032. Mattel, Inc., Hawthorne, Calif. Filed Aug. 14, 1970.

HIGH-TAILER

For Toy Motorcycle (Int. Cl. 28).
First use July 13, 1970.

SN 368,553. Mattel, Inc., Hawthorne, Calif. Filed Aug. 20, 1970.

PLOPM-FLOPMS

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use July 24, 1970.

SN 368,794. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

BLUNDERBIRD

For Equipment Sold as a Unit for Playing a Three Dimensional Action Game (Int. Cl. 28).
First use July 17, 1970.

SN 368,795. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

FUNNY TEAM

For Kit of a Plurality of Toy Automobiles (Int. Cl. 28).
First use July 17, 1970.

SN 368,798. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

SQUEEZE-OUT

For Toy Automobile Accessory Embodied in a Track for Increasing the Speed of a Toy Automobile Passing Thereon (Int. Cl. 28).
First use July 31, 1970.

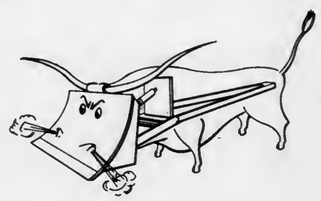
SN 368,799. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

GO TEAM

For Kit Comprising a Plurality of Toy Automobiles (Int. Cl. 28).
First use July 31, 1970.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 317,636. Smith-Roles Ltd., Saskatoon, Saskatchewan, Canada. Filed Jan. 27, 1969.



For Bulldozer Blades, Frames and Operating Mechanism for Mounting on Tractors (Int. Cl. 7).
First use Oct. 1, 1968; in commerce Oct. 1, 1968.

SN 318,390. Joe Porter Merrifield, d.b.a. Best Manufacturers, Portland, Oreg. Filed Feb. 5, 1969.

BEST

For Whips Also Known as Egg Whips, and Wire Whips Primarily Used in Commercial Food Preparation (Int. Cl. 8).
First use June 1951.

SN 321,353. Advanced Car Specialties Limited, Don Mills, Ontario, Canada. Filed Jan. 14, 1969.

QP

For Mufflers and Exhaust Systems for Internal Combustion Engines (Int. Cl. 7).
First use Aug. 29, 1968; in commerce Aug. 29, 1968.

SN 329,262. Nepon Kabushiki Kaisha, Shibuya-ku, Tokyo, Japan. Filed June 5, 1969.

MAIL BOY

Owner of Japanese Reg. No. 814,792, dated Apr. 22, 1969.
For Conveyors of Light-Weight Matter Such as Documents, Mail and Specimens Within a Multi-Story Building, Vertically or Otherwise (Int. Cl. 7).

SN 330,797. United Aircraft Corporation, East Hartford, Conn. Filed June 23, 1969.

SEAJET

For Watercraft Propulsion Units (Int. Cl. 7).
First use May 27, 1969.

SN 334,409. Wolverine-Pentronix, Inc., Lincoln Park, Mich. Filed Aug. 4, 1969.

GASWAY

For Paint Coating Machines, Conveyors, Metal Strip Coil Unwinders and Rewinders, Metal Strip Accumulators and Bridles, Metal Strip Brushing and Cleaning Machines, Metal Strip Stapler, and Laminating Machines (Int. Cl. 7).
First use 1933.

SN 334,815. Constantin Rauch Kommandit-Gesellschaft, Ulm, Germany. Filed Aug. 8, 1969.



Owner of German Reg. No. 688,572, dated Oct. 14, 1965.
For Hydraulic Machinery—Namely, Pumps, Motors, Drives, Gears, Cylinders, Transmissions and Regulators and Hydraulically Operated Mechanisms for Controlling Steering Gear and for Opening and Closing Bulkheads of Ships (Int. Cl. 7).

SN 336,485. Vega Servo-Control, Inc., Troy, Mich. Filed Aug. 27, 1969.

VEGADYNE

For Power Transmissions for Use in General Machine Tool Applications, and Specifically for Use in Turning and Boring Machines, Milling Machines, Planers, Broaches, Roll Forming Machinery, Flying Cutoffs, Press Feeds, Paper Machinery, Rotogravure Presses, Winches, Cranes and Hoists, Elevators, Rolling Mills, Conveyors, and Tension Controls (Int. Cl. 7).
First use Apr. 12, 1967.

SN 337,112. W. F. Wells and Sons, Inc., Three Rivers, Mich. Filed Sept. 4, 1969.



For Machine Tools—Namely, Metal Cutting Band Saws (Int. Cl. 7).
First use Mar. 31, 1968.

SN 338,517. American Packaging Corporation, Hudson, Ohio. Filed Sept. 22, 1969.

ROTOMATIC

For Machines Known as Die Cutting Machines—Namely, Machines for Die Cutting, Perforating and Embossing Paper Board, Corrugated Stock, Skin Pack Sheets, Fiber Board, Plastics, Foam Rubber, Leather, Metal Nameplates, Gaskets, Blisters for Packaging, Thermoformed Containers and Display Materials (Int. Cl. 7).
First use Dec. 22, 1966.

SN 339,617. Wilkinson Sword Limited, London, England. Filed Oct. 2, 1969.

LONDON BRIDGE

No claim is made to the term "London" apart from the mark as shown. Owner of British Reg. No. B928,783, dated July 29, 1968.
For Garden Tools—Namely, Pruning Shears, Flower Gathering Cutters, Hedge Cutting Shears, Grass Cutting Shears, Lawn Edging Cutters, Garden Spades and Forks, Garden Hoes, Garden Rakes, Garden Trowels, Garden Knives; Hand Sprayers for Use With Chemical Liquids and Powders for Horticultural and Agricultural Purposes; Knives, Forks and Spoons; Scissors (Other Than Surgical Scissors); Razors; Dry Shavers; Cases for Razors and for Dry Shavers; Razor Blades; and Razor Blade Dispensers (Int. Cl. 8).

SN 345,033. Vulcan Iron Works Inc., Chattanooga, Tenn. Filed Dec. 1, 1969.



For Pile Hammers and Bases, Cylinder Heads, Driving Heads, Caps and Helmets Therefor; Pile Extractors and Pulling Adaptors Therefor; Sheeting Hammers and Jaws, Demolition Points, Tool Adaptor Bases, Punches, Chisels and Wedges Therefor; Drop Pile Hammers and Pile Caps, Sheeting Caps, Helmets, Driving Heads, Pile Points and Shoes and Head Blocks Therefor; and Expanding Mandrils (Int. Cl. 7).
First use during January 1958.

Class 24 — Laundry Appliances and Machines

SN 345,655. McGraw-Edison Company, Elgin, Ill. Filed Dec. 8, 1969.

FAST FORM

For Garment Finishers in the Nature of Laundry Presses and/or Stream-Air Finishers (Int. Cl. 7).
First use May 23, 1969.

SN 349,351. Harris-Leeds Corporation, Hudson, Ohio. Filed Jan. 22, 1970.

FLEXON
lock-tight



Owner of Reg. No. 533,599.
For Clothes Pins (Int. Cl. 20).
First use on or about Apr. 1, 1968.

Class 25 — Locks and Safes

SN 350,492. Kason Hardware Corporation, Binghamton, N.Y. Filed Feb. 4, 1970.

SAFEGUARD

For Locks for Refrigerator Doors (Int. Cl. 6).
First use 1951.

Class 26 — Measuring and Scientific Appliances

SN 227,166. Midland International Corporation (Delaware corporation), North Kansas City, Mo., by merger of Midland International Corporation (Missouri corporation), North Kansas City, Mo. Filed Sept. 3, 1965.

MIDLAND

For Audio Frequency and Radio Frequency Signal Generators, Sine Wave and Square Wave Generators for Laboratory and Test Usage, Test Oscillators, Probe-Type Signal Injectors for Electronic Circuits, Signal Tracers, Capacitor Substitution Boxes, Resistor Substitution Boxes, Variable D.C. Power Supplies for Laboratory and Test Usage, Vacuum Tube Volt Meters, Oscilloscopes, Field Strength Meters, Vernier Dials, Transceiver Test Units, Vacuum Tube Test Units, Transistor Test Units, Battery Test Units, Capacitor Test Units, and Electronic Educational Kits (Int. Cl. 9).
First use Aug. 15, 1962.

SN 305,769. Tokyo Shibaura Electric Company, Limited, Chiyoda-ku, Tokyo, Japan. Filed Aug. 22, 1968.

TOSCAL

For Electronic Calculators (Int. Cl. 9).
First use July 9, 1967.

SN 310,484. Lockheed Aircraft Corporation, Burbank, Calif. Filed Oct. 24, 1968.

LOCKHEED

Owner of Reg. Nos. 320,151, 843,601, and 843,670.
For Space Research and Surveillance Satellites, Computer Memory Devices and Memory Systems, Radar Systems, Gun Fire Control Systems, Nuclear Reactors and Isotope Power Units and Parts and Accessories Therefor (Int. Cl. 9).
First use at least as early as 1960.

SN 314,501. Photoscope Corporation, Chicago, Ill. Filed Dec. 16, 1968.

PHOTOSCOPE

For Micro-Film Cameras for Photographic a Document and a Person Simultaneously, and for Photographing Documents, Packages, and the Like, and Also for Use in Surveillance (Int. Cl. 9).
First use Mar. 19, 1962.

SN 315,924. IRD Mechanalysis, Inc., Worthington, Ohio, by change of name from International Research and Development Corporation, Worthington, Ohio. Filed Jan. 6, 1969.

UNICEL

For Vibration Analysis Monitor and Parts Thereof (Int. Cl. 9).
First use Dec. 11, 1968.

SN 324,819. International Scanatron Systems Corp., Wyandanch, N.Y. Filed Apr. 17, 1969.

SCAN-A-FAX

For Electrosensitive Recording Papers (Int. Cl. 1).
First use Nov. 14, 1962.

SN 325,378. Photomarine International, Inc., Sherman Oaks, Calif. Filed Apr. 23, 1969.



For Underwater Sea Strobe Lights (Int. Cl. 9).
First use Mar. 1, 1969.

SN 328,562. Logic Corporation, Haddonfield, N.J. Filed May 28, 1969.

KEYDISC

For Computer Data Input Equipment—Namely, Keyboard to Magnetic Disk and Alpha Numeric Display Panel (Int. Cl. 9).
First use May 9, 1969.

SN 329,285. Stas Instructional Materials, Inc., Berkeley, Calif. Filed June 5, 1969.

DISCOVERYKITS

For Science Kits Comprising Apparatus and Accessories for Use as Teaching Aids (Int. Cl. 9).
First use Jan. 29, 1969.

SN 330,105. Bourns/CAI, Inc., Barrington, Ill., now by merger Chicago Aerial Industries, Inc., Barrington, Ill. Filed June 16, 1969.

PAN/FRAME

For Reconnaissance Cameras and Camera Magazines, Camera Shutters, Camera Lens Cones (Int. Cl. 9).
First use April 1968.

SN 330,829. A. W. Faber-Castell Pencil Co., Inc., Newark, N.J. Filed June 24, 1969.

HIGGINS

Owner of Reg. Nos. 798,706, 818,423, and others.
For Drawing and Drafting Instruments, Equipment and Supplies—Namely, Compasses, Calculating Slide Rules, Rulers, Squares, Triangles, and T-Squares (Int. Cl. 16).
First use 1900.

SN 332,826. Honeywell Inc., Minneapolis, Minn. Filed July 17, 1969.

RT/I

Applicant makes no claim to the letter "I" apart from the mark as shown.
For Resistance Thermometer Transmitter Assembly (Int. Cl. 9).
First use at least as early as June 11, 1969.

SN 335,706. Perfect Parts, Inc., Carlstadt, N.J. Filed Aug. 19, 1969.



PERFECT PARTS

The word "Parts" is disclaimed apart from the mark as shown, without disclaiming any common law rights therein.
For Automotive Parts—Namely, Hydrometers and Gauges and Measuring Tools—Namely, Compression Testers, Feeler Gauges, Fuel Pump Testers, Spark Plug Gauges and Testers, Vacuum Testers, Ignition Timing Testers, Battery Testers, Tire Pressure Testers (Int. Cl. 9).
First use January 1940.

SN 336,714. Ramcon Corporation, Carpentersville, Ill. Filed Aug. 28, 1969.

POSI-METER

For Electrical Modulating Controller (Int. Cl. 9).
First use in or about Mar. 1968.

SN 337,248. Aviation Instrument Manufacturing Corporation, Houston, Tex. Filed Sept. 8, 1969.

AIM

For Aviation Instruments—Namely, Directional Gyroscopes, Attitude Indicators, Air Speed Indicators, Power Loss Indicators, Horizon Reference Indicators, Electrical Inverters, Navigation Converters and Gyro Air Filters (Int. Cl. 9).
First use November 1955.

SN 337,448. Kabushiki Kaisha Sankyosha, Bunkyo-ku, Tokyo, Japan. Filed Sept. 9, 1969.

SANKYOSHA

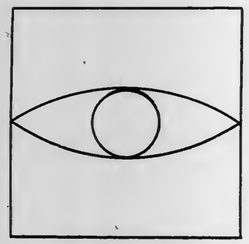
For Spectacles, Spectacle Frames, Spectacle Glasses, Spectacle Lenses, Spectacle Cases (Int. Cl. 9).
First use Apr. 15, 1910; in commerce Mar. 15, 1966.

SN 337,944. Memory Magnetics International, Torrance, Calif. Filed Sept. 15, 1969.

MASTER PAK

Applicant disclaims the word "Pak" apart from the mark as shown.
For Disc Packs for Storing Information for Use by Computers (Int. Cl. 9).
First use Feb. 25, 1969.

SN 338,043. Cool-Ray, Inc., Chelsea, Mass. Filed Sept. 16, 1969.



Owner of Reg. No. 851,420.
For Sunglasses (Int. Cl. 9).
First use January 1968.

SN 341,538. Mohawk International, Inc., Utica, N.Y. Filed Oct. 23, 1969.

TORKducer

For Torque Measuring Gauge (Int. Cl. 9).
First use June 21, 1969.

SN 342,470. Interpace Corporation, Parsippany, N.J. Filed Nov. 3, 1969.

microflo PULSAFEEDER

For Metering Pumps (Int. Cl. 9).
First use October 1954.

SN 344,240. Identimation Corporation, Northvale, N.J. Filed Nov. 21, 1969.

IDENTIMATION

Owner of Reg. No. 897,288.
For Electromechanical Machines Used in Identifying People by Means of Hand Geometry Measurements (Int. Cl. 9).
First use on or about Nov. 14, 1968.

SN 348,238. Allied Computer Technology, Inc., Santa Monica, Calif. Filed Jan. 12, 1970.



For Electronic Performance Monitors for Testing Digital Computers (Int. Cl. 9).
First use Oct. 30, 1968.

SN 348,326. Plastic Suppliers, Blackwood, N.J. Filed Jan. 12, 1970.

PROJECTOFILM

For Blank Polystyrene Transparent Film, Uncoated for Use in Projectors (Int. Cl. 9).
First use Apr. 30, 1969.

SN 348,999. T. M. Smith Tool Company, Detroit, Mich. Filed Jan. 19, 1970.

ToolGard

Applicant disclaims without prejudice the term "Tool" apart from the mark as shown.
For Electronic Detector for Broken Tools, Improperly Set Tools, or the Existence of no Tool Within a Tool Holder or Adapter (Int. Cl. 9).
First use Jan. 5, 1970.

SN 349,028. Xonix, Inc., Waltham, Mass. Filed Jan. 19, 1970.



For Precision Optical and Opthalmological Devices and Instruments—Namely, Indirect Binocular Opthalmoscopes (Int. Cl. 9).
First use Sept. 30, 1969.

SN 353,226. The Sherwin-Williams Company, Cleveland, Ohio. Filed Mar. 5, 1970.



For Liquid Measuring Instruments and Machines for Determining Proportions or Quantities of Colorants To Be Dispersed, Together to Obtain a Desired Color (Int. Cl. 9).
First use Dec. 9, 1937.

SN 354,445. Ken-A-Vision Mfg. Co., Inc., Raytown, Mo. Filed Mar. 18, 1970.

READMASTER

For Programmed Reading Machines (Int. Cl. 9).
First use at least as early as May 1968.

SN 357,982. Fabri-Tek Incorporated, Minneapolis, Minn. Filed Apr. 27, 1970.

COM-TRAN

For Educational Computer (Int. Cl. 9).
First use Jan. 19, 1970.

SN 358,507. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed May 1, 1970.

ATTEST

For Biological Incubators (Int. Cl. 10).
First use Feb. 11, 1970.

SN 361,943. Orion Research Incorporated, Cambridge, Mass. Filed June 8, 1970.

ORION

For Equipment for Electrochemical Analysis—Namely, Electrochemical Electrodes for Sensing Ions in Solution and Electrical Meters Responsive to the Output of Such Electrodes (Int. Cl. 9).
First use June 10, 1966.

SN 367,532. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 10, 1970.

CROMALIN

For Photopolymer Film, Image Transfer Machines, and Exposure Units for Photopolymer Film (Int. Cls. 1 and 9).
First use June 5, 1970.

SN 368,401. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 19, 1970.

DU PONT

Owner of Reg. Nos. 413,806, 769,912, and others.
For Image Transfer Machines, Exposure Units, Laminators, and Processors for Photopolymer Film (Int. Cl. 9).
First use April 1968 on laminators and processors for photopolymer film.

SN 369,054. Precise Imports Corporation, Suffern, N.Y. Filed Aug. 26, 1970.

LUMA-GLO

For Scopes for Firearms (Int. Cl. 13).
First use May 1, 1967.

Class 28 — Jewelry and Precious-Metal Ware

SN 325,630. State of Oklahoma, Oklahoma City, Okla. Filed Apr. 25, 1969.

OKIE

For Jewelry (Int. Cl. 14).
First use August 1968.

SN 335,071. The State of Oklahoma, Oklahoma City, Okla. Filed Aug. 11, 1969.

OKAE

For Jewelry (Int. Cl. 14).
First use August 1968.

Class 29 — Brooms, Brushes, and Dusters

SN 333,463. Union Carbide Corporation, New York, N.Y. Filed July 24, 1969.

SUPER-SWEEP

For Automotive Snow Brush (Int. Cl. 21).
First use on or about July 15, 1969.

Class 30—Crockery, Earthenware, and Porcelain

SN 340,066. Gordon T. Will, d.b.a. Acorn Pottery, Red Oak, La. Filed Oct. 7, 1969.



For Handmade, Wheel-Thrown Pottery of Earthenware, Stoneware, and Porcelain—Namely, Bowls, Cups, Pitchers, Bottles, and Jugs (Int. Cl. 21).
First use Oct. 6, 1966.

Class 31—Filters and Refrigerators

SN 329,779. Vaughan Industries, Inc., Charlotte, N.C. Filed June 11, 1969.

EASYVEND

For Coin-Operated Refrigerated Soft Drink Vending Machines (Int. Cl. 9).
First use June 13, 1967.

SN 335,664. American Optical Corporation, Southbridge, Mass. Filed Aug. 19, 1969.



Owner of Reg. Nos. 268,217, 855,168, and Others.
For Filters and Refrigerators—Namely, Chemical and Solid Filters for Respirators (Int. Cl. 11).
First use 1940.

Class 32—Furniture and Upholstery

SN 296,355. Sperry Rand Corporation, New York, N.Y. Filed Apr. 23, 1968.

INDEX VISIBLE

For Rectangular Frame Assemblies of the Type Adapted To Accommodate Records and Cards Utilized in Reference and Filing Systems (Int. Cl. 16).
First use Oct. 11, 1945.

SN 321,653. Interna Gesellschaft für Moderne Raumgestaltung mbH, Wiedenbruck, Germany. Filed Mar. 13, 1969.

interna

Owner of German Reg. No. 849,552, dated Sept. 9, 1968.
For Furniture—Namely, Bedroom Furniture, Lounge Furniture, Portable Wardrobe Walls, Portable Closet Walls, Cupboards and Furniture for Seating and Reclining Which Is Permanently Attached to Walls (Int. Cl. 20).

SN 331,135. Acme Visible Records, Inc., Crozet, Va. Filed June 27, 1969. Filed June 27, 1969.

ROTO-VUE

For Rotary Record Files (Int. Cl. 16).
First use June 16, 1969.

SN 337,429. Broyhill Furniture Industries, Lenoir, N.C. Filed Sept. 9, 1969.

CRITERION

For Tables (Int. Cl. 20).
First use Apr. 15, 1969.

SN 339,735. Mid-West Metallic Products, Inc., Cleveland, Ohio. Filed Oct. 3, 1969.

Nestaway Chilrak

Owner of Reg. No. 662,940.
For Racks for Bakery Goods and the Like Which May Be Stacked or Nested as Desired (Int. Cl. 20).
First use Sept. 5, 1969.

SN 339,913. Mid-West Metallic Products, Inc., Cleveland, Ohio. Filed Oct. 6, 1969.

Nestaway Smokrak

Owner of Reg. No. 662,940.
For Racks for Bakery Goods and the Like Which May Be Stacked or Nested as Desired (Int. Cl. 20).
First use Sept. 5, 1969.

SN 341,174. Mid-West Metallic Products, Inc., Cleveland, Ohio. Filed Oct. 20, 1969.

WESTAWAY

Owner of Reg. No. 662,940.
For Racks for Bakery Goods and the Like Which May Be Stacked or Nested as Desired (Int. Cl. 20).
First use Oct. 2, 1969.

SN 343,205. Alma Desk Company, High Point, N.C. Filed Nov. 12, 1969.

SAVANTÉ

The word "Savanté" is a French word meaning: "learned," "well-informed," "expert," and "scholarly."
For Library Furniture (Int. Cl. 20).
First use Oct. 31, 1969.

SN 347,399. Etowah Manufacturing Company, Inc., Gadsden, Ala. Filed Dec. 30, 1969.



The drawing is lined for the colors blue and red but no claim is made to color.
For Patio, Household and Office Furniture (Int. Cl. 20).
First use on or about July 30, 1969.

SN 350,262. Henredon Furniture Industries, Incorporated, Morganton, N.C. Filed Feb. 2, 1970.

FOLIO

Owner of Reg. Nos. 765,896 and 792,919.
For Dining Room, Living Room, Bedroom, Occasional, and Upholstered Furniture (Int. Cl. 20).
First use at least as early as Apr. 15, 1966.

SN 350,362. Acoustics Development Corporation, Northbrook, Ill. Filed Feb. 3, 1970.

UP FRONT

For Telephone Shelves (Int. Cl. 20).
First use Nov. 20, 1967.

SN 350,854. Amerock Corporation, Rockford, Ill. Filed Feb. 9, 1970.

PROFIT MART

For Merchandiser for Displaying and Storing Furniture Hardware (Int. Cl. 20).
First use Jan. 5, 1970.

SN 351,016. Arthur W. Brown, Jr., Norwalk, Conn. Filed Feb. 10, 1970.

SUPER SACKS

For Beds (Int. Cl. 20).
First use Dec. 23, 1969.

SN 361,010. Slumberland Products Company, Woburn, Mass. Filed May 27, 1970.

STUDENT KING

The word "King" is disclaimed apart from the mark as shown.
For Mattresses and Bed Springs (Int. Cl. 20).
First use October 1957.

Class 33—Glassware

SN 330,389. The Jeannette Glass Company, Jeannette, Pa. Filed June 18, 1969.

WILLOW WARE

Glass Ovenware in Textured Baskets, Individually Gift Boxed (Int. Cl. 21).
First use in or about March 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

SN 310,336. Lake Calumet Smelting Co., Chicago, Ill. Filed Oct. 23, 1968.

LACAL 800

For Soldering Fluxes (Int. Cl. 1).
First use Aug. 4, 1967.

SN 316,440. Killebrew Engineering Corporation, St. Louis, Mo. Filed Jan. 13, 1969.

ENTELECON

For Units for Recovering Energy From Diesel or Gas Fired Engines, Said Energy Subsequently Being Used for the Creation of Electricity and Steam or Hot Water (Int. Cl. 11).
First use Apr. 1, 1965.

SN 323,891. Cardinal Products Company, Saginaw, Mich. Filed Apr. 1, 1969.

PROP-AIRE

Make-Up Air Heaters With Propeller Type Fans (Int. Cl. 11).
First use June 1968.

SN 354,813. Dayco Corporation, Dayton, Ohio. Filed Mar. 23, 1970.

DAYCON-DUCT

Owner of Reg. Nos. 388,456, 809,186, and others.
For Heating, Air Conditioning and Ventilating Ducting (Int. Cl. 6).
First use on or about February 1969.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 340,777. Crushproof Tubing Company, McComb, Ohio. Filed Oct. 15, 1969.

FLARE-LOK

For Corrugated Flexible Neoprene Tubing of Special Lengths (Int. Cl. 17).
First use Aug. 8, 1969.

SN 349,809. Air Rake Manufacturing Corporation, Chicopee, Mass. Filed Jan. 28, 1970.

INSTANT HOSE

The word "Hose" is disclaimed apart from the mark as shown.
For Vacuum and Blower Hose for Use With Yard Cleaning Equipment (Int. Cl. 17).
First use Nov. 25, 1969.

SN 355,959. Donaldson Company, Inc., Minneapolis, Minn. Filed Apr. 6, 1970.



For Metal Bellows and Fluid Containment and Sealing Devices—Namely, Static Spring Seals, Rod and Piston Seals, Bellows Spring Seals, Wedge Seals and Rotary Face Seals (Int. Cl. 17).
First use at least as early as Oct. 30, 1969.

SN 368,425. Uniroyal, Inc., New York, N.Y. Filed Aug. 19, 1970.

POWERGRIP HTD

Owner of Reg. Nos. 742,232 and 758,851.
For Transmission Belts (Int. Cl. 7).
First use May 18, 1970.

Class 36 — Musical Instruments and Supplies

SN 190,276. Midland International Corporation, North Kansas City, Mo. Filed Apr. 3, 1964.

MIDLAND

Owner of Reg. No. 895,483.
For Phonographs, Phonograph Pickup Arms and Cartridges; Phonograph Needles and Needle Pressure Gauges; Tape Recorders and Accessories Therefor (Int. Cl. 9).
First use Aug. 15, 1962.

SN 347,827. Crown Radio Corporation, Taito-ku, Tokyo, Japan. Filed Jan. 6, 1970.

CROWNSCRIBER

For Tape Recorders and Tape Players (Int. Cl. 9).
First use Sept. 4, 1969; in commerce Sept. 4, 1969.

Class 37 — Paper and Stationery

SN 307,808. RCA Corporation, New York, N.Y., by change of name from Radio Corporation of America, New York, N.Y. Filed Sept. 20, 1968.

RCA

Owner of Reg. Nos. 167,591, 417,179, and others.
For Pens and Pencils (Int. Cl. 16).
First use at least as early as July 1, 1968.

SN 307,809. RCA Corporation, New York, N.Y., by change of name from Radio Corporation of America, New York, N.Y. Filed Sept. 20, 1968.

RCA

Owner of Reg. Nos. 167,591, 417,179, and others.
For Pens and Pencils (Int. Cl. 16).
First use Oct. 2, 1936.

SN 332,990. Randomatic Data Systems, Inc., Trenton, N.J. Filed July 18, 1969.

DURALAST

For Data Processing and Business Systems Forms on Cards (Int. Cl. 16).
First use July 15, 1969.

SN 337,029. Evans Specialty Company, Inc., Richmond, Va. Filed Sept. 4, 1969.

TACKY-FINGER

Owner of Reg. No. 733,972.
For Finger Tip Moisteners (Int. Cl. 16).
First use February 1955.

SN 338,016. The Procter & Gamble Company, Cincinnati, Ohio. Filed Sept. 16, 1969.

PLEASE DON'T SQUEEZE THE CHARMIN

For Toilet Tissue (Int. Cl. 16).
First use December 1964.

SN 341,127. American Velcro, Inc., Manchester, N.H. Filed Oct. 20, 1969.

THE GREAT PUT-ON

For Pen or Pencil Holder Made of Hook and Loop Type Tape, Sold as a Unit With Pen or Pencil Attached Thereto (Int. Cl. 16).
First use July 5, 1968.

SN 341,148. Clark Paper Converting Corporation, South El Monte, Calif. Filed Oct. 20, 1969.

ROLLDOR

For Paper Toilet Seat Covers (Int. Cl. 16).
First use Sept. 15, 1969.

SN 343,011. Stephen Gould Paper Company of N.J., Inc., Bayonne, N.J. Filed Nov. 7, 1969.

Steelgard

For Multiply Corrugated Paperboard Sheets for Use in the Manufacture of Packing Containers (Int. Cl. 16).
First use Oct. 17, 1969.

SN 344,218. Chrono Graphics, Ltd., New York, N.Y. Filed Nov. 21, 1969.

LONG STEMS

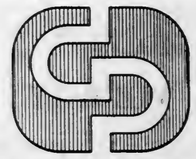
For Writing Paper and Envelopes (Int. Cl. 16).
First use Jan. 6, 1969.

SN 347,830. Elizabeth Bart Gerald, New York, N.Y. Filed Jan. 6, 1970.

OP-PROP

For Combination Protective Covering and Reading Prop for Books (Int. Cl. 16).
First use Dec. 17, 1969.

SN 348,283. General Paper Corporation of Pittsburgh, Pittsburgh, Pa. Filed Jan. 12, 1970.



The mark is lined for the color red, but color is not claimed as a part of the mark.
For Printing and Duplicating Papers (Int. Cl. 16).
First use January 1967.

SN 348,483. The Procter & Gamble Company, Cincinnati, Ohio. Filed Jan. 14, 1970.



The word "Facials" and the configuration of the goods are disclaimed apart from the mark as a whole. Owner of Reg. Nos. 333,291, 697,836, and 822,384.
For Facial Tissues (Int. Cl. 16).
First use Oct. 20, 1969.

SN 361,239. Newpack Corporation, Chicago, Ill. Filed June 1, 1970.

NEW PACK

For Printed Paperboard Backing for Use in Blister Packages (Int. Cl. 16).
First use on or about May 22, 1970.

SN 361,543. Wham-O Mfg. Co., San Gabriel, Calif. Filed June 3, 1970.

COLOR 27

Applicant disclaims any registration rights for the word "Color" apart from the mark as shown, but applicant waives none of its common-law rights in the mark shown or any feature thereof.
For Oversize Pencil Having a Plurality of Replaceable Crayon Tips Stored in the Body of the Pencil (Int. Cl. 16).
First use at least as early as May 25, 1970.

Class 38 — Prints and Publications

SN 312,014. Edwin H. Brauer, Prospect, South Australia, Australia. Filed Mar. 23, 1970.

VIE-WAY

Owner of Australian Reg. No. A218,993, dated May 8, 1968.
For Educational Devices—Namely, a Collection of Cards or Sheets Presenting Questions and Answers Pertaining to Educational Disciplines for Children at Home or in School (Int. Cl. 16).

SN 322,297. Information Industries, Inc., Wayne, Pa. Filed Mar. 20, 1969.



A portion of the mark includes the letter "I" in stylized configuration in three intersecting positions. The drawing is lined for gold and blue, but no claim is made as to color.
For Software Packages Consisting of Computer Programs in the Form of Machine Readable Cards and Machine Readable Magnetic Tapes (Int. Cl. 9).
First use July 26, 1968.

SN 327,934. Litho-Paint Poster Company, Chicago, Ill. Filed May 21, 1969.



For Printed Price-Rail Markers Made of Fully Printed Paper and Plastic Sheet Materials (Int. Cl. 16).
First use Mar. 31, 1967.

SN 329,186. Index Publishing Corp., Chicago, Ill. Filed Aug. 4, 1969.



No claim is made either to the term "Register" or the term "Contractors" apart from use thereof as in the composite mark shown. Owner of Reg. No. 882,900.
For Reference Book Published From Time to Time for the Construction Industry and Containing Classified Lists of Contractors, Architects, Structural Engineers, Material and Equipment Dealers and Manufacturers (Int. Cl. 16).
First use Jan. 5, 1964.

SN 332,171. Veri-Card Security Systems, Inc., Philadelphia, Pa. Filed July 9, 1969.

VERI-CHARGE

For Cards To Be Used by Others in Credit Systems (Int. Cl. 16).
First use June 12, 1969.

SN 332,172. Veri-Card Security Systems, Inc., Philadelphia, Pa. Filed July 9, 1969.

VERI CARD

For Cards To Be Used by Others in Credit Card Systems (Int. Cl. 16).
First use June 12, 1969.

SN 332,173. Veri-Card Security Systems, Inc., Philadelphia, Pa. Filed July 9, 1969.

VERI CREDIT

For Cards To Be Used by Others in Credit Systems (Int. Cl. 16).
First use June 12, 1969.

SN 339,741. Douglas B. Nash, d.b.a. Nashcraft Marine Products, Altadena, Calif. Filed Oct. 3, 1969.

Sail Minder

Applicant disclaims the word "Sail" apart from the mark as shown.
For Sailboat Trimming Charts (Int. Cl. 16).
First use Jan. 1, 1969.

SN 343,398. Gellert Publishing Corporation, New York, N.Y. Filed Nov. 13, 1969.



For Magazine and Yearly Catalogue (Int. Cl. 16).
First use January 1958.

SN 344,219. Chicago Etching Corporation, Chicago, Ill. Filed Nov. 21, 1969.

SNAP-A-DATE

For Arrangement of Multiple Watch Band Calendars Wherein Each of the Calendars Can Be Selectively Removed From the Arrangement (Int. Cl. 16).
First use Oct. 1, 1969.

SN 346,337. Zero Manufacturing Co., Burbank, Calif. Filed Dec. 15, 1969.

ZERO DIMENSIONS

For Magazine (Int. Cl. 16).
First use Nov. 1, 1969.

SN 349,424. June F. Mandell, d.b.a. Collyer's, Lombard, Ill. Filed Jan. 23, 1970.

COLLYER'S

For Bulletins and Facts Sheets Relating to Horse Racing (Int. Cl. 16).
First use 1955.

SN 350,275. The Kansas City Star Company, Kansas City, Mo. Filed Feb. 2, 1970.



Applicant disclaims any exclusive rights in and to the words "Sunday Magazine of" apart from the mark as shown. Owner of Reg. Nos. 173,601 and 570,692.
For Sunday Magazine Supplement of the Kansas City Star (Int. Cl. 16).
First use Jan. 4, 1970.

SN351,310. Cyclomedia Incorporated, Huntington, N.Y. Filed Feb. 13, 1970.

CycloMedia

For Printed Newsletter Mailed to Motion Picture and Magnetic Tape Distributors Concerning Matters Pertinent to the Audio-Visual Communication Industry (Int. Cl. 16).
First use Nov. 17, 1969.

SN 351,490. Lyceum Productions, Altadena, Calif. Filed Feb. 16, 1970.

LYCEUM

For Audio-Visual Educational Material—Namely, Motion Picture Films, Film Strips, Slides, Narrative Sound Recording, and Study Prints Sold as a Package (Int. Cl. 9).
First use July 31, 1967.

SN 352,991. Utility Data Corporation, Houston, Tex. Filed Mar. 3, 1970.



For Maps and Map Facets (Int. Cl. 16).
First use Dec. 15, 1969.

SN 357,459. Ziff-Davis Publishing Company, New York, N.Y. Filed Apr. 20, 1970.

AIR TRAFFIC NEWS

For Newsletter Published Daily (Int. Cl. 16).
First use in 1948.

SN 357,463. Ziff-Davis Publishing Company, New York, N.Y. Filed Apr. 20, 1970.

BUSINESS & COMMERCIAL AVIATION

For Monthly Magazine (Int. Cl. 16).
First use in 1959.

SN 357,841. Bruce D. MacQueen, d.b.a. BDMQ Studios, Oxnard, Calif. Filed Apr. 24, 1970.



For Coloring Book Containing Designs To Be Colored (Int. Cl. 16).
First use Mar. 9, 1970.

SN 358,761. Keyboard Jr. Publications, Inc., New Haven, Conn. Filed May 4, 1970.

YOUNG KEYBOARD

Owner of Reg. Nos. 500,293 and 734,946.
For Periodical Magazine (Int. Cl. 16).
First use Jan. 15, 1949.

SN 361,795. The Murfin Company, Columbus, Ohio. Filed June 5, 1970.

MURLITE

For Self-Adhesive Decals (Int. Cl. 16).
First use May 22, 1970.

Class 39 — Clothing

SN 238,299. S. Rudofker's Sons, Inc., Philadelphia, Pa. Filed Feb. 7, 1966.

THE MOD FORMAL

For Men's and Boys' Coats, Pants, Vests, Suits, Cummerbunds Particularly for Formal Wear (Int. Cl. 25).
First use Dec. 17, 1965.

SN 309,297. Ceil Chapman, Inc., New York, N.Y., assignee of Ceil Chapman Rogers, New York, N.Y. Filed Oct. 9, 1968.

CEIL CHAPMAN

"Ceil Chapman" is the name of a living individual whose consent is of record.
For Ladies' and Misses' Dresses, Coats, and Suits (Int. Cl. 25).
First use January 1938.

SN 320,680. Kangol Helmets Limited, Carlisle, Cumberland, England. Filed Mar. 4, 1969.

ASTRON

For Helmets for Protection Against Accident or Injury (Int. Cl. 9).
First use December 1968; in commerce January 1969.

SN 333,838. Mikelos Shoe Corp., New York, N.Y. Filed July 29, 1969.

MIKÈLOS

For Women's Footwear (Int. Cl. 25).
First use on or about July 22, 1969.

SN 334,035. Angelica Corporation, St. Louis, Mo. Filed July 31, 1969.

MERITEX

For Uniforms, Smocks, Dresses, and Men's Jackets (Int. Cl. 25).
First use July 11, 1969.

SN 334,807. Bond Stores, Incorporated, New York, N.Y. Filed Aug. 8, 1969.

Prince Bonsanti

The name comprising the mark is fanciful.
For Men's Shirts (Int. Cl. 25).
First use July 14, 1969.

SN 335,710. Russ Togs, Inc., Long Island City, N.Y. Filed Aug. 19, 1969.

ANDREW GELLER

"Andrew Geller" is the name of the founder of Andrew Geller, Inc., now deceased.
For Ladies' and Misses' Footwear, Scarfs, Panty Hose, Belts and Dresses (Int. Cl. 25).
First use in or before November 1907 on ladies' footwear.

SN 341,278. International Playtex Corporation, Dover, Del. Filed Oct. 21, 1969.

SMALL WONDER

For Girdles and Brassieres (Int. Cl. 25).
First use Sept. 30, 1969.

SN 343,400. Richard Gregg Manufacturing Co., Inc., Huntsville, Ala. Filed Nov. 13, 1969.

Wondernet

For Hair Protectors—Namely, Sleep Bonnet (Int. Cl. 26).
First use Sept. 5, 1969.

SN 344,055. Kinney Shoe Corporation, New York, N.Y. Filed Nov. 20, 1969.

SUSIE'S CASUALS

No claim is made to the word "Casuals" apart from the mark as shown.
For Women's and Misses' Articles of Clothing—Namely, Dresses, Suits, Jackets, Skirts, Sweaters and Blouses (Int. Cl. 25).
First use May 15, 1969.

SN 345,827. Island Hand-Blockers, Ltd., Honolulu, Hawaii. Filed Dec. 10, 1969.

LUAU FEET HAWAII

No claim is made to the word "Hawaii" apart from the mark.
For Wearing Apparel—Namely, Tee-Shirts, Aloha Shirts, Swimming Suits, Play Shorts, Trousers, Jackets and Sweaters (Int. Cl. 25).
First use Dec. 5, 1968.

SN 345,984. Russell Mills, Inc., Alexander City, Ala. Filed Dec. 11, 1969.

rms

For Fleece Lined Sweaters, Sweat Shirts, Light Weight Knit Sport Shirts, and Knit Zipper Sports Wear Jackets for Men, Women, and Children (Int. Cl. 25).
First use June 17, 1969.

SN 348,782. M. Hoffman & Company, Inc., Boston, Mass. Filed Jan. 16, 1970.

HIGH SEAS

For Marine Dungarees (Int. Cl. 25).
First use June 1968.

SN 349,075. Highlander, Ltd., New York, N.Y. Filed Jan. 20, 1970.

BANDIT

For Sweaters, Pants, Blouses, Jamaicas, Dresses, Skirts, Shorts, Vests, Jackets, Suits, Pant Sets and Shirts (Int. Cl. 25).
First use Jan. 14, 1970.

SN 364,614. Kalso Systemet, Inc., New York, N.Y. Filed July 8, 1970.

THE EARTH SHOE

The term "Shoe" is disclaimed apart from the mark as shown.
For Shoes (Int. Cl. 25).
First use April 1970.

Class 40—Fancy Goods, Furnishings, and Notions

SN 332,153. Scott/Franklin International, Encino, Calif. Filed July 9, 1969.

Wunder Lash

No claim is made to the word "Lash" alone.
For Artificial Eyelashes and Kits Containing Artificial Eyelashes and Adhesive and Cleanser Therefor (Int. Cl. 3).
First use Mar. 1, 1968.

SN 335,696. Jebba, Inc., Beverly Hills, Calif. Filed Aug. 19, 1969.

jebba

For Needlework Foundations and Needlework Kits, Such Kits Containing Needlework Foundations and Yarn (Int. Cl. 26).

SN 340,115. The Boye Needle Company, Chicago, Ill. Filed Oct. 8, 1969.

SPACE-AGE

For Hand Sewing Needles (Int. Cl. 26).
First use on or before Sept. 16, 1969.

SN 344,653. Allied Stores Corporation, New York, N.Y. Filed Nov. 26, 1969.

MR. CLIFFORD

"Mr. Clifford" identifies a living individual whose consent is of record.
For Wigs (Int. Cl. 26).
First use Aug. 8, 1969.

SN 345,546. Loom Treasures, Inc., Garland, Tex. Filed Dec. 9, 1969.



For Trimming for Clothing, Specifically Pintucking, Embroidery, Pleating, and Ruffling (Int. Cl. 26).
First use at least as early as September 1960.

SN 346,917. Life Button Co., Inc., New York, N.Y. Filed Dec. 22, 1969.

LaVie

For Buttons (Int. Cl. 26).
First use Oct. 14, 1969.

SN 348,209. Fashion Tress, Inc., Hialeah, Fla. Filed Jan. 12, 1970.

"MAXI CHIC—MINI PRICE"

Owner of Reg. No. 843,262, and others.
For Ladies' Wigs and Hair Pieces (Int. Cl. 26).
First use on or about Dec. 1, 1969.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 303,628. Charles Pindyck, Inc., New York, N.Y. Filed July 25, 1968.

ROYAL CREST

For Crib Sheets, Towels, Wash Cloths, Blankets, Including Receiving Blankets (Int. Cl. 24).
First use Sept. 1, 1967, on crib sheets, towels and wash cloths.

SN 330,035. Medical Plastics Corporation of America, Greensboro, N.C. Filed June 16, 1969.

KOOL RIB

For Embossed Plastic Film Sold as a Component of Mattress Covers, Pillow Cases, Draw Sheets and Cubicle Curtains Such as are Used in Hospitals and Sick Rooms (Int. Cl. 24).
First use Aug. 1, 1967.

SN 331,495. C. A. Dawson and Company, Springfield, Ill. Filed July 1, 1969.



No claim is made for the words "Dawson's" and "Wonderful World of Values" and the representation of the street map apart from the mark as shown.

For Carpets (Int. Cl. 27).

First use on or about Oct. 12, 1968.

SN 354,072. Deering Milliken, Inc., New York, N.Y. Filed Mar. 16, 1970.

JACQUERIE

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).

First use Feb. 21, 1970.

SN 356,194. Dan River Mills, Incorporated, Danville, Va. Filed Apr. 7, 1970.



DAN RIVER

For Floor Coverings Including Woven and Tufted Carpeting, Carpets, Rugs and Scatter Rugs for Indoor and Outdoor Use, Bath Mats, and Bath Sets (Int. Cl. 27).

First use Mar. 9, 1970.

SN 364,322. Deering Milliken, Inc., New York, N.Y. Filed July 6, 1970.



MILLIKEN

The lining is a part of the mark and is not intended to indicate color. Owner of Reg. Nos. 535,064 and 584,641.

For Textile Rugs, Carpets and Carpeting; Towels and Wash Cloths; and Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cls. 24 and 27).

First use January 1970, on textile rugs, carpets and carpeting; October 1946 as to "Milliken."

Class 43 — Thread and Yarn

SN 340,795. Imperial Chemical Industries Limited, London, England. Filed Oct. 15, 1969.

HETEROFIL

Owner of British Reg. No. B899,192, dated Sept. 8, 1966; and U.S. Reg. No. 886,561.

For Yarns of Natural or Artificial Textile Materials (Int. Cl. 23).

Class 44 — Dental, Medical, and Surgical Appliances

SN 331,723. CMP Industries, Inc., d.b.a. Ticonium Company, Albany, N.Y. Filed July 3, 1969.

COMBO-CLASP

For Prosthetic Devices—Namely, Wire Dental Clasps, Which Dissipate Stress and Leverage Connected With Dentures in the Mouth (Int. Cl. 10).

First use May 1962.

SN 331,724. CMP Industries, Inc., d.b.a. Ticonium Company, Albany, N.Y. Filed July 3, 1969.

TWIN-FLEX

For Prosthetic Device—Namely, Wire Dental Clasps for Holding a Partial Denture in Place in the Mouth (Int. Cl. 10).

First use May 1962.

SN 331,725. CMP Industries, Inc., d.b.a. Ticonium Company, Albany, N.Y. Filed July 3, 1969.

HIDDEN LOCK

For Prosthetic Device—Namely, a Mechanical Interlock Which Holds the Two Elements of a Partial Denture in Place and Serves as a Stressbreaker for Partial Dentures in the Mouth (Int. Cl. 10).

First use July 1962.

SN 335,239. Mah-Zell Precision Products Co., Inc., Brooklyn, N.Y., assignee of Sarah Mahler, d.b.a. Mah-Zell Precision Products Co., Brooklyn, N.Y. Filed Aug. 13, 1969.

MAH-ZELL ALUMINAID

"Mah-Zell" is a phonetic spelling of a Hebrew word, the English translation of which is "luck."

For Medical, Surgical, Hospital and Sick Room Supplies and Aids for Convalescent and Blind—Namely, Aluminum and Wood Crutches and Canes, Walkers, Commodes, Blanket Supports, Traction Apparatus, Back Rests, and Bed Trays (Int. Cl. 10).

First use January 1959.

SN 341,496. Polaroid Corporation, Cambridge, Mass. Filed Oct. 23, 1969.

POLAROID

Owner of Reg. Nos. 540,179, 588,350, and others.

For Kits of Devices Applied to the Mouth so that it may be Photographed, Comprising Intraoral Mounts, Occlusal Reflectors, and Anterior Extensions; and Self-Developing X-Ray Film Packets, and Cassettes and Processing Units Therefor (Int. Cls. 5 and 10).

First use Nov. 26, 1951, on cassettes and processing units.

SN 346,104. Northern Petrochemical Company, Des Plaines, Ill. Filed Dec. 12, 1969.

CAST-DRI

For Water Tight Covers for Arm and Leg Casts on Injured Persons (Int. Cl. 5).

First use Oct. 22, 1969.

SN 346,310. Shofu Dental Mfg. Co., Ltd., Kyoto, Japan. Filed Dec. 15, 1969.



For Powder and Liquid Dental Cement (Int. Cl. 5).

First use Oct. 26, 1936; in commerce Oct. 21, 1965.

SN 347,015. Cordis Corporation, Miami, Fla. Filed Dec. 23, 1969.

STANICOR

For Cardiac Pacers (Int. Cl. 10).

First use Nov. 13, 1969.

SN 350,241. Dynatech Corporation, Cambridge, Mass. Filed Feb. 2, 1970.

CRYOSTRACT

For Cryosurgical Probe for Cataract Removal (Int. Cl. 10).

First use Oct. 31, 1969.

SN 350,311. Sperry Rand Corporation, New York, N.Y. Filed Feb. 2, 1970.

SPERRY RAND

Owner of Reg. Nos. 861,350, 878,587, and others.

For Oral Hygiene Appliance Utilizing a Pulsed Jet of Water or Similar Fluid for Cleaning Teeth and Spaces Adjacent the Teeth and for Massaging the Gums, and Parts for the Appliance (Int. Cl. 10).

First use Oct. 30, 1969.

SN 350,312. Sperry Rand Corporation, New York, N.Y. Filed Feb. 2, 1970.

SPERRY RAND

Owner of Reg. Nos. 861,349, 878,586, and others.

For Oral Hygiene Appliance Utilizing a Pulsed Jet of Water or Similar Fluid for Cleaning Teeth and Spaces Adjacent the Teeth and for Massaging the Gums, and Parts for the Appliance (Int. Cl. 10).

First use Oct. 30, 1969.

SN 350,313. Sperry Rand Corporation, New York, N.Y. Filed Feb. 2, 1970.

SPERRY RAND

Owner of Reg. Nos. 861,348, 878,588, and others.

For Oral Hygiene Appliance Utilizing a Pulsed Jet of Water or Similar Fluid for Cleaning Teeth and Spaces Adjacent the Teeth and for Massaging the Gums, and Parts for the Appliance (Int. Cl. 10).

First use Oct. 30, 1969.

SN 350,314. Sperry Rand Corporation, New York, N.Y. Filed Feb. 2, 1970.



Owner of Reg. Nos. 861,347, 878,585, and others.

For Oral Hygiene Appliance Utilizing a Pulsed Jet of Water or Similar Fluid for Cleaning Teeth and Spaces Adjacent the Teeth and for Massaging the Gums, and Parts for the Appliance (Int. Cl. 10).

First use Oct. 30, 1969.

SN 351,125. Joseph A. La Barber, Kern City, Calif. Filed Feb. 11, 1970.

TURBO BATH



For Water Massage Aerator (Int. Cl. 10).

First use May 7, 1967.

SN 351,126. Joseph A. La Barber, Kern City, Calif. Filed Feb. 11, 1970.

TURBO BATH

For Water Massage Aerator (Int. Cl. 10).
First use May 7, 1967.

SN 354,368. Rohe Scientific Corporation, Santa Ana, Calif. Filed Mar. 18, 1970.

PULSYMMETOR

For Medical Diagnostic Instrument—Namely, Visual Recorder for Comparing Temporal and Amplitude Characteristics of Arterial Pressure Curves in Paired Locations in the Human Body (Int. Cl. 10).
First use Mar. 7, 1970.

SN 357,388. Meiller Research, Inc., College Station, Tex. Filed Apr. 20, 1970.



The drawing is lined for the color red.
For Orthopedic Heels Which are Applied to Shoes of Humans to Correct Foot Toe-In or Toe-Out by Rotation of the Foot With Each Step (Int. Cl. 10).
First use during March 1966.

SN 357,729. Lilavere Company, Beverly Hills, Calif. Filed Apr. 23, 1970.

TWEEN-TOES

For Device for Supporting Toes or Fingers During Manicuring or for Other Purposes (Int. Cl. 21).
First use Mar. 20, 1970.

SN 361,785. Williams Gold Refining Company Incorporated, Buffalo, N.Y. Filed June 4, 1970.

ELECTRALOY R.V.

For Dental Filling Alloy (Int. Cl. 5).
First use on or about Jan. 26, 1970.

SN 363,135. Orion Research Incorporated, Cambridge, Mass. Filed June 19, 1970.

ORION

For Skin Chloride Measuring System Including a Sweat-Induction Cuff, an Ion-Specific Electrode, and a Skin Chloride Meter for Use in Electrochemical Diagnosis of Cystic Fibrosis (Int. Cl. 10).
First use Apr. 23, 1969.

SN 363,713. Parke, Davis & Company, Detroit, Mich. Filed June 26, 1970.

SPORTIVE

For Therapeutic Hosiery (Int. Cl. 10).
First use on or before Apr. 2, 1970.

SN 365,039. Cardiovascular Electrodynamics, Inc., Baltimore, Md. Filed July 13, 1970.

DIALYPHANE

For Dialysis Membranes (Int. Cl. 10).
First use June 16, 1970.

SN 365,040. Cardiovascular Electrodynamics, Inc., Baltimore, Md. July 13, 1970.

NEPHROFLOW

For Membranes for Use in Artificial Kidneys (Int. Cl. 10).
First use June 16, 1970.

SN 365,319. Orthopedic Equipment Co., Inc., Bourbon, Ind. Filed July 15, 1970.

BOY-NT

For Pressure-Equalizing and Leveling Pad for Patient Support (Int. Cl. 10).
First use June 25, 1969.

SN 365,320. Orthopedic Equipment Co., Inc., Bourbon, Ind. Filed July 15, 1970.

KONTAIN-AIRE

For Compressed Air Storage and Control Tank for Pneumatic Tourniquets and Cuffs (Int. Cl. 10).
First use Mar. 3, 1970.

SN 365,765. Micro Mist Corporation, Hudson, Ohio. Filed July 20, 1970.



For Nebulizers (Int. Cl. 10).
First use May 18, 1970.

SN 366,329. Damon Corporation, Needham Heights, Mass. Filed July 27, 1970.

AUTOLANCE

For Disposable Device for Making Controlled Skin Puncture (Int. Cl. 10).
First use May 11, 1970.

SN 366,893. S. H. Camp & Company, Jackson, Mich. Filed Aug. 3, 1970.

CAMP

For Medical and Surgical Devices and Appliances—Namely, Ptosis Supports, Orthopedic Supports, Valvar Varicosity Belts, Maternity Garter Belts, Prosthesis and Breast Forms, Lymphedema Arm Sleeves, Elastic Stockings, Mastectomy Swim Suits, Arm Slings, Legg Perthes, Abduction Hip Devices, Night Splints, Ankle Braces, Cervical Braces, Cervical Collars, Chair Back Braces, Clavical Braces, Flexion Braces, Hyperextension Braces, Knee Braces, Shoulder Braces, Rib Belts, Sternal Plates, Back Braces, Arch Supports, Incontinent Units, Splints, Surgical Pads, Traction Devices, Traction Belts, Anatomical Support Straps and Stays, Trusses, Truss Pads, Therapeutic Bath Devices, Anatomical Support Lacers and Lacing, and Surgical Hose Supporters (Int. Cl. 10).
First use Feb. 1, 1929.

SN 367,701. Oxequip Health Industries, Chicago, Ill. Filed Aug. 11, 1970.

AIR-LITE

For Breathing Equipment for Use in Connection With Oxygen Inhalation Equipment (Int. Cl. 10).
First use Sept. 1, 1969.

SN 368,065. Duffie Doctor, Inc., Louisville, Ky. Filed Aug. 14, 1970.

DUFFLE DOCTOR

For First Aid Kit in the Form of a Pillow Containing First Aid Materials (Int. Cl. 5).
First use June 12, 1970.

SN 368,215. Care Electronics, Inc., Huntsville, Ala. Filed Aug. 17, 1970.



For Electronic Heart Monitor (Int. Cl. 10).
First use Feb. 10, 1970.

SN 368,219. Coliform Company, Geneva, Ill. Filed Aug. 17, 1970.

LEVITATOR

For Hospital Beds (Int. Cl. 20).
First use May 25, 1969.

SN 368,238. Fibre-Optics Industries, Inc., Bedford, Mass. Filed Aug. 17, 1970.



For Recording Spirometers and Parts Thereof (Int. Cl. 10).
First use July 16, 1970.

SN 368,239. Fibre-Optics Industries, Inc., Bedford, Mass. Filed Aug. 17, 1970.

IMPELLAWAY

For Detachable Mouthpiece for Spirometer (Int. Cl. 10).
First use July 16, 1970.

SN 368,240. Fibre-Optics Industries, Inc., Bedford, Mass. Filed Aug. 17, 1970.

SPIROSTAT

For Recording Spirometers (Int. Cl. 10).
First use July 16, 1970.

SN 368,557. Parke, Davis and Company, Detroit, Mich. Filed Aug. 20, 1970.

EPIGARD

For Gauze Pads (Int. Cl. 5).
First use on or before Aug. 7, 1970.

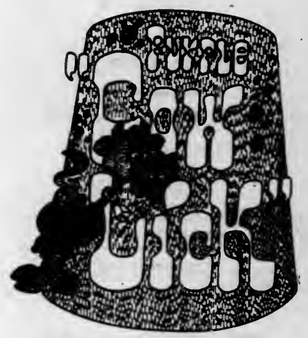
SN 368,834. Becton, Dickinson and Company, East Rutherford, N.J. Filed Aug. 24, 1970.

SCF

For Dry Swabs (Int. Cl. 10).
First use on or about Nov. 21, 1969.

Class 45—Soft Drinks and Carbonated Waters

SN 321,266. Phillips, Incorporated, Dallas, Tex. Filed Mar. 10, 1969.



The drawing is lined for the colors purple and gold.
For Soft Drinks (Int. Cl. 32).
First use June 1, 1968.

SN 353,056. Leo L. Herbstman, Verona, N.J. Filed Mar. 4, 1970.

18 HI

For Ginger Ale and Club Soda (Int. Cl. 32).
First use Feb. 25, 1970.

SN 354,654. Notso Corp., San Francisco, Calif. Filed Mar. 19, 1970.

NOTSO

For Non-Alcoholic Cocktail Beverage Containing Water, Sugar, and Lesser Ingredients (Int. Cl. 32).
First use Aug. 8, 1969.

SN 358,239. General Mills, Inc., Minneapolis, Minn. Filed Apr. 29, 1970.

DRY NOTE

Applicant disclaims the exclusive right to the word "Dry" apart from the mark as shown.
For Soft Drinks (Int. Cl. 32).
First use on or about Mar. 25, 1970.

SN 358,906. General Mills, Inc., Minneapolis, Minn. Filed May 6, 1970.

BLOKE

For Soft Drinks (Int. Cl. 32).
First use on or about Apr. 23, 1970.

SN 358,907. General Mills, Inc., Minneapolis, Minn. Filed May 6, 1970.

ORANGE BASH

Applicant disclaims the word "Orange" apart from the mark as shown.
For Orange Flavored Soft Drinks (Int. Cl. 32).
First use on or about Apr. 23, 1970.

SN 358,908. General Mills, Inc., Minneapolis, Minn. Filed May 6, 1970.

PSSST

For Soft Drinks (Int. Cl. 32).
First use on or about Apr. 23, 1970.

SN 358,909. General Mills, Inc., Minneapolis, Minn. Filed May 6, 1970.

TOFF

For Soft Drinks (Int. Cl. 32).
First use on or about Apr. 23, 1970.

SN 368,353. Tasty-Mates Company, Camden, N.J. Filed Aug. 18, 1970.

TRADER JACK

For Soft Drinks (Int. Cl. 32).
First use at least as early as July 31, 1970.

Class 46 — Foods and Ingredients of Foods

SN 302,695. Abbott Laboratories, North Chicago, Ill. Filed July 15, 1968.

REDI-NURSER

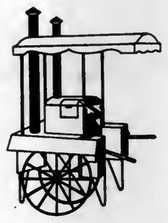
For Prepared Food Formula for Infants Supplied in a Disposable Nursing Bottle (Int. Cl. 5).
First use Aug. 14, 1967.

SN 303,615. Iowa Limestone Company, Des Moines, Iowa. Filed July 25, 1968.

Kal Kote

Applicant claims use for the area comprising the United States except for the eleven states of Washington, Oregon, California, Montana, Idaho, Nevada, Utah, Arizona, New Mexico, Wyoming and Colorado west of Interstate Highway No. 25.
For Calcium Carbonate Coating for Poultry and Livestock Feed Pellets (Int. Cl. 31).
First use on or about June 4, 1964.
Subj. to Con. Use Proc. with SN 265,435.

SN 306,694. Salt's Enterprises, San Rafael, Calif. Filed Sept. 5, 1968.



For Cooked Fish and Chips, and Frozen Fish (Int. Cl. 29).
First use about Jan. 2, 1967.

SN 314,223. Clyde A. Harbin, Whitehaven, Tenn. Filed Dec. 11, 1968.



Applicant disclaims the word "Mixes" and the letters "TM" apart from the mark as shown.
For Frozen Ice Cream, Ice Milk, Milkshake, and Sherbet Mixes (Int. Cl. 30).
First use Mar. 20, 1968.

SN 316,485. Universal Nutritions, Inc., Yonkers, N.Y. Filed Jan. 13, 1969.

MR. POWER HOUSE OF CHAMPIONS

For Dietary Supplements—Namely, Protein Powder Adapted To Be Added to Drinks, Protein Tablets, and a Combination Protein, Fat, and Carbohydrate Powder Adapted To Be Added to Drinks as a Weight Gaining Aid (Int. Cl. 5).
First use Dec. 26, 1968.

SN 316,487. Universal Nutritions, Inc., Yonkers, N.Y. Filed Jan. 13, 1969.

HOUSE OF CHAMPIONS

For Dietary Supplements—Namely, Protein Powder Adapted To Be Added to Drinks, Protein Tablets, and a Combination Protein, Fat, and Carbohydrate Powder Adapted To Be Added to Drinks as a Weight Gaining Aid (Int. Cl. 5).
First use Dec. 26, 1968.

SN 316,778. The Donruss Company, Memphis, Tenn. Filed Jan. 16, 1969.

FLOWER POWER

For Chewing Gum, Sold in Conjunction With Novelty Cards (Int. Cl. 30).
First use Jan. 9, 1969.
Subj. to Intf. with SN 318,417.

SN 318,417. W. R. Grace & Co., New York, N.Y. Filed Feb. 5, 1969.

Flower Power

For Bubble Gum (Int. Cl. 30).
First use Nov. 22, 1968.
Subj. to Intf. with SN 316,778.

SN 331,280. Johnny O. Horany, d.b.a. Horany Enterprises, Enid, Okla. Filed June 30, 1969.

CHEF JOHNNY O

For Barbecue Sauce (Int. Cl. 30).
First use at least as early as 1955.
Subj. to Intf. with SN 318,188.

SN 335,877. Keebler Company, Elmhurst, Ill. Filed Aug. 21, 1969.

CRUNCHY PUNCH

Applicant disclaims the word "Crunchy" except as a part of the mark.
For Candy Coated, Puff-Type Snack Item (Int. Cl. 30).
First use July 16, 1969.

SN 341,620. Blue Banner Company, Inc., Riverside, Calif. Filed Oct. 24, 1969.

RIVERSIDE GOLD

For Fresh Citrus Fruits (Int. Cl. 31).
First use at least as early as 1958.

SN 341,621. Blue Banner Company, Inc., Riverside, Calif. Filed Oct. 24, 1969.

RIVERSIDE SILVER

For Fresh Citrus Fruits (Int. Cl. 31).
First use at least as early as 1958.

SN 342,650. Avelino Maldonado, d.b.a. La Criolla Food Products Co., Chicago, Ill. Filed Nov. 4, 1969.

EL ORGULLO DE SU OLLA

The mark translated from Spanish means "the pride of your pot."
For Rice Flour, Corn Meal, Oatmeal, Canned and Dried Beans, Seasoning (Consisting Essentially of Monosodium Glutamate and Spices), Spices, Noodles, and Candy (Int. Cls. 29 and 30).
First use Dec. 20, 1960, on noodles and beans.

SN 349,393. Claude Sharpe, d.b.a. Sharpe's Sandwiches, Lubbock, Tex. Filed Jan. 22, 1970.

BUBBLE TACOS

The word "Tacos" is disclaimed except as part of the mark as a whole.
For Frozen Meat and Cheese Tacos (Int. Cl. 30).
First use Nov. 25, 1967.

SN 349,956. Victor Lopez De Vinaspre, d.b.a. Victor Lopez, Boise, Idaho. Filed Jan. 29, 1970.



For Fresh Eggs (Int. Cl. 29).
First use Oct. 18, 1951.

SN 353,696. ITT Continental Baking Company, Rye, N.Y. Filed Mar. 11, 1970.

TOASTA WIRLS

Applicant disclaims "Toasta" apart from the mark as shown.
For Pastry (Int. Cl. 30).
First use Dec. 18, 1969.

SN 354,116. Borden, Inc., New York, N.Y. Filed Mar. 16, 1970.

JINGLE JELL

The word "Jell" is disclaimed apart from the mark as shown.
For Prepared Gelatin Dessert (Int. Cl. 30).
First use on or before Aug. 26, 1969.

SN 355,137. L & M Tea Company, Inc., Jackson, Tenn. Filed Mar. 26, 1970.

L&M

Owner of Reg. No. 539,188.
For Peanut Butter (Int. Cl. 29).
First use Jan. 26, 1970.

SN 355,284. Warren Wilson, d.b.a. Oasis Gardens, Inc., Indio, Calif. Filed Mar. 27, 1970.



For Fresh Citrus Fruits (Int. Cl. 31).
First use at least as early as November 1967.

SN 356,215. Pierce Pre-Cooked Foods, Inc., Moorefield, W. Va. Filed Apr. 7, 1970.

WINGERS

For Frozen, Pre-Cooked, Chicken Wings (Disjointed) (Int. Cl. 29).
First use Jan. 23, 1970.

SN 356,219. Pierce Pre-Cooked Foods, Inc., Moorefield, W. Va. Filed Apr. 7, 1970.

PIXIES

For Frozen, Pre-Cooked, Chicken Wings (Disjointed) (Int. Cl. 29).
First use Jan. 23, 1970.

SN 356,220. Pierce Pre-Cooked Foods, Inc., Moorefield, W. Va. Filed Apr. 7, 1970.

LOVEBIRDS

For Frozen, Pre-Cooked, Chicken Parts (Int. Cl. 29).
First use Jan. 23, 1970.

SN 361,439. Mars, Incorporated, Wilmington, Del. Filed June 2, 1970.

SNICKERS PEANUT MUNCH

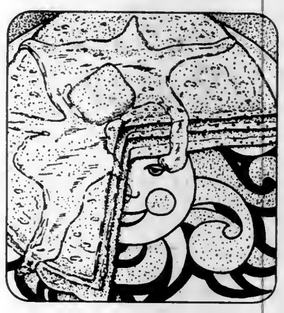
The words "Peanut Munch" are disclaimed apart from the mark as a whole. Owner of Reg. Nos. 239,311 and 734,299.
For Candy (Int. Cl. 30).
First use Apr. 21, 1970.

SN 368,489. Horlicks Corporation, Racine, Wis. Filed June 24, 1970.

TRAINER'S BOOST

Owner of Reg. No. 728,939.
For Food Treat for Dogs (Int. Cl. 31).
First use Apr. 6, 1970.

SN 368,167. General Mills, Inc., Minneapolis, Minn. Filed Aug. 17, 1970.



Applicant disclaims the representation of the pancakes apart from the mark as shown. The lining and stippling which appear in the drawing are not intended to represent any color, but are for shading purposes only.
For Pancake Mix (Int. Cl. 30).
First use on or about July 24, 1970.

SN 369,051. Nebraska Consolidated Mills Company, Omaha, Nebr. Filed Aug. 26, 1970.

BECK 'N CALL

For Donut Mix (Int. Cl. 30).
First use on or about July 20, 1970.

Class 47—Wines

SN 342,159. Gibson Wine Company, Covington, Ky. Filed Oct. 30, 1969.

TIKI TAI

For Wines (Int. Cl. 33).
First use Oct. 15, 1969.

SN 362,791. Widmer's Wine Cellars, Inc., Naples, N.Y., assignee of San Marino Wine Corporation, Brooklyn, N.Y. Filed June 16, 1970.

GRAND BOUQUET

For Champagne and Wine (Int. Cl. 33)
First use Nov. 1, 1941.

SN 362,792. Widmer's Wine Cellars, Inc., Naples, N.Y., assignee of San Marino Wine Corporation, d.b.a. Pierre Perignon Champagne Co., Brooklyn, N.Y. Filed June 16, 1970.

PIERRE PERIGNON

The name "Pierre Perignon" is fanciful and does not refer to any living individual.
For Champagne and Wine (Int. Cl. 33).
First use November 1939.

Class 49—Distilled Alcoholic Liquors

SN 328,564. Glenmore Distilleries Company, Louisville, Ky., by merger from Mr. Boston Distiller Inc., Boston, Mass. Filed May 28, 1969.

COMMAND POST

For Vodka (Int. Cl. 33).
First use Feb. 21, 1969.

SN 334,106. Montebello Liquors, Inc., d.b.a. Gordon-O'Neill Company, Baltimore, Md. Filed July 31, 1969.

BRITANNIA

For Whiskey (Int. Cl. 33).
First use July 1, 1969.
Subj. to Intf. with SN 335,033.

SN 343,261. Distillerie Stock U.S.A., Ltd., Woodside, N.Y. Filed Nov. 12, 1969.

ROYALSTOCK

Owner of Reg. Nos. 349,402, 835,230, and others.
For Brandy (Int. Cl. 33).
First use June 3, 1969.

SN 350,828. John Walker & Sons Limited, London, England. Filed Feb. 2, 1970.

CARDHU

For Whisky (Int. Cl. 33).
First use October 1965; in commerce Dec. 15, 1969.

SN 350,733. Euspina Ltd., Zug, Switzerland. Filed Feb. 6, 1970.

DRUM BEATER

Owner of Swiss Reg. No. 242,285, dated July 30, 1969.
For Spirits—Namely, Gin (Int. Cl. 33).

Class 50—Merchandise Not Otherwise Classified

SN 310,287. Polytop Corporation, Slatersville, R.I. Filed Oct. 23, 1968.

LOC-TOP

For Container Closures in the Nature of Bottle Caps Having a Cap Portion Adapted To Be Secured to a Container and a Spout Mounted on the Cap Portion so as To Be Capable of Being Rotated Between Open and Closed Positions (Int. Cl. 20).
First use June 10, 1957.

SN 327,712. Empro Products Company, Paterson, N.J. Filed May 13, 1969.

EMPRO

For Price Holders for Gasoline Pumps and Price Change Numbers for Insertion in Holders on Gasoline Pumps (Int. Cl. 16).
First use 1956.

SN 328,027. Award Incentives Incorporated, Brooklyn, N.Y. Filed May 22, 1969.

VU-FRAME

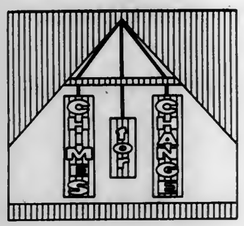
For Clear Plastic Blocks Used for Displaying Cards, Photos, Certificates, Impressions on Metal Plates and Foils, and Silk Screen Productions (Int. Cl. 20).
First use February 1969.

SN 332,752. Textron Inc., Pittsfield, Mass. Filed July 16, 1969.

MAGNETIC PHOTO GALLERY

For Snapshot Display Devices Comprising a backboard of Iron, With a Border, and Magnetic Strips to Press Snapshots Against the backboard by Magnetic Attraction of Said Strips to Said Backboard (Int. Cl. 16).
First use Aug. 16, 1965.

SN 335,568. Greensboro Sheltered Workshop-Adult Activities, Greensboro, N.C. Filed Aug. 18, 1969.



The drawing is lined for red, but applicant makes no claim to any particular color. Applicant claims no rights in the word "Chimes" or in the representation of the goods apart from the mark shown, but the applicant waives none of its common law rights in the mark or in any feature thereof.
For Wind Chimes (Int. Cl. 20).
First use July 7, 1969.

SN 340,858. Voyager Emblems Inc., Sanborn, N.Y. Filed Oct. 15, 1969.



For Emblems or Badges (Int. Cl. 20).
First use Sept. 12, 1969.

SN 347,223. Alfred S. Colella, d.b.a. Colella Invention Lab., West Covina, Calif. Filed Dec. 29, 1969.

ROLL-FREE SAFETY CAP

Applicant disclaims the words "Safety Caps" apart from the mark as shown.
For Safety Closures for Containers for Dangerous or Deleterious Substances, Such as Poisons, Certain Medicines, Drugs, and the Like (Int. Cl. 20).
First use Mar. 1, 1969.

SN 348,348. Seven Seas Incorporated, Westport, Conn. Filed Jan. 12, 1970.

SEVEN SEAS

Owner of Reg. No. 858,941.
For Figurines and Sculpture Decorative Tiles and Ship Models (Int. Cl. 20).
First use November 1968.

SN 350,552. Wenner-Gren Foundation for Anthropological Research, Inc., New York, N.Y. Filed Feb. 5, 1970.

ANTHRO-CAST

For Code Samples for Anthropological Reproductions (Int. Cl. 20).
First use Nov. 21, 1969.

SN 351,149. Sheldow Bronze Corporation, Kingwood, W. Va. Filed Feb. 11, 1970.

ROYAL LINE MEMORIALS

For Bronze Memorial Grave Markers (Int. Cl. 6).
First use on or about July 1, 1960.

SN 351,166. The Williamsburg Bronze Corporation, Kingwood, W. Va. Filed Feb. 11, 1970.

MAJESTIC LINE MEMORIALS

For Bronze Memorial Grave Markers (Int. Cl. 6).
First use on or about Dec. 1, 1966.

SN 353,140. Portrait Antiques of America, Inc., Omaha, Nebr. Filed Mar. 5, 1970

PORTIQUE

For Decorative Mountings for Portraits and Photographs, in the Form of Plaques, Covers for Albums, and Decorator Pieces Simulating Books (Int. Cl. 16).
First use on or before July 1, 1968.

SN 358,167. Richard T. Barbour, d.b.a. Can-Crown Div., Columbia Sales Co., Downey, Calif. Filed Apr. 28, 1970.

CAN-CROWN

For Beverage Can Drinking Adapters (Int. Cl. 21).
First use June 1962.

SN 358,831. Am-Art, Inc., Louisville, Ky. Filed May 5, 1970.

THE QUITTER

For Cigarette Lighter Facsimile With Retractable Flag Stating "I Quit" (Int. Cl. 20).
First use at least as early as Apr. 30, 1970.

Class 51 — Cosmetics and Toilet Preparations

SN 314,246. Ferdinand Mulhens, d.b.a. Eeau de Cologne & Parfumerie-Fabrik, Cologne (Rhine), Germany. Filed Dec. 11, 1968.

DEOCOLOGNE

Owner of German Reg. No. 740,842, dated May 24, 1960.
For Perfumeries, Tissues Impregnated With a Skin Freshener and Cosmetic Cleanser, Deodorants, Talc, Bath Salts, Foam Bath, and Body Lotions (Int. Cls. 3 and 5).

SN 317,153. Sony Corporation, Shinagawa-ku, Tokyo, Japan. Filed Jan. 21, 1969.

SONY

Owner of U.S. Reg. Nos. 691,940, 824,847, and others.
For Lipstick (Int. Cl. 3).
First use June 11, 1968; in commerce June 11, 1968.

SN 321,288. Studio Girl-Hollywood, Inc., Chicago, Ill. Filed Mar. 10, 1969.

JUVENESCENCE

For Moisturizing Skin Cream (Int. Cl. 3).
First use on or before Nov. 30, 1961.
Subj. to Intf. with SN 323,618.

SN 331,508. The Gillette Company, d.b.a. The Toni Company, Boston, Mass. Filed July 1, 1969.

SUN IN

For Hair Lightener (Int. Cl. 3).
First use Mar. 3, 1969.

SN 333,779. Virgin Islands Perfume Corporation, St. Thomas, Virgin Islands. Filed July 28, 1969.



For Perfume, Eau de Cologne, Bath Oil, and Cream Cologne (Int. Cl. 3).
First use Oct. 1, 1968.

SN 336,396. Elizabeth Arden Sales Corporation, d.b.a. Elizabeth Arden, New York, N.Y. Filed Aug. 27, 1969.

SOOTHING SEA SPLASH

Applicant disclaims exclusive rights to the word "Soothing" apart from the mark as shown.
For Liquid Friction Rub (Int. Cl. 3).
First use July 28, 1969.

SN 339,217. Robert Daniels & Company, Inc., Moonachie, N.J., assignee of Max Orlove, d.b.a. Goodrich & Love and Max A. Love, New York, N.Y. Filed Sept. 29, 1969.

'EFF-REMIN'

For Effervescent Dentifrice (Int. Cl. 3).
First use Dec. 1, 1937.

SN 340,572. The Mennen Company, Morristown, N.J. Filed Oct. 13, 1969.

MENNEN PLUS

Owner of Reg. No. 505,807.
For After Shave Lotion (Int. Cl. 3).
First use Sept. 18, 1969.

SN 350,108. The Mennen Company, Morristown, N.J. Filed Jan. 30, 1970.

GREEN FIRE

Applicant disclaims the word "Green" apart from the mark as shown.
For After Shave Lotion (Int. Cl. 3).
First use Jan. 7, 1970.

SN 350,109. The Mennen Company, Morristown, N.J. Filed Jan. 30, 1970.

OO-LA-LEG

For Women's After Shave Lotion (Int. Cl. 3).
First use Jan. 7, 1970.

SN 350,651. Colgate-Palmolive Company, New York, N.Y. Filed Feb. 6, 1970.

MILK CARE

Applicant disclaims the word "Milk" apart from the mark as shown.
For Hand Lotion (Int. Cl. 3).
First use Jan. 22, 1970.

SN 352,741. Union Carbide Corporation, New York, N.Y. Filed Mar. 2, 1970.

KILTER

For Personal Deodorant (Int. Cl. 5).
First use on or about Feb. 13, 1970.

SN 358,243. La Bottega, Ltd., New York, N.Y. Filed Apr. 29, 1970.

la bottega

"La Bottega" is an Italian word whose English translation is "store, warehouse, painter's studio."
For Men's Toiletries, i.e., Cologne (Int. Cl. 3).
First use at least as early as 1956.

SN 358,367. Century Creations, Inc., Venice, Calif. Filed Apr. 30, 1970.

sènshou

For Cologne and Body Freshener (Int. Cl. 3).
First use Apr. 8, 1970.

Class 52 — Detergents and Soaps

SN 316,316. Isolab Supply Company, Akron, Ohio. Filed Jan. 10, 1969.

ISOCLEAN CONCENTRATE

The term "Concentrate" is disclaimed apart from the mark as shown.
For Detergent Formulations for Cleaning Isotope Activity From Glass, Plastic, and Metal Labware (Int. Cl. 3).
First use on or about Nov. 1, 1966.

SN 332,597. Agway, Inc., De Witt, N.Y. Filed July 15, 1969.

LEMON PINK

The word "Lemon" is disclaimed apart from the mark as shown.
For Dish and Fabric Washing Detergent (Int. Cl. 3).
First use June 12, 1969.

SN 335,332. Doman Products, Inc., Chicago, Ill. Filed Aug. 14, 1969.

TARN-X

For Tarnish Remover for Silver, Platinum, Copper, Brass, Gold and Diamonds (Int. Cl. 3).
First use Apr. 22, 1968.

SN 337,045. Hubbard's Imperial, Inc., Kansas City, Mo. Filed Sept. 4, 1969.

Imperial

Owner of Reg. Nos. 259,966 and 514,239.
For Non-Explosive Cleaning Preparations for Household and Commercial Uses—Namely, Fabrics, Porcelain and Ceramic Tile Surfaces, Hardwood and Linoleum and Garage Floors, Leather Goods, Machinery, Automobiles, Appliances and Paint Brushes (Int. Cl. 3).
First use June 6, 1961; November 1927 in a different form.

SN 337,531 Faler, Inc., Kansas City, Mo. Filed Sept. 10, 1969.

KLEE-net

For Toilet Bowl Cleanser (Int. Cl. 3).
First use Oct. 30, 1960.

SN 344,920. West Chemical Products, Inc., Long Island City, N.Y. Filed Nov. 28, 1969.

WEST-CHLOR

For Liquid Cleaner Sanitizer for All Types of Equipment and Utensils Used in the Handling of Food Products, Milk, Beverages, etc. (Int. Cl. 3).
First use Oct. 15, 1969.

SN 345,292. Baxter Laboratories, Inc., Morton Grove, Ill. Filed Dec. 4, 1969.

LAUNDRAZYME

For Enzymatic Preparation for Use as a Stain Remover by Commercial Laundries (Int. Cl. 3).
First use Nov. 26, 1934.

SN 352,066. Baltimore Paint & Chemical Corporation, Baltimore, Md. Filed Feb. 24, 1970.

CYCLONE

Owner of Reg. No. 522,562.
For Liquid Paint and Varnish Remover (Int. Cl. 3).
First use 1921.

SN 352,508. Owen Laboratories, Inc., Dallas, Tex. Filed Feb. 26, 1970.

DARAGEN

For Hair Shampoo (Int. Cl. 3).
First use Feb. 12, 1970.

SN 356,527. Varco Chemical Corporation, Englewood Cliffs, N.J. Filed Apr. 10, 1970.

"VARCO HAS THE SOLUTION"

For Chemical Cleaning Compositions for Use on Floors, Walls, and Mechanical and Electrical Equipment (Int. Cl. 3).
First use July 17, 1967.

SERVICE MARKS

Class 100—Miscellaneous

SN 320,968. The Pasta House, Inc., Clarks Summit, Pa. Filed Mar. 6, 1969.



Applicant hereby expressly disclaims exclusive right to the use of the words "The Pasta House," aside and apart from the mark as shown, reserving, however, unto itself any and all common law rights which it may have. Owner of Reg. No. 842,958.
For Restaurant Services (Int. Cl. 42).
First use Apr. 2, 1965.

SN 329,273. Sandoz-Wander, Inc., Hanover, N.J., by change of name from Sandoz, Inc., Hanover, N.J. Filed June 5, 1969.

SARFO

For Automatic Pre-Calculation of Dyeing Formulas for Use by Customers of Applicant in the Dye and Pigment Industries (Int. Cl. 42).
First use Apr. 18, 1968.

SN 329,716. Hager Restaurants, Inc., Bridgeport, Conn. Filed June 11, 1969.

HAGER'S

For Restaurant Services (Int. Cl. 42).
First use November 1968; about 1962 as to "Hager."

SN 331,430. Senator Kearney's, Inc., Providence, R.I. Filed June 30, 1969.

SENATOR KEARNEY'S

The name "Senator Kearney" does not refer to any living person.
For Restaurant, Liquor Bar and Cocktail Lounge Services (Int. Cl. 42).
First use on or about June 27, 1968.

SN 334,448. A Trysting Place, Inc., Miami Springs, Fla. Filed Aug. 5, 1969.



For Cocktail Lounge Services (Int. Cl. 42).
First use June 19, 1967.

SN 359,466. Compute-Her-Look, Inc., Succasunna, N.J. Filed May 12, 1970.

COMPUTE-HER-LOOK

For Providing Beauty Analysis and Suggestions Therefor by Processing Data Indicative of Physical Characteristics; and Furnishing Individualized Beauty Reports Based on Computerized Analysis of Information Concerning an Individual's Physical Characteristics (Int. Cl. 42).
First use on or before Feb. 12, 1970.

Class 101—Advertising and Business

SN 316,806. McCrory Corporation, New York, N.Y. Filed Jan. 16, 1969.

STAGE 9

For Retail Department Store Services (Int. Cl. 35).
First use Sept. 19, 1968.

SN 318,179. First National Stores Inc., d.b.a. Big Buy Food Centers, Somerville, Mass. Filed Feb. 3, 1969.

BIG BUY

For Retail Grocery Store Services (Int. Cl. 35).
First use Nov. 19, 1968.

SN 318,856. Agency Service Bureau, Inc., Tacoma, Wash. Filed Feb. 5, 1969.

ASB

For Providing Automated Accounting Records to General Insurance Agents and Brokers (Int. Cl. 35).
First use June 1, 1963.

SN 322,675. Affiliated Home Centers, Inc., Bethlehem, Pa. Filed Mar. 25, 1969.

american home center

Applicant disclaims "Home Center" apart from the mark as shown.
For Management Consulting Services for Lumber Dealers (Int. Cl. 35).
First use Dec. 8, 1968.

SN 323,009. Edward W. Phelan, d.b.a. Saf-Card Registry, Little Rock, Ark. Filed Mar. 27, 1969.

SAF-CARD REGISTRY

The word "Registry" is disclaimed apart from the mark as shown.
For Compiling and Maintaining a Registry of Credit Card Numbers for the Benefit of Others (Int. Cl. 35).
First use Feb. 1, 1969.

SN 323,225. Big Brake, Inc., Newport Beach, Calif. Filed Apr. 1, 1969.



Applicant disclaims the words "Brake," "Safety Center" and the representation of the brake shoes apart from the mark as shown.
For Technical Assistance in the Establishment of Automotive Service Centers (Int. Cl. 35).
First use on or about Sept. 11, 1962.

SN 323,395. Walker Research, Inc., Indianapolis, Ind. Filed Apr. 1, 1969.



The drawing is lined for the color blue, but no claim is made to said color.
For Research Services, Involving Testing, Surveying and Evaluating Products, Advertising, Packaging, and Marketing Conditions for Its Clients (Int. Cl. 35).
First use on or about Feb. 15, 1969.

SN 824,164. Beconta, Inc., New York, N.Y. Filed Apr. 10, 1969.



For Distributorship Services in the Field of Sporting Goods (Int. Cl. 35).
First use 1962.

SN 324,165. Sports Beconta, Inc., Elmsford, N.Y., assignee of Beconta, Inc., New York, N.Y. Filed Apr. 10, 1969.



For Distributorship Services in the Field of Sporting Goods (Int. Cl. 35).
First use 1962.

SN 324,166. Beconta, Inc., New York, N.Y. Filed Apr. 10, 1969.

BECONTA

For Distributorship Services in the Field of Sporting Goods (Int. Cl. 35).
First use April 1959.

SN 324,718. Indecon, Inc., Chicago, Ill. Filed Apr. 16, 1969.

INDECON

For Computer Programming Services (Int. Cl. 35).
First use Aug. 15, 1968.

SN 325,038. Amtel Arts Inc., Providence, R.I., assignee of Walter E. Hayward Co., Inc., Attleboro, Mass. Filed Apr. 21, 1969.

CASH COIN

Applicant disclaims the word "Coin" except as used with the mark.
For Promoting the Sale of Goods and Services of Others by Imitation Money Carrying Advertising in the Form of Redeemable Features (Int. Cl. 35).
First use Oct. 31, 1968.

SN 329,117. National Medical Centers Company, New York, N.Y. Filed June 4, 1969.



Applicant disclaims the words "Medical System" apart from the mark as shown.
For Management and Supervision of and Technical Assistance in the Establishment and/or Operation of Hospitals, Nursing Homes and Extended Care Facilities (Int. Cl. 35).
First use Jan. 1, 1969.

SN 329,118. National Medical Centers Company, New York, N.Y. Filed June 4, 1969.



Applicant disclaims the words "Medical Centers" apart from the mark as shown.
For Management and Supervision of and Technical Assistance in the Establishment and/or Operation of Hospitals, Nursing Homes and Extended Care Facilities (Int. Cl. 35).
First use Jan. 1, 1969.

SN 334,468. Fabric Distributors, Inc., Cincinnati, Ohio. Filed Aug. 5, 1969.

drapes on wheels

The term "Drapes" is disclaimed apart from the mark as shown.
For Retail Drapery, Slip Covers and Accessories Store Services (Int. Cl. 35).
First use May 19, 1968.

SN 336,681. Docktor Pet Centers, Inc., Philadelphia, Pa. Filed Aug. 29, 1969.

DOCKTOR
PET CENTER

Applicant disclaims the words "Pet Center" apart from the mark as shown, but reserves its common law rights therein. Owner of Reg. No. 864,688.
For Retail Pet Store Services as Well as the Rendering of Advice and Consultation Services in the Establishment and Management of Retail Pet Stores in All Phases of Business (Int. Cl. 35).
First use on or about Oct. 13, 1966.

SN 337,332. Lane Marketing, Inc., New York, N.Y. Filed Sept. 8, 1969.

'BABYSCOPE'

For Direct Mailing of Sample Baby Products to New Mothers (Int. Cl. 35).
First use Apr. 15, 1969.

SN 337,380. Paul J. Wesselkamper's Signature, Inc., Cincinnati, Ohio. Filed Sept. 8, 1969.

SIGNATURE.

For Real Estate Brokerage Services (Int. Cl. 35).
First use at least as early as Mar. 10, 1969.

SN 337,621. Sports-Land Corporation, San Francisco, Calif. Filed Sept. 11, 1969.

SPORTS-LAND

For Retail Variety Store Services (Int. Cl. 35).
First use on or about Feb. 1, 1969.

SN 340,547. Gunderland Marine Supply, Inc., Corpus Christi, Tex. Filed Oct. 13, 1969.



For Marine Supplies and Boat Sales Outlet Services (Int. Cl. 35).
First use Oct. 1, 1968.

SN 341,067. Synetics, Inc., Charlotte, N.C. Filed Oct. 17, 1969.

SYNETICS

For Graphic Communication Services—Namely, Copy Preparation, Art Preparation, Printing, Publishing, Direct Mailing, Duplicating, and Addressing (Int. Cl. 35).
First use July 1, 1969.

SN 343,727. The May Department Stores Company, St. Louis, Mo. Filed Nov. 17, 1969.

THE SHOE IN

For Retail Shoe Store Services (Int. Cl. 35).
First use Aug. 10, 1969.

SN 344,419. Personnel Systems International, Inc., Boston, Mass. Filed Nov. 24, 1969.



For Employment Agency Services (Int. Cl. 35).
First use June 1969.

SN 344,873. The MacKenzie Corporation, Houston, Tex. Filed Nov. 28, 1969.

MEDIPOWER

For Temporary Employment Agency Services (Int. Cl. 35).
First use June 20, 1969.

SN 356,676. Harmon-O'Loughlin Enterprises, Inc., Portland, Oreg. Filed Apr. 13, 1970.



For Production and Promotion of Closed and Public Trade Shows (Int. Cl. 35).
First use Oct. 23, 1968.

SN 360,106. Mr. Wiggs Department Stores, Inc., Beachwood, Ohio. Filed May 18, 1970.

MRWiggs

Owner of Reg. Nos. 823,779, 827,685, and 848,796.
For Department Store Services (Int. Cl. 35).
First use Mar. 2, 1970.

SN 363,242. Zayre Corp., Natick, Mass. Filed June 22, 1970.

SPREE!

For Retail Toy Store Services (Int. Cl. 35).
First use June 8, 1970.

SN 365,274. Service Specialists, Ltd., Oklahoma City, Okla. Filed July 15, 1970.



Applicant disclaims any exclusive rights in the word "Temporaries," apart from the mark as shown. Owner of Reg. Nos. 855,716 and 881,892.
For Employment Agency Services (Int. Cl. 35).
First use Jan. 1, 1967.

SN 365,275. Service Specialists, Ltd., Oklahoma City, Okla. Filed July 15, 1970.

TOTAL TEMPORARIES

Applicant disclaims any exclusive rights in the word "Temporaries," apart from the mark as shown. Owner of Reg. Nos. 855,716 and 881,892.
For Employment Agency Services (Int. Cl. 35).
First use Jan. 1, 1967.

Class 102 — Insurance and Financial

SN 326,077. Coast and Southern Federal Savings and Loan Association of Los Angeles, Los Angeles, Calif., by change of name from Coast Federal Savings and Loan Association of Los Angeles, Los Angeles, Calif. Filed May 1, 1969.

MAXI-MATIC

For Banking Services—Namely, Savings and Loan Association Services (Int. Cl. 36).
First use Jan. 2, 1969.

Class 103 — Construction and Repair

SN 318,108. Tape City U.S.A., Inc., Houston, Tex. Filed Jan. 31, 1969.

TAPE CITY U.S.A.

For Installation and Repair of Stereophonic Equipment for Automobiles (Int. Cl. 37).
First use Aug. 14, 1967.

SN 323,518. Sunset Pools, Inc., North Hollywood, Calif. Filed Apr. 3, 1969.

SUNSET POOLS

Without prejudice to its common law rights, applicant disclaims the word "Pools" apart from the mark as shown.
For Constructing and Servicing Swimming Pools (Int. Cl. 37).
First use about 1953 or 1954.

SN 330,781. Steamatic, Inc., Fort Worth, Tex. Filed June 23, 1969.



For Steam Cleaning Rugs and Carpets (Int. Cl. 37).
First use May 14, 1969.

SN 337,440. Dionics, Incorporated, Westbury, N.Y. Filed Sept. 9, 1969.

DIONICS

For Custom Construction of Integrated Circuits and Further Manufacture in Industrial Lots (Int. Cl. 37).
First use December 1968.

SN 340,229. Allastics, Inc., Norcross, Ga. Filed Oct. 9, 1969.



The drawing is lined for the color blue.
For Manufacturing of Plastic Articles to the Order and/or Specification of Buyers (Int. Cl. 37).
First use Sept. 22, 1969.

SN 345,624. Gas Consumers Association, Scarsdale, N.Y. Filed Dec. 8, 1969.



Owner of Reg. Nos. 848,352 and 874,466.
For Servicing and Repairing of Gas and Electric Appliances (Int. Cl. 37).
First use Sept. 1, 1968.

SN 350,234. De George Ceilings, Inc. of New York, Buffalo, N.Y. Filed Feb. 2, 1970.

DE GEORGE

For Ceiling Installation Services (Int. Cl. 37).
First use on or about Aug. 14, 1967.

Class 105 — Transportation and Storage

SN 289,076. British United Airways Limited, London, England. Filed Jan. 18, 1968.

BUA

For Airline Passenger and/or Cargo Transportation Services (Int. Cl. 39).
First use July 6, 1966; in commerce Mar. 1, 1967.

SN 299,747. Allied Van Lines, Inc., Broadview, Ill. Filed June 5, 1968.

WE MOVE FAMILIES, NOT JUST FURNITURE

For Packing, Storage and Truck Transportation of the Goods of Others; and Freight Forwarding Services (Int. Cl. 39).
First use January 1966.

SN 320,172. Pan American World Airways, Inc., New York, N.Y. Filed Feb. 26, 1969.

PANACHECK

For Computerized Airline Passenger and Baggage Check-In Service (Int. Cl. 39).
First use Oct. 17, 1967.

SN 320,424. Boise Cascade Corporation, Boise, Idaho. Filed Mar. 3, 1969.



For Travel Agency Services (Int. Cl. 39).
First use Sept. 1, 1967.

SN 322,951. American World Tours, Inc., Los Angeles, Calif. Filed Mar. 27, 1969.

AMERICAN WORLD TOURS

No claim is made to the words "World Tours" separate and apart from the mark as shown.
For Arranging and Conducting Tours and Trips (Int. Cl. 39).
First use October 1966.

SN 331,203. Iberia Lineas Aereas de Espana S.A., Madrid, Spain. Filed June 27, 1969.

IBERIA AIR LINES OF SPAIN

For Transportation by Air of Passengers and Freight (Int. Cl. 39).
First use Jan. 31, 1963; in commerce Feb. 28, 1963.

SN 336,248. Gateway Transportation Co., Inc., La Crosse, Wis. Filed Aug. 15, 1969.



The drawing is lined to indicate the color green. Owner of Reg. No. 641,546.
For Transportation of Freight by Motor Vehicle (Int. Cl. 39).
First use Jan. 10, 1969.

SN 350,172. Arcoa International, Inc., Phoenix, Ariz., by change of name from Arcoa, Inc., Phoenix, Ariz. Filed Feb. 2, 1970.



Owner of Reg. Nos. 746,034, 786,156, and 795,733.
For Truck and Automobile Trailer Rentals (Int. Cl. 39).
First use Nov. 15, 1969; Oct. 15, 1945 as to "U-Haul."

Class 107 — Education and Entertainment

SN 323,612. John Wolfe Institute, Inc., Houston, Tex. Filed Apr. 3, 1969.



The mark is a fanciful representation of the letters "J" and "W."
For Sales Training Services (Int. Cl. 41).
First use May 22, 1968.

SN 340,049. Thomas Gilmore Stuart II, Tuscaloosa, Ala. Filed Oct. 7, 1969.

THE RUBBERBAND

For Entertainment Services—Namely, Providing Band and Vocal Entertainment (Int. Cl. 41).
First use Aug. 1, 1966.

SN 354,184. Franklin K. Howard College Boards Institute, Inc., Mineola, N.Y. Filed Mar. 16, 1970.



Applicant disclaims the words "College Boards Institute" apart from the mark as shown.
For Educational Services—Namely, Tutoring Services and the Conduct of College Preparation Courses, Namely, Instruction in Mathematical and Verbal Skills (Int. Cl. 41).
First use Jan. 2, 1970.

COLLECTIVE MEMBERSHIP MARKS

Class 200

SN 359,464. Alpha Omicron Pi Fraternity, Inc., Indianapolis, Ind. Filed May 12, 1970.



The mark consists of a rose design with the Greek letters "Alpha, Omicron, Pi" superimposed thereon.
For Indicating membership in applicant.
First use June 1965.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

903,685. PIUMA D'ORO AND LEAF DESIGN. Lelio Furlan Rossi. MULTIPLE CLASS (Classes 1, 20, and 42). SN 320,209. Pub. 9–22–70. Filed 2–27–69.

903,686. ULTRA-VEST. Dentsply International Inc. SN 329,343. Pub. 9–22–70. Filed 6–6–69.

903,687. MASSAGED FEATHERSOFT. The Lackawanna Leather Co. SN 335,765. Pub. 9–22–70. Filed 8–20–69.

903,688. FRABS. Hooker Chemical Corporation. SN 338,568. Pub. 9–22–70. Filed 9–22–69.

903,689. DESIGNS OF DIAMONDS, STAR ETC. The Stearns & Foster Company. SN 338,697. Pub. 9–22–70. Filed 9–23–69.

903,690. PEXATE. Hercules Incorporated. SN 338,781. Pub. 9–22–70. Filed 9–24–69.

903,691. VINSALYN. Hercules Incorporated. SN 338,782. Pub. 9–22–70. Filed 9–24–69.

Class 2 — Receptacles

903,692. PARKE-DAVIS AND CAPSULE DESIGN. Parke, Davis & Company. SN 317,188. Pub. 9–22–70. Filed 1–22–69.

Class 4 — Abrasives and Polishing Materials

903,693. PRO WAY. Professional Chemists, Inc. MULTIPLE CLASS (Classes 4, 6, and 52). SN 311,637. Pub. 9–22–70. Filed 11–8–68.

903,694. CHAN. The Drackett Company. SN 350,467. Pub. 9–22–70. Filed 2–4–70.

Class 5 — Adhesives

903,695. L AND DESIGN. Thompson-Hayward Chemical Company, assignee of Leffingwell Chemical Company. MULTIPLE CLASS (Classes 5, 6, and 10). SN 299,719. Pub. 9–22–70. Filed 6–5–68.

903,696. GEKO. Sud-Chemie A.G. SN 317,160. Pub. 9–22–70. Filed 1–21–69.

Class 6 — Chemicals and Chemical Compositions

903,693. (See Class 4 for this trademark.)

903,695. (See Class 5 for this trademark.)

903,697. SPECIALTY GASES AND DESIGN. Air Products and Chemicals, Inc. SN 276,513. Pub. 9–22–70. Filed 7–21–67.

903,698. EXXON. Standard Oil Company. SN 296,776. Pub. 9–22–70. Filed 4–29–68.

903,699. M I L G A R D. Holliston Laboratories, Inc. SN 313,234. Pub. 6–30–70. Filed 11–29–68.

903,700. ISOLAB. Isolab Supply Company. SN 316,314. Pub. 6–16–70. Filed 1–10–69.

903,701. RACRYL. R.A. Chemical Corp. SN 317,277. Pub. 9–22–70. Filed 1–23–69.

903,702. WEST-AIRE. West Chemical Products, Inc. SN 319,216. Pub. 9–22–70. Filed 2–14–69.

903,703. E EXTERMITAL CHEMICALS AND DESIGN. Extermital Chemicals, Inc. SN 320,257. Pub. 9–22–70. Filed 2–27–69.

903,704. POLIGEN. Badische Anilin- & Soda-Fabrik Aktiengesellschaft. SN 327,468. Pub. 9–22–70. Filed 5–16–69.

903,705. PROTOSLO. Carolina Biological Supply Company. SN 343,656. Pub. 9–22–70. Filed 11–17–69.

903,706. MISCELLANEOUS DESIGN. Morton International, Inc. MULTIPLE CLASS (Classes 6 and 52). SN 345,539. Pub. 9–22–70. Filed 12–8–69.

903,707. PYTROL. Hallmark Chemical Corporation. SN 346,244. Pub. 9–22–70. Filed 12–15–69.

903,708. TECH-NITE. American Metal Climax, Inc., d.b.a. Southwest Potash Corporation. SN 347,462. Pub. 9–22–70. Filed 12–31–69.

903,709. CELLO-MIST. The Cello Chemical Company. SN 348,753. Pub. 9–22–70. Filed 1–16–70.

903,710. TETRA-FORM. American Hospital Supply Corporation. SN 348,874. Pub. 9–22–70. Filed 1–19–70.

903,711. SANTOMELT. Monsanto Company. SN 349,492. Pub. 9–22–70. Filed 1–23–70.

903,712. MELUSTRAL. Farbwerke Hoechst Aktiengesellschaft vormals Meister, Lucius & Bruning. SN 349,611. Pub. 9–22–70. Filed 1–26–70.

903,713. NOOD. Kaiser Aluminum & Chemical Corporation. SN 349,649. Pub. 9–22–70. Filed 1–26–70.

903,714. ART OUT. Liquid Paper Corporation. SN 349,658. Pub. 9–22–70. Filed 1–26–70.

903,715. WEEDFILM. Moyer Chemical Company. SN 349,782. Pub. 9–22–70. Filed 1–27–70.

903,716. MEDICIDE. Hysan Products Company. SN 350,266. Pub. 9–22–70. Filed 2–2–70.

903,717. SABRECIDE. Certified Laboratories, Inc. SN 350,687. Pub. 9–22–70. Filed 2–6–70.

903,718. WAS–16. Certified Laboratories, Inc. SN 350,691. Pub. 9–22–70. Filed 2–6–70.

903,719. RESIST. Hysan Products Company. SN 351,942. Pub. 9–22–70. Filed 2–20–70.

903,720. STERLING SALT BUTTONS. International Salt Company. SN 352,142. Pub. 9–22–70. Filed 2–24–70.

903,721. STERLING SALT CRYSTALS. International Salt Company. SN 352,143. Pub. 9–22–70. Filed 2–24–70.

903,722. SPORTSEAL. E. A. Thompson Co. Inc. SN 352,540. Pub. 9–22–70. Filed 2–26–70.

903,723. SEVIMOL. Union Carbide Corporation. SN 352,689. Pub. 9–22–70. Filed 2–27–70.

903,724. STANDAMOX. Standard Chemical Products, Inc. SN 352,879. Pub. 9–22–70. Filed 3–2–70.

903,725. STANDAPHOS. Standard Chemical Products, Inc. SN 352,880. Pub. 9–22–70. Filed 3–2–70.

903,726. DURSBAN M. The Dow Chemical Company. SN 353,043. Pub. 9–22–70. Filed 3–4–70.

903,727. NUCLO-ADD. The Chemtech Corporation. SN 361,214. Pub. 9–22–70. Filed 6–1–70.

Class 7 — Cordage

903,728. MISCELLANEOUS DESIGN. Armco Steel Corporation. SN 337,629. Pub. 9–22–70. Filed 9–11–69.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

903,729. INTERNATIONAL AND DESIGN. Stuart Distributing Company, Inc., d.b.a. Stuart Quality Products. SN 324,526. Pub. 9–22–70. Filed 4–14–69.

903,730. MACH. Baschieri & Pellagri S.p.A. SN 330,091. Pub. 9–22–70. Filed 6–16–69.

Class 10 — Fertilizers

903,695. (See Class 5 for this trademark.)

Class 11 — Inks and Inking Materials

903,731. DURAHEAD. Elliott Business Machines, Inc. SN 325,354. Pub. 9–22–70. Filed 4–23–69.

Class 12 — Construction Materials

903,732. TEXTOLITE. General Electric Company. SN 312,670. Pub. 9–22–70. Filed 11–20–68.

903,733. CIMGLAS. Cincinnati Milcron Inc., by change of name from The Cincinnati Milling Machine Co. SN 320,709. Pub. 9–22–70. Filed 3–4–69.

903,734. ROYALTILE. Masonite Corporation. SN 327,945. Pub. 9–22–70. Filed 5–21–69.

903,735. RHINO RIB. Reynolds Metals Company. SN 331,069. Pub. 9–22–70. Filed 6–26–69.

903,736. SILK-N-SMOOTH. Long's Fence Company, Incorporated. SN 333,976. Pub. 9–22–70. Filed 7–30–69.

903,737. P AND DESIGN. Panel-Loc System, Inc. SN 334,249. Pub. 9–22–70. Filed 8–1–69.

903,738. DUALITE. Aeronca, Inc. SN 340,700. Pub. 9–22–70. Filed 10–15–69.

903,739. MULTIPLEX. Chicago Fire Brick Company. SN 346,865. Pub. 9–22–70. Filed 12–22–69.

903,740. EXO-PATCH. Rite Therm Inc. SN 347,176. Pub. 9–22–70. Filed 12–29–69.

903,741. PROTALICO. Protex Industries, Inc. SN 347,784. Pub. 9–22–70. Filed 1–5–70.

903,742. EVANSHAKE. Evans Products Company. SN 348,278. Pub. 9–22–70. Filed 1–12–70.

903,743. CRANE DESIGN. Stirling Homex Corporation. SN 354,676. Pub. 9–22–70. Filed 3–19–70.

903,744. PF-C100'. Scovill Manufacturing Company. SN 364,342. Pub. 9–22–70. Filed 7–6–70.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

903,745. THE CHALET. Mahasi Corporation. SN 313,598. Pub. 9–22–70. Filed 12–4–68.

903,746. STA-LOC. Loxem Manufacturing Corporation. SN 314,240. Pub. 9–22–70. Filed 12–11–68.

903,747. FLEXIJOINT. Ethylene Corporation. SN 315,747. Pub. 9–22–70. Filed 1–3–69.

903,748. EBV SYSTEMS INC. AND DESIGN. E.B.V. Systems, Inc. SN 327,244. Pub. 9–22–70. Filed 5–14–69.

903,749. RIVEX. Semblex Corporation. MULTIPLE CLASS (Classes 13 and 23). SN 330,854. Pub. 8–4–70. Filed 6–24–69.

903,750. HAND AND DESIGN. United States Borax & Chemical Corporation. MULTIPLE CLASS (Classes 13 and 52). SN 334,914. Pub. 9–22–70. Filed 8–11–69.

903,751. AO DESIGN. American Optical Corporation. SN 335,655. Pub. 9–22–70. Filed 8–19–69.

903,752. ONE-WAY U-HAUL AND DESIGN. Arcoa International, Inc., by change of name from Arcoa, Inc. SN 336,304. Pub. 9–22–70. Filed 8–26–69.

903,753. KRIMPNUT. Huck Manufacturing Company. SN 336,443. Pub. 9–22–70. Filed 8–27–69.

903,754. KRIMPIN. Huck Manufacturing Company. SN 336,444. Pub. 9–22–70. Filed 8–27–69.

903,755. SPOTCOILS. Spotnails, Inc. SN 344,974. Pub. 9–22–70. Filed 12–1–69.

903,756. SPOTCARTRIDGES. Spotnails, Inc. SN 344,975. Pub. 9–22–70. Filed 12–1–69.

903,757. DUKES AND DESIGN. Dukes Hydraulics, Inc. MULTIPLE CLASS (Classes 13 and 23). SN 354,540. Pub. 9–22–70. Filed 3–19–70.

903,758. SARCO. Sarco Company, Inc. SN 364,535. Pub. 9–22–70. Filed 7–7–70.

Class 14 — Metals and Metal Castings and Forgings

903,759. COP-A-NODES. Electro-Extraction, Inc. SN 355,632. Pub. 9–22–70. Filed 4–1–70.

Class 15 — Oils and Greases

903,760. KINZIE KANDLES ANTIQUES TO BURN. Kinzie Candles, Inc. SN 326,535. Pub. 9–22–70. Filed 5–6–69.

903,761. AQUACENT. Walkers (Century Oils) Limited. SN 339,259. Pub. 9–22–70. Filed 9–29–69.

Class 16 — Protective and Decorative Coatings

903,762. XYLAN. Whitford Corporation. SN 331,682. Pub. 9–22–70. Filed 7–3–69.

903,763. HSG COMPANY AND DESIGN. Hercules Equipment & Rubber Co., Inc. SN 348,213. Pub. 9–22–70. Filed 1–12–70.

Class 17 — Tobacco Products

903,764. DON ALVARO. Alvaro Gonzalez Gonzalez, d.b.a. Fabrica de Tabacos Alvaro. SN 326,936. Pub. 7–7–70. Filed 5–9–69.

903,765. PICCADILLY AND LABEL DESIGN. Carreras Limited. SN 335,743. Pub. 9–22–70. Filed 8–20–69.

903,766. MR. TIPSTER. Bayuk Cigars Incorporated. SN 362,646. Pub. 9–22–70. Filed 6–15–70.

Class 18 — Medicines and Pharmaceutical Preparations

903,767. DERMASPAN. USV Pharmaceutical Corporation. SN 322,930. Pub. 5–5–70. Filed 3–26–69.

903,768. LASAN. Stiefel Laboratories, Inc. SN 343,872. Pub. 8–11–70. Filed 11–18–69.

903,769. NORMALIN. Carter-Wallace, Inc. SN 358,151. Pub. 7–28–70. Filed 4–28–70.

Class 19 — Vehicles

903,770. COLT. Mitsubishi Jidosha Kogyo Kabushiki Kaisha, assignee of Mitsubishi Jukogyo Kabushiki Kaisha. SN 248,827. Pub. 11–7–67. Filed 6–23–66.

903,771. NACO AND U.S. MAP DESIGN. Perfect Equipment Corporation. SN 341,051. Pub. 9–22–70. Filed 10–17–69.

903,772. KROMLINE. The Bada Company. SN 349,421. Pub. 9–22–70. Filed 1–23–70.

Class 20 — Linoleum and Oiled Cloth

903,685. (See Class 1 for this trademark.)

Class 21 — Electrical Apparatus, Machines, and Supplies

903,773. DEMON. Fire Detection Limited. SN 281,282. Pub. 8–27–68. Filed 9–27–67.

903,774. Q MTC AND DESIGN. McHugh Thermodynamics Corporation. MULTIPLE CLASS (Classes 21 and 26). SN 309,275. Pub. 9–22–70. Filed 10–9–68.

903,775. RECHARJER. Austin W. La Marche. SN 314,088. Pub. 3–31–70. Filed 12–10–68.

903,776. NEVCO AND DESIGN. Nevco Scoreboard Company. SN 343,790. Pub. 9–22–70. Filed 11–14–69.

903,777. THE BUG. U & I, Inc. SN 352,889. Pub. 9–22–70. Filed 3–2–70.

903,778. AUTODAPTOR. North American Philips Corporation. SN 355,148. Pub. 9–22–70. Filed 3–26–70.

903,779. JR. COMMANDER. Union Carbide Corporation. SN 355,169. Pub. 9–22–70. Filed 3–26–70.

903,780. CHROMA-MATIC. Sony Corporation. SN 355,911. Pub. 9–22–70. Filed 4–1–70.

903,781. ROTO-LOAD-CENTER. Bonk Electrical Industries, Inc. SN 356,224. Pub. 9–22–70. Filed 4–7–70.

903,782. SELECTAVISION. RCA Corporation. SN 361,243. Pub. 9–22–70. Filed 6–1–70.

903,783. SELECTAVISION. RCA Corporation. SN 361,244. Pub. 9–22–70. Filed 6–1–70.

Class 22 — Games, Toys, and Sporting Goods

903,784. WACKY WATCHES. Hasbro Industries, Inc., by change of name from Hassenfeld Bros. Inc. SN 302,316. Pub. 9–22–70. Filed 7–9–68.

903,785. STICKY WICKET. Lakeside Industries, Inc. SN 315,931. Pub. 9–8–70. Filed 1–6–69.

903,786. MOGUL-FLEX. Spectra Sports, Inc. SN 318,237. Pub. 9–22–70. Filed 2–3–69.

903,787. PG AND DESIGN. Professional Golf Company. SN 320,175. Pub. 9–22–70. Filed 2–26–69.

903,788. BABYGUND AND DESIGN. J. Swedlin, Inc., d.b.a. Gund Manufacturing Co. SN 322,005. Pub. 9–22–70. Filed 3–17–69.

903,789. DISTANCE KING. Universal Bowling & Golf Corp. SN 323,608. Pub. 9–22–70. Filed 4–3–69.

903,790. TALASPORT AND DESIGN. Atalasport S.a.S. Fabbrica Articoli Sportivi. MULTIPLE CLASS (Classes 22 and 39). SN 324,114. Pub. 9–22–70. Filed 4–10–69.

903,791. SKETCH-A-TUNE. The Ohio Art Company. SN 324,481. Pub. 9–22–70. Filed 4–14–69.

903,792. LEISURE DYNAMICS AND DESIGN. Leisure Dynamics, Inc. SN 325,761. Pub. 9–22–70. Filed 4–28–69.

903,793. WASHEE BALL. Brockman & Barton. SN 326,625. Pub. 9–22–70. Filed 5–7–69.

903,794. SUPER 7. Casamar, S.A. SN 327,232. Pub. 9–22–70. Filed 5–14–69.

903,795. TYKE PACK HORSE. Playskool, Inc. SN 333,434. Pub. 9–22–70. Filed 7–24–69.

903,796. ROBBIE ROBOT. Eldon Industries, Inc. SN 339,665. Pub. 9–22–70. Filed 10–3–69.

903,797. TRIM-LINE. Trim-Line Inc. SN 345,114. Pub. 9–22–70. Filed 12–3–69.

903,798. MAGICIAN'S MIRACLES. Mattel, Inc. SN 345,251. Pub. 9–22–70. Filed 12–4–69.

903,799. JILLIONS OF JEWELS. Mattel, Inc. SN 345,554. Pub. 9–22–70. Filed 12–8–69.

908,800. TWINKLE STONES. Mattel, Inc. SN 345,555. Pub. 9–22–70. Filed 12–8–69.

903,801. SQUARE WHERE. Mattel, Inc. SN 345,558. Pub. 9–22–70. Filed 12–8–69.

903,802. SPEEDWAY TRAIL. Mattel, Inc. SN 345,563. Pub. 9–22–70. Filed 12–8–69.

903,803. WCS AND DESIGN. Worldwide Computer Services Inc. SN 345,707. Pub. 9–22–70. Filed 12–9–69.

903,804. ZAPPER. Fred Arbogast Company, Inc. SN 346,047. Pub. 9–22–70. Filed 12–12–69.

903,805. FIDGET. Fred Arbogast Company, Inc. SN 346,203. Pub. 9–22–70. Filed 12–15–69.

903,806. RUFFLER. Fred Arbogast Company, Inc. SN 346,204. Pub. 9–22–70. Filed 12–15–69.

903,807. HEXAGON SENSE-A-GONE. Mattel, Inc. SN 346,568. Pub. 9–22–70. Filed 12–18–69.

903,808. SCHOOLIE. Pope Manufacturing, Inc., assignee of Eddie Pope & Co., Inc. SN 346,956. Pub. 9–22–70. Filed 12–22–69.

903,809. GO GO AND DESIGN. Duane G. Ranenhorst, d.b.a. Slayton Tackle Manufacturing Company. SN 350,360. Pub. 9–22–70. Filed 2–3–70.

903,810. THINKING MAN'S FOOTBALL. Minnesota Mining and Manufacturing Company. SN 352,032. Pub. 9–22–70. Filed 2–24–70.

903,811. 6-PACK TO GO. Mattel, Inc. SN 358,387. Pub. 9–22–70. Filed 4–30–70.

903,812. CIRCUS WORLD. Child's World, Inc. SN 359,673. Pub. 9–22–70. Filed 5–14–70.

903,813. LAGUNA OVAL. Mattel, Inc. SN 359,680. Pub. 9–22–70. Filed 5–14–70.

903,814. SKY SHOW. Mattel, Inc. SN 359,681. Pub. 9–22–70. Filed 5–14–70.

903,815. SPEED PATROL. Mattel, Inc. SN 361,230. Pub. 9–22–70. Filed 6–1–70.

903,816. SCREAMIN' MEANIE. Mattel, Inc. SN 361,233. Pub. 9–22–70. Filed 6–1–70.

903,817. TILTIN' STILT. Mattel, Inc. SN 361,234. Pub. 9–22–70. Filed 6–1–70.

903,818. COLOR-OVERS. Mattel, Inc. SN 361,441. Pub. 9–22–70. Filed 6–2–70.

903,819. BLOKE BUSTER. Mattel, Inc. SN 361,442. Pub. 9–22–70. Filed 6–2–70.

903,820. SPEER RUN. Mattel, Inc. SN 361,445. Pub. 9–22–70. Filed 6–2–70.

903,821. KICKIN'-CHICKEN. Mattel, Inc. SN 361,451. Pub. 9–22–70. Filed 6–2–70.

903,822. CHILDCRAFT CC AND DESIGN. Childcraft Education Corp. SN 361,695. Pub. 9–22–70. Filed 6–4–70.

903,823. SUPER NATIONALS. Mattel, Inc. SN 363,833. Pub. 9–22–70. Filed 6–29–70.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

903,749. (See Class 13 for this trademark.)

903,757. (See Class 13 for this trademark.)

903,824. SABCO. S.A. Brush Company Limited. MULTIPLE CLASS (Classes 23, 29, and 52). SN 300,327. Pub. 9–22–70. Filed 6–13–68.

903,825. MOF MAROLF FLORIDA. Marolf Hygienic Equipment, Inc. SN 314,354. Pub. 9–22–70. Filed 12–12–68.

903,826. W & S INC. AND SHIELD DESIGN. S. B. Whistler & Sons, Inc. SN 333,218. Pub. 7–7–70. Filed 7–22–69.

903,827. PIG MAMA. Wilson & Co., Inc. SN 333,785. Pub. 9–22–70. Filed 7–28–69.

903,828. DALTEX QUALITY. The Southern Supply Co. SN 343,765. Pub. 9–22–70. Filed 11–17–69.

903,829. SURGE. Babson Bros. Co. SN 356,239. Pub. 9–22–70. Filed 4–8–70.

Class 26 — Measuring and Scientific Appliances

903,774. (See Class 21 for this trademark.)

903,830. ADD-O-CHECK. Daiichi Seiko Kabushiki Kaisha. SN 274,311. Pub. 9–22–70. Filed 6–20–67.

903,831. MTC. Measurement Technology Corporation. SN 295,656. Pub. 9–22–70. Filed 4–15–68.

903,832. ZETA. William K. Rosenberry, d.b.a. Zeta Research. SN 308,816. Pub. 9–22–70. Filed 10–3–68.

903,833. STB AND DESIGN. Fabrique d'Horlogerie de Saint-Blaise S.A. SN 315,152. Pub. 9–22–70. Filed 12–24–68.

903,834. VISI-LOGIC. Double A Products Co. SN 322,153. Pub. 9–22–70. Filed 3–19–69.

903,835. VSS. Visual Security Systems, Inc. SN 326,810. Pub. 9–22–70. Filed 5–8–69.

903,836. OLNIC. Lucien Sautereau. SN 327,056. Pub. 9–22–70. Filed 5–12–69.

903,837. FAST. Philip C. Hankins, assignee of Wang Laboratories, Inc. SN 331,082. Pub. 9–22–70. Filed 6–26–69.

903,838. ROSEMOUNT. Rosemount Engineering Company. SN 332,629. Pub. 9–22–70. Filed 7–15–69.

903,839. PENNYCAP. Consolidated Airborne Systems, Inc. SN 332,695. Pub. 9–22–70. Filed 7–16–69.

903,840. PIGGYPAK. Hills-McCanna Company. SN 334,230. Pub. 9–22–70. Filed 8–1–69.

903,841. ENCO. Azoplate Corporation. SN 337,250. Pub. 9–22–70. Filed 9–8–69.

903,842. PENNYTEMP. Consolidated Airborne Systems, Inc. SN 337,273. Pub. 9–22–70. Filed 9–8–69.

903,843. KDR. Kalvar Corporation. SN 337,324. Pub. 9–22–70. Filed 9–8–69.

903,844. UNISERVO. Sperry Rand Corporation. SN 340,619. Pub. 9–22–70. Filed 10–13–69.

903,845. BIOSTIR. Wheaton Glass Company. SN 342,685. Pub. 9–22–70. Filed 11–4–69.

903,846. AUTOBEND. Hurco Manufacturing Company, Inc. SN 343,125. Pub. 9–22–70. Filed 11–10–69.

903,847. UNI-GAIN. B & K Instruments, Inc. SN 345,911. Pub. 9–22–70. Filed 12–11–69.

903,848. EXECUPORT. Computer Transceiver Systems, Inc. SN 345,920. Pub. 9–22–70. Filed 12–11–69.

903,849. PYRO MINI BAR. Bell Research Inc. SN 347,584. Pub. 9–22–70. Filed 1–2–70.

903,850. PROXIMITOR. Canoga Controls Corporation. SN 348,014. Pub. 9–22–70. Filed 1–8–70.

903,851. OPMAG. Sperry Rand Corporation. SN 352,878. Pub. 9–22–70. Filed 3–2–70.

903,852. NITEYE. Applied Systems Corporation. SN 354,257. Pub. 9–22–70. Filed 3–17–70.

903,853. HI-LINE. ESB Incorporated. SN 357,030. Pub. 9–22–70. Filed 4–16–70.

903,854. SARCO. Sarco Company, Inc. SN 364,534. Pub. 9–22–70. Filed 7–7–70.

Class 27 — Horological Instruments

903,855. ETHAN ALLEN. Baumritter Corporation. SN 330,698. Pub. 9–22–70. Filed 6–23–69.

903,856. TORINO. Eisenstadt Manufacturing Company. SN 343,264. Pub. 9–22–70. Filed 11–12–69.

Class 28 — Jewelry and Precious-Metal Ware

903,857. EARRINGS BY D'EARRING. Melvin Taubman, d.b.a. Melson Jewelry Co. SN 333,775. Pub. 9–22–70. Filed 7–28–69.

903,858. BEAU-REGARDE. Poole Silver Co., Inc. SN 353,553. Pub. 9–22–70. Filed 3–9–70.

903,859. HH AND DESIGN. Hinterland Handcrafts Limited. SN 355,035. Pub. 9–22–70. Filed 3–25–70.

903,860. LOVEBRIGHT. Lovebright Diamond Company, Inc. SN 361,227. Pub. 9–22–70. Filed 6–1–70.

903,861. PUTTING ON THE DOG. Marvella, Inc. SN 361,440. Pub. 9–22–70. Filed 6–2–70.

903,862. BORGIA. Buccellati Silver, Ltd. SN 361,650. Pub. 9–22–70. Filed 6–4–70.

Class 29 — Brooms, Brushes, and Dusters

903,824. (See Class 23 for this trademark.)

903,863. CURVEDGE. Alco Standard Corporation, assignee of R. O. Kent Corp. SN 313,333. Pub. 7–14–70. Filed 11–29–68.

903,864. FAN-TASTIC MOP. Wilen Manufacturing Co., Inc. SN 318,478. Pub. 9–22–70. Filed 2–5–69.

903,865. PATRICIAN. Treville Inc. SN 341,709. Pub. 9–22–70. Filed 10–24–69.

Class 30 — Crockery, Earthenware, and Porcelain

903,866. ROYAL COPENHAGEN DENMARK AND DESIGN. Den Kongelige Porcelainsfabrik A/S, d.b.a. Royal Copenhagen Porcelain Manufactory Ltd. MULTIPLE CLASS (Classes 30 and 50). SN 322,845. Pub. 9–22–70. Filed 3–26–69.

Class 32 — Furniture and Upholstery

903,867. CUSHION-CLOUD. Mobay Chemical Company. SN 274,084. Pub. 9–22–70. Filed 6–16–67.

903,868. CHILDCRAFT CC AND DESIGN. Childcraft Education Corp. SN 361,694. Pub. 9–22–70. Filed 6–4–70.

903,869. ATHENA. Directional Industries, Incorporated. SN 362,003. Pub. 9–22–70. Filed 6–8–70.

Class 33 — Glassware

903,870. DELTA-SEAL. Delta Products, Inc. SN 348,273. Pub. 9–22–70. Filed 1–12–70.

Class 34 — Heating, Lighting, and Ventilating Apparatus

903,871. KONUS. Konus-Kessel Gesellschaft fur Warmetechnik m.b.H. & Co. KG. SN 309,461. Pub. 9–22–70. Filed 10–11–68.

903,872. MONO-WALL. Foster Wheeler Corporation. SN 320,140. Pub. 9–22–70. Filed 2–26–69.

903,873. VAPOR ALL. Dart Industries Inc., By change of name from Rexall Drug and Chemical Company, d.b.a. The West Bend Company. SN 324,499. Pub. 9–22–70. Filed 4–14–69.

903,874. SAF-HEAT. Combustion Engineering, Inc. SN 325,173. Pub. 9–22–70. Filed 4–22–69.

903,875. TRANSFLO. Fasco Industries, Inc. SN 329,846. Pub. 9–22–70. Filed 6–12–69.

903,876. DRI-HEAT FOOD SYSTEM AND DESIGN. Franklin Products, Corp. SN 330,127. Pub. 9–22–70. Filed 6–16–69.

903,877. POLYARC. Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. SN 350,272. Pub. 9–22–70. Filed 2–2–70.

903,878. HU AND DESIGN. Hydraulics Unlimited Mfg. Co. SN 354,311. Pub. 9–22–70. Filed 3–17–70.

903,879. SILVER JET. Hydraulics Unlimited Mfg. Co. SN 354,313. Pub. 9–22–70. Filed 3–17–70.

903,880. SILVER JET AND DESIGN. Hydraulics Unlimited Mfg. Co. SN 354,625. Pub. 9–22–70. Filed 3–19–70.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

903,881. SUREFLEX. Carlisle Corporation. SN 351,305. Pub. 9–22–70. Filed 2–13–70.

903,882. CRP-IMPERATOR. Conti Rubber Products, Inc. SN 351,354. Pub. 9–22–70. Filed 2–13–70.

903,883. SAND BUGGER. The Firestone Tire & Rubber Company. SN 356,062. Pub. 9–22–70. Filed 4–6–70.

903,884. WINTERMARK G/P. The Kelly-Springfield Tire Company. SN 356,094. Pub. 9–22–70. Filed 4–6–70.

903,885. LARAMIE. Laramie Tire & Rubber Company, assignee of Reichman, Inc., d.b.a. Chase Tire Co. SN 356,140. Pub. 9–22–70. Filed 4–6–70.

903,886. DELTASEAL. W. S. Shamban & Co. SN 356,761. Pub. 9–22–70. Filed 4–13–70.

903,887. OU. Sacoma Sierra Inc. SN 357,124. Pub. 9–22–70. Filed 4–16–70.

903,888. HERCUBELT. The Hercules Tire & Rubber Company. SN 357,213. Pub. 9–22–70. Filed 4–17–70.

903,889. HERCUGLAS. The Hercules Tire & Rubber Company. SN 357,215. Pub. 9–22–70. Filed 4–17–70.

903,890. STOMPER. The B. F. Goodrich Company. SN 358,297. Pub. 9–22–70. Filed 4–29–70.

903,891. POWER MARK. The Kelly-Springfield Tire Company. SN 358,311. Pub. 9–22–70. Filed 4–29–70.

903,892. LARAMIE TRAILBOSS. Laramie Tire & Rubber Company, assignee of Reichman, Inc., d.b.a. Chase Tire Co. SN 358,476. Pub. 9–22–70. Filed 4–30–70.

Class 36 — Musical Instruments and Supplies

903,893. TARGET DESIGN. The Greatest Book, Inc., d.b.a. Creative Sound Productions. SN 335,694. Pub. 9–22–70. Filed 8–19–69.

903,894. FRAP. Arnold Lazarus. SN 357,222. Pub. 9–22–70. Filed 4–17–70.

903,895. CONDUCTOR. General Time Corporation. SN 357,354. Pub. 9–22–70. Filed 4–20–70.

Class 37 — Paper and Stationery

903,896. LETRAFILM. Letraset U.S.A., Inc. SN 318,437. Pub. 9–22–70. Filed 2–5–69.

Class 38 — Prints and Publications

903,897. P AND DESIGN. Associated Educational Services Corporation. SN 292,168. Pub. 2–4–69. Filed 2–29–68.

903,898. CONTACT AND DESIGN OF A MALE FACE. Richard Clarke Associates, Inc. SN 314,186. Pub. 9–22–70. Filed 12–11–68.

903,899. CROSS AND TRIANGLE DESIGN. Christian Reformed Church. SN 317,790. Pub. 9–22–70. Filed 11–22–68.

903,900. TELEK. Eastman Kodak Company. SN 326,363. Pub. 3–10–70. Filed 5–5–69.

903,901. THE DELTASIG OF DELTA SIGMA PI. International Fraternity of Delta Sigma Pi. SN 334,337. Pub. 9–22–70. Filed 8–4–69.

903,902. DISEASE-A-MONTH. Year Book Medical Publishers, Inc. SN 335,482. Pub. 9–22–70. Filed 8–15–69.

903,903. CURRENT PROBLEMS IN SURGERY. Year Book Medical Publishers, Inc. SN 335,484. Pub. 9–22–70. Filed 8–15–69.

903,904. AO DESIGN. American Optical Corporation. SN 335,667. Pub. 9–22–70. Filed 8–19–69.

903,905. DISTRIBUTION WORLD WIDE. Chilton Company. SN 336,417. Pub. 9–22–70. Filed 8–27–69.

903,906. JOSIE AND THE PUSSYCATS. Archie Enterprises, Inc., assignee of Radio Comics, Inc. SN 347,315. Pub. 6–30–70. Filed 12–29–69.

903,907. AID AND DESIGN. A.I.D. Associates, Inc. SN 360,618. Pub. 9–22–70. Filed 5–25–70.

903,908. THE CORAL SPRINGS CHRONICLE. Coral Ridge Properties, Inc. SN 360,717. Pub. 9–22–70. Filed 5–25–70.

903,909. PLUME. The New American Library, Inc. SN 361,072. Pub. 9–22–70. Filed 5–28–70.

903,910. MAINTENANCE PLAN AND DESIGN. Weight Watchers International, Inc. SN 361,081. Pub. 9–22–70. Filed 5–28–70.

Class 39 — Clothing

903,790. (See Class 22 for this trademark.)

903,911. HIGH TIDE. Cluett, Peabody & Co., Inc., assignee of Maro Manufacturing Co. SN 232,133. Pub. 10–18–66. Filed 11–4–65.

903,912. D. Dennis Uniform Manufacturing Co. SN 304,211. Pub. 10–7–69. Filed 8–2–68.

903,913. KISHU'S EAST-WEST FASHIONS. Kishu's East-West Fashions, Ltd. SN 310,785. Pub. 9–22–70. Filed 10–29–68.

903,914. THE SHIRT SHACK AND MALE GROTESQUE. John E. Roseboom, d.b.a. The Shirt Shack. SN 326,133. Pub. 9–22–70. Filed 5–1–69.

903,915. FACES OF EVE. Tamraz Incorporated. SN 333,772. Pub. 9–22–70. Filed 7–28–69.

903,916. JAMA DI ROMA. Interco Incorporated. SN 336,936. Pub. 9–22–70. Filed 9–3–69.

903,917. AQUA-TEX. Genesco Inc. SN 341,381. Pub. 6–23–70. Filed 10–22–69.

903,918. BETH'S BOUTIQUE. Herbert Levine, Inc. SN 343,313. Pub. 9–22–70. Filed 11–12–69.

903,919. BETH'S BOOTERY. Herbert Levine, Inc. SN 343,314. Pub. 9–22–70. Filed 11–12–69.

903,920. EVA SONNINO. R. G. Barry Corporation. SN 346,448. Pub. 9–22–70. Filed 12–17–69.

903,921. DRYPLY. Atlas Underwear Corporation. SN 351,779. Pub. 9–22–70. Filed 2–19–70.

903,922. HONOR GUARD. Blue Star Shoes, Inc. SN 351,785. Pub. 9–22–70. Filed 2–19–70.

903,923. ALYSSA. Alyssa Originals, Inc. SN 352,311. Pub. 9–22–70. Filed 2–25–70.

903,924. K-LETE. Crest Uniform Co., Inc. SN 353,288. Pub. 9–22–70. Filed 3–6–70.

903,925. STEWARDESS. Charles H. Bacon Company, Inc. SN 361,913. Pub. 9–22–70. Filed 6–8–70.

903,926. COMFORTIME. International Playtex, Inc. SN 362,602. Pub. 9–22–70. Filed 6–15–70.

903,927. JOHNNY CARSON. Johnny Carson Apparel, Inc. SN 363,225. Pub. 9–22–70. Filed 6–22–70.

903,928. UNBELIEVABLE. International Playtex Corporation. SN 363,234. Pub. 9–22–70. Filed 6–22–70.

903,929. LOVABLE LUVVIES. The Lovable Company. SN 363,710. Pub. 9–22–70. Filed 6–26–70.

Class 40 — Fancy Goods, Furnishings, and Notions

903,930. JOSEF OF ROME. Josef Scigliano, d.b.a. Josef of ROME. MULTIPLE CLASS (Classes 40, 52, and 107). SN 323,621. Pub. 9–22–70. Filed 4–4–69.

903,931. CURLY TOP BY CAROUSEL AND DESIGN. Carousel Fashions, Inc. SN 331,328. Pub. 9–22–70. Filed 6–30–69.

903,932. PARADOX. Suzanne Fashion Wigs, Inc. SN 362,087. Pub. 9–22–70. Filed 6–8–70.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

903,685. (See Class 1 for this trademark.)

903,933. ARMSTRONG AND DESIGN. Armstrong Cork Company. SN 336,912. Pub. 9–22–70. Filed 9–3–69.

903,934. DANCRUISE. Dan River Inc., by change of name from Dan River Mills, Incorporated. SN 338,545. Pub. 9–22–70. Filed 9–22–69.

903,935. TWINTWIST. Dan River Inc., by change of name from Dan River Mills, Incorporated. SN 338,546. Pub. 8–25–70. Filed 9–22–69.

903,936. KLO KANYL. Klopman Mills, Inc. SN 342,279. Pub. 9–22–70. Filed 10–31–69.

903,937. AMBROSIA. Klopman Mills, Inc. SN 342,280. Pub. 9–22–70. Filed 10–31–69.

903,938. LALIQUE. Klopman Mills, Inc. SN 342,283. Pub. 9–22–70. Filed 10–31–69.

903,939. EARLY AUTUMN. Deering Milliken, Inc. SN 363,228. Pub. 9–22–70. Filed 6–22–70.

903,940. AVONDALE. Avondale Mills. SN 363,607. Pub. 9–22–70. Filed 6–25–70.

Class 44 — Dental, Medical, and Surgical Appliances

903,941. TRIM. The W. E. Bassett Company. SN 131,332. Pub. 2–12–63. Filed 11–6–61.

903,942. LECTRO-PADS. The Burdick Corporation, SN 328,035. Pub. 9–22–70. Filed 5–22–69.

903,943. CEDIA. Centre d'Etudes et de Diffusion des Implants Aiguilles. SN 329,437. Pub. 9–22–70. Filed 6–9–69.

903,944. MICROMATIC. Popper & Sons, Inc. SN 333,945. Pub. 6–9–70. Filed 7–30–69.

903,945. CODESCO. Consolidated Dental Services Company SN 348,763. Pub. 9–22–70. Filed 1–16–70.

903,946. PROPPER PULSE. Propper Manufacturing Co., Inc. SN 349,553. Pub. 9–22–70. Filed 1–26–70.

903,947. BALLO. Chesebrough-Pond's Inc., d.b.a. Ballo Thermometer Co. SN 349,584. Pub. 9–22–70. Filed 1–26–70.

903,948. RESTON. Minnesota Mining and Manufacturing Company. SN 360,935. Pub. 9–22–70. Filed 5–27–70.

Class 46 — Foods and Ingredients of Foods

903,949. JAJA. Industrias Empacadoras Dominicanas, C. por A. SN 302,944. Pub. 9–22–70. Filed 7–17–68.

903,950. MAR TROP. Tropical Marine, Inc. SN 316,256. Pub. 9–22–70. Filed 1–9–69.

903,951. SONY. Sony Corporation. SN 317,149. Pub. 9–22–70. Filed 1–21–69.

903,952. RIB CAGE AND DESIGN. Rib Cage International, Inc. SN 319,959. Pub. 9–22–70. Filed 2–24–69.

903,953. RED ROSE BUTTA-RINE AND DESIGN. Joseph E. Shafran, d.b.a. Joseph Shafran. SN 326,445. Pub. 9–22–70. Filed 5–5–69.

903,954. MR. STUFFY. Francis B. Arries. SN 328,259. Pub. 9–22–70. Filed 5–26–69.

903,955. HI SUN AND DESIGN. Raney Packers. SN 328,585. Pub. 9–22–70. Filed 5–28–69.

903,956. CANDY SHOTS AND DESIGN. Breaker Confections, Inc. SN 335,938. Pub. 7–21–70. Filed 8–22–69.

903,957. WEIGHT WATCHERS. Weight Watchers International, Inc. SN 337,603. Pub. 9–22–70. Filed 9–10–69.

903,958. CASSEROLE INTERNATIONAL ETC. AND DESIGN. International Casserole House and/or Casserole International. SN 340,399. Pub. 9–22–70. Filed 10–10–69.

903,959. ADY-RUTH ACRES. Ady-Ruth Acres. SN 340,458. Pub. 9–22–70. Filed 10–13–69.

903,960. LE GOUT. Fearn International Inc. SN 342,251. Pub. 9–22–70. Filed 10–31–69.

903,961. C DESIGN. Coburg Dairy, Incorporated. SN 343,663. Pub. 8–4–70. Filed 11–17–69.

903,962. MISCELLANEOUS DESIGN. El Chico Corporation. MULTIPLE CLASS (Classes 46, 100, and 101). SN 344,960. Pub. 9–22–70. Filed 12–1–69.

903,963. WATSON & RAE AND DESIGN. Watson & Rae S.A. SN 355,170. Pub. 9–22–70. Filed 3–26–70.

903,964. INNER WARMTH. General Foods Corporation. SN 355,224. Pub. 9–22–70. Filed 3–27–70.

903,965. CHIFLES AND DESIGN. Plantain Products Company, Inc. SN 356,133. Pub. 9–22–70. Filed 4–6–70.

903,966. BOOST. Horlicks Corporation. SN 361,726. Pub. 9–22–70. Filed 6–4–70.

903,967. TRAINERS BOOST. Horlicks Corporation. SN 361,727. Pub. 9–22–70. Filed 6–4–70.

903,968. ACME AND DESIGN. Acme Markets, Inc. SN 362,308. Pub. 9–22–70. Filed 6–11–70.

903,969. SUN GIANT. Heggblade-Marguleas Co. SN 362,451. Pub. 9–22–70. Filed 6–12–70.

903,970. HOMEMAKER HELPER. General Mills, Inc. SN 363,231. Pub. 9–22–70. Filed 6–22–70.

903,971. SLIM TIME. Edlo Enterprises Inc. SN 363,486. Pub. 9–22–70. Filed 6–24–70.

903,972. PEPPERIDGE FARM AND DESIGN. Pepperidge Farm, Incorporated. SN 363,618. Pub. 9–22–70. Filed 6–25–70.

903,973. BUCK-O'S. General Mills, Inc. SN 363,706. Pub. 9–22–70. Filed 6–26–70.

903,974. COUNT CHOCULA AND DESIGN. General Mills, Inc. SN 363,810. Pub. 9–22–70. Filed 6–29–70.

Class 48 — Malt Beverages and Liquors

903,975. CHARGE. Little Switzerland Brewing Co. SN 303,057. Pub. 9–22–70. Filed 7–18–68.

Class 49 — Distilled Alcoholic Liquors

903,976. FRIAR JOHN. Sazerac Company, Inc., d.b.a. John Handy Company. SN 169,314. Pub. 2–25–64. Filed 5–20–63.

903,977. SAXONY. Charles Jacquin et Cie., Inc., d.b.a. Saxony Distillers Co. SN 363,621. Pub. 9–22–70. Filed 6–29–70.

Class 50 — Merchandise Not Otherwise Classified

903,866. (See Class 30 for this trademark.)

903,978. BONANZA. AAA Enterprises, Inc. SN 318,725. Pub. 9–22–70. Filed 2–10–69.

903,979. DECRO-CORNERS. National Aquarium Supplies & Accessories, Inc. SN 327,159. Pub. 9–22–70. Filed 5–13–69.

903,980. SANMYRO AND DESIGN. Panation Trade Company Inc. SN 332,279. Pub. 9–22–70. Filed 7–10–69.

903,981. SPILL GUARD. Johns-Manville Corporation. SN 332,722. Pub. 9–22–70. Filed 7–16–69.

903,982. SIGN-LOK. Streater Industries, Inc. SN 334,398. Pub. 9–22–70. Filed 8–4–69.

903,983. MAGNATAG. Krapf Business Systems, Inc. SN 335,880. Pub. 9–22–70. Filed 8–21–69.

903,984. SCOTT SCIENTIFIC INC. AND DESIGN. Scott Scientific, Inc. SN 336,870. Pub. 9–22–70. Filed 9–2–69.

903,985. MR. INSIDE. The Akro Corporation. SN 343,643. Pub. 9–22–70. Filed 11–17–69.

903,986. MRS. INSIDE. The Akro Corporation. SN 343,644. Pub. 9–22–70. Filed 11–17–69.

903,987. NOISY BENDERS. National Soda Straw Company. SN 344,565. Pub. 9–22–70. Filed 11–25–69.

903,988. YANK-EEZ. Anne M. Santo. SN 345,425. Pub. 9–22–70. Filed 12–5–69.

903,989. PATHFINDER. The Hopp Press, Inc. SN 362,321. Pub. 9–22–70. Filed 6–11–70.

903,990. SLACKER. Lundeen Hanger, Inc. SN 363,134. Pub. 9–22–70. Filed 6–19–70.

903,991. KNEEL-O-MATIC. Kneel-O-Matic. SN 364,108. Pub. 9–22–70. Filed 7–1–70.

Class 51 — Cosmetics and Toilet Preparations

903,992. SAMANTHA. Lucille Garfield, d.b.a. Samantha Cosmetics. SN 317,550. Pub. 9–22–70. Filed 1–27–69.

903,993. BODY BY BONAT. Samuel Bonat & Bro., Inc. SN 328,403. Pub. 9–22–70. Filed 5–27–69.

903,994. SPECIAL CARE. Chesebrough-Pond's Inc. SN 343,520. Pub. 9–22–70. Filed 11–14–69.

903,995. ROLL'N-GO. The Gillette Company, d.b.a. The Toni Company. SN 350,478. Pub. 9–22–70. Filed 2–4–70.

903,996. ASTROSCENT. Tussy Cosmetics, Inc. SN 361,455. Pub. 9–22–70. Filed 6–2–70.

903,997. FACE SAVER. The Gillette Company. SN 363,814. Pub. 9–22–70. Filed 6–29–70.

Class 52 — Detergents and Soaps

903,693. (See Class 4 for this trademark.)

903,706. (See Class 6 for this trademark.)

903,750. (See Class 13 for this trademark.)

903,824. (See Class 23 for this trademark.)

903,930. (See Class 40 for this trademark.)

903,998. YARDLEY SAVON GLACE. Yardley of London, Inc., assignee, by mesne assignment, of Yardley of London, Inc. SN 205,215. Pub. 9–22–70. Filed 10–30–64.

903,999. FIRST MATE. Stanley Home Products, Inc. SN 325,790. Pub. 9–22–70. Filed 4–28–69.

904,000. FEMALE GROTESQUE (DESIGN). Allentown Scientific Associates, Inc. SN 328,796. Pub. 9–22–70. Filed 6–2–69.

904,001. TIME CAPSULES. Armour-Dial, Inc. SN 351,600. Pub. 9–22–70. Filed 2–17–70.

904,002. DELSEY. Kimberly-Clark Corporation. SN 363,616. Pub. 9–22–70. Filed 6–25–70.

904,003. A LITTLE HELP. Colgate-Palmolive Company. SN 363,800. Pub. 9–22–70. Filed 6–29–70.

904,004. SCENE. Sterling Drug Inc. SN 364,345. Pub. 9–22–70. Filed 7–6–70.

Service Marks

Class 100 — Miscellaneous

903,962. (See Class 46 for this trademark.)

904,005. TALK-N-CHIC AND DESIGN. Pete Castelli, d.b.a. Talk-N-Chic Co. SN 289,874. Pub. 9–22–70. Filed 1–30–68.

904,006. COLUMBIA SILHOUETTE STATUE. The Howard Research and Development Corporation. SN 291,396. Pub. 9–22–70. Filed 2–19–68.

904,007. CASEY JONES JUNCTION AND DESIGN. Casey Jones Junction, Inc. MULTIPLE CLASS (Classes 100 and 101). SN 298,421. Pub. 1–20–70. Filed 5–17–68.

904,008. COMPUT-A-PHONE. Photo Magnetic Systems, Inc. SN 315,364. Pub. 9–22–70. Filed 12–30–68.

904,009. RANDY'S RANCH. Randolph G. Owsley, Jr. SN 316,122. Pub. 9–22–70. Filed 1–8–69.

904,010. EPILOG. Dresser Industries, Inc. SN 319,700. Pub. 9–22–70. Filed 2–20–69.

904,011. AM-EX EXPRESS RESERVATIONS. American Express Company. SN 320,891. Pub. 9–22–70. Filed 3–5–69.

904,012. MISCELLANEOUS DESIGN. LNG Services. SN 321,812. Pub. 9–22–70. Filed 3–14–69.

904,013. MR. PIPP'S FISH & CHIPS AND DESIGN. Dory, Ltd., Inc. SN 322,846. Pub. 9–22–70. Filed 3–26–69.

904,014. BURGER BOY. Burger Boy Stores, Inc. SN 326,845. Pub. 7–7–70. Filed 5–9–69.

904,015. THE HAYLOFT AND BUILDING DESIGN. Hayloft, Inc. SN 327,897. Pub. 9–22–70. Filed 5–21–69.

904,016. D (DESIGN). Data Dimensions, Inc. MULTIPLE CLASS (Classes 100 and 101). SN 328,039. Pub. 9–22–70. Filed 5–22–69.

904,017. GILL-LINE AND G DESIGN. Gill Studios, Inc. SN 328,844. Pub. 9–22–70. Filed 6–2–69.

904,018. GILL-LINE AND DESIGN. Gill Studios, Inc. SN 328,845. Pub. 9–22–70. Filed 6–2–69.

904,019. TELEHOST AND DESIGN. Montgomery Area Chamber of Commerce. SN 331,411. Pub. 9–22–70. Filed 6–30–69.

904,020. COSTY'S ETC. AND DESIGN. Luigi's, Inc. SN 331,629. Pub. 9–22–70. Filed 6–25–69.

904,021. DELLY'S. Restaurant Industries, Inc., d.b.a. Delly's. SN 334,865. Pub. 9–22–70. Filed 8–8–69.

904,022. BULL (DESIGN). Burgundy Bull, Inc. SN 334,976. Pub. 9–22–70. Filed 8–11–69.

904,023. GROTESQUE MALE AND DESIGN. Cambridge Technology Inc. SN 334,980. Pub. 9–22–70. Filed 8–11–69.

904,024. "1776" AND DESIGN. First Restaurant Corporation. SN 337,082. Pub. 9–22–70. Filed 9–4–69.

904,025. INN-A-MATIC AND DESIGN. The Inn Family Motel System, Inc., assignee of Dutch Inns of America, Inc. SN 341,449. Pub. 9–22–70. Filed 10–20–69.

904,026. LOU G. SIEGEL. Lou G. Siegel, Inc. SN 343,174. Pub. 9–22–70. Filed 11–10–69.

904,027. LOU G. SIEGEL AND BIRD AND RIBBON DESIGN. Lou G. Siegel, Inc. SN 343,175. Pub. 9–22–70. Filed 11–10–69.

904,028. 2 STIFFS MOTEL AND DESIGN. Two Stiffs Company. SN 343,874. Pub. 9–22–70. Filed 11–18–69.

904,029. MARRIOTT. Marriott Corporation. SN 360,934. Pub. 9–22–70. Filed 5–27–70.

Class 101 — Advertising and Business

903,962. (See Class 46 for this trademark.)

904,007. (See Class 100 for this trademark.)

904,016. (See Class 100 for this trademark.)

904,030. TELE-VOTING AND DESIGN. Patrick F. Kennedy, d.b.a. P. F. Kennedy and Associates. SN 258,554. Pub. 12–24–68. Filed 11–14–66.

904,031. MISCELLANEOUS DESIGN. Package-King, Inc. SN 290,746. Pub. 9–22–70. Filed 2–9–68.

904,032. FAMILY PHARMACY. Family Pharmacy, Inc. SN 301,734. Pub. 9–22–70. Filed 7–1–68.

904,033. CHI-PITTS. Chi-Pitts Corporation. SN 314,053. Pub. 9–22–70. Filed 12–10–68.

904,034. A MASTER KEY OFFICE AND DESIGN. Master Key Offices, Inc. SN 314,582. Pub. 9–22–70. Filed 12–16–68.

904,035. A/B INTERNATIONAL AND DESIGN. Agri-Business International, Inc. SN 318,729. Pub. 9–22–70. Filed 2–10–69.

904,036. KENTRADE-A-WAY. Kentrade-A-Way, Inc. SN 319,170. Pub. 9–22–70. Filed 2–14–69.

904,037. KURTZ AND DESIGN. George M. Kurtz, d.b.a. Kurtz Auction and Realty Company. SN 321,240. Pub. 9–22–70. Filed 3–10–69.

904,038. AUTOCOMP. Autocomp Incorporated. SN 325,948. Pub. 9–22–70. Filed 4–30–69.

904,039. GOING PLACES. The Franklin Mint, Inc. SN 327,266. Pub. 9–22–70. Filed 5–14–69.

904,040. AID MEMBER AND DESIGN. AID. SN 333,888. Pub. 9–22–70. Filed 7–30–69.

904,041. MUSIC CITY. Wallichs Music City, Inc. SN 340,302. Pub. 9–22–70. Filed 9–18–69.

904,042. DOVE (DESIGN). The Christmas Dove. SN 346,721. Pub. 9–22–70. Filed 12–19–69.

904,043. IBA AND DESIGN. IBA, Inc. SN 361,535. Pub. 9–22–70. Filed 6–3–70.

904,044. PET DEN. Ralston Purina Company. SN 361,944. Pub. 9–22–70. Filed 6–8–70.

904,045. VANTRON. Van Electronics Corporation. SN 362,628. Pub. 9–22–70. Filed 6–15–70.

904,046. CIRCLE POINTS. Lever Brothers Company. SN 363,389. Pub. 9–22–70. Filed 6–23–70.

Class 102 — Insurance and Financial

904,047. SARC. Northwestern Refining Co. SN 272,293. Pub. 9–22–70. Filed 5–24–67.

904,048. C AND CIRCLE DESIGN. Clendenin Corporation. SN 318,183. Pub. 9–22–70. Filed 2–3–69.

904,049. OIF AND DESIGN. O'Neil Institutional Fund. SN 326,787. Pub. 9–22–70. Filed 5–8–69.

904,050. PILGRIM DESIGN. Pilgrim Fund, Inc. SN 329,753. Pub. 9–22–70. Filed 6–11–69.

903,051. TRIANGLE DESIGN. Shadur, La Vine & Gallop, Inc. SN 346,187. Pub. 9–22–70. Filed 12–15–69.

Class 103 — Construction and Repair

904,052. KWIK SERVICE VALET ETC. AND DESIGN. Kwik Service Cleaners and Laundry, Inc. SN 318,198. Pub. 9–22–70. Filed 2–3–69.

904,053. SPOT CHROME. Bumper Chrome Specialists, Inc. SN 333,529. Pub. 9–22–70. Filed 7–25–69.

904,054. AO DESIGN. American Optical Corporation. SN 335,673. Pub. 9–22–70. Filed 8–19–69.

904,055. DYNATURF. Plaskolite, Inc. SN 345,568. Pub. 9–22–70. Filed 12–8–69.

904,056. 4-WAY PRECISION PEST CONTROL. E. L. Bruce Co., Inc., d.b.a. Bruce Terminix and Bruce Terminix Termite & Pest Control. SN 361,060. Pub. 9–22–70. Filed 5–28–70.

Class 104 — Communication

904,057. FOG HORN SOUND. Kaiser Broadcasting Corporation. SN 331,910. Pub. 9–22–70. Filed 7–7–69.

Class 105 — Transportation and Storage

904,058. USCO AND DESIGN. USCO Services, Inc. SN 298,164. Pub. 9–22–70. Filed 5–14–68.

904,059. CLUB 33 UNGDOMSRESOR AV KLASS AND DESIGN. Vingresor/Club 33 A.B. SN 306,027. Pub. 9–22–70. Filed 8–27–68.

904,060. TV/GLOBE DESIGN-WORLD TRAVEL SERVICE. Top Value Enterprises, Inc. SN 330,644. Pub. 9–22–70. Filed 6–20–69.

Class 106 — Material Treatment

904,061. AFCO AND DESIGN. The Wheelabrator Corporation, SN 318,014. Pub. 9–22–70. Filed 1–31–69.

904,062. PHOTO/PAK. Galeski Photo Center, Inc. SN 318,182. Pub. 9–22–70. Filed 2–3–69.

Class 107 — Education and Entertainment

903,930. (See Class 40 for this trademark.)

904,063. 4 AND DESIGN. Psychological Associates, Inc. SN 359,572. Pub. 9–22–70. Filed 5–13–70.

Collective Membership Marks

Class 200

904,064. AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. American Association for the Advancement of Science. SN 343,810. Pub. 9–22–70. Filed 11–18–69.

904,065. CONSULTING ENGINEERS COUNCIL. Consulting Engineers Council. SN 356,332. Pub. 9–22–70. Filed 4–9–70.

904,066. EAGLE DESIGN. United Farm Workers Organizing Committee. SN 357,444. Pub. 9–22–70. Filed 4–20–70.

Certification Marks

Class A — Goods

904,067. HOLLAND AND DESIGN. Stichting Holland Cheese Exporters Association. SN 320,656. Pub. 9–22–70. Filed 3–3–69.

904,068. WWP AND DESIGN. Western Wood Products Association. SN 360,943. Pub. 9–22–70. Filed 5–27–70.

Class B — Services

904,069. TRANS-AM. Sports Car Club of America, Incorporated. SN 362,083. Pub. 9–22–70. Filed 6–8–70.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 16 — Protective and Decorative Coatings

904,070. Activa Products, Inc., San Francisco, Calif. SN 328,523. Filed P.R. 4–3–69; Am. S.R. 9–4–70.

CLEAR GLAZE

For Clear Plastic Liquid for Use as a Protective Coating or Finishing Glaze for Ceramics, Papier Mache, Metal, Wood, and as a Final Coating for Acrylic Paintings (Int. Cl. 2).
First use Feb. 12, 1969.

Class 21 — Electrical Apparatus, Machines, and Supplies

904,071. The Ashflash Corporation, South Norwalk, Conn. SN 331,307. Filed P.R. 6–30–69; Am. S.R. 8–11–70.

ALARM-O-LIGHT

For Flashlight With Audible Alarm Means (Int. Cl. 11).
First use on or about May 15, 1969.

Class 22 — Games, Toys, and Sporting Goods

904,072. Marvin W. Litman, Prairie Village, Kans. SN 290,500. Filed P.R. 2–7–68; Am. S.R. 8–24–70.

"SUPER BOX"

For Toys in the Form of Large Cardboard Boxes Taking Various Configurations Such as Airplanes, Sailboats, Tanks, Railroad Trains, Robots, Rocket Ships, etc. (Int. Cl. 28).
First use on or about June 15, 1967.

904,078. Super Toys, Inc., Detroit, Mich. SN 310,707. Filed P.R. 10–28–68; Am. S.R. 9–10–70.

super toys

For Toys—Namely, Dolls, Toy Weapons, Toy Air and Land Vehicles, Educational and Scientific Toys, and Miscellaneous Toys of Various Types and Sizes (Int. Cl. 28).
First use July 15, 1968.

Class 26 — Measuring and Scientific Appliances

904,074. Vosper Limited, Paulsgrove, Portsmouth, England. SN 328,132. Filed P.R. 4–13–70; Am. S.R. 8–21–70.

MINI-FIN

For Ships Gyroscopic Stabilizers and Parts Thereof (Int. Cl. 12).
First use June 21, 1968; in commerce Nov. 8, 1968.

Class 34 — Heating, Lighting, and Ventilating Apparatus

904,075. Conveyor Heat Products Corp., Philadelphia, Pa. SN 322,409. Filed P.R. 3–21–69; Am. S.R. 4–3–70.

CONVEY-A-TOAST

For Electric Conveyor-Operated Food-Cooking Ovens (Int. Cl. 11).
First use February 1969.

Class 46 — Foods and Ingredients of Foods

904,076. J. H. Filbert, Inc., Baltimore, Md. SN 338,768. Filed P.R. 9–24–69; Am. S.R. 9–25–70.

FLAVOR SPREAD

For Margarine, Cheese Sandwich Spread, Grape Jelly, Mayonnaise, Peanut Butter, Relish, Salad Dressings, and an Edible Spread Consisting of a Combination of Artificial Margarine and Flavoring (Int. Cls. 29 and 30).
First use Sept. 15, 1969.

Class 47 — Wines

904,077. Monsieur Andre Boisseaux, Beaune (Cote d'Or), France. SN 332,357. Filed P.R. 7-11-69; Am. S.R. 9-14-70.

G. KRITER & C°

Owner of French Reg. No. 2225, dated Sept. 24, 1959 (Beaune); Natl. Inst. No. 132,270.
For Sparkling Wines (Int. Cl. 33).

Class 51 — Cosmetics and Toilet Preparations

904,078. Whisperwill, Inc., New Rochelle, N.Y. SN 303,728. Filed P.R. 7-26-68; Am. S.R. 8-27-70.

BRASSY-FREE

For Hair Rinse and Setting Lotion (Int. Cl. 3).
First use June 1968.

904,079. Zsa Zsa Limited, New York, N.Y. SN 329,162. Filed P.R. 6-4-69; Am. S.R. 5-19-70.

Sparkling Rosé

For Make-Up Base (Int. Cl. 3).
First use Apr. 14, 1969.

Class 52 — Detergents and Soaps

904,080. Allergan Pharmaceuticals, Santa Ana, Calif. SN 283,208. Filed P.R. 10-24-67; Am. S.R. 6-25-70.

CLEAN 'N' SOAK

For Contact Lenses Cleaning and Soaking Solution (Int. Cl. 3).
First use Aug. 10, 1967.

Class 101 — Advertising and Business

904,081. Professional Systems, Inc., Chattanooga, Tenn. SN 317,101. Filed P.R. 1-21-69; Am. S.R. 10-14-70.

PROFESSIONAL SYSTEMS

For Computerized Accounting Services (Int. Cl. 35).
First use May 15, 1965.

Class 102 — Insurance and Financial

904,082. Colter Corporation, Charlottesville, Va. SN 336,281. Filed P.R. 8-12-69; Am. S.R. 8-12-70.

DENTAL CAREER FUND

For Limited Professional Financing for Students and Members of the Dental Profession (Int. Cl. 36).
First use Feb. 15, 1968.

Class 105 — Transportation and Storage

904,083. Travel-of-the-Month Club, Inc., Buffalo, N.Y. SN 281,932. Filed P.R. 10-5-67; Am. S.R. 8-17-70.

TRAVEL OF THE MONTH CLUB

For Travel and Charter Arrangement Services (Int. Cl. 39).
First use Aug. 1, 1967.

TRADEMARK REGISTRATIONS RENEWED

80,858. LUNKENHEIMER. Cl. 23 (Int. Cls. 7 and 8). 2-7-11.
270,311. REPRESENTATION OF 3 KICKING LEGS. Cl. 23 (Int. Cl. 8). 5-6-30.
270,734. REPRESENTATION OF GLOBE AND EAGLE. Cl. 18 (Int. Cl. 33). 5-13-30.
272,196. APESTRIN. Cl. 18 (Int. Cl. 5). 7-1-30.
272,386. FLEXTOE. Cl. 39 (Int. Cl. 25). 7-8-30.
274,910. REPRESENTATION OF PIPE. Cl. 23 (Int. Cls. 7, 8, and 12). 9-9-30.
275,802. FLASH. Cl. 26 (Int. Cl. 9). 9-23-30.
275,508. "JUSTO." Cl. 46 (Int. Cl. 29). 9-23-30.
275,896. "COPPUS HEAT KILLER" AND DESIGN. Cl. 34 (Int. Cl. 11). 10-7-30.
278,147. BRITONE. Cl. 16 (Int. Cl. 2). 12-9-30.
278,479. ALLWITE. Cl. 4 (Int. Cls. 3 and 4). 12-16-30.
278,617. PRIDE OF THE FARM. Cl. 46 (Int. Cl. 30). 12-23-30.
278,620. "LOFERO" AND DESIGN. Cl. 12 (Int. Cl. 19). 12-23-30.
278,623. "C.M.B." AND DESIGN. Cl. 39 (Int. Cl. 25). 12-23-30.
279,461. ZEE. Cl. 37 (Int. Cl. 16). 1-13-31.
279,663. "TWEED-TEX" AND DESIGN. Cl. 39 (Int. Cl. 25). 1-20-31.
280,274. "DIAMOND FLOUR" AND DESIGN. Cl. 46 (Int. Cl. 30). 2-10-31.
280,712. SUPERSET. Cl. 51 (Int. Cl. 3). 2-24-31.
281,048. "SAXON-WEAVE" AND DESIGN. Cl. 39 (Int. Cl. 25). 3-10-31.
444,309. TIMBER. Cl. 51 (Int. Cl. 3). 11-14-50.
524,494. EBY. Cl. 21 (Int. Cl. 9). 4-25-50.
527,332. THE COMMON DEFENSE. Cl. 38 (Int. Cl. 16). 7-4-50.
527,668. THE HARVARD CLASSICS THE FIVE-FOOT SHELF OF BOOKS. Cl. 38 (Int. Cl. 16). 7-18-50.
527,951. COOK. Cl. 23 (Int. Cl. 7). 7-18-50.
528,197. RED SEAL AND DESIGN. Cl. 46 (Int. Cl. 29). 8-1-50.
528,300. LOWELL. Cl. 23 (Int. Cl. 8). 8-1-50.
528,506. OZEX. Cl. 6 (Int. Cl. 5). 8-1-50.
529,156. TACOMP. Cl. 26 (Int. Cl. 9). 8-15-50.
530,527. TRIMETTE. Cl. 44 (Int. Cl. 8). 9-12-50.
530,871. TRUMPETER AND DESIGN. Cl. 39 (Int. Cl. 25). 9-19-50.
530,909. FISSURETONE. Cl. 12 (Int. Cl. 19). 9-19-50.
530,959. HTB LTD. AND DESIGN. Cl. 23 (Int. Cl. 7). 9-19-50.

531,157. SCRIBER. Cl. 38 (Int. Cl. 16). 9-26-50.
531,255. MONEY MAKING MILKING. Cl. 38 (Int. Cl. 16). 9-26-50.
531,316. INDUSTRIAL PREPAREDNESS. Cl. 38 (Int. Cl. 16). 9-26-50.
531,420. UNO. Cl. 46 (Int. Cl. 30). 10-3-50.
531,540. CONOLUBE. Cl. 15 (Int. Cl. 4). 10-3-50.
531,600. FLAXBLOOM AND DESIGN. Cl. 42 (Int. Cl. 24). 10-10-50.
531,606. O CEDAR AND DESIGN. Cl. 4 (Int. Cl. 3). 10-10-50.
531,607. PROVEL. Cl. 46 (Int. Cl. 29). 10-10-50.
531,647. PURITAN. Cl. 23 (Int. Cl. 7). 10-10-50.
531,652. BRANGUS. Cl. 1 (Int. Cl. 31). 10-10-50.
531,657. ELECTRAPANE. Cl. 33 (Int. Cl. 21). 10-10-50.
531,683. OCEDAR AND DESIGN. Cl. 29 (Int. Cl. 21). 10-10-50.
531,747. CITATION. Cl. 29 (Int. Cl. 21). 10-10-50.
531,994. TAKACHECK. Cl. 23 (Int. Cl. 9). 10-17-50.
532,766. FLEX-WALL. Cl. 12 (Int. Cl. 6). 10-31-50.
532,866. RIO GLEN. Cl. 46 (Int. Cl. 29). 10-31-50.
533,729. SHELLEE. Cl. 46 (Int. Cl. 30). 11-21-50.
533,777. CORICIDIN. Cl. 18 (Int. Cl. 5). 11-21-50.
533,891. PERF-A-TAPE. Cl. 12 (Int. Cl. 19). 11-28-50.
534,170. SHERMAN. Cl. 13 (Int. Cls. 6 and 11). 12-5-50.
534,416. SUPERIOR. Cl. 21 (Int. Cl. 9). 12-5-50.
534,461. WEBRIL. Cl. 44 (Int. Cl. 5). 12-5-50.
534,586. GOLDING. Cl. 42 (Int. Cl. 24). 12-12-50.
535,069. SAFETY FIRST. Cl. 39 (Int. Cl. 25). 12-19-50.
535,104. LONG BEACH ISLAND AND DESIGN. Cl. 46 (Int. Cl. 30). 12-19-50.
535,150. CURTIS RUYSDAEL. Cl. 37 (Int. Cl. 16). 12-26-50.
535,199. WAKEFIELD. Cl. 46 (Int. Cl. 29). 12-26-50.
535,201. NU-HUE. Cl. 16 (Int. Cl. 2). 12-26-50.
535,250. WHITEFIELD BOND. Cl. 37 (Int. Cl. 16). 12-26-50.
535,310. NU-Z AND DESIGN. Cl. 10 (Int. Cl. 1). 12-26-50.
535,346. MANU-TOWL. Cl. 37 (Int. Cl. 16). 12-26-50.
535,373. PERMAFIBER MARKING. Cl. 37. (Int. Cl. 16). 12-26-50.
535,438. TECHPERL. Cl. 28 (Int. Cl. 14). 12-26-50.
535,521. BALGRIP. Cl. 26 (Int. Cl. 9). 1-2-51.
535,629. RAYETTE. Cl. 51 (Int. Cl. 3). 1-2-51.
535,784. CLINCH-HED. Cl. 13 (Int. Cl. 6). 1-2-51.
535,921. DEXTER. Cl. 23 (Int. Cl. 7). 1-9-51.
536,155. SURE SPEC. Cl. 14 (Int. Cl. 6). 1-9-51.
536,271. ORTHO-POISE. Cl. 26 (Int. Cl. 9). 1-9-51.
536,343. HUDSON. Cl. 35 (Int. Cl. 17). 1-16-51.
536,463. PEBBLEGRAIN. Cl. 39 (Int. Cl. 25). 1-16-51.
536,610. KHAKI-KOOL. Cl. 42 (Int. Cl. 24). 1-16-51.
536,750. PIRLATIN. Cl. 18 (Int. Cl. 5). 1-16-51.
536,978. NO-DRIP. Cl. 23 (Int. Cl. 8). 1-23-51.
537,023. WILSHIRE. Cl. 32 (Int. Cl. 20). 1-30-51.
537,096. FAST GLOSS. Cl. 51 (Int. Cl. 3). 1-30-51.
537,321. OHIO. Cl. 12 (Int. Cl. 19). 2-6-51.
537,558. CHASE. Cl. 21 (Int. Cl. 9). 2-13-51.
537,646. ALDUTI. Cl. 21 (Int. Cl. 9). 2-13-51.
537,671. CIRCULAIR. Cl. 21 (Int. Cl. 11). 2-13-51.
537,815. POSITROL. Cl. 21 (Int. Cl. 9). 2-13-51.
537,824. QUILON. Cl. 6 (Int. Cl. 1). 2-13-51.
537,833. STERLCO. Cl. 26 (Int. Cl. 9). 2-13-51.
537,834. THERMOTROL. Cl. 26 (Int. Cl. 9). 2-13-51.
537,843. BORG. Cl. 26 (Int. Cl. 9). 2-13-51.
537,878. AEROQUIP. Cl. 35 (Int. Cl. 17). 2-13-51.
537,894. BRIGGS & STRATTON AND DESIGN. Cl. 23 (Int. Cl. 7). 2-13-51.
537,913. MT. JEFFERSON. Cl. 46 (Int. Cl. 29). 2-13-51.
537,922. HY-PRESSURE. Cl. 13 (Int. Cl. 6). 2-13-51.
537,995. HUDSON KING AND DESIGN. Cl. 23 (Int. Cl. 7). 2-20-51.
538,003. THERMAPLY. Cl. 23 (Int. Cl. 7). 2-20-51.
538,005. METALICOIL. Cl. 15 (Int. Cl. 4). 2-20-51.
538,006. METALICGREASE. Cl. 15 (Int. Cl. 4). 2-20-51.
538,104. APCO. Cl. 22 (Int. Cls. 9, 20, and 28). 2-20-51.
538,120. SIMPLEX. Cl. 23 (Int. Cl. 8). 2-20-51.
538,140. SCALE DESIGN. Cl. 39 (Int. Cl. 25). 2-20-51.
538,141. KASMIR. Cl. 39 (Int. Cl. 25). 2-20-51.
538,261. TU-LIP. Cl. 23 (Int. Cl. 7). 2-20-51.
538,270. ATOAST. Cl. 45 (Int. Cl. 32). 2-20-51.
538,291. AMOBAR. Cl. 15 (Int. Cl. 4). 2-20-51.
538,292. AMODRIP. Cl. 15 (Int. Cl. 4). 2-20-51.
538,294. AMOKULUBE. Cl. 15 (Int. Cl. 4). 2-20-51.
538,470. FOLLOMATIC AND DESIGN. Cl. 23 (Int. Cl. 16). 2-27-51.
538,561. FEATHERKING. Cl. 42 (Int. Cl. 24). 2-27-51.
538,584. "THE NEW LEADER." Cl. 23 (Int. Cl. 7). 2-27-51.
538,642. FALCON. Cl. 46 (Int. Cl. 30). 2-27-51.
538,689. FOAM CREST. Cl. 32 (Int. Cl. 20). 2-27-51.
538,697. SCUTTLE SCUTL. Cl. 6 (Int. Cl. 5). 2-27-51.
538,818. GOOD AS GOLD. Cl. 46 (Int. Cl. 31). 2-27-51.
538,820. SEXAUER. Cl. 13 (Int. Cls. 6 and 11). 3-6-51.
538,832. STANDARD. Cl. 13 (Int. Cl. 6). 3-6-51.
539,016. SOUTHERN STAR. Cl. 46 (Int. Cl. 29). 3-6-51.
539,242. FUMIGUN. Cl. 23 (Int. Cl. 7). 3-13-51.
539,253. AMP-O-LECTRIC. Cl. 23 (Int. Cl. 7). 3-13-51.
539,331. WEBFOOT. Cl. 39 (Int. Cl. 25). 3-13-51.
539,383. DOMINGO. Cl. 46 (Int. Cl. 31). 3-13-51.
539,465. MINIT CURL. Cl. 51 (Int. Cl. 3). 3-13-51.
539,982. CHLORAFAL. Cl. 6 (Int. Cl. 5). 3-27-51.

TRADEMARK REGISTRATIONS CANCELED

Section 8

The following registrations issued Oct. 20, 1964

778,645. ULSTRENE. Cl. 1.
778,646. ATLANTIC BI-POLY. Cl. 1.
778,650. SEM-E-TEX. Cl. 1.
778,651. TUFFSEAL. Cls. 2 and 37.
778,659. DEFOMEX. Cl. 6.
778,660. DEFROTHEX. Cl. 6.
778,661. HORIZONTALLY PARALLEL OPPOSING ARROWS (DESIGN). Cl. 6.
778,665. ROYYAL COACH AND DESIGN. Cl. 8.
778,668. FLO/REA. Cl. 10.
778,670. STUMP WITH TWO AXES (DESIGN). Cl. 10.
778,672. RAIL-ETTE. Cl. 12.
778,674. WILLIE WATER SAVER AND DESIGN. Cl. 13.
778,678. YELLOW JACK. Cl. 13.
778,679. PERMATAPER. Cl. 13.
778,683. LA ROSA DE MAYO GARCIA Y VEGA AND DESIGN. Cl. 17.
778,690. AMOMYCIN. Cl. 18.
778,691. EPSAPUR. Cl. 18.
778,694. M-I-C. Cl. 18.
778,701. VENMAR. Cl. 20.
778,702. BRECMAR. Cl. 20.
778,706. STRIP GUIDE AML AND DESIGN. Cl. 21.
778,711. BOWL-A-MATIC. Cl. 22.
778,715. APACHE. Cl. 22.
778,719. PLANET AND DESIGN. Cl. 23.
778,720. P PACIFIC AND DESIGN. Cl. 23.
778,728. MULTI-MATIC. Cl. 23.
778,732. KD AND DESIGN. Cl. 23.
778,735. ELECTROMISSION. Cl. 23.
778,736. DAW-SPROK. Cl. 23.
778,743. UNI-CURVE. Cl. 26.
778,744. WESTON AND DESIGN. Cl. 26.
778,745. CML AND DESIGN. Cl. 26.
778,746. EKTAFAX. Cl. 26.
778,758. CHANNELITE. Cl. 33.
778,761. CLASSIC COLLECTION. Cl. 34.
778,762. DECORATOR'S COLLECTION. Cl. 34.
778,764. AMERON. Cl. 35.
778,765. SHIELD DESIGN. Cl. 35.
778,772. POLKA DOT. Cl. 35.
778,775. STIXIE PIXIES. Cl. 38.
778,776. CAL-TURF HANDI CAPPER. Cl. 38.
778,777. MISCELLANEOUS DESIGN. Cl. 38.
778,784. THE NATIONAL CONSENSUS C. Cl. 38.
778,786. ADVANCE AND DESIGN. Cl. 38.
778,792. UNIFOLD. Cl. 39.

778,797. BLOW MY TOP. Cl. 39.
778,799. D'NOVIA. Cl. 39.
778,800. BANOGUE. Cl. 39.
778,804. WYCKSTONE. Cl. 39.
778,805. O.R.F. Cl. 39.
778,810. INVIS-A-STRETCH. Cl. 39.
778,812. JAM SESSION. Cl. 39.
778,819. PARKEDALE. Cl. 42.
778,820. EXPECTO. Cl. 44.
778,821. BIG ROOTY. Cl. 45.
778,824. LEE-DON. Cl. 46.
778,829. SAVIO. Cl. 46.
778,830. INSTANT DELIGHT AND DESIGN. Cl. 46.
778,831. QUIPS. Cl. 46.
778,833. SPICE CUPBOARD. Cl. 46.
778,835. PLAYMATE AND DESIGN. Cl. 46.
778,838. MAGIC ISLAND. Cl. 49.
778,844. COW (DESIGN). Cl. 50.
778,848. TROPICAL ORCHID. Cl. 51.
778,852. PDQ. Cl. 52.
778,853. SPOT MAGIC. Cl. 52.
786,859. THE PACKING CRATE AND DESIGN. Cl. 101.
778,860. EAGLE WITHIN CIRCLE DESIGN. Cl. 102.
778,862. DARB SYSTEM. Cl. 103.
778,865. MOISTURE-PAK. Cl. 2.
778,866. IRISH TWIST. Cl. 3.
778,872. FLECKS-N-SPECK. Cl. 16.
778,873. PINS 'N BADGES. Cl. 22.
778,874. NOEL AND DESIGN. Cl. 22.
778,875. PLAY BLACKJACK. Cl. 22.
778,876. PLAY GIN. Cl. 22.
778,879. GRIFFITH. Cl. 37.
778,881. SOFT SERVE FOOD 'N SHAKE FIELD. Cl. 38.
778,883. KATHRYN BEICH TAFFY TWISTS. Cl. 46.
778,885. SNACK PACK. Cl. 48.
778,886. HONEY BEE. Cl. 51.
778,887. BE GAY RED. Cl. 51.
778,888. PEARL MIST. Cl. 51.
778,889. BRONZE MEDALLION. Cl. 51.
778,890. PINK WEDDING. Cl. 51.
778,892. 'STORMY PINK.' Cl. 51.
778,893. BOTTLE DESIGN. Cl. 51.
778,895. GRAPH CHART DESIGN. Cl. 103.
778,896. WASHINGTON, D.C. INSTITUTE OF ADVANCE HAIR DESIGN. Cl. 107.

Errata

In the OFFICIAL GAZETTE of Feb. 17, 1970, at page TM 147, "762,362. ROYAL WOOLEN UNDER WEAR CO. EMNOPIKON ETC. AND DESIGN. Cl. 39." should be deleted.

In the OFFICIAL GAZETTE of Oct. 29, 1970, at page TM 150, "776,369. SAFE-T-SPRAY. Cl. 19." and "776,370. EVERKLEEN. Cl. 19." should be deleted.

In the OFFICIAL GAZETTE of July 14, 1970, at page TM 119, *770,405. CIRCLE EIGHT AND DESIGN. Cl. 39.* should be inserted.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

274,924. M. & M. Cl. 11. 9–9–30. Mittag & Volger, Incorporated. Burroughs Corporation, Detroit, Mich. Amended to appear:



526,781. SKYWAY AND DESIGN. Cl. 46. 6–27–50. The Bama Company. Borden, Inc., New York, N.Y. Amended to appear:

SKYWAY

531,128. THURMADUKE. Cls. 21 and 34. 9–26–50. Duke Manufacturing Co., St. Louis, Mo. Amended to appear:

Thurmaduke

761,048. WHITE HORSE AND LABEL DESIGN. Cl. 49. 12–3–63. White Horse Distillers Limited, Glasgow, Scotland. Amended: In the statement, column 2, line 6, "Cellar" is deleted, and the drawing is amended to appear:



790,131. KATZ. Cl. 101. 5–25–65. Katz Drug Company, Kansas City, Mo. Corrected: In the statement, column 1, line 1, "Missouri" should be deleted and *Delaware* should be inserted.

800,232. INMANCO POLYMAT. Cl. 21. 12–14–65. Inmanco, Inc., Chicago, Ill. Corrected: In the statement, column 1, line 1, "Illinois" should be deleted and *New Hampshire* should be inserted.

846,770. WHITE HORSE AND DESIGN. Cl. 49. 3–26–68. White Horse Distillers Limited, Glasgow, Scotland. Amended to appear:



880,149. GOLLOB ANALYTICAL SERVICE INC. AND DESIGN. Cl. 100. 11–4–69. Gollob Analytical Service Corp., assignee of Gollob Analytical Service, Inc., Berkeley Heights, N.J. Amended: In the statement, column 2, line 8, "Inc." is deleted and *Corp.* is inserted, and the drawing is amended to appear:



887,315. KOJAH. Cl. 1. 3–10–70. Emba Mink Breeders Association, assignee of Sable Mink Farms, Racine, Wis. Corrected: In the heading, "Trademark" should be deleted and *Collective Mark (Goods)* should be inserted.

INDEX OF REGISTRANTS

DECEMBER 8, 1970

(Registered; Renewed; Canceled; Amended, Disclaimed, Corrected, etc.; New Certificates; 12c Publications.)

AAA Enterprises, Inc., Atlanta, Ga. 903,978, pub. 9–22–70. Cl. 50.
A & C Toys & Games, Inc., Miami, Fla. 778,715, canc. Cl. 22.
A.I.D. Associates, Inc., Dallas, Tex. 903,907, pub. 9–22–70. Cl. 38.
AMP Inc., Harrisburg, Pa. 539,253, ren. 12–8–70. Cl. 23.
Acme Markets, Inc., Philadelphia, Pa. 903,968, pub. 9–22–70. Cl. 46.
Activa Products, Inc., San Francisco, Calif. 904,070. Cl. 16.
Ady-Ruth Acres, Stoughton, Wis. 903,959, pub. 9–22–70. Cl. 46.
Aeronca, Inc., Pineville, N.C. 903,738, pub. 9–22–70. Cl. 12.
Aeroquip Corp., Jackson, Mich. 537,878, ren. 12–8–70. Cl. 35.
Agri-Business International, Inc., Denver, Colo. 904,035, pub. 9–22–70. Cl. 101.
Aid, Portland, Maine. 904,040, pub. 9–22–70. Cl. 101.
Air Products & Chemicals, Inc., Allentown, Pa. 903,697, pub. 9–22–70. Cl. 6.
Airborne Accessories Corp., Hillside, N.J. 778,735, canc. Cl. 23.
Akro Corp., The, Canton, Ohio. 903,985–6, pub. 9–22–70. Cl. 50.
Aksjeselskapet Freia, Oslo, Norway. 778,831, canc. Cl. 46.
Alco Standard Corp., Valley Forge, Pa., from R. O. Kent Corp., New York, N.Y. 903,863, pub. 7–14–70. Cl. 29.
Allentown Scientific Associates, Inc., Allentown, Pa. 904,000, pub. 9–22–70. Cl. 52.
Allergan Pharmaceuticals, Santa Ana, Calif. 904,080. Cl. 52.
Alyssa Originals, Inc., New York, N.Y. 903,923, pub. 9–22–70. Cl. 39.
Amco of Norvelt, Inc., New York, N.Y. 778,805, canc. Cl. 39.
American Association for the Advancement of Science, Washington, D.C. 904,064, pub. 9–22–70. Cl. 200.
American Express Co., New York, N.Y. 904,011, pub. 9–22–70. Cl. 100.
American Home Products Corp., New York, N.Y. 278,479, ren. 12–8–70. Cl. 4.
American Hospital Supply Corp., Evanston, Ill. 903,710, pub. 9–22–70. Cl. 6.
American Metal Climax, Inc., d.b.a. Southwest Potash Corp., New York, N.Y. 903,708, pub. 9–22–70. Cl. 6.
American Oil Co., The, Chicago, Ill. 538,291–2, ren. 12–8–70. Cl. 15.
American Oil Co., The, Chicago, Ill. 538,294, ren. 12–8–70. Cl. 15.
American Optical Corp., Southbridge, Mass. 903,751, pub. 9–22–70. Cl. 13.
American Optical Corp., Southbridge, Mass. 903,904, pub. 9–22–70. Cl. 38.
American Optical Corp., Southbridge, Mass. 904,054, pub. 9–22–70. Cl. 103.
American Ordnance Association, Washington, D.C. 527,332, ren. 12–8–70. Cl. 38.
American Ordnance Association, Washington, D.C. 531,316, ren. 12–8–70. Cl. 38.
American Sanitary Partition Corp., Long Island City, N.Y. 532,766, ren. 12–8–70. Cl. 12.
American Totalisator Co., Inc., Cockeysville, Md. 531,994, ren. 12–8–70. Cl. 23.
Apkarian, T., & Sons, Reedley, Calif. 539,383, ren. 12–8–70. Cl. 46.
Applied Microwave Laboratory, Inc., Wakefield, Mass. 778,706, canc. Cl. 21.
Applied Systems Corp., Rockville, Md. 903,852, pub. 9–22–70. Cl. 26.
Arbogast, Fred, Co., Inc., Akron, Ohio. 903,804–6, pub. 9–22–70. Cl. 22.
Archie Enterprises, Inc., from Radio Comics, Inc., New York, N.Y. 903,906, pub. 6–30–70. Cl. 38.
Architechnical Products, Inc., New York, N.Y. 778,758, canc. Cl. 33.
Arcoa International, Inc., from Arcoa, Inc., Phoenix, Ariz. 903,752, pub. 9–22–70. Cl. 13.
Armco Steel Corp., Middletown, Ohio. 903,728, pub. 9–22–70. Cl. 7.
Armour-Dial, Inc., Chicago, Ill. 904,001, pub. 9–22–70. Cl. 52.
Armstrong Cork Co., Lancaster, Pa. 903,933, pub. 9–22–70. Cl. 42.
Arries, Francis B., Pengilly, Minn. 903,954, pub. 9–22–70. Cl. 46.
Asarnow, Rosaly M., d.b.a. Advance Publishing Co., Glen Riddle, Pa. 778,786, canc. Cl. 38.
Ashflash Corp., The, South Norwalk, Conn. 904,071. Cl. 21.
Associated Educational Services Corp., New York, N.Y. 903,897, pub. 2–4–69. Cl. 38.
Atalasport S.a.S. Fabbrica Articoli Sportivi, Pavoda, Italy. 903,790, pub. 9–22–70. Multiple Class (Classes 22 and 39).
Atlantic Refining Co., The, Philadelphia, Pa. 778,646, canc. Cl. 1.
Atlantic-Pacific Mfg. Corp., Brooklyn, N.Y. 538,104, ren. 12–8–70. Cl. 22.
Atlas Underwear Corp., Piqua, Ohio. 903,921, pub. 9–22–70. Cl. 39.
Autocomp Inc., Bethesda, Md. 904,038, pub. 9–22–70. Cl. 101.
Avery Products Corp., San Marino, Calif. 538,003, ren. 12–8–70. Cl. 28.
Avondale Mills, Sylacauga, Ala. 903,940, pub. 9–22–70. Cl. 42.
Azoplate Corp., Murray Hill, N.J. 903,841, pub. 9–22–70. Cl. 26.
B & K Instruments, Inc., Cleveland, Ohio. 903,847, pub. 9–22–70. Cl. 26.
Babson Bros. Co., Oak Brook, Ill. 531,255, ren. 12–8–70. Cl. 38.
Babson Bros. Co., Oak Brook, Ill. 903,829, pub. 9–22–70. Cl. 23.
Bacon, Charles H., Co., Inc., Lenoir City, Tenn. 903,925, pub. 9–22–70. Cl. 39.
Bada Co., The, Pasadena, Calif. 903,772, pub. 9–22–70. Cl. 19.
Badische Anilin- & Soda-Fabrik Aktiengeselischaft, Ludwigshafen, Germany. 903,704, pub. 9–22–70. Cl. 6.
Bama Co., The, Borden, Inc., New York, N.Y. 526,781. Am. 7(d). Cl. 46.
Bancroft Paper Co., Inc., West Monroe, La. 778,865, canc. Cl. 2.
Barnes-Hind Laboratories, Inc., Sunnyvale, Calif. 778,694, canc. Cl. 18.
Barrows Industries, Inc., Providence, R.I. 778,879, canc. Cl. 37.
Barry, R. G., Corp., Columbus, Ohio. 903,920, pub. 9–22–70. Cl. 39.
Baschieri & Pellagri S.p.A., Bologna, Italy. 903,730, pub. 9–22–70. Cl. 9.
Bassett, W. E., Co., The, Derby, Conn. 530,527, ren. 12–8–70. Cl. 44.
Bassett, W. E., Co., The, Derby, Conn. 903,941, pub. 2–12–63. Cl. 44.
Baumritter Corp., New York, N.Y. 903,855, pub. 9–22–70. Cl. 27.
Bausch & Lomb Inc., Rochester, N.Y. 535,521, ren. 12–8–70. Cl. 26.
Bausch & Lomb Inc., Rochester, N.Y. 536,271, ren. 12–8–70. Cl. 26.
Bayuk Cigars Inc., Philadelphia, Pa. 903,766, pub. 9–22–70. Cl. 17.
Beich, Paul F., Co., Bloomington, Ill. 778,883, canc. Cl. 46.
Bell Research Inc., Chester, W. Va. 903,849, pub. 9–22–70. Cl. 26.
Belva Mfg. Co., Inc., St. Louis, Mo. 537,096, ren. 12–8–70. Cl. 51.
Bi'Don, Inc., Washington, D.C. 778,859, canc. Cl. 101.
Big Rooty Corp., The, Redondo Beach, Calif. 778,821, canc. Cl. 45.
Birenbaum, Abe, d.b.a. Abram's Hardware Shoes, Philadelphia, Pa. 778,799, canc. Cl. 39.
Blue Lake Packers, Inc., Salem, Oreg. 537,913, ren. 12–8–70. Cl. 46.
Blue Star Shoes, Inc., Lawrence, Mass. 903,922, pub. 9–22–70. Cl. 39.
Blumenstock, Sid, Enterprises, Freeport, N.Y. 778,797, canc. Cl. 39.
Bonat, Samuel, & Bro., Inc., West Paterson, N.J. 903,993, pub. 9–22–70. Cl. 51.
Borg-Erickson Corp., The, Chicago, Ill. 537,843, ren. 12–8–70. Cl. 26.
Breaker Confections, Inc., Elk Grove Village, Ill. 903,956, pub. 7–21–70. Cl. 46.
Briggs & Stratton Corp., Wauwatosa, Wis. 537,894, ren. 12–8–70. Cl. 23.
Brockmann & Barton, Maryland Heights, Mo. 903,793, pub. 9–22–70. Cl. 22.
Bruce, E. L., Co., Inc., d.b.a. Bruce Terminix and Bruce Terminix Termite & Pest Control, Memphis, Tenn. 904,056, pub. 9–22–70. Cl. 103.
Buccellati Silver, Ltd., New York, N.Y. 903,862, pub. 9–22–70. Cl. 28.
Bumper Chrome Specialists, Inc., Grosse Pointe Woods, Mich. 904,053, pub. 9–22–70. Cl. 103.
Burdick Corp., The, Milton, Wis. 903,942, pub. 9–22–70. Cl. 44.
Burger Boy Stores, Inc., Madison, Tenn. 904,014, pub. 7–7–70. Cl. 100.
Burgundy Bull, Inc., Edina, Minn. 904,022, pub. 9–22–70. Cl. 100.
Buttram, Merle E., d.b.a. Clear Creek Ranch, Welch, Okla. 531,652, ren. 12–8–70. Cl. 1.
California Date Growers Association, Indio, Calif. 538,818, ren. 12–8–70. Cl. 46.
Cal-Turf Handicapping Service, The, Las Vagas, Nev. 778,776, canc. Cl. 38.
Cambridge Technology Inc., Newton Upper Falls, Mass. 904,023, pub. 9–22–70. Cl. 100.
Canoga Controls Corp., Canoga Park, Calif. 903,850, pub. 9–22–70. Cl. 26.
Carlisle Corp., Carlisle, Pa. 903,881, pub. 9–22–70. Cl. 35.
Carolina Biological Supply Co., Burlington, N.C. 903,705, pub. 9–22–70. Cl. 6.
Carousel Fashions, Inc., New York, N.Y. 903,931, pub. 9–22–70. Cl. 40.
Carreras Ltd., Basildon, Essex, England. 903,765, pub. 9–22–70. Cl. 17.
Carson, Johnny, Apparel, Inc., Buffalo, N.Y. 903,927, pub. 9–22–70. Cl. 39.

Carter-Wallace, Inc., New York, N.Y. 903,769, pub. 7–28–70. Cl. 18.
Casmar, S.A., Panama, Republic of Panama. 903,794, pub. 9–22–70. Cl. 22.
Cash Credit Corp., Des Moines, Iowa. 778,860, canc. Cl. 102.
Castelli, Pete, d.b.a. Talk-N-Chic Co., Alton, Ill. 904,005, pub. 9–22–70. Cl. 100.
Cello Chemical Co., The, Baltimore, Md. 903,709, pub. 9–22–70. Cl. 6.
Celotex Corp., The, Tampa, Fla. 530,909, ren. 12–8–70. Cl. 12.
Centre d'Etudes et de Diffusion des Implants Aiguilles, Paris, France. 903,943, pub. 9–22–70. Cl. 44.
Certified Laboratories, Inc., Fort Worth, Tex. 903,717–18, pub. 9–22–70. Cl. 6.
Chemtech Corp., The, Cincinnati, Ohio. 903,727, pub. 9–22–70. Cl. 6.
Chesebrough-Pond's Inc., d.b.a. Ballo Thermometer Co., New York, N.Y. 903,947, pub. 9–22–70. Cl. 44.
Chesebrough-Pond's Inc., New York, N.Y. 903,994, pub. 9–22–70. Cl. 51.
Chicago Fire Brick Co., Chicago, Ill. 903,739, pub. 9–22–70. Cl. 12.
Childcraft Education Corp., New York, N.Y. 903,822, pub. 9–22–70. Cl. 22.
Childcraft Education Corp., New York, N.Y. 903,868, pub. 9–22–70. Cl. 32.
Child's World, Inc., Columbus, Ohio. 903,812, pub. 9–22–70. Cl. 22.
Chilton Co., Philadelphia, Pa. 903,905, pub. 9–22–70. Cl. 38.
Chi-Pitts Corp., Kent, Ohio. 904,033, pub. 9–22–70. Cl. 101.
Christian Reformed Church, Grand Rapids, Mich. 903,899, pub. 9–22–70. Cl. 38.
Christmas Dove, The, Rockport, Mass. 904,042, pub. 9–22–70. Cl. 101.
Cincinnati Milcron Inc., from The Cincinnati Milling Machine Co., Cincinnati, Ohio. 903,733, pub. 9–22–70. Cl. 12.
Cincinnati Milling Machine Co., The: *See*—
Cincinnati Milcron Inc.
Cities Service Co., New York, N.Y. 535,310, ren. 12–8–70. Cl. 10.
City Products Corp., Los Angeles, Calif. 537,023, ren. 12–8–70. Cl. 32.
Clarke, Richard Associates, Inc., New York, N.Y. 903,898, pub. 9–22–70. Cl. 38.
Clendenin Corp., Silver Spring, Md. 904,048, pub. 9–22–70. Cl. 102.
Cluett, Peabody & Co., Inc., Troy, N.Y., from Maro Mfg. Co., Los Angeles, Calif. 903,911, pub. 10–18–66. Cl. 39.
Coburg Dairy, Inc., Charleston, S.C. 903,961, pub. 8–4–70. Cl. 46.
Coin Operated Equipment & Mfg. Co., Ardmore, Okla. 778,844, canc. Cl. 50.
Colgate-Palmolive Co., New York, N.Y. 904,003, pub. 9–22–70. Cl. 52.
College of Physicians & Surgeons of San Francisco, San Francisco, Calif. 778,820, canc. Cl. 44.
Colter Corp., Charlottesville, Va. 904,082. Cl. 102.
Combustion Engineering, Inc., Tulsa, Okla. 903,874, pub. 9–22–70. Cl. 34.
Commonwealth Research Laboratories, Inc., Norfolk, Va. 778,853, canc. Cl. 52.
Computer Transceiver Systems, Inc., Upper Saddle River, N.J. 903,848, pub. 9–22–70. Cl. 26.
Congoleum Industries, Inc., Kearney, N.J. 531,157, ren. 12–8–70. Cl. 38.
Consolidated Airborne Systems, Inc., Carle Place, N.Y. 903,839, pub. 9–22–70. Cl. 26.
Consolidated Airborne Systems, Inc., Carle Place, N.Y. 903,842, pub. 9–22–70. Cl. 26.
Consolidated Dental Services Co., New Orleans, La. 903,945, pub. 9–22–70. Cl. 44.
Consulting Engineers Council, Washington, D.C. 904,065, pub. 9–22–70. Cl. 200.
Conti Rubber Products, Inc., Carteret, N.J. 903,882, pub. 9–22–70. Cl. 35.
Continental Oil Co., Ponca City, Okla. 531,540, ren. 12–8–70. Cl. 15.
Contour Comfort Contact Lenses, Inc., Waco, Tex. 778,743, canc. Cl. 26.
Conveyor Heat Products Corp., Philadelphia, Pa. 904,075. Cl. 34.
Coppus Engineering Corp., Worchester, Mass. 275,896, ren. 12–8–70. Cl. 34.
Coral Ridge Properties, Inc., Coral Springs, Fla. 903,908, pub. 9–22–70. Cl. 38.
Crest Uniform Co., Inc., New York, N.Y. 903,924, pub. 9–22–70. Cl. 39.
Crimmins, J. C., Inc., Philadelphia, Pa. 778,784, canc. Cl. 38.
Crowell-Collier Educational Corp., New York, N.Y. 527,668, ren. 12–8–70. Cl. 38.
Crown Zellerbach Corp., San Francisco, Calif. 279,461, ren. 12–8–70. Cl. 37.
Crown Zellerbach Corp., San Francisco, Calif. 535,346, ren. 12–8–70. Cl. 37.
Cuca Record Corp., Sauk City, Wis. 778,772, canc. Cl. 36.
Curry, McLaughlin & Len, Inc., Syracuse, N.Y. 778,745, canc. Cl. 26.
Curtis Paper Co., Newark, Del. 535,150, ren. 12–8–70. Cl. 37.
Daiichi Seiko Kabushiki Kaisha, Tokyo-to, Japan. 903,830, pub. 9–22–70. Cl. 26.
Dan River Inc., Danville, from Dan River Mills Inc., Danville, Va., 903,934–5, pub. 9–22–70. Cl. 42.
Dan River Mills Inc.: *See*—
Dan River Inc.
Dart Industries Inc., from Rexall Drug & Chemical Co., d.b.a. The West Bend Co., Los Angeles, Calif. 903,873, pub. 9–22–70. Cl. 34.
Data Dimensions, Inc., Stamford, Conn. 904,016, pub. 9–22–70. Multiple Class (Classes 100 and 101).
Deering Milliken, Inc., New York, N.Y. 903,939, pub. 9–22–70. Cl. 42.
Delta Products, Inc., Baltimore, Md. 903,870, pub. 9–22–70. Cl. 33.
Den Kongelige Porcelainsfabrik A/S, Copenhagen, Denmark. 903,866, pub. 9–22–70. Multiple Class (Classes 30 and 50).
Dennis Uniform Mfg. Co., Portland, Oreg. 903,912, pub. 10–7–69. Cl. 39.
Dentsply International Inc., York, Pa. 903,686, pub. 9–22–70. Cl. 1.
Directional Industries, Inc., New York, N.Y. 903,869, pub. 9–22–70. Cl. 32.
Dori, Dorio, d.b.a. Lee-Don Co., New York, N.Y. 778,824, canc. Cl. 46.
Dory, Ltd., Inc., Des Plaines, Ill. 904,013, pub. 9–22–70. Cl. 100.
Double A Products Co., Manchester, Mich. 903,834, pub. 9–22–70. Cl. 26.
Dow Chemical Co., The, Midland, Mich. 903,726, pub. 9–22–70. Cl. 6.
Dow Mechanical Corp., The, Thompsonville, Conn. 529,156, ren. 12–8–70. Cl. 26.
Drackett Co., The, Cincinnati, Ohio. 531,606, ren. 12–8–70. Cl. 4.
Drackett Co., The, Cincinnati, Ohio. 531,683, ren. 12–8–70. Cl. 29.
Drackett Co., The, Cincinnati, Ohio. 903,694, pub. 9–22–70. Cl. 4.
Dresser Industries, Inc., Dallas, Tex. 904,010, pub. 9–22–70. Cl. 100.
Drink Atoast Co., Riverside, N.J. 538,270, ren. 12–8–70. Cl. 45.
Duke Mfg. Co., St. Louis, Mo. 531,128. Am. 7(d). Multiple Class (Classes 21 and 34).
Dukes Hydraulics, Inc., Schiller Park, Ill. 903,757, pub. 9–22–70. Multiple Class (Classes 13 and 23).
Dunhill, Alfred, of London, Inc., New York, N.Y. 778,665, canc. Cl. 8.
Duplan Corp., The, Winston-Salem, N.C. 535,438, ren. 12–8–70. Cl. 28.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 537,824, ren. 12–8–70. Cl. 6.
Dutch Inns of America, Inc.: *See*—
Inn Family Motel System, Inc., The.
Dynamic-International, Inc., Buffalo, N.Y. 778,777, canc. Cl. 38.
E.B.V. Systems, Inc., Warwick, R.I. 903,748, pub. 9–22–70. Cl. 13.
ESB Inc., Philadelphia, Pa. 903,853, pub. 9–22–70. Cl. 26.
East Texas Pulp & Paper Co., Silsbee, Tex. 778,650, canc. Cl. 1.
Eastman Kodak Co., Rochester, N.Y. 778,746, canc. Cl. 26.
Eastman Kodak Co., Rochester, N.Y. 903,900, pub. 3–10–70. Cl. 38.
Eaton, Yale & Towne Inc., Cleveland, Ohio. 537,922, ren. 12–8–70. Cl. 13.
Eby, Hugh H., Co., Philadelphia, Pa. 524,494, ren. 12–8–70. Cl. 21.
Edlo Enterprises Inc., San Francisco, Calif. 903,971, pub. 9–22–70. Cl. 46.
Eisenstadt Mfg. Co., St. Louis, Mo. 903,856, pub. 9–22–70. Cl. 27.
El Chico Corp., Dallas, Tex. 903,962, pub. 9–22–70. Multiple Class (Classes 46, 100, and 101).
Eldon Industries Inc., Hawthorne, Calif. 778,711, canc. Cl. 22.
Eldon Industries, Inc., Hawthorne, Calif. 903,796, pub. 9–22–70. Cl. 22.
Electro-Extraction, Inc., Wylie, Tex. 903,759, pub. 9–22–70. Cl. 14.
Elliott Business Machines, Inc., Randolph Township, Mass. 903,731, pub. 9–22–70. Cl. 11.
Ellis Engineering Co., Buena Park, Calif. 778,678, canc. Cl. 13.
Emba Mink Breeders Association, from Sable Mink Farms, Racine, Wis. 887,315, cor. Cl. 1.
Emser Werke A.G., Domat/Ems, Switzerland. 778,691, canc. Cl. 18.
Ethylene Corp., Murray Hill, N.J. 903,747, pub. 9–22–70. Cl. 13.
Evans Products Co., Portland, Oreg. 903,742, pub. 9–22–70. Cl. 12.
Extermital Chemicals, Inc., Dayton, Ohio. 903,703, pub. 9–22–70. Cl. 6.
Faberge, Inc., New York, N.Y. 535,629, ren. 12–8–70. Cl. 51.
Fabrique d'Horlogerie de Saint-Blaise S.A., Neuchatel, Switzerland. 903,833, pub. 9–22–70. Cl. 26.
Family Pharmacy, Inc., Greenville, Ill. 904,032, pub. 9–22–70. Cl. 101.
Farbwerke Hoechst Aktiengesellschaft, Frankfurt, Germany. 903,712, pub. 9–22–70. Cl. 6.
Fasco Industries, Inc., Rochester, N.Y. 903,875, pub. 9–22–70. Cl. 34.
Fearn International Inc., Franklin Park, Ill. 903,960, pub. 9–22–70. Cl. 46.
Federal Screw Works, Detroit, Mich. 778,679, canc. Cl. 13.
Filbert, J. H., Inc., Baltimore, Md. 904,076. Cl. 46.
Fire Detection Ltd., London, England. 903,773, pub. 8–27–68. Cl. 21.
Firestone Tire & Rubber Co., The, Akron, Ohio. 903,883, pub. 9–22–70. Cl. 35.
First Restaurant Corp., White Plains, N.Y. 904,024, pub. 9–22–70. Cl. 100.
Fitts Dry Goods Co., Kansas City, Mo. 531,600, ren. 12–8–70. Cl. 42.
Fleetwood Co., The, Chicago, Ill. 539,465, ren. 12–8–70. Cl. 51.
Foster Wheeler Corp., Livingston, N.J. 903,872, pub. 9–22–70. Cl. 34.

Franklin Mint, Inc., The, Yeadon, Pa. 904,039, pub. 9–22–70. Cl. 101.
Franklin Products Corp., Chicago, Ill. 903,876, pub. 9–22–70. Cl. 34.
French, R. T., Co., The, Rochester, N.Y. 778,833, canc. Cl. 46.
GAF Corp., New York, N.Y. 275,302, ren. 12–8–70. Cl. 26.
Galeski Photo Center, Inc., Richmond, Va. 904,062, pub. 9–22–70. Cl. 106.
Garcia y Vega, Inc., New York, N.Y. 778,683, canc. Cl. 17.
Garfield, Lucille, d.b.a. Samantha Cosmetics, Beverly Hills, Calif. 903,992, pub. 9–22–70. Cl. 51.
General Brewing Corp., San Francisco, Calif. 778,885, canc. Cl. 48.
General Electric Co., Schenectady, N.Y. 903,732, pub. 9–22–70. Cl. 12.
General Foods Corp., White Plains, N.Y. 538,642, ren. 12–8–70. Cl. 46.
General Foods Corp., White Plains, N.Y. 903,964, pub. 9–22–70. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 903,970, pub. 9–22–70. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 903,973–4, pub. 9–22–70. Cl. 46.
General Time Corp., Phoenix, Ariz. 903,895, pub. 9–22–70. Cl. 36.
Genesco Inc., Nashville, Tenn. 903,917, pub. 6–23–70. Cl. 39.
Gill Studios, Inc., Lenexa, Kans. 904,017–18, pub. 9–22–70. Cl. 100.
Gillette Co., The, d.b.a. The Tonie Co., Boston, Mass. 903,995, pub. 9–22–70. Cl. 51.
Gillette Co., The, Boston, Mass. 903,997, pub. 9–22–70. Cl. 51.
Gollob Analytical Service Corp., from Gollob Analytical Service, Inc., Berkeley Heights, N.J. 880,149. Am. 7(d). Cl. 100.
Gonzales, Alvaro G., d.b.a. Fabrica de Tabacos Alvaro, Islas Canarias, Spain. 903,764, pub. 7–7–70. Cl. 17.
Goodrich, B. F., Co., The, Akron, Ohio. 903,890, pub. 9–22–70. Cl. 35.
Grace, W. R., & Co., New York, N.Y. 534,586, ren. 12–8–70. Cl. 42.
Greatest Book, Inc., The, d.b.a. Creative Sound Productions, Los Angeles, Calif. 903,893, pub. 9–22–70. Cl. 36.
Grogan, M. E., Co., Chicago, Ill. 778,672, canc. Cl. 12.
Groveton Papers Co., Groveton, N.H. 535,250, ren. 12–8–70. Cl. 37.
HCA Industries, Inc., New York, N.Y. 538,140–1, ren. 12–8–70. Cl. 39.
H. T. B. Ltd., London, England. 530,959, ren. 12–8–70. Cl. 23.
Hallmark Chemical Corp., Dallas, Tex. 903,707, pub. 9–22–70. Cl. 6.
Hamac-Hansella Maschine G.m.b.H., Dusseldorff, Germany. 778,651, canc. Multiple Class (Classes 2 and 37).
Hamm, Gilbert, d.b.a. Willie Water Saver Co., St. Paul, Minn. 778,674, canc. Cl. 13.
Hanford Foundry Co., San Bernardino, Calif. 778,736, canc. Cl. 23.
Hankins, Philip C., Winchester, Mass., from Wang Laboratories, Inc., Tewksbury, Mass. 903,837, pub. 9–22–70. Cl. 26.
Hart Schaffner & Marx, Chicago, Ill. 530,871, ren. 12–8–70. Cl. 39.
Hasbro Industries, Inc., from Hassenfeld Bros. Inc., Pawtucket, R.I. 903,784, pub. 9–22–70. Cl. 22.
Hayloft, Inc., Jackson, Miss. 904,015, pub. 9–22–70. Cl. 100.
Heggblade-Marguleas Co., Bakersfield, Calif. 903,969, pub. 9–22–70. Cl. 46.
Hercules Equipment & Rubber Co., Inc., San Francisco, Calif. 903,763, pub. 9–22–70. Cl. 16.
Hercules Inc., Wilmington, Del. 903,690–1, pub. 9–22–70. Cl. 1.
Hercules Tire & Rubber Co., The, Findlay, Ohio. 903,888–9, pub. 9–22–70. Cl. 35.
Highway Equipment Co., Cedar Rapids, Iowa. 538,584, ren. 12–8–70. Cl. 23.
Hills-McCanna Co., Carpentersville, Ill. 903,840, pub. 9–22–70. Cl. 26.
Hinterland Handcrafts Ltd., Bancroft, Ontario, Canada. 903,859, pub. 9–22–70. Cl. 28.
Hodson Corp., The, Chicago, Ill. 538,005–6, ren. 12–8–70. Cl. 15.
Hoffman, J. S., Co., Chicago, Ill. 531,607, ren. 12–8–70. Cl. 46.
Holliston Laboratories, Inc., Boston, Mass. 903,699, pub. 6–30–70. Cl. 6.
Hooker Chemical Corp., Niagara Falls, N.Y. 903,688, pub. 9–22–70. Cl. 1.
Hopp Press, Inc., The, New York, N.Y. 903,898, pub. 9–22–70. Cl. 50.
Horlicks Corp., Racine, Wis. 903,966–7, pub. 9–22–70. Cl. 46.
House of Worsted-Tex, Inc., Philadelphia, Pa. 279,663, ren. 12–8–70. Cl. 39.
House of Worsted-Tex, Inc., Philadelphia, Pa. 281,048, ren. 12–8–70. Cl. 39.
Howard Research & Development Corp., The, Columbia, Md. 904,006, pub. 9–22–70. Cl. 100.
Huck Mfg. Co., Detroit, Mich. 903,753–4, pub. 9–22–70. Cl. 13.
Hudson, H. D., Mfg. Co., Chicago, Ill. 536,343, ren. 12–8–70. Cl. 35.
Hudson, H. D., Mfg. Co., Chicago, Ill. 536,978, ren. 12–8–70. Cl. 23.
Hudson, H. D., Mfg. Co., Chicago, Ill. 537,995, ren. 12–8–70. Cl. 23.
Hudson, H. D., Mfg. Co., Chicago, Ill. 538,120, ren. 12–8–70. Cl. 23.
Hunt-Wesson Foods, Inc., Fullerton, Calif. 278,617, ren. 12–8–70. Cl. 46.
Hurco Mfg. Co., Inc., Indianapolis, Ind. 903,846, pub. 9–22–70. Cl. 26.
Hydraulics Unlimited Mfg. Co., Eaton, Colo. 903,878–80, pub. 9–22–70. Cl. 34.
Hysan Products Co., Chicago, Ill. 539,982, ren. 12–8–70. Cl. 6.
Hysan Products Co., Chicago, Ill. 903,716, pub. 9–22–70. Cl. 6.
Hysan Products Co., Chicago, Ill. 903,719, pub. 9–22–70. Cl. 6.
IBA, Inc., Cincinnati, Ohio. 904,043, pub. 9–22–70. Cl. 101.
I.C.F. Publishing Co., Inc., New York, N.Y. 778,881, canc. Cl. 38.
Imperial Chemical Industries Ltd., London, England. 778,645, canc. Cl. 1.
Industrias Empacadoras Dominicanas, C. por A., Santo Domingo, Dominican Republic. 903,949, pub. 9–22–70. Cl. 46.
Inmanco, Inc., Chicago, Ill. 800,232, cor. Cl. 21.
Inn Family Motel System, Inc., The, Miami, from Dutch Inns of America, Inc., Miami, Fla. 904,025, pub. 9–22–70. Cl. 100.
Interco Inc., St. Louis, Mo. 903,916, pub. 9–22–70. Cl. 39.
International Casserole House and/or Casserole International, San Jose, Calif. 903,958, pub. 9–22–70. Cl. 46.
International Distributors, Inc., Memphis, Tenn. 531,747, ren. 12–8–70. Cl. 29.
International Fraternity of Delta Sigma PI, Oxford, Ohio. 903,901, pub. 9–22–70. Cl. 38.
International Minerals & Chemical Corp., Skokie, Ill. 278,620, ren. 12–8–70. Cl. 12.
International Playtex, Inc., New York, N.Y. 903,926, pub. 9–22–70. Cl. 39.
International Playtex Corp., New York, N.Y. 903,928, pub. 9–22–70. Cl. 39.
International Salt Co., Clarks Summit, Pa. 903,720–1, pub. 9–22–70. Cl. 6.
Isolab Supply Co., Akron, Ohio. 903,700, pub. 6–16–70. Cl. 6.
Jacquin, Charles, et Cie., Inc., Philadelphia, Pa. 903,977, pub. 9–22–70. Cl. 49.
Jantzen Inc., Portland, Oreg. 539,331, ren. 12–8–70. Cl. 39.
Jeffco Games, Inc., Winnetka, Ill. 778,875–6, canc. Cl. 22.
Jerclaydon, Inc., Clifton, N.J. 778,852, canc. Cl. 52.
Johns-Manville Corp., New York, N.Y. 903,981, pub. 9–22–70. Cl. 50.
Jones, Casey, Junction, Inc., Wichita, Kans. 904,007, pub. 1–20–70. Multiple Class (Classes 100 and 101).
Jules Hairstylist Inc., Washington, D.C. 778,896, canc. Cl. 107.
Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany. 903,877, pub. 9–22–70. Cl. 34.
Kaiser Aluminum & Chemical Corp., Oakland, Calif. 903,713, pub. 9–22–70. Cl. 6.
Kaiser Broadcasting Corp., Oakland, Calif. 904,057, pub. 9–22–70. Cl. 104.
Kalvar Corp., New Orleans, La. 903,843, pub. 9–22–70. Cl. 26.
Kaplan, William, Newburgh, N.Y. 778,886, canc. Cl. 8.
Katz Drug Co., Kansas City, Mo. 790,131, cor. Cl. 101.
Kelly-Springfield Tire Co., The, Cumberland, Md. 778,764, canc. Cl. 35.
Kelly-Springfield Tire Co., The, Cumberland, Md. 903,884, pub. 9–22–70. Cl. 35.
Kelly-Springfield Tire Co., The, Cumberland, Md. 903,891, pub. 9–22–70. Cl. 35.
Kendall Co., The, Walpole, Mass. 534,461, ren. 12–8–70. Cl. 44.
Kendrick & Davis Co., Lebanon, N.H. 778,732, canc. Cl. 23.
Kennedy, Patrick F., d.b.a. P. F. Kennedy & Associates, Newtown Square, Pa. 904,050, pub. 12–24–68. Cl. 101.
Kent, R. O., Corp.: *See*—
Alco Standard Corp.
Kentrade-A-Way, Inc., Grand Rapids, Mich. 904,086, pub. 9–22–70. Cl. 101.
Kilbanon Corp., Boston, Mass. 778,800, canc. Cl. 39.
Kimberly-Clark Corp., Neenah, Wis. 904,002, pub. 9–22–70. Cl. 52.
Kinzie Candles, Inc., Lyons, Colo. 903,760, pub. 9–22–70. Cl. 15.
Kirby, Block & Co., Inc., New York, N.Y. 278,623, ren. 12–8–70. Cl. 39.
Kisco Co., Inc., St. Louis, Mo. 537,671, ren. 12–8–70. Cl. 21.
Kishu's East-West Fashions, Ltd., Kowloon, Hong Kong. 903,913, pub. 9–22–70. Cl. 39.
Klopman Mills, Inc., Rockleigh, N.J. 536,610, ren. 12–8–70. Cl. 42.
Klopman Mills, Inc., Rockleigh, N.J. 903,936–8, pub. 9–22–70. Cl. 42.
Kneel-O-Matic, Lima, Ohio. 903,991, pub. 9–22–70. Cl. 50.
Knight, J. B., Co., d.b.a. Knight Distributing Co., Brownfield, Tex. 778,728, canc. Cl. 23.
Kohner Bros., Inc., New York, N.Y. 778,873, canc. Cl. 22.
Konus-Kessel Gesellschaft fur Warmetechnik m.b.H. & Co. KG, Hockenheim, Germany. 903,871, pub. 9–22–70. Cl. 34.
Krape Business Systems, Inc., Rochester, N.Y. 903,983, pub. 9–22–70. Cl. 50.
Kurtz, George M., d.b.a. Kurtz Auction & Realty Co., Sturgis, Ky. 904,037, pub. 9–22–70. Cl. 101.
Kwik Service Cleaners & Laundry, Inc., Jackson, Miss. 904,052, pub. 9–22–70. Cl. 103.
LNG Services, Pittsburgh, Pa. 904,012, pub. 9–22–70. Cl. 100.
Lackawanna Leather Co., The, Hackettstown, N.J. 903,687, pub. 9–22–70. Cl. 1.
La Guardia, Savio T., d.b.a. Savio T. La Guardia Co., Vineland, N.J. 778,829, canc. Cl. 46.
Lakeside Industries, Inc., Minneapolis, Minn. 903,785, pub. 9–8–70. Cl. 22.
La Marche, Austin W., Des Plaines, Ill. 903,775, pub. 3–31–70. Cl. 21.
Laramie Tire & Rubber Co., from Reichman, Inc., d.b.a. Chase Tire Co., Baltimore, Md. 903,885, pub. 9–22–70. Cl. 35.
Laramie Tire & Rubber Co., from Reichman, Inc., d.b.a. Chase Tire Co., Baltimore, Md. 903,892, pub. 9–22–70. Cl. 35.
Lazarus, Arnold, San Francisco, Calif. 903,894, pub. 9–22–70. Cl. 36.
Leffingwell Chemical Co.: *See*—
Thompson-Hayward Chemicals Co.
Leisure Dynamics, Inc., Minneapolis, Minn. 903,792, pub. 9–22–70. Cl. 22.

Lelio Furlan Rossi, Barcelona, Spain. 903,685, pub. 9–22–70. Multiple Class (Classes 1, 20, and 42).
Letraset U.S.A., Inc., Mountain View, Calif. 903,896, pub. 9–22–70. Cl. 37.
Lever Bros. Co., New York, N.Y. 904,046, pub. 9–22–70. Cl. 101.
Levine, Herbert, Inc., New York, N.Y. 903,918–19, pub. 9–22–70. Cl. 39.
Levinsohn Textile Co., Inc., New York, N.Y. 538,561, ren. 12–8–70. Cl. 42.
Libbey-Owens-Ford Co., Toledo, Ohio. 531,657, ren. 12–8–70. Cl. 32.
Liquid Paper Corp., Dallas, Tex. 903,714, pub. 9–22–70. Cl. 6.
Litman, Marvin W., Prairie Village, Kans. 904,078. Cl. 22.
Little Switzerland Brewing Co., Huntington, W. Va. 903,975, pub. 9–22–70. Cl. 48.
Long Beach Candy Co., Inc., Ship Bottom, N.J. 535,104, ren. 12–8–70. Cl. 46.
Long's Fence Co., Inc., Gambrills, Md. 903,736, pub. 9–22–70. Cl. 12.
Lovable Co., The, Atlanta, Ga. 903,929, pub. 9–22–70. Cl. 39.
Lovebright Diamond Co., Inc., New York, N.Y. 903,860, pub. 9–22–70. Cl. 28.
Loxem Mfg. Corp., Midland Park, N.J. 903,746, pub. 9–22–70. Cl. 13.
Lucky Stride Shoes, Inc., Maysville, Ky. 778,812, canc. Cl. 39.
Luigi's Inc., Camp Hill, Pa. 904,020, pub. 9–22–70. Cl. 100.
Lundeen Hanger, Inc., Minneapolis, Minn. 903,990, pub. 9–22–70. Cl. 50.
Lunkenheimer Co., The, Cincinnati, Ohio. 80,858, ren. 12–8–70. Cl. 23.
Maclean, Neil A., Inc., Belmont, Calif. 539,242, ren. 12–8–70. Cl. 23.
Mahaal Corp., Spartanburg, S.C. 903,745, pub. 9–22–70. Cl. 13.
Maro Mfg. Co.: *See*—
Cluett, Peabody & Co., Inc.
Marolf Hygienic Equipment, Inc., Clearwater, Fla. 903,825, pub. 9–22–70. Cl. 23.
Marriott Corp., Washington, D.C. 904,029, pub. 9–22–70. Cl. 100.
Marvella, Inc., New York, N.Y. 903,861, pub. 9–22–70. Cl. 28.
Masonite Corp., Chicago, Ill. 903,734, pub. 9–22–70. Cl. 12.
Master Key Offices, Inc., Pacific Palisades, Calif. 904,034, pub. 9–22–70. Cl. 101.
Mattel, Inc., Hawthorne, Calif. 903,798–802, pub. 9–22–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 903,807, pub. 9–22–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 903,811, pub. 9–22–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 903,813–21, pub. 9–22–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 903,823, pub. 9–22–70. Cl. 22.
McHugh Thermodynamics Corp., Trevose, Pa. 903,774, pub. 9–22–70. Multiple Class (Classes 21 and 26).
Measurement Technology Corp., Canoga Park, Calif. 903,831, pub. 9–22–70. Cl. 26.
Mem Co., Inc., Northvale, N.J. 444,309, ren. 12–8–70. Cl. 51.
Merit House, Inc., New York, N.Y. 778,838, canc. Cl. 49.
Merrill Sharpe Ltd., New York, N.Y. 778,804, canc. Cl. 39.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 903,810, pub. 9–22–70. Cl. 22.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 903,948, pub. 9–22–70. Cl. 44.
Mister Pants, Inc., New York, N.Y. 778,810, canc. Cl. 39.
Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan. 903,770, pub. 11–7–67. Cl. 19.
Mittag & Volger, Inc., to Burroughs Corp., Detroit, Mich. 274,924. Am. 7(d). Cl. 11.
Mobay Chemical Co., Pittsburgh, Pa. 903,867, pub. 9–22–70. Cl. 32.
Monsanto Co., St. Louis, Mo. 903,711, pub. 9–22–70. Cl. 6.
Monsieur Andre Boisseaux, Beaune (Cote D'or), France. 904,077. Cl. 47.
Montgomery Area Chamber of Commerce, Montgomery, Ala. 904,019, pub. 9–22–70. Cl. 100.
Morton International, Inc., Chicago, Ill. 903,706, pub. 9–22–70. Multiple Class (Classes 6 and 52).
Moyer Chemical Co., San Jose, Calif. 903,715, pub. 9–22–70. Cl. 6.
MyerPax Industries, Inc., Ashland, Ohio. 778,701–2, canc. Cl. 20.
National Aquarium Supplies & Accessories, Inc., Orange, N.J. 903,979, pub. 9–22–70. Cl. 50.
National Soda Straw Co., Chicago, Ill. 903,987, pub. 9–22–70. Cl. 50.
Nestle-Lemur Co., The, New York, N.Y. 280,712, ren. 12–8–70. Cl. 51.
Nethercutt Laboratories, d.b.a. Cosgenic Labs, Hollywood, Calif. 778,886–90, canc. Cl. 51.
Nevco Scoreboard Co., Greenville, Ill. 903,776, pub. 9–22–70. Cl. 21.
New American Library, Inc., The, New York, N.Y. 903,909, pub. 9–22–70. Cl. 38.
Newberry, J. J., Co., New York, N.Y. 778,835, canc. Cl. 46.
North American Philips Corp., New York, N.Y. 903,778, pub. 9–22–70. Cl. 21.
North American Rockwell Corp., Pittsburgh, Pa. 535,921, ren. 12–8–70. Cl. 23.
Northwestern Refining Co., St. Paul Park, Minn. 904,047, pub. 9–22–70. Cl. 102.
Northwestern Steel & Wire Co., Sterling, Ill. 535,784, ren. 12–8–70. Cl. 18.
Ohio Art Co., The, Bryan, Ohio. 903,791, pub. 9–22–70. Cl. 22.
Ohio Lime Co., Woodville, Ohio. 537,321, ren. 12–8–70. Cl. 12.
Old Town Shoe Co., Boston, Mass. 778,792, canc. Cl. 39.
O'Neil Institutional Fund, Beverly Hills, Calif. 904,049, pub. 9–22–70. Cl. 102.
Owsley, Randolph G., Jr., Kansas City, Mo. 904,009, pub. 9–22–70. Cl. 100.
Pacific Gun Sight Co., Lincoln, Nebr. 778,720, canc. Cl. 23.
Package-King, Inc., Chicago, Ill. 904,031, pub. 9–22–70. Cl. 101.
Panation Trade Co., Inc., New York, N.Y. 903,980, pub. 9–22–70. Cl. 50.
Panel-Loc System, Inc., Dover, N.J. 903,737, pub. 9–22–70. Cl. 12.
Parfumerie Fragonard G. Fuchs & Cie, Paris, France. 778,893, canc. Cl. 51.
Parke, Davis & Co., Detroit, Mich. 778,819, canc. Cl. 42.
Parke, Davis & Co., Detroit, Mich. 903,692, pub. 9–22–70. Cl. 2.
Peavey Co., Minneapolis, Minn. 531,420, ren. 12–8–70. Cl. 46.
Pennzoil United, Inc., Oil City, Pa. 538,470, ren. 12–8–70. Cl. 23.
Pepperidge Farm, Inc., Camden, N.J. 903,972, pub. 9–22–70. Cl. 46.
Perfect Equipment Corp., Murfreesboro, Tenn. 903,771, pub. 9–22–70. Cl. 19.
Permafiber Corp., Port Washington, N.Y. 535,373, ren. 12–8–70. Cl. 37.
Pet Inc., St. Louis, Mo. 275,508, ren. 12–8–70. Cl. 46.
Pfizer, Chas., & Co., Inc., New York, N.Y. 778,690, canc. Cl. 18.
Photo Magnetic Systems, Inc., Beltsville, Md. 904,008, pub. 9–22–70. Cl. 100.
Physicians & Hospitals Supply Co., Inc., d.b.a. Ulmer Pharmacal Co., Minneapolis, Minn. 536,750, ren. 12–8–70. Cl. 18.
Pilgrim Fund Inc., Tenafly, N.J. 904,050, pub. 9–22–70. Cl. 102.
Planet Instrument, Inc., Fort Wayne, Ind. 778,719, canc. Cl. 28.
Plantain Products Co., Inc., Tampa, Fla. 903,965, pub. 9–22–70. Cl. 46.
Plaskolite, Inc., Columbus, Ohio. 904,055, pub. 9–22–70. Cl. 103.
Playskool, Inc., Chicago, Ill. 903,795, pub. 9–22–70. Cl. 22.
Poole Silver Co., Inc., Taunton, Mass. 903,858, pub. 9–22–70. Cl. 28.
Pope, Eddie, & Co., Inc.: *See*—
Pope Mfg., Inc.
Pope Mfg., Inc., Valencia, from Eddie Pope & Co., Inc., Altadena, Calif. 903,808, pub. 9–22–70. Cl. 22.
Popper & Sons, Inc., New York, N.Y. 903,944, pub. 9–9–70. Cl. 44.
Professional Chemists, Inc., Cedar Rapids, Iowa. 903,693, pub. 9–22–70. Multiple Class (Classes 4, 6, and 52).
Professional Golf Co., Chattanooga, Tenn. 903,787, pub. 9–22–70. Cl. 22.
Professional Systems, Inc., Chattanooga, Tenn. 904,081. Cl. 101.
Propper Mfg. Co., Inc., Long Island City, N.Y. 903,946, pub. 9–22–70. Cl. 44.
Protex Industries, Inc., Denver, Colo. 903,741, pub. 9–22–70. Cl. 12.
Psychological Associates, Inc., St. Louis, Mo. 904,063, pub. 9–22–70. Cl. 107.
R.A. Chemical Corp., Brooklyn, N.Y. 903,701, pub. 9–22–70. Cl. 6.
RCA Corp., New York, N.Y. 903,782–3, pub. 9–22–70. Cl. 21.
Radio Comics, Inc.: *See*—
Archie Enterprises, Inc.
Ralston Purina Co., St. Louis, Mo. 904,044, pub. 9–22–70. Cl. 101.
Raney Packers, Porterville, Calif. 903,955, pub. 9–22–70. Cl. 46.
Rasspe, P. D., Sohne, Solingen-Stocken, Germany. 274,910, ren. 12–8–70. Cl. 23.
Rauenhorst, Duane G., d.b.a. Slayton Tackle Mfg. Co., Slayton, Minn. 903,809, pub. 9–22–70. Cl. 22.
Reichman, Inc.: *See*—
Laramie Tire & Rubber Co.
Republic Food Products Co., Chicago, Ill. 528,197, ren. 12–8–70. Cl. 46.
Research Instruments Corp., Richmond, Va. 778,895, canc. Cl. 103.
Restaurant Industries, Inc., d.b.a. Delly's, Bethesda, Md. 904,021, pub. 9–22–70. Cl. 100.
Revlon, Inc., New York, N.Y. 778,892, canc. Cl. 51.
Rexall Drug & Chemical Co.: *See*—
Dart Industries Inc.
Reynolds Metals Co., Richmond, Va. 903,735, pub. 9–22–70. Cl. 12.
Rib Cage International, Inc., Denver, Colo. 903,952, pub. 9–22–70. Cl. 46.
Rite Therm Inc., East Palestine, Ohio. 903,740, pub. 9–22–70. Cl. 12.
Ronk Electrical Industries, Inc., Nokomis, Ill. 903,781, pub. 9–22–70. Cl. 21.
Root-Lowell Mfg. Co., Lowell, Mich. 528,300, ren. 12–8–70. Cl. 23.
Roseboom, John E., d.b.a. The Shirt Shack, Daytona Beach, Fla. 903,914, pub. 9–22–70. Cl. 39.
Rosemount Engineering Co., Minneapolis, Minn. 903,838, pub. 9–22–70. Cl. 26.
Rosenberry, William K., d.b.a. Zeta Research, Lafayette, Calif. 903,832, pub. 9–22–70. Cl. 26.
Rubber House, Inc., The, Atlanta, Ga. 778,765, canc. Cl. 35.
S.A. Brush Co. Ltd., Albert Park, South Australia, Australia. 903,824, pub. 9–22–70. Multiple Class (Classes 23, 29, and 52).
S & C Electric Co., Chicago, Ill. 537,646, ren. 12–8–70. Cl. 21.
S & C Electric Co., Chicago, Ill. 537,815, ren. 12–8–70. Cl. 21.
S.p.A. Branca Trade Marks, Milan, Italy. 270,734, ren. 12–8–70. Cl. 18.
Sacomo Sierra Inc., Carson City, Nev. 903,887, pub. 9–22–70. Cl. 35.

Safety First Shoe Co., Nashville, Tenn. 535,069, ren. 12–8–70. Cl. 39.
Santo, Anne M., Yonkers, N.Y. 903,988, pub. 9–22–70. Cl. 50.
Sarco Co., Inc., Allentown, Pa. 903,758, pub. 9–22–70. Cl. 13.
Sarco Co., Inc., Allentown, Pa. 903,854, pub. 9–22–70. Cl. 26.
Sautereau, Lucien, Paris, France. 903,836, pub. 9–22–70. Cl. 26.
Sazerac Co., Inc., d.b.a. John Handy Co., New Orleans, La. 903,976, pub. 2–25–64. Cl. 49.
Schering Corp., Bloomfield, N.J. 533,777, ren. 12–8–70. Cl. 18.
Scigliano, Josef, d.b.a. Josef of Rome, San Francisco, Calif. 903,930, pub. 9–22–70. Multiple Class (Classes 40, 52, and 107).
Scott, O. M., & Sons, The, Marysville, Ohio. 538,697, ren. 12–8–70. Cl. 6.
Scott Scientific, Inc., Fort Collins, Colo. 903,984, pub. 9–22–70. Cl. 50.
Scovill Mfg. Co., Waterbury, Conn. 903,744, pub. 9–22–70. Cl. 12.
Semblex Corp., Beacon Falls, Conn. 903,749, pub. 8–4–70. Multiple Class (Classes 13 and 23).
Sexauer, J. A., Mfg. Co., Inc., White Plains, N.Y. 538,820, ren. 12–8–70. Cl. 13.
Shadur, La Vine & Gallop, Inc., Encino, Calif. 904,051, pub. 9–22–70. Cl. 102.
Shafran, Joseph E., d.b.a. Joseph Shafran, Philadelphia, Pa. 903,953, pub. 9–22–70. Cl. 46.
Shamban, W. S., & Co., Los Angeles, Calif. 903,886, pub. 9–22–70. Cl. 35.
Shelburne, James L., d.b.a. T. G., Schmeiser Co., Fresno, Calif. 527,951, ren. 12–8–70. Cl. 23.
Sherwin-Williams Co., The, Cleveland, Ohio. 278,147, ren. 12–8–70. Cl. 16.
Sherwin-Williams Co., The, Cleveland, Ohio. 535,201, ren. 12–8–70. Cl. 16.
Siegel, Lou G., Inc., New York, N.Y. 904,026–7, pub. 9–22–70. Cl. 100.
Siegler Corp., The, Anaheim, Calif. 778,862, canc. Cl. 103.
Silveira & O'Connell, Inc., Sebastopol, Calif. 532,866, ren. 12–8–70. Cl. 46.
Sisk, Albert W., & Son, Inc., Preston, Md. 535,199, ren. 12–8–70. Cl. 46.
Snelgrove Ice Cream Co., Salt Lake City, Utah. 533,729, ren. 12–8–70. Cl. 46.
Societe Carbochimique S.A., Brussels, Belgium, 778,668, canc. Cl. 10.
Solar Steel Corp., Cleveland, Ohio. 536,155, ren. 12–8–70. Cl. 14.
Sole Chemical Corp., Chicago, Ill. 778,661, canc. Cl. 6.
Sony Corp., Tokyo, Japan. 903,780, pub. 9–22–70. Cl. 21.
Sony Corp., Tokyo, Japan. 903,951, pub. 9–22–70. Cl. 46.
Southern Supply Co., The, Dallas, Tex. 903,828, pub. 9–22–70. Cl. 23.
Spectra Sports, Inc., San Francisco, Calif. 903,786, pub. 9–22–70. Cl. 22.
Sperry Rand Corp., Philadelphia, Pa. 903,844, pub. 9–22–70. Cl. 26.
Sperry Rand Corp., New York, N.Y. 903,851, pub. 9–22–70. Cl. 6.
Sports Car Club of America, Inc., Westport, Conn. 904,069, pub. 9–22–70. Cl. B.
Spotnails, Inc., Long Island City, N.Y. 903,755–6, pub. 9–22–70. Cl. 13.
Stafford County Flour Mills Co., Hudson, Kans. 280,274, ren. 12–8–70. Cl. 46.
Standard Chemical Products, Inc., Hoboken, N.J. 903,724–5, pub. 9–22–70. Cl. 6.
Standard Oil Co., Flemington, N.J. 903,698, pub. 9–22–70. Cl. 6.
Standard Rivet Co., The, South Boston, Mass. 538,832, ren. 12–8–70. Cl. 13.
Stanley Home Products, Inc., Westfield, Mass. 903,999, pub. 9–22–70. Cl. 52.
Stanley, John T., Co., Inc., New York, N.Y. 778,848, canc. Cl. 51.
Stearns & Foster Co., The, Cincinnati, Ohio. 538,689, ren. 12–8–70. Cl. 32.
Stearns & Foster Co., The, Cincinnati, Ohio. 903,689, pub. 9–22–70. Cl. 1.
Sterling Drug Inc., New York, N.Y. 904,004, pub. 9–22–70. Cl. 52.
Sterling, Inc., Milwaukee, Wis. 537,833–4, ren. 12–8–70. Cl. 26.
Stichting Holland Cheese Exporters Association, 't Hoenstraat, Netherlands. 904,067, pub. 9–22–70. Cl. A.
Stiefel Laboratories, Inc., Oak Hill, N.Y. 903,768, pub. 8–11–70. Cl. 18.
Stirling Homex Corp., Avon, N.Y. 903,743, pub. 9–22–70. Cl. 12.
Streater Industries, Inc., Albert Lea, Minn. 903,982, pub. 9–22–70. Cl. 50.
Stuart Distributing Co., Inc., d.b.a. Stuart Quality Products, Baltimore, Md. 903,729, pub. 9–22–70. Cl. 9.
Sud-Chemie A.G., Munich, Germany. 903,696, pub. 9–22–70. Cl. 5.
Sun Chemical Corp., New York, N.Y. 778,872, canc. Cl. 16.
Super Toys, Inc., Detroit, Mich. 904,073. Cl. 22.
Suzanne Fashion Wigs, Inc., Lawrence, Mass. 903,932, pub. 9–22–70. Cl. 40.
Swedlin, J., Inc., d.b.a. Gund Mfg. Co., Brooklyn, N.Y. 903,788, pub. 9–22–70. Cl. 22.
Tamraz Inc., Chicago, Ill. 903,915, pub. 9–22–70. Cl. 39.
Taubman, Melvin, d.b.a. Melson Jewelry Co., New York, N.Y. 903,857, pub. 9–22–70. Cl. 28.
Thomas & Betts Corp., Elizabeth, N.J. 537,558, ren. 12–8–70. Cl. 21.
Thompson, E. A., Co. Inc., San Francisco, Calif. 903,722, pub. 9–22–70. Cl. 6.
Thompson-Hayward Chemicals Co., Kansas City, Kans., from Lemingwell Chemical Co., Brea, Calif. 903,695, pub. 9–22–70. Multiple Class (Classes 5, 6, and 10).
Top Value Enterprises, Inc., Dayton, Ohio. 904,060, pub. 9–22–70. Cl. 105.
Topco Associates, Inc., Skokie, Ill. 778,874, canc. Cl. 22.
Torrington Co., The, Torrington, Conn. 531,647, ren. 12–8–70. Cl. 23.
Trade-Wind Motorfans, Inc., Pico Rivera, Calif. 778,761–2, canc. Cl. 34.
Travel-of-the-Month Club, Inc., Buffalo, N.Y. 904,083. Cl. 105.
Treville Inc., Clifton, N.J. 903,865, pub. 9–22–70. Cl. 29.
Trim-Line Inc., Chicago, Ill. 903,797, pub. 9–22–70. Cl. 22.
Tropical Marine, Inc., San Pedro, Calif. 903,950, pub. 9–22–70. Cl. 46.
Tussy Cosmetics, Inc., New York, N.Y. 903,996, pub. 9–22–70. Cl. 51.
Two Stiffs Co., Reno, Nev. 904,028, pub. 9–22–70. Cl. 100.
Tyzack, Joseph, & Son, Ltd., Sheffield, England. 270,311, ren. 12–8–70. Cl. 23.
U & I, Inc., Denver, Colo. 903,777, pub. 9–22–70. Cl. 21.
USV Pharmaceutical Corp., New York, N.Y. 903,767, pub. 5–5–70. Cl. 18.
Union Carbide Corp., New York, N.Y. 903,723, pub. 9–22–70. Cl. 6.
Union Carbide Corp., New York, N.Y. 903,779, pub. 9–22–70. Cl. 21.
Union Metal Mfg. Co., The, Canton, Ohio. 534,416, ren. 12–8–70. Cl. 21.
Union Wadding Co., Pawtucket, R.I. 778,775, canc. Cl. 38.
United Farm Workers Organizing Committee, Delano, Calif. 904,066, pub. 9–22–70. Cl. 200.
United States Borax & Chemical Corp., Los Angeles, Calif. 903,750, pub. 9–22–70. Multiple Class (Classes 13 and 52).
United States Gypsum Co., Chicago, Ill. 538,891, ren. 12–8–70. Cl. 12.
Universal Bowling & Golf Corp., Chicago, Ill. 903,789, pub. 9–22–70. Cl. 22.
Usco Services, Inc., Port Clinton, Ohio. 904,058, pub. 9–22–70. Cl. 105.
Van Electronics Corp., New York, N.Y. 904,045, pub. 9–22–70. Cl. 101.
Van Raalte Co., Inc., New York, N.Y. 272,886, ren. 12–8–70. Cl. 39.
Vingresor/Club 33 A.B., Stockholm, Sweden. 904,059, pub. 9–22–70. Cl. 105.
Visual Security Systems, Inc., Hanover, N.J. 903,835, pub. 9–22–70. Cl. 26.
Vosper Ltd., Hampshire, England. 904,074. Cl. 26.
Walkers (Century Oils) Ltd., Hanley, Stoke-on-Trent, England. 903,761, pub. 9–22–70. Cl. 15.
Wallichs Music City, Inc., Hollywood, Calif. 904,041, pub. 9–22–70. Cl. 101.
Wang Laboratories, Inc.: *See*—
Hankins, Philip C.
Warner-Lambert Pharmaceutical Co., Morris Plains, N.J. 272,196, ren. 12–8–70. Cl. 18.
Watson & Rae S.A., San Jose, Costa Rica. 903,963, pub. 9–22–70. Cl. 46.
Weight Watchers International, Inc., Great Neck, N.Y. 903,910, pub. 9–22–70. Cl. 38.
Weight Watchers International, Inc., Great Neck, N.Y. 903,957, pub. 9–22–70. Cl. 46.
Weldon Tool Co., The, Cleveland, Ohio. 538,261, ren. 12–8–70. Cl. 23.
West Chemical Products, Inc., Long Island City, N.Y. 903,702, pub. 9–22–70. Cl. 6.
Western Wood Products Association, Portland, Oreg. 904,068, pub. 9–22–70. Cl. A.
Weston Instruments, Inc., Murray Hill, N.J. 778,744, canc. Cl. 26.
Westport Chemical Co., Longview, Wash. 778,659–60, canc. Cl. 6.
Wheaton Glass Co., Millville, N.J. 903,845, pub. 9–22–70. Cl. 26.
Wheelabrator Corp., The, Gardena, Calif. 904,061, pub. 9–22–70. Cl. 106.
Whisperwill, Inc., New Rochelle, N.Y. 904,078. Cl. 51.
Whistler, S. B., & Sons, Inc., Tonawanda, N.Y. 903,826, pub. 7–7–70. Cl. 23.
White Horse Distillers Ltd., Glasgow, Scotland. 761,048. Am. 7(d). Cl. 49.
White Horse Distillers, Ltd., Glasgow, Scotland. 846,770. Am. 7(d). Cl. 49.
White, Martha, Mills, Inc., Nashville, Tenn. 778,880, canc. Cl. 46.
White Swan Uniforms, Inc., New York, N.Y. 536,468, ren. 12–8–70. Cl. 39.
Whitford Corp., West Chester, Pa. 903,762, pub. 9–22–70. Cl. 16.
Wilbur-Ellis Co., San Francisco, Calif. 539,016, ren. 12–8–70 Cl. 46.
Wilen Mfg. Co., Inc., Atlanta, Ga. 903,864, pub. 9–22–70. Cl. 29.
Wilson & Co., Inc., Chicago, Ill. 903,827, pub. 9–22–70. Cl. 23.
Wolverine Industries, Inc., Grand Rapids, Mich. 534,170, ren. 12–8–70. Cl. 18.
Wood Chemical Co., Inc., Lubbock, Tex. 778,670, canc. Cl. 10.
Woodlets, Inc., Buffalo, N.Y. 528,506, ren. 12–8–70. Cl. 6.
Worldwide Computer Services Inc., Hartsdale, N.Y. 903,803, pub. 9–22–70. Cl. 22.
Yardley of London, Inc., New York, N.Y., from Yardley of London, Inc., Totowa, N.J. 903,998, pub. 9–22–70. Cl. 52.
Year Book Medical Publishers, Inc., Chicago, Ill. 903,902–3, pub. 9–22–70. Cl. 38.
Zsa Zsa Ltd., New York, N.Y. 904,079. Cl. 51.

U.S. GOVERNMENT PRINTING OFFICE: 0—1970

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 15, 1970 Volume 881 Number 3

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of October 1970

Examiner affirmed	119
Examiner affirmed in part	9
Examiner reversed	21
Total	149

Erratum

All references to Patent Number 3,540,601 to Leroy E. Hutchison, Auto Clothing Extension Hanger, appearing in the OFFICIAL GAZETTE of Nov. 17, 1970 should be deleted as the application was withdrawn from issue and the patent was not issued.

Disclaimer

3,454,585.—*William J. Houlihan*, Mountain Lakes, N.J. OCTAHYDROIMIDAZO[1,2-a]PYRIDIN-5-ONES. Patent dated July 8, 1969. Disclaimer filed Nov. 13, 1970, by the assignee, *Sandoz-Wander, Inc.*; the inventor consenting.

Hereby enter this disclaimer to claims 1 and 7 of said patent.

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,148,031, N. P. Vahldieck and D. I. J. Wang, METHOD FOR SEPARATING AND PURIFYING HYDROGEN BY PERMEATION, decided Dec. 20, 1968, Interference No. 95,470, claim 1.

Patent No. 3,254,329, H. Lukoff, J. P. Eckert, Jr. and W. F. Schmitt, COMPUTER CYCLING AND CONTROL SYSTEM, decided July 15, 1970, Interference No. 95,961, claims 1, 2, 4, 7, 8, 9, 11, 12, 14, 15, 16, 17, 44 and 64.

Patent No. 3,407,334, O. G. Attewell, STARTING AND OPERATING CIRCUIT FOR ARC DISCHARGE LAMPS REQUIRING A HIGH STARTING VOLTAGE, decided Oct. 15, 1970, Interference No. 96,993, claims 3, 4, 5 and 6.

Certificates of Correction for the Week of Dec. 15, 1970

D. 217,447	3,494,629	3,516,828	3,529,396
D. 218,906	3,495,348	3,517,095	3,529,811
3,192,546	3,496,501	3,517,151	3,529,911
3,316,863	3,496,679	3,518,077	3,529,925
3,379,205	3,497,516	3,518,196	3,530,017
3,388,305	3,497,842	3,519,654	3,530,064
3,396,888	3,497,931	3,520,301	3,530,067
3,404,652	3,499,349	3,520,909	3,530,112
3,405,267	3,499,803	3,520,941	3,530,122
3,431,219	3,499,826	3,521,408	3,530,552
3,438,776	3,500,029	3,522,023	3,530,565
3,439,649	3,500,494	3,522,284	3,530,636
3,439,939	3,500,526	3,522,297	3,530,641
3,441,598	3,501,068	3,522,305	3,531,281
3,447,287	3,501,927	3,522,373	3,531,311
3,449,185	3,502,091	3,522,876	3,531,407
3,453,504	3,502,512	3,523,773	3,531,413
3,455,243	3,504,247	3,525,089	3,531,493
3,456,508	3,504,350	3,525,728	3,531,542
3,458,941	3,506,315	3,526,275	3,531,581
3,459,648	3,506,410	3,526,572	3,531,730
3,461,327	3,506,624	3,526,618	3,531,744
3,462,512	3,506,992	3,526,623	3,531,852
3,463,089	3,507,173	3,526,753	3,531,914
3,470,185	3,507,456	3,526,858	3,532,626
3,472,748	3,507,900	3,526,882	3,532,674
3,472,937	3,509,007	3,526,904	3,533,708
3,473,548	3,509,130	3,527,446	3,533,737
3,474,610	3,511,857	3,527,511	3,533,748
3,478,978	3,512,627	3,527,836	3,533,822
3,479,262	3,513,163	3,527,879	3,533,836
3,485,286	3,513,203	3,527,946	3,534,056
3,485,835	3,514,379	3,528,019	3,534,279
3,486,027	3,514,512	3,528,119	
3,491,457	3,514,836	3,528,739	
3,493,872	3,515,107	3,529,016	

New Applications Received During August 1970

Patents	8337
Designs	532
Plant Patents	5
Reissues	33
Total	8907

Issue—December 15, 1970

Patents	1701	No. 3,546,708 to No. 3,548,408, incl.
Designs	84	No. 219,419 to No. 219,502, incl.
Reissues	6	No. 27,001 to No. 27,006, incl.
Total	1791	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 1, 1970

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-03-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-09-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	9-05-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-21-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-31-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	1-08-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	5-01-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	8-22-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	9-30-69
PHYSICS, GROUP 280—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	5-29-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	3-02-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-05-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	6-04-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	6-09-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-01-69
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	10-06-69

Total number of pending applications (excluding Designs)	183,410
Total number of Design applications pending	2,976

Expiration of patents: The patents within the range of numbers indicated below expire during November 1970, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 82nd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,660,723 to 2,664,561, inclusive
Plant Patents	Numbers 1,232 to 1,237, inclusive

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

PHIL E. WEISS (DECEASED), BY MILDRED L. WEISS, ADMINISTRATRIX AND ABRAHAM M. REITER *v.* ERWIN M. ROSCHKE

No. 8290. Decided May 14, 1970

ERWIN M. ROSCHKE
v.
PHIL E. WEISS (DECEASED), BY MILDRED L. WEISS, ADMINISTRATRIX AND ABRAHAM M. REITER

No. 8322. Decided May 14, 1970

[57 CCPA —; 425 F.2d 772; 165 USPQ 579]

1. INTERFERENCE — PATENT AND APPLICATION — RIGHT TO MAKE — AMBIGUOUS COUNT—GIST OF INVENTION.

"While it is true that reference to the gist of the invention has sometimes been found useful in connection with the interpretation of ambiguous expressions in determining the question of support for counts copied from patents, it is clear that the basic consideration in such determinations is what the language of the counts defines as the invention. Thus, it is a well-recognized rule that a count copied from a patent is to be construed as broadly as the language will reasonably permit. * * * All limitations in a copied count must be considered material in determining right to make. * * * Only in the case where the count is ambiguous should resort be had to the patent in which it originated to determine its meaning."

APPEAL from Board of Patent Interferences. Interference No. 94,050; Opposition No. 45,685.

MODIFIED.

Samuel Lindenberg, for appellants and cross-appellee.

Dugald S. McDougall, Francis W. Crotty, John J. Pederson, Homer R. Montague, for appellee and cross-appellant.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

ALMOND, *J.*, delivered the opinion of the court.

These are cross appeals from the decision of the Board of Patent Interferences in Interference No. 94,050 involving Roschke Patent No. 3,011,016, issued November 28, 1961 on an application filed June 29, 1959, and Weiss et al. (Weiss) application Serial No. 219,375 for reissue of a patent[1] issued on an application filed June 16, 1958, on counts copied from the Roschke patent by Weiss. The Board awarded twelve of the counts to Roschke and Weiss appeals (No. 8290) as to ten of them, counts 1, 2, 6–9, 11–13 and 16. Two other counts, 15 and 17, were awarded to Weiss, and Roschke appeals (No. 8322) as to both of them.

Neither party took testimony. Weiss relies solely on his effective filing date, which is the date he filed the application that resulted in the patent which he seeks to reissue. Roschke contends that the Weiss application does not support the counts and further, that if any counts are interpreted so broadly as to be supported by Weiss, they are also supported by Roschke Patent No. 3,107,274, issued October

[1] Patent No. 3,001,011, issued September 19, 1961.

15, 1963 on an application filed December 31, 1954, earlier than Weiss's effective date.

The invention in issue relates to a receiver for use in a subscription television system. Such a system contemplates that the programs be transmitted over the air on an assigned channel but in a coded condition so as not to produce either picture or sound intelligibly on a a regular receiver tuned to the channel. A subscriber's receiver is provided with an attachment which, when adjusted in accordance with instructions for each program and action is taken to insure payment of the fee established for the program, decodes the received signals to cause the receiver to reproduce the program.

Counts 6, 8, 15 and 17 may be considered representative:

6. A subscription receiver for utilizing an intelligence signal coded in accordance with a given coding schedule comprising: a signal reproducer; a decoding mechanism for controlling said reproducer in accordance with said signal and including a plurality of adjustable code-determining elements collectively determining the decoding schedule of said mechanism; means for adjusting said code-determining elements to vary the decoding schedule of said mechanism; means for applying said intelligence signal to said decoding mechanism; means for effectively comparing the decoding schedule of said mechanism to said coding schedule of said intelligence signal to derive a control effect representing the state of correlation of said schedules; and means for utilizing said control effect to permit said reproducer to operate only during intervals of correct correlation of said schedules.

8. A secrecy communication receiver comprising: means for deriving a code signal having a characteristic representing a given code pattern; decoding apparatus coupled to said deriving means and including a plurality of adjustable code-determining elements to be adjusted relative to one another in accordance with said code pattern; means for effectively comparing the instantaneous adjustment of said code-determining elements with said code pattern to derive a control effect indicating the correlation status therebetween; a signal-translating device having a plurality of operating conditions, a predetermined one of which conditions represents a correct correlation status between the adjustment of said code-determining elements and said code pattern; and means for utilizing said control effect to actuate said signal-translating device to said predetermined operating condition in response to a condition of correct correlation.

15. A secrecy communication receiver for utilizing an intelligence signal, comprising: means for deriving a code signal having a characteristic representing a given code pattern; decoding and reproducing means, including a plurality of adjustable code-determining elements to be adjusted relative to one another in accordance with said code pattern, for responding to said code signal and for intelligibly reproducing said intelligence signal; means for effectively comparing the instantaneous adjustment of said code-determining elements with said code pattern to derive a control effect indicating the correlation status therebetween; and means for utilizing said control effect to condition said decoding and reproducing means, only during intervals of correct correlation between the adjustment of said code-determining elements and said code pattern, to achieve intelligible reproduction of said intelligence signal.

17. A secrecy communication receiver comprising: signal-generating apparatus, including a plurality of adjustable code-determining elements to be adjusted in accordance with a predetermined adjustment, for developing a comparison signal having a characteristic determined, at least in part, by the instantaneous adjustment of said code-determining elements; means responsive to said comparison signal for effectively comparing the instantaneous adjustment of said code-determining elements with said predetermined adjustment to derive a control effect indicating the correlation status therebetween; a signal reproducer; and means for utilizing said control effect to effectively control said reproducer.

In the Weiss system, the subscriber receives a desired program by setting a series of manually controlled switches in his receiver attachment to specific decoding positions which he is advised are necessary for that program and depositing the sum of money established as the charge for the program in a coin box. The picture signal is made

unusable by nonsubscribers by transmitting the synchronizing signals necessary to reproduce the picture in a coded form not effective in a regular receiver but subject to decoding by subscribers in a manner not requiring a specific discussion here.

It is the treatment of the sound signal that Weiss relies on particularly for support of the counts. In addition to providing the regular program sound signal at the transmitter, Weiss also provides an unintelligible or nonsense sound signal. He further provides two audio or sound transmission channels A and B. Coding is achieved by switching the program sound and the nonsense sound randomly between channels A and B during vertical drive intervals of the transmitted signal so that program sound is on channel A when nonsense sound is on channel B and is on channel B when nonsense sound is on A. This switching is accomplished in response to signals from a randomly operated cyclic counter which is advanced both in response to pulses from a random pulse generator and outputs from a decimal counter. The circuit includes plugs or switches which are adjustable to different positions to select different coding schedules for different programs.

The outputs of the cyclic counter and the decimal counter, as coded by the adjustable switches, are also used to select, during vertical drive time, one of two tone signals T_1 and T_2 of different frequencies. These signals T_1 and T_2 are included in the output of the transmitter along with the composite signal including the coded video signals.

Unauthorized listeners tuning to Weiss's transmitting station get no intelligible sound because of the rapid random switching of the program and nonsense sound between the channels A and B. The equipment provided Weiss's subscribers, on the other hand, has decoding switches which, when set according to instructions for the particular program, result in the receiver speaker being switched back and forth between channels A and B in step with the switching at the transmitter to continuously impose the program sound on the speaker.

The manner in which decoding of the sound signals in the receiver is accomplished by Weiss is best considered in connection with his FIGURE 13 reproduced in pertinent part below:

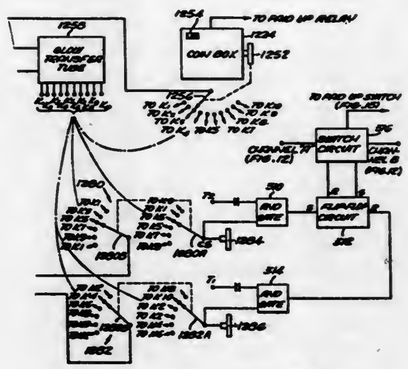


FIG. 13.

This figure shows a counting circuit including a glow discharge tube 1258 and associated multiposition switches 1280 and 1282 in cooperative arrangement with a coin box 1224, which latter is associated with a multiposition switch 1256. The glow discharge tube is connected

to an input circuit which is supplied from signals T_1 and T_2 so that energization of contacts K_1 to K_{10} is under control of the coding pattern selected at the transmitter. Switch arm 1256 is to be adjusted to a position corresponding to the price which the subscriber is advised is being charged for the program and switches 1280 and 1282 are to be adjusted to positions determined by the coding of the transmitter and of which the subscriber has also been advised. As the result of the settings of arm 1256 and arms 1280A and 1282A of switches 1280 and 1282, respectively, and the cyclic operation of the counting tube, a signal pulse is produced at either one input terminal of AND gate 310 or one terminal of AND gate 314. The other input to these AND gates is the T_2 signal and T_1 signal, respectively, in rectified form. When there is a coincidence of input signals at AND gate 310, flipflop circuit 312 is actuated to one of its two stable conditions (set) and, when there is a coincidence of inputs at AND gate 314, flipflop 312 is operated to the other stable condition (reset). The flipflop 312 controls switch circuit 316 to connect one of the two audio channels A and B to the switch output circuit when the flipflop is in set position and the other channel to the output circuit when the flipflop is in reset position. The switch output circuit is connected through circuitry not shown to the speaker or sound reproducer. When the switch arms 1256, 1280A and 1282A are all set to the proper adjustments corresponding to the coding for the program being transmitted, the AND gates and flipflop actuate the switch circuit 316 between its two positions at such times that which ever of the channels A and B carries program sound at any instant is connected at that time to the output circuit of the switch.

The Board treated the appealed counts in three different groups corresponding to different aspects of the issue of whether Weiss has adequate support for them. A first group, including count 8, which was considered in detail, and counts 1, 9, 11–13 and 16, which were found to have similar requirements to count 8, were held unsupported by Weiss. Counts 2, 6 and 7 were treated as a second group in reaching the conclusion that they too were not supported by Weiss. Finally, the Board found counts 15 and 17 to be supported by Weiss. As to these last two counts only, the Board considered Roschke's alternative contention that the counts are supported by the earlier filed Roschke '274 patent if construed broadly enough to be supported by Weiss and held that these counts are not supported by the '274 patent.

It is the position of Weiss that the counts on appeal are directed so broadly to the concepts of the invention of the Roschke involved patent that they are also satisfied by the Weiss application. Weiss also takes the position that the Board was correct in finding that counts 15 and 17 are not supported by the Roschke '274 patent.

Roschke urges that the inventions of his involved patent and the Weiss application are different in substance "and hence without possibility of interference in fact." He states that the Board incorrectly applied a "verbal approach to claim construction" and that, though it reached what he regards as the right results as to the counts awarded him, it did so for the wrong reason. Referring to *McCutchen* v. *Oliver*, 54 CCPA 756, 367 F.2d 609, 151 USPQ 387 (1966); *Hall* v. *Taylor*, 51 CCPA 1420, 322 F.2d 844, 141 USPQ 821 (1964); and *In re Draeger*, 32 CCPA 1217, 150 F.2d 572, 66 USPQ 247 (1945), Roschke urges that the key question in determining whether a count is supported by the

disclosure of an application in which it is copied is whether the disclosure teaches the gist of the invention. On that basis, Roschke takes the position that Weiss does not support any of the counts. Finally, Roschke contends that the Board additionally erred in finding that counts 15 and 17 were not supported by Roschke '274 patent if interpreted as broad enough to be supported by Weiss.

[1] While it is true that reference to the gist of the invention has sometimes been found useful in connection with the interpretation of ambiguous expressions in determining the question of support for counts copied from patents, it is clear that the basic consideration in such determinations is what the language of the counts defines as the invention. Thus, it is a well-recognized rule that a count copied from a patent is to be construed as broadly as the language will reasonably permit. *Long* v. *Young*, 34 CCPA 871, 159 F.2d 766, 72 USPQ 491 (1947); *Daley* v. *Wiltshire*, 49 CCPA 719, 293 F.2d 677, 130 USPQ 398 (1961). All limitations in a copied count must be considered material in determining right to make. *Segall* v. *Sims*, 47 CCPA 886, 276 F.2d 661, 125 USPQ 394 (1960); *Smith* v. *Wehn*, 50 CCPA 1544, 318 F.2d 325, 138 USPQ 52 (1963). Only in the case where the count is ambiguous should resort be had to the patent in which it originated to determine its meaning. *Long* v. *Young*, supra; *Smith* v. *Wehn*, supra.

In the present case, we find no ambiguity as to count 8 and counts 1, 9, 11–13 and 16, which the Board grouped with it. Turning specifically to count 8, the Board noted that Weiss relied on his switch circuit 316 and the actuating flipflop 312 as the "signal-translating device having a plurality of operating conditions," and the "means * * * to actuate said signal-translating device to said predetermined operating condition * * *," respectively, of its two last-recited elements. The Board acknowledged that the switch 316 has "a plurality of operating conditions" but further stated:

> However, the requirement, "* * * a predetermined one of which conditions represents a correct correlation status between the adjustment of said code-determining elements and said code pattern," requires that the device in question remain in a single operating condition which remains unchanged so long as the code-determining elements are correctly set. This is clearly not true of the Weiss device where the decoding function is performed by switching back and forth between the two possible conditions in accordance with a time schedule. The variable here is not one condition or the other as the count requires, but rather the times at which changes between channels are made. In our opinion the determination of the time of switching between conditions is not properly termed an operating condition of the device. It is therefore clear that the Weiss reissue application does not support count 8 * * *.

Weiss contends that his application supports these counts, urging that operation of switch 316 between positions connecting channels A and B to its output "in phase" with the switching of program sound between the two channels in the transmitter is one condition which "represents" a correct correlation status between the adjustment of the code-determining elements and the code pattern. He further urges that operation of the switch "out of phase" with the switching of the program sound between the two channels is "another" condition.

In taking that position, Weiss ignores the reqiurement of count 8 that a "predetermined one" of the conditions of the signal-translating device represents a correct correlation status between the adjustment of the code-determining elements and the code pattern. The fact is

that the signals impressed on the input of Weiss's switch 316 are deliberately made random in time through the use of a random signal generator in the transmitter as a link in determining the occurrence of the switching of program sound and nonsense sound to channels A and B and the occurrence of tone signals T_1 and T_2. Thus the operation of the switch 316 that results in proper decoding amounts to changing from one state to another in a random, unpredictable and ever-changing manner. Hence there is no previously established or "predetermined" *one* condition of the switch 316 that represents a correct correlation of the adjustment of the code-determining elements and the code pattern. We accordingly agree with the Board that count 8 and counts 1, 9, 11–13 and 16, which have requirements similar to count 8, are not supported by Weiss..

Turning to count 6, the Board gave particular consideration to the last two clauses [2] in the count and concluded from them that the count:

> * * * clearly sets out that a control effect must be derived which is indicative of correct adjustment and a use of that effect to allow operation of the reproducer only when a comparison of previously specified signals indicates a correct correlation * * * .

The Board further stated:

> We are firmly of the opinion that this requirement is not met by the switch circuit 316 of Weiss since that device transmits a signal to the reproducer at all times. Selectively permitting operation as disclosed in the Roschke patent involved is a different thing from merely changing channels as in Weiss and we are of the opinion that limitations such as that quoted above from count 6 are a reasonably clear definition of that difference so that the Weiss reissue application does not support count 6 or other counts which include a similar limitation. This includes counts 2 and 7. Roschke is therefore entitled to an award as to these counts also. It is noted further that count 2 is more limited than others of this group in specifying that the derived control effect have "one predetermined value" during proper correlation and otherwise another value, and that the reproducer is permitted to respond only while the "control effect has said one value". The failure of the Weiss disclosure to include such a feature is even clearer as to this count.

Weiss contends that what is meant by reference to permitting the signal reproducer to operate only during intervals of correct correlation is that "during that time it receives intelligible signals and permits an understandable program" and that, when there is no control effect, "the reproducer will receive either unintelligible signals, or no signals." He also urges:

> When the control effect is not present or there is an incorrect control effect, the Weiss et al. transducer is as inoperative as the Roschke transducer *in that no intelligible program is reproduced.* [Emphasis supplied.]

We do not agree with this interpretation which Weiss advances as the basis for finding support for count 6 in his application. Rather, we think the Board was correct in finding the significance of the subject recitations in the count to be that the received signal is allowed to operate the reproducer only when the signal is correctly decoded in contrast to being allowed to operate it irrespective of proper decoding.

Although the preceding is based on the premise that count 6 is not ambiguous and resort to the Roschke patent for interpretation is not in order, our conclusion would be the same if the count were deemed to require interpretation in light of Roschke where it originated. Thus, that patent not only discloses that the intelligence signals may be

[2] The last clause recites "means* * * to permit said reproducer to operate only during intervals of correct correlation of said schedules."

disconnected from the reproducer until correct correlation is attained but also emphasizes that operation,[3] as in the following exemplary passages from the specification:

> Another and distinctly different aspect of subscription television which is aided materially by the subject invention has to do with defeating, or making more difficult the task of those who would cheat the system by trial and error techniques. It will be appreciated that where a decoding device includes a number of adjustable elements to be set relative to one another in order to achieve decoding, there is at least a temptation to find the rosetta stone or correct setting of the decoder on a trial and error basis. Of course, if this effort should be successful, a subscriber would succeed in avoiding the obligation to make a payment for enjoying the subscription program. Trial and error adjustment of the decoder is not at all an easy task but it is suspected that the burden may possibly be eased through the observation of changes occasioned in the reproduced image as the trial and error process is pursued step by step. Should any help be derived from observation of the image, cheating may be made more difficult by arranging that the image shall not appear on the screen unless and until the decoding device has been conditioned as required to effect complete decoding. This objective is also realized through the present invention.
>
> * * * * * * *
>
> It is another object of the invention to provide a subscription television receiver having sound and image reproducers at least one of which is effectively disabled unless and until those elements of the receiver which are to be precisely adjusted in accordance with the requirements of a given subscription program have, in fact, been so adjusted.

Count 6 and count 2, which is more limited than count 6 as pointed out in the above quotation from the Board's opinion, therefore were correctly held not supported by Weiss.

Although count 7 does not include precisely the same terminology as counts 2 and 6, it does recite:

> * * * means for deriving a first signal representing the decoding schedule of said mechanism; means responsive to said components of said carrier-wave signal for deriving a second signal representing the coding schedule of said coded signal; means for effectively comparing said first and second signals to derive a control effect representing the state of correlation of said schedules * * *.

In awarding counts 3 and 4, on which no appeal was taken, to Roschke, the Board stated:

> The decoding schedule of the decoding mechanism of Weiss is determined by the setting of both switch arms [1280A and 1282A] and a signal delivered by either arm alone cannot be said to be representative of the setting of the other, and hence is not representative of the decoding schedule as required. The two signals together (considering both selector arms) collectively could be said to be so representative, but we consider that it would be improper to regard two distinct signals appearing at different locations in the apparatus to be "a first signal" * * *.

That reasoning is fully applicable to count 7 where the recitation of means for deriving "a first signal representing the decoding schedule of said [decoding] mechanism" is not supported by Weiss. Therefore, the Board did not err in awarding count 7 to Roschke.

In holding that counts 15 and 17 are supported by Weiss, the Board first held that the "combination signal" comprising T_1 and T_2 of Weiss is so generated in the coding apparatus that the sequence of

[3] Roschke additionally states in his brief:

> Roschke's central idea is the desirability of *monitoring* the adjustment of the receiver decoding switches and allowing the conventional receiver circuits—such as the decodes, the picture tube, and the loud speaker—to function *only* when the receiver switches "pass" the correlation test.

It is also to be noted Roschke contemplates that the decoding switch settings for the various programs may be given out only to subscribers who have agreed to pay for them, in contrast to Weiss's making the settings available to all.

tone signals transmitted and received is "representative" of the coding in that system. It further stated:

> * * * count 17 provides that the specified signal generating apparatus merely *includes* a plurality of adjustable code-determining elements and is further broadened in not requiring that the comparison signal represent the setting of the entire mechanism, but only that it have a characteristic which is determined at least partially by the setting of said code-determining elements.
>
> We consider that this broad provision is satisfied by considering switch arm 1280A and 1256 as the plural code-determining elements, noting that the term "include" emphasized above does not exclude the presence of other elements such as 1282A. The signal on switch arm 1280A is "at least in part." determined by the instantaneous adjustment of 1280A and 1256 and thus satisfies the broad requirement of count 17. * * *
>
> Count 15 is broader than 17 in merely providing for means for comparing the adjustment of the code-determining elements with the given code pattern without requiring that the comparison be accomplished by any particular signals. We think it clear that such a comparison is achieved by the Weiss apparatus.

Roschke states that these counts describe apparatus fed simultaneously with two signals, "one representing the transmitter coding pattern (i.e., the transmitter coding switch settings) and the other representing the settings, at the moment, of the receiver coding switches." He urges the first signal does not exist in Weiss because no transmitted signal there represents the transmitter code pattern. He further contends that the second signal is not provided because Weiss discloses "no one signal, in any part of their system, that is definitive of the receiver coding-switch settings * * *."

As Weiss points out, however, the T_1 or the T_2 tone of his invention is "generated at the transmitter only when a predetermined signal is applied to the coding device at the transmitter from the circuitry which drives it," and the T_1 and T_2 tones thus have a characteristic which represents the code pattern. As to count 15, which does not specify that the "means for * * * comparing" be actuated by any particular signals, the Board thus was correct in its reasoning that Weiss has adequate support.[4]

On the other hand, count 17 includes a recitation of signal-generating apparatus for developing "a comparison signal having a characteristic determined, at least in part, by the instantaneous adjustment of said code-determining elements." That recitation, by itself, is quite broad. However, the count includes the further requirement that the means for comparing the instantaneous adjustment of the code-determing elements with the predetermined adjustment (which represents correct decoding) to provide the control effect for the reproducer is "responsive" to that "comparison signal." Weiss's circuitry, which requires *two* comparison signals, from switch arms 1280A and 1282A, respectively, therefore does not meet the combined requirement for apparatus for developing *a* comparison signal and "comparing" means which is "responsive" to that comparison signal to provide the recited control effect. The Board thus erred with respect to count 17.

Our finding that Weiss does support count 15 requires consideration of Roschke's contention that his earlier filed '274 patent supports this count. The subscription television system of that patent utilizes randomly-occurring coding signals f_1 through f_6 established by a code signal generator in cooperation with a transposition coding mechanism including adjustable switches. One of these signals, as f_6, is derived

[4] Since Roschke questions whether what the Board termed the "combination signal" made up of T_1 and T_2 "represents" the coding pattern but does not specifically raise a question whether it is "a" code signal, the latter matter is not in issue on the record before us.

and applied to the receiver circuitry separately from the other five signals but the board found no basis for holding that it represents a code pattern as defined in the count.

Roschke's argument primarily is that neither Weiss nor Roschke '274 really supports the count, but if Weiss does, so does Roschke '274. That argument is not particularly helpful since the Weiss and Roschke '274 circuits are decidedly different. Thorough review of the entire record in light of the arguments leaves us unsatisfied that the receiver of Roschke '274 derives a code signal "having a characteristic representing" the code pattern at the transmitter, a feature that the Board also found lacking. Roschke thus has failed to meet his burden of convincing us that the Board erred in its decision as to count 15, and that decision must be sustained. See *Daley* v. *Wiltshire*, supra.

The decision is affirmed as to counts 1, 2, 6–9, 11–13, and 16 (No. 8290) and count 15 (No. 8322) and is reversed as to count 17 (No. 8322).

MODFIED.

U.S. Court of Customs and Patent Appeals

LONG JOHN DISTILLERIES, LTD., D.B.A. LONG JOHN DISTILLERIES
v.
SAZERAC COMPANY, INC., D.B.A. JOHN HANDY COMPANY

No. 8340. Decided June 11, 1970

[57 CCPA —; 426 F.2d 1406; 166 USPQ 30]

1. TRADEMARK — CONFUSING SIMILARITY — THIRD PARTY REGISTRATIONS — "LONG JOHN" AND "FRIAR JOHN" FOR WHISKY OR BRANDY.

On the issue of confusing similarity between appellant-opposer's registered mark "LONG JOHN" for Scotch whisky and applicant's mark "FRIAR JOHN" for brandy, the court affirmed the dismissal of the opposition below, adopting the opinion of the Trademark Trial and Appeal Board which held that "the third party registrations of record are themselves sufficient to establish that the word 'John' has been so frequently used as a part of distilled beverage marks that it is incapable of indicating origin in any one source and that the substantial good will in the mark 'LONG JOHN' acquired by appellant over years of use and promotion resides in the unitary mark"; and that "considered in their entireties, the differences in sound, appearance and commercial impression of the two marks are obvious and one is in no way suggestive of the other."

APPEAL from Trademark Trial and Appeal Board. Opposition No. 43,878.

AFFIRMED.

Milton B. Seasonwein, for appellant.

Eugene E. Stevens, (*James C. Cawood*, of counsel) for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

FISHER, *J.*, delivered the opinion of the court.

The sole issue in this opposition proceeding is whether the mark "FRIAR JOHN," when applied to brandy, would likely result in confusion, mistake or deception to the public because of similarity to the registered [1] mark "LONG JOHN," owned and used by appellant-opposer in labeling its product, Scotch whisky. The Trademark Trial and Appeal Board dismissed the notice of opposition with opinion.[2]

[1] Reg. No. 577,305, issued July 14, 1953, and Reg. No. 765,225, issued Feb. 18, 1964.
[2] Abstracted at 156 USPQ 713.

The Board found that the third party registrations of record are themselves sufficient to establish that the word "John" has been so frequently used as a part of distilled beverage marks that it is incapable of indicating origin in any one source and that the substantial good will in the mark "LONG JOHN" acquired by appellant over years of use and promotion resides in the unitary mark. Further, the Board was of opinion that, considered in their entireties, the differences in sound, appearance and commercial impression of the two marks are obvious and one is in no way suggestive of the other.

[1] We agree with, approve and adopt the opinion of the Board, and its decision is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

THE BARASH COMPANY, INC. *v.* VITAFOAM LIMITED

No. 8306. Decided June 25. 1970

[57 CCPA —; 427 F.2d 810; 166 USPQ 88]

1. TRADEMARK—CANCELLATION—CONFUSING SIMILARITY—"VITAFOAM" AND "VITALON" FOR CUSHIONING OR PLASTIC SHEET MATERIALS AND USE IN LUGGAGE UPHOLSTERY.

Upon considering a decision of the Trademark Trial and Appeal Board dismissing appellant's petition, based on prior ownership of the registered mark "Vitalon," to cancel because of confusing similarity the registration of appellee's mark "Vitafoam," the marks being for cushioning or plastic sheet materials and use in luggage or upholstery, where appellee did "not question that the goods of the parties are closely related in kind," there was "no evidence of actual confusion in the past," and Vitalon products are sold to manufacturers or distributors who "would be highly discriminating purchasers," *Held* that "* * * we conclude that the Board was correct in holding there would be no likelihood of confusion or mistake when the marks are applied to the goods of the parties."

APPEAL from Trademark Trial and Appeal Board. Cancellation No. 8,470.

AFFIRMED.

James M. Heilman (*Heilman & Heilman*) for appellant.

Appellee submits on record.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

BALDWIN, *J.*, delivered the opinion of the court.

This is an appeal from the decision [1] of the Trademark Trial and Appeal Board dismissing a petition to cancel the registration [2] of the mark "Vitafoam" owned by Vitafoam Limited, a British corporation.

The petitioner, appellant here, The Barash Company, Inc., asserts priority of use, not contested, based on its ownership of the registration,[3] of the mark "Vitalon" for plastic sheet material for general industrial purposes, including use in luggage and upholstering.

The mark "Vitafoam" is registered for pillows, cushions and upholstery parts of furniture; furniture; underlays for carpets; webbing and members for supporting cushions, upholstery and the like in furniture and vehicle seating; for luggage; rubber and plastic materials for use as stuffing for upholstery and the like.

[1] Opinion at 155 USPQ 267 (TTAB 1967).
[2] Reg. No. 787,669, issued April 6, 1965, on application filed November 12, 1963.
[3] Reg. No. 731,626, issued May 15, 1962.

The appellee does not question the fact that the goods of the parties are closely related in kind. The only question remaining for our consideration, therefore, is whether or not the marks of the parties, as applied to the related goods, are so similar as to be likely to cause confusion, mistake or deception.

The testimony in the record bears out the fact that there is no evidence of actual confusion in the past between the marks "Vitafoam" and "Vitalon." Further, it appears that Vitalon products are sold directly to manufacturers or distributors or jobbers who, in turn, resell to manufacturers. Such customers would be highly discriminating purchasers in any event.

[1] Having considered appellant's argument and reviewed the evidence in the record as stated above, we conclude that the Board was correct in holding there would be no likelihood of confusion or mistake when the marks are applied to the goods of the parties.

The decision is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE DONALD RICHMAN

No. 8281. Decided May 7, 1970

[57 CCPA —; 424 F.2d 1388; 165 USPQ 509]

1. REISSUE—ERROR.

"The [reissue] statute imposes no restriction on the manner in which the defect in the patent is discovered. The circumstance that the asserted defect was discovered by a person other than the patentee under a practice of having such person review selected patents does not negate the assertion in the oath that the patent is inoperative in part nor does it indicate that the defect did not arise 'through error without any deceptive intention.'"

2. PATENTABILITY—COMBINING REFERENCES—OBVIOUSNESS.

"The question in a rejection for obviousness on a combination of references is what the secondary reference would teach one skilled in the art and not whether its structure could be bodily substituted in the basic reference structure."

3. PATENTABILITY—PARTICULAR SUBJECT MATTER—"NOISE-IMMUNE SYNCHRONIZING-SIGNAL SEPARATOR FOR TELEVISION RECEIVERS."

The rejection of certain claims in an application entitled "Noise-Immune Synchronizing-Signal Separator for Television Receivers" "on the grounds that the reissue oath is defective is reversed as is the rejection * * * on the basis of 'new matter.'" The rejection of the claims on the prior art is reversed as to certain claims and affirmed as to the others.

APPEAL from Patent Office. Serial No. 299,141.

MODIFIED.

Laurence B. Dodds (*Jesse C. Bowyer*, of counsel) for appellant.

Joseph Schimmel (*Jere W. Sears*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FORD, *Judge*, United States Customs Court, sitting by designation

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1–3, 11, and 12 of appellant's reissue application serial No. 299,141, filed July 26, 1963,[1] for reissue

[1] Designated a continuation of reissue application Serial No. 56,073, filed September 14, 1960.

of his Patent No. 2,933,558, granted April 19, 1960, on an application filed December 23, 1957,[2] for "Noise-Immune Synchronizing-Signal Separator for Television Receivers."

Three issues are raised. One is whether the appealed application is defective for lack of a reissue oath complying with the requirements of 35 U.S.C. 251. A second issue pertains to the rejection of claims 11 and 12 "as involving new matter." The third issue is whether claims 1–3, 11, and 12 are unpatentable over the prior art.

The Invention

The invention relates to a circuit for deriving synchronizing pulses from the composite signal received by a television receiver without the introduction of false pulses resulting from random electrical noise which may be present in the signal.

As background, the television video (picture) signal is produced in a television camera tube which employs an electron scanning-beam to read off variations of voltage amplitude corresponding to the portions of a picture image focused on a photosensitive surface. The image is reproduced in a receiver picture tube by causing another electron beam which is modulated and deflected in synchronism with the beam in the camera tube to impinge on a photophosphorescent surface.

The scanning is accomplished by moving the beam repeatedly in parallel lines extending from what we will term left to right across the scanned surface with the first line at the top of the surface and each succeeding line vertically displaced below the preceding line until a "field" covering the vertical extent of the surface has been traversed. The beam is returned to the left at an increased speed following completion of each line to begin the next line and is returned to the top at a similarly increased speed at the end of each field to position it for the start of the succeeding field.

The transmitted video signal includes the modulated picture signals representing light variations in the successive lines, blanking pulses between the modulated signals for blanking out the beam between succeeding lines, and line and field synchronizing pulses for establishing the time for starting each line and each field, respectively. In standard United States practice, the picture signal is negatively modulated, which means that decreases in its amplitude correspond to increases in light or whiteness of the image, the blanking pulses are at a greater amplitude corresponding to black in the picture, and the synchronizing pulses are superimposed on the blanking pulses to extend further into the black region.

In the receiver, a composite video signal having the above described components is derived from a modulated carrier signal received at the antenna. The derived signal is so imposed on the beam-modulated components of the picture tube that the beam increases in intensity with decreases in the modulated signal and is blanked out during the blanking pulses and the synchronizing pulses. In order to coordinate the scanning of the lines and fields by the electron beam of the receiver tube with the camera beam, the receiver is provided with a line-scanning generator and a field-scanning generator which are held in proper synchronism by application thereto of the line-scanning pulses and field-scanning pulses, respectively. The present invention deals with the separation of the synchronizing pulses from the composite

[2] Designated a division of Serial No. 175,192, filed July 21, 1950.

signal. That separation is attained in conjunction with production of an AGC (automatic gain control) signal for application to early stages of the receiver, including the radio-frequency and intermediate-frequency amplifiers, to adjust their gain or amplification and thus automatically maintain the strength of the composite video signal substantially uniform despite variations in the strength of the received signal due to fading and the like.

In appellant's receiver, the composite video signal is applied to the grid of an AGC rectifier tube of triode form. That tube is connected so as to develop in its anode circuit a negative bias voltage which is proportional to the strength of the applied signal and that bias voltage is applied to control the gain of the circuits in the receiver ahead of the output of the composite video signal itself. The AGC tube also develops in its cathode circuit a bias voltage of the same general character as the anode voltage but of opposite, or positive, polarity. That voltage varies in strength proportionally to the strength of the synchronizing signals and, consequently, to the strength of the signal picked up by the receiver antenna.

Concurrently, the composite video signal, with the synchronizing signals of positive polarity, is applied to the control grid of a synchronizing-signal separator tube through a high value resistor so that positive values of that signal tend to make this tube conductive. However, the aforementioned positive bias developed in the AGC tube circuit is applied to the cathode of the synchronizing-signal separator tube through a resistor network in the circuit of that cathode and the effect of that bias is to tend to make the separator tube nonconductive. The result is that the latter tube becomes conductive only during the peaks of the synchronizing signal. When the tube becomes conductive, it develops a synchronizing pulse in its output circuit and the pulses so developed are applied through a suitable circuit for application to the scanning generators.

Since the bias developed across the network in the cathode of the AGC tube is derived from the synchronizing signal, and varies dynamically with its magnitude, that bias and the synchronizing signal rise and fall together. Consequently, the separator tube conducts only on the peaks of the synchronizing signal whether it is weak or strong.

Up to this point, we have not considered the fact that the received composite video signal is frequently accompanied by strong electrical disturbances termed "noise," which often are of a form similar to, but stronger than, the synchronizing pulses themselves. These noise pulses occur at random times and, if mistaken for synchronizing pulses by the synchronizing circuits of the receiver, would cause the receiver to drop out of synchronism and possibly distort the image on the picture tube beyond recognition.

Appellant's receiver is provided with a circuit for eliminating that effect of noise signals. The circuit includes a diode connected between the input circuit to the grid of the synchronizing-signal separator tube and the cathode of that tube. It is biased against conduction by the bias potential produced across the resistor network in the cathode circuit of the separator tube. However, the characteristics and connection of the triode in the circuit are such that a stronger signal is required to make the diode conductive than is required to make the synchronizing signal separator tube conductive. That is, the diode becomes conductive only when the composite signal impressed on the grid circuit of the separator tube includes signals, such as noise, which are greater

in amplitude than the synchronizing pulses. Since the diode is connected at one terminal to the cathode of the separator tube and thus is subjected like that tube to a bias potential which rises and falls with variations in the strength of the received signal as measured by the amplitude of the synchronizing signal, the threshold or signal level at which the diode becomes conductive likewise varies dynamically with the strength of the received signal while remaining above the amplitude of the synchronizing signals.

When a noise signal of high amplitude occurs in the composite video signal, the diode becomes conductive and passes a current through the resistors in the cathode circuit of the synchronizing-signal separator tube. That current increases the positive bias of the cathode of that tube, making it nonconductive so that the noise pulse applied to its grid circuit is not reproduced in its output circuit and is not impressed on the scanning generators. Thus, only the synchronizing pulses are passed by the separator tube and applied to the appropriate circuits to maintain the output of the scanning signal generators to the picture tube in step with the deflections of the scanning beam in the transmitter.

Claim 1 (duplicate of patent claim 1) and claim 11 (new in the reissue application) are representative and read as follows (paragraphing ours):

1. A highly noise-immune synchronizing-signal separator system for a television receiver comprising:

first means for supplying a negatively modulated television signal including picture-signal components and synchronizing pulses which tend to be accompanied by unwanted noise signals greater in amplitude than the synchronizing pulses;

second means coupled to said first means for developing a potential representative of and which varies dynamically with the amplitude of said synchronizing pulses;

synchronizing-signal separating means responsive to said first means and dynamically responsive to said potential for separating said synchronizing pulses above the maximum level of said picture-signal components regardless of variations in the amplitude of said synchronizing pulses; and

means coupled to said first and second means for rendering said separating means inoperative in response to the occurrence of said noise signals.

11. A highly noise-immune synchronizing-signal separator system for television receivers of a variable amplitude negatively modulated signal including picture components and synchronizing pulses at amplitude levels above the level of the picture components and in which the synchronizing pulses tend to be accompanied by undesirable noise components greater in amplitude than the synchronizing pulses comprising:

synchronizing pulse separating means responsive to the amplitude of said signal for separating the synchronizing pulses above the level of the picture components regardless of the amplitude variations of said signal, thereby eliminating from the output of said separating means picture components and noise components below that level; and

means responsive to the amplitude of said signal for rendering said separating means inoperative in response to the occurrence of noise components greater in amplitude than the synchronizing pulses regardless of the amplitude of variations of said signal, thereby eliminating the latter noise components from the output of said separating means.

The Reissue Oath

The reissue oaths of both the first reissue application and the present continuation application assert that the patent is inoperative in part by reason of the applicant having claimed less than he had a right to claim through the failure to present claims of the scope of the new

claims being sought. They also assert that the inoperativeness arose through error and without deceptive intention and that the defects in the patent arose because of the failure of the attorney to comprehend the advantages and scope of the invention. The present continuation application was accompanied by an affidavit of Edward Ruestow, the principal attorney, asserting that a copy of the patent was submitted to Bernard D. Louglin, a consultant for Hazeltine Research, Inc. (assignee of the patent), to obtain his opinion on the probable use of the invention. That was done about August of 1960 under an established practice of requesting Mr. Loughlin to review selected patents within two years after their issue dates. Mr. Loughlin advised that he considered the patent claims to be needlessly limited and the reissue application including broadened claims was then prepared. Additional affidavits by others associated with the assignee, which gave more specific information, were subsequently submitted in response to objections by the Examiner.

The Board regarded the Examiner's position on this issue to be that the claims were rejected "as being based on a defective [reissue] oath." It sustained the rejection, stating:

> The concept of a device which appellant did not invent, or disclose; and which was called to his attention by a third party after the issuance of his patent is not an error within the meaning of 35 U.S.C. 251.[3] Therefore, the oath is ineffective and, in the absence of an effective oath, this reissue application is fatally defective.

We reverse that rejection. The assertions in the reissue oaths pointed out above are clearly sufficient under the reissue statute. **[1]** The statute imposes no restriction on the manner in which the defect in the patent is discovered. The circumstance that the asserted defect was discovered by a person other than the patentee under a practice of having such person review selected patents does not negate the assertion in the oath that the patent is inoperative in part nor does it indicate that the defect did not arise "through error without any deceptive intention."

On first impression, the Board's reference to "a device which appellant did not invent, or disclose" might appear to imply that the claims were considered not to be supported by the disclosure. However, we think it clear that this rejection does not raise that question. First, the question would pertain not to the reissue oath but to the adequacy of the disclosure under 35 U.S.C. 112, a matter the Board does not discuss in this connection. Also, the rejection is applied to claims 1–3, which duplicate original patent claims, as well as new claims 11 and 12 and there is no indication that the Examiner or Board considered the former claims to be unsupported by the patent specification.

New Matter

The Board stated that claims 11 and 12 stand rejected "as involving new matter." In support of this rejection, it pointed to various amendments made to the specification of appellant's original (parent) application Serial No. 175,192, filed on July 21, 1950.[4] It sustained the

[3] § 251. *Reissue of defective patents.*—Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Commissioner shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.

[4] See note 2.

rejection because "appellant has not explained why * * * [those amendments] do not involve new matter * * *."

We presume the reference to "new matter" in the rejection has reference either to the proscription in 35 U.S.C. 251 [5] or in 35 U.S.C. 132. Under either section, it is apparent that there is no "new matter" in the present case. The Solicitor appears to concede as much. The patent here issued on application Serial No. 704,663, filed December 23, 1957, designated a division of Serial No. 175,192, and, as conceded by the Solicitor, all of the amendments designated by the Board were made in the latter application before Serial No. 704,663 was filed and were included in that application as filed. No issue as to the availability of prior art intervening between the two filing dates is involved, and the present reisue application has the same disclosure as that in the patent.

The rejection of claims 11 and 12 as "involving new matter" is therefore reversed.

The Prior Art

The references involved in the prior art rejection are:

Lamb, 2,101,549, Dec. 7, 1937.
Martinelli, 2,299,333, Oct. 20, 1942.
Applegarth, 2,356,140, Aug. 22, 1944.
Holland et al., 2,434,929, Jan. 27, 1948.
Marconi (Australian), 145,870, Mar. 25, 1952.
"Television" by Zworykin and Morton, John Wiley, 1940 (pages 464–465).

Martinelli relates to a system for reducing the effect on the scanning circuits of a television receiver of noise signals present in a composite video signal having negative picture signal modulation. The composite signal is applied to a synchronizing-signal amplifier which feeds the synchronizing-signal separator. This composite signal is concurrently applied to the input circuit of a noise inverter tube. That tube provides amplified noise-pulses in inverted form at its output, which pulses are applied to the suppressor grid of the amplifier tube to block it for the duration of the noise pulses and prevent transmission of those pulses to the synchronizing-signal separator. The inverter tube is disclosed as having a bias means manually adjustable to selected values. The specific circuit of the separator tube, and hence its biasing means, are not disclosed.

The Lamb patent relates to a radio receiver provided with means to silence undesired noise impulses which exceed in strength the voltages induced by desired signals. The input signal from the antenna is fed through an amplifier to the detector and thence to the audio frequency amplifier and loud speaker. The signal is also applied to a silencer tube which becomes conductive in response to the presence in the input of an undesired pulse exceeding a selected value. The silencer tube then produces a control voltage which is applied to the tube of the amplifier to either disable that tube or reduce its amplification for the duration of the undesired pulse. In one form, the silencer tube is provided with a negative bias which determines the amplitude of noise to which it responds by a manually adjusted biasing means. In a modification, the negative bias is provided through an AVC (automatic volume control) circuit so that the conductive level or threshold of the tube varies dynamically with the volume of the signals received.

[5] See note 3.

"Television" describes several types of synchronizing signal separator circuits for television receivers. In one circuit, the grid of the separator tube is self-biased to cut-off by rectification of the applied signal in the grid circuit, which circuit includes a time-constant circuit consisting of a series condenser and a shunt resistor. The reference states:

> * * * the grid tends to maintain itself at such a D-C potential that zero bias corresponds to the maximum positive peaks of the signal, or in this case, the top of the synchronizing impulses. If the amplitude of the impulses is sufficient so that black corresponds to plate current cutoff, only the synchronizing impulses are amplified, the rest of the signal occurring beyond cutoff.

Applegarth relates to a television receiver having a combined AGC and synchronizing signal separator circuit. The AGC circuit comprises a triode fed with the composite intermediate frequency signal to develop the AGC voltage at its anode. That tube also has a time-constant circuit in its cathode circuit which develops a bias varying with signal strength. The intermediate frequency signal is also fed to the separator tube which has its grid biased with a portion of the varying bias voltage in the cathode circuit of the AGC tube to clip the synchronizing pulses at a selected level above the picture signal despite variations in strength of the input signal. The output signals from the separator are fed to the scanning or deflecting generator through a diode so biased as to clip or limit the amplitude of any high amplitude noise pulses passed by the separator to a value substantially equal to that of the synchronizing pulses.

In the view we take of the case, specific consideration of the Holland and Australian Marconi patents becomes unnecessary.

The Examiner rejected the claims as unpatentable over Martinelli taken with Lamb, further referring to the "Television" publication, and was sustained in that position by the Board. Such rejection, characterized by the Solicitor in oral argument as the best prior art rejection, is plainly based on obviousness under 35 U.S.C. 103.

The Examiner recognized that Martinelli's noise-cancelling circuit operating on the synchronizing-signal amplifier has a fixed threshold. However, the rationale of the rejection is that the showing in Lamb of the alternative use of an automatic volume or gain control signal to provide a dynamic bias, in place of a fixed bias, in a noise-cancelling circuit in a radio receiver would suggest to one skilled in the art the substitution in Martinelli's noise-suppressor circuit of means for providing a dynamic bias varying with the synchronizing signal strength. The rejection is further based on the proposition that it would also be obvious to use a self-biasing synchronization-signal separator as shown in "Television" as the separator in Martinelli.

Turning to the merits of this rejection, it is true that Martinelli does not specifically show or describe an automatic gain control circuit to provide signals in the receiver which are automatically compensated for variations in the strength of the received signal. However, Martinelli does discuss the alternatives of providing the tubes in the early stages of the receiver with filter circuits which have either a very short or a very long time constant and states, with respect to the use of the latter alternative:

> This, however, cannot be done where an automatic volume control voltage is being applied to the tube.

That statement plainly suggests that, when filter circuits of suitable time constants are employed, automatic volume or gain control (AGC)

could be employed in Martinelli. Moreover, the record provides no basis for doubting that a person having ordinary skill in the art would have been able to provide such a control in carrying out that suggestion.

Lamb's teaching of the substitution of means automatically regulating the threshold silencing point of a noise-cancelling circuit by using a bias varying dynamically with the automatic volume or gain control voltage as an alternative to providing a non-dynamic, but manually adjustable, bias suggests that the noise-suppressor circuit in Martinelli might also be automatically biased. While appellant urges that substitution of the Lamb circuit in Martinelli would result in an inoperative device, that is not material here. [2] The question in a rejection for obviousness on a combination of references is what the secondary reference would teach one skilled in the art and not whether its structure could be bodily substituted in the basic reference structure. *In re Soderquist*, 51 CCPA 969, 326 F.2d 1016, 140 USPQ 387 (1964). What Lamb teaches is the concept of automatically varying the bias of a noise-suppressor tube in accordance with variations in strength of the applied signals instead of using a bias which is manually adjusted in accordance with what the strength of the signals is expected to be. We think the utility of incorporating such an automatic or dynamic bias in Martinelli would have been apparent to a person having ordinary skill in the electronic communications art, and we find nothing in the record that gives rise to any doubt that it would have been within the ability of such a person to follow through to produce an operative circuit incorporating that concept.

As to the synchronizing-signal separator, Martinelli suggests use of a circuit "of any well-known type." This clearly suggests employing separator circuits that became known subsequent to his application as well as those already known. Certainly that suggestion applies to circuits in "Television," which is a textbook published only shortly after Martinelli's application was filed. For that reason, and in light of the reference in "Television" to its self-biased separator as "[a] more satisfactory limiter [separator]" than a fixed-bias separator previously described therein, we are satisfied that it would have been obvious to employ the "Television" self-biased separator in Martinelli.

We think that the Martinelli circuit so modified in an obvious manner in accordance with the Lamb and "Television" references demonstrates that claims 3, 11, and 12 are unpatentable. None of these claims requires that the synchronizing-signal separator be connected to the same dynamically-varying bias voltage as the noise-suppressor [6] and appellant has not pointed out any limitation by which they distinguish from such modified circuit.

Claims 1 and 2 present an additional issue, however. Thus, they require that the synchronizing-signal separating means be dynamically responsive to "a potential" which is developed in the "second means" and is "representative of" and "varies dynamically with" the amplitude of the synchronizing pulses. That "second means" is coupled to the "means * * * for rendering * * * [the] separating means inoperative in response to the occurrence of * * * noise signals" (the noise suppressor). Martinelli as modified in accordance with Lamb and

[6] Claim 3 recites "a synchronizing-signal stripper responsive to at least some of * * * [the] components of * * * [the composite] video frequency signal and undesirably responsive to * * * [the] noise pulses * * *," but does not specify how it is biased.

"Television" would not comply with those requirements. Rather, the separator would then be biased from its own input circuit and thus not be dynamically responsive to the "potential" provided by the second means, which means is coupled to the noise suppressor.

Moreover, we find nothing in the record to demonstrate that it would be obvious to make such further changes in Martinelli as would be necessary to meet claim 1. In particular, we do not see that Applegarth, which we next discuss in some detail, would have suggested any modification of Martinelli's noise-cancelling circuit that would result in the noise suppressor and signal separator being supplied from the same dynamic-bias source. We accordingly will not sustain the rejection of claims 1 and 2 on grounds involving Martinelli as the basic reference.

The Board also held the claims unpatentable over Applegarth, possibly as anticipated thereby (35 U.S.C. 102) but certainly as obvious in view of it and other references including Martinelli (35 U.S.C. 103). In so relying on Applegarth, the Board was in effect reviving a rejection on that patent which the Examiner originally made but withdrew in his answer. We conclude that the rejection based on Applegarth must be reversed.

The Applegarth television receiver derives an AGC voltage from the output of the intermediate frequency amplifier circuit and applies it to control the gain of that circuit. It also imposes a portion of a signal varying with the AGC voltage at suitable polarity to a synchronizing-signal separator tube. The output of the latter tube is connected to the utilization circuit for the synchronizing signals through a diode biased to clip the tops off noise signals passed by the separator that exceed the amplitude of the synchronizing signals. Since Applegarth merely clips the noise signals from the separator, it does not anticipate the claims, which require that the separator be disabled or rendered inoperative.

The only secondary reference which requires discussion in connection with the rejection involving Applegarth as a basic reference is Martinelli. The Board regarded the latter as demonstrating that it would be obvious to connect a diode or triode across the separator tube of Applegarth "to render it inoperative in the presence of noise." However, it is not apparent that one skilled in the art would have found it obvious to add a circuit to suppress noise to a receiver already equipped to reduce the effect of noise by clipping the noise pulses. Even if Martinelli were held to suggest substitution of its noise-cancelling circuit in Applegarth, we do not see that it would have been obvous to empoly that circuit in any manner which resulted in its being supplied with a dynamic bias from the Applegarth separator tube circuit. Accordingly, the rejection grounded on Applegarth as a basic reference is reversed.

Summary

[3] The rejection of claims 1–3, 11, and 12 on the grounds that the reissue oath is defective is reversed as is the rejection of claims 11 and 12 on the basis of "new matter." The rejection on prior art is reversed as to claims 1 and 2 and affirmed as to claims 3, 11, and 12.

The decision is affirmed as to claims 3, 11, and 12 and is reversed as to claims 1 and 2.

MODIFIED.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,656,508, W. H. Coulter, MEANS FOR COUNTING PARTICLES SUSPENDED IN A FLUID; **2,869,078,** Coulter and Coulter, Jr., FLUID METERING APPARATUS; **2,985,830,** Coulter, Berg and Heuschkel, SCANNER ELEMENT FOR PARTICLE ANALYZERS, **filed** Sept. 6, 1967, D.C., S.D.N.Y., Doc. 67–C–3419, *Coulter Electronics, Inc.* v. *New York University et ano.* Consent judgment, plaintiff owner of Patent 2,656,508 and those portions of plaintiff's complaint relating to plaintiff's Patents 2,869,078 and 2,985,830 are dismissed, Aug. 31, 1970.

2,682,151, Simpson and Randall, BOOM FOR CONFINING MATERIAL FLOATING ON WATER, **filed** Aug. 19, 1970, D.C., N.D. Calif. (San Francisco), Doc. C–70–1768 RFP, *James Murray Simpson* v. *Kepner Plastics Fabricators, Inc. et al.*

2,855,735, F. A. Groth, PACKAGING PROCESS, **filed** Apr. 24, 1968, D.C., N.D. Ohio (Cleveland), Doc. C68–295, *Whittaker Corporation* v. *Litho Color Printing Corporation.* Consent judgment, patent valid; defendant permanently enjoined, Aug. 3, 1970.

2,869,078. (See 2,656,508.)

2,985,830. (See 2,656,508.)

3,044,878, O. S. Knedlik, PROCESS FOR THE PREPARATION OF A BEVERAGE; **3,108,449,** C. M. Lents, MACHINE FOR MAKING AN ICY PRODUCT WITH TORQUE SENSITIVE CONTROL, **filed** Aug. 25, 1967, D.C., N.D. Tex. (Dallas), Doc. 3–2209, *John E. Mitchell Company et al.* v. *The Cornelius Company et al.* Consent judgment, plaintiff owner of patents, said patents are valid and infringed, July 27, 1970.

3,089,712, S. J. Kosik, SPLASH GUARD; **3,116,072,** Robb and Kosik, Jr., REINFORCED SPLASH GUARD, **filed** May 1, 1970, D.C., N.D. Ohio (Toledo), Doc. C–70–128, *Koneta Rubber Company, Inc. et al.* v. *Truck-Lite Trailer Products, Inc. et al.*

3,092,530, W. A. Plummer, HEAT PROTECTIVE SHEATHING; **3,467,761,** same, ELECTRICALLY SHIELDED HEAT-REACTIVE JACKET FOR CONDUCTORS, **filed** Aug. 4, 1970, D.C.N.J. (Newark), Doc. 1045–70, *Walter A. Plummer* v. *Herbert G. Bostrom et al.*

3,108,449. (See 3,044,878.)

3,116,072. (See 3,089,712.)

3,227,158, J. W. Mattingly, METHOD AND APPARATUS FOR ORAL HYGIENE; **3,393,673,** same, ORAL HYGIENE APPARATUS; **Reg. No. 762,414** (WATER PIK). Aqua-Tec Corporation, Readily portable oral hygiene appliance utilizing a pulsed jet of water for massaging the gums and cleaning spaces adjacent the teeth; **Reg. No. 785,673** (WATER PIK AND DESIGN), same; **Reg. No. 859,233** (NORTHERN), Northern Electric Company, Electric heating tapes, electric heating pads, electric heating gutter cables, cord sets, and electric vaporizers of general utility (Class 21); Electric tooth brushes (Class 29); Humidifiers (Class 34); Electric socks (Class 39); Electric bed covers (Class 42); Electric vaporizers, sterilizers, massagers, curling irons, baby bottle warmers, devices for fluid conditioning facial tissue, heating pads, and a portable oral hygiene appliance utilizing a pulse jet of water for massaging the gums and cleaning the spaces adjacent the teeth (Class 44), **filed** Sept. 8, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2003–IH, *Northern Electric Company* v. *Teledyne Ryan Aeronautical Co.*

3,262,626, P. Davis, CUP, **filed** July 16, 1970, D.C. Mass. (Boston), Doc. 70–937–F, *Sweetheart Plastics Inc.* v. *Illinois Tool Works Inc.*

3,321,081, A. H. Willinger, AQUARIUM FILTER APPARATUS; **3,392,836,** same, AQUARIUM WATER CONDITIONING APPARATUS, **filed** Sept. 4, 1970, D.C. Mass. (Boston), Doc. C.A. 70–1143–C, *Metaframe Corporation* v. *Plast-O-Pak, Inc. and Alfred Weaver.*

3,328,141. (See 3,429,080.)

3,391,037, J. D. McNulty, METHOD OF COVERING JOINTS FOR INTERIOR WALL CONSTRUCTION, **filed** June 29, 1970, D.C., N.D. Ohio (Cleveland), Doc. C–70–610, *Plastering Development Center, Inc.* v. *Perma Glas-Mesh Corp.*

3,392,836. (See 3,321,081.)

3,393,444, Peters and Boothe, METHOD FOR ASSEMBLING PLASTIC BOXES, **filed** May 21, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1220, *Eli Lilly Co.* v. *Mid West Automation.* Consent judgment, Patent valid and infringed, permanent injunction granted, Aug. 25, 1970.

3,393,673. (See 3,227,158.)

3,417,569, W. N. Laughlin, PROTECTIVE COATING AND METHOD; **Reg. No. 809,110** (SPLASHTRON AND DESIGN), Mark Tool Company, Inc., Synthetic rubber sheathing for use on oil and gas flow lines as protection against salt water corrosion; **Reg. No. 732,361** (PLASTRON), William N. Laughlin, doing business as Mark Tool Company, Synthetic rubber blast joints used to protect the tubing in oil and/or gas wells, **filed** Aug. 3, 1970, D.C., E.D. La. (New Orleans), Doc. 70–2075–G, *W. N. Laughlin and Mark Tool Company, Inc.* v. *Royal Industries, Inc.*

3,429,080, R. L. Lachapelle, COMPOSITION FOR POLISHING CRYSTALLINE SILICON AND GERMANIUM AND PROCESS; **3,328,141,** same, PROCESS FOR POLISHING CRYSTALLINE SILICON, **filed** Aug. 6, 1970, D.C.N.J. (Trenton), Doc. C–1050–70, *Tizon Chemical Corporation* v. *Process Research Products.*

3,467,761. (See 3,092,530.)

3,483,523, Cogar, Sekse, Banziger Ming and Horvath, DATA RECORDING AND VERIFYING MACHINE, **filed** Aug. 18, 1970, D.C., S.D.N.Y., Doc. 70–3584, *Mohawk Data Sciences Corp.* v. *Honeywell Inc.*

3,496,635, McLean, Chatfield and Turner, REMOVABLE HAND LEVER AND WEAR COMPENSATING CAN OPENER CONSTRUCTION, **filed** June 17, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c1455, *Rival Manufacturing Company* v. *Dynamics Corporation of America, doing business as Waring Products Division.*

Re. 26,656, R. W. Guzzardo, CONTAINER FABRICATING AND ORIENTING APPARATUS, **filed** Apr. 30, 1970, D.C., N.D. Ind. (South Bend), Doc. 70–S–42, *E. M. Melahn* v. *Haskon, Inc.* Action dismissed with prejudice, Aug. 31, 1970.

Reg. No. 732,361. (See 3,417,569.)

Reg. No. 762,414. (See 3,227,158.)

Reg. No. 785,673. (See 3,227,158.)

Reg. No. 809,110. (See 3,417,569.)

Reg. No. 859,233. (See 3,227,158.)

REISSUES

DECEMBER 15, 1970

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,001

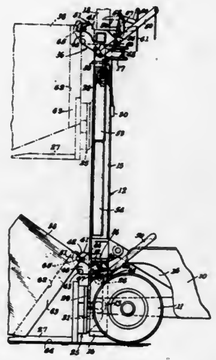
FORKLIFT ELEVATING AND BIN-TIPPING MECHANISM

William A. Allen, San Bernardino, Calif., assignor to Jarke Corporation, a corporation of Illinois

Original No. 3,358,862, dated Dec. 19, 1967, Ser. No. 520,958, Jan. 17, 1966. Application for reissue Dec. 31, 1968, Ser. No. 794,831

Int. Cl. B65b *69/00*

U.S. Cl. 214—317 **6 Claims**



This invention includes in a forklift truck construction a vertical mast comprising a pair of spaced vertical inwardly facing channels constituting guides for the vertical movement of a slide, the slide mounting a carriage provided with forwardly directed lift forks. The upper end of the vertical mast is provided with a vertical extension, this extension including a pair of spaced depending tubes which are telescopically received in tubular guides mounted at each side of the mast, there being provision for locking the depending tubes in the tubular guides. Both the vertically extensible upper end portion of the vertical mast and the main mast structure are provided with a pair of vertically spaced manually actuated hook-provided arms, whereby the vertical extensible upper portion of the mast when adjusted will locate the hook-provided arms at predetermined vertical positions. The vertical extensible upper end portion of the vertical mast includes movable means which is shiftable to a position in the path of travel of the carriage so that movement of the carriage will move the vertical extensible upper end portion of the mast relative to the guide frames. The hook-provided arms include hook portions which are shiftable to a position rearwardly clear of the forward face of the carriage or movable to a projected position with the hooks forward of the carriage face in the path of travel of a container, the container being provided with aligned pivot pins at its lower rear corners adapted for engagement with the hooks. By shifting the fork with respect to the container when positioned on the hook, the container may be swung on its pivots for discharge of the material contained therein.

27,002

TWO STAGE COMMINUTOR

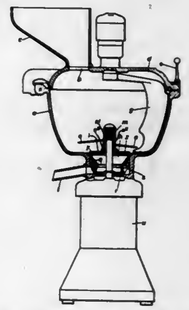
Siegfried Stephan and Fritz Otto, Hameln (Weser), Germany, assignors, by mesne assignments, to Belder Trust Reg., Vaduz, Liechtenstein

Original No. 3,313,332, dated Apr. 11, 1967, Ser. No. 359,543, Apr. 7, 1964, which is a continuation of Ser. No. 49,278, Aug. 12, 1960. Application for reissue Aug. 30, 1968, Ser. No. 756,693

Claims priority, application Germany, Aug. 12, 1959, St 15,455

Int. Cl. B02c *18/12*

U.S. Cl. 146—192 **11 Claims**



A comminutor comprising a pre-comminutor and a fine-comminutor located subsequent to said pre-comminutor in the direction of material flow, an apertured plate between the comminutors with means to vary the size openings therein or to completely close the openings, and mixing means in the pre-comminutor.

27,003

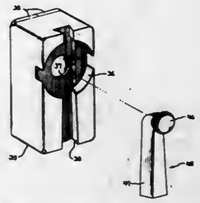
HOUSING FOR INDICATING LAMP OR OTHER ELECTRICAL COMPONENTS

Herman Rueger, Lancaster, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Original No. 3,289,200, dated Nov. 29, 1966, Ser. No. 436,514, Mar. 2, 1965, which is a continuation-in-part of Ser. No. 318,977, Oct. 25, 1963. Application for reissue Nov. 27, 1968, Ser. No. 786,497

Int. Cl. G09f *9/00*

U.S. Cl. 340—381 **11 Claims**



An indicating light comprises a dielectric housing in which a light bulb and electrical leads connected to the filament of the light bulb are housed. An opening is provided in a front part of the housing in alignment with a section of the light bulb. A lens member is positioned in an aperture of a panel and it contains a section for en-

gagement with the housing to maintain the housing in position on the panel and in alignment with the housing opening.

27,004

PROCESS FOR THE PREPARATION OF CARBONYL COMPOUNDS CONTAINING A HINDERED PHENOL GROUP

Eric A. Meier, North Brunswick, N.J., and Martin Dexter, Briarcliff Manor, N.Y., assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

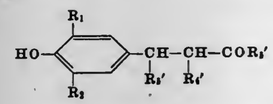
No Drawing. Original No. 3,247,240, dated Apr. 19, 1966, Ser. No. 164,619, Jan. 5, 1962. Application for reissue Aug. 17, 1966, Ser. No. 576,173

The portion of the term of the patent subsequent to Feb. 18, 1981, has been disclaimed

Int. Cl. C07c *39/02, 69/76, 103/26*

U.S. Cl. 260—473 **14 Claims**

1. The process for the preparation of compounds of the formula:



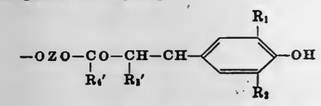
wherein

R_1 is a member selected from the group consisting of secondary alkyl and tertiary alkyl

R_2 is alkyl

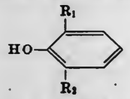
each of R_3' and R_4' is a member selected from the group consisting of hydrogen, alkyl, aryl, alkaryl, aralkyl and carbalkoxy, and

R_5' is a member selected from the group consisting of alkoxy, amino, alkylamino, dialkylamino, alkyl, hydrogen and the group



in which Z is alkylene and R_1, R_2, R_3' and R_4' are as above defined,

which comprises treating a compound of the formula:



in which R_1 and R_2 are as above defined with about an equimolar amount of a compound of the formula:



in which R_3', R_4' and R_5' are as above defined, in the presence of from about .05 to about .25 molar equivalent amount of an alkali metal base *or a quaternary ammonium base* and at a temperature from about 25° C. to about 200° C.

27,005

ELECTRON REFLECTION SEAM TRACKER

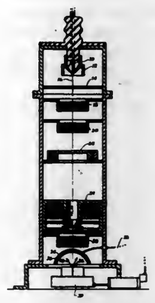
Edward C. Wingfield, Wethersfield, Conn., and Richard H. Graham, deceased, late of Glastonbury, Conn., by Patricia M. Graham, executrix, Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Original No. 3,426,174, dated Feb. 4, 1969, Ser. No. 512,630, Dec. 9, 1965. Application for reissue Aug. 15, 1969, Ser. No. 853,567

Int. Cl. H05b *7/18*

U.S. Cl. 219—121 **16 Claims**

A device is described for tracking and welding a seam formed between abutting workpieces to be welded along the seam by a beam of electrons wherein a detector is used which provides a voltage in response to reflected electrons generated by a beam impinging upon the workpieces in the vicinity of the seam. The beam cross-sectional size is commensurate with the separation of the workpieces along the seam for at least partial entry of the seam by the beam. The beam is deflected over the surface of the workpieces across the seam to generate a detectable pulse from the detector corresponding to the



entry of the seam by the portion of the beam and the thus amplitude modulated detector voltage is combined with a signal representing the deflection voltage to produce a signal representative of the deviation in time between the pulse in the detector voltage and a recurring value in the deflection voltage corresponding to a desired position of the seam. Thereupon the beam and the seam are moved relative to one another either by movement of the workpieces or by deflection of the seam to bring the beam directly onto this seam.

27,006

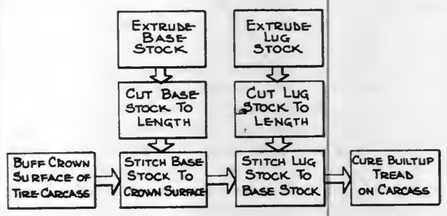
METHOD OF BUILDING A LUGGED TREAD ON A HEAVY DUTY TIRE

Bradley Eugene Ragan, Spruce Pine, N.C., assignor to Brad Ragan, Inc., Spruce Pine, N.C., a corporation of North Carolina

Original No. 3,464,874, dated Sept. 2, 1969, Ser. No. 603,340, Dec. 20, 1966, which is a continuation-in-part of Ser. No. 569,863, Aug. 3, 1966. Application for reissue Jan. 23, 1970, Ser. No. 5,404

Int. Cl. B29h *17/36*

U.S. Cl. 156—96 **8 Claims**



Renewed heavy-duty tires having lugged treads thereon are formed, in preparation for reuse by heavy off-the-road equipment, by buffing the worn tread face of a tire, extruding a length of base stock, promptly stitching a band severed from the base stock to the buffed tread face, extruding a length of lug stock, severing lug portions from the lug stock, stitching the lug portions to the band encircling the buffed tread face and curing the tire with build-up tread in an open steam vessel.

PATENTS

GRANTED DECEMBER 15, 1970

GENERAL AND MECHANICAL

3,546,708

TENT-LIKE GARMENT

Donald Chapman, Chalfont St. Giles, England, assignor to Uniroyal Limited, Edinburgh, Scotland, a corporation of Scotland

Filed July 25, 1968, Ser. No. 747,584

Claims priority, application Great Britain, Dec. 12, 1967, 56,350/67

Int. Cl. A41d *3/08*

U.S. Cl. 2—89 **8 Claims**



A protective garment having a top portion supported by the wearer's head and a skirt portion suspended from the top portion for enveloping, at will, a part of or all of the wearer's body. A transversely extending bottom wall is provided with an opening through which the garment may be donned and doffed.

3,546,709

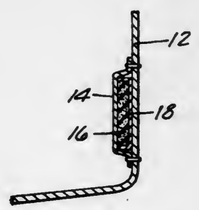
HAT FOR HOLDING ARTICLES

Bert S. Cross, Dellwood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed July 3, 1968, Ser. No. 742,301

Int. Cl. A01k *97/00*; A42b *1/24*; A42c *5/00*

U.S. Cl. 2—179 **2 Claims**



A hat having a hatband and flexible magnetic material within said hatband for attaching articles such as fishing flies to said hatband.

3,546,710

CARDIAC VALVE PROSTHESIS FOR SUTURELESS FIXATION

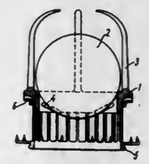
Valery Ivanovich Shumakov, Otkrytoe Shosse 1, korp 11, kv. 47; Evgeny Alexandrovich Ivanov, Krasnokholmskaya nab. 13/15, kv. 339; Boris Nikolaevich Patsev, 5 Parkovaya 54, korp. 3, kv. 27; Matvei Mikhailovich Mats, 5 ul. Sokolinoi gory 18-a, kv. 74; Alexi Alexandrovich Konoplev, Shosse Entuziastov 184-a, kv. 47; and Boris Pavlovich Vavilov, pl. Ilicha 1/2, kv. 123, all of Moscow, U.S.S.R.

Filed Dec. 12, 1966, Ser. No. 600,811

Claims priority, application U.S.S.R., Dec. 11, 1965, 1,041,807

Int. Cl. A61b *17/00*; A61f *1/22*

U.S. Cl. 3—1 **2 Claims**



A cardiac valve prosthesis in which a needle rim has needles which engage in curved channels in a valve seat when the rim is displaced towards the seat to emerge in curved form therefrom and cooperate with other needles on the rim to secure the prosthesis to myocardiac tissues. An instrument for mounting the prosthesis comprises a detent washer which has claws for engaging in recesses in the rim of the prosthesis and fingers which engage the seat on the prosthesis, the detent washer being supported in a displaceable holder which operates to displace the rim of the prosthesis when the claws are engaged in the recesses and the fingers engage the seat.

3,546,711

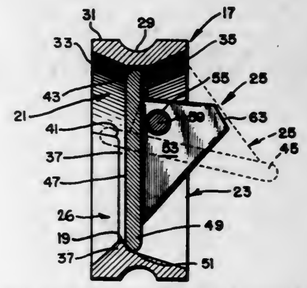
HEART VALVE

Jack C. Bokros, San Diego, Calif., assignor to Gulf Energy & Environmental Systems, Inc., San Diego, Calif., a corporation of Delaware

Filed Apr. 9, 1968, Ser. No. 719,985

Int. Cl. A61f *1/22*

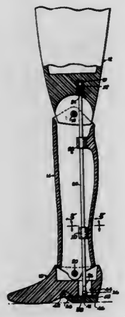
U.S. Cl. 3—1 **8 Claims**



A cardiac valve is made of size and shape suitable for insertion into a heart having a defective natural valve and is provided with a valve body having a central bore

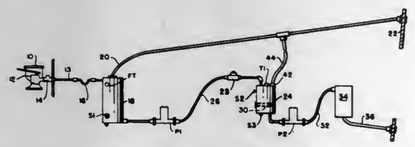
through which blood may flow with a minimum of turbulence. A valve gate is pivotally mounted in the bore of the valve body in a manner that allows the blood flowing through the valve to wash the surfaces of the gate to prevent thrombus formation on its surfaces. The gate is pivoted on surfaces which are also washed with blood and are protected from binding or entanglement in the event of growth of scar tissue about the valve body.

3,546,712
ARTIFICIAL LEG
May C. Tarte, 1312 NE. Miami Court, Miami, Fla. 33132
Continuation-in-part of application Ser. No. 554,617, May 3, 1966. This application July 9, 1968, Ser. No. 748,132
Int. Cl. A61f *1/04, 1/08*
U.S. Cl. 3—24 **10 Claims**

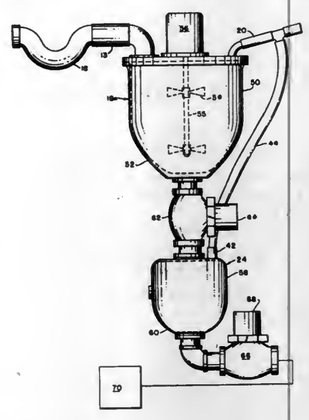


An artificial leg having articulated joints including means alternately retaining the joints between a relatively locked condition and free articulated condition to permit a user to assume a substantially normal gait, in which said means includes a one-piece lock rod reciprocably supported in a lower leg-simulating portion and terminally extending through the path of travel of relatively movable parts at the knee and angle joint, the lock rod being lockingly engageable at its upper end with a lock-socket and abuttingly engageable at its lower end with a displaceable socket in the foot portion of the artificial leg when a user's weight is applied thereon, and in which the rod is urged to an unlocked position when a user's weight is removed permitted by automatic displacement of the displaceable socket away from the lower end of the rod.

3,546,713
WASTE DISPOSAL SYSTEM FOR BOATS
Oscar J. Gagne, 90 N. Deeplands, Grosse Pointe, Mich. 48236
Filed Feb. 10, 1969, Ser. No. 797,760
Int. Cl. C02c *1/00, 1/40;* **B01d** *21/01*
U.S. Cl. 4—10 **12 Claims**

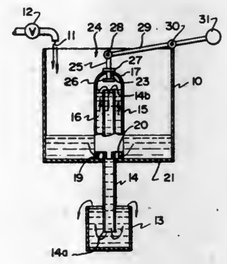


Toilet wastes are preferably macerated or comminuted and advanced to a storage tank. Measured small increments are successively withdrawn from the storage tank to a treatment tank and are there heated to a temperature sufficiently high to sterilize the waste. Thereafter,



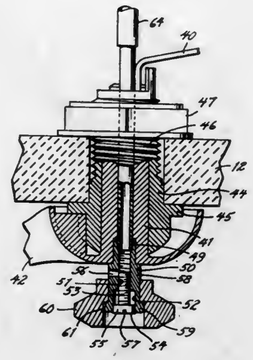
the sterilized waste is filtered to remove solids and the liquid pumped over the side of the boat.

3,546,714
FLUSHING APPARATUS
Frederic H. Middleton, 2025 Keeaumoku St., Honolulu, Hawaii 96822
Filed June 24, 1968, Ser. No. 739,273
Int. Cl. E03d *1/10*
U.S. Cl. 4—48 **14 Claims**



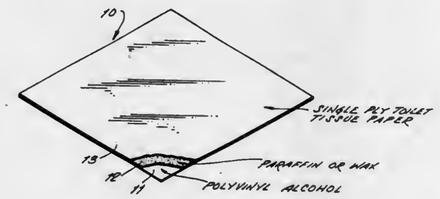
An improved flushing apparatus for use in a toilet or the like comprising a tank, a flush pipe with means enclosing the upper end of the flush pipe with a pocket of air, and means for reducing the pressure in the enclosing means so that water admitted to the lower end of the enclosing means will be siphoned into the flush pipe. One means for reducing the pressure of the air in the enclosed area comprises an outer pipe concentric with the flush pipe with a cap closing off its upper end whereby telescoping of the outer pipe about the flush pipe increases the enclosed area to reduce the pressure therein to cause siphoning of fluid into the flush pipe. The cap has an air bleed hole and means for opening and closing same to control the admission of air into the cap during siphoning of fluid into the flush pipe and during the refilling of the tank with fluid after the siphon has been broken. Another means for reducing the pressure of air comprises an eductor system connected to the cap which will draw out the air in the enclosed area above the flush pipe to cause siphoning of fluid into the flush pipe.

3,546,715
TOILET TANK FLUSH VALVE
William E. Wustner, 421 Sylvania Ave., Glenside, Pa. 19038
Filed Oct. 21, 1968, Ser. No. 769,335
Int. Cl. E03d *1/34*
U.S. Cl. 4—67 **7 Claims**



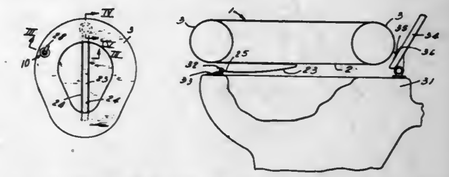
An adjustable toilet tank flush valve is provided, associated with the tank discharge handle, in which the discharge of water from the tank is reduced in accordance with the setting of an adjustable vent valve at the handle, a slidable control member being incorporated with the handle to override the reduced discharge as determined by the vent valve and permit of full tank discharge.

3,546,716
DISPOSABLE BEDPAN LINER
David H. E. Laumann, P.O. Box 960, Freehold, N.J. 07728
Filed June 19, 1968, Ser. No. 738,203
Int. Cl. A61g *9/00*
U.S. Cl. 4—112 **5 Claims**



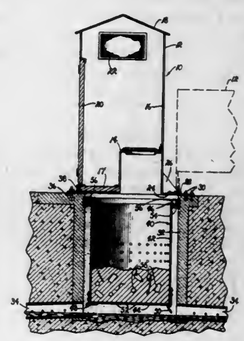
A disposable bedpan liner is provided which has a cold water-disintegratable or -soluble base film such as polyvinyl alcohol having a thin continuous water insoluble coating thereon, which may be made of microwax or paraffin modified for adhesion and flexibility with about 20 to 40% ethyl vinyl acetate polyethylene or other hydrophobic materials such as silicates, silicones or cellulose derivatives such as ethyl cellulose or nitro-cellulose and absorbent tissue paper (1-ply toilet tissue) on and adhered to the coating. The liner is very thin but of adequate tensile strength and resistance to human excrement but disintegrates in approximately five to ten seconds in contact with water when deposited in a toilet bowl or disposal system. Other paraffins and coatings of still other water-insoluble materials may be substituted which have the temporary water resistant properties required.

3,546,717
DISPOSABLE SINGLE-USE BEDPAN ARRANGEMENT
Henry S. Kuhn, 609 Austin, Park Ridge, Ill. 60068
Filed Feb. 16, 1968, Ser. No. 706,051
Int. Cl. A61g *9/00*
U.S. Cl. 4—113 **15 Claims**



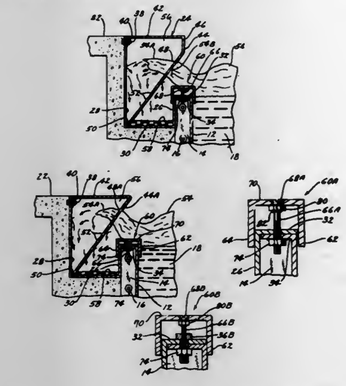
A disposable, single-use bed pan constructed from material which is impervious to air and water, the pan comprising a bottom portion and a hollow inflatable side wall portion, which may be stored in folded flat relation and subsequently inflated at the time of use. The structure is so constructed that by use of suitable means it may be inflated from the oxygen line present in the usual hospital room and is further cooperable with means associated with a toilet bowl structure or the like for rupturing the bottom of the pan while over such a bowl to permit emptying of the contents, the toilet structure preferably also being provided with means for rupturing the inflated portion of the device, following emptying thereof, whereby the same may be discarded in a deflated condition.

3,546,718
TOILET
Cristino A. Minnitte, Redding, Calif. (P.O. Box 46, Eagleville, Calif. 96110)
Filed Feb. 29, 1968, Ser. No. 709,337
Int. Cl. A47k *11/02*
U.S. Cl. 4—116 **3 Claims**



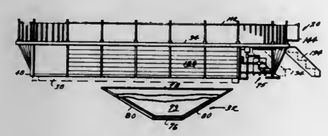
A structural apparatus for use by the public in answering calls of nature in outdoor areas, the apparatus including a superstructure or housing providing privacy for the user and having an apertured seat, the housing being pivoted to a foundational tubular substructure and swingable to a position providing access to a removable container supported within the substructure below the seat, the container being foraminous for catching and retaining foreign objects and debris but permitting human body waste matter to pass therethrough, the container having a pivotally connected bottom normally latched in closed position but releasable for gravitationally discharging the retained contents, after which the container with the bottom thereof closed is returned for support within the substructure.

3,546,719
SWIMMING POOL SKIMMING GUTTER
Kenneth M. Bishop, 310 Market St., Carlisle, Iowa 50047
Filed May 17, 1968, Ser. No. 729,996
Int. Cl. E04h *3/16*
U.S. Cl. 4—172.17 9 Claims

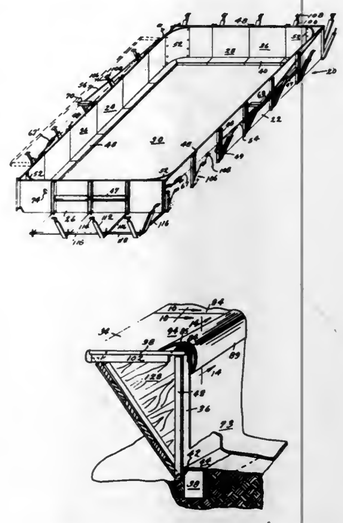


A device for controlling the flow of water from a swimming pool into the skimming gutter including an inner gutter wall adjustable in height and an apertured baffle plate extending diagonally inwardly and downwardly across the gutter forming two compartments in the gutter. The splashing waves against the apertured plate are divided into those passing through the plate into a first compartment and those being deflected downwardly into a second compartment in the skimming gutter. The diagonally disposed plate is integral with a top deck plate and has its lower end received in the outer gutter vertex formed by the outer and bottom gutter walls and thus strengthens the top deck plate. The baffle plate may have holes decreasing in size from top to bottom such that the splashing water passing through the top holes will be metered from the first compartment into the second compartment through the bottom holes.

3,546,720
RECTANGULAR SWIMMING POOL
Monroe P. Hoch, Wapwallopen, Pa., and Joseph Barrera, Long Beach, N.Y., assignors to Wilkes Pool Corporation, Berwick, Pa., a corporation of Pennsylvania
Filed Dec. 12, 1967, Ser. No. 689,886
Int. Cl. E02d *27/02*; E04c *1/10*; E04h *3/16*
U.S. Cl. 4—172.19 19 Claims

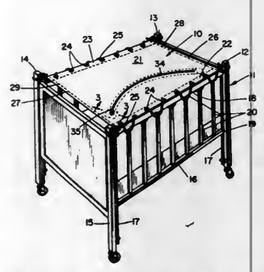


The rectangular swimming pool is assembled from prefabricated panels and framework. The sidewalls and end walls of the pool are above ground level, have channel or L-shaped lower portions, which are utilized to anchor the sidewalls to a cinder block or poured concrete foundation and have corner cove panels which prevent the stagnation of water in the corners of the pool. An elevated deck with leveling jacks extends entirely around the pool and is provided with a roll-away ladder. The deck is supported by horizontal deck support frame members and a lower



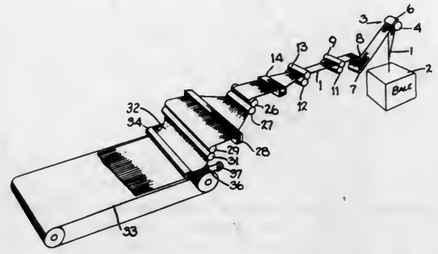
pool enclosure assembly with external torsion cables holding the deck in and down. The lower pool enclosure assembly has frame members which not only support the deck, but also carry decorative panels which extend from the ground to the outer edge of the deck to give the pool a pleasing appearance.

3,546,721
BABY CRIB CANOPY
Micharl Morency Cleary, 15309 Depauw, Pacific Palisades, Calif. 90272
Filed May 15, 1968, Ser. No. 729,247
Int. Cl. A47d *15/00*
U.S. Cl. 5—97 1 Claim



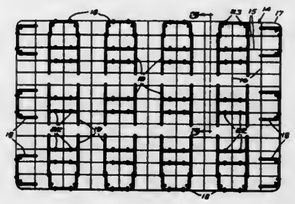
A canopy is provided in the form of a covering attachable at its edges to the top of a baby crib for securely and safely confining the baby within the crib. Located at an inner region of the covering is a pair of complementary curved edges which can be mutually connected and disconnected by a zipper. When the edges are disconnected, a substantially crescent shaped passageway is formed in the covering for access into the crib and when the edges are connected, the passageway is tightly closed to confine the baby within the crib.

3,546,722
CUSHIONING MATERIAL
George A. Watson, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
Application Dec. 30, 1964, Ser. No. 422,341, now Patent No. 3,423,795, which is a continuation-in-part of applications Ser. No. 382,018 and Ser. No. 382,263, both July 13, 1964. Divided and this application July 22, 1968, Ser. No. 761,376
Int. Cl. A47q *9/00*
U.S. Cl. 5—337 6 Claims



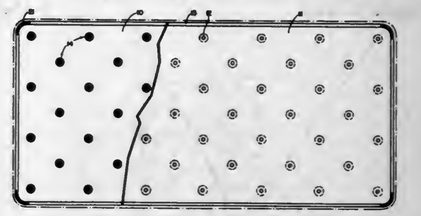
A pillow comprising a randomly crumbled cohesive web of deregistered continuous substantially parallel filaments.

3,546,723
BOX SPRING
Fred A. Ciampa, Angelo Serafini, and Louis Mazzarella, Boston, Mass., assignors to Standard Box Spring Co., East Boston, Mass., a corporation of Massachusetts
Filed June 7, 1968, Ser. No. 735,453
Int. Cl. A47c *23/02*
U.S. Cl. 5—247 6 Claims



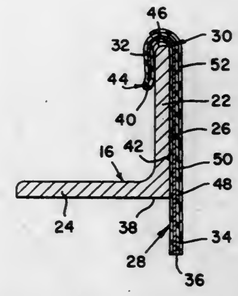
A box spring having a wood bottom frame with cross bars and a spring assembly made up of C-shaped and saddle-shaped springs. The saddle-shaped springs have spaced flat bottom legs, which are attached to adjacent cross bars of the frame, pairs of side legs converging upward from the ends of the bottom legs, and top legs, at right angles to the bottom legs, connecting the upper ends of the side legs together. The springs used around the border of the assembly each consists of spaced C-shaped portions with a top leg connecting their upper ends. A wire mat consisting of spaced longitudinal and transverse wires is laid over the springs and the top legs are secured to the longitudinal wires.

3,546,724
MATTRESSES
Jose de Araujo Bastos and Jose Roberto Ribeiro Bastos, both of Joana Angelica St., 15/301, Rio de Janeiro, Brazil
Filed July 8, 1968, Ser. No. 743,085
Claims priority, application Argentina, July 26, 1967, 208,744
Int. Cl. A47c *23/00, 27/08*
U.S. Cl. 5—351 3 Claims



An orthopedic mattress includes a pair of spaced apart non-deformable, flexible plates forming the top and bottom portions of the mattress. Rigid spacer posts are disposed between the plates as are springs under tension, the latter urging the plates toward each other to prevent unintentional separation and assuring that the plates will return to normal position after being flexed while applying bed covering thereto.

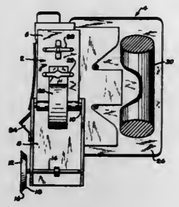
3,546,725
BEDFRAME WITH DECORATIVE TRIM STRIP
Nickolas A. Tambascio, Willoughby, Ohio, assignor to The Harvard Manufacturing Co., Bedford Heights, Ohio, a corporation of Ohio
Filed Jan. 22, 1969, Ser. No. 793,078
Int. Cl. A47c *19/00, 21/00*
U.S. Cl. 5—200 10 Claims



The invention comprises a bedframe having side rails of an L-shaped cross section and head and foot cross members for maintaining the side rails in spaced relationship in combination with a decorative strip for bedframes. A U-shaped member having one leg thereof longer than the other is of a resilient material and may have applied thereover a coating of plastic material. The long leg member may be coated on its outer surface by a means which provides a decorative effect to the strip. The short leg of the coated generally U-shaped member may be snap fitted over the upwardly extending leg of the side rail of the bedframe and may be fixedly held in place thereon. The long leg of the generally U-shaped member is adapted to fit flush with or to protrude

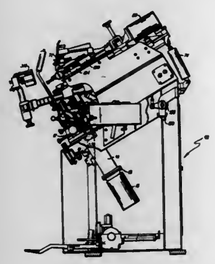
below the bottom portion of the upwardly extending leg so that when viewed from its side the side rail will be completely hidden and covered by the U-shaped member.

3,546,726
CARPET TUCKER
Peter S. Bizzigotti, 1418 Madison St., Hollywood, Fla. 33020
Filed Dec. 31, 1968, Ser. No. 789,051
Int. Cl. B26b *3/08, 11/00;* B25f *1/04*
U.S. Cl. 7—14.1 8 Claims



A carpet tucker including a connecting means for connecting the tucker to a carpet cutter, and a trailing, truncated, cone-shaped tucker wheel for tucking down the edge of the carpet.

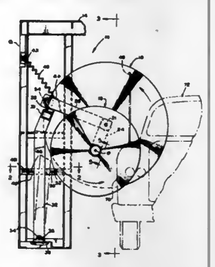
3,546,727
LASTING MACHINE HAVING UPPER CONFORMING YOKE
Heinz W. Stemmler, Wilmington, Mass., assignor to Jacob S. Kamborian, West Newton, Mass.
Filed Apr. 18, 1969, Ser. No. 817,521
Int. Cl. A43d *21/00*
U.S. Cl. 12—8.2 16 Claims



A lasting machine having a yoke so constructed as to conform an upper to the shape of a last on which the upper is mounted during relative rising movement of the last with respect to the yoke.

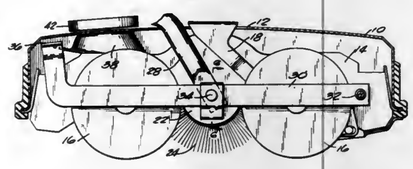
3,546,728
CAR WINDOW BRUSHING UNIT
Daniel C. Hanna, 1133 Riverton Drive, Portland, Oreg. 97201
Continuation of application Ser. No. 682,117, Nov. 13, 1967. This application June 27, 1969, Ser. No. 842,784
Int. Cl. B60s *3/06*
U.S. Cl. 15—21 13 Claims

A brushing unit **10** includes an open frame **12** bolted into an arch **14**. A smaller lower brush **16** and a larger upper brush **18** are mounted at opposite ends of tubular housing arm **24** carried by tubular housing arm **26** carried by vertical angular arm **32** pivotally mounted by a shaft **34** on the frame. A counterbalancing spring **40** urges the arm toward a slightly inclined position engaging a rubber bumper **46** and away from a more inclined position engaging a rubber bumper **50**. However, the weight of the brushes and the arms **24** and **26** just overcomes the force of the spring to normally lightly hold the arm **32** against the bumper **50**. A motor **54** bolted to one side of the arm **26** drives chain and sprocket drive trains in the



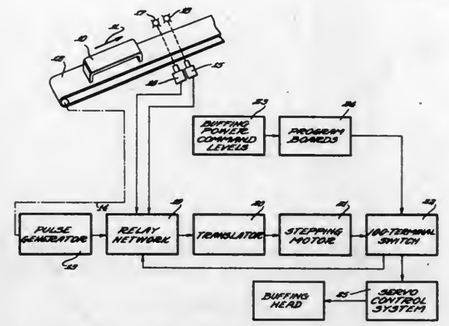
housing arms **26** and **24** to rotate the brushes. The brushes are rotated so as to sweep upwardly against a side of a car moved past the brushes to thoroughly brush all of the sill portion, the side windows, and the window frame portions of the car. The brushes have bunches of long bristles secured to hubs in spirals of the same direction and of pitches such that, as the car is moved laterally past the brushes, an aerial and any side mirrors move along in the spaces between turns of the spirals and no damage is done to these car accessories. Flexible rubber discs keep the bristles of the two brushes from intertangling.

3,546,729
MOUNTING ARRANGEMENT FOR BRUSH AND BAIL OF A FLOOR SWEEPER
Lester C. Miller, Sussex, and Henry A. Schnuell, Milwaukee, Wis., assignors to E.R. Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Jan. 8, 1969, Ser. No. 789,684
Int. Cl. A47l *11/32*
U.S. Cl. 15—41 3 Claims



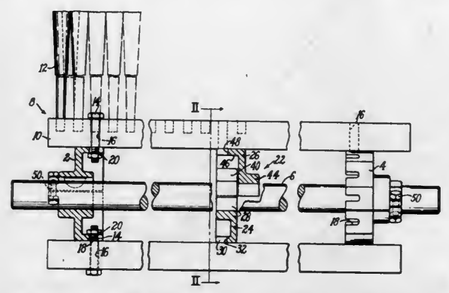
A mounting arrangement for the brush and bail of a floor sweeper which includes a U-shaped bracket having the ends of its legs pivoted to the sweeper casing at one side thereof; the bail and brush rotatably carried by the central portion of such legs, and the bridge of such bracket biased into engagement with an adjustable height stop at the other side of the casing. The force applied to the bail by the handle directly acts on the brush and through the bracket to the casing. The adjustable height stop sets the relative position of the brush casing and floor wheels for use on bare floors or carpeted floors.

3,546,730
AUTOMATIC BUFFING CONTROL SYSTEMS
Glenn J. Eggert and Mervyn E. Nicholls, Columbus, Ohio, assignors, by direct and mesne assignments, to Houdaille Industries, Inc., Buffalo, N.Y., a corporation of Delaware
Filed May 20, 1968, Ser. No. 730,438
Int. Cl. B24b *29/00*
U.S. Cl. 15—102 11 Claims



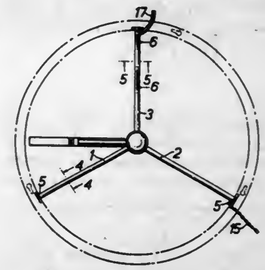
An automatic buffing control system including means for programming desired buffing power levels to the contour of an object being buffed which object is being carried by a continuously moving conveyor past a buffing head. The desired buffing levels are programmed to each incremental length of the object to be buffed, and the programmed buffing level is maintained by means of a control system. The control system includes means for sensing power delivered to the buffing motor and for generating a signal in response thereto. This signal is differentiated and combined with the program information to develop an error signal which in turn is used to increase or decrease the contact of the buffing wheel with the product being buffed.

3,546,731
ROTARY BRUSH ASSEMBLIES
Edward J. Ahern, Manchester, N.H., assignor to S. A. Felton & Son Company, Incorporated, Manchester, N.H., a corporation of Maine
Filed May 29, 1968, Ser. No. 733,062
Int. Cl. A46b *7/04*
U.S. Cl. 15—183 4 Claims



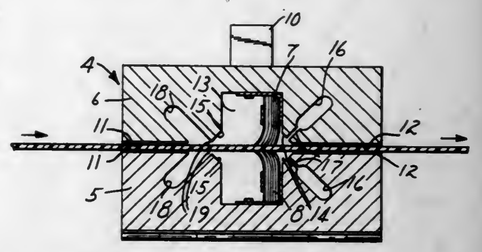
A rotary brush assembly comprising a plurality of brush portions, each portion mounting a plurality of brush segments having elongated plastic backing members, and means for interconnecting said brush portions and for anchoring said plastic backing members to inhibit bowing out of the brush segments during periods of brush usage at high rotational speeds.

3,546,732
HEADLAMP WASHER AND WIPER
Karl Otto Kuester, 465 McClement Drive, Collins Bay-Kingston, Ontario, Canada
Filed May 15, 1968, Ser. No. 729,350
Claims priority, application Canada, Mar. 28, 1968, 16,126
Int. Cl. B60s *1/52*
U.S. Cl. 15—250.01 6 Claims



A headlamp washer and wiper having a jet for spraying fluid onto a headlamp and a wiper blade which rotates from a position above the centre of the headlamp for removing grime.

3,546,733
WEB CLEANER
David G. Johnson, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Aug. 7, 1968, Ser. No. 750,801
Int. Cl. B08 *11/00*
U.S. Cl. 15—308 6 Claims

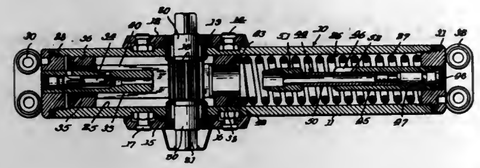


A web cleaner having a chamber through which a web is to pass and in which the web is brushed under the action of opposed brushes, one above and one below the plane of the web path forming a curtain across the chamber between areas of negative and positive pressure.

3,546,734
ADJUSTABLE BACKCHECK MECHANISM FOR DOOR CLOSERS
Roy L. Pollack and David G. Rowley, Princeton, Ill., assignors to Schlage Lock Co., San Francisco, Calif., a corporation of California
Filed July 10, 1968, Ser. No. 743,864
Int. Cl. E05f *3/10*
U.S. Cl. 16—52 8 Claims

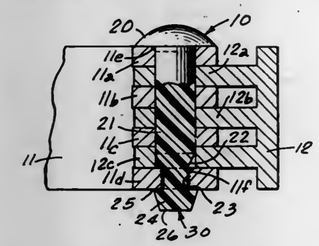
The invention is characterized by a tubular probe which extends inwardly from the end wall of the rear chamber of door closing and checking mechanism. A floating check

valve is carried by the rear piston of the door closing and checking mechanism and said check valve has telescoping relation with the tubular probe at a certain location in the reciprocating movement of the piston due to



the closing action of the door, whereby the piston upon telescoping the probe will trap hydraulic fluids in the rear chamber and which can escape only by flowing through a restricted passage provided by the tubular probe.

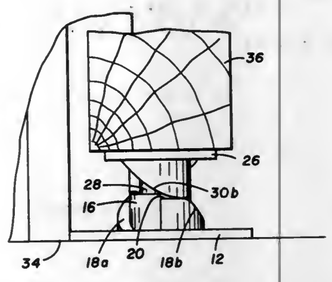
3,546,735
SPECTACLE HINGE PIN
Philip J. Lisutaud, Hoffman Estates, Ill., assignor to The Fendall Company, Chicago, Ill., a corporation of Illinois
Filed Mar. 13, 1967, Ser. No. 622,568
Int. Cl. E05d 5/10
U.S. Cl. 16—128 9 Claims



A hinge pin constructed of solid molded plastic for assembly with conventional spectacle temple-to-frame hinges. A plastic hinge pin is provided with a shank having a pivotal fin with respect to the hinge plate pivot apertures and integral yieldable means to retain it in position therein. One form provides a reduced diameter neck portion for fit within the conventional threaded retaining portion of one of the hingle plates and an enlarged terminal portion providing a substantial interference fit with the threaded portion and capable of passage through the threaded portion upon the application of substantial axial force. In assembled condition the pin can be withdrawn only by the application of an axial force, rotation of the hinge plate relative to one another having no disassembly tendencies.

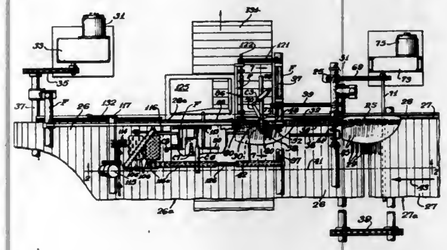
3,546,736
GRAVITY OPERATED DOOR HINGE
John S. Booth, 3314 Fairview, Dallas, Tex. 75229
Filed Aug. 19, 1968, Ser. No. 753,422
Int. Cl. E05f 1/07
U.S. Cl. 16—153 4 Claims

A gravity operated door hinge including a lower fixed member having a sleeve surrounded by a pair of upstanding, helical, inclined, camming shoulders and an upper rotating member having a stud mating with the lower member sleeve and helical upper camming surfaces engaging the camming shoulders. The upper camming surfaces are positioned so that they engage the inclined camming shoulders when the door is closed, to provide positive pressure seating the door in its closed position. The camming shoulders have a flat portion at their upper ends, so that when the door is opened wide



the camming surfaces are in engagement therewith to eliminate the torque pressing the door towards the closed position.

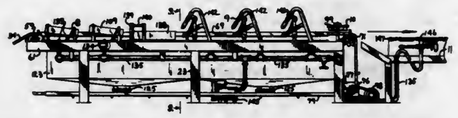
3,546,737
LOIN PULL AND RIB CUT MACHINE
Richard R. Neebel, Waterloo, Clarence L. Harms, Cedar Falls, James D. Neebel, Denver, and Richard E. Doerfer, Waterloo, Iowa, assignors to Doerfer Corporation, Cedar Falls, Iowa, a corporation of Iowa
Filed Apr. 8, 1968, Ser. No. 719,320
Int. Cl. A22b 5/20
U.S. Cl. 17—1 40 Claims



A machine for automatically performing loin pulling and rib cutting operations on pork sides, the loin pulling operation including a rib sawing operation, a loin cutting operation and a loin push-off operation, and the rib cutting operation leaving the ribs on the belly part of the pork side. The machine automatically feeds pork sides, and cuts, saws and mechanically separates portions thereof.

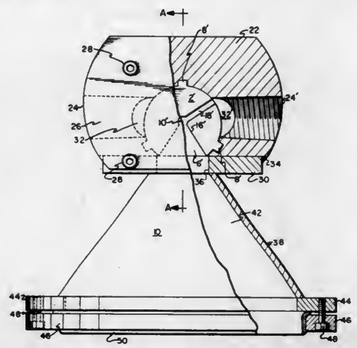
3,546,738
APPARATUS FOR DRESSING FISH
Howard F. Heck, 107 W. 7th St., Lawrence, Kans. 66044
Original application Feb. 23, 1967, Ser. No. 618,017, now Patent No. 3,453,684, dated July 8, 1969. Divided and this application Dec. 9, 1968, Ser. No. 782,236
Int. Cl. A22c 25/14, 25/17
U.S. Cl. 17—62 10 Claims

An apparatus for dressing fish wherein a fish is killed and the head portion removed from the body and then the body moved through the apparatus for dressing, the apparatus having a conveyor with connectors and operating structure for retracting and then engaging the connectors with the fish body to move same through the defined path, the apparatus including a slitting means to slit the belly of the fish longitudinally thereof. Spreader means along the path engage the sides of the belly to spread same and expose the interior of the body while members extend into the interior as the body is moved thereunder to remove the entrails therefrom. A heated



liquid bath is in the path for immersion of the body for heating the skin only, the fish body passing out of the bath and moved along the path where the apparatus includes high pressure flat liquid spray nozzles for directing streams into the interior and also onto the outer surfaces to remove skin layers leaving only the innerdermis on the body, the fish body then being delivered to an inspection table.

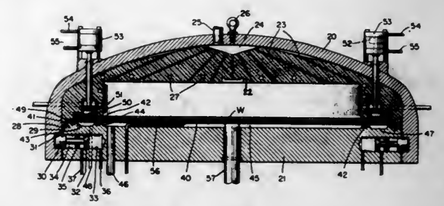
3,546,739
BICOMPONENT MANIFOLD
Andrew J. Callahan, Newport News, and Richard E. Harder, Williamsburg, Va., assignors to Dow Badische Company, Williamsburg, Va., a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,614
Int. Cl. D01d 5/28
U.S. Cl. 18—8 9 Claims



A manifold adapted for use in spinning bicomponent fibers comprising a unit adapted to be inserted as a feed to a bar-type spinnerette comprising a plurality of removable juxtaposed disc-like elements, wherein alternate elements simultaneously feed alternate spinning solutions radially to said spinnerette and wherein the composite feed to said spinnerettes is a rectangular cross-section polymer solution comprising alternate layers of polymer solution.

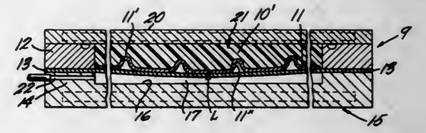
3,546,740
DIAPHRAGM-TYPE SHEET FORMING APPARATUS
Herbert G. Johnson, Havertown, Pa., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Aug. 14, 1967, Ser. No. 660,491
Int. Cl. B29d 17/00; B29c 3/00
U.S. Cl. 18—19 9 Claims

This application discloses diaphragm-type sheet forming apparatus and method for forming sheet blank workpiece material, especially plastic material, by such apparatus. The apparatus comprises a rigid die and an elastomeric diaphragm which is forced by fluid pressure into



the die against a sheet workpiece blank to force the blank against the die to form a shaped article.

3,546,741
MOLDING AND LAMINATING MOLDING APPARATUS
Robert L. Sorensen and Earle E. Brodhag, Westport, Conn., and John V. Cassanova, Racine, Wis., assignors to Time, Incorporated, New York, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 339,257, Jan. 21, 1964. This application May 23, 1968, Ser. No. 731,567
Int. Cl. B30b 5/02
U.S. Cl. 18—5 8 Claims

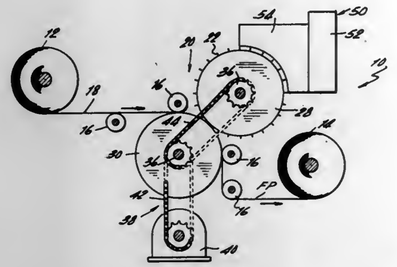


An electrotype printing plate is bonded to a plastic backing by apparatus including framing means and first and second plate means co-operating with the framing means to define an enclosure. At least one of the plate means is flexible without being locally deformable. An electrotype printing plate is placed in the enclosure together with a quantity of plastic to be bonded thereto. The quantity of plastic is such that the enclosure is charged to about 103% of its normal capacity, and the flexure of the flexible plate means permits closure of the plate means notwithstanding the overcharging of the enclosure. An insulating air space is preferably provided about the centers of the plate means so that after the plastic is bonded to the electrotype printing plate, thermal shock to the plastic is avoided during the cooling cycle and the plastic cools more rapidly at the edges than at the center. During the cooling of the plastic, the tendency of the flexed plate means to straighten out, augmented if necessary by a fluid pressure system, maintains the plastic under sufficient pressure to prevent the generation of gas bubbles and shrinkage lines in the plastic.

3,546,742
APPARATUS FOR PERFORATING THERMOPLASTIC FILM
Emanuel Kugler, 124 Richmond Place, Lawrence, N.Y. 11559
Filed Mar. 27, 1968, Ser. No. 716,459
Int. Cl. B26d 7/10; B26f 3/08
U.S. Cl. 18—10 6 Claims

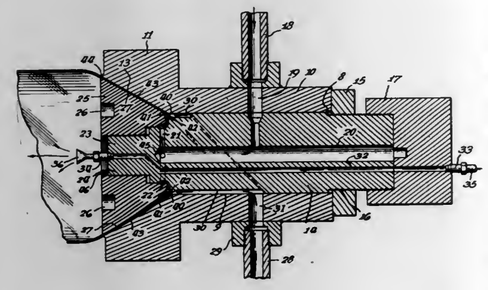
An apparatus and method for forming perforations in thin, flexible thermoplastic material whereby film is transported to a work station and is engaged by a plurality of probes which are moved into the work station at spaced

location and in timed relationship to the movement of the film. Prior to movement into the work station, the probes



are heated by an induction heating unit such that the film material is perforated at the location of each probe.

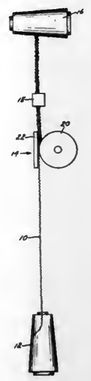
3,546,743
DIE FOR EXTRUDING LAMINATED PLASTIC TUBE
Donald Jacob Roth, Mankato, Minn., assignor by mesne assignments, to Northern Petrochemical Company, Omaha, Nebr., a corporation of Delaware
Filed Apr. 26, 1968, Ser. No. 724,405
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 **11 Claims**



Disclosed is a die for extruding a multiply laminated tube of plastic material. The die has means to adjust the thickness of each ply as it is formed and before containing the other ply. In addition, the die has means for pressing the plies together to facilitate bonding and to control the thickness of the laminated tubular product.

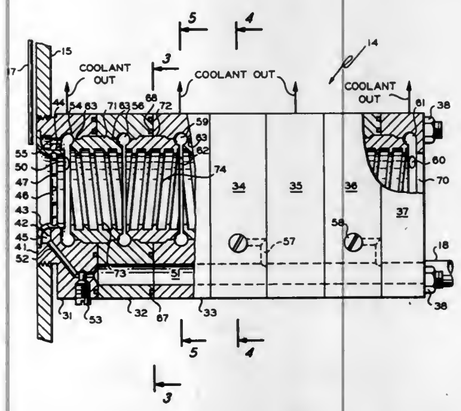
3,546,744
METHOD FOR DEPHASING TEXTURED YARN
Charles P. Mazzone, Dover, N.J., assignor to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 27, 1968, Ser. No. 716,533
Int. Cl. D02g *1/00*
U.S. Cl. 19—65 **2 Claims**

This invention relates to a method for dephasing a textured yarn. The method comprises the steps of running a multifilament textured yarn between the surfaces which are themselves in relative motion in the same direction as the running yarn, at least a component thereof being parallel to the axis of the running yarn under a tension ranging from 0.01 to 0.10 gram per denier and under a pressure sufficient to cause the two surfaces to bear resiliently upon the running yarn so as to effect intermittent separation of random short lengths of individual filaments from a main core of said yarn whereby the separated filaments are looped, curled or convoluted



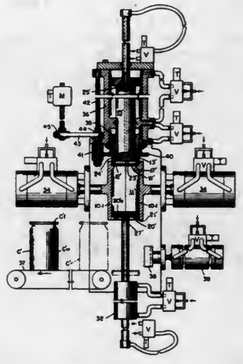
so as to project from the said same main core of yarn and receiving said textured multifilament yarn under a tension ranging from 0.01 to 0.10 gram per denier onto a suitable take-up device. This method for dephasing a textured yarn increases the overall bulkiness of the yarn.

3,546,745
EXTRUDATE SIZING SLEEVE
Lawrence J. Ball, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Feb. 29, 1968, Ser. No. 709,261
Int. Cl. B29d *23/04*
U.S. Cl. 18—14 **4 Claims**



A sizing sleeve is provided with a plurality of internally flat threaded sections, the threads at adjacent sections extending in opposite directions. The minor diameter, or crest diameter, of the threads is the desired external diameter for the extrudate. Coolant is introduced into the grooves between the thread crests at alternate section lines and withdrawn at the other alternate section lines to provide short paths of flow of coolant in direct contact with the external surface of the extrudate.

3,546,746
APPARATUS FOR FORMING HOLLOW ARTICLES OF WORK-STRENGTHENABLE PLASTIC MATERIALS
Herbert G. Johnson, Havertown, Pa., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 601,380, Dec. 13, 1966. This application May 19, 1969, Ser. No. 825,783
Int. Cl. B29c *17/02*
U.S. Cl. 18—19 **13 Claims**

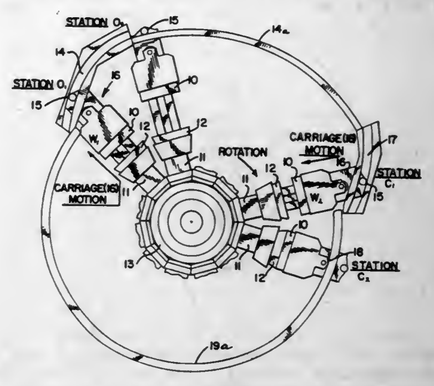


This application discloses method and apparatus for forming flanged hollow articles of solid-work-strength-enable tenaciously stretchable plastically-flowable materials, particularly crystalline polymers, such as polyethylene, polypropylene, and the like, and the article made thereby, wherein a female die unit with a tubular portion has an annular (but not necessarily always circular) peripherally confined blank-holding recess seat at one end, the female die unit being formed of separable parts, when desired; wherein independently power-actuated rim-clamping means having axial movement clamp a rim portion of a blank securely in said recess seat against pull-in and with the added function of squeezing inventory material of the rim inwardly, when desired; and wherein an independently power-actuated axially-movable article-forming plunger moves through said clamping means, preferably being guided thereby and sealed, to force the unclamped inner portion of the blank through the female die unit to pull bottom inventory material outward without extrusion action to form the side wall of the article.

An opposed cooperating independently power-actuated axially-movable bottom plunger may be provided to act against the bottom of the blank to control its shape during and at the end of the forming action, and, if desired, to eject the formed article. Means may be provided for supplying to or removing fluid from one or both sides of the blank to assist the flow of material and in ejection of the article, when desired. The arrangement of the rim-clamping means relative to the sidewall of the tubular portion of the female die unit and the shape of the forming plunger assist in the flow of material and in establishing the desired thickness of the sidewall of the article.

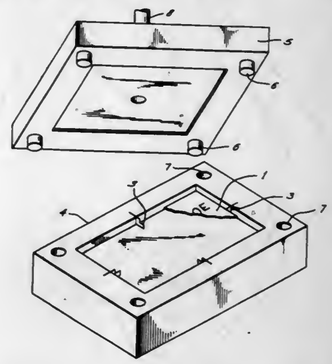
Means also may be provided for biaxially working the material of the rim, as by circumferential movement of pressure means acting thereon.

3,546,747
MOLD CARRIER
Rudolph J. Stefaniak, Munster, Ind., and Steven A. Bodnar, Harwood Heights, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Oct. 7, 1968, Ser. No. 765,330
Int. Cl. B29c *5/10*
U.S. Cl. 18—20 **9 Claims**



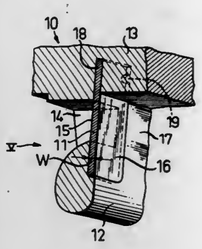
A carriage for the mobile half of a blow mold in a rotary blow mold machine. The carriage consists essentially of a rolling cage running on gibs. Carriage wheels take load radially in two recilinear planes. The axles of one wheel set are transverse to the plane of the mold wheel. The axles of the other set are parallel to the wheel plane. The carriage wheels run in channels, accepting load in either direction in the plane of the load, running clearance being minimal. The fixed mold half is supported upon the same gibs as the mobile half by means of a similar wheel arrangement for accurate alignment, together with ease of installation and adjustment.

3,546,748
IDENTIFICATION CARD FORMING DEVICE
John D. L. Gardner, 401 Houston, 1st Saving Bldg., Houston, Tex. 77007
Filed Mar. 1, 1968, Ser. No. 709,656
Int. Cl. B29d *3/00*
U.S. Cl. 18—36 **1 Claim**



An identification card that is tamper proof, being a card having identifying data bonded in plastic, and the means for producing same.

3,546,749
MOLD, ESPECIALLY VULCANIZING MOLD, FOR VEHICLE TIRES
Louis Wissel, Egestorf, Deister, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed July 8, 1968, Ser. No. 743,064
Claims priority, application Germany, July 6, 1967, C 42,803
Int. Cl. B29c *1/00*; B29h *17/00*
U.S. Cl. 18—44 **7 Claims**

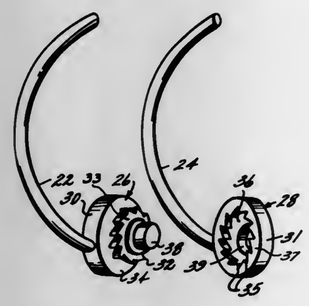


A mold for vulcanizing a vehicle tire having a tread surface with depressions and with web-shaped dogs in said depressions connected to one side wall thereof for engagement with the opposite side wall of the respective depression, said mold including an annular body with inwardly extending web-shaped protrusions having undercut recess means corresponding to the shape of the dogs to be formed, and plate means anchored in said annular body and forming part of said web-shaped protrusions while simultaneously forming a wall of said recess means.

ERRATUM

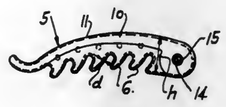
For Class 19—65 see:
Patent No. 3,546,744

3,546,750
FASTENER
Robert K. Sheehan, Anderson Township, Hamilton County, Ohio (6941 Maidmarian Court, Cincinnati, Ohio 45230)
Filed Oct. 25, 1968, Ser. No. 770,594
Int. Cl. A44b *21/00*
U.S. Cl. 24—16 **4 Claims**



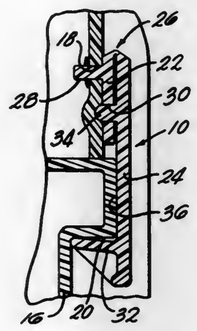
A fastener or cable tie comprising a pair of cooperating head members each having a set of ratchet teeth formed therein and which engage or mesh with a set of ratchet teeth in the other of said head members, a pair of curved cooperating arms each mounted upon its respective head member, the head members being pivotable about each other and rotatable about a common axial bearing, whereby rotation of one member relative to the other in one direction will cause the curved arm members to move towards each other to simulate a decreasingly smaller circle, thereby clamping cables, strands, and the like tightly and retaining same without the cable tie opening up, the set of ratchet teeth of one head locking the set of ratchet teeth in the other head to prevent reversed relative rotation of said heads and arm members.

3,546,751
PLASTIC TENSIONING LEVER OF A BUCKLE-TYPE FASTENING DEVICE FOR SKI AND MOUNTAINEERING SHOES
Loris Baso, Corso Milano 19, Padua, Italy
Filed Dec. 6, 1968, Ser. No. 781,863
Claims priority, application Italy, Dec. 16, 1967, 23,982/67; Sept. 24, 1968, 21,619/68
Int. Cl. A43c *11/14*
U.S. Cl. 24—70 **7 Claims**



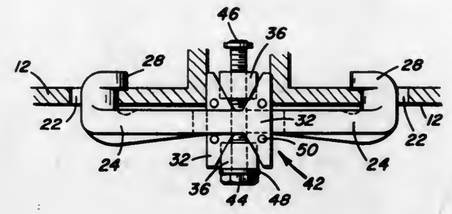
A tensioning lever for ski boots and mountaineering shoes wherein the lever is composed of a metal coated with plastic.

3,546,752
CLASP ASSEMBLY
Ronald J. Sargent, Ann Arbor, Mich., assignor to Thetford Corporation, Ann Arbor, Mich., a corporation of Michigan
Filed Mar. 21, 1969, Ser. No. 809,224
Int. Cl. A47k *13/26*; B65d *43/16*
U.S. Cl. 24—73 **10 Claims**



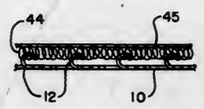
Apparatus for clasping two members together such as upper and lower sections of a portable toilet. A unitary clasp of thermoplastic material is provided having two hingedly connected plates, one of which is connected to one member and the other of which is connected by a clasp element to the other member. The two plates are interconnected when closed so that the hinge connection between the plates is not stressed when a load is transmitted from one member to the other member via the clasp.

3,546,753
CONTAINER COUPLER
Leopoldo C. Lafont, Newark, N.J., assignor to John J. McMullen Associates, Inc., New York, N.Y., a corporation of New York
Filed May 6, 1969, Ser. No. 822,234
Int. Cl. B65j *1/08*; B66c *1/42*
U.S. Cl. 24—81 **8 Claims**



Couplers for marrying containers to permit the simultaneous handling and transporting of two containers. Two containers are united by fitting the containers with two independent couplers, one being fitted at each lower corner of adjacent containers. Each coupler comprises a pair of coupler arms whose positions are determined by forces imparted by a pair of wedge members acting thereon. The couplers urge the containers toward one another and simultaneously define a spacing therebetween. Compression fittings are positioned between top corner castings of adjacent containers to ensure uniform spacing between containers.

3,546,754
SEPARABLE FASTENER
George H. Erb, Rte. 103, Cuttingsville, Vt. 05738
Filed Aug. 12, 1968, Ser. No. 751,831
Int. Cl. A44b *13/00*, *21/00*
U.S. Cl. 24—204 **7 Claims**

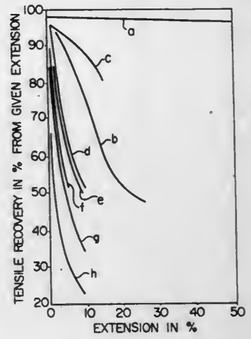


A hook member is formed from non-woven sheet material for use in a separable fastening device of the type having two complementary members each provided with an engaging surface having thereon a very large number of hooking elements of the hook and loop type; the members are joined by pressing the engaging surfaces together with a large number of hooks and loops becoming interengaged whereupon they become resistant to separation by forces generally parallel to the interface plane of the surfaces and are readily separable by peeling forces applied substantially normal to the plane. The hooks in the hook member are formed from portions of the non-woven sheet displaced out of the plane thereof into a generally upright position by the steps of displacing the portions of the sheet material, and deflecting and heat treating these portions to form the hooks.

3,546,755
PROCESS FOR PRODUCING NONWOVEN FABRICS
John Andrew Lynch, Jr., Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 660,583, Aug. 15, 1967. This application May 13, 1969, Ser. No. 824,267
Int. Cl. D04h *18/00*
U.S. Cl. 28—72.2 **5 Claims**

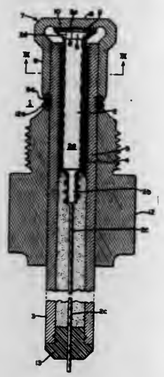
Nonwoven fabrics suitable for diapers or other absorbent purposes, and which can be disposed of in sewage systems after use, are produced by entangling regenerated cellulose staple fibers with high pressure liquid streams to form a strong fabric, phosphorylating the cellulose fibers with a combination of urea and phosphoric acid or hydrogen phosphate salt to provide a degree of substitution of 0.10 to 0.40 and applying a buffered solution of an alkaline salt, e.g., to substitute sodium phosphate on the cellulose fibers. Such fibers become slippery when wet with tap water so that the fabric breaks up readily in turbulent water.

3,546,756
METHOD FOR MANUFACTURING TEXTILE PRODUCTS HAVING IMPROVED CREASE RESISTANCE
Tohru Kitazawa and Kazutomo Ishizawa, Osaka-shi, and Toshio Ohta, Takarazuka-shi, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan, a company of Japan
Filed Aug. 13, 1968, Ser. No. 752,208
Claims priority, application Japan, Aug. 17, 1967, 42/52,836
Int. Cl. D06c *7/00*
U.S. Cl. 28—76 **10 Claims**



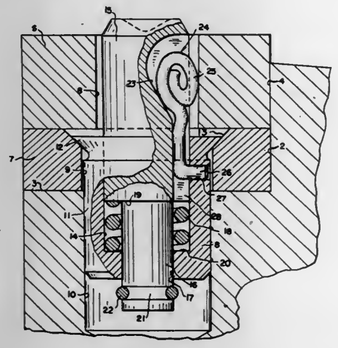
A method is disclosed for manufacturing textile products containing polypivalolactone fibers from 5 to 30% by weight and at least one kind of natural or regenerated fibers. The textile products are given an improved crease resistance by applying a wet thermal treatment at a temperature between 110 and 120° C. The product is subjected to the thermal treatment either in the form of spinning yarns or textile fabrics for the purpose of elasticization. Even in case of blending the polypivalolactone fiber at a relatively low blending ratio, products having an excellent elastic property can be obtained.

3,546,757
METHOD OF MANUFACTURING A VARIABLE CAPACITANCE TRANSDUCER
Leo Hoogenboom, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Original application Dec. 1, 1965, Ser. No. 510,894, now Patent No. 3,381,190, dated Apr. 30, 1968. Divided and this application Feb. 26, 1968, Ser. No. 740,417
Int. Cl. G01r *4/00*
U.S. Cl. 29—25.41 **1 Claim**



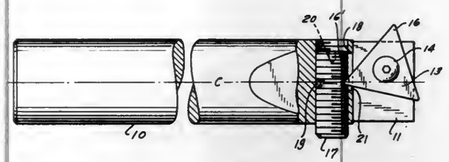
Method of making a variable capacitance transducer with a capacitive air gap by deforming the exterior surface of the transducer to adjust the capacitive clearance inside the transducer.

3,546,758
CUTTING TOOLS
Henry W. Stier, Dearborn Heights, Mich., assignor to Howmet Corporation, Greenwich, Conn., a corporation of Delaware
Filed Oct. 2, 1968, Ser. No. 764,528
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 **7 Claims**



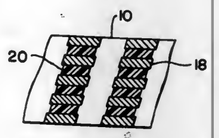
Cutting tools having a support member provided with a recess adapted to removably receive a cutting bit and means for holding the cutting bit in the recess, such means comprising essentially a mounting aperture in the cutting bit, a pin slidably disposed in the mounting aperture and in an aligned aperture in the bottom of the recess, a lateral inclined wedging surface on the portion of the pin disposed in the cutting bit mounting aperture, a wedging member in engagement with the wedging surface, and biasing means for urging the pin in a direction that causes wedging engagement of the wedge member between the wedging surface and a portion of the surface of the mounting aperture of the cutting bit.

3,546,759
CUTTING TOOL
Frank Sirola, 419 Getty Ave., Clifton, N.J. 07011
Filed Nov. 1, 1967, Ser. No. 679,924
Int. Cl. B23b *29/02*; B26d *1/00*
U.S. Cl. 29—98 **4 Claims**



A cutting tool for internal and external and facing which includes a tool holder such as a boring bar which is formed with a flat face or seat at the free end thereof which is located below the longitudinal center line of the bar. A cutter element having a plurality of cutting ends is pivotally mounted on said seat and is rotated to vary the position of one of the cutting ends by screw means mounted in an opening in said bar and operatively engaging another one of the cutting ends.

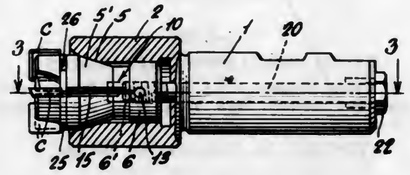
3,546,760
GEAR SHAVING CUTTER
Russell W. Anthony and Warren C. McNabb, Detroit, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Original application Nov. 21, 1967, Ser. No. 684,796. Divided and this application Nov. 20, 1969, Ser. No. 878,379
Int. Cl. B26d *1/12*
U.S. Cl. 29—103 **6 Claims**



A gear shaving cutter in the form of a steel gear having its teeth provided with a plurality of slots separating each tooth into a plurality of axially separated blades, the space between the blades of each tooth being substantially filled with a plastic material preferably yieldable and resilient, bonded to the adjacent side surfaces of the blades and supporting them against lateral thrust.

3,546,761
SMALL DIAMETER INDEXABLE ROTARY CUTTING TOOL
Homer D. Gage, Meadville, Pa., assignor to McCrosky Tool Corporation, Meadville, Pa., a corporation of Pennsylvania
Filed June 24, 1969, Ser. No. 836,050
Int. Cl. B20d *1/12*
U.S. Cl. 29—105 **10 Claims**

An indexable metal working tool of small diameter, which may have as many as four to six flat carbide indexable blades interchangeably inserted in variably indexed positions in radial vertical planes in a suitably split collet, and clamped between the jaws of the latter, by transforming a relative longitudinal movement between a tapered external surface on the collet and a mating internal surface in a holder therefor, into an inward radial movement of said jaws against the faces of the cutting blades. The blades are positioned accurately

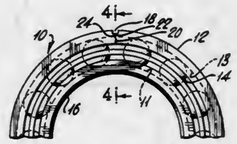


preparatory to their clamping by providing machined seats in said collet for one of the idle edges as well as clamping surfaces for the opposite faces of the flat indexable blades, in addition to locating stops for the blades afforded by a resilient split snap ring surrounding the jaws of the split collet, or by the end face of the tool holder, which may be suitably grooved to locate said stops more reliably.

ERRATUM

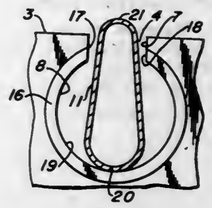
For Class 29—148.4 see:
Patent No. 3,547,601

3,546,762
METHOD OF MAKING AN ANTIFRICTION BEARING
Steven T. Martin, West Hartford, Conn., assignor to Textron Inc., Providence, R.I., a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,731
Int. Cl. B23p *11/00*; B21b *1/12*
U.S. Cl. 29—148.4 **16 Claims**



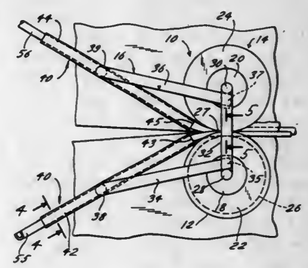
A method for fabricating a bearing structure of the split-ring type is described. The bearing outer race ring, after formation and hardening, is split to define a seam, and the fractured ends are separated to preassemble the bearing with antifriction elements and an inner race ring. The fractured ends are then joined by fusion-welding at the seam with an electron beam. In one method, the beam is directed axially at a radially outer portion of the seam, and in another method the beam is directed radially inwardly at the periphery, to effectively fuse the outer peripheral portions of the fractured ends to one another. In both methods, the fusion-welding is sufficiently localized to leave intact the original finish and heat treatment of the fractured ring.

3,546,763
HEAT EXCHANGERS AND THE METHOD OF MAKING SAME
Stephen F. Pasternak, Park Ridge, Ill., assignor to Peerless of America, Incorporated, Chicago, Ill., a corporation of Illinois
Original application Sept. 1, 1966, Ser. No. 576,599, now Patent No. 3,433,300, dated Mar. 18, 1969. Divided and this application Oct. 24, 1968, Ser. No. 770,338
Int. Cl. B23p *15/26*
U.S. Cl. 29—157.3 **11 Claims**



A method of fabricating a side-entry type heat exchanger wherein a flattened coil of tubing having a serpentine form is assembled in the slots of a plurality of slotted cross-fins, each slot having an entry portion the width of which is only a fraction of the outside diameter of the unflattened tubing and an enlarged body portion adapted to receive the expanded tubing, and the flattened tubing thus assembled is expanded by means of internal pressure while external pressure is simultaneously applied to maintain portions of the tubing in engagement with portions of the side walls of the respective body portions in which they are mounted.

3,546,764
DEVICE FOR SEALING THE ENDS OF FLEXIBLE FILM
James Clapp, Hillsdale, N.Y., assignor to Sunny Mead Farms, Inc., Hillsdale, N.Y., a corporation of New York
Filed Mar. 22, 1968, Ser. No. 715,305
Int. Cl. B21d *39/00*; B23p *19/00*; B32b *31/04*
U.S. Cl. 29—200 **5 Claims**



A sealing device for joining the ends of a flexible plastic film and adapted to releasably mount a sealing strip

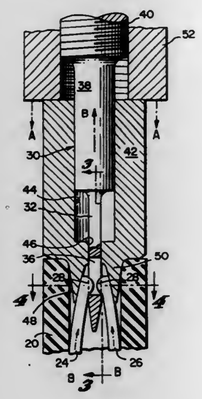
thereto comprising: a frame, an assembly means rotatably mounted to the frame, guide means for guiding the sealing means to the assembly means and a U-shaped member providing a hand-enagaging portion for moving the device so as to cause the assembly means to rotate so that the sealing strip and the plastic film are engaged by the assembly means whereby a continuous substantially air-tight seal is formed.

3,546,765

FEMALE ELECTRICAL CONTACT EXTRACTION TOOL

Robert J. Schenk, Pompton Plains, N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J., a corporation of Delaware

Filed May 9, 1968, Ser. No. 728,008
Int. Cl. B25b 27/02
U.S. Cl. 29—203 8 Claims



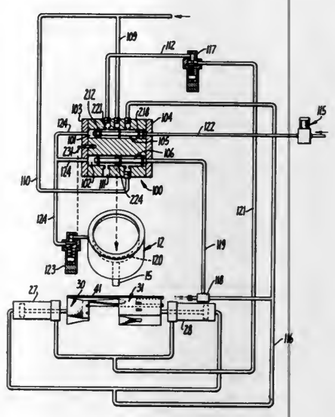
A device for extracting a forked connector from a mother board connector assembly wherein the connector features a pair of oppositely facing inwardly extending lobes on the free ends of the forked portion thereof. The extracting device comprises an elongated engaging member having a shank portion terminating in a tapered portion at one of its free ends. The thickness of the shank portion is slightly greater than normal spacing between the lobes on the forked connector. At its other free end the extraction member includes a cylindrically enlarged externally threaded portion for cooperating with an internally threaded bushing member engageable therewith. A second bushing member or clamp having a pair of tapered jaws on its downwardly extending free end is adapted for slideable displacement along the shank portion of the engaging member by rotation of the first mentioned threaded bushing member which latter magnetically engages the upper end of the clamping bushing. The tapered jaws on the clamping bushing are sized to engage each forked connector therebetween. In operation, the tapered terminal portion of the engaging member is inserted between the lobes of the forked connector until the latter engages the transverse opening in the shank portion thereof. The threaded bushing member is then rotated causing the clamping bushing to slide down along the shank portion of the engaging member until the jaws of the clamping bushing extend over the forked ends of the connector thereby firmly caming the lobes toward one another through the transverse opening in the shank portion of the engaging member and securing the lobes within this transverse opening. The connector may then be extracted from the mother board by manually gripping the threaded bushing member and exerting an axial force on the engagement member.

3,546,766

VALVE FOR CLIPPING APPARATUS

Karl A. Klenz, Oakland, Calif., assignor to Rheem Manufacturing Company, New York, N.Y., a corporation of California

Filed Sept. 16, 1968, Ser. No. 762,288
Int. Cl. B23p 11/00, 19/04
U.S. Cl. 29—208 5 Claims



A cylinder head constituting a valve for use with a clipping cylinder having a fluid driven punch for deforming a U-shaped clip about an article to be sealed, such as a flexible bag or sausage casing. Valve elements are provided within the cylinder head to effect economies in cost and to increase the speed and response of the apparatus by reducing the required piping and eliminating fittings.

3,546,767

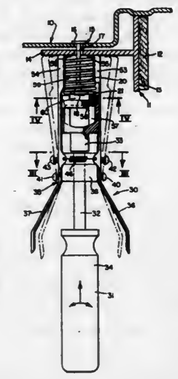
TOOL FOR REMOVING AND REPLACING SPRINGS AND WASHERS

Frederick R. McFarland, Lancaster, Pa., assignor to K-D Manufacturing Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Apr. 4, 1968, Ser. No. 718,746
Int. Cl. B23p 19/04
U.S. Cl. 29—227 10 Claims

A tool is provided, particularly adapted for removing and installing springs and washers which maintain brake shoes in engagement against brake drums. The tool is hand actuated and includes a socket for engaging a washer or cap at the end of a compression spring, the tool also having opposed spring-biased levers which engage behind an opposite end of the compression spring,

the washer-engaging socket being then movable longitudinally of the lever members for compressing the



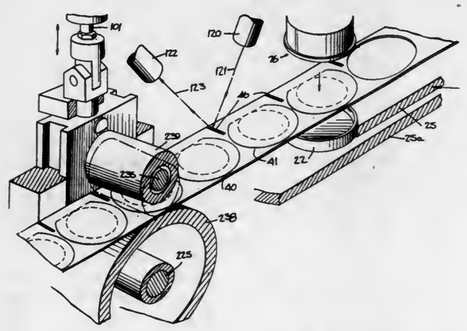
spring, during rotation of the socket member, for releasing the spring washer or cap from its spring pin.

3,546,768

REGISTRATION SYSTEM FOR PAPER LINING MACHINE

Daniel D. Acton, Charles S. Ochs, and Orris E. Mumford, Lancaster, Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio, a corporation of Delaware

Filed Oct. 23, 1967, Ser. No. 677,417
Int. Cl. B23q 17/00
U.S. Cl. 29—407 4 Claims



A method and machine for inserting printed liners in proper registration in articles such as closure caps wherein the liner feeding mechanism is indexed by means of a photo sensitive system in response to indicia marked on the liner material. The feed mechanism includes an intermittently-operated drive roller and a pinch roller which is raised and lowered by hydraulic means in response to the sensing means. Spaced indicia are provided near the edge of the liner material to be detected by the photo sensing means which provides a signal which causes the pinch roller to be raised to stop the advance of the liner material at the exact point where the printed liner and cap interior are in register. A switch actuated by the continually operating main drive system provides a signal which returns the pinch roller to the drive position for the next feed cycle.

ERRATA

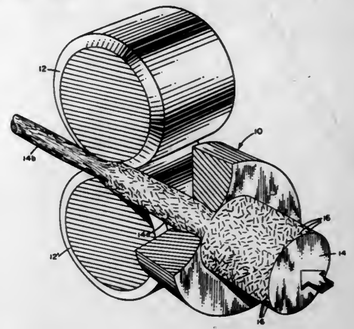
For Classes 29—416 and 29—418 see:
Patent Nos. 3,547,602 and 3,547,603

3,546,769

METHOD FOR MAKING METAL COMPOSITES

Arthur D. Schwope, Cleveland Heights, Robert W. Jech, Lakewood, and Edward P. Weber, Parma, Ohio, assignors to Clevite Corporation, Cleveland, Ohio

Application Oct. 11, 1963, Ser. No. 315,564, which is a continuation of application Ser. No. 822,838, June 25, 1959. Divided and this application Sept. 18, 1967, Ser. No. 668,510
Int. Cl. B22f 3/24
U.S. Cl. 29—420.5 7 Claims



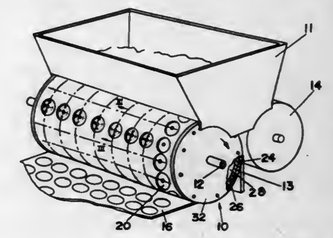
A composite metal structure of a powder metal matrix and a plurality of discrete metal fibers of a different metal distributed through said powder matrix. The matrix metal in powder form being combined, pressed, solid state sintered and worked to produce the composite.

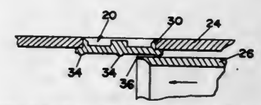
3,546,770

COOKIE CUTTER DIE CONSTRUCTION AND METHOD OF MAKING THE SAME

Frank C. Werner, Grand Rapids, Mich., assignor to Werner Machinery Company, Grand Rapids, Mich., a corporation of Michigan

Filed May 31, 1968, Ser. No. 733,683
Int. Cl. A21c 11/08; B23p 11/00
U.S. Cl. 29—429 8 Claims

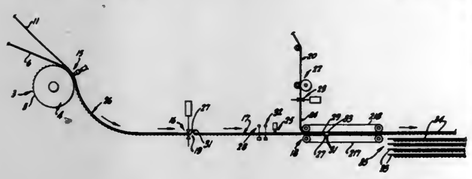




A die construction for cutting cookies in which die inserts are held in openings in an outer tubular cylindrical drum by an inner cylindrical drum. The die inserts have flanges which are positioned between the outer and inner

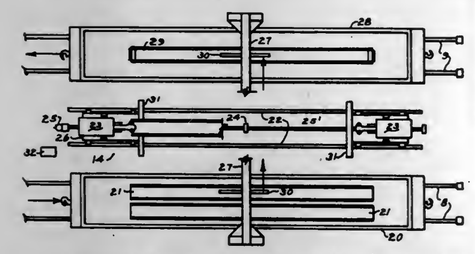
drums and the bottoms of the flanges have inwardly extending burrs which compensate for any tolerance between the flanges and the inner drum so that the flanges are maintained tightly against the inner wall of the outer tubular cylindrical drum. The inner drum has a sharpened end which on axial insertion into the outer drum—die inserts subassembly modifies the inner surface of the inserts to correct tolerance variations between the several parts and to provide for a tight assembly.

3,546,771
PAPER BACK LATH MAKING MACHINE
Wolfgang B. Fahrenbach, Oakland, Calif., assignor to Stryco Manufacturing Co., San Francisco, Calif., a corporation of California
Filed Sept. 20, 1968, Ser. No. 761,242
Int. Cl. B21f *27/00*; B23p *19/00*
U.S. Cl. 29—429 4 Claims



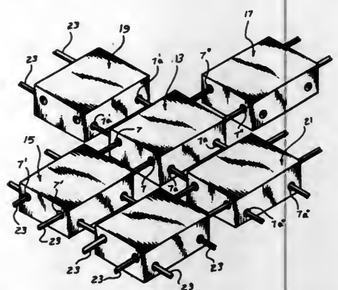
A method for making paper-backed wire lath sheets from continuous paper strips and continuous wires, the latter being in crossing relation at opposite sides of said strip and welded together at their crossing points through slots in said strip. The paper and wires are brought together on the outer periphery of a revolvable drum that includes welding electrodes, and aligning and positioning means in cooperative relation to the slots in the paper and wires for insuring the desired positioning of the wires at their crossing points for welding together through said slots.

3,546,772
STRUCTURAL MEMBER FABRICATING PROCESS
John R. McConnell, 148 Woodside Ave., Ridgewood, N.J. 07450
Filed June 17, 1968, Ser. No. 737,654
Int. Cl. B23p *17/00, 19/00, 19/04*
U.S. Cl. 29—430 1 Claim



A method is disclosed of handling and completely fabricating structural steel floor members from raw steel shapes into precisely fitting interlocking unit elements that form, with the necessary columns, a multiple-cell cage for the support of floors, roofs, walls and other elements. In a typical application of the process, a trailer-load or carload of raw shapes from the steel rolling mills is shunted alongside a longitudinally-disposed multiple fabricating apparatus, that includes a travelling hoist operable along a transverse overhead gantry runway spanning the apparatus and the necessary parallel delivering and shipping vehicles. Successive raw shapes are hoisted out of the delivering vehicle and lowered to the adjacent dual conveyor belts, that transversely move them individually into the operating area of the dual end-located three way drills, that simultaneously drill the webs and flanges of the shape near the ends, for attachment of pairs of end connection angles to the web of the shape. The flange holes permit the attachment to wind-bracing brackets located on the supporting columns. The intermediately located, vertically pivotable drills drill the web for floor beam connections. Moved onto the forward half of the apparatus, multiple rivets attached to a lower connection angle are heated, the angle is assembled to the beam web, an upper mating connection angle is placed over the projecting rivets and plural air hammers head the rivets over the three assembled pieces of steel. This operation is performed at each end of the shape. The now completed member is lifted off the dual belts and stacked in an empty parallel vehicle for outbound shipping. FIG. 4 best sets forth a typical example of this overall process that is applicable to other combinations of different fabricating operations.

3,546,773
PROCESS OF FABRICATING AN AMPHIBIOUS LOAD-SUPPORTING STRUCTURE
Harry Gerstin, Rolling Hills Estates, Calif., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Michigan
Filed Aug. 23, 1968, Ser. No. 754,781
Int. Cl. B23p *19/04*
U.S. Cl. 29—433 9 Claims



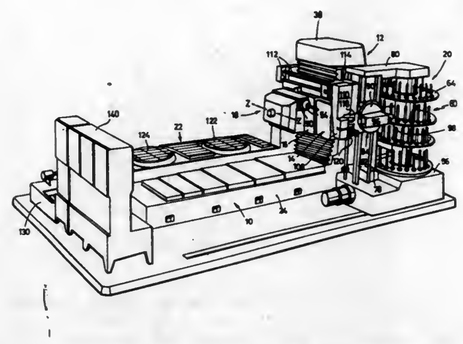
A method of in situ fabrication of bridging structures, docks, landing strips and like load-supporting structures. Polymer foam blocks having cable receiving conduits therein are produced from low bulk materials at or near the desired site, the blocks are assembled in edge to edge relationship and secured by cables traversing the conduits and anchored at the perimeters of the assembled structure. Surface reinforcement is an optional feature.

ERRATUM

For Class 29—491 see:
Patent No. 3,547,599

3,546,774
MACHINE TOOL
Theodor Stöferle, Ludwigsburg, Horst Hölzl, Oppenweiler, and Max Rosskopf, Marbach (Neckar), Germany, assignors to Karl Huller G.m.b.H., Ludwigsburg, Wurttemburg, Germany
Filed Apr. 1, 1968, Ser. No. 717,720
Claims priority, application Germany, Mar. 30, 1967, H 62,301
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 27 Claims

A machine tool for treatment of limited numbers of bulky workpieces which comprises a platform for several universal work tables, a frame having a base adjacent to the platform and a column reciprocable along the base lengthwise of the platform, a slide reciprocable on the column up and down, a carriage reciprocable on the slide in a horizontal direction at right angles to the direction of movement of the column, a turret with two parallel tool spindles mounted on the carriage for rotation about a horizontal axis, a tool magazine coupled

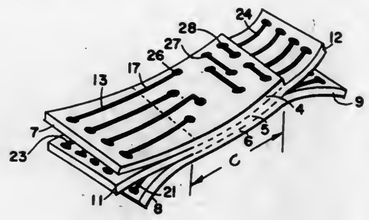


to the column for movement along the base, and a transfer mechanism which transports tools between the tool spindles and the magazine. The transfer mechanism has a first mobile unit which is mounted on the magazine and serves to withdraw tools from or to insert tools into the magazine and a second mobile unit mounted on the slide and serving to transport tools between the first unit and the tool spindles.

ERRATUM

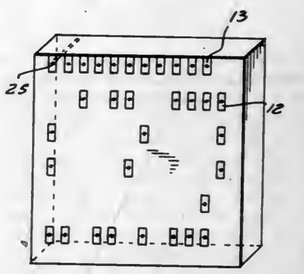
For Class 29—577 see:
Patent No. 3,547,604

3,546,775
METHOD OF MAKING MULTI-LAYER CIRCUIT
Harold Lalmond and Lewis B. Goody, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Original application Oct. 22, 1965, Ser. No. 501,199, now Patent No. 3,383,564. Divided and this application Mar. 4, 1968, Ser. No. 751,320
Int. Cl. H02g *15/00*
U.S. Cl. 29—625 10 Claims



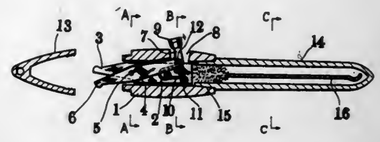
The present disclosure pertains to a method of making a three-dimensional circuit matrix which matrix comprises a circuit portion formed of a plurality of printed circuit layers insulatively separated from one another and end flaps extending from the circuit portion and enclosing take-off leads connected to the circuit layers; the end flaps enabling the circuit portion to be connected to externally disposed electrical apparatus.

3,546,776
PROCESS FOR MANUFACTURING A CERAMIC MULTILAYER CIRCUIT MODULE
Antonio R. Rodriguez, Franklinville, and John Cronin, Bolivar, N.Y., assignors to Aerovox Corporation, New Bedford, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 221,885, Sept. 6, 1962. This application Jan. 6, 1966, Ser. No. 519,094
Int. Cl. H05k *3/30*
U.S. Cl. 29—626 6 Claims



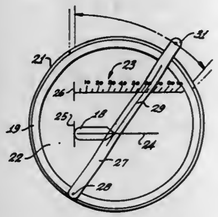
This invention relates to the art of multilayer circuit modules and more particularly to a module of ceramic material formed from a plurality of superimposed sheets of such ceramic material, each sheet having a metallized coating on at least one face with the sheets being retained in intimate contact by being subjected to pressure while lateral displacement thereof is restrained.

3,546,777
SCISSORS FOR TRIMMING HAIRS OF THE NOSTRILS
Katsuji Mori, 3–12–2 Chidori-cho, Gifu-ken, Ohgaki-shi, Japan
Filed Oct. 24, 1968, Ser. No. 770,228
Int. Cl. B26b *19/00*
U.S. Cl. 30—29.5 5 Claims



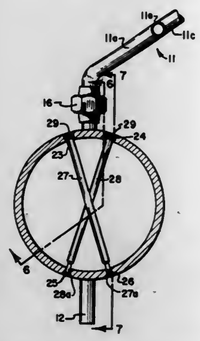
A convenient personal implement in a suitably closed case adapted to be carried in a pocket of a user and having a removable cap which exposes the cutting edges which are blunt to avoid a needle-like instrument which is dangerous in the use of personal trimming in or about the nose wherein the scissors are actuated by a push button mechanism to improve the convenience and to avoid the awkwardness of conventional scissor operation.

3,546,778
MENSURATION RETICLES FOR TUBE MAGNIFIERS
Joseph R. Lepkowski, Arlington, Va., assignor to System Development Corporation, Santa Monica, Calif., a general profit corporation of California
Filed Apr. 7, 1969, Ser. No. 813,840
Int. Cl. G01b *3/00*
U.S. Cl. 33—1 **12 Claims**



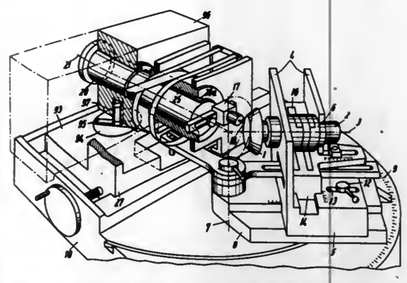
Mensuration reticles for measuring small objects, especially photographic images, which have an alignment axis remote from a scale, a zero index well inside the field of view of the magnifier, and a manipulatable index line for indexing the end of the object to be measured opposite the end engaging the zero index line, with the manipulatable index line intersecting the scale to indicate a reading thereon. Three physical embodiments are disclosed, in one of which the index line is mounted on a pivoted lever, in a second of which a rectilinearly movable index line has an adjusting screw which is disengageable from stationary threads for coarse adjustment, and in a third of which the manipulatable index line is mounted on an extension on a traveling nut.

3,546,779
MARKING MACHINE
Alec Klein, 9896 Sunflower Lane, Sandy, Utah 84070
Filed June 27, 1968, Ser. No. 740,532
Int. Cl. B43l *13/00*
U.S. Cl. 33—36 **4 Claims**



A roller wheel has an outer circumference dimensioned such that marker pens projecting therefrom provide spaced markings as the wheel is rolled along for the placement of building stud members and the like. The centerline measurements of the members will be at spaced standard distances. The marker pens are readily inserted and can be adjusted to provide continuous, effective marking. Guides are provided to insure proper travel of the roller and an elongate handle enables it to be used while walking.

3,546,780
APPARATUS FOR CHECKING THE PROFILES OF GEAR TEETH, ESPECIALLY BEVEL GEARS
Karl Heinz Weber, Huckeswagen, Germany, assignor to W. Ferd. Klingelnberg Sohne, Remscheid, Germany
Filed June 21, 1968, Ser. No. 738,987
Claims priority, application Germany, Aug. 4, 1967, K 63,026
Int. Cl. G01b *5/20*
U.S. Cl. 33—179.5 **3 Claims**

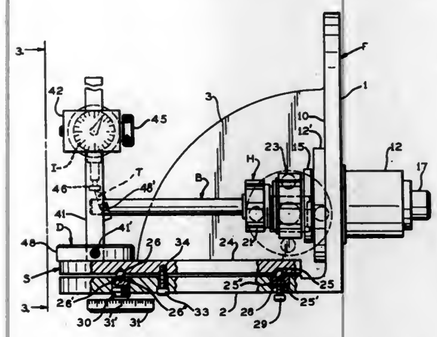


Gear checking apparatus having a base member in which a first shaft for supporting a gear is supported on a carriage mounted on the base member for movement transverse to the axis of the first shaft with simultaneous rotation of the shaft in the carriage. The carriage is adjustable in the direction of the shaft axis and also angularly relative to an axis vertical to the axis of the first shaft.

A second carriage on the base member has a second shaft rotatable therein. The second carriage is adjustable on the base member transversely to the axis of said second shaft with simultaneous rotation of said second shaft. A feeler adjustably carried by said second shaft engages the gear on said first shaft. A lever interconnects the carriages for simultaneous transverse movement thereof.

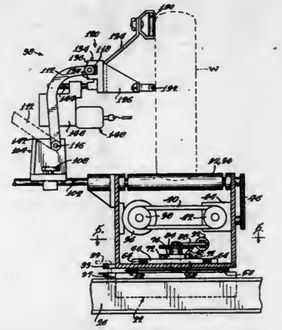
The second shaft is arranged for axial movement in said second carriage.

3,546,781
TOOL PRESETTING DEVICE
John R. Cox, Lakewood, and Joseph E. Mix, Cleveland, Ohio, assignors to Balas Collet Company, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 21, 1969, Ser. No. 792,309
Int. Cl. B27g *23/00*
U.S. Cl. 33—185 **13 Claims**



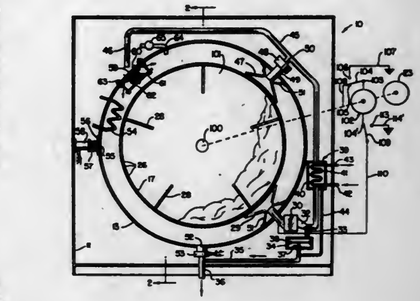
A tool presetting fixture including a frame structure having wall portions extending at substantially 90° to each other and an adapter having a longitudinal bore therein adapted to support a tool holder and mounted in one of the wall portions, the axis of the bore in the adapter extending substantially normally to the plane of the wall in which it is mounted. The other wall of the frame structure supports a subplate on an adjustable three point support whereby the subplate may readily be adjusted to extend at 90° to the surface of the wall in which the adapter is mounted and substantially exactly parallel to the common longitudinal axis of the tool holder and adapter. To preset a boring tool to bore a hole of an exact given diameter the boring bar is mounted in the tool holder which in turn is mounted in the adapter and the boring tool is adjusted in the bar so that, when measured with an accurate indicator device, its cutting point will be a predetermined distance from the surface of the subplate, the distance from the subplate to the tool holder axis being known.

3,546,782
AUTOMOTIVE WHEEL ALINING APPARATUS
Joseph H. Pereue, Rock Island, Wendell W. Lowry, Milan, and Milton A. Wertheimer, Rock Island, Ill., assignors to Applied Power Industries, Inc., a corporation of Delaware
Filed June 25, 1968, Ser. No. 739,773
Int. Cl. G01b *5/24*
U.S. Cl. 33—203.13 **17 Claims**



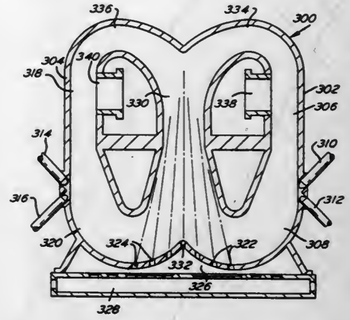
Apparatus for electrically measuring the various wheel alinement angles of automotive vehicle wheels such as camber, caster, toe, turning radius, etc., the apparatus being designed to permit measurement of such alinement angles while the front vehicle wheels are rotating so that measurements reflect normal road-load conditions, and the apparatus including a plurality of sensing arms which contact the side wall of a rotating tire and thereby determine the true plane of the wheel.

3,546,783
ELECTROSTATIC APPARATUS
Robert R. Candor, 5940 Munger Road, Dayton, Ohio 45459, and James T. Candor, 5440 Cynthia Lane, Dayton, Ohio 45429
Application Jan. 31, 1968, Ser. No. 701,946, now Patent No. 3,470,716, which is a continuation-in-part of application Ser. No. 639,354, May 18, 1967, which is a CIP of application Ser. No. 532,266, Mar. 7, 1966, which in turn is a CIP of application Ser. No. 219,587, Aug. 27, 1962. Divided and this application Aug. 6, 1969, Ser. No. 848,055
Int. Cl. B01k *5/00*
U.S. Cl. 34—1 **24 Claims**



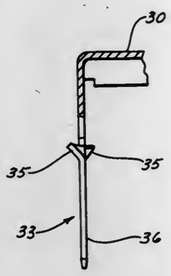
This disclosure relates to a laundry apparatus, dishwashing apparatus, cooking apparatus or the like wherein the moisture or the like in the wet laundry, on the dishes in the cooking apparatus or the like, is removed by an electrostatic means that provides a differential in the potential of the moisture or the like and an electrode means to tend to cause the moisture to leave the laundry, dishes, cooking apparatus or the like and move toward the electrode means. Such electrode means can comprise a suction nozzle which tends to draw a large volume of air through the laundry, over the dishes or the like adjacent thereto to also tend to direct the moisture from the article means or the like toward the electrode means.

3,546,784
MULTIPLE SECTION FLUID ENERGY DRYING MILL
Nicholas N. Stephanoff, Haverford, Pa., assignor to Fluid Energy Processing & Equipment Company, Hatfield, Pa., a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 703,647, Feb. 7, 1969. This application July 7, 1969, Ser. No. 839,149
Int. Cl. F26b *3/10*
U.S. Cl. 34—10 **3 Claims**



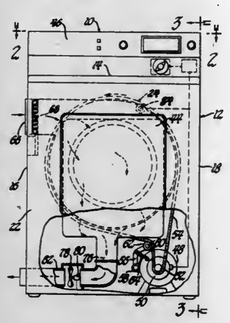
A fluid energy drying mill comprising at least two opposed generally annular mill portions. Solid particles are fed to either one or both mill portions and a heated fluid, either gas or vapor, is propelled into the bottom of each mill portion to entrain the particles and to project them through a central upstack from where they centrifugally separate at the top to pass around the respective mill portions. During their passage, the particles are dried by the heat of the fluid, and the lighter, more-dry particles are centrifugally exhausted from the peripheries of the mill portions while the least-dry, heavier particles are centrifugally recycled for further treatment.

3,546,785
ELECTRODE FOR DRYERS
Alfred T. Ashby and Curran D. Cotton, Newton, Iowa, assignors to The Maytag Company, Newton, Iowa, a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,484
Int. Cl. F26b *13/10*
U.S. Cl. 34—45 **11 Claims**



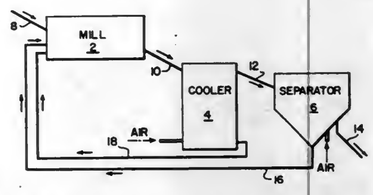
An electrode assembly is provided for use in a fabric drying apparatus having a control system for determining the dryness condition of fabrics by resistance sensing. The electrode assembly includes an elongated electrode member positioned on an insulative member and comprising an elongated fabric contacting portion, electrode holding means, and an electrical terminal portion all integrally formed from a thin continuous strip of conductive metal.

3,546,786
DRYER APPARATUS WITH LIGHT CONTROLLED VARIABLE SPEED TUMBLING DRUM
James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 27, 1969, Ser. No. 828,129
Int. Cl. F26b *13/00*
U.S. Cl. 34—52 **5 Claims**



In preferred form a clothes dryer having a horizontal cylindrical drum rotated at a variable speed in response to the tumbling action of clothes within the drum which action is sensed by photoelectric means. A light beam is axially directed through aligned circles of holes in both ends of the drum and is received by a light dependent resistor which is located adjacent the opposite end of the drum. A control circuit including the light dependent resistor and a magnetic slip clutch effects rotation of the tumbling drum at a speed proportional to the strength of the light signal received by the resistor. When clothes plaster against the cylindrical surface of the rotating drum which condition is partially caused by excessive drum speed, the light beam is interrupted and is not received by the light dependent resistor. This interruption of the light beam alters the light dependent resistor and the control circuit to reduce the rotational speed of the drum which reestablishes desirable tumbling action of the clothes.

3,546,787
FLUIDIZED BED COOLER
Frank Walter Horner, Bethlehem, Erwin Louis Decker, Catasauqua, and Lawrence E. Veo, Allentown, Pa., assignors to Fuller Company
Filed Aug. 30, 1968, Ser. No. 756,510
Int. Cl. F26b *17/10, 25/00*
U.S. Cl. 34—57 **8 Claims**



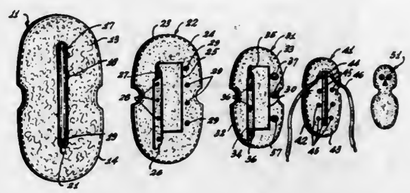
The present invention relates to a fluidized material cooler for in-circuit cooling of Portland cement, and other particulate materials capable of being fluidized, which comprises a vertically arranged vessel divided into two compartments of substantially equal cross-sectional area by a singular baffle member and having a plurality of and substantially equal number of vertically arranged heat-exchange tubes in each compartment, and a gas permeable deck adjacent the bottom of vessel and spaced from the terminating end of the baffle member in such a manner that material entering at the top of one compartment will flow downwardly along the surfaces of the heat-exchange elements then around the baffle horizontally across the heat-exchange tubes and upwardly through the second compartment along the surfaces of the heat-exchange tubes therein to the output where the cooled material is discharged.

3,546,788
TEACHING SYSTEM FOR CHILDREN
Edward J. Drumm, Evanston, Ill., assignor to Little Learners, Inc., Chicago, Ill., a corporation of Illinois
Filed Sept. 24, 1968, Ser. No. 762,056
Int. Cl. G09b *1/00*
U.S. Cl. 35—8 **8 Claims**



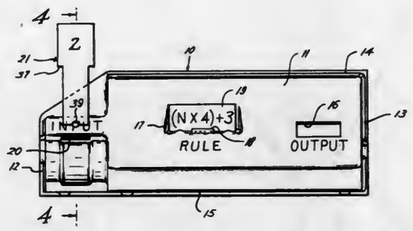
A teaching system for children comprising a container having a caricature secured on its inside surface. A photograph record is located in a pocket formed in the container, and the record containers instruction whereby a child listening to the record will hear the steps involved in performing an act requiring hand and finger dexterity, such as the typing of shoe laces. The caricature is provided with the means involved in performing the act such as a pair of shoes with associated laces.

3,546,789
EDUCATIONAL MULTIPLE DOLL SET
Joel R. Kushell and Sheila M. Kushell, La Mirada, Calif., assignors, by mesne assignments, to Fisher-Price Toys, Inc., East Aurora, N.Y.
Filed Nov. 20, 1968, Ser. No. 777,273
Int. Cl. G09b *19/00*
U.S. Cl. 35—8 **7 Claims**



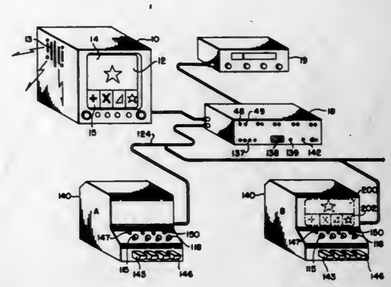
A teaching top composed of a plurality of different size doll-like elements in the form of envelopes of progressively decreasing size having openings thereinto for the reception of smaller elements which are thereby nested according to their size within the next larger envelope. The openings into the elements, except for a smallest, permanently closed one, are provided with different closure elements, preferably successively more difficult as the elements decrease in size so that the largest, exterior element has the simplest form of closure, with the closures requiring greater degrees of skill to manipulate as the elements diminish in size down to the last envelope-type element. Specifically, the outermost element may have a zipper closure, the next smaller, snaps, the next, buttons, and the smallest envelope, eyelets and laces, with, if desired, an imperforate element within the last.

3,546,790
TEACHING MACHINE FOR DEMONSTRATING FUNCTIONAL RELATIONSHIPS
John D. Horn and Harold E. Pitts, Dallas, Tex., assignors to P & H Educational Aids, a partnership
Filed Apr. 17, 1968, Ser. No. 722,019
Int. Cl. G09b *3/00*
U.S. Cl. 35—9 **7 Claims**



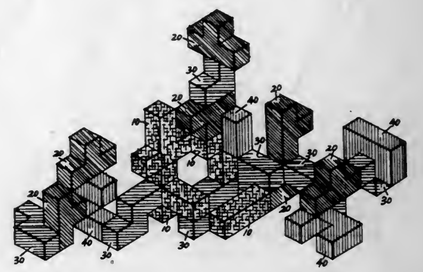
A teaching machine for demonstrating the relationship between input members, output numbers, and a rule or equation interrelating same.

3,546,791
EDUCATIONAL TELEVISION SYSTEM
Eugenia M. Koos, 4907 Neosho, Mission, Kans. 66205, and Joseph B. Balazs, Shaker Heights, Ohio; said Balazs assignor to said Koos
Filed June 20, 1968, Ser. No. 738,494
Int. Cl. G09b *7/06*
U.S. Cl. 35—9 **15 Claims**



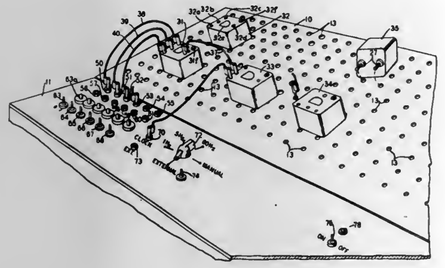
Electronic teaching or testing apparatus having a reward system inherent therein, and being cooperable with a television set for receiving instructions from a remote source and for providing a visual display of a question program. Answers supplied with the received signals and individual student responses are compared and registered and the results are transmitted to the remote source for tabulation and analysis. A token dispensing mechanism is actuated by a student's correct response to provide a motivational reward. An instructor's console is included in the system for continuously monitoring the responses or for generating and controlling a local program.

3,546,792
INTERLOCKING MODULAR DESIGN BLOCKS
Raymond Sherman, 172 E. 88th St., New York, N.Y. 10028
Filed June 10, 1968, Ser. No. 735,656
Int. Cl. A63h *33/08*
U.S. Cl. 35—27 **1 Claim**



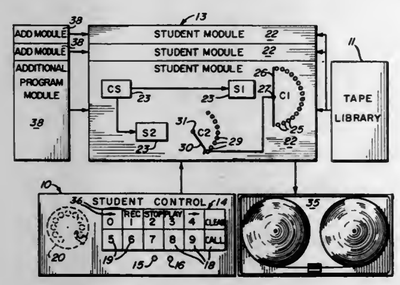
A set of modular design elements includes a number of T elements, a number of S elements, and a number of U elements. The T elements are of two different designs. Each type of element is distinctively colored, and the relative dimensions of the elements are such that they can be nested together in an endless number of different patterns.

3,546,793
EDUCATIONAL APPARATUS
Thomas H. Roelofs and Edward J. Weldon, Jr., Honolulu, Hawaii, assignors to Adtech Incorporated, Honolulu, Hawaii, a corporation of Hawaii
Filed June 5, 1968, Ser. No. 734,612
Int. Cl. G09b 23/18
U.S. Cl. 35—19 1 Claim



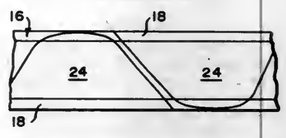
An educational aid for teaching and demonstrating the design and principles of operation of logic circuits includes a logic board and a plurality of associated logic modules. By positioning the modules on the board to correspond to the actual schematic layout of a circuit to be simulated, and by applying appropriate logic and clock signals to the modules, the operation of any constructed logic circuit can be demonstrated in a visually effective manner.

3,546,794
CONTROL SYSTEM FOR CONNECTING PLURAL INFORMATION REPRODUCERS TO AN INFORMATION LIBRARY
David H. Westerhoff, Munster, Ind., and Albert V. Flora, Chicago, Ill., assignors to Omni-Lab Incorporated, a corporation of Wisconsin
Continuation of application Ser. No. 507,470, Nov. 12, 1965. This application Aug. 4, 1969, Ser. No. 849,584
Int. Cl. G09b 5/04
U.S. Cl. 35—35 15 Claims



An educational laboratory with an independent switching module for each student booth to simultaneously connect any number of students to any program stored in a central program library. Each student booth has a plurality of individually actuable switches for selecting programs from the library. After connection to a selected program, the switching module disconnects the individually actuable switches from further control over program selection to allow control of peripheral equipment.

3,546,795
TECHNIQUE FOR MAKING BOX TOES AND COUNTERS
Addison W. Closson, Jr., 30 Coolidge Ave., Cambridge, Mass. 02139
Filed June 5, 1968, Ser. No. 734,760
Int. Cl. A43d; A43b
U.S. Cl. 36—1 7 Claims



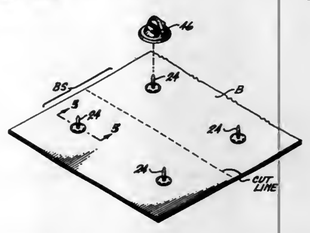
Shoe box toes and counters are made by the steps of (1) providing a supply roll of synthetic resin box toe or counter tape, (2) cutting box toe or counter blanks from the tape, and (3) applying the blanks to shoe uppers with sufficient heat or pressure to adhere the blank to the uppers.

3,546,796
SPECIAL SPORT SHOE FOR PEOPLE WITH HIGH INSTEPS
Thomas M. Adams, 211 W. Lola, #2, Austin, Tex. 78753
Filed Apr. 21, 1969, Ser. No. 817,794
Int. Cl. A43b
U.S. Cl. 36—2.5 3 Claims



A specially constructed sport shoe for people with high insteps with a divided vamp to relieve the strain when the foot is bent and having separate upper and lower laces so that the lower part of the shoe can be tied securely while the upper part of the shoe is laced to the comfort requirements of the wearer.

3,546,797
PLASTIC LAMINATE IDENTIFICATION CARD
Delbert A. Oleson, 1215 NE. 94th, Seattle, Wash. 98115
Filed Feb. 8, 1968, Ser. No. 704,142
Int. Cl. A44c 3/00
U.S. Cl. 40—1.5 11 Claims

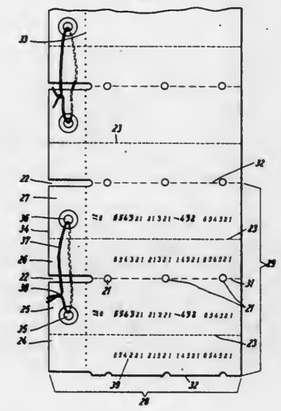


Plastic laminate articles, such as identification badges and the like, of thermoplastic laminate construction fabricated by heating and pressure bonding a thermoplastic

body portion of one or more layers of the same color or particularly core and surface layers of contrasting colors to clear thermoplastic anchor sheets between which the heads of fastener pins are embedded. Typically, the pressure bonding occurs in the presence of heat for a period of about two minutes during which period the temperature is progressively increased from 200° F. to about 300° F. and the pressure is increased from about 8 p.s.i.g. to about 12 p.s.i.g.

In one form of construction the laminate comprises rearwardly protruding upset or boss portions, each enclosing and firmly anchoring the head of a fastener pin.

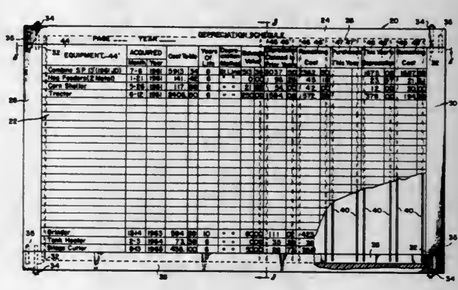
3,546,798
TAGS AND METHOD OF PRODUCING THE SAME
Gerhard Rethmeier, Oldentrup, Germany, assignor to Anker-Werke Aktiengesellschaft Bielefeld, Germany, a corporation of Germany
Filed Jan. 29, 1968, Ser. No. 701,431
Claims priority, application Germany, Jan. 27, 1967, A 54,729
Int. Cl. A44c 3/00
U.S. Cl. 40—2 4 Claims



Method of producing multisegment tags having indicia thereon that can be read both visually and by machine, which includes tying together with a exible loop adjacent segments of tag blanks connected to one another in a continuous strip, thereafter inserting the strip into an indicia marking mechanism and performing at least one marking operation on the adjacent segments of the tag blanks, and severing the marked tag blank segments from one another and from the segments of the adjoining tag blanks in the strip.

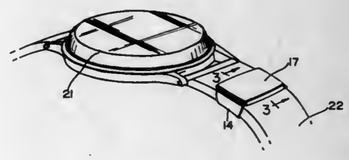
3,546,799
DATA RECORDING OR TABULATING DEVICE HAVING REPLACEMENT OR INTERCHANGEABLE SEGMENTS
John H. McCoy, 1516 Humboldt, Manhattan, Kans. 66502
Filed June 7, 1968, Ser. No. 735,461
Int. Cl. G09f 7/00
U.S. Cl. 40—63 14 Claims

Data recording or tabulating device including a substantially rectangular frame comprising top, bottom and side border elements, the opposed edges of the top and bottom border elements having central, longitudinal recesses, spaced vertical rods extending between the top and bottom border elements, the terminals of the rods lying within the longitudinal recesses thereof, and a plurality



of segments, portions of which are detachably engaged with the vertical rods, the segments bearing indicia having a relationship to other segments in its row.

3,546,800
CALENDAR ATTACHMENT FOR A WRISTWATCH BAND
Charles G. Tate, Jr., 19 S. Locust Ave., North Providence, R.I.
Filed July 31, 1968, Ser. No. 749,049
Int. Cl. G09f 3/14
U.S. Cl. 40—107 5 Claims

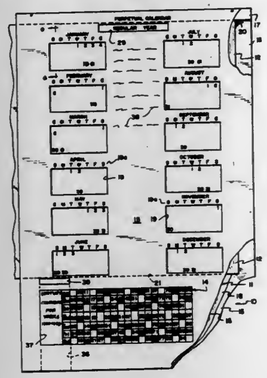


The device comprises a flat plate of soft flexible metal such as aluminum having attached on opposite sides smaller plates which can be folded over the main plate. The main plate and the smaller plates all carry a complete month printed thereon so that the device comprises a three months' calendar. The base main plate is elongated so that it can be manually wrapped around the wristwatch band and bent into place to clamp the band. As each month ends, each small plate can be bent away from the main plate and broken away and thrown away. Similarly, the main plate can be unclamped and thrown away. Thus, four of the devices can be used throughout the year for twelve months.

3,546,801
ADJUSTABLE CALENDAR
Stanley J. Kolody, 1750 Burr Oak Road, Homewood, Ill. 60430
Filed Aug. 8, 1969, Ser. No. 848,490
Int. Cl. G09d 3/00
U.S. Cl. 40—109 6 Claims

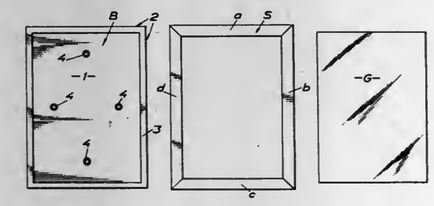
A frame having month apertures with days of the week indicia and opening into a month slot. A month sheet in the frame month slot and having monthly numeral indicia. A seven column chart representing seven days of the week and having century numeral indicia

grouped thereon. A century aperture in the frame and opening into a century slot in the frame which is adapted



to receive a century index insert to cooperate with the seven column chart.

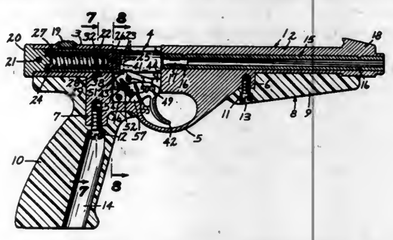
3,546,802
PICTURE FRAMES
Raymond David Preston, 2 Purfield Drive, Wargrave-on-Thames, Berkshire, England
Filed July 18, 1968, Ser. No. 745,897
Int. Cl. G09f *1/12*
U.S. Cl. 40—152 **17 Claims**



A readily demountable picture frame comprising a block of high density expanded plastics material with a shallow recess in one of its major faces for the reception of a planar member or members, such as a picture or the like and glass cover sheet therefor, the frame further comprising an edge surround formed from a material more rigid than the block and so dimensioned as to be engageable with the edges of the said block as a firm push-fit and to overlap parts of the recess thereby to retain a said member or members within the recess.

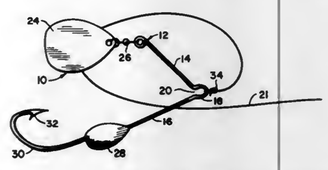
3,546,803
TARGET FIREARM WITH BLOW BACK BREECH BOLT AND SAFETY LATCH THEREFOR
Bernard H. Swanson, 903 Queens Lane, Anoka, Minn. 55302, and John T. Walker, 2205 Long Lake Road, St. Paul, Minn. 55112
Filed Aug. 7, 1968, Ser. No. 750,953
Int. Cl. F41c *3/00, 5/00, 11/02*
U.S. Cl. 42—16 **8 Claims**

A single shot target firearm including a frame mounting a barrel which defines a chamber at its rear end, and a tubular receiver portion carrying a recoil spring operated breech bolt movable between a forward chamber closing position and a pair of rearwardly spaced loading and cocked positions. A firing pin is fixed on the breech bolt, a trigger actuated sear is operative to hold the breech bolt in cocked position, and a safety latch



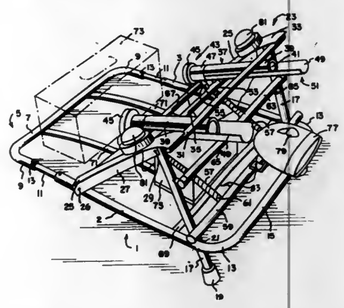
member engages the breech bolt and holds the same in the loading position.

3,546,804
FISHING LURES
Charles R. Woolums, Tulsa, Okla., assignor to Marvin D. Coleman, Okmulgee, Okla.
Filed Aug. 5, 1968, Ser. No. 750,056
Int. Cl. A01k *85/00*
U.S. Cl. 43—42.11 **6 Claims**



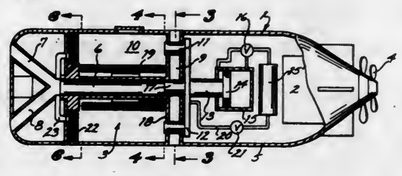
A fishing lure comprising a pair of diverging arm members connected at their adjacent ends by an open eye. A spinner is secured to the outer end of one arm member and a weight is affixed to the outer end of the other arm member with a fish hook extending outwardly from the weight. The eye is formed with arcuate portions and with a detent for receiving and retaining the fishing line during use of the lure.

3,546,805
PORTABLE FISHING POLE HOLDER AND ALARM
Allen A. Schaefer, 584 Matthews Drive, Cincinnati, Ohio 45215
Filed Aug. 29, 1968, Ser. No. 756,167
Int. Cl. A01k *97/10, 97/12*
U.S. Cl. 43—17 **4 Claims**



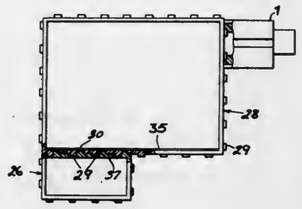
A portable fishing pole holder and fish alarm comprising a rigid frame stand having one or more fishing pole holders pivotally mounted thereon. Audible and visual alarms are associated with the pole holders so that when a pole holder is pivoted by the pull of a fish, contact is made by the pole holder with an electrical terminal to actuate the alarms.

3,546,806
MEANS TO ATTRACT FISH
Hiroshi Hatta, 15–16 Minami Seiwaen-cho, Osaka, Japan
Filed Feb. 10, 1969, Ser. No. 797,875
Int. Cl. A01k *97/02*
U.S. Cl. 43—44.99 **6 Claims**



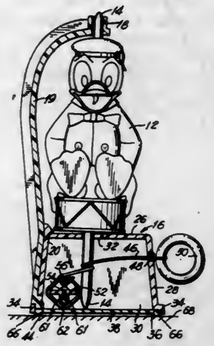
Self driven apparatus in the nature of a boat or tank, and which can be remotely controlled from a fishing boat, and which will eject bait when activated by the operator on the fishing boat. The bait scattering apparatus can also be caused to move either on the surface of the water or below the surface, as is most expedient.

3,546,807
TOY BUILDING SET WITH INTERFITTING FRAMES AND BLOCKS
August Wilhelm Höwe, Gottelmannstrasse 8, Mainz am Rhine, Germany
Continuation-in-part of application Ser. No. 383,597, July 20, 1964. This application Dec. 5, 1968, Ser. No. 781,390
Int. Cl. A63h *33/08*
U.S. Cl. 46—16 **9 Claims**



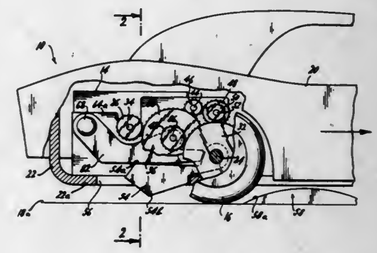
Toy building set with several rectangular frame elements of different sizes, all their sides except possibly the minor side of the smallest rectangle being equal to or a multiple of predetermined unit length corresponding to the length of the sides of a multiplicity of prismatic building blocks of square outline also included in the set; the rectangles and building blocks are formed with complementary projections and depressions enabling their selective interfitting. Specially colored or otherwise distinctive panels may be swingably lodged in the rectangles to simulate window panes and the like.

3,546,808
TWIRLING FIGURINE TOY
Frank Kohner, New York, N.Y., and Albert Stubbman, Franklin Lakes, N.J., assignors to Kohner Bros, Inc., East Paterson, N.J., a corporation of New York
Filed Dec. 12, 1968, Ser. No. 783,364
Int. Cl. A63h *1/20*
U.S. Cl. 46—59 **9 Claims**



A toy figurine is secured to a spindle which is positioned above a hollow base having an offset pillar with an inwardly extending tip. The top of the spindle is journalled in the pillar tip and the bottom of the spindle extends through a hole in the base and twirls on the bottom of said base. A pull string extending into the base is looped around the spindle and anchored to a rotary-biased take-up spool. Pulling of the string causes the spindle and figurine to turn. The string automatically rewinds about the spool. The spool has projections that knock on the bottom of the base to generate an activity noise. With the string extended and held fast, release of the base will cause the entire toy to travel toward the extended string end.

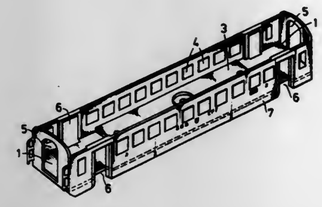
3,546,809
MULTIPLE SPEED TOY VEHICLE
Edwin A. Nielsen, Oceanside, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y., a corporation of New York
Filed Feb. 26, 1969, Ser. No. 802,406
Int. Cl. A63h *17/00*
U.S. Cl. 46—206 **6 Claims**



A multiple speed toy vehicle adapted to ride on a track is provided with a gear linkage including two alternate

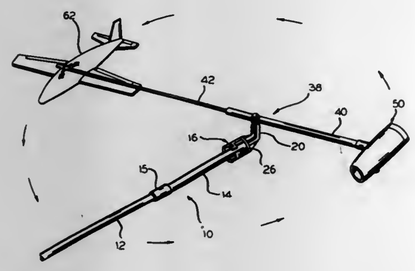
gear trains coupling a motor to a drive wheel so as to propel the vehicle at either of two different speeds. The vehicle is adapted to cooperate with two gear switching track sections, each for shifting the gear linkage from one state to the other.

3,546,810
PASSENGER CAR FOR TOY AND MODEL RAILROADS
Max Ernst, 14 Lohengrinstrasse, 85 Nuremberg, Germany
Filed July 31, 1967, Ser. No. 658,016
Claims priority, application Germany, Aug. 3, 1966, E 32,205
Int. Cl. A63h *19/16*
U.S. Cl. 46—218 **5 Claims**



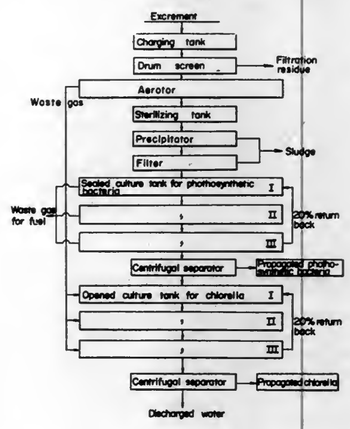
A passenger car for toy and model railroads with a car body made of synthetic material and consisting at least of two sections and equipped with trucks. Those portions of the toy passenger car body, which with a corresponding commercial vehicle are of different color, are respectively made as individual pieces of correspondingly colored and preferably injection or extension molded synthetic material, said individual pieces being composed to a unit by suitable methods and means as, e.g., clamping, cementing, connecting bolts, etc.

3,546,811
TOY AIRPLANE
Dennis I. Kupperman, Des Plaines, and Sam Kupperman, Chicago, Ill. (both of 4139 Main St., Skokie, Ill. 60076)
Filed Jan. 6, 1969, Ser. No. 789,301
Int. Cl. A63h *27/04*
U.S. Cl. 46—243 **10 Claims**



A hand held toy airplane which includes a handle for holding same while the toy is being operated, a rotatable arm which supports at one end thereof a flying toy, such as a simulated airplane, and supports at its opposite end a power unit comprising a motor, a battery, and a propeller operated by the motor, whereby when the motor is operating the propeller causes the power unit, the arm and the simulated toy airplane to rotate with respect to the handle, and by manually manipulating the handle through various angles the airplane is caused to fly through various flying patterns.

3,546,812
PROCESS FOR TREATING EXCREMENT BY MICROORGANISMS AND PRODUCTS OBTAINED THEREBY
Masayasu Kobayashi, Ohaza-Higoshi, Michiharu Kobayashi, Kyoto, and Mitsuyoshi Matsushima, Maebashi, Japan, assignors to City of Kiryu, Kiryu, Japan
Filed Apr. 4, 1968, Ser. No. 718,727
Claims priority, application Japan, Feb. 9, 1968, 43/7,911
Int. Cl. A01h *13/00*
U.S. Cl. 47—1.4 **13 Claims**

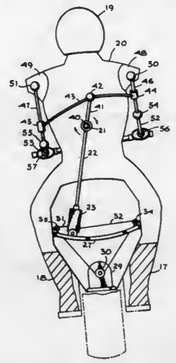


Purification of excrement collected in city, which comprises firstly decomposing said excrement by heterotrophic microorganisms under aerobic condition into organic acids, amino acids and the other lower molecular weight substances, secondly inoculating and cultivating photosynthetic bacteria in said decomposed excrement in a sealed culture tank under anaerobic, light condition and thirdly cultivating chlorella in the resulting excrement under aerobic, light condition.

3,546,813
FUNGICIDAL COMPOSITIONS
Paul-Ernst Frohberger, Burscheid, Bezirk Dusseldorf, and Christian Wiegand, Scharbeutz, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed May 10, 1965, Ser. No. 454,680
Claims priority, application Germany, May 14, 1964, F 42,880
Int. Cl. A01n *9/20, 7/00, 5/00*
U.S. Cl. 47—57.6 **29 Claims**

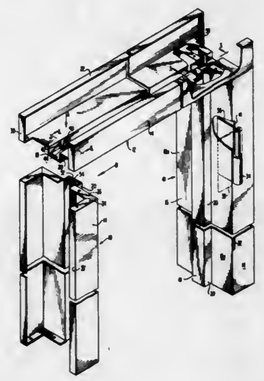
Fungicidal methods and compositions utilizing 2-furylbenzemidazole. Fungi are combatted in the soil, plants and seeds.

3,546,814
ROBOT DRIVER OF A TWO-WHEEL MOTORCYCLE
Federico Melendez, Via Archimede 37, Apt. 1, Rome, Italy 00197
Filed Feb. 24, 1969, Ser. No. 801,527
Int. Cl. A63h *30/00*
U.S. Cl. 46—244 **5 Claims**



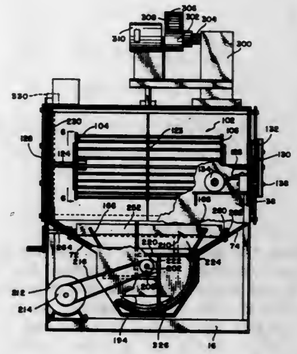
A robot for a two-wheeled motorcycle is controlled by a remote operator through electronic control of a battery-powered motor, which can be started, rotated, and stopped on signal either clockwise or counter-clockwise. The control motor's rotation causes the shifting of a balancing weight and simultaneously steers the motorcycle to the right or left by actuating arm levers, following the shifting of the balancing weight. The robot and motorcycle leans in the direction of the turning, and by remote control manipulation by an operator, the moving two-wheeled motorcycle may be maintained in equilibrium in the selected direction of movement.

3,546,815
REVERSIBLE DOOR FRAME
Sam B. Kimberly, Iuka, Miss. 38852
Filed May 15, 1969, Ser. No. 824,913
Int. Cl. E06b *1/14*
U.S. Cl. 49—504 **10 Claims**



The reversible door frame includes sheet metal side and head jamb members. Each jamb member has a stop including a stop face and a pair of stop edges. The head jamb has a pair of slots through its stop including its edges at each end thereof. The stop edges of the metal strip defined between the slots is bent inwardly while the stop face of the strip is bent outwardly. The upper ends of the stops on the side jamb members are received within the slot with the inwardly bent edges extending within side edges of the stops of the side jamb members. Metal screws are employed to finally secure the side and head jamb members one to the other.

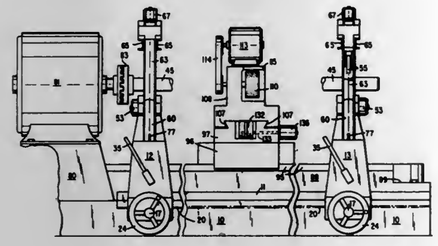
3,546,816
CLEANING MACHINE
Paul L. Enegren, 4133 Irving, Wichita, Kans. 67209
Filed Oct. 25, 1967, Ser. No. 677,899
Int. Cl. B24c *3/30*
U.S. Cl. 51—9 **15 Claims**



A cleaning machine of the abrading or shot cleaning type wherein the articles to be cleaned are contained in an elongated grated basket of cylindrical configuration driven to rotate about a horizontal axis with shot impelling means disposed below the basket for propelling shot to impinge upon the basket and the contents thereof from below, said impelling means including an impeller rotatable about a horizontal axis normal to the vertical plane of the basket's axis. The machine has a housing for gravitationally directing spent shot into an inlet of the impelling means for recirculation. Means is provided for selectively sequestering spent shot against continued circulation in the machine, whereby the shot can be sequestered prior to stopping the impelling means and the latter can then be restarted at a subsequent time with little or no shot presenting a high starting load thereto, and previously sequestered shot can then be slowly released after the impeller has been started for gravitational movement to the inlet of the impeller. The machine also includes an ammeter to indicate electric current being fed to an electric motor driving the impeller, whereby an amount of shot can be introduced into the housing through a baffled opening provided for this purpose sufficient to constitute a desired load on the impeller. The baffled opening additionally serves as an air inlet whereby dust and fine material within the housing can be entrained and removed from the machine by a filtered suction cleaner coupled to a baffled or screened air exhaust opening in the top of the housing. Finally, in order to lessen the likelihood of the operator operating the stop switch of the impeller electric motor without having sequestered the shots, means is associated with

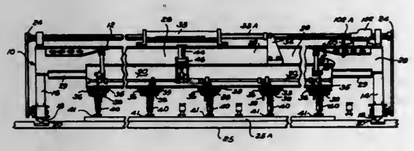
the sequestering means control to partially impede access to the stop switch when the sequestering means is inoperative or the control therefor is in its sequestered shot releasing position.

3,546,817
TURBINE ROTOR GRINDING MACHINE
Robert L. Schaller, Camillus, and George R. Kunzelman, Syracuse, N.Y., assignors to Sundstard-Engelberg, Inc., a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,786
Int. Cl. B24b 5/00, 21/02, 29/00
U.S. Cl. 51—49 11 Claims



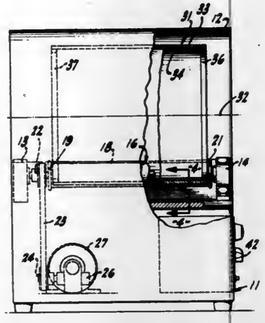
A machine for grinding the tips of the blades of a turbine rotor including rotors wherein the blades are mounted in the hub of the rotor so as to have limited radial movement. The rotor is rotated at a speed sufficient to maintain the blades in outermost position by centrifugal force during the grinding operation, which position the blades assume during actual operation of the turbine. The machine includes a grinding head movable along a path in a direction lengthwise of the rotor, the path being adjustable into and out of parallelism with the axis of the rotor. The grinding head is movable toward and from the rotor, and also about a vertical axis. All movements of the grinding head are effected by power means, and may occur simultaneously.

3,546,818
RECIPROCATING GRINDERS
Herbert P. Beck, Honey Brook, Pa., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania
Filed June 3, 1968, Ser. No. 734,008
Int. Cl. B24b 7/00, 9/00
U.S. Cl. 51—56 14 Claims



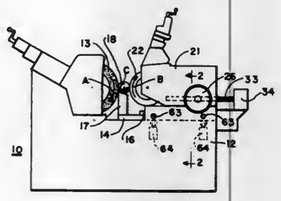
Described herein is an improvement in a grinding machine to reduce over-grinding of the surface of a workpiece in the area at the end of each stroke of a reciprocating grinder which comprises counter reciprocating means and means to limit the forward movement of the reciprocating grinder.

3,546,819
MICROTOME KNIFE SHARPENER
Andrew J. Campbell, San Mateo, Calif., assignor to The Regents of the University of California, Berkeley, Calif.
Filed Oct. 17, 1968, Ser. No. 768,328
Int. Cl. B24b 9/00
U.S. Cl. 51—73 8 Claims



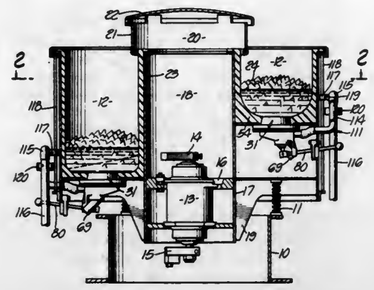
A microtome knife sharpener has a glass cylinder mounted above a magnet and on a pair of frame-supported rollers. The cylinder is driven in either direction to rotate about a horizontal axis and has liquid-confining rings at both ends. If desired, the magnet can be moved in a path having an axial component.

3,546,820
MACHINE TOOL WITH UPWARDLY URGED SLIDE
Robert C. Fisher, Milford, Ohio, assignor to Cincinnati Milacron, Inc., a corporation of Ohio
Filed Nov. 9, 1967, Ser. No. 681,815
Int. Cl. B24b 5/18; F16c 27/02
U.S. Cl. 51—103 13 Claims



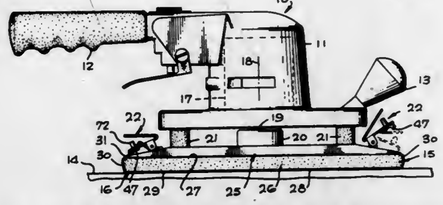
In a machine tool having a bed, a slide reciprocating on the bed toward and away from a workpiece, work engaging means on the slide engageable with the workpiece, interaction between the work engaging means and the workpiece tending to raise the slide off the bed, rails on the bed overlying guide face means on the slide, means for urging the slide upwardly to bring the faces into face-to-face frictional engagement, and means for advancing the slide to bring the work engaging means into engagement with the workpiece, the slide advancing smoothly and under a continuing friction load as the work engaging means and workpiece engage, which load increases with increasing cutting force.

3,546,821
VIBRATORY FINISHING, GRINDING AND DEBURRING MILLS
John R. Strom, Fullerton, Calif., assignor to Sweco, Inc., Los Angeles, Calif., a corporation of California
Continuation-in-part of application Ser. No. 631,468, Apr. 17, 1967. This application Feb. 5, 1968, Ser. No. 702,970
Int. Cl. B02c 17/14; B24b 31/06
U.S. Cl. 51—163 11 Claims



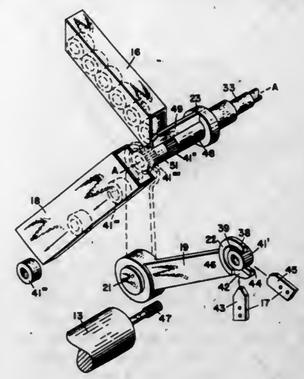
A vibratory finishing apparatus having a generally toroidal finishing bowl in which a charge of parts to be finished and a finishing media are subject to vibration in the presence of an aqueous liquid, the apparatus having drain means for withdrawing liquid from the container, means for maintaining the liquid level in the container with the means for varying and maintaining the liquid level disposed above the drain means.

3,546,822
CLIP FOR SURFACE TREATING TOOL
Alma A. Hutchins, 49 N. Lotus Ave., Pasadena, Calif. 91107
Filed Nov. 29, 1968, Ser. No. 780,145
Int. Cl. B24b 23/00
U.S. Cl. 51—170 16 Claims



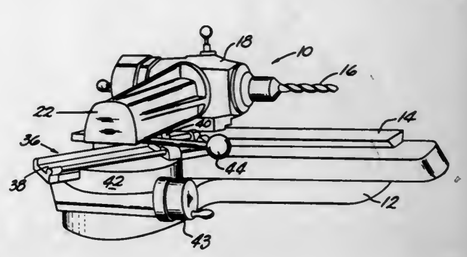
A clip for securing a sheet of sandpaper on a powered sanding machine, and including a shoulder structure projecting upwardly at the upper side of a sandpaper carrying shoe of the machine, and toward which a pivotal clip element is spring urged downwardly, in a relation such that the end portion of the sheet of sandpaper extends first generally horizontally at the upper side of the shoe, then upwardly between two generally vertical surfaces of the shoulder structure and clip element, and then generally horizontally between an upper portion of the clip element and an upper surface of the shoulder structure, all in a relation tightly and positively clamping the sandpaper sheet in place. The clip element is mounted for its pivotal movement by a pin which passes through apertures in a mounting bracket and in the clip element respectively, and which has a groove partially receiving portions of the mounting bracket and clip element in a manner releasably retaining the pin against axial separation from the other parts.

3,546,823
GRINDING MACHINE
Herbert R. Uhtenwoldt and Richard T. Knorring, Worcester, and Glenn D. Johnson, Sterling, Mass., assignors to The Heald Machine Company, Worcester, Mass., a corporation of Delaware
Filed Oct. 17, 1968, Ser. No. 768,412
Int. Cl. B24b 47/02
U.S. Cl. 51—215 6 Claims



The disclosure relates to a grinding machine and more particularly, to apparatus for moving workpieces automatically from a loading chute to a work station of a grinding machine and then from the work station to an unloading chute where the same are ejected.

3,546,824
WORK MOVING APPARATUS
Joseph J. Ramge, 1495 Fairholme Road, Grosse Pointe Woods, Mich. 48236
Filed Dec. 6, 1968, Ser. No. 781,839
Int. Cl. B24b 19/00
U.S. Cl. 51—225 5 Claims

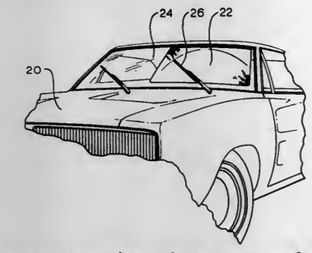


A metal working machine useful in tool forming, grinding, polishing, refluting and similar operations in which the work must be accurately moved along a predetermined path relative to a cutter, grinding wheel, polishing wheel, or the like and which includes improved structure for reliably holding the work in a pivotally moved position. A pair of members which are adjusted to determine a pivotally moved position of the work are held in adjusted positions by the coaction of firmly engaged inclined surfaces on the members and a locking member positioned therebetween.

ERRATUM

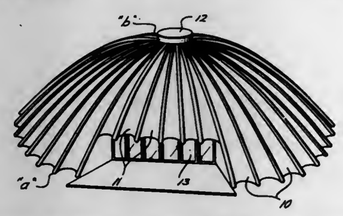
For Class 51—246 see:
Patent No. 3,547,607

3,546,825
METHOD FOR RENEWING WIPER BLADE EDGES
Thomas L. Dale, 5193 Mapleridge Drive, Columbus, Ohio 43227
Filed Dec. 11, 1968, Ser. No. 782,938
Int. Cl. B24b *1/00*
U.S. Cl. 51—323 **3 Claims**



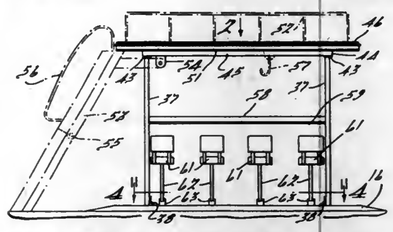
The present invention relates to a method for renewing used windshield wiper blades wherein a rubber cleaning material is first applied to the wiping edge of a used wiper blade. The wiping edge is then moved over the surface of an abrasive material to remove substantially all oxidized rubber particles and any other foreign matter that has accumulated on the edge. Preferably the abrasive material is in the form of a sheet which fits over the windshield of a vehicle so that upon actuation of the vehicle wiper mechanism, the wiping edges of the blades are repeatedly moved over the abrasive material. A rubber preservative may then be applied to the cleaned wiping edges.

3,546,826
FRAMELESS AND TRUSSLESS SELF-SUPPORTING BUILDING
Kenneth B. Chapman, Houston, Tex. (P.O. Box 735, Bellaire, Tex. 77401)
Continuation of application Ser. No. 661,249, Aug. 17, 1967. This application July 2, 1969, Ser. No. 845,615
Int. Cl. E04b *1/32;* **E04d** *1/36*
U.S. Cl. 52—23 **11 Claims**



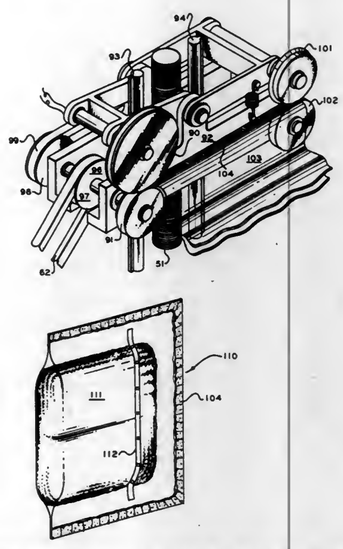
Building structure and method of assembly utilizing a plurality of arcuately configured panel members positioned side by side. The outer face of each member is concavely formed so that adjacent sides are generally perpendicular to the building floor to provide structural support. Adjacent panel members are fastened together at the perpendicular sides which bend inwardly at their upper edges to improve structural properties. Cables anchored to the ground and following the curvature of the panels to the building apex are attached to place the panel members in tension. Cables may also be installed around the inside periphery of the building or from one side of the building to the other to maintain tension on the panel members. Sealing means at the building apex and juncture of adjacent panels are also provided.

3,546,827
PROJECTABLE AND RETRACTABLE ENCLOSED STRUCTURE
Willard H. Demarais, 20524 Lauder, Detroit, Mich. 48235
Continuation of application Ser. No. 721,465, Apr. 15, 1968. This application Oct. 20, 1969, Ser. No. 867,975
Int. Cl. B66b *9/00;* **E04b** *1/343*
U.S. Cl. 52—29 **7 Claims**



A first platform supports the enclosed structure and has pillars on the corners which support a roof structure or second platform which encloses a pit in which the first platform is retracted to have the roof structure form a cover therefor. A fluid tank, pump and motor provides pressure fluid to a ram at the bottom of the pit which supports the first platform when secured thereto at the center thereof. The roof structure may be used as a sun deck when the first platform is in raised position to cover the area therebelow which may be employed as a refreshment area for food and drinks.

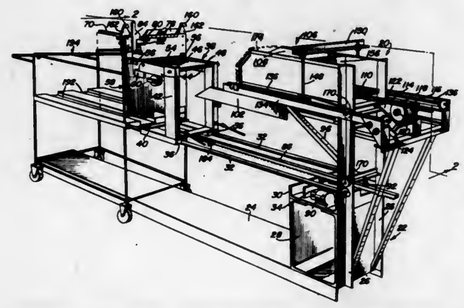
3,546,828
PACKAGING COMPRESSIBLE MATERIALS
Gordon K. Lundberg and Dan E. Perry, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Oct. 25, 1967, Ser. No. 678,090
Int. Cl. B31b *1/90;* **B65b** *1/24, 61/18*
U.S. Cl. 53—24 **7 Claims**



A resilient compressible material, such as rock wool, is inserted in a longitudinally folded thermoplastic film or between two sheets of film and fed into an apparatus

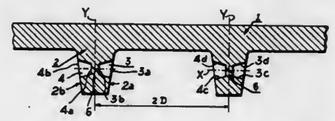
comprising two parallel coacting belts, a side sealing means and an end sealing means. The open sides of the package are sealed as the package is conveyed and compressed between the belts; when all of the material is between the belts, the air in the package is substantially displaced and the trailing end of the film is hermetically sealed to form a package containing compressed material. This compressed material expands to original size when the package is punctured or opened to the atmosphere.

3,546,829
GROCERY BAGGING AND CART LOADING MACHINE AND METHOD
Bacyl E. Lonergan, Lucedale, Miss., assignor to B & L Developers, Inc., a corporation of Louisiana
Filed Sept. 27, 1968, Ser. No. 763,087
Int. Cl. B65b *5/06, 67/04*
U.S. Cl. 53—35 **24 Claims**



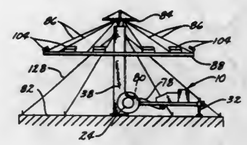
A machine which, subsequent to the introduction of groceries or the like to be bagged, is activated so as to move a main carriage supported bag about the groceries. A releasable bottom temporarily supports the groceries and is retracted so as to transfer the groceries to the bag. A pusher plate retains the groceries in the bag as the bag is retracted. The main carriage includes a pair of positioning rollers which cooperate with frame mounted tracks whereby the bag is turned vertically and shifted downwardly for forward loading onto an appropriate cart after which the main carriage releases the bag and is automatically reset.

3,546,830
PREFABRICATED REINFORCED CONCRETE FLOORING SLABS AND FLOORS AS THUS FORMED
Michel Jean-Charles Villaneau, Paris, France, assignor to Societe de Travaux pour la Construction et l'habitat industriels Tracoba, Paris, France, a company of France
Filed Feb. 13, 1968, Ser. No. 705,098
Claims priority, application France, Feb. 20, 1967, 1,511,948
Int. Cl. E04b *1/00, 5/48*
U.S. Cl. 52—100 **9 Claims**



A flooring slab prefabricated from reinforced concrete has ribs projecting from one face of a compression bed with recesses formed in at least some of the ribs, each recess having a base which can be destroyed by a hammer blow to afford communication between one face of the rib and the other to permit the passage of a water pipe, gas pipe or the like where desired.

3,546,831
BUILDING ERECTION MEANS
Jorge Romo and Joseph C. Kratky, Columbus, Nebr., assignors to Behlen Manufacturing Company, Inc., Columbus, Nebr., a corporation of Nebraska
Filed June 5, 1968, Ser. No. 734,622
Int. Cl. B66b *9/18;* **E04b** *1/343*
U.S. Cl. 52—115 **5 Claims**

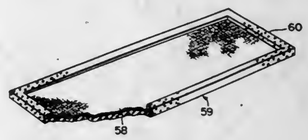


A building erection means including a wheeled frame means having a boom means pivotally secured thereto. The boom means is comprised of a plurality of telescoping boom members which are selectively and successively raised by a hydraulic cylinder means positioned therein. The upper boom member is adapted to be secured to the underside of the roof structure of the building and the boom means is progressively raised to facilitate the attachment of the wall sections to the roof structure.

ERRATUM

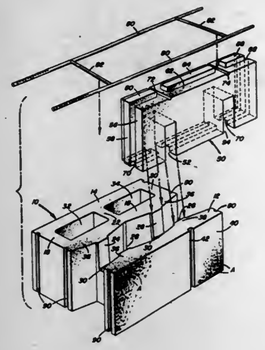
For Class 52—309 see:
Patent No. 3,546,841

3,546,832
PRECAST DECORATIVE PANEL
Frank R. Smith, 3461 Lansdowne Drive, Lexington, Ky. 40502
Continuation of application Ser. No. 711,147, Feb. 16, 1968, which is a continuation-in-part of application Ser. No. 455,831, May 14, 1965. This application July 7, 1969, Ser. No. 842,806
Int. Cl. E04c *2/22*
U.S. Cl. 52—309 **6 Claims**



A precast decorative panel is formed by filling a flexible mold to a selected level with an unset thermosetting resin and aggregates. After a nonrigid member, which is smaller than the receptacle, is placed on top of the mixture of resin and aggregates, a filler mold, which is smaller than the receptacle and substantially the same configuration so as to form a substantially uniform space therebetween, is disposed within the receptacle. This uniform space is filled with aggregates and an unset thermosetting resin. After the unset resin is partially cured to a soft gel, the filler mold is removed. Then, the partially cured resin is separated from the mold. This produces a panel having a textured top surface and a bottom surface with a drop edge extending therefrom along the entire periphery of the body of the panel.

3,546,833
INSULATED BUILDING BLOCK CONSTRUCTION
Arnold Perreton, 12 Centre St., Concord, N.H. 03301
Filed Oct. 8, 1968, Ser. No. 765,825
Int. Cl. E04b *2/20*; E04c *1/08*; B44f *9/04*
U.S. Cl. 52—314 10 Claims

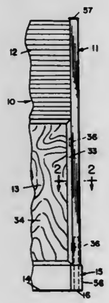


An insulated building block in which the longitudinally extending side walls and intermediate wall are spaced and interconnected by longitudinally staggered webs thereby minimizing heat and moisture transmission transversely of the block. The webs between one of the side walls and the intermediate wall are recessed for receiving insulating inserts disposed between such side wall and the intermediate wall. The exterior face of one or more of the block walls is adapted to be formed of exposed aggregate, and the invention also includes the provision of specially-fitting blocks which greatly facilitate erection of the block wall.

ERRATA

For Classes 52—475 thru 52—627 see:
Patent Nos. 3,546,843 thru 3,546,845

3,546,834
PARTITION WALL STRUCTURES
Zygmunt Murawski, 8335 S. Kingston Ave., Chicago, Ill. 60617
Filed Dec. 16, 1968, Ser. No. 783,804
Int. Cl. E04b *2/76*
U.S. Cl. 52—632 6 Claims

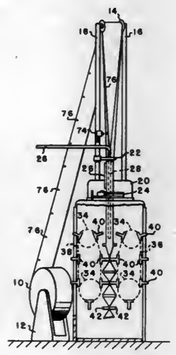


Partition construction embodying floor-mounted foot member with telescoping vertical posts; vertical adjustability of post height by bolt and nut threaded adjustment.

ERRATUM

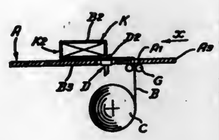
For Class 53—28 see:
Patent No. 3,546,835

3,546,835
TUBE FORMING APPARATUS AND METHOD
George A. Mobley, Spartanburg, S.C., assignor to Milliken Industrials Corporation, White Stone, S.C., a corporation of South Carolina
Filed Feb. 20, 1969, Ser. No. 800,885
Int. Cl. B65b *9/08, 57/04*
U.S. Cl. 53—28 9 Claims



Apparatus and method to change the amount of overlap in a tubular sheet material to maintain the registration of material printed thereon when the tubular sheet of material is converted into individual tetrahedral packages.

3,546,836
PROCESS AND EQUIPMENT FOR PACKAGING ARTICLES
Konrad Buob, Como, and Giorgio Giraudi and Gianfranco Rossi, Rho Milan, Italy, assignors to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut
Filed Sept. 16, 1968, Ser. No. 759,990
Int. Cl. B65b *11/10, 67/10*
U.S. Cl. 53—33 10 Claims

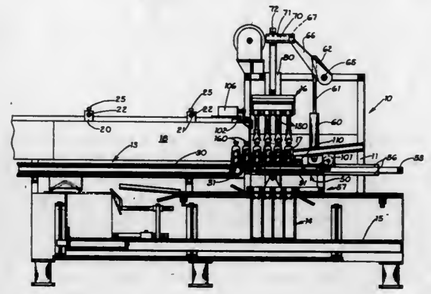


Method and apparatus for packaging articles in sheet wrapping material wherein an article is placed on a table so that the rear part of the article extends over the table edge; wrapping material fed through a transverse slot in the table forward of said article is partially wrapped about the article by pulling the material over the article and securing the end of the material to the bottom surface at the back of the article; the partially wrapped article is moved forward over the table until it passes the transverse slot where the two ends of the sheet material are overlapped; the two ends of the sheet are then fastened together; and, then the sheet is cut allowing removal of the packaged article and the beginning of another wrapping cycle.

ERRATUM

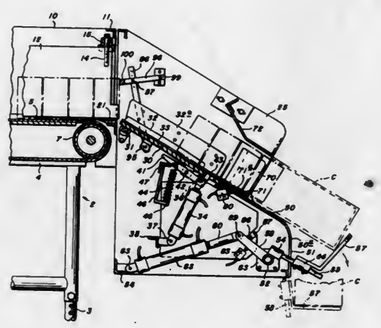
For Class 53—35 see:
Patent No. 3,546,829

3,546,837
LIVE PAN ASSEMBLY
James J. Shuttleworth, 1300 Salamonie Ave., Huntington, Ind. 46750
Filed Mar. 21, 1969, Ser. No. 809,128
Int. Cl. B65b *5/08, 57/12*
U.S. Cl. 53—61 8 Claims



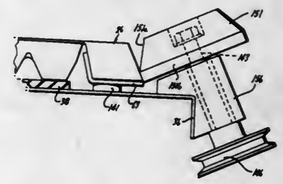
A first bottle conveyor mounted on a movable "pan" or platform for conveying the bottles across the platform as they move onto the platform from a second bottle conveyor. A vacuum head is positioned above the platform and moves vertically to pick up the bottles on the platform. A case conveyor positions cases for loading below the platform. The first bottle conveyor is arranged to operate only when it is adjacent the second bottle conveyor.

3,546,838
END CASE PACKER
Frank P. Alduk, 116 Guadalcanal Road, New Castle, Pa. 16101
Filed Feb. 3, 1969, Ser. No. 796,056
Int. Cl. B65b *5/06, 35/30, 57/00*
U.S. Cl. 53—77 11 Claims



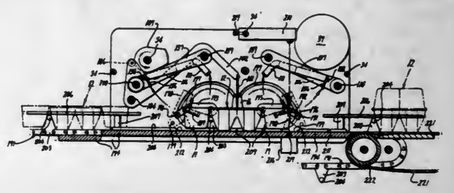
There is disclosed an apparatus for assembling and simultaneously discharging a case load of containers into an open-ended carton. The machine is in the form of an attachment to an existing machine of another type. Containers are arranged in lines or rows on a continuously-moving endless belt from which they are pushed in rows onto an inclined platform pivoted to tilt to a steeper inclination. There is a funnel structure beyond the end of this platform through which containers on the platform can slide when the platform is tilted to its steepest angle. The open end of a carton is fitted over the funnel so that as the containers move through the tunnel, they slide into the carton. As the carton is placed over the funnel, an end support member is first raised to support the end of the carton opposite the open end, when the tilting platform is dropped to its steepest angle and the containers are released to slide through the funnel, while a gate lowers against the leading cans moving off the conveyor to block their movement until all parts return to the starting position.

3,546,839
EGG CARTON CREASING, FORMING AND CLOSING MACHINE
Alfred E. Comstock, Frontenac, Minn. 55026
Filed June 12, 1968, Ser. No. 736,334
Int. Cl. B65b *57/18, 7/26*
U.S. Cl. 53—78 10 Claims



Machine for creasing and forming covers of molded egg cartons and closing the covers of molded egg cartons.

3,546,840
EGG CARTON CLOSING MACHINE
Alfred E. Comstock, Frontenac, Minn. 55026
Filed May 26, 1969, Ser. No. 827,502
Int. Cl. B65b *7/26, 57/00*
U.S. Cl. 53—376 11 Claims

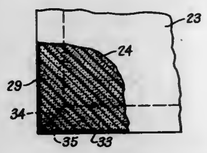


Machine having means for closing the covers of molded egg cartons while the egg cartons are stationary.

3,546,841
FABRICATED DOORS, PANELS AND THE LIKE
Lester L. Smith and Frank E. Randall, Peoria, Ill., assignors, by direct and mesne assignments, to Home Comfort Products Co., Princeville, Ill., a corporation of Illinois
Continuation of application Ser. No. 527,571, Feb. 15, 1966. This application Dec. 26, 1968, Ser. No. 789,430
Int. Cl. B32b *5/18*; E04b *2/10*
U.S. Cl. 52—309 1 Claim

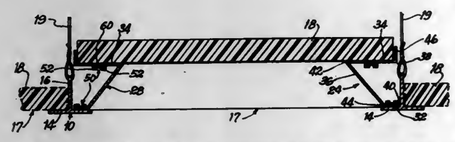
A structure for fabricated doors, panels or the like in which relatively rigid channel-type frame members open inwardly of the structure and are disposed in end-to-end relationship to define the periphery of an interior cavity between plastic skins which may have decorative design embossed thereon and which have margins bonded to opposed faces of the frame, and which cavity is filled into the frame channels and embossed design portions with a

relatively homogeneous mass of an expanded and heat cured foam type plastic material of low density which is



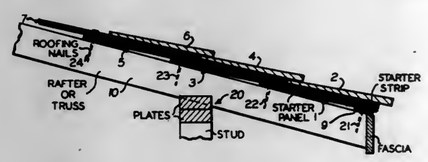
self-adhered to both the skins and frame members and cured in place.

3,546,842
PANEL ASSEMBLY
Harold G. Blum, Palatine, Ill., assignor, by mesne assignments, to Koller Craft Plastic Products, Inc., Fenton, Mo., a corporation of Missouri
Filed May 27, 1969, Ser. No. 828,158
Int. Cl. E04b *5/52*
U.S. Cl. 52—475 **6 Claims**



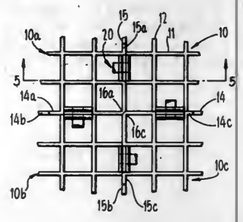
A decorative frame for supporting selected acoustical panels above the main support structure of a suspended ceiling. The decorative frame includes a plurality of side frame members each having upper and lower flanges which have outer edges in vertical alignment with each other and which are interconnected by an integral upwardly and inwardly inclined web. The frame elements are interconnected to define a rectangular frame by a mitered joint defined between the adjacent ends and an elongated slot on the adjacent surface of each of the flanges which slots terminate at the joint. An L-shaped connector has two legs respectively received in the slots of the adjacent members and the free ends of the legs have serrations defined on opposed surfaces with a recess extending inwardly from the free end of each leg and between the two surfaces to allow flexing of the surfaces during insertion of the legs into the slots.

3,546,843
COMBINATION ROOFING-SHEATHING PANEL SYSTEM
Donald F. Luebs, Carmel, N.Y., assignor to U.S. Plywood-Champion Papers Inc., a corporation of New York
Filed Oct. 21, 1968, Ser. No. 769,207
Int. Cl. E04d *1/28*
U.S. Cl. 52—540 **12 Claims**



A system of weatherproof plywood panels provided with decorative facings of wood shakes, shingles or the like, the system combining the functions of roof sheathing and roofing to permit rapid installation by relatively unskilled labor over conventional roof framing to produce a decorative roof.

3,546,844
LIGHT LOUVER AND FASTENER THEREFOR
Robert A. D. Schwartz, 513 Independent Road, Oakland, Calif. 94621
Filed Nov. 15, 1968, Ser. No. 776,125
Int. Cl. E04c *2/42;* **F16s** *3/00, 1/02*
U.S. Cl. 52—581 **10 Claims**



A louver structure comprised of a plurality of interconnected louver modules and providing an appearance of uninterrupted continuity throughout the entire extent thereof. Each louver module is rectangular and comprises a reticulated network of spaced transversely extending and longitudinally extending slats intersecting each other and defining spaces therebetween. The modules are identical and have perimetric edges adapted to overlie one another when a pair of modules are inverted relative to each other and are brought into contiguous juxtaposition along such edges. The corner portions of the modules are relieved to enable the various slats in any assembled plurality of modules to align with each other and thereby provide such appearance of uninterrupted continuity. Any pair of adjacent modules are interconnected along the contiguous overlying perimetric edges thereof by an integrally formed flexible fastener having an opening dimensioned to snugly receive such perimetric edges therein, and being provided with a discontinuity along one side enabling such perimetric edges to be inserted into the opening whereupon the fastener can be flexed to snap the same over such module edges to clamp the same together.

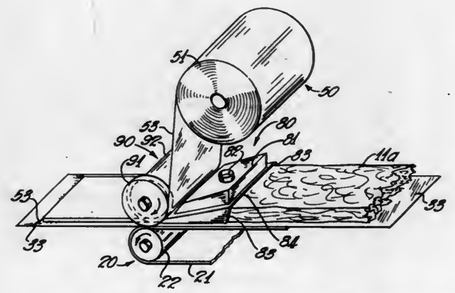
3,546,845
OVERHEAD GARAGE DOOR CONSTRUCTION
John J. Kempel, Pontiac, Mich., assignor to Taylor Garage Doors, Inc., Detroit, Mich., a corporation of Michigan
Filed June 28, 1968, Ser. No. 741,107
Int. Cl. E04c *1/30;* **E06b** *3/12*
U.S. Cl. 52—627 **5 Claims**



An improvement in the framing rails for hinged overhead opening garage door panels which includes having the channel section flanges of horizontal rails offset to

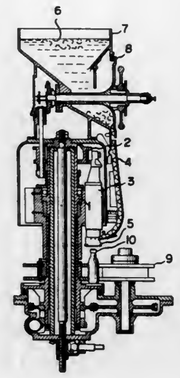
enable rolling in a locking flange or lip from the back side, rather than the front, for improved proficiency in manufacture and better appearance.

3,546,846
METHOD AND APPARATUS FOR PACKAGING FIBROUS MATERIAL
Fred T. Sens, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Dec. 29, 1965, Ser. No. 526,929
Int. Cl. B65b *1/26, 11/50*
U.S. Cl. 53—24 **11 Claims**



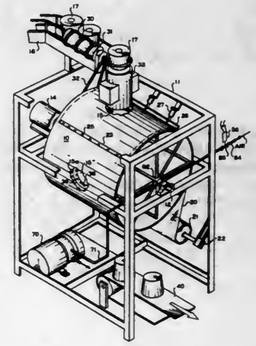
A method and apparatus for packaging individual lengths of compressible integrated glass fiber mats and the product resulting therefrom. A length of mat is compressed without breaking individual glass fibers in the mat by evacuating air from within the mat. An air impervious backing and top cover are sealed together to retain the mat in its evacuated and compressed state.

3,546,847
CROWN CAP FEEDER DEVICE FOR BOTTLE STOPPER FITTING MACHINE
Sadao Noguchi, Nagoya, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 11, 1969, Ser. No. 815,298
Int. Cl. B65b *57/02, 7/28*
U.S. Cl. 53—64 **4 Claims**



A crown cap feeding device comprises a plurality of stopper fitting hammers mounted, for revolution about a common circular locus, at substantially equiangular intervals, a crown cap hopper above the hammers and partition means dividing the hopper into plural sections. A corresponding number of crown cap chutes have their upper ends communicating with respective hopper sections, and the lower ends of the chutes are arranged at selected angularly spaced positions on the locus of revolution of the hammers. Thereby, crown caps can be fed to the hammers through any one of the cap chutes.

3,546,848
WRAPPING MACHINE
Mark E. Larkin and Orville J. Bridenstine, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Feb. 23, 1968, Ser. No. 707,606
Int. Cl. B65b *49/16, 11/28*
U.S. Cl. 53—204 **2 Claims**

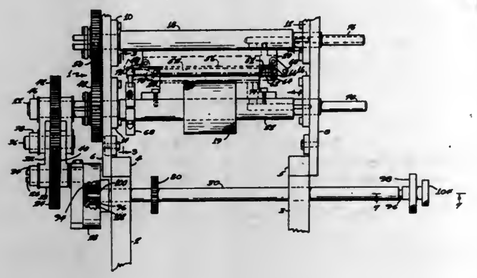


An article wrapping machine comprises a rotatable drum with a plurality of internal receptacles. Film is spread on the surface of the drum over the receptacle openings. The articles to be wrapped are dropped into the receptacles at a loading station, and the edges of the film are tucked around the articles. The drum is rotated and stopped intermittently at the loading station.

3,546,849
PACKAGING MACHINERY
Darwin D. Zimmerman, New Richmond, Wis., assignor to Doughboy Industries, Inc., New Richmond, Wis., a corporation of Wisconsin
Filed Jan. 22, 1968, Ser. No. 699,403
Int. Cl. B65b *51/30, 61/08*
U.S. Cl. 53—373 **8 Claims**

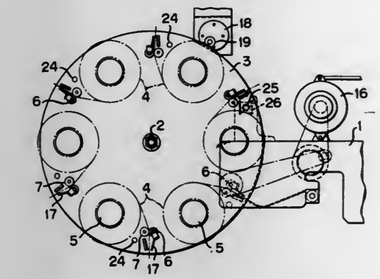
A packaging machine having an elongated cutoff knife housed within one of a pair of oppositely disposed, rotatable sealing dies, and an actuating mechanism operative to intermittently move the knife through a continuous length of wrapping material between spaced apart articles enclosed therein into a receiving slot on the other one of the sealing dies. The same epicyclic gear train which drives the sealing dies at a non-uniform speed is arranged to operate the knife-actuating mechanism in such a way that the knife cuts through the wrapping material in a rapid, slicing motion when the sealing dies are in engagement with opposite sides of the wrapping material during a crimping and sealing operation. The non-uniform rotational speed of the sealing dies may be adjusted in order to compensate for different lengths of articles to be packaged in the wrapping web by rotating an adjustment shaft housed concentrically within the main power input

shaft, the movement of the adjusting shaft serving to change the eccentric disposition of the main drive gear



of the epicyclic gear train with respect to the power input shaft to which it is connected.

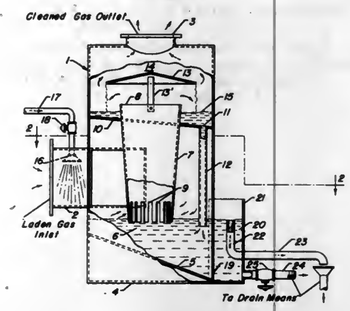
3,546,850
WRAPPING PAPER SUPPLY DEVICE FOR COIN PACKING MACHINE
Yoshihiro Hatanaka, Masaru Itoda, and Chiaki Ono, Himeji-shi, Japan, assignors to Kabushiki Kaisha Kokuei Kikai Seisakusho, Himeji-shi, Japan
Filed Feb. 6, 1968, Ser. No. 703,431
Claims priority, application Japan, Feb. 9, 1967, 42/8,583; Feb. 9, 1967 (utility model) 42/11,125
Int. Cl. B65b *41/16*
U.S. Cl. 53—389 5 Claims



In a coin packing machine wherein a stack of a predetermined number of coins is packed by wrapping a wrapping paper around the stack, a number of coils of wrapping papers of different types are mounted on a rotary disc, and when a particular type of the coin to be packed is selected, the coil of the wrapping paper corresponding to the selected type is brought to the operating position.

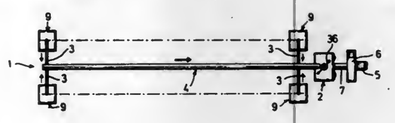
3,546,851
GAS SCRUBBING APPARATUS
Leslie C. Hardison, Norwalk, Conn., Edward H. R. Pegg, Port Chester, N.Y., Dom E. Reedy, Stamford, and James M. Barr, Norwalk, Conn., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Dec. 20, 1968, Ser. No. 785,472
Int. Cl. B01d *47/02*
U.S. Cl. 55—238 7 Claims

A two-stage scrubber unit combining a cyclone and liquid mixing and spray means in the inlet thereof with a frusto-conical tube having 360° of slotted passageways for upward flow through an axially positioned diverging frusto-conical path so as to obtain the effects of further gas-liquid mixing. Separated entrained particles and liquid



are returned to the lower end of the unit and a liquid level is maintained therein to be at the lower end of the center cone section and adjacent to the slotted gas inlet openings thereto around the periphery of the cone.

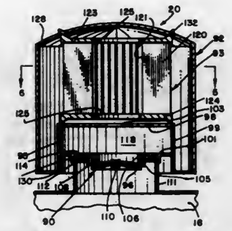
3,546,852
CONTINUOUSLY OPERATING FILTERING ARRANGEMENT
Joachim Fürstenberg, Aichelberg, near Esslingen, and Horst Kurrle, Stuttgart-Bergheim, Germany, assignors to LTG Lufttechnische Gesellschaft mit beschrankter Haftung, Stuttgart-Zuffenhausen, Germany
Filed Oct. 18, 1968, Ser. No. 768,936
Claims priority, application Japan, Mar. 8, 1968, 43/14,726
Int. Cl. B01d *46/02*
U.S. Cl. 55—341 6 Claims



Cut off threads and other impurities in the air surrounding a plurality of knitting machines are sucked off through a suction chamber in which two filters are located. Airflow guide means in the chamber are manually shifted to connect one or the other filter between the inlet and the outlet of the suction chamber so that at any time, one filter is operative, and the other filter is unused and can be cleaned and removed, permitting a continuous filtering of the air surrounding the knitting machines.

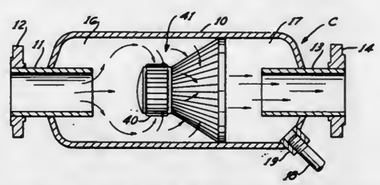
3,546,853
COVERING AND FILTERING APPARATUS FOR FUEL TANKS
Ralph H. Claar, P.O. Box 99, Deerfield, Kans. 67838
Filed Aug. 9, 1968, Ser. No. 751,469
Int. Cl. B01d *27/08*; B65d *51/16*
U.S. Cl. 55—419 2 Claims

This invention relates to covering and filtering apparatus operable to be connected to a standard internal combustion engine type fuel tank or to a stem pipe in a reservoir tank and may be constructed so as to be an integral, throw-away type unit readily replaceable at low cost. More particularly, this invention is a covering and filtering apparatus including an attachment means connectable to a fuel reservoir; a filtering means mounted on the attachment means operable to cleanse a fluid medium on its passage therethrough; a cover means mountable about



the filtering means to direct air through inlet openings and prevent the filtering means from becoming contaminated merely by debris flowing thereby; and connecting means operable to releasably connect the cover means and filtering means to the attachment means whereupon the same can be easily taken apart for observance and or replacement.

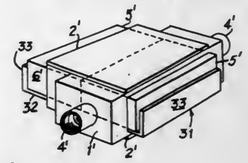
3,546,854
CENTRIFUGAL SEPARATOR
Oke W. Muller, 5000 Longmont No. 3, Houston, Tex. 77006
Filed Nov. 30, 1967, Ser. No. 687,025
Int. Cl. B01d *45/12*; B04c *3/00*
U.S. Cl. 55—455 2 Claims



A centrifugal device for separating entrained solid or liquid particles from a gaseous stream. A stationary baffle or tuyere is mounted within a cylindrical casing to impart an angular velocity to a gaseous stream passing therethrough so that in response to centrifugal force, the entrained particles are collected in an annular envelope adjacent the casing wall and thence removed from the separator. The baffle or tuyere defines a frusto-conical surface with its tapering end extending upstream and its base located adjacent the casing wall. The tapering end of the baffle or tuyere is closed to confine the gaseous stream to tangential slots defined by the tuyere.

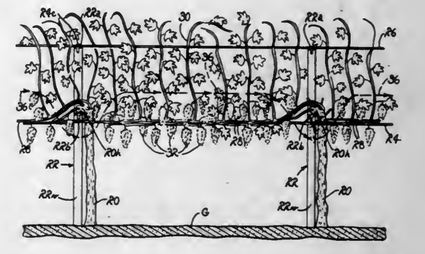
3,546,855
APPARATUS FOR DRYING OR FILTERING FLUIDS
Frank Ralph Marx, Cheltenham, Gloucestershire, England, assignor to Monnier Brothers Incorporated, Algonac, Mich.
Filed July 8, 1968, Ser. No. 743,228
Claims priority, application Great Britain, July 29, 1967, 34,976/67
Int. Cl. B01d *27/08*
U.S. Cl. 55—481 4 Claims

Apparatus for use in filtering fluids in which the fluid to be treated is led to the inlet port of a mounting which supports and positions a treatment cartridge. The mounting further includes an outlet port and the cartridge includes inlet and outlet ports which register with the ports of the mounting when the cartridge is properly positioned



for use. To change over to a fresh cartridge, the fresh cartridge is pressed against the used cartridge, the used cartridge thus being expelled from the mounting and the fresh cartridge being guided by the mounting so that it adopts the position in which its ports register with those of the mounting.

3,546,856
METHOD OF HARVESTING VINE BORNE CROPS
Kazuo Hiyama, 8184 E. Adams Ave., Fowler, Calif. 93625
Filed Mar. 8, 1968, Ser. No. 711,541
Int. Cl. A01g *19/00*
U.S. Cl. 56—1 22 Claims

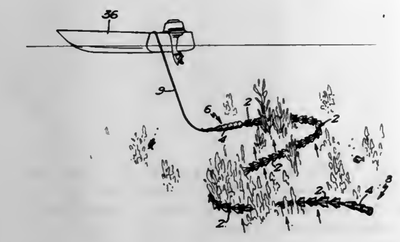


A method for harvesting vine borne crops including training canes of the vines on an elevated trellis having removable supporting lines, supporting the canes on the lines while their crop matures, removing the lines from the canes, severing the canes with their crop borne thereby from the vines, and separating the crop from the canes; and a mobile apparatus having a power driven cutter for severing the canes from the vines, a power driven conveyor for removing the severed canes and crop from the trellis, and power actuated means for separating the crop from the canes.

3,546,857
WATER WEED MOWER COMPRISING A CONTINUOUS CABLE OF WEIGHT AND CUTTER SECTIONS
Frederick E. Henning, 1638 8th Ave. S., Fargo, N. Dak. 58102
Filed July 18, 1968, Ser. No. 745,858
Int. Cl. A01d *45/08*
U.S. Cl. 56—8 5 Claims

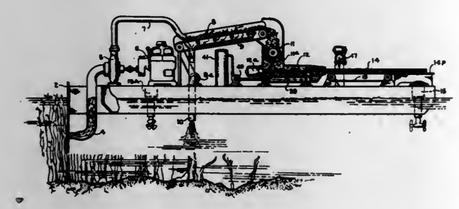
A mower for cutting weeds from the bottom of lakes and rivers having a plurality of pivotally linked cutters

connected to a group of longitudinally spaced weights disposed forwardly and rearwardly of said cutters to thereby form a continuous, elongated, flexible mower which may be drawn behind a boat by means of a cable attached to the forward group of weights. Both the weights and the cutters are generally conically-shaped in order that they may easily pass through weeds without



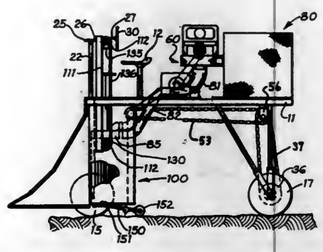
the weeds becoming entangled and caught thereon, each of the cutters consisting of a plurality of planar blades equally spaced in a symmetrical pattern. The individual weights are held closely together in abutting relationship with each other by means of a cable extending through a hole drilled lengthwise thereof, and each of the weights has a recess in its base within which the conical nose of the following weight is pivotally received.

3,546,858
HARVESTING MARINE GROWTHS
Merle P. Chaplin, 609 Driver Ave., Winter Park, Fla. 32789
Filed Feb. 10, 1969, Ser. No. 798,066
Int. Cl. A01d *45/08*
U.S. Cl. 56—9 **11 Claims**



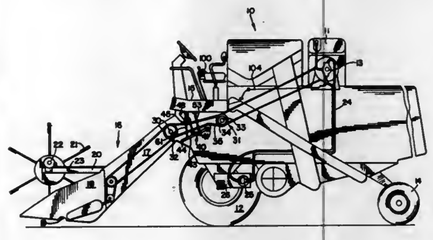
A method and apparatus for harvesting marine growths from a body of water utilizing a floating structure at one end of which is a partially submerged inlet member containing an intake opening through which marine growths may be drawn. Contained on the floating structure may be pump means for pulling the weeds in through the opening, as well as various means for converting the harvested materials and their various constituents into a condition whereby they may be readily transported to other locations or to receive further treatment for ultimate disposal or use. Various processing means on the structure may be utilized, depending on the specific need or objective. Advantageously, my invention comprehends the use of means for selectively varying the depth of the intake opening, as well as means for swinging the inlet member into a rearward facing direction, thus obviating the need for turning the floating structure around when a return path across the lake or other body of water is desired.

3,546,859
COTTON PICKER
Thomas G. Owen, Jr., 5126 W. 16th St., Speedway, Ind. 46224
Filed Jan. 27, 1969, Ser. No. 794,324
Int. Cl. A01d *45/20*
U.S. Cl. 56—12 **10 Claims**



Cotton picking apparatus including a vehicle having a plurality of parallel hollow vacuum containing pipes mounted thereon. Each of the pipes is pointed on its lower end and each has a slot adjacent its lower end. A blower is coupled to the pipes so as to produce a vacuum therein and move cotton into the pipes thence to a receptacle. The pipes are vertically reciprocated by a hydraulic motor.

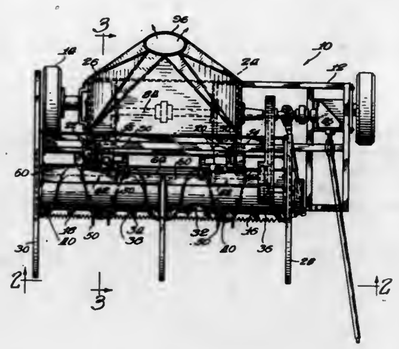
3,546,860
AUTOMATIC FORWARD TRAVEL CONTROL
Stuart D. Pool, Wheaton, and Tommy A. Middlesworth, Hinsdale, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Mar. 27, 1969, Ser. No. 811,039
Int. Cl. A01d *41/02*
U.S. Cl. 56—21 **5 Claims**



An automatic forward travel control apparatus for a harvesting machine that senses the work required to gather, cut, and feed material into the harvester and the work required to thresh the material and then regulates the ground speed in response to the algebraic sum of the measured works.

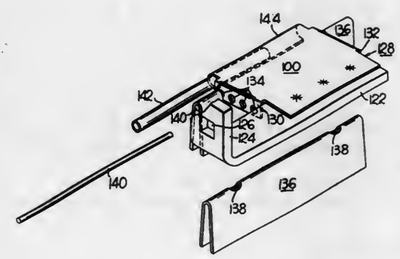
3,546,861
FORAGE HARVESTER
Wilbur H. Clendenin, Memphis, Tenn., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Continuation of application Ser. No. 569,749, Aug. 2, 1966. This application May 12, 1969, Ser. No. 826,068
Int. Cl. A01d *43/06*
U.S. Cl. 56—23 **11 Claims**

A crop harvester having a forward cutting mechanism, a conveyor behind such mechanism, a plurality of chopping and conveying assemblies spaced along the cutting and conveying mechanism, and feed chopping assemblies



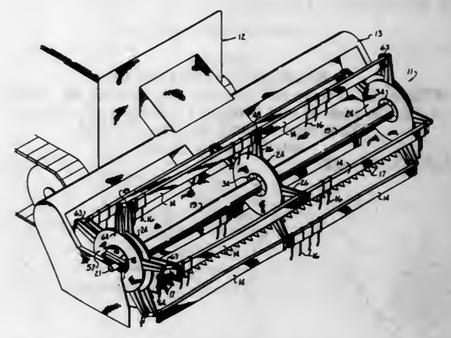
being interconnected by a common drive, and a cooperative roller feed mechanism for feeding crops from the conveying mechanism to the chopping assemblies.

3,546,862
MOISTENER FOR COTTON PICKING SPINDLES OF COTTON HARVESTER
Rector C. Fergason, Gadsden, Ala., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Original application Sept. 29, 1967, Ser. No. 671,688, now Patent No. 3,505,799, dated Apr. 14, 1970. Divided and this application Aug. 20, 1969, Ser. No. 870,787
Int. Cl. A01d *45/18*
U.S. Cl. 56—41 **4 Claims**



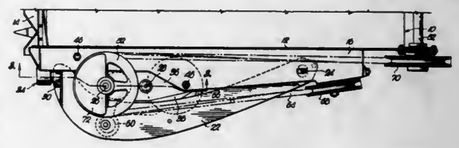
A moistening apparatus for the rotating cotton picking spindles of a cotton harvester in which a plurality of vertically spaced moistening devices are carried by a support bracket assembly mounted adjacent the path of movement of the cotton picking spindles. The support bracket assembly is vertically and horizontally adjustable. The moistening device includes a mounting arm secured to the mounting bracket, an attaching clip secured to the mounting arm, and a plurality of wick elements formed of rubber or the like detachably secured to the attaching clip by support rods which pass through holes in the attaching clip and in the wick elements. A water supply tube is attached to the mounting clip and distributes water to the wick elements.

3,546,863
PICK-UP REEL FOR HARVESTING MACHINERY
Thomas O'D. Connolly, Stockton, Calif., assignor to Universal Harvester Co., Inc., Stockton, Calif., a corporation of California
Continuation of application Ser. No. 528,146, Feb. 17, 1966. This application Apr. 30, 1969, Ser. No. 820,683
Int. Cl. A01d *57/02*
U.S. Cl. 56—226 **12 Claims**



A pick-up reel for harvesting machinery is described which is free of external polygon bracing and other elements which would obstruct the feed-through of a crop to the harvester cutter bar and beat and shatter the seed heads, but which is structurally strong and rigid. The pick-up reel includes a metallic tubular axle which has a plurality of annular reel hubs rigidly coaxially secured thereto at longitudinally spaced positions. Each of the reel hubs is of a dual disc construction in which a pair of spaced parallel annular discs are coaxially mounted on the tubular axle and have annular webs extending right angularly therebetween to provide a rigid hub structure. A plurality of circumferentially spaced metallic reel arms project radially outward from between the spaced discs of each of the reel hubs with corresponding ones of the arms of the respective hubs being longitudinally aligned. A plurality of bats from which crop rake fingers project are pivotally mounted at the tips of the aligned ones of the arms for movement about longitudinal axes. An eccentrically mounted control hub is provided for rotation with the reel hubs and is so connected to the bats that it pivots the same during the rotation of the pick-up reel to maintain a selected positional inclination of the rake fingers.

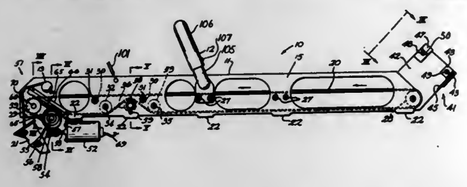
3,546,864
VIBRATION-FREE DRIVE FOR RECIPROCABLE DEVICES
Allen A. White, Peabody, Kans., assignor to Hesston Corporation, Hesston, Kans., a corporation of Kansas
Filed Oct. 31, 1968, Ser. No. 772,312
Int. Cl. A01d *47/00, 55/02*
U.S. Cl. 56—296 **10 Claims**



A horizontally reciprocable sickle for farm implements is provided with a drive which is essentially vibration-free and includes a counterbalanced sway bar that is inclined upwardly and rearwardly from the sickle. The upper end

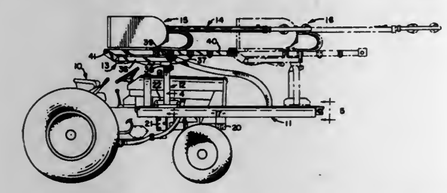
of the bar is pivotally mounted on a supporting part of the implement and the lower end of the bar is pivotally coupled with one end of the sickle. A counterbalanced crankshaft, inclined oppositely to the bar, is interposed between said supporting part and the bar, and is operably coupled with the latter by a connecting rod. An additional, free running counterbalance is driven by the crankshaft through gears, the entire arrangement being such as to counteract substantially all of the unbalancing effect of the moving components.

3,546,865
ASPARAGUS HARVESTER
William H. Woodward, Ottawa, Ill.; Phyllis M. Woodward, executor of said William H. Woodward, deceased
Filed May 9, 1968, Ser. No. 727,995
Int. Cl. A01d *45/00*
U.S. Cl. 56—327 **20 Claims**



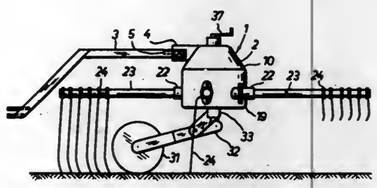
The present device is a manually carried machine, having a motor and power driven belt, for use in harvesting above ground growing vegetables such as asparagus spears, and elevating same to a receiver. At the forward end of the machine, the frame of same is provided with a relatively narrow side opening just forward of the end of said belt for sidewise receiving growing asparagus spears, while forward of said belt and side opening and crosswise of said frame there is provided a cutting blade, substantially parallel to the ground when the harvester is in use, with the cutting edge of the blade facing the end of said belt and varying from substantially parallel to the end of said belt to forwardly inclined away from said belt and side opening, so that with an asparagus spear received through said side opening, a backward motion of said machine will sever the asparagus spear and cause same to fall onto said belt for elevation to a receiver.

3,546,866
TREE SHAKER APPARATUS
Stuart D. Pool, Naperville, Harold G. Meitl, Clarendon Hills, Calvin P. Rickerd, La Grange Park, Edward Svereika, Chicago, and Tommy A. Middlesworth, Hinsdale, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed July 9, 1968, Ser. No. 743,436
Int. Cl. A01g *19/08*
U.S. Cl. 56—328 **20 Claims**



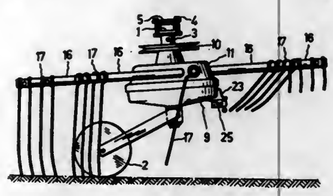
A tree shaker apparatus mounted on a tractor and including an elongated boom having a clamp adapted to grip a tree for shaking fruit therefrom. The boom is received on a boom carriage assembly which is operable to raise and lower the boom and along which the boom is movable. The boom carriage assembly is swingably mounted on a yoke which straddles the tractor. A frame is mounted on the tractor for receiving the yoke which is movable along the frame for positioning the carriage assembly and boom relative to a tree to be gripped. An inertia shaker mechanism is mounted on the boom for reciprocating the boom when the clamp is gripping a tree.

3,546,867
HAY HARVESTING MACHINE
Hans Ulrich Hauser-Lienhard, Watt, Zurich, Switzerland, assignor to Bucher-Guyer AG Maschinenfabrik, Zurich, Switzerland
Filed July 15, 1968, Ser. No. 744,980
Claims priority, application Switzerland, July 14, 1967, 10,058/67
Int. Cl. A01d *79/00*
U.S. Cl. 56—370 **11 Claims**



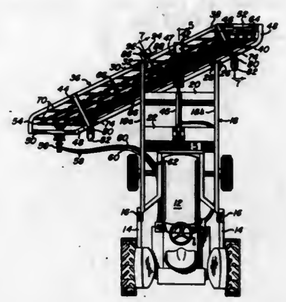
A hay harvesting machine having at least one rake wheel rotatably driven about an upright tubular shaft and supported on the ground by means of one or more support rolls. The rake wheel comprises pivoting prong carriers the position of which is controlled by a cam track arranged within a wheel casing and cam followers secured to the prong carriers, so that the prongs act on the hay lying on the ground or are raised above the ground into inoperative position. The tubular shaft forms a central support for the cam track and a central bearing for a rotatable casing portion carrying said prong carriers. An adjusting member extends through said tubular shaft and is operable from above the shaft to vary the level of the cam track or the support roll.

3,546,868
HAY HARVESTING MACHINES
Hans Ulrich Hauser-Lienhard, Watt, Zurich, Switzerland, assignor to Bucher-Guyer AG Maschinenfabrik, Zurich, Switzerland
Filed May 1, 1968, Ser. No. 725,754
Claims priority, application Switzerland, May 5, 1967, 6,365/67
Int. Cl. A01d *77/06*
U.S. Cl. 56—377 **16 Claims**



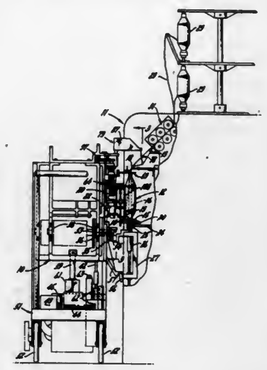
A hay harvesting machine comprises a rake wheel which is rotatably driven about an upright stationary shaft. A hub casing of the wheel carries a plurality of rod-shaped rake prong carriers having their inner ends pivotally mounted in the interior of the casing, while the outer ends projecting from the casing carry rake prongs. A cam track is accommodated within said hub casing and cam track followers are connected with the inner ends of the rake prong carriers to swing the rake prongs into and out of raking position.

3,546,869
TRACTOR MOUNTED HAY RAKE APPARATUS
Calvin P. Weaver, 226 W. Main St., Tipp City, Ohio 45371
Filed Apr. 26, 1968, Ser. No. 724,366
Int. Cl. A01d *77/06*
U.S. Cl. 56—377 **17 Claims**



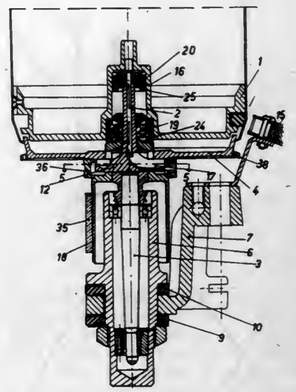
A tractor mounted hay rake apparatus of the side delivery type. The rake apparatus is supported in front of a tractor by adjustable support means, such as a boom or the like. The rake apparatus includes a reel which is preferably rotated by fluid energy supplied by a fluid pump carried by the tractor which supports the rake apparatus, or by other suitable means. The reel is rotatable in one direction for raking hay and is rotatable in the opposite direction for tedding hay.

3,546,870
METHOD AND MACHINE FOR AUTOMATICALLY RELOCATING SPINNING FRAME TRAVELERS
Richard A. Schewe and Harold R. Yone, Rockford, Ill., assignors to Barber-Colman Company, Rockford, Ill., a corporation of Illinois
Filed Feb. 13, 1967, Ser. No. 615,502
Int. Cl. D01h *15/00*
U.S. Cl. 57—34 **41 Claims**



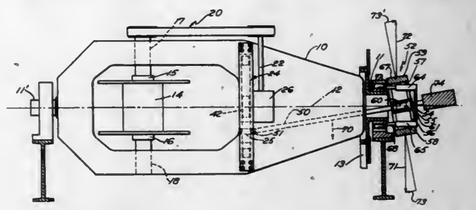
Mechanism on a traveling head **10** propelled continuously along a filled spinning frame **11** operates on each successive bobbin **12** and the unwound thread **13** thereof to shift each traveler **14** around its supporting ring **15** and stop the same in a predetermined position *x* (FIG. 2) ahead of the bobbin and its spindle **16**.

3,546,871
DAMPED SUPPORT FOR DOUBLE TWIST SPINDLE
Michele Ratti, 21016 Luino, Varese, Italy
Filed Oct. 2, 1968, Ser. No. 764,573
Claims priority, application Italy, Apr. 30, 1968, 15,923/68
Int. Cl. D01h *1/10, 7/86*
U.S. Cl. 57—58.49 **3 Claims**



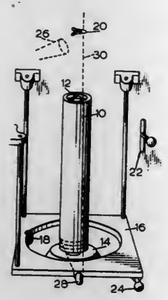
A double twist spindle has a shaft composed of two parts and upper and lower supports for the shaft, whereby the upper part of the shaft is rotatably held by antifriction bearings in the stationary bobbin holder. The antifriction bearings are located in vibration-damping sleeves with axially extending projections on the outside thereof for facilitating insertion and removal of the bobbin.

3,546,872
APPARATUS FOR PRODUCING STRANDED CABLE
Konrad C. Schillebeeckx, Cranston, R.I., assignor to Wanskuck Company, a corporation of Rhode Island
Filed Jan. 31, 1969, Ser. No. 795,517
Int. Cl. D01h *1/00;* **F16h** *19/06*
U.S. Cl. 57—66 **5 Claims**



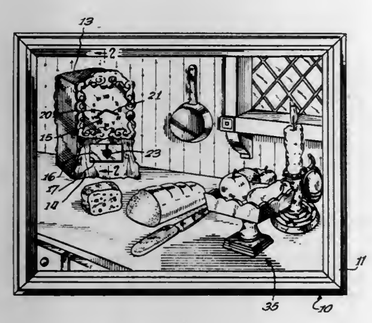
An apparatus which intertwists at least two strands to form a compound strand which is arranged to operate at a speed at least double of conventional twisting apparatus through the employment of a specially constructed traverse mechanism which traverse mechanism is perfectly or may be substantially close to perfectly balanced at all positions of its movement so as to eliminate or at least substantially reduced any rotating bearing load and to substantially reduce, if not totally eliminate, centrifugal forces operating on the wire being twisted by the apparatus.

3,546,873
MACHINES FOR PRODUCING SYNTHETIC YARN
Philip T. Slack, Drighlington, near Bradford, England, assignor to Plasticisers Limited, Drighlington, near Bradford, England
Filed June 18, 1968, Ser. No. 737,887
Claims priority, application Great Britain, Apr. 5, 1968, 16,402/68
Int. Cl. D01H *1/24, 1/20, 1/02*
U.S. Cl. 57—93 9 Claims



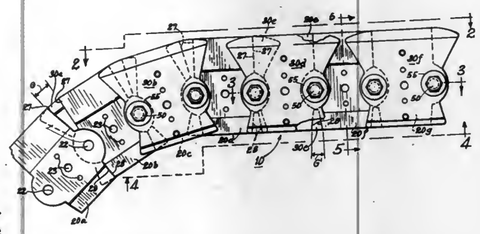
A machine for twisting and winding yarn into a package known as a ring twister, having novel drive and drive control means to reduce the driving torque at least during threading up to allow the twister to follow any reduction in the speed of delivery of material to the machine during threading-up without increasing the tension in the material beyond its breaking point. The design allows rapid and simple threading-up of the machine and wound packages contain 100% twisted yarn. Suction waste disposal tube means may be provided at or near the input to the ring twister into which the leading end of continuously produced material may be deflected during threading-up.

3,546,874
PENDULUM CLOCK
Donald J. Booty, Oak Forest, Ill., Christian M. Jauch, Louisville, Miss., Charles F. Vander Velde, Oak Forest, Ill., and Jack C. Waage, Louisville, Miss., assignors to Spartus Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 6, 1968, Ser. No. 773,804
Int. Cl. G04b *17/02*
U.S. Cl. 58—129 10 Claims



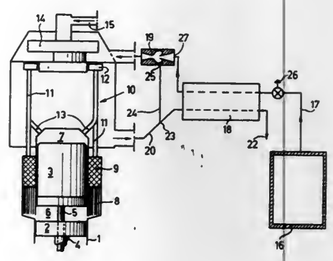
A pendulum clock having a simulated pendulum displayed upon an opaque plate attached to the pendulum of the clock mechanism. The pendulum of the clock mechanism is hidden from view. The simulated pendulum is visible and has a size, shape and location independent of, and an angular oscillation similar to, the pendulum of the clock mechanism.

3,546,875
ARTICULATED SUPPORT FOR A MOVABLE FLEXIBLE SUPPLY CONDUIT
Charles H. Weber, Mayville, Wis., assignor to Maysteel Products Corp., Milwaukee, Wis., a corporation of Wisconsin
Filed July 11, 1968, Ser. No. 744,155
Int. Cl. F16g *13/18*
U.S. Cl. 59—78.1 7 Claims



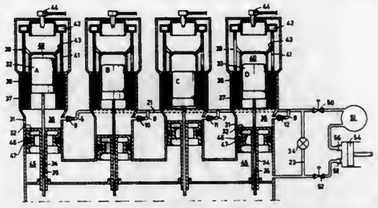
An articulated support of alternately overlying unitary links, each of a single sheet having a pivot portion and planar support portions raised therefrom for abutment of adjacent links and a guard member, fastened on each link opposite the pivot portion thereon, to provide tie-bar reinforcement and guard portions overlapping support portions of adjacent link members.

3,546,876
HOT-GAS ENGINE
Herman Fokker and Roelf Jan Meijer, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 18, 1968, Ser. No. 768,842
Claims priority, application Netherlands, Nov. 2, 1967, 6714885
Int. Cl. F03g *7/06*; F25b *9/00*
U.S. Cl. 60—24 3 Claims



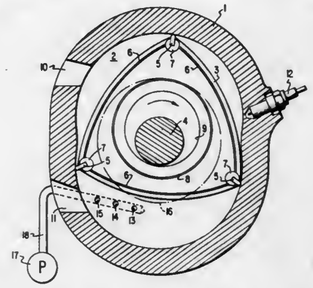
A hot-gas engine having its burner supplied with oxygen in place of air, mixed with a variable amount of exhausting combustion gas to control the flame temperature.

3,546,877
HOT-GAS PISTON ENGINE
Henricus Cornelis Johannes van Beukering, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 18, 1968, Ser. No. 776,458
Claims priority, application Netherlands, Dec. 1, 1967, 6716350
Int. Cl. F03g *7/06*
U.S. Cl. 60—24 4 Claims



A hot-gas engine with a duct system and a single valve means for controlling the flow of fluid medium into and out of a plurality of working spaces to regulate the average pressure therein, and the corresponding power output.

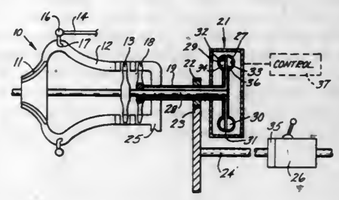
3,546,878
ROTARY ENGINE WITH SECONDARY AIR INJECTING MEANS TO OXIDIZE UNBURNED EXHAUST GASES
Shigetake Yoshimura, Hiroshima-shi, Hiroshima, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima, Japan
Filed Apr. 10, 1969, Ser. No. 814,984
Claims priority, application Japan, May 25, 1968, 43/35,639
Int. Cl. F01m *3/10*; F02b *53/04, 55/16*
U.S. Cl. 60—30 8 Claims



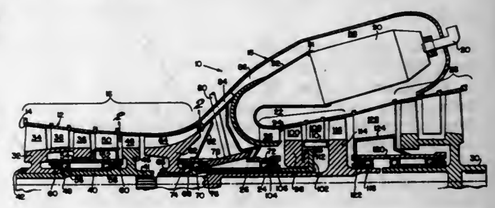
A rotary piston internal combustion engine having an epitrochoidal casing with flat side walls and a rotary piston disposed therein which is triangular in shape and rotated in a planetary movement, carries a plurality of nozzles for sequentially ejecting secondary air into an operating chamber with the rotary piston first opening the radially innermost or outermost nozzle during planetary movement.

3,546,879
TWO-SHAFT TURBINE WITH MEANS FOR CONTROLLING RELATIVE SHAFT ROTATION
David P. Hass, Detroit, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Aug. 19, 1968, Ser. No. 753,624
Int. Cl. F02c *3/06*
U.S. Cl. 60—39.16 18 Claims

A power system utilizing a gas turbine engine having combustion apparatus, a free turbine and first and second relatively rotatable shafts, the first shaft being connected for rotation with the combustion apparatus and the second shaft being connected for rotation with the free turbine wherein a fluid coupling is provided between the first and second shafts for relating the relative speeds of rotation of the shafts. The load is selectively connectible to the second shaft.



3,546,880
COMPRESSORS FOR GAS TURBINE ENGINES
Pierre G. Schwaar, Monroe, Conn., assignor to Avco Corporation, Stratford, Conn., a corporation of Delaware
Continuation-in-part of application Ser. No. 700,956, Jan. 26, 1968. This application Aug. 4, 1969, Ser. No. 857,264
Int. Cl. F02c *7/04*
U.S. Cl. 60—39.16 14 Claims

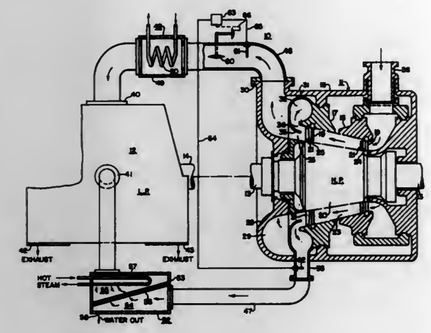


The disclosure illustrates a gas turbine engine having an improved compressor comprising a three-stage axial flow compressor and a counterrotating supersonic mixed flow compressor immediately adjacent the downstream end of the axial flow compressor. The axial flow compressor and the mixed flow impeller are rotated at speeds that cause the air discharged from the axial flow compressor to enter the mixed flow impeller at a relative velocity greater than sonic. Shock waves are then set up in the inlet portion of the impeller which reduces the relative velocity to a subsonic value and increases the pressurization of the air. In the portion of the impeller adjacent the discharge end the air is further pressurized by diffusion and centrifugation. An alternate embodiment utilizes a stator vane assembly between the axial flow compressor and the mixed flow impeller. The stator vane assembly is shaped to minimize the velocity variation from the hub to the tip of the mixed flow impeller entrance.

3,546,881
VAPOR TURBINE POWER PLANT
Ralph D. Brown, Springfield, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 29, 1968, Ser. No. 748,463
Int. Cl. F01k *7/16*
U.S. Cl. 60—73 10 Claims

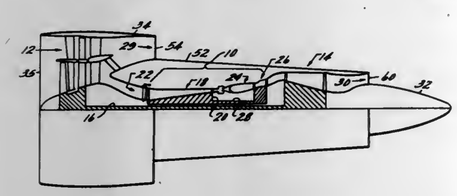
The invention relates to a turbine power plant utilizing pressurized condensible vapor, such as steam, as the motive fluid wherein during expansion some of the motive

fluid forms objectionable condensate, so that the motive fluid becomes wet. An arrangement is provided for dividing the motive fluid into two streams after expansion in a turbine, namely a wet stream and a dry stream. The condensate is removed from the wet motive fluid after expansion in a first and higher pressure turbine by means splitting the exhaust into a first or outer outlet diverting a part of the motive fluid and condensate centrifuged by the turbine blades and a second or inner outlet for receiving the remaining and dryer portion of the motive fluid. The two outlets are connected to two inlets of a second and lower pressure turbine for further expansion.



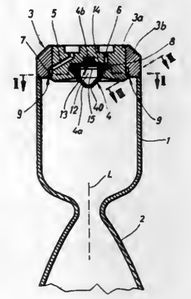
However, means is provided for removing the condensate from the motive fluid in the first outlet before delivery to the second turbine. In addition, the motive fluid in both outlets may be reheated to a superheated state before delivery to the second turbine, so that it may undergo additional expansion therein with the reduced possibility of forming additional condensate. The pressure of the motive fluid from the two outlets may be equalized by a suitable valve means responsive to the difference in pressure of the two fluid streams to insure that the flow of motive fluid delivered to the two inlets of the second turbine is substantially at the same pressure.

3,546,882
GAS TURBINE ENGINES
Donald C. Berkey, Cincinnati, Ohio, assignor to General Electric Company, a corporation of New York
Continuation of application Ser. No. 547,090, Apr. 27, 1966. This application Apr. 24, 1968, Ser. No. 725,222
Int. Cl. B63h *11/00*
U.S. Cl. 60—204 **11 Claims**



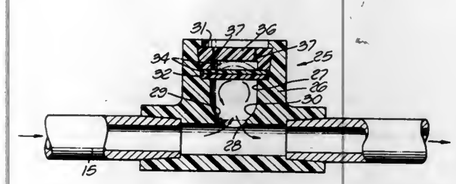
The disclosure shows a turbofan engine of a preferred configuration having an altitude between 30,000 and 45,000 feet, and a flight speed between Mach .75 and .95, a bypass ratio between 5/1 and 10/1 with an overall engine compression ratio greater than 20/1 and a turbine inlet temperature of at least 2,000° F.

3,546,883
LIQUID FUEL ROCKET ENGINE CONSTRUCTION
German Munding, Bad Friecrichshall, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany
Filed June 5, 1968, Ser. No. 734,597
Claims priority, application Germany, June 8, 1967, B 92,913
Int. Cl. F02k *9/02*
U.S. Cl. 60—258 **7 Claims**



A liquid fuelled rocket engine construction includes a combustion chamber having a head portion which is formed of an inner solid cylindrical part and an outer annular part. In addition, the central inner cylindrical part carries a nozzle member which is formed of two mating parts. The construction includes fuel ducts which supply fuel to the outer periphery of the combustion chamber walls and also a nozzle fuel duct which supplies fuel tangentially into the swirl chamber defined within the nozzle member. The fuel ducts are formed between two mating parts of the nozzle member and the outer and inner parts of the head of the combustion chamber. A groove is formed in one of the parts and the opposite mating wall of the other of the parts forms the completed boundary enclosing the duct for the fuel.

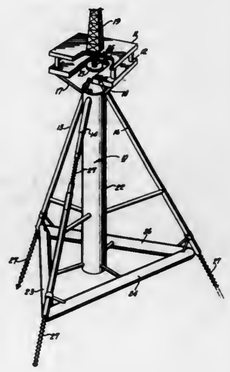
3,546,884
SUBTERRANEAN IRRIGATION
Atwood M. Timpe, 430 S. Burnside Ave., Apt. 9B, Los Angeles, Calif. 90036
Filed Sept. 6, 1968, Ser. No. 758,039
Int. Cl. E02b *13/00;* **B05b** *1/30*
U.S. Cl. 61—13 **13 Claims**



The requisite number of water release applicators are located at predetermined locations underground, which applicators release water in specific measured quantities. Connecting areas between applicators may be sand-filled channels ("wicks") which speeds water movement to the surrounding soil. The applicators, or precipitators, provide a constant rate of water application for a given

water source pressure, irrespective of hydrostatic head differentials that may exist at the different applicators by virtue of their being located at different heights relative to the water source. Each applicator includes an automatic constant metering device, within the range of the expected hydrostatic head variation, that is pressure operated to control water efflux rate.

3,546,885
THREADED PILE FOR MARINE STRUCTURE
Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,709
Int. Cl. E02b *17/00*
U.S. Cl. 61—46.5 **10 Claims**

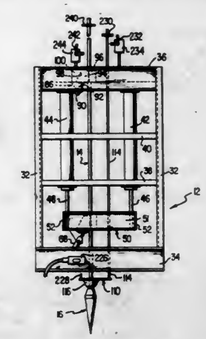


The invention relates to a deep water drilling platform for use in offshore or inland waters, which platform embodies one or more support legs extending downward toward the ocean floor. The platform is maintained relatively stationary with respect to the ocean surface and floor by anchoring into the ocean substratum with piles that depend from the lower ends of one or more of the support legs. The respective piles are provided with an externally positioned, upstanding helical member which permits a pile to be rotatably driven into the anchoring medium by activation of the pile through rotary motor means at the water surface.

3,546,886
SOIL TREATING APPARATUS
Arthur H. Jones and Kennedy R. Fleming, Baton Rouge, La., assignors, by direct and mesne assignments, to Soil Treatment and Research Corporation, Baton Rouge, La., a corporation of Louisiana
Filed May 11, 1965, Ser. No. 454,792
Int. Cl. E02d *3/12;* **A01g** *29/00*
U.S. Cl. 61—63 **4 Claims**

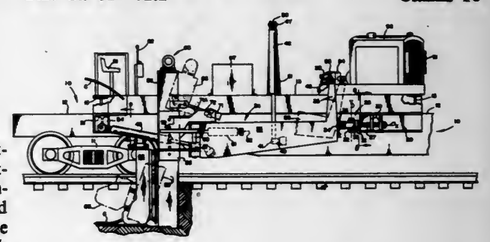
An injector point for use in soil impregnating apparatus which includes a main body portion having a generally conical configuration, with the ration of the length to diameter of the cone shape being about 8 to 1. The injector point provides conduit means terminating in port means at the tip area of the conically shaped injector point.

A method of injecting fluid into soil includes advancing an injector pipe having a bulged injector point intermittently into the soil. Fluid ejection is stopped whenever the injector pipe is moving to avoid lubrication of the injector point which would reduce the effectiveness of the seal formed by the bulged portion of the injector with adjacent compacted soil during the next injection period.



A second seal is also maintained about the pipe at the soil surface to avoid fluid loss.

3,546,887
RAILROAD CABLE LAYING APPARATUS
Martin F. Helmus, Philadelphia, Pa., assignor to Henkels and McCoy, Inc., Blue Bell, Pa., a corporation of Pennsylvania
Filed Oct. 9, 1968, Ser. No. 766,080
Int. Cl. F16l *1/00*
U.S. Cl. 61—72.1 **Claims 18**

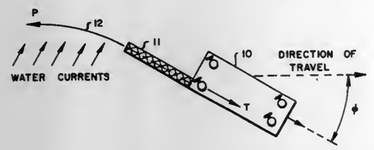


The present disclosure concerns an apparatus for burying lineal material adjacent railroad tracks utilizing a track supported mobile base. Rearwardly trailed, elongate beams extend laterally in a positionable manner from the car side and draw a blade element through the ground to form a kerf within which continuous flexible material such as signal or electrical cable is deposited by a cable shoe carried by the blade. Hydraulic components position the beam to adjustably locate the blade for depositing the cable at selected depths and distances from the railroad tracks. Release means permit the earth penetrating blade to avoid blade damaging impact with ground objects in its path.

3,546,888
HEADING CONTROL SYSTEM FOR A PIPELAYING VESSEL
Robert H. Kolb, Cypress, Tex., Donald W. Barry, Centralia, Ill., and Ronald P. Nordgren and Douglas E. Broussard, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Oct. 30, 1968, Ser. No. 771,964
Int. Cl. F16l *1/00;* **B65h** *17/24*
U.S. Cl. 61—72.3 **10 Claims**

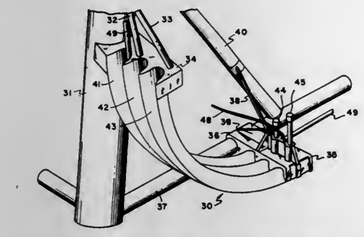
A method of laying an offshore pipeline along a preselected route from a vessel having a pipe supporting structure extending outboard of said vessel for directing a pipeline into the water, wherein the vessel heading

is partially rotated and so maintained as the vessel is moved along the route in order to alleviate the stresses in



the structure caused by transverse water forces acting on the pipeline.

3,546,889
CONSTRUCTION OF MULTIPLE PIPE RISERS TO OFFSHORE PLATFORMS
Dean P. Hemphill and Douglas E. Broussard, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 641,961, May 29, 1967, now Patent No. 3,466,882, dated Sept. 16, 1969. This application June 13, 1969, Ser. No. 833,057
Int. Cl. F16l *1/00;* **E02b** *17/00*
U.S. Cl. 61—72.3 **7 Claims**



A method and apparatus for connecting a plurality of underwater pipelines lying along the floor of a body of water to an offshore platform in which the end of the pipelines are bent upwardly to form a pipeline "riser" and subsequently connected to the platform. Each pipeline is bent to a desired curvature around a guide of "shoe" having a sufficient radius to prevent buckling the pipeline.

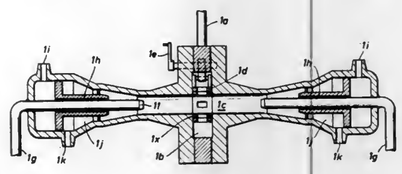
3,546,890
TRENCHLESS LAYING OF PIPE UNDERGROUND
Ainsley N. Ede, 36 Thornton Way, Cambridge, England
Filed May 3, 1968, Ser. No. 726,495
Claims priority, application Great Britain, May 3, 1967, 20,476/67
Int. Cl. F16l *1/00, 7/00*
U.S. Cl. 61—72.6 **4 Claims**



The invention is a method and apparatus for the trenchless laying of pipe underground, in which a mole plough is forced through the ground by means of a tractor or winch to form an underground tunnel, and a continuous length of flexible sleeving, for example made of polythene, is fed down through the hollow coulter of the advancing mole plough and is laid in the newly-formed tunnel behind the mole; and at the same time a length of rigid pipe is thrust forwards lengthwise into the tunnel and within the sleeving laid behind the advancing mole plough, by means of a driving machine including sets of pneumatic-tyred driving rollers between which the pipe is frictionally engaged. The pipe length is forced forwardly within the sleeving from the start of the underground tunnel at a speed which is coordinated with the speed of travel of the mole plough, for example by means of a trailing marker, so that the leading end of the pipe length follows closely behind the rear of the advancing mole. In this way the pipe length is pushed into its final position enclosed in the protective sleeving which protects it against corrosive attack by soil water. If desired cement grout may be injected into the sleeving to form an auxiliary protective coating around the pipe.

The specification also describes a modified form of mole plough designed to be used in a submerged position for pipe laying by the described method in a river bed or estuary bed, and to be rendered buoyant by means of compressed air for navigation purposes. This mole plough has a hollow framework and pivoted front and rear undercarriages with pivoted hollow rollers which also act as floats.

3,546,891
VORTEX TUBE PROCESS AND APPARATUS
Lancelot A. Fekete, 1632 Colquitt, Houston, Tex. 77006
Continuation-in-part of application Ser. No. 458,292, May 24, 1965. This application July 18, 1969, Ser. No. 855,056
Int. Cl. F25b *9/02*
U.S. Cl. 62—5 **22 Claims**

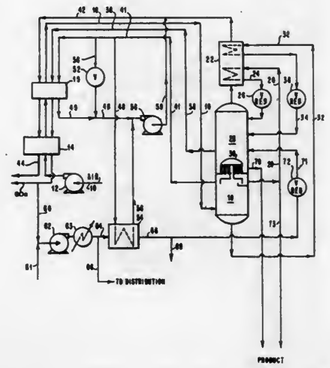


An improved, multi-stage vortex tube and related process for separating fluid stream components wherein the temperature of one component for example is intermediate the temperature of two other components and wherein the vortex tube includes a housing of generally elongate cylindrical configuration and in which there resides a chamber means having separation means therein for selectively dividing the fluid feed into its respective streams. The vortex tube is further characterized by an inlet opening tangentially communicating with the chamber so as to produce a fast turning vortex upon the introduction of a feed stream thereto. The housing further includes withdrawal means constructed and arranged for removing discretely the respective gaseous and/or liquid streams so as to produce an effective separation of the components in the main feed stream.

3,546,892
CRYOGENIC PROCESS
Edward H. Van Baush, Pearl River, N.Y., assignor to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed Mar. 12, 1968, Ser. No. 712,532
Int. Cl. F25j *3/02, 3/04, 5/00*
U.S. Cl. 62—13 **3 Claims**

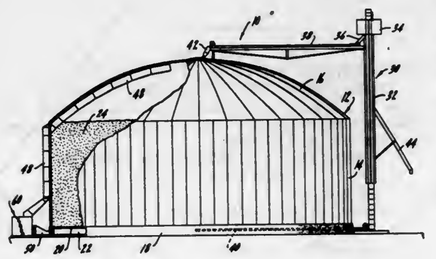
A process for increased liquid production from a cryogenic system which comprises compressing, cooling and fractionating air and removing from the fractionation

step, a high pressure nitrogen overhead, a first portion of which is passed in heat exchange with the incoming air and a second portion of which is passed in heat exchange with a cooled compressed gaseous stream whereby substantial amount of the compressed gaseous stream be-



comes liquid and then combining said second portion of the nitrogen overhead with the warmed first portion of the nitrogen overhead, and expanding the recombined overhead stream, said expansion supplying refrigeration to the process.

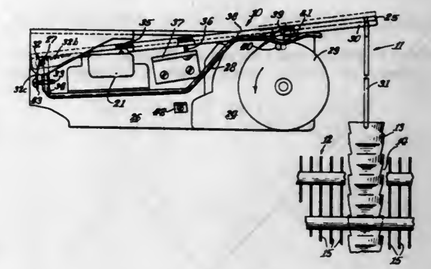
3,546,893
CONTROL SYSTEM FOR STORAGE APPARATUS
Robert W. Frudeger, Peoria, Ill., assignor to Frigidome Corporation, Peoria, Ill., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 770,000
Int. Cl. F25d *17/06*
U.S. Cl. 62—89 **10 Claims**



Agricultural product, such as shelled corn, is conditioned and stored in an enclosure by first at least partially filling the enclosure with product while delivering outside air to it at a temperature below about 35° F. The product is then conditioned by passing air through it at a temperature below about 29° F. This air is recirculated through the product when the outside air temperature is above about 29° F., and delivered directly to the product when the outside temperature is below about 29° F. Subsequently, the product is held in the enclosure, while air is periodically circulated through it. The temperature of the air returned from the product is sensed, and if it is above about 31° F., air is circulated through the product for a time period long enough to bring the temperature of the return air to a level below about 29° F.

The invention also provides air-conditioning apparatus, basically comprising refrigeration means, variable-speed blower means, and air flow control means for selectively delivering outside or return air through the refrigeration means and to the product. A refrigeration temperature sensor senses the temperature of the refrigerated air, and the blower speed is increased responsive to temperature decreases. Also provided in the preferred embodiment is a return air temperature sensor and an outside air temperature sensor, together with suitable control means to enable the apparatus to carry out the aforementioned method.

3,546,894
FROST WEIGHING DEMAND DEFROST DEVICE FOR REFRIGERATORS
Charles D. Esche, Newburgh, Ind., assignor to Whirlpool Corporation, a corporation of Delaware
Filed May 2, 1969, Ser. No. 821,322
Int. Cl. F25d *21/02*
U.S. Cl. 62—140 **13 Claims**

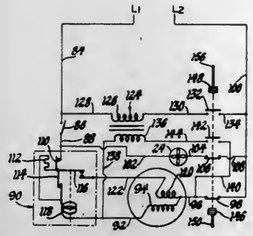


Apparatus for initiating a defrost operation of a refrigeration system having an evaporator and means for defrosting the evaporator. The apparatus includes a frost collector arranged to be disposed adjacent the evaporator for collection of frost thereon concurrently with deposition of frost on the evaporator. A control mechanism is associated with the frost collector to initiate operation of the defrosting means as a result of a collection of frost on the collector having a preselected weight. The mechanism is arranged to periodically sense the weight of the collected frost. Means are provided for adjusting the mechanism to effect initiation of the defrost operation upon the weight reaching any one of a plurality of preselected weights. The mechanism further includes means for adjusting the duration of the defrost operation.

3,546,895
REFRIGERATION DEFROST BY COMPRESSOR MOTOR
James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,698
Int. Cl. F25d *21/06*
U.S. Cl. 62—156 **2 Claims**

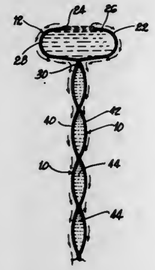
An automatic defrost system for a domestic refrigerator having a hermetically sealed motor compressor unit in sealed, series refrigerant flow relationship with a condenser, expansion means, and an evaporator. When a predetermined frost buildup accumulates on the evaporator, means including a thermostatically responsive switch disconnects the compressor motor field winding terminals from a normal household line voltage and connects

them to a secondary coil of a step transformer for reducing field winding voltage to a level that precludes motor rotation and compressor operation. Sufficient electrical resistance heat is produced by the sealed winding to



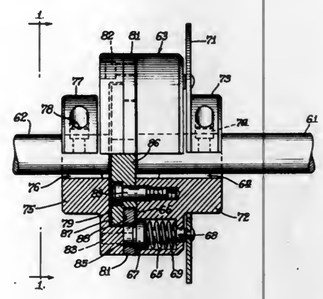
cause the sealed refrigerant to increase in pressure and temperature during the defrost period and reverse flow into the low pressure evaporator for removing frost build-up therefrom.

3,546,896
FREEZER PLATES AND WATER DISTRIBUTION FOR ICEMAKING MACHINE
William F. Hagen and Edward O. Douglas, Denton, Tex., assignors to Turbo Refrigerating Company, Denton, Tex.
Filed Oct. 1, 1968, Ser. No. 764,277
Int. Cl. B05b 1/36; F25c 1/12
U.S. Cl. 62—347 **8 Claims**



An icemaking apparatus having a vertically disposed freezing plate with one or both sides defining a freezing surface and over which free water is caused to flow in an amount in excess of that which is congealed on the freezing surfaces and in which the water is uniformly distributed for flow downwardly over the freezing surface from an elongate trough dimensioned to have a length corresponding to the length of the freezing surface and in communication with the upper edge thereof in which the trough has a bottom wall which extends angularly downwardly into engagement with the upper edge of the freezing surface and side and end walls which define the container with a slot or openings in the upper wall extending inwardly and upwardly from the upper edge of the side walls whereby water overflows from the trough through the openings or slots for flow downwardly over the remainder of the top wall and over the side walls and the bottom wall to the upper edge of the freezing surface and in which the freezing plate can be formed of a pair of sheet metal members joined one to the other along their inner surfaces to define the continuous channel sections therebetween which are formed in response to the introduction of fluid under pressure between the plates.

3,546,897
OVERLOAD DEVICE
Ronald H. Kenny, Addison, Ill., assignor to Commercial Cam & Machine Company, Chicago, Ill., a corporation of Illinois
Filed June 25, 1969, Ser. No. 836,278
Int. Cl. F16d 7/00, 43/20
U.S. Cl. 64—29 **5 Claims**

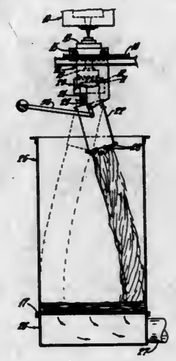


Overload device comprising a rotatable driving body with spring-urged plungers drivingly engaging apertures in a wear plate attached to a driven member, whereby specific torque resistance effects declutching, the driving body being shaft-mounted by means of a main hub portion integral therewith and keyed to a driving shaft and an auxiliary hub portion separates from the main portion and secured thereto by bolts to clampingly engage the shaft, and a second hub means for attaching the driven member to a driven shaft including a main hub portion carrying the wear plate and having an enlarged bore adjacent thereto for loosely receiving a peripheral flange on a retainer plate which is bolted to the driving body, whereby frictional wear during declutching is confined, in addition to that resulting from relative movement between the plungers and the wear plate, to annular surface engagement between the wear and retainer plates to avoid declutching wear of the hub means.

3,546,898
NONUNIFORM MOTION PRODUCING STRUCTURE FOR PRODUCING FIBROUS MATS
Roland E. Langlois and Richard E. Pitt, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Dec. 28, 1967, Ser. No. 694,325
Int. Cl. C03b 37/00
U.S. Cl. 65—2 **11 Claims**

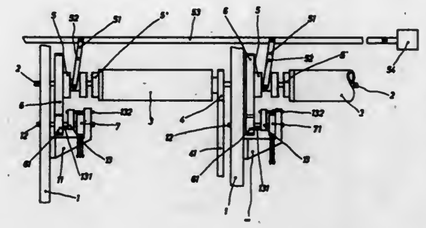
Apparatus for oscillating a stream of material from side to side across a moving surface in such manner as to provide uniform deposition. Uniform deposition is accomplished by drive mechanism which speeds up rotation of a crank arm at the ends of its connecting rod movement, and by slowing the crank arm rotation intermediate the ends of its connecting rod movement. A further correction in reciprocatory motion of the connecting rod is provided by superimposing a second cyclic speeding up and slowing down of the crank arm onto the first cyclic speeding up and slowing down of the speed of rotation of the crank arm. Uniform deposition of material on a moving surface is improved where the superimposed cyclic movement has a frequency twice that of the cyclic movement of the driven structure. The oscillatory drive mechanism has particular advantages in the deposition of a veil of glass fibers onto the surface of a moving conveyer as occurs in the manufacture of glass fiber mats of insulation and the like. The rotational drive mechanism wherein

one cyclic rotational movement is superimposed on a second cyclic rotational movement is disclosed as having



uses in mechanisms other than oscillatory producing mechanisms.

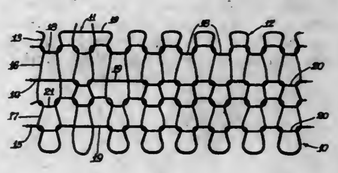
3,546,899
METHOD AND APPARATUS FOR CONTROLLING THE LENGTH OF GOODS ON KNITTING MACHINE
Wittich Meyerhuber, Heinrich Niestroj, and Rolf Canzler, Ingolstadt, Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany
Filed Apr. 19, 1968, Ser. No. 722,648
Claims priority, application Germany, Apr. 19, 1967, Sch 40,573
Int. Cl. D04b 15/88
U.S. Cl. 66—149 **21 Claims**



Method and apparatus for controlling the knitting of goods by employing a constant draw-off force, measuring the draw-off distance and correcting to a standard distance by varying loop size of the knit.

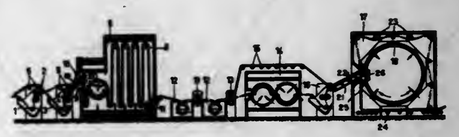
3,546,900
TUBULAR-KNITTED ELASTIC STOCKING WITH DIFFERENTIALLY KNITTED INSTEP AND HEEL
Herbert Knohl, Seneca, S.C., assignor to The Kendall Company, Walpole, Mass., a corporation of Massachusetts
Filed May 6, 1968, Ser. No. 726,904
Int. Cl. D04b 9/56
U.S. Cl. 66—185 **10 Claims**

Tubular-knitted stockings in which instep courses of jersey knit continue through the heel being interknitted in the instep portion with partial course-rounds such as alternate jersey stitches and intermediate floats and alternate jersey stitches and intermediate tuck stitches and



being interknitted in the heel with jersey stitch course continuations completing the partial course-rounds.

3,546,901
APPARATUS FOR THE CONTINUOUS TREATMENT OF THICK, VOLUMINOUS TEXTILE MATERIALS
Heinz Fleissner, Egelsbach, near Frankfurt am Main, Germany, assignor to Vepa AG, Basel, Switzerland
Continuation-in-part of application Ser. No. 662,084, Aug. 21, 1967. This application Nov. 9, 1967, Ser. No. 681,616
Claims priority, application Germany, Nov. 6, 1966, V 32,301
Int. Cl. D06f 31/00, 39/04
U.S. Cl. 68—5 **27 Claims**

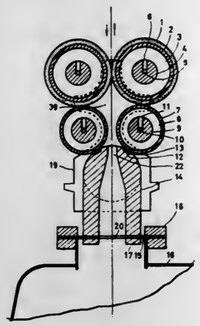


The present disclosure relates to an apparatus for the selective treatment of thick, voluminous textile materials such as needled felts or tufteds, and the like, made, for example, of wool, polyamides and polyacrylonitrile fibers. More particularly, the present disclosure is directed to an apparatus for dyeing or printing large widths of needled felts or tufteds which comprises a means for selectively impregnating needled felts of tufteds with dyestuffs and auxiliary agents, a steaming chamber for dyestuff fixation including a heating-up zone containing at least one sieve drum subjected to a suction draft, a washing means, a final dryer containing at least one sieve drum subjected to a suction draft and a drive and control means which provides for joint speed variation of all of the units and speed variation between the individual units.

3,546,902
PRESSURE SEALING DEVICE IN A CONTINUOUS HIGH PRESSURE STEAMING APPARATUS
Yoshikazu Sando and Masao Takasu, Wakayama-shi, Japan, assignors to Sando Iron Works Company Limited, Wakayama-shi, Japan
Filed June 12, 1968, Ser. No. 736,479
Claims priority, application Japan, Aug. 28, 1967, 42/55,066, 42/55,067; Nov. 22, 1967, 42/75,051
Int. Cl. F26b 25/00; D06f 39/00
U.S. Cl. 68—5 **8 Claims**

A sealing device for the inlet and outlet of a pressurized chamber, for the chemical treatment of cloth, includes a sealing "drum" mounted on the pressure chamber through the medium of a flexible diaphragm or membrane and having a slot through which cloth enters or leaves the pressurized chamber. The cloth is fed into and out of the pressurized chamber by a pair of "soft" rolls, each

having a soft covering on its exterior surface, the soft rolls engaging the cloth and gripping the same therebetween. Each soft roll is in driving engagement with a "hard" roll which, in turn, is in frictional sealing engagement with the "drum." Side sealing plates engage the ends of all of the rolls and are displaceable axially or transversely of the sealing "drum." Each of the soft and



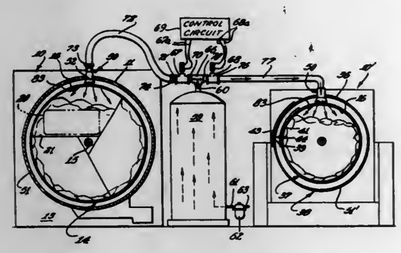
hard rolls is watercooled. The sealing arrangement may further include a high pressure air chamber interposed between the sealing device and the inlet or the outlet of the pressurized chamber, and the air in this air chamber is maintained at a pressure either equal to the pressure of treating fluid in the pressurized chamber or slightly lower than the pressure of the treating fluid.

3,546,903

CAKE BREAKER FOR LAUNDRY APPARATUS

Max Hertig, Syracuse, N.Y., assignor to G. A. Braun, Inc., Syracuse, N.Y., a corporation of New York

Filed Oct. 7, 1968, Ser. No. 765,369
Int. Cl. D06f *33/02*
U.S. Cl. 68—12 **9 Claims**



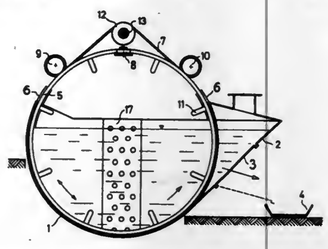
A combination washing-extracting machine including an apparatus for breaking a "cake" of washed material which is formed during the extracting operation, away from an interior surface of a perforated, rotatably mounted cylinder of the machine. The apparatus for breaking the "cake" of washed material away from the interior of the drum includes a source of compressed air, a conduit means for directing a blast of air through perforations formed in the cylinder of the washing-extracting machine to force the washed material out of the perforations and away from the interior surface of the cylinder for facilitating removal of the material from the machine subsequent to the completion of the extracting cycle, and selectively operated valve means for connecting the source of compressed air to the conduit means at a preselected time during the washing-extracting cycle.

3,546,904

APPARATUS FOR TREATING INDIVIDUAL CHARGES OF MATERIALS IN FLUIDS WITHOUT PRESSURE

Horst Zapfel, Karlsruhe-Durlach, Germany, assignor to Badische Maschinenfabrik G.m.b.H., Karlsruhe-Durlach, Germany

Filed Sept. 5, 1968, Ser. No. 757,709
Claims priority, application Germany, Sept. 11, 1967, 1,660,046
Int. Cl. D06f *39/04, 39/02*
U.S. Cl. 68—16 **20 Claims**



A stationary horizontal container of a sector-shaped cross section and open at the top in which materials, for example, animal skins or textiles, are treated by being circulated in a treating fluid by a plurality of rings which are rotated closely along the inner wall of the container about the horizontal axis of the container by belts or the like which extend around the rings and are driven by a common drive shaft on the outside of the rings.

3,546,905

STACKING DYE TUBES

Stanley Livingstone, Charlotte, N.C., assignor to Evadur Products, Inc., Mount Holly, N.C., a corporation of North Carolina

Filed Feb. 25, 1969, Ser. No. 802,156
Int. Cl. B05c *8/02*; D06f *35/00*
U.S. Cl. 68—198 **9 Claims**



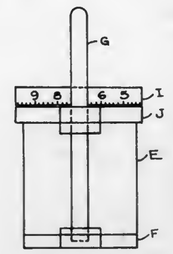
Adapter for receiving a stack of dye tubes, each tube having end sealing surfaces and an inside diameter larger than an outside diameter of the spindle to allow effective flow of dye, the adapter comprising at least one member having a length greater than the length of a tube, a thickness slightly less than half the difference between the outside diameter of the spindle and the inside diameter of the tube, and a surface area per unit length sufficiently less than that of an imaginary cylinder coincident with the outer surface of the spindle so as not to impede the flow of dye to a degree that would be unacceptable for the dyeing process.

3,546,906

SAFETY LOCK

Yin-Lung Yang, 21-9 Chih Yung Village, Kangshan, Taiwan

Filed July 20, 1967, Ser. No. 654,764
Int. Cl. E05b *37/06, 37/08*
U.S. Cl. 70—21 **10 Claims**



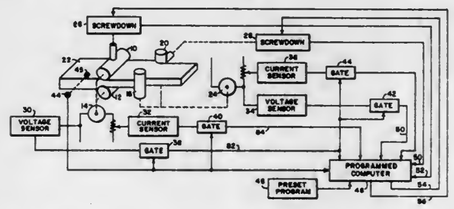
A padlock, which embodies both a variable key-operated device and a variable permutation-operated device independently within a lock. The lock can be locked either by one of the devices or by both of the devices. The lock can be unlocked by a coded key alone only when the variable permutation-operated device is in its unlocked position. Likewise the lock can be unlocked by the combination alone only when the key-operated device is in its unlocked position. When the devices are both in the locked position, the lock can be unlocked only when those who know the combination of the permutation-operated device as well as having possession of a coded key. Means are provided for varying either one or both of the devices by the owner of the lock, and make the original coded key or the combination inoperative to the said lock, hence a new coded key or a new combination or both of them are necessary to be used.

3,546,907

INERTIA COMPENSATION FOR COMPUTER-CONTROLLED SLABBING MILLS AND THE LIKE

Andrew W. Smith, Jr., Mount Lebanon, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 14, 1968, Ser. No. 767,359
Int. Cl. B21b *37/00*
U.S. Cl. 72—7 **6 Claims**



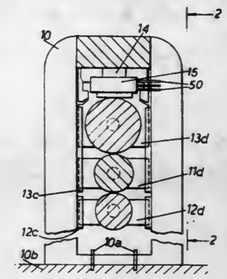
A control system provides for eliminating error in workpiece reduction power determined from actual power readings. Such error is otherwise caused by the power required to accelerate a slabbing mill. The control system employs an on-line computer to operate the slabbing mill as a function of the workpiece reduction power applied to the mill rolls.

3,546,908

HYDRAULICALLY ADJUSTABLE ROLLING MILL HAVING A TRANSDUCER UNAFFECTED BY PISTON DEFORMATION

James Langley Russell, Clifton, England, assignor to British Aircraft Corporation (Operating) Limited, London, England, a British company

Filed May 9, 1968, Ser. No. 728,014
Claims priority, application Great Britain, May 10, 1967, 21,792/67
Int. Cl. B21b *37/08*
U.S. Cl. 72—21 **5 Claims**



A rolling mill including a servo mechanism responsive to the spacing between the rolls for controlling a hydraulic mechanism which in turn adjusts the roll spacings.

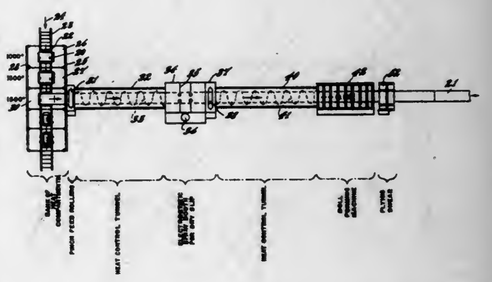
A piston and cylinder, especially of the large diameter-short stroke size, incorporates a two part seal that permits tilting relative movement while maintaining hydraulic pressure. A transducer is effectively isolated from deformation of the piston by a bar incorporated in the underface of the piston.

3,546,909

APPLYING VITREOUS ENAMEL

John T. Gartrell, Orwigsburg, Pa., assignor, by mesne assignments, to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

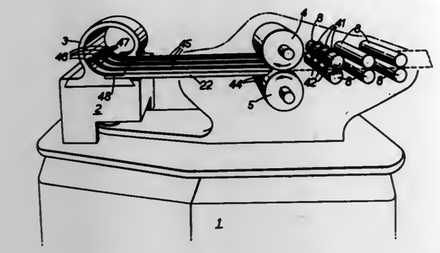
Continuation-in-part of application Ser. No. 565,997, July 18, 1966. This application Apr. 9, 1968, Ser. No. 719,914
Int. Cl. B44d *1/94*; C23d *5/04*
U.S. Cl. 72—46 **7 Claims**



The invention relates to a process and apparatus for applying vitreous enamel by preheating metal sheet while wound in a coil, uncoiling the preheated sheet and progressing it forward while preferably stabilizing the temperature so that the sheet is at vitreous enameling temperature, applying dry powder vitreous enamel frit or slip

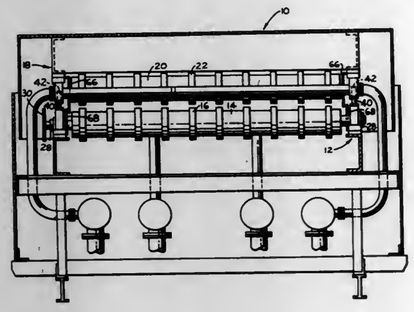
to one or both sides of the heated sheet, melting the frit in contact with the sheet to form a molten vitreous enamel coating on the sheet and cooling the sheet and coating. The sheet is then in the preferred embodiment cooled to a temperature at which the enamel remains plastic and then deformed while the sheet and enamel are at that temperature. The temperature for deforming is desirably attained by cooling and then reheating slightly.

3,546,910
LOCK-SEAM HELICAL TUBING
Erling Jensen, Fribourg, Switzerland, assignor, by mesne assignments, to Protol S.A., Geneva, Switzerland, a Swiss company
Filed May 2, 1967, Ser. No. 635,533
Int. Cl. B21c *37/12*
U.S. Cl. 72—49 **1 Claim**



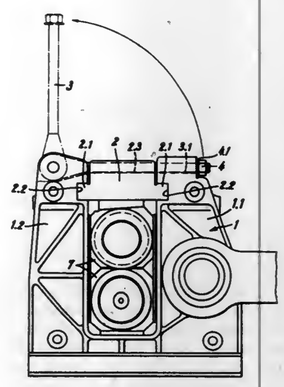
A machine for producing, from metal strip, locked seam helical tubing with at least one helical corrugation by forming at least one longitudinal corrugation in the metal strip prior to its being fed to a forming head where it is shaped into a helix. This tubing may be used as a connecting piece to connect two lengths of locked seam helical tubing, to produce voids in concrete, as a prestressed cable cover, or as trunking for electrical conduits.

3,546,911
APPARATUS FOR QUENCHING STEEL PLATE
Walter H. Lenz, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Mar. 29, 1965, Ser. No. 443,558
Int. Cl. B21b *27/10*; C21d *1/62*
U.S. Cl. 72—201 **2 Claims**



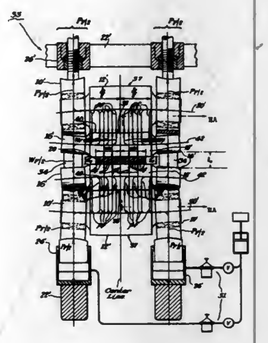
Apparatus for quenching steel plate by holding it between sets of rollers which retain it in flat condition and also driving the rollers to reciprocate the plate while applying quench in such large quantities as to maintain the plate entirely immersed in quench.

3,546,912
ROLLING FRAME FOR ROLLING MILL OF THE STEP-BACK TYPE
Horst Stinnertz, Monchen-Gladbach, Germany, assignor, by mesne assignments, to the McKay Machine Company, Youngstown, Ohio, a corporation of Ohio
Filed Mar. 21, 1968, Ser. No. 714,972
Claims priority, application Germany, Mar. 30, 1967, M 58,374
Int. Cl. B21b *31/12*
U.S. Cl. 72—238 **4 Claims**



A reciprocable rolling frame for a cold rolling pilger mill has two U-shaped roll housings, each open on top though closed by a removable traverse that rests in housing grooves.

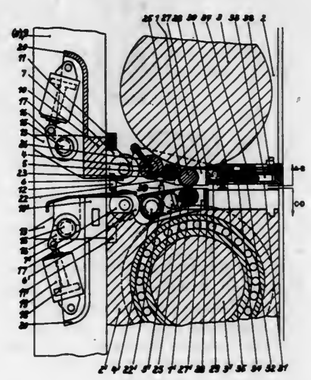
3,546,913
METHOD AND MEANS FOR OBTAINING HIGH MODULUS ROLLING MILLS
William L. Stover, Whitehall, and John J. Sutyak, Pittsburgh, Pa., assignors to Mesta Machine Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 13, 1967, Ser. No. 682,056
Int. Cl. B21b *13/14, 31/30*
U.S. Cl. 72—241 **17 Claims**



A fully stressed stand for a rolling mill and the like is disclosed. The mill stand is of the four-high variety and includes pressure means coupled for example to the

backup roll structures for applying a predetermined prestressing force to the housing and rolls. Means are bearingly inserted between the work rolls and more particularly between the bearing chocks thereof to cause at least a portion of the reactive equivalent of the prestressing force to assume a substantially serpentine path through the work rolls and the backup rolls, their bearing chocks, and associated components. As a result, substantially all of the components of the mill stand (rather than merely the housing therefor) are prestressed and predeformed prior to application of rolling force. Deviations in backup roll bending and in work roll gap width are eliminated. The invention, therefore, eliminates the necessity of employing roll gap control equipment and considerably reduces the inventory of rolls with differing crowning compensations.

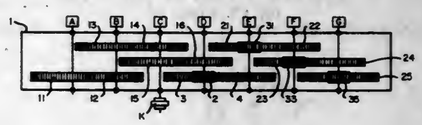
3,546,914
MULTI-ROLL STANDS
Klaus Leifeld, Kaarst, Josef Wochnik, Osterath, and Erich Stoy, Dusseldorf, Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a German company
Filed June 20, 1967, Ser. No. 647,451
Claims priority, application Germany, June 28, 1966, Sch 39,179
Int. Cl. B21b *13/14*
U.S. Cl. 72—242 **2 Claims**



A multi-roll stand with two positively driven backing rolls and two working rolls frictionally driven by the backing rolls, the working rolls being displaced, for their horizontal supporting, with their axes out of the vertical plane containing the axes of the backing rolls, further horizontal support for the working rolls being afforded by intermediate rolls and by supporting rollers journalled in supporting bridges, and means being provided for adjusting the lateral distance of the individual supporting rollers from the plane containing the axes of the backing rolls.

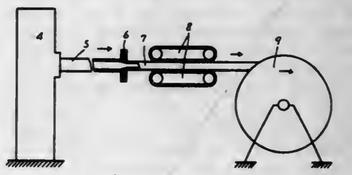
3,546,915
DRIVES FOR MULTISTAND UNIVERSAL ROLLING MILLS
Jose Severin, Mulheim (Ruhr)-Speldorf, and Helmut Holthoff, Dusseldorf, Germany, assignors to Kommanditgesellschaft Friedrich Kocks, Dusseldorf, Germany, a corporation of Germany
Filed Oct. 21, 1966, Ser. No. 588,367
Int. Cl. B21b *35/00*
U.S. Cl. 72—249 **2 Claims**

A drive is provided for multistand universal rolling mills having successive roll stands in which the rolls are driven from a driving gear assembly adjacent the roll stands and extending the length of the mill, wherein the driven speed of each succeeding stand is developed from



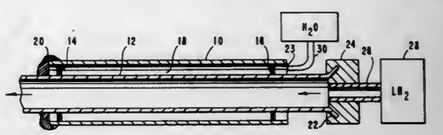
the speed of the preceding stand in one gear step and both parts of the continuous gear train are interconnected through an intermediate shaft.

3,546,916
ELLIPTIC WAVE-GUIDE AND METHOD OF FABRICATING IT
Tsutomu Maeda and Sunao Morisada, Nishinomiya-shi, Tatsuji Kasajima, Toyonaka-shi, and Takeshi Hashida, Kobe-shi, Japan, assignors to Dainichinihon Densen Kabushiki Kaisha, Hyogo-ken, Japan, a company of Japan
Filed Oct. 11, 1967, Ser. No. 674,520
Int. Cl. B21c *23/00*
U.S. Cl. 72—256 **8 Claims**



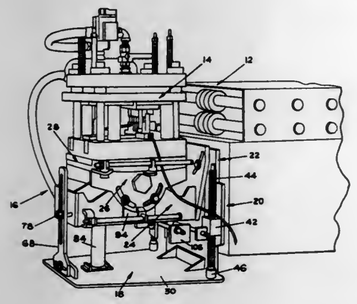
An improved elliptical waveguide and method of fabricating it in continuous lengths.

3,546,917
TECHNIQUE OF ELBOW BENDING SMALL JACKETED TRANSFER LINES
T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of James N. Gardner and Thomas L. Nielson, Sparks, Nev.
Filed Sept. 30, 1968, Ser. No. 763,868
Int. Cl. B21d *9/00*
U.S. Cl. 72—369 **5 Claims**



A method of forming elbows or bends in a length of jacketed pipe, such as a cryogenic transfer line is disclosed. Two lengths of tubing are coaxially assembled and the annular space between them is filled with a congealable liquid such as water. The water is frozen, preferably very quickly, by passing liquid nitrogen through the core of the inner tube. The assembly is then bent to the desired radius using conventional pipe bending techniques while maintaining the water frozen. Satisfactory spacing between the inner and outer tubing is maintained for bends up to about 90°. Elbows of pipe up to about 2½ inch in outside diameter can be fabricated on site with portable bending machines.

3,546,918
ADJUSTABLE BASE
Donald J. Trainer, P.O. Box 367, 172nd St., Grand Haven, Mich. 49417
Filed Sept. 3, 1968, Ser. No. 757,065
Int. Cl. F16m *11/12*
U.S. Cl. 72—446 **18 Claims**



This disclosure relates to a ten way adjustable base useful for supporting cut-off dies, for example. The base has a base member which supports a vertically adjustable and releasably secured riser plate. A slider plate is laterally adjustable and releasably secured on the riser plate. A saddle support means is releasably secured to the slider plate so as to be tiltable laterally relative to the slider plate. A saddle surmounts the saddle support means so as to be adjustably tiltable to selected positions in a front to back direction and means are provided to lock the saddle in various positions of adjustment relative to the saddle support. A die holding plate is rotatably secured to the top of the saddle and is adjustable relative thereto. Means are also provided to lock the plate in various positions of adjustment relative to the saddle. Additional support for the saddle support means are provided at a front portion thereof and at a central portion thereof.

3,546,919
TOOL
Felix J. Fial, 309 E. Tamarack Ave., Inglewood, Calif.
Filed Oct. 21, 1968, Ser. No. 769,169
Int. Cl. B21j *13/08*
U.S. Cl. 72—458 **3 Claims**



The tie breaker of this invention comprises a rod with an integrally attached tube at one end. The tube is rectangular in cross-section and the axis of a tube is generally transverse to the axis of a handle. The walls of the tube are provided with a suitably disposed tie rod receiving groove or notches along its edges for receiving the end portions of the tie rods. With the end of the tie rods in the grooves formed in the walls of the rectangular of the tube, the tie breaker can grip the rods and bend and twist them until they break.

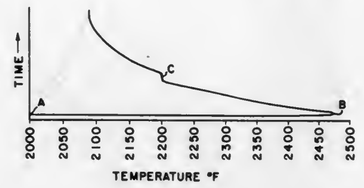
3,546,920
APPARATUS FOR TESTING POLYMERIC MATERIALS
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Raffaele F. Muraca, Santa Clara, Calif.
Filed Mar. 11, 1968, Ser. No. 711,972
Int. Cl. G01n *25/02*
U.S. Cl. 73—17 **9 Claims**



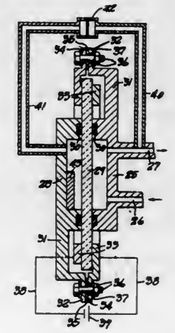
Apparatus for determining the volatile condensable material present in polymeric products consisting of a plurality of chambers which are controllably heated for holding the samples of polymeric material. Each chamber communicates with a removable plate which is controllably cooled so that condensables driven off from the polymeric material in the chamber will deposit and remain on the cooled plates. The entire apparatus is operated under a vacuum whereby the volatile non-condensable gaseous material driven off from the samples is withdrawn from the system. Weighing of the plates before and after indicate the amount of volatile condensable material driven from the polymeric samples. There are two embodiments of the invention: One for the testing of smaller micro samples of a polymer, and a second embodiment for testing of large pieces of material, referred to as macro samples.

3,546,921
METHOD OF PRODUCING AN INITIAL THERMAL ARREST IN THE COOLING CURVE OF HYPEREUTECTIC CAST IRON
William T. Bourke, Suffern, N.Y., Spencer Harris, Kinnelon Borough, N.J., and Tom C. Muff, Easton, Pa., assignors to Harris-Muff, Inc., Kinnelon, N.J., a corporation of New Jersey
Filed Aug. 7, 1967, Ser. No. 658,838
Int. Cl. G01n *25/02*
U.S. Cl. 73—17 **12 Claims**

Method of producing an initial thermal arrest in the cooling curve of a molten sample of hypereutectic cast iron by introducing into the sample a stabilizing additive having the characteristic of retarding primary graphite formation as the molten sample cools to its freezing temperature.



3,546,922
METHOD AND MEANS FOR ANALYZING LOW MOISTURE CONCENTRATION IN GASES
Hubert Dreckmann, Michigan City, Ind., assignor to The Hays Corporation, Michigan City, Ind., a corporation of Indiana
Filed July 26, 1968, Ser. No. 747,851
Int. Cl. B01d *59/10;* **G01n** *31/00*
U.S. Cl. 73—29 **5 Claims**

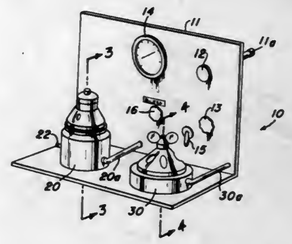


A method for measuring the moisture content of a gas by exposing a sample gas to a membrane permeable by the gas and measuring the pressure difference between the gas sample and the moisture-free gas which has penetrated the membrane.

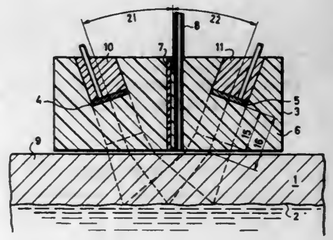
Apparatus for measuring the moisture content of the gas which uses a housing having two chambers which are separated by a gas-permeable membrane and which are connected to a differential pressure detector. One chamber has gas inlet and outlet means.

3,546,923
SEAL TEST STAND AND FIXTURE
David C. Fletcher, San Diego, and Edward S. Nicholas, National City, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Feb. 5, 1969, Ser. No. 796,669
Int. Cl. G01m *3/26*
U.S. Cl. 73—40 **5 Claims**

A seal test stand connected to a source of pressurized air is provided with controlling valves passing predetermined amounts of compressed air regulated by an operator observing a gauge. The discrete amounts of air are passed to one or more seal test fixtures, each provided with an annular pressure chamber and an annular recess for receiving a seal to be tested and additionally having securing portions for holding the seal adjacent the pressure chamber. By transferring pressurized air to the pressure chamber and observing the pressure gauge, an observer can tell if a seal is defective by noting whether or not pressure is maintained by the seal.

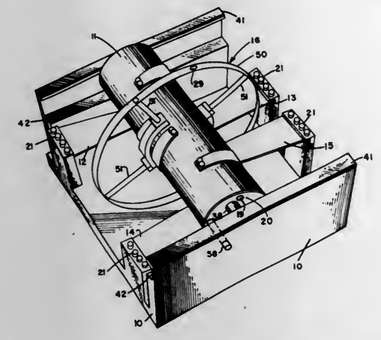


3,546,924
DEVICE FOR LOCATING BOUNDARIES OF NON-HOMOGENEOUS BODIES
Marcel Nussbaum, Wilfried Kurz, and Benno Lux, Geneva, Switzerland, assignors to Concast AG, Zurich, Switzerland
Filed Dec. 5, 1967, Ser. No. 688,146
Claims priority, application Switzerland, Dec. 13, 1966, 17,769/66
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.7 **7 Claims**



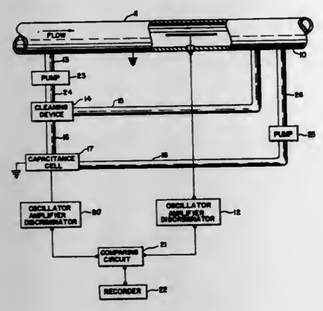
A sonic device for determining the location of the boundary line substances of different density, for example, for determining the phase boundary (solid-liquid) in a continuous casting operation, includes a transmitter and receiver having oscillators and arranged in a body in a manner such that they are separated electrically and acoustically and are arranged at an angle relative to each other and directed to transmit a sound pulse from the transmitter to an object to be measured so that the echo therefrom will be picked up by the receiver. The body is arranged so that it can be coupled or located in respect to the object to be measured over a liquid separation layer. The construction provides a sound head of high dynamics by arranging the transmitter and receiver at an angle relative to each other in the coupling plane so that interfering wave portions interfere and extinguish each other at an optimum separating angle dependent upon frequency, distance between oscillators, sound beam angle, the shape of the oscillator, the path of travel and material through which the sound must travel.

3,546,925
MECHANICAL OSCILLATOR
Millard V. Barton, Los Angeles, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Aug. 30, 1967, Ser. No. 664,392
Int. Cl. G01p 15/00; G01h 1/00; F16l 7/10
U.S. Cl. 73—71 19 Claims



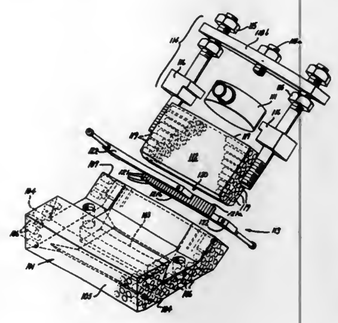
An improved mechanical oscillator to achieve demagnification of response relative to that of a conventional spring-mass system and for use as a shock gage or dynamic absorber. The oscillator consists of single or multiple opposing tapered thin metal tapes which are attached to a roller such that the roller will roll up on one tape and unroll on the other tape. The variation of taper proportionately varies the bending moment in the tapes. When the roller rolls away from the equilibrium position the change in bending moment in the tapes creates a restoring torque acting to return the roller to center.

3,546,926
BOTTOM SEDIMENT AND WATER MONITOR
Sidney William Dunavent, Jr., and Paul R. Scott, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Apr. 29, 1969, Ser. No. 820,271
Int. Cl. G01n 27/22, 33/22
U.S. Cl. 73—61.1 1 Claim



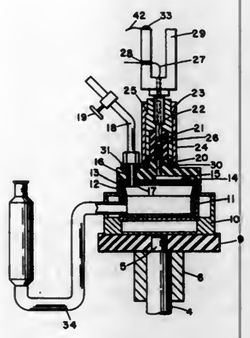
A method for compensating the BS and W monitoring systems for changes in the dielectric constant of crude oil including the steps of removing a sample of the crude oil, cleaning the sample to remove all impurities and water, and measuring the dielectric constant of the cleaned sample. This value is then compared with the separately measured dielectric constant of the uncleaned crude oil and the difference between the two values is applied to the BS and W monitor as a compensation value to obtain the actual BS and W content of the crude oil.

3,546,927
ULTRASONIC TESTING APPARATUS
Ben Wade Oakes Dickinson III, 2125 Broderick St., San Francisco, Calif. 94115
Filed Oct. 24, 1967, Ser. No. 677,547
Int. Cl. G01n 29/04; H04r 17/00
U.S. Cl. 73—71.5 13 Claims



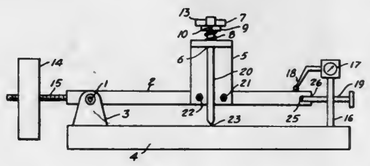
A highly collimated beam of ultrasonic wave trains is introduced into a member to be tested and passes through the member along a predetermined path. The time required to pass along the path is computed from geometry. Signals are received from the member in a highly collimated beam arriving between time gates bracketing the computed time. The ultrasonic wave trains received within the time gates are spectrally analyzed in synchronism with the time gates. Both the transmitted and received wave trains lie within highly collimated beams formed by bundles of elongate solid fibers incorporated in wave directors adapted to scan the beams about the member such that their intersection follows a predetermined path.

3,546,928
PENETRATION ANALYZER
Bertil W. Ivarsson, Covington, Va., assignor to Westvaco Corporation, New York, N.Y., a corporation of Delaware
Filed May 9, 1967, Ser. No. 637,156
Int. Cl. G01n 5/02, 25/56
U.S. Cl. 73—73 11 Claims



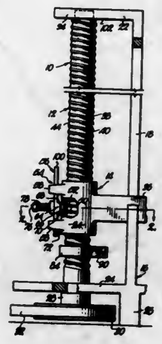
The fluid penetration characteristics of a material are analyzed by apparatus which brings the material and a fluid into contact with each other, applys either an A.C. or D.C. voltage across the material and continuously measures the capacitance or resistance, respectively, of the material as it is penetrated by the fluid. The fluid temperature and application pressure and the area of contact between the fluid and material are maintained constant during analysis and the capacitance or resistance versus time recorded during penetration to produce curves indicative of the penetration characteristics. The penetrating ability of various liquids may be compared by testing them with the same type of absorbent material, such as a filter paper, or the absorption characteristics of various materials, such as different grades of paper, may be compared by testing each of them with the same type of fluid.

3,546,929
CONTACT DEVICE
Gustan Bergson, Cedarbrook Hill Apt. 2, B–117, Wyncote, Pa. 19095
Filed Aug. 22, 1969, Ser. No. 853,234
Int. Cl. G01n 1/28; G01b 5/28
U.S. Cl. 73—78 2 Claims



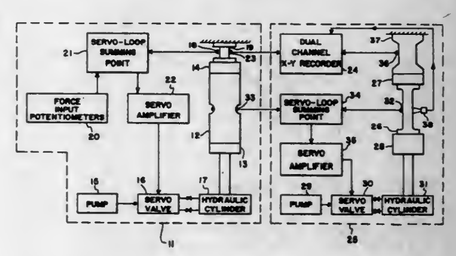
A device for determining when a cutting tool is in contact with a surface consisting of a pivoted rod with a tool holding structure thereon whereby pivotal motion can only occur when the cutting tool is not in contact with the surface. A displacement indicator engages the rod at the end opposite the pivot point to detect pivotal motion.

3,546,930
ROTARY TO LINEAR MOTION DEVICE WITH AUTOMATIC RETURN
Clarence A. Flarsheim, 6131 Mission Drive, Shawnee Mission, Kans. 66208
Filed Nov. 25, 1968, Ser. No. 778,397
Int. Cl. F16h 25/12
U.S. Cl. 74—89.15 5 Claims



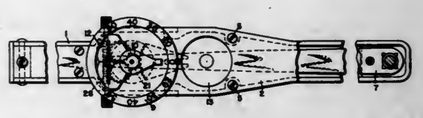
A rotary to linear motion device utilizing the ball screw principle and having a rotatable member with a groove formed therein, said member being driven and a linear motion member having a surface adjacent the groove of the rotatable member, there being a shiftable ball carried by the linear motion member for selective engagement with said groove whereby the rotary motion of said rotatable member is transformed into linear motion and the linear motion member caused to reciprocate through a predetermined path, the linear motion member being driven in one direction and automatically returned in the other direction by virtue of actuation of a coupling assembly which shifts said ball into and out of said groove.

3,546,931
STRAIN-COUPLED SERVO-CONTROL SYSTEM
John H. Crews, Jr., Newport News, and William T. Davis, Yorktown, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 19, 1969, Ser. No. 808,577
Int. Cl. G01c 5/30; G01n 3/10
U.S. Cl. 73—90 5 Claims



A system for measuring the local stresses in a material at a geometric discontinuity that are caused by stresses applied to the material. A first servo system applies stresses to a first material specimen with a geometric discontinuity therein. A second servo system applies stresses to a second material specimen to produce strains in the second specimen that are equal to the strains produced at the geometric discontinuity of the first specimen. The strains produced in the second specimen are interpreted as the local stresses at the geometric discontinuity.

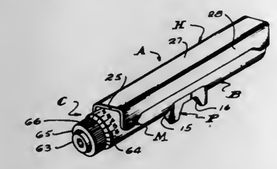
3,546,932
DOUBLE ACTING TORQUE WRENCH
Harvey A. Thomasian, Northboro, Mass., assignor to Lowell Corporation, Worcester, Mass., a corporation of Massachusetts
Filed May 16, 1968, Ser. No. 729,616
Int. Cl. B25c 23/14; G01l 5/24
U.S. Cl. 73—139 4 Claims



A torque wrench comprising a torque bar having one end secured to a square terminal adapted to engage a wrench socket while the other end is engaged by a transversely positioned coiled spring, a combined pointer and electric wiper contact pivotally mounted on a vertical shaft the lower end of which carries a small gear, a pivotally mounted gear sector meshing with said small gear and provided with a radial slot, a stud carried by the torque bar and projecting upwardly therefrom and into the slot to swing the gear sector and rotate the vertical shaft and the pointer when the torque bar swings in one

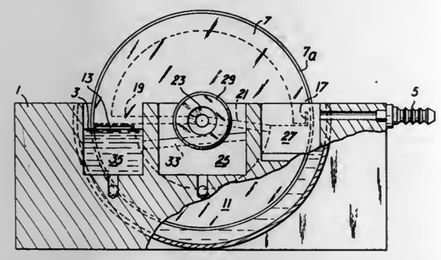
direction, a metal sector pivotally mounted on a vertical axis and manually adjustable to different positions so that it can be contacted by the end of the pointer at a predetermined torque, a handle at the rear end of the wrench containing a dry battery, a sound producer positioned in front of the pointer, and electric connections for operating the sound producer by energy from the battery when the end of the pointer moves into contact with the metal sector.

3,546,933
FORCE INDICATING DEVICE
Bosko Grabovac, P.O. Box 1685, Altadena, Calif. 91001
Filed July 11, 1968, Ser. No. 744,007
Int. Cl. G01l *5/24*
U.S. Cl. 73—141 **8 Claims**



A device arranged between the lever arm or handle of a hand tool and the hand of an operator that will signal the operator when a predetermined force is exerted, by his hand, through the device and onto the tool handle. The device includes an elongate hand-engaging body, a tool handle engaging pad carried by the body between the ends thereof and an adjustable signalling means within and carried by the body.

3,546,934
CONSTANT DEBIT GAUGING WHEEL
Pierre Auchapt, Bagnols-sur-Ceze, and André Brun, Orsan, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Sept. 20, 1968, Ser. No. 761,212
Claims priority, application France, Sept. 25, 1967, 122,707
Int. Cl. G01f *1/00*
U.S. Cl. 73—194 **3 Claims**



A device for gauging the flow-rate of a liquid has, within a constant level-vessel fed with liquid by means of a non-gauging system, a wheel driven by an adjustable speed-motor. The wheel has a first cup that draws the liquid from said vessel through a filling aperture and a second cup whose capacity is half the capacity of the first cup. The second cup communicates with said first cup through a connecting channel. Two outlet channels discharge the gauged liquid by means of a duct and of a collector.

3,546,935
FLUID MEASUREMENT SYSTEM AND METHOD
Peter Joseph Bruha, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation of application Ser. No. 596,847, Nov. 25, 1966. This application Nov. 24, 1969, Ser. No. 872,460
Int. Cl. G01p *5/00*
U.S. Cl. 73—194 **13 Claims**

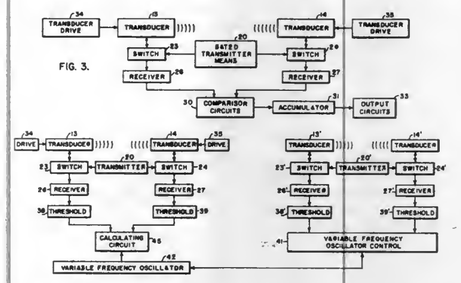
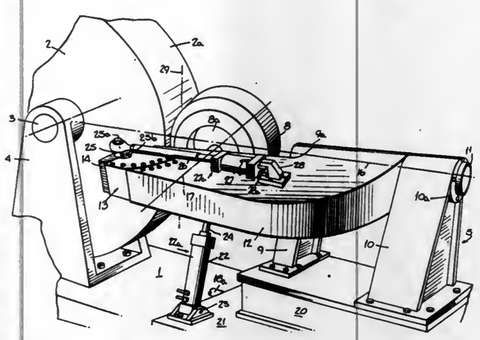


FIG. 3.

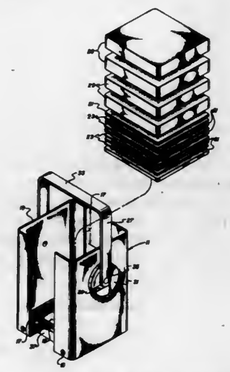
Upstream and downstream transducers travel along the well portions of a fluid conveying conduit and transmit acoustic energy towards one another, through the fluid, in repetitive transmission cycles, during the course of travel along the wall portions. Circuitry is provided which obtains an indication of the difference in travel times of the upstream and downstream acoustic energy, the difference in travel time ΔT being proportional to LV where L is the distance between the transducers and V the component of fluid velocity along the acoustic path between the transducers. For each transmission cycle an LV value is obtained and the values are accumulated whereby fluid discharge rate, total flow, and other related readings may be obtained. The circuitry utilized includes means for correcting for the speed of sound in the fluid under measurement and an embodiment of the invention includes circuitry whereby the average velocity of the fluid in an irregularly shaped channel may be obtained.

3,546,936
TIRE TESTING APPARATUS
Haig D. Tarpinian, Grosse Pointe Park, and Adolph Paul Osius, Detroit, Mich., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey
Filed June 12, 1968, Ser. No. 736,448
Int. Cl. G01m *17/02*
U.S. Cl. 73—146 **20 Claims**



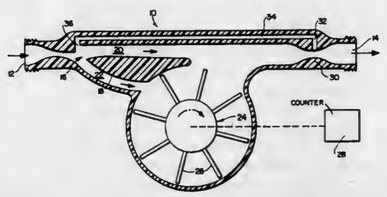
An apparatus for dynamically testing tires under various yaw and camber conditions. A tire mounting device positioned at the end of a cantilevered arm supports the tire for rotation about its own axis. The cantilevered arm is swivable about a second axis which intersects the tire axis for yaw movement of the mounting device and the tire thereon. Camber movements are achieved by constructing the tire mounting device relatively arcuately movable with respect to its cantilever arm support.

3,546,937
BLOCKING TEST FIXTURE
Arthur S. Diamond, Palos Verdes Peninsula, Calif., assignor to Diamond Research Corporation, a corporation of California
Filed Mar. 27, 1969, Ser. No. 811,062
Int. Cl. G01n *19/04*
U.S. Cl. 73—159 **5 Claims**



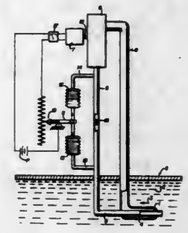
An elongated hollow rectangular housing closed at one end and open at the opposite end is used for measuring the blocking resistance of sheet materials. Contiguous sheets of the materials are placed between divider plates and slidably fitted within the housing The divider plates and sheets rest on the closed end of the housing and then a plurality of weights are slidably fitted within the housing and rest on the plates. Slots are formed in the walls of the housing to extend from the closed end to the open end so the divider plates and weights can be readily slidably removed from the housing.

3,546,938
FLUID FLOW METER
Edward L. Rakowsky, Kinnelon, N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J., a corporation of Delaware
Filed Aug. 28, 1968, Ser. No. 755,999
Int. Cl. G01f *1/00, 1/06*
U.S. Cl. 73—203 **4 Claims**



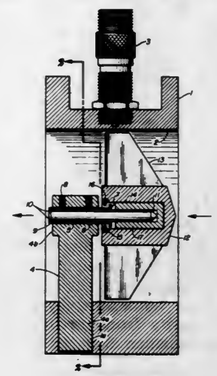
A fluid flow meter in which a fluid flows through a housing and is divided into a pair of paths in the housing. A paddle wheel is provided in one of the paths and rotates in response to fluid flow therethrough for providing an output signal proportional to the total flow through the housing.

3,546,939
FLUID FLOW INDICATOR
Howard H. Hilderbrand, 60 Rue Rothschild, 1200 Geneva, Switzerland
Filed Feb. 15, 1968, Ser. No. 705,645
Int. Cl. G01f *1/00;* **G01p** *5/16*
U.S. Cl. 73—212 **1 Claim**



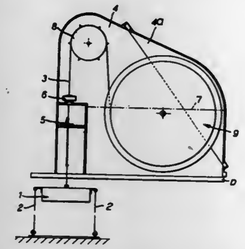
A fluid flow indicator for measuring the velocity of fluid flow relative to a structure, such as ship speed or velocity of flow of fluid through a conduit. The energy required to generate a counter-pressure equal to the difference between static and stagnation pressure as measured by a pitot tube is measured and indicated. The counter-pressure is generated by an electrically driven variable speed pump, the current drawn by the pump being indicative of the relative velocity, and by integrating the current a measurement of total displacement or relative movement is obtained.

3,546,940
TURBINE METER
Edward H. Short III, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,920
Int. Cl. G01f *1/10*
U.S. Cl. 73—231 **3 Claims**



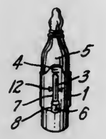
The rotor of a turbine meter is mounted in a housing bore to rotate on a shaft which extends axially along the bore from a support. The support is a post-like fixture extended from the wall of the bore. A collar on the shaft is engaged by a rotor structure to retain the rotor on the shaft and a bearing surface of the rotor engages the frustum-shaped end of the shaft extended from the fixture.

3,546,941
LIQUID LEVEL GAUGES
Norman Weighell, Shildon, England, assignor to Whessoe Limited, Durham, England
Filed July 17, 1968, Ser. No. 745,563
Claims priority, application Great Britain, July 20, 1967, 33,332/67
Int. Cl. G01f *23/08*
U.S. Cl. 73—321 **9 Claims**



In a liquid level gauge having a float secured to one end of a tape whose other end is wound up on a spring actuated drum, the tape running over a wheel which drives an indicator showing the length of tape payed out, the tape drum is constituted by a closed rotatably mounted casing containing a stationary braking member, disposed in closely spaced relation to a surface of the casing, and the casing is filled with a viscous hydraulic fluid, thereby limiting the rate of rotation of the drum and thus the rate of descent of the float. The level indicator driven by the tape gives a digital indication over the full range of operation but includes only a single transfer mechanism. A crank handle for rotating the drum to reel up the tape incorporates a one-way drive and a friction coupling which releases to prevent overwinding.

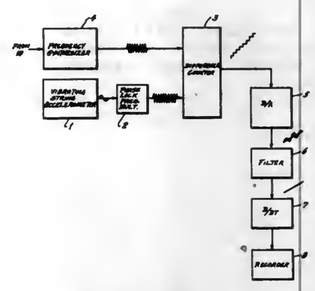
3,546,942
DEVICE FOR INDICATING THE TEMPERATURE OF A BABY BOTTLE
Walter Thiele, Weststrasse 57, Oberstdorf, Germany
Filed Aug. 6, 1968, Ser. No. 750,510
Int. Cl. G01k *1/14*
U.S. Cl. 73—374 **5 Claims**



A holder for a thermometer for indicating the temperature of the contents of a baby bottle is provided with a cavity for receiving the thermometer. The thermometer is enclosed on all sides in the cavity, except for an opening facing the baby bottle, thereby protecting the thermometer in the cavity from mechanical stresses, while providing a heat-insulation chamber for the thermometer.

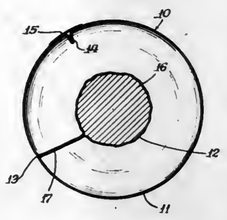
3,546,943
SEA GRAVIMETER
Charles G. Wing, Brighton, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed May 3, 1968, Ser. No. 726,294
Int. Cl. G01v *7/16*
U.S. Cl. 73—382 **5 Claims**

This invention provides a method for accurately determining the local gravitational field at sea. This local field is measured by indirectly determining the mean frequency of the output of a vibrating string accelerometer. This indirect measurement is obtained by heterodyning the output of the accelerometer with a local oscillator whose output frequency is made to closely approximate that output of the accelerometer. The mean difference signal



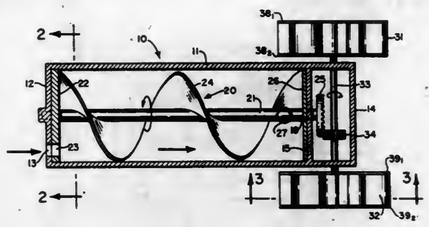
generated by this heterodyning process represents the difference in frequency between these signals caused only by the local gravitational field. This difference signal when further processed and added to the local oscillator frequency is the mean frequency of the accelerometer. From this indirectly derived mean frequency the local gravitational field may be obtained.

3,546,944
FLUID PRESSURE INDICATOR
Robert J. Mack, Palatine, Ill., assignor to The Kendall Company, Walpole, Mass., a corporation of Massachusetts
Filed June 3, 1969, Ser. No. 829,941
Int. Cl. A61f *5/04*; G01l *7/02*
U.S. Cl. 73—388 **10 Claims**



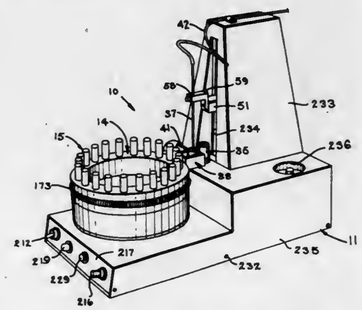
Devices are disclosed presenting visible and audible indications of attainment of selected internal pressures in a pressure container which includes a flexible thin walled inflatable area. Portions of the inflatable area are restrained from distension by a simple band or cord spanning one or more folds in the wall of the inflatable area. The indication in the case of extensible bands or cords is continuous and visible only, whereas in the case of substantially non-extensible bands or cords, is both visible and audible, such non-extensible bands being either single use or readily renewable in a choice of breaking strengths correlated to internal pressure of the pressure container. Rupture of the band or cord causes an audible pop partly due to instantaneous distension of the folded portion of the inflatable area and partly due to the rupture of the band or cord. The devices have a particular application to the field of double walled inflatable immobilization splints used in first aid treatment of sprains and fractures, and for control of internal and external bleeding, including arterial bleeding.

3,546,945
FLUID SAMPLER
William H. Collins, Baton Rouge, La. (1002 Chipley Drive, Baker, La. 70714)
Filed Sept. 10, 1969, Ser. No. 856,613
Int. Cl. G01n *1/20*
U.S. Cl. 73—422 **10 Claims**



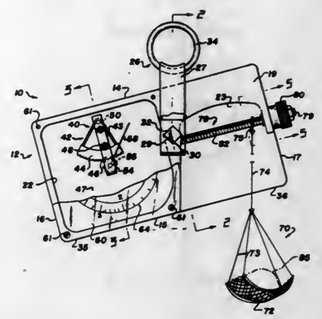
Apparatus for sampling fluids from a flowing stream. The apparatus, of tubular shape, is dual compartmented, i.e., it is provided with a first and a second compartment. The first compartment is provided with a fluid inlet port and the second compartment with a fluid outlet port. The fluid inlet port is opened and closed via a rotatable disc which also contains an opening for alignment with the fluid inlet port to open and close the latter. A worm conveyor, rotatably mounted within the first compartment, actuates the disc. The worm conveyor is operatively connected, via suitable gearing mechanism, preferably variable, located within the second compartment, to external fluid actuable driving means. The moving stream, from which the sample is taken, actuates the worm conveyor itself so that the rotating disc opens and closes the fluid inlet port in the first chamber to admit increments or spurts of fluid into the first chamber. Simultaneously, fluid is expelled through the outlet port for collection.

3,546,946
FLUID SAMPLE SELECTOR
Edwin W. Smith, Climax Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
Filed Jan. 8, 1969, Ser. No. 789,722
Int. Cl. G01n *1/14*
U.S. Cl. 73—423 **12 Claims**



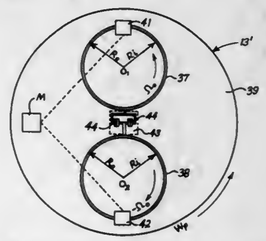
A rack that holds a plurality of containers, holding fluid specimens to be automatically tested, moves the containers sequentially into and out of a sampling position. A wash tank is mounted on the frame and spaced horizontally from the sampling position. A carriage, mounted on the frame, holds a probe holder that moves a probe substantially vertically between first and second positions above the sampling position and the wash tank, respectively. The movements of the probe by the carriage and the probe holder are substantially within a single plane.

3,546,947
SPECIFIC GRAVITY METER
John Modin, 1340 Burnaby St., Vancouver, British Columbia, Canada
Filed Oct. 13, 1969, Ser. No. 865,906
Int. Cl. G01n *9/10*; G01g *1/02*
U.S. Cl. 73—437 **5 Claims**



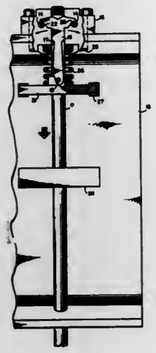
An instrument having a balance block fitted with an indicator capable of registering minute changes in the angle of the block as it rocks about a point of pivot. A depending, specimen-supporting sling is secured to a normally overbalanced end of the block by a micrometer bolt which allows the assembly to be adjusted precisely to balance the dry weight of the test specimen, whereupon an accurate specific gravity reading is given when the test specimen is immersed in water.

3,546,948
SYSTEM FOR EVALUATION OF IRREGULARITIES ON LARGE SURFACES
George W. Cook, McLean, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Original application Dec. 27, 1966, Ser. No. 605,009, now Patent No. 3,475,954, dated Nov. 4, 1969. Divided and this application June 23, 1969, Ser. No. 851,517
Int. Cl. G01p *3/26*; G01c *19/14*
U.S. Cl. 73—505 **5 Claims**



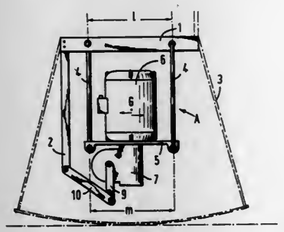
A system for determining the bumpiness of large surfaces, such as the surfaces of highways or air fields, the system including a wheeled vehicle carrying an angular velocity meter which measures the pitching rate of the vehicle and provides an electrical output representing the rate of change of slope of the surface, the meter having a pair of tubular loops containing hydraulic fluid pumped through the loops at the same speed but in opposite directions, and a differential pressure device interconnecting the loops and sensitive to angular rotation of the loops.

3,546,949
RELEASE MECHANISM USING TWO RETRACTABLE PISTON ACTUATORS
Robert K. Chaimson, Cheverly, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed June 12, 1969, Ser. No. 832,761
Int. Cl. G05g *17/00*
U.S. Cl. 74—2 2 Claims



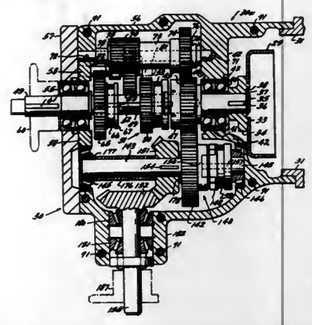
This invention is directed to a release mechanism for a rod used in a coronagraph or any other type spring loaded device. The release mechanism makes use of a pivotal lever which is held in place by two separate electrically released pistons which are used in case one has a misfire, then the other can be fired. When one piston release is fired the pivotal lever pivots by the unfired piston and releases the spring loaded rod.

3,546,950
ELECTROMECHANICAL APPARATUS FOR IMPARTING AN OSCILLATING MOVEMENT TO ROCKING CHAIRS AND THE LIKE
Mario Tinetti, Via Revello 37, Turin, Italy
Filed Mar. 3, 1969, Ser. No. 803,831
Claims priority, application Italy, July 11, 1968, 52,395/68
Int. Cl. F16h *33/00*
U.S. Cl. 74—61 3 Claims



An electromechanical apparatus for imparting an oscillating movement to rocking chairs and the like. The apparatus is not secured to the pavement, but to the base portion of the rocking chair and comprises a motor with an associated reduction gear connected through a crank system to a frame secured to the rocking chair, said crank system serving to convert the rotary movement of the reduction gear into an oscillating movement transmitted to the rocking chair.

3,546,951
TRANSMISSION
Carl Van Ausdall, Box 178, Bradenton, Fla. 33506
Original application Oct. 24, 1965, Ser. No. 504,792, now Patent No. 3,461,656, dated Aug. 19, 1969. Divided and this application Aug. 11, 1969, Ser. No. 848,907
Int. Cl. A01d *35/24, 55/20;* F16h *37/00*
U.S. Cl. 74—15.86 7 Claims

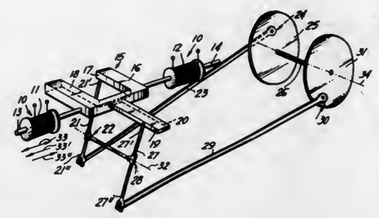


A transmission per se and in combination with an automatic clutch. The transmission comprises a main drive shaft on which a driving gear and jaw clutch member is rotatably mounted, first power output means axially aligned therewith and including a reverse gear and jaw means for engaging the aforesaid jaw clutch and a slidable low gear on said output means; idler, cluster and reverse idler gears rotatably mounted off-center to said output means and main drive shaft, means for axially shifting said member thereby engaging the transmission in high gear, such shifting means also slidable in a reverse direction whereby the reverse gear rotates the power output means in a direction opposite to the main drift shaft; low gearing means axially slidable on said output means and means for axially shifting such low gearing means to engage the cluster gear thereby providing for low gear transmission. An operable lever cooperates with each shifting means for providing a desired transmission engagement. There is further provided a power take-off means coupled to the driving gear on the main shaft whereby, irrespective of low, high or reverse transmission gearing, engine speed is directly powered through such take-off means. The take-off means comprises a take-off shaft, a take-off gear freely rotatable on said take-off shaft and continuously meshed with the driving gear on the main drive shaft, cooperative driving and driven jaw clutch members, the driving clutch member rotatable with the take-off gear, the driven clutch member being secured to the take-off shaft. Upon engagement of such clutch members, the take-off shaft rotates, and with such rotation, a pair of bevel gears rotates, one being secured to the take-off shaft and the other secured to a driving means such as a shaft. An operable level actuates a shifting means for the driving clutch member, whereby the clutch members engage.

3,546,952
MECHANISM FOR CONVERTING THE OSCILLATORY RECTILINEAR MOVEMENT OF A PRIME MOVER INTO CIRCULAR MOVEMENT
Daniel Ildefonso Garcia Vidal, 487 Rincon St., Montevideo, Uruguay
Filed Dec. 20, 1968, Ser. No. 785,719
Claims priority, application Uruguay, Dec. 27, 1967, 16,788
Int. Cl. F16h *21/02*
U.S. Cl. 74—40 2 Claims

A mechanism for converting the oscillatory rectilinear movement of a prime mover into circular movement has

an integral driving member connected to the prime mover and is oscillated rectilinearly thereby. A pair of independent levers of substantially identical length are fulcrumed about spaced apart points on a common axis perpendicular to the direction of rectilinear movement. The integral driving member has a first driving portion and a second driving portion, each one positioned at a different distance from the common axis and are spaced apart, in the direction of the axis, a distance substantially coinciding with the distance between the fulcrum points. Each lever has a first end and a second end, the first

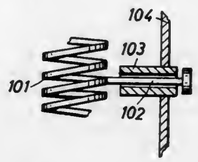


ends alternately abutting the first and second driving portions during the oscillatory movement, thereby converting the oscillatory movement into dephased oscillatory curvilinear movement of said second ends about the common axis. Two connecting rods are pivoted to the second ends and to a rotatably mounted driven member at circumferentially dephased eccentric points to impart circular movement to the driven member. The driving integral member may be, for example, Y-shaped, with the first driving portion being the surfaces of the interior of the Y, and with the second driving portion being the surfaces of the leg of the Y.

ERRATUM

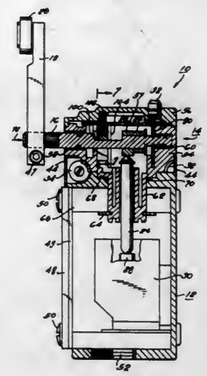
For Class 74—89.15 see:
Patent No. 3,546,930

3,546,953
OSCILLATORY SYSTEM WITH TWO TURNABLE MASSES
Roland Siefert, Bad Durrheim, and Heinz Odenbach, Irslingen, Germany, assignors to Kienzle Uhrenfabriken G.m.b.H., Schwenningen am Neckar, Germany
Filed Oct. 17, 1968, Ser. No. 768,302
Claims priority, application Germany, Oct. 19, 1967, 1,673,664
Int. Cl. F16h *21/44;* G10d *13/08*
U.S. Cl. 74—96 2 Claims



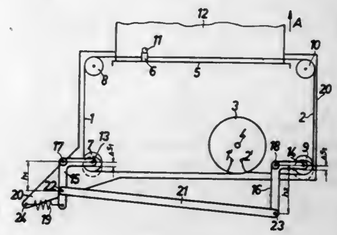
A mounting for the nodal portion of a counter phase oscillator spring. The mounting is resiliently movable at its point of attachment to the oscillator spring, but the movement is restricted by stops.

3,546,954
DEVICE FOR ACTUATING A LIMIT CONTROL ELEMENT
Martin D. Ustin, Union, N.J., assignor to Buchanan Electrical Products Corporation, Union, N.J.
Filed July 22, 1966, Ser. No. 567,172
Int. Cl. F16h *21/44*
U.S. Cl. 74—107 9 Claims



A device for actuating a limit control element such as a limit switch. The device has an actuating arm which is rotated to actuate the switch. The position of the arm is infinitely adjustable with respect to the body of the device so as to make it possible to actuate the arm from numerous different directions. Also, the arm is adjustable, without disassembling the device, to provide three modes of switch operation; one in which the switch is operated only by clockwise rotation of the arm, a second in which only counterclockwise arm rotation produces switch operation, and a third in which the switch is operated by rotation in either direction.

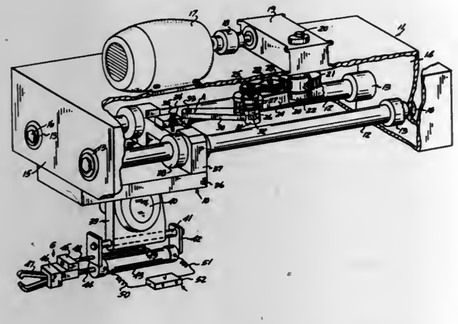
3,546,955
DEVICES FOR TRANSMITTING MOTION IN AN APPARATUS TO AN ADJUSTABLE INDEX
Ernst Winter, Heinz Riegler, Ernst Leo, and Lothar Wochnik, Gera, Germany, assignors to VEB Carl Zeiss Jena, Jena, Gera, Germany
Filed Nov. 29, 1968, Ser. No. 780,946
Int. Cl. F16h *27/02, 35/18*
U.S. Cl. 74—89.22 1 Claim



A mechanical transmitter conveys motion in a measuring apparatus to an index by means of two oppositely directed cables. Each of these cables is secured to both the transmitter and the index, or the carrier of this index, and

runs over, and is kept taut by, at least one elastically mounted pulley. One of the pulleys of each cable is mounted on a lever. The axes of rotation of these two levers extend parallel to the axes of the pulleys, and the two levers are linked to each other by a connecting piece. The linkage points of the connecting piece on the two levers are at such distances from the fulcrums of the levers as to prevent that changes in temperature and, accordingly, in the lengths of the cables cause undesired motion of the index.

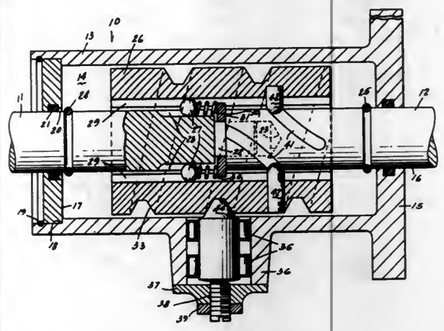
3,546,956
HARMONIC ACTUATING UNIT FOR A POWER OPERATED WORKPIECE GRIPPING AND HANDLING MECHANISM
Leland F. Blatt, Grosse Pointe, Mich.
(24121 Mound Road, Warren, Mich. 48091)
Filed Aug. 11, 1969, Ser. No. 849,621
Int. Cl. F16h *35/02*
U.S. Cl. 74—394 **7 Claims**



A tool handling carriage adapted to mount power operated workpiece gripping jaws is reciprocated along guide rods or as an alternative, the carriage may be removed and the guide rods reciprocated to carry such gripping jaws into a small area. Reciprocating motion is created by a planetary gear system so designed as to have a minimum of width of rotation relative to the linear travel created by the system. The idler gear on a drive crank rotates around a stationary sun gear actuating a driven gear wherein the driven crank arm is coaxial with the planet gear and has one end for rotation thereon and is connected to the ends of the carriage guide rods or to a carriage mounted gripper to be reciprocated. The guide rods either reciprocating or stationary, are provided with two sets of linear bearings resisting thrust applied to the carriage or rods in any direction.

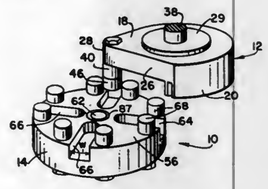
3,546,957
VARIABLE RATIO STEERING GEAR
Frederick J. Adams, Campton, near Shefford, England, assignor, by mesne assignments, to Cam Gears, Ltd., Hitchin, Hertfordshire, England, a British company
Filed Apr. 15, 1969, Ser. No. 816,333
Claims priority, application Great Britain, Apr. 17, 1968, 18,087/68
Int. Cl. B62d *1/20*
U.S. Cl. 74—497 **10 Claims**

A transmission coupling, especially suitable for steering gear, providing a desired ratio between input and output shafts through an axially shiftable sleeve rotated by the input shaft, having a helical groove and follower connection with a housing to translate rotation into axial movement and having a helical groove and follower connection with the output shaft to convert the axial movement into rotation of the output shaft. The followers are



preferably of the pin type, the pitches of the helical grooves differ to provide a ratio of rotation between the shafts, and one helical groove preferably has a variable pitch to vary the ratio.

3,546,958
POSITIVE LOCKING GENEVA MOTION MECHANISM
Ellsworth M. Parks, 241 N. Lincoln St., Batavia, Ill. 60510
Filed Jan. 14, 1969, Ser. No. 790,983
Int. Cl. F16h *27/04, 55/04*
U.S. Cl. 74—436 **9 Claims**



A positive locking intermittent rotary motion device which includes a continually rotating drive member in a cooperating relationship with an indexing member, means to impart intermittent motion to the index member, and positive means to lock the indexing member during a portion of each revolution of the drive member. The means to impart intermittent motion to the indexing member includes a cam follower positioned on one face of the drive member which engages a plurality of radial slots on one face of the indexing member; each time the cam follower engages a radial slot, the indexing member moves a fraction of a revolution for each full revolution of the drive member. The positive lock means includes a precision groove on the same face and opposite the cam follower of the drive member. A pair of anti-friction roller bearings are disposed adjacent each of the radial slots along the periphery of the indexing member. The precision groove and the cam follower, of the drive member are disposed relative to one another so that during the dwell period of the indexing member, that is the period in which the cam follower is not engaged in one of the plurality of slots, a pair of roller bearings is engaged by the precision groove to inhibit movement and vibration of the indexing member while the drive member continually

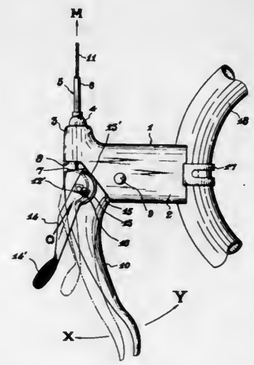
rotates. When the cam follower is about to engage the next successive slot on the indexing member, the pair of roller bearings engaged by the precision groove pass therefrom. The next pair of roller bearings which are adjacent the slot engaged by the cam follower, are engaged by the precision groove as the cam follower is disengaged from the slot.

3,546,959
DIMENSIONALLY STABILIZED GEARS
John H. Carlson, 15 Bradley Road, Danvers, Mass. 01923
Filed Oct. 11, 1968, Ser. No. 766,836
Int. Cl. B21d *53/28*; F16h *55/12*
U.S. Cl. 74—439 **3 Claims**



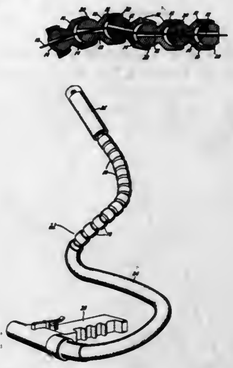
A molded gear of thermoplastic material such as an acetal is made dimensionally stable, rigid and precise both during its construction and during its use by incorporating a stiff ring for instance of sintered iron. The wholly, or almost wholly, embedded ring is encapsulated by the plastic during initial formation and the resultant gear thereafter retains its precise shape with greater rigidity and dimensional stability over a wide temperature range. An especially valuable application of the invention is in the circular spline of a harmonic drive actuator since the spline teeth are often small, numerous and maintenance of their exactly circular disposition is relied on for precision performance in positioning devices.

3,546,960
BICYCLE BRAKE
Saburo Masuda, 1110–212 Osakafueiharumiyajyutaku, 1828 Armoto, Higashi-Osaka-shi, Osaka-fu, Japan
Filed Aug. 5, 1968, Ser. No. 750,294
Claims priority, application Japan, Mar. 19, 1968, 43/21,687
Int. Cl. G05g *9/06*
U.S. Cl. 74—489 **2 Claims**



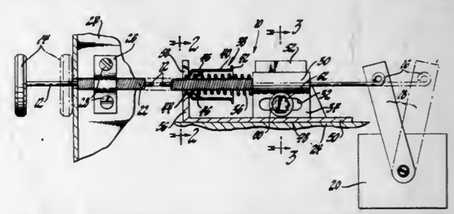
A bicycle brake comprises hand operable brake means having the usual lever member pivoted to a bracket secured to the handle bar. A locking member having an arcuated surface to engage the locking edge of the bracket is pivotally provided with the hand operable lever to enable the brake means to be in braked condition.

3,546,961
VARIABLE FLEXIBILITY TETHER
Theodore Marton, Roosevelt, N.J., assignor to General Electric Company, a corporation of New York
Filed Dec. 22, 1967, Ser. No. 692,925
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **6 Claims**



A variable flexibility tether for attaching and supporting bodies in space or under water comprises a control cable passing through a plurality of members each having a concave surface on one end thereof and a convex surface on the opposite end thereof, each of said surfaces abutting oppositely curved surfaces of adjoining members. When tension is applied to the control cable, adjoining members are forced into mechanical engagement with one another and the tether becomes rigid. When the members are not engaged, the tether is flexible, i.e. it will bend freely. An overhanging lip on the concave abutting surfaces prevents complete separation of adjoining members in the preferred form of the present invention. In one embodiment of the invention, multiple control cables are used to effect manipulation as well as rigidification of the tether.

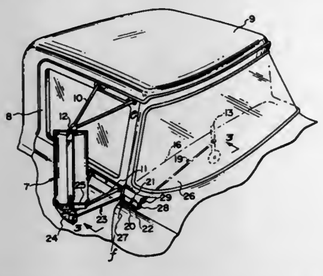
3,546,962
LASH REMOVAL DEVICE FOR A CONTROL WIRE SYSTEM
Joseph D. Ruhala, Clarkston, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 14, 1969, Ser. No. 824,415
Int. Cl. F16c *1/10*
U.S. Cl. 74—501 **4 Claims**



A control wire surrounded by a sheath is operably connected to master and slave controls for simultaneous movement thereof to corresponding positions. A sheath fastener is secured to one end of the sheath and a slotted sheath fastener is secured to the other end. A compression spring surrounds the sheath with one end seating against the slotted sheath fastener. The other spring end seats against a cover for compressing the spring. After the control wire is installed, the sheath fastener has one end secured to the

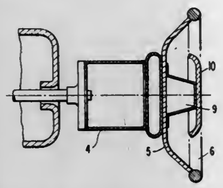
support member. The cover is then manually moved to compress the spring and apply tension to the sheath to remove the lash therefrom. The cover is inserted into a bifurcated holder to maintain the tension on the sheath and position the sheath. While the sheath tension is maintained, the slotted sheath fastener is permanently attached to the support.

3,546,963
REAR VIEW MIRROR FOR TRUCKS
Henry E. Truett, 1206 N. Horace Ave., Rockford, Ill. 61103
Filed Oct. 28, 1968, Ser. No. 770,925
Int. Cl. G05g *1/00*; F16h *21/44*
U.S. Cl. 74—503 11 Claims



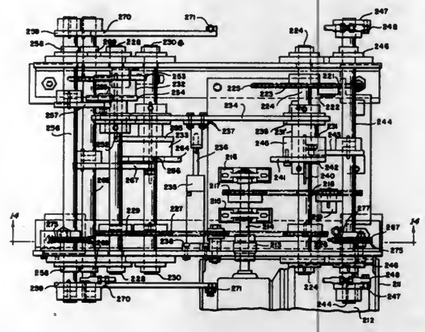
The right-hand rear view mirror is pivoted on a vertical axis on a pair of vertically spaced standoff brackets mounted on the outer side of the truck's right-hand door. A hand-operable lever is pivoted on a horizontal axis on the instrument board and has an adjustable length link connection with one end of a rocker arm pivotally mounted on a bracket on the truck body near the mirror, the other end of the rocker arm being connected by an adjustable length with a bracket fixed to the back of the mirror.

3,546,964
SAFETY STEERING WHEEL FOR MOTOR VEHICLES
Bela Barenyi, Stuttgart-Vaihingen, and Karl Wilfert, Gerlingen-Waldstadt, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Sept. 18, 1968, Ser. No. 760,474
Claims priority, application Germany, Sept. 19, 1967, 1,630,356
Int. Cl. B62d *1/04*
U.S. Cl. 74—552 13 Claims



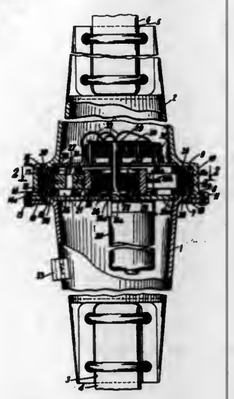
A safety steering wheel for motor vehicles, in particular for passenger motor vehicles, which consists of a system "steering wheel-steering wheel spokes" constructed relatively form-rigid that is secured at the steering column head under interposition of a deformation pot, whereby an elastic intermediate member is so arranged between the system "steering wheel-steering wheel spokes" and the steering column that the deformation pot becomes effective only upon exceeding a predetermined force or a predetermined path.

3,546,965
DEVICE FOR CHANGING THE TIMING OF CAM DRIVEN LINKAGES
Edward P. Lee, White Plains, Eugene H. Lombardi, Port Chester, Ralph A. Montes, White Plains, and Oscar W. Stoeckli, Rye, N.Y., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
Original application July 12, 1967, Ser. No. 652,858, now Patent No. 3,470,996, dated Oct. 7, 1969. Divided and this application Apr. 3, 1969, Ser. No. 839,109
Int. Cl. F16h *53/08*
U.S. Cl. 74—568 9 Claims



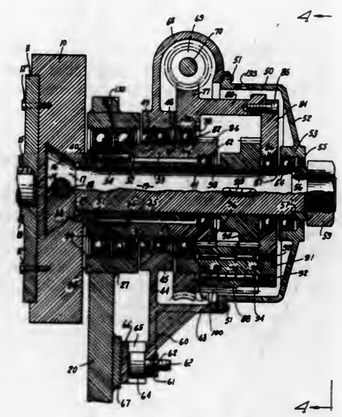
A mechanism for changing the relative timing of cam driven linkages has a plurality of parallel shafts rotatably driven in timed relationship. A cam element having a pair of cam surfaces is mounted on each of the shafts in rotating and sliding engagement therewith. A yoke operated by a piston and cylinder is connected to the cam elements for reciprocating the cam elements on the shafts. The reciprocation causes a cam follower associated with each cam element to move from one cam surface to another thereby changing the relative timing of the cam driven linkages.

3,546,966
ANTENNA ROTOR
George M. Brooks, Sherburne, N.Y., assignor to Jerrold Electronics Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,294
Int. Cl. F16h *33/00*; H01q *3/02*
U.S. Cl. 74—640 1 Claim



An improved antenna rotor with a stationary lower housing and a rotating upper housing. A direct current motor disposed in the lower housing drives the upper housing through a dual staged harmonic drive. A hollow centered wave generator permits a control communication between the stationary and rotating housings, and the circular splines of the harmonic drive constitute a rotational thrust bearing between the upper and lower housings of the rotor.

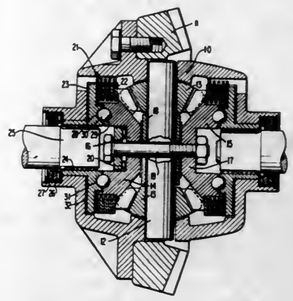
3,546,967
MICROFEED ADJUSTING MECHANISM
Eilert F. Bruns, Birmingham, Mich., assignor to U.S. Industries, Inc., Detroit, Mich., a corporation of Delaware
Filed Feb. 17, 1969, Ser. No. 799,881
Int. Cl. G05g *1/00*; F16h *1/38*
U.S. Cl. 74—600 9 Claims



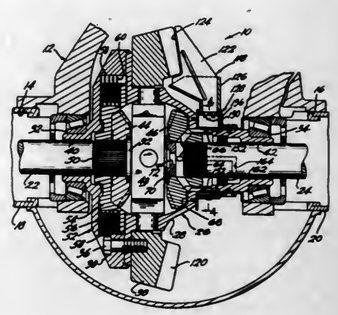
A microfeed adjusting apparatus for varying the stroke of a drive arm, wherein a throw block is secured to a main rotary shaft, said throw block being provided with an adjustable T-bolt which is provided with a T-bolt shaft, an eccentric member rotatably mounted on said T-bolt shaft, one end of said drive arm being rotatably mounted on said eccentric member, a first gear fixed on said eccentric member, a second gear fixed on said T-bolt shaft, a differential gear means interconnecting said first and second gear members for rotating the first gear relative to the second gear to move said eccentric member about said T-bolt shaft to change the position of the eccentric member relative to the T-bolt shaft and thus change the length of the stroke of the drive arm, and to maintain the relative adjusted position of the eccentric member, and means for operating said differential gear means to change the position of the eccentric member relative to the T-bolt shaft.

3,546,968
SELF-LOCKING DIFFERENTIAL GEAR FOR VEHICLES, ESPECIALLY FOR MOTOR VEHICLES
Werner E. Altmann, Stuttgart, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Sept. 27, 1968, Ser. No. 763,275
Claims priority, application Germany, Sept. 28, 1967, 1,630,361
Int. Cl. F16h *1/44*
U.S. Cl. 74—710.5 7 Claims

A self-locking differential gear for motor vehicles in which a housing connected with the drive accommodates the differential pinions, which mesh with the output bevel gears that are connected with the housing and with the output shafts by way of disengageable friction clutches and inclined surfaces, respectively, the axial thrust resulting at the inclined surfaces during the transmission of torque is used to disengage the clutches, which are normally engaged by spring force; the clutches are arranged independently of the output bevel gears and the output bevel gears are arranged axially immovably in the housing.

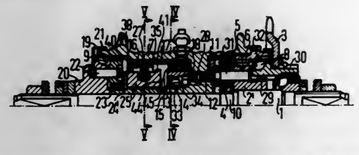


3,546,969
LOCKING DIFFERENTIAL
Philip Terry Gibson, Henry Elwin Hull, and Sherman Andrew Larimer, Columbus, Ohio, assignors to Thornton Products Company, Detroit, Mich., a corporation of Michigan
Filed Feb. 5, 1969, Ser. No. 796,764
Int. Cl. F04b *19/02*; F04c *5/00*; F16h *1/44*
U.S. Cl. 74—711 20 Claims



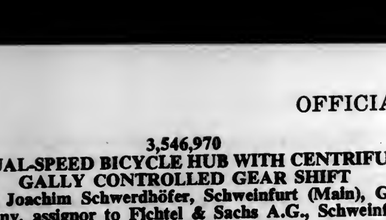
A hydraulically actuated locking differential wherein a friction disc clutch is operatively positioned between an axially movable side gear and the differential case to restrict differential action in response to fluid pressure from a pump assembly. The pump assembly is mounted within the differential spider and is actuated when the other side gear rotates relative to the spider. An auxiliary pump is mounted exterior of the differential case to supply fluid from the differential housing to the pump assembly.

3,546,970
DUAL-SPEED BICYCLE HUB WITH CENTRIFUGALLY CONTROLLED GEAR SHIFT
Hans Joachim Schwerdhöfer, Schweinfurt (Main), Germany, assignor to Fichtel & Sachs A.G., Schweinfurt (Main), Germany
Filed May 22, 1969, Ser. No. 826,949
Claims priority, application Germany, June 8, 1968, 1,755,682
Int. Cl. F16h *1/04, 3/02*
U.S. Cl. 74—752 **4 Claims**



A bicycle hub having a planetary drive transmission and two overrunning clutches which connect the planet carrier or the ring gear of the transmission to the hub shell is controlled by a flyweight on a support rotated by the hub shell in the same direction, but at higher speed. The clutch on the ring gear is normally disengaged by a control ring connected to the ring gear by a friction coupling. A similar coupling connects a shifting sleeve to the hub shell. The sleeve and ring are threadedly connected so that the ring moves axially on the axially secured sleeve when they rotate at different speeds. The sleeve is drivingly engaged by the flyweight at high wheel speeds.

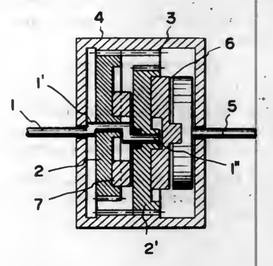
3,546,971
AUTOMATICALLY SHIFTING MULTIPLE-SPEED HUB
Hans Joachim Schwerdhofer, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany
Filed June 5, 1969, Ser. No. 830,779
Claims priority, application Germany, June 15, 1968, 1,750,897
Int. Cl. F16h *3/74*
U.S. Cl. 74—752 **10 Claims**



A bicycle hub having n (at least three) transmission ratios and automatically shifting between the ratios is equipped with $n-2$ planetary gearing sets connected with the hub shell and the driver of the hub by overrunning clutches partly controlled by $n-1$ centrifugal governors. Examples of 3-speed and 4-speed hubs are given.

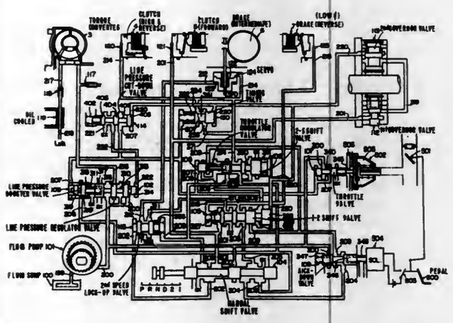
3,546,972
PROFILE SHIFTED INVOLUTE INTERNAL GEARING
Muneharu Morozumi, 293–1 Aza Kitanaka, Oaza Kurita, Nagano-shi, Japan
Filed Aug. 28, 1968, Ser. No. 755,943
Claims priority, application Japan, Aug. 30, 1967, 42/55,663; May 30, 1968, 43/36,993; May 31, 1968, 43/45,378, 43/45,379
Int. Cl. F16h *1/32*
U.S. Cl. 74—804 **8 Claims**

A planetary reduction gearing includes an internal ring gear meshing with one or more pinions. The ring gear and the pinions have involute teeth, and the difference between the number of teeth on the ring gear and the number of the teeth on each pinion is either 1 or 2. The



contact ratio is greater than 1. The involute teeth are profile shifted in accordance with addendum modifications which satisfy a particular equation or formula.

3,546,973
HYDRAULIC CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION
Koichi Ohie, Yokohama, Tetsuya Iijima and Katsuo Yamada, Tokyo, and Toshio Miyazaki, Yokohama, Japan, assignors to Nissan Jidosha Kabushiki Kaisha, Yokohama, Japan
Filed Dec. 11, 1968, Ser. No. 783,003
Claims priority, application Japan, Feb. 3, 1968, 43/6,253
Int. Cl. B60k *21/10;* **F16h** *47/08*
U.S. Cl. 74—868 **1 Claim**

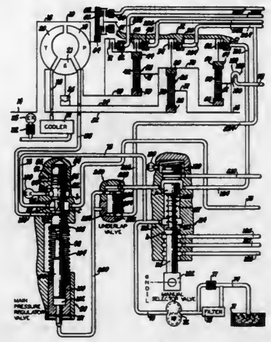


A hydraulic control system for automatic transmissions for vehicles to provide proper timing relation between engagement and disengagement of the friction elements by utilizing, a valve means controlled by governor pressure and one of the pressure signals representing engine torque, to restrict fluid passage to high gear ratio clutch at a low engine torque condition.

3,546,974
TRANSMISSION CONTROL SYSTEM
Joseph R. Fox, Indianapolis, and Robert H. Schaefer, Westfield, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 26, 1969, Ser. No. 827,623
Int. Cl. F16h *37/00;* **B60k** *21/08*
U.S. Cl. 74—869 **6 Claims**

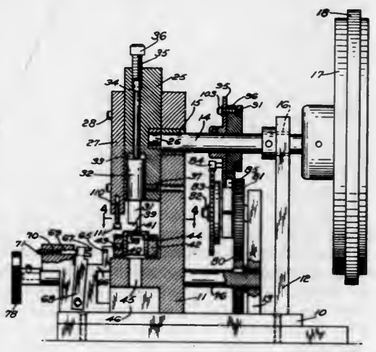
A vehicle transmission control system having a modulator valve controlled by a vacuum modulator and a throttle

operated solenoid valve to provide a shift control pressure increasing with engine torque demand to detent and the highest shift control pressure through detent, a trimmer valve controlling drive establishing device torque capacity



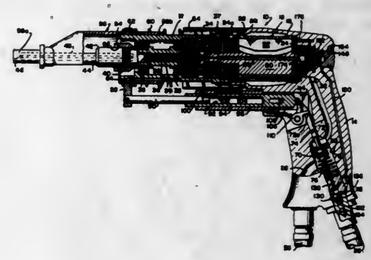
during drive establishment according to engine torque demand and an auxiliary power take off valve controlling the operation of an auxiliary drive establishing device with a lowered regulated pressure.

3,546,975
SAW-TOOTH CUTTING MACHINE
Sulo A. Aijala, Attleboro, Mass., assignor to Intricate Machine & Engineering Inc., a corporation of Massachusetts
Filed Sept. 23, 1968, Ser. No. 761,498
Int. Cl. B23d *65/02*
U.S. Cl. 76—29 **6 Claims**



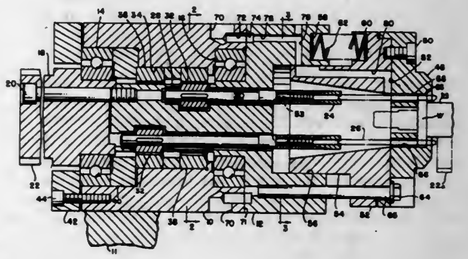
A machine in which a saw blade is guided and fed in a straight line in a step by step feed with an eccentric on the main drive shaft for operating the feed. The feed is in two parts and may be adjusted as to the length of feed by a relative movement of the parts which are then clamped together in a desired setting. As the saw is fed in a straight line, a punch and die operate to cut notches forming teeth in the blade, the cutter or punch being generally triangular in shape and rotatable about the center axis of the punch in order to set the desired angle of the teeth making it unnecessary to move the saw blade to accomplish this.

3,546,976
POWER OPERATED DRILL
John M. Clapp and Paul Urda, Bradford, Pa., assignors to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 3, 1968, Ser. No. 775,227
Int. Cl. B23b *45/04, 51/06*
U.S. Cl. 77—7 **7 Claims**



A power operated drill including a rotary pneumatic motor and an atomizer providing a fine liquid spray, and wherein, during the drilling of a workpiece, air powering the motor is intermixed with the liquid spray and drives the latter onto the workpiece adjacent the drilling end of the drilling implement.

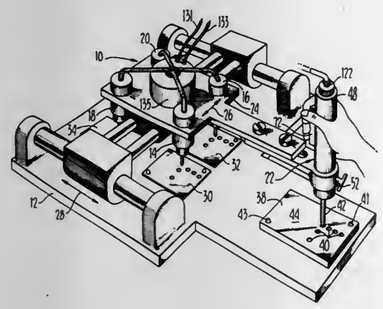
3,546,977
AUTOMATIC SCREW MACHINE TOOLING
Jack F. VanFleet, Holland, Mich., assignor to Universal American Corporation, formerly Robfre Manufacturing Corporation, New York, N.Y., a corporation of Delaware
Filed May 24, 1968, Ser. No. 731,947
Int. Cl. B23b *39/16*
U.S. Cl. 77—23 **5 Claims**



Tooling for an automatic screw machine including a head adapted to be rotated in synchronism with a work piece, and a rotary tool carried by the head eccentrically

thereof. The tool is driven in rotation as a consequence of rotation of the head. The tool is movable along its axis of rotation, preferably parallel to the axes of rotation of the work piece and tool head, into operating engagement with the work piece.

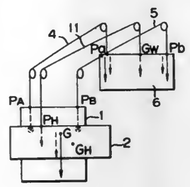
3,546,978
FLUID PRESSURE DIFFERENTIAL CONTROL SYSTEM FOR ACTUATION OF A MOVABLE MEMBER
Lyndon L. Keown, San Leandro, Calif., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Original application Apr. 11, 1967, Ser. No. 630,017. Divided and this application Oct. 23, 1969, Ser. No. 868,697
Int. Cl. B23b *39/24*
U.S. Cl. 77—32.1 **5 Claims**



A multibit drilling apparatus having a horizontally movable drill positioning unit which includes a master probe for vertical movement into predrilled holes of a master template. A switch for commencing the lowering of the plurality of drill bits is controlled by the pressure of fluid in a bore provided in the master probe, which pressure is controlled by the depth of insertion of the probe into the template's predrilled holes.

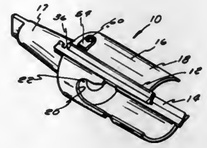
3,546,979
APPARATUS FOR BALANCING A HEADSTOCK AND A SADDLE IN MACHINE TOOLS
Akio Noguchi, Hiroshima-shi, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed June 28, 1968, Ser. No. 740,901
Int. Cl. B23b *47/26*
U.S. Cl. 77—36 **9 Claims**

In a machine tool, such as a milling or boring machine, including a vertically displaceable and guided saddle and a headstock supported by the saddle for lateral displacement and operatively associated with a spindle, balancing apparatus for the saddle and headstock includes first, second and third tension elements, such as cords, ropes, or chains, connected at first ends to the saddle and headstock combination and connected at second ends to a balancing counterweight. The first ends of the first and second cords are connected to points on the saddle which are equidistant laterally, in opposite directions, from the vertical center line of the saddle and their second ends are connected to points on the counterweight which are equidistant laterally, in opposite directions, from the vertical center line of the counterweight. The first end of the third tension element passes through a fixed point of the saddle which fixed point is spaced, in the direction of projection of the headstock, forwardly of the combined center of gravity of the saddle and the headstock and forwardly of the center of gravity of the headstock. This first end of the third tension element is connected to a roller engaging beneath an inclined or sloping surface on the headstock, so that the roller is vertically displaced upon



projection and retraction of the head stock relative to the saddle. The second end of the third tension element is connected to a point at the center of gravity of the counterweight. Weight adjusting means may be included either in the first and second tension elements or in the third tension element. The first and second tension elements may be connected to levers pivoted on the saddle and carrying, at their free ends, rollers engaging beneath a horizontal surface on the headstock.

3,546,980
TOOL MEANS FOR CUTTING CIRCLES AND THE LIKE
Savarian F. Lemanski, Detroit, Mich. (2148 Collins Ave., Utica, Mich. 48087)
Filed May 29, 1968, Ser. No. 733,074
Int. Cl. B23b *51/04*
U.S. Cl. 77—79 **6 Claims**

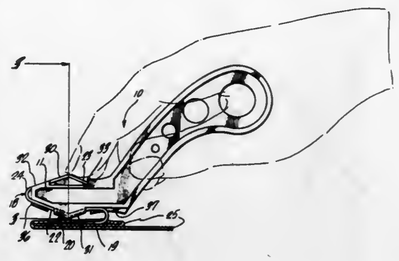


Tool means for cutting circular or ring-shaped elements from a workpiece in which a pair of cutting tools, mounted in a holder, are engaged with the workpiece and then relative rotation is produced between the tool holder and the workpiece. A tool having cutting edges in a novel configuration, a pair of tool holders having novel means for mounting the tools, and a novel means for clamping the tools on the holder are disclosed.

3,546,981
TOOL FOR INSTALLING DRAPERY PINHOOKS
Adam P. Niel, Los Angeles, Calif., assignor to George F. McMurray, Glendale, Calif.
Filed June 25, 1968, Ser. No. 739,871
Int. Cl. B25c *3/00;* **B25b** *11/00*
U.S. Cl. 81—3 **3 Claims**

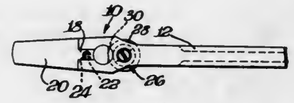
An economical hand-held tool for installing pinhooks in drapery fabric. The tool includes an upwardly curved

handle which terminates at its lower end in a pinhook-engaging shank fitting within a resilient U-shaped hook portion of the pinhook. A plurality of alternating or staggered flanges extend from upper and lower surfaces of the shank to confine the pinhook against lateral movement off



the shank. The flanges are so arranged that several tools can be molded simultaneously from plastic material in a simple two-piece mold without slides or other complex and expensive tooling.

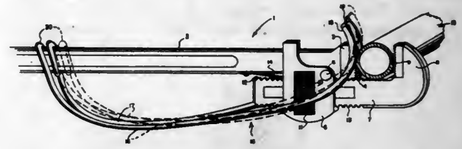
3,546,982
ADJUSTABLE WRENCH
Samuel H. Kohler and Wierd Voogd, Fort Wayne, Ind., assignors to Dresser Industries, Inc., a corporation of Delaware
Filed Apr. 26, 1968, Ser. No. 724,554
Int. Cl. B25b *13/16*
U.S. Cl. 81—172 **4 Claims**



An adjustable open-end wrench including a handle with an integrally connected stationary jaw at one end thereof, and a movable jaw slidably connected to the handle for travel toward and away from the stationary jaw. A biasing device in the form of a coil spring reacts between the movable jaw and the handle in a direction transverse to the direction of travel of the movable jaw. The coil spring urges the movable jaw into abutting relationship with the handle so that particular wrench settings are easily obtained and maintained, and vibration of the movable jaw relative to the handle is eliminated.

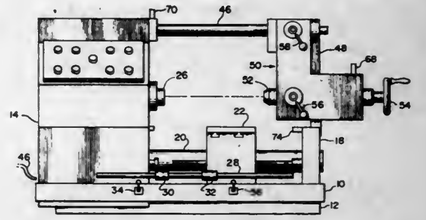
3,546,983
PIPE WRENCH CLAMP
Vernon G. Loree, Box 65, Hope, Mich. 48628
Filed Aug. 2, 1968, Ser. No. 749,729
Int. Cl. B25b *13/58*
U.S. Cl. 81—180 **9 Claims**

A clamp for use in clamping a pipe between the jaws of a pipe wrench comprises a pair of parallel, curved spring arms joined at corresponding ends to a coil of such size as slideably to accommodate the handle of the wrench, the opposite ends of the arms being reversely curved to provide knees adapted to engage the pipe. The clamp is slideable longitudinally of the wrench handle to effect engagement between the knees and the pipe whereupon the arms are deflected and stressed, thereby canting



the coil on the wrench handle and frictionally holding the clamp in engagement with the pipe.

3,546,984
LATHE
Peter D. George, 156 Crabtree Road, Quincy, Mass. 02171
Filed Oct. 2, 1967, Ser. No. 672,153
Int. Cl. B23b *3/06*
U.S. Cl. 82—2 **3 Claims**



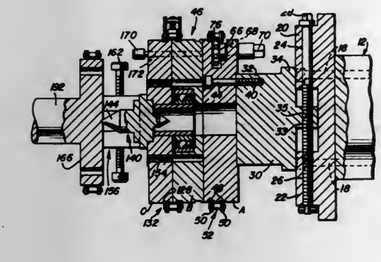
A lathe is provided with a tailstock assembly mounted for angular movement in to and out of alignment with the chuck as well as for axial movement to or away from the chuck. Precision bubble levels are provided on both the housing and the tailstock to insure accurate alignment between the axis of the tailstock spindle and the axis of the chuck when the components are set up for operation.

The apparatus includes a cooperating mounting arrangement for accessory items such as jig tracers whereby the workpiece may be machined exteriorly and interiorly at the same time. The driving head assembly is provided with an air-bearing arrangement which permits the head to be moved towards the tailstock as well as the tailstock being arranged to be moved towards the chuck. Also the tool supporting slide is drivingly connected to a power cylinder for controlled movement with the cylinder located within the housing and its driving rod extending parallel to the lathe ways to provide a compact, relatively short machine capable of a long cutting stroke.

3,546,985
UNIVERSAL DRIVING AND CLAMP MOUNTING STRUCTURE
Jennings Turner, P.O. Box 255, Mayfield, Ky. 42066
Continuation-in-part of application Ser. No. 525,721, Feb. 7, 1966. This application Feb. 1, 1968, Ser. No. 702,445
Int. Cl. B23b *33/00*
U.S. Cl. 82—40 **10 Claims**

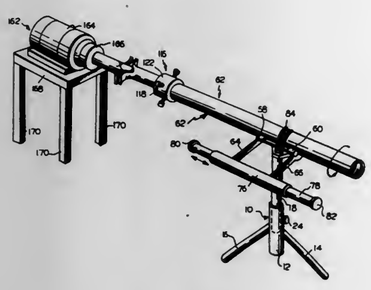
A mounting member defining a center with which a workpiece is to be at least approximately centered and

secured to a journalled support member for rotation therewith and for angular adjustment of the mounting member relative to the support member about an axis generally paralleling the axis of rotation of the support member as well as the center defined by the mounting member. The mounting member includes a support structure supported therefrom and adapted to supportingly



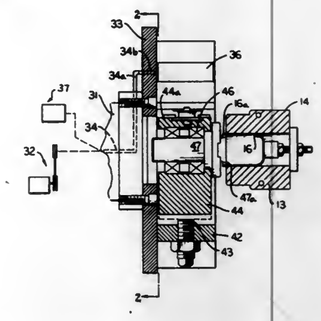
engage a portion of a workpiece adjacent the mounting member approximately centered position relative to the center, the mounting member being mounted on the support member for angular adjustment relative to the support member about an axis generally paralleling the axis of rotation of the support member and as well as an axis generally coinciding with the center defined by the mounting member.

3,546,986
METHOD OF CUTTING A ROTATING PIPE
Donald E. Blake, 761 Chestnut Ridge Road, Morgantown, W. Va. 26505
Original application Apr. 3, 1967, Ser. No. 627,694, now Patent No. 3,445,871, dated May 27, 1969. Divided and this application Feb. 18, 1969, Ser. No. 840,551
Int. Cl. B23b *1/00*
U.S. Cl. 82—47 **1 Claim**



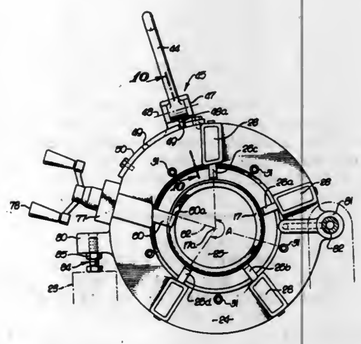
A method is provided for the cutting of pipes wherein a portable rotary power source such as a power vise may be employed to rotatably drive the pipe. The method involves establishing a universal driving connection between a pipe to be worked and a rotary power source, rotatably securing the pipe in a vise means supported for rotation about multiple axes, and then rotatably driving the pipe and applying a cutting tool to the portion thereof to be worked.

3,546,987
ROTARY METALWORKING APPARATUS
Charles R. Procter, R.R. 1, Greenwood, Ind. 46142
Filed May 21, 1969, Ser. No. 826,444
Int. Cl. B23b *3/04, 5/14*
U.S. Cl. 82—58 **3 Claims**



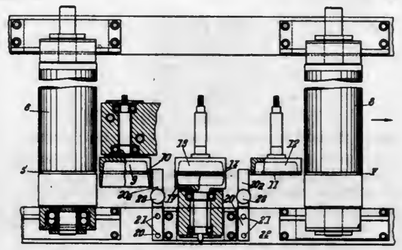
Disclosed is an apparatus for trimming metal parts (burr removal, etc.) in which the work to be trimmed is held in a die, with the portion to be trimmed protruding from the die, and a trimming tool is rotated axially over the face of the work with the tool being urged under hydraulic pressure and hence progressively displaced radially with relation to its axis of rotation to sever the portion of the work to be trimmed from the work.

3,546,988
APPARATUS FOR RAPIDLY GROOVING PIPE
Howard N. Behnke, San Gabriel, Calif., assignor to Collins Machinery Corporation, Monterey Park, Calif., a corporation of California
Filed Dec. 26, 1968, Ser. No. 786,963
Int. Cl. B23b *3/04, 5/14, 5/00*
U.S. Cl. 82—78 **14 Claims**



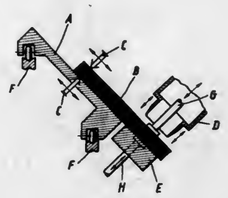
The disclosure concerns apparatus for selectively centering and supporting rotating pipe of various sizes, and relative to a cutting tool which may be selectively presented to the pipe; all at various positions along the pipe.

3,546,989
CUTTER ARRANGEMENTS
Isaj Gutman, Harrow, England, assignor to English Numbering Machines Limited, Enfield, England and Flexico France, Paris, France
Filed May 8, 1969, Ser. No. 823,076
Claims priority, application Great Britain, May 9, 1968, 22075/68
Int. Cl. B26d *7/06*
U.S. Cl. 83—13 **12 Claims**



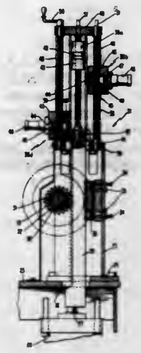
The cutting apparatus is designed to cut along a longitudinal bead of a flat film structure of great length, in particular a tubular structure obtained by extrusion of flexible plastic material and comprising, on its inner face, two parallel longitudinal ribs, respectively male and female, engaged one in the other by flattening of the tube and thus forming an overthick bead projecting on at least one of the faces of the flattened tube. The film structure is guided by its bead past the cutting tool which cuts it along this bead.

3,546,990
METHOD AND APPARATUS FOR DIE CUTTING BLANKS FROM STACKS OF SHEET MATERIAL
Willi A. Schneider, Adliswil, Switzerland, assignor to Frey, Wiederkehr & Cie AG, Briefumschlag und Papierwarenfabrik, Zurich, Switzerland, a joint stock company of Sweden.
Filed May 23, 1968, Ser. No. 731,398
Claims priority, application Germany, May 29, 1967, 1,561,442
Int. Cl. B26d *7/02;* **B26f** *1/38*
U.S. Cl. 83—27 **19 Claims**



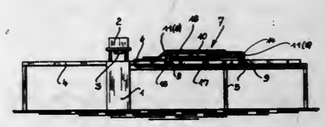
Stacks of sheet material to be die cut into blanks are partially suspended from a single clamped edge by multiple spaced apart, individually actuatable, clamps on a tilted stationary table and under a stationary but rotatable die. A die backing plate is mounted in the table for rotation and adjustment and includes a holding element axially cooperating with a similar element movable within the die for urging the blank stack rearwardly of the die for lateral removal by a grasping tool. The stacks are moved along perpendicular coordinates on the table and an air cushion is provided to reduce friction. A portion of the table is pivotable to the horizontal for initially receiving and aligning the stacks and the clamps are adapted to shift and rock to relieve adverse forces during die penetration. Reduced fluid pressure is supplied to the die press cylinder for stop adjustment of the full pressure die stroke.

3,546,991
SKIP FEED CONTROL FOR PERFORATING MACHINES
Jack Swendsen, Port Washington, and Sigurd Owen Rogde, Little Neck, N.Y., assignors to Wegner Machinery Corporation, Long Island City, N.Y., a corporation of New York
Filed Nov. 13, 1968, Ser. No. 775,372
Int. Cl. B26d *5/20*
U.S. Cl. 83—69 **14 Claims**



A perforating press or other machine performing repetitive operations on incrementally advanced sheet or strip-like material is provided with a skip feed apparatus by which various skip feeds or advances of the material are effected in a selectively predetermined sequence after certain numbers of such repetitive operations so that various patterns of the perforations or other operations on the material can be automatically obtained. The skip feeds are effected by a driving means in the form of a fluid pressure operated cylinder having its stroke limited by several adjustably located stops which are selectively disposed in operative or retracted positions to determine the extent of the skip feed resulting from each cylinder operation. Operation of the driving cylinder and positioning of the stops are controlled by a sequence circuit which includes a stepping relay actuated upon each operation of the cylinder to sequentially include in the circuit stop selector switches each set to cause a selected one of the stops to be disposed in its operative position and, following a predetermined number of operations of the press or other associated machine, operation of such machine is momentarily halted and the drive cylinder is operated to effect a skip feed corresponding to the selected stop. The number of machine operations performed on the material before each skip feed may be varied by means of count selector switches each set to select one of several operation counters and being paired with the stop selector switches so as to be similarly selectively included in the sequence circuit by the stepping relay.

3,546,992
LARGE AREA OR PLATFORM-TYPE BEAM CUTTING MACHINE
Helmbrecht Muller, Pirmasens, Germany, assignor to Firma Schon & Cie GmbH, Pirmasens, Germany
Filed Jan. 29, 1968, Ser. No. 701,445
Claims priority, application Germany, Feb. 9, 1967, Sch 40193
Int. Cl. B26d *7/06, 7/20*
U.S. Cl. 83—417 **8 Claims**



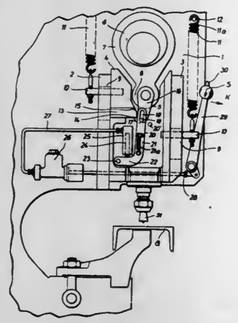
A large area or platform-type beam cutting machine having lateral guiding frames for the cutting table, delivery table equipped and adapted to advance over the cutting table, said

delivery table provided with a conveyor belt positioned on said delivery table and drive means operatively connected to said conveyor belt, said drive means being operative in response to the relative movement between the tables, whereby the relative movement of said cutting table, said delivery table and said conveyor belt are such that material positioned on said conveyor belt to be cut remains immovable relative to said cutting table during delivery of said material.

3,546,993
LOCATOR FOR MACHINE TOOLS, ESPECIALLY FOR PUNCH PRESSES

Werner Peddinghaus, Hasslinghausen, and Ludwig Regenbrecht, Gevelsberg, Germany, assignors to Paul Ferd. Peddinghaus, Gevelsberg Westphalia, Germany

Filed May 8, 1969, Ser. No. 823,019
Claims priority, application Germany, May 8, 1968, 1,752,321
Int. Cl. B26d *7/00*
U.S. Cl. 83—571 **10 Claims**

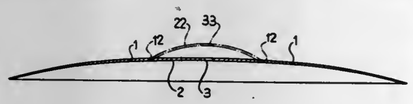


A device for use in effecting the relative location of the work and tool in a machine tool, such as a punch press, in which a reciprocable slide carries the tool and a push rod abuts the slide on the side opposite the tool and embraces an eccentric which transmits power to the slide via the push rod. The device includes clutch elements on the slide and push rod which engage when the push rod abuts the slide but which can be disengaged when the slide is in retracted position to permit the slide to be advanced to the work, whereupon the work and the tool on the slide can be adjusted relatively to the desired position.

3,546,994
CYMBAL

Robert Paiste, Nottwil, Switzerland, assignor to R. & T. Paiste KG Gong and Cymbal Production, Nottwil, Switzerland, a corporation of Switzerland

Filed Jan. 22, 1969, Ser. No. 793,093
Claims priority, application Switzerland, Feb. 20, 1968, 2489/68
Int. Cl. G10d *13/06*
U.S. Cl. 84—402 **6 Claims**



There is disclosed a cymbal possessing the form of a substantially lenslike, arched, flat bowl or plate. Such bowl or plate may possess a wall thickness which decreases towards its edge or else is approximately uniform throughout. Upon striking of the cymbal, it will ring out without natural resonance.

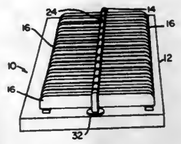
ERRATUM

For Class 84—422 see:
Patent No. 3,548,068

3,546,995
BASS CHORD PLAYER

Carl Semprevivo, Lakeside Trailer Park, Mullica Hills, N.J.

Filed May 17, 1968, Ser. No. 730,072
Int. Cl. G10c *3/12*
U.S. Cl. 84—444 **6 Claims**

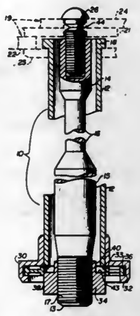


A bass chord player including a movable foot pedal and spaced contacts operatively arranged to play musical notes, and strategically positioned to activate the root or first note of the chord and the fifth note of the chord upon simple pivotal motion of the said foot pedal.

3,546,996
RELEASE LATCH ACTUATED BY TEMPERATURE EXCURSION

Ramon J. Grijalva, Sepulveda, and George F. Queener, Sherman Oaks, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission., by mesne assignments

Filed Apr. 10, 1969, Ser. No. 814,967
Int. Cl. F16b *31/00*
U.S. Cl. 85—1 **9 Claims**



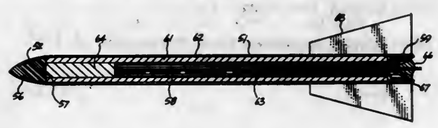
Latch mechanism including colinear elements constructed of materials having dissimilar temperature coefficients of elongation arranged to allow differential elongation which effects arming of the device during a temperature excursion exceeding a predetermined limit; and then to contract differentially to apply a strain sufficient to rupture a retainer element on reversal of the temperature excursion. The latch device may be utilized as a severable link or retainer in a failsafe mechanism to prevent further operation of a device subjected to an excessive temperature excursion.

3,546,997
SMALL ARMS WEAPON

Bert B. Gould, Alameda County, Arthur T. Biehl, Robert Mainhardt, and William D. Barton, Contra Costa County, Calif., assignors to MBAssociates, a corporation of California

Continuation-in-part of application Ser. No. 141,237, Sept. 20, 1961, now abandoned , which is a continuation-in-part of application Ser. No. 61,017, Oct. 6, 1960, now abandoned. This application Feb. 11, 1965, Ser. No. 435,780
Int. Cl. F42b *13/28*
U.S. Cl. 86—1 **25 Claims**

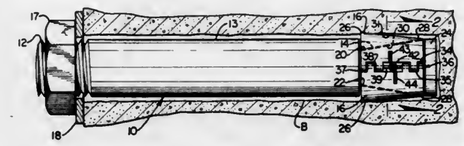
This invention relates to miniature rockets suitable for antipersonnel use and other uses and it relates more particularly to a low cost, light weight self-propelled rocket of small dimension capable of attaining such high velocity as to enable it to be used as an extremely efficient kinetic energy kill mechanism or for use as other weaponry.



3,546,998
HINGE-TYPE ANCHOR BOLT

Lester Lerich, Lakewood, Colo., assignor to Wej-It Expansion Products Inc., Broomfield, Colo., a corporation of Delaware

Filed Sept. 3, 1968, Ser. No. 756,756
Int. Cl. F16b *13/06*
U.S. Cl. 85—72 **7 Claims**

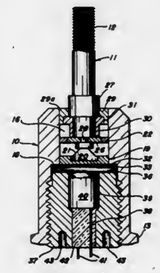


An anchor bolt is provided with wedge members which are assembled on the bolt by means of hinges, the hinges serving the dual purpose of maintaining the wedge members in properly aligned relation on the bolt prior to insertion in a hole and, upon insertion in the hole, are cooperative to rapidly urge the wedge members outwardly into anchored engagement with the wall of the hole when the bolt is displaced in the direction of withdrawal from the hole.

3,546,999
RELEASE MECHANISM

Allan F. Hosang, Phoenix, Ariz., assignor to Unidynamics, Phoenix, Goodyear, Ariz., a corporation of Delaware. by mesne assignments

Continuation-in-part of application Ser. No. 648,095, June 22, 1967, now abandoned. This application June 21, 1968, Ser. No. 747,062
Int. Cl. F16b *37/00*
U.S. Cl. 89—1 **4 Claims**

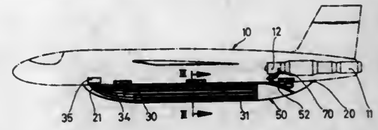


A release mechanism utilizing a shank releasably secured to a head by a split ring engaging an annular ring in the shank and abutting an annular shoulder in the head. An explosively driven piston having cam surfaces thereon wedge the split rings apart to release the shank from the head.

3,547,000
SYSTEM FOR DROPPING STORED MATERIAL FROM TUBULAR CONTAINER MEANS PROVIDED AT AN AIRCRAFT

Erich J. Haberkorn, Riemberling, and Hans W. Breuer, Munich, Germany, assignors to Entwicklungsring Sud G.m.b.H., Munich, Germany

Filed Feb. 20, 1968, Ser. No. 707,887
Claims priority, application Germany, Feb. 27, 1967, May 24, 1967, E33480;E34048
Int. Cl. B64d *1/04*
U.S. Cl. 89—1.5 **13 Claims**

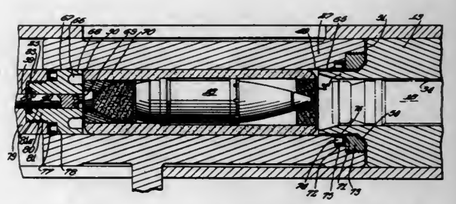


The invention concerns a system for storing material in tubular compartments which are provided in a container supported at an aircraft and for dropping the stored material therefrom. The tubular compartments comprise front and rear orifices with the front orifices being coupled to a pressure air generator to supply pressure air for pushing the stored material through the rear orifices. The pressure air generator comprises means for controlling the quantity and duration of pressure air supply for discharging the stored material. Behind the rear orifices a further pressure air output is provided for discharging an air flow which directs the stored material away from the aircraft after it has been pushed through the rear orifices of the tubular compartments. The tubular compartments are superposed within the container with their longitudinal axes being positioned preferably parallel to the roll axis of the aircraft.

3,547,001
GUN FOR CASELESS AMMUNITION IN WHICH A SLIDABLE SLEEVE DEFINES THE CHAMBER

Eugene M. Stoner, Port Clinton, Ohio, assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio

Filed June 13, 1968, Ser. No. 736,705
Int. Cl. F41d *9/02*
U.S. Cl. 89—156 **16 Claims**



An automatic gun for use in connection with caseless ammunition, which has a standing breech encircled by a sleeve slidable along the breech to a position between the breech and the end of the gun barrel to define a firing chamber area. The end of the barrel has an extension extending into the front of the sleeve and expandable therein to provide obturation at the front of the firing chamber and the end of the breech has a scalloped area extending into the rear of the sleeve allowing expansion of the breech to provide obturation at the back of the firing chamber.

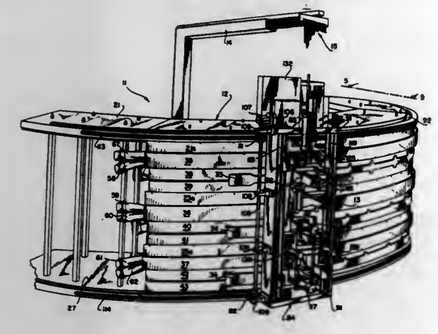
3,547,002
ROUTING MACHINE

John F. Walter, Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 2, 1968, Ser. No. 726,139
Int. Cl. B23c *1/16*
U.S. Cl. 90—13.1 **16 Claims**

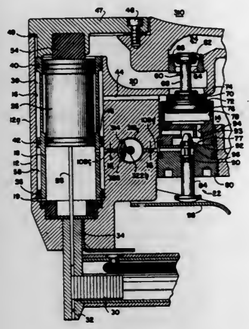
A routing machine having substantial automatic capabilities to rout several workpieces at once which will conform to

a template. The template and workpieces, either of linear or curvilinear shape depending upon the holding fixture configuration, are clamped in the holding fixture comprising several jaw pairs each of which are opened and closed by pneumatically operated bags. A self propelled gantry is movably attached to the holding fixture and is adapted to



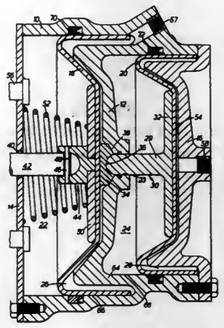
move around the periphery of the holding fixture throughout the area encompassed by the template and work pieces. The gantry contains a tracer system which follows the contours of the template. Routers on the gantry, being controlled by the tracer system to duplicate the contours of the template, rout the workpieces to the same configuration.

3,547,003
FASTENER DRIVING TOOL
Howard B. Ramspeck, Chicago, Ill., assignor to Fastener Corporation, Franklin Park, Ill., a corporation of Illinois
Filed June 17, 1968, Ser. No. 737,649
Int. Cl. F01l *25/06*; F01b *7/18*
U.S. Cl. 91—252 **22 Claims**



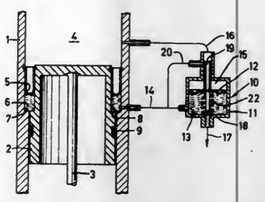
There is provided a pneumatic fastener driving tool having control means providing for successive fastener driving operations upon a single depression of the tool trigger. The operating cycle is controlled by the tool piston closing a valve passageway connected sequentially to the atmosphere and to the fluid in the pneumatic return system of the tool driver. The tool is readily adaptable for multiblow operation of a single fastener by the addition of a control valve or element. Additionally a shuttle valve is provided so that the tool may selectively be fired automatically or used as a single-stroke tool.

3,547,004
FLUID PRESSURE ACTUATED MOTORS
Richard Thomas Fowler, Tyseley, England, assignor to Girling Limited, Birmingham, England
Filed Dec. 2, 1968, Ser. No. 780,415
Claims priority, application Great Britain, Dec. 22, 1967, 58,495/67
Int. Cl. F01b *7/00*
U.S. Cl. 92—63 **4 Claims**



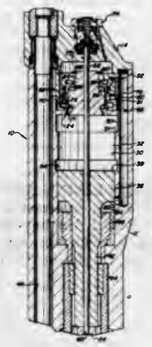
In a fluid pressure motor having at least two pistons working in separate cylinder spaces and coupled together in tandem, the cylinder space in which one piston works overlaps axially with the cylinder space in which an adjacent piston works. In the construction described and illustrated there are two pistons each formed as a metal pressing and including an annular skirt which throughout the working stroke of the piston is in engagement with a stationary seal carried by the wall of the cylinder in which that piston works; each piston is of dished form towards one end of its cylinder and the wall at that end of the cylinder is complementarily shaped; the opposite end wall of one cylinder provides an abutment for a coil compression spring which bears against the piston in that cylinder and is accommodated within the dished recess of the piston.

3,547,005
DEVICE WITH ROLLING DIAPHRAGM SEAL SEPARATING GAS AND LIQUID
Herman Henricus Maria Van der Aa, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments
Filed Mar. 9, 1967, Ser. No. 621,847
Claims priority, application Netherlands, Mar. 22, 1966, 6603707
Int. Cl. F16j *3/00*; P15b *15/17*
U.S. Cl. 92—87 **5 Claims**



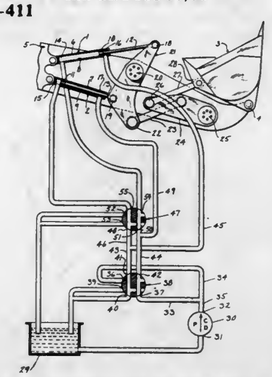
This invention relates to apparatus having a rolling diaphragm seal between two coaxial elements such as a piston and cylinder and is adaptable for use with a hot gas engine. The diaphragm has a concave side and a convex side which separate a gas space on one side thereof and a liquid space on the other. For preventing the pressure of the fluid on the concave side from becoming excessive, a control means is provided for conducting liquid into or out of the liquid space on one side of the diaphragm, to correspond with any excessive pressure differential across the diaphragm.

3,547,006
VARIABLE STROKE PERCUSSION TOOL
Frederick R. Rudman, Edgewater, Colo., assignor to Gardner-Denver Company, Quincy, Ill., a corporation of Delaware
Filed Nov. 7, 1968, Ser. No. 774,037
Int. Cl. F01l *31/08, 25/04*
U.S. Cl. 91—277 **5 Claims**



A mechanism for varying the stroke length of an expansible chamber percussion tool having a hammer piston reciprocably disposed in a cylinder comprising the expansible chamber. The mechanism comprises a rotatably mounted cam extending radially through the cylinder wall and engaged with a fluid distributing valve housing which is movably disposed in the expansible chamber and forms an abutment at one end of the cylinder. The cam mechanism is operable to be adjusted from the exterior of the tool proper while the tool is in operation whereby the distributing valve is selectively positioned to alter the stroke of the hammer piston.

3,547,007
HYDRAULIC CONTROL CIRCUIT
Herman G. Peters, New Berlin, Wis., assignor to Bucyrus-Erie Company, South Milwaukee, Wis., a corporation of Delaware
Filed Jan. 29, 1969, Ser. No. 794,919
Int. Cl. F16b *11/16*
U.S. Cl. 91—411 **5 Claims**

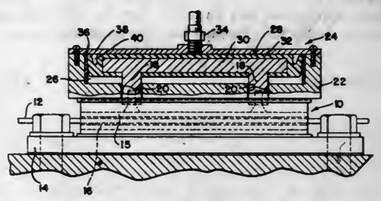


The first embodiment powers two hydraulic actuators in a loader bucket tilt mechanism. A directional valve connects two mains to a pump and to a reservoir. The mains feed the rod ends of the actuators directly. A selector valve connects the blind ends of the actuators either to the reservoir, or to the mains. The other two embodiments power two pairs of actuators. The third embodiment uses four selector valves connected to the directional valve. Two valves alternately connect the blind ends to the mains, or together. The other two valves alternately connect the blind ends of the actuators to the mains, or to the reservoir.

ERRATA

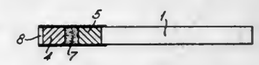
For Classes 92—63 and 92—83 see: Patent Nos. 3,547,004 and 3,547,005

3,547,008
CONTOUR PISTON AND CYLINDER ASSEMBLY FOR SPOT TYPE BRAKES AND CLUTCHES
Mark J. Connor, Wilmington, Del., assignor to Gulf and Western Industrial Products Company, Grand Rapids, Mich., a corporation of Delaware, by mesne assignments
Filed June 4, 1968, Ser. No. 734,470
Int. Cl. F16j *11/04*
U.S. Cl. 92—170 **4 Claims**



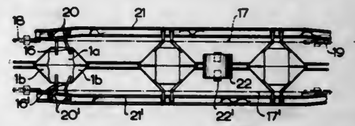
A fluid actuator in which a noncircular piston having an integral seal is received in a correspondingly shaped cylinder bore. The bore has a bonded sleeve which cooperates with the seal.

3,547,009
METHOD OF MAKING FILTERS FOR CIGARETTES
Desmond Walter Molins, London, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain
Filed Aug. 15, 1968, Ser. No. 752,966
Claims priority, application Great Britain, Aug. 22, 1967, 38582/67
Int. Cl. B31d
U.S. Cl. 93—1 **7 Claims**



Making filter cigarettes incorporating particulate filtering material enclosed in a compartment by a method including the step of pushing a filter stub endwise towards the tobacco rod to pack the filtering material better. Alternative ways are described.

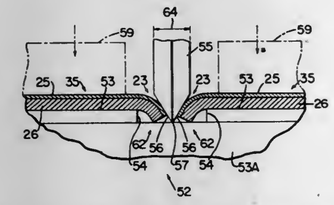
3,547,010
APPARATUS FOR PULLING OPEN AND FLATTENING CROSSED END PORTIONS IN THE MANUFACTURE OF CROSSED END BAGS FROM PLASTICS MATERIAL SHEETING
Max Gennerich and Walter Paul, Lengerich of Westphalia, Willy Niemeyer, Natrup-Hagen, and Fritz Achelpohl, Lengerich of Westphalia, Germany, assignors to Windmoller & Holscher, Lengerich of Westphalia, Germany
Filed May 24, 1968, Ser. No. 731,775
Claims priority, application Germany, June 19, 1967, W44202
Int. Cl. B31b *1/60*
U.S. Cl. 93—22 **8 Claims**



Tube sections of plastics material are conveyed in a transverse direction. A vacuum is applied to the end edges of the tube plies substantially throughout the length of the edges by vacuum tools which move at the same speed as the tube sec-

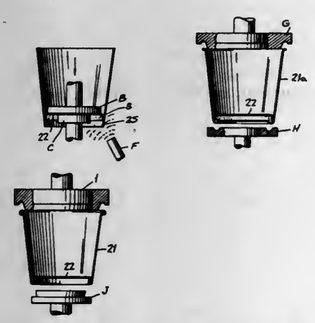
tions so that the plies are pulled apart in opposite directions and the tube section end portions are opened. Spreading means are introduced into the opened tube sections approximately as far as to the center fold line of the end portion without contacting the tube section and during their subsequent spreading movement spread the tube plies apart in the end portion of the tube section. The end portion folds are subsequently formed and fixed.

3,547,011
METHOD OF MAKING DISHLIKE CONTAINER
Melville T. Farquhar, Bon Air, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Original application July 18, 1967, Ser. No. 654,140, now Patent No. 3,403,837. Divided and this application Apr. 22, 1968, Ser. No. 740,012
Int. Cl. B31b *1/00*
U.S. Cl. 93—36 **8 Claims**



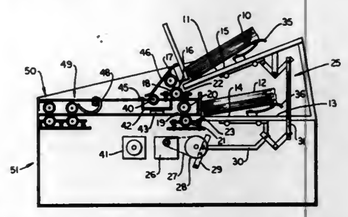
This disclosure relates to a dishlike container means made of multiple layer sheet means having a metallic foil layer defining its inside surface layer and an adjacent layer made of a material capable of being charred. Such dishlike container means has downwardly concave rolled flange means defining top peripheral edge means of its side wall means arranged so that such metallic foil layer protects such adjacent layer arranged therebeneath from heat rays traveling substantially normally toward the inside surface of the dishlike container means. This disclosure also relates to blanks for making such dishlike container means and to an improved method of making rolled flange means in multilayer sheet means of the character mentioned.

3,547,012
TWO-PIECE PLASTIC CONTAINER AND METHOD OF MAKING SAME
Stephen W. Amberg, St. James, Douglas J. Burke, Smithtown, and Nicholas J. Nicholas, Greenlawn, N.Y., assignors, by mesne assignments, to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Original application Feb. 16, 1967, Ser. No. 616,578, now Patent No. 3,454,208, dated July 8, 1969. Divided and this application Feb. 26, 1969, Ser. No. 813,375
Int. Cl. B31c *1/06*; **B31b** *1/66, 1/88*
U.S. Cl. 93—36.5 **9 Claims**



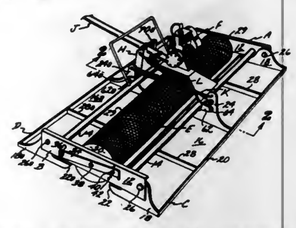
A method of fabricating a two-piece container of noncellular plastic material, such as high impact polystyrene, oriented polystyrene, acrylonitrile-butadiene-styrene, cellulose acetate or other cellulosic esters, rigid vinyl chlorides, or acrylic copolymers, wherein a precut blank of such material is first printed upon, and then circumferentially folded and solvent sealed along its marginal edges to form a sidewall member. A preformed bottom member is solvent sealed to the sidewall member, and a second solvent seal is applied along the line of juncture between the sidewall and bottom members to cause swelling and direct sealing together at what would otherwise be crevice locations therealong. The exterior surface of the container is subjected to infrared heat to relieve tension strains therein. See specification for particular solvent compositions and particular techniques for applying same, particular residence times, temperatures and techniques for applying infrared heat, and other specific details.

3,547,013
CONTAINER LINING APPARATUS
Kenneth L. Gentry, 1217 N. Somerset Ave., Indianapolis, and Conrad L. Fordyce, R.R. 2, Martinsville, Ind.
Filed Sept. 6, 1968, Ser. No. 758,020
Int. Cl. B31b *17/00*
U.S. Cl. 93—36.6 **10 Claims**



Apparatus for automatically affixing a liner to a container, such as a corrugated box. A liner is fed from a hopper and moved across a roller which applies an adhesive to one side of the liner. A container in the flat is simultaneously fed from a second hopper. The side of the liner containing the adhesive is brought into contact with and pressed against and caused to adhere to a desired portion of the container.

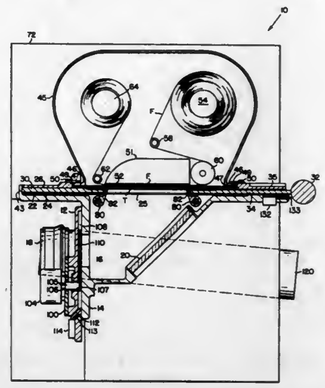
3,547,014
CONCRETE FINISHING APPARATUS
Harold J. Austin, 1360 Acacia St., San Bernardino, Calif.
Filed Aug. 4, 1969, Ser. No. 847,062
Int. Cl. E01c *19/22*
U.S. Cl. 94—45 **10 Claims**



A compact, lightweight, portable apparatus for finishing concrete by vibrating the latter as the apparatus is manually moved thereover. The apparatus includes an elongate, rearwardly extending handle adapted to be adjusted to a convenient angle for the height of a particular operator, and by rotation of the handle, one or more float assemblies forming a part of the apparatus may be adjusted to a desired tilt relative to the surface of the concrete with which they are in sliding contact.

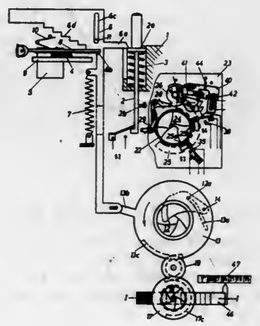
Due to vibrations imparted to the float assemblies, the concrete is in turn subjected to a vibration which causes fines contained in the concrete to be brought to the surface for easier and faster troweling, and also provides a surface zone in the concrete that is denser than the concrete lying thereunder.

3,547,015
PHOTOGRAPHIC CAMERA
Robert L. Dalton, Pittsford, N.Y., assignor to Marine Midland Trust Company of Western New York, Industrial Financing Division, Buffalo, N.Y.
Filed July 17, 1967, Ser. No. 653,808
Int. Cl. G03b *17/24*.
U.S. Cl. 95—1.1 **10 Claims**



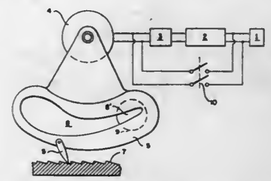
To use this camera a transparency bearing intelligence identifying the individual, whose picture is to be taken, is slid into the camera into registry with the exposure aperture. A manually operated switch is then tripped to cause the transparency to be pressed into direct contact with the film frame at the exposure aperture. An electric circuit is then closed automatically to open the shutter. At full open position the shutter triggers the flashlamp. Both the image of the individual and the intelligence on the transparency are thus photographed simultaneously on the film frame. A time delay relay then releases the transparency and energizes a motor to advance the film to the next frame.

3,547,016
PHOTOGRAPHIC CAMERA HAVING A TIMING DEVICE OPERATING ELECTRONICALLY AND CONTROLLED BY A PHOTOELECTRIC DEVICE
Waldemar T. Rentschler, Calmbach, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany, a corporation of Germany
Filed Oct. 20, 1966, Ser. No. 588,070
Claims priority, application Germany, Oct. 23, 1965, P37,945
Int. Cl. G03b *7/08, 7/12*
U.S. Cl. 95—10 **12 Claims**



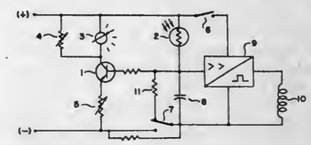
A photographic camera is constructed with an electronic exposure timing circuit controlled by a photoelectric device which sets a moving coil meter, the pointer of which is clamped and then scanned upon actuation of the camera release to determine the appropriate lens aperture and to actuate a further device which controls the timing of the electronic circuit. The meter is preferably provided with an indicating scale visible to the camera user and a timing device which may include a diaphragm located in front of a photoelectric resistor so as to affect the timing of the electronic circuit.

3,547,017
AUTOMATIC EXPOSURE CONTROL SYSTEM
Donald M. Harvey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Apr. 2, 1968, Ser. No. 718,033
Int. Cl. G03b *7/16, 7/08*
U.S. Cl. 95—10 **10 Claims**



An automatic exposure control system particularly for photographic flash exposures wherein before exposure a low intensity preflash is used to actuate an electric circuit for setting calibrated exposure control means. Also disclosed are means for automatically focusing a camera lens in coordination with the setting of the exposure control means.

3,547,018
PHOTOGRAPHIC CAMERA WITH ELECTRONIC SHUTTER SPEED CONTROL AND EXPOSURE TIME INDICATION
Karlheinz Haeberle, Munderkinger Str. 3, Stuttgart-Wangen, Germany
Filed Mar. 26, 1968, Ser. No. 716,122
Claims priority, application Germany, Apr. 5, 1967, K61,908
Int. Cl. G03b *7/08*; **G01j** *1/46*
U.S. Cl. 95—10 **5 Claims**

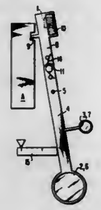


A photographic camera having an electronic shutter speed control and a meter to preindicate the anticipated exposure time. Both the electronic shutter speed control and the meter are influenced by the same photocell, but they are isolated from each other by a semiconductive switch.

3,547,019
FILTER CORRECTION WARNING DEVICE
Shigeru Matsubara and Yasutoshi Okuzawa, Tokyo, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
Filed Nov. 14, 1967, Ser. No. 682,957
Claims priority, application Japan, Nov. 14, 1966, 41/104831
Int. Cl. G03b *19/00*
U.S. Cl. 95—11 **3 Claims**

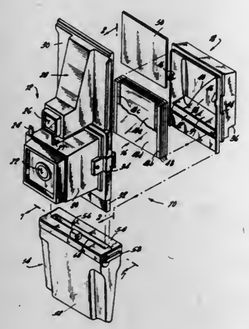
A filter correction warning device having a view finder mask with a projection which engages the side of a magazine carrying photographic film of a particular sensitivity or is received within a recess of another film magazine of different film sensitivity. The finder mask is spring biased but pivotably connected to an arm carrying a color-correcting filter which is manually moved into operative position and

for a correct film, the projection moves into the recess of the film magazine. If the projection engages an unrecessed wall



of a film magazine, the finder mask overlies the view finder to warn the cameraman.

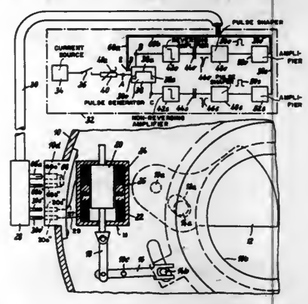
3,547,020
TOY CAMERA
Adolph Eddy Goldfarb, 7427 Varna Ave., North Hollywood, Calif.
Filed Jan. 31, 1968, Ser. No. 701,919
Int. Cl. G03b *17/50*
U.S. Cl. 95—13 **8 Claims**



A compact camera device capable of producing "instant" positive prints on a self-contained basis. The camera includes a lens and shutter structure for projecting a viewed image at a rear exposure location where a film cassette containing a plurality of spring-biased film plates is removably mounted. A viewfinder and a film plate-feeding mechanism are disposed above the exposure location, the feeding mechanism including a slide which serves to displace exposed film plates from the cassette downward into a removable developing tank. In its normal position, an aperture of the slide is aligned with the viewfinder; when the slide has been displaced to its eject position, the viewfinder is blocked to indicate that the shutter should not be operated at such times. The film plates are exposed to the image of a subject through a contact screen closely adjacent to the plate, thereby permitting the generation of tonal values on the instant positive film material of the plate.

3,547,021
PHOTOGRAPHIC CAMERA HAVING PULSE CONTROLLED SHUTTER
Wilhelm Pross. Munich, Germany, assignor to Compur-Werk Gesellschaft mit beschrankter Haftung & Co., Munich, Germany, a firm of Germany
Filed June 5, 1968, Ser. No. 734,627
Claims priority, application Germany, June 28, 1967, C42726
Int. Cl. G03b *9/00, 9/58*
U.S. Cl. 95—53 **4 Claims**

A photographic camera arrangement of the type in which a control unit controls the operation of a shutter unit by actuating (opening) and deactuating (closing) pulses, a variation in the interval between the pulses producing a variation in the exposure time provided by the shutter, includes means built into the shutter for adapting the interval between pulses to the physical characteristics of the shutter mechanism. The



means built into the shutter unit may comprise a resistor which is automatically connected into a RC timing network in the control unit upon connection of the control unit to the particular shutter unit.

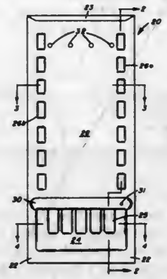
3,547,022
EXPOSURE CONTROL FOR PHOTOGRAPHIC APPARATUS
Rudolf Baron and Kurt Thate, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 20, 1968, Ser. No. 777,315
Claims priority, application Germany, Nov. 30, 1967, 1,597,090
Int. Cl. G03b *7/08, 19/18*
U.S. Cl. 95—64 **10 Claims**

An exposure control for photographic cameras wherein the armatures of two moving iron instruments are mounted on a common shaft which carries a diaphragm blade. A control switch is actuated by the shutter release trigger to first connect the winding of one instrument in circuit with an energy source whereby the corresponding armature moves the blade to a starting position. On further actuation of the trigger, the control switch connects the winding of the other instrument in circuit with the energy source and with a photosensitive resistor so that the position of the blade is changed and the blade defines an aperture whose size is a function of scene brightness.

3,547,023
CHROMATOGRAPHIC CHAMBER
Andre F. P. Lestienne and Georges M. Boudin, Vincennes, France, assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed June 28, 1968, Ser. No. 740,917
Claims priority, application France, Oct. 9, 1967, PV123694
Int. Cl. G03d *3/00*
U.S. Cl. 95—96 **12 Claims**

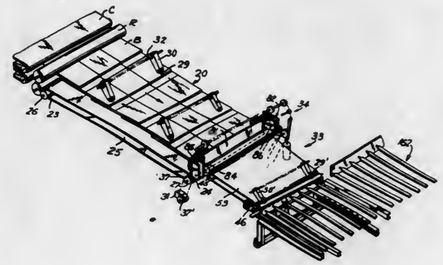
A chromatographic developing chamber formed of a pair of stiff, generally rectangular, oppositely disposed, wall members open at one end for introduction of a chromatographic

sheet and closed at the other end to form an elution solvent reservoir. One or more indentations are formed in the vicinity of the reservoir to hold the chromatographic sheet in



place, and two rows of indentations, each row preferably having a channel on each side thereof, are formed between the reservoir and the open end of the chamber to assist in holding the sheet and to prevent nonuniform rise of solvent.

3,547,024
SHEET CONVEYING, STACKING AND DISCHARGE EQUIPMENT
John Lopez, Westfield, N.J., assignor to Universal Corrugated Box Machinery Corporation, a corporation of New Jersey
Continuation-in-part of application Ser. No. 702.717. Feb. 2, 1968, now Patent No. 3,481,598, and Ser. No. 797,566, Feb. 7, 1969, now Patent No. 3,527,460. This application July 2, 1969, Ser. No. 838,405
Int. Cl. B65h *9/14, 29/16*
U.S. Cl. 271—50 **14 Claims**



This invention relates to the art of sheet conveying, stacking and discharge equipment and more particularly to an equipment which will receive flat sheets of corrugated board which are individually delivered at a high rate of speed and thereupon slow down the rate of speed of such sheets without reducing their speed of delivery, and then will form uniform stacks of such sheets on a takeoff unit by periodically interrupting the feed of such sheets onto the takeoff unit.

3,547,025
CONTROL MECHANISM
Everett B. Snedden and Victor L. Hubler, Dayton, Ohio, assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed May 5, 1969, Ser. No. 821,640
Int. Cl. F25d *17/00*
U.S. Cl. 98—94 **7 Claims**

A rotatable plate connected by wires to two doors of an air conditioning device. A slide is connected to the plate by two links which cross one another and extend into slots in the

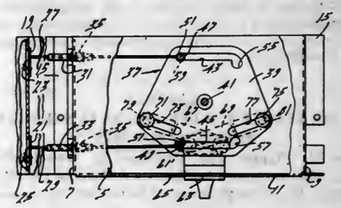
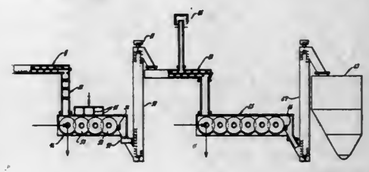


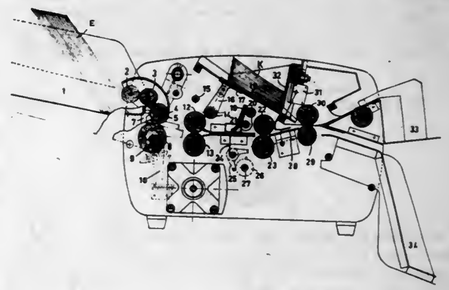
plate. The links cause the plate to rotate when the slide moves in a straight line.

3,547,026
STERILIZATION SYSTEM
Norbert J. Stevens, San Marino, Calif., assignor to BSP Corporation, San Francisco, Calif., a corporation of California
Filed Aug. 30, 1968, Ser. No. 756,634
Int. Cl. B65b *55/14, 55/18*
U.S. Cl. 99—251 **3 Claims**



Protein matter is sterilized with respect to heat sensitive serotype bacteria, principally such as salmonella and coliforms, by passing the protein matter through a sealed unit including a hydration tower and a sterilizer operating at a slight positive pressure. The material is subjected to sterilizing temperatures and then passed into a cooling system whereby moisture is vented to the atmosphere.

3,547,027
DEVICE FOR HECTOGRAPHICALLY PRINTING A TEXT
Jacobus Fredericus Gombault, Drachten, Netherlands, assignor to Hadewe Eerste Nederlandse Duplicatorfabrieken, Drachten, Netherlands
Filed Apr. 11, 1968, Ser. No. 720,628
Claims priority, application Netherlands, Apr. 17, 1967, 6705366
Int. Cl. B41l *47/26, 7/04*
U.S. Cl. 101—53 **6 Claims**



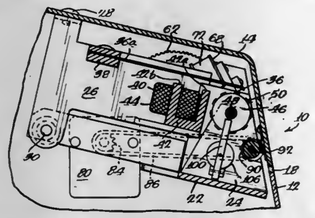
A device for hectographically printing a text from a master card on a work piece. The device has a magazine for the work pieces and a magazine for the master cards. The master cards and the work pieces move along separate paths, meeting each other at the printing station. The magazine for the master cards is provided with means for partially leading a

card out of the magazine in a first step, and the device operates such that the work piece puts a moistening mechanism and a further card supply in operation, responsive to master card sensing means for determining whether tc print or not print according to precoded or uncoded portions of said master cards.

3,547,028
VIBRATABLE PLATEN MEANS IN SELECTIVE PRINTING MACHINES

William H. Plumpe and Theodore E. Weischselbaum, St. Louis, Mo., assignors to Sherwood Medical Industries, Inc., Chicago, Ill., a corporation of Delaware. by mesne assignment

Filed Feb. 2, 1968, Ser. No. 702,581
Int. Cl. B41j *9/78, 1/22*
U.S. Cl. 101—93 **16 Claims**



A mechanism for printing indicia on paper webs or strips characterized in that the impression member comprises an indicia bearing wheel wherein the indicium preferably follow the periphery of the wheel and the striking member comprises a harmonically vibratable reed preferably excited by an electromagnet.

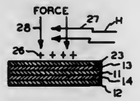
Also, a means for orienting a rotationally displaceable member, such as a printing wheel, fixed to a shaft comprising a toothed wheel on the shaft and an electromagnet adjacent the wheel having spaced core ends of a width preferably equal to the width of the space between the teeth of the wheel.

Further, a lost motion connection for driving a rotationally displaceable member, such as a potentiometer, comprising a driving disc having an arcuate slot, a driven disc also having an arcuate slot, and an intermediate disc having oppositely projecting pins normally held against a corresponding edge of each slot by spring means.

3,547,029
ELECTROSTATIC PRINTING AND REPRODUCING PROCESS

Alfred B. Levine, 2924 Terrace Drive, Chevy Chase, Md.

Original application Aug. 26, 1966, Ser. No. 575,474, now Patent No. 3,486,449, dated Dec. 30, 1969, which is a continuation of application Ser. No. 304,176, Aug. 23, 1963, now abandoned. Divided and this application June 25, 1969, Ser. No. 836,672
Int. Cl. B41m *5/20;* **G01d** *15/20*
U.S. Cl. 101—426 **7 Claims**

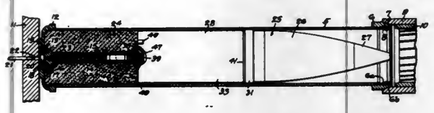


An electrical process for simultaneously printing one or more copies of an image from a master applied in the form of a pattern of electrical conductors, e.g. a printed circuit, a pattern of magnetized areas, or a pattern of electrostatic charged areas wherein the patterns are operated upon by a remote electrical or magnetic field creating a force pattern on a pressure sensitive marking medium to transfer dye or color markings onto one copy or plural copies simultaneously. The force pattern may be amplified or enhanced by applying a current directly to the pattern of conductors to electrodynamically react with the field.

3,547,030
ROCKET AND CARTRIDGE CASE THEREFOR

Ewald A. Kamp and Joseph Pinsky, Chicago, Ill., assignors to United States of America, as represented by the Secretary of the Army. by mesne assignment

Filed Jan. 27, 1954, Ser. No. 406,618
Int. Cl. F42b *13/28*
U.S. Cl. 102—38 **4 Claims**

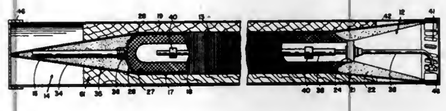


1. In a rocket-round for a breechless gun barrel. a tube open at its forward end and closed at its rearward end, a self-propelled rocket in said tube, a booster charge in said tube for initiating flight of said rocket when said tube and barrel are in coaxial alignment, and a malleable metallic sealing ring in the forward end of said tube for forming a gas seal between the forward end of said tube and the rear end of said barrel by extrusion of said malleable ring when deformed by the forward movement of said rocket during initial flight thereof.

3,547,031
ROCKET MEANS FOR DRIVING A FREE PUNCH

Donald V. Black, Albert D. Jamtaas, and Ross T. Radey, Charlotte, N.C., and John K. Wall, Malibu, Calif., assignors to The United States of America as represented by the Secretary of the Army

Original application May 18, 1962, Ser. No. 196,854, now pending. Divided and this application Aug. 10, 1965, Ser. No. 480,248
Int. Cl. F42b *13/28*
U.S. Cl. 102—49.7 **10 Claims**



A rocket including: a body; said body including a metal liner with one open end, said liner being of such a thickness as to render said liner capable of withstanding the longitudinal stresses and about half of the circumferential stresses that are exerted by high pressure within said liner, and wrapping material means mounted on said liner so as to render said body capable of withstanding all the circumferential stresses exerted by said high pressure; a solid propellant mounted in said body; igniter means in said body for igniting said solid propellant; a nozzle located at the open end of said body; a spin turbine adapted to be secured to and coaxial of said nozzle along opposed end edges of said nozzle and turbine, each of said nozzle and turbine having a circumferential groove in the outer periphery thereof and adjacent said opposed end edges; a segmented ring positioned around said opposed end edges and having a portion thereof fitted in each circumferential groove to secure said turbine to said nozzle; and means keying said nozzle and turbine together for simultaneous rotation so long as said segmented ring is positioned around said opposed end edges.

3,547,032
STEEL ALLOY SHELL BODY

Paul J. Horvath, Jr., Whitehall, Pa., assignor to Bethlehem Steel Corporation, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 679,219, Oct. 30, 1967, now abandoned. This application Feb. 19, 1969, Ser. No. 800,693
Int. Cl. F42b *5/28*
U.S. Cl. 102—67 **2 Claims**

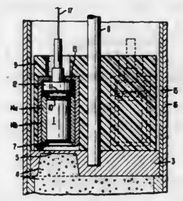
A steel alloy consisting essentially of 1.0 percent to 1.2 percent carbon, 1.6 percent to 2.3 percent manganese, 0.5

percent to 1.1 percent silicon, balance iron and incidental impurities, and a shell body made therefrom. When exploded, the shell body exhibits high fragmentation characteristics, approximating or superior to those of pearlitic malleable iron.

3,547,033
IGNITOR FOR EXPLOSIVE CHARGE WITH MEANS FOR PREVENTING INADVERTENT IGNITION

Heinz Gawlick, Fuerth and Hellmut Bendler, Nuernberg, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

Filed Feb. 19, 1968, Ser. No. 706,570
Claims priority, application Germany, Feb. 17, 1967, D52,301
Int. Cl. F42c *7/00, 11/00*
U.S. Cl. 102—70 **9 Claims**

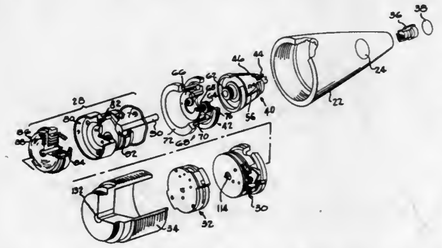


An ignitor adapted to be moved toward the explosive charge to be ignited simultaneously with firing, preferably by ignition of a propellant charge acting upon the detonator of the ignitor to move it as a piston within a tubular casing cylinder, with the casing housing the entire ignitor as a separable replaceable element. A delayed charge may be used to assure that the complete ignition of the detonator will occur at the end of its travel toward the explosive charge. Such an ignitor may be employed in combination with a conventional safety device wherein the ignitor is rotated between a safety position wherein it is separated from the explosive charge by a thick plate and a ready-fire position wherein it is separated from the explosive charge by a readily rupturable thin foil like element.

3,547,034
MECHANICAL TIME FUZE

Dragolyoub Popovitch, Denville, N.J., Roy B. Nystrom, East Northport, and Melvin Eneman, New York, N.Y., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army.

Filed Nov. 13, 1967, Ser. No. 682,441
Int. Cl. F42c *9/02, 9/04, 9/00*
U.S. Cl. 102—71 **15 Claims**

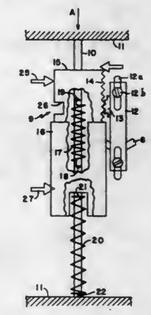


The invention is designed to be an all-purpose fuze and consists of four mechanical modules and an explosive train, all housed in a two-piece body. The modules comprise a digital setting module including a setting gear housing in order to set the time for exploding, a timing mechanism module which contains a timing movement and a scroll operative with the digital module, an arming and firing trigger module, and a boresafe arming delay movement. The fuze is set in a safe position for delivery and stockpile. For function it can be set to detonate on impact or after a timing delay which in one instance is from 0.3 to 200 seconds after firing.

3,547,035
FAIL SAFE SAFING AND ARMING DEVICE

Donald A. Brackman, Trotwood, Ohio, and Robert D. Roland, Richmond, Ind., assignors to Avco Corporation, Richmond, Ind., a corporation of Delaware

Filed Apr. 10, 1968, Ser. No. 720,097
Int. Cl. F42c *9/02, 15/24, 15/00*
U.S. Cl. 102—78 **5 Claims**

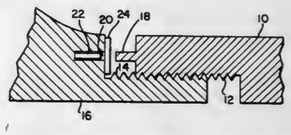


The invention is a timing device adapted and arranged to make the nose fuze of a retarded bomb fail-safe in the event of the improper application of forces to the arming system. A verge escapement is utilized incorporating a two-spring system acting on the timing block against the escapement, permitting the timing of the motion of the timing block in both directions. The same components which sense and time deceleration forces are used to sense, or limit, the time available from fuze initiation to the application of these forces. If not applied within the time limit, the fuze is dudded.

3,547,036
TWO-PIECE PROJECTILE AND METHOD OF SEALING SAME

Jack Brothers, Succasunna, N.J.

Filed May 29, 1968, Ser. No. 732,942
Int. Cl. F42b *11/00*
U.S. Cl. 102—92.4 **3 Claims**



A projectile having two pieces including screw threads having a cylindrical extension adjacent one end of one piece and a cylindrical recess adjacent one end of the other piece. The method of sealing same providing an elastic sealing material in the recess, a rigid sealing material over the recess and directly in the path of the extension and screwing the two pieces together.

3,547,037
TRACK LINING

Franz Plasser and Josef Theurer, Johannesgasse 3, Vienna, Austria

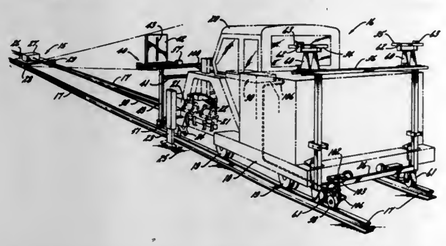
Filed Aug. 8, 1968, Ser. No. 751,271
Claims priority, application Austria, Aug. 14, 1967, A7,462/67
Int. Cl. E01b *33/00, 33/02*
U.S. Cl. 104—8 **17 Claims**



A track liner carrying a plurality of track liner units spaced from each other in the direction of the track continu-

ously moves in this direction and continuously moves the track laterally under the control of a reference system which continuously moves with the liner and is associated with each track lining unit.

3,547,038
RAILROAD TRACK CURVE RECORDING APPARATUS
David G. Strasser, Ludington, Mich., assignor to Jackson Vibrators, Inc., Ludington, Mich.
Filed Oct. 22, 1968, Ser. No. 769,503
Int. Cl. B61k *9/08*
U.S. Cl. 104—8 **5 Claims**



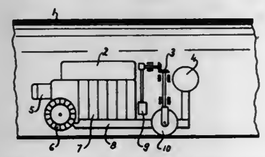
Apparatus movable on railroad track for sensing and recording the ordinate distances of track curves and spirals from a moving reference chord. The recording medium is supplied in timed relation to movement of the apparatus on the track and the indicia recorded is proportional to the ordinate distances sensed. The sensing and recording apparatus may be installed on existing track aligning apparatus or it may be installed on its own independent movable carriages.

3,547,039
TRACK LINING APPARATUS
Franz Plasser and Josef Theurer, both of Johanesgasse 3, Vienna, Austria
Filed Nov. 5, 1968, Ser. No. 773,556
Claims priority, application Austria, Nov. 14, 1967, A 10,279/67
Int. Cl. E01b *33/02*
U.S. Cl. 104—8 **16 Claims**



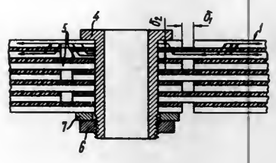
In a track liner, the moving force or speed of the lateral movement of the track shifting means is controlled in direct relation to the size of the alignment error at all track points as the apparatus moves continuously along the track in a nonstop alignment operation.

3,547,040
FLAW-DETECTOR CARRIAGE FOR INTRODUCING RADIOACTIVE SOURCE INTO PIPELINES
Miroslav Baran, Prague, Czechoslovakia, assignor to Dr. K. Saverwein, Duesseldorf, Germany.
Filed May 23, 1967, Ser. No. 640,541
Claims priority, application Czechoslovakia, May 27, 1966, 3,591/66
Int. Cl. G01n *23/00*; **B61b** *13/10*
U.S. Cl. 104—138 **7 Claims**



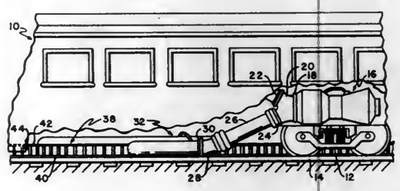
A stabilized flow-detection carriage has been devised for moving a radioactive source within an elongated horizontal pipe which is to be tested for weld defects. The source is mounted within a horizontally disposed carriage which moves longitudinally in the pipe on a pair of drive wheels and a rotatable stabilizing wheel. The movement of a weighted pendulum on the carriage when the latter tends to rotate within the pipe effects the rotation of the stabilizing wheel in a direction tending to restore the carriage to its normal horizontal orientation.

3,547,041
INDUCTION LINEAR TRACTION MOTOR FOR MONORAIL SYSTEMS
Georgy Ignatievich Izhelya, Ulitsa Malopodvalnaya, 14 kv. 13; Konstantin Alexeevich Bykov, Ulitsa Streletskaya, 14 kv. 2; Boris Sokratovich Veneraki, Ulitsa Gorkogo, 155 kv. 28; Alexandr Ivanovich Vishnikin, Ulitsa Belorusskaya, 1 kv. 17; Vladimir Andreevich Mishakin, Ulitsa Selskokhozyaistvennaya, 7/9 kv. 19; Sergei Alexeevich Rebrov, Ulitsa Nikolsko-Botanicheskaya, 14 kv. 20; Itskhok Avrumovich Spektor, Ulitsa Muromskaya, 3 kv. 15, and Alexandr Grigorievich Shapovalenko, Ulitsa Zatonskogo, 15/41 kv. 25, all of Kiev, U.S.S.R.
Filed Feb. 12, 1968, Ser. No. 704,830
Int. Cl. B60m *5/00*; **H02k** *41/02*
U.S. Cl. 104—148 **3 Claims**



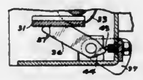
An induction linear traction motor for monorail systems wherein a running rail is used as the rotor, whereas stators embrace the running rail on both sides thereof, the magnetic cores of each stator being divided lengthwise into sections interconnected by means of articulated joints capable of providing relative turning movement of adjacent sections during passage of the stators along a curvilinear section of the rail with a small radius of curvature.

3,547,042
VEHICLE PROPULSION UNIT
William M. O'Connor, Westport, Conn., assignor to Avco Corporation, Stratford, Conn., a corporation of Delaware
Filed May 1, 1969, Ser. No. 820,721
Int. Cl. B61b *13/12*; **B61c** *5/04*
U.S. Cl. 104—155 **11 Claims**



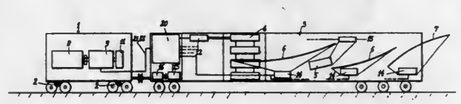
The disclosure illustrates a propulsion unit for a vehicle movable along a fixed reaction rail having a plurality of linearly positioned, vertical curved vanes. A gas turbine engine, mounted in the vehicle, discharges a propulsive fluid stream through a flexible conduit to a power head guided along the reaction rail. The inlet of the power head has a series of vertical pivotal blades for selectively directing flow in an aft direction across one side of the reaction rail to produce a forward thrust, directing flow in a forward direction to produce an aft thrust, and blocking flow. A series of blades and ducts are positioned on an opposite side of the reaction rail to receive forwardly directed fluid from the curved vanes and change its direction for producing an additional forward thrust.

3,547,043
TOW TRUCK CONVEYOR SYSTEM
Bruce G. Davidson, Franklin, and Werner W. Kort, Grosse Pointe Woods, Mich., assignors to American Chain & Cable Company, Inc., New York, N.Y., a corporation of New York by mesne assignments
Filed Dec. 26, 1967, Ser. No. 693,641
Int. Cl. B61b *13/00*
U.S. Cl. 104—172 **18 Claims**



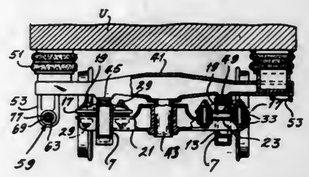
The tow truck conveyor system disclosed herein comprises a track defined by a slot in the floor with a conveyor movable along the slot. A tow truck has a tow pin which extends downwardly through the slot and is movable into and out of engagement with the conveyor. In order to prevent inadvertent movement of the tow pin out of engagement with the conveyor when the tow truck is moving upwardly or downwardly on an inclined portion of the track, locking means are provided on the tow truck which are actuated by cams along the track to prevent such inadvertent movement of the tow pin upwardly.

3,547,044
TRAINS FOR CARRYING OUT MAINTENANCE WORK ON RAILWAY TRACKS
Maurice Lemaire, 15, Avenue de la Bourdonnais, Paris, France
Continuation-in-part of application Ser. No. 746,110, July 19, 1968, now abandoned. This application Aug. 12, 1969, Ser. No. 849,480
Int. Cl. B60l *15/42*
U.S. Cl. 105—1 **22 Claims**



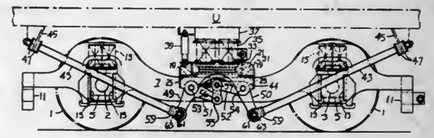
A train for carrying out maintenance work on railway tracks and comprising a diesel-electric-type field locomotive and a work unit. The locomotive is equipped with electric traction motors and an electric power generating set driven by a diesel motor and the work unit comprises electric motors to drive at least a part of the tool equipment. According to the invention, the train comprises a power switching device whereby a part of the electric power supplied by the generator set of the locomotive is directed to the motors of the work unit for the working periods of the train. The remainder of the available electric power serves to supply the traction motors of the locomotive to haul the train for the working periods. In a first version of the invention, the work unit comprises an auxiliary electric power generating set to supply the traction motors for the working periods of the train. In a second version, the work unit comprises separate electronic power regulators for the motors driving the tool equipment and the traction motors. Means are provided to control the traction motors for the working periods in dependence upon the load of the tool equipment driving motors.

3,547,045
RESILIENT RAILWAY CAR TRUCK
James B. Cunningham, Northwoods, Mo., assignor to General Steel Industries, Inc., Granite City, Del., a corporation of Delaware
Filed Feb. 2, 1968, Ser. No. 702,576
Int. Cl. B61f *3/02*, *5/08*, *5/16*
U.S. Cl. 105—199 **10 Claims**



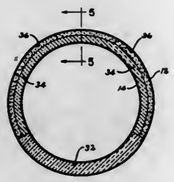
A railway vehicle two-axle truck in which separate longitudinally extending side frames are supported at their ends on the axles, each side frame being formed at its center with transversely extending horizontal web structure wider than the side frame, a transverse transom resiliently connected at its ends to each transverse web structure at points spaced apart transversely of the truck, a transverse bolster pivotally related to the transom at the center of the truck and supported on the side frames by resilient side bearings, upright springs at the ends of the bolster for supporting a vehicle body, and means for transmitting tractive and braking forces from the bolster to the vehicle body. The last named means preferably comprises longitudinally extending improved bolster anchor links each connected at one end to an end of the bolster and at the other end of the vehicle body.

3,547,046
RAILWAY LOCOMOTIVE TRUCK WITH LOW TRACTION POINT
Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., Granite City, Ill., a corporation of Delaware
Filed Apr. 16, 1968, Ser. No. 721,736
Int. Cl. B61c *3/00*; **B61f** *3/04*, *5/24*
U.S. Cl. 105—199 **16 Claims**



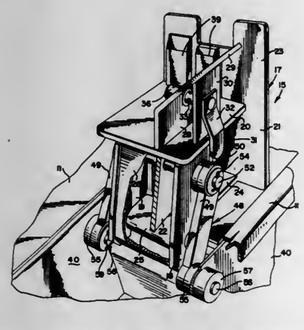
A railway motor truck for swivelly supporting a vehicle body and connected to the same for the transmission thereto of draft and braking forces at a sufficiently low level to minimize load transference between the axles. The truck comprises a rigid frame resiliently supported on the axles, a transverse bolster supported on the frame for swivel about its center, transversely and vertically yieldable springs carried by the bolster ends for supporting the vehicle body. For transmitting longitudinal draft and braking forces from the truck to the vehicle body substantially at rail level so as to minimize load transference, the bolster is connected to the vehicle body at each side by a pair of longitudinally upwardly and outwardly inclined links arranged so that their axial projections intersect at track level. To prevent interference with action of the bolster supported springs, the links at each side are connected to the bolster and to each other by a longitudinal centering and compensating device which permits the springs to act both vertically and transversely unaffected by the draft links.

3,547,047
INSULATED RAILWAY TANK CAR AND METHOD OF FORMING SAME
Robert F. Needham, St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Oct. 31, 1968, Ser. No. 772,257
Int. Cl. B61d 5/04
U.S. Cl. 105—358 5 Claims



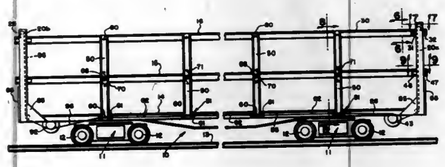
An insulated tank comprising an inner container and an outer shell spaced from each other to form a generally annular space therebetween. A plurality of circumferential dividers are secured to the inner container before the inner container is telescoped within an outer shell, and after positioning of the inner container within the outer shell the dividers form a plurality of compartments which are subsequently filled with a foamed in place cellular insulating material. At least a portion of the upper arcuate segment of the dividers comprise a resilient open cell porous material which permits the escape of gases from the compartments and provides a relatively tight fit between the inner container and outer shell. Upon pouring an expandable foam material of liquid reactants within a compartment, the foam material penetrates the open cell divider material and upon setting effects a bond to the adjacent wall in addition to insulating the divider itself. In positioning the inner container within the outer shell for subsequent filling with foam, the upper resilient segments of the dividers are compressed against the outer shell to space the lower segments of the dividers from the outer shell and provide adequate clearance for telescoping the inner container within the outer shell.

3,547,048
CONTAINER BRACKET ARRANGEMENT
Roy W. Miller, Highland, Ind., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed May 3, 1968, Ser. No. 726,283
Int. Cl. B65j 1/22; B60p 7/08
U.S. Cl. 105—366 5 Claims



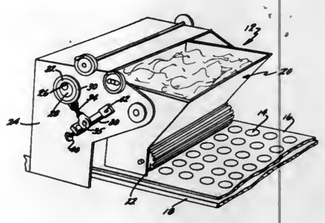
A container bracket arrangement for supporting the corners of a container on the platform of a vehicle, such as a railway car, wherein the arrangement comprises a plurality of brackets which in a nonuse position are disposed within wells provided in the vehicle floor to present a substantially flush surface with the floor and in an operative position are in engagement with the corner of the container. Each bracket includes linkage mechanism pivotally connected to the vehicle within the well whereby the bracket may be swung from its nonuse position upwardly and moved horizontally to one side of the well whereupon it is supported on the flat surface of the floor, the said linkage mechanism also providing for movement of the bracket into its nonuse position.

3,547,049
CONVERTIBLE RAILROAD CAR
Frank H. Sanders, 8860 Fontainebleau Terrace, Cincinnati, Ohio
Filed Oct. 26, 1967, Ser. No. 678,270
Int. Cl. B61d 3/02; B65j 1/22
U.S. Cl. 105—368 2 Claims



The novel railroad car here provided may be used first to support goods such as automobiles upon a plurality of decks disposed at different levels, and alternatively with decks lowered to provide a single cargo surface. The plurality of decks raise straight up from collapsed position to raised position, and return straight down, and means are provided to stabilize the decks against untoward motion when they are in the raised position.

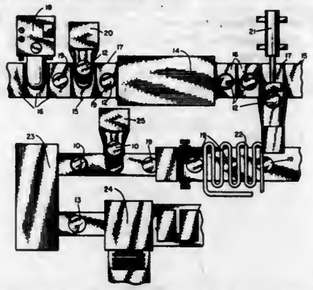
3,547,050
DOUGH DEPOSITING MACHINE
Albert F. Verhoeven, Grand Rapids, Mich., assignor to Werner Lehara, Inc., a corporation of Michigan
Filed Sept. 20, 1968, Ser. No. 761,098
Int. Cl. A23c 9/00
U.S. Cl. 107—27 6 Claims



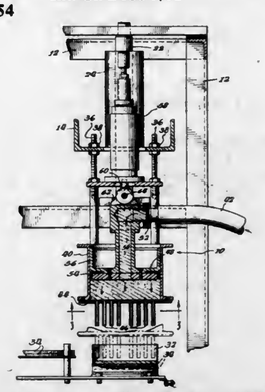
A dough-depositing machine for cookies and the like. The dough is pushed out through a nozzle from a hopper onto a cookie pan on a conveyor belt. A roller within the hopper cooperates with a reciprocating plunger to push the dough through the nozzles.

3,547,051
ICE CREAM SANDWICH FORMATION PROCESS
Harold L. Komberec, North 1511 Wall St.; Dillon K. Kilcup, West 1012 Cleveland Ave., and Alfred T. Smith, Otis Orchards, Spokane, Wash.
Filed Oct. 16, 1967, Ser. No. 679,961
Int. Cl. A23g 5/00
U.S. Cl. 107—54 9 Claims

A process for forming one- and two-cookie ice cream sandwiches on palletized quick-freezing equipment including extruding a shaped slab of ice cream on a pallet, placing a cookie on the upper surface thereof and freezing the first combined product. A second cookie may be combined with the first compound frozen product by loosening it from the pallet, preparing the uncovered ice cream surface for adherence with a second cookie and placement of a second cookie in place thereon. The frozen ice cream surface is prepared for cookie adherence by partial melting, or either ice cream or cookie surface may be prepared by addition of a freezable liquid or an edible adhesive substance.



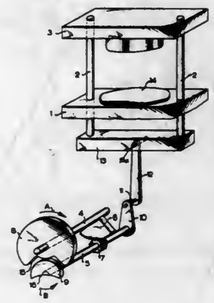
3,547,052
SANITARY CLOSED SYSTEM METHOD AND APPARATUS FOR PREPARING AND DEPOSITING VISCOUS FLUIDS SUCH AS WHIPPED CREAM AND THE LIKE
Mariano V. Artiaga, Winnetka, Arthur Storrie, Chicago, and Andrew Wolf, Deerfield, Ill., assignors to Kitchens of Sara Lee, Inc., a corporation of Maryland
Filed May 21, 1968, Ser. No. 730,812
Int. Cl. B05c 1/02
U.S. Cl. 107—54 14 Claims



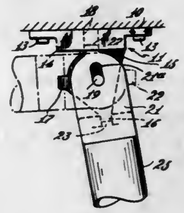
The present invention is directed to a highly sanitary method and apparatus for expressing and depositing viscous fluids, such as whipped cream and other similar nonflowable confection materials on cakes, pies, and various other bakery goods and dessert foods. The apparatus includes a depositor and accumulator housing or head having a reciprocating piston or plunger therein and a multiplicity of discharge tubes at the nozzle end of the depositor housing. The reciprocating piston is actuated and powered by various means to force the viscous material through the nozzle tubes onto the baked goods positioned below the tips of the discharge tubes.

3,547,053
AUTOMATICALLY CONTROLLED DOUGH-PROCESSING DEVICE
Gerhard Mueller, Asperg, Germany, assignor to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany, a corporation of Germany
Filed Jan. 14, 1969, Ser. No. 791,108
Claims priority, application Germany, Jan. 20, 1968, 1,632,355
Int. Cl. A21c 9/00
U.S. Cl. 107—68 6 Claims

An automatically controlled dough-processing device has two relatively movable members between which processing of the dough is effected when and while the two members are in a coacting relationship. During each operational cycle of the device the two members are moved into such relationship, maintained therein for a predetermined period of time and then moved out of the coacting relationship. Such movements of the members are controlled by the intermittent rotation of an auxiliary shaft which in turn is controlled by a continuously rotating control shaft.



3,547,054
FOLDING-TELESCOPING SUPPORT
Robert J. Caldwell, Bayonne, N.J., and Kenneth J. Sullo, Wellesley, Mass., assignors to L. E. Mason Co., Hyde Park, Mass., a corporation of Massachusetts
Filed Oct. 31, 1968, Ser. No. 772,159
Int. Cl. A47b 3/00
U.S. Cl. 108—115 13 Claims

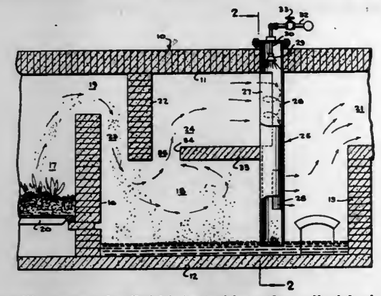


Folding-telescoping support structure having completely self-contained, manually manipulatable means for shifting and securing between extended and collapsed positions of adjustment, and between erected and folded positions of assembly.

3,547,055
INCINERATOR
Auram B. Zanft, New York, N.Y., assignor to Hagan Industries, Incorporated, Corona, N.Y., a corporation of New York
Filed Sept. 12, 1968, Ser. No. 759,481
Int. Cl. F23g 5/00
U.S. Cl. 110—8 28 Claims

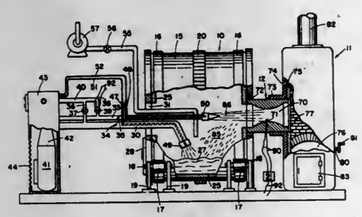
An incinerator including a housing structure having a combustion chamber, a settling chamber, a first passageway intercommunicating the combustion and settling chambers, a plurality of cylindrical chambers each having axially spaced inlet and outlet openings, a second passageway intercommunicating the settling chamber and the inlets of the cylindrical chambers, a flue, a third passageway intercommunicating the outlets of the cylindrical chambers and the flue and means for injecting a fluid axially through the cylindrical chambers whereby combustion gases laden with entrained solid particles emanating from the combustion chamber and flowing through the first passageway, the settling chamber and the

second passageway will traverse through the cylindrical chambers with a swirling motion and the entrained solid par-



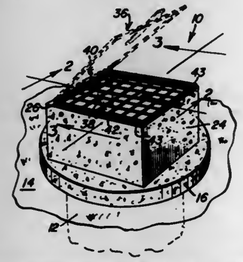
ticles will contact the fluid injected into the cylindrical chambers and separate from the main stream of combustion gases.

3,547,056
INCINERATOR SYSTEM
Walter R. Niessen, Bedford, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed May 14, 1969, Ser. No. 824,493
Int. Cl. F23g *5/06*
U.S. Cl. 110—14 **11 Claims**



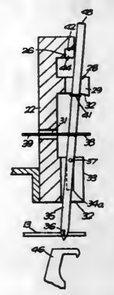
An incinerator system having primary and secondary combustion chambers joined by a venturi throat member. The incinerator is grateless, provides agitation to the material being burned and effects a continuous flow of gases and fine particulate material from one chamber to the other with additional burning.

3,547,057
UNDERGROUND INCINERATOR
Stanley R. Wilson, 210 West Eighth St., Muleshoe, Tex.
Filed Nov. 5, 1968, Ser. No. 773,616
Int. Cl. F23g *9/00*
U.S. Cl. 118—18 **7 Claims**



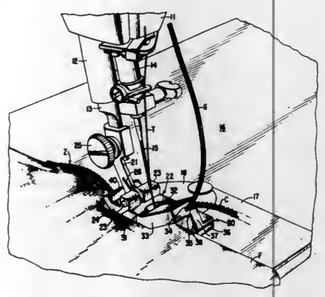
The present invention is adapted for use with a bored-burning chamber formed in the ground. The invention includes an opened enclosure communicating with the burning chamber, and a pivotally mounted grill which can be displaced to selectively open or close the upper opening of the enclosure. Spring-biased latch means are provided to retain the grill in a closed position when trash is being incinerated in the burning chamber.

3,547,058
APPARATUS FOR PRODUCING PATTERNED TUFTED MATERIAL
Philip Brown, Wembley, and Peter Henry James, London, England, assignors to Keystone Limited, Nassau, a, Bahama Body Corporate
Filed May 31, 1968, Ser. No. 733,485
Claims priority, application Great Britain, June 8, 1967, 26575/67
Int. Cl. D05c *15/20*
U.S. Cl. 112—79 **12 Claims**



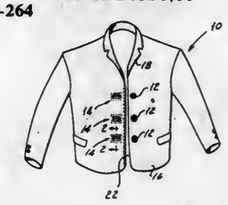
A tufting apparatus having a reciprocating frame carrying a number of needle driving beams, a row of solenoid moved needles associated with each beam, the solenoids being energized by a scanner which traverses a pattern to be reproduced to move the needles required for tufting into engagement with their associated beam.

3,547,059
PRESSURE FOOT FOR SEWING A COIL-TYPE ZIPPER STRINGER
Joseph J. Dolney, Denville, and Ludwig J. Kuhar, Clark, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed May 26, 1969, Ser. No. 827,866
Int. Cl. D05b *35/00, 29/00*
U.S. Cl. 112—151 **7 Claims**



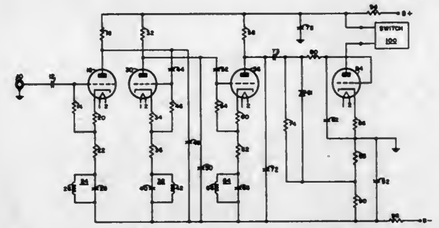
A presser foot is disclosed for sewing a coil-type zipper stringer using a family-type zigzag sewing machine. An aperture in the presser foot guides a zipper coil under the presser foot to one side of the center needle position, while a portion of the presser foot guides an edge of a material under or to the other side of the center needle position adjacent to the zipper coil so that the zigzag stitching will lock the zipper coil and material together to form a zipper stringer. A second aperture is provided in the presser foot to guide a stuffer cord in parallel contact with the zipper coil to the center needle position under the presser foot but above the material so that the zigzag stitching will lock the zipper coil, the material and the stuffer cord together to form the zipper stringer. The presser foot has a clearance groove to allow the passage of the sewn zipper stringer. The toe of the presser foot remains in contact with the bed slide of the sewing machine during the entire feeding cycle.

3,547,060
METHOD OF MAKING DOUBLE-PIPED BUTTONHOLES
Patsy R. Lepore, Roselle Park, N.J., assignor to McGregor-Doniger Inc., New York, N.Y., a corporation of New York
Filed May 1, 1968, Ser. No. 725,652
Int. Cl. D05b *3/00*
U.S. Cl. 112—264 **12 Claims**



An improved method of making a double-piped buttonhole in which the garment front and facing first are simultaneously cut in the area of a window in the interliner to provide flaps which can be folded back on the inner surfaces of the front and of the facing to form the buttonhole garment opening. Next, adhesive is applied to the inner surfaces of the front and facing in the region of the cuts, the flaps are folded back and adhered on the inner surfaces. Next, the double welt length is positioned within the window with the rolled edges of the welts at the center of the garment buttonhole opening and stitching is applied around the periphery of the opening thus to complete the buttonhole.

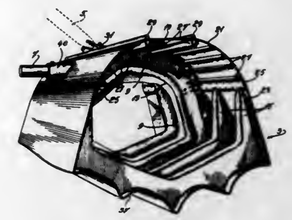
3,547,061
NOISE LIMIT GATE
Louis J. Kush, Jr., State College, Pa., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 12, 1964, Ser. No. 351,575
Int. Cl. F42b *19/06, 19/08, 19/01*
U.S. Cl. 114—23 **6 Claims**



In an acoustic homing torpedo having the capacity of emitting an initial acoustical pulse, allowing said pulse to echo from a target vessel, receiving the echo from said pulse and directing itself on a collision course with said vessel, the combination comprising: an amplifier circuit; a resonating device connected to said amplifier circuit, tuned to the frequency spectrum of the reverberation frequencies of said emitted acoustical pulse; a rectifying device connected to the output of said first amplifier circuit adapted to rectify the output thereof; a relay driver circuit connected to the output of said rectifier circuit adapted to amplify the current received from said rectifier circuit; a switching device connected to said relay driver circuit operable at a current value present when the reverberation signal from said emitting pulse becomes equal or less than the self-noise signal from said torpedo.

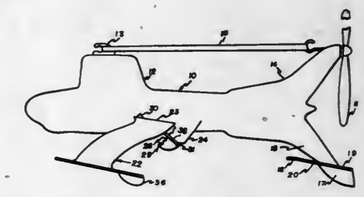
3,547,062
FLOATING DEVICE
Ion Rainu, 8470 Boulevard des Mille-Iles, Laval, Quebec, Canada
Filed Feb. 2, 1967, Ser. No. 613,567
Claims priority, application Canada, Feb. 2, 1966, 951,376
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 **4 Claims**

A hydroplane float entirely made of glass fibers reinforced plastic and formed of an outer tubular shell, two load-bearing transverse sections to which the hydroplane load is applied, a series of transverse stiffening inner ribs projecting from sub-



stantially the lower half of the shell and a series of longitudinal stiffening ribs projecting from substantially the upper half of the shell.

3,547,063
HYDROFOIL CRAFT
Harold E. Follett, 100 Reamer Ave., Wilmington, Del.
Filed Apr. 30, 1968, Ser. No. 725,403
Int. Cl. B63b *1/22*
U.S. Cl. 114—66.5 **13 Claims**



A combination support and hydroskifoil is provided which is easy to construct since the support and hydroskifoil are of three sections which can be stamped or molded in one piece. The support and hydroskifoil is mounted as one piece in an assembly in the under surface of a watercraft where the angle of incidence can be adjusted. The three sections of the hydroskifoil are the first hydrofoil section which extends from and below both sides of the craft and is operatively connected thereto and provides lift during acceleration, the second hydrofoil section which is connected to each end of the first section and provides additional lift when the first section is raised out of the water, and the third section is a hydroski which is disposed downwardly and rearwardly of the second section and preferably has a less transverse dimension than the second section and is in contact with the water after the first and second sections have provided lift to attain high speeds.

3,547,064
PLANING STEP
John P. Glass, Ardmore, Pa. (c/o Cava Industries, 79 La Grange Ave., Essington)
Filed Aug. 21, 1968, Ser. No. 754,338
Int. Cl. B63b *1/18*
U.S. Cl. 114—66.5 **11 Claims**

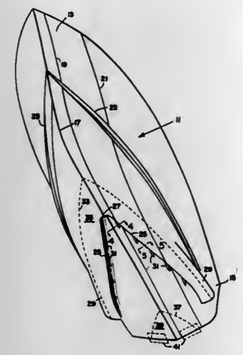
This invention relates to improvements in boats, and more particularly concerns a boat hull which is adapted to plane.

The boat hull includes a small step on the bottom of the hull which is in the form of a V with the apex of the V facing forward. The V runs for a considerable portion of the length of the boat.

Ports are formed in the bottom of the hull aft of the step so as to vent to atmosphere the portion of the hull behind the step and provide an air cushion aft of the step on which the

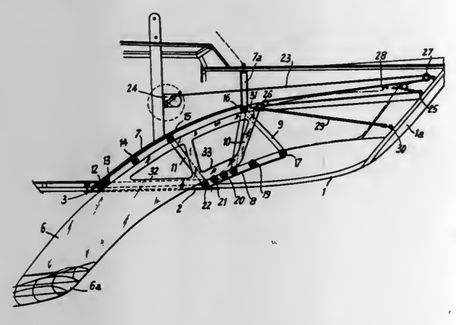
boat rides when planing.

The boat hull also includes planing fins which extend rear-



wardly and outwardly from the hull to increase its effective beam and thereby provide a wider planing surface.

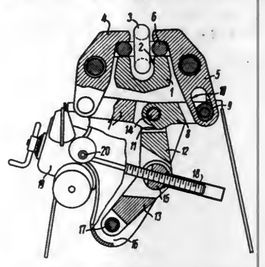
3,547,065
KEEL BOAT
Charles Elie-Louis Chauveau, 21, rue de General Margueritte, Nantes, France
Filed Aug. 23, 1968, Ser. No. 754,774
Int. Cl. B63b *41/00*
U.S. Cl. 114—138 **4 Claims**



In a boat with a movable drop keel in a drop-keel well, the said drop keel is ballasted at the bottom and operating equipment is provided to immerse the drop keel and to raise it in order to bring the ballast in contact with the hull of the boat, a rigid guiding structure for the drop keel being detachably mounted in the drop-keel well and comprising upper and lower U-shaped iron sections respectively in contact with the two upper and lower side walls of the drop-keel well.

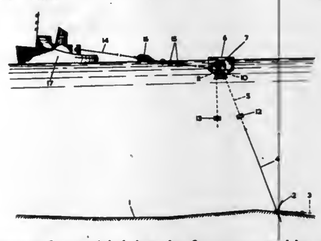
3,547,066
ANCHOR CHAIN ARRESTER
Boris Andreevich Bugaenko, Prospekt Lenina, 30, kv. 32, and Georgy Ivanovich Vladinets, Prospekt Lenina. 30. kv. 13, Nikolaev, U.S.S.R.
Filed Feb. 6, 1969, Ser. No. 796,970
Int. Cl. B63b *21/18*
U.S. Cl. 114—200 **3 Claims**

An anchor chain arrester having a linkage which extends the closing or clamping limit of the arrester comprising a pair of pivotally mounted holddown levers actuated by a pair of shackles connected together for limited angular motion wherein one shackle has an end pivoted to one of said levers



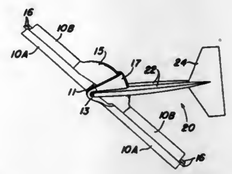
and the other shackle is pivotally and slidably connected to the other of said holddown levers.

3,547,067
DEVICE FOR RAISING AN ANCHOR
Frederik J. Jonkman, Driehuis, Netherlands, assignor to Nederlandse Maatschappij Voor Werken Buitengaats (Netherlands Offshore Company) N.V., and N.V. Bureau Wysmuller, Netherlands
Filed Nov. 26, 1968, Ser. No. 779,122
Claims priority, application Netherlands, Nov. 27, 1967, 6,716,116
Int. Cl. B63b *21/24;* **B63c** *7/00*
U.S. Cl. 114—206 **3 Claims**



An apparatus for multiplying the force exerted by a ship on an anchor line. A rotating drum having differential diameters is buoyantly carried on a float that is positioned above the anchor. When the anchor is raised, the rotating drum is capable of multiplying the force exerted at a distance by the ship and causes the buoyant float to submerge in an approximately vertical direction increasing the buoyant force until the anchor is freed from the bottom.

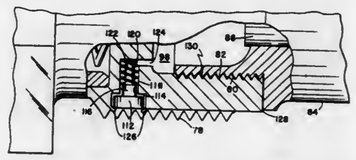
3,547,068
VANES FOR HIGH SPEED TOW CABLE
Max O. Kramer, Palisades, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 14, 1969, Ser. No. 807,227
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 **3 Claims**



The links of a cable for high speed towing comprises relatively stiff rods hinged end-to-end. Each link is faired or streamlined, in the direction of the swing of the hinge, so that

the cable is relatively stiff laterally of the direction of travel, but quite flexible in the other direction. A stabilizing hydrodynamic rudder is attached to each hinge, the rudder comprising a lever arm attached at one end to the hinge of the cable and having, at the other end, a flat planar foil, or vane, substantially in the plane of travel of the cable to minimize kiting of the cable.

3,547,069
DIFFERENTIAL PRESSURE INDICATOR
Ting Chang Tao, Pawtucket, R.I., assignor to Fram Corporation, East Providence, R.I., a corporation of Delaware. by mesne assignments
Filed Sept. 9, 1966, Ser. No. 578,175
Int. Cl. G01l *19/12*
U.S. Cl. 116—70 **3 Claims**



In a differential pressure sensing and indicating device for sensing differential pressure between two sources and moving an indicator in response to a sensed pressure differential, apparatus for preventing movement of the indicator unless the sensed pressure differential continues for more then a predetermined period of time.

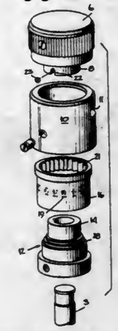
3,547,070
MAILBOX SIGNAL
Henry E. Schuh, Clarence, N.Y., assignor to Schuh Signals, Inc., Clarence, N.Y.
Filed July 11, 1968, Ser. No. 744,169
Int. Cl. G01d *21/00*
U.S. Cl. 116—114 **1 Claim**



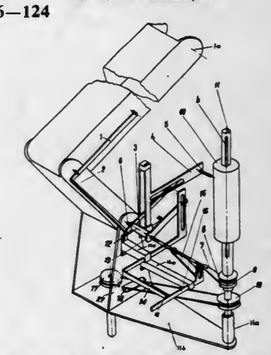
A signal attachment for a mailbox having a hinged door, comprising a signal plate attached to one end of a chain, the other end of which is attached to a mounting externally of the mailbox. The signal plate is adapted to be manually set in inconspicuous position and frictionally held between the flange of the door and a sidewall portion of the mailbox. When the mailman opens the door to deposit mail in the box, the signal plate is released and falls and thereupon dangles in a conspicuous position below the box.

3,547,071
DIGITAL TURN INDICATOR
Doron S. Antrim, Ramsey, N.J., assignor to Hoke, Incorporated, Cresskill, N.J., a corporation of New York
Filed July 17, 1968, Ser. No. 745,499
Int. Cl. G01p *13/00;* **G01d** *21/00*
U.S. Cl. 116—115 **4 Claims**

An indicator for showing the number of turns made by a shaft controlled by a handwheel or knob. A hollow indicator sleeve is mounted in coaxial relationship to the shaft adjacent to the handwheel and a series of indicator numerals are provided on the outer surface of this sleeve. Each time that the handwheel is turned one full turn, a cam controlled ball carried by the handwheel engages the indicator sleeve for a sufficient distance to advance the indicating numbers one digit for each full shaft turn.



3,547,072
DEVICE FOR INDICATING THE POSITION OF THE PLATFORM OF CRANES WITH ARTICULATED BOOMS, ESPECIALLY CAMERA CRANES
Adrian Birbanescu, Bucharest, Romania, assignor to Comitetul De Stat Pentru Cultura Si Arta, Pieta Scinteii 1, Bucharest, Romania
Filed Mar. 31, 1966, Ser. No. 539,159
Claims priority, application Romania, Jan. 4, 1965, 49524;49525
Int. Cl. G01d *21/00*
U.S. Cl. 116—124 **7 Claims**

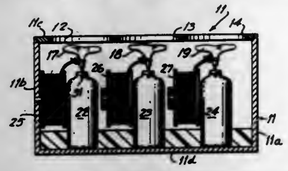


A device for indicating and/or transmitting information relating to the position of the top end of an articulated boom of a hydraulically operated crane having a base which is rotatably mounted about a vertical axis. A lower boom pivotally connected to the base and an upper boom pivotally connected to the lower boom. Both the lower and upper booms being movable in the same vertical plane. A shaft axially extending from the pivotal connection between the base and the lower boom. Two pairs of levers mounted on the shaft; in each pair of levers one lever is parallel to either the upper or lower boom. Two slide mechanisms are operatively connected to one lever of each pair of levers and are adapted to respectively record the resultant horizontal and vertical motions of the upper and lower booms.

3,547,073
OUTDOOR LOCATION KIT
Anthony Colandrea, R.D. 2 Mill St., Wallkill, N.Y.
Filed Oct. 20, 1969, Ser. No. 867,695
Int. Cl. G09f *9/00*
U.S. Cl. 116—124 **7 Claims**

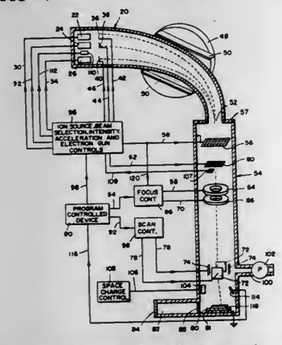
A housing container stores a plurality of deflated balloons, containers of compressed gas, reels having flexible line material wound on each, each line being affixed at one end

to a corresponding one of the balloons, and valve controls in the housing container having one end in operative proximity with the valves of the gas containers and another end extending out of the housing container to facilitate manual opera-



tion of the valve means from outside the housing container to inflate a selected one of the balloons so that such balloon rises out of the housing container via an aperture formed therein and soars to a determined height while remaining captive via the line material.

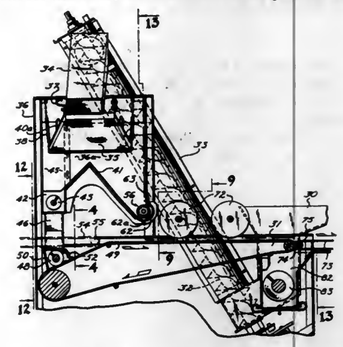
3,547,074
APPARATUS FOR FORMING MICROELEMENTS
Tomas Hirschfeld, Thousand Oaks, Calif., assignor to Block Engineering, Inc., Cambridge, Mass., a corporation of Delaware
Filed Apr. 13, 1967, Ser. No. 630,754
Int. Cl. B05c *11/00*
U.S. Cl. 118—7 **14 Claims**



A device for forming microelements of a given configuration by producing in vacuum a number of separate ion beams of materials each beam being directed one at a time to a common path. Each beam is intensity controlled and is electrostatically focused onto a common workpiece. The focused beam is deflected laterally to trace out a two-dimensional aspect of the configuration of the microelement, the ions being discharged along the trace to write-in the microelement, multiple layers being formed, if desired by depositing material on top of previously discharged ions. The device is preferably controlled electronically in accordance with a sequence of instructions determining the parameters for a given type of microelement.

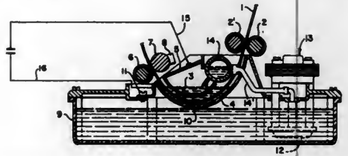
3,547,075
BREADING MACHINE
Richard T. Johnson, Sandusky, Ohio, assignor to Sam Stein Associates, Inc., Sandusky, Ohio
Filed June 27, 1968, Ser. No. 740,701
Int. Cl. B05c *11/00*
U.S. Cl. 118—16 **4 Claims**

A machine for coating a food product with breading material has an elevated hopper for storing the breading material and means for feeding the same in a smooth and controlled manner from the hopper, through a free-flowing downspout to be deposited on a belt beneath the food product, together with means for feeding the breading material in a smooth and controlled manner from the hopper to be deposited on top of the food product with a control valve at such outlet to control the rate of feed. A breading level plate is provided to maintain an even layer of breading material beneath the food product on the conveyor belt and this plate is resiliently mounted to relieve pressure of breading material building up behind the plate; and edge control plates are provided for preventing spillage of breading material at the sides of the conveyor belt. A hooded portion of open mesh belt conveyor is provided near the discharge end of the machine with air spray pipes above the belt to remove excess material, and the hood is adapted to be raised



without interrupting the operation of the machine. In a modification, a flip bar is provided across the conveyor belt toward the discharge end of the machine to flip over the product so as to shake out breading material lodging in cavities of the food product, together with a novel arrangement for taking up excess length of the belt after it passes over the raised flip bar.

3,547,076
APPARATUS FOR INCREASING THE CONTRAST IN LIQUID IMMERSION DEVELOPING OF ELECTROSTATIC IMAGE
Arvind R. Saklikar, Dark Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 23, 1967, Ser. No. 625,405
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **5 Claims**

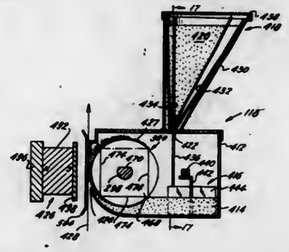


This invention comprises an apparatus for improving the deposition of particles upon a photographic carrier having an electrostatic latent image on one surface, comprising the steps of passing the carrier into a tank of nonconducting liquid developer having electrostatically attractable colloidal particles therein, and between two electrodes submerged in the liquid developer, these electrodes being spaced from each other and being wide enough to embrace the entire width of the latent image on the carrier between the superimposed areas of the electrodes, while an alternating voltage of 0.01—20, preferably 0.01—10 volts, is applied to these electrodes at a frequency of 20 cycles to 1000 kilocycles per second.

3,547,077
ELECTROSTATIC PRINTING APPARATUS
Ira M. Sage, New York, N.Y., assignor to Ing. C. Olivetti & C., S.p.A., Inrea, Italy, an Italian corporation
Original application July 17, 1963, Ser. No. 295,652, now Patent No. 3,451,320. Divided and this application Feb. 17, 1969, Ser. No. 816,452
Int. Cl. B05b *5/02*
U.S. Cl. 118—637 **9 Claims**

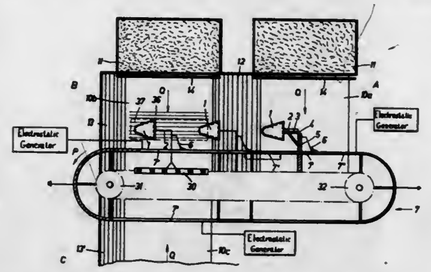
Latent electrostatic images are developed by means of a magnetic brush having a plurality of washers, each bent along

the lines of a polygon, mounted on a rotary shaft. In effect, the surface of the washers oscillate back and forth along the image-bearing surface, so that the magnetic brush moves back and forth and thoroughly develops the latent image when the washers are rotated. A toner dispenser dispenses



toner powder into a mixture of toner and carrier particles, in an amount metered by the effective oscillation of the brush-forming washers. In an alternative embodiment, the brush is formed by a tube made of magnetic material and having holes arranged in a spiral pattern.

3,547,078
ELECTROSTATICALLY COATING THE OUTER SURFACE OF HOLLOW OBJECTS WITH FLOCK
Walter Linneborn, Cologne, Braunsfeld, Germany, assignee, by mesne assignments, to the Singer Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 19, 1965, Ser. No. 497,975
Claims priority, application Germany, Mar. 5, 1965, E28,816
Int. Cl. B05b *5/02*
U.S. Cl. 118—638 **18 Claims**



Electrostatic flocking apparatus comprising holding means for supporting objects having an outer surface to which adhesive has been applied, each holding means having a sliding electrical contact, endless conveyor means for transporting the holding means, a plurality of flocking stations, each having flock supply means and electrostatically charged electrodes, and guide rail means comprising first and second guide rail sections in engagement with the sliding contacts, the first sections carrying electrical potential and each being in and closely adjacent to a flocking station, the second sections being insulated and grounded and located between successive flocking stations.

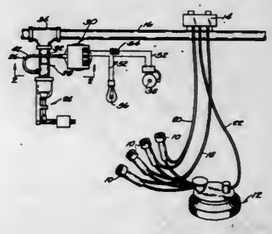
3,547,079
PET BAG WITH ACCESS OPENING
Alice Mae Bassett, Star Rte. Box 284, Hemet, Calif.
Filed Aug. 28, 1968, Ser. No. 755,915
Int. Cl. A01k *29/00*
U.S. Cl. 119—1 **3 Claims**

A liquid impervious sheet material bag adapted to confine a pet so that it can be comfortably and safely carried to a veterinarian. The forward upper portion has a collarlike opening with stringlike neck encircling ties. The top wall and rear wall has an entrance and exit slot. The rear portions of the sidewalls are provided with zipper-equipped hand holes for temperature taking and convenient hypodermic needle injections. The basal or lower portion is expansible and con-



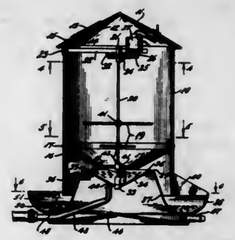
tractible and is equipped with manually regulatable volume diminishing and restraint means.

3,547,080
AIR RESERVE INDICATOR FOR MILKING SYSTEMS
Marvin Earl Russell, Madison, Wis.
Filed Feb. 20, 1969, Ser. No. 800,957
Int. Cl. A01j *07/100*
U.S. Cl. 119—14.14 **5 Claims**



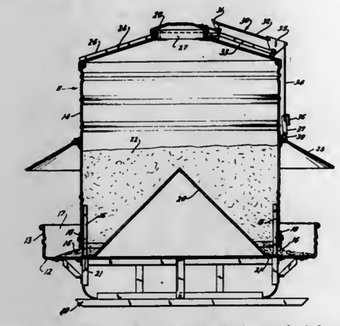
An air reserve indicator for a milking system including an orifice meter having a tubular body connected between the vacuum regulator and the vacuum line of the milking system. The tubular body member is provided with an orifice mounted therein adapted to create a pressure differential in the meter as air flows therethrough. A differential pressure switch is operatively connected to the orifice meter for actuation at a predetermined pressure differential in the meter. The closing of the switch will energize an electrically operated signal device such as a light bulb to warn the operator that a loss in air reserve has occurred in the system.

3,547,081
ANIMAL FEEDER WITH FEED MOISTENING MECHANISM
Petrus J. Geerlings, P.O. Box 179, Waterloo, Iowa
Filed June 27, 1968, Ser. No. 740,527
Int. Cl. A01k *05/02*
U.S. Cl. 119—51.11 **11 Claims**



A feeder for supplying feed for animals and for adding moisture thereto without excess and thereafter removing the moist feed from the moistening area and depositing the same in a feeding area for consumption by the animals with or without additional moisture added, and providing such feeder with means to selectively control the time and rate of the feeding continuously or at selected intervals.

3,547,082
LIVESTOCK FEEDER
George John Hallman and Louis Dewey Blessing, Rockford, Ill., assignor to H. D. Hudson Manufacturing Company, Chicago, Ill., a corporation of Minnesota
Filed June 21, 1968, Ser. No. 739,052
Int. Cl. A01k *05/00*
U.S. Cl. 119—53 10 Claims



An improved livestock feeder includes a sled for rendering the feeder mobile, a detachable roof to permit easy access to the interior for cleaning, a feed hatch which can be operated from a remote location, and a canopy to permit the animals to feed unattended in a sheltered position from a trough which is continuously supplied with feed from the interior.

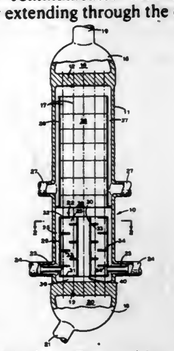
3,547,083
SELF-WATERING SWINE PUMP
Reuben Peterson, Wessington Springs, S. Dak.
Filed Apr. 8, 1969, Ser. No. 814,237
Int. Cl. A01k *07/00*
U.S. Cl. 119—75 8 Claims



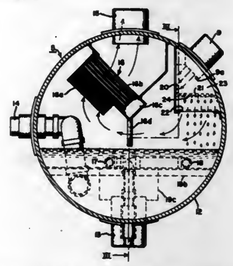
A well pump and trough constructed and arranged with an operator connected to a lift pump which can be engaged directly by the animals to lift the pump and raise water to the trough.

3,547,084
VAPOR GENERATOR WITH INTEGRAL ECONOMIZER
Theodore S. Sprague, Hudson, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Continuation-in-part of application Ser. No. 782,555, Dec. 10, 1968, now abandoned. This application Dec. 12, 1969, Ser. No. 884,688
Int. Cl. F22b *1/06*
U.S. Cl. 122—32 6 Claims

A vapor generator including a pressure vessel, a plurality of heat exchanger tubes extending within the vessel to convey therethrough a hot primary fluid, and an economizer chamber integrally contained within the vessel and enclosing a portion of the tubular heat exchange surface to effect preheat of a secondary liquid which flows through the chamber. The economizer chamber is positioned in spaced-apart relation to the vessel to define therewith an annular downcomer flow passage that communicates with one or more riser passages, the latter extending through the chamber to accommodate the heated riser flow, with the riser discharge therefrom subsequently entering the residual vessel volume.

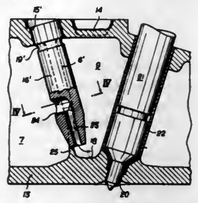


3,547,085
STEAM DRUM BAFFLE ARRANGEMENT FOR A FORCED RECIRCULATION STEAM GENERATOR
John M. Kovacik, Portland, and Everett C. Hunt, Cape Elizabeth, Maine, assignors to General Electric Company, a corporation of New York
Filed May 15, 1969, Ser. No. 824,798
Int. Cl. F22b *37/30*
U.S. Cl. 122—491 7 Claims



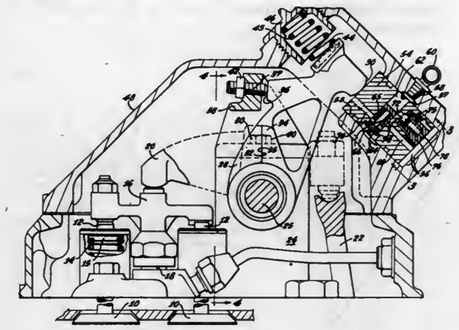
A steam drum for a forced recirculation steam generator with a number of evaporator return lines supplying a high velocity steam/water mixture to the upper portion of the drum. A baffle arrangement of perforate and imperforate plates reduces energy of the incoming mixture and supplies low velocity liquid to the lower part of the drum. An additional baffle controls the outgoing liquid flow.

3,547,086
CYLINDER HEAD FOR INTERNAL COMBUSTION ENGINES
Othmar Skatsche and Gerhard Feichtinger, Graz, Switzerland, assignors to Hans List, Graz, Austria
Filed Nov. 26, 1968, Ser. No. 779,128
Claims priority, application Austria, Nov. 29, 1967, 10800/67
Int. Cl. F01p *3/14, 3/02, 1/06*
U.S. Cl. 123—41.77 5 Claims



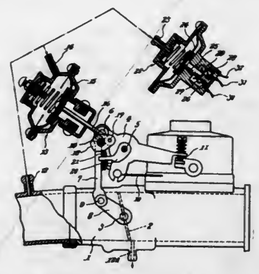
A cylinder head for water-cooled and valve controlled internal combustion engines having two water chambers for each cylinder unit separated from each other by a partition and communicating with each other.

3,547,087
ENGINE VALVE CONTROL FOR BRAKING OPERATION
Frederick Siegler, Los Angeles, California, assignor to White Motor Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Aug. 9, 1968, Ser. No. 751,540
Int. Cl. F02d *13/04, 13/06*
U.S. Cl. 123—97 24 Claims

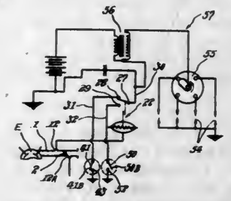


An internal combustion engine is temporarily operated as a brake when required by cutting off the fuel supply and holding either the exhaust valves or the intake valves at least partially open throughout a braking period. For this purpose, suitable means is employed to block the return movement of the cam-actuated rocker arms that normally periodically force the corresponding valves open in opposition to the valve springs. Each of the blocking means is operated by a corresponding piston in a corresponding hydraulic chamber. When pressurized hydraulic fluid is supplied to all of the hydraulic chambers to initiate a braking period, the various blocking means advance in sequence as permitted by the sequential operation of the rocker arms until the return movements of all of the rocker arms are blocked, the chambers then functioning as hydraulic locks for the duration of the braking period.

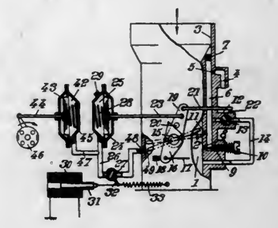
3,547,088
ENGINE-BRAKE INTENSIFYING DEVICE FOR SPARK-IGNITION TYPE INTERNAL-COMBUSTION ENGINES WITH AN AIR-POLLUTION PREVENTIVE SYSTEM
Shizuo Yagi, Asaka-shi, Kazuo Nakagawa, Tokyo, Akira Ishizuya, Kitaadachi-gun, Saitama-ken, Shuichi Yamazaki, Yasuhito Sato, Iruma-gun, Saitama-ken, and Masaharu Seklguchi, Sayama-shi, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 1, 1969, Ser. No. 811,704
Claims priority, application Japan, Apr. 3, 1968, 43/21,430, Apr. 6, 1968, 43/22,396, May 10, 1968, 43/37,795, May 14, 1968, 43/38,873
Int. Cl. F02d *33/00, 37/02*; F02n *5/16*
U.S. Cl. 123—97 4 Claims



Conventional air pollution preventive devices incorporated in spark-ignition engines have principally involved a certain limitation on the extent of throttle closing and resulted in a reduced engine brake effect. This difficulty can be overcome by arranging in the ignition system an additional contact breaker which is operable with an ignition timing retarded relative to that of the normal contact breaker. The additional breaker is rendered effective in place of the latter, when the engine brake is applied, to rapidly reduce the power output of the engine.

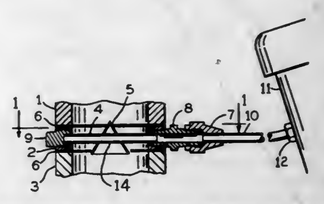


3,547,089
CARBURATION DEVICE FOR INTERNAL COMBUSTION ENGINES FOR AUTOMOBILE VEHICLES
Michel Eugene Pierlot, Le Pecq, France, assignor to Societe Industrielle De Brenets Et D'Etudes S.I.B.E., Neuilly-Sur-Seine, France, a Society organized under France
Filed Apr. 3, 1968, Ser. No. 718,557
Claims priority, application France, Apr. 6, 1967, Apr. 12, 1967, 101,784;102,501
Int. Cl. F02p *5/04*; F02d *9/00*; F02m *73/04*
U.S. Cl. 123—117 5 Claims



The carburetion device comprises means for limiting the pollution of the atmospheric air by the exhaust gas, these means being adapted simultaneously to increase the flow rate of the air/fuel mixture and to increase the richness of this mixture, during periods of deceleration. In the case of a spark ignition engine, means are preferably provided for retarding the ignition during these periods of deceleration, without retarding the ignition during normal high speed operation.

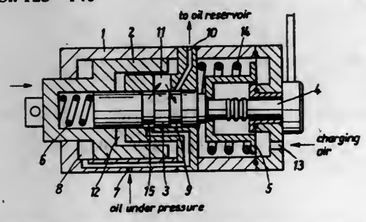
3,547,090
DEVICE FOR DECREASING FORMATION OF WASTE PRODUCTS OF COMBUSTION FROM ENGINES
James M. Seliger, 303 S.E. 172nd Ave., Portland, Oregon
Filed Sept. 24, 1968, Ser. No. 761,916
Int. Cl. F02m *13/00*
U.S. Cl. 123—119 4 Claims



An open-center insert is installed in the fuel intake system of an internal combustion engine between the fuel mixing

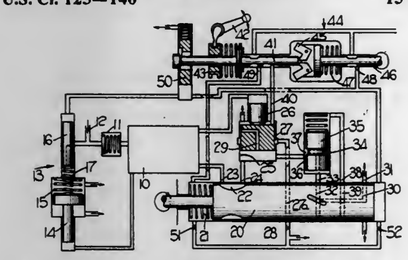
device and the intake manifold and has a hollow tube member extending diametrically across its open center. This tube member supports a baffle which serves to create a vacuum directly therebeneath in turn creating a vortex agitating action of the fuel mixture for better combustion. One end of the tube is connected into the crankcase breather tube of the engine by a conduit and has an aperture on its bottom side whereby suction created at the bottom of the baffle by the vortex causes unburned gases and fumes from the crankcase to be drawn back into the intake manifold for reburning.

3,547,091
SUPERCHARGED FUEL INJECTION INTERNAL COMBUSTION ENGINE
Ortwin Peyker, Rosrath-Stumpen, Udo Hickmann, Langenfeld-Hardt, and Wilhelm Marx, Lovenich, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany
Filed July 15, 1968, Ser. No. 744,799
Claims priority, application Germany, July 22, 1967, 1,576,315
Int. Cl. F02d *9/00*
U.S. Cl. 123—140 **4 Claims**



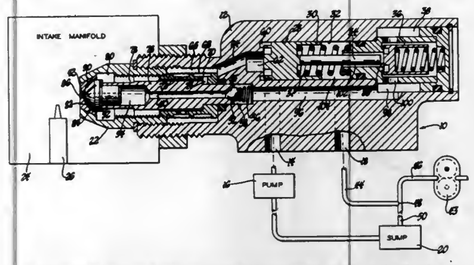
For use in connection with a fuel pump equipped internal combustion engine, a control device which includes hydraulically operable adjusting means adapted to be connected to a fuel pump for adjusting the delivery thereof, control means associated with said adjusting means for controlling the hydraulic actuation thereof, and exhaust gas temperature responsive means operatively connected to said control means for actuating the same in response to the ascertained exhaust gas temperature exceeding an admissible maximum value.

3,547,092
LIQUID FUEL PUMPING APPARATUS
Basil Edward Knight, Eastcote, Pinner, England, assignor to C.A.V. Limited, London, England
Filed Feb. 4, 1969, Ser. No. 796,330
Claims priority, application Great Britain, Feb. 7, 1968, 5,991/68
Int. Cl. F02d *1/00*
U.S. Cl. 123—140 **15 Claims**



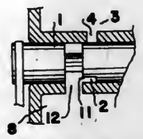
A liquid fuel pumping apparatus for supplying fuel to an internal combustion engine and including an accumulator which is charged with fuel to a predetermined pressure, a stepped cylinder which accommodates a complementarily stepped piston, the narrower end of the piston being exposed to the pressure within the accumulator a valve for controlling the wider end of the cylinder to the accumulator thereby to achieve movement of the piston towards the narrower end of the cylinder and a valve or valves which can be opened when the valve is closed to allow fuel to flow from the wider end of the cylinder to an injection nozzle or nozzles mounted on an associated engine.

3,547,093
INTAKE AIR PREHEATER VALVE ASSEMBLY
Clarence A. Sherman, Birmingham, Michigan, assignor to Benton Corporation, Troy, Michigan, a corporation of Michigan
Filed Aug. 13, 1968, Ser. No. 752,319
Int. Cl. F02n *17/04*
U.S. Cl. 123—179 **9 Claims**



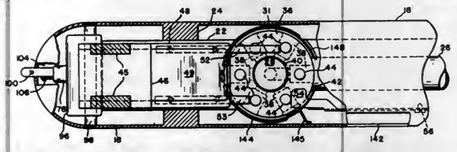
An intake air preheater valve provided with a ball check valve assembly for allowing excess fuel from a nozzle for supplying fuel to an intake manifold to be returned to a sump except when a damaged line to the sump prevents that line from accommodating the full pressure of a backflow from an injection metering pump. The valve is used to direct fuel to an intake manifold of an internal combustion engine to preheat the intake air so that the engine can be started properly in cold climates.

3,547,094
ROTARY VALVE ENGINE
Ginji Yasuda, No. 30–6, 4-chome, Jingumae, Shibuya-ku, Tokyo, Japan
Filed Dec. 27, 1968, Ser. No. 787,490
Int. Cl. F01l *7/02*
U.S. Cl. 123—190 **1 Claim**



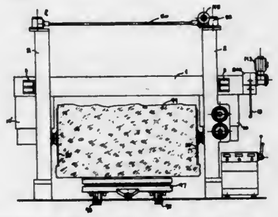
A rotary-valve engine in which there are provided rotary bodies each of a circular shape in section and a notch on one part thereof, the rotary bodies are each disposed in opposite to the intake and exhaust ports of the cylinder of the engine, and the rotary bodies make rotation thereby alternately opening and closing the intake and exhaust ports at desired time intervals.

3,547,095
GAS-OPERATED REVOLVER
John F. Vadas, Webster, and Sigurds Liepins, Rushville, N.Y., assignors to Crosman Arms Company, Inc., Fairport, N.Y., a corporation of New York
Filed Jan. 11, 1968, Ser. No. 697,049
Int. Cl. F41b *11/02, 11/06*
U.S. Cl. 124—11 **7 Claims**



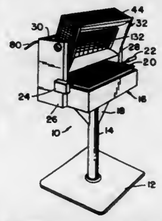
This revolver has a revolver barrel indexable about an axis perpendicular to the axis of the bore of the gun barrel, and having radially-disposed, projectile-holding chambers indexable successively into registry with said bore. When the trigger is squeezed, the hammer opens a valve, to deliver gas under pressure behind the projectile, which, at the time, is in registry with said bore, to propel said projectile from the gun. Opening of the valve also supplies gas to a piston to retract a reciprocable indexing mechanism on the frame. This mechanism recocks the hammer and permits the valve to close. A spring returns the mechanism to the battery. On this return movement, a pawl carried by the mechanism indexes the revolver barrel.

3,547,096
MARBLE BLOCKS SAW WITH MULTIPLE CUTTERS
Angelo Ronzani, Levico, Italy, assignor to S.p.A. Secoblitz Industria Meccanica, Levico, Trento, Italy
Continuation of application Ser. No. 506,636, Nov. 8, 1965, now abandoned. This application Jan. 9, 1969, Ser. No. 800,320
Claims priority, application Italy, Nov. 9, 1964, 24,123/64; Oct. 28, 1965, 23,869/65
Int. Cl. B28d *1/04*
U.S. Cl. 125—13 **1 Claim**



The improved saw for cutting marble blocks has provided therein a plurality of cutters which permit the simultaneous and independent cutting of the block, even in planes normal to each other. These cutters are mounted on a vertically sliding supporting truss which allows them to move together with their actuating means in a horizontal plane even beyond the line of cutting.

3,547,097
GAS INFRA-RED BURNER CONSTRUCTION
Frank A. Rice, Detroit, and David R. Lester, Grosse Pointe Farms, Mich., assignors to Detroit Radiant Products Company, Detroit, Mich., a corporation of Michigan
Filed Dec. 2, 1968, Ser. No. 780,411
Int. Cl. A47j *37/00;* **F23d** *13/14;* **F24c** *3/04*
U.S. Cl. 126—4 **13 Claims**

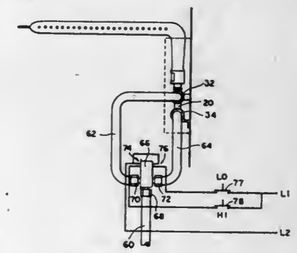


The gas infrared burner construction is of the type having a chamber with ceramic plate material on one face. The ceramic plate material has a large number of small perforations through its thickness. A fuel-air mixture passes through the perforations and burns at the surface of the ceramic to heat the ceramic which then emanates infrared radiation. A venturi structure and baffle means are provided for injecting fuel-air mixtures into the chamber. This structure permits tilting of the burner structure to different positions while it is in operation, so that it may be used as a combination space heater/barbecue grill. In one embodiment, the ceramic plate material is arranged around the periphery of the burner face and tilted to provide a burner structure which is efficiently operable as a stove grill.

3,547,098
PORCELAIN ENAMELS FOR SELF-CLEANING COOKING OVEN
William S. Lee, Bay Village, Ohio, assignor to Ferro Corporation, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed Mar. 22, 1968, Ser. No. 715,186
Int. Cl. A21b *1/00*
U.S. Cl. 126—19 **14 Claims**

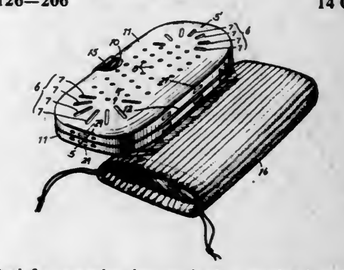
A porcelain enamel frit containing a high level of an oxidation inducing metal oxide, preferably cobalt, adaptable to be incorporated into a vitreous porcelain enamel for application to an oven liner, said enamel characterized by the ability to completely oxidize oven soils when heated to a point above 350° F., but below 600° F., and method of utilizing same as a self-cleaning oven liner coating.

3,547,099
GAS BURNER SYSTEM
George McArthur, Jr., Delaware, Ohio, assignor to Glenwood Range Company, Taunton, Mass., a corporation of Massachusetts.
Filed Oct. 25, 1968, Ser. No. 770,598
Int. Cl. F24c *3/12, 15/32*
U.S. Cl. 126—39 **9 Claims**



A double input orifice fitting, for supplying gas to the oven burner of a cooking range, is disclosed having two separately supplied, coaxial, output orifices. A single gas source supplies gas to each of the two orifices through two separate paths, each path being controlled by a separate valve. Each valve has "on" and "off" states. Fuel supply rate is controlled by the orifice sizes so that selective actuation of the valves alternatively provides a high fuel supply rate and a low fuel supply rate. An enclosure is provided to contain the orifice fitting and has a bottom air intake opening communicating with the exterior of the range and a top exhaust opening. These provide a convection current of cooling air which sweeps and cools the orifice fitting.

3,547,100
PORTABLE WARMING APPLIANCE FOR BURNING SOLID FUEL
Yasumasa Usui, 40,491 Oaza Kuno Awano Machi Kamitsurugun, Tochigi-ken, Japan
Filed Jan. 4, 1968, Ser. No. 695,599
Claims priority, application Japan, Feb. 17, 1967, 42/12,768; Feb. 22, 1967, 42/14,157; Feb. 27, 1967, 42/15,781; Sept. 27, 1967, 42/81,842; Feb. 22, 1967, 42/10,867
Int. Cl. A61f *7/06*
U.S. Cl. 126—206 **14 Claims**

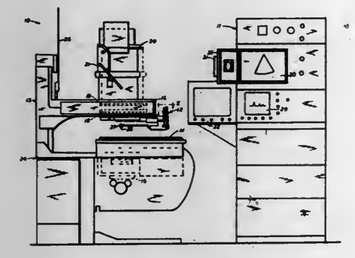


Solid fuel for warming human body contained mainly in case and burning appliance thereof.

3,547,101
MEDICAL ULTRASONIC DIAGNOSTIC SYSTEM

Peter J. Rosauer, Mount Prospect, Ill., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware

Filed May 24, 1967, Ser. No. 640,953
Int. Cl. A61b 5/00
U.S. Cl. 128—2 3 Claims

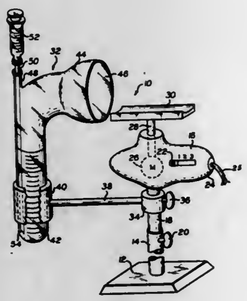


Medical ultrasonic system in which an ultrasonic transducer is oscillated about an axis aligned with an end face engaged with a body surface, with a sector scan indication being produced on an oscilloscope. The transducer is journaled by bearing means on a support movable transversely relative to the body surface, carried by a second support movable in a direction parallel to the body surface and preferably supported from a support plate disposable in a palpation diaphragm guideway of X-ray apparatus. Drive motor and resolver means are supported on a third support movable relative to the second support in the same direction with an elongated interconnecting member and with belt and pulley drive transmission means, the drive motor and resolver being spaced away from the transducer and the weight thereof being carried independently. Preferably, the transducer is counter balanced.

3,547,102
CLINICAL INSTRUMENT

Richard E. Frenkel, 201 E. 77th St., and Herbert M. Frenkel, 205 E. 78th St., both of New York, N.Y. 10021

Filed Oct. 28, 1968, Ser. No. 780,930
Int. Cl. A61b 5/00; A61h 7/00
U.S. Cl. 128—2 4 Claims



A vibrating device is provided with means to support the male reproductive organ and to induce tumescence. A receptacle is also provided to receive the resulting ejaculate.

3,547,103
COIL SPRING GUIDE

William A. Cook, 300 S. Swain, Bloomington, Ind.

Filed Oct. 29, 1965, Ser. No. 505,669
Int. Cl. A61b 5/02; A61m 25/00
U.S. Cl. 128—2.05 4 Claims

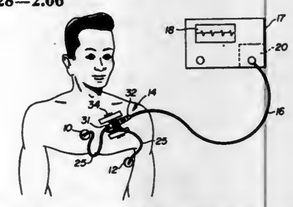


A coil spring guide having a mandrel therein extending from the proximal end of the guide toward the distal end thereof but terminating at a location spaced from the distal end. A wire extends through the coil spring guide and is secured to the opposite ends thereof. The coil spring and wire are curved at and adjacent the distal end of the coil spring causing the coil spring to define a J-shape. The J-shape is straightened by stretching the proximal end of the coil spring.

3,547,104
ELECTROCARDIOGRAPHIC MONITORING APPARATUS AND SYSTEM

Marvin A. Buffington, 1061 Lander Road, Cleveland, Ohio

Filed Jan. 17, 1968, Ser. No. 698,484
Int. Cl. A61b 5/04
U.S. Cl. 128—2.06 3 Claims

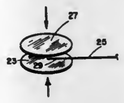


A cardiac monitoring system comprising a dual electrode pickup arrangement characterized by the absence of a grounded or reference electrode and including an improved electrode construction utilizing tinsel cordage as the signal transmitting medium and a corresponding dual-input preamplifier for providing a signal to an indicating meter.

3,547,105
FLEXIBLE CONDUCTIVE DISC ELECTRODE

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration with Respect to an Invention of, and Frank B. Ramme, Lancaster, Calif.

Filed Aug. 29, 1968, Ser. No. 760,389
Int. Cl. A61b 5/04
U.S. Cl. 128—2.06 4 Claims



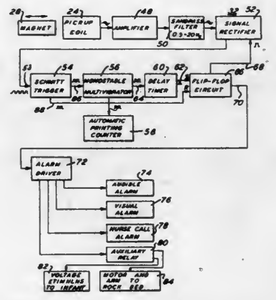
A dry, electrode featuring a wire sandwiched between two discs cut from sheets of a flexible conductive material. The

electrodes are made by mixing silver powder with a cement, diluting the mixture with a suitable solvent for the cement and applying it in a thin layer to a surface from which it can be removed as a film when dry; cutting or shaping the dried film to form the size electrodes desired; placing a wire lead on the cut film piece; applying a small amount of solvent to the film surface having the wire thereon; and pressing a second piece of the dried film thereto to form the electrode of the invention.

3,547,106
ACTIVITY DETECTING MEANS

William J. Bornmann, Warminster, Pa., assignor to American Electronic Laboratories, Inc., Colmar, Pa., a corporation of Pennsylvania

Filed Jan. 8, 1968, Ser. No. 696,453
Int. Cl. A61b 5/05
U.S. Cl. 128—2 12 Claims

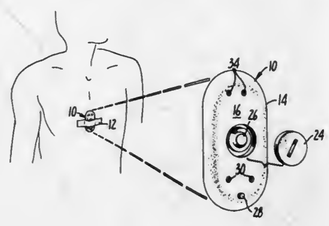


An activity-detecting means such as may be used for detecting the motion of an animate subject, for example the breathing of an infant subject to Apnea Neonatorum, comprising a permanent magnet for being secured with the animate body whose activity is to be monitored, a magnetic pickup coil for being fixed with the frame of reference with respect to which the movement of the animate body is to be detected, and means receiving and processing the output signals of the pickup coil for timing the occurrence of signals and providing an output signal in the form of a visual or an audible alarm, and/or providing electrical or mechanical stimuli to the animate subject under particular conditions such as when the signals provided by the pickup coil have a frequency below a predetermined rate.

3,547,107
CHEST MOUNTED HEART TACHYCARDIA DETECTOR

Robert L. Chapman, 174 Midland Way, Danville, Calif., and John W. Gofman, 1045 Clayton, San Francisco, Calif.

Filed Feb. 27, 1968, Ser. No. 708,592
Int. Cl. A61b 5/04
U.S. Cl. 128—2.06 3 Claims

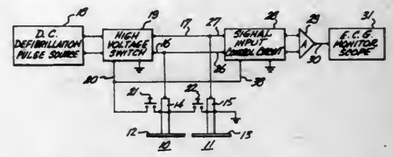


A self-contained chest mounted heart tachycardia detector is provided with a housing having a back side curved to fit the patient's chest having a pair of electrodes on the back side thereof. An alarm device is located within the housing and is adapted to be set off when a ventricular tachycardia series of predetermined duration is received by the pair of electrodes. Electrical circuitry within the housing connects together the electrodes and the alarm device.

3,547,108
COMBINATION DEFIBRILLATOR AND HEARTBEAT MONITORING SYSTEM

Stanley V. Seiffert, Seattle, Wash., assignor to Physio-Control Corporation, Seattle, Wash., a corporation of Delaware

Filed Sept. 18, 1968, Ser. No. 760,434
Int. Cl. A61b 5/04
U.S. Cl. 728—2.06 5 Claims

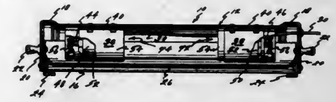


This application discloses a system wherein defibrillation signals are provided to a pair of defibrillator electrodes having control switches associated therewith for selectively activating the source of defibrillation signals and simultaneously deactivating the ECG system coupled with the electrodes. A single set of electrodes is utilized as the ECG pickup electrodes and as the defibrillator electrodes with the monitoring equipment being protected against the high voltages associated with the defibrillator circuitry. As a result the speed with which an operator can monitor a patient under emergency conditions and then apply defibrillation signals if required is greatly increased.

3,547,109
VIBRATORY MASSAGE APPARATUS

Clifford Miles Martin, 2439 S. Broadway, Denver, Colorado

Filed Mar. 4, 1968, Ser. No. 710,189
Int. Cl. A61h 1/00
U.S. Cl. 128—33 10 Claims

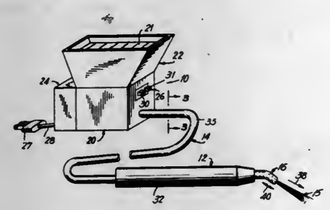


An arched palette having a pair of vibratory electric motors mounted on the underside thereof, each motor having separate controls. Both motors carry an eccentric mass rotatable with the motor shaft and operative to transmit vibratory motion to the palette. One motor has at least two, and preferably three, constant speeds selected by the user through an outboard motor control; whereas, the second motor comprises a variable-speed unit separately controlled by a rheostat. The amplitude and frequency of the vibratory pulsations imparted to the palette are a function of the phasing of the two motors used in combination, the constant-speed unit being set at one of its constant speeds and the variable-speed unit being adjusted so as to phase the amplitude and frequency of the vibratory pulses in accordance with the wishes of the user. The variable-speed motor does not transmit the vibratory pulses generated by the eccentric mass carried by the fan-type impeller directly to the palette but, instead, does so indirectly in the form of a combination of "circular" and "wobble" motions due to the axial displacement of the eccentric mass through a pair of motor-mounting plates and an associated pair of rubber-grommetted rings, the points of attachment of which appear to significantly affect the amplitude of the pulses developed within the assembly to a level well above that possible with a direct coupling.

3,547,110
METHOD AND APPARATUS FOR MAINTAINING TOOTH AND GINGIVAL STRUCTURES WITH ULTRASONIC ENERGY

Lewis Balamuth, New York, N.Y., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y., a corporation of Delaware

Filed Apr. 18, 1968, Ser. No. 722,313
Int. Cl. A61h 9/00
U.S. Cl. 128—66 31 Claims

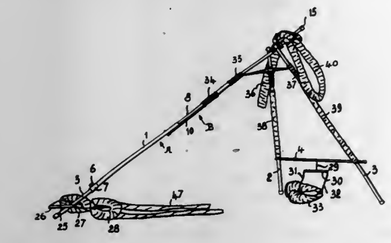


A method and apparatus in which ultrasonic energy in combination with high-velocity liquid jets provides a system for cleaning of teeth as by the removal of tartar, calculus deposits, stubborn stains, such as are produced by smoking, and simultaneous stimulation of the gingival or gums. The applicator through which the liquid jet stream passes may also be ultrasonically vibrated for engagement with the tooth and gingival structures or the oral cavity to impart thereto microfatigue and ultrasonic impact grinding action for the removal of foreign substances from the teeth and a micromassage of the gingival structure for stimulation thereof.

3,547,111
COLLAPSIBLE PORTABLE APPARATUS FOR THERAPEUTIC ELONGATIONS

Edmond Pierre Robert Viel, c/o Cite Industrielle Ducas, Noumea, Nouvelle-Caledonie

Filed Apr. 8, 1968, Ser. No. 719,365
Claims priority, application France, May 23, 1967, 107,360
Int. Cl. A61h 1/02
U.S. Cl. 128—75 5 Claims

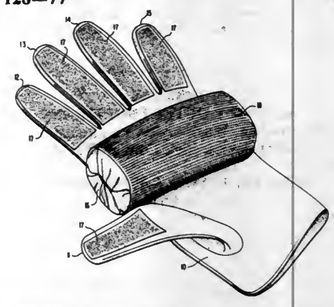


Collapsible portable apparatus for therapeutic elongations comprising an adjustable length elongated member contractible against resilient means and having a member adjustable therealong to which two legs are articulated; and including means for receiving a patient's arms, for supporting his head, and for encircling his ankles or his pelvis, in arrangement in which the apparatus in operative position, with the legs held splayed by an interconnecting member, forms a tripod which may be deformed against the resilient means to stretch the patient by weight applied through the means for receiving his arms which are carried near the point of pivoting of the legs to the elongated member.

3,547,112
THERAPEUTIC POSITIONING GLOVE

Mary E. Courtney, Carrollton, Va. 23314

Filed Feb. 27, 1967, Ser. No. 618,887
Int. Cl. A61f 5/10
U.S. Cl. 128—77 6 Claims

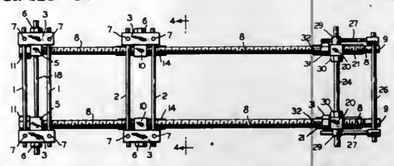


The disclosure relates to a therapeutic positioning glove having securing means on the palm, thumb and finger portions for detachably securing a yieldable and resilient cushion.

3,547,113
ORTHOPEDIC DISTRACTION INSTRUMENT

Howard M. Swanson, 2261 Wyoming St., Salt Lake City, Utah

Filed May 1, 1968, Ser. No. 725,642
Int. Cl. A61f 5/04
U.S. Cl. 128—84 4 Claims

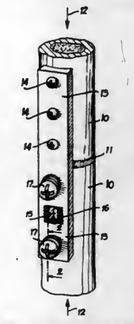


An orthopedic distraction instrument particularly desirable for use in operations for lengthening the tibia, comprising two pairs of bone fixation pins which are mutually parallel and coplanar and are held by supporting members joined by screw thread adjustment means permitting the distance between pairs of pins to be adjusted with precision while maintaining the parallel, coplanar relationship.

3,547,114
COMPENSATING PLATE MEANS FOR BONE FRACTURES

Edward J. Haboush, Hempstead, N.Y. (715 Park Ave., New York, N.Y. 10021)

Filed July 7, 1967, Ser. No. 651,754
Int. Cl. A61f 5/04
U.S. Cl. 128—92 3 Claims

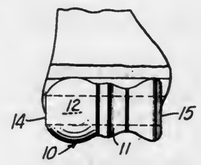


Fractured bones subject to compressive and tensile forces are provided with compensating plate means attached to the fractured bone and extending across the site of the fracture to hasten fusion of the fractured joint. The compensating means may take the form of a plate one end of which is fixedly secured to the bone above or on one side of the fracture site and the other end of which permits, due to a special type of connection, relative limited bone movement below or on the other side of the fracture site to take care of compressive and tensile forces acting on the bone. In a modified form of the invention, two relatively slidable plate sections, one of which has an enlarged hollow casing, are provided which can telescope under the influence of the compressive forces.

3,547,115
OSTEOARTICULAR PROSTHETIC METHOD

Peter S. Stevens, 116 30th St., Mahattan Beach, Calif.

Filed Apr. 5, 1968, Ser. No. 719,034
Int. Cl. A61f 5/04
U.S. Cl. 128—92 10 Claims

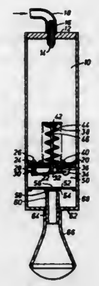


An osteoarticular prosthesis and prosthetic method which is particularly adapted for use on the distal humerus. The prosthesis has an outer articular surface corresponding to the articular surface being replaced. The bone upon which the prosthesis is to be mounted is preferably first trimmed to fit a keyhole-type opening in the prosthesis. The prosthesis has a sharpened leading edge and is transversely driven onto the bone. Once in place, the prosthesis is locked against displacement by its keyhole-type interengagement with the bone. The prosthesis may be manufactured in quantity in a limited number of standard sizes instead of being custom made.

3,547,116
RESUSCITATOR

Roger E. W. Manely, Amersham, England, assignor to Blease Medical Equipment Limited, Chesham, England

Filed Sept. 25, 1967, Ser. No. 670,158
Claims priority, application Great Britain, Oct. 3, 1966, 44058/66
Int. Cl. A62b 7/00
U.S. Cl. 128—145.8 6 Claims

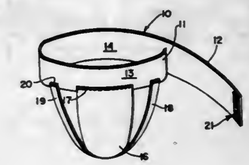


A portable resuscitator for handheld use, for example for sufferers from respiratory troubles has a constant volume chamber with an inlet and a larger outlet, closed by an exit valve. The exit valve is triggered in response to pressure changes in the chamber. The chamber may exhaust into a second chamber which encloses the triggering mechanism. The second chamber may have an inhalation/exhalation valve in its wall.

3,547,117
ATHLETIC SUPPORTER

John A. Smithers, 741 23rd Ave. Court, Moline, Illinois

Filed Jan. 17, 1969, Ser. No. 791,985
Int. Cl. A61f 5/40
U.S. Cl. 128—158 10 Claims

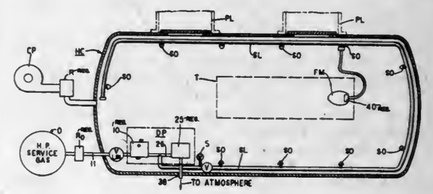


An athletic supporter composed of a waistband having opposite free ends, a pouch and buttock bands depending from the waistband and joined together at their lower ends, and a detachable juncture in the waistband composed of a patch of minute hook elements facing inwardly from the inner side of the band and adapted to penetrate into the grip the fibers on the outer side of the band when one end portion is in overlapping relation with the other end portion.

3,547,118
HYPERBARIC CHAMBER

Lester P. Kolman, Madison, Harold L. May, Oregon, and Richard C. Berry, Madison, Wis., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed June 2, 1967, Ser. No. 643,141
Int. Cl. A61m 16/02
U.S. Cl. 128—204 11 Claims



Normally sealed chamber for accommodating therein a person or persons which has an environmental atmosphere that may be maintained at any selected hyperbaric pressure. A supplemental service system within the chamber includes regulators, piping and valves for separate distribution of oxygen to personnel face masks. The service gas supply is derived from a high-pressure pressure source apart from the chamber through pressure regulator and back-pressure relief devices subject to chamber pressure, which maintain the service line pressure at a constant predetermined pressure differential with respect to chamber pressure. A breathing demand regulator receives the regulated oxygen supply for facilitating breathing at individual face masks.

For medical purposes, such as removing fluids, etc. from the chamber, a negative pressure (vacuum) service system includes a regulator responsive to the chamber pressure and valved to a lower reference pressure level exteriorly of the chamber for maintaining at the regulator inlet a constant vacuum differential in the service line.

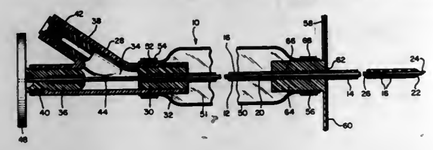
3,547,119
CATHETER ASSEMBLY

John P. Hall, Niles, and Richard B. Farb, Chicago, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

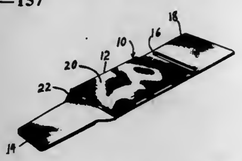
Filed Dec. 8, 1967, Ser. No. 689,099
Int. Cl. A61m 5/00
U.S. Cl. 128—214.4 6 Claims

The distal portion of a collapsible housing is secured to a catheter comprising said assembly to provide an enclosure

from which said tubular member can be projected into a body opening through an aperture in the body. An apertured connector is carried from the proximal portion of said housing for securance to the body about the body aperture for passing the catheter directly from the housing into the body opening.



3,547,120
BANDAGES
Geraldine A. Grossman, 10296 S. Mina, Whittier, Calif.
Filed May 27, 1968, Ser. No. 732,305
Int. Cl. A61f *15/00*
U.S. Cl. 128—157 **10 Claims**



Easily and quickly attached bandages for protecting wounds, injuries and the like. A plastic backing has a surgical dressing pad thereon, and an adjustable tongue coated on one side with pressure sensitive adhesive, the tongue being attached in such manner that the adhesive does not come into contact with the skin of the person on whom the bandage is applied.

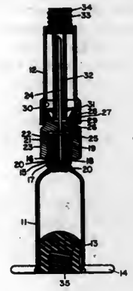
3,547,121
ABDOMINAL GRID FOR INTRAUTERINE FETAL TRANSFUSION
Sheldon H. Cherry, Tenafly, N.J., assignor to Mount Sinai Hospital Research Foundation, Inc.
Filed Mar. 4, 1968, Ser. No. 710,135
Int. Cl. A61m *5/00*; **G01n** *21/34*
U.S. Cl. 128—215 **7 Claims**



An abdominal grid for intrauterine fetal peritoneal transfusions.

3,547,122
INJECTION AMPOULE
Georg A. Rinser, Munich, Peter Rieckmann, Mannheim-Waldhof, and Werner Rothe, Hockenheim, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, Waldhof, Germany, a corporation of Germany
Filed Jan. 8, 1968, Ser. No. 696,390
Claims priority, application Germany, June 9, 1967, B 71,345 and B 71,349
Int. Cl. A61m *5/24*
U.S. Cl. 128—218 **10 Claims**

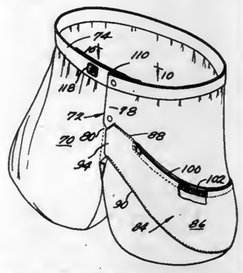
An injection ampoule having a nonelastic chamber for a solid component of an injection material and an elastic chamber for a liquid component, an elastic stopper in the nonelastic chamber having a plurality of peripheral grooves to substantially eliminate axial elongation when the stopper is used with nonelastic chambers having standard manufacturing tolerances and irregularities, and a closure between the nonelastic and elastic chambers having at least one peripheral rib between the closure and the inside of the elastic chamber to effectively seal the elastic chamber.



ERRATUM

For Class 128—284 see:
Patent No. 3,547,930

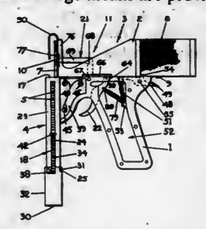
3,547,123
URINE RECEPTACLE
Louis Sachs, 11 Slade Ave., Baltimore, Md.
Filed Jan. 8, 1968, Ser. No. 696,208
Int. Cl. A61f *5/44*
U.S. Cl. 128—295 **8 Claims**



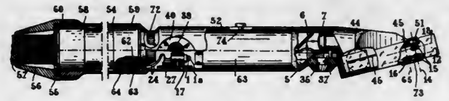
A disposable urine receptacle with adhesive fastening strips is carried in the pocket of a supporting garment. The urine receptacle comprises superposed sheets of thin flexible, waterproof material sealed together along their edges to define a receptacle portion and a narrow inlet valve portion. The terminal of the valve portion curves away from the receptacle portion and has a bowed transverse cross section which causes the abutting free ends of the valve portion to flatten so that urine cannot reenter the valve portion from the receptacle portion. The supporting garment comprises a pair of reversible shorts with a pocket extending from the lower end of the vertical closing on the front of the shorts. A tab is provided adjacent the upper end of the closing which can be secured to the shorts in their normal or reversed state to form a loop which prevents the fastening strips of the urine receptacle from being secured to the wearer in the more sensitive lower region of the abdomen.

3,547,124
APPARATUS FOR CASTRATING OR DOCKING ANIMALS
Keith Arnold Fergusson, 116 Tiraumea Drive, Auckland, New Zealand
Filed May 2, 1968, Ser. No. 726,103
Claims priority, application New Zealand, May 5, 1967, 148,674
Int. Cl. A61b *17/00*
U.S. Cl. 128—303 **12 Claims**

A docking or castrating applicator has a locating means which locates a flexible ring in a fixed position over a spike. A hook is inserted in the ring and moved to stretch the ring around a tube, and discharge means are provided operable to discharge the stretched ring over the tail or scrotum of an animal placed within the ring.

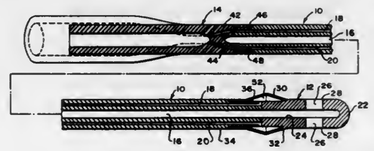


3,547,125
PORTABLE PHOTOCOAGULATOR
Luc A. Tagnon, Saint-Mande, France, assignor to Societe Des Lunetiers, Temkine & Cie, Paris, France, a French corporate body
Filed Feb. 29, 1968, Ser. No. 709,303
Claims priority, application France, Mar. 10, 1967, 98,281
Int. Cl. A61b *17/36*
U.S. Cl. 128—303.1 **4 Claims**



A portable photocoagulator consisting of an ophthalmoscope with built-in laser, which comprises, housed in a common reference tube, a laser, an optical head and means for centering on the one hand said laser in relation to said optical head and on the other hand said laser in relation to said common tube.

3,547,126
CATHETER
William C. Birtwell, North Scituate, R.I., assignor to Biomedical Engineering Associates, Inc., Boston, Mass., a corporation of Massachusetts
Filed Feb. 15, 1968, Ser. No. 705,667
Int. Cl. A61m *25/00*
U.S. Cl. 128—349 **5 Claims**

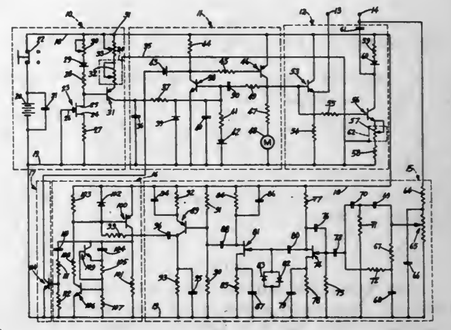


A Foley balloon catheter having an extruded body made of silicone rubber with a single drainage lumen and a plurality of inflation lumens, and a molded tip of silicone rubber attached to the body and having a drainage eye communicating with the drainage lumen, and a molded funnel attached to the other end of the body and having passages which communicate with drainage and inflation lumens.

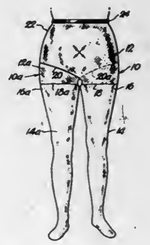
3,547,127
CARDIAC PACEMAKER WITH REGULATED POWER SUPPLY
Robert K. Anderson, Brooklyn Center, Minn., assignor to Medtronic, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Apr. 29, 1968, Ser. No. 724,876
Int. Cl. A61n *1/36*
U.S. Cl. 128—421 **3 Claims**

A cardiac pacer, which may be a demand pacer, with a calibrated stimulating pulse rate which is preferably adjustable. The pacer utilizes a low current drain, regulated power supply which provides a current into a timing circuit, the current being substantially independent of supply voltage over a large range of supply voltage variations.

The regulated power supply includes a series circuit containing a source of voltage, a field effect device for producing a constant current, and an impedance for providing a substantially constant voltage across it when a substantially constant current is applied to it. A transistor is connected across the constant voltage producing impedance so that it exhibits a high input impedance and provides a current, in its collector circuit, which varies substantially independently of the source voltage. In the preferred form, a variable resistor in the transistor emitter circuit makes the magnitude of the collector current adjustable over a predetermined range.



3,547,128
HIP HOSE
Raymond O. Keltner, 8900 Pawnee Lane, Leawood, Kansas
Filed Feb. 17, 1969, Ser. No. 799,596
Int. Cl. A41c *1/00*
U.S. Cl. 128—519 **6 Claims**

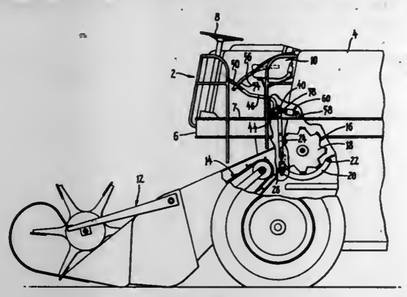


A pair of stocking units each comprising a hose section which is continuous with a trunk or pant section that is cut away to clear the opposite leg. When worn, the upper portion of one trunk section overlies the other but each is free to slide laterally when the wearer sits or assumes other positions causing spreading of the hips or buttocks, thereby preventing the garment from pulling down away from the waist.

3,547,129
ADJUSTABLE CONCAVE
Walter Hirsch, Don Mills, Ontario, Canada, assignor to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada
Filed Oct. 23, 1967, Ser. No. 678,161
Int. Cl. A01f *12/24*
U.S. Cl. 130—27 **2 Claims**

An adjustable concave for the threshing assembly of an agricultural combine. A power element which may be in the

form of a hydraulic ram is interconnected with the concave through a linkage to apply an external lifting force on the

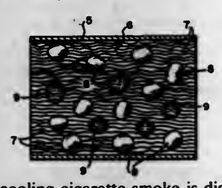


concave to assist the manual adjustment of the concave relative to the cylinder.

3,547,130
METHOD OF COOLING CIGARETTE SMOKE

Edward S. Harlow and John Roderick Flint, Richmond, Va., assignors to The American Tobacco Company, New York, N.Y., a corporation of New Jersey

Filed Feb. 12, 1968, Ser. No. 704,915
Int. Cl. A24f 25/00, 13/02
U.S. Cl. 131—9 1 Claim



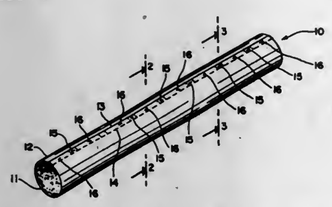
A method of cooling cigarette smoke is disclosed utilizing ethanol-filled rupturable capsules contained within the filter section of a cigarette. The filter material utilized is preferably a crepe paper of high absorbency and porosity and is free of absorbent material or other material for which the ethanol is a solvent to the extent of releasing a sensible heat of solution when the ethanol is released into the filter.

The invention relates to a method of effecting cooling of cigarette smoke and more particularly to the incorporation of frangible ethanol-filled rupturable capsules in a filter to effect this.

3,547,131
CIGARETTES

Mortimer Russell Dock, 26 Broadway, New York, N.Y.

Filed Feb. 6, 1969, Ser. No. 797,154
Int. Cl. A24d 01/02
U.S. Cl. 131—9 2 Claims



This invention relates to wrapper means for improving the smoking qualities of cigarettes. The wrapper has longitudinally overlapped edges secured by longitudinally spaced sealing means. The spaced sealing means form alternate spaced areas sealed across the whole width of the overlap. In the other, unsealed, areas of the overlap, pockets are created to permit the passage of air therethrough.

3,547,132
TOBACCO SMOKE FILTERING MEANS AND ADAPTATIONS

Jon W. Beam, Cushing, Okla., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey

Filed Dec. 3, 1968, Ser. No. 780,820
Int. Cl. A24d 01/04; A24f 07/04, 13/06
U.S. Cl. 131—10.5 8 Claims



A disposable tobacco smoke filtering means comprising a cylindrical short segment of wrapped fibrous filter material, having its downstream end cut at an oblique angle. The cut end is completely covered with elastic perforated adhesive tape such that all the smoke must pass through the elastic perforations. The perforations accelerate the smoke stream velocity as a plurality of small jets with a significant pressure drop thereby causing deposition of tobacco smoke impurities. The tobacco smoke filtering means is adaptable for use as a component in the manufacturing process of filter-tipped cigarettes or for use as a disposable unit in other tobacco smoking devices.

3,547,133
TOBACCO HAVING AN OXADIAZOLE ADDITIVE

Tore Dalhamn, Bromma, Stockholm, Sweden, assignor to Lorillard Corporation, New York, N.Y., a corporation of Delaware

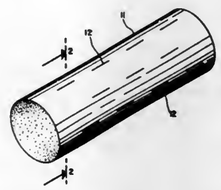
No Drawing. Filed Oct. 30, 1968, Ser. No. 771,981
Int. Cl. A24b 15/04
U.S. Cl. 131—17 7 Claims

Novel tobacco products are disclosed characterized by the addition of various oxadiazoles to the tobacco. Smoke from the treated tobacco has been found to exhibit a significantly lower ciliastatic effect.

3,547,134
FILTER FOR A SMOKING DEVICE

Mortimer Russell Dock, 26 Broadway, New York, N.Y.

Filed Feb. 13, 1969, Ser. No. 798,964
Int. Cl. A24d 01/04
U.S. Cl. 131—261 1 Claim

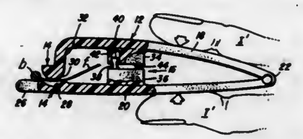


A tubular filter housing, for smoking articles such as cigars and cigarettes, having longitudinally spaced groups of elongated slits. Each group has at least four of such slits equally circumferentially spaced and lying in a common plane perpendicular to the axis of the housing. Each of the slits have their respective edges normally in substantial contact. Some of the slits are distortable by lip pressure exerted upon the housing to increase the width of the distorted slits.

3,547,135
TOOL FOR APPLYING FALSE EYELASHES

Paul J. Roos, Miami Lakes, Fla., assignor to Grooming Developers, Inc., Chicago, Ill., a corporation of Illinois

Filed July 3, 1968, Ser. No. 750,406
Int. Cl. A45d 2/48
U.S. Cl. 132—32 20 Claims

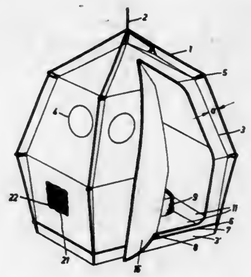


A one-piece, molded tool for applying false eyelashes and comprising a deformable handle having opposed clamping portions and including an intermediate locking arrangement operable in response to handle deformation.

3,547,136
EMERGENCY SHELTER IN THE FORM OF A TENT OR THE LIKE

Hans Prinz, Munich, Johannes Wiesinger, Rohrmoos, and Rudolf Koenig, Neumarkt Upper Palatinate, Germany, assignors to Dehn & Soehne, Nurnberg, Germany

Filed Aug. 9, 1968, Ser. No. 751,416
Claims priority, application Germany, Aug. 12, 1967, 1,557,383; Feb. 7, 1968, 1,632,485
Int. Cl. A45f 01/00; E04b 01/347
U.S. Cl. 135—1 8 Claims

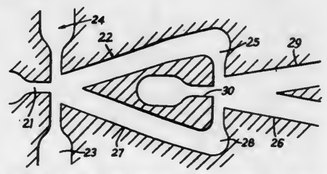


A tent, or a shelter similar to a tent, where means are provided to protect the occupant, or occupants, against lightning bolts, which tent is in the form of a Faraday cage and the components constituting the cage are conductively connected to ground, or adapted to be connected to ground, and which generally comprises a metal frame and a cover that is preferably conductive for electricity and a metallic base or floor.

3,547,137
FLUID CONTROL DEVICES

Victor James Chadwick, Taplow, England, assignor to British Telecommunications Research Limited, Taplow, England, a British company

Filed Feb. 6, 1967, Ser. No. 614,162
Claims priority, application Great Britain, Feb. 7, 1966, 5290/66; Mar. 16, 1966, 11,590/66
Int. Cl. F15c 1/08
U.S. Cl. 137—1 1 Claim



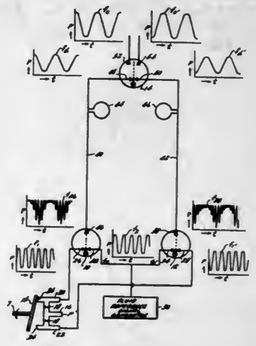
In a bistable, wall attachment, fluid control device, control pressure is applied when the main fluid flow rate is below or marginally above the rate at which wall attachment first takes place. The level of the control pressure is such that it is not effective when the fluid flow rate is built up to a greater value.

The invention is used to provide a device having a latching INHIBIT output and a latching AND output and to fluidic shift registers.

3,547,138
FLUIDIC HIGH TO LOW FREQUENCY CONVERTER CIRCUIT

Lonny R. Kelley, Ballston Lake, and Carl G. Ringwall, Scotia, N.Y., assignors to General Electric Company, a corporation of New York

Filed Sept. 19, 1968, Ser. No. 760,850
Int. Cl. F15c 1/12
U.S. Cl. 137—81.5 7 Claims

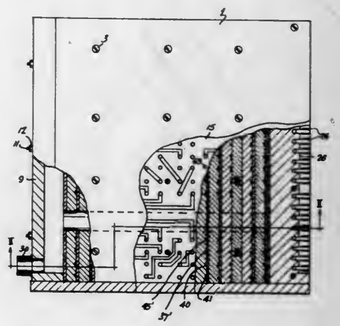


A high frequency fluidic pressure signal is provided as one input signal to each of two flueric rectifier elements. There is a 180° phase differential between this signal input to the two rectifier elements. A second fluidic pressure signal of a fixed reference frequency is fed as the other input. The outputs of the two rectifier elements are filtered to provide a low frequency "push-pull" signal which is then fed to a flueric amplifier from which the circuit output is derived.

3,547,139
FLUID LOGIC PACK

Robert A. van Berkum, 177 Fernwood Road, Chagrin Falls, Ohio

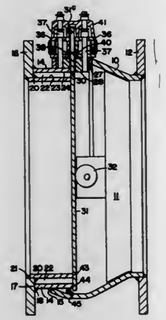
Filed Feb. 4, 1969, Ser. No. 796,397
Claims priority, application Canada, Feb. 23, 1968, 13,220
Int. Cl. F15c 5/00
U.S. Cl. 137—81.5 12 Claims



A fluidic logic circuit assembly comprising a plurality of independent logic elements stacked together to provide a fluid

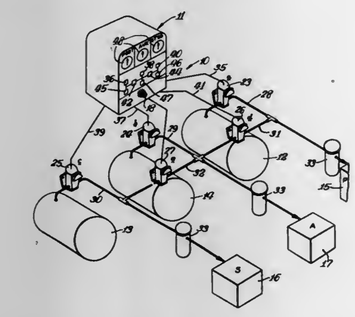
supply conduit through the stack, conduit input and output passages in each of the elements brought to one face of the stack and circuit plates assembled against the one face to provide input and output connections and interconnections to the elements and to the pack. Venting passages for the elements are preferably brought to another face of the stack separate from that for the circuit plates. The fluidic devices may be formed directly in the elements or alternatively may be inserted into receptive pockets in wafers forming the stack. A booster arrangement for improving output of any elements from which there is considerable fan-out is also described.

3,547,140
VALVE
Reeve R. Hastings, Chagrin Falls, and Arthur J. Stock, Lakewood, Ohio, assignors to Stock Equipment Company, Cleveland, Ohio, a corporation of Ohio
Filed Aug. 13, 1968, Ser. No. 752,312
Int. Cl. F16k *3/10, 25/00, 49/00*
U.S. Cl. 137—240 **9 Claims**



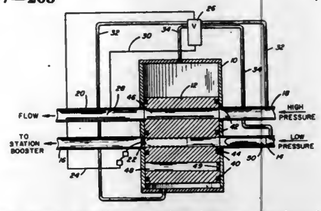
A valve for controlling flow of fluid under pressure having a single gate and a pair of valve seats. Air under pressure is directed against one side of each of the valve seats which are constructed to provide leakage at the valve seats thereby providing flow of air to both the upstream and downstream sides of the valve gate.

3,547,141
FLUID CONTROL SYSTEM
Claude L. Alexander, Gibson Island, Lysle B. Gray, Baltimore, and John I. Long, Timonium, Md., assignors to Brunswick Corporation, a corporation of Delaware
Filed May 29, 1968, Ser. No. 733,080
Int. Cl. B67d *5/04*
U.S. Cl. 137—263 **7 Claims**



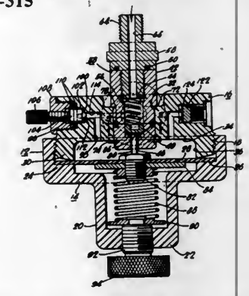
A fluid control system for controlling the delivery of fluid, such as fuel, from a plurality of supplies, such as fuel tanks, to a plurality of receivers, such as engines. The system includes a manually operable control selectively positionable to operate valved means associated with the fluid ducts of the system to operate different valves for selective control of the supply and receiver connections. The control system may be used in marine installations for facilitated control of fuel delivery from a number of storage tanks to different engines, such as port and starboard engines and auxiliary engines.

3,547,142
PIPELINE STATION BYPASS DEVICE
Brian C. Webb, 732 South 95th East Ave., Tulsa, Okla.
Filed Jan. 27, 1969, Ser. No. 794,134
Int. Cl. F17d *3/02*
U.S. Cl. 137—268 **7 Claims**



A pipeline fluid handling station bypass device for pigs, scrapers, etc. are transferred from the low pressure side to the high pressure side without interfering with the station operating equipment.

3,547,143
SINGLE STAGE PRESSURE REGULATOR
Justin W. Mills, Jr., Cinnaminson, N.J., assignor to Lif-O-Gen, Inc., Lumberton, N.J., a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,905
Int. Cl. F16k *27/00*
U.S. Cl. 137—315 **1 Claim**



A single-stage fluid pressure regulator wherein the high-pressure area including the pressure regulating valve is contained in an inexpensive cartridge which may be readily removed and replaced in the field.

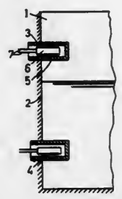
3,547,144
SERVICE VALVE
John W. Mullins, P.O. Box 20524, Oklahoma City, Okla.
Filed Aug. 26, 1968, Ser. No. 755,204
Int. Cl. F16k *43/02*
U.S. Cl. 137—318 **3 Claims**



A substantially cylindrical valve housing having an air valve closed central gas passageway is provided with a coaxi-

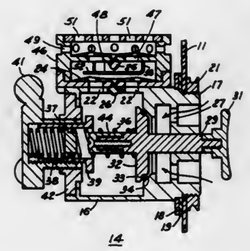
al line piercing tip at one end. Clamp means, releaseably engageable with the housing, transversely contacts a peripheral portion of a line to be tapped and forces the line piercing tip of the housing into the line.

3,547,145
APPARATUS FOR SENSING LEVELS IN CONTAINERS HOLDING LIQUIDS
Walter Holzer, Meersburg/Bodensee, Schutzenrain, Germany
Original application May 16, 1966, Ser. No. 550,355, now Patent No. 3,435,680, dated Apr. 1, 1969. Divided and this application Dec. 18, 1968, Ser. No. 785,457
Int. Cl. E03c *1/242*
U.S. Cl. 137—392 **3 Claims**



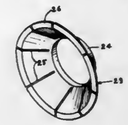
Apparatus for sensing the rate of change of temperature due to changing liquid levels within a container, such as a washing machine, which rate of change is transformed into an electrical signal in turn applied to a response apparatus for switching and control purposes.

3,547,146
EXHAUST VALVE FOR DIVER'S HELMET
Richard F. Jones, Santa Barbara, Calif., assignor to Agonic Engineering, Inc., Santa Barbara, Calif., a corporation of California
Filed Dec. 9, 1968, Ser. No. 782,384
Int. Cl. F16k *17/06*
U.S. Cl. 137—512 **6 Claims**



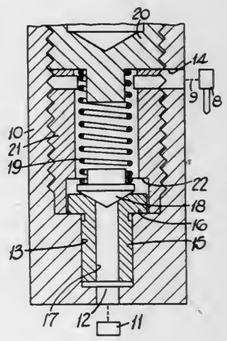
A pressurized diver's helmet is provided with an exhaust valve that permits gas inside the helmet to be exhausted to the exterior of the helmet. The valve is both a "manual" valve, operated by the diver's head striking a valve operating button, and a two-stage automatic valve providing a normal differential between the internal gas pressure and the outside liquid pressure, and an extraordinary differential that permits extraordinary inflation of the diver's suit for added buoyancy, as when lifting heavy objects. The exhaust port to the liquid environment is closed by flexible diaphragms that ensure against inflow of liquid into the valve body. The diaphragms are operable in any position with respect to gravity, ensuring the safety of the diver even when working upside down. The use of diaphragms in the exhaust part of the exhaust valve makes possible a very compact valve which in turn causes the diver's helmet to have a smaller silhouette.

3,547,147
AEROSOL VALVE WITH PRESSURE RELIEF
Joseph J. Shay, Manchester, N.H., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Feb. 10, 1969, Ser. No. 852,951
Int. Cl. F16k *15/18*
U.S. Cl. 137—522 **5 Claims**



An aerosol valve has a built-in pressure relief device, the valve being operable manually to spray through a nozzle in the usual manner, or automatically when the container pressure exceeds a safe limit. A valve head seats by downward pressure under the compressive force of a spring greater than the upward force of container pressure on the valve. For normal operation, the valve is unseated by a tilt action to overcome the spring force.

3,547,148
DELIVERY VALVES
Moshe Drori, East Twickenham, England, assignor to C.A.V. Limited, Acton, London, England
Filed Feb. 6, 1968, Ser. No. 703,332
Claims priority, application Great Britain, Feb. 20, 1967, 7,934
Int. Cl. F16k *15/00;* **F02m** *39/02*
U.S. Cl. 137—540 **2 Claims**

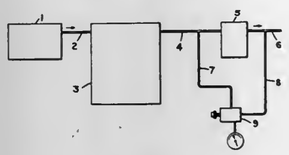


A delivery valve primarily for the use in a liquid fuel pumping apparatus and incorporating a piston which is slidable between predetermined limits, with the piston being situated in an outlet of the apparatus and having a conduit formed therein. A resiliently loaded valve member is provided for controlling the flow of fuel through said conduits whereby at the end of the delivery of fuel by the apparatus the piston will move in the reverse direction to allow a predetermined volume of fuel to be unloaded from the pipeline connecting the outlet with an injection nozzle.

3,547,149
APPARATUS FOR MEASURING AND INDICATING FLUID PRESSURE ACROSS A FLUID RESTRICTION

Carl Bloom, Springfield, Mass., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware. by mesne assignments

Original application Sept. 29, 1965, Ser. No. 491,223, now Patent No. 3,413,855, dated Dec. 3, 1968. Divided and this application Apr. 3, 1968, Ser. No. 751,627
Int. Cl. G01l *13/00*
U.S. Cl. 137—560 **1 Claim**

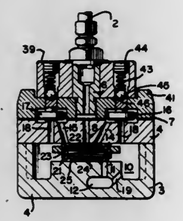


A device for selectively measuring on a single gauge the pressure upstream and downstream of an oil separating device disposed in a compressor discharge line to enable comparisons of the pressures on opposite sides of the oil separating device and to provide accurate means for determining the pressure drop across the oil separating device.

3,547,150
HOIST CONTROL VALVE

Robert E. Geiger, Sayre, Pa., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey

Filed Apr. 10, 1969, Ser. No. 815,104
Int. Cl. F16k *11/00, 15/00;* **B66d** *1/44*
U.S. Cl. 137—599 **7 Claims**



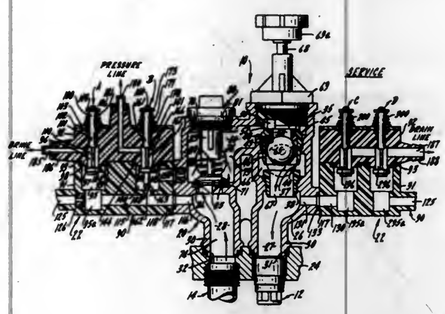
A pendent control for a fluid-actuated balance hoist having a movable cup-shaped flexible valve for shifting to a plurality of pilot pressures for controlling the hoist and having a rotatable turret carrying a plurality of adjustable springs for selectively applying preset spring loads to regulator valves which determine the pilot pressures.

3,547,151
VALVE ASSEMBLY

Benjamin H. Kryzer and Edward J. Tischler, St. Paul, Minn., assignors to Union Tank Car Company, Chicago, Ill., a corporation of Delaware

Filed Feb. 12, 1968, Ser. No. 704,637
Int. Cl. B01d *29/38;* **C02b** *1/16*
U.S. Cl. 137—599.1 **4 Claims**

An actuator valve assembly for use with a main valve assembly in controlling the flow of water through a water conditioning system. The actuator valve assembly includes four individual valves arranged in a single valve body, two of the valves serving to control water flow to a brine tank and brine flow therefrom. One of these two valves is a double acting valve which, in a second valve function, assures correct liquid flow during a brining cycle. The remaining two valves

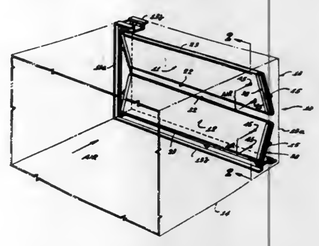


of the actuator valve assembly cooperate to control waste flow to drain.

3,547,152
PRESSURE SEALED DAMPER

Louis R. Hess, Bell, Calif., assignor to Pacific Air Products, Bell, Calif., a corporation of California

Filed Nov. 21, 1968, Ser. No. 777,836
Int. Cl. F16k *11/14*
U.S. Cl. 137—601 **13 Claims**



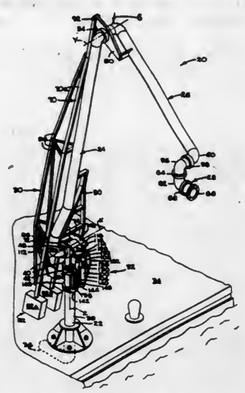
A damper controlling a flow of air through a duct and having two hollow rectangular blades rotatably mounted in a frame to turn from edge-to-edge closed positions to parallel open positions. The longitudinal tips of the blades are portions of flexible tubes seated in grooves extending along the edges of the blade, and the ends are longitudinally movable extensions having pistons telescoped into the blade and having sealing ribs engageable with the frame. When the damper is closed, the pressure on the upstream side is applied through the interior of each blade to expand the tips and extend the sealing ribs. The bodies of the blades comprise identical extruded plates with interlocked webs holding the plates together.

3,547,153
SINGLE COUNTERBALANCED MARINE LOADING ARM

Peter J. Bily, Sunset Beach, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed June 10, 1968, Ser. No. 735,877
Int. Cl. F16l *3/00*
U.S. Cl. 137—615 **11 Claims**

A fluid-transferring apparatus of the marine-loading arm type, including a vertical riser section, an inboard arm section mounted on the riser section for pivotal movement in a vertical plane about a first horizontal axis and in a horizontal plane about a vertical axis, an outboard arm section connected to the inboard section for pivotal movement in a vertical plane about a second horizontal axis, a single-counterweight pantograph-type counterbalance system for counterbalancing the inboard and outboard arm sections about the first horizontal axis and the outboard arm section about the

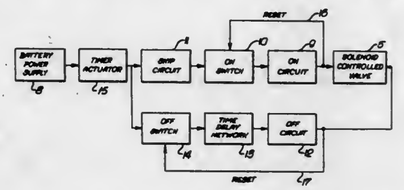


second horizontal axis, and a power system for maneuvering the arm about the horizontal and vertical axes.

3,547,154
IRRIGATION TIMING CONTROL APPARATUS

Ralph E. Benham, Arcadia, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif., a corporation of California

Filed Feb. 5, 1969, Ser. No. 796,715
Int. Cl. A01g *27/00;* **F16k** *31/02*
U.S. Cl. 137—624.11 **26 Claims**



Irrigation control apparatus including a solenoid actuated valve controlling water delivery from a supply, and a timer for the valve comprising a battery powered device having first and second capacitors each storing charge sufficient to actuate the valve through the solenoid, a magnetically operated switch for connecting the capacitors to the battery simultaneously, actuating means for the switch including a magnet having time related movement, means for blocking battery connection to the capacitors upon selected switch actuations, means discharging the first capacitor through the solenoid in a manner to open the valve, means discharging the second capacitor in a manner to close the valve, means interrupting charging of the capacitors upon discharge, and means delaying discharge of the second capacitor for a preselected period corresponding to a desired length irrigation period, said capacitor discharging means including for the first and second capacitor trigger diodes sensing the stored charge level in an associated capacitor and an SCR triggered by the diode to sequentially discharge the capacitors through the solenoid coil.

3,547,155
FLUID CONTROL MECHANISM

Otmar M. Ulbing, Berkshire, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey

Continuation-in-part of application Ser. No. 645,644, June 13, 1967, now Patent No. 3,421,737, dated Jan. 14, 1969. This application July 30, 1968, Ser. No. 748,781
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.25 **4 Claims**

A balancing hoist containing a fluid pressure-operated drum for balancing a suspended load and fed from a pilot-operated pressure regulator connected to an air supply and a control system containing means for automatically maintaining the pilot air pressure at a predetermined selected magnitude by throttling the pressure from the air supply and

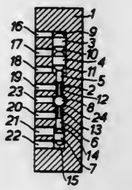


venting it to reduce the pressure to the desired pilot air pressure. The control system includes a pendant control member having a movable cup-shaped flexible valve for shifting the pilot air to a plurality of selected pressures.

3,547,156
FLUID CONTROL AMPLIFIERS

David A. Cockeram, Beeston, Leeds, England, assignor to Towler Hydraulics Limited, Rodley, Leeds, England, a British company

Filed June 6, 1969, Ser. No. 830,959
Claims priority, application Great Britain, June 14, 1968, 28494/68
Int. Cl. F16k *1/04*
U.S. Cl. 137—625.25 **2 Claims**

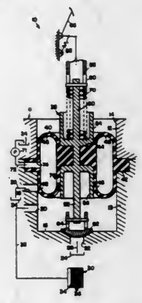


A fluid control amplifier capable of performing NOR, OR, AND and NAND logic functions. A single movable switching member is used to switch an output signal on or off by seating against sealing lands located one on each side of the switching member, the switching member being movable upon the application of fluid pressures to actuating members on opposite sides of the switching member.

3,547,157
PRESSURE-MODULATING VALVE

Roger Layton Jacklin, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware

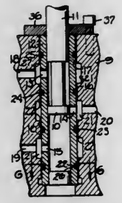
Filed June 19, 1969, Ser. No. 834,640
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.26 **13 Claims**



A pressure-modulated valve has a valve stem axially shiftable in a valve bore and a torus-shaped, hollow diaphragm is

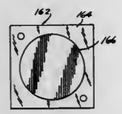
in fluidtight engagement with the bore and has inner and outer annular ribs secured respectively to the valve stem and bore. The diaphragm is pressurized by a source of fluid under pressure and is operative, through a rolling action on the bore and stem induced by shifting the valve stem, to selectively block a return outlet in the bore while simultaneously uncovering an outlet in the diaphragm adjacent the stem or to uncover the return outlet while simultaneously blocking the diaphragm outlet. The pressure in the diaphragm acts to alternately effectively seal its outlet against the stem and its outer wall over the return outlet.

3,547,158
VALVE STRUCTURE WITH O-RING SEAL
Carl O. Schelin and Arne L. Eisentraut, Rockford, Ill., assignors to Woodward Governor Company, Rockford, Ill., a corporation of Illinois
Filed Nov. 27, 1968, Ser. No. 779,354
Int. Cl. F16k *11/07*
U.S. Cl. 137—625.48 **1 Claim**



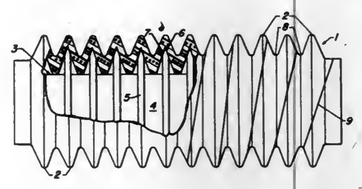
A sleeve having axially spaced external grooves and O-rings seated in the grooves form an assembly which is telescoped endwise into a bore to form seals for confining the flow of fluid through an intervening port in the bore and a hole in said sleeve. The sleeve and ring assembly is first inserted endwise into an imperforate tube smaller than the bore wall and larger than the sleeve so that, during the insertion of the tube and sleeve assembly, the O-ring is covered as it is moved past the edge of the port. After withdrawal of the tube from the bore, the O-ring is left unmarked with its original external surface contour expanded against the bore wall.

3,547,159
PNEUMATIC SENSOR DEVICE
John D. Bachman, Box 683, Bristol, Tenn.
Filed June 3, 1968, Ser. No. 734,160
Int. Cl. F16k *11/02*
U.S. Cl. 137—625.62 **4 Claims**



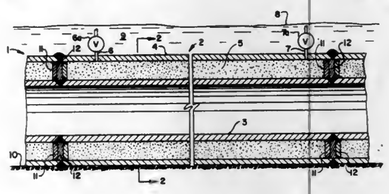
Control apparatus for a pneumatic system comprising a normally-closed diaphragm-operated valve controlling a high-pressure air supply to the system, a low-pressure air feedback line connected in said high-pressure air supply for applying an operating pressure on the diaphragm on said valve to move said valve to its open position, said air feedback line including means adjustable to provide the low-pressure air feedback, and normally-closed valve means connected in the air feedback line and operable to move to its open position in response to signal means involving a drop in pressure in said air feedback line.

3,547,160
FLEXIBLE CORRUGATED FILAMENT WOUND TUBE
Jack L Mc Larty, Milwaukee, Wis., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,710
Int. Cl. F161 *11/08*
U.S. Cl. 138—121 **8 Claims**



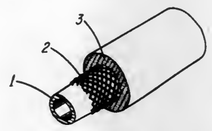
A flexible corrugated filament wound tube, such as an automobile radiator hose, comprised of wound filaments or fibers set in a plastic.

3,547,161
INSULATED PIPELINE FOR TRANSPORTING LIQUID NATURAL GAS
Donald Reece and George J. Boyle, Cheshire, England, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Jan. 24, 1969, Ser. No. 793,826
Claims priority, application Great Britain, Feb. 20, 1968, 8150/68
Int. Cl. F16l *9/18*
U.S. Cl. 138—114 **6 Claims**



A pipeline for transporting a low density, low temperature liquid comprising substantially concentric inner and outer tubular members forming an annulus therebetween. The liquid is adapted to be passed through the inner tubular member and a partial vacuum is formed in the annulus, the annulus being filled with thermal insulant having a bulk density in excess of 50 pounds per cubic foot.

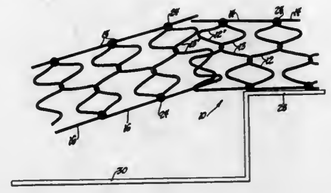
3,547,162
SYNTHETIC PLASTIC PIPES
Andre Jacques Schaerer, 22 Sangglenstrasse, Pfaffhausen, Switzerland
Filed Dec. 12, 1966, Ser. No. 600,747
Claims priority, application Switzerland, Dec. 13, 1965, 17,127/65
Int. Cl. F16l *11/04, 11/08*
U.S. Cl. 138—125 **8 Claims**



A synthetic plastic pipe especially adapted for use as a hot water conduit, having an inner liner of a synthetic plastic selected from the group consisting of cross-linked olefinic polymers and copolymers, an intermediate layer comprising a

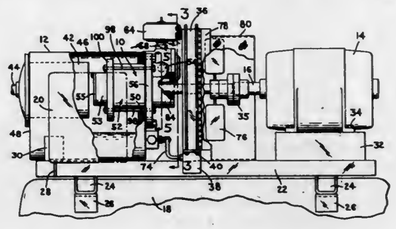
braided layer of fibers, and an outer layer of a flexible plastic foam.

3,547,163
SPRING MANUFACTURE
Ira W. Dickey, Plymouth, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Oct. 9, 1967, Ser. No. 673,905
Int. Cl. B21f *27/16*
U.S. Cl. 140—107 **10 Claims**



This invention relates to the manufacture of springs utilized in beds, seating and other furniture. In accordance with the invention separate spring sections are provided from a plurality of interconnected spring strips and each spring strip comprises an integral length of wire defining alternate right and left handed spiral coils. In each strip, a first or top end of each spiral coil is integrally connected to an adjacent spiral coil on one side thereof by a generally U-shaped section and the second or bottom end of each spiral coil is integrally connected to an adjacent spiral coil on the opposite side thereof by another generally U-shaped section. Adjacent spiral coils in each strip are hooked into mechanical interlocking engagement with one another and a plurality of helical coils interconnect adjacent strips by being disposed about legs of certain of the adjacent U-shaped sections in each strip. In accordance with the invention, the wire of each strip is severed along the base of a U-shaped section between adjacent first and second spiral coils in each strip. The spiral coils between which the wire is severed are devoid of a helical coil about the legs of the adjacent U-shaped sections at the other ends thereof so that each of the first spiral coils is in the severed section and each of the second spiral coils is in one of the strips. The strips are moved longitudinally into the severed sections and the severed sections are disposed at an inclined angle relative to the longitudinal axis of the strip to move the second spiral coils into the first spiral coils of the severed section to unhook the latter from one another so that the severed section moves free of the strips thereby providing a completely independent spring section.

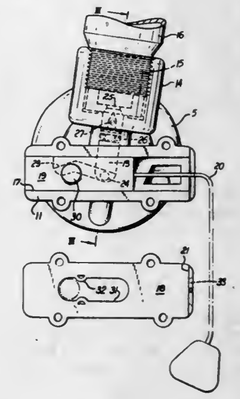
3,547,164
COMPACT HOUSING FOR ROTARY COMPRESSOR SYSTEM
Carl Bloom, Springfield, Mass., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware
Filed Dec. 19, 1968, Ser. No. 785,304
Int. Cl. F04f *1/02*; **B65d** *83/00*; **B65b** *3/04*
U.S. Cl. 141—326 **5 Claims**



A rotary compressor assembly constructed to prevent leakage from the compressor housing to atmosphere through the interface between the cylindrical section and the covers of the housing.

The compressor is disposed substantially within the tank which receives the compressor discharge and is connected to the wall of the tank. A seal between the compressor and the tank wall seals the tank and thereby prevents leakage from the compressor to atmosphere.

3,547,165
GAS-INFLATION MECHANISM FOR MARINE LIFESAVING EQUIPMENT
Clifford Butterworth, Rochdale, England, assignor to Frankenstein Group Limited, a corporation of Great Britain
Filed Feb. 10, 1969, Ser. No. 798,081
Int. Cl. B63c *9/16*
U.S. Cl. 141—330 **6 Claims**



Gas inflation apparatus for a marine lifesaving appliance comprises a body adapted for mounting upon the wall of said appliance, an edge of an aperture in such wall being clamped between interfitting inner and outer parts of such body.

The exposed face of said outer body part is formed with a substantially T-shaped housing whose shank portion contains a threaded socket for receiving the sealed neck of a replaceable liquid-gas bottle and a pointed pin slidable lengthwise of said socket to unseal said bottle, the gas from which can then enter said appliance.

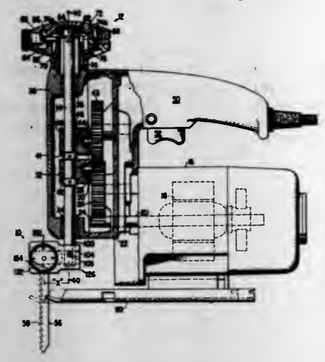
The head portion of said housing has a block slidable lengthwise thereof under the influence of a flexible traction member and formed with a dogleg cam-groove which is engaged by a projection on said pin, so that movement of said block as aforesaid first advances said pin to unseal said bottle and then positively retracts said pin from the latter, said bottle receiving socket being in permanent communication with said appliance by way of a nonreturn valve in said inner body part.

The block preferably has an external projection engaging a longitudinal slot in a cover plate which retains it in said housing, said slot being "waisted" so as to resist accidental displacement of said block in such manner as to cause unsealing of said bottle.

3,547,166
CHUCK ATTACHMENT FOR SABRE SAWS
Edmund C. Dudek, St. Charles, Ill., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 3, 1968, Ser. No. 742,228
Int. Cl. B27b *19/08*
U.S. Cl. 143—68 **3 Claims**

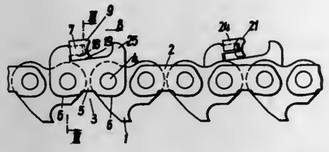
This disclosure relates to a chuck attachment for a sabre saw having a 360°swivel saw bar adapted to be locked in selected angular positions. A saw blade is mounted to the chuck in one of two positions, both offset from a linear axis along which the saw bar reciprocates. In one position, the saw blade is mounted for cutting in back of the axis of the saw bar which may be either locked against swiveling or free to swivel about said axis in the other position the blade is

mounted to cut in front of said axis, such as for flush cutting by locking the saw bar in a position 180 °from the straight cutting position.



The chuck attachment may also include a cant adjustment for setting the blade parallel to the axis of reciprocation or at selected angles with respect thereto.

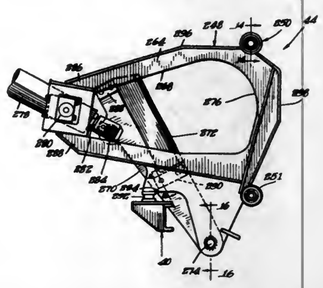
3,547,167
CUTTING TOOTH LINK
Adolf Raetz, Korb im Remstal, Germany, assignor to Andreas Stihl Machinenfabrik, Neustadt-Waiblingen, Germany
Filed Nov. 2, 1967, Ser. No. 680,081
Claims priority, application Germany, Nov. 25, 1966, ST 26156
Int. Cl. B27b *33/14*
U.S. Cl. 143—135 **13 Claims**



A cutting tooth link having a first section forming an elongated link body with a bottom surface for guidance in a guiding rail, a second section arranged at one end portion of said first section and extending in a direction transverse to the longitudinal direction and approximately in the plane of said first section and away from said bottom surface, and a stud protruding from said second section and extending in spaced relationship to and in the longitudinal direction of said first section while said two sections and said stud form a single integral piece with each other, said stud extending into a cutting body and having the latter firmly connected to said stud.

3,547,168
TIMBER HARVESTING APPARATUS
Thomas N. Busch, Daphne, Ala., assignor to The Youngstown Sheet and Tube Company, Youngstown, Ohio, a corporation of Ohio. by mesne assignments
Continuation of application Ser. No. 564,836, July 13, 1966, now abandoned , which is a division of application Ser. No. 319,373, Oct. 28, 1963, now Patent No. 3,269,436, dated Aug. 30, 1966. This application June 26, 1969, Ser. No. 841,674
Int. Cl. A01g *23/08*
U.S. Cl. 144—3 **3 Claims**

In an apparatus for harvesting trees, a bucking shear comprising a first fixed jaw member defining a generally central opening therethrough having a predetermined marginal portion, a second jaw member having a cutting edge pivotally connected with the first jaw member and movable for traversing said opening and toward said marginal portion for severing a tree extending through said opening, hydraulically operated cylinder and piston means connected between said jaw members for actuating said second jaw member, substantially spaced support fittings fixed to said first jaw member and supporting said bucking shear, said fittings being disposed substantially in a common vertical plane extending



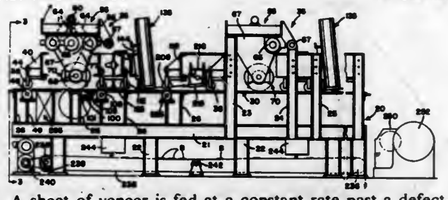
perpendicular to the plane in which said second jaw moves in traversing said opening, said common vertical plane being adjacent said marginal portion against which a tree is forced by said second jaw member during a severing operation, said fittings supporting the bucking shear for pivotal movement about a substantially vertical axis passing adjacent said marginal portion for minimizing movement of said marginal portion relative to a tree during a tree-severing operation.

3,547,169
JAW LOCK FOR AUTOMATIC SCREWDRIVER
Kenneth R. Bangerter, Ithaca, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Nov. 29, 1968, Ser. No. 779,968
Int. Cl. B27b *17/00*
U.S. Cl. 144—32 **5 Claims**



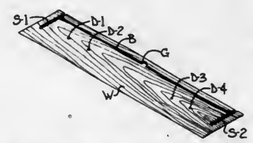
An automatic screwdriver having a head carrying a pair of pivoted jaws and adapted to periodically feed screws into the head between the pivoted jaws as they are needed. A U-shaped fork is pivoted on the side of the head to swing over the forward ends of the jaws for locking the jaws to prevent them from opening during the delivery of a screw. A mechanical leg is pivoted on the fork and extends forward of the head for engaging a work surface to swing the fork out of its locking position during the final stages of driving the screw. The fork is resiliently biased toward its locking position.

3,547,170
METHOD AND APPARATUS FOR PATCHING VENEER
Carl W. Maxey, Everett, Kenneth M. Cage, Marysville, and Egon H. Bauer, Everett, Wash., assignors to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio
Filed July 17, 1968, Ser. No. 745,462
Int. Cl. B27d *5/00*
U.S. Cl. 144—310 **15 Claims**



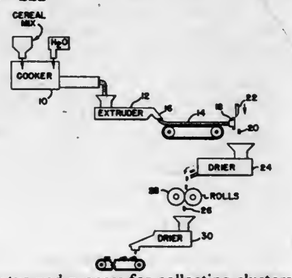
A sheet of veneer is fed at a constant rate past a defect-sensing device and then successively through a series of spaced patching stations each having a rotary die cutter, a defect remover and a patch inserter which are controlled by the sensing device and are effective to replace a defect with a patch at any point across the width of the sheet without stopping it.

3,547,171
WOODWORKING METHOD
Jimmy R. Jacumin, P.O. Box A, Icard, N.C. 28666
Original application Dec. 13, 1968, Ser. No. 783,651, Patent No. 3,483,904. This application June 16, 1969, Ser. No. 833,465
Int. Cl. B27f *1/00*
U.S. Cl. 144—325 **11 Claims**



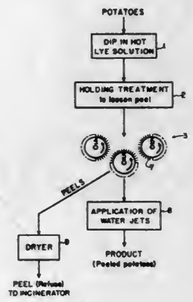
Workpieces such as drawer front blanks for French dovetail style furniture drawers are formed by an apparatus and in accordance with a method in which timed, controlled, movement between a workpiece and a plurality of cutting means quickly and economically forms grooves in the workpiece as for accommodating drawer sides and a drawer bottom. Boring means are mounted on a common supporting frame with the cutting means and cooperate for forming hardware receiving holes in the workpiece in controlled timed relation to the formation of grooves therein.

3,547,172
APPARATUS FOR COLLECTING AND DISINTEGRATING CLUSTERS OF MATERIAL
Jagmohan Batra, Calumet Park, Ill., assignor to General Mills, Inc., a corporation of Delaware
Filed Mar. 15, 1968, Ser. No. 713,364
Int. Cl. B02c *13/06*
U.S. Cl. 146—222 **9 Claims**



An apparatus and process for collecting clusters of loosely bound particles from a mass of material, disintegrating at least some of the clusters into individual pieces, and removing those clusters whose weight and/or texture exceeds prescribed requirements.

3,547,173
PROCESS FOR PEELING POTATOES
Robert P. Graham, El Cerrito, Charles C. Huxsoll, San Pablo, Marcus R. Hart, Concord, and Merle L. Weaver, Martinez, Calif., assignors to The United States of America as represented by the Secretary of Agriculture
Filed Dec. 18, 1968, Ser. No. 784,746
Int. Cl. A23n *7/02*
U.S. Cl. 146—231 **2 Claims**



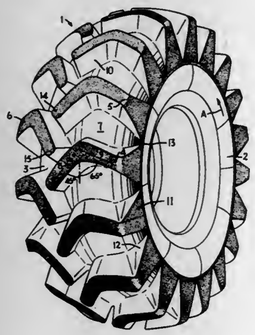
Potatoes are dipped in hot lye solution, held under controlled conditions to attain loosening of the peel and the major part of the peel is then removed by dry brushing. A prime advantage of the procedure is that the waste—the removed peel—is in a solid condition and easily disposed by burning.

3,547,174
PNEUMATIC TIRE
Iain C. Mills, Birmingham, England, assignor to The Dunlop Company Limited, London, England, a British company
Filed July 1, 1968, Ser. No. 741,439
Claims priority, application Great Britain, July 12, 1967, 32056/67
Int. Cl. B60c *3/00, 11/04*
U.S. Cl. 152—209 **3 Claims**



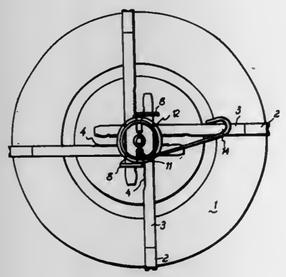
A pneumatic tire with improved cornering capacity and a reduced capacity to generate heat comprising a carcass and a tread having a pattern formed thereon, one-half of which to one side of a circumferential line is substantially similar to the pattern formed on the other side of the line and the said line being axially offset from the symmetrical midcircumferential plane of the carcass of which the following is a specification.

3,547,175
TIRE COVER
Henri Verdier, Puy-de-Dome, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed Nov. 13, 1968, Ser. No. 775,335
Claims priority, application France, Nov. 15, 1967, 1893
Int. Cl. B60c 11/08
U.S. Cl. 152—209 9 Claims



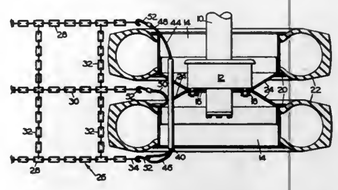
A tire cover for running on loose and soft ground is formed with V-shaped bars opening in the forward direction and arranged in a staggered pattern around either side of the median plane. The bars are so shaped and positioned as to compress and dry wet soil and automatically to expel, when the tire is run momentarily in the reverse direction, any soil that may be caked between them.

3,547,176
TIRE TRACTION DEVICE
Arne Kroken and Egil Hyggen, Oslo, Norway, assignors to Christiania Spigerverk, Oslo, Norway
Filed Sept. 27, 1968, Ser. No. 763,339
Claims priority, application Norway, Oct. 4, 1967, 167,834
Int. Cl. B60c 27/02
U.S. Cl. 152—218 6 Claims



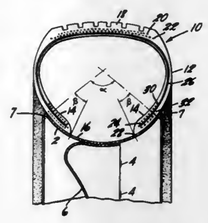
A device for fitting and fixing gripping shoes on vehicle wheels, in which four gripping shoes are fitted at the one end of their respective bars, which bars, after being fitted onto the wheel form a cross, and the other ends of which are toothed and are slidably suspended in their longitudinal directions relative to a housing centrally situated with respect to the wheel and movable with the help of a gear wheel, rotatable in the housing, which engages with the teeth on the arms and which is rotatable by means of an operating component which may be locked to one of the bars with the help of a locking component, wherein a resilient element is fitted between the locking device and the operating component.

3,547,177
TIRE CHAIN APPLICATOR FOR DUAL WHEELS
Irvin L. Valley, 1515 Narrows Drive, Tacoma, Wash.
Filed Nov. 22, 1968, Ser. No. 778,150
Int. Cl. B60c 27/22
U.S. Cl. 152—220 8 Claims



The tire chain applicator has a tubular handle having open ends and having an aperture in its wall between the ends. A line slidably extends through the tubular handle and has a portion thereof projecting from each end of the handle as well as from an aperture between the ends of the handle. Hook means are provided on the ends of the projecting line portions for connection to the ends of a tire chain to be pulled onto the dual wheel. Preferably, the line comprises a flexible cable coated with a plastic or the like to provide protection for the line as well as to increase its surface lubricity.

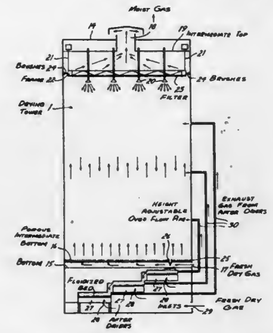
3,547,178
PNEUMATIC TIRES AND ADAPTABLE RIMS THEREFOR
Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed Oct. 11, 1967, Ser. No. 674,566
Claims priority, application France, Oct. 13, 1966, 79,940
Int. Cl. B60c 3/00
U.S. Cl. 152—381 13 Claims



An improved mount for pneumatic tires on vehicle wheel rims wherein the rim has a concave surface having an angle of opening not exceeding approximately 150° of an arc of a circle and complementary surfaces at the inner edges of the tire overlapping the concave surface of the rim by an angle of at least 10°.

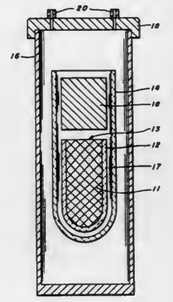
3,547,179
APPARATUS FOR MANUFACTURE OF HEAT-SENSITIVE PRODUCTS
Peter Hussmann, Florence, Italy, assignor to Uta-Patentverwaltungsgesellschaft GmbH, Munich, Germany, by mesne assignment
Original application Dec. 6, 1965, Ser. No. 511,650, now Patent No. 3,415,665, dated Dec. 10, 1968, which is a continuation of application Ser. No. 735,299, May 14, 1958, now abandoned, which is a continuation of application Ser. No. 785,795, Jan. 9, 1959, now abandoned, which is a continuation of application Ser. No. 87,808, Feb. 8, 1961, now abandoned. Divided and this application Mar. 11, 1968, Ser. No. 719,287
Int. Cl. B01d 1/18
U.S. Cl. 159—4 5 Claims

A tower for converting a wet material into a dry powder having a spray beneath its upper wall to deliver the liquid material into the tower for descent therein, a false porous bottom above the regular bottom wall, means to admit dehumidifying gas in the space between the porous false and regular bottom walls for ascent through the porous false bottom countercurrent to the descent of the wet material, means to vent the moisture-laden gas from the top of the tower, and



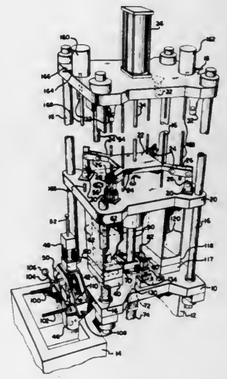
means to remove the dried powder from beneath the false bottom including a plurality of cascading interconnected fluidized bed afterdriers arranged beneath the porous false bottom, the latter having an overflow pipe discharging into the uppermost afterdrier, the dehumidifying gas passing upwardly through the afterdriers.

3,547,180
PRODUCTION OF REINFORCED COMPOSITES
Charles Norman Cochran, Oakmont, and Richard C. Ray, Lower Burrell, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 26, 1968, Ser. No. 755,089
Int. Cl. B22d 17/26
U.S. Cl. 164—61 6 Claims



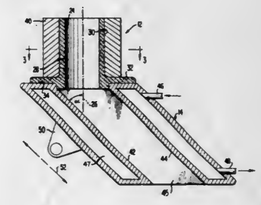
Alumina whiskers or other fibrous reinforcing agents can be completely infiltrated by an aluminum matrix without the necessity for special whisker precoating operations. The infiltration is accomplished by packing the fibrous skeleton material into a mold open at one end which, in turn, is placed in an impervious alumina housing likewise open at one end. A body of the aluminum infiltrant metal is positioned inside the alumina housing in line with the opening in the mold. The alumina housing is evacuated at a temperature of at least 500° C. to facilitate outgassing of the aluminum and the contents of the mold. The temperature is then increased to at least 950° C. and gas pressure is applied to the molten aluminum metal to introduce such under pressure into the evacuated mold opening to infiltrate the fibrous skeleton therein. Finally, the material within the mold is solidified progressively moving in a direction opposite that in which the molten metal moved to infiltrate the fibrous skeleton.

3,547,181
CASTING APPARATUS
Dong Sing Lewis, Toledo, Ohio, assignor to Gerity-Schultz Corporation, Toledo, Ohio, a corporation of Ohio
Filed Apr. 19, 1968, Ser. No. 722,692
Int. Cl. B22d 31/00, 5/02
U.S. Cl. 164—265 10 Claims



A die casting machine having a rotatable turntable structure containing a plurality of spaced apart cast article supporting spud members extending generally radially outwardly from the turntable to cooperate with a pair of cooperating dies. The cast article is cast onto and supported by the spud member which is moved to selective positions away from the dies and is also rotated about the axis of the spud member subsequent to its movement away from the casting station.

3,547,182
CONTINUOUS CASTING APPARATUS
Robert F. Roelofs, Grosse Pointe Farms, Mich., assignor to National Steel Corporation, a corporation of Delaware
Filed Feb. 21, 1968, Ser. No. 707,236
Int. Cl. B22d 11/10
U.S. Cl. 164—281 11 Claims

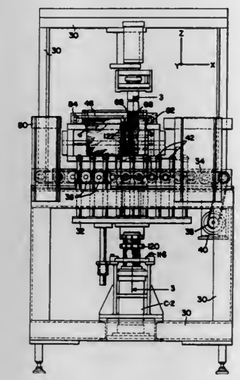


Continuous casting apparatus of the closed pouring type including a tundish removably mounted on the mold. The tundish comprises a refractory conduit into which molten metal is teemed to provide a body of quiescent molten metal above the mold entry and the cross-sectional areas of the refractory conduit and the mold are generally equal to reduce heat loss. A body of exothermic material surrounds the refractory conduit and the exothermic material is burned during the casting operation to block heat loss from the teemed molten metal.

3,547,183
MACHINE FOR CASTING BATTERY INTERCELL CONNECTORS AND TERMINAL POSTS

William R. Clingenpeel, Middleburg Heights, Charles L. Cain, Cleveland, Philip C. Hungerford, Jr., Cleveland Heights, and Robert R. Hayes, Euclid, Ohio, assignors to ESB Incorporated, Philadelphia, Pa., a corporation of Delaware

Filed June 5, 1967, Ser. No. 643,574
Int. Cl. B22d 17/24
U.S. Cl. 164—333 11 Claims

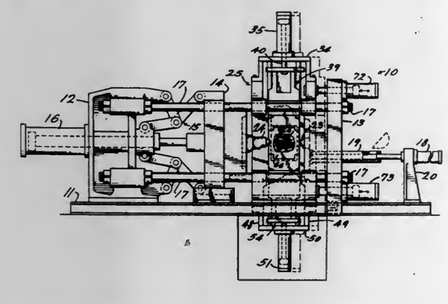


A machine for casting intercell connectors through the partition of open-top battery containers. The machine may also be used to cast intercell connectors which go over the tops of the partitions, and to cast battery terminal posts.

3,547,184
DIE CASTING MACHINE

Byron W. Kock and William D. Navarro, Toledo, Ohio, assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

Filed Nov. 12, 1968, Ser. No. 774,698
Int. Cl. B22d 17/10, 17/22
U.S. Cl. 164—343 11 Claims

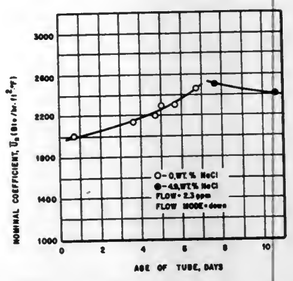


A die casting machine for making highly complex parts which require cores to be moved into position from several sides. The machine is characterized by a central member disposed between a stationary platen and a movable platen of a cold chamber die casting machine. The central member is separately movable axially of the machine with respect to both the stationary platen and the movable platen. Upper and lower plunger assemblies are mounted on the central member and carry die parts which cooperate with each other and with die parts carried by the stationary and movable machine platens to form a complete die cavity.

3,547,185
METHOD FOR PROMOTING DROPWISE CONDENSATION ON COPPER AND COPPER ALLOY CONDENSING SURFACES

David M. Eissenberg, Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission.

Filed June 20, 1969, Ser. No. 826,102
Int. Cl. F28f 13/18
U.S. Cl. 165—1 5 Claims

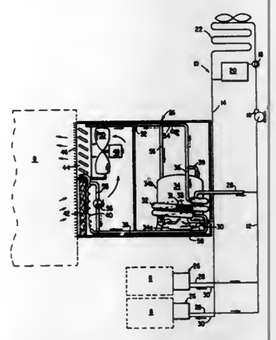


A method for promoting dropwise condensation on copper and copper alloy condensing surfaces is provided. Clean metallic surface finishes are developed and preserved on which steam condensate forms in droplets as a result of maintaining a concentration of a few parts per million of CO_2 at the condensing surface. The CO_2 may be carried by the condensing vapor or injected directly into the condensing chamber.

3,547,186
HEATING AND COOLING SYSTEM

William L. McGrath, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Feb. 19, 1969, Ser. No. 800,524
Int. Cl. F24f 3/00
U.S. Cl. 165—22 7 Claims

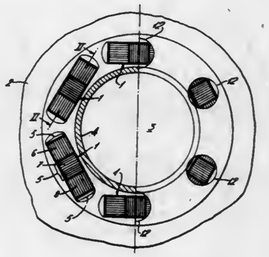


A heating and cooling system for controlling the temperature of air circulating within a plurality of separate areas located within a common enclosure to provide comfort conditioning to occupants of the areas comprising a plurality of independently operable self-contained air-conditioning units including a refrigeration system comprising a motor-driven compressor, a first heat exchanger, a second heat exchanger, and expansion means, the air-conditioning unit alternatively operable to either heat or cool the area being served. Further included in the heating and cooling system are means to heat or cool a circulating heat exchange medium before it is supplied to the first heat exchanger. The temperature of the heat exchange medium is regulated so a unit may provide either heating or cooling, depending upon the desires of a person in the area being served by the unit. During the heating cycle and at all times when the temperature of the heat exchange medium exceeds a predetermined point, the compressor will be inoperable and the heat necessary to warm the air circulating in the area is transferred directly to the refrigerant for rejection to the air.

3,547,187
HEAT EXCHANGERS

Reginald Kenneth Cook, Preston, Weymouth, Dorset, and Samuel Brittan Hosegood, Arne, Wareham, Dorset, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed May 20, 1966, Ser. No. 551,797
Claims priority, application Great Britain, June 15, 1965, 25,317/65
Int. Cl. F28f 7/00
U.S. Cl. 165—76 8 Claims



An arrangement of tubes in a tube bank wherein the tubes are grouped into generally flat arrays, groups of parallel arrays forming a stack wherein the arrays of one stack are perpendicular to the arrays of another stack. The tubes can be inserted individually, in sequence, through a relatively small opening of the chamber wherein, in the operating position of the tube bank the main heat transfer parts of the tube occupy a large cross-sectional area of the chamber while inlet and outlet parts of the tubes are bundled together in line with the small opening.

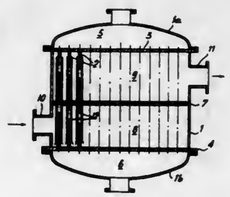
ERRATUM

For Class 165—81 see:
Patent No. 3,547,202

3,547,188
TUBE HEAT EXCHANGER WITH LIQUID HEAT CARRIER

Hans Kuhnlein, Fullinsdorf, Switzerland, assignor to Hch. Bertrams Aktiengesellschaft, Basel, Switzerland

Filed June 19, 1968, Ser. No. 738,339
Claims priority, application Switzerland, June 20, 1967, 8904/67
Int. Cl. F28f 13/12, 9/24; F28d 7/00
U.S. Cl. 165—109 8 Claims

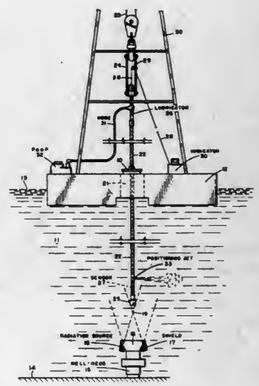


A tube heat exchanger with liquid heat carrier includes a cylindrical casing having a pair of partitions, one adjacent each end, defining an upper chamber, a lower chamber, and an intermediate chamber. Inner tubes for conducting fluid to be heated or cooled extend between and through the partitions to interconnect the upper and lower chambers.

3,547,189
LOCATING UNDERWATER WELLS

Walter J. Bielstein and Ronald L. Fowler, Houston, Tex., assignors to Esso Production Research Company

Filed Apr. 6, 1967, Ser. No. 628,974
Int. Cl. E21b 7/12, 47/00
U.S. Cl. 166—.5 14 Claims

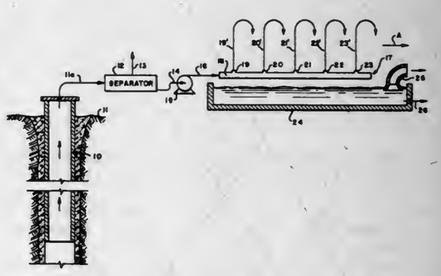


An underwater wellhead is located from a floating vessel by providing a radiation source on the underwater wellhead and a radiation detection means in a drill string lowered from the vessel such that the drill string is moved responsive to radiation picked up by the detection means to engage the drill string with the wellhead.

3,547,190
APPARATUS FOR TREATING WASTE WATER ASSOCIATED WITH HYDROCARBON PRODUCTION

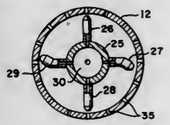
Leonard Louis Wilkerson, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed June 13, 1968, Ser. No. 736,739
Int. Cl. B01d 19/00; E21b 43/00
U.S. Cl. 166—75 1 Claim



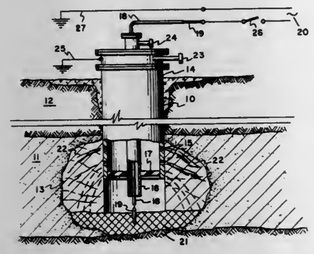
Method and apparatus for treating waste water associated with hydrocarbon production by steam or hot water secondary recovery methods wherein residual hydrogen sulfide gas concentrations in the water are substantially removed therefrom by spraying the water vertically into the air and the temperature of the water is lowered to a point whereby it will not upset the ecological balance of surrounding bodies of water.

3,547,191
ROTATING JET WELL TOOL
Raymond A. Malott, Fullerton, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Dec. 10, 1968, Ser. No. 782,562
Int. Cl. E21b *43/00*
U.S. Cl. 166—223 2 Claims



Apparatus for introducing fluent materials into a well borehole including conduit means providing a flow path for the materials being introduced into the well, a housing means rotatably mounted on said conduit means and defining an interior in communication with said flow path, and a plurality of jet nozzles fixedly positioned on said housing means, and providing a path of egress for said material from the interior of said housing means with at least one of said jet nozzles having a configuration whereby egress of said material serves to rotate the housing means.

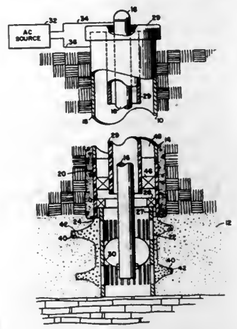
3,547,192
METHOD OF METAL COATING AND ELECTRICALLY HEATING A SUBTERRANEAN EARTH FORMATION
Edmond L. Claridge and Michael Prats, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Apr. 4, 1969, Ser. No. 813,502
Int. Cl. E21b *33/138*, *43/20*, *43/24*
U.S. Cl. 166—248 10 Claims



A method of electrically heating a subterranean earth formation by metallizing a portion of the formation and electrically connecting a source of electrical energy to the metallized portion. The formation may be metallized by electroless metal plating and/or by introducing liquid metal. An amount of electrical current sufficient to produce heat is flowed through the metallized portion of the subterranean earth formation. Fluid may be injected while the current is being applied.

3,547,193
METHOD AND APPARATUS FOR RECOVERY OF MINERALS FROM SUB-SURFACE FORMATIONS USING ELECTRICITY
William G. Gill, Corpus Christi, Tex., assignor to The Electrothermic Co., Corpus Christi, Tex., a corporation of Nevada
Continuation-in-part of application Ser. No. 752,112, July 10, 1968, now abandoned. This application Oct. 8, 1969, Ser. No. 868,277
Int. Cl. E21b *43/24*
U.S. Cl. 166—248 36 Claims

There is disclosed a method and apparatus in which electrical current is caused to flow through water in a mineral bearing, subsurface formation to produce heating of the mineral and promote the recovery thereof. An electrode is established in the formation which extends into the formation from the bore hole, and which has a greater effective diameter than the diameter of the bore hold. Electrical current is caused to flow from the electrode through the formation to heat the mineral to be recovered. One specific electrode disclosed is formed of shot or pellets packed into the formation and another electrode disclosed is a collapsible member which extends into the formation.



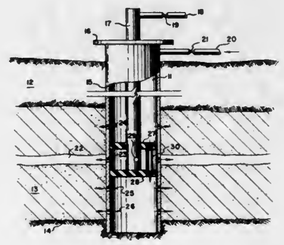
3,547,194
METHOD OF CLEANING GRAVEL PACKED, GRAVEL DEVELOPED, AND DRILLED IGNEOUS WELLS
John Theodore Morine, Arlington, Mass., assignor to D. L. Maher Co., Woburn, Mass., a corporation of Massachusetts
Filed Dec. 6, 1968, Ser. No. 781,947
Int. Cl. E21b *43/27*, *43/28*
U.S. Cl. 166—279 10 Claims

Methods of cleaning and treating gravel packed, gravel developed, and drilled igneous rock wells, the cleaning being effected with a hydrochloric and hydroxy-acetic acid mixture, by surging an acid bacterircide through the screened end of the well and parts of the aquifer first in one vertical direction and then the other, the bactericide preferably being the acid mixture. The cleaning is desirably followed with a copper sulfate wetting agent mixture to retard the growth of iron bacteria.

3,547,195
PYROLYTIC PLUGGING OF OIL-BEARING FORMATIONS BY UNDERGROUND COMBUSTION
Lloyd E. Elkins, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed June 19, 1969, Ser. No. 834,900
Int. Cl. E21b *43/24*
U.S. Cl. 166—261 8 Claims

In an underground forward combustion process for recovering petroleum from earth formations, more uniform progress of the combustion front through a formation over a wide area is obtained by injecting a water solution of sugar after the combustion operation has been started. The sugar undergoes pyrolysis forming a cohesive solid mass when it becomes heated near the combustion front. The oxidizing gas tends to char this solid, further increasing the plugging of channels and thus providing a more uniform progress of the combustion front. Other organic materials can be used in place of sugar if they undergo pyrolysis to deposit cohesive solids.

3,547,196
METHOD FOR FRACTURING A SUBTERRANEAN EARTH FORMATION
Philip J. Closmann, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Jan. 21, 1969, Ser. No. 792,678
Int. Cl. E21b *43/26*
U.S. Cl. 166—281 9 Claims

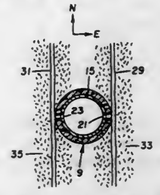


A method for forming a generally horizontal fracture in a subterranean earth formation interval of relatively homogeneous low permeability by reducing the permeability of a radially extensive zone in the subterranean earth formation interval to a value less than that of an underlying relatively permeable horizontal layer in which the permeability is left unchanged. Fluid is pumped into the relatively permeable layer bounded by the zone in which the permeability was reduced and the subterranean earth formation is fractured by increasing the pressure on the fluid being pumped into the relatively permeable layer to a pressure that exceeds both the overburden and fracture pressure of the relatively permeable layer of the formation interval.

3,547,197
METHOD OF ACIDIZATION
Arthur A. Chevalier, David M. Mathews, Cody, Wyo., and William E. Rourke, Anchorage, Alaska, assignors to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio
Filed May 9, 1969, Ser. No. 823,491
Int. Cl. E21b *33/13*, *43/27*
U.S. Cl. 166—284 14 Claims

A method of acidizing a subterranean formation penetrated by a well bore having a casing with perforations therein in fluid communication with the formation, the method comprising successively injecting into the formation at least two series of slugs, the first series consisting of a slug of acid followed by about an equal volume of water and the water followed by sufficient number of sealer balls (having sufficient diameter to seal the perforations) to seal the more permeable perforations within the casing; the second series repetitive of the first, except there are sufficient number of sealer balls to seal the lesser permeable perforations; and then injecting a slug of acid followed by sufficient water to displace the acid out into the formation. The total volume of acid can be at least 30 gallons per vertical foot of formation to be treated. Also, the number of perforations can be up to about four perforations per vertical foot of formation to be treated.

3,547,198
METHOD OF FORMING TWO VERTICALLY DISPOSED FRACTURES FROM A WELL PENETRATING A SUBTERRANEAN EARTH FORMATION
Marion L. Slusser, Arlington, Tex., assignor to Mobil Oil Corporation, a corporation of New York
Filed July 3, 1969, Ser. No. 838,973
Int. Cl. E21b *43/26*
U.S. Cl. 166—284 10 Claims

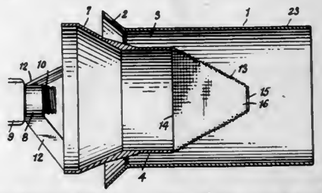


This specification discloses a method of forming two vertically disposed fractures communicating with a well equipped with a casing penetrating a subterranean earth formation having a known preferred fracture orientation. Openings are formed through the well on opposite sides of the casing located such that they lie in a vertical plane which extends transversely of the fracture orientation. Hydraulic pressure is then applied through the openings to form a fracture at the openings on one side of the well. These openings are then temporarily sealed by ball sealers and hydraulic pressure applied to form a fracture at the openings on the other side of the well. The fractures may be acidized.

3,547,199
METHOD FOR COMBATING WATER PRODUCTION IN OIL WELLS
H. R. Froning, Jack L. Shelton, and Syed H. Raza, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed Nov. 19, 1968, Ser. No. 777,135
Int. Cl. E21b *43/25*
U.S. Cl. 166—305 15 Claims

This invention is directed to a method for shutting off or decreasing the flow of water into an oil well. The water flow may be commingled with oil production from the formation or unassociated with it. According to the invention, a solution of an oil-sensitive water soluble foaming agent is first injected into the zone of interest followed by a spacer liquid which serves to push the foaming agent solution farther out into the formation. Thereafter a gas such as flue gas, natural gas, or the like, is injected which fingers its way into the foaming agent solution to form a foam bank. Since the foaming agent is oil sensitive it tends to produce foam substantially only in those sections of the formation that primarily contain water. The presence of foam results in an effective reduction or shutoff of the water flow. Over a period of time the foam may degenerate but can be reformed by repeating the above cycle.

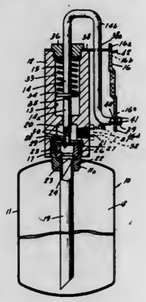
3,547,200
FOAM DEVICE FOR FOG NOZZLES
Norman C. Hout, 4841 NW. 10th Terrace, Fort Lauderdale, Fla.
Filed May 15, 1969, Ser. No. 824,834
Int. Cl. A62c *35/00*
U.S. Cl. 169—15 4 Claims



An attachment for fog nozzles of the character employed by firemen comprising, a pair of concentric tubes or sleeves

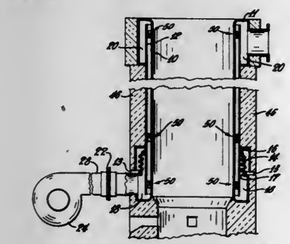
disposed in spaced relation, the innermost tube or sleeve being spaced from the outer tube and said innermost sleeve being shaped to form a primary Venturi passage; the spacing between the two tubes constituting a secondary Venturi passage. A coupling for a hose and an attachment for a fog nozzle is located centrally and at the mouth of the innermost tube. The outermost tube has a portion projecting beyond an end of the innermost tube and said portion contains a single frustoconical foraminous screen which has its larger end secured to the forward end of the innermost sleeve. Said screen has a central opening at its forward end that is reinforced by a ring or annulus to constantly maintain an opening of uniform diameter at the forward end of the screen.

3,547,201
FIRE EXTINGUISHER
Mark E. Balmes, Sr., Northbrook, Ill., assignor to General Fire Extinguisher Corporation, Northbrook, Ill., a corporation of Delaware
Filed Dec. 14, 1967, Ser. No. 690,643
Int. Cl. A62c *35/02*
U.S. Cl. 169—26 **3 Claims**



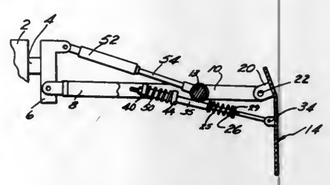
A fire extinguisher having a shell for receiving pressurized fire extinguishing material therein. A housing or body mounted on the shell and provided with a discharge orifice therein and a passage at an upper end. A rupturable membrane or disk is provided between the shell and the orifice for containing the fire extinguishing material within the shell. A plunger is mounted in overlying relation with regard to the rupturable membrane and is exteriorly connected to a fusible link disposed at one side of the housing or body in adjacency thereto. Means is provided for supporting the plunger at the side of the housing and for holding the actuator in a cocked position so that upon fusing of the fusible link the plunger can be released and moved by actuating means relative to the housing into piercing contact with the rupturable membrane to enable the fire extinguishing material to be released from the shell.

3,547,202
COAXIAL HEAT EXCHANGE APPARATUS WITH SPACERS
Winton A. Ticknor, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Jan. 15, 1969, Ser. No. 791,271
Int. Cl. F23l *15/04*
U.S. Cl. 165—81 **10 Claims**



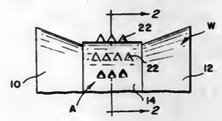
An embodiment disclosed herein illustrates a recuperator having an inner tube and means forming an air passage around the inner tube. Means are provided for maintaining a predetermined spacing between the passage-forming means and the inner tube which include a first element extending into the passage from one of the passage-forming means and inner tube and having a hook means formed thereon, and a second element extending into the passage from the other of said passage-forming means and inner tube and having an opening formed therein to receive and restrain or limit movement of the hook means.

3,547,203
BACK BLADE ASSEMBLY AND CONTROL THEREFOR
Edward J. Jackoboice, Grand Rapids, Mich., assignor to Monarch Road Machinery Company, Grand Rapids, Mich.
Filed Nov. 1, 1967, Ser. No. 679,864
Int. Cl. A01b *61/04*
U.S. Cl. 172—500 **8 Claims**



This disclosure relates to a back blade assembly and a control system therefor. The blade is attached to the back of a vehicle through a rigid support which can be H-shaped, for example. This support is rotatably attached to the truck and to the blade so that the blade can be raised and lowered. A second support means is rotatably attached to the rigid support but reciprocatable at the attachment through this support and is rotatably attached to the blade below the attachment of the first support. Power means, such as a hydraulic cylinder are provided to raise and lower the blade. A hydraulic cylinder control system is provided to raise and lower the blade. The control system employs a modified four-way valve which actuates the raising and lowering of the blade and also has a means to maintain a predetermined pressure on the blade less than that pressure supplied when raising the blade.

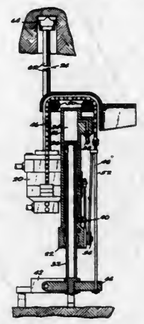
3,547,204
MULCHING ATTACHMENT
Era E. Urban, R.R. 01, Bluffton, Ohio
Filed Nov. 4, 1968, Ser. No. 773,169
Int. Cl. A01b *21/02*
U.S. Cl. 172—538 **9 Claims**



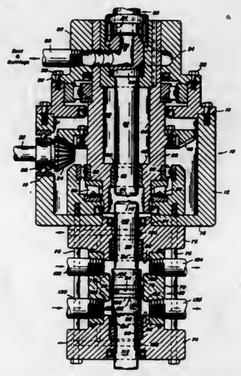
A mulching attachment for a press wheel of a planter or the like is adapted to be mounted between the beveled rims of the wheel. The attachment includes a series of mulching teeth which work the soil as the press wheel passes thereover and thus prevent crusting over or other hardening of the soil.

3,547,205
ROTARY PERCUSSIVE DRILL CONTROL
John L. Nagely, Sidney, Ohio, assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed June 20, 1968, Ser. No. 738,675
Int. Cl. B25d *9/04*
U.S. Cl. 173—105 **9 Claims**

A control system for a hydraulically actuated rock drill particularly adapted for stoper or horizontal drilling either by percussive action, or by rotary action, or by a combined rotary-percussive action, and wherein the drill is also provided with hydraulically powered feed means.



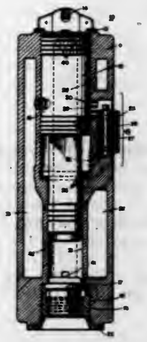
3,547,206
ROTARY PERCUSSION DRILL HAVING A HYDRAULICALLY ACTUATED PERCUSSION DEVICE
Albert Phillips, 465 Kiwanis Ave., Morgantown, W. Va.
Filed Mar. 14, 1969, Ser. No. 807,388
Int. Cl. E21c *1/12*
U.S. Cl. 173—105 **8 Claims**



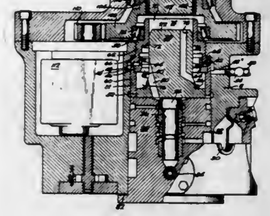
The percussive forces are imparted to the drill rod by a hydraulically actuated reciprocating piston housed in a cylinder having fluid openings on opposite sides of the piston. Fluid under pressure is supplied alternately to the respective openings to reciprocate the piston in the cylinder from a multivalve control device. A timing mechanism is included in the multivalve control device to open and close the valve ports within the valve to supply pressurized fluid alternately to the openings in the cylinder on opposite sides of the piston and to alternately vent the pressurized fluid from the cylinders. Pressure accumulators are employed as surge devices for excess fluid supplied to the cylinder for each stroke of the piston.

3,547,207
PERCUSSION HAMMER
Henry G. Warrington, Palm Beach, Fla., assignor to Vulcan Iron Works, Inc., Chattanooga, Tenn., a corporation of Illinois
Filed Nov. 7, 1968, Ser. No. 774,082
Int. Cl. E02d *7/02*
U.S. Cl. 173—127 **4 Claims**

There is provided a submersible percussion hammer of the type used for underwater pile driving and the like, including a differential diameter piston defining a ram reciprocally positioned within a differential diameter cylinder. An anvil is mounted for limited movement in on one end of the cylinder positioned in the path of the ram to receive percussion blows therefrom. The anvil is hermetically sealed with the cylinder so as to form a watertight device. Means are provided for controlling the exhaust and inlet of the working fluid into the cylinder to cycle the ram through power and return strokes.



3,547,208
PERCUSSIVE TOOL
James C. Swain and David L. Thomas, Columbus, and John L. Nagely, Sidney, Ohio, assignors to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed May 17, 1968, Ser. No. 730,155
Int. Cl. B25d *9/00*
U.S. Cl. 173—136 **19 Claims**

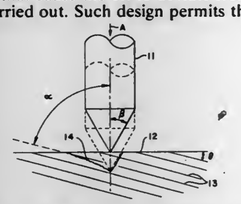


A percussive rock drilling device operable by fluid pressure and having a striker element for imparting blows to a drill steel chuck, the striker being provided with cushioning means for absorbing shock in the event of overtravel and the chuck being supported for reciprocation and rotation on bearings which are protectively isolated outside of dust evacuation zone.

3,547,209
DEVIATION CONTROL BIT AND METHOD
Roy T. McLamore, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Jan. 6, 1969, Ser. No. 789,277
Int. Cl. F21b *7/04*; F21c *1300*
U.S. Cl. 175—61 **7 Claims**

Method and apparatus for controlling natural hole deviation of a drill spring and bit wherein the bit teeth wedges are designed to eliminate or substantially reduce the formation

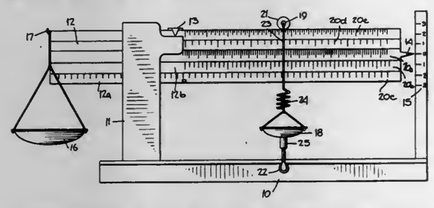
reactive forces that cause the bit to deviate from the vertical as drilling is carried out. Such design permits the use of substantially greater drilling weights than those utilized in prior art systems for a given bit type and formation hardness.



3,547,210
CALCULATING BALANCE

Herman L. Zimmerman, 257-36 144 Ave., Rosedale, N.Y. 11422

Filed Jan. 5, 1968, Ser. No. 695,919
Int. Cl. G01g *19/00*
U.S. Cl. 177—1 **2 Claims**

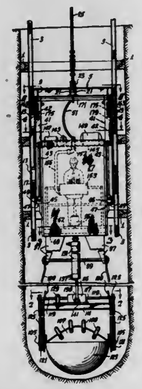


Measurement of one or more of such properties as length, number of units, area or volume of a material of uniform density is accomplished by balancing a sample of the material, the value of which sample in terms of the property to be measured is known, so that the measuring scale indicates this known value, balancing the material of uniform density whose property is to be measured, and reading the value of the property from the measuring scale.

3,547,211
MUCKING APPARATUS

Alfred W. Christensen, Box 2743, and Richard L. Marsing, Box 2876, Milan, N. Mex. 87020

Filed July 15, 1969, Ser. No. 841,803
Int. Cl. E21d *1/06*
U.S. Cl. 175—86 **19 Claims**



The bucket is rotatably mounted between the lower ends of a pair of links suspended for lateral, pivotal movement for a support depending from the rotatable turntable which forms the center portion of the floor of the operator's cage. The operator's cage which is movable vertically within the outer cage, carries a complete fluid supply and control system controlled from a control panel mounted on a swivel in the operator's cage for actuating the movable components of the apparatus.

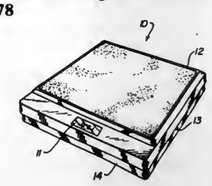
ERRATUM

For Class 177—1 see:
Patent No. 3,547,210

3,547,212
BATHROOM SCALE WITH OPTICALLY PROJECTED DIAL INDICATOR

Gerald M. Grusin, 400 W. Deming Place, Chicago, Ill., and James E. Logan, 6812 N. Ashland Ave., Chicago, Ill.

Continuation-in-part of application Ser. No. 713,361, Mar. 15, 1968, now Patent No. 3,512,594. This application Oct. 6, 1969, Ser. No. 864,068
Int. Cl. G01g *23/32, 23/26*
U.S. Cl. 177—178 **9 Claims**

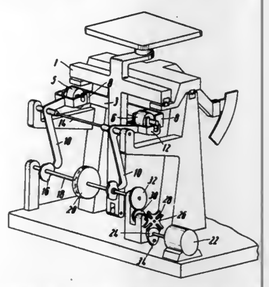


A bathroom scale having a projected dial indicator system of a construction such that the latter can be installed as a unitary unit.

3,547,213
BALANCE COMPRISING CAPACITY WEIGHTS

Erich Knothe, Gottingen-Geismar, Eckhard Billin, Gottingen, and Franz-Josef Meicher, Gottingen-Nikolausberg, Germany, assignors to Sertorius-Werke G.m.b.H. (und vormals Gottinger Piazisionswaagenfabrik G.m.b.H.)

Filed Apr. 25, 1969, Ser. No. 819,228
Claims priority, application Germany, Apr. 25, 1968, S 64,748
Int. Cl. G01g *1/28*
U.S. Cl. 177—237 **5 Claims**



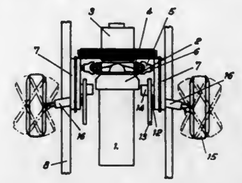
Shifting camshaft means are operable to selectively apply any of a plurality of capacity weights to and to remove it from a weighing mechanism. A self-locking stepping mechanism comprises an output member operatively connected to said shifting camshaft means and an input member operatively connected to a drive motor and operable thereby to impart predetermined successive stepping movements to said output member and arranged to idle in response to an operation of said motor between successive stepping movements.

3,547,214
FITTING OF ENGINE UNITS OF AUTOMOTIVE VEHICLE

Raymond Ravenel, Sceaux, France, assignor to Societe Anonyme Andre Citroen, Paris, France

Filed June 17, 1968, Ser. No. 737,549
Claims priority, application France, June 22, 1967, 3,372
Int. Cl. B60k *5/02, 17/30*
U.S. Cl. 180—42 **4 Claims**

An automotive vehicle comprising an engine block disposed on a chassis and lying longitudinally relative to said vehicle and at the same end of the chassis as a set of driving wheels. At least one gearbox output shaft is connectable to an adjacent wheel shaft by means of a chain or pinion gear

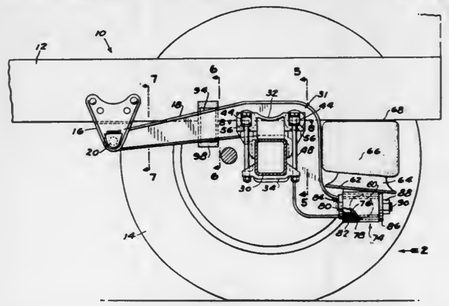


disposed in a casing secured to said chassis so that the axis of the output shaft of the gear is itself fixed relatively to the chassis. The chassis or casing supports a brake mechanism capable of acting on the output shaft.

3,547,215
AUTOMOTIVE VEHICLE SUSPENSION STRUCTURE

James L. Bird, Muskegon, Mich., assignor to Neway Equipment Company, Muskegon, Mich., a corporation of Michigan

Filed June 7, 1968, Ser. No. 735,275
Int. Cl. B60g *9/02*
U.S. Cl. 180—71 **9 Claims**

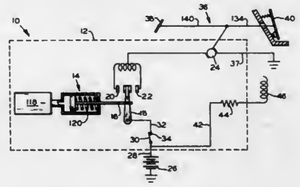


Ground-engaging wheels are suspended from a vehicle frame by an axle having connections with a pair of vertically swingable control arms adjacent the sides of the frame. Each connection comprises a pair of longitudinally spaced, laterally extending pins and rubber bushings which facilitate a limited amount of articulation at the connections. The connections and control arms are disposed outwardly of the sides of the frame. A beam interconnects the control arms and is provided with one or more rubber bushed joints which facilitate a limited amount of relative movement of the control arms. Air springs transmit load between the beam and vehicle frame. The beam transmits the spring load from a location beneath the frame outwardly to the control arms.

3,547,216
TOP SPEED LIMITING DEVICE

Robert Marie, Hagerstown, Ind., assignor to Dana Corporation, Toledo, Ohio, a corporation of Virginia

Filed May 31, 1968, Ser. No. 733,502
Int. Cl. B60k *31/00*
U.S. Cl. 180—107 **10 Claims**

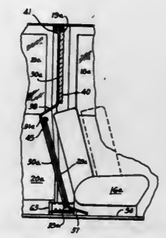


An upper speed limiting governor for vehicle speed regulation is provided which is essentially tamper proof since speed sensing is accomplished by pressure read out from the vehicular hydraulic transmission by a positive connection of it with the upper limit speed regulator. At the same time, the upper limit speed regulator is physically interposed in series between the vehicular carburetor and accelerator pedal. Additionally, the ignition circuit of the vehicle is placed in series with the upper limit speed regulator and a portion of a resistance wire is physically disposed within the upper limit speed regulator that reduces the current supplied to the primary coil of the vehicular distributor coil so as to maintain it at its proper value.

3,547,217
VEHICLES PROTECTED BY ROBBERY DETERRENT APPARATUS

Emmett Garza, 420 Redan, Houston, Tex.

Continuation-in-part of application Ser. No. 690,906, Dec. 15, 1967, now abandoned. This application Oct. 16, 1969, Ser. No. 867,055
Int. Cl. B62d *33/00*
U.S. Cl. 180—112 **11 Claims**

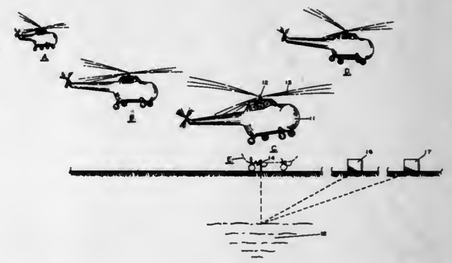


The invention is disclosed in manner to accentuate a bullet proof shield means behind front seats to completely separate driver or front compartment from passenger or rear compartment of a motor vehicle. The shield portion above the seats is transparent for vision. A coin tray is provided to be slid rearwardly to receive payment therein, and then to be drawn forwardly. The driver can turn switch means for battery operation of solenoid means in rear doors which lock these doors against an obstreperous passenger escaping as the driver drives the locked-in passenger toward the police station. The rear doors may have perforate metal plates installed thereon to prevent a rear seat passenger from breaking out a rear pane and firing through a front window. Air ducts from the air-conditioning system of the motor vehicle direct air-conditioned air to the rear compartment.

3,547,218
METHOD OF GENERATING SEISMIC IMPULSES

Ferris F. Hamilton, 320 High St., Denver, Colo.

Filed Sept. 11, 1968, Ser. No. 759,221
Int. Cl. G01v *7/00, 1/00, 9/00*
U.S. Cl. 181—0.5 **7 Claims**

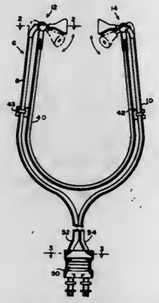


A helicopter is utilized as a seismic energy source in geophysical prospecting by developing seismic impulses from the rotor blades as the helicopter is flown into and away from close proximity to each intended test location or site.

3,547,219
HEADSET DEVICE

Costas Bothos, Long Island City, N.Y. (85-35 66 Ave., Rego Park, NY 11374)

Filed Nov. 6, 1969, Ser. No. 874,452
Int. Cl. A61b 7/02; G10k 13/00
U.S. Cl. 181—31 5 Claims

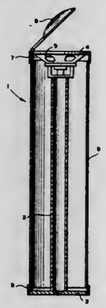


A headset device of the stethoscope type, provided with rotatable earpieces permitting adjustment to the ear canal angles of the listener. The earpieces are provided with amplifier cavities. A plug of improved construction is used to connect the hearing tubes to a sound supply main's outlet, whereby the full sound passes unimpeded to the earpieces.

3,547,220
SOUND RADIATING DEVICE

Michael L. Watson, 50 Laird Lane, Pittsford, N.Y.

Filed Dec. 4, 1969, Ser. No. 882,157
Int. Cl. G10k 13/00
U.S. Cl. 181—31 10 Claims



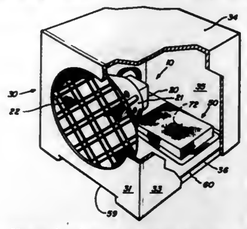
A sound-radiating device comprising a loudspeaker supported a fixed distance from, and facing away from a rigid base plate and including a tube extending between the base plate and forming with the base plate a closed chamber behind the loudspeaker. The tube is fabricated of a material such that the tube is sufficiently stiff to permit sound pressures to be set up in the air within the tube as a result of vibration of the cone of the loudspeaker, and is sufficiently flexible to permit variations in diameter in response to pressure changes in the tube. The tube thus functions as a primary sound radiator, particularly of low frequencies, when the loudspeaker is actuated. Middle frequencies are also radiated by transmission through the walls of the tube.

3,547,221
ACOUSTICAL APPARATUS

Robert E. Hedberg, 3316 Huntington Ave., St. Louis Park, Minn.

Filed Aug. 21, 1969, Ser. No. 851,843
Int. Cl. G10k 13/00; H04r 1/28
U.S. Cl. 181—31 7 Claims

Acoustical apparatus in the form of a speaker and enclosure designed to provide high fidelity sound reproduction for a single speaker or multiple speakers, having normally low distortion from the low to high range. The speaker enclosure has a considerably lower frequency response than normally

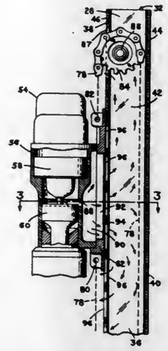


expected for distortionless reproduction at the low frequency levels and provides this improved low frequency response through the use of a valve in a sealed enclosure which throttles air flow therefrom.

3,547,222
ROCK DRILL FEED MAST WITH INTEGRAL MUFFLER AND OIL SEPARATOR

Linwood A. Pickle, South Hadley, Mass., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware

Filed Sept. 2, 1969, Ser. No. 854,551
Int. Cl. E21c 11/00; F01n 1/08
U.S. Cl. 181—36 12 Claims

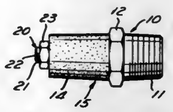


A compressed air drill mounted and movable on a guide mast is presented wherein the guide mast is a boxlike structure having a plurality of openings to receive the exhaust from the drill. The guide mast forms part of a muffler and separator system wherein the drill exhaust is muffled and the oil is separated from the air to lubricate drill guides and a drive chain within the guide mast.

3,547,223
SPEED CONTROL MUFFLER WITH ADJUSTABLE VALVE

Stephen J. Gibel, 5846 Edgerton Road, North Royalton, Ohio

Filed Mar. 21, 1969, Ser. No. 818,169
Int. Cl. F01n 1/10, 1/16, 7/16
U.S. Cl. 181—36 9 Claims

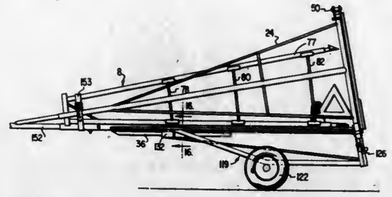


Speed control muffler for exhaust of air-driven tools in which a porous metal casing, baffling sound waves of exhaust air, carries micrometrically adjustable valve, with slightly tapered head and seat, for precise control of air flow to control speed of tool. One or more essential metal elements may be isolated from each other to aid in dissipation of sound energy by elastomeric elements confined between the relatively rigid metal elements.

3,547,224
COMPOSITE TOWER STRUCTURE

Robert G. Watts, 3803 Sullivant Ave., Columbus, Ohio

Filed July 18, 1968, Ser. No. 745,835
Int. Cl. E04g 1/16
U.S. Cl. 182—16 25 Claims



A composite tower structure having inner and outer tower components which may be easily assembled and disassembled and which may be compactly packaged for storing or shipping. The inner tower component includes an upper portion which extends through an aperture in the outer tower component; and a lower portion. The lower portion includes a main panel member having a plurality of rigidly interconnected legs, a main leg and a plurality of truss members which are spaced along the axial lengths of the legs. These members may be easily detachably connected to form a rigid lower portion.

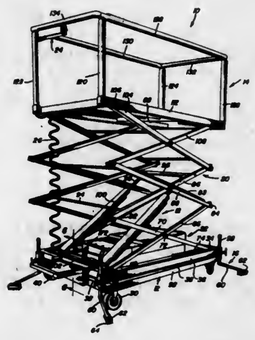
The outer tower component includes a plurality of legs pivotally attached to a top platform by hinge units having rigidly interconnected spindles which telescopically engage tubular members of the legs. One of the hinge units has separable spindles which may be individually engaged with the legs and then secured together thereby greatly facilitating the assembly of the outer tower component.

In addition, a unique trailer for transporting the composite tower structure is provided. The trailer utilizes a section of the tower to support the remainder of the tower and to connect the trailer to a pulling vehicle. Adapters are provided to adapt the trailer to utilize different sections of the tower structure.

3,547,225
HYDRAULIC LIFT

Clifford T. Deane, South Charleston, W. Va., assignor to Stampco, Inc., a corporation of West Virginia

Filed July 18, 1968, Ser. No. 745,838
Int. Cl. E04g 1/22
U.S. Cl. 182—148 4 Claims

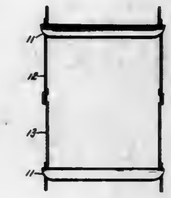


A working platform is elevated above a wheeled base by a pair of hydraulic piston cylinder devices operating through a lazy tong type mechanism. A safety guard rail on the platform having a pivoted end rail at one end, mounts operator controls connected through a flexible electrical cable to an electrohydraulic power supply on the base. Adjustable outrigger ground-engaging elements extend laterally from the base to provide stabilized support.

3,547,226
FIRE ESCAPE LADDER

Emil Loeffel, 141 Centre St., Waldwick, N.J.

Filed Aug. 22, 1969, Ser. No. 852,198
Int. Cl. E06c 1/383
U.S. Cl. 182—164 4 Claims

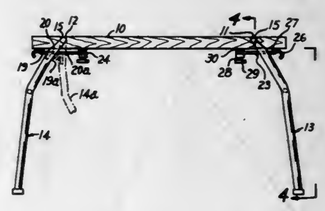


A collapsible fire escape ladder formed completely from metallic stampings, and including a plurality of step plate elements interconnected by articulated links. The links are pivotally interconnected at points substantially medial with respect to the distance between adjacent parallel step plates when the ladder is in extended condition. The step plates are provided with elongated longitudinally extending openings which provide space for accommodation of the jointed portions of the interconnected links when the ladder is collapsed, and function as a hand grip when the ladder is in extended condition. The invention also includes an articulated joint construction in which a pair of locking tabs on one elongated link are passed through a rectangular opening in a second elongated link, and the sides of the opening are then deformed to reduce the effective width thereof, thereby preventing subsequent disassociations.

3,547,227
SAWHORSE TRESTLE

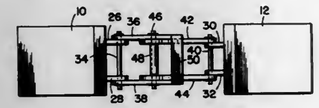
Herbert F. Trevino, Cones Airport Road, Twentynine Palms, Calif.

Filed Aug. 25, 1969, Ser. No. 852,547
Int. Cl. E04g 1/32; F16m 11/00
U.S. Cl. 182—185 5 Claims



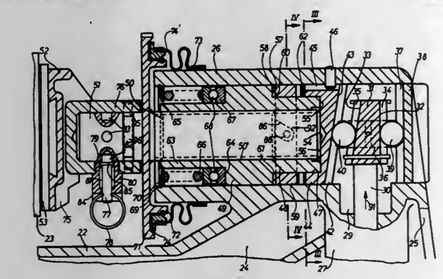
A demountable sawhorse with a beam and separable leg units. The leg units are of preferably tubular steel construction and have a closed frame construction with top bar engaging a groove in the top surface of the beam for location, and locking in position, and a lever force system on each leg frame reacting through a screw on the lever and a pivot point on the other end of the lever so that a closed force system reacts against the beam undersurface and a reaction pad on the leg frame to lock the legs to the beam. Releasing the locking screw allows the lever to be shifted and swung out of locking position and the leg frames to be removed from the beam quickly.

3,547,228
VEHICLE WHEEL CHOCK ASSEMBLY
Harold V. Wiley, Morre Bay, Calif., assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden, a corporation of Sweden
Filed Jan. 29, 1969, Ser. No. 794,953
Int. Cl. B60z 3/00
U.S. Cl. 188—32 1 Claim



This invention relates to a vehicle chock assembly in which two chock blocks are pivotally connected together to facilitate handling of the blocks and to facilitate placing the blocks between and removing them from two wheels on the same side of two tandem axles.

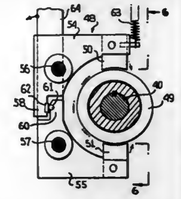
3,547,229
DISK BRAKE FOR RAILWAY VEHICLES
Hans Pollinger, Rainfarnstr. 65, 8 Munich 45, and Lawrence J. Lunghamer, Roseggerstr. 14, 8013 Haar, Germany
Filed Nov. 15, 1968, Ser. No. 776,147
Claims priority, application Germany, Dec. 2, 1967, 1,625,755
Int. Cl. B61h 5/00; F16d 65/14, 65/52
U.S. Cl. 188—59 9 Claims



A U-shaped yoke straddles the peripheral edge of a brake disc with one leg of the yoke carrying a brake shoe on its inner face while in the other leg there is slidably mounted a rod which is movable axially toward and away from the brake disc. The end of the rod adjacent the brake disc is provided with a brake shoe and the other end of the rod has an inclined surface which is parallel to a second inclined surface on a wedge member carried on the end of a piston rod extending from a brake actuating cylinder mounted on the yoke. Roller means are interposed between the parallel inclined surfaces so that actuation of the brake cylinder piston rod is translated into axial movement of the brake shoe rod to apply the brake shoe into frictional engagement with the brake disc. The rod is provided with an automatically operable arrangement to compensate for brake shoe wear.

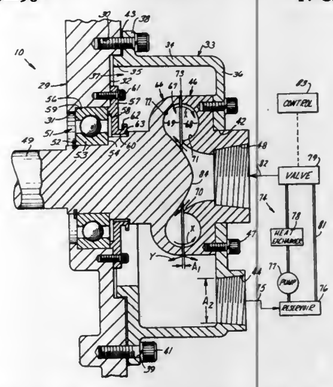
3,547,230
DIAMETER BRAKE AND LOCKING DEVICE FOR A ROTATABLE SHAFT
William E. Shank, Waynesboro, Pa., assignor to Litton Industries, Inc., Waynesboro, Pa., a corporation of Delaware
Filed Oct. 9, 1968, Ser. No. 766,133
Int. Cl. F16d 49/00
U.S. Cl. 188--75 8 Claims

This disclosure relates to an apparatus for braking and locking a rotatable shaft of a machine tool, such as a rotary-type truing tool that consists of a motor-driven diamond impregnated roller. The hydraulic brake assembly comprises two brake members held by equal opposing forces to stop rotation of a brake disc or shaft. The brake members or shoes are pivotally mounted on a supporting member and are mechanically interlocked through a cam device to clamp the



brake disc with an equal amount of clamping pressure from each brake member to prevent deflection of the shaft. The clamping movement is hydraulically initiated by a fluid pressure actuated piston against one of the brake members.

3,547,231
FLUID RETARDER
Eugene R. Braun, Royal Oak, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 20, 1968, Ser. No. 761,270
Int. Cl. F16d 57/00
U.S. Cl. 188—90 17 Claims

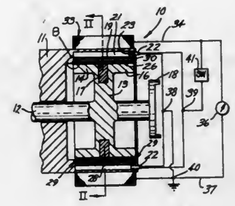


A fluid torque transfer device having a pair of bladed members axially spaced from one another to define a pressure creating zone and a discharge gap therebetween. The discharge gap has fluid accumulation means in fluid communication therewith so that the fluid discharged through the gap will collect in the fluid accumulation means. Means are provided to ensure the occurrence of a low pressure downstream of the discharge gap so that the fluid pressure in the accumulation means is always less than the fluid pressure in the pressure creating zone so that a major pressure drop will occur across the discharge gap.

3,547,232
EXPLOSIVE ACTUATED BRAKE
Donald J. Fergle, St. Clair Shores, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed July 10, 1968, Ser. No. 743,857
Int. Cl. B06t 7/12
U.S. Cl. 188—110 8 Claims

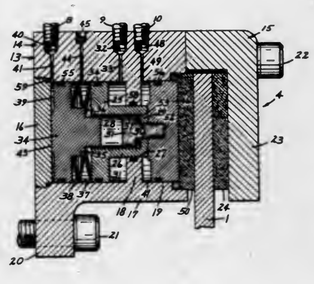
A brake apparatus for applying a load to movable, usually rotatable, means, such as a shaft, drum or wheel, utilizing a radially flexible friction member affixed to either a frame or to the movable means and frictionally engageable with the other thereof. Chamber means are connected in association with the radially flexible friction member for causing the friction member to move radially into such frictional engagement upon an application of gas to the chamber. A quantity of gas-generating combustible material is connected in gas

communication with the chamber means. Means are provided for firing the material so that the chamber means will fill with gas under pressure to cause the radially flexible friction



member to move radially into engagement with either the frame means or the movable means to apply a load to the movable means.

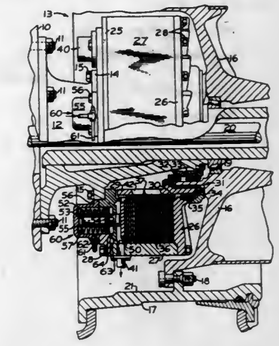
3,547,233
PRESSURE AND WEAR COMPENSATOR FOR CALIPER DISK BRAKE
John H. Girvan, Mankato, Minn., assignor to Minnesota Automotive, Inc., Mankato, Minn., a corporation of Minnesota
Filed Sept. 23, 1968, Ser. No. 761,727
Int. Cl. F16d 65/24, 55/22
U.S. Cl. 188—170 9 Claims



A fluid pressure operated brake mechanism having a brake element connected to a primary piston that is moved in a brake-applying direction by spring means and in a brake release direction by fluid pressure. A compensator piston, backing up the spring means, is operated by fluid pressure to maintain a predetermined bias of the spring means when the brake element becomes worn. A secondary piston is selectively operative to move the brake element in a brake-applying direction under fluid pressure independently of the spring means.

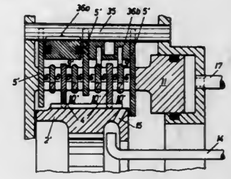
3,547,234
DUAL RANGE BRAKE SYSTEM FOR VEHICLES
Curtis F. Cummins, Decatur, Donald L. Smith, Peoria, and Larry G. Warren, Decatur, and Lawrence F. Schexnayder, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Feb. 14, 1969, Ser. No. 799,295
Int. Cl. F16d 65/24
U.S. Cl. 188—170 2 Claims

In work vehicles the service brakes can be equipped with a combination mechanical and hydraulic-actuating means whereby two separate ranges are available; one range having mechanical brake actuation through preload spring means with hydraulic release and the second range having a combination of complementary mechanical and hydraulic brake actuation for maximum braking capacity, which provides full



braking capacity along with a failsafe brake system operable in one of the ranges.

3,547,235
HYDRODYNAMIC AND FRICTION COUPLING
Hellmut Weinrich, Zang Kreis, Heidenheim, Germany, assignor to Voith Getriebe KG., Heidenheim (Brenz), Germany
Filed Sept. 23, 1968, Ser. No. 761,744
Claims priority, application Germany, Sept. 30, 1967, 1,625,837
Int. Cl. F16d 57/00
U.S. Cl. 188—271 6 Claims

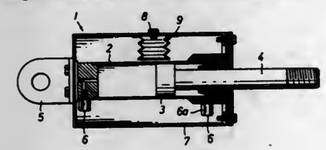


A clutch and brake system, especially for planetary gear transmissions, which includes: primary clutch means comprising primary friction disc means, secondary clutch means comprising secondary friction disc means in substantial axial alignment with said primary friction disc means, said primary and secondary friction disc means respectively being provided with two groups of channel means respectively following the contour of pump and turbine wheels of fluid flow machines, and control means operable selectively to move said primary and secondary friction disc means relatively toward each other for effecting mechanical braking moment while simultaneously making said two groups of channel means effective to bring about a hydrodynamic braking moment.

3,547,236
HYDRAULIC SHOCK MOUNT FOR PIPE-LINE SYSTEMS
Gerhard Liesegang, Hamburg, Germany, assignor to Lisega Rohrleitungszubehor G.m.b.H., Hamburg, Germany
Filed Oct. 2, 1968, Ser. No. 764,443
Claims priority, application Germany, Oct. 5, 1967, 1,650,086
Int. Cl. F16f 9/19, 9/34
U.S. Cl. 188—280 2 Claims

A hydraulic shock mount for pipeline systems having a damper piston and a pressure cylinder, one of which is supported by a stationary abutment, and the other attached to the pipeline whose movements are to be damped, the cylinder chambers on both sides of the piston being connected to its own, independently operating throttling means,

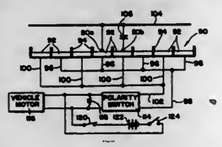
the cylinder with its damping piston and throttling means being arranged inside a common housing which serves as





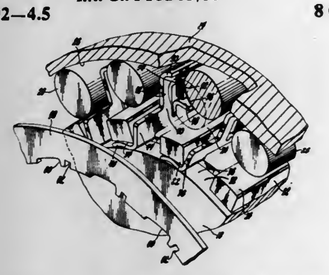
reservoir and pressure-equalizing chamber for the pressure fluid.

3,547,237
REMOTELY CONTROLLED POWER PICKUP FOR TRACKLESS ELECTRIC VEHICLES
Kenneth H. Ives, 401 E. 32nd St., Chicago, Ill.
Filed June 13, 1968, Ser. No. 736,822
Int. Cl. B60l *5/16, 5/34, 13/00*
U.S. Cl. 191—4 **3 Claims**



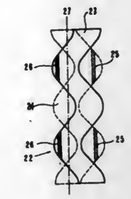
A remotely controlled power pickup device for trackless electric vehicles operating from overhead power lines, the device enabling the vehicles to selectively pass each other, detour, operate on short routes without overhead power lines, and operate from and between different routes having overhead power lines, all without requiring the driver to leave his seat in the vehicle. Control apparatus actuated by the driver in the vehicle is provided for selectively raising or lowering the power contacts of the trolley vehicle. A battery power source is maintained within the vehicle for temporary use to power the vehicle when not operated from the overhead power lines.

3,547,238
FREEWHEEL DEVICE
Kenneth B. Harmon, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 24, 1969, Ser. No. 793,818
Int. Cl. F16d *15/00*
U.S. Cl. 192—4.5 **8 Claims**



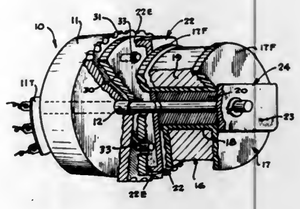
An overrunning roller device has individual spring retainers mounted to the inner race by tangs received in grooves formed in the inner race and overhung by extensions on the roller ramps. The spring retainers are simple stampings and are accurately located with respect to the roller ramps by side plates which are also simple stampings.

3,547,239
ONE-WAY ENGAGING CLUTCH HAVING WEDGING BLOCKS
Georg Titt, Furstenfeldbruck-Buchenau, Germany, assignor to Fa. George Muller Kugellagenfabrik, Nurnberg, Germany
Filed Sept. 5, 1968, Ser. No. 757,693
Claims priority, application Germany, Mar. 14, 1968, 1,650,787
Int. Cl. F16d *41/07*
U.S. Cl. 192—45.1 **40 Claims**



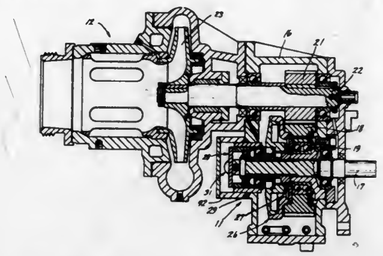
A one-way engaging clutch for transmitting rotary movement from a driving unit which rotates in opposed directions to a driven unit which is to be rotated in only one direction. This clutch includes an inner race having an outer circumferential surface and an outer race having an inner circumferential surface coaxially surrounding and spaced from the outer circumferential surface of the inner race. Between these circumferential surfaces of the races there are a series of wedging blocks circumferentially distributed along these circumferential surfaces and each having a pair of opposed side surfaces one of which is formed with a radially extending recess and the other of which is formed with a radially extending outwardly bulging portion circumferentially aligned with the latter recess. The series of wedging blocks are arranged in an at least partly nesting relation where the outwardly bulging portions of the blocks are respectively received in the recesses of adjoining blocks. In this way it is possible to situate an extremely large number of blocks about the common axis of the races to provide a large area of wedging engagement between the blocks and races.

3,547,240
CLUTCH MEANS FOR SELECTIVELY COUPLING A SINGLE INPUT TO ONE OR MORE PLURAL OUTPUTS
Frank Holper, 75 Bluff, Cary, Ill.
Filed Sept. 19, 1968, Ser. No. 760,789
Int. Cl. F16d *21/04;* **F16h** *37/06*
U.S. Cl. 192—48.2 **5 Claims**



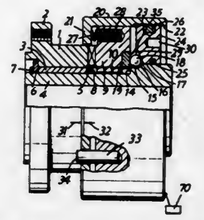
A control system characterized by variantly positionable shafts is so arranged that the shafts may be positioned collectively or individually, and only a single drive motor is required to accomplish this, selective energization of electromagnets being effective to determine which shaft shall be active.

3,547,241
POSITIVE CLUTCH WITH FRICTION SYNCHRONIZING MEANS
William H. Tungate, Battle Creek, Mich., assignor to American Fire Pump Company, Battle Creek, Mich., a corporation of Michigan
Filed Apr. 30, 1969, Ser. No. 820,525
Int. Cl. F16d *23/04*
U.S. Cl. 192—53 **6 Claims**



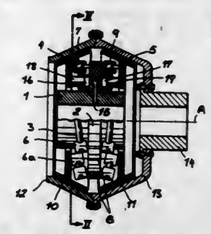
An improved clutch structure for permitting a driven member to be clutchably engaged to a high-speed driving member. The clutch structure includes both a friction clutch for bringing the driven member up to speed and a positive jaw clutch for positively driving the driven member after same has reached the speed of the driving member. The clutch structure includes first and second actuating means connected to the friction and jaw clutches, respectively, which actuating means are moved by a common control member for permitting independent and successive operation of the friction and positive jaw clutches.

3,547,242
TORQUE LIMITING DEVICES OR OVERLOAD CLUTCHES
George R. Braggins, Virginia Water, England, assignor to The Ceewrite Indicator Manufacturing Company Limited, Ashford, Middlesex, England
Filed Sept. 19, 1968, Ser. No. 760,937
Claims priority, application Great Britain, June 20, 1968, 29,433/68
Int. Cl. F16d *43/20*
U.S. Cl. 192—56 **12 Claims**



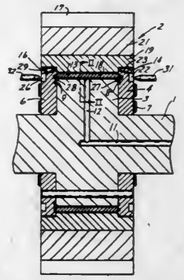
A torque-limiting device such as an overload clutch comprises first and second relatively rotatable torque members which are prevented from axial movement relative to each other and an intermediate member slidably mounted on the second torque member but secured for rotation therewith. The intermediate member makes driving contact with the first torque member by means of inclined driving faces on these two parts which are held in driving contact by detent members such as balls or plungers which are resiliently maintained in contact with an inclined sidewall of a step. When the torque applied to the device exceeds a predetermined value, the second clutch member drives the detent members up the step thereby permitting the driving torque to fully disengage the device. A relatively small force is used to reengage the device by pushing the intermediate torque member towards the first torque member until the detent members are urged down the step face to bring the device back into full engagement.

3,547,243
AXIALLY SPREADING FRICTION CLUTCH
Raoul Joern, Lindau, and Peter Reichardt, Fellbach, Germany, assignors to Joern G.m.b.H., Oeffingen, Germany, a corporation of Germany
Filed Jan. 23, 1969, Ser. No. 793,340
Claims priority, application Germany, Jan. 27, 1968, 1,675,152
Int. Cl. F16d *13/26*
U.S. Cl. 192—70 **10 Claims**



A silent clutch has a flange connectable to a drive shaft and a housing connectable to a driven shaft. Two axially displaceable and rotatable clutch rings are rotationally fixed on the flange and displaceable away from same by pneumatic cylinders. On axial displacement the clutch rings frictionally engage the housing and couple the two shafts rotationally together. The rings are connected to the flange by a plurality of elongated links laying one behind the other in a circular pattern each one with one end connected to the flange and one to the ring via ball-and-socket joints. These joints have a layer of rubber between the socket formed in the link end and the ball head which layer frictionally and resiliently yields upon separation of the clutch ring from the flange and is thus stressed to return the ring to the flange in the off position of the clutch.

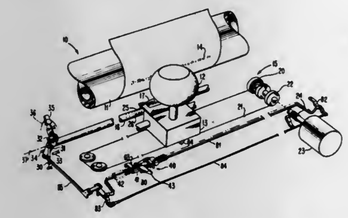
3,547,244
SLEEVE CLUTCH
Donald J. Fergle, St. Clair Shores, and Dale K. Benedict, Royal Oak, Mich., assignors to Eaton Yale & Town, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 30, 1968, Ser. No. 763,784
Int. Cl. F16d *11/06, 13/12*
U.S. Cl. 192—74 **15 Claims**



A torque transferring device having a first member of circular cross section with axially spaced annular sealing means projecting radially therefrom and a passageway communicating from a point exteriorly of the first member to a zone between the pair of sealing means. A radially flexible friction member is received between the sealing means and positively arranged for rotation with said first member, the axial edges of said friction member being sealingly engaged with said sealing means to define with sealing means a fluid-restrictive chamber around said zone. A second member of circular cross section is concentrically located with respect to the first member, mounted for relative rotation therewith, and having a surface arranged in close proximity to and extending the full axial length of, an opposed surface of the radially flexible friction member so that when the passageway and the fluid-restrictive chamber is supplied with a fluid under pressure,

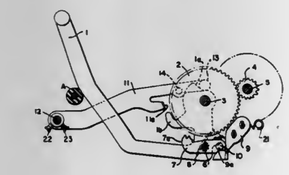
the radially flexible friction member will move into engagement with the second member. The sealing means minimizes the flow of fluid out of the fluid-restrictive chamber past the edges of said friction member.

3,547,245
MULTIPLE PITCH MARGIN CONTROL
Selahattin A. Okcuoglu, and George A. Walker, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 9, 1968, Ser. No. 696,585
Int. Cl. B41j *21/02*
U.S. Cl. 197—63 **9 Claims**



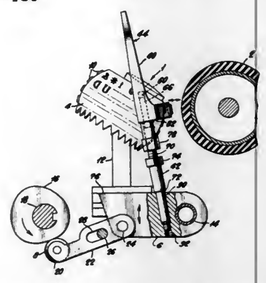
Margin stops are set at letter space positions consistent with either of two different letter feed pitches by the provision of alternate margin racks selectively made effective in accordance with the current pitch of an associated typewriter. Substitution of the alternate racks is accomplished through an overcenter spring device operated automatically when the typewriter pitch mode is changed. Margin stops are adjusted by an operator without consciousness of the pitch mode of the typewriter.

3,547,246
PAPER FEED MECHANISM IN TYPEWRITERS AND SIMILAR OFFICE MACHINES
Ingeburg Kuhne, Halberstadt, and Horst Hartung, Erfurt, Germany, assignors to Veb Optima Buromaschinenwerk Erfurt, Erfurt, Germany
Filed Aug. 10, 1967, Ser. No. 659,809
Int. Cl. B41j *19/76*
U.S. Cl. 197—114 **4 Claims**



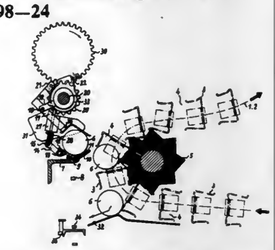
Mechanism comprising a line space ratchet, a paper feed lever having a curved cam surface, a cam follower lever abutting by its own weight on said cam surface and controlling the release of said ratchet, a platen drive wheel, pawl means swingably supported by the paper feed lever, said follower lever being provided with a first limit stop for limiting the movement of the pawl means and with a second limit stop for limiting the movement of the paper feed lever, whereby the paper feed lever has a clamp means cooperative with the second limit stop to prevent lifting of the follower lever. The cam follower lever is attached to a through shaft which also supports a release lever. The release lever is operably connected with a lock lever holding a line space ratchet wheel in position. Upon actuation of the paper feed mechanism and movement of the cam follower lever, the lock lever is swingable out of engagement with the line space ratchet wheel for the purpose of noiseless paper feed.

3,547,247
CHARACTER ADDING DEVICE FOR TYPEWRITING EQUIPMENT
Robert H. Twyford, Falls Church, Va., assignor to Mechanical Enterprises Incorporated, a corporation of Virginia
Filed Feb. 23, 1968, Ser. No. 707,774
Int. Cl. B41j *1/32*
U.S. Cl. 197—180 **23 Claims**



A device for facilitating the addition of such a character in typewritten material as is not normally included in standard typewriting equipment. This device is intended for use in typewriter equipment having a single printing head.

3,547,248
FEED AND DISCHARGE FOR HYDROSTATIC COOKER CONVEYORS
Samuel A. Mencacci, Wilrijk, Belgium, assignor to International Machinery Corporation S.A., Sint-Niklaas-Waas, Belgium
Filed Apr. 5, 1968, Ser. No. 719,095
Claims priority, application Belgium, Jan. 18, 1968, 47,608
Int. Cl. B65g *47/06, 47/82*
U.S. Cl. 198—24 **4 Claims**

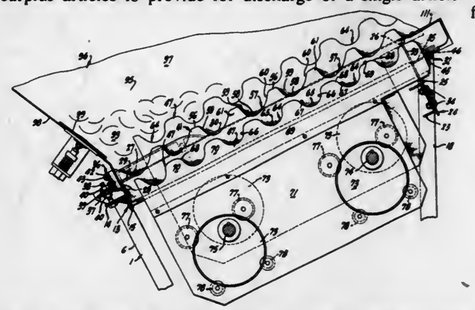


A feed and discharge device for hydrostatic cooker conveyors, of the type constituted by pivotally linked carriers forming several compartments, accessible by flexing said conveyor according to the given radius, wherein can or jar sticks are individually transferred from a guide in a direction perpendicular to the axis of said stick into a compartment of said conveyor by a pusher bar, constantly rotating around an axis parallel to the stick to be fed into said conveyor.

3,547,249
FEEDER
Henry Aguilar, San Francisco, Raymond E. Camezon, Danville, and Etheridge R. McClelland, Hayward, Calif., assignors to Filper Corporation, San Ramon, Calif., a corporation of California
Filed Nov. 27, 1968, Ser. No. 779,584
Int. Cl. B65g *47/26, 25/07*
U.S. Cl. 198—30 **19 Claims**

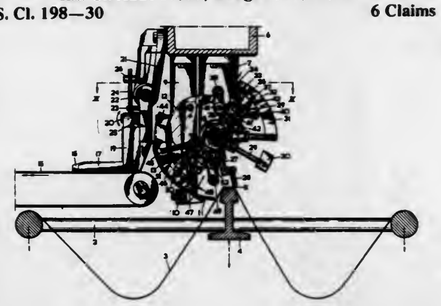
A step-by-step conveyor for picking up articles of similar size from a bulk mass thereof and moving them up an inclined path to a discharge point for discharging them at said discharge point, said conveyor including supports for carrying said articles equally spaced from each other in a row extending longitudinally of said path during said movement,

and also providing means for relieving said supports from surplus articles to provide for discharge of a single article



from each support at said discharge point at equally spaced intervals, without injury to said articles.

3,547,250
ROTARY ARTICLE TRANSFER DEVICE
Hendrikus Gerhardus Muller, Hengelo, Netherlands, assignor to N. V. Machinefabriek B & S Bedrijven v.d. Woerdt, Hengelo, Netherlands
Filed Mar. 14, 1969, Ser. No. 807,315
Claims priority, application Netherlands, Mar. 14, 1968, 6803634
Int. Cl. A22c *29/00;* **B65g** *47/24, 47/26*
U.S. Cl. 198—30 **6 Claims**



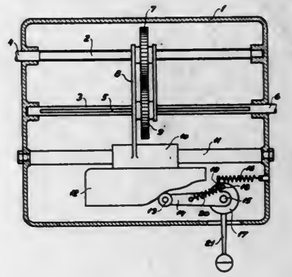
A rotary article transfer device rotates about a horizontal axis to move articles along and off a circularly curved supporting surface. The device shoves all articles but one off an edge of the supporting surface, shoves the one article back toward the center, grasps and moves the one article along the remainder of the curved surface and then ejects it beyond the end of the curved surface.

ERRATUM

For Class 198—38 see:
Patent No. 3,547,714

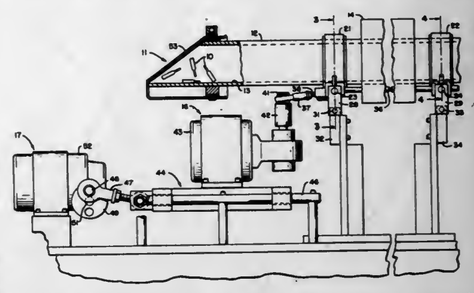
3,547,251
SYSTEM FOR TREATING UNIFORM OBJECTS AND A DIFFERENTIAL GEAR FOR SUCH SYSTEM
Erik Christian Mernoe, Virum, Denmark, assignor to Gearco A/S, Smedeholm, Herlev, Denmark
Filed Apr. 24, 1968, Ser. No. 723,867
Claims priority, application Denmark, Apr. 26, 1967, 2,212/67
Int. Cl. B65g *43/00*
U.S. Cl. 198—40 **5 Claims**

A system for treating uniform objects comprising automatic counting devices located between storage means on a feed and conveyor means and a succeeding treating station and between the treating station and the succeeding storage means wherein two such counting devices are coupled to differential gear provided with a movable member for recording



differences in the number of registered objects, said movable member being coupled to a device for the regulation of the working speed of the stations.

3,547,252
VIBRATORY QUARTZ TUBE ASSEMBLY FOR ADVANCING ARTICLES
Ford J. Brown, Kutztown, and Ralph L. Mueller, Emmaus, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed May 29, 1968, Ser. No. 733,088
Int. Cl. B65g *25/04*
U.S. Cl. 198—218 **14 Claims**

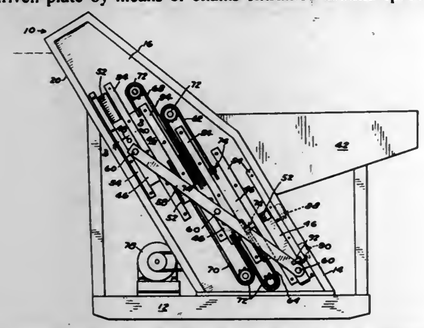


A batch of articles are loaded in a container which passes through a sintering furnace and which is vibrated by a pair of motor driven, mechanical oscillation generating devices. A first of the oscillation generating devices imparts rectilinear horizontal vibrations to the articles, while the second device modifies the output of the first device to impart force components that tend to lift and thrust the articles. By controlling the second device, the force components imparted to the articles can be controlled to (1) advance the articles toward the right or left, or (2) maintain the articles vibrating about a fixed point.

3,547,253
ELEVATING STRUCTURE HAVING CHAIN AND BAR DRIVEN RECIPROCATING MEANS
Paul A. Ford, 29753 Somerset, Southfield, Mich.
Filed Feb. 24, 1969, Ser. No. 801,654
Int. Cl. B65g *25/04*
U.S. Cl. 198—219 **11 Claims**

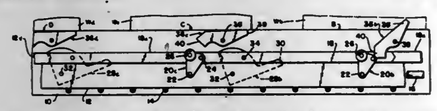
An elevator having a series of juxtaposed plates reciprocated alternately in opposite directions to elevate articles step by step from a receiving location upwardly to a delivery location. Alternate ones of the steps are interconnected by rigid bars so that they elevate and lower together.

The intermediate plates are connected to an adjacent bar-driven plate by means of chains entrained around sprocket



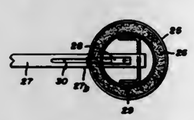
wheels so that they reciprocate in the direction counter to the bar-connected plates.

3,547,254
MECHANICAL FULL ACCUMULATING CONVEYOR
Peter J. Manetta, Warren, Mich., assignor to Simplex Corporation, Detroit, Mich., a corporation of Michigan
Filed Jan. 31, 1969, Ser. No. 795,493
Int. Cl. B65g *25/08*; **B65q** *5/22*
U.S. Cl. 198—221 **9 Claims**



A conveyor adapted to advance articles from station to station having means for setting all feed dogs to the rear of the foremost vacant station to operating position during initial forward movement of a feed slide.

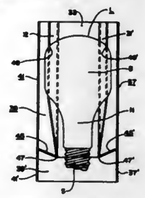
3,547,255
GETTER ASSEMBLY
Charles Richard Kalbfus, Liverpool, N.Y., assignor to General Electric Company, a corporation of New York
Filed Mar. 24, 1969, Ser. No. 809,922
Int. Cl. H01j *19/70*
U.S. Cl. 206—0.4 **5 Claims**



An improvement in a getter assembly of the type having a getter material container adapted to be cantilevered from an electron gun positioned in the neck portion of a glass electronic tube by a springlike, thermally conductive support strip or "antenna" to extend into the tube funnel portion adjacent to but spaced from the glass tube wall. The improvement comprises providing reinforcing means on the antenna strip adjacent its connection with the getter container to resist deformation of the strip when it is thermally softened by heat transferred to it from the container upon flashing of the getter material. Thus, direct contact between either the hot strip or getter container and the glass tube wall and consequent thermal cracking of the tube, which has heretofore often resulted from such deformation of conventional non-reinforced antenna strips, is eliminated or greatly reduced.

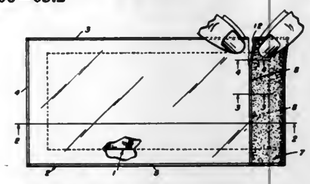
3,547,256
PACKAGE FOR LIGHTBULBS AND THE LIKE
Hubert V. Bolding, Memphis, Tenn., assignor to Eastex Packaging, Inc., Oak Brook, Ill., a corporation of Delaware
Filed Apr. 21, 1969, Ser. No. 817,666
Int. Cl. B65d *5/04, 25/12, 85/42*
U.S. Cl. 206—46 **9 Claims**

Paperboard carton means particularly adapted for packaging lightbulbs or other fragile articles. The paperboard carton means of the invention includes a square-sectioned tubular body adapted to longitudinally axially receive a lightbulb article. The carton means includes a parallel pair of partition panels defining corresponding confronting openings adapted to frictionally removably engage opposite side surfaces of the bulbous portion of a lightbulb or the like. The carton means is particularly designed to be mechanically automatically folded and formed into a diagonally flattened configuration and is adapted to be mechanically automatically erected and packaged with the lightbulb article by an automatically operative lightbulb packaging machine. The carton means of



the invention includes a pair of tab portions operative for (1) causing the flattened semierected lightbulb carton body to be continuously urged toward an open squared configuration; (2) for causing the carton body to be locked in a fully open squared configuration; and (3) the tab portions serve as paperboard base structure for bearing descriptive or advertising indicia pertinent to the packaged article or lightbulb. A second embodiment of the carton is shown wherein there are two pairs of tab portions, with one pair being at one end of the carton and the other pair at the opposite end of the carton.

3,547,257
PACKAGE FOR STERILE ARTICLE
James L. Armentrout, Pasadena, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill., a corporation of Illinois
Filed Jan. 22, 1968, Ser. No. 699,608
Int. Cl. A61b *19/02*
U.S. Cl. 206—63.2 **13 Claims**

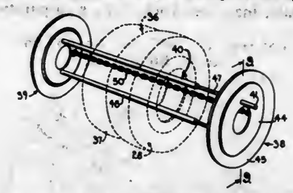


A package for encasing a sterile medical product. This package includes a nonporous polyolefin envelope with an open mouth at one end, and a porous polyolefin sheet member heat sealed to the polyolefin envelope to close said mouth, said porous sheet member being pervious to sterilizing gases but impervious to bacteria. The package includes a rupturable seam for opening said package along a fused heat-sealed joint between the envelope and the porous sheet member.

3,547,258
ADJUSTABLE PALLET AND METHOD FOR SHIPPING AND STORING VEHICLE TIRES
Billy B. Black, 3215 Brickyard Road, Topeka, Kans.
Filed Dec. 9, 1968, Ser. No. 782,235
Int. Cl. A47f *5/10, 7/04*; **B65d** *57/00, 71/00, 85/06*; **B65g** *1/14*
U.S. Cl. 206—65 **9 Claims**

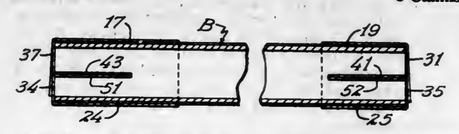
An adjustable material-handling pallet has a base panel extending between upright end panels. The base panel has a plurality of telescoping members and the end panels each have a plurality of telescoping uprights and telescoping transverse members whereby the pallet is adjustable in height and width and length. The pallet is particularly adaptable to be used for vehicle tires wherein a plurality of vehicle tires are placed therein in a row extending between the end panels

and the length of the pallet is then reduced thereby compressing the tires therein for shipping and storing. For storage the tires preferably are partially decompressed by a desired



lengthening of the pallet whereby the tires will readily return to normal shape when removed from the pallet. The length of the pallet is extended to release the tires when it is desired to remove one or more tires.

3,547,259
WRAPPING FILM
James C. Dickert, Wauwatosa, and Harold R. Jaeschke, Milwaukee, Wis., assignors to Hoerner Waldorf Corporation, Ramsey County, Minn., a corporation of Delaware
Filed Jan. 3, 1969, Ser. No. 788,850
Int. Cl. B65d *71/00, 5/54*
U.S. Cl. 206—65 **8 Claims**



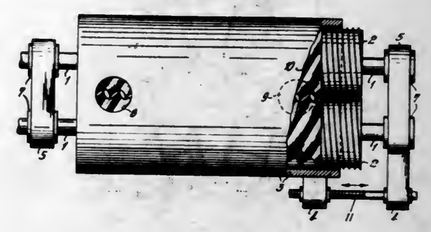
A series of hollow rolls of wrapping film are secured in side by side relation by end caps enclosing the ends of the rolls. The rolls and caps are overwrapped. The two end caps for each package are simultaneously formed and glued so that as the caps are opened up double thickness tongues are provided which extend into the end rolls of the series.

3,547,260
PROCESS FOR BENEFICIATING DIATOMACEOUS EARTH ORES AND PRODUCT
Dorothy R. Munn, Lomita, Calif., assignor to Grefco, Inc., Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Jan. 15, 1969, Ser. No. 791,507
Int. Cl. B03b *1/04*; **B03d** *3/00*
U.S. Cl. 209—3 **15 Claims**

Crude diatomaceous earth is prepared, principally by milling, to a relatively fine particle size, preferably at least about 100μ and then suspended in water. The suspension is prepared so that the solids concentration is in the range of about 5 to 35 percent by weight. The water employed must be substantially free from divalent, trivalent and tetravalent cations. The slurry of the crude ore in water is adjusted and maintained at a pH in the range of about 8.3 to 11.7. After the adjustment of the slurry to the aforementioned pH, the solids concentration of the slurry is adjusted to about 5 to 20 percent, principally by the addition of water of the type described hereinabove. The slurry is then processed to remove all particles which are larger than 44μ, leaving a suspension of diatomite and, principally, clay particles smaller than 44μ. Finally, the diatomite particles are removed as a wet cake from the suspension, yielding a product of considerable beneficiation having markedly enhanced commercial value.

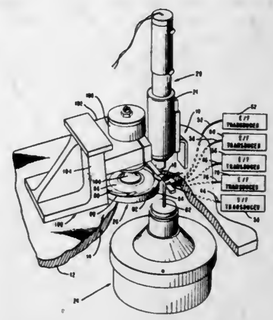
3,547,261
CONTINUOUSLY OPERATING PLASTICIZING DEVICE
Heinz Koch, Ludwigsburg, Germany, assignor to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany, a company of Germany
Filed Dec. 18, 1968, Ser. No. 784,671
Claims priority, application Germany, Jan. 4, 1968, 1,729,538
Int. Cl. B01f *5/00*
U.S. Cl. 259—6 **6 Claims**

A continuously-operating plasticizing device with two parallel unidirectionally-rotating conveyor screws for feeding material to be plasticized toward the outlet end of the conveyor casing is sealed at said end by screw conveyor sections mounted on the screw conveyor shafts in tight mesh with each other and conveying in opposition to the screw con-



veyors within the casing thereby preventing or making controllable for purpose of flushing leakage of material out of the casing at the outlet end thereof as may occur by the back pressure prevailing at said end during operation of the device.

3,547,262
APPARATUS FOR SORTING MINIATURE COMPONENTS
Roy T. Adsmond, and Herbert P. Byrnes, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Sept. 13, 1968, Ser. No. 759,574
Int. Cl. B07c *5/08*
U.S. Cl. 209—73 **12 Claims**

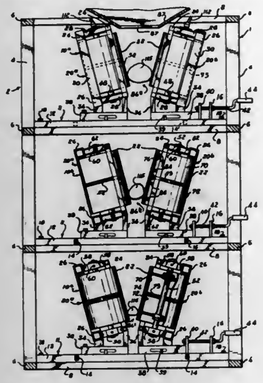


Disclosed is fluidic apparatus for handling and testing miniature magnetic cores. A vibratory feeder conveys the cores into the main flow channel of a fluidic handling element. First and second ports are spaced along the main flow channel and are connected to electrofluidic transducers for alternately applying vacuum and pressure into the main flow channel to advance the cores from a hold station to a test station. At the test station, a reciprocating probe effects tests upon the cores. Downstream from the test station are at least two secondary flow channels and associated ports for directing the cores into one of the secondary channels as determined by the tests thereon.

3,547,263
DEVICE FOR SORTING AND TRANSPORTING PARTICULATE MATERIAL
Wayne P. Green, Richardson, Tex., assignor to Leon C. Osborn Co., Harlingen, Tex., a corporation of Texas
Filed Mar. 6, 1968, Ser. No. 711,108
Int. Cl. B07b *13/04*
U.S. Cl. 209—102 **13 Claims**

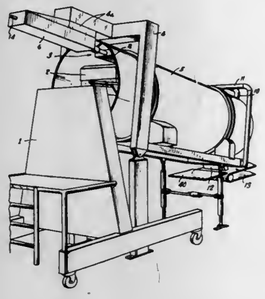
An automatic sizing device for solids comprising sets of moving parallel belts wherein belts of the first set are separated a predetermined distance throughout their length, allowing articles being sized of a smaller dimension than the

distance between the belts to pass between the belts onto a second set of parallel belts spaced apart a distance less than



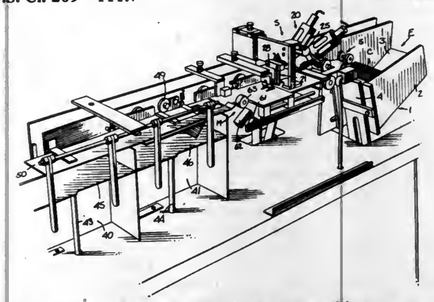
that of the first set of parallel belts. Other sets of belts may be deposited in any desirable location.

3,547,264
FRICTION CONVEYOR
Lucas Jones Conrad, Winston-Salem, Gerard Eugene Leonard, Kernersville, Colin Shaw McArthur and John Raymond Everhart, Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C., a corporation of New Jersey
Filed Sept. 20, 1968, Ser. No. 761,029
Int. Cl. B65g *25/00*; **B07b** *13/10*
U.S. Cl. 209—116 **11 Claims**



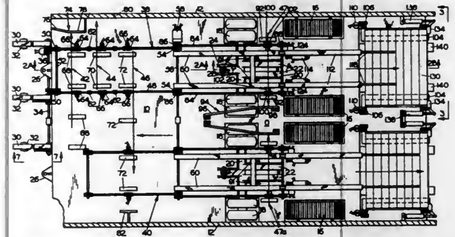
An oscillating conveyor apparatus executing slow forward motion, quick reverse and rapid return comprising a member to which a conveyor pan is attached, which member is constrained to move between two spaced springs having different spring rates. The spring with the higher spring rate causes the member upon impact to rapidly reverse its motion, while the spring of lower spring rate more slowly reverses the motion of the oscillating member. The springs thus produce a motion having a slow forward stroke, quick reversal at the end of the forward stroke, a return stroke faster than the forward stroke, and a reversal at the end of the return stroke relatively slow as compared to that at the end of the forward stroke. A pneumatic motor is provided to communicate an additional force to the member, preferably during its rapid return motion, to overcome frictional losses in the apparatus and maintain continuous oscillation of the member between the two springs. The operation of the motor is controlled by suitable valves which operate in response to the motion of the piston. The resulting motion of the conveyor pan causes articles or material resting thereon to move forward along the surface of the pan.

3,547,265
SCANNING MECHANISM
Karl J. Braun and Carl G. Braun, Stamford, Conn., assignors to Thor Dahl, Inc., New York, N.Y., a corporation of New York
Filed Sept. 15, 1967, Ser. No. 667,960
Int. Cl. B07c *5/342*
U.S. Cl. 209—111.7 **24 Claims**



A scanning mechanism for detecting markings on cards wherein a light source and cooperating photocell are used to detect the markings. Markings on a card causes the photocell to trip a pair of switches thereby conditioning a flip-flop circuit causing it to apply voltage across a gate circuit. A relay is energized and raises a tiltable ramp directing the marked card into a marked card receptacle located below the ramp. An unmarked card will not fire the gate circuit and does not raise the ramp. The unmarked card is fed to an unmarked card receptacle.

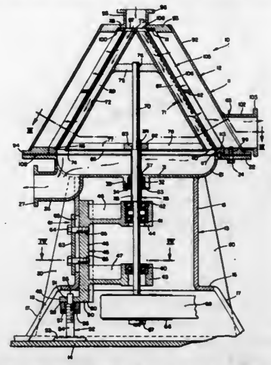
3,547,266
RAILROAD TIE SORTING APPARATUS
Irvin L. Michel, Rte. 4 Box 61, White Salmon, Wash.
Filed June 20, 1968, Ser. No. 738,700
Int. Cl. B07c *7/00*
U.S. Cl. 209—125 **5 Claims**



Railroad tie sorting apparatus comprises a wheeled vehicle adapted to be drawn down a railroad right-of-way from which the ties are to be salvaged and sorted. Longitudinal and lateral conveyors mounted on the vehicle receive the ties, sort them into relayable, post grade, and reject categories and eject the rejects from the vehicle. Stacking means forms the relayable and post grade ties into stacks which may be banded and removed from the vehicle by a lift truck.

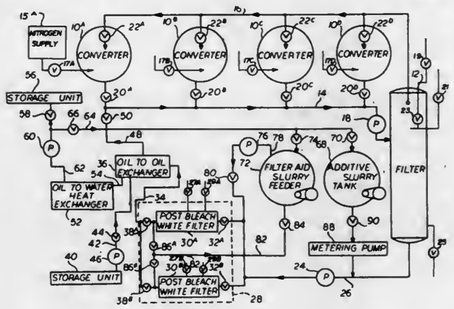
3,547,267
STRAINING APPARATUS
Douglas G. Sutherland, 1512 Breiel Blvd, Middletown, Ohio
Filed Dec. 27, 1967, Ser. No. 693,796
Int. Cl. B07b *1/00*
U.S. Cl. 209—240 **6 Claims**

A straining apparatus is provided, having a housing with a screen disposed therein, a rotatable member disposed within the screen, and pulsing foils attached to the rotatable member and extending outwardly toward the screen. An inlet is provided for a liquid suspension of fibrous material, for directing the suspension outwardly of the rotatable member, but inwardly of the screen, such that the pulsing pressure exerted by the foils attached to the rotatable member will force fibrous material of a particular size, to pass through predetermined holes in the screen, to yield accepted stock which is then carried off from the apparatus through a duct opening through the housing. Stock which is not of sufficient size to pass through the screen is collected at one end of the screen and is carried off as rejected stock, to be processed further,



prior to undergoing another straining operation. A particularly novel type of screen and rotatable member are provided, for maximizing the efficiency of the apparatus, and for obtaining desirable flow variations of the suspension across the screen.

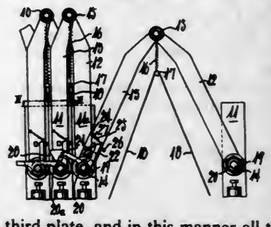
3,547,268
FILTRATION PROCESS
Frank H. Passalaqua, Conroe, Tex., assignor to Industrial Filter & Pump Mfg. Co., Cicero, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 664,004, Aug. 29, 1967, now abandoned. This application July 23, 1969, Ser. No. 844,138
Int. Cl. B01d *37/00*
U.S. Cl. 210—71 **2 Claims**



In a hardening operation for vegetable oils in which nickel is a catalyst, particles of nickel carried as impurities by the oil are removed from the oil within a pressure filter that is downstream of the converters. The oils are filtered at high temperatures such as 425° Fahrenheit in the pressure filter under a blanket of nitrogen prior to polish filtering, cooling and storing.

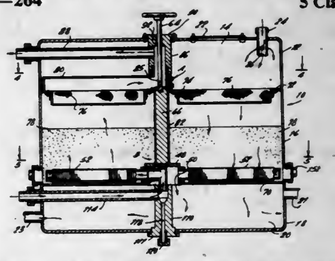
3,547,269
APPARATUS FOR RELEASING AND COUPLING FILTER PLATES IN A FILTER PRESS
Ken-Ichiro Kurita, Suita, Osaka, Japan, assignor to Kurita Machinery Manufacturing Company, Limited, Osaka, Japan
Filed Dec. 3, 1968, Ser. No. 780,723
Int. Cl. B01d *25/12*
U.S. Cl. 210—230 **1 Claim**

Each of the filter plates in a filter press is provided on opposite edges with hook members which are adapted to be engaged with stud members on the next filter plate. When a filter plate is moved for the removal of filter cake, the hook members of the next filter plate are released from the stud



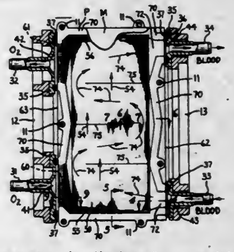
members of the third plate, and in this manner all the plates can be released or coupled successively one by one.

3,547,270
PRESSURIZED SELF-CLEANING FILTER TANK
Charles L. Kass, 19 Country Club Drive, White Plains, N.Y.
Filed Apr. 25, 1968, Ser. No. 724,079
Int. Cl. B01d *23/10*
U.S. Cl. 210—264 **5 Claims**



The invention is directed to a pressurized self-cleaning compartmentalized filter tank which is adapted so that each compartment may be individually backwashed while remaining compartments continue to operate. This is accomplished by providing a backwash hood which acts in rotating association with a backwash valve assembly, said backwash hood and valve assembly being joined by, and on opposite ends of, a connecting rod therefor. By rotating the backwash hood and its attendant backwash valve assembly to the filter compartment desired to be backwashed, the individual compartment is backwashed, while the rest of the tank continues its filtration operation.

3,547,271
MEMBRANE FLUID DIFFUSION EXCHANGE DEVICE
Miles Lowell Edwards, 13191 Sandhurst Place, Santa Ana, Calif.
Filed June 4, 1968, Ser. No. 734,369
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **14 Claims**

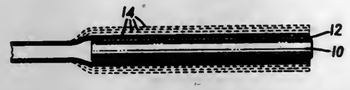


A blood oxygenator is disclosed comprising a stack of grooved plastic plates and membranes. Each plate is enclosed in a single membrane sheet which is folded around one edge of the plate and overlies both faces of the plate whereby the membrane sheet forms substantially an envelope for the plate when the stack is assembled and clamped together. Port and manifold connections are arranged to circulate oxygen through channels inside the envelopes and to circulate blood through channels between the envelopes.

3,547,272
BRAIDED SUPPORT FOR SEMIPERMEABLE MEMBRANE

Alfred Shaines, Fanwood, Robert L. Kalish, East Brunswick, and Edward A. G. Hamer, Metuchen, N.J., assignors to American Standard Inc., New York, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 508,037, Nov. 16, 1965, now abandoned. This application Oct. 28, 1968, Ser. No. 770,979
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 **10 Claims**

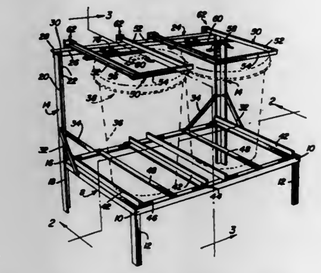


A cylindrical rigid porous support for an osmotic or ultrafiltration membrane. The support is made of braided fiber sleeves, which are intimately conformed to a mandrel by axial lengthening and consequent radial shrinkage of the braided fibers around the mandrel and which are then permanently cemented together in such conformed position with a limited amount of cement to leave open interstices between the fiber crossover points.

3,547,273
GARBAGE CAN STAND WITH LID HOLDERS

Reuben N. Bompart, 305 N. Ewing, Helena, Mont.

Filed Sept. 26, 1968, Ser. No. 762,811
Int. Cl. B65f *1/16*
U.S. Cl. 211—84 **8 Claims**



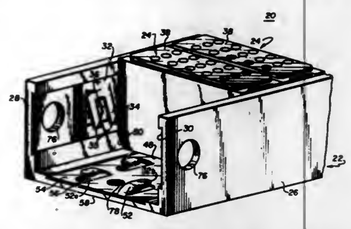
An outdoor stand comprising a frame structure embodying a leg-supported can-racking and elevating frame. Piloting and confining guides fixed atop the frame provide trackways in which insertable and removable garbage cans are positioned for loading and subsequent removal and emptying. The upper ends of the rear legs are joined by an elevated beam. Coordinated brackets on this beam serve to hingedly mount U-frames which serve as holders and closure operators for the can lids.

3,547,274
MODULE MOUNTING SYSTEM

Charles William Sosinkski, Linden, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey

Filed Apr. 25, 1968, Ser. No. 724,033
Int. Cl. A47f *5/08, 7/00*
U.S. Cl. 211—89 **20 Claims**

A module mounting system which permits the individual insertion, or removal, of modules mounted in a rack containing a plurality of such modules. The mounting system comprises a mounting rail of a generally U-shape surrounding the sides and back but leaving exposed the front face of the module. Mounted along the inside surface of the mounting rail, adjacent the sides of the modules are placed, at discrete positions, a plurality of flexure members which face inwardly and downwardly with respect to the center line of the mounting rail. The modules have formed in their adjacent sides steps to receive in locking engagement the flexure members of the mounting rail. The insertion of the modules within the mounting rail will cause a deflection of the flexure members outwardly and downwardly until such time as the step passes the free ends of the flexure members, at which time the flexure members will be allowed to return to their initial position

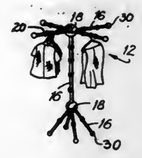


inwardly, lockably engaging with the steps of the modules. To assure proper seating of the module and to insure contact between the flexure members and the step of the module, further flexure members are arranged in the bottom portion of the mounting rail, adjacent the bottom of the module, or in the sidewalls, which will tend to assure the locking engagement between the first flexure members and the module.

3,547,275
MERCHANDISING DISPLAY APPARATUS

Philip A. Engel, Lawrence, N.Y. (910 Railroad Ave., Woodmere, N.Y. 11598)

Filed June 18, 1969, Ser. No. 834,342
Int. Cl. A47f *5/10*
U.S. Cl. 211—177 **10 Claims**



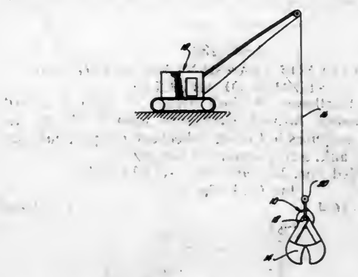
A merchandising display apparatus includes a plurality of hollow tubular cylindrical metal rods of varying lengths. The rods are interconnected to form a composite skeletal display fixture rack, i.e. horse, garment tree or the like. At the junction between any two of the rods in a composite display fixture, a wooden spherical connecting element is located. The connecting element includes a plurality of spaced inwardly tapering radial sockets. The mouth of each socket is larger than the diameter of the tubular rods while the base of each socket is of a smaller diameter so that the end of a rod may be securely forced into a selected socket. Positioned along the surfaces of the rods at spaced intervals are a plurality of helically wound coil segments formed of a relatively thick (e.g. approximating the thickness of the rod wall) metal wire. The coil segments separate the lengths of the rods into zones from which garments may be hung or over which garments may be draped.

3,547,276
ANTI-SLACK DEVICE FOR CRANE-OPERATED BUCKETS AND THE LIKE

Russell B. Thornburg, Palos Verdes, Calif., assignor to Global Marine Inc., Los Angeles, Calif., a corporation of Delaware

Filed Aug. 30, 1968, Ser. No. 756,534
Int. Cl. B66c *1/00*
U.S. Cl. 212—1 **5 Claims**

A spring-loaded drum couples a bucket or the like through a hoist line to a crane. The drum is spring-biased to exert a take-in force on the hoist line which is less than the weight of the bucket. When the weight of the bucket is suddenly taken off the hoist line, the spring rotates the drum to take in hoist line and prevent its slackening. Thereafter, the spring maintains a nominal tension on the hoist line. A stabilizing sheave is also provided to prevent the rotational moment exerted by

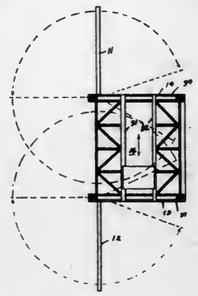


the hoist line on the bucket through the drum from upsetting the correct vertical orientation of the bucket.

3,547,277
DOUBLE JIB GANTRY CRANE

Guy H. Strayer, Manchester Beach R.D. 2, Fairview, Pa.

Filed Nov. 14, 1967, Ser. No. 682,756
Int. Cl. B66c *17/00, 23/02, 23/00*
U.S. Cl. 212—10 **3 Claims**



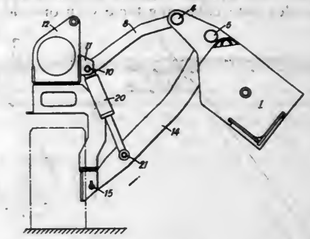
The crane disclosed herein is a double jib gantry crane having a jib at each side. The crane is carried on four spaced supporting wheels. Each jib is supported on a rotatable column through 320°. Each said column is supported between two wheels on a single side and spaced inward a substantial distance from the adjacent wheel so that a load on the jibs will not upset the crane but will be imposed as a movement about the axle of the adjacent wheel. A floating trolley is supported on top of the crane to give travel in four directions without moving the crane. The gantry crane wheels are driven by means of chains and sprockets.

3,547,278
MOBILE CRANES

Frederick H. Tayler, 201 Chartridge Lane, Chesham, Bucks, England

Filed Oct. 14, 1968, Ser. No. 767,350
Claims priority, application Great Britain, May 3, 1968, 20994/68
Int. Cl. B66c *23/72*
U.S. Cl. 212—49 **5 Claims**

A mobile crane provided with a counterweight having a support member extending away from the center of gravity of the counterweight and including first and second pivot points, with the first pivot point located further from the center of gravity of the counterweight than the second, first and second link means pivotally connected to a lower point and a higher point, respectively, on the crane and to the second pivot point and the first pivot point, respectively, on the support member, and a hydraulic jack connected to said links for controlling the angular positions of the links so that the counterweight is caused to be moved away from the crane in such a manner that the line joining the first and

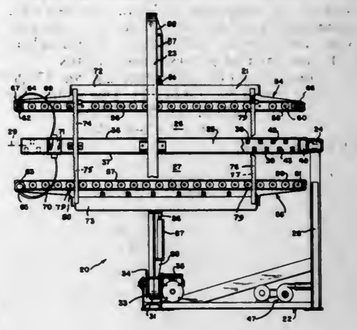


second pivot points on the support member is rotated to increase the angle of the inclination of this line to the vertical.

3,547,279
DUAL INVERTER FOR COUNTED STACKS OF SHEETS

Joseph E. Radomski, Saco, Maine, assignor to Southworth Machine Company, Portland, Maine, a corporation of Maine

Filed Dec. 9, 1968, Ser. No. 782,148
Int. Cl. B65g *69/00*
U.S. Cl. 214—1 **12 Claims**



An inverter for sequentially inverting portions of stacked and counted piles of paper. A paper trimmer may thus be used to full load capacity with each trim, the inversion of each lift of untrimmed sheets, prior to trimming, retaining the count in the stack of trimmed sheets. The machine is so constructed that two knifeloads of paper can be stored in the same floor space as used for one knifeload in prior art devices. This result is accomplished by mounting two power actuated, movable clamping members each on an opposite side of a fixed central clamping member within a rotatable inverter frame. The lift-supporting faces of all members are flat, smooth and planar whether air cushion or belt. There is a paper-receiving passage between each movable clamping member and the fixed central member, an endless conveyor on one member in each passage, and the inverter is so operated that one lift of paper may be received in one passage at the same time another lift of paper is discharged from the other passage.

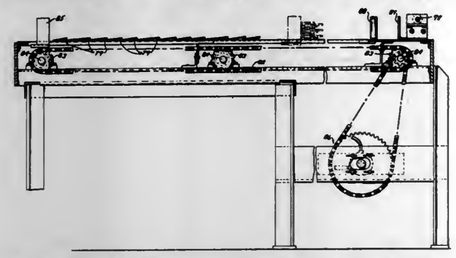
3,547,280
TAB STACKING APPARATUS

James E. Giegerich, Norristown, Pa., assignor to Certain-Teed Products Corporation, Ardmore, Pa., a corporation of Maryland

Filed June 14, 1968, Ser. No. 736,995
Int. Cl. B65g *57/10*
U.S. Cl. 214—6 **2 Claims**

Shingle-manufacturing equipment includes hopper from which shingles are stripped one at a time and fed to cutting assembly provided for subdividing shingles into a plurality of strips of various widths. Cutting assembly includes cutters,

e.g. rotary disc type, ganged on shaft for simultaneous cutting of shingle along plurality of lines extending transversely of the long axis of the shingle. Transfer apparatus deposits subdivided shingles onto collecting table with one side edge of

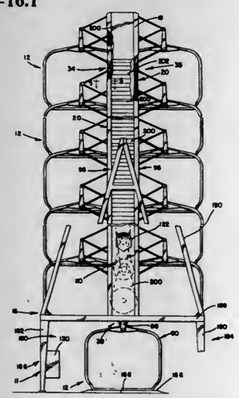


each strip being held in a raised condition with respect to the adjacent side edge of the following strip on the table. A traveling stacker moves lengthwise of the table successively engaging the lower edge of each strip and moving that strip over the following strip.

3,547,281
STABILIZING AND GUIDE MEANS FOR ENDLESS VEHICLE PARKING SYSTEM

Robert D. Lichti, Long Beach, Calif., assignor to Walter A. Webster, Alburquerque, N. Mex., part interest by mesne assignments; Harold G. Goble, Denver, Colo., part interest by mesne assignments and Robert F. Campbell, Placentia, Calif., part interest by mesne assignments

Continuation-in-part of application Ser. No. 471,997, July 14, 1965, now Patent No. 3,424,321. This application June 17, 1968, Ser. No. 737,647
Int. Cl. E04h *6/06*
U.S. Cl. 214—16.1 **17 Claims**

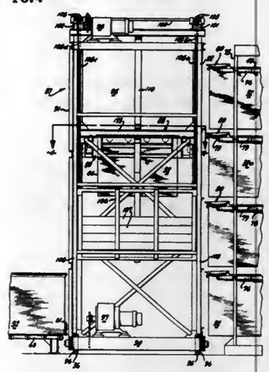


The disclosure relates to a vehicle parking arrangement for automobiles and the like of the tower type in which vehicle support platforms are suspended in endless conveyor fashion between a pair of vertically disposed endless conveyors in the form of rigid links connected together in end to end relation and operating in vertically disposed guideways that maintain the links that are positioned between the ends of the conveyors in vertically disposed relation to form vertically disposed conveyor runs. The platforms are suspended from the respective conveyor links, with the conveyors themselves having no end pulleys or sprockets, but rather being supported through a motion transmitting connection adjacent the base of the respective conveyors. Each of the respective platforms are supported from a support member of each conveyor that includes a conveyor link, and each vehicle support platform is held against sway in moving about the system by a motion stabilizing arrangement which includes a three way parallel linkage that is arranged so that the vehicle support platforms are smoothly transmitted from one conveyor run to another on opposite sides of the system. Also disclosed are an improved mechanism for supporting and driving the conveyors by engagement with their links in a synchronized step by step manner, and a special arrangement for the vehicle load support platforms per se that simplifies design considerations.

3,547,282
APPARATUS FOR TRANSIENT HANDLING AND STORING OF ARTICLES

Ellsworth A. Hartbauer, Antioch, Henry W. Rehr, Concord, Alan R. Goodley, Antioch, Calif., and John W. Wyatt, Auburn, Ala., assignors to Corwn Zellerback Corporation, San Francisco, Calif., a corporation of Nevada

Filed Apr. 24, 1967, Ser. No. 633,137
Int. Cl. B65g *1/00*
U.S. Cl. 214—16.4 **17 Claims**



Apparatus for and method of removably storing a plurality of boxlike containers each of which is adapted to receive therein a substantial number of articles such as cartons of facial tissue. The apparatus includes a storage bank adapted to have such boxes or containers inserted through the front face of the storage bank into one of a plurality of openings therein which are arranged in horizontal rows and vertical tiers, each of the boxes when inserted into the storage bank being automatically coupled in tandem orientation to a preceding box previously inserted into the same opening and at the same time being operative to displace such preceding box inwardly toward the rear of the storage bank. The apparatus further includes a box transporter mechanism having moving elements cooperating with elements provided by the box to pick up the boxes individually at a pickup station and then transport each such box to a desired location or opening along the storage bank and insert the box thereinto, the transporter mechanism also being used for subsequently removing boxes from the storage bank and for transporting the boxes to a discharge station. Upon such removal of a box from the storage bank, the box is automatically uncoupled from a preceding box immediately therebehind after the latter box has been advanced to a forward position adjacent the front face of the storage bank. The transporter mechanism includes an elevator cage movable vertically so as to handle boxes at different levels and it further includes a conveyor mechanism arranged with the elevator cage for vertical movement therewith, but also being movable horizontally with respect to the elevator cage for the purpose of picking up, discharging, and inserting boxes into and removing them from the storage bank.

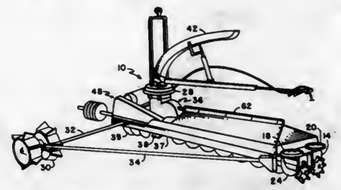
3,547,283
DOUBLE AUGER SILO UNLOADER

James R. Beebe, Celina, Paul A. Luthman, Maria Stein, and Thomas R. Fischer, Wapakoneta, Ohio, assignors to Avco Corporation, Coldwater, Ohio, a corporation of Delaware

Filed Nov. 4, 1968, Ser. No. 773,146
Int. Cl. B65g *67/46*
U.S. Cl. 214—17 **1 Claim**

A silo unloader employing side-by-side rotating augers carried on a frame in radial rotation on the surface of silage to be unloaded from a circular silo, with such auger assembly serving to move silage radially inward to a central thrower.

Structure and arrangement of the augers is such that the leading auger primarily digs and loosens silage material from the surface and also assists movement of the auger frame assembly around the silo while an adjacent following auger

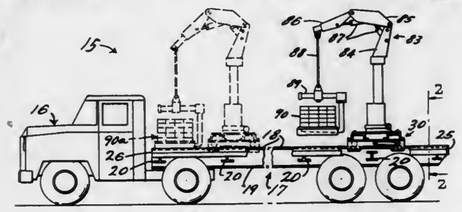


primarily moves material toward the center. The major portion of the silage is picked up from the following auger at the rear of the thrower opening, with the front of the thrower opening picking up a lesser amount.

3,547,284
VEHICLE MOUNTED LOADING HOIST

Glenn G. Dunbar, 2608 Overbrook Drive, Toledo, Ohio

Continuation-in-part of application Ser. No. 633,200, Apr. 24, 1967, now abandoned. This application Sept. 22, 1969, Ser. No. 859,695
Int. Cl. B60p *1/48*
U.S. Cl. 214—77 **6 Claims**

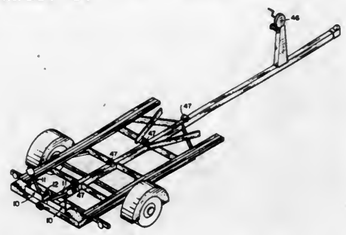


This invention is a vehicle mounted loading hoist for use with a vehicle having a pair of parallel rails positioned on its bed. A carriage is mounted for movement on the rails and a loading hoist is positioned on the carriage. The carriage includes a pair of axle boxes. Each axle box includes a pair of sidewalls having a lower shoe part adapted to extend beneath a rail flange. First adjusting mechanism varies the elevation of the shoe parts. Second adjusting mechanism varies the length of the carriage axles and third adjusting mechanism adjusts the spacing between adjacent axle box sidewalls. A motor is provided to selectively move the carriage along the rails.

3,547,285
ALIGNING DEVICE FOR BOAT TRAILERS

Paul Plummer, Potlatch, Idaho

Filed Nov. 4, 1968, Ser. No. 773,126
Int. Cl. B60p *1/52*
U.S. Cl. 214—84 **4 Claims**

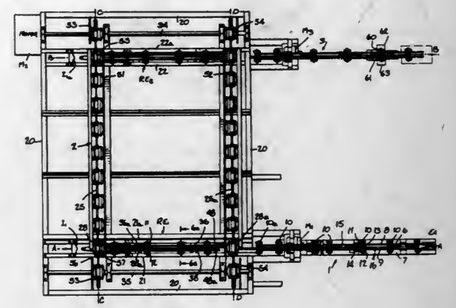


Paired opposed upwardly extending guides are provided for placement at the rear of a boat trailer to aid in aligning a boat to be placed upon the trailer by flotation. The guides are pivotably mounted at spaced distance and independently mechanically biased toward each other to allow entry of a boat therebetween and aid in maintaining the boat in a symmetrically aligned position relative the guides during placement on a trailer by the normal flotation process. The guides contact the boat by rotatably mounted guiding rollers.

3,547,286
METHOD AND APPARATUS FOR TRANSPORTING LOADS

Jean Leblond, Compiegne, France, assignor to Uniroyal Englebert France S.A., Paris, France, a corporation of France

Filed June 26, 1968, Ser. No. 740,209
Claims priority, application France, July 5, 1967, 113,262
Int. Cl. B65g *17/46*
U.S. Cl. 214—89 **7 Claims**

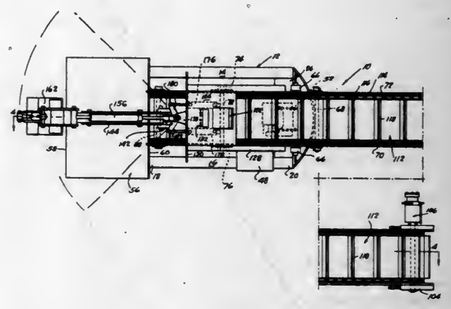


Apparatus for transporting loads, for example, tire tread material includes means for transporting a loaded support along one directional axis. The apparatus also includes means for transporting the loaded support along another directional axis normal to the first-mentioned axis to a position at which the support is unloaded. The two transport means are effective to return the unloaded support to the starting position of the support.

3,547,287
LOADING AND CONVEYING MACHINE

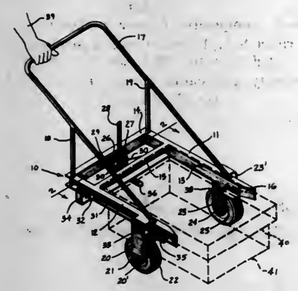
Isaiah Vernon Cunningham, Sr., 1411 Nottingham Road, South Charleston, W. Va.

Filed Jan. 16, 1969, Ser. No. 791,578
Int. Cl. B65g *41/02*
U.S. Cl. 214—90 **4 Claims**



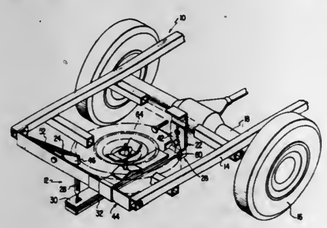
A loading and conveying machine having a forward pulling implement movable in both lateral and vertical axes to force material onto an inclined plate and to a conveyor means.

3,547,288
MOVING CART
Amos R. Butler, Highway 242, P.O. Box 276, and Thomas L. Sutton, North Clinton St., P.O. Box 474, Roseboro, N.C.
Filed Sept. 20, 1968, Ser. No. 761,145
Int. Cl. B60p 1/64
U.S. Cl. 214—372 2 Claims



In abstract, a preferred embodiment of this invention is a frame-type cart having pivoted flanges for engaging the bottom of a series of stacked containers so that the entire stack may be lifted clear of the ground or floor and moved with relative ease by one person.

3,547,289
SWING-OUT TIRE CARRIER
Chester R. Steele, Sherman, Tex., assignor to SwingCo., Inc., Sherman, Tex., a corporation of Texas
Continuation-in-part of application Ser. No. 681,670, Nov. 9, 1967, now Patent No. 3,460,695, dated Aug. 12, 1969. This application June 24, 1968, Ser. No. 739,397
Int. Cl. B62d 43/04
U.S. Cl. 214—451 8 Claims

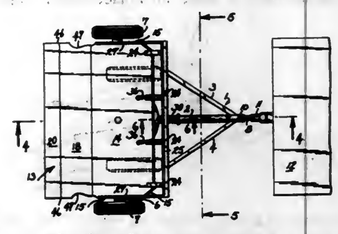


The disclosure is directed to a vehicular tire carrier that is adapted to be mounted beneath the body of a vehicle and provide ready accessibility to the tire supported thereon.

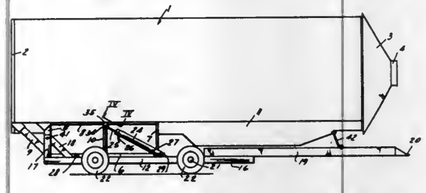
The tire carrier includes upper and lower support arms which are mounted for limited vertical swinging movement relative to a vehicle undercarriage between upper and lower stable positions. The upper arm, which carries the tire, is pivotally supported by the lower arm for pivotal movement relative thereto between positions underlying and extending outwardly from the vehicle body. The rear end of the tire carrier includes an over center spring-biased mounting arrangement for positioning and supporting the arms in the extreme stable positions. In the lower stable position, the tire may be swung outwardly from beneath the vehicle for ready access.

3,547,290
TOWING DEVICE FOR VEHICLES
Harold A. Fratzke, Glenn D. Gniffke, Cottonwood, and Samuel H. Van Selus, Echo, Minn.
Filed Oct. 17, 1968, Ser. No. 768,411
Int. Cl. B60p 3/12
U.S. Cl. 214—506 11 Claims

A towing device for vehicles, which includes a two-wheeled carriage adapted for connection behind a power-operated towing vehicle, which has a tiltable bed for loading the front end portion of vehicles onto the towing device, in which the bed is rotatable to permit easy turning when towing a vehicle with said device, and which includes a telescoping tongue on the frame of the device equipped with a cable arrangement for pulling vehicles onto the bed.

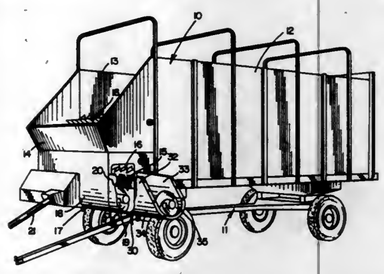


3,547,291
TRANSPORT AND ERECTION TRAILER
Elmo L. Batterton, and Melvin J. Lonsdale, Morton, Ill., assignors to Meyer Morton Co., Morton, Ill., a corporation of Illinois
Filed Oct. 17, 1968, Ser. No. 768,399
Int. Cl. B60p 1/64
U.S. Cl. 214—515 6 Claims



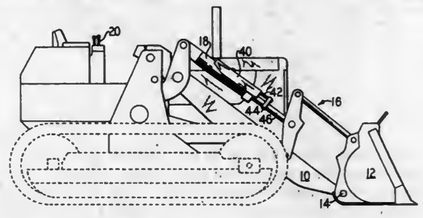
A transport and erection trailer to be towed by a truck or tractor and designed to carry a structure normally too large to be taken down a highway and passed beneath low overhead structures such as viaducts and bridges by means of transporting vehicles heretofore known, the trailer being arranged to carry such structure in a substantially horizontal position and when the destination is reached raise it to a vertical position upon a preformed foundation ready for usage.

3,547,292
REVERSIBLE AUGER EXTENSION
Peter Sammarco, Bellwood, and Robert W. Sanderson, III, Lombard, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed June 16, 1969, Ser. No. 833,457
Int. Cl. B60p 1/40
U.S. Cl. 214—520 7 Claims



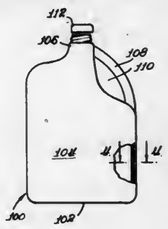
A reversible discharge trough having each of its ends selectively attachable to an auger type cross conveyor of a self-unloading wagon, the trough having a U-shaped cross section and an articulated driven auger section therewithin, one end of the trough terminating substantially normal to its horizontal axis to effect a substantially horizontal discharge when attached to the wagon, and the other end of the trough terminating at one obtuse angle relative to its longitudinal axis to effect a discharge above the horizontal.

3,547,293
AUTOMATIC LOADER BUCKET CONTROL AND INDICATOR
Herbert W. Borer, Naperville, and John R. Muntjanoff, Aurora, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Dec. 16, 1968, Ser. No. 784,121
Int. Cl. E02f 3/70
U.S. Cl. 214—761 1 Claim



Control and indicating means for causing a loader bucket to stop in a predetermined position after an operator has adjusted a control valve and without further attention by the operator, with moving parts that are simple and well protected from falling earth and rock which tend to jam or damage the parts. The control includes visible indicating means to show the position of the bucket when it is hidden from the operator's view.

3,547,294
COATED PLASTIC CONTAINERS
Beverly E. Williams, La Grange Park, Ill. (P.O. Box 299, San Mateo, CA 94401)
Filed Aug. 21, 1968, Ser. No. 754,396
Int. Cl. B65d 23/02, 23/08
U.S. Cl. 215—1 8 Claims

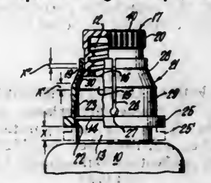


A blow-molded plastic bottle or jug having an impervious coating thickness of metal united to one surface thereof to seal in the flavors of liquid stored in the bottles or to protect the same against the deleterious effects of ultraviolet light or other radiations and covered by a thin continuous coating of nontoxic synthetic resin.

3,547,295
TAMPER-PROOF CLOSURE CONSTRUCTION
William James Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn., a corporation of Delaware
Filed Mar. 10, 1970, Ser. No. 18,119
Int. Cl. A61j 1/00; B65d 55/02
U.S. Cl. 215—9 27 Claims

The invention contemplates selectively openable closure means that is tamper-proof, in the sense that a correct sequence of two deliberate and independent movements of different elements is necessary in order to achieve access to the contents of the bottle or the like which is protected by the closure.

The specific construction that is described involves a bottle with a neck having a locating circumferential bead and a reduced threaded end. A closure cap with a radially outward base flange is selectively threaded to the neck. A sleeve surrounds and overlaps the flange of cap (when closed) and the bead on the bottle neck, and the sleeve includes radially inwardly projecting means in axially interfering relation with both the bead and the flange, to normally block access to the bottle merely by attempted unthreading of the cap. The sleeve is axially shiftable and has such deforming cammed engagement with the neck during such axial shift that one of the interfering relations is thereby relieved, thus freeing the cap for unthreading removal.

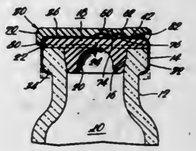


3,547,296
NURSING BOTTLE DRINKING TUBE
David Greenberg, 500 B Grand St., New York, N.Y.
Filed Feb. 12, 1970, Ser. No. 10,781
Int. Cl. A61j 9/00
U.S. Cl. 215—11 7 Claims



A drinking tube for nursing bottles and the like comprising a plug member for engagement with the nipple, a tube member extending substantially to the bottom of the bottle and a weighted base member secured to the free end of the tube, the tube comprising an upper rigid section and a lower flexible section, with a coil wound around the juncture of the sections to prevent pinching off of the tube at that point on the bending of the flexible section.

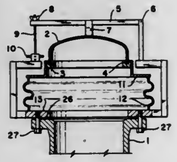
3,547,297
CONTAINER CLOSURE HAVING INTEGRAL OPENING MEANS
Robert Herbert and Richard C. Osting, Phoenixville, Pa., assignors to The West Company, Phoenixville, Pa., a corporation of Pennsylvania
Filed June 24, 1968, Ser. No. 739,265
Int. Cl. B65d 51/00, 43/02
U.S. Cl. 215—46 14 Claims



A tamper-proof container closure for use on containers such as pharmaceutical bottles or the like to hold a stopper in place in the opening of the bottle. The container closure comprises a cap and cover member. The cap is generally of cuplike form and includes a top and a skirt depending from the outer peripheral edge of the top. The top includes a por-

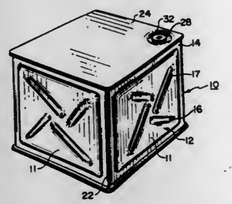
tion connected to the cover member and adapted to be detached to expose the stopper and permit it to be pierced, for example by a hypodermic syringe to remove the fluid contents of the container. In one form of the invention, partial scoring, that is, a continuous line-type scoring, is provided in the top to define a keyhole-shaped detachable portion therein. The cover member is secured to this detachable keyhole-shaped portion whereby upon actuation of the cover relative to the cap, the detachable portion breaks away from the remainder of the cap along the score line.

3,547,298
APPARATUS FOR CLOSING A PRESSURE VESSEL
Roeland Versluis, The Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Aug. 15, 1968, Ser. No. 752,949
Claims priority, application Netherlands, Aug. 30, 1967, 6711947
Int. Cl. B65d *7/02, 53/02, 45/28*
U.S. Cl. 220—3 **4 Claims**



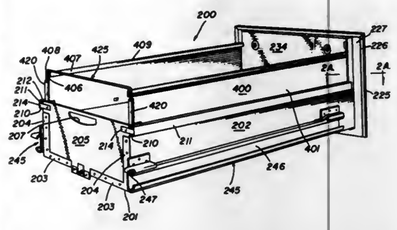
A safety closure apparatus comprises an axially expandable cylindrical member intermediate a pressure releasable cover to bias sealing areas between said cover and an opening in a pressure vessel toward one another.

3,547,299
STORAGE CONTAINER FOR FLUIDS
Orren N. Kepple, Peoria, Ill., assignor to Industrial Management Association, Wayne, Ill., by mesne assignments
Filed Nov. 19, 1968, Ser. No. 777,100
Int. Cl. B65d *7/42, 21/02, 21/00, 7/00*
U.S. Cl. 220—4 **12 Claims**



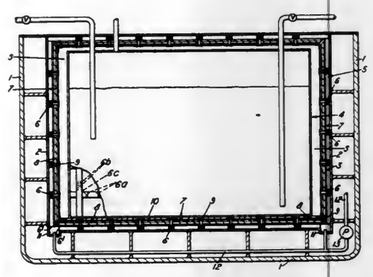
A durable, safe metal container for liquids characterized by seamless, integral sides having work-hardened marginal wall bordering and defining a panel of press-formed indentations or embossments, each indentation also having work-hardened marginal walls. The sides of the container are joined by integral work-hardened corners, and are combined with flange-welded top and bottom walls to provide structural rigidity along all axes of the container. The juncture of the sides with both the top and bottom walls is extended peripherally to form, end to end, a protective flange and all outer surfaces on any one side or wall are essentially planar for compact stacking of the containers upon and adjacent to each other in any orientation. At least two work-hardened marginal walls are provided in close proximity to each corner edge and the sides are characterized by having the work-hardened marginal walls of at least two embossments intersected by any major dimension thereof. In one embodiment any given point on a flat part of a side panel is bordered by work-hardened marginal walls of an embossment. A recessed opening is provided in the top wall with a radially slotted, threaded collar or a threaded spider to receive a mating stopper or bung in sealed relationship. Other embodiments are disclosed.

3,547,300
EXTENSION PLATES FOR METAL DRAWERS AND THE LIKE
Robert A. Studinski and Florian A. Walter, Aurora, Ill., assignors to Lyon Metal Product, Incorporated, Aurora, Ill., a corporation of Illinois
Filed Apr. 22, 1969, Ser. No. 818,273
Int. Cl. B65d *7/00*
U.S. Cl. 220—4 **19 Claims**



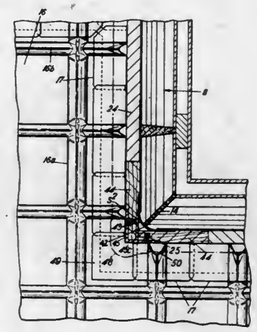
Extension plates for use in conjunction with a drawer assembly and the combination thereof with a drawer including a pair of longitudinal sidewalls, each sidewall having a channel on the upper edge thereof to facilitate the mounting of the respective extension plate. Each extension plate is mounted on the associated drawer sidewall by means of flanges which engage corresponding structures on the drawer sidewall channel, and a forwardly directed mounting portion on the extension plate which is disposed within a slot formed in the drawer head, the upper edges of the respective extension plates providing support for hanging folders disposed thereon and within the drawer.

3,547,301
TANKER FOR LIQUEFIED GASES
Roger Cambridge Ffooks, Tittlesfold Farm, near Billingshurst, Sussex, England, assignor to Conch Ocean Limited, Nassau, a Bahamian company
Filed Jan. 27, 1969, Ser. No. 794,149
Claims priority, application Great Britain, Feb. 21, 1968, 8362/68
Int. Cl. B65d *7/22*
U.S. Cl. 220—10 **7 Claims**



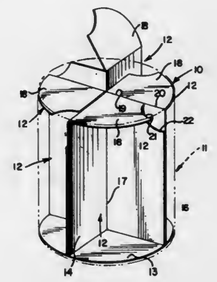
To prevent infiltration of external leakage water into the major portion of the water-permeable thick outer thermal insulation of the cargo tanks of marine tankers for cryogenic liquids, interceptor drainage passages are formed in the outer part of the thermal insulation so that such leakage water is drained down to a sump for collection and removal before the water can reach a thermal gradient in the insulation at which it will freeze.

3,547,302
CONTAINER FOR LIQUEFIED GASES
Robert G. Jackson, Hornchurch, England, and Gilbert Massac, Meudon, France, assignors to Conch Ocean Limited, a Bahamian company
Filed Sept. 20, 1968, Ser. No. 761,158
Claims priority, application France, Oct. 12, 1967, 124,248
Int. Cl. B65d *25/00*
U.S. Cl. 220—15 **6 Claims**



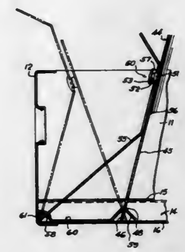
A membrane-type insulated, large-scale prismatic container for cryogenic liquids, such as are used in tankers, having load-bearing insulating walls backing up thin, flexible membrane walls which constitute the primary container. The membrane walls are attached at the corners to rigid angle-section anchoring members which are supported by the insulating walls, and which are sufficiently strong to transmit to the insulating walls, without appreciable deformation, all loads transmitted to them by the membrane walls.

3,547,303
CONTAINER EJECTING MEANS
Carmen T. Mascia, Westchester, and Richard B. Bagguley, Dolton, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Nov. 12, 1968, Ser. No. 774,746
Int. Cl. B65d *1/24*
U.S. Cl. 220—22 **1 Claim**



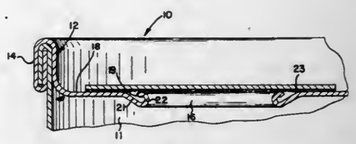
The disclosure relates to removable partitioning inserts for containers. The partitioning inserts are of one-piece construction and are each formed as a quadrant of the volume of the container including a base, and two sidewalls connected along the lower edges to the base. A top wall is hingedly connected to one of the sidewalls.

3,547,304
INDEX DEVICES
Joseph D. Lear, Snyder, and Eric M. Holt, East Aurora, N.Y., assignors to Posting Equipment Corporation, Buffalo, N.Y.
Filed Apr. 8, 1968, Ser. No. 719,441
Int. Cl. B42f *17/14;* **B65d** *25/06*
U.S. Cl. 200—22.2 **2 Claims**



A posting tray of the rectilinear tub-type having front and back compressors for receiving rectangular-filing cards therebetween in a compressed angular position relative to the vertical. The back compressor is of a fixed angularity and it is adjustable linearly to vary the filing space between it and the front compressor. The front compressor is only angularity movable from a latched compressing position parallel to the back compressor to a forward or open angular position affording a cleavage angle for the filing cards.

3,547,305
EASY OPENING CONTAINER
Nick S. Khoury, Worth, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Nov. 15, 1968, Ser. No. 776,035
Int. Cl. B65d *39/00, 41/00, 17/20*
U.S. Cl. 220—24 **1 Claim**

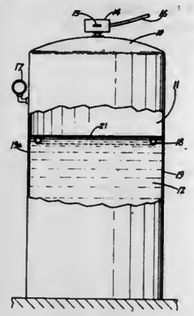


The disclosure relates to an easy opening container. The container comprises an end panel formed with an opening bounded by a downwardly inclined marginal edge portion which terminates in an upwardly directed curl. The curl is disposed so that an extension of the plane of the panel surface about said marginal portion is tangential to the outer circumference of the curl. A removable pressure sensitive adhesive tape is adhered to said panel over an opening in tangential contact with the curl.

3,547,306
FLOATING FLUID BARRIER
Henry R. Natterstad, 202 S. 18th St., Estherville, Iowa
Filed Sept. 3, 1968, Ser. No. 756,887
Int. Cl. B65d *87/18*
U.S. Cl. 220—26 **3 Claims**

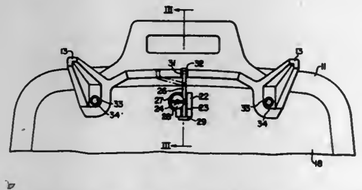
This invention is a floating fluid barrier with a resilient frame which will float in one of the fluids and sink in the other to support a flexible membrane secured directly to the frame, which is of sufficient stiffness to be self-supporting for a distance of up to one-half inch, the frame must resist being

crushed under pressure deferentials of whatever nature are employed in the tank with which it is used and desirably, of



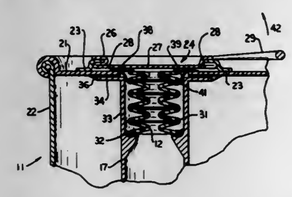
course, provides a margin of safety above nominal functioning pressure differentials.

3,547,307
ONE PIECE HANDLE AND LEG CONSTRUCTION AND MEANS FOR FASTENING THEREOF TO A FRY PAN OR THE LIKE
Harry H. Barker, Mansfield, and Remington S. Radcliffe, Lexington, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 30, 1968, Ser. No. 756,559
Int. Cl. B65d *25/28*
U.S. Cl. 220—69 **7 Claims**



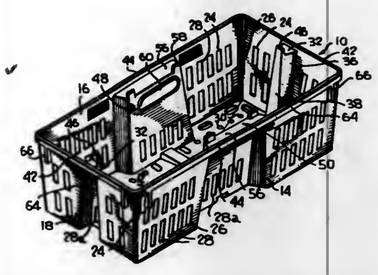
A vessel in the form of an electric fry pan characterized by the provision of readily removable one piece leg and handle structures for facilitating the cleaning thereof. Removal of the one piece structures is accomplished through rotation of a formed wire arm wire pivotally anchored to the bottom wall of the fry pan, at each side thereof. The formed wire arm wire engages the one piece structure at one point on the underside thereof while apertures provided at different points on the leg structure receive studs in the bottom of the fry pan.

3,547,308
BEVERAGE DRINKING TUBE INSTALLATION
Lester G. Gilliem, 414 W. Hendricks St., Shelbyville, Ind.
Filed Aug. 5, 1968, Ser. No. 750,129
Int. Cl. A47g *19/22, 21/18;* **A61j** *15/00*
U.S. Cl. 220—90.2 **8 Claims**



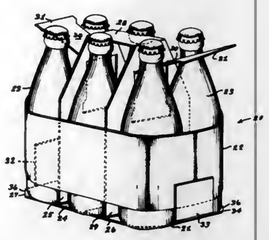
A metal can with pull tab-opener has a drinking tube disposed under the opener and urged toward the outside by a spring or float, the tube being rigid or accordion folded, with or without a concentric tube extending to the bottom of the container, and the drinking tube having a lip guard associated therewith in one embodiment.

3,547,309
STACKABLE AND NESTABLE PLASTIC LUGS
Philip Pusey, Kennett Square, and Louis R. Toto, Landenberg, Pa., assignors to Chester County Mushroom Sales Corporation, Avondale, Pa., a corporation of Pennsylvania
Filed Jan. 24, 1969, Ser. No. 793,754
Int. Cl. B65d *21/04, 21/02*
U.S. Cl. 220—97 **3 Claims**



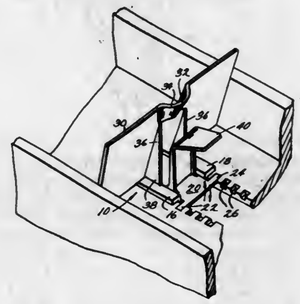
Lugs, nestable when empty, having interfitting locking arrangements so that they can be stacked, when loaded with goods, in selective lengthwise and crosswise interlaced arrangements on a pallet; each lug being molded from a high density polyethylene in a container form with a bottom, opposing ends and sides an and open top, the ends and sides having indented vertical reinforcing posts terminating at the top in projecting fingers lying inwardly of and below the upper edges of the ends and sides and the bottom being adapted to seat on the posts and having apertures adapted to receive the locking fingers of an underneath lug with the sides being formed with handgrip means for singly or in side-by-side pairs manually handling the lugs.

3,547,310
BOTTLE CARRIER AND PAPERBOARD BLANK FOR FORMING SAME
Grover C. Currie, 4 Richmond Square, Euclid, Ohio
Filed June 6, 1968, Ser. No. 734,988
Int. Cl. B65d *75/00*
U.S. Cl. 220—113 **16 Claims**



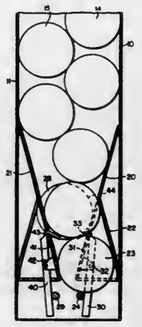
A bottle carrier of the base and band type wherein the base component is formed from a continuous elongated paperboard blank divided by transverse fold lines into a continuous integral bottom panel, a connecting panel secured in folded face-to-face relation to said bottom panel, a partition panel extending integrally from the connecting panel and folded to an upstanding bottle-separating dispostion with respect to the bottom panel, and the blank having a portion for attachment thereto of a bottle-encircling band component. An intermediate panel extends integrally from the upper edge of the aforementioned partition panel parallel to the bottom panel for bottle separation thereat and for integral extension therefrom of an additional upstanding partition panel spaced by the intermediate panel from the first-mentioned partition panel and secured by an end tab to the bottom panel. The bottle carrier provides necessary bottle separation in a sturdy construction that is simply fabricated from a minimum of paperboard.

3,547,311
DRAWER FILING SYSTEM
William L. Van Buren, Foxboro, Mass., assignor to Ronthor Reiss Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 7, 1968, Ser. No. 774,011
Int. Cl. B65d *1/24, 1/36*
U.S. Cl. 220—223 **12 Claims**



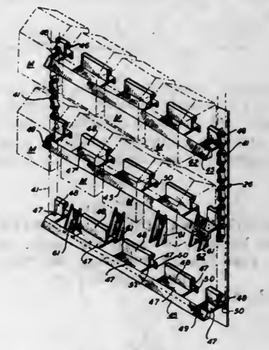
A filing system for containing cards, drawings, papers, letters and the like wherein a one-piece resilient, molded plastic follower acts in cooperation with a drawer having a guide track integral therewith to support the rear most items in a partially full drawer. The follower position may be varied along the drawer length and the guide track includes receiving slots which are engaged by teeth integral with the follower to lock the follower at predetermined positions along the drawer length.

3,547,312
TANDEM VENDING MACHINE
John J. Ambrose, North Wilbraham, Mass., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 26, 1969, Ser. No. 802,533
Int. Cl. B65g *1/08*
U.S. Cl. 221—67 **4 Claims**



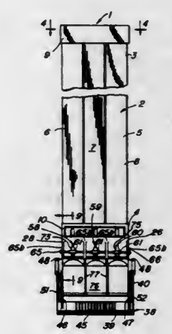
An article dispensing apparatus for dispensing articles alternately from two tandem forward and rearward positioned stacks of articles in a single magazine including forward and rearward article funnels extending to a respective different primary release and support member together with a respective secondary release means adapted to engage the article next above the position of the lowermost article in the respective funnel, each secondary release means being disengaged to lower the next above article onto the respective primary support member in its funnel when the primary release member for the other funnel is moved to vend the lowermost article therefrom.

3,547,313
ARTICLE-DISPENSING MACHINE
Irving Pitel, Metuchen, Floyd C. Cornine, Red Bank, Richard S. Silverman, Union, and Arnold B. Cohen, North Plainfield, N.J., assignors to Automatic Merchandising Machine Mfg. Corporation, Avenel, N.J., a corporation of New Jersey
Filed May 31, 1968, Ser. No. 733,665
Int. Cl. G07f *11/00*
U.S. Cl. 221—78 **16 Claims**



In a machine for the sequential dispensing of articles from vending units, each vending unit being comprised of a series of horizontal article-supporting shelves conveyed in vertically spaced arrangement about an inner wall of the unit, sequentially dispensing the articles by moving them off the shelves as the shelves descend.

3,547,314
DISPENSING DEVICES WITH PIVOTED INTEGRAL CONTROLLERS
John R. Brandell, 1527 Sequoia Trail, Glenview, Ill.
Filed Apr. 9, 1969, Ser. No. 814,719
Int. Cl. B65g *59/00*
U.S. Cl. 221—301 **6 Claims**

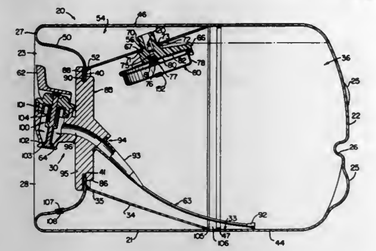


A golf ball retrieving, storing and dispensing device having a retrieving unit at one end and a dispensing unit at the other end.

3,547,315
FLUID PRESSURE REGULATOR FOR A LIQUID-DISPENSING CONTAINER AND SUPPORT FOR SAID REGULATOR

Calvin L. Wilson; John H. Fox, Jr., Chesterfield County, and Vincent J. Serio, Jr., Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed June 24, 1968, Ser. No. 739,561
Int. Cl. B67d *5/08*
U.S. Cl. 222—61 **24 Claims**

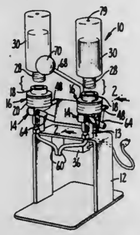


This disclosure relates to a simple fluid pressure regulator of the type particularly adapted to control the flow of a charging gas into a liquid-containing chamber of an associated dispensing container which is used to store and dispense a liquid such as a carbonated beverage, for example.

3,547,316
PROPORTIONAL DISPENSING APPARATUS

Raymond H. Heiskell, 30 Laurel Hill Court, San Mateo, Calif.

Filed Feb. 28, 1969, Ser. No. 803,272
Int. Cl. B67b *7/26*
U.S. Cl. 222—82 **2 Claims**



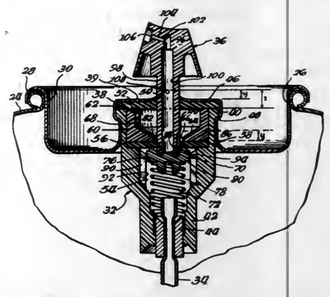
An apparatus for dispensing the resin and hardener ingredients of a chemically reactive system involving the reaction of 2 or more components in fixed proportions. The ingredients are packaged in containers which are attached directly to the apparatus. In another embodiment, the containers are punctured when attached to establish drip-free fluid communication therewith. Associated with each container is a reservoir; in which the materials are heated to lower their viscosity and to hasten the reaction time of the ingredients, and a positive displacement pump.

3,547,317
VALVE ASSEMBLY FOR DISPENSING METERED AMOUNTS OF PRESSURIZED PRODUCT

Edward H. Green, 11 Army Trail Road, Addison, Ill.

Filed July 15, 1968, Ser. No. 744,935
Int. Cl. B65d *83/00*
U.S. Cl. 222—402.2 **18 Claims**

Valve assembly for dispensing a metered amount of aerosol on a downward stroke to be mounted to a canister containing pressurized product. The valve assembly has an annular metering chamber with top and bottom perforated seals and includes a removable spray head with a hollow stem passing through both seals and engaged in a valve plunger blocking the bottom seal perforation from the interior of the canister while the stem itself blocks the top seal perforation from the atmosphere. The stem has a radial passageway through its wall connected between the hollow bore and the outside of the stem, normally on the exterior of the assembly above the upper seal and open to the atmosphere, as well as an axial groove in its wall at the bottom end, opening radially outward. The bottom axial end of the hollow bore of the stem is blocked by the seated valve plunger which also blocks the lower end of the groove while the upper end of the groove opens to the metering chamber. The downward

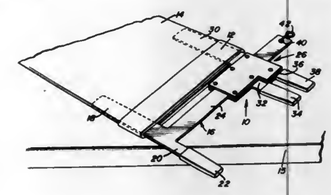


stroke first unseats the plunger, connecting the groove between the chamber and canister interior to fill the chamber before the radial passageway moves into the chamber; then moves the groove out of communication with the chamber while still not connecting the radial passageway with the chamber; and finally connects the radial passageway with the chamber to permit its contents to pass into the bore by way of the radial passageway and thence out the external orifice of the spray head. On permitted return of the spray head there will be aerosol product introduced into the chamber but not released. The metering chamber is defined by a cuplike insert member of predetermined volume.

3,547,318
CUFF STRETCHER

Willard M. Cromwell, and Frank R. Perzdirtz, 245 W. Broadway, Bradley, Ill. 60915

Filed June 19, 1969, Ser. No. 834,646
Int. Cl. A41h *33/00*
U.S. Cl. 223—2 **5 Claims**



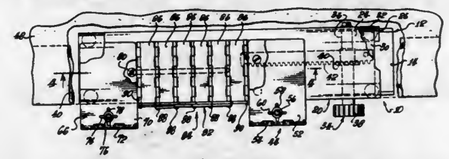
Two parallel-spaced fingers are mounted in slidably adjustable relation with respect to one another and are adapted to engage the cuff of a garment. During cuff stretching, a sliding bar separating the fingers is caused to frictionally lock against a guide when actuating handles are manually gripped. Release of the handles frees the frictional locking allowing displacement of the fingers inwardly and removal of the device from the cuff.

3,547,319
DRAPE PLEATING APPARATUS

Northrop H. Ketchum, 23071 Mulholland Drive, Woodland Hills, Calif. 91364

Filed July 22, 1969, Ser. No. 843,548
Int. Cl. A41h *43/00;* **D06j** *1/00*
U.S. Cl. 223—28 **4 Claims**

An apparatus for forming spaced groups of three pleats in the upper edge of a drape. The apparatus includes an elongated base, a stationary drape clamp adjacent one end of the base, a carriage mounted on the base and movable lengthwise thereof, a movable drape clamp on the carriage and movable therewith toward and away from the stationary clamp, and a pleating mechanism extending between the clamps for pleating the upper edge of a drape held thereby. The pleating mechanism includes a series of plates which are

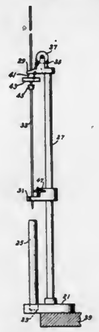


interconnected by hinges and the ends of which are hinged to the respective clamps. A lazy tong closes and opens the series of hinged plates in response to movement of the movable clamp toward and away from the stationary clamp. A separate tucking tool inserts portions of the upper edge of the drape between adjacent hinged plates of the pleating mechanism.

3,547,320
FABRIC ARTICLE EVERTING DEVICE HAVING RELEASABLE LATCHING MEANS

Aaron Glassman, Scranton, Pa., assignor to Pennsylvania Sewing Research Corp., a corporation of Pennsylvania

Filed Aug. 19, 1969, Ser. No. 851,377
Int. Cl. A41h *43/00*
U.S. Cl. 223—40 **5 Claims**



A device comprising a rigid tube adapted to receive a tubular fabric article thereon and a rod, slidable into the tube and adapted to evert the article into the tube. The device has a means for latching the rod at the end of its travel and for manually releasing the rod to permit it to return to its original position.

3,547,321
GARMENT HANGER FOR TWO PIECE LADIES'SWIMSUIT OR THE LIKE

Walton B. Crane, Los Angeles County, Calif., assignor to Allied Plastics Company, Los Angeles, Calif., a corporation of California

Filed June 2, 1969, Ser. No. 829,665
Int. Cl. A47j *51/097*
U.S. Cl. 223—88 **1 Claim**

A hanger for one-piece or two-piece women's swimsuits, in the general form of a common coat hanger. A short horizontal bar is provided on the underside of the hanger, in the central region thereof, and supports the crotch of the swimsuit. In the case of the trunks of a two-piece suit downwardly and outwardly projecting hooks engage in the waistband thereof, so as to support the trunks in a doubled and space-saving position. The shoulder straps of the upper garment or bra of the two-piece suit are engaged in pairs or recesses formed above and below the hanger, and support the garment high on the hanger, also in a space-saving position. In the case of a one-piece suit, the crotch is suspended as before, the suit hangs doubled, and the shoulder straps are engaged in the aforementioned recesses, the same as those of



the bra in the first example, so that the suit then hangs between the crotch bar and the pairs of arm recesses. The suit then again hangs in a relative short vertical distance.

3,547,322
MEDICAL APPARATUS

James C. Dawson and Harold H. Norlie, Elmhurst, Ill., assignors to Downor, Inc., Chicago, Ill., a corporation of Delaware

Filed Aug. 26, 1968, Ser. No. 755,253
Int. Cl. A45f *5/00;* **A61m** *5/14*
U.S. Cl. 224—5 **6 Claims**

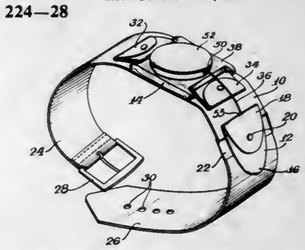


An apparatus is provided which is adapted to supporting a container of intravenous fluid in a position suitable for administration of fluid to a patient who is moving about or who is moved about. The apparatus includes a harness assembly and a support assembly. The harness assembly is adapted to be secured to the body of a patient. The support assembly is attached to the harness assembly and is adapted to support a container of fluid in a position suitable for administering the contents of the container by intravenous attachment to the patient.

3,547,323
RETRACTABLE KEY CHAIN BRACELET

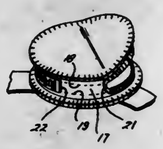
Michael L. Sledge, Jr., 1400 E. 55th Place, and Alfonso W. Hammer, 9725 Yale, Chicago, Ill.

Filed July 9, 1968, Ser. No. 743,560
Int. Cl. A44c *5/00*
U.S. Cl. 224—28 **4 Claims**



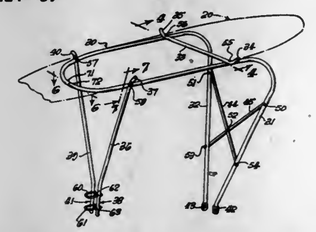
A bracelet with a retractable key chain wound on a spring-biased winding drum. The key is fastened to the end of the chain and retained in a pouch on the bracelet. The key is removable from the pouch, and the attached chain withdraws from the winding drum to allow extension of the key.

3,547,324
WRIST PURSE
Audrey E. Parks, 2249 Flour Bluff Drive, Corpus Christi, Tex. 78418
Filed July 15, 1968, Ser. No. 744,816
Int. Cl. A45c *1/04*
U.S. Cl. 224—28 4 Claims



A wrist purse having a flat circular coin or money compartment surrounded by a zipper closure, the zipper being opened only partway to form the compartment within the wrist purse. The purse includes a wrist band or strap which is buckled about the wrist of the wearer so that when the zipper is closed, money or other items carried therein cannot become mislaid or lost.

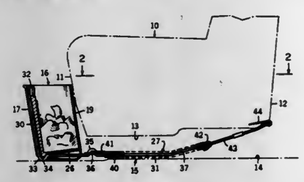
3,547,325
BICYCLE SURFBOARD RACK
Robert B. Hill, 2101 S. Nevada St., Oceanside, Calif., and Stephen W. Palmer, 666 Alto Vista Drive, Vista, Calif.
Filed Aug. 9, 1968, Ser. No. 751,531
Int. Cl. B62j *11/00*
U.S. Cl. 224—39 1 Claim



This is a rack for detachable attachment to a customary bicycle for the purpose of carrying a surfboard over the head of the bicycle rider.

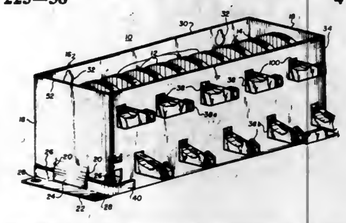
The rack is formed of tubing or the like which fastens to the rear axle of the bicycle and to the front steering yoke. It is formed of tubing with appropriate straps and configuration to hold the surfboard in place while being transported.

3,547,326
LITTER DISPOSAL UNIT IN AN AUTOMOBILE SEAT ASSEMBLY
Earl M. Trammell, Jr., Ladue, Mo. (c/o EMT Enterprises, Box 435, St. Louis, Mo. 63166)
Filed Apr. 26, 1968, Ser. No. 724,509
Int. Cl. B60r *9/04*
U.S. Cl. 224—42.42A 11 Claims



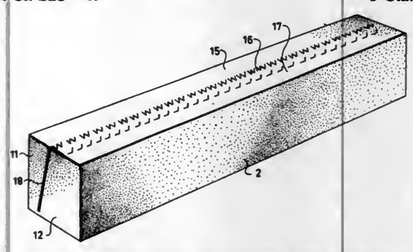
A utility device, such as a litter container or the like, is held against either the front or rear sides of an automobile front seat that is selectively adjustable in position forwardly or rearwardly. A spring is located on and about one arm of a substantially L-shaped rod, the other rod arm engaging the container. The spring is connected to the rod and to an anchorage either on the automobile floor or to the seat, whereby the spring exerts a pull on the rod and urges the container against the seat side in all adjusted positions of the seat.

3,547,327
DISPENSER FOR MULTIPLE MATERIAL WEBS
Remo Mariani, Berkeley Heights, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey
Filed Aug. 9, 1968, Ser. No. 751,493
Int. Cl. B26f *3/02*
U.S. Cl. 225—38 4 Claims



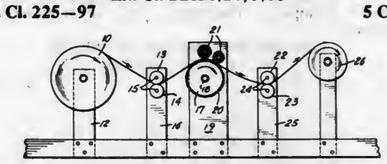
The disclosure is directed to a dispenser for dispensing multiple webs of material adapted to be bench or wall mounted. The dispenser consists of a housing having therein a plurality of apertures through which individual material webs may be passed. Mounted within the housing is a rack assembly for receiving and selectively holding individual webs of material such that individual webs may be replaced or removed at will. Coupled to each of the housing apertures is a material end support having at a first end thereof a cutting edge for severing, in desired lengths, the material passed thereover. Slots in the material end supports at its end, opposite from that containing the cutting edge, are provided so that the position of the end support, with respect to the housing, may be selectively established in order to facilitate maximum packing density of the webs of material contained within the housing. Two opposite faces of the housing are preformed with slots therein to permit housings to be stacked on atop another and to provide for coupling with a mounting base such that a single dispenser, or stack of dispensers may be mounted to a mounting surface. Provision is also made in the dispenser housing for mounting the housing to a bulkhead or wall or other mounting surface. The rack for mounting and positioning individual material webs may be unitary such as to accept a plurality of such material webs or may be modular so that one web will be accommodated by each of the modular rack modules.

3,547,328
CARTON INTENDED TO CONTAIN A ROLL OF A WEB-SHAPED MATERIAL AND COMPRISING A TEARING DEVICE
Bengt Goeran Bjoerklund, Kavlinge, Sweden, assignor to AB Akerlund & Rausing, Lund, Sweden, a corporation of Sweden
Filed Nov. 19, 1968, Ser. No. 776,915
Claims priority, application Sweden, Nov. 27, 1967, 16229/1967
Int. Cl. B26f *3/02*
U.S. Cl. 225—49 5 Claims



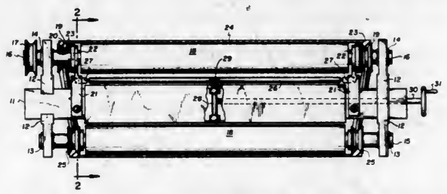
A carton for web material is provided with a tear strip on one side, one line of cuts for allowing the tear strip to be removed having a configuration such that a serrated cutting edge remains for use in tearing off portions of the web material.

3,547,329
APPARATUS FOR MANUFACTURING SPLIT FIBER WEBS FROM ORIENTED PLASTIC FILMS
Frank Kalwaites, Somerville, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Mar. 5, 1968, Ser. No. 710,564
Int. Cl. B26f *1/24, 3/00*
U.S. Cl. 225—97 5 Claims



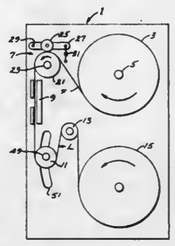
A method and apparatus for forming split fiber webs from oriented plastic films comprising penetrating the oriented film on a group of sharp implements and, while penetrated, applying a plurality of forces in various directions to the film at least some of these forces being in the plane of the film whereby the film is fibrillated to form a web of interconnected fibers.

3,547,330
WEB SPREADER
Thomas J. Crowe, 45 Concord Road, Dover, N.J. 07801
Filed May 2, 1969, Ser. No. 821,333
Int. Cl. B65h *23/02*
U.S. Cl. 226—88 4 Claims



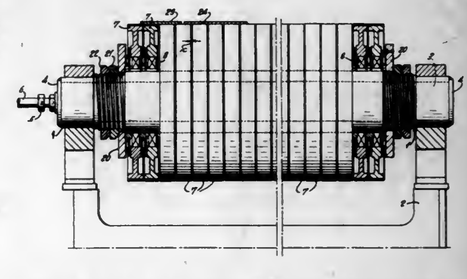
A device for spreading long strips or sheets to remove longitudinal wrinkles by frictional engagement with the top of a continuous loop web, wherein the web is transversely expanded by belts on its inner surface, which belts are compelled to pursue first a diverging course by offset pulleys on which the belts run.

3,547,331
INTERMITTENT ADVANCING MECHANISM FOR FILM IN A PULSE CAMERA OR THE LIKE
John R. Hereford, 2400 Bluegrasse Lane, Florissant, Mo. 63033
Filed Feb. 5, 1968, Ser. No. 703,077
Int. Cl. B65h *17/42*
U.S. Cl. 226—114 8 Claims



In a pulse camera, the film travels from a supply spool around a film-metering roller, through a gate, around a loop-forming roller, and thence to a takeup spool. The metering roller has an escapement for intermittently releasing it to permit advance of a frame of film to the gate. The loop-forming roller is movable and spring-biased for pulling a loop in the film between the gate and the takeup spool, thereby acting to pull a frame of the film through the gate on release of the metering roller, with accompanying increase in the size of the loop. After advance of a number of frames, a switch is actuated by movement of the loop-forming roller to energize a motor for driving the takeup spool, and the latter then functions to take up film from the loop with accompanying decrease in the size of the loop to the point where the switch is deactuated and the motor stopped.

3,547,332
TENSIONING DEVICE FOR USE IN WINDING MULTIPLE STRIPS UPON A COMMON MANDREL
Jean Gaudin, Montigny les Cormeilles, France, assignor to Societe De Constructions Mecaniques De Creil, Creil, France, a corporation of France
Filed Jan. 24, 1969, Ser. No. 793,793
Claims priority, application France, June 19, 1968, 155514
Int. Cl. B65h *23/10*
U.S. Cl. 226—195 6 Claims



Multiple strips are passed, on their way to a common winding mandrel, in friction pressure contact with the edges of a multiplicity of juxtaposed braking rings freely rotatively mounted upon a drum forming part of a strip-tensioning device. The braking rings are spaced by pairs of intervening spacing rings mounted upon the drum to move freely axially but locked against rotation relative thereto. The composite stack of alternate braking and spacing rings is held under resilient axial pressure by means of discrete ring-shaped pneumatic expansion chambers interposed between each pair of spacing rings, whereby to allow the braking rings to slip individually and to thereby maintain a desired closeness of the winding tensions of the strips.

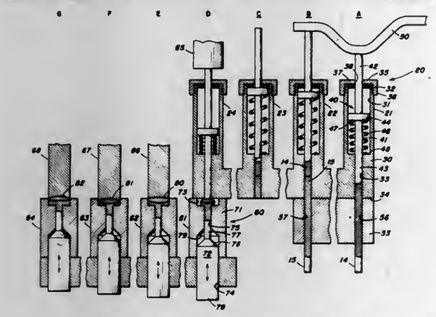
3,547,333
SHIELD MEMBER FOR AN EXPLOSIVE ACTUATED TOOL
James F. Helderman, York, Pa., assignor to U.S. Expansion Bolt Company, York, Pa., a corporation of Pennsylvania
Filed May 9, 1968, Ser. No. 727,945
Int. Cl. B25c *1/18*
U.S. Cl. 227—11 12 Claims



A shield member for an explosive-actuated stud-driving tool having a barrel member from which the tip end of the stud element extends for striking against a work surface to fire the tool, the shield member including a main body portion engaging the end of the barrel member, and a flexible peripheral skirt portion of elastomeric material extending

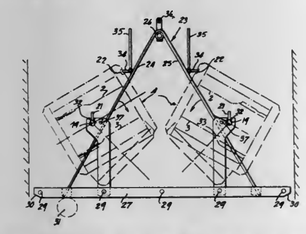
outwardly beyond the tip end of the stud element for forming the sidewall of a closed chamber about the tip end of the stud element when it is placed in contact with the work surface, the skirt portion being sufficiently flexible to permit such contact and to permit the tool to move against the work surface and be fired. The main body portion may include a barrel extension element having a tubular projection seated in an enlargement in the end of the barrel member bore and having a central channel forming a continuation of the barrel member bore, the central channel having an enlarged outer end for seating therein a guide washer carried by the stud element.

3,547,334
APPARATUS FOR MAKING COLD BONDED ELECTRICAL COMPOSITE CONTACTS
Childress B. Gwyn, Jr., Wethersfield, Conn., assignor to Contacts Incorporated, Wethersfield, Conn.
Filed May 25, 1967, Ser. No. 641,342
Int. Cl. B23k *21/00*; **B23p** *3/00*
U.S. Cl. 228—3 **10 Claims**



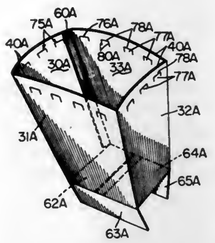
This disclosure relates to an apparatus for forming composite electrical contact elements and, more particularly, to an apparatus for the manufacture of integrally bonded contacts, each comprising a contact working face and a contact body portion, in a rotating mechanism. The two components to be bonded are aligned in end-to-end abutting relation within a first rotating assembly and, preferably within 0.01 to 0.5 seconds after shearing such components from their wire or stock material, are transferred to a second rotating assembly and subjected to a forming blow of sufficient intensity to produce interfacial molecular bonding therebetween. Subsequent heading blows in the second assembly finally shape the contact and improve the bond. The preferred apparatus of the disclosure is capable of producing in excess of 600 of such contacts per minute.

3,547,335
EQUIPMENT FOR BRAZING LIGHT METAL RADIATORS
Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme Des Usines Chausson, Hauts-de-Seine, France, a company of France
Filed Mar. 15, 1968, Ser. No. 713,466
Claims priority, application France, Apr. 28, 1967, 104,657
Int. Cl. B23k *19/00*
U.S. Cl. 228—44 **9 Claims**



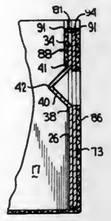
The equipment for brazing light metal radiators comprises several mounts of a general rectangular frame shape of which one side is removable, each mount containing at least one radiator and being provided with a transversal spindle ensuring the suspension in a cradle, said cradle comprising bolts and stops for holding the mounts in two distinct positions successively occupied by said mounts, firstly during the brazing operation by dipping, then during the operation of withdrawal from the brazing bath.

3,547,336
CONTAINER MEANS AND BLANK FOR MAKING SAME
Raymond E. Jacke, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Feb. 11, 1969, Ser. No. 798,335
Int. Cl. B65d *5/00, 5/64*
U.S. Cl. 229—16 **27 Claims**



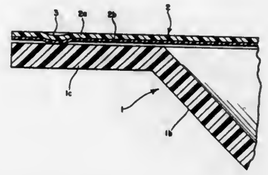
This disclosure relates to an open-top paperboard carton and a blank for making same wherein such carton has a rectangular bottom wall and a plurality of upwardly and outwardly diverging sidewalls which are easily flexed outwardly upon placing a product within such carton and the top portions of the sidewalls define a substantially circular opening at the top of the carton which has a diameter which is larger than a diagonal across the rectangular bottom wall; and, a high-strength top closure capable of being used with such carton wherein such top closure has sealing bead means of roughly sinusoidal configuration and capable of providing a fluidtight seal with minimum likelihood of tearing such carton.

3,547,337
CONTAINER CORNER CONSTRUCTION
Thaddeus H. Pisarczuk, Oak Lawn, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Sept. 13, 1968, Ser. No. 759,629
Int. Cl. B65d *5/22*
U.S. Cl. 229—34 **11 Claims**



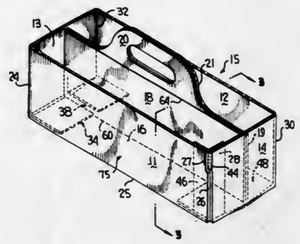
This disclosure relates to a container of the type which includes upstanding pairs of end and sidewalls joined to a bottom wall, the sidewalls including connecting walls, and uppermost edge portions of the end and connecting walls including interlocking means for maintaining the container in its erected condition. The interlocking means in accordance with this disclosure are projections and slots formed in at least one of the connecting walls which respectively project into and recieve an opening in a foldable panel of an associated end wall.

3,547,338
FOOD PACKAGE
Pieter Hemmes, Deventer, Netherlands, assignor to Tedeco Verpackung G.m.b.H., Hamburg, Germany, a corporation of Germany
Filed Jan. 15, 1969, Ser. No. 791,215
Claims priority, application Germany, May 6, 1968 1,761,336
Int. Cl. B65d *5/54, 43/00*
U.S. Cl. 229—43 **4 Claims**



A food package including a one-piece container body made from a specific plastic material and a two-layer laminate film cover joined to a radially outwardly directed flange of the container body, the upper layer of the cover film laminate having properties similar to the material from which the container body is made while the lower layer of the film cover laminate permits bonding, but easy separation from the container body.

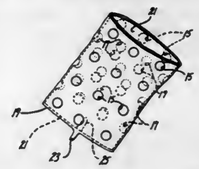
3,547,339
CORRUGATED BOARD BOTTLE CARRIER
James B. Bruce, Cambridge, Mass., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed July 29, 1968, Ser. No. 748,451
Int. Cl. B65d *5/46*
U.S. Cl. 229—52 **6 Claims**



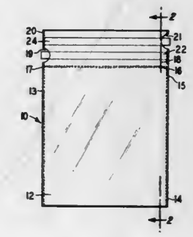
This disclosure relates to a bottle carrier having a body defined by pairs of side and end panels disposed in upstanding relationship to a bottom wall, the bottom wall is defined by a pair of bottom panels to each of which is joined a partition panel, and a flap connected to each of the end panels includes a slot into which upwardly projects the partition panels for forming a frictional and a camming interlock for preventing inadvertent or accidental disassembly of the carrier.

3,547,340
PLASTIC SHEET AND BAG FORMED THEREOF
Roger L. McDonald, River Rouge, Mich. (2444 Great Highway, San Francisco, CA 94116)
Filed Dec. 4, 1968, Ser. No. 781,189
Int. Cl. B65d *33/00*
U.S. Cl. 229—55 **3 Claims**

A plastic sheet which can be used as a cover, separator or wrapping material and a bag including two layers held together in surface to surface contact. Each of the layers is perforated but the perforations of one layer are out of registry with those of the other thereby forming an imperforate double layer which, when separated, forms two separate perforated layers through which air can easily pass.

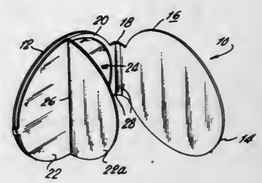


3,547,341
DRAW STRING BAG
George Fred Kirkpatrick, Middlesex, N.J., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York
Filed Mar. 26, 1969, Ser. No. 810,508
Int. Cl. B65d *33/28*
U.S. Cl. 229—63 **4 Claims**



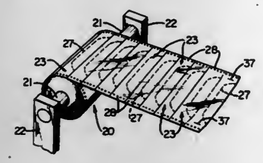
A draw string bag has an open mouth defined by tubular channels extending along the transverse top edges of the front and back walls of the bag. One of the channels has an opening at one longitudinal edge of the bag and the other channel has an opening at the other, opposite longitudinal edge of the bag. A separate string extends through each channel, one end of each string being attached to one of the opposite longitudinal edges of the bag and the other end of each string protruding through the transversely opposite opening. The strings are pulled in opposite direction whereby the channels are gathered tightly and regularly and the free ends of the strings are tied easily to each other.

3,547,342
RECORD COVER
Gene R. Smith, 166 E. 35th St., New York, N.Y., and Lydia M. Saltzman, 119 W. 15th St., New York, N.Y.
Filed Apr. 24, 1969, Ser. No. 818,966
Int. Cl. B65d *85/58*
U.S. Cl. 229—68 **5 Claims**



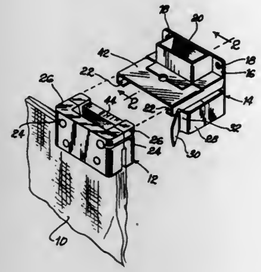
A record cover includes an outer jacket comprising first and second substantially circular panels joined together in edge to edge relation along a juncture line and foldable about the juncture line into face to face closed relation. A third panel overlays the interior surface of the first panel forming a record-receiving cavity, the third panel being foldable along a crease line away from the first panel to permit access to the record-receiving cavity.

3,547,343
ENVELOPE ASSEMBLY AND ENVELOPE STRUCTURE THEREFOR
Thomas W. Alton, Phoenix, Ariz., assignor to Pak-Well Corporation, Denver, Colo., a corporation of Colorado
Filed Jan. 11, 1967, Ser. No. 608,631
Int. Cl. B65d *27/10*
U.S. Cl. 229—69 3 Claims



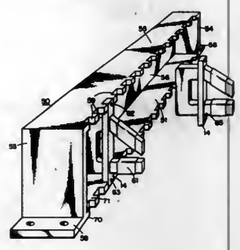
This invention relates to an assembly of envelopelike structures in which each envelop has removable, apertured side margin portions wherein the upper part of each removable, apertured side margin portion of each successive envelope underlies the lower part of a corresponding margin portion of the next preceding envelope with said envelopes being attached to each other by adhesive means disposed between the overlapping side margin portions. This invention also relates to an envelopelike structure having overlying front and rear panels, said panels being adhesively secured to each other along side margin portions thereof to form a pocket therebetween and having a plurality of apertures formed therealong whereby at least a portion of said adhesive means is disposed adjacent the overlying apertures and intermediate said pocket and aligned apertures so that sections of said overlying side margin portions may be removed thereby leaving a structure having front and rear panels and a pocket therebetween.

3,547,344
REMOVABLE COIN HOLDING MEANS
Joseph M. Christensen, One East Schiller, Chicago, Ill.
Filed Jan. 2, 1968, Ser. No. 695,171
Int. Cl. G07f *9/06*
U.S. Cl. 232—43.2 1 Claim



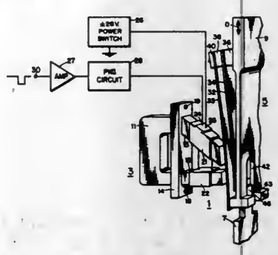
A removable coin holding means associated with a coin operated construction. The construction includes a permanent bracket and the coin holding means carries a fixture which is adapted to be slideably received by the bracket whereby the bracket will support the coin holding means. The bracket and fixture define aligned coin passages whereby coins deposited in the coin operated construction will be delivered to the coin holding means. A downturned lip is defined by the bracket, and the fixture defines a relieved portion whereby the fixture can clear the lip during insertion in the bracket and whereby the lip will thereafter serve as a blocking means to prevent insertion of any instrument between the bracket and fixture which could be used for purposes of pilfering.

3,547,345
HIGH SPEED ACTUATOR ASSEMBLY
Michael S. Shebanow, Medfield, and Cheng-Hua Wang, Newton Centre, Mass., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,913
Int. Cl. G06k *1/05*
U.S. Cl. 234—115 7 Claims



A plurality of magnetic interposers comprising an actuator assembly utilized in a multihead high-speed punch. Each magnetic interposer operates a single punch knife and comprises a permanent magnet, a pair of magnetic pole face elements joined together by a solid magnetic shunt and having selectively energizable windings thereon, and a magnetic flexure spring having one end fixed to translate along a prescribed axis with respect to said pole face elements. The free end of the spring is held in a flexed no-punch position against the pole faces by permanent magnet force, released by a selectively applied electromagnetic force to spring into a punch position, and then returned to the no-punch position by a selectively applied electromagnetic force of reverse magnitude. In the punch position the spring is stiffened by a preform whereby a vertical punching force may be transmitted axially therethrough to a punch knife. The magnetic elements of a plurality of identical interposers are confined in a housing of nonmagnetic material which holds the elements in spaced fixed alignment with respect to a corresponding plurality of flexures and punch knives while shielding them to minimize magnetic crosstalk or other interference between the magnetic circuits of the respective interposers. A dummy interposer is mounted in each end of the housing to provide a more uniform magnetic field across the entire actuator assembly.

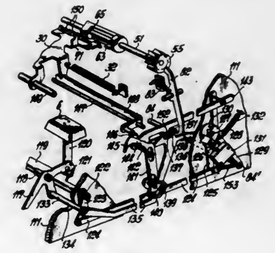
3,547,346
HIGH SPEED, REVERSE CURRENT DRIVEN INTERPOSER
Michael S. Shebanow; Ronald F. Borelli, Medfield, and Paul E. Nelson, Holliston, Mass., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,925
Int. Cl. G06k *1/05*
U.S. Cl. 234—115 7 Claims



An actuator having a reverse current driven magnetic interposer for use in a high speed punch. The actuator comprises a permanent magnet, a pair of magnetic pole face elements joined by a magnetic shunt and having selectively energizable windings thereon, and a magnetic flexure spring having one end fixed to translate along a prescribed axis with

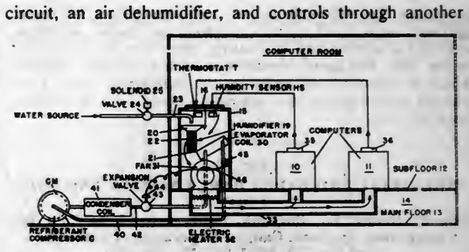
respect to the pole face elements. The free end of the spring is held in a flexed no-punch position against the pole faces by permanent magnet force, released by a selectively applied electromagnetic force to spring into a punch position, and then returned to the no-punch position by a selectively applied electromagnetic force of reverse magnitude. In the punch position the spring is stiffened by a preform whereby a vertical punching force may be transmitted axially therethrough to a punch knife.

3,547,347
DEVICE FOR ENTERING DIVIDENDS CORRECTLY BY DIGITS AND/OR PRODUCT EJECTING IN A CALCULATING MACHINE
Andreas Metschnabl, Nurnberg, and Georg Beikufner, Rothenbach, Pegnitz, Germany, assignors to Diehl, Nurnberg, Germany
Filed Feb. 20, 1969, Ser. No. 800,960
Claims priority, application Germany, Feb. 22, 1968, 1,574,545
Int. Cl. G06c *19/00*
U.S. Cl. 235—63 3 Claims



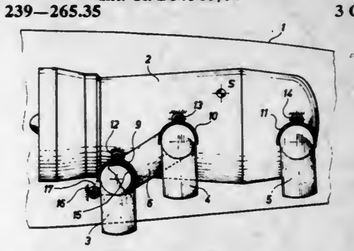
Apparatus for accurate decimal-point-insert positioning of dividend entry and product output of a fully automatic multiplying and dividing four-species calculating machine; upon depressing a division-function key, an actuating member is engaged simultaneous with unlatching of striker means having a decimal-point-inserting driver operatively associated with a counter carriage of the machine. A control member normally under spring tension in a rest position is connected to the actuating member and is adapted to release the carriage through the actuating member and release detent during movement into a turning-on position. Abutment means carried by the control element and extending into shift area of the control member during release of the control element for holding the same until the control element releases the control member due to carriage movement in one direction extends over the striker means while also under spring tension for attaining end position and turning on machine drive operation. The actuating member has an engagement arm for pivoting of the release detent and an angular guide pin receiving portion with respect to which the release detent is movable. A lateral pivot portion of the control member is provided for approximately vertical lift journaling of the actuating member.

3,547,348
HUMIDITY CONTROL SYSTEM
Andrew P. Kruper, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 20, 1969, Ser. No. 801,064
Int. Cl. F24f *3/14*
U.S. Cl. 236—44 9 Claims



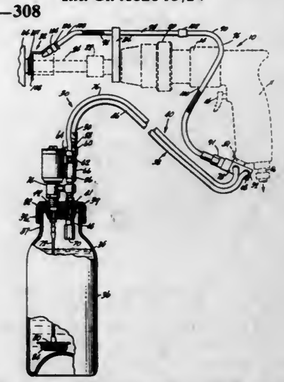
A single humidity sensor controls through one solid-state circuit, an air dehumidifier, and controls through another solid-state circuit, an air humidifier.

3,547,349
VERTICALLY STARTING AND LANDING AIRPLANE WITH A TWO-FLOW JET DRIVE WITH LATERALLY TILTABLE NOZZLES
Hans Justus Meier, Bremen, Germany, assignor to Vereinigte Flugtechnische Werke G.m.b.H., Bremen, Germany
Filed May 3, 1968, Ser. No. 726,510
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.35 3 Claims



A vertically starting and landing airplane with a two-flow jet drive, which includes cold jet flow discharging nozzle means and hot jet flow discharging nozzle means spaced from said cold flow discharging nozzle means in the longitudinal direction of said airplane while said hot jet flow nozzle means are pivotable and located at the rear portion of the jet drive, means being provided for heating up the cold jet flow, and additional means are associated with said cold jet flow discharging nozzle means for displacing the discharge of the heated up cold jet flow toward the rear of said jet drive.

3,547,350
SPRAYING DEVICE
Arthur Marcoux, Hermosa Beach, Calif., assignor to McDonell Douglas Corporation, a corporation of Maryland
Filed Dec. 16, 1968, Ser. No. 783,875
Int. Cl. A62c *13/24*
U.S. Cl. 239—308 10 Claims



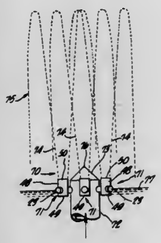
A spraying device for supplying a cooling and lubricating agent to a high-speed drill whenever the drill is placed in

operation. The spraying device comprises means for transmitting a pressurized gas to a container and means for transmitting the cooling and lubricating agent from the container to the drill. The agent transmission means includes a nozzle which is removably mounted on the high speed drill by an adapter which directs the lubricating agent from the nozzle upon the drill.

3,547,351
INDUSTRIAL LIQUID DISCHARGE NOZZLE AND THE LIKE

John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corporation, Burbank, Calif., a corporation of California

Filed Nov. 29, 1967, Ser. No. 686,410
Int. Cl. A61m *11/06*
U.S. Cl. 239—338 **23 Claims**

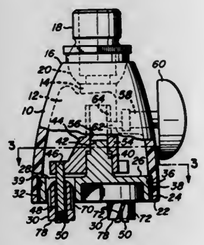


A liquid discharge device, featuring discrete liquid droplet discharge, in which a body defines an inner chamber having liquid inlet and outlet openings, the inlet opening having an area equal to a minor portion of the transverse area of the chamber and the outlet opening being greater in area than the inlet opening and spaced between the ends of the chamber, the inlet opening being nearer one end of the chamber than to the other end. The maximum dimension of the outlet opening in a direction transversely of the chamber is not substantially greater than the maximum dimension of the same opening in a direction along the length of the chamber, the length of the chamber being the distance between the ends of the chamber.

3,547,352
SHOWER HEAD

Jack L. Hadsel, Grand Rapids, Mich., assignor to Wolverine Brass Works, Grand Rapids, Mich., a corporation of Michigan

Filed Sept. 18, 1968, Ser. No. 785,415
Int. Cl. B05b *1/34*
U.S. Cl. 239—383 **20 Claims**

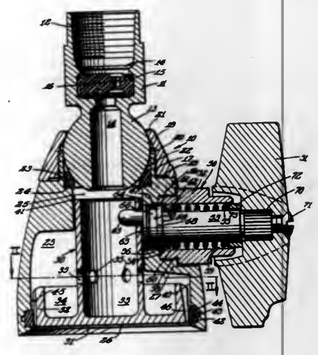


The shower head is constructed almost entirely of plastic parts to which corrosion, mineral deposits and the like will not adhere; and associated with the head is a group of rapidly rotating nozzle elements which are self-cleaning due not only to their rapid motion, but also to the plastic construction thereof which discourages retention of foreign matter deposits or accumulations. The device features also economical manufacture and assembly of parts.

3,547,353
SHOWER HEAD

Richard D. Pecka, Northfield, Ill., assignor to Eaton Yale & Towne Inc., a corporation of Ohio

Filed Aug. 14, 1968, Ser. No. 752,707
Int. Cl. B05b *1/32*
U.S. Cl. 239—460 **2 Claims**

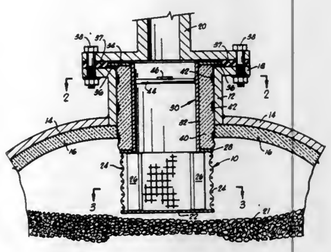


A shower head having a lever-activated cam to move a nozzle for controlling the fineness of the water spray, the nozzle having circumferential tapered and parallel walled V-shaped grooves therein to direct water inwardly and outwardly therefrom, eliminating the need for center holes and the torque on the spray-control lever to prevent self-activation thereof by water pressure governed by a friction washer shelled in abutting contact to movable and nonmovable shoulders by a compression spring.

3,547,354
GAS FLOW DIFFUSER

Walton D. Greathouse, Huffman, James H. Cheek, and John R. Spencer, Houston, Tex., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

Filed Sept. 6, 1968, Ser. No. 758,085
Int. Cl. B05b *1/26*
U.S. Cl. 239—500 **2 Claims**

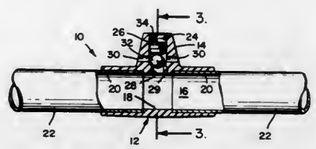


A gas flow diffuser including a rigid, tubular gas-permeable member having an imperforate plate extending transversely thereacross against which a gas flowing axially through the tubular member impinges, and is diverted through the permeable wall of the tubular member. A deflector plate is positioned in the path of gas flow through the tubular member and is spaced upstream from the imperforate plate. The diffuser is especially adapted for use in a body of particulate packing for preventing destructive impact of a gas stream upon particles of the packing, and yet permitting the gas to be circulated through the particles.

3,547,355
EMITTER VALVE FOR SOIL IRRIGATION

Eliazar R. Salazar, Garden Groove, Calif., assignor to Salco Products Incorporated, Los Angeles, Calif., a corporation of California

Filed Jan. 24, 1969, Ser. No. 793,792
Int. Cl. B05b *15/00*
U.S. Cl. 239—547 **18 Claims**

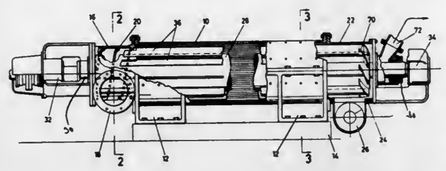


The emitter valve, which is useful for irrigation of soil, includes a valve body placed intermediate the ends of a supply conduit and provided with a valve head. The head has an inlet connected to the supply conduit and one or more outlets opening to the valve exterior for supply of water to the soil. A cylindrical cavity is formed in the head. A deformable ball is housed in the valve head within the cavity and rests against the inlet. The cavity is threaded to receive an adjustable set screw which exerts a pressure against the ball and causes the ball to bear against the inlet. The amount of water released by the valve is determined by the pressure in the conduit which overcomes the applied pressure of the set screw in order to deform the ball and to allow water to pass to the soil.

3,547,356
METHOD AND APPARATUS FOR REFINING FIBROUS MATERIAL FOR THE PRODUCTION OF PULP

Arne Johan Arthur Asplund, Tykovagen 20, Lidingo 3, Sweden

Filed Aug. 9. 1967, Ser. No. 659,402
Claims priority, application Sweden, Feb. 23, 1967, 2468/67
Int. Cl. B27k *9/00;* **B02c** *23/02*
U.S. Cl. 241—28 **10 Claims**



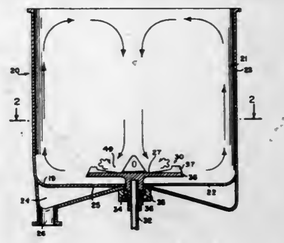
Method an apparatus comprising a drum provided with a plurality of inclined radially extending blades or wings which rotate rapidly within a surrounding cylinder which is provided with uneven or rough surfaces along the interior wall thereof between which surfaces and blades the raw material to be refined is subjected to frictional forces while being moved through the cylinder in a linear direction.

3,547,357
PROCESS FOR PULPING

Charles A. Johnson, Andover, Mass., assignor to Bolton-Emerson, Inc., Lawrence, Mass., a corporation of Massachusetts

Original application Dec. 22, 1966, Ser. No. 603,904, now Patent No. 3432107, dated Mar. 11, 1969. Divided and this application Oct. 17, 1968, Ser. No. 782,783
Int. Cl. B02c *19/12, 18/12*
U.S. Cl. 241—28 **2 Claims**

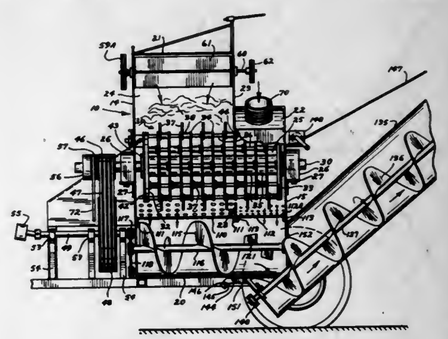
Pulping process wherein an impeller with vanes is rotated in a tank containing water and waste paper such that a vortex is created to thus move the material within the tank. Vertical walls, located centrally of the length of the vanes, act, when rotated, as flow intercepting barriers for a portion of the vortex flow to thus form a zone of turbulence for freeing the vanes of matting, plugging and stapling.



3,547,358
HAY AND GRAIN COMBINATION MILL

Robert R. Anderson and Joseph A. Anderson, and Chester Neukom, Minot, N. Dak., assignors to J & J Manufacturing, Incorporated, Minot, N. Dak., a corporation of North Dakota

Filed May 16, 1968, Ser. No. 729,693
Int. Cl. B02c *13/04, 13/13, 13/288*
U.S. Cl. 241—44 **16 Claims**



A mill for simultaneously grinding hay and grain and having means for providing thorough mixing after grinding. The unit is made with two compartments, one for grinding the hay and one for grinding grain. The cylinder used is uniformly made so that the hammers are evenly spaced along its length. The feeding mechanism for the hay includes baffles to increase the performance of the mill in unfavorable conditions. The mill is portable, and is driven from the power takeoff shaft of the tractor or the like.

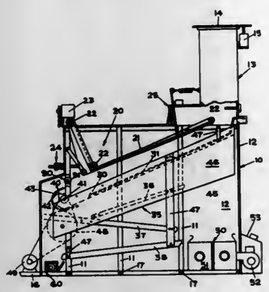
3,547,359
DRYING AND PULVERIZING APPARATUS WITH RECIRCULATION OF MATERIAL

Harvey M. Wenger, Zeeland, Mich., assignor to James D. MacGregor, a part interest by mesne assignment; Clarence J. Becker, a part interest by mesne assignment; Arthur C. Becker, a part interest by mesne assignment and Andrew J. Dalman, a part interest by mesne assignment

No drawing. Continuation-in-part of application Ser. No. 565,956, July 18, 1966, now Patent No. 3,460,768, dated Aug. 12, 1969. This application May 31, 1968, Ser. No. 733,421
Int. Cl. B02c *21/00*
U.S. Cl. 241—47 **13 Claims**

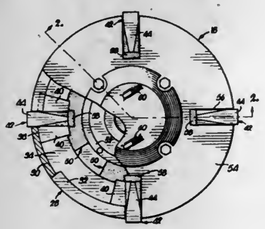
A drying and pulverizing apparatus includes a series of vibrated trays arranged in zigzag relationship with respect to one another. The uppermost tray is perforate and the lower trays are solid. The material is pulverized by a hammer mill after migration along the upper tray. The hammer mill functions to hurl the material back toward the upper extremity of

the uppermost tray and the process is continued until the material is sufficiently particulate to pass through the perforations therein. The dried material is collected as it issues



from the lowermost tray and a portion thereof reintroduced into the system adjacent the hammer mill. The trays are positioned in a heated enclosure during the operation.

3,547,360
WASTE DISPOSER ROTOR WITH YIELDABLY BIASED TEETH
George O. Sherman, Jr., Prairie Village, Kans., assignor to The Salvajor Company, Kansas City, Mo., a corporation of Missouri
Continuation-in-part of application Ser. No. 471,769, July 13, 1965, now Patent No. 3,436,027, dated Apr. 1, 1969. This application Nov. 1, 1968, Ser. No. 772,483
Int. Cl. B02c *13/28, 18/40*
U.S. Cl. 241—191 **9 Claims**



A rotor for a waste disposer comprising a relatively heavy base presenting a peripheral, upwardly extending wall and inturned lip defining an inwardly facing groove. Grinding teeth having integral flanges projecting outwardly from the sides of the teeth are carried by the base so that the major forces directed against the teeth are transmitted to the base through the flanges. Resilient members engage each tooth respectively to yieldably oppose movement of the teeth away from their normal-grinding positions and a retainer plate secures the teeth and resilient members in position on the base.

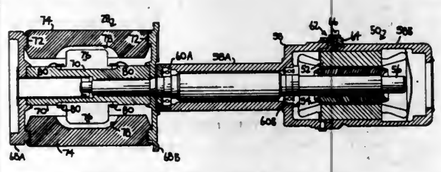
3,547,361
APPARATUS FOR WINDING TEXTILE MATERIAL
Jerome P. Klink, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Aug. 16, 1967, Ser. No. 660,946
Int. Cl. B65h *54/08, 54/28*
U.S. Cl. 242—18 **7 Claims**

An apparatus for winding textile material into a cylindrical package on a rotating collector where a guide spaced from the package reciprocates the advancing material parallel to the axis of rotation of the collector and a member extending parallel to the axis of rotation of the collector presses against



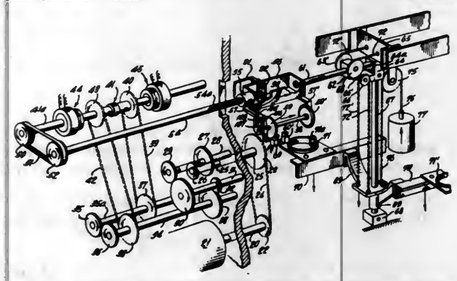
the surface of the package to lay the material on the package.

3,547,362
APPARATUS FOR WINDING STRAND MATERIAL
John Kallenborn, Murrysville, Pa., assignor to PPG Industries, Inc., a corporation of Pennsylvania
Filed Jan. 23, 1968, Ser. No. 699,816
Int. Cl. B65h *54/00*
U.S. Cl. 242—18 **1 Claim**



Strand winding apparatus characterized by a rotatable collet adapted to receive a sleeve upon which the strand is wound, a variable speed motor and a shaft common to the motor and collet. The shaft is journally supported by a pair of spaced antifriction bearing means mounted on a support intermediate the motor and collet. The ends of the shaft are cantilevered beyond each of the bearing means. One of the extended ends of the shaft is provided with an armature, and the other end is provided with means for mounting the collet for rotation with the shaft.

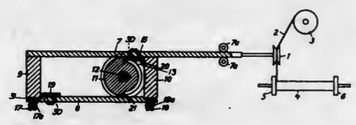
3,547,363
TRAVERSE MECHANISM
John P. Baglino, Scranton, and Joseph R. Rappenglueck, Dalton, Pa., assignors to U.S. Textile Machine Company, Scranton, Pa., a corporation of Pennsylvania
Filed Dec. 14, 1967, Ser. No. 690,628
Int. Cl. B65h *54/28*
U.S. Cl. 242—26.3 **5 Claims**



In a machine for winding a continuous strand onto a core in which a means guiding the strand onto the core is caused to traverse at least part of the length of the core whereby

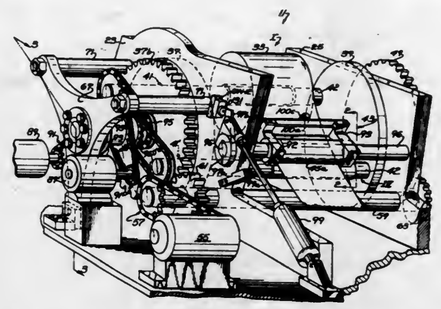
windings of the strand are laid across the aforementioned at least part of the length of the core, there is provided a traverse mechanism for effecting said traversing. The traverse mechanism includes a lead screw engaging a running nut, means for rotationally driving the screw, means for preventing the nut from rotating with the screw, whereby rotation of the screw drives the nut in a linear path axially along the screw, and means nonpivotally linking the nut to the guide means for causing the guide means to be driven in the path of the traversing by the motion of the nut.

3,547,364
DEVICE FOR PRODUCING THE RECIPROCATING MOVEMENT OF THE WIRE GUIDE OF A WINDING MACHINE
Carl Elis Insulander, Hagersten, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden
Filed Mar. 19, 1968, Ser. No. 714,280
Claims priority, application Sweden, May 12, 1967, 6697/67
Int. Cl. B65h *54/30*
U.S. Cl. 242—43 **4 Claims**



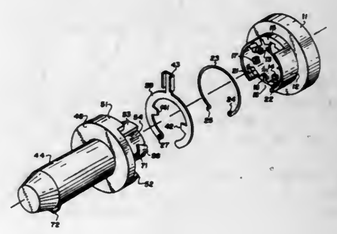
A device for uniformly winding a wire upon a bobbin has a frame structure mounting a wire guide for uniformly distributing the wire upon the bobbin. The frame structure is reciprocated through a distance of predetermined length. It is formed of two parallel bars which are secured against lengthwise displacement relative to each other and alternately frictionally engaged by a cam rotatable about a stationary axis. These engagements cause reciprocating displacement of the frame structure and thus of the wire guide through the predetermined distance during each revolution of the cam.

3,547,365
TURRET REWINDER
Raymond M. Loase, Dayton, and Glenn A. Spohn, Cincinnati, Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware
Filed June 19, 1968, Ser. No. 745,068
Int. Cl. B65h *19/20, 75/34*
U.S. Cl. 242—56 **16 Claims**



A turret rewinder continuously winds web material into rolls after the web material leaves a processing machine. The turret rewinder includes a rotatable turret mechanism and a pair of spindles carried thereby. The spindles are adapted to receive and rotate cores on which the web is wound. The web material is wound successively on the cores. When the web material is being wound on one core associated with one spindle, operations are performed, such as loading a new core in the other spindle to ready the rewinder for winding the web on the new core. After the roll of material on the first core is fully wound, the web material is cut and wound on the new core. When the web is to be wound on the new core, the turret mechanism moves the new core to an acceleration station, where the core is accelerated to a predetermined speed, which is equal or slightly greater than web speed. A knife assembly is also moved and a roller on the knife assembly engages the web and positions the web at a predetermined position for all diameters of finished rolls. The new core is then brought into engagement with the web and a knife is actuated in response to that engagement to sever the web. The new core, of course, is provided with adhesive, causing the web material to adhere thereto and be wound thereon. After a predetermined period of time, the knife assembly is pivoted away from the new core, the rotation of the full core, is stopped, and the turret mechanism is rotated to move the completed roll on the full core to an unlatching station. After the completed roll is unlatched, the turret mechanism is rotated to deposit the full roll on the floor, and moves the empty spindle by which the full roll was wound to a loading station. At the loading station, another core is loaded into the turret rewinder and the turret mechanism is rotated to move this core to a ready station in preparation for transfer of the web thereto. At his time, the other core is at the final winding position which permits winding a roll to the maximum diameter capacity of the rewinder.

3,547,366
INTERCHANGEABLE SPINDLE ASSEMBLY
Gerald F. Pickens, and Thomas G. Kirn, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Feb. 24, 1969, Ser. No. 801,412
Int. Cl. B65b *17/02*
U.S. Cl. 242—68.3 **10 Claims**

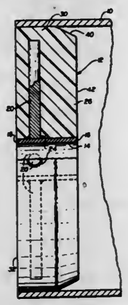


A spindle assembly for movie projectors of the type adapted to handle both standard 8mm. film and super 8mm. film comprises two spindles of respectively different diameters, a rotatable socketlike member and cooperating means on the socket and on each spindle whereby either spindle may be readily engaged in, or removed from, the socket member.

3,547,367
PAPER ROLL PLUG
Don Laverne Brazeale, 2800 Colonial, and Gary Vernon Henderson, Rte. 1 Box 311-P, Pine Bluff, Ark. 71601
Continuation-in-part of application Ser. No. 723,631, Apr. 23, 1968, now abandoned. This application Apr. 23, 1969, Ser. No. 818,770
Int. Cl. B65h *17/02*
U.S. Cl. 242—68.6 **12 Claims**

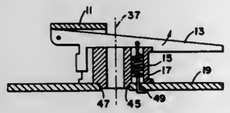
This plug is for insertion into the end of a tubular core, on which rolls of paper or other sheet material are wound, to protect the core against damage when the roll is lifted or subjected to unsymmetrical pressure. The plug is constructed of material capable of withstanding the pressures to which the core is subjected particularly when being gripped by hoisting machinery, and is reinforced to distribute the loading when being inserted into a core and more especially when being

withdrawn from a core. The plug surface has a coefficient of friction low enough to permit removal of the plug after use



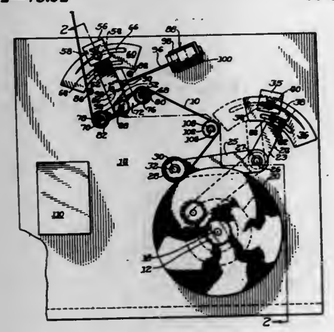
without breakage, and repeated use of the same plug, with resulting economy.

3,547,368
TAKE-UP REEL FOR USE IN A SELF THREADING SYSTEM
John S. Veach, Cincinnati, Ohio, assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,339
Int. Cl. B65h *75/28*
U.S. Cl. 242—74.2 **10 Claims**



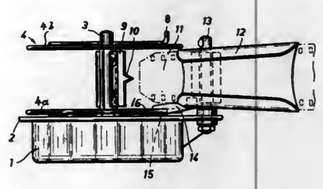
A reel comprising a notched hub or core mounted on a plate is described. Mounted atop of the hub and attached to the plate by a spring is a wiper arm. A tape having a T-shaped end is caught and moved by the wiper arm so as to engage the end of the tape in the notch. As the tape wraps around the hub, the wiper arm is raised to a nonengaging position due to force created against a projecting member of the wiper arm when the tape wraps around the core.

3,547,369
FILM TENSION CONTROL DEVICE
Frank R. Potucek, Lake Zurich, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois
Filed Sept. 12, 1968, Ser. No. 759,353
Int. Cl. B65h *77/00*
U.S. Cl. 242—75.52 **11 Claims**



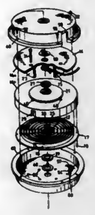
A film tension control device is provided that controls the rotation of a film-winding reel to maintain constant and uniform tension in the film. The device uses signals from both coarse and fine sensing elements to control the torque of the motor driving the reel. The coarse sensing element senses the size of the roll of film on the reel to prevent gross changes in film tension and the fine sensing element senses the actual tension in the film to provide the fine control necessary to maintain uniform film tension. The device includes a reel drive control having means for receiving and combining the signals from the two sensing elements, and means for providing an output, to the motor, which is proportional to the combined signals.

3,547,370
FILM WINDING DEVICE FOR COIL-TYPE DEVELOPERS
Leopold Karl, Unterdurrbach, and Heinz Kneitz, Waldbuttelbrunn, Germany, assignors to Kindermann & Co., G.m.b.H., Ochsenfurt(Main), Germany, a corporation of Germany
Filed Nov. 22, 1968, Ser. No. 778,153
Claims priority, application Germany, May 13, 1968, 1,772,418
Int. Cl. B65h *27/00*
U.S. Cl. 242—76 **5 Claims**



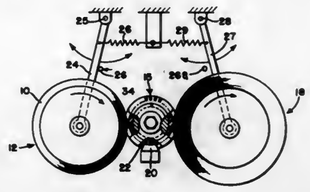
A device for winding undeveloped films on a developer coil, said device including (a) a spindle to which the coil is attached for the winding operation; (b) a pivotally secured guiding tongue for assisting in the insertion of the film into the coil and (c) a resilient strip affixed to said tongue and provided with a detent notch to temporarily interlockingly engage said coil and thus immobilize said tongue with respect to said coil and to prevent said coil from axial displacement with respect to said spindle.

3,547,371
WATER SKIING TOW ROPE RETRIEVER
Horst A. Gruseck, 2560 Kingston Road, Apt. 201, Scarborough, Ontario, Canada
Filed Oct. 30, 1968, Ser. No. 771,849
Int. Cl. B65h *75/48, 75/42*
U.S. Cl. 242—107 **1 Claim**



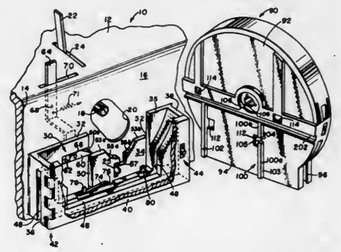
A water ski tow rope retrieving device which is adapted to be fixed to the rear of a tow boat. The device is characterized by a spring biased drum which automatically winds up the tow rope or at least the greater portion of its length when a water skier falls and lets go of the rope. The drum is made in two parts, one for receiving the rope and one for storing a coil spring which biases the drum. In a preferred embodiment, the drum is enclosed within an outer casing.

3,547,372
CAPSTAN FOR TAPE TRANSPORT
Don C. Barnett, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind., a corporation of Indiana
Filed Sept. 6, 1968, Ser. No. 758,060
Int. Cl. G03b *1/04*; **G11b** *15/32*
U.S. Cl. 242—192 **4 Claims**



A capstan for a tape transporting system has a rim with circumferential recess deeper at its center than its edges. A resilient tire member is mounted in the recess, and has an outer cylindrical face to engage the tape and guide it past a recording or pickup head.

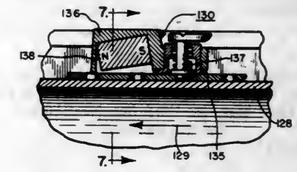
3,547,373
CARTRIDGE AND MEANS FOR LOCATING A CARTRIDGE ON A PROJECTOR OR THE LIKE
John J. Bundschuh, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 23, 1968, Ser. No. 731,562
Int. Cl. G03b *1/04*; **G11b** *15/32, 23/04*
U.S. Cl. 242—197 **21 Claims**



A cartridge for receiving a reel of motion picture film has mounting structure on one face thereof for accurately positioning or locating the cartridge with respect to a surface of a motion picture projector. The cartridge face has surface formations thereon and other structural features which cooperate with corresponding structures on the surface of the cartridge to determine and maintain the position of the cartridge in directions parallel to the cartridge face and to locate the cartridge face in the desired plane with respect to the projector surface.

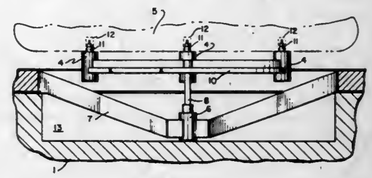
3,547,374
CODE ADDRESSING SYSTEM FOR PNEUMATIC CARRIER OR THE LIKE
Robert J. Norman and Mitchell S. Budniak, Chicago, Ill., assignors to Powers Regulator Company, Skokie, Ill., a corporation of Delaware
Original application Feb. 14, 1968, Ser. No. 705,402, now Patent No. 3,507,460, dated Apr. 21, 1970. Divided and this application Dec. 18, 1969, Ser. No. 886,261
Int. Cl. B65g *51/04*
U.S. Cl. 243—38 **3 Claims**

A carrier of a pneumatic tube system is directed through a series of interconnected paths to a desired destination according to an addressing code defined by the relative spacing of code elements, such as magnets, on the carrier. Distortion in the code signals usually experienced at high carrier velocities is obviated by mounting predetermined ones of the code



magnets with their axes of polarization defining an acute positive angle with the axis of the carrier.

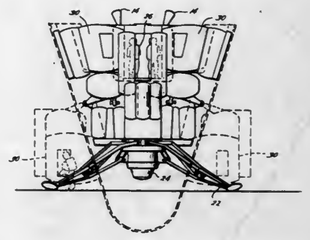
3,547,375
PASSIVE RELEASE MECHANISM FOR SPACE VEHICLES
Robert E. Mackey, Torrance, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Mar. 22, 1968, Ser. No. 715,268
Int. Cl. B64g *1/10*
U.S. Cl. 244—1 **5 Claims**



Pedestals support a releasable object above a space vehicle or platform and ball-lock-type pins releasably engage the object with each pedestal. Separation of the object from the platform is accomplished by sequentially disengaging the pins, withdrawing the pins to a position within their respective pedestals, and moving the pedestals from the supporting position to a second position removed from the object. The platform is thus rendered free from projections which may interfere with the release of the object.

Further, means are provided for the release of the object in the event of a system failure in the passive release mechanism.

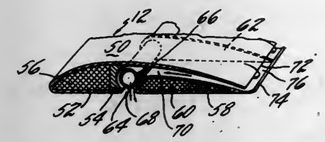
3,547,376
SPACECRAFT
T. O. Paine, Administrator of the National Aeronautics and Space Administration in respect to an Invention of, and Earl M. Van Alstyne, Laguna Hills, Calif.
Filed Aug. 15, 1969, Ser. No. 850,586
Int. Cl. B64g *1/00*
U.S. Cl. 244—1 **7 Claims**



A spacecraft arranged such that it has an aerodynamic outer shell which acts as the heat shield. It includes an excursion module removably housed within the shell, with the module having a retracted landing gear and a forwardly thrusting thrust means, such as an engine, at the forward end thereof and a crew station generally rearward of the landing

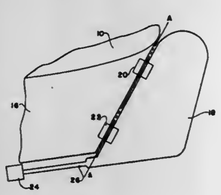
gear. It also includes means for separating the module from the shell after separation, whereby the spacecraft can then be landed by activation of the thrust means to land the vehicle forward end down.

3,547,377
COUNTERFLOW JET FLAP HELICOPTER
Peter J. Frey, 1560 Asylum Ave., West Hartford, Conn. 06117
Filed Mar. 28, 1968, Ser. No. 716,940
Int. Cl. B64c *27/72*
U.S. Cl. 244—17.25 11 Claims



The main rotor blades of a helicopter craft are equipped with cooperating counterflow jet flaps and ejector-type jet pumps. Compressed air is delivered to the jet pumps in the rotors whereby airflow is generated in ejector fashion through the jet flap system to produce substantial amounts of additional lift. A control system programs the operation of the jet pumps to provide collective pitch and/or cyclic pitch control for the rotor blades so that a rigid rotor structure can be effectively employed.

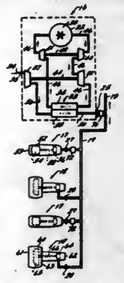
3,547,378
AUTOMATIC STABILIZING SYSTEM FOR TETHERED AERODYNAMIC BODIES
Louis A. Girard, Jr., Akron, and Robert S. Ross, Center, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio, a corporation of Delaware
Filed Dec. 10, 1968, Ser. No. 782,700
Int. Cl. B64b *1/50*
U.S. Cl. 244—33 5 Claims



A pivotal rudder or fin is added to the normal stabilizing planes or fins of a body contoured to provide fluid flow therearound with the pivotal action controlled by a weight which is itself controlled by the force of gravity. The weight tends to pivot the rudder in a direction to cause the fluid forces acting on the rudder, to move the body back to its original stabilized position.

3,547,379
AIRCRAFT NUCLEAR PROPULSION SYSTEM HAVING AN ALTERNATIVE POWER SOURCE
Peter G. Kappus and William H. Long, Cincinnati, Ohio, assignors to General Electric Company, a corporation of New York
Filed Sept. 18, 1967, Ser. No. 668,436
Int. Cl. B64d *27/22*
U.S. Cl. 244—55 8 Claims

An aircraft propulsion system includes a fuselage mounted, primary gas generator powered by nuclear energy for supplying motive fluid to wing mounted propulsion units capable of converting the energy of the motive fluid into useful thrust, the propulsion system also including secondary gas generators mounted on the wings for supplying hot products of



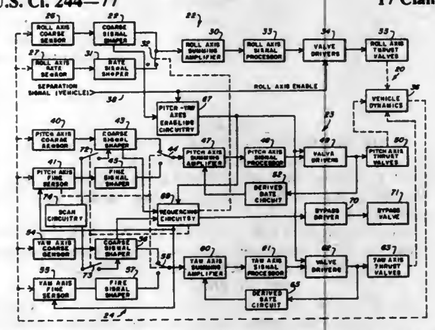
combustion to the propulsion units as an alternative or additional motive fluid.

3,547,380
AIRCRAFT NUCLEAR PROPULSION SYSTEM
Peter G. Kappus and William H. Long, Cincinnati, Ohio, assignors to General Electric Company, a corporation of New York
Filed Sept. 18, 1967, Ser. No. 668,581
Int. Cl. B64d *27/22*
U.S. Cl. 244—55 9 Claims



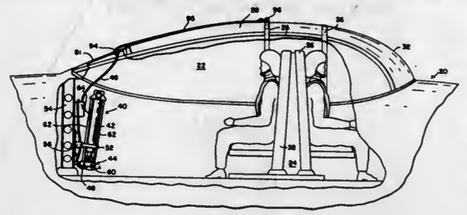
A nuclear power plant includes a closed reactor circuit within which a medium heated by the nuclear reactor transfers energy to a propulsion fluid in a two-step process, the first step being a mechanical transformation and the second step being a thermal transformation of energy.

3,547,381
THREE-AXIS ORIENTATION SYSTEM
Edward E. Shaw, and Glen R. Strevey, Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Colo., a corporation of Colorado
Filed Dec. 29, 1967, Ser. No. 694,533
Int. Cl. G05d *1/12*
U.S. Cl. 244—77 17 Claims



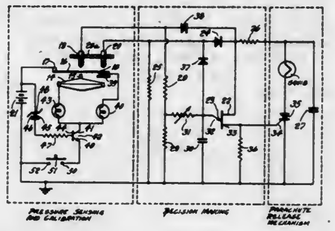
A system that is automatically operable to orient a vehicle in three axes. The system first starts despinning of the vehicle in the roll axis with respect to a predetermined reference source. At a predetermined time after commencement of despinning, acquisition in the pitch and yaw axes is commenced again with respect to a reference source. After acquisition in the three axes, control is transferred to a tracking mode with line of sight to a preselected target being from the aft end of the vehicle. Each axis of the system comprises a core unit capable of both coarse and fine sensing with processing circuitry for each, including a voltage limiter, a three-level contactor, monostable multivibrators, and derived rate feedback.

3,547,382
APPARATUS FOR REMOVING A CREW COMPARTMENT ENCLOSURE STRUCTURE FROM AN AIR OR SPACE VEHICLE
Robert M. Stanley, Denver, Colo., assignor to Stanley Aviation Corporation, Auroa, Colo., a corporation of New York
Continuation-in-part of application Ser. No. 600,487, Dec. 9, 1966, now Patent No. 3,433,440, and a continuation-in-part of 605,121, Dec. 12, 1966, now Patent No. 3,424,409, which is a continuation of application Ser. No. 390,709, Aug. 19, 1964. This application May 14, 1968, Ser. No. 729,064
Ser. No. 729,064
Int. Cl. B64c *1/32*
U.S. Cl. 244—121 6 Claims



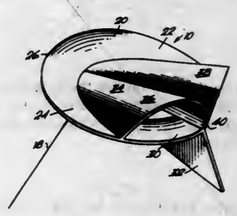
An apparatus for removing an overhead crew compartment enclosure structure from an air or space vehicle comprising a rocket mounted in the vehicle and connected to the enclosure structure by an extensible, motion-transmitting towline. The rocket is launched through an egress opening selectively formed in the enclosure structure and is ignited for flight away from the vehicle to extract the enclosure structure from the vehicle, thereby providing an escape opening for crewmen in the compartment.

3,547,383
VELOCITY/ALTITUDE SENSING AUTOMATIC PARACHUTE RELEASE
Willard D. Carpenter, Jr., New York, N.Y. (6669 Oakridge Road, San Diego CA)
Filed Nov. 26, 1968, Ser. No. 786,798
Int. Cl. B64d *17/56*
U.S. Cl. 244—150 15 Claims



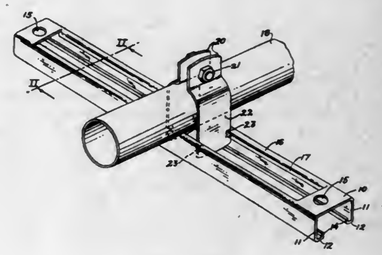
A parachute release device having an altitude sensing mechanism for initially setting and arming a decision making means at a preset first altitude. Said sensing mechanism thereafter providing a second signal to said decision means at a second preset altitude. A parachute release apparatus operably connected to receive an activating input from said decision means only when the time differential between said initial and said second signal is less than a selected time interval. Whereby, said release apparatus will only deploy said parachute if the rate of descent is indicative of a malfunction or failure of the main parachute to deploy. Additionally, there is provided means for calibrating and adjusting said sensing mechanism and an indication of any inoperativeness on the part of the entire device.

3,547,384
AIR FOIL FLYING DEVICE WITH MULTIPLE-STAGE LIFT AREAS
Louis J. Clark, 840 Nightingale Ave., Miami Springs, Fla. 33166
Filed Apr. 28, 1969, Ser. No. 819,612
Int. Cl. B64c *31/06*
U.S. Cl. 244—154 7 Claims



A tethered flying device in which an annular torus-shaped wing includes lateral dihedral and forward lift sectors defining a primary lift area and a rear horizontal stabilizer area in which a depending vertical stabilizer extends longitudinally beneath a central opening covered by a supplemental tunnel-forming element defining a secondary lift area disposed above the horizontal stabilizer area.

3,547,385
STRUCTUAL FORM FOR PIPE CLAMP SUPPORT
Robert D. Kindorf, 448 Scenic Ave., Piedmont, and David O. Kindorf, 6757 Girvin Drive, Oakland, Calif. 94611
Filed May 2, 1968, Ser. No. 726,086
Int. Cl. F16l *3/10*
U.S. Cl. 248—62 2 Claims

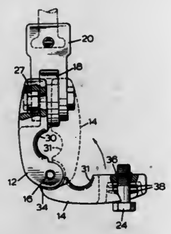


A channel-type clamp support which enables a plurality of pipes or conduits to be secured in side-by-side relationship on two opposite sides of the support.

3,547,386
HINGED SUSPENSION CLAMP
Thomas J. Burgess, Toronto, and Gordon J. Clarke, Bramalea, Ontario, Canada, assignors to Lacal Industries Limited, Ontario, Canada
Filed Mar. 24, 1969, Ser. No. 809,703
Int. Cl. F16l *3/08*; H02g *7/00*; H01b *17/00*
U.S. Cl. 248—63 2 Claims

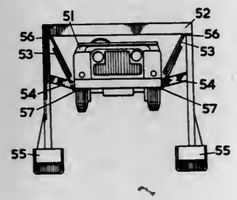
The invention is a suspension clamp for an electric cable that consists of a pair of cooperating jaws formed with seats to accommodate a cable and having a clamp to hold them in

a closed position. The clamp is suspended by means of a mounting hole formed in one of the jaws that is generally below the upper contour of the clamp. The other jaw is



formed with an opening to render the mounting hole accessible. The clamp is able to mount the cable in close proximity to a line insulator and its edges are smoothed and rounded to reduce corona in use.

3,547,387
SHOCK ABSORBING DEVICES
Geoffrey William Hedges Stevens, Camberley, England, assignor to National Research Development Corporation, London, England
Filed Jan. 15, 1968, Ser. No. 697,910
Int. Cl. B66f *9/00*
U.S. Cl. 248—119 **5 Claims**

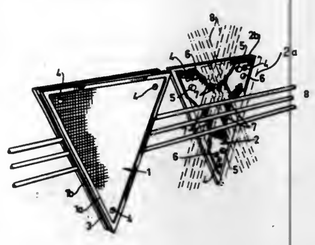


The invention relates to shock absorbing devices, particularly for use for the absorption of shock when equipment dropped from an aircraft contacts the ground and in safety harness equipment.

A shock absorbing device comprises a fabric material having two opposed plys or face layers which are joined to each other by interconnecting pile members, the one face layer to be secured to a load to be protected and the other face layer to be secured to a support whereby said shock absorbing device, at least in part, normally supports said load in said support and wherein the onset of a shock load which results in relative movement between said load and said support is resisted by tearing of the interconnecting pile members.

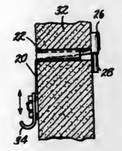
3,547,388
ARRANGEMENT DEVICE
Ake Hultberg, AB Avant, Karlavagen 87, Stockholm O, Sweden
Filed June 16, 1967, Ser. No. 647,296
Int. Cl. E04g *3/00*
U.S. Cl. 248—214 **9 Claims**

A panel display arrangement comprising a panel unit presenting one or more faces on which articles to be displayed are carried. The unit comprises a pair of facially disposed flat panel members which are arranged with spacing between them and with a plurality of supporting rods arranged between the panel members and passing through the spacing between them. Tongues or lips are struck from one of the panel members and these tongues or lips frictionally engage against the rods to hold the same in required spaced relation while maintaining the panel unit from shift along the rods, and for connecting two of the panel units together an ovate plate having wedge surfaces can be inserted in the



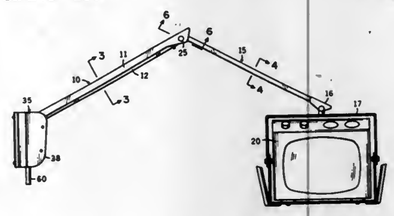
spacing between the panel members of two adjacent panel units.

3,547,389
WALL HANGERS
Lucille Mitchell, 4325 Hampton Blvd., Royal Oak, Mich. 48073
Filed June 14, 1968, Ser. No. 737,182
Int. Cl. E04g *3/00*
U.S. Cl. 248—220.5 **5 Claims**



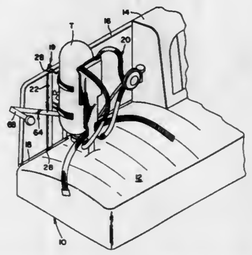
A wall hanger useful for hanging framed pictures, mirrors and like objects from walls or ceilings, the visible portion of the hanger consisting merely of a thin, flexible cord of nylon, or metal wire which protrudes from the facing surface of the wall or ceiling, the holding portion of the flexible member extending back into and being anchored within the wall. When it is desired to relocate the picture or like object, removal of the protruding cord or wire can be effected merely by clipping same close to the facing surface of the wall, the interior portion of the hanger remaining undisturbed. The anchoring means may be formed by injection of a hardenable plastic bonding material into the wall opening, so as to seal the anchor means inside the opening along its length and to form an expanded body of material at the inner end of the opening.

3,547,390
ADJUSTABLE BRACKET STRUCTURE
Jacob A. Mehr, deceased, late of Kirkwood, Mo., by Edna A. Mehr, adminstratrix, Kirkwood, Mo., assignor to Dazor Manufacturing Corp, a corporation of Delaware
Filed May 31, 1968, Ser. No. 740,420
Int. Cl. A47f *5/00*
U.S. Cl. 248—280 **12 Claims**



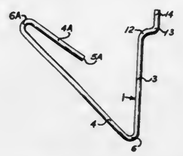
The adjustable bracket includes an elongate inner arm comprising a substantially parallelogram linkage system. The inner arm is pivotally mounted at its inner end to a support and includes, at its outer end, a load-carrying extension arm. A compensating rocker, including angularly disposed arms, is pivotally connected to the support. An elongate link connects the inner end of the elongate arm to one of the rocker arms. The other rocker arm is connected to a helical spring which is adapted to substantially counterbalance the load on the extension arm for any position of that load.

3,547,391
QUICK RELEASE SUPPORT FOR RESCUE BREATHING APPARATUS
Donald E. Johnson, Rte. 10, Box 454-A, Lexington, N.C. 27292
Continuation-in-part of application Ser. No. 732,133, May 27, 1968, now abandoned. This application Jan. 14, 1969, Ser. No. 814,479
Int. Cl. A62c *39/00*
U.S. Cl. 248—311 **23 Claims**



This invention is directed to a rescue apparatus and more particularly to a quick-release support for the oxygen tank of a breathing apparatus suitable for attachment to the seat of a fire engine or other rescue vehicle, wherein the occupant may strap the breathing apparatus onto his back en route to the scene of the accident. Upon arrival at the scene, the occupant presses a lever which permits the tank and its associated breathing apparatus to be withdrawn from the supporting arms as the occupant dismounts from the seat.

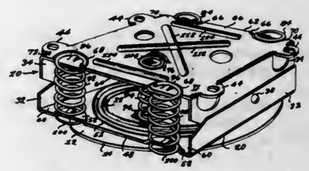
3,547,392
ADJUSTABLE DISPLAY HOOK
John J. Tanzer, 2605 St. Charles Court, Brookfield, Wis. 53005
Filed Dec. 13, 1967, Ser. No. 690,175
Int. Cl. A47f *5/01*
U.S. Cl. 248—360 **1 Claim**



An advertising display device for use in conjunction with a hollow display pole including releasably secured support, suspension and attachment means adapted to maintain said combination in variable attitudes.

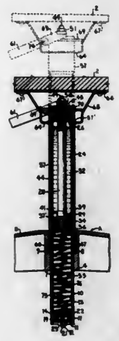
3,547,393
ROCKER-SWIVEL DEVICE
Samuel E. Gordin, Fort Smith, Ark., assignor to Hickory Springs Manufacturing Co., Inc., Hickory, N.C., a corporation of North Carolina
Filed Jan. 8, 1968, Ser. No. 696,364
Int. Cl. A47c *3/02*
U.S. Cl. 248—385 **6 Claims**

A rocker-swivel device for incorporation in a chair structure to support the seat portion thereof for both rocking and swiveling action. The device has a bottom plate member on which a middle plate member is supported through a circular ball race assembly for swiveling movement about a centrally disposed vertical swivel axis at which the bottom and middle plate members are connected. The middle plate member has upstanding side flanges that are connected at a centrally disposed horizontal rocking axis to depending side flanges of a top plate member for rocking movement of the top plate member, with the top plate member side flanges disposed inwardly of the middle plate member side flanges for balance and to prevent lateral displacement in the event of failure of the rocking pivot connection. The top and middle plate members are formed with front and rear spring-retaining pockets disposed compactly in the corner areas thereof out-



board of and closely adjacent the circular ball race, and are further formed with interior spring-retaining pockets inboard of the circular ball race. An oppositely wound pair of vertically disposed front coil springs are secured in the front spring-retaining pockets to control in both compression and tension the rocking action of the top plate member, and a pair of rear coil springs may be secured in the rear spring-retaining pockets or an interior coil spring may be secured in the interior spring-retaining pockets or both of or neither to provide a desired compression and tension spring action to suit particular chair structure characteristics, thus providing a versatile device that can be readily modified to provide desired rocking action control.

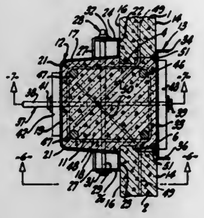
3,547,394
HEIGHT ADJUSTMENT APPARATUS
Norvin J. Wehner, Kansas City, Mo., assignor to Cramer Industries, Inc., Kansas City, Kans., a corporation of Missouri
Filed Jan. 14, 1969, Ser. No. 791,013
Int. Cl. F16m *11/00*
U.S. Cl. 248—412 **13 Claims**



A height adjustment apparatus for a chair having a base with a tubular hub therein and a seat frame includes an elongated cylindrical barrel having a closed lower end and an upper a end fixedly connected to the hub. An elongated inner cylinder having closed upper and lower ends with hydraulic fluid therein has its lower end received within the barrel. An elongated open-ended outer cylinder has the seat frame mounted thereon and is sleeved on an elongated collet tube which has a closed upper end and is fitted between the inner and outer cylinders. An elongated lever is pivotally

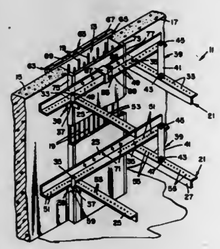
mounted on the seat frame and has one end operatively connected to the closed upper end of the collet tube and to the upper end of a piston rod having a piston movable within the inner cylinder with the piston having a plurality of flow passages for flow of the hydraulic fluid therethrough. An elongated spiral spring is mounted within the inner cylinder and has opposite ends engaging the lower closed end of the inner cylinder and a lower face of the piston, respectively. Releasable gripping means are associated with the lower ends of the outer cylinder and the collet tube for supporting the set seat in adjusted position and for controlling the relative movement therebetween in response to operation of the lever.

3,547,395
BUILDING FORM STRUCTURE
David H. Keyston, Burlingame, Calif., assignor to Anza Pacific Corporation, Burlingame, Calif., a corporation of California
Filed Aug. 8, 1967, Ser. No. 662,265
Int. Cl. E04g *11/00, 13/02*
U.S. Cl. 249—19 **7 Claims**



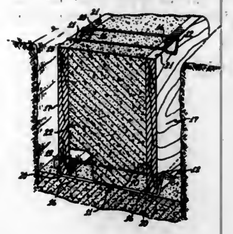
A reusable building form structure defined by two rigid, preformed, self-supporting form members; and a method of utilizing the same with building wall panels to bridge a space therebetween so that a settable construction material introduced into such space may be held in place while setting. At least one form member is channel shaped having tapered walls to facilitate its separation from the column formed by the settable construction material.

3,547,396
ADJUSTABLE CONCRETE PILASTER FORM
Edward L. Oueilhe, Jr, 9004 Locust Ave., Fontana, Calif.
Filed Sept. 9, 1968, Ser. No. 758,473
Int. Cl. E04g *11/00*
U.S. Cl. 249—19 **7 Claims**



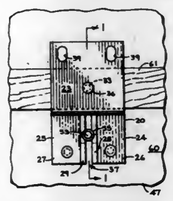
This form includes a plurality of clamp means connecting forming board members together in conjunction with the ends of spaced wall sections in encompassing relationship with a concrete pilaster column to be formed. Each clamp means includes a backing member disposed approximately parallel to the wall sections and includes also two spaced side members swivelly mounted on the backing member and releasably held in a predetermined angular relationship therebetween by diagonally disposed braces or squaring blocks. When the braces are released, the side members and the forming boards may be swung to an open position for placing the form about the reinforcing rods and for removing the form from the encompassing relationship. Means are also provided for releasably holding the form together and to the wall sections.

3,547,397
FOUNDATION FORM CLIP
Arthur J. Brow, Jr., 542 W. 3rd St., Mesa, Ariz. 85201
Filed Mar. 7, 1968, Ser. No. 711,412
Int. Cl. E04g *17/06*
U.S. Cl. 249—219 **2 Claims**



A foundation form clip for securing the lateral alignment of the bottoms and tops of foundation forms which are constructed of bent up wire configurations.

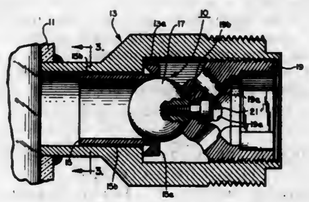
3,547,398
BRACKET AND TIE AND CONCRETE FORM SYSTEMS INCLUDING THE SAME
John M. Furr, and Grady E. Dearman, P. O. Drawer 1348, Laurel, Miss. 39440
Filed Sept. 26, 1968, Ser. No. 762,828
Int. Cl. E04g *17/06*
U.S. Cl. 249—219 **15 Claims**



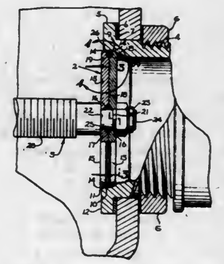
An improved bracket is disclosed which is useful in constructing concrete forms from panels such as plywood sheets held in spaced relationship by ties. A round tie is also provided which may or may not be used with the bracket of the invention. Improved concrete forms are constructed from the bracket and/or tie of the invention.

3,547,399
HARD VACUUM SEAL-OFF VALVE
Charles E. Soderquist, Barrington, Ill.
Filed Mar. 21, 1969, Ser. No. 809,237
Int. Cl. F16k *25/00*
U.S. Cl. 251—86 **12 Claims**

A high vacuum seal-off valve providing a metal-to-metal seal, i.e., no elastomers, is disclosed. A cylindrical sleeve member, preferably of a relatively soft metal, is slideably received in and supported by a hollow cylindrical inlet stem of an enclosed vessel with one end portion of the sleeve positioned to define an annular valve seat. The valve member constitutes a metallic ball preferably of a relatively hard metal and having a diameter only slightly greater than the internal diameter of the sleeve. A valve closure member is connected to the ball valve by a universal-type fitting so that a self-aligning of the ball occurs on forceable seating of the metallic ball by the closure member. Additional features are disclosed.



3,547,400
DISC-LIKE VALVE MEMBER MOUNTED FOR ROTATION RELATIVE TO CONNECTED VALVE STEM
Myron Earl Burtness, 7838 Texhoma Ave., Northridge, Calif.
Filed May 24, 1968, Ser. No. 731,923
Int. Cl. F16k *25/00*
U.S. Cl. 251—88 **7 Claims**



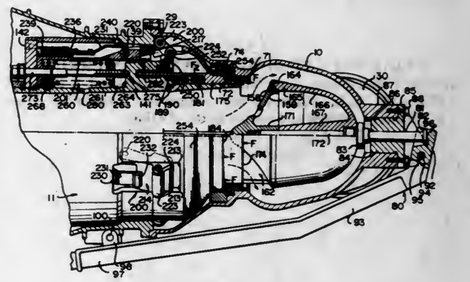
A valve means particularly adapted for usage in situations requiring capacity for trouble free operation under conditions of infrequent use as in fire hydrant or other fire hose connections and similar situations in which a manually operated valve means is required which maintains its sealing ability and is capable readily of being caused to open and close despite infrequent usage. The illustrated embodiment of the invention is installable as a replacement for valves now employed and includes a disclike valve member mounted on a valve stem with capacity for relative rotation between the valve member and valve stem and sealed by an O-ring gasket means engaging the valve stem and another O-ring gasket member engaging the seat with which valve member cooperates. The first mentioned O-ring gasket permits the valve stem to extend entirely through the valve member, thus providing an important simplification in construction.

3,547,401
FOLDABLE BELLOWS VALVE
Glenn Lee Beall, Gurnee, and Norbert William Ellmann, Chicago, Ill., assignors to Abbott Laboratories, Chicago, Ill., a corporation of Illinois
Filed June 7, 1968, Ser. No. 735,283
Int. Cl. F16k *7/18*
U.S. Cl. 251—144 **9 Claims**

A valve for sealing a container outlet which includes a wall portion and a bellows portion, the wall and bellows defining a valve chamber and the bellows being foldable within the chamber to seal the container outlet. Sealing is accomplished by the appropriate interrelationship between the bellows and a valve plug. In one embodiment, the plug is disposed in the valve chamber in overlying relationship with the container outlet and includes a stem which projects into the chamber. When the foldable bellows is folded within the chamber, it engages the stem of the plug in a fluidtight manner to thereby seal the valve outlet.



3,547,402
COMPENSATED QUICK-DISCONNECT DEVICE
James S. Millar, Los Angeles, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio
Filed May 17, 1966, Ser. No. 550,867
Int. Cl. F161 *37/28, 37/06*
U.S. Cl. 251—149.6 **28 Claims**



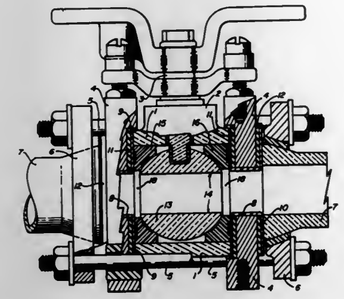
This disclosure relates to a refueling device comprising a probe and a receiver, the probe including a body defining a passage surrounded by an axially slidable sleeve defining a fluid chamber with the body, latching means carried by the sleeve, and passage means for introducing fluid from the passage into the fluid chamber to assure that the probe and the receiver will only be uncoupled under a predetermined uncoupling force.

The receiver further includes an axially disposed rod for breaking the latching engagement between the probe and the receiver, and pivoting means for visually indicating proper latching engagement between the probe and the receiver.

3,547,403
BALL VALVES
Oscar H. Grauer, Philadelphia, Pa., assignor to Fischer & Porter Company, Warminister, Pa., a corporation of Pennsylvania
Filed Jan. 10, 1969, Ser. No. 790,362
Int. Cl. F16k *5/14*
U.S. Cl. 251—170. **6 Claims**

A ball valve including a tubular valve body having a cylindrical valve chamber therein and a valve ball revolvably and sealedly supported therein without contact with the walls thereof by two ball mounting rings of Teflon or the like, chamber closing end members at opposite ends of the body, each mounting ring having two narrow spaced apart concentric annular spherically faced ball sealing rings projecting very slightly from the ball facing side of the mounting ring one such sealing ring being generally at the radially innermost portion of the ball facing side of the mounting ring and the other being generally at the radially outermost portion of the ball facing side of the mounting ring, and each mounting ring having two narrow spaced apart annular flat faced back

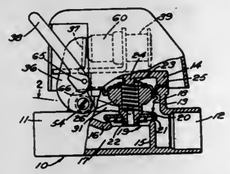
up rings projecting very slightly from the closure facing side of the mounting ring and disposed in operative juxtaposition to the ball sealing rings and sealingly bearing against the corresponding closure member, and each mounting ring having



a radially outermost cylindrical surface facing the chamberwall, said ball sealing rings and said backup rings being without flexibility or bendability in relation to the main body of the mounting ring

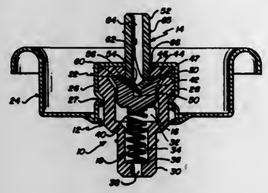
---

3,547,404
VALVE OPERATOR WITH MANUAL OVERRIDE
George T Blackburn, East Greenwich, and Helmut J. Draxler, Warwick, R.I., assignors to "Automatic" Sprinkler Corporation of America, a corporation of Ohio
Filed Aug. 28, 1968, Ser. No. 755,899
Int. Cl. F16k *31/44*
U.S. Cl. 251—231 **7 Claims**



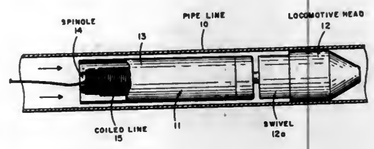
A valve having a valve disc operator in the form of a crank arm which is connected by a shaft to the outer portion of the valve casing, which shaft has a seal that may be readily replaced by providing a back seat for the shaft in the casing. The actuator, which is coupled to the shaft, is provided with a manual override.

3,547,405
TILT VALVE
Ronald F. Ewald, 2700 Cardinal Drive, Rolling Meadows, Ill.
Continuation-in-part of application Ser. No. 651,622, July 6, 1967, now Patent No. 3,506,241. This application Feb. 20, 1969, Ser. No. 801,132
Int. Cl. F16k *31/524*
U.S. Cl. 251—354 **4 Claims**



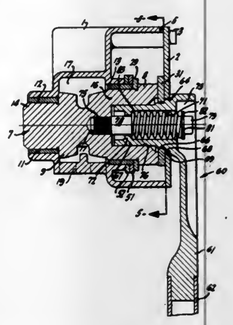
An aerosol valve of the tilt action type, having a valve body, a valve stem, a valve stem sealer, a sealing gasket and valve stem biasing means. The valve stem sealer is reciprocally disposed within the cavity of the valve body and has a valve stem cavity in its top wall which is adapted to receive a specially shaped plug on the inner end of the completely separate valve stem. A swirl chamber may be formed on the top surface of the sealer below the stem. The peripheral rim of the valve stem sealer is forcibly urged against the sealing gasket, by the valve stem biasing means, to form a seal. The valve stem is operated by tilting and/or depressing it to break this seal to permit the product to be dispensed.

3,547,406
METHOD AND APPARATUS FOR RUNNING A LINE THROUGH A CONDUIT
Walter J. Bielstein, and Ronald L. Fowler, Houston, Tex., assignors to Esso Production Research Company
Filed July 19, 1968, Ser. No. 746,097
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.4 **14 Claims**



A method for running a line such as a cable or wire through a conduit. The line is packaged, e.g., spooled or coiled, behind a locomotive means (in the sense of direction of movement of the locomotive means) with one end attached to the locomotive means. Preferably, a sheath extends behind the locomotive means in order to accommodate and protect the coiled line. The line may be wound about an open center or about a spindle arranged within the sheath and connected to the locomotive means. The locomotive means and coiled line are arranged in a conduit with the other end of the line extending to the exterior of the conduit. Then, fluid pressure is applied to the locomotive means to propel it and the packaged line through the conduit. The line unwraps or uncoils as the locomotive means is moved through the conduit. The conduit may be a surface pipe line, a flowline connecting above-water installations to below-water well equipment or other type closed conduit forming a fluid passageway between two separated points.

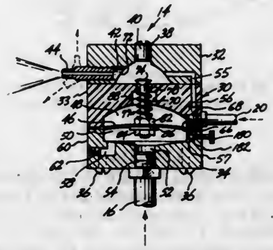
3,547,407
MULTIPOSITION DIRECT DRIVE HOIST
Ralph A. Ratcliff, 1300 Sunnyslope Ave. P. O. Box 543, Belmont, Calif. 94002
Filed Oct. 2, 1968, Ser. No. 764,537
Int. Cl. B66d *1/00*
U.S. Cl. 254—167 **11 Claims**



A hoist for supporting a load on a chain engaged with a sheave on a rotatable shaft within a casing. Direct drive

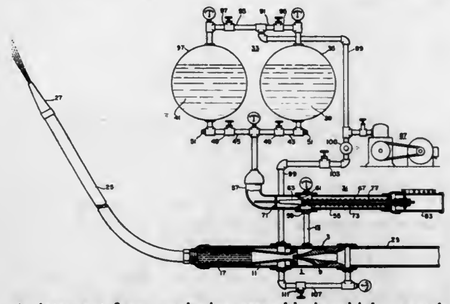
operating handle structure is operatively supported directly on the sheave shaft by a handle boss engaged with the operating mechanism of the hoist. The boss is pivotally received within a chamber in the sheave shaft end within the casing and is engaged with the operating mechanism via a ratchet plate having a multipoint internal star recess compatible with a polygonal projection on the boss.

3,547,408
SPRAYING METHODS AND APPARATUS FOR SPRAYING GLUE, PLASTICS, AND OTHER JOINING AGENTS AND COATINGS WITH AIR UNDER PRESSURE
George R. Klingenberg, 615 S. Wright Ave., Tacoma, Wash.
Filed Apr. 22, 1968, Ser. No. 723,143
Int. Cl. B01f *15/00*
U.S. Cl. 259—4 **3 Claims**



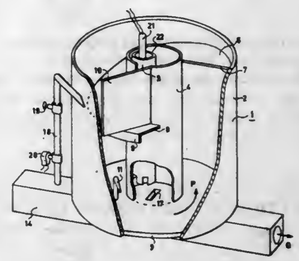
For spraying glue, plastics and other joining agents and liquids with air under pressure regarding the manufacture of products and also for spraying in conjunction with animal feeds such as spraying molasses on meals and grains, and also for spraying fertilizers, solvents, etc. these spraying methods and apparatus all utilize a spraying device comprising a housing or body which has: a mixing chamber; a differential pressure chamber divided by a diaphragm which moves at its midsection to move a valve member which controls flow of glues, plastics, etc. through an orifice in the housing located at the mixing chamber; passageways for air and for glues, plastics or other joining agents and liquids to be mixed with air leading to and leaving from the mixing and differential chambers; fittings to join passageways of the housing to a pressurized air supply, a pressurized glue, plastic, etc. supply, and a controlled spray nozzle in communication with the mixing chamber, and, as necessary, connectors for supporting structures, handles, etc. and also fluid flow regulators.

3,547,409
ASSEMBLY FOR PRODUCING DETERGENT FOAM
Frank Jacuzzi, Berkeley, Calif., assignor to Jacuzzi Bros., Incorporated, a corporation of California
Filed May 23, 1968, Ser. No. 731,555
Int. Cl. B01f *15/00*
U.S. Cl. 259—4 **10 Claims**



A detergent foam-producing assembly in which a nozzle-venturi assembly in a main flow line has the foam ingredients introduced, preferably under pressure, in the region of reduced pressure between the nozzle and venturi. Gas under pressure may be added to create a more economical and effective foam by introducing same adjacent the venturi. A valve-controlled bypass around the nozzle-venturi assembly enables full main flow without incorporating foam-producing ingredients.

3,547,410
MIXING DEVICE
Leendert Johannes van der Windt, Burgerveen, and Johannes Jansen, Zwijndrecht, Netherlands, assignors to Brooks Instrument N.V., Veenendaal, Netherlands
Filed Aug. 27, 1968, Ser. No. 755,618
Claims priority, application Netherlands, Apr. 5, 1968, 6,804,893
Int. Cl. B01f *15/04*
U.S. Cl. 259—4 **8 Claims**



Device for mixing solid or fluid materials or the like in a main liquid, said device comprising a vertically arranged substantially cylindrical reservoir for receiving the materials to be mixed, the bottom of the reservoir being provided with a nozzle, which is connected to a supply for said main liquid and positioned to spray said main liquid in substantially horizontal, and, in view of the vertical wall of the reservoir, tangential direction, an overflow tube, the upper end of which being provided with one or more inlet openings, being arranged in the reservoir together with a helical shaped baffle plate the fore edge of which, as seen in the direction of rotation of the liquid flow, is lying higher than the maximum liquid level and the back edge below the lowest inlet point of the overflow tube, the supply for said main liquid being formed by a branch of a delivery pipe of a liquid pump, the liquid from below the overflow tube being sucked off by a jet pump being mounted, after the branch, in the delivery pipe, the liquid level in the reservoir being controlled by means of a bypass tube with a valve in it operated by a liquid level control device.

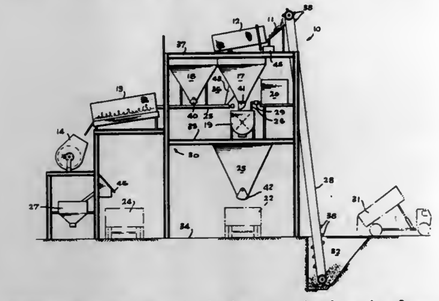
ERRATUM

For Class 259—6 see:
Patent No. 3,547,261

3,547,411
APPARATUS AND PROCESS FOR RECLAIMING PAVING MATERIAL
Clarence W. Sowell, 16248 Itasca St., Sepulveda, Calif. 91343
Filed July 19, 1966, Ser. No. 566,381
Int. Cl. B28c *7/00*
U.S. Cl. 259—148 **14 Claims**

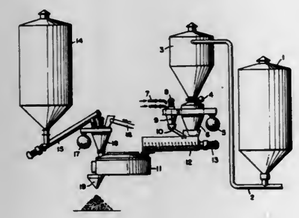
Asphalt and aggregate that has been removed from roads and other surfaces is taken to a multilevel reprocessing plant (FIG. 2) where it is raised to the uppermost level (37 in FIG. 1 and 137 in FIG. 2) from which it can move by gravity to an inclined classification screen or grid (12, FIG. 1) preferably a

rotating cylindrical grid disposed over a hopper as shown at 112 (FIG. 2), thence to a roaster 13 for burning off any asphalt binder that may be adhering to the aggregate, then to a "rattler" for shaking the burned asphalt loose. The apertures in the screen or grid are of such size that only the aggregate will pass through, the larger rocks dropping from the end of the rotating grid into a second hopper 18.



Closures in the bottoms of the hoppers permit them to be opened so that their contents may be released into suitable conveyances for taking the graded rocks to storage bins or sites for later use as may be required.

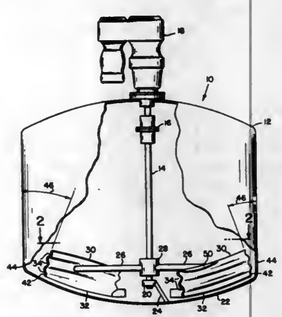
3,547,412
PRODUCTION OF LIGHTWEIGHT CONCRETE
Karl-Heinz Klages, Neustadt, Weinstrasse, and Georg Friedrich Weisbrod, Ludwigshafen Rhine, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen Rhine, Germany
Filed Sept. 9, 1968, Ser. No. 758,365
Claims priority, application Germany, Sept. 12, 1967, 1,646,648
Int. Cl. B28c *5/00*
U.S. Cl. 259—148 **4 Claims**



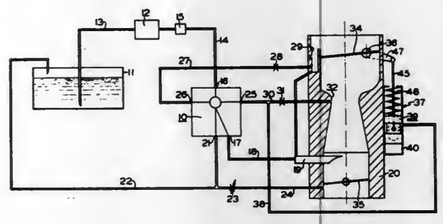
A process for the production of lightweight concrete in which expanded plastics particles, an adhesion promoter, a hydraulic binder and a mineral aggregate are used, and equipment for carrying out the process.

3,547,413
MIXING APPARATUS
Erwin J. Nunlist, Penfield, N.Y., assignor to Sybron Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 4, 1968, Ser. No. 772,899
Int. Cl. B01f *7/16*
U.S. Cl. 259—108 **6 Claims**

An improved brewery mixing apparatus having elongated segmental agitator blades is disclosed. The blades are formed with at least one channel contained thereon to define a fluid movement path along which the mixture in the vessel may move outwardly in a controlled manner during mixing. The mixing apparatus is suitable for use in a cereal cooker as well as a mash mixer and is designed to move the ingredients over the jacketed areas of the mixer to obtain a maximum heat transfer rate and to avoid burn-ons while maintaining a low-shear in order to avoid disintegration of the particle size.



3,547,414
CARBURETOR HAVING A PURE FLUID COMPONENT
Giancarlo Nardi, Pisa, Italy, assignor to Compagnia Italiana Westinghouse Freni e Segnali, Turin, Italy
Filed Sept. 17, 1969, Ser. No. 858,653
Claims priority, application Italy, June 16, 1969, 52248/69
Int. Cl. F02m *7/04*
U.S. Cl. 261—36 **8 Claims**

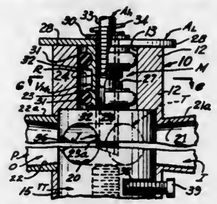


A carburetor having a fluidic proportioning device adapted to deliver fuel from a fuel tank to a fuel nozzle to inject fuel into an air intake conduit in proportion to air pressure differential between atmosphere and a venturi induced pressure in the air intake conduit impressed across the control inputs of the proportioning device, and including a valve device mechanically coupled to an air flow responsive throttle plate in the air intake conduit disposed upstream of the venturi area to proportionally modify the effect of the pressure differential upon the proportional device in a predetermined portion of the range of operation to increase efficiency of operation.

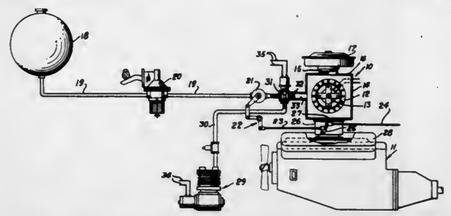
3,547,415
CARBURETOR FOR GASOLINE ENGINES
John C. Perry, 6248 Farmdale Ave., North Hollywood, Calif.
Filed Mar. 12, 1969, Ser. No. 806,505
Int. Cl. F02m *9/08, 7/22*
U.S. Cl. 261—50 **10 Claims**

A carburetor for gasoline engines, particularly small displacement two-cycle engines such as model engines and small motor driven cycle engines. The carburetor has a throttle valve which regulates the relative areas of the air venturi inlet and exit in such a way as to effect fuel induction through the carburetor jet by venturi action at high engine speeds and by engine crankcase depression or intake vacuum at low engine speeds. Interconnected with the throttle valve

is a fuel metering valve characterized by a novel fuel metering orifice of clog-resistant single boundary edge configuration. The metering valve is adjusted in unison with the throttle valve to meter fuel to the fuel jet in accordance with a preselected function of throttle valve setting which yields an optimum fuel-air mixture at each throttle setting from idling to full speed. The metering valve embodies low- and high-speed mixing adjustments, a visible scale for indicating the normal range of the low-speed mixing adjustment, and a fuel reservoir for blocking passage of air bubbles in the fuel to the fuel jet and containing starting fuel for the engine.

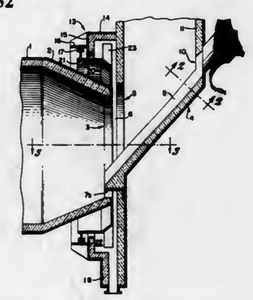


3,547,416
FUEL CONVERTER
Harold Edward Thomas, 144 Liberty St., Long Branch, N.J.
Filed Jan. 5, 1967, Ser. No. 607,529
Int. Cl. B01f *3/04, 5/02, 7/04*
U.S. Cl. 261—90 **2 Claims**



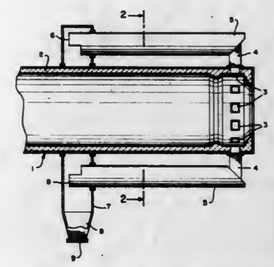
A fuel converter for internal combustion engines by which liquid fuel from a reservoir is injected as a vapor into a rapidly rotating baffle element and further atomized and converted into a dry gas which is drawn into the combustion chambers through the usual intake manifold, obviating the use of a carburetor, whereby to substantially eliminate the discharge of noncombustible gases into the atmosphere.

3,547,417
ROTARY KILN ASSEMBLY
Hans Peter Elkjaer, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., New York, N.Y., a corporation of Delaware
Filed May 23, 1968, Ser. No. 731,526
Int. Cl. F27b *7/02*
U.S. Cl. 263—32 **5 Claims**



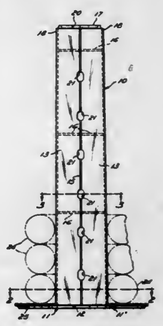
The combination of a rotary kiln and a stationary gas conduit having an inner surface inclined towards, but spaced from, the feed end of the kiln and an elongated trough, carried by the inner surface, that extends downwardly and protrudes into the feed end of the kiln.

3,547,418
ROTARY KILNS WITH COOLER TUBES
Flemming Edwin Jensen, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., New York, N.Y., a corporation of Delaware
Filed Sept. 6, 1968, Ser. No. 757,925
Claims priority, application Great Britain, Sept. 22, 1967, 43,332/67
Int. Cl. F27b *7/00*
U.S. Cl. 263—32 **5 Claims**



A rotary kiln having a number of cylindrical cooler tubes mounted in planetary fashion around the outlet end of their kiln with their axes parallel or substantially parallel to the axis of the kiln, with the inlet end of each cooler tube being connected to an outlet end of the rotary kiln by a supply chute. Helical conveyor flights are provided in the tubes to lift the material in each cooler tube and discharge it in the form of falling curtains of material inclined to the axis of the tube so that cooling air must pass through curtains before entering the kiln. The improvement is in a ring of scoops provided at the air inlet end of each tube to produce a transverse curtain of material over that side of the tube in which the conveyor flights are moving upwards to impede the entry of incoming air into channels formed between adjacent inclined curtains.

3,547,419
COIL SPIDER
John P. Sutcliffe, Lakewood, and Jack E. Fisher, Elyria, Ohio assignors to Lee Wilson Engineering Company, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Jan. 24, 1969, Ser. No. 793,854
Int. Cl. F27d *5/00*
U.S. Cl. 263—47 **4 Claims**

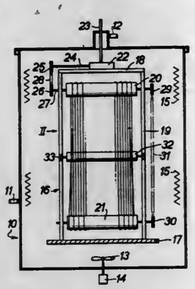


A hollow spider of generally triangular cross section for use in handling coils of wire and the like. The spider comprises three substantially identical longitudinal staves having side panels angularly disposed with respect to each other and with the side panels of adjacent staves secured to each other to form a column.

3,547,420
PRODUCTION OF CARBONISED FIBRES

Brian Longstaff, Didcot, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Dec. 16, 1968, Ser. No. 784,082
Claims priority, application Great Britain, Dec. 22, 1967, 58382/67
Int. Cl. F27b 9/28
U.S. Cl. 263—52 8 Claims

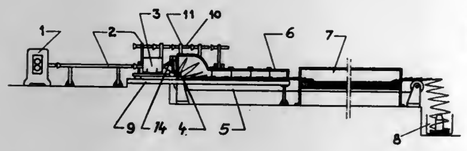


In the production of oxidised, e.g. carbon, fibres from organic material by heating, the fibres are moved continually, e.g. reciprocated, over guides which prevent the fibres from shrinking, the time spent between the guides being much longer than the time in contact with the guides.

3,547,421
ADJUSTABLE LENGTH FOR PRODUCTION OF PATENTED STEEL WIRE

Bernd Hoffmann, Dusseldorf, Georg Bollig, Buderich, and Otto Doepper, Krefeld, Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a company of Germany

Filed May 3, 1967, Ser. No. 635,776
Claims priority, application Germany, May 7, 1966, Oct. 26, 1966, Sch38955;Sch39742
Int. Cl. C21d 9/56
U.S. Cl. 266—3 5 Claims



A method and means for producing patented steel wire by depositing the wire in nonconcentric overlapping turns on a moving conveyor belt and controlling its temperature to convert its texture to ferrite and pearlite.

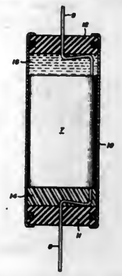
The apparatus includes a wire feeding device, a rotating tube reel, a conveyor belt, a cooling tract and a coil collecting station, and may include a roofing tunnel and a vortex sheet bath.

3,547,422
FURNACE CONSTRUCTION FOR HEAT TREATING UPRIGHT STRIP MATERIAL INCLUDING VERTICALLY ADJUSTABLE QUENCH BLOCKS

Herbert W. Westeren, Barrington, and Vincent Scotto, Warwick, R.I., assignors to C. I. Hayes Inc., Cranston, R.I., a corporation of Rhode Island

Filed Dec. 11, 1967, Ser. No. 689,457
Int. Cl. C21d 9/56
U.S. Cl. 266—3 9 Claims

A furnace for heat treating strip material wherein the strip material is guided through the furnace in a substantially upright position and is properly tensioned during the movement therethrough so as to prevent undue distortion, a quench station being located downstream of the furnace heating chamber and being adjustable to compensate for different widths of the strip material that is being heat treated and to provide for proper tension of the strip material as it

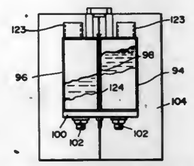


moves through the furnace heating chamber and quench station.

3,547,423
ELECTROLYTIC CAPACITOR AND ELECTROLYTE MATERIAL THEREFOR

Alfred L. Jenny, Pittsfield, Mass., and James H. Curtis, Newark, N.J., assignors to General Electric Company, a corporation of New York

Filed Apr. 12, 1968, Ser. No. 720,805
Int. Cl. H01g 9/00
U.S. Cl. 317—230 14 Claims

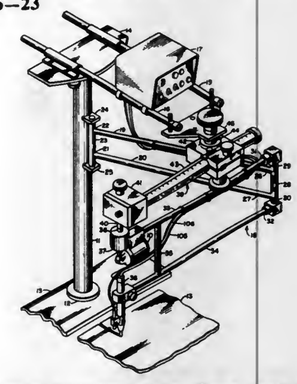


An electrolyte for electrolytic capacitors which includes as the conducting species thereof the reaction product salt of an organic base, and an acid such as a mono, di, or tribasic organic acid, the hydroxy-substituted derivatives of these acids or an inorganic acid. The concentration of the salt in the electrolyte can be from about 0.1—25 percent by weight. The electrolyte exhibits a low vapor pressure and enhanced chemical stability at elevated temperatures.

3,547,424
CIRCLE-CUTTING ATTACHMENT FOR FLAME CUTTERS

Richard E. Brown, 5135 Montrose Road, Knoxville, Tenn.

Filed Sept. 9, 1968, Ser. No. 758,299
Int. Cl. B23k 7/10
U.S. Cl. 266—23 4 Claims



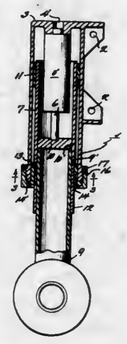
An attachment for a motor-driven flame cutter for moving the cutting torch in a circular path. This attachment is out-

board driven with reaction forces driving the torch mount, hence the torch.

3,547,425
LANDING GEAR ASSEMBLY

Howard W. Wachenheim, Smyrna, Ga., assignor to Engineering & Design Services Inc., Marietta, Ga., a corporation of Georgia

Filed Oct. 3, 1968, Ser. No. 764,834
Int. Cl. B60g 11/26
U.S. Cl. 267—64 14 Claims

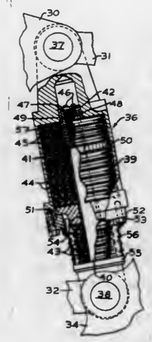


An aircraft landing gear constructed using a compressible fluid device as an enclosed, protected, easily replaceable cartridge. This landing gear includes an outer cylindrical member closed at the top and an inner cylindrical assembly in sliding relationship therewith, a liquid spring inside of both with a first end of the spring in contact with the closed end of the outer cylinder and with a second end in pressure contact with the inner assembly. The inner cylindrical assembly has a small lower member which projects below the open lower end of the outer cylinder and through a collar. The small lower member has torque carrying lugs which correspond to circumferentially spaced grooves in the collar which attaches to the outer cylinder's lower end and which is at a unique rotational position for clocking the alignment of the landing gear.

3,547,426
CUSHIONING STRUT FOR WHEEL TRACTOR-SCRAPER

Cullen Payton Hart, Vergil P. Hendrickson, and James R. Sebern, Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed Sept. 3, 1968, Ser. No. 756,822
Int. Cl. F16f 7/12
U.S. Cl. 267—138 21 Claims

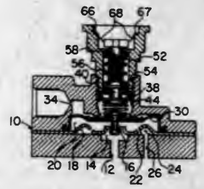


The hitch assembly for a wheel tractor-scraper comprises a parallelogram-type linkage having a combined spring and shock absorbing strut connected thereto to cushion relative movements occurring between the tractor and scraper. The strut comprises a plurality of resilient pads arranged in stacked relationship on a rod reciprocally mounted in a casing of the strut.

3,547,427
RESET MECHANISM FOR A SPRING ASSEMBLY

Samuel T. Kelly, Torrance, and Donald K. Murrell, La Mirada, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed June 27, 1968, Ser. No. 740,503
Int. Cl. F16f 1/12
U.S. Cl. 267—175 5 Claims

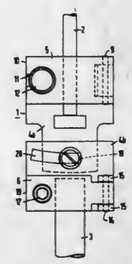


A resettable spring assembly for a pressure regulator control device which has the conventional structure of a flexible diaphragm responsive to a pressure force on one side and a biasing force on an opposite side with the biasing means adjusted to a predetermined regulator setting, is additionally provided with a two position adjustment in the form of a biased shaft movable between spaced abutments with cam surfaces between such abutments to preclude any intermediate shaft positioning so that the shaft may reset the biasing means to a second predetermined regulator setting.

3,547,428
HOLDER FOR A CRYSTALLINE ROD IN APPARATUS FOR CRUCIBLE-FREE ZONE MELTING

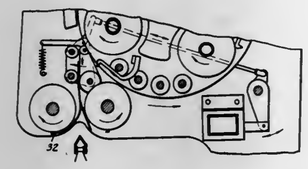
Carl-Heinz Vogel, Pretzfeld, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

Filed Nov. 9, 1967, Ser. No. 681,844
Int. Cl. B23k 37/04
U.S. Cl. 269—97 1 Claim



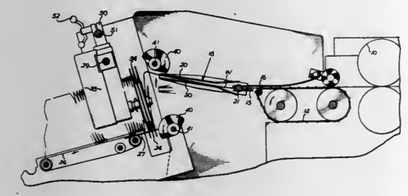
In apparatus for crucible-free zone melting a substantially vertically extending end-supported crystalline rod, such as a semiconductor rod, connectable in substantially coaxial alignment with a shaft, there is an end holder for interconnecting the rod and the shaft, the end holder comprising guide means for receiving respective ends of the rod and the shaft, a plurality of clamping jaws pivotally mounted above one another at respective ends thereof on the guide means and having respective free ends, the clamping jaws being pivotable about respective axes parallel to the axis of the rod in a direction toward the rod axis, and means for yieldably connecting the free ends of the clamping jaws to the guide means.

3,547,429
METHOD OF AND APPARATUS FOR SPREADING FOLDED SIGNATURE LEAVES
Rudolf Hepp, Schmidt-ott-Strasse 7a, Berlin 41, Germany
Filed Dec. 14, 1967, Ser. No. 690,445
Claims priority, application Germany, May 10, 1967, H62691
Int. Cl. B65h *39/02*
U.S. Cl. 270—54 **4 Claims**



A signature folded with an overhanging edge is fed, overhang first, between a pair of spreading rollers provided with gripping hooks which are spaced apart sufficiently to let the shorter leaf pass while the longer leaf is engaged by the hook of the roller proximal to it. Depending on the position of the overhang, the sheet-feeding mechanism is swung to one side or the other to move its longer leaf closer to the respective roller while aligning the shorter leaf with the gap between the hooks. The rollers also carry suction heads to separate the leaves of symmetrically folded signatures.

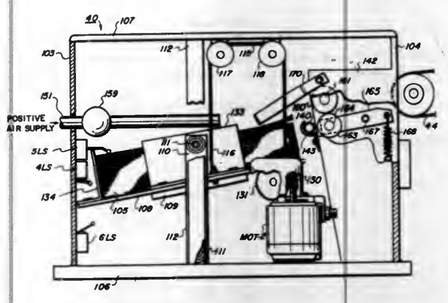
3,547,430
FOLDER BEATER BRUSH FOR COLLATOR FOR ZIG-ZAG FOLDER
Edward M. Assony, La Puente, Calif., assignor to Western Gear Corporation, Lynwood, Calif., a corporation of Washington
Filed Feb. 7, 1968, Ser. No. 703,652
Int. Cl. B65h *45/107*
U.S. Cl. 270—79 **6 Claims**



In a collator for zigzag folding of multiple set business forms, folds in a long strip or web of paper are made at regular intervals by a plurality of rotating spiral folders assisted by a plurality of rotating brushes that are intermittently in contact with the paper. The brushes are soft, flexible members that have a wiping contact with the paper and because of their flexible nature, eliminate problems of critical timing of the brushes with respect to other moving members of the collator.

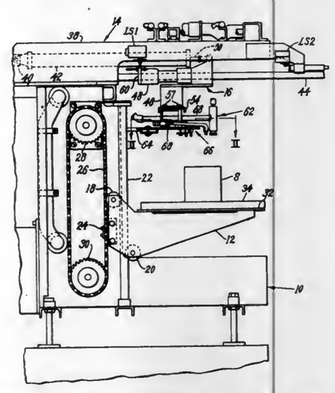
3,547,431
PNEUMATIC CUT SHEET FEEDER
John W. Wagner, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed July 1, 1968, Ser. No. 741,627
Int. Cl. B65h *5/22*
U.S. Cl. 271—11 **4 Claims**

Apparatus for removing the topmost sheet from a stack of support material by supporting said topmast sheet on an aeriform cushion and passing a jet of aeriform fluid over the top of said sheet at a velocity sufficient to cause said sheet to be lifted and forwarded into the nip of continually driving



feed rolls. The jet of aeriform fluid is periodically pulsed to forward said sheets at a desired rate.

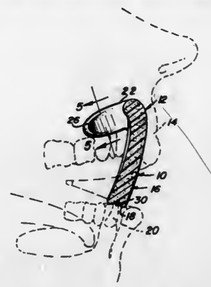
3,547,432
SHEET HANDLING DEVICES
Donald F. Herdeg and Oliver C. Brett, Jr., Boxford, Mass., assignors to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed June 17, 1968, Ser. No. 737,598
Int. Cl. B65h *3/08, 3/22, 3/30*
U.S. Cl. 271—20 **4 Claims**



A machine for feeding a preselected number of flexible sheets of material from a stack of sheets which includes a device for effecting release from the stack of only the selected number of sheets to be fed. The device has an element which engages the face sheet of the stack and moves it in a direction toward a point on the stack where pressure is applied by another element of the device. The operation is performed on each successive underlying sheet that is desired to be fed, forming a buckle in each of the sheets and thereby separating it from its underlying sheets, after which the remainder of the stack is clamped and the preselected number of sheets are fed from the stack.

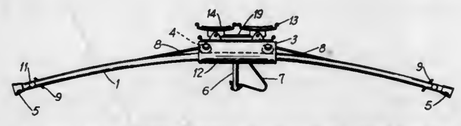
3,547,433
ORAL EXERCISER WITH POSITION RETAINING FEATURE AND METHOD OF USING SAME
Betty N. Robins, 17365 Westover Road, Southfield, Mich.
Continuation-in-part of application Ser. No. 568,813, July 29, 1966, now Patent No. 3,386,732, dated June 4, 1968. This application Jan. 31, 1968, Ser. No. 701,999
Int. Cl. A63b *23/00*
U.S. Cl. 272—57 **7 Claims**

An elongated slightly flexible generally noncompressible arcuate member which is insertable between a lip and the underlying gum area for use in the strengthening of the surrounding facial muscles through a selective tensioning and relaxing of the lip over the outward bulge created by the



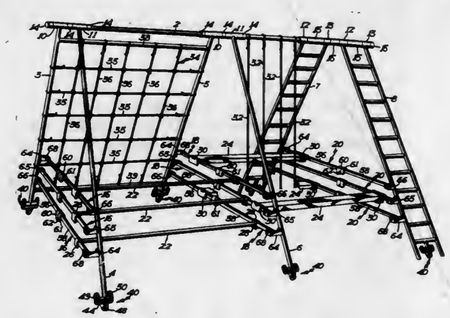
member. The member includes a centrally located laterally projecting platelike portion which is engaged by the teeth of the second gum area for retaining the position of the member during the use thereof.

3,547,434
MOVABLE-CARRIAGE SKI EXERCISER
Robert J. Ossenkop, Linden, N.J., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Sept. 12, 1968, Ser. No. 759,306
Int. Cl. A63b *23/04*
U.S. Cl. 272—57 **6 Claims**



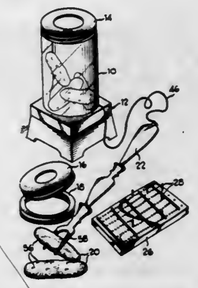
A movable carriage mounted on two curved parallel guide rails. The carriage is centered on the rails by rubber straps. Interconnected foot pads having limited freedom of rocking and pivotal movement are carried on top of the carriage to provide an edging effect while executing parallel skiing technique.

3,547,435
COLLAPSIBLE AGILITY CLIMBER
Robert S. Scott, 108 South Clarke St., Bloomington, Ind.
Filed Dec. 30, 1968, Ser. No. 787,733
Int. Cl. A63b *17/04*
U.S. Cl. 272—60 **7 Claims**



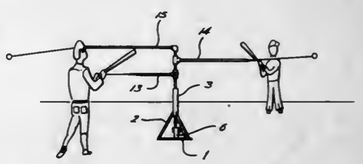
Exercising and climbing apparatus comprising an elongated, horizontal beam supported at spaced points along its length by two or more pairs of downwardly and outwardly depending legs pivotally connected to said beam at horizontally offset positions with respect to each other. Hinged cross braces extend between each pair of legs and support removable parallel beams or bars adjustably positioned therebetween. Retractable rollers on the support legs render the unit completely mobile; and the entire assembly may be collapsed to a compact, vertical storage form by removing the parallel exercising bars or beams and then folding the cross braces and support legs inwardly to a substantially vertical position wherein all of the support legs and crossbraces are in alignment in a common vertical plane.

3,547,436
ELECTRIC PICKLE JAR GAME
Jeffrey D. Breslow, Evanston, Ill., assignor to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Mar. 21, 1968, Ser. No. 714,819
Int. Cl. A63f *9/06*
U.S. Cl. 273—1 **2 Claims**



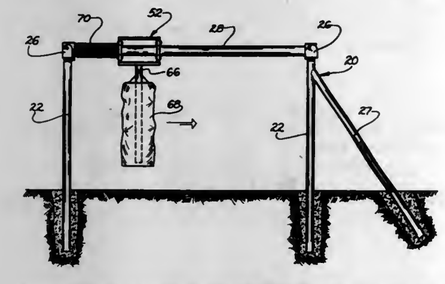
An electrical game of skill comprising a jar having a removable metal lid with an opening, and the jar is fixed to a base including a battery-operated buzzer or alarm. The jar is filled with simulated pickles of spongy material, having spaced-apart holes therein, and there is provided a metal fork to be used in removing the pickles from the jar and having tines adapted to be inserted in the holes in the pickles. The metal fork and lid are electrically connected with the buzzer in a manner such that when the fork touches the metal lid the circuit is closed to operate the buzzer.

3,547,437
BATTING PRACTICE DEVICE
Gerald P. Andersen, 4926 Evergreen, Houston, Tex. 77036
Filed Jan. 21, 1969, Ser. No. 792,339
Int. Cl. A63b *69/00*
U.S. Cl. 273—26 **5 Claims**



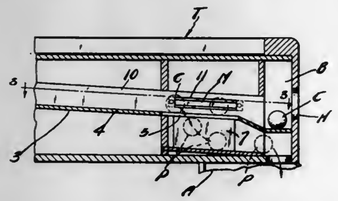
A device for baseball player's batting practice having a rotatable vertical shaft on which multiple adjustable horizontal arms are mounted in counterbalancing relation to each other, and on the extended end of each of said arms is mounted a cord having a baseball secured to the free end, said cord being of a predetermined length.

3,547,438
TACKLING AND BLOCKING APPARATUS
William David Schmitter, Box 277, Rte. 02, Marysville, Ohio
Filed Jan. 18, 1968, Ser. No. 698,874
Int. Cl. A63b 69/34
U.S. Cl. 273—55 8 Claims



An apparatus for practicing and improving football skills which comprises a frame having both vertical and horizontal members and one or more guide members preferably movably mounted on the frame. Each guide member is provided with a track or carriage for a football practice dummy. Each track includes bearing members to permit low friction travel of the track which is mounted on a guide member for longitudinal and pivotal movement. Compression springs are mounted on the guide members to resist longitudinal movement of the tracks in a manner to provide controlled reaction to human contact.

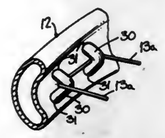
3,547,439
POOL BALLS SEPARABLE BY MAGNETIC FORCES
Earl W. Feddick and Gustave Wassmann, Bay City, Mich., assignors to Valley Manufacturing Company, Bay City, Mich., a corporation of Michigan
Original application July 5, 1962, Ser. No. 207,694, now Patent No. 3,362,710, dated Jan. 9, 1968. Divided and this application Jan. 8, 1968, Ser. No. 696,344
Int. Cl. A63b 47/00, 37/02
U.S. Cl. 273—59 9 Claims



A complement of spherical, uniform size pool balls comprising a plurality of nonmagnetic object balls, and a cue ball including a spherical body of nonmagnetic material and magnetic means embedded in the body concentrically with the center of the body intermediate the portions of nonmagnetic material.

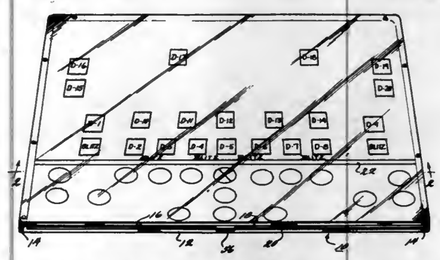
3,547,440
RACKET FOR TENNIS OR SIMILAR GAMES
Carmine A. Deer, Cranford, N.J., assignor to Cortland Industries, Inc., Cortland, N.Y., a corporation of Delaware
Filed Feb. 23, 1968, Ser. No. 707,526
Int. Cl. A63b 49/12, 51/00
U.S. Cl. 273—73 13 Claims

Racket having tubular metal frame and detachable handle member; frame has double-circular arc airfoil shape in cross section, defining inner peripheral groove which circumscribes elliptical-shaped stringing area; permanently attached individual, metal rod string-strand supports span across groove at appropriate spaced-apart locations therealong to receive racket string strands; each strand support has crown defined by particular angular bend thereof; detachable handle slides on to pair of parallel-extending handle attachment portions defined by free ends of tubular frame; screws pro-



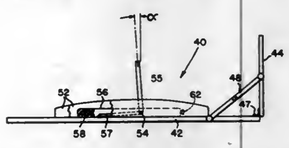
vide easily released attachment of handle to handle attachment portions either through heel of handle, or through metal spreader brazed between handle attachment portions.

3,547,441
FOOTBALL GAME WITH SUPERIMPOSED CARDS
Richard C. Thornton, 702-19th St. NW, Washington, D.C.
Filed Mar. 4, 1969, Ser. No. 804,240
Int. Cl. A63f 3/00, 7/06
U.S. Cl. 273—94 4 Claims



A game simulating the sport of football. Randomly occurring plays such as kicks are developed by rolling dice and relating the roll count to a chart having play information thereon. However, the majority of plays in an actual football game are run from scrimmage, and for such plays, the invention provides a number of play cards each having an offensive play thereon, the cards being individually selected by the offensive player and masked from his opponent. The mask is a master overlay card having areas marked thereon to represent the possible positions for offensive and defensive men. These areas are keyed to all of the play cards. The selected play card and mask are superimposed beneath a transparent sheet so that the mask is visible, and the opposing players each selectively position eleven objects in registry with areas on the mask to set the offensive and defensive alignments. The mask is then withdrawn without moving the play card to thereby expose the selected play and to indicate whether the defense has been positioned to intercept the offensive man indicated on the play card as handling the ball. The sequence and number of plays run by each player are determined substantially in accordance with the usual rules of football.

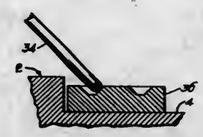
3,547,442
PORTABLE HORSESHOE PIT
Stephen Fenicchia, 141 Belknap St., Rochester, N.Y. 14606
Filed Dec. 18, 1968, Ser. No. 784,833
Int. Cl. A63b 67/00
U.S. Cl. 273—104 9 Claims



This pit comprises a flat base having parallel sidewalls, a collapsible backstop pivotally connected to the rear end of the base, a bag or mat centered between the sidewalls, and a

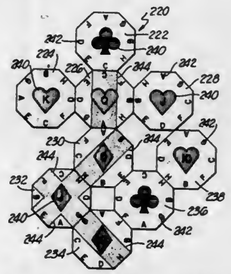
stake which projects upwardly through the center of the bag or mat, and which normally is inclined slightly forwardly at a slight angle to the vertical. The lower end of the stake is fastened to a support, which lies beneath the bag or mat, and which is mounted for limited pivotal movement about a horizontal axis transverse to the sidewalls, when the stake is struck by a horseshoe. The pivotal movement of the stake and the bag or mat help take the force of the blow of the horseshoe against the stake.

3,547,443
GAME COMBINED CUE AND DISC
Jose Job Lacson, Pompano Beach, Fla., assignor to Swivel Pool Corporation, Pompano Beach, Fla.
Filed July 8, 1968, Ser. No. 743,131
Int. Cl. A63b 67/14
U.S. Cl. 273—126 1 Claim



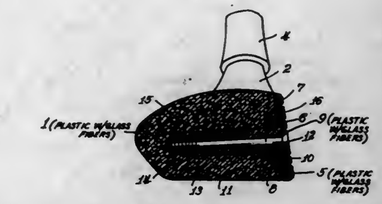
A gaming device including a gaming table having a flat surface with raised sides and depressed pockets, a plurality of flat circular discs, and cue sticks to be used to propel one disc against another in order to place a disc in a depressed pocket. The gaming table is supported by a swivel that allows said table to be rotated by the player. The disc may have an upper surface with a central truncated cone configuration so that the cue stick may be used to propel the disc when disposed thereagainst.

3,547,444
MATHEMATICALLY FORMULATED AND ANDROGYNOUSLY LINKED POLYGONAL AND POLYHEDRAL GAMEPIECES
Robert K. Williams, 661 Country Club Drive, Burbank, and James E. Blair, 1249 Spazier Ave., Glendale, Calif.
Filed Aug. 28, 1964, Ser. No. 392,876
Int. Cl. A63f 3/00
U.S. Cl. 273—137 7 Claims



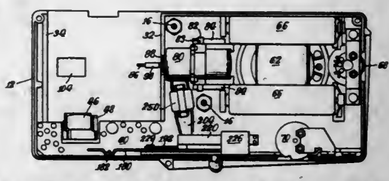
A plurality of polygonal bodies forming game pieces are positioned with peripheral sides contiguous and identically matching in size and shape. The center portion of each body has a member of the same set-group of indicia formed thereon with the body center portion indicia having a predefined association one to another between adjacent of these bodies. In one form of the invention, each peripheral side of each body also has a member of the same set-group of indicia formed thereon with these peripheral side indicia being the same indicia between the contiguous sides of adjacent bodies, and with there being no relationship between the peripheral side indicia of the various bodies and the center portion indicia of those bodies. In another form of the invention, rather than requiring the body peripheral side indicia, the peripheral sides of contiguous bodies are interfitting, preferably interlocking, and identical as between contiguous peripheral sides of adjacent bodies.

3,547,445
GOLF CLUB FACE PLATE
Benjamin T. Hardesty, Fairlawn Village, Ohio, assignor to Shakespeare Company, Kalamazoo, Mich., a corporation of Michigan
Filed Sept. 15, 1967, Ser. No. 667,991
Int. Cl. A63b 53/04
U.S. Cl. 273—173 9 Claims



A plastic golf club head is formed in two major parts, a body member and a faceplate. Complementary dovetail members are provided on the body member and faceplate so that the faceplate may be founded by sliding it onto the body member. To prevent movement therebetween when in position, a plastic insert plug is inserted in channels provided in both the body member and faceplate in mutual registry. One or more plugs and complementary channels may be utilized. The plugs may be of any desired cross section. However, when only one plug is utilized, it should preferably have a noncircular cross section such as rectangular to prevent rotational movement of the faceplate. Where two or more plugs are utilized, they may be of any cross section. A screw is inserted either through the faceplate and engaged by a threaded insert in the body member, or alternatively inserted through the body member and engaged in a threaded means provided either in the insert plug or in the body member. The structure permits ready changing of the faceplate to provide the club head with various striking contours and angles. The insert plugs are preferably of the same cross section as the entry ducts of the mold used for molding of the plastic heads, so that the "trees" from molding of the heads may be used for insert plugs. The plastic body for the golf club head and the plastic insert plug (or plugs) may both have glass fibers dispersed therein.

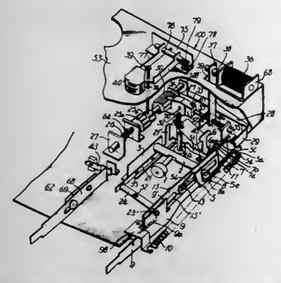
3,547,446
PORTABLE TAPE RECORDER WITH A SINGLE FINGER-ACTUATED CONTROL KNOB
John T. Kern, Urbana, Ill., assignor to V-M Corporation, Benton Harbor, Mich., a corporation of Michigan
Filed June 9, 1967, Ser. No. 644,857
Int. Cl. G11b 15/10, 15/44
U.S. Cl. 274—4 16 Claims



A single finger-actuated knob controls the operation of a portable tape recorder provided with a removable cartridge which contains the tape carrying reels, the knob being actuatable in a generally T-shaped pattern and settable at different positions for play, record, fast-forward, rewind and stop. The cartridge contains a bowed spring which tensions the reels when the cartridge is out of the recorder and is relieved when the cartridge is operatively positioned in the recorder; the recorder having a spring biased brake element which engages the supply reel when the cartridge is positioned in the recorder and is relieved by movement of the control knob to its play and record positions. The tape is driven by engagement of the motor shaft with the takeup reel so

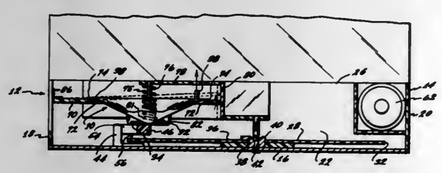
that in the stopped condition of the tape recorder the motor shaft acts as a brake on the takeup reel. The cartridge also includes pressure pads supported on the free ends of the depending flexible members disposed in the open end of the cartridge which resiliently back the tape against the transducer head during record and playback of the tape.

3,547,447
TAPE RECORDER
Shinji Nakamori, Warabi-shi, Japan, assignor to Teikoku Dempa Kabushiki Kaisha, Tokyo, Japan
Filed July 21, 1967, Ser. No. 655,201
Claims priority, application Japan, July 22, 1966, 41/47695
Int. Cl. G11b *21/04*
U.S. Cl. 274—4 11 Claims



The tape recorder is for use with either four track tape cartridges or eight track tape cartridges of different shapes and structure and the recorder head is adjusted to work with the particular cartridge inserted onto the recorder and a pinch roller is raised for insertion into the cartridge so inserted when the cartridge does not contain its own pinch roller.

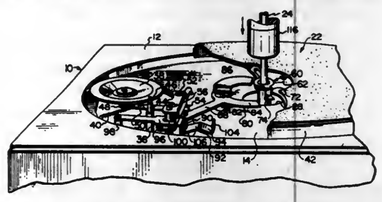
3,547,448
PHONOGRAPH TOY HAVING AN IMPROVED SPEAKER CONE
Richard Shih-Teng Chang, Gardena, Calif., assignor to Mattel, Inc., Hawthorne, Calif., a corporation of California
Filed May 6, 1968, Ser. No. 726,668
Int. Cl. G11b *3/00*
U.S. Cl. 274—7 2 Claims



A tone-arm engaging member is provided on a speaker cone and extends radially above the recorded portion of a phonograph record where it is engageable by a tone arm at all times during reproduction of the recorded portion.

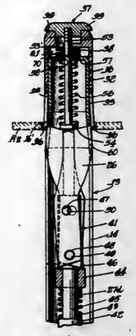
3,547,449
AUTOMATIC SPEED CHANGING MECHANISM FOR MULTI-SPEED PHONOGRAPH
James T. Dennis, 812 American National Building, Oklahoma City, Okla. 73102
Filed Feb. 15, 1968, Ser. No. 705,794
Int. Cl. G11b *25/04*
U.S. Cl. 274—9 10 Claims

A lever, mounted upon and extending below the upper surface of a phonograph turntable, is arranged to move in a first horizontal plane when records having a first playing speed are played and is actuatable to move in a second horizontal plane, displaced vertically from said first plane, when records having a different playing speed are played. This lever, during the first turntable revolution following a change in its positioning, engages and shifts a phonograph speed control,



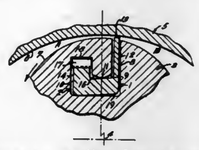
thereby automatically adjusting turntable speed to match the speed requirements of the records being played.

3,547,450
RECORD CHANGING APPARATUS
William R. Neilson, Clarendon Hills, Ill., assignor to Sherwood Electronic Laboratories, Inc., Chicago, Ill., a corporation of Illinois
Filed Oct. 16, 1968, Ser. No. 768,009
Int. Cl. G11b *17/16*
U.S. Cl. 274—10 7 Claims



A self-supporting record changer center spindle assembly which includes a hollow spindle body containing a plurality of upwardly and outwardly extending retractable supporting fingers for supporting one or more records above the rotating surface of a turntable. The supporting fingers extend through vertical slots in the spindle body and move in the slots downwardly from a normal record-supporting position to transport the lowermost record of a stack of records onto the rotating surface of the turntable. The upper portion of the spindle body is provided with a sleeve which has an expandable skirt which holds in place all records above the lowermost record when the lowermost record is being transported to the turntable. The sleeve is axially and rotatably adjustable on the spindle body for movement into a position to engage around the supporting fingers in a retracted position within the spindle body so a record can be manually positioned directly onto the turntable.

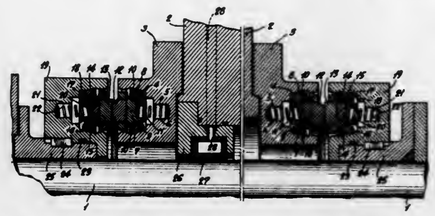
3,547,451
SEALING ARRANGEMENT
Michel Milot, Montreal, Quebec, Canada, and Pierre J. Nicolas, Lynnwood, Wash., assignors to World Wide Corporation Ltd., Montreal, Quebec, Canada, a part interest
Filed July 29, 1968, Ser. No. 748,561
Int. Cl. F16k *41/00*; F16j *15/16*
U.S. Cl. 277—25 8 Claims



A sealing means for sealing between the surfaces of a rotating and stationary member comprising a sealing element

located in a slot in a rotating member. The sealing element is biased at low rotational speeds out of the slot to bear against the stationary surface. The element has an unbalanced distribution of weight so that it can be moved by centrifugal force at higher speeds of rotation within the slot to be drawn away from the stationary surface.

3,547,452
PROPELLER SHAFT SEAL
Michiho Hirata, Saitama-ken, Japan, assignor to Nippon Oil Seal Industry Co., Ltd., Tokyo, Japan, a company of Japan
Filed Jan. 17, 1969, Ser. No. 792,078
Int. Cl. F16j *15/38*
U.S. Cl. 277—92 2 Claims

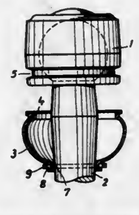


A propeller shaft seal comprising a pair of seal elements each of which includes a seal cover having on one side an annular groove in which a seal ring is mounted on radially outer and inner resilient rings.

ERRATUM

For Class 277—96 see:
Patent No. 3,547,455

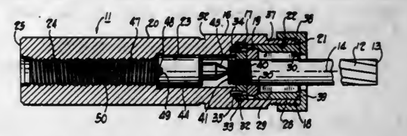
3,547,453
ELASTIC BELLOW PACKINGS FOR UNIVERSALLY MOVABLE JOINTS, AND MORE PARTICULARLY FOR BALL JOINTS
Rudolf Gottschald, Osterath, Germany, assignor to A. Ehrenreich & Cie., Dusseldorf-Oberkassel, Germany
Filed Jan. 20, 1967, Ser. No. 610,617
Claims priority, application Germany, Jan. 26, 1966, E 30,926
Int. Cl. F16j *15/48*, *15/32*; F16c *11/06*
U.S. Cl. 277—212 2 Claims



A ball and socket joint assembly whereby a bellow packing member having a retaining ring thereon is slid over a joint pin until the groove in which the ring is positioned is squeezed between the pin and the retaining ring.

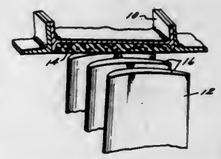
3,547,454
SELF-TIGHTENING TOOLHOLDER
Milton L. Benjamin, Moreland Hills, Ohio, assignor to Erickson Tool Company, a corporation of Ohio
Filed Aug. 13, 1968, Ser. No. 752,386
Int. Cl. B23b *31/02*
U.S. Cl. 279—47 14 Claims

A toolholder is disclosed wherein a body is provided with a bore to receive a tool such as a drill or a milling cutter which has a threaded internal end with a right-hand thread. This thread fits into a first nut which is restrained against rotation relative to the holder body but may move longitudinally and as it moves longitudinally forwardly toward the nose of the holder it axially compresses a collet against an abutment to inwardly collapse the collet to grip the tool. The tool is used in a right-hand application so that should the tool slip in the collet it will thread into the first nut to tighten the collet still further. A conical center is adjusted by a lock screw to tightly engage and axially position the end mill or other tool



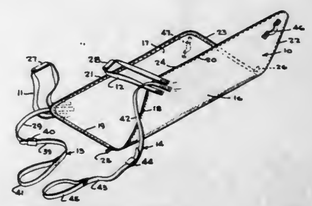
and the lock screw has a left-hand thread whereby if the tool slips in the collet, the friction of the end mill with the conical center may rotate this center and the left-hand lock screw to move the center forwardly to also further tighten the collet. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,547,455
ROTARY SEAL INCLUDING ORGANIC ABRADABLE MATERIAL
John Edward Daunt, Albuquerque, N. Mex., assignor to General Electric Company, a corporation of New York
Filed May 2, 1969, Ser. No. 821,433
Int. Cl. F16j *15/54*
U.S. Cl. 277—96 3 Claims



A relatively low temperature operating seal has improved stability, flexibility and sealing through use of a nonmetallic organic lightweight abradable material between relatively moving members. One member includes a projection which cooperates with the abradable material on the other member. The abradable material is the reaction product of a mixture of a catalyzed epoxy or modified epoxy resin and hollow organic particles.

3,547,456
GAME TRANSPORTING DEVICE
Dawson N. Sapp, Rte. 3, Box 5, Dover, Del. 19901
Filed Jan. 17, 1969, Ser. No. 791,949
Int. Cl. B62b *11/00*
U.S. Cl. 280—19 10 Claims



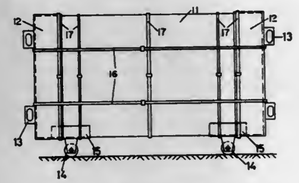
A game-transporting device including a flexible enclosure adapted to hold an animal to be transported, the enclosure having a closable elongated opening for inserting the animal to be transported therein, the enclosure consisting of a dura-

ble material having a smooth outer surface and manual towing means secured to the enclosure means for dragging the enclosure means containing the animal, along the ground.

3,547,457
PACKAGE FOR SHIPPING LARGE SURFACE FILTER LAYERS

Heinz Langer, Hargesheim/Kreis Kreuznach, Germany, assignor to Seitz-Asbest-Werke, Theo & Geo Seitz, Bad Kreuznach, Germany

Filed Mar. 28, 1968, Ser. No. 716,724
Claims priority, application Germany, Apr. 28, 1967, S109611VIIB/81C
Int. Cl. B62b *1/100*
U.S. Cl. 280—47.13 **2 Claims**

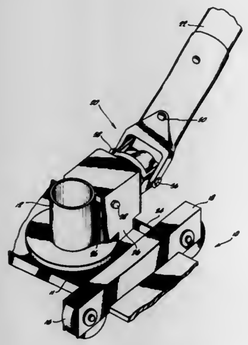


A shipping carton especially for large surface filter layers, which comprises a main carton section corresponding in cross section and longitudinal section to the configuration of a plurality of stacked filter layers to be shipped, said main carton section having a top and a bottom wall and two sidewalls and being open at both ends which latter are closed by cap shaped end sections provided with handle means while roller means are placed on the outside of said bottom wall for facilitating the transport of said carton.

3,547,458
STEERING ATTACHMENT FOR SWIMMING POOL VACUUM HEAD

Kenneth E. Price, El Monte, Calif., assignor to Rainbow Lifegard Products Inc., El Monte, Calif., a corporation of California

Filed Mar. 28, 1969, Ser. No. 811,332
Int. Cl. B62b *5/06;* **A47l** *9/32*
U.S. Cl. 280—47.34 **10 Claims**

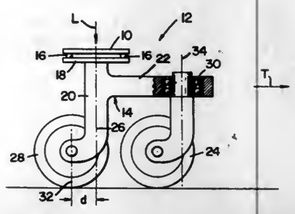


For a swimming pool vacuum cleaner head, a steering attachment with a swivel for steerably connecting an elongate pole to the head. The pole concurrently rotates about the swivel and rotates with the swivel such that the vacuum head can be steered about the pool surface by concurrently pushing on the pole and twisting the pole in the direction the vacuum is to be moved.

3,547,459
HIGH CAPACITY CASTER

Sidney D. Lapham, Walnut Creek, Calif., assignor to Roll-Rite Corporation, Oakland, Calif., a corporation of California

Filed June 20, 1968, Ser. No. 738,669
Int. Cl. B62b *1/100;* **B60b** *33/00*
U.S. Cl. 280—79.2 **10 Claims**



The load-bearing capacity of a caster is greatly increased by providing the caster with a bending moment absorbing outrigger arrangement which carries at its end a secondary caster mounted for swiveling movement with respect to the outrigger and hence with respect to the primary caster assembly.

3,547,460
STEERING GEAR

Rudolf Gottschald deceased, late of Osterath, Germany, by Erika Gottschald, Heiress, Osterath, Germany, assignors to A. Ehrenreich & Cie, a firm of Germany

Filed July 15, 1968, Ser. No. 776,289
Claims priority, application Germany, July 13, 1967, 1,630,417
Int. Cl. B62d *7/16*
U.S. Cl. 280—95 **1 Claim**



The tie rod, which forms the steering linkage, includes a center rod and two outer rods connected by axial ball joints. Ball joints on the center rod for the steering rod and guide lever also have their centers located on the axis of the center rod.

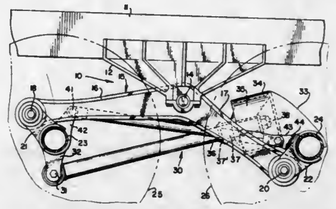
3,547,461
VEHICLE SUSPENSION

Donald E. Sheridan, 318 South 4th, Dekalb, Ill. 60115

Filed Feb. 26, 1968, Ser. No. 708,276
Int. Cl. B60g *19/02*
U.S. Cl. 280—104.5 **15 Claims**

A wheel suspension for vehicles which is mounted on pivot brackets beneath the side members of the vehicle support frame wherein each axle housing has radial arms fixed thereon and extending forwardly of the axle housing and above and below the axis of the housing, or at the centerline of the housing, with one of the arms connected to a pivot bracket, or to one end of a walking beam which is in turn

connected to a pivot bracket, for transmitting stress between the frame and the axle housing so that a horizontal force component results, and with the other radial arm on the axle housing having a pivotal connection with one end of a force

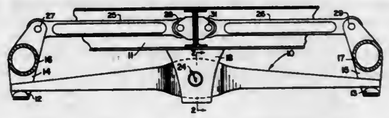


absorbing or force canceling bar member which is connected at an opposite end to a pivot bracket which is spaced forwardly of the stress transmitting bracket or to an adjacent axle housing, whereby horizontal force components are absorbed or canceled by the force bar member.

3,547,462
TAPERED SPRING LEAF

Alex F. Stamm, Rochester, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware

Original application Aug. 22, 1966, Ser. No. 574,200, now Patent No. 3,445,911, dated May 27, 1969. Divided and this application Nov. 27, 1968, Ser. No. 794,824
Int. Cl. B60g *19/02*
U.S. Cl. 280—104.5 **3 Claims**

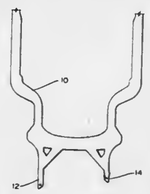


A steel beam for a vehicle suspension comprising a relatively thick center portion and end sections that taper in decreasing cross section thickness from the center portion toward the ends thereof, the end sections being of the same constant width and said center portion being narrower than the end sections and having parallel opposite flat sides upon which aligned trunnion pins are integrally united as by welding.

3,547,463
COLLAPSIBLE AUTOMOBILE BODY STRUCTURE AND METHOD OF MAKING SAME

Walter S. Eggert, Jr., Huntingdon Valley, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed July 1, 1968, Ser. No. 741,578
Int. Cl. B62d *21/00*
U.S. Cl. 280—106 **3 Claims**

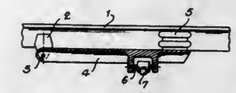


A vehicle frame structure for providing progressive collapse of a vehicle's body during collision without the high stress of the initial contact. The structure for such a reaction being provided by prestressed frame components.

3,547,464
SOLID AXLE MOUNTING FOR VEHICLES

Hans Drewitz, Munich, Germany, assignor to Maschinenfabrik AugsburgoNurnberg Aktiengesellschaft, Munich, Germany

Filed June 3, 1968, Ser. No. 733,835
Claims priority, application Germany, June 7, 1967, M74293
Int. Cl. B60g *9/00*
U.S. Cl. 280—124 **3 Claims**

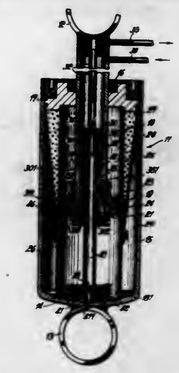


A solid axle for a vehicle is secured to the vehicle spring by a double cone metal-rubber bearing. This permits the axle to twist relative to the vehicle frame so that the vehicle wheels are not lifted from an uneven ground surface.

3,547,465
HYDROPNEUMATIC SUSPENSION UNIT FOR USE IN VEHICLES OR THE LIKE

Hans-Juergen Hoffmann, Hohenlimburg, and Manfred Loehr, Letmathe, Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany

Filed Oct. 4, 1968, Ser. No. 765,173
Claims priority, application Germany, Oct. 9, 1967, 1,630,058
Int. Cl. B60g *15/08*
U.S. Cl. 280—124 **16 Claims**



A vibration damper or suspension unit wherein a liquid-filled cylinder accommodates a piston having a hollow piston rod and provided with damping valves which throttle the flow of liquid between the working chambers of the cylinder when the piston leaves its neutral position. One of the working chambers communicates with a compartment wherein the liquid is stressed by an elastic compensating device including a supply of entrapped gas. The piston rod accommodates regulating members including two pipes and a valve and is connected with externally mounted liquid-filled high-pressure and low-pressure chambers. The high-pressure chamber admits highly compressed liquid into the one working chamber when the piston leaves its neutral position in a direction to retract the piston rod into the cylinder, and the one working chamber admits liquid into the low-pressure chamber when the piston leaves its neutral position by moving in the opposite direction.

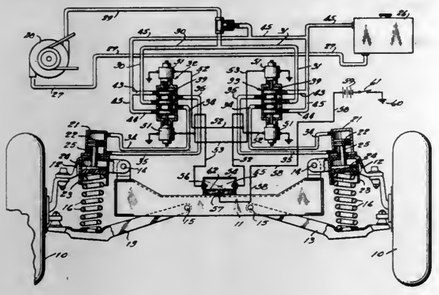
3,547,466
SUSPENSION SYSTEM FOR AUTOMOBILES

Joel C. Millican, 34 Burton Hill Drive, Weatherford, Tex.

Filed Jan. 31, 1969, Ser. No. 795,540
Int. Cl. B60g *19/06*
U.S. Cl. 280—124 **4 Claims**

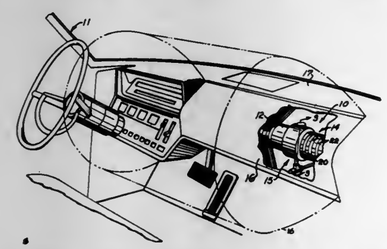
A hydraulic suspension system for stabilizing the body structure of motor vehicles, especially passenger automo-

biles, and which is semiautomatically controlled by a system of hydraulic cylinders and pistons, the valves of which are activated by electrical circuits which are opened and closed by



the motion of the vehicle body occasioned by road surface irregularities and lateral momentum due to deviations in the direction of travel, such as at curves and angular turns in the road.

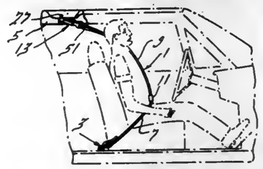
3,547,467
VEHICLE SAFETY APPARATUS
Fredrick Pociask, Detroit, Mich., assignor to Eaton Yale & Towne, Inc., Cleveland, Ohio, a corporation of Ohio
Filed June 21, 1967, Ser. No. 647,796
Int. Cl. B60r *21/00*
U.S. Cl. 280—150 **25 Claims**



A vehicle safety apparatus includes an actuating mechanism operable to effect actuation of a safety device for protecting the occupant or occupants in the vehicle when a crash is occurring. The actuating mechanism comprises a valve means for controlling the communication between a reservoir of compressed gas and the safety device, which is preferably an inflatable crash restraint bag. The valve means has a valve member which is normally maintained in a first position in which it is effective to prevent communication between the compressed gas reservoir and the inflatable bag. The valve member is adapted to be moved from the first position toward a second position in which it will effect communication between the reservoir of compressed gas and the inflatable bag to cause inflation of the latter by a fluid actuating means in response to a vehicle crash occurring.

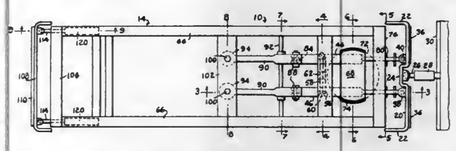
3,547,468
ENERGY ABSORBING RESTRAINT APPARATUS
Sebastian J. Giuffrida, Bloomfield Hills, Mich., assignor to Chrysler Corporation, High Park, Mich., a corporation of Delaware
Filed Dec. 23, 1968, Ser. No. 785,922
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 **2 Claims**

Restraint system for a passenger in a vehicle including a restraining belt system extending across and in front of the passenger and an energy absorbing device connected between the belt system and the vehicle. The energy absorbing device includes a generally U-shaped housing having a plurality of pins extending between the sidewalls. A double layer of strip metal is threaded through the pins and when the strip metal is pulled through the pins as a result of the load



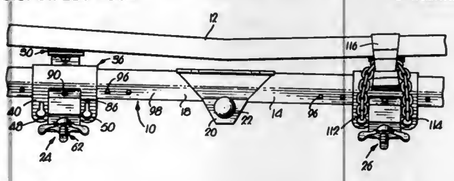
placed on the belt system the metal bends and absorbs energy.

3,547,469
MOTOR VEHICLE BUMPER WITH TRAILER CONNECTION
Aurelio Sancioni, Rte. 1, Box 277, Corning, Calif. 96021
Filed June 28, 1968, Ser. No. 740,911
Int. Cl. B60d *3/00*
U.S. Cl. 280—483 **6 Claims**



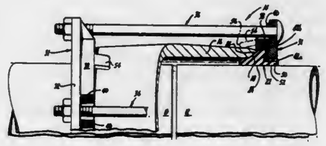
A motor vehicle bumper having a trailer connection is mounted on the vehicle so as to move longitudinally against resilient resistance to cushion the pull on the trailer and to cushion tendency of the trailer to move toward the motor vehicle when the latter is decelerated. The bumper is mounted to move downwardly vertically in the event the rear end of the vehicle passes over a hump or the trailer passes over a depression in the road, such movement of the bumper also being cushioned. A pair of cylinders have plungers therein connected to said bumper, the movement of which plungers is opposed by springs, and the cylinders are partly braced by a plate extending across and welded thereto and utilized as a spare tire carrier.

3,547,470
TRAILER HITCH ASSEMBLY
William R. Parkhurst, Sedalia, Mo., assignor to Parkhurst Manufacturing Co., Inc., Sedalia, Mo., a corporation of Missouri
Continuation-in-part of application Ser. No. 783,286, Dec. 12, 1968, now Patent No. 3,481,630, dated Dec. 2, 1969. This application Oct. 14, 1969, Ser. No. 866,267
Int. Cl. B60d *1/14*
U.S. Cl. 280—502 **8 Claims**



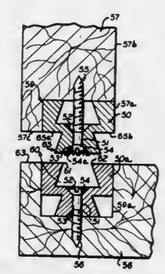
A trailer hitch assembly for coupling a towed vehicle to attachable structure in the nature of the bumper and frame bracket of a towing vehicle, the trailer hitch assembly including a drawbar having a pair of spaced-apart hitch units carried thereby, the hitch units each including a mount which engages the bumper of the towing vehicle, there being mechanism for attaching the mount to the structure and takeup means carried by a sleeve which is a part of the mount, the takeup means including a threaded portion and a wedge plate portion whereby, when the takeup means is actuated, an inclined edge of the wedge plate portion moves into engagement with the drawbar to retain the drawbar with respect to the mount and thereby securely attach the hitch to the towing vehicle. Also, a cover plate assembly is provided which has a pin depending therefrom, the pin being selectively engageable with one of a plurality of holes formed in the drawbar whereby to prevent longitudinal shifting movement of the hitch unit with respect to the drawbar, the cover plate assembly being engaged by the takeup means whereby, when the takeup means is actuated, the pin is retained in said hole.

3,547,471
PIPE COUPLING
Paul G. Dunmire, Oakland, Calif., assignor to Christy Metal Products, Inc., Emeryville, Calif., a corporation of California
Filed Feb. 2, 1968, Ser. No. 702,584
Int. Cl. F16l *19/00*
U.S. Cl. 285—337 **4 Claims**



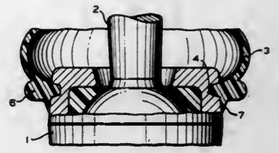
A pipe coupling having a cylindrical sleeve which surrounds pipe sections to be joined. Each end of the sleeve is provided with beveled inwardly facing surfaces for forming a wedge-shaped annular recess with the outside wall of the pipe. A gasket is forced into the wedge-shaped recess by a flange member having a wedge-shaped annular ridge. Alignment means are provided for centering the coupling as it is assembled to the pipe.

3,547,472
CONNECTOR MEANS AND LIKE ELEMENTS FOR JUNCTURE PURPOSES
Ernest W. Ehrman, 444 East 82nd St., New York, N.Y.
Filed June 7, 1968, Ser. No. 735,406
Int. Cl. F16b *5/00*
U.S. Cl. 287—20.92 **5 Claims**



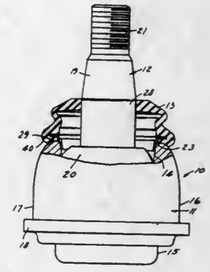
The invention is directed to the production of profiled strip-shaped elements of indeterminate length, but of equal width throughout which elements can be easily cut to sections of predetermined dimension and may be incorporated or firmly inserted and secured to carrier bodies to be joined together, the cut, strip-shaped sections being identical, complementary to each other and interengageable when brought into slidable assembly for installation.

3,547,473
BELLOW PACKINGS FOR UNIVERSALLY MOVABLE JOINTS, ESPECIALLY FOR BALL JOINTS
Rudolf Gottschald, Osterath, Am Meerbusch, Germany, assignor to A. Ehrenreich & Cie, Dusseldorf-Oberkassel, Germany
Filed Dec. 2, 1966, Ser. No. 598,832
Claims priority, application Germany, Dec. 3, 1965, E22609
Int. Cl. F16c *11/06;* **F16b** *7/00;* **B25g** *3/38*
U.S. Cl. 287—87 **3 Claims**



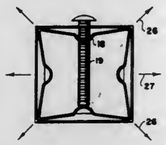
A ball and socket joint having a bellow packing secured to the housing wherein the packing has a thickened portion forming a beadlike ring. The ring is inserted into an annular groove having substantially symmetrical faces. A lip extends along the housing and is connected to the ring.

3,547,474
BOOT SEAL
John B. Colletti, Grosse Point Park, and Peter James Dumeah, Royal Oak, Mich., assignors to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed July 15, 1969, Ser. No. 841,850
Int. Cl. F16c *11/06*
U.S. Cl. 287—87 **5 Claims**



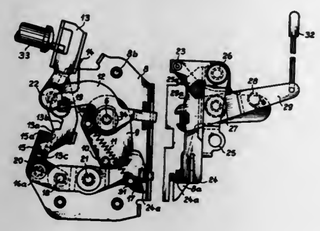
A boot seal and retainer for movable stud joints of the type which have a pivotable end stud projecting from a housing through an open throat, the boot seal serving to seal the open throat of the housing. The retainer comprises a stamped ring having an axially extending portion terminating in a radially outwardly directed flange through an intermediate shoulder. The axially extending portion is adapted to be press-fitted into the open throat of the housing up to the depth of the intermediate shoulder with the radially outwardly directed flange seated in an internal groove in the boot seal thereby allowing the housing and seal to be preassembled and shipped as a unit. The seal, when assembled, has an outer diameter less than the outer diameter of the joint housing.

3,547,475
VALET RACK POST
Carl E. Gingher, 304-328 Depot St., Scranton, Pa. 680554
Filed Nov. 3, 1967, Ser. No. 680,554
Int. Cl. E21d 15/06
U.S. Cl. 287—103 6 Claims



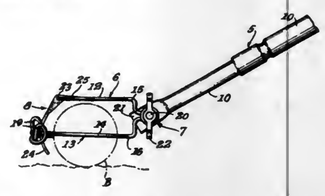
A two piece post for valet racks and the like having a tubular connection wherein a reduced end portion of one tubular member is provided with longitudinal grooves with the grooved portion being inserted into a second tubular member and a bolt threaded through one side of the joined tubular members to fasten the members together and to expand the grooved faces into engagement with the outer tubular member.

3,547,476
TURN LATCH LOCK FOR MOTOR VEHICLE DOORS
Ernst Nockemann, Wuppertal-Ronsdorf, Germany, assignor to Bomoro Bocklenberg & Motte Kom.—Ges., Wuppertal-Ronsdorf, Germany
Filed Jan. 24, 1967, Ser. No. 611,390
Int. Cl. E05c 3/10
U.S. Cl. 292—216 21 Claims



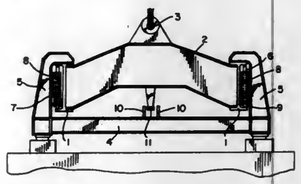
The present disclosure relates to a turn latch lock suitable for the doors of a motor vehicle wherein a base plate is arranged adjacent to the interface of the door for supporting the turn latch and a sidewall is arranged at an angle to the base plate and resting on the inside of the door. During closing of the door, the turn latch engages a stationary closing bolt mounted on the door frame so that the turn latch is rotated against the bias of the turn latch toward its closed position. The turn latch is held in its closed position by a ratchet wheel mounted on the axis of the turn latch and provided with a plurality of closing notches. A lock pawl is biased to engage the closing notches and is released by means of a rotatably mounted release lever, which has its pivot mounted on an intermediate lever so that it may be moved bodily between an engaged position in which it is operative to release the lock pawl and a disengaged position in which it is inoperative to release the lock pawl. A coupling lever that is in addition to the lock pawl lever is provided for camming the release lever into its disengaged position during normal closing of the door, but will not move the release lever into its disengaged position when the lock pawl moves from a preliminary lock notch to the final or main lock notch. Also, the door includes an abutment for engaging behind a collar on the outer end of the closing bolt opposite to the turning latch so that the door and frame cannot separate in the longitudinal direction during expansion in an automobile accident.

3,547,477
GOLF BALL RETRIEVER
Richard M. Young, South Gate, Calif., assignor to Darlene Graves, Los Angeles County, Calif.
Filed Oct. 2, 1968, Ser. No. 764,550
Int. Cl. A63b 57/00, 47/02
U.S. Cl. 294—19 7 Claims



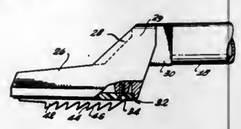
A length-adjustable handle, at one end pivotally and adjustably mounts a spring wire ball-engaging member, a portion thereof pivotally carrying a trigger that is set and held in cocked position by another portion of said member so the latter portion is retained in spread, ball-receiving position, the cocked trigger, when encountering a ball in the latter position, being pivotally released by withdrawing the detent portion of the trigger from between said spread portion of the wire member, allowing the latter to close around the ball to retain the same captive during retrieving thereof.

3,547,478
LIFTING FRAME FOR CARRYING FREIGHT CONTAINERS OF VARYING LENGTHS
Jacques Pradon, 19, Avenue de la Tourell, Saint-Maur des Fosses, France
Filed Feb. 14, 1969, Ser. No. 799,321
Claims priority, application France, Feb. 20, 1968, PN140575
Int. Cl. B66c 1/42
U.S. Cl. 294—67 3 Claims



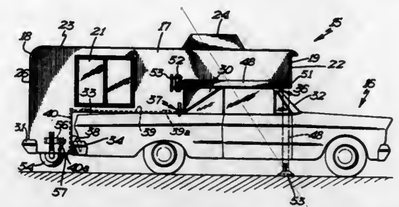
The supporting units of a container lifting frame are mounted on spring biased rollers to provide for adjustment for different sized containers. When a load is applied the springs are compressed so that fixed portions of the movable units frictionally engage their supporting structure to prevent further movement.

3,547,479
CARPET STRETCHER
Eugene J. Tasse, West Covina, Calif., assignor to Taylor Industries, Inc., Industry, Calif., a corporation of California
Filed Aug. 7, 1968, Ser. No. 750,800
Int. Cl. A47g 27/04
U.S. Cl. 294—8.6 2 Claims



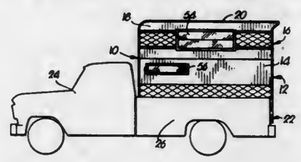
A carpet stretcher, having a head with sawtooth-shaped teeth for engaging a carpet, and attached to an extendible rod with a knee cushion at the other end so that pressure on the cushion urges the head forward to stretch a carpet which the sawteeth have engaged.

3,547,480
EXPANDABLE AUTO CAMPER
Bruce K. Ward, 2904 Virginia Ave., St. Louis Park, Minn.
Filed July 22, 1968, Ser. No. 746,447
Int. Cl. B60p 3/34
U.S. Cl. 296—23 10 Claims



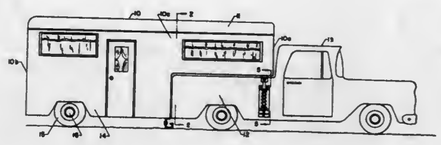
An expandable camper mountable on an automobile having an open top body. The camper has an open bottom permitting full concurrent use of the interior of the camper and the passenger compartment of the automobile as if the camper is an extension of the body of the automobile. The camper is mounted on the auto body by releasable locks. Rear wheels and front legs support the camper when removed from the automobile. The camper has expandable folding side portions, folding front wall and a folding floor to provide an enlarged self-contained structure.

3,547,481
SECTIONAL CAMPER
George H. Gleason, 2814 Berry Lane, Independence, Mo.
Filed Aug. 30, 1968, Ser. No. 756,656
Int. Cl. B60p 3/34
U.S. Cl. 296—23 9 Claims



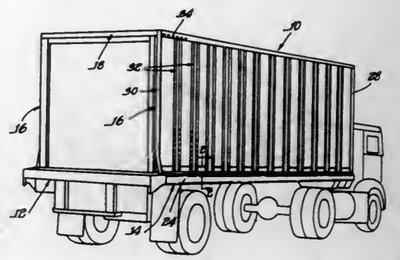
A sectional camper for use with a pickup truck having a load-carrying bed, there being an open-top lower section normally in said bed resting on its deck and an open-bottom upper section normally mounted on top of the lower section. The upper section is adapted for alternatively mounting it directly above the bed as a cover for the bed upon removal of the lower section.

3,547,482
TRAILER HOUSE MODIFIED AS A COMBINATION CAMPER-TRAILER
James Shaw, 55 Cordelia Ave., Salt Lake City, Utah 84115
Filed Dec. 11, 1968, Ser. No. 782,807
Int. Cl. B60p 3/32
U.S. Cl. 296—23 5 Claims



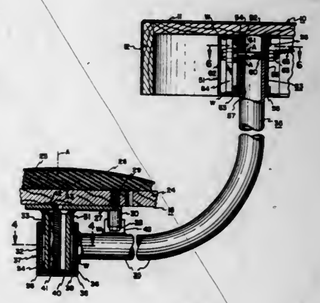
A combination camper trailer house is adapted at one end for mounting above the bed of a traction vehicle as a truck-camper unit. The opposite end of the combination is mounted on wheels and is adapted to trail the traction vehicle when it is driven with the camper unit so mounted.

3,547,483
TRAILER BODY CONSTRUCTION
Donald J. Ehrlich, Monon, Ind., assignor to Monon Trailer, Inc., Monon, Ind., a corporation of Indiana
Filed Dec. 9, 1968, Ser. No. 782,322
Int. Cl. B62d 27/02
U.S. Cl. 296—28 8 Claims



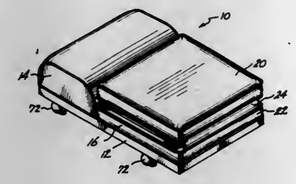
There is disclosed a truck or trailer body having a heavy steel side frame member along the bottom thereof. Sidewalls of thin sheet material are secured to an intermediate anchor member by a plurality of relatively closely spaced fasteners, which anchor member is in turn secured to the relatively heavy frame member.

3,547,484
SUSPENDED SEATING CONSTRUCTION
Carling D. Allen, Circleville, Utah, assignor to Unidine International Corporation, Provo, Utah, a corporation of Utah
Filed July 31, 1968, Ser. No. 749,204
Int. Cl. A47b 83/02
U.S. Cl. 297—141 8 Claims



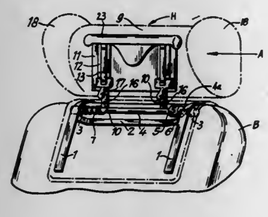
The present invention relates to suspended seating and, more particularly, to new and improved suspended seating and table constructions therefor which may be used in a number of contexts such as schools, auditoriums, homes, cafe counters, and so forth. In a particular embodiment of the invention spring means are incorporated in the suspended seating constructions to return the suspension arms of the seating constructions to their stored condition when not in use and, additionally, to return the seats themselves to a desired position when not in use. Advantage is made of the spring means such that there is not only enabled a return rotational displacement of the suspension arm of the particular seat about its axis, but also a return of the seat installed on the suspension arm relative to its own axis. Suitable stop means are provided for purposes hereinafter described.

3,547,485
MULTIPLE USE AND MULTIPLE POSITION LOUNGING FURNITURE
David J. Petersen, 2219 N. Washington St., and Bruce Martin, 2224 N. Puget Sound, Tacoma, Wash. 98406
Filed Apr. 2, 1968, Ser. No. 718,056
Int. Cl. A47c 4/28
U.S. Cl. 297—377 8 Claims



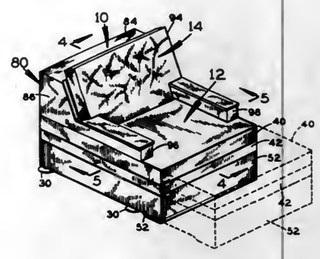
Lounging furniture is adjustable to support the user in prone and various reclining positions and to fold compactly for carrying or stowing. A frame is cushioned on top and another cushion is flexibly secured to the first along one edge by continuing upholstered materials so it may be folded over the cushioning frame and alternately be unfolded adjacent to it. A pair of hinged support panels are retractably held in and operated from a bottom recessed structure of the frame to adjustably support the frame in a plurality of inclined positions. Casters are secured to the frame to facilitate moving the lounging furniture.

3,547,486
ADJUSTABLE HEAD REST FOR VEHICLE SEATS
Kurt Herzer, Karlsruhe, Durlach, and Wolfgang Mertens, Karlsruhe, Germany, assignors to Firma Kurt Herzer, Karlsruhe, Germany
Filed Feb. 25, 1969, Ser. No. 801,962
Claims priority, application Germany, Aug. 31, 1968, 1,780,322
Int. Cl. A47c 7/36, 7/42
U.S. Cl. 297—408 8 Claims



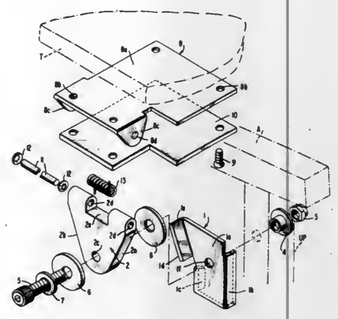
An angularly and vertically adjustable head rest which is secured to the top of a back rest forming part of a vehicle seat. The head rest may be immobilized in a desired height position by a locking mechanism disposed entirely within, and surrounded by, the foam plastic cushion of the head rest. For height adjustment, the locking mechanism may be released by manually engaging a lever extending slightly beyond the cushion. In the back rest there is disposed a mechanism for locking the head rest in the desired angular position. The last-named locking mechanism is released when a lateral manual pressure is exerted to said head rest.

3,547,487
CHAIR BED
Martin Shankman, 163 W. 24th St., Hialeah, Fla. 33010
Filed Aug. 27, 1968, Ser. No. 755,650
Int. Cl. A47c 17/04, 13/00
U.S. Cl. 297—111 15 Claims



A chair bed which includes a seat convertible into a bed by extension thereof, and a back normally upright and overlapping a portion of the seat, but swingable to a floor engaging position adjacent the seat. The back may be provided with a leg which extends to support the back above the floor when the back is swung down, and which retracts toward the back when the back is swung up on to the seat. The back preferably includes arm portions extending forwardly over side portions of the seat and movable with the rest of the back when it is swung off the seat.

3,547,488
FOLDING TABLET CHAIR
Raymond C. Barnes, Temple, Tex., assignor to American Desk Manufacturing Company, Temple, Tex., a corporation of Texas
Filed June 17, 1968, Ser. No. 737,617
Int. Cl. A47b 39/00
U.S. Cl. 297—162 12 Claims



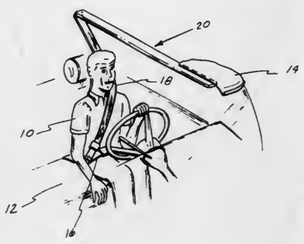
A chair writing or like tablet is mounted by a compound hinge for movements, about a first axis parallel to the fore-and-aft line of the chair and about a second axis transverse to the first axis, selectively to a substantially horizontal position of use, to an elevated intermediate position, and to a lower stowed position alongside the chair. Movement of the tablet from its stowed position to its intermediate position is limited by a stop part having a stop surface engageable by a hinge component swingable about the aforesaid second axis, thus ensuring that swinging of the tablet from its intermediate position about the aforesaid first axis to its "use" position is accomplished without interference by engagement of the tablet with the chair arm or other frame part. Means are provided for holding the tablet in a substantially vertical plane when in its stowed position.

3,547,489
SAFETY SEAT
Robert H. Grieser, 3512 Rockville Road, Indianapolis, Ind. 46222
Filed Nov. 4, 1968, Ser. No. 772,901
Int. Cl. A62b 35/00
U.S. Cl. 297—385 5 Claims



A child's safety seat for use with the conventional seat structure of an automobile. The seat includes a swivel mounted guide extending from the opposite sides of the seat for receiving and retaining the safety belt. The seat also has on its lower surface serrations for maintaining the position of the seat on the seat structure.

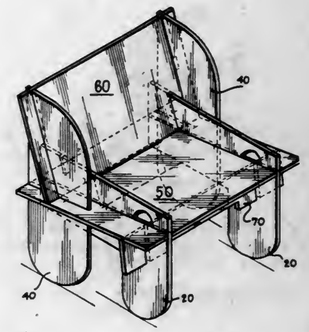
3,547,490
LINEAR RETRACTOR WITH PROGRAMMED BELT CLAMPING MEANS
Robert W. Stoffel, Ferndale, Mich., assignor to Jim Robbins Seat Belt Co., Royal Oak, Mich.
Filed Nov. 9, 1967, Ser. No. 681,756
Int. Cl. A62b 35/00; B60r 21/10
U.S. Cl. 297—388 28 Claims



A linear retractor for a vehicle safety belt having a novel emergency actuated belt-clamping mechanism for clamping the belt to the vehicle during an abnormal situation, but permitting the occupant to perform normal body movements in an unrestrained manner during normal vehicle operation.

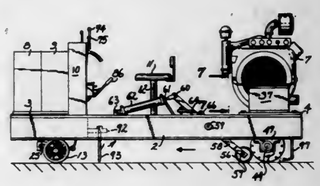
The actuating means respond to the belt being extended at an abnormal rate from the retractor and are coupled through a separable linkage to the clamping means so that they cannot be triggered until a predetermined amount of belt has been withdrawn from the retractor.

3,547,491
QUICK ASSEMBLED FURNITURE
Bernard X. Bovasso, 23 E. 17th St., New York, N.Y. 10003
Filed May 6, 1968, Ser. No. 727,100
Int. Cl. A47c 4/02
U.S. Cl. 297—442 6 Claims



The unit of furniture is made from six flat pieces; four legs, a seat and a back. Each piece is grooved and interlocks with the other pieces during assembly. All pieces are reversible and no tools or fasteners are used in assembly or disassembly.

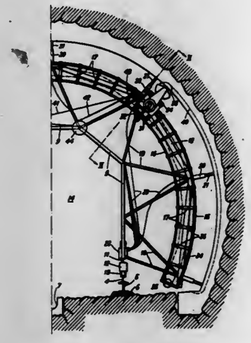
3,547,492
PAVEMENT CUTTING APPARATUS
Wynn S. Binger, Minneapolis, Minn., assignor to Construction Materials, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Apr. 16, 1969, Ser. No. 816,758
Int. Cl. E01c 23/09
U.S. Cl. 299—39 10 Claims



Self-propelled apparatus including a frame having a cutting head at one end, a prime mover for rotating the cutting head, a pair of steerable driving wheels at the opposite end of the frame, and a pair of adjustable wheels disposed adjacent the cutting head and mounted for generally upward and downward movements relative to the frame and cutting head. Fluid pressure operated means, driven by a pump operatively connected to the prime mover, imparts driving rotation and steering movements to the driving wheels and raising and lowering movements to the adjustable wheels to raise and lower the cutting head and adjacent end of the frame relative to the ground.

3,547,493
DEVICE FOR CUTTING SLITS IN TUNNEL LININGS

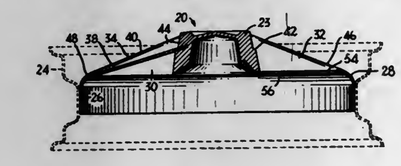
August F. Starkie, Jegenstorf, Switzerland, assignor to Walter J. Heller A.G., Bauunternehmung, Switzerland
Filed May 1, 1969, Ser. No. 820,877
Claims priority, application Switzerland, June 13, 1968, 8,773/68
Int. Cl. E21c 25/00
U.S. Cl. 299—75 9 Claims



A cutter having two spaced disc blades and a drive is moved by a chain along two guide members that are curved to follow the cross sectional contour of the lining. The frame supporting the guide members is held in place by jacks pressing against the lining. In a second embodiment, a pair of pivotally mounted arms guide the cutter in its course. Jacks press two driven wheels and the cutter against the lining.

3,547,494
WHEELS FOR AUTOMOTIVE VEHICLES

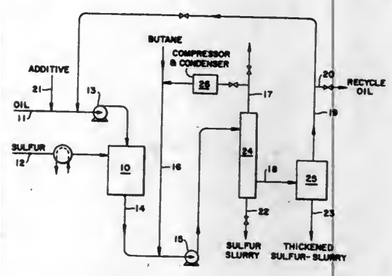
Daniel Lejeune, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France
Continuation of application Ser. No. 689,668, Dec. 11, 1967. This application Nov. 19, 1969, Ser. No. 871,690
Claims priority, application France, Dec. 12, 1966, 87,141
Int. Cl. B60b 3/12
U.S. Cl. 301—64 10 Claims



A wheel disk has a circumferential profile formed with crenellations. The depth of the crenellations is maximum adjacent to the hub and ranges from the maximum down to zero adjacent to the rim. In making a wheel disk, a generally cylindrical tube is formed, the tube is widened at one end to form a border free of undulations, and the other end of the tube is folded down to impart to the central portion of the disk the desired final configuration. The tube is inserted for the folding operation between a ring of punches and a ring of counter-punches. The punches are pivoted inwardly toward the axis of the ring of punches by a cam plate, and the pivoting of the counter-punches is limited by a second plate.

3,547,495
METHOD FOR MAKING SULFUR-OIL SLURRY FOR PIPELINE TRANSPORTATION

Harry A. Cheney, Berkeley, Ronald K. June, Pleasant Hill, and Calvin J. Kuhre, Kensington, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Dec. 18, 1968, Ser. No. 784,727
Int. Cl. B65g 53/30
U.S. Cl. 302—66 7 Claims

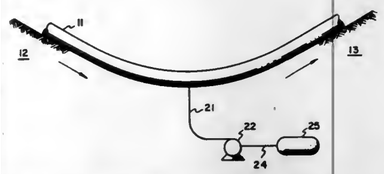


An improved method of making sulfur-oil slurries for pipeline transportation by evaporative cooling of said slurries prior to introducing said slurries in the pipeline.

The present invention relates to an improved method of making sulfur-oil slurries for pipeline transportation by cooling said slurries prior to injecting said slurries into a pipeline by evaporative cooling with a volatile low-molecular weight hydrocarbon such as an aliphatic hydrocarbon having less than 6 carbon atoms.

3,547,496
SOLVENT INJECTION METHOD FOR REMOVING BLOCKAGES IN SLURRY PIPELINES

Vitold R. Kruka, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Feb. 26, 1969, Ser. No. 802,616
Int. Cl. B65g 53/04
U.S. Cl. 302—66 4 Claims

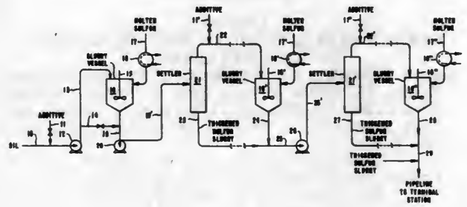


Method for removing blockages in a shut-down slurry pipeline. A solvent capable of dissolving slurry solid phase material is injected into those portions of the pipeline where plug formation by slumping and compacting of slurry solid phase material is likely to occur under the influence of gravity.

3,547,497
OPERATING TECHNIQUE FOR SULFUR SLURRY PIPELINE

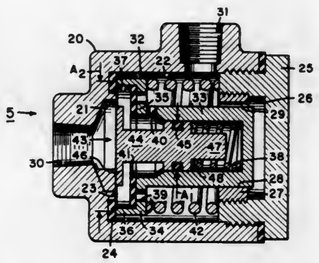
Leonard F. Bolger, Clarkson, Ontario, Canada, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Apr. 7, 1969, Ser. No. 813,994
Int. Cl. B65g 53/04
U.S. Cl. 302—66 11 Claims

An improved method of making concentrated sulfur-oil slurry for pipeline transportation comprising increasing the sulfur content in the process of making a slurry by increment addition of fresh molten sulfur into a preformed slurry of low sulfur concentration until a concentrated sulfur-oil slurry is obtained.



3,547,498
CONTROL VALVE

Richard C. Bueler, Glendale, Mo., assignor, by mesne assignments, to Wagner Electric Corporation, Newark, N.J., a corporation of Delaware
Filed Aug. 16, 1966, Ser. No. 572,817
Int. Cl. B60t 8/26, 15/00
U.S. Cl. 303—6 6 Claims

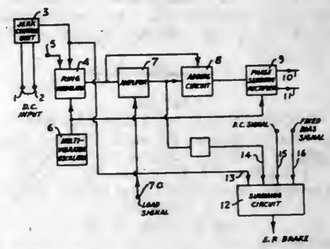


A control valve for use in a fluid pressure braking system to control the energization of disc type front brakes. The control valve allows pressure fluid flow to the front brakes until a predetermined pressure is reached and then blocks communication to the front brakes. After a second higher predetermined pressure is reached fluid pressure flow is again permitted to the front brakes.

3,547,499
ELECTRICALLY CONTROLLED BRAKING OR ACCELERATING APPARATUS

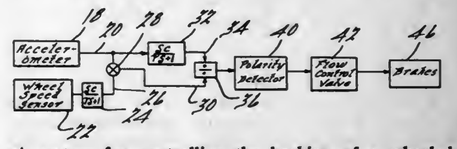
Arthur Maskery, London, England, assignor to Westinghouse Brake and Signal Company, Limited, London, England
Filed Apr. 19, 1968, Ser. No. 722,608
Claims priority, application Great Britain, Apr. 26, 1967, 19,234/67
Int. Cl. B60t 8/02, 8/18
U.S. Cl. 303—21 14 Claims

An electrical analogue signal-controlled, vehicle braking control apparatus includes a dynamic braking arrangement responsive to an electrical command analogue signal corresponding to the braking force desired and a summing circuit which operates during braking in response to a command analogue signal and a signal corresponding to the actual braking produced, to produce an electrical signal used in controlling an additional braking arrangement so that any deficiency in the dynamic braking called for by the command analogue signal is compensated for.



3,547,500
SKID CONTROL SYSTEM

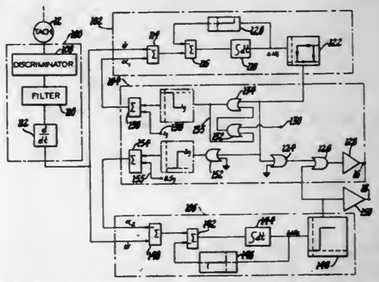
Hugh E. Riordan, Ann Arbor, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Mar. 6, 1969, Ser. No. 804,752
Int. Cl. B60t 8/10
U.S. Cl. 303—21 6 Claims



A system for controlling the braking of a wheeled vehicle to control skidding in which the braking effect applied to the vehicle wheel is effectively responsive to changes in polarity of a control signal representative of the rate of change of the braking force as a function of wheel slip so that such rate of change is maintained substantially at or near zero during the braking operation under all road conditions.

3,547,501
ANTILOCK BRAKE CONTROL

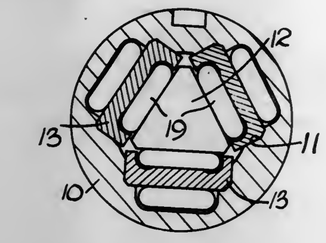
John L. Harned, Grosse Pointe Woods, and Edwin E. Stewart, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Aug. 21, 1968, Ser. No. 754,252. Divided and this application Dec. 12, 1969, Ser. No. 884,467
Int. Cl. B60t 8/08
U.S. Cl. 303—21 6 Claims



An electronic control is responsive to wheel acceleration to produce signals for effecting alternating brake release, hold, and application to avoid wheel lock. A

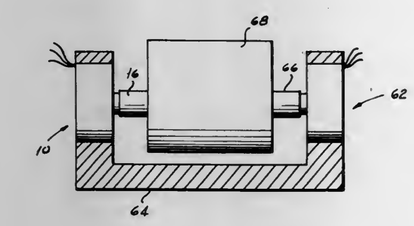
wheel velocity error circuit compares a wheel acceleration signal to a reference signal and integrates the difference to control brake release. A similar circuit responsive to the wheel acceleration signal and another reference signal controls brake hold and application. A third circuit varies the reference signals to optimize the control function.

3,547,502
RECTILINEAR MOTION BEARINGS
Alan Charles Richard Howard, Chalton, England, assignor to Rotax Limited, London, England
Filed Feb. 17, 1969, Ser. No. 799,583
Claims priority, application Great Britain, Feb. 19, 1968, 7,950/68
Int. Cl. F16c 29/06
U.S. Cl. 308—6 3 Claims



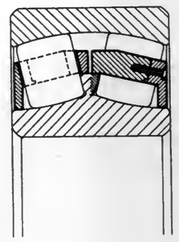
A rectilinear motion bearing having a tubular housing in which is defined three slots, the slots serving to accommodate channel pieces in which are located rollers which bear against a shaft. Intermediate the channel pieces and the bases of the slots are formed return grooves through which the rollers traverse between the opposite ends of the channel members, as the shaft and body part move relative to each other.

3,547,503
DUAL STEP MOTOR CONTROLLED LOW FRICTION OSCILLATING BEARING ARRANGEMENT FOR GYROSCOPE ROTOR OR THE LIKE
Henry Konet, Hohokus, N.J., assignor to The Barden Corporation, Danbury, Conn., a corporation of Connecticut
Filed June 11, 1968, Ser. No. 736,048
Int. Cl. F16c 39/00; H02k 37/00, 1/46
U.S. Cl. 308—183 8 Claims



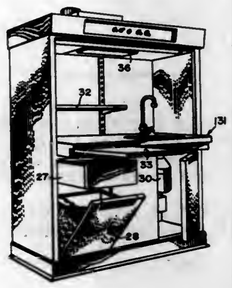
A low friction bearing system for supporting a gyroscope rotor or the like for movement around an axis in which spaced outer bearing rings of bearing assemblies for supporting the shaft carry rotors of slow speed synchronous motors which are energized to drive the rings in opposite directions and to reverse the directions of movement of the rings after a predetermined rotation thereof while oscillating the rings during the predetermined rotation.

3,547,504
DOUBLE-ROW SPHERICAL ROLLER BEARING AND RETAINER
Henryk Bobowicz, Ul. Walcownicza 48, and Stanislaw Kulma, Ul. Widok 19–198, both of Warsaw, Poland; Lech Cedler, Ul. Zbozowa 11–13, Poznan, Poland, and Piotr Kobylecki, Ul. Powstancow Slaskich 32–1, Warsaw, Poland
Filed July 22, 1968, Ser. No. 746,397
Claims priority, application Poland, July 21, 1967, P 121,814; Aug. 26, 1967, P 122,343
Int. Cl. F16c 22/08
U.S. Cl. 308—194 3 Claims



A double row spherical roller bearing has a floating stabilizing ring between the rows which has convex flanks engaging flat end faces of the roller bearings. A retainer is provided supported from two axially spaced portions of the inner race, and made of a main body portion and a reinforcing ring secured to it.

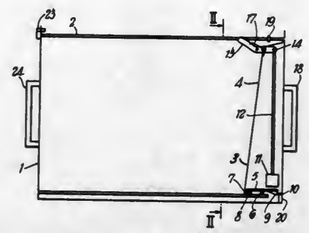
3,547,505
BIOLOGICAL SERVICE CENTER
Donald E. Ott and Arthur W. Carlson, Muskegon, Mich., assignors to E. H. Sheldon & Company, Muskegon, Mich., a corporation of Michigan
Filed July 9, 1969, Ser. No. 840,268
Int. Cl. A47b 81/00; A61g 11/00
U.S. Cl. 312—209 6 Claims



Biology study equipment including a generally rectangular casing having an upper portion accessible from the front for various operations under controlled conditions, and featuring in particular a novel sink arrangement

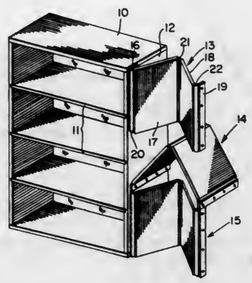
for laboratory work, the lower portion of the enclosure providing storage facilities and spaces for the installation of utilities.

3,547,506
STORAGE DEVICES
Ernest Alfred Reginald Larking, 6 Coldfall Ave., Muswell Hill, London, England
Filed Aug. 14, 1968, Ser. No. 752,659
Claims priority, application Great Britain, Aug. 18, 1967, 38,271/67
Int. Cl. E05c 7/06
U.S. Cl. 312—222 10 Claims



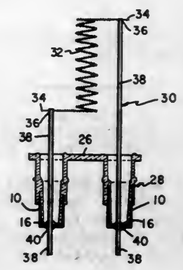
A storage device comprising a drawer arranged to be moved into and out of a complementary shell in a wall or door the drawer having a pair of control arms which cooperate, in a closed position of the drawer, with the shell to hold a weight above a platform having a projection and which release the weight on withdrawing the drawer in one direction so that on returning the drawer to a closed position the projection abuts the shell to prevent further withdrawal in that direction.

3,547,507
PULL-OUT CABINET
Walter Dorwin Teague, Jr., Nyack, N.Y., assignor to The Tappan Company, Mansfield, Ohio, a corporation of Ohio
Filed Aug. 26, 1968, Ser. No. 755,335
Int. Cl. A47b 67/02
U.S. Cl. 312—246 4 Claims



The cabinet is mounted for endwise sliding movement by large vertical and horizontal four-section hinges attached between an end wall and fixed structure, the vertical hinge fully supporting the cabinet and the horizontal hinge stabilizing the action against side sway and misalignment. Such hinges can be made integrally of polypropylene.

3,547,508
METHOD OF SEALING QUARTZ TO METAL
David R. Dayton, West Caldwell, N.J., and Paul E. Gates, Danvers, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Original application Nov. 25, 1966, Ser. No. 596,908. Divided and this application Apr. 1, 1969, Ser. No. 811,965
Int. Cl. H01j 9/18
U.S. Cl. 316—19 5 Claims



The seals of high current carrying capacity incandescent lamps are described. A refractory metal cup is encapsulated in a glass jacket and the top of the jacket is fused to a quartz sleeve, which is then fused to a quartz disc. The latter is then sealed to a lamp envelope. The base of the cup has apertures through which electrical conductors are disposed. At one end, the conductor extends outside of the lamp and at the other end to a filament. The lamp seal and the current-carrying path are thereby separated from each other.

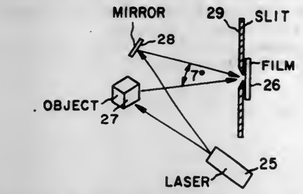
3,547,509
HOLOGRAPHIC RECORDING MEDIA
Raymond G. Brandes, Meyersville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J., a corporation of New York
Filed Aug. 4, 1967, Ser. No. 658,438
Int. Cl. G03c 5/04
U.S. Cl. 350—3.5 1 Claim

Hologram images can be stored in liquid media having certain physical and chemical characteristics. The image lifetime is limited so that only short-term storage applications such as data-processing or display systems are anticipated. The characteristics of useful liquid media are considered in detail.

3,547,510
HOLOGRAPHIC IMAGE SYSTEM AND METHOD EMPLOYING NARROW STRIP HOLOGRAMS
Dominick John De Bitetto, Briarcliff Manor, N.Y., assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 26, 1968, Ser. No. 700,948
Int. Cl. G02b 27/22
U.S. Cl. 350—3.5 16 Claims

In a holographic image system, only information relating to a single narrow strip of a hologram is employed. The image is constructed by producing a composite of identical vertically aligned strips, or by providing a single strip with vertical movement. The resultant reconstructed image has for sufficiently thin strips horizontal three-dimensional characteristics and parallax, but subtantially no vertical three-dimensional characteristics and parallax. When a plurality of strips are mounted for sequential movement past the field of view of an observer, image

movement can be observed without blurring and without the necessity of a stepping mechanism. Alternatively, a

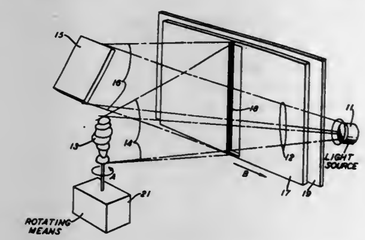


single hologram strip may be employed in the projection of a two-dimensional image.

3,547,511
RECORDING HOLOGRAMS OR INTEGRAL PHOTOGRAPHS WITH A WIDE ANGLE VIEW

Michael C. King, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Mar. 13, 1968, Ser. No. 712,650
Int. Cl. G02b *27/22;* **G03b** *35/02, 37/02*
U.S. Cl. 350—3.5 **14 Claims**



A method is described for recording wide angle views of three-dimensional objects on holograms or integral photographs of arbitrary dimensions. For example, in forming a hologram of the object, a mask with one transparent vertical region is positioned in front of a flat photographic plate. After exposure of the photographic plate, the mask is translated by one slit width along the face of the plate, and the object rotated a small amount about its vertical axis. A second exposure is then made. And this process is repeated until the entire plate has been exposed and the object rotated enough to record the desired wide angle view. In viewing the hologram, the reconstructed image can be made to rotate merely by moving one's head from one side of the hologram to the other.

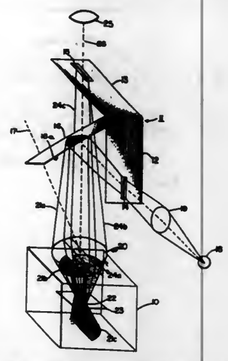
An integral photograph with similar properties is formed by analogous methods.

3,547,512
OPTICAL APPARATUS PROVIDING FOCAL-PLANE-SPECIFIC ILLUMINATION

Stephen C. Baer, Bronx, N.Y., assignor to Research Corporation, New York, N.Y., a non-profit corporation of New York

Filed Apr. 16, 1968, Ser. No. 721,848
Int. Cl. G02b *17/00, 21/06*
U.S. Cl. 350—6 **11 Claims**

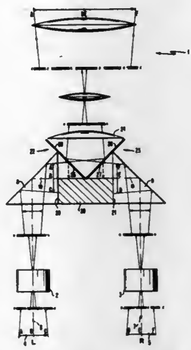
Images of areas of selected planes of an object or a field to be viewed are provided by apparatus including means for focusing a slit-shaped beam of radiation upon a narrow strip of the selected plane, means directing a slit-shaped beam of the radiation emanating from the illuminated strip along an axis angularly displaced from the axis of the incident beam upon image forming means, and means synchronously scanning the incident and emanating beams across the selected plane in a direction transverse to the long dimension of the illuminated strip.



3,547,513
SPLIT FIELD OPTICAL COMPARISON SYSTEM

Leonard S. Sheiner, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 10, 1968, Ser. No. 735,753
Int. Cl. G02b *21/18, 23/00, 5/04*
U.S. Cl. 350—30 **6 Claims**



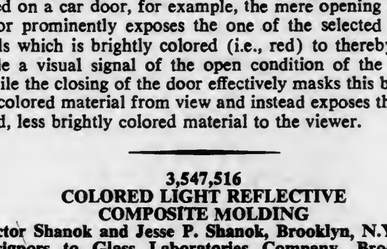
A comparison microscope in which the image from the objectives is partly masked and converged through an inverted array of beam splitters, and reflected into two paths to the eyepiece of a binocular head to provide an erected or direct image for observation.

3,547,514
ELONGATED VARIABLE MAGNIFICATION OPTICAL SYSTEM

Yoshisada Hayamizu and Satoru Sakamoto, Tokyo, Japan, assignors to Olympus Optical Co., Inc., Tokyo, Japan

Filed Nov. 20, 1967, Ser. No. 684,299
Claims priority, application Japan, Dec. 30, 1966, 41/85,932, 41/85,933
Int. Cl. G02b *15/06*
U.S. Cl. 350—39 **5 Claims**

An elongated variable magnification optical system comprising an elongated image transmitting optical system, an objective lens in front of the front end surface of said image transmitting optical system, a prism in front of said objective lens for deflecting the light incident thereto from an object located at an angle from the optical axis of the optical system into coincidence with the optical axis, a plurality of lenses arranged around said prism, said prism and said plurality of lenses being permitted

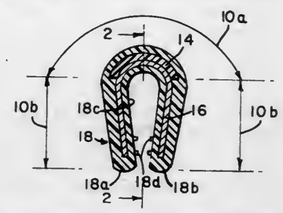


to be rotated relative to each other so that the selected one of said plurality of the lenses is brought into a position in alignment with the path of the light incident to the prism thereby permitting the magnification to be varied as desired.

3,547,515
COMBINATION PROTECTIVE AND DECORATIVE EDGE TRIM

Victor Shanok and Jesse P. Shanok, Brooklyn, N.Y., assignors to Glass Laboratories Company, Brooklyn, N.Y., a New York limited partnership

Filed Sept. 26, 1968, Ser. No. 762,739
Int. Cl. G02b *5/12;* **E04c** *2/38;* **B06b** *7/00*
U.S. Cl. 350—97 **4 Claims**



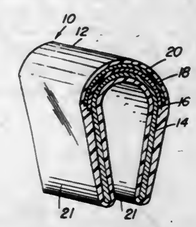
An edge trim formed of an edge-attaching clear plastic body having encapsulated therein first and second strips of selected materials of different widths and different visual appearances or impacts, the encapsulated materials being so arranged that in the mounted position of the product along an edge they are visual to selectively varying degrees depending upon the vantage point of the viewer relative to the product. Thus, when the edge trim is used on a car door, for example, the mere opening of the door prominently exposes the one of the selected materials which is brightly colored (i.e., red) to thereby provide a visual signal of the open condition of the door, while the closing of the door effectively masks this brightly colored material from view and instead exposes the second, less brightly colored material to the viewer.

3,547,516
COLORED LIGHT REFLECTIVE COMPOSITE MOLDING

Victor Shanok and Jesse P. Shanok, Brooklyn, N.Y., assignors to Glass Laboratories Company, Brooklyn, N.Y., a limited partnership of New York

Continuation-in-part of application Ser. No. 793,828, Jan. 24, 1969, which is a continuation-in-part of application Ser. No. 762,739, Sept. 26, 1968. This application May 19, 1969, Ser. No. 825,887
Int. Cl. G02b *5/12;* **E04c** *2/38;* **B06b** *7/00*
U.S. Cl. 350—97 **7 Claims**

An improved colored light reflective composite molding comprising a strip of metallic foil, a strip of transparent colored material, a strip of light reflective material intermediate said strips of metallic foil and transparent



colored material, said strips being encapsulated within a shell of transparent thermoplastic material.

3,547,517
ANTIMONY SULFIDE-BARIUM OXIDE GLASSES AND REFLEX LIGHT REFLECTOR

Charles Edwin Searight and John Robert Ryan, Jackson, Miss., and Ezra McLaurin Alexander, South Houston, Tex., assignors to Cataphote Corporation, Jackson, Miss., a corporation of Ohio

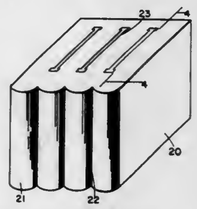
No Drawing. Continuation-in-part of application Ser. No. 303,923, Aug. 22, 1963. This application May 29, 1967, Ser. No. 642,162
Int. Cl. C03c *3/12;* **G02b** *5/12*
U.S. Cl. 350—105 **6 Claims**

Disclosed are glass compositions having high refractive indices. The glasses contain primarily antimony sulfide and barium oxide. In the form of glass beads, the glasses are useful retroreflective lenses.

3,547,518
REINFORCED PLASTIC SCREENS

James W. Henry and Nevil Davy, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Continuation-in-part of application Ser. No. 250,667, Jan. 10, 1963. This application Sept. 12, 1966, Ser. No. 587,632
Int. Cl. G03b *21/56*
U.S. Cl. 350—117 **3 Claims**



A reinforced lenticulated homogeneous plastic sheet in which the reinforcing members are positioned in register with the lenticule intersections in such manner as to conceal them from view.

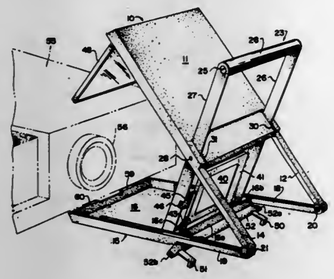
3,547,519
PORTABLE VIEWING ACCESSORY FOR A SLIDE PROJECTOR

Walter J. Hall, Chicago, Ill., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware

Filed Jan. 29, 1968, Ser. No. 701,386
Int. Cl. G03b *21/56*
U.S. Cl. 350—123 **4 Claims**

The portable viewing accessory includes a plurality of frame members pivotally connected with each other for swinging movement back and forth between nested and

spread positions thereby establishing a collapsed and an erected configuration of the accessory. The frame members pivotally mount a rear projection screen and a mirror. In the collapsed configuration of the accessory, the screen and mirror are contained within a substantially enclosed housing defined by the frame members thereby making the accessory compact for convenient carrying and storage. In the erected configuration, the accessory is support-

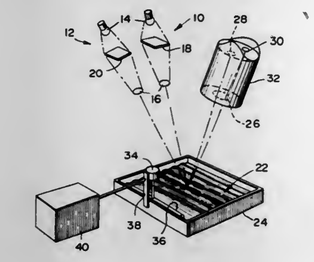


ed on a suitable surface in front of a projector, such as a slide projector. The mirror intercepts the projector optical axis at an oblique angle and reflects an image to the rear of the rear projection screen. In the erected configuration of the accessory, the mirror may be pivoted to an inoperative position wherein the same is in non-interfering relation with the optical axis thereby permitting projection on a remote screen.

3,547,520
STEREOSCOPE

Roger K. Lee, Watertown, and Richard W. Dyer, Acton, Mass., assignors to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed Dec. 13, 1967, Ser. No. 690,166
Int. Cl. G02b *27/22*; G02f *1/28*
U.S. Cl. 350—131 **9 Claims**



Apparatus for enlarging the effective exit pupil of optical apparatus and consisting of a wave-supporting medium, means for generating periodic travelling waves in the medium, means for projecting light rays corresponding to an image on the medium, and viewing means disposed to receive the light rays, the light rays being transmitted to the viewing means from the wave-supporting medium at varying angles in accordance with the vibrations established in the medium to thereby enlarge the effective exit pupil of the viewing means.

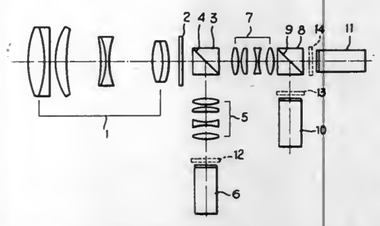
ERRATA

For Classes 350—160 and 350—162 see:
Patent Nos. 3,547,545 and 3,547,546

3,547,521
COMPACT ZOOM LENS AND BEAM SPLITTING SYSTEM

Tadashi Ichizuka, Tokyo-to, and Kiyoshi Miyagi, Kadoma-shi, Japan, assignors to Cosmicar Kogaku Kabushiki Kaisha, Tokyo-to, Japan, a corporation of Japan

Filed June 28, 1968, Ser. No. 741,167
Claims priority, application Japan, July 1, 1967, 42/42,091
Int. Cl. G02b *27/14*; G03b *33/12*; H04n *9/08*
U.S. Cl. 350—171 **3 Claims**

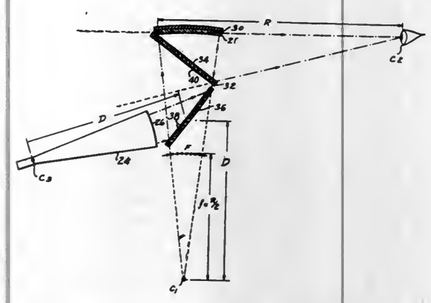


A color separating beam splitter is placed in the space required between the objective and relay lens means of a zoom lens system. The transmitted portion of the entering light passes through the relay lens means and into a second color separating beam splitter which further divides it into two beams which are then directed to separate pick-up means. The portion of the entering light which is reflected from the first beam splitter passes through a second relay lens means to another pick-up means. This compact arrangement yields an unusually small and light color television camera. The amount of light directed to one of the pick-up tubes can be much greater than that directed to the other pick-up tubes, and used for control purposes.

3,547,522
ON-AXIS COLLIMATED VIEWING SYSTEM

Carl F. Schaefer, Westport, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Sept. 4, 1968, Ser. No. 757,396
Int. Cl. G02b *27/14*
U.S. Cl. 350—174 **4 Claims**



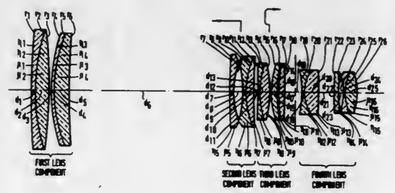
A head up on-axis optical system for presenting an observer with a straight ahead view of the face of an instrument or the like from a head up normal viewing position

in which a plane mirror mounted adjacent the instrument face and out of the observer's line of sight translates an image of the face to the reflecting surface of a spherical mirror located out of the observer's line of sight with its central axis generally perpendicular thereto so that the spherical mirror produces an image of the face at the focal distance. A partial reflector, the center of which is located adjacent the central axis of the spherical mirror, permits the observer to view the image produced by the spherical mirror as if he were positioned at the center of curvature of the spherical mirror without interfering with his view of the outside scene.

3,547,523
ZOOM OBJECTIVE LENS SYSTEM WITH HIGHLY REDUCED SECONDARY CHROMATIC ABERRATION

Tadashi Kojima, Tokyo, Japan, assignor to Konishiroku Photo Industry Co., Ltd.

Filed July 10, 1968, Ser. No. 743,875
Claims priority, application Japan, July 13, 1967, 42/44,873
Int. Cl. G02b *9/00, 9/34, 15/14*
U.S. Cl. 350—184 **4 Claims**



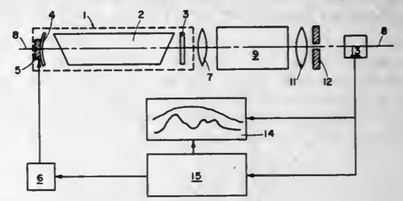
This invention is a zoom lens system in which secondary chromatic aberration is reduced. In this lens system, four lens components are arranged on a common optical axis. The first and third lens components have positive refractive power. The second and fourth lens components have negative refractive power. In a zoom lens system having a relatively long focal length, deterioration of performance due to an increase in chromatic and more particularly secondary chromatic aberration is a serious problem. In accordance with the present invention, a zoom lens system having totally reduced secondary chromatic aberration is obtained by the use of abnormal dispersion glass for only the first lens component. It is not necessary to effect the elimination of secondary chromatic aberration of individual lens components.

3,547,524
MEASUREMENTS OF ISOTOPE SHIFTS

Ali Javan, Boston, Mass., Ronald H. Cordover, Fort Lee, N.J., and Paul A. Bonczyk, Newton, Mass., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Apr. 8, 1968, Ser. No. 719,630
Int. Cl. G01b *9/02*; H01s *3/00*
U.S. Cl. 356—106 **1 Claim**

Apparatus is provided for resolving overlapping spectral lines of two isotopes. Resolution of these lines is obtained by interacting two sets of atoms of one isotope and a third set of a second isotope with a laser tuned to a transition of one of the isotopes such that the line widths of the spectra corresponding to spontaneous emissions from the lower laser levels of both isotopes are effectively narrowed. These lines are narrowed because the laser field selects for the spectral pattern only atoms of one isotope moving transverse to the longitudinal axis of the fixed angle with respect to this axis. By selecting only laser and only atoms of the other isotope moving at some

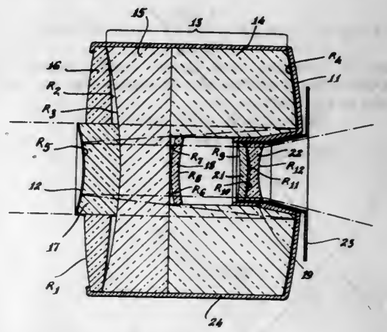


these atoms, the usual Doppler-broadening due to atoms traveling in all directions is effectively prevented.

3,547,525
CATADIOPTRIC SYSTEM

Juan L. Rayces, Santa Ana, Calif., and Francis W. Foster, West Redding, and Raul E. Casas, Danbury, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed Aug. 31, 1967, Ser. No. 664,683
Int. Cl. G02b *17/08*
U.S. Cl. 350—200 **3 Claims**



An optical system especially suited for use as a photographic objective in which a concave primary mirror is located at one end of a solid support assembly and a convex secondary mirror is located at the other end of the solid support assembly. Both mirrors are spherical. The support assembly is made of refractive material and constitutes the only medium through which light reflected by the primary mirror is transmitted to the secondary mirror. Light reflected by the secondary mirror passes through a central aperture in the primary mirror. The objective has additional refractive components located in front of the primary mirror and behind the secondary mirror which cooperate with the refractive support assembly to correct aberrations and/or increase the effective focal length of the system and an axially movable doublet for changing the focus of the system.

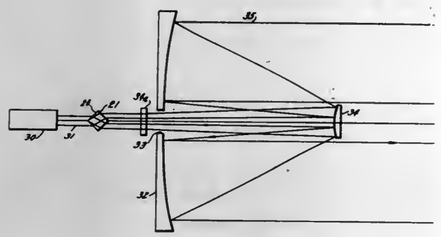
3,547,526
OPTICAL BEAM CROSS-SECTION CONVERTER

William P. Devereux, Syosset, N.Y., assignor to Kollsman Instrument Corporation, Syosset, N.Y., a corporation of New York

Filed Oct. 26, 1967, Ser. No. 678,245
Int. Cl. G02b *17/00*
U.S. Cl. 350—200 **5 Claims**

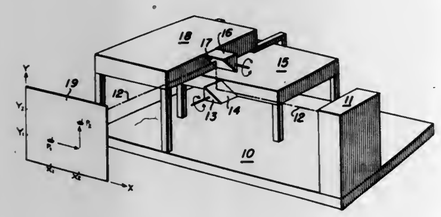
A lens arrangement having one or more peripheral walls converging toward an apex and having an optical

axis passing through the apex and coaxial with a beam of light having a solid cross-section. The lens refracts the light so that it takes the general form of a hollow tube after passing through the lens. The lens can be formed of



cones or pyramids cemented together at their base, or can be a single dished cone or pyramid of constant thickness. Two rhombs may be cemented together in tented fashion which cooperate with an identical set of orthogonally disposed tented rhombs.

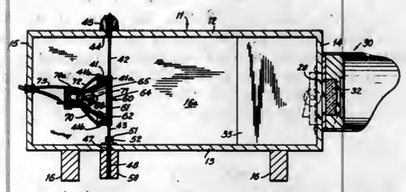
3,547,527
DIGITAL DATA DEFLECTION PROJECTION APPARATUS
Dale W. Bowman, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 2, 1969, Ser. No. 812,732
Int. Cl. G02f *1/34*
U.S. Cl. 350—285 **4 Claims**



Apparatus for converting digital data into a visual readout using a Cartesian coordinate optical projector. The projector includes a source of pencil beam light, an X-axis deflection system, a Y-axis deflection system, each system including a plurality of bit bars rotatably mounted on a shaft, a plurality of transducer means each associated with a separate bit bar, and stops associated with each bit bar to limit rotation of the bar, and an image screen whereby selective actuation of particular ones of said solenoids by particular combinations of digital signals positions the light beam on the screen.

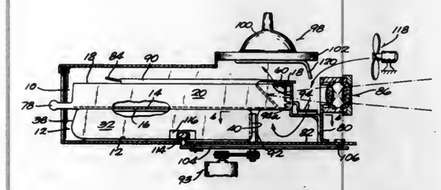
3,547,528
INSTRUMENT TO MEASURE FUSIONAL ABILITY OF EYES INDEPENDENT OF EYE MOVEMENT
Kenneth H. Weisfeld, 6035 Broadway, Bronx, N.Y. 10471
Filed Nov. 22, 1968, Ser. No. 778,146
Int. Cl. A61b *3/08*
U.S. Cl. 351—3 **13 Claims**

This apparatus comprises a box which has a stereoptical eye piece at its front end. Between the top and bottom walls of the box and viewable through the eyepiece are a pair of similarly appearing illuminated targets which can be selectively contracted and expanded, with means



to measure the degree of contraction and expansion of each target without necessity for the eyes to move. The targets are rotatable about a pair of fixed parallel axes.

3,547,529
CARTRIDGE FOR AUDIO-VISUAL PROJECTOR AND PROJECTOR ARRANGEMENT USING THAT CARTRIDGE
Jacob Anthes, Delafield, Wis., assignor to La Belle Industries, Inc., Oconomowoc, Wis., a corporation of Wisconsin
Filed Mar. 21, 1968, Ser. No. 714,836
Int. Cl. G03b *31/04, 23/02*
U.S. Cl. 352—31 **14 Claims**

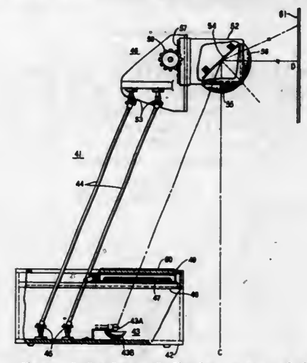


A cartridge for an audio-visual projector having film strip and sound tape housings combined into a unitary cartridge housing. In the area of the film aperture the film strip housing extends beyond the sound tape housing to thereby expose that area for cooling at that point. A film strip support and projection mirror are connected for joint movement and the film strip support is so spaced relative to the sound tape pressure roll as to insure adequate engagement of both the film strip with the film advance and the pressure roller with a drive capstan. The film strip is referenced in the cartridge so that it will have the requisite orientation with the film advance when the cartridge is located in the projector.

3,547,530
OVERHEAD PROJECTOR
Kenneth M. Poole, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Nov. 12, 1968, Ser. No. 774,912
Int. Cl. B03b *21/00*
U.S. Cl. 353—70 **8 Claims**

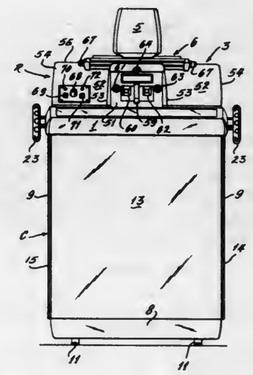
An overhead projector is disclosed that eliminates keystone distortion and loss of focus when projecting an image of an object at an angle to a display surface. Angular projection is achieved by translating a reflecting surface and imaging lenses in the projector head laterally with respect to the object. Keystone distortion and loss of focus are avoided by translating the reflecting surface

and imaging lenses so that a normal to the reflecting surface intersects a plane through the object at a constant



angle, regardless of the lateral displacement of the reflecting surface and imaging lenses with respect to the object.

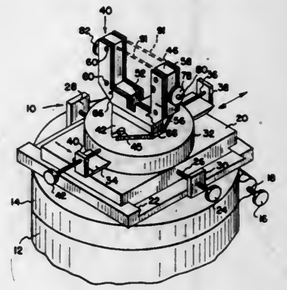
3,547,531
FILM READER
Willis L. Wells, Clayton, Mo., assignor to Photronix, Inc., St. Louis, Mo., a corporation of Missouri
Filed May 7, 1968, Ser. No. 727,217
Int. Cl. G03b *21/22*
U.S. Cl. 353—76 **4 Claims**



A film viewer having means therein for providing a plurality of magnifications of the microfilm, said means including a plurality of lenses and a specific and inexpensive arrangement for raising and lowering the mirrors within said viewer, and a novel tie-rod arrangement for the cover of the viewer, and a novel formation of the cooling air passages.

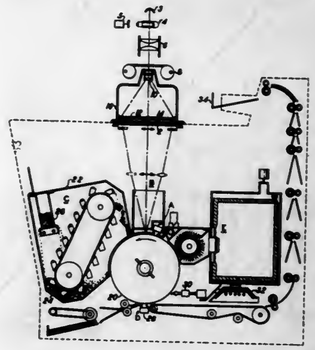
3,547,532
APPARATUS FOR FORMING HOLOGRAMS
Robert H. Grant, Utica, Mich., assignor to G. C. Optronics, Inc., Ann Arbor, Mich., a corporation of Michigan
Filed Mar. 7, 1968, Ser. No. 711,394
Int. Cl. G03b *27/58, 27/62*
U.S. Cl. 355—2 **7 Claims**

To form a double exposure hologram of a member undergoing dimensional changes, which hologram contains fringe lines arrayed in a pattern which is a function of the displacement of the member from a steady state, a hologram of the member in the steady state is first made. This primary hologram is supported a[illegible]nt to the member in a frame which allows translation toward and away from the member and rotation about an axis which is perpendicular to the axes of translation. The frame is adjusted so that the visual image of the object as viewed through the hologram coincides with the object in its steady state. The object is then viewed through the hologram as it undergoes a variation in dimension and final holograms of



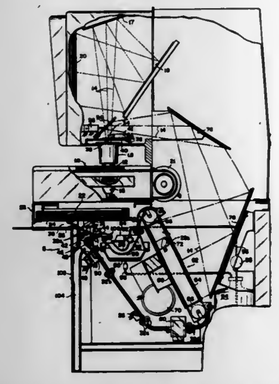
interesting conditions are made by positioning a photographic plate within the frame so as to receive illumination directly from the object illuminating coherent source and coherent light reflected from the object. The object is then returned to its original dimensions and a second exposure is made on the same plate. Alternatively, the object may be vibrated while being viewed through the hologram and interesting conditions can be recorded by photographing the member, using the time averaging property of the film to record two states.

3,547,533
MICROFILM REPRODUCTION MACHINE
David R. Stokes, Webster, and Gilbert A. Aser, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 4, 1965, Ser. No. 506,386
Int. Cl. G03g *15/04*
U.S. Cl. 355—3 **9 Claims**



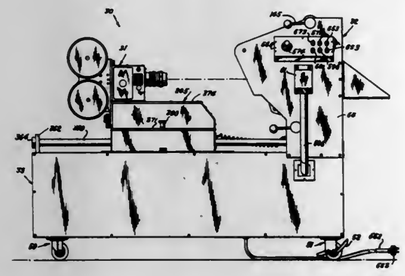
An electrostatic reproduction machine having a first projector for producing an enlarged image of a microfilm frame upon a Fresnel lens, and a second projection means adapted to project that image on the Fresnel lens as an object and to image it on an electrostatic surface.

3,547,534
MICRO-IMAGE VIEWER-PRINTER APPARATUS
Hideo Akiyama, Los Angeles, and Maurice H. Artaud, Torrance, Calif., assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Feb. 26, 1968, Ser. No. 708,409
Int. Cl. G03b 27/70
U.S. Cl. 355—5 6 Claims



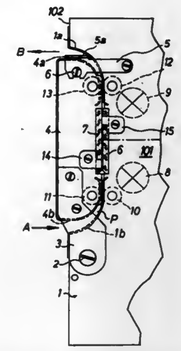
A combination viewer-printer having a primary light projection system for projecting a light beam through a micro-image bearing film and displaying a selected micro-image thereof on a display screen sufficiently enlarged for viewing. A secondary light projection system, on a selective basis, intercepts the image-bearing light beam and projects it onto an electrostatically charged sheet positioned on an exposure plenum, where an enlarged latent image of the micro-image is formed. The sheet is then passed through an electrostatic developing unit wherein ink particles are attracted to the charged image areas to form a hard copy print of the image.

3,547,535
MICROFILM DOCUMENT COPIER
Douglas Keith McLean and Stanley A. Bennett, Dallas, and Stanley A. Bennett, Jr., Mesquite, Tex., assignors to Micro Instrument Corporation, Dallas, Tex., a corporation of Texas
Filed Mar. 4, 1968, Ser. No. 710,044
Int. Cl. G03b 27/48
U.S. Cl. 355—49 12 Claims



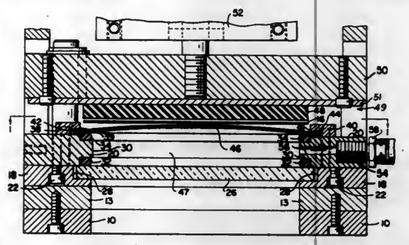
A continuous-flow type photocopier including a camera, a document conveyor having rotatable vacuum drum for holding a document and moving it across the optical path of the camera, a camera support moveable relative to the drum, and a drive mechanism for the camera and drum for driving the camera at various distances from the drum and at speeds synchronized with the drum speed for selected demagnification ratios.

3,547,536
PROJECTION PRINTING APPARATUS
Konrad Phelps, Grunwald, near Munich, and Günther Schnall, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed June 17, 1968, Ser. No. 737,562
Claims priority, application Germany, June 23, 1967, 1,597,056
Int. Cl. G03b 27/62
U.S. Cl. 355—50 10 Claims



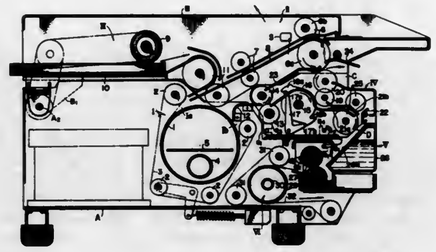
A projection printing apparatus wherein the originals are moved in a path defined by two portions of a guide and travel through a gate which is illuminated by printing lamps. One portion of the guide is fixed to or integral with the frame of the printing apparatus and the other portion is hingedly connected with the frame for movement between an operative position and an inoperative position to afford access to an original which is stuck in the guide and to permit inspection and cleaning of the gate. The other portion of the guide has presser rolls or plates which bias the originals against driven transporting rolls in the frame when the other portion is moved to and locked in operative position.

3,547,537
PRESSURABLE CONTACT PRINTING MECHANISM
Francis A. Betron, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Mar. 25, 1968, Ser. No. 715,906
Int. Cl. G03b 27/20
U.S. Cl. 355—92 15 Claims



A contact printing device having a chamber, a transparent glass plate forming one side of the chamber, a photographic master plate forming another side of the chamber and capable of being convexly shaped, and means including a resilient platen for pressing a film against the surface of said master plate initially along a line and progressing outwardly from the line across the plate to provide maximum contact over the printing area. Air pressure is introduced into the chamber to convexly shape the master plate, and an opposing force is provided by the platen to counterbalance the air pressure and tend to straighten the master plate during the contact and printing time.

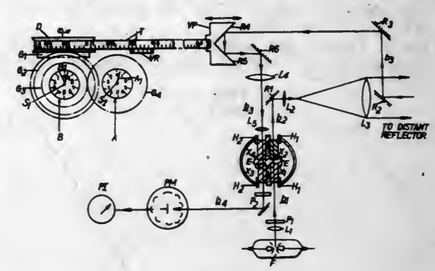
3,547,538
PHOTOGRAPHIC COPYING MACHINE
Nobuyuki Yanagawa, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan
Filed Jan. 31, 1968, Ser. No. 702,066
Claims priority, application Japan, Mar. 3, 1967, 42/18,021
Int. Cl. G03b 27/30
U.S. Cl. 355—106 4 Claims



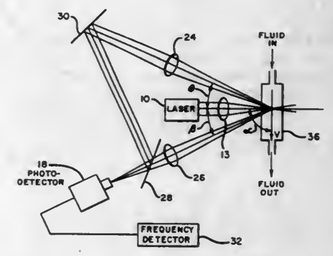
A photographic copying machine has a hinged top, on the underside of which is mounted a copy paper storage and feeding device and an original paper feeding device for superimposing an original paper and a copy paper. The superimposed papers are fed through an exposure device to a removable separating device where they are separated, the copy paper (if of the type requiring wet development) being fed through a removable wet development device which has been filled with suitable developer, or (if of the type requiring dry development), through a dry development device and thence from the machine. The removable wet development device is provided at the front of the machine where it is easily removed and where the fluid level in its transparent fluid reservoir is visible to the machine operator.

3,547,539
DISTANCE MEASUREMENT
Keith Davy Froome and Robert Howard Bradsell, Teddington, England, assignors to National Research Development Corporation, London, England, a British corporation
Filed Nov. 24, 1967, Ser. No. 685,414
Claims priority, application Great Britain, Dec. 1, 1966, 53,926/66
Int. Cl. G01c 3/08
U.S. Cl. 356—5 21 Claims

A distance measuring apparatus comprises a modulation oscillator for modulating light; a flash tube light source; a photomultiplier for indicating a given value of the modulation phase of the modulated light received at a given point after traversal of the path relative to that of the light; a variable light path device adapted to form part of the path taken by the light; and a tuner for tuning the modulated oscillator to a first wavelength and a plurality of further wavelengths in succession. Each of these wavelengths is monitored or controlled by a single standard cavity resonator through the intermediary of a selected frequency multiplier, and the relative magnitudes of said wavelengths are so chosen that the magnitudes of the successive adjustments of the variable path device necessary for the given value of the relative modulation phase to be indicated after tuning the oscillator to each successive further wavelength are indicative of successive orders of magnitude in the length of said path.



3,547,540
LASER FLUID VELOCITY DETECTOR
Fred H. Shigemoto, San Jose, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 15, 1967, Ser. No. 690,997
Int. Cl. G01c 3/08
U.S. Cl. 356—28 12 Claims



A method and apparatus for measuring the velocity of a moving fluid, or the like, including a laser or like source of a beam of coherent electromagnetic radiation to illuminate particulate matter in the moving fluid. Light scattered in the flow is collected at two points located at different viewing angles, which light then is superimposed at the surface of a photodetector. The frequency of the scattered light is Doppler shifted from that of the laser beam as a result of the movement of the fluid and, since the scattered light is viewed at different viewing angles, the Doppler shift is different for the two light collectors. The difference frequency of the two Doppler frequencies is produced at the output of the photodetector which difference frequency is proportional to the velocity of

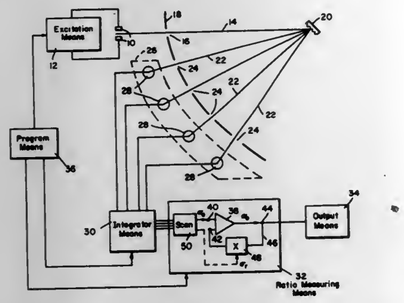
the moving fluid. An indication of the difference frequency is obtained by feeding the output from the photodetector to a frequency detector such as a spectrum analyzer, oscilloscope, or the like, which may be calibrated in terms of velocity.

3,547,541

SPECTROMETER APPARATUS FOR SEQUENTIALLY MEASURING RATIOS OF SELECTED SPECTRAL INTENSITIES

Veijo V. Varnela, San Gabriel, Calif., assignor, by mesne assignments, to Angstrom, Inc., Chicago, Ill., a corporation of Illinois

Filed Oct. 30, 1968, Ser. No. 771,721
Int. Cl. G01j 3/30, 3/36
U.S. Cl. 356—81 26 Claims



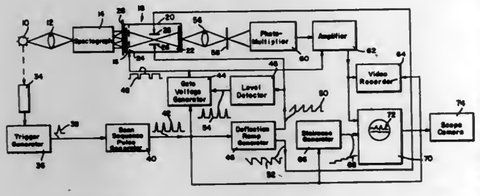
A direct-reading spectrometer for sequentially measuring ratios of selected spectral intensities at high readout rates. The apparatus utilizes "implicit division" techniques for producing output signals proportional to the linear ratios of any two integrator voltages, and the preferred embodiment thereof includes digitally controlled apparatus for providing ratio measurements at speeds and accuracies not obtainable with servo driven systems.

3,547,542

HIGH SCANNING SPEED SPECTROMETER

Thomas H. Bulpitt, Northridge, and David G. Fladlien, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio

Filed Mar. 1, 1968, Ser. No. 709,630
Int. Cl. G01j 3/12, 3/42
U.S. Cl. 356—83 16 Claims



The emission or transmission spectrum of a transient event under investigation is projected onto the photocathode of an electronic image converter tube. While the electronic shutter or gating grid of the tube is pulsed, the output image on the fluorescent screen thereof is deflected synchronously at high speed across an optical slit. As each component of the spectrum passes across the slit, a signal representing the light intensity of that spectral component is generated and recorded.

ERRATUM

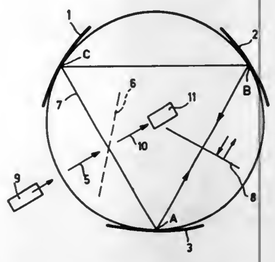
For Class 356—106 see:
Patent No. 3,547,524

3,547,543

DEVICE FOR MEASURING THE REFLECTION COEFFICIENT, THE DIELECTRIC CONSTANT OR THE THICKNESS OF FOILS OR PLATES

Günter Schulten, Wedel, Germany, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 7, 1967, Ser. No. 681,455
Claims priority, application Germany, Nov. 26, 1966, P 40,885
Int. Cl. G01b 9/02
U.S. Cl. 356—108 9 Claims



A device for measuring the dielectric constant or the thickness of a sheet of dielectric material comprises a microwave ring resonator including at least three mirrors relatively disposed so as to set up a circulating electromagnetic wave within the resonator. Microwave energy is coupled into the ring resonator by means of a semi-transparent mirror. The sheet of dielectric material is placed in the ring resonator perpendicular to the energy propagation path thereby splitting the wave into two oscillation modes (CW and CCW) having different resonant frequencies. The difference between these two frequencies is a function of the reflection coefficient of the dielectric heat. Since the reflection coefficient is transformed directly into a frequency value, it can be measured with great accuracy by means of a simple detector circuit.

3,547,544

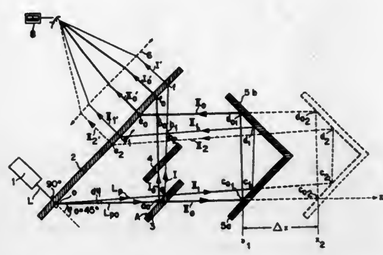
APPARATUS FOR MEASURING LENGTHS BY OPTICAL INTERFEROMETRY

Adolf Steinemann, Mollesulaz, Geneva, and Jack Ruefenacht, Lausanne, Switzerland, assignors to Societe Genevoise d'Instruments de Physique, Geneva, Switzerland

Filed Aug. 8, 1967, Ser. No. 659,165
Claims priority, application Switzerland, Aug. 9, 1966, 11,468/66
Int. Cl. G01b 9/02
U.S. Cl. 356—113 7 Claims

Briefly described, the apparatus comprises a device, such as a laser effect generator, for producing a main beam of collimated monochromatic high intensity light which is then refracted or diffracted. A semi-transparent mirror is arranged to receive this main beam at an angle of incidence of 45° for particular conditions of atmospheric temperature and pressure. When these conditions vary this angle of incidence will alter slightly since the refractive index of air depends upon the atmospheric conditions but the arrangement of the apparatus is such that these variations will not produce measurement errors. The semi-transparent mirror, which is fixed, divides the beam into two parts, the first being reflected and the second being transmitted. A mirror assembly comprising

two mirrors at right angles mounted on a carriage which is movable along a path in the direction of the main beam (at 45° to the fixed mirror) is arranged to receive this second, transmitted part, and reflect it back parallel to said path. A collimator is arranged to receive both first and second parts of the beam, the plane of collimation being parallel to the fixed mirror, and to transmit both parts normally to this plane. An optical system focuses both parts to a point where there are means for detecting and counting interference fingers.



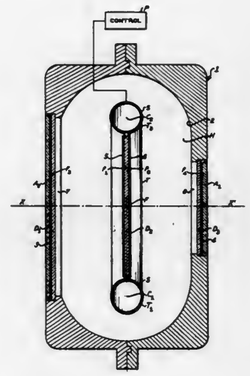
For measuring, the movable mirror assembly is shifted through the distance to be measured and it follows that, while the first reflected part of the beam remains constant in length, the path of the second transmitted part lengthens (or shortens) as the mirror assembly moves and the interference fringes can be counted as they appear at the focal point of the optical system. The number of fringes counted is proportional to the distance traversed by the movable mirror assembly.

3,547,545

ANTIGLARE SYSTEM AND METHOD

Constant Wippler, Epinay-sur-Orge, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, Hauts-de-Seine, France

Filed May 11, 1965, Ser. No. 455,670
Int. Cl. G02c 7/10; G02f 1/36
U.S. Cl. 350—160 5 Claims



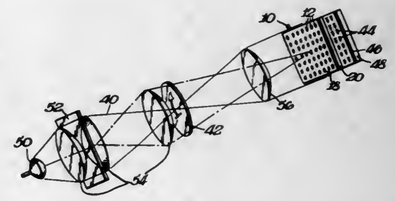
1. An antiglare system comprising, in sequence, first, second and third discs defining a common optical axis and including photochrome surface layers having optical densities responsive to electromagnetic radiations, said discs each having two faces, said first and third discs being the outer of the discs and said second disc being the central of the discs and including photochrome surface layers on both faces thereof whereas said first and third discs include photochrome surfaces on only one of the respective faces thereof, a case provided with an internal chamber within which said second disc is accommodated and with ports opening into said chamber and in which said first and third discs are accommodated and supported, said case having an internal reflective surface bounding said chamber, a toroidal radiation means encircling and coaxial with said central disc, and means coupled to said radiation means to operate the latter to excite said photochrome layers.

3,547,546

MULTIPLE IMAGE FORMING DEVICE

Hans Schier, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed May 4, 1966, Ser. No. 547,558
Int. Cl. G02b 5/18
U.S. Cl. 350—162 18 Claims



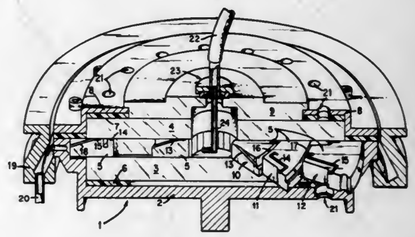
An image forming array is provided by a zone plate matrix having a plurality of zone plates in a side by side arrangement with opaque material in registration with the spacing between zone plates.

3,547,547

ANALYTICAL PHOTOMETER WITH MEANS FOR MEASURING, HOLDING AND TRANSFERRING DISCRETE LIQUID VOLUMES AND METHOD OF USE THEREOF

Norman G. Anderson, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

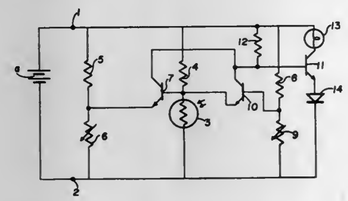
Filed Mar. 13, 1969, Ser. No. 806,920
Int. Cl. G01n 1/10, 21/24
U.S. Cl. 356—197 11 Claims



An analytical photometer is provided for simultaneously determining the presence of a common substance in a multiplicity of discrete samples. Three sets of cavities are disposed in concentric annular arrays in a disc which is adapted to rotate about its central axis. The radially

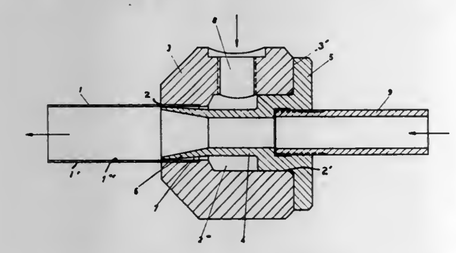
outermost set of cavities constitutes a rotary cuvette system. Each cavity is provided with siphon means for liquid removal and transfer to cavities in sets located further outward radially, or to a collecting trough in the case of the radially outermost cavity set. Air pressure applied through a central opening and/or vacuum applied through the collection trough is used to activate the siphon means to effect liquid transfer from the cavities. A method is described for loading, measuring, mixing and unloading liquids in the cavities under dynamic conditions.

3,547,548
PHOTOELECTRONIC SWITCHING AMPLIFIER
Michael Reich, Stuttgart-Wangen, Germany, assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed July 30, 1968, Ser. No. 748,795
Claims priority, application Germany, Dec. 1, 1967, 1,537,630
Int. Cl. G01j *1/44*
U.S. Cl. 356—226 **2 Claims**



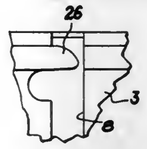
A photoelectronic switching amplifier which controls a signal in a photographic camera equipped with a semi-automatic exposure control system in which the signal is visible in the viewfinder.

3,547,549
FLOW-THROUGH ANALYSIS CELL
Heinz Engelhardt, Frankfurt am Main, Germany, assignor to Hartmann and Braun Aktiengesellschaft, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 15, 1968, Ser. No. 776,122
Claims priority, application Germany, Nov. 24, 1967, 1,648,931
Int. Cl. G01n *1/10*
U.S. Cl. 356—246 **5 Claims**



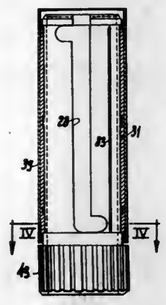
A flow-through analysis cell wherein analysis fluid flowing through a transparent tube is analyzed by radiation selectively absorbed by the fluid. Means are provided to enable a sheath-shaped stream of indifferent fluid to flow in like direction with the analysis fluid but between the latter and the walls of the transparent tube to minimize deposits from the analysis fluid on the tube walls and promote clarity of the tube.

3,547,550
HOLDERS FOR STICKS OF PASTY MATERIAL
Ralph Gruska, Saint-Maur, France, assignor to Ejectoret S.A., Geneva, Switzerland
Filed June 3, 1968, Ser. No. 749,524
Claims priority, application France, June 2, 1967, 108,852
Int. Cl. A45d *40/06*
U.S. Cl. 401—78 **7 Claims**



A holder for a stick of pasty material such as cosmetics, make-up and the like having a pair of relatively rotatable coaxial sleeves and tongue means extending across the slot in the inner sleeve adjacent an end of the slot, a symmetrical outer sleeve and a symmetrical stick support to facilitate automatic assembly.

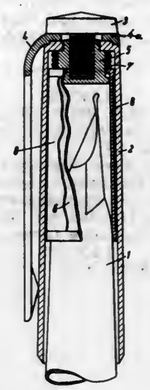
3,547,551
HOLDERS FOR PROTECTING STICKS OF PASTY MATERIALS
Ralph Gruska, Saint-Maur, Val-de-Marne, France, assignor to Ejectoret S.A., Geneva, Switzerland, a body corporate of Switzerland
Filed July 10, 1968, Ser. No. 743,664
Claims priority, application France, July 12, 1967, 114,026
Int. Cl. A45d *40/00, 40/12*
U.S. Cl. 401—78 **3 Claims**



A holder for sticks of pasty materials such as cosmetics and the like, having a pair of relatively rotatable sleeves, and a rib on one sleeve in frictional engagement with the other sleeve for restraining spontaneous movement of the sleeves with respect to each other.

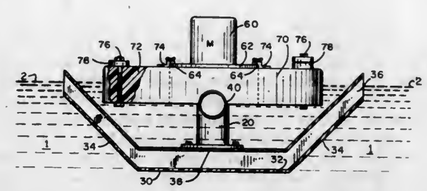
3,547,552
PROTECTIVE CAP FOR WRITING INSTRUMENTS
Jürgen Rosler, Hamburg-Blankenese, Germany, assignor to Montblanc-Simplo G.m.b.H., Hamburg, Germany
Filed Aug. 29, 1968, Ser. No. 756,148
Claims priority, application Germany, Sept. 6, 1967, 1,561,847
Int. Cl. B43k *9/00*
U.S. Cl. 401—243 **8 Claims**

For use in connection with a writing instrument having a shank with a pen comprising a writing point, a protective cap of a material with a relatively low heat coductivity, said cap having an internal layer of a material



with a high heat conductiyity for substantially equalizing the temperature of said cap.

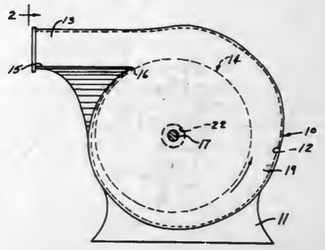
3,547,553
FLOATING SURFACE SKIMMER
Howard E. Stanfield, Tulsa, Okla., assignor to Acme Products Incorporated, a corporation of Nevada
Filed Dec. 30, 1968, Ser. No. 787,823
Int. Cl. F04d *13/02*
U.S. Cl. 415—7 **4 Claims**



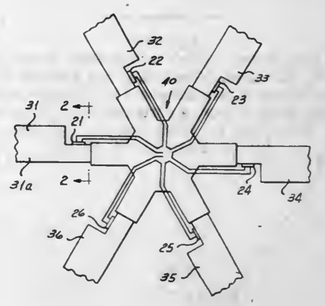
A floating pump assembly having intake scoops drawing from the surface layer only of a body or pool of liquid, and an exhaust outlet and hose for directing the removed layer to some other place than that of the body or pool of liquid itself.

3,547,554
CENTRIFUGAL PUMP
Russell J. Willette, 718 E. Spruce St., Sault Sainte Marie, Mich. 49783
Filed Apr. 7, 1969, Ser. No. 814,113
Int. Cl. F04d *1/00, 29/18*
U.S. Cl. 415—213 **13 Claims**

An impeller for a centrifugal pump having a plurality of radially disposed fluid pressure creating passageways, with the leading edge of each of the trailing faces of the pressure passageways commencing at tangent points on the circumference of the inlet or intake opening, and with the outer portion of the trailing face of the pressure passageways being straight and extended radially outward. Each of the pressure passageways discharges into a pressure chamber and thence into an outlet or discharge passage which angles rearwardly from a radius line, relative to the direction of rotation of the impeller. The inlet port of the discharge passage is disposed forwardly in the direction of rotation of the impeller relative to the exit port of the discharge passage.



3,547,555
ROTOR BLADE PRESSURE SENSING SYSTEM
Harry T. Jensen, Milford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Mar. 5, 1969, Ser. No. 804,448
Int. Cl. B64c *27/32*
U.S. Cl. 416—61 **9 Claims**

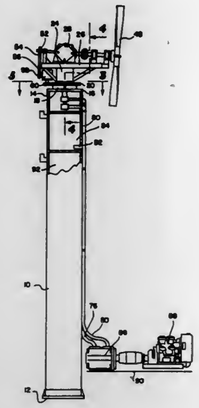


A pressure sensing system for helicopter rotor blades comprises a plurality of spar pressure transducers which are each connected to the secondary winding of a rotary transformer positioned at the lower end of the rotor drive shaft. Loss in spar pressure of any rotor blade changes the loading of the secondary winding; and the resultant change in impedance reflected into the primary winding is used to actuate appropriate cockpit signalling devices indicating to the pilot the existence of a potential hazard.

3,547,556
HYDRAULICALLY DRIVEN WIND MACHINE
Charles I. Keene, Phoenix, Ariz., assignor to Herman P. Smith, Holtville, Calif.
Filed Dec. 23, 1968, Ser. No. 786,045
Int. Cl. B64c *27/12*
U.S. Cl. 416—110 **4 Claims**

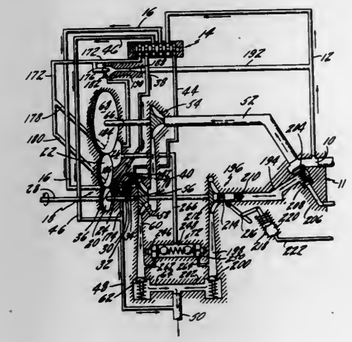
A hydraulically driven wind machine comprising a hollow stand having a platform rotatably mounted thereon; a hydraulic motor provided with a first gear box coupled to and driving an air impeller and a second gear box which is provided with a pinion engaging a ring gear

stationarily mounted on said stand to rotate said platform about a substantially vertical axis, and a pair of concentric hollow tubular members provided with slip



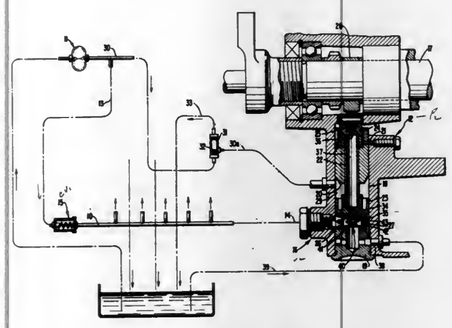
ring couplings for delivering fluid to and from said hydraulic motor and an engine driven pump communicating with said slip ring couplings.

3,547,557
FLUID PUMP AND DELIVERY SYSTEM
Charles W. Grennan, Newington, and Richard J. Hearn, New Hartford, Conn., assignors to Chandler Evans Inc., West Hartford, Conn., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,293
Int. Cl. F04b *23/14, 49/00*
U.S. Cl. 417—89 **27 Claims**



A fuel pump and delivery system for gas turbine engines is disclosed having a plurality of interrelated pumping circuits to meet the engine fuel requirements over the entire range of engine operation. The system has three distinct but interrelated circuits for (1) start-up and low-speed operating requirements, (2) normal operating requirements above engine idle speed, and (3) high altitude cruise requirements. A positive displacement gear pump functions in the low speed and start-up circuit to provide the necessary dry lift and high pressure, and after the start-up requirements have been met, this part of the displacement gear pump is unloaded to terminate its pumping action, but the gear train is employed to drive selectively operative centrifugal pumps of different capacities suitable to meet the engine fuel requirements for either normal operations or for high altitude cruise.

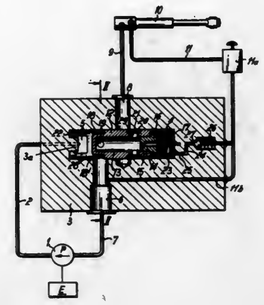
3,547,558
INSTALLATION FOR THE PRESSURE MEDIUM SUPPLY OF AN AUTOMATIC MOTOR VEHICLE TRANSMISSION
Josef Helmer, Aich, Kreis Nurtingen, and Ulrich Eltze, Esslingen-Serach, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed May 31, 1968, Ser. No. 733,361
Claims priority, application Germany, June 2, 1967, 1,630,295
Int. Cl. F04b *15/00, 23/04, 49/00*
U.S. Cl. 417—199 **29 Claims**



An installation for the pressure medium supply of an automatic motor vehicle change-speed transmission controlled by a pressure medium, which includes a primary pump driven by the engine and a second pump driven by the output shaft of the transmission, both supplying pressure medium to the common pressure medium circulation by way of check valves, and in which the secondary pump is disconnected from the transmission output shaft in dependence on the output pressure at the primary pump.

3,547,559
FLUID FLOW CONTROL SYSTEM
Egon Tittmann, Leonberg, Germany, assignor to Robert Bosch, G.m.b.H., Stuttgart, Germany
Filed Dec. 16, 1968, Ser. No. 784,133
Claims priority, application Germany, Jan. 17, 1968, 1,675,496
Int. Cl. F04b *39/00, 49/00*
U.S. Cl. 417—279 **16 Claims**

A control valve which regulates the flow of fluid from an engine-driven variable-delivery pump to the cylinder of the steering booster in an automotive vehicle. The plunger of the control valve reciprocates in a cylinder which is provided with an inlet opening for reception of fluid from the pump, an outlet opening which admits fluid to the booster cylinder, and a bypass opening which can return fluid from the inlet opening directly to the suction side of the pump when the pump speed rises above that which corresponds to idling speed of the engine. The flow of fluid from the inlet opening to the outlet opening takes place through a passage provided in the plunger and including one or more metering orifices whose angular position with reference to the bypass can be changed to thus insure that the rate of fluid delivery to the booster cylinder in response to increasing pump speed can remain constant



or rises or descreases, depending on the selected angular position of the metering orifice or orifices.

3,547,560
INJECTOR PUMP APPARATUS
Carl A. Miller, St. Paul, Minn., assignor to Economics Laboratory, Inc., St. Paul, Minn., a corporation of Delaware
Filed Mar. 5, 1969, Ser. No. 804,428
Int. Cl. F04b *17/00*
U.S. Cl. 417—375 **7 Claims**

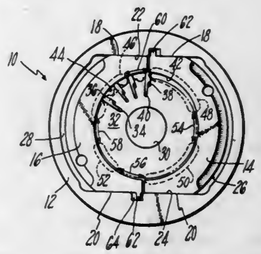
A body defining therein a generally cylindrical, elongated chamber with a portion adjacent one end having a cross-sectional area substantially smaller than a portion adjacent the opposite end, a dual-acting piston mounted therein for reciprocal movement with rolling diaphragms affixed between the ends of the piston and the walls of the chamber to form fluid tight compartments between the end faces of the piston and the ends of the chamber, a spring biasing said piston toward the end of the chamber having the larger cross-sectional area, a first passageway through said body in communication with the compartment having the larger cross-sectional area, a second passageway through said body in communication with the compartment having the smaller cross-sectional area and a third passageway through said body in communication with the compartment having the smaller cross-sectional area containing a check valve for allowing a flow of fluid only into the compartment. Connecting the first passageway to a common conduit having a flow of pressurized fluid therein produces a differential pressure across the piston causing it to move against the bias, toward the end of the chamber having the smaller cross-sectional area, and inject into the conduit fluid contained in the smaller end of the chamber. Removing or reducing the pressure on the fluid in the conduit, sufficiently, allows the bias to return the piston to the normal position, whereupon, fluid to be injected into the conduit is drawn into the chamber through the third passageway.

3,547,561
COMPRESSOR VALVE DEVICES
Erik Volmar Lavon, Nacka, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden, a corporation of Sweden
Filed Dec. 3, 1968, Ser. No. 780,710
Int. Cl. F04b *39/10;* **F16k** *17/00*
U.S. Cl. 417—488 **17 Claims**



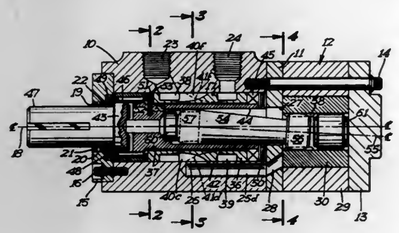
A compressor has a valve device for controlling flow of fluid into and from the working chamber of the compressor, said valve device comprising a thin annular disk having a first annular portion forming an inlet valve, a second annular portion forming an outlet valve, and an annular intermediate portion which separates said first and second annular portions. The intermedate portion of the valve disk is fixed in the casing. The valve disk is resilient and bends under the pressure of the working fluid to open inlet and outlet ports, respectively, for the working fluid.

3,547,562
VARIABLE DISPLACEMENT VANE PUMP
John E. Cygnor, Middletown, Conn., assignor to Chandler Evans Inc., West Hartford, Conn., a corporation of Delaware
Filed Feb. 4, 1969, Ser. No. 796,422
Int. Cl. F04c *15/04, 1/00*
U.S. Cl. 418—31 **7 Claims**



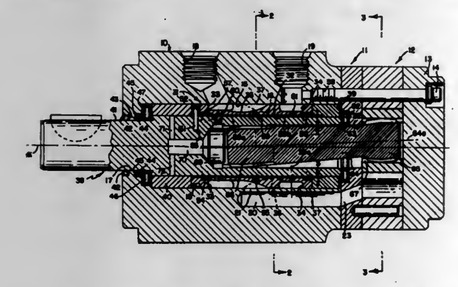
A variable displacement vane pump is presented in which the seal blocks are movable to control pump operation. The pump is double acting in that it has two pairs of opposed fluid inlets and discharges to minimize bearing loads. The seal blocks are appropriately contoured to provide desired vane displacement for pumping and also to provide the necessary sealing to accomplish the double acting operation.

3,547,563
FLUID OPERATED MOTOR
Lynn L. Charlson, St. Louis Park, Minn., assignor to Germane Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Dec. 31, 1968, Ser. No. 788,274
Int. Cl. F01c 1/04
U.S. Cl. 418—61 4 Claims



A reversible fluid operated motor of the axial valve type, wherein the valve is driven by the output shaft, but takes its alignment from the housing, wherein the output shaft is supported in the housing independent of the valve, and wherein the valve is timeable providing optimum operation in a predetermined direction of shaft rotation.

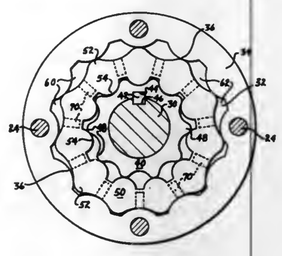
3,547,564
FLUID OPERATED MOTOR
Lynn L. Charlson, St. Louis Park, Minn., assignor to Germane Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Dec. 31, 1968, Ser. No. 788,284
Int. Cl. F01c 1/04
U.S. Cl. 418—61 9 Claims



A fluid operated motor of the axial valve type wherein the shaft and valve are separate and concentric and wherein the valve mates with and takes its alignment from the housing and is pressure balanced thereby providing optimum efficiency at high operating pressures.

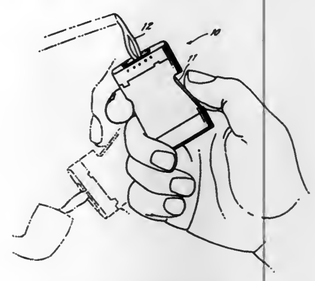
3,547,565
ROTARY DEVICE
Robert T. Eddy, South Bend, Ind., assignor to Reliance Electric Company, Mishawaka, Ind., a corporation of Delaware
Original application July 21, 1967, Ser. No. 655,036, now Patent No. 3,456,559, dated July 22, 1969. Divided and this application Apr. 7, 1969, Ser. No. 822,810
Int. Cl. F04c 1/06
U.S. Cl. 103—126 10 Claims

A motor or pump device including a housing with fluid inlet and outlet passages, a stator and a rotor in the housing radially arranged with respect to one another, and a plurality of fluid pressure chambers varied in capacity in response to the relative rotation between the rotor and stator. The device includes a fluid system having inlet and



outlet passages, and a port means communicating with the chambers and having holes arranged annularly along the side of the stator and rotor and connecting the holes alternately to the inlet and outlet passages.

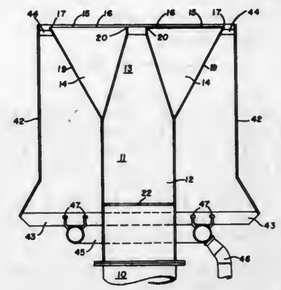
3,547,566
LIGHTER WITH GRAVITY ORIENTED SAFETY
Bernard J. Tamarin, Philadelphia, Pa., assignor of one-third to Charles A. McClure, Malvern, Pa., and one-third to Morris Cutler, Philadelphia, Pa.
Continuation-in-part of application Ser. No. 604,981, Dec. 27, 1966. This application May 12, 1969, Ser. No. 823,827
Int. Cl. F23n 5/24
U.S. Cl. 431—88 12 Claims



A portable lighter is provided with safety means to render lighting more difficult or even impossible when the lighter is inverted instead of upright. The safety means includes an object subject to gravity-induced change in location along a path of constraint between positions in which the actuating trigger for the spark means and/or fuel valve means is free to operate and alternatively is hindered partially or entirely from operating.

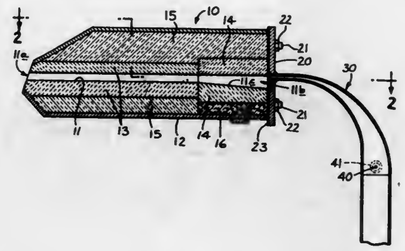
3,547,567
FLARE STACK COMBUSTION TIP
Alexander J. Turpin, Lebanon, Pa., assignor to Smoke-Ban Manufacturing Incorporated, Pasadena, Tex., a corporation of Texas
Filed July 22, 1968, Ser. No. 754,135
Int. Cl. F23b 5/00
U.S. Cl. 431—202 10 Claims

A flare stack combustion tip having a centrally disposed gas conduit having an opening in the lower end thereof for communication with a flare stack and the upper end thereof being at least partially closed, a plurality of spaced apart gas conducting channels extending outward from said gas conduit and in open communication along one end thereof with said gas conduit, and a gas emission orifice in an upper segment of each of said gas conducting



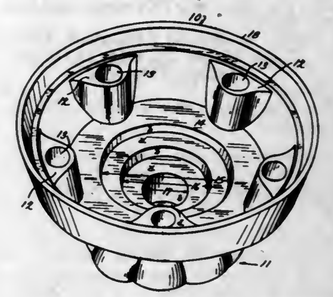
channels and extending substantially the entire length of said upper segment, said gas emission orifices being disposed radially with respect to the axis of said gas conduit.

3,547,568
BURNER APPARATUS FOR PRODUCING GLASS FIBERS
Donald E. Shisler, Napoleon, Ohio, assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Apr. 12, 1968, Ser. No. 720,915
Int. Cl. F23r 1/00
U.S. Cl. 431—158 13 Claims



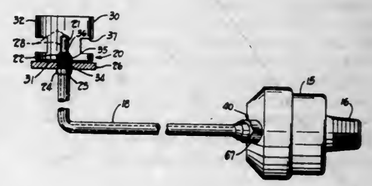
An improved burner apparatus and method for use in the flame attenuation of glass filaments. The burner includes a refractory combustion tunnel having laterally elongated inlet and outlet openings for generating a relatively wide and flat hot gaseous blast of high temperature and high velocity for attenuating glass filaments. A thermally conductive orifice plate having a laterally elongated and vertically restricted orifice is positioned adjacent the inlet end of the tunnel and functions to pass a combustible gas mixture into the tunnel. The orifice has a width similar to that of the tunnel, but the height of the orifice is substantially smaller than the height of the tunnel. A plenum unit is located between the conduit through which the combustible gas mixture is supplied and the orifice and acts on the combustible gas mixture as it moves toward the orifice so that the combustible gas mixture as it moves through the orifice is distributed uniformly throughout the lateral and vertical extent of the orifice and is substantially free of all eddies and turbulence. This construction provides relatively high gas velocity over a wide range of flow rates with relatively low back pressure upstream of the tunnel inlet and without any flashback problem.

3,547,569
CANDLE BOWL
Wilmer C. Fenton and Anthony J. Rosena, Williamstown, W. Va., assignors to The Fenton Art Glass Company, Williamstown, W. Va., a corporation of West Virginia
Filed Dec. 11, 1968, Ser. No. 782,932
Int. Cl. F23d 3/16
U.S. Cl. 431—295 5 Claims



A single piece decorative structure for containing candles, flowers and other articles, having one or mo re projections defining upwardly opening annular recesses located on its perimeter, and one or more upwardly opening stepped annular recesses located in the bottom of the bowl.

3,547,570
PILOT LIGHT STRUCTURE
Albert J. Balon, 9717 Greenhaven Parkway, Brecksville, Ohio 44141
Application Dec. 20, 1967, Ser. No. 692,061, which is a division of application Ser. No. 501,545, Oct. 22, 1965. Divided and this application July 30, 1969, Ser. No. 846,049
Int. Cl. A01n 9/30; A61k 13/00, 27/00; A61l 13/00
U.S. Cl. 431—350 7 Claims

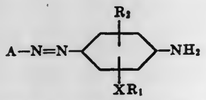


A pilot light, valve and tube assembly for a gas stove including a valve and connector and a pilot light interconnected by a tube having at least one orifice at the pilot light, a shoulder on the tube, threads on the tube intermediate the shoulder and orifice, a housing having a base and side wall, a threaded opening in the base for engaging the tube threads and an aperture in the housing side wall having a portion nearer the shoulder than the tube orifice, the valve and connector including a fitting having a hollow interior with an open end within which the tube is disposed with a close sliding fit, a circular flange extending along and having a greater diameter than the tube and bent into biting engagement with the tube, and a relief adjacent the engagement of the flange and tube which is filled with a sealant.

CHEMICAL

3,547,571
LINEAR POLYESTER FIBER DYED WITH WATER-INSOLUBLE AZO DYESTUFFS
Hansjoerg Angliker, Basel, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Continuation-in-part of application Ser. No. 603,135, Dec. 20, 1966. This application Feb. 5, 1969, Ser. No. 796,883
Claims priority, application Switzerland, Dec. 24, 1965, 17,811/65; Oct. 28, 1966, 15,710/66
Int. Cl. D06p *1/18*
U.S. Cl. 8—41 **10 Claims**

Polyester fiber dyed with a water-insoluble azo dyestuff of the formula



in which A represents the non-fiber-reactive radical of an aromatic or heterocyclic diazo component, X represents an oxygen or a sulphur atom or a direct bond, R_1 represents a cycloalkyl, aryl or aralkyl residue, R_2 represents a hydrogen atom, an alkyl or alkoxy group or the residue XR_1.

3,547,572
PASTE AND POWDERS OF ACIDIFIED METALLIZED AZO AND TRIPHENYLMETHANE DYES HAVING AN AVERAGE PARTICLE SIZE NO GREATER THAN FIVE MICRONS AND PRODUCTION THEREOF
Françoise Marie Germaine Lunet, Georges Kopp, and René Raymond Julien Vittecoq, Seine Maritime, and Jacques Pierre Laneres, Armentieres, France, assignors to Ugine Kuhlmann, Paris, France
No Drawing. Continuation-in-part of application Ser. No. 380,079, July 2, 1964. This application Sept. 22, 1969, Ser. No. 860,056
Claims priority, application France, July 8, 1963, 940,675
Int. Cl. C09b *45/00*
U.S. Cl. 8—42 **16 Claims**

The present invention provides aqueous pastes of chrome dyestuffs consisting of water, an anionic dispersing agent, and a dyestuff selected from the group consisting of sulfonated, sulfocarboxylated and polycarboxylated azo chrome dyestuffs, and sulfonated, sulfocarboxylated and polycarboxylated chrome dyestuffs of the triphenylmethane series which dyestuff is water insoluble in cold water in and acid pH region, but is water soluble in hot water, the paste being acidic so that the dyestuff is insoluble in water at room temperature and their particles having an average size not greater than 5 microns.

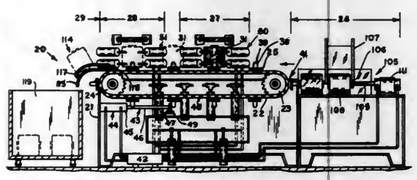
3,547,573
PROCESS FOR THE BLEACHING OF TEXTILES
Jacques Tourdot, Paris, and Jean Breiss, Garches, France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France, and Societe d'Etudes Chimiques pour l'Industrie et l'Agriculture, Paris, France, both corporations of France
Continuation-in-part of application Ser. No. 597,879, Nov. 30, 1966. This application Mar. 12, 1969, Ser. No. 806,553
Claims priority, application France, Nov. 29, 1968, 176,069
Int. Cl. D06l *3/08*
U.S. Cl. 8—108 **12 Claims**

A process for bleaching textiles containing cellulose fibers and utilizing an alkali or alkaline-earth chlorite, wherein the chlorite bath also contains an alkali or alkaline-earth bromite to which may be added a small quantity of ammonium nitrate.

3,547,574
DICYCLOPENTADIENE DICARBOXYLIC ACID-CROSS-LINKED CELLULOSIC TEXTILES WHICH MAY BE DURABLY CREASED OR UNCREASED DUE TO CHEMICAL BOND REFORMATION UNDER HEATING CONDITIONS
William E. Franklin, Charles H. Mack, and Stanley P. Rowland, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Sept. 13, 1968, Ser. No. 759,792
Int. Cl. D06m *13/20, 13/22;* **C08b** *13/12*
U.S. Cl. 8—120 **2 Claims**

A cellulosic textile material is reacted with a difunctional dicyclopentadiene wherein the functional groups are any cellulose reactive groups to produce a material which may be durably set in a given configuration under heating conditions.

3,547,575
APPARATUS AND METHOD FOR FLUID INJECTION OF YARN PACKAGES
Peter Theodores, Dudley, Mass., assignor to Ames Textile Corporation, Lowell, Mass., a corporation of Massachusetts
Filed Aug. 30, 1968, Ser. No. 756,452
Int. Cl. B05c *8/02*
U.S. Cl. 8—149.1 **13 Claims**

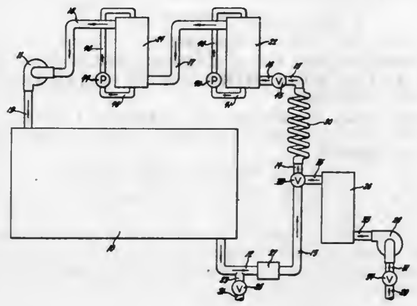


Automatic apparatus for conveying yarn packages individually and successively along a path, halting each package at a treatment station, simultaneously penetrating the package with a plurality of injection elements and discharging fluid from the elements into the yarn package. The elements may be supplied with predetermined charges of dyes of different colors for random dyeing or may be supplied with steam to set the dyes previously injected into the package.

3,547,576
AIR STERILIZATION PROCESS
Morris I. Sheikh, 803 Canterbury Crescent, Bloomfield Hills, Mich. 48013
Filed Feb. 26, 1968, Ser. No. 708,183
Int. Cl. A61l *9/02, 9/04;* **F24f** *3/16*
U.S. Cl. 21—53 **8 Claims**

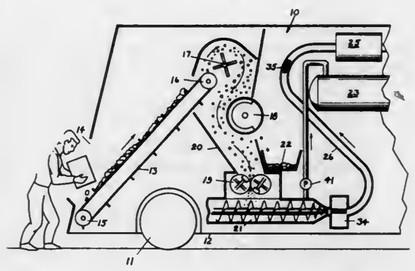
An air sterilization process for killing bacterial organisms in air comprising exposing iodine crystals to a current of air whereby iodine is volatilized and incorporated into such air, mixing such iodine laden air with air to be sterilized so as to kill the bacterial organisms therein, and thereafter washing said air mixture with an iodine holding

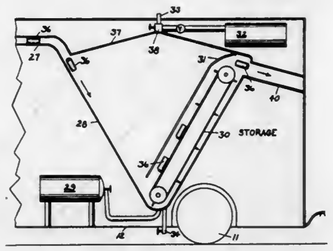
liquid which captures the iodine in said air mixture and holds it in liquid form against evaporation so as to remove



the iodine therefrom, whereby to produce sterilized air free of bacterial organisms and of iodine.

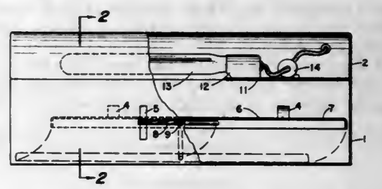
3,547,577
REFUSE STERILIZATION SYSTEM
Charles L. Lovercheck, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa., a corporation of Pennsylvania
Filed Nov. 12, 1968, Ser. No. 775,092
Int. Cl. A61l *11/00, 3/00;* **B30b** *9/00*
U.S. Cl. 21—61 **2 Claims**





A machine for treating material such as trash, garbage, domestic refuse and the like, wherein the material is disintegrated, compressed and sterilized. As an alternative, the material may be packaged in bags made of semi-permeable material before it is sterilized. The sterilizing is carried out by means of gas, such as ethylene oxide. The entire device is portable.

3,547,578
BARBER TOOL STERILIZER
Byron C. Eppler, 1318 S. Cherry, Ada, Okla. 74820
Filed May 10, 1968, Ser. No. 728,276
Int. Cl. A61l *7/00*
U.S. Cl. 21—87 **3 Claims**



A container for sterilizing barber implements, provided with a pivoted tray lift and tilt-actuated sterilizing lamp means in the container lid.

3,547,579
REMOVAL OF SULFATES FROM BRINES
William Pechenick, Lafayette Hill, and Gideon P. Gelblum, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Interior
Filed Dec. 19, 1967, Ser. No. 691,780
Int. Cl. C01d *1/04, 7/12*
U.S. Cl. 23—38 **13 Claims**

An improved method for the removal of sulfates from brines is presented. It involves contacting the brine with an ion-exchange resin in the barium form thereby precipitating the sulfates as barium sulfate and converting the resin to an alternate metal form. The precipitated barium sulfate is reduced to barium sulfide which is then leached with water to form an equimolar solution containing barium hydroxide and barium hydrosulfide. Barium hydroxide is separated from this solution by an evaporative concentration. A solution of barium hydroxide and the remaining barium hydrosulfide are separately used to regenerate the spent resin to the barium form. Sodium hydroxide and sodium hydrosulfide solutions resulting from resin regeneration are then used to produce valuable by-products. The process may be used to remove sulfates from brines prior to a saline water conversion step.

3,547,580
PEROXYDIPHOSPHATE COMPOUNDS
Bernard Cohen, Trenton, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Aug. 28, 1968, Ser. No. 755,811
Int. Cl. C01b *15/16*
U.S. Cl. 23—106 **4 Claims**

A new class of peroxydiphosphate compounds containing mixed cations has been found which is defined by the formula $M_mN_{4-(m+n)}H_nP_2O_8$ where M and N are each selected from the class of cations of Na^+, K^+, Li^+ or NH_4^+, but where M is not the same cation as N, and where m is an integer of 1 to 3 and n is an integer of 0 or 2.

3,547,581
PROCESS FOR REMOVING FLUORINE AND PHOSPHATE FROM GYPSUM PRODUCED IN THE MANUFACTURE OF PHOSPHORIC ACID

Wolfgang Gauster, Linz (Danube), Walter Müller, Leonding, near Linz (Danube), and Ferdinand Weinrotter, Linz (Danube), Austria, assignors to Osterreichische Stickstoffwerke Aktiengesellschaft, Linz (Danube), Austria

No Drawing. Filed Apr. 2, 1968, Ser. No. 718,217
Claims priority, application Austria, Apr. 7, 1967, 3,306/67
Int. Cl. C01f *11/46*
U.S. Cl. 23—122 3 Claims

A working-up of the gypsum produced in the manufacture of phosphoric acid by the reaction of crude phosphate with sulphuric acid in order to obtain a gypsum free from fluorine and phosphate. The moist filtered gypsum is mixed with silica and sulphuric acid and heated to a temperature of 200° to 400° C., washed with water after cooling and then the anhydrite is separated from the water.

3,547,582
METHOD FOR MANUFACTURE OF HIGH PURITY IRON OXIDE POWDER

Kiichi Arakawa, Tokyo, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

No Drawing. Filed Aug. 30, 1966, Ser. No. 575,984
Int. Cl. C01g *49/02*; C07d *107/00*; C21b *1/00*
U.S. Cl. 23—200 3 Claims

Process for producing high purity ion oxide powder by decomposition of a β-dicarbonyl iron chelate or β-keto-amino iron chelate in hydrazine hydrate or anhydrous hydrazine. The resultant iron oxide powder is reduced and then treated by the floating zone melting method.

3,547,583
PROCESS FOR THE ENTRAPMENT OF SULFUR DIOXIDE GAS

Harold W. Wilson, El Paso, Tex., assignor to The Golden Cycle Corporation, a corporation of West Virginia

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,848
Int. Cl. C01b *17/04*
U.S. Cl. 23—205 15 Claims

Sulfur dioxide gas, or waste gases containing sulfur dioxide gas in combination with other gases or gaseous substances, water vapor, acidic vapors containing sulfur such as sulfurous and sulfuric acids, and particulate solid or vaporous sulfur, and particulate solid matter, all in combination as "waste stack gases" is passed into an aqueous system in which finely divided metallic oxides and metallic silicates are held in suspension.

3,547,584
GRAPHITIZATION OF FIBROUS POLYAMIDE RESINOUS MATERIALS

Joseph G. Santangelo, Morristown, N.J., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,174
Int. Cl. C01b *31/07, 31/04*
U.S. Cl. 23—209.1 8 Claims

Fibrous polyamide resinous materials are converted to graphite fibers having a configuration essentially identical to that of the polyamide starting material by thermal treatment. The fibrous graphite produced according to the invention possesses highly desirable physical properties, and is particularly suited for use as a fire resistant smokeless reinforcing medium for incorporation in a binder to form a composite article.

3,547,585
COMBINATION OF A HYDROCARBON CONVERSION PROCESS WITH A WASTE WATER TREATING PROCESS

Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Nov. 26, 1968, Ser. No. 778,970
Int. Cl. C01b *17/04*; C10g *31/08*
U.S. Cl. 23—224 10 Claims

Hydrocarbons containing sulfurous and nitrogenous contaminants are catalytically converted and the contaminants removed by a two step water wash. The aqueous solution is treated for recovery of sulfur and the water recycled.

3,547,586
INORGANIC PHOSPHATE ASSAY, AND REAGENTS THEREFOR

Jerry W. Denney, Greenwood, Ind. (45 Thornhurst Drive, Carmel, Ind. 46032), and Larry W. Denney, 1150 Chessington Drive, Indianapolis, Ind. 46260

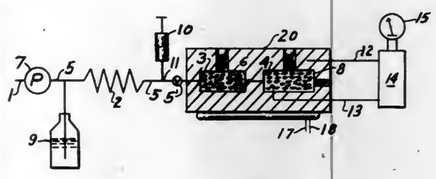
No Drawing. Filed June 5, 1967, Ser. No. 643,363
Int. Cl. G01n *21/06, 21/20*
U.S. Cl. 23—230 23 Claims

An assay for quantitative determination of inorganic phosphorus. From the procedure standpoint, it is a two-step process, using polyvinylpyrrolidone to speed up the formation of the yellowish phospho-molybdate, and, after converting to an alkaline pH, uses hydroxylamine to reduce that complex to a bluish complex to be measured; although both the polyvinylpyrrolidone and the hydroxylamine are in a single reagent which is mixed with the sample.

3,547,587
MEANS AND METHODS OF RAPID GAS ANALYSIS

William B. Innes, 724 Kilbourne Drive, Upland, Calif. 91786

Continuation-in-part of application Ser. No. 538,503, Feb. 23, 1966. This application Aug. 7, 1967, Ser. No. 658,786
Int. Cl. G01n *33/22, 31/00*
U.S. Cl. 23—232 8 Claims

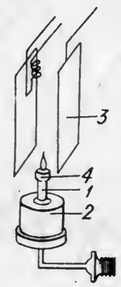


A system and process for determining the amount of a given constituent in a gas sample is disclosed. Air is passed through a reactive bed with discrete slugs of the sample gas added thereto at spaced intervals. The temperature rise in the bed is measured immediately adjacent the inlet to the bed. Temperature rises less than about 10° C. are directly related to the amount of the constituent in the sample.

3,547,588
GASCHROMATOGRAPHIC DETERMINATION OF MINUTE AMOUNT OF ORGANOPHOSPHORUS COMPOUNDS

Junshi Miyamoto, Sakai, and Yoshishige Sato, Takarazuka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed Jan. 7, 1969, Ser. No. 789,560
Claims priority, application Japan, Jan. 12, 1968, 43/1,770
Int. Cl. G01n *31/12*
U.S. Cl. 23—232 4 Claims

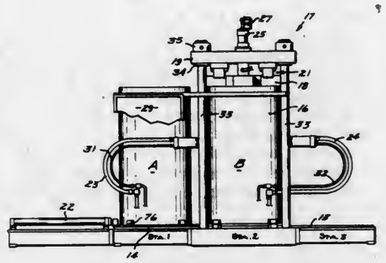


Gaschromatographic method and apparatus in which a thermal ion type hydrogen flame detector is characterized by using a single crystal body of a halide of an alkali metal or alkaline earth metal as an ion source.

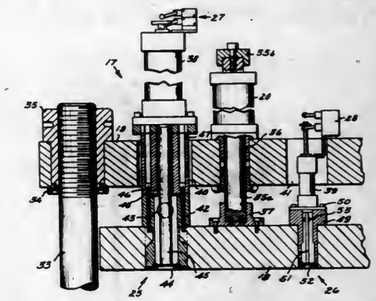
3,547,589
SHUTTLE TYPE PRESSURE VESSEL

Edwin E. Rice, Ann Arbor, and Warren A. Rice, Dexter, Mich., assignors to Chemotronics, Incorporated, Ann Arbor, Mich., a corporation of Michigan

Filed Dec. 14, 1967, Ser. No. 690,524
Int. Cl. B01j *3/02*
U.S. Cl. 23—252 7 Claims



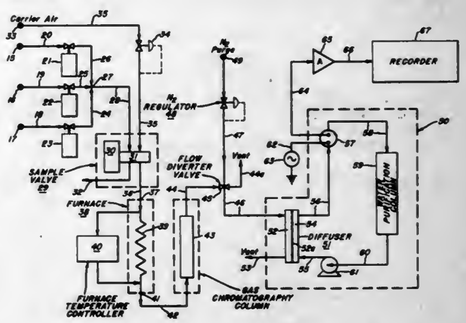
A pressure vessel structure for automating, loading, processing, and unloading in avoidance of process delay wherein at least a pair of pressure vessel elements are shuttled between a plurality of stations one of which is a closing, clamping and processing station. The invention includes an indexing means; the vessel adapted to process control at a single work station; the vessel closure and lock means separate from the vessel, and stock receiving means within the pressure vessel. The invention includes a device for automation of the process involving injection of an explosive mixture, purging sweep, ignition of the explosive mixture, and exhaust of spent gases from a reactor under the closed station location.



3,547,590
SULFUR DETECTING METHOD AND APPARATUS

Wendell P. Cropper, Lansing, and Sixt Frederick Kapff, Homewood, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill., a corporation of Indiana

Filed Dec. 26, 1967, Ser. No. 693,647
Int. Cl. G01n *27/10, 31/06, 31/12*
U.S. Cl. 23—253 9 Claims



An apparatus for detecting and measuring sulfur in a hydrocarbon sample from a desulfurizer or the like comprising, a combustion means, means for introducing the sample into the combustion means, means for separating sulfur dioxide from the products of the combustion means, means for transferring SO_2 to a water stream, and conductivity measuring means for determining the amount of sulfur contained in the sample.

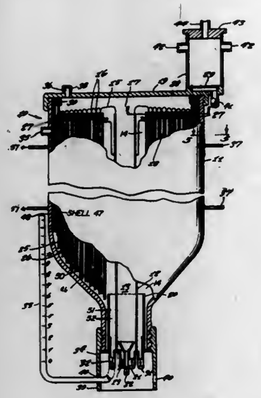
3,547,591
BUBBLE FILM OXYGENATOR

Jose C. Torres, 1423 Ridgeway Drive, Jeffersonville, Ind. 47130

Filed Oct. 16, 1968, Ser. No. 768,059
Int. Cl. A61m *1/03*
U.S. Cl. 23—258.5 8 Claims

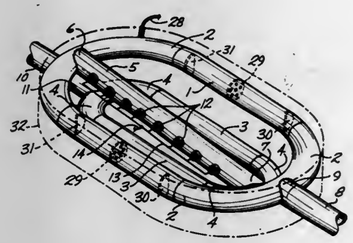
An oxygenator within an upright casing having a centrally disposed hollow stem, an intermediate surrounding shell and an outer casing wall providing three annular

upright concentric chambers, namely, a stem chamber, a surrounding chamber and an outer chamber wherein blood and oxygen flow upwardly through the stem chamber to overflow therefrom and spread annularly outward over a perforated head which directs the flow downwardly through and distributes it over a filming apparatus in the



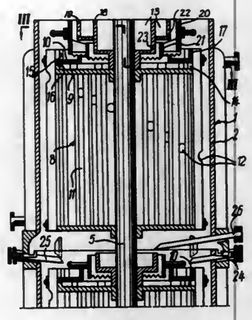
surrounding chamber, at the bottom of which the gas separates from the liquid and turns upwardly to flow through the outer chamber to a gas outlet while the liquid is drained downwardly inward toward the lower end portion of the stem and into a small stem-surrounding sump from which it is discharged through a filter and a bottom liquid outlet.

3,547,592
FUMES BURNER
Norman D. Gladu, 20228 53rd A Ave., and Gordon N. Gladu, 15065 Pheasent Drive, both of Langley, British Columbia, Canada
Filed May 31, 1967, Ser. No. 642,529
Int. Cl. F23g *7/06*
U.S. Cl. 23—277 **7 Claims**



Two elongated conduit loops are disposed in superposed nesting relationship. An inlet conduit is connected to one end of a first loop, and an outlet conduit is connected to the opposite end of the second loop. A straight conduit connects the end of the first conduit loop opposite the inlet conduit and the end of the second conduit loop opposite the outlet conduit. The first conduit loop contains mixing and muffling baffles. Ignitors of electric spark or gas flame type are mounted in the side of the straight connecting conduit to induce combustion of incompletely oxygenated components of the gas.

3,547,593
REACTOR FOR FLUID FILMS
Viktor Markovich Olevsky, Leningradsky prospekt 75-a, kv. 91, and Vitaly Rafael-Abovich Ruchinsky, Ulitsa Vavilova 34/4, korpus V, kv. 245, both of Moscow, U.S.S.R.
Filed Mar. 3, 1967, Ser. No. 620,372
Int. Cl. B01d *1/22*
U.S. Cl. 23—283 **3 Claims**



Within a cylindrical heat exchanger is arranged a rotor having one or more sleeves axially distributed and provided with longitudinally extending grooves in which openings are located. Fluids are distributed from plates into the grooves to be distributed through the openings onto the inner surface of the heat exchanger.

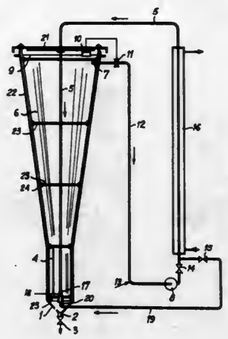
3,547,594
PROCESS FOR PRODUCING LOW THERMAL HYSTERESIS VANADIUM DIOXIDE
Robert O. Teeg, Grosse Pointe, and Robert W. Hallman, St. Clair Shores, Mich., assignors to Teeg Research, Inc., Detroit, Mich., a corporation of Delaware
Filed June 26, 1967, Ser. No. 648,712
Int. Cl. C01g *31/00*
U.S. Cl. 23—293 **4 Claims**

Vanadium dioxide in the form of crystals or thin film provided with a simple domain structure and exhibting a substantially reduced thermal hysteresis across its normal range of transition temperature. The low hysteresis vanadium dioxide is obtained by heat treatment of vanadium dioxide having conventional substantilly wide thermal hysteresis and exhibiting substantially more complex domain structure by repeated cycling through the transition temperature, upwardly and downwardly, for a predetermined number of cycles or until a less complex domain structure is achieved, or, alternately by heating at a high temperature and maintaining at such temperature under non-oxiding atmosphere for a predetermined period of time.

3,547,595
PROCESS FOR THE CONTINUOUS PREPARATION OF CRYSTALLINE SUBSTANCES
Hervé Olivier and André Vermot, Chalon-sur-Saone, France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude
Filed Jan. 19, 1967, Ser. No. 610,267
Claims priority, application France, Feb. 15, 1966, 49,644
Int. Cl. B01d *9/02;* **C01b** *15/12*
U.S. Cl. 23—295 **9 Claims**

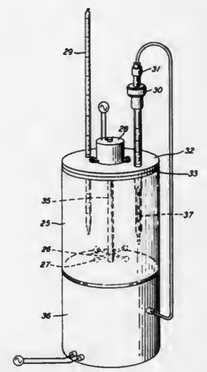
A process for the continuous preparation of crystalline substances with predetermined dimensional regularity,

quality and quantity while eliminating clogging and deposition on the walls of the apparatus by direct precipitation from at least two compound solutions reacting chemically with one another wherein a bed of crystalline par-



ticles is supported by a stream of ascending current of mother liquor, the current of mother liquor flowing in a closed main circuit in a descending portion and an ascending portion in succession, separated by a zone of substantially zero circulation speed.

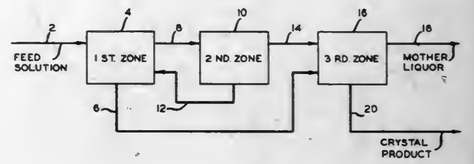
3,547,596
METHOD FOR PRODUCING SUBSTANTIALLY TRIGONAL PIEZOELECTRIC SELENIUM
Ernest D. Kolb, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Oct. 12, 1967, Ser. No. 674,972
Int. Cl. B01d *9/02;* **C01b** *19/00*
U.S. Cl. 23—300 **9 Claims**



Single crystals of trigonal selenium are known to exhibit electrooptic properties and electroacoustic properties. The present invention relates to a method for producing such crystals of a size and quality which enables their use in a variety of optical devices, including electrooptic modulators, second harmonic generators and parametric amplifiers, mixers, etc.; in certain acoustic devices such as ultrasonic delay lines; and in rectifiers and photovoltaic cells. The method comprises growth from an aqueous solution containing a complex selenide-sulfide ion.

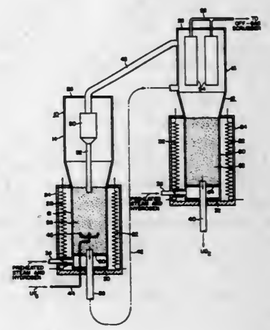
The method may also be used for the growth of polycrystalline matter and small crystallites.

3,547,597
METHOD FOR PRODUCING HIGH-PURITY CRYSTALS USING SERIALLY CONNECTED CRYSTALLIZATION ZONES
George E. Hays, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed May 22, 1967, Ser. No. 640,007
Int. Cl. B01d *9/02;* **C01d** *7/00;* **C07d** *55/52*
U.S. Cl. 23—302 **4 Claims**



Production of high-purity crystals, for example, sodium carbonate or hexamethylene tetramine, by passing a liquid solution of the crystallizable material through a series of crystallization zones, removing crystals from an intermediate crystallization zone and passing the intermediate zone crystals to a crystallization zone upstream from the intermediate crystallization zone. Crystals from the upstream crystallization zone can be removed and passed to a crystallization zone downstream from the intermediate crystallization zone.

3,547,598
PRODUCTION OF URANIUM DIOXIDE
Irving E. Knudsen, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 28, 1968, Ser. No. 716,891
Int. Cl. C01g *43/02*
U.S. Cl. 23—355 **11 Claims**



A two-stage process for converting uranium hexafluoride (UF_6) to a ceramic-grade uranium dioxide (UO_2) powder by, first, reacting hydrogen and steam with (UF_6) to form solid intermediate products uranyl fluoride

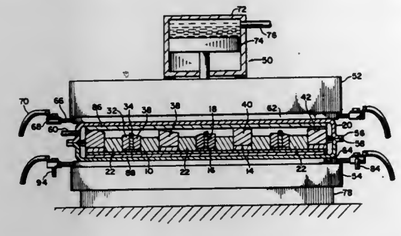
(UO_2F_2) and triuranium octoxide (U_3O_8) in a first fluidized bed and, second, reacting hydrogen and steam with the intermediate products in a second fluidized bed to produce ceramic-grade UO_2 powder.

3,547,599

SOLID STATE JOINING METHOD

Carl J. Muser and Joseph Melill, Rolling Hills Estates, and Joseph C. Lewis, Pasadena, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware

Filed Apr. 27, 1967, Ser. No. 634,209
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—491 **11 Claims**



Filler metal strips having high creep-deformation rate characteristics are contained within a retort to transmit compressive force to workpiece components for solid-state diffusion bonding in a press. The filler metal pieces deform under high pressure until all filler pieces are of equal height, whereby uniform pressure distribution is accomplished over the total area of the workpiece.

3,547,600

COMPOSITE ELECTRODE HAVING A BASE OF TITANIUM OR COLUMBIUM, AN INTERMEDIATE LAYER OF TANTALUM OR COLUMBIUM AND AN OUTER LAYER OF PLATINUM GROUP METALS

Ross M. Gwynn and Tim Themy, Carmichael, Calif., assignors, by mesne assignments, to KDI Chloro Guard Corporation, a corporation of Delaware

No Drawing. Filed May 28, 1968, Ser. No. 732,510
Int. Cl. B32b *15/00*
U.S. Cl. 29—194 **7 Claims**

Three component electrode having enhanced resistance to high voltage damage, particularly in chlorinating hypochlorinating, and similar electrolytic process, said electrode comprising a heavy substrate selected from the group consisting of titanium and columbium having thermoelectrically bonded thereto an intermediate layer about .0003 to .01 inch thick of a metal selected from the group consisting of tantalum and columbium and higher melting than the metal of said substrate, and an outer layer about .0003 to .005 inch thick of a platinum metal selected from the group consisting of platinum, rhodium, iridium, ruthenium and alloys thereof, and having a melting point lower than the metal of said intermediate layer. the thermoelectric bonding of said metal layers to the substrate being effected under sufficient thermoelectric heat and pressure to cause visible surface deformation of said substrate and intimate adherence of said intermediate and outer metal layer to the thus deformed surfaces of the substrate.

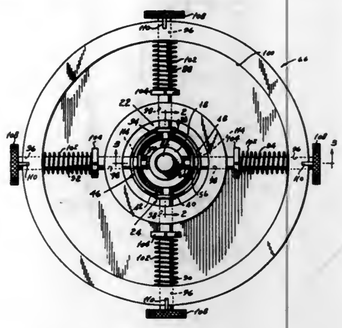
A preferred general purpose electrode has a titanium substrate, an intermediate layer of columbium or tantalum and an outer layer of a platinum metal. For unusually high voltage operation the substrate can be columbium, the intermediate layer tantalum and the outer layer a platinum metal.

3,547,601

GIMBAL SYSTEM AND METHOD OF ASSEMBLING

Andrew N. Mangum, Orange, and Wallace R. Hyde, Devon, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Apr. 15, 1968, Ser. No. 721,505
Int. Cl. B23p *11/00, 19/04*
U.S. Cl. 29—148.4 **19 Claims**



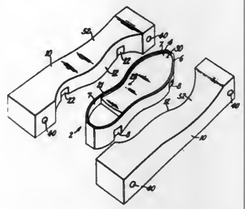
A method of assembling a gimbal system in which the inner gimbal and the outer gimbal are positioned by a fixture in precise axial alignment along a first axis and in which means on the fixture locates and applies predetermined loading forces to the respective inner and other gimbal bearings while floating in a bonding agent along coplanar axes which are precisely mutually perpendicular to each other and to the first axis, and the bonding agent then is cured.

3,547,602

METHOD OF MAKING MOLD ASSEMBLIES

John J. Taylor and Edward H. Wale, Leicester, England, assignors to USM Corporation, Flemington, N.J., a corporation of New Jersey

Continuation-in-part of abandoned application Ser. No. 575,896, Aug. 29, 1966. This application Apr. 30, 1968, Ser. No. 725,472
Int. Cl. B23p *17/00, 13/04;* **B21d** *39/02*
U.S. Cl. 29—416 **1 Claim**



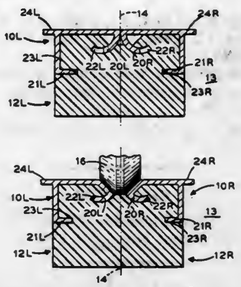
A method of making a mold assembly for the molding of soles onto shoe uppers comprising casting a unitary block, providing the upper surface of the block with a recess for the molding of a sole, boring holes in the under surface of the block to a point short of the upper surface of the block, cutting a central portion from the block and around the recess, the cut extending through the holes, separating the outer portion of the block into two side portions, and attaching cylindrical members in recesses formed by the holes to facilitate subsequent realignment of the central portion and the side portions of the mold assembly.

3,547,603

METHOD OF MAKING A THERMAL BARRIER

Clifford I. Bragman, 4875 N. Cumberland Blvd., Whitefish Bay, Wis. 53217

Original application Feb. 13, 1967, Ser. No. 615,418, now Patent No. 3,445,974, dated May 27, 1969. Divided and this application Dec. 30, 1968, Ser. No. 803,510
Int. Cl. B23p *17/00*
U.S. Cl. 29—418 **8 Claims**



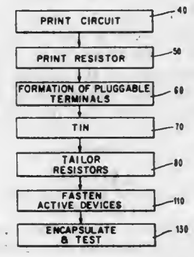
Described is a method of making a thermal barrier, useful as stock material for an insulated frame, particularly in dual primary windows. The thermal barrier is made by telescoping (FIG. 1) metallis (preferably aluminum) frame (**10**) over insulating block (**12**). Frame and block have been prefabricated, for example, by extrusion process. The block is provided with receiving openings (**22L**, R; also **21L**, R) into which frame projections (**20L**, R; also **21L**, R) fit, initially with clearance. The frame is fractured at its center (**14**) by action of a die or roller (**16**; FIG 2) and the frame projections are forced into their receiving openings with complete sealing.

3,547,604

FUNCTIONAL COMPONENTS

Edward M. Davis, Jr., Chappaqua, and Arthur H. Mones, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Continuation of abandoned application Ser. No. 583,883, Oct. 3, 1966, which is a division of application Ser. No. 300,734, Aug. 8, 1963, now Patent No. 3,456,158. This application Sept. 15, 1969, Ser. No. 861,218
Int. Cl. B01j *17/00;* **H01l** *1/16*
U.S. Cl. 29—577 **9 Claims**



A continuous process for fabricating functional components. Conductive paths and passive elements are successively screened and fired to adhere to a substrate. Pluggable terminals are staked in the substrate prior to adjustment of an electrical parameter of one or more passive elements and thereafter the paths, at least a portion thereof, and terminals are coated with a metal alloy. Active elements are attached to selected sections in the paths to complete an electric circuit. The process steps are so selected and arranged to prevent conflict therebetween whereby the various circuit elements and the component will not be adversely affected as a result of succeeding process steps.

3,547,605

STABILIZATION OF METAL OXIDE DISPERSIONS

Thomas E. Cornelius III, Coraopolis, and Alan E. Bischof, Pittsburgh, Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

No Drawing. Filed Aug. 5, 1968, Ser. No. 749,979
Int. Cl. C10l *1/18, 9/00*
U.S. Cl. 44—4 **3 Claims**

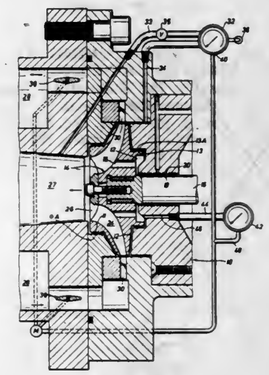
Lecithin, particularly soya lecithin, will act as a dispersant for metal oxides in fuel oil in the presence of fatty acids.

3,547,606

METHOD OF AND APPARATUS FOR DETECTING DEPOSITATION IN TURBOEXPANDER

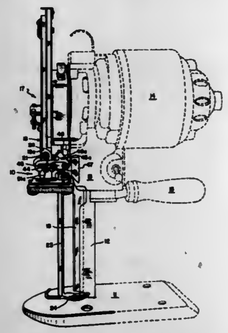
Judson S. Swearingen, 500 Bel Air Road, Los Angeles, Calif. 90024

Continuation-in-part of abandoned application Ser. No. 597,420, Nov. 28, 1966. This application July 17, 1969, Ser. No. 842,571
Int. Cl. F17d *3/00*
U.S. Cl. 48—191 **11 Claims**



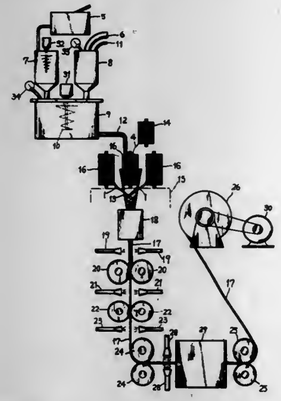
A gas expansion turbine has a seal between the turbine wheel and the housing exteriorly of the wheel and between the inlet and outlet openings of the wheel so as to provide a space in communication with the inlet openings of the wheel which, by comparison with the pressure downstream from the outlet openings of the wheel will indicate the pressure drop through the wheel. This pressure drop is detected by means of pressure detection devices connected through passageways through the housing to communicate with the compartment upstream of the seals mentioned and the space downstream from the wheel outlets, thereby to detect the accumulation of a substance such as Dry Ice in the passages through the wheel. Means are also provided for giving an audible signal and for automatically shutting down the turbine by closing the inlet when too great a pressure drop through the wheel is indicated.

3,547,607
BELT-GRINDER SHARPENER ASSEMBLY FOR CLOTH CUTTING MACHINE
William Bangser, Jr., Westport, Conn., assignor to H. Maimin Co., Inc., New York, N.Y., a corporation of New York
Filed Jan. 6, 1969, Ser. No. 789,327
Int. Cl. B24b *19/00*
U.S. Cl. 51—246 3 Claims



A belt-grinder sharpener assembly for the vertically reciprocating knife of a cloth cutting machine features a pair of mirror-image grinding belt carriers in which each carrier comprises a pair of articulated arms each pivotally mounted at its other end on a platform so that horizontal movement of the carriers away from or toward the knife simultaneously causes the grinding belts to move respectively away from or into contact with the knife.

3,547,608
METHOD OF MANUFACTURING AN IMPREGNATED FIBROUS GRINDING ARTICLE
Noboru Kitazawa, 705 Daitakubo, Urawa-shi, Saitama-ken, Japan
Filed Nov. 8, 1967, Ser. No. 681,506
Claims priority, application Japan, Nov. 11, 1967, 42/74,340
Int. Cl. B24d *1/00, 11/02*
U.S. Cl. 51—294 4 Claims



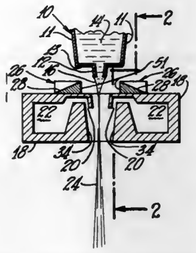
Novel grinding compositions are provided by mixing grinding particles with thermosetting adhesives and flowing the resultant mixture through a conical cylinder while weaving a single yarn or twisted thread consisting of natural fiber, synthetic fiber, mineral fiber or combinations thereof into a cylindrical form around the outside of said conical cylinder. As the woven material admixed with the synthetic adhesive resin is drawn from the conical cylinder, the resultant composition is heat cured to produce a grinding material of superior properties.

3,547,609
ELECTRICALLY CONDUCTIVE THERMOSET RESIN-BONDED GRINDING WHEEL CONTAINING SILVER PARTICLES
Ronald J. Gerry, Worcester, Mass., assignor to Norton Company, Worcester, Mass., a corporation of Massachusetts
No Drawing. Filed Oct. 31, 1967, Ser. No. 679,533
Int. Cl. C08g *51/12*; B24b *7/08*
U.S. Cl. 51—298 4 Claims
A conductive phenolic resin-bonded grinding wheel contains conventional abrasive grits bonded by a resin including from 10 to 25% by volume of finely divided silver. Lower percentages of silver produce essentially non-conductive wheels.

ERRATUM

For Class 65—2 see:
Patent No. 3,546,898

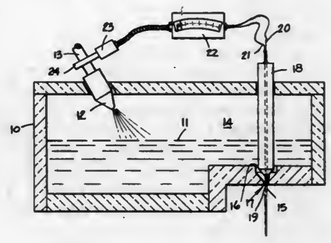
3,547,610
ENVIRONMENTAL CONTROL DEVICE FOR A MOLTEN GLASS FIBERIZER
Arthur L. Holman, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Continuation of application Ser. No. 617,411, Feb. 20, 1967. This application Oct. 20, 1969, Ser. No. 867,966
Int. Cl. C03b *37/06*
U.S. Cl. 65—7 12 Claims



An apparatus and method for introducing induced gaseous environmental atmosphere to the base of a fibrous glass feeder for controlling the environment.

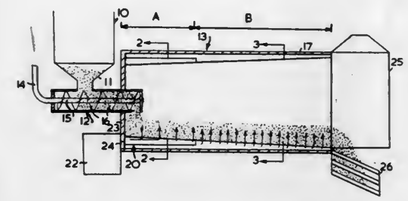
Specifically stated the invention is an improvement in a glass fiberizing apparatus comprising a feeder which supplies molten glass through orifices for attenuation into fibrous form by a gaseous blower below the base of the feeder. The improvement directs the induced ambient atmosphere, which normally flows over the blowers, toward the base region of the fibrous glass feeder and effects a cooling of said base region as well as providing an environment conducive for the production of glass fibers.

3,547,611
CONTROL SYSTEM FOR GLASS MELTING FURNACES
Byron Edwin Williams, Richmond, Ind., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Mar. 28, 1968, Ser. No. 716,926
Int. Cl. C03b *5/24*
U.S. Cl. 65—129 8 Claims
Apparatus and method for controlling the rate of flow of molten glass from the discharge orifice of a glass melting furnace by regulating the viscosity of the glass melt through furnace heat input adjustments in response and relative to temperature measurements of the glass melt in



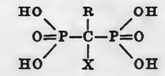
the area within the glass melt discharge outlet of the furnace, at a location substantially concentric therewith.

3,547,612
PRODUCTION OF GRANULAR FERTILIZERS
Christianus M. T. Westelaken, 190 North St., Strathroy, Ontario, Canada
Filed Feb. 21, 1966, Ser. No. 528,716
Int. Cl. C05f *3/00*
U.S. Cl. 71—21 8 Claims



A process for the production of granular fertilizer from poultry manure wherein moistened, finely divided manure is granulated and dried in a two stage rotary kiln under the action of a drying gas.

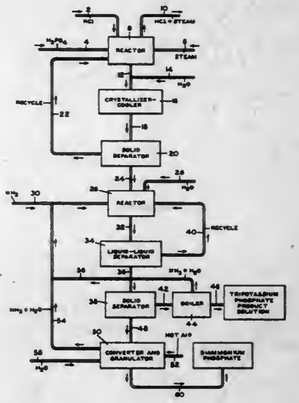
3,547,613
LIQUID FERTILIZERS
Raymond Anthony Smith, Burton-upon-Trent, and John Thomas Dixon, Smethwick, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, England, a British company
No Drawing. Filed Feb. 13, 1967, Ser. No. 615,302
Int. Cl. C05f *13/00*
U.S. Cl. 71—27 11 Claims
The use of phosphonic acids of formula:



wherein R is an alkyl group containing up to 11 carbon atoms and X is an OH or NH_2 group, or the water soluble salts or acid hydrocarbon esters thereof, preferably 1, hydroxyethylidene diphosphonic acid as sequestering agents in the preparation of liquid fertilizers containing phosphorus, potassium and trace elements prevents the formation of precipitates therein, which it has proved infeasible to prevent with other sequestering agents.

3,547,614
REGULATION OF UREA HYDROLYSIS IN SOIL
Arthur F. Peterson, Fort Wayne, Ind., and Charles R. Walter, Jr., Springfield, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Oct. 24, 1967, Ser. No. 677,767
Int. Cl. C05c *9/00*
U.S. Cl. 71—28 22 Claims
Loss of urea nitrogen from soil is reduced by the addition thereto of certain compounds which function as antimetabolites toward urease-producing microorganisms. Pyridine-3-sulfonic acid, desthiobiotin, oxythiamine chloride, gamma-benzene hexachloride and o-chloro-p-aminobenzoic acid can be used for this purpose in combination with urea fertilizers.

3,547,615
METHOD FOR PRODUCING POTASSIUM ORTHOPHOSPHATE SOLUTIONS
Leland J. Beckham, Pasco County, Fla., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Nov. 1, 1967, Ser. No. 679,775
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 4 Claims



This invention concerns concentrated potassium orthophosphate fertilizer solutions having a mol ratio of potassium to phosphate between 2 and 3 and a particularly economical procedure for the preparation thereof. The procedure involves the reaction of potassium chloride and phosphoric acid in the presence of steam to obtain monopotassium phosphate and the ammoniation of the monopotassium phosphate to produce a product solution of tripotassium phosphate and a precipitate of triammonium phosphate.

3,547,616
METHOD OF CONTROLLING UNWANTED PLANT GROWTH
Adolf Fischer, Mutterstadt, Pfalz, and Hans Richard Mueller, Fussgoenheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed June 1, 1967, Ser. No. 642,703
Claims priority, application Germany, June 30, 1966, 1,542,829
Int. Cl. A01n *9/12*
U.S. Cl. 71—90 5 Claims
The use of substituted benzothiadiazoles-(2,1,3) for controlling unwanted plants without injuring crop plants.

3,547,617
HERBICIDAL COMPOSITION AND METHOD

Saburo Tamura and Teruomi Jojima, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Filed Mar. 12, 1968, Ser. No. 712,350
Claims priority, application Japan, Mar. 17, 1967, 42/16,695; Nov. 6, 1967, 42/71,320; Feb. 27, 1968, 43/12,476; Feb. 28, 1968, 43/12,728
Int. Cl. A01n *9/22*
U.S. Cl. 71—92 **2 Claims**

New use for the inhibition of the growth of undesirable plants such as, for example, grasses, perennial weeds and broad-leafed weeds of a novel compound selected from the group consisting of 3-(2-C_3–C_4 alkylphenoxy)pyridazines, 3-(2-C_2–C_4 alkenylphenoxy)pyridazines and 6-chloro derivatives thereof and 3-[2-alkyl-4(or 5)-alkylphenoxy]pyridazines. These novel active compounds have similar herbicidal action, against such undesirable plants as grasses and perennial weeds, and they also show more potent herbicidal action against broad-leafed weeds, as compared with a considerable number of known analogous compounds, and may be applied by a conventional means to said plants, usually in the form of a herbicidal composition comprising said active compound and an inert carrier material, if desired together with a suitable adjuvant.

3,547,618
N-(4-NITROPHENYLSULFONYL)-N'-BENZOYL UREAS AS PHYTOCIDES

Angelo John Speziale, Creve Coeur, and Lowell R. Smith, Chesterfield, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 17, 1968, Ser. No. 737,344
Int. Cl. A01n *9/14*
U.S. Cl. 71—103 **7 Claims**

Compounds of the class N-(4-nitrophenylsulfonyl)-N'-(chloro and/or nitro substituted benzoyl) ureas which compounds are phytocidally active.

3,547,619
NITROPHENYLACETIC ACIDS AND DERIVATIVES AS SELECTIVE HERBICIDES

Gayle E. Back, Olathe, and Norman A. Dahle, Mission, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Jan. 23, 1967, Ser. No. 610,746
Int. Cl. A01n *9/20, 9/24*
U.S. Cl. 71—111 **2 Claims**

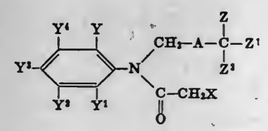
Weeds are combated by herbicidally effective amounts of isomeric nitrophenylacetic acids and with pre-emergent control, in particular, obtained by use of 2-nitrophenylacetic acid and amides and esters thereof.

3,547,620
N-(OXAMETHYL)ALPHA-HALO-ACETANILIDE HERBICIDES

John F. Olin, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 632,476, Jan. 27, 1967, which is a division of application Ser. No. 496,175, Oct. 14, 1965, which in turn is a continuation-in-part of application Ser. No. 329,223, Dec. 9, 1963, which also in turn is a continuation-in-part of application Ser. No. 134,161, Aug. 28, 1961. This application Jan. 23, 1969, Ser. No. 793,567
Int. Cl. A01n *9/20, 9/12*
U.S. Cl. 71—118 **34 Claims**

Phytotoxicants containing an alpha-haloacetanilide of the formula



wherein:

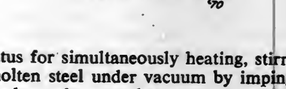
Y and Y^1 are hydrogen, alkyl or alkoxy each of a maximum of 10 carbon atoms,

Y^2, Y^3, and Y^4 are hydrogen, halogen, or alkyl each of a maximum of 10 carbon atoms,

A is oxygen or sulfur,

X is chlorine, bromine, or iodine, and

Z, Z^1 and Z^2 are hydrogen, alkyl, alkenyl, alkynyl, alkoxy, polyalkoxy, alkoxyalkyl, polyalkoxyalkyl, haloalkyl, hydroxyalkyl, haloalkenyl, oxoalkyl, alkenyloxy and alkyl each of a maximum of 18 carbon atoms; aryl, aryloxyalkyl, haloaryl, haloaryloxyalkyl and arylalkyl of from 6 to 24 carbon atoms; furfuryl; and tetrahydrofurfuryl; or two of Z, Z^1 or Z^2 groups are combined to form a cyclic group of from 2 to 6 carbon atoms selected from the group consisting of



wherein T is chlorine, bromine or fluorine, Q is alkyl of a maximum of 6 carbon atoms or acyl of a maximum of 4 carbon atoms, *m* is an integer of from 0 to 3 inclusive, *n* is an integer of from 0 to 5 inclusive, and *p* is an integer of 0 or 1.

3,547,621
METHOD OF COMBATING WEEDS

Ralph P. Neighbors, Olathe, and Lee V. Phillips, Overland Park, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

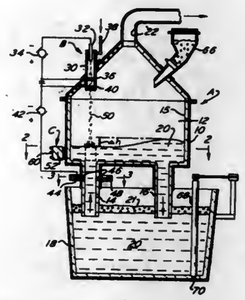
No Drawing. Filed May 29, 1967, Ser. No. 642,174
Int. Cl. A01n *9/20;* **C07c** *131/00*
U.S. Cl. 71—121 **19 Claims**

Weeds in crops such as oats, corn (maize), wheat and grain sorghum are combated by applying to the locus of the weeds effective amounts of certain O-substituted amidoximes, particularly O-2,3,6-trichlorobenzoyl and O-3,6-dichloro-2-methoxy-benzoyl esters of cyclopropanecarboxamidoxime and isobutyramidoxime.

3,547,622
D.C. POWERED PLASMA ARC METHOD AND APPARATUS FOR REFINING MOLTEN METAL

Herman R. Hutchinson, Wyncote, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania

Filed June 12, 1968, Ser. No. 736,493
Int. Cl. C21c *7/00;* **C22d** *7/00;* **H05c** *7/00*
U.S. Cl. 75—10 **13 Claims**



Apparatus for simultaneously heating, stirring, and degassing molten steel under vacuum by impinging an ionized gas column from a plasma arc upon the surface of the metal and passing a high amperage D.C. current through the column and the molten bath. A D.C. magnetic field interposed through the bath normal to the line of current coacts with the magnetic flux produced by the latter and moves the molten steel in a direction of quadrature thereby taking advantage of the high temperature and current capabilities of the plasma arc.

3,547,623
METHOD OF RECOVERING IRON OXIDE FROM FUME CONTAINING ZINC AND/OR LEAD AND SULFUR AND IRON OXIDE PARTICLES

Bernard J. Larpenteur, Cornwall, and Joseph W. Pasquali, Allentown, Pa., assignors to Bethlehem Steel Corporation, a corporation of Delaware

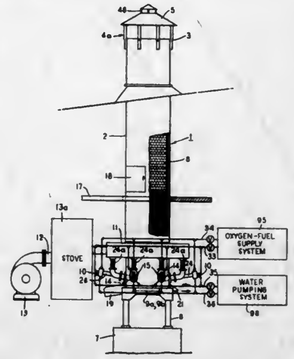
No Drawing. Filed Mar. 6, 1967, Ser. No. 620,652
Int. Cl. C21b *1/08;* **C22b** *7/02*
U.S. Cl. 75—25 **2 Claims**

A method of recovering iron oxide particles from fume contaminated with zinc oxide and/or lead oxide and sulfur, by mixing a flux comprising lime and magnesia with the fume and burning the mix in the presence of carbonaceous material, the zinc oxide and/or lead oxide being reduced by carbon and reforming zinc oxide and/or lead oxide particles which pass out of the furnace with the waste gases. The sulfur in the fume and in the carbonaceous material combines with excess oxygen to form SO_2 and passes out of the furnace with the waste gases. The agglomerates of iron oxide and flux formed in the process have a lime to magnesia ratio of about 2.5 to 1 to about 15 to 1 and may vary in size.

3,547,624
METHOD OF PROCESSING METAL-BEARING CHARGE IN A FURNACE HAVING OXY-FUEL BURNERS IN FURNACE TUYERES

Bronis G. Gray, Orange, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 16, 1966, Ser. No. 602,381
Int. Cl. C21b *5/00, 7/16;* **C22b** *7/00*
U.S. Cl. 75—42 **10 Claims**

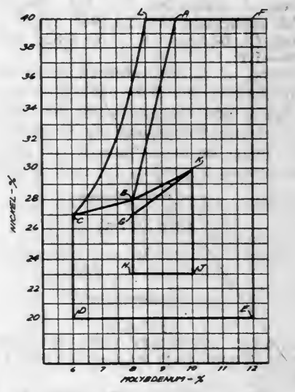


Industrial processes for melting and smelting metals in a shaft-type furnace, in which oxy-fuel burners are introduced into the walls of the furnace adjacent the combustion zone. The process may be applied by introducing the burners either into the furnace tuyeres to operate in concert with blast air, or directly into the furnace walls when no blast air is used. It is applied primarily to melting and smelting iron, and also the processing of other metals, such as copper, lead, and antimony. Each of the burners, which may either be of the rocket or self-atomizing tip-mixer type, post-mixes a plurality of high velocity streams of commercially pure oxygen with one or more streams of oil or gas fuel, so that combustion takes place in the tuyere or burner barrel, in a single, homogenous, high velocity coherent flame having an established combustion zone which originates at and is seated in the burner.

3,547,625
STEEL CONTAINING CHROMIUM MOLYBDENUM AND NICKEL

Clarence George Bieber, Suffern, N.Y., and Roger Allen Covert, Middletown, N.J., assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware

Continuation-in-part of application Ser. No. 574,995, Aug. 25, 1966. This application July 27, 1967, Ser. No. 656,542
Int. Cl. C22c *39/20*
U.S. Cl. 75—128 **11 Claims**



Iron-base alloys containing, among other constituents, interrelated amounts of nickel, molybdenum, and chromium offer a relatively high degree of resistance to various forms of corrosion in either or both the annealed and cold worked conditions. Alloys are also hot and cold workable and exhibit high tensile strength.

3,547,626
PLATING TARNISH-RESISTANT BRIGHT WHITE ALLOY

Gaetano T. Viglione, Lexington, Mass. (R.D. 1, Amesbury, Mass. 01913)

No Drawing. Filed July 2, 1968, Ser. No. 741,896
Int. Cl. C22c *17/00*
U.S. Cl. 75—151 **4 Claims**

A plating bath, process and alloy comprising cadmium, silver and nickel for tarnish-resistant bright silver applications. An alkaline cyanide water bath is employed. The alloy composition is 50 to 70% by weight of cadmium, 20 to 31% by weight of silver, balance nickel and impurities.

3,547,627
LITHOGRAPHIC PRINTING MASTER AND METHOD EMPLOYING A CRYSTALLINE PHOTOCONDUCTIVE IMAGING LAYER

Alan B. Amidon, Joseph Mammino, and Richard W. Radler, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed May 2, 1966, Ser. No. 546,844
Int. Cl. G03g *13/22*
U.S. Cl. 96—1 **27 Claims**

A lithographic printing master is disclosed prepared from a crystalline photoconductive binder plate. Due to

the nature of the bond between the crystalline binder material and the underlying substrate the binder may be easily removed from the support member in those areas not protected by a fixed developed image thereby providing the necessary differential between the image and nonimage areas to satisfy the requirement of lithography.



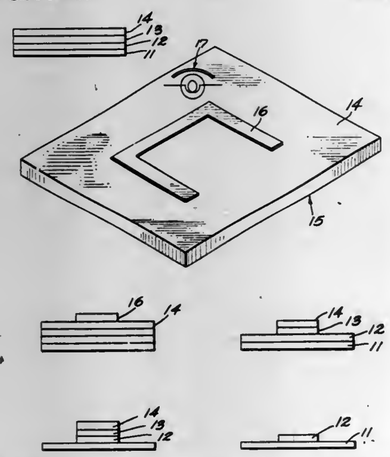
3,547,628
PROCESS OF THERMOPLASTIC DEFORMATION IMAGING
Nikolaus E. Wolff, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware
Continuation of application Ser. No. 106,702, May 1, 1961. This application Mar. 28,1966, Ser. No. 544,643
Int. Cl. B41m *5/18, 5/20;* **G03g** *5/06*
U.S. Cl. 96—1.1 **6 Claims**

In a method of storing information in the form of surface modulations on a deformable layer which is both photoconductive and thermoplastic, the information is applied by electrophotographically producing a latent electrostatic image on the surface of said layer and then softened by heating to produce the surface modulations.

ERRATUM

For Class 96—1.5 see:
Patent No. 3,548,059

3,547,629
PHOTOFLASH METHOD OF TRANSFERRING INFORMATION AND FABRICATING PRINTED CIRCUITS
Layton C. Kinney, Chicago, and Edwin H. Tompkins, Riverside, Ill., assignors, by mesne assignments, to American Screen Process Equipment Company, Chicago, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 226,701, Sept. 27, 1962. This application July 14, 1966, Ser. No. 568,692
Int. Cl. G03c *5/04*
U.S. Cl. 96—27 **8 Claims**

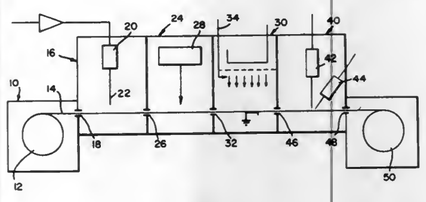


A composite article and method of manufacture is disclosed for transferring intelligence including a substrate and a photoflash pyrolyzable layer. The intelligence is transferred by positioning an opaque masking member between a light source and the composite article and photoflashing light through the mask. The layer is pyrolyzed in areas where the photo-energy penetrates the mask. Specifically, a printed circuit is prepared by photoflashing through a mask onto a black nitrocellulose lacquer covered copper metal layer supported on a phenol-formaldehyde resin base. The nitrocellulose lacquer is pyrolyzed in the area of photo-energy impingement to expose the metal which is removed by etching. The lacquer protecting the metal circuit configuration is then removed by dissolution in solvent.

3,547,630
PHOTOGRAPHIC REPRODUCTION
Norman Thomas Notley, Deerfield, Ill. (Box 462, Sierra Madre, Calif. 91024)
No Drawing. Filed Feb. 6, 1967, Ser. No. 613,995
Int. Cl. G03c *5/02, 5/04, 5/18*
U.S. Cl. 96—27 **5 Claims**

A process for producing in the vesicular photographic film, images having relativity low Callier quotient wherein the film is first desensitized in a pattern of fine very closely spaced dots or lines either by exposure to an appropriate pattern of actinic radiation and degassing of the latent image or by mechanical abrasion such that the differencies between projection density and diffuse density of the final image is much reduced from conventional vesicular prints.

3,547,631
PACIFICATION OF IMAGE RECORDING MEDIA COMPRISING APPLYING A THIN POLYMER FILM OVER THE IMAGE SURFACE
Rolf D. Weglein, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Oct. 26, 1967, Ser. No. 678,295
Int. Cl. G03g *13/22;* **G03c** *5/04;* **B05c** *5/00*
U.S. Cl. 96—27 **2 Claims**

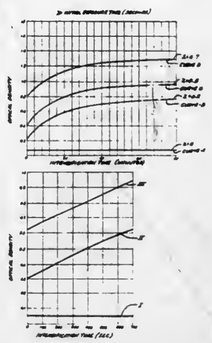


Photon, ion and electron sensitive image recording on nucleation medium acts primarily by surface effects. After exposure of such a medium by selective photon, ion or electron exposure, the image is developed by a metallic deposition from metallic vapor. Subsequent exposure to photons, electrons or ions exposes the balance of the medium, and it is subjct to surface contamination. Such degrades the image and limits the useful life of the exposed and developed medium. Pacification of such images is accomplished by deposition thereon of a protective layer of such thinness as to be transparent to electrons and light, and yet is of uniform and non-porous character to protect the medium from material deposition. The preferred manner of deposition is the deposition of material from an organic vapor by means of a low energy electron beam which causes polymerization and deposition of the organic polymer and creation of a protective layer. The preferred organic material is silicone oil, and the polymerized layer is preferably in the order to two hundred to five hundred angstroms thick.

3,547,632
METHOD OF LITHOGRAPHIC REPRODUCTION AND SOLUTION TO RENDER IMAGE AREAS OLEOPHILIC
Gale F. Nadeau, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Nov. 16, 1967, Ser. No. 683,488
Int. Cl. B41m *1/106;* **C09k** *3/18;* **G03f** *7/06*
U.S. Cl. 96—33 **11 Claims**

The press latitude of lithographic printing plates having gelatin printing surfaces is widened by contacting the printing surface prior to or during the printing operation with aqueous solutions containing polyalkylene glycols, e.g., a buffered aqueous solution containing lauryl sulfate and polypropylene glycol.

3,547,633
PHOTOCHEMICAL POLYMER INTENSIFICATION PROCESS
John B. Rust, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Oct. 3, 1966, Ser. No. 583,696
Int. Cl. G03c *5/02, 1/68*
U.S. Cl. 96—45.2 **15 Claims**

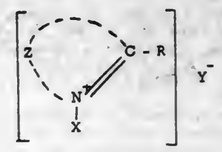


This disclosure relates to a method of obtaining image intensification in a photopolymerizable composition from a barely visible or latent image which may be produced by a relatively weak or short-life light exposure and the method of intensifying such image by partially desensitizing and secondary exposure of the image to visible radiation, means of fixation thereof, and products produced thereby.

3,547,634
LIGHT SENSITIVE COMPOSITION CONTAINING A HETEROCYCLIC PHOTOACTIVATOR HAVING AN —N⁺=C— GROUP IN THE HETEROCYCLIC RING ALKYL THEREOF AND THE PHOTOGRAPHIC USE THEREOF
Haruo Hori and Shoichiro Hoshino, Tokyo, and Hiroshi Tokura, Tsuru-shi, Japan, assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
No Drawing. Filed Oct. 26, 1966, Ser. No. 589,495
Claims priority, application Japan, Nov. 2, 1965, 40/67,025
Int. Cl. G03c *5/24*
U.S. Cl. 96—45.2 **15 Claims**

1. Light-sensitive reproduction material comprising a support and a light-sensitive composition comprising:

(a) a photoactivatable compound of the general formula:



wherein
R is an alkyl group of 1 to 3 carbon atoms or an aralkyl group;
X is (1) an alkyl group of 1 to 4 carbon atoms, or an aralkyl, with Y as an anion to form a quaternary compound, or (2) a lower alkylene combined with an anion to form an inner salt; and
Z is an atomic group necessary to form a heterocyclic ring system; and

(b) a color-formable compound reactive in conjunction with said photoactivatable compound upon exposure to light to form a distinct color.

3,547,635
VACUUM DEPOSITED LIGHT-SENSITIVE TITANIUM DIOXIDE
Kenneth C. Kennard and John A. Haefner, Rochester, N.Y., asssignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed May 4, 1967, Ser. No. 636,016
Int. Cl. G03c *5/24*
U.S. Cl. 96—48 **7 Claims**

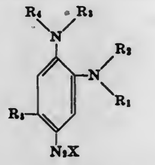
Photographic elements comprising a support coated with a thin layer of vacuum deposited titanium dioxide can be developed to produce photographic images. Such elements can be reused, and are amenable to deletions from and additions to existing image areas.

3,547,636
PHOTOGRAPHIC PROCESS COMPRISING DYE BLEACHING STEP
Richmond C. Beach, Livonia Center, John R. Kane, Piffard, and Irving J. Magin, Rochester, N.Y., assignors to Itek Corporation, Lexington, Mass., a corporation of Delaware
Filed May 25, 1967, Ser. No. 641,126
Int. Cl. G03c *5/38, 1/08*
U.S. Cl. 96—48 **24 Claims**

An improved photographic process comprising an improved and rapid dye bleaching step comprises: (1) exposing to an image pattern of activating radiation a dye-sensitized photosensitive copy medium which becomes activated at portions thereof which are exposed to such activating radiation and, (2) applying to the exposed medium a dye bleaching solution of a thionate selected from at least one of the group of sulfites and bisulfites, and especially those of Groups I–A and II–A metals, said thionate having a concentration of a least about 0.5 mole of thionate per liter of solution. This dye bleaching solution can be applied to the photosensitive copy medium along with the image-forming material, stabilizing bath, fixing bath and/or stop bath. In a preferred embodiment, the dye bleaching solution is combined with the fixing bath. In such an embodiment wherein the thionate is potassium sulfite and the fixing bath is an aqueous solution of sodium thiosulfate, the potassium sulfite serves the dual function of a bleaching agent for a colored dye-sensitive copy medium and also a preservative for the sodium thiosulfate.

3,547,637
LIGHT-SENSITIVE DIAZOTYPE MATERIAL
Siegfried Scheler, Wiesbaden-Schierstein, Johannes Munder, Wiesbaden-Biebrich, and Arno Brauninger, Wiesbaden, Germany, assignors, by mesne assignments, to Keuffel & Esser Company, Morristown, N.J.
No Drawing. Filed July 3, 1967, Ser. No. 650,607
Claims priority, application Germany, July 6, 1966, K 59,674, K 59,675
Int. Cl. G03c *11/54, 5/34, 5/18*
U.S. Cl. 96—49 10 Claims

A diazonium compound of improved light-sensitivity and coupling potential useful in the preparation of acid-, alkaline-, and neutral-developing one-component diazotype compositions has the general formula



and is characterized in that the substituent



comprises a polarizable double bond in the immediate vicinity of the nitrogen atom. With neutral and acid developer compositions comprising a wide variety of known azo coupler components these compounds rapidly form stable, non-bleeding azo dyes, and with alkaline developer compositions comprising 2,3-dihydroxy naphthalene and 2-hydroxy-3-naphthoic acid amide azo coupler components, commonly employed for blue dye formation, form red azo dyes.

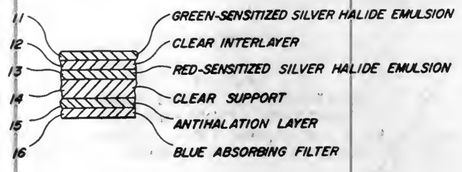
3,547,638
N,N-DISUBSTITUTED AMINO-METHYLTHIOCARBOXYLIC ACIDS AND USE THEREOF AS ANTIFOGGANTS IN PHOTOGRAPHIC EMULSIONS
Bernard C. Cossar and Delbert D. Reynolds, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed June 20, 1967, Ser. No. 647,326
Int. Cl. G03c *1/34*
U.S. Cl. 96—66.5 11 Claims

N,N-disubstituted aminomethylthiocarboxylic acids, the preparation and use of such compounds as antifoggants and stabilizers for photographic elements and silver halide emulsions. Developing photographic elements in the presence of N,N-disubstituted aminomethylthiocarboxylic acids is also described.

3,547,639
COLOR-AND-TONE-CORRECTING SEPARATION FILM
Richard E. Maurer and Allan G. Millikan, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Sept. 1, 1966, Ser. No. 576,706
Int. Cl. G03c *1/84, 1/90*
U.S. Cl. 96—69 16 Claims

A light-sensitive black-and-white photographic separation negative film comprising:

(1) a transparent support having coated thereon:
(2) a first light-sensitive layer that is a color-and-tone - correcting - silver - separation-negative-image-forming layer containing a hydrophilic colloid silver halide emulsion that is capable of recording a light image of at least one primary color; and
(3) a removable superposed silver-image-forming layer that is capable of recording a light image of at least one primary color that is different from that recorded by said first layer, said removable layer containing silver halide with at least one mole percent more iodine than said silver halide in said first layer; is advantageously used to prepare a unitary color-and - tone-correcting - silver - separation - negative image of a multicolor original image by the process steps of:
(a) exposing to an original;



(b) development of a unitary color-and-tone-correcting-separation-negative image in said first layer and a silver negative image in said removable layer; and
(c) removal of said removable layer, leaving said unitary color - and - tone-correcting-separation negative as the sole image in the processed film.

3,547,640
MULTICOLOR PHOTOGRAPHIC ELEMENTS
Clark Beckett and Bruce D. Folsom, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 621,760, Mar. 9, 1967. This application Jan. 2, 1968, Ser. No. 694,851
Int. Cl. G03c *1/76*
U.S. Cl. 96—74 19 Claims

Multicolor photographic elements which contain at least one nondiffusing, nonbleachable, nonimage-recording colored material incorporated in a support layer and/or one or more hydrophilic colloid layers to compensate for any image dye deficiencies up to about 0.3 density units in minimum density areas of the color reproduction produced upon color processing have an improved neutral scale.

3,547,641
PLANOGRAPHIC OFFSET PRINTING MASTERS
Ralph Kingsley Blake, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 20, 1966, Ser. No. 558,617
Int. Cl. G03c *1/48*
U.S. Cl. 96—76 12 Claims

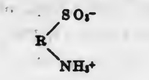
A photographic element consisting of a support bearing a photosensitive silver halide layer having a surface layer of a hardened, water-permeable, organic colloid containing a silver nucleating agent. A process for making lithographic images which comprises developing said element to form a negative image in a silver halide layer, forming by diffusion silver transfer development a positive silver surface image in the surface layer, treating the latter layer with an aqueous solution and a printing ink, and using said treated plate to print by lithography.

3,547,642
PHOTOGRAPHIC LAYERS CONTAINING GELATIN AND METHYLOL POLYVINYL URETHANE
Fumihiko Nishio and Kinji Ohkubo, Kanagawa, and Tsutomu Ikeda, Tokyo, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
No Drawing. Filed June 3, 1966, Ser. No. 555,000
Claims priority, application Japan, June 4, 1965, 40/32,658
Int. Cl. G03c *1/78, 1/86*
U.S. Cl. 96—84 9 Claims

A photographic element comprising a layer comprising gelatin, methylol polyvinyl urethane and a hardening agent.

3,547,643
ANTISTATIC PHOTOGRAPHIC FILM
Karl Pechmann, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 23, 1968, Ser. No. 746,733
Int. Cl. G03c *1/82*
U.S. Cl. 96—87 10 Claims

An antistatic photographic film is provided containing in at least one layer an antistatic agent therefor, an ampholytic compound of the formula:



wherein R is a long chain alkyl radical from about 8 to about 18 carbon atoms.

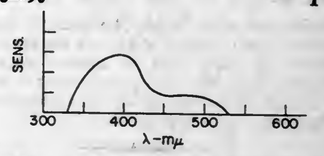
3,547,644
PHOTOGRAPHIC DRAFTING FILM WITH A POLYETHYLENE TEREPHTHALATE BASE CONTAINING SILICA
Jerome Albert Moede and Delmar Francis Schumacher, Rochester, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Jan. 3, 1966, Ser. No. 517,894
Int. Cl. G03c *1/78*
U.S. Cl. 96—87 4 Claims

Photographic drafting film comprising in order (1) a dimensionally stable polyester film base containing 0.5–10% by weight of silica particles with a SiO_2 content of 99.9%, a particle size of 1–5 microns and a surface area of 0.5–2.2 square meters per gram and at least one layer of (a) a reaction product made by polymerizing in the presence of gelatin vinylidene chloride, or methyl or ethyl acrylate and (b) a water-permeable colloid layer. The polyester base has excellent pencil receptivity and adequate glass-transparency balance.

3,547,645
PREPARATION OF DIMENSIONALLY STABLE PHOTOGRAPHIC FILMS
Horst Buchwald, Neu-Isenburg, Bernward Mülders, Jugesheim, and Rudolf Schneider, Neu-Iseaburg, Germany, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 3, 1967, Ser. No. 620,243
Claims priority, application Germany, July 27, 1966, A 53,111
Int. Cl. G03c *1/78, 1/80*
U.S. Cl. 96—87 4 Claims

A photographic cellulose ester film base comprising a cellulose ester containing about 1 to 25% by weight of a natural or synthetic resin such as polypropylene glycol adipate and at least 5% by weight of a low molecular weight plasticizer such as triphenyl phosphate.

3,547,646
LIGHT-SENSITIVE IMAGING MATERIAL CONTAINING HYDRAZONES
Haruo Hori and Masahiko Taguchi, Hino, Shoichiro Hoshino, Tokyo, and Akira Kato and Keiichi Yumiki, Hachioji, Japan, assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
Filed Dec. 18, 1967, Ser. No. 691,333
Claims priority, application Japan, Dec. 16, 1966, 41/82,267
Int. Cl. G03c *1/00*
U.S. Cl. 96—90 1 Claim



Light-sensitive imaging material comprising color modifiers which visibly change in color or shade in the presence of free radicals in combination with photoactivators which yield free radicals upon exposure to actinic light are substantially increased in light-sensitivity by the addition of a hydrazone compound. Such sensitizers are particularly effective in increasing the rate of image-forming reaction with respect to normal spectral ranges rather than in broadening the band of spectral response of such materials.

3,547,647
PHOTOGRAPHIC SYSTEMS COMPRISING SILVER HALIDE PARTICLES WITH OCCLUDED METAL IONS THEREIN, A HALOGEN ACCEPTOR, AND AN ORGANIC ALDEHYDE
Robert E. Bacon, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Oct. 2, 1967, Ser. No. 671,988
Int. Cl. G03c *1/28*
U.S. Cl. 96—94 16 Claims

Photographic print-out compositions comprising: (1) silver halide formed in the presence of trivalent or tetravalent metal ions (2) a halogen acceptor and an organic aldehyde.

3,547,648
COPY-SHEET
Burt K. Sagawa, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,727
Int. Cl. G03c *1/02*
U.S. Cl. 96—94 7 Claims

A copy-sheet or image-sheet containing a silver soap and a light-stable reducing agent, and which forms an image when heated with small amounts of a photosensitive reducing agent, is found to give increased image density with a combination of mono- and bis-phenol light-stable reducing agents.

3,547,649
MORDANTS FOR ACID DYES COMPRISING POLYMERS CONTAINING QUATERNARY PHOSPHONIUM GROUPS
Simone Franco, Casalgrasso, Cuneo, Italy, assignor to Ferrania, S.p.A., Milan, Italy
No Drawing. Filed Mar. 29, 1966, Ser. No. 538,214
Claims priority, application Italy, Apr. 23, 1965, 16,334
The portion of the term of the patent subsequent to Feb. 25, 1986, has been disclaimed
Int. Cl. G03c *1/04*
U.S. Cl. 96—114 7 Claims

A recording element is shown having a colloidal binder containing a mordant for acid dyes, the mordant being a polymer containing quaternary phosphonium groups.

3,547,650

SILVER HALIDE EMULSION COMPRISING A GELATIN-POLYVINYL COMPOUND DISPERSION

Jack Pilato, Iselin, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,495

Int. Cl. G03c 1/04

U.S. Cl. 96—114 3 Claims

Graphic arts silver halide photographic emulsion layers wherein the binding material for the grains comprises a mixture of gelatin and an aqueous dispersion of a polymeric vinyl compound polymerized in the presence of a mixture of alkylphenyloxyethoxyphosphates and alkyl phosphates and an azo initiator.

3,547,651

PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING ORGANOMETAL COMPOUNDS

Leo Roos, New Shrewsbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 2, 1968, Ser. No. 718,248

Int. Cl. G03c 1/68

U.S. Cl. 96—115 14 Claims

Photopolymerizable compositions having increased speed and improved storage stability comprising a thermoplastic macromolecular organic binder, an ethylenically unsaturated compound containing 1 to 4 terminal ethylenic groups and capable of forming a high polymer by photo-initiated addition polymerization, and a free-radical addition polymerization initiator activatable by actinic light; characterized by the presence, as a sensitometric modifier, of a covalent organometal compound of tin, lead, germanium, or titanium, having at least one carbon-metal bond.

3,547,652

FPC PROCESS

George A. Jeffreys, Salem, Va., assignor, by mesne assignments, to Floyd Gee, Houston, Tex., trustee

Filed Feb. 6, 1967, Ser. No. 614,335

Int. Cl. A23j 1/04

U.S. Cl. 99—18 8 Claims

Speeding up the yeast fermentation of proteolytically liquified cooked fish meat, by adding to the fish meat a yeast which has started fermenting in the presence of the reaction product of previously liquified fish and yeast.

3,547,653

PROCESS FOR ROASTING GREEN COFFEE BEANS

Henry Haley Hixson, Chicago, Ill.; Jane S. Hixson, administrator of said Henry Haley Hixson, deceased

No Drawing. Filed Aug. 14, 1967, Ser. No. 660,203

Int. Cl. A23f 1/02

U.S. Cl. 99—68 7 Claims

A process for roasting green coffee beans which comprises roasting the beans to the desired roast conditions, quickly reducing the temperature of the roasted beans to a temperature in the range of about 180° F. to 280° F. with a gaseous medium inert to the coffee beans and applying a predetermined amount of water to the roasted beans at the reduced temperature, and the resulting product.

3,547,654

PROCESS OF MAKING BAKERY PRODUCTS

Ronald H. Olsen, Kalamazoo, Mich., assignor to Dairy Technics, Inc., Kalamazoo, Mich., a corporation of Michigan

No Drawing. Original application Sept. 25, 1964, Ser. No. 399,335, now Patent No. 3,404,984, dated Oct. 8, 1968. Divided and this application Dec. 13, 1967, Ser. No. 708,464

Int. Cl. A21d 2/00; C12k 3/00

U.S. Cl. 99—90 4 Claims

Bread and other bakery products having improved flavor, texture and shelf-life characteristics are produced, especially by continuous processes using bacteria selected from *L. pentoaceticus, L. buchneri, L. fermenti,* and *L. pastorianus.* The bacteria are obtained by thawing a frozen stabilized concentrate of at least 10^{10} bacteria cells per milliliter.

3,547,655

METHOD FOR IMPROVING YEAST-RAISED BAKED PRODUCTS

William H. Knightly and Gabriel P. Lensack, Wilmington, Del., assignors to Atlas Chemical Industries, Inc., Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,664

Int. Cl. A21d 2/16

U.S. Cl. 99—91 7 Claims

A yeast-raised baked product containing an emulsifier blend comprising a monoglyceride and an ethoxylated fatty acid ester of a hexitol, a hexitan or an isohexide. In the preparation of the final baked product the emulsifier may be carried by the shortening or added directly to the dough or sponge in the batch method of preparation or to the liquid brew or sponge in the continuous bread-making process.

3,547,656

METHOD OF PREPARING POULTRY CHUNKS

Kermit F. Schlamb, Pittsburgh, Pa., assignor, by mesne assignments, to Calgon Corporation, a corporation of Delaware

No Drawing. Filed Dec. 19, 1966, Ser. No. 602,559

Int. Cl. A22c 21/00

U.S. Cl. 99—107 3 Claims

A method is provided for preparing poultry chunks which are resistant to disintegration in further cooking on poultry pies and like dishes comprising the steps of cooking and deboning poultry, admixing to the cooked de-boned poultry about 5% to 10% of ground raw poultry meat, about 5% to 10% of ground raw poultry skin, about 0.1% to 1.0% of a molecularly dehydrated phosphate and sufficient salt to taste, placing said mixture in a container, cooking at a temperature in excess of 160° F. and cubing the resulting cooked poultry flesh.

3,547,657

ELECTRICAL PROCESSING OF MARINE PRODUCTS

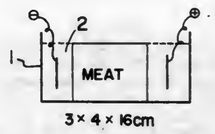
Shigeru Otsuka, Toyonaka-shi, and Hiromitsu Osada, Tarazuka-shi, Japan, assignors to Toyo Seikan Kabushiki Kaisha, Tokyo-to, Japan, a joint-stock company of Japan

Filed Feb. 26, 1968, Ser. No. 708,227

Int. Cl. A23b 3/00

U.S. Cl. 99—111 5 Claims

A direct current is passed through a marine product such as fish meat immersed in an electroconductive liquid medium to cause the contents of undesirable substances, principally phosphoric acid, magnesium, and volatile bases (including ammonia) contained in the marine product to be greatly reduced by electrophoretic action. This process has been found to prevent the formation of struvite in the marine product when it is canned and even after a long period of storage and simultaneously to pre-cook the product without subsequent discoloration or deterioration in flavor and odor.



3,547,658

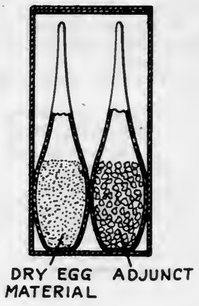
CONVENIENTLY PACKAGED FOOD

Daniel Melnick, Teaneck, N.J., assignor to Corn Products Company, New York, N.Y., a corporation of Delaware

Filed Aug. 31, 1967, Ser. No. 664,678

Int. Cl. A23b 5/02; B65b 25/04

U.S. Cl. 99—113 7 Claims



The present invention relates to a food product that is conveniently packaged for mixture, rehydration, and cooking, to form a consumable egg combination food product. This food product is packaged in unit or multi-unit consumption form, comprising (a), a sealed, substantially moisture-proof first package containing an easily rehydratable, dry egg material of small particulate size and (b), a sealed, substantially moisture-proof second package containing a food of gross particulate size which is in ready-to-eat form, without further hydration, and that is microbiologically and organoleptically stable.

3,547,659

BREAD FLAVOR AND AROMA ENHANCEMENT COMPOSITION

Winifred Cort, Lloyd Neck, N.Y., assignor to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Dec. 8, 1967, Ser. No. 688,983

Int. Cl. A21d 2/24; A23l 1/22

U.S. Cl. 99—140 2 Claims

A composition is described which is produced by heating a mixture of (a) proline, (b) glycine, (c) valine, (d) glutamine, glutamic acid or a salt of the latter and (e) glycerol or propylene glycol. The use of such compositions for enhancing the flavor and aroma of bread, crackers, biscuits and like products is disclosed.

3,547,660

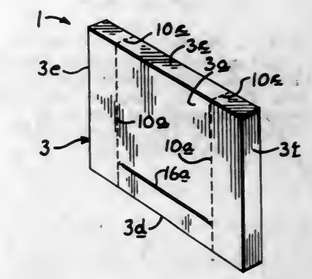
STAND-FORMING CONTAINER AND FLEXIBLE BAG ASSEMBLY

Sydney R. Weisberg, 7806 S. Clyde Ave., Chicago, Ill. 60649

Filed May 23, 1967, Ser. No. 640,606

Int. Cl. B65b 25/22

U.S. Cl. 99—171 21 Claims



A non-self-supporting flexible bag having sealed therein a food product or some other material to be heated in a pot of boiling water while in the bag is secured or securable at its upper end to the upper extremity of an outer container enclosing the flexible bag on all sides thereof. The container has at least one main stand-forming body portion and one or more sections joining the main body portion along severance lines which permit the one or more sections of the container to be severed from one or more margins of the main body portion of the container to form, in one design without any folding of the main body portion and in another design by folding the same, a triangular stand with a water ingress opening in at least the lower portion of the stand which permits entry of heated water within the stand where it can flow around the food product containing portion of the bag. The upper portion of the stand is sized to extend above the level of the water in the pot and is designed to expose an upper corner of the flexible bag so the corner of the bag can readily be severed to form a pouring spout or other emptying orifice.

3,547,661

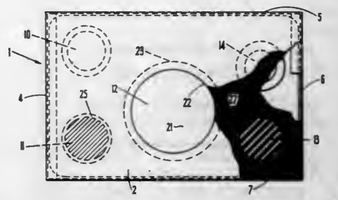
CONTAINER AND FOOD HEATING METHOD

Peter N. Stevenson, Belmont, Mass., assignor to Teckton Inc., Waltham, Mass., a corporation of Massachusetts

Filed Oct. 7, 1968, Ser. No. 765,479

Int. Cl. A23l 3/32

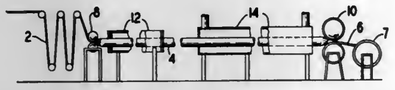
U.S. Cl. 99—171 9 Claims



A container for selectively heating different items including, for example, foods within the container to different temperature levels simultaneously within an oven energized with electromagnetic energy comprising a container for the food covered with a radiation-reflecting

material having apertures in opposite walls formed in the material. Food that is not to be heated is positioned within the container out of alignment with the apertures; food that is intended to be heated to a maximum temperature is aligned with apertures that permit full transmission of radiation; and food that is to be heated to an intermediate temperature is positioned in alignment with apertures that allow partial transmission of the radiation.

3,547,662
METHOD OF PRODUCING A FOOD CASING
Herman S. Chiu and Frank T. Kambara, Chicago, Jerome J. M. Rasmussen, South Stickney Township, and David Voo, Park Forest, Ill., assignors to Union Carbide Corporation, a corporation of New York
Filed June 23, 1967, Ser. No. 648,409
Int. Cl. A22c *13/00*
U.S. Cl. 99—176 **4 Claims**



The stuffing characteristics of tubular fibrous food casings made from paper impregnated and coated with cellulose regenerated and dried in situ are improved by circumferentially stretching the casing during manufacture before the regenerated cellulose is dried. Stretching is preferably accomplished by passing the inflated tube through a vacuum. The tube is reduced in diameter to below its recommended stuffing diameter after it has been stretched.

3,547,663
SILICA ORGANO SOL FRICTION TREATMENT COMPOSITION AND METHOD OF APPLICATION
Lawrence L. Bott, Oak Park, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Dec. 1, 1967, Ser. No. 687,125
Int. Cl. C09k *3/14, 3/18*
U.S. Cl. 106—36 **8 Claims**

This invention is directed to a method of improving the coefficient of friction between contacting metal surfaces moving one with respect to the other. This result is achieved by treating at least one of said surfaces with a silica organo sol having as its continuous phase a lower aliphatic liquified hydrocarbon gas and as its dispersed phase at least 0.1% by weight of hydrophobic, dense, discrete surface esterified silica particles. This invention also is directed to novel organo silica sols wherein the continuous phase is a lower aliphatic liquified hydrocarbon gas and the dispersed phase is an esterified colloidal silica composed of hydrophobic, dense, discrete surface esterified silica particles.

ERRATUM

For Class 106—47 see:
Patent No. 3,548,060

3,547,664
REFRACTORY RAMMING MIX
Pablo V. Salazar, Chicago, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Dec. 13, 1967, Ser. No. 690,100
Int. Cl. C04b *35/10*
U.S. Cl. 106—65 **5 Claims**

A refractory ramming mix composition comprising at least 60% alumina, a phosphoric acid binder and containing ceramic fibers and a method of forming a monolithic refractory surface which is resistant to abrasion and erosion at temperatures in excess of 2,000° F.

3,547,665
ADDITIVE FOR CONCRETE, MORTAR AND OTHER CEMENTITIOUS MIXTURES
Robert L. Johnson, Madison, Wis., assignor to Fats and Proteins Research Foundation, Inc., Des Plaines, Ill., a corporation of Illinois
No Drawing. Filed June 21, 1967, Ser. No. 647,631
Int. Cl. C04b *7/56*
U.S. Cl. 106—95 **14 Claims**

For promoting physical strength and water-repellency in hydrated cementitious materials, a composition of matter in which a discontinuous phase comprising a fatty substance having a free fatty acid content of at least no greater than about 40% by weight is enclosed by a continuous phase comprising water, there being hydrated lime, calcium chloride and pulverulent mineral material dispersed by the water.

3,547,666
METHOD OF IMPROVING THE PROPERTIES OF ORGANIC POLYMERIC MATERIAL
William G. Louden, Erwinna, Pa. 18920
No Drawing. Original application Mar. 18, 1963, Ser. No. 266,080, now Patent No. 3,379,709, dated Apr. 23, 1968. Divided and this application Aug. 31, 1967, Ser. No. 664,651
Int. Cl. C08b *27/00, 45/00;* C08c *11/34*
U.S. Cl. 106—171 **7 Claims**

A water insoluble, organo-chromium complex comprising a fused chromium-monocarboxylic organic acid coordination compound, prepared by melting together a trivalent chromium salt and a monocarboxylic organic acid, bonded to n-butanol or an aliphatic alcohol containing from 5 to 18 carbon atoms, is mixed with a polymeric organic material.

3,547,667
PLASTICIZED RESIN COMPOSITIONS CONTAINING ESTERS OF o - CARBOXYHIPPURIC ACID
James Kern Sears, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 10, 1968, Ser. No. 735,519
Int. Cl. C08b *27/42*
U.S. Cl. 106—182 **15 Claims**

Esters of o-carboxyhippuric acid which are useful as plasticizers for thermoplastic resins.

3,547,668
PROCESS FOR THE PRODUCTION OF CELLULOSE TRIACETATE FILMS
Kingo Kobayashi and Goro Uehara, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,332
Claims priority, application Japan, Oct. 18, 1966, 41/68,528
Int. Cl. C08b *3/22*
U.S. Cl. 106—189 **4 Claims**

In a process for the production of a cellulose triacetate film by a dry solution method using as the solvent a mixed solvent of at least one hydrocarbon chloride having from 1 to 2 carbon atoms, and a member selected from the group consisting of an alkanol having 3 to 6 carbon atoms, benzene, toluene, cyclohexane and mixture thereof the improvement which comprises subjecting the solution to a shearing treatment, adequate to reduce the viscosity, prior to casting of the solution.

3,547,669
STABLE LIQUID COMPOSITIONS OF MATTER
Orlando A. Battista, Yardley, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 436,304, Mar. 1, 1965. This application Apr. 18, 1966, Ser. No. 543,017
The portion of the term of the patent subsequent to July 29, 1986, has been disclaimed
Int. Cl. C08f *45/52;* C08g *51/10;* C08k *1/14*
U.S. Cl. 106—272 **12 Claims**

Viscosity stable compositions comprising a major proportion of a liquid medium that includes a non-aqueous constituent and a minor proportion of a disintegrated, chemically modified chrysotile colloidally dispersed in the liquid medium, at least 10% by weight of the disintegrated modified chysotile having a particle size of less than one micron. The chemically modified chysotile has a SiO_2 to MgO weight ratio of 5% to 30% greater than that of the parent chrysotile.

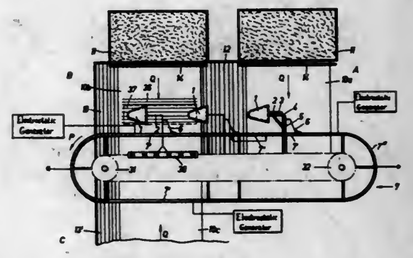
3,547,670
METAL OXIDE-PHOSPHORIC ACID COATINGS
Robert Joseph Fuchs and Charles William Lutz, Clark, and Leon Erwin Cohen, Somerset, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 732,525, May 28, 1968. This application May 28, 1969, Ser. No. 828,728
Int. Cl. C08h *17/24*
U.S. Cl. 106—286 **8 Claims**

Hard, adhesive binders and coatings, especially for metal, glass, ceramic or refractory surfaces, have been made by blending together one part by weight of superphosphoric acid having a concentration of 101 to 108% H_3PO_4, 0.02 to 0.10 part by weight of a glassy phosphate, alumina (Al_2O_3) in amounts to yield an Al_2O_3:P_2O_5 mole ratio of from about 2:3 to 3:1 (based on the P_2O_5 content derived from the superphosphoric acid), applying the resultant mixture to the surface of metal, glass, ceramic or refractory and heating the mixture on said surface until cured. Optional additives which further improve the above coatings or binders are silica (SiO_2) and titanium dioxide (TiO_2).

3,547,671
PROCESS FOR THE MANUFACTURE OF A RUTILE PIGMENT HAVING HIGH RESISTANCE TO GRAYING IN RESIN SYSTEMS
Gerhard Hitzemann, Giershofen, Post Dierdorf, Achim Kulling and Hans-Hermann Luginsland, Opladen, and Helmut Weber, Odenthal-Osenau uber Bergisch Gladbach, Germany, assignors to Titangesellschaft m.b.H., Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Mar. 7, 1968, Ser. No. 711,197
Claims priority, application Germany, June 2, 1967, T 34,015
Int. Cl. C09c *1/36;* C08g *51/04;* C08k *1/06*
U.S. Cl. 106—300 **3 Claims**

A process for the preparation of an improved type of rutile pigment which possesses increased photochemical stability in urea- or melamine-formaldehyde systems is prepared by the reaction of titanium tetrachloride with oxygen or a gas containing oxygen in a reaction chamber using an auxiliary flame. The reaction takes place at simultaneous presence of aluminum chloride and a phosphorus chloride and the reaction mixture immediately after the reaction, is cooled carefully by slowly mixing in a cold gas or by contact with coherent water film and subsequently the basis pigment body obtained is separated and subjected to a post-treatment with water soluble compounds of aluminum and silicon with precipitation of insoluble compounds.

3,547,672
ELECTROSTATICALLY COATING THE OUTER SURFACE OF HOLLOW OBJECTS WITH FLOCK
Walter Linneborn, Cologne-Braunsfeld, Germany, assignor, by mesne assignments, to The Singer Company, New York, N.Y., a corporation of New Jersey
Original application Oct. 19, 1965, Ser. No. 497,975. Divided and this application Sept. 23, 1968, Ser. No. 822,751
Claims priority, application Germany, Mar. 5, 1965, E 28,816
Int Cl. B05b *5/00;* B44c *1/08*
U.S. Cl. 117—17 **9 Claims**



An electrostatic method of applying different types of flock material to the outside of adhesively coated hollow objects mounted on movable electrodes. As the electrodes move through the different flock application zones a potential is applied to attract the flock up to the object. Between the application zones no potential is applied and field alternating voltage is applied to isolate and prevent mixing of the different flock. The flock dispensers may be isolated by a field of alternating voltage from the flock applicator zone. The movable electrodes rotate in the applicator zones and the excess flock material may be recycled to the dispensers.

3,547,673
METHOD OF FORMING CERMET-TYPE PROTECTIVE COATINGS ON HEAT RESISTANT ALLOYS
Nikolaje Bredzs, Detroit, and Forbes M. Miller, Dearborn, Mich., assignors to Wall Colmonoy Corporation, a corporation of Delaware
Continuation-in-part of application Ser. No. 646,654, June 16, 1967. This application Feb. 19, 1969, Ser. No. 800,540
Int. Cl. C23c *17/00*
U.S. Cl. 117—22 **15 Claims**

An improved cermet-type alloy and method of making same which is particularly adaptable for forming protective surface coatings on heat-resistant alloys. A particulated mixture is formed containing titanium and/or zirconium reactive metal constituents that undergo an exo-

thermic reaction upon fusion at an elevated temperature in a substantially inert atmosphere with silicon and/or boron present in the mixture forming the corresponding silicides or borides of the reacted metals in situ which are subsequently precipitated as a uniformly dispersed discontinuous phase in a continuous phase of a nickel and/or cobalt base matrix. The invention also encompasses novel powder compositions for exothermically forming the cermet-type alloys and coatings.

3,547,674

PREPARED SURFACE OF POLYOLEFIN FABRIC, ASPHALT AND RUBBER CRUMB

Homer L. Draper, Dale F. Levy, and Duane W. Gagle, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Nov. 1, 1967, Ser. No. 679,674

Int. Cl. E01c 5/22; B44d 1/16

U.S. Cl. 117—32 **4 Claims**



A surface is prepared composed of asphalt, a polyolefin fabric and rubber crumb. The rubber crumb is atop the polyolefin fabric which is impregnated with the asphalt. In one method embodying the invention, a coating of asphalt is sprayed onto the place or area to be surfaced. Then a layer of a polypropylene fabric is placed into the freshly sprayed asphalt. A second coating of asphalt is sprayed onto the fabric following which rubber crumbs are distributed over the fresh asphalt at a rate of 3–6 pounds per square yard. The surface of the rubber is now covered with a partition agent such as talc or portland cement and the system then compacted with a roller to orient the rubber crumbs. A period of curing of approximately 4 to 8 hours is allowed and the area is then ready for service as on a playground, running track or protective covering.

3,547,675

COLOR PICTURE TUBE

Kakuichiro Hosokoshi, Kyoto, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan, a corporation of Japan

Filed July 3, 1967, Ser. No. 650,843

Claims priority, application Japan, July 5, 1966, 41/44,321

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5 **4 Claims**

An oxide phosphor consisting of Y_2O_3:Eu phosphor or Gd_2O_3:Eu phosphor as a red phosphor material is used in a color picture tube of the present invention. To meet the high radiation intensity of the said new oxide phosphor study has been made to obtain the white color in the screen by defining ratios I_R/I_G and I_R/I_B as to be 1.2 ± 0.3 and 1.5 ± 0.5 respectively. The present color picture tube can produce radiations greater by 40% in brightness than the conventional color picture tubes and is interchangeable with conventional one.

3,547,676

PYROLYTIC CARBON STRUCTURES AND PROCESS FOR MAKING SAME

Jack C. Bokros, Jack Chin, and Robert J. Price, San Diego, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 15, 1966, Ser. No. 529,181

Int. Cl. C23c 9/06, 13/04

U.S. Cl. 117—46 **10 Claims**

An article is heated to a high temperature in contact with a gas stream carrying a carbon containing substance with the heating, flow rate and size of the articles controlled to deposit a dense isotropic pyrolytic crystalline carbon on the surfaces of the articles. The deposited carbon, per se, having an isotropic crystalline structure, a density of at least 1.8 grams per cc., and a Bacon anisotropy factor between about 1.0 and 1.3 has good mechanical strength and excellent dimensional stability under prolonged exposure to high temperature and neutron irradiation.

3,547,677

PYROLYTIC CARBON COATED SUPPORT AND PROCESS FOR ITS MANUFACTURE

Claude Gentilhomme, Colmar, Haut-Rhin, and Jacques Menault, Venissieux, Rhone, France, assignors to Crylor, Paris, France, a French body corporate

No Drawing. Filed June 9, 1967, Ser. No. 644,780

Claims priority, application France, June 17, 1966, 65,974

Int. Cl. C23c 9/06

U.S. Cl. 117—46 **13 Claims**

Coated elements are produced by forming a film of a polymer based on acrylonitrile. which contains a metal salt, on a metal substrate and then pyrolysing the film.

3,547,678

ELECTROPHOTOGRAPHIC SHEET AND METHODS OF PRINTING

Kenneth E. Conley, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 459,866, May 28, 1965. This application June 28, 1968, Ser. No. 741,226

Int. Cl. G03c 1/74

U.S. Cl. 117—34 **3 Claims**

The present invention relates to a method of producing cast surface coated electrophotographic surfaces from aqueous alkaline coating compositions comprising photoconductive pigments, dilute alkalies, and binders comprising electrically insulating synthetic organic polymers containing sufficient carboxyl groups to render the polymer soluble in dilute alkali solutions. When coatings of such composition are coagulated with film-forming organic polymeric acids, such as polyitaconic or polyacrylic acids, prior to casting, the resulting cast surfaces are very smooth and especially useful in electrophotographic printing process where good resolution of the image is important and/or the image is transferred before fusing.

3,547,679

DIMENSIONALLY STABILIZED WOOD AND METHOD OF MAKING SUCH WOOD

Rolf Erhard Moren, Alfredshem, Sweden, assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden, a corporation of Sweden

No Drawing. Filed Aug. 23, 1967, Ser. No. 662,576

Claims priority, application Sweden, Aug. 26, 1966, 11,578/66

Int. Cl. B27k 3/50, 3/02

U.S. Cl. 117—57 **10 Claims**

A wood treating composition for improving dimensional stability of wood is provided, comprising a polyalkylene glycol and glyoxal. In addition, there are also provided wood having improved dimensional stability treated with the above composition and a method of improving dimensional stability of wood by surface-treating or impregnating wood with the above composition to swell the wood and form cross-links between lignin and/or cellulose molecules of the wood, thereby rendering the wood dimensionally stable and, if necessary, drying the wood.

3,547,680

MANUFACTURING PROCESS FOR AN ELECTRIC DISCHARGE LAMP

Andre C. Bouchard, Peabody, Peter W. Gaudet, Lynn, and Martha J. B. Thomas, Winchester, Mass., assignors to Sylvania Electric Products, Inc., a corporation of Delaware

Filed Jan. 2, 1968, Ser. No. 695,225

Int. Cl. B44d 1/44; C03c 17/30

U.S. Cl. 117—62 **4 Claims**



In the manufacture of an arc discharge lamp having a silicone film on the inner surface of the lamp envelope, the envelope is heated in an atmosphere of nitrogen dioxide to oxidize and eliminate the organic constituents of the film.

3,547,681

METALLIC COMPOSITES

Dean D. Lawthers, Commack, and George T. Pepino, Jr., Huntington Station, N.Y., assignors to Sylvania Electric Products Inc., a corporation of Delaware

No Drawing. Filed Apr. 18, 1968, Ser. No. 722,213

Int. Cl. B44d 1/14

U.S. Cl. 117—71 **14 Claims**

Heat-resistant articles are comprised of a tantalum-base substrate and a duplex metallic coating thereon that renders said substrate oxidation-resistant at both low and high temperatures. The duplex coating is obtained by first forming on the substrate, under heat and non-oxidizing conditions, a porous coating derived from HfB_2 and a sintering aid, e.g., $MoSi_2$. This porous coating is then infiltrated, under heat and non-oxidizing conditions, with a mixture or an alloy comprised of, by weight, at least 70% hafnium and a lesser but substantial amount of tantalum.

3,547,682

COMPOSITE POLYOLEFIN EXTRUSION COATING OF SUBSTRATES

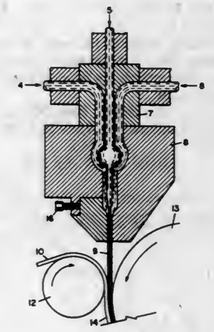
Louis F. Erb, Nixon, N.J., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

Filed Mar. 15, 1968, Ser. No. 713,527

Int. Cl. B44d 1/16; B32b 27/32; B39b 15/08

U.S. Cl. 117—75 **9 Claims**

A process for the extrusion coating of substrates, such as paper and metal foil, which comprises extruding together as a composite coating a difficultly extrudable polymer selected from the group consisting of high density polyethylene and crystalline polypropylenes and a readily



extrudable polymer selected from the group consisting of low density polyethylene and ethylenevinyl acetate copolymers.

3,547,683

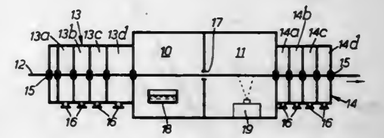
VACUUM DEPOSITION AND RADIATION POLYMERISATION OF POLYMER COATINGS ON SUBSTRATES

Terence Williams and Michael W. Hayes, Swansea, Wales, assignors to The British Iron and Steel Research Association

Filed June 19, 1967, Ser. No. 646,850

Int. Cl. C08f 1/24

U.S. Cl. 117—93.31 **9 Claims**



The invention relates to a method of forming polymer coatings on substrates by first vapour depositing a thin, uniform film of a radiation-curable material on a substrate, which is usually a metal, and then irradiating the deposited film with a beam of accelerated electrons, whose energy is generally up to about 20 kev. The deposition is performed under conditions of reduced pressure and elevated temperature and the irradiation under reduced pressure.

3,547,684

PROCESS FOR MAKING ORGANIC POLYMER FILLED GAS CHROMATOGRAPHIC COLUMNS

Oscar Le Roy Hollis and Robert D. Acuff, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,511

Int. Cl. B05c 8/00, 8/02

U.S. Cl. 117—95 **3 Claims**

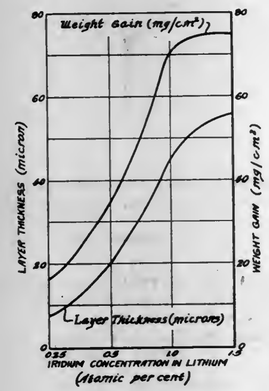
A process for preparing gas chromatographic columns of synthetic organic polymers which consist in (1) depositing upon internal surfaces of an elongated conduit a liquid mixture of at least one polymerizable unsaturated monomer and an inert non-polar hydrocarbon solvent to-

gether with a polymerization initiation catalyst and (2) polymerizing said monomer to define a polymer-walled path for a stream of gas through said conduit.

3,547,685
METHOD OF INHIBITING THE CORROSION OF TANTALUM BY LIQUID LITHIUM

James Y. N. Wang, Lockport, and Kenneth G. Figlik, Downers Grove, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 21, 1968, Ser. No. 754,308
Int. Cl. C23c *1/10*; G21c *15/28*
U.S. Cl. 117—114 **3 Claims**



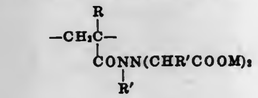
A method of inhibiting the corrosion of tantalum by liquid lithium at high temperatures by adding 0.25 to 1.5 atom percent iridium to the lithium.

3,547,686
CHELATING POLYMERS AND METHOD OF PREPARATION

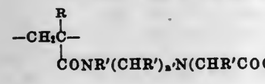
Gaetano F. D'Alelio, South Bend, Ind., assignor of twenty-five percent to Walter J. Monacelli, Cleveland, Ohio

No Drawing. Continuation of application Ser. No. 632,467, Jan. 3, 1967, which is a division of application Ser. No. 367,546, May 14, 1964, now Patent No. 3,395,134, which in turn is a continuation-in-part of applications Ser. No. 28,560 and Ser. No. 28,563, May 12, 1960. This application Aug. 12, 1968, Ser. No. 757,198
Int. Cl. B44d *1/42*
U.S. Cl. 117—128.4 **8 Claims**

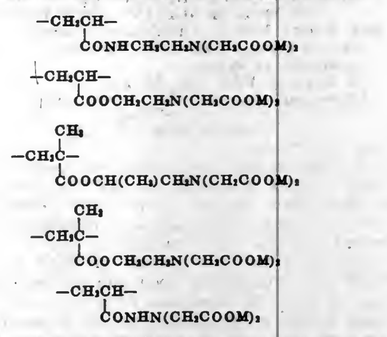
This invention comprises a metal wire having a continuous coating thereon of a chelating polymeric structure having at least 0.1% of a repeating unit of a formula selected from the class consisting of



and



wherein R, R', and *n'* and M are as defined hereinafter but are illustrated by repeating units having the formulas



wherein M can be hydrogen, alkyl, aryl, ammonium and metal as more specifically defined hereinafter.

3,547,687
FIRE-PROOFING OF LIGNOCELLULOSIC MATERIAL IN TWO STAGES

Menachem Lewin, Jerusalem, Israel, assignor to The State of Israel, Ministry of Trade and Industry, Jerusalem, Israel

No Drawing. Continuation-in-part of application Ser. No. 551,526, May 20, 1966. This application Jan. 9, 1969, Ser. No. 790,165
Int. Cl. C09k *3/28*; B44d *1/44*; B27k *3/52*
U.S. Cl. 117—138 **9 Claims**

Fire-proofing of lignocellulosic material by bromination. The bromination is effected by a two-stage procedure in the first of which the substratum is impregnated with at least one bromide or bromate or both, and in the second stage some further reactants are added so that the substratum is in contact with at least one bromide and at least one bromate, and, when necessary, the physical conditions, such as temperature or pressure, are so changed that a reaction delivering free bromine and consequently the bromination of the lignin is started. Due to the two-stage procedure the reactants penetrate into the depth of the substratum and the bound bromine is distributed throughout the brominated material.

3,547,688
MICROBIOCIDAL COMPLEXES OF AZIRIDINYL COMPOUNDS AND BIOCIDAL METAL SALTS AND THEIR USE IN RENDERING TEXTILES OR OTHER SUBSTRATES DURABLY MICROBIOCIDAL

Domenick Donald Gagliardi, East Greenwich, and Virginia S. Kenney, North Kingstown, R.I., assignors to Gagliardi Research Corporation, East Greenwich, R.I., a corporation of Rhode Island

No Drawing. Filed Jan. 4, 1967, Ser. No. 607,137
Int. Cl. D06m *13/44*, *13/48*, *13/54*
U.S. Cl. 117—138.5 **13 Claims**

Microbiocidal compositions are prepared by complexing water-soluble biocidal metal salts with aziridinyl compounds to form solutions containing aziridinyl metal adducts.

Substrates subject to biological attack, e.g., textiles, paper, wood, leather, certain plastics, etc., are wet with such compositions, dried and then heated, e.g., 100–170° C., to set the metal complex on the substrate and provide the substrate with durable microbiocidal effects, e.g., bacteriocidal, fungicidal, rot-proof or self-sanitizing properties.

3,547,689
ETHYLENE POLYMER AND VINYLIDENE CHLORIDE POLYMER ARTICLES OF MANUFACTURE

Robert C. Whitney, Overland Park, and Raymond M. Bergman, Kansas City, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Dec. 12, 1967, Ser. No. 689,788
Int. Cl. B32b *27/08*, *27/28*
U.S. Cl. 117—138.8 **12 Claims**

The bonding between adjacent layers of an ethylene polymer containing substituent carboxylate salt groups and a vinylidene chloride polymer is substantially improved by incorporating into the coating polymer an alkaline wet strength resin.

3,547,690
PROCESS FOR CONTROLLING FABRIC HARDNESS BY IMPREGNATING WITH A LATEX

Richard G. Nickerson and Richard George McAllister, Worcester, Mass., and Jack Dickstein, Huntingdon Valley, Pa., assignors to Borden, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,577
Int. Cl. B32b *27/04*; D06n *15/30*
U.S. Cl. 117—139.5 **18 Claims**

This invention relates to a process for controlling the degree of fabric hardness and rendering said fabric hardness impervious to solvents normally used in the dry cleaning process. More particularly, this invention relates to a process as aforesaid wherein a polymer latex emulsion is prepared in the presence of a hydroxyalkyl alkyl maleate or fumarate and thereafter the resultant polymer latex is impregnated onto a fabric-like substrate.

The term "fabric-like substrate" includes fibrous materials such as paper and cotton as well as impregnable synthetics.

3,547,691
METHOD AND COMPOSITION FOR STABILIZING THE REVERSE VOLTAGE PROPERTIES OF SEMICONDUCTOR DEVICES

Rolf Berkner, Wolkersdorf, near Nuremburg, Germany, assignor to Semikron Gesellschaft für Gleichrichterbau und Elektronik m.b.H., Nuremburg, Germany

No Drawing. Continuation-in-part of application Ser. No. 633,408, Apr. 25, 1967. This application July 11, 1967, Ser. No. 652,431
Claims priority, application Germany, Apr. 27, 1966, S 103,446
Int. Cl. B44d *1/18*; C23c *13/04*
U.S. Cl. 117—201 **24 Claims**

Stabilizing the reverse voltage properties of a semiconductor device by providing the surface of such a device with a layer of a mixture composed of at least 50% by weight of at least one polymerized and/or condensed organic substance and up to 50% by weight of a pulverized, soluble organic gettering substance exhibiting a gettering effect in its dissolved state, the gettering substance acting to purify the surface of the device and to simultaneously cover it with a protective coating.

3,547,692
METAL COATING CARBON SUBSTRATES

James S. Hill, Cranford, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Newark, N.J., a corporation of Delaware

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,499
Int. Cl. B44d *1/18*
U.S. Cl. 117—217 **4 Claims**

Carbonaceous materials are provided with an adherent solderable metal coating by initially depositing a nickel coating on the carbon surface by immersion plating, treating the coated substrate at elevated temperature until substantially non-metallic in appearance, replating the treated substrate with a second metal and heating to diffusion bond the second metal to the initially deposited coating.

3,547,693
MAGNETIC TAPE

Albert P. Huguenard, Vincennes, France, assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

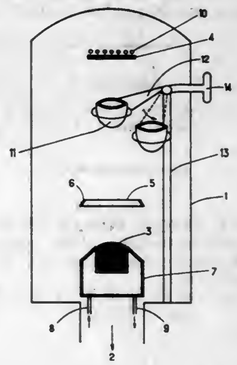
No Drawing. Filed Sept. 20, 1968, Ser. No. 762,672
Claims priority, application France, Jan. 12, 1968, 135,839
Int. Cl. H01f *10/02*
U.S. Cl. 117—235 **8 Claims**

Magnetic tape incorporating monomeric vinyl stearate, allyl stearate, or other monomeric aliphatic esters of a long chained fatty acid and of an unsaturated alcohol, as a lubricant.

3,547,694
MAGNETIC THIN FILMS MANUFACTURING PROCESS

Jean-Pierre Dumas and Paul Leduc, Paris, France, assignors to Societe Lignes Telegraphiques et Telephoniques, Paris, France, a joint-stock company of France

Filed Dec. 4, 1967, Ser. No. 687,742
Int. Cl. C04b *35/26*
U.S. Cl. 117—240 **7 Claims**



Thin magnetic films obtained by vacuum deposition of iron-nickel alloys are made to have improved magnetic properties by causing the film to contain as an additive in very small amount a suboxide of silicon or a metal having an atomic number between 22 and 32.

3,547,695
PROCESS FOR TREATING GUM ARABIC

Levon B. Agazarian, 50 St. James St., London, SW. 1, England

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,383
Int. Cl. C08b *29/00*
U.S. Cl. 134—34 **8 Claims**

Processing crude, partially hardened gum arabic tears by mechanically removing the oxidized outer layer containing foreign substances, as by dry scrubbing the gum tears. The gum tear, once free of surface impurities, may be solubilized and spray-dried to form a sterilized, highly purified, gum arabic.

3,547,696
ISOTHERMAL CRYSTALLIZATION OF DEXTROSE
Helmut Mueller, 36 Metzerstrasse, 71 Heilbronn, Germany
No Drawing. Filed Nov. 6, 1967, Ser. No. 680,951
Claims priority, application Germany, Nov. 5, 1966, D 51,478
Int. Cl. C13f *1/02, 1/06*; C13k *1/10*
U.S. Cl. 127—60 4 Claims

Process for producing dextrose hydrate by isothermal crystallization which takes place in two stages, the first stage comprising controlled formation of seed crystals and the second stage comprising crystal growth.

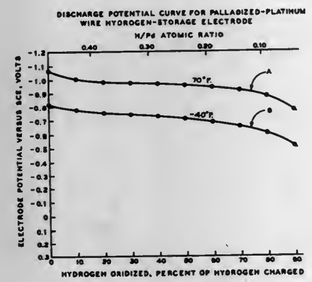
3,547,697
METHOD OF REMOVING COPPER CONTAINING IRON OXIDE SCALES FROM IRON
Jackie Gene Frost, Duncan, and Billy Bob Arnold, Edmond, Okla., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 584,339, Oct. 5, 1966. This application Apr. 23, 1968, Ser. No. 723,618
Int. Cl. C07c *157/04*; C23g *1/04, 1/08*
U.S. Cl. 134—3 12 Claims

The redeposition and precipitation of copper during the removal of copper-containing iron oxide incrustations from ferrous metal surfaces, with an acidic solution, is prevented by contacting the ferrous metal surface with an aqueous acid solution containing a copper complexer from the group consisting of hexahydropyrimidine-2-thione, N-(2-hydroxyethyl)-ethylene thiourea, diethanol thiourea, 4-methylimidazolidine-2-thione and mixtures thereof.

ERRATUM

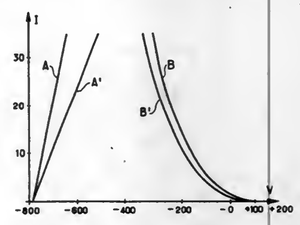
For Class 134—34 see:
Patent No. 3,547,695

3,547,698
ELECTRICAL POWER SOURCE
Maurice J. Schlatter, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Filed Sept. 15, 1966, Ser. No. 579,674
Int. Cl. H01m *35/02*
U.S. Cl. 136—6 1 Claim



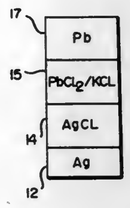
Constant potential batteries are provided using a hydrogen-palladium anode for hydrogen storage, having a hydrogen-palladium atomic ratio of about 0.6.

3,547,699
FUEL CELL WITH AQUEOUS ETHYLENE DIAMINE ELECTROLYTE SOLUTION
Jean-Claude Charbonnier, Veuilly-la-Poterie, and Bernard Goue, Gif-sur-Yvette, France, assignors to Compagnie Generale d'Electricite, Paris, France, a corporation of France
Filed June 10, 1968, Ser. No. 735,895
Claims priority, application France, June 9, 1967, 109,890
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 6 Claims



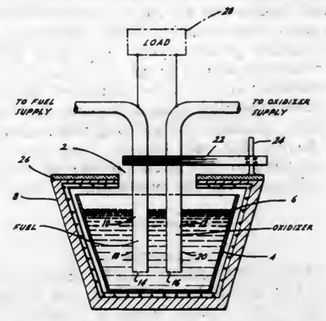
An electrolyte for fuel cells which essentially comprises an aqueous ethylene diamine solution. Soluble compounds may be added to improve the conductivity of the electrolytic ethylene diamine solution. Exemplary soluble compounds are potassium or sodium salts. Preferred concentrations of the aqueous ethylene diamine solution range from about 15 grams to about 40 grams of ethylene per liter. The electrolyte finds particular application for use in a cell wherein the fuel contains carbon dioxide or wherein the fuel cell is capable of yielding carbon dioxide by reaction at the electrodes.

3,547,700
SOLID STATE BATTERY CELLS
Frank E. Swindells, Arlington, and William R. Lanier, Chantilly, Va., assignors to Melpar, Inc., Falls Church, Va., a corporation of Delaware
Filed Mar. 12, 1969, Ser. No. 806,367
Int. Cl. H01m *35/00*
U.S. Cl. 136—83 9 Claims



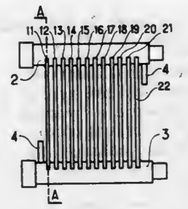
A solid state battery includes an electrolyte composed of two contiguous thin film layers of halides of the respective metals utilized as the electrodes of the battery. One of the electrolyte thin film layers is a halide salt of a divalent or higher valence metal doped with a halide salt of a monovalent metal. The monovalent metal has an ionic radius that most closely approximates, relative to the other monovalent metals, the ionic radius of the divalent or higher valence metal in the aforementioned one of the electrolyte layers. The electrodes are, like the electrolyte layers, of thin film construction.

3,547,701
FUEL CELL HAVING AN ELECTROLYTE COMPRISING A FUSED VANADATE SALT
Paul R. Basford, Santa Ana, and Myron H. Boyer, Newport Beach, Calif., assignors to Philco-Ford Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Mar. 17, 1967, Ser. No. 623,981
Int. Cl. H01r *27/20*
U.S. Cl. 136—86 13 Claims



A high temperature fuel cell in which a gaseous fuel and an oxidizer are maintained in contact with a molten electrolyte composed of a vanadate salt or a mixture of vanadate salts.

3,547,702
ELECTRODE ARRANGEMENT FOR A FUEL CELL
Claude Hespel, Limours, Essonne, France, assignor to Compagnie Generale d'Electricite, Paris, France
Filed May 12, 1967, Ser. No. 638,003
Claims priority, application France, May 12, 1966, 61,374
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 8 Claims

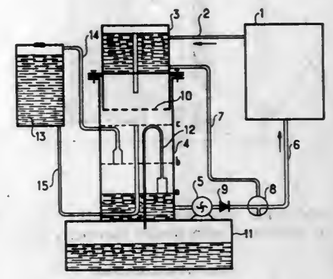


Fuel cell having a plurality of thin electrodes, similarly shaped and being either hollow or laterally spread and method of manufacture thereof.

3,547,703
NONAQUEOUS BATTERY WITH ETHYLENE GLYCOL SULFITE ELECTROLYTE SOLVENT
George E. Blomgren, Lakewood, and George W. Jackson, Cleveland, Ohio, assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Nov. 29, 1968, Ser. No. 780,230
Int. Cl. H01m *11/00*
U.S. Cl. 136—154 10 Claims

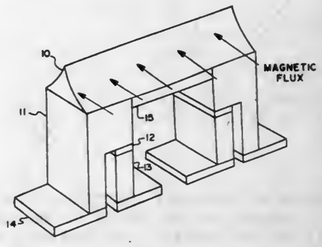
This invention relates to the use, as a nonaqueous battery electrolyte, of a solute dissolved in ethylene glycol sulfite.

3,547,704
AUTOMATIC MEANS FOR REGULATING THE CONCENTRATION OF ELECTROLYTE OF A FUEL CELL
Jean-Paul Pompon, Vitry, Seine, France, assignor to Compagnie Generale d'Electricite, Paris, France, a corporation of France
Filed Feb. 15, 1968, Ser. No. 705,694
Claims priority, application France, Feb. 17, 1967, 95,509
Int. Cl. H01m *31/00*; F16l *43/00*
U.S. Cl. 136—161 6 Claims



Automatic regulation of electrolyte concentration within a fuel cell by siphoning various strength portions to and from a gauge chamber in response to change in chamber level.

3,547,705
INTEGRAL ETTINGSHAUSEN-PELTIER THERMOELECTRIC DEVICE
George Guy Heard, Jr., Huntsville, Ala. (2012 Walker Ave., Greensboro, N.C. 27403)
Filed Jan. 17, 1967, Ser. No. 610,217
Int. Cl. H01v *1/28*
U.S. Cl. 136—203 1 Claim

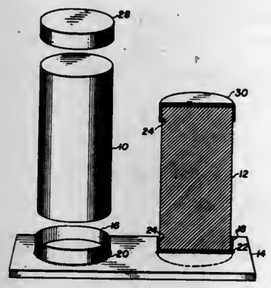


An integral semiconductor Ettingshausen-thermoelectric device for use as a heat pump or electricity generator. The N-type and P-type semiconductor legs of the thermoelectric device are grown directly and autogenously on the base of the Ettingshausen unit.

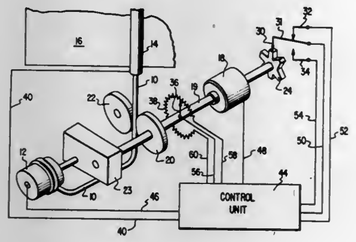
3,547,706
JUNCTION ASSEMBLY FOR THERMOCOUPLES
John W. McGrew, Westminster, Md., assignor, by mesne assignments, to Teledyne, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Apr. 21, 1967, Ser. No. 632,593
Int. Cl. H01v *1/04*
U.S. Cl. 136—205 3 Claims

A junction assembly for bonding thermoelectric elements to hot shoes. The assembly uses a cup-shaped structure having a very thin thickness which is bonded to the

hot shoe and serves as a diffusion barrier. The hot shoe is selected having a coefficient of thermal expansion substantially near that of the thermoelectric material and, by virtue of the cup-hot shoe bond, forces the cup structure to contort in sympathy with strains thermally induced in the shoe.



3,547,707
TEMPERATURE MONITORING APPARATUS
Calvin J. Bragg, Chicago, and Joseph C. Crowther, Jr., Flossmoor, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
Filed Dec. 11, 1967, Ser. No. 689,661
Int. Cl. H01v *1/00*
U.S. Cl. 136—224 8 Claims



A temperature monitoring apparatus capable in a first mode of providing a step profile of the temperature within a vessel and capable in a second mode of following and monitoring the peak temperature within the vessel. In the first mode a reversible motor withdraws a flexible thermocouple sheath from a thermowell on the side of the vessel and coils the sheath on a take-up drum. Three colinear equally spaced thermocouples are within the sheath. Timed switching intermittently stops the motor to allow the thermocouples to reach thermal equilibrium before a temperature reading is taken from the center thermocouple. When the sheath has reached the end of the thermowell, the motor reverses to return the sheath fully into the thermowell without stopping. In the second mode the two most remote thermocouples are connected in parallel opposition to an automatic control system which causes the motor to drive the thermocouples toward the higher temperature location so that, when equilibrium is reached, the remote thermocouples straddle a temperature peak which is monitored by the center thermocouple.

3,547,708
SURFACE FINISH AND DIMENSION CONTROLLED AND PARALLEL FACETED SEMICONDUCTOR CRYSTALS AND GROWING PROCESS
Thomas H. Strudwick, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
No Drawing. Filed Jan. 13, 1967, Ser. No. 608,979
Int. Cl. B01j *17/18*; C01b *33/00*
U.S. Cl. 148—1.6 3 Claims

Single non-dendritic crystals of diamond cubic crystal lattice semiconductor materials have blemish free and substantially atomically flat parallel natural oriented faces which extend longitudinally along opposite sides of a non-dendritically grown crystal. The faces are parallel to each other and parallel to the direction of growth, and the non-dendritic crystals have controlled thicknesses between opposite parallel faces. Also described herein are non-dendritic processes for growing non-dendritic single crystals having flat and blemish free faces. Crystals grown according to this invention may be used without further refinement for the production of semiconductor devices.

3,547,709
CORROSION-RESISTANT URANIUM
George S. Petit and Ralph R. Wright, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed May 14, 1968, Ser. No. 728,910
Int. Cl. C23f *7/02*
U.S. Cl. 148—6.3 10 Claims

Metallic uranium is provided with a surface film of uranium oxide which is highly protective against corrosion-producing agents such as dry or moist air and water. The corrosion-resistant uranium oxide film is provided by heating the uranium in an evacuated furnace to a temperature in a range of about 500° to 650° C. and then contacting the uranium with a selected quantity of dry oxygen.

3,547,710
REACTION COATINGS MADE FROM AQUEOUS EXTRACTS OF RED CEDAR WOOD
Max Kronstein, New York, N.Y., assignor to ITT Rayonier Incorporated, Shelton, Wash., a corporation of Delaware
No Drawing. Filed Mar. 2, 1967, Ser. No. 619,915
Int. Cl. C23f *7/00*
U.S. Cl. 148—6.14 16 Claims

Aqueous extracts of red cedar wood containing polyphenols and plicatic acid are applied to the surface of ferrous metals to produce a "reaction coating" thereon. Such reaction coating imparts corrosion resistance to the ferrous metal and also enhances the adhesion between the metal surface and a paint subsequently applied thereto.

3,547,711
PROCESS FOR COATING FERROUS SURFACES
Ronald A. Ashdown, London, England, assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Aug. 15, 1968, Ser. No. 752,806
Claims priority, application Great Britain, Aug. 18, 1967, 38,130/67
Int. Cl. C23f *7/10*
U.S. Cl. 148—6.15 10 Claims

A process for forming a phosphate coating on steel surfaces which are normally difficult to phosphate, such steel surfaces being characterized as being high alloy steels or low alloy steels which include one or more elements that promote the formation of a highly tenacious oxide surface film. The steel surface is first treated with an oxalate solution to form an oxalate coating on the surface and the thus-coated surface is then given a conventional phosphate

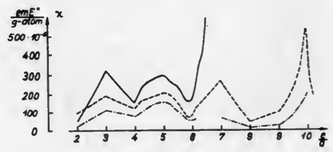
treatment. The treatment with the oxalate solution is carried out to the extent that an oxalate coating is formed on the surface, prior to treatment with the phosphate coating solution.

3,547,712
TREATMENT OF METALS OR ALLOYS
Alan A. Bourne, Jack C. Chaston, and Alan S. Darling, London, England, assignors to Johnson, Matthey & Company Limited, London, England, a British company
Filed Sept. 23, 1966, Ser. No. 581,443
Int. Cl. C22f *1/08, 1/14*
U.S. Cl. 148—11.5 14 Claims



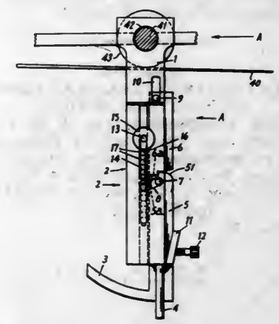
A method of improving the mechanical properties of a metal or metallic alloy or metallic composition which has been strengthened by inclusion therein of a dispersed non-metallic phase, comprising the steps of subjecting the metal, alloy or composition to cold-working and subsequently annealing, the extent of cold-working being such that the recrystallization effected during annealing results in an elongated grain structure highly oriented in the direction of working.

3,547,713
METHODS OF MAKING STRUCTURAL MATERIALS HAVING A LOW TEMPERATURE COEFFICIENT OF THE MODULUS OF ELASTICITY
Samuel Steinemann, Waldenburg, and Martin Peter, Petit-Lancy, Switzerland, assignors to Institut Dr. Ing. Reinhard Straumann A.G., Waldenburg, Switzerland, a joint-stock company of Switzerland
Filed Apr. 18, 1967, Ser. No. 631,686
Claims priority, application Switzerland, Apr. 22, 1966, 5,878/66
Int. Cl. C22f *1/00*
U.S. Cl. 148—11.5 20 Claims



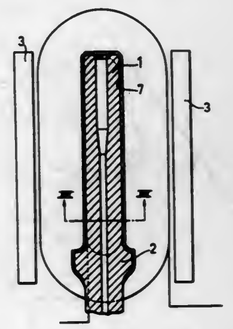
Method of producing a metallic, paramagnetic crystallized structural material of a temperature coefficient of the modulus of elasticity between -10^{-4} per degree and $+10^{-4}$ per degree centigrade. The components of the material are selected in type and quantity such that the material exhibits an atomic, paramagnetic susceptibility χ $50 \cdot 10^{-6}$ emE/g.-atom at room temperature and a negative temperature coefficient of the susceptibility $d\chi/dT$. The components are melted together, and a preferred orientation of the crystals by at least a mechanical or a thermal treatment of the material is produced.

3,547,714
CONVEYOR SYSTEM
Alfred Freeman, 94 Orlingbury Road, Isham, Northamptonshire, England
Filed Jan. 3, 1968, Ser. No. 695,438
Claims priority, application Great Britain, Jan. 4, 1967, 425/67
Int. Cl. B65g *17/00*
U.S. Cl. 198—38 5 Claims



Conveyor system including a travelling conveyor with load-supporting carriers depending therefrom, wherein each carrier is provided with a selector device which is adjustable into different vertical positions, and can be locked in an adjusted position. Setting stations disposed adjacent the moving carriers move the selector devices thereon from a rest position, through their adjusted positions and back to rest. The station through which a carrier passes immediately after it has been loaded, locks the selector device thereon in a particular adjusted position. Reader devices in the system are each operated by an appropriately-set selector device on a carrier, and determine the destination of the load carried by the carrier.

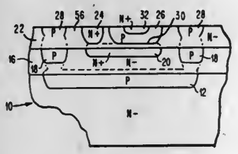
3,547,715
METHOD FOR SURFACE HARDENING POLYGONAL STEEL RODS AND PRODUCT TREATED ACCORDING TO THE METHOD
Bror Rossander, 3 Dalavagen, Ludwig Eugen, Fagersta, Sweden
Continuation-in-part of application Ser. No. 375,782, June 17, 1964. This application Apr. 14, 1967, Ser. No. 631,013
Int. Cl. C21d *1/42, 9/22*
U.S. Cl. 148—146 3 Claims



A method of surface hardening a drill rod having a portion of polygonal cross-section and a thickened portion and which is made up of a low alloy steel having a

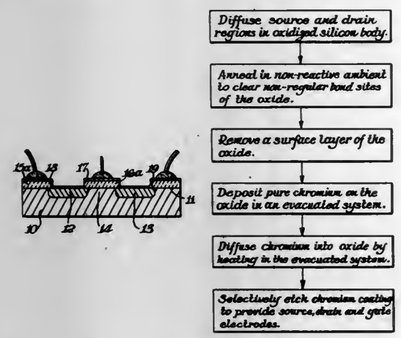
carbon content not greater than about 0.6%, which includes heating only the peripheral section of the rod to a hardening temperature while simultaneously rotating the rod in a high frequency cross-field heater whose cross-field is substantially perpendicular to the longitudinal extent of the rod to thereby obtain a substantially uniform depth of heating along the longitudinal extent of the rod including the thickened portion and thereafter quenching the rod to obtain a uniformly hardened surface layer along the entire longitudinal extent of the rod.

3,547,716
ISOLATION IN EPITAXIALLY GROWN MONOLITHIC DEVICES
David DeWitt, Poughkeepsie, Harlan R. Gates, Wappingers Falls, and Alan Platt, La Grangeville, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Sept. 5, 1968, Ser. No. 757,533
Int. Cl. H01l *7/36*
U.S. Cl. 148—175 **9 Claims**



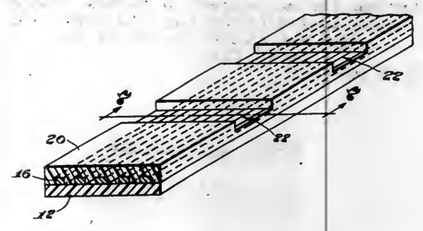
A technique for producing a monolithic semiconductor structure having device isolation, according to which isolation moats or channels are formed in the monolith so as completely to surround each of the individual device "islands." These channels are isolating by virtue of the fact that they define PN junctions with the device islands and with the remainder of the substrate. The channels are simply formed by discrete diffusions into the monolith so that separately formed regions merge together to produce the desired channels.

3,547,717
RADIATION RESISTANT SEMICONDUCTIVE DEVICE
Joseph Lindmayer, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass.
Filed Apr. 29, 1968, Ser. No. 724,914
Int. Cl. H01l *7/44, 11/14*
U.S. Cl. 148—187 **6 Claims**



The oxide gate insulation overlying a channel formed by spaced apart regions of a semiconductive body has its non-regular bond sites filled with chromium and oxides thereof to provide a radiation resistant device.

3,547,718
METHOD OF MAKING FLAT FLEXIBLE ELECTRICAL CABLES
Herman Gordon, Maricopa, Ariz., assignor to Rogers Corporation, Rogers, Conn., a corporation of Massachusetts
Filed May 18, 1967, Ser. No. 639,472
Int. Cl. H01b *13/06*
U.S. Cl. 156—55 **3 Claims**



In the continuous formation of a flat electrical cable having a plurality of conductors covered on one side by a self-supporting insulating film, a release agent is added to the exposed conductors on the other side at predetermined longitudinally spaced transverse areas prior to the application of a resinous solution to deposit a wet or liquid film on said other side of the strip. The release agent coated side prevents adherence of the resinous solution at said spaced transverse areas of the conductors leaving exposed contact areas. After curing the wet film to a solid flexible resinous state, the continuous cable is severed through said preselected transverse contact areas leaving terminal end portions with the conductors exposed on one side adapted for connection to terminal members or the like. By this method a multiplicity of like flat electric cables may be produced in a rapid, economical and efficient manner. In a broader aspect of the invention the present method may be employed with advantage as applied to circuitry in general without limitation to cables.

3,547,719
METHOD OF MAKING AN END CLOSURE
Walter Kasten, Franklin, Mich., assignor to The Bendix Corporation, a corporation of Delaware
Original application Aug. 17, 1966, Ser. No. 572,967, now Patent No. 3,415,384, dated Dec. 10, 1968. Divided and this application Apr. 10, 1968, Ser. No. 736,875
Int. Cl. B65b *11/28*
U.S. Cl. 156—69 **3 Claims**

The method of making an element for removing contaminants from liquid comprising the placing of a strip of thermoplastic material in a tubular body of porous material so that the strip extends to an interface of the body. Spin welding a cap of thermoplastic material to the end face of the body so that the thermoplastic strip becomes integral with the end cap to provide the necessary fluid-tight seal between the end cap and body.

3,547,720
METHOD OF TRANSFER COATING ARTICLES WITH LAYER OF FLAME-SPRAYED CERAMIC MATERIAL
Neville Rhys Jones, St. Albans, England, assignor to Hawker Siddeley Dynamics Limited, Hatfield, Hertfordshire, England, a British company
Continuation of application Ser. No. 529,348, Feb. 23, 1966. This application May 5, 1969, Ser. No. 858,551
Claims priority, application Great Britain, Feb. 26, 1965, 8,525/65
Int. Cl. B32b *17/06, 31/26*
U.S. Cl. 156—82 **8 Claims**

To apply a layer of ceramic material to an article of hardware, the ceramic is first flame-sprayed, by means of a flame gun of the type used in metal spraying, on to a temporary support member of flame-resisting material, such as silicone rubber, and subsequently the exposed surface of the sprayed ceramic layer on the temporary

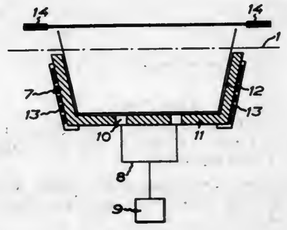


support is applied and bonded to the article to be coated, and the support is removed. A release medium, such as a mould release agent or a layer of Ballotini glass beads, may be applied to the surface of the temporary support member before the flame-spraying operation.

3,547,721
PROCESS OF MAKING A DIFFUSION UNIT
Hans-Joachim Dietzsch, Lausanne, Switzerland, assignor to Hans-Joachim Dietzsch G.m.b.H., Lausanne, Switzerland, a Swiss company
No Drawing. Filed Aug. 28, 1967, Ser. No. 663,533
Claims priority, application Germany, Sept. 2, 1966, D 50,998
Int. Cl. C09j *5/00;* **B01d** *31/00*
U.S. Cl. 156—155 **13 Claims**

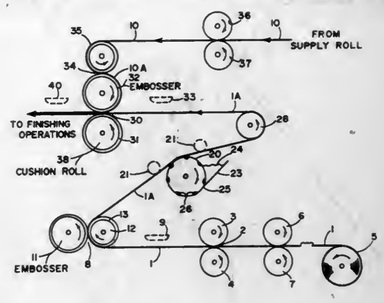
Capillary tubes are prepared by first coating auxiliary capillary tubes, sealing the coated auxiliary tubes in the respective apertures in the plates and then dissolving out the auxiliary capillary tubes to leave the coatings, suitably hardened, to form capillary membranes in the form of open tubes.

3,547,722
CONTAINERS AND METHODS FOR THEIR MANUFACTURE
Sven Ingemar Andersson, Ystad, Sweden, assignor to A.B. Akerlund & Rausing, Lund, Sweden, a Swedish joint-stock company
Original application Mar. 13, 1967, Ser. No. 622,766, now Patent No. 3,489,331, dated Jan. 13, 1970. Divided and this application Feb. 27, 1969, Ser. No. 813,378
Claims priority, application Sweden, Mar. 21, 1966; 3,694/66; Mar. 8, 1967, 3,169/67
Int. Cl. B31f *1/00*
U.S. Cl. 156—196 **4 Claims**



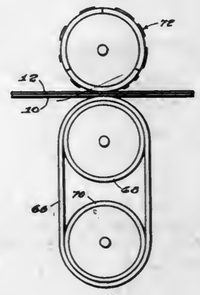
A container for packaging purposes having an internal protective layer which is united with the container at the erection thereof and in the erected state of the container freely extends between the adjacent but slightly spaced side wall edges of the container.

3,547,723
METHOD OF MAKING PAPER TOWELING MATERIAL
James T. Gresham, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Apr. 19, 1967, Ser. No. 631,962
Int. Cl. B31f *1/00*
U.S. Cl. 156—209 **6 Claims**



Two ply paper toweling having a cloth-like feel and texture; creped, embossed sheets constituting the toweling and having opposed surfaces roughened by embossing retained together by a series of longitudinally extending clusters of adhesive dots. A method of forming such paper toweling with webs of limited stretchability at relatively high speed involving the application of adhesive to the rough surface of at least one ply in such manner that the adhesive is disposed randomly and sparsely, the webs being combined under very light pressure in a cushion nip.

3,547,724
METHOD OF AND APPARATUS FOR PRODUCING PRINTED CIRCUITS
John A. Zagusta, Fort Lee, N.J., assignor to Rogers Corporation, Rogers, Conn., a corporation of Massachusetts
Filed Feb. 7, 1967, Ser. No. 614,470
Int. Cl. B32b *31/18*
U.S. Cl. 156—233 **2 Claims**

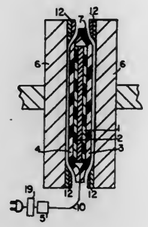


Printed circuits are produced by laminating superimposed webs of metal foil and plastic film, die stamping the metal foil in a predetermined pattern, and removing unwanted metal foil from the formed lamina.

3,547,725
METHOD OF FABRICATING AN ELECTRICAL RESISTANCE HEATING PAD

George J. Shomphe, Robert W. Tabor, and Harold W. Lalmond, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

Original application Oct. 14, 1965, Ser. No. 496,023, now Patent No. 3,423,574, dated Jan. 21, 1969. Divided and this application June 11, 1968, Ser. No. 770,458
Int. Cl. B29c 19/02
U.S. Cl. 156—272 2 Claims

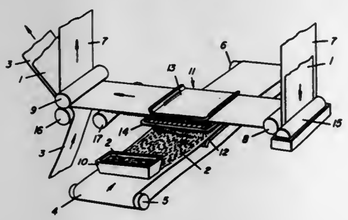


A method of fabricating an electrical resistance heating pad wherein an etched electrical resistance sheet laminated between sheets of flexible flame-retardant dielectric material is encapsulated by sheets of heat-expandable plastic. The method is particularly directed to heating the heat-expandable plastic to a temperature adapted to cause expansion thereof.

3,547,726
PROCESS FOR MAKING REINFORCED RUBBER ARTICLES

Giorgio Tangorra, Milan, Italy, assignor to Pirelli, Societa per Azioni, Milan, Italy

Filed Jan. 4, 1967, Ser. No. 607,229
Claims priority, application Italy, Jan. 11, 1966, 13,263
Int. Cl. B32b 5/08, 7/10, 31/00
U.S. Cl. 156—276 4 Claims



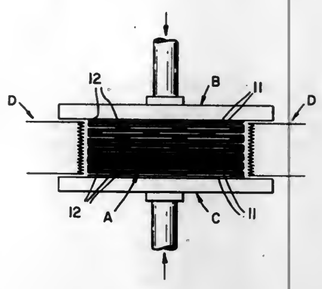
A reinforcing element for articles of vulcanized rubber including at least one supporting layer of uncured vulcanizable rubber having a layer of fibers permanently laid down and oriented thereon, the fibers of adjacent supporting layers being superposed to each other.

A process for the manufacture of a reinforcing element for articles of vulcanized rubber, comprising the steps of forming a supporting layer of uncured vulcanizable rubber, uniformly projecting a plurality of fibers against said layers so that one end of each fiber permanently contacts said supporting layer, and then laying down said fibers in an oriented manner with respect to said layer.

3,547,727
METHOD OF HEAT CURING AND PRESSING BLOCKS OF HONEYCOMB

Donald C. Anderson, Lafayette, Calif., assignor to Hexcel Corporation, Dublin, Calif.

Filed July 21, 1967, Ser. No. 655,099
Int. Cl. B32b 7/14
U.S. Cl. 156—291 1 Claim



A method of pressing and curing blocks of adhesive bonded metal honeycomb consisting of superposed sheets of metal foil to which have been applied partially cured adhesive node lines. The stack is placed under compression and heat is applied from sources located at opposite sides of the stack to cause heat transfer to the interior of the stack primarily by conduction through the sheets in the planes of the sheets.

3,547,728
METHOD FOR BONDING RIM BANDS TO TELEVISION PICTURE TUBES

Clifford V. Wittenwyler, Union, N.J., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 27, 1967, Ser. No. 693,718
Int. Cl. B29c 27/00
U.S. Cl. 156—293 15 Claims

Rim bands are bonded to television picture tubes by (1) clamping the rim band in place on the tube face, forming an annular peripheral channel, (2) packing the annular space with hot inert particles (sand) coated with a polyepoxide, (3) applying a pressure enclosing means (gasketed mask) over the filed area and (4) applying and holding ammonia under pressure in said mask for a period sufficient to effect a cure of the polyepoxide.

3,547,729
METHOD OF ADHERING RUBBER TO A FABRIC EMPLOYING A NOVEL ADHESIVE COMPOSITION

Richard W. Kibler, Cuyahoga Falls, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

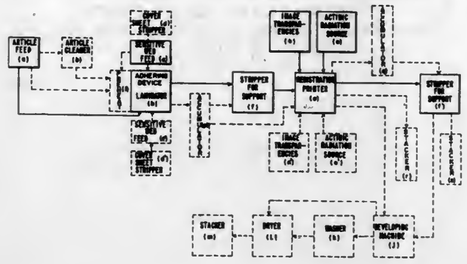
No Drawing. Filed Oct. 27, 1967, Ser. No. 678,517
Int. Cl. C09j 3/12
U.S. Cl. 156—331 9 Claims

This invention relates to a method for bonding rubber to a fabric and particularly a fabric such as polyester tire cord. The process is carried out through the use of a novel adhesive which includes a polymer latex, a resol condensation product, and a novolak resin.

3,547,730
MACHINE FOR MAKING RESIST IMAGES

Abraham Bernard Cohen, Springfield, and Robert Bernard Heiart, Middletown, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Dec. 16, 1966, Ser. No. 602,291
Int. Cl. C23f 1/02
U.S. Cl. 156—345 12 Claims

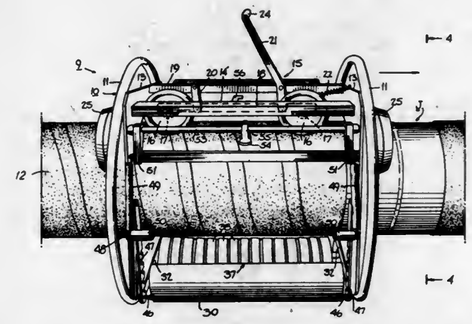


A machine for making resist images having separate means for feeding sheet or plate articles in sequence, for receiving and laminating the articles to a photosensitive layer on a flexible support, for feeding the layer and support, for conveying the laminae and exposing the same, and for separating the support from the remaining laminae.

3,547,731
PORTABLE JOINT WRAPPER FOR PIPELINES

Linden Stuart, Jr., Bedminster, and Frank F. Curtis, South Plainfield, N.J., assignors to Stuart Steel Protection Corp., Plainfield, N.J., a corporation of Delaware

Filed Feb. 12, 1968, Ser. No. 704,621
Int. Cl. B65h 81/00
U.S. Cl. 156—392 19 Claims

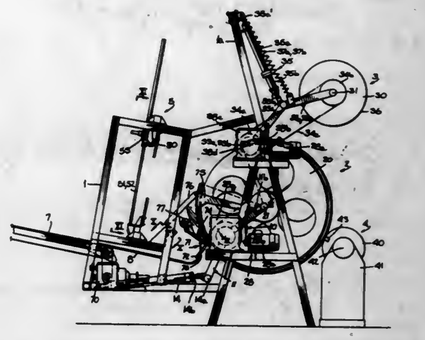


The joint wrapper is portable and adapted to wrap a strip of wrapping material about a bare field welded joint area of two mill coated pipe sections. The pressure roller is bowed to be able to compensate for the difference in size between the bare joint and adjacent mill coated sections. The bowed roller is adjustable by turning with respect to the joint area to vary the degree of pressure placed on the wrapping material. The felt wick wipes the pressure roller of excess tar while the rip wire is used to cut off the necessary length of wrapping material.

3,547,732
BREAKER BUILDING APPARATUS HAVING A SEVERING DRUM, A TRANSFER DRUM AND A BUILDING DRUM

Jean Leblond, Compiegne, Oise, France, assignor to Uniroyal Englebert France S.A., Paris, France, a corporation of France

Filed Aug. 2, 1968, Ser. No. 749,810
Claims priority, application France, Aug. 11, 1967, 117,824
Int. Cl. B29h 17/20
U.S. Cl. 156—405 48 Claims

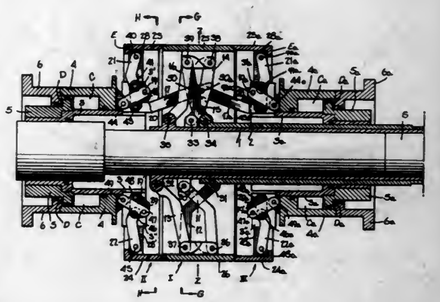


A breaker building method and apparatus in which a continuous strip of breaker material, coming from a single source, is severed into strip portions on a main drum. Alternate ones of these strip portions are transferred directly from the main drum to a breaker building drum while the remaining ones of the strip portions are transferred first to an intermediate member and from there to the breaker building drum in such a manner that the cords of successive breaker plies on the breaker building drum form a crossing angle with each other.

3,547,733
RADIALLY COLLAPSIBLE AND AXIALLY RETRACTABLE BUILDING DRUM

Jean Leblond, Compiegne, France, assignor to Uniroyal Englebert France S.A., Paris, France, a corporation of France

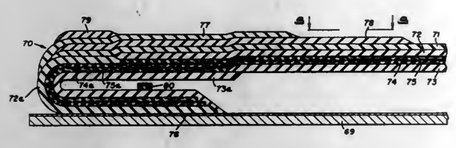
Filed Mar. 5, 1968, Ser. No. 710,530
Claims priority, application France, Apr. 26, 1967, 104,325
Int. Cl. B29h 17/16
U.S. Cl. 156—415 19 Claims



A drum having a radially collapsible, cylindrical middle section and two axially retractable, radially collapsible, cylindrical end sections. The drum includes a means for

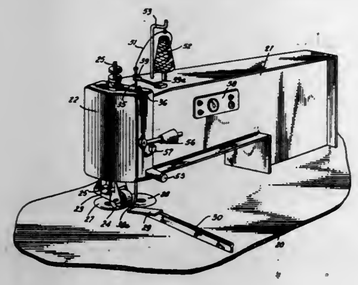
radially collapsing the middle section and simultaneously retracting the end sections into telescopic relationship with the collapsing middle section. It also includes a means for separately collapsing the end sections while these sections are telescoped with the collapsed middle section.

3,547,734
TIRE BAND APPLYING DRUMS
Robert R. Read, Cuyahoga Falls, Ohio, assignor to The General Tire & Rubber Company, a corporation of Ohio
Filed July 12, 1967, Ser. No. 652,927
Int. Cl. B29h *17/16*
U.S. Cl. 156—416 **11 Claims**



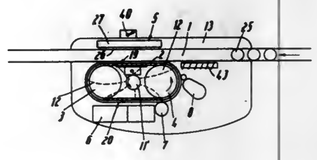
An expansible bag or sleeve used on a tire band applying drum features improved expansion characteristics and means for attaching it to the drum. The bag or sleeve is constructed to be less resistant to expansion at its central portion than at its ends. This is effected by providing that the portions of the bag at the ends of the drum are of greater radial cross-section than the portion therebetween. Also, the bag is held on the drum by a rubber to metal adhesive at the axial ends rather than by conventional inextensible beads as heretofore.

3,547,735
MACHINE FOR BUTT JOINING THE LONGITUDINAL EDGES OF THIN, FLAT WORKPIECES
Gerhard Ortel, 10 Torfweg, Rietberg, Westphalia, Germany
Continuation-in-part of application Ser. No. 299,223, Aug. 1, 1963. This application Mar. 24, 1967, Ser. No. 625,820
Int. Cl. B27g *11/00;* **B29c** *27/26;* **B65h** *21/00*
U.S. Cl. 156—440 **18 Claims**



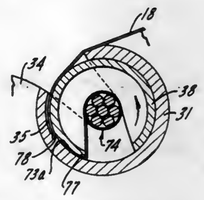
A machine for joining longitudinal joints of flat, thin workpieces such as veneers, or the like is provided. The machine includes a feeding device to move the veneers through the machine. A pressure roller is located above the feeding device to press a connecting thread onto the veneers that are fed through the machine. A thread feeding device is mounted on a swing arm located in front of the pressure roller to supply thread to the pressure roller for applying across the joint of the abutting veneers moving through the machine.

3,547,736
LABELING MACHINE, PARTICULARLY FOR LABELING BOTTLES
Theo Stellamanns and Werner Emmerling, Berlin, Germany, asssignors to Johann Weiss Maschinenfabrik und Apparatebau GmbH, Berlin, Germany
Filed June 12, 1968, Ser. No. 736,495
Claims priority, application Germany, June 13, 1967, W 44,156
Int. Cl. B65c *9/04*
U.S. Cl. 156—455 **11 Claims**



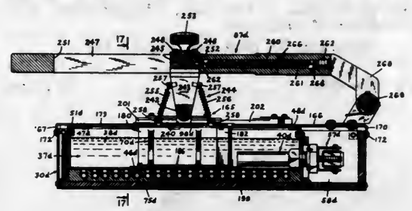
A machine for labeling objects, particularly containers, and espcially bottles wherein an endless beltlike element travels around two spaced guide rolls and has a run parallel with a conveyor transporting the objects to be labeled to, through, and from the machine. The element has a cavity alternatingly connected to a source of subatmospheric pressure air and to a source of superatmospheric pressure air. Passages are connected to said cavity and terminate in openings in the outside surface of said beltlike element for alternatingly producing suction thereat for holding labels on said outside surface and air pressure for blowing the labels onto the objects to be labeled. A counteracting device is placed alongside the conveyor and opposite said run of said beltlike element for holding the objects on said run while the labels are applied.

3,547,737
APPARATUS FOR WRAPPING
Verecondo Vici, 3655 W. Chicago Ave., Chicago, Ill. 60651
Filed Apr. 19, 1968, Ser. No. 722,684
Int. Cl. B65b *27/10*
U.S. Cl. 156—468 **5 Claims**



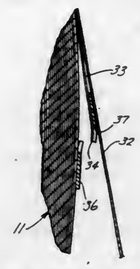
A method and apparatus for wrapping articles in which an article to be wrapped is nested in the free end portion of a continuous strip of tape or other wrapping material by placement within aligned, radially open slots in a cutter assembly which includes an article holder rotatable within a stationary yoke, the holder and yoke having opposed cutting edges which sever the tape pulled from the source during the first increment of movement of the holder.

3,547,738
APPARATUS FOR CREASING AND STIFFENING FABRIC AND FOR TEMPORARILY BONDING FABRIC WORK-PIECES
James J. Matias, Hoffman Estates, and John G. Attwood, Oak Park, Ill., assignors to Union Special Machine Company, Chicago, Ill., a corporation of Illinois
Filed Dec. 27, 1966, Ser. No. 604,704
Int. Cl. B05c *11/105;* **B65c** *9/22*
U.S. Cl. 156—492 **22 Claims**



Apparatus and method for stiffening fabric by applying a changeable phase stiffening agent (such as, paradichlorobenzene) to the fabric by moving the stiffening agent in liquid phase from a supply through a rigid porous applicator wicking element by capillary action to wet an exposed surface of the wicking element and contacting the fabric with the wetted surface to cause the liquid to impregnate the fabric, after which the stiffening agent is changed to solid phase in the fabric.

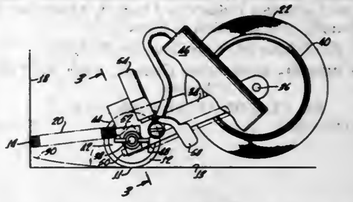
3,547,739
PERFORATED TAPE
Harvey N. Beute, 1311 Stockbridge Ave., Kalamazoo, Mich. 49001
Filed May 15, 1969, Ser. No. 825,022
Int. Cl. B31f *5/00;* **B65h** *19/00, 19/08*
U.S. Cl. 156—504 **5 Claims**



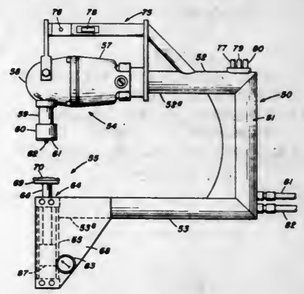
An elongated strip of perforated sheet material having an adhesive on one side thereof for attaching the peripheral end or leading edge of a web of rolled sheet material to the remainder of the roll.

3,547,740
PRESSURE SENSITIVE ADHESIVE TAPE APPLICATOR
Schubert W. Hinds, 601 Lovell Place, Fullerton, Calif. 92632
Continuation-in-part of application Ser. No. 724,511, Apr. 26, 1968. This application Dec. 3, 1968, Ser. No. 780,626
Int. Cl. B32b *31/18;* **B44c** *7/02*
U.S. Cl. 156—523 **9 Claims**

A novel pressure sensitive tape applicator of the type wherein a strip of tape is rolled from a rotatably mounted tape roll over a guide roller which presses the strip of tape onto a surface, and involves the use of a measuring bumper to determine the length of tape needed to apply the tape on the surface up to a discontinuity in the surface which is encountered by the end of the bumper. A novel scissor-type cutter is mounted on the applicator frame for actuation by a finger of the hand operating the applicator. An edge guide attachment is also provided for applying the tape evenly along a surface adjacent an edge. Adaptors are also provided for extending the length of the handle and for attaching the applicator to a bench for stationary dispensing use.

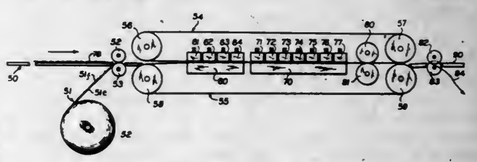


3,547,741
FRICTION WELDING TOOL
Eugene E. Hewitt, Walkerton, Ind., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey
Original application Feb. 25, 1966, Ser. No. 530,128, now Patent No. 3,444,018, dated May 13, 1969. Divided and this application Sept. 27, 1968, Ser. No. 798,227
Int. Cl. B23k *27/00;* **B32b** *31/20*
U.S. Cl. 156—579 **6 Claims**



A portable friction welding tool having a U-shaped frame and including a motor driven, high friction, work engaging surface mounted on one leg of the frame and a power cylinder operated, resilient, work clamping surface mounted on the other leg of the frame, in alignment with the work engaging surface.

3,547,742
LAMINATOR APPARATUS
Edward D. Cottrell, Orangeburg, S.C., assignor to U.S. Plywood-Champion Papers Inc., a corporation of New York
Filed Feb. 23, 1967, Ser. No. 618,208
Int. Cl. B30b *5/04;* **B32b** *31/20*
U.S. Cl. 156—583 **7 Claims**



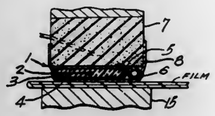
Articles, apparatus and process for laminating a decorative wood veneer or other decorative surface to a backing of paper or metallic foil with or without a protective transparent face.

3,547,743

HEAT SEALING DEVICE WITH MEANS FOR MODERATING THE TEMPERATURE OF THE SEAL BOUNDARY

Alex Tunner, Vancouver, British Columbia, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada

Filed June 24, 1968, Ser. No. 739,386
Claims priority, application Canada, June 30, 1967, 994,440
Int. Cl. B32b 31/20; B30b 15/34
U.S. Cl. 156—583 5 Claims



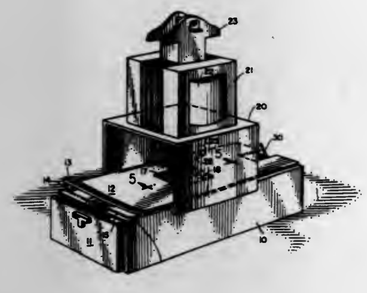
A device for heat-sealing plastic film having a heated sealer bar flanked by a heat-insulating member that presses against the surface of the film adjacent to the heat seal. The heat-insulating member causes a temperature gradient on the flank of the heat seal and provides a stronger seal. The device is suitable for heat sealing polyethylene.

3,547,744

APPARATUS FOR REMOVING WAXED PAPER FROM PUNCHED CARDS

Robert A. Buchaklian, Jr., 637 Yeoman Ave., Waukegan, Ill. 60085

Filed Sept. 18, 1968, Ser. No. 760,590
Int. Cl. B32b
U.S. Cl. 156—584 4 Claims



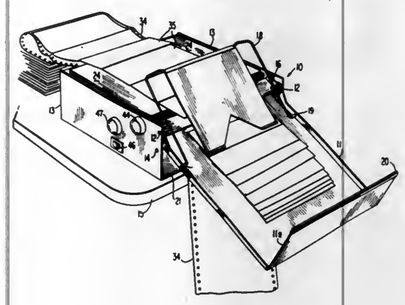
Apparatus is described for expediting the removal of protective waxed paper from a band of cellophane tape surrounding and extending inwardly of an aperture in a punched card preparatory to mounting a microfilm in the aperture by means of the tape. When the card is received in a slot, the aperture in the card lies in register with an aperture in the bottom of the slot with a portion of the waxed paper overlapping a separating edge. When the card is fully inserted, a limit switch is closed to energize a solenoid which punches the waxed paper free of the cellophane tape and beneath the separating edge where it remains trapped. When the card is then removed with a normal pulling motion, the waxed paper is separated from the tape by means of the separating edge without damage to the tape; and the separated waxed paper falls into a convenience receptacle.

3,547,745

ENVELOPE DETACHER

Rodney W. Winston, North Tonawanda, N.Y., assignor to Moore Business Forms, Inc., Niagara Falls, N.Y., a corporation of Delaware

Filed Jan. 27, 1969, Ser. No. 794,293
Int. Cl. B32b
U.S. Cl. 156—584 12 Claims



An envelope detacher apparatus for stripping envelopes from a carrier web to which the envelopes are attached in series, wherein a stripper plate, pivotable into position between the envelopes and the carrier web, causes separation as the web and attached envelopes are moved along opposite sides of the plate.

3,547,746

MOLDED EMBOSSED SEALING LINER HAVING INDICIA

Walter C. Gwinner, Stamford, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Filed July 27, 1967, Ser. No. 656,399
Int. Cl. B29c 13/02; B44f 1/08
U.S. Cl. 161—2 7 Claims



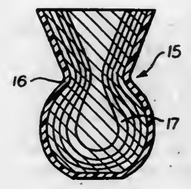
Thermoplastic resin compositions formulated with pigments to furnish contrasting colors in raised and background areas upon molding heated charges of the compositions with a die having relieved areas, and methods for molding and imparting contrasting colors to an article in a single molding operation.

3,547,747

MOLDED PLASTICS ARTICLE WITH INTERIORS SOLIDLY FILLED AND METHOD OF THEIR MANUFACTURE

Arthur H. Roberts, 12 Lynnwood Drive, Westbury, N.Y. 11590

Continuation-in-part of applications Ser. No. 455,764, May 14, 1965, Ser. No. 475,989, July 30, 1965, Ser. No. 523,778, Jan. 28, 1966, and Ser. No. 525,667, Feb. 7, 1966, which are all continuation-in-part of application Ser. No. 22,002, Apr. 30, 1960. This application Oct. 1, 1968, Ser. No. 764,272
The portion of the term of the patent subsequent to Oct. 7, 1985, has been disclaimed
Int. Cl. B29c 13/00
U.S. Cl. 161—7 17 Claims



This invention relates to composite decorative articles of manufacture and their preparation. The articles are impact-resistant, three-dimensional and rigid. They are comprised of two essential elements: (1) a pliable hollow outer premolded plastics skin and (2) a rigid non-cellular plastic structural backing member solidified in the hollow interior of the plastics skin and essentially solidly filling said hollow interior. The structural backing member is also called "rigidifier" for brevity. Illustrative for the skin materials are plasticized polyvinylchloride compositions, polyethylene and rubber. Illustrative for the rigidifier are cements of various types, including plaster of paris and asphalt. A preferred skin is molded from a plastisol for instance by slush casting or rotational casting using a seamless mold. The plastisol is gelled, fused and removed from the mold. The rigid structural backing member is applied in a fluid state to the interior cavity of the premolded skin and solidified therein. The formation of the rigidifier in many cases does not require a supporting mold for the skin. By the favored method decorative articles with complicated undercuts can be prepared in a simple and economic manner.

3,547,748

MANUFACTURE OF IMPROVED POLYESTER FILMS

Edmond J. D'Onofrio and Robert B. Edwards, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Oct. 2, 1967, Ser. No. 672,126
Int. Cl. B29d 7/24
U.S. Cl. 161—46 8 Claims

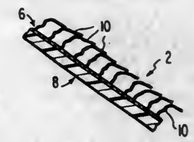
Conventionally heat-set, biaxially oriented polyester films like films of poly(ethylene terephthalate) have nonuniform physical properties across the width of the film. It has been found that by passing films exhibiting "orientation rotation" through a heated zone in a "reverse" direction while tension is maintained on said film in a transverse direction to prevent substantial shrinkage, the nonuniformity of physical properties can be practically eliminated.

3,547,749

SLIDE SURFACING FOR SKI SLOPES

James W. G. White, Delavan, Wis., and Harry A. Freedman, Broomall, Pa., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill., a corporation of Delaware

Filed Jan. 31, 1969, Ser. No. 795,667
Int. Cl. A63b 71/02; A63c 11/00; D03d 27/00
U.S. Cl. 161—63 13 Claims



An all weather surfacing for ski slopes made up of joined together sections of sliver knit pile fabric back coated with a thick layer of resilient material. The pile is dense (1.5 to 3.5 pounds of available pile fiber per square yard) and high (0.5 to 2 inches). The individual pile fibers are thick (30 to 150 denier), and the upper one-third to one-quarter parts of the individual pile fibers are polished and given a directional lay so that, after installation of the surfacing on a slope, these end portions constitute the top face of the surfacing and extend down the slope. The pile may be uniform over the entire face of the fabric or it may be disrupted in accordance with patterns. All of the pile fibers may be the same length, or some may be longer than others.

3,547,750

METHOD OF STIFFENING LOOPS OF A FABRIC AND PRODUCT

Jean Bussac, Regny, France, assignor to Anciens Etablissements Jalla, Paris, France, a body corporate

No Drawing. Filed Mar. 8, 1967, Ser. No. 621,428
Claims priority, application France, Mar. 17, 1966, 53,865; Dec. 20, 1966, 88,128
Int. Cl. D03d 27/08
U.S. Cl. 161—66 10 Claims

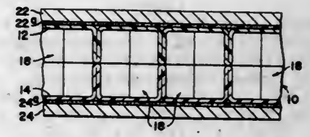
A new kind of pile fabric in which the small loops or so-called terry loops are stiffened by having deposited thereon an emulsifiable thermoplastic resin containing a substantial amount of triazine and a soluble salt of a metal of Group II of the Periodic Table of elements, the stiffened loops permitting the utilization of the fabric for a number of purposes in which high rubbing friction is required. The invention also includes a method of stiffening the loops.

3,547,751

HONEYCOMB CORE MADE FROM SEALED CONTINUOUS THERMOPLASTIC SHEETS

Burton D. Morgan, 302 Aurora St., Hudson, Ohio 44236

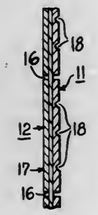
Filed May 2, 1967, Ser. No. 635,501
Int. Cl. B32b 3/12
U.S. Cl. 161—68 3 Claims



A structural material comprising two sheets of a formable plastic, normally, at least, semi-rigid, sealed together in an embossed pattern to produce closed cells,

which includes the means to develop pressure within the cells with the sheets of material positioned between spaced outer skins which are retained in position under the influence of temperature causing the cells to expand until restrained from further expansion by the skins and wherein the skins are shaped and adhered to the expanded sheets to set in the produced shape. The process for making the material, as well as the material itself is described.

3,547,752
SHEET CONSTRUCTION HAVING WEAKENED LINES FOR BENDING AND SEVERING
Alexander Patton Janssen, Charlottesville, Va., assignor, by direct and mesne assignments, to Janssen Products Company, Charlottesville, Va., a corporation of Virginia
Filed Mar. 24, 1967, Ser. No. 625,749
Int. Cl. G09f *7/14, 7/08;* **B32b** *3/10*
U.S. Cl. 161—112 **5 Claims**



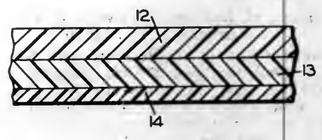
A sheet construction suitable for insertion into a mechanism having a curved platen comprising at least one ply of material having a plurality of transversely disposed weakened lines thereon which permits the sheet to bend and conform to the curvature of the platen when it is inserted longitudinally into the mechanism. In a preferred embodiment, two contiguous plies of material bonded together except at the side margins have a set of transversely extending, longitudinally spaced perforated lines through both plies and a set of transversely extending, longitudinally spaced creased or kerfed bending lines between the perforated lines in the back ply only. The sheet may be severed along the perforated lines to form individual index strips.

3,547,753
RELEASE PAPER-POLYURETHANE FILM-POLYURETHANE FOAM LAMINATE
Robert G. Sutton, Philadelphia, Pa., assignor to Foamade Industries, Inc., Royal Oak, Mich., a corporation of Michigan
Filed Jan. 29, 1968, Ser. No. 701,402
Int. Cl. B32b *3/26, 7/06*
U.S. Cl. 161—160 **1 Claim**

A laminate comprising a sheet of polyurethane foam as a substrate, and a sheet of casting-release paper-supported, polyurethane film, the film being heat fused to the substrate.

3,547,754
THERMOPLASTIC PACKAGING FILMS HAVING A DIFFERENCE IN SLIP CHARACTERISTICS BETWEEN THEIR TWO OUTER SURFACES
George M. Tokos, Dublin, and Edward G. Tonn, Oakland, Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada
Filed Oct. 1, 1965, Ser. No. 492,211
Int. Cl. B32b *27/08, 27/18*
U.S. Cl. 161—165 **7 Claims**

A thermoplastic packaging film having a difference in slip characteristics between the two outer surfaces thereof, one surface being relatively smooth having a static coefficient of friction less than about 0.8 and the other surface being relatively non-smooth or tacky having a static coefficient of friction at least about 0.4 greater than the smooth outer surface.



3,547,755
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,504
Claims priority, application Germany, Dec. 5, 1967, 1,700,123
Int. Cl. B32b *15/08;* **C08f** *19/02;* **E04b** *1/99*
U.S. Cl. 161—165 **4 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of 66% by weight of styrene and 34% by weight of acryonitrile on copolymers of about 30 to 50% by weight of vinyl acetate and about 70 to 50% by weight of ethylene.

3,547,756
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,505
Claims priority, application Germany, Dec. 5, 1967, 1,700,124
Int. Cl. B32b *15/08;* **C08f** *19/02;* **E04b** *1/99*
U.S. Cl. 161—165 **5 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of styrene or optionally a mixture of styrene with a copolymerizable carboxylic acid, for example acrylic and/or methacrylic acid, on copolymers of 30 to 50% by weight of vinyl acetate and 70 to 50% by weight of ethylene.

3,547,757
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,528
Claims priority, application Germany, Dec. 6, 1967, 1,694,225
Int. Cl. B32b *15/08;* **C08f** *19/02;* **E04b** *1/99*
U.S. Cl. 161—165 **4 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of a mixture of 66% by weight of styrene and 34% by weight of acrylonitrile on a copolymer of 30 to 40% by weight of vinyl acetate, 30–40% by weight of n-butyl acrylate, 30 to 10% by weight of dibutyl maleate and 5 to 15% by weight of crotonic acid.

3,547,758
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,529
Claims priority, application Germany, Dec. 6, 1967, 1,694,228
Int. Cl. B32b *15/08;* **C08f** *19/02;* **E04b** *1/99*
U.S. Cl. 161—165 **4 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of styrene and acrylonitrile on a copolymer of 30 to 40% by weight of vinyl acetate, 30–40% by weight of 2-ethylhexyl acrylate, 30 to 10% by weight of dibutyl maleate and 5 to 15% by weight of crotonic acid.

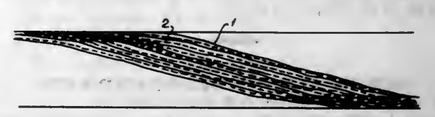
3,547,759
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,633
Claims priority, application Germany, Dec. 5, 1967, 1,700,120
Int. Cl. B32b *15/08;* **C08f** *15/20;* **F04b** *1/99*
U.S. Cl. 161—165 **4 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of methylmethacrylate or optionally methylmethacrylate together with small amounts of a copolymerizable carboxylic acid, especially acrylic acid and/or methacrylic acid, on copolymers of 30 to 40% by weight of vinyl acetate, 30–40% by weight of n-butyl acrylate, 30 to 10% by weight of dibutyl maleate and 5 to 15% by weight of crotonic acid.

3,547,760
VIBRATION DAMPED SANDWICH SYSTEMS
Hermann Oberst, Hofheim, Taunus, Joachim Ebigt and Günther Duve, Frankfurt am Main, and Alfred Schommer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 18, 1968, Ser. No. 776,634
Claims priority, application Germany, Dec. 6, 1967, 1,694,226
Int. Cl. B32b *15/08;* **C08f** *15/20;* **E04b** *1/99*
U.S. Cl. 161—165 **4 Claims**

A vibration damped sandwich system comprising two hard plates and interposed between the plates a vibration damping interlayer comprising a graft polymer of methacrylic acid methyl ester or optionally methacrylic acid methyl ester together with a copolymerizable carboxylic acid, especially acrylic and/or methacrylic acid, on a copolymer of 30 to 40% by weight of vinyl acetate, 30–40% by weight of 2-ethylhexyl) acrylate, 30 to 10% by weight of dibutyl maleate and 5 to15% by weight of crotonic acid.

3,547,761
EXTRUDED SHEET MATERIAL
Ole-Bendt Rasmussen, Topstykket 7, Birkerod, Denmark
Filed Dec. 29, 1967, Ser. No. 694,660
Int. Cl. B32b *5/16, 5/18, 9/00*
U.S. Cl. 161—168 **14 Claims**

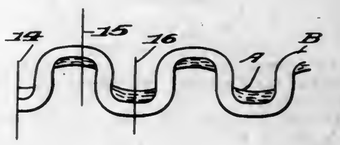


An extruded sheet material in which at least two different polymeric materials form alternate reinforcement and filling lamellar layers extending from surface to surface of the sheet at a so small inclination (below 2°) as to form a (directly extruded) quasi-laminate, the reinforcement layers of which are of a thinness approaching colloidal dimensions.

3,547,762
BONDED GLASS FIBER MATS
Joseph P. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
No Drawing. Filed June 9, 1967, Ser. No. 644,813
Int. Cl. B32b *17/04;* **D04h** *1/64*
U.S. Cl. 161—170 **4 Claims**

Laminated glass fiber products are produced by treating glass fibers with a size containing 3,5-dimethyl-1-hexyn-3-ol, forming a mat of overlapping strands of glass fibers, bonding the fibers and strands together at their points of contact with a resinous binder containing a trimer acid as one of the essential ingredients, curing the mat, either applying a saturating resin to the mat and then forming a sandwich of mats, or forming a sandwich of mats and then applying a saturating resin to the sandwich, and then curing the sandwich by the application of heat and pressure to form a laminate.

3,547,763
BICOMPONENT ACRYLIC FIBER HAVING MODIFIED HELICAL CRIMP
Henry Allen Hoffman, Jr., Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed June 5, 1967, Ser. No. 643,447
Int. Cl. D01d *5/22, 5/28*
U.S. Cl. 161—173 **4 Claims**



Bicomponent acrylic fibers which offer advantageous properties in a wide range of knitted and woven fabrics in which each component is selected from the group consisting of (A) polyacrylonitrile, (B) copolymers consisting essentially of at least about 88% by weight acrylonitrile and up to about 12% by weight of at least one member of the group of copolymerizable compounds consisting of addition monomers which are non-ionizing in neutral media and addition monomers bearing sulfonate

groups; and (C) mixtures of two or more of said polymers. The polymeric components each have no more than about 90 milliequivalents per kilogram of combined anionic function and are present in a weight ratio of about 75:25 to about 25:75 in the fiber cross-section. The fiber has a unique modified helical crimp in which the ratio of crimp reversals to crimp frequency (R/F) is in the range of about 0.75 to 1.0.

3,547,764
RUBBER ARTICLES REINFORCED WITH FIBROUS POLYLACTONES

Gerrit J. van Amerongen, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

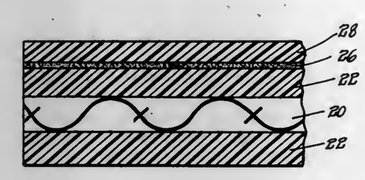
No Drawing. Filed July 26, 1967, Ser. No. 656,027
Claims priority, application Netherlands, Aug. 17, 1966, 6611538, 6611539
Int. Cl. B32b *25/10, 27/02*
U.S. Cl. 161—184 **4 Claims**

Rubber articles having improved physical properties comprise a rubber reinforced with a fibrous polylactone, preferably pretreated with an adhesion-improving agent.

3,547,765
MULTIPLE-LAYER FABRIC FOR PROTECTIVE GARMENTS AND THE LIKE

Harold I. Snyder, R.R. 3, Dover, Ohio 44622, and Eugene E. Plumb, 10721 Marine View Drive SW., Seattle, Wash. 98146

Filed Aug. 10, 1966, Ser. No. 571,467
Int. Cl. A62d *5/00;* **B32b** *27/08*
U.S. Cl. 161—189 **8 Claims**



A flexible, impermeable coated fabric, which is useful for making protective garments, comprises a polytetrafluoroethylene fabric coated on at least one side with a cured elastomeric copolymer of about 30% to about 70% by weight vinylidene fluoride and about 70% to about 30% by weight hexafluoropropene. A film of surface-defluorinated cementable fluoroethylenepropylene is adhesively bonded to the coated side of the fabric to form a working face.

3,547,766
LAMINATED ARTICLE

Edward Chu, Philadelphia, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 25, 1966, Ser. No. 596,752
Int. Cl. B32b *17/10, 27/08, 27/30*
U.S. Cl. 161—190 **4 Claims**

A liquid composition is provided which is useful for the formation of adherent sunlight-resistant coatings and bonding layers on glass and acrylic plastic members; this composition is a dispersion in a volatile organic liquid of certain amounts of (a) certain amino-containing methyl methacrylate polymers, (b) certain silane compounds, and (c) certain pigments. Also provided are composite articles having a dried layer of the composition in adherent contact with a layer of glass or acrylic plastic; preferred articles have a layer of polyurethane elastomer in interposed adherence with said dried layer and a layer of metal or other solid structural material, for example an automobile windshield assembly.

3,547,767
FLEXIBLE HEAT AND PRESSURE CONSOLIDATED DECORATIVE LAMINATE COMPRISING A NITRITE RUBBER LATEX IMPREGNATED BASE AND A SUPERIMPOSED TRANSPARENT THERMOPLASTIC FILM

Ronald James Keeling and Alfred Thomas Guertin, Cincinnati, Ohio, assignors to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware

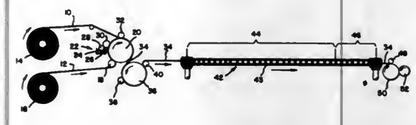
No Drawing. Filed June 27, 1967, Ser. No. 649,130
Int. Cl. D06n *7/06;* **B32b** *15/08, 27/08*
U.S. Cl. 161—217 **5 Claims**

A decorative laminate comprising a heat and pressure consolidated assembly comprising in superimposed relationship at least one dried paper base sheet impregnated with a nitrile rubber latex surfaced with a transparent thermoplastic film back-printed with a design thereby rendering the film translucent.

3,547,768
HEAT-SHRINKABLE PLASTIC FILM LAMINATES WITH A WAX MOISTURE - VAPOR BARRIER LAYER AND METHODS OF MAKING THE SAME

Ronald E. Layne, Waynesboro, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Nov. 17, 1966, Ser. No. 595,173
Int. Cl. B32b *9/04, 27/30;* **C09j** *3/26*
U.S. Cl. 161—234 **12 Claims**



A heat-shrinkable laminate comprises two molecularly oriented webs of polyvinyl chloride film with a thin layer of moisture vapor-barrier wax therebetween. The laminate is produced by applying the molten wax to one web, adding the second web, and then stretching while the wax is still molten to distribute the wax and orient the film. The laminate is suited for packaging applications requiring moisture- or oxygen-impermeability, transparency, heat-shrinkability, and heat-sealability.

3,547,769
FULLY FLEXIBLE HEAT AND PRESSURE CONSOLIDATED DECORATIVE LAMINATE COMPRISING A NITRILE RUBBER LATEX IMPREGNATED BASE, AN ACRYLIC EMULSION IMPREGNATED DECORATIVE PAPER, AND A TRANSPARENT THERMOPLASTIC SURFACE FILM

Donald Joseph Albrinck, Reading, and Ronald James Keeling, Cincinnati, Ohio, assignors to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware

No Drawing. Filed June 27, 1967, Ser. No. 649,125
Int. Cl. B32b *27/08;* **D06n** *7/06*
U.S. Cl. 161—248 **6 Claims**

A decorative laminate comprising a heat and pressure consolidated assembly comprising in superimposed relationship at least one dried paper base sheet impregnated with a nitrile rubber latex, followed by a dried decorative paper impregnated with an acrylic emulsion and said decorative sheet being surfaced with a transparent thermoplastic film.

3,547,770
DIALLYLIC PHTHALATE DECORATIVE LAMINATES

Frank P. Greenspan, Larchmont, N.Y., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 21, 1965, Ser. No. 427,128
Int. Cl. B32b *27/18;* **C08f** *19/10*
U.S. Cl. 161—251 **14 Claims**

This specification discloses modified diallylic phthalate resin solutions and decorative mar resistant laminates impregnated with these solutions. The resin solutions contain (a) diallylic phthalate, 85–100% by weight of said diallylic phthalate being partial polymer and the remaining 0–15% being monomer, (b) 0.1–10% by weight, based on the diallylic phthalate, of N,N-diallylmelamine or N,N-(di(methallyl)melamine, (c) a catalytic amount of organic peroxide, and (d) a volatile organic solvent.

3,547,771
ADHESIVE OF POLYVINYL ACETATE, ACID METAL SALT AND CARBOXYLIC ACID

Stanley R. Sandler, Springfield, Pa., assignor to Borden, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 20, 1967, Ser. No. 684,485
Int. Cl. B32b *21/06, 21/14*
U.S. Cl. 161—251 **8 Claims**

This invention relates to adhesive compositions which form water resistant bonds when cured and more particularly to aqueous adhesive compositions which are acid catalyzed and curable at ambient temperature comprising a vinyl acetate polymer, an acid metal salt curing agent, and a pot life extender selected from the group consisting of substituted and unsubstituted carboxylic acids.

3,547,772
COMPOSITE SHEET MATERIAL BASED ON CHLORINATED OLEFIN POLYMERS AND NORMALLY CRYSTALLINE VINYLIDENE CHLORIDE POLYMERS

David F. Schnebelen, Plaquemine, and James R. Ryffel, Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 22, 1967, Ser. No. 624,998
Int. Cl. B32b *27/08, 27/30*
U.S. Cl. 161—254 **8 Claims**

This invention relates to inherently flexible, solvent weldable, essentially impermeable composite sheet material composed of outer layers of certain chlorinated olefin polymers and an inner layer of a normally crystalline vinylidene chloride polymer. This material is particularly adapted for use as flashings or membrane for various construction assemblies.

3,547,773
METHOD FOR MANUFACTURING NONWOVEN FIBROUS PRODUCTS FROM GEL FIBERS

Thomas C. Spence, P.O. Box 168, Yorktown, Va. 23490

No Drawing. Application July 26, 1966, Ser. No. 567,846, now Patent No. 3,436,304, dated Apr. 1, 1969, which is a continuation-in-part of applications Ser. No. 457,139 and Ser. No. 457,178, May 19, 1965. Divided and this application July 25, 1968, Ser. No. 747,441
The portion of the term of the patent subsequent to Apr. 1, 1986, has been disclaimed and dedicated to the Public
Int. Cl. D21f *11/00;* **D21h** *5/12*
U.S. Cl. 162—157 **7 Claims**

A process for preparing a dry, nonwoven fibrous sheet comprising:

(a) forming a web of self-bonding gel fibers of thermoplastic, fiber-forming polymer of acrylonitrile, said gel fibers having a gel network structure that has never been completely collapsed by drying and that consists essentially of interconnecting capillary spaces intimately intertwined with a fibrillar structure of polymeric materials;

(b) subjecting said web to drying conditions which cause said gel fibers to collapse while maintaining said web under a force which restrains the shrinkage of said web; and

(c) recovering a dry, nonwoven fibrous sheet in which the fibers are self-bonded to each other at points of interfiber contact.

The product is useful as a textile fabric in the preparation of a variety of materials ranging from hard, boardy sheets to soft, fluffy fabrics to stretchable, tough fabrics.

3,547,774
PROCESS FOR FORMING A SOLUBILIZED STILBENE DYE AND A PROCESS FOR FORMING COLORED PAPER THEREWITH

Robert Wallibald Johann Rebhahn and Derek William Bannister, Toms River, N.J., assignors to Toms River Chemical Corporation, Toms River, N.J., a corporation of Delaware

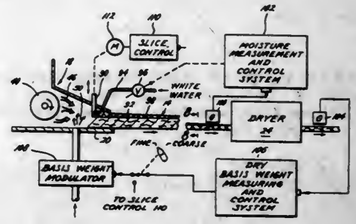
No Drawing. Filed June 30, 1967, Ser. No. 650,240
Int. Cl. D21h *3/80;* **C07c** *143/52;* **C09b** *27/02*
U.S. Cl. 162—162 **3 Claims**

An improved process is provided for the preparation of stilbene dyes of the family derived from the condensation of 2-methyl-5-nitrobenzene-sulfonic acid. The dyestuff obtained by the self-condensation of 2-methyl-5-nitrobenzene-sulfonic acid in the presence of lithium hydroxide as the strong alkali has been found to be very soluble in water and, hence, provides directly a solution of the dyestuff in water, eliminating the need for isolation of the dye and preparation of aqueous dispersions employing a surface active material. The solutions are particularly adapted for use in the manufacture of colored paper.

3,547,775
MEANS AND METHOD FOR MODULATING FIBER STOCK FLOW IN PAPERMAKING HEADBOX IN RESPONSE TO PAPER SHEET PRODUCT PARAMETERS

David A. Bossen, Columbus, Ohio, and Edward J. Freeh, Tucson, Ariz., assignors to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Apr. 29, 1966, Ser. No. 547,096
Int. Cl. D21f *1/08*
U.S. Cl. 162—198 **33 Claims**

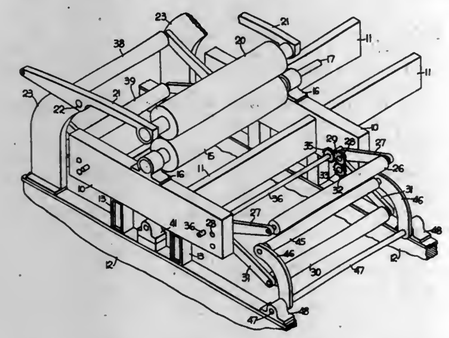


A paper sheet forming apparatus and method wherein the fiber stock flowing to the slice orifice of the headbox is modulated upstream of the orifice. The flow may be suppressed by employing a flexible diaphragm which constricts the stock flowing to the orifice or by contacting the lower surface of the stock with a layer of liquid such as white water. These modulations ultimately affect the basis weight of the formed paper sheet. Further, the upper surface of the stock may be contacted with a layer of dilute liquid which then effects the moisture content of the formed paper sheet. The flow consistency may be

modulated by regulating the addition of either dilute liquid or fiber stock to the flowing stock prior to exiting the orifice which ultimately affects the basis weight of the formed paper sheet. The flow modulation is controlled in response to controller means which include scanning moisture gauges and scanning basis weight gauges.

3,547,776
CANTILEVER WET PRESS FOR A PAPERMAKING MACHINE

Donald R. Curtis, Appleton, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Continuation of application Ser. No. 578,623, Sept. 13, 1966. This application June 5, 1969, Ser. No. 834,207
Int. Cl. D21f *3/04*
U.S. Cl. 162—274 **3 Claims**

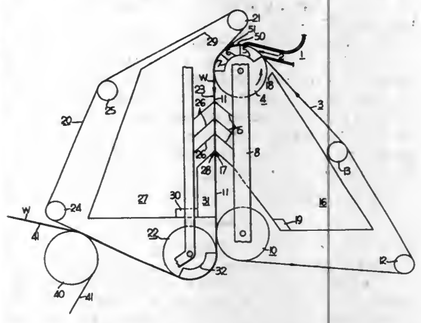


A self-supporting wet press for a papermaking machine having a top press roll and top press roll frame separate from a bottom press roll and bottom press roll cantilever frame for easy removal of an endless felt looped around the cantilever frame and between the top and bottom press rolls. The cantilever frame has a pair of parallel horizontal press beams spaced apart and supported by a pair of cantilever beams each having a portion projecting traversely and horizontally away from the press beams in one direction, and removable support blocks beneath the one of the press beams spaced remotely from the projecting portion of the cantilever beams. This structure permits removal and replacement of the endless felt loop after merely raising the top roll press and removing the support blocks.

3,547,777
VERTICAL DUAL WIRE PAPER WEB FORMER

Donald B. DeNoyer, Beloit, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 16, 1968, Ser. No. 783,853
Int. Cl. D21f *1/00*
U.S. Cl. 162—303 **7 Claims**

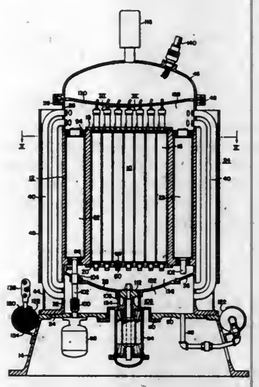
A portion of paper making machine is disclosed where a dilute watery fibrous pulp stock is formed into a wet fibrous web. The dilute stock is discharged from a slice opening in a head-box to a first fine mesh endless loop wire lapped over a suction breast roll. The slice directs a jet of stock at the wire on the upturning side of the breast roll. The suction breast roll rotates and withdraws sufficient water from the stock to form a fibrous mat on the first wire. A second fine mesh endless loop wire guided by a turning roll spaced above the suction breast roll, to lap the second wire over the first wire on the downturning side of the suction breast roll. The first and second wire define therebetween a nip tangent to and spaced along the top circumference of the suction breast roll from the headbox slice. The fibrous mat is carried by the first wire moving on the rotating suction breast roll, into the nip and between the wires. A pair of couch rolls are spaced below the single breast roll with one couch roll in the loop of each wire to direct both wires downwardly from the single breast roll and form a web of



paper between the two downwardly moving wires by receiving therebetween the fibrous mat preformed on the first wire over the suction breast roll with controlled fiber dispersion and orientation before the fibrous mat is received between the two wires.

3,547,778
SUBMERSIBLE NUCLEAR REACTOR PLANT

Robert Flaherty, Pittsburgh, and David G. Ott, Bridgeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 24, 1967, Ser. No. 655,364
Int. Cl. G21c *15/00*
U.S. Cl. 176—53 **11 Claims**



A thermoelectric nuclear power plant suitable for underseas operation includes a nuclear reactor, the fuel elements of which are metal-clad ceramic nuclear fuel rods surrounded by tubular thermoelectric generating devices. The reactor core consists of cylindrical fuel assemblies clamped to a plate at their upper ends and separated and guided by a similar plate at their lower ends. These plates are bolted to the ends of a thick-walled cylindrical barrel which serves both as a neutron reflector and as the main structural member of the reactor which is controlled by the rotation of cylindrical drums mounted with their axes parallel to the axis of the core. Rotation of the drums replaces a neutron-reflecting material close to the core with a neutron absorber. The primary coolant of the reactor is de-ionized water which convectively cools the outer surfaces of the fuel assemblies, and transfers this heat to the sea through the tube walls of a heat exchanger which surrounds and is supported by the reflector barrel. The water is circulated by a submersible motor driven propeller-type pump.

3,547,779
PROCESS FOR PRODUCING PURIFIED CONCENTRATED INFLUENZA VIRUS

Roy A. Machlowitz, Glenside, and George P. Lampson, Hatfield, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 548,389, May 9, 1966. This application Dec. 18, 1968, Ser. No. 784,887
Int. Cl. A61r *27/00*
U.S. Cl. 195—1.5 **11 Claims**

Influenza virus grown in egg allantoic fluid and concentrated by centrifugation is adsorbed on barium sulfate, the complex is isolated and impurities washed from it with dilute citrate and then the virus is recovered from the adsorbate by elution with concentrated citrate. The eluate is made bacteria free by sequential filtration employing diatomaceous earth and then membrane filtration.

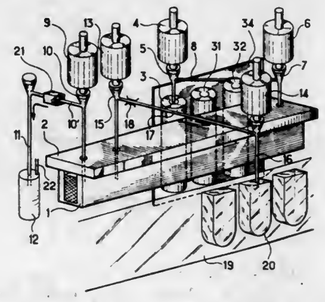
3,547,780
SIMPLIFIED ACCURATE METHOD OF DETECTING BACTERIURIA

Frank A. Finnerty, Jr., 6 Langley Place, McLean, Va. 22101, and Arnold C. Johnson, 6103 Seminole St., College Park, Md. 20741
No Drawing. Filed Mar. 13, 1968, Ser. No. 712,584
Int. Cl. C12k *1/10*; G01n *21/06, 33/16*
U.S. Cl. 195—103.5 **10 Claims**

The method of producing a dip stick for detecting bacteriuria comprising applying to the stick an aqueous solution of sulfanilic acid and an acid selected from the group consisting of citric and oxalic acids, drying the stick, applying a second coating of an anhydrous organic solvent solution of a naphthylamine; and the dip stick produced by this method.

3,547,781
FILLING LINE FOR THE FILLING OF CONTAINERS

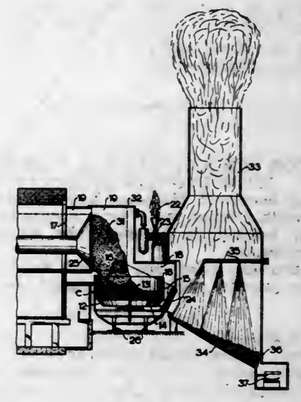
Jean Guigan, Paris, and Robert Laucournet, L'Hay-les-Roses, France, assignors to Compagnie Generale d'Automatisme, Paris, France, a corporation of France
Filed Jan. 23, 1969, Ser. No. 793,495
Claims priority, application France, Jan. 24, 1968, 137,139
Int. Cl. C12g *1/00*; C12k *3/00*
U.S. Cl. 195—127 **7 Claims**



A plurality of storage containers on a movable support are selectively coupled to a fixed storage container through hollow needles coupled by conduit means adapted to penetrate into the corresponding reservoir and transfer container with gas pressure transferring the same along with a second transfer device for selectively transferring metered quantities of the product to containers carried by a moving web through penetrating needles. A third transfer device removes unused material from the transfer container by fluid pressure after puncturing the perforable and retractable material overlying the transfer container for discharging the same into a waste reservoir.

3,547,782
COKED CHARGE RECEIVING CARRIAGE, ESPECIALLY FOR USE IN CONNECTION WITH COKE OVEN BATTERIES

Erich Schön, Bochum-Weitmar, Germany, assignor to Dr. C. Otto & Comp. G.m.b.H., Bochum, Germany
Filed July 30, 1968, Ser. No. 748,684
Claims priority, application Germany, Aug. 1, 1967, 1,671,343
Int. Cl. C10b *33/10*
U.S. Cl. 202—227 **7 Claims**



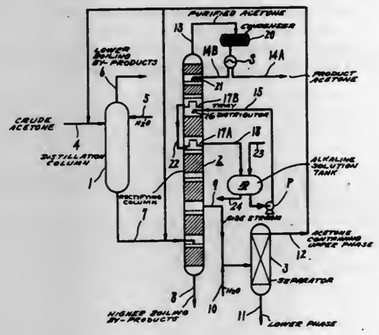
A carriage movable along a coke oven battery which comprises a table rotatable about a substantially vertical axis and provided with a confining wall forming with said table a coke charge receiving chamber adapted to be tilted about a horizontal axis for emptying said chamber of the coke charge therein.

3,547,783
METHOD FOR REFINING ACETONE BY RECTIFICATION WITH ALKALI-CONTACT OF VAPORS AND WATER ADDITION AND PHASE SEPARATION OF A CHLORINATED-BY-PRODUCT-CONTAINING SIDE STREAM

Shinichi Yamaguchi, Toshio Teranishi, Satoshi Ogura, and Shiro Sano, Kurashiki-shi, Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan, a corporation of Japan
Continuation of application Ser. No. 623,577, Mar. 16, 1967. This application July 3, 1969, Ser. No. 845,626
Claims priority, application Japan, Mar. 30, 1966, 41/19,195, 41/19,196
Int. Cl. B01d *3/40*; C07c *49/04*
U.S. Cl. 203—37 **15 Claims**

A method for refining acetone manufactured by the Wacker Process which comprises withdrawing a side

stream from the mid-part of a column for rectifying the acetone, wherein chlorine-containing by-products accumulate; mixing water with the withdrawn side stream;



separating the mixture into an aqueous phase containing the major portion of acetone included in said side stream, and an oily phase; and returning said aqueous phase to the acetone refining system.

3,547,784
PROCESS FOR METALLIZING FORMED OBJECTS MADE FROM THERMOPLASTICS

Günther Bernhardt, Hangelar, Robert Büning and Egon Bierwirth, Oberlar, and Werner Trautvetter, Spich, Germany, assignors to Dynamit Nobel Aktiengesellschaft, a corporation

No Drawing. Filed June 5, 1968, Ser. No. 734,565
Claims priority, application Germany, July 25, 1967, D 53,679
Int. Cl. C23b *5/60*
U.S. Cl. 204—20 7 Claims

Process of metallizing copolymers of vinyl chloride with vinyl esters, vinyl ethers, itaconate esters, acrylic esters, metacrylic esters, allyl esters, and allyl ethers.

3,547,785
TREATMENT OF RESIN SURFACES PRIOR TO NON-ELECTROLYTIC PLATING

Toramitsu Sakuma, Osaka-fu, Japan, assignor to Sumitomo Naugatuck and Company, Ltd., a corporation of Japan

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,843
Int. Cl. C23b *5/62, 5/64*
U.S. Cl. 204—30 8 Claims

The surface of a shaped article made of thermoplastic resin (e.g., an ABS molding) is prepared for non-electrolytic plating with metals by immersing the article in an oxidizing solution containing chromic acid and sulfuric acid while simultaneously carrying out electrolytic reduction in the solution. The electrolytic reduction is accomplished for example by placing a lead anode and a stainless steel cathode in the oxidizing solution, and passing a current through the solution. The adhesion of a subsequent plate (e.g., copper, nickel) applied by non-electrolytic methods is improved, as compared to the adhesion obtained when an otherwise similar pre-treatment is used without the simultaneous electrolytic reduction. The electrolytic reduction enables the oxidizing bath to retain its effectiveness even after repeated use. The non-electrolytic plating may be followed by the usual electroplating.

3,547,786
MIXED PROTECTIVE COATING OF SEMICONDUCTIVE BODIES

Serge Rigo, Drancy, France, assignor to Compagnie Generale d'Electricite, Paris, France, a corporation of France

Filed Aug. 12, 1968, Ser. No. 751,976
Claims priority, application France, Aug. 11, 1967, 117,835
Int. Cl. C23c *15/00*
U.S. Cl. 204—38 4 Claims

Electrochemical process for forming a semiconductor device by superimposing two layers of silicon dioxide upon silicon by first anodizing to form a first layer and then forming a second, thinner layer, by cathode sputtering.

3,547,787
HOT DIP TINNING A HIGH CARBON FERROUS METAL

Richard Parsons, Mountainside, N.J., assignor to Oakite Products, Inc., New York, N.Y., a corporation of New York

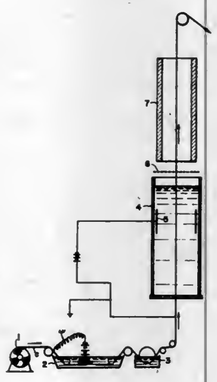
No Drawing. Continuation-in-part of application Ser. No. 172,118, Feb. 9, 1962. This application Mar. 31, 1967, Ser. No. 627,309
Int. Cl. C23f *17/00*; C23b *5/04*
U.S. Cl. 204—38 16 Claims

Hot dip tinning a high carbon ferrous metal such as cast, grey, malleable or wrought iron by first cleaning from the metal any soil which might prevent electroplating on it, then electroplating on it an electrodeposit of iron from an acid iron-plating bath containing an organic sequestering agent and an iron compound.

3,547,788
INSULATED WIRE AND METHOD OF MAKING THE SAME

Toshihiko Tanaka and Shigeo Masuda, Nishinomiya-shi, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, a company of Japan

Filed Sept. 16, 1968, Ser. No. 759,974
Claims priority, application Japan, Sept. 14, 1967, 42/59,020, 42/59,021; Apr. 6, 1968, 43/23,023; May 22, 1968, 43/34,518
Int. Cl. C23b *13/00*; C23f *17/00*
U.S. Cl. 204—38 8 Claims



A magnetic wire, produced by the steps of plating a copper wire with a metal such as nickel, iron, etc., and coating the plated copper wire with an electrically insulating paint composition by an electrophoretic coating. Further providing additional coating layers, formed by any

prior art method, such as die coating, on the copper wire having the electrophoretically coated layer eliminates many difficulties encountered in the use of a single electrophoretic coating layer. The coating may be baked to increase the adherency thereof.

3,547,789
ELECTRODEPOSITION OF THICK COATINGS OF PALLADIUM

Richard L. Andrews, College Park, Gerald R. Smith, Beltsville, Charles B. Kenahan, Silver Spring, and David Schlain, Greenbelt, Md., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed May 7, 1968, Ser. No. 727,337
Int. Cl. C23b *5/24*
U.S. Cl. 204—39 3 Claims

Thick adherent coatings of platinum, palladium or alloys of platinum and palladium with other platinum group metals are obtained by passing current through a pair of platinum or palladium electrodes in a molten alkali metal cyanide or cyanide-cyanate bath exposed to air or oxygen at a temperature of from 350° C. to 600° C., then immersing the object to be plated as the cathode.

3,547,790
AROMATIC CONDENSATION PRODUCTS

Bobby F. Dannels and Alvin F. Shepard, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Division of application Ser. No. 327,125, Nov. 29, 1963, now Patent No. 3,386,899, dated June 4, 1968. Continuation of application Ser. No. 674,749, Oct. 12, 1967. This application Aug. 1, 1969, Ser. No. 849,260
The portion of the term of the patent subsequent to June 4, 1985, has been disclaimed
Int. Cl. B01k *1/00*
U.S. Cl. 204—59 8 Claims

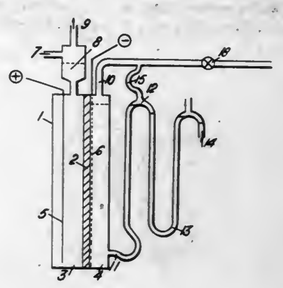
A process for producing aromatic condensation products comprises passing an electric current between a cathode and an anode in contact with liquid phase hydrogen fluoride, wherein the hydrogen fluoride is also in contact with an aromatic compound having a hydrogen atom substituted in at least one position of the aromatic ring. The process is capable of producing novel aromatic condensation products from benzene, alkyl-substituted benzenes, halogen-substituted benzenes, naphthalene, diphenyl, terphenyl, phenol, alkyl-substituted phenols and halogen-substituted phenols. The hydrogen fluoride can be substantially pure, or it can contain various additives, especially water, depending on the results desired in the process. The polymer products have excellent heat resistance and electrical insulation properties and can be coated on other types of polymers to modify the surface characteristics thereof. The polymers can be converted to sulfonated polymer products.

3,547,791
MANUFACTURE OF CHLORINE AND CAUSTIC ALKALI IN DIAPHRAGM CELLS

Stuart Frederick Mellish and Robert Joseph Roach, Runcorn, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain

Filed Feb. 29, 1968, Ser. No. 709,391
Claims priority, application Great Britain, Mar. 16, 1967, 12,328/67
Int. Cl. C01d *1/06*
U.S. Cl. 204—98 8 Claims

Varying electrical loads may be handled during the continuous operation of a chlor-alkali cell which has a percolating asbestos diaphragm by rapidly making changes in the rate of flow of electrolyte through the diaphragm by altering the gas pressure on the anode compartment or cathode compartment each time the current density



across the diaphragm is changed. The rate of electrolyte flow is always approximately proportional to the current density.

3,547,792
SOLVENT SHRINKABLE POLYMERIC MATERIAL

William A. Patterson, Spartanburg, S.C., assignor to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut

No Drawing. Continuation of application Ser. No. 359,506, Apr. 13, 1964. This application Feb. 16, 1968, Ser. No. 705,894
The portion of the term of the patent subsequent to Feb. 25, 1986, has been disclaimed
Int. Cl. B29f *5/00*
U.S. Cl. 204—159.14 4 Claims

An irradiated, stretch oriented, organic polyether which is shrinkable upon contact with a solvent for the non-irradiated polyether.

3,547,793
RADIATION POLYMERIZATION OF COMPACTED TRIOXANE

Nelson Samuel Marans, Silver Spring, Md., and Fern Wood Mitchell, Washington, D.C., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

No Drawing. Continuation-in-part of application Ser. No. 466,438, June 23, 1965, which is a continuation-in-part of application Ser. No. 198,472, May 29, 1962. This application June 5, 1968, Ser. No. 734,514
Int. Cl. C08d *1/00*
U.S. Cl. 204—159.21 8 Claims

In abstract this invention is directed to a process for preparing a high molecular weight polyoxymethylene polymer comprising; (a) compacting trioxane in the solid state; (b) irradiating the compacted trioxane; (c) polymerizing the irradiated trioxane; (d) separating the resulting polyoxymethylene polymer from non-polymerized trioxane; and (e) recovering the separated polymer.

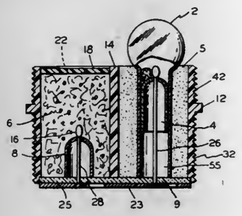
3,547,794
pH-SENSOR

Kazuyuki Nishimoto and Yoshio Iida, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 1, 1968, Ser. No. 764,108
Claims priority, application Japan, Oct. 24, 1967, 42/69,123
Int. Cl. G01n *27/36*
U.S. Cl. 204—195 3 Claims

A pH-sensor for use in a telemetry capsule which can be swallowed by a patient. A cylindrical envelope has a

spacer dividing said envelope into two spaces, a glass electrode is secured in one of said spaces, and a reference electrode is positioned in said other space in said envelope. A wafer of insulating material is attached to the bottom of said envelope and has two electric terminals on the outside surface thereof, one attached to the glass electrode and the other attached to the reference electrode, and a plate covers said other space on the opposite end of said envelope from said wafer and has at least one hole therein with a liquid permeable closure means therein for forming a liquid junction with said reference electrode. The sensor is adapted to have an oscillator unit attached thereto to form the telemetry capsule.

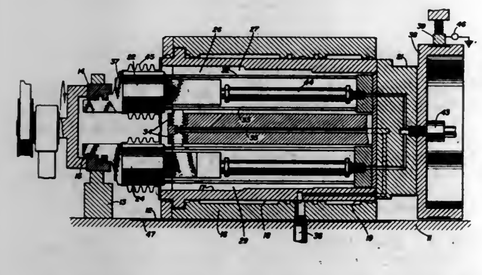


3,547,795

APPARATUS FOR THE GENERATION OF A SURFACE OF REVOLUTION BY THE ELECTRO-CHEMICAL PROCESS

Robert S. Hahn, Northboro, Mass., assignor to The Heald Machine Company, Worcester, Mass., a corporation of Delaware

Filed Oct. 2, 1967, Ser. No. 676,668
Int. Cl. C23b *5/68*
U.S. Cl. 204—212 **9 Claims**



This invention relates to an apparatus for the generation of a surface of revolution by the electro-chemical process and, more particularly, to apparatus arranged to remove metal and finish the surface of an internal bore of a desired size and quality.

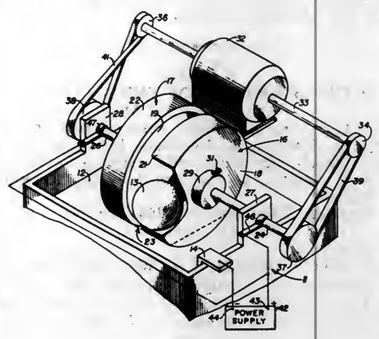
3,547,796

APPARATUS FOR ELECTROPOLISHING SPHERICAL SURFACES

William L. Randall, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 24, 1968, Ser. No. 786,711
Int. Cl. C23b *3/06, 5/78*
U.S. Cl. 204—213 **4 Claims**

Apparatus for rotating a sphere in an electropolishing bath in such a manner that every point on the surface of the sphere has equal average proximity to a cathode, while an electrical potential is constantly maintained between the rotating sphere and cathode. The apparatus thereby provides for size reduction of metallic spherical bodies without loss of spherical trueness.

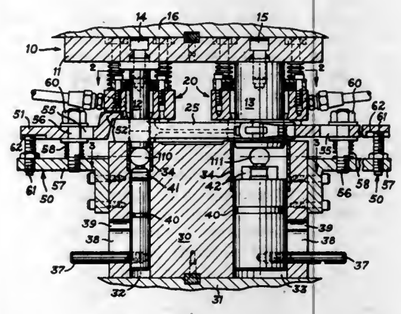


3,547,797

APPARATUS FOR SIMULTANEOUSLY ELECTRO-CHEMICALLY MACHINING A PLURALITY OF PREVIOUSLY FORMED SURFACES OF A WORK-PIECE

William A. Haggerty, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio

Filed Mar. 29, 1967, Ser. No. 626,732
Int. Cl. B23p *1/02*; C23b *5/74, 5/70*
U.S. Cl. 204—224 **7 Claims**



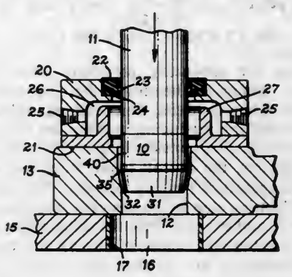
A plurality of electrochemical machining tools, each tool having an enlarging machining surface and a finishing machining surface, are moved simultaneously into a workpiece having a corresponding plurality of previously formed openings therein, such as a connecting rod for an internal combustion engine, to dimension, shape and align these openings within close tolerances. An electrolytic solution is passed between the tools and the workpiece to provide an electrically conductive medium for anodic removal of workpiece material with the fresh electrolyte passing first over the finishing machining surface of each electrochemical machining tool and then toward the enlarging finishing surface. The axial and cross sectional dimensions of the finishing machining surface of each tool are closely controlled to permit high accuracy in the dimensions of the finished opening.

3,547,798

ELECTROCHEMICAL MACHINING TOOL

William A. Haggerty, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio

Filed Mar. 29, 1967, Ser. No. 626,901
Int. Cl. B23p *1/04*; B01k *3/04*
U.S. Cl. 204—224 **9 Claims**



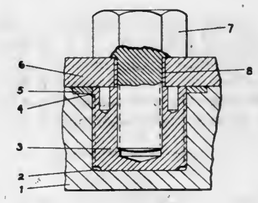
A tool for electrochemical machining and finishing a previously formed opening in an electrically conductive workpiece to a precise dimension includes a tapered first machining surface proportioned at its forward edge to be received partially into the opening and which increases its size substantially to the dimension of the finished opening thereby providing a relatively large effective machining surface for rapid penetration of the tool into the workpiece, and a second machining surface adjacent the first having a precisely controlled axial and circumferential dimensions to dimension and shape precisely the finished opening. The tool is also provided with insulation immediately adjacent the second machining surface to prevent further machining of the workpiece and at the same time to provide a continuous outer surface allowing for smooth flow of electrolyte between the work and the workpiece.

3,547,799

MERCURY CATHODE ELECTROLYSIS CELL WITH NOVEL ANODE SUPPORT MEANS

Josef W. O. Schucker, Franz Glos, and Willi Nemetz, Dortmund, Germany, assignors to Friedrich Uhde GmbH, Dortmund, Germany, a company of Germany

Filed May 10, 1967, Ser. No. 637,561
Int. Cl. C22d *1/04*
U.S. Cl. 204—250 **9 Claims**



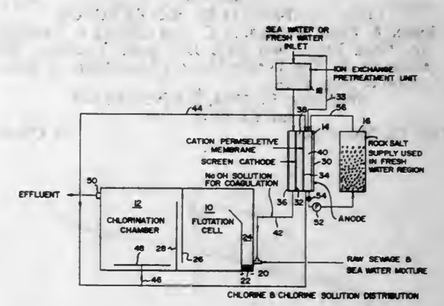
A connection between an anode block and a cover plate employing chlorine-proof screw inserts in the block having bolts extending through the cover plate. A metallic layer between the cover plate and anode block is deformed when the bolts are tightened. An alternative form has a metallic layer deposited on the anode block and to this layer the cover plate is rigidly united.

3,547,800

APPARATUS AND METHOD FOR PURIFYING WASTE WATERS

Pei Tai Pan, Beloit, Wis., assignor to Fairbanks Morse Inc., New York, N.Y., a corporation of Delaware

Filed May 29, 1967, Ser. No. 641,873
Int. Cl. B01k *3/00*; C22d *1/02*
U.S. Cl. 204—269 **11 Claims**



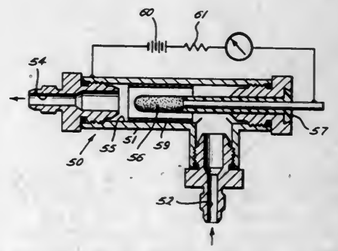
An apparatus for separating the solid and liquid fractions of a sewage mixture and for treating the sewage in a manner permitting disposal of the treated fractions. In one embodiment, an electrolytic cell is used to produce coagulating, flotation and disinfecting elements. The sewage is initially brought into contact with these elements in a mixing or coagulating cell. The solid fraction thereof is then separated in a flotation cell while the liquid fraction or effluent is disinfected in a chlorination chamber from which the treated effluent is discharged and disposed of. In modifications of this system, the mixing or coagulating cell and the flotation chamber can be combined; a chlorinator apparatus can be located between the electrolytic cell and the chlorination chamber or other chlorine generating means can be used to produce a disinfectant, and the number and spacing of electrodes in the cells or chambers can be arranged to reduce voltage drop through low conductivity solution.

3,547,801

WATER MANAGEMENT SYSTEM AND AN ELECTROLYTIC CELL THEREFOR

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of Charles F. Albright, Torrance, and Joseph B. Gillerman, Los Angeles, Calif.

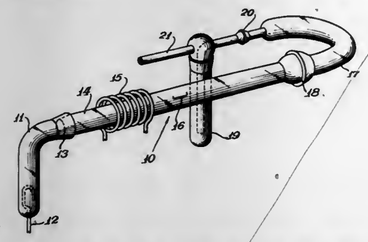
Filed Aug. 8, 1968, Ser. No. 751,198
Int. Cl. B01k *1/00*
U.S. Cl. 204—305 **10 Claims**



A water management system formed of a waste water system which interfaces with a potable water system so that potable water is available in emergency situations. There is a normally long residence time in each system. An electrolytic cell is formed of a housing having an inlet

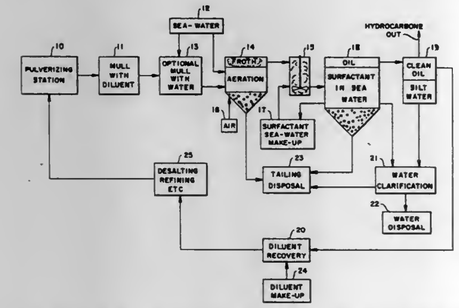
and an outlet with a silver anode surrounded by a silver cathode located in the fluid flow path. An electrical control system consisting of a battery and resistors limits the current to achieve the proper concentration of silver ions for bactericidal control without creating a health hazard.

3,547,802
LOW TEMPERATURE R-F REACTOR
Chester E. Gleit, Raleigh, N.C., and Clifford E. Mensing, Jr., Glen Ellyn, and Reid H. Curtis, Lombard, Ill., assignors to The Perkin-Elmer Corporation, a corporation of New York
Filed Aug. 12, 1968, Ser. No. 751,848
Int. Cl. B01k 1/00
U.S. Cl. 204—312 10 Claims



A low temperature radio frequency reactor whose reaction chamber has a compact configuration. The configuration includes a linear, axially symmetrical reaction portion, and smoothly curved end portions. The folded reaction chamber has an efficiency nearly that of a greatly elongated chamber but is more practical, compact, and emits less radiation.

3,547,803
RECOVERY OF OIL FROM BITUMINOUS SANDS
James H. Barkman, Jr., Ventura, Calif., Robert M. Jorda, Houston, Tex., and John V. Vogel, Bakersfield, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Sept. 18, 1968, Ser. No. 760,432
Int. Cl. C10g 1/04
U.S. Cl. 208—11 10 Claims

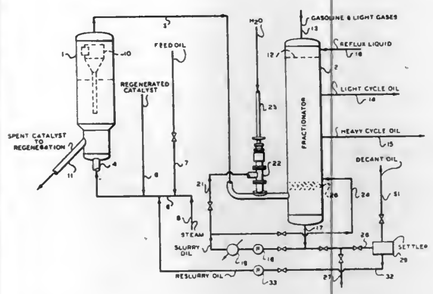


A process for recovering oil from a tar sand wherein pulverized tar sand is mixed with a liquid hydrocarbon diluent. The diluted tar sand is then mixed with a first volume of hot brine at a controlled pH. The materials which float in the first volume of hot brine are isolated and mixed with a second volume of hot brine containing a surfactant. The second volume of hot brine is also at a controlled pH. Finally, any hydrocarbon materials that are substantially free of solids and aqueous liquids and float in the second volume of brine are isolated.

3,547,804
PROCESS FOR PRODUCING HIGH GRADE PETROLEUM COKE
Toshio Noguchi and Masao Furuhashi, Tokyo, Bing Igarashi, Yokohama, Kosaku Yamada, Oita-shi, Noriyoshi Aotsuka, Tokyo, and Mamoru Omori, Omachi-shi, Japan, assignors to Showa Denko Kabushiki Kaisha, and Kyusku Oil Co., Ltd., both of Tokyo, Japan, both corporations of Japan
No Drawing. Filed Apr. 16, 1968, Ser. No. 721,618
Claims priority, application Japan, Aug. 6, 1967, 42/56,762
Int. Cl. C10g 17/00; C10b 55/00
U.S. Cl. 208—46 3 Claims

A process for producing premium grade petroleum coke which comprises heating either residual fraction which result when naphtha, kerosene, gas oil or natural gas is pyrolysed for producing unsaturated hydrocarbons, or a mixture of these residual fractions and other petroleum fractions, the overall mass being in a state dilution at a temperature ranging between 380° to 410° C. during this heating step by means of a fraction of 4–35% by volume of said overall mass, the diluent fraction per se being not substantially cokable, raising the mass to the coking temperature to complete the coking, and thereafter recovering the resulting coke.

3,547,805
PROCESS AND APPARATUS FOR QUENCHING HOT VAPORS FROM A REACTOR WITH COOLED LIQUID CONDENSED FROM SAID VAPORS AND A WATER SPRAY
Norris W. Mitchell, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Oct. 13, 1967, Ser. No. 675,110
Int. Cl. C10g 7/00, 9/16
U.S. Cl. 208—48 6 Claims

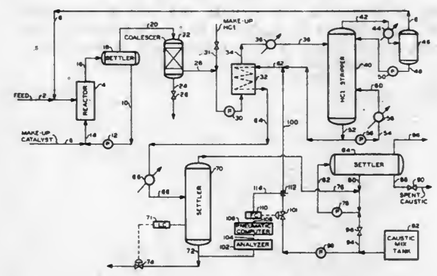


Process and apparatus comprising a reactor having an effluent stream of hot vapors in a conduit passing to a fractionator in which coking on the walls of the conduit and the fractionator is substantially reduced by quenching the effluent stream with cooled liquid condensed from said vapors in said fractionator plus a water spray.

3,547,806
PREVENTION OF CORROSION AND FOULING IN A HYDROCARBON CONVERSION PROCESS
Charles Matyear, Sweeny, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 30, 1967, Ser. No. 687,066
Int. Cl. C10g 9/16, 31/14; C07c 5/28
U.S. Cl. 208—48 5 Claims

In a process for conversion of hydrocarbons with an aluminum halide catalyst complex in the presence of hydrogen chloride where the hydrogen chloride is separated

from the converted hydrocarbons in a stripping zone, corrosion by hydrogen chloride and a deposition of aluminum compounds in cooling heat exchangers are minimized by adding aqueous caustic solution to the stripping zone bottoms product stream upstream of the



cooling heat exchangers in sufficient quantities to make the bottoms product stream alkaline. The amount of caustic solution added to the stream is controlled responsive to the alkalinity measurement of a downstream sample.

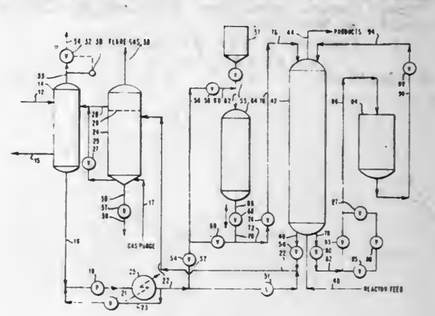
3,547,807
CONVERSION PROCESS AND CATALYSTS
Rowland C. Hansford, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
No Drawing. Continuation-in-part of application Ser. No. 343,932, Feb. 11, 1964, which is a continuation-in-part of application Ser. No. 150,129, Nov. 6, 1961, now abandoned, which in turn is a continuation-in-part of application Ser. No. 72,325, Nov. 29, 1960, and now abandoned. This application June 5, 1967, Ser. No. 643,353
Int. Cl. C10g 23/00
U.S. Cl. 208—111 28 Claims

Hydrocracking catalysts are disclosed consisting essentially of a physical, particle-form mixture of (1) a crystalline aluminosilicate component having a sodium content of less than 4 percent by weight, and (2) a hydrogenation component comprising a predominant proportion of a porous support, other than a crystalline aluminosilicate, and a minor proportion of at least one constituent exhibiting hydrogenation activity. Hydrocracking processes using such catalysts are also disclosed.

3,547,808
CONVERSION PROCESS AND CATALYST
Rowland C. Hansford, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
No Drawing. Continuation-in-part of application Ser. No. 643,353, June 5, 1967, which is a continuation-in-part of application Ser. No. 343,932, Feb. 11, 1964, which in turn is a continuation-in-part of application Ser. No. 150,129, Nov. 6, 1961. This application Oct. 11, 1968, Ser. No. 766,990
Int. Cl. C10g 23/00
U.S. Cl. 208—111 10 Claims

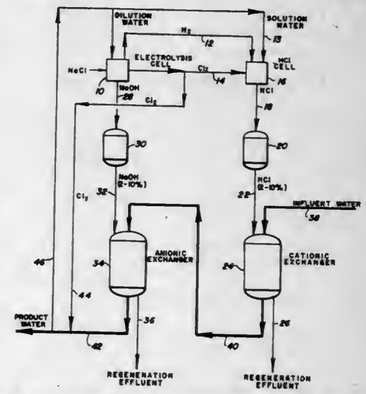
Hydrocracking catalysts are disclosed consisting essentially of a copelleted, particle-forming mixture of (1) a crystalline, zeolitic aluminosilicate component (typically a molecular sieve zeolite), the ion exchange capacity thereof being satisfied mainly by hydrogen ions and/or polyvalent metal ions, and containing a minor proportion of a Group VIII metal added thereto by ion exchange, and (2) an amorphous component comprising a predominant proportion of a porous, amorphous support and a minor proportion of at least one constituent exhibiting hydrogenation activity. Hydrocracking processes using such catalysts are also disclosed.

3,547,809
SOLIDS ADDITION AND WITHDRAWAL PROCESS
Stanley W. Ehrlich, Far Rockaway, and Gregory C. Baniklotes, Seaford, N.Y., and Mark Mackles, London, England, assignors to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed Aug. 19, 1968, Ser. No. 753,403
Int. Cl. C10g 23/10
U.S. Cl. 208—143 5 Claims



A process for the addition and withdrawal of solids from a high pressure reaction vessel by using a pressurized liquid transfer medium, which is compatible with the reactor liquid and removing the transferred solids from the transfer medium and recycling the transfer medium for re-use.

3,547,810
TREATMENT OF WATER
Hal B. H. Cooper, 4234 Chevy Chase Drive, Pasadena, Calif. 91103
Filed May 22, 1968, Ser. No. 730,997
Int. Cl. B01d 15/06; C02b 3/06
U.S. Cl. 210—62 2 Claims



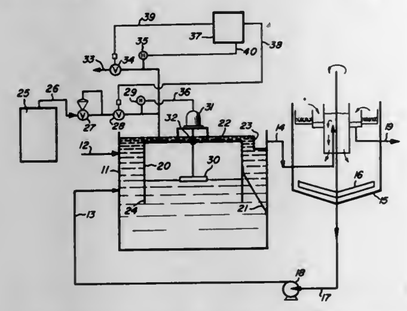
In the demineralization of water, a process for regenerating exhausted anionic and cationic exchange resins requiring the delivery to the treatment site only of innocuous sodium chloride which is used to produce a low cost aqueous caustic soda regenerating solution and a low cost

aqueous hydrochloric acid regenerating solution by utilizing an electrolysis cell in combination with a hydrochloric acid producing cell. The electrolysis cell is operated to produce from a salt (sodium chloride) brine a salt-free caustic soda regenerating solution, hydrogen, and chlorine. The hydrogen and chlorine are reacted in the hydrochloric acid cell to produce therefrom an aqueous hydrochloric acid regenerating solution. Chlorine from the electrolysis cell may be used to sterilize the demineralized product water.

3,547,811
CYCLIC OXYGENATION OF BOD-CONTAINING WATER

John R. McWhirter, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed July 2, 1969, Ser. No. 838,442
Int. Cl. C02c 1/10, 1/12
U.S. Cl. 210—7 14 Claims

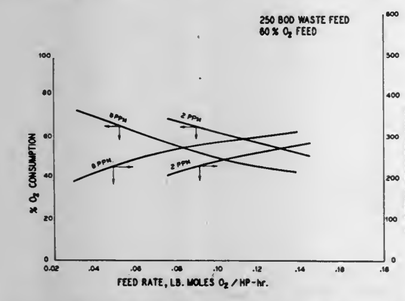


BOD-containing water such as sewage is mixed with active biomass and a first quantity of oxygen feed gas in a first cycle for biochemical oxidation to produce oxygenated liquid-solid and unconsumed oxygen-containing gas of lower purity than the feed gas. The unconsumed oxygen is discharged and a second quantity of oxygen feed gas is introduced for mixing in a second biochemical oxygenation cycle.

3,547,812
HIGH OXYGEN UTILIZATION IN BOD-CONTAINING WATER TREATMENT

John R. McWhirter, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed July 2, 1969, Ser. No. 838,467
Int. Cl. C02c 1/10, 1/12
U.S. Cl. 210—7 10 Claims

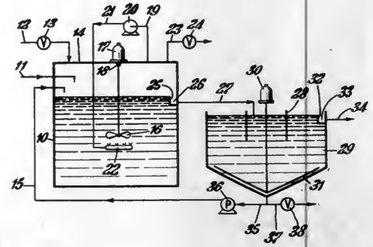


BOD-containing water such as municipal waste is mixed with at least 60% oxygen gas and active biomass in accordance with specified relationships of oxygen feed gas quantity/energy supplied ratio, oxygen concentration range in the aeration gas, and degree of oxygen saturation in the mixing liquor.

3,547,813
BIOCHEMICAL OXIDATION WITH LOW SLUDGE RECYCLE

Ernest K. Robinson, Eggertsville, and John R. McWhirter, Williamsville, N.Y., assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed July 2, 1969, Ser. No. 838,498
Int. Cl. C02c 1/10, 1/12
U.S. Cl. 210—7 7 Claims

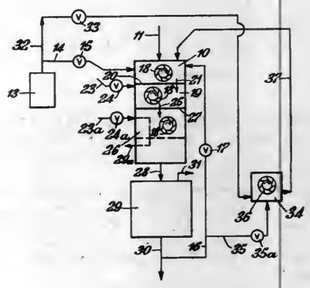


BOD-containing waste water such as municipal sewage is mixed with oxygen gas and recycled sludge having 12,000–50,000 p.p.m. total solids to provide mixed liquor of 4,000–12,000 p.p.m. total solids and at least 300 mm. Hg oxygen gas partial pressure, the oxygenated liquor being concentrated and the resulting sludge recycled in a volumetric ratio to the waste water of 0.1–0.5.

3,547,814
BIO-OXIDATION WITH LOW SLUDGE YIELD

John R. McWhirter, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed July 2, 1969, Ser. No. 838,499
Int. Cl. C02c 1/06
U.S. Cl. 210—7 13 Claims

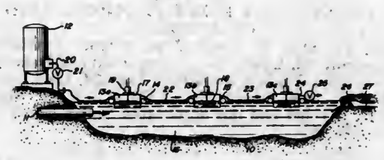


BOD-containing water such as sewage is mixed with oxygen gas and activated sludge in contact aeration and sludge stabilization steps and the resulting BOD-depleted sludge thereafter mixed with additional oxygen gas in an auto-oxidation zone to form partailly auto-oxidized sludge.

3,547,815
STAGED OXYGENATION OF BOD-CONTAINING WATER

John R. McWhirter, Williamsville, N.Y., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

Filed July 2, 1969, Ser. No. 838,500
Int. Cl. C02c 1/10
U.S. Cl. 210—7 25 Claims

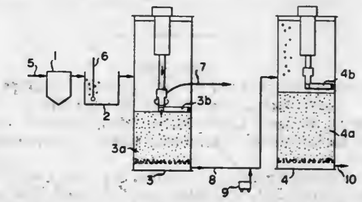


BOD-containing water such as sewage is mixed with oxygen gas and active biomass in a first stage to produce oxygenated liquid-solid and first unconsumed oxygen-containing gas. The latter is withdrawn and mixed with BOD-containing water in a second oxygenation stage.

3,547,816
METHOD AND APPARATUS FOR WASTE WATER PURIFICATION

Tadao Horiguchi, Akio Matsuo, and Toshikatu Ishika, Yokohama-shi, Japan, assignors to Kurita Water Industries Ltd., Osaka-shi, Japan, a corporation of Japan

Filed Nov. 18, 1968, Ser. No. 776,391
Claims priority, application Japan, Dec. 1, 1967, 42/77,109; Dec. 4, 1967, 42/77,772
Int. Cl. B01d 23/24; C02c 5/04
U.S. Cl. 210—15 5 Claims



A method and an apparatus for purifying organic waste waters by introducing oxygen therein through aeration and letting the aerobic waste waters flow into filter bed which is designed to have it surface layers continuously removed by scraping.

3,547,817
INHIBITION OF SCALE FORMATION

Gerald D. Hansen, Jr., Holicong, and Elizabeth A. Guthrie, Philadelphia, Pa., assignors to Betz Laboratories, Inc., Trevose, Pa., a corporation of Pennsylvania

No Drawing. Filed June 22, 1967, Ser. No. 647,931
Int. Cl. C02b 5/00
U.S. Cl. 210—58 12 Claims

The disclosure concerns methods and materials for the elimination or reduction of scale formed from impurities contained by water and petroleum or crude oil by means of treating the entrained impurities with the combination of an adsorbent and iron, zinc, nickel, cobalt, cadmium, copper or aluminum ions. The latter ions are employed to broaden the adsorption potential of the adsorbent and thereby render it effective in respect to a greater number of contaminants possessed of different and widely varying electrostatic conditions.

3,547,818
ALCOHOLIC IONIC COMPOSITIONS CONTAINING A METAL SELECTED FROM Hg (II), Cu (II), Ag (I), Cd (II), Ni (II), Zn (II),, AND Co (II)

Robert C. Wade, Ipswich, Mass., assignor to Ventron Corporation, Beverly, Mass., a corporation of Massachusetts

No Drawing. Continuation-in-part of application Ser. No. 796,612, Feb. 4, 1969. This application Apr. 7, 1969, Ser. No. 814,207
Int. Cl. C23b 5/02
U.S. Cl. 252—1 11 Claims

The invention provides ionic compositions which are solutions of oxides, hydroxides or salts of a metal selected from Hg (II), Zn (II), Cd (II), Ag (I), Cu (II), Ni (II), Co (II), or mixtures thereof in an alcoholic solution of a polymer of ethylene imine having a molecular weight between about 600 and 100,000 and in which the nitrogen atoms are separated by not more than two carbon atoms and the primary, secondary and tertiary imine nitrogen ratio is about 1 to 2 to 1, respectively. The alcoholic solution being that of methanol, ethanol, propanol, isopropanol, ethylene glycol or propylene glycol. The salts are halides, sulfates, nitrates or acetates. These compositions may be applied as a coating to various anionic substrates, such as cotton, glass, silica, alumina, leather, paper or starch, and dried.

3,547,819
LUBRICATING COMPOSITION

William J. Davis, Wyomissing, and Richard C. Gilles, Sinking Spring, Pa., assignors to Joseph E. Ferri, Shillington, Pa.

No Drawing. Continuation-in-part of application Ser. No. 668,692, Sept. 18, 1967, which is a continuation of application Ser. No. 486,214, Sept. 9, 1965, which in turn is a continuation-in-part of application Ser. No. 363,294, Apr. 28, 1964. This application Oct. 28, 1968, Ser. No. 771,273
Int. Cl. C10m 7/14
U.S. Cl. 252—12 24 Claims

Lubricating composition containing a hydrocarbon oil and polyethylene having an average molecular weight within the range of from over one million to about five million, the composition being of various forms, namely a fluid-like gel, a jelly-like gel and a rigid gel, depending on the amount of polyethylene present in the composition.

3,547,820
LUBRICATING OIL COMPOSITIONS

Fred E. Woodward, Plainfield, N.J., and William Katzenstein, Broomal, Pa., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 583,097, Sept. 29, 1966, which is a continuation-in-part of application Ser. No. 203,007, June 18, 1962, which in turn is a continuation-in-part of application Ser. No. 154,834, Nov. 24, 1961. This application Dec. 20, 1968, Ser. No. 786,848
Int. Cl. C10m 1/46
U.S. Cl. 252—32.5 8 Claims

A mineral lubricating oil composition containing about 0.5% to about 25% by weight of a material selected from a phosphate ester and a salt of a phosphate ester of phosphoric acid and an oxyalkylene ether of an organic hydroxy compound. The organic hydroxy compound is selected from alkyl phenols and aliphatic straight chain alcohols, the phosphate ester being selected from monoesters, diesters and mixtures thereof, the oxyalkylene group of the oxyalkylene ether comprising a maximum of about 50% by weight thereof.

3,547,821

HYDROCARBON LUBRICATING OIL CONTAINING A POLYMER OF A CONJUGATED DIOLEFIN AS A VISCOSITY INDEX IMPROVER

Frederic C. McCoy, Beacon, and Edwin C. Knowles, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,579
Int. Cl. C10m *1/46*
U.S. Cl. 252—49.8 8 Claims

Lubricating oil composition having an improved viscosity index containing a polymer of a conjugated diolefin in the cis-1,4 form having a molecular weight ranging from about 75,000 to 2,000,000, and a lubricating oil composition of improved viscosity index having high thermal stability containing a hydrocarbyl phosphite.

3,547,822

SCUM-RETARDANT CARRIER PARTICLES AND COMPOSITIONS THEREOF

Howard A. Miller, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 1, 1968, Ser. No. 702,201
Int. Cl. G03g *9/02*
U.S. Cl. 252—62.1 10 Claims

Magnetically responsive carrier particles for use in magnetic-brush development of electrostatic images, comprising a core of ferromagnetic material overcoated with a thin, continuous layer of a film-forming, alkali-soluble carboxylated polymer. The particles have a reduced tendency to cause scum formation on the surface of a photoconductive element.

3,547,823

TELLURIUM-TIN MODIFIED CHROMIUM DIOXIDE

Toshihiro Mihara, Yukio Terada, and Eiichi Hirota, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

No Drawing. Filed July 31, 1968, Ser. No. 748,936
Claims priority, application Japan, Aug. 10, 1967, 42/51,676; Aug. 16, 1967, 42/53,102
Int. Cl. C01g *37/02*
U.S. Cl. 252—62.51 9 Claims

Ferromagnetic chorium dioxide is prepared by mixing chromium trioxide, tin (or tin compound) and tellurium (or tellurium compound), heating the mixture at 280–480° C. in an autoclave, furnace-cooling the mixture, washing and drying. The amount of tin is 0.01 to 10 atomic percent, and the amount of tellurium is 0.01 to 20 atomic percent. The heating of the mixture is advantageously effected in the presence therein of NH_4^+ ions in a weight ratio to CrO_3 of 0.001 to 1 to 0.15:1. The obtained ferromagnetic chromium dioxide has high magnetic coercive force and high saturation magnetization so that it is useful e.g. in magnetic recording tape, etc.

3,547,824

TELLURIUM-CALCIUM MODIFIED CHROMIUM DIOXIDE

Toshihiro Mihara, Yukio Terada, and Eiichi Hirota, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

No Drawing. Filed Aug. 12, 1968, Ser. No. 751,724
Claims priority, application Japan, Feb. 23, 1968, 43/11,891; Feb. 28, 1968, 43/13,234
Int. Cl. C01g *37/02*
U.S. Cl. 252—62.51 9 Claims

Ferromagnetic chromium dioxide is prepared by mixing chromium trioxide, calcium (or calcium compound) and tellurium (or tellurium compound), heating the mixture at 280–480° C. in an autoclave, furnace-cooling the mixture, washing and drying. The amount of calcium is 0.01 to 10 atomic percent, and the amount of tellurium is 0.01 to 20 atomic percent. The heating of the mixture is advantageously effected in the presence therein of NH_4^+ ions in a weight ratio to CrO_3 of 0.001:1 to 0.15:1. The obtained ferromagnetic chromium dioxide has high magnetic coercive force and high saturation magnetization so that it is useful e.g. in magnetic recording tape, etc.

3,547,825

CRYSTALLINE PYROPHOSPHORIC ACID COMPOSITION

Chung Yu Shen, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Mar. 24, 1965, Ser. No. 442,501, now Patent No. 3,371,992, dated Mar. 5, 1968. Divided and this application Sept. 27, 1967, Ser. No. 680,285
Int. Cl. C09d *9/04*; C11d *7/50*; C23g *5/02*
U.S. Cl. 252—172 9 Claims

Crystalline pyrophosphoric acid is formed by adding crystals of same to a dispersion of liquid polyphosphoric acid (78–82% P_2O_5) in a non-aqueous solvent. The temperature of this dispersion is then maintained at below the melting point of crystalline pyrophosphoric acid until conversion to the crystalline form is complete.

3,547,826

INHIBITING OZONE DECOMPOSITION

Gerald M. Platz, Champaign, Ill., assignor, by mesne assignments, to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

No Drawing. Original application Sept. 15, 1955, Ser. No. 534,878, now Patent No. 3,400,024, dated Sept. 3, 1968. Divided and this application Apr. 2, 1968, Ser. No. 718,242
Int. Cl. C06c *15/00*
U.S. Cl. 252—186 3 Claims

This invention relates to a stabilized composition consisting of oxygen and ozone and an effective amount of nitrous oxide to inhibit decomposition of said ozone.

3,547,827

COMPOSITIONS FOR NON-VISIBLE PENETRANT METHODS OF FLAW DETECTION

Joseph L. Switzer, Gates Mills, Ohio, assignor to Day-Glo Color Corp., Cleveland, Ohio, a corporation of Ohio

Original application Oct. 12, 1961, Ser. No. 144,673, now Patent No. 3,341,010, dated Sept. 12, 1967. Divided and this application July 21, 1967, Ser. No. 655,090
Int. Cl. C09k *1/02*; F21k *2/00*
U.S. Cl. 252—301.2 3 Claims

Compositions permitting scanning by non-visible incident radiation and emissions, of parts for surface flaws revealed by penetrant at or in flaw openings; composition comprises a dry mixture of scintillating powder and carrier powder substantially non-adherent to test part except when penetrant is in or at a flaw opening and carrier powder promotes adherence of the scintillating mixture in order to locate flaw when part is scanned.

3,547,828

ALKYL OLIGOSACCHARIDES AND THEIR MIXTURES WITH ALKYL GLUCOSIDES AND ALKANOLS

Richard C. Mansfield, Warminster, and James L. Rainey, Abington, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Sept. 3, 1968, Ser. No. 759,259
Int. Cl. B01f *17/00*; C07c *47/18*
U.S. Cl. 252—351 7 Claims

Surface active alkyl oligosaccharides and mixtures of alkyl oligosaccharides with alkyl glucosides and alkanols are prepared from an alkanol and glucose via a transacetalation reaction. Preparation of these compositions may be carried out by reacting glucose and a lower alkanol in the presence of an acid catalyst to form a mixture of lower alkyl glycosides which are then reacted with higher alkanols to form the desired products.

3,547,829

PREPARATION OF OLEFIN POLYMERIZATION CATALYST

Bayard T. Lamborn, Matawan, N.J., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,569
Int. Cl. B01f *13/00*
U.S. Cl. 252—429 4 Claims

Titanium trichloride catalysts of reduced particle size are made by introducing vapors of titanium tetrachloride into a solution of an organoaluminum compound in an inert liquid diluent.

3,547,830

HIGH AREA CATALYST PREPARATION

Joseph A. Shropshire, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,950
Int. Cl. B01j *11/82*
U.S. Cl. 252—432 10 Claims

High-area heterogeneous hydrocarbon conversion catalysts, e.g. cobalt and nickel dispersed on a high-area substrate, e.g. silica and alumina are prepared by the simultaneous precipitation of a catalytic elemental metal, e.g. cobalt, and a substrate, e.g. alumina, in order to provide the maximum dispersion of the catalyst on the substrate and to greatly increase the efficiency of the catalyst. The simultaneous precipitation of the high-surface-area elemental metal catalyst dispersed on the desired substrate is accomplished by (1) solubilizing the transition metal compound with a complexing agent, e.g. citrate, tartrate or amine in an alkaline solution (2) admixing this solution with an alkali metal salt of the desired substrate material, e.g. sodium metasilicate, (3) adding on alkali metal borohydride e.g. sodium borohydride, to the solution; and heating the solution to a temperature in the range of from 40° to 100° C., and thereafter adding a small amount of a mineral acid, e.g. sulfuric acid. The high surface area catalysts so prepared are useful in organic conversion, particularly wherein hydrogen is introduced with the feed, e.g., hydrogenation.

3,547,831

SOLID STATE BASE-EXCHANGE OF CRYSTALLINE ALUMINOSILICATES

Stephen M. Oleck, Moorestown, and William A. Stover, Woodbury, N.J., assignors to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Nov. 14, 1967, Ser. No. 682,990
Int. Cl. B01j *11/40*
U.S. Cl. 252—455 10 Claims

Base exchange of crystalline aluminosilicates under conventionally practiced wet methods may lead to a loss of crystallinity in some instances. It has been found that crystalline aluminosilicates can be base-exchanged in the solid state, thereby resulting in a product having improved structural stability.

Solid state base exchange can be carried out by intimately mixing the aluminosilicate with a solid salt of the desired metal and heating at elevated temperatures.

3,547,832

SHAPED REFRACTORY PARTS

Karl Haas, Niederkassel, and Georg Schinke and Ferd. Langenhoff, Ranzel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Bezirk Cologne, Germany, a corporation of Germany

No Drawing. Continuation of application Ser. No. 540,146, Mar. 30, 1966. This application June 24, 1968, Ser. No. 754,143
Claims priority, application Germany, Apr. 2, 1965, D 46,949
Int. Cl. B01j *11/06*; C04b *35/10*
U.S. Cl. 252—455 7 Claims

Refractory shaped bodies useful, for example, as catalyst supports, are formed by firing a mixture of refractory oxide, hydroxide of aluminum, and metal alcoholates of the group silicon-aluminum alcoholate, aluminum-titanium alcoholate, and silicon-aluminum-titanium alcoholate.

3,547,833

PREPARATION OF CATALYST CARRIER

Tomosaburo Yano, Tadasi Matuo, Hideo Ichinokawa, Masatomo Ito, and Koichi Kuno, Tokyo, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Filed July 24, 1967, Ser. No. 655,305
Claims priority, application Japan, Oct. 21, 1966, 41/68,882
Int. Cl. B01j *11/06*
U.S. Cl. 252—463 3 Claims

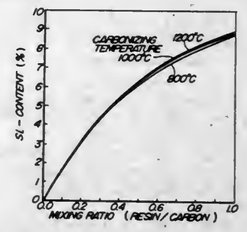
Process for preparing a catalyst carrier which consists of sintering a homogeneous mixture of titania powder and aluminum powder in an oxidizing atmosphere at a temperature range 650°–950° C., and the use of said carrier as a catalyst support in the vapor phase oxidative reaction of hydrocarbons.

3,547,834

RESISTANCE MATERIAL AND METHOD FOR MAKING THE SAME

Nobumasa Oshima and Yoshio Enoki, Hirakata-shi, and Norihiro Tani, Moriguchi-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Continuation-in-part of application Ser. No. 394,832, Sept. 8, 1964. This application Sept. 5, 1967, Ser. No. 665,515
Int. Cl. B44d *1/20*; H01b *1/06*
U.S. Cl. 252—511 10 Claims



There is disclosed carbonaceous minute particles characterized by high electric resistivity, low temperature dependence of the resistivity and other excellent properties, to be used for making the composition type resistors, and also a method to make such material.

3,547,835

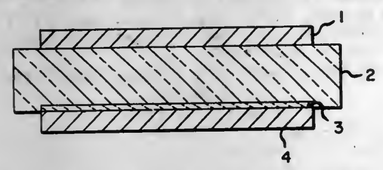
PROCESSES OF PRODUCING AND APPLYING SILVER COMPOSITIONS, AND PRODUCTS THEREFROM

Oliver A. Short, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of applications Ser. No. 460,567, June 1, 1965, and Ser. No. 683,798, Nov. 17, 1967. This application June 9, 1969, Ser. No. 835,884

Int. Cl. C03c 7/10; H01b 1/02

U.S. Cl. 252—514 13 Claims



Specified amounts of silver, inorganic binder and aluminum are admixed to produce conductive silver compositions. These compositions are applied to ceramic substrates and fired whereby the aluminum inhibits the formation of an oxidized layer between the silver and the substrate. Capacitors and thermistors having low resistance ohmic electrical contact(s) are also produced.

3,547,836

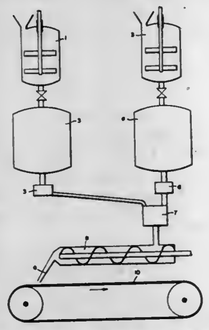
MANUFACTURE OF EXPANDED POLYAMIDES

Horst Brueggemann and Karl Dachs, Ludwigshafen (Rhine), Erich Schwartz, Mannheim, and Hans Wilhelm, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Sept. 25, 1961, Ser. No. 140,434

Int. Cl. C08q 20/00; C08f 47/10; C08j 1/26

U.S. Cl. 260—2.5 12 Claims



The invention relates to a process of heating a lactam monomer in the presence of a blowing agent in order to simultaneously polymerize and foam said admixture.

3,547,837

POLYVINYL FORMAL POROUS PRODUCTS OBTAINED FROM AQUEOUS SOLUTIONS OF ZINC CHLORIDE OR ACETIC ACID

Tadao Ashikaga, Hirotoshi Kurashige, and Takeo Endoh, Kurashiki-shi, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki-shi, Okayama Prefecture, Japan, a corporation of Japan

No Drawing. Filed Aug. 19, 1966, Ser. No. 573,467

Claims priority, application Japan, Aug. 25, 1965, 40/51,852

Int. Cl. C08f 47/08; C08j 1/16

U.S. Cl. 260—2.5 10 Claims

A process for the production of polyvinyl formal porous products using aqueous solutions of zinc chloride or acetic acid is disclosed. The solubility of polyvinyl formal in such solutions allows foaming to be effected before, during or after the reaction of polyvinyl alcohol with formaldehyde.

3,547,838

METHOD FOR PRODUCING CELLULAR PLASTIC ARTICLES AND THE ARTICLES PRODUCED THEREBY

Eugene R. Moore, Midland, Dale M. Pickelman, Auburn, and Robert L. Zimmerman, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Aug. 10, 1967, Ser. No. 659,605

Int. Cl. C08f 47/10

U.S. Cl. 260—2.5 7 Claims

Thermoplastic vinyl aromatic copolymers having a solubility parameter between 9.3 and 9.9 can be foamed to stable cellular articles with Freon 11 as the volatile foaming agent. The solubility parameter of polystyrene can be increased to the above range by copolymerizing styrene with a monomer, such as maleic anhydride, which has a higher solubility parameter than styrene. The copolymers overcome the problem of using Freon 11 with polystyrene (foaming agent too soluble) and overcome the problem of using n-pentane as a foaming agent (flammability).

3,547,839

FOAMABLE RESIN COMPOSITION AND PROCESS FOR PREPARING FOAMED RESINS

Stanley Tocker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 329,976, Dec. 12, 1963. This application Feb. 29, 1968, Ser. No. 709,211

Int. Cl. C08f 47/10; C08j 1/18

U.S. Cl. 260—2.5 8 Claims

A foamable composition of a foamable polymeric resin such as, for example, polyethylene, and polyoxymethylene is provided. The foamable composition is converted into a foamed polymeric product by heating the composition to a temperature above the decomposition temperature of polyoxymethylene which decomposes into gaseous formaldehyde which expands the resin product. The foamed resin is then cooled to obtain the foamed product.

3,547,840

PRODUCTION OF INSULATING MATERIALS HAVING LOW SPECIFIC GRAVITY

Fritz Stastny, 3 Ottweiler Str., Ludwigshafen (Rhine), Germany; Rudolf Gaeth, 10 Weinbietstrasse, Limburgerhof, Pfalz, Germany; Bernhard Schmitt, 52 Keplerstrasse, Heidelberg, Germany; and Udo Haardt, 19 Beethovenstrasse, Ludwigshafen (Rhine), Germany

No Drawing. Continuation of application Ser. No. 555,681, June 7, 1966. This application Jan. 13, 1969, Ser. No. 793,226

Claims priority, application Germany, June 16, 1965, 1,671,654

The portion of the term of the patent subsequent to Feb. 25, 1986, has been disclaimed

Int. Cl. C08f 47/10; C08j 1/26

U.S. Cl. 260—2.5 10 Claims

Insulating materials having a low specific gravity are prepared by mixing closed cell porous polymer particles with an aqueous alkali metal silicate solution containing a substance which reacts with the alkali metal silicate to precipitate insoluble compounds and consolidating the mixture to form a compact molding.

3,547,841

ORGANOLEAD COMPOUNDS AND POLYURETHANE FOAMS PRODUCED BY THE USE THEREOF AS CATALYSTS

Henricus G. J. Overmars, Zeist, Netherlands, assignor, by mesne assignments, to International Lead Zinc Research Organization, Inc., New York, N.Y., a corporation of New York

No Drawing. Original application Feb. 23, 1965, Ser. No. 434,670, now Patent No. 3,417,113, dated Dec. 17, 1968. Divided and this application Sept. 6, 1968, Ser. No. 807,140

Claims priority, application Netherlands, Mar. 2, 1964, 6402097

Int. Cl. C08g 22/40, 22/44; C07f 7/24

U.S. Cl. 260—2.5 14 Claims

Monoaryllead trisacylates in which at least one of the acyl radicals is halogen substituted with a halogen of the group consisting of chlorine and bromine. It also discloses a process for making such compounds by reacting an alkylplumbonic acid in a common solvent with heat. The application also discloses a process for making thermostable polyurethane foams by the reaction of at least one polyfunctional isocyanate, and at least one polyhydroxy compound in cooperation with a blowing agent by using as a catalyst one of the halogenated monoaryllead trisacylates as disclosed herein.

3,547,842

FLAME-RETARDANT POLYURETHANES

John Harvey Bright and Joseph Frederick Cannelongo, Piscataway, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 571,180, Aug. 9, 1966. This application Aug. 5, 1969, Ser. No. 847,722

Int. Cl. C08g 22/16

U.S. Cl. 260—2.5 6 Claims

Polyurethane foams produced from an organic polyisocyanate and a polyol and containing a flame-retarding amount of a benzyl phosphonate, are disclosed.

3,547,843

FOAMED POLYOLEFIN COMPOSITIONS USING POLYAZIDOFORMAMIDES

Shigeto Suzuki, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Original application Apr. 27, 1967, Ser. No. 634,138. Divided and this application Sept. 29, 1969, Ser. No. 862,043

Int. Cl. C08f 47/10

U.S. Cl. 260—2.5 3 Claims

Polyolefins are heated with polyazidoformamides to give foamed essentially non-crosslinked solid polyolefin compositions.

3,547,844

SOLID PHENOLIC RESIN-BLOOD GLUE BASE

Dale J. Hohbach, Hillsboro, and Harold A. Smith, Forest Grove, Oreg., assignors to Pacific Adhesives Company, Inc., a corporation of Oregon

No Drawing. Filed Aug. 13, 1968, Ser. No. 752,127

Int. Cl. C08g 37/18; C08h 7/00

U.S. Cl. 260—7 8 Claims

A solid resin-blood glue base of improved storage and viscosity characteristics is prepared by forming a mixture of an aqueous phenolic resin with declotted, uncoagulated liquid blood and drying the resulting mixture.

3,547,845

VINYL ESTER/ETHYLENE COPOLYMER AQUEOUS DISPERSIONS

Paul S. Pinkney, West Chester, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 686,324, Nov. 28, 1967. This application July 18, 1969, Ser. No. 843,216

Int. Cl. C08f 27/08, 29/10, 3/62

U.S. Cl. 260—17 10 Claims

Aqueous dispersions, having good formulating latitude and especially suitable for use in paint formulations, are disclosed. The dispersions contain an iminated carboxylic polymer, e.g., vinyl acetate/ethylene/acrylic acid, a particular anionic/non-ionic surfactant combination, potassium tripolyphosphate, and a protective colloid, e.g., hydroxyethyl-cellulose.

3,547,846

STORAGE STABLE COATING COMPOSITION COMPRISING ALKYD RESIN, ESTERIFIED INORGANIC ACID AND VOLATILE BUFFER MATERIAL

John S. Coulter, Ankeny, Iowa, assignor to Iowa Paint Manufacturing Company, Incorporated, Des Moines, Iowa, a corporation of Iowa

No Drawing. Continuation-in-part of application Ser. No. 640,475, May 23, 1967, which is a continuation-in-part of application Ser. No. 590,207, Oct. 28, 1966. This application Apr. 21, 1969, Ser. No. 818,128

The portion of the term of the patent subsequent to May 20, 1986, has been disclaimed and dedicated to the Public

Int. Cl. C09d 3/52, 3/66

U.S. Cl. 260—21 23 Claims

A coating composition and the method of making the same which includes a combination of an alkyd resin, an urea resin, an inorganic acid and a volatile buffer material. The inorganic acid causes cross-linking of the alkyd and urea resins when the buffer material evaporates upon application of the composition as a film.

3,547,847

AQUEOUS EMULSION COPOLYMERS OF VINYL ALKANOATES, ALKYL ACRYLATES, DRYING OIL AND ANOTHER UNSATURATED COMPOUND

Eli Levine, Union, and John Ribelle Costanza, North Plainfield, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 690,074, Dec. 13, 1967. This application Aug. 13, 1968, Ser. No. 752,144

Int. Cl. C09d 3/26; C08f 15/40

U.S. Cl. 260—22 8 Claims

Aqueous emulsion copolymers derived from vinyl alkanoates (e.g., vinyl acetate) and alkyl acrylates (e.g., ethyl acrylate) are modified by the incorporation of drying oils. The drying oils (e.g., linseed oil) are chemically combined with the vinyl alkanoates and alkyl acrylate components of the copolymer in an amount ranging from about 2 percent to about 50 percent by weight, based on the total weight of nonvolatiles present in the aqueous emulsion copolymer.

3,547,848

THIXOTROPIC COATING COMPOSITIONS COMPRISING A VARNISH AND A DI-SUBSTITUTED UREA

Frederick S. Marsh, Chicago, Layton F. Kinney, Villa Park, and Roy J. Betty, Jr., Chicago, Ill., assignors, by mesne assignments, to Armour Industrial Chemical Company, a corporation of Delaware

No Drawing. Filed Nov. 3, 1967, Ser. No. 680,335
Int. Cl. C09d 3/64, 5/04
U.S. Cl. 260—22 16 Claims

Thixotropic coating compositions comprising a base varnish or paint and urea produced by the in situ reaction of an aliphatic amine and an isocyanate and method of forming such thixotropic compositions. The compositions of this invention provide excellent thixotropic varnishes and paints having superior sprayability and brushability on a number of substrates.

3,547,849

ALKYD MODIFIED VINYL ACETATE-ETHYLENE COPOLYMER EMULSION PAINT

Richard J. Kennedy, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 13, 1967, Ser. No. 630,505
Int. Cl. C09d 3/66, 5/02
U.S. Cl. 260—22 5 Claims

A novel paint composition especially suitable for exterior uses where wet adhesion is required is provided. The present paint composition is based on a vinyl acetate-ethylene copolymer emulsion paint containing an alkyd resin. Useful alkyd resins are generally reaction products of polyhydric alcohols and polybasic acids. A particular paint composition containing a long oil castor-phthalic alkyd resin is provided which not only demonstrates improved wet adhesion but also possesses paint film extensibility.

3,547,850

ASPHALT-POLYMER COMPOSITION

Dean P. Montgomery, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 483,804, Aug. 30, 1965. This application June 17, 1968, Ser. No. 737,332
Int. Cl. C08f 45/52
U.S. Cl. 260—28.5 8 Claims

Between 0.1 and 10 weight percent of an alkali metal is dispersed in an asphalt at a temperature between the melting point of the alkali metal and 375° F.; subsequently, a monomer, such as a conjugated diene or vinyl-substituted aromatic compound, is polymerized in situ in the absence of a diluent at a temperature between 100 and 300° F. to give an asphalt product having a high softening point and a high penetration ratio.

3,547,851

NON-FLOWABLE ANAEROBIC ADHESIVE

Elliott Frauenglass, Newington, Conn., assignor to Loctite Corporation, Newington, Conn., a corporation of Connecticut

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,867
Int. Cl. C08f 3/64
U.S. Cl. 260—23.5 18 Claims

Anaerobic adhesive compositions composed of a polymerizable acrylate ester monomer and a peroxy polymerization initiator are rendered non-flowable at room temperature by uniformly distributing throughout the adhesive a network of a normally solid organic substance insoluble in the adhesive. The organic substance is basically linear in nature, typified by insoluble thermoplastic resins, normally solid paraffin hydrocarbons, and normally solid fatty substances having about 10 or more carbon atoms.

3,547,852

AQUEOUS EMULSION ADHESIVE

Robert L. Burke, Jr., Aiken, S.C., assignor to United Merchants and Manufacturers, Inc., New York, N.Y., a corporation of Delaware

Filed July 5, 1966, Ser. No. 562,838
Int. Cl. C08f 37/18; C09j 7/02
U.S. Cl. 260—29.6 2 Claims

A pressure sensitive aqueous emulsion adhesive includes an acrylic ester and other polymer and monomer components whose net effect when the adhesive is applied to a polyvinylchloride-organic plasticizer substrate is to substantially eliminate migration of the vinyl plasticizer and adhesive solvent and thereby substantially eliminate film contraction during ageing.

3,547,853

DRY POLYMER/CEMENT COMPOSITIONS

Michael Kalandiak, Ambler, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Sept. 20, 1967, Ser. No. 669,264
Int. Cl. C08f 45/36
U.S. Cl. 260—29.6 11 Claims

Improved cement compositions involving the incorporation therein of a dry redispersible acrylic polymer, an aliphatic hydroxycarboxylic acid set-retarding agent that also serves as a sequestrant, and trimethylol propane, trimethylol ethane, or a mixture of the latter two compounds.

3,547,854

THREE-PHASE AEROSOL SPRAYING SYSTEMS

Willy Roth, Strengelbach, Aargau, and Otto Erwin Schenk, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 391,800, Aug. 24, 1964, which is a continuation-in-part of application Ser. No. 267,771, Mar. 25, 1963. This application Aug. 21, 1967, Ser. No. 661,835
Claims priority, application Switzerland, Mar. 30, 1962, 3,864/62
Int. Cl. C08f 45/34; C08b 27/42; C08k 1/32
U.S. Cl. 260—29.6 13 Claims

In three-phase aerosol spraying systems comprising, in an aerosol pressure vessel, an aqueous phase to be sprayed which contains as active substance a textile finishing agent, a liquefied organic propellant phase, and the gas phase of the propellant, the improvement of avoiding excessive foam formation and obtaining optimal spray distribution in the sprayed-on zone on the substrate, by providing in the system a lipophilic interface active agent of an HLB value of maximally 6 which is a water-insoluble mono- or di-lower alkyl ether of monoethylene glycol or diethylene glycol and has at least 6 and not more than 12 carbon atoms per molecule; thereby, formation of a foam-causing type emulsion of the liquefied propellant and aqueous phase is avoided, which type of emulsion is usually undesirable in spraying textile finishing agents, and foam formation is suppressed.

3,547,855

REMOVAL OF CATALYST RESIDUES FROM ALPHA-OLEFIN COPOLYMER SOLUTIONS

Frederick C. Loveless, Oakland, N.J., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Aug. 31, 1967, Ser. No. 664,634
Int. Cl. C08f 15/40
U.S. Cl. 260—80.78 5 Claims

Alpha-olefin copolymer rubbers (EPM or EPDM) prepared in solution with soluble anionic coordination-type catalysts based on vanadium and aluminum compounds (e.g., $VOCl_3$ and $R_3Al_2X_3$), in which a nitrogen-containing oxident (e.g., nitropropane) has been used as a catalyst activator or polymerization regulator, are difficult to free from catalyst residues. Addition of certain (a) polyether diamines, or (b) polyether monoamines, or (c) mixtures of a alkanolamine with a polyether glycol, to the copolymer solution prior to water-washing and recovery of the polymer, greatly facilitates removal of the catalyst residues.

3,547,856

FLUORINATED OIL AND WATER REPELLENTS

Thomas K. Tandy, Jr., Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 11, 1969, Ser. No. 806,303
Int. Cl. C08f 15/26
U.S. Cl. 260—80.81 21 Claims

Fluorinated oil and water repellent polymers containing units derived from monomers having the structures $R_fCH_2CH_2O_2CCH{=}CH_2$ wherein R_f is a perfluoroalkyl group of 4 through 14 carbon atoms, and $RO_2CCH{=}CH_2$ wherein R is $F(CF_2)_n—CH_2—$ where n is 1 or 2, $HCF_2CF_2CH_2—$, or $(CF_3)_2CH$, and optionally containing small amounts of units derived from monomers selected from $CH_2{=}CR^1—CONH—R^2OH$, $CH{=}CR^1CO_2R^3OH$, $CH_2{=}CR^1CO_2R^4$, and mixtures thereof wherein R^1 is H or CH_3, R^2 is an alkylene group of about C_{1-4}, R^3 is an alkylene group of about C_{2-4}, and R^4 is an epoxyalkyl group of about C_{3-4}.

3,547,857

CONTINUOUS EMULSION POLYMERIZATION OF STYRENE AND ACRYLONITRILE BY ADDITION OF MONOMERS IN PLURAL STAGES WITH ALL OF EMULSIFIER ADDED IN FIRST STAGE

Allan G. Murray, Naugatuck, Conn., assignor to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

Filed Oct. 16, 1967, Ser. No. 675,399
Int. Cl. C08f 15/04, 15/22
U.S. Cl. 260—85.5 4 Claims

Continuous aqueous emulsion polymerization is carried out in two or more large volume reactors connected in series. The feed of monomers (e.g., styrene and acrylonitrile) is split between the first and second or subsequent reactors (e.g., 60/40) with the result that the process can be operated for extended periods of time without formation of coagulum in the reactors or transfer lines. All of the emulsifying agent is added in the first stage, and no additional emulsifyer is added in subsequent stages.

3,547,858

HYDROLYSIS OF ESTERS IN THE MOLTEN STATE

Roy Worrall, Newport, England, assignor to Monsanto Chemicals Limited, London, England, a British company

No Drawing. Continuation of application Ser. No. 639,631, May 19, 1967. This application Aug. 27, 1969, Ser. No. 853,527
Int. Cl. C08f 27/16
U.S. Cl. 260—87.3 9 Claims

Polymers and/or interpolymers of esters of an unsaturated alcohol are subjected to the action of a hydrolyzing agent while the polymers are in the molten state.

3,547,859

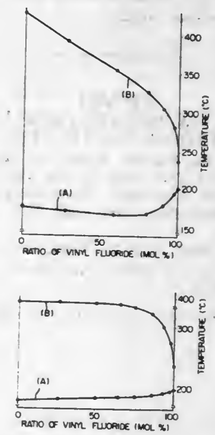
VINYL FLUORIDE COPOLYMER

Yutaka Kometani, Nishinomiya-shi, Tsuneo Fujii, Suita-shi, and Shinsuke Sakata, Settsu-shi, Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed May 8, 1968, Ser. No. 727,631
Claims priority, application Japan, May 12, 1967, 42/29,754, 42/29,755
Int. Cl. C08f 15/06
U.S. Cl. 260—87.5 1 Claim

A vinyl fluoride copolymer which has a larger difference between the melting temperature and the decomposition temperature than that of poly (vinyl fluoride), produced by polymerizing in the presence of a free radical initiator 30–99 mol percent of vinyl fluoride and 70–1 mol percent of a monomer expressed by the general formula

$CF_2{=}CHX$



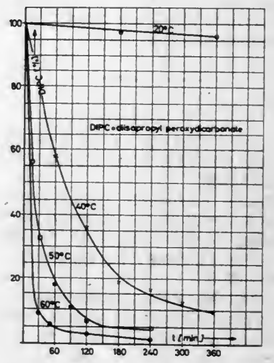
wherein X represents a hydrogen atom or fluorine atom, the ratio of the monomer unit of the above formula in the resulting copolymer being 1–50 mol percent.

3,547,860

PROCESS FOR POLYMERIZING VINYL ESTERS IN SOLVENTS

Gerhard Roh, Hofheim, Taunus, and Michael Lederer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

Continuation-in-part of application Ser. No. 445,346, Apr. 5, 1965. This application Feb. 14, 1969, Ser. No. 799,475
Claims priority, application Germany, Apr. 15, 1964, F 42,611
Int. Cl. C08f 3/54; C08c 11/28, 11/36
U.S. Cl. 260—89.1 4 Claims



A process has been provided for solvent polymerization of vinyl esters whereby aliphatic diesters and cyclic

diesters of peroxydicarbonic acid are used in combination with specific solvents. A representative peroxydicarbonate is diisopropyl peroxydicarbonate while a suitable solvent therefor is hexane. The temperatures employed are within the range of 20° to 90° C. By practicing this process, high monomer conversion rates are obtained as well as polyvinyl esters are prepared which have a narrow distribution of molecular weight.

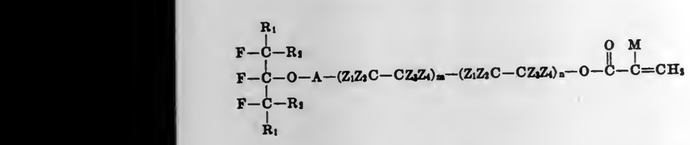
3,547,861

NOVEL FLUORINATED ACRYLATES AND POLYACRYLATES

Louis Gene Anello, Basking Ridge, and Richard Francis Sweeney, Dover, N.J., and Morton Herbert Litt, University Heights, Cleveland, Ohio, assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Apr. 12, 1968, Ser. No. 721,114
Int. Cl. C08f 3/62, 15/16
U.S. Cl. 260—89.5 39 Claims

Novel fluorinated acrylates of the formula



wherein

(a) R_1 and R_2 may be F, Cl, alkyl, haloalkyl, alkylene or haloalkylene groups,
(b) A is a radical of the formula $—CFR_3—CR_4R_5—$ in which R_3 and R_4 are independently selected from the group consisting of F and H, and R_5 is selected from the group consisting of F, H, Cl, Br and perfluoroalkyl,
(c) Z_1, Z_2, Z_3 and Z_4 may be independently selected from a variety of groups, particularly H, F, Cl and Br, provided that Z_1–Z_4 do not include more than two chlorine atoms or one bromine atom, and
(d) M is a member selected from the group consisting of H or CH_3,

with the proviso that the terminal carbon atom in the $—(Z_1Z_2C—CZ_3Z_4)_n—$ group which is bonded to the —O— atom is additionally bonded to two hydrogen atoms; are useful as monomers for the production of novel fluorinated polyacrylates which are valuable as oil, stain and water repellent compositions.

3,547,862

EMULSION POLYMERIZATION PROCESS UTILIZING A HALOESTER AND CUPROUS SALT CATALYST SYSTEM

James D. Brown, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Jan. 20, 1967, Ser. No. 610,466
Int. Cl. C08f 7/04; C08d 1/12
U.S. Cl. 260—93.5 6 Claims

A process and the catalyst for the emulsion polymerization of an organic monomeric material having an active vinyl group such as 1,3-butadiene by dispersing the monomeric material in an aqueous medium and then contacting the dispersed monomeric material with a catalyst formed by admixing an ester of a halogenated carboxylic acid with a cuprous salt such as ethyltrichloroacetate and cuprous chloride.

3,547,863

ANTISTATIC AGENTS FOR HIGH-POLYMERIC COMPOUNDS

Franz Landauer and Hans-Joachim Vetter, Frankfurt am Main, Germany, assignors, by mesne assignments, to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Jan. 23, 1967, Ser. No. 610,822
Claims priority, application Germany, Jan. 28, 1966, F 48,284
Int. Cl. C08f 3/04, 7/04
U.S. Cl. 260—93.5 5 Claims

Antistatic substances as additives to high-polymeric compounds prepared from oxazolines by reaction with alkylene oxide.

3,547,864

STEREOSPECIFIC POLYMERIZATION OF CONJUGATED DIOLEFINS IN THE PRESENCE OF HALOGEN SUBSTITUTED DIOLEFINS

Evalds Lasis, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate and politic

No Drawing. Filed June 27, 1968, Ser. No. 740,485
Claims priority, application Canada, Aug. 18, 1967, 998,131
Int. Cl. C08d 3/06, 3/10
U.S. Cl. 260—94.3 9 Claims

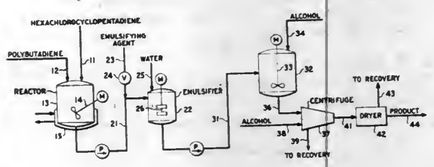
In a stereoregular polymerization of a vinyl monomer such as an aliphatic conjugated diolefin by a catalyst comprising a hydrocarbyl aluminum compound and a compound of a heavy metal of Group IV–B to VI–B, an improvement in control of molecular weight is found by employing a halogen-substituted diolefin, e.g. chloroprene, in an amount of less than 2 moles per 100 moles of said vinyl monomer.

3,547,865

POLYMER RECOVERY PROCESS

Paul E. Hoch, Moraga, Calif., and George B. Stratton, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 509,969, Nov. 26, 1965, which is a continuation-in-part of application Ser. No. 489,893, Sept. 24, 1965, which in turn is a continuation-in-part of application Ser. No. 293,157, July 5, 1963, which also in turn is a continuation-in-part of application Ser. No. 216,293, Aug. 13, 1962. This application Apr. 29, 1969, Ser. No. 826,766
Int. Cl. C08d 5/00; C08f 1/92, 1/96
U.S. Cl. 260—94.7 10 Claims



A polymer of polybutadiene and a polyhalogenated cyclopentadiene is recovered from a reaction mixture containing same by emulsifying the reaction product with an aqueous emulsifying medium and an emulsifying agent, contacting the resulting emulsion with a solvent such as an alcohol in which the polymer is substantially insoluble to produce an aqueous phase and a polymer phase, and thereafter recovering the polymer product.

3,547,866

CHLORINATING POLYETHYLENE

Hans-Georg Trieschmann, Hambach, Gerhard Zeitler, Hessheim, Heiner Dickaeuser and Lothar Reuter, Ludwigshafen (Rhine), and Helmut Pfannmueller, Limburgerhof, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 27, 1968, Ser. No. 755,715
Claims priority, application Germany, Aug. 29, 1967, P 1,720,295
Int. Cl. C08f 27/03
U.S. Cl. 260—94.9 4 Claims

A process for chlorinating polyethylene in which polymer particles having a relatively large specific surface are chlorinated.

3,547,867

AMIDES OF ETHYLENE DIAMINE TETRA ACETIC ACID

Harry J. Andress, Jr., Pitman, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Original application Mar. 5, 1968, Ser. No. 710,664, now Patent No. 3,455,665, dated July 15, 1969. Divided and this application Sept. 5, 1968, Ser. No. 775,970
Int. Cl. C09f 1/04
U.S. Cl. 260—97.5 3 Claims

Liquid hydrocarbon compositions are provided containing, in an amount sufficient to impart anti-static properties, amides of ethylene diamine tetra acetic acid.

3,547,868

PHENOL-MODIFIED UREA-FORMALDEHYDE RESINS AND METHOD OF MAKING SAME

Frederick Schwartzenburg, Jr., and Donald B. Griffin, Tuscaloosa, Ala., assignors to Reichhold Chemicals, Inc., White Plains, N.Y.

No Drawing. Continuation of application Ser. No. 712,385, Mar. 12, 1968. This application Dec. 2, 1969, Ser. No. 876,197
Int. Cl. C08g 9/10, 9/32
U.S. Cl. 260—29.3 8 Claims

This invention discloses a method of condensing urea and formaldehyde at a molar ratio of about 1.7–2.5 mols of formaldehyde per one mol of urea, and resultant product. Said method is improved by the addition of a phenolic compound before the final polymerization is obtained. The molar ratio of the phenolic compound to urea is between about 1:50 and 1:10.

3,547,869

PLASTICISED CURABLE MIXTURES OF POLYEPOXIDES AND POLYEPOXIDEPOLYAMINE ADDUCTS

Eberhard Seeber, Arlesheim, and Alfred Heer, Birsfelden, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed Apr. 22, 1969, Ser. No. 818,436
Claims priority, application Switzerland, May 3, 1968, 6,559/68
Int. Cl. C08g 51/26
U.S. Cl. 260—30.4 10 Claims

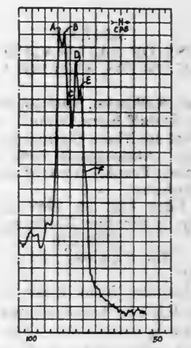
New, plasticized, curable mixtures containing (1) a polyglycidyl ether of a polyphenol, (2) as plasticizing component, a diglycidyl ether or ester of a polyethylene glycol or polypropylene glycol having an average molecular weight of at least 300 and at most 1100, for example diglycidyl ether of a polypropylene glycol having an average molecular weight of 425, or diglycidyl ester of a dicarboxylic acid obtained by reacting 2 mols of phthalic anhydride with 1 mol of polypropylene glycol having an average molecular weight of 425, and (3) a solvent-free adduct curing agent formed from (a) a polyglycidyl ether, which is liquid at room temperature, of a polyphenol, and (b) hexamethylene diamine or a mixture of hexamethylene diamine and a hexamethylene diamine or heptamethylene diamine alkyl-substituted in the polymethylene chain, there being used for the formation of the adduct a ratio of 3 to 12, preferably about 5, amino group equivalents of the diamine or the diamine mixture for every epoxide group equivalent of the polyglycidyl ether (a).

3,547,870

PRINTING INK FROM RANDIOPROPYLENE

Gregory Julius Listner, Kendall Park, and Arthur James Sampson, Cranbury, N.J., assignors to Johnson & Johnson, a corporation of New Jersey

Filed Aug. 1, 1967, Ser. No. 657,545
Int. Cl. C08f 45/28, 45/30, 45/44
U.S. Cl. 260—32.6 4 Claims



This application relates to a printing ink utilizing a sterically rearranged polypropylene as a vehicle.

3,547,871

HIGHLY FILLED CASTING COMPOSITION

Charles F. Hofman, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Continuation-in-part of application Ser. No. 447,237, Apr. 12, 1965. This application Aug. 2, 1968, Ser. No. 749,846
Int. Cl. C08g 51/04; C08k 1/02
U.S. Cl. 260—37 3 Claims

A fluid casting composition having a viscosity below about 20,000 cp. is made from liquid resin, curing agent, resin curing accelerator and as high as 86% by weight mineral filler characterized by a coefficient of linear thermal expansion not greater than 8×10^{-6} inch/inch/° C. and a critical particle size range. Said filler particle range being established by the following table:

Cumulative wt. percent	Particle size, microns	Sieve size, mesh (U.S. screen No.)
0.1–4	>297	50
0.3–9	>250	60
1–14	>210	70
4–26	>149	100
9–34	>125	120
14–41	>105	140
20–48	>88	170
28–56	>74	200
34–62	>65	230
42–68	>53	270
45–70	>44	325
47–73	>37	400
56–79	>20	
65–85	>10	

3,547,872
SATURATED POLYESTERS CONTAINING CYCLIC EPOXIDES AND NUCLEATING AGENTS
Klaus Weissermel, Kelkheim, Taunus, Rudolf Uebe, Eschborn, Taunus, and Horst Pfister and Ludwig Brinkmann, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Mar. 14, 1969, Ser. No. 807,422
Claims priority, application Germany, Apr. 3, 1968, 1,769,097
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 16 Claims
Thermoplastically processible moulding compositions of linear saturated polyesters, cyclic epoxides and inert inorganic solid substances that yield shaped articles free from flash even under relatively high injection pressures.

3,547,873
COMPOSITIONS OF SATURATED POLYESTERS, INORGANIC SOLIDS, AND POLYFUNCTIONAL EPOXIDES
Klaus Weissermel, Kelkheim, Taunus, Rudolf Uebe, Eschborn, Taunus, Rudolf Kern, Mainz, and Ludwig Brinkmann, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Apr. 18, 1969, Ser. No. 817,555
Claims priority, application Germany, Apr. 24, 1968, 1,769,230
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 16 Claims
Molding compositions from linear saturated polyesters, inert inorganic solids and polyfunctional epoxides, which molding compositions may be shaped in the thermoplastic state and from which molded articles can be made which are exempt from flash formation.

3,547,874
STABILIZATION OF POLYVINYL CHLORIDE
Keisuke Murayama and Syoji Morimura, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan
No Drawing. Filed Dec. 3, 1968, Ser. No. 780,892
Claims priority, application Japan, Dec. 11, 1967, 42/79,333
Int. Cl. C08f *45/60*
U.S. Cl. 260—45.8 3 Claims
Polyvinyl chloride is stabilized against photo- and thermo-deterioration by having incorporated therein at least one compound selected from the 1,3,8-triaza-7,7-dimethyl - 9,9 - disubstituted - 2,4 - dioxo-[4.5]decane-8-oxyls in a sufficient amount to prevent such deterioration.

3,547,875
POLYOLEFINS STABILIZED WITH TERTIARY AMINE GROUPS-CONTAINING COMPOUNDS
Joseph E. Bonkowski, Raleigh, N.C., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 728,790, May 13, 1968. This application Apr. 11, 1969, Ser. No. 815,481
Int. Cl. C08f *45/60*
U.S. Cl. 260—45.8 9 Claims
Olefin polymers are stabilized by incorporating therein certain compounds containing tertiary amine groups in amounts sufficient to yield 0.02 to 2% tertiary nitrogen based on the total weight of the stabilized composition.

3,547,876
SYNERGISTIC FLAME-RETARDANT COMPOSITIONS
Christos Savides, Piscataway Township, Middlesex County, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 1, 1968, Ser. No. 741,331
Int. Cl. C08f *45/60*; C08g *51/60*
U.S. Cl. 260—45.8 10 Claims
Synergistic flame-retardant compositions comprising a phosphinic acid and 2,3-dicarboxy-5,8-endomethylene-5,6,7,8,9,9-hexachloro-1,2,3,4,4a,5,8,8a - octahydronaphthalene anhydride and its esters and compositions comprising a thermoplastic resin and said synergistic compositions are disclosed.

3,547,877
SYNERGISTIC FLAME-RETARDANT COMPOSITIONS
Christos Savides, Piscataway Township, Middlesex County, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 1, 1968, Ser. No. 741,330
Int. Cl. C08f *45/60*; C08g *51/60*
U.S. Cl. 260—45.8 10 Claims
Synergistic flame-retardant compositions comprising a substituted phosphine and 2,3-dicarboxy-5,8-endomethylene - 5,6,7,8,9,9 - hexachloro - 1,2,3,4,4a,5,8,8a-octahydronaphthalene anhydride and its esters and compositions comprising a thermoplastic resin and said synergistic compositions are disclosed.

3,547,878
SYNERGISTIC FLAME-RETARDANT COMPOSITIONS CONTAINING DIELS-ALDER ADDUCTS AND PHOSPHOROUS COMPOUNDS
Christos Savides, Piscataway Township, Middlesex County, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 1, 1968, Ser. No. 741,327
Int. Cl. C08f *45/58*; C08g *51/59*
U.S. Cl. 260—45.8 10 Claims
Synergistic flame-retardant compositions comprising a phosphonate and 2,3-dicarboxy-5,8-endomethylene-5,6,7,8,9,9 - hexachloro - 1,2,3,4,4a,5,8,8a - octahydronaphthalene anhydride and its esters and compositions comprising a thermoplastic resin and said synergistic compositions are disclosed.

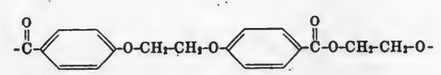
3,547,879
POLYESTERS STABILIZED WITH UREAS AND THIOUREAS
Mary J. Stewart, Media, and Otto K. Carlson, Marcus Hook, Pa., assignors to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed July 23, 1968, Ser. No. 746,754
Int. Cl. C08g *51/60*
U.S. Cl. 260—45.9 9 Claims
A thermal stabilized polyester composition comprising a highly polymeric linear polyester and a compound selected from the group consisting of aryl-substituted ureas and thioureas.

3,547,880
ULTRAVIOLET STABILIZED ELASTOMERIC COMPOSITION
Jackson S. Boyer, Claymont, Del., and Richard D. Cassar, West Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,199
The portion of the term of the patent subsequent to May 12, 1987, has been disclaimed
Int. Cl. C08f *45/58*; C08c *27/66*
U.S. Cl. 260—45.85 25 Claims
An elastomeric composition having improved resistance to ultraviolet initiated degradation comprising an elastomer containing 0.1–10.0 parts by weight per 100 parts of elastomer of certain polymethylated muconic acids and/or their hydrocarbyl monoesters or diesters, said acids being selected from the group consisting of α,β-dimethylmuconic acid, α,α'-dimethylmuconic acid, α,α',β-trimethylmuconic acid, α,β,β'-trimethylmuconic acid, α,α',β,β'-tetramethylmuconic acid and mixtures thereof, and to methods of preparation of said compositions.

3,547,881
PROCESS OF REACTING A PHENOL WITH A POLYEPOXIDE IN THE PRESENCE OF AN ORGANIC PHOSPHINE
Albert C. Mueller, Berkeley, Calif., and Harvey L. Parry, Summit, N.J., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 3, 1965, Ser. No. 506,279
Int. Cl. G08g *30/04*
U.S. Cl. 260—47 7 Claims
A process for reacting a phenol with an epoxy-containing compound is disclosed. This process comprises reacting a polyepoxide having more than one 1,2-epoxide group with a phenol in the presence of a phosphine catalyst. The products resulting from this process are also disclosed.

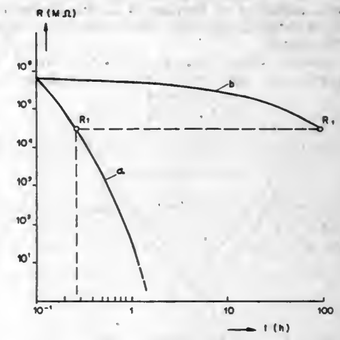
3,547,882
LIGHT-STABLE POLYESTERS
William Michael Corbett, John Francis Lloyd Roberts, and John Michael Yates, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 9, 1967, Ser. No. 644,805
Claims priority, application Great Britain, June 16, 1966, 26,863/66
Int. Cl. C08g *17/08*, *51/04*, *51/56*
U.S. Cl. 260—47 5 Claims
High molecular weight polyesters containing x percent of anatase titanium dioxide and y percent of cobalt ions, x being 1.5 to 3.0 and x/y being from 50 to 150.

3,547,883
PROCESS FOR THE PRODUCTION OF POLYESTERETHERS
Hidehiko Kobayashi, Kiichiro Sasaguri, and Noboru Tanimura, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a Japanese corporation
No Drawing. Filed Dec. 8, 1967, Ser. No. 688,986
Claims priority, application Japan, Dec. 16, 1966, 41/82,120
Int. Cl. C08g *17/04*, *17/10*
U.S. Cl. 260—47 4 Claims
Process for the production of linear polyesterethers containing at least 90 mole percent of a unit of the formula;



based upon the recurring unit in the molecular chain, comprising adding ethyleneglycol to 1,2-bis(p-carboxyphenoxy)ethane in such amounts as to provide a mole ratio of ethyleneglycol to 1,2-bis(p-carboxyphenoxy) ethane of 1.2 to 5.0, reacting the resulting mixture at a temperature of from 190 to 280° C. under a pressure of from 1 to 80 kg./cm.² to approximate a mole ratio of —$COOCH_2CH_2OH$ to —COOH to a value of from 1.0 to 5.0, preferably to 1 from above 1 as much as possible, if necessary, further reacting the reaction product at a temperature of from 250 to 300° C. under a pressure of 0.1 mm. Hg to 80 kg./cm.² and subsequently subjecting the resulting reaction product to a polycondensation at elevated temperatures under reduced pressure in the absence of any polycondensation catalyst.

3,547,884
PROCESS FOR PREPARING CURABLE EPOXY RESIN AND INSULATIONS OF ELECTRICAL EQUIPMENT MADE THEREWITH
Werner Moller, Dubendorf, Switzerland, assignor to Maschinenfabrik Oerlikon, Zurich, Switzerland
Filed Feb. 1, 1968, Ser. No. 702,479
Claims priority, application Switzerland, Feb. 7, 1967, 1,903/67
Int. Cl. C08g *30/04*
U.S. Cl. 260—47 4 Claims



Epoxy resin suitable for the insulation of electrical equipment and dried, wound glass fiber reinforced mica fleece strips and foils. The resin essentially consists of anhydrous bisphenol-A-diglycidyl ether of an epoxy equivalent weight between about 150–500, 0.015–0.15 part by weight of alkali metal in the form of alcoholate and 0.25–5 parts by weight of epoxy alkyl silane ester being incorporated into the resin. Then novel resin system is prepared by subjecting a mixture of the three substances to a degassing operation for at least one hour at temperatures between 40–70° C. and at pressures between 0.5–10 mm. Hg.

3,547,885
PROCESS FOR CURING POLYEPOXIDES WITH ANHYDRIDES AND PHOSPHONIUM HALIDE CATALYSTS THEREFOR
Mark F. Dante, Madison, and Harvey L. Parry, Summit, N.J., assignors to Sun Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 8, 1968, Ser. No. 711,526
The portion of the term of the patent subsequent to Nov. 11, 1986, has been disclaimed
Int. Cl. C08g *30/12*
U.S. Cl. 260—47 7 Claims
A process for reacting a polyepoxide with a carboxylic acid or an acid anhydride in the presence of a phosphonium halide catalyst is disclosed. Storage-stable compositions containing a polyepoxide and a phosphonium halide are also disclosed.

3,547,886
ONE POT EPOXY COMPOSITIONS CONTAINING KETIMINE CURING AGENTS
Ross Gardner, Jr., Stoughton, and Allen H. Keough, Sudbury, Mass., assignors to Norton Research Corporation, Cambridge, Mass., a corporation of Massachusetts
No Drawing. Continuation-in-part of application Ser. No. 531,074, Mar. 2, 1966. This application Apr. 15, 1968, Ser. No. 721,172
Int. Cl. C08g *30/14*
U.S. Cl. 260—47 7 Claims
A one pot epoxy resin composition having long pot life and room temperature curability in the presence of water, said composition containing an epoxy resin which is

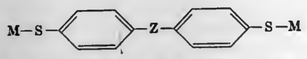
curable at room temperature by a primary amine and an imine formed from the reaction of the $-NH_2$ group(s) of an amine with ketones containing no more than one alpha hydrogen per alpha carbon.

3,547,887
METHOD FOR PRODUCING HEAT-RESISTANT LINEAR THERMOPLASTIC AROMATIC POLYTHIOETHERS
Rudolf Gabler, Uitikon, and Josef Studinka, Zurich, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland, a corporation of Switzerland
No Drawing. Filed June 5, 1968, Ser. No. 734,542
Claims priority, application Switzerland, June 9, 1967, 8,200/67
Int. Cl. C08g *33/10*
U.S. Cl. 260—47 **6 Claims**

An aromatic polythioether polymer having the formula

$$\text{-}[\text{S—R—S—R'}]_n\text{-}$$

wherein R and R' are bivalent residues of aromatic compounds and n is a whole number is prepared. An alkali metal salt of a dinuclear aromatic dithiol having the formula



wherein M is Li, Na, K and Z is —O—, —S—, $-CH_2-$ or $-C(CH_3)_2-$, is reacted with a non-activated single or multiple nuclear aromatic dihalogen compound having at least 3 carbon atoms between the halogen atoms. The reaction is conducted in N-methyl pyrrolidone, sulfolane (tetrahydro thiophen-1,1-dioxide), dimethylacetamide, hexamethyl phosphoramide, or dimethylsulphoxide, and at a temperature of 180°–300° C.

3,547,888
AMORPHOUS TERPOLYESTERS HAVING HIGH IMPACT STRENGTH
Kashinath S. Sardessai, Menlo Park, and Michel E. Mullier, Princeton Junction, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed June 5, 1967, Ser. No. 643,395
Int. Cl. C08g *17/08*
U.S. Cl. 260—75 **3 Claims**

Amorphous terpolyester having a high heat distortion temperature and a high impact strength are prepared by copolyesterification of three monomers. One monomer is terephthalic acid or an ester thereof and another is 1,4-cyclohexane dimethanol (cis, trans, or a mixture of cis and trans isomers). The third monomer is a dicarboxylic acid having at least two (C_4–C_6) carbocyclic rings, or an ester thereof. These amorphous copolyesters become crystalline when heated at about 100° C. and lose impact strength. Thus, they can be used for making molded products which will not be subjected to temperatures above usual ambient temperatures.

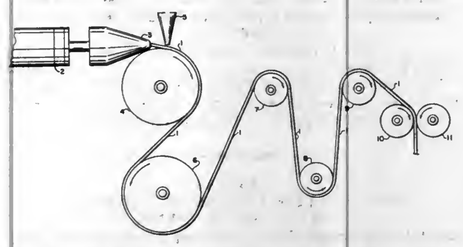
3,547,889
COATINGS BASED ON POLYCARBONATES CONDENSED WITH TRIFUNCTIONAL ISOCYANATES
Ernst-Christian Schütze, Karl-Heinz Hornung, and Rudolf Nehring, Marl, Germany, assignors to Chemische Werke Huels A.G., Marl, Germany
No Drawing. Filed Mar. 13, 1968, Ser. No. 712,595
Claims priority, application Germany, Mar. 17, 1967, C 41,801
Int. Cl. C08g *22/06, 22/10*
U.S. Cl. 260—75 **14 Claims**

Alkali-resistant coatings based on the condensation products of low molecular weight polycarbonates and at least trifunctional isocyanates.

3,547,890
PROCESS AND APPARATUS FOR DRYING POLYESTER PARTICLES
Seibi Yamada and Yoshiharu Asada, Matsuyama-shi, Japan, assignors to Teijin Limited, Osaka, Japan
Filed Aug. 12, 1968, Ser. No. 751,896
Claims priority, application Japan, Aug. 23, 1967, 42/53,755; May 13, 1968, 43/32,040, 43/32,041, 43/32,042
Int. Cl. F26b *3/16*
U.S. Cl. 260—75 **2 Claims**

Process for drying polyester particles comprising the first step of heating and crystallizing non-crystalline polyester particles which are packed in such a manner that they are movable downwards by their own weight, at temperatures ranging 120°–200° C., with mechanical agitation, until at least the surfaces of the particles are substantially crystallized, and the immediately succeeding step of heating and drying the particles maintained under the packed state but without agitation, and apparatus for carrying out the process.

3,547,891
HEAT FORMABLE POLYESTER FILM
Charles D. Snead and Robert L. Long, Alexandria, Va., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Continuation-in-part of application Ser. No. 539,128, Mar. 31, 1966. This application Apr. 2, 1969, Ser. No. 812,790
Int. Cl. C08g *17/08*
U.S. Cl. 260—75 **11 Claims**



A polyester film suitable for heat forming into articles which are free of blush marks and wrinkles, and exhibit excellent strength properties. The film is prepared by introducing a slight strain therein in at least one direction while the film is above the second order transition temperature. The strain is introduced by stretching the film at a ratio between 1.02:1 and 1.25:1 so that it is free of appreciable molecular orientation and substantially amorphous.

3,547,892
METHOD OF PREPARING POLYUREAS FROM AMINE SALTS OF MONOTHIOLCARBAMIC ACID AND AMMONIA OR PRIMARY AMINE
Edward A. Swakon, Hammond, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana
No Drawing. Original application Mar. 27, 1964, Ser. No. 355,411, now Patent No. 3,392,197. Divided and this application Nov. 13, 1967, Ser. No. 682,630
Int. Cl. C08g *22/02*
U.S. Cl. 260—77.5 **2 Claims**

Linear polyureas are prepared by reacting a diprimaryamine whose primary amino groups are separated by at least four carbon atoms with an N,N-dialkylammonium N,N-dialkyl monothiolcarbamate in the ratio of n plus two moles or diprimaryamine for each n mole of the ammonium monothiocarbamate. For example, linear poly-(decamethylene) urea can be prepared by reacting alpha-omega diamino decamethane with triethyl ammonium N,N-di-n-propyl monothiolcarbamate.

3,547,893
POLYMERS DERIVED FROM DIAMINES OR AMINOALCOHOLS AND TRIALKYL OR TRIARYL PHOSPHITES
Richard L. McConnell and Harry W. Coover, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Application Oct. 17, 1966, Ser. No. 587,945, now Patent No. 3,377,409, dated Apr. 9, 1968, which is a continuation of application Ser. No. 271,844, Apr. 10, 1963. Divided and this application Apr. 2, 1968, Ser. No. 718,224
Int. Cl. C08g *22/02, 22/04*
U.S. Cl. 260—77.5 **11 Claims**

Flame-resistant, linear, and cross-linked phosphorus-containing polymers are prepared from the reaction of [A] an organic phosphite—e.g., triethyl phosphite, triphenyl phosphite, and [B] a compound having at least one amino group—e.g., ethylenediamine; 1,4-cyclohexanebis(methylamine); 5-aminopentanol.

3,547,894
FLUORINATED POLYURETHANES
Kenneth C. Smeltz, Graylyn Crest, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Original application July 26, 1967, Ser. No. 656,076, now Patent No. 3,478,116, dated Nov. 11, 1969. Divided and this application Feb. 28, 1969, Ser. No. 803,399
Int. Cl. C08g *22/08*
U.S. Cl. 260—77.5 **5 Claims**

Polyurethanes prepared by the condensation of perfluoroalkyl-terminated alkyl-1,4-propanediols of the formula $(R_f—R')_aCH_{2-a}(CH_2OH)_2$ and complementary diisocyanates, and optionally other diols. The polymers are in general useful as fabric coatings to impart oil and water repellency thereto.

3,547,895
PROCESS FOR THE PRODUCTION OF HIGH MOLECULAR WEIGHT POLYAMIDES FROM N - CARBARYLOXY AMINO CARBOXYLIC ACIDS
Hugo Vernaleken and Georg Malamet, Krefeld-Bockum, Artur Botta, Krefeld-Gartenstadt, Ludwig Bottenbruch, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Jan. 17, 1968, Ser. No. 698,438
Claims priority, application Germany, Jan. 19, 1967, F 51,288
Int. Cl. C08g *20/00*
U.S. Cl. 260—78 **3 Claims**

The invention relates to a process for the production of high molecular weight polyamides by homopolycondensation of N-carbaryloxyaminocarboxylic acids at elevated temperatures, said process being carried out in the presence or in the absence of organic solvents.

3,547,896
MERCAPTO TERMINATED URETHANE LINKED POLYMERS
Marvin B. Smith, Compton, Calif., assignor to Teledyne, Inc., Los Angeles, Calif., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 569,467, Aug. 1, 1966, which is a continuation-in-part of application Ser. No. 459,994, June 1, 1965. This application Jan. 17, 1969, Ser. No. 792,129
Int. Cl. C08g *22/08, 22/04*
U.S. Cl. 260—77.5 **12 Claims**

Mercapto terminated urethane linked polyethers are prepared by reacting a polyether glycol with an epihalohydrin in the presence of a Lewis acid to yield a halogenated polyether glycol which is thereafter reacted with a polyisocyanate. The resulting urethane linked halogen terminated polyether is then reacted with an alkali metal sulfhydrate to yield the desired mercapto terminated urethane linked polyether.

3,547,897
SOLUBLE POLY(IMINOIMIDAZOLIDINEDIONES)
Tad L. Patton, Baytown, Tex., assignor to Esso Research and Engineering Company
No Drawing. Continuation-in-part of application Ser. No. 685,311, Nov. 24, 1967. This application Feb. 3, 1969, Ser. No. 796,143
Int. Cl. C08g *22/02*
U.S. Cl. 260—77.5 **10 Claims**

Heterocyclic polymers characterized by 2,4,5-trisubstituted 1,3-imidazolidine-1,3-diyl rings and soluble in dipolar aprotic solvents are produced by the reaction of diisocyanates with hydrogen cyanide in the presence of an added cyanide ion. These heterocyclic polymers have a structure of alternating organic moieties and substituted 1,3-imidazolidine-1,3-diyl rings, said imidazolidine rings being predominantly a mixture of 4-imino-1,3-imidazolidine-2,5 - dione-1,3-diyl and 5-imino-1,3-imidazolidine-2,4-dione-1,3-diyl rings which are randomly distributed in their sequence.

3,547,898
PROCESS FOR THE PRODUCTION OF RESINS CONTAINING MALEIC HALF ESTERS
Leonard Shapiro, deceased, late of Cambridge, Mass., by Beatrice Shapiro, executrix, Cambridge, Mass., assignor to Freeport Industries, Inc., Boston, Mass., a corporation of Massachusetts
No Drawing. Continuation-in-part of application Ser. No. 404,177, Oct. 15, 1964. This application Oct. 2, 1967, Ser. No. 672,396
Int. Cl. C08f *15/02*
U.S. Cl. 260—78.5 **2 Claims**

This invention comprises synthetic resins constituting the reaction product of styrene and maleic acid half esters. In addition to the maleic acid half esters there may also be present maleic anhydride. However, when a mixture of the maleic anhydride and maleic acid half esters is used, the half esters must constitute at least 50 mol percent of the mixture.

In any event, more than half of the ester content is preferably formed by the reaction of maleic anhydride and monoalkyl or alkaryl ethoxylates of primary aliphatic alcohols or alkyl phenols, the ethoxylates having from 4 to 15 carbon atoms in the alkyl or alkaryl radical. It is also preferable to include, among the half esters, those formed from maleic anhydride and lower alcohols having 1 to 3 carbon atoms.

3,547,899
POLYMERS CONTAINING SULPHONIC ACID GROUPS
Dieter Arlt, Cologne-Buchheim, Dietrich Glabisch, Opladen, and Carlhans Suling, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Continuation of application Ser. No. 665,233, Sept. 5, 1967. This application July 23, 1969, Ser. No. 849,562
Claims priority, application Germany, Sept. 16, 1966, F 50,212
Int. Cl. C07c *97/16*
U.S. Cl. 260—79.3 **4 Claims**

This invention relates to polymers containing 2-acryloyl-amino-2,2-dimethylethane-1-sulphonic acid or the corresponding methacryloyl compound in polymerised or co-

polymerised form, preparation thereof by free radical polymerization methods and the utility thereof for the preparation of films and fibers.

3,547,900

PROCESS FOR SEPARATING PROTEIN FROM AQUEOUS SOLUTIONS CONTAINING DISSOLVED MATERIAL OF LOWER MOLECULAR WEIGHT USING A THIN BED OF MOLECULAR SIEVE MATERIAL

Carl S. Dienst, Edina, and Jerry M. Attebery, Minneapolis, Minn., assignors to Emery Carlton Swanson, Minneapolis, Minn.

Filed Mar. 18, 1969, Ser. No. 808,189
Int. Cl. A23j *1/14, 1/20*
U.S. Cl. 260—112 **10 Claims**

A process for the efficient separation of dissolved protein from an aqueous solution containing dissolved material of lower molecular weight, using a molecular sieve bed with a thickness between about 10 and 100 millimeters and a feed solution volume up to as much as 65 percent of the total bed volume.

3,547,901

METALLIZED BIS-FORMAZANES

Paul Lienhard, Riehen, and Fabio Beffa, Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed June 23, 1967, Ser. No. 648,215
Claims priority, application Switzerland, June 27, 1966, 9,294/66
Int. Cl. C09b *45/28, 45/32, 62/08*
U.S. Cl. 260—146 **12 Claims**

Metallized bis-formazanes are described in the molecule of which two formazane moieties, each being metallized with a copper or nickel atom, are linked with each other via a member Q which is an —S—, —SO—, —SO_2— or —SO_2O— bridge, while in dyestuffs of secondary importance, Q is a divalent, saturated hydrocarbon radical, or the acyl radical of a dibasic organic carboxylic acid or a carbonyl group, or one of the groups —SO_2—NR′—, —SO_2—NR′—SO_2—, or

$$SO_2—NR'—G—NR'—SO_2—$$

wherein R′ represents hydrogen or lower alkyl and G represents certain alklyene, cycloalkylene or arylene radicals, which bis-formazanes are dyestuffs particularly suitable for the dyeing or printing of textile fiber materials, especially of polyamide and polyurethane fibers, but, especially if they contain fiber-reactive groupings, also of cellulosic fibers, and also of paper, leather and other fibrous materials; furthermore, there are described novel chemical units consisting of fiber molecules chemically linked with radical of the dyestuffs described above, which contain fiber-reactive groupings in their molecules.

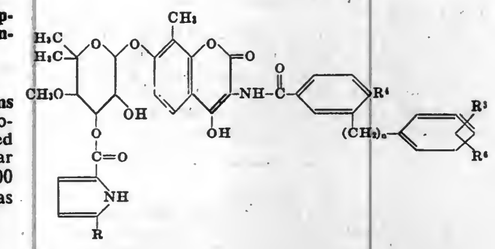
3,547,902

COUMARIN DERIVATIVES

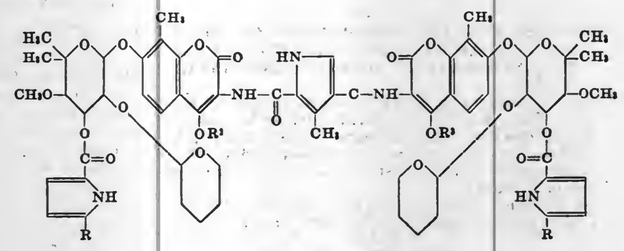
Henry Schmitz, Syracuse, and Robert Larry Devault, North Syracuse, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 16, 1968, Ser. No. 784,224
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **11 Claims**

Compounds of the formula



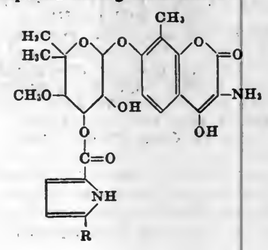
wherein
R is hydrogen or methyl;
n is an integer of 0 to 8;
R^4 is hydroxy or (lower)alkanoyloxy,
R^5 and R^6 are alike or different and each represents hydrogen, fluoro, chloro, bromo, iodo, trifluoromethyl, amino, N,N-di(lower)alkylamino, nitro, cyano, hydroxy, carboxy, carb-(lower)alkoxy, acetoxy, or a nontoxic, pharmaceutically acceptable salt thereof; are prepared by mixing either the compound having the formula



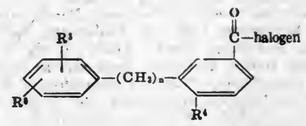
wherein
R is hydrogen or methyl, and
R^2 and R^3 are the same or different and are either —H or



or the compound having the formula



in which R is hydrogen or methyl; with an acid halide having the formula



or its functional equivalent as an acylating agent, in which R^4, R^5 and R^6 are as defined above.

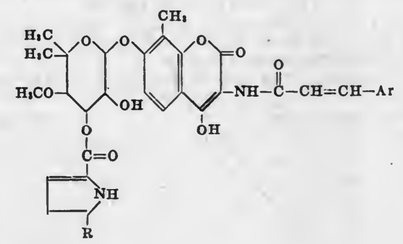
3,547,903

CINNAMOYL DERIVATIVES OF 3 - AMINO - 4 - HYDROXY - 8 - METHYL - 7 - [3 - O - (5 - METHYL - 2 - PYRROLYLCARBONYL)NOVIOSYLOXY] COUMARIN

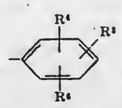
Martin John Cron, Fayetteville, Elizabeth Almira Ragan, Syracuse, and Irving R. Hooper, Fayetteville, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 612,328, Jan. 30, 1967. This application Mar. 22, 1968, Ser. No. 715,159
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **16 Claims**

3 - cinnamoyl derivatives of 3 - amino - 4 - hydroxy - 8 - methyl - 7 - [3 - O - (5 - methyl - 2 - pyrrolcarbonyl) noviosyloxy]coumarin are useful antibiotics for the treatment of infectious diseases in animals, including man. The compounds of the invention are prepared by the process of reacting a cinnamoyl halide or its equivalent with a tetrahydropyranyl ether derivative of coumermycin A_1 or A_2 (U.S. Pat. 3,201,386) to produce compounds of the formula



wherein R is either hydrogen or methyl, and Ar is a group having the formula



in which each of R^4, R^5 and R^6 represents hydrogen, fluoro, chloro, bromo, iodo, trifluoromethyl, trichloromethyl, amino, N-(lower)alkylamino, N,N-di(lower) alkylamino, nitro, cyano, (lower)alkyl, (lower)alkoxy, hydroxy, carboxamido, N-(lower)alkylcarboxamido, N, N-di(lower) alkylcarboxamido, carboxy, carb(lower) alkoxy, acetoxy, mercapto, thioacetoxy or (lower) alkylthio; and the pharmaceutically acceptable cationic salts thereof.

3,547,904

GALACTO-ACID-MUCOPOLYSACCHARIDE CONTAINING COMPOUND

Tamotsu Furuhashi, Yokosuka-shi, Japan, assignor to Seikagaku Kogyo Company, Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Original application July 20, 1965, Ser. No. 473,526, now Patent No. 3,371,012, dated Feb. 27, 1968. Divided and this application Dec. 28, 1966, Ser. No. 627,570
Int. Cl. C07c *95/04*
U.S. Cl. 260—211 **1 Claim**

This invention relates to the preparation of an eye lotion, and preservative for corneal graft materials which consists of a galacto-acid-mucopolysaccharide derived from the cartilage of animals of the elasmobranchii family and comprises a polymer consisting of galactose, N-acetylglucosamine and a sulphate in the ratio of 1:1:1 to 2 mols. This acid-mucopolysaccharide is obtained by treating the cartilage with acid solutions or salt solutions to extract the polysaccharide, which after purification is acidified with weak hydrochloric acid and the fractional precipitate obtained by dissolving in 50% to 75% alcohol is vacuum dried, and mixed with an aqueous phenol solution. Four volumes of alcohol are then added and a precipitate is obtained which is dissolved in water containing barium carbonate. This solution is thoroughly stirred and is passed through a cation exchange resin (H form) and is neutralized with a dilute alkali. Five volumes of alcohol are added and the precipitate obtained is dried and 0.01 part of the substance containing 21% galactose is obtained.

3,547,905

ADAMANTOYLCYTOSINE ARABINOSIDE AND PROCESS FOR PREPARING SAME

Paul F. Wiley, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed July 16, 1968, Ser. No. 745,096
Int. Cl. C07d *51/52*
U.S. Cl. 260—211.5 **4 Claims**

The new compound. 1-β-D-arabinofuranosylcytosine 5′-(1-adamantanecarboxylate), termed herein for brevity, 5′-O-adamantoylcytosine arabinoside or AdOCa is prepared by adamantoylation of 1-β-D-arabinofuranosylcytosine termed herein for brevity, cytosine arabinoside or Ca. It is useful as an agent for controlling the growth of tumors, particularly in extending the usefulness of cytosine arbinoside, a known anti-tumor agent.

3,547,906

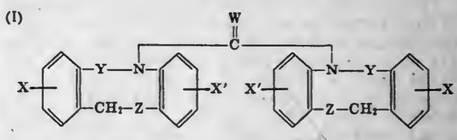
12,12′ - CARBONYLBIS- AND 12,12′ - THIOCARBONYLBIS-DERIVATIVES OF 6H - DIBENZ[b,f][1,4] OXAZOCIN-11(12H)-ONES, 6H-DIBENZO[b,f][1,4] THIAZOCIN - 11(12H) - ONES, 11,12 - DIHYDRO-6H-DIBENZ[b,f][1,4]OXAZOCINES AND 11,12-DIHYDRO-6H-DIBENZO[b,f][1,4]THIAZOCINES

Harry Louis Yale, New Brunswick, N.Y., assignor to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 3, 1967, Ser. No. 627,628
Int. Cl. C07d *87/54, 93/44*
U.S. Cl. 260—239.3 **9 Claims**

This invention relates to the new compounds of the formula

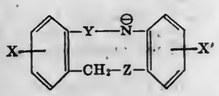
(I)



wherein X and X′, each represents hydrogen, halogen, trihalomethyl, trihalomethoxy, trihalomethylmercapto,

lower alkyl, lower alkoxy, lower alkylthio, lower alkanoyl, N,N-di-lower alkylsulfamyl and carbamoyl, Y is methylene or carbonyl and W and Z each is oxygen or sulfur; which are produced by the interaction of the cation

(II)



with phosgene or thiophosgene in a nonprotic solvent. These products are useful as antiseptics, disinfectants, antidepressants, anticonvulsants and sedatives.

3,547,907

STARCH MODIFICATION WITH PEROXYDIPHOSPHATE SALT

John A. Shepherd, Princeton, and Bernard Cohen and Leonard R. Darbee, Trenton, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 28, 1968, Ser. No. 755,816
Int. Cl. C08b *19/01*
U.S. Cl. 260—233.3 6 Claims

Native starches are modified so that they yield a low viscosity, high solids starch paste by contacting the starches with an effective amount of a peroxydiphosphate salt having the structure $M_nR_{4-n}P_2O_8$ where M may be either sodium, potassium or ammonium, R may be either sodium, potassium, ammonium or hydrogen and n is an integer from 1 to 4, at temperatures below the gelatinization temperature of starch.

3,547,908

17β-HYDROXY-5α-ANDROSTANO[2,3-d] IMIDAZOLES

Raymond O. Clinton, 300 E. 40th St., New York, N.Y. 10016

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,109
Int. Cl. C07c *173/10*
U.S. Cl. 260—239.5 3 Claims

Reaction of 2-bromo - 5α - androstan-17β-ol-3-one with formamide, or with formamide and ammonia, gives 17β - hydroxy - 5α - androstano[2,3-d]imidazole. The latter and its esters have anabolic activity.

3,547,909

SYNTHESIS OF GONA-2,5(10)-DIENES

Gordon Alan Hughes, Haverford, Pa., and Herchel Smith, 500 Chestnut Lane, Wayne, Pa. 19087; said Hughes assignor to said Smith

Continuation-in-part of application Ser. No. 228,384, Oct. 4, 1962, which is a continuation of applications Ser. No. 57,904, Sept. 23, 1960, Ser. No. 91,341, Feb. 24, 1961, Ser. No. 137,535, Sept. 12, 1961, Ser. No. 195,000, May 15, 1962, and Ser. No. 196,557, May 16, 1962. This application Apr. 7, 1966, Ser. No. 540,924
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 15 Claims

The synthesis of novel 13-polycarbonalkyl compounds having a gonane nucleus unsaturated in the 2- and 5(10)-positions and processes for preparing them are described. The novel compounds possess qualitatively varying hormonal effects in animals, or are intermediates for the preparation of compounds having qualitatively varying hormonal effects in animals. They are prepared from gona-1,3,5(10)-trienes, gona - 1,3,5(10),8 - tetraenes or gona-1,3,5(10),9(11)-tetraenes by alkali metal reduction in liquid ammonia.

3,547,910

2β,3β - ALKYLINDENEDIOXY - 6 - OXYGENATION BIS NOR CHOLANIC ACID COMPOUNDS AND THE METHYL ESTERS THEREOF

Andor Fürst and André Furlenmeier, Basel, Albert Langemann, Binningen, and Guy Waldvogel, Riehen, Switzerland, and Peter Hocks, Ulrich Kerb, and Rudolf Wiechert, Berlin, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Original application Aug. 9, 1966, Ser. No. 571,187. Divided and this application Feb. 29, 1968, Ser. No. 709,187
Claims priority, application Germany, Oct. 15, 1965, Sch 37,892; Jan. 27, 1966, Sch 38,384; Switzerland, Mar. 24, 1966, 4,336/66
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 10 Claims

This invention is directed to 22-functionalized 2,3-disubstituted 6-keto steroids which are useful as metamorphosis hormones and are additionally useful as intermediates for the production of other insect hormones. Accordingly, the compounds may be employed in the control of insect population.

3,547,911

SYNTHESIS OF ANTHERIDIOL AND ITS DERIVATIVES

John H. Fried, Palo Alto, and John A. Edwards, Los Altos, Calif., assignors to Syntex Corporation, Panama, Panama, a corporation of Panama

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,359
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.57 12 Claims

Synthesis of the plant hormone, antheridiol, and novel derivatives thereof, and novel intermediates for the preparation thereof.

3,547,912

DERIVATIVES OF 2H-PYRAN-3(6H)-ONES AND PREPARATION THEREOF

Yvon Lefebvre, Pierrefonds, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 29, 1968, Ser. No. 748,196
Int. Cl. C07c *173/00*
U.S. Cl. 260—239.55 23 Claims

There are disclosed herein 3,24-dihydroxy-17β,24-epoxy - 19,21 - dinorchola - 1,3,5(10) - trien - 20 - one and its corresponding 1,3,5(10),22 - tetraen - 20 - one, 3,24 - dihydroxy - 17β,24 - epoxy - 19,21 - dinorchola-1,3,5,6,8(9) - pentaen - 20 - one and its corresponding 1,3,5,6,8(9),22 - hexaen - 20 - one, 7α,8-17β,24-diepoxy-3,24 - dihydroxy - 19,21 - dinorchola - 1,3,5(10) - trien-20-one and its corresponding 1,3,5(10),22-tetraen-20-one, and its corresponding 1,3,5(10),22-tetraen-20-one, and and their 3-ethers, 3-esters, 3,24-diethers, 3,24-diesters, as well as their 3-ethers-24-esters and 3-esters-24-ethers, and 3,17β - dihydroxy - 20 - oxo - 19,21 - dinorchola-1,3,5(10)-trienoic acid δ-lactone and its corresponding 1,3,5 10,22 tetraenoic acid δ-lactone, 3,17β-dihydroxy-20-oxo-19,21-dinorchola-1,3,5,6,8(9)-pentaenoic acid δ-lactone and its corresponding 1,3,5,6,8(9),22-hexaenoic acid δ-lactone 3,17β-dihydroxy-7α,8-epoxy-20-oxo-19,21-dinorchola-1,3,5(10)-trienoic acid δ-lactone and its corresponding 1,3,5(10),22-tetraenoic acid δ-lactone and their 3-ethers and 3-esters, in which the ether-forming groups are lower alkyl groups containing from 1–4 carbon atoms, cycloalkyl groups, containing from 5–6 carbon atoms, or, in 3-position only, the tetrahydropyranyl group; and the ester-forming groups are acids containing from 2–7 carbon atoms. The compounds have anti-gonadotrophic and anti-progestational activities, and methods for their preparation and use are also disclosed.

3,547,913

16β-METHYL-16α,17α-EPOXY PREGNENOLONE AND THE 3-ACYLATES THEREOF

Meyer Sletzinger and Donald Reinhold, North Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 1, 1958, Ser. No. 764,524
Int. Cl. C07c *173/00, 173/10*
U.S. Cl. 260—239.55 8 Claims

The instant invention relates to 3β-hyhroxy-16α,17α-oxido-16β-methyl-5-pregnen-20-ones, intermediates in the synthesis of 16β-methyl-17α,21-dihydroxy-4-pregnene-3, 20-dione.

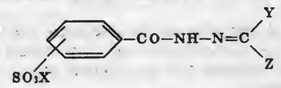
3,547,914

SULFOBENZOYL HYDRAZONES OF 5-NITRO-FURFURALDEHYDE

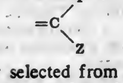
André Georges Girard and André Ray, Paris, France, assignors to Roussel-UCLAF, Paris, France, a corporation of France

No Drawing. Continuation-in-part of application Ser. No. 691,988, Dec. 20, 1967. This application May 1, 1968, Ser. No. 725,935
Claims priority, application France, Dec. 26, 1966, 88,828; Mar. 23, 1967, 100,012
Int. Cl. C07d *5/30*
U.S. Cl. 260—240 7 Claims

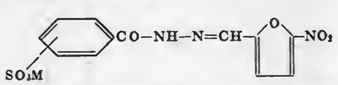
A sulfobenzoyl hydrazone of the formula



wherein the SO_3X group is in a position selected from the group consisting of meta and para, X represents a member selected from the group consisting of a metal cation and X'H wherein X' represents an organic base, the group



represents a member selected from the group consisting of the remainder of an organic molecule having an aldehyde function where Y is hydrogen, the remainder of an organic molecule having a ketone function and the remainder of an organic molecule having a quinone function. The sulfobenzoyl hydrazones of the invention are useful in the isolation and purification of carbonyl derivatives from mixtures containing the same. The invention more particularly relates to a sulfobenzoyl hydrazone of 5-nitrofurfuraldehyde of the formula



wherein the SO_3M group is in a position selected from the group consisting of meta and para and M represents a member selected from the group consisting of an alkali metal and M'H wherein M' represents tetracycline. These latter compounds are useful as antibiotic, antimycosis and antibacterial agents.

3,547,915

SUBSTITUTED BENZO-1,4-OXAZINES

Oskar Bub, Ludwigshafen (Rhine), Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany, a corporation of Germany

No Drawing. Filed Aug. 9, 1967, Ser. No. 659,302
Claims priority, application Germany, Aug. 11, 1966, K 60,001; Mar. 8, 1967, K 61,643
Int. Cl. C07d *87/48*
U.S. Cl. 260—244 12 Claims

N-substituted 3,4-dihydro-(2H)-1,4-benzoxazines useful as analgesics which possess relative freedom from undesirable side effects, such as depression of the respiratory system and dilation of the pupils of the eyes. Several representative examples of the compounds are 4-(piperidinoacetyl)-3,4-dihydro-(2H) - 1,4 - benzoxazine and 4-(dimethylamino-acetyl)-3,4-dihydro - (2H) - 1,4 - benzoxazine.

3,547,916

1-PHENYL-2-STYRYL-3,5-DIOXOPYRAZOLIDINES AND METHOD OF PRODUCING SAME

Franz Schatz, Theodor Wagner-Jauregg, and Ulrich Jahn, Zofingen, Switzerland, assignors to Siegfried Aktiengesellschaft, Zofingen, Switzerland, a corporation of Switzerland

No Drawing. Filed July 22, 1968, Ser. No. 746,236
Int. Cl. C07d *49/08*
U.S. Cl. 260—240 15 Claims

This invention is directed to 1-phenyl-2-styryl-3,5-dioxopyrazolidines and the method of producing same by reacting the corresponding 1-phenyl-3,5-dioxopyrazolidine with a phenylacetaldehyde in the presence of a dehydrating agent.

3,547,917

2-AMINO-4-METHYLTHIAZOLE-5-CARBOXAMIDES

Marshall Kulka and William A. Harrison, Guelph, Ontario, Canada, assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Filed Dec. 7, 1966, Ser. No. 599,734
Int. Cl. C07d *91/34*
U.S. Cl. 260—247.1 11 Claims

This invention pertains to 2-amino-4-methylthiazole-5-carboxamides, which have utility as fungicides and plant growth regulants. These compounds are prepared by the reaction of alpha-halo ketones with thioureas.

3,547,918

PROCESS FOR THE PREPARATION OF TRIGLYCIDYL ISOCYANURATE

Daniel Porret, Binningen, Karl Metzger, Aesch, and Alfred Heer, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed June 11, 1968, Ser. No. 735,996
Claims priority, application Switzerland, June 13, 1967, 8,371/67
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 13 Claims

A process for the production of triglycidyl isocyanurate by condensation of cyanuric acid with epichlorohydrin in the presence of a tertiary amine, a quaternary ammonium base or a quaternary ammonium salt as catalyst, the epichlorohydrin being used at a rate of at least 2 mols and at most 10 mols per 1 equivalent of active H atom of the cyanuric acid to form the corresponding mono- di- or tri-(3-chloro-2-hydroxypropyl)- -isocyanurate, and the tri-(3-chloro-2-hydroxypropyl) isocyanurate formed being subsequently converted into triglycidyl isocyanurate by removal of hydrogen halide, characterized in that in a first stage, at a temperature of over 60° C. to at most 165° C. the cyanuric acid is converted practically quantitatively into tri-(3-chloro-2-hydroxypropyl)-isocyanurate by an additive reaction with epichlorohydrin, and a part of the initially formed 3-chloro-2-hydroxypropyl groups are further transepoxidized with the excess epichlorohydrin to glycidyl groups and an equivalent proportion of epichlorohydrin adds on the hydrogen chloride eliminated from the 3-chloro-2-hydroxypropyl groups and is converted into glycerin dichlorohydrin; after the end point of the practically quantitative addition with epichlorohydrin is reached, the reaction is discontinued and immediately thereafter the 3-chloro-2-hydroxypropyl-isocyanurate left in the reaction mixture and the glycerin dichlorohydrin formed are dehydrohalogenated to triglycidyl-isocyanurate and epichlorohydrin respectively by treatment with a 5 to 40% stoichiometric excess of concentrated aqueous

alkali hydroxide solution, the alkali solution being added in portions, and at the same time the water added in form of the alkali solution and the water of reaction formed are distilled off as an azeotrope with epichlorohydrin at the same rate as they are added and formed respectively; after all the alkali needed has been added, the reaction is discontinued and finally, in working-up, the catalyst is washed out of the reaction mixture obtained or extracted from the crude triglycidyl-isocyanurate.

3,547,919
PROCESSING OFFGAS FROM THE SYNTHESIS OF MELAMINE

Guenther Hamprecht, Munich, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengeselischaft, Ludwigshafen, Germany, a company of Germany

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,514
Claims priority, application Germany, Nov. 11, 1967, 1,670,286
Int. Cl. C07d *55/28*
U.S. Cl. 260—249.7 5 Claims

In order to separate melamine from reaction gas such as is obtained in the thermal treatment of urea in the presence of catalysts, the offgas is cooled to temperatures of 150° to 220° C. by direct cooling with ammonia, the deposited melamine is separated and the gas cooled to from −35° to +60° C. by mixing it with further ammonia. Ammonium carbamate is thus deposited and this is separated from the gas which consists of practically pure ammonia.

3,547,920
PHOSPHORIC, PHOSPHONIC, THIONOPHOSPHORIC AND THIONOPHOSPHONIC ACID ESTERS

Christa Fest, Wuppertal-Elberfeld, Ingeborg Hammann, Cologne, Wilhelm Stendel, Wuppertal-Vohwinkel, and Gunter Unterstenhofer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Jan. 22, 1969, Ser. No. 793,169
Claims priority, application Germany, Feb. 2, 1968, 1,670,983
Int. Cl. C07d *51/04*
U.S. Cl. 260—250 10 Claims

O,O-(pyridazin-di-3,6-yl)-di[(alkyl, alkoxy and phenyl)-O-alkyl- -phosphoric, phosphonic, thionophosphoric and thionophosphonic] acid esters, i.e., O-[3-(alkyl, alkoxy and phenyl]-O-alkyl- -phosphoryl, -phosphonyl, -thionophosphoryl and -thionophosphonyl)-pyridazin-6-yl]-[alkyl, alkoxy and phenyl]-O-alkyl- -phosphoric phosphonic, thionophosphoric and thionophosphonic acid esters, which possess arthropodicidal, especially acaricidal and insecticidal, properties and which may be produced by reacting the corresponding phosphoric, phosphonic, thionophosphoric or thionophosphonic acid ester halide with maleic acid hydrazide in the presence of an acid-binding agent.

3,547,921
PREPARATION OF 1-SUBSTITUTED-4-ARYL-3,4-DIHYDRO-2(1H)-QUINAZOLINONES

Goetz E. Hardtmann, Florham Park, N.J., and Hans Ott, Basel-Land, Switzerland, assignors to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed Dec. 26, 1968, Ser. No. 787,254
Int. Cl. C07d *51/48*
U.S. Cl. 260—251 5 Claims

Disclosed is method for preparation of 4-aryl-2(1H)-quinazolinones involving reaction of a 1-substituted-quinazolinone with an aryl magnesium halide or aryl lithium compound to obtain a 1-substituted-4-aryl-3,4-dihydro-2(1H)-quinazolinone, useful as anti-inflammatory agents. The 3,4-dihydro-2(1H)-quinazolinones may be oxidized to obtain the corresponding 1-substituted-4-aryl-2(1H)-quinazolinones, also useful as anti-inflammatory agents.

3,547,922
1-[(3-INDOLYL)-LOWER-ALKYL]-4-SUBSTITUTED-PIPERAZINES

Sydney Archer, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 7, 1966, Ser. No. 584,979
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 3 Claims

New 1-[(3-indolyl)-lower-alkyl]-4-cycloalkyl- and 4-cycloalkyl-lower-alkylpiperazines having adrenolytic, hypotensive, cardiac depressant, psychomotor depressant, anti-inflammatory, hexobarbital potentiation, anti-emetic, hypothermic, and skeletal muscle relaxant activities.

3,547,923
PIPERAZYL ETHYL 7H-BENZOCYCLOHEPTENES

Robert Ted Standridge and Barbara Ann Hall, Syracuse, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 25, 1968, Ser. No. 715,518
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 6 Claims

8,9-dihydro-6-{2 - [4 - (2 - (lower) - alkoxyphenyl)-1-piperazyl] - ethyl}-7H-benzocycloheptenes and the nontoxic, pharmaceutically acceptable salts thereof are compounds useful as central nervous system depressants, i.e., sedatives, tranquilizers, calmatives, etc., in mammals, including man.

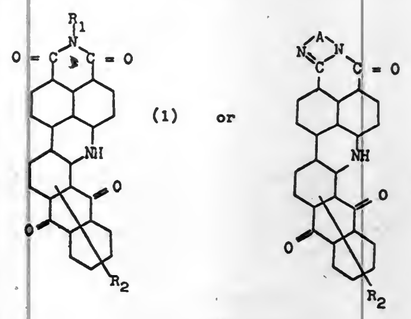
A preferred compound of the disclosure is 8,9-dihydro-2-fluoro-6-{2-[4-(2-methoxyphenyl)-1-piperazyl] - ethyl}-7H-benzocycloheptene and its nontoxic pharmaceutically acceptable salts.

3,547,924
PROCESS FOR PREPARING VAT DYESTUFFS

Otto Fuchs and Heinrich Sieber, Frankfurt am Main, and Josef Landler, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Oct. 13, 1969, Ser. No. 866,001
Int. Cl. C07d *39/00*
U.S. Cl. 260—274 4 Claims

Improved process for the preparation of dyestuffs of the general formula



wherein the corresponding anthrimides are heated in substance or in form of an intimate mixture with a water-soluble, indifferent inorganic salt to a temperature between 300° and 400° C., preferably 340° and 370° C. Compared with the process of U.S. Pat. 3,310,563 the process of the present invention represents a major technical progress insofar as the yield is practically quantitative, acid amides or high boiling solvents are saved, the isolation of the dyestuffs is more convenient and the required apparatus volume smaller.

3,547,925
CONDITIONING PROCESS FOR PRODUCING GAMMA PHASE QUINACRIDONE

Anthony P. Wagener, Chicago, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,614
Int. Cl. C07d *37/00*
U.S. Cl. 260—279 9 Claims

This invention comprises a process for "conditioning" quinacridone to produce the conditioned gamma phase by milling alpha or gamma crude quinacridone with an inorganic salt such as sodium chloride, in the presence of pyridine or a homolog thereof and at room temperature or above, advantageously above 50° C. and preferably in the range of 75–100° C. This conditioned gamma phase is red in color and has a characteristic X-ray diffraction pattern distinguishing it from other forms of quinacridone.

3,547,926
CONDITIONING PROCESS FOR PRODUCING BETA PHASE QUINACRIDONE

Anthony P. Wagener, Park Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

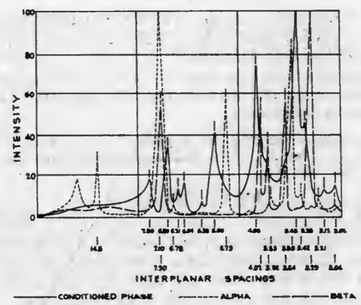
No Drawing. Filed Aug. 7, 1967, Ser. No. 658,663
Int. Cl. C07d *39/00*
U.S. Cl. 260—279 8 Claims

This invention comprises a process for "conditioning" quinacridone to produce the beta-phase by milling the quinacridone with an inorganic salt such as sodium chloride, at a temperature in the range of 100–175° Ç., preferably 125–150° C. This beta-phase is violet in color and has a characteristic X-ray diffraction pattern distinguishing it from other forms of the quinacridone. The conditioning process of this invention can be applied even to quinacridone of the other phases to produce the beta-phase. The conversion to the beta-phase by grinding at these temperatures can be effected even in the presence of solvents, such as dimethylformamide, which have been reported as effecting the formation of a gamma phase quinacridone.

3,547,927
4,11-DICHLOROQUINACRIDONE PIGMENTS

Anthony P. Wagener, Park Forest, and George J. Meisters, Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

Filed Aug. 7, 1967, Ser. No. 658,888
Int. Cl. C07d *39/00*
U.S. Cl. 260—279 10 Claims

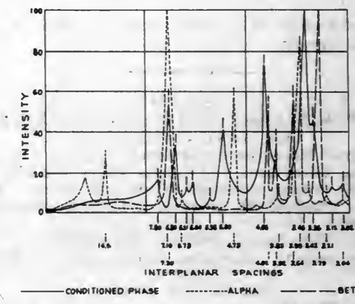


This invention comprises a new 4,11-dichloroquinacridone pigment and the method of preparing said pigment by milling the crude compound with a solid, soluble inorganic salt at approximately 100–175° C. This new phase of the compound is distinguished by its red-orange color and characteristic X-ray diffraction pattern. This product has an X-ray diffraction pattern having lines of strong intensity at interplanar spacings of 4.06 and 3.45 angstrom units, lines of intermediate intensity at 6.80, 5.00 and 3.35 A., and weak lines at 7.80, 6.21, 6.04, 5.38, 3.12 and 3.02 A. Its red-orange color is characterized by a dominant wave length of 606.5, a light purity of 92.8%, and a reflectance, or Y value, of 14.68 at 100% pigment.

3,547,928
PROCESS FOR PREPARING 4,11-DICHLORO-QUINACRIDONE PIGMENTS

Anthony P. Wagener, Park Forest, and George J. Meisters, Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

Filed Aug. 7, 1967, Ser. No. 658,890
Int. Cl. C07d *39/00*
U.S. Cl. 260—279 9 Claims



This invention comprises a new 4,11-dichloroquinacridone pigment and the method of preparing said pigment by milling the crude compound with a solid, soluble inorganic salt at approximately 50–100° C. in the presence of pyridine or a homolog thereof. This new phase of the compound is distinguished by its red-orange color and characteristic X-ray diffraction pattern. This product has an X-ray diffraction pattern having lines of strong intensity at interplanar spacings of 4.06 and 3.45 Angstrom units, lines of intermediate intensity at 6.80, 5.00 and 3.35 A., and weak lines at 7.80, 6.21, 6.04, 5.38, 3.12 and 3.02 A. Its red-orange color is characterized by a dominant wave length of 604.5, a light purity of 92.0%, and a reflectance, or Y value, of 17.05 at 100% pigment.

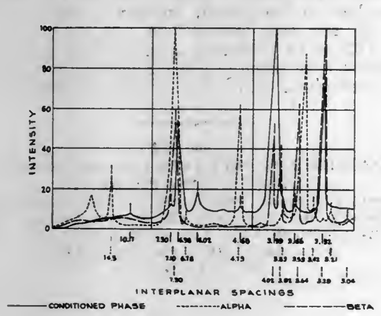
3,547,929
4,11-DICHLOROQUINACRIDONE PIGMENTS

Anthony P. Wagener, Park Forest, and George J. Meisters, Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

Filed Aug. 7, 1967, Ser. No. 658,891
Int. Cl. C07d *39/00*
U.S. Cl. 260—279 9 Claims

This invention comprises a new 4,11-dichloroquinacridone pigment and the method of preparing said pigment by milling the crude compound with a solid, soluble inorganic salt and dimethyl formamide at approximately 20–60° C. This new phase of the compound is distinguished by its scarlet orange color and characteristic X-ray diffraction pattern. This product has an X-ray diffraction pattern having lines of strong intensity at interplanar spacings of 3.99 and 3.32 Angstrom units, a line of intermediate intensity at 6.98 A., and weak lines at 10.70,

7.30, 6.02, 4.68 and 3.65 A. Its scarlet orange color is characterized by a dominant wave length of 608.5, a light

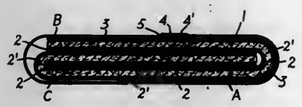


purity of 88.8%, and a reflectance or Y value of 12.23 at 100% pigment.

3,547,930
DISPOSABLE SHEET DIAPER AND PROCESS FOR MAKING THE SAME

Nils Verner Blomqvist, Ornskoldsvik, Ingemar Liss-Albin Croon, Alfredshem, and Gustav Harry Sundell, Jarnforsen, Sweden, assignors to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden, a limited company of Sweden

Filed June 2, 1967, Ser. No. 643,082
Claims priority, application Sweden, June 9, 1966, 7,920/66
Int. Cl. A61f *13/16*
U.S. Cl. 128—284 **11 Claims**



Disposable sheet diapers are provided comprising as the absorbent portion cellulose fluff fibers enclosed between supporting sheets of moisture-pervious cellulosic material and interleavingly folded to form three strata or layers of absorbent cellulose fluff fibers separated by the enclosing sheets of cellulosic material. The interleaved layered composite is enclosed in a protective moisture-resistant but moisture-pervious sheet of a woven or nonwoven material.

A process is also provided for manufacturing the above-described disposable sheet diapers in which a composite sheet material comprising a pair of supporting sheets of cellulosic material enclosing a layer of absorbent fibers, such as cellulose fluff fibers therebetween, is formed, by laying down cellulose fluff fibers on a supporting sheet of cellulosic material, such as cellulose wadding or paper, and a second sheet of like material placed on top, and the composite sheet material is folded by folding over the sides of the sheet toward each other and interleaving the folds to form three layers. Each layer contains absorbent material retained between sheets of cellulosic material, and each layer of absorbent material has two sheets of supporting material therebetween, providing excellent reinforcement for each layer. The folded composite material is then enclosed in a protective moisture-resistant moisture-pervious woven or nonwoven fibrous sheet material.

3,547,931
1,2,5,6 - TETRAHYDRO - 4 - PHENYL - 1-(THIANAPHTHENYL- OR BENZOFURANYLALKYL)PYRIDINES

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Application Sept. 22, 1967, Ser. No. 669,707, now Patent No. 3,476,760, dated Nov. 4, 1969, which is a continuation-in-part of application Ser. No. 620,628, Mar. 6, 1967. Divided and this application Oct. 10, 1969, Ser. No. 865,473
Int. Cl. C07d *31/50*
U.S. Cl. 260—294.8 **8 Claims**

1-(thianaphthenylalkyl or benzofuranylalkyl)-4-phenyl-4-piperidinols, prepared by various methods starting with a halomethylthianaphthene or benzofuran, or a thianaphthene- or benzofuranalkanoic acid. 4-phenyl-4-piperidinols are condensed with acid halides, ester anhydrides, or diazoketones to give amides, which are reduced to the products with lithium aluminum hydride. Esters are prepared by acylation of the piperidinols. Tetrahydropyridines are prepared by dehydration of the piperidinols. The piperidinol and tetrahydropyridine compounds have tranquilizing activity, while the esters have analgesic activity.

3,547,932
HYDROXYALKYL PIPERIDINE OR PYRROLIDINE OXIDES

John Fred Gerecht, Somerville, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,597
Int. Cl. C07d *29/16*
U.S. Cl. 260—294.7 **4 Claims**

Hydroxy higher alkyl piperidine or pyrrolidine oxides, and formulations containing the same. The compounds have many beneficial effects in detergent and cosmetic compositions, particularly desirable for application to the skin and for modification of foaming power of detergent compositions.

3,547,933
6 - AMINO - 1,1a,6,10b - TETRAHYDRODIBENZO[a,e]CYCLOPROPA[c] - CYCLOHEPTEN - 6 - OLS AND ESTERS THEREOF

William E. Coyne and John W. Cusic, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 733,261, May 31, 1968. This application June 28, 1968, Ser. No. 740,978
Int. Cl. C07d *29/16*
U.S. Cl. 260—294.7 **6 Claims**

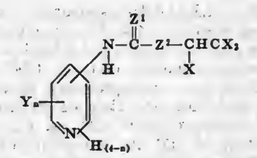
Tetrahydrodibenzo[a,e]cyclopropa[c]cyclohepten-6-ols and the corresponding esters, with an aminoalkyl substituent at the 6-position, are described herein. For the preparation of these compounds, a tetrahydrodibenzo[a,e]cyclopropa[c]cyclohepten-6-one is reacted with an aminoalkyl Grignard reagent to give the desired alcohols which can then be esterified with an appropriate acid chloride or acid anhydride. The compounds involved are useful as diuretic agents and they are also anti-bacterial, anti-protozoal, and anti-algal agents.

3,547,934
TETRACHLOROETHYL ESTERS OF PYRIDYL CARBAMIC ACIDS, THE CORRESPONDING MONO- AND DI-THIOCARBAMATES AND DERIVATIVES

Frank Ross, Villa Park, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,749
Int. Cl. C07d *31/36*
U.S. Cl. 260—295.5 **2 Claims**

This invention discloses new compounds of the formula



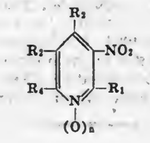
wherein each X is halogen; Z^1 and Z^2 are selected from the group consisting of oxygn and sulfur; Y is selected from the group consisting of halogen and alkyl; and *n* is an integer from 0 to 2. The compounds of the above description are useful as plant defoliants and as herbicides.

3,547,935
CERTAIN NITRO-4-PYRIDINOLS, N-OXIDES THEREOF AND DERIVATIVES THEREOF

Robert Eugene Diehl, Trenton, and Bryant Leonidas Walworth, Pennington, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Aug. 7, 1967, Ser. No. 658,589
Int. Cl. C07d *31/30*
U.S. Cl. 260—297 **6 Claims**

This application pertains to herbicidal compounds of the structure:



wherein R_1 is hydrogen, halogen, lower alkyl, halo lower alkyl, alkylthio, OR^1 wherein R^1 is lower alkyl or halo lower alkyl; R_2 is hydrogen, halogen, hydroxy, SR^2, OR^3 or NR^4R^5 wherein R^2, R^3, R^4 and R^5 are each hydrogen or lower alkyl; R_3 is hydrogen, halogen, or nitro; and R_4 is hydrogen, halogen, alkyl or halo lower alkyl, and *n* is either 0 or 1, and their method for use.

3,547,936
PYRIDYL - 2,7 - DIOXABICYCLO[3.2.0^{1,5}]HEPT - 3-ENES AND PROCESS FOR PREPARATION

George R. Evanega, Ossining, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 6, 1967, Ser. No. 680,999
Int. Cl. C07d *31/28*
U.S. Cl. 260—297 **12 Claims**

Novel oxetanohydrofurans, such as syn-6-phenyl-anti-6-γ-pyridyl-2,7-dioxabicyclo[3.2.0^{1,5}]hept-3-ene and syn-6-methyl-anti - 6 - γ - pyridyl-2,7-dioxabicyclo[3.2.0^{1,5}]-heptane are prepared by the photochemical addition of carbonyl compounds to furan.

3,547,937
CERTAIN 4-THIAZOLECARBOXAMIDINES

Guy D. Diana, Stephentown, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 7, 1968, Ser. No. 711,192
Int. Cl. C07d *91/32*
U.S. Cl. 260—302 **2 Claims**

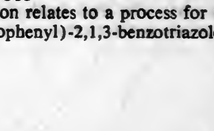
This invention relates to carbimidoyl ureas which are prepared by reacting the appropriate isocyanates with the appropriate amidines. The compounds possess anthelmintic activity.

3,547,938
BENZAZOLYLTHIO ALKYL ISOTHIOCYANATES

John Joseph D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,694
Int. Cl. C07d *85/48, 91/48*
U.S. Cl. 260—306.6 **7 Claims**

Compounds of the formula



where X represents hydrogen, halogen, or alkoxy, Y represents oxygen or sulfur, and A is lower alkylene are described which are useful as biological toxicants.

3,547,939
IMIDAZO[1,2-c]THIAZOLES

Robert E. Manning, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed May 3, 1968, Ser. No. 726,532
Int. Cl. C07d *99/06*
U.S. Cl. 260—306.7 **5 Claims**

This disclosure pertains to 5-(2-aminoethylimino)-2,3-dihydro imidazo[1,2-c]thiazoles, e.g., 5-(2-aminoethylimino) - 7 - phenyl - 2,3 - dihydro-1H, 5H-imidazo[1,2-c] thiazole dihydrochloride. These compounds are useful as hypotensive agents.

3,547,940
SUBSTITUTED UREIDO ISOXAZOLES

Richard K. Brantley, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 31, 1967, Ser. No. 679,565
Int. Cl. C07d *85/22*
U.S. Cl. 260—307 **7 Claims**

Substituted ureidoisoxazoles such as 4-bromo-3-methyl-5-(3-phenylureido)isoxazole are prepared by reacting a 5-aminoisoxazole, with an appropriate isocyanate or dialkylcarbamyl halide, in the presence of an inert solvent and ordinarily a catalyst such as a tertiary amine, at a temperature between 0° and 150° C., followed by further substitution on the isoxazole ring or the urea as desired. The resulting ureido isoxazoles are useful in controlling unwanted vegetation in the locus of crops, turf and nursery stock.

3,547,941
PROCESS FOR PREPARING 2-(2'-AMINOPHENYL)-2,1,3-BENZOTRIAZOLES

Josef Pikl, Glassboro, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Aug. 30, 1966, Ser. No. 575,973
Int. Cl. C07d *55/04*
U.S. Cl. 260—308 **12 Claims**

This invention relates to a process for the manufacture of 2-(2'-aminophenyl)-2,1,3-benzotriazoles by reacting a

2,2' - dihalo-azo-, -azoxy- or -hydrazo-benzene with ammonia.

3,547,942
IMIDAZOLE CARBOXYLATES

Erik Fred Godefroi, Turnhout, and Cyriel Alfons Maria Van Der Eijcken, Vosselaar, near Turnhout, Belgium, assignors to Janssen Pharmaceutica, N.V., a corporation of Belgium

No Drawing. Original application Apr. 14, 1966, Ser. No. 542,465, now Patent No. 3,485,917, dated Dec. 23, 1969. Divided and this application Jan. 15, 1969, Ser. No. 823,200

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 **3 Claims**

1-(1,2,3,4-tetrahydro-1-naphthyl)- and 1-(1-indanyl)-imidazole carboxylates, useful as fungicides.

3,547,943
N-METHYLOLSILYLETHERS OF UREAS AND IMIDAZOLIDINONES

Ferdinand Senge, Krefeld, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Original application July 11, 1967, Ser. No. 652,413. Divided and this application June 30, 1969, Ser. No. 837,921

Claims priority, application Germany, July 26, 1966, F 49,786

Int. Cl. C07d *103/04, 49/34*

U.S. Cl. 260—309.7 **10 Claims**

N-methylolsilylethers formed by reacting N-methylol compounds with hexaalkyldisilazanes in a molar ratio of about 1:1 to 1:8 at temperatures of 20–130° C. and their utility in modifying polymeric products.

3,547,944
COLOUR PHOTOGRAPHY UTILIZING COLOUR COUPLERS WHICH YIELD QUINONE IMINE OR AZAMETHINE DYE IMAGES

Brian Anderson, Rose Hill, Marple, England, assignor to Ilford Limited, Ilford, Essex, England, a British company

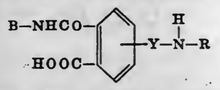
No Drawing. Continuation-in-part of application Ser. No. 432,898, Feb. 15, 1965. This application Mar. 31, 1967, Ser. No. 630,784

Claims priority, application Great Britain, Feb. 20, 1964, 7,180/64

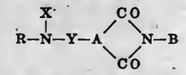
Int. Cl. C07d *49/16*

U.S. Cl. 260—310 **1 Claim**

New colour couplers of the Formula I:



wherein X is selected from the class consisting of hydrogen and lower alkyl, Y is selected from the class consisting of the linkages —OC—, —CONH— and —$COCH_2$— when X is hydrogen and Y is —O_2S when X is lower alkyl, B is the residue of a compound BNH_2 which will react with the oxidation products of N,N-diethyl p phenylene diamine, formed during the development with a silver salt image with that compound, to yield a dyestuff image selected from the class consisting of quinone imine and azamethine dyes and R is a substituent comprising an alkyl group containing at least 12 carbon atoms and corresponding cyclised compounds of the Formula II.



wherein R, X, Y and B have the meanings just assigned are described, together with their method of production and their use in colour photography.

3,547,945
3-PHENYLOXINDOLE DERIVATIVES

Albert J. Frey, Essex Fells, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Application Apr. 21, 1967, Ser. No. 632,555, now Patent No. 3,457,268, dated July 22, 1969, which is a continuation-in-part of application Ser. No. 562,537, July 5, 1966, which in turn is a continuation-in-part of application Ser. No. 464,839, June 17, 1965. Divided and this application Mar. 28, 1969, Ser. No. 811,612

Int. Cl. C07d *27/40*

U.S. Cl. 260—325 **6 Claims**

3a - phenyl - 1,2,3,3a,8,8a-hexahydropyrrole[2,3-b] indoles (A), 4a-phenyl-2,3,4,4a,9,9a-hexahydro-1H-pyrido [2,3-b]indoles (B) and 5a-phenyl-1,2,3,4,5,5a,10,10a- octahydroazepino[2,3-b]indoles (C) are CNS-active compounds useful as, e.g., antidepressants, hypotensive-antihypertensives and analgesics. They are prepared from corresponding 3-phenyloxindoles (D) by, e.g., substituting in the 3-position of (D) the corresponding cyanoalkyl group and effecting ring closure of the resultant (B) in the presence of lithium aluminum hydride to obtain either (A), (B) or (C), depending upon whether (E) is prepared with a haloacetonitrile, halopropionitrile or halobutyronitrile.

3,547,946
THIOL AND THIONOTHIOL-PHOSPHORIC AND -PHOSPHONIC ACID ESTERS

Walter Lorenz, Wuppertal-Vohwinkel, Ingeborg Hammann, Cologne, and Günter Unterstenhöfer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed July 12, 1968, Ser. No. 744,330

Claims priority, application Germany, Aug. 2, 1967, F 53,125

Int. Cl. C07d *27/18*

U.S. Cl. 260—326.5 **10 Claims**

(Alkyl, amino and O - alkyl) - O - alkyl-S-(maleicimido methyl) - thiol and thionothiol) - (phosphoric and phosphonic)-acid esters which possess pesticidal, especially acaricidal and insecticidal, properties and which may be produced by reacting the corresponding thiolphosphoric (phosphonic) and thionothiol - phosphoric (-phosphonic) acid ester in the presence of an acid-binding agent, or the corresponding alkali metal or ammonium salt, with N-halomethyl-maleic acid amide.

3,547,947
NITROGEN-CONTAINING TRICYCLIC COMPOUNDS

Albert J. Frey, Essex Fells, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Application Apr. 21, 1967, Ser. No. 632,555, now Patent No. 3,457,268, dated July 22, 1969, which is a continuation-in-part of application Ser. No. 562,537, July 5, 1966. Divided and this application Mar. 28, 1969, Ser. No. 811,641

Int. Cl. C07d *27/30*

U.S. Cl. 260—326.85 **1 Claim**

3a - phenyl - 1,2,3,3a,8,8a-hexahydropyrrolo[2,3-b]indoles (A), 4a-phenyl-2,3,4,4a,9,9a-hexahydro-1H-pyrido-[2,3-b]indoles (B) and 5a-phenyl-1,2,3,4,5,5a,10,10a-octahydroazepino[2,3-b]indoles (C) are CNS-active compounds useful as, e.g., antidepressants, hypotensive-antihypertensives and analgesics. They are prepared from corresponding 3-phenyloxindoles (D) by, e.g., substituting in the 3-position of (D) the corresponding cyanoalkyl group and effecting ring closure of the resultant (E) in the presence of lithium aluminum hydride to obtain either (A), (B) or (C), depending upon whether (E) is prepared with a haloacetonitrile, halopropionitrile or halobutyronitrile.

3,547,948
4-AMINO-1,2-DITHIOLANE-4-CARBOXYLIC ACIDS

Tsung-Ying Shen and Gordon L. Walford, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 11, 1967, Ser. No. 666,922

Int. Cl. A61k *27/00*; C07d *71/00*

U.S. Cl. 260—327 **6 Claims**

Processes for the preparation of novel amino acids. The compounds are 5-membered heterocyclic amino acid derivatives of tetramethylene sulfide and trimethylene-1,2-disulfide. The sulfide derivatives are prepared by converting a keto tetramethylene sulfide to its corresponding amino nitrile, with subsequent hydrolysis to the amino acid. The 1,2-disulfide derivatives are prepared via reaction of an alkyl ketone with an aralkyl mercaptan with ultimate elimination of the sulfur protecting group and oxidation to the disulfide. The novel amino acids are useful as anti-inflammatory agents.

3,547,949
BENZOTHIOPYRONE COMPOUNDS

Charles Malen, Fresnes Village, and Pierre Desnoyers, Fontenay - aux - Roses Village, France, assignors to Societe en nom Collectif Science Union et Cie, Suresnes, France, a French society

No Drawing. Filed Oct. 6, 1967, Ser. No. 673,276

Claims priority, application Great Britain, Oct. 26, 1966, 48,046/66

Int. Cl. C07d *65/14*

U.S. Cl. 260—327 **6 Claims**

Benzothiopyr-4-one compounds substituted: in position 5, 6, 7 or 8, by at least one, and at most three, hydroxyl groups and, optionally, in position 2 or 3, by lower-alkyl having up to five carbon atoms, inclusive.

These compounds reduce the permeability and increase the resistance of the capillary vessels and are accordingly useful in the treatment of capillary brittleness.

3,547,950
WATER-SOLUBLE ACRYLATE POLYMERS HAVING SKIN ADHERING QUALITIES

Robert Johns Gander, Whitehouse, N.J., assignor to Johnson & Johnson, a corporation of New Jersey

No Drawing. Filed Nov. 23, 1966, Ser. No. 596,398

Int. Cl. C08f *45/30, 45/34*; A61f *13/00*

U.S. Cl. 260—33.2 **16 Claims**

Water-soluble acrylate polymers having skin-adhering qualities are prepared through the interpolymerization of dimethylaminoethyl methacrylate with esters of acrylic acid and/or esters of methacrylic acid the amine group being quaternized. Water-soluble cements, protective films, and pressure-sensitive adhesives are so formed. The dimethlyaminoethyl methacrylate content is critical after quaternization with respect to skin adherence, water solubility, and solubility in propellent solvents.

3,547,951
1,3-DIOXOLAN-4-YL-ALKYL GUANIDINES

Waldo R. Hardie, 2061 Strand Road, Walnut Creek, Calif. 94596, and Joseph E. Aaron, 904 Bancroft Way, Berkeley, Calif. 94710

No Drawing. Continuation-in-part of application Ser. No. 547,194, May 3, 1966. This application June 17, 1969, Ser. No. 834,174

Int. Cl. C07d *13/04*

U.S. Cl. 260—340.9 **6 Claims**

1,3-dioxolan-4 - yl - alkyl - guanidines substituted at the two-position of the dioxolane ring with hydrogen, alkyl, substituted alkyl, a carbocyclic ring system, or a spirocyclic ring system in which the two-position carbon atom of the dioxolane ring is a ring carbon atom thereof, are prepared by converting a 1,3-dioxolan-4-yl-alkylamine to a guanidine by reaction with thiopseudourea. The amine is prepared by reacting a halide group with a metallo salt of phthalimide followed by hydrolysis. The guanidines have pharmacological activity which includes anti-hypertensive activity.

3,547,952
7-MERCAPTO-COUMARINS

Asim Kumar Sarkar, Adel, England, assignor to Hickson & Welch Limited, Castleford, Yorkshire, England, a British company

No Drawing. Filed Mar. 13, 1968, Ser. No. 712,599

Claims priority, application Great Britain, Mar. 29, 1967, 14,348/67; Dec. 8, 1967, 56,036/67

Int. Cl. C07d *7/28*

U.S. Cl. 260—343.2 **18 Claims**

This invention relates to coumarin derivatives having particularly advantageous properties as optical whitening agents.

3,547,953
3 - ALKOXY - TETRAHYDRO/HEXAHYDRO - 6H-DIBENZO[b,d]PYRAN - 9 - ONES AND DERIVATIVES THEREOF

Masateru Miyano, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed May 22, 1968, Ser. No. 731,270

Int. Cl. C07d *7/20*

U.S. Cl. 260—345.3 **7 Claims**

3 - alkoxy - tetrahydro/hexahydro - 6H - dibenzo[b,d] pyran-9-ones and derivatives thereof useful as anti-inflammatory, hypocholesterolemic, anti-protozoal and dicotyledonous seed germination inhibitory agents and preparable by processes utilizing as the starting materials 7-alkoxy - 4 - methylcoumarin 3-propionate esters. Those starting materials are, alternatively, obtained by the alkylation of the corresponding 7-hydroxy-4-methylcoumarin 3-propionate esters or by the condensation of a resorcinol monoalkyl ether with a dialkyl α-acetoglutarate.

3,547,954
1-SUBSTITUTED 3-ARYLSULFONYL UREAS

Henri Dietrich, Arlesheim, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed May 6, 1968, Ser. No. 727,043

Claims priority, application Switzerland, May 12, 1967, 6,796/67

Int. Cl. C07d *7/04*

U.S. Cl. 260—345.7 **6 Claims**

1-(substituted-phenylsulfonyl) - 3 - (2-oxa-adamant-1-yl)-ureas and pharmaceutically acceptable salts thereof with bases are prepared; pharmaceutical compositions containing said compounds and methods of producing a hypoglycemic effect in mammals are provided.

3,547,955
2,3-DIHYDRO-2,2-DIMETHYL-7-BENZOFURANYL N-(DIMETHYLAMINO) CARBAMATE

William G. Scharpf, Rocktown, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 25, 1966, Ser. No. 596,769

Int. Cl. C07d *5/36*

U.S. Cl. 260—346.2 **1 Claim**

Certain novel N-N-disubstituted dihydrobenzofuranyl carbamates and their use to control Arthropoda and Nematoda.

3,547,956
METHOD OF DRYING ALKYLENE OXIDES
Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed June 14, 1968, Ser. No. 736,970
Int. Cl. C07d 1/12
U.S. Cl. 260—348 7 Claims

A process for drying of alkylene oxides which comprises contacting water-containing alkylene oxides in the liquid phase at a temperature of from about —192 to about +50° C. with sufficient perhaloacetone to form perhaloacetone hydrate with the water present and separating the dry alkylene oxide from the perhaloacetone hydrate.

3,547,957
WATER-SOLUBLE ANTHRAQUINONE DYESTUFFS CONTAINING THIOSULFONIC ACID GROUPS
Djavad Razavi, 29 Avenue de Lamballe, Paris, France
No Drawing. Continuation of application Ser. No. 471,725, July 13, 1965. This application May 22, 1969, Ser. No. 828,441
Claims priority, application France, July 18, 1964, 982,217; July 22, 1964, 982,560
Int. Cl. C09b 1/32; D06p 1/24
U.S. Cl. 260—374 6 Claims

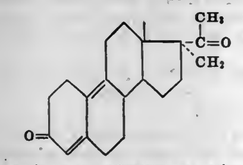
Water-soluble dyestuffs having excellent fastness to light and wet tests, containing free thiosulphonic acid groups and alkali metal salts of such dyestuffs. These dyestuffs are useful in dyeing cellulosic fibres and are prepared by treating a sulphochloride of an azo, anthraquinone, phthalocyanine or dioxazine dyestuff in an aqueous medium at a temperature of from 0° C. to 100° C. with an alkali metal sulphide, an alkali metal hydrosulphide or thiourea. The salt which is formed is converted to the free acid by acidification.

3,547,958
BENZYLIDENE BISPHENOL ACYLATE EXHAUST EMISSION REDUCING ADDITIVE
Henry G. Braxton, Jr., Franklin Village, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Feb. 27, 1967, Ser. No. 619,003
Int. Cl. C09b 11/06
U.S. Cl. 260—395 9 Claims

Mono- and dialkanoates, aralkanoates and benzoates of benzylidenebisphenols reduce combustion chamber deposit formation and exhaust hydrocarbon emission internal combustion engines.

3,547,959
NOVEL $\Delta^{4,9}$-PREGNADIENE
Robert Joly, Montmorency, Julien Warnant, Neuilly-sur-Seine, and André Farcilli, Rosny-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France, a corporation of France
No Drawing. Continuation-in-part of applications Ser. No. 517,061, Dec. 28, 1965, and Ser. No. 603,458, Dec. 21, 1966. This application Jan. 31, 1969, Ser. No. 795,703
Claims priority, application France, Dec. 27, 1965, 43,815
Int. Cl. C07c 169/34
U.S. Cl. 260—397.3 2 Claims

17α - methyl-19-nor-$\Delta^{4,9}$-pregnadiene-3,20-dione of the formula



I

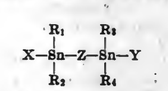
useful for increasing corpus luteum secretion.

3,547,960
CATALYSTS FOR THE PREPARATION OF ACID HALIDES
Charles F. Hauser, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed June 19, 1968, Ser. No. 738,087
Int. Cl. C11c 3/00
U.S. Cl. 260—408 28 Claims

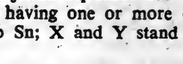
Process for preparing acid chlorides by reacting a carboxylic acid or acid anhydride with phosgene in the presence of select catalysts containing carbon-nitrogen double bonds or nitrogen-nitrogen double bonds. Illustrative catalysts are the substituted or unsubstituted imidazoles or hydrogen chloride salts thereof and 1,2,3-triazoles. The catalysts disclosed permit the use of lower temperatures, the avoidance of undesirable byproducts, and provide high yields of the desired acid chloride. The catalysts are also recoverable and may be recycled.

3,547,961
DIMERCAPTIDE DERIVATIVES OF DISTANNOXANES OR THIODISTANNOXANES
Mitsuo Onozuka, Tokyo, Toshiaki Nakamura, Kashiwashi, and Kinji Iida, Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
Filed Apr. 11, 1968, Ser. No. 720,724
Claims priority, application Japan, Apr. 13, 1967, 42/23,604
Int. Cl. C07f 7/22; C09f 5/08
U.S. Cl. 260—410.6 7 Claims

A high molecular solid state tin compounds especially adapted for use as thermal stabilizers for chloric or chlorine-containing artificial resins, and having the following general formula:



where, R_1, R_2, R_3 and R_4 stand for same or different organic radicals having one or more carbon atoms directly bonded to Sn; X and Y stand for the same or different



radicals, n being an integer 1 or 2; or more specifically same or different mercapto-radicals of poly-mercapto-acid esters of polyols having sulfur atoms directly bonded to Sn. Z stands for oxygen or sulfur.

3,547,962
PHASE TRANSFER AGENT IN OXIDATION OF OLEFINS
Charles M. Starks and Paul H. Washecheck, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Continuation-in-part of application 785,385, Dec. 19, 1968. This application Mar. 7, 1969, Ser. No. 805,362
Int. Cl. C08h 17/36
U.S. Cl. 260—413 4 Claims

Tertiary amines are disclosed as excellent phase transfer agents for oxidation of olefins with oxidizing agents in a mixed aqueous phase oxidation.

3,547,963
GROUP VIII METAL COMPLEXES CONTAINING TWO COMPLEXED $B_{10}H_{12}^{-2}$ IONS
Frank Karl Klanberg, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 26, 1968, Ser. No. 715,961
Int. Cl. C07d 15/00, 15/02; C09b 57/00
U.S. Cl. 260—429 10 Claims

Compounds containing an anion composed of a Group VIII metal complexed with two ($B_{10}H_{12}$) groups can be made by a ligand displacement reaction of a Group VIII metal compound with an alkali or alkaline earth metal salt of $B_{10}H_{13}^-$. For the first transition series, the Group VIII halides or alkyl and aryl phosphine or arsine complexes can be used as the starting material. For the second transition series alkyl phosphine or arsine complexes and olefin complexes and for the third transition series, olefin complexes can be used.

The compounds are useful as dyes for cotton and as catalysts.

3,547,964
GROUP VIII NOBLE METAL CATALYST RECOVERY
Kenneth L. Olivier, Placentia, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
No Drawing. Filed July 24, 1968, Ser. No. 747,125
Int. Cl. C07f 15/00, 15/04
U.S. Cl. 260—429 12 Claims

A method for the recovery of complexes of Group VIII metals with biphyllic ligands from hydrocarbons or high boiling residues formed in hydrocarbonylation of olefins. The Group VIII catalyst metal is recovered by treatment of the high boiling fraction of a hydroformylation reaction medium with a peroxide at a temperature from about 25° to 200° C. and a pressure from about 1 to 1000 atmospheres, sufficient to maintain liquid phase conditions during the contacting. The peroxide treatment precipitates the complex of the Group VIII metal from the solvent. Preferably, the precipitation is effected in the presence of an imiscible aqueous phase in which the precipitate is soluble, thereby effecting extraction of the metal complex. The Group VIII metal complex can be recovered from the aqueous extract phase by extraction, in the absence of the peroxide, with a solvent immiscible with the extract phase and containing excess biphyllic ligand.

3,547,965
PROCESS FOR PREPARING TRIALKYLTIN HALIDES
Tadashi Takubo and Isao Hachiya, both of 3761 Sunada, Kuriyama, Amagasaki-shi, Japan
No Drawing. Continuation-in-part of application Ser. No. 688,707, Dec. 7, 1967. This application Dec. 11, 1967, Ser. No. 689,329
Claims priority, application Japan, Dec. 7, 1966, 41/79,824
Int. Cl. C07f 7/22
U.S. Cl. 260—429.7 14 Claims

According to certain of its aspects, thhe novel process of this invention for manufacturing trialkyltin halide R_3SnX comprises reacting tin with alkyl halide RX, wherein R is alkyl and X is halogen, in the presence of zinc and catalytic amount of alcohol. These trialkyltin halides are useful as bactericides, fungicides, insecticides, antiseptics, agricultural chemicals and antifouling paints.

3,547,966
PROCESS FOR PRODUCING TRIALKOXY MONOHALO TITANIUM COMPOUNDS
Charles E. Marble, Troy, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Continuation-in-part of application Ser. No. 603,141, Dec. 20, 1966. This application Oct. 22, 1969, Ser. No. 868,615
Int. Cl. C07f 7/00, 7/28
U.S. Cl. 260—429.5 8 Claims

Trialkoxy monohalo titanium and related compounds are produced from corresponding metal halides and alcohols. With $TiCl_4$ the product is $(RO)_3TiCl$. The reaction is performed preferably with solvent at reflux at preferred temperatures of about 150–165° C. and requires alcohols of about 6 or more carbon atoms per molecule since lower alcohols, particularly methyl, ethyl and propyl, do not react in the same way. The process avoids the use of complexing agents which prior art indicates to be necessary to react beyond a lower level (the dialkoxy dichlorotitanium level for $TiCl_4$). This process is suitably also a first step of a new two step process for producing fully alkoxylated compounds.

3,547,967
PHENOXYPHENYLPHENOXARSINES
Chun-Shan Wang, Republic of China, and Thomas W. McGee, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 15, 1968, Ser. No. 744,646
Int. Cl. C07d 105/06
U.S. Cl. 260—440 4 Claims

Phenoxyphenylphenoxarsines as new compounds useful as pesticides.

3,547,968
CATALYTIC HYDROGENATION OF OXIDIZED ALUMINUM TRIALKYLS
Kaye L. Motz, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed Feb. 5, 1968, Ser. No. 702,800
Int. Cl. C07f 5/06; C07c 31/02, 31/32
U.S. Cl. 260—448 8 Claims

It is disclosed that increased yields of normal alcohols of improved purity can be obtained from Ziegler-type chemistry, e.g., aluminum alkoxides, by hydrogenating the aluminum alkoxide with a hydrogenation catalyst containing nickel or copper prior to hydration.

3,547,969
CATALYTIC HYDROGENATION OF OXIDIZED ALUMINUM TRIALKYLS
Kaye L. Motz, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed Feb. 5, 1968, Ser. No. 702,826
Int. Cl. C07f 5/06; C07c 31/02, 31/32
U.S. Cl. 260—448 8 Claims

It is disclosed that catalytic hydrogenation of aluminum trialkoxides can be promoted by small amounts of C_2 to C_4 normal alcohols, C_3–C_4 isoalcohols and C_4 to C_8 secondary alcohols. The alcohols recovered by acid hydrolysis of these trialkoxides contain less impurities than alcohols recovered without hydrogenation.

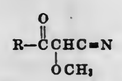
3,547,970
N,N - DIMETHYL - N' - (DIMETHYL AND ETHYL)-PHENYL - N' - FLUORO -DI - CHLOROMETHYL-MERCAPTO-SULFAMIDES
Engelbert Kühle, Bergedorf Gladbach, Erich Klauke, Odenthal-Hahnenberg, Ferdinand Grewe, Burscheid, Ingeborg Hammann, Cologne, Helmut Kaspers, Leverkusen, Günter Unterstenhöfer, Opladen, and Hans Scheinpflug, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed July 25, 1968, Ser. No. 747,496
Claims priority, application Germany, Aug. 11, 1967, F 53,200
Int. Cl. C07c 145/00
U.S. Cl. 260—453 4 Claims

N,N-dimethyl-N'-(2,4- or 3,4-dimethyl- or 4 - ethylphenyl) - N' - fluorodichloromethylmercapto-sulfamides which possess fungicidal and acaricidal properties and which may be produced by reacting the corresponding N,N-dimethyl-N'-substituted phenyl-sulfamide in the presence of an acid-binding agent, with fluorodichloromethanesulfenic acid chloride.

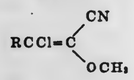
3,547,971
PREPARATION OF DIOXABORINANE COMPOUNDS
Richard H. Fish, Anaheim, and Herbert C. Newsom, Whittier, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
No Drawing. Filed Apr. 27, 1967, Ser. No. 634,137
Int. Cl. C07f 5/04
U.S. Cl. 260—462 9 Claims
Alkyl-substituted 1,3-dioxa-2-borinane compound having at least one alkyl subsituent in the 4, 5, or 6 position are prepared by reaction of the corresponding oxy-bis-(1,3-dioxa-2-borinane) compound with a reducing agent. Preferably, the reaction takes place with an excess of reducing agent and in the presence of a glycol ether solvent.

3,547,972
ADDITION OF HYDROGEN CYANIDE TO BUTADIENE
William C. Drinkard, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,947
Int. Cl. C07c 121/04
U.S. Cl. 260—465.3 4 Claims
Hydrogen cyanide can be added to butadiene in the presence of a hydrogen halide to give high yields of 3-pentenenitrile and 4-pentenenitrile, together with small amounts of isomeric pentenenitriles by use of a catalyst of copper chromite or activated copper chromite. The pentenenitriles can be converted to adiponitrile, which is an intermediate for the production of polyamides.

3,547,973
3-CHLORO-2-METHOXY-2-ALKENENITRILES
Harry Allen Albrecht, Nutley, and John Thomas Plati, Rutherford, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Original application Apr. 6, 1965, Ser. No. 446,068, now Patent No. 3,400,122, dated Sept. 3, 1968. Divided and this application Nov. 13, 1967, Ser. No. 682,551
Int. Cl. C07c 121/38
U.S. Cl. 260—465.6 2 Claims
Antibacterial N^1 - (4 - methoxy - 3 - alkyl - 5 - isoxazolyl) sulfanilamides, N^1 - (4 - methoxy - 5 - alkyl-3-isoxazolyl)sulfanilamides, N^1 - (4 - methoxy - 5 - alkyl-3-isoxazolyl)sulfanilamides and their base addition salts with pharmaceutically acceptable bases are described. The N^1 - (4 - methoxy - 3 - alkyl - 5 - isoxazolyl)sulfanilamides are prepared from the sequential intermediates 4-methoxy-5-alkylisoxazole,

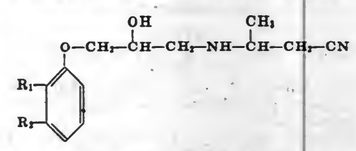


wherein R is hydrogen or lower alkyl, and 5 - amino-4-methoxy - 3 - alkylisoxazole. The N^1 - (4 - methoxy-5-alkyl - 3 - isoxazolyl)sulfanilamides are prepared from the sequential intermediates



wherein R is hydrogen or lower alkyl, and 3 - amino-4-methoxy-5-alkylisoxazole.

3,547,974
AROMATIC PROPYLAMINO CYANO COMPOUNDS
Franz Troxler, Bottmingen, and Fritz Seemann, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Filed June 3, 1968, Ser. No. 733,795
Claims priority, application Switzerland, June 5, 1967, 7,925/67
Int. Cl. C07c 121/52, 121/60
U.S. Cl. 260—465 3 Claims
The invention provides compounds of formula:



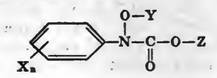
wherein each of R_1 and R_2 is chlorine, or R_1 and R_2 together are tetramethylene, and a pharmaceutically acceptable acid addition salt thereof.

The compounds are useful for inhibiting the increase of heart frequency and the cardiac contractile power produced by adrenergic stimulants.

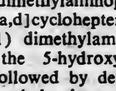
3,547,975
PROCESS FOR THE HYDRODIMERIZATION OF ACRYLIC ACID DERIVATIVES
Yael Arad, Tel Aviv, and Moshe Levy and David Vofsi, Rehovoth, and Haim Rosen, Ramat Gan, Israel, assignors to UCB (Union Chimique-Chemische Bedrijven) S.A., Saint-Gilles-Brussels, Belgium
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,852
Claims priority, application Israel, Oct. 11, 1967, 28,746
Int. Cl. C07c 121/20, 121/26, 121/00
U.S. Cl. 260—465.4 7 Claims
In the process for the hydrodimerization of acrylic acid derivatives, more particularly acrylonitrile, 1-methylacrylonitrile and lower alkyl acrylates, to form adipic acid derivatives by contacting one or two of the mentioned acrylic acid derivatives with an alkali metal amalgam in anhydrous liquid ammonia containing a source of protons dissolved therein, the improvement that phenol is used as the source of protons.

3,547,976
DERIVATIVES OF HEXAHYDRO-4,7-METHANOINDAN-2-CARBOXYLIC ACID
Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware
No Drawing. Filed July 17, 1967, Ser. No. 653,648
Int. Cl. C07c 93/16
U.S. Cl. 260—468 2 Claims
Dialkylaminoalkyl amides, esters, and thioesters of hexahydro-4,7-methanoindan-2-carboxylic acid are described herein. They possess anti-bacterial, anti-protozoal, anti-fungal, anti-algal, and anti-inflammatory activity. The compounds are prepared from the indan-2-carboxylic acid or the corresponding acid chloride.

3,547,977
NOVEL CARBANILATES
Sidney B. Richter, Chicago, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Oct. 27, 1967, Ser. No. 678,530
Int. Cl. C07c 101/44
U.S. Cl. 260—471 18 Claims
A compound of the formula



wherein n is an integer of from 0 to 5; X is selected from halogen, an aliphatic radical, nitro, acyl, acyloxy, hydroxy and alkoxy; Y is selected from the group consisting of hydrogen, alkyl, phenyl and a carbamoyl radical of the formula



wherein R_1 and R_2 independently are selected from the group consisting of hydrogen, alkyl and phenyl; and Z is a member selected from the group consisting of an aliphatic radical, a cycloaliphatic radical, aryl and aralkyl.

3,547,978
PROCESS FOR THE PRODUCTION OF ARYL BENZOATE ESTERS
Anita H. Lewin, Staten Island, N.Y., and Theodore Cohen, Pittsburgh, Pa., assignors to Research Corporation, New York, N.Y., a nonprofit corporation of New York
No Drawing. Filed Sept. 2, 1966, Ser. No. 576,813
Int. Cl. C07c 69/78
U.S. Cl. 260—476 6 Claims
Aryl benzoate esters are prepared by heating a mixture of cuprous benzoate (or cuprous oxide and benzoic anhydride) and an aryl halide in the presence of a solvent.

3,547,979
HERBICIDAL CARBAMOYLOXYPHENYL N-ALKOXYUREAS
Richard K. Brantley, Westminster, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,060
Int. Cl. C07c 127/18
U.S. Cl. 260—479 2 Claims
The carbamoyloxyphenyl N-alkoxy ureas such as 1-[m-(t-butylcarbamoyloxy)phenyl] - 3 - methoxy-3-methylurea are useful as selective herbicides.

3,547,980
3-CARBAMOYLOXY DERIVATIVES OF 5-(TERTIARYAMINOPROPYLIDENE) - 5H - DIBENZO[a,d] CYCLOHEPTENES
Edward L. Engelhardt, Gwyneed Valley, and Mark B. Freedman, Oreland, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed June 23, 1967, Ser. No. 648,198
Int. Cl. C07c 125/06
U.S. Cl. 260—482 7 Claims
The new tranquilizer compounds disclosed herein include carbamoyloxy derivatives of 5-(tertiaryaminopropylidene)-5H-dibenzo[a,d]cycloheptenes, as well as the corresponding 10,11-dihydro derivatives thereof. These compounds are prepared from 2-(4-methoxyphenethyl) benzoyl chloride by reaction with stannic chloride to produce 3-methoxy-10,11 - dihydro - 5H - dibenzo[a,d] cyclohepten-5-one; converting said 5-keto compound to 3-hydroxy-5 - (3 - dimethylaminopropylidene) - 10,11-dihydro-5H-dizenzo[a,d]cycloheptene by reaction in either order with (1) dimethylaminopropyl magnesium chloride to form the 5-hydroxy-5-(3-dimethylaminopropyl) derivative followed by dehydration to the corresponding 5-(3-dimethylaminopropylidene) derivative and (2) cleavage of the 3-methoxy substituent (with pyridine hydrochloride in the case of the 10,11-unsaturated compound) to produce the desired 3-hydroxy compound and reaction of the 3-hydroxy-10,11-dihydro-5-(3-dimethylaminopropylidene) - 5H - dibenzo[a,d]cycloheptene with methyl isocyanate to produce the desired 3-carbamoyloxy derivative.

3,547,981
PROCESS FOR PREPARING ALKYL MUCONATES AND MALEATES
Gian Paolo Chiusoli, Novara, Carlo Venturello, Turin, Mario Ferraris, Novara, and Sergio Merzoni, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy
No Drawing. Filed July 24, 1967, Ser. No. 655,327
Claims priority, application Italy, July 27, 1966, 17,384/66; Apr. 18, 1967, 15,061A/67
Int. Cl. C07c 69/52, 69/60
U.S. Cl. 260—485 5 Claims
Described is a process for preparing alkyl muconates and maleates from acetylene, carbon monoxide and methanol or ethanol. The process is characterized in that the reaction is carried out in alcoholic solution of thiourea and of a palladium halide, selected from $PdCl_2$, $PdBr_2$, PdI_2, at temperatures from 0° to 30° C. and under atmospheric pressure.

3,547,982
BENZYLIC OXIDATION PROCESS FOR PREPARATION OF ARYLALKYL ESTERS
James E. McKeon, Charleston, and David R. Bryant, South Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Mar. 13, 1967, Ser. No. 622,435
Int. Cl. C07c 69/24, 69/14
U.S. Cl. 260—488 13 Claims
A liquid phase process in which an aromaticaliphatic compound having a benzylic hydrogen atom is contacted with an oxidizing agent and a saturated aliphatic alcohol or an organic carboxylic acid free of olefinic or acetylenic unsaturation, in the presence of Pd(II) as catalyst, thereby oxidizing the aromaticaliphatic compound at the benzylic carbon atom. The rate of the reaction is increased by the addition of certain catalyst modifiers, especially compounds of tin and phosphorus.

3,547,983
PREPARATION OF UNSATURATED ESTERS
Henry O. Mottern, Far Hills, and Victor A. Sims, Bayonne, N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
No Drawing. Filed June 29, 1967, Ser. No. 653,599
Int. Cl. C07c 67/00, 69/14
U.S. Cl. 260—488 7 Claims
Vinyl acetate is produced from ethane, acetic acid and oxygen.

3,547,984
OXIDATION OF OLEFINS WITH A CARBOLLYL COMPLEX OF A GROUP VIII METAL
Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed May 3, 1968, Ser. No. 726,437
Int. Cl. C07c 67/04
U.S. Cl. 260—497 11 Claims
The invention comprises the use of carbollyl complexes of Group VIII metals as catalysts for oxidation of ethylenically unsaturated compounds to more valuable chemicals including carbonyls such as carboxylic acids, aldehydes, ketones as well as carboxylate esters of unsaturated alcohols, ketals, acetals and unsaturated ethers. The carbollyl ligand is highly electrophilic and imparts high oxidation states to the Group VIII metals and stabilizes the higher oxidation states of transition metals, thereby activating these metals for catalysis of oxidative reactions. Homogeneous or heterogeneous catalysis in liquid or vapor phase is contemplated in the invention.

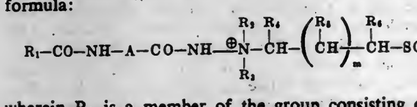
3,547,985

UNSATURATED SULPHONIC ACID BETAINES

Heinrich Rinkler and Horst Wieden, Dormagen, Hugo Wilms, Leverkusen, and Günther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Feb. 23, 1966, Ser. No. 529,223
Claims priority, application Germany, Mar. 6, 1965, F 45,435
Int. Cl. C07c *143/00*
U.S. Cl. 260—501.12 8 Claims

Unsaturated sulphonic acid betaines of the general formula:



wherein R_1 is a member of the group consisting of an alkenyl and an aralkenyl radical, A is an aryl radical, R_2 and R_3 denote a lower alkyl radical, R_4, R_5, R_6 are members of groups consisting of hydrogen and a lower alkyl radical and m is 1 or 2. These products have antistatic properties and can be admixed with high polymers as antistatic agents. These products are produced by reacting an unsaturated N,N-disubstituted acid hydrazide with a sultone in an organic solvent at a temperature of about 0 to 150° C. in the presence of a polymerisation prohibitor.

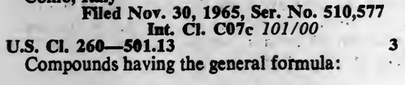
3,547,986

QUATERNARY AMMONIUM SALT COMPOSITIONS FOR MODIFYING CELLULOSE MATERIALS

Luigi Falcone, Via Sinigaglia 1; Agostino Parisi, Via Muggio 22; and Mariola Sartoris, Via T. Grossi 5, all of Como, Italy

Filed Nov. 30, 1965, Ser. No. 510,577
Int. Cl. C07c *101/00*
U.S. Cl. 260—501.13 3 Claims

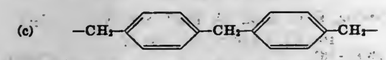
Compounds having the general formula:



wherein R is selected from the group consisting of the following radicals:

(a) $—CH_2—O—CH_2—$,

(b) $—CH_2O—CH_2CH_2—OCH_2—$, and

(c) 

R′ is hydrogen or an alkyl radical of the formula C_nH_{2n+1} with n being an integer from about 1 to 7; and R″ is an alkyl radical of the formula C_nH_{2n+1} with n being an integer of from about 1 to 7 are disclosed. These compounds have been found useful in compositions for treating cellulosic textile materials to impart superior wash and wear properties thereto.

3,547,987

PROCESS FOR THE PREPARATION OF 3-(4-ALKOXYBENZOYLACETAMINO) - 4-ALKOXYBENZENESULFONATES

Masakuni Iwama, Isaburo Inoue, and Yutaka Takei, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Nov. 8, 1968, Ser. No. 774,516
Claims priority, application Japan, Nov. 13, 1967, 42/72,678
Int. Cl. C07c *143/38*
U.S. Cl. 260—507 1 Claim

4 - alkoxybenzoylaceto - 2 - alkoxyanilide is reacted with chlorosulfonic acid in acetonitrile solvent to obtain 3-(4-alkoxybenzoylacetamido)-4-alkoxybenzenesulfonic acid which is then treated with an alkaline agent to produce the corresponding sulfonate.

3,547,988

PROCESS FOR THE PREPARATION OF DIALKALI DIHYDROXYBENZENE DISULFONATES

Frederic Roland Bean, Scottsville, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,831
Int. Cl. C07c *143/42*
U.S. Cl. 260—512 13 Claims

The present invention provides an improved process for the preparation and isolation of dialkali dihydroxybenzene disulfonates which consists of reacting an aqueous solution of an appropriate dihydroxybenzene disulfonic acid in admixture with relatively large quantities of "spent" sulfuric acid with an amount of an alakli metal (or ammonium) base sufficient to cause crystals of the dialkali dihydroxybenzene to precipitate from the solution while maintaining the liquid in a strongly acidic condition; the amount of base used being less than that required to raise the pH of the resulting acidic liquid above 2.

3,547,989

5-CARBOXY-m-PHENYLENE-DIACETIC ACID

Martin Hauser and Christine Elizabeth Kuhn, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 29, 1967, Ser. No. 651,648
Int. Cl. C07c *63/56*
U.S. Cl. 260—515 1 Claim

A new compound, i.e., 5-carboxy-m-phenylenediacetic acid, new carboxy-terminated polyester resins produced therefrom with a saturated dicarboxylic acid and a saturated diol and rocket propellant compositions containing said polyesters as binders are disclosed.

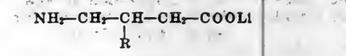
3,547,990

LITHIUM SALTS OF BUTYRIC ACID DERIVATIVES

Irvin M. Gerson, 402 Waring Road, Elkins Park, Pa. 19117, and Harry J. Prebluda, Trenton, N.J.; said Prebluda assignor to said Gerson

No Drawing. Filed Jan. 27, 1967, Ser. No. 612,104
Int. Cl. C07c *101/04*
U.S. Cl. 260—534 3 Claims

The following butyric acid derivatives and methods for their preparation are disclosed:



wherein R is either H or OH.

The compounds are useful in the elimination of psychotic effects in laboratory animals.

3,547,991

PREPARATION OF HYDROXY CARBOXYLIC ACIDS

Irwin Schlossman, Cincinnati, Ohio, and Gerald Sugerman, Trenton, N.J., assignors to Halcon International, Inc., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 289,430, July 29, 1963. This application June 29, 1967, Ser. No. 649,861
Int. Cl. C07c *59/04*
U.S. Cl. 260—535 3 Claims

Cycloalkanol oxidates are rearranged to hydroxy carboxylic acids and/or derivatives thereof in the presence of a catalytic amount of a Group VI metal compound or of a vanadium compound.

3,547,992

COF-SUBSTITUTED-N-TRIFLUOROMETHYL-PHENYLSULFENAMIDES

Erich Klauke, Cologne, and Engelbert Kuhle, Bergisch-Gladbach, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Mar. 22, 1967, Ser. No. 624,981
Claims priority, application Germany, May 27, 1966, F 49,313
Int. Cl. C07c *101/48, 63/12*
U.S. Cl. 260—544 7 Claims

COF - substituted - N - trifluoromethyl-phenylsulfenamides are obtained by the reaction of fluorocarbonyl-N-trifluoromethyl anilines with sulphenic acid halides in the presence of a tertiary organic base.

3,547,993

INTERMEDIATES FOR THE PREPARATION OF 1,3-DIHYDRO - 5 - ARYL - 2H - 1,4 - BENZODIAZEPIN-2-ONE 4-OXIDES

Stanley C. Bell, Penn Valley, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 327,667, Dec. 3, 1963, which is a continuation-in-part of application Ser. No. 283,966, May 29, 1963. This application July 28, 1967, Ser. No. 656,704
Int. Cl. C07c *103/50*
U.S. Cl. 260—545 3 Claims

2-[2-(N-acetoxyacetamido)acetamido]carboxylic acyl benzenes, valuable intermediates for the preparation of 1,3-dihydro-2H-1,4-benzodiazepin-2-ones having anti-convulsant, sedative and muscle-relaxant activity, are prepared from 2 - (2 - hydroxyaminoacetamido)-carboxylic acyl benzenes by diacylation.

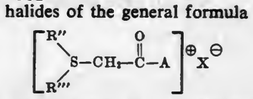
3,547,994

SULFONIUM HALIDES AND DERIVATIVES THEREOF

Kenneth Wayne Ratts, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application June 28, 1965, Ser. No. 467,750, now Patent. No. 3,478,154, dated Nov. 11, 1969. Divided and this application Nov. 13, 1967, Ser. No. 682,544
Int. Cl. C07c *103/00, 149/16, 149/34*
U.S. Cl. 260—561 9 Claims

Sulfonium halides of the general formula



wherein X is chloro, bromo or iodo, wherein R″ and R‴ are like or unlike lower alkyl, wherein A is lower alkoxy or a primary or secondary aliphatic amine residue. These compounds are useful intermediates in preparing insecticidal and fungicidal β-arylamino cinnamoyl compounds. The (N-substituted carbamoylmethyl) sulfonium halides are also fungicides.

3,547,995

PERFLUOROALKYL ETHER AMIDOAMINE OXIDES

Philip Lee Bartlett, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 621,157, Mar. 7, 1967. This application Feb. 16, 1968, Ser. No. 705,932
Int. Cl. C07c *97/02*
U.S. Cl. 260—561 5 Claims

Perfluoroalkyl ether amidoamine oxides of the formula $R_fO(C_3F_6O)_nCF(CF_3)CON(R')Q$ in which Q is selected from certain radicals containing an amine oxide group and 3–18 carbons are useful as surface active agents for water or antiwetting agents and are noncorrosive to steel.

3,547,996

Di 2 - {2 - [(β - HYDROXYPHENETHYL)AMINO] ETHYL} - 2 - THIOPSEUDOUREA AND HYDROCHLORIDE SALT THEREOF

Milon Walker Bullock, Hopewell, N.J., assignor to American Cyanamid Comapny, Stamford, Conn., a corporation of Maine

No Drawing. Original application Oct. 5, 1965, Ser. No. 493,231. Divided and this application Sept. 22, 1967, Ser. No. 669,732
Int. Cl. C07c *129/00*
U.S. Cl. 260—564 1 Claim

A method of preparing an acid salt of 2-{2-[(β-hydroxyphenethyl or substituted phenethyl)amino]ethyl}-2-thiopseudourea by contacting the corresponding α-phenyl or α-substituted phenyl 1-aziridineethanol with thiourea and a strong acid, and products resulting, is described. The products of the process are useful as intermediates in preparing anthelmintics.

3,547,997

2-(2-IMINO-ALKYL OR 2-IMINO-CYCLOALKYL)-PHENOLS FROM O-PHENYL KETOXIMES

Aram Mooradian, Schodack, and Paul E. Dupont, Menands, N.Y., assignors to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed May 9, 1967, Ser. No. 637,093
Int. Cl. C07c *119/00*
U.S. Cl. 260—566 14 Claims

2-(2-iminoalkyl)-phenols are prepared by a novel rearrangement process of reacting in the approxiate range of 20 to 40° C. an O-phenyl ketoxime with a strong acid in a non-aqueous medium. The novel 2-(2-imino-alkyl)-phenols have antibacterial properties and are readily hydrolyzed to the corresponding 2-(2-keto-alkyl)-phenols which are useful as intermediates for the preparation of benzofuran derivatives.

3,547,998

INTERMEDIATE AND PROCESS FOR THE PREPARATION OF NORTRIPTYLINE

William B. Lacefield, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed Aug. 9, 1968, Ser. No. 751,336
Int. Cl. C07c *87/28*
U.S. Cl. 260—570.5 7 Claims

Process for the preparation of nortriptyline, an antidepressive agent, comprising treating 5-hydroxy-5-(3-methylaminopropenyl)-10,11-dihydro-5H - dibenzo[a,d]cycloheptene with a hydrogen halide and catalytically selectively reducing the resulting intermediate.

3,547,999

4 - ALKYL - DIALKOXY - α - METHYL - PHENETHYLAMINES AND THEIR PHARMACOLOGICALLY-ACCEPTABLE SALTS

Alexander T. Shulgin, Lafayette, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 691,709, Dec. 19, 1967, which is a continuation-in-part of application Ser. No. 605,550, Dec. 29, 1966. This application July 14, 1969, Ser. No. 841,561
Int. Cl. C07c *87/28*
U.S. Cl. 260—570.8 5 Claims

4-alkyl-di(lower alkoxy) - α - methylphenethylamines wherein alkoxy occupies one pair of the 2,5 and 2,6 positions on the benzene ring and alkyl is from 1 to 6 carbon atoms, inclusive, and the pharmacologically-acceptable

salts of such amines. These compounds affect the nervous system of vertebrates and are particularly adapted to be employed for the study of the depressant and stimulant activity of drugs upon the central nervous system of animals.

3,548,000
PROCESS FOR THE PREPARATION OF N-[(DIFLUOROAMINO)DIFLUOROMETHYL]-N,N',N',N'',N'',1 - HEXAFLUOROMETHANETRIAMINES
John J. Hoekstra, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Aug. 31, 1962, Ser. No. 222,255
Int. Cl. C06b *15/00*; C07c *87/20, 87/22*
U.S. Cl. 260—583 1 Claim

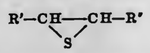
Process for preparing fluorinated cyanoguanidine which comprises passing fluorine into substantially anhydrous cyanoguanidine maintained at a temperature of from 25° C. to minus 10° C., collecting the resulting gaseous reaction products, and separating fluorinated cyanoguanidine therefrom.

3,548,001
PROCESS FOR MAKING ALKYL TERTIARY AMINES
Zdzislaw J. Dudzinski, Clifton, N.J., assignor to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed May 8, 1967, Ser. No. 636,664
Int. Cl. C07c *87/127*
U.S. Cl. 260—583 7 Claims

Tertiary aliphatic amines are prepared by the reaction of 1-chloroalkanes or 1-bromoalkanes with secondary amines in a solventless environment at a temperature at least as high as room temperature, by preferably ranging from about 100° to 160° C., and at a pressure of about ambient for high boiling reactants and about 285 to 350 p.s.i. for low boiling or gaseous reactants. An alkali is preferably also present in the reaction mixture.

3,548,002
THIOL ALKYLENE AMINES
Leonard Levine, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 10, 1968, Ser. No. 743,590
Int. Cl. C07c *149/00, 149/12, 149/24*
U.S. Cl. 260—583 8 Claims

Compounds are the reaction products of polyamines with episulfides of the formula



wherein R' is H or an alkyl, aryl or aralkyl group of 1 to about 10 carbon atoms, and R'' is H or, in combination with R', forms a cycloalkyl group of 5 or 6 carbon atoms. These compounds are useful as curing agents for epoxy resins and have demonstrated biological activity.

3,548,003
TRIS[TRIS(DIFLUORAMINO)METHOXY METHYL]PHOSPHINE OXIDE
Charles Wiener, Linden, and Ralph J. Leary, Cranford, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Feb. 18, 1964, Ser. No. 346,383
Int. Cl. C07c *87/22*
U.S. Cl. 260—584 5 Claims

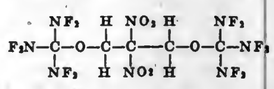
1. The compound tris[tris(difluoramino)methoxy methyl]phosphine oxide having the formula:

$$[(NF_2)_3COCH_2]_3P{=}O$$

2. Method of preparing a high energy oxidizer which comprises reacting a hydroxy alkyl phosphonium salt with perfluoroguanidine at a temperature in the range of —20° C. to 150° C. for a period to form a resulting substitution product, separating excess perfluoroguanidine from said substitution product and fluorinating the substitution product with fluorine, and recovering the resulting fluorinated product.

3,548,004
ETHERS CONTAINING DIFLUORAMINO GROUPS
Lawrence J. Engel, Dunellen, Michael H. Gianni, Roselle, and Charles Wiener, Linden, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Sept. 26, 1963, Ser. No. 312,255
Int. Cl. C07c *93/02*
U.S. Cl. 260—584 4 Claims

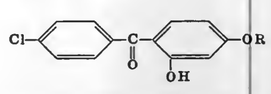
1. The compound 1,3-bis[tris(difluoramino)methoxy]-2,2-dinitropropane having the composition:



3. The method of preparing 1,3-bis[tris(difluoramino) methoxy]-2,2-dinitropropane which comprises reacting 2,2-dinitropropane-1,3-diol with perfluoroguanidine at a temperature in the range of 0° to 150° C. to form a resulting adduct thereof, separating excess perfluoroguanidine from said adduct, then fluorinating said adduct with fluorine and recovering resulting 1,3-bis[tris(difluoramino)methoxy]-2,2-dinitropropane.

3,548,005
CHLORINATED BENZOPHENONE LIGHT STABILIZERS
Jerry Peter Millionis and Frank Joseph Arthen, Jr., Franklin Township, Somerset County, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Original application May 24, 1966, Ser. No. 552,439, now Patent No. 3,395,115, dated July 30, 1968. Divided and this application Feb. 20, 1968, Ser. No. 706,801
Int. Cl. C07c *49/80*
U.S. Cl. 260—591 4 Claims

Compounds of the formula



wherein R is an alkyl radical of 8–12 carbon atoms. Such compounds are useful as light stabilizers in polymers.

3,548,006
ALDEHYDES USEFUL IN PERFUMERY
Igor Scriabine, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France, a French body corporate
No Drawing. Continuation-in-part of application Ser. No. 351,223, Mar. 11, 1964. This application Oct. 23, 1965, Ser. No. 504,058
Claims priority, application France, Mar. 15, 1963, 928,161; Nov. 13, 1964, 994,846; Apr. 27, 1965, 14,857; Oct. 19, 1965, 35,495
Int. Cl. C07c *47/52*
U.S. Cl. 260—599 2 Claims

The invention provides novel substituted hydrocinnamaldehydes of superior stability which are useful in perfumery.

3,548,007
PRODUCTION OF DIMETHYL SULFIDE
Michel Comte, Arthez de Bearn, France, assignor to Societe Nationale des Petroles d'Aquitaine, Courbevoie, France
Filed Dec. 18, 1967, Ser. No. 691,426
Claims priority, application France, Dec. 21, 1966, 88,330
Int. Cl. C07c *149/6*
U.S. Cl. 260—609 3 Claims

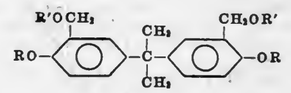
This invention relates to a process and apparatus for manufacturing dimethyl sufide and, more particularly, to a method of producing dimethyl sulfide by reacting methanol with H_2S and then again methanol with the methyl mercaptan thus formed, and by controlling the proportion of methanol so as to have no more than 5 moles percent of methyl mercaptan in the final crude product obtained after the above second reaction.

3,548,008
PREPARATION OF MERCAPTANS AND SULFIDES
Gene Ray Wilder, St. Albans, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,110
Int. Cl. C07c *149/26, 149/06*
U.S. Cl. 260—609 14 Claims

Reaction of mercaptans or hydrogen sulfide and olefinically unsaturated compounds in the presence of peroxide is promoted by an iron phthalocyanine cocatalyst.

3,548,009
ISOPROPYLIDENE DIPHENOL ETHER DERIVATIVES
Duane B. Priddy, Lansing, and Henry E. Hennis, Coleman, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 3, 1969, Ser. No. 788,957
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 4 Claims

Compounds corresponding to the formula



wherein R and R' individually represent a lower alkyl, a lower alkenyl or a benzyl group. The compounds are prepared by reacting a 2,2-bis(α-chloro-4-lower alkoxy-m-tolyl)propane with an alkali metal alcoholate of a lower alkanol, a lower alkenol or a benzyl alcohol having up to two lower alkyl substituent groups. The compounds are useful as antimicrobials.

3,548,010
PROCESS FOR THE PRODUCTION OF POLYGLYCERINE
Michio Yoshino, Kobe-shi, Tetsuo Ikeda, Amagasaki-shi, and Shigeo Mukai, Osaka-shi, Japan, assignors to Nippon Zushi Kabushiki Kaisha, Tokyo, Japan
Continuation of application Ser. No. 448,573, Apr. 9, 1965. This application May 28, 1969, Ser. No. 833,847
Claims priority, application Japan, Apr. 11, 1964, 39/20,243
Int. Cl. C07c *43/02, 43/04*
U.S. Cl. 260—615 10 Claims

Polyglycerine is produced by reacting epichlorohydrin with a concentrated aqueous alkaline solution at a temperature of 50 to 117° C. and a pH greater than 12. The reaction product contains polyglycerine and a metal salt, the latter being removed by filtration, ion exchange or electrodialysis.

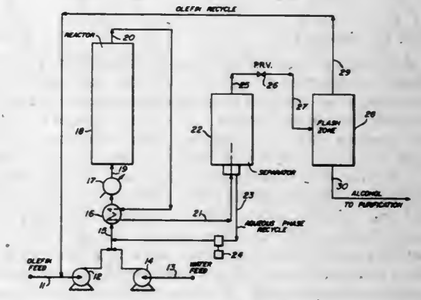
3,548,011
STRAIGHT-CHAIN ALKYLATED ALPHA AND BETA NAPHTHOLS
Harry J. Andress, Jr., Pitman, and Paul Y. C. Gee, Woodbury, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Original application Nov. 27, 1964, Ser. No. 414,426. Divided and this application Nov. 27, 1967, Ser. No. 685,962
Int. Cl. C07c *39/14*
U.S. Cl. 260—624 3 Claims

Straight-chain alkylated alpha and beta naphthols having from about 8 to about 30 carbon atoms per alkyl chain are employed as stabilizers in liquid hydrocarbon compositions.

3,548,012
IODOHYDRINS
John W. Cornforth, Sittingbourne, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 18, 1968, Ser. No. 768,889
Int. Cl. C07c *31/34*
U.S. Cl. 260—634 6 Claims

Olefin oxides are prepared by reacting olefins with iodine in the presence of water and an oxidizing agent to yield a product mixture from which the corresponding olefin oxide is recovered after treatment with base.

3,548,013
PROCESS FOR THE PRODUCTION OF ALCOHOLS
Robert J. Rosscup, Valparaiso, Ind., and Alex Zletz, Chicago Heights, and Luke A. Schaap, South Holland, Ill., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
Filed June 30, 1966, Ser. No. 561,836
Int. Cl. C07c *29/04*
U.S. Cl. 260—641 7 Claims



Liquid phase high pressure hydration of C_3 to C_6 olefins to produce the corresponding alcohols, and high pressure recovery of products including recycle of excess water.

3,548,014

PROCESS FOR REDUCING THE 2-CHLOROBUTADIENE-(1,3) AND BENZENE CONTENTS OF 1,2-DICHLOROETHANE RECOVERED FROM 1,2-DICHLORORETHANE THERMALLY CRACKED INTO VINYL CHLORIDE

Armin Jacobowsky, Knapsack, near Cologne, Peter Wirtz, Cologne-Lindenthal, Klaus Born, Bad Soden, and Gerhard Rechmeier, Kierdorf, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,783

Claims priority, application Germany, Aug. 25, 1967, K 63,202

Int. Cl. C07c *19/00, 17/38*

U.S. Cl. 260—652 5 Claims

Reduction of 2-chlorobutadiene-(1,3) and benzene contents of 1,2-dichloroethane, which is recovered from 1,2-dichloroethane subjected to thermal cracking into vinyl chloride, comprising heating dry, contaminated 1,2-dichloroethane in a closed vessel together with 0.01 to 0.5% by weight anhydrous aluminum chloride, at a temperature between 70 and 150° C. and for a preferred period of between 24 and 48 hours.

3,548,015

PURIFICATION OF TETRAFLUOROETHYLENE

Takuo Kawamura, Settsu-shi, Japan, assignor to Daikin Kogyo Kabushiki Kaisha, Osaka-shi, Japan, a juridical person of Japan

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,107

Claims priority, application Japan, Dec. 13, 1967, 42/80,206

Int. Cl. C07c *21/18*

U.S. Cl. 260—653.3 6 Claims

Process for purifying impure tetrafluoroethylene containing hexafluoropropylene as an impurity which comprises contacting said impure tetrafluoroethylene with granular soda lime.

3,548,016

CHLORINE VALUES RECOVERY AND USE

Morgan C. Sze, Garden City, N.Y., assignor to The Lummus Company, New York, N.Y., a corporation of Delaware

Filed Apr. 11, 1967, Ser. No. 630,079

Int. Cl. C01b *7/02, 7/08;* C01g *3/00;* C07c *17/06*

U.S. Cl. 260—659 6 Claims

A process for recovering chlorine values from a chlorinated hydrocarbon wherein the chlorinated hydrocarbon is burned at an elevated temperature to produce a gaseous effluent, containing chlorine and some hydrogen chloride. The gaseous effluent is contacted with a molten salt mixture containing cuprous chloride and copper oxychloride, at a temperature between 600° and 1200° F. whereby the hydrogen chloride reacts with the copper oxychloride and the chlorine reacts with the cuprous chloride producing cupric chloride. The molten salt mixture, now rich in cupric chloride, is contacted with a feed, containing a hydrocarbon and/or a chlorinated hydrocarbon at a temperature above 600° F. converting the cupric chloride to cuprous chloride while simultaneously effecting chlorination, dehydrogenation and dehydrochlorination of the feed. The cupric chloride forming and decomposition reactions may be operated such that substantially all the heat absorbed by the melt in the former reaction is absorbed in the latter reaction.

3,548,017

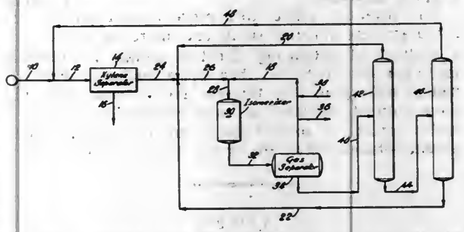
XYLENE ISOMERIZATION PROCESS

Gayle P. Hebert, Port Neches, and Jerry C. Perciful and Ambrose J. Startz, Groves, Tex., and Halsey E. Griswold, Hopewell Junction, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 25, 1968, Ser. No. 762,450

Int. Cl. C07c *15/08*

U.S. Cl. 260—668 10 Claims



A process for the production of a dimethylated C_8 aromatic hydrocarbon, and in a particularly preferred embodiment paraxylene, by the steps of initially separating a selected xylene isomer from an aromatic hydrocarbon stream containing orthoxylene, metaxylene, paraxylene and ethylbenzene thereby providing a residuum aromatic hydrocarbon stream and recovering the separated xylene isomer, isomerizing the residuum under hydroisomerization conditions thereby producing an isomerizate enriched with the separated zylene isomer, separating the isomerizate into a lighter than C_8 fraction, a C_8 fraction and a heavier than C_8 fraction, recycling the lighter than C_8 fraction and the heavier than C_8 fraction and introducing the recycle fractions along with the residuum to the isomerization step, and recycling the C_8 fraction to the separation step.

3,548,018

SELECTIVE PRODUCTION OF STILBENES AND/OR BIBENZYLS BY THE COUPLING OF TOLUENES

Madan Mohan Bhasin, Charleston, and Kenneth Dale Williamson, St. Albans, W. Va., assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,556

Int. Cl. C07c *15/18*

U.S. Cl. 260—670 18 Claims

Toluene and certain substituted toluenes are coupled using elemental sulfur as the coupling agent. Higher ratios of stilbene to bibenzyl are obtained when the coupling reaction of toluene is conducted at higher toluene-to-sulfur ratios and by the removal of hydrogen sulfide from the reaction zone. Also, higher ratios of bibenzyl to stilbene are realized by conducting the coupling reactions at lower toluene-to-sulfur ratio and in the presence of added hydrogen sulfide.

3,548,019

PROCESS FOR THE PRODUCTION OF NAPHTHALENE

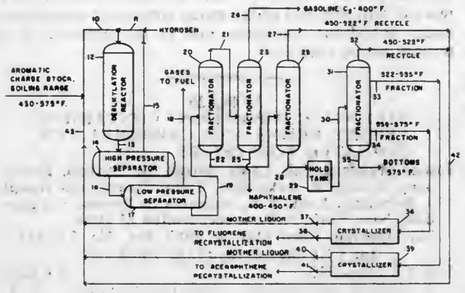
John A. Hedge, Devon, Wilmington, and Laurence F. Schmoyer, Newark, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed Apr. 22, 1968, Ser. No. 723,106

Int. Cl. C07c *5/22, 7/00, 3/58*

U.S. Cl. 260—672 5 Claims

An improved yield of naphthalene is obtained from an aromatic concentrate from catalytic gas oil, said concentrate distilling in the range of 430–575° F., by hydrodealkylation followed by separation of the products into fractions including those distilling in the range of 400–450° F. containing naphthalene, 522–555° F. fraction rich in acenaphthene and a 555–575° F. fraction rich in fluorene followed by crystallization and separation of acenaphthene and fluorene from their mother liquors and recycling the mother liquors along with other alkylnaphthalene-containing fractions to the hydrodealkylation reactor for conversion to naphthalene.



3,548,020

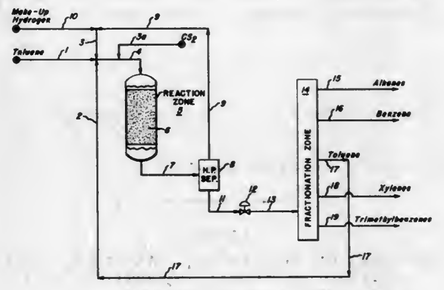
PROCESS FOR THE DISPROPORTIONATION OF PETROLEUM HYDROCARBONS

Louis C. Gutberlet, Crown Point, and Ralph J. Bertolacini, Chesterton, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Continuation-in-part of application Ser. No. 672,293, Oct. 2, 1967. This application Oct. 29, 1969, Ser. No. 872,155

Int. Cl. C07c *3/62*

U.S. Cl. 260—672 19 Claims



Process comprises contacting petroleum hydrocarbons with a catalytic composition under suitable disproportionation conditions, said catalytic composition comprising a physical particulate mixture of component (A) and component (B). Component (A) comprises an amorphous silica-alumina support having dispersed uniformly through the matrix thereof an ultrastable, large-pore crystalline aluminosilicate material and having impregnated thereon a metal of Group VI–A, preferably molybdenum, and a metal of Group VIII, preferably cobalt; component (B) comprises Y-type molecular sieves which have been cation-exchanged with a Group VIII metal, preferably nickel. The catalyst is subjected to a sulfur-providing compound to inhibit demethanation.

3,548,021

PRODUCTION OF PARAXYLENE

Donald N. Brattesani, La Habra, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed June 27, 1968, Ser. No. 740,489

Int. Cl. C07c *5/22*

U.S. Cl. 260—673.5 7 Claims

Paraxylene is obtained in a good yield by the oxidative dimerization of isobutylene using a Group VIII noble metal in an elevated oxidation state and a redox agent and oxygen to maintain elevated oxidation state of the Group VIII metal. In a specific embodiment, isobutylene and oxygen are contacted with a catalyst comprising palladium chloride, cupric chloride and sodium acetate in an acetic acid solvent at a temperature of 300° F. Paraxylene is produced along with isobutenyl acetate and methacrolein and methacrylic acid.

3,548,022

PROCESS FOR PREPARING HEXADIENES

Masao Iwamoto, 354–1 Kamibeppo-cho, Zezo, Ohtsu-shi, Japan, and Sadao Yuguchi, 4–25 2-chome, Beppo, Ohtsu-shi, Japan

No Drawing. Filed Apr. 18, 1966, Ser. No. 543,075

Claims priority, application Japan, Apr. 22, 1965, 40/23,434; Sept. 4, 1965, 40/53,860; Nov. 19, 1965, 40/70,809

Int. Cl. C07c *3/10, 11/12*

U.S. Cl. 260—680 17 Claims

Process for preparing hexadienes which comprises reacting an alpha-olefin with a conjugated diolefinic hydrocarbon in the presence of catalyst composed of (a) a diphosphine-cobalt hydride complex and (b)(i) an organoaluminum compound, (ii) an alcohol or a phenol, or (iii) a Friedel-Craft catalyst.

3,548,023

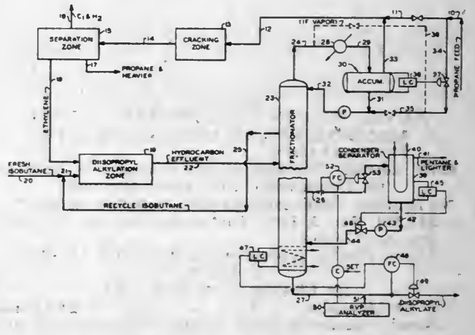
VAPOR PRESSURE CONTROL IN A FRACTIONATOR OF AN ALKYLATION PROCESS

Luther F. Mayhue, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed May 17, 1968, Ser. No. 730,066

Int. Cl. C07c *3/56;* C10g *37/06*

U.S. Cl. 260—683.53 6 Claims



A light hydrocarbon is used to control the vapor pressure of the overhead removed from a fractionator and a vapor side stream is removed from below the fractionator feed point in order to control the vapor pressure of the bottoms. The fractionator can be combined with a cracking-alkylation process wherein propane is cracked to produce ethylene, and the ethylene is reacted with isobutane to produce alkylate, and a portion of the propane feed to the cracking is used to control the vapor pressure of the fractionator overhead.

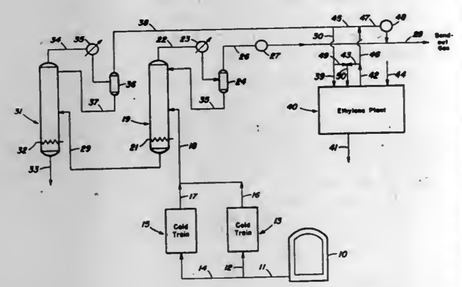
3,548,024
REGASIFICATION OF LIQUEFIED NATURAL GAS AT VARYING RATES WITH ETHYLENE RECOVERY

Ludwig Kniel, Scarsdale, N.Y., assignor to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Continuation-in-part of applications Ser. No. 316,048, Oct. 14, 1963, and Ser. No. 534,013, Mar. 14, 1966. This application June 25, 1969, Ser. No. 836,523

Int. Cl. C07c *3/08, 3/30*

U.S. Cl. 260—683 **15 Claims**



Liquefied natural gas is regasified and fractionated to provide a methane send-out gas and an ethane feed for a plant producing ethylene. The ethylene plant is designed to operate at an ethane feed rate corresponding to ethane recovered from the natural gas during a minimum send-out rate period and at times when the send-out rate is above the minimum, the excess ethane recovered from the natural gas is blended with an ethylene plant off-gas, containing methane and/or carbon monoxide and/or hydrogen, the blending being controlled to produce a blend having the approximate heating value of the methane send-out gas.

3,548,025
NOVEL SILICON - SUBSTITUTED GLYCOL MONOESTERS AND PROCESS FOR THEIR PREPARATION

Götz Koerner, Mulheim (Ruhr), Germany, assignor to Th. Goldschmidt A.G., Essen, Germany

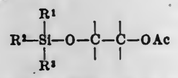
No Drawing. Continuation-in-part of application Ser. No. 511,331, Dec. 3, 1965. This application June 11, 1968, Ser. No. 736,014

Claims priority, application Germany, Dec. 17, 1964, G 42,299

Int. Cl. C08g *31/44;* **C07f** *7/04*

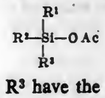
U.S. Cl. 260—824 **24 Claims**

Novel silicon-substituted glycol monoesters of the structural formula



wherein Ac is acyl of a mono- or dicarboxylic acid and R^1, R^2 and R^3 are the same or different and stand for OAc, alkyl of 1–6 carbon atoms, vinyl, aryl, siloxy or polysiloxy, wherein the remaining valences at the silicon are satisfied by alkyl or aryl, and process for their preparation.

Silicon acylates of the general formula



wherein Ac, R^1, R^2 and R^3 have the above meaning, are reacted with specified epoxy group containing compounds under anhydrous conditions and in the presence of a tertiary amine catalyst.

3,548,026
COATING COMPOSITION CONTAINING EPOXY RESINS AND CARBOXYL TERMINATED POLYESTERS

Joseph Weisfeld, Fair Lawn, Alfred M. Tringali, Parsippany, Joseph F. Ackerman, Cedar Grove, and Joseph J. Bernardo, Lodi, N.J., assignors to Inmont Corporation, New York, N.Y., a corporation of Ohio

No Drawing. Filed Mar. 5, 1968, Ser. No. 710,656

Int. Cl. C08g *39/10, 45/14;* **C09d** *3/66*

U.S. Cl. 260—835 **3 Claims**

A coating composition consisting essentially of an epoxy resin and a novel polyester having a terminal carboxyl functionality greater than 2 comprising the esterification product of (1) a hydroxy terminated polyester and (2) a carboxylic acid containing mono-anhydride composition selected from the group consisting of (a) trimellitic anhydride, (b) the reaction product obtained by the reaction of trimellitic anhydride with a 1,2-monoepoxy compound, and (c) the addition reaction product of maleic anhydride with an unsaturated fatty acid.

3,548,027
COATINGS BASED ON ACRYLIC COPOLYMERS AND AMINOPLASTS

Karl-Heinz Hornung, Ernst-Christian Schütze, and Rudolf Nehring, Marl, Germany, assignors to Chemische Werke Huels A.G., Marl, Germany

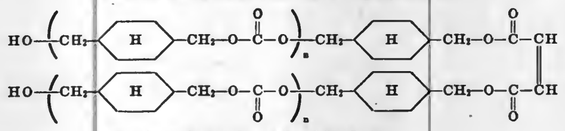
No Drawing. Filed Dec. 8, 1967, Ser. No. 688,979

Claims priority, application Germany, Dec. 10, 1966, C 40,943

Int. Cl. C08g *37/32, 37/34*

U.S. Cl. 260—850 **12 Claims**

Impact-resistant aminoplast - polyacrylate coatings wherein the polyacrylate is a copolymer of:



wherein n is 4–12, preferably 5–10.

3,548,028
METHOD OF PRODUCING NON-STICKY FILAMENTARY MATERIAL CONSISTING OF COPOLYAMIDE AND POLYOLEFIN

Yoshio Itabashi and Masao Sekii, Hofu, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha and Snia Viscosa Societá Nazionale Industria Applicazioni Viscosa S.p.A., Tokyo, Japan, and Milan, Italy

Filed Feb. 2, 1968, Ser. No. 702,743

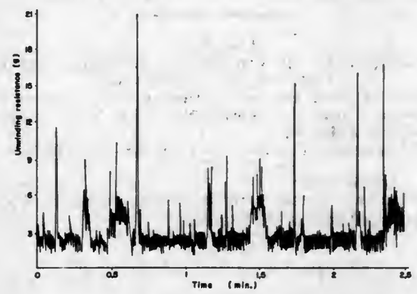
Claims priority, application Japan, Feb. 9, 1967, 42/8,394

Int. Cl. C08g *41/04*

U.S. Cl. 260—857 **13 Claims**

Non-sticky filamentary material consisting of copolyamide is prepared by dissolving polyolefin or copolyolefin in an organic solvent inert to the comonomer of said copolyamide and also said copolyamide and having a boiling point lower than the melt copolymerization temperature of said copolyamide, adding the resulting solution to

the copolymerization reaction system before the completion of said copolymerization and carrying out said melt



copolymerization in the presence of said solution to remove said solvent and melt extruding the thus copolymerized copolyamide.

3,548,029
POLYESTER RESINS CONTAINING A HYDROXYPYRIDINE

Eldon E. Stahly, Ellicott City, and Edwin W. Lard, Bowie, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

No Drawing. Filed Dec. 10, 1968, Ser. No. 782,708

Int. Cl. C08f *21/02*

U.S. Cl. 260—864 **10 Claims**

Hydroxypyrdines are added to uncured polyester resin systems to prevent gelation of those systems when they are stored at room temperature or at elevated temperatures for periods of time in excess of three years. Between 0.5 and 1.0 mole percent of the hydroxypyridines is added to the uncured polyester systems.

3,548,030
VINYL ESTER RESINS CONTAINING ESTERIFIED SECONDARY HYDROXY GROUPS

Jack W. Jernigan, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,311

Int. Cl. C08g *45/04*

U.S. Cl. 260—836 **10 Claims**

A fast curing B-staged vinyl ester resin having a stable shelf life is prepared incorporating, as a catalyst. 2,5-dimethylhexane-2,5 diperoctoate or a mixture of the peroctoate with dicumyl peroxide. The vinyl ester resin contains up to 70 percent by weight of a monomer polymerizable therewith and is chemically modified to contain free carboxylic acid groups. The B-staging is accomplished by added controlled amounts of a Group II metal oxide or hydroxide and water.

3,548,031
SHAPABLE POLYVINYL ALCOHOL COMPOSITION

Yasuji Oyanagi and Kyoichiro Shibatani, Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan, a corporation of Japan

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,504

Int. Cl. C08f *29/26, 29/30*

U.S. Cl. 260—874 **6 Claims**

A shapable polyvinyl alcohol composition comprising 70 to 99 percent by weight of a crystalline polyvinyl alcohol having a swelling degree in water of not more than 3.0 and 30 to 1 percent by weight of a non-crystalline polyvinyl alcohol having a swelling degree in water of not less than 4.0 and a weight average degree of polymerization of not less than 300.

3,548,032
HIGH IMPACT POLYSTYRENE AND AN ACRYLATE POLYMER

Gregory F. Ward, Deptford, N.J., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 20, 1967, Ser. No. 654,932

Int. Cl. C08f *41/12*

U.S. Cl. 260—876 **4 Claims**

The elongation and impact resistance of high impact polystyrenes are improved by the addition of small amounts of alkyl methacrylate polymers and their copolymers with N-vinyl pyrrolidones.

3,548,033
POLYMERIZATION OF MONOMERS WITH GROUP II-A METAL COMPLEXES

Edgar E. Bostick, Scotia, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Original application Aug. 21, 1967, Ser. No. 661,832. Divided and this application July 1, 1969, Ser. No. 849,227

Int. Cl. C08f *15/04*

U.S. Cl. 260—879 **6 Claims**

Activated olefinically-unsaturated organic compounds are polymerized with a Group II-A metal-hydrocarbon complex radical ion or dianion. The Group II-A metal-hydrocarbon complexes are produced by the reaction of a Group II-A metal with a conjugated olefinic hydrocarbon or polynuclear hydrocarbon in the presence of specific aprotic dipolar solvents. The Group II-A metal radical anions and dianions are useful in the polymerization of the activated organic compounds to yield rubbery or thermoplastic polymers which are useful as gasketing materials, coatings, molded articles, hoses, wire insulation, dielectric materials, etc.

It has been discovered that the Group II-A metals will form metal complexes with polynuclear hydrocarbons and conjugated hydrocarbons by the reaction of a Group II-A metal with the conjugated olefinic hydrocarbon or polynuclear hydrocarbon in the presence of specific aprotic dipolar solvents.

3,548,034
POLYMERIZATION OF VINYL CHLORIDE IN THE PRESENCE OF AN ACRYLIC ESTER POLYMER

Johann Cleemann, Bad Vilbel, and Gunther Meyer, Oberlar, Germany, assignors to Dynamit Nobel Aktiengesellschaft, a corporation of Germany

No Drawing. Filed June 27, 1967, Ser. No. 649,138

Claims priority, application Germany, June 30, 1966, D 50,439

Int. Cl. C08f *15/28*

U.S. Cl. 260—884 **7 Claims**

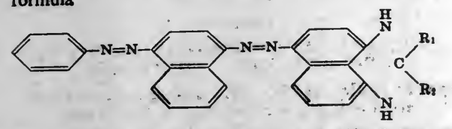
A method of manufacturing polymers on a basis of polyvinyl chloride is disclosed, the same being adapted to being worked with suitable additives, i.e., lubricants and stabilizers, for use as food packaging materials. According to the disclosure vinyl chloride is polymerized (suspension polymerization) in the presence of an emulsion of a polyacrylic ester or an acrylic ester copolymer composed of at least two different acrylic ester units or of a polyacrylic ester mixture having a solid content of 0.1 to 2 weight percent referred to the monomer material and a conventional monomer soluble catalyst at a temperature of from 50 to 80° C. and during the polymerization, either the temperature is adjusted until the pressure drops or the temperature is adjusted by 2 to 30° C. after 20 to 80% of the monomer material has been converted.

3,548,035
SUSPENSION POLYMERIZATION PROCESS

Keitaro Ohe, Kiroyuki Kaneko, and Daijiro Nishio, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,234
Claims priority, application Japan, Feb. 9, 1967, 8,351/67
Int. Cl. C08f 3/66, 7/04, 15/02
U.S. Cl. 260—89.5 9 Claims

A process for the suspension polymerization of at least a polymerizable compound having a $CH_2=C<$ group in the presence of a dispersing agent, which comprises conducting said suspension polymerization in the presence of a compound represented by the general formula



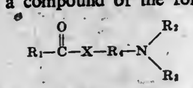
wherein R_1 and R_2 may be the same or different, and each represents a member selected from the group consisting of a hydrogen atom and a lower alkyl group.

3,548,036
POLYMONOOLEFINS CONTAINING AN AMINE ANTISTATIC ADDITIVE DISPERSED THEREIN

Heinz Pohlemann, Limburgerhof, Pfalz, Helmut Christoph, Mannheim, and Alexander Stassen, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 319,702, Oct. 29, 1963. This application Jan. 6, 1967, Ser. No. 607,668
Claims priority, application Germany, Nov. 2, 1962, 1,469,848
Int. Cl. C08f 29/12, 29/04, 29/00
U.S. Cl. 260—897 8 Claims

A polymonoolefin containing dispersed therein as an antistatic agent a compound of the formula



in which R_1 is alkyl or alkenyl of up to 40 carbon atoms, R_2 and R_3 are lower alkyl groups, R_4 is alkylene of up to 10 carbon atoms and X is one of the divalent radicals —O— and —NH—.

3,548,037
HIGH IMPACT RIGID BLENDS OF VINYL CHLORIDE RESINS AND POLYMERIZED TETRAHYDROFURAN

Patricia M. Dreyfuss and Max Peter Dreyfuss, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 694,793, Jan. 2, 1968. This application Mar. 19, 1969, Ser. No. 808,678
Int. Cl. C08f 29/24
U.S. Cl. 260—899 7 Claims

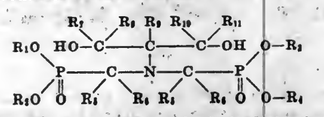
There is disclosed blends each containing as polymeric constituents from about 80% to about 97% by weight of a vinyl chloride resin and from about 3% to about 20% by weight of a rubbery polymerized tetrahydrofuran of moderate to high molecular weight and containing up to about 80% of gel. Such blends combine good processing quality and high impact strength with a good balance of chemical and solvent resistance. Optional addition of from about 0.3% to about 3% by weight of a rubber-type antioxidant stabilizes the impact strength of the blend on long continued, high temperature, high shear processing. The resinous blends have higher heat distortion temperatures and better thermal stability than similar blends containing unsaturated rubbers as impact improving agents.

3,548,038
2-BIS(DIESTERS OF PHOSPHONOMETHYL)AMINO 1,3-DIHYDROXY PROPANES

Thomas M. Beck, Hastings-on-Hudson, N.Y., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 20, 1967, Ser. No. 676,743
Int. Cl. C07f 9/40
U.S. Cl. 260—932 9 Claims

Compounds having utility as fire retardant compounds for polyurethanes of the formula:



wherein R_1, R_2, R_3 and R_4 can be independently selected from the group consisting of alkyl, haloalkyl, alkoxyalkyl, hydroxyalkyl, hydroxyalkoxyalkyl or aryl radicals; and R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11} can be independently selected from the group consisting of hydrogen, alkyl, alkoxyalkyl, hydroxyalkyl, hydroxyalkoxyalkyl, or aryl radicals and method of preparing same.

3,548,039
PROCESS FOR PRODUCING CYCLIC CATECHOL ESTERS OF PHOSPHONIC ACID

Robert Walter Wynn, Easton, Pa., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 27, 1967, Ser. No. 634,119
Int. Cl. C07d 105/04; A01n 9/36
U.S. Cl. 260—982 7 Claims

A process for producing catechol and substituted catechol cyclic esters of beta-haloethylphosphonic acid, and in particular, the catechol cyclic ester of beta-chloroethylphosphonic acid, having plant growth regulating properties, including control of apical dominance. The 2-chloroethyl ether of beta-chloroethlphosphonic acid chloride is reacted with catechol to produce 2-chloroethyl 2-hydroxyphenyl beta-chloroethylphosphonate, a novel intermediate, which is heated in the presence of a toluenesulfonic acid, monohydrate catalyst to produce the catechol cyclic ester of beta-chloroethylphosphonic acid. The 2-chloroethyl ester of beta-chloroethylphosphonic acid chloride employed as a starting material may be prepared by contacting bis(2-chloroethyl)beta-chloroethylphosphonate with phosphorous pentachloride.

3,548,040
PROCESS FOR THE PREPARATION OF BIS(BETA-CHLOROETHYL)VINYL PHOSPHONATES

Harold E. Sorstokke, New City, and Walter Stamm, Tarrytown, N.Y., and Eugene H. Uhing, Ridgewood, N.J., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

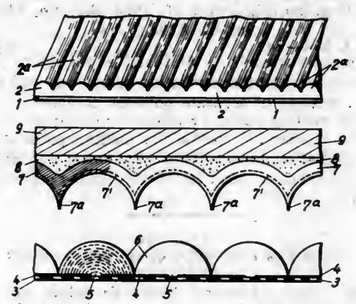
No Drawing. Filed Apr. 7, 1967, Ser. No. 629,065
Int. Cl. C07f 9/38, 9/08
U.S. Cl. 260—986 10 Claims

Olefinically unsaturated alkyl phosphonates suitable for use as copolymerizing agents, terminating agents and crosslinking agents are formed by the selected dehydrohalogenation of a beta-haloalkyl phosphonate corresponding to the product desired through the use of an improved dehydrohalogenation system. This dehydrohalogenation system comprises an alkali metal carbonate present in an amount stoichiometric to the amount of material to be dehydrohalogenated and an organic acid catalyst present in an amount of from about 0.01 to about 0.2 mole per mole of the product to be dehydrohalogenated. The dehydrohalogenation is desirably conducted at a temperature from about 90° to about 130° C. Preferred embodiments of this invention involve the use of sodium carbonate or bicarbonate and an organic acid catalyst, such as acetic acid, benzoic acid or a phenolic acid, such as nitrophenol, or chlorophenol.

3,548,041
LENS MOLD MAKING BY PLATING LENTICULATIONS ON A MASKED CONDUCTIVE SUPPORT

Richard Steding, 87 Werdohler Str., Ludenscheid, Germany

Filed July 3, 1967, Ser. No. 650,687
Claims priority, application Germany, July 7, 1966, St 25,613
Int. Cl. B29d 11/00; C23b 7/00, 7/06
U.S. Cl. 264—1 10 Claims

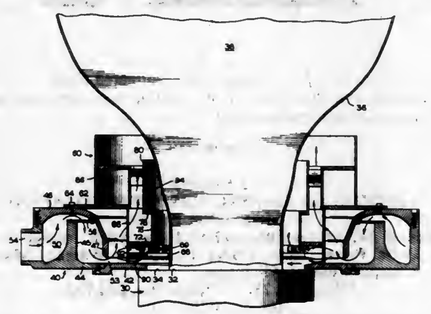


A process for manufacturing sheets of a transparent synthetic resin including a large number of lenticular elements, such sheets being widely used for achieving three dimensional effects in pictorial representation. The process involves formation of synthetic-resin-forming tools by plating steps, and application of such tools including formation of a master or prototype pattern, for the formation of transparent sheets having a large number of lenticular elements.

3,548,042
METHOD AND APPARATUS FOR COOLING EXTRUDED TUBING

Donald R. Hinrichs, Waynesboro, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed July 22, 1966, Ser. No. 567,137
Int. Cl. F28f 13/12; B29d 23/04; B29c 17/02, 25/00
U.S. Cl. 264—89 13 Claims

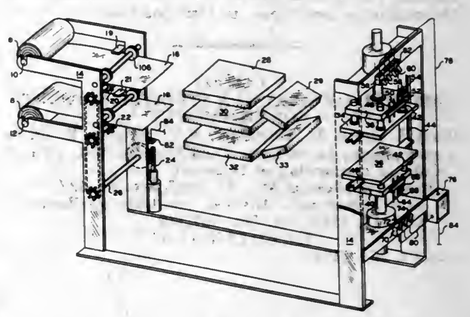


Extruded plastic tubing, before it has been stretched around a gaseous mandrel to form a bubble, is cooled by bringing into contact with its circumference two nonradial, axially spaced streams of gaseous coolant. The bubble is stabilized by balancing the rotational forces imparted to it by the two streams and by surrounding the tubing with a cylindrical wall which creates a sharp pressure differential adjacent the tubing.

3,548,043
METHOD FOR VACUUM FORMING HOLLOW ARTICLES FROM TWO SHEETS OF THERMOPLASTIC MATERIAL

Edward C. Held, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Mar. 13, 1967, Ser. No. 622,615
Int. Cl. B29c 17/04, 27/00
U.S. Cl. 264—89 8 Claims



Hollow articles are fabricated from two flat sheets by passing said sheets through a heating zone while in a spaced relationship, and thence advancing said sheets forwardly and inwardly into a closer spaced relationship between two mold halves; said mold halves then being brought together as a vacuum is pulled on each sheet to cause it to conform to the shape of its respective mold. The molds can have means to draw the sheet up to the peripheral edges of the mold so as to minimize scrap. The resulting parts are then severed from the connecting web, such as by shearing with a dull plate. Manifolds are provided in the molds to vent each hollow article when using multicavity molds. In embodiments wherein the sheets are disposed horizontally, the positioning of said sheets relative to the heaters, molds, and the like is adjusted to compensate for the unsymmetrical nature of the heat transfer and sagging. The sheets can be fed from floating rolls to aid in alignment. The entire molding cycle is operated on a combination of time and sequence control so as to eliminate wasted time and allow greater flexibility in adjusting process conditions.

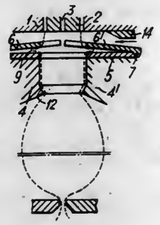
3,548,044
METHOD FOR BLOW EXTRUSION

Pierre-Henri Gallay, Neuilly-sur-Seine, France, assignor to Mecaplast S.A., Geneva, Switzerland, a Swiss body corporate

Filed Aug. 2, 1967, Ser. No. 657,923
Claims priority, application France, Aug. 4, 1966, 72,156
Int. Cl. B29c 17/07, 24/00
U.S. Cl. 264—89 1 Claim

The invention relates to a method for blow-extruding a hollow article from a thermo-plastic material in which a parison is extruded into a mold. Light pressure is ap-

plied to said parison to expand a portion thereof between the extruder and mold and this portion is gripped to form



a flange, which serves to locate the parison on the mold. The parison is then blown to form the body.

3,548,045

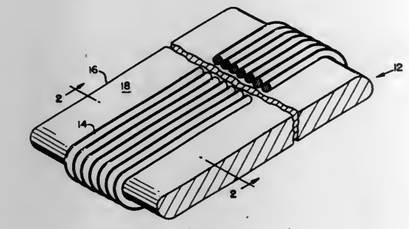
METHOD OF MAKING A STRIATED SUPPORT FOR FILAMENTS

Harry J. Green, Jr., Rochester, N.Y., assignor, by mesne assignments, to Nemonic Data Systems, Inc., Denver, Colo., a corporation of Delaware

Original application Mar. 24, 1967, Ser. No. 625,771, now abandoned. Divided and this application Oct. 17, 1969, Ser. No. 867,345

Int. Cl. C04b 35/00

U.S. Cl. 264—104 3 Claims



A substrate for mounting filaments in close, accurately spaced, parallel array. A soft wire is carefully wound upon a mandrel with successive turns tightly packed against each other. Replicas of plastic or other materials are made of the surface formed by the wire. The filaments to be supported are laid in the grooves in the replicas.

3,548,046

GRANULATION OF OIL-COATED WATER-SOLUBLE FINE PARTICLE OF POTASH MATERIAL

William E. Savage, Castro Valley, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,591

Int. Cl. B01j 2/00

U.S. Cl. 264—118 7 Claims

An improved method of forming tough granules of potash material from water-soluble fine particle of potash material by adding to the fine potash material a small amount of oil, forming fresh surfaces by suitable means, followed by compacting and finally granulating the compacted material.

3,548,047

LUBRICATION OF SPANDEX YARNS

Allen P. Jones, Jr., Charleston, and George M. Bryant, South Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Feb. 23, 1967, Ser. No. 617,800

Int. Cl. B29g 5/00

U.S. Cl. 264—136 10 Claims

A method for handling spandex yarn after wet spinning wherein the yarn is passed through an aqueous bath containing a small amount of a water-soluble, non-hydrolyzable siloxane-oxyalkylene copolymer.

3,548,048

METHOD OF PRODUCING POLYMERIC ARTICLES RESISTANT TO FIBRILLATION

James K. Hughes and Jake E. Williams, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed May 20, 1968, Ser. No. 730,614

Int. Cl. B29c 17/14

U.S. Cl. 264—147 6 Claims

A method whereby a fibrillatable polymeric product is rendered resistant to fibrillation by forming said product from a mixture of separate polymer components having different melting points or ranges and heating the product at a temperature below the melting point or range of the highest-melting polymer component and above the melting point or range of the lowest-melting polymer component.

3,548,049

PROCESS FOR SPINNING POLYVINYL CHLORIDE FIBERS

Claude Ledoux, Anthony, Haute de Seine, and Albert de Vries, Val de Marne, France, assignors to Produits Chimiques Pechiney Saint-Gobain, Paris, France

No Drawing. Filed Apr. 24, 1967, Ser. No. 638,177

Claims priority, application France, Apr. 27, 1966, 59,303; Mar. 3, 1967, 97,350

Int. Cl. B28b 3/20

U.S. Cl. 264—176 12 Claims



Polyvinyl chloride is made into elongated shapes of uniform section. Production is by melting and extrusion, use of a solvent being eliminated.

3,548,050

METHOD OF MAKING RESIN FACED METAL MOLDING DIES

Rudolf W. Mozer, Bloomfield Hills, Mich., assignor to Delta Pattern and Model Company, Warren, Mich., a corporation of Michigan

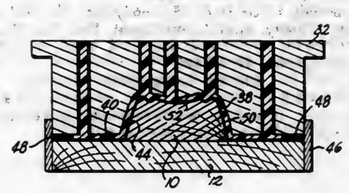
Filed Apr. 28, 1967, Ser. No. 634,732

Int. Cl. B29c 1/02

U.S. Cl. 264—227 6 Claims

Method of preparing resin faced metal dies. A metal female die is cast from a model and the die is faced

with epoxy resin by injecting said resin between the die and the model under conditions such that the resin adheres to the face of the female die but is separable from the model. The metal male die is cast by using the female



die as an initial pattern and is faced with resin by injecting epoxy between the male and female dies under conditions such that the resin adheres to the male die but is separable from the female die.

3,548,051

PREPARATION OF ERYTHROCYTES FOR IMMUNOCHEMICAL DETERMINATION OF HUMAN CHORIONIC GONADOTROPIN

David Dingwall, Hamilton, Scotland, assignor to Organon Inc., West Orange, N.J., a corporation of New Jersey

No Drawing. Filed Mar. 17, 1967, Ser. No. 623,825

Claims priority, application Netherlands, Mar. 24, 1966, 6603909

Int. Cl. G01n 1/00, 33/16

U.S. Cl. 424—3 3 Claims

The invention relates to a process for improving the mechanical properties of erythrocytes serving as a carrier for antigens, by performing the last stage of the sensitisation with the antigen, preferably the last 15 hours, in the presence of formaldehyde in a concentration below 2% (weight/volume) and preferably of 0.25% at a pH between 5.5 and 8. A further subject of the invention is the process for the manufacture of tablets and other solid dosage unit forms from these erythrocytes and said solid dosage unit forms.

3,548,052

HEPARIN COMPOSITIONS AND METHODS OF USING SAME

Teow Yan Koh, Toronto, Ontario, Canada, assignor to Canada Packers Limited, Toronto, Ontario, Canada

No Drawing. Continuation-in-part of applications Ser. No. 502,532, Oct. 22, 1965, and Ser. No. 550,935, May 18, 1966, which in turn are, respectively, a continuation-in-part of application Ser. No. 406,916, Oct. 27, 1964, and Ser. No. 457,502, May 20, 1965. This application Jan. 18, 1968, Ser. No. 698,695

Int. Cl. A61j 3/07; A61k 17/18, 27/12

U.S. Cl. 424—16 8 Claims

This invention relates to intra-intestinally active heparin and to methods for formulating and administering heparin so that it is an effective anticoagulant by the intestinal route. The compositions contain at least one non-toxic physiologically acceptable dialkyl sulfoxide, preferably one which in combination with the heparin may be readily encapsulated. Representative examples are di-n-propyl sulfoxide and di-n-butyl sulfoxide. It has been discovered that the alkyl sulfoxides promote the absorption of the anticoagulant substance through the mucous membranes of mammalian animals. The compositions may also contain a fatty alcohol of chain length C_{14} to C_{24} to prolong or regulate the time period of absorption of the active anticoagulant substance from the composition. The composition may be administered in the form of solids or liquids which may be incorporated in enteric-coated tablets or capsules.

3,548,053

INTERFERON PRODUCTION

Narendra Nath Joshi, St. Laurent, Montreal, Quebec, Canada, assignor to Frank W. Horner Limited, Mount Royal, Quebec, Canada, a company of Canada

No Drawing. Filed Sept. 7, 1965, Ser. No. 485,583

Int. Cl. A61r 27/00

U.S. Cl. 424—85 12 Claims

An improved method for producing interferon which comprises incubating the tissue or cell material from which interferon is produced with a proteolytic enzyme after the first harvest of interferon has been removed therefrom. The tissue or cell material is then washed free of said proteolytic enzyme and reincubated with fresh culture medium to yield a second harvest of interferon.

3,548,054

METHOD FOR IMPROVING WEIGHT GAINS AND REDUCING GROSS LESIONS IN CHICKENS EXPOSED TO MAREK'S DISEASE

Richard E. Bowen, Brandywine Township, Hancock County, and Paul V. Lake, Greenfield, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed June 6, 1969, Ser. No. 831,228

Int. Cl. C12k 7/00, 9/60

U.S. Cl. 424—89 3 Claims

Methods for improving weight gains and reducing processing plant condemnations in chickens exposed to Marek's disease comprising administration of live avirulent Newcastle disease virus vaccine to young chicks.

3,548,055

INFECTIOUS BURSAL DISEASE VACCINE

Irwin M. Moulthrop, Salisbury, Md., assignor to Research Corporation, New York, N.Y., a non-profit corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 613,128, Feb. 1, 1967. This application May 14, 1969, Ser. No. 824,705

Int. Cl. A61k 23/00; C12k 5/00, 7/00

U.S. Cl. 424—89 5 Claims

An egg propagated vaccine for infectious bursal disease is made by passing the causative virus through embryonating eggs.

3,548,056

SKIN PROTECTING COMPOSITION CONTAINING A WATER-SOLUBLE PARTIALLY DEGRADED PROTEIN

Edward Eigen, East Brunswick, N.J., and Sidney Weiss, Levittown, Pa., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 30, 1966, Ser. No. 561,748

Int. Cl. A61l 23/00

U.S. Cl. 424—171 9 Claims

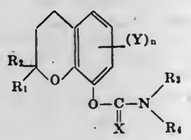
Lotion and detergent composition containing a water-soluble surface active agent and a water-soluble partially degraded protein having a gel strength of about 0 Bloom grams incorporated in an inert solvent such as water; an oil phase may also be present. The composition protects skin from irritation.

3,548,057
TOPICAL ADMINISTRATION OF VITAMIN B_{12}
Kane L. Kelley, Roselle, and Idamae G. Trenner and Robert H. Silber, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Apr. 29, 1969, Ser. No. 827,463
Int. Cl. A61k *25/02*
U.S. Cl. 424—201 2 Claims

Vitamin B_{12} is administered to animals and humans by topical application in a methyl salicylate vehicle.

3,548,058
8-CHROMANYL CARBAMATE ESTERS AS PESTICIDES
William G. Scharpf, Rocktown, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Application June 9, 1966, Ser. No. 556,259, now Patent No. 3,468,913, dated Sept. 23, 1969, which is a continuation-in-part of application Ser. No. 472,335, July 15, 1965. Divided and this application June 20, 1969, Ser. No. 840,898
Int. Cl. A61k *27/00*
U.S. Cl. 424—285 6 Claims

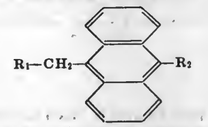
A new class of pesticides, useful for the control of Arthropoda and Nematoda, comprises 8-chromanyl carbamate esters of the formula



wherein R_1, R_2, R_3, and R_4 are each hydrogen or a lower aliphatic group; Y is hydrogen or one of a variety of groups e.g. chloro or lower alkyl; *n* is an integer of 1 to 3; and X is oxygen or sulfur. Synthesis of representative compounds of this class, their use in pesticidal compositions, and their effectiveness against insects and nematodes are described.

3,548,059
9,10-DISUBSTITUTED ANTHRACENES FOR USE AS PHOTOCONDUCTORS
Eisuke Ishida, Moriguchi-shi, and Kazuhisa Morimoto, Osaka-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
No Drawing. Filed Dec. 15, 1966, Ser. No. 601,875
Claims priority, application Japan, Dec. 16, 1965, 40/79,003, 40/79,004; Dec. 29, 1965, 41/226; June 9, 1966, 41/37,603
Int. Cl. G03g *5/00*
U.S. Cl. 96—1.5 2 Claims

The present invention is directed to novel electrophotographic materials having the formula



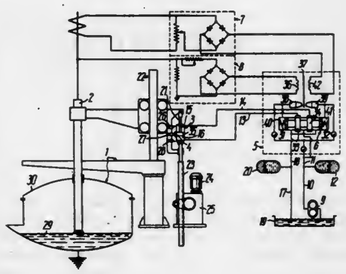
wherein R_1 represents a member selected from the group consisting of phenyl, naphthyl and benzanthryl and R_2 represents a member selected from the group consisting of hydrogen and $—CH_2R_1$.

3,548,060
PHOTOTROPIC GLASS AND METHOD
Joji Suzuki, Itami-shi, and Makoto Kume, Takarazuka-shi, Japan, assignors to Nippon Sheet Glass Co., Ltd., Doshomachi, Higashi-ku, Osaka, Japan
No Drawing. Filed Jan. 3, 1967, Ser. No. 606,530
Claims priority, application Japan, Jan. 13, 1966, 41/1,557
Int. Cl. C03c *3/14, 3/22, 3/26*
U.S. Cl. 106—47 4 Claims

A phototropic glass comprising a borate glass body comprising 30–86 percent by weight B_2O_3, 2–35% Al_2O_3 and 12–45% of at least one alkaline earth oxide and containing therein microcrystals of silver chloride or silver bromide, and copper oxide, and method of producing the phototropic glass which comprises melting a batch for the said glass body, forming and cooling the molten glass, heat treating said glass to cause the silver halide to crystallize, and cooling the glass.

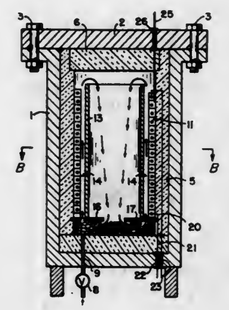
ELECTRICAL

3,548,061
POWER REGULATOR FOR ARC FURNACE
Vitaly Viktorovich Gromakov, Ulitsa Svetlanovskaya 22, Kharkov; Viktor Ivanovich Kapitanov, Ulitsa Pochtovaya 24, Istra; Moskovskoi Oblasti; Anatoly Ivanovich Kitchenko, Kozjulinskaya ulitsa 49, Kharkov, and Vladimir Mikhailovich Edemsky, near Tarasovskaya Ulitsa 108, kv. 9, Cherkizovo Moskovskoi Oblasti, U.S.S.R.
Filed Oct. 23, 1968, Ser. No. 769,902
Int. Cl. F27d *11/10*
U.S. Cl. 13—13 2 Claims



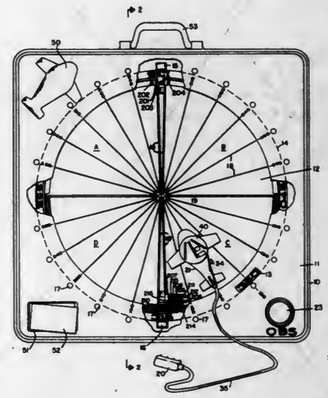
A power regulator of an arc furnace is equipped with two drives for moving the electrodes, one being a hydraulic drive whose stroke does not exceed one-half of the stroke of the electrode and the other being an electromechanical drive whose stroke is equal to that of the electrode, these drives providing for operation of the furnace under emergency process conditions and reduction of the power consumption.

3,548,062
GAS PRESSURE BONDING FURNACE
Charles W. Smith, Jr., Erie, Pa., assignor to Autoclave Engineers, Inc., Erie, Pa., a corporation of Pennsylvania
Filed June 12, 1969, Ser. No. 832,640
Int. Cl. F27d *7/06*
U.S. Cl. 13—20 7 Claims



A furnace and process for heating and cooling assemblies while maintaining them at substantially uniform temperatures. The furnace comprises an outer sealable shell capable of containing superatmospheric pressures. Within the shell there is an insulating wall. Electrical heating means are disposed adjacent the insulating wall. A baffle is disposed between the workspace of the furnace and the heating means forming a convection channel with the insulating wall. The convection channel is in communication with the workspace at the top and bottom of the furnace. During heating of the furnace, superatmospheric gases move through the convection channel and thence through the interior of the furnace maintaining the temperature throughout the furnace substantially uniform.

3,548,063
NAVIGATION TRAINING DEVICE
Harry E. Bryan, 2817 Fondren, Dallas, Tex. 75205
Filed Apr. 29, 1968, Ser. No. 724,705
Int. Cl. G09b *9/08*
U.S. Cl. 35—10.2 11 Claims

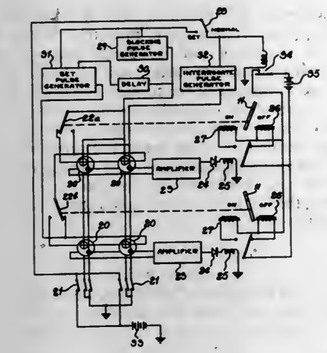


Disclosed is a navigation training device for use in teaching the principles and proper use of omnirange radio navigation. The device includes a rotatable disc simulating an omnirange with a VOR station located at its center. The disc is divided into six distinct sectors, each connected with appropriate electrical circuitry which is independently connected with a voltage source by a model aircraft carrying a display meter. The display meter duplicates information which would be displayed in the cockpit of a real aircraft in the same position relative to a real VOR station. Also disclosed is a teaching method including the use of printed instruction cards for instructing the student in the proper operation of the training device.

3,548,064
CONTROL SYSTEM FOR ORGANS AND SIMILAR MUSICAL INSTRUMENTS UTILIZING MEMORY STORAGE OF DESIRED STOP COMBINATIONS
Paul B. Oncley, 17833 3rd Ave. SW, Seattle, Wash.
Filed Dec. 15, 1966, Ser. No. 602,050
Int. Cl. G10h *1/00*
U.S. Cl. 84—1.01 5 Claims

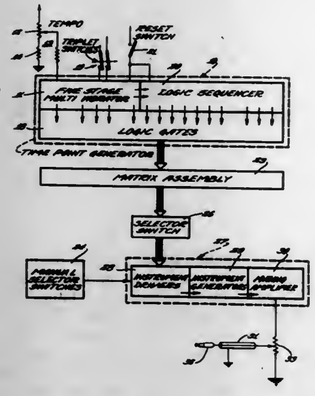
A control system for organs and similar musical instruments of the type having a plurality of tone producing ele-

ments wherein a memory matrix of multiple aperture cores serves as a prestored memory of tone combinations which



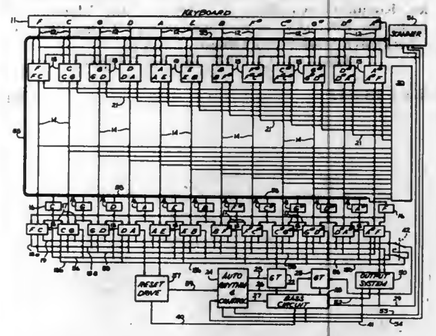
will drive the desired stops to a preset combination on command of the performer.

3,548,065
AUTOMATIC RHYTHM SYSTEM WITH SELECTABLE PLURAL MUSICAL ARRANGEMENTS
Alfred B. Freeman, Skokie, Ill., assignor to Chicago Musical Instrument Co., Chicago, Ill., a corporation of Delaware
Filed Apr. 8, 1968, Ser. No. 719,474
Int. Cl. G10f 1/00; G10h 1/00, 5/00
U.S. Cl. 84—1.03 **11 Claims**



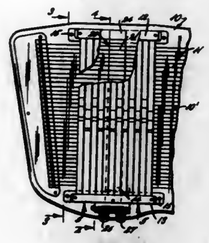
An electronic musical rhythm-producing device includes a polystage multivibrator for producing pulse signal information at a predetermined frequency and spacing, an electronic sequencer having input terminals connected to said polystage multivibrator for receiving said pulse signal information and further having a plurality of output terminals, sound generator means, and connecting means including logic gates, a resistor matrix assembly, and a selector switch connected between certain ones of said plurality of outputs of the logic sequencer and certain ones of the outputs of the polystage multivibrator and to the sound generator means for rendering the sound generator means sequentially operative in response to the polystage multivibrator and the logic sequencer. Player operated manual switches connected to the sound generator means are also provided.

3,548,066
PLURAL MODE AUTOMATIC BASS NOTE SYSTEM FOR MUSICAL CHORDS WITH AUTOMATIC RHYTHM DEVICE
Alfred B. Freeman, 20418 Seaboard Rd., Malibu, Calif.
Filed July 29, 1968, Ser. No. 748,245
Int. Cl. G10h 1/00, 5/02
U.S. Cl. 84—1.03 **17 Claims**



Apparatus for automatically playing bass parts to accompany manually played chords which has 12 drivers responsive to operation of manual playing keys for notes in musical fifths relation, inhibiting links between drivers restricting operation to one at a time, tone signal keyers responsive to driver operation to individually key corresponding notes in perfect fifth relation, a bass divider and bass keyer, and means gating the keyed tone signals one at a time to the bass divider and driving the bass keyer whereby the root and fifth parts of the chord being played are normally sounded alternately in the bass. The apparatus further includes sensing and switching means for changing the responsiveness of the drivers and operation of the gating means for different modes of operation.

3,548,067
DETACHABLE ELECTROMAGNETIC PICKUP AND CIRCUIT FOR STRINGED MUSICAL INSTRUMENT
Glen R. Peterson, Jr., Summit, N.J., assignor to Oscar Schmidt-International, Inc., Union, N.J.
Filed Sept. 27, 1968, Ser. No. 763,140
Int. Cl. G10d 1/12, 5/00
U.S. Cl. 84—1.16 **3 Claims**



An electromagnetic pickup for rapid connection to or disconnection from a stringed instrument of the zither type having a chord bar bridge supported at the sides of the strings has an elongated electromagnetic bar for positioning beneath the strings, the bar having tabs for frictional retention by the ends of the chord bar bridge and a control connected to one of the tabs with leads to the electromagnetic bar.

3,548,068
FOOT-OPERATED PERCUSSION MUSICAL INSTRUMENT
Josephus B. Thompson, Covington, Ohio, by K. E. Stade, Administrator of said Josephus B. Thompson, deceased, assignor to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York
Filed Nov. 18, 1968, Ser. No. 776,834
Int. Cl. G10d 13/00
U.S. Cl. 84—422 **3 Claims**



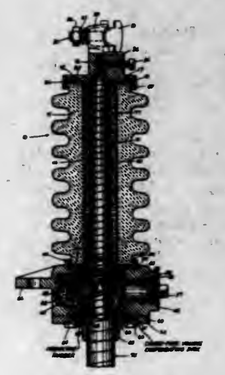
The disclosure relates to a foot-operated percussion musical instrument, and more particularly to such an instrument of the cymbal type and which is conventionally referred to as a "hi-hat". The foot-pedal portion of the hi-hat percussion instrument, and of related percussion instruments such as foot-pedal drum beaters for bass drums, incorporates a heel which is rapidly mounted without the use of screws or any other threaded fasteners. Furthermore, the heel is at all times fully pivotable relative to other portions of the foot pedal, which creates a more flexible operation and insures that the heel will firmly seat upon all types of underlying support surfaces despite irregularities thereon. Such pivotal heel cooperates with a spur element in preventing the instrument from creeping. The hi-hat percussion instrument is further characterized by the use of a coupling or plug element incorporating first and second cooperating setscrews which are respectively adapted to lock in position a threaded pull rod and a crossmember connected to the foot pedal, the setscrews being operated when the pull rod is respectively at first and second predetermined longitudinal positions. The construction is such that a broken pull rod may be rapidly and economically replaced by the drummer, without the necessity for returning the apparatus to the factory.

3,548,069
HELICAL EARTH
Hikoitsu Watanabe, No 5—13, 1-chome, Ehara-cho, Nakano-ku, and Sanji Genma, No. 4—8, 1-chome, Eharacho, Nakano-ku, both of Tokyo, Japan
Filed Apr. 15, 1969, Ser. No. 816,341
Claims priority, application Japan, Nov. 15, 1968, 43/83,243, Dec. 30, 1968, 43/96,493
Int. Cl. H01r 3/06
U.S. Cl. 174—7 **4 Claims**



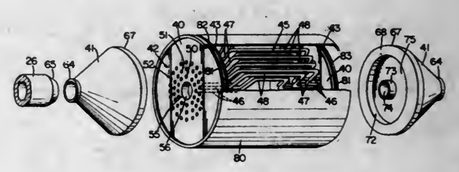
A suitable length of an electrically conductive metallic strip, bar or wire is wound into a helical earth having an engaging member formed at the lower end thereof for engagement with a driving rod for driving said earth into the ground. The driving force is applied to the upper end of the driving rod so as to drive into the ground the driving rod together with the earth and after having driven into a predetermined depth of setting, the driving rod is pulled out while the earth is set positively in place in the ground. Fabrication of the earth and the setting thereof are much facilitated and the better contact of the earth with the surrounding soil can be ensured.

3,548,070
POTHEAD WITH PRESSURIZED DIELECTRIC
Clarence G. Duenke, St. Louis, Mo., assignor to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
Filed May 6, 1969, Ser. No. 822,232
Int. Cl. H02g 15/02
U.S. Cl. 174—12 **9 Claims**



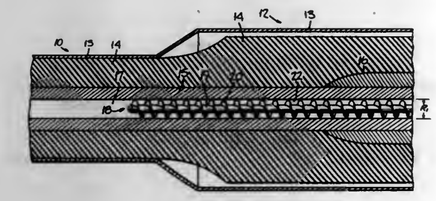
A pothead for terminating and joining electrical conductors. A special pressurized dielectric excludes air from the cable-retaining section. A rubber tube having conductive and nonconductive sections eliminates undue stress on the cable insulation sheath, and a stress-relief cone reduces dielectric stress at the junction of the conductive and nonconductive cable sections.

3,548,071
ELECTRICAL CONNECTOR
John J. Bahen, Jr., George F. Swenck, and Jesse B. Thomas, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,279
Int. Cl. H01b 9/06
U.S. Cl. 174—13 **13 Claims**



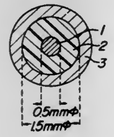
A connector for electrically connecting associated ends of a pair of elongated electrical conductors while allowing relative movement therebetween and an electrical power transmission system using such connector.

3,548,072
DEVICE AND METHOD FOR REDUCING OVERHEATING IN OIL-FILLED ELECTRIC CABLES
Gabriele Maschio, Southampton, England, assignor to Pirelli, S.p.A., Milan, Italy, a corporation of Italy
Filed Apr. 9, 1968, Ser. No. 719,982
Claims priority, application Italy, Apr. 14, 1967, 14949A/67
Int. Cl. H01b 7/34
U.S. Cl. 174—15 8 Claims



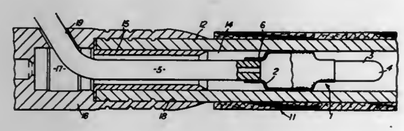
Localized overheating in electric cables in which oil flows through a duct in the conductor of the cables is reduced by increasing the speed of oil flow within the duct at the areas prone to such overheating.

3,548,073
ULTRA BROAD-BAND DELAY LINE
Tsutomu Nishino, Yokohama, and Haruo Maeda, Tokyo, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Jan. 14, 1969, Ser. No. 791,099
Claims priority, application Japan, Jan. 20, 1968, 43/3,399
Int. Cl. H01u 11/12
U.S. Cl. 174—15 2 Claims



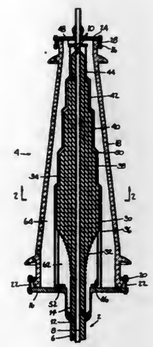
An ultra broadband delay line having an inner conductor made from a superconducting metal and an outer conductor made from a metal which does not go into a superconducting state. The delay line having such a structure is free from any variation in transmission characteristics.

3,548,074
METHOD OF AND APPARATUS FOR INSTALLING ELECTRIC POWER CABLES
John Derrick Endacott, Chislehurst, England, and Michael Savvas Papadopulos, Longfield, Kent, England, assignors to British Insulated Callender's Cables Limited, London, England
Filed June 14, 1968, Ser. No. 737,244
Claims priority, application Great Britain, June 15, 1967, 27585/67
Int. Cl. H02g 15/22
U.S. Cl. 174—19 25 Claims



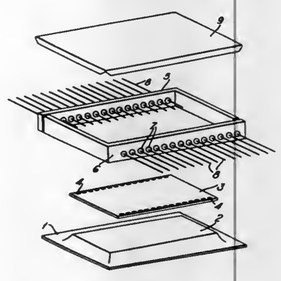
In a method of jointing or terminating an electric power cable of the kind having a hollow conductor through the duct of which a dielectric and/or cooling fluid flows, the conductor duct at an end of the cable is temporarily blocked against undue loss of fluid by inserting a mechanical blocking means into the duct. This may be done in the factory before the end of the cable is capped or on site after the cable has been uncapped before or after the exposed end of the conductor has been prepared for jointing. After a jointing ferrule has been attached to the exposed end of the conductor the blocking means is withdrawn through or into the ferrule to allow the fluid to flow from the duct into and through the ferrule.

3,548,075
SEALING ENDS OF OIL-FILLED ELECTRIC CABLES
Vittorio Buroni, Milan, Italy, assignor to Pirelli Societa per Azioni, Milan, Italy, a corporation of Italy
Filed June 3, 1968, Ser. No. 734,015
Claims priority, application Italy, July 20, 1967, 18604A/67
Int. Cl. H02g 15/24
U.S. Cl. 174—20 18 Claims



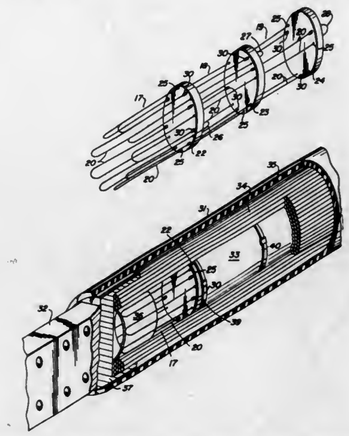
Cooling sealed ends and joints of electrical cables having a conductor with an oil conduit defined therein and a surface opening communicating with the oil conduit by providing tubing constructed to define an oil channel between the surface opening and an oil reservoir.

3,548,076
ELECTRIC CIRCUIT PACKAGE
Reginald Benjamin William Cooke, Hertfordshire, and George Ellwood, Essex, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 6, 1969, Ser. No. 847,868
Claims priority, application Great Britain, Nov. 27, 1968, 56285/68
Int. Cl. H05k 5/06
U.S. Cl. 174—52 3 Claims



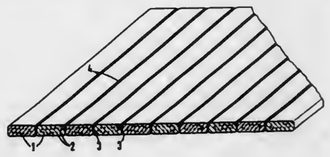
This is a package arrangement for hybrid circuits requiring a large number of leadouts. The package has a rectangular metal frame comprising two L-shaped portions, at least one portion containing a plurality of leads passing therethrough and insulated therefrom with glass to metal seals. The substrate containing the circuit is supported by a base member and connections are made between the leads and corresponding terminals on the substrate. A lid is then placed on the assembly to hermetically seal the package.

3,548,077
DIFFERENTIAL SPRING CONDUIT SUPPORT
Lawrence M. Talley, Bay Village, Ohio, assignor to The Watteredge Company, Rocky River, Ohio, a corporation of Ohio
Filed Mar. 14, 1969, Ser. No. 807,355
Int. Cl. H02g 15/00
U.S. Cl. 174—74 9 Claims



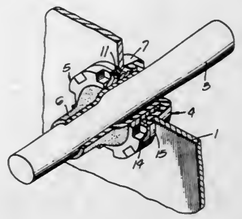
A differential spring for supporting a heavy flexible conduit such as a hose or water cooled electrical cable to prevent acute bending stress adjacent a termination. The differential spring comprises a number of hollow cylindrical sections formed of parallel spring wires joined end to end through discs. The size or number of spring wires in the sections decreases from section to section to provide decreasing bending resistance from section to section. The differential spring is placed in the hollow interior or on the exterior of the cable adjacent the end of the cable and has the end of its stiffest section connected to the termination. The differential spring dampens cable sway and offers gradually decreasing support and stiffening to the cable away from the termination.

3,548,078
BAND-SHAPED CONDUCTOR OF SUPERCONDUCTORS EMBEDDED IN A NORMAL CONDUCTOR
Cord Albrecht, Erlangen, and Hans Lamatsch, Nurnberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany
Filed Aug. 6, 1969, Ser. No. 847,918
Claims priority, application Germany, Aug. 7, 1968, P1765917.5
Int. Cl. H01v 11/08
U.S. Cl. 174—128 15 Claims



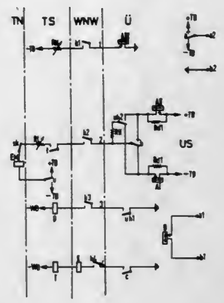
A band-shaped conductor comprises a plurality of adjacent single conductors electron beam welded to each other along welding seams therebetween. Each of the single conductors comprises normal conducting material and a plurality of superconductors embeddcd in the normal conducting material. The superconductors are spaced from the edges of the welding seams by at least several tenths of a millimeter.

3,548,079
BULKHEAD FEEDTHROUGH
Paul Jones, Half Moon Bay, and Robert Allan Wold, Fremont, Calif., assignors to Raychem Corporation, Menlo Park, Calif., a corporation of California
Filed May 16, 1969, Ser. No. 825,292
Int. Cl. H01b 17/26; F16l 5/02
U.S. Cl. 174—153 6 Claims



This invention comprises a bulkhead feedthrough device having two members, the first of which is heat recoverable and the second of which performs a wedging function. In operation, the first member is positioned such that it surrounds a conductor or other substrate and such that a portion thereof extends through an aperture in a bulkhead or the like. The first member is provided with an annular sleeve which is positioned radially adjacent to the aperture. The heat recoverable portion is then caused to recover around the substrate and the second member is inserted within the annular sleeve to force the sleeve radially outward into contact with the walls of the aperture. The construction of this device is such that installation thereof requires access to only one side of a bulkhead.

3,548,080
CIRCUIT ARRANGEMENT FOR TELEPRINTER EXCHANGE SYSTEMS
Hans Dobermann, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany
Continuation of application Ser. No. 579,064, Sept. 13, 1966, now abandoned. This application Oct. 15, 1969, Ser. No. 866,773
Int. Cl. H04l 11/02
U.S. Cl. 178—2 5 Claims



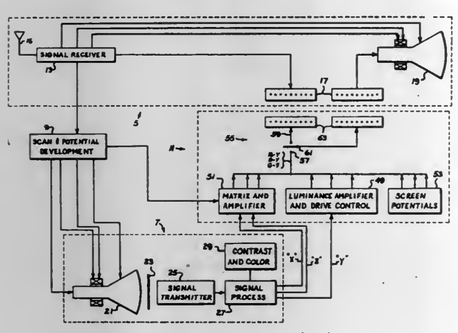
In teleprinter dial exchanges wherein a connection between a subscriber circuit and a repeater or transmission system takes place over a path network formed by connection elements such as couplers, the converter circuit in the

repeater is connected with the subscriber circuit over a single telegraph conductor over which all signals are transmitted in both directions. Repoling of the calling subscriber's circuit for message transmission is achieved over this single conductor by coordination of switching devices at the exchange and at the subscriber's circuit.

3,548,081
VISUAL DISPLAY SYSTEM

Joseph Vincent DeMarinis, William Daniel Schuster, and Robert Charles Wheeler, Batavia, N.Y., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Sept. 10, 1968, Ser. No. 758,908
Int. Cl. H04n 9/02
U.S. Cl. 178—5.2 6 Claims

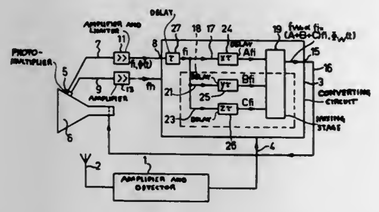


An adapter selectively couples first and second sources of signals representative of luminance and chrominance information derived from transmitted signals and photographic film directly to a color image reproducer of an ordinary color television receiver.

3,548,082
COLOUR TELEVISION RECEIVER

Bernardus Henricus Josef Cornelissen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware. by mesne assignment

Filed Oct. 2, 1967, Ser. No. 672,144
Claims priority, application Netherlands, Oct. 1, 1966, 6613898
Int. Cl. H04n 9/24
U.S. Cl. 178—5.4 6 Claims

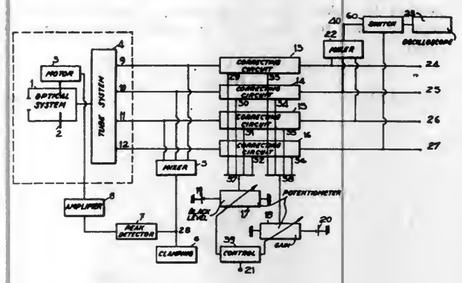


A color television receiver of the type employing an indexing display tube. The indexing signal derived from the display tube is modified in a converter to form a writing signal on which the color signal is modulated. The indexing signals are applied to the converter by a first path and by a second phase compensation path. The second path includes at least two parallel branches, and one of the branches includes a frequency divider.

3,548,083
COLOUR TELEVISION CAMERAS

Raymond Cahen, Paris, assignor to CSF-Compagnie Generale De Telegraphie Sans Fil, a corporation of France.

Filed Nov. 28, 1967, Ser. No. 686,102
Claims priority, application France, Dec. 14, 1966, 87414
Int. Cl. H04n 9/48
U.S. Cl. 178—5.4 6 Claims

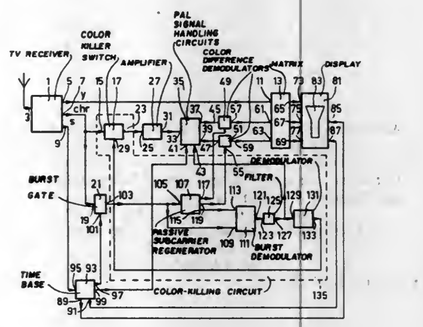


A colour television camera having a single control, possibly automated, of the black level resetting and the gain, in the correcting circuits associated with the camera tubes. The aperture of the iris is made automatically a function of the illumination of the televised scene.

3,548,084
COLOR KILLING CIRCUIT WITH A PASSIVE SUBCARRIER REGENERATOR

Klaus Kroner, Hamburg, Germany, assignor to U. S. Philips Corporation, New York, N.Y., a corporation of Delaware. by mesne assignment

Filed Mar. 20, 1968, Ser. No. 714,575
Claims priority, application Netherlands, Apr. 5, 1967, 6704809
Int. Cl. H04n 9/48
U.S. Cl. 178—5.4 4 Claims

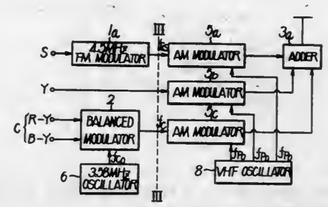


A color television receiver employs a passive subcarrier generator, and a synchronous demodulator for the burst signal. The output of the burst demodulator is filtered at a frequency of one-half of the line frequency, and then demodulated to produce a control voltage for the color-killing switch in the chrominance channel.

3,548,085
COLOR TELEVISION TRANSMISSION SYSTEMS FOR ELIMINATION OF CROSS MODULATION

Satoshi Shimada, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan, a corporation of Japan

Filed Mar. 12, 1968, Ser. No. 712,530
Claims priority, application Japan, Mar. 13, 1967, 42/15685
Int. Cl. H04n 5/62, 5/40
U.S. Cl. 178—5.4 6 Claims

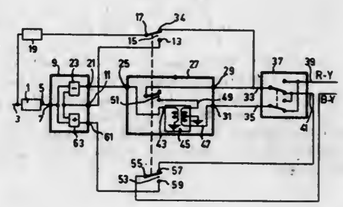


A novel color TV transmitter is provided having at least two modulators for modulating a video carrier with the FM sound signal, modulated chrominance signal, and luminance signal. The outputs of the at least two modulators are combined to make up the composite transmitted signal. In one embodiment, a combined FM sound signal and luminance signal is applied to one modulator, while the modulated chrominance signal is applied to the other modulator. In a further embodiment, the FM sound signal is applied to one modulator, and a combined luminance signal and modulated chrominance signal is applied to the other modulator. In certain embodiments, the outputs from the at least two modulators are combined in an adder circuit, while in others they are combined in a differential circuit. Still further embodiments are shown. The system of the transmitter avoids beat noise, cross talk, and intermodulation.

3,548,086
COLOUR SIGNAL SEPARATING ARRANGEMENT FOR A PAL-SECAM COLOUR TELEVISION RECEIVER

Wilhelmus Adrianus Van Gurp; Johannes Agterbosch, and Roger Minczeles, Emmasingel, Eindhoven, Netherlands, assignors to U. S. Philips Corporation, New York, N.Y., a corporation of Delaware. by mesne assignment

Filed Nov. 18, 1968, Ser. No. 776,593
Claims priority, application Netherlands, Dec. 8, 1967, 6716769
Int. Cl. H04n 9/38, 9/40, 9/42
U.S. Cl. 178—5.4 8 Claims

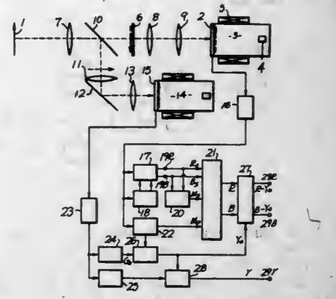


A color switching system for a television receiver for the selective reception of PAL and SECAM signals featuring a combination circuit coupled to a balancing circuit through a PAL-SECAM switch. A delay line receives the color signal and applies it to the combination circuit. An alternate switching circuit receives the output of the balancing circuit so that it has at two output terminals the same color signals regardless of the modulation system used.

3,548,087
COLOR VIDEO SIGNAL GENERATING APPARATUS

Satoshi Shimada, Tokyo, assignor to Sony Corporation, Tokyo, Japan, a corporation of Japan

Filed Feb. 14, 1969, Ser. No. 799,240
Claims priority, application Japan, Feb. 14, 1968, 43/9333
Int. Cl. H04n 9/04
U.S. Cl. 178—5.4 5 Claims

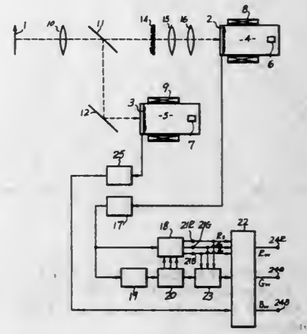


A color video signal-generating apparatus having an image pickup tube onto which is projected a striped color separated image. Narrow band primary color signals derived from the image pickup tube are caused to depend on wide band composite signals to compensate for the partial defocusing of the reproduced picture.

3,548,088
COLOR VIDEO SIGNAL GENERATING APPARATUS

Satoshi Shimada, and Yasuharu Kubota, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan

Filed Feb. 14, 1969, Ser. No. 799,241
Claims priority, application Japan, Feb. 14, 1968, 43/9334;43/9335
Int. Cl. H04n 9/04
U.S. Cl. 178—5.4 6 Claims

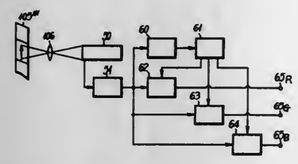


A video signal-generating apparatus employing two image pickup tubes to produce color video signals of high resolution. The output of a first image pickup tube for producing a luminance signal and a composite luminance signal component derived from a second image pickup tube for producing color video signals are combined together so that the color video signals of narrow band from the second image pickup tube are mainly compensated for by the luminance signal produced by the first image pickup tube to provide color video signals of wide band.

3,548,089
COLOR VIDEO SIGNAL GENERATING DEVICE

Toshihiko Takagi and Takashi Yamazaki, Kawasaki-shi, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co. Ltd.), Tokyo, Japan, a corporation of Japan

Continuation of application Ser. No. 568,192, July 27, 1966, now abandoned. This application Sept. 10, 1969, Ser. No. 856,851
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 1 Claim

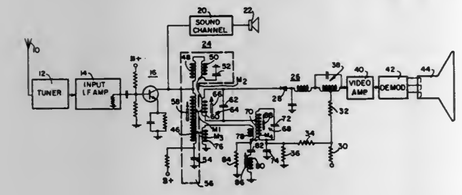


A color video signal generating device which produces a color video signal from a real image recorded on a monochrome film. A color image is passed through filters which selectively filter various colors from the image and form a pattern on a monochrome film. The monochrome film is converted into a color video signal by the apparatus of the invention.

3,548,090
SIGNAL TRANSLATING SYSTEM WHICH REJECTS A PARTICULAR FREQUENCY

Jack L. Sciurba, Norridge, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Sept. 29, 1967, Ser. No. 671,717
Int. Cl. H04n 5/14
U.S. Cl. 178—5.8 10 Claims



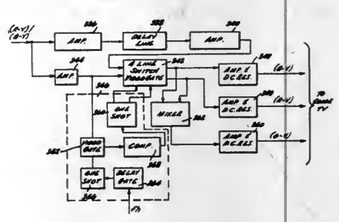
The system includes input and output inductively coupled windings tuned to frequencies within the desired passband. An additional winding is coupled in phase opposition between the output winding and a reference potential. A circuit inductively coupled to the input winding and to the additional winding couples the proper phase and amplitude of an undesired signal a particular frequency within the passband to the additional winding to cancel the corresponding undesired signal in the output winding.

3,548,091
SYNCHRONIZER FOR COLOR TELEVISION

Walter H. Bockwoldt, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed July 17, 1967, Ser. No. 653,864
Int. Cl. H04n 9/42
U.S. Cl. 178—5.4 2 Claims

A television-recording system including a color selector switch operable to alternately conduct a red (R–Y) color signal and a blue (B–Y) color signal on a line-by-line basis for recording on a single recording track, a circuit for applying an identification signal to one of the two color signals and switch means for receiving played-back color signals for alternately combining the red (R–Y) and blue (B–Y) color signals with delayed blue (B–Y) and red (R–Y) color signals, respectively, in a sequence synchronized by detecting the identification signal placed on one of the two signals whereby

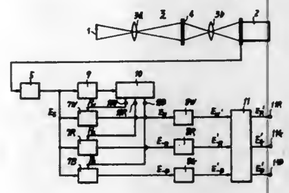


a red color signal (R–Y), a blue color signal (B–Y), and a green color signal (G–Y) are derived.

3,548,092
COLOR VIDEO SIGNAL GENERATING SYSTEM

Toshihiko Takagi, Tokyo, Japan, assignor to Nippon Columbia Company, Limited, Tokyo, Japan, a corporation of Japan

Filed July 17, 1967, Ser. No. 653,907
Claims priority, application Japan, July 19, 1966, 41/47,211, 41/47,212, 41/47,213, and 41/47,214
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 10 Claims



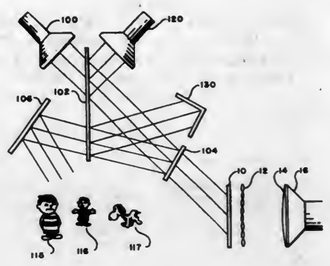
A system for producing primary color signals through the use of a single one-gun video camera. An optical filter is disposed in an optical path for the camera or for a photographic film or sheet which is to be projected by the camera. The optical filter has alternate first, second and third filter strips. The first strip passes all the light, the second strip interrupts only red light and the third strip interrupts only blue light. The photographic film or sheet is prepared by forming an image on a monochrome photographic film with the aid of a set optical filter and developing the film. The video signals produced by the camera are supplied to integrating circuits controlled by gate circuits for producing continuous color signals corresponding to the three filter elements. These continuous signals are then matrixed to derive red, green and blue primary signals.

3,548,093
HOLOGRAM TELEVISION SYSTEM AND METHOD

Winston E. Kock, c/o The Bendix Corporation Fisher Bldg., Detroit, Mich. 48202

Filed Dec. 19, 1967, Ser. No. 691,908
Int. Cl. H04n 9/54
U.S. Cl. 178—6.5 20 Claims

This invention relates to a device for reducing the information content of a hologram so as to permit it to be transmitted over a narrow bandwidth. The disclosed invention employs an array of tiny lenses for expanding or enlarging tiny samples of a hologram into coarse samples which can then be

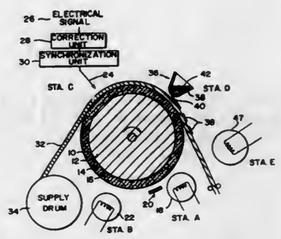


transmitted over a narrow bandwidth channel such as in a television system.

3,548,094
PIP FACSIMILE SYSTEM

Herbert N. Schlein, Beverly, Mass., assignor to Rahn Corporation, Waltham, Mass., a corporation of Massachusetts

Filed July 17, 1967, Ser. No. 653,910
Int. Cl. H04n 5/80
U.S. Cl. 178—6.6 8 Claims



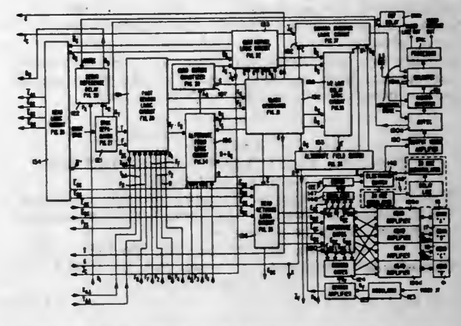
A high speed facsimile system for converting electrical signals received from a facsimile transmitter into a visible image on a variety of substances. The electrical signals are converted into and stored as a latent image through the use of the phenomenon of persistent internal polarization, from which latent image multiple visible copies may be produced.

3,548,095
APPARATUS FOR RECORDING AND REPRODUCING TELEVISION OR OTHER BROAD BAND SIGNALS WITH AN ALTERED TIME BASE EFFECT

Anthony Poulett, Menlo Park, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed Mar. 18, 1968, Ser. No. 713,902
Int. Cl. H04n 5/78, 1/22; G11b 5/00
U.S. Cl. 178—6.6 6 Claims

A method and apparatus is provided for recording and reproducing television or other broad band signals with an altered time base effect so as to provide, for example, in the case of television signals, slow motion, faster than normal motion, stop motion or reverse motion. To provide slow motion replay of television signals, successive fields of the signal are recorded separately on a plurality of magnetic mediums, and at predetermined head-to-medium writing speeds, and are played back at substantially the same head-to-medium writing speeds. On playback, each field is repeated a number of times depending upon the time base effect desired.

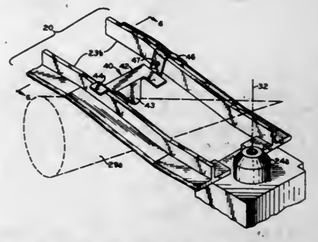


Reverse motion is provided by reversing the order of replay of the fields.

3,548,096
LIGHT BALANCING SHADE FOR FACSIMILE SCANNER

Glenn A. Reese, San Pedro, Calif., and Robert R. Goodrich and Ben W. Krone, Champaign, Ill., assignors to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware

Filed Feb. 28, 1969, Ser. No. 803,163
Int. Cl. H04n 3/06
U.S. Cl. 178—7.1 2 Claims

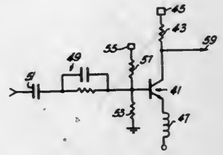


A facsimile scanner utilizes a single light source that is reflected by two concave mirrors to respective focal points positioned on a common diameter at equal distances from a longitudinal axis of rotation. The light and mirrors rotate so as to provide two alternating scanning spots of light on a document. In order that the two spots of light have equal intensity, with the accompanying stable operation, a balancing light shade is provided in the path of light having the higher intensity.

3,548,097
TRANSISTORIZED CONTROL CIRCUITRY FOR TELEVISION RECEIVER

Joseph Edward Thomas, Batavia, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware

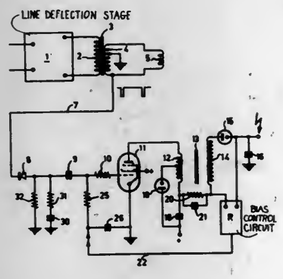
Filed Dec. 13, 1967, Ser. No. 690,146
Int. Cl. H04n 5/10
U.S. Cl. 178—7.3 5 Claims



Transistorized automatic gain control and sync separator circuitry which increases the input impedance of the sync

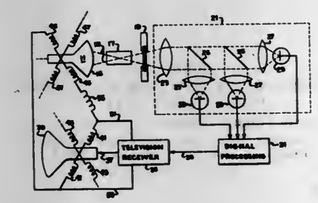
separator at high frequencies, such as random noise condition, and prevents loss of sync under conditions of high random noise level. Additional provisions are made so that adjustments of the automatic gain control will automatically change the sync separator bias to the optimum value for low level detector inputs. The increased sync separator impedance at high frequency noise level is accomplished without any high frequency loading of the video amplifier from which the sync separator signal is obtained.

3,548,098
CONTROL CIRCUIT FOR A HIGH-VOLTAGE GENERATOR TUBE
Walter Horst Ernst Spyra, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignment
Filed Feb. 20, 1968, Ser. No. 706,955
Claims priority, application Germany, Feb. 25, 1967, P41494
Int. Cl. H04n *3/18*
U.S. Cl. 178—7.5 **6 Claims**



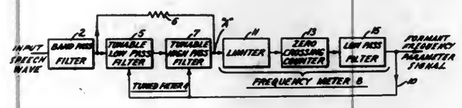
In a television circuit of the type having a line deflection stage and a separate tube stage for producing a high voltage, negative pulses from the deflection stage are applied to the grid of the high-voltage generator tube by way of a diode and a network having a short charge time constant and a relatively long discharge time constant.

3,548,099
DEFLECTION CIRCUITRY FOR COLOR REPRODUCTION SYSTEM
George Cleveland Waybright, Batavia, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed June 4, 1968, Ser. No. 734,493
Int. Cl. H04n *3/16, 5/36, 7/18*
U.S. Cl. 178—7.7 **6 Claims**



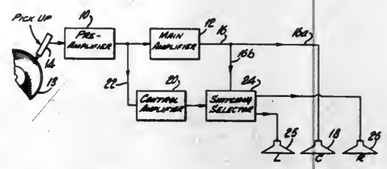
A color reproduction system includes a flying spot scanner tube to scan a frame of film, an optical-to-electrical signal transducer to provide electrical signal components representative of the image on the frame of film being scanned, which signals are suitably processed and applied to a television receiver to provide a display of the image on the film. The deflection circuitry for the flying spot scanner cathode ray tube is optimized so that the basic television receiver design is relatively unaffected.

3,548,100
FORMANT FREQUENCY EXTRACTOR
James M. Loe, Willow Grove, Pa., assignor to Philco Ford Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Jan. 25, 1968, Ser. No. 700,544
Int. Cl. G10l *1/00*
U.S. Cl. 179—1 **5 Claims**



A formant frequency extractor comprising the tandem combination of a fixed band-pass filter, a tunable low-pass filter, a tunable high pass filter, and a frequency meter which controls the tunable filters, and a frequency unselective path, typically comprising a resistor connected in shunt with the tunable filters, for adding to the signal transmitted by the tunable filters a portion of the signal transmitted thereto by the fixed band-pass filter. The shunt combination of the tunable filters and the frequency unselective path possesses a relatively flat passband characteristic which contains a peak at a frequency determined by the tuning of the tunable filters. The frequency meter produces an output signal which is determined by the frequency of the highest amplitude component of the composite input signal supplied thereto by the tunable filters and frequency unselective path and which controls the tuning of the tunable filters. Consequently the frequency extractor exhibits frequency domain hysteresis in an amount dependent on the value of the resistor.

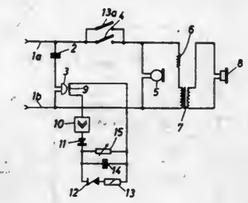
3,548,101
SIMULATED STEREO SOUND SYSTEM
Ramzi A. Shamma, 351 Broad St. Apt. B-1206, Newark, N.J.
Filed July 12, 1967, Ser. No. 652,868
Int. Cl. H04r *3/12*
U.S. Cl. 179—1 **4 Claims**



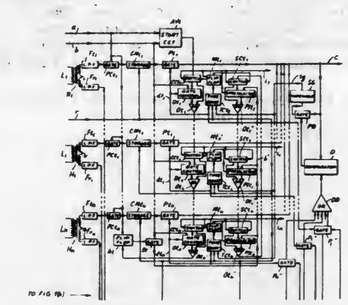
A simulated stereophonic system for audio reproduction which employs a monaural amplifier and switching selector means connected to the output of the amplifier to alternately feed either a left speaker or a right speaker, while an output is being continuously supplied to a center speaker.

3,548,102
TELEPHONIC REMOTE CONTROL ARRANGEMENT
Gustav Schaum, Leverkusen, Rudolf Kremp, Grunwald B. Munich, Johann Becker, Dinslaken, Fritz Hieber, Grunwald B., and Hans-Peter Huber, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 19, 1966, Ser. No. 602,914
Claims priority, application Germany, Dec. 30, 1965, A51,212
Int. Cl. H04m *11/00*
U.S. Cl. 179—2 **2 Claims**

A telephone ringing signal pattern decoder activates of a relay, which energizes a timing circuit to control an electric appliance over telephone lines. The timing circuit reports its status back to the calling telephone.



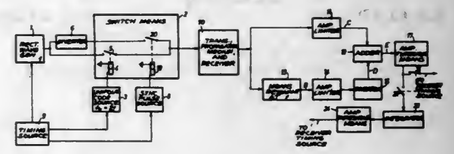
3,548,103
TIME-ALLOCATION COMMUNICATION SYSTEM
Franco Balugani, Milan; Franco Mammucari, Milan, and Isidoro Poretti, Castiglione Olona, Italy, assignors to Societa Italiana Telecommunicazioni Siemens S.p.A., Milano, Italy, a corporation of Italy
Filed May 4, 1967, Ser. No. 636,164
Claims priority, application Italy, May 5, 1966, 10169/66
Int. Cl. H04j *5/00*
U.S. Cl. 179—15 **13 Claims**



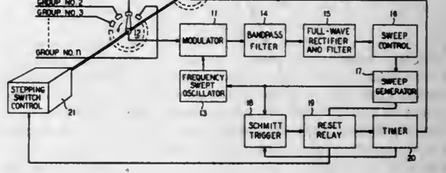
Telephone communication system wherein two groups of subscribers, associated with opposite terminals of a two-way trunk line, are selectively connectable to that trunk line for transmission or reception during a fraction of an operating cycle or frame, the maximum number of subscriber lines so connectable in any one frame being half the total number of subscribers in each group, the transmitting section of each terminal having means for establishing an outgoing talking connection from an associated subscriber line only when the level of signals originating at that subscriber exceeds, for a predetermined period, the level of incoming signals addressed to the same subscriber so as to avoid message transmission from a subscriber line whose outgoing signals are only the echoes of incoming signals.

3,548,104
METHOD OF SYNCHRONIZATION IN BINARY COMMUNICATION SYSTEMS
Karl Kuepfmueller, Darmstadt, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 8, 1967, Ser. No. 666,371
Claims priority, application Germany, Sept. 20, 1966, K60286
Int. Cl. H04j *3/06*
U.S. Cl. 179—15 **6 Claims**

A composite binary signal is produced from a single rectangular oscillation where the presence of half cycles of the oscillation represent binary "1" and absence of these half cycles represent binary "0". One or more negative or positive half cycles of the oscillation define time slots into which are inserted positive or negative synchronizing pulses respectively. The synchronizing pulse or pulses are extracted by recovering the oscillation from the composite signal, inverting this recovered oscillation, adding this inverted oscillation to the composite signal to increase the amplitude of only the synchronizing pulse or pulses, and detecting only the pulse or pulses of increased amplitude.



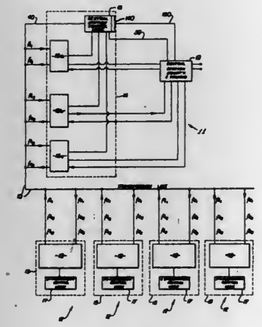
3,548,105
OVERLOAD MONITOR FOR TRANSMISSION SYSTEMS
Cleo D. Anderson, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Nov. 2, 1967, Ser. No. 680,198
Int. Cl. H04j *1/16*
U.S. Cl. 179—15 **6 Claims**



A group of frequency division multiplexed signal channels is modulated by a swept frequency signal and the resultant modulated wave is delivered to a band-pass filter which serves to pass a narrow band of frequencies. In this manner the narrow band of the filter is effectively swept over the group of frequency multiplexed channels. A sweep control circuit controls the sweep so that the rate thereof is proportional to the difference between the power output of the filter and a preselected power threshold level. If the power output of the filter exceeds the threshold level the sweep is stopped and it remains stopped throughout the period that said threshold is exceeded. An alarm light is energized when the sweep of said narrow band over said group of channels takes longer than a given time interval.

Switching apparatus connects, in succession, a plurality of groups of frequency multiplexed channels to the modulator input where they are sequentially examined as described in a cyclic and repetitive fashion.

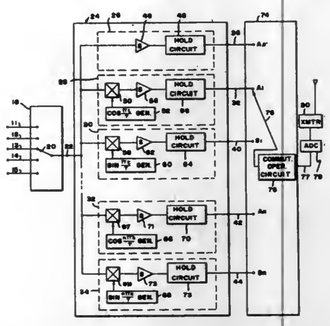
3,548,106
RURAL SUBSCRIBER TELEPHONE SYSTEM
William Keith Ross Watson, Corona Del Mar, and John F. Hunter, La Mirada, Calif., assignors to Anaconda Wire and Cable Company, New York, N.Y., a corporation of Delaware by mesne assignments
Continuation of application Ser. No. 536,907, Mar. 23, 1966, now abandoned. This application July 24, 1969, Ser. No. 847,798
Int. Cl. H04j *1/10*
U.S. Cl. 179—15 **6 Claims**



A multichannel telephone system includes a central station and multiple subscriber stations, the latter each including means operable in response to subscriber call initiation to select an unused transmission channel from a first group of transmission channels, to intelligence modulate the selected transmission mode f_t and to pass the modulated mode f_t to a transmission line; the central station including means operable in response to central station call initiation to select an unused transmission channel from a second group of transmission channels, to intelligence modulate the selected transmission mode f_r and to pass the modulated mode f_r to the line; and each subscriber station includes a demodulator to which signals f_{r1}—f_{rn} including modulated f_r are transmitted from the central station, and to which unmodulated signals f_{r1}—f_{rn} are selectively transmitted via a gate, there being logic circuitry responsive to central station call initiation to control the gate to transmit unmodulated f_r corresponding to modulated f_r the central station including means to receive modulated mode f_t from the line and to demodulate the received and modulated mode f_t.

3,548,107
SIGNAL PROCESSING APPARATUS FOR MULTIPLEX TRANSMISSION
James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of Lawrence Y. Lim, Monterey Park, Calif.
Filed Apr. 30, 1968, Ser. No. 725,432
Int. Cl. H04j *3/00*
U.S. Cl. 179—15 **7 Claims**

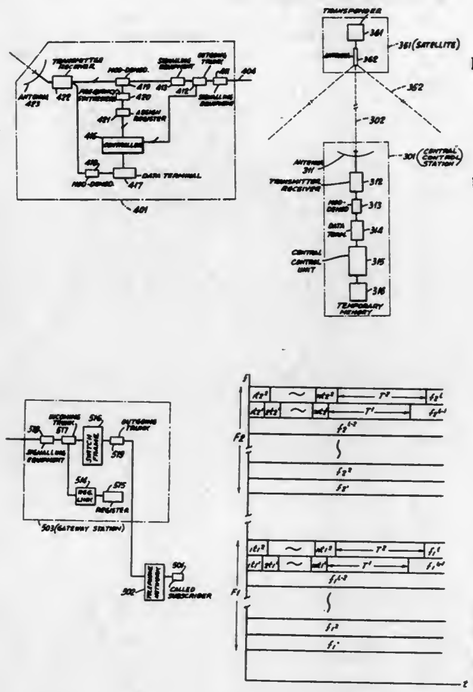
Apparatus is described for sampling an input signal during a sampling period by deriving its Fourier components to allow reconstruction by a Fourier approximation. The sampling apparatus comprises many coefficient generators, each of which modulates the input signal by a sinusoidal wave and



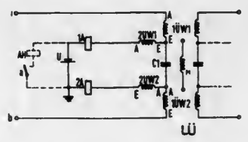
integrates the product over the sampling period to obtain a Fourier component coefficient.

3,548,108
TELEGRAPH AND TELEPHONE SWITCHING SYSTEM UTILIZING A STATIONARY SATELLITE
Shigeki Yamato, Yasushi Maruyama, and Shunji Tashiro, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan, a corporation of Japan
Continuation of application Ser. No. 530,270, Feb. 28, 1966, now abandoned. This application Nov. 29, 1968, Ser. No. 781,699
Claims priority, application Japan, Feb. 27, 1965, 40/11,269
Int. Cl. H04b *7/20*
U.S. Cl. 179—15 **5 Claims**

A multiaccess satellite communication system comprising a stationary satellite relay station having a transponder mounted therein, and a central station and a plurality of earth stations both located within the service area of the relay station is provided. The transponder has a capacity corresponding to a plurality of channels, which are divided into communication channels and control channels, the communication channels being shared by the earth stations and the control channels being individually assigned to the respective earth stations for their control data communication with the central station. An address signal from one of the earth stations indicating the need of communication with another station is transmitted in its associated control channel to the central station, and in response thereto the central station specifies one of the communication channels on the basis of stored data concerning the condition of use of the communication channels and transmits this instruction to the earth stations involved through the control channels. The earth station then effects communication with said another earth station in one of the communication channels specified by the central station.

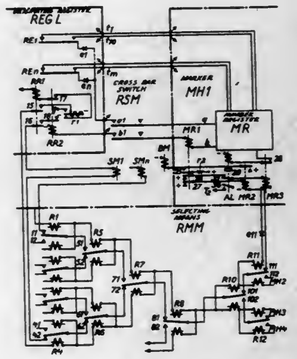


3,548,109
TELEPHONE RELAY AND ASSOCIATED CIRCUIT
Josef Schnurr, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, and Munich, Germany
Filed Sept. 18, 1967, Ser. No. 668,345
Claims priority, application Germany, Sept. 19, 1966, S105932
Int. Cl. H04m *19/00*
U.S. Cl. 179—16 **2 Claims**



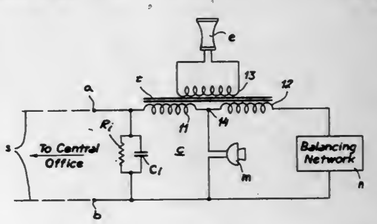
A relay structure and corresponding relay circuit for use in a voice telephone communication system wherein evaluation means are responsive to interruptions in transmission line loop current, but not to alternating current signals present in the transmission line. The evaluation means comprise a relay structure which functions as a choke coil to block alternating current signals. However, interruptions in the line loop current are evaluated by the relay structure to effect desired associated relay contact actuation correctly indicative of transmission line loop current interruption, without having to use capacitor and rectifier elements in the relay circuit to ensure accuracy.

3,548,110
SELECTING MEANS
Karl Axel Lundkvist, Stockholm, Sweden, assignor to Telefonaktiebolaget LM Ericson, Stockholm, Sweden, a Swedish corporation
Filed May 19, 1967, Ser. No. 639,760
Claims priority, application Sweden, June 2, 1966, 7,529/1966
Int. Cl. H04q *3/00*
U.S. Cl. 179—18 **6 Claims**



In order to avoid the use of relay chains and pulse-stepping means for the selection of lines, markers, analyzers and registers in automatic telephone exchanges, there is disclosed apparatus for selecting one and only one of a plurality of electric circuits. The selected circuit is marked via its own marking circuit. Selection and marking are carried out in one step through the agency of bistable circuits.

3,548,111
IMPEDANCE-MATCHING ARRANGEMENT FOR TELEPHONE CIRCUIT
Erberto Kleissl and Pasquale Postorino, Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Piazzale Zavattari, Milan, Italy, a corporation of Italy
Filed Oct. 22, 1968, Ser. No. 769,490
Claims priority, application Italy, Oct. 23, 1967, 21,892A/67
Int. Cl. H04m *1/58*
U.S. Cl. 179—81 **7 Claims**

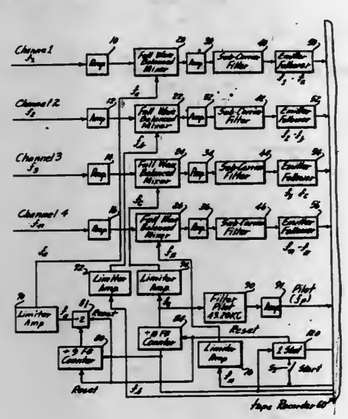


Telephone system wherein a coupling circuit including a hybrid coil connects a receiver and a transmitter in conjugate relationship between a two-wire subscriber line and a balancing network, a predominantly capacitive shunt being bridged across the coupling network or across all or part of its hybrid coil to assimilate the impedance of the coupling circuit to that of the subscriber line at least in the upper region of a band of voice frequencies to be transmitted over the line.

3,548,112
MULTICHANNEL COHERENT AMPLITUDE RECORDING AND REPRODUCING SYSTEM

Roy E. Pearson, Seattle, Wash., assignor by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Sept. 13, 1968, Ser. No. 761,019
Int. Cl. G11b 5/00
U.S. Cl. 179—100.1 1 Claim

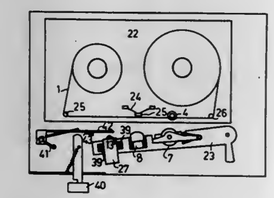


The invention avoids coherent phase errors in a multichannel recording and reproducing system by heterodyning the input information channels with heterodyning frequencies derived from a common base frequency. The effects of recorder tape skew, wow, and flutter are eliminated in the reproduced information by demodulating with frequencies derived from a recorded pilot frequency which is affected by tape skew, wow, and flutter to the same degree as the information channels. The effects of drift in components such as oscillators, etc., is eliminated by deriving all the heterodyning and demodulating frequencies from a common base frequency using digital techniques.

3,548,113
SHAPED PERMANENT MAGNET ERASING DEVICE FOR MAGNETIZABLE RECORD CARRIERS

Horst Althuber, Vienna, Austria, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware. by mesne assignment

Filed Feb. 5, 1968, Ser. No. 702,868
Claims priority, application Austria, Feb. 28, 1968, A 1,946/67
Int. Cl. G11b 5/22; H01f 13/00
U.S. Cl. 179—100.2 9 Claims

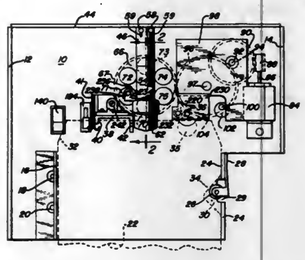


A low residual noise level magnetic tape-erasing device for use with a transducing apparatus and having a permanent magnet oriented so that the direction of its magnetization is substantially parallel to the path of tape movement. The tape is further guided for angular contact with the boundary surface of the magnet so that its movement past the magnet will effectively simulate a decreasing alternating magnetic field.

3,548,114
MAGNETIC TAPE DECK WITH SELECTIVELY MOVABLE TRANSDUCING HEAD

Leonard A. Fish, 21 W. Goetle St.; Raymond G. Stanner, 5616 S. Mozart St., Chicago, and Richard G. Kerwin, 1004 Elmhurst Road, Prospect Heights, Ill.

Filed Dec. 5, 1966, Ser. No. 599,085
Int. Cl. G11b 21/08, 23/04, 23/18
U.S. Cl. 179—100.2 1 Claim

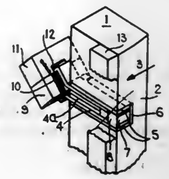


This disclosure relates to a magnetic tape deck adapted for playing either four-track or eight-track cartridges of magnetic tape. A track is selected by a plurality of cams mounted on a member which is selectively rotated by a motor, under control of a switch connected for rotation with the rotatable member. A mechanism is provided for distinguishing between four-track and eight-track cartridges, to permit positioning of the transducing head accordingly. The cartridge is movable away from the head, to disengage the drive capstan, when the device is not in use.

3,548,115
MAGNETIC HEAD WITH CONDUCTIVE GAP SPACER

Gordon George Scarrott, Welwyn Garden City, and Norman Nathan Truman, Enfield, England, assignors to International Computers Limited, London, England, a British company

Filed Oct. 18, 1968, Ser. No. 768,730
Claims priority, application Great Britain, Nov. 21, 1967, 52794/67
Int. Cl. G11b 5/12, 5/20
U.S. Cl. 179—100.2 4 Claims

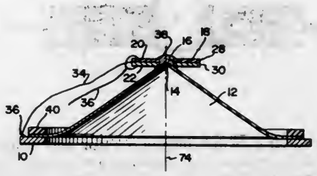


A magnetic head is described in which a single conductor is arranged at a working surface so that, in use, it lies across a track in a magnetic recording medium, such as magnetic tape, for example. In writing information on to the medium the conductor is energized by an electric current, while in reading previously recorded information, variations in the magnetic field produced as the medium is moved past the head produce corresponding variations in current in the conductor. In order to couple the head to external apparatus a matching transformer is used, and in order to increase the efficiency of the head the transformer has one winding formed integrally with the head. The conductor of the head is connected across a low inductance parallel lead arrangement which is formed into a single-turn winding on the transformer. The efficiency of the arrangement is further increased by providing ferrite, or other material of high magnetic permeability, adjacent the conductor.

3,548,116
ACOUSTIC TRANSDUCER INCLUDING PIEZOELECTRIC WAFER SOLELY SUPPORTED BY A DIAPHRAGM

Hugo W. Schafft, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Continuation of Ser. No. 557,120, June 13, 1966, now abandoned. Filed Aug. 22, 1969, Ser. No. 852,985
Filed Aug. 22, 1969, Ser. No. 852,985
Int. Cl. H04r 17/00
U.S. Cl. 179—110 3 Claims



A conversion between electrical and mechanical stimuli is accomplished in speakers and microphones by attaching a bimorph piezoelectric annular crystal at its center to the apex or axis of the speaker or microphone diaphragm. The bimorph crystal is driven in an extension mode to effect conversion of electrical signals applied to the crystal into audio signals at the diaphragm or vice versa. The attachment of the bimorph crystal at its center to the apex of the diaphragm is the sole means of attachment of the crystal.

3,548,117
WALLBRACKET FOR STANDING TELEPHONES

Knut Hugo Blomberg, Lokattsvaegen 39, Bromma, Sweden

Filed Feb. 28, 1968, Ser. No. 708,944
Int. Cl. H04m 1/11
U.S. Cl. 179—146 7 Claims



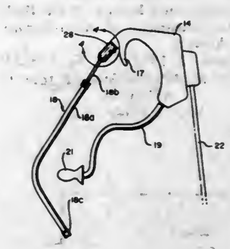
A wall bracket for a one-piece upright telephone comprises a housing secured to a wall and open at its outwardly facing side. A flap or cover hinged to the housing at its open side can be turned into an up position closing the housing or into a down position in which the cover forms a shelf for the telephone. The housing and the shelf are so dimensioned that the base or foot of the telephone can be placed upon the shelf so that the rear part of the base rests upon the shelf and the forward part extends into the housing and rests upon the bottom wall thereof thereby holding the required minimum depth of the housing to a minimum.

3,548,118
SELF-SUPPORTING HEADSET

Kenneth J. Hutchings, Soquel, Calif., assignor to Pacific Plantronics, Inc., Santa Cruz, Calif., a corporation of California

Filed July 3, 1969, Ser. No. 839,016
Int. Cl. H04m 1/05
U.S. Cl. 179—156 7 Claims

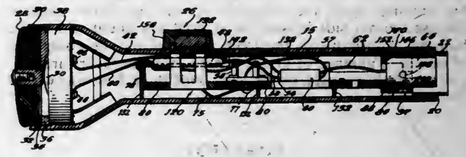
A self-supporting headset having a housing which accommodates a receiver and microphone. A flexible acoustic tube adapted to communicate between the auditory canal of the ear of the user and the receiver secured to the bottom of the housing, and an adjustable acoustic tube secured to the top of the housing with its distal end adapted to be disposed adjacent the mouth of the user to transmit sound to the microphone.



3,548,119
MICROPHONE AND MAGNETIC SWITCH ASSEMBLY

Robert C. Ramsey, Niles, and Gerrald K. Farrington, St. Joseph, Mich., assignors to Electro-Voice, Incorporated, Buchanan, Mich., a corporation of Indiana

Filed July 24, 1967, Ser. No. 655,538
Int. Cl. H04r 1/00
U.S. Cl. 179—167 8 Claims

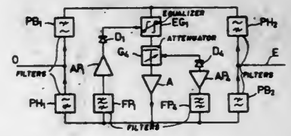


A magnetic switch assembly for a microphone having a magnetic actuator slidable on a continuous wall of the microphone casing; said actuator being directly removable; and said casing being substantially unmodified while the actuator is still releasable and retainable with respect to the casing; and said magnetic actuator cooperating with a reed switch positioned within the casing on a support provided on a foldable frame member adapted to hold other microphone circuit components.

3,548,120
TRANSMISSION LINE REPEATER STATION FOR TWO SIGNALS TRAVELLING IN OPPOSITE DIRECTIONS

Alexandre Tarassoff, Paris, France, assignor to Telecommunications Radioelectriques & Telephoniques T. R. T., Paris, France

Filed Apr. 1, 1968, Ser. No. 717,824
Claims priority, application France, Mar. 31, 1967, 100,939
Int. Cl. H04b 3/22
U.S. Cl. 179—170.4 3 Claims

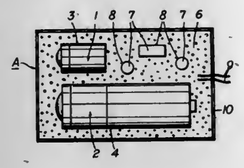


A repeater stage for amplification of carrier modulated oscillations of two frequency bands in opposite directions has a common amplifier, attenuator and equalizer for oscillations of both bands. Pilot oscillations in one band are employed to control the attenuator, and pilot oscillations in the other band are employed to control the equalizer.

3,548,121
FOAM MATERIAL SUPPORT MEANS FOR A SOUND TRANSMITTER

Rudolf Goerike, Vienna, and Konrad Wolf, Bad Voslau, Austria, assignors to Akustische u. Kino-Gerate Gesellschaft m.b.H., Vienna, Austria

Filed June 12, 1967, Ser. No. 645,238
Claims priority, application Austria, June 17, 1966, A5820/66
Int. Cl. H04r 1/02
U.S. Cl. 179—184 6 Claims



Within a sound transmitter housing, open cell foam material is arranged within a rigid casing to support the various transmitter elements spaced inwardly from the casing and to protect them against wind and shock. Openings are provided in the housing casing to permit sound to reach the sound inlet openings in the transmitter's transducing means. The foam material completely fills the spaces between the housing casing and the sound inlet openings of the transducing means and is in contacting relationship with the transducing means and the housing. The transducing means is provided by moving coil microphones of unidirectional pattern disposed either side-by-side or in axial alignment within the housing. Alternatively, the foam material may be composed of one or a number of layers: where multiple layers are employed, their characteristics vary with their function within the housing.

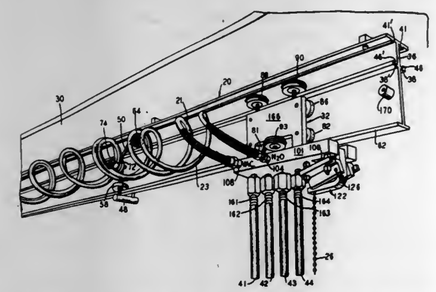
ERRATUM

For Class 191—4 see:
Patent No. 3,547,237

3,548,122
MOBILE SUPPORT FOR EXTENSIBLE HELICAL MEMBERS

Wayne W. Hay, Madison, Wis., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 14, 1966, Ser. No. 601,722
Int. Cl. H01r 35/00; H02g 11/02
U.S. Cl. 191—12 3 Claims

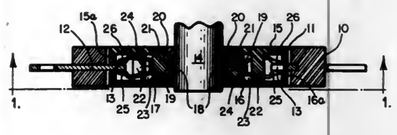


A mobile support for a flexible helical coiled member or members extensible along a track including a rail and a carriage moveable along the rail and which is constrained against movement in any direction except along the longitudinal axis of the rail, wherein the flexible helical coiled member is supported by the carriage in a position alongside the rail.

3,548,123
ROTARY ELECTRIC SWITCH

Kenneth C. Allison, Crystal Lake, Ill., assignor to Kollsman Instrument Corporation, Elmhurst, N.Y., a corporation of New York

Filed May 5, 1969, Ser. No. 821,825
Int. Cl. H01h 19/58
U.S. Cl. 200—11 4 Claims

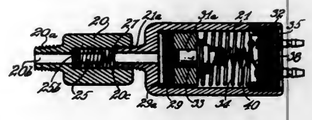


A rotary electric switch having a rotor and a stator provided with a rotor-receiving opening, and cooperating contacts supported on said rotor and said stator including first and second coplanar stator contacts occupying a plane intermediate opposite faces of said stator spaced apart a distance in excess of 90° circumferentially of an arc in which said rotor travels and rotor contacts simultaneously engageable with said stator contacts, each of said rotor contacts having axially opposed jaws defined by branches formed integrally with an arcuately formed conductor strip seated in an annular clearway between the area occupied by said stator contacts and the hub or the rotor.

3,548,124
PROLONGED-ACTION STOP-LIGHT SWITCHES

Elmer Tollerud, 1602 East Ave., Crete, Ill., and Leonard H. Johnston, Jr., Tamarack, Minn. 55787

Filed May 15, 1968, Ser. No. 729,251
Int. Cl. H01h 7/02, 43/04
U.S. Cl. 200—34 6 Claims



A unit adapted to receive pressure brake fluid from the master cylinder of a motor car braking system. Foot pressure on the brake pedal advances the fluid in the unit by backing a check valve in the entrance of the same. The further flow of the fluid advances a plunger against the resistance of an outer spring. An inner spring carried by the plunger then bears against the closing blade of a stop light switch to operate the stoplight. When the release of the brake pedal relieves the fluid pressure the check valve closes. However, a narrow passage in the check valve allows the fluid to bypass the same on the return at a retarded rate, maintaining the engagement of the inner spring with the closed switch blade to prolong the operation of the stoplight.

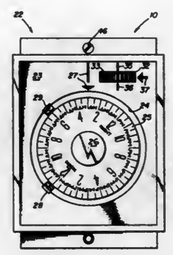
3,548,125
TIME SWITCH FOR MOUNTING ON A WALL-MOUNTED OUTLET BOX

Eugene Denis Banathy, Skokie, and Julius Robert Rosenski, Chicago, Ill., assignors to International Register Company, Chicago, Ill., a corporation of Illinois

Filed Nov. 29, 1968, Ser. No. 780,054
Int. Cl. H01h 43/10
U.S. Cl. 200—38 3 Claims

A time switch continuously driven by a synchronous motor is mountable on a wall-mounted energized outlet box and is

arranged to close and open contacts at manually presettable

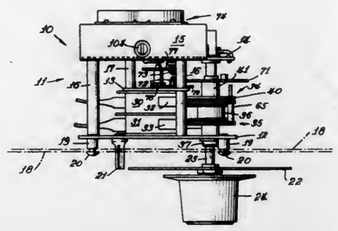


times during a day to energize and deenergize an electrical device or devices at such times.

3,548,126
TIMER FOR ELECTRONIC OVENS AND THE LIKE

Ronald M. Bassett, Chicago, Ill., assignor to International Register Company, Chicago, Ill., a corporation of Illinois

Filed May 2, 1969, Ser. No. 821,442
Int. Cl. H01h 43/10
U.S. Cl. 200—38 24 Claims



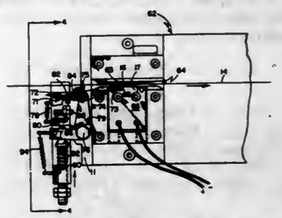
A dual speed timer controls accurately timewise the closing and opening of one or more switches during a time interval by a cam or cams nonrotatably mounted on a relatively endwise movable time interval shaft that is driven at either a relatively high or a relatively low speed by a timer motor through high or low-speed gears depending upon the manually endwise preset position of the time interval shaft. A latch cam, nonrotatably secured to the shaft, holds it in the low-speed position until near the end of the interval. A buzzer is operated to signal the end of the interval. The switches are sequentially closed and opened, the last to open deenergizes the timer motor and stops the buzzer.

3,548,127
TAB POSITIONING AND DETECTING APPARATUS

Frank Samuel Martin, Wenham, Mass., assignor to The Gillette Company, Gillette Park, Boston, Mass., a corporation of Delaware

Original application Oct. 14, 1966, Ser. No. 586,713, now Patent No. 3,465,935, dated Sept. 9, 1969. Divided and this application Feb. 17, 1969, Ser. No. 831,792
Int. Cl. B65h 25/14
U.S. Cl. 200—61.14 3 Claims

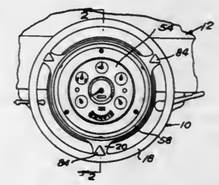
Apparatus for positioning and detecting the presence of conductive tabs on a strip comprising a pivotally mounted arm adapted for engaging the rear edge of a tab and moving it to a predetermined detecting position and a pair of spaced electrodes moveable for contacting a pair of adjacent tabs to signal their presence by the completion of an electrical circuit therethrough.



3,548,128
ADJUSTABLE STEERING WHEEL

Palmer B. Willett, P.O. Box 1025, Tallulah, La. 71282

Filed July 11, 1969, Ser. No. 840,974
Int. Cl. H01h 9/00; B62d 1/18
U.S. Cl. 200—61.57 14 Claims

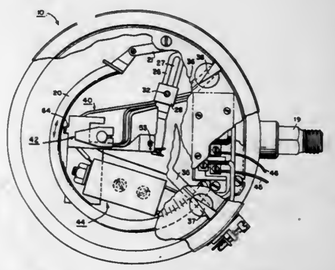


A large diameter adjustable steering wheel comprising an outer tubular rotatable member having a steering wheel secured thereto, and an inner tubular member disposed therein and rotatable with the outer tubular member and means operatively connected to said inner and outer tubular members for adjusting the overall length of the steering column, with a plurality of circumferentially spaced gear members disposed partially within said inner tubular member and operatively connected to a steering shaft of a vehicle and a large hollow stationary cylindrical member disposed within said inner tubular member upon which are disposed a plurality of vehicle instruments.

3,548,129
ELECTRICAL SWITCH INSTRUMENT

Randall Goff, Weston, Conn., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

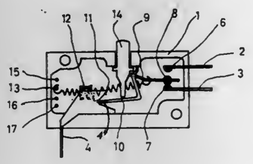
Filed July 5, 1968, Ser. No. 742,605
Int. Cl. G01d 13/26
U.S. Cl. 200—56 11 Claims



A presettable electrical switch instrument having condition responsive sensitivity for opening and closing an electrical circuit. A magnet, movable in response to condition changes, actuates a reed switch which triggers a switching module for

appropriate actuation of the circuit to be controlled. The specific component assembly enables instrument operation at extremely close preset differentials while affording enhanced selective interchangeability between normally open and normally closed operation.

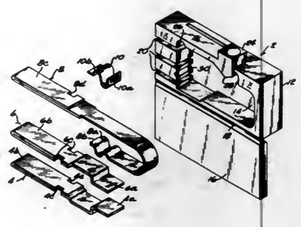
3,548,130
SNAP ACTION ELECTRIC SWITCH
Ewald Marquardt, Rietheim, Germany, assignor to Firma J. & J. Marquardt, Rietheim, Kries Tuttlingen, Germany
Filed Oct. 23, 1967, Ser. No. 677,114
Claims priority, application Germany, Oct. 26, 1966, 1,665,082
Int. Cl. H01h *13/28*
U.S. Cl. 200—67 **5 Claims**



A snap action electric switch includes a housing having a pair of stops in spaced relation and forming first and second electrical contacts, and a switch actuating member displaceably mounted in the housing. A third electrical contact forms a fulcrum for an intermediate portion of a two arm electrically conductive angle lever which is engaged by the actuating member. An electrically conductive contact arm has one end bearing pivotally on one arm of the lever and its other free end movable between the first and second contacts. A tension spring has one end connected to a first suspension point on the contact arm and its opposite end connected to a second and fixed suspension point on the housing beyond the fulcrum and beyond the other arm of the lever. The line of action of the tension spring always remains in spaced lateral relation to the same side of the fulcrum in all positions of the switch. A pair of abutments on the other arm of the lever embrace the tension spring between the lever fulcrum and the fixed suspension point and deflect the tension spring to one side of the straight line interconnecting the first and second suspension points. The tension spring, acting through the contact arm, exerts a torque tending to pivot the lever in one direction about the fulcrum, and the deflection of the tension spring by the abutments exerts a torque tending to pivot the lever in the opposite direction about the fulcrum. The two torques, acting in opposite directions, result in only a small force on the actuating member being necessary to snap the contact arm from a rest position to an actuated position. In the actuated position, the abutments deflect the tension spring in the opposite direction relative to the straight line connecting the first and second suspension points, so that the spring exerts a restoring force on the contact arm. Preferably the contact arm and the lever arm upon which it bears are forked to provide for passage of the tension spring between the arms of the forks.

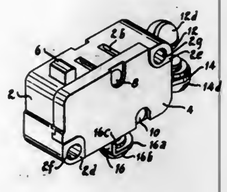
3,548,131
SNAP SWITCH WITH UNITARY INSULATING ENCLOSURE
Earl T. Piber, Oconomowoc, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Jan. 30, 1969, Ser. No. 795,211
Int. Cl. H01h *13/28*
U.S. Cl. 200—67 **5 Claims**

A molded switch base has cover and actuator portions integrally hinged thereto. Slots in a base portion sidewall position a pair of stationary contacts and a contactor within the base as well as the terminal portions thereof exteriorly of the base. The cover is closed upon and secured to the base to complete the assembly. The contactor has no high-resistance current-carrying joint and is urged to a stable position by an overcenter spring assembled between a sidewall and the free



end of the contactor. The latter is driven to an unstable circuit making position by deflecting the actuator inwardly.

3,548,132
MINIATURE PRECISION SNAP ACTION SWITCH WITH WIPING CONTACT ACTION
Alvin W. Krieger, West Bend, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Mar. 28, 1969, Ser. No. 811,314
Int. Cl. H01h *13/36*
U.S. Cl. 200—67 **7 Claims**

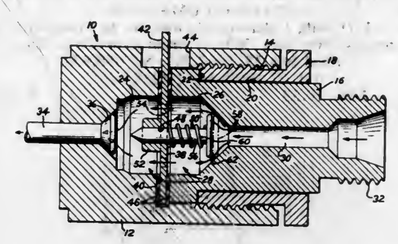


A miniature precision snap action switch having a one-piece contactor blade removably mounted on a terminal strip support within an insulating housing and including a first pair and second compression force spring strips integral therewith, the first pair of compression strips extending from a point near the contact element that is at one end with an upward bow to a pivot point on the support to apply a force in one direction, and the other compression strip extending with a reentrant bend from the extreme other end thereof with a downward bow to another pivot point on the support for free pivoting thereon, the bent end being movable by a plunger to cause switching action, and a shelf below the other compression strip causing the downward bow therein to flatten out when the bent end thereof is depressed by the plunger thereby to cause wiping contact action.

3,548,133
FLOW TRANSDUCER
Arthur D. Clauson, La Grange, Ill., assignor to Sun Electric Corporation, a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,934
Int. Cl. H01h *35/40*
U.S. Cl. 200—81.9 **11 Claims**

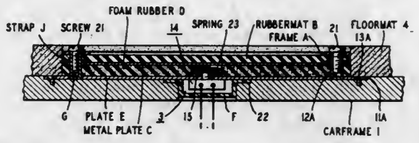
A fluid flow transducer responsive to the pulsating flow of fuel in a fuel injection system comprises a housing having a conductive plate mounted therein and a reciprocating pin moveably carried on the plate. Between fuel flow pulses, the

pin contacts the housing to complete an electrical circuit between the housing and plate and when a fuel pulse occurs,



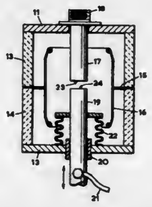
the pin is reciprocally urged out of contact with the housing to open the circuit.

3,548,134
STOP LIGHT SWITCH SYSTEM FOR AUTOMOBILES
Millard C. Harthan, Jr., 67 Summit Ave., North Plainfield, N.J. 07060
Filed June 27, 1969, Ser. No. 837,284
Int. Cl. H01h *3/54*
U.S. Cl. 200—86.5 **2 Claims**



An improved stoplight switch system for automobiles and the like is disclosed and which includes a heel actuated switch that is closed whenever a driver's heel is removed from the accelerator pedal. The closing of the switch energizes the brake lights and thereby gives an advance warning of an imminent braking operation of the vehicle as the driver's foot is removed from the accelerator.

3,548,135
CONTACTS FOR VACUUM INTERRUPTERS
Allan John Wood, Stafford, England, assignor to The English Electric Company Limited, London, England, a British company
Filed May 29, 1967, Ser. No. 641,880
Claims priority, application Great Britain, May 27, 1966, 23781/66
Int. Cl. H01h *33/66*
U.S. Cl. 200—144 **9 Claims**

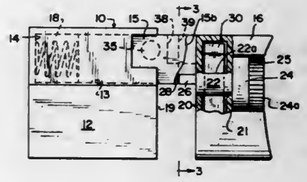


Contacts for vacuum interrupters have their faces, between which an arc may be struck in operation, formed of dissimilar materials, which materials, on arcing between the faces, become intermixed and form nonductile films. The materials are mechanically strong and have high electrical and thermal conductivities.

Preferably the face of one contact is formed of silver-silicon and that of the other is formed of silver-nickel, these materials on arcing forming nonductile layers of nickel silicides on the faces, which markedly reduces the tendency of the contacts to weld together.

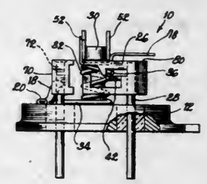
In an alternative, the face of one contact may be formed of high-purity zone-refined copper and that of the other of high-purity vacuum outgassed titanium. In this case nonductile films of copper-titanium compounds are formed.

3,548,136
TRIGGER ACTUATED SWITCH DEVICE WITH ADJUSTMENT MEANS FOR ESTABLISHING A PLURALITY OF PREDETERMINED TRIGGER POSITIONS
Carl J. Frenzel, Chicago, Ill., assignor to Skil Corporation, Chicago, Ill., a corporation of Delaware
Filed May 29, 1968, Ser. No. 733,044
Int. Cl. H01h *9/06, 13/08*
U.S. Cl. 200—157 **6 Claims**



The trigger actuated switch device includes a casing movably mounting a trigger. Resilient means are interposed between the casing and the trigger for urging the latter to an extended position. According to certain embodiments of the invention, the casing includes a fixed abutment surface and the trigger mounts a movable abutment surface for movement relative to the trigger, such abutment surfaces being arranged for abutting engagement when the trigger is depressed. The position of the movable abutment surface determines the extent of movement of the trigger when the same is squeezed or depressed. A lock button construction is provided for locking the trigger in its fully depressed position and in its intermediate position or positions determined by engagement of the abutment surfaces.

3,548,137
SWITCH CONSTRUCTION
Guy M. Farrell, Elmhurst; Matthew C. Podgorski, Wood Dale; Morris N. Whitlock, Elmhurst, and Martin Gaber, Wilmette, Ill., assignors to Chicago Switch, Inc., Chicago, Ill., a corporation of Illinois
Filed June 20, 1968, Ser. No. 738,586
Int. Cl. H01h *1/06, 35/42*
U.S. Cl. 200—153 **12 Claims**

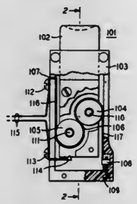


A switch construction including a movable actuating means and a spring-loaded contact movable by said actuating means. A contact end is positioned against a first barrier, and this barrier is removed upon initial movement of the actuating means at which time the contact end is positioned against a second barrier. A distinct movement of the actuating means results in removal of the second barrier, and movement of the contact end to a closed contact position.

3,548,138
ROLAMITE PUSHBUTTON SWITCH

Gilbert A. Van Dine, Winfield Township, Du Page County, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed July 18, 1968, Ser. No. 745,803
Int. Cl. H01h *3/12*
U.S. Cl. 200—159 8 Claims

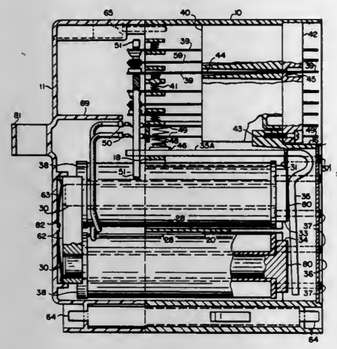


The principles of a rollerband device are applied to the construction of a pushbutton switch by providing each of the two roller elements with a respective integral shaft and by providing shaft bearings on the inner surface of a hollow pushbutton member. Circuit completion may be effected, alternatively, by mechanical contacts, by light transmission, capacitively or inductively.

3,548,139
ELECTROMAGNETIC RELAY STRUCTURE

Wheeler D. Maynard, Mendon, and Edward A. Belanger, Rochester, N.Y., assignors to General Signal Corporation, Rochester, N.Y., a corporation of New York

Original application Nov. 7, 1967, Ser. No. 681,209, now Patent No. 3,509,502, dated Apr. 28, 1970. Divided and this application Dec. 15, 1969, Ser. No. 885,162
Int. Cl. H01h *9/02*
U.S. Cl. 200—168 5 Claims

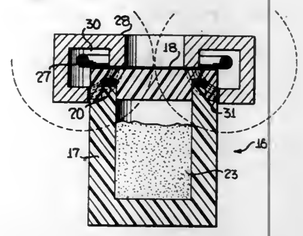


This electromagnetic relay is of the safety-type as used by railroads. It has parts molded of black fiber glass plastic material and has other parts formed of metal and constructed to be assembled in such a way as to provide a composite structure requiring no adjustment after initial assembly. The armature is mounted on a knife edge bearing with the working airgap at the rear of the relay and the contact operator at the front of the relay. The plastic cover holds a magnetic back yoke in place for connecting the two magnetic core members, which back yoke is directly removable when the cover is removed so as to be able to replace the coils without further disassembly. The coils have quick detachable connectors which connect to the coil lead fingers at the front of the relay. The contact fingers are pushed into position from the front of the relay with the cover removed and a guide block is permanently provided for assisting the entry of the contact fingers into the rear mounting block into which such fingers automatically lock when they are placed in position.

3,548,140
METHOD AND APPARATUS FOR SEALING CONTAINERS USING HEAT ACTIVATED MAGNETIC SEALING COMPOUND

Roger M. O'Neill, Oaklawn, Ill., assignor to Continental Can Company, New York, N.Y., a corporation of New York

Filed July 25, 1967, Ser. No. 655,931
Int. Cl. H05b *5/00*; B23k *13/02*
U.S. Cl. 219—10.53 8 Claims

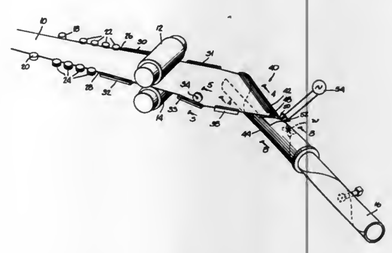


This disclosure relates to apparatus for inductively coupling energy into heat activated magnetic sealing material to effect the sealing of containers. Such apparatus includes a coil generally conforming to the shape of the container portion to be sealed and a flux concentrator of relatively high permeability and electrical resistivity for concentrating magnetic flux only in those areas of the container including the sealing material. The flux concentrator houses the coil and is formed with an air gap shaped to accommodate the container portion to be sealed. Further, this application discloses a method of sealing containers by coupling energy into heat activated magnetic sealing materials while limiting the heating of adjacent portions of the container and the container contents.

3,548,141
METHOD AND APPARATUS FOR FORMING TUBING

Melvin Edward Remus, Park Ridge, and Franklin Chaloner McNair, Wilmette, Ill., assignors to Taylor Forge, Inc., Bellwood, Ill., a corporation of Illinois

Filed Sept. 23, 1968, Ser. No. 761,673
Int. Cl. B23k *11/08*
U.S. Cl. 219—62 22 Claims

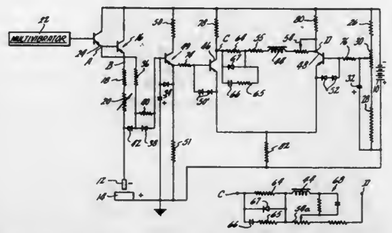


An improvement in high frequency electrical welding of edges of metal strip with a curved weld seam, particularly, tubing having a helical or spiral weld seam and formed from a single metal strip, which comprises forming the edges of the strip with longitudinally extending projections or ridges, bringing the so-formed edges into closely-spaced, side-by-side relation, supplying high frequency current to the so-formed and positioned edges and while advancing and bending the strip and edges into the desired curved form, maintaining such relation of the edges but with diminishing spacing until they are brought together at a subsequent weld point using pressure at least partly applied to such projections.

3,548,142
GAP SHORT CIRCUIT CONTROL SYSTEM FOR ELECTRICAL DISCHARGE MACHINING APPARATUS

Kurt H. Sennowitz, Royal Oak, Mich., assignor to Elox Inc., Troy, Mich., a corporation of Delaware

Continuation-in-part of application Ser. No. 699,443, Jan. 22, 1968, now Patent No. 3,524,036. This application Nov. 6, 1969, Ser. No. 874,574
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 8 Claims

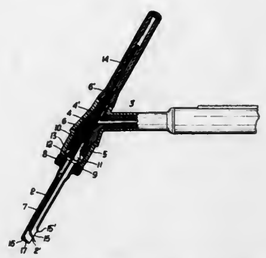


A protective system for Electrical Discharge Machining for a power supply circuit including a periodically operated electronic output switch and a drive stage therefor. A network is connected between the output stage and the gap. Responsive to short circuiting of the gap, drive current is shunted by said network away from the output switch control electrode so that said switch is held off so long as the short circuit condition persists.

3,548,143
WELDING TORCH

Olaf Reeh, Adalbert-Stifter-Strasse 1, 8043, Munich-unterpfaffenhofen, Germany

Filed Dec. 13, 1968, Ser. No. 783,684
Claims priority, application Austria, Dec. 19, 1967, A11463/67
Int. Cl. B23k *9/16*, *9/12*
U.S. Cl. 219—75 2 Claims



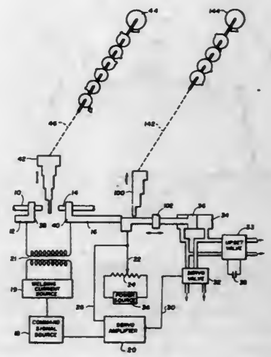
A nonfusible electrode is detachably mounted on a torch head. A tubular inert gas feed nozzle is detachably mounted on said torch head and surrounds said electrode and has a lateral gas outlet orifice. The electrode has a laterally bent tip protruding from the nozzle. The nozzle has a forward end wall formed with an aperture through which said electrode can be inserted into said nozzle.

3,548,144
METHOD AND APPARATUS FOR CONTROLLING THE PLATEN OF A FLASH WELDER

Joseph J. Riley, Warren, Ohio, assignor to The Taylor Winfield Corporation, Warren, Ohio

Continuation-in-part of application Ser. No. 629,519, Apr. 10, 1967, now Patent No. 3,443,584, dated May 13, 1969. This application July 2, 1968, Ser. No. 742,077
Int. Cl. B23k *11/04*
U.S. Cl. 219—97 21 Claims

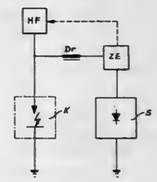
A method and control system for controlling the movable platen of a flash welder utilizing an electrohydraulic servomechanism. An electrical signal is furnished from a potentiometer which, in turn, is varied by the cam rise on a rotating cam to preprogram the platen travel so it will follow the cam contour, or, selectively, the level of voltage across the welding dies may be controlled to control the flashing operation as well as the upset operation. Such welding voltage control, together with the limit value of the servovalve current, controls the rate of movement of the movable platen in both forward and reverse direction by virtue of a feedback signal from the voltage across the welder dies. The welding die voltage is varied by introducing a small, constant value voltage whenever the die voltage is above a preselected value to cause forward platen motion during flashing and by introducing a similar constant value voltage of opposite polarity whenever the die voltage is below a preselected value to cause reverse platen motion during flashing (or upset). Thus the welding die voltage is maintained within predetermined limits and the flashing and upset operations are preprogrammed for optimum performance.



3,548,145
METHOD OF ARC IGNITION

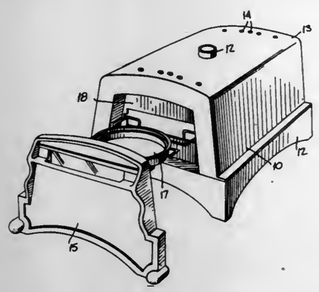
Jean Bender, Hanau, Paul Himmelstein, Frankfurt am Main, Horst Kuhn, Hanau, Wilhelm Schaefer, Steinheim, and Gunther Schneider, Langenselbold, Germany, assignors to Nukem, Nuklear-Chemie und-Metallurgie Gesellschaft mit beschrankter Haftung, Wolfgang bei, Hanau am Main, Germany

Filed Sept. 9, 1968, Ser. No. 758,301
Claims priority, application Germany, Sept. 14, 1967, 1,690,630
Int. Cl. B23k *9/00*
U.S. Cl. 219—137 3 Claims



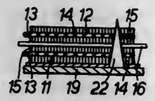
In starting an arc between a welding rod and a workpiece with no contact therebetween when welding in inert gas, a starting voltage about three times the welding voltage is used. This prevents damage to the workpiece and a longer welding rod life.

3,548,146
TOY COOKING APPARATUS
Alyson Skipp Hoyland, 1 Deer Haven Lane, Route 2, Newfoundland, N.J.
Filed Jan. 23, 1968, Ser. No. 699,919
Int. Cl. A21b 2/00, 1/22; H05b 1/00
U.S. Cl. 219—200 4 Claims



A toy cooking apparatus comprising a housing adapted to receive means for holding a comestible which is to be heated or cooked, a plurality of electrical heating means, at least one of the heating means positioned above the holding means and at least one of the heating means positioned below the holding means, the door of the cooking apparatus being secured to the means for holding the comestible so that the door and the means for holding the comestible move in unison.

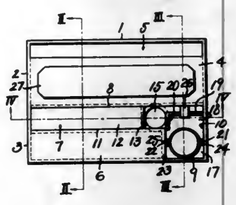
3,548,147
LAMINATES AND ELECTRICALLY HEATED BLANKETS INCORPORATING SUCH LAMINATES
Leonard C. Owers, Southampton, England, assignor to Dreamland Electrical Appliances Limited, Southampton, England
Filed Oct. 3, 1968, Ser. No. 764,768
Claims priority, application Great Britain, Nov. 1, 1967, 49725/67
Int. Cl. H05b 3/34, 3/54
U.S. Cl. 219—212 9 Claims



This invention relates to a laminate which comprises two layers of nonwoven fabric made from textile fibres, each layer of the laminate having on that face which is in contact with the other layer a quantity of weldable fibres which constitute at least 50 percent of the total weight of fibres in said face, the two layers being welded together in a predetermined pattern, the invention also including an electrically heated blanket formed of such a laminate and the method of manufacturing the blanket.

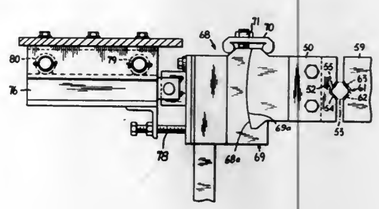
3,548,148
COMBINATION AUTOMATIC CIRGARETTE LIGHTER AND DISPENSER
Nobuo Kawasima, 2-11, Koronoe-Cho-Gifu-Shi, Gifu-ken, Japan
Filed Apr. 10, 1969, Ser. No. 815,116
Int. Cl. F23g 7/00
U.S. Cl. 219—262 5 Claims

Combination cigarette lighter dispenser for automobiles. Push button erects one cigarette on lighter element and closes pilot switch energizing two circuits, one a relay controlled heater and signal lamp circuit, the other a transistorized R-C timing circuit. The resistor and capacitor are in series; the base and emitter of the transistor are connected across the resistor; and the emitter and collector of the transistor are in series with the coil of the heater relay which also closes a hold switch, in parallel with the pilot



switch. When the capacitor approaches full charge the voltage across the resistor drops and the transistor ceases to conduct thus ending the timing cycle and opening the relay and hold switches. A back contact on the relay shorts the capacitor when the relay opens.

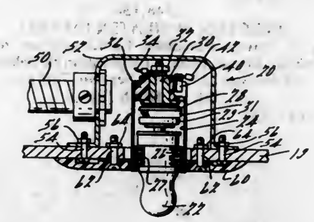
3,548,149
RESISTANCE METAL HEATER
Alfred T. Rizzolo, Newark, and Warren F. Hicks, Wayne, N.J., assignors to Cheston Company, Kearny, N.J., a corporation of New Jersey
Filed Mar. 28, 1968, Ser. No. 716,924
Int. Cl. C21d 9/62; H05b 1/00
U.S. Cl. 219—156 9 Claims



An electrical resistance heater has spaced pairs of electrodes, the electrodes in each pair being movable towards one another and having opposed notches formed therein converging generally away from the ends of a workpiece to be heated and adapted to cooperate to form end clamps for the workpiece. One electrode of each pair is mounted to have limited freedom of movement relatively to the other to facilitate clamping the ends of a workpiece between the electrode pairs. Also, controlled semiconductor rectifier means is provided for supplying different values of heating current to the workpiece for different periods of time in a heating cycle.

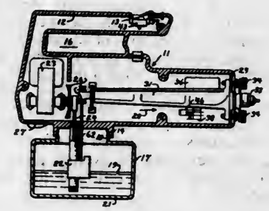
3,548,150
CIGARETTE LIGHTER ASSEMBLY
Thomas P. Briggs, 927 Woodlawn, Royal Oak, Mich. 40873
Filed May 1, 1969, Ser. No. 820,789
Int. Cl. F23g 7/22
U.S. Cl. 219—267 1 Claim

A cigarette lighter assembly mounted on an accessible wall of a household stove and including, a hand removable and insertable cigarette lighter in a lighter socket and an electrically insulated mounting plate for mounting the lighter assembly to the accessible wall. The lighter being removable



from the socket through the concentric openings in the accessible wall and the mounting plate.

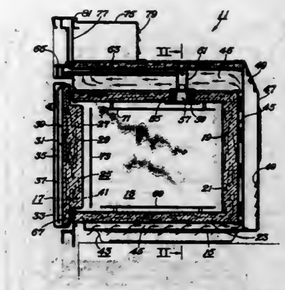
3,548,151
AUTOMATIC FOGGING APPARATUS
Russell R. Curtis, Indianapolis, and James E. Jung, Noblesville, Ind., assignors to Curtis Dyna-Products Corporation, Westfield, Ind., a corporation of Ohio
Filed Feb. 26, 1968, Ser. No. 708,195
Int. Cl. F22b 3/00; A01m 19/00
U.S. Cl. 219—273 3 Claims



A plastic housing with reservoir for liquid insecticide and an electric pump forces the liquid from the reservoir through a heat exchanger to a nozzle. A fan driven by the pump motor produces a cooling air flow through the housing and around the heat exchanger for discharge through an apertured plate. A normally closed thermostatically operated switch keeps electrical heating elements in the heat exchanger continuously energized unless excessive temperature opens the switch. A normally open thermostatically operated switch, disposed in the path of air flow through the housing and mounted to the heat exchanger for sensing the temperature thereof to close the switch and operate the pump and fan for discharge of insecticide from the nozzle, is also responsive to air flow caused by fan operation and terminates pump and fan operation before excessive cooling by liquid pumped to the heat exchanger. Heat exchanger variations facilitate disassembly and maintenance of high efficiency.

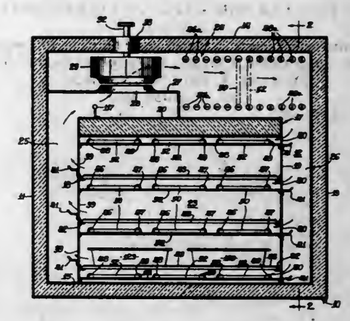
3,548,152
SELF-CLEANING OVEN HAVING COOLING AND VENTILATING SYSTEM
Glen W. Klepzig, Abbeville, Miss., assignor to Chambers Corporation, Cleburne, Tex.
Filed Mar. 10, 1969, Ser. No. 805,582
Int. Cl. F27d 11/02; A21b 1/26
U.S. Cl. 219—400 7 Claims

A self-cleaning oven characterized by having sufficient cooling through thermal currents alone and without the use of a fan. The oven has an inner insulated tub suspended within a cabinet with an air passageway surrounding the insulated tub. The air passageway is of sufficient thickness that thermal currents alone provide sufficient air circulation to prevent over heating even during the self-cleaning cycle. Also disclosed are suspension means effecting minimal transfer of heat by conduction and minimal interference with the flow of thermal currents; smoke-alleviating means for circulating the high temperature, smoke-filled air from within the insulated tub while simultaneously oxidizing the smoke particles and mixing the high temperature reaction products with the air of the thermal currents over the insulated tub be-



fore being vented into the room; and a door having a flow of air between a baffle and an inner insulated portion and between the baffle and an outer panel.

3,548,153
COOKING AND THAWING OVEN
Edward L. Kells, Batavia, Ill., assignor to Dover Corporation, New York, N.Y., a corporation of Delaware
Filed June 23, 1969, Ser. No. 835,641
Int. Cl. A21b 1/22; F27d 11/02
U.S. Cl. 219—400 9 Claims

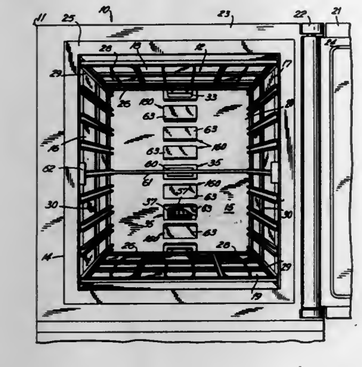


A combined frozen food thawing and food cooking oven has a plurality of racks defining a plurality of food holding spaces stacked one above the other. A heating unit is positioned above and below each of the spaces. The heating units are linear and have a maximum heating capacity no greater than about 93 b.t.u.'s per square inch of radiator surface area, and no greater than about 33 b.t.u.'s per square inch of the horizontal part of said space. The uppermost and lowermost of the heating units of the stack have about half the heating capacity of the intermediate heating units. The heating units are removable and can be reinserted in a zone spaced from the cooking chamber. A fan and duct work provide air circulation through and between the zone and chamber to permit hot air cooking.

3,548,154
ELECTRIC HEATING OVEN
Olof Fingal Christiansson, Ankarsrum, Sweden, assignor to Aktiebolaget Ankarsrums Bruk, Ankarsrum, Sweden, a corporation of Sweden
Filed Mar. 18, 1969, Ser. No. 808,077
Claims priority, application Sweden, Dec. 3, 1968, 16492/68
Int. Cl. F27d 11/02
U.S. Cl. 219—403 22 Claims

An electric oven into which heating elements are insertable at different levels in a variety of operative positions. Each

heating element can be inserted into and removed from any one of the operative positions to provide widely different heating patterns in the oven. The heating elements in their operative positions form part of a heating circuit connected by a relay to a source of electrical energy. The relay normally

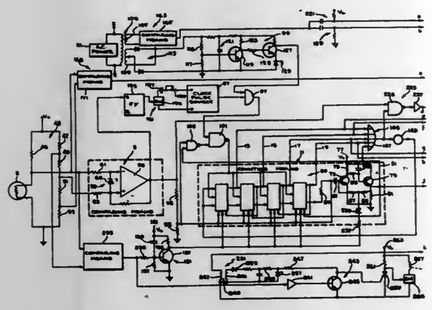


is open and disconnects the heating elements from the source of electrical energy. When a control circuit is completed the relay becomes operable to connect the heating elements to the source of electrical energy.

3,548,155
CONTROLLER FOR A TEMPERATURE CONTROL SYSTEM

Karavattuveetil George Rabindran, Evanston, Ill., assignor to Vapor Corporation, Chicago, Ill., a corporation of Delaware

Filed Oct. 3, 1969, Ser. No. 863,513
Int. Cl. H05b *1/02*
U.S. Cl. 219—497 **4 Claims**

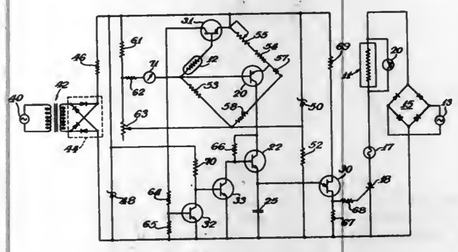


The temperature controller comprises a means for sensing a temperature of a load which is to be controlled in temperature. The temperature sensing means provides a signal representing the temperature of the load and this signal is supplied to a comparing means which provides an output signal of a first level when the temperature is above a set point and a signal of a second level when the temperature is below the set point. The output signal is applied to a bidirectional counting means which counts clock pulses applied thereto, the direction of counting therein being controlled by the level of the output signal. The counting means includes a plurality of output leads, each representing a bit storage position in the counting means. Each of the output leads is rendered conductive in response to a bit on the associated output lead. The output leads are connected to respective switching means, each of which is rendered conductive in response to a bit on the associated output lead. The switching means connect respective power leads, which provide electrical power in steps, to the load, whereby one power lead is connected to the load depending upon which of the switching means is energized by the output lead.

3,548,156
ELECTRICAL HEATER CIRCUIT

Theodore H. Davey, Pasadena, Calif., assignor to The Aro Corporation, Bryan, Ohio, a corporation of Delaware

Filed Sept. 17, 1968, Ser. No. 760,164
Int. Cl. H05b *1/02*
U.S. Cl. 219—499 **3 Claims**

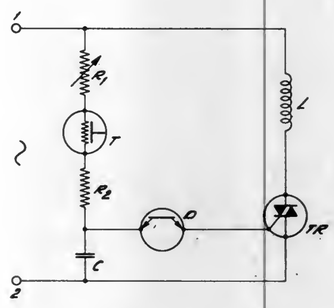


A full-wave, phase-controlled, electronic power-switching control system for maintaining the temperature within a heated chamber at a predetermined desired level. A thermistor positioned to sense the temperature within the chamber is connected in one arm of a bridge circuit such that a transistor, whose base-emitter path is connected across the bridge, becomes conductive when a decrease in temperature occurs. The current flowing through the collector-emitter path of this transistor charges a timing capacitor which gages a unijunction transistor into conduction. An increase in this charging current causes a controlled rectifier to "fire" earlier in each half-cycle, increasing the average power delivered to the heating element and hence returning the chamber to the desired temperature.

3,548,157
HEATING CONTROL CIRCUIT WITH TRIAC-DIAC COMBINATION

Peter Lauck III, Princeton, N.J., assignor by direct and mesne assignments, to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware

Filed Mar. 25, 1969, Ser. No. 810,156
Int. Cl. H05b *1/02*
U.S. Cl. 219—501 **3 Claims**

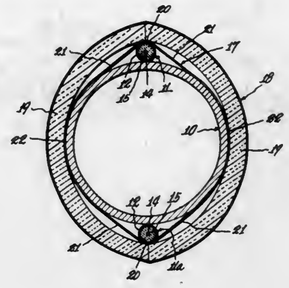


An electrical control circuit for a flexible heating panel having an electric switch that comprises a triac essentially connected as a relaxation oscillator triggered by a diac circuit connected to its gate. Temperature control means comprising variable resistor means and a temperature sensor control and regulate the heat developed by the heating device.

3,548,158
HEAT TRANSFER DEVICE

Garvin M. McCaskill, Monroeville, Pa., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 4, 1969, Ser. No. 796,519
Int. Cl. H05b *3/06*
U.S. Cl. 219—530 **7 Claims**



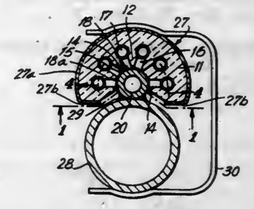
A heat transfer assembly for heat transfer between two conduits which are in peripheral contact, one conduit being adapted to take heat from the other, and a heat transfer material between and in contact with peripheral surfaces of the conduits which are out of contact with each other. The heat transfer material may be a sheet wound about the conduits or metal foil spirally wound about the conduits.

3,548,159
ELECTRICAL HEATER FOR HEATING A WALL OF A FLUID-CARRYING MEMBER

Johan Ragner Ellstroem, Bromma, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden, a corporation of Sweden

Filed Jan. 24, 1969, Ser. No. 793,671
Claims priority, application Sweden, Jan. 30, 1968, 1174/68
Int. Cl. H05b *3/58*
U.S. Cl. 219—535 **5 Claims**

An electrical heater for heating a wall of a fluid-carrying member, such heater being formed from a body of material possessing both electrical insulating and heat resisting properties. The body is positioned adjacent to the fluid-carrying member and has spaced ribs which extend radially toward the member and have their ends bearing against the wall thereof. Pairs of adjacent ribs each have a gap therebetween which extends radially from the wall to a zone removed therefrom, the zones extending lengthwise of the body. An electrical circuit includes electrical resistance means having conductors extending lengthwise of and within the gaps at

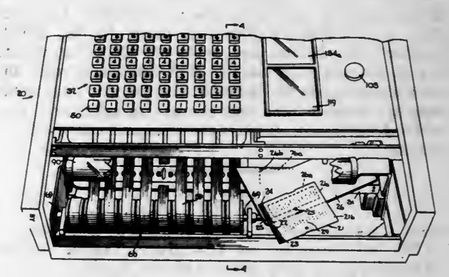


the zones, the conductors being supported by the body at the zones and functioning to produce radiant heat when connected to a source of electrical energy.

3,548,160
APPARATUS FOR ENTERING DATA

William Bradley Welsh, New York County, N.Y. (310 E. 44th St., New York, NY 10017)

Continuation-in-part of application Ser. No. 303,487, Aug. 2, 1963, now abandoned. This application Aug. 25, 1965, Ser. No. 486,259
Int. Cl. B41j *5/36*; **G06k** *15/00, 7/10*
U.S. Cl. 235—61.6 **56 Claims**

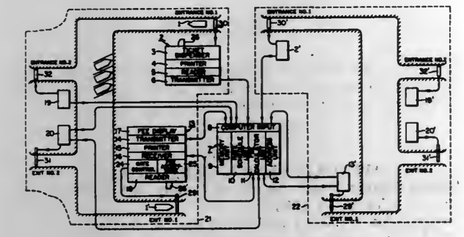


Apparatus is disclosed for entering data into a data processing system comprising means for receiving a record containing fixed data in the form of a code representation thereon. Additionally means are provided for forming a code representation of the variable data in response to a manual command with the code representations of the fixed and variable data being of the same form. Means are utilized for scanning the code representations of the fixed and variable data in order to produce an output signal which can be inserted in the data processing system.

3,548,161
VEHICLE PARKING TIME AND FEE COMPUTING SYSTEM

Peter D. Schwarz, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y., a corporation of New York

Filed Jan. 5, 1967, Ser. No. 606,958
Int. Cl. G06k 17/00
U.S. Cl. 235—61.6 8 Claims

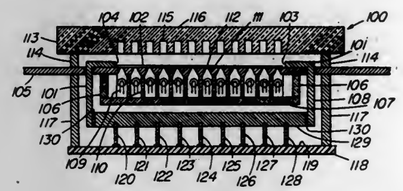


A system for computing vehicle parking time and charge using a central computer. Entrance apparatus issues a magnetically identified ticket having vehicle entrance time thereon and sends the identification and time to the computer storage. Exit equipment reads the ticket identification and sends it with the exit time to the computer wherein time and charge are calculated. Exit receiving equipment displays the time and charge to the operator.

3,548,162
RECORD READER

Harry J. Young, Princeton, and William R. Behn, Somerville, N.J., assignors to Educational Testing Service, Princeton, N.J., a corporation of New York

Filed Feb. 20, 1967, Ser. No. 617,149
Int. Cl. G06k 7/10; H01h 43/08
U.S. Cl. 235—61.11 5 Claims

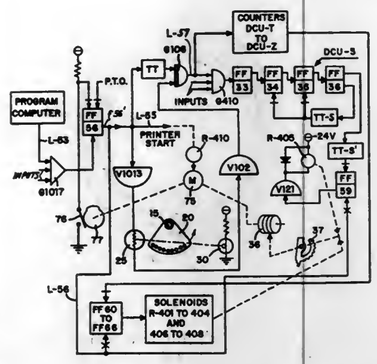


Apparatus for reading a Hollerith-coded record to provide tactile indications of key-punched data entered on the record and the column location of such data to blind persons active in computer related arts. A photo-electric sensor scans a column to detect key-punched entries therein and generates Hollerith-coded signals corresponding thereto. A decoder extracts alpha-numeric information from the Hollerith-coded signals and generates corresponding alpha-numeric signals. A diode matrix processes the alpha-numeric signals and translates the same into Braille-coded signals to actuate a tactile data indicator. A commutator is employed to provide selective energization of a tactile column indicator to identify the particular column containing the key-punched entries.

3,548,163
WEIGHING SCALES

Kenneth C. Allen and Edwin E. Boshinski, Dayton, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio, a corporation of Ohio

Filed May 16, 1966, Ser. No. 550,293
Int. Cl. G06m 3/06
U.S. Cl. 235—92 5 Claims

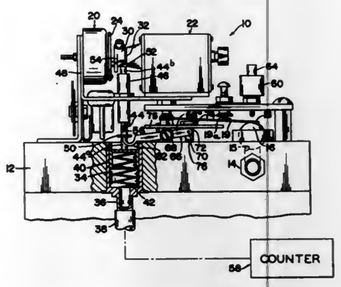


In a computing system including a plurality of decimal pulse counters for temporarily storing digital values to be recorded and a register member corresponding to each counter, transmission of digital information to each register member from its associated counter is controlled by means of a scanner mounted for movement through a cycle of positions corresponding to the digits from 9 to 0. Pulse generating means transmit a single pulse to all counters in response to movement of the scanner from each position to the next, causing corresponding digital advance of the counters. Each counter emits a carry pulse as it reaches its zero position, and emission of this carry pulse effects setting of the associated register member to the digit position which was occupied by the counter at the start of the scanner cycle.

3,548,164
COUNTER MECHANISM AND TEST APPARATUS

Glen R. Hall, 326 W. 3rd St., Uhrichsville, Ohio 44683

Filed Apr. 3, 1967, Ser. No. 627,790
Int. Cl. G06m 1/12
U.S. Cl. 235—92 12 Claims

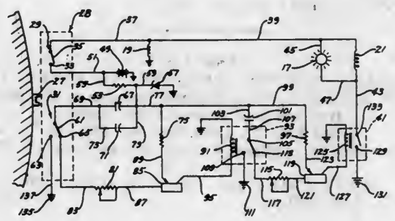


A counter mechanism and test apparatus having an air pump such as an air cylinder with a piston slidable therein, which piston is reciprocated back and forth in the air cylinder each time a magnetic coil is actuated to effect operation of a counter unit. The reciprocating piston creates an air pulse each time the magnetic coil is actuated, the air cylinder being adapted for connection to a separate mechanism to be tested which can be actuated by the air pulse.

3,548,165
REVOLUTION COUNTER FOR A CONCRETE MIXING TRUCK

Ben R. Linnenkamp, Waterloo, Iowa, assignor to Construction Machinery Company, Waterloo, Iowa, a corporation of Iowa

Filed Apr. 24, 1967, Ser. No. 633,111
Int. Cl. G06f 7/38
U.S. Cl. 235—92 8 Claims

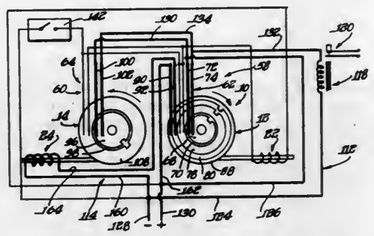


A revolution counter for a concrete mixing truck which selectively records the mixing drum revolutions and also records those revolutions of the concrete mixing drum which occur within a preset drum speed range.

3,548,166
COUNTDOWN COUNTER CONTROL ASSEMBLY

Robert W. Sebastian, Villa Park, Ill., assignor to Molex Products Company, Downers Grove, Ill., a corporation of Illinois

Filed May 3, 1967, Ser. No. 635,780
Int. Cl. G06m 1/27
U.S. Cl. 235—92 4 Claims

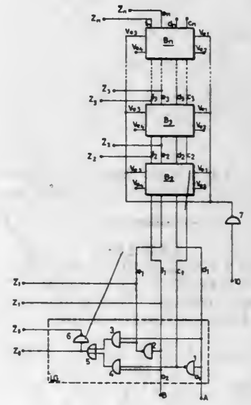


A countdown counter control assembly having two manually settable control members corresponding to units and tens. (Additional members can be provided for 100, etc.) Each control member is provided with conductive areas and pairs of contacts engageable with the conductive areas to complete circuits for electromagnetically advancing the units member towards zero upon closure of a counter switch, and for advancing the tens member towards zero when the units member reaches a base position. The control members and contacts engageable therewith conjointly operate a machine control to terminate machine operation when both members reach zero position.

3,548,167
STATIC COUNTER WITH SIMPLIFIED SIGNAL INPUT

Günter Emde, Neubiberg, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany

Filed Mar. 14, 1968, Ser. No. 713,104
Claims priority, application Germany, Mar. 25, 1967, B 91,786
Int. Cl. H03k 21/36, 21/06
U.S. Cl. 235—92 5 Claims



A simple logical circuit replaces the input gate circuit and the immediately following input counting stage in a static counter, this logical circuit satisfying the following logical functions of Boole's algebra:

$$Z_0=(A\wedge\overline{B})\vee(B\wedge\overline{A})$$
$$Z_1=B;$$

where A, $\overline{A}$ and B, $\overline{B}$ are the states of the phase-shifted signals of an increment indicator, for example, and Z_0 and Z_1 are the output signals of the logical circuit indicating the two lowermost binary digits. The first counting step proper, following the logical circuit, is actuated directly by the natural and inverted phase-shifted signals.

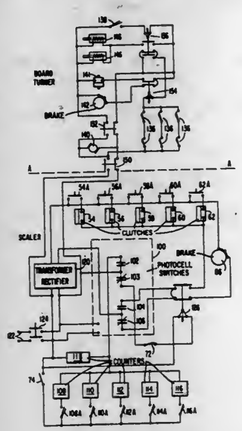
3,548,168
AUTOMATIC LUMBER SCALER

Clayborne C. Beck, Bedford, Va.
(113 Brooke Drive, Fredericksburg, Va. 22401)

Continuation-in-part of application Ser. No. 464,596, June 2, 1965, which is a continuation-in-part of application Ser. No. 385,286, July 27, 1964. This application Nov. 30, 1967, Ser. No. 687,042
Int. Cl. G06m 7/00; G01b 7/32
U.S. Cl. 235—92 5 Claims

Apparatus for automatic scaling of hardwood lumber is disclosed which enables scaling in accordance with standards set by the National Hardwood Lumber Association. A photocell is used to sense the passage of a

board past the scaling station and to control the operation of readout counters in such fashion that the lumber



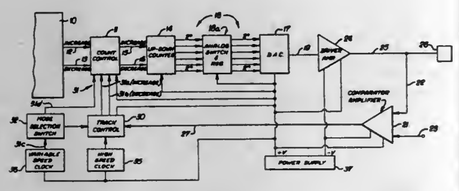
is scaled exactly as if it were done with a standard board rule but with greatly increased speed and accuracy.

3,548,169

PROCESS CONTROLLING DIGITAL TO ANALOG CONVERTER

Mauro G. Togneri, Houston, Tex., assignor to The Fluor Corporation, Ltd., Los Angeles, Calif., a corporation of California

Filed Mar. 14, 1967, Ser. No. 623,015
Int. Cl. H03k 21/34
U.S. Cl. 235—92 7 Claims



The invention concerns a computer output controlled process controller embodying an up-down counter, a digital to analog converter responsive to counter digital output, a comparator responsive to converter analog output and to a variable external analog input signal to produce an error signal, and control apparatus including switch and clock means to change the count in the counter selectively in response to change in computer output, or in response to the error signal, to reduce the latter.

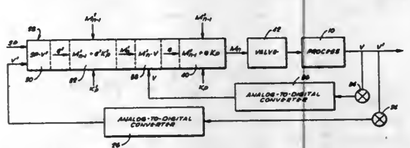
3,548,170

PROCESS CONTROL BY A DIGITAL COMPUTER

Ronald G. Bruce, Ponca City, Okla., and Robert J. Fanning, Baton Rouge, La., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

Filed Nov. 9, 1964, Ser. No. 409,821
Int. Cl. G05b 15/00
U.S. Cl. 235—151.1 1 Claim

A method for continuously controlling a process by incorporating sensing elements in the control lines and vessels so that a voltage will be developed by the sensing element which will correspond to the information being sampled by the sensing element and multiplex and digital means for examining periodically the voltage output from each sensing element and comparing this value to a set-point previously determined, and a computer for develop-



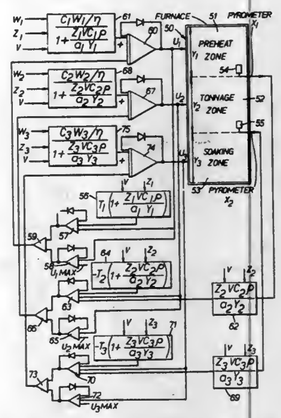
ing a control voltage which will change the position of some control apparatus which will tend to re-establish the process to its predetermined set-point. The above is accomplished by repositioning a valve or other element in accordance with the detected error.

3,548,171

FURNACE CONTROL METHOD AND APPARATUS

Witold T. Kodz, London, England, assignor to The British Iron and Steel Research Association

Filed June 22, 1966, Ser. No. 559,696
Claims priority, application Great Britain, June 15, 1965, 25,242/65
Int. Cl. C21d 1/34; G06f 7/38; G06g 7/40
U.S. Cl. 235—151.1 15 Claims



A control of furnaces and more particularly the automatic control of slab reheating furnaces is provided which automatically controls the furnace both to heat slabs to a minimum temperature equal to the desired article exit temperature and to operate at a minimum fuel consumption rate.

3,548,172

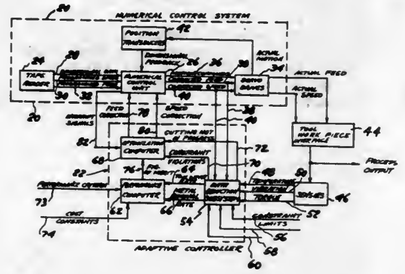
ADAPTIVE CONTROL SYSTEM FOR NUMERICALLY CONTROLLED MACHINE TOOL

Ronald M. Centner, Southfield, and Jerome M. Idelsohn, Huntington Woods, Mich., assignors to The Bendix Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 24, 1964, Ser. No. 391,549
Int. Cl. G05b 13/02; G06f 15/46
U.S. Cl. 235—151.11 8 Claims

The path through which the cutter of a milling machine moves, and its speed of rotation, are controlled at a primary level by numerical information encoded on a punched tape. A contouring type numerical control unit accepts the numerical information and generates signals

which control the position and rotational speed of the cutter. These signals are modified by an adaptive controller on the basis of transducer signals which are functions of conditions at the tool-workpiece interface, such as temperature, vibration, and torque. The adaptive controller includes a data reduction sub-system which accepts these transducer signals and various other data which is received from the numerical control unit or introduced from outside the system, and calculates basic factors relating to the performance of the milling machine system, such as



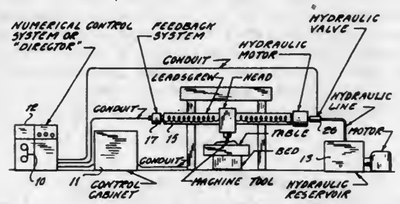
tool wear rate and metal removal rate. These signals are introduced to a performance computer system which also receives external data and continuously generates a figure of merit for the operation of this milling machine. An optimization computer periodically samples this figure of merit and generates output signals which are a function of the change of the figure of merit between successive samplings, which are in turn used to modify the output signals of the numerical control unit. The system operation is such that the machine operation is continually modified to seek a maximum figure of merit.

3,548,173

NUMERICALLY CONTROLLED SURFACE DEVELOPMENT METHOD FOR PREPARING BODY CONTOURS

George Pascoe and Norman W. Hopwood, Jr., Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Sept. 8, 1966, Ser. No. 577,997
Int. Cl. B23q 17/18; G05d 3/04
U.S. Cl. 235—151.11 10 Claims



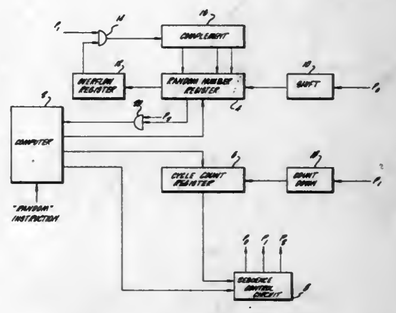
This invention relates to methods for determining analytically the geometric characteristics of both arbitrary, single-plane contours and three-dimensional surface point data and for developing them by means of computer assisted processing techniques wherein the intelligence that is obtained during the processing steps can be stored on a suitable medium, such as punched tape, and subsequently used as a source of data for a numerical control system for a machine tool, such as a multiple axis milling machine.

3,548,174

RANDOM NUMBER GENERATOR

Donald E. Knuth, Sierra Madre, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Aug. 10, 1966, Ser. No. 571,448
Int. Cl. G06f 13/06; H03k 5/00
U.S. Cl. 235—152 10 Claims



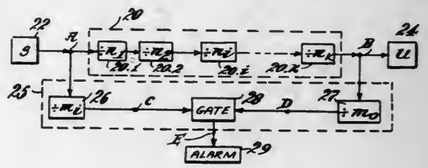
A binary number having good randomness properties is produced by emptying a starting number into a storage register and then shifting each digit of the starting number to the next higher order bit position a plurality of times, thus dropping the highest order bit with each shift. After each shift the bits occupying a plurality of selected bit positions are complemented when the bit dropped by the preceding shift is a predetermined value.

3,548,175

ERROR DETECTOR FOR FREQUENCY CHANGERS

James J. Tomlin, Lexington, Mass., assignor, by mesne assignments, to LTV Electrosystems, Inc., Dallas, Tex., a corporation of Delaware

Filed Jan. 15, 1968, Ser. No. 697,959
Int. Cl. H03k 13/32
U.S. Cl. 235—153 15 Claims

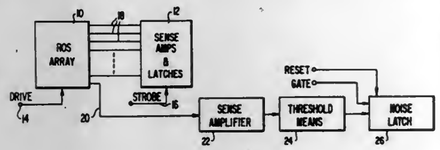


Errors in a frequency changer, e.g., a divider, are detected by circuitry which includes two frequency dividers having a division ratio prime relative to the division ratio of the monitored frequency divider, and a coincidence gate. Input and output frequencies of the monitored divider are divided one in each of the detector dividers and applied to the coincidence gate, the gate being inhibited by the signal from the detector divider receiving the higher frequency signal. Non-coincidence of the signals applied to the gate produces an output triggering an alarm. An arbitrarily high probability of error detection is obtained by adding, for successive iterations, more detector circuits similar to those outlined above, the dividers of which have ratios prime relative to one another and to the monitored frequency divider, and the gate outputs of which trigger an alarm.

3,548,176
PROBABLE FUTURE ERROR DETECTOR

William F. Shutler, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, a corporation of New York

Filed Jan. 18, 1968, Ser. No. 698,896
Int. Cl. G11c 29/00; G06f 11/00
U.S. Cl. 235—153 9 Claims

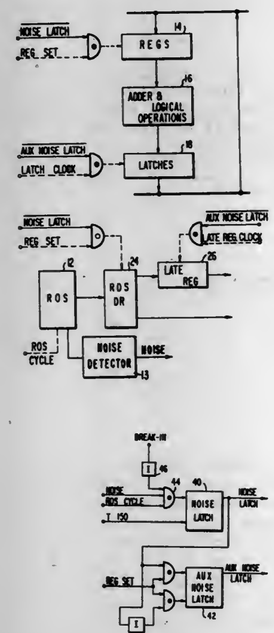


In a computer including a storage array for providing microprogram control words, a line of the array is monitored for noise of sufficient level to probably cause an error in the array output word.

3,548,177
COMPUTER ERROR ANTICIPATOR AND CYCLE EXTENDER

Willis E. Hartlipp and Henry G. Healy, Pleasant Valley, Angelo S. Ruggiero, Wallkill, and William F. Shutler, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, a corporation of New York

Filed Jan. 18, 1968, Ser. No. 698,905
Int. Cl. G06f 11/00; G11c 29/00
U.S. Cl. 235—153 10 Claims

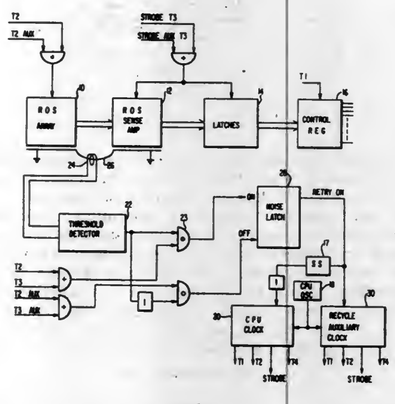


In response to a noise signal from a microprogram control store indicating probable next cycle computer error, the computer pauses in its operation until the computer cycle following the dissipation of the noise signal. At the end of the pause the computer continues operating from the point at which it was when the pause started. The pause is accomplished by blocking certain of the clock pulses, thereby preventing a change of contents in the latches and registers, and providing means for time synchronizing the memory cycles of the main memory and a local storage device with the center processing unit of the computer at the end of a pause.

3,548,178
COMPUTER ERROR ANTICIPATOR

Richard J. Carnevale, Endwell, John E. Curran and George J. Dohanich, Jr., Endicott, John F. O'Donnell and William H. Speer, Apalachin, Gary A. Trudgen, Binghamton, and Leonard J. Wallace, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 18, 1968, Ser. No. 698,906
Int. Cl. G06f 11/00; G11c 29/00
U.S. Cl. 235—153 7 Claims



In a computer in which the cyclic gating activity of the computer logic system is controlled by cyclically generated microprogram control signals and clock pulses, the level of ground shift between the storage array and sense amplifiers of the microprogram control store is an indicia of the array noise level and probability of error in the microprogram control signals. When the ground shift preceding a cycle of activity indicates probability of error, the main computer clock is blocked for the ensuing cycle of gating activity thereby preventing a change of contents in the logic elements of the computer. An auxiliary clock source is enabled to allow continued cyclic activity of the microprogram control store and the sensing apparatus and other parts of the computer for which non-interrupted cyclic activity is desired.

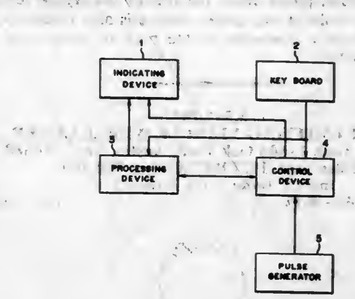
3,548,179
MINIATURE DESK COMPUTER

Takehiko Kimura, Tokyo, and Yoshiaki Niizawa, Kawasaki-shi, Japan, assignors to Canon Camera Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

Filed May 3, 1967, Ser. No. 635,816
Claims priority, application Japan, May 6, 1966, 41/28,546
Int. Cl. G06f 7/38, 9/14, 3/14
U.S. Cl. 235—156 16 Claims

This invention relates to a miniature computer using binary coded decimal digits and including two computing shift registers having the same number of figures and serving as a memory, one of which being an indicating register and the other being an accumulator, and a plu-

rality of computing counters. When computing is made, two or three of said counters are operated relatively to

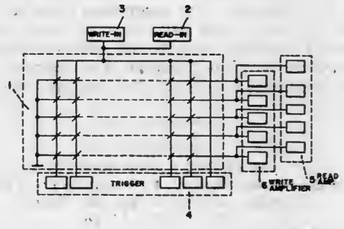


said shift registers for operating four fundamental rules of arithmetic and other mixed calculations by an automatic decimal point processing.

3,548,180
DECIMAL-POINT INDICATING SYSTEM FOR ELECTRONIC CALCULATOR

Stefan Hristov Angelov, Snejanka Vladimirova Hristova, and Srebryu Yovtchev Srebev, Sofia, Bulgaria, assignors to Zentralen Institut Po Istchislitelna Technika, Sofia, Bulgaria, a corporation of Bulgaria

Filed Oct. 3, 1967, Ser. No. 672,500
Claims priority, application Bulgaria, Oct. 4, 1966, I–1,175
Int. Cl. G06f 7/48
U.S. Cl. 235—159 2 Claims



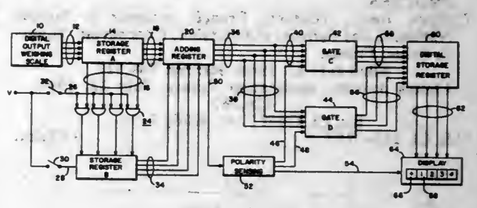
An electronic calculator with a normal magnetic-core storage with the usual lines and columns for recording numerical information is provided with an additional line into which the decimal position is registered by a flip-flop which, under one hand, resets all of the position of the additional line to "0" and therefore registers a "1" in the appropriate position. This sequence is followed to advance the decimal point with each recordal of a digit. Decimal point indication is by neon lamps between the counter tubes.

3,548,181
WEIGHING IN AND WEIGHING OUT SCALES INDICATING APPARATUS AND METHOD

Ernest W. Fischer, Jr., 1431 Cascade Place 92021, and Robert J. Price, 1311 Hacienda Drive 92020, both of El Cajon, Calif.

Filed Oct. 2, 1967, Ser. No. 672,367
Int. Cl. G06f 15/20
U.S. Cl. 235—168 4 Claims

The method and apparatus for displaying the weight of objects moved onto and out of a carrying means, platform or the like that is weighed by digital output scales providing a series of digital signals giving the weight of the objects and carrying means. The apparatus is selectively set at a zero weight indication display for a given total weight of the objects and carrying means so

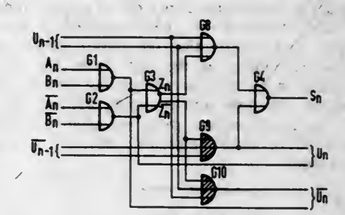


that only an addition or reduction in weight of the objects weighed is displayed as a plus or minus up scale reading on the digital display.

3,548,182
FULL ADDER UTILIZING NOR GATES

Martin Pross, Munich, Germany, assignor to Siemens Aktiengesellschaft, a corporation of Germany

Filed Aug. 16, 1967, Ser. No. 660,992
Claims priority, application Germany, Aug. 18, 1966, S 105,419
Int. Cl. G06f 7/385
U.S. Cl. 235—176 2 Claims



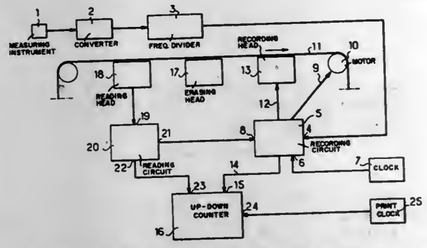
A circuit arrangement for the addition of two binary digit numbers with consideration of a carry-over originating from the next lower step, wherein the values are present in the original form and the inversion, and the partial sum is formed from the two terms of a sum and its inversions through combination in a first or second NOR gate respectively, the output values of which are fed to a third gate having an OR and a NOR output, on which the partial sum and its inversion appear, and are respectively combined with the associated carry-over or its inversion by means of fourth and fifth NOR gates, with the carry-over or its inversion respectively being fed to a sixth NOR gate supplying the sum, characterised in that the carry-over value and its inversion each consist of two components which, when combined yield the value itself of the carry-over or its inversion respectively, said fourth and fifth NOR gates having three inputs to the second and third inputs of one the components of the carry-over are fed, and to the second and third inputs of the other the components of its inversion are fed, thereby combining the respective associated components, and a further NOR gate having three inputs, to which are applied components of the carry-over and the inverted partial sum, with the NOR gate receiving the inverted carry-over and the further NOR gate respectively supply one of the components of the carry-over or the inverted carry-over of this step, and the combination of the terms of a sum or the inverted terms of a sum respectively form the other components of the carry-over or the inverted carry-over respectively.

3,548,183

METHOD OF INTEGRATING OVER A FLOATING INTERVAL AND APPARATUS COMPRISING A MAGNETIC TAPE FOR CARRYING OUT THIS PROCESS

Philippe Jouve, Pontacq, France, assignor to Societe Nationale des Petroles d'Aquitaine, Courbevole, Hauts-de Seine, France

Filed July 22, 1968, Ser. No. 746,517
Claims priority, application France, July 28, 1967, 116,167
Int. Cl. G06f 7/46; G06g 7/18
U.S. Cl. 235—183 4 Claims



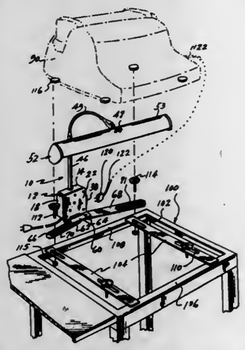
The method of integrating a value of variable magnitude over a floating period of time, which comprises the steps of transforming said magnitude into electrical pulses proportional in frequency to said magnitude, dividing this frequency by a predetermined constant number, recording the pulses on successive zones on an endless movable magnetic tape, counting the pulses directed to the tape in a counter, and substracting the pulses stored during the previous revolution of the tape from the total of pulses recorded in the counter. Recording and reading of the pulses on the tape and stopping of the tape are initiated by a synchronizing pulse on each zone of the tape. The invention also comprises a device for carrying out said method.

3,548,184

LAMP FOR TYPEWRITER HAVING ADJUSTABLE LEG BRACKET MOUNTING

Milton Fletcher, % Acme Lites, Rte. 9W, Congers, N.Y. 10920

Filed Apr. 16, 1968, Ser. No. 721,831
Int. Cl. F21v 33/00
U.S. Cl. 240—2 10 Claims



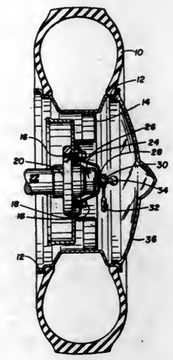
A lamp assembly is described especially adapted for illuminating a platen of a typewriter, adding machine and the like. The lamp assembly has a base including a box containing transformer and other electrical parts. The box has a cover formed with an extension to which are pivotally attached a pair of leg brackets. These brackets facilitate mounting the lamp adjacent to a typewriter with the brackets disposed under the feet of the typewriter on a stand or table. A one-piece bracket is also disclosed to fit underneath a typewriter at the back or either side of the typewriter.

3,548,185

LIGHT EMITTING VEHICLE WHEEL COVER

Wilbert Hall, 11608 Oak Trail, Austin, Tex. 76688

Filed Sept. 18, 1968, Ser. No. 760,580
Int. Cl. B60q 1/00; F16c 15/00
U.S. Cl. 240—8.12 12 Claims



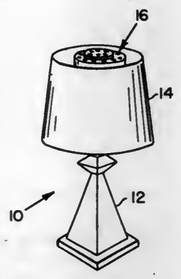
An electrical generator having a rotor and a stator is supported by coupling structure connected to the rotor adjacent a vehicle axle. A pendulum extends from the stator for maintaining the stator fixed while the rotor is rotated by the vehicle axle. One or more lamps are mounted for energization by the electrical energy produced by the electrical generator. A wheel cover adapted to emit light encloses the generator and the one or more lamps.

3,548,186

READING LAMP SHIELD

Walter B. Brock, R.D. 1, Victor, N.Y. 14564

Filed Jan. 24, 1968, Ser. No. 700,184
Int. Cl. F21v 11/18
U.S. Cl. 240—46.03 10 Claims



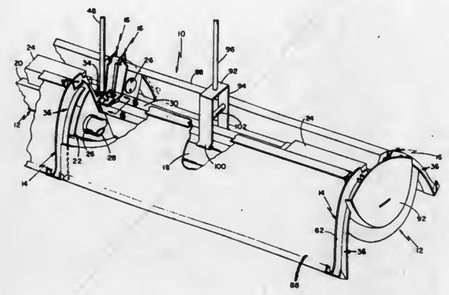
An inverted cup-shaped enclosure having a plurality of angularly-spaced, axially-extending slots is mounted around the light bulb of a lamp. A second inverted cup-shaped enclosure having an equal number of angularly-spaced, axially-extending slots surrounds the first enclosure. When the light bulb is out, the slots of the two enclosures are out of register. When the light bulb is turned on, however, the heat of the bulb warms up a bimetallic spiral spring which connects the two enclosures, so that gradually one enclosure is rotated relative to the other. Thus, the light given off is gradually increased to permit a person's eyes to accommodate to the illumination. In a second embodiment of the invention, there is but one bulb enclosure. It has louvers instead of slots; and as the lamp warms up the bimetallic spiral spring, the louvers are opened gradually to increase the illumination produced by the lamp.

3,548,187

LIGHTING FIXTURE

Michael Henry Kruger, Chestnut Hill, Mass., assignor to Smithcraft Corporation, Chelsea, Mass., a corporation of Massachusetts

Filed Nov. 30, 1967, Ser. No. 686,872
Int. Cl. H05b 33/02
U.S. Cl. 240—51.11 16 Claims



A lighting fixture comprising a lighting assembly, a support assembly and at least one spring element. Cooperating portions of the lighting assembly and support assembly define a joint system. Each assembly includes a first surface which engages a first surface of the other assembly, and a second surface at an angle to the first surface which engages a second surface of the other assembly. The spring element engages the two assemblies. The spring element shown has elongated tension legs which are rotated to assemble the fixture, and force the first and second surfaces respectively together. Shown also is a reversible reflector construction.

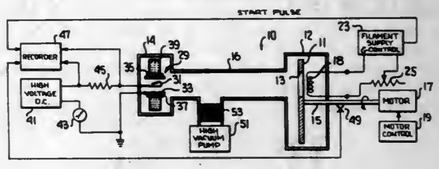
3,548,188

METHOD AND APPARATUS FOR MASS ANALYZING A GAS WHICH IS SELECTIVELY DESORBED FROM A BODY

Robert C. Nemeth, Huntington Station, N.Y., assignor to Vacuum Instrument Corporation, Huntington Station, N.Y., a corporation of New York

Continuation-in-part of application Ser. No. 707,338, Feb. 21, 1968. This application May 6, 1969, Ser. No. 822,223
Int. Cl. H01j 39/34
U.S. Cl. 250—41.9 17 Claims

Analysis of material is achieved by distinguishing its constituent elements by their respective masses and desorption temperatures. The constituent elements of adsorbed material are selectively desorbed from a filament by controllably increasing the filament temperature. In one embodiment the desorbed molecules are periodically introduced into one end of a drift tube at recorded times corresponding to specified filament temperatures, the molecules traversing the drift tube at a speed determined by their respective masses. The arrivals of bunches of molecules at the other end of the tube are recorded in relation to their time of introduction into the drift tube to provide a correlation between the mass and desorption temperature of the molecules. In an alternative embodiment the desorbed molecules are periodically ionized at recorded times corresponding to specified filament temperatures, the resulting ions being accelerated in a mass spectrometer in which the ions of different masses are scanned across a single exit slit synchronously with the periodic ionization of the desorbed molecules. The ion current at the slit is recorded as a function of mass during each ionization period to correlate mass and desorption temperature of the desorbed molecules.

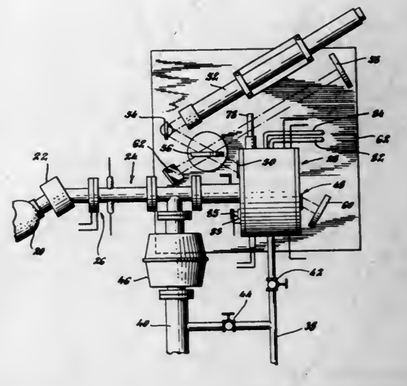


3,548,189

METHOD EMPLOYING ION BEAMS FOR POLISHING AND FIGURING REFRACTORY DIELECTRICS

Aden B. Meinel, 4115 E. 6th St. 85711; Stanley Bashkin, Rte. 2, Box 732B 85215; and Donald A. Loomis, 41 N. Montego Drive 85710, all of Tucson, Ariz.; and John B. Schroeder, Blue Spruce Circle, Weston, Conn. 06880

Filed June 16, 1965, Ser. No. 464,323
Int. Cl. H01j 37/26
U.S. Cl. 250—49.5 22 Claims



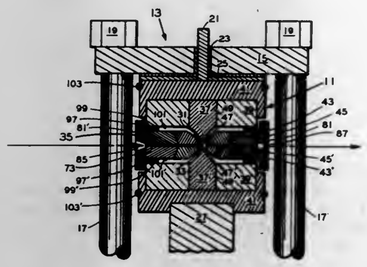
The disclosed method for dimensioning and polishing surfaces of refractory dielectric materials comprises the initial step of examining the dielectric surface with an interferometer to locate those surfaces areas which extend above a desired surface contour. These high areas are then bombarded with positive ions of an ion beam. The current density of the beam and the duration of bombardment are controlled so as to erode away these high areas and thus produce the desired surface contour.

3,548,190

HIGH PRESSURE APPARATUS FOR USE IN X-RAY DIFFRACTION ANALYSIS

Charles B. Sclar, Columbus, and Paul J. Freud, Worthington, Ohio, assignors to The Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware

Filed Sept. 18, 1967, Ser. No. 668,472
Int. Cl. G01n 23/20
U.S. Cl. 250—51.5 7 Claims



High-pressure apparatus comprising a pair of opposed punches, the sides of each being tapered toward one end, means for moving the punches to exert pressure on an object positioned between the tapered ends thereof, a pair of opposing die members laterally surrounding the object, held tightly together, and contacting each other over a substantial area in a plane between the punches and transverse to their axis, each die member having a tapered portion to receive the tapered end of the corresponding punch, and a gasket positioned between the tapered portions of the die members and punches. The contacting surfaces of the die members may be formed with grooves for transmitting radiation through the object and for providing egress for diffracted radiation within a range of angles.

3,548,191

PLASTIC TRACK-TYPE DETECTOR FOR SLOW NEUTRONS HAVING THE NEUTRON CONVERSION SUBSTANCE UNIFORMLY DISPERSED THEREIN

Warner W. Schultz, Schenectady, and Stanley L. Jones, Scotia, N.Y., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 13, 1969, Ser. No. 807,081
Int. Cl. G01t 3/00, 5/10
U.S. Cl. 250—83.1 10 Claims

This invention is a track-type detector for slow neutrons, comprising a substrate on which a track detector plastic is deposited, the plastic containing a uniform disperson of one of the following compounds: Tetraphenyl boron, hexamethyl borazine, lithium ricinoleate, carborane.

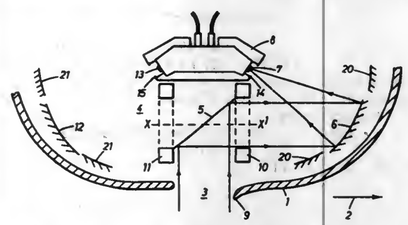
3,548,192

INFRARED SCANNER USING A DOUBLE SIDED INCLINED MIRROR MOUNTED ON ANNULAR AIR BEARINGS

Victor Michael Farmer, Crowthorne, and John Francis Knight, Teddington, England, assignors to Electric & Musical Industries Limited, Hayes, England, a British company

Filed Apr. 11, 1968, Ser. No. 720,726
Int. Cl. G01t 1/16
U.S. Cl. 250—83.3 11 Claims

This specification describes a radiant energy scanner intended for use in a line-scan aerial reconnaissance system in which a double sided mirror is mounted on two large annular air bearigs so as to be inclined to the axis of rotation of the bearings. Radiation, such as infrared radiation, derived from the terrain is reflected by the mirror through the centre of one or other of the annular portions of the bearings on to suitable sensing means. The mirror may be rotated by means of an air turbine which may be driven by the same air supply as feeds the bearings. The rotating mirror may be plane or concave, and if the mirror is plane means should be



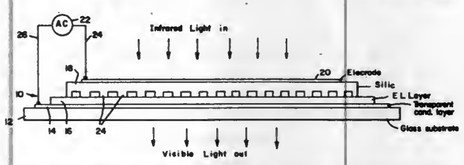
provided for focusing the radiation received by the rotating mirror on the sensing means. The sensing means may be placed away from the axis of rotation of the rotating mirror or may be on that axis either between the rotating mirror and the focusing means which may be in the form of concave mirrors or behind the rotating mirror which may be provided with a central aperture to allow radiation to pass through the mirror to the sensing means.

3,548,193

STRUCTURE TO CONVERT INFRARED RADIATION IMAGES TO VISIBLE RADIATION IMAGES USING A PHOTOCONDUCTIVE ELEMENT HAVING A PLURALITY OF ISOLATED JUNCTIONS THEREIN

Paul H. Wendland, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Continuation of application Ser. No. 640,232, May 22, 1967. This application Jan. 28, 1969, Ser. No. 797,364
Int. Cl. H01l 17/60
U.S. Cl. 250—83.3 8 Claims



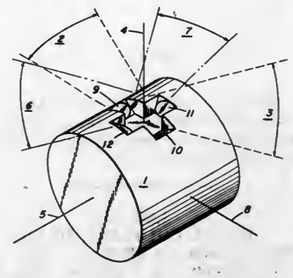
A light-transparent substrate is provided with a coating of transparent electrically conductive material. Surface imposed on the transparent conductive material is a layer of electroluminescent material. A second layer of invisible radiation-sensitive material is positioned to overlie the electroluminescent material. The surface of the invisible radiation-sensitive material is provided with a plurality of downwardly extending pedestals, said pedestals surface engaging the electroluminescent material. A second layer of electrically conductive material is surface imposed on the invisible radiation-sensitive material on the side thereof removed from pedestals. The pedestals comprise a plurality of p-n junctions. Upon application of an alternating current voltage to the electrically conductive layers, the electroluminescent material is excited and emits visible light in direct response to the degree and intensity of invisible radiation incidentally impinging on the invisible radiation-sensitive material. Thus, invisible radiation is converted to visible radiation.

3,548,194

SENSOR FOR DETECTING THE ATTITUDE OF AN AERIAL VEHICLE WITH RESPECT TO THE LOCAL VERTICAL

Robert W. Astheimer, Westport, Conn., assignor to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware

Continuation-in-part of application Ser. No. 564,521, July 8, 1966. This application Feb. 26, 1969, Ser. No. 805,991
Int. Cl. G01p 13/00
U.S. Cl. 250—83.3 7 Claims



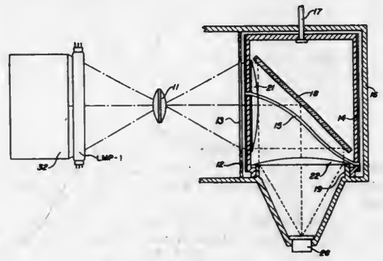
An attitude sensor mounted on the top of a high-flying airplane determines whether the airplane is in level flight with respect to the local vertical through the zenith, and produces signals indicating departure about either roll or pitch axes, and the direction. Preferably pairs of detectors are provided symmetrically arranged with respect to the two axes, and looking up at an angle with the horizontal. The detectors are sensitive only to radiation from the 15μ carbon dioxide band, or rather to a band about the radiation maximum, and therefore unaffected by temperature differences on the earth's surface, such as sheets of ice and the like, or cold clouds near the horizon. Instead of having pairs of detectors, a single detector can be scanned conically in a cone centered on the local vertical with its base up toward the zenith. When scanning, suitable electronics of conventional design are used.

3,548,195

DOCUMENT SCANNING RADIATION SENSITIVE MEANS

Partap C. Dhir, Penfield, and Franklin L. Headd, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Nov. 24, 1967, Ser. No. 685,590
Int. Cl. G01k 9/00
U.S. Cl. 250—219 12 Claims



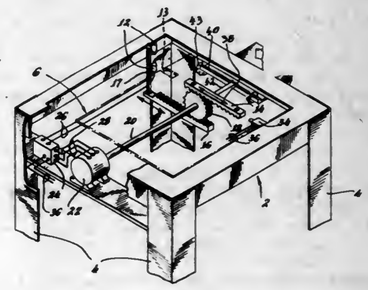
Apparatus for scanning a document in which a document is supported on a rotatable support member and flood illuminated at a scanning station as it is advanced in relation thereto. The illuminated image of the document is directed at the scanning apparatus by a lens system and cut into a line of light by an aperture in an opaque plate. Increments of the line of light thus generated are metered to within an opaque rotating cylinder by a transparent helical aperture in the rotating cylinder. Light entering the rotating cylinder is collected by a collimating lens segment optically aligned with the line cutting aperture and projected onto a reflecting surface also mounted within the rotating cylinder. Light is reflected axially along the rotating cylinder by the reflecting surface to a collecting lens from which it is projected onto the surface of a single photosensitive device. The light collection optics produce a spot of light at the photosensitive device of uniform intensity across the length of scan which is utilized to produce a uniform output therefrom.

3,548,196

METHOD AND APPARATUS FOR AUTOMATICALLY CENTERING FABRIC WORKPIECES REGARDLESS OF THEIR SIZE WITHIN THE OPERATING RANGE

Harry B. Minasian, Bronx, N.Y., assignor to Ivanhoe Research Corporation, New York, N.Y., a corporation of Delaware

Filed June 5, 1968, Ser. No. 734,660
Int. Cl. G06m 7/00
U.S. Cl. 250—224 10 Claims

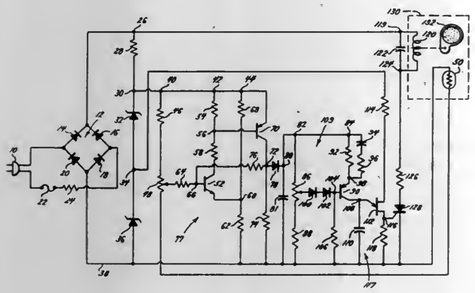


The invention provides a method and apparatus for automatically centering workpieces, regardless of the size of the particular workpiece being centered, and for sensing changes in size of the respective workpieces, thus enabling various sizes of workpieces to be automatically processed as desired. The apparatus of this invention includes a movable worktable on which each workpiece is placed and movable sensing means, the worktable and sending means being caused to move equal distances in opposite directions and at the same rate to determine and locate the center of the workpiece. Drive means and response control means are provided to coordinate the movement in opposite directions of the sensing means and of the worktable, and size sensing means responds to the movement of the worktable to determine the size of the workpiece being processed. The workpiece is initially placed on the movable worktable with a first of its edges located in a pre-determined position, and then the worktable and the sensing means are caused to move equal distances in opposite directions and at the same rate. When a second edge of the workpiece diametrically opposite to the first edge is sensed, a signal is transmitted that serves to deenergize the drive means to cause the movable worktable to stop. The method performed is such that at this stopped position the center of the workpiece coincides with the center of the apparatus, thus the center of the workpiece has been accurately located as to be suitably positioned in readiness for further processing.

3,548,197
LIGHT PROTECTION DEVICE WITH A MOVABLE OPAQUE SHIELD

Bernard C. Nordmann, Kirkwood, Mo., assignor to Megatronics, Inc., St. Louis, Mo., a corporation of Missouri

Filed Mar. 14, 1969, Ser. No. 807,386
Int. Cl. G01j 1/42; G01d 5/56; G02f 1/30
U.S. Cl. 250—229 21 Claims

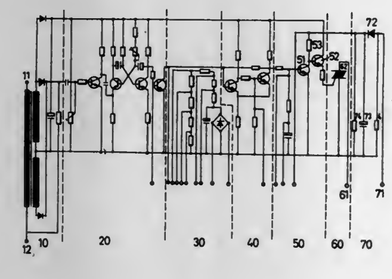


Prompt and effective actuation of a solenoid is attained by applying a relatively high voltage pulse to that solenoid; and heating of that solenoid, during the ensuing energization of that solenoid, is minimized by making the duration of that voltage pulse short and by using a substantially lower voltage to keep that solenoid energized.

3,548,198
CIRCUIT FOR PREVENTING TRANSIENT OPERATION OF SEQUENCE-SWITCHED LOADS

Walter Holzer, Meersburg Bodensee, Germany, assignor to Holzer Patent AG, Zug, Switzerland

Filed July 11, 1968, Ser. No. 744,049
Claims priority, application Germany, July 12, 1967, 1,588,289
Int. Cl. H02j 3/14
U.S. Cl. 307—41 7 Claims

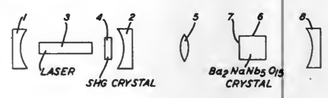


This disclosure teaches a circuit layout for preventing the switching-on of sequence-switched current-consuming units. A timing motor is controlled by sequence contacts for operating program contacts, each program contact being connected in series with one current-consuming unit and with an electronic regulator having a switching component for gating the supply current to the program contacts.

3,548,199
PARAMETRIC DEVICES UTILIZING $Ba_2NaNb_5O_{15}$

Joseph E. Geusic, Berkeley Heights, and Shobha Singh and Richard G. Smith, Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Mar. 28, 1968, Ser. No. 716,955
The portion of the term of the patent subsequent to Jan. 21, 1986, has been disclaimed
Int. Cl. H03f 7/00
U.S. Cl. 307—88.3 8 Claims

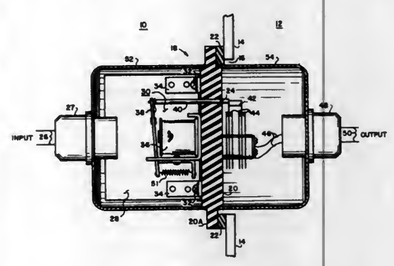


A low threshold, solid state, optical parametric oscillator utilizing $Ba_2NaNb_5O_{15}$ as the nonlinear medium is capable of operating continuously over a broad frequency range including the visible band.

3,548,200
SIGNAL COUPLING DEVICE

David Painter Coffin, Jr., Bethesda, Md., assignor, by mesne assignments, to Versitron, Inc., Washington, D.C., a corporation of the District of Columbia

Filed Jan. 24, 1969, Ser. No. 793,688
Int. Cl. H05k 9/00
U.S. Cl. 307—89 24 Claims



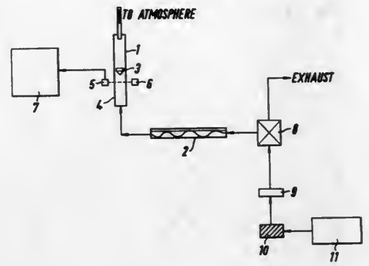
A device for coupling electro-magnetically carried signal information from a first chamber to a second chamber which chambers are electro-magnetically isolated from each other while substantially blocking the passage of undesired electro-magnetic energy between the chambers. An opening is provided between the chambers which is dimensioned to operate as a waveguide below cutoff with an upper cutoff frequency above that of the undesired electro-magnetic energy. The signal information is converted into a mechanical movement in the first chamber and is conveyed through the waveguide to the second chamber in this form. The second chamber contains a means for reconverting the mechanical force or the mechanical movement into signal information.

3,548,201
MACHINE GUARDS

Goodwin A. G. Ive, Old Chipstead, England, assignor of one-half to Radiovisor Parent Limited, London, England

Filed Aug. 8, 1968, Ser. No. 751,224
Claims priority, application Great Britain, Aug. 10, 1967, 36,709/67
Int. Cl. G08b 13/10
U.S. Cl. 307—116 13 Claims

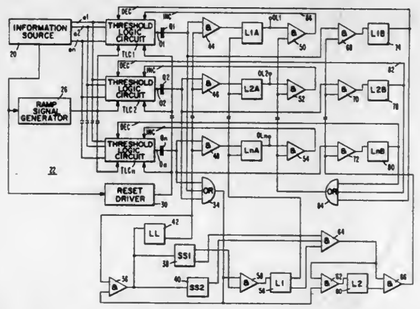
A machine guard operating in accordance with "safety by distance" principles and including a pneumatic operable contact mat having inlet and outlet ports, the inlet port being connected to a source of air pressure via an air valve and the outlet port being connected to the input of a variable air type flow meter having a float whose level is determined by the air flow through the contact mat, photoelectric sensing means for detecting the level of the float such as to produce an electrical signal whenever the level of the float falls below a predetermined level, and control means connected in a control circuit of the machine or machine component and responsive to the electrical signal from the sensing means such as to immobilise the machine or machine component, the control means being of the fail-safe type.



3,548,202
ADAPTIVE LOGIC SYSTEM FOR UNSUPERVISED LEARNING

Eleanor R. Ide, Raleigh, N.C., and Mitchell P. Marcus, Binghamton, and Cyril J. Tunis, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Nov. 29, 1968, Ser. No. 779,840
Int. Cl. G06k 9/00
U.S. Cl. 307—201 7 Claims

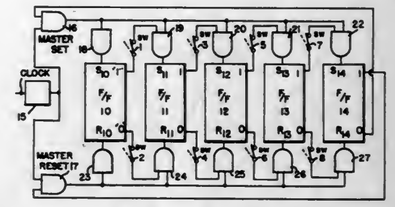


An adaptive logic system arranged for unsupervised learning where the adaptive logic units are of the ramp signal controlled type. A plurality of timing circuits are arranged to operate in sequence during the time that threshold logic circuits may turn on as a result of a given input pattern. Depending on whether or not one or more additional threshold circuits turn on during the time intervals set by the timing circuits, the system may or may not adapt, and will accept or reject the input.

3,548,203
HIGH FREQUENCY RECIPROCAL COUNTING CIRCUITS EMPLOYING A PLURALITY OF BISTABLE CIRCUITS SEQUENTIALLY COUPLED TO A SUCCEEDING CIRCUIT BY MEANS OF COINCIDENCE GATES AND SWITCHES

Philip Basse, New York, N.Y., and Patrick J. Murphy, Jersey City, N.J., assignor to Sapien Electronics Corporation, a corporation of New York

Filed Oct. 9, 1967, Ser. No. 673,634
Int. Cl. H03k 23/02, 23/22
U.S. Cl. 307—225 8 Claims

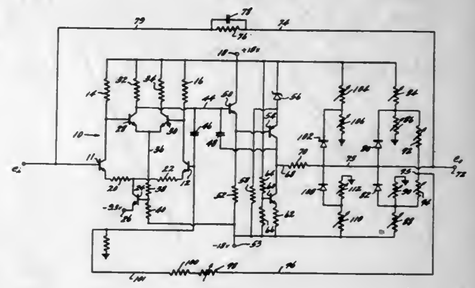


There is disclosed a scaling circuit in which a plurality of bistable devices are arranged in conjunction with a series of gates to provide a high speed scaling or dividing operation of a clock source input frequency. Each bistable circuit is triggered in a sequence determined by the state of the preceding stage. When this occurs the last stage activates another gate which controls further gates assuring that each bistable device is turned off in sequence. The further gates are controlled, as well, by the status of the preceding stage. The scaler lends itself to programming or control of its scaling factor by a suitable switching arrangement in a manner to obtain odd or even scaling factors which in turn can be changed by a single integer.

3,548,204
ELECTRICAL FUNCTION GENERATOR

Richard J. Hellen, Green Hills, Ohio, assignor to General Electric Company, a corporation of New York

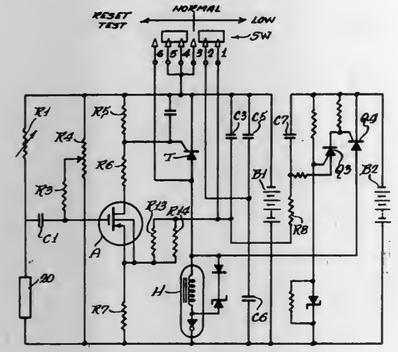
Continuation of application Ser. No. 453,022, May 4, 1965. This application May 9, 1969, Ser. No. 823,532
Int. Cl. G06g 7/12
U.S. Cl. 307—229 8 Claims



An electrical function generating circuit is shown in which there is proportionate amplification of an input signal over a limited middle range. When the input signal exceeds a given value, the positive feedback drives an amplifier to a maximum output level until the input signal

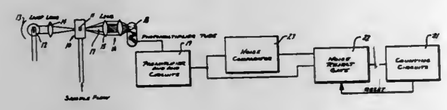
is reduced to a given value. Various output signal functions may be generated through this use of positive and negative feedbacks.

3,548,205
WARNING DEVICE
Wilbur L. Ogden, Aurora, Ill., assignor to BRK Electronics, Inc., Skokie, Ill., a corporation of Illinois
Filed Aug. 8, 1968, Ser. No. 751,086
Int. Cl. H03k *9/00, 17/56*
U.S. Cl. 307—232 **10 Claims**



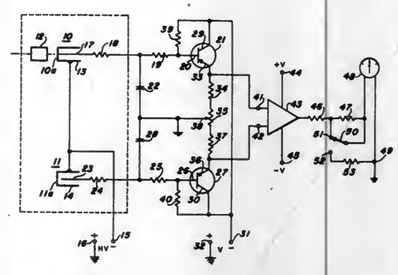
Improvement upon the fire and smoke detecting and warning devices of Pat. 3,245,067 and copending application Ser. No. 709,415, filed Feb. 29, 1968; characterized by substitution for the prior electric bridge arrangement, wherein two identical sensors requiring precise matching of electrical characteristics and physical structure to consitute one a detector and the other a compensator, of a bridge arrangement of one sensor comprising the detector and an electronic circuit constituting an automatic compensator of substantially enhanced adaptability, practicality, reliability and service characteristics.

3,548,206
NOISE REJECTION CIRCUITS FOR PARTICLE COUNTERS
Hugh Malcolm Ogle, Palo Alto, and Kenneth L. Pekarek, Belmont, Calif., assignors to Royco Instruments, Inc., Menlo Park, Calif., a corporation of California
Filed Jan. 14, 1969, Ser. No. 790,940
Int. Cl. H03k *5/20*
U.S. Cl. 307—235 **5 Claims**



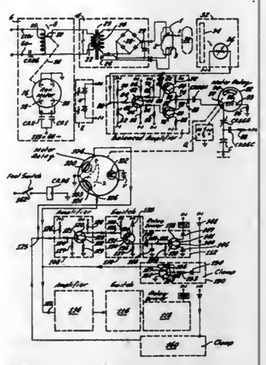
A noise rejection gate normally shorts out a signal path from preamplifier and amplifier circuits to the counting circuits of a particle counter. Whenever the instantaneous level of signal input exceeds the average noise by a predetermined amount, the gate is opened and a data pulse on the input signal is counted. The gate is reset by the trailing edge of the data pulse, by the count pulse or automatically after a short time lapse. Detailed circuits for performing the above are disclosed.

3,548,207
DIRECTIONAL RADIATION DETECTOR
Kenneth F. Sinclair, Sunnyvale, Calif., assignor to the United States of America as represented by the Secretary of the Army
Continuation-in-part of application Ser. No. 599,997, Dec. 6, 1966. This application Aug. 15, 1969, Ser. No. 850,506
Int. Cl. G01t *1/18*
U.S. Cl. 250—83.6 **8 Claims**



Two radiation responsive devices are positioned adjacent each other with their frontal areas in a common plane. A radiation attenuation element is positioned in the path directly in front of one of the radiation responsive devices. Differential amplification means and indication means receive the outputs of the radiation responsive devices to provide the indications having an amplitude indicating the direction of a source of radiation and a sense, such as polarity, indicating the direction of the source of radiation relative to each of two orthogonally related axes of rotation.

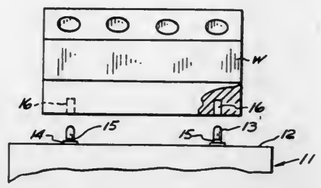
3,548,208
FLUOROSCOPIC INTENSITY CONTROL WHEREIN THE BRIGHTNESS OF THE IMAGE IS MAINTAINED AT A PREDETERMINED LEVEL
Joseph Battista, Chicago, Ill., assignor to Litton Medical Products, Inc., Des Plaines, Ill., a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,316
Int. Cl. H05g *1/32;* **G03b** *41/16*
U.S. Cl. 250—103 **5 Claims**



An X-ray apparatus includes means which automatically maintains to a predetermined level the brightness of an image appearing on the image intensifier. The brilliance of the image appearing on the image intensifier is monitored by a suitable photoelectric device, and the representations therefrom are applied to the winding of a

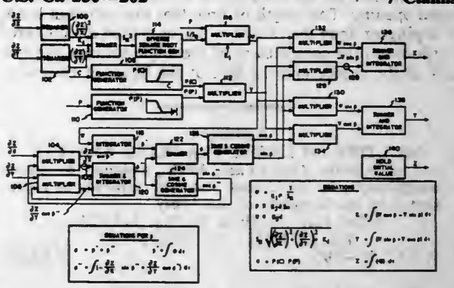
balanced meter relay via the output of a form of balanced amplifier, the latter of which provides an output current which direction of current flow depends upon whether the output of the photoelectric monitoring device is above or below a predetermined level. An output of the meter relay is obtained from either one of two output terminals: If the meter pointer is substantially deflected from the reference center position in one direction, an output is produced at one termnial, and if the meter pointer is substantially deflected from the reference center position in the opposite direction, an output is provided at the second terminal. Each of the outputs is connected to suitable switching circuits which control the raising or lowering of the voltage of an adjustable power supply which supplies power to the X-ray tube. Suitable inhibit circuitry is provided so that should the switching circuits associated with one of the outputs of the meter relay be energized, the other switching circuit associated with the other meter relay output terminal is prevented from operating until the first switching circuit has been completely deenergized. The adjustable power supply includes a reversible A.C. motor containing two windings and a shaft suitably mechanically linked to a movable output tap on an autotransformer. The energization of one of the motor windings effects the rotation of the motor shaft, and hence, the movable tap, in a first direction; whereas the energization of the other winding results in the movement of the motor shaft, and, hence, the movable tap in an opposed direction. Suitably, each motor winding is connected in a respective one of two electrical circuits with the output of a respective one of the switching circuits associated with the meter relay output, and the power supply output voltage is adjusted, automatically, to raise or lower the voltages applied between the anode and cathode of the X-ray tube which provides a corresponding adjustment of the intensity of X-radiation emanating therefrom, and a corresponding change in the brilliance of the image appearing on the image intensifier tube.

3,548,209
METHOD OF DETERMINING POSITION OF WORKPIECE ON A SUPPORTING FIXTURE
Theodore M. Smith, 15639 W. McNichols Road, Detroit, Mich. 48235
Filed Mar. 7, 1968, Ser. No. 711,395
Int. Cl. G21h *5/02*
U.S. Cl. 250—106 **11 Claims**



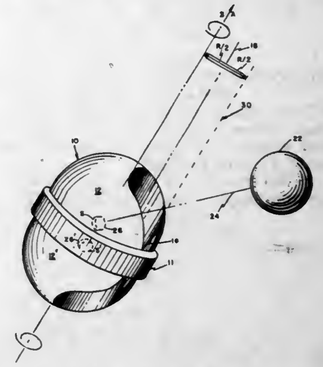
The method of providing a detection system for the improper location of a workpiece upon the bed of a fixture for a machine tool operation which consists of mounting upon locating pins projecting from the fixture bed a radioactive element; the providing of locating holes within portions of the workpiece for such arrangement that upon correct location of the workpiece the radioactive element upon the locating pins is completely enclosed shielding the radioactive element, and wherein improper location of the workpiece relative to the pins unshields the radioactive element so that the rays therefrom are adapted to activate a radiation detection signal system.

3,548,210
AUTOMATIC STEREOPLOTTER
Walter E. Chapelle, Southfield, Vernon C. Kamm, Farmington, and Arlias E. Whiteside, Royal Oak, Mich., assignors to The Bendix Corporation, a corporation of Delaware
Filed Aug. 30, 1965, Ser. No. 483,462
Int. Cl. G05b *1/00*
U.S. Cl. 250—202 **7 Claims**



An automatic stereoplotter which produces rectified, contoured images of an area by altering the scan of the area according to a predetermined mathematical relationship. The invention includes apparatus for providing improved plotting motion to reduce error in following a chosen contour. Accurate measurements of the slope of a given area, parallax, and degree of correlation are all used to minimize deviations of the plotting motion from the contour being followed. The control of the plotting motion is applied with respect to both the velocity and direction of that motion.

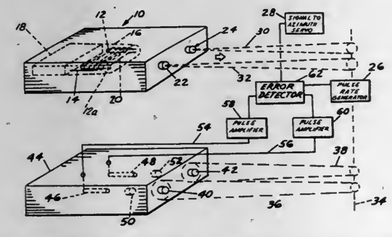
3,548,211
ROTATING RADIATION SENSOR
James B. Gardner, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Feb. 27, 1968, Ser. No. 708,700
Int. Cl. G01j *1/20;* **H01j** *39/12*
U.S. Cl. 250—203 **10 Claims**



In one embodiment of this invention, a spacecraft partially shaped as a hemisphere is designed to rotate about a spin axis which passes through the center of the hemisphere is designed to rotate about a spin axis which passes through the center of the hemisphere. An aperture is cut into the hemisphere, with the aperture being defined by the intersection of a circular cylinder having a diameter which is equal to the radius of the hemisphere positioned with the central axis of the circular cylinder parallel to the

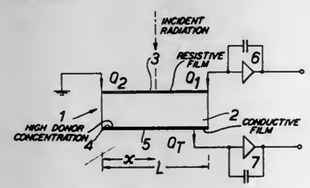
spin axis of the spacecraft and intersecting a line perpendicular to the spin axis at a point equal to one-half the radius of the hemisphere from the center of the hemisphere. A radiation sensor is positioned in this so defined aperture opening at the center of the hemisphere. Electronic means are affixed to the sensor to provide an indication of the time that a beam of electromagnetic radiation is present on the hemisphere center through the apertured opening. The length of time that the radiation beam is impingent upon the radiation sensor is then directly proportional to the complement of the angle between the spin axis of the sphere and the axis of the beam of radiation.

3,548,212
MULTIBEAM LASER TRACKING SYSTEM
Lloyd A. Whetter, Hazel Park, Mich., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed July 17, 1968, Ser.No. 745,625
Int. Cl. G01j *1/20*; H01s *3/00*
U.S. Cl. 250—203 **1 Claim**



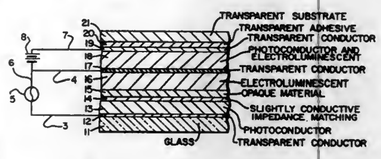
A multibeam laser lockon system for tracking a moving target utilizing a transmitter emanating two laser beams of different frequencies. A receiver which is responsive to the frequency of the return beams reflected by the target provides control signals for a servomechanism system. The servomechanism drives the transmitter so that the output beam remains on target. When the system is incorporated in a vehicle, the control signals will be input signals to conventional servomechanism and vehicle controls that bring the vehicles main gun into alignment and effectively locks the main gun onto the target.

3,548,213
SEMICONDUCTOR RADIATION DETECTOR ARRANGEMENTS
Richard Bruce Owen and Percy George Salmon, Abingdon, and Mervyn Leslie Awcock, Steventon, Abingdon, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Oct. 12, 1967, Ser. No. 674,869
Claims priority, application Great Britain, Oct. 14, 1966, 46,170/66
Int. Cl. H01l *15/00*
U.S. Cl. 250—211 **7 Claims**



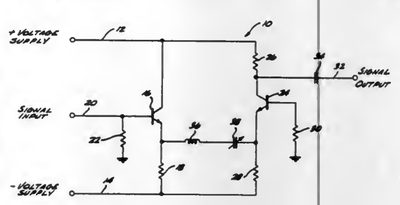
A semiconductor radiation detector arrangement consists of wafer of n-type silicon with a resistive palladium film on one face to produce a rectifying contact and a gold film on the other face adjacent the initial depletion region. The comparative outputs of amplifiers connected, in effect, to opposite ends of the resistive film provide an indication of the position on the resistive film of an incident charged particle.

3,548,214
CASCADED SOLID-STATE IMAGE AMPLIFIER PANELS
Robert L. Brown, Sr., 4805 Rutledge Drive NW., Huntsville, Ala. 35805
Filed Aug. 7, 1968, Ser. No. 750,853
Int. Cl. H01j *31/50*
U.S. Cl. 250—213 **15 Claims**



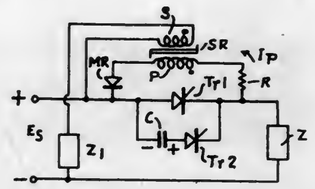
A solid-state image amplifier panel structure having two or more image amplifier panel units placed in cascade. For X-ray image viewing applications the panel unit on the face exposed to the incident radiation includes, in order, a transparent electrode layer, a photoconductor layer, a vacuum deposited impedance-matching layer, an electroluminescent layer and a second transparent electrode layer and the output panel unit includes a transparent electrode, a layer containing a mixture of photoconductor and electroluminescent material and an outer transparent electrode. This embodiment exhibits high sensitivity and produces a high quality image with a long lifetime. Other embodiments provide very high gain and image integrating capabilities.

3,548,215
AMPLITUDE LIMITER WITH PHASE CONTROL
Joseph R. Hoover, Encino, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed May 13, 1968, Ser. No. 728,654
Int. Cl. H03k *5/08*
U.S. Cl. 307—237 **1 Claim**



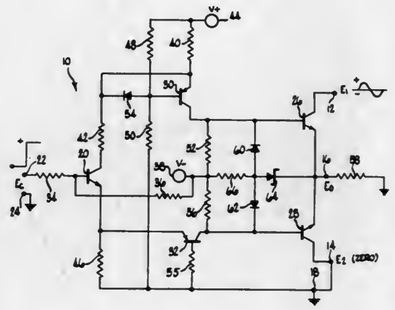
A conventional amplitude limiter has output phase change upon peak chopping of input signals of different amplitude because of wave form differences at different amplitudes. An additional cause of phase change is the storage time of transistors used in such amplitude limiters. To compensate for these output phase changing causes, a detuned LC circuit is connected into the conventional amplitude limiter circuit. Different amplitudes of the input signal cause different equivalent shunt resistances related to the LC circuit. This in turn changes the Q of the circuit to provide a phase change in the LC circuit which compensates for phase changes due to changes in input amplitude. The result is an amplitude limited output signal without substantial phase change. If desired, the LC circuit can be tuned to provide an advancing or delaying phase shift with input signal level changes.

3,548,216
CAPACITOR COMMUTATED CIRCUITS WHEREIN CHARGE IS DISSIPATED AFTER COMMUTATION
Derek E. Burch, London, England, assignor to Westinghouse Brake and Signal Company, Limited, London, England
Filed Jan. 29, 1968, Ser. No. 701,255
Claims priority, application Great Britain, Feb. 17, 1967. 7,762/67
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **7 Claims**



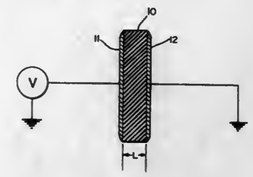
A control circuit for a controllable rectifier device includes a first path which is rendered conductive to apply a reverse voltage to the device to render the device nonconducting, a capacitor included in this path storing the reverse voltage. A second selectively conductive path includes a saturable reactor which, responsive to the first path being rendered conductive, times an interval greater than the interval necessary for the reverse voltage to render the rectifier device non-conducting, the saturable reactor rendering the second path conductive at the end of this timed interval so as to dissipate charge from the capacitor.

3,548,217
TRANSISTOR SWITCH
James E. Moore, El Cajon, Calif., assignor, by mesne assignments, to Stromberg Datagraphics, Inc., San Diego, Calif., a corporation of Delaware
Filed Sept. 19, 1967, Ser. No. 668,905
Int. Cl. H03k *17/00*
U.S. Cl. 307—254 **8 Claims**



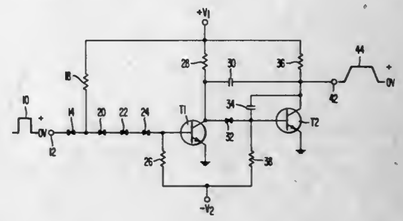
An input transistor receives a control signal and alternately switches two output transistors by means of a current-controlling circuit. Each output transistor, when conductive, has forward currents through each junction, producing balanced voltage drops thereacross. Clamping and biasing provisions enable the circuit to switch bipolar as well as unipolar input signals.

3,548,218
ULTRA-SHORT-DURATION HIGH-CURRENT-BURST GENERATOR
Gerald Rosen, Philadelphia, Pa., assignor to Drexel University, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 30, 1967, Ser. No. 664,509
Int. Cl. H01l *3/00*
U.S. Cl. 307—260 **15 Claims**



A device is disclosed for producing ultra-short-duration high-current bursts. The device comprises a chemically-pure thin insulating element, which may be either a solid or a liquid, having current-conducting electrodes on opposed surfaces thereof functioning as ohmic injecting contacts. The insulating element may, for example, be a pure cadmium sulfide wafer, having a thickness of the order of one tenth of a centimeter to one ten-thousandths of a centimeter. The current-conducting electrodes may, for example, be indium. A short-duration voltage is applied across the device to inject charge-carriers thereinto. The voltage may, for example, be of the order of from 10 to 100 volts established in a time period of the order of one-millionth of a second or less. Ultra-short-duration high-current bursts are produced having a maximum current density two or three orders of magnitude higher than would be produced by a geometrically similar condenser and the same applied voltage. The time duration of the high-current bursts is of the order of one-millionth of a second or less.

3,548,219
SEMICONDUCTOR PULSE AMPLIFIER
William N. Lawrie, Jr., Wayne, Pa., and Ilan Ziskind, Haifa, Israel, assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Sept. 17, 1968, Ser. No. 772,443
Int. Cl. H03k *5/01*
U.S. Cl. 307—263 **12 Claims**

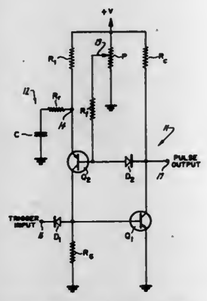


A pulse shaping and amplifying device which comprises first and second transistor amplifier stages and capacitive timing means coupled respectively between the base and collector of the first stage and between the emitter of the first stage and the collector of the second stage in one embodiment, and coupled respectively between the base and collector of the second stage and between the collector of the first stage and the collector of the second stage in another embodiment. The capacitive timing means controls the conduction levels of the respective transistors thereby controlling the rise and fall times of the leading and trailing edges of the output pulse.

3,548,220
FAST RECOVERY MONOSTABLE MULTIVIBRATOR AND METHOD

John V. Rogers, Walnut Creek, Calif., assignor to W. K. Rosenberry, doing business as Zeta Research, Lafayette, Calif.

Filed Feb. 1, 1967, Ser. No. 613,278
Int. Cl. H03k 3/10
U.S. Cl. 307—273 4 Claims

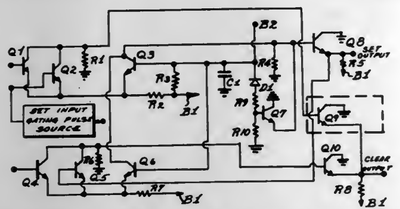


The present invention relates to a fast recovery monostable multivibrator and method utilizing switching means comprising at least two active semiconductor elements which are cross-coupled to form a regenerative loop. Charge storage means is connected in parallel to the switching means and depending on the state of the switching means, the charging means is sequentially prevented from changing its charge, being permitted to change its charge or being rapidly returned to its original level of charge.

3,548,221
FLIP-FLOP WITH SIMULTANEOUSLY CHANGING SET AND CLEAR OUTPUTS

Ronald G. Hintz, St. Paul, Minn., assignor to Control Data Corporation, a corporation of Minnesota

Filed Dec. 30, 1966, Ser. No. 606,138
Int. Cl. H03k 3/12
U.S. Cl. 307—292 10 Claims

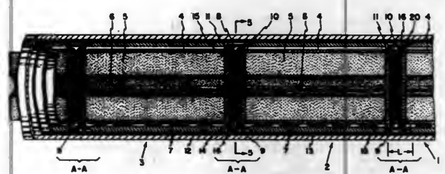


This invention relates to a flip-flop, the SET and CLEAR outputs of which simultaneously switch. A first AND circuit, the two inputs of which are respectively responsive to the data signal and the SET input gating pulse, is provided. Means responsive to the first AND circuit are provided to set the flip-flop (thereby placing the SET output terminal in the logical ONE condition) when the input conditions for the first AND circuit are satisfied. Means also responsive to the conditioning of the first AND circuit are provided to immediately place the CLEAR output in the ZERO condition simultaneously with the placing of the SET output to the ONE condition. Thus the SET ond CLEAR outputs are simultaneously switched. A second AND circuit is provided which is responsive to the CLEAR input gating pulse and the SET output signal causing the flip-flop to be cleared (that is, the CLEAR output be placed at the logical ONE condition and the SET output be placed at the logical ZERO condition) where, once again, the SET and CLEAR output terminals switch simultaneously and only one stage time after the initial occurrence of the SET and CLEAR input gating pulses.

3,548,222
THERMIONIC POWER GENERATION APPARATUS

Robert R. Hobson, San Jose, Calif., assignor to General Electric Company, a corporation of New York

Filed Dec. 29, 1965, Ser. No. 517,392
Int. Cl. H02n 3/00
U.S. Cl. 310—4 7 Claims

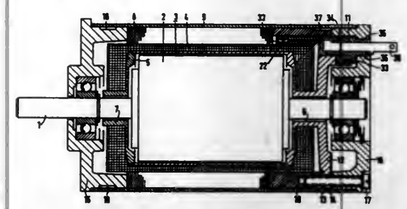


A power generation device of the thermionic converter type having an improved emitter support and series electrical connection system is disclosed. In a power generation apparatus including atleast two axially aligned thermionic converters, a plurality of straps are provided parallel to the axis of the thermionic converters to connect the collector of a first converter to the emitter of the next converter. These straps serve as both a support for the emitter and as an electrical connector. These straps are uniquely capable of maintaining the emitter in position despite wide variations in thermal expansion between emitters and collectors.

3,548,223
BRUSHLESS DIRECT-CURRENT MOTOR WITH GALVANOMAGNETIC CONTROL MEMBERS

Werner Dittrich and Reiner Kristen, Nuremberg, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany

Filed Apr. 7, 1969, Ser. No. 814,014
Claims priority, application Germany, Mar. 7, 1969, 1,911,579
Int. Cl. H02k
U.S. Cl. 310—10 8 Claims

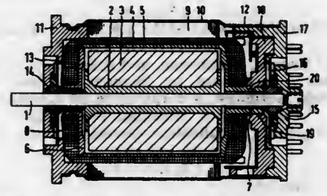


A brushless direct-current motor, preferably of the midget type, which is commutated under control by Hall probes or the like galvanomagnetic control members acted upon by the magnetic field of a permanent-magnet rotor, has a stator composed of a coil support on which the stator windings are mounted and an annular laminated stator yoke surrounding the windings. The stator is enclosed in a tubular housing, and the galvanomagnetic probes are mounted on carriers which are inserted into one axial end of the housing. Thus inserted, the galvanomagnetic-probe carriers engage respective recesses of a magnetizable ring coaxially adjacent to the yoke. A bearing shield for journalling the rotor shaft is located beside the ring and in engagement with the probe carrier to positively secure the probes in fixed positions relative to the stator.

3,548,224
BRUSHLESS DIRECT-CURRENT MOTOR WITH GALVANOMAGNETIC COMMUTATION

Werner Dittrich and Reiner Kristen, Nuremberg, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany

Filed Apr. 7, 1969, Ser. No. 814,016
Claims priority, application Germany, Mar. 8, 1969, 1,911,836
Int. Cl. H02k
U.S. Cl. 310—10 10 Claims

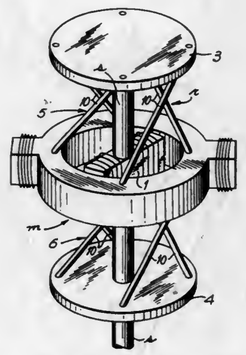


The stator of a brushless direct-current motor, preferably of the midget type, comprises a drum-shaped coil support coaxially surrounding a permanent-magnet rotor, the stator windings being mounted on the coil support and surrounded by the stator yoke structure constituted by a stack of annular laminations. A carrier structure coaxially situated at one side of the stator carries galvanomagnetic members, such as Hall probes, which are responsive to the magnetic field of the rotor for controlling the commutation of the motor circuit. The drum-shaped coil support has a tubular extension coaxially surrounding the rotor shaft and protruding along the shaft toward the carrier. The extension and the carrier are in positive locking engagement with each other by means of a latch-and-catch configuration which holds the carrier with the galvanomagnetic members in a fixed position relative to the stator.

3,548,225
VIBRATOR DRIVE DEVICE

Jaroslav Vit, New York, N.Y., assignor of one-half to National Patent Development Corporation, New York, N.Y.

Filed June 24, 1969, Ser. No. 835,973
Int. Cl. H02k 33/16
U.S. Cl. 310—38 10 Claims

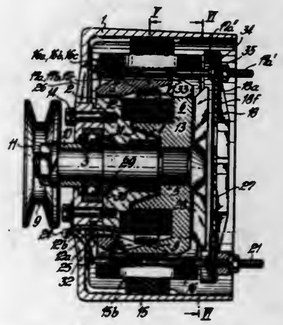


An axial shaft is secured to a rotor which is rotatably mounted in the magnetic field in an opening in a multipole stator, the rotor and stator forming a motor which is periodically energized, there being springs between the shaft and the stator to produce alternating rotation of the rotor in opposite directions and concurrent axial reciprocation.

3,548,226
ALTERNATING-CURRENT GENERATOR WITH OPEN-ENDED HOUSING

Suguru Sato, Banchi, Japan, assignor to Nippon Denso Co., Ltd., Kariya, Aichi, Japan

Filed Mar. 5, 1969, Ser. No. 804,475
Claims priority, application Japan, Mar. 5, 1968, 43/14,155
Int. Cl. H02k 11/00
U.S. Cl. 310—68 15 Claims

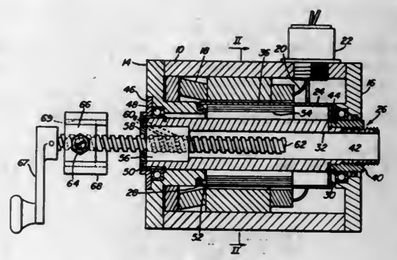


An A-C generator having a cupped housing whose bottom wall constitutes an end frame and accommodates a ball bearing for a driven inductor shaft. A needle bearing for the shaft is mounted in a yoke which carries the exciter coil and is bolted to the end frame. The A-C winding is mounted in recesses provided in a laminated stator fixed to the internal surface of the cylindrical wall of the housing. A rectifier unit is carried by conductors and posts which establish a mechanical connection with the stator and an electrical connection with the winding.

3,548,227
ELECTROMAGNETIC LINEAR DRIVES

Walter R. Woodward, Carlisle, Mass., assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey

Filed Apr. 3, 1969, Ser. No. 813,817
Int. Cl. H02k 7/08
U.S. Cl. 310—83 6 Claims

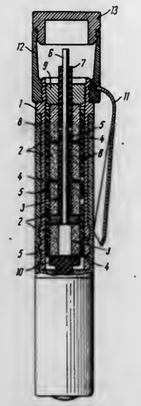


A magnetic field effects a continuous wave of radial deflection in a tubular flexspline thereby reacting it on a stationary circular spline and rotating the flexspline and a coaxial cylinder which houses a ball nut and cooperating screw. The ball nut is secured in the cylinder against translation thereby causing the screw (which is held against rotation) to be axially guided in translation according to electrical input to the field. Thus a compact electric assembly provides reversible, precise linear positioning.

3,548,228
PIEZOELECTRIC CHARGING DEVICE

Georgy Ivanovich Mukhin, Leningradskoe shosse 54, kv. 46, Leonid Petrovich Kljukin, Leningradskoe shosse 54, kv. 161, Nikolai Alexeevich Shlykov, Ulitsa pravdy 3/1, kv. 28, and Boris Alexandrovich Shesterikov, Ulitsa konstantinova 34, korpus 2, kv. 14, all of Moscow, U.S.S.R.

Filed Mar. 31, 1967, Ser. No. 627,418
Int. Cl. H01v *7/00*
U.S. Cl. 310—8.7 **4 Claims**

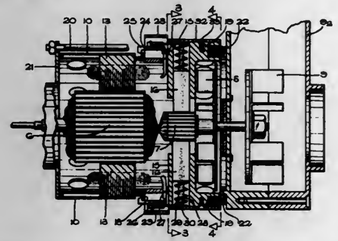


A piezoelectric charging device is provided in which a plurality of piezo elements are arranged coaxially in a surrounding body and are capable of withstanding a force applied axially thereto by which electrical charges are developed on the surfaces of the piezo elements. The piezo elements are provided with a metallized surface and are electrically connected in parallel, there being electrodes disposed between the ends of adjacent piezo elements, the electrodes having resilient contacts which are arranged such that the contacts of successive electrodes alternately contact the body which serves as a collector of negative charges and a current conducting rod serving as a collector of positive charges and passing axially in a central channel formed by coaxially disposed holes in the piezo elements and electrodes.

3,548,229
LONGITUDINALLY SPLIT HOUSING FOR ROTARY ELECTRIC MOTOR STATOR

Philip H. Evans, Wollaston, Stourbridge, England, assignor to BSR Limited, Cradley Heath, Warley, England, a British company

Filed Jan. 21, 1969, Ser. No. 792,865
Claims priority, application Great Britain, Jan. 27, 1968, 4,364/68
Int. Cl. H02k *5/04*
U.S. Cl. 310—89 **4 Claims**

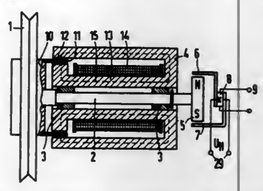


A casing for an electric motor, made in two identical halves each of which is of substantially semi-cylindrical form having along one edge, which is parallel to the axis, two slots and two lugs on the opposite edge projecting outwardly in the radial direction, the casing being formed by assembling together the two halves and engaging the lugs of one half in the slots of the other half and vice versa. Each half of the casing also has strengthening ribs extending circumferentially and axially, the latter being used also to locate the stator core by engaging corresponding mating formations on the stator core.

3,548,230
MEASURAND TRANSDUCER FOR MEASURING A LENGTH OF YARN

Gerhard Kroger, Veitsbronn, and Erich Rainer, Nurnberg, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany

Filed Nov. 5, 1968, Ser. No. 773,533
Claims priority, application Germany, Nov. 16, 1967, S 112,853
Int. Cl. H02k *49/04*
U.S. Cl. 310—93 **4 Claims**

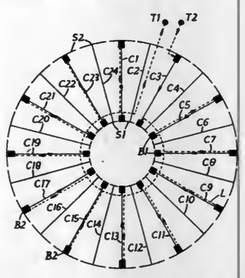


A measurand transducer measures the length of yarn moving in contact with a yarn wheel affixed to and rotating with a shaft. The angle of rotation of the shaft is proportional to the length of the yarn. The transducer produces a number of pulses proportional to the angle of rotation of the shaft via a pulse generator. A torque device comprising an eddy current brake in operative proximity with the shaft and the yarn wheel produces an adjustable reaction torque in the shaft to control the rotary speed of the shaft and thereby control the tension in the yarn.

3,548,231
HOMOPOLAR ELECTRICAL MACHINES

Robert B. MacNab, Fossway, Newcastle upon Tyne, England, assignor to International Research & Development Company Limited, Fossway, Newcastle upon Tyne, England

Filed Feb. 3, 1969, Ser. No. 796,081
Claims priority, application Great Britain, Feb. 8, 1968, 6,385/68
Int. Cl. H02k *31/00*
U.S. Cl. 310—178 **2 Claims**

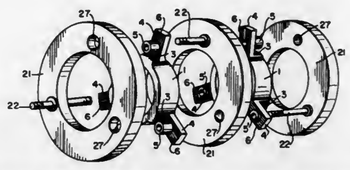


A homopolar electrical machine with a multiplicity of conducting paths on its rotor which are interconnected in series by way of stationary brushes in which, in order to avoid large voltage differences between adjacent mutually-insulated contact segments engaged by the brushes, the conducting paths are divided into two sets which are connected in parallel between terminals connected to diametrically opposite brushes.

3,548,232
COLLECTOR RING UNITS FOR ELECTRIC MOTORS

Walter Foerste, Suhl, Thuringia, Gottfried Ostermay and Joachim Schreiber, Berlin, and Werner Noack and Hans Schiewart, Dresden, Germany, assignors to VVB Elektrogeraete, Berlin, Germany

Filed Aug. 19, 1969, Ser. No. 851,217
Int. Cl. H01r *39/08*
U.S. Cl. 310—232 **11 Claims**

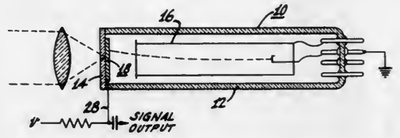


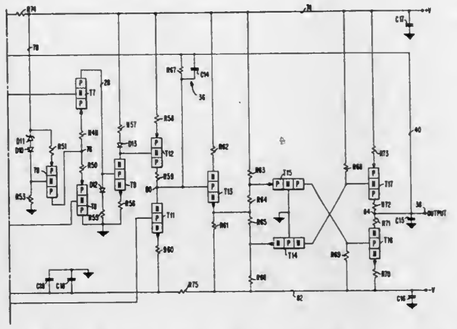
Collector ring units with carbon collector rings for electric motors, employing a supporting member consisting of individual sections made from plastic molding compounds. The number of supporting member sections is lower by one than that of the collector rings. Each section has a boss portion and a number of radial arms with sleeves thereon for receiving contact bolt means of the collector rings. The entire unit may be potted in a curing resin after its assembly.

3,548,233
CHARGE STORAGE DEVICE WITH PN JUNCTION DIODE ARRAY TARGET HAVING SEMICONDUCTOR CONTACT PADS

Eric F. Cave, Somerville, and Fred C. Dulgon, East Brunswick, N.J., assignors to RCA Corporation, a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 779,864
Int. Cl. H01j *29/10, 31/26, 31/28;* **H01l** *3/12, 15/00*
U.S. Cl. 313—65 **8 Claims**



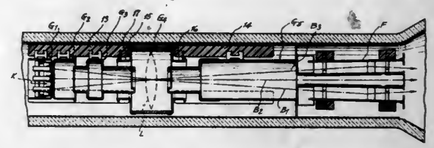


A charge storage device of the type having a charge storage target scanned by reading means is provided with a novel diode array target. The target comprises semiconductor pads in contact with the diodes. The pads serve as diffusion source for formation of diode elements of the target. After diffusion, the pads are left on the target as contacts.

3,548,234
COLOR CATHODE RAY TUBE ELECTRODE SUPPORT ARRANGEMENT

Susumu Yoshida and Akio Obgoshi, Tokyo, Senri Miyaoka, Kanagawa-ken, and Yoshiharu Katagiri, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan

Continuation-in-part of application Ser. No. 697,414, Jan 12, 1968. This application June 2, 1969, Ser. No. 829,291
Int. Cl. H01j *1/88, 1/90, 31/09*
U.S. Cl. 313—82 **3 Claims**

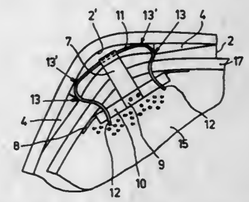


A color picture tube or other cathode ray tube in which a plurality of electron beams eminating from one or more cathodes are made to converge substantially at the optical center of an electrostatic focusing lens which focuses the beams on an electron receiving screen. The grids forming the electron gun are supported by an insulating member. The grid in which the electrostatic focusing lens is formed has a diameter greater than the other grids or electrodes in order to permit the focusing lens to have as flat opposing surfaces as possible, that is, surfaces with a maximum radius. The outer diameter of the support member for the grids is essentially equal to the inner diameter of the neck of the cathode ray tube. This is accomplished by forming the insulating support in two parts with the grid forming the focusing lens extending between the two parts and being supported by each of the insulating members.

3,548,235
FACE-PLATE FOR RECTANGULAR COLOR TELEVISION PICTURE TUBE WITH LAND PORTIONS WITH RECESSES FOR RECEIVING SHADOW MASK SUPPORT MEMBERS

Johannes Driedijk, Johannes Aloysius van Leeuwen, and Johannes Hinderikus Stover, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

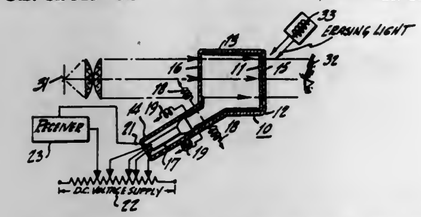
Filed July 22, 1969, Ser. No. 843,706
Claims priority, application Netherlands, July 26, 1968, 6810709; Feb. 27, 1969, 6903030
Int. Cl. H01j *29/02*
U.S. Cl. 313—85 **26 Claims**



A rectangular shadow mask for a color television picture tube is supported by suspension members the free end of each of which is secured to the central portion of an Ω-shaped resilient strip the width of which is parallel

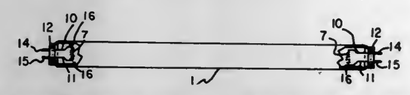
to the axis of the tube. This resilient strip presses, on either side of the connection of the suspension member, against the upright walls of a recess in a land portion provided in the glass of the upright edge of the window between two land portions on at least three points of contact situated near the upper and lower edges of the bent strip. A part of the strip engaging a surface serves as a fitting edge.

3,548,236
DARK TRACE CATHODE RAY TUBE WITH PHOTOCHROMIC IMAGE SCREEN
Zoltan J. Kiss, Belle Mead, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Jan. 24, 1968, Ser. No. 700,148
Int. Cl. F21k 2/00; H01j 29/14, 29/26
U.S. Cl. 313—91 **11 Claims**



In a cathode ray tube, an image screen is comprised of a non-luminescent, photochromic material characterized in that a stable, visible, dark trace image formed on this material is completely erasable by a photon induced electron charge transfer transition.

3,548,237
FLUORESCENT LAMP WITH A YELLOW INORGANIC PIGMENT ADDED TO THE PHOSPHOR
Willy P. Schreurs, Danvers, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Nov. 13, 1968, Ser. No. 784,981
Int. Cl. H01j 1/62, 63/04
U.S. Cl. 313—109 **5 Claims**



A non-fluorescent, particulate inorganic yellow pigment is added to a fluorescent phosphor. This mixture is coated upon the envelope to improve the color rendition and reduce the quantity of long-wave ultraviolet light transmitted by the lamp.

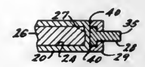
3,548,238
ELECTRIC DISCHARGE DEVICE CONTAINING A TERBIUM ACTIVATED ZINC CADMIUM BORATE PHOSPHOR
Charles F. Chenot, Towanda, and Mahlon Dennis, Sutton Court, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Original application Oct. 15, 1968, Ser. No. 767,677. Divided and this application Dec. 8, 1969, Ser. No. 882,887
Int. Cl. H01j 63/04
U.S. Cl. 313—109 **3 Claims**

A low pressure electric discharge device containing a zinc cadmium borate phosphor of the formula

$$ZnO \cdot 2CdO \cdot 2B_2O$$

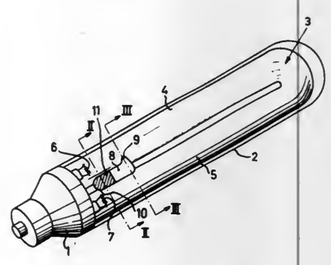
activated by trivalent terbium. The phosphor can be modified by the inclusion of Ga_2O_3.

3,548,239
SPARK PLUG ELECTRODE CONSTRUCTION
Carl J. Eaton, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio, a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,743
Int. Cl. H01t 13/20
U.S. Cl. 313—136 **8 Claims**



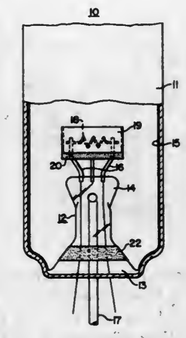
An improved center electrode construction for spark plugs used in high performance internal combustion engines. The body portion of the electrode comprises a corrosion resistant metallic sheath which has a sealed end and which is filled with a heat conductive metal. A headed, fine wire firing tip of a non-weldable, corrosive resistant metal is inserted into a cap which is then welded to the sealed end of the metallic sheath.

3,548,240
LOW-PRESSURE SODIUM VAPOUR DISCHARGE LAMP
Raymond Francois Spiessens, Emmasingel, Eindhoven, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed June 25, 1968, Ser. No. 739,830
Claims priority, application Netherlands, July 10, 1967, 6709573
Int. Cl. H01j 61/24
U.S. Cl. 313—174 **11 Claims**



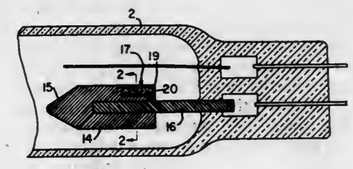
A low-pressure sodium vapor lamp is surrounded by an evacuated outer envelope and is provided with a protuberance in which an amount of sodium which is not in vapor form is present during operation of the lamp, this protuberance being heated only by the heat evolved in the discharge tube. This makes possible a highly-loaded lamp because the sodium pressure is determined by the temperature of the protuberance which is lower than that of the lamp but not too low because it is heated by the lamp.

3,548,241
METHOD OF INCORPORATING AN AMALGAM OR AN AMALGAM-FORMING METAL IN A LOW-PRESSURE MERCURY DISCHARGE LAMP, AND LAMP PRODUCED BY SUCH METHOD
Erhard Rasch and Horst Wantosch, Berlin, Germany, assignors to Patent-Freuhand-Gesellschaft fur Elektrische Gluhlampen m.b.H., Munich, Germany
Filed May 6, 1968, Ser. No. 726,689
Int. Cl. H01j 61/24
U.S. Cl. 313—178 **9 Claims**



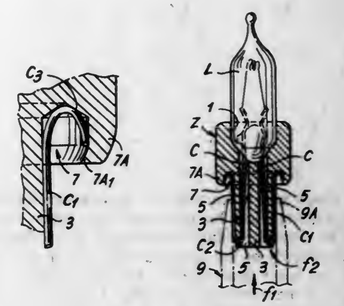
The mercury-vapor pressure within a low-pressure discharge lamp, such as a fluorescent lamp, is regulated by a thin layer of an amalgam-forming metal or amalgam that is sprayed onto one of the lamp stems, preferably on the flared portion thereof, while the metal or amalgam is in a liquid state and before the stem is sealed into the envelope. The thickness of the metal or amalgam layer is maintained below 100 microns, and preferably between 20 and 50 microns, to provide a sufficient amount of metal to properly regulate the mercury vapor pressure during lamp operation and yet prevent the metal or amalgam from falling off the stem when the metal or amalgam is in a liquid state during the sealing-in of the stem and, in the case of a fluorescent lamp of non-linear configuration, when the finished lamp is heated and bent into the desired shape.

3,548,242
HIGH PRESSURE ELECTRIC DISCHARGE DEVICE AND CATHODE
Ronald D. Ayotte, Salem Depot, and Conrad M. Fortin, Manchester, N.H., and Craig T. Waldo, Towanda, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Continuation-in-part of application Ser. No. 515,921, Dec. 23, 1965. This application May 16, 1967, Ser. No. 638,920
Int. Cl. H01j 1/14, 17/06, 17/20
U.S. Cl. 313—184 **2 Claims**



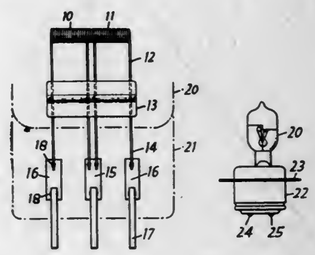
A sintered cathode for a lamp comprising a bullet-shaped tungsten body in which a slot is disposed in the rearward end. Emissive material is held in the slot by a retaining spring.

3,548,243
ELECTRIC LIGHT BULB AND TERMINAL CAP ASSEMBLY
Dino Magherini, Via Emilio Spinucci 36/38, Florence, Italy
Filed June 21, 1968, Ser. No. 738,901
Claims priority, application Italy, June 26, 1967, 21,640/67
Int. Cl. H01j 5/48, 5/50
U.S. Cl. 313—318 **8 Claims**



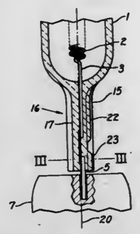
The terminal cap of a light bulb is anchored to a glass bulb containing a filament and having terminal wires extending therefrom, by passing the wires through longitudinal passages in the terminal cap. Thereafter the portions of the wires extending from the passages are bent over the free end of the cap and pass along the external surface of the terminal cap. Finally the ends of the wires are forced into a groove in the terminal cap which causes those portions of the wires bent over the free end of the cap to cut thereinto.

3,548,244
LAMP HAVING TWIN FILAMENTS AND INTEGRAL FILAMENT LEGS MOUNTED IN A BRIDGE
Henry A. Fenn, London, England, assignor to British Lighting Industries Limited, London, England
Filed July 1, 1968, Ser. No. 741,788
Int. Cl. H01j 5/50
U.S. Cl. 313—331 **3 Claims**



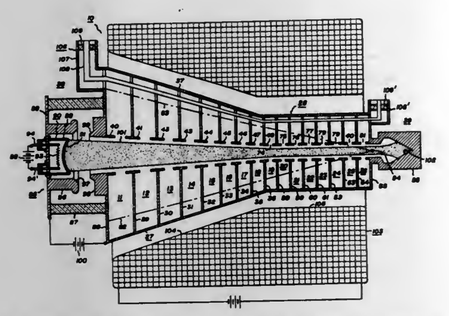
A twin-filament lamp bulb, particularly a quartz-halogen bulb, having a quartz bridge into which the filament legs are moulded, the filaments and the bridge being mounted inside the lamp envelope by means of portions of the filament legs on the further side of the bridge from the filaments, whereby normal filament lead wire materials are not present within the envelope.

3,548,245
QUARTZ-TO-METAL FOIL PINCH SEAL
William S. Biscoff, South Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed Feb. 13, 1969, Ser. No. 798,928
Int. Cl. H01j 5/50
U.S. Cl. 313—331 3 Claims



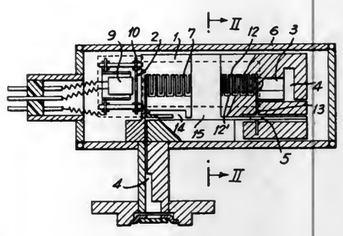
In a pinch seal at an end of a quartz envelope and enclosing a metal foil having outer and inner lead wires welded to opposite ends thereof and projecting, respectively, outwardly of the seal and inwardly of the envelope, at least the outer lead wire is offset from a plane located precisely at the center of the pinch between and parallel to the flattened surfaces thereof, and the foil is located in said plane, thereby avoiding destruction of the connection of the foil to the lead wire due to distortion of the foil by the flow of the viscous quartz as it wraps around the lead wire.

3,548,246
BICONICAL LOG PERIODIC AMPLIFIER
Herbert L. Thal, Jr., Rotterdam, and Charles B. Mayer, Scotia, N.Y., assignors to General Electric Company, a corporation of New York
Filed Sept. 29, 1966, Ser. No. 589,161
Int. Cl. H01j 25/12, 25/42; H03j 3/54
U.S. Cl. 315—3.5 20 Claims



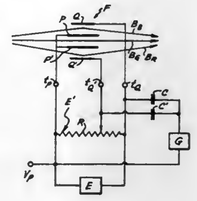
A biconical log periodic device is disclosed which in one form is an R-F amplifier including a pair of interconnected conical slow wave circuits in apex abutting axial relationship defining an electron beam path therethrough. The slow wave circuits taper in a log periodic manner and an electron beam which passes therethrough is also complementarily tapered in a log periodic manner. An input signal is coupled into one of the circuits to selectively energize a region therein based on the input signal frequency, and the beam is modulated. This modulated beam passes into the other circuit to selectively energize a region therein and amplified power is transferred to the other circuit to be taken off as amplified power.

3,548,247
BACKWARD-WAVE TUBE WITH PERIODIC ELECTROSTATIC FOCUSING
Alexandr Mikhailovich Alexeenko, Ulitsa Moskovskaya 6, kv. 52; Jury Dmitrievich Samorodov, Ulitsa Institutskaya 12, kv. 7; and Alexandr Semenovich Tager, Komsomolskaya ulitsa, 20–a, kv. 18, all of Fryazino, Moskovskoi Oblast, U.S.S.R.
Filed Feb. 29, 1968, Ser. No. 709,350
Int. Cl. H01j 25/34; H03b 9/08
U.S. Cl. 315—3.6 3 Claims



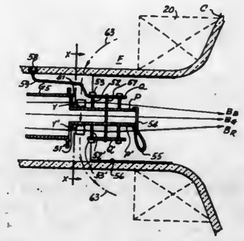
A backward-wave tube with periodic electrostatic focusing, in which a finned slow-wave system of an interdigitated type is used to attain a high level of output power within a wide electrical frequency tuning range, the fins of the system having respective apertures which cooperatively define axial channels to provide passage for the electron beam.

3,548,248
MISCONVERGENCE COMPENSATION FOR SINGLE GUN, PLURAL BEAM TYPE COLOR TV PICTURE TUBE
Tetsuo Tokita, Tokyo, and Senri Miyaoka, Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed July 8, 1968, Ser. No. 743,222
Claims priority, application Japan, July 19, 1967, 42/46,252
Int. Cl. H01j 29/50
U.S. Cl. 315—13 4 Claims



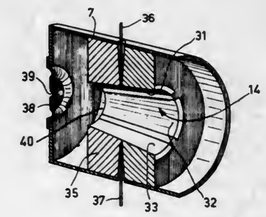
In a single gun, plural beam type color television picture tube, electron beams representing different color signals are focused by a single lens, after which two of the beams diverge. They must then be reconverged by convergence deflecting electrodes in order to cross at a common point upon a beam-selecting grid from which the beams diverge to impinge on respective color phosphors representing a color picture element. To compensate for misconvergence, at least one pair of the convergence deflection electrodes has an adjustable static convergence deflecting voltage as well as a fixed or adjustable dynamic deflecting voltage applied thereto so that different convergence deflecting voltages may be applied to the different pairs of convergence deflection electrodes operating on the two different color representing electron beams.

3,548,249
COLOR CATHODE RAY TUBE OF THE PLURAL-BEAM, SINGLE ELECTRON GUN TYPE
Susumu Yoshida and Akio Obgoshi, Tokyo, Senri Miyaoka, Kanagawa-ken, and Minoru Morio, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Feb. 5, 1969, Ser. No. 796,838
Claims priority, application Japan, Feb. 5, 1968, 43/6,857
Int. Cl. H01j 29/50
U.S. Cl. 315—13 7 Claims



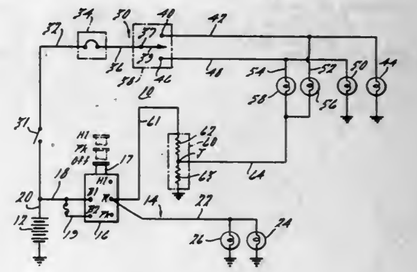
A color cathode ray tube preferably of the single gun, plural beam type wherein the beams originate on a horizontal or vertical straight line and are directed into a field produced by a horizontal-vertical electromagnetic deflection yoke at predetermined incident angles to each other so as to converge at a color screen, is provided with a magnetic yoke, for example, secured to the electron beam convergence plates at the end of the electron gun so as to be disposed in the path of the leakage flux produced by the horizontal-vertical electromagnetic deflection yoke, and thereby impart a further vertical or horizontal deflection field to at least one of the plural beams for correcting a deviation between the positions of rasters on the color screen produced by the plural beams.

3,548,250
APPARATUS HAVING A TELEVISION CAMERA TUBE AND TELEVISION CAMERA TUBE FOR USE IN SUCH AN APPARATUS
Johannes Hendrikus Theodorus van Roosmalen and Joannes Cornelis Vermulst, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 10, 1969, Ser. No. 798,018
Claims priority, application Netherlands, Feb. 13, 1968, 6802062
Int. Cl. H01j 29/56
U.S. Cl. 315—31 9 Claims



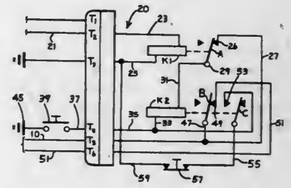
A television camera tube and accompanying circuits for the suppression of the "comettail" effect. A camera tube features a diaphragm having a hole through which the electron beam passes. An electron lens in the shape of a conducting segmental cone is placed between the gun cathode and the lens. During the flyback periods the lens, under the control of pulse generators, focuses the beam through the hole. Therefore, a large beam current reaches the anode, recharging excessively discharged portions thus eliminating "comettails."

3,548,251
DUAL INTENSITY TURN SIGNAL INDICATORS
Leonard A. Carbary, Fraser, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Apr. 10, 1969, Ser. No. 814,960
Int. Cl. B60q 1/38
U.S. Cl. 315—77 8 Claims



A turn signal system featuring dual intensity turn signal indicators and including selectively enabled circuit means in parallel with the turn signal indicator lamps for effecting a reduction in the intensity thereof.

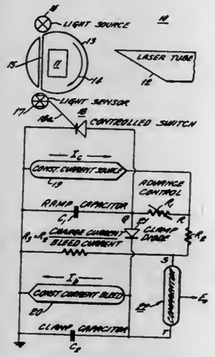
3,548,252
DELAYED HEADLAMP SYSTEM WITH DOOR CONTROL
Wallace K. Gassel, 890 Bellarmine, Florissant, Mo. 63031, and James R. Neidel, 514 Ambergate Drive, Webster Groves, Mo. 63119
Filed May 14, 1969, Ser. No. 824,594
Int. Cl. B60q 1/04, 1/08
U.S. Cl. 315—82 9 Claims



An automatic control system for automobile headlights comprising a source of electrical power, a first relay comprising a coil and a normally closed switch, switch means between said source and said coil for selectively energizing the latter to open said first relay switch, a normally open switch closable responsive to opening of the automobile door, a second relay comprising a coil and two switches, an electrical circuit including said power source, said first relay switch which is normally closed, and said second relay coil and said normally opened door

responsive switch, a headlight circuit including said power source, a headlight switch, the headlights, and one of said second relay switches whereby upon opening said switch means and thereby closing said first relay switch, and thereafter opening the door to close said door switch and energize said second relay, said second relay first switch is opened to deenergize the headlights. For manually turning the lights back on, a manual reset switch is provided in a shunt circuit including the second pole of the other switch of the second relay, which is closed when the second relay is energized.

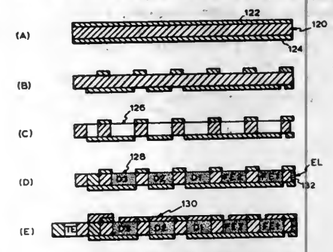
3,548,253
TIMING CIRCUIT FOR ROTATING PRISM Q-SWITCHED LASERS
Yosef Alon, Jerusalem, Israel, assignor to Yissum Research Development Company, Jerusalem, Israel, a company of Israel
Filed Sept. 5, 1968, Ser. No. 757,651
Int. Cl. H03k *5/153;* **H05b** *41/34*
U.S. Cl. 315—159 **18 Claims**



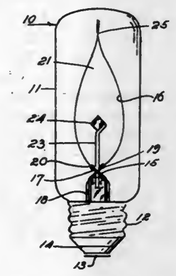
A circuit for developing an electronic discharge starting signal which is employed for operating a rotating prism, Q-switched laser. The starting signal which is required in advance of prism alignment is obtained by a single sensor which controls the generation of the desired advance pulses independent of prism rotating speed. The circuit is adjustable to allow for the generation of the starting signals to be initiated within a time interval whose range extends from approximately 0.5 millisecond to 1.5 milliseconds prior to prism alignment, which advance time range is sufficient to fire most high power lasers. Although output pulse of the circuit is sufficient in amplitude and the advance time range of 0.5 to 1.5 msec. will serve most lasers, however, the circuit is not restricted to that range and can easily be adapted to any other advance time range.

3,548,254
DISPLAY APPARATUS
Marcel A. Pahlavan, Los Angeles, Calif., assignor to Aerospace Products Research Corporation, Santa Monica, Calif., a corporation of California
Filed Apr. 12, 1967, Ser. No. 630,268
Int. Cl. H05b *33/14;* **H01l** *1/22*
U.S. Cl. 315—169 **20 Claims**

A display device useful for displaying desired patterns in response to electrical signals. The device in one form comprises a stack of individual display modules, each of which constitutes a flat thin structure or substrate carrying a plurality of flat aligned contiguous illuminable elements, e.g. along an edge surface thereof. Cavities are defined within the substrate and circuit components are contained within the cavities within the profile of the substrate. Connections to the illuminable elements are made by flat conductive paths supported on the substrate.



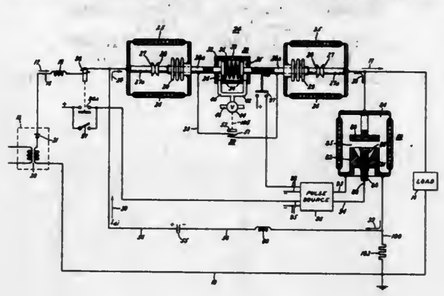
3,548,255
INCANDESCENT LAMP WITH OSCILLATING FILAMENT
Robert J. Kyp, 526 Geneva Road, Glen Ellyn, Ill. 60137
Filed Mar. 6, 1969, Ser. No. 804,847
Int. Cl. H01k *1/18;* **H05b** *41/16*
U.S. Cl. 315—267 **1 Claim**



My electric light bulb has a movable filament adapted to be illuminated by AC electrical current, and a magnet positioned either within or without the envelope, but in sufficient proximity to the filament to provide direct movement of the illuminated filament, and with return movement set up by the AC current to maintain vibration of the illuminated filament, to simulate the flickering of a flame of a candle. The leads of my filament are bent downwardly toward the stem and extend inwardly to complete more of a presentation of a lighted candle at the bottom of the lighted filament. In addition to the bending of the leads, the top portion of the filament is twisted into a thin loop. This loop is so small that when the filament is illuminated, the effect is that of a pointed tip of a flaming candle.

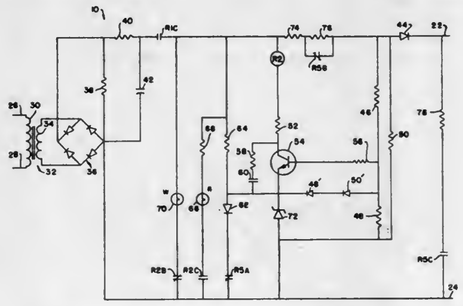
3,548,256
HIGH VOLTAGE D-C CIRCUIT BREAKER
Philip Barkan and Allan N. Greenwood, Media, Pa., assignors to General Electric Company, a corporation of New York
Filed July 5, 1968, Ser. No. 742,825
Int. Cl. H02h *3/00, 7/00*
U.S. Cl. 317—11 **12 Claims**

A high-voltage direct-current circuit breaker of the type in which a current zero is created by discharging a commutating capacitor through a circuit-interrupting device. The capacitor is normally maintained charged with a given polarity by current derived from the D-C circuit. When the circuit breaker is to be operated, this polarity is reversed by discharging the capacitor through the closed contacts of the interrupting device and interrupting the oscillatory discharge current upon its reaching zero.



Thereafter, the interrupter's contacts are rapidly separated. The capacitor is then discharged again, this time driving to zero the D-C current through the contacts.

3,548,257
ELECTRIC CIRCUIT START-UP PROTECTION METHOD AND STRUCTURE
Robert W. Drushel, Farmington, and Carl R. Erickson, Redford Township, Wayne County, Mich., assignors to Ex-Cell-O Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 23, 1968, Ser. No. 723,519
Int. Cl. H02h *7/00*
U.S. Cl. 317—13 **16 Claims**

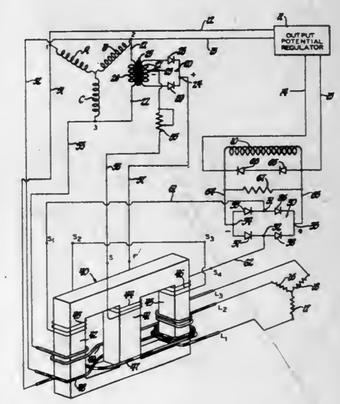


Structure for and a method of preventing an electrical machining circuit from closing when a short is present in the circuit is disclosed.

The method includes the steps of sensing a short in the electrical machining circuit prior to closing of the circuit and preventing closing of the electrical machining circuit so long as the short exists therein. Additional steps in the method of protecting the electrical machining circuit include applying an electric signal across a sensed short in the circuit sufficient to burn off minor shorts but not sufficient to harm an electrode or workpiece on sensing of the short, preventing closing of the electrical machining circuit after an initially sensed short therein has been removed until a separate circuit closing step is performed and opening the electrical machining circuit on sensing of a signal substantially above the signal required to prevent initial closing of the circuit due to a short therein with an electrolyte between the workpiece and electrode after closing of the electrical machining circuit and subsequent sensing of a short therein.

The structure provided for accomplishing the method of the invention includes a semiconductor, means for providing conduction through the semi-conductor when a short exists in the machining circuit and a circuit actuating relay connected in series with the semi-conductor across the electrical machining circuit, which relay includes contacts in the electrical machining circuit responsive to energizing of the relay through the semi-conductor to close the machining circuit. Structure is also provided for applying a reduced electric signal in the electrical machining circuit to burn off minor irregularities causing shorts after a short is sensed and for energizing a protective relay on energizing the circuit actuating relay, including contacts operable to prevent closing of the machining circuit closing contacts without a separate circuit closing step after an initial failure of the circuit actuating relay to close the machining circuit. A further signal level shifting relay is provided, including contacts operable on closing of the electrical machining circuit to place a Zener diode in series with the semi-conductor whereby the voltage necessary to maintain the semi-conductor in a conducting state is raised to cause breaking of the electrical machining circuit at a signal level substantially above that necessary to permit initial conduction of the semi-conductor representing a no-short condition in the machining circuit with an electrolyte between the workpiece and electrode.

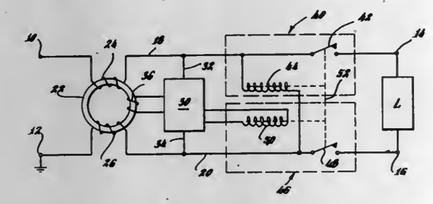
3,548,258
ALTERNATING CURRENT ALTERNATOR PROTECTOR SYSTEM
Dennis J. Ricker, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 28, 1969, Ser. No. 794,601
Int. Cl. H02h *7/06*
U.S. Cl. 317—13 **4 Claims**



An alternating current alternator protector system utilizing a current type transformer having a closed magnetic circuit comprised of a center leg disposed between two outer legs. The output leads from the alternator are wound about the two outer legs in a manner to prevent the flow of magnetic flux in the center leg. One phase of the generated potential is rectified and applied across a saturating coil which is wound upon the center leg to normally saturate the magnetic circuit iron. With short circuit or extreme overload conditions, the magnitude of the alternator output potential reduces, consequently, the amount of current flow through the saturating coil also reduces. This reduced saturating coil current no longer produces sufficient flux to saturate the current transformer magnetic circuit, consequently, the resulting potential induced in a secondary winding having a coil wound

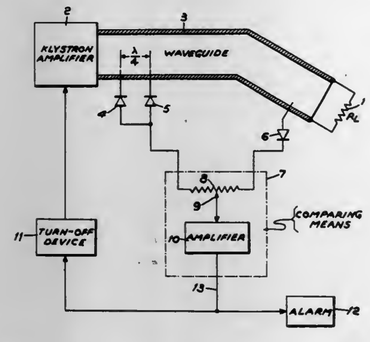
upon each outer leg is rectified and applied across the exciter field winding to produce sufficient excitation current therethrough to increase the alternator output potential to a magnitude which will operate an associated circuit protective device.

3,548,259
GROUND FAULT CIRCUIT INTERRUPTER WITH UNDERVOLTAGE RELEASE
Thomas M. McDonald, Monroe, Conn., assignor to Harvey Hubbell, Incorporated, Bridgeport, Conn., a corporation of Connecticut
Filed Mar. 3, 1969, Ser. No. 803,555
Int. Cl. H02h *3/00, 3/10, 3/14, 3/28*
U.S. Cl. 317—18 **10 Claims**



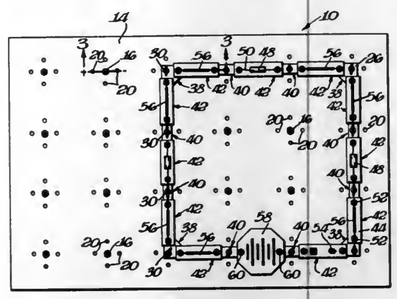
There is disclosed a ground fault circuit interrupter having a pair of ganged circuit breakers, one in each conductor supplying the load. A differential transformer has a primary winding in series with each conductor and a secondary winding connected to a sensing circuit. The sensing circuit operates one of the circuit breakers when an unbalance occurs in the line conductors. The other circuit breaker includes an undervoltage coil which is connected between the line conductors and permits the circuit breakers to be closed only when sufficient voltage exists between the line conductors.

3,548,260
WAVEGUIDE ARC DETECTOR
Irving A. Krause, Nutley, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Delaware
Filed Apr. 25, 1968, Ser. No. 724,042
Int. Cl. H02h *3/20, 3/28;* **H04b** *3/04*
U.S. Cl. 317—27 **2 Claims**



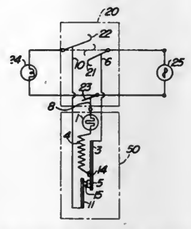
Probes are inserted in a waveguide to detect the field level at the input and output. The probe outputs are applied to a balanced comparing circuit. When an arc appears, an unbalance condition is created in the comparing circuit to trigger an alarm and turn off the equipment.

3,548,261
ARRANGEMENT FOR CONSTRUCTING ELECTRICAL CIRCUITS BY MEANS OF BOARD MOUNTED CONNECTOR PLATES
Robert F. Chambers, 504 Beverly Road, Newark, Del. 19711
Filed Apr. 22, 1969, Ser. No. 818,309
Int. Cl. H02b *1/04;* **H05k** *13/04*
U.S. Cl. 317—117 **10 Claims**



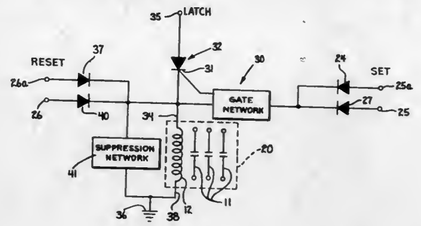
Arrangement for constructing electrical circuits includes support panel with plurality of mounting elements arranged in equally spaced apart rows and columns on panel. Plurality of mounting plates each has aperture therein for securing plates to mounting elements on support panel, and each mounting plate includes at least two electrical connectors equally spaced from aperture therein and electrically connected together. Electrical connectors of each mounting plate are in line with rows and columns of mounting elements on support panel when mounting plates are secured thereto. Each of at least plurality of board mounted electrical elements includes pair of equally spaced apart connectors that mate with connectors on mounting plates. Circuit is assembled by securing mounting plates to support panel at mounting elements thereon and interconnecting mounting plates with board mounted electrical elements.

3,548,262
LIGHT SENSITIVE SWITCHING UNIT
Katsumoto Nakade, Toyonaka-shi, and Shigeru Kokubo, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Aug. 29, 1968, Ser. No. 756,106
Int. Cl. H01h *37/72, 47/24;* **H01r** *33/54*
U.S. Cl. 317—124 **4 Claims**



An automatic switching device which is so designed that when automatic switch means is not mounted, a load circuit, such as an illumination lamp, is closed automatically, whereas when the automatic switch means is plugged in a socket and turned into a locked position, movable contacts which are usually closed are opened and a switching circuit is connected across said movable contacts for automatic switching operation.

3,548,263
FLIP FLOP CIRCUIT
Lester J. McArthur, Wabash, Ind., assignor to Wabash Magnetics, Inc., Wabash, Ind., a corporation of Indiana
Filed Jan. 25, 1968, Ser. No. 700,565
Int. Cl. H01h *47/32*
U.S. Cl. 317—148.5 **4 Claims**

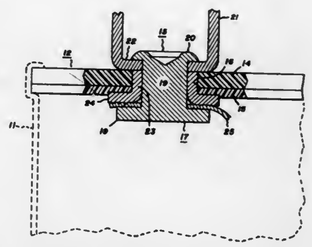


A control module and flip flop circuit including a relay having a coil which is held operated through a latch circuit including a silicon controlled rectifier. The gate of the silicon controlled rectifier is connected to a set input and the cathode of the silicon controlled rectifier is connected to a reset input through blocking diodes.

ERRATUM

For Class 317—230 see:
Patent No. 3,547,423

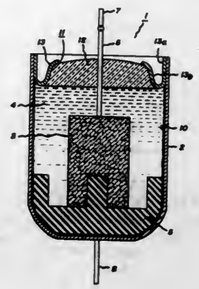
3,548,264
ELECTROLYTIC CAPACITOR RIVET SEAL
John W. Carino and Robert H. Bainbridge, Columbia, S.C., assignors to General Electric Company, a corporation of New York
Filed June 10, 1968, Ser. No. 735,783
Int. Cl. H01g *9/10*
U.S. Cl. 317—230 **1 Claim**



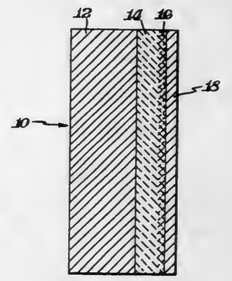
A capacitor rivet seal terminal structure for a capacitor cover is disclosed which includes a flanged metal sleeve surrounding a rivet, with the flange of the sleeve concentrically engaging the rivet head in nesting relationship internally of the capacitor, and the other end of the sleeve engaging a terminal lug flange externally of the capacitor.

3,548,265
POROUS ANODE CAPACITOR
Joel B. Buice and Raymond Matthew Trewhella, Columbia, S.C., assignors to General Electric Company, a corporation of New York
Filed June 11, 1968, Ser. No. 736,055
Int. Cl. H01g *9/08*
U.S. Cl. 317—230 **6 Claims**

A liquid electrolyte porous anode capacitor having a titanium metal casing which serves as the cathode will not fail due to dielectric film degration inducted by cathode plating as a result of reverse voltage. Forming the capacitor casing of titanium also permits the bonding thereof to a titanium-to-glass seal closure to provide a capacitor essentially free of weight loss due to electrolyte leakage.



3,548,266
NICKEL-NICKEL OXIDE CAPACITOR
Franklin D. Frantz, Woodford, Vt., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Nov. 14, 1968, Ser. No. 775,727
Int. Cl. H01g *3/06*
U.S. Cl. 317—230 **3 Claims**



A capacitor has a nickel electrode having a nickel oxide film thereon. At the surface of the nickel oxide layer there is a region of inter-reacted oxides of nickel, magnesium and aluminum. A counterelectrode is affixed to the region of inter-reacted oxides.

3,548,267
SEMICONDUCTOR DIODE UNITS
Raymond Patrick Siddell, Sutton Coldfield, and Raymond West, Handsworth Wood, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England, a British company
Filed July 16, 1968, Ser. No. 745,306
Claims priority, application Great Britain, Aug. 4, 1967, 35,952/67
Int. Cl. H01l *11/00, 15/00*
U.S. Cl. 317—234 **1 Claim**

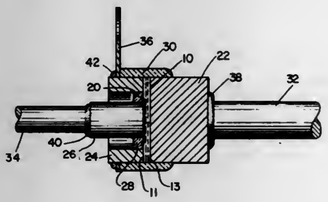
A diode unit includes a pair of conductive parts between which a p-n semiconductor wafer is sandwiched. The parts are interconnected, but insulated from one another so as to constitute terminals to the two zones of the wafer, and each of the parts is formed with a necked

portion so that the diodes can be mounted on a plate by passing the necked portion of one of the parts through



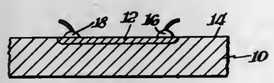
a hole in the plate and then retaining the unit relative to the plate by a spring clip engaging the neck.

3,548,268
HIGH-POWER SEMICONDUCTOR DEVICES
Francis J. Bourassa, Chestnut Hill, and Paul Greiff, Wayland, Mass., assignors to Unitrode Corporation, Watertown, Mass., a corporation of Maryland
Filed Oct. 22, 1968, Ser. No. 769,516
Int. Cl. H01l *1/14*
U.S. Cl. 317—234 **13 Claims**



A semiconductor device especially suited for high power applications in which a semiconductor die having at least one planar junction is intimately bonded to an axial stud terminal structure and glass sleeves fused to the stud terminals and to the die to form a rugged unitary device having extremely efficient electrical and thermal properties.

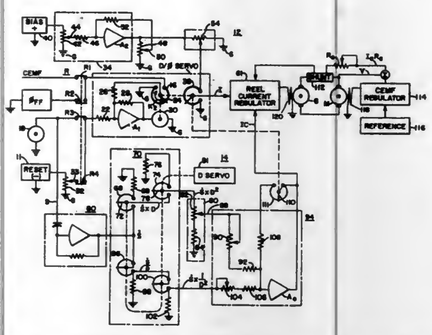
3,548,269
RESISTIVE LAYER SEMICONDUCTIVE DEVICE
John D. MacDougall and Kenneth E. Manchester, Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Dec. 3, 1968, Ser. No. 780,812
Int. Cl. H01l *3/22*
U.S. Cl. 317—234 **9 Claims**



A resistive layer having precise sheet resistivity and temperature coefficient of resistance is provided within a semi-conductive body by impurities of both conductivity type being disposed within said body in coextensive distribution and substantially constant ratio of concentration throughout at least a major portion of said layer, and with one of said impurities having slightly greater concentration than that of the other for providing a junction between said layer and said body.

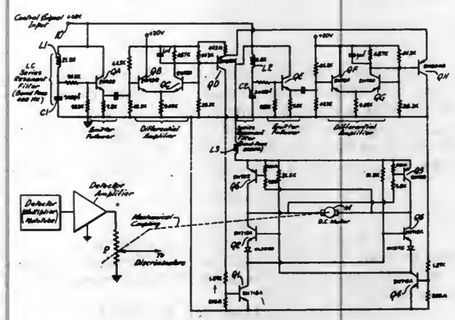
In the method, ions of opposite impurity type are injected by ion implantation to substantially equal depth to provide substantially similar and coextensive impurity distributions within the body, and a larger dose of one impurity is provided to create a junction between the layer and the body.

3,548,270
MAXIMUM TORQUE REEL DRIVE UTILIZING AN INERTIA COMPENSATION AND COUNTER EMF CONTROL
Antonio V. Silva, Buffalo, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 20, 1967, Ser. No. 684,243
Int. Cl. B65h *59/38*
U.S. Cl. 318—6 **5 Claims**



This disclosure provides for a constant tension maximum torque reel drive under conditions of both constant and changing speeds. At constant speed, the armature current is held proportional to the ratio of linear speed to reel counter electromotive force (*S/CEMF*) which is also directly proportional to the ratio of coil diameter to field flux (*D/φ*). During acceleration of deceleration an inertia compensation signal is provided which equals the conventional inertia compensation signal except of a multiplicative term (*D/φ*) which may be obtained from a parallel plate of the servo for determining (*S/CEMF*) which is proportional to the fraction (*D/φ*).

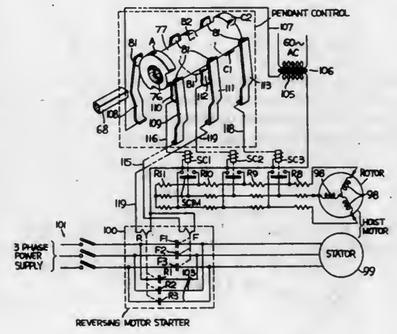
3,548,271
NUCLEAR WELL LOGGING ELECTRONIC CIRCUIT FOR THE SURFACE CONTROL OF A MOTOR LOCATED IN A LOGGING SONDE BY FREQUENCY SELECTIVE MEANS
John G. Kampfer, Houston, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed July 29, 1968, Ser. No. 748,241
Int. Cl. H04q *7/02*
U.S. Cl. 318—16 **5 Claims**



Herein disclosed is a logging apparatus including, among other things, a drive motor, motor control circuitry and a potentiometer, driven by the drive motor, for adjusting gain of at least one parameter associated with the logging

apparatus. The aforementioned logging apparatus and included elements are located in a sonde deep in an earth borehole. The sonde including the aforesaid elements is suspended in the borehole at the end of a logging cable which extends upwardly through the borehole to the surface of the earth. From the earth's surface appropriate signals are transmitted down the logging cable to the motor control circuitry to control the motor and ultimately reposition a potentiometer wiper arm to change gain as desired.

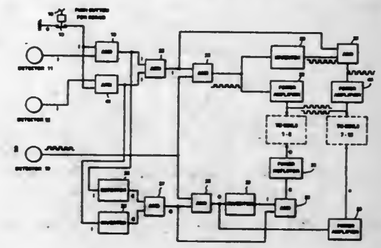
3,548,272
PENDANT CONTROL FOR OVERHEAD CRANE
Raymond J. Messmer, Gibsonia, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed May 24, 1967, Ser. No. 641,014
Int. Cl. H02p *1/54*
U.S. Cl. 318—17 **19 Claims**



A pendant control for an overhead bridging crane having reversible trolley, bridge and hoist motors includes a pendant housing, an electrical cable attached to the housing, means movable along the crane bridge for suspending the housing and counterbalancing its weight, and three drum switches on the housing coupled to the trolley, bridge and hoist motors through the cable for controlling motor direction as a function of the direction of switch rotation from a normal position and motor speed as a function of the angle of rotation from normal position. Each switch has a control knob adapted to be grasped by one hand to pull the housing to the load site and control direction and angle of switch rotation. Each switch also has resilient means to return it to the normal position when released so that it is "fail safe" and has contacts spaced from insulation upon which tracking resulting from arcing at the switch contacts could occur.

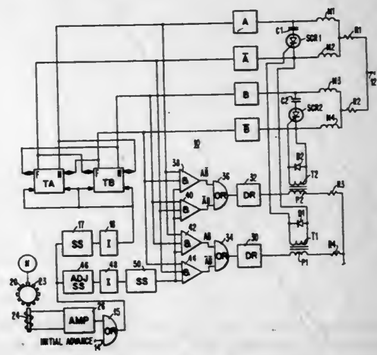
3,548,273
LINEAR MOTOR CONTROL SYSTEM
Luciano Parodi and Maurizio Vallauri, Turin, Italy, assignors to Fiat Societa per Azioni, Turin, Italy, a joint-stock company of Italy
Continuation-in-part of application Ser. No. 643,460, June 5, 1969. This application Sept. 19, 1969, Ser. No. 865,228
Claims priority, application Italy, June 7, 1966, 13,223/66
Int. Cl. H02k *41/00*
U.S. Cl. 318—135 **3 Claims**

The invention is concerned with electromagnetic linear motors of the type having a plurality of stationary coils surrounding the movable member of the motor and is particularly concerned with the provision of integrated means for accelerating and decelerating the fall of the movable member of the motor under gravity, both the acceleration and deceleration being effected by electrical means. The coils are selectively energized by a programmer which is under the control of position detectors.



The position detectors and the programmers together provide for the energization of various coils at various times to provide for acceleration of the fall of the movable member during an initial stage and the deceleration thereof at a later stage.

3,548,274
STEPPING MOTOR SPEED CONTROL
John Mako, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Oct. 24, 1968, Ser. No. 770,376
Int. Cl. H02k *29/02*
U.S. Cl. 318—138 **8 Claims**

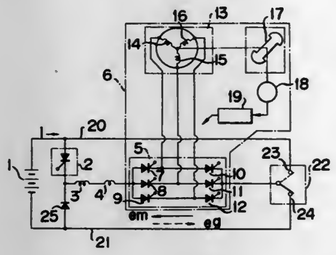


Speed control of a stepping motor is obtained by varying the effective value of a commutating capacitor connected between the phase windings of the motor, through selective switching of the capacitor.

3,548,275
CONTROL DEVICES FOR ELECTRIC MOTORS
Junpei Inagaki and Masateru Kuniyoshi, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed Sept. 30, 1968, Ser. No. 763,497
Claims priority, application Japan, Oct. 3, 1967, 42/63,401; Dec. 29, 1967, 43/84,356; July 2 1968, 43/46,062.
Int. Cl. H02p *3/22*
U.S. Cl. 318—211 **8 Claims**

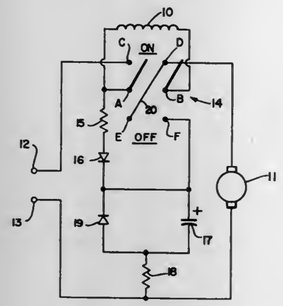
In a regenerative braking device energised for a battery or an A.C. source, a semiconductor commutator including a gate control circuit which can reverse the direction of phase shift of the ignition of the semiconductor

commutator, and a switching means are provided to connect the semiconductor commutator to either a power regenerating circuit or to a free wheeling circuit, which



are connected in parallel between the semiconductor commutator and the D.C. source, in response to the reversal of the direction of phase shift of the ignition.

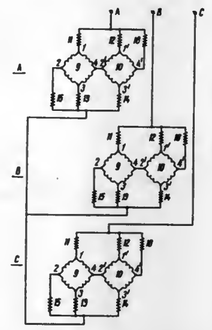
3,548,276
DYNAMIC BRAKING OF UNIVERSAL MOTORS
Thomas A. O. Gross, Lincoln, Mass. 01773
Filed Feb. 17, 1969, Ser. No. 799,656
Int. Cl. H02p *3/24*
U.S. Cl. 318—212 **15 Claims**



A motor system for energizing and de-energizing a single-phase, series-connected motor and for dynamically braking the motor to a halt after de-energization. When the motor is turned off, an energy storage circuit delivers a small amount of energy to the stator and rotor windings only sufficient to assure regenerative coupling of the windings shortly following de-energization. A shunt circuit conducts most of the regenerative braking current around and not through the energy storage circuit.

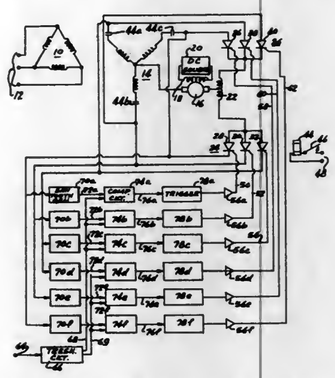
3,548,277
THREE-PHASE ASYNCHRONOUS ELECTRIC MOTOR
Alexandr Arsenievich Voltekh, Bulvar Lenina 19, kv. 24, and Erikh Viktorovich Lir, Ulitsa Ezhena Potie 9, kv. 56, both of Kiev, U.S.S.R.
Filed Apr. 4, 1968, Ser. No. 718,729
Int. Cl. H02k *17/14*
U.S. Cl. 318—224 **3 Claims**

A three-phase asynchronous electric motor, the speed of which is controlled by varying the amplitudes of magnetic fields having a different number of pairs of poles rotating in one and the same direction. The electric motor is provided with a special winding on the stator which includes a bridge circuit having diagonal branch points constituting input terminals for different numbers of pairs of poles of the winding which creates two magnetic fields



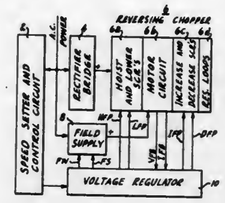
rotating in one and the same direction when said winding is fed from one system of three-phase voltage. The speed of the electric motor is controlled by varying voltage values applied to diagonal knot points.

3,548,278
SERVO SYSTEM
Marcel R. Sommeria, Palos Heights, Ill., assignor to Hyper-Loop, Inc., Summit, Ill., a corporation of Illinois
Filed Apr. 26, 1968, Ser. No. 724,418
Int. Cl. H02p *5/00*
U.S. Cl. 318—257 **10 Claims**



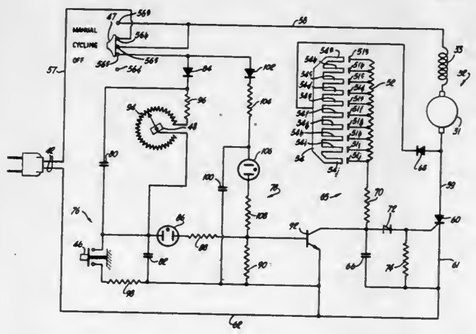
The present disclosure relates to servo systems in which an electric motor is controlled as to speed and direction by a number of SCR's interposed between the motor and a source of AC power. The SCR's are arranged in two groups and a pair of inductors are connected in series between the two groups; the motor is connected between a neutral point and the interconnection of the two inductors. The SCR's are gated in timed relation during each cycle, to bring about either acceleration or deceleration of the motor, in response to a control voltage. At no load, the two groups of SCR's have small, equal firing angles, and there is a small idling current through the inductors. In response to the control circuit, under load conditions, the firing angle of the SCR's in one of the groups is increased while the firing angle of the SCR's in the other group is decreased, the magnitude of increase being more than the magnitude of decrease.

3,548,279
STATIC SHUNT MOTOR CRANE HOIST CONTROL SYSTEM WITH VOLTAGE BOOTSTRAP CIRCUITS
Max S. Knasinski, West Allis, and Robert L. Risberg, Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed June 17, 1968, Ser. No. 737,611
Int. Cl. H02p *3/12*
U.S. Cl. 318—258 **8 Claims**



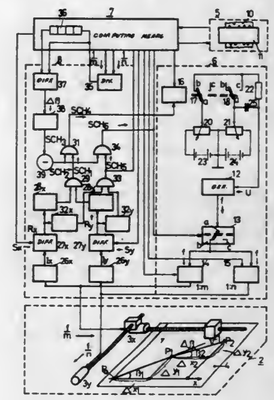
A static control system for the shunt field motor of a crane hoist control having a static field supply and a solid state reversing chopper supplied from a constant potential bus for armature control with a first SCR controlled resistor loop for 75 percent second quadrant retarding torque and a second SCR controlled resistor loop usable with the first one for 150 percent fourth quadrant retarding torque. Bootstrap circuits minimize the firing circuit power supply requirements for the resistor loops. Solid state anti-plugging control is incorporated in the direction and speed control circuit. Limit stop backout at reduced torque and speed is provided from the constant potential bus. A unidirectional diode circuit affords automatic field energization from the armature in the event of power failure. Commutating inductor energy decaying resistors are relocated in the chopper circuit to protect the chopper and directional SCR's from induced voltages during commutation and to protect the bus from a short circuit if both SCR's fail as added functions. Field weakening and field strengthening controls are incorporated in the direction and speed control circuit.

3,548,280
CONTROL MEANS FOR BLENDER OR THE LIKE
James B. Cockroft, Wauwatosa, Wis., assignor to John Oster Manufacturing Co., Milwaukee, Wis., a corporation of Wisconsin
Filed June 12, 1967, Ser. No. 645,330
Int. Cl. H02p *1/00;* **A47j** *43/08*
U.S. Cl. 318—443 **15 Claims**



Automatic intermittent control for a blender whereby the blender motor may be set to cycle and when so set the motor automatically runs for a brief period, then stops, then runs for a brief period, and so on, over a selected predetermined number of cycles thereby greatly to speed up a chopping or other function performed by the blender. Instead of having the motor intermittently start and stop, the same thing can be accomplished by having the motor intermittently operated at relatively low speeds and then at relatively high speeds.

3,548,281
ELECTRICAL CONTROL ARRANGEMENT FOR CONTROLLING THE MOVEMENT OF A MACHINE PART
Peter Anis, Bad Hersfeld, Germany, assignor to Zuse KG, Bad Hersfeld, Germany
Filed Feb. 5, 1969, Ser. No. 796,842
Claims priority, application Germany, Feb. 9, 1968, 1,638,173
Int. Cl. G05b *19/18*
U.S. Cl. 318—569 **12 Claims**

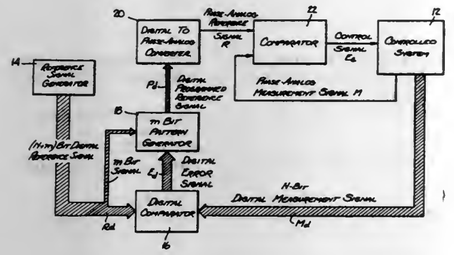


The movement of a machine part along a path is controlled by step motors simultaneously moving the part in a first and second direction causing the vector sum of the movements to coincide with the path. A pulse generator generates a pulse sequence which is divided into two pulse sequences having individually adjustable frequencies, each of which is applied to one of said step motors. The motors are operated at maximum synchronous speed, so that the speed must be decreased for changes in direction exceeding a determined value or when the motors are to be stopped. Circuits are supplied to furnish signals for causing such a deceleration under determined conditions, thus eliminating the need for including provision for such deceleration in the program controlling the overall operation of the system.

3,548,282
CONTROL SYSTEM FOR MOTOR VELOCITY AND POSITION
Michael S. Schiller, New York, N.Y., assignor, by mesne assignments, to Security Trust Company of Rochester (trustee), Rochester, N.Y., a banking corporation of New York
Filed Jan. 27, 1969, Ser. No. 794,084
Int. Cl. G05b *19/26*
U.S. Cl. 318—18 **17 Claims**

There is disclosed a system for controlling a parameter, such as a motor shaft angle position, which is capable as representation as a phase and frequency of an electrical signal. A whole word digital reference signal is compared

with a whole word digital shaft angle measurement signal, which latter signal is derived from an absolute encoder coupled to the shaft of the motor being controlled. The comparison of this digital reference signal and digital measurement signal provides a digital error signal. The

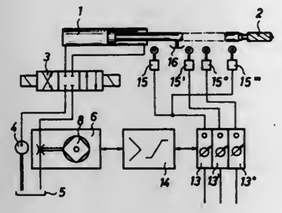


digital error signal is used to bring the shaft of the motor to exactly the position commanded by the whole word digital reference signal. In order to avoid overshoot, a velocity profile is determined as a function of the magnitude of the digital error signal.

3,548,283
ON-OFF WHEATSTONE BRIDGE APPARATUS CONTROLLING THE OPERATION OF AN ELECTRIC SERVOMOTOR INCLUDING DYNAMIC BRAKING AT BALANCE

Holger Krohn, Wombach, Germany, assignor to Firma G. L. Rexroth, Lohrer Eisenwerk G.m.b.H., Lohr (Main), Germany

Filed Oct. 25, 1967, Ser. No. 678,047
Claims priority, application Germany, Oct. 29, 1966, R 44,486; Mar. 4, 1967, R 45,433
Int. Cl. G05b *5/01, 11/14*
U.S. Cl. 318—674 **3 Claims**

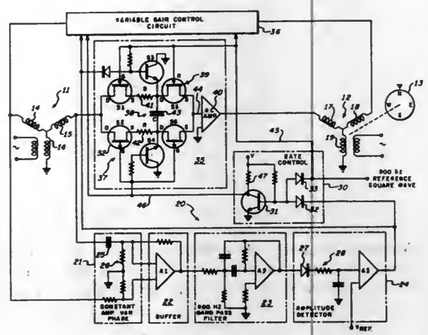


An apparatus for controlling the operation of an electric servomotor of a flow control valve for operating a hydraulic cylinder by means of a bridge circuit which comprises a nominal-value potentiometer in one branch of the bridge and an actual-value potentiometer in the other branch which is dependent upon the rotary position of the drive shaft of the motor. The output voltage of the bridge after being amplified serves for driving the motor so as to adjust the flow control valve. The apparatus further comprises a pair of relays which, when both of them are in their normal positions, will short-circuit the motor, while when either of them is actuated dependent upon the polarity of the output voltage of the bridge, it connects the motor to the amplifier so that a voltage is then supplied to the motor to start the same to which another voltage is then added which is amplified in proportion to the output voltage of the bridge.

3,548,284
SYNCHRO DATA TRANSMISSION APPARATUS HAVING DISCRETE GAIN CHANGING TO COMPENSATE FOR UNDESIRABLE SIGNAL GRADIENT VARIATIONS

David A. Espen, Phoenix, Ariz., assignor to Sperry Rand Corporation, a corporation of Delaware

Filed July 19, 1968, Ser. No. 746,174
Int. Cl. G05b *11/06*
U.S. Cl. 318—691 **7 Claims**

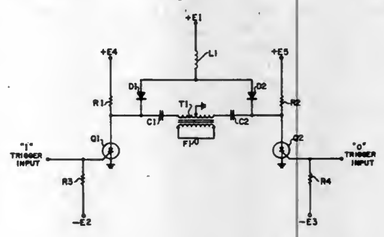


A synchro data transmission system having discrete gain changing to compensate for undesirable signal gradient variations that is particularly suitable for application in magentic compass systems to compensate for the change in the field strength of the horizontal component of the earth's magnetic field.

3,548,285
HIGH EFFICIENCY CURRENT DRIVER

Leo Simpson, West Hempstead, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Mar. 29, 1968, Ser. No. 717,196
Int. Cl. H02m *1/00*
U.S. Cl. 320—1 **5 Claims**



This invention relates to a current driver for generating high current drive pulses through low impedance circuits. The circuit consists of two grounded cathode transistor switches, the anode of each being connected through a capacitor to opposite terminals of a transformer primary, the center tap of which is grounded. A D.C. voltage source is connected through a large inductor to two diodes, the opposite terminals of which are connected to the transistor anodes. An "I" input is connected to one switch input terminal while an "O" input is likewise connected to the other switch. The capacitors are charged during the interpulse period by the D.C. voltage source and are maintained at a voltage of twice the D.C. source voltage over extended interpulse periods by two separate D.C. sources

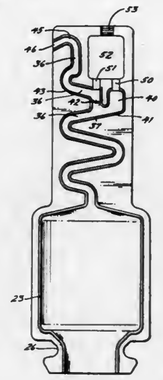
which are connected to the anodes of the two switches through two large resistors.

An input pulse discharges the capacitors through the low impedance network comprising one-half of the center tapped transformers and the switch while the load is inductively coupled to the center tapped transformer.

3,548,286
GAS SENSOR FOR BATTERY CHARGER

Dino B. Giacalone, Valley Forge, Pa., and Edgar M. Smith, Hopewell, N.J., assignors to John R. Hollingsworth Company, Phoenixville, Pa., a corporation of Pennsylvania

Filed Mar. 7, 1969, Ser. No. 805,265
Int. Cl. H01m *1/06*
U.S. Cl. 320—35 **1 Claim**

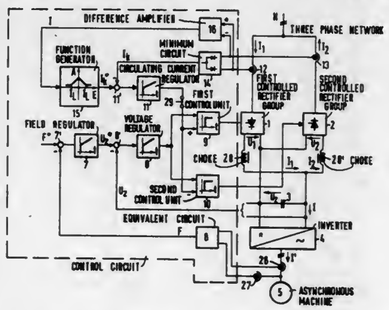


A device for connection to a storage battery cell during charging of the battery, wherein gas evolved during the charging, and particularly as the battery is increasingly charged, is sensed to provide means for controlling the charge to the battery from the battery charger.

3,548,287
REGULATING CIRCUIT FOR THE FIELD OF AN ASYNCHRONOUS MACHINE

Felix Blaschke, Erlangen, and Gerhard Hütter, Maichingen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

Filed Jan. 28, 1969, Ser. No. 794,699
Claims priority, application Germany, Feb. 7, 1968, 1,638,650
Int. Cl. H02p *9/00*
U.S. Cl. 322—24 **6 Claims**

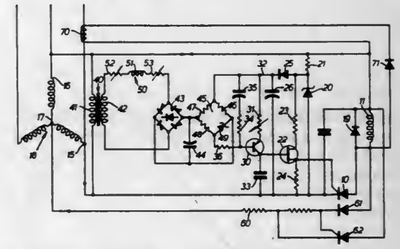


A pair of controlled rectifiers for supplying energizing current to the field of an asynchronous machine are controlled by a control circuit. The control circuit comprises a first control unit connected to one of the control rectifiers and a second control unit connected to the other of the control rectifiers for determining the firing angles of the rectifiers. A voltage regulator is connected between the output electrodes of the rectifiers and the cotnrol units. A field regulator connected between the input to the machine and the voltage regulator compares a magnitude proportional to the air gap field of the machine and a reference field magnitude.

3,548,288
CONTROL APPARATUS FOR ELECTRIC ALTERNATORS HAVING MEANS FOR INITIAL EXCITATION BUILD-UP

Peter J. Wyles, Stamford, England, assignor to Newage Lyon Limited, Stamford, England, a company of Great Britain

Filed July 19, 1968, Ser. No. 746,100
Claims priority, application Great Britain, July 19, 1967, 33,281/67
Int. Cl. H02p *9/30*
U.S. Cl. 322—28 **4 Claims**

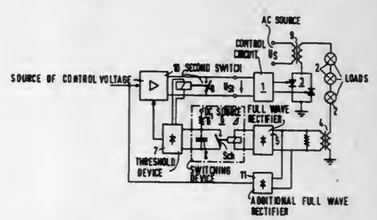


In automatic regulating apparatus for an electric alternator a main thyristor is connected in series with an excitation winding across the alternator terminals and is controlled by a sensing circuit to which a signal corresponding to alternator output voltage is passed. A by-pass circuit is connected to the excitation coil so as to by-pass the main thyristor to provide a small current through the excitation coil when the thyristor is non-conductive, to build up the alternator excitation.

3,548,289
APPARATUS FOR SUPERVISING THE CURRENT SUPPLIED TO LOADS VIA ANTIPARALLEL-CONNECTED THYRISTORS

Manfred Liska and Klaus Hübner, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany

Filed Apr. 14, 1969, Ser. No. 815,953
Claims priority, application Switzerland, Apr. 16, 1968, 5,589/68
Int. Cl. G05f *1/20;* **H02h** *7/00*
U.S. Cl. 323—9 **10 Claims**



When the load current of a load energized via antiparallel-connected thyristors decreases to zero it causes

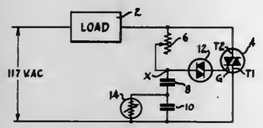
a switch to open thereby diverting the discharge path of a capacitor to a threshold device. If the discharge current of the capacitor exceeds the threshold level of the threshold device the device actuates a signal device or prevents the application of a control voltage to the thyristors.

3,548,290

PROPORTIONAL CONTROL SYSTEMS USING TWO CAPACITORS IN SERIES IN THE FIRING CIRCUIT WITH THE SMALLER ONE SHUNTED BY A CURRENT DRAIN DEVICE

Merle R. Swinehart, Brookfield, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed July 31, 1967, Ser. No. 657,137
Int. Cl. G05f *3/04*
U.S. Cl. 323—19 **8 Claims**



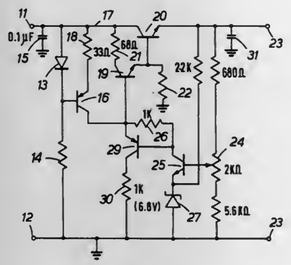
A proportional control system of the condition responsive type which allows use of a variable current flow control condition responsive sensor in the low voltage side of a semiconductor control system. A thermistor senses an ambient condition such as temperature and controls leak off of current from the smaller one of a pair of series capacitors in the trigger control circuit of a solid state gating type power control element connected in the load circuit. Alternatively, the variable current flow control element may be a line voltage responsive lamp and photoresistor.

3,548,291

VOLTAGE REGULATOR WITH A LOW INPUT IMPEDANCE AND IMPROVED FEEDBACK GAIN CHARACTERISTICS

Alastair Michael Heaslett, Reading, England, assignor to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed Oct. 18, 1968, Ser. No. 768,845
Int. Cl. G05f *1/56*
U.S. Cl. 323—22 **2 Claims**



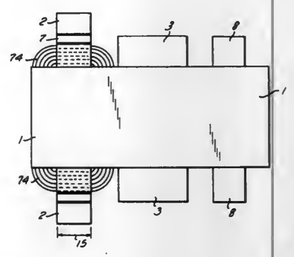
A series transistor voltage regulator of the feedback type with a transistor stage of grounded-collector configuration to provide a low impedance input circuit to the regulator to reduce the effect of variations in an unregulated input voltage and to provide for the feedback signal amplifier a high impedance load.

3,548,292

SINGLE CORE MAGNETIC VOLTAGE REGULATOR

Gerhard Wedemeyer, Brilon-Gudenhagen, Germany, assignor to Dominitwerke Gesellschaft mit beschrankter Haftung, Brilon, Westphalia, Germany

Filed Dec 20, 1967, Ser. No. 692,094
Claims priority, application Germany, Dec. 24, 1966, D 51,882
Int. Cl. G05f *3/06;* **H01f** *21/08;* **H02m** *5/12*
U.S. Cl. 323—61 **3 Claims**



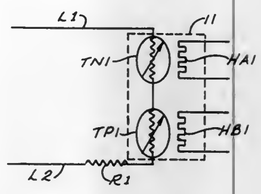
Current surges upon switching-in of the voltage regulator are decreased and the regulatory region of the voltage regulator is increased by first, providing an additional path for primary leakage induction and secondly, shortening the length of the primary leakage flux lines. The former is accomplished by an additional section either by increasing the length of the coil over the height of the core or by arranging the compensation winding underneath the primary winding, so that the volume occupied by the compensation winding is available for absorbtion of additional primary flux. The path of the lines are shortened by filling the additional cross-sectional volume with magnetically conducting material.

3,548,293

ELECTRO-THERMAL LOGIC APPARATUS

Hans G. Hirsbrunner, South Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed May 20, 1968, Ser. No. 730,300
Int. Cl. G05f *3/02*
U.S. Cl. 323—69 **12 Claims**



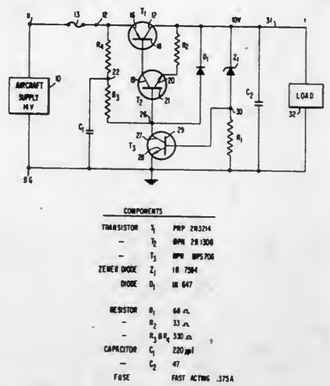
Various logic gates employ thermistors in various combinations to switch the state of energization of an electrical load in response to predetermined combinations of input signals. The input signals are in the form of heat applied to various ones of the thermistors.

3,548,294

LOW VOLTAGE DIRECT CURRENT REGULATOR USING COMPLEMENTARY TRANSISTOR PAIR

Thomas F. Houghton, Franklin Lakes, N.J., assignor to Aircraft Radio Corporation, Boonton, N.J., a corporation of New Jersey

Filed Dec. 12, 1967, Ser. No. 689,986
Int. Cl. G05f *1/58*
U.S. Cl. 323—4 **5 Claims**



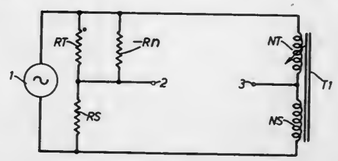
Low input regulator for avionic equipment utilizing a complementary trans' or pair for current clamping. A germanium PNP transistor is used in the main current leg to minimize regulator voltage drop and the NPN leg of the pair is used for current sensing. Load changes are detected and applied to control the NPN transistor, which in turn controls the PNP transistor such that, within regulation limits, more or less current is supplied to the load as required at the regulation voltage.

3,548,295

TEMPERATURE RESPONSIVE BRIDGE CIRCUITS

Alan John Borer, Crowborough, England, assignor to Servomex Controls Limited, Crowborough, Sussex, England, a British company

Filed Oct. 18, 1968, Ser. No. 768,789
Claims priority, application Great Britain, Oct. 31, 1967, 49,452/67
Int. Cl. G05f *3/02*
U.S. Cl. 323—68 **8 Claims**



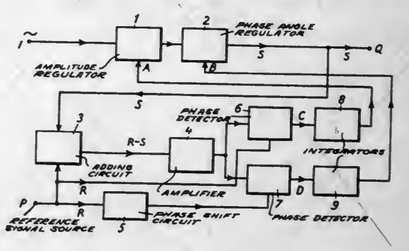
A temperature responsive bridge circuit having a variable resistance temperature sensor and a comparison resistor in two adjacent limbs of the bridge and ratio transformer parts in the remaining two limbs. The number of turns in one of the transformer parts adjacent the sensor can be varied to balance the bridge or to set the bridge to balance with the sensor at a given temperature. In order to linearise the change in the said number of turns with respect to actual temperature changes, a negative resistance can be shunted across the sensor and/or the number of turns in the other transformer part can be set at various values for use of the bridge over sub-ranges of the maximum temperature range of the bridge.

3,548,296

METHOD AND APPARATUS FOR CONTROLLING THE PHASE ANGLE AND AMPLITUDE OF A PERIODIC SIGNAL BY USING TWO PHASES OF A REFERENCE SIGNAL

Ingvar Georg Sundström, Molndal, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation

Filed Sept. 19, 1967, Ser. No. 668,893
Claims priority, application Sweden, Oct. 13, 1966, 13,882/66
Int. Cl. G05f *1/68*
U.S. Cl. 323—102 **2 Claims**



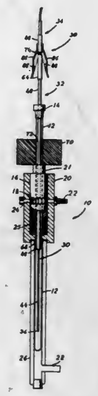
The amplitude and phase of a periodic signal is adjusted by forming the difference between the adjusted periodic signal and a periodic reference signal and thereafter generating a first phase difference signal representing the difference in the phases of the reference signal and the difference signal and generating a second phase difference signal representing the phase difference between the reference signal, shifted 90° in phase, and the difference signal. Both of the phase difference signals are integrated to provide control signals for adjusting the amplitude and phase of the periodic signal.

3,548,297

TEMPERATURE SENSOR FOR A NUCLEAR MAGNETIC RESONANCE SPECTROMETER SYSTEM

Anthony L. Van Geet, 77 Coronation Drive, Amherst, N.Y. 14226

Filed Sept. 23, 1968, Ser. No. 761,753
Int. Cl. G01n *27/78*
U.S. Cl. 324—0.5 **8 Claims**

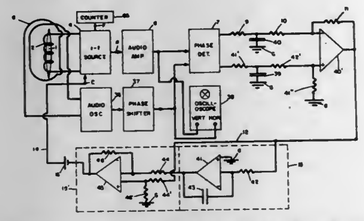


A temperature sensor located within the spinning sample tube of a nuclear magnetic resonance spectrometer and a balancing cylindrical weight mounted about the

sample tube for preventing vertical movement of the tube and/or sensor due to the coolant fluid flow.

The sensor may be stationary or it may spin with the tube. In the former case, a clamp or bearing is provided to center and support the sensor.

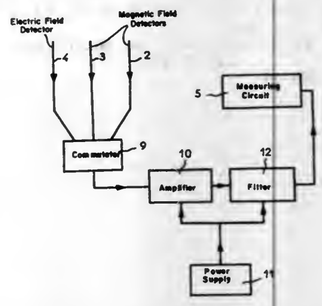
3,548,298
TRANSISTORIZED NUCLEAR MAGNETIC RESONANCE GAUSSMETER
Michael S. Adler, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts
Filed May 17, 1968, Ser. No. 730,080
Int. Cl. G01r *33/08*
U.S. Cl. 324—.5 **11 Claims**



A transistorized nuclear magnetic resonance (NMR) gaussmeter in which a material (as doped water) containing nuclei whose resonance frequency is proportional to the strength of an ambient D-C magnetic field is subjected to a radio frequency (R-F) electromagnetic field at the resonance frequency. The frequency of the applied field is counted and related to the magnitude of the D-C magnetic field by the relationship $f=\gamma_g/2\pi \cdot H$ where: f is the frequency of the applied field in mHz., γ_g is the gyromagnetic ratio ($\gamma_g/2\pi=4.2576$ for protons), and H is the magnitude of the D-C magnetic field in kilogauss. The frequency of the R-F field is controlled by a single voltage variable capacitance tightly coupled in the limited oscillator circuit of the R-F source. The D-C field is modulated at an audio frequency and the periodic variations of the resonance frequency thereby effected about a center frequency are used to create an error signal when the center frequency and the frequency of the applied R-F field are not identical. The error signal is fed back to the voltage variable capacitance along a first direct feedback path to provide fast correction and along a second path having operational amplifier means to integrate the error signal and feed the integrated signal across the voltage variable capacitance thereby to reduce the error signal to zero.

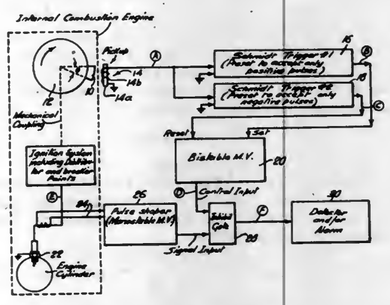
3,548,299
METHOD AND APPARATUS UTILIZING A PAIR OF MAGNETIC FIELD DETECTORS AND AN ELECTRIC FIELD DETECTOR FOR DETERMINING THE ELECTRIC RESISTANCE OF THE SUBSOIL BY MEANS OF ELECTROMAGNETIC WAVES
Jean Duroux and Pierre R. Griveau, Paris, and Michel Zahaczewski, Chatenay-Malabry, France, assignors to Bureau de Recherches Geologiques et Minieres, Paris, France
Filed May 28, 1968, Ser. No. 732,711
Claims priority, application France, June 6, 1967, 109,207; Oct. 9, 1967, 123,711; Feb. 6, 1968, 138,421
Int. Cl. G01v *3/12*
U.S. Cl. 324—6 **11 Claims**

A method for determining the electrical resistance of the earth by establishing an electromagnetic field, measuring the radial component Hx and the vertical component Hz of the magnetic field and the transverse component Ey of the electric field, and then determining the resistance from mathematical formulas. Different formulas may be employed depending upon the field propa-



gation characteristics of the earth and the distance between the field source and the field measuring equipment.

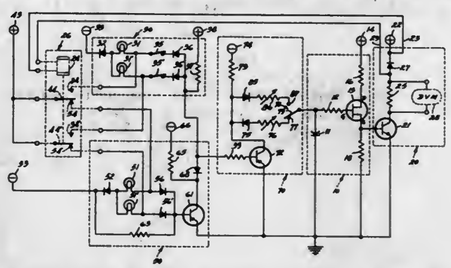
3,548,300
METHOD AND APPARATUS FOR AN IGNITION TIMING INDICATOR
Jerry L. Nolting, Fishkill, N.Y., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,711
Int. Cl. G01m *15/00*
U.S. Cl. 324—15 **15 Claims**



An ignition timing error is detected in a spark ignited internal combustion engine by generating a signal during a pre-established portion of an engine cycle appropriate for generation of an ignition pulse, which signal actuates associated inhibit circuitry to block transmission of the ignition pulse to a detection zone during the period of the generated signal and disables the associated inhibit circuitry at the end of the generated signal, to establish a continuous circuit for transmission of the ignition pulse to the detection zone.

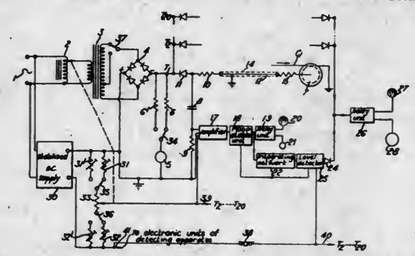
3,548,301
TRANSISTORIZED CIRCUIT FOR MEASURING OPERATE AND RELEASE CURRENTS OF RELAYS
Joseph A. Zutkis, Mountainside, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Oct. 23, 1968, Ser. No. 769,808
Int. Cl. G01r *31/02*
U.S. Cl. 324—28 **3 Claims**

A circuit for supplying varying current to the operate coil relay, holding the current constant at the values at which the relay operates and releases, and then determining such values. The exponential discharging voltage across a capacitor is applied to the gate of a field effect



transistor whose current, amplified if required, drives the relay coil.

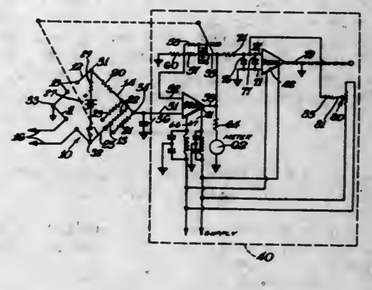
3,548,302
APPARATUS FOR DETECTING FAULTS IN THE INSULATION COVERING OF INSULATED ELECTRIC CONDUCTORS INCLUDING MEANS FOR CAUSING A FLUCTUATING CURRENT TO FLOW THROUGH A BARE PORTION OF THE INSULATION
Alan Arnold, Wembley, Middlesex, John Baird Childs, London, and Kenneth William Ffitch, Uxbridge, Middlesex, England, assignors to British Insulated Callender's Cables Limited, London, England
Filed July 9, 1968, Ser. No. 743,372
Claims priority, application Great Britain, July 10, 1967, 31,580
Int. Cl. G01r *31/12*
U.S. Cl. 324—54 **10 Claims**



A pinhole counter for testing insulated wire is modified to make it capable of detecting and indicating unacceptable lengths of bare conductor as well as counting pin holes and indicating when there are an unacceptable number of pinholes in a predetermined length of wire. The test potential applied to the conductor via an electrode past which the wire moves is one which, in the absence of a fault current, is substantially constant and which causes a detectable fault current pulse to flow through any pinhole passing the electrode and a detectable fluctuating fault current comprising a series of pulses to flow through any bare portion passing the electrode.

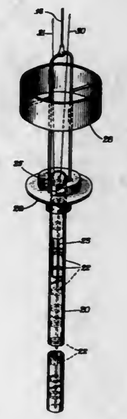
3,548,303
RESISTANCE MEASURING BRIDGE HAVING AN AMPLIFICATION SYSTEM PROVIDING A SIGNAL FOR TERMINATING A MACHINING PROCESS
Walter Helgeland, Nashua, N.H., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Apr. 6, 1967, Ser. No. 628,911
Int. Cl. G01r *27/02, 1/30*
U.S. Cl. 324—62 **5 Claims**

When machining an electric circuit component, prompt triggering of machining termination is provided by bridge that compares changing impedance of component as it is machined, with standard impedance, the bridge output being connected to input of amplifier having input imped-



ance of at least about 1000 megohms and can be full-floating. The output of the amplifier provides termination triggering signal preferably for electron beam or laser type machining as in machining high resistance resistors.

3,548,304
RESISTIVITY MEASURING DEVICE HAVING VERTICALLY-SPACED RING ELECTRODE AND A CENTRAL ELECTRODE
Robert A. Lohnes, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa
Filed Dec. 5, 1967, Ser. No. 688,258
Int. Cl. G01r *27/02*
U.S. Cl. 324—65 **5 Claims**



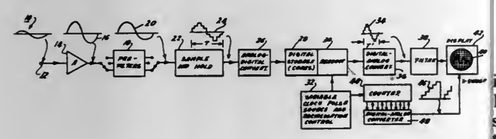
Consolidation of subaqueous sediment is measured in situ by lowering a probe from a ship or other floating object; and the probe includes an elongated tube which penetrates the sediment under weight of the probe. A cylindrical shroud attached to the top of the probe acts as a stabilizer to keep the probe upright as it descends and penetrates the soil. The tube is a hollow cylinder, and it is provided with a plurality of torroidal electrodes spaced at constant longitudinal increments along its interior. Each of the electrodes is separately coupled through a selection switch to an ammeter on board the ship. A generator

on board ship energizes an electrode extending axially of the tube through the ring electrodes. As the selection switch completes the circuit between the axial electrode and each of the ring electrodes, the ammeter measures the current flowing between the axial electrode and the ring electrode selected to complete the circuit. Thus, there is obtained a resistance or conductivity measurement for different depths of sediment. The resistivity measurements are indicative of consolidation of the sediment as a function of depth and they may be used to generate an equation for predicting future settlements of the soil under load.

3,548,305
REPETITIVE, VARIABLE READ-OUT SPEED SPECTRUM ANALYSIS APPARATUS AND METHOD

Myron Kaufman, Massapequa, N.Y., assignor to Signal Analysis Industries Corporation, Copiaque, N.Y., a corporation of New York

Filed Jan. 12, 1967, Ser. No. 608,797
Int. Cl. G01r *23/16*
U.S. Cl. 324—77 **15 Claims**

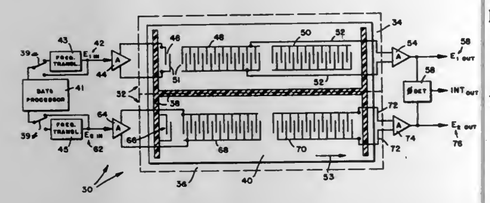


Speed-up spectrum analyzer and method in which the speeded-up wave is filtered a number of times by a single fixed-frequency filter, with the speed-up rate being different during each filtering step. The output of the filter indicates the magnitudes of the spectral components of the wave being analyzed.

3,548,306
SURFACE WAVE SPECTRUM ANALYZER AND INTERFEROMETER

Harper John Whitehouse, Hacienda Heights, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Aug. 29, 1968, Ser. No. 756,242
Int. Cl. G01r *23/00, 23/12*
U.S. Cl. 324—80 **9 Claims**

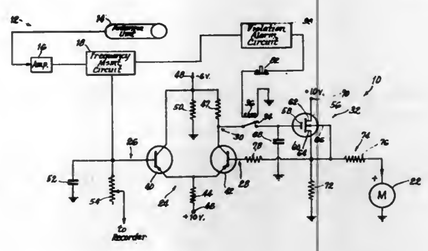


A distributed two-transducer non-dispersive acoustic wave device which enables simultaneous spectrum analysis and interferometry to be performed. Essentially, the device consists of a pair of transducer sets disposed in a parallel relation along the surface of a crystal substrate, each of the transducer sets forming a matched filter, or surface wave device. Each of two coherently related input signals traversing the surface wave devices of the distributed two-transducer non-dispersive acoustic wave device are amplified and form separate outputs, each of which can be analyzed for spectral content. Alternatively, both spectral outputs can be connected to a phase detector, thus permitting interferometry.

3,548,307
ELECTRONIC HOLDING CIRCUIT

George H. Fathauer, Decatur, Ill., assignor to Qonaar Corporation, a corporation of Delaware

Filed Aug. 8, 1968, Ser. No. 751,239
Int. Cl. G01p *3/12;* **G01r** *19/16*
U.S. Cl. 324—103 **12 Claims**

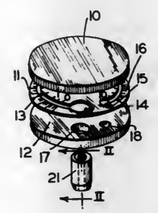


An electronic circuit for holding a reading corresponding to a variable input signal from a radar set or the like, comprising a comparison amplifier having first and second input circuits, means for supplying the input signal to said first input circuit, said comparison amplifier including an output circuit, a meter circuit connected to said second input circuit, a feed-back loop connected between said output circuit of said comparison amplifier and said second input circuit, said feed-back circuit including a field effect transistor having its control electrode connected to said output circuit of said comparison amplifier, said field effect transistor having its output electrode connected to said second input for producing a meter signal in said meter circuit corresponding to the input signal in the first input circuit, a capacitor connected to the control electrode of the field effect transistor, and a switch for opening the connection between the output circuit of said amplifier and the control electrode, whereby the capacitor maintains the voltage on the control electrode so that the signal in the meter circuit is held at the value which was existing when the switch was open.

3,548,308
INDICATING INSTRUMENT HAVING A HEATER COIL IMMERSED IN A FLUID

Richard W. Seabury, Jr., Towaco, N.J., assignor to RFL Industries, Inc., Boonton, N.J., a corporation of New Jersey

Filed Jan. 15, 1968, Ser. No. 697,951
Int. Cl. G01r *5/26*
U.S. Cl. 324—106 **2 Claims**

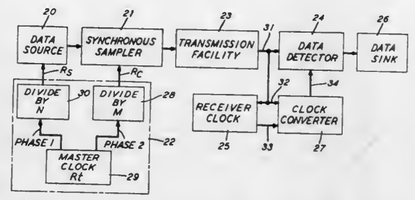


An indicating instrument having a heater coil immersed in a fluid contained within a sealed housing formed of a plurality of flat plates. The flow of current through the heater coil results in an expansion of the fluid as a visible column having a calibrated scale associated therewith.

3,548,309
DATA RATE CONVERTER

Burton R. Saltzberg, Middletown, N.J., and John E. Savage, Providence, R.I., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Sept. 14, 1967, Ser. No. 667,768
Int. Cl. H04b *1/00, 1/66;* **H04j** *3/16*
U.S. Cl. 325—38 **5 Claims**

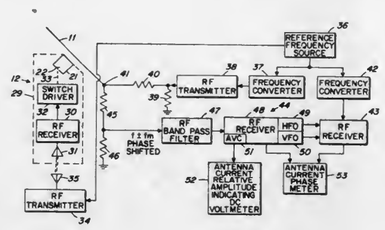


A digital data transmission system designed to operate at one synchronous rate is adapted to transmit data at another synchronous rate without altering the transmission facility, provided the ratio between the message and system rates is a proper rational fraction. Applique circuits at transmitter and receiver respectively generate and recover timing signals for the two rates from common synchronized sources.

3,548,310
ANTENNA CURRENT DISTRIBUTION MEASUREMENT SYSTEM

Richard C. Fenwick, Richardson, Tex., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed July 31, 1967, Ser. No. 657,388
Int. Cl. H04b *1/00*
U.S. Cl. 325—67 **5 Claims**



An antenna current distribution measurement system including the introduction of an obstacle in the near field of the antenna being current amplitude and phase measured. Introduction of such an obstacle in the form of a relatively small antenna acts as a perturber of input impedance that is a known function of current on the antenna structure near the obstacle (i.e., the perturber antenna). The perturber antenna includes an antenna circuit subject to being opened and closed for inducing a modulation effect desired in an elongate antenna line element being measured and with this approach accomplished without requiring the running of wires to a probe or perturber near the antenna line being measured.

3,548,311
DOWNED-AT-SEA AIRCRAFT RADIO LOCATION TRANSMITTER

Roy D. Burns, 709 Daisy, Escondido, Calif. 92025

Filed Aug. 1, 1967, Ser. No. 657,584
Int. Cl. H04b *1/02*
U.S. Cl. 325—115 **3 Claims**

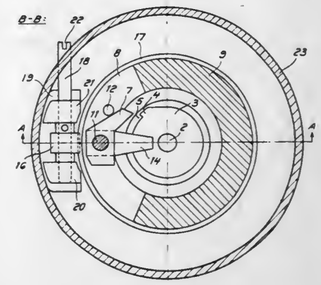


An aircraft location device for transmitting a distress signal which consists of first and second cones connected by a long metallic cable with the front cone tied to the rear section of an aircraft for dragging the entire assembly while in flight, the rear cone housing a transmitter coupled to the dragline for transmitting a distress signal and having means for decoupling underwater to allow the entire assembly to surface for location of a downed aircraft.

3,548,312
DEVICE FOR TRANSMITTING AN ACCURATELY DETERMINED FIXED FREQUENCY WITH A TUNABLE HIGH FREQUENCY TRANSMITTER TUBE

Johan Paul Ström, Jakobsberg, and Nils Arne Erland Wästerlid, Skalby, Sweden, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 6, 1967, Ser. No. 680,693
Claims priority, application Sweden, Nov. 17, 1966, 15,778/66
Int. Cl. H03b *21/00*
U.S. Cl. 325—131 **5 Claims**

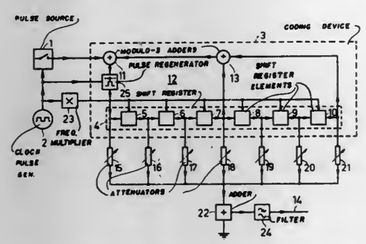


A device for transmitting an accurately determined fixed frequency with a tunable high frequency tube, i.e., a variable frequency magnetron, which comprises a tuning body rotatably supported in a stator. By rotation in a given direction, this tuning body produces a continuous variation of the tuning frequency of the tube. For the purpose of adjusting the tube to a fixed frequency, the tuning body cooperates with an arresting device arranged between the stator and the tuning body. The arresting device is ineffective during rotation which produces the variation of the tuning frequency, but functions with a tendency toward rotation in the opposite direction, thus locking the tuning body in a position corresponding to the predetermined fixed frequency.

3,548,313
BIVALENT PULSE TRANSMITTER WITH OUTPUT SPECTRUM HAVING PRESCRIBED TRANSFER FUNCTION

Petrus Josephus van Gerwen, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Apr. 5, 1968, Ser. No. 719,155
Claims priority, application Netherlands, Apr. 8, 1967, 6705022
Int. Cl. H04l *1/10*
U.S. Cl. 325—141 **6 Claims**

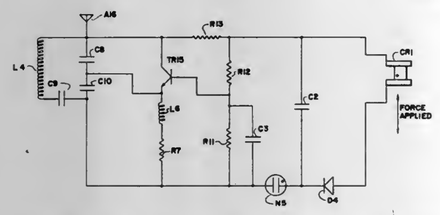


A pulse transmission system in which bivalent pulses synchronized with clock pulses are coded by a shift register in order to minimize occurrence of periods of long duration of the same output. The elements of the shift register are applied to the output by way of separate attenuators in order that the output have a desired transfer function.

3,548,314
PIEZOELECTRIC PULSE AMPLIFIER

Jay P. Mitchell, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio, an institution of higher learning

Filed Dec. 21, 1967, Ser. No. 692,534
Int. Cl. H04b *1/04*
U.S. Cl. 325—185 **3 Claims**



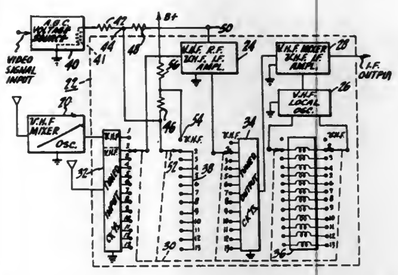
This invention relates to information communication systems utilizing a circuit having a piezoelectric crystal as the sensing element. The crystal responsive to mechanical stimulation provides an electrical energy relaxation signal having a time duration directly proportional to the force of the stimulation. The signal is, in turn, utilized to modulate an oscillator circuit for signal generation of a frequency directly related to the applied force.

3,548,315
COMPENSATED VHF–UHF AUTOMATIC GAIN CONTROL DELAY SYSTEM

William L. Lehmann and James C. Marsh, Jr., Indianapolis, Ind., assignors to RCA Corporation, a corporation of Delaware

Filed Mar. 1, 1968, Ser. No. 709,703
Int. Cl. H04b *1/16*
U.S. Cl. 325—410 **6 Claims**

Optimum noise figure and overload characteristic of a television receiver is achieved during both very high frequency (VHF) and ultra high frequency (UHF) operation by increasing the AGC delay applied to an amplifier which serves as a radio frequency amplifier for

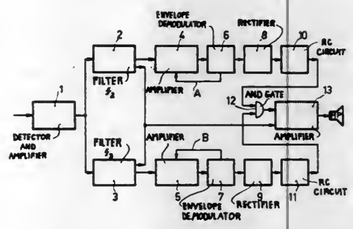


VHF reception and as an intermediate frequency amplifier for UHF reception, when the receiver is switched from VHF operation to UHF operation.

3,548,316
DEVICE FOR THE RECEPTION OF RADIO-TELEPHONE DISTRESS SIGNALS

Serge Guennou, Vitry, Claude Lefevre, St.-Maur, and Raymond Maugis, Paris, France, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Feb. 26, 1968, Ser. No. 708,133
Claims priority, application France, Feb. 24, 1967, 96,402
Int. Cl. H04q *9/12*
U.S. Cl. 325—466 **5 Claims**



In a receiver for receiving signals having a modulation in the form of alternately occurring oscillations of different frequency (e.g. distress signals), an output amplifier is controlled by two channels corresponding to the two modulation frequencies, so that the amplifier is blocked in the absence of modulation. In order to avoid operation of the system as a result of parasitic signals, each channel includes an envelope demodulator, and means for controlling the gain of the channel as a function of the average value of the envelope.

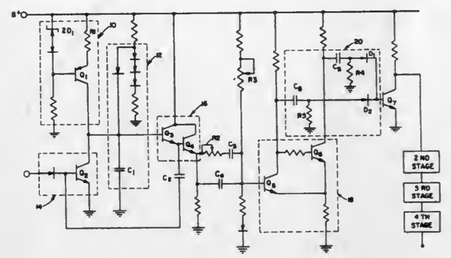
3,548,317
TIME DIVISION FREQUENCY MULTIPLIER

Michael P. Bordonaro, Middletown, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware

Filed June 12, 1967, Ser. No. 645,267
Int. Cl. H03b *19/00*
U.S. Cl. 328—20 **5 Claims**

A frequency multiplier with an input frequency which is variable over one decade and in which input pulses

reset a linear ramp voltage to a negative voltage level from which a ramp voltage increases to a positive level. The ramp voltage is applied to a zero crossing detector which changes state each time the ramp voltage crosses the zero voltage level. Each time the zero crossing detector changes

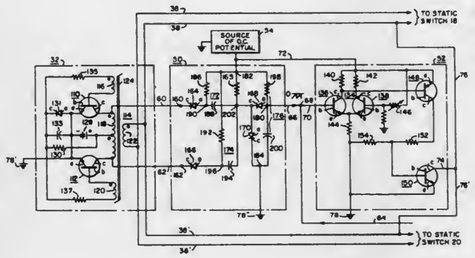


state an output pulse is provided at the output terminal, there being two such output pulses for each input pulse since the ramp voltage crosses zero during resetting of the ramp generator and as the ramp voltage builds up from its initial value.

3,548,318
RAMP FUNCTION GENERATOR

Daniel S. Yorksie, Lima, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 28, 1968, Ser. No. 755,857
Int. Cl. H03k *4/50, 5/08*
U.S. Cl. 328—35 **5 Claims**

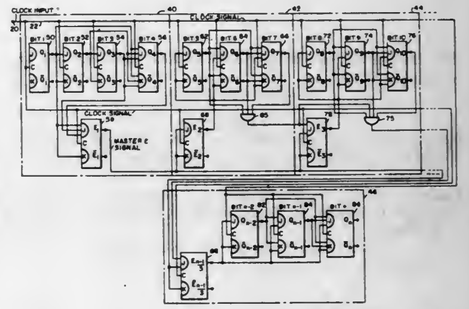


A ramp function generator for providing a symmetrical saw-tooth voltage waveform in response to a square wave oscillator of the type having first and second switching devices which are alternately conductive. The ramp function generator includes first, second and third capacitors, with the first and second capacitors being charged alternately in response to the conductive states of the first and second switching devices in the square wave oscillator. Each time the first and second switching devices in the square wave oscillator switch, or change conductive states, the third capacitor is effectively connected in series with the charged first or second capacitor, which distributes the charge between the charged capacitor and the third capacitor. The third capacitor then discharges at a predetermined rate to provide the desired ramp function. Output terminals connected across the third capacitor provide a saw-tooth voltage waveform having a frequency equal to twice that of the square wave oscillator, and synchronized therewith.

3,548,319
SYNCHRONOUS DIGITAL COUNTER

William L. Price, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 29, 1968, Ser. No. 748,261
Int. Cl. H03k *21/00, 29/00*
U.S. Cl. 328—41 **10 Claims**



A synchronous counter comprising a cascaded plurality of variable length groups of counting elements or stages, the individual counting groups of which are operated either synchronously, non-synchronously or a combination of both. The memory element of each counting group may sequence through a variety of memory output combinations; however the groups of counting elements are isolated and controlled by at least one respective synchronizing enable circuit under the control of a master enable circuit.

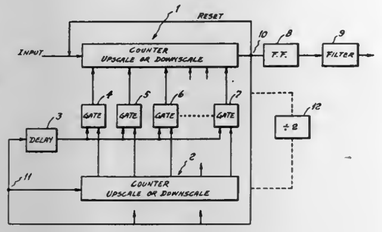
3,548,320
DIGITAL FM SWEEP GENERATOR

Henry Roberts, Fair Lawn, N.J., and Maurice Epstein and Earl Heier, Ardsley, N.Y., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed May 23, 1968, Ser. No. 731,532
Int. Cl. H03k *21/36*
U.S. Cl. 328—46 **7 Claims**

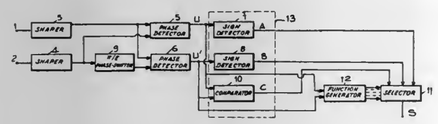
The circuits of the present invention produce frequency modulated signals having an up or down sweep by periodically advancing the count registered in a counter from a preset number to a preselected different number and then resetting this counter to successively higher or lower numbers. Each time the counter reaches the preselected number, an output pulse is produced. If the counter is started from successive higher numbers in consecutive cycles, the time between these output pulses is correspondingly reduced. If it is started from successive low numbers, this time is increased. A square wave form is generated from these output pulses and this wave form is then filtered to produce a sinusoidal frequency modulated signal with either an up or down sweep. The apparatus for resetting the counter includes a second counter which is either advanced or set back from a preset count each

time the first counter reaches the preselected number, and the count registered in this second counter determines



the number at which the first counter starts during any particular cycle.

3,548,321
PHASE MEASURING DEVICE FOR SUPPLYING A SIGNAL PROPORTIONAL TO THE MEASURED PHASE
Philippe Duquesne, Paris, France, assignor to CSF-Compagnie Generale de Telegraphie Sans Fil, a corporation of France
Filed May 3, 1968, Ser. No. 726,416
Claims priority, application France, May 9, 1967, 105,754
Int. Cl. H03k *9/06;* **H03d** *13/00*
U.S. Cl. 328—133 **24 Claims**

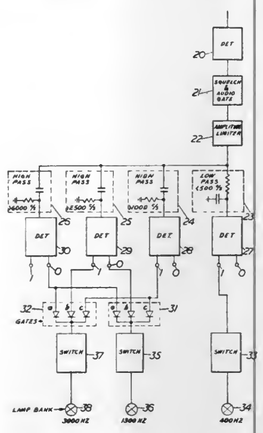


A system which supplies a signal varying linearly with the phase difference between two input signals comprises two conventional phase detecting devices supplying signals, respectively proportional to the sine and to the cosine of said phase difference, a logic circuit, fed with said sine and cosine signals, which logic circuit defines in which one of predetermined intervals, submultiples of π, is comprised the phase to be measured, and which controls the elaboration of a phase indicative signal as a linear function of said sine and cosine signals, the parameters of the linear function changing when the interval changes, and being constant within each interval.

3,548,322
ELECTRICAL GATING FILTER SYSTEM
John William James, Potters Bar, Middlesex, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Continuation of application Ser. No. 396,674, Sept. 15, 1964. This application Mar. 10, 1969, Ser. No. 805,898
Claims priority, application Great Britain, Sept. 20, 1963, 37,081/63
Int. Cl. H03b *3/04;* **H03k** *5/20*
U.S. Cl. 328—140 **2 Claims**

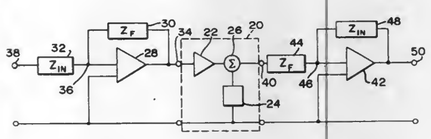
The circuit provides a multi-frequency signaling system wherein signals are formed responsive to received frequencies. Since the filters do not cut off sharply enough to provide an extremely reliable separation, gating means are provided for inhibiting the outputs of filters for non-

received signal frequencies. Extreme reliability is required in this particular case because the signals are part of



the receiver for an aircraft marker beacon. However, the circuit is not limited to this particular utilization.

3,548,323
NON-LINEAR MATHEMATICAL SIGNAL CONDITIONING SYSTEM
Bernard M. Gordon, Magnolia, and Leopold Neumann, Lexington, Mass., assignors to Gordon Engineering Company, Waltham, Mass., a limited partnership of Massachusetts
Filed Sept. 7, 1967, Ser. No. 666,186
Int. Cl. G06g *7/12;* **H03b** *1/00;* **H03k** *5/00*
U.S. Cl. 328—142 **7 Claims**

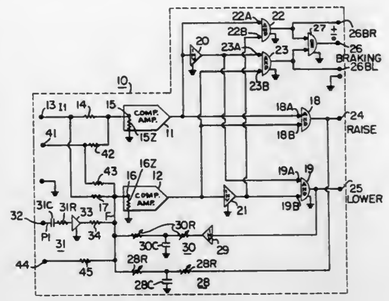


A signal conditioning system having a unity gain transmission link including a pre-conditioning circuit formed of an operational amplifier having a non-linear gain dependent on the instantaneous amplitude of input signals, and a post-conditioning circuit formed as another operational amplifier having an non-linear transfer characteristic which is the inverse of the first amplifier.

3,548,324
LOGIC CONTROL ARRANGEMENT
Rolland H. Henderson, North Wales, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 20, 1968, Ser. No. 730,336
Int. Cl. H03k *17/00*
U.S. Cl. 328—150 **7 Claims**

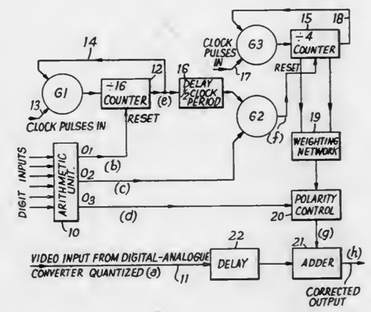
A combination of comparative amplifiers, logic circuitry, feedback circuitry for accepting analog input signals from process controllers, manual speed-control circuits, position-repeater circuits and bias signals to provide

binary control signals for speed-regulation and braking of reversible drive motors for process-input control elements, speed and direction control of motors including



polyphase motors and passive or dynamic equalization of the positions of input-control elements of multiple control processes.

3,548,325
DIGITAL TRANSMISSION OF TELEVISION
Martin Thomas Ardley Salter, Croydon, Surrey, and Arthur H. Jones, Southwater, Sussex, England, assignors to The Marconi Company Limited and Standard Telephone & Cables Limited, both of London, England
Filed Aug. 1, 1968, Ser. No. 749,419
Claims priority, application Great Britain, Aug. 3, 1967, 35,777/67
Int. Cl. H03k *5/01*
U.S. Cl. 328—178 **3 Claims**

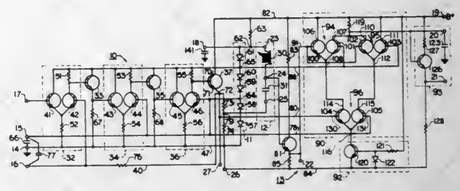


In the processing of a video signal changes in the amplitude of the signal between upper and lower limits and occurring in a time interval greater than a predetermined value following other changes in amplitude level exceeding a predetermined value are detected and the abruptness of the detected changes is reduced.

3,548,326
DIRECT COUPLED LIMITER-DISCRIMINATOR CIRCUIT
Alberto Bilotti, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed July 31, 1967, Ser. No. 657,410
Int. Cl. H03d *1/18*
U.S. Cl. 329—1 **9 Claims**

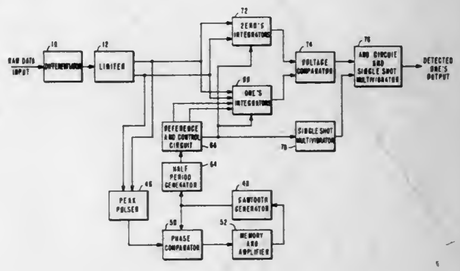
A multi-stage limiter having overall negative feedback is directly coupled in an integrated circuit to a discrimina-

tor which includes a double balanced gate circuit. A voltage divider provides a first and second voltage reference



for both the limiter and the gate circuit and in conjunction with the feedback provides direct coupling of both.

3,548,327
SYSTEM FOR DETECTION OF DIGITAL DATA BY INTEGRATION
Johannes C. Vermeulen, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 14, 1969, Ser. No. 790,911
Int. Cl. H03d *3/18*
U.S. Cl. 329—50 **14 Claims**

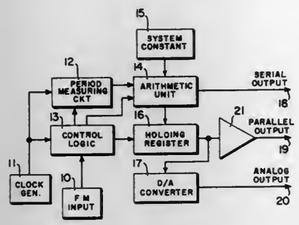


A detection system is provided in which binary data represented by the presence of transitions at the centers or edges of the various bit cell intervals of a data signal is detected using integration. Two integrations are performed on the data signal over each bit cell interval, one integration being with respect to a reference signal to indicate the presence of "ones" in the various bit cells and the other integration being a plain integration of the data signal itself to indicate "zeros" in the various bit cells. The results of the two integrations at the end of each interval are compared in a voltage comparator to identify the presence of a "one" or a "zero." Accuracy of the detection system may be improved in situations where the "one" or data transitions experience greater peak shift than the "zero" or clock transitions by increasing the results of the "ones" integration relative to the plain or "zeros" integration.

3,548,328
DIGITAL FM DISCRIMINATOR
Ivars P. Breikss, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,531
Int. Cl. H03d *3/04*
U.S. Cl. 329—126 **10 Claims**

There is provided an FM discriminator which utilizes digital techniques. Logic circuitry is used to operate on an FM input signal along with other predetermined sig-

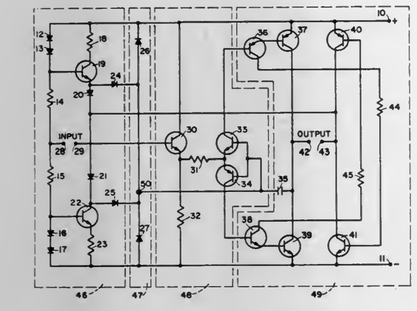
nals to produce digital representations of the information included in the FM signal. In addition, circuitry is provided to convert the digital signal into an analog representation of the FM signal information.



3,548,329
TWO-STATE AMPLIFIER

Hans R. Camenzind, Lexington, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware

Continuation of application Ser. No. 519,689, Jan. 10, 1966. This application May 9, 1969, Ser. No. 835,857
Int. Cl. H03f *1/04, 3/20*
U.S. Cl. 330—10 **3 Claims**



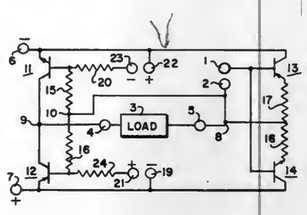
A two-state amplifier for providing a pulse width modulated output signal substantially linearly related to the signal level of an input signal applied to the amplifier.

3,548,330
BIPOLAR AMPLIFIER

Allen B. Rosenstein, 314 S. Rockingham Ave., Los Angeles, Calif. 90049

Continuation of application Ser. No. 475,978, July 30, 1965. This application Mar. 19, 1969, Ser. No. 814,500
Int. Cl. H03f *3/18*
U.S. Cl. 330—17 **15 Claims**

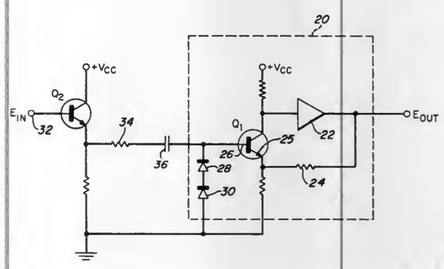
The invention comprises a direct-coupled, bipolar power amplifier employing two pairs of transistors of complementary symmetry in a cross-coupled arrangement. One pair of transistors is normally biased to cut off and have their bases referenced to a control junction which is tied to the first pair of transistors. Signal amplification in the first pair of transistors will shift the voltage at the control junction and cause one or the other of the transistors in the second pair to conduct, depending upon the polarity of the amplified signal. The symmetry of the circuit permits either input terminal to be connected in common with either output lead, or the input may be connected in common with either terminal of the main power supply. Alternatively, either terminal of the main power supply may be connected in common with one of the output terminals. Other modifications include the addition of series-connected transistors of like polarity to increase the output power, and negative-feedback networks to improve the linearity of amplification.



3,548,331
APPARATUS AND METHOD FOR REDUCING AMPLIFIER DISTORTION

Robert Grodinsky, Skokie, Ill., assignors to Acoustic Research, Inc., Cambridge, Mass., a corporation of California

Filed Sept. 13, 1968, Ser. No. 759,621
Int. Cl. H03f *1/34*
U.S. Cl. 330—24 **5 Claims**



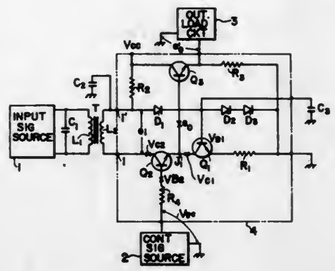
An improved high-fidelity transistor amplifier using negative feedback to an input transistor. The input feedback termination is fed with an input signal from a low impedance source provided typically by an emitter-follower RC coupled to the base of one input transistor resulting in improved reduction of distortion. Additionally, the feedback termination is clamped to system ground by one or more diodes so that the operating point of the input transistor remains stabilized during possible excessive swings of the input signal.

3,548,332
GAIN CONTROL CIRCUIT

Yoshito Omura, Hachioji-shi, and Shikayuki Ochi, Kokubunji-shi, Japan, assignors to Hitachi, Ltd., Tokyo-to, Japan

Filed Apr. 30, 1969, Ser. No. 820,524
Claims priority, application Japan, Apr. 30, 1968, 43/28,585
Int. Cl. H03g *3/30*
U.S. Cl. 330—29 **7 Claims**

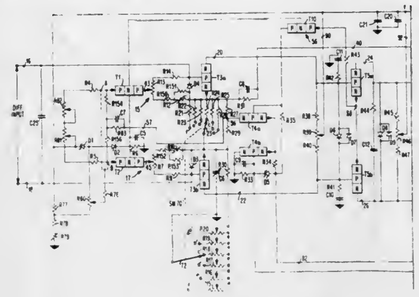
A gain control circuit comprising a pair of transistors, the collector-emitter circuits of which are connected in series to each other and in parallel to an input signal source to form an alternating current path, a reference electric potential being supplied to the base of the one and a control signal voltage being supplied to the base of the other transistor, such that attenuation characteristics are obtained from one of the two transistors while the output impedances of said transistors are controlled almost fixedly.

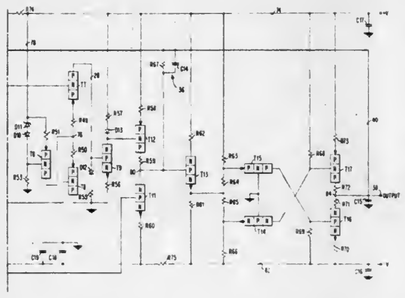


3,548,333
DIFFERENTIAL AMPLIFIER

Ernest P. Bakke, Allen Bryce Benson, and Ronald J. Bymers, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 12, 1968, Ser. No. 697,460
Int. Cl. H03f *3/68, 3/34*
U.S. Cl. 330—30 **10 Claims**



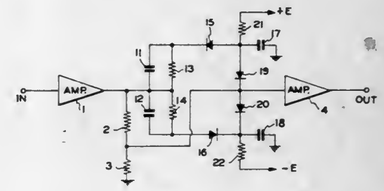


A differential amplifier having high common mode rejection and good drift performance without loss of gain accuracy. Input current sources, having temperature compensating networks associated therewith, operate in conjunction with another temperature compensating network to provide overall drift compensation, and base current to the first differential stage. A feedback network coupled with a current regulator feeds current back to the input current sources to provide high common mode rejection. Common mode balance networks are provided to reduce the conversion of common mode signals to normal mode signals.

3,548,334
NOISE REDUCTION CIRCUIT AND SYSTEM

Masao Tomita, Moriguchi-shi, and Tetsuo Hino, Hirakata-shi, Japan, assignors to Matsushita Electric Industrial Company Limited, Osaka, Japan

Filed July 28, 1969, Ser. No. 845,206
Int. Cl. H03f *3/68*
U.S. Cl. 330—124 **12 Claims**

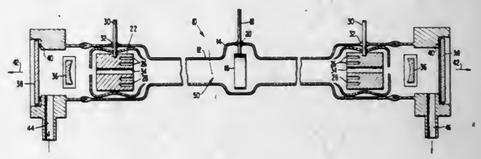


A noise reduction circuit. The circuit has a variable attenuator including at least two diodes and one resistor. The degree of attenuation of the variable attenuator is varied by means of a bias voltage source and a rectifier device connected across the diodes. When an input signal is not supplied, a D.C. control voltage is not supplied from the rectifier device and a forward current is supplied to the diodes by the bias source. In this case the degree of attenuation is a maximum. When an input signal is supplied, the D.C. control voltage is provided to the diodes so as to bias the diodes backwardly, so that there is no forward current and the degree of attenuation is a minimum. Accordingly, the output noise can be removed during pauses in the input signal.

3,548,335
BRUSH CATHODE DISCHARGE MASER

Colin S. Willett, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Army

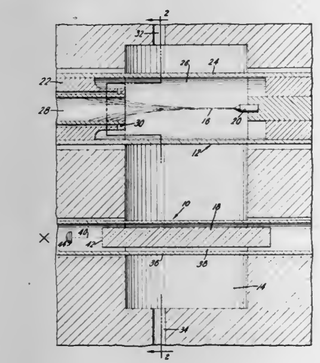
Filed Aug. 8, 1968, Ser. No. 751,170
Int. Cl. H01s *3/02*
U.S. Cl. 331—94.5 **13 Claims**



Disclosed is a maser employing a brush cathode type discharge. The maser includes a pair of inverse brush cathodes spaced from a central ring anode. The discharge produces a recombination dominated plasma in a molecular gas which acts as a maser medium to produce a maser

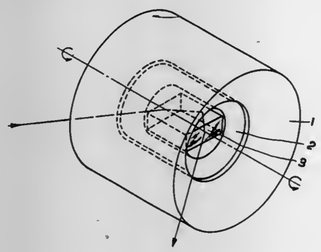
output in the far infrared region. Also disclosed are a pair of resonant cavities for interacting a microwave signal with the maser to either modulate the maser output or to produce microwave amplification.

3,548,336
METHOD AND APPARATUS FOR PRODUCING CONTINUOUS WAVE LASER ENERGY
John E. Anderson, Murray Hill, N.J., and John E. Jackson, Indianapolis, Ind., assignors to Union Carbide Corporation, a corporation of New York
Continuation-in-part of application Ser. No. 517,274, Dec. 29, 1965. This application Oct. 28, 1966, Ser. No. 594,646
Int. Cl. H01s *3/09*
U.S. Cl. 331—94.5 **1 Claim**



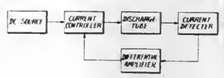
Method and apparatus for producing a continuous stream of light energy from a solid laser material by directing light from a concentrated high intensity arc onto a laser material to cause the laser material to continuously emit a coherent beam of light energy.

3,548,337
ROTARY DEVICES AND APPARATUS
John William Charles Gates and Roy Geoffrey Noel Hall, Teddington, England, assignors to National Research Development Corporation, London, England
Filed Mar. 13, 1967, Ser. No. 622,752
Claims priority, application Great Britain, Mar. 16, 1966, 11,614/66
Int. Cl. H01s *3/00;* **G02b** *17/00*
U.S. Cl. 331—94.5 **3 Claims**



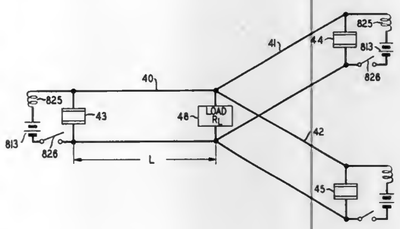
A scanning apparatus in a gain-switched and Q-switched laser system for rapidly illuminating a fixed point by means of a rotating prism having internal reflecting surfaces.

3,548,338
METHOD AND APPARATUS FOR GAS LASER NOISE REDUCTION
Kojiro Kinoshita, Hatano-shi, Takeo Suzuki, Tokyo, and Shigeki Okajima, Nara-ken, Japan, assignors to Shiba Electric Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed Feb. 13, 1968, Ser. No. 705,146
Claims priority, application Japan, Feb. 21, 1967, 42/10,657
Int. Cl. H01s *3/09*
U.S. Cl. 331—94.5 **4 Claims**



A method and apparatus for gas laser noise reduction by voltage stabilization of the discharge current through negative feedback to the discharge current source of the noise component in the discharge current.

3,548,339
CIRCUITS USING TWO-VALLEY SEMICONDUCTOR DEVICES
Mark R. Barber, Summit, and Reed E. Fisher, Parsippany, Troy Hills Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Nov. 26, 1968, Ser. No. 779,063
Int. Cl. H03b *7/06*
U.S. Cl. 331—107 **15 Claims**

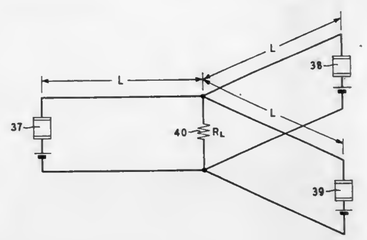


Various circuits are described in which transmission line reflections are used to control domain nucleation in Gunn-effect diodes. By appropriate choice of transmission line lengths and other parameters, such circuits can be used to generate with high efficiency a square wave pulse train, to combine the outputs of several diodes, and to store a pulse train that can be read out nondestructively.

3,548,340
TWO-VALLEY SEMICONDUCTOR PULSE GENERATOR AND RELATED CIRCUITS
Reed E. Fisher, Parsippany, Troy Hills Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Continuation-in-part of application Ser. No. 671,033, Sept. 27, 1967. This application Nov. 26, 1968, Ser. No. 779,064
Int. Cl. H03b *7/06*
U.S. Cl. 331—107 **12 Claims**

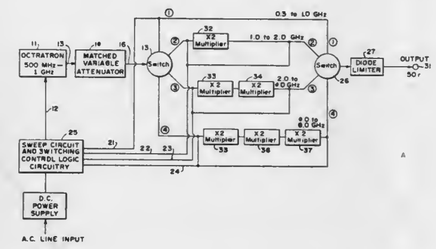
A pulse generator comprises a two-valley semiconductor diode connected in series with a bias source and the parallel combination of an inductor and a resistive load. The inductor inhibits triggering of the diode, thereby reducing the pulse repetition rate of power delivered to

the load. The pulse rate can be varied by varying the voltage of the bias source. In other embodiments, diode trig-



gering is inhibited by reflections from the end of a suitably terminated transmission line.

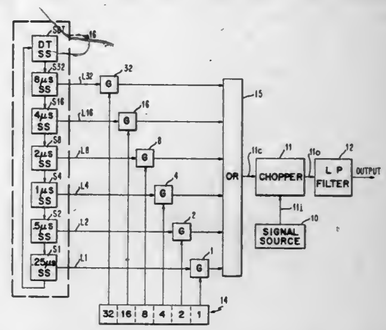
3,548,341
HIGH FREQUENCY SWEEP GENERATOR USING SEQUENTIALLY SWITCHED FREQUENCY MULTIPLIER STAGES
William O. Berry, North Chelmsford, Mass., assignor to Alpha Industries, Inc., Newton Upper Falls, Mass., a corporation of Delaware
Filed July 26, 1968, Ser. No. 748,009
Int. Cl. H03b *23/00*
U.S. Cl. 331—178 **3 Claims**



A high frequency signal source is swept over a predetermined frequency range, such as 0.5–1.0 gHz, during a contiguous sequence of time intervals. Multipliers couple the swept R-F signal to an output terminal while changing the frequency multiplication factor as the interval in the sequence changes. This multiplication factor is typically 1, 2, 4 and 8 during respective ones of first, second, third and fourth time intervals of a sequence to provide a swept frequency output on the output terminal from 0.5 gHz. to 8.0 gHz. The change in multiplication factor is preferably accomplished with multiple pole solid state switches.

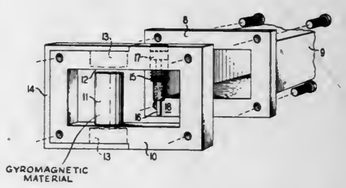
3,548,342
DIGITALLY CONTROLLED AMPLITUDE MODULATION CIRCUIT
Herman D. Maxey, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Oct. 15, 1968, Ser. No. 767,754
Int. Cl. H03k *7/00*
U.S. Cl. 332—9 **5 Claims**

A signal to be modulated is applied to a chopper circuit which passes the signal when turned "on" and blocks the signal when "off." A wave form generator supplies a plurality of asymmetric weighted control wave forms having a fixed period which are applied to the control input of the chopper via gate circuits under the control of a digital control signal. The chopper output is low pass filtered to pass only the signal frequencies. The weight-



ing imposed by the digital control signal and the gated control wave forms determines the ratio of the chopper "on" to "off" time during each period of the control wave forms and thus the average signal amplitude passed by the chopper.

3,548,343
SHORT ISOLATOR WITH RESONANT ELEMENTS
Joseph J. Kostelnick, Bethlehem, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Feb. 6, 1969, Ser. No. 797,145
Int. Cl. H01p *1/22, 1/32*
U.S. Cl. 333—24.2 **7 Claims**

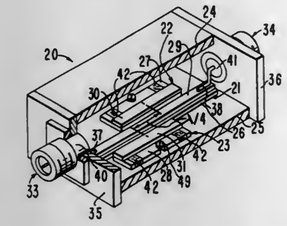


A miniature field displacement isolator in which the gyromagnetic displacing element is in the form of a resonant post and the loss element is in the form of a shorted, quarter wavelength long coaxial stub and inner conductor probe, loaded with lossy material. The slim profile of the probe makes it possible to decouple from the displaced electric fields for the forward direction while its resonance adds high loss to the reverse direction fields.

3,548,344
STRIPLINE GAIN EQUALIZER
John L. Putz, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed July 28, 1967, Ser. No. 656,849
Int. Cl. H03h *7/04, 7/38*
U.S. Cl. 333—28 **11 Claims**

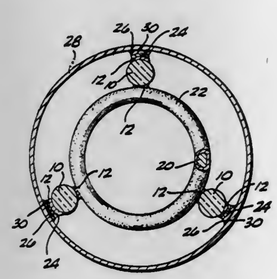
Absorption type stripline gain equalizers for providing a frequency sensitive loss characteristic are realized by utilizing one or more similar stripline resonator pairs having their major axes disposed parallel to a main transmission stripline conductor and axially spaced relative to

each other such as to provide cancellation of electromagnetic wave energy reflections caused by the reactive perturbations of the individual resonators of each pair. Various types of lumped and distributed loss mechanisms are added to the resonators to control the resonator Q's and resonance characteristics. The coupling adjustment means between the main transmission stripline and the individual resonators may be provided in a simple manner



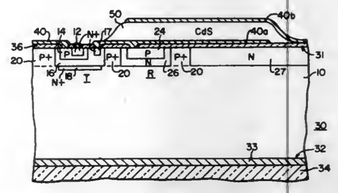
and the individual resonators of a given pair may be $n_1\lambda/4$ or $n_2\lambda/2$ resonators where n_1 is any odd integer and n_2 is any integer and both n_1 and n_2 are preferably 1. In each case the individual resonators of a given pair are preferably axially displaced along the propagation axis of the main transmission stripline such that their respective common ends are axially spaced $n\lambda/4$ where n is any odd integer and preferably 1.

3,548,345
BRAZED DIELECTRIC-TO-METAL JOINTS FOR SLOW-WAVE STRUCTURE ASSEMBLIES
Louis R. Falce, Santa Monica, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Original application Sept. 15, 1966, Ser. No. 579,648. Divided and this application Apr. 15, 1969, Ser. No. 830,172
Int. Cl. H03h *7/30*
U.S. Cl. 333—31 **6 Claims**



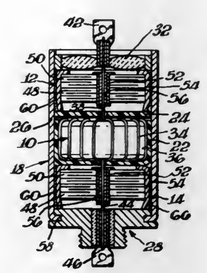
A slow-wave structure supporting and encasing assembly is disclosed which includes a slow-wave structure and a plurality of dielectric rods disposed about the slow-wave structure periphery. A layer of elemental chromium bonded directly to a surface of each of the rods facing the slow-wave structure is brazed to the slow-wave structure. Another layer of elemental chromium is bonded directly between a surface of each of the rods facing away from the slow-wave structure and a layer of nickel. A tubular encasing member of a material having a thermal coefficient of expansion substantially matching that of the rod material is coaxially disposed about the slow-wave structure and the rods and is brazed to the nickel layer.

3,548,346
TUNING INTEGRATED CIRCUITS COMPRISING A LAYER OF PIEZOELECTRIC MATERIAL ABOVE A SEMICONDUCTOR BODY
Derrick J. Page, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 23, 1968, Ser. No. 754,907
Int. Cl. H03h *9/16, 9/24*
U.S. Cl. 333—72 **3 Claims**



A piezoelectric resonator is combined with a semiconductor body to provide a composite thickness mode resonator wherein the semiconductor body includes other active and/or passive elements of an integrated circuit. The semiconductor body has an acoustic thickness that is an integral multiple of the acoustic thickness of the piezoelectric layer on its surface.

3,548,347
FILTER UNIT HAVING MONOLITHIC CAPACITOR
David S. Miller, Dalton, and Harvey E. Goodell, Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Feb. 16, 1968, Ser. No. 706,081
Int. Cl. H03h *7/04*
U.S. Cl. 333—79 **4 Claims**

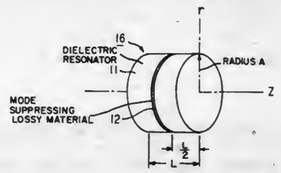


An inductor and a feed-thru capacitor having at least one monolithic capacitor chip disposed within a conductive cup is mounted within a tubular housing with the cup connected in an uninterrupted band to the housing, and the inductor and a central member of the capacitor in connection to terminals of the housing.

3,548,348
DIELECTRIC RESONATOR MODE SUPPRESSOR
Milton A. Gerdine, Eatontown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Mar. 29, 1968, Ser. No. 717,150
Int. Cl. H01p *1/16*
U.S. Cl. 333—98 **12 Claims**

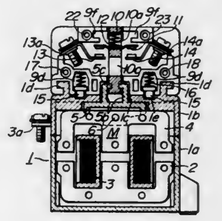
A high permittivity dielectric resonator disc having a lossy film resistor on its cylindrical surface is positioned within a waveguide at a crossguide location where it

couples to the magnetic field of a selected unwanted microwave transmission mode. The circumferential elec-



tric field of the resonator produces a current in the lossy resistor and dissipates the coupled energy.

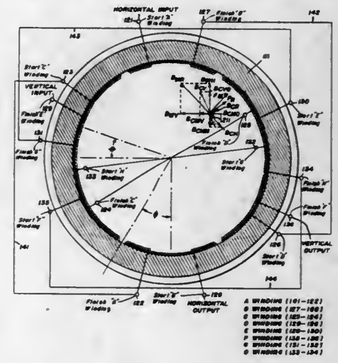
3,548,349
MAGNETIC CONTROL RELAY
Teizo Fujita, 34 Tezukayamanaka 3-chome, Sumiyoshi-ku, Osaka, Japan
Filed Feb. 19, 1969, Ser. No. 800,459
Claims priority, application Japan, Aug. 5, 1968, 43/55,400
Int. Cl. H01h *50/16*
U.S. Cl. 335—132 **1 Claim**



A magnetic control relay wherein contact portions are provided separately from and independently of an electromagnet portion, said contact portions are constructed independently of each other for the respective poles, each independent contact portion for each pole is constructed in the form of a unit contact box, and such unit contact boxes are placed side by side on said electromagnet portion and attached to the latter.

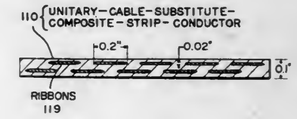
3,548,350
WIDE ANGLE DEFLECTION YOKE FOR PRODUCING OPTIMALLY NON-UNIFORM DEFLECTION FIELDS
John R. Archer, Portsmouth, Va., assignor to General Electric Company, a corporation of New York
Filed Jan. 15, 1969, Ser. No. 791,291
Int. Cl. H01f *7/00*
U.S. Cl. 335—210 **10 Claims**

An improved wide angle deflection yoke for producing optimally non-uniform deflection fields is described. The deflection yoke is for use in a plural, in-line beam, cathode ray tube having a gun arrangement for producing a plurality of co-planar electron beams impingent upon a viewing screen to produce a raster of a given color thereon with the yoke adapted to be positioned intermediate the gun arrangement and viewing screen in the path of the electron beams. The yoke includes an open-ended, quasi-cylindrical core member adapted to have the electron beams pass therethrough. A vertical winding is formed on the core member with toroidally wound turns wound in a first distribution providing a main field to deflect the electron beams in a vertical deflection. A horizontal winding is formed on the core member with toroidally wound turns wound in a second distribution providing a main field to deflect the electron beams in a horizontal direction. The vertical winding includes additional toroidally wound turns providing flux components in quadrature and in opposition to the main vertical field, and the horizontal winding includes additional toroidally wound turns providing flux components in quadrature and in opposition to the main horizontal field. The horizontal and vertical quadrature and opposition flux components coact with the main horizontal and vertical fields to produce within the yoke optimally non-uniform forces acting on the electron beams that cause each beam to form a curvilinear or pincushion raster substantially geometrically similar in shape to the rasters produced by the other beams. The vertical and horizontal windings and the additional toroidally wound turns are doubly wound over a



substantial portion of the circumference of the quasi-cylindrical core member. That is, more than fifty percent of the circumferential surface of the quasi-cylindrical core member is doubly wound, and to be more exact approximately eighty-five percent of the circumference is doubly wound. In addition, both the vertical and horizontal windings and their additionally toroidally wound turns are comprised of N winding segments where N is a number greater than two (2) and wherein intermediate each winding segment electrical connections back to a doubly wound, winding segment are made in a flyback manner whereby potential differences between adjacent doubly wound turns of the same winding function are minimized to the greatest practical extent, to reduce horizontal-vertical cross talk.

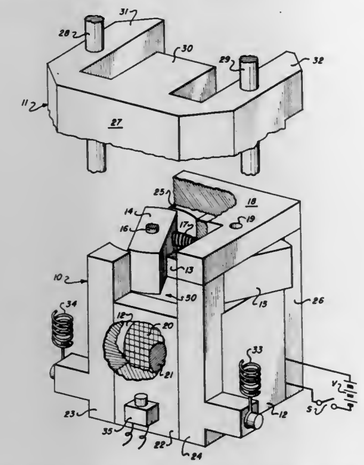
3,548,351
COMPOSITE-STRIP-CONDUCTOR CONTAINING NIOBIUM-TITANIUM SUPERCONDUCTOR
Daniel F. Fairbanks, Winchester, Warren L. Larson, Lexington, and Robert N. Randall, and James Wong, Wayland, Mass., assignors to National Research Corporation, Newton Highlands, Mass., a corporation of Massachusetts
Filed Mar. 6, 1967, Ser. No. 621,053
Int. Cl. H01f *7/22*
U.S. Cl. 335—216 **3 Claims**



Superconductive electromagnets are constructed of copper/niobium-titanium strip windings with the magnetic field oriented transversely parallel to the strip winding in the zone of most intense magnetic field. The strip

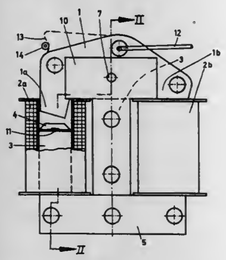
is so fabricated that the superconductive niobium-titanium therein has an anisotropic critical current versus field characteristic that is less vulnerable to a magnetic field oriented transversely parallel than to one oriented transversely normal.

3,548,352
ACTUATING DEVICE
Charles A. Sandoval, Albuquerque, N. Mex., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 6, 1969, Ser. No. 847,869
Int. Cl. H01h *7/14*
U.S. Cl. 335—265 **11 Claims**



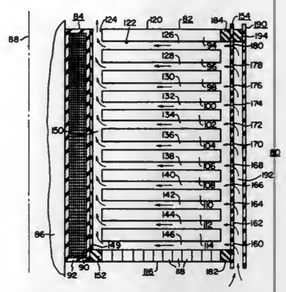
An actuating device having a plurality of independently counter-rotatable rotors movable from first to second positions such that as the rotors are moved from the first to the second positions, an operating or working member is freed to move to activate a switch or to perform some other desired function.

3,548,353
ACTUATING MAGNET OF FLAT CONSTRUCTION
Edmund Bausch, Kirchen-Hausen, Germany, assignor to Binder Magnete KG, Villingen, Black Forest, Germany, a corporation of Germany
Filed Aug. 12, 1968, Ser. No. 751,869
Claims priority, application Germany, Aug. 11, 1967, 1,589,539
Int. Cl. H01f *7/08*
U.S. Cl. 335—276 **8 Claims**



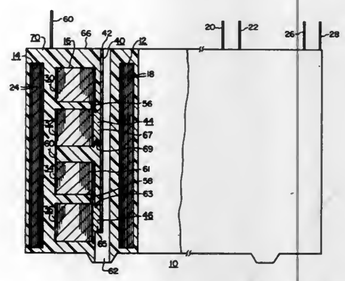
Actuating magnet of flat construction, particularly for office machines, data processing installations and the like, includes an E-shaped core having outer legs surrounded by a respective energizing coil so that the respective ends of the outer legs are located within the respective coil, and a double-armed armature rotatably mounted on the middle leg of the core so that one arm of the armature is displaceable into the interior of one of the coils, and the other arm into the interior of the other coil.

3,548,354
TRANSFORMER HAVING VENTILATING PASSAGES
Richard L. Schwab, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 24, 1969, Ser. No. 836,065
Int. Cl. H01f *27/10*
U.S. Cl. 336—57 **9 Claims**



An electrical transformer of the fluid cooled type, having a winding which includes a plurality of pancake coils disposed about a vertically oriented winding leg of a magnetic core, with the pancake coils being spaced to provide horizontal coil ducts, and with a vertical duct located adjacent the openings in the pancake coils, which communicates with the coil ducts. A manifold is provided about the outer edges of the pancake coils, which is formed of inner and outer spaced tubular insulating members. The inner tubular insulating member has a plurality of openings disposed therein which are aligned with the coil ducts.

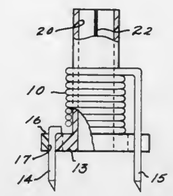
3,548,355
FOIL COILS WITH METALLIC BACK PLATES
Paul W. Martincic, Sharpsville, and James R. Miller, Sharon, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 10, 1969, Ser. No. 815,035
Int. Cl. H01f *27/30*
U.S. Cl. 336—60 **31 Claims**



Electrical inductive apparatus, and methods of constructing same, of the type having a plurality of electrical windings encapsulated in cast solid electrical insulation. At least one of the windings has a plurality of

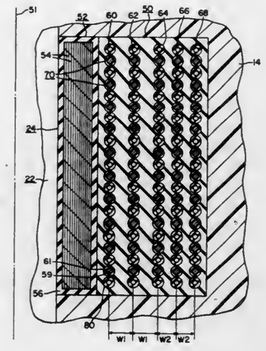
spaced electrically connected coil sections each formed of electrically conductive foil or strip, with the coil sections being fixed to metallic coil back plate members, which are supported on spaced insulating support members.

3,548,356
ELECTRICAL WINDING CONSTRUCTION
Thomas J. Wright, Itasca, Ill., assignor to Bel-Tronics Corporation, Addison, Ill., a corporation of Illinois
Filed June 5, 1969, Ser. No. 830,786
Int. Cl. H01f *15/10*
U.S. Cl. 336—192 **7 Claims**



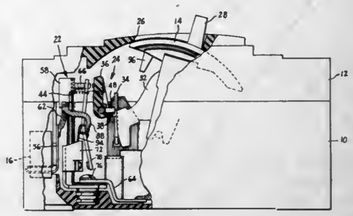
An electrical coil and transformer construction including a coil form member having radial extending ribs or an integral flange over which the ends of the windings extend. An annular wire retaining ring receives the ribs or is press fitted to the integral flange and provides restricted passageways for the wire ends to impart longitudinal stability thereto.

3,548,357
ENCAPSULATED ELECTRICAL INDUCTIVE APPARATUS
Rodney L. Peckham, Transfer, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 13, 1969, Ser. No. 824,093
Int. Cl. H01f *27/32*
U.S. Cl. 336—205 **7 Claims**



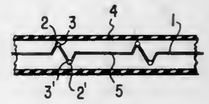
Encapsulated electrical apparatus wherein at least one electrical winding has a plurality of radially superposed layers of conductor turns. The turn-to-turn insulation in at least certain of the layers is at least partially provided by a discrete continuous insulating filament, solid or tubular, which separates the conductor turns of those layers.

3,548,358
ELECTRIC CIRCUIT BREAKER WITH BIMETALLIC STRIP PROTECTIVE MEANS
Keith W. Klein, Simsbury, Conn., assignor to General Electric Company, a corporation of New York
Filed May 19, 1969, Ser. No. 825,610
Int. Cl. H01h *71/16*
U.S. Cl. 337—83 **9 Claims**



A manually operated on/off handle of a circuit breaker is provided with a pair of depending lugs adapted to contact the trip bar during the resetting operation and assure positive opening of the trip mechanism's electromagnetic shunting circuit.

3,548,359
ELECTRIC HEATING ELEMENT
Shigeo Kuwayama, Motohiko Yagi, and Tetuo Ikeda, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan
Filed Nov. 26, 1968, Ser. No. 779,121
Claims priority, application Japan, June 8, 1968, 43/39,300
Int. Cl. H01c *1/02*
U.S. Cl. 338—268 **8 Claims**

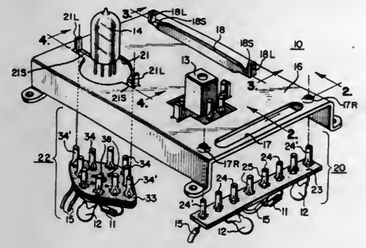


An electric heating element is supported within a cylindrical support member made of electrically non-conductive heat resisting material and the cross sectional area of the heating element is larger at positions where the element is or may be in contact with the support member.

3,548,360
TERMINAL STRIP
Robert A. Schlueter, Barlett, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Feb. 3, 1966, Ser. No. 524,922
Int. Cl. H01r *3/06, 5/04*
U.S. Cl. 339—14 **13 Claims**

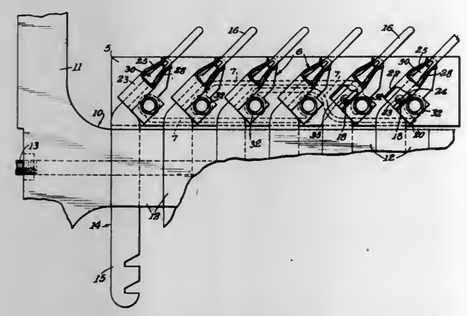
A chassis assembly for supporting electrical circuit elements includes a chassis member having a cut-out and one or more terminal strip mounting portions adjacent the cut-out. A terminal strip having a plurality of conductive insertion terminals, is mounted on the chassis with its terminals extending through the cut-out and with one or more insertion terminals engaging an assigned

mounting portion to secure the terminal strip to the chassis. The mounting terminals serving to secure the



terminal strip are also available for use in establishing electrical circuits.

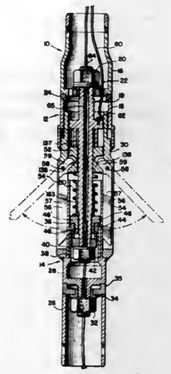
3,548,361
INTERCEPT STRAPPING BRIDGE AND CONTACTS
Jim C. Garrett, Long Beach, and Robert H. Johnson, Marina Del Rey, Calif. (both of 3300 East Spring St., Long Beach, Calif. 90806)
Filed Feb. 13, 1969, Ser. No. 798,909
Int. Cl. H05k *1/12*
U.S. Cl. 339—17 **5 Claims**



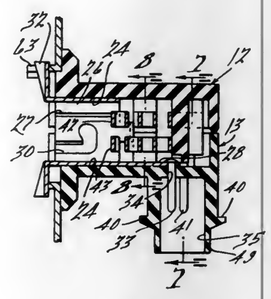
A telephone intercept bridge for use in telephone systems by which phone calls made to disconnected telephones may be intercepted by and cross-connected to an intercept operator, a recorded message and/or referral to other equipment, the same being provided with a set of angularly directed contacts which are adapted to be operatively engaged with the angularly directed terminals of an aligned series thereof, said contacts being provided with resilient contacting portions that electrically engage the terminals on four sides thereof.

3,548,362
WELL CASING CONTACT TOOL
Winfield B. Blank, Jr., Tulsa, Okla., assignor to Sinclair Oil Corporation, a corporation of New York
Filed Aug. 28, 1968, Ser. No. 756,043
Int. Cl. H01r *11/20*
U.S. Cl. 339—95 **6 Claims**

An apparatus for establishing electrical contact with the casing within a well bore which can be either raised or lowered within the bore without removal of the apparatus from the bore. The apparatus is lowered to the desired depth within the well bore, and then a slight lifting motion causes relative movement between first and second body members of the apparatus. As a result, a stepping cam causes a rotating latch to move over a lobe on a locking cam. This releases a camming wedge which pivots blades to their extended position in which they contact the well bore. When it is desired to change the location of the apparatus, another slight lifting motion causes the latch to step to the next lobe of the locking cam, returning the camming wedge to its initial position in which it pivots the blades to their retracted position.



3,548,363
SOCKET
William J. Flanigan, Pontiac, Mich., assignor to Microdot Inc., New York, N.Y., a corporation of California
Filed Apr. 21, 1969, Ser. No. 817,709
Int. Cl. H01r *13/20*
U.S. Cl. 339—127 **10 Claims**

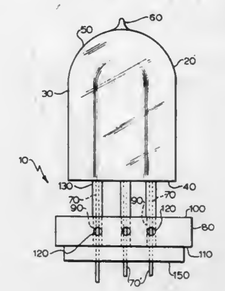


The socket for a double filament lamp bulb has a two-part body containing a light bulb supporting sleeve and contact elements joined to pin-like terminals which extend at right angle to the axis of the sleeve all of which forms a unit when the two parts are permanently secured together.

3,548,364
ELECTRON TUBE MOUNTING APPARATUS
William M. Hennessey, Somerville, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed June 24, 1968, Ser. No. 739,431
Int. Cl. H01r *33/72, 13/46*
U.S. Cl. 339—145 **3 Claims**

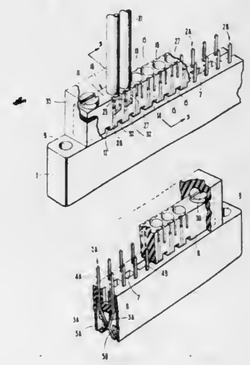
The disclosure is of an electron tube having a plurality of thin, flexible leads which carry insulating sleeves which extend along the greater portion of the length of each lead.

An insulating plate is provided which has longitudinal apertures, into which the uncovered end of each lead is to be inserted. The leads extend through the plate, and a relatively short length extends from the opposite end. The plate includes, between its ends, transverse openings through which access may be had to each wire. By means



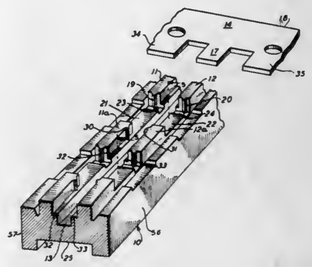
of a suitable tool, each wire is bent so that a portion enters each transverse opening, and this portion acts as a lock which prevents the lead from being pulled out of the plate. The assembly is adapted to be inserted into a socket or printed circuit board by means of the relatively short lengths of the flexible leads which extend from the lower end of the plate.

3,548,365
LEAD ISOLATOR
Randolph G. Barker, Ranyham, Mass., assignor to Component Manufacturing Service, Inc., West Bridgewater, Mass., a corporation of Massachusetts
Filed Sept. 9, 1968, Ser. No. 758,290
Int. Cl. H01r *13/50, 17/18*
U.S. Cl. 339—176 **16 Claims**



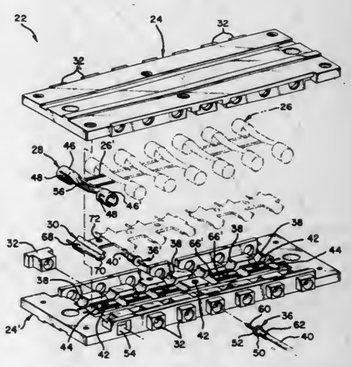
A printed circuit connector for connecting a plurality of coaxial cables to a printed circuit. The connector has a connector base supporting a series of contact pairs arranged with the pairs of successive contacts in two parallel rows. Each contact has a tab with the tabs arranged in two rows. A lead isolator extends longitudinally of and between the two rows of tabs and has a series of holes extending through it. A coaxial cable is in each hole with the leads of the cable isolated from each other. These leads of each cable are connected to a different one of a given pair of tabs. A molded casing is lock-molded about the lead isolator leads and connector base.

3,548,366
MODULAR TERMINAL CONNECTOR BLOCK
Daniel Eppler, Nutley, N.J., assignor to The Thomas & Betts Co., Inc.
Filed Aug. 16, 1967, Ser. No. 660,955
Int. Cl. H01r *9/06*
U.S. Cl. 339—198 **9 Claims**



A modular terminal block for compact, accurate connection of terminals in plural numbers, adaptable for assembly in multiple block units to the number desired for particular applications, the block members formed for interfitting on assembly, each block having ribs formed to be engaged by pins to which terminals may be readily secured.

3,548,367
WIRE SPLICING UNIT
Harold L. Bruetsch, New Cumberland, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed May 27, 1969, Ser. No. 828,171
Int. Cl. H01r *13/24, 11/18, 15/12*
U.S. Cl. 339—205 **4 Claims**



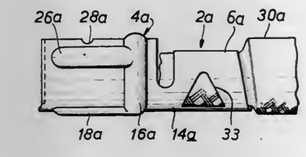
A wire splicing unit having an insulated housing and a plurality of generally side-by-side hollow interior por-

tions. Each of the hollow interior portions have an internal connector member for receiving a pair of wires to be spliced. Each of the internal connector members have a conductive strip connecting adjacent members and extending above the hollow interior portion and to the vicinity of an access opening formed transversely across a plurality of side-by-side hollow interior portions.

3,548,368
ELECTRICAL CONNECTOR

Wladimiro Teagno and Nerino Iskra, Turin, Italy, assignors, by mesne assignments, to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 24, 1969, Ser. No. 801,587
Claims priority, application Italy, Nov. 2, 1968, 828,154
Int. Cl. H01r *11/22*
U.S. Cl. 339—252 **8 Claims**

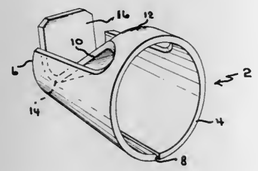


An ignition connector has a socket portion provided with a circumferential rim near a crimping ferrule and a longitudinal rib merging with the circumferential rib and being aligned with a neck connecting the socket portion and ferrule to improve resistance to lateral tension on the ignition cable when crimped in the ferrule.

3,548,369
METALLIC LINER FOR PRINTED CIRCUIT BOARD HOLE

William Joseph Garver, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed July 30, 1968, Ser. No. 748,694
Int. Cl. H01r *11/06;* **H05k** *1/04*
U.S. Cl. 339—258 **4 Claims**

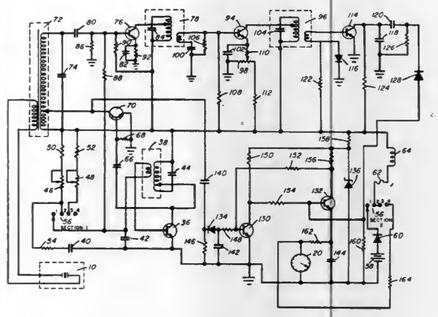


Sheet metal liner for a hole in a printed circuit board comprises generally cylindrical member which is tapered from one end towards the other end, the one end having a substantially greater maximum transverse dimension than the other end. A retaining member is integral with the wall of the liner adjacent to the one end and is inclined inwardly towards the axis of the liner. The end portion of this retaining member is reversely bent to define a laterally extending ear. In use, the liner is mounted in the hole of a printed circuit board and a lead wire from a component is inserted into the liner and against the retaining member. The insertion of the lead wire causes the retaining member to move outwardly so that it holds the lead wire against the opposite internal wall of the liner. The ear, on the end of the retaining member, is moved beyond the edge of the hole in the printed circuit board and functions to retain the liner in the hole. The lead wire is subsequently soldered to the liner and to a conductor on the printed circuit board by soldering.

3,548,370
DEPTH SOUNDER

Frank E. Hoxsie, Tulsa, Okla., assignor to Lowrance Electronics Mfg. Corp., Tulsa, Okla., a corporation of Missouri

Filed Sept. 10, 1968, Ser. No. 758,838
Int. Cl. G01s *9/68*
U.S. Cl. 340—3 **5 Claims**



This invention relates to a depth sounder for detecting the depth of objects under water. More particularly, the invention provides an improved depth sounder having a transducer means for imparting sound pulses in response to electrical energization and in turn for providing electrical signal output in response to reflected sound pulses, an oscillator circuit providing sequential bursts of electrical energy to the transducer, a receiving amplifier connected to the transducer amplifying the reflected signal output in response to reflected sound waves, a metering circuit connected to the oscillator and the amplifier providing means of indicating the time response between the transmitted signal and the signal received in response to receipt of sound waves as an indication of the distance to the surface reflecting the sound waves from the transducer and a time varying gain controlled circuit connected to the oscillator and receiver amplifier providing a time varying bias to the amplifier following each burst of electrical energy output of the amplifier, the bias being applied to the amplifier circuit serving to increase the amplification of the amplifier with time whereby signals resulting from reflecting surfaces at greater distances from the transducer are amplified more than signals resulting from closer reflective surfaces.

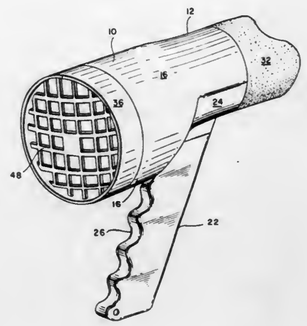
3,548,371
UNDERWATER SPEAKING DEVICE

David Ord Alexander, Washington, D.C., assignor of fifteen percent to Sol B. Wiczer, Washington, D.C.

Continuation-in-part of application Ser. No. 731,774, May 24, 1968. This application Mar. 17, 1969, Ser. No. 807,575
Int. Cl. H04r *23/00*
U.S. Cl. 340—12 **17 Claims**

A free water flooding sound receiving and projecting device for use by an underwater diver for projecting sound such as by speaking under water which generally includes a thin, sound resonant walled chamber having an opening which fits about the diver's mouth into which he can blow

to displace water, and then speak for resonant transfer of sounds which comprise his voice, a flapper valve in the walls of the chamber through which the water as well as the breath of the speaker is expelled as he speaks; the chamber in alternate structure being provided with or

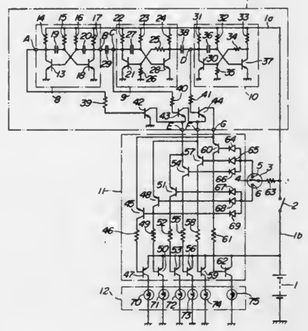


without a sound transfer elastic diaphragm mounted in the walls which is more sensitive to transfer of sound vibrations outwardly of the chamber and which usually is mounted opposite to the sound inlet of the thin walled chamber.

3,548,372
FLASHER DEVICE OF SEQUENTIAL LIGHTING TYPE FOR AUTOMOTIVE VEHICLES

Hisashi Yonezu, Aichi-ken, Japan, assignor to Nippon Denso Company Limited, Kariya-shi, Japan, a corporation of Japan

Filed Sept. 3, 1968, Ser. No. 756,835
Claims priority, application Japan, Jan. 24, 1968, 43/4,573
Int. Cl. B60q *1/38*
U.S. Cl. 340—82 **2 Claims**

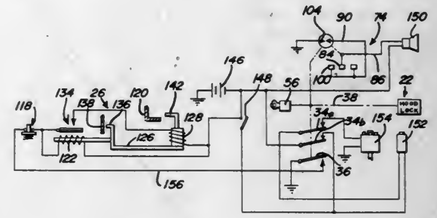


A flasher device of the sequential type for automotive vehicles having an astable multivibrator, a plurality of one-shot multivibrators disposed in series with each other in the sequence stage of the astable multivibrator in a number depending on the number of turn signal lamps, and an AND circuit for supplying the outputs from the astable multivibrator and the one-shot multivibrators to the turn signal lamps thereby sequentially energizing the turn signal lamps.

3,548,373
THEFT PREVENTING SYSTEM FOR VEHICLES

Aureo Rivera, Morovis, and Aureo E. Rivera, Bayamon, Puerto Rico (both of P.O. Box 1306, Bayamon, Puerto Rico 00619)

Filed July 28, 1967, Ser. No. 656,802
Int. Cl. B60r *25/00;* **G08b** *13/00*
U.S. Cl. 340—64 **15 Claims**

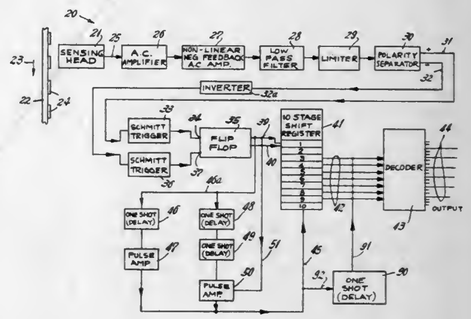


A lock device that is key operated from the dash panel of an automotive vehicle locks the hood to permit shutdown of the engine. In the lock position, the ignition circuit is opened to prevent unauthorized starting of the engine and a trunk protective circuit made operative. Also, an alarm circuit is conditioned for operation in the open position of the lock, includes a pendulum switch to sound the vehicle horn should the vehicle be moved.

3,548,374
CHARACTER RECOGNITION SYSTEM

Angelo Vaccaro, Port Washington, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y., a corporation of New York

Filed Aug. 30, 1966, Ser. No. 576,156
Int. Cl. G06k *9/18*
U.S. Cl. 340—146.3 **6 Claims**



A system for automatically reading characters and for producing an electrical representation unique to each character read in which the reading of the character produces a voltage wave having positive and negative

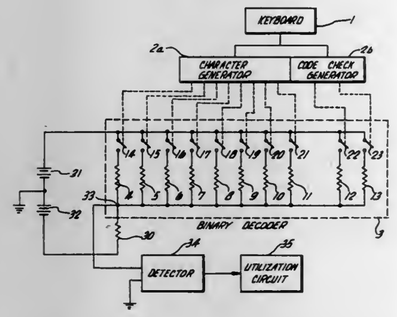
spikes. A two state means is caused to assume one state by a one polarity spike and to retain the one state until shifted to its other state by an opposite polarity spike, which state it retains until shifted to its one state by the occurrence of a one polarity spike. The characters are formed of vertical strokes with coded different length intervals therebetween and the state of the two means is sequentially stored with each trigger pulse. Two pulses are produced each time a stroke is sensed, with one pulse normally causing storage of the state of the two state means and the other causing storage only when a long interval exists between strokes.

3,548,375

BINARY CODE CHECKING ARRANGEMENT

Douglas R. Maure, San Marino, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware

Filed Feb. 21, 1968, Ser. No. 707,269
Int. Cl. G06f *11/10*
U.S. Cl. 340—146.1 **14 Claims**



Binary code characters are generated with a plurality of digits, a maximum number of which are allowed to have a given binary value. A binary code check for each character is generated to represent a number that adds to the number of digits of the character with the given binary value to form a constant sum equal to the maximum number. Preferably, the check is binary coded with the digits weighted according to a geometric progression of two. To verify the correctness of each character, it and its check are decoded, the character digits being weighted equally and the check digits being weighted according to a geometric progression of two. If a number is obtained in decoding that is different from the maximum number, an error has occurred in the generation of the character.

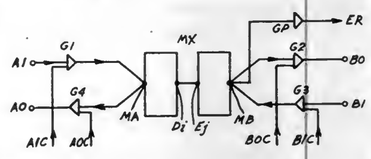
3,548,376

MATRIX COLLATING SYSTEM

Noboru Murayama, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan

Filed June 16, 1966, Ser. No. 558,056
Int. Cl. H03k *13/34*
U.S. Cl. 340—146.1 **12 Claims**

A system for determining whether two sets of electrical signals are related to each other by a predetermined code and more particularly an apparatus for converting a first set of signals to a second set of signals including a diode matrix having first and second sets of input and output terminals for receiving the two signals to be compared and means connected to the input and output terminals for sensing the electrical condition of the matrix so that



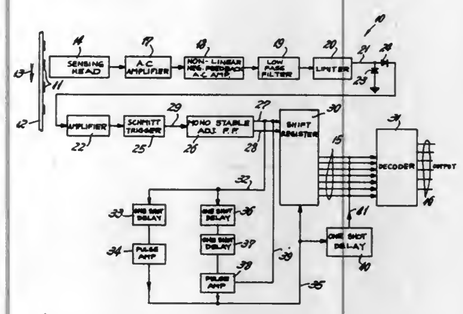
correspondence and non-correspondence between the two sets of signals produces a suitable indication.

3,548,377

AUTOMATIC CHARACTER READING SYSTEM

Angelo Vaccaro, Port Washington, N.Y., assignor to Columbia Research Corporation, Glen Cove, N.Y., a corporation of New York

Filed Oct. 6, 1966, Ser. No. 584,880
Int. Cl. G06k *9/18*
U.S. Cl. 340—146.3 **4 Claims**



A system for automatically reading visually recognizable characters of the type having vertical strokes and intervals of coded width and providing an electrical representation of the character. The system has a two state means that attains a one state for a predetermined time after the sensing of a stroke and then reverts to its other state. Within the predetermined time the one state is stored and also there is stored the other state if the two state means has not attained its one state again by the sensing of the next stroke by the use of two timing pulses, that occur at different intervals for every occurrence that the two state means attains its one state when an interval is present in the character.

3,548,378

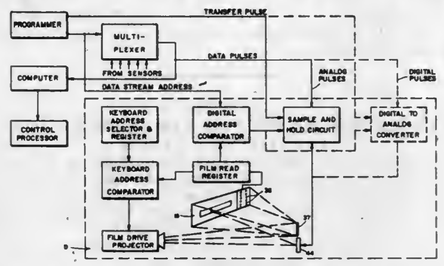
INTEGRATED PARAMETER DISPLAY OF GALVANOMETER READING

Robert B. Blizard and Christ W. Pederson, Littleton, and John T. Polhemus, Englewood, Colo., assignors to Martin-Marietta Corporation, New York, N.Y., a corporation of Maryland

Filed Feb. 3, 1966, Ser. No. 524,911
Int. Cl. H04q *9/00*
U.S. Cl. 340—151 **11 Claims**

The integrated parameter display operates with a programmer and multiplexer to display an unlimited number of meters. The meter faces are provided on a film strip which are selectively projected onto a screen. The meter reading is superimposed on the selected meter face by a galvanometer in accordance with the value of a parameter being measured. The meter faces are placed on a film strip with a coded address adjacent thereto. The desired

address is punched into a keyboard and compared with the film strip being driven until the selected address



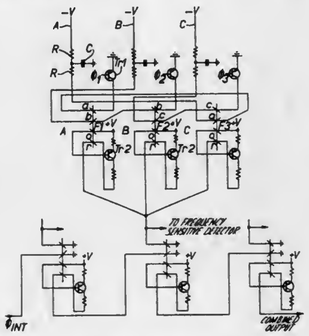
matches the address adjacent the meter face to be displayed.

3,548,379

ELECTRICAL CONTROL SYSTEM ARRAY RESPONSIVE TO PLURAL PULSE TRAINS

Albert Brian Keats, Dorchester, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Jan. 19, 1966, Ser. No. 521,655
Claims priority, application Great Britain, Jan. 26, 1965, 3,411/65
Int. Cl. H04q *9/14*
U.S. Cl. 340—166 **4 Claims**



A supervisory circuit for supervising the presence of input signals on a group of *n* input conductors wherein *n* pulse trains each having a characteristic unique to a corresponding input are applied to a majority logic system which provides an output in response to the presence of a majority *m* of said *n* inputs. The system includes a network of *n* gates connected in parallel to which are applied a different combination of *m* pulse trains, the characteristic of each pulse train being such that the system output is of a form which is indicative of those inputs present.

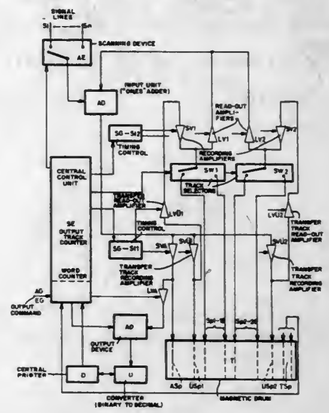
3,548,380

METHOD OF FORWARDING INFORMATION FROM A HIGH SPEED DATA PROCESSING SYSTEM TO A SLOWER OPERATING DATA PROCESSING SYSTEM

Günther E. Gattner and Karl-Heinz Widdel, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 16, 1965, Ser. No. 440,119
Int. Cl. G06f *3/00;* **G11c** *9/00*
U.S. Cl. 340—172.5 **5 Claims**

The disclosure of this application concerns storage of information such as telephone accounting information, in a high speed storage system, and readout of information therefrom by a relatively low speed system. In the method of the application compatability between the high speed storage system and the low speed readout system is



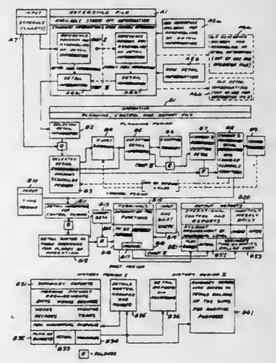
achieved by transferring the information to be read out from the information tracks to an output buffer track, and reading out from that buffer track at the speed of the read-out system.

3,548,381

DATA HANDLING SYSTEMS

Gerhard Dirks, Los Altos Hills, Calif., assignor to Dirks Electronics Corporation, Los Altos Hills, Calif., a corporation of Delaware

Original application Aug. 9, 1963, Ser. No. 300,962, now Patent No. 3,343,133, dated Sept. 19, 1967. Divided and this application Aug. 3, 1967, Ser. No. 658,183
Int. Cl. G06f *7/22*
U.S. Cl. 340—172.5 **44 Claims**

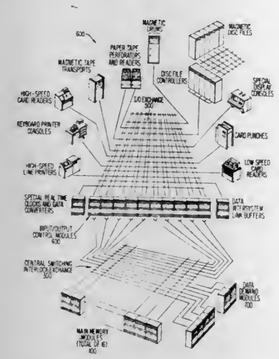


A first dynamic storage stores information units having a plurality of information elements in a predetermined sequence within each information unit. The elements are read out in a sequence of bit time time slots. During transfer to a control and processing unit, the data elements undergo a change in time slot to predetermined subbit time time slots. After processing, the information elements are transferred to a second dynamic storage. The change in time slot may, alternatively, take place during transfer of the information elements from the processing unit to the second dynamic storage.

3,548,382
HIGH SPEED MODULAR DATA PROCESSING SYSTEM HAVING MAGNETIC CORE MAIN MEMORY MODULES OF VARIOUS STORAGE CAPACITIES AND OPERATIONAL SPEEDS

Ivan F. Lichty, West Chester, James E. Hopkins, Berwyn, and Mary E. Taddei, West Chester, Pa., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed June 10, 1968, Ser. No. 735,911
Int. Cl. G06f *15/16*
U.S. Cl. 340—172.5 **21 Claims**

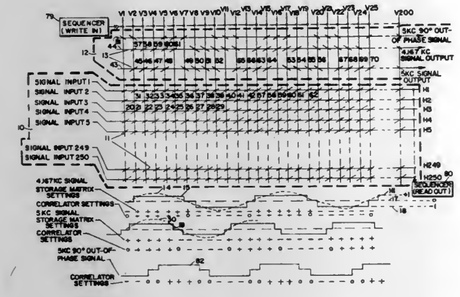


A high speed modular data processing system is disclosed having one or more unique processing modules, one or more novel input/output control modules and one of more data demand modules. The new processing input/output control and data demand modules combine to utilize a plurality of high speed core memory modules of different capacities and different operational speeds. Each of the processing, the input/output control and data demand modules includes means to enable simultaneous processing of a plurality of portions of a particular program.

3,548,383
CORRELATOR FOR DIGITAL SIGNAL PROCESSING

Daniel Blitz, Boston, and Martin R. Richmond, Belmont, Mass., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

Filed Mar. 27, 1967, Ser. No. 626,164
Int. Cl. G11c *11/02*
U.S. Cl. 340—172.5 **21 Claims**

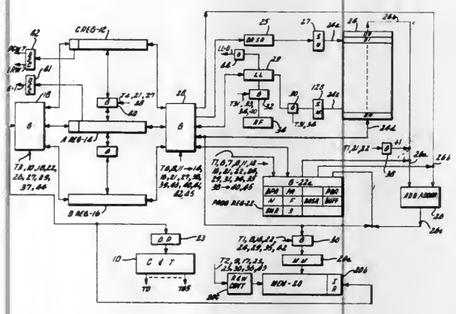


Apparatus is disclosed for identifying and correlating signals, the input information to the apparatus being samples representing a characteristic of the signals as a function of time. The apparatus includes a network(s) of magnetic cores grouped to algebraically sum the samples of the signal(s) to be recognized, to thus produce a maximized output signal when the signal(s) to be recognized is applied thereto.

3,548,384
PROCEDURE ENTRY FOR A DATA PROCESSOR EMPLOYING A STACK

Robert S. Barton, Salt Lake City, Utah, Bobby A. Creech, Glendora, Benjamin A. Dent, Altadena, Erwin A. Hauck, Arcadia, and William M. McKeeman, Palo Alto, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Oct. 2, 1967, Ser. No. 672,042
Int. Cl. G06f *7/00*
U.S. Cl. 340—172.5 **19 Claims**



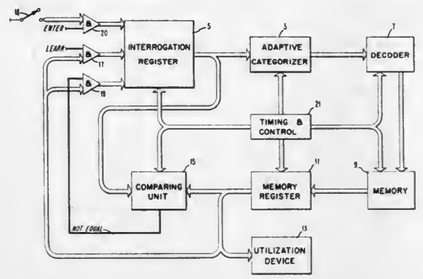
A data method and apparatus in a stored program processing system having a main memory for storing stacks of information for processing. The top two storage positions in the stack are two registers external to the memory. An additional memory has individually selectable display registers, each containing a different absolute memory address of a base of a stack area used to store parameters, variables and other reference words for a particular level of a program. Control words in the stacks contain information which create an ALGOL address environment list and a stack history list for the stacks. Other registers are provided in the system for storing various information used during the operation. Gating and timing is provided which causes the system to automatically update the display registers and therefore the address environment list in the stacks when the computer enters a new procedure which extends beyond the scope of the current ALGOL addressing environment as contained in the display registers. An address adder is provided to add parameters together to generate absolute addresses for addressing the memory.

3,548,385
ADAPTIVE INFORMATION RETRIEVAL SYSTEM

Cyril J. Tunis, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 11, 1968, Ser. No. 697,211
Int. Cl. G06f *15/18, 15/40*
U.S. Cl. 340—172.5 **6 Claims**

An information retrieval system having an adaptive categorizer used to provide addressing of an associative memory in response to statements or interrogations made to the input of the categorizer, whereby in response to a particular inquiry, such as a set of key words, the address of information most closely related to the inquiry is generated and the corresponding information read out.

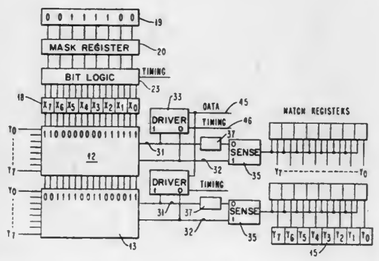


The system includes feedback of additional key words to the input of the system.

3,548,386
ASSOCIATIVE MEMORY

Alexander W. Bidwell, Wappingers Falls, and Arnold Weinberger, Newburgh, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed July 15, 1968, Ser. No. 744,718
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 **10 Claims**



Storage elements arranged in a conventional row and and column array for coincident selection and having a common bit-sense wire are used in an associative memory without changing the interconnecctions between storage elements. Storage elements of each row form a memory word and a single row or Y dimension wire is selected for each operation. The array columns form bit positions and the column or X dimension wires are selected according to the bit value to be searched or written in the corresponding bit position. When one Y wire and selected X wires are energized, a signal on the bit-sense wire signifies a mismatch with the data value represented by energization of the X wire. A signal applied to the bit-sense wire in coincidence with a Y wire and selected X wires stores a predetermined data value at the selected bit position.

3,548,387
BONUS CREDITING SYSTEM

Casimer J. Dabrowski, Mount Prospect, Ill., assignor, by mesne assignments, to The Seeburg Corporation, Chicago, Ill., a corporation of Delaware

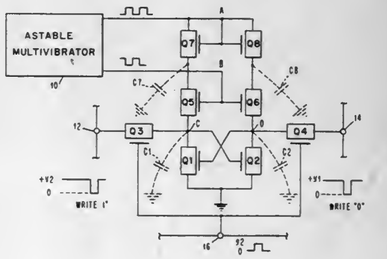
Filed Sept. 12, 1968, Ser. No. 759,270
Int. Cl. G11c *19/00;* **G07f** *5/22*
U.S. Cl. 340—173 **14 Claims**

A vending apparatus includes an arrangement for granting a bonus credit upon the accumulation of a certain level of credit in the vending apparatus accumulator, regardless of the size of individual credit increments or the order in which the individual credit increments are accumulated. A series of flip-flop circuits and logic elements are utilized to analyze and store input credit information and provide a bonus crediting pulse.

3,548,388
STORAGE CELL WITH A CHARGE TRANSFER LOAD INCLUDING SERIES CONNECTED FETS

George Y. Sonoda, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Dec. 5, 1968, Ser. No. 781,527
Int. Cl. G11c *11/40*
U.S. Cl. 340—173 **5 Claims**



This specification describes a semiconductor storage cell for use in monolithic memories. The storage cell has two crosscoupled FET's which function as the storage elements of the cell. Each of the crosscoupled FET's is connected across a source for excitation in series with two more load FET's. These additional load FET's are alternately turned on and off out of phase with each other to transfer charge to the crosscoupled FET's from the source of excitation. By operating these load FET's in this manner, two low impedance FET's can be used to simulate a high impedance FET.

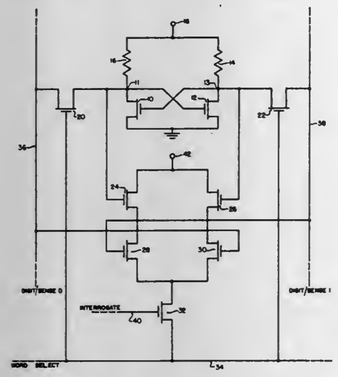
3,548,389
TRANSISTOR ASSOCIATIVE MEMORY CELL

David T. Ellis, Holliston, Mass., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Dec. 31, 1968, Ser. No. 788,271
Int. Cl. G11c *11/40, 15/00;* **H03k** *3/286*
U.S. Cl. 340—173 **10 Claims**

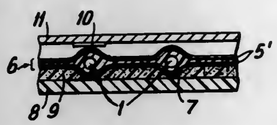
Flip-flop memory element associative memory array acomplishes write, sense and interrogate logical functions through a word select/interrogation sense line

and an interrogate line associated with each word and a pair of word select line actuated write/sense transistors each coupling, by their conduction paths, the outputs of each memory element to the digit/sense lines. A second pair of transistors have their control electrodes coupled to the outputs of each memory element thereby reflecting the binary state of such memory element by the conductive state of their output electrodes. A third pair of transistors having their control electrodes coupled to the digit/sense lines and their input electrodes coupled to the output electrodes of the second pair of transistors



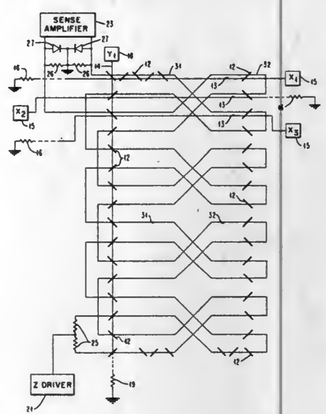
have their output electrodes coupled to the word select/interrogation sense line through the conduction path of a single transistor controllably operated by the interrogation line. Signals coupled to the control electrodes of the second and third pair of transistors may be interchanged. Interrogation is accomplished, by the second and third transistor pairs, when the single transistor is rendered conductive, by a comparison of the state of the memory element and an interrogation state applied to the digit sense lines. An output current on the word select/interrogation sense line indicates a mismatch.

3,548,390
SEMI-PERMANENT MAGNETIC MEMORY DEVICE
Takashi Furuoya, Tokyo, Japan, assignor to Nippon Electric Company Limited
Filed Dec. 13, 1967, Ser. No. 690,186
Claims priority, application Japan, Dec. 14, 1966, 41/81,917
Int. Cl. G11c *5/02, 11/14, 17/00*
U.S. Cl. 340—174 **5 Claims**



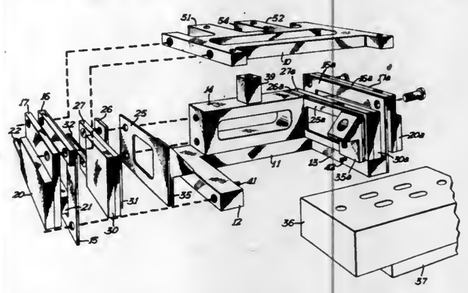
A semi-permanent memory device is provided in the form of a matrix comprising a plurality of magnetic wires arranged in parallel with each other, the magnetic wire consisting essentially of a non-magnetic conductive wire having superimposed on the surface thereof thin films of a soft magnetic material and a hard magnetic material having uniaxial magnetic anisotropy. A plurality of spaced elongated non-magnetic conductors are also provided which intersect the magnetic wires at substantially right angles thereof, small magnetized magnets being disposed in the vicinities of the predetermined intersections.

3,548,391
SENSE-INHIBIT WINDING FOR MAGNETIC MEMORY
David J. Perlman, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 15, 1968, Ser. No. 697,818
Int. Cl. G11c *5/02, 5/08*
U.S. Cl. 340—174 **2 Claims**



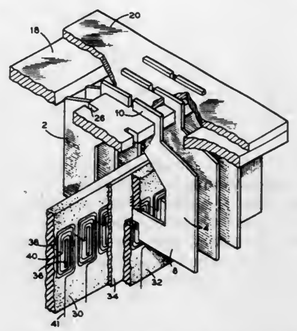
An improved sense-inhibit winding for a magnetic memory is provided by transposing the winding at the centerline of a core plane in a double cross over configuration.

3,548,392
MAGNETIC HEAD MOUNT WITH LEAF SPRINGS AND PNEUMATIC ACTUATION
Leslie R. Walstrom, Excelsior, Minn., and Wayne J. King, San Diego, Calif., assignors to Fabri-Tek, Incorporated, Minneapolis, Minn., a corporation of Minnesota
Filed May 17, 1968, Ser. No. 730,020
Int. Cl. G11b *21/24, 21/10, 5/56*
U.S. Cl. 340—174.1 **9 Claims**



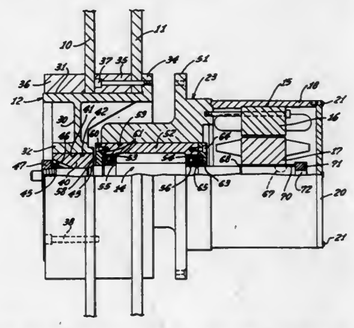
Apparatus for positioning a magnetic read-write head, the apparatus having an outer frame adapted to be rigidly mounted, an inner frame mounted between a pair of parallel leaf springs which are connected to the outer frame, and a magnetic head carriage mounted between a second pair of parallel leaf springs which are connected to the inner frame. The springs are mounted such that the inner frame and the carriage have the same one dimension of movement. Actuators are provided for selectably applying force to move the inner frame and the carriage against the respective springs. Stop means are provided for limiting travel of the inner frame and the carriage, to provide precise, fast head positioning by selection of desired actuators.

3,548,393
RACK TYPE MOUNTING PLATE FOR MAGNETIC HEAD
André Montel, Paris, France, assignor to Societe d'Instrumentation Schluberger, Paris, France, a French corporation
Filed Dec. 11, 1967, Ser. No. 689,684
Claims priority, application France, Dec. 13, 1966, 87,151
Int. Cl. G11b *5/10, 5/28, 5/42*
U.S. Cl. 340—174.1 **15 Claims**



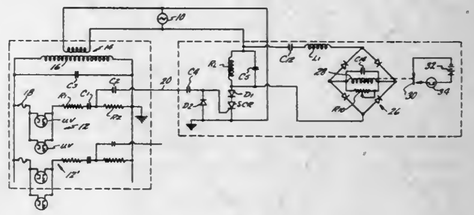
A magnetic head comprising two substantially parallel rows of transversely aligned half-cores has the pole ends of the half-cores spaced apart and maintained in transverse parallel alignment by spaced slots formed in opposite edges of a non-magnetic spacer plate. The pole ends project from an exterior surface of the spacer plate and are constrained against outward displacement by two rows of abutments, which take the form of transversely opposed end walls formed by rectangular apertures in a second plate which is mounted on the exterior surface of the spacer plate.

3,548,394
ROTATING MAGNETIC DISC STORAGE STRUCTURE
John A. Felts, Los Angeles, Calif., assignor to Scientific Data Systems, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Feb. 26, 1968, Ser. No. 708,167
Int. Cl. G11b *5/84, 17/00*
U.S. Cl. 340—174.1 **12 Claims**



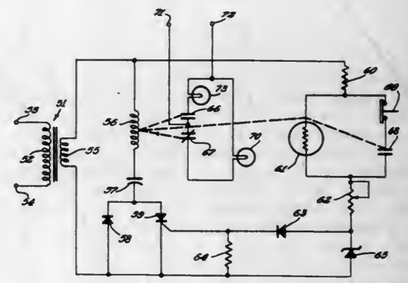
A cantilever bearing for a magnetic memory which rotates rapidly to permit fast access to the information recorded thereon. The rotating magnetic assembly includes a hub mounted on a shaft which supports at its other end an electric motor. This permits removal of either the magnetic assembly or the motor without disassembling the bearings. Two bearings are disposed between the hub assembly and the motor. One of the bearings is arranged at or closely adjacent to the center of gravity of the rotating magnetic assembly, which minimizes vibration of the assembly and its sensitivity to gravity.

3,548,395
FLAME CONDITION SENSING DEVICE
Lyman F. Gilbert, Somers, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Continuation of application Ser. No. 267,587, Mar. 25, 1963. This application Feb. 14, 1966, Ser. No. 536,935
Int. Cl. G08b *17/12*
U.S. Cl. 340—228.2 **4 Claims**



A flame condition indicating system having a glow discharge tube for monitoring the condition of a flame. Circuitry is utilized whereby the flow discharge tube operates out of saturation to provide upon viewing a flame a signal having a random repetition rate varying in accordance with the stability of the flame. Means within the circuitry is provided to recognize the variation in the random repetition rate of an unstable flame to render an indication of such flame instability. Means responsive to the presence or absence of flame or a circuit checking indicator may be included within the circuitry of this invention.

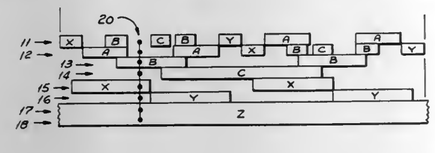
3,548,396
BEARING TEMPERATURE SENSING DEVICE
Robert D. Roberts, Streetsboro, Ohio, assignor to Houdaille Industries Inc., Buffalo, N.Y., a corporation of Delaware
Filed Jan. 17, 1968, Ser. No. 698,449
Int. Cl. G08b *17/00*
U.S. Cl. 340—231 **4 Claims**



A bearing temperature sensing device including a fitting which is adapted to be detachably secured to a bearing assembly, a thermistor secured within the fitting, with re-

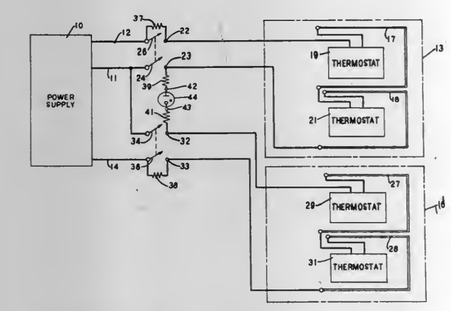
sistance sensing means arranged to detect changes in electrical resistance of the thermistor upon changes in temperature, together with indicator means responsive to the sensing means to indicate the existence of a predetermined temperature, and adjustment means remote from the fitting and functioning to adjust the temperature level at which the indicator becomes operative.

3,548,397
UNIT-DISTANCE ENCODER
Robert E. Dayton, Huntington, Shelton, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed July 27, 1967, Ser. No. 656,445
Int. Cl. H03k *13/00;* **G08c** *9/08*
U.S. Cl. 340—347 **8 Claims**



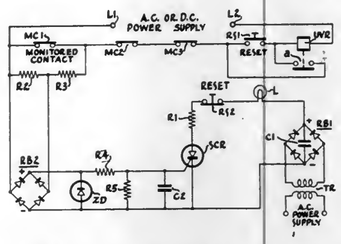
A unit-distance encoder in which all transfer points between counts are controlled by segments mounted on the two outermost tracks of greatest diameter and circumferential length.

3,548,398
SWITCH POSITION AND CONTINUITY INDICATOR FOR A PAIR OF HEATING CIRCUITS
Walter E. Strimling, 63 Westcliff Road, Weston, Mass. 02193
Filed Jan. 11, 1968, Ser. No. 697,065
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 **6 Claims**



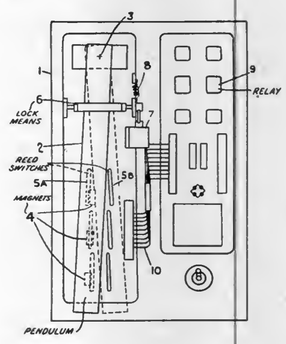
A monitoring circuit, for indicating the failure of a pair of heating circuits to operate in sequence or the failure of a component in a heating circuit, is described. The heating circuits are powered by a pair of voltages referred to a common potential. Power is applied to the monitoring circuit through the heating circuits. A neon light in the monitoring circuit remains ignited at least as long as both heating circuits are functioning properly or in sequence. Energization of either heating circuit brings one side of the monitoring circuit to the common potential. If both heating circuits are energized both sides of the monitoring circuit are brought to a common potential so no voltage appears across the monitoring circuit extinguishing the neon light. If one heating circuit open circuits, the neon light will extinguish when the other heating circuit is energized.

3,548,399
CONTACT-MONITORING FAULT INDICATORS
Robert E. Monigal, Milwaukee, Robert N. Eck, Whitefish Bay, Walter A. Gossfeld, Hubertus, and William C. Swanson, Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Oct. 18, 1967, Ser. No. 676,321
Int. Cl. G08b *21/00*
U.S. Cl. 340—253 **4 Claims**



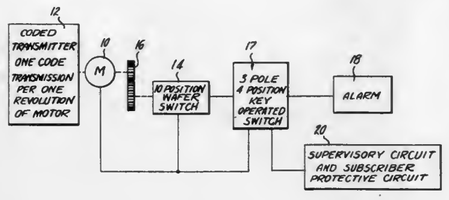
A fault finder for monitoring electrical circuits having a lamp circuit providing a visual indication of the opening of a contact due to a fault in the electrical system. The monitored contact which may be either in an A.C. or a D.C. energized system, upon opening, causes firing of a semiconductor element which lights a lamp, the lamp remaining lit until a reset switch is pressed. A first version thereof draws signaling power from the monitored system and indicates only the first-to-open of a series of monitored contacts. A second version supplies its own signaling power and indicates each contact that opens in a series of monitored contacts without regard to which one opened first.

3,548,400
SHIP'S TRIM INDICATOR
Douglas Boyd, Killearn, and George James Brown, Glasgow, Scotland, assignors to Andrew Chalmers & Mitchell Limited, Glasgow, Scotland, a British company
Filed Sept. 29, 1967, Ser. No. 671,822
Int. Cl. G08b *21/00*
U.S. Cl. 340—282 **4 Claims**



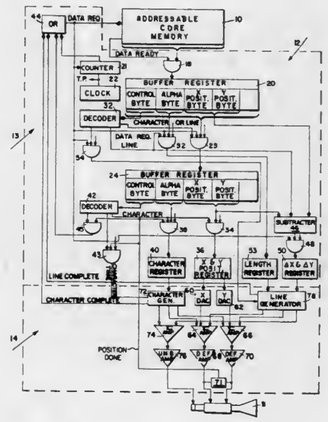
A device for indicating listing of a ship includes a magnet-carrying pendulum, and a plurality of magnetically-operable switches mounted on each side of the pendulum in such positions that a predetermined swinging movement of the pendulum from a center position causes actuation of selected ones of the switches. The switches, in turn, control energization of magnetic relay controls for a warning device.

3,548,401
INTRUDER ALARM SYSTEM WITH SUPERVISION AND TEST
Leo A. Guthart, Old Westbury, N.Y., assignor to Alarm Device Manufacturing Company, a division of Pittway Corporation, Carle Place, N.Y., a corporation of Pennsylvania
Filed July 12, 1968, Ser. No. 744,460
Int. Cl. G08b *13/08, 29/00*
U.S. Cl. 340—274 **10 Claims**



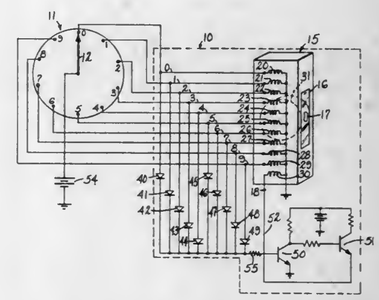
An intruder alarm system at a subscriber's premises includes a motor for driving a coded transmitter which sends a signal to a central office when the circuitry in the premises has been prepared for operation and the subscriber is opening the exit door to leave the premises, when the door is closed and when a supervisory circuit guarding the premises is broken as when an intruder enters the premises via the exit door or other guarded entrances into the premises. Under the last condition, a local alarm is set into operation at the end of the coded transmission to the central office.

3,548,402
ADAPTIVE TIMING TECHNIQUE
Arnold Schumacher, Milford, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Oct. 10, 1966, Ser. No. 585,621
Int. Cl. H01j *1/60*
U.S. Cl. 340—324 **10 Claims**



A means and method are presented for optimizing display time in an electronic display system. Position and symbol instructions are stored in an addressable memory. Position instructions are routed to a display tracing means positioning device and as soon as the tracing means is positioned, the symbol instructions are routed to the tracing means which traces the symbol at that position. As soon as the symbol is traced, additional position instructions are so routed. This process is repeated until the display is complete thereby allowing the display system to compensate fully for the different time requirements of the various instruction types. Each type of instruction uses only the time required to execute that instruction so that considerable time is saved in tracing all the information on the display.

3,548,403
MONITORING SYSTEM
Allen L. Johnson, Meriden, Conn., assignor to Ripley Company, Inc., Middletown, Conn., a corporation of New York
Filed June 12, 1967, Ser. No. 645,429
Int. Cl. G08b *5/26, 11/00*
U.S. Cl. 340—324 **6 Claims**

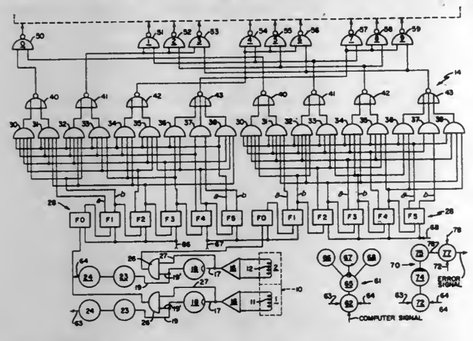


A device for displaying information collected from a plurality of common data lines coupled to a plurality of metering registers, comprising a plurality of indicators, each of said indicators having a plurality of coils for causing different symbols to be displayed, a coil of each of said indicators coupled to a different one of said common data lines at one end, all the coils of each individual indicator coupled together at their other ends, a substantially unidirectional current-passing device coupled between each common data line and each coil, and control means for causing a current to flow from a source of energy through one of said metering registers over one of said common data lines through one of said coils and back to said control means.

3,548,404
FREQUENCY CODED DIGITAL RECORDING SYSTEM
Raymond B. Larsen, 107 E. Sunset Drive, and Donley P. Jacobson, 1123 Fairview Drive, both of Riverton, Wyo. 83119
Filed Oct. 14, 1965, Ser. No. 495,896
Int. Cl. H03k *13/20*
U.S. Cl. 340—347 **10 Claims**

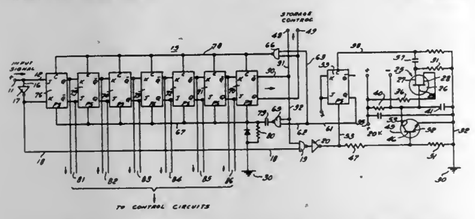
Intelligence characters represented on a recording medium, such as, a magnetic tape, by a combination of discrete frequencies recorded in parallel are decoded into digital signals by converting the frequency pulses into a corresponding number of voltage pulses and applying the voltage pulses to an electronic counting circuit which will advance a number of steps corresponding to the number of voltage pulses; and, through a logic input, will produce a signal representative of the number of steps advanced by the counter. The counters are reset at the end of each

character for conversion of the next character in succession, and an error detecting circuit will sense erroneous



information transmitted to or from the electronic counting circuit.

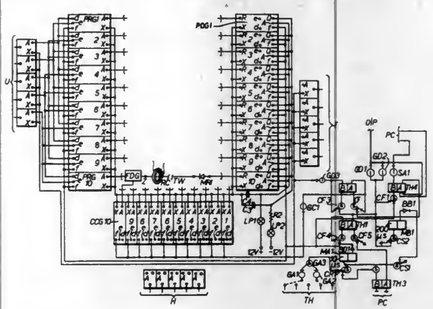
3,548,405
RECEIVING DISTRIBUTOR CIRCUIT
Charles J. Holloman, Stamford, Conn., assignor to Trans-Lux Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 12, 1966, Ser. No. 600,875
Int. Cl. H03k *13/258*
U.S. Cl. 340—347 **4 Claims**



This invention is directed to a receiving distributor circuit for allocating different portions of received signal series to different output positions for recreating the signal information in its visual representations. Circuitry is provided by which a series of coded signal representations may be supplied through a shift register circuit of a selected number of stages formed from a plurality of cascaded flip-flop circuits which are controlled by pulsing. The signals are serially impressed as binary information and applied under the control of the pulses to shift the signal series from one end of the register to the other prior to its release. The operation is controlled by an oscillator which is activated under the influence of a start input signal, with operating continuing until the full signal series is received and message storage effects are maintained until the signals can be displayed on any appropriately controlled viewing unit.

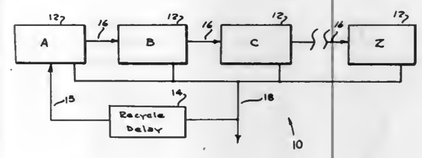
3,548,406
DIGITAL TRANSLATORS
Bloomfield James Warman, London, James George Taylor, Hassocks, and Keith Richardson, London, England, assignors to Associated Electrical Industries Limited, London, England, a British company
Filed Jan. 20, 1967, Ser. No. 610,599
Claims priority, application Great Britain, Feb. 3, 1966, 4,841/66
Int. Cl. H03k *13/247*
U.S. Cl. 340—347 **3 Claims**

A ring core telephone translator in which the code wires are individually selectable by gating circuits at each end of the wires. Each code wire is connected in series with a rectifier individual to it and normally reverse biased, and a code wire is selected by three gating circuits, two



at one end and one at the other end, which in combination are effective to overcome the reverse bias and provide a current pulse in the selected code wire.

3,548,407
KEYING APPARATUS FOR USE WITH BEACON MARKERS OR THE LIKE
Adolph G. Blackwell, Beaumont, Tex., assignor to Southern Avionics Company, a corporation of Texas
Filed May 22, 1967, Ser. No. 640,082
Int. Cl. G06k *9/06*
U.S. Cl. 340—353 **11 Claims**



For the identification of transmitting facilities and the like, a solid state keyer, preferably having a symbol board of plug-in construction for each symbol, including up to eight time determining circuits sequentially connected for forming dots, dashes and spaces as needed, said symbol forming units being adapted to be connected in sequence with recycling means for restarting the first after a time interval.

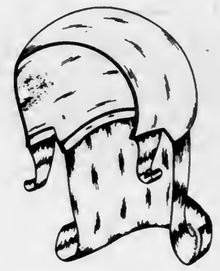
3,548,408
PROCESS FOR ESTERIFICATION OF POLYMERS CONTAINING ALCOHOLIC GROUPS
Roy Worrall, Newport, England, assignor to Monsanto Chemicals Limited, London, England, a British company
No Drawing. Filed Oct. 24, 1967, Ser. No. 677,743
Claims priority, application Great Britain, Oct. 26, 1966, 48,104/66; Jan. 13, 1967, 1,860/67
Int. Cl. C08h *27/14*
U.S. Cl. 260—87.3 **8 Claims**

A process for the esterification of polymers containing alcoholic groups wherein hydrolyzed interpolymers of esters of unsaturated alcohols and olefins, such as a hydrolyzed interpolymer of ethylene and vinyl acetate, are converted to polymers containing acid groups by reacting said interpolymers with an anhydride such as maleic or phthalic anhydride while the polymers are in the solid or molten state.

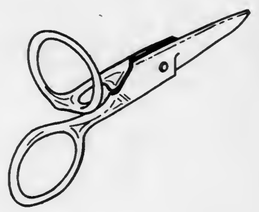
DESIGNS

ISSUED DECEMBER 15, 1970

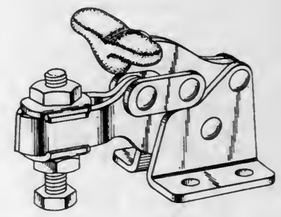
219,419
WOMAN'S CAP
Carmella A. O'Searo, 1218 George St. Extension, Sharon, Pa. 16146
Filed Dec. 11, 1969, Ser. No. 20,456
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—250



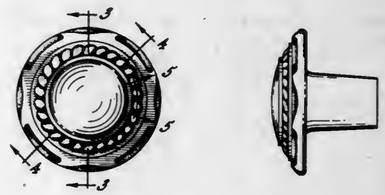
219,420
SCISSORS
Richard M. Cline, 3619 Orange Ave., Long Beach, Calif. 90807
Filed Mar. 26, 1969, Ser. No. 16,456
Term of patent 3½ years
Int. Cl. D8—*02*
U.S. Cl. D8—57



219,421
CLAMP
Alexander W. McPherson, Farmington, Mich., assignor to Dover Corporation (De-Sta-Co Division), a corporation of Delaware
Filed June 18, 1969, Ser. No. 17,766
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—72



219,422
KNOB
Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Connecticut
Filed Oct. 16, 1969, Ser. No. 19,592
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—144



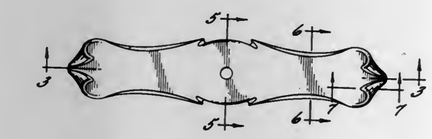
219,423
RANGE HANDLE
William Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich., a corporation of Michigan
Filed June 30, 1969, Ser. No. 17,946
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—171



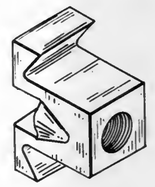
219,424
RANGE HANDLE
William Doyle Watt, Jr., Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich., a corporation of Michigan
Filed June 30, 1969, Ser. No. 17,985
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—171



219,425
ESCUTCHEON PLATE
Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Connecticut
Filed Oct. 16, 1969, Ser. No. 19,591
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—179



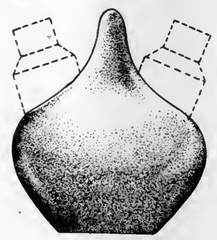
219,426
FEMALE FASTENER FOR RETAINING LICENSE PLATES, AND LIKE PURPOSES
Yale Ginsberg, Bloomfield Hills, Mich., assignor to Car-Pak Manufacturing Co., Inc., Troy, Mich., a corporation of Michigan
Filed Apr. 21, 1969, Ser. No. 16,820
Term of patent 14 years
Int. Cl. D8—*04*
U.S. Cl. D8—273



219,427
DECANTER
Robert Rieb, New York, N.Y., assignor, by mesne assignments, to John Bardenheier Wine & Liquor Company, St. Louis, Mo., a corporation of Missouri
Filed Nov. 3, 1969, Ser. No. 19,887
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—160



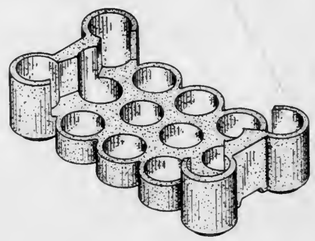
219,428
HOLDER FOR BOTTLES OR THE LIKE
Bette C. Graham, 6055 Woodland Drive, Dallas, Tex. 75225
Filed May 21, 1968, Ser. No. 12,028
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—176



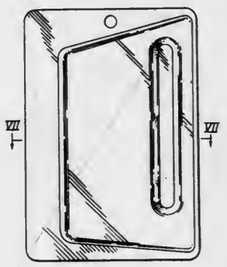
219,429
BLISTER PACKAGE
Ronald Poppleton Hill, Willerby, Harry Hodds, Hull, and John Michael Fulks Braddock, Richmond, England, assignors to Reckitt & Sons Limited, Hull, England, a British company
Filed Apr. 16, 1969, Ser. No. 16,772
Claims priority, application Great Britain Oct. 21, 1968
Term of patent 7 years
Int. Cl. D9—*99*
U.S. Cl. D9—182



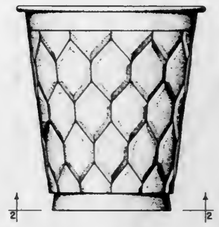
219,430
COMBINED PACKAGING AND STACKING TRAY
Albertus Antonius Swane, Vught, Netherlands, assignor to N.V. Maatschappij Tot Exploiteren van Octrooien en Licenties "Matepa," 's Herogenbosch, Netherlands
Filed Mar. 20, 1969, Ser. No. 16,353
Claims priority, application Australia Dec. 24, 1968
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—188



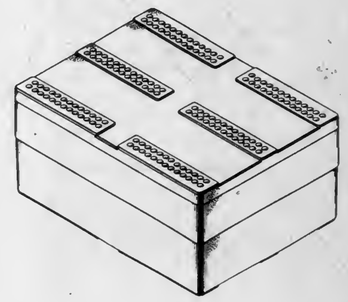
219,431
BLISTER PACKAGE
Ronald Poppleton Hill, Willerby, Harry Hodds, Hull, and John Michael Fulks Braddock, Richmond, England, assignors to Reckitt & Sons Limited, Hull, England, a British company
Filed Apr. 16, 1969, Ser. No. 16,766
Claims priority, application Great Britain Oct. 21, 1968
Term of patent 7 years
Int. Cl. D9—*99*
U.S. Cl. D9—192



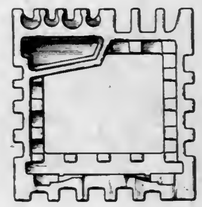
219,432
PACKAGING CUP
Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Oct. 3, 1969, Ser. No. 19,411
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—220



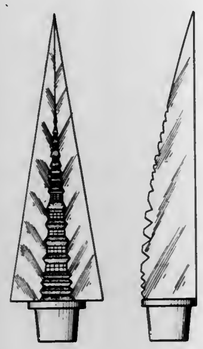
219,433
COMBINED STORAGE AND SHIPPING BOX OR SIMILAR ARTICLE
Delbert L. Brink, Seattle, Wash., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed May 16, 1969, Ser. No. 17,183
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—237



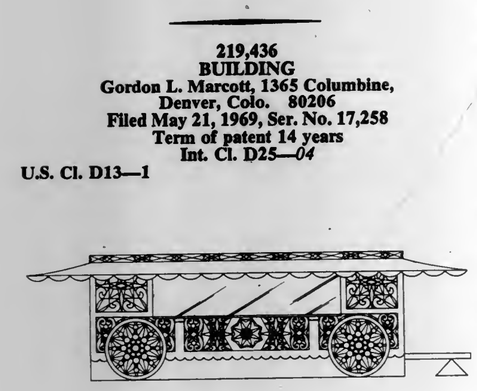
219,434
CARTON INSERT FOR SHIPPING SMALL MUSICAL ORGANS AND THE LIKE
Marvin Adler, Parsippany, N.J., assignor to Magnus Organ Corporation, a corporation of New Jersey
Filed Oct. 10, 1969, Ser. No. 19,507
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D9—253



219,435
BOTTLE STOPPER
Harold Shapiro, 18160 Parthenia St., Northbridge, Calif. 91324
Filed Nov. 3, 1969, Ser. No. 19,880
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—254



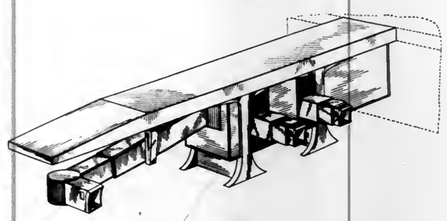
219,436
BUILDING
Gordon L. Marcott, 1365 Columbine, Denver, Colo. 80206
Filed May 21, 1969, Ser. No. 17,258
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



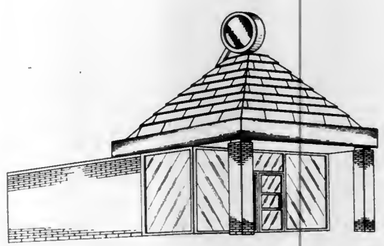
219,437
BUILDING
Perry Mendel, Montgomery, Ala., assignor to Kinder Care Nursery Schools, Inc., a corporation of Alabama
Filed Nov. 5, 1969, Ser. No. 19,962
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



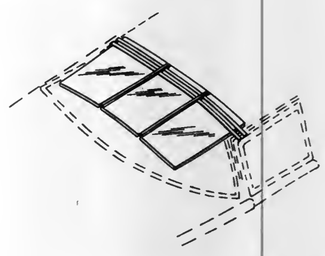
219,438
PASSENGER LOADING BRIDGE FOR AIRPORTS
Perry N. Fisher, Huntsville, Ala., assignor to Brown Engineering Company, Inc., a corporation of Alabama
Filed July 22, 1969, Ser. No. 18,290
Term of patent 14 years
Int. Cl. D25—*05*
U.S. Cl. D13—1



219,439
BUILDING
Newman Hamblet and James Scott Rawlings, Richmond, Va., assignors to G. S. Franchise Corporation, Richmond, Va., a corporation of Virginia
Filed Aug. 26, 1969, Ser. No. 18,860
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



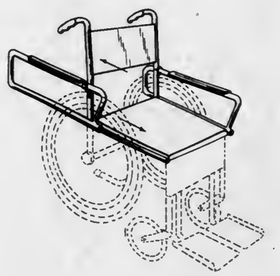
219,440
AUTOMOBILE RAIN VISOR FOR DRIVE-IN THEATRES
John P. Francis, 20 Boston St., Haverhill, Mass. 01830
Filed Nov. 4, 1969, Ser. No. 19,923
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—6



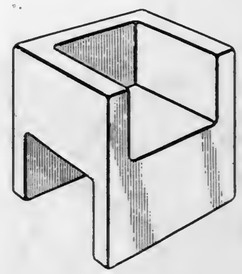
219,441
METAL WHEEL
William E. Mitchell, Keresley, England, assignor to The Dunlop Company Limited, Birmingham, England, a corporation of Great Britain
Filed July 7, 1969, Ser. No. 18,090
Claims priority, application Great Britain Jan. 16, 1969
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D14—30



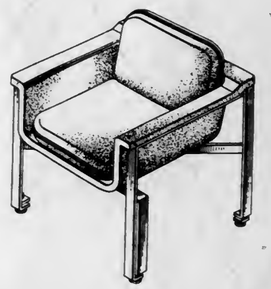
219,442
WHEEL CHAIR
Mike Menuto, Erie, Pa., assignor to Erie City Manufacturing Company, Erie, Pa., a corporation of Pennsylvania
Filed Dec. 13, 1968, Ser. No. 14,951
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



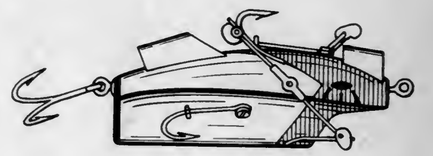
219,443
NURSERY SEAT OR SIMILAR ARTICLE
Vello Hubel, 44 King St. W., Toronto 1, Ontario, Canada
Filed Feb. 6, 1969, Ser. No. 15,674
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



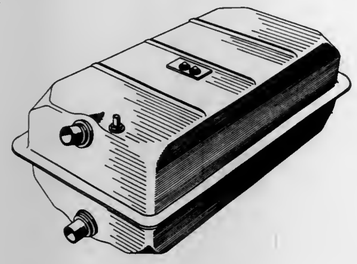
219,444
CHAIR
Sidnor Tebbs Chichester, Jr., 2529A P St. NW., Washington, D.C. 20007
Filed Mar. 12, 1969, Ser. No. 16,209
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—7



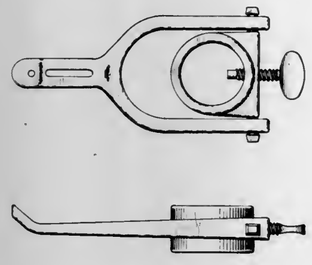
219,445
FISHING PLUG
George E. Ross, St. Paul, Minn., assignor of one-half to Frances R. Drake, Minnetonka, Minn.
Filed Dec. 29, 1969, Ser. No. 20,692
Term of patent 14 years
Int. Cl. D22—*07*
U.S. Cl. D22—27



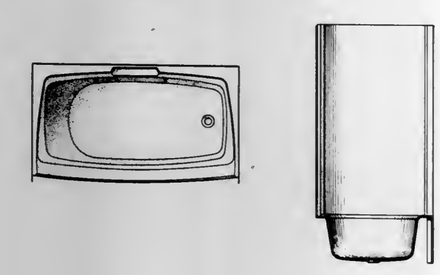
219,446
MARINE WASTE HOLDING TANK
Edward F. Arros, 1 Hetcheltown Road, Scotia, N.Y. 12302
Filed Feb. 19, 1968, Ser. No. 10,638
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—2



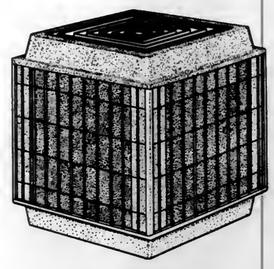
219,447
VALVE GUIDE FOR FLUSH TANKS
Dan Kamphausen, Littleton, Colo., assignor to Twentieth Century Products Corporation, Englewood, Colo.
Filed July 8, 1969, Ser. No. 18,116
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—40



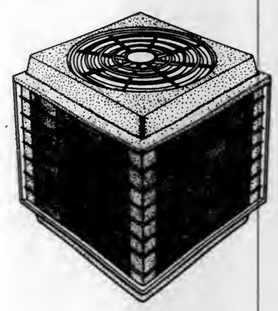
219,448
COMBINED BATHTUB AND SHOWER ENCLOSURE
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 27, 1969, Ser. No. 19,724
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49



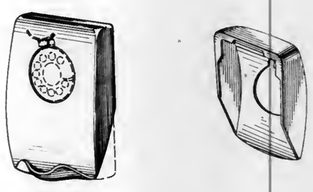
219,449
CONDENSING UNIT ENCLOSURE
Charles J. Ortega, 5326 Buffalo Ave., Van Nuys, Calif. 91401; Russell E. Orr, 14333 Addison St., Apt. 201, Sherman Oaks, Calif. 91401; and Frederic L. Naff, Jr., 1712 Rotary Drive, Los Angeles, Calif. 90026
Filed Apr. 23, 1969, Ser. No. 16,862
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139



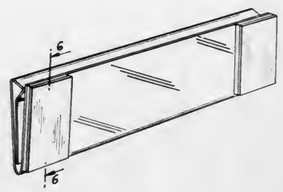
219,450
CONDENSING UNIT ENCLOSURE
Charles J. Ortega, Van Nuys, Russell E. Orr, Sherman Oaks, and Frederic L. Naff, Jr., Los Angeles, Calif., assignors to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Apr. 23, 1969, Ser. No. 16,852
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—139



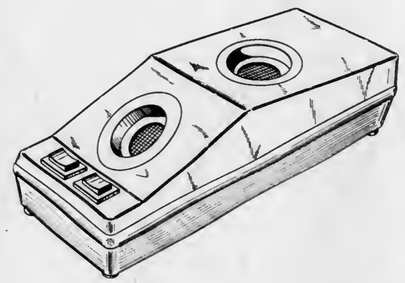
219,451
TELEPHONE COVER WITH HANDSET RETAINER OR THE LIKE
Stacy D. Blackman, 4606 Winterlochen Road, Raleigh, N.C. 27603
Continuation-in-part of design application Ser. No. 3,411, Aug. 10, 1966. This application Nov. 25, 1968, Ser. No. 14,612
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



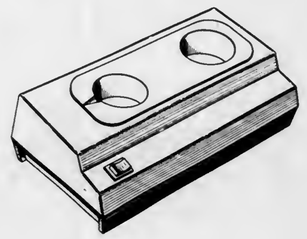
219,452
HOLDER FOR ATTACHMENT TO A TELEPHONE OR THE LIKE
Robert T. Crew, 3817 Gadsden Road, Jacksonville, Fla. 32207
Filed Sept. 2, 1969, Ser. No. 18,944
Term of patent 14 years
Int. Cl. D14—*99*; D20—*02*
U.S. Cl. D26—14



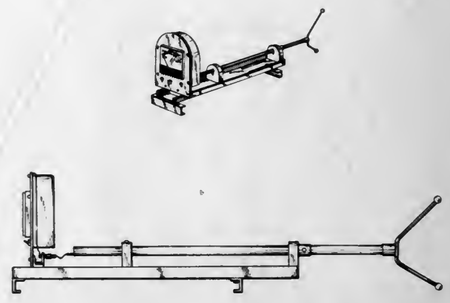
219,453
TELEPHONE ACOUSTIC DATA COUPLER
Darrel S. Jahn, Mountain View, and Errol J. Coyle, Sunnyvale, Calif., assignors to Info-Max, a corporation of California
Filed Nov. 10, 1969, Ser. No. 19,994
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



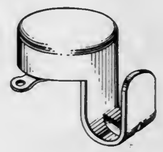
219,454
TELEPHONE ACOUSTIC DATA COUPLER
Max H. Silten, Atherton, Calif., assignor to Info-Max, a corporation of California
Filed Nov. 10, 1969, Ser. No. 20,023
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



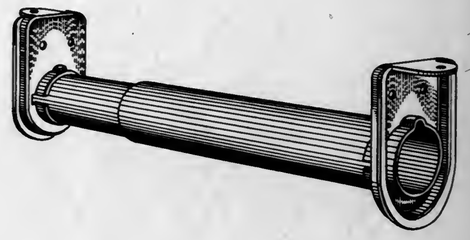
219,455
PORTABLE CURRENT INTENSITY DETECTOR FOR AERIAL BOOMS
Paul E. Skarshaug, 4607 Dover Drive, Ames, Iowa 50010
Filed Oct. 27, 1969, Ser. No. 19,741
Term of patent 14 years
Int. Cl. D10—*10*
U.S. Cl. D26—1



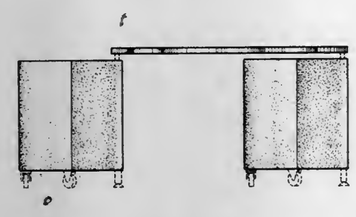
219,456
COMBINED TOP CAP AND BRACKET FOR A TRASH RECEPTACLE RACK
Tacko D. Alissandratos, U.S. 19, Live Oak, P.O. Box 606, Tarpon Springs, Fla. 33589
Filed July 12, 1968, Ser. No. 12,718
Term of patent 14 years
Int. Cl. D25—*99*
U.S. Cl. D28—1



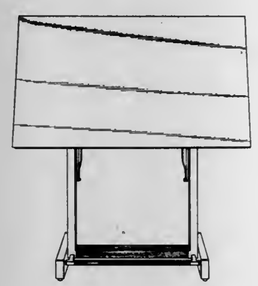
219,457
COMBINED CLOTHES SUPPORT ROD AND MOUNTING BRACKETS THEREFOR
William L. Borgeld, Wyoming, Mich., assignor to The Leslie Metal Arts Co., Inc., Grand Rapids, Mich.
Filed May 6, 1968, Ser. No. 11,789
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—8



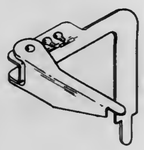
219,458
UNITIZED TABLE AND MULTIPLE CHAIR COMBINATION
Roy W. Anderson, 216 Bartley Bull Parkway, Brampton, Ontario, Canada
Filed Dec. 3, 1968, Ser. No. 14,770
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D33—14



219,459
DRAWING TABLE
Karl Rieker, Kubbach, Lahr, Germany, assignor to Albert Nester GmbH, Lahr, Schwarzwald, Germany, a firm
Filed July 7, 1969, Ser. No. 18,069
Claims priority, application Germany Apr. 23, 1969
Term of patent 14 years
U.S. Cl. D33—14



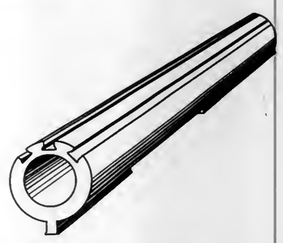
219,460
GUIDE FOR THE CLUB HEAD OF A GOLF PUTTER
Charles A. Schreiber, Lakewood, Ohio, assignor to Beam Enterprises Incorporated, Lakewood, Ohio, a corporation of Ohio
Filed Aug. 6, 1969, Ser. No. 18,560
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—5



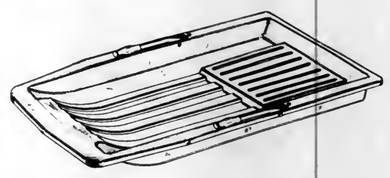
219,461
GOLF BAG STAND
Howard A. Benzel, 28 Lombardy St., Lancaster, N.Y. 14086
Filed Mar. 10, 1969, Ser. No. 16,150
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



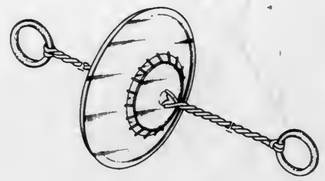
219,462
BUILDING TUBE TOY
Simmons Correia, Jr., 16 Wells St., Lawrence, Mass. 01841
Filed June 19, 1969, Ser. No. 17,770
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



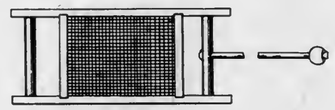
219,463
SNOW VEHICLE
Joseph Diemond, Simsbury, and Leonard E. Greenberg, West Hartford, Conn., assignors to Coleco Industries, Inc., Hartford, Conn., a corporation of Connecticut
Filed Jan. 2, 1970, Ser. No. 20,748
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—15



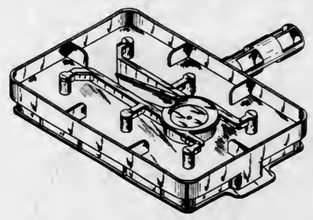
219,464
ILLUMINABLE SPINNING TOY
Woodrow W. Pearce, 1200 Riverside Drive, Burbank, Calif. 91506
Filed Dec. 8, 1969, Ser. No. 20,400
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



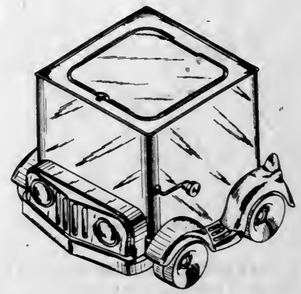
219,465
SAND TOY
Robert G. Fitzgerald, Syracuse, N.Y. (178 Phillips Road, Sagamore Beach, Mass. 02652)
Filed June 17, 1969, Ser. No. 17,744
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



219,466
TRAY FOR TOY TOPS OR THE LIKE
Anthony D. Miller, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Jan. 20, 1970, Ser. No. 20,996
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



219,467
COMBINED WHEELED TOY AND JACK-IN-THE-BOX
Robert J. Heiner, Playa del Rey, John W. Gardner, Hermosa Beach, and William Hart, Torrance, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Jan. 20, 1970, Ser. No. 20,997
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



219,468
DUCK FIGURE FOR PLAYGROUND APPARATUS
Peter N. G. Murdoch and David Lance Wyman, both of New York, N.Y.
Filed Mar. 14, 1968, Ser. No. 11,980
Term of patent 14 years
U.S. Cl. D34—2



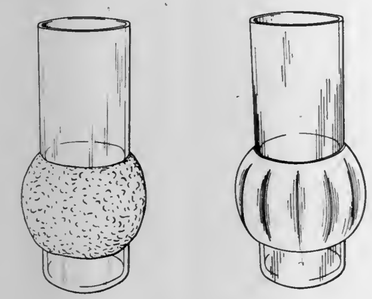
219,469
TOY ANIMAL FIGURE
John Steffens, Ardsley, N.Y., assignor to J. L. Prescott Company, Passaic, N.J., a corporation of New Jersey
Filed July 22, 1969, Ser. No. 18,296
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



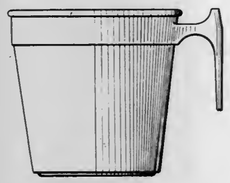
219,470
TOY TOP
Anthony D. Miller, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Feb. 19, 1970, Ser. No. 21,516
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



219,471
DRINKING GLASS OR THE LIKE
Johannes Klober, Schwelm, Westphalia, Germany, assignor to Firma Hans Klober, Schwelm, Westphalia, Germany, a corporation of Germany
Filed Apr. 16, 1969, Ser. No. 16,765
Claims priority, application Germany Nov. 25, 1968
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D36—8



219,472
DRINKING CUP
Herbert M. Piker, Wyoming, Ohio, assignor, by mesne assignments, to Sea-Fair Corporation, Jacksonville, Fla., a corporation of Ohio
Filed June 19, 1969, Ser. No. 17,782
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9



219,473
COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR
Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 50070
Continuation-in-part of design application Ser. No. 11,929, May 14, 1968. This application Sept. 4, 1969, Ser. No. 19,027
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9



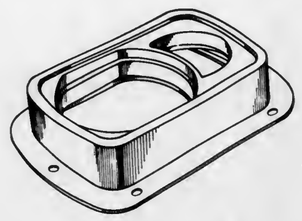
219,474
COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR
Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 50070
Continuation-in-part of design application Ser. No. 11,917, May 14, 1968. This application Sept. 5, 1969, Ser. No. 19,030
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9



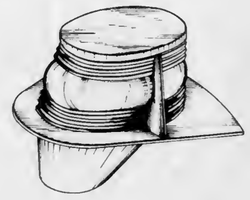
219,475
COMBINED COLLAPSIBLE DRINKING CUP AND COVER THEREFOR
Wilbert J. Gahm, 185 Elmwynd Drive, Orange, N.J. 50070
Continuation-in-part of design application Ser. No. 11,940, May 14, 1968. This application Sept. 5, 1969, Ser. No. 19,034
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—9



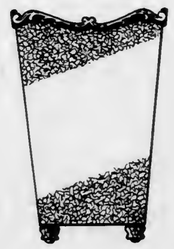
219,476
VEHICLE LAMP FRAME
Harris Vernon Hicks, Lichfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a company of Great Britain
Filed July 10, 1969, Ser. No. 18,161
Claims priority, application Great Britain Feb. 18, 1969
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D48—32



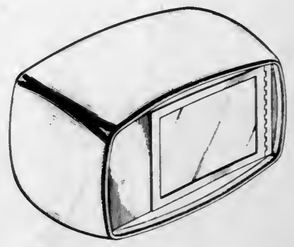
219,477
COMBINED RUNNING AND ANCHOR LIGHT
Donald E. Stewart, Grand Rapids, Mich., assignor to Atwood Corporation, Lowell, Mass., a corporation of Michigan
Filed Oct. 3, 1969, Ser. No. 19,402
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D48—32



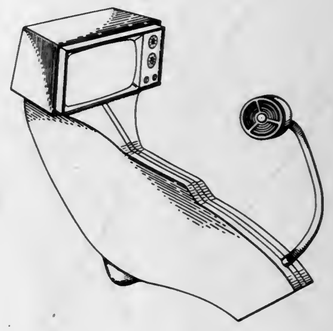
219,478
WASTE RECEPTACLE
Ralph LaRue DuBois, 4242 E. 111th St., Tulsa, Okla. 35741
Filed Sept. 26, 1969, Ser. No. 19,303
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D49—30



219,479
NEWSPAPER DISPENSING CONTAINER
Daniel A. Perkins, 1433 W. 11th, Santa Ana, Calif. 92703
Filed Apr. 1, 1969, Ser. No. 16,538
Term of patent 14 years
Int. Cl. D20—*01*
U.S. Cl. D52—3



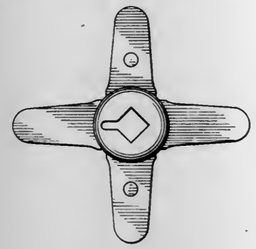
219,480
COMBINED TELEVISION RECEIVER AND SUPPORT STAND THEREFOR
Reid S. Larsen, 4436 Illinois Ave., Fair Oaks, Calif. 95628, and Charles Allen Elggren, 1211 Walker Bank Bldg., Salt Lake City, Utah 84111
Filed Apr. 15, 1969, Ser. No. 16,750
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4



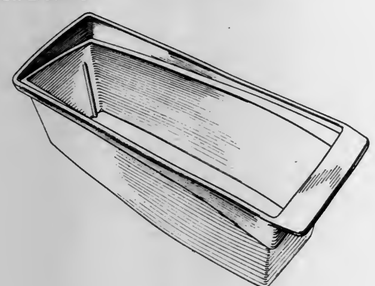
219,481
PORTABLE RADIO RECORD PLAYER
Norberto Felli, Rome, Italy, assignor to Homar E.M.S.R.L., Rome, Italy
Filed Jan. 12, 1970, Ser. No. 20,889
Claims priority, application Italy July 10, 1969
Term of patent 3½ years
Int. Cl. D14—*03*
U.S. Cl. D56—4



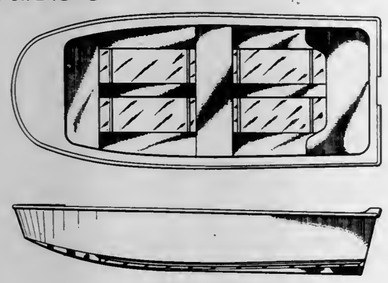
219,482
FILM REEL HUB INSERT BUSHING
Norman P. Goldberg, Charles H. Cohen, Eugene D. Goalstone, and Seymour Goldberg, Denver, Colo., assignors to Goldberg Brothers, Inc., Denver, Colo., a corporation of Colorado
Filed Apr. 11, 1969, Ser. No. 16,689
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D61—1



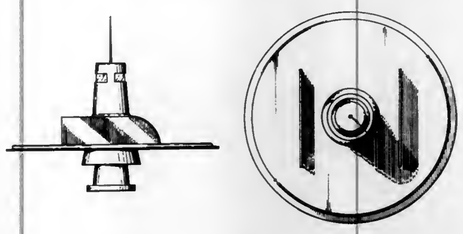
219,483
ICE CUBE BIN
Donald Wayne Doman, Janesville, and Lawrence Kenneth Sauey, Baraboo, Wis., assignors to Flambeau Plastics Corporation, a corporation of Wisconsin
Filed June 27, 1969, Ser. No. 17,932
Term of patent 14 years
Int. Cl. D15—*11*
U.S. Cl. D67—3



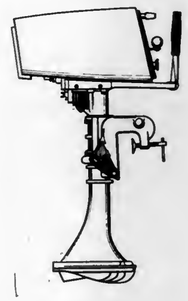
219,484
BOAT WITH TRANSPARENCIES IN A PORTION OF THE BOTTOM THEREOF
Homer L. Lott, 7131 SW. 5 Terrace 33144, and Edgar R. Lewis, Jr., 3193 NW. 20th St. 33147, both of Miami, Fla.
Filed Apr. 25, 1969, Ser. No. 16,897
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



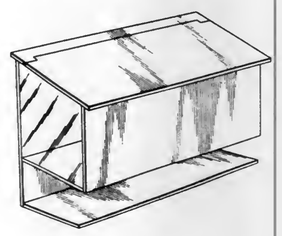
219,485
WATERBORNE VEHICLE
George O. Kulbe, 2720 Heatter Ave., Spring Lake, N.C. 28390
Filed Aug. 8, 1969, Ser. No. 18,589
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



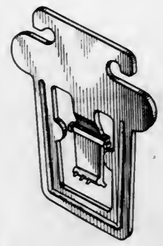
219,486
OUTBOARD MOTOR
Vern O. Lovegreen, St. Paul, Minn., assignor to Sports Jet, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed June 9, 1969, Ser. No. 17,570
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D71—1



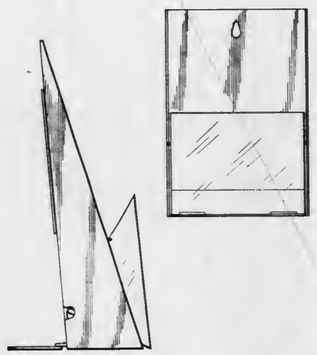
219,487
MAILBOX
Charles E. Blumberg, 1933 Red Oak Drive, Adelphi, Md. 20783
Original design application Feb. 12, 1969, Ser. No. 15,574. Divided and this application Aug. 6, 1969, Ser. No. 18,561
Term of patent 14 years
Int. Cl. D31
U.S. Cl. D74—9



219,488
GARMENT HANGER
Robert O. Schayer, Skokie, Ill., assignor to Wells Lamont Corporation, Chicago, Ill., a corporation of Delaware
Filed Sept. 9, 1969, Ser. No. 19,078
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D80—8



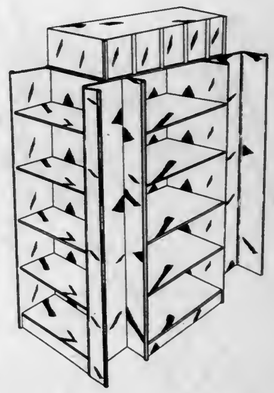
219,489
DISPLAY STAND FOR BROCHURES OR THE LIKE
Harry S. Gilman, Marblehead, Mass., assignor to Crown Plastics Corporation, Boston, Mass., a corporation of Massachusetts
Filed Apr. 23, 1969, Ser. No. 16,868
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



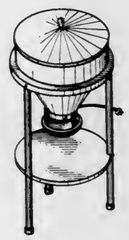
219,490
ROUND PRODUCE TABLE
John A. Plessinger, 1725 Wesleyan Road, Dayton, Ohio 45406
Filed Sept. 8, 1969, Ser. No. 19,054
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



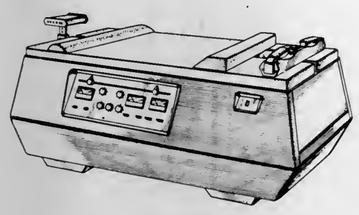
219,491
MERCHANDISE DISPLAY STAND
William S. Leath, Birmingham, Ala., assignor to Ebsco Industries, Inc., a corporation of Delaware
Filed May 21, 1969, Ser. No. 17,264
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



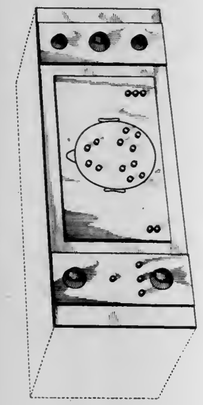
219,492
COMBINATION ELECTRIC COOKER AND SUPPORT STAND THEREFOR FOR BROILING AND BARBECUING FOOD
Cecil L. McClaren, 257 S. Minneapolis, Wichita, Kans. 67211
Original design application May 27, 1968, Ser. No. 12,101, now Patent No. 215,250. Divided and this application Sept. 15, 1969, Ser. No. 19,787
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



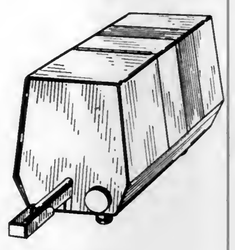
219,493
THERAPY TABLE
Gerald J. Hennessee, Fountain Valley, Calif., assignor to Universal Medical Research, Inc., a corporation of California
Filed May 9, 1969, Ser. No. 17,103
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1



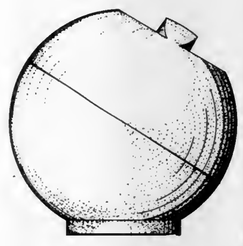
219,494
MEDICAL INSTRUMENT PANEL
Harvey F. Glassner, Los Angeles, Lee R. Baessler, Manhattan Beach, and Lech Pisarski, Los Angeles, Calif., assignors to Humetrics Corporation, Los Angeles, Calif., a corporation of Delaware
Filed Oct. 14, 1969, Ser. No. 19,560
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1



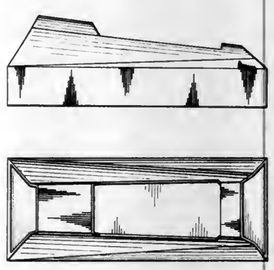
219,495
CIGARETTE-MAKING MACHINE
Robert D. Bessler, Prairie Village, Kans., assignor to J and O Company, Kansas City, Mo., a partnership of Ray T. Jenkins and Jason Ott
Filed Aug. 28, 1969, Ser. No. 18,901
Term of patent 14 years
Int. Cl. D27—*99*
U.S. Cl. D85—7



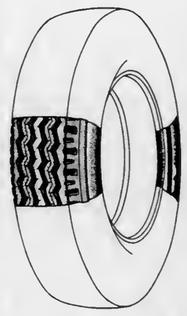
219,496
LIPSTICK HOLDER
Leon V. Lebedeff, 1620 11th Ave. W., Seattle, Wash. 98119
Filed Mar. 24, 1969, Ser. No. 16,407
Term of patent 14 years
Int. Cl. D28—*02*
U.S. Cl. D86—10



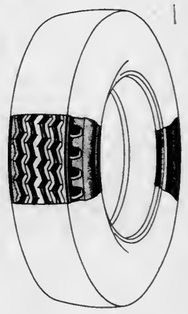
219,497
HOLDER FOR A SHOESHINE KIT
William Ernest Kendall Waiting, 3 Market Place, Brackley, Northampton, England
Filed Jan. 27, 1969, Ser. No. 15,526
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—11



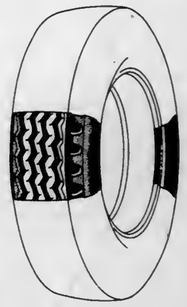
219,498
TIRE
Eric C. Bartlett, Erdington, Birmingham, England, assignor to Dunlop Tire & Rubber Corporation, Buffalo, N.Y., a corporation
Filed Aug. 11, 1969, Ser. No. 18,614
Claims priority, application Great Britain Feb. 20, 1969
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



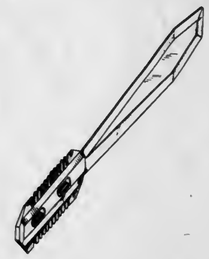
219,499
TIRE
Eric C. Bartlett, Erdington, Birmingham, England, assignor to The Dunlop Company Limited, Birmingham, England, a corporation of Great Britain
Filed Aug. 11, 1969, Ser. No. 18,615
Claims priority, application Great Britain Feb. 20, 1969
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



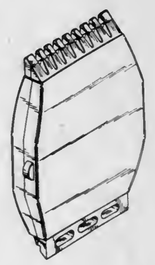
219,500
TIRE
Eric C. Bartlett, Erdington, Birmingham, England, assignor to The Dunlop Company Limited, Birmingham, England, a corporation of Great Britain
Filed Aug. 11, 1969, Ser. No. 18,625
Claims priority, application Great Britain Feb. 26, 1969
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



219,501
HAIR TRIMMER
John Trevor, The Park, Nottingham, England, assignor to Delcannon Investments Limited, Nottingham, England
Filed Aug. 15, 1969, Ser. No. 18,712
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



219,502
HAIR TRIMMER OR THE LIKE
Nathan K. Morris, 41 Neptune Ave., Neptune, N.J. 07753
Filed Feb. 19, 1970, Ser. No. 21,506
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aaron, Joseph: *See—*
Hardie, Waldo R., and Aaron, Joseph,3,547,951.

A.B. Akerlund & Rausing: *See—*
Anderson, Sven Ingemar, 3,547,722.
Bjorklund, Bengt Goran, 3,547,328.

Abbott Laboratories: *See—*
Beall, Glenn Lee, and Ellmann, Norbert William, 3,547,401.

ACF Industries, Incorporated: *See—*
Needham, Robert F., 3,547,047.

Achelpohl, Fritz: *See—*
Gennerich, Max, Paul, Walter, Niemeyer, Willy, and Achelpohl, Fritz,3,547,010.

Ackerman, Joseph F.: *See—*
Weisfeld, Joseph, Tringali, Alfred M., Ackerman, Joseph F., and Bernardo, Joseph J.,3,548,026.

Acme Products Incorporated: *See—*
Stanfield, Howard E., 3,547,553.

Acoustic Research, Inc.: *See—*
Grodinsky, Robert, 3,548,331.

Acton, Daniel D., Ochs, Charles S., and Mumford, Orris E., to Anchor Hocking Corporation. Registration system for paper lining machine. 3,546,768, Cl. 29-407.

Acuff, Robert D.: *See—*
Hollis, Oscar LeRoy, and Acuff, Robert D.,3,547,684.

Adams, Frederick J., to Cam Gears, Ltd., mesne. Variable ratio steering gear. 3,546,957, Cl. 74-497.

Adams, Thomas M. Special sport shoe for people with high insteps. 3,546,796, Cl. 36-2.5

Adler, Michael S., to Massachusetts Institute of Technology. Transistorized nuclear magnetic resonance gaussmeter. 3,548,298, Cl. 324-0.5

Adsmond, Roy T., and Byrnes, Herbert P., to International Business Machines Corporation. Apparatus for sorting miniature components. 3,547,262, Cl. 209-73.

Adtech Incorporated: *See—*
Roelofs, Thomas H., and Weldon, Edward J., Jr., 3,546,793.

Aerospace Products Research Corporation: *See—*
Pahlavan, Marcel A., 3,548,254.

Aerovox Corporation: *See—*
Rodriguez, Antonio R., and Cronin, John, 3,546,776.

Agazarian, Levon B. Process for treating gum arabic. 3,547,695, Cl. 134-34.

Agfa-Gevaert Aktiengesellschaft: *See—*
Baron, Rudolf, and Thate, Kurt, 3,547,022.
Phleps, Konrad, and Schnall, Gunther, 3,547,536.
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter, 3,548,102.

Agonic Engineering, Inc.: *See—*
Jones, Richard F., 3,547,146.

Agterbosch, Johannes: *See—*
Van Gurp, Wilhelmus Adrianus, Agterbosch, Johannes, and Minczeles, Roger,3,548,086.

Aguilar, Henry, Camezon, Raymond E., and McClelland, Etheridge R., to Filper Corporation. Feeder. 3,547,249, Cl. 198-30.

Ahern, Edward J., to Felton, S. A., & Son Company, Incorporated. Rotary brush assemblies. 3,546,731, Cl. 15-183.

Aijala, Sulo A., to Intricate Machine & Engineering Inc. Saw tooth cutting machine. 3,546,975, Cl. 76-29.

Air Reduction Company, Incorporated: *See—*
Gray, Bronis G., 3,547,624.
Hay, Wayne W., 3,548,122.
Kolman, Lester P., May, Harold L., and Berry, Richard C., 3,547,118.
Mottern, Henry O., and Sims, Victor A., 3,547,983.
Platz, Gerald M., 3,547,826.

Aircraft Radio Corporation: *See—*
Houghton, Thomas F., 3,548,294.

Akiyama, Hideo, and Artaud, Maurice H., to National Cash Register Company, The. Micro-image viewer-printer apparatus. 3,547,534, Cl. 355-5.

Aktiebolaget Ankarsrums Bruk: *See—*
Christiansson, Olof Fingal, 3,548,154.

Aktiebolaget Electrolux: *See—*
Ellstrom, Johan Ragnar, 3,548,159.

Akustische u. Kino-Gerate Gesellschaft m.b.H.: *See—*
Gorike, Rudolf, and Wolf, Konrad, 3,548,121.

Alarm Device Manufacturing Company: *See—*
Guthart, Leo A., 3,548,401.

Albrecht, Cord, and Lamatsch, Hans, to Siemens Aktiengesellschaft. Band-shaped conductor of superconductors embedded in a normal conductor. 3,548,078, Cl. 174-128.

Albrecht, Harry Allen, and Plati, John Thomas, to Hoffmann-La Roche Inc. 3-Chloro-2-methoxy-2-alkenenitriles. 3,547,973, Cl. 260-465.6

Albright & Wilson Limited: *See—*
Smith, Raymond Anthony, and Dixon, John Thomas, 3,547,613.

Albright, Charles F.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,547,801.

Albrinck, Donald Joseph, and Keeling, Ronald James, to Formica Corporation. Fully flexible heat and pressure consolidated decorative laminate comprising a nitrile rubber latex impregnated base, an acrylic emulsion impregnated decorative paper, and a transparent thermoplastic surface film. 3,547,769, Cl. 161-248.

Alduk, Frank P. End case packer. 3,546,838, Cl. 53-77.

Alexander, Claude L., Gray, Lysle B., and Long, John I., to Brunswick Corporation. Fluid control system. 3,547,141, Cl. 137-263.

Alexander, David Ord, 15% to Wiczer, Sol B. Underwater speaking device. 3,548,371, Cl. 340-12.

Alexander, Ezra Mc Laurin: *See—*
Searight, Charles Edwin, Ryan, John Robert, and Alexander, Ezra Mc Laurin,3,547,517.

Alexeenko, Alexandr Mikhailovich, Samorodov, Jury Dmitrievich, and Tager, Alexandr Semenovich. Backward-wave tube with periodic electrostatic focusing. 3,548,247, Cl. 315-3.6

Allegheny Ludlum Steel Corporation: *See—*
Beck, Herbert P., 3,546,818.

Allen, Carling D., to Unidine International Corporation. Suspended seating construction. 3,547,484, Cl. 297-141.

Allen, Kenneth C., and Boshinski, Edwin E., to Hobart Manufacturing Company, The. Weighing scales. 3,548,163, Cl. 235-92.

Allied Chemical Corporation: *See—*
Anello, Louis Gene, Sweeney, Richard Francis, and Litt, Morton Herbert, 3,547,861.
Beckham, Leland J., 3,547,615.
Peterson, Arthur F., and Walter, Charles R., Jr., 3,547,614.

Allied Plastics Company: *See—*
Crane, Walton B., 3,547,321.

Allis-Chalmers Manufacturing Company: *See—*
Curtis, Donald R., 3,547,776.
De Noyer, Donald B., 3,547,777.
Fergason, Rector C., 3,546,862.
Messmer, Raymond J., 3,548,272.

Allison, Kenneth C., to Kollsman Instrument Corporation. Rotary electric switch. 3,548,123, Cl. 200-11.

Alon, Yosef, to Yissum Research Development Company. Timing circuit for rotating prism Q-switched lasers. 3,548,253, Cl. 315-159.

Alpha Industries, Inc.: *See—*
Berry, William O., 3,548,341.

Althuber, Horst, to U.S. Philips Corporation, mesne. Shiped permanent magnet erasing device for magnetizable record carriers. 3,548,113, Cl. 179-100.2

Altmann, Werner E., to Daimler-Benz Aktiengesellschaft. Self-locking differential gear for vehicles, especially for motor vehicles. 3,546,968, Cl. 74-710.5

Alton, Thomas W., to Pak-Well Corporation. Envelope assembly and envelope structure therefor. 3,547,343, Cl. 229-69.

Aluminum Company of America: *See—*
Cochran, Charles Norman, and Ray, Richard C., 3,547,180.

Amberg, Stephen W., Burke, Douglas J., and Nicholas, Nicholas J., to Owens-Illinois, Inc., mesne. Two-piece plastic container and method of making same. 3,547,012, Cl. 93-36.5

Ambrose, John J., to Westinghouse Electric Corporation. Tandem vending machine. 3,547,312, Cl. 221-67.

American Chain & Cable Company, Inc.: *See—*
Davidson, Bruce G., and Kort, Werner W., 3,547,043.

American Cyanamid Company: *See—*
Bright, John Harvey, and Cannelongo, Joseph Frederick, 3,547,842.
Bullock, Milon Walker, 3,547,996.
Diehl, Robert Eugene, and Walworth, Bryant Leonidas, 3,547,935.
Hauser, Martin, and Kuhn, Christine Elizabeth, 3,547,989.
Milionis, Jerry Peter, and Arthen, Frank Joseph, Jr., 3,548,005.
Savides, Christos, 3,547,876.
Savides, Christos, 3,547,877.
Savides, Christos, 3,547,878.

American Desk Manufacturing Company: *See—*
Barnes, Raymond C., 3,547,488.

American Electronic Laboratories, Inc.: *See—*
Bornmann, William J., 3,547,106.

American Fire Pump Company: *See—*
Tungate, William H., 3,547,241.

American Home Products Corporation: *See—*
Bell, Stanley C., 3,547,993.
LeFebvre, Yvon, 3,547,912.

American Hospital Supply Corporation: *See—*
Armentrout, James L., 3,547,257.

American Machine & Foundry Company: *See—*
Ossenkop, Robert J., 3,547,434.

American Screen Process Equipment Company: *See—*
Kinney, Layton C., and Tompkins, Edwin H., 3,547,629.

American Standard Inc.: *See—*
Shaines, Alfred, Kalish, Robert L., and Hamer, Edward A. G., 3,547,272.

American Sterilizer Company: *See—*
Lovercheck, Charles L., 3,547,577.

American Tobacco Company, The: *See—*
Harlow, Edward S., and Flint, John Roderick, 3,547,130.

Ames Textile Corporation: *See—*
Theodores, Peter, 3,547,575.

Amidon, Alan B., Mammino, Joseph, and Radler, Richard W., to Xerox Corporation. Lithographic printing master and method employing a crystalline photoconductive imaging layer. 3,547,627, Cl. 96-1.

AMP Incorporated: *See—*
Bruetsch, Harold L., 3,548,367.
Garver, William Joseph, 3,548,369.
Teagno, Wladimiro, and Iskra, Nerino, 3,548,368.

Ampex Corporation: *See—*
Heaslett, Alastair Michael, 3,548,291.
Poulett, Anthony, 3,548,095.

Anaconda Wire and Cable Company: *See—*
Watson, William Keith Ross, and Hunter, John F., 3,548,106.

Anchor Hocking Corporation: *See—*
Acton, Daniel D., Ochs, Charles S., and Mumford, Orris E., 3,546,768.

Anciens Etablissements Jalla: *See—*
Bussac, Jean, 3,547,750.

Andersen, Gerald P. Batting practice device. 3,547,437, Cl. 273-26.

Anderson, Brian, to Ilford Limited. Colour photography utilizing colour couplers which yield quinone imine of azamethine dye images. 3,547,944, Cl. 260-310.

Anderson, Cleo D., to Bell Telephone Laboratories, Incorporated. Overload monitor for transmission systems. 3,548,105, Cl. 179-15.

Anderson, Donald C., to Hexcel Corporation. Method of heat curing and pressing blocks of honeycomb. 3,547,727, Cl. 156-291.

Anderson, John E., and Jackson, John E., to Union Carbide Corporation. Method and apparatus for producing continuous wave laser energy. 3,548,336, Cl. 331-94.5

Anderson, Joseph A.: *See—*
Anderson, Robert R., Anderson, Joseph A., and Neukom, Chester, 3,547,358.

Anderson, Norman G., to United States of America, Atomic Energy Commission. Analytical photometer with means for measuring, holding and transferring discrete liquid volumes and method of use thereof. 3,547,547, Cl. 356-197.

Anderson, Robert K., to Medtronic, Inc. Cardiac pacemaker with regulated power supply. 3,547,127, Cl. 128-421.

Anderson, Robert R., Anderson, Joseph A., and Neukom, Chester, to J&J Manufacturing, Incorporated. Hay and grain combination mill. 3,547,358, Cl. 241-44.

Anderson, Sven Ingemar, to A.B. Akerlund & Rausing. Containers and methods for their manufacture. 3,547,722, Cl. 156-196.

Andreas Stihl Machinenfabrik: *See—*
Ratz, Adolf, 3,547,167.

Andress, Harry J., Jr., to Mobil Oil Corporition. Amides of ethylene diamine tetra acetic acid. 3,547,867, Cl. 260-97.5

Andress, Harry J., Jr., and Gee, Paul Y. C., to Mobil Oil Corporation. Straight-chain alkylated alpha and beta naphthols. 3,548,011, Cl. 260-624.

Andrew Chalmers & Mitchell Limited: *See—*
Boyd, Douglas, and Brown, George James, 3,548,400.

Andrews, Richard L., Smith, Gerald R., Kenahan, Charles B., and Schlain, David, to United States of America, Interior. Electrode position of thick coatings of palladium. 3,547,789, Cl. 204-39.

Anello, Louis Gene, Sweeney, Richard Francis, and Litt, Morton Herbert, to Allied Chemical Corporation. Novel fluorinated acrylates and polyacrylates. 3,547,861, Cl. 260-89.5

Angelov, Stefan Hristov, Hristova, Snejanka Vladimirova, and Srebev, Srebryu Yovtchev, to Zentralen Institut Po Istchislitelna Technika. Decimal-point indicating system for electronic calculator. 3,548,180, Cl. 235-159.

Angliker, Hansjoerg, to Ciba Limited. Linear polyester fiber dyed with water-insoluble azo dyestuffs. 3,547,571, Cl. 8-41.

Angstrom, Inc.: *See—*
Varnela, Veijo V., 3,547,541.

Anis, Peter, to Zuse KG. Electrical control arrangement for controlling the movement of a machine part. 3,548,281, Cl. 318-569.

Anker-Werke Aktiengesellschaft: *See—*
Rethmeier, Gerhard, 3,546,798.

Anthes, Jacob, to Le Belle, Industries, Inc. Cartridge for audio-visual projector and projector arrangement using that cartridge. 3,547,529, Cl. 352-31.

Anthony, Russell W., and Mc Nabb, Warren C., to Lear Siegler, Inc. Gear shaving cutter. 3,546,760, Cl. 29-103.

Antrim, Doron S., to Hoke Incorporated. Digital turn indicator. 3,547,071, Cl. 116-115.

Anza Pacific Corporation: *See—*
Keyston, David H., 3,547,395.

Aotsuka, Noriyoshi: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru, 3,547,804.

Applied Power Industries, Inc.: *See—*
Pereue, Joseph H., Lowry, Wendell W., and Wertheimer, Milton A., 3,546,782.

Arad, Yael, Levy, Moshe, Vofsi, David, and Rosen, Haim, to UCB (Union Chimique-Chemische Bedrijven) S.A. Process for the hydrodimerization of acrylic acid derivatives. 3,547,975, Cl. 260-465.4

Arakawa, Kiichi, to Nippon Steel Corporation. Method for manufacture of high purity iron oxide powder. 3,547,582, Cl. 23-200.

Archer, John R., to General Electric Company. Wide angle deflection yoke for producing optimally non-uniform deflection fields. 3,548,350, Cl. 335-210.

Archer, Sydney, to Sterling Drug Inc. 1-[(3-Indolyl)-lower-alkyl]-4-substituted- piperazines. 3,547,922, Cl. 260-268.

Arlt, Dieter, Glabisch, Dietrich, and Suling, Carlhans, to Farbenfabriken Bayer Aktiengesellschaft. Polymers containing sulphonic acid groups. 3,547,899, Cl. 260-79.3

Armentrout, James L., to American Hospital Supply Corporation. Package for sterile article. 3,547,257, Cl. 206-63.2

Armour Industrial Chemical Company: *See—*
Marsh, Frederick S., Kinney, Layton F., and Betty, Roy J., Jr., 3,547,848.

Arnold, Alan, Childs, John Baird, and Ffitch, Kenneth William, to British Insulated Callender's Cables Limited. Apparatus for detecting faults in the insulation covering of insulated electric conductors including means for causing a fluctuating current to flow through a bare portion of the insulation. 3,548,302, Cl. 324-54.

Arnold, Billy Bob: *See—*
Frost, Jackie Gene, and Arnold, Billy Bob, 3,547,697.

Aro Corporation, The: *See—*
Davey, Theodore H., 3,548,156.

Artaud, Maurice H.: *See—*
Akiyama, Hideo, and Artaud, Maurice H., 3,547,534.

Arthen, Frank Joseph, Jr.: *See—*
Milionis, Jerry Peter, and Arthen, Frank Joseph, Jr., 3,548,005.

Artiaga, Mariano V., Storrie, Arthur, and Wolf, Andrew, to Kitchens of Sara Lee, Inc. Sanitary closed system method and apparatus for preparing and depositing viscous fluids such as whipped cream and the like. 3,547,052, Cl. 107-54.

Arvin Industries, Inc.: *See—*
Barnett, Don C., 3,547,372.

Asada, Yoshiharu: *See—*
Yamada, Seibi, and Asada, Yoshiharu, 3,547,890.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, and Tanimura, Noboru, 3,547,883.

Aser, Gilbert A.: *See—*
Stokes, David R., and Aser, Gilbert A., 3,547,533.

Ashby, Alfred T., and Cotton, Curran D., to Maytag Company, The. Electrode for dryers. 3,546,785, Cl. 34-45.

Ashdown, Ronald A., to Hooker Chemical Corporation. Process for coating ferrous surfaces. 3,547,711, Cl. 148-6.15

Ashikaga, Tadao, Kurashige, Hirotoshi, and Endoh, Takeo, to Kurashiki Rayon Co., Ltd. Polyvinyl formal porous products obtained from aqueous solutions of zinc chloride or acetic acid. 3,547,837, Cl. 260-2.5

Asplund, Arne Johan Arthur. Method and apparatus for refining fibrous material for the production of pulp. 3,547,356, Cl. 241-28.

Associated Electrical Industries Limited: *See—*
Warman, Bloomfield James, Taylor, James George, and Richardson, Keith, 3,548,406.

Assony, Edward M., to Western Gear Corporation. Folder beater brush for collator for zig-zag folder. 3,547,430, Cl. 270-79.

Astheimer, Robert W., to Barnes Engineering Company. Sensor for detecting the attitude of an aerial vehicle with respect to the local vertical. 3,548,194, Cl. 250-83.3

Atlas Chemical Industries, Inc.: *See—*
Knightly, William H., and Lensack, Gabriel P., 3,547,655.

Atlas Copco Aktiebolag: *See—*
Lavon, Erik Volmar, 3,547,561.

Attebery, Jerry M.: *See—*
Dienst, Carl S., and Attebery, Jerry M., 3,547,900.

Attwood, John G.: *See—*
Matias, James J., and Attwood, John G., 3,547,738.

Auchapt, Pierre, and Brun, Andre, to Commissariat a l'Energie Atomique. Constant debit gauging wheel. 3,546,934, Cl. 73-194.

Austin, Harold J. Concrete finishing apparatus. 3,547,014, Cl. 94-45.

Autoclave Engineers, Inc.: *See—*
Smith, Charles W., Jr., 3,548,062.

Automatic Merchandising Machine Mfg. Corporation: *See—*
Pitel, Irving, Cornine, Floyd C., Silverman, Richard S., and Cohen, Arnold B., 3,547,313.

Automatic Sprinkler Corporation: *See—*
Blackburn, George T., and Draxler, Helmut J., 3,547,404.

Avco Corporation: *See—*
Beebe, James R., Luthman, Paul A., and Fischer, Thomas R., 3,547,283.
Brackman, Donald A., and Roland, Robert D., 3,547,035.
O'Connor, William M., 3,547,042.
Schwaar, Pierre G., 3,546,880.

Awcock, Mervyn Leslie: *See—*
Owen, Richard Bruce, Salmon, Percy George, and Awcock, Mervyn Leslie, 3,548,213.

Ayotte, Ronald D., Fortin, Conrad M., and Waldo, Craig T., to Sylvania Electric Products, Inc. High pressure electric discharge device and cathode. 3,548,242, Cl. 313-184.

B & L Developers, Inc.: *See—*
Lonergan, Bacyl E., 3,546,829.

Babcock & Wilcox Company, The: *See—*
Sprague, Theodore S., 3,547,084.

Bachman, John D. Pneumatic sensor device. 3,547,159, Cl. 137-625.62

Back, Gayle E., and Dahle, Norman A., to Gulf Research & Development Company. Nitrophenylacetic acids and derivatives as selective herbicides. 3,547,619, Cl. 71-111.

Bacon, Robert E., to Eastman Kodak Company. Photographic systems comprising silver halide particles with occluded metal ions therein, a halogen acceptor, and an organic aldehyde. 3,547,647, Cl. 96-94.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Brueggemann, Horst, Dachs, Karl, Schwartz, Erich, and Wilhelm, Hans, 3,547,836.
Fischer, Adolf, and Mueller, Hans Richard, 3,547,616.
Hamprecht, Guenther, 3,547,919.
Klages, Karl-Heinz, and Weisbrod, Georg Friedrich, 3,547,412.
Pohlemann, Heinz, Christoph, Helmut, and Stassen, Alexander, 3,548,036.
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut, 3,547,866.

Badische Maschinenfabrik G.m.b.H.: *See—*
Zapfel, Horst, 3,546,904.

Baer, Stephen C., to Research Corporation. Optical apparatus providing focal-plane-specific illumination. 3,547,512, Cl. 350-6.

Bagguley, Richard B.: *See—*
Mascia, Carmen T., and Bagguley, Richard B., 3,547,303.

Baglino, John P., and Rappenglueck, Joseph R., to U.S. Textile Machine Company. Traverse mechanism. 3,547,363, Cl. 242-26.3

Bahen, John J., Jr., Swenck, George F., and Thomas, Jesse B., to Reynolds Metals Company. Electrical connector. 3,548,071, Cl. 174-13.

Bainbridge, Robert H.: *See—*
Carino, John W., and Bainbridge, Robert H., 3,548,264.

Bakke, Ernest P., Benson, Allen Bryce, and Bymers, Ronald J., to International Business Machines Corporation. Differential amplifier. 3,548,333, Cl. 330-30.

Balamuth, Lewis, to Ultrasonic Systems, Inc. Method and apparatus for maintaining tooth and gingival structures with ultrasonic energy. 3,547,110, Cl. 128-66.

Balas Collet Company: *See—*
Cox, John R., and Mix, Joseph E., 3,546,781.

Balazs, Joseph B.: *See—*
Koos, Eugenia M., and Balazs, Joseph B., 3,546,791.

Ball Brothers Research Corporation: *See—*
Shaw, Edward E., and Strevey, Glen R., 3,547,381.

Ball, Lawrence J., to Phillips Petroleum Company. Extrudate sizing sleeve. 3,546,745, Cl. 18-14.

Balmes, Mark E., Sr., to General Fire Extinguisher Corporation. Fire extinguisher. 3,547,201, Cl. 169-26.

Balon, Albert J. Pilot light structure. 3,547,570, Cl. 431-350.

Balugani, Fabio, Mammucari, Franco, and Poretti, Isidoro, to Societa Italiana Telecommunicazioni Siemens S.p.A. Time-allocation communication system. 3,548,103, Cl. 179-15.

Banathy, Eugene Denis, and Rosenski, Julius Robert, to International Register Company. Time switch for mounting on a wall mounted outlet box. 3,548,125, Cl. 200-38.

Bangerter, Kenneth R., to Ingersoll-Rand Company. Jaw lock for automatic screwdriver. 3,547,169, Cl. 144-32.

Bangser, William, Jr., to Maimin, H., Co., Inc. Belt-grinder sharpener assembly for cloth cutting machine. 3,547,607, Cl. 51-246.

Banikiotes, Gregory C.: *See—*
Ehrlich, Stanley W., Banikiotes, Gregory C., and Mackles, Mark, 3,547,809.

Bannister, Derek William: *See—*
Rebhahn, Robert Willibald Johann, and Bannister, Derek William, 3,547,774.

Baran, Miroslav, to Saverwein, Dr., K., mesne. Flaw-detector carriage for introducing radioactive source into pipelines. 3,547,040, Cl. 104-138.

Barber, Mark R., and Fisher, Reed E., to Bell Telephone Laboratories, Incorporated. Circuits using two-valley semiconductor devices. 3,548,339, Cl. 331-107.

Barber-Colman Company: *See—*
Schewe, Richard A, and Yone, Harold R., 3,546,870.

Barden Corporation, The: *See—*
Konet, Henry, 3,547,503.

Barenyi, Bela, and Wilfert, Karl, to Daimler-Benz Aktiengesellschaft. Safety steering wheel for motor vehicles. 3,546,964, Cl. 74-552.

Barkan, Philip, and Greenwood, Allan N., to General Electric Company. High voltage D-C circuit breaker. 3,548,256, Cl. 317-11.

Barker, Harry H., and Radcliffe, Remington S., to Westinghouse Electric Corporation. One piece handle and leg construction and means for fastening thereof to a fry pan or the like. 3,547,307, Cl. 220-69.

Barker, Randolph G., to Component Manufacturing Service, Inc. Lead isolator. 3,548,365, Cl. 339-176.

Barkman, James H., Jr., Jorda, Robert M., and Vogel, John V., to Shell Oil Company. Recovery of oil from bituminous sands. 3,547,803, Cl. 208-11.

Barnes Engineering Company: *See—*
Astheimer, Robert W., 3,548,194.

Barnes, Raymond C., to American Desk Manufacturing Company. Folding tablet chair. 3,547,488, Cl. 297-162.

Barnett, Don C., to Arvin Industries, Inc. Capstan for tape transport. 3,547,372, Cl. 242-192.

Baron, Rudolf, and Thate, Kurt, to Agfa-Gevaert Aktiengesellschaft. Exposure control for photographic apparatus. 3,547,022, Cl. 95-64.

Barr, James M.: *See—*
Hardison, Leslie C., Pegg, Edward H. R., Reedy, Dom E., and Barr, James M., 3,546,851.

Barrera, Joseph: *See—*
Hoch, Monroe P., and Barrera, Joseph, 3,546,720.

Barry, Donald W.: *See—*
Kolb, Robert H., Barry, Donald W., Nordgren, Ronald P., and Broussard, Douglas E., 3,546,888.

Bartlett, Philip Lee, to Du Pont de Nemours, E. I., and Company. Perfluoroalkyl ether amidoamine oxides. 3,547,995, Cl. 260-561.

Barton, Millard V., to TRW Inc. Mechanical oscillator. 3,546,925, Cl. 73-71.

Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M., to Burroughs Corporation. Procedure entry for a data processor employing a stack. 3,548,384, Cl. 340-172.5

Barton, William D.: *See—*
Gould, Bert B., Biehl, Arthur T., Mainhardt, Robert, and Barton, William D., 3,546,997.

Basford, Paul R., and Boyer, Myron H., to Philco-Ford Corporation. Fuel cell having an electrolyte comprising a fused vanadate salt. 3,547,701, Cl. 136-86.

Bashkin, Stanley: *See—*
Meinel, Aden B., Bashkin, Stanley, Loomis, Donald A., and Schroeder, John B., 3,548,189.

Baso, Loris. Plastic tensioning lever of a buckle-type fastening device for ski and mountaineering shoes. 3,546,751, Cl. 24-70.

Basse, Philip, and Murphy, Patrick J., to Sapien Electronics Corporation. High frequency reciprocal counting circuits employing a plurality of bistable circuits sequentially coupled to a succeeding circuit by means of coincidence gates and switches. 3,548,203, Cl. 307-225.

Bassett, Alice Mae. Pet bag with access opening. 3,547,079, Cl. 119-1.

Bassett, Ronald M., to International Register Company. Timer for electronic ovens and the like. 3,548,126, Cl. 200-38.

Bastos, Jose DeAraujo, and Bastos, Jose Roberto Ribeiro. Mattresses. 3,546,724, Cl. 5-351.

Bastos, Jose Roberto Ribeiro: *See—*
Bastos, Jose DeAraujo, and Bastos, Jose Roberto Ribeiro, 3,546,724.

Batra, Jagmohan, to General Mills, Inc. Apparatus for collecting and disintegrating clusters of material. 3,547,172, Cl. 146-222.

Battelle Development Corporation, The: *See—*
Sclar, Charles B., and Freud, Paul J., 3,548,190.

Batterton, Elmo L., and Lonsdale, Melvin J., to Meyer Morton Co. Transport and erection trailer. 3,547,291, Cl. 214-515.

Battista, Joseph, to Litton Medical Products, Inc. Fluoroscopic intensity control wherein the brightness of the image is maintained at a predetermined level. 3,548,208, Cl. 250-103.

Battista, Orlando A., to FMC Corporation. Stable liquid compositions of matter. 3,547,669, Cl. 106-272.

Bauer, Egon H.: *See—*
Maxey, Carl W., Cage, Kenneth M., and Bauer, Egon H., 3,547,170.

Bausch, Edmund, to Binder Magnete KG. Actuating magnet of flat construction. 3,548,353, Cl. 335-276.

Baxter Laboratories, Inc.: *See—*
Hall, John B., and Farb, Richard B., 3,547,119.

Beach, Richmond C., Kane, John R., and Magin, Irving J., to Itek Corporation. Photographic process comprising dye bleaching step. 3,547,636, Cl. 96-48.

Beall, Glenn Lee, and Ellmann, Norbert William, to Abbott Laboratories. Foldable bellows valve. 3,547,401, Cl. 251-144.

Beam, Jon W., to Reynolds, R. J., Tobacco Company. Tobacco smoke filtering means and adaptations. 3,547,132, Cl. 131-10.5

Bean, Frederic Roland, to Eastman Kodak Company. Process for the preparation of dialkali dihyroxybenzene disulfonates. 3,547,988, Cl. 260-512.

Beck, Clayborne E. Automatic lumber scaler. 3,548,168, Cl. 235-92.

Beck, Herbert P., to Allegheny Ludlum Steel Corporation. Reciprocating grinders. 3,546,818, Cl. 51-56.

Beck, Thomas M., to Stauffer Chemical Company. 2-Bis(diesters of phosphonomethyl) amino 1,3- dihydroxy propanes. 3,548,038, Cl. 260-932.

Becker, Arthur C.: *See—*
Wenger, Harvey M., 3,547,359.

Becker, Clarence J.,: *See—*
Wenger, Harvey M., 3,547,359.

Becker, Johann: *See—*
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter, 3,548,102.

Beckett, Clark, and Folsom, Bruce D., to Eastman Kodak Company. Multicolor photogrpahic elements. 3,547,640, Cl. 96-74.

Beckham, Leland J., to Allied Chemical Corporation. Method for producing potassium orthophosphate solutions. 3,547,615, Cl. 71-34.

Beebe, James R., Luthman, Paul A., and Fischer, Thomas R., to Avco Corporation. Double auger silo unloader. 3,547,283, Cl. 214-17.

Beffa, Fabio: *See—*
Lienhard, Paul, and Beffa, Fabio,3,547,901.

Behlen Manufacturing Company, Inc.: *See—*
Romo, Jorge, and Kratky, Joseph C., 3,546,831.

Behn, William R.: *See—*
Young, Harry J., and Behn, William R.,3,548,162.

Behnke, Howard N., to Collins Machinery Corporation. Apparatus for rapidly grooving pipe. 3,546,988, Cl. 82-78.

Beikufner, Georg: *See—*
Metschnabl, Andreas, and Beikufner, Georg,3,547,347.

Belanger, Edward A.: *See—*
Maynard, Wheeler D., and Belanger, Edward A.,3,548,139.

Bell & Howell Company: *See—*
Potucek, Frank R., 3,547,369.

Bell, Stanley C., to American Home Products Corporation. Intermediates for the preparation of 1,3-dihydro-5- aryl-2H-1,4-benzodiazepin-2-one 4-oxides. 3,547,993, Cl. 260-545.

Bell Telephone Laboratories, Incorporated: *See—*
Anderson, Cleo D., 3,548,105.
Barber, Mark R., and Fisher, Reed E., 3,548,339.
Brandes, Raymond G., 3,547,509.
Fisher, Reed E., 3,548,340.
Gerdine, Milton A., 3,548,348.
Geusic, Joseph E., Singh, Shobha, and Smith, Richard G., 3,548,199.
King, Michael C., 3,547,511.
Kolb, Ernest D., 3,547,596.
Kostelnick, Joseph J., 3,548,343.
Poole, Kenneth M., 3,547,530.
Saltzberg, Burton R., and Savage, John E., 3,548,309.
Van Dine, Gilbert A., 3,548,138.

Bel-Tronics Corporation: *See—*
Wright, Thomas J., 3,548,356.

Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther, to Nukem, Nuklear-Chemie und-Metallurgie Gesellschaft mit beschrankter Haftung. Method of arc ignition. 3,548,145, Cl. 219-137.

Bendix Corporation, The: *See—*
Centner, Ronald M., and Idelsohn, Jerome M., 3,548,172.
Kasten, Walter, 3,547,719.

Bendler, Hellmut: *See—*
Gawlick, Heinz, and Bendler, Hellmut,3,547,033.

Benedict, Dale K.: *See—*
Fergle, Donald J., and Benedict, Dale K.,3,547,244.

Benham, Ralph E., to Purex Corporation. Irrigation timing control apparatus. 3,547,154, Cl. 137-624.11

Benjamin, Milton L., to Erickson Tool Company. Self-tightening toolholder. 3,547,454, Cl. 279-47.

Bennett, Stanley A.: *See—*
McLean, Douglas Keith, Bennett, Stanley A., and Bennett, Stanley A., Jr.,3,547,535.
McLean, Douglas Keith, Bennett, Stanley A., and Bennett, Stanley A., Jr.,3,547,535.

Benson, Allen Bryce: *See—*
Bakke, Ernest P., Benson, Allen Bryce, and Bymers, Ronald J.,3,548,333.

Benton Corporation: *See—*
Sherman, Clarence A., 3,547,093.

Bergman, Raymond M.: *See—*
Whitney, Robert C., and Bergman, Raymond M.,3,547,689.

Bergson, Gustan. Contact device. 3,546,929, Cl. 73-78.

Berkey, Donald C., to General Electric Company. Gas turbine engines. 3,546,882, Cl. 60-204.

Berkner, Rolf, to Semikron, Gesellschaft fur Gleichrichterbau und Elektronik m.b.H. Method and composition for stabilizing the reverse voltage properties of semiconductor devices. 3,547,691, Cl. 117-201.

Bernardo, Joseph J.: *See—*
Weisfeld, Joseph, Tringali, Alfred M., Ackerman, Joseph F., and Bernardo, Joseph J.,3,548,026.

Bernhardt, Gunther, Buning, Robert, Bierwirth, Egon, and Trautvetter, Werner, to Dynamit Nobel Aktiengesellschaft. Process for metallizing formed objects made from thermoplastics. 3,547,784, Cl. 204-20.

Berry, Richard C.: *See—*
Kolman, Lester P., May, Harold L., and Berry, Richard C.,3,547,118.

Berry, William O., to Alpha Industries, Inc. High frequency sweep generator using sequentially switched frequency multiplier stages. 3,548,341, Cl. 331-178.

Bertolacini, Ralph J.: *See—*
Gutberlet, Louis C., and Bertolacini, Ralph J.,3,548,020.

Bethlehem Steel Corporation: *See—*
Horvath, Paul J., Jr., 3,547,032.
Larpenteur, Bernard J., and Pasquali, Joseph W., 3,547,623.

Betron, Francis A., to National Cash Register Company, The. Pressurable contact printing mechanism. 3,547,537, Cl. 355-92.

Betty, Roy J., Jr.: *See—*
Marsh, Frederick S., Kinney, Layton F., and Betty, Roy J., Jr.,3,547,848.

Betz Laboratories, Inc.: *See—*
Hansen, Gerald D., Jr., and Guthrie, Elizabeth A., 3,547,817.

Beute, Harvey N. Perforated tape. 3,547,739, Cl. 156-504.

Bhasin, Madan Mohan, and Williamson, Kenneth Dale, to Union Carbide Corporation. Selective production of stilbenes and/or bibenzyls by the coupling of toluenes. 3,548,018, Cl. 260-670.

Bidwell, Alexander W., and Weinberger, Arnold, to International Business Machines Corporation. Associative memory. 3,548,386, Cl. 340-173.

Bieber, Clarence George, and Covert, Roger Allen, to International Nickel Company, Inc., The. Steel containing chromium molybdenum and nickel. 3,547,625, Cl. 75-128.

Biehl, Arthur T.: *See—*
Gould, Bert B., Biehl, Arthur T., Mainhardt, Robert, and Barton, William D.,3,546,997.

Bielstein, Walter J., and Fowler, Ronald L., to Esso Production Research Company. Locating underwater wells. 3,547,189, Cl. 166-0.5

Bielstein, Wilter J., and Fowler, Ronald L., to Esso Production Research Company. Method and apparatus for running a line through a conduit. 3,547,406, Cl. 254-134.4

Bierwirth, Egon: *See—*
Bernhardt, Gunther, Buning, Robert, Bierwirth, Egon, and Trautvetter, Werner,3,547,784.

Billin, Eckhard: *See—*
Knothe, Erick, Billin, Eckhard, and Meclcher, Franz-Josef,3,547,213.

Bilotti, Alberto, to Sprague Electric Company. Direct coupled limiter-discriminator circuit. 3,548,326, Cl. 329-1.

Bily, Peter J., to FMC Corporation. Single counterbalanced marine loading arm. 3,547,153, Cl. 137-615.

Binder Magnete KG: *See—*
Bausch, Edmund, 3,548,353.

Binger, Wynn S., to Construction Materials, Inc. Pavement cutting apparatus. 3,547,492, Cl. 299-39.

Biomedical Engineering Associates, Inc.: *See—*
Birtwell, William C., 3,547,126.

Birbanescu, Adrian, to Comitetul de Stat Pentru Cultura si Arta. Device for indicating the position of the platform of cranes with articulated booms, especially camera cranes. 3,547,072, Cl. 116-124.

Bird, James L., to Neway Equipment Company. Automotive vehicle suspension structure. 3,547,215, Cl. 180-71.

Birtwell, William C., to Biomedical Engineering Associates, Inc. Catheter. 3,547,126, Cl. 128-349.

Bischof, Alan E.: *See—*
Cornelius, Thomas E., III, and Bischof, Alan E.,3,547,605.

Biscoff, William S., to General Electric Company. Quartz-to-metal foil pinch seal. 3,548,245, Cl. 313-331.

Bishop, Kenneth M. Swimming pool skimming gutter. 3,546,719, Cl. 4-172.17

Bizzigotti, Peter S. Carpet tucker. 3,546,726, Cl. 7-14.1

Bjorklund, Bengt Goran, to AB Akerlund & Rausing. Carton intended to contain a roll of a web-shaped material and comprising a tearing device. 3,547,328, Cl. 225-49.

Black, Billy B. Adjustable pallet and method for shipping and storing vehicle tires. 3,547,258, Cl. 206-65.

Black Clawson Company, The: *See—*
Maxey, Carl W., Cage, Kenneth M., and Bauer, Egon H., 3,547,170.

Black, Donald V., Jamtaas, Albert D., Radey, Ross T., and Wall, John K., to United States of America, Army. Rocket means for driving a free punch. 3,547,031, Cl. 102-49.7

Blackburn, George T., and Draxler, Helmut J., to Automatic Sprinkler Corporation. Valve operator with manual override. 3,547,404, Cl. 251-231.

Blackwell, Adolph G., to Southern Avionics Company. Keying apparatus for use with beacon markers or the like. 3,548,407, Cl. 340-353.

Blair, James E.: *See—*
Williams, Robert K., and Blair, James E.,3,547,444.

Blake, Donald E. Method of cutting a rotating pipe. 3,546,986, Cl. 82-47.

Blake, Ralph Kingsley, to Du Pont de Nemours, E. I., and Company. Planographic offset printing masters. 3,547,641, Cl. 96-76.

Blank, Winfield B., Jr., to Sinclair Oil Corporation. Well casing contact tool. 3,548,362, Cl. 339-95.

Blaschke, Felix, and Hutter, Gerhard, to Siemens Aktiengesellschaft. Regulating circuit for the field of an asynchronous machine. 3,548,287, Cl. 322-24.

Blatt, Leland F. Harmonic actuating unit for a power operated work piece gripping and handling mechanism. 3,546,956, Cl. 74-394.

Blease Medical Equipment Limited: *See—*
Manley, Roger E. W., 3,547,116.

Blessin, Louis Dewey: *See—*
Hallman, George John, and Blessin, Louis Dewey,3,547,082.

Blitz, Daniel, and Richmond, Martin R., to Sanders Associates, Inc. Correlator for digital signal processing. 3,548,383, Cl. 340-172.5

Blizard, Robert B., Pederson, Christ W., and Polhemus, John T., to Martin-Marietta Corporation. Integrated parameter display of galvanometer reading. 3,548,378, Cl. 340-151.

Block Engineering, Inc.: *See—*
Hirschfeld, Tomas, 3,547,074.

Blomberg, Knut Hugo. Wallbracket for standing telephones. 3,548,117, Cl. 179-146.

Blomgren, George E., and Jackson, George W., to Union Carbide Corporation. Non-aqueous battery with ethylene glycol sulfite electrolyte solvent. 3,547,703, Cl. 136-154.

Blomqvist, Nils Verner, Croon, Ingemar Liss-Albin, and Sundell, Gustav Harry, to Mo och Domsjo Aktiebolag. Disposable sheet diaper and process for making the same. 3,547,930, Cl. 128-284.

Bloom, Carl, to Worthington Corporation, mesne. Apparatus for measuring and indicating fluid pressure across a fluid restriction. 3,547,149, Cl. 137-560.

Bloom, Carl, to Worthington Corporation. Compact housing for rotary compressor system. 3,547,164, Cl. 141-326.

Blum, Harold G., to Koller Craft Plastic Products, Inc., mesne. Panel assembly. 3,546,842, Cl. 52-475.

Bobowicz, Henryk, Kulma, Stanislaw, Cedler, Lech, and Kobylecki, Piotr. Double-row spherical roller bearing and retainer. 3,547,504, Cl. 308-194.

Bockwoldt, Walter H., to Hughes Aircraft Company. Synchronizer for color television. 3,548,091, Cl. 178-5.4

Bodnar, Steven A.: *See—*
Stefaniak, Rudolph J., and Bodnar, Steven A.,3,546,747.

Boehringer, C. F., & Soehne GmbH: *See—*
Rinser, Georg A., Rieckmann, Peter, and Rothe, Werner, 3,547,122.

Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Pneumatic tires and adaptable rims therefor. 3,547,178, Cl. 152-381.

Bokros, Jack C., to Gulf Energy & Environmental Systems, Inc. Heart valve. 3,546,711, Cl. 3-1.

Bokros, Jack C., Chin, Jack, and Price, Robert J., to United States of America, Atomic Energy Commission. Pyrolytic carbon structures and process for making same. 3,547,676, Cl. 117-46.

Bolding, Hubert V., to Eastex Packaging, Inc. Package for lightbulbs and the like. 3,547,256, Cl. 206-46.

Bolger, Leonard F., to Shell Oil Company. Operating technique for sulfur slurry pipeline. 3,547,497, Cl. 302-66.

Bolkow Gesellschaft mit beschrankter Haftung: *See—*
Emde, Gunter, 3,548,167.
Munding, German, 3,546,883.

Bollig, Georg: *See—*
Hoffmann, Bernd, Bollig, Georg, and Dopper, Otto,3,547,421.

Bolton-Emerson, Inc.: *See—*
Johnson, Charles A., 3,547,357.

Bomoro Bocklenberg & Motte Kom.- Ges.: *See—*
Nockemann, Ernst, 3,547,476.

Bompart, Reuben N. Garbage can stand with lid holders. 3,547,273, Cl. 211-84.

Bonczyk, Paul A.: *See—*
Javan, Ali, Cordover, Ronald H., and Bonczyk, Paul A.,3,547,524.

Bonkowski, Joseph E., to Hercules Incorporated. Polyolefins stabilized with tertiary amine group- containing compounds. 3,547,875, Cl. 260-45.8

Booth, John S. Gravity operated door hinge. 3,546,736, Cl. 16-153.

Booty, Donald J., Jauch, Christian M., Vander Velde, Charles F., and Waage, Jack C., to Spartus Corporation. Pendulum clock. 3,546,874, Cl. 58-129.

Borden, Inc.: *See—*
Nickerson, Richard G., McAllister, Richard George, and Dickstein, Jack, 3,547,690.
Sandler, Stanley R., 3,547,771.

Bordonaro, Michael P., to Combustion Engineering, Inc. Time division frequency multiplier. 3,548,317, Cl. 328-20.

Borelli, Ronald F.: *See—*
Shebanow, Michael S., Borelli, Ronald F., and Nelson, Paul E.,3,547,346.

Borer, Alan John, to Servomex Controls Limited. Temperature responsive bridge circuits. 3,548,295, Cl. 323-68.

Borer, Herbert W., and Muntjanoff, John R., to Caterpillar Tractor Company. Automatic loader bucket control and indicator. 3,547,293, Cl. 214-761.

Born, Klaus: *See—*
Jacobowsky, Armin, Wirtz, Peter, Born, Klaus, and Rechmeier, Gerhard,3,548,014.

Bornmann, William J., to American Electronic Laboratories, Inc. Activity detecting means. 3,547,106, Cl. 128-2.

Bosch, Robert GmbH: *See—*
Tittmann, Egon, 3,547,559.

Boshinski, Edwin E.: *See—*
Allen, Kenneth C., and Boshinski, Edwin E.,3,548,163.

Bossen, David A., and Freeh, Edward J., to Industrial Nucleonics Corporation. Means and method for modulating fiber stock flow in papermaking headbox in response to paper sheet product parameters. 3,547,775, Cl. 162-198.

Bostick, Edgar E., to General Electric Company. Polymerization of monomers with group 11-A metal complexes. 3,548,033, Cl. 260-879.

Bothos, Costas. Headset device. 3,547,219, Cl. 181-31.

Bott, Lawrence L., to Nalco Chemical Company. Silica organo sol friction treatment composition and method of application. 3,547,663, Cl. 106-36.

Botta, Artur: *See—*
Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann,3,547,895.

Bottenbruch, Ludwig: *See—*
Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann,3,547,895.

Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B., to Sylvania Electric Products, Inc. Manufacturing process for an electric discharge lamp. 3,547,680, Cl. 117-62.

Boudin, Georges M.: *See—*
Lestienne, Andre F. P., and Boudin, Georges M.,3,547,023.

Bourassa, Francis J., and Greiff, Paul, to Unitrode Corporation. High power semiconductor devices. 3,548,268, Cl. 317-234.

Bourke, William T., Harris, Spencer, and Muff, Tom C., to Harris-Muff, Inc. Method of producing an initial thermal arrest in the cooling curve of hypereutectic cast iron. 3,546,921, Cl. 73-17.

Bourne, Alan A, Chaston, Jack C., and Darling, Alan S., to Johnson, Matthey & Company Limited. Treatment of metals or alloys. 3,547,712, Cl. 148-11.5

Bovasso, Bernard X. Quick assembled furniture. 3,547,491, Cl. 297-442.

Bowen, Richard E., and Lake, Paul V., to Lilly, Eli, and Company. Method for improving weight gains and reducing gross lesions in chickens exposed to Marek's disease. 3,548,054, Cl. 424-89.

Bowman, Dale W., to United States of America, Navy. Digital data deflection projection apparatus. 3,547,527, Cl. 350-285.

Boyd, Douglas, and Brown, George James, to Andrew Chalmers & Mitchell Limited. Ship's trim indicator. 3,548,400, Cl. 340-282.

Boyer, Jackson S., and Cassar, Richard D., to Sun Oil Company. Ultraviolet stabilized elastomeric composition. 3,547,880, Cl. 260-45.85

Boyer, Myron H.: *See—*
Basford, Paul R., and Boyer, Myron H.,3,547,701.

Boyle, George J.: *See—*
Reece, Donald, and Boyle, George J.,3,547,161.

Brackman, Donald A., and Roland, Robert D., to Avco Corporation. Fail safe safing and arming device. 3,547,035, Cl. 102-78.

Bradsell, Robert Howard: *See—*
Froome, Keith Davy, and Bradsell, Robert Howard,3,547,539.

Bragg, Calvin J., and Crowther, Joseph C., Jr., to Sinclair Research, Inc. Temperature monitoring apparatus. 3,547,707, Cl. 136-224.

Braggins, George R., to Ceewrite Indicator Manufacturing Company Limited, The. Torque limiting devices or overload clutches. 3,547,242, Cl. 192-56.

Bragman, Clifford I. Method of making a thermal barrier. 3,547,603, Cl. 29-418.

Brandell, John R. Dispensing devices with pivoted integral controllers. 3,547,314, Cl. 221-301.

Brandes, Raymond G., to Bell Telephone Laboratories, Incorporated. Holographic recording media. 3,547,509, Cl. 350-3.5

Brantley, Richard K., to Du Pont de Nemours, E. I., and Company. Substituted ureido isoxazoles. 3,547,940, Cl. 260-307.

Brantley, Richard K., to Du Pont de Nemours, E. I., and Company. Herbicidal carbamoyloxyphenyl N-alkoxyureas. 3,547,979, Cl. 260-479.

Brattesani, Donald N., to Union Oil Company of California. Production of paraxylene. 3,548,021, Cl. 260-673.5

Braun, Carl G.: *See—*
Braun, Karl J., and Braun, Carl G.,3,547,265.

Braun, Eugene R., to Eaton Yale & Towne, Inc. Fluid retarder. 3,547,231, Cl. 188-90.

Braun, G. A., Inc.: *See—*
Hertig, Max, 3,546,903.

Braun, Karl J., and Braun, Carl G., to Dahl, Thor, Inc. Scanning mechanism. 3,547,265, Cl. 209-111.7

Brauninger, Arno: *See—*
Scheler, Siegfried, Munder, Johannes, and Brauninger, Arno,3,547,637.

Braxton, Henry G., Jr., to Ethyl Corporation. Benzylidene bisphenol acylate exhaust emission reducing additive. 3,547,958, Cl. 260-395.

Brazeale, Don Laverne, and Henderson, Gary Vernon. Paper roll plug. 3,547,367, Cl. 242-68.6

Bredzs, Nikolajs, and Miller, Forbes M., to Wall Colmonoy Corporation. Method of forming cermet-type protective coatings on heat resistant alloys. 3,547,673, Cl. 117-22.

Breikss, Ivars P., to Honeywell, Inc. Digital FM discriminator. 3,548,328, Cl. 329-126.

Breiss, Jean: *See—*
Tourdot, Jacques, and Breiss, Jean,3,547,573.

Breslow, Jeffrey D., to Glass, Marvin, & Associates. Electric pickle jar game. 3,547,436, Cl. 273-1.

Brett, Oliver C., Jr.: *See—*
Herdeg, Donald F., and Brett, Oliver C., Jr.,3,547,432.

Breuer, Hans W.: *See—*
Haberkorn, Erich J., and Breuer, Hans W.,3,547,000.

Bridenstine, Orville J.: *See—*
Larkin, Mark E., and Bridenstine, Orville J.,3,546,848.

Briggs, Thomas P. Cigarette lighter assembly. 3,548,150, Cl. 219-267.

Bright, John Harvey, and Cannelongo, Joseph Frederick, to American Cyanamid Company. Flame-retardant polyurethanes. 3,547,842, Cl. 260-2.5

Brinkmann, Ludwig: *See—*
Weissermel, Klaus, Uebe, Rudolf, Pfister, Horst, and Brinkmann, Ludwig,3,547,872.

Weissermel, Klaus, Uebe, Rudolf, Kern, Rudolf, and Brinkmann, Ludwig,3,547,873.

Bristol-Myers Company: *See—*
Cron, Martin John, Ragan, Elizabeth Almira, and Hooper, Irving R., 3,547,903.
Schmitz, Henry, and Devault, Robert Larry, 3,547,902.
Standridge, Robert Ted, and Hall, Barbara Ann, 3,547,923.

British Aircraft Corporation: *See—*
Russell, James Langley, 3,546,908.

British Insulated Callender's Cables Limited:*See—*
Arnold, Alan, Childs, John Baird, and Ffitch, Kenneth William, 3,548,302.
Endacott, John Derrick, and Papadopulos, Michael Savvas, 3,548,074.

British Iron and Steel Research Association, The: *See—*
Kodz, Witold T., 3,548,171.
Williams, Terence, and Hayes, Michael W., 3,547,683.

British Lighting Industries Limited: *See—*
Fenn, Henry A., 3,548,244.

British Telecommunications Research Limited: *See—*
Chadwick, Victor James, 3,547,137.

BRK Electronics, Inc.: *See—*
Ogden, Wilbur L., 3,548,205.

Brock, Walter B. Reading lamp shield. 3,548,186, Cl. 240-46.03

Brodhag, Earle E.: *See—*
Sorensen, Robert L., Brodhag, Earle E., and Casanova, John V.,3,546,741.

Brooks, George M., to Jerrold Electronics Corporation. Antenna rotor. 3,546,966, Cl. 74-640.

Brooks Instrument N.V.: *See—*
Van Der Windt, Leendert Johannes, and Jansen, Johannes, 3,547,410.

Brothers, Jack, to United States of America, Army. Two-piece projectile and method of sealing same. 3,547,036, Cl. 102-92.4

Broussard, Douglas E.: *See—*
Kolb, Robert H., Barry, Donald W., Nordgren, Ronald P., and Broussard, Douglas E.,3,546,888.
Hemphill, Dean P., and Broussard, Douglas E.,3,546,889.

Brow, Arthur J., Jr. Foundation form clip. 3,547,397, Cl. 249-219.

Brown, Ford J., and Mueller, Ralph L., to Western Electric Company, Incorporated. Vibratory quartz tube assembly for advancing articles. 3,547,252, Cl. 198-218.

Brown, George James: *See—*
Boyd, Douglas, and Brown, George James,3,548,400.

Brown, James D., to Phillips Petroleum Company. Emulsion polymerization process utilizing a haloester and cuprous salt catalyst system. 3,547,862, Cl. 260-93.5

Brown, Philip, and James, Peter Henry, to Keystone Limited. Apparatus for producing patterned tufted material. 3,547,058, Cl. 112-79.

Brown, Ralph D., to Westinghouse Electric Corporation. Vapor turbine power plant. 3,546,881, Cl. 60-73.

Brown, Richard E. Circle-cutting attachment for flame cutters. 3,547,424, Cl. 266-23.

Brown, Robert L., Sr. Cascaded solid-state image amplifier panels. 3,548,214, Cl. 250-213.

Bruce, James B., to Continental Can Company, Inc. Corrugated board bottle carrier. 3,547,339, Cl. 229-52.

Bruce, Ronald G., and Fanning, Robert J., to Continental Oil Company. Process control by a digital computer. 3,548,170, Cl. 235-151.1

Brueggemann, Horst, Dachs, Karl, Schwartz, Erich, and Wilhelm, Hans, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Manufacture of expanded polyamides. 3,547,836, Cl. 260-2.5

Bruetsch, Harold L., to AMP Incorporated. Wire splicing unit. 3,548,367, Cl. 339-205.

Bruha, Peter Joseph, to Westinghouse Electric Corporation. Fluid measurement system and method. 3,546,935, Cl. 73-194.

Brun, Andre: *See—*
Auchapt, Pierre, and Brun, Andre,3,546,934.

Bruns, Eilert F., to U.S. Industries, Inc. Microfeed adjusting mechanism. 3,546,967, Cl. 74-600.

Brunswick Corporation: *See—*
Alexander, Claude L., Gray, Lysle B., and Long, John I., 3,547,141.

Bryan, Harry E. Navigation training device. 3,548,063, Cl. 35-10.2

Bryant, David R.: *See—*
McKeon, James E., and Bryant, David R.,3,547,982.

Bryant, George M.: *See—*
Jones, Allen P., Jr., and Bryant, George M.,3,548,047.

BSP Corporation: *See—*
Stevens, Norbert J., 3,547,026.

BSR Limited: *See—*
Evans, Philip H., 3,548,229.

Bub, Oskar, to Knoll A.G. Chemische Fabriken. Substituted benzo-1,4-oxazines. 3,547,915, Cl. 260-244.

Buchaklian, Robert A., Jr. Apparatus for removing waxed paper from punched cards. 3,547,744, Cl. 156-584.

Buchanan Electrical Products Corporation: *See—*
Ustin, Martin D., 3,546,954.

Bucher-Guyer AG Maschinenfabrik: *See—*
Hauser-Lienhard, Hans Ulrich, 3,546,867.
Hauser-Lienhard, Hans Ulrich, 3,546,868.

Buchwald, Horst, Mulders, Bernward, and Schneider, Rudolf, to Du Pont de Nemours, E. I., and Company. Preparation of dimensionally stable photographic films. 3,547,645, Cl. 96-87.

Bucyrus-Erie Company: *See—*
Peters, Herman G., 3,547,007.

Budd Company, The: *See—*
Eggert, Walter S., Jr., 3,547,463.

Budniak, Mitchell S.: *See—*
Norman, Robert J., and Budniak, Mitchell S.,3,547,374.

Bueler, Richard C., to Wagner Electric Corporation, mesne. Control valve. 3,547,498, Cl. 303-6.

Buffington, Marvin A. Electrocardiographic monitoring apparatus and system. 3,547,104, Cl. 128-2.06

Bugaenko, Boris Andreevich, and Vladinets, Georgy Ivanovich. Anchor chain arrester. 3,547,066, Cl. 114-200.

Buice, Joel B., and Trewhella, Raymond Matthew, to General Electric Company. Porous anode capacitor. 3,548,265, Cl. 317-230.

Bullock, Milon Walker, to American Cyanamid Company. Di 2-(2-[(β-hydroxyphenethyl)amino]-ethyl)-2- thiopseudourea and hydrochloride salt thereof. 3,547,996, Cl. 260-564.

Bulpitt, Thomas H., and Fladlien, David G., to TRW Inc. High scanning speed spectrometer. 3,547,542, Cl. 356-83.

Bundschuh, John J., to Eastman Kodak Company. Cartridge and means for locating a cartridge on a projector or the like. 3,547,373, Cl. 242-197.

Buning, Robert: *See—*
Bernhardt, Gunther, Buning, Robert, Bierwirth, Egon, and Trautvetter, Werner,3,547,784.

Bunker-Ramo Corporation, The: *See—*
White, James W. G., and Freedman, Harry A., 3,547,749.

Burch, Derek E., to Westinghouse Brake and Signal Company. Capacitor commutated circuits wherein charge is dissipated after commutation. 3,548,216, Cl. 307-252.

Bureau de Recherches Geologiques et Minieres: *See—*
Duroux, Jean, Griveau, Pierre R., and Zahaczewski, Michel, 3,548,299.

Burgess, Thomas J., and Clarke, Gordon J., to Lacal Industries Limited. Hinged suspension clamp. 3,547,386, Cl. 248-63.

Burke, Douglas J.: *See—*
Amberg, Stephen W., Burke, Douglas J., and Nicholas, Nicholas J.,3,547,012.

Burke, Robert L., Jr., to United Merchants and Manufacturers, Inc. Aqueous emulsion adhesive. 3,547,852, Cl. 260-29.6

Burns, Roy D. Downed at sea aircraft radio location transmitter. 3,548,311, Cl. 325-115.

Buroni, Vittorio, to Pirelli Societa per Azioni. Sealing ends of oil-filled electric cables. 3,548,075, Cl. 174-20.

Burroughs Corporation: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M., 3,548,384.
Hennessey, William M., 3,548,364.
Knuth, Donald E., 3,548,174.
Lawrie, William N., Jr., and Ziskind, Ilan, 3,548,219.

Burroughs Corportion: *See—*
Lichty, Ivan F., Hopkins, James E., and Taddei, Mary E., 3,548,382.

Burtness, Myron Earl. Disc-like valve member mounted for rotation relative to connected valve stem. 3,547,400, Cl. 251-88.

Busch, Thomas N., to Youngstown Sheet and Tube Company, The, mesne. Timber harvesting apparatus. 3,547,168, Cl. 144-3.

Bussac, Jean, to Anciens Etablissements Jalla. Method of stiffening loops of a fabric and product. 3,547,750, Cl. 161-66.

Butler, Amos R., and Sutton, Thomas L. Moving cart. 3,547,288, Cl. 214-372.

Butterworth, Clifford, to Frankenstein Group Limited. Gas-inflation mechanism for marine lifesaving equipment. 3,547,165, Cl. 141-330.

Bykov, Konstantin Alexeevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.

Bymers, Ronald J.: *See—*
Bakke, Ernest P., Benson, Allen Bryce, and Bymers, Ronald J.,3,548,333.

Byrnes, Herbert P.: *See—*
Adsmond, Roy T., and Byrnes, Herbert P.,3,547,262.

Cage, Kenneth M.: *See—*
Maxey, Carl W., Cage, Kenneth M., and Bauer, Egon H.,3,547,170.

Cahen, Raymond, to CSF-Compagnie Generale de Telegraphie Sans Fil. Colour television cameras. 3,548,083, Cl. 178-5.4

Cain, Charles L.: *See—*
Clingenpeel, William R., Cain, Charles L., Hungerford, Philip C., Jr., and Hayes, Robert R.,3,547,183.

Caldwell, Robert J., and Sullo, Kenneth J., to Mason, L. E., Co. Folding-telescoping support. 3,547,054, Cl. 108-115.

Calgon Corporation: *See—*
Cornelius, Thomas E., III, and Bischof, Alan E., 3,547,605.
Schlamb, Kermit F., 3,547,656.

Callahan, Andrew J., and Harder, Richard E., to Dow Badische Company. Bicomponent manifold. 3,546,739, Cl. 18-8.

Cam Gears, Ltd.: *See—*
Adams, Frederick J., 3,546,957.

Camenzind, Hans R., to Mallory, P. R., & Co., Inc. Two-state amplifier. 3,548,329, Cl. 330-10.

Camezon, Raymond E.: *See—*
Aguilar, Henry, Camezon, Raymond E., and McClelland, Etheridge R.,3,547,249.

Campbell, Andrew J., to University of California, The Regents of the. Microtome knife sharpener. 3,546,819, Cl. 51-73.

Campbell, Robert F.: *See—*
Lichti, Robert D., 3,547,281.

Canada Packers Limited: *See—*
Koh, Yan Teow, 3,548,052.

Canadian Industries Limited: *See—*
Tunner, Alex,3,547,743.

Candor, James T.: *See—*
Candor, Robert R., and Candor, James T.,3,546,783.

Candor, Robert R., and Candor, James T. Electrostatic apparatus. 3,546,783, Cl. 34-1.

Cannelongo, Joseph Frederick: *See—*
Bright, John Harvey, and Cannelongo, Joseph Frederick,3,547,842.

Canon Camera Kabushiki Kaisha: *See—*
Kimura, Takehiko, and Niizawa, Yoshiaki, 3,548,179.

Canzler, Rolf: *See—*
Meyerhuber, Wittich, Niestroj, Heinrich, and Canzler, Rolf,3,546,899.

Carbary, Leonard A., to Chrysler Corporation. Dual intensity turn signal indicators. 3,548,251, Cl. 315-77.

Carino, John W., and Bainbridge, Robert H., to General Electric Company. Electrolytic capacitor rivet seal. 3,548,264, Cl. 317-230.

Carlson, Arthur W.: *See—*
Ott, Donald E., and Carlson, Arthur W.,3,547,505.

Carlson, John H. Dimensionally stabilized gears. 3,546,959, Cl. 74-439.

Carlson, Otto K.: *See—*
Stewart, Mary J., and Carlson, Otto K.,3,547,879.

Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J., to International Business Machines Corporation. Computer error anticipator. 3,548,178, Cl. 235-153.

Carpenter, Willard D., Jr. Velocity/altitude sensing automatic parachute release. 3,547,383, Cl. 244-150.

Carrier Corporation: *See—*
McGrath, William L., 3,547,186.

Casanova, John V.: *See—*
Sorensen, Robert L., Brodhag, Earle E., and Casanova, John V.,3,546,741.

Casas, Raul E.: *See—*
Rayces, Juan L., Foster, Francis W., and Casas, Raul E.,3,547,525.

Cassar, Richard D.: *See—*
Boyer, Jackson S., and Cassar, Richard D.,3,547,880.

Cataphote Corporation: *See—*
Searight, Charles Edwin, Ryan, John Robert, and Alexander, Ezra Mc Laurin, 3,547,517.

Caterpillar Tractor Company: *See—*
Borer, Herbert W., and Muntjanoff, John R., 3,547,293.
Cummins, Curtis F., Smith, Donald L., Warren, Larry G., and Schexnayder, Lawrence F., 3,547,234.
Hart, Cullen Payton, Hendrickson, Vergil P., and Sebern, James R., 3,547,426.
Lenz, Walter H., 3,546,911.

C.A.V. Limited: *See—*
Drori, Moshe, 3,547,148.
Knight, Basil Edward, 3,547,092.

Cave, Eric F., and Duigon, Fred C., to RCA Corporation. Charge storage device with PN junction diode array target having semiconductor contact pads. 3,548,233, Cl. 313-65.

Cedler, Lech: *See—*
Bobowicz, Henryk, Kulma, Stanislaw, Cedler, Lech, and Kobylecki, Piotr,3,547,504.

Ceewrite Indicator Manufacturing Company Limited, The: *See—*
Braggins, George R., 3,547,242.

Celanese Corporation: *See—*
Levine, Eli, and Costanza, John Ribelle, 3,547,847.
Santangelo, Joseph G., 3,547,584.
Watson, George A., 3,546,722.

Centner, Ronald M., and Idelsohn, Jerome M., to Bendix Corporation, The. Adaptive control system for numerically controlled machine tool. 3,548,172, Cl. 235-151.11

Certain-Teed Products Corporation: *See—*
Giegerich, James E., 3,547,280.

Chadwick, Victor James, to British Telecommunications Research Limited. Fluid control devices. 3,547,137, Cl. 137-1.

Chaimson, Robert K., to United States of America, Navy. Release mechanism using two retractable piston actuators. 3,546,949, Cl. 74-2.

Chambers Corporation: *See—*
Klepzig, Glen W., 3,548,152.

Chambers, Robert F. Arrangement for constructing electrical circuits by means of board mounted connector plates. 3,548,261, Cl. 317-117.

Champion Spark Plug Company: *See—*
Eaton, Carl J., 3,548,239.

Chance, A. B., Company: *See—*
Duenke, Clarence G., 3,548,070.

Chandler Evans Inc.: *See—*
Cygnor, John E., 3,547,562.
Grennan, Charles W., and Hearn, Richard J., 3,547,557.

Chang, Richard Shih-Teng. Mattel, Inc. Phonograph toy having an improved speaker cone. 3,547,448, Cl. 274-7.

Chapelle, Walter E., Kamm, Vernon C., and Whiteside, Arliss E. Automatic stereoplatter. 3,548,210, Cl. 250-202.

Chaplin, Merle P. Harvesting marine growths. 3,546,858, Cl. 56-9.

Chapman, Donald, to Uniroyal Limited. Tent-like garment. 3,546,708, Cl. 2-89.

Chapman, Robert L., and Gofman, John W. Chest mounted heart tachycardia detector. 3,547,107, Cl. 128-2.06

Charbonnier, Jean-Claude, and Goue, Bernard, to Compagnie Generale d'Electricite. Fuel cell with aqueous ethylene diamine electrolyte solution. 3,547,699, Cl. 136-86.

Charlson, Lynn L., to Germane Corporation. Fluid operated motor. 3,547,563, Cl. 418-61.

Charlson, Lynn L., to Germane Corporation. Fluid operated motor. 3,547,564, Cl. 418-61.

Chaston, Jack C.: *See—*
Bourne, Alan A, Chaston, Jack C., and Darling, Alan S.,3,547,712.

Chauveau, Charles Elie-Louis. Keel boat. 3,547,065, Cl. 114-138.

Cheek, James H.: *See—*
Greathouse, Walton D., Cheek, James H., and Spencer, John R.,3,547,354.

Chemische Werke Huels A.G.: *See—*
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf, 3,548,027.
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf, 3,547,889.

Chemotronics, Incorporated: *See—*
Rice, Edwin E., and Rice, Warren A., 3,547,589.

Cheney, Harry A., June, Ronald K., and Kuhre, Calvin J., to Shell Oil Company. Method for making sulfur-oil slurry for pipeline transportation. 3,547,495, Cl. 302-66.

Chenot, Charles F., and Dennis, Mahlon, to Sylvania Electric Products, Inc. Electric discharge device containing a terbium activated zinc cadmium borate phosphor. 3,548,238, Cl. 313-109.

Cherry, Sheldon H., to Mount Sinai Hospital Research Foundation, Inc. Abdominal grid for intrauterine fetal transfusion. 3,547,121, Cl. 128-215.

Chester County Mushroom Sales Corporation: *See—*
Pusey, Philip, and Toto, Louis R., 3,547,309.

Cheston Company: *See—*
Rizzolo, Alfred T., and Hicks, Warren F., 3,548,149.

Chevalier, Arthur A., Mathews, David M., and Rourke, William E., to Marathon Oil Company. Method of acidization. 3,547,197, Cl. 166-284.

Chevron Research Company: *See—*
Schlatter, Maurice J., 3,547,698.
Suzuki, Shigeto, 3,547,843.

Chicago Musical Instrument Co.: *See—*
Freeman, Alfred B., 3,548,065.

Chicago Switch, Inc.: *See—*
Farrell, Guy M., Podgorski, Matthew C., Whitlock, Morris N., and Gaber, Martin, 3,548,137.

Childs, John Baird: *See—*
Arnold, Alan, Childs, John Baird, and Ffitch, Kenneth William,3,548,302.

Chin, Jack: *See—*
Bokros, Jack C., Chin, Jack, and Price, Robert J.,3,547,676.

Chiu, Herman S., Kambara, Frank T., Rasmussen, Jerome J. M., and Voo, David, to Union Carbide Corporation. Method of producing a food casing. 3,547,662, Cl. 99-176.

Chiusoli, Gian Paolo, Venturello, Carlo, Ferraris, Mario, and Merzoni, Sergio, to Montecatini Edison S.p.A. Process for preparing alkyl muconates and maleates. 3,547,981, Cl. 260-485.

Christensen, Alfred, and Marsing, Richard. Mucking apparatus. 3,547,211, Cl. 175-86.

Christensen, Joseph M. Removable coin holding means. 3,547,344, Cl. 232-43.2

Christiania Spigerverk: *See—*
Kroken, Arne, and Hyggen, Egil, 3,547,176.

Christiansson, Olof Fingal, to Aktiebolaget Ankarsrums Bruk. Electric heating oven. 3,548,154, Cl. 219-403.

Christoph, Helmut: *See—*
Pohlemann, Heinz, Christoph, Helmut, and Stassen, Alexander,3,548,036.

Christy Metal Products, Inc.: *See—*
Dunmire, Paul G., 3,547,471.

Chrysler Corporation: *See—*
Carbary, Leonard A., 3,548,251.
Giuffrida, Sebastian J., 3,547,468.
Snedden, Everett B., and Hubler, Victor L., 3,547,025.

Chu, Edward, to Du Pont de Nemours, E. I., and Company. Laminated article. 3,547,766, Cl. 161-190.

Ciampa, Fred A., Serafini, Angelo, and Mazzarella, Louis, to Standard Box Spring Co. Box spring. 3,546,723, Cl. 5-247.

Ciba Limited: *See—*
Angliker, Hansjoerg, 3,547,571.
Porret, Daniel, Metzger, Karl, and Heer, Alfred, 3,547,918.
Seeber, Eberhard, and Heer, Alfred, 3,547,869.

Cincinnati Milacron, Inc.: *See—*
Fisher, Robert C., 3,546,820.

Haggerty, William A., 3,547,797.
Haggerty, William A., 3,547,798.
City of Kiryu: *See—*
Kobayashi, Masayasu, Kobayashi, Michiharu, and Matsushima, Mitsuyoshi, 3,546,812.
Claar, Ralph H. Covering and filtering apparatus for fuel tanks. 3,546,853, Cl. 55-419.
Clapp, James, to Sunny Mead Farms, Inc. Device for sealing the ends of flexible film. 3,546,764, Cl. 29-200.
Clapp, John M., and Urda, Paul, to Ingersoll-Rand Company. Power operated drill. 3,546,976, Cl. 77-7.
Claridge, Elmond L., and Prats, Michael, to Shell Oil Company. Method of metal coating and electrically heating a subterranean earth formation. 3,547,192, Cl. 166-248.
Clark, Louis J. Air foil flying device with multiple-stage lift areas. 3,547,384, Cl. 244-154.
Clarke, Gordon J.: *See—*
Burgess, Thomas J., and Clarke, Gordon J.,3,547,386.
Clauson, Arthur D., to Sun Electric Corporation. Flow transducer. 3,548,133, Cl. 200-81.9
Cleary, Michael Morency. Baby crib canopy. 3,546,721, Cl. 5-97.
Cleemann, Johan, and Meyer, Gunther, to Dynamit Nobel Aktiengesellschaft. Polymerization of vinyl chloride in the presence of an acrylic ester polymer. 3,548,034, Cl. 260-884.
Clendenin, Wilbur H., to International Harvester Company. Forage harvester. 3,546,861, Cl. 56-23.
Clevite Corporation: *See—*
Schwope, Arthur D., Jech, Robert W., and Weber, Edward P., 3,546,769.
Clingenpeel, William R., Cain, Charles L., Hungerford, Philip C., Jr., and Hayes, Robert R., to ESB Incorporated, mesne. Machine for casting battery intercell connectors and terminal posts. 3,547,183, Cl. 164-333.
Clinton, Raymond O.17β-Hydroxy-5α-androstano[2,3-d]imidazoles. 3,547,908, Cl. 260-239.5
Closmann, Philip J., to Shell Oil Company. Method for fracturing a subterranean earth formation. 3,547,196, Cl. 166-281.
Closson, Addison W., Jr. Technique for making box toes and counters. 3,546,795, Cl. 36-1.
Cochran, Charles Norman, and Ray, Richard C., to Aluminum Company of America. Production of reinforced composites. 3,547,180, Cl. 164-61.
Cockeram, David A., to Towler Hydraulics Limited. Fluid control amplifiers. 3,547,156, Cl. 137-625.25
Cockroft, James B., to Oster, John, Manufacturing Co. Control means for blender or the like. 3,548,280, Cl. 318-443.
Coffin, David Painter, Jr., to Versitron, Inc., mesne. Signal coupling device. 3,548,290, Cl. 307-89.
Cohen, Abraham Bernard, and Heiart, Robert Bernard, to Du Pont de Nemours, E. I., and Company. Machine for making resist images. 3,547,730, Cl. 156-345.
Cohen, Arnold B.: *See—*
Pitel, Irving, Cornine, Floyd C., Silverman, Richard S., and Cohen, Arnold B.,3,547,313.
Cohen, Bernard: *See—*
Shepherd, John A., Cohen, Bernard, and Darbee, Leonard R.,3,547,907.
Cohen, Bernard, to FMC Corporation. Peroxydiphosphate compounds. 3,547,580, Cl. 23-106.
Cohen, Leon Erwin: *See—*
Fuchs, Robert Joseph, Lutz, Charles William, and Cohen, Leon Erwin,3,547,670.
Cohen, Theodore: *See—*
Lewin, Anita H., and Cohen, Theodore,3,547,978.
Colandrea, Anthony. Outdoor location kit. 3,547,073, Cl. 116-124.
Coleman, Marvid D.: *See—*
Woolums, Charles R., 3,546,804.
Colgate-Palmolive Company: *See—*
Eigen, Edward, and Weiss, Sidney, 3,548,056.
Gerecht, John Fred, 3,547,932.
Colletti, John B., and Dumeah, Peter James, to TRW Inc. Boot seal. 3,547,474, Cl. 287-87.
Collins Machinery Corporation: *See—*
Behnke, Howard N., 3,546,988.
Collins Radio Company: *See—*
Fenwick, Richard C., 3,548,310.
Collins, William H. Fluid sampler. 3,546,945, Cl. 73-422.
Columbia Broadcasting System, Inc.: *See—*
Thompson, Josephus B., 3,548,068.
Columbia Research Corporation: *See—*
Vaccaro, Angelo, 3,548,377.
Columbia Ribbon and Carbon Manufacturing Co., Inc.: *See—*
Vaccaro, Angelo, 3,548,374.
Combustion Engineering, Inc.: *See—*
Bordonaro, Michael P., 3,548,317.
Gilbert, Lyman F., 3,548,395.
Short, Edward H., III, 3,546,940.
Comitetul de Stat Pentru Cultura si Arta: *See—*
Birbanescu, Adrian, 3,547,072.
Commercial Cam & Machine Company: *See—*
Kenny, Ronald H., 3,546,897.
Commissariat a l'Energie Atomique:*See—*
Auchapt, Pierre, and Brun, Andre, 3,546,934.
Compagnia Italiana Westinghouse Freni e Segnali: *See—*
Nardi, Giancarlo, 3,547,414.
Compagnie de Saint-Gobain: *See—*
Wippler, Constant, 3,547,545.
Compagnie Generale d'Automatisme:*See—*
Guigan, Jean, and Laucournet, Robert, 3,547,781.
Compagnie Generale d'Electricite:*See—*
Charbonnier, Jean-Claude, and Goue, Bernard, 3,547,699.
Hespel, Claude, 3,547,702.
Pompon, Jean-Paul, 3,547,704.
Rigo, Serge, 3,547,786.
Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie: *See—*
Boileau, Jacques, 3,547,178.
Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See—*
Lejeune, Daniel, 3,547,494.
Verdier, Henri, 3,547,175.
Component Manufacturing Service, Inc.: *See—*
Barker, Randolph G., 3,548,365.
Compur-Werk Gesellschaft mit beschrankter Haftung & Co.: *See—*
Pross, Wilhelm, 3,547,021.
Comstock, Alfred E. Egg carton creasing, forming and closing machine. 3,546,839, Cl. 53-78.
Comstock, Alfred E. Egg carton closing machine. 3,546,840, Cl. 53-376.
Comte, Michel, to Societe Nationale des Petroles d'Aquitaine. Production of dimethyl sulfide. 3,548,007, Cl. 260-609.
Concast AG: *See—*
Nussbaum, Marcel, Kurz, Wilfried, and Lux, Benno, 3,546,924.
Conch Ocean Limited: *See—*
Ffooks, Roger Cambridge, 3,547,301.
Jackson, Robert G., and Massac, Gilbert, 3,547,302.
Conley, Kenneth E., to Mead Corporation, The. Electrophotographic sheet and methods of printing. 3,547,678, Cl. 117-34.
Connolly, Thomas O'D., to Universal Harvester Co., Inc. Pick-up reel for harvesting machinery. 3,546,863, Cl. 56-226.
Connor, Mark J., to Gulf & Western Industrial Products Company, mesne. Contour piston and cylinder assembly for spot type brakes and clutches. 3,547,008, Cl. 92-170.
Conrad, Lucas Jones, Leonard, Gerard Eugene, McArthur, Colin Shaw, and Everhart, John Raymond, to Reynolds, R. J., Tobacco Company. Friction conveyor. 3,547,264, Cl. 209-116.
Construction Machinery Company: *See—*
Linnenkamp, Ben R., 3,548,165.
Construction Materials, Inc.: *See—*
Binger, Wynn S., 3,547,492.
Contacts Incorporated: *See—*
Gwyn, Childress B., Jr., 3,547,334.
Continental Can Company: *See—*
O'Neill, Roger M., 3,548,140.
Continental Can Company, Inc.: *See—*
Bruce, James B., 3,547,339.
Khoury, Nick S., 3,547,305.
Mascia, Carmen T., and Bagguley, Richard B., 3,547,303.
Pisarczuk, Thaddeus H., 3,547,337.
Stefaniak, Rudolph J., and Bodnar, Steven A., 3,546,747.
Continental Gummi-Werke Aktiengesellschaft: *See—*
Wissell, Louis, 3,546,749.
Continental Oil Company: *See—*
Bruce, Ronald G., and Fanning, Robert J., 3,548,170.
Greathouse, Walton D., Cheek, James H., and Spencer, John R., 3,547,354.
Motz, Kaye L., 3,547,968.
Motz, Kaye L., 3,547,969.
Starks, Charles M., and Washecheck, Paul H., 3,547,962.
Control Data Corporation: *See—*
Hintz, Ronald G., 3,548,221.
Cook, George W., to Thiokol Chemical Corporation. System for evaluation of irregularities on large surfaces. 3,546,948, Cl. 73-505.
Cook, Reginald Kenneth, and Hosegood, Samuel Brittan, to United Kingdom Atomic Energy Authority. Heat exchangers. 3,547,187, Cl. 165-76.
Cook, William A. Coil spring guide. 3,547,103, Cl. 128-2.05
Cooke, Reginald Benjamin William, and Ellwood, George, to International Standard Electric Corporation. Electric circuit package. 3,548,076, Cl. 174-52.
Cooper, Hal B. H. Treatment of water. 3,547,810, Cl. 210-62.
Coover, Harry W., Jr.: *See—*
McConnell, Richard L., and Coover, Harry W., Jr.,3,547,893.
Corbett, William Michael, Roberts, John Francis Lloyd, and Yates, John Michael, to Imperial Chemical Industries Limited. Light-stable polyesters. 3,547,882, Cl. 260-47.
Cordover, Ronald H.: *See—*
Javan, Ali, Cordover, Ronald H., and Bonczyk, Paul A.,3,547,524.
Corn Products Company: *See—*
Melnick, Daniel, 3,547,658.
Cornelissen, Bernardus Henricus Josef, to U.S. Philips Corporation, mesne. Colour television receiver. 3,548,082, Cl. 178-5.4
Cornelius, Thomas E., III, and Bischof, Alan E., to Calgon Corporation. Stabilization of metal oxide dispersions. 3,547,605, Cl. 44-4.
Cornforth, John W., to Shell Oil Company. Iodohydrins. 3,548,012, Cl. 260-634.
Cornine, Floyd C.: *See—*
Pitel, Irving, Cornine, Floyd C., Silverman, Richard S., and Cohen, Arnold B.,3,547,313.

Cort, Winifred, to Hoffmann-La Roche Inc. Bread flavor and aroma enhancement composition. 3,547,659, Cl. 99-140.
Cortland Industries, Inc.: *See—*
Deer, Carmine A., 3,547,440.
Cosmicar Kogaku Kabushiki Kaisha: *See—*
Ichizuka, Tadashi, and Miyagi, Kiyoshi, 3,547,521.
Cossar, Bernard C., and Reynolds, Delbert D., to Eastman Kodak Company. N,N-disubstituted amino-methylthiocarboxylic acids and use thereof as antifoggants in photographic emulsions. 3,547,638, Cl. 96-66.5
Costanza, John Ribelle: *See—*
Levine, Eli, and Costanza, John Ribelle,3,547,847.
Cotton, Curran D.: *See—*
Ashby, Alfred T., and Cotton, Curran D.,3,546,785.
Cottrell, Edward D., to U.S. Plywood-Champion Papers Inc. Laminator apparatus. 3,547,742, Cl. 156-583.
Coulter, John S., to Iowa Paint Manufacturing Company, Incorporated. Storage stable coating composition comprising alkyd resin, esterified inorganic acid, and volatile buffer material. 3,547,846, Cl. 260-21.
Courtney, Mary E. Therapeutic positioning glove. 3,547,112, Cl.
Covert, Roger Allen: *See—*
Bieber, Clarence George, and Covert, Roger Allen,3,547,625.
Cox, John R., and Mix, Joseph E., to Balas Collet Company. Tool presetting device. 3,546,781, Cl. 33-185.
Coyne, William E., and Cusic, John W., to Searle, G. D., & Co.6-Amino 1,1a,6,10b-tetrahydrodibenzo[a,e] cyclopropa[a]-cyclohepten-6-ols and esters thereof. 3,547,933, Cl. 260-294.7
Cramer Industries, Inc.: *See—*
Wehner, Norvin J., 3,547,394.
Crane, Walton B., to Allied Plastics Company. Garment hanger for two piece ladies swimsuit or the like. 3,547,321, Cl. 223-88.
Creech, Bobby A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M.,3,548,384.
Crews, John H., Jr., and Davis, William T., to United States of America, National Aeronautics and Space Administration. Strain-coupled servo-control system. 3,546,931, Cl. 73-90.
Cromwell, Willard M., and Perzdirtz, Frank R. Cuff stretcher. 3,547,318, Cl. 223-2.
Cron, Martin John, Ragan, Elizabeth Almira, and Hooper, Irving R., to Bristol-Myers Company. Cinnamoyl derivatives of 3-amino-4-hydroxy-8- methyl-7-[3-0-(5-methyl-2-pyrrolylcarbonyl) noviosyloxy] coumarin. 3,547,903, Cl. 260-210.
Cronin, John: *See—*
Rodriguez, Antonio R., and Cronin, John,3,546,776.
Croon, Ingemar Liss-Albin: *See—*
Blomqvist, Nils Verner, Croon, Ingemar Liss-Albin, and Sundell, Gustav Harry,3,547,930.
Cropper, Wendell P., and Kapff, Sixt Frederick, to Standard Oil Company (Indiana). Sulfur detecting method and apparatus. 3,547,590, Cl. 23-253.
Crosman Arms Company, Inc.: *See—*
Vadas, John F., and Liepins, Sigurds, 3,547,095.
Cross, Bert S., to Minnesota Mining and Manufacturing Company. Hat for holding articles. 3,546,709, Cl. 2-179.
Crossman, Geraldine A. Bandages. 3,547,120, Cl. 128-157.
Crowe, Thomas J. Web spreader. 3,547,330, Cl. 226-88.
Crown Zellerbach Corporation: *See—*
Hartbauer, Ellsworth A., Rehr, Henry W., Goodley, Alan R., and Wyatt, John W., 3,547,282.
Tokos, George M., and Tonn, Edward G., 3,547,754.
Crowther, Joseph C., Jr.: *See—*
Bragg, Calvin J., and Crowther, Joseph C., Jr.,3,547,707.
Crylor: *See—*
Gentilhomme, Claude, and Menault, Jacques, 3,547,677.
CSF-Compagnie Generale de Telegraphie Sans Fil: *See—*
Cahen, Raymond, 3,548,083.
Duquesne, Philippe, 3,548,321.
Cummins, Curtis F., Smith, Donald L., Warren, Larry G., and Schexnayder, Lawrence F., to Caterpillar Tractor Company. Dual range brake system for vehicles. 3,547,234, Cl. 188-170.
Cunningham, Isaiah Vernon, Sr. Loading and conveying machine. 3,547,287, Cl. 214-90.
Cunningham, James B., to General Steel Industries, Inc. Resilient railway car truck. 3,547,045, Cl. 105-199.
Curran, John E.: *See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.
Currie, Grover C. Bottle carrier and paperboard blank for forming same. 3,547,310, Cl. 220-113.
Curtis, Donald R., to Allis-Chalmers Manufacturing Company. Cantilever wet press for a papermaking machine. 3,547,776, Cl. 162-274.
Curtis Dyna-Products Corporation: *See—*
Curtis, Russell R., and Jung, James E., 3,548,151.
Curtis, Frank F.: *See—*
Stuart, Linder, Jr., and Curtis, Frank F.,3,547,731.
Curtis, James H.: *See—*
Jenny, Alfred L., and Curtis, James H.,3,547,423.
Curtis, Reid H.: *See—*
Gleit, Chester E., Mensing, Clifford E., Jr., and Curtis, Reid H.,3,547,802.
Curtis, Russell R., and Jung, James E., to Curtis Dyna-Products Corporation. Automatic fogging apparatus. 3,548,151, Cl. 219-273.
Cusic, John W.: *See—*
Coyne, William E., and Cusic, John W.,3,547,933.
Cutler, Morris: *See—*
Tamarin, Bernard, 3,547,566.
Cutler-Hammer, Inc.: *See—*
Knasinski, Max S., and Risberg, Robert L., 3,548,279.
Krieger, Alvin W., 3,548,132.
Monigal, Robert E., Eck, Robert N., Gossfeld, Walter A., and Swanson, William C., 3,548,399.
Piber, Earl T., 3,548,131.
Swinehart, Merle R., 3,548,290.
Cygnor, John E., to Chandler Evans Inc. Variable displacement vane pump. 3,547,562, Cl. 418-31.
Dabrowski, Casimer J., to Seeburg Corporation, The, mesne. Bonus crediting system. 3,548,387, Cl. 340-173.
Dachs, Karl: *See—*
Brueggemann, Horst, Dachs, Karl, Schwartz, Erich, and Wilhelm, Hans,3,547,836.
Dahl, Thor, Inc.: *See—*
Braun, Karl J., and Braun, Carl G., 3,547,265.
Dahle, Norman A.: *See—*
Back, Gayle E., and Dahle, Norman A.,3,547,619.
Daikin Kogyo Co., Ltd.: *See—*
Kometani, Yutaka, Fujii, Tsuneo, and Sakata, Shinsuke, 3,547,859.
Daikin Kogyo Kabushiki Kaisha: *See—*
Kawamura, Takuo, 3,548,015.
Daimler-Benz Aktiengesellschaft: *See—*
Altmann, Werner E., 3,546,968.
Barenyi, Bela, and Wilfert, Karl, 3,546,964.
Helmer, Josef, and Eltze, Ulrich, 3,547,558.
Dainichiniho Densen Kabushiki Kaisha: *See—*
Maeda, Tsutomu, Morisada, Sunao, Kasajima, Tatsuji, and Hashida, Takeshi, 3,546,916.
Dairy Equipment Company: *See—*
Russell, Marvin Earl, 3,547,080.
Dairy Technics, Inc.: *See—*
Olsen, Ronald H., 3,547,654.
Dale, Thomas L. Method for renewing wiper blade edges. 3,546,825, Cl. 51-323.
D'Alelio, Gaetano F.,25% to Monacelli, Walter J. Chelating polymers and method of preparation. 3,547,686, Cl. 117-128.4
Dalhamn, Tore, to Lorillard Corporation. Tobacco having an oxadiazole additive. 3,547,133, Cl. 131-17.
Dalman, Andrew J., 1/4 each: *See—*
Wenger, Harvey M., 3,547,359.
Dalton, Robert L., to Marine Midland Trust Company of Western New York, mesne. Photographic camera. 3,547,015, Cl. 95-1.1
D'Amico, John Joseph, to Monsanto Company. Benzazolylthio alkyl isothiocyanates. 3,547,938, Cl. 260-306.6
Dana Corporation: *See—*
Marie, Robert, 3,547,216.
Dannels, Bobby F., and Shepard, Alvin F., to Hooker Chemical Corporation. Aromatic condensation products. 3,547,790, Cl. 204-59.
Dante, Mark F., and Parry, Harvey L., to Sun Oil Company. Process for curing polyepoxides with anhydrides and phosphonium halide catalysts therefor. 3,547,885, Cl. 260-47.
Darbee, Leonard R.: *See—*
Shepherd, John A., Cohen, Bernard, and Darbee, Leonard R.,3,547,907.
Darling, Alan S.: *See—*
Bourne, Alan A, Chaston, Jack C., and Darling, Alan S.,3,547,712.
Daunt, John Edward, to General Electric Company. Rotary seal including organic abradable material. 3,547,455, Cl. 277-96.
Davey, Theodore H., to Aro Corporation, The. Electrical heater circuit. 3,548,156, Cl. 219-499.
Davidson, Bruce G., and Kort, Werner W., to American Chain & Cable Company, Inc., mesne. Tow truck conveyor system. 3,547,043, Cl. 104-172.
Davis, Edward M., Jr., and Mones, Arthur H., to International Business Machines Corporation. Functional components. 3,547,604, Cl. 29-577.
Davis, William J., and Gilles, Richard C., to Ferri, Joseph E. Lubricating composition. 3,547,819, Cl. 252-12.
Davis, William T.: *See—*
Crews, John H., Jr., and Davis, William T.,3,546,931.
Davy, Nevil: *See—*
Henry, James W., and Davy, Nevil,3,547,518.
Dawnor, Inc.: *See—*
Dawson, James C., and Norlie, Harold H., 3,547,322.
Dawson, James C., and Norlie, Harold H., to Dawnor, Inc. Medical apparatus. 3,547,322, Cl. 224-5.
Day-Glo Color Corporation: *See—*
Switzer, Joseph L., 3,547,827.
Dayton, David R., and Gates, Paul E., to Sylvania Electric Products, Inc. Method of sealing quartz to metal. 3,547,508, Cl. 316-19.
Dayton, Robert E., to United Aircraft Corporation. Unit-distance encoder. 3,548,397, Cl. 340-347.
Dazor Manufacturing Corporation: *See—*
Mehr, Jacob A., 3,547,390.

Deane, Clifford T., to Stampco, Inc. Hydraulic lift. 3,547,225, Cl. 182-148.
Dearman, Grady E.: *See—*
Furr, John M., and Dearman, Grady E.,3,547,398.
De Bitetto, Dominick John, to U.S. Philips Corporation, mesne. Holographic image system and method employing narrow strip holograms. 3,547,510, Cl. 350-3.5
Decker, Erwin Louis: *See—*
Horner, Frank Walter, Decker, Erwin Louis, and Veo, Lawrence E.,3,546,787.
Deer, Carmine A., to Cortland Industries, Inc. Racket for tennis or similar games. 3,547,440, Cl. 273-73.
Deere & Company: *See—*
Jacklin, Roger Layton, 3,547,157.
Dehn & Sohne: *See—*
Prinz, Hans, Wiesinger, Johannes, and Konig, Rudolf, 3,547,136.
Delta Pattern and Model Company: *See—*
Mozer, Rudolf W., 3,548,050.
Demarais, Williard H. Projectable and retractable enclosed structure. 3,546,827, Cl. 52-29.
DeMarinis, Joseph Vincent, Schuster, William Daniel, and Wheeler, Robert Charles, to Sylvania Electric Products, Inc. Visual display system. 3,548,081, Cl. 178-5.2
Denney, Jerry W., and Denney, Larry W. Inorganic phosphate assay, and reagents therefor. 3,547,586, Cl. 23-230.
Denney, Larry W.: *See—*
Denney, Jerry W., and Denney, Larry W.,3,547,586.
Dennis, James T. Automatic speed changing mechanism for multi-speed phonograph. 3,547,449, Cl. 274-9.
Dennis, Mahlon: *See—*
Chenot, Charles F., and Dennis, Mahlon,3,548,238.
De Noyer, Donald B., to Allis-Chalmers Manufacturing Company. Vertical dual wire paper web former. 3,547,777, Cl. 162-303.
Dent, Benjamin A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M.,3,548,384.
Desnoyers, Pierre: *See—*
Malen, Charles, and Desnoyers, Pierre,3,547,949.
Detroit Radiant Products Company: *See—*
Rice, Frank A., and Lester, David R., 3,547,097.
Devault, Robert Larry: *See—*
Schmitz, Henry, and Devault, Robert Larry,3,547,902.
Devereux, William P., to Kollsman Instrument Corporition. Optical beam cross-section converter. 3,547,526, Cl. 350-200.
de Vries, Albert: *See—*
Ledoux, Claude, and de Vries, Albert,3,548,049.
De Witt, David, Gates, Harlan R., and Platt, Alan, to International Business Machines Corporation. Isolation in epitaxially grown monolithic devices. 3,547,716, Cl. 148-175.
Dhapman, Kenneth B. Frameless and trussless self-supporting building. 3,546,826, Cl. 52-23.
Dhir, Partap C., and Headd, Franklin L., to Xerox Corporation. Radiation sensitive document scanning means. 3,548,195, Cl. 250-219.
Diamond, Arthur S., to Diamond Research Corporation. Blocking test fixture. 3,546,937, Cl. 73-159.
Diamond Research Corporation: *See—*
Diamond, Arthur S., 3,546,937.
Diana, Guy D., to Sterling Drug Inc. Certain 4-thiazolecarboxamidines. 3,547,937, Cl. 260-302.
Dickaeuser, Heiner: *See—*
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut,3,547,866.
Dickert, James C., and Jaeschke, Harold R., to Hoerner Waldorf Corporation. Wrapping film. 3,547,259, Cl. 206-65.
Dickey, Ira W., to Lear Siegler, Inc. Spring manufacture. 3,547,163, Cl. 140-107.
Dickinson, Ben Wade Oakes, III. Ultrasonic testing apparatus. 3,546,927, Cl. 73-71.5
Dickstein, Jack: *See—*
Nickerson, Richard G., McAllister, Richard George, and Dickstein, Jack,3,547,690.
Diehl: *See—*
Metschnabl, Andreas, and Beikufner, Georg, 3,547,347.
Diehl, Robert Eugene, and Walworth, Bryant Leonidas, to American Cyanamid Company. Certain nitro-4-pyridinols, N-oxides thereof and derivatives thereof. 3,547,935, Cl. 260-297.
Dienst, Carl S., and Attebery, Jerry M., to Swanson, Emery Carlton. Process for separating protein from aqueous solutions containing dissolved material of lower molecular weight using a thin bed of molecular sieve material such as sephadex. 3,547,900, Cl. 260-112.
Dietrich, Henri, to Geigy Chemical Corporation. 1-Substituted 3-arylsulfonyl ureas. 3,547,954, Cl. 260-345.7
Dietzsch, Hans-Joachim, to Hans-Joachim Dietzsch G.m.b.H. Process of making a diffusion unit. 3,547,721, Cl. 156-155.
Dingwall, David, to Organon Inc. Preparation of erytrocytes for immunochemical determination of human chorionic gonadotropin. 3,548,051, Cl. 424-3.
Dirks Electronics Corporation: *See—*
Dirks, Gerhard, 3,548,381.
Dirks, Gerhard, to Dirks Electronics Corporation. Data handling systems. 3,548,381, Cl. 340-172.5
Dittrich, Werner, and Kristen, Reiner, to Siemens Aktiengesellschaft. Brushless direct-current motor with galvanomagnetic control members. 3,548,223, Cl. 310-10.
Dittrich, Werner, and Kristen, Reiner, to Siemens Aktiengesellschaft. Brushless direct-current motor with galvanomagnetic commutation. 3,548,224, Cl. 310-10.
Dixon, John Thomas: *See—*
Smith, Raymond Anthony, and Dixon, John Thomas,3,547,613.
Dobermann, Hans, to Siemens Aktiengesellschaft. Circuit arrangement for teleprinter exchange systems. 3,548,080, Cl. 178-2.
Dock, Mortimer Russell. Cigarettes. 3,547,131, Cl. 131-9.
Dock, Mortimer Russell. Filter for a smoking device. 3,547,134, Cl. 131-261.
Doerfer Corporation: *See—*
Neebel, Richard R., Harms, Clarence L., Neebel, James D., and Doerfer, Richard E., 3,546,737.
Doerfer, Richard E.: *See—*
Neebel, Richard R., Harms, Clarence L., Neebel, James D., and Doerfer, Richard E.,3,546,737.
Dohanich, George J., Jr.: *See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.
Dolney, Joseph J., and Kuhar, Ludwig J., to Singer Company, The. Pressure foot for sewing a coil type zipper stringer. 3,547,059, Cl. 112-151.
Dominitwerke Gesellschaft mit beschrankter Haftung: *See—*
Wedemeyer, Gerhard, 3,548,292.
D'Onofrio, Edmond J., and Edwards, Robert B., to Eastman Kodak Company. Manufacture of improved polyester films. 3,547,748, Cl. 161-46.
Dopper, Otto: *See—*
Hoffmann, Bernd, Bollig, Georg, and Dopper, Otto,3,547,421.
Doughboy Industries, Inc.: *See—*
Zimmerman, Darwin D., 3,546,849.
Douglas, Edward O.: *See—*
Hagen, William F., and Douglas, Edward O.,3,546,896.
Dover Corporation: *See—*
Kells, Edward L., 3,548,153.
Dow Badische Company: *See—*
Callahan, Andrew J., and Harder, Richard E., 3,546,739.
Dow Chemical Company, The: *See—*
Hoekstra, John J., 3,548,000.
Hollis, Oscar LeRoy, and Acuff, Robert D., 3,547,684.
Jernigan, Jack W., 3,548,030.
Levine, Leonard, 3,548,002.
Moore, Eugene R., Pickelman, Dale M., and Zimmerman, Robert L., 3,547,838.
Priddy, Duane B., and Hennis, Henry E., 3,548,009.
Schnebelen, David F., and Ryffel, James R., 3,547,772.
Shulgin, Alexander T., 3,547,999.
Smith, Harry A., 3,547,956.
Wang, Chun-Shan, and McGee, Thomas W., 3,547,967.
Draper, Homer L., Levy, Dale F., and Gagle, Duane W., to Phillips Petroleum Company. Prepared surface of polyolefin fabric, asphalt and rubber crumb. 3,547,674, Cl. 117-32.
Draxler, Helmut J.: *See—*
Blackburn, George T., and Draxler, Helmut J.,3,547,404.
Dreamland Electrical Appliances Limited: *See—*
Owers, Leonard C., 3,548,147.
Dreckmann, Hubert, to Hays Corporation, The. Method and means for analyzing low moisture concentration in gases. 3,546,922, Cl. 73-29.
Dresser Industries, Inc.: *See—*
Goff, Randall, 3,548,129.
Kohler, Samuel H., and Voogd, Wierd, 3,546,982.
Drewitz, Hans, to Maschinenfabrik Augsburg-Nurnbert Aktiengesellschaft. Solid axle mounting for vehicles. 3,547,464, Cl. 280-124.
Drexel University: *See—*
Rosen, Gerald, 3,548,218.
Dreyfuss, Max Peter: *See—*
Dreyfuss, Patricia M., and Dreyfuss, Max Peter,3,548,037.
Dreyfuss, Patricia M., and Dreyfuss, Max Peter, to Goodrich, B. F., Company, The. High impact rigid blends of vinyl chloride resins and polymerized tetrahydrofuran. 3,548,037, Cl. 260-899.
Driedijk, Johannes, Van Leeuwen, Johannes Aloysius, and Stover, Johannes Hinderikus, to U.S. Philips Corporation. Face-plate for rectangular color television picture tube with land portions with recesses for receiving shadow mask support members. 3,548,235, Cl. 313-85.
Drinkard, William C., Jr., to Du Pont de Nemours, E. I., and Company. Addition of hydrogen cyanide to butadiene. 3,547,972, Cl. 260-465.3
Drori, Moshe, to C.A.V. Limited. Delivery valves. 3,547,148, Cl. 137-540.
Drumm, Edward J., to Little Learners, Inc. Teaching system for children. 3,546,788, Cl. 35-8.
Drushel, Robert W., and Erickson, Carl R., to Ex-Cell-O Corporation. Electric circuit start-up protection method and structure. 3,548,257, Cl. 317-13.
Dudek, Edmund C., to Singer Company, The. Chuck attachment for sabre saws. 3,547,166, Cl. 143-68.
Dudzinski, Zdzislaw J., to Millmaster Onyx Corporation. Process for making alkyl tertiary amines. 3,548,001, Cl. 260-583.
Duenke, Clarence G., to Chance, A. B., Company. Pothead with pressurized dielectric. 3,548,070, Cl. 174-12.
Duigon, Fred C.: *See—*
Cave, Eric F., and Duigon, Fred C.,3,548,233.

Dumas, Jean-Pierre, and Leduc, Paul, to Societe Lignes Telegraphiques et Telephoniques. Magnetic thin films manufacturing process. 3,547,694, Cl. 117-240.
Dumeah, Peter James: *See—*
Colletti, John B., and Dumeah, Peter James,3,547,474.
Dunavent, Sidney William, Jr., and Scott, Paul R., to Shell Oil Company. Bottom sediment and water monitor. 3,546,926, Cl. 73-61.1
Dunbar, Glenn G. Vehicle mounted loading hoist. 3,547,284, Cl. 214-77.
Dunlop Company Limited, The: *See—*
Mills, Iain C., 3,547,174.
Dunmire, Paul G., to Christy Metal Products, Inc. Pipe coupling. 3,547,471, Cl. 285-337.
Du Pont de Nemours, E. I., and Company: *See—*
Bartlett, Philip Lee, 3,547,995.
Blake, Ralph Kingsley, 3,547,641.
Brantley, Richard K., 3,547,940.
Brantley, Richard K., 3,547,979.
Buchwald, Horst, Mulders, Bernward, and Schneider, Rudolf, 3,547,645.
Chu, Edward, 3,547,766.
Cohen, Abraham Bernard, and Heiart, Robert Bernard, 3,547,730.
Drinkard, William C., Jr., 3,547,972.
Hoffman, Henry Allen, Jr., 3,547,763.
Kennedy, Richard J., 3,547,849.
Klanberg, Frank Karl, 3,547,963.
Lynch, John Andrew, Jr., 3,546,755.
Moede, Jerome Albert, and Schumacher, Delmar Francis, 3,547,644.
Pikl, Josef, 3,547,941.
Pilato, Jack, 3,547,650.
Pinkney, Paul S., 3,547,845.
Roos, Leo, 3,547,651.
Short, Oliver A., 3,547,835.
Smeltz, Kenneth C., 3,547,894.
Tandy, Thomas K., Jr., 3,547,856.
Tocker, Stanley, 3,547,839.
Dupont, Paul E.: *See—*
Mooradian, Aram, and Dupont, Paul E.,3,547,997.
Duquesne, Philippe, to CSF-Compagnie Generale de Telegraphie Sans Fil. Phase measuring device for supplying a signal proportional to the measured phase. 3,548,321, Cl. 328-133.
Duroux, Jean, Griveau, Pierre R., and Zahaczewski, Michel, to Bureau de Recherches Geologiques et Minieres. Method and apparatus utilizing a pair of magnetic field detectors and an electric field detector for determining the electric resistance of the sub-soil by means of electromagnetic waves. 3,548,299, Cl. 324-6.
Duve, Gunther: *See—*
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,755.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,756.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,757.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,758.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,759.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,760.
Dyer, Richard W.: *See—*
Lee, Roger K., and Dyer, Richard W.,3,547,520.
Dynamit Nobel Aktiengesellschaft: *See—*
Bernhardt, Gunther, Buning, Robert, Bierwirth, Egon, and Trautvetter, Werner, 3,547,784.
Cleemann, Johan, and Meyer, Gunther, 3,548,034.
Gawlick, Heinz, and Bendler, Hellmut, 3,547,033.
Hass, Karl, Schinke, Georg, and Langenhoff, Fred, 3,547,832.
Eastex Packaging, Inc.: *See—*
Bolding, Hubert V., 3,547,256.
Eastman Kodak Company: *See—*
Bacon, Robert E., 3,547,647.
Bean, Frederic Roland, 3,547,988.
Beckett, Clark, and Folsom, Bruce D., 3,547,640.
Bundschuh, John J., 3,547,373.
Cossar, Bernard C., and Reynolds, Delbert D., 3,547,638.
D'Onofrio, Edmond J., and Edwards, Robert B., 3,547,748.
Harvey, Donald M., 3,547,017.
Henry, James W., and Davy, Nevil, 3,547,518.
Huguenard, Albert P., 3,547,693.
Kennard, Kenneth C., and Haefner, John A., 3,547,635.
Lestienne, Andre F. P., and Boudin, Georges M., 3,547,023.
Maurer, Richard E., Millikan, Allan G., and Franco, Simone, 3,547,639.
McConnell, Richard L., and Coover, Harry W., Jr., 3,547,893.
Miller, Howard A., 3,547,822.
Nadeau, Gale F., Jr., 3,547,632.
Pickens, Gerald F., and Kirn, Thomas G., 3,547,366.
Reich, Michael, 3,547,548.
Snerd, Charles D., and Long, Robert L., 3,547,891.
Eaton, Carl J., to Champion Spark Plug Company. Spark plug electrode construction. 3,548,239, Cl. 313-136.
Eaton Yale & Towne, Inc.: *See—*
Braun, Eugene R., 3,547,231.
Fergle, Donald J., 3,547,232.
Fergle, Donald J., and Benedict, Dale K., 3,547,244.
Hass, David P., 3,546,879.
Pecka, Richard D., 3,547,353.
Pociask, Fredrick, 3,547,467.
Ebigt, Joachim: *See—*
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,755.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,756.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,757.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,758.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,759.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,760.
Eck, Robert N.: *See—*
Monigal, Robert E., Eck, Robert N., Gossfeld, Walter A., and Swanson, William C.,3,548,399.
Economics Laboratory, Inc.: *See—*
Miller, Carl A., 3,547,560.
Eddy, Robert T., to Reliance Electric Company. Rotary device. 3,547,565, Cl. 418-61.
Ede, Ainsley N. Trenchless laying of pipe underground. 3,546,890, Cl. 61-72.6
Edemsky, Vladimir Mikhailovich: *See—*
Gromakov, Vitaly Viktorovich, Kapitanov, Vaktor Ivanovich, Kitchenko, Anatoly Ivanovich, and Edemsky, Vladimir Mikhailovich,3,548,061.
Educational Testing Service: *See—*
Young, Harry J., and Behn, William R., 3,548,162.
Edwards, John A.: *See—*
Fried, John H., and Edwards, John A.,3,547,911.
Edwards, Miles Lowell. Membrane fluid diffusion exchange device. 3,547,271, Cl. 210-321.
Edwards, Robert B.: *See—*
D'Onofrio, Edmond J., and Edwards, Robert B.,3,547,748.
Eggert, Glenn J., and Nicholls, Mervyn E., to Houdaille Industries, Inc., mesne. Automatic buffing control systems. 3,546,730, Cl. 15-102.
Eggert, Walter S., Jr., to Budd Company, The. Collapsible automobile body structure and method of making same. 3,547,463, Cl. 280-106.
Ehrenreich, A., & Cie: *See—*
Gottschald, Rudolf, 3,547,453.
Gottschald, Rudolf, 3,547,460.
Gottschald, Rudolf, 3,547,473.
Ehrlich, Donald J., to Monon Trailer, Inc. Trailer body construction. 3,547,483, Cl. 296-28.
Ehrlich, Stanley W., Banikiotes, Gregory C., and Mackles, Mark, to Hydrocarbon Research, Inc. Solids addition and withdrawal process. 3,547,809, Cl. 208-143.
Ehrman, Ernest W. Connector means and like elements for juncture purposes. 3,547,472, Cl. 287-20.92
Eigen, Edward, and Weiss, Sidney, to Colgate-Palmolive Company. Skin protecting composition containing a water- soluble partially degraded protein. 3,548,056, Cl. 424-171.
Eisentraut, Arne L.: *See—*
Schelin, Carl O., and Eisentraut, Arne L.,3,547,158.
Eissenberg, David M., to United States of America, Atomic Energy Commission. Method for promoting dropwise condensation on copper and copper alloy condensing surfaces. 3,547,185, Cl. 165-1.
Ejectoret S.A.: *See—*
Gruska, Ralph, 3,547,550.
Gruska, Ralph, 3,547,551.
Electric & Musical Industries Limited: *See—*
Farmer, Victor Michael, and Knight, John Francis, 3,548,192.
Electrothermic Co., The: *See—*
Gill, William G., 3,547,193.
Electro-Voice, Incorporated: *See—*
Ramsey, Robert C., and Farrington, Gerrald K., 3,548,119.
Elkins, Llody E., to Pan American Petroleum Corporation. Pyrolytic plugging of oil-bearing formations by underground combustion. 3,547,195, Cl. 166-261.
Elkjaer, Hans Peter, to Smidth, F. L., & Co. Rotary kiln assembly. 3,547,417, Cl. 263-32.
Ellis, David T., to Honeywell Inc. Transistor associative memory cell. 3,548,389, Cl. 340-173.
Ellmann, Norbert William: *See—*
Beall, Glenn Lee, and Ellmann, Norbert William,3,547,401.
Ellstrom, Johan Ragnar, to Aktiebolaget Electrolux. Electrical heater for heating a wall of a fluid-carrying member. 3,548,159, Cl. 219-535.
Ellwood, George: *See—*
Cooke, Reginald Benjamin William, and Ellwood, George,3,548,076.
Elox Inc.: *See—*
Sennowitz, Kurt H., 3,548,142.
Eltze, Ulrich: *See—*
Helmer, Josef, and Eltze, Ulrich,3,547,558.
Emde, Gunter, to Bolkow Gesellschaft mit beschrankter Haftung. Static counter with simplified signal input. 3,548,167, Cl. 235-92.
Emerson Electric Co.: *See—*
McCaskill, Garvin M., 3,548,158.

Emmerling, Werner: *See—*
Stellamanns, Theo, and Emmerling, Werner,3,547,736.

Endacott, John Derrick, and Papadopulos, Michael Savvas, to British Insulated Callender's Cables Limited. Method of and apparatus for installing electric power cables. 3,548,074, Cl. 174-19.

Endoh, Takeo: *See—*
Ashikaga, Tadao, Kurashige, Hirotoshi, and Endoh, Takeo,3,547,837.

Enegren, Paul L. Cleaning machine. 3,546,816, Cl. 51-9.

Eneman, Melvin: *See—*
Popovitch, Dragolyoub, Nystrom, Roy B., and Eneman, Melvin,3,547,034.

Engel, Lawrence J., Gianni, Michael H., and Wiener, Charles, to Esso Research and Engineering Company. Ethers containing difluoramino groups. 3,548,004, Cl. 260-584.

Engel, Philip A. Merchandising display apparatus. 3,547,275, Cl. 211-177.

Engelhard Minerals & Chemicals Corporation: *See—*
Hill, James S., 3,547,692.

Engelhardt, Edward L., and Freedman, Mark B., to Merck & Co., Inc.3-Carbamoyloxy derivatives of 5-(tertiaryaminopropy- lidene)-5H-dibenzo[a,d]cycloheptenes. 3,547,980, Cl. 260-482.

Engelhardt, Heinz, to Hartmann and Braun Aktiengesellschaft. Flow-through analysis cell. 3,547,549, Cl. 356-246.

Engineering & Design Services Inc.: *See—*
Wachenheim, Howard W., 3,547,425.

English Electric Company Limited, The: *See—*
Wood, Allan John, 3,548,135.

English Numbering Machines Limited: *See—*
Gutman, Isaj, 3,546,989.

Enoki, Yoshio: *See—*
Oshima, Nobumasa, Enoki, Yoshio, and Tani, Norihiro,3,547,834.

Entwicklungsring Sud GmbH: *See—*
Haberkorn, Erich J., and Breuer, Hans W., 3,547,000.

Eppler, Byron C. Barber tool sterilizer. 3,547,578, Cl. 21-87.

Eppler, Daniel, to Thomas & Betts Co., Inc., The. Modular terminal connector block. 3,548,366, Cl. 339-198.

Epstein, Maurice: *See—*
Roberts, Henry, Epstein, Maurice, and Heier, Earl,3,548,320.

Erb, George H. Separable fastener. 3,546,754, Cl. 24-204.

Erb, Louis F., to Hercules Incorporated. Composite polyolefin extrusion coating of substrates. 3,547,682, Cl. 117-75.

Erickson, Carl R.: *See—*
Drushel, Robert W., and Erickson, Carl R.,3,548,257.

Erickson Tool Company: *See—*
Benjamin, Milton L., 3,547,454.

E. R. Manufacturing Company: *See—*
Miller, Lester C., and Schnuell, Henry A., 3,546,729.

Ernst, Max. Passenger car for toy and model railroads. 3,546,810, Cl. 46-218.

ESB Incorporated: *See—*
Clingenpeel, William R., Cain, Charles L., Hungerford, Philip C., Jr., and Hayes, Robert R., 3,547,183.

Esche, Charles D., to Whirlpool Corporation. Frost weighing demand defrost device for refrigerators. 3,546,894, Cl. 62-140.

Espen, David A., to Sperry Rand Corporation. Synchro data transmission apparatus having discrete gain changing to compensate for undesirable signal gradient variations. 3,548,284, Cl. 318-23.5

Esso Production Research Company: *See—*
Bielstein, Walter J., and Fowler, Ronald L., 3,547,189.
Bielstein, Wilter J., and Fowler, Ronald L., 3,547,406.

Esso Research and Engineering Company: *See—*
Engel, Lawrence J., Gianni, Michael H., and Wiener, Charles, 3,548,004.
Patton, Tad L., 3,547,897.
Shropshire, Joseph A., 3,547,830.
Wiener, Charles, and Leary, Ralph J., 3,548,003.

Ethyl Corporation: *See—*
Braxton, Henry G., Jr., 3,547,958.
Marble, Charles E., 3,547,966.

EVADUR Products, Inc.: *See—*
Livingstone, Stanley, 3,546,905.

Evanega, George R., to Union Carbide Corporation. Pyridyl-2,7-dioxabicyclo[3.2.0^{1,5}]hept-3-enes and process for preparation. 3,547,936, Cl. 260-297.

Evans, Philip H., to BSR Limited. Longitudinally split housing for rotary electric motor stator. 3,548,229, Cl. 310-89.

Everhart, John Raymond: *See—*
Conrad, Lucas Jones, Leonard, Gerard Eugene, McArthur, Colin Shaw, and Everhart, John Raymond,3,547,264.

Ewald, Ronald F. Tilt valve. 3,547,405, Cl. 251-354.

Ex-Cell-O Corporation: *See—*
Drushel, Robert W., and Erickson, Carl R., 3,548,257.

Eyelet Specialty Company: *See—*
Landen, William James, 3,547,295.

Fabri-Tek, Incorporated: *See—*
Walstrom, Leslie R., and King, Wayne J., 3,548,392.

Fahrenbach, Wolfgang B., to Stryco Manufacturing Co. Paper back lath making machine. 3,546,771, Cl. 29-429.

Fairbanks, Daniel F., Larson, Warren L., Randall, Robert N., and Wong, James, to National Research Corporation. Composite-strip-conductor containing niobium- titanium superconductor. 3,548,351, Cl. 335-216.

Fairbanks Morse Inc.: *See—*
Pan, Pei Tai, 3,547,800.

Falce, Louis R., to Hughes Aircraft Company. Brazed dielectric-to-metal joints for slow-wave structure assemblies. 3,548,345, Cl. 333-31.

Falcone, Luigi, Parisi, Agostino, and Sartoris, Mariola. Quaternary ammonium salt compositions for modifying cellulose materials. 3,547,986, Cl. 260-501.13

Fanning, Robert J.: *See—*
Bruce, Ronald G., and Fanning, Robert J.,3,548,170.

Farb, Richard B.: *See—*
Hall, John B., and Farb, Richard B.,3,547,119.

Farbenfabriken Bayer Aktiengesellschaft: *See—*
Arlt, Dieter, Glabisch, Dietrich, and Suling, Carlhans, 3,547,899.
Fest, Christa, Hammann, Ingeborg, Stendel, Wilhelm, and Unterstenhofer, Gunter, 3,547,920.
Frohberger, Paul-Ernst, and Wiegand, Christian, 3,546,813.
Klauke, Erich, and Kuhle, Engelbert, 3,547,992.
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans, 3,547,970.
Lorenz, Walter, Hammann, Ingeborg, and Unterstenhofer, Gunter, 3,547,946.
Rinkler, Heinrich, Wieden, Horst, Wilms, Hugo, and Nischk, Gunther, 3,547,985.
Senge, Ferdinand, and Schnell, Hermann, 3,547,943.
Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann, 3,547,895.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Fuchs, Otto, Sieber, Heinrich, and Landler, Josef, 3,547,924.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,755.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,756.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,757.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,758.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,759.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, 3,547,760.
Roh, Gerhard, and Lederer, Michael, 3,547,860.
Weissermel, Klaus, Uebe, Rudolf, Pfister, Horst, and Brinkmann, Ludwig, 3,547,872.
Weissermel, Klaus, Uebe, Rudolf, Kern, Rudolf, and Brinkmann, Ludwig, 3,547,873.

Farcilli, Andre: *See—*
Joly, Robert, Warnant, Julien, and Farcilli, Andre,3,547,959.

Farmer, Victor Michael, and Knight, John Francis, to Electric & Musical Industries Limited. Infrared scanner using a double sided inclined mirror mounted on annular air bearings. 3,548,192, Cl. 250-83.3

Farquhar, Melville T., to Reynolds Metals Company. Method of making dish-like container. 3,547,011, Cl. 93-36.

Farrell, Guy M., Podgorski, Matthew C., Whitlock, Morris N., and Gaber, Martin, to Chicago Switch, Inc. Switch construction. 3,548,137, Cl. 200-153.

Farrington, Gerrald K.: *See—*
Ramsey, Robert C., and Farrington, Gerrald K.,3,548,119.

Fastener Corporation: *See—*
Ramspeck, Howard B., 3,547,003.

Fathauer, George H., to Sonaar Corporation. Electronic holding circuit. 3,548,307, Cl. 324-103.

Fats and Proteins Research Foundation, Inc.: *See—*
Johnson, Robert L., 3,547,665.

Feddick, Earl W., and Wassmann, Gustave, to Valley Manufacturing Company. Pool balls separable by magnetic forces. 3,547,439, Cl. 273-59.

Feichtinger, Gerhard: *See—*
Skatsche, Othmar, and Feichtinger, Gerhard,3,547,086.

Fekete, Lancelot A. Vortex tube process and apparatus. 3,546,891, Cl. 62-5.

Felton, S. A., & Son Company, Incorporated: *See—*
Ahern, Edward J., 3,546,731.

Felts, John A., to Scientific Data Systems, Inc. Rotating magnetic disc storage structure. 3,548,394, Cl. 340-174.1

Fendall Company: *See—*
Liautaud, Philip J., 3,546,735.

Fenicchia, Stephen. Portable horseshoe pit. 3,547,442, Cl. 273-104.

Fenn, Henry A., to British Lighting Industries Limited. Lamp having twin filaments and integral filament legs mounted in a bridge. 3,548,244, Cl. 313-331.

Fenton Art Glass Company, The: *See—*
Fenton, Wilmer C., and Rosena, Anthony J., 3,547,569.

Fenton, Wilmer C., and Rosena, Anthony J., to Fenton Art Glass Company, The. Candle bowl. 3,547,569, Cl. 431-295.

Fenwick, Richard C., to Collins Radio Company. Antenna current distribution measurement system. 3,548,310, Cl. 325-67.

Fergason, Rector C., to Allis-Chalmers Manufacturing Company. Moistener for cotton picking spindles of cotton harvester. 3,546,862, Cl. 56-41.

Fergle, Donald J., to Eaton Yale & Towne, Inc. Explosive actuated brake. 3,547,232, Cl. 188-110.

Fergle, Donald J., and Benedict, Dale K., to Eaton Yale & Towne, Inc. Sleeve clutch. 3,547,244, Cl. 192-74.

Fergusson, Keith Arnold. Apparatus for castrating or docking animals. 3,547,124, Cl. 128-303.

Ferrania, S.p.A.: *See—*
Maurer, Richard E., Millikan, Allan G., and Franco, Simone, 3,547,639.

Ferraris, Mario: *See—*
Chiusoli, Gian Paolo, Venturello, Carlo, Ferraris, Mario, and Merzoni, Sergio,3,547,981.

Ferri, Joseph E.: *See—*
Davis, William J., and Gilles, Richard C., 3,547,819.

Ferro Corporation: *See—*
Lee, William S., 3,547,098.

Fest, Christa, Hammann, Ingeborg, Stendel, Wilhelm, and Unterstenhofer, Gunter, to Farbenfabriken Bayer Aktiengesellschaft. Phosphoric, phosphonic, thionophosphoric and thionophosphonic acid esters. 3,547,920, Cl. 260-250.

Ffitch, Kenneth William: *See—*
Arnold, Alan, Childs, John Baird, and Ffitch, Kenneth William,3,548,302.

Ffooks, Roger Cambridge, to Conch Ocean Limited. Tanker for liquefied gases. 3,547,301, Cl. 220-10.

Fial, Felix J. Tool. 3,546,919, Cl. 72-458.

FIAT Societa per Azioni: *See—*
Parodi, Luciano, and Vallauri, Maurizio, 3,548,273.

Fichtel & Sachs AG: *See—*
Schwerdhofer, Hans Joachim, 3,546,970.
Schwerdhofer, Hans Joachim, 3,546,971.

Figlik, Kenneth G.: *See—*
Wang, James Y. N., and Figlik, Kenneth G.,3,547,685.

Filper Corporation: *See—*
Aguilar, Henry, Camezon, Raymond E., and McClelland, Etheridge R., 3,547,249.

Finnerty, Frank A., Jr., and Johnson, Arnold C. Simplified accurate method of detecting bacteriuria. 3,547,780, Cl. 195-103.5

Firestone Tire & Rubber Company, The: *See—*
Kibler, Richard W., 3,547,729.

Fischer & Porter Company: *See—*
Grauer, Oscar H., 3,547,403.

Fischer, Adolf, and Mueller, Hans Richard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Method of controlling unwanted plant growth. 3,547,616, Cl. 71-90.

Fischer, Ernest W., Jr., and Price, Robert J. Weighing in and weighing out scales indicating apparatus and method. 3,548,181, Cl. 235-168.

Fischer, Thomas R.: *See—*
Beebe, James R., Luthman, Paul A., and Fischer, Thomas R.,3,547,283.

Fish, Leonard I., Stanner, Raymond G., and Kerwin, Richard G. Magnetic tape deck with selectively movable tranducing heid. 3,548,114, Cl. 179-100.2

Fish, Richard H., and Newsom, Herbert C., to United States Borax & Chemical Corporation. Preparation of dioxaborinane compounds. 3,547,971, Cl. 260-462.

Fisher, Jack E.: *See—*
Sutcliffe, John P., and Fisher, Jack E.,3,547,419.

Fisher, Reed E.: *See—*
Barber, Mark R., and Fisher, Reed E.,3,548,339.

Fisher, Reed E., to Bell Telephone Laboratories, Incorporated. Two-valley semiconductor pulse generator and related circuits. 3,548,340, Cl. 331-107.

Fisher, Robert C., to Cincinnati Milacron, Inc. Machine tool with upwardly urged slide. 3,546,820, Cl. 51-103.

Fisher-Price Toys, Inc.: *See—*
Kushell, Joel R., and Kushell, Sheila M., 3,546,789.

Fladlien, David G.: *See—*
Bulpitt, Thomas H., and Fladlien, David G.,3,547,542.

Flaherty, Robert, and Ott, David G., to Westinghouse Electric Corporation. Submersible nuclear reactor plant. 3,547,778, Cl. 176-53.

Flanigan, William J., to Microdot Inc. Socket. 3,548,363, Cl. 339-127.

Flarsheim, Clarence A. Rotary to linear motion device with automatic return. 3,546,930, Cl. 74-89.15

Fleissner, Heinz, to Vepa AG. Apparatus for the continuous treatment of thick, voluminous textile materials. 3,546,901, Cl. 68-5.

Fleming, Kennedy R.: *See—*
Jones, Arthur H., and Fleming, Kennedy R.,3,546,886.

Fletcher, David C., and Nicholas, Edward S., to United States of America, Navy. Seal test stand and fixture. 3,546,923, Cl. 73-40.

Fletcher, Milton. Lamp for typewriter having adjustable leg bracket mounting. 3,548,184, Cl. 240-2.

Flexico France: *See—*
Gutman, Isaj, 3,546,989.

Flint, John Roderick: *See—*
Harlow, Edward S., and Flint, John Roderick,3,547,130.

Flora, Albert V.: *See—*
Westerhoff, David H., and Flora, Albert V.,3,546,794.

Fluid Energy Processing & Equipment Company: *See—*
Stephanoff, Nicholas N., 3,546,784.

Fluor Corporation, Ltd., The: *See—*
Togneri, Mauro G., 3,548,169.

FMC Corporation: *See—*
Battista, Orlando A., 3,547,669.
Bily, Peter J., 3,547,153.
Cohen, Bernard, 3,547,580.
Fuchs, Robert Joseph, Lutz, Charles William, and Cohen, Leon Erwin, 3,547,670.
Greenspan, Frank P., 3,547,770.
Scharpf, William G., 3,547,955.
Scharpf, William G., 3,548,058.
Shepherd, John A., Cohen, Bernard, and Darbee, Leonard R., 3,547,907.
Stewart, Mary J., and Carlson, Otto K., 3,547,879.

Foamade Industries, Inc.: *See—*
Sutton, Robert G., 3,547,753.

Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans, to VVB Elektrogeraet. Collector ring units for electric motors. 3,548,232, Cl. 310-232.

Fokker, Herman, and Meijer, Roelf Jan, to U.S. Philips Corporation, mesne. Hot-gas engine. 3,546,876, Cl. 60-24.

Follett, Harold E. Hydrofoil craft. 3,547,063, Cl. 114-66.5

Folsom, Bruce D.: *See—*
Beckett, Clark, and Folsom, Bruce D.,3,547,640.

Ford Motor Company: *See—*
Pascoe, George, and Hopwood, Norman W., Jr., 3,548,173.

Ford, Paul A. Elevating structure having chain and bar driven reciprocating means. 3,547,253, Cl. 198-219.

Fordyce, Conrad L.: *See—*
Gentry, Kenneth L., and Fordyce, Conrad L.,3,547,013.

Formica Corporation: *See—*
Albrinck, Donald Joseph, and Keeling, Ronald James, 3,547,769.
Keeling, Ronald James, and Guertin, Alfred Thomas, 3,547,767.

Fortin, Conrad M.: *See—*
Ayotte, Ronald D., Fortin, Conrad M., and Waldo, Craig T.,3,548,242.

Foster, Francis W.: *See—*
Rayces, Juan L., Foster, Francis W., and Casas, Raul E.,3,547,525.

Fowler, Richard Thomas, to Girling Limited. Fluid pressure actuated motors. 3,547,004, Cl. 92-63.

Fowler, Ronald L.: *See—*
Bielstein, Walter J., and Fowler, Ronald L.,3,547,189.
Bielstein, Wilter J., and Fowler, Ronald L.,3,547,406.

Fox, John H., Jr.: *See—*
Wilson, Calvin L., Fox, John H., Jr., and Serio, Vincent J., Jr.,3,547,315.

Fox, Joseph R., and Schaefer, Robert H., to General Motors Corporation. Transmission control system. 3,546,974, Cl. 74-869.

Fram Corporation: *See—*
Tao, Ting Chang, 3,547,069.

Franco, Simone: *See—*
Maurer, Richard E., Millikan, Allan G., and Franco, Simone,3,547,639.

Frankenstein Group Limited: *See—*
Butterworth, Clifford, 3,547,165.

Franklin, William E., Mack, Charles H., and Rowland, Stanley P., to United States of America, Agriculture. Dicyclopentadiene dicarboxylic acid-crosslinked cellulosic textiles which may be durably creased or uncreased due to chemical bond reformation under heating conditions. 3,547,574, Cl. 8-120.

Frantz, Franklin D., to Sprague Electric Company. Nickel-nickel oxide capacitor. 3,548,266, Cl. 317-230.

Fratzke, Harold A., Gniffke, Glenn D., and Van Selus, Samuel H. Towing device for vehicles. 3,547,290, Cl. 214-506.

Frauenglass, Elliott, to Loctite Corporition. Non-flowable anaerobic adhesive. 3,547,851, Cl. 260-23.5

Freedman, Harry A.: *See—*
White, James W. G., and Freedman, Harry A.,3,547,749.

Freedman, Mark B.: *See—*
Engelhardt, Edward L., and Freedman, Mark B.,3,547,980.

Freeh, Edward J.: *See—*
Bossen, David A., and Freeh, Edward J.,3,547,775.

Freeman, Alfred B., to Chicago Musical Instrument Co. Automatic rhythm system with selectable plural musical arrangements. 3,548,065, Cl. 84-1.03

Freeman, Alfred B. Plural mode automatic bass note system for musical chords with automatic rhythm device. 3,548,066, Cl. 84-1.03

Freeman, Alfred. Conveyor system. 3,547,714, Cl. 198-38.

Freeport Industries, Inc.: *See—*
Shapiro, Leonard, 3,547,898.

Frenkel, Herbert M.: *See—*
Frenkel, Richard E., and Frenkel, Herbert M.,3,547,102.

Frenkel, Richard E., and Frenkel, Herbert M. Clinical instrument. 3,547,102, Cl. 128-2.

Frenzel, Carl J., to Skil Corporation. Trigger actuated switch device with adjustment means for establishing a plurality of predetermined trigger positions. 3,548,136, Cl. 200-157.

Freud, Paul J.: *See—*
Sclar, Charles B., and Freud, Paul J.,3,548,190.

Frey, Albert J., Houlihan, William J., and Manning, Robert E., to Sandoz-Wander, Inc. 3-Phenyloxindole derivatives. 3,547,945, Cl. 260-325.

Frey, Albert J., Houlihan, William J., and Manning, Robert E., to Sandoz-Wander, Inc. Nitrogen-containing tricyclic compounds. 3,547,947, Cl. 260-326.85

Frey, Peter J. Counterflow jet flap helicopter. 3,547,377, Cl. 244-17.25

Frey, Wiederkehr & Cie AG: *See—*
Schneider, Willi A., 3,546,990.

Fried, John H., and Edwards, John A., to Syntex Corporation. Synthesis of antheridiol and its derivatives. 3,547,911, Cl. 260-239.57
Frigidome Corporation: *See—*
Frudeger, Robert W., 3,546,893.
Frohberger, Paul-Ernst, and Wiegand, Christian, to Farbenfabriken Bayer Aktiengesellschaft. Fungicidal composition. 3,546,813, Cl. 47-57.6
Froning, H R., Shelton, Jack L., and Raza, Syed H., to Pan American Petroleum Corporation. Method for combating water production in oil wells. 3,547,199, Cl. 166-305.
Froome, Keith Davy, and Bradsell, Robert Howard, to National Research Development Corporation. Distance measurement. 3,547,539, Cl. 356-5.
Frost, Jackie Gene, and Arnold, Billy Bob, to Halliburton Company. Method of removing copper containing iron oxide scales from iron. 3,547,697, Cl. 134-3.
Frudeger, Robert W., to Frigidome Corporation. Control system for storage apparatus. 3,546,893, Cl. 62-89.
Fuchs, Otto, Sieber, Heinrich, and Landler, Josef, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing vat dyestuffs. 3,547,924, Cl. 260-274.
Fuchs, Robert Joseph, Lutz, Charles William, and Cohen, Leon Erwin, to FMC Corporation. Metal oxide-phosphoric acid coatings. 3,547,670, Cl. 106-286.
Fuji Shashin Film Kabushiki Kaisha: *See—*
Kobayashi, Kingo, and Uehara, Goro, 3,547,668.
Kuwayama, Shigeo, Yagi, Motohiko, and Ikeda, Tetuo, 3,548,359.
Matsubara, Shigeru, and Okuzawa, Yasutoshi, 3,547,019.
Nishio, Fumihido, Ohkubo, Kunji, and Ikeda, Tsutomu, 3,547,642.
Ohe, Keitaro, Kaneko, Kiroyuki, and Nishio, Daijiro, 3,548,035.
Fujii, Tsuneo: *See—*
Kometani, Yutaka, Fujii, Tsuneo, and Sakata, Shinsuke, 3,547,859.
Fujita, Teizo. Magnetic control relay. 3,548,349, Cl. 335-132.
Fuller Company: *See—*
Horner, Frank Walter, Decker, Erwin Louis, and Veo, Lawrence E., 3,546,787.
Furlenmeier, Andre: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf, 3,547,910.
Furr, John M., and Dearman, Grady E. Bracket and tie and concrete form systems including the same. 3,547,398, Cl. 249-219.
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf, to Hoffman-La Roche Inc. 2β,3β-Alkylidenedioxy-6-oxygenation bis nor cholanic acid compounds and the methyl esters thereof. 3,547,910, Cl. 260-239.55
Furstenberg, Joachim, and Kurrle, Horst, to LTG Lufttechnische Gesellschaft mit Beschrankter Haftung. Continuously operating filtering arrangement. 3,546,852, Cl. 55-341.
Furuhashi, Masao: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru, 3,547,804.
Furuhashi, Tamotsu, to Seikagaku Kogyo Company, Ltd. Galacto-acid-mucopolysaccharide containing compound. 3,547,904, Cl. 260-211.
Furuoya, Takashi, to Nippon Electric Company Limited. Semi-permanent magnetic memory device. 3,548,390, Cl. 340-174.
Gaber, Martin: *See—*
Farrell, Guy M., Podgorski, Matthew C., Whitlock, Morris N., and Gaber, Martin, 3,548,137.
Gabler, Rudolf, and Studinka, Josef, to Inventa A.G. fur Forschung und Patentverwertung. Method for producing heat-resistant linear thermoplastic aromatic polythioethers. 3,547,887, Cl. 260-47.
Gaeth, Rudolf: *See—*
Stastny, Fritz, Gaeth, Rudolf, Schmitt, Bernhard, and Haardt, Udo, 3,547,840.
GAF Corporation: *See—*
Hall, Walter J., 3,547,519.
Pechmann, Karl, 3,547,643.
Woodward, Fred E., and Katzenstein, William, 3,547,820.
Wynn, Robert Walter, 3,548,039.
Gage, Homer D., to Mc Crosky Tool Corporation. Small diameter indexable rotary cutting tool. 3,546,761, Cl. 29-105.
Gagle, Duane W.: *See—*
Draper, Homer L., Levy, Dale F., and Gagle, Duane W., 3,547,674.
Gagliardi, Domenick Donald, and Kenney, Virginia S., to Gagliardi Research Corporation. Microbiocidal complexes of aziridinyl compounds and biocidal metal salts and their use in rendering textiles or other substrates durably microbiocidal. 3,547,688, Cl. 117-138.5
Gagliardi Research Corporation: *See—*
Gagliardi, Domenick Donald, and Kenney, Virginia S., 3,547,688.
Gagne, Oscar J. Waste disposal system for boats. 3,546,713, Cl. 4-10.
Gallay, Pierre-Henri, to Maceplast S.A. Method for blow extrusion. 3,548,044, Cl. 264-89.
Gander, Robert Johns, to Johnson & Johnson. Water-soluble acrylate polymers having skin adhering qualities. 3,547,950, Cl. 260-33.2
Garcia Vidal, Daniel Ildefonso. Mechanism for converting the oscillatory rectilinear movement of a prime mover into circular movement. 3,546,952, Cl. 74-40.
Gardner, James B., to TRW Inc. Rotating radiation sensor. 3,548,211, Cl. 250-203.
Gardner, James N.: *See—*
United States of America, National Aeronautics and Space Administration, Administrator, 3,546,917.
Gardner, John D. L. Identification card forming device. 3,546,748, Cl. 18-36.
Gardner, Ross, Jr., and Keough, Allen H., to Norton Research Corporation. One pot epoxy compositions containing ketimine curing agents. 3,547,886, Cl. 260-47.
Gardner-Denver Company: *See—*
Rudman, Frederick R., 3,547,006.
Garrett, Jim C., and Johnson, Robert H. Intercept strapping bridge and contacts. 3,548,361, Cl. 339-17.
Gartrell, John T., to Kaiser Aluminum & Chemical Corporation, mesne. Applying vitreous enamel. 3,546,909, Cl. 72-46.
Garver, William Joseph, to AMP Incorporated. Metallic liner for printed circuit board hole. 3,548,369, Cl. 339-258.
Garza, Emmett. Vehicles protected by robbery deterrent apparatus. 3,547,217, Cl. 180-112.
Gassei, Wallace K., and Neidel, James R. Delayed headlamp system with door control. 3,548,252, Cl. 315-82.
Gates, Harlan R.: *See—*
De Witt, David, Gates, Harlan R., and Platt, Alan, 3,547,716.
Gates, John William Charles, and Hall, Roy Geoffrey Noel, to National Research Development Corporation. Rotary devices and apparatus. 3,548,337, Cl. 331-94.5
Gates, Paul E.: *See—*
Dayton, David R., and Gates, Paul E., 3,547,508.
Gattner, Gunther E., and Widdel, Karl-Heinz, to Siemens Aktiengesellschaft. Method of forwarding information from a high speed data processing system to a slower operating data processing system. 3,548,380, Cl. 340-172.5
Gaudet, Peter W.: *See—*
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B., 3,547,680.
Gaudin, Jean, to Societe de Constructions Mecaniques de Creil. Tensioning device for use in winding multiple strips upon a common mandrel. 3,547,332, Cl. 226-195.
Gauster, Wolfgang, Muller, Walter, and Weinrotter, Ferdinand, to Osterreichische Stickstoffwerke Aktiengesellschaft. Process for removing fluorine and phosphate from gypsum produced in the manufacture of phosphoric acid. 3,547,581, Cl. 23-122.
Gawlick, Heinz, and Bendler, Hellmut, to Dynamit Nobel Aktiengesellschaft. Ignitor for explosive charge with means for preventing inadvertent ignition. 3,547,033, Cl. 102-70.
G. C. Optronics, Inc.: *See—*
Grant, Robert H., 3,547,532.
Gearco A/S: *See—*
Mernoe, Erik Christian, 3,547,251.
Gee, Floyd: *See—*
Jeffreys, George A., 3,547,652.
Gee, Paul Y. C.: *See—*
Andress, Harry J., Jr., and Gee, Paul Y. C., 3,548,011.
Geerlings, Petrus J. Animal feeder with feed moistening mechanism. 3,547,081, Cl. 119-51.11
Geiger, Robert E., to Ingersoll-Rand Company. Hoist control valve. 3,547,150, Cl. 137-599.
Geigy Chemical Corporation: *See—*
Dietrich, Henri, 3,547,954.
Roth, Willy, and Schenk, Otto Erwin, 3,547,854.
Geigy, J. R., A.G.: *See—*
Lienhard, Paul, and Beffa, Fabio, 3,547,901.
Gelblum, Gideon P.: *See—*
Pechenick, William, and Gelblum, Gideon P., 3,547,579.
General Electric Company: *See—*
Archer, John R., 3,548,350.
Barkan, Philip, and Greenwood, Allan N., 3,548,256.
Berkey, Donald C., 3,546,882.
Biscoff, William S., 3,548,245.
Bostick, Edgar E., 3,548,033.
Buice, Joel B., and Trewhella, Raymond Matthew, 3,548,265.
Carino, John W., and Bainbridge, Robert H., 3,548,264.
Daunt, John Edward, 3,547,455.
Hellen, Richard J., 3,548,204.
Hobson, Robert R., 3,548,222.
Hoogenboom, Leo, 3,546,757.
Jenny, Alfred L., and Curtis, James H., 3,547,423.
Kalbfus, Charles Richard, 3,547,255.
Kappus, Peter G., and Long, William H., 3,547,379.
Kappus, Peter G., and Long, William H., 3,547,380.
Kelley, Lonny R., and Ringwall, Carl G., 3,547,138.
Klein, Keith W., 3,548,358.
Kovacik, John M., and Hunt, Everett C., 3,547,085.
Marton, Theodore, 3,546,961.
Thal, Herbert L., Jr., and Mayer, Charles B., 3,548,246.
General Fire Extinguisher Corporation: *See—*
Balmes, Mark E., Sr., 3,547,201.
General Foods Corporation: *See—*
Lee, Edward P., Lombardi, Eugene H., Montes, Ralph A., and Stoeckli, Oscar W., 3,546,965.
General Mills, Inc.: *See—*
Batra, Jagmohan, 3,547,172.
General Motors Corporation: *See—*
Fox, Joseph R., and Schaefer, Robert H., 3,546,974.
Harmon, Kenneth B., 3,547,238.
Harned, John L., and Stewart, Edwin E., 3,547,501.

Jacobs, James W., 3,546,786.
Jacobs, James W., 3,546,895.
Ricker, Dennis J., 3,548,258.
Ruhala, Joseph, 3,546,962.
General Signal Corporation: *See—*
Maynard, Wheeler D., and Belanger, Edward A., 3,548,139.
Schwarz, Peter D., 3,548,161.
General Steel Industries, Inc.: *See—*
Cunningham, James B., 3,547,045.
Lich, Richard L., 3,547,046.
General Tire & Rubber Company, The: *See—*
Read, Robert R., 3,547,734.
Genma, Sanji: *See—*
Watanabe, Hikoitsu, and Genma, Sanji, 3,548,069.
Gennerich, Max, Paul, Walter, Niemeyer, Willy, and Achelpohl, Fritz, to Windmoller & Holscher. Apparatus for pulling open and flattening crossed end portions in the manufacture of crossed end bags from plastics material sheeting. 3,547,010, Cl. 93-22.
Gentilhomme, Claude, and Menault, Jacques, to Crylor. Pyrolytic carbon coated support and process for its manufacture. 3,547,677, Cl. 117-46.
Gentry, Kenneth L., and Fordyce, Conrad L. Container lining apparatus. 3,547,013, Cl. 93-36.6
George, Peter D. Lathe. 3,546,984, Cl. 82-2.
Gerdine, Milton A., to Bell Telephone Laboratories, Incorporated. Dielectric resonator mode suppressor. 3,548,348, Cl. 333-98.
Gerecht, John Fred, to Colgate-Palmolive Company. Hydroxyalkyl piperidine or pyrrolidine oxides. 3,547,932, Cl. 260-294.7
Gerity-Schultz Corporation: *See—*
Lewis, Dong Sing, 3,547,181.
Germane Corporation: *See—*
Charlson, Lynn L., 3,547,563.
Charlson, Lynn L., 3,547,564.
Gerry, Ronald J., to Norton Company. Electrically conductive thermoset resin-bonded grinding wheel containing silver particles. 3,547,609, Cl. 51-298.
Gerson, Irvin M., and Prebluda, Harry J., said Prebluda assor to said Gerson. Lithium salts of butyric acid derivatives. 3,547,990, Cl. 260-534.
Gerstin, Harry, to Upjohn Company, The. Process of fabricating an amphibious load-supporting structure. 3,546,773, Cl. 29-433.
Geusic, Joseph E., Singh, Shobha, and Smith, Richard G., to Bell Telephone Laboratories, Incorporated. Parametric devices utilizing $Bd_2Na\ Nb_5\ O_{15}$. 3,548,199, Cl. 307-88.3
Giacalone, Dino B., and Smith, Edgar M., to Hollingsworth, John R., Company. Gas sensor for battery charger. 3,548,286, Cl. 320-35.
Gianni, Michael H.: *See—*
Engel, Lawrence J., Gianni, Michael H., and Wiener, Charles, 3,548,004.
Gibel, Stephen J. Speed control muffler with adjustable valve. 3,547,223, Cl. 181-36.
Gibson, Philip Terry, Hull, Henry Elwin, and Larimer, Sherman Andrew, to Thornton Products Company. Locking differential. 3,546,969, Cl. 74-711.
Giegerich, James E., to Certain-Teed Products Corporation. Tab stacking apparatus. 3,547,280, Cl. 214--006
Gilbert, Lyman F., to Combustion Engineering, Inc. Flame condition sensing device. 3,548,395, Cl. 340-228.2
Gill, William G., to Electrothermic Co., The. Method and apparatus for recovery of minerals from sub-surface formations using electricity. 3,547,193, Cl. 166-248.
Gillerman, Joseph B.: *See—*
United States of America, National Aeronautics and Space Administration, Administrator, 3,547,801.
Gilles, Richard C.: *See—*
Davis, William J., and Gilles, Richard C., 3,547,819.
Gillette Company, The: *See—*
Martin, Frank Samuel, 3,548,127.
Gilliem, Lester G. Beverage drinking tube installation. 3,547,308, Cl. 220-90.2
Gingher, Carl E. Valet rack post. 3,547,475, Cl. 287-103.
Girard, Andre Georges, and Ray, Andre, to Roussel UCLAF. Sulfobenzoyl hydrazones of 5-nitrofurfuraldehyde. 3,547,914, Cl. 260-240.
Girard, Louis A., Jr., and Ross, Robert S., to Goodyear Aerospace Corporation. Automatic stabilizing system for tethered aerodynamic bodies. 3,547,378, Cl. 244-33.
Giraudi, Giorgio: *See—*
Huob, Konrad, Giraudi, Giorgio, and Rossi, Gianfranco, 3,546,836.
Girling Limited: *See—*
Fowler, Richard Thomas, 3,547,004.
Girvan, John H., to Minnesota Automotive, Inc. Pressure and wear compensator for caliper disk brake. 3,547,233, Cl. 188-170.
Giuffrida, Sebastian J., to Chrysler Corporation. Energy absorbing restraint apparatus. 3,547,468, Cl. 280-150.
Glabisch, Dietrich: *See—*
Arlt, Dieter, Glabisch, Dietrich, and Suling, Carlhans, 3,547,899.
Gladu, Gordon N.: *See—*
Gladu, Norman D., and Gladu, Gordon N., 3,547,592.
Gladu, Norman D., and Gladu, Gordon N. Fumes burner. 3,547,592, Cl. 23-277.
Glass, John P. Planing step. 3,547,064, Cl. 114-66.5
Glass Laboratories Company: *See—*
Shanok, Victor, and Shanok, Jesse P., 3,547,515.
Shanok, Victor, and Shanok, Jesse P., 3,547,516.
Glass, Marvin, & Associates: *See—*
Breslow, Jeffrey D., 3,547,436.
Glassman, Aaron, to Pennsylvania Sewing Research Corporation. Fabric article everting device having releasable latching means. 3,547,320, Cl. 223-40.
Gleason, George H. Sectional camper. 3,547,481, Cl. 296-23.
Gleit, Chester E., Mensing, Clifford E., Jr., and Curtis, Reid H., to Perkin-Elmer Corporation, The. Low temperature R-F reactor. 3,547,802, Cl. 204-312.
Glenwood Range Company: *See—*
Mc Arthur, George, Jr., 3,547,099.
Global Marine Inc.: *See—*
Thornburg, Russell B., 3,547,276.
Glos, Franz: *See—*
Schucker, Josef W.O., Glos, Franz, and Nemetz, Willi, 3,547,799.
Gniffke, Glenn D.: *See—*
Fratzke, Harold A., Gniffke, Glenn D., and Van Selus, Samuel H., 3,547,290.
Goble, Harold G.: *See—*
Lichti, Robert D., 3,547,281.
Godefroi, Erik Fred, and van der Eijcken, Cyriel Alfons Maria, to Janssen Pharmaceutica, N.V. Imidazole carboxylates. 3,547,942, Cl. 260-309.
Goff, Randall, to Dresser Industries, Inc. Electrical switch instrument. 3,548,129, Cl. 200-56.
Gofman, John W.: *See—*
Chapman, Robert L., and Gofman, John W., 3,547,107.
Golden Cycle Corporation, The: *See—*
Wilson, Harold W., 3,547,583.
Goldfarb, Adolph Eddy. Toy camera. 3,547,020, Cl. 95-13.
Goldschmidt, Th., A.-G.: *See—*
Koerner, Gotz, 3,548,025.
Gombault, Jacobus Fredericus, to Hadewe Eerste Nederlandse Duplicatorfabrieken. Device for hectographically printing a text. 3,547,027, Cl. 101-53.
Goodell, Harvey E.: *See—*
Miller, David S., and Goodell, Harvey E., 3,548,347.
Goodley, Alan R.: *See—*
Hartbauer, Ellsworth A., Rehr, Henry W., Goodley, Alan R., and Wyatt, John W., 3,547,282.
Goodrich, B. F., Company, The: *See—*
Dreyfuss, Patricia M., and Dreyfuss, Max Peter, 3,548,037.
Goodrich, Robert R.: *See—*
Reese, Glenn A., Goodrich, Robert R., and Krone, Ben W., 3,548,096.
Goody, Lewis B.: *See—*
Lalmond, Harold, and Goody, Lewis B., 3,546,775.
Goodyear Aerospace Corporation: *See—*
Girard, Louis A., Jr., and Ross, Robert S., 3,547,378.
Gordin, Samuel E., to Hickory Springs Manufacturing Co., Inc. Rocker-swivel device. 3,547,393, Cl. 248-385.
Gordon, Bernard M., and Neumann, Leopold, to Gordon Engineering Company. Non-linear mathematical signal conditioning system. 3,548,323, Cl. 328-142.
Gordon Engineering Company: *See—*
Gordon, Bernard M., and Neumann, Leopold, 3,548,323.
Gordon, Herman, to Rogers Corporation. Method of making flat flexible electrical cables. 3,547,718, Cl. 156-55.
Gorike, Rudolf, and Wolf, Konrad, to Akustische u. Kino-Gerate Gesellschaft m.b.H. Foam material support means for a sound transmitter. 3,548,121, Cl. 179-184.
Gossfeld, Walter A.: *See—*
Monigal, Robert E., Eck, Robert N., Gossfeld, Walter A., and Swanson, William C., 3,548,399.
Gottschald, Erika: *See—*
Gottschald, Rudolf, 3,547,460.
Gottschald, Rudolf, deceased (by Gottschald, Erika, heir), to Ehrenreich, A., & Cie. Steering gear. 3,547,460, Cl. 280-95.
Gottschald, Rudolf, to Ehrenreich, A., & Cie. Elastic bellow packings for universally movable joints, and more particularly for ball joints. 3,547,453, Cl. 277-212.
Gottschald, Rudolf, to Ehrenreich, A., & Cie. Bellow packings for universally movable joints, especially for bill joints. 3,547,473, Cl. 287-87.
Goue, Bernard: *See—*
Charbonnier, Jean-Claude, and Goue, Bernard, 3,547,699.
Gould, Bert B., Biehl, Arthur T., Mainhardt, Robert, and Barton, William D., to MB Associates. Small arms weapon. 3,546,997, Cl. 86-1.
Grabovac, Bosko. Force indicating device. 3,546,933, Cl. 73-141.
Grace, W. R., & Co.: *See—*
Huob, Konrad, Giraudi, Giorgio, and Rossi, Gianfranco, 3,546,836.
Marans, Nelson Samuel, and Mitchell, Fern Wood, 3,547,793.
Patterson, William A., 3,547,792.
Stahly, Eldon E., and Lard, Edwin W., 3,548,029.
Graham, Robert P., Huxsoll, Charles C., Hart, Marcus R., and Weaver, Merle L., to United States of America, Agriculture. Process for peeling potatoes. 3,547,173, Cl. 146-231.
Grant, Robert H., to G. C. Optronics, Inc. Apparatus for forming holograms. 3,547,532, Cl. 355-2.
Grauer, Oscar H., to Fischer & Porter Company. Ball valves. 3,547,403, Cl. 251-170.
Graves, Darlene: *See—*
Young, Richard M., 3,547,477.

Gray, Bronis G., to Air Reduction Company, Incorporated. Method of processing metal-bearing charge in a furnace having oxy-fuel burners in furnace tuyeres. 3,547,624, Cl. 75-42.

Gray, Lysle B.: *See—*
Alexander, Claude L., Gray, Lysle B., and Long, John I.,3,547,141.

Greathouse, Walton D., Cheek, James H., and Spencer, John R., to Continental Oil Company. Gas flow diffuser. 3,547,354, Cl. 239-500.

Green, Edward H. Valve assembly for dispensing metered amounts of pressurized product. 3,547,317, Cl. 222-402.2

Green, Harry J., Jr., to Nemonic Data Systems, Inc., mesne. Method of making a striated support for filaments. 3,548,045, Cl. 264-104.

Green, Wayne P., to Osborn, Leon C., Co., Inc. Device for sorting and transporting particulate material. 3,547,263, Cl. 209-102.

Greenberg, David. Nursing bottle drinking tube. 3,547,296, Cl. 215-11.

Greenspan, Frank P., to FMC Corporation. Diallylic phthalate decorative laminates. 3,547,770, Cl. 161-251.

Greenwood, Allan N.: *See—*
Barkan, Philip, and Greenwood, Allan N.,3,548,256.

Grefco, Inc.: *See—*
Munn, Dorothy R., 3,547,260.

Greiff, Paul: *See—*
Bourassa, Francis J., and Greiff, Paul,3,548,268.

Grennan, Charles W., and Hearn, Richard J., to Chandler Evans Inc. Fluid pump and delivery system. 3,547,557, Cl. 417-89.

Gresham, James T., to Kimberly-Clark Corporation. Method of making paper toweling material. 3,547,723, Cl. 156-209.

Grewe, Ferdinand: *See—*
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.

Grieser, Robert H. Safety seat. 3,547,489, Cl. 297-385.

Griffin, Donald B.: *See—*
Schwartzenburg, Frederick Jr., and Griffin, Donald B.,3,547,868.

Grijalva, Ramon J., and Queener, George F., to United States of America, Atomic Energy Commission, mesne. Release latch actuated by temperature excursion. 3,546,996, Cl. 85-1.

Griswold, Haley E.: *See—*
Hebert, Gayle P., Perciful, Jerry C., Startz, Ambrose J., and Griswold, Haley E.,3,548,017.

Griveau, Pierre R.: *See—*
Duroux, Jean, Griveau, Pierre R., and Zahaczewski, Michel,3,548,299.

Grodinsky, Robert, to Acoustic Research, Inc. Apparatus and method for reducing amplifier distortion. 3,548,331, Cl. 330-24.

Gromakov, Vitaly Viktorovich, Kapitanov, Vaktor Ivanovich, Kitchenko, Anatoly Ivanovich, and Edemsky, Vladimir Mikhailovich. Power regulator for arc furnace. 3,548,061, Cl. 13-13.

Grooming Developers, Inc.: *See—*
Roos, Paul J., 3,547,135.

Gross, Thomas A. O. Dynamic braking of universal motors. 3,548,276, Cl. 318-212.

Gruseck, Horst S. Water skiing tow rope retriever. 3,547,371, Cl. 242-107.

Grusin, Gerald M., and Logan, James E. Bathroom scale with optically projected dial indicator. 3,547,212, Cl. 177-178.

Gruska, Ralph, to Ejectoret S.A. Holders for sticks of pasty material. 3,547,550, Cl. 401-78.

Gruska, Ralph, to Ejectoret S.A. Holders for protecting sticks of pasty materials. 3,547,551, Cl. 401-78.

Guennou, Serge, Lefevre, Claude, and Maugis, Raymond, to U.S. Philips Corporation, mesne. Device for the reception of radiotelephone distress signals. 3,548,316, Cl. 325-466.

Guertin, Alfred Thomas: *See—*
Keeling, Ronald James, and Guertin, Alfred Thomas,3,547,767.

Guigan, Jean, and Laucournet, Robert, to Compagnie Generale d'Automatisme. Filling line for the filling of containers. 3,547,781, Cl. 195-127.

Gulf & Western Industrial Products Company: *See—*
Connor, Mark J., 3,547,008.

Gulf Energy & Environmental Systems, Inc.: *See—*
Bokros, Jack C., 3,546,711.

Gulf Research & Development Company: *See—*
Back, Gayle E., and Dahle, Norman A.,3,547,619.
Neighbors, Ralph P., and Phillips, Lee V., 3,547,621.
Whitney, Robert C., and Bergman, Raymond M., 3,547,689.

Gutberlet, Louis C., and Bertolacini, Ralph J., to Standard Oil Company (Indiana). Process for the disproportionation of petroleum hydrocarbons. 3,548,020, Cl. 260-672.

Guthart, Leo A., to Alarm Device Manufacturing Company, division of Pittway Corporation. Intruder alarm system with supervision and test. 3,548,401, Cl. 340-274.

Guthrie, Elizabeth A.: *See—*
Hansen, Gerald D., Jr., and Guthrie, Elizabeth A.,3,547,817.

Gutman, Isaj, 50% to English Numbering Machines Limited, and 50% to Flexico France. Cutter arrangements. 3,546,989, Cl. 83-13.

Gwinner, Walter C., to Stanley Works, The. Molded embossed sealing liner having indicia. 3,547,746, Cl. 161-2.

Gwyn, Childress B., Jr., to Contacts Incorporated. Apparatus for making cold bonded electrical composite contacts. 3,547,334, Cl. 228-3.

Gwynn, Ross M., and Themy, Tim, to KDI Chloro Guard Corporation, mesne. Composite electrode having a base of titanium or columbium, an intermediate layer of tantalum or columbium and an outer layer of platinum group metals. 3,547,600, Cl. 29-183.5

Haardt, Udo: *See—*
Stastny, Fritz, Gaeth, Rudolf, Schmitt, Bernhard, and Haardt, Udo,3,547,840.

Haberkorn, Erich J., and Breuer, Hans W., to Entwicklungsring Sud GmbH. System for dropping stored material form tubular container means provided at an aircraft. 3,547,000, Cl. 89-1.5

Haberle, Karlheinz. Photographic camera with electronic shutter speed control and exposure time indication. 3,547,018, Cl. 95-10.

Haboush, Edward J. Compensating plate means for bone fractures. 3,547,114, Cl. 128-92.

Hachiya, Isao: *See—*
Takubo, Tadashi, and Hachiya, Isao,3,547,965.

Hadewe Eerste Nederlandse Duplicatorfabrieken: *See—*
Gombault, Jacobus Fredericus, 3,547,027.

Hadsel, Jack L., to Wolverine Brass Works. Shower head. 3,547,352, Cl. 239-383.

Haefner, John A.: *See—*
Kennard, Kenneth C., and Haefner, John A.,3,547,635.

Hagan Industries, Incorporated: *See—*
Zanft, Auram B., 3,547,055.

Hagen, William F., and Douglas, Edward O., to Turbo Refrigerating Company. Freezer plates and water distribution for ice making machine. 3,546,896, Cl. 62-347.

Haggerty, William A., to Cincinnati Milacron Inc. Apparatus for simultaneously electrochemically machining a plurality of previously formed surfaces of a workpiece. 3,547,797, Cl. 204-224.

Haggerty, William A., to Cincinnati Milacron Inc. Electrochemical machining tool. 3,547,798, Cl. 204-224.

Hahn, Robert S., to Heald Machine Company, The. Apparatus for the generation of a surface of revolution by the electro-chemical process. 3,547,795, Cl. 204-212.

Halcon International, Inc.: *See—*
Schlossman, Irwin, and Sugerman, Gerald, 3,547,991.

Hall, Barbara Ann: *See—*
Standridge, Robert Ted, and Hall, Barbara Ann,3,547,923.

Hall, Glen R. Counter mechanism and test apparatus. 3,548,164, Cl. 235-92.

Hall, John B., and Farb, Richard B., to Baxter Laboratories, Inc. Catheter assembly. 3,547,119, Cl. 128-214.4

Hall, Roy Geoffrey Noel: *See—*
Gates, John William Charles, and Hall, Roy Geoffrey Noel,3,548,337.

Hall, Walter J., to GAF Corporation. Portable viewing accessory for a slide projector. 3,547,519, Cl. 350-123.

Hall, Wilbert. Light emitting vehicle wheel cover. 3,548,185, Cl. 240-8.12

Halliburton Company: *See—*
Frost, Jackie Gene, and Arnold, Billy Bob, 3,547,697.

Hallman, George John, and Blessin, Louis Dewey, to Hudson, H. D., Manufacturing Company. Livestock feeder. 3,547,082, Cl. 119-53.

Hallman, Robert W.: *See—*
Teeg, Robert O., and Hallman, Robert W.,3,547,594.

Hamer, Edward A. G.: *See—*
Shaines, Alfred, Kalish, Robert L., and Hamer, Edward A. G.,3,547,272.

Hamilton, Ferris F. Method of generating seismic impulses. 3,547,218, Cl. 181-0.5

Hammann, Ingeborg: *See—*
Fest, Christa, Hammann, Ingeborg, Stendel, Wilhelm, and Unterstenhofer, Gunter,3,547,920.
Lorenz, Walter, Hammann, Ingeborg, and Unterstenhofer, Gunter,3,547,946.
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.

Hammer, Alfonso W.: *See—*
Sledge, Michael L., Jr., and Hammer, Alfonso W.,3,547,323.

Hamprecht, Guenther, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Processing offgas from the synthesis of melamine. 3,547,919, Cl. 260-249.7

Handa Giken Kogyo Kabushiki Kaisha: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu, 3,547,088.

Hanna, Daniel C. Car window brushing unit. 3,546,728, Cl. 15-21.

Hansen, Gerald D., Jr., and Guthrie, Elizabeth A., to Betz Laboratories, Inc. Inhibition of scale formation. 3,547,817, Cl. 210-58.

Hansford, Rowland C., to Union Oil Company of California. Conversion process and catalysts. 3,547,807, Cl. 208-111.

Hansford, Rowland C., to Union Oil Company of California. Conversion process and catalyst. 3,547,808, Cl. 208-111.

Hans-Joachim Dietzsch G.m.b.H.: *See—*
Dietzsch, Hans-Joachim, 3,547,721.

Harder, Richard E.: *See—*
Callahan, Andrew J., and Harder, Richard E.,3,546,739.

Hardesty, Benjamin T., to Shakespeare Company. Golf club face plate. 3,547,445, Cl. 273-173.

Hardie, Waldo R., and Aaron, Joseph. 1,3-dioxolan-4-yl-alkyl guanidines. 3,547,951, Cl. 260-340.9

Hardison, Leslie C., Pegg, Edward H. R., Reedy, Dom E., and Barr, James M., to Universal Oil Products Company. Gas scrubbing apparatus. 3,546,851, Cl. 55-238.

Hardtmann, Goetz E., and Ott, Hans, to Sandoz-Wander, Inc. Preparation of 1-substituted-4-aryl-3,4-dihydro- 2(1H)-quinazolinones. 3,547,921, Cl. 260-251.

Harlow, Edward S., and Flint, John Roderick, to American Tobacco Company, The. Method of cooling cigarette smoke. 3,547,130, Cl. 131-9.

Harmon, Kenneth B., to General Motors Corporation. Freewheel device. 3,547,238, Cl. 192-45.

Harms, Clarence L.: *See—*
Neebel, Richard R., Harms, Clarence L., Neebel, James D., and Doerfer, Richard E.,3,546,737.

Harned, John L., and Stewart, Edwin E., to General Motors Corporation. Anti-lock brake control. 3,547,501, Cl. 303-21.

Harris, Spencer: *See—*
Bourke, William T., Harris, Spencer, and Muff, Tom C.,3,546,921.

Harris-Intertype Corporation: *See—*
Loase, Raymond M., and Spohn, Glenn A., 3,547,365.

Harris-Muff, Inc.: *See—*
Bourke, William T., Harris, Spencer, and Muff, Tom C., 3,546,921.

Harrison, William A.: *See—*
Kulka, Marshall, and Harrison, William A.,3,547,917.

Hart, Cullen Payton, Hendrickson, Vergil P., and Sebern, James R., to Caterpillar Tractor Company. Cushioning strut for wheel tractor-scraper. 3,547,426, Cl. 267-138.

Hart, Marcus R.: *See—*
Graham, Robert P., Huxsoll, Charles C., Hart, Marcus R., and Weaver, Merle L.,3,547,173.

Hartbauer, Ellsworth A., Rehr, Henry W., Goodley, Alan R., and Wyatt, John W., to Crown Zellerbach Corporation. Apparatus for transient handling and storing of articles. 3,547,282, Cl. 214-16.4

Harthan, Millard C., Jr. Stop light switch system for automobile. 3,548,134, Cl. 200-86.5

Hartlipp, Willis E., Healy, Henry G., Ruggiero, Angelo S., and Shutler, William F., to International Business Machines Corporation. Computer error anticipator and cycle extender. 3,548,177, Cl. 235-153.

Hartmann and Braun Aktiengesellschaft: *See—*
Engelhardt, Heinz, 3,547,549.

Hartung, Horst: *See—*
Kuhne, Ingeburg, and Hartung, Horst,3,547,246.

Harvard Manufacturing Co., The: *See—*
Tambascio, Nickolas A., 3,546,725.

Harvey, Donald M., to Eastman Kodak Company. Automatic exposure control system. 3,547,017, Cl. 95-10.

Hashida, Takeshi: *See—*
Maeda, Tsutomu, Morisada, Sunao, Kasajima, Tatsuji, and Hashida, Takeshi,3,546,916.

Hass, David P., to Eaton Yale & Towne, Inc. Two-shaft turbine with means for controlling relative shaft rotation. 3,546,879, Cl. 60-39.16

Hass, Karl, Schinke, Georg, and Langenhoff, Fred, to Dynamit Nobel Aktiengesellschaft. Shaped refractory parts. 3,547,832, Cl. 252-455.

Hastings, Reeve R., and Stock, Arthur J., to Stock Equipment Company. Valve. 3,547,140, Cl. 137-240.

Hatanaka, Yoshihiro, Itoda, Masaru, and Ono, Chiaki, to Kabushiki Kaisha Kokuel Kikai Seisakusho. Wrapping paper supply device for coin packing machine. 3,546,850, Cl. 53-389.

Hatta, Hiroshi. Means to attract fish. 3,546,806, Cl. 43-44.99

Hauck, Erwin A.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M.,3,548,384.

Hauser, Charles F., to Union Carbide Corporation. Catalysts for the preparation of acid halides. 3,547,960, Cl. 260-408.

Hauser-Lienhard, Hans Ulrich, to Bucher-Guyer AG Maschinenfabrik. Hay harvesting machine. 3,546,867, Cl. 56-370.

Hauser-Lienhard, Hans Ulrich, to Bucher-Guyer AG Maschinenfabrik. Hay harvesting machines. 3,546,868, Cl. 56-377.

Hauser, Martin, and Kuhn, Christine Elizabeth, to American Cyanamid Company. 5-Carboxy-m-phenylene-diacetic acid. 3,547,989, Cl. 260-515.

Hawker Siddeley Dynamics Limited: *See—*
Jones, Neville Rhys, 3,547,720.

Hay, Wayne W., to Air Reduction Company, Incorporated. Mobile support for extensible helical members. 3,548,122, Cl. 191-12.

Hayamizu, Yoshisada, and Sakamoto, Satoru, to Olympus Optical Co., Inc. Elongated variable magnification optical system. 3,547,514, Cl. 350-39.

Hayes, C. I., Inc.: *See—*
Westeren, Herbert W., and Scotto, Vincent, 3,547,422.

Hayes, Michael W.: *See—*
Williams, Terence, and Hayes, Michael W.,3,547,683.

Hayes, Robert R.: *See—*
Clingenpeel, William R., Cain, Charles L., Hungerford, Philip C., Jr., and Hayes, Robert R.,3,547,183.

Hays Corporation, The: *See—*
Dreckmann, Hubert, 3,546,922.

Hays, George E., to Phillips Petroleum Company. Method for producing high-purity crystals using serially connected crystallization zones. 3,547,597, Cl. 23-302.

Hch. Bertrams Aktiengesellschaft: *See—*
Kuhnlein, Hans, 3,547,188.

Headd, Franklin L.: *See—*
Dhir, Partap C., and Headd, Franklin L.,3,548,195.

Heald Machine Company, The: *See—*
Hahn, Robert S., 3,547,795.
Uhtenwoldt, Herbert R., Knorring, Richard T., and Johnson, Glenn D., 3,546,823.

Healy, Henry G.: *See—*
Hartlipp, Willis E., Healy, Henry G., Ruggiero, Angelo S., and Shutler, William F.,3,548,177.

Heard, George Guy, Jr. Integral Ettingshausen-Peltier thermoelectric device. 3,547,705, Cl. 136-203.

Hearn, Richard J.: *See—*
Grennan, Charles W., and Hearn, Richard J.,3,547,557.

Heaslett, Alastair Michael, to Ampex Corporation. Voltage regulator with a low input impedance and improved feedback gain characteristics. 3,548,291, Cl. 323-22.

Hebert, Gayle P., Perciful, Jerry C., Startz, Ambrose J., and Griswold, Haley E., to Texaco Inc. Xylene isomerization process. 3,548,017, Cl. 260-668.

Heck, Howard F. Apparatus for dressing fish. 3,546,738, Cl. 17-62.

Hedberg, Robert E. Acoustical apparatus. 3,547,221, Cl. 181-31.

Hedge, John A., and Schmoyer, Laurence F., to Sun Oil Company. Process for the production of naphthalene. 3,548,019, Cl. 260-672.

Heer, Alfred: *See—*
Seeber, Eberhard, and Heer, Alfred,3,547,869.
Porret, Daniel, Metzger, Karl, and Heer, Alfred,3,547,918.

Heiart, Robert Bernard: *See—*
Cohen, Abraham Bernard, and Heiart, Robert Bernard,3,547,730.

Heier, Earl: *See—*
Roberts, Henry, Epstein, Maurice, and Heier, Earl,3,548,320.

Heiskell, Raymond H. Proportional dispensing apparatus. 3,547,316, Cl. 222-82.

Held, Edward C., Jr., to Phillips Petroleum Company. Method for vacuum forming hollow articles from two sheets of thermoplastic material. 3,548,043, Cl. 264-89.

Helderman, James F., to U.S. Expansion Bolt Company. Shield member for an explosive actuated tool. 3,547,333, Cl. 227-11.

Helgeland, Walter, to Sprague Electric Company. Resistance measuring bridge having an amplification system providing a signal for terminating a machining process. 3,548,303, Cl. 324-62.

Hellen, Richard J., to General Electric Company. Electrical function generator. 3,548,204, Cl. 307-229.

Heller, Walter J., A.G.: *See—*
Starkle, August F., 3,547,493.

Helmer, Josef, and Eltze, Ulrich, to Daimler-Benz Aktiengesellschaft. Installation for the pressure medium supply of an automatic motor vehicle transmission. 3,547,558, Cl. 417-199.

Helmus, Martin F., to Henkels and McCoy, Inc. Railroad cable laying apparatus. 3,546,887, Cl. 61-72.1

Hemmes, Pieter, to Tedeco Verpacking G.m.b.H. Food package. 3,547,338, Cl. 229-43.

Hemphill, Dean P., and Broussard, Douglas E., to Shell Oil Company. Construction of multiple pipe risers to offshore platforms. 3,546,889, Cl. 61-723.

Henderson, Gary Vernon: *See—*
Brazeale, Don Laverne, and Henderson, Gary Vernon,3,547,367.

Henderson, Rolland H., to Leeds & Northrup Company. Logic control arrangement. 3,548,324, Cl. 328-150.

Hendrickson, Vergil P.: *See—*
Hart, Cullen Payton, Hendrickson, Vergil P., and Sebern, James R.,3,547,426.

Henkels and McCoy, Inc.: *See—*
Helmus, Martin F., 3,546,887.

Hennessey, William M., to Burroughs Corporation. Electron tube mounting apparatus. 3,548,364, Cl. 339-145.

Henning, Frederick E. Water weed mower comprising a continuous cable of weight and cutter sections. 3,546,857, Cl. 56-8.

Hennis, Henry E.: *See—*
Priddy, Duane B., and Hennis, Henry E.,3,548,009.

Henry, James W., and Davy, Nevil, to Eastman Kodak Company. Reinforced plastic screens. 3,547,518, Cl. 350-117.

Hepp, Rudolf. Method of and apparatus for spreading folded signature leaves. 3,547,429, Cl. 401-54.

Herbert, Robert, and Osting, Richard C., to West Company, The. Container closure having integral opening means. 3,547,297, Cl. 215-46.

Hercules Incorporated: *See—*
Bonkowski, Joseph E., 3,547,875.
Erb, Louis F., 3,547,682.
Lamborn, Bayard T., 3,547,829.
Landauer, Franz, and Vetter, Hans-Joachim, 3,547,863.

Herdeg, Donald F., and Brett, Oliver C., Jr., to USM Corporation. Sheet handling devices. 3,547,432, Cl. 271-20.

Hereford, John R. Intermittent advancing mechansim for film in a pulse camera or the like. 3,547,331, Cl. 226-114.

Hertig, Max, to Braun, G. A., Inc. Cake breaker for laundry apparatus. 3,546,903, Cl. 68-12.

Herzer, Kurt, Firma: *See—*
Herzer, Kurt, and Mertens, Wolfgang, 3,547,486.

Herzer, Kurt, and Mertens, Wolfgang, to Herzer, Kurt, Firma. Adjustable head rest for vehicle seats. 3,547,486, Cl. 297-408.

Hespel, Claude, to Compagnie Generale d'Electricite. Electrode arrangement for a fuel cell. 3,547,702, Cl. 136-86.

Hess, Louis R., to Pacific Air Products. Pressure sealed damper. 3,547,152, Cl. 137-601.

Hesston Corporation: *See—*
White, Allen A., 3,546,864.

Hewitt, Eugene E., to Uniroyal, Inc. Friction welding tool. 3,547,741, Cl. 156-579.
Hexcel Corporation: *See—*
Anderson, Donald C., 3,547,727.
Hickmann, Udo: *See—*
Peyker, Ortwin, Hickmann, Udo, and Marx, Wilhelm,3,547,091.
Hickory Springs Manufacturing Co., Inc.: *See—*
Gordin, Samuel E., 3,547,393.
Hicks, Warren F.: *See—*
Rizzolo, Alfred T., and Hicks, Warren F.,3,548,149.
Hickson & Welch Limited: *See—*
Sarkar, Asim Kumar, 3,547,952.
Hieber, Fritz: *See—*
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter,3,548,102.
Hilderbrand, Howard H. Fluid flow indicator. 3,546,939, Cl. 73-212.
Hill, James S., to Engelhard Minerals & Chemicals Corporation. Metal coating carbon substrates. 3,547,692, Cl. 117-217.
Hill, Robert B., and Palmer, Stephen W. Bicycle surfboard rack. 3,547,325, Cl. 224-39.
Himmelstein, Paul: *See—*
Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther,3,548,145.
Hinds, Schubert W. Pressure sensitive adhesive tape applicator. 3,547,740, Cl. 156-523.
Hino, Tetsuo: *See—*
Tomita, Masao, and Hino, Tetsuo,3,548,334.
Hinrichs, Donald R., to Reynolds Metals Company. Method and apparatus for cooling extruded tubing. 3,548,042, Cl. 264-89.
Hintz, Ronald G., to Control Data Corporation. Flip-flop with simultaneously changing set and clear outputs. 3,548,221, Cl. 307-292.
Hirata, Michiho, to Nippon Oil Seal Industry Co., Ltd. Propeller shaft seal. 3,547,452, Cl. 277-92.
Hirota, Eiichi: *See—*
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi,3,547,823.
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi,3,547,824.
Hirsbrunner, Hans G., to Texas Instruments, Incorporated. Electrothermal logic apparatus. 3,548,293, Cl. 323-69.
Hirsch, Walter, to Massey-Ferguson Industries Limited. Adjustable concave. 3,547,129, Cl. 130-27.
Hirschfeld, Tomas, to Block Engineering, Inc. Apparatus for forming microelements. 3,547,074, Cl. 118-7.
Hitachi, Ltd.: *See—*
Omura, Yoshito, and Ochi, Shikayuki, 3,548,332.
Hitzemann, Gerhard, Kulling, Achim, Luginsland, Hans-Hermann, and Weber, Helmut, to Titangesellschaft m.b.H. Process for the manufacture of a rutile pigment having high resistance to graying in resin systems. 3,547,671, Cl. 106-300.
Hixson, Henry Haley, deceased (by Hixson, Jane S., administrator). Process for roasting green coffee beans. 3,547,653, Cl. 99-68.
Hixson, Jane S.: *See—*
Hixson, Henry Haley,3,547,653.
Hiyama, Kazuo. Method of harnesting vine borne crops. 3,546,856, Cl. 56-1.
Hobart Manufacturing Company, The: *See—*
Allen, Kenneth C., and Boshinski, Edwin E., 3,548,163.
Hobson, Robert R., to General Electric Company. Thermionic power generation apparatus. 3,548,222, Cl. 310-4.
Hoch, Monroe P., and Barrera, Joseph, to Wilkes Pool Corporation. Rectangular swimming pool. 3,546,720, Cl. 4-172.19
Hoch, Paul E., and Stratton, George B., to Hooker Chemical Corporation. Polymer recovery process. 3,547,865, Cl. 260-94.7
Hocks, Peter: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf,3,547,910.
Hoekstra, John J., to Dow Chemical Company, The. The process for the preparation of N[(difluopoamino) difluoromethyl]N,N',N',N',N',1-hexafluoromethanetriamines. 3,548,000, Cl. 260-583.
Hoerner Waldorf Corporation: *See—*
Dickert, James C., and Jaeschke, Harold R., 3,547,259.
Hoesch Aktiengesellschaft: *See—*
Hoffmann, Hans-Jurgen, and Lohr, Manfred, 3,547,465.
Hoffman, Henry Allen, Jr., to Du Pont de Nemours, E. I., and Company. Bicomponent acrylic fiber having modified helical crimp. 3,547,763, Cl. 161-173.
Hoffman-La Roche Inc.: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf, 3,547,910.
Hoffmann, Bernd, Bollig, Georg, and Dopper, Otto, to Schloemann Aktiengesellschaft. Adjustable length for production of patented steel wire. 3,547,421, Cl. 266-3.
Hoffmann, Hans-Jurgen, and Lohr, Manfred, to Hoesch Aktiengesellschaft. Hydropneumatic suspension unit for use in vehicles or the like. 3,547,465, Cl. 280-124.
Hoffmann-La Roche Inc.: *See—*
Albrecht, Harry Allen, and Plati, John Thomas, 3,547,973.
Cort, Winifred, 3,547,659.
Hofmann, Charles F., to Westinghouse Electric Corporation. Highly filled casting composition. 3,547,871, Cl. 260-37.
Hohbach, Dale J., and Smith, Harold A., to Pacific Adhesives Company, Inc. Solid phenolic resin-blood glue base. 3,547,844, Cl. 260-7.
Hoke Incorporated: *See—*
Antrim, Doron S., 3,547,071.
Hollingsworth, John R., Company: *See—*
Giacalone, Dino B., and Smith, Edgar M., 3,548,286.
Hollis, Oscar LeRoy, and Acuff, Robert D., to Dow Chemical Company, The. Process for making organic polymer filled gas chromatographic columns. 3,547,684, Cl. 117-95.
Holloman, Charles J., to Trans-Lux Corporation. Receiving distributor circuit. 3,548,405, Cl. 340-347.
Holman, Arthur L., to Owens-Corning Fiberglas Corporation. Environmental control device for a molten glass fiberizer. 3,547,610, Cl. 65-7.
Holper, Frank. Clutch means for selectively coupling a single input to one or more plural outputs. 3,547,240, Cl. 192-48.2
Holt, Eric M.: *See—*
Lear, Joseph D., and Holt, Eric M.,3,547,304.
Holthoff, Helmut: *See—*
Severin, Jose, and Holthoff, Helmut,3,546,915.
Holzer Patent AG: *See—*
Holzer, Walter, 3,548,198.
Holzer, Walter. Apparatus for sensing levls in containers holding liquids. 3,547,145, Cl. 137-392.
Holzer, Walter, to Holzer Patent AG. Circuit for preventing transient operation sequence-switched loads. 3,548,198, Cl. 307-41.
Holzl, Horst: *See—*
Stoferle, Theodor, Holzl, Horst, and Rosskopf, Max,3,546,774.
Home Comfort Products Co.: *See—*
Smith, Lester L., and Randall, Frank E., 3,546,841.
Honeywell, Inc.: *See—*
Breikss, Ivars P., 3,548,328.
Ellis, David T., 3,548,389.
Shebanow, Michael S., and Wang, Cheng-Hua, 3,547,345.
Shebanow, Michael S., Borelli, Ronald F., and Nelson, Paul E., 3,547,346.
Hoogenboom, Leo, to General Electric Company. Method of manufacturing a variable capacitance transducer. 3,546,757, Cl. 29-25.41
Hooker Chemical Corporation: *See—*
Ashdown, Ronald A., 3,547,711.
Dannels, Bobby F., and Shepard, Alvin F., 3,547,790.
Hoch, Paul E., and Stratton, George B., 3,547,865.
Hooper, Irving R.: *See—*
Cron, Martin John, Ragan, Elizabeth Almira, and Hooper, Irving R.,3,547,903.
Hoover, Joseph R., to Hughes Aircraft Company. Amplitude limiter with phase control. 3,548,215, Cl. 307-237.
Hopkins, James E.: *See—*
Lichty, Ivan F., Hopkins, James E., and Taddei, Mary E.,3,548,382.
Hopwood, Norman W., Jr.: *See—*
Pascoe, George, and Hopwood, Norman W., Jr.,3,548,173.
Hori, Haruo, Hoshino, Shoichiro, and Tokura, Hiroshi, to Keuffel & Esser Company. Light sensitive composition containing a heterocyclic photoactivator having an -N C-group in the heterocyclic ring alkyl thereof and the photographic use thereof. 3,547,634, Cl. 96-48.
Hori, Haruo, Taguchi, Masahiko, Hoshino, Shoichiro, and Yumiki, Keiichi, to Keuffel & Esser Company. Light sensitive imaging material containing hydrazones. 3,547,646, Cl. 96-90.
Horiguchi, Tadao, Matsuo, Akio, and Ishika, Toshikatu, to Kurita Water Industries Ltd. Method and apparatus for waste water purification. 3,547,816, Cl. 210-15.
Horn, John D., and Pitts, Harold E., to P&H Educationil Aids. Teaching machine for demonstrating functional relationships. 3,546,790, Cl. 35-9.
Horner, Frank W., Limited: *See—*
Joshi, Narendra Nath, 3,548,053.
Horner, Frank Walter, Decker, Erwin Louis, and Veo, Lawrence E., to Fuller Company. Fluidized bed cooler. 3,546,787, Cl. 34-57.
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf, to Chemische Werke Huels A.G. Coatings based on acrylic copolymers and aminoplasts. 3,548,027, Cl. 260-850.
Hornung, Karl-Heinz: *See—*
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf,3,547,889.
Horvath, Paul J., Jr., to Bethlehem Steel Corporation. Steel alloy shell body. 3,547,032, Cl. 102-67.
Hosang, Allan F., to Unidynamics/Phoenix, mesne. Release mechanism. 3,546,999, Cl. 89-1.
Hosegood, Samuel Brittan: *See—*
Cook, Reginald Kenneth, and Hosegood, Samuel Brittan,3,547,187.
Hoshino, Shoichiro: *See—*
Hori, Haruo, Hoshino, Shoichiro, and Tokura, Hiroshi,3,547,634.
Hori, Haruo, Taguchi, Masahiko, Hoshino, Shoichiro, and Yumiki, Keiichi,3,547,646.
Hosokoshi, Kakuichiro, to Matsuhita Electronics Corporation. Color picture tube. 3,547,675, Cl. 117-33.5
Houdaille Industries, Inc.: *See—*
Eggert, Glenn J., and Nicholls, Mervyn E., 3,546,730.
Roberts, Robert D., 3,548,396.
Houghton, Thomas F., to Aircraft Radio Corporation. Low voltage direct current regulator using complementary transistor pair. 3,548,294, Cl. 323-4.

Houlihan, William J.: *See—*
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,547,945.
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,547,947.
Hout, Norman C. Foam device for fog nozzles. 3,547,200, Cl. 169-15.
Howard, Alan Charles Richard, to Rotax Limited. Rectilinear motion bearings. 3,547,502, Cl. 308-6.
Howe, August Wilheim. Toy building set with interfitting frames and blocks. 3,546,807, Cl. 46-16.
Howmet Corporation: *See—*
Stier, Henry W., 3,546,758.
Hoxsie, Frank E., to Lowrance Electronics Mfg., Corporation. Depth sounder. 3,548,370, Cl. 340-3.
Hoyland, Alyson Skipp. Toy cooking apparatus. 3,548,146, Cl. 219-200.
Hristova, Snejanka Vladimirova: *See—*
Angelov, Stefan Hristov, Hristova, Snejanka Vladimirova, and Srebryu Yovtchev,3,548,180.
Hruby, John O., Jr., to Rain Jet Corporation. Industrial liquid discharge nozzle and the like. 3,547,351, Cl. 239-338.
Hubbell, Harvey, Incorporated: *See—*
McDonald, Thomas M., 3,548,259.
Huber, Hans-Peter: *See—*
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter,3,548,102.
Hubler, Victor L.: *See—*
Snedden, Everett B., and Hubler, Victor L.,3,547,025.
Hubner, Klaus: *See—*
Liska, Manfred, and Hubner, Klaus,3,548,289.
Hudson, H. D., Manufacturing Company: *See—*
Hallman, George John, and Blessin, Louis Dewey, 3,547,082.
Hughes Aircraft Company: *See—*
Bockwoldt, Walter H., 3,548,091.
Falce, Louis R., 3,548,345.
Hoover, Joseph R., 3,548,215.
Rust, John B., 3,547,633.
Weglein, Rolf D., 3,547,631.
Wendland, Paul H., 3,548,193.
Hughes, Gordon Alan, and Smith, Herchel, said Hughes assor. to said Smith. Synthesis of gona-2,5(10)-dienes. 3,547,909, Cl. 260-239.55
Hughes, James K., and Williams, Jake E., to Phillips Petroleum Company. Method of producing polymeric articles resistant to fibrillation. 3,548,048, Cl. 264-147.
Huguenard, Albert P., to Eastman Kodak Company. Magnetic tape. 3,547,693, Cl. 117-235.
Hull, Henry Elwin: *See—*
Gibson, Philip Terry, Hull, Henry Elwin, and Larimer, Sherman Andrew,3,546,969.
Huller, Karl GmbH: *See—*
Stoferle, Theodor, Holzl, Horst, and Rosskopf, Max, 3,546,774.
Hultberg, Ake. Arrangement device. 3,547,388, Cl. 248-214.
Hungerford, Philip C., Jr.: *See—*
Clingenpeel, William R., Cain, Charles L., Hungerford, Philip C., Jr., and Hayes, Robert R.,3,547,183.
Hunt, Everett C.: *See—*
Kovacik, John M., and Hunt, Everett C.,3,547,085.
Hunter, John F.: *See—*
Watson, William Keith Ross, and Hunter, John F.,3,548,106.
Huob, Konrad, Giraudi, Giorgio, and Rossi, Gianfranco, to Grace, W. R., & Co. Process and equipment for packaging articles. 3,546,836, Cl. 53-33.
Hussmann, Peter, to Uta-Patentverwaltungsgesellschaft mbH, mesne. Apparatus for manufacture of heat-sensitive products. 3,547,179, Cl. 159-4.
Hutchings, Kenneth J., to Pacific Plantronics, Inc. Self-supporting headset. 3,548,118, Cl. 179-156.
Hutchins, Alma A. Clip for surface treating tool. 3,546,822, Cl. 51-170.
Hutchinson, Herman R., to Pennwalt Corporation. D.C. powered plasma arc method and apparatus for refining molten metal. 3,547,622, Cl. 75-10.
Hutter, Gerhard: *See—*
Blaschke, Felix, and Hutter, Gerhard,3,548,287.
Huxsoll, Charles C.: *See—*
Graham, Robert P., Huxsoll, Charles C., Hart, Marcus R., and Weaver, Merle L.,3,547,173.
Hyde, Wallace R.: *See—*
Mangum, Andrew N., and Hyde, Wallace R.,3,547,601.
Hydrocarbon Research, Inc.: *See—*
Ehrlich, Stanley W., Banikiotes, Gregory C., and Mackles, Mark, 3,547,809.
Van Baush, Edward H., 3,546,892.
Hyggen, Egil: *See—*
Kroken, Arne, and Hyggen, Egil,3,547,176.
Hyper-Loop, Inc.: *See—*
Sommeria, Marcel R., 3,548,278.
Ichinokawa, Hideo: *See—*
Yano, Tomosaburo, Matsuo, Tadasi, Ichinokawa, Hideo, and Kuno, Koichi,3,547,833.
Ichizuka, Tadashi, and Miyagi, Kiyoshi, to Cosmicar Kogaku Kabushiki Kaisha. Compact zoom lens and beam splitting system. 3,547,521, Cl. 350-171.
Ide, Eleanor R., Marcus, Mitchell P., and Tunis, Cyril J., to International Business Machines Corporation. Adaptive logic system for unsupervised learning. 3,548,202, Cl. 307-201.
Ideal Toy Corporation: *See—*
Nielsen, Edwin A., 3,546,809.
Idelsohn, Jerome M.: *See—*
Centner, Ronald M., and Idelsohn, Jerome M.,3,548,172.
Igarashi, Bing: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru,3,547,804.
Iida, Kinji: *See—*
Onozuka, Mitsuo, Nakamura, Toshiaki, and Iida, Kinji,3,547,961.
Iida, Yoshio: *See—*
Nishimoto, Kazuyuki, and Iida, Yoshio,3,547,794.
Iijima, Tetsuya: *See—*
Ohie, Koichi, Iijima, Tetsuya, Yamada, Katsuo, and Miyazaki, Toshio,3,546,973.
Ikeda, Tetsuo: *See—*
Yoshino, Michio, Ikeda, Tetsuo, and Mukai, Shigeo,3,548,010.
Ikeda, Tetuo: *See—*
Kuwayama, Shigeo, Yagi, Motohiko, and Ikeda, Tetuo,3,548,359.
Ikeda, Tsutomu: *See—*
Nishio, Fumihido, Ohkubo, Kunji, and Ikeda, Tsutomu,3,547,642.
Ilford Limited: *See—*
Anderson, Brian, 3,547,944.
Imperial Chemical Industries Limited: *See—*
Corbett, William Michael, Roberts, John Francis Lloyd, and Yates, John Michael, 3,547,882.
Mellish, Stuart Frederick, and Roach, Robert Joseph, 3,547,791.
Inagaki, Junpei, and Kuniyoshi, Masateru, to Tokyo Shibiura Electric Co., Ltd. Control devices for electric motors. 3,548,275, Cl. 318-211.
Indermann & Co., GmbH: *See—*
Karl, Leopold, and Kneitz, Heinz, 3,547,370.
Industrial Filter & Pump Mfg., Co.: *See—*
Passalaqua, Frank H., 3,547,268.
Industrial Management Association: *See—*
Kepple, Orren N., 3,547,299.
Industrial Nucleonics Corporation: *See—*
Bossen, David A., and Freeh, Edward J., 3,547,775.
Ingersoll-Rand Company: *See—*
Bangerter, Kenneth R., 3,547,169.
Clapp, John M., and Urda, Paul, 3,546,976.
Geiger, Robert E., 3,547,150.
Ulbing, Otmar M., 3,547,155.
Inmont Corporation: *See—*
Weisfeld, Joseph, Tringali, Alfred M., Ackerman, Joseph F., and Bernardo, Joseph J., 3,548,026.
Innes, William B. Means and methods of rapid gas analysis. 3,547,587, Cl. 23-232.
Inoue, Isaburo: *See—*
Iwama, Masakuni, Inoue, Isaburo, and Takei, Yutaka,3,547,987.
Insulander, Carl Elis, to Telefonaktiebolaget LM Ericsson. Device for producing the reciprocating movement of the wire guide of a winding machine. 3,547,364, Cl. 242-43.
International Business Machines Corporation: *See—*
Adsmond, Roy T., and Byrnes, Herbert P., 3,547,262.
Bakke, Ernest P., Benson, Allen Bryce, and Bymers, Ronald J., 3,548,333.
Bidwell, Alexander W., and Weinberger, Arnold, 3,548,386.
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J., 3,548,178.
Davis, Edward M., Jr., and Mones, Arthur H., 3,547,604.
De Witt, David, Gates, Harlan R., and Platt, Alan, 3,547,716.
Hartlipp, Willis E., Healy, Henry G., Ruggiero, Angelo S., and Shutler, William F., 3,548,177.
Ide, Eleanor R., Marcus, Mitchell P., and Tunis, Cyril J., 3,548,202.
Mako, John, 3,548,274.
Maxey, Herman D., 3,548,342.
Okcuoglu, Selahattin A., and Walker, George A., 3,547,245.
Perlman, David J., 3,548,391.
Sheiner, Leonard S., 3,547,513.
Shutler, William F., 3,548,176.
Sonoda, George Y., 3,548,388.
Strudwick, Thomas H., 3,547,708.
Tunis, Cyril J., 3,548,385.
Vermeulen, Johannes C., 3,548,327.
International Computers Limited: *See—*
Scarrott, Gordon George, and Truman, Norman Nathan, 3,548,115.
International Harvester Company: *See—*
Clendenin, Wilbur H., 3,546,861.
Pool Stuart D., and Middlesworth, Tommy A., 3,546,860.
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A., 3,546,866.
Sammarco, Peter, and Sanderson Robert W., III, 3,547,292.
International Lead Zinc Research Organization, Inc.: *See—*
Overmars, Henricus G. J., 3,547,841.
International Machinery Corporation: *See—*
Mencacci, Samuel A., 3,547,248.
International Nickel Company, Inc., The: *See—*
Bieber, Clarence George, and Covert, Roger Allen, 3,547,625.

International Register Company: *See—*
Banathy, Eugene Denis, and Rosenski, Julius Robert, 3,548,125.
Bassett, Ronald M., 3,548,126.

International Research & Development Company Limited: *See—*
MacNab, Robert B., 3,548,231.

International Standard Electric Corporation: *See—*
Cooke, Reginald Benjamin William, and Ellwood, George, 3,548,076.
James, John William, 3,548,322.
Kupfmuller, Karl, 3,548,104.

International Telephone and Telegraph Corporation: *See—*
Krause, Irving A., 3,548,260.

Intricate Machine & Engineering Inc.: *See—*
Aijala, Sulo A., 3,546,975.

Inventa A.G. fur Forschung und Patentverwertung: *See—*
Gabler, Rudolf, and Studinka, Josef, 3,547,887.

Iowa Paint Manufacturing Company, Incorporated: *See—*
Coulter, John S., 3,547,846.

Iowa State University Research Foundation, Inc.: *See—*
Lohnes, Robert A., 3,548,304.

Ishida, Eisuke, and Morimoto, Kazuhisa, to Matsushita Electric Industrial Co., Ltd. 9-10 Di substituted anthracenes for use as photoconductors. 3,548,059, Cl. 96-1.5

Ishika, Toshikatu: *See—*
Horiguchi, Tadao, Matsuo, Akio, and Ishika, Toshikatu,3,547,816.

Ishizawa, Kazutomo: *See—*
Kitazawa, Tohru, Ishizawa, Kazutomo, and Ohta, Toshio,3,546,756.

Ishizuya, Akira: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu,3,547,088.

Iskra, Nerino: *See—*
Teagno, Wladimiro, and Iskra, Nerino,3,548,368.

Itabashi, Yoshio, and Sekii, Masao, to Kanegafuchi Boseki Kabushiki Kaisha, and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A. Method of producing non-sticky filamentary Material consisting of copolyamide and polyolefin. 3,548,028, Cl. 260-857.

Itek Corporation: *See—*
Beach, Richmond C., Kane, John R., and Magin, Irving J., 3,547,636.
Lee, Roger K., and Dyer, Richard W., 3,547,520.

Itoda, Masaru: *See—*
Hatanaka, Yoshihiro, Itoda, Masaru, and Ono, Chiaki,3,546,850.

ITT Rayonier Incorporated: *See—*
Kronstein, Max, 3,547,710.

Ivanhoe Research Corporation: *See—*
Minasian, Harry B., 3,548,196.

Ivanov, Evgeny Alexandrovich: *See—*
Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich,3,546,710.

Ivarsson, Bertil W., to Westvaco Corporation. Penetration analyzer. 3,546,928, Cl. 73-73.

Ive, Goodwin A. G., 1/2 to Radiovisor Parent Limited. Machine guards. 3,548,201, Cl. 307-116.

Ives, Kenneth H. Remotely controlled power pick-up for trackless electric vehicles. 3,547,237, Cl. 191-4.

Iwama, Masakuni, Inoue, Isaburo, and Takei, Yutaka, to Konishiroku Photo Industry Co., Ltd. Process for the preparation of 3-(4-alkoxybenzoylacetamino)-4-alkoxybenzenesulfonates. 3,547,987, Cl. 260-507.

Iwamoto, Masao, and Yuguchi, Sadao. Process for preparing hexadienes. 3,548,022, Cl. 260-680.

Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich. Induction linear traction motor for monorail systems. 3,547,041, Cl. 104-148.

Jacke, Raymond E., to Reynolds Metals Company. Container means and blank for making same. 3,547,336, Cl. 229-16.

Jacklin, Roger Layton, to Deere & Company. Pressure-modulating valve. 3,547,157, Cl. 137-625.26

Jackoboice, Edward J., to Monarch Road Machinery Company. Back blade assembly and control therefor. 3,547,203, Cl. 172-500.

Jackson, George W.: *See—*
Blomgren, George E., and Jackson, George W.,3,547,703.

Jackson, John E.: *See—*
Anderson, John E., and Jackson, John E.,3,548,336.

Jackson, Robert G., and Massac, Gilbert, to Conch Ocean Limited. Container for liquefield gases. 3,547,302, Cl. 220-15.

Jackson Vibrators, Inc.: *See—*
Strasser, David G., 3,547,038.

Jacobowsky, Armin, Wirtz, Peter, Born, Klaus, and Rechmeier, Gerhard, to Knapsack Aktiengesellschaft. Process for reducing the 2-chlorobutadiene-(1,3) and benzene contents of 1,2-dichloroethane recovered from 1,2-dichlororethane thermally cracked into vinyl chloride. 3,548,014, Cl. 260-652.

Jacobs, James W., to General Motors Corporation. Dryer apparatus with light controlled variable speed tumbling drum. 3,546,786, Cl. 34-52.

Jacobs, James W., to General Motors Corporation. Refrigeration defrost by compressor motor. 3,546,895, Cl. 62-156.

Jacobson, Donley P.: *See—*
Larsen, Raymond B., and Jacobson, Donley P.,3,548,404.

Jacumin, Jimmy R. Woodworking method. 3,547,171, Cl. 144-325.

Jacuzzi Bros. Incorporated: *See—*
Jacuzzi, Frank, 3,547,409.

Jacuzzi, Frank, to Jacuzzi Bros. Incorporated. Assembly for producing detergent foam. 3,547,409, Cl. 259-4.

Jaeschke, Harold R.: *See—*
Dickert, James C., and Jaeschke, Harold R.,3,547,259.

Jahn, Ulrich: *See—*
Schatz, Franz, Wagner-Jauregg, Theodor, and Jahn, Ulrich,3,547,916.

James, John William, to International Standard Electric Corporation. Electrical gating filter system. 3,548,322, Cl. 328-140.

James, Peter Henry: *See—*
Brown, Philip, and James, Peter Henry,3,547,058.

Jamtaas, Albert D.: *See—*
Black, Donald V., Jamtaas, Albert D., Radey, Ross T., and Wall, John K.,3,547,031.

Jansen, Johannes: *See—*
Van Der Windt, Leendert Johannes, and Jansen, Johannes,3,547,410.

Janssen, Alexander Patton, to Janssen Products Company, mesne. Sheet construction having weakened lines for bending and severing. 3,547,752, Cl. 161-112.

Janssen Pharmaceutica, N.V.: *See—*
Godefroi, Erik Fred, and van der Eijcken, Cyriel Alfons Maria, 3,547,942.

Janssen Products Company: *See—*
Janssen, Alexander Patton, 3,547,752.

Jauch, Christian M.: *See—*
Booty, Donald J., Jauch, Christian M., Vander Velde, Charles F., and Waage, Jack C.,3,546,874.

Javan, Ali, Cordover, Ronald H., and Bonczyk, Paul A., to United States of America, Navy, mesne. Measurements of isotope shifts. 3,547,524, Cl. 356-106.

Jech, Robert W.: *See—*
Schwope, Arthur D., Jech, Robert W., and Weber, Edward P.,3,546,769.

Jeffreys, George A., to Gee, Floyd, mesne. FPC process. 3,547,652, Cl. 99-18.

Jenny, Alfred L., and Curtis, James H., to General Electric Company. Electrolytic capacitor and electrolyte material therefor. 3,547,423, Cl. 317-230.

Jensen, Erling, to Protol S.A., mesne. Lock-seam helical tubing. 3,546,910, Cl. 72-49.

Jensen, Flemming Edwin, to Smidth, F. L., & Co. Rotary kilns with cooler tubes. 3,547,418, Cl. 263-32.

Jensen, Harry T., to United Aircraft Corporation. Rotor blade pressure sensing system. 3,547,555, Cl. 416-61.

Jernigan, Jack W., to Dow Chemical Company, The. Vinyl ester resins containing esterified secondary hydroxy groups. 3,548,030, Cl. 260-836.

Jerrold Electronics Corporation: *See—*
Brooks, George M., 3,546,966.

J&J Manufacturing, Incorporated: *See—*
Anderson, Robert R., Anderson, Joseph A., and Neukom, Chester, 3,547,358.

Johns-Manville Corporation: *See—*
Shisler, Donald E., 3,547,568.
Williams, Byron Edwin, 3,547,611.

Johnson & Johnson: *See—*
Gander, Robert Johns, 3,547,950.
Kalwaites, Frank, 3,547,329.
Listner, Gregory Julius, and Sampson, Arthur James, 3,547,870.

Johnson, Allen L., to Ripley Company, Inc. Monitoring system. 3,548,403, Cl. 340-324.

Johnson, Arnold C.: *See—*
Finnerty, Frank A., Jr., and Johnson, Arnold C.,3,547,780.

Johnson, Charles A., to Bolton-Emerson, Inc. Process for pulping. 3,547,357, Cl. 241-28.

Johnson, David G., to Minnesota Mining and Manufacturing Company. Web cleaner. 3,546,733, Cl. 15-308.

Johnson, Donald E. Quick release support for rescue breathing apparatus. 3,547,391, Cl. 248-311.

Johnson, Glenn D.: *See—*
Uhtenwoldt, Herbert R., Knorring, Richard T., and Johnson, Glenn D.,3,546,823.

Johnson, Herbert G., to Shell Oil Company. Diaphragm-type sheet forming apparatus. 3,546,740, Cl. 18-19.

Johnson, Herbert G., to Shell Oil Company. Apparatus for forming hollow articles of work- strengthenable plastic materials. 3,546,746, Cl. 18-19.

Johnson, Matthey & Company Limited: *See—*
Bourne, Alan A, Chaston, Jack C., and Darling, Alan S., 3,547,712.

Johnson, Richard T., to Stein, Sam, Associates, Inc. Breading machine. 3,547,075, Cl. 118-816.

Johnson, Robert H.: *See—*
Garrett, Jim C., and Johnson, Robert H.,3,548,361.

Johnson, Robert L., to Fats and Proteins Research Foundation, Inc. Additive for concrete, mortar and other cementitious mixtures. 3,547,665, Cl. 106-95.

Johnston, Leonard H., Jr.: *See—*
Tollerud, Elmer, and Johnston, Leonard H., Jr.,3,548,124.

Jojima, Teruomi: *See—*
Tamura, Saburo, and Jojima, Teruomi,3,547,617.

Joly, Robert, Warnant, Julien, and Farcilli, Andre, to Roussel Uclaf. Novel $\Delta^{4,9}$-pregnadiene. 3,547,959, Cl. 260-397.3

Jones, Allen P., Jr., and Bryant, George M., to Union Carbide Corporation. Lubrication of spandex yarns. 3,548,047, Cl. 264-136.

Jones, Arthur H.: *See—*
Salter, Martin Thomas Ardley, and Jones, Arthur H.,3,548,325.

Jones, Arthur H., and Fleming, Kennedy R., to Soil Treatment and Research Corporation, mesne. Soil treating apparatus. 3,546,886, Cl. 61-63.

Jones, Neville Rhys, to Hawker Siddeley Dynamics Limited. Method of transfer coating articles with layer of flame-sprayed ceramic material. 3,547,720, Cl. 156-82.

Jones, Paul, and Wold, Robert Allan, to Raychem Corporation. Bulkhead feedthrough. 3,548,079, Cl. 174-153.

Jones, Richard F., to Agonic Engineering, Inc.Exhaust valve for diver's helmet. 3,547,146, Cl. 137-512.

Jones, Stanley L.: *See—*
Schultz, Warner W., and Jones, Stanley L.,3,548,191.

Jonkman, Frederik J., to Nederlandse Maatschappij Voor Werken Buitengaats (Netherlands Offshore Company). Device for raising an anchor. 3,547,067, Cl. 114-206.

Jorda, Robert M.: *See—*
Barkman, James H., Jr., Jorda, Robert M., and Vogel, John V.,3,547,803.

Jorn GmbH: *See—*
Jorn, Raoul, and Reichardt, Peter, 3,547,243.

Jorn, Raoul, and Reichardt, Peter, to Jorn GmbH. Axially spreading friction clutch. 3,547,243, Cl. 192-70.

Joshi, Narendra Nath, to Horner, Frank W., Limited. Interferon production. 3,548,053, Cl. 424-85.

Jouve, Philippe, to Societe Nationale des Petroles d'Aquitaine. Method of integrating over a floating interval and apparatus comprising a magnetic tape for carrying out this process. 3,548,183, Cl. 235-183.

June, Ronald K.: *See—*
Cheney, Harry A., June, Ronald K., and Kuhre, Calvin J.,3,547,495.

Jung, James E.: *See—*
Curtis, Russell R., and Jung, James E.,3,548,151.

Kabushiki Kaisha Kokuel Kikai Seisakusho: *See—*
Hatanaka, Yoshihiro, Itoda, Masaru, and Ono, Chiaki, 3,546,850.

Kabushiki Kaisha Ricoh: *See—*
Murayama, Noboru, 3,548,376.
Yanagawa, Nobuyuki, 3,547,538.

Kaiser Aluminum & Chemical Corporation: *See—*
Gartrell, John T., 3,546,909.

Kaiser, Carl, and Zirkle, Charles L., to Smith Kline & French Laboratories. 1,2,5,6-Tetrahydro-4-phenyl-1-(thianaphthenyl-or benzofuranylalkyl)pyridines. 3,547,931, Cl. 260-284.8

Kalandiak, Michael, to Rohm and Haas Company. Dry polymer/cement compositions. 3,547,853, Cl. 260-29.6

Kalbfus, Charles Richard, to General Electric Company. Getter assembly. 3,547,255, Cl. 206-0.4

Kalish, Robert L.: *See—*
Shaines, Alfred, Kalish, Robert L., and Hamer, Edward A. G.,3,547,272.

Kallenborn, John, to PPG Industries, Inc. Apparatus for winding strand material. 3,547,362, Cl. 242-18.

Kalwaites, Frank, to Johnson & Johnson. Apparatus for manufacturing split fiber webs from oriented plastic films. 3,547,329, Cl. 225-97.

Kambara, Frank T.: *See—*
Chiu, Herman S., Kambara, Frank T., Rasmussen, Jerome J. M., and Voo, David,3,547,662.

Kamborian, Jacob S.: *See—*
Stemmler, Heinz W., 3,546,727.

Kamm, Vernon C.: *See—*
Chapelle, Walter E., Kamm, Vernon C., and Whiteside, Arliss E.,3,548,210.

Kamp, Ewald A., and Pinsky, Joseph, to United States of America, Army, mesne. Rocket and cartridge case therefor. 3,547,030, Cl. 102-38.

Kampfer, John G., to Texaco Inc. Nuclear well logging electronic circuit for the surface control of a motor located in a logging Sonde by frequency selective means. 3,548,271, Cl. 318-16.

Kane, John R.: *See—*
Beach, Richmond C., Kane, John R., and Magin, Irving J.,3,547,636.

Kanegafuchi Boseki Kabushiki Kaisha: *See—*
Kitazawa, Tohru, Ishizawa, Kazutomo, and Ohta, Toshio, 3,546,756.
Itabashi, Yoshio, and Sekii, Masao, 3,548,028.

Kaneko, Kiroyuki: *See—*
Ohe, Keitaro, Kaneko, Kiroyuki, and Nishio, Daijiro,3,548,035.

Kapff, Sixt Frederick: *See—*
Cropper, Wendell P., and Kapff, Sixt Frederick,3,547,590.

Kapitanov, Vaktor Ivanovich: *See—*
Gromakov, Vitaly Viktorovich, Kapitanov, Vaktor Ivanovich, Kitchenko, Anatoly Ivanovich, and Edemsky, Vladimir Mikhailovich,3,548,061.

Kappus, Peter G., and Long, William H., to General Electric Company. Aircraft nuclear propulsion system having an alternative power source. 3,547,379, Cl. 244-55.

Kappus, Peter G., and Long, William H., to General Electric Company. Aircraft nuclear propulsion system. 3,547,380, Cl. 244-55.

Karl, Leopold, and Kneitz, Heinz, to Indermann & Co., GmbH. Film winding device for coil-type developers. 3,547,370, Cl. 242-76.

Kasajima, Tatsuji: *See—*
Maeda, Tsutomu, Morisada, Sunao, Kasajima, Tatsuji, and Hashida, Takeshi,3,546,916.

Kaspers, Helmut: *See—*
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.

Kass, Charles L. Pressurized self-cleaning filter tank. 3,547,270, Cl. 210-264.

Kasten, Walter, to Bendix Corporation, The. Method of making an end closure. 3,547,719, Cl. 156-69.

Katagiri, Yoshiharu: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu,3,548,234.

Katzenstein, William: *See—*
Woodward, Fred E., and Katzenstein, William,3,547,820.

Kaufman, Myron, to Signal Analysis Industries Corporation. Repetitive, variable read-out speed spectrum analysis apparatus and method. 3,548,305, Cl. 324-77.

Kawamura, Takuo, to Daikin Kogyo Kabushiki Kaisha. Purification of tetrafluoroethylene. 3,548,015, Cl. 260-653.3

Kawasima, Nobuo. Combination automatic cigarette lighter and dispenser. 3,548,148, Cl. 219-262.

K-D Manufacturing Company: *See—*
McFarland, Frederick R., 3,546,767.

KDI Chloro Guard Corporation: *See—*
Gwynn, Ross M., and Themy, Tim, 3,547,600.

Keats, Albert Brian, to United Kingdom Atomic Energy Authority. Electrical control system array responsive to plural pulse trains. 3,548,379, Cl. 340-166.

Keeling, Ronald James: *See—*
Albrinck, Donald Joseph, and Keeling, Ronald James,3,547,769.

Keeling, Ronald James, and Guertin, Alfred Thomas, to Formica Corporation. Flexible heat and pressure consolidated decorative laminate comprising a nitrite rubber latex impregnated base and a superimposed transparent thermoplastic film. 3,547,767, Cl. 161-217.

Keene, Charles I., to Smith, Herman P. Hydraulically driven wind machine. 3,547,556, Cl. 416-110.

Kelley, Kane L., Trenner, Idamae G., and Silber, Robert H., to Merck & Co., Inc. Topical administration of vitamin B-12. 3,548,057, Cl. 424-201.

Kelley, Lonny R., and Ringwall, Carl G., to General Electric Company. Fluidic high to low frequency converter circuit. 3,547,138, Cl. 137-81.5

Kells, Edward L., to Dover Corporation. Cooking and thawing oven. 3,548,153, Cl. 219-400.

Kelly, Samuel T., and Murrell, Donald K., to Robertshaw Controls Company. Reset mechanism for a spring assembly. 3,547,427, Cl. 267-175.

Kelsey-Hayes Company: *See—*
Riordan, Hugh E., 3,547,500.

Keltner, Raymond O. Hip hose. 3,547,128, Cl. 128-519.

Kempel, John J., to Taylor Garage Doors, Inc. Overhead garage door construction. 3,546,845, Cl. 52-627.

Kenahan, Charles B.: *See—*
Andrews, Richard L., Smith, Gerald R., Kenahan, Charles B., and Schlain, David,3,547,789.

Kendall Company, The: *See—*
Knohl, Herbert, 3,546,900.
Mack, Robert J., 3,546,944.

Kennard, Kenneth C., and Haefner, John A., to Eastman Kodak Company. Vacuum deposited light-sensitive titanium dioxide. 3,547,635, Cl. 96-48.

Kennedy, Richard J., to Du Pont de Nemours, E. I., and Company. Alkyd modified vinyl acetate-ethylene copolymer emulsion paint. 3,547,849, Cl. 260-22.

Kenney, Virginia S.: *See—*
Gagliardi, Domenick Donald, and Kenney, Virginia S.,3,547,688.

Kenny, Ronald H., to Commercial Cam & Machine Company. Overload device. 3,546,897, Cl. 64-29.

Keough, Allen H.: *See—*
Gardner, Ross, Jr., and Keough, Allen H.,3,547,886.

Keown, Lyndon L., to Singer Company, The. Fluid pressure differential control system for actuation of a movable member. 3,546,978, Cl. 77-32.1

Kepple, Orren N., to Industrial Management Association, mesne. Storage container for fluids. 3,547,299, Cl. 220-4.

Kerb, Ulrich: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf,3,547,910.

Kern, John T., to V-M Corporation. Portable tape recorder with a single finger- actuated control knob. 3,547,446, Cl. 274-4.

Kern, Rudolf: *See—*
Weissermel, Klaus, Uebe, Rudolf, Kern, Rudolf, and Brinkmann, Ludwig,3,547,873.

Kerwin, Richard G.: *See—*
Fish, Leonard I., Stanner, Raymond G., and Kerwin, Richard G.,3,548,114.

Ketchum, Northrop H. Drape pleating apparatus. 3,547,319, Cl. 223-28.

Keuffel & Esser Company: *See—*
Hori, Haruo, Hoshino, Shoichiro, and Tokura, Hiroshi, 3,547,634.

Hori, Haruo, Taguchi, Masahiko, Hoshino, Shoichiro, and Yumiki, Keiichi, 3,547,646.
Scheler, Siegfried, Munder, Johannes, and Brauninger, Arno, 3,547,637.
Keyston, David H., to Anza Pacific Corporation. Building form structure. 3,547,395, Cl. 249-19.
Keystone Limited: *See—*
Brown, Philip, and James, Peter Henry, 3,547,058.
Khoury, Nick S., to Continental Can Company, Inc. Easy opening container. 3,547,305, Cl. 220-24.
Kibler, Richard W., to Firestone Tire & Rubber Company, The. Method of adhering rubber to a fabric employing a novel adhesive composition. 3,547,729, Cl. 156-331.
Kienzle Uhrenfabriken GmbH: *See—*
Siefert, Roland, and Odenbach, Heinz, 3,546,953.
Kilcup, Dillon K.: *See—*
Komberec, Harold L., Kilcup, Dillon K., and Smith, Alfred T.,3,547,051.
Kimberly, Sam B. Reversible door frame. 3,546,815, Cl. 49-504.
Kimberly-Clark Corporation: *See—*
Gresham, James T., 3,547,723.
Kimura, Takehiko, and Niizawa, Yoshiaki, to Canon Camera Kabushiki Kaisha. Miniature desk computer. 3,548,179, Cl. 235-156.
Kindorf, David O.: *See—*
Kindorf, Robert D., and Kindorf, David O.,3,547,385.
Kindorf, Robert D., and Kindorf, David O. Structural form for pipe clamp support. 3,547,385, Cl. 248-62.
King, Michael C., to Bell Telephone Laboratories, Incorporated. Method for recording holograms or integral photographs with a wide angle view. 3,547,511, Cl. 350-3.5
King, Wayne J.: *See—*
Walstrom, Leslie R., and King, Wayne J.,3,548,392.
Kinney, Layton C., and Tompkins, Edwin H., to American Screen Process Equipment Company, mesne. Photoflash method of transferring information and fabricating printed circuits. 3,547,629, Cl. 96-27.
Kinney, Layton F.: *See—*
Marsh, Frederick S., Kinney, Layton F., and Betty, Roy J., Jr.,3,547,848.
Kinoshita, Kojiro, Suzuki, Takeo, and Okajima, Shigeki, to Shiba Electric Co., Ltd. Method and apparatus for gas laser noise reduction. 3,548,338, Cl. 331-94.5
Kirkpatrick, George Fred, to Union Carbide Corporation. Draw string bag. 3,547,341, Cl. 229-63.
Kirn, Thomas G.: *See—*
Pickens, Gerald F., and Kirn, Thomas G.,3,547,366.
Kiss, Zoltan J., to RCA Corporation. Dark trace cathode ray tube with photochromic image screen. 3,548,236, Cl. 313-91.
Kitazawa, Noboru. Method of manufacturing an impregnated fibrous grinding article. 3,547,608, Cl. 51-294.
Kitazawa, Tohru, Ishizawa, Kazutomo, and Ohta, Toshio, to Kanegafuchi Boseki Kabushiki Kaisha. Method for manufacturing textile products having improved crease resistance. 3,546,756, Cl. 28-76.
Kitchenko, Anatoly Ivanovich: *See—*
Gromakov, Vitaly Viktorovich, Kapitanov, Vaktor Ivanovich, Kitchenko, Anatoly Ivanovich, and Edemsky, Vladimir Mikhailovich,3,548,061.
Kitchens of Sara Lee, Inc.: *See—*
Artiaga, Mariano V., Storrie, Arthur, and Wolf, Andrew, 3,547,052.
Klages, Karl-Heinz, and Weisbrod, Georg Friedrich, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of lightweight concrete. 3,547,412, Cl. 259-148.
Klanberg, Frank Karl, to Du Pont de Nemours, E. I., and Company. Group VIII metal complexes containing two complexed $B_{10}H_{12}^{-2}$. 3,547,963, Cl. 260-429.
Klauke, Erich: *See—*
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.
Klauke, Erich, and Kuhle, Engelbert, to Farbenfabriken Bayer Aktiengesellschaft. Cof-substituted-N-trifluoromethyl-phenylsulfenamides. 3,547,992, Cl. 260-544.
Klein, Aled. Marking machine. 3,546,779, Cl. 33-36.
Klein, Keith W., to General Electric Company. Electric circuit breaker with bimetallic strip protective means. 3,548,358, Cl. 337-83.
Kleissl, Erberto, and Postorino, Pasquale, to Societa Italiana Telecomunicazioni Siemens S.p.A. Impedance-matching arrangement for telephone circuit. 3,548,111, Cl. 179-81.
Klenz, Karl A., to Rheem Manufacturing Company. Valve for clipping apparatus. 3,546,766, Cl. 29-208.
Klepzig, Glen W., to Chambers Corporation. Self-cleaning oven having cooling and ventilating system. 3,548,152, Cl. 219-400.
Klingelnberg, W. Ferd., Sohne: *See—*
Weber, Karl Heinz, 3,546,780.
Klingenberg, George R. Spraying methods and apparatus for spraying glue, plastics, and other joining agents and coatings with air under pressure. 3,547,408, Cl. 259-4.
Klink, Jerome P., to Owens-Corning Fiberglas Corporation. Apparatus for winding textile material. 3,547,361, Cl. 242-18.
Kljukin, Leonid Petrovich: *See—*
Mukhin, Georgy Ivanovich, Kljukin, Leonid Petrovich, Shlykov, Nikolai Alexeevich, and Shesterikov, Boris Alexandrovich,3,548,228.
Klockner-Humboldt-Deutz Aktiengesellschaft: *See—*
Peyker, Ortwin, Hickmann, Udo, and Marx, Wilhelm, 3,547,091.
Knapsack Aktiengesellschaft: *See—*
Jacobowsky, Armin, Wirtz, Peter, Born, Klaus, and Rechmeier, Gerhard, 3,548,014.
Knasinski, Max S., and Risberg, Robert L., to Cutler-Hammer, Inc. Static shunt motor crane hoist control system with voltage bootstrap circuits. 3,548,279, Cl. 318-258.
Kneitz, Heinz: *See—*
Karl, Leopold, and Kneitz, Heinz,3,547,370.
Kniel, Ludwig, to Lummus Company, The. Regasification of liquefied natural gas at varying rates with ethylene recovery. 3,548,024, Cl. 260-683.
Knight, Basil Edward, to C.A.V. Limited. Liquid fuel pumping apparatus. 3,547,092, Cl. 123-140.
Knight, John Francis: *See—*
Farmer, Victor Michael, and Knight, John Francis,3,548,192.
Knightly, William H., and Lensack, Gabriel P., to Atlas Chemical Industries, Inc. Method for improving yeast-raised baked products. 3,547,655, Cl. 99-91.
Knohl, Herbert, to Kendall Company, The. Tubular-knitted elastic stocking with differently knitted instep and heel. 3,546,900, Cl. 6-185.
Knoll A.G. Chemische Fabriken: *See—*
Bub, Oskar, 3,547,915.
Knorring, Richard T.: *See—*
Uhtenwoldt, Herbert R., Knorring, Richard T., and Johnson, Glenn D.,3,546,823.
Knothe, Erick, Billin, Eckhard, and Meclcher, Franz-Josef, to Sartorius-Werke GmbH (und vormals Gottinger- Piazisionswaagenfabrik G.m.b.H.). Balance comprising capacity weights. 3,547,213, Cl. 177-237.
Knowles, Edwin C.: *See—*
McCoy, Frederic C., and Knowles, Edwin C.,3,547,821.
Knudsen, Irving E., to Westinghouse Electric Corporation. Production of uranium dioxide. 3,547,598, Cl. 23-355.
Knuth, Donald E., to Burroughs Corporation. Random number generator. 3,548,174, Cl. 235-152.
Kobayashi, Hidehiko, Sasaguri, Kiichiro, and Tanimura, Noboru, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the production of polyesterethers. 3,547,883, Cl. 260-47.
Kobayashi, Kingo, and Uehara, Goro, to Fuji Shashin Film Kabushiki Kaisha. Process for the production of cellulose triacetate films. 3,547,668, Cl. 106-189.
Kobayashi, Masayasu, Kobayashi, Michiharu, and Matsushima, Mitsuyoshi, to City of Kiryu. Process for treating excrement by microorganisms and products obtained thereby. 3,546,812, Cl. 47-1.4
Kobayashi, Michiharu: *See—*
Kobayashi, Masayasu, Kobayashi, Michiharu, and Matsushima, Mitsuyoshi,3,546,812.
Kobylecki, Piotr: *See—*
Bobowicz, Henryk, Kulma, Stanislaw, Cedler, Lech, and Kobylecki, Piotr,3,547,504.
Koch, Byron W., and Navarro, William D., to National Lead Company. Die casting machine with ejector means on central die part member. 3,547,184, Cl. 164-343.
Koch, Heinz, to Werner & Pfleiderer. Continuously operating plasticizing device. 3,547,261, Cl. 259-6.
Kock, Winston E. Hologram television system and method. 3,548,093, Cl. 178-6.5
Kodz, Witold T., to British Iron and Steel Research Association, The. Furnace control method and apparatus. 3,548,171, Cl. 235-151.1
Koerner, Gotz, to Goldschmidt, Th., A.-G. Novel silicon-substituted glycol monoesters and process for their preparation. 3,548,025, Cl. 260-824.
Koh, Yan Teow, to Canada Packers Limited. Heparin compositions and methods of using same. 3,548,052, Cl. 424-16.
Kohler, Samuel H., and Voogd, Wierd, to Dresser Industries, Inc. Adjustable wrench. 3,546,982, Cl. 81-172.
Kohner Bros. Inc.: *See—*
Kohner, Frank, and Stubbman, Albert, 3,546,808.
Kohner, Frank, and Stubbman, Albert, to Kohner Bros. Inc. Twirling figurine toy. 3,546,808, Cl. 46-59.
Kojima, Tadashi, to Konishiroku Photo Industry Co., Ltd. Zoom objective lens system with highly reduced secondary chromatic aberration. 3,547,523, Cl. 350-184.
Kokubo, Shigeru: *See—*
Nakade, Katsumoto, and Kokubo, Shigeru,3,548,262.
Kolb, Ernest D., to Bell Telephone Laboratories, Incorporated. Method for producing substantially trigonal piezoelectric selenium. 3,547,596, Cl. 23-300.
Kolb, Robert H., Barry, Donald W., Nordgren, Ronald P., and Broussard, Douglas E., to Shell Oil Company. Heading control system for a pipelaying vessel. 3,546,888, Cl. 61-72.3
Koller Craft Plastic Products, Inc.: *See—*
Blum, Harold G., 3,546,842.
Kollsman Instrument Corporation: *See—*
Allison, Kenneth C., 3,548,123.
Kollsman Instrument Corporition: *See—*
Devereux, William P., 3,547,526.

Kolman, Lester P., May, Harold L., and Berry, Richard C., to Air Reduction Company, Incorporated. Hyperbaric chamber. 3,547,118, Cl. 128-204.
Kolody, Stanley J. Adjustable calendar. 3,546,801, Cl. 40-109.
Komberec, Harold L., Kilcup, Dillon K., and Smith, Alfred T. Ice cream sandwich formation process. 3,547,051, Cl. 107-54.
Kometani, Yutaka, Fujii, Tsuneo, and Sakata, Shinsuke, to Daikin Kogyo Co., Ltd. Vinyl fluoride copolymer. 3,547,859, Cl. 260-87.5
Kommanditgesellschaft Friedrich Kocks: *See—*
Severin, Jose, and Holthoff, Helmut, 3,546,915.
Konet, Henry, to Barden Corporation, The. Dual step motor controlled low friction oscillating bearing arrangement for gyroscope rotor or the like. 3,547,503, Cl. 308-183.
Konig, Rudolf: *See—*
Prinz, Hans, Wiesinger, Johannes, and Konig, Rudolf,3,547,136.
Konishiroku Photo Industry Co., Ltd.: *See—*
Iwama, Masakuni, Inoue, Isaburo, and Takei, Yutaka, 3,547,987.
Kojima, Tadashi, 3,547,523.
Konoplev, Alexei: *See—*
Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich,3,546,710.
Koos, Eugenia M., and Balazs, Joseph B., said Balazs assor to said Koos. Educational television system. 3,546,791, Cl. 35-9.
Kopp, Georges: *See—*
Lunet, Francoise Marie Germaine, Kopp, Georges, Vittecoq, Rene Raymond Julien, and Laneres, Jacques Pierre,3,547,572.
Kort, Werner W.: *See—*
Davidson, Bruce G., and Kort, Werner W.,3,547,043.
Kostelnick, Joseph J., to Bell Telephone Laboratories, Incorporated. Short isolator with resonant elements. 3,548,343, Cl. 333-24.2
Kovacik, John M., and Hunt, Everett C., to General Electric Company. Steam drum baffle arrangement for a forced recirculation steam generator. 3,547,085, Cl. 122-491.
Kramer, Max O., to United States of America, Navy, mesne. Vanes for high speed tow cable. 3,547,068, Cl. 114-235.
Kratky, Joseph C.: *See—*
Romo, Jorge, and Kratky, Joseph C.,3,546,831.
Krause, Irving A., to International Telephone and Telegraph Corporation. Waveguide arc detector. 3,548,260, Cl. 317-27.
Kremp, Rudolf: *See—*
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter,3,548,102.
Krieger, Alvin W., to Cutler-Hammer, Inc. Miniature precision snap action switch with wiping contact action. 3,548,132, Cl. 200-67.
Krimmel, Carl Peter, to Searle, G. D., & Co. Derivatives of hexahydro-4,7-methanoindan-2- carboxylic acid. 3,547,976, Cl. 260-468.
Kristen, Reiner: *See—*
Dittrich, Werner, and Kristen, Reiner,3,548,223.
Dittrich, Werner, and Kristen, Reiner,3,548,224.
Kroger, Gerhard, and Rainer, Erich, to Siemens Aktiengesellschaft. Measurand transducer for measuring a length of yarn. 3,548,230, Cl. 310-93.
Krohn, Holger, to Rexroth, G. L., Lohrer Eisenwerk G.m.b.H., Firma. On-off wheatstone bridge apparatus controlling the operation of an electric servomotor including dynamic braking at balance. 3,548,283, Cl. 318-674.
Kroken, Arne, and Hyggen, Egil, to Christiania Spigerverk. Tire traction device. 3,547,176, Cl. 152-218.
Krone, Ben W.: *See—*
Reese, Glenn A., Goodrich, Robert R., and Krone, Ben W.,3,548,096.
Kroner, Klaus, to U.S. Philips Corporation, mesne. Color killing circuit with a passive subcarrier regenerator. 3,548,084, Cl. 178-5.4
Kronstein, Max, to ITT Rayonier Incorporated. Reaction coatings made from aqueous extracts of red cedar wood. 3,547,710, Cl. 148-6.14
Kruger, Michael Henry, to Smithcraft Corporation. Lighting fixture. 3,548,187, Cl. 240-51.11
Kruka, Vitold R., to Shell Oil Company. Solvent injection method for removing blockages in slurry pipelines. 3,547,496, Cl. 302-66.
Kruper, Andrew P., to Westinghouse Electric Corporation. Humidity control system. 3,547,348, Cl. 236-44.
Kryzer, Benjamin H., and Tischler, Edward J., to Union Tank Car Company, mesne. Valve assembly. 3,547,151, Cl. 137-599.1
Kubota, Yasuharu: *See—*
Shimada, Satoshi, and Kubota, Yasuharu,3,548,088.
Kuester, Karl Otto. Headlamp washer and wiper. 3,546,732, Cl. 15-250.01
Kugler, Emanuel. Apparatus for perforating thermoplastic film. 3,546,742, Cl. 18-10.
Kuhar, Ludwig J.: *See—*
Dolney, Joseph J., and Kuhar, Ludwig J.,3,547,059.
Kuhle, Engelbert: *See—*
Klauke, Erich, and Kuhle, Engelbert,3,547,992.
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans, to Farbenfabriken Bayer Aktiengesellschaft. N,N-Dimethyl-N'-(dimethyl and ethyl)-phenyl-N'- fluoro-di-chloromethylmercapto-sulfamides. 3,547,970, Cl. 260-453.
Kuhn, Christine Elizabeth: *See—*
Hauser, Martin, and Kuhn, Christine Elizabeth,3,547,989.
Kuhn, Henry S. Disposable single-use bedpan arrangement. 3,546,717, Cl. 4-113.
Kuhn, Horst: *See—*
Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther,3,548,145.
Kuhne, Ingeburg, and Hartung, Horst, to Veb Optima Buromaschinenwerk Erfurt. Paper feed mechanism in typewriters and similar office machines. 3,547,246, Cl. 197-114.
Kuhnlein, Hans, to Hch. Bertrams Aktiengesellschaft. Tube heat exchanger with liquid heat carrier. 3,547,188, Cl. 165-109.
Kuhre, Calvin J.: *See—*
Cheney, Harry A., June, Ronald K., and Kuhre, Calvin J.,3,547,495.
Kulka, Marshall, and Harrison, William A., to Uniroyal, Inc. 2-Amino-4-methylthiazole-5-carboxamides. 3,547,917, Cl. 260-247.1
Kulling, Achim: *See—*
Hitzemann, Gerhard, Kulling, Achim, Luginsland, Hans-Hermann, and Weber, Helmut,3,547,671.
Kulma, Stanislaw: *See—*
Bobowicz, Henryk, Kulma, Stanislaw, Cedler, Lech, and Kobylecki, Piotr,3,547,504.
Kume, Makoto: *See—*
Suzuki, Joji, and Kume, Makoto,3,548,060.
Kuniyoshi, Masateru: *See—*
Inagaki, Junpei, and Kuniyoshi, Masateru,3,548,275.
Kuno, Koichi: *See—*
Yano, Tomosaburo, Matsuo, Tadasi, Ichinokawa, Hideo, and Kuno, Koichi,3,547,833.
Kunzelman, George R.: *See—*
Schaller, Robert L., and Kunzelman, George R.,3,546,817.
Kupfmuller, Karl, to International Standard Electric Corporation. Method of synchronization in binary communicition systems. 3,548,104, Cl. 179-15.
Kupperman, Dennis I., and Kupperman, Sam. Toy airplane. 3,546,811, Cl. 46-243.
Kupperman, Sam: *See—*
Kupperman, Dennis I., and Kupperman, Sam,3,546,811.
Kurashige, Hirotoshi: *See—*
Ashikaga, Tadao, Kurashige, Hirotoshi, and Endoh, Takeo,3,547,837.
Kurashiki Rayon Co., Ltd.: *See—*
Ashikaga, Tadao, Kurashige, Hirotoshi, and Endoh, Takeo, 3,547,837.
Oyanagi, Yasuji, and Shibatani, Kyoichiro, 3,548,031.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Onozuka, Mitsuo, Nakamura, Toshiaki, and Iida, Kinji, 3,547,961.
Kurita, Ken-Ichiro, to Kurita Machinery Manufacturing Company, Limited. Apparatus for releasing and coupling filter plates in a filter press. 3,547,269, Cl. 210-230.
Kurita Machinery Manufacturing Company, Limited: *See—*
Kurita, Ken-Ichiro, 3,547,269.
Kurita Water Industries Ltd.: *See—*
Horiguchi, Tadao, Matsuo, Akio, and Ishika, Toshikatu, 3,547,816.
Kurrle, Horst: *See—*
Furstenberg, Joachim, and Kurrle, Horst,3,546,852.
Kurz, Wilfried: *See—*
Nussbaum, Marcel, Kurz, Wilfried, and Lux, Benno,3,546,924.
Kush, Louis J., Jr., to United States of America, Navy, mesne. Noise limit gate. 3,547,061, Cl. 114-23.
Kushell, Joel R., and Kushell, Sheila M., to Fisher-Price Toys, Inc., mesne. Educational multiple doll set. 3,546,789, Cl. 35-8.
Kushell, Sheila M.: *See—*
Kushell, Joel R., and Kushell, Sheila M.,3,546,789.
Kuwayama, Shigeo, Yagi, Motohiko, and Ikeda, Tetuo, to Fuji Shashin Film Kabushiki Kaisha. Electric heating element. 3,548,359, Cl. 338-268.
Kyp, Robert J. Incandescent lamp with oscillating filament. 3,548,255, Cl. 315-267.
Kyusku Oil Co., Ltd.: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru, 3,547,804.
Lacal Industries Limited: *See—*
Burgess, Thomas J., and Clarke, Gordon J., 3,547,386.
Lacefield, William B., to Lilly , Eli, and Company. Intermediate and process for the preparation of nortriptyline. 3,547,998, Cl. 260-570.5
Lacson, Jose Job, to Swivel Pool Corporation. Combined cue and disc game. 3,547,443, Cl. 273-126.
Lafont, Leopoldo C., to Mc Mullen, John J., Associates, Inc. Container coupler. 3,546,753, Cl. 24-81.
l'Air Liquide, Societe Anonyme pour l'Etude des l'Exploitation des Procedes Georges Claude:*See—*
Olivier, Herve, and Vermot, Andre, 3,547,595.
l'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude:*See—*
Tourdot, Jacques, and Breiss, Jean, 3,547,573.
Lake, Paul V.: *See—*
Bowen, Richard E., and Lake, Paul V.,3,548,054.
Lalmond, Harold W.: *See—*
Shomphe, George J., Tabor, Robert W., and Lalmond, Harold W.,3,547,725.
Lalmond, Harold, and Goody, Lewis B., to Sanders Associates, Inc. Method of making multi-layer circuit. 3,546,775, Cl. 29-625.
Lamatsch, Hans: *See—*
Albrecht, Cord, and Lamatsch, Hans,3,548,078.

Lamborn, Bayard T., to Hercules Incorporated. Preparation of olefin polymerization catalyst. 3,547,829, Cl. 252-429.
Lampson, George P.: *See—*
Machlowitz, Roy A., and Lampson, George P.,3,547,779.
Landauer, Franz, and Vetter, Hans-Joachim, to Hercules Incorporated, mesne. Antistatic agents for high-polymeric compounds. 3,547,863, Cl. 260-93.5
Landen, William James, to Eyelet Specialty Company. Tamper-proof closure construction. 3,547,295, Cl. 215-9.
Landler, Josef: *See—*
Fuchs, Otto, Sieber, Heinrich, and Landler, Josef,3,547,924.
Laneres, Jacques Pierre: *See—*
Lunet, Francoise Marie Germaine, Kopp, Georges, Vittecoq, Rene Raymond Julien, and Laneres, Jacques Pierre,3,547,572.
Langemann, Albert: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf,3,547,910.
Langenhoff, Fred: *See—*
Hass, Karl, Schinke, Georg, and Langenhoff, Fred,3,547,832.
Langer, Heinz. Seitz-Asbest-Werke, Theo & Geo Seitz Package for shipping large surface filter layers. 3,547,457, Cl. 280-47.13
Langlois, Roland E., and Pitt, Richard E., to Owens-Corning Fiberglas Corporation. Non-uniform motion producing structure for producing fibrous mats. 3,546,898, Cl. 65-2.
Lanier, William R.: *See—*
Swindells, Frank E., and Lanier, William R.,3,547,700.
Lapham, Sidney D., to Roll-Rite Corporation. High capacity caster. 3,547,459, Cl. 280-79.2
Lard, Edwin W.: *See—*
Stahly, Eldon E., and Lard, Edwin W.,3,548,029.
Larimer, Sherman Andrew: *See—*
Gibson, Philip Terry, Hull, Henry Elwin, and Larimer, Sherman Andrew,3,546,969.
Larkin, Mark E., and Bridenstine, Orville J., to Phillips Petroleum Company. Wrapping machine. 3,546,848, Cl. 53-204.
Larking, Ernest Alfred Reginald. Storage devices. 3,547,506, Cl. 312-222.
Larpenteur, Bernard J., and Pasquali, Joseph W., to Bethlehem Steel Corporation. Method of recovering iron oxide from fume containing zinc and/or lead and sulfur and iron oxide particles. 3,547,623, Cl. 75-25.
Larsen, Raymond B., and Jacobson, Donley P. Frequency coded digital recording system. 3,548,404, Cl. 340-347.
Larson, Warren L.: *See—*
Fairbanks, Daniel F., Larson, Warren L., Randall, Robert N., and Wong, James,3,548,351.
Lasis, Evalds, to Polymer Corporation Limited. Stereospecidic polymerization of conjugated diolefins in the presence of halogen substituted. 3,547,864, Cl. 260-94.3
Lauck, Peter, III, to Stevens, J. P., & Co., Inc.,mesne. Heating control circuit with triac-diac combination. 3,548,157, Cl. 219-51.
Laucournet, Robert: *See—*
Guigan, Jean, and Laucournet, Robert,3,547,781.
Laumann, David H. E. Disposable bedpan liner. 3,546,716, Cl. 4-112.
Lavon, Erik Volmar, to Atlas Copco Aktiebolag. Compressor valve devices. 3,547,561, Cl. 417-488.
Lawrie, William N., Jr., and Ziskind, Ilan, to Burroughs Corporation. Semiconductor pulse amplifier. 3,548,219, Cl. 307-263.
Lawthers, Dean D., and Pepino, George T., Jr., to Sylvania Electric Products, Inc. Metallic composites. 3,547,681, Cl. 117-71.
Layne, Ronald E., to Reynolds Metals Company. Heat-shrinkable plastic laminates with a wax moisture-vapor barrier layer and methods of making the same. 3,547,768, Cl. 161-234.
Lear, Joseph D., and Holt, Eric M., to Posting Equipment Corporation. Index devices. 3,547,304, Cl. 220-22.2
Lear Siegler, Inc.: *See—*
Anthony, Russell W., and Mc Nabb, Warren C., 3,546,760.
Dickey, Ira W., 3,547,163.
Maure, Douglas R., 3,548,375.
Leary, Ralph J.: *See—*
Wiener, Charles, and Leary, Ralph J.,3,548,003.
Le Belle, Industries, Inc.: *See—*
Anthes, Jacob, 3,547,529.
Leblond, Jean, to Uniroyal Englebert France S.A. Method and apparatus for transporting loads. 3,547,286, Cl. 214-89.
Leblond, Jean, to Uniroyal Englebert France S.A. Breaker building apparatus having a severing drum, a transfer drum and a building drum. 3,547,732, Cl. 156-405.
Leblond, Jean, to Uniroyal Englebert France S.A. Radially collapsible and axially retractable building drum. 3,547,733, Cl. 156-415.
Lederer, Michael: *See—*
Roh, Gerhard, and Lederer, Michael,3,547,860.
Ledoux, Claude, and de Vries, Albert, to Produits Chimiques Pechiney Saint-Gobain. Process for spinning polyvinyl chloride fibers. 3,548,049, Cl. 264-176.
Leduc, Paul: *See—*
Dumas, Jean-Pierre, and Leduc, Paul,3,547,694.
Lee, Edward P., Lombardi, Eugene H., Montes, Ralph A., and Stoeckli, Oscar W., to General Foods Corporation. Device for changing the timing of cam driven linkages. 3,546,965, Cl. 74-568.
Lee, Roger K., and Dyer, Richard W., to Itek Corporation. Stereoscope. 3,547,520, Cl. 350-131.
Lee, William S., to Ferro Corporation. Porcelain enamels for self-cleaning cooking oven. 3,547,098, Cl. 126-19.
Leeds & Northrup Company: *See—*
Henderson, Rolland H., 3,548,324.
LeFebvre, Yvon, to American Home Products Corporation. Derivatives of 2H-pyran-3(6H)-ones and preparation thereof. 3,547,912, Cl. 260-239.55
Lefevre, Claude: *See—*
Guennou, Serge, Lefevre, Claude, and Maugis, Raymond,3,548,316.
Lehmann, William L., and Marsh, James C., Jr., to RCA Corporation. Compensated VHF-UHF automatic gain control delay system. 3,548,315, Cl. 325-410.
Leifeld, Klaus, Wochnik, Josef, and Stoy, Erich, to Schloemann Aktiengesellschaft. Multi-roll stands. 3,546,914, Cl. 72-242.
Lejeune, Daniel, to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie. Wheels for automotive vehicles. 3,547,494, Cl. 301-64.
Lemaire, Maurice. Trains for carrying out maintenance work on railway tracks. 3,547,044, Cl. 105-1.
Lemanski, Savarian F. Tool means for cutting circles and the like. 3,546,980, Cl. 77-79.
Lensack, Gabriel P.: *See—*
Knightly, William H., and Lensack, Gabriel P.,3,547,655.
Lenz, Walter H., to Caterpillar Tractor Company. Apparatus for quenching steel plate. 3,546,911, Cl. 72-201.
Leo, Ernst: *See—*
Winter, Ernst, Riegler, Heinz, Leo, Ernst, and Wochnik, Lothar,3,546,955.
Leonard, Gerard Eugene: *See—*
Conrad, Lucas Jones, Leonard, Gerard Eugene, McArthur, Colin Shaw, and Everhart, John Raymond,3,547,264.
Lepkowski, Joseph R., to System Development Corporation. Mensuration reticles for tube magnifiers. 3,546,778, Cl. 33-1.
Lepore, Patsy R., to McGregor-Doniger Inc. Method of making double-piped buttonholes. 3,547,060, Cl. 112-264.
Lerich, Lester, to Wej-It Expansion Products, Inc. Hinge-type anchor bolt. 3,546,998, Cl. 85-72.
Lester, David R.: *See—*
Rice, Frank A., and Lester, David R.,3,547,097.
Lestienne, Andre F. P., and Boudin, Georges M., to Eastman Kodak Company. Chromatographic chamber. 3,547,023, Cl. 95-96.
Levine, Alfred B. Electrostatic printing and reproducing process. 3,547,029, Cl. 101-426.
Levine, Eli, and Costanza, John Ribelle, to Celanese Corporation. Aqueous emulsion copolymers of vinyl alkanoates, alkyl acrylates, drying oil, and another unsaturated compound. 3,547,847, Cl. 260-22.
Levine, Leonard, to Dow Chemical Company, The. Thiol alkylene amines. 3,548,002, Cl. 260-583.
Levy, Dale F.: *See—*
Draper, Homer L., Levy, Dale F., and Gagle, Duane W.,3,547,674.
Levy, Moshe: *See—*
Arad, Yael, Levy, Moshe, Vofsi, David, and Rosen, Haim,3,547,975.
Lewin, Anita H., and Cohen, Theodore, to Research Corporation. Process for the production of aryl benzoate esters. 3,547,978, Cl. 260-476.
Lewin, Menachem, to Ministry of Trade and Industry, The State of Israel. Fire-proofing of lignocellulosic material in two stages. 3,547,687, Cl. 117-138.
Lewis, Dong Sing, to Gerity-Schultz Corporation. Casting apparatus. 3,547,181, Cl. 164-265.
Lewis, Joseph C.: *See—*
Muser, Carl J., Melill, Joseph, and Lewis, Joseph C.,3,547,599.
Liautaud, Philip J., to Fendall Company. Spectacle hinge pin. 3,546,735, Cl. 16-128.
Lich, Richard L., to General Steel Industries, Inc. Railway locomotive truck with low traction point. 3,547,046, Cl. 105-199.
Lichti, Robert D., 23% to Webster, Walter A., Goble, Harold G., and Campbell, Robert F. Stabilizing and guide means for endless vehicle parking system. 3,547,281, Cl. 214-16.1
Lichty, Ivan F., Hopkins, James E., and Taddei, Mary E., to Burroughs Corportion. High speed modular data processing system having magnetic core main memory modules of various storage capacities and operational speeds. 3,548,382, Cl. 340-172.5
Lienhard, Paul, and Beffa, Fabio, to Geigy, J. R., A.G. Metallized bisformazanes. 3,547,901, Cl. 260-146.
Liepins, Sigurds: *See—*
Vadas, John F., and Liepins, Sigurds,3,547,095.
Liesegang, Gerhard, to Lisega Rohrleitungszubehor G.m.b.H. Hydraulic shock mount for pipe-line systems. 3,547,236, Cl. 188-280.
Lif-O-Gen, Inc.: *See—*
Mills, Justin W., Jr., 3,547,143.
Lilly, Eli, and Company: *See—*
Lacefield, William B., 3,547,998.
Lilly, Eli, and Company: *See—*
Bowen, Richard E., and Lake, Paul V., 3,548,054.
Lim, Lawrence Y.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,548,107.
Lindmayer, Joseph, to Sprague Electric Company. Radiation resistant semiconductive device. 3,547,717, Cl. 148-187.
Linneborn, Walter, to Singer Company, The, mesne. Electrostatically coating the outer surface of hollow objects with flock. 3,547,078, Cl. 118-638.

Linneborn, Walter, to Singer Company, The, mesne. Electrostatically coating the outer surface of hollow objects with flock. 3,547,672, Cl. 117-17.
Linnenkamp, Ben R., to Construction Machinery Company. Revolution counter for a concrete mixing truck. 3,548,165, Cl. 235-92.
Lir, Erikh Viktorovich: *See—*
Voitekh, Alexandr Arsenievich, and Lir, Erikh Viktorovich,3,548,277.
Lisega Rohrleitungszubehor G.m.b.H.: *See—*
Liesegang, Gerhard, 3,547,236.
Liska, Manfred, and Hubner, Klaus, to Siemens Aktiengesellschaft. Apparatus for supervising the current supplied to loads via antiparallel-connected thyristors. 3,548,289, Cl. 323-9.
List, Hans: *See—*
Skatsche, Othmar, and Feichtinger, Gerhard, 3,547,086.
Listner, Gregory Julius, and Sampson, Arthur James, to Johnson & Johnson. Printing ink from randiopropylene. 3,547,870, Cl. 260-32.6
Litt, Morton Herbert: *See—*
Anello, Louis Gene, Sweeney, Richard Francis, and Litt, Morton Herbert,3,547,861.
Little, Arthur D., Inc.: *See—*
Niessen, Walter R., 3,547,056.
Little Learners, Inc.: *See—*
Drumm, Edward J., 3,546,788.
Litton Industries, Inc.: *See—*
Shank, William E., 3,547,230.
Litton Medical Products, Inc.: *See—*
Battista, Joseph, 3,548,208.
Livingstone, Stanley, to EVADUR Products, Inc. Stacking dye tubes. 3,546,905, Cl. 68-198.
Loase, Raymond M., and Spohn, Glenn A., to Harris-Intertype Corporation. Turret rewinder. 3,547,365, Cl. 242-56.
Lockheed Aircraft Corporation: *See—*
Walter, John F., 3,547,002.
Loctite Corporition: *See—*
Frauenglass, Elliott, 3,547,851.
Loe, James M., to Philco-Ford Corporation. Formant frequency extractor. 3,548,100, Cl. 179-1.
Loeffel, Emil. Fire escape ladder. 3,547,226, Cl. 182-164.
Logan, James E.: *See—*
Grusin, Gerald M., and Logan, James E.,3,547,212.
Lohnes, Robert A., to Iowa State University Research Foundation, Inc. Resistivity measuring device having vertically- spaced ring electrode and a central electrode. 3,548,304, Cl. 324-65.
Lohr, Manfred: *See—*
Hoffmann, Hans-Jurgen, and Lohr, Manfred,3,547,465.
Lombardi, Eugene H.: *See—*
Lee, Edward P., Lombardi, Eugene H., Montes, Ralph A., and Stoeckli, Oscar W.,3,546,965.
Lonergan, Bacyl E., to B & L Developers, Inc. Grocery bagging and cart loading machine and method. 3,546,829, Cl. 53-35.
Long, John I.: *See—*
Alexander, Claude L., Gray, Lysle B., and Long, John I.,3,547,141.
Long, Robert L.: *See—*
Snerd, Charles D., and Long, Robert L.,3,547,891.
Long, William H.: *See—*
Kappus, Peter G., and Long, William H.,3,547,379.
Kappus, Peter G., and Long, William H.,3,547,380.
Longstaff, Brian, to United Kingdom Atomic Energy Authority. Production of carbonised fibres. 3,547,420, Cl. 263-52.
Lonsdale, Melvin J.: *See—*
Batterton, Elmo L., and Lonsdale, Melvin J.,3,547,291.
Loomis, Donald A.: *See—*
Meinel, Aden B., Bashkin, Stanley, Loomis, Donald A., and Schroeder, John B.,3,548,189.
Lopez, John, to Universal Corrugated Box Machinery Corporation. Sheet conveying, stacking and discharge equipment. 3,547,024, Cl. 271-50.
Loree, Vernon G. Pipe wrench clamp. 3,546,983, Cl. 81-180.
Lorenz, Walter, Hammann, Ingeborg, and Unterstenhofer, Gunter, to Farbenfabriken Bayer Aktiengesellschaft. Thiol and thionothiolphosphoric and- phosphonic acid esters. 3,547,946, Cl. 260-326.5
Lorillard Corporation: *See—*
Dalhamn, Tore, 3,547,133.
Louden, William G. Method of improving the properties of organic polymeric material. 3,547,666, Cl. 106-171.
Loveless, Frederick C., to Uniroyal, Inc. Removal of catalyst residues from alpha- olefin copolymer solutions. 3,547,855, Cl. 260-80.78
Lovercheck, Charles L., to American Sterilizer Company. Refuse sterilization system. 3,547,577, Cl. 21-61.
Lowell Corporation: *See—*
Thomasian, Harvey A., 3,546,932.
Lowrance Electronics Mfg., Corporation: *See—*
Hoxsie, Frank E., 3,548,370.
Lowry, Wendell W.: *See—*
Pereue, Joseph H., Lowry, Wendell W., and Wertheimer, Milton A.,3,546,782.
LTG Lufttechnische Gesellschaft mit Beschrankter Haftung: *See—*
Furstenberg, Joachim, and Kurrle, Horst, 3,546,852.
LTV Electrosystems, Inc.: *See—*
Tomlin, James J., 3,548,175.
Lucas, Joseph, (Industries) Limited: *See—*
Siddell, Raymond Patrick, and West, Raymond, 3,548,267.
Luebs, Donald F., to U.S. Plywood-Champion Papers Inc. Combination roofing-sheathing panel system. 3,546,843, Cl. 52-540.
Luginsland, Hans-Hermann: *See—*
Hitzemann, Gerhard, Kulling, Achim, Luginsland, Hans-Hermann, and Weber, Helmut,3,547,671.
Lummus Company, The: *See—*
Kniel, Ludwig, 3,548,024.
Sze, Morgan C., 3,548,016.
Lundberg, Gordon K., and Perry, Dan E., to Phillips Petroleum Company. Packaging compressible materials. 3,546,828, Cl. 53-24.
Lundkvist, Karl Axel, to Telefonaktiebolaget LM Ericsson. Selecting means. 3,548,110, Cl. 179-18.
Lunet, Francoise Marie Germaine, Kopp, Georges, Vittecoq, Rene Raymond Julien, and Laneres, Jacques Pierre, to Ugine Kuhlmann. Paste and powders of acidified metallized azo and triphenylmethane dyes having an average particle size no greater than fine microus and production thereof. 3,547,572, Cl. 8-42.
Lunghamer, Lawrence J.: *See—*
Pollinger, Hans, and Lunghamer, Lawrence J.,3,547,229.
Luthman, Paul A.: *See—*
Beebe, James R., Luthman, Paul A., and Fischer, Thomas R.,3,547,283.
Lutz, Charles William: *See—*
Fuchs, Robert Joseph, Lutz, Charles William, and Cohen, Leon Erwin,3,547,670.
Lux, Benno: *See—*
Nussbaum, Marcel, Kurz, Wilfried, and Lux, Benno,3,546,924.
Lynch, John Andrew, Jr., to Du Pont de Nemours, E. I., and Company. Process for producing nonwoven fabrics. 3,546,755, Cl. 28-72.2
Lyon Metal Products, Incorporated: *See—*
Studinski, Robert A., and Walter, Florian A., 3,547,300.
MacDougall, John D., and Manchester, Kenneth E., to Sprague Electric Company. Resistive layer semiconductive device. 3,548,269, Cl. 317-234.
Maceplast S.A.: *See—*
Gallay, Pierre-Henri, 3,548,044.
Mac Gregor, James D.,: *See—*
Wenger, Harvey M., 3,547,359.
Machlowitz, Roy A., and Lampson, George P., to Merck & Co., Inc. Process for producing purified concentrated influenza virus. 3,547,779, Cl. 195-1.5
Mack, Charles H.: *See—*
Franklin, William E., Mack, Charles H., and Rowland, Stanley P.,3,547,574.
Mack, Robert J., to Kendall Company, The. Fluid pressure indicator. 3,546,944, Cl. 73-388.
Mackey, Robert E., to TRW Inc. Passive release mechanism for space vehicles. 3,547,375, Cl. 244-1.
Mackles, Mark: *See—*
Ehrlich, Stanley W., Banikiotes, Gregory C., and Mackles, Mark,3,547,809.
MacNab, Robert B., to International Research & Development Company Limited. Homopolar electrical machines. 3,548,231, Cl. 310-178.
Maeda, Haruo: *See—*
Nishino, Tsutomu, and Maeda, Haruo,3,548,073.
Maeda, Tsutomu, Morisada, Sunao, Kasajima, Tatsuji, and Hashida, Takeshi, to Dainichinihon Densen Kabushiki Kaisha. Elliptic waveguide and method of fabricating it. 3,546,916, Cl. 72-256.
Magherini, Dino. Electric light bulb and terminal cap assembly. 3,548,243, Cl. 313-318.
Magin, Irving J.: *See—*
Beach, Richmond C., Kane, John R., and Magin, Irving J.,3,547,636.
Magnaflux Corporation: *See—*
Rosauer, Peter J., 3,547,101.
Magnavox Company, The: *See—*
Reese, Glenn A., Goodrich, Robert R., and Krone, Ben W., 3,548,096.
Maher, D. L., Co.: *See—*
Morine, John Theodore, 3,547,194.
Maimin, H., Co., Inc.: *See—*
Bangser, William, Jr., 3,547,607.
Mainhardt, Robert: *See—*
Gould, Bert B., Biehl, Arthur T., Mainhardt, Robert, and Barton, William D.,3,546,997.
Mako, John, to International Business Machines Corporation. Stepping motor speed control. 3,548,274, Cl. 318-138.
Malamet, Georg: *See—*
Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann,3,547,895.
Malen, Charles, and Desnoyers, Pierre, to Societe en nom Collectif Science Union et Cie. Benzothiopyrone compounds. 3,547,949, Cl. 260-327.
Mallory, P. R., & Co., Inc.: *See—*
Camenzind, Hans R., 3,548,329.
Malott, Raymond A., to Shell Oil Company. Rotating jet well tool. 3,547,191, Cl. 166-223.
Mammino, Joseph: *See—*
Amidon, Alan B., Mammino, Joseph, and Radler, Richard W.,3,547,627.
Mammucari, Franco: *See—*
Balugani, Fabio, Mammucari, Franco, and Poretti, Isidoro,3,548,103.

Manchester, Kenneth E.: *See—*
MacDougall, John D., and Manchester, Kenneth E.,3,548,269.
Manetta, Peter J., to Simplex Corporation. Mechanical full accumulating conveyor. 3,547,254, Cl. 198-221.
Mangum, Andrew N., and Hyde, Wallace R., to United Aircraft Corporation. Gimbal system and method of assembling. 3,547,601, Cl. 29-148.4
Manley, Roger E. W., to Blease Medical Equipment Limited. Resuscitator. 3,547,116, Cl. 128-145.8
Manning, Robert E.: *See—*
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,547,945.
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,547,947.
Manning, Robert E., to Sandoz-Wander, Inc.Imidazo[1,2-c]thiazoles. 3,547,939, Cl. 260-306.7
Mansfield, Richard C., and Rainey, James L., to Rohm and Haas Company. Alkyl oligosaccharides and their mixtures with alkyl glucosides and alkanols. 3,547,828, Cl. 252-351.
Marans, Nelson Samuel, and Mitchell, Fern Wood, to Grace, W. R., & Co. Radiation polymerization of compacted trioxane. 3,547,793, Cl. 204-159.21
Marathon Oil Company: *See—*
Chevalier, Arthur A., Mathews, David M., and Rourke, William E., 3,547,197.
Marble, Charles E., to Ethyl Corporation. Process for producing trialkoxy monohalo titanium compounds. 3,547,966, Cl. 260-429.5
Marconi Company Limited, The: *See—*
Salter, Martin Thomas Ardley, and Jones, Arthur H., 3,548,325.
Marcoux, Arthur, to McDonnell Douglas Corporation. Spraying device. 3,547,350, Cl. 239-308.
Marcus, Mitchell P.: *See—*
Ide, Eleanor R., Marcus, Mitchell P., and Tunis, Cyril J.,3,548,202.
Mariani, Remo, to Thomas & Betts Corporation. Dispenser for multiple material webs. 3,547,327, Cl. 225-38.
Marie, Robert, to Dana Corporation. Top speed limiting device. 3,547,216, Cl. 180-107.
Marine Midland Trust Company of Western New York: *See—*
Dalton, Robert L., 3,547,015.
Marquardt, Ewald, to Marquardt, J. & J., Firma. Snap action electric switch. 3,548,130, Cl. 200-67.
Marquardt, J. & J., Firma: *See—*
Marquardt, Ewald, 3,548,130.
Marsh, Frederick S., Kinney, Layton F., and Betty, Roy J., Jr., to Armour Industrial Chemical Company, mesne. Thixotropic coating compositions comprising a varnish and a di-substituted urea. 3,547,848, Cl. 260-22.
Marsh, James C., Jr.: *See—*
Lehmann, William L., and Marsh, James C., Jr.,3,548,315.
Marsing, Richard: *See—*
Christensen, Alfred, and Marsing, Richard,3,547,211.
Martin, Bruce S.: *See—*
Petersen, David J., and Martin, Bruce S.,3,547,485.
Martin, Clifford Miles. Vibratory massage apparatus. 3,547,109, Cl. 128-33.
Martin, Frank Samuel, to Gillette Company, The. Tab positioning and detecting apparatus. 3,548,127, Cl. 200-61.14
Martin, Steven T., to Textron Inc. Method of making an antifriction bearing. 3,546,762, Cl. 29-148.4
Martincic, Paul W., and Miller, James R., to Westinghouse Electric Corporation. Foil coils with metallic back plates. 3,548,355, Cl. 336-60.
Martin-Marietta Corporation: *See—*
Blizard, Robert B., Pederson, Christ W., and Polhemus, John T., 3,548,378.
Marton, Theodore, to General Electric Company. Variable flexibility tether. 3,546,961, Cl. 74-501.
Maruyama, Yasushi: *See—*
Yamato, Shigeki, Maruyama, Yasushi, and Tashiro, Shunji,3,548,108.
Marx, Frank Ralph, to Monnier Brothers Incorporated. Apparatus for drying or filtering fluids. 3,546,855, Cl. 55-481.
Marx, Wilhelm: *See—*
Peyker, Ortwin, Hickmann, Udo, and Marx, Wilhelm,3,547,091.
Maschinenfabrik Augsburg-Nurnbert Aktiengesellschaft: *See—*
Drewitz, Hans, 3,547,464.
Maschinenfabrik Oerlikon: *See—*
Moller, Werner, 3,547,884.
Maschio, Gabriele, to Pirelli, S.p.A. Device and method for reducing overheating in oil-filled electric cables. 3,548,072, Cl. 174-15:
Mascia, Carmen T., and Bagguley, Richard B., to Continental Can Company, Inc. Container ejecting means. 3,547,303, Cl. 220-22.
Maskery, Arthur, to Westinghouse Brake and Signal Company, Limited. Electrically controlled braking or accelerating apparatus. 3,547,499, Cl. 303-21.
Mason, L. E., Co.: *See—*
Caldwell, Robert J., and Sullo, Kenneth J., 3,547,054.
Massac, Gilbert: *See—*
Jackson, Robert G., and Massac, Gilbert,3,547,302.
Massachusetts Institute of Technology: *See—*
Adler, Michael S., 3,548,298.
Massey-Ferguson Industries Limited: *See—*
Hirsch, Walter, 3,547,129.
Masuda, Saburo. Bicycle brake. 3,546,960, Cl. 74-489.
Masuda, Shigeo: *See—*
Tanaka, Toshihiko, and Masuda, Shigeo,3,547,788.
Mathews, David M.: *See—*
Chevalier, Arthur A., Mathews, David M., and Rourke, William E.,3,547,197.
Matias, James J., and Attwood, John G., to Union Special Machine Company. Apparatus for creasing and stiffening fabric and for temporarily bonding fabric work-pieces. 3,547,738, Cl. 156-492.
Mats, Matvei Mikhailovich: *See—*
Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich,3,546,710.
Matsubara, Shigeru, and Okuzawa, Yasutoshi, to Fuji Shashin Film Kabushiki Kaisha. Filter correction warning device. 3,547,019, Cl. 95-11.
Matsuhita Electronics Corporation: *See—*
Hosokoshi, Kakuichiro, 3,547,675.
Matsuo, Akio: *See—*
Horiguchi, Tadao, Matsuo, Akio, and Ishika, Toshikatu,3,547,816.
Matsuo, Tadasi: *See—*
Yano, Tomosaburo, Matsuo, Tadasi, Ichinokawa, Hideo, and Kuno, Koichi,3,547,833.
Matsushima, Mitsuyoshi: *See—*
Kobayashi, Masayasu, Kobayashi, Michiharu, and Matsushima, Mitsuyoshi,3,546,812.
Matsushita Electric Industrial Co., Ltd.: *See—*
Ishida, Eisuke, and Morimoto, Kazuhisa, 3,548,059.
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi, 3,547,823.
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi, 3,547,824.
Nakade, Katsumoto, and Kokubo, Shigeru, 3,548,262.
Nishimoto, Kazuyuki, and Iida, Yoshio, 3,547,794.
Oshima, Nobumasa, Enoki, Yoshio, and Tani, Norihiro, 3,547,834.
Matsushita Electric Industrial Company Limited: *See—*
Tomita, Masao, and Hino, Tetsuo, 3,548,334.
Matyear, Charles, to Phillips Petroleum Company. Prevention of corrosion and fouling in a hydrocarbon conversion process. 3,547,806, Cl. 208-48.
Maugis, Raymond: *See—*
Guennou, Serge, Lefevre, Claude, and Maugis, Raymond,3,548,316.
Maure, Douglas R., to Lear Siegler, Inc. Binary code checking arrangement. 3,548,375, Cl. 340-146.1
Maurer, Richard E., Millikan, Allan G., and Franco, Simone, to Eastman Kodak Company Ferrania, S.p.A. Color-and-tone-correcting separation film Mordants for acid dyes comprising polymers containing quaternary phosphonium groups. 3,547,639, Cl. 96-114.
Maxey, Carl W., Cage, Kenneth M., and Bauer, Egon H., to Black Clawson Company, The. Method and apparatus for patching veneer. 3,547,170, Cl. 144-310.
Maxey, Herman D., to International Business Machines Corporation. Digitally controlled amplitude modulation circuit. 3,548,342, Cl. 332-9.
May, Harold L.: *See—*
Kolman, Lester P., May, Harold L., and Berry, Richard C.,3,547,118.
Mayer, Charles B.: *See—*
Thal, Herbert L., Jr., and Mayer, Charles B.,3,548,246.
Mayhue, Luther F., to Phillips Petroleum Company. Vapor pressure control in a fractionator of an alkylation process. 3,548,023, Cl. 260-683.53
Maynard, Wheeler D., and Belanger, Edward A., to General Signal Corporation. Electromagnetic relay structure. 3,548,139, Cl. 200-168.
Maysteel Products Corporation: *See—*
Weber, Charles H., 3,546,875.
Maytag Company, The: *See—*
Ashby, Alfred T., and Cotton, Curran D., 3,546,785.
Mazzarella, Louis: *See—*
Ciampa, Fred A., Serafini, Angelo, and Mazzarella, Louis,3,546,723.
Mazzone, Charles P., to Stevens, J. P., & Co., Inc. Method for dephasing textured yarn. 3,546,744, Cl. 19-65.
MB Associates: *See—*
Gould, Bert B., Biehl, Arthur T., Mainhardt, Robert, and Barton, William D., 3,546,997.
McAllister, Richard George: *See—*
Nickerson, Richard G., McAllister, Richard George, and Dickstein, Jack,3,547,690.
McArthur, Colin Shaw: *See—*
Conrad, Lucas Jones, Leonard, Gerard Eugene, McArthur, Colin Shaw, and Everhart, John Raymond,3,547,264.
Mc Arthur, George, Jr., to Glenwood Range Company. Gas burner system. 3,547,099, Cl. 126-39.
McArthur, Lester J., to Wabash Magnetics, Inc. Flip flop circuit. 3,548,263, Cl. 317-148.5
McCaskill, Garvin M., to Emerson Electric Co. Heat transfer device. 3,548,158, Cl. 219-530.
McClelland, Etheridge R.: *See—*
Aguilar, Henry, Camezon, Raymond E., and McClelland, Etheridge R.,3,547,249.
Mc Clure, Charles A.: *See—*
Tamarin, Bernard, 3,547,566.

McConnell, John R. Structural member fabricating process. 3,546,772, Cl. 29-430.
McConnell, Richard L., and Coover, Harry W., Jr., to Eastman Kodak Company. Polymers derived from diamines or aminoalcohols and trialkyl or triaryl phosphites. 3,547,893, Cl. 260-77.5
McCoy, Frederic C., and Knowles, Edwin C., to Texaco Inc. Hydrocarbon lubricating oil containing a polymer of a conjugated diolefin as a viscosity index improver. 3,547,821, Cl. 252-49.8
McCoy, John H. Data recording or tabulating device having replacement or interchangeable segments. 3,546,799, Cl. 40-63.
Mc Crosky Tool Corporation: *See—*
Gage, Homer D., 3,546,761.
McDonald, Roger L. Plastic sheet and bag formed thereof. 3,547,340, Cl. 229-55.
McDonald, Thomas M., to Hubbell, Harvey, Incorporated. Ground fault circuit interrupter with undervoltage release. 3,548,259, Cl. 317-18.
McDonnell Douglas Corporation: *See—*
Marcoux, Arthur, 3,547,350.
McFarland, Frederick R., to K-D Manufacturing Company. Tool for removing and replacing springs and washers. 3,546,767, Cl. 29-227.
McGee, Thomas W.: *See—*
Wang, Chun-Shan, and McGee, Thomas W.,3,547,967.
McGrath, William L., to Carrier Corporation. Heating and cooling system. 3,547,186, Cl. 165-22.
McGregor-Doniger Inc.: *See—*
Lepore, Patsy R., 3,547,060.
McGrew, John W., to Teledyne, Inc., mesne. Junction assembly for thermocouples. 3,547,706, Cl. 136-205.
McKay Machine Company: *See—*
Stinnertz, Horst, 3,546,912.
Mc Keeman, William M.: *See—*
Barton, Robert S., Creech, Bobby A., Dent, Benjamin A., Hauck, Erwin A., and Mc Keeman, William M.,3,548,384.
McKeon, James E., and Bryant, David R., to Union Carbide Corporation. Benzylic oxidation process for preparation of arylalkyl esters. 3,547,982, Cl. 260-488.
McLamore, Roy T., to Shell Oil Company. Deviation control bit and method. 3,547,209, Cl. 175-61.
Mc Larty, Jack L., to Universal Oil Products Company. Flexible corrugated filament wound tube. 3,547,160, Cl. 138-121.
McLean, Douglas Keith, Bennett, Stanley A., and Bennett, Stanley A., Jr., to Micro Instrument Corporation. Microfilm document copier. 3,547,535, Cl. 355-49.
Mc Mullen, John J., Associates, Inc.: *See—*
Lafont, Leopoldo C., 3,546,753.
McMurray, George F.: *See—*
Niel, Adam P., 3,546,981.
Mc Nabb, Warren C.: *See—*
Anthony, Russell W., and Mc Nabb, Warren C.,3,546,760.
McNair, Franklin Chaloner: *See—*
Remus, Melvin Edward, and McNair, Franklin Chaloner,3,548,141.
McWhirter, John R.: *See—*
Robinson, Ernest K., and McWhirter, John R.,3,547,813.
McWhirter, John R., to Union Carbide Corporation. Cyclic oxygenation of BOD-containing water. 3,547,811, Cl. 210-7.
McWhirter, John R., to Union Carbide Corporation. High oxygen utilization in bod-containing water treatment. 3,547,812, Cl. 210-7.
McWhirter, John R., to Union Carbide Corporation. Bio-oxidation with low sludge yield. 3,547,814, Cl. 210-7.
McWhirter, John R., to Union Carbide Corporation. Staged oxygenation of BOD-containing water. 3,547,815, Cl. 210-7.
Mead Corporation, The: *See—*
Conley, Kenneth E., 3,547,678.
Mechanical Enterprises Incorporated: *See—*
Twyford, Robert H., 3,547,247.
Meclcher, Franz-Josef: *See—*
Knothe, Erick, Billin, Eckhard, and Meclcher, Franz-Josef,3,547,213.
Medtronic, Inc.: *See—*
Anderson, Robert K., 3,547,127.
Megatronics, Inc.: *See—*
Nordmann, Bernard C., 3,548,197.
Mehr, Edna A.: *See—*
Mehr, Jacob A.,3,547,390.
Mehr, Jacob A., deceased (by Mehr, Edna A., administratrix), to Dazor Manufacturing Corporation. Adjustable bracket structure. 3,547,390, Cl. 248-280.
Meier, Hans Justus, to Vereinigte Flugtechnische Werke G.m.b.H. Vertically starting and landing airplane with a two- flow jet drive with laterally tiltable nozzles. 3,547,349, Cl. 239-265.35
Meijer, Roelf Jan: *See—*
Fokker, Herman, and Meijer, Roelf Jan,3,546,876.
Meinel, Aden B., Bashkin, Stanley, Loomis, Donald A., and Schroeder, John B. Method employing ion beams for polishing and figuring refractory dielectrics. 3,548,189, Cl. 250-49.5
Meisters, George J.: *See—*
Wagener, Anthony P., and Meisters, George J.,3,547,927.
Wagener, Anthony P., and Meisters, George J.,3,547,928.
Wagener, Anthony P., and Meisters, George J.,3,547,929.
Meitl, Harold G.: *See—*
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A.,3,546,866.
Melendez, Federico. Robot driver of a two-wheel motorcycle. 3,546,814, Cl. 46-244.
Melill, Joseph: *See—*
Muser, Carl J., Melill, Joseph, and Lewis, Joseph C.,3,547,599.
Mellish, Stuart Frederick, and Roach, Robert Joseph, to Imperial Chemical Industries Limited. Manufacture of chlorine and caustic alkali in diaphragm cells. 3,547,791, Cl. 204-98.
Melnick, Daniel, to Corn Products Company. Conveniently packaged food. 3,547,658, Cl. 99-113.
Melpar, Inc.: *See—*
Swindells, Frank E., and Lanier, William R., 3,547,700.
Menault, Jacques: *See—*
Gentilhomme, Claude, and Menault, Jacques,3,547,677.
Mencacci, Samuel A., to International Machinery Corporation. Feed and discharge for hydrostatic cooker conveyors. 3,547,248, Cl. 198-24.
Mensing, Clifford E., Jr.: *See—*
Gleit, Chester E., Mensing, Clifford E., Jr., and Curtis, Reid H.,3,547,802.
Merck & Co., Inc.: *See—*
Engelhardt, Edward L., and Freedman, Mark B., 3,547,980.
Kelley, Kane L., Trenner, Idamae G., and Silber, Robert H., 3,548,057.
Machlowitz, Roy A., and Lampson, George P., 3,547,779.
Shen, Tsung-Ying, and Walford, Gordon L., 3,547,948.
Sletzinger, Meyer, and Reinhold, Donald, 3,547,913.
Mernoe, Erik Christian, to Gearco A/S. System for treating uniform objects and a differential gear for such system. 3,547,251, Cl. 198-40.
Mertens, Wolfgang: *See—*
Herzer, Kurt, and Mertens, Wolfgang,3,547,486.
Merzoni, Sergio: *See—*
Chiusoli, Gian Paolo, Venturello, Carlo, Ferraris, Mario, and Merzoni, Sergio,3,547,981.
Messmer, Raymond J., to Allis-Chalmers Manufacturing Company. Pendant control for overhead crane. 3,548,272, Cl. 318-17.
Mesta Machine Company: *See—*
Stover, William L., and Sutyak, John J., 3,546,913.
Metschnabl, Andreas, and Beikufner, Georg, to Diehl. Device for entering dividends correctly by digits and/or product ejecting in a calculating machine. 3,547,347, Cl. 235-63.
Metzger, Karl: *See—*
Porret, Daniel, Metzger, Karl, and Heer, Alfred,3,547,918.
Meyer, Gunther: *See—*
Cleemann, Johan, and Meyer, Gunther,3,548,034.
Meyer Morton Co.: *See—*
Batterton, Elmo L., and Lonsdale, Melvin J., 3,547,291.
Meyerhuber, Wittich, Niestroj, Heinrich, and Canzler, Rolf, to Schubert & Salzer Maschinenfabrik Aktiengesellschaft. Method and apparatus for controlling the length of goods on knitting machines. 3,546,899, Cl. 66-149.
Michel, Irvin L. Railroad tie sorting apparatus. 3,547,266, Cl. 209-125.
Micro Instrument Corporation: *See—*
McLean, Douglas Keith, Bennett, Stanley A., and Bennett, Stanley A., Jr., 3,547,535.
Microdot Inc.: *See—*
Flanigan, William J., 3,548,363.
Middlesworth, Tommy A.: *See—*
Pool Stuart D., and Middlesworth, Tommy A.,3,546,860.
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A.,3,546,866.
Middleton, Frederic H. Flushing apparatus. 3,546,714, Cl. 4-48.
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi, to Matsushita Electric Industrial Co., Ltd. Tellurium-tin modified chromium dioxide. 3,547,823, Cl. 252-62.51
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi, to Matsushita Electric Industrial Co., Ltd. Tellurium-calcium modified chromium dioxide. 3,547,824, Cl. 252-62.51
Milionis, Jerry Peter, and Arthen, Frank Joseph, Jr., to American Cyanamid Company. Chlorinated benzophenone light stabilizers. 3,548,005, Cl. 260-591.
Millar, James S., to Parker-Hannifin Corporation. Compensated quick-disconnect device. 3,547,402, Cl. 251-149.6
Miller, Carl A., to Economics Laboratory, Inc. Injector pump apparatus. 3,547,560, Cl. 417-375.
Miller, David S., and Goodell, Harvey E., to Sprague Electric Company. Filter unit having monolithic capacitor. 3,548,347, Cl. 333-79.
Miller, Forbes M.: *See—*
Bredzs, Nikolajs, and Miller, Forbes M.,3,547,673.
Miller, Howard A., to Eastman Kodak Company. Scum-retardant carrier particles and compositions thereof. 3,547,822, Cl. 252-62.1
Miller, James R.: *See—*
Martincic, Paul W., and Miller, James R.,3,548,355.
Miller, Lester C., and Schnuell, Henry A., to E. R. Manufacturing Company. Mounting arrangement for brush and bail of a floor sweeper. 3,546,729, Cl. 15-41.
Miller, Roy W., to Pullman Incorporated. Container bracket arrangement. 3,547,048, Cl. 105-366.
Millican, Joel C. Suspenston system for automobiles. 3,547,466, Cl. 280-124.
Millikan, Allan G.: *See—*
Maurer, Richard E., Millikan, Allan G., and Franco, Simone,3,547,639.

Milliken Industrials Corporation: *See—*
Mobley, George A., 3,546,835.
Millmaster Onyx Corporation: *See—*
Dudzinski, Zdzislaw J., 3,548,001.
Mills, Iain C., to Dunlop Company Limited, The. Pneumatic tire. 3,547,174, Cl. 152-209.
Mills, Justin W., Jr., to Lif-O-Gen, Inc. Single stage pressure regulator. 3,547,143, Cl. 137-315.
Milot, Michel, and Nicolas, Pierre J., 1/4 to World Wide Corporation Ltd. Sealing arrangement. 3,547,451, Cl. 277-25.
Minasian, Harry B., to Ivanhoe Research Corporation. Method and apparatus for automatically centering fabric workpieces regardless of their size within the operating range. 3,548,196, Cl. 250-224.
Minczeles, Roger: *See—*
Van Gurp, Wilhelmus Adrianus, Agterbosch, Johannes, and Minczeles, Roger,3,548,086.
Ministry of Trade and Industry, The State of Israel: *See—*
Lewin, Menachem, 3,547,687.
Minnesota Automotive, Inc.: *See—*
Girvan, John H., 3,547,233.
Minnesota Mining and Manufacturing Company: *See—*
Cross, Bert S., 3,546,709.
Johnson, David G., 3,546,733.
Sagawa, Burt K., 3,547,648.
Minnitte, Cristino A. Toilet. 3,546,718, Cl. 4-116.
Mishakin, Vladimir Andreevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.
Mitchell, Fern Wood: *See—*
Marans, Nelson Samuel, and Mitchell, Fern Wood,3,547,793.
Mitchell, Jay P., to Ohio State University, The. Piezoelectric pulse amplifier. 3,548,314, Cl. 325-185.
Mitchell, Lucille. Wall hangers. 3,547,389, Cl. 248-220.5
Mitchell, Norris W., to Phillips Petroleum Company. Process and apparatus for quenching hot vapors from a reactor with cooled liquid condensed from said vapors and a water spray. 3,547,805, Cl. 208-48.
Mitsubishi Chemical Industries Limited: *See—*
Yamaguchi, Shinichi, Teranishi, Toshio, Ogura, Satoshi, and Sano, Shiro, 3,547,783.
Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Noguchi, Akio, 3,546,979.
Noguchi, Sadao, 3,546,847.
Mitsushita Electric Industrial Co., Ltd.: *See—*
Nishino, Tsutomu, and Maeda, Haruo, 3,548,073.
Mix, Joseph E.: *See—*
Cox, John R., and Mix, Joseph E.,3,546,781.
Miyagi, Kiyoshi: *See—*
Ichizuka, Tadashi, and Miyagi, Kiyoshi,3,547,521.
Miyamoto, Junshi, and Sato, Yoshishige, to Sumitomo Chemical Co., Ltd. Gaschromatographic determination of minute amount of organophosphorus compounds. 3,547,588, Cl. 23-232.
Miyano, Masateru, to Searle, G. D., & Co.3-Alkoxy-tetrahydro/hexahydro-6H-dibenzo [b,d] pyran-9-ones and derivatives thereof. 3,547,953, Cl. 260-345.3
Miyaoka, Senri: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu,3,548,234.
Tokita, Tetsuo, and Miyaoka, Senri,3,548,248.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Morio, Minoru,3,548,249.
Miyazaki, Toshio: *See—*
Ohie, Koichi, Iijima, Tetsuya, Yamada, Katsuo, and Miyazaki, Toshio,3,546,973.
Mo och Domsjo Aktiebolag: *See—*
Blomqvist, Nils Verner, Croon, Ingemar Liss-Albin, and Sundell, Gustav Harry, 3,547,930.
Moren, Rolf Erhard, 3,547,679.
Wiley, Harold V., 3,547,228.
Mobil Oil Corporation: *See—*
Andress, Harry J., Jr., and Gee, Paul Y. C., 3,548,011.
Oleck, Stephen M., and Stover, William A., 3,547,831.
Sardessai, Kashinath S., and Mullier, Michel E., 3,547,888.
Slusser, Marion L., 3,547,198.
Mobil Oil Corporition: *See—*
Andress, Harry J., Jr., 3,547,867.
Mobley, George A., to Milliken Industrials Corporation. Tube forming apparatus and method. 3,546,835, Cl. 53-28.
Modin, John. Specific gravity meter. 3,546,947, Cl. 73-437.
Moede, Jerome Albert, and Schumacher, Delmar Francis, to Du Pont de Nemours, E. I., and Company. Photographic drafting film with a polyethylene terephthalate base containing silica. 3,547,644, Cl. 96-87.
Molex Products Company: *See—*
Sebastian, Robert W., 3,548,166.
Molins, Desmond Walter, to Molins Machine Company Limited. Method of making filters for cigarettes. 3,547,009, Cl. 93-1.
Molins Machine Company Limited: *See—*
Molins, Desmond Walter, 3,547,009.
Moller, Werner, to Maschinenfabrik Oerlikon. Process for preparing curable epoxy resin and insulations of electrical equipment made therewith. 3,547,884, Cl. 260-47.
Monacelli, Walter J.: *See—*
D'Alelio, Gaetano F., 3,547,686.
Monarch Road Machinery Company: *See—*
Jackoboice, Edward J., 3,547,203.
Mones, Arthur H.: *See—*
Davis, Edward M., Jr., and Mones, Arthur H.,3,547,604.
Monigal, Robert E., Eck, Robert N., Gossfeld, Walter A., and Swanson, William C., to Cutler-Hammer, Inc. Contact-monitoring fault indicators. 3,548,399, Cl. 340-253.
Monnier Brothers Incorporated: *See—*
Marx, Frank Ralph, 3,546,855.
Monon Trailer, Inc.: *See—*
Ehrlich, Donald J., 3,547,483.
Monsanto Chemicals Limited: *See—*
Worrall, Roy, 3,547,858.
Worrall, Roy, 3,548,408.
Monsanto Company: *See—*
D'Amico, John Joseph, 3,547,938.
Olin, John F., 3,547,620.
Ratts, Kenneth Wayne, 3,547,994.
Sears, James Kern, 3,547,667.
Shen, Chung Yu, 3,547,825.
Speziale, Angelo John, and Smith, Lowell R., 3,547,618.
Wilder, Gene Ray, 3,548,008.
Montblanc-Simplo GmbH: *See—*
Rosler, Jurgen, 3,547,552.
Montecatini Edison S.p.A.: *See—*
Chiusoli, Gian Paolo, Venturello, Carlo, Ferraris, Mario, and Merzoni, Sergio, 3,547,981.
Montel, Andre, to Societe d'Instrumention Schlumberger. Rack type mounting plate for magnetic head. 3,548,393, Cl. 340-174.1
Montes, Ralph A.: *See—*
Lee, Edward P., Lombardi, Eugene H., Montes, Ralph A., and Stoeckli, Oscar W.,3,546,965.
Montgomery, Dean P., to Phillips Petroleum Company. Asphalt-polymer composition. 3,547,850, Cl. 260-28.5
Mooradian, Aram, and Dupont, Paul E., to Sterling Drug Inc. 2-(2-Imino-alkyl or 2-imino-cycloalkyl)-phenols from O-phenyl ketoximes. 3,547,997, Cl. 260-566.
Moore Business Forms, Inc.: *See—*
Winston, Rodney W., 3,547,745.
Moore, Eugene R., Pickelman, Dale M., and Zimmerman, Robert L., to Dow Chemical Company, The. Method for producing cellular plastic articles and the articles produced thereby. 3,547,838, Cl. 260-2.5
Moore, James E., to Stromberg Datagraphics, Inc. Transistor switch. 3,548,217, Cl. 307-254.
Moren, Rolf Erhard, to Mo och Domsjo Aktiebolag. Dimensionally stabilized wood and method of making such wood. 3,547,679, Cl. 117-57.
Morgan, Burton D. Honeycomb core made from sealed continuous thermoplastic sheets. 3,547,751, Cl. 161-68.
Mori, Katsuji. Scissors for trimming hair of the nostrils. 3,546,777, Cl. 30-29.5
Morimoto, Kazuhisa: *See—*
Ishida, Eisuke, and Morimoto, Kazuhisa,3,548,059.
Morimura, Syoji: *See—*
Murayama, Keisuke, and Morimura, Syoji,3,547,874.
Morine, John Theodore, to Maher, D. L., Co. Method of cleaning gravel packed, gravel developed, and drilled igneous wells. 3,547,194, Cl. 166-279.
Morio, Minoru: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Morio, Minoru,3,548,249.
Morisada, Sunao: *See—*
Maeda, Tsutomu, Morisada, Sunao, Kasajima, Tatsuji, and Hashida, Takeshi,3,546,916.
Morozumi, Muneharu. Profile shifted involute internal gearing. 3,546,972, Cl. 74-804.
Motorola, Inc.: *See—*
Schafft, Hugo W., 3,548,116.
Sciurba, Jack L., 3,548,090.
Mottern, Henry O., and Sims, Victor A., to Air Reduction Company, Incorporated. Preparation of unsaturated esters. 3,547,983, Cl. 260-488.
Motz, Kaye L., to Continental Oil Company. Catalytic hydrogenation of oxidized aluminum trialkyls. 3,547,968, Cl. 260-448.
Motz, Kaye L., to Continental Oil Company. Catalytic hydrogenation of oxidized aluminum trialkyls. 3,547,969, Cl. 260-448.
Moulthrop, Irwin M., to Research Corporation. Infectious bursal disease vaccine. 3,548,055, Cl. 424-89.
Mount Sinai Hospital Research Foundation, Inc.: *See—*
Cherry, Sheldon H., 3,547,121.
Mozer, Rudolf W., to Delta Pattern and Model Company. Method of making resin faced metal molding dies. 3,548,050, Cl. 264-227.
Mueller, Albert C., and Parry, Harvey L., to Shell Oil Company. Process of reacting a phenol with a polyepoxide in the presence of an organic phosphine. 3,547,881, Cl. 260-47.
Mueller, Hans Richard: *See—*
Fischer, Adolf, and Mueller, Hans Richard,3,547,616.

Mueller, Helmut. Isothermal crystallization of dextrose. 3,547,696, Cl. 127-60.
Mueller, Ralph L.: *See—*
Brown, Ford J., and Mueller, Ralph L.,3,547,252.
Muff, Tom C.: *See—*
Bourke, William T., Harris, Spencer, and Muff, Tom C.,3,546,921.
Mukai, Shigeo: *See—*
Yoshino, Michio, Ikeda, Tetsuo, and Mukai, Shigeo,3,548,010.
Mukhin, Georgy Ivanovich, Kljukin, Leonid Petrovich, Shlykov, Nikolai Alexeevich, and Shesterikov, Boris Alexandrovich. Piezoelectric charging device. 3,548,228, Cl. 310-8.7
Mulders, Bernward: *See—*
Buchwald, Horst, Mulders, Bernward, and Schneider, Rudolf,3,547,645.
Muller, George, Fa., Kugellagerfabrik: *See—*
Titt, Georg, 3,547,239.
Muller, Gerhard, to Werner & Pfleiderer. Automatically controlled dough-processing device. 3,547,053, Cl. 107-68.
Muller, Helmbrecht, to Schon & Cie GmbH, Firma. Large area or platform-type beam cutting machine. 3,546,992, Cl. 83-417.
Muller, Hendrikus Gerhardus, to N.V. Machinefabriek B & S Bedrijven v.d. Woerdt. Rotary article transfer device. 3,547,250, Cl. 198-30.
Muller, Oke W. Centrifugal separator. 3,546,854, Cl. 55-455.
Muller, Walter: *See—*
Gauster, Wolfgang, Muller, Walter, and Weinrotter, Ferdinand,3,547,581.
Mullier, Michel E.: *See—*
Sardessai, Kashinath S., and Mullier, Michel E.,3,547,888.
Mullins, John W. Service valve. 3,547,144, Cl. 137-318.
Mumford, Orris E.: *See—*
Acton, Daniel D., Ochs, Charles S., and Mumford, Orris E.,3,546,768.
Munder, Johannes: *See—*
Scheler, Siegfried, Munder, Johannes, and Brauninger, Arno,3,547,637.
Munding, German, to Bolkow Gesellschaft mit beschrankter Haftung. Liquid fuel rocket engine construction. 3,546,883, Cl. 60-258.
Munn, Dorothy R., to Grefco, Inc. Process for beneficiating diatomaceous earth ores and product. 3,547,260, Cl. 209-3.
Muntjanoff, John R.: *See—*
Borer, Herbert W., and Muntjanoff, John R.,3,547,293.
Muraca, Raffaele F.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,546,920.
Murawski, Zygmunt. Partition wall structures. 3,546,834, Cl. 52-632.
Murayama, Keisuke, and Morimura, Syoji, to Sankyo Company Limited. Stabilization of polyvinyl chloride. 3,547,874, Cl. 260-45.8
Murayama, Noboru, to Kabushiki Kaisha Ricoh. Matrix collating system. 3,548,376, Cl. 340-146.1
Murphy, Patrick J.: *See—*
Basse, Philip, and Murphy, Patrick J.,3,548,203.
Murray, Allan G., to Uniroyal, Inc. Continuous emulsion polymerization of styrene and acrylonitrile by addition of monomers in plural stages with all of emulsifier added in first stage. 3,547,857, Cl. 260-85.5
Murrell, Donald K.: *See—*
Kelly, Samuel T., and Murrell, Donald K.,3,547,427.
Muser, Carl J., Melill, Joseph, and Lewis, Joseph C., to North American Rockwell Corporation. Solid state joining method. 3,547,599, Cl. 29-491.
Nadeau, Gale F., Jr., to Eastman Kodak Company. Method of lithographic reproduction and solution to render image areas oleophilic. 3,547,632, Cl. 96-33.
Nagely, John l.: *See—*
Swain, James C., Thomas, David L., and Nagely, John l.,3,547,208.
Nagely, John L., to Westinghouse Air Brake Company. Rotary percussive drill control. 3,547,205, Cl. 173-105.
Nakade, Katsumoto, and Kokubo, Shigeru, to Matsushita Electric Industrial Co., Ltd. Light sensitive switching unit. 3,548,262, Cl. 317-124.
Nakagawa, Kazuo: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu,3,547,088.
Nakamori, Shinji, to Teikoku Dempa Kabushiki Kaisha. Tape recorder. 3,547,447, Cl. 274-4.
Nakamura, Toshiaki: *See—*
Onozuka, Mitsuo, Nakamura, Toshiaki, and Iida, Kinji,3,547,961.
Nalco Chemical Company: *See—*
Bott, Lawrence L., 3,547,663.
Salazar, Pablo V., 3,547,664.
Nardi, Giancarlo, to Compagnia Italiana Westinghouse Freni e Segnali. Carburetor having a pure fluid component. 3,547,414, Cl. 261-36.
National Cash Register Company, The: *See—*
Akiyama, Hideo, and Artaud, Maurice H., 3,547,534.
Betron, Francis A., 3,547,537.
National Lead Company: *See—*
Koch, Byron W., and Navarro, William D., 3,547,184.
National Patent Development Corporation: *See—*
Vit, Jaroslav, 3,548,225.
National Research Corporation: *See—*
Fairbanks, Daniel F., Larson, Warren L., Randall, Robert N., and Wong, James, 3,548,351.
National Research Development Corporation: *See—*
Froome, Keith Davy, and Bradsell, Robert Howard, 3,547,539.
Gates, John William Charles, and Hall, Roy Geoffrey Noel, 3,548,337.
Stevens, Geoffrey William Hedges, 3,547,387.
National Steel Corporation: *See—*
Roelofs, Robert F., 3,547,182.
Natterstad, Henry R. Floating fluid barrier. 3,547,306, Cl. 220-26.
Navarro, William D.: *See—*
Koch, Byron W., and Navarro, William D.,3,547,184.
Nederlandse Maatschappij Voor Werken Buitengaats (Netherlands Offshore Company): *See—*
Jonkman, Frederik J., 3,547,067.
Neebel, James D.: *See—*
Neebel, Richard R., Harms, Clarence L., Neebel, James D., and Doerfer, Richard E.,3,546,737.
Neebel, Richard R., Harms, Clarence L., Neebel, James D., and Doerfer, Richard E., to Doerfer Corporation. Loin pull and rib cut machine. 3,546,737, Cl. 17-1.
Needham, Robert F., to ACF Industries, Incorporated. Insulated railway tank car and method of forming same. 3,547,047, Cl. 105-358.
Nehring, Rudolf: *See—*
Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf,3,547,889.
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf,3,548,027.
Neidel, James R.: *See—*
Gassei, Wallace K., and Neidel, James R.,3,548,252.
Neighbors, Ralph P., and Phillips, Lee V., to Gulf Research & Development Company. Method of combating weeds. 3,547,621, Cl. 71-121.
Neilson, William R., to Sherwood Electronic Laboratories, Inc. Record changing apparatus. 3,547,450, Cl. 274-10.
Nelson, Paul E.: *See—*
Shebanow, Michael S., Borelli, Ronald F., and Nelson, Paul E.,3,547,346.
Nemeth, Robert C., to Vacuum Instrument Corporation. Method and apparatus for mass analyzing a gas which is selectively desorbed from a body. 3,548,188, Cl. 250-41.9
Nemetz, Willi: *See—*
Schucker, Josef W.O., Glos, Franz, and Nemetz, Willi,3,547,799.
Nemonic Data Systems, Inc.: *See—*
Green, Harry J., Jr., 3,548,045.
Neukom, Chester: *See—*
Anderson, Robert R., Anderson, Joseph A., and Neukom, Chester,3,547,358.
Neumann, Leopold: *See—*
Gordon, Bernard M., and Neumann, Leopold,3,548,323.
Newage Lyon Limited: *See—*
Wyles, Peter J., 3,548,288.
Neway Equipment Company: *See—*
Bird, James L., 3,547,215.
Newsom, Herbert C.: *See—*
Fish, Richard H., and Newsom, Herbert C.,3,547,971.
Nicholas, Edward S.: *See—*
Fletcher, David C., and Nicholas, Edward S.,3,546,923.
Nicholas, Nicholas J.: *See—*
Amberg, Stephen W., Burke, Douglas J., and Nicholas, Nicholas J.,3,547,012.
Nicholls, Mervyn E.: *See—*
Eggert, Glenn J., and Nicholls, Mervyn E.,3,546,730.
Nickerson, Richard G., McAllister, Richard George, and Dickstein, Jack, to Borden, Inc. Process for controlling fabric hardness by impregnating with a latex. 3,547,690, Cl. 117-139.5
Nicolas, Pierre J.: *See—*
Milot, Michel, and Nicolas, Pierre J.,3,547,451.
Niel, Adam P., to McMurray, George F. Tool for installing drapery pinhooks. 3,546,981, Cl. 81-3.
Nielsen, Edwin A., to Ideal Toy Corporation. Multiple speed toy vehicle. 3,546,809, Cl. 46-206.
Nielson, Thomas L.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,546,917.
Niemeyer, Willy: *See—*
Gennerich, Max, Paul, Walter, Niemeyer, Willy, and Achelpohl, Fritz,3,547,010.
Niessen, Walter R., to Little, Arthur D., Inc. Incinerator system. 3,547,056, Cl. 110-14.
Niestroj, Heinrich: *See—*
Meyerhuber, Wittich, Niestroj, Heinrich, and Canzler, Rolf,3,546,899.
Niizawa, Yoshiaki: *See—*
Kimura, Takehiko, and Niizawa, Yoshiaki,3,548,179.
Nippon Columbia Company, Limited: *See—*
Takagi, Toshihiko, 3,548,092.
Nippon Columbia Kabushikikaisha (Nippon Columbia Co. Ltd.): *See—*
Takagi, Toshihiko, and Yamazaki, Takashi, 3,548,089.
Nippon Denso Co., Ltd.: *See—*
Sato, Suguru, 3,548,226.
Nippon Denso Company Limited: *See—*
Yonezu, Hisashi, 3,548,372.

Nippon Electric Company Limited: *See—*
Furuoya, Takashi, 3,548,390.
Yamato, Shigeki, Maruyama, Yasushi, and Tashiro, Shunji, 3,548,108.

Nippon Oil Seal Industry Co., Ltd.: *See—*
Hirata, Michiho, 3,547,452.

Nippon Sheet Glass Co., Ltd.: *See—*
Suzuki, Joji, and Kume, Makoto, 3,548,060.

Nippon Steel Corporation: *See—*
Arakawa, Kiichi, 3,547,582.

Nippon Yushi Kabushiki Kaisha: *See—*
Yoshino, Michio, Ikeda, Tetsuo, and Mukai, Shigeo, 3,548,010.

Nischk, Gunther: *See—*
Rinkler, Heinrich, Wieden, Horst, Wilms, Hugo, and Nischk, Gunther,3,547,985.

Nishimoto, Kazuyuki, and Iida, Yoshio, to Matsushita Electric Industrial Co., Ltd. pH-Sensor. 3,547,794, Cl. 204-195.

Nishino, Tsutomu, and Maeda, Haruo, to Mitsushita Electric Industrial Co., Ltd. Ultra broad-band delay line. 3,548,073, Cl. 174-15.

Nishio, Daijiro: *See—*
Ohe, Keitaro, Kaneko, Kiroyuki, and Nishio, Daijiro,3,548,035.

Nishio, Fumihido, Ohkubo, Kunji, and Ikeda, Tsutomu, to Fuji Shashin Film Kabushiki Kaisha. Photographic layers containing gelatin and methylol polyvinyl urethane. 3,547,642, Cl. 96-84.

Nissan Jidosha Kabushiki Kaisha: *See—*
Ohie, Koichi, Iijima, Tetsuya, Yamada, Katsuo, and Miyazaki, Toshio, 3,546,973.

Noack, Werner: *See—*
Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans,3,548,232.

Nockemann, Ernst, to Bomoro Bocklenberg & Motte Kom.- Ges. Turn latch lock for motor vehicle doors. 3,547,476, Cl. 292-216.

Noguchi, Akio, to Mitsubishi Jukogyo Kabushiki Kaisha. Apparatus for balancing a headstock and a saddle in machine tools. 3,546,979, Cl. 77-36.

Noguchi, Sadao, to Mitsubishi Jukogyo Kabushiki Kaisha. Crown cap feeder device for bottle stopper fitting machine. 3,546,847, Cl. 53-64.

Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru, to Showa Denko Kabushiki Kaisha, and Kyusku Oil Co., Ltd. Process for producing high grade petroleum coke. 3,547,804, Cl. 208-46.

Nolting, Jerry L., to Texaco Inc. Method and apparatus for an ignition timing indicator. 3,548,300, Cl. 324-15.

Nordgren, Ronald P.: *See—*
Kolb, Robert H., Barry, Donald W., Nordgren, Ronald P., and Broussard, Douglas E.,3,546,888.

Nordmann, Bernard C., to Megatronics, Inc. Light protection device with a movable opaque shield. 3,548,197, Cl. 250-229.

Norlie, Harold H.: *See—*
Dawson, James C., and Norlie, Harold H.,3,547,322.

Norman, Robert J., and Budniak, Mitchell S., to Powers Regulator Company. Code addressing system for pneumatic carrier or the like. 3,547,374, Cl. 243-38.

North American Rockwell Corporation: *See—*
Muser, Carl J., Melill, Joseph, and Lewis, Joseph C., 3,547,599.
Stamm, Alex F., 3,547,462.

Northern Petrochemical Company: *See—*
Roth, Donald Jacob, 3,546,743.

Norton Company: *See—*
Gerry, Ronald J., 3,547,609.

Norton Research Corporation: *See—*
Gardner, Ross, Jr., and Keough, Allen H., 3,547,886.

Notley, Norman Thomas. Photographic reproduction. 3,547,630, Cl. 96-27.

Nuclear Diodes: *See—*
Soderquist, Charles E., 3,547,399.

Nukem, Nuklear-Chemie und-Metallurgie Gesellschaft mit beschrankter Haftung: *See—*
Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther, 3,548,145.

Nunlist, Erwin J., to Sybron Corporation. Mixing apparatus. 3,547,413, Cl. 259-108.

Nussbaum, Marcel, Kurz, Wilfried, and Lux, Benno, to Concast AG. Device for locating boundaries of non- homogeneous bodies. 3,546,924, Cl. 73-67.7

N.V. Machinefabriek B & S Bedrijven v.d. Woerdt: *See—*
Muller, Hendrikus Gerhardus, 3,547,250.

Nystrom, Roy B.: *See—*
Popovitch, Dragolyoub, Nystrom, Roy B., and Eneman, Melvin,3,547,034.

Oakite Products, Inc.: *See—*
Parsons, Richard, 3,547,787.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,755, Cl. 161-165.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,756, Cl. 161-165.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,757, Cl. 161-165.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,758, Cl. 161-165.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,759, Cl. 161-165.

Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Vibration damped sandwich systems. 3,547,760, Cl. 161-165.

Ochi, Shikayuki: *See—*
Omura, Yoshito, and Ochi, Shikayuki,3,548,332.

Ochs, Charles S.: *See—*
Acton, Daniel D., Ochs, Charles S., and Mumford, Orris E.,3,546,768.

O'Connor, William M., to Avco Corporation. Vehicle propulsion unit. 3,547,042, Cl. 104-155.

Odenbach, Heinz: *See—*
Siefert, Roland, and Odenbach, Heinz,3,546,953.

O'Donnell, John F.:*See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.

Ogden, Wilbur L., to BRK Electronics, Inc. Warning device. 3,548,205, Cl. 307-232.

Ogle, Hugh Malcolm, and Pekarek, Kenneth L., to Royco Instruments, Inc. Noise rejection circuits for particle counters. 3,548,206, Cl. 307-235.

Ogura, Satoshi: *See—*
Yamaguchi, Shinichi, Teranishi, Toshio, Ogura, Satoshi, and Sano, Shiro,3,547,783.

Ohe, Keitaro, Kaneko, Kiroyuki, and Nishio, Daijiro, to Fuji Shashin Film Kabushiki Kaisha. Suspension polymerization process. 3,548,035, Cl. 260-89.5

Ohgoshi, Akio: *See—*
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu,3,548,234.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Morio, Minoru,3,548,249.

Ohie, Koichi, Iijima, Tetsuya, Yamada, Katsuo, and Miyazaki, Toshio, to Nissan Jidosha Kabushiki Kaisha. Hydraulic control system for automatic transmission. 3,546,973, Cl. 74-868.

Ohio State University, The: *See—*
Mitchell, Jay P., 3,548,314.

Ohkubo, Kunji: *See—*
Nishio, Fumihido, Ohkubo, Kunji, and Ikeda, Tsutomu,3,547,642.

Ohta, Toshio: *See—*
Kitazawa, Tohru, Ishizawa, Kazutomo, and Ohta, Toshio,3,546,756.

Okajima, Shigeki: *See—*
Kinoshita, Kojiro, Suzuki, Takeo, and Okajima, Shigeki,3,548,338.

Okcuoglu, Selahattin A., and Walker, George A., to International Business Machines Corporation. Multiple pitch margin control. 3,547,245, Cl. 197-63.

Okuzawa, Yasutoshi: *See—*
Matsubara, Shigeru, and Okuzawa, Yasutoshi,3,547,019.

Oleck, Stephen M., and Stover, William A., to Mobil Oil Corporation. Solid state base-exchange of crystalline aluminosilicates. 3,547,831, Cl. 252-455.

Oleson, Delbert A. Plastic laminate identification card. 3,546,797, Cl. 40-1.5

Olevsky, Viktor Markovich, and Ruchinsky, Vitally Rafael-Abovich. Reactor for fluid films. 3,547,593, Cl. 23-283.

Olin, John F., to Monsanto Company. N-(oxamethyl) alpha-haloacetanilide herbicides. 3,547,620, Cl. 71-118.

Olivetti, Ing. C., & C., S.p.A.: *See—*
Sage, Ira M., 3,547,077.

Olivier, Herve, and Vermot, Andre, l'Air Liquide, Societe Anonyme pour l'Etude des l'Exploitation des Procedes Georges Claude. Process for the continuous preparation of crystalline substances. 3,547,595, Cl. 23-295.

Olivier, Kenneth L., to Union Oil Company of California. Group VIII noble metal catalyst recovery. 3,547,964, Cl. 260-429.

Olsen, Ronald H., to Dairy Technics, Inc. Process of making bakery products. 3,547,654, Cl. 99-90.

Olympus Optical Co., Inc.: *See—*
Hayamizu, Yoshisada, and Sakamoto, Satoru, 3,547,514.

Omni-Lab, Incorporated: *See—*
Westerhoff, David H., and Flora, Albert V., 3,546,794.

Omori, Mamoru: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru,3,547,804.

Omura, Yoshito, and Ochi, Shikayuki, to Hitachi, Ltd. Gain control circuit. 3,548,332, Cl. 330-29.

Oncley, Paul B. Control system for musical instruments utilizing memory storage of desired stop combinations. 3,548,064, Cl. 84-1.01

O'Neill, Roger M., to Continental Can Company. Method and apparatus for sealing containers using heat activated magnetic sealing compound. 3,548,140, Cl. 219-10.53

Ono, Chiaki: *See—*
Hatanaka, Yoshihiro, Itoda, Masaru, and Ono, Chiaki,3,546,850.

Onozuka, Mitsuo, Nakamura, Toshiaki, and Iida, Kinji, to Kureha Kagaku Kogyo Kabushiki Kaisha. Dimercaptide derivatives of distannoxanes or thiodistannoxanes. 3,547,961, Cl. 260-410.6

Organon Inc.: *See—*
Dingwall, David, 3,548,051.

Ortel, Gerhard. Machine for butt joining the longitudinal edges of thin flat workpieces. 3,547,735, Cl. 156-440.

Osada, Hiromitsu: *See—*
Otsuka, Shigeru, and Osada, Hiromitsu,3,547,657.

Osborn, Leon C., Co., Inc.: *See—*
Green, Wayne P., 3,547,263.

Oscar Schmidt-International, Inc.: *See—*
Peterson, Glen R., Jr., 3,548,067.

Oshima, Nobumasa, Enoki, Yoshio, and Tani, Norihiro, to Matsushita Electric Industrial Co., Ltd. Resistance material and method for making the same. 3,547,834, Cl. 252-511.

Osius, Adolph Paul: *See—*
Tarpinian, Haig D., and Osius, Adolph Paul,3,546,936.

Ossenkop, Robert J., to American Machine & Foundry Company. Movable-carriage ski exerciser. 3,547,434, Cl. 272-57.

Oster, John, Manufacturing Co.: *See—*
Cockroft, James B., 3,548,280.

Ostermay, Gottfried: *See—*
Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans,3,548,232.

Osterreichische Stickstoffwerke Aktiengesellschaft: *See—*
Gauster, Wolfgang, Muller, Walter, and Weinrotter, Ferdinand, 3,547,581.

Osting, Richard C.: *See—*
Herbert, Robert, and Osting, Richard C.,3,547,297.

Otsuka, Shigeru, and Osada, Hiromitsu, to Toyo Seikan Kabushiki Kaisha. Electrical processing of marine products. 3,547,657, Cl. 99-111.

Ott, David G.: *See—*
Flaherty, Robert, and Ott, David G.,3,547,778.

Ott, Donald E., and Carlson, Arthur W., to Sheldon, E. H., & Company. Biological service center. 3,547,505, Cl. 312-209.

Ott, Hans: *See—*
Hardtmann, Goetz E., and Ott, Hans,3,547,921.

Otto, C., Dr., & Comp. GmbH: *See—*
Schon, Erich, 3,547,782.

Oueilhe, Edward L., Jr. Adjustable concrete pilaster form. 3,547,396, Cl. 249-19.

Overmars, Henricus G. J., to International Lead Zinc Research Organization, Inc. mesne. Organolead compounds and polyurethane foams produced by the use thereof as catalysts. 3,547,841, Cl. 260-2.5

Owen, Richard Bruce, Salmon, Percy George, and Awcock, Mervyn Leslie, to United Kingdom Atomic Energy Authority. Semiconductor radiation detector arrangements. 3,548,213, Cl. 250-211.

Owen, Thomas G., Jr. Cotton picker. 3,546,859, Cl. 56-12.

Owens-Corning Fiberglas Corporation: *See—*
Holman, Arthur L., 3,547,610.
Klink, Jerome P., 3,547,361.
Langlois, Roland E., and Pitt, Richard E., 3,546,898.
Sens, Fred T., 3,546,846.
Stalego, Joseph P., 3,547,762.
Ticknor, Winton A., 3,547,202.

Owens-Illinois, Inc.: *See—*
Amberg, Stephen W., Burke, Douglas J., and Nicholas, Nicholas J., 3,547,012.

Owers, Leonard C., to Dreamland Electrical Appliances Limited. Laminates and electrically heated blankets incorporating such laminates. 3,548,147, Cl. 219-212.

Oyanagi, Yasuji, and Shibatani, Kyoichiro, to Kurashiki Rayon Co., Ltd. Shapable polyvinyl alcohol composition. 3,548,031, Cl. 260-874.

Pacific Adhesives Company, Inc.: *See—*
Hohbach, Dale J., and Smith, Harold A., 3,547,844.

Pacific Air Products: *See—*
Hess, Louis R., 3,547,152.

Pacific Plantronics, Inc.: *See—*
Hutchings, Kenneth J., 3,548,118.

Page, Derrick J., to Westinghouse Electric Corporation. Tuning integrated circuit comprising a layer of piezoelectric material above a semiconductor body. 3,548,346, Cl. 333-72.

Pahlavan, Marcel A., to Aerospace Products Research Corporation. Display apparatus. 3,548,254, Cl. 315-169.

Paiste, Robert, to R. & T. Paiste KG Gong and Cymbal Production. Cymbal. 3,546,994, Cl. 84-402.

Pak-Well Corporation: *See—*
Alton, Thomas W., 3,547,343.

Palmer, Stephen W.: *See—*
Hill, Robert B., and Palmer, Stephen W.,3,547,325.

Pan American Petroleum Corporation: *See—*
Elkins, Llody E., 3,547,195.
Froning, H R., Shelton, Jack L., and Raza, Syed H[illegible] 3,547,199.

Pan, Pei Tai, to Fairbanks Morse Inc. Apparatus and method for purifying waste waters. 3,547,800, Cl. 204-269.

Papadopulos, Michael Savvas: *See—*
Endacott, John Derrick, and Papadopulos, Michael Savvas,3,548,074.

Parisi, Agostino: *See—*
Falcone, Luigi, Parisi, Agostino, and Sartoris, Mariola,3,547,986.

Parker-Hannifin Corporation: *See—*
Millar, James S., 3,547,402.

Parkhurst Manufacturing Co., Inc.: *See—*
Parkhurst, William R., 3,547,470.

Parkhurst, William R., to Parkhurst Manufacturing Co., Inc. Trailer hitch assembly. 3,547,470, Cl. 280-502.

Parks, Audrey E. Wrist purse. 3,547,324, Cl. 224-28.

Parks, Ellsworth M. Positive locking Geneva motion mechanism. 3,546,958, Cl. 74-436.

Parodi, Luciano, and Vallauri, Maurizio, to FIAT Societa per Azioni. Linear motor control system. 3,548,273, Cl. 318-135.

Parry, Harvey L.: *See—*
Mueller, Albert C., and Parry, Harvey L.,3,547,881.
Dante, Mark F., and Parry, Harvey L.,3,547,885.

Parsons, Richard, to Oakite Products, Inc. Hot dip tinning a high carbon ferrous metal. 3,547,787, Cl. 204-38.

Pascoe, George, and Hopwood, Norman W., Jr., to Ford Motor Company. Numerically controlled surface development method for preparing body contours. 3,548,173, Cl. 235-151.11

Pasquali, Joseph W.: *See—*
Larpenteur, Bernard J., and Pasquali, Joseph W.,3,547,623.

Passalaqua, Frank H., to Industrial Filter & Pump Mfg., Co. Filtration process. 3,547,268, Cl. 210-71.

Pasternak, Stephen F., to Peerless of America, Incorporated. Heat exchangers and the method of making same. 3,546,763, Cl. 29-157.3

Patent-Truehand-Gesellschaft fur Elektrische Gluhlampen m.b.H.: *See—*
Rasch, Erhard, and Wantosch, Horst, 3,548,241.

Patsev, Boris Nikolaevich: *See—*
Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich,3,546,710.

Patterson, William A., to Grace, W. R., & Co. Solvent shrinkable polymeric material. 3,547,792, Cl. 204-159.14

Patton, Tad L., to Esso Research and Engineering Company. Soluble poly(iminoimidazolidinediones). 3,547,897, Cl. 260-77.5

Paul, Walter: *See—*
Gennerich, Max, Paul, Walter, Niemeyer, Willy, and Achelpohl, Fritz,3,547,010.

Pearson, Roy E., to United States of America, Navy, mesne. Multichannel coherent amplitude recording and reproducing system. 3,548,112, Cl. 179-100.1

Pechenick, William, and Gelblum, Gideon P., to United States of America, Interior. Removal of sulfates from brines. 3,547,579, Cl. 23-38.

Pechmann, Karl, to GAF Corporation. Antistatic photographic film. 3,547,643, Cl. 96-87.

Pecka, Richard D., to Eaton Yale & Towne, Inc. Shower head. 3,547,353, Cl. 239-460.

Peckham, Rodney L., to Westinghouse Electric Corporation. Encapsulated electrical inductive apparatus. 3,548,357, Cl. 336-205.

Peddinghaus, Paul Ferd.: *See—*
Peddinghaus, Werner, and Regenbrecht, Ludwig, 3,546,993.

Peddinghaus, Werner, and Regenbrecht, Ludwig, to Peddinghaus, Paul Ferd. Locator for machine tools, especially for punch presses. 3,546,993, Cl. 83-571.

Pederson, Christ W.: *See—*
Blizard, Robert B., Pederson, Christ W., and Polhemus, John T.,3,548,378.

Peerless of America, Incorporated: *See—*
Pasternak, Stephen F., 3,546,763.

Pegg, Edward H. R.: *See—*
Hardison, Leslie C., Pegg, Edward H. R., Reedy, Dom E., and Barr, James M.,3,546,851.

Pekarek, Kenneth L.: *See—*
Ogle, Hugh Malcolm, and Pekarek, Kenneth L.,3,548,206.

Pennsylvania Sewing Research Corporation: *See—*
Glassman, Aaron, 3,547,320.

Pennwalt Corporation: *See—*
Hutchinson, Herman R., 3,547,622.

Pepino, George T., Jr.: *See—*
Lawthers, Dean D., and Pepino, George T., Jr.,3,547,681.

Perciful, Jerry C.: *See—*
Hebert, Gayle P., Perciful, Jerry C., Startz, Ambrose J., and Griswold, Haley E.,3,548,017.

Pereue, Joseph H., Lowry, Wendell W., and Wertheimer, Milton A., to Applied Power Industries, Inc. Automotive wheel alining apparatus. 3,546,782, Cl. 33-203.13

Perkin-Elmer Corporation, The: *See—*
Gleit, Chester E., Mensing, Clifford E., Jr., and Curtis, Reid H., 3,547,802.
Rayces, Juan L., Foster, Francis W., and Casas, Raul E., 3,547,525.

Perlman, David J., to International Business Machines Corporation. Sense-inhibit winding for magnetic memory. 3,548,391, Cl. 340-174.

Perreton, Arnold. Insulated building block construction. 3,546,833, Cl. 52-314.

Perry, Dan E.: *See—*
Lundberg, Gordon K., and Perry, Dan E.,3,546,828.

Perry, John C. Carburetor for gasoline engines. 3,547,415, Cl. 261-50.

Perzdirtz, Frank R.: *See—*
Cromwell, Willard M., and Perzdirtz, Frank R.,3,547,318.
Peter, Martin: *See—*
Steinemann, Samuel, and Peter, Martin,3,547,713.
Peters, Herman G., to Bucyrus-Erie Company. Hydraulic control circuit. 3,547,007, Cl. 91-411.
Petersen, David J., and Martin, Bruce S. Multiple use and multiple position lounging furniture. 3,547,485, Cl. 297-377.
Peterson, Arthur F., and Walter, Charles R., Jr., to Allied Chemical Corporation. Regulation of urea hydrolysis in soil. 3,547,614, Cl. 71-28.
Peterson, Glen R., Jr., to Oscar Schmidt-International, Inc. Detachable electromagnetic pickup and circuit for stringed musical instrument. 3,548,067, Cl. 84-1.16
Peterson, Reuben. Self-watering swine pump. 3,547,083, Cl. 119-75.
Petit, George S., and Wright, Ralph R., to United States of America, Atomic Energy Commission. Corrosion-resistant uranium. 3,547,709, Cl. 148-6.3
Peyker, Ortwin, Hickmann, Udo, and Marx, Wilhelm, to Klockner-Humboldt-Deutz Aktiengesellschaft. Supercharged fuel injection internal combustion engine. 3,547,091, Cl. 123-140.
Pfannmueller, Helmut: *See—*
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut,3,547,866.
Pfister, Horst: *See—*
Weissermel, Klaus, Uebe, Rudolf, Pfister, Horst, and Brinkmann, Ludwig,3,547,872.
P&H Educationil Aids: *See—*
Horn, John D., and Pitts, Harold E., 3,546,790.
Philco-Ford Corporation: *See—*
Basford, Paul R., and Boyer, Myron H., 3,547,701.
Loe, James M., 3,548,100.
Phillips, Albert. Rotary percussion drill having a hydraulically actuated percussion device. 3,547,206, Cl. 173-105.
Phillips, Lee V.: *See—*
Neighbors, Ralph P., and Phillips, Lee V.,3,547,621.
Phillips Petroleum Company: *See—*
Ball, Lawrence J., 3,546,745.
Brown, James D., 3,547,862.
Draper, Homer L., Levy, Dale F., and Gagle, Duane W., 3,547,674.
Hays, George E., 3,547,597.
Held, Edward C., Jr., 3,548,043.
Hughes, James K., and Williams, Jake E., 3,548,048.
Larkin, Mark E., and Bridenstine, Orville J., 3,546,848.
Lundberg, Gordon K., and Perry, Dan E., 3,546,828.
Matyear, Charles, 3,547,806.
Mayhue, Luther F., 3,548,023.
Mitchell, Norris W., 3,547,805.
Montgomery, Dean P., 3,547,850.
Phleps, Konrad, and Schnall, Gunther, to Agfa-Gevaert Aktiengesellschaft. Projection printing apparatus. 3,547,536, Cl. 355-50.
Photronix, Inc.: *See—*
Wells, Willis L., 3,547,531.
Physio-Control Corporation: *See—*
Seiffert, Stanley V., 3,547,108.
Piber, Earl T., to Cutler-Hammer, Inc. Snap switch with unitary insulating enclosure. 3,548,131, Cl. 200-67.
Pickelman, Dale M.: *See—*
Moore, Eugene R., Pickelman, Dale M., and Zimmerman, Robert L.,3,547,838.
Pickens, Gerald F., and Kirn, Thomas G., to Eastman Kodak Company. Interchangeable spindle assembly. 3,547,366, Cl. 242-68.3
Pickle, Linwood A., to Worthington Corporation. Rock drill feed mast with integral muffler and oil separator. 3,547,222, Cl. 181-36.
Pierlot, Michel Eugene, to Societe Industrielle de Brenets et d'Etudes S.I.B.E. Carburation device for internal combustion engines for automobile vehicles. 3,547,089, Cl. 123-117.
Pikl, Josef, to Du Pont de Nemours, E. I., and Company. Process for preparing 2-(2'-aminophenyl)-2,1,3- benzotriazoles. 3,547,941, Cl. 260-308.
Pilato, Jack, to Du Pont de Nemours, E. I., and Company. Silver halide emulsion comprising a gelatin-polyvinyl compound dispersion. 3,547,650, Cl. 96-114.
Pinkney, Paul S., to Du Pont de Nemours, E. I., and Company. Vinyl ester/ethylene copolymer aqueous dispersions. 3,547,845, Cl. 260-17.
Pinsky, Joseph: *See—*
Kamp, Ewald A., and Pinsky, Joseph,3,547,030.
Pirelli Societa per Azioni: *See—*
Buroni, Vittorio, 3,548,075.
Tangorra, Giorgio, 3,547,726.
Pirelli, S.p.A.: *See—*
Maschio, Gabriele, 3,548,072.
Pisarczuk, Thaddeus H., to Continental Can Company, Inc. Container corner construction. 3,547,337, Cl. 229-34.
Pitel, Irving, Cornine, Floyd C., Silverman, Richard S., and Cohen, Arnold B., to Automatic Merchandising Machine Mfg. Corporation. Article-dispensing machine. 3,547,313, Cl. 221-78.
Pitt, Richard E.: *See—*
Langlois, Roland E., and Pitt, Richard E.,3,546,898.
Pitts, Harold E.: *See—*
Horn, John D., and Pitts, Harold E.,3,546,790.
Pittway Corporation: *See—*
Guthart, Leo A., 3,548,401.
Plasser, Franz, and Theurer, Josef. Track lining. 3,547,037, Cl. 104-8.
Plasser, Franz, and Theurer, Josef. Track lining apparatus. 3,547,039, Cl. 104-8.
Plasticisers Limited: *See—*
Slack, Philip T., 3,546,873.
Plati, John Thomas: *See—*
Albrecht, Harry Allen, and Plati, John Thomas,3,547,973.
Platt, Alan: *See—*
De Witt, David, Gates, Harlan R., and Platt, Alan,3,547,716.
Platz, Gerald M., to Air Reduction Company, Incorporated, mesne. Inhibiting ozone decomposition. 3,547,826, Cl. 252-186.
Plegat, Alain Edouard, to Societe Anonyme des Usines Chausson. Equipment for brazing light metal radiators. 3,547,335, Cl. 228-44.
Plumb, Eugene E.: *See—*
Snyder, Harold I., and Plumb, Eugene E.,3,547,765.
Plummer, Paul. Aligning device for boat trailers. 3,547,285, Cl. 214-84.
Plumpe, William H., Jr., and Weischselbaum, Theodore E., to Sherwood Medical Industries Inc., mesne. Vibratable platen means in selective printing machines. 3,547,028, Cl. 101-93.
Pociask, Fredrick, to Eaton Yale & Towne, Inc. Vehicle safety apparatus. 3,547,467, Cl. 280-150.
Podgorski, Matthew C.: *See—*
Farrell, Guy M., Podgorski, Matthew C., Whitlock, Morris N., and Gaber, Martin,3,548,137.
Pogonowski, Ivo C., to Texaco Inc. Threaded pile for marine structure. 3,546,885, Cl. 61-46.5
Pohlemann, Heinz, Christoph, Helmut, and Stassen, Alexander, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Polymonoolefins containing an amine antistatic additive dispersed therein. 3,548,036, Cl. 260-897.
Polhemus, John T.: *See—*
Blizard, Robert B., Pederson, Christ W., and Polhemus, John T.,3,548,378.
Pollack, Roy L., and Rowley, David G., to Schlage Lock Co. Adjustable backcheck mechanism for door closers. 3,546,734, Cl. 16-52.
Pollinger, Hans, and Lunghamer, Lawrence J. Disk brake for railway vehicles. 3,547,229, Cl. 188-59.
Polymer Corporation Limited: *See—*
Lasis, Evalds, 3,547,864.
Pompon, Jean-Paul, to Compagnie Generale d'Electricite. Automatic means for regulating the concentration of electrolyte of a fuel cell. 3,547,704, Cl. 136-161.
Pool Stuart D., and Middlesworth, Tommy A., to International Harvester Company. Automatic forward travel control. 3,546,860, Cl. 56-21.
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A., to International Harvester Company. Tree shaker apparatus. 3,546,866, Cl. 56-328.
Poole, Kenneth M., to Bell Telephone Laboratories, Incorporated. Overhead projector. 3,547,530, Cl. 353-70.
Popovitch, Dragolyoub, Nystrom, Roy B., and Eneman, Melvin, to United States of America, Army, mesne. Mechanical time fuze. 3,547,034, Cl. 102-71.
Poretti, Isidoro: *See—*
Balugani, Fabio, Mammucari, Franco, and Poretti, Isidoro,3,548,103.
Porret, Daniel, Metzger, Karl, and Heer, Alfred, to Ciba Limited. Process for the preparation of triglycidyl isocyanurate. 3,547,918, Cl. 260-248.
Posting Equipment Corporation: *See—*
Lear, Joseph D., and Holt, Eric M., 3,547,304.
Postorino, Pasquale: *See—*
Kleissl, Erberto, and Postorino, Pasquale,3,548,111.
Potucek, Frank R., to Bell & Howell Company. Film tension control device. 3,547,369, Cl. 242-75.52
Poulett, Anthony, to Ampex Corporation. Apparatus for recording and reproducing television or other broad band signals with an altered time base effect. 3,548,095, Cl. 178-6.6
Powers Regulator Company: *See—*
Norman, Robert J., and Budniak, Mitchell S., 3,547,374.
PPG Industries, Inc.: *See—*
Kallenborn, John, 3,547,362.
Pradon, Jacques. Lifting frame for carrying freight containers of varying lengths. 3,547,478, Cl. 294-67.
Prats, Michael: *See—*
Claridge, Elmond L., and Prats, Michael,3,547,192.
Prebluda, Harry J.: *See—*
Gerson, Irvin M., and Prebluda, Harry J.,3,547,990.
Preston, Raymond David. Picture frames. 3,546,802, Cl. 40-152.
Price, Kenneth E., to Rainbow Lifegard Products Inc. Steering attachment for swimming pool vacuum head. 3,547,458, Cl. 280-47.34
Price, Robert J.: *See—*
Bokros, Jack C., Chin, Jack, and Price, Robert J.,3,547,676.
Fischer, Ernest W., Jr., and Price, Robert J.,3,548,181.
Price, William L., to Westinghouse Electric Corporation. Synchronous digital counter. 3,548,319, Cl. 328-41.
Priddy, Duane B., and Hennis, Henry E., to Dow Chemical Company, The. Isopropylidene diphenol ether derivatives. 3,548,009, Cl. 260-613.
Prinz, Hans, Wiesinger, Johannes, and Konig, Rudolf, to Dehn & Sohne. Emergency shelter in the form of a tent or the like. 3,547,136, Cl. 135-1.
Procter, Charles R. Rotary metal working apparatus. 3,546,987, Cl. 82-58.

Produits Chimiques Pechiney Saint-Gobain: *See—*
Ledoux, Claude, and de Vries, Albert, 3,548,049.
Prontor-Werk Alfred Gauthier G.m.b.H.: *See—*
Rentschler, Waldemar T., 3,547,016.
Pross, Martin, to Siemens Aktiengesellschaft. Full adder utilizing NOR gates. 3,548,182, Cl. 235-176.
Pross, Wilhelm, to Compur-Werk Gesellschaft mit beschrankter Haftung & Co. Photographic camera having pulse controlled shutter. 3,547,021, Cl. 95-53.
Protol S.A.: *See—*
Jensen, Erling, 3,546,910.
Pullman Incorporated: *See—*
Miller, Roy W., 3,547,048.
Purex Corporation: *See—*
Benham, Ralph E., 3,547,154.
Pusey, Philip, and Toto, Louis R., to Chester County Mushroom Sales Corporation. Stackable and nestable plastic lugs. 3,547,309, Cl. 220-97.
Putz, John L., to Varian Associates. Stripline gain equalizer. 3,548,344, Cl. 333-28.
Queener, George F.: *See—*
Grijalva, Ramon J., and Queener, George F.,3,546,996.
R. & T. Paiste KG Gong and Cymbal Production: *See—*
Paiste, Robert, 3,546,994.
Rabindran, Karavattuveetil George, to Vapor Corporation. Controller for a temperature control system. 3,548,155, Cl. 219-497.
Radcliffe, Remington S.: *See—*
Barker, Harry H., and Radcliffe, Remington S.,3,547,307.
Radey, Ross T.: *See—*
Black, Donald V., Jamtaas, Albert D., Radey, Ross T., and Wall, John K.,3,547,031.
Radiovisor Parent Limited: *See—*
Ive, Goodwin A. G., 3,548,201.
Radler, Richard W.: *See—*
Amidon, Alan B., Mammino, Joseph, and Radler, Richard W.,3,547,627.
Radomski, Joseph E., to Southworth Machine Company. Dual inverter for counted stacks of sheets. 3,547,279, Cl. 214-1.
Ragan, Elizabeth Almira: *See—*
Cron, Martin John, Ragan, Elizabeth Almira, and Hooper, Irving R.,3,547,903.
Rahn Corporation: *See—*
Schlein, Herbert N., 3,548,094.
Rain Jet Corporation: *See—*
Hruby, John O., Jr., 3,547,351.
Rainbow Lifegard Products Inc.: *See—*
Price, Kenneth E., 3,547,458.
Rainer, Erich: *See—*
Kroger, Gerhard, and Rainer, Erich,3,548,230.
Rainey, James L.: *See—*
Mansfield, Richard C., and Rainey, James L.,3,547,828.
Rainu, Ion. Floating device. 3,547,062, Cl. 114-66.5
Rakowsky, Edward L., to Singer-General Precision, Inc. Fluid flow meter. 3,546,938, Cl. 73-203.
Ramge, Joseph J. Work moving apparatus. 3,546,824, Cl. 51-225.
Ramme, Frank B.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,547,105.
Ramsey, Robert C., and Farrington, Gerrald K., to Electro-Voice, Incorporated. Microphone and magnetic switch assembly. 3,548,119, Cl. 179-167.
Ramspeck, Howard B., to Fastener Corporation. Fastener driving tool. 3,547,003, Cl. 91-252.
Randall, Frank E.: *See—*
Smith, Lester L., and Randall, Frank E.,3,546,841.
Randall, Robert N.: *See—*
Fairbanks, Daniel F., Larson, Warren L., Randall, Robert N., and Wong, James,3,548,351.
Randall, William L., to United States of America, Atomic Energy Commission. Apparatus for electropolishing spherical surfaces. 3,547,796, Cl. 204-213.
Rappenglueck, Joseph R.: *See—*
Baglino, John P., and Rappenglueck, Joseph R.,3,547,363.
Rasch, Erhard, and Wantosch, Horst, to Patent-Truehand-Gesellschaft fur Elektrische Gluhlampen m.b.H. Method of incorporating an amalgam or an amalgam-forming metal in a low-pressure mercury discharge lamp, and lamp produced by such method. 3,548,241, Cl. 313-178.
Rasmussen, Jerome J. M.: *See—*
Chiu, Herman S., Kambara, Frank T., Rasmussen, Jerome J. M., and Voo, David,3,547,662.
Rasmussen, Ole-Bendt. Extruded sheet material. 3,547,761, Cl. 161-168.
Ratcliff, Ralph A. Multi-position direct drive hoist. 3,547,407, Cl. 254-167.
Ratti, Michele. Damped support for double twist spindle. 3,546,871, Cl. 57-58.49
Ratts, Kenneth Wayne, to Monsanto Company. Sulfonium halides and derivatives thereof. 3,547,994, Cl. 260-561.
Ratz, Adolf, to Andreas Stihl Machinenfabrik. Cutting tooth link. 3,547,167, Cl. 143-135.
Ravenel, Raymond, to Societe Anonyme Citroen. Fitting of engine units of automotive vehicle. 3,547,214, Cl. 180-42.
Ray, Andre: *See—*
Girard, Andre Georges, and Ray, Andre,3,547,914.
Ray, Richard C.: *See—*
Cochran, Charles Norman, and Ray, Richard C.,3,547,180.
Rayces, Juan L., Foster, Francis W., and Casas, Raul E., to Perkin-Elmer Corporation, The. Catadioptric system. 3,547,525, Cl. 350-200.
Raychem Corporation: *See—*
Jones, Paul, and Wold, Robert Allan, 3,548,079.
Raza, Syed H.: *See—*
Froning, H R., Shelton, Jack L., and Raza, Syed H.,3,547,199.
Razavi, Djavad. Water-soluble anthraquinone dyestuffs containing thiosulfonic acid groups. 3,547,957, Cl. 260-374.
RCA Corporation: *See—*
Cave, Eric F., and Duigon, Fred C., 3,548,233.
Kiss, Zoltan J., 3,548,236.
Lehmann, William L., and Marsh, James C., Jr., 3,548,315.
Wolff, Nikolaus E., 3,547,628.
Read, Robert R., to General Tire & Rubber Company, The. Tire band applying drums. 3,547,734, Cl. 156-416.
Rebhahn, Robert Willibald Johann, and Bannister, Derek William, to Toms River Chemical Corporation. Process for forming a solubilized stilbene dye and a process for forming colored paper therewith. 3,547,774, Cl. 162-162.
Rebrov, Sergei Alexeevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.
Rechmeier, Gerhard: *See—*
Jacobowsky, Armin, Wirtz, Peter, Born, Klaus, and Rechmeier, Gerhard,3,548,014.
Reece, Donald, and Boyle, George J., to Shell Oil Company. Insulated pipeline for transporting liquid natural. 3,547,161, Cl. 138-114.
Reedy, Dom E.: *See—*
Hardison, Leslie C., Pegg, Edward H. R., Reedy, Dom E., and Barr, James M.,3,546,851.
Reeh, Olaf. Welding torch. 3,548,143, Cl. 219-75.
Reese, Glenn A., Goodrich, Robert R., and Krone, Ben W., to Magnavox Company, The. Light balancing shade for facsimile scanner. 3,548,096, Cl. 178-7.1
Regenbrecht, Ludwig: *See—*
Peddinghaus, Werner, and Regenbrecht, Ludwig,3,546,993.
Rehr, Henry W.: *See—*
Hartbauer, Ellsworth A., Rehr, Henry W., Goodley, Alan R., and Wyatt, John W.,3,547,282.
Reich, Michael, to Eastman Kodak Company. Photoelectronic switching amplifier. 3,547,548, Cl. 356-226.
Reichardt, Peter: *See—*
Jorn, Raoul, and Reichardt, Peter,3,547,243.
Reichhold Chemicals, Inc.: *See—*
Schwartzenburg, Frederick Jr., and Griffin, Donald B., 3,547,868.
Reinhold, Donald: *See—*
Sletzinger, Meyer, and Reinhold, Donald,3,547,913.
Reliance Electric Company: *See—*
Eddy, Robert T., 3,547,565.
Remus, Melvin Edward, and McNair, Franklin Chaloner, to Taylor Forge, Inc. Method and apparatus for forming tubing. 3,548,141, Cl. 219-62.
Rentschler, Waldemar T., to Prontor-Werk Alfred Gauthier G.m.b.H. Photographic camera having a timing device operating electronically and controlled by a photoelectric device. 3,547,016, Cl. 95-10.
Research Corporation: *See—*
Baer, Stephen C., 3,547,512.
Lewin, Anita H., and Cohen, Theodore, 3,547,978.
Moulthrop, Irwin M., 3,548,055.
Rethmeier, Gerhard, to Anker-Werke Aktiengesellschaft. Tags and method of producing the same. 3,546,798, Cl. 40-2.
Reuter, Lothar: *See—*
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut,3,547,866.
Rexroth, G. L., Lohrer Eisenwerk G.m.b.H., Firma: *See—*
Krohn, Holger, 3,548,283.
Reynolds, Delbert D.: *See—*
Cossar, Bernard C., and Reynolds, Delbert D.,3,547,638.
Reynolds Metals Company: *See—*
Bahen, John J., Jr., Swenck, George F., and Thomas, Jesse B., 3,548,071.
Farquhar, Melville T., 3,547,011.
Hinrichs, Donald R., 3,548,042.
Jacke, Raymond E., 3,547,336.
Layne, Ronald E., 3,547,768.
Wilson, Calvin L., Fox, John H., Jr., and Serio, Vincent J., Jr., 3,547,315.
Reynolds, R. J., Tobacco Company: *See—*
Beam, Jon W., 3,547,132.
Conrad, Lucas Jones, Leonard, Gerard Eugene, McArthur, Colin Shaw, and Everhart, John Raymond, 3,547,264.
R F L Industries, Inc.: *See—*
Seabury, Richard W., Jr., 3,548,308.
Rheem Manufacturing Company: *See—*
Klenz, Karl A., 3,546,766.
Rhone-Poulenc S.A.: *See—*
Scriabine, Igor, 3,548,006.
Rice, Edwin E., and Rice, Warren A., to Chemotronics, Incorporated. Shuttle type pressure vessel. 3,547,589, Cl. 23-252.

Rice, Frank A., and Lester, David R., to Detroit Radiant Products Company. Gas infra-red burner construction. 3,547,097, Cl. 126-4.
Rice, Warren A.: *See—*
Rice, Edwin E., and Rice, Warren A.,3,547,589.
Richardson, Keith: *See—*
Warman, Bloomfield James, Taylor, James George, and Richardson, Keith,3,548,406.
Richmond, Martin R.: *See—*
Blitz, Daniel, and Richmond, Martin R.,3,548,383.
Richter, Sidney B., to Velsicol Chemical Corporation. Novel carlanilates. 3,547,977, Cl. 260-471.
Ricker, Dennis J., to General Motors Corporation. Alternating current alternator protector system. 3,548,258, Cl. 317-13.
Rickerd, Calvin P.: *See—*
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A.,3,546,866.
Rieckmann, Peter: *See—*
Rinser, Georg A., Rieckmann, Peter, and Rothe, Werner,3,547,122.
Riegler, Heinz: *See—*
Winter, Ernst, Riegler, Heinz, Leo, Ernst, and Wochnik, Lothar,3,546,955.
Rigo, Serge, to Compagnie Generale d'Electricite. Mixed protective coating of semiconductive bodies. 3,547,786, Cl. 204-38.
Riley, Joseph J., to Taylor Winfield Corporation, The. Method and apparatus for controlling the platen of a flash welder. 3,548,144, Cl. 219-97.
Ringwall, Carl G.: *See—*
Kelley, Lonny R., and Ringwall, Carl G.,3,547,138.
Rinkler, Heinrich, Wieden, Horst, Wilms, Hugo, and Nischk, Gunther, to Farbenfabriken Bayer Aktiengesellschaft. Unsaturated sulphonic acid betaines. 3,547,985, Cl. 260-501.12
Rinser, Georg A., Rieckmann, Peter, and Rothe, Werner, to Boehringer, C. F., & Soehne GmbH. Injection ampoule. 3,547,122, Cl. 128-218.
Riordan, Hugh E., to Kelsey-Hayes Company. Skid control system. 3,547,500, Cl. 303-21.
Ripley Company, Inc.: *See—*
Johnson, Allen L., 3,548,403.
Risberg, Robert L.: *See—*
Knasinski, Max S., and Risberg, Robert L.,3,548,279.
Rivera, Aureo E.: *See—*
Rivera, Aureo, and Rivera, Aureo E.,3,548,373.
Rivera, Aureo, and Rivera, Aureo E. Theft preventing system for vehicles. 3,548,373, Cl. 340-64.
Rizzolo, Alfred T., and Hicks, Warren F., to Cheston Company. Resistance metal heater. 3,548,149, Cl. 219-156.
Roach, Robert Joseph: *See—*
Mellish, Stuart Frederick, and Roach, Robert Joseph,3,547,791.
Robbins, Jim, Seat Belt Co.: *See—*
Stoffel, Robert W., 3,547,490.
Roberts, Arthur H. Molded plastics article with interiors solidly filled and method of their manufacture. 3,547,747, Cl. 161-7.
Roberts, Henry, Epstein, Maurice, and Heier, Earl, to United States of America, Navy, mesne. Digital FM sweep generator. 3,548,320, Cl. 328-46.
Roberts, John Francis Lloyd: *See—*
Corbett, William Michael, Roberts, John Francis Lloyd, and Yates, John Michael,3,547,882.
Roberts, Robert D., to Houdaille Industries Inc. Bearing temperature sensing device. 3,548,396, Cl. 340-231.
Robertshaw Controls Company: *See—*
Kelly, Samuel T., and Murrell, Donald K., 3,547,427.
Robfre Manufacturing Corporation: *See—*
VanFleet, Jack F., 3,546,977.
Robins, Betty N. Oral exerciser with position retaining feature and method of using same. 3,547,433, Cl. 272-57.
Robinson, Ernest K., and McWhirter, John R., to Union Carbide Corporation. Biochemical oxidation with low sludge recycle. 3,547,813, Cl. 210-7.
Rodriguez, Antonio R., and Cronin, John, to Aerovox Corporation. Process for manufacturing a ceramic multilayer circuit module. 3,546,776, Cl. 29-626.
Roelofs, Robert F., to National Steel Corporation. Continuous casting apparatus. 3,547,182, Cl. 164-281.
Roelofs, Thomas H., and Weldon, Edward J., Jr., to Adtech Incorporated. Educational apparatus. 3,546,793, Cl. 35-19.
Rogde, Sigurd Owen: *See—*
Swendsen, Jack, and Rogde, Sigurd Owen,3,546,991.
Rogers Corporation: *See—*
Gordon, Herman, 3,547,718.
Zagusta, John A., 3,547,724.
Rogers, John V., to Rosenberry, W. K., d/b/a Zeta Research. Fast recovery monostable multivibrator and method. 3,548,220, Cl. 307-273.
Roh, Gerhard, and Lederer, Michael, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for polymerizing vinyl esters in solvents. 3,547,860, Cl. 260-89.1
Rohm and Haas Company: *See—*
Kalandiak, Michael, 3,547,853.
Mansfield, Richard C., and Rainey, James L., 3,547,828.
Roland, Robert D.: *See—*
Brackman, Donald A., and Roland, Robert D.,3,547,035.
Roll-Rite Corporation: *See—*
Lapham, Sidney D., 3,547,459.
Romo, Jorge, and Kratky, Joseph C., to Behlen Manufacturing Company, Inc. Building erection means. 3,546,831, Cl. 52-115.
Ronthor Reiss Corporation: *See—*
Van Buren, William L., 3,547,311.
Ronzani, Angelo Levico, to S.p.A. Secoblitz Industria Meccanica. Marble blocks saw with multiple cutters. 3,547,096, Cl. 125-13.
Roos, Leo, to Du Pont de Nemours, E. I., and Company. Photopolymerizable compositions containing organometal compounds. 3,547,651, Cl. 96-115.
Roos, Paul J., to Grooming Developers, Inc. Tool for applying false eyelashes. 3,547,135, Cl. 132-32.
Rosauer, Peter J., to Magnaflux Corporation. Medical ultrasonic diagnostic system. 3,547,101, Cl. 128-2.
Rosen, Gerald, to Drexel University. Ultra-short-duration high-current-burst generator. 3,548,218, Cl. 307-260.
Rosen, Haim: *See—*
Arad, Yael, Levy, Moshe, Vofsi, David, and Rosen, Haim,3,547,975.
Rosena, Anthony J.: *See—*
Fenton, Wilmer C., and Rosena, Anthony J.,3,547,569.
Rosenberry, W. K.: *See—*
Rogers, John V., 3,548,220.
Rosenski, Julius Robert: *See—*
Banathy, Eugene Denis, and Rosenski, Julius Robert,3,548,125.
Rosenstein, Allen B. Bipolar amplifier. 3,548,330, Cl. 330-17.
Rosler, Jurgen, to Montblanc-Simplo GmbH. Protective cap for writing instruments. 3,547,552, Cl. 401-243.
Ross, Frank, to Velsicol Chemical Corporation. Tetrachloroethyl esters of pyridyl carbomic acids, the corresponding mono- and dithiocarbomates and derivatives. 3,547,934, Cl. 260-295.5
Ross, Robert S.: *See—*
Girard, Louis A., Jr., and Ross, Robert S.,3,547,378.
Rossander, Bror Ludvig Eugen Rossander. Method for surface hardening polygonal steel rods and product treated according to the method. 3,547,715, Cl. 148-146.
Rosscup, Robert J., Zletz, Alex, and Schaap, Luke A., to Standard Oil Company. Process for the production of alcohols. 3,548,013, Cl. 260-641.
Rossi, Gianfranco: *See—*
Huob, Konrad, Giraudi, Giorgio, and Rossi, Gianfranco,3,546,836.
Rosskopf, Max: *See—*
Stoferle, Theodor, Holzl, Horst, and Rosskopf, Max,3,546,774.
Rotax Limited: *See—*
Howard, Alan Charles Richard, 3,547,502.
Roth, Donald Jacob, to Northern Petrochemical Company, mesne. Die for extruding laminated plastic tube. 3,546,743, Cl. 18-14.
Roth, Willy, and Schenk, Otto Erwin, to Geigy Chemical Corporation. Three-phase aerosol spraying systems. 3,547,854, Cl. 260-29.6
Rothe, Werner: *See—*
Rinser, Georg A., Rieckmann, Peter, and Rothe, Werner,3,547,122.
Rourke, William E.: *See—*
Chevalier, Arthur A., Mathews, David M., and Rourke, William E.,3,547,197.
Roussel UCLAF: *See—*
Girard, Andre Georges, and Ray, Andre, 3,547,914.
Joly, Robert, Warnant, Julien, and Farcilli, Andre, 3,547,959.
Rowland, Stanley P.: *See—*
Franklin, William E., Mack, Charles H., and Rowland, Stanley P.,3,547,574.
Rowley, David G.: *See—*
Pollack, Roy L., and Rowley, David G.,3,546,734.
Royco Instruments, Inc.: *See—*
Ogle, Hugh Malcolm, and Pekarek, Kenneth L., 3,548,206.
Ruchinsky, Vitally Rafael-Abovich: *See—*
Olevsky, Viktor Markovich, and Ruchinsky, Vitally Rafael-Abovich,3,547,593.
Rudman, Frederick R., to Gardner-Denver Company. Variable stroke percussion tool. 3,547,006, Cl. 91-277.
Ruefenacht, Jack: *See—*
Steinemann, Adolf, and Ruefenacht, Jack,3,547,544.
Ruggiero, Angelo S.: *See—*
Hartlipp, Willis E., Healy, Henry G., Ruggiero, Angelo S., and Shutler, William F.,3,548,177.
Ruhala, Joseph, to General Motors Corporation. Lash removal device for a control wire system. 3,546,962, Cl. 74-501.
Russell, James Langley, to British Aircraft Corporation. Hydraulically adjustable rolling mill having a transducer unaffected by piston deformation. 3,546,908, Cl. 72-21.
Russell, Marvin Earl, to Dairy Equipment Company. Air reserve indicator for milking systems. 3,547,080, Cl. 119-14.14
Rust, John B., to Hughes Aircraft Company. Photochemical polymer intensification process. 3,547,633, Cl. 96-45.2
Ryan, John Robert: *See—*
Searight, Charles Edwin, Ryan, John Robert, and Alexander, Ezra Mc Laurin,3,547,517.
Ryffel, James R.: *See—*
Schnebelen, David F., and Ryffel, James R.,3,547,772.
Sachs, Louis. Urine receptacle. 3,547,123, Cl. 128-295.
Sagawa, Burt K., to Minnesota Mining and Manufacturing Company. Copy-sheet. 3,547,648, Cl. 96-94.
Sage, Ira M., to Olivetti, Ing. C., & C., S.p.A. Electrostatic printing apparatus. 3,547,077, Cl. 118-637.

Sakamoto, Satoru: *See—*
Hayamizu, Yoshisada, and Sakamoto, Satoru,3,547,514.
Sakata, Shinsuke: *See—*
Kometani, Yutaka, Fujii, Tsuneo, and Sakata, Shinsuke,3,547,859.
Saklikar, Arvind R., to Sherwin-Williams Company, The. Apparatus for increasing the contrast in liquid immersion developing of electrostatic image. 3,547,076, Cl. 118-637.
Sakuma, Toramitsu, to Sumitomo Naugatuck and Company, Ltd. Treatment of resin surfaces prior to non- electrolytic plating. 3,547,785, Cl. 204-30.
Salazar, Eliazár R., to Salco Products Incorporated. Emitter valve for soil irrigation. 3,547,355, Cl. 239-547.
Salazar, Pablo V., to Nalco Chemical Company. Refractory ramming mix. 3,547,664, Cl. 106-65.
Salco Products Incorporated: *See—*
Salazar, Eliazar R., 3,547,355.
Salmon, Percy George: *See—*
Owen, Richard Bruce, Salmon, Percy George, and Awcock, Mervyn Leslie,3,548,213.
Salter, Martin Thomas Ardley, and Jones, Arthur H., to Marconi Company Limited, The, and Standard Telephones & Cables Limited. Digital transmission of television. 3,548,325, Cl. 328-178.
Saltzberg, Burton R., and Savage, John E., to Bell Telephone Laboratories, Incorporated. Data rate converter. 3,548,309, Cl. 325-38.
Saltzman, Lydia M.: *See—*
Smith, Gene R., and Saltzman, Lydia M.,3,547,342.
Salvajor Company, The: *See—*
Sherman, George O., Jr., 3,547,360.
Sammarco, Peter, and Sanderson Robert W., III, to International Harvester Company. Reversible auger extension. 3,547,292, Cl. 214-520.
Samorodov, Jury Dmitrievich: *See—*
Alexeenko, Alexandr Mikhailovich, Samorodov, Jury Dmitrievich, and Tager, Alexandr Semenovich,3,548,247.
Sampson, Arthur James: *See—*
Listner, Gregory Julius, and Sampson, Arthur James,3,547,870.
Sancioni, Aurelio. Motor vehicle bumper with trailer connection. 3,547,469, Cl. 280-483.
Sanders Associates, Inc.: *See—*
Blitz, Daniel, and Richmond, Martin R., 3,548,383.
Lalmond, Harold, and Goody, Lewis B., 3,546,775.
Schumacher, Arnold, 3,548,402.
Shomphe, George J., Tabor, Robert W., and Lalmond, Harold W., 3,547,725.
Sanders, Frank H. Convertible railroad car. 3,547,049, Cl. 105-368.
Sanderson Robert W., III: *See—*
Sammarco, Peter, and Sanderson Robert W., III,3,547,292.
Sandler, Stanley R., to Borden, Inc. Adhesive of polyvinyl acetate, acid metal salt and carboxylic acid. 3,547,771, Cl. 161-251.
Sando Iron Works Company Limited: *See—*
Sando, Yoshikazu, and Takasu, Masao, 3,546,902.
Sando, Yoshikazu, and Takasu, Masao, to Sando Iron Works Company Limited. Pressure sealing device in a continuous high pressure steaming apparatus. 3,546,902, Cl. 68-5.
Sandoval, Charles A., to United States of America, Atomic Energy Commission. Actuating device. 3,548,352, Cl. 335-265.
Sandoz AG: *See—*
Troxler, Franz, and Seemann, Fritz, 3,547,974.
Sandoz Ltd.: *See—*
Troxler, Franz, and Seemann, Fritz, 3,547,974.
Sandoz-Wander, Inc.: *See—*
Frey, Albert J., Houlihan, William J., and Manning, Robert E., 3,547,945.
Frey, Albert J., Houlihan, William J., and Manning, Robert E., 3,547,947.
Hardtmann, Goetz E., and Ott, Hans, 3,547,921.
Manning, Robert E., 3,547,939.
Sankyo Company Limited: *See—*
Murayama, Keisuke, and Morimura, Syoji, 3,547,874.
Tamura, Saburo, and Jojima, Teruomi, 3,547,617.
Sano, Shiro: *See—*
Yamaguchi, Shinichi, Teranishi, Toshio, Ogura, Satoshi, and Sano, Shiro,3,547,783.
Santangelo, Joseph G., to Celanese Corporation. Graphitization of fibrous polyamide resinous materials. 3,547,584, Cl. 23-209.1
Sapien Electronics Corporation: *See—*
Basse, Philip, and Murphy, Patrick J., 3,548,203.
Sapp, Dawson N. Game transporting device. 3,547,456, Cl. 280-19.
Sardessai, Kashinath S., and Mullier, Michel E., to Mobil Oil Corporation. Amorphous terpolyesters having high impact strength. 3,547,888, Cl. 260-75.
Sargent, Ronald J., to Thetford Corporation. Clasp assembly. 3,546,752, Cl. 24-73.
Sarkar, Asim Kumar, to Hickson & Welch Limited. 7-Mercepto-coumarins. 3,547,952, Cl. 260-343.2
Sartoris, Mariola: *See—*
Falcone, Luigi, Parisi, Agostino, and Sartoris, Mariola,3,547,986.
Sartorius-Werke GmbH (und vormals Gottinger- Piazisionswaagenfabrik G.m.b.H.): *See—*
Knothe, Erick, Billin, Eckhard, and Meicher, Franz-Josef, 3,547,213.
Sasaguri, Kiichiro: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, and Tanimura, Noboru,3,547,883.
Sato, Suguru, to Nippon Denso Co., Ltd. Alternating-current generator with open-ended housing. 3,548,226, Cl. 310-68.
Sato, Yasuhito: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu,3,547,088.
Sato, Yoshishige: *See—*
Miyamoto, Junshi, and Sato, Yoshishige,3,547,588.
Savage, John E.: *See—*
Saltzberg, Burton R., and Savage, John E.,3,548,309.
Savage, William E., to Shell Oil Company. Granulation of oil-coated water-soluble fine particle of potash material. 3,548,046, Cl. 264-118.
Saverwein, Dr., K.: *See—*
Baran, Miroslav, 3,547,040.
Savides, Christos, to American Cyanamid Company. Synergistic flame-retardant compositions. 3,547,876, Cl. 260-45.8
Savides, Christos, to American Cyanamid Company. Synergistic flame-retardant compositions. 3,547,877, Cl. 260-45.8
Savides, Christos, to American Cyanamid Company. Synergistic flame-retardant compositions containing diels-alder adducts and phosphorous compounds. 3,547,878, Cl. 260-45.8
Scarrott, Gordon George, and Truman, Norman Nathan, to International Computers Limited. Magnetic head with conductive gap spacer. 3,548,115, Cl. 179-100.2
Schaap, Luke A.: *See—*
Rosscup, Robert J., Zletz, Alex, and Schaap, Luke A.,3,548,013.
Schaefer, Allen A. Portable fishing pole holder and alarm. 3,546,805, Cl. 43-17.
Schaefer, Carl F., to United Aircraft Corporation. On axis collimated viewing system. 3,547,522, Cl. 350-174.
Schaefer, Robert H.: *See—*
Fox, Joseph R., and Schaefer, Robert H.,3,546,974.
Schaefer, Wilhelm: *See—*
Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther,3,548,145.
Schaerer, Andre Jacques. Synthetic plastic pipes. 3,547,162, Cl. 138-125.
Schafft, Hugo W., to Motorola, Inc. Acoustic transducer including piezoelectric wafer solely supported by a diaphragm. 3,548,116, Cl. 179-110.
Schaller, Robert L., and Kunzelman, George R., to Sundstard-Engelberg, Inc. Turbine rotor grinding machine. 3,546,817, Cl. 51-49.
Scharpf, William G., to FMC Corporation. 2,3-Dihydro-2,2-dimethyl-2-benzofuranyl N-(dimethyl- amino) carbamate. 3,547,955, Cl. 260-346.2
Scharpf, William G., to FMC Corporation. 8-Chromanyl carbamate esters as pesticides. 3,548,058, Cl. 424-285.
Schatz, Franz, Wagner-Jauregg, Theodor, and Jahn, Ulrich, to Siegfried Aktiengesellschaft. 1-Phenyl-2-styryl-3,5-dioxopyrazolidines and method of producing same. 3,547,916, Cl. 260-240.
Schaum, Gustav, Kremp, Rudolf, Becker, Johann, Hieber, Fritz, and Huber, Hans-Peter, to Agfa-Gevaert Aktiengesellschaft. Telephonic remote control arrangement. 3,548,102, Cl. 179-2.
Scheinpflug, Hans: *See—*
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.
Scheler, Siegfried, Munder, Johannes, and Brauninger, Arno, to Keuffel & Esser Company, mesne. Light-sensitive diazotype material. 3,547,637, Cl. 96-49.
Schelin, Carl O., and Eisentraut, Arne L., to Woodward Governor Company. Seal for valve structure and method of forming the same. 3,547,158, Cl. 137-625.48
Schenk, Otto Erwin: *See—*
Roth, Willy, and Schenk, Otto Erwin,3,547,854.
Schenk, Robert J., to Singer-General Precision, Inc. Female electrical contact extraction tool. 3,546,765, Cl. 29-203.
Schewe, Richard A, and Yone, Harold R., to Barber-Colman Company. Method and machine for automatically relocating spinning frame travelers. 3,546,870, Cl. 57-34.
Schexnayder, Lawrence F.: *See—*
Cummins, Curtis F., Smith, Donald L., Warren, Larry G., and Schexnayder, Lawrence F.,3,547,234.
Schier, Hans, to Sprague Electric Company. Multiple image forming device. 3,547,546, Cl. 350-162.
Schiewart, Hans: *See—*
Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans,3,548,232.
Schillebeeckx, Konrad C., to Wanskuck Company. Apparatus for producing stranded cable. 3,546,872, Cl. 57-66.
Schiller, Michael S., to Security Trust Company of Rochester (trustee), mesne. Control system for motor velocity and position. 3,548,282, Cl. 318-606.
Schinke, Georg: *See—*
Hass, Karl, Schinke, Georg, and Langenhoff, Fred,3,547,832.
Schlage Lock Co.: *See—*
Pollack, Roy L., and Rowley, David G., 3,546,734.
Schlain, David: *See—*
Andrews, Richard L., Smith, Gerald R., Kenahan, Charles B., and Schlain, David,3,547,789.

Schlamb, Kermit F., to Calgon Corporation, mesne. Method of preparing poultry chunks. 3,547,656, Cl. 99-107.

Schlatter, Maurice J., to Chevron Research Company. Electrical power source. 3,547,698, Cl. 136-6.

Schlein, Herbert N., to Rahn Corporation. Pip facsimile system. 3,548,094, Cl. 178-6.6

Schloemann Aktiengesellschaft: *See—*
Hoffmann, Bernd, Bollig, Georg, and Dopper, Otto, 3,547,421.
Leifeld, Klaus, Wochnik, Josef, and Stoy, Erich, 3,546,914.

Schlossman, Irwin, and Sugerman, Gerald, to Halcon International, Inc. Preparation of hydroxy carboxylic acids. 3,547,991, Cl. 260-535.

Schlueter, Robert A., to Zenith Radio Corporation. Terminal strip. 3,548,360, Cl. 339-14.

Schmitt, Bernhard: *See—*
Stastny, Fritz, Gaeth, Rudolf, Schmitt, Bernhard, and Haardt, Udo,3,547,840.

Schmitter, William David. Tackling and blocking apparatus. 3,547,438, Cl. 273-55.

Schmitz, Henry, and Devault, Robert Larry, to Bristol-Myers Company. Coumarin derivatives. 3,547,902, Cl. 260-210.

Schmoyer, Laurence F.: *See—*
Hedge, John A., and Schmoyer, Laurence F.,3,548,019.

Schnall, Gunther: *See—*
Phleps, Konrad, and Schnall, Gunther,3,547,536.

Schnebelen, David F., and Ryffel, James R., to Dow Chemical Company, The. Composite sheet material based on chlorinated olefin polymers and normally crystalline vinylidene chloride polymers. 3,547,772, Cl. 161-254.

Schneider, Gunther: *See—*
Bender, Jean, Himmelstein, Paul, Kuhn, Horst, Schaefer, Wilhelm, and Schneider, Gunther,3,548,145.

Schneider, Rudolf: *See—*
Buchwald, Horst, Mulders, Bernward, and Schneider, Rudolf,3,547,645.

Schneider, Willi A., to Frey, Wiederkehr & Cie AG. Method and apparatus for die cutting blanks from stacks of sheet material. 3,546,990, Cl. 83-27.

Schnell, Hermann: *See—*
Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann,3,547,895.
Senge, Ferdinand, and Schnell, Hermann,3,547,943.

Schnuell, Henry A.: *See—*
Miller, Lester C., and Schnuell, Henry A.,3,546,729.

Schnurr, Josef, to Siemens Aktiengesellschaft. Telephone relay and associated circuit. 3,548,109, Cl. 179-16.

Schommer, Alfred: *See—*
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,755.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,756.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,757.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,758.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,759.
Oberst, Hermann, Ebigt, Joachim, Duve, Gunther, and Schommer, Alfred,3,547,760.

Schon & Cie GmbH, Firma: *See—*
Muller, Helmbrecht, 3,546,992.

Schon, Erich, to Otto, C., Dr., & Comp. GmbH. Coked charge receiving carriage, especially for use in connection with coke oven batteries. 3,547,782, Cl. 202-227.

Schreiber, Joachim: *See—*
Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans,3,548,232.

Schreurs, Willy P., to Sylvania Electric Products, Inc. Fluorescent lamp with a yellow inorganic pigment added to the phosphor. 3,548,237, Cl. 313-109.

Schroeder, John B.: *See—*
Meinel, Aden B., Bashkin, Stanley, Loomis, Donald A., and Schroeder, John B.,3,548,189.

Schubert & Salzer Maschinenfabrik Aktiengesellschaft: *See—*
Meyerhuber, Wittich, Niestroj, Heinrich, and Canzler, Rolf, 3,546,899.

Schucker, Josef W.O., Glos, Franz, and Nemetz, Willi, to Uhde, Friedrich, GmbH. Mercury cathode electrolysis cell with novel anode support means. 3,547,799, Cl. 204-250.

Schuh, Henry E., to Schuh Signals, Inc. Mailbox signal. 3,547,070, Cl. 116-114.

Schuh Signals, Inc.: *See—*
Schuh, Henry E., 3,547,070.

Schulten, Gunter, to U.S. Philips Corporation, mesne. Device for measuring the reflection coefficient, the dielectric constant or the thickness of foils or plates. 3,547,543, Cl. 356-108.

Schultz, Warner W., and Jones, Stanley L., to United States of America, Atomic Energy Commission. Plastic track-type detector for slow neutrons having the neutron conversion substance uniformly dispersed therein. 3,548,191, Cl. 250-83.1

Schumacher, Arnold, to Sanders Associates, Inc. Adaptive timing technique. 3,548,402, Cl. 340-324.

Schumacher, Delmar Francis: *See—*
Moede, Jerome Albert, and Schumacher, Delmar Francis,3,547,644.

Schuster, William Daniel: *See—*
DeMarinis, Joseph Vincent, Schuster, William Daniel, and Wheeler, Robert Charles,3,548,081.

Schutze, Ernst-Christian, Hornung, Karl-Heinz, and Nehring, Rudolf, to Chemische Werke Huels A.G. Coatings based on polycarbonates condensed with trifunctional isocyanates. 3,547,889, Cl. 260-75.

Schutze, Ernst-Christian: *See—*
Hornung, Karl-Heinz, Schutze, Ernst-Christian, and Nehring, Rudolf,3,548,027.

Schwaar, Pierre G., to Avco Corporation. Compressors for gas turbine engines. 3,546,880, Cl. 60-39.16

Schwab, Richard L., to Westinghouse Electric Corporation. Transformer having ventilating passages. 3,548,354, Cl. 336-57.

Schwartz, Erich: *See—*
Brueggemann, Horst, Dachs, Karl, Schwartz, Erich, and Wilhelm, Hans,3,547,836.

Schwartz, Robert A. D. Light louver and fastener therefor. 3,546,844, Cl. 52-581.

Schwartzenburg, Frederick Jr., and Griffin, Donald B., to Reichhold Chemicals, Inc. Phenol-modified urea-formaldehyde resins and method of making same. 3,547,868, Cl. 260-29.3

Schwarz, Peter D., to General Signal Corporation. Vehicle parking time and free computing system. 3,548,161, Cl. 235-61.6

Schwerdhofer, Hans Joachim, to Fichtel & Sachs AG. Dual-speed bicycle hub with centrifugally controlled gear shift. 3,546,970, Cl. 74-752.

Schwerdhofer, Hans Joachim, to Fichtel & Sachs AG. Automatically shifting multiple speed hub. 3,546,971, Cl. 74-752.

Schwope, Arthur D., Jech, Robert W., and Weber, Edward P., to Clevite Corporation. Method for making metal composites. 3,546,769, Cl. 29-420.5

Scientific Data Systems, Inc.: *See—*
Felts, John A., 3,548,394.

Sciurba, Jack L., to Motorola, Inc. Signal translating system which rejects a particular frequency. 3,548,090, Cl. 178-5.8

Sclar, Charles B., and Freud, Paul J., to Battelle Development Corporation, The. High pressure apparatus for use in X-ray diffraction analysis. 3,548,190, Cl. 250-51.5

Scott, Paul R.: *See—*
Dunavent, Sidney William, Jr., and Scott, Paul R.,3,546,926.

Scott, Robert S. Collapsible agility climber. 3,547,435, Cl. 272-60.

Scotto, Vincent: *See—*
Westeren, Herbert W., and Scotto, Vincent,3,547,422.

Scovill Manufacturing Company: *See—*
Shay, Joseph J., 3,547,147.

Scriabine, Igor, to Rhone-Poulenc S.A. Aldehydes useful in perfumery. 3,548,006, Cl. 260-599.

Seabury, Richard W., Jr., to R F L Industries, Inc. Indicating instrument having a heater coil immersed in a fluid. 3,548,308, Cl. 324-106.

Searight, Charles Edwin, Ryan, John Robert, and Alexander, Ezra Mc Laurin, to Cataphote Corporation. Antimony sulfide-barium oxide glasses and reflex light reflector. 3,547,517, Cl. 350-105.

Searle, G. D., & Co.: *See—*
Coyne, William E., and Cusic, John W., 3,547,933.
Krimmel, Carl Peter, 3,547,976.
Miyano, Masateru, 3,547,953.

Sears, James Kern, to Monsanto Company. Plasticized resin compositions containing esters of O-carboxyhippuric acid. 3,547,667, Cl. 106-182.

Sebastian, Robert W., to Molex Products Company. Countdown counter control assembly. 3,548,166, Cl. 235-92.

Sebern, James R.: *See—*
Hart, Cullen Payton, Hendrickson, Vergil P., and Sebern, James R.,3,547,426.

Security Trust Company of Rochester (trustee): *See—*
Schiller, Michael S., 3,548,282.

Seeber, Eberhard, and Heer, Alfred, to Ciba Limited. Plasticised curable mixtures of polyepoxides and polyepoxidepolyamine adducts. 3,547,869, Cl. 260-30.4

Seeburg Corporation, The: *See—*
Dabrowski, Casimer J., 3,548,387.

Seemann, Fritz: *See—*
Troxler, Franz, and Seemann, Fritz,3,547,974.

Seiffert, Stanley V., to Physio-Control Corporation. Combination defibrillator and heartbeat monitoring system. 3,547,108, Cl. 128-2.06

Seikagaku Kogyo Company, Ltd.: *See—*
Furuhashi, Tamotsu, 3,547,904.

Sekiguchi, Masaharu: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu,3,547,088.

Sekii, Masao: *See—*
Itabashi, Yoshio, and Sekii, Masao,3,548,028.

Seliger, James M. Device for decreasing formation of waste products of combustion from engines. 3,547,090, Cl. 123-119.

Semikron, Gesellschaft fur Gleichrichterbau und Elektronik m.b.H.: *See—*
Berkner, Rolf, 3,547,691.

Semprevivo, Carl. Bass chord player. 3,546,995, Cl. 84-444.

Senge, Ferdinand, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Nrmethylolsilylethers of ureas and imidazolidinones. 3,547,943, Cl. 260-309.7

Sennowitz, Kurt H., to Elox Inc. Gap short circuit control system for electrical discharge machining apparatus. 3,548,142, Cl. 219-69.

Sens, Fred T., to Owens-Corning Fiberglas Corporation. Method and apparatus for packaging fibrous material. 3,546,846, Cl. 53-24.

Serafini, Angelo: *See—*
Ciampa, Fred A., Serafini, Angelo, and Mazzarella, Louis,3,546,723.

Serio, Vincent J., Jr.: *See—*
Wilson, Calvin L., Fox, John H., Jr., and Serio, Vincent J., Jr.,3,547,315.

Servomex Controls Limited: *See—*
Borer, Alan John, 3,548,295.

Severin, Jose, and Holthoff, Helmut, to Kommanditgesellschaft Friedrich Kocks. Drives for multistand universal rolling mills. 3,546,915, Cl. 72-249.

Shaines, Alfred, Kalish, Robert L., and Hamer, Edward A. G., to American Standard Inc. Braided support for semipermeable membrane. 3,547,272, Cl. 210-321.

Shakespeare Company: *See—*
Hardesty, Benjamin T., 3,547,445.

Shamma, Ramzi A. Simulated stereo sound system. 3,548,101, Cl. 179-1.

Shank, William E., to Litton Industries, Inc. Diameter brake and locking device for a rotatable shaft. 3,547,230, Cl. 188-75.

Shankman, Martin. Chair bed. 3,547,487, Cl. 297-111.

Shanok, Jesse P.: *See—*
Shanok, Victor, and Shanok, Jesse P.,3,547,515.
Shanok, Victor, and Shanok, Jesse P.,3,547,516.

Shanok, Victor, and Shanok, Jesse P., to Glass Laboratories Company. Combination protective and decorative edge trim. 3,547,515, Cl. 350-97.

Shanok, Victor, and Shanok, Jesse P., to Glass Laboratories Company. Colored light reflective composite molding. 3,547,516, Cl. 350-97.

Shapiro, Beatrice: *See—*
Shapiro, Leonard,3,547,898.

Shapiro, Leonard, deceased (by Shapiro, Beatrice, executrix), to Freeport Industries, Inc. Process for the production of resins containing maleic half esters. 3,547,898, Cl. 260-78.5

Shaw, Edward E., and Strevey, Glen R., to Ball Brothers Research Corporation. Three-axis orientation system. 3,547,381, Cl. 244-77.

Shaw, James. Trailer house modified as a combination camper- trailer. 3,547,482, Cl. 296-23.

Shay, Joseph J., to Scovill Manufacturing Company. Aerosol valve with pressure relief. 3,547,147, Cl. 137-522.

Shebanow, Michael S., Borelli, Ronald F., and Nelson, Paul E., to Honeywell Inc. High speed, reverse current driven interposer. 3,547,346, Cl. 234-115.

Shebanow, Michael S., and Wang, Cheng-Hua, to Honeywell Inc. High speed actuators assembly. 3,547,345, Cl. 234-115.

Sheehan, Robert K. Fastener. 3,546,750, Cl. 24-16.

Sheikh, Morris I. Air sterilization process. 3,547,576, Cl. 21-53.

Sheiner, Leonard S., to International Business Machines Corporation. Split field optical comparison system. 3,547,513, Cl. 350-30.

Sheldon, E. H., & Company: *See—*
Ott, Donald E., and Carlson, Arthur W., 3,547,505.

Shell Oil Company: *See—*
Barkman, James H., Jr., Jorda, Robert M., and Vogel, John V., 3,547,803.
Bolger, Leonard F., 3,547,497.
Cheney, Harry A., June, Ronald K., and Kuhre, Calvin J., 3,547,495.
Claridge, Elmond L., and Prats, Michael, 3,547,192.
Closmann, Philip J., 3,547,196.
Cornforth, John W., 3,548,012.
Dunavent, Sidney William, Jr., and Scott, Paul R., 3,546,926.
Hemphill, Dean P., and Broussard, Douglas E., 3,546,889.
Johnson, Herbert G., 3,546,740.
Johnson, Herbert G., 3,546,746.
Kolb, Robert H., Barry, Donald W., Nordgren, Ronald P., and Broussard, Douglas E., 3,546,888.
Kruka, Vitold R., 3,547,496.
Malott, Raymond A., 3,547,191.
McLamore, Roy T., 3,547,209.
Mueller, Albert C., and Parry, Harvey L., 3,547,881.
Reece, Donald, and Boyle, George J., 3,547,161.
Savage, William E., 3,548,046.
Van Amerongen, Gerrit J., 3,547,764.
Versluis, Roeland, 3,547,298.
Ward, Gregory F., 3,548,032.
Wilkerson, Leonard Louis, 3,547,190.
Wittenwyler, Clifford V., 3,547,728.

Shelton, Jack L.: *See—*
Froning, H R., Shelton, Jack L., and Raza, Syed H.,3,547,199.

Shen, Chung Yu, to Monsanto Company. Crystalline pyrophosphoric acid composition. 3,547,825, Cl. 252-672.

Shen, Tsung-Ying, and Walford, Gordon L., to Merck & Co., Inc. 4-(Amino-1,2-dithiolane-4-carboxylic acids. 3,547,948, Cl. 260-327.

Shepard, Alvin F.: *See—*
Dannels, Bobby F., and Shepard, Alvin F.,3,547,790.

Shepherd, John A., Cohen, Bernard, and Darbee, Leonard R., to FMC Corporation. Starch modification with peroxydiphosphate salt. 3,547,907, Cl. 260-233.3

Sheridan, Donald E. Vehicle suspension. 3,547,461, Cl. 280-104.5

Sherman, Clarence A., to Benton Corporation. Intake air preheater valve assembly. 3,547,093, Cl. 123-179.

Sherman, George O., Jr., to Salvajor Company, The. Waste disposer rotor with yieldably biased teeth. 3,547,360, Cl. 241-191.

Sherman, Raymond. Interlocking modular design blocks. 3,546,792, Cl. 35-27.

Sherwin-Williams Company, The: *See—*
Saklikar, Arvind R., 3,547,076.
Wagener, Anthony P., 3,547,925.
Wagener, Anthony P., 3,547,926.
Wagener, Anthony P., and Meisters, George J., 3,547,927.
Wagener, Anthony P., and Meisters, George J., 3,547,928.
Wagener, Anthony P., and Meisters, George J., 3,547,929.

Sherwood Electronic Laboratories, Inc.: *See—*
Neilson, William R., 3,547,450.

Sherwood Medical Industries Inc.: *See—*
Plumpe, William H., Jr., and Weischselbaum, Theodore E., 3,547,028.

Shesterikov, Boris Alexandrovich: *See—*
Mukhin, Georgy Ivanovich, Kljukin, Leonid Petrovich, Shlykov, Nikolai Alexeevich, and Shesterikov, Boris Alexandrovich,3,548,228.

Shiba Electric Co., Ltd.: *See—*
Kinoshita, Kojiro, Suzuki, Takeo, and Okajima, Shigeki, 3,548,338.

Shibatani, Kyoichiro: *See—*
Oyanagi, Yasuji, and Shibatani, Kyoichiro,3,548,031.

Shigemoto, Fred H., to United States of America, National Aeronautics and Space Administration. Laser fluid velocity detector. 3,547,540, Cl. 356-28.

Shimada, Satoshi, to Sony Corporation. Color television transmission systems for elimination of cross modulation. 3,548,085, Cl. 178-5.4

Shimada, Satoshi, to Sony Corporation. Color video signal generating apparatus. 3,548,087, Cl. 178-5.4

Shimada, Satoshi, and Kubota, Yasuharu, to Sony Corporation. Color video signal generating apparatus. 3,548,088, Cl. 178-5.4

Shipovalenko, Alexandr Grigorievich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.

Shisler, Donald E., to Johns-Manville Corporation. Burner apparatus for producing glass fibers. 3,547,568, Cl. 431-158.

Shlykov, Nikolai Alexeevich: *See—*
Mukhin, Georgy Ivanovich, Kljukin, Leonid Petrovich, Shlykov, Nikolai Alexeevich, and Shesterikov, Boris Alexandrovich,3,548,228.

Shomphe, George J., Tabor, Robert W., and Lalmond, Harold W., to Sanders Associates, Inc. Method of fabricating an electrical resistance heating pad. 3,547,725, Cl. 156-272.

Short, Edward H., III, to Combustion Engineering, Inc. Turbine meter. 3,546,940, Cl. 73-231.

Short, Oliver A., to Du Pont de Nemours, E. I., and Company. Processes of producing and applying silver compositions, and products therefrom. 3,547,835, Cl. 252-514.

Showa Denko Kabushiki Kaisha: *See—*
Yano, Tomosaburo, Matsuo, Tadasi, Ichinokawa, Hideo, and Kuno, Koichi, 3,547,833.
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru, 3,547,804.

Shropshire, Joseph A., to Esso Research and Engineering Company. High area catalyst preparation. 3,547,830, Cl. 252-432.

Shulgin, Alexander T., to Dow Chemical Company, The. 4-Alkyl-dialkoxy-α-methyl-phenethylamines and their pharmacologically-acceptable salts. 3,547,999, Cl. 260-570.8

Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich. Cardiac valve prosthesis for sutureless fixation. 3,546,710, Cl. 3-1.

Shutler, William F.: *See—*
Hartlipp, Willis E., Healy, Henry G., Ruggiero, Angelo S., and Shutler, William F.,3,548,177.

Shutler, William F., to International Business Machines Corporation. Probable future error detector. 3,548,176, Cl. 235-153.

Shuttleworth, James J. Live pan assembly. 3,546,837, Cl. 53-61.

Siddell, Raymond Patrick, and West, Raymond, to Lucas, Joseph, (Industries) Limited. Semi-conductor diode units. 3,548,267, Cl. 317-234.

Sieber, Heinrich: *See—*
Fuchs, Otto, Sieber, Heinrich, and Landler, Josef,3,547,924.

Siefert, Roland, and Odenbach, Heinz, to Kienzle Uhrenfabriken GmbH. Oscillatory system with two turnable masses. 3,546,953, Cl. 74-96.

Siegfried Aktiengesellschaft: *See—*
Schatz, Franz, Wagner-Jauregg, Theodor, and Jahn, Ulrich, 3,547,916.

Siegler, Frederick, to White Motor Corporation. Engine valve control for braking operation. 3,547,087, Cl. 123-97.

Siemens Aktiengesellschaft: *See—*
Albrecht, Cord, and Lamatsch, Hans, 3,548,078.
Blaschke, Felix, and Hutter, Gerhard, 3,548,287.
Dittrich, Werner, and Kristen, Reiner, 3,548,223.
Dittrich, Werner, and Krusten, Reiner, 3,548,224.
Dobermann, Hans, 3,548,080.
Gattner, Gunther E., and Widdel, Karl-Heinz, 3,548,380.
Kroger, Gerhard, and Rainer, Erich, 3,548,230.
Liska, Manfred, and Hubner, Klaus, 3,548,289.
Pross, Martin, 3,548,182.
Schnurr, Josef, 3,548,109.
Vogel, Carl-Heinz, 3,547,428.

Signal Analysis Industries Corporation: *See—*
Kaufman, Myron, 3,548,305.

Silber, Robert H.: *See—*
Kelley, Kane L., Trenner, Idamae G., and Silber, Robert H.,3,548,057.

Silva, Antonio V., to Westinghouse Electric Corporation. Maximum torque reel drive utilizing an inertia compensation and counter EMF control. 3,548,270, Cl. 318-6.

Silverman, Richard S.: *See—*
Pitel, Irving, Cornine, Floyd C., Silverman, Richard S., and Cohen, Arnold B.,3,547,313.

Simplex Corporation: *See—*
Manetta, Peter J., 3,547,254.

Simpson, Leo, to United States of America, Army, mesne. High efficiency current driver. 3,548,285, Cl. 320-1.

Sims, Victor A.: *See—*
Mottern, Henry O., and Sims, Victor A.,3,547,983.

Sinclair, Kenneth F., to United States of America, Army. Directional radiation detector. 3,548,207, Cl. 250-83.6

Sinclair Oil Corporation: *See—*
Blank, Winfield B., Jr., 3,548,362.

Sinclair Research, Inc.: *See—*
Bragg, Calvin J., and Crowther, Joseph C., Jr., 3,547,707.

Singer Company, The: *See—*
Dolney, Joseph J., and Kuhar, Ludwig J., 3,547,059.
Dudek, Edmund C., 3,547,166.
Keown, Lyndon L., 3,546,978.
Linneborn, Walter, 3,547,078.
Linneborn, Walter, 3,547,672.

Singer-General Precision, Inc.: *See—*
Rakowsky, Edward L., 3,546,938.
Schenk, Robert J., 3,546,765.

Singh, Shobha: *See—*
Geusic, Joseph E., Singh, Shobha, and Smith, Richard G.,3,548,199.

Sirola, Frank. Cutting tool. 3,546,759, Cl. 29-98.

Skatsche, Othmar, and Feichtinger, Gerhard, to List, Hans. Cylinder head for internal combustion engines. 3,547,086, Cl. 123-41.77

Skil Corporation: *See—*
Frenzel, Carl J., 3,548,136.

Slack, Philip T., to Plasticisers Limited. Machines for producing synthetic yarn. 3,546,873, Cl. 57-93.

Sledge, Michael L., Jr., and Hammer, Alfonso W. Retractable key chain bracelet. 3,547,323, Cl. 224-28.

Sletzinger, Meyer, and Reinhold, Donald, to Merck & Co., Inc.16β-Methyl-16α,17α-epoxy pregnenolone and the 3-acylates thereof. 3,547,913, Cl. 260-239.55

Slusser, Marion L., to Mobil Oil Corporation. Method of forming two vertically disposed fractures from a well penetrating a subterranean earth formation. 3,547,198, Cl.

Smeltz, Kenneth C., to Du Pont de Nemours, E. I., and Company. Fluorinated polyurethanes. 3,547,894, Cl. 260-77.5

Smidth, F. L., & Co.: *See—*
Elkjaer, Hans Peter, 3,547,417.
Jensen, Flemming Edwin, 3,547,418.

Smith, Alfred T.: *See—*
Komberec, Harold L., Kilcup, Dillon K., and Smith, Alfred T.,3,547,051.

Smith, Andrew W., Jr., to Westinghouse Electric Corporation. Inertia compensation for computer-controlled slabbing mills and the like. 3,546,907, Cl. 72-7.

Smith, Charles W., Jr., to Autoclave Engineers, Inc. Gas pressure bonding furnace. 3,548,062, Cl. 13-20.

Smith, Donald L.: *See—*
Cummins, Curtis F., Smith, Donald L., Warren, Larry G., and Schexnayder, Lawrence F.,3,547,234.

Smith, Edgar M.: *See—*
Giacalone, Dino B., and Smith, Edgar M.,3,548,286.

Smith, Edwin W., to Upjohn Company, The. Fluid sample selector. 3,546,946, Cl. 73-423.

Smith, Frank R. Precast decorative panel. 3,546,832, Cl. 52-309.

Smith, Gene R., and Saltzman, Lydia M. Record cover. 3,547,342, Cl. 229-68.

Smith, Gerald R.: *See—*
Andrews, Richard L., Smith, Gerald R., Kenahan, Charles B., and Schlain, David,3,547,789.

Smith, Harold A.: *See—*
Hohbach, Dale J., and Smith, Harold A.,3,547,844.

Smith, Harry A., to Dow Chemical Company, The. Method of drying alkylene oxides. 3,547,956, Cl. 260-348.

Smith, Herchel: *See—*
Hughes, Gordon Alan, and Smith, Herchel,3,547,909.

Smith, Herman P.: *See—*
Keene, Charles I., 3,547,556.

Smith Kline & French Laboratories: *See—*
Kaiser, Carl, and Zirkle, Charles L., 3,547,931.

Smith, Lester L., and Randall, Frank E., to Home Comfort Products Co., mesne. Fabricated doors, panels and the like. 3,546,841, Cl. 52-309.

Smith, Lowell R.: *See—*
Speziale, Angelo John, and Smith, Lowell R.,3,547,618.

Smith, Marvin B., to Teledyne, Inc. Mercapto terminated urethane linked polymers. 3,547,896, Cl. 260-77.5

Smith, Raymond Anthony, and Dixon, John Thomas, to Albright & Wilson Limited. Liquid fertilizers. 3,547,613, Cl. 71-27.

Smith, Richard G.: *See—*
Geusic, Joseph E., Singh, Shobha, and Smith, Richard G.,3,548,199.

Smith, Theodore M. Method of determining position of workpiece on a supporting fixture. 3,548,209, Cl. 250-106.

Smithcraft Corporation: *See—*
Kruger, Michael Henry, 3,548,187.

Smithers, John A. Athletic supporter. 3,547,117, Cl. 128-158.

Smoke-Bin Manufacturing Incorporated: *See—*
Turpin, Alexander J., 3,547,567.

Snedden, Everett B., and Hubler, Victor L., to Chrysler Corporation. Control mechanism. 3,547,025, Cl. 98-94.

Snerd, Charles D., and Long, Robert L., to Eastman Kodak Company. Heat formable polyester film. 3,547,891, Cl. 260-75.

Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A.: *See—*
Itabashi, Yoshio, and Sekii, Masao, 3,548,028.

Snyder, Harold I., and Plumb, Eugene E. Multiple-layer fabric for protective garments and the like. 3,547,765, Cl. 161-189.

Societa Italiana Telecommunicazioni Siemens S.p.A.: *See—*
Balugani, Fabio, Mammucari, Franco, and Poretti, Isidoro, 3,548,103.

Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Kleissl, Erberto, and Postorino, Pasquale, 3,548,111.

Societe Anonyme Citroen: *See—*
Ravenel, Raymond, 3,547,214.

Societe Anonyme des Usines Chausson: *See—*
Plegat, Alain Edouard, 3,547,335.

Societe de Constructions Mecaniques de Creil: *See—*
Gaudin, Jean, 3,547,332.

Societe de Travaux pour la Construction et l' habitat industriels Tracoba:*See—*
Villaneau, Michel Jean-Charles, 3,546,830.

Societe des Lunetiers, Temkine & Cie: *See—*
Tagnon, Luc A., 3,547,125.

Societe d'Etudes Chimiques Pour l'Industries et l'Agriculture:*See—*
Tourdot, Jacques, and Breiss, Jean, 3,547,573.

Societe d'Instrumention Schlumberger:*See—*
Montel, Andre, 3,548,393.

Societe en nom Collectif Science Union et Cie: *See—*
Malen, Charles, and Desnoyers, Pierre, 3,547,949.

Societe Genevoise d'Instruments de Physique:*See—*
Steinemann, Adolf, and Ruefenacht, Jack, 3,547,544.

Societe Industrielle de Brenets et d'Etudes S.I.B.E.:*See—*
Pierlot, Michel Eugene, 3,547,089.

Societe Lignes Telegraphiques et Telephoniques: *See—*
Dumas, Jean-Pierre, and Leduc, Paul, 3,547,694.

Societe Nationale des Petroles d'Aquitaine:*See—*
Comte, Michel, 3,548,007.
Jouve, Philippe, 3,548,183.

Soderquist, Charles E., to Nuclear Diodes. Hard vacuum seal-off valve. 3,547,399, Cl. 251-86.

Soil Treatment and Research Corporation: *See—*
Jones, Arthur H., and Fleming, Kennedy R., 3,546,886.

Sommeria, Marcel R., to Hyper-Loop, Inc. Servo system. 3,548,278, Cl. 318-257.

Sonaar Corporation: *See—*
Fathauer, George H., 3,548,307.

Sonoda, George Y., to International Business Machines Corporation. Storage cell with a charge transfer load including series connected FETS. 3,548,388, Cl. 340-173.

Sony Corporation: *See—*
Shimada, Satoshi, 3,548,085.
Shimada, Satoshi, 3,548,087.
Shimada, Satoshi, and Kubota, Yasuharu, 3,548,088.
Tokita, Tetsuo, and Miyaoka, Senri, 3,548,248.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu, 3,548,234.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Morio, Minoru, 3,548,249.

Sorensen, Robert L., Brodhag, Earle E., and Casanova, John V., to Time Incorporated. Molding and laminating molding apparatus. 3,546,741, Cl. 18-5.

Sorstokke, Harold E., Stamm, Walter, and Uhing, Eugene H., to Stauffer Chemical Company. Process for the preparation of bis (beta- chloroethyl) vinyl phosphonates. 3,548,040, Cl. 260-986.

Sosinski, Charles William, to Thomas & Betts Corporation. Module mounting system. 3,547,274, Cl. 211-89.

Southern Avionics Company: *See—*
Blackwell, Adolph G., 3,548,407.

Southworth Machine Company: *See—*
Radomski, Joseph E., 3,547,279.

Sowell, Clarence W. Apparatus and process for reclaiming paving material. 3,547,411, Cl. 259-148.

S.p.A. Secoblitz Industria Meccanica: *See—*
Ronzani, Angelo Levico, 3,547,096.

Spartus Corporation: *See—*
Booty, Donald J., Jauch, Christian M., Vander Velde, Charles F., and Waage, Jack C., 3,546,874.

Speer, William H.: *See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.

Spektor, Itskhok Avrumovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.

Spence, Thomas C. Method for manufacturing nonwoven fibrous products from gel fibers. 3,547,773, Cl. 162-157.

Spencer, John R.: *See—*
Greathouse, Walton D., Cheek, James H., and Spencer, John R.,3,547,354.

Sperry Rand Corporation: *See—*
Espen, David A., 3,548,284.
Veach, John S., 3,547,368.

Speziale, Angelo John, and Smith, Lowell R., to Monsanto Company. N-(4-nitrophenylsulfonyl)-N'-Benzoyl ureas as phytocides. 3,547,618, Cl. 71-103.

Spiessens, Raymonds Francois, to U.S. Philips Corporation, mesne. Low-pressure sodium vapour discharge lamp. 3,548,240, Cl. 313-174.

Spohn, Glenn A.: *See—*
Loase, Raymond M., and Spohn, Glenn A.,3,547,365.

Sprague Electric Company: *See—*
Bilotti, Alberto, 3,548,326.
Frantz, Franklin D., 3,548,266.
Helgeland, Walter, 3,548,303.
Lindmayer, Joseph, 3,547,717.
MacDougall, John D., and Manchester, Kenneth E., 3,548,269.
Miller, David S., and Goodell, Harvey E., 3,548,347.
Schier, Hans, 3,547,546.

Sprague, Theodore S., to Babcock & Wilcox Company, The. Vapor generator with integral economizer. 3,547,084, Cl. 122-32.

Spyra, Walter Horst Ernst, to U.S. Philips Corporation, mesne. Control circuit for a high-voltage generator tube. 3,548,098, Cl. 178-7.5

Squibb, E. R., & Sons, Inc.: *See—*
Yale, Harry Louis, 3,547,906.

Srebev, Srebryu Yovtchev: *See—*
Angelov, Stefan Hristov, Hristova, Snejanka Vladimirova, and Srebev, Srebryu Yovtchev,3,548,180.

Stade, K. E.: *See—*
Thompson, Josephus B.,3,548,068.

Stahly, Eldon E., and Lard, Edwin W., to Grace, W. R., & Co. Polyester resins containing a hydroxypyridine. 3,548,029, Cl. 260-864.

Stalego, Joseph P., to Owens-Corning Fiberglas Corporation. Bonded glass fiber mats. 3,547,762, Cl. 161-170.

Stamm, Alex F., to North American Rockwell Corporation. Tapered spring leaf. 3,547,462, Cl. 280-104.5

Stamm, Walter: *See—*
Sorstokke, Harold E., Stamm, Walter, and Uhing, Eugene H.,3,548,040.

Stampco, Inc.: *See—*
Deane, Clifford T., 3,547,225.

Standard Box Spring Co.: *See—*
Ciampa, Fred A., Serafini, Angelo, and Mazzarella, Louis, 3,546,723.

Standard Oil Company: *See—*
Rosscup, Robert J., Zletz, Alex, and Schaap, Luke A., 3,548,013.

Standard Oil Company (Indiana): *See—*
Cropper, Wendell P., and Kapff, Sixt Frederick, 3,547,590.
Gutberlet, Louis C., and Bertolacini, Ralph J., 3,548,020.
Swakon, Edward A., 3,547,892.

Standard Telephones & Cables Limited: *See—*
Salter, Martin Thomas Ardley, and Jones, Arthur H., 3,548,325.

Standridge, Robert Ted, and Hall, Barbara Ann, to Bristol-Myers Company. Piperazyl ethyl 7H benzocycloheptenes. 3,547,923, Cl. 260-268.

Stanfield, Howard E., to Acme Products Incorporated. Floating surface skimmer. 3,547,553, Cl. 415-7.

Stanley Aviation Corporation: *See—*
Stanley, Robert M., 3,547,382.

Stanley, Robert M., to Stanley Aviation Corporation. Apparatus for removing a crew compartment enclosure structure from an air or space vehicle. 3,547,382, Cl. 244-121.

Stanley Works, The: *See—*
Gwinner, Walter C., 3,547,746.

Stanner, Raymond G.: *See—*
Fish, Leonard I., Stanner, Raymond G., and Kerwin, Richard G.,3,548,114.

Starkle, August F., to Heller, Walter J., A.G. Device for cutting slits in tunnel linings. 3,547,493, Cl. 299-75.

Starks, Charles M., and Washecheck, Paul H., to Continental Oil Company. Phase transfer agent in oxidation of olefins. 3,547,962, Cl. 260-413.

Startz, Ambrose J.: *See—*
Hebert, Gayle P., Perciful, Jerry C., Startz, Ambrose J., and Griswold, Haley E.,3,548,017.

Stassen, Alexander: *See—*
Pohlemann, Heinz, Christoph, Helmut, and Stassen, Alexander,3,548,036.

Stastny, Fritz, Gaeth, Rudolf, Schmitt, Bernhard, and Haardt, Udo. Production of insulating materials having low specific gravity. 3,547,840, Cl. 260-2.5

Stauffer Chemical Company: *See—*
Beck, Thomas M., 3,548,038.
Sorstokke, Harold E., Stamm, Walter, and Uhing, Eugene H., 3,548,040.

Steding, Richard. Lens mold making by plating lenticulations on a masked conductive support. 3,548,041, Cl. 264-1.

Steele, Chester R., to Swing Co., Inc. Swing-out tire carrier. 3,547,289, Cl. 214-451.

Stefaniak, Rudolph J., and Bodnar, Steven A., to Continental Can Company, Inc. Mold carrier. 3,546,747, Cl. 18-20.

Stein, Sam, Associates, Inc.: *See—*
Johnson, Richard T., 3,547,075.

Steinemann, Adolf, and Ruefenacht, Jack, to Societe Genevoise d'Instruments de Physique. Apparatus for measuring lengths by optical interferometry. 3,547,544, Cl. 356-113.

Steinemann, Samuel, and Peter, Martin, to Straumann, Ing., Reinhard, Institut A.G. Methods of making structural materials having a low temperature coefficient of the modulus of elasticity. 3,547,713, Cl. 148-11.5

Stellamanns, Theo, and Emmerling, Werner, to Weiss, Johann Maschienenfabrik und Apparatebau GmbH. Labeling machine, particularly for labeling bottles. 3,547,736, Cl. 156-455.

Stemmler, Heinz W., to Kamborian, Jacob S. Lasting machine having upper conforming yoke. 3,546,727, Cl. 12-8.2

Stendel, Wilhelm: *See—*
Fest, Christa, Hammann, Ingeborg, Stendel, Wilhelm, and Unterstenhofer, Gunter,3,547,920.

Stephanoff, Nicholas N., to Fluid Energy Processing & Equipment Company. Multiple section fluid energy drying mill. 3,546,784, Cl. 34-10.

Sterling Drug Inc.: *See—*
Archer, Sydney, 3,547,922.
Diana, Guy D., 3,547,937.
Mooradian, Aram, and Dupont, Paul E., 3,547,997.

Stevens, Geoffrey William Hedges, to National Research Development Corporation. Shock absorbing devices. 3,547,387, Cl. 248-119.

Stevens, J. P., & Co., Inc.,: *See—*
Lauck, Peter, III, 3,548,157.
Mazzone, Charles P., 3,546,744.

Stevens, Norbert J., to BSP Corporation. Sterilization system. 3,547,026, Cl. 99-251.

Stevens, Peter S. Osteoarticular prosthetic method. 3,547,115, Cl. 128-92.

Stevenson, Peter N., to Teckton Inc. Container and food heating method. 3,547,661, Cl. 99-171.

Stewart, Edwin E.: *See—*
Harned, John L., and Stewart, Edwin E.,3,547,501.

Stewart, Mary J., and Carlson, Otto K., to FMC Corporation. Polyesters stabilized with ureas and thioureas. 3,547,879, Cl. 260-45.9

Stier, Henry W., to Howmet Corporation. Cutting tools. 3,546,758, Cl. 29-96.

Stinnertz, Horst, to McKay Machine Company, mesne. Rolling frame for rolling mill of the step- back type. 3,546,912, Cl. 72-238.

Stock, Arthur J.: *See—*
Hastings, Reeve R., and Stock, Arthur J.,3,547,140.

Stock Equipment Company: *See—*
Hastings, Reeve R., and Stock, Arthur J., 3,547,140.

Stoeckli, Oscar W.: *See—*
Lee, Edward P., Lombardi, Eugene H., Montes, Ralph A., and Stoeckli, Oscar W.,3,546,965.

Stoferle, Theodor, Holzl, Horst, and Rosskopf, Max, to Huller, Karl GmbH. Machine tool. 3,546,774, Cl. 29-568.

Stoffel, Robert W., to Robbins, Jim, Seat Belt Co. Linear retractor with programmed belt clamping means. 3,547,490, Cl. 297-388.

Stokes, David R., and Aser, Gilbert A., to Xerox Corporation. Microfilm reproduction machine. 3,547,533, Cl. 355-3.

Stoner, Eugene M., to TRW Inc. Gun for caseless ammunition in which a slidable sleeve defines the chamber. 3,547,001, Cl. 89-156.

Storrie, Arthur: *See—*
Artiaga, Mariano V., Storrie, Arthur, and Wolf, Andrew,3,547,052.

Stover, Johannes Hinderikus: *See—*
Driedijk, Johannes, Van Leeuwen, Johannes Aloysisus, and Stover, Johannes Hinderikus,3,548,235.

Stover, William A.: *See—*
Oleck, Stephen M., and Stover, William A.,3,547,831.

Stover, William L., and Sutyak, John J., to Mesta Machine Company. Method and means for obtaining high modulus rolling mills. 3,546,913, Cl. 72-241.

Stoy, Erich: *See—*
Leifeld, Klaus, Wochnik, Josef, and Stoy, Erich,3,546,914.

Strasser, David G., to Jackson Vibrators, Inc. Railroad track curve recording apparatus. 3,547,038, Cl. 104-8.

Stratton, George B.: *See—*
Hoch, Paul E., and Stratton, George B.,3,547,865.

Straumann, Ing., Reinhard, Institut A.G.: *See—*
Steinemann, Samuel, and Peter, Martin, 3,547,713.
Strayer, Guy H. Double jib gantry crane. 3,547,277, Cl. 212-10.
Strevey, Glen R.: *See—*
Shaw, Edward E., and Strevey, Glen R.,3,547,381.
Strimling, Walter E. Switch position and continuity indicator for a pair of heating circuits. 3,548,398, Cl. 340-248.
Strom, Johan Paul, and Wasterlid, Nils Arne Erland, to U.S. Philips Corporation, mesne. Device for transmitting an accurately determined fixed frequency with a tunable high frequency transmitter tube. 3,548,312, Cl. 325-131.
Strom, John R., to Sweco, Inc. Vibrating finishing mill. 3,546,821, Cl. 51-163.
Stromberg Datagraphics, Inc.: *See—*
Moore, James E., 3,548,217.
Strudwick, Thomas H., to International Business Machines Corporation. Surface finish and dimension controlled and parallel faceted semiconductor crystals and growing process. 3,547,708, Cl. 148-1.6
Stryco Manufacturing Co.: *See—*
Fahrenbach, Wolfgang B., 3,546,771.
Stuart, Linder, Jr., and Curtis, Frank F., to Stuart Steel Protection Corporation. Portable joint wrapper for pipelines. 3,547,731, Cl. 156-392.
Stuart Steel Protection Corporation: *See—*
Stuart, Linder, Jr., and Curtis, Frank F., 3,547,731.
Stubbman, Albert: *See—*
Kohner, Frank, and Stubbman, Albert,3,546,808.
Studinka, Josef: *See—*
Gabler, Rudolf, and Studinka, Josef,3,547,887.
Studinski, Robert A., and Walter, Florian A., to Lyon Metal Products, Incorporated. Extension plates for metal drawers and the like. 3,547,300, Cl. 220-4.
Sugerman, Gerald: *See—*
Schlossman, Irwin, and Sugerman, Gerald,3,547,991.
Suling, Carlhans: *See—*
Arlt, Dieter, Glabisch, Dietrich, and Suling, Carlhans,3,547,899.
Sullo, Kenneth J.: *See—*
Caldwell, Robert J., and Sullo, Kenneth J.,3,547,054.
Sumitomo Chemical Co., Ltd.: *See—*
Miyamoto, Junshi, and Sato, Yoshishige, 3,547,588.
Sumitomo Electric Industries, Ltd.: *See—*
Tanaka, Toshihiko, and Masuda, Shigeo, 3,547,788.
Sumitomo Naugatuck and Company, Ltd.: *See—*
Sakuma, Toramitsu, 3,547,785.
Sun Electric Corporation: *See—*
Clauson, Arthur D., 3,548,133.
Sun Oil Company: *See—*
Boyer, Jackson S., and Cassar, Richard D., 3,547,880.
Dante, Mark F., and Parry, Harvey L., 3,547,885.
Hedge, John A., and Schmoyer, Laurence F., 3,548,019.
Sundell, Gustav Harry: *See—*
Blomqvist, Nils Verner, Croon, Ingemar Liss-Albin, and Sundell, Gustav Harry,3,547,930.
Sundstard-Engelberg, Inc.: *See—*
Schaller, Robert L., and Kunzelman, George R., 3,546,817.
Sundstrom, Ingvar Georg, to Telefonaktiebolaget L M Ericsson. Method and apparatus for controlling the phase angle and amplitude of a periodic signal by using two phases of a reference signal. 3,548,296, Cl. 323-102.
Sunny Mead Farms, Inc.: *See—*
Clapp, James, 3,546,764.
Sutcliffe, John P., and Fisher, Jack E., to Wilson, Lee Engineering Company, Inc. Coil spider. 3,547,419, Cl. 263-47.
Sutherland, Douglas G. Straining apparatus. 3,547,267, Cl. 209-240.
Sutton, Robert G., to Foamade Industries, Inc. Release paper-polyurethane film-polyurethane foam laminate. 3,547,753, Cl. 161-160.
Sutton, Thomas L.: *See—*
Butler, Amos R., and Sutton, Thomas L.,3,547,288.
Sutyak, John J.: *See—*
Stover, William L., and Sutyak, John J.,3,546,913.
Suzuki, Joji, and Kume, Makoto, to Nippon Sheet Glass Co., Ltd. Phototropic glass and method. 3,548,060, Cl. 106-47.
Suzuki, Shigeto, to Chevron Research Company. Foamed polyolefin composition using polyazidoformamides. 3,547,843, Cl. 260-2.5
Suzuki, Takeo: *See—*
Kinoshita, Kojiro, Suzuki, Takeo, and Okajima, Shigeki,3,548,338.
Svereika, Edward: *See—*
Pool, Stuart D., Meitl, Harold G., Rickerd, Calvin P., Svereika, Edward, and Middlesworth, Tommy A.,3,546,866.
Swain, James C., Thomas, David L., and Nagely, John l., to Westinghouse Air Brake Company. Percussive tool. 3,547,208, Cl. 173-136.
Swakon, Edward A., to Standard Oil Company (Indiana). Method of preparing polyureas from amine salts of monothiolcarbamic acid and ammonia or primary amine. 3,547,892, Cl. 260-77.5
Swanson, Bernard H., and Walker, John T. Target firearm with blow back breech bolt and safety latch therefor. 3,546,803, Cl. 42-16.
Swanson, Emery Carlton: *See—*
Dienst, Carl S., and Attebery, Jerry M., 3,547,900.
Swanson, Howard M. Orthopedic distraction instrument. 3,547,113, Cl. 128-84.
Swanson, William C.: *See—*
Monigal, Robert E., Eck, Robert N., Gossfeld, Walter A., and Swanson, William C.,3,548,399.
Swearingen, Judson S. Method of and apparatus for detecting deposition in turboexpander. 3,547,606, Cl. 48-191.
Sweco, Inc.: *See—*
Strom, John R., 3,546,821.
Sweeney, Richard Francis: *See—*
Anello, Louis Gene, Sweeney, Richard Francis, and Litt, Morton Herbert,3,547,861.
Swenck, George F.: *See—*
Bahen, John J., Jr., Swenck, George F., and Thomas, Jesse B.,3,548,071.
Swendsen, Jack, and Rogde, Sigurd Owen, to Wegner Machinery Corporation. Skip feed control for perforating machines. 3,546,991, Cl. 83-69.
Swindells, Frank E., and Lanier, William R., to Melpar, Inc. Solid state battery cells. 3,547,700, Cl. 136-83.
Swinehart, Merle R., to Cutler-Hammer, Inc. Proportional control systems using two capacitors in series in the firing circuit with the smaller one shunted by a current drain device. 3,548,290, Cl. 323-19.
Swing Co., Inc.: *See—*
Steele, Chester R., 3,547,289.
Switzer, Joseph L., to Day-Glo Color Corporation. Compositions for non-visible penetrant methods of flaw detection. 3,547,827, Cl. 252-301.2
Swivel Pool Corporation: *See—*
Lacson, Jose Job, 3,547,443.
Sybron Corporation: *See—*
Nunlist, Erwin J., 3,547,413.
Sylvania Electric Products, Inc.: *See—*
Ayotte, Ronald D., Fortin, Conrad M., and Waldo, Craig T., 3,548,242.
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B., 3,547,680.
Chenot, Charles F., and Dennis, Mahlon, 3,548,238.
Dayton, David R., and Gates, Paul E., 3,547,508.
DeMarinis, Joseph Vincent, Schuster, William Daniel, and Wheeler, Robert Charles, 3,548,081.
Lawthers, Dean D., and Pepino, George T., Jr., 3,547,681.
Schreurs, Willy P., 3,548,237.
Thomas, Joseph Edward, 3,548,097.
Waybright, George Cleveland, 3,548,099.
Syntex Corporation: *See—*
Fried, John H., and Edwards, John A., 3,547,911.
System Development Corporation: *See—*
Lepkowski, Joseph R., 3,546,778.
Sze, Morgan C., to Lummus Company, The. Chlorine values recovery and use. 3,548,016, Cl. 260-659.
Tabor, Robert W.: *See—*
Shomphe, George J., Tabor, Robert W., and Lalmond, Harold W.,3,547,725.
Taddei, Mary E.: *See—*
Lichty, Ivan F., Hopkins, James E., and Taddei, Mary E.,3,548,382.
Tager, Alexandr Semenovich: *See—*
Alexeenko, Alexandr Mikhailovich, Samorodov, Jury Dmitrievich, and Tager, Alexandr Semenovich,3,548,247.
Tagnon, Luc A., to Societe des Lunetiers, Temkine & Cie. Portable photocoagulator. 3,547,125, Cl. 128-303.1
Taguchi, Masahiko: *See—*
Hori, Haruo, Taguchi, Masahiko, Hoshino, Shoichiro, and Yumiki, Keiichi,3,547,646.
Takagi, Toshihiko, to Nippon Columbia Company, Limited. Color video signal generating system. 3,548,092, Cl. 178-5.4
Takagi, Toshihiko, and Yamazaki, Takashi, to Nippon Columbia Kabushikikaisha (Nippon Columbia Co. Ltd.). Color video signal generating device. 3,548,089, Cl. 178-5.4
Takasu, Masao: *See—*
Sando, Yoshikazu, and Takasu, Masao,3,546,902.
Takei, Yutaka: *See—*
Iwama, Masakuni, Inoue, Isaburo, and Takei, Yutaka,3,547,987.
Takubo, Tadashi, and Hachiya, Isao. Process for preparing trialkyltin halides. 3,547,965, Cl. 260-429.7
Talley, Lawrence M., to Watteredge Company, The. Differential spring conduit support. 3,548,077, Cl. 174-74.
Tamarin, Bernard, 1/3 to Mc Clure, Charles A., and 1/3 to Cutler, Morris. Lighter with gravity oriented safety. 3,547,566, Cl. 431-88.
Tambascio, Nickolas A., to Harvard Manufacturing Co., The. Bed frame with decorative trim strip. 3,546,725, Cl. 5-200.
Tamura, Saburo, and Jojima, Teruomi, to Sankyo Company Limited. Herbicidal composition and method. 3,547,617, Cl. 71-92.
Tanaka, Toshihiko, and Masuda, Shigeo, to Sumitomo Electric Industries, Ltd. Insulated wire and method of making the same. 3,547,788, Cl. 204-38.
Tandy, Thomas K., Jr., to Du Pont de Nemours, E. I., and Company. Fluorinated oil and water repellents. 3,547,856, Cl. 260-80.81
Tangorra, Giorgio, to Pirelli, Societa per Azioni. Process for making reinforced rubber articles. 3,547,726, Cl. 156-276.
Tani, Norihiro: *See—*
Oshima, Nobumasa, Enoki, Yoshio, and Tani, Norihiro,3,547,834.
Tanimura, Noboru: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, and Tanimura, Noboru,3,547,883.
Tanzer, John J. Adjustable display hook. 3,547,392, Cl. 248-360.
Tao, Ting Chang, to Fram Corporation, mesne. Differential pressure indicator. 3,547,069, Cl. 116-70.

Tappan Company, The: *See—*
Teague, Walter Dorwin, Jr., 3,547,507.
Tarassoff, Alexandre, to Telecommunications Radioelectriques, and Telephoniques T.R.T. Transmission line repeater station for two signals travelling in opposite directions. 3,548,120, Cl. 179-170.4
Tarpinian, Haig D., and Osius, Adolph Paul, to Uniroyal, Inc. Tire testing apparatus. 3,546,936, Cl. 73-146.
Tarte, May C. Artificial leg. 3,546,712, Cl. 3-24.
Tashiro, Shunji: *See—*
Yamato, Shigeki, Maruyama, Yasushi, and Tashiro, Shunji,3,548,108.
Tasse, Eugene J., to Taylor Industries, Inc. Carpet stretcher. 3,547,479, Cl. 294-8.6
Tate, Charles G., Jr. Calendar attachment for a wrist watch band. 3,546,800, Cl. 40-107.
Tayler, Frederick H. Mobile cranes. 3,547,278, Cl. 212-49.
Taylor Forge, Inc.: *See—*
Remus, Melvin Edward, and McNair, Franklin Chaloner, 3,548,141.
Taylor Garage Doors, Inc.: *See—*
Kempel, John J., 3,546,845.
Taylor Industries, Inc.: *See—*
Tasse, Eugene J., 3,547,479.
Taylor, James George: *See—*
Warman, Bloomfield James, Taylor, James George, and Richardson, Keith,3,548,406.
Taylor, John J., and Wale, Edward H., to USM Corporation. Method of making mold assemblies. 3,547,602, Cl. 29-416.
Taylor Winfield Corporation, The: *See—*
Riley, Joseph J., 3,548,144.
Teagno, Wladimiro, and Iskra, Nerino, to AMP Incorporated, mesne. Electrical connector. 3,548,368, Cl. 339-252.
Teague, Walter Dorwin, Jr., to Tappan Company, The. Pull-out cabinet. 3,547,507, Cl. 312-246.
Teckton Inc.: *See—*
Stevenson, Peter N., 3,547,661.
Tedeco Verpacking G.m.b.H.: *See—*
Hemmes, Pieter, 3,547,338.
Teeg Research, Inc.: *See—*
Teeg, Robert O., and Hallman, Robert W., 3,547,594.
Teeg, Robert O., and Hallman, Robert W., to Teeg Research, Inc. Process for producing low thermal hysteresis vanadium dioxide. 3,547,594, Cl. 23-293.
Teikoku Dempa Kabushiki Kaisha: *See—*
Nakamori, Shinji, 3,547,447.
Telecommunications Radioelectriques: *See—*
Tarassoff, Alexandre, 3,548,120.
Teledyne, Inc.: *See—*
McGrew, John W., 3,547,706.
Smith, Marvin B., 3,547,896.
Telefonaktiebolaget L M Ericsson: *See—*
Sundstrom, Ingvar Georg, 3,548,296.
Telefonaktiebolaget LM Ericsson: *See—*
Insulander, Carl Elis, 3,547,364.
Lundkvist, Karl Axel, 3,548,110.
Telephoniques T.R.T.: *See—*
Tarassoff, Alexandre, 3,548,120.
Terada, Yukio: *See—*
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi,3,547,823.
Mihara, Toshihiro, Terada, Yukio, and Hirota, Eiichi,3,547,824.
Teranishi, Toshio: *See—*
Yamaguchi, Shinichi, Teranishi, Toshio, Ogura, Satoshi, and Sano, Shiro,3,547,783.
Texaco Inc.: *See—*
Hebert, Gayle P., Perciful, Jerry C., Startz, Ambrose J., and Griswold, Haley E., 3,548,017.
Kampfer, John G., 3,548,271.
McCoy, Frederic C., and Knowles, Edwin C., 3,547,821.
Nolting, Jerry L., 3,548,300.
Pogonowski, Ivo C., 3,546,885.
Texas Instruments, Incorporated: *See—*
Hirsbrunner, Hans G., 3,548,293.
Textron Inc.: *See—*
Martin, Steven T., 3,546,762.
Thal, Herbert L., Jr., and Mayer, Charles B., to General Electric Company. Biconical log periodic amplifier. 3,548,246, Cl. 315-3.5
Thate, Kurt: *See—*
Baron, Rudolf, and Thate, Kurt,3,547,022.
Themy, Tim: *See—*
Gwynn, Ross M., and Themy, Tim,3,547,600.
Theodores, Peter, to Ames Textile Corporation. Apparatus and method for fluid injection of yarn packages. 3,547,575, Cl. 8-149.1
Thetford Corporation: *See—*
Sargent, Ronald J., 3,546,752.
Theurer, Josef: *See—*
Plasser, Franz, and Theurer, Josef,3,547,037.
Plasser, Franz, and Theurer, Josef,3,547,039.
Thiele, Walter. Device for indicating the temperature of a baby bottle. 3,546,942, Cl. 73-374.
Thiokol Chemical Corporation: *See—*
Cook, George W., 3,546,948.
Thomas & Betts Co., Inc., The: *See—*
Eppler, Daniel, 3,548,366.
Thomas & Betts Corporation: *See—*
Mariani, Remo, 3,547,327.
Sosinski, Charles William, 3,547,274.
Thomas, David L.: *See—*
Swain, James C., Thomas, David L., and Nagely, John l.,3,547,208.
Thomas, Harold Edward. Fuel converter. 3,547,416, Cl. 261-90.
Thomas, Jesse B.: *See—*
Bahen, John J., Jr., Swenck, George F., and Thomas, Jesse B.,3,548,071.
Thomas, Joseph Edward, to Sylvania Electric Products, Inc. Transistorized control circuitry for television receiver. 3,548,097, Cl. 178-7.3
Thomas, Martha J. B.: *See—*
Bouchard, Andre C., Gaudet, Peter W., and Thomas, Martha J. B.,3,547,680.
Thomasian, Harvey A., to Lowell Corporation. Double acting torque wrench. 3,546,932, Cl. 73-139.
Thompson, Josephus B., deceased (by Stade, K. E., administrator), to Columbia Broadcasting System, Inc. Foot-operated percussion musical instrument. 3,548,068, Cl. 84-422.
Thornburg, Russell B., to Global Marine Inc. Anti-slack device for crane-operated buckets and the like. 3,547,276, Cl. 212-1.
Thornton Products Company: *See—*
Gibson, Philip Terry, Hull, Henry Elwin, and Larimer, Sherman Andrew, 3,546,969.
Thornton, Richard C. Football game with superimposed cards. 3,547,441, Cl. 273-94.
Ticknor, Winton A., to Owens-Corning Fiberglas Corporation. Coaxial heat exchange apparatus with spacers. 3,547,202, Cl. 165-81.
Time Incorporated: *See—*
Sorensen, Robert L., Brodhag, Earle E., and Casanova, John V., 3,546,741.
Timpe, Atwood M. Subterranean irrigation. 3,546,884, Cl. 61-13.
Tinetti, Mario. Electromechanical apparatus for imparting an oscillating movement to rocking chairs and the like. 3,546,950, Cl. 74-61.
Tischler, Edward J.: *See—*
Kryzer, Benjamin H., and Tischler, Edward J.,3,547,151.
Titangesellschaft m.b.H.: *See—*
Hitzemann, Gerhard, Kulling, Achim, Luginsland, Hans-Hermann, and Weber, Helmut, 3,547,671.
Titt, Georg, to Muller, George, Fa., Kugellagerfabrik. One-way engaging clutch having wedging blocks. 3,547,239, Cl. 192-45.1
Tittmann, Egon, to Bosch, Robert GmbH. Fluid flow control system. 3,547,559, Cl. 417-279.
Tocker, Stanley, to Du Pont de Nemours, E. I., and Company. Foamable resin composition and process for preparing foamed resins. 3,547,839, Cl. 260-2.5
Togneri, Mauro G., to Fluor Corporation, Ltd., The. Process controlling digital to analog converter. 3,548,169, Cl. 235-92.
Tokita, Tetsuo, and Miyaoka, Senri, to Sony Corporation. Misconvergence compensation for sing gun, plural beam type color TV picture tube. 3,548,248, Cl. 315-13.
Tokos, George M., and Tonn, Edward G., to Crown Zellerbach Corporation. Thermoplastic packaging films having a difference in slip characteristics between their two outer surfaces. 3,547,754, Cl. 161-165.
Tokura, Hiroshi: *See—*
Hori, Haruo, Hoshino, Shoichiro, and Tokura, Hiroshi,3,547,634.
Tokyo Shibiura Electric Co., Ltd.: *See—*
Inagaki, Junpei, and Kuniyoshi, Masateru, 3,548,275.
Tollerud, Elmer, and Johnston, Leonard H., Jr. Prolonged-action stoplight switches. 3,548,124, Cl. 200-34.
Tomita, Masao, and Hino, Tetsuo, to Matsushita Electric Industrial Company Limited. Noise reduction circuit and system. 3,548,334, Cl. 330-124.
Tomlin, James J., to LTV Electrosystems, Inc., mesne. Error detector for frequency changers. 3,548,175, Cl. 235-153.
Tompkins, Edwin H.: *See—*
Kinney, Layton C., and Tompkins, Edwin H.,3,547,629.
Toms River Chemical Corporation: *See—*
Rebhahn, Robert Willibald Johann, and Bannister, Derek William, 3,547,774.
Tonn, Edward G.: *See—*
Tokos, George M., and Tonn, Edward G.,3,547,754.
Torres, Jose C. Bubble film oxygenator. 3,547,591, Cl. 23-258.5
Toto, Louis R.: *See—*
Pusey, Philip, and Toto, Louis R.,3,547,309.
Tourdot, Jacques, and Breiss, Jean, l'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, and Societe d'Etudes Chimiques Pour l'Industries et l'Agriculture. Process for the bleaching of textiles. 3,547,573, Cl. 8-108.
Towler Hydraulics Limited: *See—*
Cockeram, David A., 3,547,156.
Toyo Kogyo Company Limited: *See—*
Yoshimura, Shigetake, 3,546,878.
Toyo Seikan Kabushiki Kaisha: *See—*
Otsuka, Shigeru, and Osada, Hiromitsu, 3,547,657.
Trainer, Donald J. Adjustable base. 3,546,918, Cl. 72-446.
Trammell, Earl M., Jr. Litter disposal unit in an automobile seat assembly. 3,547,326, Cl. 224-42.42
Trans-Lux Corporation: *See—*
Holloman, Charles J., 3,548,405.
Trautvetter, Werner: *See—*
Bernhardt, Gunther, Buning, Robert, Bierwirth, Egon, and Trautvetter, Werner,3,547,784.

Trenner, Idamae G.: *See—*
Kelley, Kane L., Trenner, Idamae G., and Silber, Robert H.,3,548,057.
Trevino, Herbert F. Sawhorse trestle. 3,547,227, Cl. 182-185.
Trewhella, Raymond Matthew: *See—*
Buice, Joel B., and Trewhella, Raymond Matthew,3,548,265.
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Chlorinating polyethylene. 3,547,866, Cl. 260-949.
Tringali, Alfred M.: *See—*
Weisfeld, Joseph, Tringali, Alfred M., Ackerman, Joseph F., and Bernardo, Joseph J.,3,548,026.
Troxler, Franz, and Seemann, Fritz, to Sandoz Ltd., a/k/a Sandoz AG. Aromatic propylamino cyano compounds. 3,547,974, Cl. 260-465.
Trudgen, Gary A.: *See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.
Truett, Henry E. Rear view mirror for trucks. 3,546,963, Cl. 74-503.
Truman, Norman Nathan: *See—*
Scarrott, Gordon George, and Truman, Norman Nathan,3,548,115.
TRW Inc.: *See—*
Barton, Millard V., 3,546,925.
Bulpitt, Thomas H., and Fladlien, David G., 3,547,542.
Colletti, John B., and Dumeah, Peter James, 3,547,474.
Gardner, James B., 3,548,211.
Mackey, Robert E., 3,547,375.
Stoner, Eugene M., 3,547,001.
Tungate, William H., to American Fire Pump Company. Positive clutch with friction synchronizing means. 3,547,241, Cl. 192-53.
Tunis, Cyril J.: *See—*
Ide, Eleanor R., Marcus, Mitchell P., and Tunis, Cyril J.,3,548,202.
Tunis, Cyril J., to International Business Machines Corporation. Adaptive information retrieval system. 3,548,385, Cl. 340-172.5
Tunner, Alex, to Canadian Industries Limited. Heat sealing device with means for moderating the temperature of the seal boundary. 3,547,743, Cl. 156-583.
Turbo Refrigerating Company: *See—*
Hagen, William F., and Douglas, Edward O., 3,546,896.
Turner, Jennings. Universal driving and clamp mounting structure. 3,546,985, Cl. 82-40.
Turpin, Alexander J., to Smoke-Bin Manufacturing Incorporated. Flare stack combustion tip. 3,547,567, Cl. 431-202.
Twyford, Robert H., to Mechanical Enterprises Incorporated. Character adding device for typewriting equipment. 3,547,247, Cl. 197-180.
UCB (Union Chimique-Chemische Bedrijven) S.A.: *See—*
Arad, Yael, Levy, Moshe, Vofsi, David, and Rosen, Haim, 3,547,975.
Uebe, Rudolf: *See—*
Weissermel, Klaus, Uebe, Rudolf, Pfister, Horst, and Brinkmann, Ludwig,3,547,872.
Weissermel, Klaus, Uebe, Rudolf, Kern, Rudolf, and Brinkmann, Ludwig,3,547,873.
Uehara, Goro: *See—*
Kobayashi, Kingo, and Uehara, Goro,3,547,668.
Ugine Kuhlmann: *See—*
Lunet, Francoise Marie Germaine, Kopp, Georges, Vittecoq, Rene Raymond Julien, and Laneres, Jacques Pierre, 3,547,572.
Uhde, Friedrich, GmbH: *See—*
Schucker, Josef W.O., Glos, Franz, and Nemetz, Willi, 3,547,799.
Uhing, Eugene H.: *See—*
Sorstokke, Harold E., Stamm, Walter, and Uhing, Eugene H.,3,548,040.
Uhtenwoldt, Herbert R., Knorring, Richard T., and Johnson, Glenn D., to Heald Machine Company, The. Grinding machine. 3,546,823, Cl. 51-215.
Ulbing, Otmar M., to Ingersoll-Rand Company. Fluid control mechanism. 3,547,155, Cl. 137-625.25
Ultrasonic Systems, Inc.: *See—*
Balamuth, Lewis, 3,547,110.
Unidine International Corporation: *See—*
Allen, Carling D., 3,547,484.
Unidynamics/Phoenix: *See—*
Hosang, Allan F., 3,546,999.
Union Carbide Corporation: *See—*
Anderson, John E., and Jackson, John E., 3,548,336.
Bhasin, Madan Mohan, and Williamson, Kenneth Dale, 3,548,018.
Blomgren, George E., and Jackson, George W., 3,547,703.
Chiu, Herman S., Kambara, Frank T., Rasmussen, Jerome J. M., and Voo, David, 3,547,662.
Evanega, George R., 3,547,936.
Hauser, Charles F., 3,547,960.
Jones, Allen P., Jr., and Bryant, George M., 3,548,047.
Kirkpatrick, George Fred, 3,547,341.
McKeon, James E., and Bryant, David R., 3,547,982.
McWhirter, John R., 3,547,811.
McWhirter, John R., 3,547,812.
McWhirter, John R., 3,547,814.
McWhirter, John R., 3,547,815.
Robinson, Ernest K., and McWhirter, John R., 3,547,813.
Union Oil Company of California: *See—*
Brattesani, Donald N., 3,548,021.
Hansford, Rowland C., 3,547,807.
Hansford, Rowland C., 3,547,808.
Olivier, Kenneth L., 3,547,964.
Young, Donald C., 3,547,984.
Union Special Machine Company: *See—*
Matias, James J., and Attwood, John G., 3,547,738.
Union Tank Car Company: *See—*
Kryzer, Benjamin H., and Tischler, Edward J., 3,547,151.
Uniroyal Englebert France S.A.: *See—*
Leblond, Jean, 3,547,286.
Leblond, Jean, 3,547,732.
Leblond, Jean, 3,547,733.
Uniroyal, Inc.: *See—*
Hewitt, Eugene E., 3,547,741.
Kulka, Marshall, and Harrison, William A., 3,547,917.
Loveless, Frederick C., 3,547,855.
Murray, Allan G., 3,547,857.
Tarpinian, Haig D., and Osius, Adolph Paul, 3,546,936.
Uniroyal Limited: *See—*
Chapman, Donald, 3,546,708.
United Aircraft Corporation: *See—*
Dayton, Robert E., 3,548,397.
Jensen, Harry T., 3,547,555.
Mangum, Andrew N., and Hyde, Wallace R., 3,547,601.
Schaefer, Carl F., 3,547,522.
United Kingdom Atomic Energy Authority: *See—*
Cook, Reginald Kenneth, and Hosegood, Samuel Brittan, 3,547,187.
Keats, Albert Brian, 3,548,379.
Longstaff, Brian, 3,547,420.
Owen, Richard Bruce, Salmon, Percy George, and Awcock, Mervyn Leslie, 3,548,213.
United Merchants and Manufacturers, Inc.: *See—*
Burke, Robert L., Jr., 3,547,852.
United States Borax & Chemical Corporation: *See—*
Fish, Richard H., and Newsom, Herbert C., 3,547,971.
United States of America
Agriculture: *See—*
Franklin, William E., Mack, Charles H., and Rowland, Stanley P., 3,547,574.
Graham, Robert P., Huxsoll, Charles C., Hart, Marcus R., and Weaver, Merle L., 3,547,173.
Army: *See—*
Black, Donald V., Jamtaas, Albert D., Radey, Ross T., and Wall, John K., 3,547,031.
Brothers, Jack, 3,547,036.
Kamp, Ewald A., and Pinsky, Joseph, 3,547,030.
Popovitch, Dragolyoub, Nystrom, Roy B., and Eneman, Melvin, 3,547,034.
Simpson, Leo, 3,548,285.
Sinclair, Kenneth F., 3,548,207.
Whetter, Lloyd A., 3,548,212.
Willett, Colin S., 3,548,335.
Atomic Energy Commission: *See—*
Anderson, Norman G., 3,547,547.
Bokros, Jack C., Chin, Jack, and Price, Robert J., 3,547,676.
Eissenberg, David M., 3,547,185.
Grijalva, Ramon J., and Queener, George F., 3,546,996.
Petit, George S., and Wright, Ralph R., 3,547,709.
Randall, William L., 3,547,796.
Sandoval, Charles A., 3,548,352.
Schultz, Warner W., and Jones, Stanley L., 3,548,191.
Wang, James Y. N., and Figlik, Kenneth G., 3,547,685.
Interior: *See—*
Andrews, Richard L., Smith, Gerald R., Kenahan, Charles B., and Schlain, David, 3,547,789.
Pechenick, William, and Gelblum, Gideon P., 3,547,579.
National Aeronautics and Space Administration, Administrator, with respect to an invention of:
Albright, Charles F., and Gillerman, Joseph B. Water management system and an electrolytic cell therefor. 3,547,801, Cl. 204-305.
Gardner, James N., and Nielson, Thomas L. Technique of elbow bending small jacketed transfer lines. 3,546,917, Cl. 72-369.
Lim, Lawrence Y. Signal processing apparatus for multiplex transmission. 3,548,107, Cl. 179-15.
Muraca, Raffaele F. Apparatus for testing polymeric materials. 3,546,920, Cl. 73-17.
Ramme, Frank B. Flexible conductive disc electrode. 3,547,105, Cl. 128-2.06
Van Alstyne, Earl M. Spacecraft. 3,547,376, Cl. 244-1.
National Aeronautics and Space Administration: *See—*
Crews, John H., Jr., and Davis, William T., 3,546,931.
Shigemoto, Fred H., 3,547,540.
Navy: *See—*
Bowman, Dale W., 3,547,527.
Chaimson, Robert K., 3,546,949.
Fletcher, David C., and Nicholas, Edward S., 3,546,923.
Javan, Ali, Cordover, Ronald H., and Bonczyk, Paul A., 3,547,524.
Kramer, Max O., 3,547,068.
Kush, Louis J., Jr., 3,547,061.
Pearson, Roy E., 3,548,112.

...oberts, Henry, Epstein, Maurice, and Heier, Earl, 3,548,320.
...hitehouse, Harper John, 3,548,306.
...Wing, Charles G., 3,546,943.
Ur...de Corporation: *See—*
...ourassa, Francis J., and Greiff, Paul, 3,548,268.
U...versal American Corporation: *See—*
VanFleet, Jack F., 3,546,977.
Universal Corrugated Box Machinery Corporation: *See—*
Lopez, John, 3,547,024.
Universal Harvester Co., Inc.: *See—*
Connolly, Thomas O'D., 3,546,863.
Universal Oil Products Company: *See—*
Hardison, Leslie C., Pegg, Edward H. R., Reedy, Dom E., and Barr, James M., 3,546,851.
Mc Larty, Jack L., 3,547,160.
Urban, Peter, 3,547,585.
University of California, The Regents of the: *See—*
Campbell, Andrew J., 3,546,819.
Unterstenhofer, Gunter: *See—*
Fest, Christa, Hammann, Ingeborg, Stendel, Wilhelm, and Unterstenhofer, Gunter,3,547,920.
Lorenz, Walter, Hammann, Ingeborg, and Unterstenhofer, Gunter,3,547,946.
Kuhle, Engelbert, Klauke, Erich, Grewe, Ferdinand, Hammann, Ingeborg, Kaspers, Helmut, Unterstenhofer, Gunter, and Scheinpflug, Hans,3,547,970.
Upjohn Company, The: *See—*
Gerstin, Harry, 3,546,773.
Smith, Edwin W., 3,546,946.
Wiley, Paul F., 3,547,905.
Urban, Era E. Mulching attachment. 3,547,204, Cl. 172-538.
Urban, Peter, to Universal Oil Products Company. Combination of a hydrocarbon conversion process with a waste water treating process. 3,547,585, Cl. 23-224.
Urda, Paul: *See—*
Clapp, John M., and Urda, Paul,3,546,976.
U.S. Expansion Bolt Company: *See—*
Helderman, James F., 3,547,333.
U.S. Industries, Inc.: *See—*
Bruns, Eilert F., 3,546,967.
U.S. Philips Corporation: *See—*
Althuber, Horst, 3,548,113.
Cornelissen, Bernardus Henricus Josef, 3,548,082.
De Bitetto, Dominick John, 3,547,510.
Driedijk, Johannes, Van Leeuwen, Johannes Aloysisus, and Stover, Johannes Hinderikus, 3,548,235.
Fokker, Herman, and Meijer, Roelf Jan, 3,546,876.
Guennou, Serge, Lefevre, Claude, and Maugis, Raymond, 3,548,316.
Kroner, Klaus, 3,548,084.
Schulten, Gunter, 3,547,543.
Spiessens, Raymonds Francois, 3,548,240.
Spyra, Walter Horst Ernst, 3,548,098.
Strom, Johan Paul, and Wasterlid, Nils Arne Erland, 3,548,312.
van Beukering, Henricus Cornelis Johannes, 3,546,877.
van der Aa, Herman Henricus Maria, 3,547,005.
Van Gerwen, Petrus Josephus, 3,548,313.
Van Gurp, Wilhelmus Adrianus, Agterbosch, Johannes, and Minczeles, Roger, 3,548,086.
van Roosmalen, Johannes Hendrikus Theodorus, and Vermulst, Joannes Cornelis, 3,548,250.
U.S. Plywood-Champion Papers Inc.: *See—*
Cottrell, Edward D., 3,547,742.
Luebs, Donald F., 3,546,843.
U.S. Textile Machine Company: *See—*
Baglino, John P., and Rappenglueck, Joseph R., 3,547,363.
USM Corporation: *See—*
Herdeg, Donald F., and Brett, Oliver C., Jr., 3,547,432.
Taylor, John J., and Wale, Edward H., 3,547,602.
Woodward, Walter R., 3,548,227.
Ustin, Martin D., to Buchanan Electrical Products Corporation. Device for actuating a limit control element. 3,546,954, Cl. 74-107.
Usui, Yasumasa. Portable warming appliance for burning solid fuel. 3,547,100, Cl. 126-206.
Uta-Patentverwaltungsgesellschaft mbH: *See—*
Hussmann, Peter, 3,547,179.
Vaccaro, Angelo, to Columbia Ribbon and Carbon Manufacturing Co., Inc. Character recognition system. 3,548,374, Cl. 340-146.3
Vaccaro, Angelo, to Columbia Research Corporation. Automatic character reading system. 3,548,377, Cl. 340-146.3
Vacuum Instrument Corporation: *See—*
Nemeth, Robert C., 3,548,188.
Vadas, John F., and Liepins, Sigurds, to Crosman Arms Company, Inc. Gas-operated revolver. 3,547,095, Cl. 124-11.
Vallauri, Maurizio: *See—*
Parodi, Luciano, and Vallauri, Maurizio,3,548,273.
Valley, Irvin L. Tire chain applicator for dual wheels. 3,547,177, Cl. 152-220.
Valley Manufacturing Company: *See—*
Feddick, Earl W., and Wassmann, Gustave, 3,547,439.
Van Alstyne, Earl M.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,547,376.
Van Amerongen, Gerrit J., to Shell Oil Company. Rubber articles reinforced with fibrous polylactones. 3,547,764, Cl. 161-184.
Van Ausdall, Carl. Transmission. 3,546,951, Cl. 74-15.86
Van Baush, Edward H., to Hydrocarbon Research, Inc. Cryogenic process. 3,546,892, Cl. 62-13.
Van Berkum, Robert A. Fluid logic pack. 3,547,139, Cl. 137-81.5
van Beukering, Henricus Cornelis Johannes, to U.S. Philips Corporation, mesne. Hot-gas piston engine. 3,546,877, Cl. 60-24.
Van Buren, William L., to Ronthor Reiss Corporation. Drawer filing system. 3,547,311, Cl. 220-223.
van der Aa, Herman Henricus Maria, to U.S. Philips Corporation, mesne. Device with rolling diaphragm seal separating gas and liquid. 3,547,005, Cl. 92-83.
van der Eijcken, Cyriel Alfons Maria: *See—*
Godefroi, Erik Fred, and van der Eijcken, Cyriel Alfons Maria,3,547,942.
Vander Velde, Charles F.: *See—*
Booty, Donald J., Jauch, Christian M., Vander Velde, Charles F., and Waage, Jack C.,3,546,874.
Van Der Windt, Leendert Johannes, and Jansen, Johannes, to Brooks Instrument N.V. Mixing device. 3,547,410, Cl. 259-4.
Van Dine, Gilbert A., to Bell Telephone Laboratories, Incorporated. Rolamite pushbutton switch. 3,548,138, Cl. 200-159.
VanFleet, Jack F., to Universal American Corporation, formerly Robfre Manufacturing Corporation. Automatic screw machine tooling. 3,546,977, Cl. 77-23.
Van Geet, Anthony L. Temperature sensor for a nuclear magnetic resonance spectrometer system. 3,548,297, Cl. 324-0.5
Van Gerwen, Petrus Josephus, to U.S. Philips Corporation, mesne. Bivalent pulse transmitter with output spectrum having prescribed transfer function. 3,548,313, Cl. 325-141.
Van Gurp, Wilhelmus Adrianus, Agterbosch, Johannes, and Minczeles, Roger, to U.S. Philips Corporation, mesne. Colour signal separating arrangement for a PAL-SECAM colour television receiver. 3,548,086, Cl. 178-5.4
Van Leeuwen, Johannes Aloysisus: *See—*
Driedijk, Johannes, Van Leeuwen, Johannes Aloysisus, and Stover, Johannes Hinderikus,3,548,235.
van Roosmalen, Johannes Hendrikus Theodorus, and Vermulst, Joannes Cornelis, to U.S. Philips Corporation. Apparatus having a television camera tube and television camera tube for use in such an apparatus. 3,548,250, Cl. 315-31.
Van Selus, Samuel H.: *See—*
Fratzke, Harold A., Gniffke, Glenn D., and Van Selus, Samuel H.,3,547,290.
Vapor Corporation: *See—*
Rabindran, Karavattuveetil George, 3,548,155.
Varian Associates: *See—*
Putz, John L., 3,548,344.
Varnela, Veijo V., to Angstrom, Inc., mesne. Spectrometer apparatus for sequentially measuring ratios of selected spectral intensities. 3,547,541, Cl. 356-81.
Vavilov, Boris Pavlovich: *See—*
Shumakov, Valery Ivanovich, Ivanov, Evgeny Alexandrovich, Patsev, Boris Nikolaevich, Mats, Matvei Mikhailovich, Konoplev, Alexei, and Vavilov, Boris Pavlovich,3,546,710.
Veach, John S., to Sperry Rand Corporation. Take-up reel for use in a self threading system. 3,547,368, Cl. 242-74.2
VEB Carl Zeiss Jena: *See—*
Winter, Ernst, Riegler, Heinz, Leo, Ernst, and Wochnik, Lothar, 3,546,955.
Veb Optima Buromaschinenwerk Erfurt: *See—*
Kuhne, Ingeburg, and Hartung, Horst, 3,547,246.
Velsicol Chemical Corporation: *See—*
Richter, Sidney B., 3,547,977.
Ross, Frank, 3,547,934.
Veneraki, Boris Sokratovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.
Ventron Corporation: *See—*
Wade, Robert C., 3,547,818.
Venturello, Carlo: *See—*
Chiusoli, Gian Paolo, Venturello, Carlo, Ferraris, Mario, and Merzoni, Sergio,3,547,981.
Veo, Lawrence E.: *See—*
Horner, Frank Walter, Decker, Erwin Louis, and Veo, Lawrence E.,3,546,787.
Vepa AG: *See—*
Fleissner, Heinz, 3,546,901.
Verdier, Henri, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Tire cover. 3,547,175, Cl. 152-209.
Vereinigte Flugtechnische Werke G.m.b.H.: *See—*
Meier, Hans Justus, 3,547,349.
Verhoeven, Albert F., to Werner Lehara, Inc. Dough depositing machine. 3,547,050, Cl. 107-27.
Vermeulen, Johannes C., to International Business Machines Corporation. System for detection of digital data by integration. 3,548,327, Cl. 329-50.
Vermot, Andre: *See—*
Olivier, Herve, and Vermot, Andre,3,547,595.
Vermulst, Joannes Cornelis: *See—*
van Roosmalen, Johannes Hendrikus Theodorus, and Vermulst, Joannes Cornelis,3,548,250.

Vernaleken, Hugo, Malamet, Georg, Botta, Artur, Bottenbruch, Ludwig, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of high molecular weight polyamides from N-carbaryloxyamino carboxylic acids. 3,547,895, Cl. 260-78.
Versitron, Inc.: *See—*
Coffin, David Painter, Jr., 3,548,200.
Versluis, Roeland, to Shell Oil Company. Apparatus for closing a pressure vessel. 3,547,298, Cl. 220-3.
Vetter, Hans-Joachim: *See—*
Landauer, Franz, and Vetter, Hans-Joachim,3,547,863.
Vici, Verecondo. Apparatus for wrapping. 3,547,737, Cl. 156-468.
Viel, Edmond Pierre Robert. Collapsible portable apparatus for therapeutic elongations. 3,547,111, Cl. 128-75.
Viglione, Gaetano T. Plating tarnish-resistant bright white alloy. 3,547,626, Cl. 75-151.
Villaneau, Michel Jean-Charles, to Societe de Travaux pour la Construction et l' habitat industriels Tracoba. Prefabricated reinforced concrete flooring slabs and floors as thus formed. 3,546,830, Cl. 52-100.
Vishnikin, Alexandr Ivanovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shipovalenko, Alexandr Grigorievich,3,547,041.
Vit, Jaroslav, 1/2 to National Patent Development Corporation. Vibrator drive device. 3,548,225, Cl. 310-38.
Vittecoq, Rene Raymond Julien: *See—*
Lunet, Francoise Marie Germaine, Kopp, Georges, Vittecoq, Rene Raymond Julien, and Laneres, Jacques Pierre,3,547,572.
Vladinets, Georgy Ivanovich: *See—*
Bugaenko, Boris Andreevich, and Vladinets, Georgy Ivanovich,3,547,066.
V-M Corporation: *See—*
Kern, John T., 3,547,446.
Vofsi, David: *See—*
Arad, Yael, Levy, Moshe, Vofsi, David, and Rosen, Haim,3,547,975.
Vogel, Carl-Heinz, to Siemens Aktiengesellschaft. Holder for a crystalline rod in apparatus for crucible-free zone melting. 3,547,428, Cl. 269-97.
Vogel, John V.: *See—*
Barkman, James H., Jr., Jorda, Robert M., and Vogel, John V.,3,547,803.
Voitekh, Alexandr Arsenievich, and Lir, Erikh Viktorovich. Three-phase asynchronous electric motor. 3,548,277, Cl. 318-224.
Voith Getriebe KG.: *See—*
Weinrich, Hellmut, 3,547,235.
Voo, David: *See—*
Chiu, Herman S., Kambara, Frank T., Rasmussen, Jerome J. M., and Voo, David,3,547,662.
Voogd, Wierd: *See—*
Kohler, Samuel H., and Voogd, Wierd,3,546,982.
Vulcan Iron Works, Inc.: *See—*
Warrington, Henry G., 3,547,207.
VVB Elektrogeraet: *See—*
Foerste, Walter, Ostermay, Gottfried, Schreiber, Joachim, Noack, Werner, and Schiewart, Hans, 3,548,232.
Waage, Jack C.: *See—*
Booty, Donald J., Jauch, Christian M., Vander Velde, Charles F., and Waage, Jack C.,3,546,874.
Wabash Magnetics, Inc.: *See—*
McArthur, Lester J., 3,548,263.
Wachenheim, Howard W., to Engineering & Design Services Inc. Landing gear assembly. 3,547,425, Cl. 267-64.
Wade, Robert C., to Ventron Corporation. Alcoholic ionic compositions containing a metal selected from Hg(11), Cu(11), Ag(1), Cd(11), Ni(11), Zn(11) and Co(11). 3,547,818, Cl. 252-1.
Wagener, Anthony P., to Sherwin-Williams Company, The. Conditioning process for producing gamma phase quinacridone. 3,547,925, Cl. 260-279.
Wagener, Anthony P., to Sherwin-Williams Company, The. Conditioning process for producing beta phase quinacridone. 3,547,926, Cl. 260-279.
Wagener, Anthony P., and Meisters, George J., to Sherwin-Williams Company, The. 4,11-Dichloroquinacridone pigments. 3,547,927, Cl. 260-279.
Wagener, Anthony P., and Meisters, George J., to Sherwin-Williams Company, The. Process for preparing 4,11-dichloroquinacridone pigments. 3,547,928, Cl. 260-279.
Wagener, Anthony P., and Meisters, George J., to Sherwin-Williams Company, The. 4,11-Dichloroquinacridone pigments. 3,547,929, Cl. 260-279.
Wagner Electric Corporation: *See—*
Bueler, Richard C., 3,547,498.
Wagner, John W., to Xerox Corporation. Pneumatic cut sheet feeder. 3,547,431, Cl. 271-11.
Wagner-Jauregg, Theodor: *See—*
Schatz, Franz, Wagner-Jauregg, Theodor, and Jahn, Ulrich,3,547,916.
Waldo, Craig T.: *See—*
Ayotte, Ronald D., Fortin, Conrad M., and Waldo, Craig T.,3,548,242.
Waldvogel, Guy: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf,3,547,910.
Wale, Edward H.: *See—*
Taylor, John J., and Wale, Edward H.,3,547,602.
Walford, Gordon L.: *See—*
Shen, Tsung-Ying, and Walford, Gordon L.,3,547,948.
Walker, George A.: *See—*
Okcuoglu, Selahattin A., and Walker, George A.,3,547,245.
Walker, John T.: *See—*
Swanson, Bernard H., and Walker, John T.,3,546,803.
Wall Colmonoy Corporation: *See—*
Bredzs, Nikolajs, and Miller, Forbes M., 3,547,673.
Wall, John K.: *See—*
Black, Donald V., Jamtaas, Albert D., Radey, Ross T., and Wall, John K.,3,547,031.
Wallace, Leonard J.: *See—*
Carnevale, Richard J., Curran, John E., Dohanich, George J., Jr., O'Donnell, John F., Speer, William H., Trudgen, Gary A., and Wallace, Leonard J.,3,548,178.
Walstrom, Leslie R., and King, Wayne J., to Fabri-Tek, Incorporated. Magnetic head mount with leaf springs and pneumatic actuation. 3,548,392, Cl. 340-174.1
Walter, Charles R., Jr.: *See—*
Peterson, Arthur F., and Walter, Charles R., Jr.,3,547,614.
Walter, Florian A.: *See—*
Studinski, Robert A., and Walter, Florian A.,3,547,300.
Walter, John F., to Lockheed Aircraft Corporation. Routing machine. 3,547,002, Cl. 90-13.1
Walworth, Bryant Leonidas: *See—*
Diehl, Robert Eugene, and Walworth, Bryant Leonidas,3,547,935.
Wang, Cheng-Hua: *See—*
Shebanow, Michael S., and Wang, Cheng-Hua,3,547,345.
Wang, Chun-Shan, and McGee, Thomas W., to Dow Chemical Company, The. Phenoxyphenylphenoxarsines. 3,547,967, Cl. 260-440.
Wang, James Y. N., and Figlik, Kenneth G., to United States of America, Atomic Energy Commission. Method of inhibiting the corrosion of tantalum by liquid lithium. 3,547,685, Cl. 117-114.
Wanskuck Company: *See—*
Schillebeeckx, Konrad C., 3,546,872.
Wantosch, Horst: *See—*
Rasch, Erhard, and Wantosch, Horst,3,548,241.
Ward, Bruce K. Expandable auto camper. 3,547,480, Cl. 296-23.
Ward, Gregory F., to Shell Oil Company. High impact polystyrene and an acrylate polymer. 3,548,032, Cl. 260-876.
Warman, Bloomfield James, Taylor, James George, and Richardson, Keith, to Associated Electrical Industries Limited. Digital translators. 3,548,406, Cl. 340-347.
Warnant, Julien: *See—*
Joly, Robert, Warnant, Julien, and Farcilli, Andre,3,547,959.
Warren, Larry G.: *See—*
Cummins, Curtis F., Smith, Donald L., Warren, Larry G., and Schexnayder, Lawrence F.,3,547,234.
Warrington, Henry G., to Vulcan Iron Works, Inc. Percussion hammer. 3,547,207, Cl. 173-127.
Washecheck, Paul H.: *See—*
Starks, Charles M., and Washecheck, Paul H.,3,547,962.
Wassmann, Gustave: *See—*
Feddick, Earl W., and Wassmann, Gustave,3,547,439.
Wasterlid, Nils Arne Erland: *See—*
Strom, Johan Paul, and Wasterlid, Nils Arne Erland,3,548,312.
Watanabe, Hikoitsu, and Genma, Sanji. Helical earth. 3,548,069, Cl. 174-7.
Watson, George A., to Celanese Corporation. Cushioning material. 3,546,722, Cl. 5-337.
Watson, Michael L. Sound radiating device. 3,547,220, Cl. 181-31.
Watson, William Keith Ross, and Hunter, John F., to Anaconda Wire and Cable Company, mesne. Rural subscriber telephone system. 3,548,106, Cl. 179-15.
Watteredge Company, The: *See—*
Talley, Lawrence M., 3,548,077.
Watts, Robert G. Composite tower structure. 3,547,224, Cl. 182-16.
Waybright, George Cleveland, to Sylvania Electric Products, Inc. Deflection circuitry for color reproduction system. 3,548,099, Cl. 178-7.7
Weaver, Calvin P. Tractor mounted hay rake apparatus. 3,546,869, Cl. 56-377.
Weaver, Merle L.: *See—*
Graham, Robert P., Huxsoll, Charles C., Hart, Marcus R., and Weaver, Merle L.,3,547,173.
Webb, Brian C. Pipeline station bypass device. 3,547,142, Cl. 137-268.
Weber, Charles H., to Maysteel Products Corporation. Articulated support for a movable flexible supply conduit. 3,546,875, Cl. 59-78.1
Weber, Edward P.: *See—*
Schwope, Arthur D., Jech, Robert W., and Weber, Edward P.,3,546,769.
Weber, Helmut: *See—*
Hitzemann, Gerhard, Kulling, Achim, Luginsland, Hans-Hermann, and Weber, Helmut,3,547,671.
Weber, Karl Heinz, to Klingelnberg, W. Ferd., Sohne. Apparatus for checking the profiles of gear teeth, especially bevel gears. 3,546,780, Cl. 33-179.5

Webster, Walter A.,: *See—*
Lichti, Robert D., 3,547,281.
Wedemeyer, Gerhard, to Dominitwerke Gesellschaft mit beschrankter Haftung. Single core magnetic voltage regulator. 3,548,292, Cl. 323-61.
Weglein, Rolf D., to Hughes Aircraft Company. Pacification of image recording media comprising applying a thin polymer film over the image surface. 3,547,631, Cl. 96-27.
Wegner Machinery Corporation: *See—*
Swendsen, Jack, and Rogde, Sigurd Owen, 3,546,991.
Wehner, Norvin J., to Cramer Industries, Inc. Height adjustment apparatus. 3,547,394, Cl. 248-412.
Weighell, Norman, to Whessoe Limited. Liquid level gauges. 3,546,941, Cl. 73-321.
Weinberger, Arnold: *See—*
Bidwell, Alexander W., and Weinberger, Arnold,3,548,386.
Weinrich, Hellmut, to Voith Getriebe KG. Hydrodynamic and friction coupling. 3,547,235, Cl. 188-271.
Weinrotter, Ferdinand: *See—*
Gauster, Wolfgang, Muller, Walter, and Weinrotter, Ferdinand,3,547,581.
Weisberg, Sydney R. Stand-forming container and flexible bag assembly. 3,547,660, Cl. 99-171.
Weisbrod, Georg Friedrich: *See—*
Klages, Karl-Heinz, and Weisbrod, Georg Friedrich,3,547,412.
Weischselbaum, Theodore E.: *See—*
Plumpe, William H., Jr., and Weischselbaum, Theodore E.,3,547,028.
Weisfeld, Joseph, Tringali, Alfred M., Ackerman, Joseph F., and Bernardo, Joseph J., to Inmont Corporation. Coating composition containing epoxy resins and carboxyl terminated polyesters. 3,548,026, Cl. 260-835.
Weisfeld, Kenneth H. Instrument to measure fusional ability of eyes independent of eye movement. 3,547,528, Cl. 351-3.
Weiss, Johann Maschienenfabrik und Apparatebau GmbH: *See—*
Stellamanns, Theo, and Emmerling, Werner, 3,547,736.
Weiss, Sidney: *See—*
Eigen, Edward, and Weiss, Sidney,3,548,056.
Weissermel, Klaus, Uebe, Rudolf, Kern, Rudolf, and Brinkmann, Ludwig, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Compositions of saturated polyesters, inorganic solids, and polyfunctional epoxides. 3,547,873, Cl. 260-40.
Weissermel, Klaus, Uebe, Rudolf, Pfister, Horst, and Brinkmann, Ludwig, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Saturated polyesters containing cyclic epoxides and nucleating agents. 3,547,872, Cl. 260-40.
Wej-It Expansion Products, Inc.: *See—*
Lerich, Lester, 3,546,998.
Weldon, Edward J., Jr.: *See—*
Roelofs, Thomas H., and Weldon, Edward J., Jr.,3,546,793.
Wells, Willis L., to Photronix, Inc. Film reader. 3,547,531, Cl. 351-76.
Welsh, William Bradley. Apparatus for entering data. 3,548,160, Cl. 235-61.6
Wendland, Paul H., to Hughes Aircraft Company. Structure to convert infrared radiation images to visible radiation images using a photoconductive element having a plurality of isolated junctions therein. 3,548,193, Cl. 250-83.3
Wenger, Harvey M., to Mac Gregor, James D., Becker, Clarence J., Becker, Arthur C., and Dalman, Andrew J., 1/4 each, mesne. Drying and pulverizing apparatus with recirculation of material mesne. 3,547,359, Cl. 241-47.
Werner & Pfleiderer: *See—*
Koch, Heinz, 3,547,261.
Muller, Gerhard, 3,547,053.
Werner, Frank C., to Werner Machinery Company. Cookie cutter die construction and method of making same. 3,546,770, Cl. 29-429.
Werner Lehara, Inc.: *See—*
Verhoeven, Albert F., 3,547,050.
Werner Machinery Company: *See—*
Werner, Frank C., 3,546,770.
Wertheimer, Milton A.: *See—*
Pereue, Joseph H., Lowry, Wendell W., and Wertheimer, Milton A.,3,546,782.
West Company, The: *See—*
Herbert, Robert, and Osting, Richard C., 3,547,297.
West, Raymond: *See—*
Siddell, Raymond Patrick, and West, Raymond,3,548,267.
Westelaken, Christianus M. T. Production of granular fertilizers. 3,547,612, Cl. 71-21.
Westeren, Herbert W., and Scotto, Vincent, to Hayes, C. I., Inc. Furnace construction for heat treating upright strip material including vertically adjustable quench blocks. 3,547,422, Cl. 266-3.
Westerhoff, David H., and Flora, Albert V., to Omni-Lab, Incorporated. Control system for connecting plural information reproducers to an information library. 3,546,794, Cl. 35-35.
Western Electric Company, Incorporated: *See—*
Brown, Ford J., and Mueller, Ralph L., 3,547,252.
Zutkis, Joseph A., 3,548,301.
Western Gear Corporation: *See—*
Assony, Edward M., 3,547,430.
Westinghouse Air Brake Company: *See—*
Nagely, John L., 3,547,205.
Swain, James C., Thomas, David L., and Nagely, John I., 3,547,208.
Westinghouse Brake and Signal Company: *See—*
Burch, Derek E., 3,548,216.
Westinghouse Brake and Signal Company, Limited: *See—*
Maskery, Arthur, 3,547,499.
Westinghouse Electric Corporation: *See—*
Ambrose, John J., 3,547,312.
Barker, Harry H., and Radcliffe, Remington S., 3,547,307.
Brown, Ralph D., 3,546,881.
Bruha, Peter Joseph, 3,546,935.
Flaherty, Robert, and Ott, David G., 3,547,778.
Hofmann, Charles F., 3,547,871.
Knudsen, Irving E., 3,547,598.
Kruper, Andrew P., 3,547,348.
Martincic, Paul W., and Miller, James R., 3,548,355.
Page, Derrick J., 3,548,346.
Peckham, Rodney L., 3,548,357.
Price, William L., 3,548,319.
Schwab, Richard L., 3,548,354.
Silva, Antonio V., 3,548,270.
Smith, Andrew W., Jr., 3,546,907.
Yorksie, Daniel S., 3,548,318.
Westvaco Corporation: *See—*
Ivarsson, Bertil W., 3,546,928.
Wheeler, Robert Charles: *See—*
DeMarinis, Joseph Vincent, Schuster, William Daniel, and Wheeler, Robert Charles,3,548,081.
Whessoe Limited: *See—*
Weighell, Norman, 3,546,941.
Whetter, Lloyd A., to United States of America, Army, mesne. Multibeam laser tracking system. 3,548,212, Cl. 250-203.
Whirlpool Corporation: *See—*
Esche, Charles D., 3,546,894.
White, Allen A., to Hesston Corporation. Vibration-free drive for reciprocable devices. 3,546,864, Cl. 56-296.
White, James W. G., and Freedman, Harry A., to Bunker-Ramo Corporation, The. Slide surfacing for ski slopes. 3,547,749, Cl. 161-63.
White Motor Corporation: *See—*
Siegler, Frederick, 3,547,087.
Whitehouse, Harper John, to United States of America, Navy. Surface wave spectrum analyzer and interferometer. 3,548,306, Cl. 324-80.
Whiteside, Arliss E.: *See—*
Chapelle, Walter E., Kamm, Vernon C., and Whiteside, Arliss E.,3,548,210.
Whitlock, Morris N.: *See—*
Farrell, Guy M., Podgorski, Matthew C., Whitlock, Morris N., and Gaber, Martin,3,548,137.
Whitney, Robert C., and Bergman, Raymond M., to Gulf Research & Development Company. Ethylene polymer and vinylidene chloride polymer articles of manufacture. 3,547,689, Cl. 117-138.8
Wiczer, Sol B.: *See—*
Alexander, David Ord, 3,548,371.
Widdel, Karl-Heinz: *See—*
Gattner, Gunther E., and Widdel, Karl-Heinz,3,548,380.
Wiechert, Rudolf: *See—*
Furst, Andor, Furlenmeier, Andre, Langemann, Albert, Waldvogel, Guy, Hocks, Peter, Kerb, Ulrich, and Wiechert, Rudolf,3,547,910.
Wieden, Horst: *See—*
Rinkler, Heinrich, Wieden, Horst, Wilms, Hugo, and Nischk, Gunther,3,547,985.
Wiegand, Christian: *See—*
Frohberger, Paul-Ernst, and Wiegand, Christian,3,546,813.
Wiener, Charles: *See—*
Engel, Lawrence J., Gianni, Michael H., and Wiener, Charles,3,548,004.
Wiener, Charles, and Leary, Ralph J., to Esso Research and Engineering Company. Tris[tris(difluoramino) methoxy methyl/phosphine oxide. 3,548,003, Cl. 260-584.
Wiesinger, Johannes: *See—*
Prinz, Hans, Wiesinger, Johannes, and Konig, Rudolf,3,547,136.
Wilder, Gene Ray, to Monsanto Company. Preparation of mercaptans and sulfides. 3,548,008, Cl. 260-609.
Wiley, Harold V., to Mo och Domsjo Aktiebolag. Vehicle wheel chock assembly. 3,547,228, Cl. 188-32.
Wiley, Paul F., to Upjohn Company, The. Adamantoylcytosine arabinoside and process for preparing same. 3,547,905, Cl. 260-211.5
Wilfert, Karl: *See—*
Barenyi, Bela, and Wilfert, Karl,3,546,964.
Wilhelm, Hans: *See—*
Brueggemann, Horst, Dachs, Karl, Schwartz, Erich, and Wilhelm, Hans,3,547,836.
Wilkerson, Leonard Louis, to Shell Oil Company. Apparatus for treating waste water associated with hydrocarbon production. 3,547,190, Cl. 166-75.
Wilkes Pool Corporation: *See—*
Hoch, Monroe P., and Barrera, Joseph, 3,546,720.
Willett, Colin S., to United States of America, Army. Brush cathode discharge maser. 3,548,335, Cl. 331-94.5
Willett, Palmer B. Adjustable steering wheel. 3,548,128, Cl. 200-61.57
Willette, Russell J. Centrifugal pump. 3,547,554, Cl. 415-213.
Williams, Beverly E. Coated plastic containers. 3,547,294, Cl. 215-1.
Williams, Byron Edwin, to Johns-Manville Corporation. Control system for glass melting furnaces. 3,547,611, Cl. 65-129.

Williams, Jake E.: *See—*
Hughes, James K., and Williams, Jake E.,3,548,048.
Williams, Robert K., and Blair, James E. Mathematically formulated and androgynously linked polygonal and polyhedral gamepieces. 3,547,444, Cl. 273-137.
Williams, Terence, and Hayes, Michael W., to British Iron and Steel Research Association, The. Vacuum deposition and radiation polymerisation of polymer coatings on substrates. 3,547,683, Cl. 117-93.31
Williamson, Kenneth Dale: *See—*
Bhasin, Madan Mohan, and Williamson, Kenneth Dale,3,548,018.
Wilms, Hugo: *See—*
Rinkler, Heinrich, Wieden, Horst, Wilms, Hugo, and Nischk, Gunther,3,547,985.
Wilson, Calvin L., Fox, John H., Jr., and Serio, Vincent J., Jr., to Reynolds Metals Company. Fluid pressure regulator for a liquid-dispensing container and support for said regulator. 3,547,315, Cl. 222-61.
Wilson, Harold W., to Golden Cycle Corporation, The. Process for the entrapment of sulfur dioxide gas. 3,547,583, Cl. 23-225.
Wilson, Lee Engineering Company, Inc.: *See—*
Sutcliffe, John P., and Fisher, Jack E., 3,547,419.
Wilson, Stanley R. Underground incinerator. 3,547,057, Cl. 110-18.
Windmoller & Holscher: *See—*
Gennerich, Max, Paul, Walter, Niemeyer, Willy, and Achelpohl, Fritz, 3,547,010.
Wing, Charles G., to United States of America, Navy, mesne. Sea gravimeter. 3,546,943, Cl. 73-382.
Winston, Rodney W., to Moore Business Forms, Inc. Envelope detacher. 3,547,745, Cl. 156-584.
Winter, Ernst, Riegler, Heinz, Leo, Ernst, and Wochnik, Lothar, to VEB Carl Zeiss Jena. Devices for transmitting motion in an apparatus to an adjustable index. 3,546,955, Cl. 74-89.22
Wippler, Constant, to Compagnie de Saint-Gobain. Antiglare system and method. 3,547,545, Cl. 350-160.
Wirtz, Peter: *See—*
Jacobowsky, Armin, Wirtz, Peter, Born, Klaus, and Rechmeier, Gerhard,3,548,014.
Wissell, Louis, to Continental Gummi-Werke Aktiengesellschaft. Mold, especially vulcanizing mold, for vehicle tires. 3,546,749, Cl. 18-44.
Wittenwyler, Clifford V., to Shell Oil Company. Method for bonding rim bands to television picture tubes. 3,547,728, Cl. 156-293.
Wochnik, Josef: *See—*
Leifeld, Klaus, Wochnik, Josef, and Stoy, Erich,3,546,914.
Wochnik, Lothar: *See—*
Winter, Ernst, Riegler, Heinz, Leo, Ernst, and Wochnik, Lothar,3,546,955.
Wold, Robert Allan: *See—*
Jones, Paul, and Wold, Robert Allan,3,548,079.
Wolf, Andrew: *See—*
Artiaga, Mariano V., Storrie, Arthur, and Wolf, Andrew,3,547,052.
Wolf, Konrad: *See—*
Gorike, Rudolf, and Wolf, Konrad,3,548,121.
Wolff, Nikolaus E., to RCA Corporation. Process of thermoplastic deformation imaging. 3,547,628, Cl. 96-1.1
Wolverine Brass Works: *See—*
Hadsel, Jack L., 3,547,352.
Wong, James: *See—*
Fairbanks, Daniel F., Larson, Warren L., Randall, Robert N., and Wong, James,3,548,351.
Wood, Allan John, to English Electric Company Limited, The. Contacts for vacuum interrupters. 3,548,135, Cl. 200-144.
Woodward, Fred E., and Katzenstein, William, to GAF Corporation. Lubricating oil compositions. 3,547,820, Cl. 252-32.5
Woodward Governor Company: *See—*
Schelin, Carl O., and Eisentraut, Arne L., 3,547,158.
Woodward, Phyllis M.: *See—*
Woodward, William H.,3,546,865.
Woodward, Walter R., to USM Corporation. Electromagnetic linear drives. 3,548,227, Cl. 310-83.
Woodward, William H., deceased (by Woodward, Phyllis M., executor). Asparagus harvester. 3,546,865, Cl. 56-327.
Woolums, Charles R., to Coleman, Marvid D. Fishing lures. 3,546,804, Cl. 43-42.11
World Wide Corporation Ltd.: *See—*
Milot, Michel, and Nicolas, Pierre J., 3,547,451.
Worrall, Roy, to Monsanto Chemicals Limited. Hydrolysis of esters in the molten state. 3,547,858, Cl. 260-87.3
Worrall, Roy, to Monsanto Chemicals Limited. Process for esterification of polymers containing alcoholic groups. 3,548,408, Cl. 260-87.3
Worthington Corporation: *See—*
Bloom, Carl, 3,547,149.
Bloom, Carl, 3,547,164.
Pickle, Linwood A., 3,547,222.
Wright, Ralph R.: *See—*
Petit, George S., and Wright, Ralph R.,3,547,709.
Wright, Thomas J., to Bel-Tronics Corporation. Electrical winding construction. 3,548,356, Cl. 336-192.
Wustner, William E. Toilet tank flush valve. 3,546,715, Cl. 4-67.
Wyatt, John W.: *See—*
Hartbauer, Ellsworth A., Rehr, Henry W., Goodley, Alan R., and Wyatt, John W.,3,547,282.
Wyles, Peter J., to Newage Lyon Limited. Control apparatus for electric alternators having means for initial excitation build-up. 3,548,288, Cl. 322-28.
Wynn, Robert Walter, to GAF Corporation. Process for producing cyclic catechol esters of phosphonic acid. 3,548,039, Cl. 260-982.
Xerox Corporation: *See—*
Amidon, Alan B., Mammino, Joseph, and Radler, Richard W., 3,547,627.
Dhir, Partap C., and Headd, Franklin L., 3,548,195.
Stokes, David R., and Aser, Gilbert A., 3,547,533.
Wagner, John W., 3,547,431.
Yagi, Motohiko: *See—*
Kuwayama, Shigeo, Yagi, Motohiko, and Ikeda, Tetuo,3,548,359.
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu, to Handa Giken Kogyo Kabushiki Kaisha. Engine-brake intensifying device for spark- ignition type internal-combustion engines with an air-pollution preventive system. 3,547,088, Cl. 123-97.
Yale, Harry Louis, to Squibb, E. R., & Sons, Inc.12,12'-Carbonylbis- and 12,12'-thiocarbonylbis- derivatives of 6H-dibenz[b,f][1,4]oxazocin-11(12H)- ones, 6H-dibenzo[b,f][1,4]thiazocin-11(12H)-ones, 6H-dibenzo[b,f][1,4]thiazocin-11(12H)-ones, 11,12- dihydro-6H-dibenzo[b,f]1,4 oxizocines and 11,12- dihydro-6H-dibenzo-[b,f][1,4]thiazocines. 3,547,906, Cl. 260-239.3
Yamada, Katsuo: *See—*
Ohie, Koichi, Iijima, Tetsuya, Yamada, Katsuo, and Miyazaki, Toshio,3,546,973.
Yamada, Kosaku: *See—*
Noguchi, Toshio, Furuhashi, Masao, Igarashi, Bing, Yamada, Kosaku, Aotsuka, Noriyoshi, and Omori, Mamoru,3,547,804.
Yamada, Seibi, and Asada, Yoshiharu. Process and apparatus for drying polyester particles. 3,547,890, Cl. 260-75.
Yamaguchi, Shinichi, Teranishi, Toshio, Ogura, Satoshi, and Sano, Shiro, to Mitsubishi Chemical Industries Limited. Method for refining acetone by rectification with alkali-contact of vapors and water addition and phase separation of a chlorinated-by product- containing side stream. 3,547,783, Cl. 203-37.
Yamato, Shigeki, Maruyama, Yasushi, and Tashiro, Shunji, to Nippon Electric Company Limited. Telegraph and telephone switching system utilizing a stationary satellite. 3,548,108, Cl. 179-15.
Yamazaki, Shuichi: *See—*
Yagi, Shizuo, Nakagawa, Kazuo, Ishizuya, Akira, Yamazaki, Shuichi, Sato, Yasuhito, and Sekiguchi, Masaharu,3,547,088.
Yamazaki, Takashi: *See—*
Takagi, Toshihiko, and Yamazaki, Takashi,3,548,089.
Yanagawa, Nobuyuki, to Kabushiki Kaisha Ricoh. Photographic copying machine. 3,547,538, Cl. 355-106.
Yang, Yin-Lung. Safety lock. 3,546,906, Cl. 70-21.
Yano, Tomosaburo, Matsuo, Tadasi, Ichinokawa, Hideo, and Kuno, Koichi, to Showa Denko Kabushiki Kaisha. Preparation of catalyst carrier. 3,547,833, Cl. 252-463.
Yasuda, Ginji. Rotary valve engine. 3,547,094, Cl. 123-190.
Yates, John Michael: *See—*
Corbett, William Michael, Roberts, John Francis Lloyd, and Yates, John Michael,3,547,882.
Yissum Research Development Company: *See—*
Alon, Yosef, 3,548,253.
Yone, Harold R.: *See—*
Schewe, Richard A, and Yone, Harold R.,3,546,870.
Yonezu, Hisashi, to Nippon Denso Company Limited. Flasher device of sequential lighting type for automotive vehicles. 3,548,372, Cl. 340-82.
Yorksie, Daniel S., to Westinghouse Electric Corporation. Ramp function generator. 3,548,318, Cl. 328-35.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Katagiri, Yoshiharu, to Sony Corporation. Color cathode ray tube electrode support arrangement. 3,548,234, Cl. 313-82.
Yoshida, Susumu, Ohgoshi, Akio, Miyaoka, Senri, and Morio, Minoru, to Sony Corporation. Color cathode ray tube of the plural-beam, single electron gun type. 3,548,249, Cl. 315-13.
Yoshimura, Shigetake, to Toyo Kogyo Company Limited. Rotary engine with secondary air injecting means to oxidize unburned exhaust gases. 3,546,878, Cl. 60-30.
Yoshino, Michio, Ikeda, Tetsuo, and Mukai, Shigeo, to Nippon Yushi Kabushiki Kaisha. Process for the production of polyglycerine. 3,548,010, Cl. 260-615.
Young, Donald C., to Union Oil Company of California. Oxidation of olefins with a carbollyl complex of a group VIII metal. 3,547,984, Cl. 260-497.
Young, Harry J., and Behn, William R., to Educational Testing Service. Record reader. 3,548,162, Cl. 235-61.11
Young, Richard M., to Graves, Darlene. Golf ball retriever. 3,547,477, Cl. 294-19.
Youngstown Sheet and Tube Company, The: *See—*
Busch, Thomas N., 3,547,168.
Yuguchi, Sadao: *See—*
Iwamoto, Masao, and Yuguchi, Sadao,3,548,022.
Yumiki, Keiichi: *See—*
Hori, Haruo, Taguchi, Masahiko, Hoshino, Shoichiro, and Yumiki, Keiichi,3,547,646.

Zagusta, John A., to Rogers Corporation. Method of and apparatus for producing printed circuits. 3,547,724, Cl. 156-233.
Zahaczewski, Michel: *See—*
Duroux, Jean, Griveau, Pierre R., and Zahaczewski, Michel,3,548,299.
Zanft, Auram B., to Hagan Industries, Incorporated. Incinerator. 3,547,055, Cl. 110-8.
Zapfel, Horst, to Badische Maschinenfabrik G.m.b.H. Apparatus for treating individual charges of materials in fluids without pressure. 3,546,904, Cl. 68-16.
Zeitler, Gerhard: *See—*
Trieschmann, Hans-Georg, Zeitler, Gerhard, Dickaeuser, Heiner, Reuter, Lothar, and Pfannmueller, Helmut,3,547,866.
Zenith Radio Corporation: *See—*
Schlueter, Robert A., 3,548,360.
Zentralen Institut Po Istchislitelna Technika: *See—*
Angelov, Stefan Hristov, Hristova, Snejanka Vladimirova, and Srebev, Srebryu Yovtchev, 3,548,180.
Zeta Research: *See—*
Rogers, John V., 3,548,220.
Zimmerman, Darwin D., to Doughboy Industries, Inc. Packaging machinery. 3,546,849, Cl. 53-373.
Zimmerman, Herman L. Calculating balance. 3,547,210, Cl. 177-1.
Zimmerman, Robert L.: *See—*
Moore, Eugene R., Pickelman, Dale M., and Zimmerman, Robert L.,3,547,838.
Zirkle, Charles L.: *See—*
Kaiser, Carl, and Zirkle, Charles L.,3,547,931.
Ziskind, Ilan: *See—*
Lawrie, William N., Jr., and Ziskind, Ilan,3,548,219.
Zletz, Alex: *See—*
Rosscup, Robert J., Zletz, Alex, and Schaap, Luke A.,3,548,013.
Zuse KG: *See—*
Anis, Peter, 3,548,281.
Zutkis, Joseph A., to Western Electric Company, Incorporated. Transistorized circuit for measuring operate and release currents of relays. 3,548,301, Cl. 324-28.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AMP Inc.: *See*—
Rueger, Herman. Re. 27,003.

Allen, William A., to Jarke Corp. Forklift elevating and bin tipping mechanism. Re. 27,001, 12–15–70, Cl. 214—317.

Belder Trust Reg.: *See*—
Stephan, Siegfried, and Otto. Re. 27,002.

Dexter, Martin: *See*—
Meier, Eric A., and Dexter. Re. 27,004.

Geigy Chemical Corp.: *See*—
Meier, Eric A., and Dexter. Re. 27,004.

Graham, Patricia M.: *See*—
Wingfield, Edward C., and Graham. Re. 27,005.

Graham, Richard H.: *See*—
Wingfield, Edward C., and Graham. Re. 27,005.

Jarke Corp.: *See*—
Allen, William A. Re. 27,001.

Meier, Eric A., and M. Dexter, to Geigy Chemical Corp. Process for the preparation of carbonyl compounds containing a hindered phenol group. Re. 27,004, 12–15–70, Cl. 260—473.

Otto, Fritz: *See*—
Stephan, Siegfried, and Otto. Re. 27,002.

Ragan, Brad, Inc.: *See*—
Ragan, Bradley E. Re. 27,006.

Ragan, Bradley E., to Brad Ragan, Inc. Method of building a lugged tread on a heavy duty tire. Re. 27,006, 12–15–70, Cl. 156—96.

Rueger, Herman, to AMP Inc. Housing for indicating lamp or other electrical components. Re. 27,003, 12–15–70, Cl. 340—381.

Stephan, Siegfried, and F. Otto, to Belder Trust Reg. Two stage comminutor. Re. 27,002, 12–15–70, Cl. 146—192.

United Aircraft Corp.: *See*—
Wingfield, Edward C., and Graham. Re. 27,005.

Wingfield, Edward C., and R. H. Graham, deceased (by P. M. Graham, executrix), to United Aircraft Corp. Electron reflection seam tracker. Re. 27,005, 12–15–70, Cl. 219—121.

LIST OF DESIGN PATENTEES

Adler, Marvin, to Magnus Organ Corp. Carton insert for shipping small musical organs and the like. 219,434, 12–15–70, Cl. D9—253.

Alissandratos, Tacko D. Combined cap and bracket for a trash receptacle rack. 219,456, 12–15–70, Cl. D28—1.

American Standard Inc.: *See*—
Van Skyhawk, Norman. 219,448.

Amerock Corp.: *See*—
Tegner, Raymond U. H. 219,422.
Tegner, Raymond U. H. 219,425.

Anderson, Roy W. Unitized table and multiple chair combination. 219,458, 12–15–70, Cl. D33—14.

Arros, Edward F. Marine waste holding tank. 219,446, 12–15–70, Cl. D23—2.

Atwood Corp.: *See*—
Stewart, Donald E. 219,477.

Baessler, Lee B.: *See*—
Glassner, Harvey F., Baessler, and Pisarski. 219,494.

Bardenheier, John, Wine & Liquor Co.: *See*—
Rieb, Robert. 219,427.

Bartlett, Eric C. Tire. 219,498, 12–15–70, Cl. D90—20.

Bartlett, Eric C., to The Dunlop Co. Ltd. Tire. 219,499, 12–15–70, Cl. D90—20.

Bartlett, Eric C., to The Dunlop Co. Ltd. Tire. 219,500, 12–15–70, Cl. D90—20.

Beam Enterprises Inc.: *See*—
Schreiber, Charles A. 219,460.

Benzel, Howard A. Golf bag stand. 219,461, 12–15–70, Cl. D34—5.

Bessler, Robert D., to J and O Co. Cigarette making machine. 219,495, 12–15–70, Cl. D85—7.

Blackman, Stacy D. Telephone cover with handset retainer or the like. 219,451, 12–15–70, Cl. D26—14.

Blumberg, Charles E. Mailbox. 219,487, 12–15–70, Cl. D74—9.

Borgeld, William L., to The Leslie Metal Arts Co. Inc. Combined clothes sunport rod and mounting brackets therefor. 219,457, 12–15–70, Cl. D33—8.

Braddock, John M. F.: *See*—
Hill, Ronald P., Hodds, and Braddock. 219,429.
Hill, Ronald P., Hodds, and Braddock. 219,431.

Brink, Delbert L., to W. R. Grace & Co. Combined storage and shipping box or similar article. 219,433, 12–15–70, Cl. D9—237.

Brown Engineering Co., Inc.: *See*—
Fisher, Perry N. 219,438.

Car Pak Mfg. Co., Inc.: *See*—
Ginsberg, Yale. 219,426.

Carrier Corp.: *See*—
Ortega, Charles J., Orr, and Naff. 219,450.

Chichester, Sidnor T., Jr. Chair. 219,444, 12–15–70, Cl. D15—1.

Cline, Richard M. Scissors. 219,420, 12–15–70, Cl. D8—57.

Cohen, Charles H.: *See*—
Goldberg, Norman P., Cohen, Goalstone, and S. Goldberg. 219,482.

Coleco Industries, Inc.: *See*—
Diemond, Joseph, and Greenberg. 219,463.

Correia, Simmons, Jr. Building tube toy. 219,462, 12–15–70, Cl. D34—15.

Coyle, Errol J.: *See*—
Jahn, Darrel S., and Coyle. 219,453.

Crew, Robert T. Holder for attachment to a telephone or the like. 219,452, 12–15–70, Cl. D26—14.

Crown Plastics Corp.: *See*—
Gilman, Harry S. 219,489.

Delcannon Investments Ltd.: *See*—
Trevor, John. 219,501.

Diemond, Joseph, and L. E. Greenberg, to Coleco Industries, Inc. Snow vehicle. 219,463, 12–15–70, Cl. D34—15.

Doman, Donald W., and L. K. Sauey, to Flambeau Plastics Corp. Ice cube bin. 219,483, 12–15–70, Cl. D67—3.

Dover Corp. (De-Sta-Co Division): *See*—
McPherson, Alexander W. 219,421.

Drake, Frances R.: *See*—
Ross, George E. 219,445.

Du Bois, Ralph L. Waste receptacle. 219,478, 12–15–70, Cl. D49—30.

Duplop Co. Ltd., The: *See*—
Bartlett, Eric C. 219,499.
Bartlett, Eric C. 219,500.
Mitchell, William E. 219,441.

Ebesco Industries, Inc.: *See*—
Leath, William S. 219,491.

Edwards, Bryant, to Illinois Tool Works Inc. Packaging cup. 219,432, 12–15–70, Cl. D9—220.

Elggren, Charles A.: *See*—
Larsen, Reid S., and Elggren. 219,480.

Erie City Mfg. Co.: *See*—
Menuto, Mike. 219,442.

Felli, Norberto, to E. M. Homar S.r.L. Portable radio record player. 219,481, 12–15–70, Cl. D56—4.

Firma Hans Klober Schwelm: *See*—
Klober, Johannes. 219,471.

Fisher, Perry N., to Brown Engineering Co., Inc. Passenger loading bridge for airports. 219,438, 12–15–70, Cl. D13—1.

Flambeau Plastics Corp.: *See*—
Doman, Donald W., and Sauey. 219,483.

Fitzgerald, Robert G. Sand toy. 219,465, 12–15–70, Cl. D34—15.

Francis, John P. Automobile rain visor for drive-in theatres. 219,440, 12–15–70, Cl. D14—6.

G.S. Franchise Corp.: *See*—
Hamblet, Newman, and Rawlings. 219,439.

Gahm, Wilbert J. Combined collapsible drinking cup and cover therefor. 219,473, 12–15–70, Cl. D44—9.

Gahm, Wilbert J. Combined collapsible drinking cup and cover therefor. 219,474, 12–15–70, Cl. D44—9.

Gahm, Wilbert J. Combined collapsible drinking cup and cover therefor. 219,475, 12–15–70, Cl. D44—9.

Gardner, John W.: *See*—
Heiner, Robert J., Gardner, and Hart. 219,467.

Gilman, Harry S., to Crown Plastics Corp. Display stand for brochures. 219,489, 12–15–70, Cl. D80—9.

Ginsberg, Yale, to Car Pak Mfg. Co., Inc. Female fastener for retaining license plates, and like purposes. 219,426, 12–15–70, Cl. D8—273.

Glassner, Harvey F., L. R. Baessler, and L. Pisarski, to Humetrics Corp. Medical instrument panel. 219,494, 12–15–70, Cl. D83—1.

Goalstone, Eugene D.: *See*—
Goldberg, Norman P., Cohen, Goalstone, and S. Goldberg. 219,482.

Goldberg Bros., Inc.: *See*—
Goldberg, Norman P., Cohen, Goalstone, and S. Goldberg. 219,482.

Goldberg, Norman P., C. H. Cohen, E. D. Goalstone, and S. Goldberg, to Goldberg Bros., Inc. Film reel hub insert bushing. 219,482, 12–15–70, Cl. D61—1.

Goldberg, Seymour: *See*—
Goldberg, Norman P., Cohen, Goalstone, and S. Goldberg. 219,482.

Grace, W. R., & Co.: *See*—
Brink, Delbert L. 219,433.

Graham, Bette C. Holder for bottles or the like. 219,428, 12–15–70, Cl. D9—176.

Greenberg, Leonard E.: *See*—
Diemond, Joseph, and Greenberg. 219,463.

Hamblet, Newman, and J. S. Rawlings, to G.S. Franchise Corp. Building. 219,439, 12–15–70, Cl. D13—1.

Hart, William: *See*—
Heiner, Robert J., Gardner, and Hart. 219,467.

Heiner, Robert J., W. Gardner, and W. Hart, to Mattel, Inc. Combined wheeled toy and jack-in-the box. 219,467, 12–15–70, Cl. D34—15.

Hennessee, Gerald J., to Universal Medical Research, Inc. Therapy table. 219,493, 12–15–70, Cl. D83—1.

Hicks, Harris V., to Joseph Lucas (Industries) Ltd. Vehicle lamp frame. 219,476, 12–15–70, Cl. D48—32.

Hill, Ronald P., H. Hodds, and J. M. F. Braddock, to Reckitt & Sons Ltd. Blister package. 219,429, 12–15–70, Cl. D9—182.

Hill, Ronald P., H. Hodds, and J. M. F. Braddock, to Reckitt & Sons Ltd. Blister package. 219,431, 12–15–70, Cl. D9—192.

Hodds, Harry: *See*—
Hill, Ronald P., Hodds, and Braddock. 219,429.
Hill, Ronald P., Hodds, and Braddock. 219,431.

Homer, E. M., S.r.L.: *See*—
Felli, Norberto. 219,481.

Hubel, Vello. Nursery seat or similar article. 219,443, 12–15–70, Cl. D16—1.

Humetrics Corp.: *See*—
Glassner, Harvey F., Baessler, and Pisarski. 219,494.

Illinois Tool Works Inc.: *See*—
Edwards, Bryant. 219,432.

Info-Max: *See*—
Jahn, Darrel S., and Coyle. 219,453.
Silten, Max H. 219,454.

J and O Co.: *See*—
Bessler, Robert D. 219,495.

Jahn, Darrel S., and E. J. Coyle, to Info-Max. Telephone acoustic data coupler. 219,453, 12–15–70, Cl. D26—14.

Kamphausen, Dan, to Twentieth Century Products Corp. Valve guide for flush tanks. 219,447, 12–15–70, Cl. D23—40.

Keeler Brass Co.: *See*—
Watt, William D., Jr. 219,423.
Watt, William D., Jr. 219,424.

Kinder Care Nursery Schools, Inc.: *See*—
Mendel, Perry. 219,437.

Klober, Johannes, to Firma Hans Klober Schwelm. Drinking glass or the like. 219,471, 12–15–70, Cl. D36—8.

Kulbe, George O. Waterborne vehicle. 219,485, 12–15–70, Cl. D71—1.

Larsen, Reid S., and C. A. Elggren. Combined television receiver and support stand therefor. 219,480, 12–15–70, Cl. D56—4.

Leath, William S., to Ebsco Industries, Inc. Merchandise display stand. 219,491, 12–15–70, Cl. D80—9.

Lebedeff, Leon V. Lipstick holder. 219,496, 12–15–70, Cl. D36—10.

Leslie Metal Arts Co., Inc., The: *See*—
Borgeld, William L. 219,457.

Lewis, Edgar R., Jr.: *See*—
Lott, Homer L., and Lewis. 219,484.

Lott, Homer L., and E. R. Lewis, Jr. Boat with transparencies in a portion of the bottom thereof. 219,484, 12–15–70, Cl. D71—1.

Lovegreen, Vern O., to Sports Jet, Inc. Outboard motor. 219,486, 12–15–70, Cl. D71—1.

Lucas, Joseph, (Industries) Ltd.: *See*—
Hicks, Harris V. 219,476.

Magnus Organ Corp.: *See*—
Adler, Marvin. 219,434.

Marcott, Gordon L. Building. 219,436, 12–15–70, Cl. D13—1.

Mattel, Inc.: *See*—
Heiner, Robert J., Gardner, and Hart. 219,467.
Miller, Anthony D. 219,466.
Miller, Anthony D. 219,470.

McClaren, Cecil L. Combination electric cooker and support stand therefor for broiling and barbecuing food. 219,492, 12–15–70, Cl. D81—10.

McPherson, Alexander W., to Dover Corp. (De-Sta-Co Division). Clamp. 219,421, 12–15–70, Cl. D8—72.

Mendel, Perry, to Kinder Care Nursery Schools, Inc. Building. 219,437, 12–15–70, Cl. D13—1.

Menuto, Mike, to Erie City Mfg. Co. Wheel chair. 219,442, 12–15–70, Cl. D15—1.

Miller, Anthony D., to Mattel, Inc. Tray for toy tops or the like. 219,466, 12–15–70, Cl. D34—15.

Miller, Anthony D., to Mattel, Inc. Toy top. 219,470, 12–15–70, Cl. D34—15.

Mitchell, William E., to The Dunlop Co. Ltd. Metal wheel. 219,441, 12–15–70, Cl. D14—30.

Morris, Nathan K. Hair trimmer or the like. 219,502, 12–15–70, Cl. D95—3.

Murdoch, Peter N. G., and D. L. Wyman. Figure for playgroud apparatus. 219,468, 12–15–70, Cl. D34—2.

N.V. Maatschappij Tot Exploiteren van Octrooien en Licenties "Matepa": *See*—
Swane, Albertus A. 219,430.

Naff, Frederic L., Jr.: *See*—
Ortega, Charles J., Orr, and Naff. 219,449.
Ortega, Charles J., Orr, and Naff. 219,450.

Nester, Albert, GmbH: *See*—
Rieker, Karl. 219,459.

Orr, Russell E.: *See*—
Ortega, Charles J., Orr, and Naff. 219,449.
Ortega, Charles J., Orr, and Naff. 219,450.

Ortega, Charles J., R. E. Orr, and F. L. Naff, Jr. Condensing unit enclosure. 219,449, 12–15–70, Cl. D23—139.

Ortega, Charles J., R. E. Orr, and F. L. Naff, Jr., to Carrier Corp. Condensing unit enclosure. 219,450, 12–15–70, Cl. D23—139.

O'Searo, Carmella A. Woman's cap. 219,419, 12–15–70, Cl. D2—250.

Peace, Woodrow W. Illuminable spinning toy. 219,464, 12–15–70, Cl. D34—15.

Perkins, Daniel A. Newspaper dispensing container. 219,479, 12–15–70, Cl. D52—3.

Piker, Herbert M., to Sea Fair Corp. Drinking cup. 219,472, 12–15–70, Cl. D44—9.

Pisarski, Lech: *See*—
Glassner, Harvey F., Baessler, and Pisarski. 219,494.

Plessinger, John A. Round produce table. 219,490, 12–15–70, Cl. D80—9.

Prescott, J. L., Co.: *See*—
Steffens, John. 219,469.

Rawlings, James S.: *See*—
Hamblet, Newman, and Rawlings. 219,439.

Reckitt & Sons Ltd.: *See*—
Hill, Ronald P., Hodds, and Braddock. 219,429.
Hill, Ronald P., Hodds, and Braddock. 219,431.

Rieb, Robert, to John Bardenheier Wine & Liquor Co. Decanter. 219,427, 12–15–70, Cl. D9—160.

Rieker, Karl, to Albert Nester GmbH. Drawing table. 219,459, 12–15–70, Cl. D33—14.

Ross, George E., ½ to F. R. Drake. Fishing plug. 219,445, 12–15–70, Cl. D22—27.

Sauey, Lawrence K.: *See*—
Doman, Donald W., and Sauey. 219,483.

Schayer, Robert O., to Wells Lamont Corp. Garment hanger. 219,488, 12–15–70, Cl. D80—8.

Schreiber, Charles A., to Beam Enterprises Inc. Guide for the club head of a golf putter. 219,460, 12–15–70, Cl. D34—5.

Sea Fair Corp.: *See*—
Piker, Herbert M. 219,472.

Shapiro, Harold. Bottle stopper. 219,435, 12–15–70, Cl. D9—254.

Silten, Max H., to Info-Max. Telephone acoustic data coupler. 219,454, 12–15–70, Cl. D26—14.

Skarshaug, Paul E. Portable current intensity detector for aerial booms. 219,455, 12–15–70, Cl. D26—1.

Sports Jet, Inc.: *See*—
Lovegreen, Vern O. 219,486.

Steffens, John, to J. L. Prescott Co. Toy animal figure. 219,469, 12–15–70, Cl. D34—2.

Stewart, Donald E., to Atwood Corp. Combined running and anchor light. 219,477, 12–15–70, Cl. D48—32.

Swane, Albertus A., to N.V. Maatschappij Tot Exploiteren van Octrooien en Licenties "Matepa." Combined packaging and stacking tray. 219,430, 12–15–70, Cl. D9—188.

Tegner, Raymond U. H., to Amerock Corp. Knob. 219,422, 12–15–70, Cl. D8—144.

Tegner, Raymond U. H., to Amerock Corp. Escutcheon plate. 219,425, 12–15–70, Cl. D8—179.

Trevor, John, to Delcannon Investments Ltd. Hair trimmer. 219,501, 12–15–70, Cl. D95—3.

Twentieth Century Products Corp.: *See*—
Kamphausen, Dan. 219,447.

Universal Medical Research, Inc.: *See*—
Hennessee, Gerald J. 219,493.

Van Skyhawk, Norman, to American Standard Inc. Combined bath tub and shower enclosure. 219,448, 12–15–70. Cl. D23—49.

Waiting, William E. K. Holder for a shoeshine kit. 219,497, 12–15–70, Cl. D86—11.

Watt, William D., Jr., to Keeler Brass Co. Range handle. 219,423, 12–15–70, Cl. D8—171.

Watt, William D., Jr., to Keeler Brass Co. Range handle. 219,424, 12–15–70, Cl. D8—171.

Wells Lamont Corp.: *See*—
Schayer, Robert O. 219,488.

Wyman, David L.: *See*—
Murdoch, Peter N. G., and Wyman. 219,468.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 15, 1970

NOTE.—First number, class; second number, subclass; third number, patent number

2— 89	:	3,546,708
179	:	3,546,709
3— 1	:	3,546,710
		3,546,711
24	:	3,546,712
4— 10	:	3,546,713
48	:	3,546,714
67	:	3,546,715
112	:	3,546,716
113	:	3,546,717
116	:	3,546,718
172.17:		3,546,719
.19:		3,546,720
5— 97	:	3,546,721
200	:	3,546,725
247	:	3,546,723
337	:	3,546,722
351	:	3,546,724
7— 14.1	:	3,546,726
8— 41	:	3,547,571
42	:	3,547,572
108	:	3,547,573
120	:	3,547,574
149.1	:	3,547,575
12— 8.2	:	3,546,727
13— 13	:	3,548,061
20	:	3,548,062
15— 21	:	3,546,728
41	:	3,546,729
102	:	3,546,730
183	:	3,546,731
250.01:		3,546,732
308	:	3,546,733
16— 52	:	3,546,734
128	:	3,546,735
153	:	3,546,736
17— 1	:	3,546,737
62	:	3,546,738
18— 5	:	3,546,741
8	:	3,546,739
10	:	3,546,742
14	:	3,546,743
		3,546,745
19	:	3,546,740
		3,546,746
20	:	3,546,747
36	:	3,546,748
44	:	3,546,749
19— 65	:	3,546,744
21— 53	:	3,547,576
61	:	3,547,577
87	:	3,547,578
23— 38	:	3,547,579
106	:	3,547,580
122	:	3,547,581
200	:	3,547,582
209.1	:	3,547,584
224	:	3,547,585
225	:	3,547,583
230	:	3,547,586
232	:	3,547,587
		3,547,588
252	:	3,547,589
253	:	3,547,590
258.5	:	3,547,591
277	:	3,547,592
283	:	3,547,593
293	:	3,547,594
295	:	3,547,595
300	:	3,547,596
302	:	3,547,597
355	:	3,547,598
24— 16	:	3,546,750
70	:	3,546,751
73	:	3,546,752
81	:	3,546,753
204	:	3,546,754
28— 72.2	:	3,546,755
76	:	3,546,756
29— 25.41:		3,546,757
96	:	3,546,758
98	:	3,546,759
103	:	3,546,760
105	:	3,546,761
148.4	:	3,546,762
		3,547,601
157.3	:	3,546,763
194	:	3,547,600
200	:	3,546,764
203	:	3,546,765
29—208	:	3,546,766
227	:	3,546,767
407	:	3,546,768
416	:	3,547,602
418	:	3,547,603
420.5	:	3,546,769
429	:	3,546,770
		3,546,771
430	:	3,546,772
433	:	3,546,773
491	:	3,547,599
568	:	3,546,774
577	:	3,547,604
625	:	3,546,775
626	:	3,546,776
30— 29.5	:	3,546,777
33— 1	:	3,546,778
36	:	3,546,779
179.5	:	3,546,780
185	:	3,546,781
203.13:		3,546,782
34— 1	:	3,546,783
10	:	3,546,784
45	:	3,546,785
52	:	3,546,786
57	:	3,546,787
35— 8	:	3,546,788
		3,546,789
9	:	3,546,790
		3,546,791
10.2	:	3,548,063
19	:	3,546,793
27	:	3,546,792
35	:	3,546,794
36— 1	:	3,546,795
2.5	:	3,546,796
40— 1.5	:	3,546,797
2	:	3,546,798
63	:	3,546,799
107	:	3,546,800
109	:	3,546,801
152	:	3,546,802
42— 16	:	3,546,803
43— 17	:	3,546,805
42.11:		3,546,804
44.99:		3,546,806
44— 4	:	3,547,605
46— 16	:	3,546,807
59	:	3,546,808
206	:	3,546,809
218	:	3,546,810
243	:	3,546,811
244	:	3,546,814
47— 1.4	:	3,546,812
57.6	:	3,546,813
48—191	:	3,547,606
49—504	:	3,546,815
51— 9	:	3,546,816
49	:	3,546,817
56	:	3,546,818
73	:	3,546,819
103	:	3,546,820
163	:	3,546,821
170	:	3,546,822
215	:	3,546,823
225	:	3,546,824
246	:	3,547,607
294	:	3,547,608
298	:	3,547,609
323	:	3,546,825
52— 23	:	3,546,826
29	:	3,546,827
100	:	3,546,830
115	:	3,546,831
309	:	3,546,832
		3,546,841
314	:	3,546,833
475	:	3,546,842
540	:	3,546,843
581	:	3,546,844
627	:	3,546,845
632	:	3,546,834
53— 24	:	3,546,828
		3,546,846
28	:	3,546,835
33	:	3,546,836
35	:	3,546,829
61	:	3,546,837
64	:	3,546,847
77	:	3,546,838
53— 78	:	3,546,839
204	:	3,546,848
373	:	3,546,849
376	:	3,546,840
389	:	3,546,850
55—238	:	3,546,851
341	:	3,546,852
419	:	3,546,853
455	:	3,546,854
481	:	3,546,855
56— 1	:	3,546,856
8	:	3,546,857
9	:	3,546,858
12	:	3,546,859
21	:	3,546,860
23	:	3,546,861
41	:	3,546,862
226	:	3,546,863
296	:	3,546,864
327	:	3,546,865
328	:	3,546,866
370	:	3,546,867
377	:	3,546,868
		3,546,869
57— 34	:	3,546,870
58.49:		3,546,871
66	:	3,546,872
93	:	3,546,873
58—129	:	3,546,874
59— 78.1	:	3,546,875
60— 24	:	3,546,876
		3,546,877
30	:	3,546,878
39.16:		3,546,879
		3,546,880
73	:	3,546,881
204	:	3,546,882
258	:	3,546,883
61— 13	:	3,546,884
46.5	:	3,546,885
63	:	3,546,886
72.1	:	3,546,887
.3	:	3,546,888
		3,546,889
.6	:	3,546,890
62— 5	:	3,546,891
13	:	3,546,892
89	:	3,546,893
140	:	3,546,894
156	:	3,546,895
347	:	3,546,896
64— 29	:	3,546,897
65— 2	:	3,546,898
7	:	3,547,610
129	:	3,547,611
66—149	:	3,546,899
185	:	3,546,900
68— 5	:	3,546,901
		3,546,902
12	:	3,546,903
16	:	3,546,904
198	:	3,546,905
70— 21	:	3,546,906
71— 21	:	3,547,612
27	:	3,547,613
28	:	3,547,614
34	:	3,547,615
90	:	3,547,616
92	:	3,547,617
103	:	3,547,618
111	:	3,547,619
118	:	3,547,620
121	:	3,547,621
72— 7	:	3,546,907
21	:	3,546,908
46	:	3,546,909
49	:	3,546,910
201	:	3,546,911
238	:	3,546,912
241	:	3,546,913
242	:	3,546,914
249	:	3,546,915
256	:	3,546,916
369	:	3,546,917
446	:	3,546,918
458	:	3,546,919
73— 17	:	3,546,920
		3,546,921
29	:	3,546,922
40	:	3,546,923
73— 61.1	:	3,546,926
67.7	:	3,546,924
71	:	3,546,925
.5	:	3,546,927
73	:	3,546,928
78	:	3,546,929
90	:	3,546,931
139	:	3,546,932
141	:	3,546,933
146	:	3,546,936
159	:	3,546,937
194	:	3,546,934
		3,546,935
203	:	3,546,938
212	:	3,546,939
231	:	3,546,940
321	:	3,546,941
374	:	3,546,942
382	:	3,546,943
388	:	3,546,944
422	:	3,546,945
423	:	3,546,946
437	:	3,546,947
505	:	3,546,948
74— 2	:	3,546,949
15.86:		3,546,951
40	:	3,546,952
61	:	3,546,950
89.15:		3,546,930
.22:		3,546,955
96	:	3,546,953
107	:	3,546,954
394	:	3,546,956
436	:	3,546,958
439	:	3,546,959
489	:	3,546,960
497	:	3,546,957
501	:	3,546,961
		3,546,962
503	:	3,546,963
552	:	3,546,964
568	:	3,546,965
600	:	3,546,967
640	:	3,546,966
710.5	:	3,546,968
711	:	3,546,969
752	:	3,546,970
		3,546,971
804	:	3,546,972
868	:	3,546,973
869	:	3,546,974
75— 10	:	3,547,622
25	:	3,547,623
42	:	3,547,624
128	:	3,547,625
151	:	3,547,626
76— 29	:	3,546,975
77— 7	:	3,546,976
23	:	3,546,977
32.1	:	3,546,978
36	:	3,546,979
79	:	3,546,980
81— 3	:	3,546,981
172	:	3,546,982
180	:	3,546,983
82— 2	:	3,546,984
40	:	3,546,985
47	:	3,546,986
58	:	3,546,987
78	:	3,546,988
83— 13	:	3,546,989
27	:	3,546,990
69	:	3,546,991
417	:	3,546,992
571	:	3,546,993
84— 1.01:		3,548,064
.03:		3,548,065
		3,548,066
.16:		3,548,067
402	:	3,546,994
422	:	3,548,068
444	:	3,546,995
85— 1	:	3,546,996
72	:	3,546,998
86— 1	:	3,546,997
89— 1	:	3,546,999
.5	:	3,547,000
156	:	3,547,001
90— 13.1	:	3,547,002
91—252	:	3,547,003
91—277	:	3,547,006
411	:	3,547,007
92— 63	:	3,547,004
83	:	3,547,005
170	:	3,547,008
93— 1	:	3,547,009
22	:	3,547,010
36	:	3,547,011
.5	:	3,547,012
.6	:	3,547,013
94— 45	:	3,547,014
95— 1.1	:	3,547,015
10	:	3,547,016
		3,547,017
		3,547,018
11	:	3,547,019
13	:	3,547,020
53	:	3,547,021
64	:	3,547,022
96	:	3,547,023
96— 1	:	3,547,627
.1	:	3,547,628
.5	:	3,548,059
27	:	3,547,629
		3,547,630
		3,547,631
33	:	3,547,632
45.2	:	3,547,633
48	:	3,547,634
		3,547,635
		3,547,636
49	:	3,547,637
66.5	:	3,547,638
69	:	3,547,639
74	:	3,547,640
76	:	3,547,641
84	:	3,547,642
87	:	3,547,643
		3,547,644
		3,547,645
90	:	3,547,646
94	:	3,547,647
		3,547,648
114	:	3,547,649
		3,547,650
115	:	3,547,651
98— 94	:	3,547,025
99— 18	:	3,547,652
68	:	3,547,653
90	:	3,547,654
91	:	3,547,655
107	:	3,547,656
111	:	3,547,657
113	:	3,547,658
140	:	3,547,659
171	:	3,547,660
		3,547,661
176	:	3,547,662
251	:	3,547,026
101— 53	:	3,547,027
93	:	3,547,028
426	:	3,547,029
102— 38	:	3,547,030
49.7	:	3,547,031
67	:	3,547,032
70	:	3,547,033
71	:	3,547,034
78	:	3,547,035
92.4	:	3,547,036
104— 8	:	3,547,037
		3,547,038
		3,547,039
138	:	3,547,040
148	:	3,547,041
155	:	3,547,042
172	:	3,547,043
105— 1	:	3,547,044
199	:	3,547,045
		3,547,046
358	:	3,547,047
366	:	3,547,048
368	:	3,547,049
106— 36	:	3,547,663
47	:	3,548,060
65	:	3,547,664
95	:	3,547,665
171	:	3,547,666
182	:	3,547,667
189	:	3,547,668
272	:	3,547,669
106—286	:	3,547,670
300	:	3,547,671
107— 27	:	3,547,050
54	:	3,547,051
		3,547,052
68	:	3,547,053
108—115	:	3,547,054
110— 8	:	3,547,055
14	:	3,547,056
18	:	3,547,057
112— 79	:	3,547,058
151	:	3,547,059
264	:	3,547,060
114— 23	:	3,547,061
66.5	:	3,547,062
		3,547,063
		3,547,064
138	:	3,547,065
200	:	3,547,066
206	:	3,547,067
235	:	3,547,068
116— 70	:	3,547,069
114	:	3,547,070
115	:	3,547,071
124	:	3,547,072
		3,547,073
117— 17	:	3,547,672
22	:	3,547,673
32	:	3,547,674
33.5	:	3,547,675
34	:	3,547,678
46	:	3,547,676
		3,547,677
57	:	3,547,679
62	:	3,547,680
71	:	3,547,681
75	:	3,547,682
93.31:		3,547,683
95	:	3,547,684
114	:	3,547,685
128.4	:	3,547,686
138	:	3,547,687
.5	:	3,547,688
.8	:	3,547,689
139.5	:	3,547,690
201	:	3,547,691
217	:	3,547,692
235	:	3,547,693
240	:	3,547,694
118— 7	:	3,547,074
16	:	3,547,075
637	:	3,547,076
		3,547,077
638	:	3,547,078
119— 1	:	3,547,079
14.14:		3,547,080
51.11:		3,547,081
53	:	3,547,082
75	:	3,547,083
122— 32	:	3,547,084
491	:	3,547,085
123— 41.77:		3,547,086
97	:	3,547,087
		3,547,088
117	:	3,547,089
119	:	3,547,090
140	:	3,547,091
		3,547,092
179	:	3,547,093
190	:	3,547,094
124— 11	:	3,547,095
125— 13	:	3,547,096
126— 4	:	3,547,097
19	:	3,547,098
39	:	3,547,099
206	:	3,547,100
127— 34	:	3,547,695
60	:	3,547,696
128— 2	:	3,547,101
		3,547,102
		3,547,106
		[illegible]
		[illegible]
		3,547,107
		3,547,108
33	:	3,547,109
66	:	3,547,110
75	:	3,547,111
77	:	3,547,112

128— 84 : 3,547,113
92 : 3,547,114
3,547,115
145.8 : 3,547,116
157 : 3,547,120
158 : 3,547,117
204 : 3,547,118
214.4 : 3,547,119
215 : 3,547,121
218 : 3,547,122
284 : 3,547,930
295 : 3,547,123
303 : 3,547,124
.1 : 3,547,125
349 : 3,547,126
421 : 3,547,127
519 : 3,547,128
130— 27 : 3,547,129
131— 9 : 3,547,130
3,547,131
10.5 : 3,547,132
17 : 3,547,133
261 : 3,547,134
132— 32 : 3,547,135
134— 3 : 3,547,697
135— 1 : 3,547,136
136— 6 : 3,547,698
83 : 3,547,700
86 : 3,547,699
3,547,701
3,547,702
154 : 3,547,703
161 : 3,547,704
203 : 3,547,705
205 : 3,547,706
224 : 3,547,707
137— 1 : 3,547,137
81.5 : 3,547,138
3,547,139
240 : 3,547,140
263 : 3,547,141
268 : 3,547,142
315 : 3,547,143
318 : 3,547,144
392 : 3,547,145
512 : 3,547,146
522 : 3,547,147
540 : 3,547,148
560 : 3,547,149
599 : 3,547,150
.1 : 3,547,151
601 : 3,547,152
615 : 3,547,153
624.11: 3,547,154
625.25: 3,547,155
3,547,156
.26: 3,547,157
.48: 3,547,158
.62: 3,547,159
138—114 : 3,547,161
121 : 3,547,160
125 : 3,547,162
140—107 : 3,547,163
141—326 : 3,547,164
330 : 3,547,165
143— 68 : 3,547,166
135 : 3,547,167
144— 3 : 3,547,168
32 : 3,547,169
310 : 3,547,170
325 : 3,547,171
146—192 : Re.27,002
222 : 3,547,172
231 : 3,547,173
148— 1.6 : 3,547,708
6.14: 3,547,710
.15: 3,547,711
.3 : 3,547,709
11.5 : 3,547,712
3,547,713
146 : 3,547,715
175 : 3,547,716
187 : 3,547,717
152—209 : 3,547,174
3,547,175
218 : 3,547,176
220 : 3,547,177
381 : 3,547,178
156— 55 : 3,547,718
69 : 3,547,719
82 : 3,547,720
96 : Re.27,006
155 : 3,547,721
196 : 3,547,722
209 : 3,547,723
233 : 3,547,724
272 : 3,547,725
276 : 3,547,726
291 : 3,547,727
293 : 3,547,728
331 : 3,547,729
345 : 3,547,730
392 : 3,547,731
405 : 3,547,732
415 : 3,547,733
416 : 3,547,734
156—440 : 3,547,735
455 : 3,547,736
468 : 3,547,737
492 : 3,547,738
504 : 3,547,739
523 : 3,547,740
579 : 3,547,741
583 : 3,547,742
3,547,743
584 : 3,547,744
3,547,745
159— 4 : 3,547,179
161— 2 : 3,547,746
7 : 3,547,747
46 : 3,547,748
63 : 3,547,749
66 : 3,547,750
68 : 3,547,751
112 : 3,547,752
160 : 3,547,753
165 : 3,547,754
3,547,755
3,547,756
3,547,757
3,547,758
3,547,759
3,547,760
168 : 3,547,761
170 : 3,547,762
173 : 3,547,763
184 : 3,547,764
189 : 3,547,765
190 : 3,547,766
217 : 3,547,767
234 : 3,547,768
248 : 3,547,769
251 : 3,547,770
3,547,771
254 : 3,547,772
162—157 : 3,547,773
162 : 3,547,774
198 : 3,547,775
274 : 3,547,776
303 : 3,547,777
164— 61 : 3,547,180
265 : 3,547,181
281 : 3,547,182
333 : 3,547,183
343 : 3,547,184
165— 1 : 3,547,185
22 : 3,547,186
76 : 3,547,187
81 : 3,547,202
109 : 3,547,188
166— .5 : 3,547,189
75 : 3,547,190
223 : 3,547,191
248 : 3,547,192
3,547,193
261 : 3,547,195
279 : 3,547,194
281 : 3,547,196
284 : 3,547,197
3,547,198
305 : 3,547,199
169— 15 : 3,547,200
26 : 3,547,201
172—500 : 3,547,203
538 : 3,547,204
173—105 : 3,547,205
3,547,206
127 : 3,547,207
136 : 3,547,208
174— 7 : 3,548,069
12 : 3,548,070
13 : 3,548,071
15 : 3,548,072
3,548,073
19 : 3,548,074
20 : 3,548,075
52 : 3,548,076
74 : 3,548,077
128 : 3,548,078
153 : 3,548,079
175— 61 : 3,547,209
86 : 3,547,211
176— 53 : 3,547,778
177— 1 : 3,547,210
178 : 3,547,212
237 : 3,547,213
178— 2 : 3,548,080
5.2 : 3,548,081
.4 : 3,548,082
1 : 3,548,083
3,548,084
3,548,085
3,548,086
3,548,087
3,548,088
3,548,089
3,548,091
3,548,092
.8 : 3,548,090
6.5 : 3,548,093
.6 : 3,548,094
3,548,095
178— 7.1 : 3,548,096
.3 : 3,548,097
.5 : 3,548,098
.7 : 3,548,099
179— 1 : 3,548,100
3,548,101
2 : 3,548,102
15 : 3,548,103
3,548,104
3,548,105
3,548,106
3,548,107
3,548,108
16 : 3,548,109
18 : 3,548,110
81 : 3,548,111
100.1 : 3,548,112
.2 : 3,548,113
3,548,114
3,548,115
110 : 3,548,116
146 : 3,548,117
156 : 3,548,118
167 : 3,548,119
170.4 : 3,548,120
184 : 3,548,121
180— 42 : 3,547,214
71 : 3,547,215
107 : 3,547,216
112 : 3,547,217
181— .5 : 3,547,218
31 : 3,547,219
3,547,220
3,547,221
36 : 3,547,222
3,547,223
182— 16 : 3,547,224
148 : 3,547,225
164 : 3,547,226
185 : 3,547,227
188— 32 : 3,547,228
59 : 3,547,229
75 : 3,547,230
110 : 3,547,232
170 : 3,547,233
3,547,234
271 : 3,547,235
280 : 3,547,236
296 : 3,547,231
191— 4 : 3,547,237
12 : 3,548,122
192— 45 : 3,547,238
.1 : 3,547,239
48.2 : 3,547,240
53 : 3,547,241
56 : 3,547,242
70 : 3,547,243
74 : 3,547,244
195— 1.5 : 3,547,779
103.5 : 3,547,780
127 : 3,547,781
197— 63 : 3,547,245
114 : 3,547,246
180 : 3,547,247
198— 24 : 3,547,248
30 : 3,547,249
3,547,250
38 : 3,547,714
40 : 3,547,251
218 : 3,547,252
219 : 3,547,253
221 : 3,547,254
200— 11 : 3,548,123
34 : 3,548,124
38 : 3,548,125
3,548,126
56 : 3,548,129
61.14: 3,548,127
.57: 3,548,128
67 : 3,548,130
3,548,131
3,548,132
81.9 : 3,548,133
86.5 : 3,548,134
144 : 3,548,135
153 : 3,548,137
157 : 3,548,136
159 : 3,548,138
168 : 3,548,139
202—227 : 3,547,782
203— 37 : 3,547,783
204— 20 : 3,547,784
30 : 3,547,785
38 : 3,547,786
3,547,787
3,547,788
39 : 3,547,789
59 : 3,547,790
98 : 3,547,791
159.14: 3,547,792
.21: 3,547,793
195 : 3,547,794
212 : 3,547,795
213 : 3,547,796
224 : 3,547,797
3,547,798
204—250 : 3,547,799
269 : 3,547,800
305 : 3,547,801
312 : 3,547,802
206— 46 : 3,547,256
63.2 : 3,547,257
65 : 3,547,258
3,547,259
208— 11 : 3,547,803
46 : 3,547,804
48 : 3,547,805
3,547,806
111 : 3,547,807
3,547,808
143 : 3,547,809
209— 3 : 3,547,260
73 : 3,547,262
102 : 3,547,263
111.7 : 3,547,265
116 : 3,547,264
125 : 3,547,266
240 : 3,547,267
210— 7 : 3,547,811
3,547,812
3,547,813
3,547,814
3,547,815
15 : 3,547,816
58 : 3,547,817
62 : 3,547,810
71 : 3,547,268
230 : 3,547,269
264 : 3,547,270
321 : 3,547,271
3,547,272
211— 84 : 3,547,273
89 : 3,547,274
177 : 3,547,275
212— 1 : 3,547,276
10 : 3,547,277
49 : 3,547,278
214— 1 : 3,547,279
6 : 3,547,280
16.1 : 3,547,281
.4 : 3,547,282
17 : 3,547,283
77 : 3,547,284
84 : 3,547,285
89 : 3,547,286
90 : 3,547,287
317 : Re.27,001
372 : 3,547,288
451 : 3,547,289
506 : 3,547,290
515 : 3,547,291
520 : 3,547,292
761 : 3,547,293
215— 1 : 3,547,294
9 : 3,547,295
11 : 3,547,296
46 : 3,547,297
219— 10.53: 3,548,140
62 : 3,548,141
69 : 3,548,142
75 : 3,548,143
97 : 3,548,144
121 : Re.27,005
137 : 3,548,145
156 : 3,548,149
200 : 3,548,146
212 : 3,548,147
262 : 3,548,148
267 : 3,548,150
273 : 3,548,151
400 : 3,548,152
3,548,153
403 : 3,548,154
497 : 3,548,155
499 : 3,548,156
501 : 3,548,157
530 : 3,548,158
535 : 3,548,159
220— 3 : 3,547,298
4 : 3,547,299
3,547,300
10 : 3,547,301
15 : 3,547,302
22 : 3,547,303
.2 : 3,547,304
.3 : 3,547,311
24 : 3,547,305
26 : 3,547,306
69 : 3,547,307
90.2 : 3,547,308
97 : 3,547,309
113 : 3,547,310
221— 67 : 3,547,312
78 : 3,547,313
301 : 3,547,314
222— 61 : 3,547,315
82 : 3,547,316
402.2 : 3,547,317
223— 2 : 3,547,318
28 : 3,547,319
40 : 3,547,320
88 : 3,547,321
224— 5 : 3,547,322
28 : 3,547,323
3,547,324
39 : 3,547,325
42.42: 3,547,326
225— 38 : 3,547,327
49 : 3,547,328
97 : 3,547,329
226— 88 : 3,547,330
114 : 3,547,331
195 : 3,547,332
227— 11 : 3,547,333
228— 3 : 3,547,334
44 : 3,547,335
229— 16 : 3,547,336
69 : 3,547,337
43 : 3,547,338
52 : 3,547,339
55 : 3,547,340
63 : 3,547,341
68 : 3,547,342
69 : 3,547,343
232— 43.2 : 3,547,344
234—115 : 3,547,345
3,547,346
235— 61.11: 3,548,162
.6 : 3,548,160
3,548,161
63 : 3,547,347
92 : 3,548,163
3,548,164
3,548,165
3,548,166
3,548,167
3,548,168
3,548,169
151.1 : 3,548,170
3,548,171
.11: 3,548,172
3,548,173
152 : 3,548,174
153 : 3,548,175
3,548,176
3,548,177
3,548,178
156 : 3,548,179
159 : 3,548,180
168 : 3,548,181
176 : 3,548,182
183 : 3,548,183
236— 44 : 3,547,348
239—265.35: 3,547,349
308 : 3,547,350
338 : 3,547,351
383 : 3,547,352
460 : 3,547,353
500 : 3,547,354
547 : 3,547,355
240— 2 : 3,548,184
8.12: 3,548,185
46.03: 3,548,186
51.11: 3,548,187
241— 28 : 3,547,356
3,547,357
44 : 3,547,358
47 : 3,547,359
191 : 3,547,360
242— 18 : 3,547,361
3,547,362
26.3 : 3,547,363
43 : 3,547,364
56 : 3,547,365
68.3 : 3,547,366
.6 : 3,547,367
74.2 : 3,547,368
75.52: 3,547,369
76 : 3,547,370
107 : 3,547,371
192 : 3,547,372
197 : 3,547,373
3,547,374
243— 38 : 3,547,374
244— 1 : 3,547,375
3,547,376
17.25: 3,547,377
33 : 3,547,378
55 : 3,547,379
3,547,380
77 : 3,547,381
121 : 3,547,382
150 : 3,547,383
154 : 3,547,384
248— 62 : 3,547,385
63 : 3,547,386
119 : 3,547,387
214 : 3,547,388
220.5 : 3,547,389
280 : 3,547,390
311 : 3,547,391
360 : 3,547,392
385 : 3,547,393
412 : 3,547,394
249— 19 : 3,547,395
3,547,396
219 : 3,547,397
3,547,398
250— 41.9 : 3,548,188
250— 49.5 : 3,548,189
51.5 : 3,548,190
83.1 : 3,548,191
.3 : 3,548,192
3,548,193
3,548,194
.6 : 3,548,207
103 : 3,548,208
106 : 3,548,209
202 : 3,548,210
203 : 3,548,211
3,548,212
211 : 3,548,213
213 : 3,548,214
219 : 3,548,195
224 : 3,548,196
229 : 3,548,197
251— 86 : 3,547,399
88 : 3,547,400
144 : 3,547,401
149.6 : 3,547,402
170 : 3,547,403
231 : 3,547,404
354 : 3,547,405
252— 1 : 3,547,818
12 : 3,547,819
32.5 : 3,547,820
49.8 : 3,547,821
62.1 : 3,547,822
.51: 3,547,823
3,547,824
172 : 3,547,825
186 : 3,547,826
301.2 : 3,547,827
351 : 3,547,828
429 : 3,547,829
432 : 3,547,830
455 : 3,547,831
3,547,832
463 : 3,547,833
511 : 3,547,834
514 : 3,547,835
254—134.4 : 3,547,406
167 : 3,547,407
259— 4 : 3,547,408
3,547,409
3,547,410
6 : 3,547,261
108 : 3,547,413
148 : 3,547,411
3,547,412
260— 2.5 : 3,547,836
3,547,837
3,547,838
3,547,839
3,547,840
3,547,841
3,547,842
3,547,843
7 : 3,547,844
17 : 3,547,845
21 : 3,547,846
22 : 3,547,847
3,547,848
3,547,849
23.5 : 3,547,851
28.5 : 3,547,850
29.3 : 3,547,868
.6 : 3,547,852
3,547,853
3,547,854
30.4 : 3,547,869
32.6 : 3,547,870
33.2 : 3,547,950
37 : 3,547,871
40 : 3,547,872
3,547,873
45.8 : 3,547,874
3,547,875
3,547,876
3,547,877
3,547,878
.85: 3,547,880
.9 : 3,547,879
47 : 3,547,881
3,547,882
3,547,883
3,547,884
3,547,885
3,547,886
3,547,887
75 : 3,547,888
3,547,889
3,547,890
3,547,891
77.5 : 3,547,892
3,547,893
3,547,894
3,547,896
3,547,897
78 : 3,547,895
.4 : 3,548,408
.5 : 3,547,898
79.3 : 3,547,899
80.78: 3,547,855
.81: 3,547,856

260— 85.5 : 3,547,857
87.3 : 3,547,858
.5 : 3,547,859
89.1 : 3,547,860
.5 : 3,547,861
3,548,035
93.5 : 3,547,862
3,547,863
94.3 : 3,547,864
.7 : 3,547,865
.9 : 3,547,866
97.5 : 3,547,867
112 : 3,547,900
146 : 3,547,901
210 : 3,547,902
3,547,903
211 : 3,547,904
.5 : 3,547,905
233.3 : 3,547,907
239.3 : 3,547,906
.5 : 3,547,908
.55: 3,547,909
3,547,910
3,547,912
3,547,913
.57: 3,547,911
240 : 3,547,914
3,547,916
244 : 3,547,915
247.1 : 3,547,917
248 : 3,547,918
249.7 : 3,547,919
250 : 3,547,920
251 : 3,547,921
268 : 3,547,922
3,547,923
274 : 3,547,924
279 : 3,547,925
3,547,926
3,547,927
3,547,928
3,547,929
294.7 : 3,547,932
3,547,933
.8 : 3,547,931
295.5 : 3,547,934
297 : 3,547,935
3,547,936
302 : 3,547,937
306.6 : 3,547,938
.7 : 3,547,939
307 : 3,547,940
308 : 3,547,941
309 : 3,547,942
.7 : 3,547,943
310 : 3,547,944
325 : 3,547,945
326.5 : 3,547,946
.85: 3,547,947
327 : 3,547,948
3,547,949
340.9 : 3,547,951
343.2 : 3,547,952
345.3 : 3,547,953
.7 : 3,547,954
346.2 : 3,547,955
348 : 3,547,956
374 : 3,547,957
395 : 3,547,958
397.3 : 3,547,959
408 : 3,547,960
410.6 : 3,547,961
413 : 3,547,962
429 : 3,547,963
3,547,964
.5 : 3,547,966
.7 : 3,547,965
440 : 3,547,967
448 : 3,547,968
3,547,969
453 : 3,547,970
462 : 3,547,971
465 : 3,547,974
.3 : 3,547,972
.4 : 3,547,975
.6 : 3,547,973
468 : 3,547,976
471 : 3,547,977
473 : Re.27,004
260— 476 : 3,547,978
479 : 3,547,979
482 : 3,547,980
485 : 3,547,981
488 : 3,547,982
3,547,983
497 : 3,547,984
501.12: 3,547,985
.13: 3,547,986
507 : 3,547,987
512 : 3,547,988
515 : 3,547,989
534 : 3,547,990
535 : 3,547,991
544 : 3,547,992
545 : 3,547,993
561 : 3,547,994
3,547,995
564 : 3,547,996
566 : 3,547,997
570.5 : 3,547,998
.8 : 3,547,999
583 : 3,548,000
3,548,001
3,548,002
584 : 3,548,003
3,548,004
591 : 3,548,005
599 : 3,548,006
609 : 3,548,007
3,548,008
613 : 3,548,009
615 : 3,548,010
624 : 3,548,011
634 : 3,548,012
641 : 3,548,013
652 : 3,548,014
653.3 : 3,548,015
659 : 3,548,016
668 : 3,548,017
670 : 3,548,018
672 : 3,548,019
3,548,020
673.5 : 3,548,021
680 : 3,548,022
683 : 3,548,024
.53: 3,548,023
824 : 3,548,025
835 : 3,548,026
836 : 3,548,030
850 : 3,548,027
857 : 3,548,028
864 : 3,548,029
874 : 3,548,031
876 : 3,548,032
879 : 3,548,033
884 : 3,548,034
897 : 3,548,036
899 : 3,548,037
932 : 3,548,038
982 : 3,548,039
986 : 3,548,040
261— 36 : 3,547,414
50 : 3,547,415
90 : 3,547,416
263— 32 : 3,547,417
3,547,418
47 : 3,547,419
52 : 3,547,420
264— 1 : 3,548,041
89 : 3,548,042
3,548,043
3,548,044
3,548,045
118 : 3,548,046
136 : 3,548,047
147 : 3,548,048
176 : 3,548,049
227 : 3,548,050
266— 3 : 3,547,421
3,547,422
23 : 3,547,424
267— 64 : 3,547,425
138 : 3,547,426
175 : 3,547,427
269— 97 : 3,547,428
270— 54 : 3,547,429
79 : 3,547,430
271— 11 : 3,547,431
271— 20 : 3,547,432
50 : 3,547,024
272— 57 : 3,547,433
3,547,434
60 : 3,547,435
273— 1 : 3,547,436
26 : 3,547,437
55 : 3,547,438
59 : 3,547,439
73 : 3,547,440
94 : 3,547,441
104 : 3,547,442
126 : 3,547,443
137 : 3,547,444
173 : 3,547,445
274— 4 : 3,547,446
3,547,447
7 : 3,547,448
9 : 3,547,449
10 : 3,547,450
277— 25 : 3,547,451
92 : 3,547,452
96 : 3,547,455
212 : 3,547,453
279— 47 : 3,547,454
280— 19 : 3,547,456
47.13: 3,547,457
.34: 3,547,458
79.2 : 3,547,459
95 : 3,547,460
104.5 : 3,547,461
3,547,462
106 : 3,547,463
124 : 3,547,464
3,547,465
3,547,466
150 : 3,547,467
3,547,468
483 : 3,547,469
502 : 3,547,470
285—337 : 3,547,471
287— 20.92: 3,547,472
87 : 3,547,473
3,547,474
103 : 3,547,475
292—216 : 3,547,476
294— 8.6 : 3,547,479
19 : 3,547,477
67 : 3,547,478
296— 23 : 3,547,480
3,547,481
3,547,482
3,547,483
297—111 : 3,547,487
141 : 3,547,484
162 : 3,547,488
377 : 3,547,485
385 : 3,547,489
388 : 3,547,490
408 : 3,547,486
3,547,491
442 : 3,547,492
299— 39 : 3,547,494
75 : 3,547,493
301— 64 : 3,547,494
302— 66 : 3,547,495
3,547,496
3,547,497
303— 6 : 3,547,498
21 : 3,547,499
3,547,500
3,548,198
307— 41 : 3,548,199
88.3 : 3,548,200
89 : 3,548,200
116 : 3,548,201
201 : 3,548,202
225 : 3,548,203
229 : 3,548,204
232 : 3,548,205
235 : 3,548,206
237 : 3,548,215
252 : 3,548,216
254 : 3,548,217
260 : 3,548,218
263 : 3,548,219
273 : 3,548,220
292 : 3,548,221
308—194 : 3,547,504
310— 4 : 3,548,222
8.7 : 3,548,228
10 : 3,548,223
3,548,224
38 : 3,548,225
68 : 3,548,226
83 : 3,548,227
89 : 3,548,229
93 : 3,548,230
141 : 3,548,231
178 : 3,548,232
232 : 3,548,232
312—209 : 3,547,505
222 : 3,547,506
246 : 3,547,507
313— 65 : 3,548,233
82 : 3,548,234
85 : 3,548,235
91 : 3,548,236
109 : 3,548,237
3,548,238
136 : 3,548,239
174 : 3,548,240
178 : 3,548,241
184 : 3,548,242
318 : 3,548,243
331 : 3,548,244
3,548,245
315— 3.5 : 3,548,246
.6 : 3,548,247
13 : 3,548,248
3,548,249
31 : 3,548,250
77 : 3,548,251
82 : 3,548,252
159 : 3,548,253
169 : 3,548,254
267 : 3,548,255
316— 19 : 3,547,508
317— 11 : 3,548,256
13 : 3,548,257
28 : 3,548,258
18 : 3,548,259
27 : 3,548,260
117 : 3,548,261
124 : 3,548,262
148.5 : 3,548,263
230 : 3,547,423
3,548,264
265 : 3,548,352
276 : 3,548,353
336— 57 : 3,548,354
60 : 3,548,355
192 : 3,548,356
205 : 3,548,357
318— 6 : 3,548,270
16 : 3,548,271
17 : 3,548,272
135 : 3,548,273
138 : 3,548,274
211 : 3,548,275
212 : 3,548,276
224 : 3,548,277
198 : 3,548,278
205 : 3,548,279
252 : 3,548,368
258 : 3,548,369
606 : 3,548,282
674 : 3,548,283
691 : 3,548,284
320— 1 : 3,548,285
146.1 : 3,548,375
322— 24 : 3,548,287
28 : 3,548,288
323— 4 : 3,548,294
9 : 3,548,289
19 : 3,548,290
22 : 3,548,291
61 : 3,548,292
68 : 3,548,295
69 : 3,548,293
102 : 3,548,296
324— .5 : 3,548,297
3,548,298
6 : 3,548,299
15 : 3,548,300
28 : 3,548,301
54 : 3,548,302
62 : 3,548,303
324— 65 : 3,548,304
77 : 3,548,305
80 : 3,548,306
103 : 3,548,307
106 : 3,548,308
325— 38 : 3,548,309
67 : 3,548,310
115 : 3,548,311
131 : 3,548,312
141 : 3,548,313
185 : 3,548,314
410 : 3,548,315
466 : 3,548,316
328— 20 : 3,548,317
35 : 3,548,318
41 : 3,548,319
46 : 3,548,320
133 : 3,548,321
140 : 3,548,322
142 : 3,548,323
150 : 3,548,324
178 : 3,548,325
329— 1 : 3,548,326
50 : 3,548,327
126 : 3,548,328
330— 10 : 3,548,329
17 : 3,548,330
24 : 3,548,331
29 : 3,548,332
30 : 3,548,333
124 : 3,548,334
331— 94.5 : 3,548,335
3,548,336
3,548,337
3,548,338
3,548,339
3,548,340
178 : 3,548,341
332— 9 : 3,548,342
333— 24.2 : 3,548,343
28 : 3,548,344
31 : 3,548,345
72 : 3,548,346
79 : 3,548,347
98 : 3,548,348
124 : 3,548,349
335—132 : 3,548,349
210 : 3,548,350
216 : 3,548,351
265 : 3,548,352
276 : 3,548,353
337— 83 : 3,548,358
12 : 3,548,371
64 : 3,548,372
82 : 3,548,372
338—268 : 3,548,359
339— 14 : 3,548,360
17 : 3,548,361
95 : 3,548,362
127 : 3,548,363
145 : 3,548,364
176 : 3,548,365
198 : 3,548,366
205 : 3,548,367
252 : 3,548,368
258 : 3,548,369
340— 3 : 3,548,370
12 : 3,548,371
64 : 3,548,373
82 : 3,548,375
146.1 : 3,548,376
418— 31 : 3,547,562
61 : 3,547,563
3,547,564
3,547,565
424— 3 : 3,548,051
16 : 3,548,052
85 : 3,548,053
89 : 3,548,054
3,548,055
171 : 3,548,056
201 : 3,548,057
285 : 3,548,058
431— 88 : 3,547,566
158 : 3,547,568
202 : 3,547,567
295 : 3,547,569
350 : 3,547,570
340—174.1 : 3,548,392
3,548,393
3,548,394
228.2 : 3,548,395
231 : 3,548,396
248 : 3,548,398
253 : 3,548,399
274 : 3,548,401
282 : 3,548,400
3,548,402
3,548,403
347 : 3,548,397
3,548,404
3,548,405
3,548,406
353 : 3,548,407
381 : Re.27,003
350— 3.5 : 3,547,509
3,547,510
3,547,511
6 : 3,547,512
30 : 3,547,513
39 : 3,547,514
97 : 3,547,515
3,547,516
105 : 3,547,517
117 : 3,547,518
123 : 3,547,519
131 : 3,547,520
160 : 3,547,545
162 : 3,547,546
171 : 3,547,521
174 : 3,547,522
184 : 3,547,523
200 : 3,547,525
3,547,526
285 : 3,547,527
351— 3 : 3,547,528
352— 31 : 3,547,529
353— 70 : 3,547,530
76 : 3,547,531
355— 2 : 3,547,532
3 : 3,547,533
5 : 3,547,534
49 : 3,547,535
50 : 3,547,536
92 : 3,547,537
106 : 3,547,538
356— 5 : 3,547,539
28 : 3,547,540
81 : 3,547,541
83 : 3,547,542
106 : 3,547,524
108 : 3,547,543
113 : 3,547,544
197 : 3,547,547
226 : 3,547,548
246 : 3,547,549
401— 78 : 3,547,550
3,547,551
243 : 3,547,552
415— 7 : 3,547,553
213 : 3,547,554
416— 61 : 3,547,555
110 : 3,547,556
417— 48 : 3,547,255
89 : 3,547,557
199 : 3,547,558
279 : 3,547,559
375 : 3,547,560
488 : 3,547,561
418— 31 : 3,547,562
61 : 3,547,563
3,547,564
3,547,565
424— 3 : 3,548,051
16 : 3,548,052
85 : 3,548,053
89 : 3,548,054
3,548,055
171 : 3,548,056
201 : 3,548,057
285 : 3,548,058
431— 88 : 3,547,566
158 : 3,547,568
202 : 3,547,567
295 : 3,547,569
350 : 3,547,570

D 2–250	219,419	D 9–237	219,433	D23– 40	219,447	D34– 2	219,469	D44– 9	219,475	D80– 9	219,489
D 8– 57	219,420	253	219,434	49	219,448	5	219,460	D48– 32	219,476		219,490
72	219,421	254	219,435	139	219,449		219,461		219,477		219,491
144	219,422	D13– 1	219,436		219,450	15	219,462	D49– 30	219,478	D81– 10	219,492
171	219,423		219,437	D26– 1	219,455		219,463	D52– 3	219,479	D83– 1	219,493
	219,424		219,438	14	219,451		219,464	D56– 4	219,480		219,494
179	219,425		219,439		219,452		219,465		219,481	D85– 7	219,495
273	219,426	D14– 6	219,440		219,453		219,466	D61– 1	219,482	D86– 10	219,496
D 9–160	219,427	30	219,441		219,454		219,467	D67– 3	219,483	11	219,497
176	219,428	D15– 1	219,442	D28– 1	219,456		219,470	D71– 1	219,484	D90– 20	219,498
182	219,429		219,443	D33– 8	219,457	D36– 8	219,471		219,485		219,499
188	219,430		219,444	14	219,458	D44– 9	219,472		219,486		219,500
192	219,431	D22– 27	219,445		219,459		219,473	D74– 9	219,487	D95– 3	219,501
220	219,432	D23– 2	219,446	D34– 2	219,468		219,474	D80– 8	219,488		219,502

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

3,548,284	6 : 3,547,152	6 : 3,547,600	6 : 3,548,345	10 : 3,547,856	17 : 3,546,870
1 : 3,546,862	3,547,153	3,547,606	3,548,361	3,547,880	3,546,874
3,547,168	3,547,154	3,547,631	3,548,375	3,547,894	3,546,893
3,547,705	3,547,173	3,547,633	3,548,381	3,547,940	3,546,897
3,547,868	3,547,191	3,547,676	3,548,394	3,547,963	3,546,911
3,548,214	3,547,227	3,547,698	7 : 3,546,821	3,547,972	3,546,944
4 : 3,546,999	3,547,228	3,547,701	8 : 3,546,998	3,547,979	3,546,958
3,547,343	3,547,249	3,547,727	3,547,109	3,547,995	3,546,963
3,547,397	3,547,257	3,547,740	3,547,218	3,548,019	3,547,003
3,547,556	3,547,260	3,547,754	3,547,381	3,548,261	3,547,030
3,547,718	3,547,271	3,547,796	3,547,382	11 : 3,546,917	3,547,052
3,548,189	3,547,276	3,547,803	3,548,327	3,546,920	3,547,076
5 : 3,547,367	3,547,281	3,547,807	3,548,328	3,547,105	3,547,082
3,547,393	3,547,282	3,547,808	3,548,378	3,547,376	3,547,101
6 : RE.27,001	3,547,316	3,547,810	9 : RE.27,005	3,547,441	3,547,117
3,546,711	3,547,319	3,547,843	3,546,741	3,547,801	3,547,119
3,546,718	3,547,321	3,547,865	3,546,762	3,548,107	3,547,158
3,546,721	3,547,325	3,547,881	3,546,851	3,548,335	3,547,166
3,546,766	3,547,350	3,547,896	3,546,880	3,548,371	3,547,172
3,546,771	3,547,351	3,547,911	3,547,042	12 : 3,546,712	3,547,201
3,546,773	3,547,355	3,547,951	3,547,265	3,546,726	3,547,212
3,546,789	3,547,375	3,547,964	3,547,295	3,546,858	3,547,234
3,546,819	3,547,385	3,547,971	3,547,334	3,546,951	3,547,237
3,546,822	3,547,395	3,547,984	3,547,377	3,547,135	3,547,240
3,546,844	3,547,396	3,547,999	3,547,522	3,547,200	3,547,291
3,546,856	3,547,400	3,548,021	3,547,555	3,547,207	3,547,292
3,546,863	3,547,402	3,548,046	3,547,557	3,547,384	3,547,293
3,546,884	3,547,407	3,548,066	3,547,562	3,547,443	3,547,294
3,546,919	3,547,409	3,548,079	3,547,601	3,547,487	3,547,299
3,546,923	3,547,411	3,548,091	3,547,607	3,547,615	3,547,300
3,546,925	3,547,415	3,548,095	3,547,746	13 : 3,547,002	3,547,303
3,546,927	3,547,427	3,548,096	3,547,851	3,547,425	3,547,305
3,546,933	3,547,430	3,548,106	3,547,857	14 : 3,547,436	3,547,314
3,546,937	3,547,444	3,548,118	3,547,989	15 : 3,546,714	3,547,317
3,546,978	3,547,448	3,548,156	3,548,129	3,546,793	3,547,318
3,546,981	3,547,458	3,548,174	3,548,194	16 : 3,547,285	3,547,322
3,546,988	3,547,459	3,548,181	3,548,259	17 : 3,546,717	3,547,323
3,546,996	3,547,469	3,548,193	3,548,317	3,546,734	3,547,337
3,546,997	3,547,471	3,548,206	3,548,358	3,546,735	3,547,344
3,547,014	3,547,477	3,548,207	3,548,395	3,546,763	3,547,353
3,547,020	3,547,479	3,548,211	3,548,397	3,546,782	3,547,369
3,547,026	3,547,495	3,548,215	3,548,403	3,546,788	3,547,374
3,547,068	3,547,525	3,548,217	3,548,405	3,546,801	3,547,399
3,547,074	3,547,527	3,548,220	10 : 3,547,008	3,546,811	3,547,401
3,547,079	3,547,534	3,548,222	3,547,063	3,546,834	3,547,405
3,547,087	3,547,540	3,548,254	3,547,456	3,546,841	3,547,426
3,547,107	3,547,541	3,548,306	3,547,655	3,546,842	3,547,446
3,547,115	3,547,542	3,548,311	3,547,835	3,546,860	3,547,450
3,547,120	3,547,587	3,548,330	3,547,839	3,546,865	3,547,519
3,547,146	3,547,599	3,548,344	3,547,849	3,546,866	3,547,590

39 : 3,547,365
3,547,368
3,547,378
3,547,379
3,547,380
3,547,419
3,547,438
3,547,445
3,547,454
3,547,537
3,547,568
3,547,570
3,547,610
3,547,678
3,547,703
3,547,729
3,547,734
3,547,751
3,547,762
3,547,765
3,547,767
3,547,769
3,547,775
3,547,797
3,547,798
3,547,827
3,547,991
3,548,037
3,548,068
3,548,077
3,548,144
3,548,163
3,548,164
3,548,190
3,548,204
3,548,239
3,548,245
3,548,258
3,548,314
3,548,318
3,548,396
40 : 3,546,745
3,546,804
3,546,828
3,546,848
3,546,940
3,547,132
3,547,142
3,547,144
3,547,195
3,547,199

40 : 3,547,449
3,547,553
3,547,578
3,547,597
3,547,674
3,547,697
3,547,805
3,547,850
3,547,862
3,547,962
3,547,968
3,547,969
3,548,023
3,548,043
3,548,048
3,548,170
3,548,362
3,548,370
41 : 3,546,728
3,547,090
3,547,844
42 : Re.27,003
3,546,715
3,546,720
3,546,740
3,546,746
3,546,755
3,546,761
3,546,767
3,546,784
3,546,787
3,546,818
3,546,838
3,546,881
3,546,887
3,546,907
3,546,909
3,546,913
3,546,929
3,546,976
3,547,032
3,547,061
3,547,064
3,547,106
3,547,150
3,547,180
3,547,230
3,547,252
3,547,277
3,547,280
3,547,297

42 : 3,547,309
3,547,320
3,547,333
3,547,348
3,547,362
3,547,363
3,547,403
3,547,463
3,547,475
3,547,566
3,547,567
3,547,577
3,547,579
3,547,598
3,547,605
3,547,622
3,547,623
3,547,656
3,547,666
3,547,669
3,547,753
3,547,766
3,547,771
3,547,778
3,547,779
3,547,817
3,547,819
3,547,828
3,547,845
3,547,853
3,547,871
3,547,879
3,547,909
3,547,980
3,547,990
3,547,993
3,548,039
3,548,062
3,548,100
3,548,158
3,548,218
3,548,219
3,548,238
3,548,256
3,548,272
3,548,286
3,548,324
3,548,343
3,548,346
3,548,354
3,548,355

42 : 3,548,357
3,548,367
3,548,369
3,548,382
44 : 3,546,800
3,546,872
3,547,069
3,547,126
3,547,404
3,547,422
3,547,688
45 : 3,546,835
3,546,900
3,547,742
3,547,792
3,547,852
3,548,264
3,548,265
3,548,373
46 : 3,547,083
3,547,256
47 : 3,546,861
3,547,159
3,547,185
3,547,424
3,547,518
3,547,547
3,547,709
3,547,893
48 : 3,546,736
3,546,748
3,546,790
3,546,796
3,546,826
3,546,854
3,546,885
3,546,888
3,546,889
3,546,891
3,546,896
3,546,926
3,547,057
3,547,189
3,547,190
3,547,192
3,547,193
3,547,196
3,547,198
3,547,209
3,547,217
3,547,263

48 : 3,547,268
3,547,289
3,547,324
3,547,354
3,547,406
3,547,437
3,547,466
3,547,488
3,547,496
3,547,535
3,547,583
3,547,684
3,547,806
3,547,872
3,547,897
3,548,002
3,548,017
3,548,030
3,548,063
3,548,169
3,548,185
3,548,271
3,548,310
3,548,407
49 : 3,546,779
3,547,113
3,547,482
3,547,484
3,548,384
50 : 3,546,754
3,548,266
51 : 3,546,739
3,546,778
3,546,928
3,546,931
3,546,948
3,547,011
3,547,112
3,547,130
3,547,247
3,547,287
3,547,315
3,547,336
3,547,652
3,547,700
3,547,752
3,547,763
3,547,768
3,547,773
3,547,780
3,547,891

51 : 3,548,042
3,548,071
3,548,168
3,548,350
53 : 3,546,797
3,547,051
3,547,108
3,547,170
3,547,177
3,547,266
3,547,408
3,547,485
3,547,982
3,548,064
3,548,112
54 : 3,546,986
3,547,206
3,547,225
3,547,569
3,547,938
3,547,960
3,548,008
3,548,018
3,548,047
55 : 3,546,729
3,546,849
3,546,875
3,547,007
3,547,080
3,547,118
3,547,160
3,547,259
3,547,392
3,547,529
3,547,603
3,547,665
3,547,723
3,547,749
3,547,776
3,547,777
3,547,800
3,548,122
3,548,131
3,548,132
3,548,279
3,548,280
3,548,290
3,548,399
56 : 3,547,197
3,548,404

Design Patents

1 : 219,437
219,438
219,491
6 : 219,420
219,449
219,450
219,453
219,454
219,464
219,466
219,467
219,469

6 : 219,470
219,479
219,480
219,493
219,494
8 : 219,436
219,447
219,482
9 : 219,435
219,463
11 : 219,444
12 : 219,452

12 : 219,456
219,484
17 : 219,422
219,425
219,432
219,488
19 : 219,455
20 : 219,492
219,495
24 : 219,487
25 : 219,440
219,462

25 : 219,489
26 : 219,421
219,423
219,424
219,426
219,457
219,477
27 : 219,445
219,486
32 : 219,442
34 : 219,434

34 : 219,473
219,474
219,475
219,502
36 : 219,427
219,446
219,461
219,465
219,468
37 : 219,451
219,485

39 : 219,460
219,472
219,490
40 : 219,478
42 : 219,419
48 : 219,428
49 : 219,448
51 : 219,439
53 : 219,433
219,496
55 : 219,483

17 : 3,547,629
3,547,630
3,547,653
3,547,660
3,547,662
3,547,663
3,547,664
3,547,685
3,547,707
3,547,737
3,547,738
3,547,744
3,547,826
3,547,848
3,547,925
3,547,926
3,547,927
3,547,928
3,547,929
3,547,933
3,547,934
3,547,953
3,547,976
3,547,977
3,548,065
3,548,090
3,548,114
3,548,116
3,548,123
3,548,124
3,548,125
3,548,126
3,548,133
3,548,136
3,548,137
3,548,138
3,548,140
3,548,141
3,548,153
3,548,155
3,548,166
3,548,205
3,548,208
3,548,255
3,548,278
3,548,331
3,548,356
3,548,360
3,548,387
18 : 3,546,747
3,546,794
3,546,837
3,546,859
3,546,894
3,546,922
3,546,974
3,546,982
3,546,987
3,547,013
3,547,048
3,547,103
3,547,216
3,547,238
3,547,308
3,547,372
3,547,435
3,547,461
3,547,483
3,547,489
3,547,565
3,547,586
3,547,591
3,547,611
3,547,614
3,547,686
3,547,741
3,547,846
3,547,892
3,547,998
3,548,013
3,548,020
3,548,054
3,548,151
3,548,165
3,548,263
3,548,315
19 : 3,546,719
3,546,737
3,546,785
3,547,081
3,547,157
3,547,306
3,548,304
20 : 3,546,791
3,546,799
3,546,816
3,546,853
3,546,864
3,546,930
3,547,128
3,547,258
3,547,360
3,547,619
3,547,621
3,547,689
21 : 3,546,832

21 : 3,546,985
3,547,245
22 : 3,546,886
3,546,945
3,547,574
3,547,772
3,548,128
23 : 3,547,085
3,547,279
24 : 3,546,738
3,546,935
3,546,949
3,547,029
3,547,123
3,547,141
3,547,706
3,547,789
3,547,793
3,548,055
3,548,056
3,548,200
3,548,319
25 : 3,546,723
3,546,727
3,546,795
3,546,823
3,546,932
3,546,943
3,546,959
3,546,984
3,547,149
3,547,164
3,547,194
3,547,222
3,547,311
3,547,312
3,547,339
3,547,345
3,547,346
3,547,357
3,547,432
3,547,520
3,547,524
3,547,546
3,547,571
3,547,575
3,547,609
3,547,626
3,547,661
3,547,680
3,547,690
3,547,717
3,547,795
3,547,818
3,547,886
3,547,898
3,548,029
3,548,094
3,548,127
3,548,175
3,548,187
3,548,227
3,548,237
3,548,268
3,548,269
3,548,276
3,548,293
3,548,298
3,548,307
3,548,323
3,548,326
3,548,329
3,548,341
3,548,347
3,548,351
3,548,365
3,548,383
3,548,389
3,548,398
26 : 3,546,713
3,546,752
3,546,758
3,546,760
3,546,770
3,546,824
3,546,827
3,546,845
3,546,879
3,546,918
3,546,936
3,546,946
3,546,956
3,546,962
3,546,967
3,546,975
3,546,977
3,546,980
3,546,983
3,547,038
3,547,043
3,547,050
3,547,093
3,547,097
3,547,163
3,547,182
3,547,203

26 : 3,547,215
3,547,231
3,547,232
3,547,241
3,547,244
3,547,253
3,547,254
3,547,340
3,547,352
3,547,359
3,547,389
3,547,433
3,547,439
3,547,462
3,547,467
3,547,468
3,547,474
3,547,490
3,547,500
3,547,501
3,547,505
3,547,532
3,547,554
3,547,576
3,547,589
3,547,594
3,547,654
3,547,673
3,547,719
3,547,739
3,547,838
3,547,905
3,547,956
3,547,958
3,547,966
3,547,967
3,548,000
3,548,009
3,548,050
3,548,093
3,548,119
3,548,142
3,548,150
3,548,172
3,548,173
3,548,209
3,548,210
3,548,212
3,548,251
3,548,257
3,548,363
27 : 3,546,709
3,546,733
3,546,743
3,546,803
3,546,839
3,546,840
3,547,127
3,547,151
3,547,221
3,547,233
3,547,290
3,547,480
3,547,492
3,547,560
3,547,563
3,547,564
3,547,585
3,547,648
3,547,900
3,548,221
3,548,333
3,548,392
28 : 3,546,815
3,546,829
3,547,056
3,547,398
3,547,517
3,548,152
29 : 3,547,028
3,547,045
3,547,046
3,547,047
3,547,326
3,547,331
3,547,390
3,547,394
3,547,470
3,547,481
3,547,498
3,547,531
3,547,618
3,547,620
3,547,667
3,547,825
3,547,994
3,548,026
3,548,070
3,548,197
3,548,252
30 : 3,547,273
31 : 3,546,831
33 : 3,546,731
3,546,775
3,546,833
3,547,147

33 : 3,547,725
3,548,242
3,548,303
3,548,402
34 : Re.27,004
3,546,716
3,546,744
3,546,753
3,546,759
3,546,765
3,546,772
3,546,938
3,546,954
3,546,961
3,546,995
3,547,034
3,547,036
3,547,054
3,547,059
3,547,060
3,547,071
3,547,121
3,547,143
3,547,226
3,547,272
3,547,274
3,547,313
3,547,327
3,547,329
3,547,330
3,547,341
3,547,416
3,547,423
3,547,434
3,547,440
3,547,503
3,547,508
3,547,509
3,547,511
3,547,530
3,547,580
3,547,584
3,547,596
3,547,624
3,547,628
3,547,641
3,547,650
3,547,651
3,547,658
3,547,670
3,547,682
3,547,692
3,547,724
3,547,728
3,547,730
3,547,731
3,547,774
3,547,787
3,547,820
3,547,829
3,547,830
3,547,831
3,547,842
3,547,847
3,547,855
3,547,861
3,547,867
3,547,870
3,547,876
3,547,877
3,547,878
3,547,885
3,547,888
3,547,907
3,547,913
3,547,921
3,547,931
3,547,932
3,547,935
3,547,939
3,547,941
3,547,945
3,547,947
3,547,948
3,547,950
3,547,973
3,547,983
3,547,996
3,548,001
3,548,003
3,548,004
3,548,005
3,548,011
3,548,032
3,548,057
3,548,058
3,548,067
3,548,101
3,548,105
3,548,134
3,548,146
3,548,149
3,548,157
3,548,162
3,548,199
3,548,233

34 : 3,548,236
3,548,260
3,548,294
3,548,301
3,548,308
3,548,309
3,548,320
3,548,336
3,548,339
3,548,340
3,548,348
3,548,364
3,548,366
35 : 3,547,211
3,547,455
3,548,352
36 : 3,546,742
3,546,757
3,546,764
3,546,776
3,546,792
3,546,808
3,546,809
3,546,817
3,546,843
3,546,892
3,546,903
3,546,921
3,546,965
3,546,966
3,546,991
3,547,012
3,547,015
3,547,017
3,547,055
3,547,070
3,547,073
3,547,077
3,547,095
3,547,102
3,547,110
3,547,114
3,547,131
3,547,134
3,547,138
3,547,155
3,547,169
3,547,186
3,547,210
3,547,219
3,547,220
3,547,255
3,547,262
3,547,270
3,547,275
3,547,296
3,547,304
3,547,342
3,547,366
3,547,373
3,547,383
3,547,413
3,547,431
3,547,442
3,547,472
3,547,491
3,547,507
3,547,510
3,547,512
3,547,513
3,547,515
3,547,516
3,547,526
3,547,528
3,547,533
3,547,604
3,547,625
3,547,627
3,547,632
3,547,635
3,547,636
3,547,638
3,547,639
3,547,640
3,547,643
3,547,644
3,547,647
3,547,659
3,547,661
3,547,708
3,547,710
3,547,716
3,547,745
3,547,747
3,547,748
3,547,770
3,547,790
3,547,809
3,547,811
3,547,812
3,547,813
3,547,814
3,547,815
3,547,821
3,547,822
3,547,902

36 : 3,547,903
3,547,906
3,547,908
3,547,922
3,547,923
3,547,936
3,547,937
3,547,955
3,547,978
3,547,988
3,547,997
3,548,016
3,548,024
3,548,033
3,548,038
3,548,040
3,548,045
3,548,081
3,548,097
3,548,099
3,548,139
3,548,160
3,548,161
3,548,176
3,548,177
3,548,178
3,548,184
3,548,186
3,548,188
3,548,191
3,548,195
3,548,196
3,548,203
3,548,225
3,548,246
3,548,270
3,548,274
3,548,282
3,548,285
3,548,297
3,548,300
3,548,305
3,548,374
3,548,377
3,548,385
3,548,386
3,548,388
3,548,391
3,548,401
37 : Re.27,006
3,546,722
3,546,905
3,547,031
3,547,171
3,547,264
3,547,288
3,547,391
3,547,802
3,547,875
3,548,202
3,548,342
38 : 3,546,857
3,547,358
39 : 3,546,725
3,546,730
3,546,750
3,546,768
3,546,769
3,546,781
3,546,783
3,546,786
3,546,805
3,546,820
3,546,825
3,546,846
3,546,869
3,546,882
3,546,895
3,546,898
3,546,969
3,547,001
3,547,025
3,547,035
3,547,049
3,547,075
3,547,084
3,547,098
3,547,099
3,547,104
3,547,139
3,547,140
3,547,181
3,547,183
3,547,184
3,547,202
3,547,204
3,547,205
3,547,208
3,547,223
3,547,224
3,547,267
3,547,283
3,547,284
3,547,307
3,547,310
3,547,361

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 15, 1970 Volume 881 Number 3

TRADEMARKS

NOTICES

Service by Publication

Compute-A-Match, its assigns or legal representatives, take notice:

An interference having been declared by this Office between the applications of PBI Research, Inc., 400 Montgomery Street, San Francisco, California 94104, for registrations of trademarks and application Serial No. 257,369, filed October 27, 1966, by Compute-A-Match, P.O. Box 9176, Asheville, North Carolina 28805, and the order to show cause sent to the said Compute-A-Match at the said address of record having been returned by the Post Office undeliverable, notice is hereby given that unless Compute-A-Match, its assigns or legal representatives, shall enter an appearance therein within thirty days from the first publication of this order, the interference will be proceeded with as in the case of default.

This notice will be published in the OFFICIAL GAZETTE for three consecutive weeks.

JOHN H. SCHNEIDER,
Examiner-in-Chief.

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 194,124 (WHITE SWAN UNIFORM DRESSES AND DESIGN), White Swan Uniforms, Inc., Uniform dresses, house dresses, porch dresses, daytime frocks, bath robes, evening dresses, street dresses, cloaks, suits, waists, and night dresses; **Reg. No. 286,103** ("WHITE SWAN" ETC. AND DESIGN), same, Men's professional and work uniforms—namely, coats, smocks, gowns, frocks, caps, neckties, vests, and aprons; **Reg. No. 530,368** (WHITE SWAN), White Swan Uniforms, Inc., Uniform dresses, **filed** Jan. 14, 1970, D.C.N.J. (Newark), Doc. C–49–70, *White Swan Uniforms, Inc.* v. *Servisco (Inc.)*. Stipulation and order of dismissal of action, Sept. 29, 1970.

Reg. No. 286,103. (See Reg. No. 194,124.)

Reg. No. 414,351 (WORLD SERIES), E. S. Lowe Company, Inc., Game comprising a game board, movable pieces and dice, **filed** Sept. 11, 1970, D.C., S.D.N.Y., Doc. 70–C–3979, *E. S. Lowe Co., Inc.* v. *Coleco Industries Inc.*

Reg. No. 420,486 (FOREVER YOUNG), Puritan Fashions Corporation, Ladies' and misses' dresses, dress and jacket ensembles, skirts, jackets, blouses, suits, coats, coat and suit ensembles, slacks, halters, and bathing suits, **filed** Sept. 23, 1970, D.C., S.D.N.Y., Doc. 70–C–4132, *Puritan Fashions Corporation* v. *Ralph Stern.*

Reg. No. 441,195 (1-2-3 MIXER AND DESIGN), One-Two-Three Manufacturing and Sales Corp., Combination of fruit flavoring and comestible acid solution for flavoring alcoholic beverages and alcoholic drinks; **Reg. No. 888,770** (1-2-3), General Foods Corporation, Dessert mix, **filed** Sept. 21, 1970, D.C. Conn. (Bridgeport), Doc. B–175, *1-2-3 Manufacturing and Sales Corporation* v. *General Foods Corporation.*

Reg. No. 530,368. (See Reg. No. 194,124.)

Reg. No. 562,437 (FARMER'S BEST), Tyler-Gregg Poultry and Egg Company, Inc., Fresh dressed and frozen frying,

CONDITION OF TRADEMARK APPLICATIONS AS OF OCTOBER 31, 1970

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	23,607
Date of oldest new application	September 17, 1969
Date of oldest amended application (filing date)	March 31, 1967

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISION, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 3, 4, 5, 7, 8, 9, 10, 11, 17, 27, 28, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 50; Certification Marks, Classes A and B	12-24-69	3-31-67
(II) F. H. WETHERBEE, Classes 1, 6, 15, 18, 45, 46, 47, 48, 49, 51, 52; Collective Membership Mark, Class 200	12-16-69	12-11-67
(III) C. R. FOWLER, Classes 12, 16, 19, 21, 23, 26, 31, 34, 35, 36, 44	2-26-70	10-30-67
(IV) M. E. ABRAMSON, Classes 13, 14, 20, 22, 24, 25, 29; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, and 107	9-17-69	1-26-68
Renewals (All Classes)	9-21-70	
Sec. 12(c) Publications (All Classes)	10-8-70	

Applications filed during the month of October 1970—2,802

Registrations Issued ---------- 436—No. 904,084 to No. 904,519
Renewals Issued ---------- 120

THE TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $20.50 per annum, foreign mailing $5.75 additional; single copies, 40 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C. 20231.

roasting, and broiling poultry, **filed** Mar. 11, 1969, D.C., S.D. Tex. (Houston), Doc. 69–H–231, *Louis H. Klayman, doing business as Farmer's Best Foods* v. *Farmbest, Inc.* Order of dismissal, Oct. 5, 1970.

Reg. No. 601,590 (THE FISHER), Fisher Radio Corporation, Radio receivers, television receivers, phonographs, combination radio receivers and phonographs, combination radio and television receivers and phonographs, and replacement parts for such receivers and phonographs, transformers, tuning coils, electronic tubes, radio tuning devices, amplifiers, controls for audio frequency amplifiers, filters for audio-frequency circuits, equalizers for amplifiers, speakers, speaker enclosures, horn type speaker enclosures, and turntables and changers for phonographs, **filed** June 15, 1967, D.C., S.D.N.Y., Doc. 67–C–2327, *Fisher Radio Corporation* v. *Fisher Sonic Company, Inc. et al.* Consent order of substitution of plaintiff and dismissal of action as to all defendants except Jenoe Kahan-Lasker, Sept. 14, 1970. Stipulation and order of discontinuance as to defendant Jenoe Kahan-Lasker, Sept. 14, 1970.

Reg. No. 611,148 (CURLEY'S FAMOUS HICKORY BURGER AND DESIGN), Christa M. Atwood, Sandwiches, **filed** July 14, 1970, D.C. Kans. (Wichita), Doc. W–4399, *Curley's Famous Hickory Burgers, Inc.* v. *Douglas Miller, doing business as Tastee Freeze.* Judgment, defendant permanently enjoined and restrained, Sept. 28, 1970.

Reg. No. 761,750 (GBS AND DESIGN), General Business Services, Inc., Business advisory, tax, and record keeping service, **filed** Sept. 28, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2182–IH, *General Business Services, Inc.* v. *William H. Kingston.*

Reg. No. 786,197 (POSH), Posh Incorporated, Sportswear—namely, women's pants, shirts, blouses, overblouses, jackets, skirts, dresses, coats, stoles, bathing suits and shorts; **Reg. No. 882,935**, same, **filed** Sept. 23, 1970, D.C., S.D. Fla. (Miami), Doc. 70–1404–C–JE, *Posh, Inc.* v. *E. I. du Pont de Nemours and Company.* **Same, filed** Sept. 25, 1970, D.C., S.D. Fla. (Miami), Doc. 70–1421–C–WM, *Posh, Inc.* v. *Spiegel, Inc.*

Reg. No. 807,373 (SARDOETTES), Sardeau, Inc., Bath oil impregnated pads, **filed** Jan. 12, 1968, D.C., S.D.N.Y., Doc. 68–C–165, *Sardeau, Inc.* v. *Helene Curtis Industries, Inc.* Stipulation and order of dismissal with prejudice, Sept. 4, 1970.

Reg. No. 822,159 (SYNECTICS), Synectics, Inc., Teaching services—namely, the teaching to individuals and groups, techniques for arriving at creative new concepts, products and solutions; and advising businesses and individuals and providing methods of moving new ideas from a conceptual stage into concrete implementation and through a business organization until such ideas emerge either into practice or into the market place, **filed** Sept. 24, 1970, D.C., N.D. Calif. (San Francisco), Doc. C70–2060 LHB, *Synectics, Inc. et al.* v. *Computer Synectics, Inc.*

Reg. No. 838,059 (WELLS FARGO), Wells Fargo & Company, Restaurant services; **Reg. No. 882,270** (WELLS FARGO BANKARD), Banking services, **filed** Sept. 18, 1970, D.C. Nev. (Las Vegas), Doc. C–LV 1496, *Wells Fargo & Company et al.* v. *Wells Fargo Express Company.*

Reg. No. 850,797 (MR. AMERICA), Amateur Athletic Union of the United States, Entertainment service in the form of an annual contest to select an American male citizen who represents the acme in physical and other attributes, **filed** Sept. 2, 1970, D.C., S.D.N.Y., Doc. 70–C–4282, *Amateur Athletic Union of the United States Inc.* v. *New York University et al.*

Reg. No. 882,270. (See Reg. No. 838,059.)

Reg. No. 882,935. (See Reg. No. 786,197.)

Reg. No. 888,770. (See Reg. No. 441,195.)

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 294,819. A. B. Dick Company, Niles, Ill. Filed Apr. 3, 1968.

PHOTOPLAX

Owner of Reg. No. 725,336.

Class 6—Chemicals and Chemical Compositions

For Materials for Use in Lithographic Printing—Namely, Image Accelerators, Plate Conditioners, Developer Solutions, Developer Concentrate, and Lacquers (Int. Cl. 1).

Class 37—Paper and Stationery

For Materials for Use in Lithographic Printing—Namely, Master Sheets and Negative Paper (Int. Cl. 16).

Class 50—Merchandise Not Otherwise Classified

For Lithographic Plates (Int. Cl. 16).

First use Nov. 15, 1960.

SN 305,144. Lee Myles Corporation, Maspeth, N.Y. Filed Aug. 14, 1968.

LEE MYLES

Class 19—Vehicles

For Inertial Weight Stabilizers (Int. Cl. 12).
First use May 14, 1968.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Automotive Transmissions (Int. Cl. 12).
First use February 1958.

SN 317,737. Ferco, S.p.A., Milan, Italy. Filed Jan. 28, 1969.



Priority claimed under Sec. 44(d) on Italian application filed July 29, 1968; Reg. No. 231,915, dated Oct. 10, 1968.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Apparatus—Namely, Microphones, Speakers, Head Sets, Connectors, and Parts Thereof (Int. Cl. 9).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Automatic Pneumatic Machines for Fastening Components on Printed Circuit Boards (Int. Cl. 7).

SN 319,935. Nordson Corporation, Amherst, Ohio. Filed Feb. 24, 1969.

HOT STITCH

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Adhesive Applying Machines and Parts Thereof (Int. Cl. 7).

Class 26—Measuring and Scientific Appliances

For Timer Controls for Regulating the Rate, Pattern and Volume of Deposit of Adhesive by Adhesive Applying Machines (Int. Cl. 9).

First use in or about January 1969.

SN 320,991. Colt Industries Inc., New York, N.Y. Filed Mar. 7, 1969.

Colt Industries



Owner of Reg. Nos. 49,430, 58,249, and others.

Class 9—Explosives, Firearms, Equipments, and Projectiles

For Firearms—Namely, Rifles, Pistols, Guns, Machine Guns and Related Equipment and Accessories, Namely, Scopes, Holsters and Gun Mounts and Turrets; 12-Gauge Anti-Bird Depredation Shotgun Cartridges; Pyrotechnic Devices—Namely, Self-Defense CS Tear Gas Kits, 12-Gauge CS Tear Gas Cartridges, Aerial Flare Distress Kits, Orange Smoke Daylight Distress Signals, 12-Gauge Aerial Distress Flare Cartridges, and Incendiary Cartridges (Int. Cls. 11 and 13).
First use February 1966.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Valves—Namely, Aircraft Cabin Air Temperature Valves, Hot Air Valves for Aircraft Jet Engine Nacelle Anti-Icing, Electro-Hydraulic Servo Valves for Machine Tool and Similar Control Applications; Pneumatic Valves for Temperature and Anti-Icing Control (Int. Cls. 6, 7, and 9).
First use on or about Mar. 15, 1965.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Engines and Engine Accessories—Namely, Magnetos, Transformers, Ignition Systems; Electric Motors and Generators; Motor Generator Sets for Use in Supplying Electrical Energy in Varied Forms and Varied Currents; Voltage Regulators and Electrical Monitor Systems; Apparatus for Electrical Discharge Machining—Namely, Electrical Power Supplies, Machine Tools, and Grinder Type Machine Tools, Electron Drills and Tap Busters for Removing Broken Taps and Drills From Metal Castings; Parts—Namely, Transformers, Controls, Power Packs, Servo-Mechanisms; Accessories—Namely, Electrodes and Electrode Materials, Including Machinable Graphite Type Materials, Machine Table Vibrators and Electrode Tool Holding Chucks; and Controls Therefor—Namely, Automatic Current Control and Protective Systems, High Voltage Finishing Circuits, and Surface Polishing Control Circuits (Int. Cls. 7 and 9).
First use on or about July 15, 1966.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Turbine Engines, Engines and Engine Accessories—Namely, Rewind Starters, Centrifugal Clutches, Internal Expanding Brakes; Transmissions—Namely, Transmission Kits for Use in Converting a 1-Speed Transmission to a 2-Speed Transmission, Hydrostatic Transmissions; Diesel, Gas and Dual Fuel Engine Motora and Generators; Power Generation Equipment; Compressors—Namely, Unit Type Reciprocating Single and Two Stage Air and Water Cooled Air Compressors of Various Sizes for General and Industrial Uses; Stationary Single Acting Reciprocating Air Compressors, and Rotary Screw Air Compressors; Pumps—Namely, Hydraulic Pumps, Horizontal Double Suction Pumps, Vertical Double Suction Pumps, Vertical Single Suction Pumps, Peripheral Turbine Pumps, Vertical Turbine Pumps, End Suction Pumps, Non-Clog Pumps, In-Line Pumps, Angle Flow Pumps, Horizontal Split Case Pumps, Multi-Stage Pumps, Turbine Pumps, Pot Pumps, Centrifugal Pumps, Propeller Pumps, Peripheral Pumps, Jet Pumps, Sump Pumps, Lawn Sprinkler Pumps and Parts Thereof, Namely, Semi-Open and Enclosed Impellers, Bowls, Bearings and Bearing Assemblies; Flexible Blade Centrifugal Gas Compressors; Hydraulic Pumps for Controlling Pitch and Feathering of Aircraft Propellers; Fuel Management for Gas Turbine and Jet Engines—Namely, Unitized Controls and Pumps, Including Overspeed Governors for Helicopters, Fixed-Wing Aircraft and Automotive Gas Turbine Applications; Main Fuel Pumps for Military and Commercial Jet Engines; After Burner Regulators for Military Jet Engines; Fuel Management for Internal Combustion Engines—Namely, Carburetors for Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Controls for Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Regulators Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Pumps for Supplying Fuel to Internal Combustion Engines; Hydraulic Pumps for Controlling Pitch and Feathering of Aircraft Propellers; Machine Tools—Namely, Automatic Turret Lathes, Tracer and Numerically Controlled Profile and Contour Milling Machines, Electrolimit Numerically and Manually Controlled Jig Borers, Numerically and Manually Controlled Rotary Tables and Numerically Controlled Machining Centers To Drill, Bore, Ream, Tap, Profile and Mill; Cutting Tools—Namely, Taps, Dies, Endmills, Reamers, Drills, Cut-Off Blades, Boring Tools; and Pump Systems Including Filters Therein for Dielectric Coolants (Int. Cl. 7).

First use as early as November 1967.

Class 26—Measuring and Scientific Appliances

For Missile Flight Control Systems—Namely, Gas, Hydraulic and Electro-Mechanical Actuation and Reaction Systems for Steering Ground-to-Ground, Anti-Tank, Air-to-Ground and Ground-to-Air Missiles and High-Altitude Research Probes, Including Cold Stored Gas Actuation, Torque-Limited Control, Proportional Control and Digital Actuation, Electro-Hydraulic Actuation; Aerospace Vehicular Flight Control Systems—Namely, Hot Gas Actuator Systems, Cold Gas Actuator Systems, Hot Gas Reaction Control Systems; Cold Gas Reaction Control Systems; Automatic Weighing Systems—Namely, Electronic, Electro-Mechanical and Mechanical Batch Weighing Systems; Electronic Scales; Electro-Mechanical Scales; Mechnical Scales; Article-Handling and Processing Apparatus; Scale Accessories, Namely, Indicator Faces; Unit Counting Dials; Attachments for Recorded Readout From Mechanical Dial and Other Scales; Parallel Digital and Serial Readout, Encoder, Analog Signal Output and Pneumatic Pressure Transducer Equipment; Automatic Unit Weights; Balance Detectors; Scoops and Test Weights; Gages—Namely, Thread Gages, Cylindrical Gages, Railroad Gages, Pipe Gages, Snap Gages, Micrometers, Calipers, Height, Radius, Planer, Depth Surface and Hole Gages, Squares, Levels, Combination Sets and Measuring Systems, Namely, Supermike Micrometers, Standard Measuring Machines, Universal Internal Comparators, Helical Path Analyzers, Twin-Head Millionth Comparators, Roundness Indicators, Coordinate Measuring Machines, Mechanical Comparators, Air Gages, Continuous Gages, Specially Designed Mechanical, Electronic and Numerically Controlled Gaging Systems; Electronic Comparators (Int. Cl. 9).

First use on or about Mar. 15, 1965.

Class 31—Filters and Refrigerators

For Desalination Equipment—Namely, Vacuum Freezing Vapor Compression Desalters Used To Transform Sea Water Into Fresh Water; and Air Filtration Systems (Int. Cl. 11).

First use February 1968.

SN 321,296. U.S. Industries, Inc., New York, N.Y. Filed Mar. 10, 1969.

WEBCOR

Owner of Reg. Nos. 547,309, 762,349, and others.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Household Appliances—Namely, Electric Steam/Dry Irons, Electrical Spray/Steam/Dry Irons, Electric Toasters, Electric Coffeemakers, Electric Floor Polishers, Electric Sweeper Vacuums, Canister Vacuums and Hand Vacuums, and Parts Therefor (Int. Cls. 7, 9, and 11).

First use Dec. 11, 1968.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Electric Can Openers and Combination Can Openers and Knife Sharpeners (Int. Cl. 7).

First use Dec. 5, 1968.

Class 44—Dental, Medical, and Surgical Appliances

For Electric Hair Curlers and Electric Hair Dryers (Int. Cl. 11).

First use Jan. 9, 1969.

SN 323,904. Koppers Company, Inc., Pittsburgh, Pa. Filed Apr. 8, 1969.

KOPPERS

Owner of Reg. Nos. 567,020, 570,443, and 574,102.

Class 100—Miscellaneous

For Making Engineering Surveys for All or Part of Proposed Industrial Plants in the Field of the Manufacture, Fabrication or Treating of Metals, Bituminous Materials, Gas, or Chemicals; for Designing Such Plants or Processes Used Therein and for Furnishing Engineering Consultant Services in Connection With Existing Plants and Processes in Said Field (Int. Cl. 42).

First use March 1942.

Class 101—Advertising and Business

For Economic and Market Research or Surveys in Connection With Industrial Problems or Proposed Industrial Plants or Processes in the Field of the Manufacture, Fabrication or Treatment of Metals, Bituminous Materials, Gas, or Chemicals, and Operating or Managing for Others Existing Plants in Said Field (Int. Cl. 35).

First use 1919.

Class 103—Construction and Repair

For Construction and Repair of Industrial Plants and Apparatus for the Manufacture, Fabrication or Treatment of Metals, Bituminous Materials, Gas, or Chemicals (Int. Cl. 37).

First use 1918.

SN 324,623. Sprague Electric Company, North Adams, Mass. Filed Apr. 16, 1969.



Owner of Reg. No. 509,306.

Class 21—Electrical Apparatus, Machines, and Supplies

For Capacitors, Resistors, Interference Filters, Wave Filters, Transistors, Semiconductor Integrated Circuits, Thick-Film and Thin-Film Hybrid Circuits, Packaged Circuit Assemblies Including Circuit Modules, Resistor-Capacitor Networks, Delay Lines, Pulse Transformers, Magnetic Transformers, Magnetic Cores, Magnetic Inducers, Electrochemical Cells, and Phase Shifters, Phase Modulators, Peaking Networks, Pulse Generators, Magnetic Amplifiers and Modulators for Controlling the Flow or Phase Relationship of Electric Power (Int. Cl. 9).

First use September 1932.

Class 26—Measuring and Scientific Appliances

For Packaged Electronic Temperature Control Circuits and Pulse Forming Networks (Int. Cl. 9).

First use July 1943.

SN 324,964. The Charles River Breeding Laboratories, Inc., N. Wilmington, Mass. Filed Apr. 21, 1969.



Owner of Reg. Nos. 680,956 and 718,756.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

For Containers for Laboratory Animals—Namely, Isolators and Cages (Int. Cl. 18).

Class 46—Foods and Ingredients of Foods

For Foods for Laboratory Animals (Int. Cl. 31).

First use May 1, 1958.

SN 325,531. Charlen, Inc., Chicago, Heights, Ill. Filed Apr. 25, 1969.

HAPPILY EVER AFTER

Class 38—Prints and Publications

For Booklets and Pamphlets Dealing With Bridal Information (Int. Cl. 16).

Class 101—Advertising and Business

For Formulating Advertising Programs for Merchants (Int. Cl. 35).

First use on or before Mar. 1, 1969.

SN 330,081. Chem-Trend Incorporated, Howell, Mich. Filed June 16, 1969.

SURFACE CONTROL

Class 6—Chemicals and Chemical Compositions

For Hydraulic Fluids (Int. Cl. 1).

First use May 2, 1969.

Class 15—Oils and Greases

For Die Lubricants for Die Casting Operation; Quench Compounds for Casting and Similar Metal Forming Operations; Plunger Lubricants; and Mold Release Compounds for Molding of Organic Plastic Articles (Int. Cl. 4).

First use May 5, 1969.

SN 330,322. Cyclops Corporation, Pittsburgh, Pa. Filed June 18, 1969.

TITEKOTE

Owner of Reg. No. 641,891.

Class 2—Receptacles

For Receptacles—Namely, Tubs, Pails, Buckets, Cans and Baskets (Int. Cl. 21).

Class 12—Construction Materials

For Galvanized Roofing and Siding and Roof Drainage Products—Namely, Gutters, Pipes, End Caps and Related Accessories (Int. Cl. 6).

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Pipes and Pice Accessories—Namely, Elbows, Angles, T-Joints, Reducers, Increasers, Thimbles, Draw Bands, T-Caps and Collars (Int. Cl. 6).

Class 14—Metals and Metal Castings and Forgings

For Galvanized Steel and Steel Products—Namely, Sheets, Strip and Plates (Int. Cl. 6).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Heating and Ventilating Pipe and Accessories—Namely, Elbows, Angles, T-Joints, Reducers, T-Caps, Thimbles and Collars (Int. Cl. 11).

First use April 1958.

SN 330,520. Lemförder Metallwaren AG., Lemförde/Hann. Germany. Filed June 19, 1969.



Owner of German Reg. No. 795,902, dated Nov. 15, 1956.

Class 19—Vehicles

For Motor Vehicle Parts—Namely, Tie Bars, Tie Rods, Steering Suspensions, Ball Joints, Journal Joints, Axle Struts and Metal and Rubber Springs (Int. Cl. 12).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Motor Vehicle Parts—Namely, Universal Joints, Drive Shafts, Gears, Transmissions and Axle Bearings; Metal and Rubber Springs for Machinery (Int. Cls. 7 and 12).

First use November 1956; in commerce 1960.

SN 335,188. Avnet, Inc., d.b.a. Sterling Automotive Mfg. Co., Elk Grove Village, Ill. Filed Aug. 13, 1969.

CENTEX

Class 19—Vehicles

For Pressure Caps and Clamps for Engine Cooling Systems (Int. Cl. 12).

Class 26—Measuring and Scientific Appliances

For Thermostats for Engine Cooling Systems (Int. Cl. 9).

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Locks and Safes and Thermostat Gaskets (Int. Cl. 17).

First use Apr. 9, 1962.

SN 336,187. The John L. Showalter Co., Akron, Ohio. Filed Aug. 25, 1969.

JLS

Class 1—Raw or Partly Prepared Materials

For Raw or Partly Prepared Material for Upholstery Stuffing and Filling—Namely, Cotton Batting, Polyester Fiberfill Batting, Polyester Fibercoil Batting, Foam Rubber Padding, and Polyurethane Foam Padding (Int. Cls. 17 and 22).

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Fabrics for Furniture and Draperies (Int. Cl. 24).

First use February 1947.

SN 338,207. Garrett Press, Inc., New York, N.Y. Filed Sept. 18, 1969.



The portrait on the drawing is not that of any particular living individual.

Class 38—Prints and Publications

For Books (Int. Cl. 16).

Class 101—Advertising and Business

For Printing Services (Int. Cl. 35).

First use October 1967.

SN 338,706. Concel Inc., New York, N.Y. Filed Sept. 24, 1969.

DUETTE

Class 37—Paper and Stationery

For Paper Products—Namely, Facial Tissue, Bathroom Tissue, Luncheon Napkins, Dinner Napkins and Towels (Int. Cl. 16).

First use June 1, 1945.

Class 44—Dental, Medical, and Surgical Appliances

For Sanitary Napkins (Int. Cl. 5).

First use July 25, 1969.

SN 340,307. Gary E. Raymond, d.b.a. Duo Print Co., Kenvil, N.J. Filed Oct. 10, 1969.

DUO PRINT

Class 6—Chemicals and Chemical Compositions

For Photographic Chemicals—Namely, Stabilizers and Developers (Int. Cl. 1).

First use on or about Nov. 8, 1968.

Class 26—Measuring and Scientific Appliances

For Photofilm and Unexposed Photographic Paper (Int. Cl. 1).

First use on or about Oct. 21, 1968.

SN 341,301. Sarah Coventry, Inc., Newark, N.Y. Filed Oct. 22, 1969.

SARAH

Owner of Reg. Nos. 636,452, 852,303, and others.

Class 3—Baggage, Animal Equipments, Portfolios, and

For Handbags (Int. Cl. 18).

Class 39—Clothing

For Gloves, Raincoats, Women's Nightgowns, Women's Scarves (Int. Cl. 25).

Class 40—Fancy Goods, Furnishings, and Notions

For Women's Wigs (Int. Cl. 26).

Class 41—Canes, Parasols, and Umbrellas

For Umbrellas (Int. Cl. 18).

Class 51—Cosmetics and Toilet Preparations

For Perfume, Body Lotion, and Eye Shade Cosmetics (Int. Cl. 3).

Class 52—Detergents and Soaps

For Shampoo (Int. Cl. 3).

First use on or about Aug. 28, 1969.

SN 343,031. Gem, Incorporated, Byhalia, Miss. Filed Nov. 10, 1969.

KEMAK

Class 4—Abrasives and Polishing Materials

For Preparation for Cleaning and Polishing Metal and Wax Polish for Use on Furniture, Woodwork, Cabinets, Plastic, Leather, Vinyl, Ceramic and Plastic Tile, Metal Items, Appliances and Marble (Int. Cl. 3).

Class 6—Chemicals and Chemical Compositions

For Disinfectant Deodorant, Room Deodorant, Combination Fly and Mosquito Spray, Dust-Absorbing Composition for Application to Dust Mops and Dust Cloths, Laundry Starch, and Preparation for application to Fabrics to Make Them Water, Stain and Soil Resistant (Int. Cls. 1, 3, and 5).

Class 15—Oils and Greases

For Silicone Lubricant (Int. Cl. 4).

Class 51—Cosmetics and Toilet Preparations

For Hair Spray (Int. Cl. 3).

Class 52—Detergents and Soaps

For Glass Cleaner and Chalkboard Cleaner (Int. Cl. 3).

First use Nov. 7, 1969.

SN 344,276. Numerax, Inc., Englewood Cliffs, N.J. Filed Nov. 24, 1969.

QUICK RATE

Class 38—Prints and Publications

For Reference Books Containing Comparative Tariff Rates and Supplements Therefor (Int. Cl. 16).

First use Nov. 18, 1969.

Class 101—Advertising and Business

For Furnishing Comparative Tariff Rates to Others and Updating Such Rates on a Continual Basis (Int. Cl. 35).

First use Sept. 27, 1969.

SN 345,442. Codman & Shurtleff, Inc., Randolph, Mass. Filed Dec. 5, 1969.

MENTOR

Class 26—Measuring and Scientific Appliances

For Microscopes (Int. Cl. 9).

Class 44—Dental, Medical, and Surgical Appliances

For Surgical Headrests (Int. Cl. 10).

First use Oct. 23, 1969.

SN 345,745. Calandra Photo, Inc., Omaha, Nebr. Filed Dec. 10, 1969.



Class 101—Advertising and Business

For Retail Photographic Supply Store Services (Int. Cl. 35).

Class 106—Material Treatment

For Processing of Photographic Film (Int. Cl. 35).

First use on or before Nov. 30, 1968.

SN 346,019. Thomas & Betts Corporation, Elizabeth, N.J. Filed Dec. 12, 1969.

Somerset

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hydraulic and Pneumatic Hose Connectors and Fittings (Int. Cl. 6).

Class 15—Oils and Greases

For Hydraulic Oil (Int. Cl. 4).

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Cable and Cord Parts, Fittings, Connectors and Supports; Bus Bar Parts and Fittings; Cable Bundling and Harnessing Straps, Parts, Markers and Supports; Terminal Connectors, Insulators, Adapters, Parts; Connector and Terminal Blocks and Parts Thereof; Joint Compound for Establishing and Maintaining Electrical Conductivity Between Conductors and Terminals, Connectors and Fittings (Int. Cl. 9).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Electrical Cable and Cord Cutting, Shaping, Bending, Forming, Stripping, Splicing, Finishing and Maintaining Tools and Dies; Terminal and Connector Applying and Installing Tools and Dies; Cable Bundling and Harnessing Strap Applying, Tensioning and Cutting Tools; Plastic and Rubber Cutting Tools and Parts Thereof; Metal Cutting and Reaming Tools and Parts Thereof; Dies; Electrically and Pneumatically Operated Hydraulic Pumps and Heads; Tool Kits Consisting Essentially of Cable Pulling, Cutting, and Connector and Terminal Installing Tools; Linemen's Accessories Consisting Essentially of Heavy Duty Cable Cutting, Bending and Installing Tools; Automatic Splicing Units for Splicing Electrical Cables; Portable tool Stands and Supports; Electrical and Pneumatic Remote Control Units for Operating Hydraulically Operated Tools (Int. Cls. 7, 8, and 9).

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Hydraulic Hose Assemblies; Hydraulic and Pneumatic Pump Seals (Int. Cl. 17).

First use in or about April 1968.

SN 348,194. Terminal Equipment Corporation, Pompton Lakes, N.J. Filed Jan. 9, 1970.

Tycom

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Combination Typewriter and Keyboard/Printer (Int. Cl. 16).

Class 26—Measuring and Scientific Appliances

For Logic Console, Tape Reader, and Punch (Int. Cl. 9).

First use at least as early as June 1969.

SN 349,726. Flexees International, Inc., New York, N.Y. Filed Jan. 27, 1970.

BLEND-EASE

Class 39—Clothing

For Ladies' Short Sleeved and Sleeveless Dusters (Int. Cl. 25).

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Woven Fabrics of Cotton and Polyester, and of Cotton and Rayon (Int. Cl. 24).

First use at least as early as Sept. 10, 1969.

SN 353,686. Robintech Incorporated, Mount Kisco, N.Y. Filed Mar. 11, 1970.

IsoLevel

Applicant disclaims any right to the word "Level" apart from the mark.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Fluid-Control Valves, Metal and Plastic Tubing, and Plumbing Fittings (Int. Cls. 6 and 17).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Cushioned Work-Support Tables and Platforms, Shock Mounts for Machinery and Mechanical Appliances, Pneumatically Controlled Vibration Isolators, and Pneumatic Levelers for Machinery and Mechanical Appliances; and Parts Thereof (Int. Cl. 7).

First use Jan. 13, 1969.

SN 354,050. Clairol Incorporated, New York, N.Y. Filed Mar. 16, 1970.

ETERNITY

Class 51—Cosmetics and Toilet Preparations

For Cologne, Toilet Water, Perfume and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Feb. 26, 1970.

SN 354,051. Clairol Incorporated, New York, N.Y. Filed Mar. 16, 7970.

FLOWER OF YOUTH

Class 51—Cosmetics and Toilet Preparations

For Perfume, Cologne, Toilet Water and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Feb. 26, 1970.

SN 354,953. Dynamech Corporation, Baltimore, Md. Filed Mar. 24, 1970.

DYNAMECH CORP.

Class 100—Miscellaneous

For Designing Automated Material Handling and Packaging Machinery According to the Specification of Others (Int. Cl. 42).

Class 103—Construction and Repair

For Custom Building of Automated Material Handling and Packaging Machinery (Int. Cl. 37).

First use Jan. 14, 1967.

SN 355,700. Angenieux Corporation of America, Oceanside, N.Y. Filed Apr. 2, 1970.

angēnieux

Owner of Reg. No. 846,231.

Class 21—Electrical Apparatus, Machines, and Supplies

For Television Cameras (Int. Cl. 9).
First use October 1958.

Class 26—Measuring and Scientific Appliances

For Lenses; Motion Picture Cameras; Electro-Optical Assemblies and Mountings Therefor; Diascopes, i.e., Optical Devices for Setting Up Television Cameras; and Zoom Lens Assemblies and Motorized Control Means Therefor (Int. Cl. 9).
First use 1936.

SN 355,826. Avon Products, Inc., New York, N.Y. Filed Apr. 3, 1970.

CONESTOGA

Class 51—Cosmetics and Toilet Preparations

For After Shave Lotion and Talcum Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Jan. 21, 1970.

SN 355,828. Avon Products, Inc., New York, N.Y. Filed Apr. 3, 1970.

RIPPLE

Class 51—Cosmetics and Toilet Preparations

For Cologne and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Jan. 21, 1970.

SN 355,830. Avon Products, Inc., New York, N.Y. Filed Apr. 3, 1970.

MEASURE-FOR-MEASURE

Class 51—Cosmetics and Toilet Preparations

For Cologne and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Jan. 21, 1970.

SN 355,940. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

STARLORE

Class 51—Cosmetics and Toilet Preparations

For Cologne and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Feb. 6, 1970.

SN 357,207. The Franklin Glue Company, Columbus, Ohio. Filed Apr. 17, 1970.

FGC

Class 5—Adhesives

For Spray Adhesive (Int. Cl. 1).

Class 15—Oils and Greases

For Silicone Lubricant (Int. Cl. 4).

Class 52—Detergents and Soaps

For Wood Panel Cleaner, Ceramic Tile Cleaner, Concrete Cleaner and a Counter Top Cleaner (Int. Cl. 3).

First use Feb. 15, 1970.

SN 359,948. Infrared Controls & Systems, Inc., Covina, Calif. Filed May 18, 1970.



Mister Temperature

Applicant disclaims the word "Temperature" apart from the mark as shown, without waiving any common law rights it may now have therein or may hereafter acquire.

Class 26—Measuring and Scientific Appliances

For Infrared Radiometers for Measuring Temperature; Infrared Controllers for Measuring and Controlling Temperature; and Temperature Measurement Systems, Said Systems Comprising Transducers and Controllers for Remote and Direct Contact Temperature Measurement and Temperature Control (Int. Cl. 9).
First use July 5, 1969.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Electric Infrared Radiant Heaters for Increasing the Ambient Temperature in Various Types of Locations Commonly Occupied by Human Beings in Order to Increase Their Personal Comfort; and Infrared Ovens and Dryers for Drying, Baking, Dehydrating, Heating, Curing and Otherwise Temperature Processing Various Types of Products and Materials (Int. Cl. 11).
First use July 29, 1969.

SN 360,037. Jean d'Albret, S.A., Paris (Seine), France. Filed May 18, 1970.

JAO

Priority claimed under Sec. 44(d) on French Reg. No. 781,331, dated Dec. 30, 1969.

Class 51—Cosmetics and Toilet Preparations

For Perfumes, Toilet Water, Eaux de Cologne, Bath Salts, Talcum Powder and Bath Oils (Int. Cl. 3).

Class 52—Detergents and Soaps

For Perfumed Soap (Int. Cl. 3).

SN 360,848. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

STEM TO STERN

Class 51—Cosmetics and Toilet Preparations

For Bubble Bath (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Apr. 17, 1970.

SN 364,180. Ducommun Incorporated, Los Angeles, Calif. Filed July 2, 1970.

SHEARLINE

Class 21—Electrical Apparatus, Machines, and Supplies

For Electronic Programmers for Programming Bar Stock Cutting and Stacking Machines (Int. Cl. 9).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Bar Stock Bending, Automatic Shearing and Stacking Machines (Int. Cl. 7).

Class 26—Measuring and Scientific Appliances

For Bar Stock Gauging Tables for Gauging Length of Bar Stock (Int. Cl. 9).

First use Aug. 14, 1968.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1 — Raw or Partly Prepared Materials

SN 318,956. FS Services, Inc., Bloomington, Ill. Filed Feb. 12, 1969.

HISOY

For Soy Bean Seeds (Int. Cl. 31).
First use May 2, 1968.

SN 340,928. Neville Chemical Company, Pittsburgh, Pa. Filed Oct. 16, 1969.

NEVEX

For Solid Hydrocarbon Polymer Resins, Sold Primarily for Industrial Use in Hot Metal and Other Coatings (Int. Cl. 1).
First use on or about July 10, 1966.

SN 351,723. Phillips Petroleum Company, Bartlesville, Okla. Filed Feb. 18, 1970.

STARLITE

For Supported or Unsupported Vinyl Sheeting Having Metallic Particles Therein (Int. Cl. 17).
First use at least as early as Aug. 7, 1967.

SN 352,950. Dreher Leather Manufacturing Corp., Newark, N.J. Filed Mar. 3, 1970.

PORTO FINO

For Leather (Int. Cl. 18).
First use Dec. 11, 1969.

SN 353,066. Lithium Corporation of America, New York, N.Y. Filed Mar. 4, 1970.

LITHENE

For Synthetic Resins (Int. Cl. 1).
First use Aug. 12, 1969.

SN 358,912. Albert L. Hubbard, Oxnard, Calif. Filed May 6, 1970.

ED-N-AL
Spring Core

For Tubing for Fishing Rods, and Shafts for Golf Clubs and Canes (Int. Cl. 17).
First use on or about Feb. 5, 1970.

Class 2 — Receptacles

SN 331,210. K & M Rubber Company, Elk Grove Village, Ill. Filed June 27, 1969.



For Plastic Containers—Namely, Plastic Brine Tanks, Wheeled Plastic Containers for Trash, Garbage, Food and Hospital Use, Plastic Storage Drums and Tanks for Liquid and Solid Chemicals, Refuse, Foodstuffs, and the Like (Int. Cl. 20).
First use in or about October 1954.

SN 354,111. Auberge Corporation, Westport, Conn. Filed Mar. 16, 1970.

WEINTAP

For Wine Cask (Int. Cl. 20).
First use at least as early as Feb. 13, 1970.

SN 362,924. Roberts Designs Limited, Pomona, N.Y. Filed June 17, 1970.

CERAMAWARE

For Plastic Drinking Receptacles—Namely, Glasses, Mugs, and Tankards (Int. Cl. 21).
First use May 21, 1970.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 326,022. Samuel A. Smotrich, d.b.a. Miss Jane of Norwich, Conn., Norwich, Conn. Filed Apr. 30, 1969.

MISS JANE OF NORWICH, CONN.

Applicant disclaims the geographically descriptive word "Conn." apart from the mark as shown.
For Ladies' Handbags (Int. Cl. 18).
First use July 8, 1968.

SN 342,044. Hartz Mountain Products Corp., New York, N.Y. Filed Oct. 29, 1969.

BIG KERNEL

Owner of Reg. No. 745,929.
For Bird Feeders (Int. Cl. 21).
First use Sept. 3, 1968.

Class 4 — Abrasives and Polishing Materials

SN 350,775. Schlegel Company Canada Limited. Oakville, Ontario, Canada. Filed Feb. 6, 1970.

PolyScrubber

Applicant disclaims the word "Scrubber" apart from the mark as shown.
For All-Purpose Scouring Pads and Sponge Mop Refills Having At Least One Scouring Surface (Int. Cl. 21).
First use at least as early as May 29, 1967; in commerce at least as early as July 17, 1967.

Class 5 — Adhesives

SN 334,138. Tapeler Corporation, Newton, Mass. Filed July 31, 1969.

TAPELER

For Adhesive Tapes, Particularly Pressure Sensitive, Heat Sensitive, and Pressure-Heat Sensitive Tapes (Int. Cl. 16).
First use at least as early as Aug. 12, 1968.

SN 338,372. Ciba Limited, Basel, Switzerland. Filed Sept. 19, 1969.

AEROWEB

Owner of Swiss Reg. No. 168,963, dated Jan. 29, 1958; and U.S. Reg. No. 686,150.
For Synthetic Resin Adhesives (Int. Cl. 1).

SN 338,628. C. H. Tripp Finishing Company, La Jolla, Calif. Filed Sept. 22, 1969.

TIQUETITE

For Silicone Adhesive for Attachment of Furniture Panels and the Like (Int. Cl. 1).
First use Aug. 29, 1969.

SN 347,790. Shuford Mills, Inc., Hickory, N.C. Filed Jan. 5, 1970.

SM

For Pressure Sensitive Tape (Int. Cl. 17).
First use in or about November 1965.

SN 351,862. The Flintkote Company, White Plains, N.Y. Filed Feb. 20, 1970.

NITROPHALT

For Asphalt-Latex Adhesive for General Use in Construction and Manufacturing (Int. Cl. 1).
First use during June 1958.

SN 360,568. Leech Products, Inc., Hutchinson, Kans. Filed May 22, 1970.

507

For Vinyl Repair in the Nature of an Adhesive (Int. Cl. 1).
First use at least as early as Sept. 13, 1968.

SN 367,285. Penick & Ford, Limited, Cedar Rapids, Iowa. Filed Aug. 6, 1970.

EMULSICOTE

For Paper Coating Adhesive (Int. Cl. 1).
First use July 7, 1970.

Class 6 — Chemicals and Chemical Compositions

SN 323,335. Chemtrust Industries Corporation, Maywood, Ill. Filed Apr. 1, 1969.

CHEM-FACT

For Room Deodorant (Int. Cl. 5).
First use May 12, 1963.

SN 326,733. Alco Chemical Company, Artesia, Calif. Filed May 8, 1969.

VAPODRIN

For Insecticide and Combined Insecticide and Insect Repellent for Use on Animals (Int. Cl. 5).
First use April 1967.

SN 330,205. Sel-Rex Corporation, Nutley, N.J. Filed June 16, 1969.

SEL-GELEX

Owner of Reg. Nos. 524,387, 787,541, and others.
For Thermally Decomposable Gold Plating Solutions (Int. Cl. 2).
First use May 22, 1969.

SN 332,376. Sterling Drug Inc., New York, N.Y. Filed July 11, 1969.

WATERFLEX

For Flushed Pigments Suitable for Making Inks (Int. Cl. 1).
First use Apr. 21, 1969.

SN 339,111. American Aniline Products, Inc., Paterson, N.J. Filed Sept. 29, 1969.

AMASET

Owner of Reg. Nos. 334,944, 848,062, and others.
For Resinous Finishing Agent Designed To Impart Shrinkage Control, Crease Resistance and Hand Modification to Textile, Leather and Paper Substrates (Int. Cl. 1).
First use Nov. 3, 1967.
Subj. to Intf. with SN 332,456.

SN 344,432. Rumoc Industries, Inc., Louisville, Ky. Filed Nov. 24, 1969.

RUMOC

For Surfactant for Wet Concrete Mixes (Int. Cl. 1).
First use Nov. 20, 1969.

SN 345,268. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

K-25

Owner of Reg. No. 850,049.
For Soluble Phosphate for Scale and Corrosion Control in Potable Water and Cooling Water Systems (Int. Cl. 2).
First use on or prior to Dec. 7, 1968.

SN 345,269. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

K-26

Owner of Reg. Nos. 850,049 and 886,580.
For Soluble Phosphate for Scale and Corrosion Control in Potable Water and Cooling Systems (Int. Cl. 2).
First use on or prior to Apr. 19, 1968.

SN 345,818. Gradient Pty. Limited, Lane Cove, New South Wales, Australia. Filed Dec. 10, 1969.

GRADIPORE

Owner of Australian Reg. No. A229,631, dated June 11, 1969.
For Chemical Gels for Analytical Purposes (Int. Cl. 1).

SN 355,178. Colgate-Palmolive Company, New York, N.Y. Filed Mar. 27, 1970.

PUFF

For Fabric Softener (Int. Cl. 3).
First use Feb. 6, 1970.

SN 358,506. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed May 1, 1970.

ATTEST

For Biological Sterilization Indicators (Int. Cl. 1).
First use Feb. 11, 1970.

Class 8 — Smokers' Articles, Not Including Tobacco Products

SN 363,863. Bentley Lighter Corporation, New York, N.Y. Filed June 29, 1970.

FLICK

For Cigarette and Cigar Lighters and Fuel Tanks for Such Lighters (Int. Cl. 34).
First use as early as Sept. 1, 1967.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 330,266. Federal Cartridge Corporation, Minneapolis, Minn. Filed June 17, 1969.



FEDERAL

The drawing is lined for red, the cross hatched area representing a combination of red and black colors. No Claim is made as to color. Owner of Reg. Nos. 589,941, 639,894, and 729,938.
For Small Arms Ammunition (Int. Cl. 13).
First use May 1965.

SN 334,536. Allied Research Corp., New York, N.Y. Filed Aug. 6, 1969.

ESCORT

For Self-Defense Device—Namely, a Temporarily Disabling Mist Projected From An Aerosol Container (Int. Cl. 13).
First use on or about July 9, 1969.

SN 341,883. Imperial Chemical Industries Limited, London, England. Filed Oct. 27, 1969.

GEOPAK

Owner of British Reg. No. B924,937, dated May 9, 1968.
For Explosive Compositions for Surface Seismic Prospecting (Int. Cl. 13).

Class 10 — Fertilizers

SN 354,983. Shore Litter, Inc., Salisbury, Md. Filed Mar. 24, 1970.

MAJESTIC PINES

For Mulch Material Used in Connection With Landscaping and Lawns (Int. Cl. 1).
First use Feb. 23, 1970.

SN 357,650. Utah Cooperative Association, d.b.a. Pax Company, Salt Lake City, Utah. Filed Apr. 22, 1970.

PAX PRIDE

Owner of Reg. Nos. 232,417, 417,314, and others.
For Fertilizers (Int. Cl. 1).
First use November 1937.

SN 361,061. Cenex Inc., South St. Paul, Minn. Filed May 28, 1970.

PLANTILIZER

For Fertilizers (Int. Cl. 1).
First use at least as early as Jan. 19, 1970.

SN 368,689. Standard Oil Company, Flemington, N.J. Filed Aug. 21, 1970.

ENGRO

Owner of Reg. No. 776,848.
For Fertilizers (Int. Cl. 1).
First use Apr. 29, 1970; Sept. 25, 1963, in a different form.

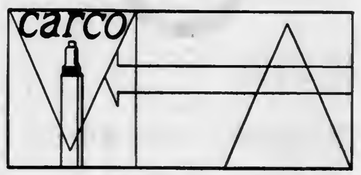
Class 11 — Inks and Inking Materials

SN 325,714. Carco, Incorporated, Detroit, Mich. Filed Apr. 28, 1969.

CARCO

Owner of Reg. No. 864,274.
For Inks for Use With Devices for Marking, Stamping, or Spraying Parts or the Like in Industrial Operations (Int. Cl. 2).
First use before January 1946.

SN 325,715. Carco, Incorporated, Detroit, Mich. Filed Apr. 28, 1969.



Owner of Reg. No. 864,274.
For Inks for Use With Devices for Marking, Stamping, or Spraying Parts or the Like in Industrial Operations (Int. Cl. 2).
First use before Apr. 1, 1965.

SN 340,808. Mercury Printing Ink Corp., Paterson, N.J. Filed Oct. 15, 1969.

ULTRA-FLEX

For Water Dilutable Flexographic Ink (Int. Cl. 2).
First use June 1968.

Class 12 — Construction Materials

SN 314,327. Farmaster Products, Inc., Shenadoah, Iowa. Filed Dec. 12, 1968.



The drawing is lined for the color red.
For Farm Gates (Namely, Bull Pens, Hog Gates, Custom Made Gates, Wire, Wood, Steel and Aluminum Gates, Ornamental Walk and Drive Gates); Do-It-Yourself Gate Construction Packages Comprising Gate Panels, and Related Hardware; Farm Gate Accessories (Namely, Floor Plates, Center Braces, Diagonal Braces, and Gate Panels); Hog Farrowing Stalls and Equipment and Accessories Therefor, Gate Lifts, Gate Irons, and Anchor Stakes (Int. Cls. 6 and 19).
First use Jan. 2, 1963.

SN 336,448. Johns-Manville Corporation, New York, N.Y. Filed Aug. 27, 1969.

ZELIE

For Insulating Fire Brick, Mortar and Thermal Insulating Aggregate (Int. Cl. 19).
First use at least as early as December 1961 on thermal insulating.

SN 337,630. Basic Incorporated, Cleveland, Ohio. Filed Sept. 11, 1969.

BASICAST

For Fired Ceramic Shapes and Bodies, and Granular Castable Material Suitable for Use as Electrical Insulating Material, Ceramic Ware Resistant to Chemical Attact, Industrial Uses Requiring Resistance to Abrasion and for Refractory Uses Such as Furnace, Crucible, and Ladle Linings (Int. Cl. 21).
First use Oct. 28, 1968.

SN 341,472. Dresser Industries, Inc., Dallas, Tex. Filed Oct. 24, 1969.

NUCON 50

Owner of Reg. Nos. 799,388, 812,390, and 840,738.
For Basic Refractory Brick (Int. Cl. 19).
First use May 7, 1968.

SN 342,687. Russ Stonier, Inc., Chicago, Ill., assignee of Woodland Products Co. Inc., Pomona, Calif. Filed Nov. 4, 1969.

TWIST-O-FLEX

For Poles and Decorative Wood Fittings To Be Used in Construction (Int. Cl. 19).
First use on or before Feb. 1, 1969.

SN 345,199. Peachtree Doors, Inc., Atlanta, Ga. Filed Dec. 3, 1969.

PEACHTREE DOOR

Applicant disclaims exclusive right to use of the word "Door" apart from the mark as shown.
For Sliding Glass Doors and Bathtub Enclosures (Int. Cl. 19).
First use May 4, 1959.

SN 348,469. The Whistle Stop Fast Food Service, Inc., Philadelphia, Pa. Filed Jan. 13, 1970.

THE WHISTLE STOP

For Prefabricated Mobile Food Service Units (Int. Cl. 19).
First use Oct. 20, 1969.

SN 352,931. The Astrup Company, Cleveland, Ohio. Filed Mar. 3, 1970.

ROLAWAY

For Roll-Up Awning Featuring Fabric Cover and Associated Support Fittings Sold as a Unit (Int. Cl. 22).
First use Dec. 31, 1969.

SN 352,974. Owens-Corning Fiberglas Corporation, Toledo, Ohio. Filed Mar. 3, 1970.

SC-40

For Insulating Cements (Int. Cl. 19).
First use March 1969.

SN 358,460. E. L. Mustee & Sons, Inc., Cleveland, Ohio. Filed Apr. 30, 1970.

DURASTALL

Owner of Reg. Nos. 595,915 and 765,345.
For Shower Enclosures (Int. Cl. 19).
First use on or about Nov. 14, 1969.

SN 365,432. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed July 16, 1970.

PLIOGRIP

Owner of Reg. No. 508,556.
For Sealants for Sealing Seams in Gutters, Downspouts, Animal Feeders and Troughs and Chimney Flashings of Various Materials Including Wood, Concrete, Ceramic, Brick, Aluminum or Glass; for Caulking Openings Around Windows and Doors; for Sealing Seams in Trailer Roofs and Bodies, as Well as Heat and Air Ducts (Int. Cl. 17).
First use Apr. 27, 1970.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 320,077. Poster Products, Inc., Chicago, Ill. Filed Feb. 25, 1969.

X-BAR

For Display Fixtures in the Nature of Hardware (Int. Cl. 6).
First use 1962.

SN 322,106. Tri-Canada Fittings and Equipment Ltd., Toronto, Ontario, Canada. Filed Mar. 18, 1969.

TANWELD

Priority claimed under Sec. 44(d) on Canadian application filed Sept. 20, 1968; Reg. No. 163,933, dated July 11, 1969.
For Pipe Fittings (Int. Cl. 6).

SN 325,596. Fisher Controls Company, Inc., Marshalltown, Iowa, assignee of Fisher Governor Company, Marshalltown, Iowa. Filed Apr. 25, 1969.

MULTI-SAFE

For System for Safeguarding Tank Trucks Carrying LP-Gas, Anhydrous Ammonia, Chemicals and the Like, Including Valves, Fuse Plugs and Vent Screens (Int. Cl. 9).
First use May 1967.

SN 327,071. Squee-Zee Company, Cleveland, Ohio. Filed May 12, 1969.

SQUEE-ZEE

For Squeezing Devices in the Nature of a Plastic Collapsible Tube Squeezer for Aid in Dispensing Toothpaste, Cosmetics and the Like From Flexible Tube Containers (Int. Cl. 21).
First use in or about May 1966.

SN 348,607. American Optical Corporation, Southbridge, Mass. Filed Jan. 15, 1970.

DURAGRIP

For Hinges, Screws and Bushings Therefor (Int. Cl. 6).
First use as early as 1960.

SN 358,454. Minnesota Rubber Company, Minneapolis, Minn. Filed Apr. 30, 1970.

For Valves (Int. Cl. 17).
First use Sept. 1, 1967.

SN 359,255. Rain Bird Sprinkler Mfg. Corp., Glendora, Calif. Filed May 8, 1970.

RAIN BIRD

Owner of Reg. Nos. 567,442, 771,728, and 771,809.
For Turf and Agricultural Sprinklers (Int. Cl. 6).
First use on or about Jan. 1, 1953.

SN 368,404. Garlock Inc., Palmyra, N.Y. Filed Aug. 19, 1970.

GAR-SEAL

Owner of Reg. No. 581,360.
For Valves (Int. Cl. 6).
First use Jan. 10, 1968.

SN 370,196. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Sept. 18, 1970.

BROIL-CLEAN

For Aluminum Broiling Pans (Int. Cl. 21).
First use mid-August 1970.

SN 370,197. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Sept. 21, 1970.

TOSS-A-BROIL

For Aluminum Broiling Pans (Int. Cl. 21).
First use Mid-August 1970.

Class 14—Metals and Metal Castings and Forgings

SN 332,977. North American Rockwell Corporation, Pittsburgh, Pa. Filed July 18, 1969.

Owner of Reg. Nos. 890,492, 890,515, and 891,505.
For Metal Stampings, Castings and Forgings (Int. Cl. 6).
First use Mar. 5, 1969.

SN 337,553. M & B Mining Corporation, Las Vegas, Nev. Filed Sept. 10, 1969.

The mark is a fanciful representation of the letters "MB."
For Silver Bars (Int. Cl. 14).
First use July 8, 1969.

SN 340,669. The Mapes Piano String Co., Elizabethton, Tenn. Filed Oct. 14, 1969.

CHEROKEE BRAND

The exclusive use of the term "Brand" is disclaimed apart from the mark as a whole.
For Piano Wire; Mandolin Wire Used in Making Strings for Small Musical Instruments Such as Mandolins, Guitars, Banjos and Violins; and Wire—Namely, Mechanical Spring Wire, Used for Making Mechanical Springs (Int. Cl. 6).
First use July 10, 1969.

Class 15—Oils and Greases

SN 349,023. Universal Lubricants, Inc., St. Germain, Wis. Filed Jan. 19, 1970.

401 FLASH

For Lubricating Oil (Int. Cl. 4).
First use Sept. 8, 1969.

SN 356,485. Codman & Shurtleff, Inc., Randolph, Mass. Filed Apr. 10, 1970.

preserve.

For Instrument Lubricants (Int. Cl. 4).
First use Feb. 17, 1970.

SN 356,763. Shell Oil Company, New York, N.Y. Filed Apr. 13, 1970.

SHELL OF THE FUTURE

Owner of Reg. Nos. 279,349, 852,113, and others.
For Gasoline (Int. Cl. 4).
First use at least as early as Mar. 11, 1970.

Class 16—Protective and Decorative Coatings

SN 328,741. Ray Stone Advertising Agency, Inc., Chicago, Ill. Filed May 29, 1969.

PARTY

For Interior Latex Flat Paint (Int. Cl. 2).
First use Sept. 18, 1967.

SN 328,742. Ray Stone Advertising Agency, Inc., Chicago, Ill. Filed May 29, 1969.

ROYAL SHIELD

For Interior Latex Flat Paint (Int. Cl. 2).
First use Sept. 16, 1967.

SN 328,743. Ray Stone Advertising Agency, Inc., Chicago, Ill. Filed May 29, 1969.

DECLARATION

For Interior Latex Flat Paint (Int. Cl. 2).
First use Sept. 18, 1967.

SN 329,217. Automotive Finishes, Incorporated, Dearborn, Mich. Filed June 5, 1969.

PLAST-DEC

For Paint, Thinner and Lacquer (Int. Cl. 2).
First use Apr. 18, 1969, on paint and thinner.

SN 346,121. Schlumberger Technology Corporation, New York, N.Y. Filed Dec. 12, 1969.

PLASTICAP

For Corrosion-Resistant Protective Thermoplastic or Thermosetting Plastic Coatings on and in Industrial Equipment (Int. Cl. 2).
First use 1955.

SN 350,528. The Sherwin-Williams Company, Cleveland, Ohio. Filed Feb. 4, 1970.

KEM-SPRAY

Owner of Reg. Nos. 275,775, 286,574, 636,712, and others.
For Clear and Pigmented Coatings in the Nature of a Paint Used in the Paint Industry (Int. Cl. 2).
First use Jan. 2, 1970.

Class 17—Tobacco Products

SN 338,952. Earl Rost, Jr., d.b.a. Quality Cigar Company, Red Lion, Pa. Filed Sept. 25, 1969.

HEX

For Cigars (Int. Cl. 34).
First use Apr. 7, 1969.

SN 346,069. East Prospect Cigar Company, East Prospect, Pa. Filed Dec. 12, 1969.



For Cigars (Int. Cl. 34).
First use at least as early as Aug. 30, 1957.

SN 350,742. General Cigar Co., Inc., New York, N.Y. Filed Feb. 6, 1970.

ZILLO

Owner of Reg. No. 833,575.
For Cigars (Int. Cl. 34).
First use Jan. 28, 1970.

SN 351,796. General Cigar Co., Inc., New York, N.Y. Filed Feb. 19, 1970.

TIPAJUANA

For Cigars (Int. Cl. 34).
First use Feb. 2, 1970.

SN 355,701. American Brands, Inc., New York, N.Y. Filed Apr. 2, 1970.

TARQUINS

For Cigars (Int. Cl. 34).
First use May 19, 1969.

SN 359,472. Consolidated Cigar Corporation, New York, N.Y. Filed May 12, 1970.

MILD HIGH

The word "Mild" is disclaimed apart from the mark as a whole.
For Cigars (Int. Cl. 34).
First use Apr. 28, 1970.

SN 367,709. Bayuk Cigars Incorporated, Philadelphia, Pa. Filed Aug. 11, 1970.

DEL RIO

For Cigars (Int. Cl. 34).
First use March 1954.

SN 367,712. Bayuk Cigars Incorporated, Philadelphia, Pa. Filed Aug. 11, 1970.

POLY-FRESH

For Cigars (Int. Cl. 34).
First use June 19, 1970.

SN 368,394. Brown & Williamson Tobacco Corporation. Louisville, Ky. Filed Aug. 19, 1970.

LITTLE INDIAN

For Chewing Tobacco (Int. Cl. 34).
First use Aug. 10, 1970.

SN 368,395. Brown & Williamson Tobacco Corporation, Louisville, Ky. Filed Aug. 19, 1970.

FLINT

For Cigarettes (Int. Cl. 34).
First use Aug. 10, 1970.

SN 368,397. Brown & Williamson Tobacco Corporation, Louisville, Ky. Filed Aug. 19, 1970.

REIVERS

For Cigarettes (Int. Cl. 34).
First use Aug. 10, 1970.

Class 18—Medicines and Pharmaceutical Preparations

SN 339,418. Bristol-Myers Company, New York, N.Y. Filed Oct. 1, 1969.

LIQUI-TINE

Owner of Reg. No. 770,256.
For Sleep-Aid Medication (Int. Cl. 5).
First use Aug. 7, 1969.

SN 343,160. Predicted Environments, Inc., Atlanta, Ga. Filed Nov. 10, 1969.

FOAMASEPTIC

For Germicide for Application to the Body (Int. Cl. 5).
First use June 1, 1967.

SN 344,543. The Central Pharmacal Company, Seymour, Ind. Filed Nov. 25, 1969.

PINK MAGIC

The word "Pink" is disclaimed apart from the mark as shown.
For Medical Preparations and in Particular on Counter-Irritant and Local Analgesic Preparations for Animals—Namely, Horses (Int. Cl. 5).
First use Mar. 14, 1969.

SN 344,966. Gilbert Laboratories, Bernardsville, N.J. Filed Dec. 1, 1969.

ESGIC

For Pharmaceuticals—Namely, Analgesics (Int. Cl. 5).
First use on or about Nov. 1, 1969.

SN 350,206. Biotec Laboratories, Inc., Lenexa, Kans. Filed Feb. 2, 1970.

ENTERO-VAC

For Mink Enteritis Vaccine (Feline Tissue Culture Origin-Modified Live Virus, for Immunization of Healthy Cats Against Feline Distemper) (Int. Cl. 5).
First use Jan. 20, 1970.

SN 350,841. Agway, Inc., De Witt, N.Y. Filed Feb. 9, 1970.

NEGAMAST

For Pharmaceutical Preparation for the Treatment of Bovine Mastitis (Int. Cl. 5).
First use Apr. 10, 1969.

SN 351,049. Nature Food Centers, Inc., Cambridge, Mass. Filed Feb. 10, 1970.

PYA-TABS

For Digestive Tablets (Int. Cl. 5).
First use Jan. 15, 1970.

SN 351,093. Armour Pharmaceutical Company, Chicago, Ill. Filed Feb. 11, 1970.

DYNAFAC-P

For Chemobiotic Feed Additive for Veterinary Use (Int. Cl. 5).
First use on or prior to May 1, 1957.

SN 351,094. Armour Pharmaceutical Company, Chicago, Ill. Filed Feb. 11, 1970.

SHIP-PLEX

For Anti-Corynebacterium Pasteurella Serum for Veterinary Use (Int. Cl. 5).
First use on or prior to Jan. 20, 1970.

SN 351,095. Armour Pharmaceutical Company, Chicago, Ill. Filed Feb. 11, 1970.

SERLOC

Owner of Reg. Nos. 733,681 and 733,682.
For Clostridium Perfringens Antitoxin for Veterinary Use (Int. Cl. 5).
First use on or prior to Jan. 14, 1970.

SN 351,444. Foremost-McKesson, Inc., d.b.a. McKesson Laboratories, New York, N.Y. Filed Feb. 16, 1970.

GYNA-COSMETIC

For Douche Powder (Int. Cl. 5).
First use at least as early as Jan. 30, 1970.

SN 351,784. Block Drug Company, Inc. (New Jersey corporation), Jersey City, N.J., by merger of Block Drug Company, Inc. (Delaware corporation), Jersey City, N.J. Filed Feb. 19, 1970.

JOURNEZE

For Motion Sickness Preventative (Int. Cl. 5).
First use Jan. 12, 1970.

SN 351,824. Palmedico, Inc., Columbia, S.C. Filed Feb. 19, 1970.

PALOPAUSE

For Conjugated Estrogen for Menopause (Int. Cl. 5).
First use Jan. 27, 1970.

SN 352,273. The Upjohn Company, Kalamazoo, Mich. Filed Feb. 24, 1970.

SULFONASE

For Antidiabetic Agent (Int. Cl. 5).
First use Nov. 17, 1969.

SN 352,287. The Norwich Pharmacal Company, Norwich, N.Y. Filed Feb. 20, 1970.

QUIK-LAX

For Pharmaceutical Laxative Preparation (Int. Cl. 5).
First use Dec. 19, 1969.

SN 367,536. The Good Life, North Hollywood, Calif. Filed Aug. 10, 1970.

CYCLE-E

For Vitamin E. Preparation (Int. Cl. 5).
First use July 27, 1970.

SN 367,543. Pfizer Inc., New York, N.Y. Filed Aug. 10, 1970.

ORAMIST

For Toothbrush Sanitizer (Int. Cl. 5).
First use June 5, 1970.

SN 368,019. Eli Lilly and Company, Indianapolis, Ind. Filed Aug. 14, 1970.

DISKETS

Owner of Reg. No. 313,409.
For Dispersible Tablets of Methadone Hydrochloride (Int. Cl. 5).
First use July 30, 1970.

SN 368,419. Parke, Davis & Company, Detroit, Mich. Filed Aug. 19, 1970.

C-FETINA

For Vitamin Preparation (Int. Cl. 5).
First use on or before Aug. 7, 1970.

SN 368,545. George De Rose, d.b.a. Gan Company, San Fernando, Calif. Filed Aug. 20, 1970.

WONDO-RUB

For Liniment for Relieving Arthritic and Rheumatic Pains and the Discomfort of Varicose Veins, Minor Rashes and Burns, and Tired Feet (Int. Cl. 5).
First use on or before Apr. 1, 1970.

SN 368,806. Ralston Purina Company, St. Louis, Mo. Filed Aug. 24, 1970.

PURAPLEX

For Bovine Vaccines (Int. Cl. 5).
First use Aug. 3, 1970.

SN 369,380. Ortho Pharmaceutical Corporation, Raritan, N.J. Filed Aug. 28, 1970.

DELFEMME

Owner of Reg. No.s 657,655 and 696,997.
For Contraceptive Cream (Int. Cl. 5).
First use July 13, 1970.

Class 19—Vehides

SN 304,418. Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany, assignee of Volkswagen of America, Inc., Englewood Cliffs, N.J. Filed Aug. 5, 1968.

FORMULA VEE

For Auto Accessories—Namely, Gearshift Knobs (Int. Cl. 12).
First use on or before May 15, 1968.

SN 344,226. Ecodel Corporation, Atlanta, Ga. Filed Nov. 21, 1969.

ECODEL

For Hand Trucks (Int. Cl. 12).
First use Jan. 30, 1968.

SN 344,529. Altair Homes Inc., Americus, Ga. Filed Nov. 25, 1969.

ALTAIR

For House Trailers (Int. Cl. 12).
First use Sept. 4, 1969.

SN 348,362. T.G. & Y. Stores Company, Oklahoma City, Okla. Filed Jan. 12, 1970.

GOLDEN T

For Camper Bodies for Pick-Up Trucks (Int. Cl. 12).
First use Mar. 15, 1969.

SN 369,090. Dynacoach Motorhomes, Inc., Westminster, Calif. Filed Aug. 26, 1970.

DYNAVAN

For Motor Cars and Motor Trucks (Int. Cl. 12).
First use May 21, 1970.

Class 20—Linoleum and Oiled Cloth

SN 338,400. Imperial Wallpaper Mill, Inc., Cleveland, Ohio. Filed Sept. 19, 1969.

DIMENSIONS I BY IMPERIAL

Owner of Reg. Nos. 438,248, 859,714, and others.
For Vinyl Fabric Wallcoverings (Int. Cl. 27).
First use Sept. 2, 1969.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 315,075. General Electric Company, Schenectady, N.Y. Filed Dec. 23, 1968.

TERMI-MATIC

For Cable Termination (Int. Cl. 9).
First use Nov. 1, 1968.

SN 325,032. General Signal Corporation, Rochester, N.Y. Filed Apr. 21, 1969.

CHEKAR

The drawing is lined for the colors red, yellow and green, but no claim is made for color. Owner of Reg. Nos. 700,930 and 838,680.
For Electrical Traffic Controller and Ultrasonic Detector, and Parts Thereof, for Vehicle Traffic Control (Int. Cl. 9).
First use Oct. 11, 1967.

SN 330,920. Elettrolampart S.p.A., Varallo Sesia, Italy. Filed June 25, 1969.

ROLLY

Priority claimed under Sec. 44(d) on Italian application filed Apr. 4, 1969; Reg. No. 239,369, dated Aug. 4, 1969.
For Wired Support for Electrical Chandeliers (Int. Cl. 11).

SN 331,916. Ledex, Inc., Dayton, Ohio. Filed July 7, 1969.
Owner of Reg. No. 868,144.

1 PLUS 1

For Encoder-Decoder Selective Call Systems for Use in Radio and/or Telephone Transmission and Reception (Int. Cl. 9).
First use May 23, 1968.

SN 333,255. Electrovert, Inc., Mount Vernon, N.Y. Filed July 23, 1969.

ELECTRO-DUCT

For Plastic Channel Electrical Wiring Carrying and Distributing Means (Int. Cl. 9).
First use May 28, 1969.

SN 335,746. Crystalab, Inc., Hartford, Conn. Filed Aug. 20, 1969.

CRYSTALAB

Owner of Reg. Nos. 418,297 and 814,449.
For Electronic Timing Circuits and Electrical Conductivity Circuits (Int. Cl. 9).
First use Feb. 5, 1946, on electronic timing circuits.

SN 337,670. Marlin Manufacturing Corp., Cleveland, Ohio. Filed Sept. 11, 1969.

JAB-IN

For Thermocouple Connectors (Int. Cl. 9).
First use in or about January 1969.

SN 339,940. Albert P. Sheelor, Covina, Calif. Filed Oct. 6, 1969.

XIT GROUNDING DEVICES ROD

Applicant disclaims the words "Grounding," "Devices," and "Rod" apart from the mark as shown.
For Electrical Grounding or Earthing Rods (Int. Cl. 9).
First use May 15, 1968.

SN 342,187. The Telex Corporation, Tulsa, Okla. Filed Oct. 30, 1969.

TELEX

Owner of Reg. No. 517,386.
For Amplifiers, Microphones, Radios, Speakers, Combination Radio-Phonographs, and Components and Parts for All of Said Equipment (Int. Cl. 9).
First use Apr. 1, 1968.

SN 345,438. The Captor Corporation, Tipp City, Ohio. Filed Dec. 5, 1969.

CAPTOR

For Components of Electronic Equipment—Namely, Radio Interference Filters, Electric Wave Filters, Signal Line Filters, Active Wave Filters, Feed-Thru Capacitors, By-Pass Capacitors, Specialty Transformers, Chokes, and Solenoids (Int. Cl. 9).
First use July 12, 1965.

SN 346,352. Payne Engineering Company, Scott Depot, W. Va. Filed Dec. 16, 1969.

TURBODYNE

Applicant disclaims the representation of the American flag, apart from the mark as shown.
For Portable Rectifier for Use in the Coal Mining Industry (Int. Cl. 9).
First use Oct. 15, 1969.

SN 346,969. Siemens Aktiengesellschaft, Berlin, Germany. Filed Dec. 22, 1969.

MAGNEPOT

Owner of German Reg. No. 811,754, dated Oct. 22, 1964.
For Galvanomagnetic Resistance Devices, Contactless Field-Plate Potentiometers, and Field-Plate Rheostates (Int. Cl. 9).

SN 348,347. Seven Seas Incorporated, Westport, Conn. Filed Jan. 12, 1970.

SEVEN SEAS

Owner of Reg. No. 858,941.
For Electric Lamps (Int. Cl. 11).
First use March 1968.

SN 348,663. Herbert Morris Limited, Loughborough, Leicester, England. Filed Jan. 15, 1970.

LINTROL.

Owner of British Reg. No. 929,463, dated Aug. 15, 1968.
For Electrical, Electromagnetic and Electronic Assemblies and Subassemblies Including Switching and Speed and Positioning Control Gear for the Manual and Automatic Control of Linear Motors and Thurst Units, Usually Mounted Wholly or in Part on Panels, and Component Parts Thereof (Int. Cl. 9).

SN 349,438. Orrin H. Thomas, d.b.a. Thomas Engineered Products, Williamsport, Pa. Filed Jan. 23, 1970.

TEPCO

For Terminal Battery Connectors (Int. Cl. 9).
First use Oct. 25, 1969.

SN 352,338. The Ferrograph Company Limited. Knightsbridge, England. Filed Feb. 25, 1970.

FERROGRAPH

Owner of U. S. Reg. No. 874,183.
For Echo Sounders and Parts Thereof (Int. Cl. 9).
First use 1958; in commerce 1959.

SN 354,377. Air Control Industries, Inc., Nashville, Tenn. Filed Mar. 18, 1970.



For Electronic Air Cleaners (Int. Cl. 11).
First use Jan. 31, 1969.

SN 354,928. Wells Mfg. Corp., Fond du Lac, Wis. Filed Mar. 23, 1970.

LOVE IS A HIGH PERFORMANCE THING

For Automotive Ignition Parts—Namely, Condensers, Contact Sets, Rotors, Ignition Coils, Distributor Caps, Voltage Regulator Covers (Int. Cl. 9).
First use Feb. 10, 1969.

SN 361,653. Kimberly-Clark Corporation, Neenah, Wis. Filed June 4, 1970.

EDSORB

For Kraft Tissue Treated With Scavenger Ingredient to Absorb Contaminants, for Use in Capacitors as a Dielectric (Int. Cl. 17).
First use Apr. 9, 1970.

SN 367,388. Circuit-Stik, Inc., Gardena, Calif. Filed Aug. 7, 1970.

circuit-stik

For Sub-Elements for Electronic Circuit Boards (Int. Cl. 9).
First use May 20, 1970.

Class 22—Games, Toys, and Sporting Goods

SN 297,340. Merry Manufacturing Company, Cincinnati, Ohio. Filed May 6, 1968.

MISS MERRY

Owner of Reg. Nos. 531,528, 659,541, and others.
For Toy Kits for Children—Namely, Manicure Sets, Make-Up Sets, Shampoo Sets, Bath Sets, Beauty Shop Sets, Facial Sets, Shoe Shine Sets, Shaving Sets, Cleaning Sets, Diaper Sets, Laundry Closet Sets, Linen Closet Sets, Cookie Decorator Sets, First Aid Sets, Ice Cream Shop Sets, Infants' Shop Sets, Bank Sets, Bubble Horns, Jewelry Sets, Comb, Brush and Mirror Sets, Purses, Cameras, and Watches (Int. Cl. 28).
First use Jan. 1, 1960.

SN 335,886. Minnesota Fats Enterprises, Inc., Lincolnwood, Ill. Filed Aug. 21, 1969.

Minnesota Fats

The name "Minnesota Fats" is the pseudonym of Rudolph Wanerone, whose consent is of record.
For Pool and Billiard Tables, Billiard Cues, Cue Cases, Billiard Balls, Ball and Cue Racks, Billiard Tabe Covers, Cloth Replacement Kit, Table Repair Kit, Cue Repair Kit, Cue Top Sander, Cue Chalk, Chalk Holders, Bridge Sticks, Talc, Talc Shake Bottles, Kelly Peas, Scorers and Triangles (Int. Cl. 28).
First use 1963.

SN 341,026. The Franklin Mint, Inc., Yeadon, Pa. Filed Oct. 17, 1969.

AMERICA IN SPACE

For Equipment or Apparatus for Playing a Board Game (Int. Cl. 28).
First use Oct. 17, 1969.

SN 343,997. William Thomas Mann, d.b.a. Mann's Bait Company, Eufaula, Ala. Filed Nov. 19, 1969.



For Fishing Lures (Int. Cl. 28).
First use about Aug. 1, 1968.

SN 344,729. Paul A. Price Co., Inc., Roslyn, N.Y. Filed Nov. 26, 1969.

KID STUFF

For Miniature Plastic Charms, Rings, and Novelties (Int. Cl. 28).
First use Apr. 18, 1968.

SN 346,249. Horsman Dolls Inc., New York, N.Y. Filed Dec. 15, 1969.

BABY DUMPLING

For Dolls (Int. Cl. 28).
First use Dec. 1, 1969.

SN 346,627. Kaystan Pageant Doll Company, Mansfield, Mass. Filed Dec. 18, 1969.

MISS PAGEANT

For Dolls (Int. Cl. 28).
First use Nov. 28, 1969.

SN 346,925. Man Machine Research, Inc., Philadelphia, Pa. Filed Dec. 22, 1969.

WACKYSACK

For Toy Comprising an Elastic Container and a Dilatant Suspension Therein, Which Can Be Manipulated To Create Unusual Distortion (Int. Cl. 28).
First use Aug. 4, 1969.

SN 359,678. Mattel, Inc., Hawthorne, Calif. Filed May 14, 1970.

BUMPETY BUGGY

No claim of exclusive right is made to "Buggy" for the goods recited.
For Doll's Toy Automobile (Int. Cl. 28).
First use Feb. 17, 1970.

SN 366,620. Mattel, Inc., Hawthorne, Calif. Filed July 30, 1970.

WING 'N WHIRLEY

For Toy Kit Comprising a Toy Helicopter and a Doll (Int. Cl. 28).
First use June 1, 1970.

SN 366,850. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

SIDE-BURN

For Toy Automobile (Int. Cl. 28).
First use June 29, 1970.

SN 366,851. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

SHOW-OFFS

For Toy Automobiles (Int. Cl. 28).
First use June 29, 1970.

SN 366,852. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

ODD JOB

For Toy Automobile (Int. Cl. 28).
First use June 29, 1970.

SN 366,854. Mattel, Inc., Hawthorne, Calif. Filed Aug. 3, 1970.

SHOPPIN' SHERYL

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 367,111. Mattel, Inc., Hawthorne, Calif. Filed Aug. 5, 1970.

HIWAY ROBBER

For Toy Motorcycle (Int. Cl. 28).
First use June 26, 1970.

SN 367,112. Mattel, Inc., Hawthorne, Calif. Filed Aug. 5, 1970.

NOODLE HEAD

For Toy Automobile (Int. Cl. 28).
First use June 29, 1970.

SN 367,278. Mattel, Inc., Hawthorne, Calif. Filed Aug. 6, 1970.

VALERIE

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use June 26, 1970.

SN 367,282. Mattel, Inc., Hawthorne, Calif. Filed Aug. 6, 1970.

HOT BIRDS

For Toy Airplanes (Int. Cl. 28).
First use July 15, 1970.

SN 367,694. Mattel, Inc., Hawthorne, Calif. Filed Aug. 11, 1970.

FAST EDDIE

For Equipment Sold as a Unit for Playing a Marble Shooting Game (Int. Cl. 28).
First use July 17, 1970.

SN 367,906. Mattel, Inc., Hawthorne, Calif. Filed Aug. 13, 1970.

MUSCLES

For Toy Trucks (Int. Cl. 28).
First use June 30, 1970.

SN 367,907. Mattel, Inc., Hawthorne, Calif. Filed Aug. 13, 1970.

DUDE

For Toy Automobile (Int. Cl. 28).
First use July 13, 1970.

SN 367,909. Mattel, Inc., Hawthorne, Calif. Filed Aug. 13, 1970.

CLEAR-OUT

For Toy Automobile (Int. Cl. 28).
First use July 13, 1970.

SN 368,549. Mattel, Inc., Hawthorne, Calif. Filed Aug. 20, 1970.

THINK TWICE

For Equipment Sold as a Unit for Playing Strategy-Type Board Game (Int. Cl. 28).
First use July 17, 1970.

SN 368,551. Mattel, Inc., Hawthorne, Calif. Filed Aug. 20, 1970.

QUICK SILVER

For Toy Top (Int. Cl. 28).
First use June 30, 1970.

SN 368,552. Mattel, Inc., Hawthorne, Calif. Filed Aug. 20, 1970.

SPEED TEAM

Toy Kit of a Plurality of Automobiles (Int. Cl. 28).
First use July 13, 1970.

SN 368,554. Mattel, Inc. Hawthorne, Calif. Filed Aug. 20, 1970.

LAZY-BEANS

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 24, 1970.

SN 368,796. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

SQUEEZE-PLAY

For Kit Comprising a Toy Automobile Accessory Embodied in a Track for Increasing the Speed of a Toy Automobile Passing Thereon, Track, and Toy Automobiles (Int. Cl. 28).
First use July 30, 1970.

SN 368,797. Mattel, Inc., Hawthorne, Calif. Filed Aug. 24, 1970.

QUICK-SWITCH

For Lane Changer for Toy Trains (Int. Cl. 28).
First use July 30, 1970.

SN 368,972. Operation Bootstrap, Inc., Los Angeles, Calif. Filed Aug. 25, 1970.

KIM

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 9, 1970.

SN 369,047. Mattel, Inc., Hawthorne, Calif. Filed Aug. 26, 1970.

TIMEY TELL

For Dolls, Doll Clothing and Doll Accessories (Int. Cl. 28).
First use July 30, 1970.

SN 369,049. Mattel, Inc., Hawthorne, Calif. Filed Aug. 26, 1970.

WINGED VICTORY

For Toy Automobile (Int. Cl. 28).
First use July 31, 1970.

SN 369,299. Mattel, Inc., Hawthorne, Calif. Filed Aug. 28, 1970.

BOUNDARY

For Equipment Sold as a Unit for Playing a Board Game (Int. Cl. 28).
First use July 24, 1970.

SN 369,300. Mattel, Inc., Hawthorne, Calif. Filed Aug. 28, 1970.

THE HANDLERS

For Puzzle Comprised of a Vinyl Sheet Adapted To Be Folded and Refolded Into Specific Patterns (Int. Cl. 28).
First use July 24, 1970.

SN 369,301. Mattel, Inc., Hawthorne, Calif. Filed Aug. 28, 1970.

RIP SNORTER

For Toy Motorcycle (Int. Cl. 28).
First use July 30, 1970.

SN 369,303. Mattel, Inc., Hawthorne, Calif. Filed Aug. 28, 1970.

BIG O

For Toy Automobile Racing Set (Int. Cl. 28).
First use July 30, 1970.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 296,792. Balding Engineering Limited Norfolk, England. Filed Aug. 29, 1968.

PAL

Owner of British Reg. No. 919,977, dated Jan. 19, 1968.
For Milling Machines (Int. Cl. 7).
First use January 1968.

SN 305,323. Clayton Giangiulio, Malvern, Pa. Filed Aug. 16, 1968.

Tomato Tamer

Applicant disclaims the word "Tomato" apart from the mark, but reserves his common law rights in the mark.
For Slicing Machine for Tomatoes and Other Fruits and Vegetables (Int. Cl. 7).
First use on or about July 20, 1966.

SN 312,879. Detroit Stoker Company, Monroe, Mich. Filed Nov. 22, 1968.

DETROIT CONVEYING SYSTEM

The words "Detroit" and "Conveying System" are disclaimed.
For Pneumatic Conveyors for Conveying Ash, Refuse, and the Like (Int. Cl. 7).
First use Apr. 30, 1964.

SN 321,162. Autotank Company, Kansas City, Mo. Filed Mar. 10, 1969.

AUTOCART

For Fueling and Defueling Machines for Servicing Turbo-Jet Aircraft in Airports (Int. Cl. 7).
First use on or about Dec. 1, 1968.

SN 326,336. Bishop-Wisecarver Corporation, Oakland, Calif. Filed May 5, 1969.

DUAL VEE

For Guide Wheels and Track for Installation as Parts of Machinery (Int. Cl. 7).
First use Apr. 4, 1969.

SN 326,495. The Aro Corporation, Bryan, Ohio. Filed May 6, 1969.

FOX

Owner of Reg. No. 769,903.
For Glue Dispensing Devices and Systems Comprised of Glue Dispensing Devices and Glue Pressurizing and Distributing Means (Int. Cl. 7).
First use 1963.

SN 330,957. Sherwood Refractories, Inc., Cleveland, Ohio. Filed June 25, 1969.

SHERWOOD

For Refractory Cores for Casting Precision Metal Products (Int. Cl. 6).
First use on or about Sept. 15, 1959.

SN 331,378. Ernest Holmes Company, Chattanooga, Tenn. Filed June 30, 1969.

EH

For Truck-Mounted Devices and Equipment, Including Hoists, Wrecker Bodies and Beds, Self-Loading Devices, Hoisting and Winching Equipment; Towing Devices and Accessories for Towing Disabled Vehicles (Int. Cl. 7).
First use July 1962.

SN 335,351. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K1

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use June 1948.

SN 335,353. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K8

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use June 1948.

SN 335,354. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K11

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use May 1955.

SN 335,355. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K42

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use Mar. 1, 1968.

SN 335,356. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K45

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use June 1, 1963.

SN 335,357. Kennametal Inc., Latrobe, Pa. Filed Aug. 14, 1969.

K68

Owner of Reg. Nos. 528,691, 776,137, and others.
For Wear-Resisting Pieces Consisting of Cemented Hard Metallic Compositions—Namely, Inserts To Be Used in Dies and Tools for Working, Cutting, or Shaping Metal and Other Materials, for Dies, and Cutting Tools (Int. Cl. 7).
First use June 1, 1963.

SN 335,539. August Belz, Goldach, St. Gall, Switzerland. Filed Aug. 18, 1969.

rascal

Owner of Swiss Reg. No. 234,049, dated May 8, 1968.
For Safety Razors and Parts Thereof; and Razor Blades (Int. Cl. 8).

SN 340,703. Dean Brothers Pumps Inc., Indianapolis, Ind. Filed Oct. 15, 1969.

For Evaporator-Concentrator Type of Apparatus for Reclaiming Electroplating Solutions (Int. Cl. 11).
First use Nov. 27, 1968.

SN 346,932. Miba Gleitlagerfabrik Mitterbauer Ges.m.b.H. & Co. KG., Laakirchen, Austria. Filed Dec. 22, 1969.

MIBA

For Parts and Components of Vehicles and Automobiles—Namely, Rods and Bearings Made of Aluminum or Aluminum Alloys, Main Bearings, Plan Main Bearings, Thrust Bearings, Thrust Washers, Connecting Rod Bearings, Camshaft Bearings and Small End Bushings (Int. Cl. 12).
First use 1949; in commerce 1955.

SN 347,203. Bloomfield Industries, Inc., Chicago, Ill. Filed Dec. 29, 1969.

KOFFEE-KING

For Commercial Electric Coffee Brewing Apparatus (Int. Cl. 11).
First use July 8, 1969.

SN 348,804. Rotary Hoes Limited, West Horndon, Essex, England. Filed Jan. 16, 1970.

SEMAVATOR

Owner of British Reg. No. 937,198, dated Jan. 28, 1969.
For Cultivating Machines—Namely, Rotary Cultivating Machines, Sowing Machines, Combined Cultivating and Sowing Machines, and Parts of All These Machines (Int. Cl. 7).

SN 349,072. Gehl Company, West Bend, Wis. Filed Jan. 20, 1970.

HYDRACAT

For Vehicles—Namely, Front End Loaders (Int. Cl. 7).
First use Jan. 9, 1970.

SN 349,083. Ernst Menzi AG., Widnau, Switzerland. Filed Jan. 20, 1970.

MUCK

For Over the Road Vehicles—Namely, Earth Diggers, Excavators, Ditch Diggers, and Power Shovels, Including Parts Therefor (Int. Cl. 7).
First use as early as Mar. 1, 1968; in commerce at least as early as September 1968; as early as Mar. 8, 1966, in the form "Muk."

SN 349,273. H. D. Hudson Manufacturing Company, Chicago, Ill. Filed Jan. 22, 1970.

FLAIR

For Hand Sprayers and Dusters for Dispensing Insecticides, Fungicides, and the Like (Int. Cl. 8).
First use Oct. 1, 1969.

SN 349,274. H. D. Hudson Manufacturing Company, Chicago, Ill. Filed Jan. 22, 1970.

MINI-SQUIRT

For Hand Sprayers and Dusters for Dispensing Insecticides, Fungicides, and the Like (Int. Cl. 8).
First use Oct. 1, 1969.

SN 349,344. Gill Manufacturing Company, Charlotte, N.C. Filed Jan. 22, 1970.

GILL

For Landscaping, Earthmoving, and Farm Implements—Namely, Soil Pulverizers, Soil Spikers, Seeder Attachments, Fertilizer and Seed-Fertilizer Boxes, Cultivators, Tractor Fork Lifts and Platforms, Tractor Utility Blades, Digger Buckets, Scrapers, and Frost Rippers (Int. Cl. 7).
First use prior to Jan. 1, 1964.

SN 350,786. UTD Corporation, Athol, Mass. Filed Feb. 6, 1970.

Owner of Reg. Nos. 856,988 and 888,618.
For Screw Extractors and Die Stocks; and Cutting Tools—Namely, Twist Drills, Reamers, Taps, and Dies (Int. Cls. 7 and 8).
First use Jan. 13, 1970.

SN 351,212. Imperial Knife Associated Companies, Inc., Providence, R.I. Filed Feb. 12, 1970.

SHADOW ROSE

The word "Rose" is disclaimed apart from the mark as shown.
For Stainless Steel Knives, Forks and Spoons (Int. Cl. 8).
First use Jan. 19, 1970.

SN 351,739. Toro Manufacturing Corporation, Minneapolis, Minn. Filed Feb. 18, 1970.

WHIRLWIND

Owner of Reg. Nos. 336,433 and 614,320.
For Mowers (Int. Cl. 7).
First use at least as early as 1933.

SN 352,990. Torres y Cia., S.A., Mataro, Barcelona, Spain. Filed Mar. 3, 1970.

SATOR

Owner of Spanish Reg. No. 421,480, dated July 22, 1963.
For Electric Stops of Motion for Textile and Knitting Machinery (Int. Cl. 7).

SN 368,546. H. D. Hudson Manufacturing Company, Chicago, Ill. Filed Aug. 20, 1970.

PULVOREX

For Hand and Power-Operated Sprayers and Dusters (Int. Cls. 7 and 8).
First use on or about Feb. 19, 1970.

Class 25—Locks and Safes

SN 358,967. Jackes-Evans Manufacturing Company, St. Louis, Mo. Filed May 6, 1970.

M

For Locks (Int. Cl. 6).
First use Dec. 31, 1968.

Class 26—Measuring and Scientific Appliances

SN 332,921. Computer Peripherals Corporation, San Diego, Calif. Filed July 18, 1969.

FASTRACK

For Rapid Access Magnetic Memory Apparatus (Int. Cl. 9).
First use May 8, 1969.

SN 332,964. Fay C. McNeely, Spencer, Wis. Filed July 18, 1969.

HEMMING-BIRD

For Clip for Holding and Measuring Garment Hems Which Are Being Altered (Int. Cl. 9).
First use Mar. 25, 1969.

SN 335,220. Forma Scientific, Inc., Marietta, Ohio. Filed Aug. 13, 1969.

MEDGLASS

For Capillary Pipettes Used in Making Medical Determinations (Int. Cl. 9).
First use June 23, 1969.

SN 336,596. Pressure Products Company, Inc., Charleston, W. Va. Filed Aug. 28, 1969.

PRESSURE LIGHT GLASS

Applicant disclaims the term "Sight Glass" separate and apart from the mark as shown.
For Sight Glasses for Industrial Equipment (Int. Cl. 9).
First use Oct. 8, 1957.

SN 337,445. P. Oliver Goldsmith Limited, London, England. Filed Sept. 9, 1969.

OLIVER GOLDSMITH

"Oliver Goldsmith" is the name of a living person, whose consent is of record. Owner of British Reg. No. B923,941, dated Apr. 19, 1968.
For Spectacle Frames, and Sun Glasses (Int. Cl. 9).
First use 1960; in commerce March 1963.

SN 337,680. Nittan Company Ltd., Shibuya-ku, Tokyo, Japan. Filed Sept. 11, 1969.

NK

For Ionization Smoke Detectors and Parts Thereof (Int. Cl. 9).
First use at least as early as June 5, 1967; in commerce at least as early as June 5, 1967.

SN 337,681. Nittan Company Ltd., Shibuya-ku, Tokyo, Japan. Filed Sept. 11, 1969.

NITTAN

For Ionization Smoke Detectors and Parts Thereof (Int. Cl. 9).
First use at least as early as June 5, 1967; in commerce at least as early as June 5, 1967.

SN 338,664. Corneal Lens Corporation Pty., Limited, Sydney, New South Wales, Australia. Filed Sept. 23, 1969.

CLITAN

Priority claimed under Sec. 44(d) on Australian Reg. No. A228,005, dated Apr. 14, 1969.
For Contact Lenses (Int. Cl. 9).

SN 345,066. Evergreen Industries, Incorporated, Los Angeles, Calif. Filed Dec. 2, 1969.

EVERGREEN SCIENTIFIC

No registration rights are claimed for the word "Scientific" apart from the mark shown, but the applicant waives none of its common law rights in the mark shown or any feature thereof.

For Plastic Disposable Beaker Cups, Filtering Columns, Pipet Tips, Cylindrical, Chromatography Columns Used for Separation, Fractionation and Elution of Solvent-Separable Components; Metal Heating Blocks Formed To Receive and Heat Test Tubes; and Strip Chart Paper (Int. Cl. 9).

First use Sept. 15, 1965.

SN 347,613. Medical Development Corporation, Perth Amboy, N.J. Filed Jan. 2, 1970.

AUTO-PAP

For Device for Collecting Vaginal Specimens (Int. Cl. 9).
First use Aug. 15, 1969.

SN 348,268. Conoflow Corporation, Blackwood, N.J. Filed Jan. 12, 1970.

E-CONO

For Liquid Flow Meters (Int. Cl. 9).
First use July 8, 1969.

SN 349,886. Phillip E. Ouellette, d.b.a. Acrolab Instrument Company, Windsor, Ontario, Canada. Filed Jan. 28, 1970.

ACROFLEX

For Pneumatically Actuated Controls for Governing Variable Conditions Such as Liquid Level, Temperature, Pressure Differentials and Fluid Flow (Int. Cl. 9).
First use Sept. 26, 1969; in commerce Sept. 26, 1969.

SN 349,999. Preventive Electronics, Inc., University City, Mo. Filed Jan. 29, 1970.

TELEGUARD

For Electronic Unit Which Automatically Dials the Police or Other Telephone Numbers and Plays a Pre-Taped Message Reporting an Emergency or Sounds a Bell, Siren or Horn or Triggers Flashing or Flood Lights (Int. Cl. 9).
First use July 15, 1969.

SN 354,205. Motorola, Inc., Franklin Park, Ill. Filed Mar. 16, 1970.

S/40

For Closed Circuit Television Cameras for Monitoring (Int. Cl. 9).
First use August 1967.

SN 354,596. Customflex, Inc., Toledo, Ohio. Filed Mar. 19, 1970.

SQUEALER

For Electronic Sensor for Determining Increase or Decrease of Sailboat Speed (Int. Cl. 9).
First use Mar. 6, 1970.

SN 355,180. Computer Consoles, Inc., East Rochester, N.Y. Filed Mar. 27, 1970.

CCI
COMPUTER CONSOLES INCORPORATED

No claim is made to the wording "Computer Consoles Incorporated" apart from the mark without waiving any common law rights thereon.

For Computer Peripheral Equipment—Namely, Card Readers, Magnetic Tape Units, Data Communication Terminals, Printers, Display Terminals, and Keyboards (Int. Cl. 9).
First use Apr. 11, 1969.
Subj. to Intf. with SN 343,666.

SN 355,205. Credex Corporation, Huntsville, Ala. Filed Mar. 27, 1970.

CREDEX

For Credit Verifying Data Terminal Unit, Which Is a Device Which Accepts Credit Cards, Electrically Reads a Card and Interrogates a Central Computer for Clearance of Credit of Owner of Card (Int. Cl. 9).
First use Mar. 21, 1970.

SN 356,241. Benson Optical Co., Inc., Minneapolis, Minn. Filed Apr. 8, 1970.

(I)

For Industrial Safety Eyewear (Int. Cl. 9).
First use Mar. 31, 1970.

SN 361,068. Institute of Gas Technology, Chicago, Ill. Filed May 28, 1970.

ODOTRON

For Electrically Operated Tester For Testing and Measuring Odor Level in Natural Gas (Int. Cl. 9).
First use May 9, 1969.

SN 364,326. Engel Industries, Inc., Ballwin, Mo. Filed July 6, 1970.

SIZ-O-MATIC

For Sizing Table for Measuring, Squaring and Cutting Insulated Material for Ducts and the Like (Int. Cl. 9).
First use in or before November 1962.

Class 28 — Jewelry and Precious-Metal Ware

SN 332,536. Valentin Lopez Gomez, Madrid, Spain. Filed July 14, 1969.

PLATOR

Owner of Spanish Reg. No. 344,153, dated Jan. 11, 1960.
For Articles of Silver and Gold—Namely, Jugs, Glasses, Cups, Candelabrums and Candy Boxes; Jewelry and Costume Jewelry (Int. Cl. 14).

SN 355,787. Bruno Mayer, Werkstatten fur Goldringe und Feine Goldwaren G.m.b.H., Ellmendingen, Baden, Germany. Filed Apr. 2, 1970.



The mark consists of the letters "AE" and design. Applicant disclaims the respresentation of the rings apart from the mark as shown. Owner of German Reg. No. 863,381, dated Nov. 4, 1966.

For Precious Jewelry, Especially Golden Jewelry; Unprecious Jewelry; Jewelry Rings, Especially Golden Rings (Int. Cl. 14).

SN 359,630. Irving Michaels & Co., New Haven, Conn. Filed May 13, 1970.

RING OF INTENT

Applicant disclaims the word "Ring" apart from the mark as shown, but reserves all common law and statutory trademark rights to which it may otherwise be entitled.

For Jewelry—Namely, Rings, Bracelets, Pendants and Pins (Int. Cl. 14).
First use Mar. 9, 1970.

Class 29 — Brooms, Brushes, and Dusters

SN 333,518. Avon Products, Inc., New York, N.Y. Filed July 25, 1969.

BRISTLE-RITE

For Hair Brush and Tooth Brush (Int. Cl. 21).
First use May 21, 1969.

SN 337,091. Pellon Corporation, New York, N.Y. Filed Sept. 4, 1969.

VAM

For Chamois-Like Wiping Cloths and Cleaning Cloths (Int. Cl. 21).
First use at least as early as Feb. 14, 1968.

SN 337,562. Michigan Molds, Inc., Belding, Mich. Filed Sept. 10, 1969.

KWICKEE

For Paint Rollers (Int. Cl. 16).
First use Sept. 12, 1968.

Class 31 — Filters and Refrigerators

SN 334,954. Amxco, Inc., Arlington, Tex. Filed Aug. 11, 1969.

PRECISION-PAK

For Evaporative Cooling Pads (Int. Cl. 11).
First use 1959.

SN 354,962. Lancaster Pump & Manufacturing Co., Inc., Lancaster, Pa. Filed Mar. 24, 1970.

LANCASTER

Owner of Reg. No. 525,646.
For Water Softening Conditioning Equipment of the Ion-Exchange Type and Parts Thereof (Int. Cl. 11).
First use Aug. 1, 1960.

SN 356,682. Hydro-Miser Corporation, Philadelphia, Pa. Filed Apr. 13, 1970.



For Water Chilling Apparatus for Providing Cold Water for Cooling and Condensing Solvents Used for Dry Cleaning (Int. Cl. 11).
First use Mar. 16, 1970.

Class 32 — Furniture and Upholstery

SN 324,671. American Seating Company, Grand Rapids, Mich. Filed Apr. 16, 1969.

FOLD-A-WAY

For Chairs (Int. Cl. 20).
First use on or before Mar. 26, 1969.

SN 329,947. Acme Visible Records, Inc., Crozet, Va. Filed June 13, 1969.

DATA VUE

For Filing Cabinets, Visible Record Cabinets, Stands for Filing Cabinets and Visible Record Cabinets, Visible Record and Index Sectional Units, Visible Record and Index Rotary Stands, Visible Record and Index Desk Stands, Rotary Stand Tables, Telephone Wall Brackets, and Visible Record and Index Filing Frames (Int. Cls. 16 and 20).
First use June 4, 1969.

SN 332,047. Robert John Company, King of Prussia, Pa. Filed July 8, 1969.

PENNWOOD

For Office Furniture—Namely, Desks, Chairs, Tables, Credenzas, and Filing Cabinets (Int. Cl. 20).
First use at least as early as 1962.

SN 337,980. Sealy, Incorporated, Chicago, Ill. Filed Sept. 15, 1969.

FIRM GUARD

Applicant disclaims the word "Firm" apart from the mark as shown.
For Mattresses and Box Springs (Int. Cl. 20).
First use Aug. 14, 1968.

SN 350,454. Business Efficiency Aids, Inc., Skokie, Ill. Filed Feb. 4, 1970.



Owner of Reg. No. 633,620.
For Magnetic Rotary Card Files (Int. Cl. 16).
First use in or about May 1969.

SN 352,981. Sears, Roebuck and Co., Chicago, Ill. Filed Mar. 3, 1970.

SEROSUPER

For Pre-Cut Polyurethane Cushioning Material (Int. Cl. 20).
First use on or about June 10, 1969.

SN 360,345. Kamar Products Incorporated, Irvington-on-Hudson, N.Y. Filed May 20, 1970.

MIRROFLEX

For Glassless Mirrors (Int. Cl. 20).
First use Mar. 6, 1970.

SN 369,175. Patriot Industries, Inc., Winchendon, Mass. Filed Aug. 27, 1970.



For Living Room, Bedroom, and Dining Room Furniture (Int. Cl. 20).
First use Apr. 7, 1966.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 318,245. Thermasol Ltd., New York, N.Y. Filed Feb. 3, 1969.



Owner of Reg. No. 754,517.
For Steam Bath for Installation in Existing Bathing Areas (Int. Cl. 11).
First use Aug. 1, 1958.

SN 335,740. Brunswick Corporation, Chicago, Ill. Filed Aug. 20, 1969.

TRAVELER

For Catalytic Heaters (Int. Cl. 11).
First use on or about Dec. 19, 1968.

SN 350,986. Wehr Corporation, Verona, Wis. Filed Feb. 9, 1970.

VARICORE

For Air Conditioning Registers and Grilles (Int. Cl. 11).
First use Oct. 24, 1969.

SN 353,767. Johns-Manville Corporation, New York, N.Y. Filed Mar. 11, 1970.

MICRO-AIRE

For Duct Board and Preformed Air Duct for Air Handling Systems (Int. Cl. 11).
First use at least on or about Jan. 6, 1961.

SN 355,004. The Tappan Company, Mansfield, Ohio. Filed Mar. 25, 1970.

POWER-VENT

Owner of Reg. No. 628,997.
For Fan Driven Ventilating and Filtering Hoods for Cooking Ranges (Int. Cl. 11).
First use on or about Oct. 15, 1969.

SN 356,675. Bill Hamilton & Associates, Inc., Carlinville, Ill. Filed Apr. 13, 1970.

ULTIMA

For Humidifiers (Int. Cl. 11).
First use Apr. 1, 1970.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 333,365. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.

BIG 'C'

For Brake Lining Sets (Int. Cl. 17).
First use Jan. 2, 1969.

SN 333,366. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.



The term "Bus-Blok" is disclaimed apart from the mark as shown. The drawing is lined for the color blue.
For Brake Lining Sets (Int. Cl. 17).
First use Mar. 4, 1968.

SN 333,367. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.



Applicant disclaims the words "Semi-Metallic" apart from the mark as shown. The drawing is lined for the color yellow.
For Brake Lining Sets (Int. Cl. 17).
First use Mar. 4, 1968.

SN 333,368. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.



The drawing is lined for the color red. Applicant disclaims the words "Mold-Blok" apart from the mark as shown. Owner of Reg. No. 778,184.
For Brake Lining Set (Int. Cl. 17).
First use Mar. 4, 1968.

SN 333,369. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.



The drawing is lined for the color green. Owner of Reg. No. 769,560.
For Brake Lining Sets (Int. Cl. 17).
First use Jan. 1, 1960.

SN 333,370. Carlisle Corporation, Ridgway, Pa. Filed July 24, 1969.



The drawing is lined for the color brown.
For Brake Linings (Int. Cl. 17).
First use Mar. 4, 1968.

SN 334,362. North American Rockwell Corporation, Pittsburgh, Pa. Filed Aug. 4, 1969.

NORTH AMERICAN ROCKWELL

Owner of Reg. No. 761,242.
For Brake Linings (Int. Cl. 17).
First use July 23, 1969.

SN 344,921. Western Coupling Corporation, Burbank, Calif. Filed Nov. 28, 1969.

SPEED FLEX

For Hose Assemblies for Automobile and Boat Engines (Int. Cl. 17).
First use Oct. 16, 1968.

SN 356,488. Daido Corporation, North Bergen, N.J. Filed Apr. 10, 1970.

SILVER STAR TYRE

Applicant disclaims the word "Tyre" apart from the mark as shown.
For Bicycle Tires (Int. Cl. 12).
First use July 30, 1969.

SN 356,665. The General Tire & Rubber Company, Akron, Ohio. Filed Apr. 13, 1970.

FARM TRAC

Applicant disclaims the word "Farm" apart from the mark as shown.
For Pneumatic Tires for Farm Vehicles (Int. Cl. 12).
First use Feb. 18, 1970.

Class 36 — Musical Instruments and Supplies

SN 152,805. G. Leblanc Corporation, Kenosha, Wis. Filed Sept. 10, 1962.



For Trumpets (Int. Cl. 15).
First use February 1954.

SN 348,697. VEB Blechblas- und Signal-Instrumenten-Fabrik Markneukirchen, Markneukirchen, Germany. Filed Jan. 15, 1970.



"Hans Hoyer" is the name of a living individual, whose consent is of record.
For Brass and Wind Musical Instruments, Signalling Instruments—Namely, Cornets, Horns and Claxons, With Single or Multiple Sounds, Horns With Fundamental B and C, Signal Trumpets With Fundamental B, Fanfare Sounding Instruments, Signal Whistles and Parts Therefor, Instrument Carrying Cases, and Protective Covers for Instruments (Int. Cl. 15).
First use Mar. 2, 1964; in commerce May 7, 1965.

SN 350,221. Cartwheel Records, Inc., Gainesville, Ga. Filed Feb. 2, 1970.



For Phonograph Records (Int. Cl. 9).
First use Oct. 19, 1969.
Subj. to Intf. with SN 347,369.

SN 354,002. Grossman Music Corporation, Cleveland, Ohio. Filed Mar. 13, 1970.

THEODOR KREUTZER

For String Instruments—Namely, Violins, Violas, Cellos, String Basses; and Accessories—Namely, Violin Bows, Viola Bows, Cello Bows, Bass Bows, Violin Chinrests, and Viola Chinrests (Int. Cl. 15).
First use on or about June 10, 1930.

SN 359,080. Chips Records, Inc., Memphis, Tenn. Filed May 7, 1970.

CHIPS

For Phonograph Records and Pre-Recorded Tapes (Int. Cl. 9).
First use Feb. 1, 1970.

SN 359,435. The Shelby Singleton Corporation, Nashville, Tenn. Filed May 11, 1970.

ALVINA RECORDS

Applicant disclaims the word "Records."
For Phonograph Records (Int. Cl. 9).
First use May 8, 1970.

Class 37—Paper and Stationery

SN 301,912. Carco, Incorporated, Detroit, Mich. Filed July 3, 1968.

VALVOMATIC

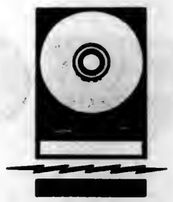
For Felt Tipped, Nylon Tipped, and Bristle Tipped Industrial Production Markers (Int. Cl. 16).
First use Before May 1, 1967.

SN 317,537. Cyril Dominiak, Union, N.J. Filed Jan. 27, 1969.

"EASY E-Z ORGANIZER"

For Business Forms (Int. Cl. 16).
First use in or about June 1963.

SN 317,841. Hammermill Paper Company, Erie, Pa. Filed Jan. 29, 1969.



Applicant disclaims the configuration of the goods apart from the mark. Owner of Reg. No. 782,865.
For Continuous Data Processing Forms, Paper Tape for Communications and Computer Use, Including Adding Machine Rolls, Cash Register Receipt and Detail Rolls, Bookkeeping, Tabulating, and Accounting Machine Rolls, Computer Rolls and Tapes, Electrostatic Rolls, Oiled and Non-Oiled Perforator Tapes, Single and Multi-Copy Teleprinter Rolls, Typesetter Tapes, Ticker Tapes, Telegraph Tapes, Police and Fire Alarm Signal Tapes, Radio and Cable Tapes, TelAutograph Rolls, Automatic Typewriter Tapes, Carbon Interleaved and Carbonless Rolls, Folded Tapes and Packs, Machine Control Tapes, Data Processing Perforator Tapes and Output Rolls, Poster Blanking Rolls, Medical Examination Rolls, Galley Proof Rolls, Mailing List Papers, Product Packaging Rolls, and Other Custom-Tailored Rolls, Packs, and Tapes (Int. Cl. 16).
First use Apr. 12, 1963.

SN 326,765. Hollingsworth & Vose Company, East Walpole, Mass. Filed May 8, 1969.



Owner of Reg. No. 504,308.
For Technical and Industrial Papers of Natural and/or Synthetic Fibers in Rolls, Sheets or Laminated or Composite Structures Used (1) for Filtration, Electrical Insulation, Interlinings, Gaskets, Coating and Laminating Base Materials, Base Materials for Printed Circuits, Disposable Fabrics, and Saturating and Absorbent Applications, (2) as a Tympan, and (3) for Tag, Wallet and Core Stock (Int. Cls. 16 and 17).
First use Jan. 24, 1969.

SN 328,068. Narragansett Business Forms & Systems, Inc., Providence, R.I. Filed May 22, 1969.

NARRAGANSETT

The mark is lined for the color green, but no claim is made to color.
For One-Time Carbon Interleaved Forms (Int. Cl. 16).
First use May 1, 1966.

SN 329,768. Societe des Adhesifs et Plastiques de l'Est, S.A.P.E., Dijon, France. Filed June 11, 1969.

PLASTO XY

Owner of French Reg. No. 746,574, dated Sept. 12, 1968.
For Blank or Partially Printed Adhesive Labels (Int. Cl. 16).

SN 333,680. Combined Paper Mills, Inc., Combined Locks, Wis. Filed July 28, 1969.

CHAUCER

For Offset and Letterpress Printing Paper (Int. Cl. 16).
First use July 8, 1969.

SN 338,777. W. R. Grace & Co., New York, N.Y. Filed Sept. 24, 1969.

FLIP-FILE

For Albums and Album Inserts—Namely, Photograph, Display and Stamp Albums, Loose-Leaf Albums and Transparent Plastic Envelopes Used as Album Inserts; Binders and Portable Files—Namely, Transparent Envelope-Type Inserts and Trays of Inserts for Said Binders and Files (Int. Cl. 16).
First use July 1950.

SN 342,894. Plastics Manufacturing Company, Dallas, Tex. Filed Nov. 6, 1969.

SMALL FRY ORIGINALS

The word "Originals" is disclaimed apart from the mark as shown.
For Kits Consisting of Paper and Pens for Use in Preparing Designs To Be Incorporated in Plastic Dinner Plates (Int. Cl. 16).
First use Oct. 3, 1969.

SN 349,405. Taylor Publishing Company, Dallas, Tex. Filed Jan. 22, 1970.



Applicant disclaims the words "Cover" and "Dallas" apart from the mark as shown.
For Commercial Covers (Album Covers, Ring-Binders, Pass-Books, Check Books, etc.) (Int. Cl. 16).
First use Aug. 15, 1969.

SN 350,042. Avar, Inc., St. Louis, Mo. Filed Jan. 30, 1970.

Saf-T-Cling

For Rolls of Plastic Wrapping Film (Int. Cl. 16).
First use Dec. 29, 1969.

SN 351,414. Anson Incorporated, Providence, R.I. Filed Feb. 16, 1970.

SCEPTRE

For Writing Instruments—Namely, Propel-Repel Pens and Pencils (Int. Cl. 16).
First use Jan. 7, 1970.

SN 355,108. Chase Bag Company, Greenwich, Conn. Filed Mar. 26, 1970.

CHASE ULTRACOTE

Owner of Reg. Nos. 385,753, 873,026, and others.
For Paper in Roll Form Used for Consumer Size Flour Bags (Int. Cl. 16).
First use May 29, 1968.

SN 355,260. Ready Reference Publishing Co., New York, N.Y. Filed Mar. 27, 1970.

SCHEDULOG

For Memorandum Books (Int. Cl. 16).
First use Jan. 15, 1970.

SN 355,651. Hollingsworth & Vose Company, East Walpole, Mass. Filed Apr. 1, 1970.

HOVOFLEX

Owner of Reg. Nos. 688,756, 887,876, and others.
For Resin-Bearing Papers in Rolls and Sheets (Int. Cl. 16).
First use on or before July 29, 1964.

SN 356,040. Concel Inc., New York, N.Y. Filed Apr. 6, 1970.

BOUDOIR

For Facial Tissue and Bathroom Tissue (Int. Cl. 16).
First use Mar. 10, 1970.

SN 357,908. Flynn International Corp., New York, N.Y. Filed Apr. 27, 1970.

TYPE-OUT

Owner of Reg. Nos. 785,393 and 746,419.
For Chemically Treated Paper for Eradicating Typed Characters (Int. Cl. 16).
First use June 12, 1960.

SN 359,296. Kimberly-Clark Corporation, Neenah, Wis. Filed May 11, 1970.

ERMINE

For Index Paper (Int. Cl. 16).
First use Apr. 10, 1970.

Class 38—Prints and Publications

SN 294,524. Standard International Corporation, Andover, Mass., assignee of Geo. A. Pflaum, Publisher, Inc., Dayton, Ohio. Filed Mar. 29, 1968.



For Educational Publications for Both Adults and Children—Namely, Hard Cover and Paper Bound Books Primarily in the Fields of Religion and of General Information (Int. Cl. 16).
First use Mar. 14, 1968.

SN 298,302. The American Bankers Association, New York, N.Y. Filed May 16, 1968.

CUSIP

For Directory of Identifying Numbers for Stocks, Bonds and Other Securities, and Supplements Therefor Issued From Time to Time; a Periodically Issued Newsletter; and Technical Bulletins Issued From Time to Time (Int. Cl. 16).
First use May 10, 1967.

SN 309,673. Fanny Farmer Candy Shops, Inc., Cambridge, Mass., assignee of Fannie Farmer Cookbook Corporation, Cambridge, Mass. Filed Oct. 15, 1968.

FANNIE FARMER

Owner of Reg. Nos. 126,844 and 578,907.
For Cookbooks Which Are Published From Time to Time (Int. Cl. 16).
First use November 1942.

SN 314,565. Information Industries, Incorporated, Wayne, Pa. Filed Dec. 16, 1968.

DETRAN

For Computer Programs Consisting of Decks of Machine Readable Cards or Machine Readable Tapes for the Public's General Use (Int. Cl. 16).
First use Nov. 18, 1968.

SN 326,865. Edutronics Corporation, Fort Lauderdale, Fla. Filed May 9, 1969.

the Edutronics Corporation

The design feature of the mark constitutes a fanciful representation of the letter "E" which forms a part of the word "Edutronics." The terms "The" and "Corporation" are disclaimed apart from the mark as a whole.
For Developed Motion Pictures, Film Strips and Slides (Int. Cl. 9).
First use Feb. 8, 1968.
Subj. to Intf. with SN 312,762.

SN 330,887. Studio 22, Inc., Chicago, Ill. Filed June 25, 1969.



For Books and Original Graphics—Namely, Relief, Intaglio, and Lithographic Prints in the Arts (Int. Cl. 16).
First use July 1, 1967.

SN 331,914. John Kois, d.b.a. The Kaleidoscope Publishing Company, Milwaukee, Wis. Filed July 7, 1969.

KALEIDOSCOPE

For Newspaper (Int. Cl. 16).
First use on or prior to Oct. 6, 1967.

SN 332,020. Information Company of America, Philadelphia, Pa. Filed July 8, 1969.

up-date

For Abstracts and Articles in Booklet Form Dealing With Business, Financial, Marketing, Technical, and Research Fields, Published Bi-Weekly (Int. Cl. 16).
First use June 13, 1969.

SN 338,285. Thomas J. Conway, d.b.a. Management Information Service, Stony Point, N.Y. Filed Sept. 18, 1969.

ALLTAX

For Manual of Computer Programs (Int. Cl. 16).
First use Sept. 10, 1967.

SN 339,943. Snow, Inc., Bloomfield Hills, Mich. Filed Oct. 6, 1969.

SNOW
THE MAGAZINE OF WINTER

The terminology "The Magazine of Winter" is disclaimed apart from the mark as shown but without prejudice to common law rights which have been developed in the mark.
For Magazine Published Periodically (Int. Cl. 16).
First use Feb. 12, 1969.

SN 342,105. Dexter Press, Inc., West Nyack, N.Y. Filed Oct. 29, 1969.

Kolor Guide

For Coloring Book (Int. Cl. 16).
First use Apr. 18, 1969.

SN 343,106. Gardner Publications, Inc., Cincinnati, Ohio. Filed Nov. 10, 1969.

Modern Machine Shop

MC GUIDEBOOK

Owner of Reg. No. 509,924.
For Machine Shop Manual Produced Annually (Int. Cl. 16).
First use Oct. 7, 1968.

SN 343,674. DVM Newsmagazine, Inc., Glenview, Ill. Filed Nov. 17, 1969.

DVM

For Newsmagazine Devoted to Veterinary Medicine (Int. Cl. 16).
First use Sept. 12, 1969.

SN 345,096. Spacedust, Inc., Ashtabula, Ohio. Filed Dec. 2, 1969.

SPACEDUST

For Educational Aids, Specifically Arithmetic Funbooks (Int. Cl. 16).
First use Nov. 1, 1969.

SN 346,717. CWA Publishing Company, Philadelphia, Pa. Filed Dec. 19, 1969.

LAWYERS WORLD

For Newsletters, Bulletins, and Magazines (Int. Cl. 16).
First use Nov. 26, 1969.

SN 348,554. Lord Corporation, Erie, Pa. Filed Jan. 14, 1970.

CHEMFACTS

For Quarterly Magazine Relating to Adhesives, Coatings, Chemical Treatments and Chemical Specialties (Int. Cl. 16).
First use in or about March 1961.

SN 350,887. Digital Equipment Corporation, Maynard, Mass. Filed Feb. 9, 1970.

DDT

For Computer Software—Namely, Computer Programs Impressed on Punched Cards, Magnetic Tape, Magnetic Discs, Magnetic Drums, and in Writing (Int. Cl. 16).
First use Nov. 6, 1962.

SN 353,201. Landmark Supply Corp., Dorchester, Mass. Filed Mar. 5, 1970.

ORANGE PAGES

For Informational Business Bulletin for Distribution to Management and Supervisory Personnel of Certain Restaurants and Motor Lodges (Int. Cl. 16).
First use Jan. 22, 1970.

SN 356,906. Western Publishing Company, Inc., Racine, Wis. Filed Apr. 14, 1970.

JOKES
BY GASOY

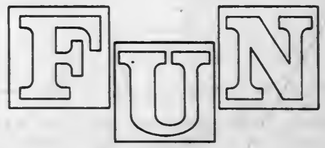
Applicant disclaims its exclusive rights in the words "Jokes" and "By" apart from the mark as shown. Owner of Reg. No. 789,372.
For Periodically Published Magazine Primarily Intended for Children (Int. Cl. 16).
First use Jan. 12, 1970.

SN 360,132. Randall Publishing Company, Houston, Tex. Filed May 18, 1970.

FUN

For Magazine Published Monthly (Int. Cl. 16).
First use September 1966.

SN 360,134. Randall Publishing Company, Houston, Tex. Filed May 18, 1970.



For Magazine Published Monthly (Int. Cl. 16).
First use September 1966.

SN 361,052. National Parks Association, Washington, D.C. Filed May 27, 1970.

NATIONAL PARKS & Conservation Magazine
The Environmental Journal

Applicant disclaims the words "Conservation Magazine" and "The Environmental Journal" apart from the mark as a whole. Owner of Reg. No. 799,536.
For Periodical Publications—Namely, a Monthly Magazine (Int. Cl. 16).
First use Mar. 24, 1970.

SN 363,798. Ceco Publishing Company, Southfield, Mich. Filed June 29, 1970.

ENCORE

For Periodical Magazine (Int. Cl. 16).
First use June 25, 1970.

SN 364,682. Societe des Usines Chimiques Rhone-Poulenc, Paris, France. Filed July 8, 1970.

cp
confrontations psychiatriques

Applicant disclaims the words "Confrontations Psychiatriques" apart from the mark. Owner of French Reg. No. 774,895, dated Sept. 9, 1969.
For Psychiatric Magazine Appearing From Time to Time (Int. Cl. 16).

SN 365,230. Rae Morgenstein, d.b.a. Marge Conners, Publishing, Baltimore, Md. Filed July 14, 1970.

TWO ON THE AISLE

For Directories Published From Time to Time and Containing Information Concerning Places of Entertainment (Int. Cl. 16).
First use June 12, 1970.

SN 365,733. International Longshoremen's Association, New York, N.Y. Filed July 20, 1970.



The lining on the drawing is of the color blue, however, no claim is made to color.
For Printed Books, Pamphlets, Periodicals (Published Monthly), and Circulars Used Between the Different Units of the Association (Int. Cl. 16).
First use 1892.

SN 365,941. The Register and Tribune Syndicate, Inc., Des Moines, Iowa. Filed July 22, 1970.

WEE PALS

For Newspaper Cartoon Feature (Int. Cl. 16).
First use Apr. 3, 1967.

SN 366,322. Christian Reformed Board of Home Missions, Grand Rapids, Mich. Filed July 27, 1970.

THE WAY

For Magazine (Int. Cl. 16).
First use in or about January 1957.

SN 366,414. Tel-Aire Publications, Inc., Dallas, Tex. Filed July 27, 1970.

TEL-AIRE

For Television Program Guide (Int. Cl. 16).
First use Nov. 17, 1969.

SN 367,449. The International Organization for Standardization, Geneva, Switzerland. Filed Aug. 7, 1970.



For Books, Pamphlets and Brochures Issued From Time to Time Relating to International Engineering and Industrial Standards and International Standardization Activities in Various Fields, Such as the Mechanical, Chemical, Mining, Building, Safety, Consumer Goods, Nuclear, Photographic, Traffic and Testing Fields (Int. Cl. 16).
First use Apr. 30, 1961; in commerce Apr. 30, 1961.

SN 368,255. Horizon House-Microwave, Inc., Dedham, Mass. Filed Aug. 17, 1970.

HORIZON HOUSE

For Technical and Scientific Books, and Magazines; and Handbooks Published Periodically (Int. Cl. 16).
First use January 1963.

SN 368,307. Hampton Richey, Fremont, Calif. Filed Aug. 17, 1970.



For Phonics Cards (Int. Cl. 16).
First use Sept. 16, 1966.

Class 39 — Clothing

SN 334,256. Societe Franck-Olivier, S.A., Paris, France. Filed Aug. 1, 1969.

FRANCK OLIVIER

"Franck Olivier" is a fanciful name. Owner of French Reg. No. 530,578, dated Apr. 23, 1965 (Seine); Natl. Inst. No. 246,621.
For Robes, Dresses, Trousers, Waists, Sweaters, Shirts, Raincoats, Vests, Belts, Ties, Scarves, Hosiery, Leather Vests, Shoes and Slippers, Leather Jackets, Leather Pants, Leather Gloves, for Ladies, Men, Girls, and Boys (Int. Cl. 25).
First use April 1965; in commerce May 1965.

SN 338,249. JPD Co., Davenport, Iowa. Filed Sept. 18, 1969.

THE HOME PLACE

For Women's Suits, Coats, Jackets, Skirts, Dresses, Vests, Blouses, Scarves, Slacks, and Hats; Men's Jackets, Trousers, Vests, Shirts, Coats, and Ties (Int. Cl. 25).
First use May 1969.

SN 339,716. GT Corp., Minami-ku, Osaka, Japan. Filed Oct. 3, 1969.

GTO

The drawing is lined to designate colors red and green.
For Sports Wear—Namely, Ski Wear, Coats, Jackets, Pants, Shirts, Jumpers, Underwear, Parkas, Caps, Shoes, Socks, Baseball Uniforms, and Vests (Int. Cl. 25).
First use prior to Oct. 1, 1968; in commerce Oct. 1, 1968.

SN 339,718. GT Corp., Minami-ku, Osaka, Japan. Filed Oct. 3, 1969.

GTO

For Sports Wear—Namely, Ski Wear, Coats, Jackets, Pants, Shirts, Jumpers, Underwear, Parkas, Caps, Shoes, Socks, Baseball Uniforms, and Vests (Int. Cl. 25).
First use prior to Oct. 1, 1968; in commerce Oct. 1, 1968.

SN 339,757. True Form Foundations, Inc., Darby, Pa. Filed Oct. 3, 1969.

HIP-SLIP

The word "Slip" is disclaimed apart from the mark as shown.
For Combination Slip and Girdle Undergarment (Int. Cl. 25).
First use Sept. 17, 1969.

SN 341,039. Kolnische Gummifaden-Fabrik, Cologne-Deutz, Germany. Filed Oct. 17, 1969.

FASHY

Owner of German Reg. No. 790,280, dated Aug. 31, 1963.
For Bathing Caps (Int. Cl. 25).
First use Dec. 31, 1967; in commerce Dec. 31, 1967.

SN 341,463. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. Filed Oct. 20, 1969.

International

Studio

For Ladies' Blouses, Skirts, Slacks, Sweaters, Shifts, Shirts, Ponchos, and Vests (Int. Cl. 25).
First use on or about Oct. 7, 1969.

SN 341,884. Revontuli, Inc., New York, N.Y. Filed Oct. 27, 1969.



Kirsti

For Women's Shirts, Blouses, Jackets, Skirts, Dresses, Coats and Slacks (Int. Cl. 25).
First use Sept. 23, 1969.

SN 345,098. Stadium Corporation, Fitchburg, Mass. Filed Dec. 2, 1969.

Miss Tona

For Girls' and Women's Dresses (Int. Cl. 25).
First use Mar. 15, 1969.

SN 346,254. Kayser-Roth Corporation, New York, N.Y. Filed Dec. 15, 1969.

LA PAZ

For Men's and Boys' Outer Jackets, and Storm Coats (Int. Cl. 25).
First use January 1958.

SN 346,297. A. Sandler Co., Inc., Needham Heights, Mass. Filed Dec. 15, 1969.

Miss Sandler

Owner of Reg. No. 545,663.
For Women's and Girls' Shoes (Int. Cl. 25).
First use Nov. 2, 1962.

SN 348,426. Charles W. Hall, Limited, Loughborough, England. Filed Jan. 13, 1970.

Shepshed

For Men's Hosiery (Int. Cl. 25).
First use at least as early as 1950; in commerce at least as early as 1950.

SN 348,760. Cluett, Peabody & Co., Inc., New York, N.Y. Filed Jan. 16, 1970.

SHIRT CIRCUIT

The word "Shirt" is disclaimed apart from the mark as shown.
For Shirts (Int. Cl. 25).
First use Dec. 26, 1969.

SN 351,672. Atlas Underwear Corporation, Piqua, Ohio. Filed Feb. 18, 1970.

DOWNHILL

For Winter Sports Socks (Int. Cl. 25).
First use Jan. 30, 1970.

SN 352,345. Hickok Manufacturing Company, Rochester, N.Y. Filed Feb. 25, 1970.

ACCU-FIT

For Men's Leather Belts (Int. Cl. 25).
First use at least as early as Feb. 5, 1970.

SN 352,884. Sunset Sportswear, Inc., Seattle, Wash. Filed Mar. 2, 1970.



For Men's, Women's, and Children's Casual Wear Garments, i.e., Coats, Jackets, Pants, and Overshirts (Int. Cl. 25).
First use Jan. 15, 1970.

SN 352,936. J. W. Bray Company, Inc., Dalton, Ga. Filed Mar. 3, 1970.

Cuddie-Holds

For Slippers (Int. Cl. 25).
First use Feb. 18, 1970.

SN 353,343. Wembley Industries, Inc., New Orleans, La. Filed Mar. 6, 1970.

LUCKY R

For Men's Neckwear (Int. Cl. 25).
First use Dec. 22, 1969.

SN 353,344. Wembley Industries, Inc., New Orleans, La. Filed Mar. 6, 1970.

HUNTMASTER

For Men's Neckwear (Int. Cl. 25).
First use Jan. 13, 1970.

SN 354,798. A. Barker & Sons Limited, Northampton, England. Filed Mar. 23, 1970.

BARKER OF EARLS BARTON

Without relinquishing any common law rights, applicant disclaims exclusive rights in the name "Earls Barton" apart from the mark as shown. Owner of British Reg. No. B896,652, dated July 1, 1966.
For Shoes and Sandals (Int. Cl. 25).

SN 356,345. Walton Manufacturing Company, Loganville, Ga. Filed Apr. 9, 1970.

WALTON

For Men's and Boys' Suits, Sport Coats, and Pants (Int. Cl. 25).
First use 1962.

SN 356,463. Sea Fashions, Inc., Los Angeles, Calif. Filed Apr. 10, 1970.

SEA FASHIONS OF CALIFORNIA

Applicant disclaims the words "of California" apart from the mark as shown. Owner of Reg. No. 531,115.
For Beach Apparel—Namely, Women's, Misses and Junior Swimsuits; Bra Dresses, Pants, Jackets, Skirts, Vests, Blouses, Ponchos, Capes, Halters, Jumpsuits and Rompers for Beachwear (Int. Cl. 25).
First use January 1946.

SN 358,156. Consolidated Foods Corporation, Chicago, Ill. Filed Apr. 28, 1970.

COMING ALIVE BODY SUIT

The phrase "Body Suit" is disclaimed apart from its use in the mark.
For Wearing Apparel—Namely, Pants and Shirts (Int. Cl. 25).
First use Feb. 15, 1970.

SN 359,742. SCOA Industries, Inc., Columbus, Ohio. Filed May 14, 1970.

NORRWOCK DELUXE

Applicant disclaims "Deluxe" apart from the mark as shown.
For Men's, Women's and Children's Shoes and Boots (Int. Cl. 25).
First use at least as early as 1960.

SN 360,003. Bear Brand Hosiery Co., Chicago, Ill. Filed May 18, 1970.

LONGFELLOWS

Owner of Reg. No. 525,551.
For Hosiery (Int. Cl. 25).
First use Nov. 22, 1926.

SN 360,397. Youthcraft Coats and Suits Inc., Kansas City, Mo. Filed May 20, 1970.

Voyager West by Youthcraft

Owner of Reg. Nos. 506,130 and 588,368.
For Women's All-Weather Coats (Int. Cl. 25).
First use Sept. 21, 1966.

SN 360,988. George Meyers Industries, Inc., New York, N.Y. Filed May 27, 1970.

MY-FORM

For Brassieres and Girdles (Int. Cl. 25).
First use May 15, 1970.

SN 361,091. Susan A. Ball, d.b.a. Ballderdash, Chicago, Ill. Filed May 28, 1970.

BALLDERDASH

For Neckties, Vests, and Handkerchiefs (Int. Cl. 25).
First use May 1, 1969, on neckties.

SN 361,542. Vanity Shoes, Philadelphia, Pa. Filed June 3, 1970.

THE VILLAGE COBBLER

For Shoes (Int. Cl. 25).
First use on or about June 19, 1969.

SN 364,333. Indianapolis Glove Company, Inc., Indianapolis, Ind. Filed July 6, 1970.

YELL-O-CHIEF

For Work Gloves (Int. Cl. 25).
First use Mar. 25, 1970.

SN 364,713. Consolidated Foods Corporation, Chicago, Ill. Filed July 9, 1970.

HAND VIGOR

For Gloves (Int. Cl. 25).
First use Apr. 11, 1970.

SN 368,177. Superior Surgical Mfg. Co., Inc., Huntington, N.Y. Filed Aug. 17, 1970.

FASHION-STAT

For Surgeons', Doctors', Nurses', and Professional Gowns, Jackets, Shirts, Pants, Blouses, Skirts, Suits, Aprons, and Coats; Laboratory Coats; Patients' and Examining Gowns; Operating Room Caps, Leggings, and Gowns (Int. Cl. 25).
First use July 15, 1970.

SN 368,410. Hilts-Willard Glove Corp., Gloversville, N.Y. Filed Aug. 19, 1970.

ASTROWEAR

For Jumpsuits (Int. Cl. 25).
First use June 18, 1970.

SN 368,420. Rob Roy Company, Inc., New York, N.Y. Filed Aug. 19, 1970.

TWINNERS

For Dress and Sport Shirts of Knitted and Woven Materials, Sweaters, Bermuda Shorts, Jackets, Vests, Trousers, Caps, Swimwear, Pant and Shirt Combinations, Robes, Pajamas, and Hosiery for Men, Young Men, Boys and Infants (Int. Cl. 25).
First use July 20, 1970.

SN 368,442. Bobbie Brooks, Incorporated, Cleveland, Ohio. Filed Aug. 19, 1970.

INTRUDER

For Men's Neckwear (Int. Cl. 25).
First use June 24, 1970.

SN 368,967. The Lovable Company, Atlanta, Ga. Filed Aug. 26, 1970.

BEAUTY QUEEN

For Foundation Garments and Underwear (Int. Cl. 25).
First use Aug. 13, 1970.

SN 369,167. Converse Rubber Corporation, Malden, Mass. Filed Aug. 27, 1970.

SUN JOYS

For Shoes (Int. Cl. 25).
First use at least as early as Aug. 24, 1970.

Class 40—Fancy Goods, Furnishings, and Notions

SN 324,492. Rainbow Enterprises Ltd., Washington, D.C. Filed Apr. 14, 1969.

LI-LI

For Hair Pieces—Namely, Wigs, Wiglets, Falls, and Curls (Int. Cl. 26).
First use Mar. 1, 1969.

SN 324,494. Rainbow Enterprises Ltd., Washington, D.C. Filed Apr. 14, 1969.

FIRST LADY WIGS

Applicant disclaims exclusive use to the word "Wigs" apart from the mark as shown.
For Hair Pieces—Namely, Wigs, Wiglets, Falls, and Curls (Int. Cl. 26).
First use July 1967.

SN 327,031. Lincoln Lace & Braid Co., Providence, R.I. Filed May 12, 1969.

INVISIBLE TIP

Owner of Reg. No. 768,536.
For Shoelaces (Int. Cl. 26).
First use on or about Jan. 28, 1963.

SN 331,330. Carousel Fashions, Inc., Brooklyn, N.Y. Filed June 30, 1969.

care-free by Carousel

For Wigs (Int. Cl. 26).
First use Aug. 20, 1968.

SN 331,586. Central Notion Company, Inc., New York, N.Y. Filed July 2, 1969.

PIN MAN

Applicant disclaims the word "Pin" apart from the mark as a whole, while retaining all common law rights therein.
For Notions—Namely, Straight Pins, T-Pins, Safety Pins, Snap Fasteners, Garment Clips, Hooks, Eyes, Loops, and Elastic Strips (Int. Cl. 26).
First use on or before June 10, 1963.

SN 334,816. Cut & Curl International, Inc., Great Neck, N.Y. Filed Aug. 8, 1969.

THE Edie

For Wigs, Wiglets, and Falls (Int. Cl. 26).
First use Mar. 21, 1969.

SN 337,362. Select Beauty Brands, Inc., Great Neck, N.Y. Filed Sept. 8, 1969.

SHERANI

The mark "Sherani" is fanciful.
For False Eyelashes (Int. Cl. 3).
First use Jan. 19, 1967.

SN 339,366. T.G. & Y. Stores Company, Oklahoma City, Okla. Filed Sept. 30, 1969.

GOLDEN T

For Sewing Kits, Pin Cushions, Needles, Needle Threaders, Thimbles, Tailor's Marking Pencils, Tailor's Chalk, Seam Rippers, Laundry Marking Kits, and Hook and Eye Closures (Int. Cl. 26).
First use Jan. 10, 1969.

SN 351,461. Marshall B. Houck, Indianapolis, Ind. Filed Feb. 16, 1970.

COMB THE YELLOW PAGES

Applicant disclaims the word "Comb" as used separate and apart from the mark as shown.
For Combs (Int. Cl. 21).
First use at least as early as Sept. 8, 1969.

SN 356,025. Bernard, Inc., Southfield, Mich. Filed Apr. 6, 1970.

BERNARD

For Wigs, Wiglets, Falls, and Cascades (Int. Cl. 26).
First use Dec. 4, 1967.

SN 356,922. Reid-Meredith, Inc., Lawrence, Mass. Filed Apr. 15, 1970.

The Change About

For Wigs and Hairpieces (Int. Cl. 26).
First use Jan. 19, 1970.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 341,964. Waumbec Mills, Incorporated, New York, N.Y. Filed Oct. 28, 1969.

HIT KNIT

Applicant disclaims the word "Knit" apart from the mark shown, and without waiving any common law rights.
For Textile Fabrics, Including Knitted Textile Fabrics Made of Natural and/or Synthetic Fibers and/or Blends Thereof (Int. Cl. 24).
First use Aug. 30, 1969.

SN 342,492. Edmond R. T. Marquette, Houma, La. Filed Nov. 3, 1969.

MR. & MRS.
DIFF
BLANKET

No claim is made to the word "Blanket" or to the representation thereof apart from the mark as shown.
For Blankets (Int. Cl. 24).
First use Sept. 23, 1969.

SN 342,817. The Astrup Company, Cleveland, Ohio. Filed Nov. 6, 1969.

MARINER

The portrait of a sailor is of a fictitious character.
For Water Repellent Mildew Resistant Boat Top Fabric (Int. Cl. 24).
First use on or about July 1, 1969.

SN 356,831. Kimberly-Clark Corporation, Neenah, Wis. Filed Apr. 14, 1970.

KCD

Owner of Reg. No. 871,367.
For Disposable Blankets Made of Nonwoven or Bonded Web Fabrics (Int. Cl. 24).
First use Aug. 31, 1968.

SN 361,240. Ozite Corporation, Libertyville, Ill. Filed June 1, 1970.

KLEAN N' KLING

For Permanently Tacky Adhesive Applied to the Backs of Carpet Tiles and Forming a Component Part Thereof (Int. Cl. 24).
First use Feb. 16, 1970.

SN 369,041. Deering Milliken, Inc., New York, N.Y. Filed Aug. 26, 1970.

CORNER POST

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 18, 1970.

SN 369,042. Deering Milliken, Inc., New York, N.Y. Filed Aug. 26, 1970.

DROP KICK

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 18, 1970.

SN 369,295. Deering Millikan, Inc., New York, N.Y. Filed Aug. 28, 1970.

IN-GOAL

For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 19, 1970.

Class 44—Dental, Medical, and Surgical Appliances

SN 331,726. CMP Industries, Inc., d.b.a. Ticonium Company, Albany, N.Y. Filed July 3, 1969.

PRP

For Tapered Mandrel That Is Incorporated in the Wax Up of a Prosthetic Casting and Subsequently Withdrawn From the Casting, Leaving a Channel Therein (Int. Cl. 10).
First use November 1962.

SN 332,531. Societe Industrielle de Fabrication et de Transformation, Paris, France. Filed July 14, 1969.

GALLUS

Priority Claimed under Sec. 44(d) on French Reg. No. 754,811, dated Jan. 22, 1969.
For Dental, Stomatological, Ophthalmological, General Surgical and Veterinary Equipment and Replacement Parts for the Same, Said Equipment Including Optionally Arranged Operating and Examining Ensembles With Patients' Reclining Chairs; Patients' Beds; Service Tables; Shelving; Surgeons' or Dentists' Chairs; Heating and Chilling Equipment; Light Fixtures; Water Taps; and Automatic Control Consoles for Such Equipment, as Well as X-Ray; Diathermy; Physiotherapy; Ultrasonic and Dental Apparatus; Electrically Controlled Exploratory Probes; Thermocauterizing and Electrical Coagulation Equipment and Like Apparatus (Int. Cls. 10, 11, and 20).

SN 348,253. Bio-Logics, Inc., Salt Lake City, Utah. Filed Jan. 12, 1970.

ULTRAMIST

For Medical Equipment for Inhalation Therapy Comprising Respirators and Nebulizers (Int. Cl. 10).
First use Oct. 13, 1967.

SN 348,762. Consolidated Dental Services Company, New Orleans, La. Filed Jan. 16, 1970.

THE DENTISTS' CHOICE

For Rubber Base Impression Material and Adhesive and Accelerator for Rubber Base Impression Material Sold as a Unit; Alginate for Use by Dentists in Impressions; Zirconium Phrophy Paste for Cleaning Teeth; Dental Gold; and Needles (Int. Cl. 5).
First use July 1967.

SN 349,599. Dentsply International Inc., York, Pa. Filed Jan. 26, 1970.

TRIMOD

Owner of Reg. Nos. 42,060, 804,437, and others.
For Control Unit for Dental Equipment for Use by Dentists, Dental Technicians, and Dental Hygienists in Operating Various Types of Dental Instruments Requiring the Supply of One or More Dental Utilities Comprising Air, Water, and/or Mixtures Thereof (Int. Cl. 10).
First use Nov. 7, 1969.

SN 353,110. Williams Gold Refining Company Incorporated, Buffalo, N.Y. Filed Mar. 4, 1970.

VIVOSTAT

Owner of Reg. No. 827,232.
For Dental Impression Material (Int. Cl. 5).
First use on or about Oct. 6, 1969.

SN 367,206. Johnson & Johnson, New Brunswick, N.J. Filed Aug. 5, 1970.

PARMONT

Owner of Reg. No. 529,380.
For Dental Bracket Covers (Int. Cl. 10).
First use prior to June 1959.

SN 367,497. Scientific Systems Corporation, Baton Rouge, La. Filed Aug. 7, 1970.

TWINcubator

For Incubator/Environmental Chambers (Int. Cl. 10).
First use May 1968.

SN 369,999. Johnson & Johnson, New Brunswick, N.J. Filed Sept. 16, 1970.

SPORTSMAN'S

Owner of Reg. No. 195,358.
For First Aid Kit (Int. Cl. 5).
First use February 1964.

Class 46—Foods and Ingredients of Foods

SN 297,878. National Institutional Food Distributor Associates, Inc., Atlanta, Ga. Filed May 10, 1968.

Econo-Pac

For Shredded Chicken, Olives, Horseradish Fresh, Soup Bases, Tomato Catsup, Canned Vegetables and Canned Fruits (Int. Cls. 29 and 30).
First use on or about Sept. 22, 1961.

SN 316,488. Universal Nutritions, Inc. Yonkers, N.Y. Filed Jan. 13, 1969.

MR. POWER

For Dietary Supplements—Namely, Protein Powder Adapted To Be Added to Drinks, Protein Tablets, and a Combination Protein, Fat, and Carbohydrates Powder Adapted To Be Added to Drinks as a Weight Gaining Air (Int. Cl. 5).
First use Dec. 26, 1968.

SN 322,368. Unique Pure Foods Corporation, Kearny, N.J. Filed Mar. 20, 1969.

"TASTE THE UNIQUE DIFFERENCE"

For Canned Vegetables, Canned Fish, Frozen Vegetables, Frozen Fish; Cakes and Pies; Frozen Cakes and Pies; Frozen Pudding and Pudding Powders; Salad Dressings; Canned and Frozen Soups; Dry Alimentary Pastas, Frozen Alimentary Pastas, With and Without Sauces, and Canned Alimentary Pastas; Vegetable Sauces, Butter Sauces, Cream Sauces and Fish Sauces (Int. Cls. 29 and 30).
First use Feb. 1, 1967.

SN 322,558. Concord Foods Inc., Braintree, Mass. Filed Mar. 24, 1969.

SQUEEZ-EEZ

For Lemon Juice and Lime Juice (Int. Cl. 32).
First use Aug. 5, 1968.

SN 322,560. Convenience Foods, Inc., Houston, Tex. Filed Mar. 24, 1969.



The drawing is lined for the color red. The figure shown in the center of the circle is the letter "F."
For Fresh Vegetables and Fresh Meats, and Pre-Manufactured Food Products—Namely, Prepared Salads, Potatoes, Tomatoes and Whole Meals of Meat, Fruit and Vegetables (Int. Cls. 20 and 31).
First use June 8, 1967.

SN 324,313. Harry H. Spyke, d.b.a. Spyke's Groves, Fort Lauderdale, Fla. Filed Apr. 11, 1969.

Honeyball

For Fresh Citrus Fruit (Int. Cl. 31).
First use Apr. 24, 1965.

SN 327,242. Cumberland Packing Corp., Brooklyn, N.Y. Filed May 14, 1969.

SWEET'N LOW

Owner of Reg. Nos. 599,748, 896,101, and 896,102.
For Chewing Gum (Int. Cl. 30).
First use May 12, 1969.

SN 331,720. R. F. Brown Sea Food Company, Lansing, Mich. Filed July 3, 1969.



The representation of the oyster is disclaimed apart from the mark as shown.
For Fresh and Canned Oysters (Int. Cl. 29).
First use on or about Sept. 1, 1967.

SN 333,854. Stafford Foods Limited, Toronto, Ontario, Canada. Filed July 29, 1969.

GRAVORICH

Owner of Canadian Reg. No. N.S. 102/26,388, dated Jan. 21, 1947.
For Combination Food Flavoring Compound and Coloring in Dry and Liquid Form (Int. Cls. 2 and 30).

SN 349,481. La Cordobesa Food Products, Inc., d.b.a. La Cordobesa, Chicago, Ill. Filed Jan. 23, 1970.



The Spanish words "La Cordobesa" translated in English means "the girl from Cordoba."
For Foods and Ingredients of Foods—Namely, Dry Beans, Peas, Limas; Flour, Corn Meal, Canned Pimientos, Peppers, Anise, Garlic, Annato, Capers, Olive Oil, Sesame Seed, Cloves, Onions, Chile Powder, Marjoram Leaves, Paprika, Linden Flower, Olives, and Cinnamon (Int. Cls. 29, 30, and 31).
First use June 1968.

SN 351,574. Wayside Country Store, Inc., d.b.a. Wayside Industries, Marlboro, Mass. Filed Feb. 13, 1970.

BEARSKIN NECK

For Canned Clam Chowder, Finnan Haddie, and Corned Hake (Int. Cl. 29).
First use June 1, 1957.

SN 356,284. Herky Packing Co., Bethel, Minn. Filed Apr. 8, 1970.

JIM GENTRY'S

The mark "Jim Gentry's" is fanciful and is not related to any particular individual.
For Sausage (Int. Cl. 29).
First use Mar. 4, 1970.

SN 357,397. Philip Morris Incorporated, New York, N.Y. Filed Apr. 20, 1970.

TACKLE

For Chewing Gum (Int. Cl. 30).
First use Jan. 22, 1970.

SN 358,312. King Pharr Canning Operations, Inc., Cullman, Ala. Filed Apr. 29, 1970.

K·P

For Dog Food (Int. Cl. 31).
First use Mar. 16, 1970.

SN 358,341. Riviana Foods Inc., Houston, Tex. Filed Apr. 29, 1970.

SUCCESS

For Rice (Int. Cl. 30).
First use Mar. 16, 1970.

SN 358,619. The Southland Corporation, Dallas, Tex. Filed May 1, 1970.



For Bread, Rolls, and Buns (Int. Cl. 30).
First use at least as early as Jan. 8, 1968.

SN 359,117. Kraftco Corporation, New York, N.Y. Filed May 7, 1970.

PHL

For Vegetable Oil (Int. Cl. 29).
First use Apr. 16, 1970.

SN 359,118. Kraftco Corporation, New York, N.Y. Filed May 7, 1970.

HLF

For Vegetable Oil (Int. Cl. 29).
First use Apr. 16, 1970.

SN 369,631. The East Asiatic Company, Inc., d.b.a. Danfoods Corporation, Los Angeles, Calif. Filed Sept. 2, 1970.

Danola

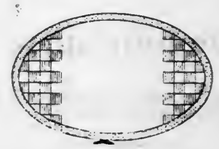
Owner of Reg. Nos. 708,800 and 843,393.
For Danish Pastries (Int. Cl. 30).
First use at least as early as April 1970.

SN 369,638. Eugene Nalbandian, Arvin, Calif. Filed Sept. 2, 1970.

Nancy

For Fresh Grapes (Int. Cl. 31).
First use July 17, 1970.

SN 369,644. Ralston Purina Company, St. Louis, Mo. Filed Sept. 2, 1970.



The drawing is lined for the colors red and gold but no claim is made as to color. Owner of Reg. Nos. 582,371 and 861,540.
For Dog Foods (Int. Cl. 31).
First use October 1966.

SN 369,847. General Mills, Inc., Minneapolis, Minn. Filed Sept. 4, 1970.



For Pies (Int. Cl. 30).
First use on or about July 30, 1970.

SN 369,861. Texas Citrus Exchange, Edinburg, Tex. Filed Sept. 4, 1970.

BIG TEX

For Canned Citrus Fruits; Canned Citrus Fruit Juices (Int. Cls. 29 and 32).
First use Aug. 14, 1970.

SN 370,020. General Mills, Inc., Minneapolis, Minn. Filed Sept. 8, 1970.



For Ready-To-Eat Breakfast Cereal (Int. Cl. 30).
First use on or about Aug. 5, 1970.

SN 370,500. Fritzsche Dodge and Olcott Inc., New York, N.Y. Filed Sept. 14, 1970.

VANIPROX

Owner of Reg. No. 280,267.
For Natural Vanilla Derivative Composed of the Fatty Oil and Other Flavoring Principles Extracted From the Vanilla Bean, Available in Liquid and Powdered Form, To Be Mixed With Food for Flavoring Purposes—for Manufacturing and Professional Use Only (Int. Cl. 30).
First use Aug. 5, 1930.

SN 370,501. General Mills, Inc., Minneapolis, Minn. Filed Sept. 14, 1970.

POPRICORNS

For Cereal Derived Ready-To-Eat Snacks (Int. Cl. 30).
First use on or about Aug. 17, 1970.

SN 370,502. General Mills, Inc., Minneapolis, Minn. Filed Sept. 14, 1970.

POTATO-FRIPS

Owner of Reg. No. 536,640.
For Cereal Derived Ready-To-Eat Snacks (Int. Cl. 30).
First use on or about Aug. 25, 1970.

SN 370,506. ITT Continental Baking Company, Rye, N.Y. Filed Sept. 14, 1970.

DOOZIES

Owner of Reg. No. 542,982.
For Cake (Int. Cl. 30).
First use Aug. 1, 1970.

SN 370,678. Ralston Purina Company, St. Louis, Mo. Filed Sept. 15, 1970.

PICCADILLY CIRCLES

For Frozen English Muffin Halves With Meat and Sauce Toppings (Int. Cl. 30).
First use Aug. 20, 1970.

Class 47—Wines

SN 333,881. Wine Cellars Limited, New York, N.Y. Filed July 30, 1969.

The Wine Cellar

Applicant disclaims the term "Wine" apart from the mark as shown.
For Table and Dinner Wines (Int. Cl. 33).
First use not later than 1963.

SN 365,007. National Distillers and Chemical Corporation, d.b.a. Munson Shaw Co., New York, N.Y. Filed July 13, 1970.

ADRIATICA

For Wines (Int. Cl. 33).
First use Mar. 31, 1970.

Class 50—Merchandise Not Otherwise Classified

SN 320,993. Patt Engineering & Manufacturing Co., Gardena, Calif. Filed Mar. 7, 1969.

pemco

For Aquariums and Accessories Therefor—Namely, Covers, Hoods, Reflectors, Stands, Dividers, Breeders and Breeding Traps, and Air Stones (Int. Cl. 16).
First use as early as May 1948.

SN 354,638. Elizabeth S. Kelley, Seal Beach, Calif. Filed Mar. 19, 1970.

HOBBIT

For Earthenware Figurines (Int. Cl. 21).
First use on or about Feb. 6, 1970.

SN 356,281. Graphic Electronics, Inc., La Salle, Ill. Filed Apr. 8, 1970.

GRAPHALLOY

Owner of Reg. No. 783,340.
For Plate Material Having a Metallic Surface Layer and a Backing Layer of Non-Conductive Material and Capable of Being Engraved and Used as a Printed Circuit Board (Int. Cl. 6).
First use Feb. 1, 1968.

SN 356,282. Graphic Electronics, Inc., La Salle, Ill. Filed Apr. 8, 1970.

GRAPHALITE

Owner of Reg. No. 769,275.
For Non-Conductive Sheet Material for Use as a Backing Layer for a Printed Circuit Board (Int. Cl. 17).
First use Feb. 1, 1968.

SN 357,432. Specialty Premiums, Inc., Kansas City, Mo. Filed Apr. 20, 1970.

SIPPY DIPPER

For Plastic Straws (Int. Cl. 20).
First use Apr. 3, 1970.

SN 358,054. McGregor & Werner, Incorporated, Washington, D.C. Filed Apr. 27, 1970.

BLACK KROME

For Printing Plates (Int. Cl. 7).
First use Dec. 5, 1969.

SN 358,450. O. A. Miller Company, Inc., Rochester, N.Y. Filed Apr. 30, 1970.

PAK-LITE

For Shoe Trees (Int. Cl. 21).
First use at least as early as Mar. 31, 1961.

SN 359,646. Rogers Corporation, Rogers, Conn. Filed May 13, 1970.

2000

For Lithographic Printing Plates (Int. Cl. 7).
First use Sept. 3, 1969.

Class 51—Cosmetics and Toilet Preparations

SN 317,239. Alega, Incorporated, Houston, Tex. assignee of Jataben, Incorporated, Houston, Tex. Filed Jan. 22, 1969.

ALEGA

For Cosmetics and Toilet Preparations—Namely, Cosmetic Skin Cleansers, Skin Fresheners, Masques, Skin Lotions, Toning Oils, Eye and Lip Lube, Throat Oil, Moisturizers, Liquid Eyeliners, Eye Shadows, Rouge, Mascara, Lipsticks, Foundation Makeup, Body Powder, Face Powder (Loose), Pressed Powder Compacts, Cologne and Perfume (Int. Cl. 3).
First use on or about May 17, 1963.

SN 352,479. Knowlton Laboratory, Inc., Miami, Fla. Filed Feb. 26, 1970.

Enz'apeal

For Complexion Cream (Int. Cl. 3).
First use Aug. 11, 1969.

SN 352,644. Lever Brothers Company, New York, N.Y. Filed Feb. 26, 1970.

It's the *whiten-ing-est* Pepsodent ever.

Owner of Reg. Nos. 110,079, 398,731, and others.
For Dentifrice (Int. Cl. 3).
First use Jan. 26, 1970.

SN 354,589. Chesebrough-Pond's Inc., New York, N.Y. Filed Mar. 19, 1970.

AUSSIE

For Hair Tonic (Int. Cl. 3).
First use Feb. 17, 1970.

SN 355,857. Avon Products, Inc., New York, N.Y. Filed Apr. 3, 1970.

DOUBLE FRINGE

For Mascara (Int. Cl. 3).
First use Jan. 21, 1970.

SN 362,456. Kimberly-Clark Corporation, Neenah, Wis. Filed June 12, 1970.

KIMBIES

Owner of Reg. No. 862,792.
For Toiletries for Infants—Namely, Powder, Body Oil and Lotion, Lotion for the Alleviation of Cradle Cap, and Bath Oil (Int. Cl. 3).
First use May 22, 1970.

SN 365,987. Colgate-Palmolive Company, New York, N.Y. Filed July 23, 1970.

SAFETY LOCKS

Applicant disclaims the word "Locks" apart from the mark as shown.
For Hair Spray (Int. Cl. 3).
First use June 12, 1970.

SN 366,005. National Industries for the Blind, New York, N.Y. Filed July 23, 1970.

NIBee

For Bath Oil (Int. Cl. 3).
First use May 26, 1970.

SN 366,543. Union Carbide Corporation, New York, N.Y. Filed July 29, 1970.

SPOT CHECK

For Personal Deodorant (Int. Cl. 5).
First use on or about July 17, 1970.

SN 366,544. Union Carbide Corporation, New York, N.Y. Filed July 29, 1970.

GYM DANDY

For Personal Deodorant (Int. Cl. 5).
First use on or about July 17, 1970.

SN 366,545. Union Carbide Corporation, New York, N.Y. Filed July 29, 1970.

FIG LEAF

For Personal Deodorant (Int. Cl. 5).
First use on or about July 17, 1970.

SN 367,766. Union Carbide Corporation, New York, N.Y. Filed July 29, 1970.

BUCK PRIVATE

For Personal Powder Spray (Int. Cl. 3).
First use on or about July 17, 1970.

SN 369,849. The Gillette Company, Boston, Mass. Filed Sept. 4, 1970.

THE LEAST

For Hair Grooming Preparation (Int. Cl. 3).
First use Dec. 4, 1969.

Class 52 — Detergents and Soaps

SN 295,900. Walter Y. Allen, San Jose, Calif., assignee of Allen Chemical Company, San Jose, Calif. Filed Apr. 18, 1968.

GAL FRIDAY

For Laundry Preparation for Use in Removing Oil, Greases, Grass Stains, Lipstick, Ink, Paint and Tar From Fabrics (Int. Cl. 3).
First use November 1967.

SN 335,671. American Optical Corporation, Southbridge, Mass. Filed Aug. 19, 1969.



Owner of Reg. Nos. 268,217, 855,168, and others.
For Detergents and Soaps—Namely, Industrial Skin Protector and Cleaner, Lens Cleaner, Wetting, Soaking and Cleaning Solution for Contact Lenses, and Germicidal Detergent for Use on Safety Equipment (Int. Cl. 3).
First use May 1964.

SN 339,944. Sonastream Corporation, Peotone, Ill. Filed Oct. 6, 1969.

SONA FOAM

Without waiving its common law rights in the mark as shown or any feature thereof, applicant disclaims the term "Foam" apart from the mark as shown.
For Cleaning Solution for Carpets and Other Fabrics (Int. Cl. 3).
First use on or about Aug. 19, 1969.

SN 342,132. American Cyanamid Company, Wayne, N.J. Filed Oct. 30, 1969.

Lemon-Sol

For All-Purpose Household Cleaner (Int. Cl. 3).
First use Jan. 16, 1969.

SN 355,920. Uniroyal, Inc., New York, N.Y. Filed Apr. 3, 1970.

SEALZ

Owner of Reg. No. 738,074.
For Cleaning and Thinning Solvent for Adhesive (Int. Cl. 3).
First use Feb. 20, 1970.

SN 358,713. The Dow Chemical Company, Midland, Mich. Filed May 4, 1970.

DOW-PER

Owner of Reg. No. 581,175.
For Cleaning Solvents and Compositions, Both Dry Cleaning and Industrial (Int. Cl. 3).
First use Apr. 4, 1951.

SN 358,765. L & R Manufacturing Company, Kearney, N.J. Filed May 4, 1970.

HYDRO-SONIC

For Watch Part Cleaning Solution (Int. Cl. 3).
First use February 1962.

SN 368,548. Lanman and Kemp-Barclay Co., Incorporated, Palisades Park, N.J. Filed Aug. 20, 1970.

L&K

Owner of Reg. Nos. 359,276, 404,185, and others.
For Toilet Soap (Int. Cl. 3).
First use early part of 1923.

SERVICE MARKS

Class 100 — Miscellaneous

SN 302,446. Metils, Incorporated, Houston, Tex., by change of name from Virgil Reed, Incorporated, d.b.a. Piping Industry Welding Service, Houston, Tex. Filed July 10, 1968.

METIL-GRAPH

For Radiographic and Ultrasonic Inspection Services for others To Determine Wall Condition and Thickness of Pipes and Vessels Under Either a Positive or Negative Interior Pressure Condition, and Related Consulting Services (Int. Cl. 42).
First use Jan. 31, 1968.

SN 314,983. Outdoor Inns, Inc., Leawood, Kans. Filed Dec. 20, 1968.

Outdoor Inns

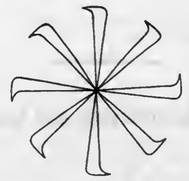
For Furnishing Lodging and Camping Facilities (Int. Cl. 42).
First use Dec. 7, 1968.

SN 317,870. The Rand Corporation, Santa Monica, Calif. Filed Jan. 29, 1969.

JOSS

For Computer Time-Sharing Services (Int. Cl. 42).
First use May 1963.

SN 318,866. Colonial Helicopters Incorporated, Norfolk, Va. Filed Jan. 23, 1969.



The mark comprises a fanciful representation of a helicopter propeller.
For Helicopter Charter Services (Int. Cl. 42).
First use Sept. 15, 1966.

SN 320,178. Red Baron, Inc., Grosse Pointe Woods, Mich. Filed Feb. 26, 1969.



For Restaurant Services (Int. Cl. 42).
First use at least as early as Feb. 1, 1969.

SN 321,811. LNG Services, Pittsburgh, Pa. Filed Mar. 14, 1969.

LNG SERVICES

Without relinquishing any of its common law rights, applicant disclaims the words "Services" and "LNG" apart from the mark as shown.
For Consultant Services in the Fields of Energy, Cryogenic and Space and Ocean Science Technology (Int. Cl. 42).
First use on or about April 1968.

SN 322,834. Computer & Equipment Leasing, Inc., Stafford, Kans. Filed Mar. 26, 1969.



For Specially Acquiring and Leasing Any Depreciable Equipment Requested by Prospective Lessees (Int. Cl. 42).
First use Dec. 30, 1968.

SN 325,692. Eddy Arnold's Tennessee Fried Chicken, Inc., Nashville, Tenn. Filed Apr. 28, 1969.

EDDY ARNOLD'S CHICKEN SHOP

No claim is made to the words "Chicken Shop" apart from from the mark as shown. "Eddy Arnold's" is the name of "Richard Edward Arnold" a living individual whose consent is of record.
For Restaurant Services (Int. Cl. 42).
First use Dec. 3, 1968.

SN 325,694. Eddy Arnold's Tennessee Fried Chicken, Inc., Nashville, Tenn. Filed Apr. 28, 1969.



No claim is made to the words "Chicken Shop" apart from the mark as shown. "Eddy Arnold's" is the name of "Richard Edward Arnold" a living individual whose consent is of record.
For Restaurant Services (Int. Cl. 42).
First use Dec. 3, 1968.

SN 330,103. Burger Castle Systems, Inc., North Miami, Fla. Filed June 16, 1969.



Applicant disclaims exclusive use of the words "Burger" and "Restaurant" apart from the mark as shown. Owner of Reg. No. 807,049.
For Restaurant Services (Int. Cl. 42).
First use Sept 9, 1968.

SN 330,532. Planning Services Company, Chicago, Ill. Filed June 19, 1969.

XANADU

For Computer Time Sharing Services (Int. Cl. 42).
First use June 5, 1969.

SN 331,258. Dial-A-Story, Inc., Chicago, Ill. Filed June 27, 1969.

DIAL-A-STORY

For Child Evangelism Services—Namely, the Communication of Recorded Stories and Messages to Children by Means of Telephone (Int. Cl. 42).
First use on or before July 9, 1967.

SN 335,100. Western Hemisphere, Inc., Kansas City, Mo. Filed Aug. 11, 1969.



For Mobile Restaurant and Snack Bar (Int. Cl. 42).
First use June 2, 1969.

SN 340,045. Antonio Salvati, d.b.a. A. Salvati & Son, Compton, Calif. Filed Oct. 7, 1969.

WONDER OF THE WORLD

For Restaurants and Carry-Out Food Shops in the Nature of Restaurants (Int. Cl. 42).
First use June 30, 1969.

SN 344,231. W. T. Grant Company, New York, N.Y. Filed Nov. 21, 1969.



Owner of Reg. Nos. 767,549, 829,920, and others.
For Restaurant Services (Int. Cl. 42).
First use on or prior to Aug. 11, 1969.

SN 344,721. Laugh-In Restaurant Corporation, Miami, Fla. Filed Nov. 26, 1969.



The term "Restaurants" is disclaimed apart from the mark as shown.
For Restaurant Services (Int. Cl. 42).
First use Oct. 20, 1969.

SN 344,935. Piggie Park Enterprises, Inc., West Columbia, S.C. Filed Dec. 1, 1969.

PIGGIE PARK

Owner of Reg. No. 745,203.
For Restaurant Services (Int. Cl. 42).
First use August 1953.

SN 363,245. Adam's Rib, Inc., Washington, D.C. Filed June 22, 1970.



For Restaurant Services (Int. Cl. 42).
First use January 1969.

Class 101 — Advertising and Business

SN 245,478. Sky-Van Limited, Vancouver, British Columbia, Canada, assignee of B. M. Heede California, Inc., South San Francisco, Calif. Filed May 12, 1966.

SKY-VAN

For Rendering Technical Assistance in the Establishment and Operation of the Business of Moving Goods From One Building to Another Building (Int. Cl. 35).
First use on or about May 6, 1966; in commerce on or about May 6, 1966.

SN 285,595. Unimark International Corporation for Design and Marketing, Chicago, Ill. Filed Nov. 24, 1967.

UNIMARK INTERNATIONAL

Owner of Reg. No. 847,453.
For Marketing Services—Namely, the Analysis of Sales and Distribution Systems and Procedures Used by Others in Marketing Their Goods and Services (Int. Cl. 35).
First use Jan. 28, 1965.

SN 290,880. Owner Direct, Inc., Minot, N. Dak. Filed Feb. 12, 1968.

OWNER DIRECT

For Real Estate Brokerage Service (Int. Cl. 35).
First use Jan. 21, 1968.

SN 295,316. Maxon Davis, Inc., New York, N.Y. Filed Apr. 10, 1968.



The mark comprises the fanciful representation of the letters "MD."
For Advertising Agency Services (Int. Cl. 35).
First use Nov. 10, 1967.

SN 304,943. Gilbert Merrill Steel Corporation, Westbury, N.Y. Filed Aug. 12, 1968.

INSTANT STEEL

Applicant disclaims the word "Steel" separate and apart from the mark.
For Steel Distributorship Services (Int. Cl. 35).
First use in or about February 1967.

SN 311,784. Incline Village, Inc., Incline Village, Nev. Filed 12, 1968.



The drawing is lined for the colors blue and green, but applicant makes no claim to those colors.
For Real Estate Brokerage, Leasing, and Management Services (Int. Cl. 35).
First use July 9, 1968.

SN 316,509. Leonard Wesserman Co., Inc., d.b.a. Kiddie City, Philadelphia, Pa. Filed Jan. 14, 1969.



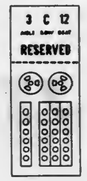
For Retail Toy Store Services (Int. Cl. 35).
First use September 1957.

SN 316,510. Leonard Wasserman Co., Inc., d.b.a. Kiddie City, Philadelphia, Pa. Filed Jan. 14, 1969.

KIDDIE CITY

For Retail Toy Store Services (Int. Cl. 35).
First use September 1957.

SN 317,321. Computer Sciences Corporation, Los Angeles, Calif., assignee of Computicket Corporation, New York, N.Y. Filed Jan. 23, 1969.



Applicant disclaims exclusive right to "3," "C," "12," "Aisle," "Row," "Seat," and "Reserved" which appear in the stub portion of the design of a ticket, separate and apart from the mark, without relinquishing its common law rights.
For Issuance and Sale of Tickets and the Maintaining of Ticket Inventories for Entertainment Events of Others by Means of a Computerized System (Int. Cl. 35).
First use Dec. 12, 1966.

SN 317,886. Data-Staff, Inc., Clinton, Md., assignee of Elizabeth M. Taylor, d.b.a. Data Staff Services, Washington, D.C. Filed Jan. 29, 1969.

DATA-STAFF

For Providing Temporary Personnel for Performing Key Punching, Data Processing and Computer Programming Operations (Int. Cl. 35).
First use May 1, 1968.

SN 325,315. Venetian International, Inc., Dallas, Tex. Filed Apr. 23, 1969.



Owner of Reg. No. 876,337.
For Retail Store Services Specializing in the Sale of Marble Products That Are Cast in Molds—Namely, Lavatories, Bathtubs, Fluted Columns, Mirror Columns, Vanities, Vanity Tops, and Bird Baths (Int. Cl. 35).
First use at least as early as January 1962.

SN 326,630. Computer Management Consultants, Inc., Skokie, Ill. Filed May 7, 1969.

"CRASH"

For Multi-Purpose Information Retrieval Service (Int. Cl. 35).
First use at least as early as Apr. 7, 1969.

SN 326,799. Seablue Corporation, Dallas, Tex. Filed May 8, 1969.

SEABLUE

Owner of Reg. Nos. 603,196, 669,255, and others.
For Technical Assistance in the Establishment and/or Operation of Swimming Pool Businesses of Others (Int. Cl. 41).
First use Jan. 11, 1968; Jan. 7, 1961, in a different form.

SN 329,139. Systems Associates, Inc., Reading, Pa. Filed June 4, 1969.

SAI

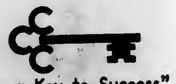
For Consulting Services in the Field of Data Processing by Computer (Int. Cl. 35).
First use December 1966.

SN 330,209. Southeastern Shows, Inc., Charlotte, N.C. Filed June 16, 1969.

SOUTHERN CHRISTMAS SHOW

The word "Show" is disclaimed apart from the mark as shown, without relinquishing any rights therein under the common law.
For Production or Co-Production of Expositions Featuring Fashion Shows; Bazaars; Flower Arrangements; Home Settings; Commercial Displays; Educational Displays; Decorating Displays; Gift Idea Displays; Craft Displays; and Food and Gift Sales Booths; Including Also the Leasing of Exhibition Space at Such Expositions (Int. Cl. 35).
First use July 8, 1968.

SN 333,376. Civilian Career Counselors, Inc., Wilmington, Del. Filed July 24, 1969.



For Employment Agency Services (Int. Cl. 35).
First use Aug. 1, 1968.

SN 334,603. National Business Consultants, Inc., Dallas, Tex. Filed Aug. 6, 1969.

NATIONAL BUSINESS CONSULTANTS

The phrase "Business Consultants" is disclaimed apart from the mark as shown.
For Professional Placement Services (Int. Cl. 35).
First use Oct. 15, 1968.

SN 336,531. Allied Personnel, Inc., Jacksonville, Fla. Filed Aug. 28, 1969.



For Employment Agency Services (Int. Cl. 35).
First use May 12, 1969.

SN 337,097. Responsive Technology Inc., Boston, Mass. Filed Sept. 4, 1969.

COMPUT-A-JOB

For Employment Agency Service (Int. Cl. 35).
First use June 28, 1969.

SN 340,578. Mr. Speedy Print, Inc., Flint, Mich. Filed Oct. 13, 1969.

MR. SPEEDY

For Reproducing Documents of Others (Int. Cl. 35).
First use Aug. 11, 1969.

SN 341,065. Sizzlebord Restaurants, Inc., Needham Heights, Mass. Filed Oct. 17, 1969.

sizzlebörd

For Rendering Technical Assistance in the Establishment and/or Operation of Restaurants for Others (Int. Cl. 35).
First use at least as early as June 1968.

SN 345,972. National Merchandising Corporation, Wellesley Hills, Mass. Filed Dec. 11, 1969.



For Publishing Printed Advertisements of Others on Book Covers and Distributing the Said Covers (Int. Cl. 35).
First use Apr. 15, 1968.

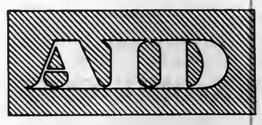
SN 364,985. Compucolor, Incorporated, Stratford, Conn. Filed July 13, 1970.

MINI-MAG

For Soliciting Magazine Subscriptions for Others (Int. Cl. 35).
First use May 21, 1970.

Class 102 — Insurance and Financial

SN 321,742. Allied Mutual Insurance Company, Des Moines, Iowa. Filed Mar. 14, 1969.



The drawing is lined for the color green (Int. Cl. 36).
For Insurance Premium Finance Service for Payment of All Insurance Premiums of an Insured on a Monthly Payment Plan (Int. Cl. 36).
First use Mar. 27, 1968.

SN 327,531. Newton Fund, Inc., Milwaukee, Wis. Filed May 16, 1969.



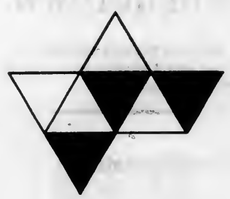
The separate use of the word "Fund" is disclaimed apart from the mark as shown. Owner of Reg. No. 748,905.
For Investment Management Services—Namely, Investing the Mutual Funds of Others (Int. Cl. 36).
First use Jan. 30, 1969; May 11, 1960 in a different form.

SN 327,532. Newton Fund, Inc., Milwaukee, Wis. Filed May 16, 1969.

newton Fund

The separate use of the word "Fund" is disclaimed apart from the mark as shown. Owner of Reg. No. 748,905.
For Investment Management Services—Namely, Investing the Mutual Funds of Others (Int. Cl. 36).
First use Jan. 30, 1969; May 11, 1960 in a different form.

SN 327,533. Newton Fund, Inc., Milwaukee, Wis. Filed May 16, 1969.



For Investment Management Services—Namely, Investing the Mutual Funds of Others (Int. Cl. 36).
First use Jan. 30, 1969.

SN 334,425. Barnett Banks of Florida, Inc., Jacksonville, Fla., by change of name from Barnett National Securities Corporation, Jacksonville, Fla. Filed Aug. 5, 1969.

BARNETT

For General Banking, Trust, and Credit Financing Services (Int. Cl. 36).
First use May, 1908.

SN 334,426. Barnett Banks of Florida, Inc., Jacksonville, Fla., by change of name from Barnett National Securities Corporation, Jacksonville, Fla. Filed Aug. 5, 1969.

BARNETT FIRST

For General Banking, Trust, and Credit Financing Services (Int. Cl. 36).
First use Apr. 1, 1965.

SN 334,427. Barnett Banks of Florida, Inc., Jacksonville, Fla., by change of name from Barnett National Securities Corporation, Jacksonville, Fla. Filed Aug. 5, 1969.

BFN

For General Banking, Trust, and Credit Financing Services (Int. Cl. 36).
First use Apr. 1, 1965.

SN 334,429. Barnett Banks of Florida, Inc., Jacksonville, Fla., by change of name from Barnett National Securities Corporation, Jacksonville, Fla. Filed Aug. 5, 1969.

BARNETT BANKS OF FLORIDA

For the purposes of registration, no claims are made to the exclusive rights to use the words "Banks," "of," or "Florida" apart from the mark as shown.
For General Banking, Trust, and Credit Financing Services (Int. Cl. 36).
First use Dec. 31, 1967.

SN 336,072. Unionamerica, Inc., Los Angeles, Calif. Filed Aug. 25, 1969.



The design part of the mark represents a stylized letter "U."
For Banking Services; Insurance Underwriting Services; Insurance Brokerage Services; Mortgage Banking Services; and Real Estate Financing Services (Int. Cl. 36).
First use June 23, 1969.

SN 340,813. New York Stock Exchange, New York, N.Y. Filed Oct. 15, 1969.

NYSE

For Conducting a Securities Exchange and Providing Other Services Connected Therewith (Int. Cl. 36).
First use Jan. 29, 1863.

SN 342,931. Board of Trade of the City of Chicago, Chicago, Ill. Filed Nov. 7, 1969.



For Commodity Exchange Services (Int. Cl. 36).
First use Jan. 23, 1967.

SN 364,722. John R. Lee, d.b.a. John Ridings Lee Company, Dallas, Tex. Filed July 9, 1970.

OPTION-65

For Planning Insurance Programs,. Particularly Life, Disability, and Health Insurance Programs, for Individuals, Specifically Company Employees (Int. Cl. 36).
First use at least as early as Jan. 9, 1964.

Class 103 — Construction and Repair

SN 313,523. Kenneth D. Sauder, Clearwater, Fla. Filed Dec. 3, 1968.

DAYTONA TUNE-UP

Applicant disclaims the term "Tune-Up."
For Vehical Repair Services (Int. Cl. 37).
First use Nov. 29, 1968.

SN 317,624. Security Systems, Inc., Kansas City, Mo. Filed Jan. 27, 1969.

protecton

Owner of Reg. No. 860,439.
For Installation and Maintenance of Burglar, Prowler, and Fire Alarm Systems (Int. Cl. 37).
First use Oct. 25, 1968.

SN 336,019. Oliver R. Schneider, Portland, Oreg. Filed Aug. 22, 1969.

PERMA-CURBS

For Construction of Extruded Concrete Curbs to the Order and/or Specification of Others (Int. Cl. 37).
First use July 1, 1962.

SN 340,797. International Bakerage, Inc., Atlanta, Ga. Filed Oct. 15, 1969.

LET US SERVE YOU TODAY OUR BAKERAGE WAY

Owner of Reg. No. 834,164.
For Collecting Bakery Wastes (Int. Cl. 37).
First use on or about Nov. 15, 1960.

SN 340,840. Superior Continental Corporation, Hickory, N.C. Filed Oct. 15, 1969.

EFI

For Construction of Cable Television Systems (Int. Cl. 37).
First use Oct. 1, 1969.

SN 345,633. Industrial Services of America, Inc., Louisville, Ky. Filed Dec. 8, 1969.

ISA

Owner of Reg. Nos. 852,527 and 861,499.
For Industrial Waste Disposal Services (Int. Cl. 37).
First use on or about Nov. 1, 1967.

SN 361,213. Cisne & Associates, Inc., Charlotte, N.C. Filed June 1, 1970.

For Building Construction Services (Int. Cl. 37).
First use Nov. 1, 1969.

SN 363,488. Fedders Corporation, Edison, N.J. Filed June 24, 1970.

NORGETOWN

Owner of Reg. Nos. 719,783 and 870,063.
For Dry Cleaning and Laundry Services (Int. Cl. 37).
First use March 1968.

Class 104 — Communication

SN 320,965. National Broadcasting Company, Inc., New York, N.Y. Filed Mar. 6, 1969.

LIVING COLOR

For Television Broadcasting Services (Int. Cl. 38).
First use on or about May 1, 1957.

Class 105 — Transportation and Storage

SN 331,204. Iberia Lineas Aereas de Espana S.A., Madrid Spain. Filed June 27, 1969.

IBERIA LINEAS AEREAS DE ESPANA

For Transportation by Air of Passengers and Freight (Int. Cl. 39).
First use Jan. 31, 1963; in commerce 1963.

SN 336,925. Eastern Air Lines, Inc., New York, N.Y. Filed Sept. 3, 1969.

CHARTER UNLIMITED

Applicant disclaims the term "Charters" apart from the mark as shown.
For Transportation of Persons by Air (Int. Cl. 39).
First use Feb. 1, 1969.

SN 337,669. Lorraine Vivell, d.b.a. Magic Lands Travel Agency, Vacaville, Calif. Filed Sept. 11, 1969.

MAGIC LANDS

For Travel Agency Services (Int. Cl. 39).
First use July 7, 1969.

SN 367,775. Huskie Freightways, Inc. Los Angeles, Calif. Filed Aug. 12, 1970.

you're on the right track

For Trucking Services (Int. Cl. 39).
First use on or about July 11, 1961.

SN 367,776. Huskie Freightways, Inc., Los Angeles, Calif. Filed Aug. 12, 1970.

HUSKIE

For Trucking Services (Int. Cl. 39).
First use on or about July 11, 1961.

SN 367,777. Huskie Freightways, Inc., Los Angeles, Calif. Filed Aug. 12, 1970.



For Trucking Services (Int. Cl. 39).
First use on or about May 10, 1965.

Class 107 — Education and Entertainment

SN 325,477. Eutectic Corporation, Flushing, N.Y. Filed Apr. 24, 1969.



For Instructional Services in Maintenance and Repair Welding Techniques (Int. Cl. 41).
First use February 1968.

SN 326,527. Kenneth J. Guilbeaux, Lafayette, La. Filed May 6, 1969.

THE KEG

For Tavern Services (Int. Cl. 41).
First use Jan. 20, 1967.

SN 339,918. Mutschmann Films, Inc., Paoli, Pa. Filed Oct. 6, 1969.

reelpro

For Film, Video Tape and Audiovisual Production Services (Int. Cl. 41).
First use on or about Mar. 25, 1969.

SN 343,037. Board of Trade of the City of Chicago, Chicago, Ill. Filed Nov. 10, 1969.



For Organizing and Conducting Conferences Relating to the Application of Private Capital, Business Methods, and Technology to the Solution of the World Food Problem (Int. Cl. 41).
First use Feb. 10, 1967.

SN 356,564. Figure Salons Limited Systems, Inc., d.b.a. Figure Salons Ltd., Anderson, Ind. Filed Apr. 13, 1970.

FABULOUS FIGURE

The word "Figure" is disclaimed apart from the mark as shown without waiving any common law rights.
For Health Club Services (Int. Cl. 41).
First use Mar. 9, 1970.

COLLECTIVE MEMBERSHIP MARKS

Class 200

SN 354,223. Specialty Equipment Manufacturers Association, San Gabriel, Calif. Filed Mar. 16, 1970.

SEMA

For Indicating Membership in Applicant.
First use 1962.

CERTIFICATION MARKS

Class A — Goods

SN 355,645. Golden Guernsey, Inc., Peterborough, N.H. Filed Apr. 1, 1970.

Young & Sassy

The mark certifies that the goods are produced from herds consisting wholly of Guernsey cattle accepted as such by a representative of Golden Guernsey, Inc., and that the milk is of low fat content.
For Milk.
First use July 15, 1969.

SN 356,927. The United States Potters Association, East Liverpool, Ohio. Filed Apr. 15, 1970.

THE UNITED STATES POTTERS ASSOCIATION
GLAZE TESTED APPROVED

The mark certifies that glazed surfaces of dinnerware meet the standards and conditions with respect to allowable lead release prescribed by applicant.
For Dinnerware.
First use Mar. 25, 1970.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

904,084. FLORISTS' INTERNATIONAL DELIVERY FID ETC. AND DESIGN. George B. Gordon, d.b.a. Florists' International Delivery Association. SN 290,732. Pub. 12–16–69. Filed 2–9–68.

904,085. FONDER. Julianna Tisza, d.b.a. Dipl. Bela Tisza & Co. MULTIPLE CLASS (Classes 1, 5, 6, and 14). SN 296,361. Pub. 9–29–70. Filed 4–23–68.

904,086. REFSET. Raybestos-Manhattan, Inc. SN 302,639. Pub. 9–29–70. Filed 7–12–68.

904,087. SYRENA ETC. AND DESIGN. Centrala Importowa-Eksportowa Przemyslu Skorzanego "Skorimpex." SN 306,550. Pub. 9–29–70. Filed 9–4–68.

904,088. KEE-WAH-DIN. Kee-Wah-Din Farms. SN 316,075. Pub. 9–29–70. Filed 1–8–69.

904,089. THUNDERBIRD DESIGN. Kee-Wah-Din Farms. SN 316,076. Pub. 9–29–70. Filed 1–8–69.

904,090. ROCKEEZ. Oil-Dri Corporation of America. SN 349,376. Pub. 9–29–70. Filed 1–22–70.

904,091. BALAN. Balamundi-Nederland N.V. SN 349,817. Pub. 9–29–70. Filed 1–28–70.

Class 2 — Receptades

904,092. INDISPENSABLE DISPENSER. Manfred Hiob, d.b.a. H & W Imports. SN 327,020. Pub. 9–29–70. Filed 5–12–69.

904,093. TRES AMOUR. Intercraft Industries Corporation. SN 338,573. Pub. 9–29–70. Filed 9–22–69.

904,094. PROTECT-O-GLASS. Mansonite Corporation. SN 349,194. Pub. 9–29–70. Filed 1–21–70.

904,095. PACFILM. Societe d'Emballages Plastiques. SN 351,152. Pub. 9–29–70. Filed 2–11–70.

904,096. AIRMOLD. W. R. Grace & Co. SN 356,673. Pub. 9–29–70. Filed 4–13–70.

904,097. GLAD. Union Carbide Corporation. SN 357,441. Pub. 9–29–70. Filed 4–20–70.

904,098. Q-P AND DESIGN. Q-P, Inc. SN 357,635. Pub. 9–29–70. Filed 4–22–70.

904,099. WAMPUM. Continental Can Company. SN 358,703. Pub. 9–29–70. Filed 5–4–70.

904,100. DURA-CUP. Brown Company. SN 359,816. Pub. 9–29–70. Filed 5–15–70.

904,101. AERO WELD AND DESIGN. Aerosol Containers, Inc. SN 360,662. Pub. 9–29–70. Filed 5–25–70.

904,102. STERIFIELD. Acme Backing Corporation. SN 361,084. Pub. 9–29–70. Filed 5–28–70.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

904,103. NOT SO BRIEF CASE. Faircraft Engineering, Inc. SN 332,702. Pub. 9–29–70. Filed 7–16–69.

904,104. MARQUIS. Reliable Luggage, Inc. SN 342,899. Pub. 9–29–70. Filed 11–6–69.

Class 4 — Abrasives and Polishing Materials

904,105. PLATENE. Certified Laboratories, Inc. SN 350,684. Pub. 9–29–70. Filed 2–6–70.

Class 5 — Adhesives

904,085. (See Class 1 for this trademark.)

Class 6 — Chemicals and Chemical Compositions

904,085. (See Class 1 for this trademark.)

904,106. KEY CHEM AND DESIGN. Key Chemicals, Incorporated. SN 247,031. Pub. 7–11–67. Filed 6–1–66.

904,107. WORTHINGTON AND DESIGN. Worthington Biochemical Corporation. SN 278,756. Pub. 1–6–70. Filed 8–21–67.

904,108. EXXON. Standard Oil Company. SN 296,763. Pub. 9–29–70. Filed 4–29–68.

904,109. EXXON. Standard Oil Company. SN 296,774. Pub. 9–29–70. Filed 4–29–68.

904,110. PAVELLE. The Pavelle Corporation, assignee of Pavelle Limited. SN 306,020. Pub. 9–29–70. Filed 8–19–68.

904,111. SUCKER-STUFF. The Ansul Company. SN 306,112. Pub. 9–29–70. Filed 8–28–68.

904,112. A-C MIREX. Allied Chemical Corporation. SN 317,696. Pub. 9–29–70. Filed 1–28–69.

904,113. CURON. Premier Industrial Corporation. SN 323,730. Pub. 9–29–70. Filed 4–4–69.

904,114. NS STAR AND DESIGN. Northwestern Refining Co. MULTIPLE CLASS (Classes 6, 15, and 103). SN 329,921. Pub. 9–29–70. Filed 7–29–69.

904,115. CONOCO WBA. Continental Oil Company. SN 337,274. Pub. 9–29–70. Filed 9–8–69.

904,116. CIMCOOL. Cincinnati Milacron Inc., by change of name from The Cincinnati Milling Machine Company. SN 340,368. Pub. 9–29–70. Filed 10–10–69.

904,117. HT–102. Allied Chemical Corporation. SN 343,066. Pub. 9–22–70. Filed 11–10–69.

904,118. KEMIC. Thuron Industries, Inc. SN 346,413. Pub. 9–29–70. Filed 12–16–69.

904,119. ALLERDERM. Shaw Mudge & Company. SN 347,413. Pub. 9–29–70. Filed 12–30–69.

904,120. ESTERCOTE. CPC International Inc. SN 352,767. Pub. 9–29–70. Filed 3–2–70.

904,121. PHOSPHODUST. Continental Oil Company. SN 353,436. Pub. 9–29–70. Filed 3–9–70.

904,122. TIDOX. The Sherwin-Williams Company. SN 354,031. Pub. 9–29–70. Filed 3–13–70.

Class 7 — Cordage

904,123. WRIGHTS. Wm. E. Wright Co., by change of name from Wm. E. Wright & Sons Co. MULTIPLE CLASS (Classes 7, 13, 40, and 42). SN 313,366. Pub. 9–29–70. Filed 11–29–68.

Class 8 — Smokers' Articles, Not Including Tobacco Products

904,124. ETHAN ALLEN. Baumritter Corporation. SN 330,704. Pub. 9–29–70. Filed 6–23–69.

904,125. AO DESIGN. American Optical Corporation. SN 335,654. Pub. 9–29–70. Filed 8–19–69.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

904,126. BUCCANEER. Firearms International Corporation (New Jersey corporation), assignee of Firearms International Corporation (Delaware corporation). SN 336,238. Pub. 7–7–70. Filed 8–19–69.

904,127. GULF AND DESIGN. Gulf Oil Corporation. SN 347,861. Pub. 9–29–70. Filed 1–7–70.

904,128. SURE-SHOT. Centuri Engineering Company, Inc. SN 356,621. Pub. 9–29–70. Filed 4–13–70.

Class 10 — Fertilizers

904,129. MARCO. Puregro Company. SN 344,581. Pub. 9–29–70. Filed 11–25–69.

904,130. MAN-AN-SO. Man-An-So Corporation. SN 346,094. Pub. 9–29–70. Filed 12–12–69.

904,131. MISCELLANEOUS DESIGN. Man-An-So Corporation. SN 346,096. Pub. 9–29–70. Filed 12–12–69.

Class 12 — Construction Materials

904,132. CRITERION. Conchemco, Incorporated (Delaware corporation), by merger from Conchemco, Incorporated (Missouri corporation). MULTIPLE CLASS (Classes 12 and 19). SN 305,816. Pub. 6–30–70. Filed 8–16–68.

904,133. ANTHONY AND DESIGN. Anthony Forest Products Company. SN 312,417. Pub. 9–29–70. Filed 11–18–68.

904,134. F AND DESIGN. Farmaster Products, Inc. SN 314,328. Pub. 9–29–70. Filed 12–12–68.

904,135. "MIRACLE BOND CHEMICAL #150." Miraclefoam Products, Inc. SN 322,889. Pub. 9–29–70. Filed 3–26–69.

904,136. UPCO. The Upco Company. SN 325,908. Pub. 9–29–70. Filed 4–29–69.

904,137. EVERLASTIC. The Celotex Corporation. SN 331,585. Pub. 9–29–70. Filed 7–2–69.

904,138. AKALON. Adler Kay Co., Inc. SN 335,349. Pub. 9–29–70. Filed 8–14–69.

904,139. CHEM-GROUND. Kalman Floor Company Inc. SN 342,275. Pub. 9–29–70. Filed 10–31–69.

904,140. PD. Peachtree Doors, Inc. SN 345,198. Pub. 9–29–70. Filed 12–3–69.

904,141. MARAGEMS. United Paint Manufacturing, Inc. SN 346,331. Pub. 9–29–70. Filed 12–15–69.

904,142. GUMBO. Leek-Proof, Inc. SN 350,392. Pub. 9–29–70. Filed 2–3–70.

904,143. BUBBALITE. General Refractories Company. SN 351,655. Pub. 9–29–70. Filed 2–18–70.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

904,123. (See Class 7 for this trademark.)

904,144. FOUR PARALLELOGRAM MARK DESIGN. Teledyne, Inc. SN 312,241. Pub. 9–29–70. Filed 11–14–68.

904,145. NEOFLON–D. United States Brass Corp. SN 323,894. Pub. 9–29–70. Filed 4–1–69.

904,146. C. All-Steel Equipment Inc. SN 333,074. Pub. 9–29–70. Filed 7–22–69.

904,147. AIR-PAL. Beckett-Harcum Company. SN 335,315. Pub. 9–29–70. Filed 8–14–69.

904,148. DUALAM. CPF Plastics Limited. SN 338,222. Pub. 9–29–70. Filed 9–18–69.

904,149. TOPGRIP NUT. Youngstown Sheet and Tube Company. SN 343,890. Pub. 9–29–70. Filed 11–18–69.

904,150. MISCELLANEOUS DESIGN. Olin Corporation. SN 349,885. Pub. 9–29–70. Filed 1–28–70.

904,151. MICRO-POR. Borg-Warner Corporation. SN 350,213. Pub. 9–29–70. Filed 2–2–70.

904,152. CAPSERT. James H. Gehring, d.b.a. Cap Systems. SN 350,255. Pub. 9–29–70. Filed 2–2–70.

904,153. ACRES. J. O. King, Inc. SN 350,390. Pub. 9–29–70. Filed 2–3–70.

904,154. WAC-A-BRAC. Gibraltar Fence Company, Inc. SN 352,634. Pub. 9–29–70. Filed 2–27–70.

904,155. LESLIE AIRMATE. Leslie Co. SN 352,643. Pub. 9–29–70. Filed 2–27–70.

904,156. SEETRU. Fairchild Hiller Corporation. SN 352,799. Pub. 9–29–70. Filed 3–2–70.

904,157. GLEN. Glens Engineering Works (Proprietary) Limited. SN 353,188. Pub. 9–29–70. Filed 3–5–70.

904,158. SINE-LOK. Valley-Todeco, Inc. SN 355,925. Pub. 9–29–70. Filed 4–3–70.

904,159. CERJET. Spray Clean Products Corp. SN 357,289. Pub. 9–29–70. Filed 4–20–70.

904,160. GARFLEX. Garlock Inc. SN 358,157. Pub. 9–29–70. Filed 4–28–70.

Class 14 — Metals and Metal Castings and Forgings

904,085. (See Class 1 for this trademark.)

904,161. HUD STAT. Hudson Wire Company. SN 359,957. Pub. 9–29–70. Filed 5–18–70.

Class 15 — Oils and Greases

904,114. (See Class 6 for this trademark.)

904,162. PERM-O-TREAT. International Scientific Labs, Inc. SN 347,511. Pub. 9–29–70. Filed 12–31–69.

904,163. DYNA-PLEX. Universal Motor Oils Co., Inc. SN 364,350. Pub. 9–29–70. Filed 7–6–70.

Class 16 — Protective and Decorative Coatings

904,164. PINTUCO. Saldarriaga Hnos y Cia. SN 293,054. Pub. 9–29–70. Filed 3–12–68.

904,165. EGYPTIAN. The Egyptian Lacquer Manufacturing Company. SN 333,912. Pub. 9–29–70. Filed 7–30–69.

904,166. KACI. Petrolite Corporation. SN 334,367. Pub. 9–29–70. Filed 8–4–69.

904,167. SOMAY. Somay Products, Inc. SN 346,314. Pub. 9–29–70. Filed 12–15–69.

904,168. WINDY CITY. Stonetree Corp. SN 363,496. Pub. 9–29–70. Filed 6–24–70.

Class 17 — Tobacco Products

904,169. CLAREMONT. St. Regis Tobacco Corporation Limited. SN 332,741. Pub. 9–29–70. Filed 7–16–69.

904,170. MINATELLA. Imperial Tobacco Group Limited. SN 340,151. Pub. 9–29–70. Filed 10–8–69.

904,171. HUSKY. Conwood Corporation. SN 357,507. Pub. 9–29–70. Filed 4–21–70.

904,172. LIQUEUR. R. G. Dun Cigar Corporation. SN 358,234. Pub. 9–29–70. Filed 4–29–70.

904,173. BREAKTHROUGH. Consolidated Cigar Corporation. SN 359,471. Pub. 9–29–70. Filed 5–12–70.

904,174. CHATEAU. Consolidated Cigar Corporation. SN 359,474. Pub. 9–29–70. Filed 5–12–70.

904,175. SCIMITAR. Consolidated Cigar Corporation. SN 359,476. Pub. 9–29–70. Filed 5–12–70.

Class 18—Medicines and Pharmaceutical Preparations

904,176. CUPID'S QUIVER. Joseph Laboratories, Inc. SN 324,469. Pub. 9–29–70. Filed 4–14–69.

904,177. MISCELLANEOUS DESIGN. Plough, Inc. SN 331,675. Pub. 9–29–70. Filed 7–2–69.

904,178. SEPTRA. Burroughs Wellcome Co., by merger of Burroughs Wellcome & Co. (U.S.A.) Inc. SN 347,389. Pub. 9–29–70. Filed 12–30–69.

904,179. ACME AND DESIGN. Acme Markets, Inc. SN 362,307. Pub. 9–29–70. Filed 6–11–70.

904,180. PURITAN MAID. Puritan-Bennett Corporation. SN 362,625. Pub. 9–29–70. Filed 6–15–70.

904,181. MOTRIN. The Upjohn Company. SN 363,500. Pub. 9–29–70. Filed 6–24–70.

904,182. MUMPCINE. The Dow Chemical Company. SN 364,187. Pub. 9–29–70. Filed 7–2–70.

904,183. LIRUBEL. The Dow Chemical Company. SN 364,189. Pub. 9–29–70. Filed 7–2–70.

904,184. VALADOL. E. R. Squibb & Sons, Inc. SN 364,857. Pub. 9–29–70. Filed 7–10–70.

Class 19—Vehicles

904,132. (See Class 12 for this trademark.)

904,185. FOCAL. Compagnie Francaise Telma. SN 300,563. Pub. 9–29–70. Filed 6–17–68.

904,186. P AND DESIGN. Firma Dr. Ing. h.c. F. Porsche KG. MULTIPLE CLASS (Classes 19 and 23). SN 313,923. Pub. 9–29–70. Filed 12–9–68.

904,187. TRAILER CRUISER. The McLeans. SN 321,968. Pub. 9–29–70. Filed 3–17–69.

904,188. AQUA-DART. Leisuredyne, Inc. SN 336,818. Pub. 9–29–70. Filed 9–2–69.

904,189. IMODCO. Imodco Inc. SN 347,607. Pub. 9–29–70. Filed 1–2–70.

904,190. DRAKE AND DUCK DESIGN. Woolsey Marine Industries, Inc. MULTIPLE CLASS (Classes 19 and 50). SN 350,441. Pub. 9–29–70. Filed 2–4–70.

Class 20—Linoleum and Oiled Cloth

904,191. LEXINGTON BRICK. Sears, Roebuck and Co. SN 329,386. Pub. 9–29–70. Filed 6–6–69.

Class 21—Electrical Apparatus, Machines, and Supplies

904,192. CRAFT LITE. Paramount Industries, Inc. SN 271,719. Pub. 4–1–69. Filed 5–17–67.

904,193. ICS AND DESIGN. Instrumentation & Control Systems, Inc. SN 282,590. Pub. 9–29–70. Filed 10–16–67.

904,194. MISCELLANEOUS DESIGN. A. M. Byers Company. SN 284,596. Pub. 9–29–70. Filed 11–13–67.

904,195. OSHINO LAMPS AND DESIGN. Oshino Electric Lamp Works, Ltd. SN 287,666. Pub. 9–29–70. Filed 12–27–67.

904,196. ITC. International Television Corporation. SN 297,412. Pub. 9–17–68. Filed 5–6–68.

904,197. MEALS IN MINUTES. Dazey Products Company. SN 298,434. Pub. 9–29–70. Filed 5–17–68.

904,198. MISCELLANEOUS DESIGN. Steigerwald Strahltechnik Gesellschaft mit beschrankter Haftung. SN 321,545. Pub. 9–29–70. Filed 3–12–69.

904,199. UNIVERSAL AND DESIGN. General Electric Company. MULTIPLE CLASS (Classes 21, 23, 29, and 44). SN 322,666. Pub. 6–30–70. Filed 3–24–69.

904,200. COFFEE HUTCH. P.L.S. Corp., assignee, by mesne assignment, of DCA Food Industries, Inc. MULTIPLE CLASS (Classes 21 and 46). SN 326,577. Pub. 9–29–70. Filed 5–7–69.

904,201. DOUBLE D DESIGN. Dolby Laboratories Inc. SN 326,861. Pub. 9–29–70. Filed 5–9–69.

904,202. WEE LINE. Nytronics, Inc. SN 327,088. Pub. 9–29–70. Filed 5–12–69.

904,203. NYTCAP. Nytronics, Inc. SN 327,090. Pub. 9–29–70. Filed 5–12–69.

904,204. TECH-LAB. Tech Laboratories, Inc. SN 329,395. Pub. 9–29–70. Filed 6–6–69.

904,205. COLOR-KEYED. Thomas & Betts Corporation. SN 329,538. Pub. 9–29–70. Filed 6–9–69.

904,206. HALODYNE AND DESIGN. Birns & Sawyer Cine Equipment Co., Inc., d.b.a. Birns & Sawyer International, Birns & Sawyer-Hollywood, and Birns & Sawyer. SN 330,047. Pub. 9–29–70. Filed 6–16–69.

904,207. AIR VENTURE. McWilliams Associates, Inc. SN 332,624. Pub. 9–29–70. Filed 7–15–69.

904,208. AMERICAN DATA CORPORATION. American Data Corporation. MULTIPLE CLASS (Classes 21 and 26). SN 332,789. Pub. 9–29–70. Filed 7–17–69.

904,209. LINCOLN SECURITY. Lincoln Security Corp. MULTIPLE CLASS (Classes 21 and 100). SN 335,815. Pub. 9–29–70. Filed 8–21–69.

904,210. DEK. Dek Inc. SN 337,527. Pub. 9–29–70. Filed 9–10–69.

904,211. SEALED FURY. General Battery Corporation, by change of name from General Battery and Ceramic Corp. SN 337,536. Pub. 9–29–70. Filed 9–10–69.

904,212. DART. Jetco Electronic Industries, Inc. SN 338,401. Pub. 9–29–70. Filed 9–19–69.

904,213. STEREO 1 AND DESIGN. The Muter Company. SN 339,919. Pub. 9–29–70. Filed 10–6–69.

904,214. ABA AND DESIGN. Pacific Fire Extinguisher Company. MULTIPLE CLASS (Classes 21 and 103). SN 344,610. Pub. 9–29–70. Filed 11–26–69.

904,215. TEMPO. Sterling Electronics Corporation. SN 350,834. Pub. 9–29–70. Filed 2–9–70.

904,216. NORELCO. North American Philips Corporation. SN 351,050. Pub. 9–22–70. Filed 2–10–70.

904,217. MISCELLANEOUS DESIGN. Optron, Inc. SN 352,033. Pub. 9–29–70. Filed 2–24–70.

904,218. CIRCUIT ZAPS. Bishop Graphics, Inc. SN 352,716. Pub. 9–29–70. Filed 3–2–70.

904,219. PROTECT-O-MATIC. Fedtro, Inc. SN 357,032. Pub. 7–28–70. Filed 4–16–70.

Class 22—Games, Toys, and Sporting Goods

904,220. KINDER. Sifo Company. SN 305,570. Pub. 9–29–70. Filed 8–20–68.

904,221. HK AND DESIGN. Harmon Killebrew Enterprises, Inc. SN 311,495. Pub. 9–29–70. Filed 11–6–68.

904,222. MPC AND DESIGN. Model Products Corporation. SN 320,964. Pub. 9–29–70. Filed 3–6–69.

904,223. SNO-VUE. Igloo Import & Supply Co., Ltd. SN 322,594. Pub. 9–29–70. Filed 3–24–69.

904,224. YANKEE DOODLE DANCER. Plan-It-Kit, Inc. SN 330,408. Pub. 9–29–70. Filed 6–18–69.

904,225. LIFT-TRU. Faberge, Incorporated. SN 343,531. Pub. 9–29–70. Filed 11–14–69.

904,226. GOLF-WRISTERS. Spare-Time Products, Inc. SN 343,921. Pub. 9–29–70. Filed 11–19–69.

904,227. GEM DANDIES. Mattel, Inc. SN 345,553. Pub. 9–29–70. Filed 12–8–69.

904,228. DIABLO. Mattel, Inc. SN 345,562. Pub. 9–29–70. Filed 12–8–69.

904,229. FIRETRON. Wham-O Mfg. Co. SN 355,090. Pub. 9–29–70. Filed 3–26–70.

904,230. SPLIT O DESIGN. Olin Corporation. SN 360,430. Pub. 9–29–70. Filed 5–21–70.

904,231. EASTERN OVAL. Mattel, Inc. SN 363,830. Pub. 9–29–70. Filed 6–29–70.

904,232. FLIRTY FLOATY. Mattel, Inc. SN 363,829. Pub. 9–29–70. Filed 6–29–70.

904,233. PET. Mattel, Inc. SN 363,831. Pub. 9–29–70. Filed 6–29–70.

904,234. CONTINENTAL OVAL. Mattel, Inc. SN 363,834. Pub. 9–29–70. Filed 6–29–70.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

904,186. (See Class 19 for this trademark.)

904,199. (See Class 21 for this trademark.)

904,235. JAVELIN. Jacobsen Manufacturing Company (Delaware corporation), assignee of Jacobsen Manufacturing Company (Wisconsin corporation). SN 289,684. Pub. 8–26–69. Filed 1–26–68.

904,236. MAGNUM. The Ansul Company. SN 293,015. Pub. 9–29–70. Filed 3–12–68.

904,237. SHEAR MAGIC. Hardware and Industrial Tool Company, Inc. SN 307,839. Pub. 9–29–70. Filed 9–20–68.

904,238. WILDMAN JACQUARD. North American Rockwell Corporation, by merger from Wildman Jacquard Co. SN 310,899. Pub. 9–29–70. Filed 10–30–68.

904,239. ROCK GARDEN. United Silver and Cutlery Company. SN 325,246. Pub. 9–29–70. Filed 4–22–69.

904,240. SERRANO. United Silver and Cutlery Company. SN 325,248. Pub. 9–29–70. Filed 4–22–69.

904,241. TROPICALE. United Silver and Cutlery Company. SN 325,249. Pub. 9–29–70. Filed 4–22–69.

904,242. FLORENTINA. United Silver and Cutlery Company. SN 325,250. Pub. 9–29–70. Filed 4–22–69.

904,243. DEPENDABLE AND LINE DESIGN. Dependable Shell Core Machines, Inc. SN 329,444. Pub. 9–29–70. Filed 6–9–69.

904,244. FRIEMARK. Anthony J. Fries and Son Company. SN 329,463. Pub. 9–29–70. Filed 6–9–69.

904,245. COLOR-KEYED. Thomas & Betts Corporation. SN 329,539. Pub. 9–29–70. Filed 6–9–69.

904,246. ALLOWAY. Alloway Manufacturing & Distributing Co. SN 333,075. Pub. 9–29–70. Filed 7–22–69.

904,247. VB. Van F. Belknap Company. SN 337,255. Pub. 9–29–70. Filed 9–8–69.

904,248. BUILDMASTER. Ernest Scragg & Sons Ltd. SN 341,208. Pub. 9–29–70. Filed 10–20–69.

904,249. PNEUMET. Buehler Ltd. SN 341,788. Pub. 9–29–70. Filed 10–27–69.

904,250. ROTAFRAM AND DESIGN. Interpace Corporation. SN 342,473. Pub. 9–29–70. Filed 11–3–69.

904,251. TENDER ROSE. Oneida Ltd. SN 344,130. Pub. 9–29–70. Filed 11–20–69.

904,252. LAMI-SHIELD. Keene Corporation, by merger into The Kaydon Engineering Corporation. SN 347,283. Pub. 8–18–70. Filed 12–29–69.

904,253. AUTOLOCK. Edlund Company, Inc. SN 348,095. Pub. 9–29–70. Filed 1–9–70.

904,254. THE GATOR AND DESIGN. Compaction Equipment Co., Inc. SN 351,114. Pub. 9–29–70. Filed 2–11–70.

904,255. DIAL-X SHARPENER. Western Select, Inc. SN 351,853. Pub. 9–29–70. Filed 2–19–70.

904,256. BENDALL. Engel Industries, Inc. SN 364,324. Pub. 9–29–70. Filed 7–6–70.

Class 24—Laundry Appliances and Machines

904,257. THERMO-PAK. H. Kohnstamm & Co., Inc. SN 326,656. Pub. 9–29–70. Filed 5–7–69.

Class 25—Locks and Safes

904,258. PANELOC. The Paneloc Corporation. SN 352,854. Pub. 9–29–70. Filed 3–2–70.

904,259. HYDROLOK. P. L. Porter Co. SN 350,121. Pub. 9–29–70. Filed 1–30–70.

Class 26—Measuring and Scientific Appliances

904,208. (See Class 21 for this trademark.)

904,260. PRECISION PERSPECTIVE AND DESIGN. Perspective, Inc. SN 259,150. Pub. 9–29–70. Filed 11–21–66.

904,261. MILLIPNEU. Feinpruf, Feinmess- und Prufgerate, G.m.b.H. SN 300,813. Pub. 9–29–70. Filed 6–19–68.

904,262. BREAKDATA. The Bin-Dicator Company, assignee, by mesne assignment, of Fluid Data Inc. SN 316,425. Pub. 9–29–70. Filed 1–13–69.

904,263. SELECT-A-FRAME AND DESIGN. Serge A. Birn Company, Inc. SN 321,896. Pub. 9–29–70. Filed 3–17–69.

904,264. PROFILE 320. Searle Medidata Inc., by change of name from Medidata Sciences, Inc. SN 322,312. Pub. 9–29–70. Filed 3–20–69.

904,265. CD AND DESIGN. Coulter Diagnostics, Inc. SN 324,180. Pub. 9–20–70. Filed 4–10–69.

904,266. PANISPHERE. Robert Eckholm. SN 326,215. Pub. 9–29–70. Filed 5–2–69.

904,267. FLEX-O-GUN. Geo Space Corporation. SN 326,224. Pub. 9–29–70. Filed 5–2–69.

904,268. FLEX-O-PULSE. Geo Space Corporation. SN 326,225. Pub. 9–29–70. Filed 5–2–69.

904,269. TALKIE TOYS. Lehigh Valley Electronics, Inc. SN 331,397. Pub. 9–29–70. Filed 6–30–69.

904,270. DELTA DESIGN. Delta Design, Inc. SN 331,734. Pub. 9–29–70. Filed 7–3–69.

904,271. UNIPICA. Fred W. Hoch Associates, Inc. SN 332,618. Pub. 9–29–70. Filed 7–15–69.

904,272. ASTROCOMP. Information Control Systems, Inc. SN 336,698. Pub. 9–29–70. Filed 8–29–69.

904,273. SCOTTY. Sesco Safety Products, Inc. SN 337,780. Pub. 5–5–70. Filed 9–12–69.

904,274. MAGNE-4. Cole-Parmer Instrument Company, by change of name from Cole-Parmer Instrument & Equipment Co. SN 339,554. Pub. 9–29–70. Filed 10–2–69.

904,275. DIGI-SPAN AND DESIGN. General Electric Company. SN 339,877. Pub. 9–29–70. Filed 10–6–69.

904,276. PI-PUMP. GLASFIRN. SN 340,141. Pub. 9–29–70. Filed 10–8–69.

904,277. IDENTI PRINT. Eaton Yale & Towne Inc., assignee of Digital Identification Systems, Inc. SN 344,282. Pub. 9–29–70. Filed 11–24–69.

904,278. DATADYNE. Datadyne Corporation. SN 344,687. Pub. 9–29–70. Filed 11–26–69.

904,279. RAC AND DESIGN. Research Appliance Company. SN 345,203. Pub. 9–29–70. Filed 12–3–69.

904,280. MISCELLANEOUS DESIGN. Computer Transceiver Systems, Inc. SN 345,718. Pub. 9–29–70. Filed 12–9–69.

904,281. CS-FLOW. The Great Western Sugar Company. SN 347,096. Pub. 9–29–70. Filed 12–24–69.

904,282. MINIDAC. Analog Devices, Inc. SN 348,100. Pub. 9–29–70. Filed 1–9–70.

904,283. DUOSTAT DESIGN. Gary E. Raymond. SN 350,770. Pub. 9–29–70. Filed 2–6–70.

904,284. COUNT-A-LOT. FMC Corporation. SN 352,113. Pub. 9–29–70. Filed 2–24–70.

904,285. CURETRON. Monsanto Company. SN 352,972. Pub. 9–29–70. Filed 3–3–70.

904,286. ADI. Audio Devices, Inc. SN 354,283. Pub. 9–29–70. Filed 3–17–70.

904,287. FUJIBROMIDE. Fuji Photo Film Co., Ltd. SN 364,848. Pub. 9–29–70. Filed 7–10–70.

Class 29 — Brooms, Brushes, and Dusters

904,199. (See Class 21 for this trademark.)

904,288. FULCOATER. Fuller-O'Brien Corporation. SN 331,035. Pub. 9–29–70. Filed 6–26–69.

904,289. DELTA. Delta Brush Mfg. Corp. SN 333,497. Pub. 9–29–70. Filed 7–25–69.

Class 30 — Crockery, Earthenware, and Porcelain

904,290. SOUL FOOD DISHES. George Ash. SN 325,700. Pub. 9–29–70. Filed 4–28–69.

Class 31 — Filters and Refrigerators

904,291. THERMAL MASS. Zeks Industries, Inc. SN 320,890. Pub. 9–29–70. Filed 3–5–69.

Class 32 — Furniture and Upholstery

904,292. LEGEND. Broyhill Furniture Industries. SN 333,669. Pub. 9–29–70. Filed 7–28–69.

904,293. CORTINA. Adler Kay Co., Inc. SN 335,350. Pub. 9–29–70. Filed 8–14–69.

904,294. REGAL FRAMES AND SHIELD DESIGN. Intercraft Industries Corporation. SN 335,581. Pub. 9–29–70. Filed 8–18–69.

904,295. MASTER-KOTE. Reflector Hardware Corporation. SN 335,609. Pub. 9–29–70. Filed 8–18–69.

904,296. GRAMERCY. W. & J. Sloane, Inc. SN 336,717. Pub. 9–29–70. Filed 8–29–69.

904,297. VIVIENNE ORIGINAL. Vivian C. Orensten and Henry E. Orensten (joint owners), d.b.a. Vivienne Originals. SN 337,340. Pub. 9–29–70. Filed 9–8–69.

904,298. RESPOND. Conwed Corporation. SN 342,835. Pub. 9–29–70. Filed 11–6–69.

904,299. CRESTYLE. Dart Industries Inc., d.b.a. Crestyle. SN 353,855. Pub. 9–29–70. Filed 3–12–70.

904,300. KOYLON. Uniroyal, Inc. SN 363,622. Pub. 9–29–70. Filed 6–25–70.

904,301. COUNTRY SHOP. B. Altman & Co. SN 364,314. Pub. 9–29–70. Filed 7–6–70.

904,302. CRAFTLITE. Hadco Products, Inc. SN 298,330. Pub. 3–4–69. Filed 5–16–68.

Class 34 — Heating, Lighting, and Ventilating Apparatus

904,303. SCHOOLHOUSE DESIGN. Stephens Manufacturing Company, Inc. SN 312,235. Pub. 9–29–70. Filed 11–14–68.

904,304. ANTICIPATOR. The Patterson-Kelley Co., Inc. SN 320,173. Pub. 9–29–70. Filed 2–26–69.

904,305. NUCLEO-C. Eutectic Corporation. SN 321,645. Pub. 9–29–70. Filed 3–13–69.

904,306. ULTRALEC. Eutectic Corporation. SN 321,646. Pub. 9–29–70. Filed 3–13–69.

904,307. SPACE CONDITIONING. Dunham-Bush, Inc. SN 335,442. Pub. 9–29–70. Filed 8–15–69.

904,308. HIRT AND FLAME DESIGN. Hirt Combustion Engineers. SN 340,789. Pub. 9–29–70. Filed 10–15–69.

904,309. CAMP-N-GLO AND FLAME DESIGN. Ronson Corporation. SN 341,950. Pub. 9–29–70. Filed 10–28–69.

904,310. FIRE MAGIC AND DESIGN. Whittier Steel & Mfg., Inc. SN 342,094. Pub. 9–29–70. Filed 10–29–69.

904,311. PLY-VENT. Van Pelt Corporation. SN 342,312. Pub. 9–29–70. Filed 10–31–69.

904,312. CITGO AND DESIGN. Cities Service Oil Company. SN 345,796. Pub. 9–29–70. Filed 12–10–69.

904,313. AUTO-MOIST. Skuttle Manufacturing Company. SN 346,971. Pub. 9–29–70. Filed 12–22–69.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

904,314. FT IN OVAL DESIGN. Automation Industries, Inc. SN 282,347. Pub. 9–29–70. Filed 10–12–67.

904,315. PATHMAKER. The Goodyear Tire & Rubber Company. SN 327,616. Pub. 8–4–70. Filed 5–19–69.

904,316. PRO TRED. Oliver Tire & Rubber Company. SN 351,524. Pub. 9–29–70. Filed 2–16–70.

Class 36 — Musical Instruments and Supplies

904,317. TRANSCRIBER. Transcriber Company, Inc. SN 315,964. Pub. 8–4–70. Filed 1–6–69.

904,318. UP-FRONT AND DESIGN. Springboard International Records, Inc. SN 324,246. Pub. 9–29–70. Filed 4–10–69.

904,319. MAGIC MUSIC. Adele Zidowecki, d.b.a. Magic Music. SN 340,639. Pub. 9–29–70. Filed 10–13–69.

904,320. CHAPTER ONE AND DESIGN. Decca Limited. SN 342,204. Pub. 9–29–70. Filed 10–31–69.

904,321. YAMAHA SUPERIO. Nippon Gakki Seizo Kabushiki Kaisha. SN 348,979. Pub. 9–29–70. Filed 1–19–70.

904,322. CASETCOM. Nightingale-Conant Corporation. SN 359,569. Pub. 9–29–70. Filed 5–13–70.

Class 37 — Paper and Stationery

904,323. TINY TEEN. Jak-Pak, Inc. MULTIPLE CLASS (Classes 37, 50, and 51). SN 306,293. Pub. 9–29–70. Filed 8–30–68.

904,324. TWINFILM. Twinpak Ltd. SN 328,370. Pub. 9–29–70. Filed 5–26–69.

904,325. PERFECTO. The Autopoint Company, by merger and assignment from Cory Corporation. SN 329,228. Pub. 9–29–70. Filed 6–5–69.

904,326. BARTER. The Mead Corporation. SN 344,398. Pub. 9–29–70. Filed 11–24–69.

904,327. MOOREMAILER. Moore Business Forms, Inc. SN 347,033. Pub. 9–29–70. Filed 12–23–69.

904,328. TAX DATA MR. TAXES AND DESIGN. Eugene Charles Egan, d.b.a. Mr. Taxe$ and Tax Data. SN 347,829. Pub. 9–29–70. Filed 1–6–70.

904,329. RALLY. The Gillette Company, d.b.a. The Paper Mate Company. SN 348,148. Pub. 9–29–70. Filed 1–9–70.

904,330. FRONTIER. Ponderosa Paper Products, Inc. SN 348,447. Pub. 9–29–70. Filed 1–13–70.

904,331. DOUBLE DIPS. Kimberly-Clark Corporation. SN 350,183. Pub. 9–29–70. Filed 2–2–70.

Class 38 — Prints and Publications

904,332. MARKETING MANAGEMENT. CCM Professional Magazines, Inc., by merger and change of name from The Management Publishing Group, Inc. SN 205,753. Pub. 7–9–68. Filed 11–6–64.

904,333. SF. Scott, Foresman and Company (Delaware corporation), assignee of Scott, Foresman and Company (Illinois corporation). SN 301,019. Pub. 9–29–70. Filed 6–21–68.

904,334. SPOTTER. Infograph Incorporated. SN 320,819. Pub. 9–29–70. Filed 3–5–69.

904,335. AVIATION MART. Air Bird Publications. SN 331,841. Pub. 9–29–70. Filed 7–7–69.

904,336. REACHING BEYOND. Scholastic Magazines, Inc. SN 334,125. Pub. 9–29–70. Filed 7–31–69.

904,337. OMAHA WOODMEN LIFE. Woodmen of the World Life Insurance Society and/or Omaha Woodmen Life Insurance Society. SN 334,414. Pub. 9–29–70. Filed 8–4–69.

904,338. NATIONAL LABEL CO. AND DESIGN. National Label Company. SN 345,657. Pub. 9–29–70. Filed 12–8–69.

904,339. TINT-TAK. Pantone, Inc. SN 347,118. Pub. 9–29–70. Filed 12–24–69.

904,340. ROCOM. Hoffmann-La Roche Inc. SN 347,159. Pub. 9–29–70. Filed 12–29–69.

904,341. HOT SPECS. Indian Head Inc. SN 348,292. Pub. 9–29–70. Filed 1–12–70.

904,342. SPIRIT OF SEVENTY SIX. Union Oil Company of California. SN 349,018. Pub. 9–29–70. Filed 1–19–70.

904,343. MARSITES. The Plusfactor Group, Ltd. SN 349,682. Pub. 9–29–70. Filed 1–26–70.

904,344. REACHING HIGHER. Scholastic Magazines, Inc. SN 349,685. Pub. 9–29–70. Filed 1–26–70.

904,345. THE MUSE. Edward H. Owens, d.b.a. The Muse. SN 351,053. Pub. 9–29–70. Filed 2–10–70.

904,346. PPC ENGINEERING MANAGEMENT'S PLANT SERVICES AND DESIGN. Putman Publishing Company. SN 362,743. Pub. 9–29–70. Filed 6–15–70.

904,347. DRIVE-IN THEATRE. Theodore Sullivan. SN 363,240. Pub. 9–29–70. Filed 6–22–70.

Class 39 — Clothing

904,348. PINTAIL. Neely, Ltd. SN 352,492. Pub. 9–29–70. Filed 2–26–70.

904,349. SUPPORTABLES. Parke, Davis & Company. SN 353,258. Pub. 9–29–70. Filed 3–6–70.

904,350. SACONY. S. Augstein & Co., Inc. SN 353,408. Pub. 9–29–70. Filed 3–9–70.

904,351. WIPPERKICKERS. The Green Shoe Manufacturing Co. SN 353,655. Pub. 9–29–70. Filed 3–10–70.

904,352. WIPPERKICKERS. The Green Shoe Manufacturing Co. SN 353,656. Pub. 9–29–70. Filed 3–10–70.

904,353. DOLLYSTOMPERS. The Green Shoe Manufacturing Co. SN 353,657. Pub. 9–29–70. Filed 3–10–70.

904,354. DOLLYSTOMPERS. The Green Shoe Manufacturing Co. SN 353,658. Pub. 9–29–70. Filed 3–10–70.

904,355. STRETCHCATS. The Lovable Company. SN 363,711. Pub. 9–29–70. Filed 6–26–70.

904,356. THERMOFLEECE WHITE STAG AND DESIGN. White Stag Manufacturing Co. SN 364,206. Pub. 9–29–70. Filed 7–2–70.

Class 40 — Fancy Goods, Furnishings, and Notions

904,123. (See Class 7 for this trademark.)

904,357. DACHELLON. Bishop Industries Inc. SN 300,550. Pub. 9–29–70. Filed 6–17–68.

904,358. "TOP" FASHION. Ronald Weiner, d.b.a. Ronnie Hair Goods. SN 331,460. Pub. 9–29–70. Filed 6–30–69.

904,359. LA-CE-EDGE. Wyomissing Corporation. SN 342,775. Pub. 9–29–70. Filed 11–5–69.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

904,123. (See Class 7 for this trademark.)

904,360. DOUBLE STRETCH AND DESIGN. Silco Knitting Mills, Inc. SN 339,600. Pub. 9–29–70. Filed 10–2–69.

904,361. PELECIA. Pepper, Lee & Co. Limited. SN 341,192. Pub. 9–29–70. Filed 10–20–69.

904,362. PINE-CLOTH. Angelica Corporation. SN 341,502. Pub. 9–29–70. Filed 10–23–69.

904,363. ASTROGRASS. Monsanto Company. SN 341,834. Pub. 9–29–70. Filed 10–27–69.

904,364. MOON DOT. Waumbec Mills, Incorporated. SN 341,966. Pub. 9–29–70. Filed 10–28–69.

904,365. SPIRISTRETCH BY EDMOS. Edmos Products Corporation. SN 342,247. Pub. 9–29–70. Filed 10–31–69.

904,366. SPIRISPUN BY EDMOS. Edmos Products Corporation. SN 342,248. Pub. 9–29–70. Filed 10–31–69.

904,367. SPONTESSA BY EDMOS. Edmos Products Corporation. SN 342,249. Pub. 9–29–70. Filed 10–31–69.

904,368. GRANOVA. Klopman Mills, Inc. SN 342,278. Pub. 9–29–70. Filed 10–31–69.

904,369. TANGELO. Klopman Mills, Inc. SN 342,281. Pub. 9–29–70. Filed 10–31–69.

904,370. SNAPCORD. Klopman Mills, Inc. SN 342,282. Pub. 9–29–70. Filed 10–31–69.

904,371. TRESSARD AND DESIGN. Tressard Fabrics, Inc. SN 349,529. Pub. 9–29–70. Filed 1–26–70.

904,372. MIDNIGHT MAGIC. Deering Milliken, Inc. SN 363,803. Pub. 9–29–70. Filed 6–29–70.

904,373. MILLI-MIST. Deering Milliken, Inc. SN 363,804. Pub. 9–29–70. Filed 6–29–70.

904,374. LIVELY. Deering Milliken, Inc. SN 363,805. Pub. 9–29–70. Filed 6–29–70.

904,375. LAVISH. Deering Milliken, Inc. SN 363,806. Pub. 9–29–70. Filed 6–29–70.

904,376. SWING 'N SWAY. Deering Milliken, Inc. SN 363,807. Pub. 9–29–70. Filed 6–29–70.

904,377. SPRING BREEZE. Deering Milliken, Inc. SN 363,808. Pub. 9–29–70. Filed 6–29–70.

904,378. NEW FEATURE. Deering Milliken, Inc. SN 363,809. Pub. 9–29–70. Filed 6–29–70.

Class 43 — Thread and Yarn

904,379. TOA AND TRIANGLE DESIGN. Toa Wool Spinning & Weaving Co., Ltd. SN 341,957. Pub. 9–29–70. Filed 10–28–69.

904,380. JONTILLE. United Merchants and Manufacturers, Inc. SN 364,537. Pub. 9–29–70. Filed 7–7–70.

Class 44 — Dental, Medical, and Surgical Appliances

904,199. (See Class 21 for this trademark.)

904,381. "A TWIST AND IT FITS." Surgitube Products Corporation. SN 304,509. Pub. 9–29–70. Filed 8–6–68.

904,382. HELCOGRAPH. Fritz Hellige & Co., GmbH. SN 305,131. Pub. 9–29–70. Filed 8–14–68.

904,383. G5 AND HUMAN DESIGN. Henri Cuinier. SN 325,585. Pub. 9–29–70. Filed 4–25–69.

904,384. ENTEROTUBE. Hoffmann-La Roche Inc. SN 328,176. Pub. 9–29–70. Filed 5–23–69.

904,385. MEVATRON. Applied Radiation Corporation. SN 341,776. Pub. 9–29–70. Filed 10–27–69.

904,386. ROLLA-SSAGE. Niagara Therapy Manufacturing Corporation. SN 345,193. Pub. 9–29–70. Filed 12–3–69.

904,387. COLOSCOPE. Burnett Instrument Company. SN 352,612. Pub. 9–29–70. Filed 2–27–70.

904,388. SPHER-A-CAPS. Sybron Corporation. SN 352,682. Pub. 9–29–70. Filed 2–27–70.

904,389. DISPOSATUBE. The Foregger Company, Inc. SN 352,804. Pub. 9–29–70. Filed 3–2–70.

904,390. X-AM. Affiliated Hospital Products, Inc. SN 354,106. Pub. 9–29–70. Filed 3–16–70.

Class 45 — Soft Drinks and Carbonated Waters

904,391. COLA-DELITE. Davis Beverage Company, Incorporated. SN 324,279. Pub. 9–29–70. Filed 4–11–69.

904,392. MUSIC MOUNTAIN. Music Mountain Mineral Water Incorporated. SN 329,997. Pub. 9–29–70. Filed 6–13–69.

904,393. REBOUND. Don Hall Laboratories. SN 342,438. Pub. 9–29–70. Filed 11–3–69.

904,394. SOAR. The Coca-Cola Company. SN 350,810. Pub. 9–29–70. Filed 2–9–70.

904,395. SIR LAFF-A-LOT AND DESIGN. The Coca-Cola Company. SN 352,013. Pub. 9–29–70. Filed 2–24–70.

904,396. "13." General Mills, Inc. SN 358,238. Pub. 9–29–70. Filed 4–29–70.

Class 46 — Foods and Ingredients of Foods

904,200. (See Class 21 for this trademark.)

904,397. DOPEY BOOKS. Topps Chewing Gum, Incorporated. SN 299,261. Pub. 9–29–70. Filed 5–28–68.

904,398. NUTTY TICKETS. Topps Chewing Gum, Incorporated. SN 299,262. Pub. 9–29–70. Filed 5–28–68.

904,399. NASTY NOTES. Topps Chewing Gum, Incorporated. SN 299,264. Pub. 9–29–70. Filed 5–28–68.

904,400. COLD STAR. LTL Enterprises, Inc. SN 327,931. Pub. 9–29–70. Filed 5–21–69.

904,401. COLD STAR AND U.S. MAP ETC. AND DESIGN. LTL Enterprises, Inc. SN 327,932. Pub. 9–29–70. Filed 5–21–69.

904,402. A STAR IN U.S. MAP (DESIGN). LTL Enterprises, Inc. SN 327,933. Pub. 9–29–70. Filed 5–21–69.

904,403. GARDENFARE. McCormick & Company, Incorporated. SN 333,286. Pub. 9–29–70. Filed 7–23–69.

904,404. GRIMES DUTCH TREAT AND DESIGN. Grimes Poultry Processing Corporation. SN 337,168. Pub. 9–29–70. Filed 9–5–69.

904,405. MISCELLANEOUS DESIGN. Taylor Food Products, Inc. SN 338,941. Pub. 9–29–70. Filed 9–25–69.

904,406. MISCELLANEOUS DESIGN. Universal Foods Corporation. SN 340,057. Pub. 9–29–70. Filed 10–7–69.

904,407. SPC. Hollymatic Corporation. SN 353,197. Pub. 9–29–70. Filed 3–5–70.

904,408. MISCELLANEOUS DESIGN. Godchaux-Henderson Sugar Co., Inc. SN 353,301. Pub. 9–29–70. Filed 3–6–70.

904,409. NU-MOON. Chattanooga Bakery, Inc. SN 353,853. Pub. 9–29–70. Filed 3–12–70.

904,410. HOT 'N HEALTHY. General Foods Corporation. SN 355,223. Pub. 9–29–70. Filed 3–27–70.

904,411. LEO D'OR BRAND AND DESIGN. Omstead Fisheries 1961 Limited. SN 362,881. Pub. 9–29–70. Filed 6–17–70.

904,412. FS FIVE STAR AND DESIGN. Purity Supreme Super Markets, Inc. SN 364,202. Pub. 9–29–70. Filed 7–2–70.

904,413. CATFISH FLOATER. Cargill, Incorporated. SN 364,609. Pub. 9–29–70. Filed 7–8–70.

904,414. CELESTE. The Quaker Oats Company. SN 364,617. Pub. 9–29–70. Filed 7–8–70.

Class 47 — Wines

904,415. LA GRANDE DAME. Veuve Clicquot-Ponsardin, Maison Fondee en 1772. SN 341,960. Pub. 9–29–70. Filed 10–28–69.

Class 49 — Distilled Alcoholic Liquors

904,416. ONE 03 AND LABEL DESIGN. Manuel Fernandez Sociedad Anonima. SN 331,631. Pub. 9–29–70. Filed 7–2–69.

904,417. THE EPIC SERIES. George Ballantine & Son Limited. SN 337,770. Pub. 9–29–70. Filed 9–12–69.

904,418. LEOPARD'S HEAD. Crown Distillers Limited, by change of name from Scoda Distillers Limited. SN 339,484. Pub. 9–29–70. Filed 9–23–69.

904,419. KENBROOK DELUXE. T. W. Samuels Distillery, Inc. SN 340,610. Pub. 9–29–70. Filed 10–13–69.

904,420. RON SANCHO. Foreign Vintages, Inc. SN 348,416. Pub. 9–29–70. Filed 1–13–70.

904,421. JOHNNY APPLESEED. Joseph E. Seagram & Sons, Inc. SN 357,515. Pub. 9–29–70. Filed 4–21–70.

Class 50 — Merchandise Not Otherwise Classified

904,190. (See Class 19 for this trademark.)

904,323. (See Class 37 for this trademark.)

904,422. HANDI-RAMP INC. AND DESIGN. Handi-Ramp, Inc. SN 308,581. Pub. 9–29–70. Filed 10–3–68.

904,423. SPOOLIES. Florence Paper Company, Inc. SN 332,930. Pub. 9–29–70. Filed 7–18–69.

904,424. GRIP LOCK. Anchor Hocking Corporation. SN 346,445. Pub. 9–29–70. Filed 12–17–69.

904,425. MISCELLANEOUS DESIGN. Rubberfabriek Indiana N.V. SN 346,657. Pub. 9–29–70. Filed 12–18–69.

904,426. HOLLY-TIME. Atlas Tool & Manufacturing Co. SN 347,198. Pub. 9–29–70. Filed 12–29–69.

904,427. GUARDIAN. Tom T. Morodomi. SN 347,768. Pub. 9–29–70. Filed 1–5–70.

Class 51 — Cosmetics and Toilet Preparations

904,323. (See Class 37 for this trademark.)

904,428. DRY-GARD. American Home Products Corporation. SN 318,928. Pub. 6–10–69. Filed 2–14–69.

904,429. WINTER PALACE. William R. White, d.b.a. Grand Prix Ltd. SN 331,084. Pub. 9–29–70. Filed 6–26–69.

904,430. CALYPSO. Herba Corporation. SN 331,195. Pub. 9–29–70. Filed 6–27–69.

904,431. JUDY BEAN. Judy Bean, Ltd. SN 333,085. Pub. 9–29–70. Filed 7–22–69.

904,432. SOUL EYES. Yardley of London, Inc. MULTIPLE CLASS (Classes 51 and 52). SN 333,993. Pub. 9–29–70. Filed 7–31–69.

904,433. SIMPLY GREAT. American Home Products Corporation, assignee of John H. Breck, Inc. SN 338,362. Pub. 9–29–70. Filed 9–19–69.

904,434. MONSIEUR ROCHAS. Parfums Marcel Rochas, Inc. SN 339,811. Pub. 9–29–70. Filed 10–6–69.

904,435. HI-DIDDLE DIDDLE. Koscot Interplanetary, Inc. SN 341,040. Pub. 9–29–70. Filed 10–17–69.

904,436. FOAM GLOVE. Givaudan Corporation. SN 341,649. Pub. 9–29–70. Filed 10–24–69.

904,437. JUNGLE GARDENIA. British-American Tobacco Company Limited. MULTIPLE CLASS (Classes 51 and 52). SN 343,457. Pub. 9–29–70. Filed 11–14–69.

904,438. LOCK-IN. Michael Duval, Inc. SN 354,259. Pub. 9–29–70. Filed 3–17–70.

904,439. OJALA. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 357,565. Pub. 9–29–70. Filed 4–22–70.

904,440. TANFASTIC. Sea & Ski Corporation. SN 361,076. Pub. 9–29–70. Filed 5–28–70.

904,441. ASTRIN. Imperial Toiletries, Ltd. SN 364,332. Pub. 9–29–70. Filed 7–6–70.

Class 52 — Detergents and Soaps

904,432. (See Class 51 for this trademark.)

904,437. (See Class 51 for this trademark.)

904,442. SCOTT. Scott Paper Company. SN 281,394. Pub. 2–17–70. Filed 9–28–67.

904,443. AXION. Colgate-Palmolive Company. SN 303,963. Pub. 6–17–69. Filed 7–31–68.

904,444. AT ONCE. Colgate-Palmolive Company. SN 307,425. Pub. 9–29–70. Filed 9–16–68.

904,445. JONI LOWRIE. Joni Lowrie Inc. SN 327,390. Pub. 9–29–70. Filed 5–15–69.

904,446. MISCELLANEOUS DESIGN. Scannon, Ltd. SN 331,651. Pub. 9–29–70. Filed 7–2–69.

904,447. HOSIERY MATE. The Hosiery Mate Company. SN 334,085. Pub. 9–29–70. Filed 7–31–69.

904,448. HI-DIDDLE DIDDLE. Koscot Interplanetary, Inc. SN 341,041. Pub. 9–29–70. Filed 10–17–69.

904,449. 100 STROKES. Lever Brothers Company. SN 346,564. Pub. 9–29–70. Filed 12–18–69.

904,450. SE AND DESIGN. Sterling Electronics Corporation. SN 351,261. Pub. 9–29–70. Filed 2–13–70.

904,451. SOUND OFF. Armour-Dial, Inc. SN 353,717. Pub. 9–29–70. Filed 3–11–70.

904,452. NITROGLYCERINE. Armour-Dial, Inc. SN 353,718. Pub. 9–29–70. Filed 3–11–70.

904,453. COUNT DOWN. Stirling Drug Inc. SN 357,516. Pub. 9–29–70. Filed 4–21–70.

Service Marks

Class 100 — Miscellaneous

904,209. (See Class 21 for this trademark.)

904,454. H. SALT, ESQ. ETC. AND DESIGN. Salt's Enterprises. SN 307,505. Pub. 9–29–70. Filed 9–16–68.

904,455. CAFE LA CREPE AND DESIGN. Cajun Enterprises, Inc. SN 313,400. Pub. 9–29–70. Filed 12–2–68.

904,456. EARTHWORM. Earthworm Tractor Co., Inc., d.b.a. Earthworm Tractor Co. SN 317,214. Pub. 9–29–70. Filed 1–22–69.

904,457. DER SHED AND DESIGN. Morning Glory Corporation. SN 325,987. Pub. 9–29–70. Filed 4–30–69.

904,458. MISCELLANEOUS DESIGN. Daniel Boone Fried Chicken Inc. SN 334,817. Pub. 9–29–70. Filed 8–8–69.

904,459. LAB. Libros de Latino America, Inc. SN 336,127. Pub. 9–29–70. Filed 8–25–69.

904,460. CHA AND CHART DESIGN. Clark-Hackett & Associates, Inc. SN 342,414. Pub. 9–29–70. Filed 11–3–69.

904,461. BOOJUM TREE. Doubletree Inns, Inc. SN 342,625. Pub. 9–29–70. Filed 11–4–69.

904,462. FRANK N' STEIN. MCA Entertainment, Inc. SN 354,317. Pub. 9–29–70. Filed 3–17–70.

Class 101 — Advertising and Business

904,463. GREEN ACRES AND DESIGN. Green Acres of America, Inc. SN 316,431. Pub. 9–29–70. Filed 1–13–69.

904,464. STAGE 9 AT BEST'S AND DESIGN. McCrory Corporation. SN 316,807. Pub. 9–29–70. Filed 1–16–69.

904,465. EASTERN EMPLOYMENT SERVICE. Eastern Employment Service, Inc. SN 320,052. Pub. 9–29–70. Filed 2–25–69.

904,466. DISCLOSURE. Leasco Systems & Research Corporation. SN 320,065. Pub. 9–29–70. Filed 2–25–69.

904,467. MNEMOTECH. Mnemotech Computer Systems, Inc. SN 320,069. Pub. 9–29–70. Filed 2–25–69.

904,468. HORIZONTAL FIGURE EIGHT (DESIGN). Ann G. Collier. SN 321,907. Pub. 9–29–70. Filed 3–17–69.

904,469. UGLY AND DESIGN. Ugly Enterprises Limited. SN 327,524. Pub. 9–29–70. Filed 5–16–69.

904,470. DS DESIGN. Datronic Service Corporation. SN 328,040. Pub. 9–29–70. Filed 5–22–69.

904,471. PARENT & CHILD INSTITUTE. Fuller & Dees Marketing Group, Inc., d.b.a. Parent & Child Institute. SN 328,765. Pub. 9–29–70. Filed 6–2–69.

904,472. FLORAL DESIGN. Contemporaries International, Inc. SN 335,205. Pub. 9–29–70. Filed 8–13–69.

904,473. YOU CAN COUNT ON CONTEMPORARIES. Contemporaries International, Inc. SN 335,206. Pub. 9–29–70. Filed 8–13–69.

904,474. MISCELLANEOUS DESIGN. United Refrigerated Vendors Corp. SN 339,972. Pub. 9–29–70. Filed 10–7–69.

904,475. MISCELLANEOUS DESIGN. Mark A. Wood. SN 340,067. Pub. 9–29–70. Filed 10–7–69.

904,476. LIFE AND DESIGN. Life Employment Services, Inc. SN 345,835. Pub. 9–29–70. Filed 12–10–69.

904,477. THE CHRISTMAS DOVE. The Christmas Dove. SN 346,720. Pub. 9–29–70. Filed 12–19–69.

904,478. WORLD-A-RAMA. International Productions, Inc. SN 352,026. Pub. 9–29–70. Filed 2–24–70.

Class 102 — Insurance and Financial

904,479. ALERT. Muller and Company. SN 296,181. Pub. 9–29–70. Filed 4–22–68.

904,480. S SILVEY COMPANIES AND DESIGN. Silvey Corporation. SN 309,913. Pub. 9–29–70. Filed 10–17–68.

904,481. RETIREMENT RESERVE. North American Company for Life and Health Insurance. SN 311,163. Pub. 9–29–70. Filed 11–1–68.

904,482. SERVING THOSE WHO SERVE. The Ministers Life and Casualty Union. SN 313,956. Pub. 9–29–70. Filed 12–9–68.

904,483. HI-LIFE. Harleysville Life Insurance Company. SN 316,533. Pub. 9–29–70. Filed 1–14–69.

904,484. O.W.L. Woodmen of the World Life Insurance Society and/or Omaha Woodmen Life Insurance Society. SN 334,413. Pub. 9–29–70. Filed 8–4–69.

904,485. CAR-KING. Hagerstown Trust Company. SN 360,201. Pub. 9–29–70. Filed 5–19–70.

Class 103 — Construction and Repair

904,114. (See Class 6 for this trademark.)

904,214. (See Class 21 for this trademark.)

904,486. CONGRESS SPRINGS AND DESIGN. Russell Pierce, d.b.a. Congress Springs Development Company. SN 234,231. Pub. 9–29–70. Filed 12–8–65.

904,487. SURE SERVICE. Westinghouse Electric Corporation. SN 297,473. Pub. 9–29–70. Filed 5–6–68.

904,488. MR. NIFTY ETC. AND DESIGN. Mr. Nifty Cleaners, Inc. SN 318,559. Pub. 9–29–70. Filed 2–6–69.

904,489. TELE-QUICK CENTERS AND DESIGN. Tele-Quick, Inc. SN 322,496. Pub. 9–29–70. Filed 3–21–69.

904,490. PROPERTY OF MISSION LINEN SUPPLY AND OVAL DESIGN. Montecito Manufacturing Company. SN 327,656. Pub. 9–29–70. Filed 5–19–69.

Class 104 — Communication

904,491. WU WESTERN UNION AND DESIGN. The Western Union Telegraph Company. SN 342,338. Pub. 9–29–70. Filed 10–31–69.

Class 105 — Transportation and Storage

904,492. HILLSIDE AND DESIGN. Hillside Van Lines Inc. SN 310,779. Pub. 9–29–70. Filed 10–29–68.

904,493. LASH LINE AND DESIGN. American Union Transport Forwarding, Inc. SN 344,926. Pub. 9–29–70. Filed 12–1–69.

904,494. WINDWARD. Windward Travel Center. SN 361,082. Pub. 9–29–70. Filed 5–28–70.

904,495. MISCELLANEOUS DESIGN. Windward Travel Center. SN 361,083. Pub. 9–29–70. Filed 5–28–70.

Class 106 — Material Treatment

904,496. CC DESIGN. Central Chemical Corporation. SN 322,144. Pub. 9–29–70. Filed 3–19–69.

Class 107 — Education and Entertainment

904,497. ATI AND DESIGN. Automation Training Inc. SN 266,299. Pub. 7–23–68. Filed 3–9–67.

904,498. COMPUTERMATION. Photo Magnetic Systems, Inc. SN 324,306. Pub. 9–29–70. Filed 4–11–69.

904,499. S-T-R-E-T-C-H & SEW. Stretch & Sew of Oregon, Inc. SN 325,091. Pub. 9–29–70. Filed 4–21–69.

904,500. THE OPPOSITE SEXES. Jean Martin. SN 326,019. Pub. 9–29–70. Filed 4–30–69.

904,501. MISCELLANEOUS DESIGN. Donald G. Bennet, d.b.a. Broadcast Academy. SN 327,469. Pub. 9–29–70. Filed 5–16–69.

904,502. AN AQUARIAN EXPOSITION. Woodstock Ventures, Inc., d.b.a. Woodstock Music & Art Fair. SN 340,449. Pub. 9–29–70. Filed 10–10–69.

904,503. BELLINGRATH GARDENS. The Bellingrath-Morse Foundation, d.b.a. Bellingrath Gardens. SN 346,165. Pub. 9–29–70. Filed 12–15–69.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

SECTION 1

(Combined Certificates)

904,518. George M. Walton, d.b.a. The Walton Company, Vidalia, Ga. SN 340,964. Filed P.R. 10–16–69; Am. S.R. 9–23–70.

The Daily Report, Internal Audit and Operating Control System

Class 37—Paper and Stationery

For Partially Printed Business Forms (Int. Cl. 16).

Class 38—Prints and Publications

For Printed Manuals Produced Periodically (Int. Cl. 16).

First use February 1969.

SECTION 2

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

904,504. Carter Controls, Inc., Lansing, Ill. SN 312,753. Filed P.R. 11–21–68; Am. S.R. 7–30–70.

ROTARY TORQUE

For Air and Hydraulic Cylinder Actuators for Producing Rotary Motion (Int. Cl. 7).
First use Apr. 10, 1968.

904,505. Van Ladder, Inc., Algona, Iowa. SN 337,292. Filed P.R. 9–8–69; Am. S.R. 8–21–70.

VAN LADDER

For Truck Mounted Work Platforms and Aerial Booms (Int. Cl. 7).
First use Sept. 7, 1968.

Class 26 — Measuring and Scientific Appliances

904,506. Howe Richardson Scale Company, Clifton, N.J. SN 289,989. Filed P.R. 1–31–68; Am. S.R. 6–25–70.

SUPER CAST

For Weighing Apparatus—Namely, Scale Levers (Int. Cl. 9).
First use October 1966.

904,507. EG & G, Inc., Bedford, Mass. SN 309,245. Filed P.R. 10–9–68; Am. S.R. 6–25–70.

STROBED COINCIDENCE

For Electronic Sensing Circuit for Nuclear Particle Measurement (Int. Cl. 9).
First use on or about September 1966.

Class 34 — Heating, Lighting, and Ventilating Apparatus

904,508. Conveyor Heat Products Corp., Philadelphia, Pa. SN 322,410. Filed P.R. 3–21–69; Am. S.R. 4–3–70.

CONVEY-A-BAKE

For Electric Conveyor-Operated Food-Cooking Ovens (Int. Cl. 11).
First use February 1969.

Class 37 — Paper and Stationery

904,518. See Section 1 (Combined Certificate).

904,509. Monadnock Paper Mills, Inc., Bennington, N.H. SN 330,295. Filed P.R. 6–17–69; Am. S.R. 8–28–70.

PETERBORO OPAQUE

For Stationery (Int. Cl. 16).
First use Nov. 1, 1968.

904,510. Eaton Allen Corp., Brooklyn, N.Y. SN 322,249. Filed P.R. 3–20–69; Am. S.R. 9–11–70.

CO·REC·IT

For Paper Containing a Coating of a Transfer Substance for Correcting Carbon Copies by Masking Erroneously Typed Impressions so as To Prepare the Paper for Receiving a Different Impression (Int. Cl. 16).
First use Sept. 9, 1968.

Class 38 — Prints and Publications

904,518. See Section 1 (Combined Certificate).

904,511. Magazine Management Co., Inc., New York, N.Y., assignee of Perfect Film & Chemical Corporation, d.b.a. Marvel Comics Group, New York, N.Y. SN 308,515. Filed P.R. 9–30–68; Am. S.R. 4–23–70.

COMPLETE CROSSWORD PUZZLES

For Magazine (Int. Cl. 16).
First use on or about Mar. 3, 1959.

904,512. Magazine Management Co., Inc., New York, N.Y., assignee of Perfect Film & Chemical Corporation, d.b.a. Marvel Comics Group, New York, N.Y. SN 308,518. Filed P.R. 9–30–68; Am. S.R. 4–23–70.

ORIGINAL CROSSWORD MAGAZINE

For Magazine (Int. Cl. 16).
First use on or about Dec. 1, 1964.

904,513. Ad-A-Day Company, Inc., Taunton, Mass. SN 312,728. Filed P.R. 11–21–68; Am. S.R. 8–27–70.
For Advertising Calendars (Int. Cl. 16).

MINI-MEMO

First use August 1965.

904,514. Filtration Publishing Inc., Union City, N.J. SN 339,873. Filed P.R. 10–6–69; Am. S.R. 9–28–70.

FILTRATION ENGINEERING
SEPARATION /// CLARIFICATION

For Trade Magazine Published From Time to Time (Int. Cl. 16).
First use Sept. 12, 1969.

904,515. George M. Walton, d.b.a. The Walton Company, Vidalia, Ga. SN 340,965. Filed P.R. 10–16–69; Am. S.R. 9–23–70.

"MANAGEMENT"

FOR

VOLUME with PROFIT

For Printed Manuals Produced Periodically (Int. Cl. 16). First use August 1969.

Class 39—Clothing

904,516. Jonathan Logan, Inc., d.b.a. Davis Sportswear Co., North Bergen, N.J. SN 329,581. Filed P.R. 6–10–69; Am. S.R. 9–14–70.

WEIGHTLESS WARMTH

For Linings Cut and Sewn for Attachment to Ladies' Coats and Other Articles of Apparel (Int. Cl. 24).
First use at least as early as May 2, 1969.

904,517. Brentwood Sportswear Inc., Philadelphia, Pa. SN 332,657. Filed P.R. 7–16–69; Am. S.R. 9–14–70.

BRENTWOOD

For Men's Sports and Play Slacks, Bathing Trunks, Beach Jackets, Walking and Play Shorts, Sweaters, Sports Jackets, Vests, and Shirts (Int. Cl. 25).
First use spring of 1928.

Class 40—Fancy Goods, Furnishings, and Notions

904,519. Helene Curtis Industries, Inc., d.b.a. Helene Curtis, Chicago, Ill. SN 309,256. Filed P.R. 10–9–68; Am. S.R. 5–25–70.

THE STRETCHABLE

For Wigs (Int. Cl. 26).
First use on or about Aug. 2, 1968.

TRADEMARK REGISTRATIONS RENEWED

80,104. REPRESENTATION OF MAN'S HEAD AND DESIGN. Cl. 16 (Int. Cl. 2). 11–8–10.
81,165. KING BIRD. Cl. 46 (Int. Cl. 29). 3–7–11.
272,202. PYRI-PYRIDIUM. Cl. 18 (Int. Cl. 5). 7–1–30.
275,853. REPRESENTATION OF CIRCULAR FIELD, HAVING THREE SEGMENTAL PORTIONS. Cl. 12 (Int. Cl. 19). 9–30–30.
276,585. CARBORUNDUM. Cl. 12 (Int. Cl. 19). 10–21–30.
276,653. D.D.D. Cl. 52 (Int. Cl. 3). 10–21–30.
277,096. SERV-U-RITE. Cl. 46 (Int. Cl. 29). 11–4–30.
277,097. JOLLY GOOD. Cl. 46 (Int. Cl. 29). 11–4–30.
277,417. CATERPILLAR. Cl. 23 (Int. Cl. 12). 11–11–30.
278,338. VALCRAFT. Cl. 39 (Int. Cl. 25). 12–16–30.
278,511. MANOR HOUSE. Cl. 46 (Int. Cl. 30). 12–23–30.
278,698. ZALBA. Cl. 6 (Int. Cl. 1). 12–30–30.
278,699. BARAK. Cl. 6 (Int. Cl. 1). 12–30–30.
278,781. ANTOX. Cl. 6 (Int. Cl. 1). 12–30–30.
278,782. HELIOZONE. Cl. 6 (Int. Cl. 1). 12–30–30.
278,957. MARK TIME. Cl. 21 (Int. Cl. 9). 1–6–31.
280,398. "FLYING FILM" ETC. AND DESIGN. Cl. 38 (Int. Cl. 16). 2–17–31.
280,805. "DU PONT" WITHIN OVAL DESIGN. Cl. 10 (Int. Cl. 1). 3–3–31.
280,844. LITTLE WONDER. Cl. 46 (Int. Cl. 30). 3–3–31.
281,347. ROTOSHERE. Cl. 21 (Int. Cl. 7). 3–17–31.
281,562. "CYN-POR" ETC. Cl. 16 (Int. Cl. 2). 3–24–31.
444,267. PENETRENE AND DESIGN. Cl. 18 (Int. Cl. 5). 10–17–50.
444,299. DERMONE. Cl. 51 (Int. Cl. 3). 11–7–50.
444,433. SIGHT FEED. Cl. 34 (Int. Cl. 1). 3–13–51.
522,280. APSCO. Cl. 23 (Int. Cl. 16). 3–14–50.
523,689. BLUE BANNER. Cl. 46 (Int. Cl. 29). 4–11–50.
526,867. PLANTERS. Cl. 6 (Int. Cl. 5). 6–27–50.
527,340. AMERICAN PIGEON JOURNAL. Cl. 38 (Int. Cl. 16). 7–4–50.
527,454. VORTI-FLOC. Cl. 23 (Int. Cl. 11). 7–11–50.
527,509. MYVEROL. Cl. 46 (Int. Cls. 29 and 30). 7–11–50.
528,082. VORTI-MIX. Cl. 23 (Int. Cl. 7). 7–25–50.
528,780. SUN DANCE. Cl. 51 (Int. Cl. 3). 8–8–50.
529,056. WALDORF. Cl. 51 (Int. Cl. 3). 8–15–50.
529,488. HOLIDAY. Cl. 39 (Int. Cl. 25). 8–22–50.
530,070. SWEET SIXTEEN. Cl. 46 (Int. Cl. 29). 9–5–50.
530,272. CURTSY. Cl. 46 (Int. Cl. 30). 9–5–50.
530,274. KING'S-X. Cl. 46 (Int. Cl. 31). 9–5–50.
530,853. O CEDAR AND DESIGN. Cl. 4 (Int. Cl. 3). 9–19–50.
530,870. TRUMPETER. Cl. 39 (Int. Cl. 25). 9–19–50.
531,055. WINDEX SPRAY. Cl. 52 (Int. Cl. 3). 9–19–50.
531,058. KADON. Cl. 44 (Int. Cl. 5). 9–19–50.
531,287. ALLOTEMP AND DESIGN. Cl. 6 (Int. Cl. 6). 9–26–50.
531,491. WILKA THE WILKA WATCH AND DESIGN. Cl. 27 (Int. Cl. 14). 10–3–50.
531,633. ROYAL OFFSET GUMMED PAPER. Cl. 37 (Int. Cl. 16). 10–10–50.
531,648. PURITAN MAN'F'G CO. AND DESIGN. Cl. 23 (Int. Cl. 7). 10–10–50.
531,650. DAZEY. Cl. 13 (Int. Cl. 21). 10–10–50.
531,717. SILVERTONE. Cl. 21 (Int. Cl. 9). 10–10–50.
531,838. CALANDA. Cl. 23 (Int. Cl. 7). 10–10–50.
531,875. PURE AND DESIGN. Cl. 103 (Int. Cl. 37). 10–10–50.
531,927. KOROMEX. Cl. 44 (Int. Cl. 10). 10–10–50.
531,928. KOROMEX AND DESIGN. Cl. 44 (Int. Cl. 10). 10–10–50.
532,033. SAF-T-SWING. Cl. 23 (Int. Cl. 7). 10–17–50.
532,087. KLEAROL. Cl. 18 (Int. Cl. 5). 10–17–50.
532,148. FLEXALUM. Cl. 40 (Int. Cl. 20). 10–17–50.
532,282. GRAGNANO. Cl. 46 (Int. Cl. 30). 10–24–50.
532,325. BROOKS. Cl. 46 (Int. Cls. 29 and 30). 10–24–50.
532,341. WHITSONS. Cl. 46 (Int. Cl. 30). 10–24–50.
532,474. CRICKLEWOOD. Cl. 39 (Int. Cl. 25). 10–24–50.
532,503. A–Z. Cl. 21 (Int. Cl. 9). 10–24–50.
532,681. CASTLE-ROCK. Cl. 46 (Int. Cl. 31). 10–31–50.
532,769. LETTY-LANE. Cl. 39 (Int. Cl. 25). 10–31–50.
532,860. D-A'S AND DESIGN. Cl. 31 (Int. Cl. 11). 10–31–50.
532,891. BIL-JAX AND DESIGN. Cl. 50 (Int. Cl. 6). 10–31–50.
532,909. ROLLY BASSICK. Cl. 19 (Int. Cl. 12). 10–31–50.
532,956. MILLER MENDER. Cl. 23 (Int. Cl. 7). 10–31–50.
532,987. VAN BRODE AND DESIGN. Cl. 23 (Int. Cl. 8). 10–31–50.
533,019. DEV. Cl. 23 (Int. Cls. 7 and 8). 11–7–50.
533,031. VERITY. Cl. 46 (Int. Cl. 31). 11–7–50.
533,147. PAMPA. Cl. 46 (Int. Cl. 29). 11–7–50.
533,188. HOOKER. Cl. 6 (Int. Cl. 1). 11–7–50.
533,411. GRAND PRIZE. Cl. 12 (Int. Cl. 19). 11–14–50.
533,477. AMWELD. Cl. 12 (Int. Cl. 6). 11–14–50.
533,573. MOON. Cl. 23 (Int. Cl. 7). 11–21–50.
533,600. TAYLOR. Cl. 46 (Int. Cl. 29). 11–21–50.
533,719. HAWKEYE. Cl. 26 (Int. Cl. 9). 11–21–50.
534,006. RAYEX. Cl. 26 (Int. Cl. 9). 11–28–50.
534,022. WOODCO. Cl. 12 (Int. Cl. 19). 11–28–50.
534,078. ZENGTHOMATIC. Cl. 39 (Int. Cl. 25). 11–28–50.
534,362. PARKLAND OF DALLAS. Cl. 39 (Int. Cl. 25). 12–5–50.
534,393. TRADER. Cl. 46 (Int. Cl. 31). 12–5–50.
534,404. STARPHIRE. Cl. 40 (Int. Cl. 26). 12–5–50.

534,804. KENMORE. Cl. 103 (Int. Cl. 37). 12–12–50.
534,854. EVINS. Cl. 39 (Int. Cl. 25). 12–19–50.
534,898. METAL EDGE. Cl. 13 (Int. Cl. 6). 12–19–50.
534,875. ALPINE MAROUE DEPOSSEE AND DESIGN. Cl. 1 (Int. Cl. 18). 12–19–50.
535,439. MONADNOCK. Cl. 37 (Int. Cl. 16). 12–26–50.
535,616. SNOW OWL. Cl. 46 (Int. Cl. 31). 1–2–51.
535,643. AMBROCIDE. Cl. 6 (Int. Cl. 5). 1–2–51.
535,807. KERLAND. Cl. 42 (Int. Cl. 24). 1–2–51.
535,809. PRAISEWORTH. Cl. 42 (Int. Cl. 24). 1–2–51.
535,971. COSCO. Cl. 46 (Int. Cl. 30). 1–9–51.
535,983. STROM. Cl. 23 (Int. Cl. 7). 1–9–51.
535,984. GURNEY. Cl. 23 (Int. Cl. 7). 1–9–51.
536,208. TECHPERL. Cl. 40 (Int. Cl. 26). 1–9–51.
536,323. DARI-KOOL. Cl. 31 (Int. Cl. 29). 1–9–51.
536,467. FALCON. Cl. 19 (Int. Cl. 12). 1–16–51.
536,499. BRUNDAGE. Cl. 34 (Int. Cl. 11). 1–16–51.
536,887. GLADE'S. Cl. 46 (Int. Cl. 30). 1–23–51.
536,960. THE FOX CO. AND DESIGN. Cl. 106 (Int. Cl. 40). 1–23–51.
537,020. R. ASE. Cl. 13 (Int. Cl. 9). 1–30–51.
537,101. WINDMASTER. Cl. 12 (Int. Cl. 19). 1–30–51.
537,513. CHECK VELOPE AND DESIGN. Cl. 37 (Int. Cl. 16). 2–13–51.
537,543. SHELLMAKER. Cl. 1 (Int. Cl. 31). 2–13–51.
537,547. FASHIONBILT AND DESIGN. Cl. 39 (Int. Cl. 25). 2–13–51.
537,575. MAGNE-GUARD. Cl. 23 (Int. Cl. 7). 2–13–51.
537,668. RUFFINO. Cl. 47 (Int. Cl. 33). 2–13–51.
537,756. CRITIC. Cl. 23 (Int. Cl. 8). 2–13–51.
538,081. COLDSPOT. Cl. 31 (Int. Cl. 11). 2–20–51.
538,178. GEORGIA GOLDEN SHORE. Cl. 46 (Int. Cl. 29). 2–20–51.
538,456. ARMSTRONG AND DESIGN. Cl. 13 (Int. Cl. 21). 2–27–51.
538,503. BIGGS AND DESIGN. Cl. 32 (Int. Cl. 20). 2–27–51.
538,836. MANHATTAN. Cl. 46 (Int. Cl. 30). 3–6–51.
539,087. DESIGN OF AN ELF. Cl. 46 (Int. Cl. 29). 3–6–51.
539,098. SOUTHPAW. Cl. 27 (Int. Cl. 14). 3–6–51.
539,277. ELK HART AND DESIGN. Cl. 23 (Int. Cl. 9). 3–13–51.
539,346. NORDIC. Cl. 46 (Int. Cl. 29). 3–13–51.
539,362. SKY SHIP. Cl. 46 (Int. Cl. 29). 3–13–51.
539,374. COMPLEMIX. Cl. 46 (Int. Cl. 31). 3–13–51.
539,424. NATIONAL. Cl. 21 (Int. Cl. 11). 3–13–51.
539,644. ARMSTRONG LOGIC AND DESIGN. Cl. 38 (Int. Cl. 16). 3–20–51.

TRADEMARK REGISTRATIONS CANCELED

Section 7(d)

644,396. CORTALBA. Cl. 18. 4–23–57.
898,791. BRAEMER AND STAG HEAD DESIGN. Cl. 39. 9–15–70.

Section 8

737,316. S.T.I. AND DESIGN. Cl. 107. 9–4–62.
778,699. VICRAFT. Cl. 19. 10–20–64.
778,700. KIDDYAK. Cl. 19. 10–20–64.

The following registrations issued Oct. 27, 1964

778,898. FLORESTONE. Cl. 1.
778,901. GRIP N GO. Cl. 1.
778,903. PURASIL. Cl. 1.
778,907. PLASTIKANT AND DESIGN. Cl. 1.
778,908. ORTHO-REST. Cl. 1.
778,914. 3M. Cl. 1.
778,915. VELEVESUEDE. Cl. 1.
778,934. RESIDIL. Cl. 6.
778,938. ROCFRAC. Cl. 9.
778,944. POTOMAC. Cl. 12.
778,945. CASHMERE. Cl. 12.
778,952. OLIPASTE. Cl. 12.
778,953. TENU-MAT. Cl. 12.
778,955. E-Z-ON. Cl. 13.
778,961. CHESSMAN IN CONCENTRIC CIRCLES (DESIGN). Cls. 13 and 23.
778,962. HUSKY. Cl. 13.
778,964. CORMET. Cl. 14.
778,966. COMBIZELL. Cl. 16.
778,968. DESIGN OF HUMAN. Cl. 17.
778,971. TACHOSTYPTEST. Cl. 18.
778,976. PROMONAIL. Cl. 18.
778,980. MITY-AMP. Cl. 21.
778,981. JANUS. Cls. 21 and 26.
778,983. MIN-AMP. Cl. 21.
778,990. ALANODE. Cl. 21.
778,991. GREEN-EYE. Cl. 22.
778,992. ANNIVERSARY BELLES. Cl. 22.
778,993. SCATBACK. Cl. 22.
778,994. ANIMAL FRIENDS. Cl. 22.
778,995. SPIN-A-TURN. Cl. 22.
778,997. STICKY-PIX. Cl. 22.
778,999. PORT-OF-CALL. Cl. 22.
779,002. AMERON. Cl. 23.
779,009. CONTINENTAL BLUE. Cl. 23.
779,014. WHIZZER. Cl. 23.
779,016. SPEED MASTER. Cl. 23.
779,018. ACOUSTA TONE. Cl. 23.
779,019. PAK-PACER. Cl. 23.
779,026. ELECTRIX AND DESIGN. Cl. 23.
779,027. CHAMPION. Cl. 23.
779,030. OLD STOREKEEPER. Cl. 23.
779,032. TN IN DIAMOND DESIGN. Cl. 26.
779,034. MEMO. Cl. 26.
779,036. VALUE LINE. Cl. 26.
779,041. PROTOTRON. Cl. 26.
779,044. C AND DESIGN. Cl. 26.
779,045. ANKH SYMBOL (DESIGN). Cl. 26.
779,051. AMCORDER. Cl. 26.
779,056. JW AND MISCELLANEOUS DESIGN. Cl. 28.
779,060. COLOR-CLAD AND DESIGN. Cl. 30.
779,062. FILTRO-CAL. Cl. 31.
779,063. BERKLEY AND DESIGN. Cl. 32.
779,074. PAUSEMATIC. Cl. 36.
779,079. STAR AWARD AND DESIGN. Cl. 38.
779,082. FORBES INVESTOGRAPHS. Cl. 38.
779,084. THE MARKS OF MAN AND DESIGN. Cl. 38.
779,086. BEATNIK. Cl. 39.
779,087. BEACHNIKS. Cl. 39.
779,089. AUTUMN LEAVES. Cl. 39.
779,091. HYDRO-JAC. Cl. 39.
779,096. PETTI AND DESIGN. Cl. 39.
779,098. BRIANTI. Cl. 39.
779,101. SANS SOUCI. Cl. 40.
779,105. BLOOMMIST. Cl. 42.
779,106. BOCA RATON. Cl. 42.
779,108. HALYARD. Cl. 42.
779,110. COSMETIC TOUCH. Cl. 42.
779,111. AIRO-KNIT. Cl. 42.
779,116. ORTHOBED. Cl. 44.
779,117. CONTOUR-FLEX. Cl. 44.
779,119. SIDE KICK. Cl. 45.
779,120. QUININE Q TONIC WATER ETC. Cl. 45.
779,121. "QUE" TONIC. Cl. 45.
779,134. PARVANA. Cl. 46.
779,140. BLIP. Cl. 46.
779,150. MAGIC ISLES. Cl. 49.
779,152. MOTIVATOR. Cl. 50.
779,153. CENTARI. Cl. 50.
779,155. SCENEOLIFE. Cl. 50.
779,158. CROWN AWARD. Cl. 50.
779,161. SPQR AND DESIGN. Cl. 51.
779,163. ALEXA. Cl. 51.
779,170. UNBELIEVABLE. Cl. 52.
779,173. DISSOLVO. Cl. 52.
779,176. UTEC. Cl. 100.
779,184. SHO-ME SHO-VAN. Cl. 101.
779,186. BA AND DESIGN. Cl. 101.
779,189. LANSEAIR-INC. AND DESIGN. Cl. 102.
779,190. HI AND DESIGN. Cl. 102.
779,193. DON'T GOOF WITH THE ROOF. Cl. 103.
779,194. DIMENSION AND DESIGN. Cl. 104.

779,196. BUCOTE. Cl. 106.
779,198. 60 NOW. Cl. 107.
779,199. THE VILLAGE STOMPERS. Cl. 107.
779,200. A GOLDEN MINUTE. Cl. 107.
779,204. CUBE. Cl. 2.
779,213. PRESS 'N' PRINT. Cl. 23.
779,214. BACH. Cl. 23.
779,215. VEND A BOOK. Cl. 23.
779,217. CRAWFORD. Cl. 23.
779,218. WASH-RITE AND DESIGN. Cl. 24.
779,219. CLEAN-RITE AND DESIGN. Cl. 24.
779,221. MISCELLANEOUS DESIGN. Cl. 38.
779,224. AQUAWIG. Cl. 39.
779,225. AMERICAS FAVORITES. Cl. 39.
779,235. OLD ENGLISH. Cl. 47.
779,236. STERLING ETC. AND DESIGN. Cl. 48.
779,237. CRAFTON. Cl. 49.
779,238. PROTECT-A-FLOOR. Cl. 50.
779,240. PERM/PAK. Cl. 51.
779,242. STERILAB. Cl. 100.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

268,659. BONDERITE AND DESIGN. Cl. 6. 3–18–30. Parker Rust-Proof Company. Hooker Chemical Corporation, Niagara Falls, N.Y. Amended to appear:

BONDERITE

274,044. BEL-AIRE. Cl. 39. 8–19–30. Gude's Inc. Broadway-Hale Stores, Inc., Los Angeles, Calif. Amended to appear:

BEL-AIR

753,875. HANDI-CHARGE AND DESIGN. Cl. 102. 7–30–63. Plainfield Trust State National Bank, Plainfield, N.J. Corrected: In the statement, column 1, lines 1 and 2 "(New Jersey corporation)" should be deleted and *corporation organized under the laws of the United States* should be inserted.

766,313. CARDOX. Cl. 23. 3–10–64. Chemetron Corporation, Chicago, Ill. Corrected: In the statement, column 1, line 1, "Illinois" should be deleted and *Delaware* should be inserted.

767,285. LE JADE. Cl. 51. 3–24–64. Roger & Gallet S.A., assignee of Roger and Gallet, Curta & Co. GmbH, Das Jade Haus, Frankfurt, Germany. Amended: In the statement, column 2, line 4 is deleted, and the drawing is amended to appear:

JADE

776,369. SAFE-T-SPRAY. Cl. 19. 9–1–64. Jeffrey-Allan Industries, Inc., Chicago, Ill. Corrected: In the statement, column 1, line 1 should be deleted and *Jeffrey Allan Industries Inc.* (*Illinois corpora-* should be inserted.

776,370. EVERKLEEN. Cl. 19. 9–1–64. Jeffrey-Allan Industries Inc., Chicago, Ill. Corrected: In the statement, column 1, line 1 should be deleted and *Jeffrey Allan Industries Inc.* (*Illinois corpora-* should be inserted.

776,848. ENGRO AND DESIGN. Cl. 10. 9–15–64. Humble Oil & Refining Company, Houston, Tex. Amended: In the statement, column 2, lines 3 and 4 are deleted, and the drawing is amended to appear:

ENGRO

795,008. MARK MORRIS ASSOCIATES, INC. AND DESIGN. Cls. 12, 38, and 46. 8–31–65. Mark Morris Associates, Inc. Riviana Foods Inc., Houston, Tex. Amended: In the statement, column 2, lines 1 and 2 are deleted.

873,293. OFF-SHOOT-T. Cl. 6. 7–22–69. The Procter & Gamble Company, Cincinnati, Ohio. Corrected: In the statement, column 2, line 2, "Cl. 5" should be deleted and *Cl. 1* should be inserted.

898,835. POLAR WHIP. Cl. 46. 9–15–70. Costa Ice Cream Company, Woodbridge, N.J. Corrected: In the statement, column 2, line 1, after "topping" *as sold to retail purchasers* should be inserted.

900,731. HAMADASTAR. Cl. 23. 10–13–70. Kabushiki Kaisha Hamada Insatsuki Seizosho, doing business as Hamada Printing Press Mfg. Co., Ltd., Osaka-shi, Osaka-fu, Japan. Corrected: In the statement, column 1, line 1, "Insatuki" should be deleted and *Insatsuki* should be inserted.

901,256. LEAN & KEEN. Cl. 46. 10–20–70. Coburg Dairy, Inc., Charleston, S.C. Corrected: In the statement, column 1, line 1, "Couburg" should be deleted and *Coburg* should be inserted.

TRADEMARK REGISTRATIONS—NEW CERTIFICATES

New Certificates issued under sections 7(c), 7(f), 7(g) of the Trademark Act of 1946 for the unexpired term of the original registrations.

606,369. TURNTABLES MACTON AND DESIGN. Cl. 23. Macton Machinery Co., Inc. 5–24–55. New Cert. Sec. 7(c) to The Macton Corporation, Danbury, Conn.

656,601. MYCO. Cl. 102. Loyal T. R. Snyder, doing business as Myco Adjusting Service. 12–31–57. New Cert. Sec. 7(c) to National Association of Independent Insurance Adjusters, Chicago, Ill.

675,276. YOUNG TIMERS. Cl. 39. Henri Bendel, Inc. 3–10–59. New Cert. Sec. 7(c) to Genesco Inc., Nashville, Tenn.

759,609. B BROWN MACHINE COMPANY AND DESIGN. Cl. 23. Brown Machine Company. 11–5–63. New Cert. Sec. 7(c) to Koehring Company, Milwaukee, Wis.

800,232. INMANCO POLYMAT. Cl. 21. Inmanco, Inc. 12–14–65. New Cert. Sec. 7(c) to Essex International, Inc., Fort Wayne, Ind.

INDEX OF REGISTRANTS

DECEMBER 15, 1970

(Registered; Renewed; Canceled; Amended, Disclaimed, Corrected, etc.; New Certificates; 12c Publications.)

A & H Doll Mfg. Corp., Woodside, N.Y. 778,992, canc. Cl. 22.
AMF Inc., New York, N.Y. 536,467, ren. 12–15–70. Cl. 19.
AP Parts Corp., The, Toledo, Ohio. 779,018, canc. Cl. 23.
A-T-O Inc., Willoughby, Ohio. 532,033, ren. 12–15–70. Cl. 23.
Accent Originals, Inc., East Rockaway, N.Y. 779,238, canc. Cl. 50.
Acme Backing Corp., Stamford, Conn. 904,102, pub. 9–29–70. Cl. 2.
Acme Markets, Inc., Philadelphia, Pa. 904,179, pub. 9–29–70. Cl. 18.
Ad-A-Day Co., Inc., Taunton, Mass. 904,513. Cl. 38.
Adler Kay Co., Inc., Wayne, Mich. 904,138, pub. 9–29–70. Cl. 12.
Adler Kay Co., Inc., Wayne, Mich. 904,293, pub. 9–29–70. Cl. 32.
Aerosol Containers, Inc., Bound Brook, N.J. 904,101, pub. 9–29–70. Cl. 2.
Affiliated Hospital Products, Inc., St. Louis, Mo. 904,390, pub. 9–29–70. Cl. 44.
Air Bird Publications, Van Nuys, Calif. 904,335, pub. 9–29–70. Cl. 38.
Air Reduction Co., Inc., New York, N.Y. 778,915, canc. Cl. 1.
Alabama Metallurgical Corp., Selma, Ala. 778,990, canc. Cl. 21.
Alcan Aluminum Corp., Cleveland, Ohio. 532,148, ren. 12–15–70. Cl. 40.
Allied Chemical Corp., New York, N.Y. 904,112, pub. 9–29–70. Cl. 6.
Allied Chemical Corp., New York, N.Y. 904,117, pub. 9–22–70. Cl. 6.
Alloway Mfg. & Distributing Co., Fargo, N. Dak. 904,246, pub. 9–29–70. Cl. 23.
All-Steel Equipment Inc., Aurora, Ill. 537,020, ren. 12–15–70. Cl. 13.
All-Steel Equipment Inc., Aurora, Ill. 904,146, pub. 9–29–70. Cl. 13.
Altman, B., & Co., New York, N.Y. 904,301, pub. 9–29–70. Cl. 32.
American Cyanamid Co., Wayne, N.J. 778,938, canc. Cl. 9.
American Data Corp., Huntsville, Ala. 904,208, pub. 9–29–70. Multiple Class (Classes 21 and 26).
American Home Products Corp., New York, N.Y. 904,428, pub. 5–10–69. Cl. 51.
American Home Products Corp., New York, N.Y., from John H. Breck, Inc., Wayne, N.J. 904,433, pub. 9–29–70. Cl. 51.
American Optical Corp., Southbridge, Mass. 904,125, pub. 9–29–70. Cl. 8.
American Pop Corn Co., Sioux City, Iowa. 280,844, ren. 12–15–70. Cl. 46.
American Union Transport Forwarding, Inc., New York, N.Y. 904,493, pub. 9–29–70. Cl. 105.
American Welding & Mfg. Co., The, Warren, Ohio. 533,477, ren. 12–15–70. Cl. 12.
Analog Devices, Inc., Cambridge, Mass. 904,282, pub. 9–29–70. Cl. 26.
Anchor Hocking Corp., Lancaster, Ohio. 904,424, pub. 9–29–70. Cl. 50.
Angelica Corp., St. Louis, Mo. 904,362, pub. 9–29–70. Cl. 42.
Anken Chemical & Film Corp., Newton, N.J. 779,036, canc. Cl. 26.
Ankh Laboratories, Inc., Fairborn, Ohio. 779,045, canc. Cl. 26.
Ansul Co., The, Marinette, Wis. 904,111, pub. 9–29–70. Cl. 6.
Ansul Co., The, Marinette, Wis. 904,236, pub. 9–29–70. Cl. 23.
Anthony Forest Products Co., El Dorado, Ark. 904,133, pub. 9–29–70. Cl. 12.
Applied Radiation Corp., Walnut Creek, Calif. 904,385, pub. 9–29–70. Cl. 44.
Armour & Co., Chicago, Ill. 530,070, ren. 12–15–70. Cl. 46.
Armour-Dial, Inc., Chicago, Ill. 904,451–2, pub. 9–29–70. Cl. 52.
Armstrong Cork Co., Lancaster, Pa. 538,456, ren. 12–15–70. Cl. 13.
Armstrong Cork Co., Lancaster, Pa. 539,644, ren. 12–15–70. Cl. 38.
Arnold, S. M., Inc., St. Louis, Mo. 534,875, ren. 12–15–70. Cl. 1.
Arrowood Investors Corp., New York, N.Y. 534,078, ren. 12–15–70. Cl. 39.
Art Award Co., Inc., Brooklyn, N.Y. 779,158, canc. Cl. 50.
Artistic Furniture Co., St. Louis, Mo. 779,063, canc. Cl. 32.
Ash, George, Chicago, Ill. 904,290, pub. 9–29–70, Cl. 30.
Atlas Tool & Mfg. Co., St. Louis, Mo. 904,426, pub. 9–29–70. Cl. 50.
Audio Devices, Inc., Glenbrook, Conn. 904,286, pub. 9–29–70. Cl. 26.
Auerbach Bath Robe Corp., New York, N.Y. 532,474, ren. 12–15–70. Cl. 39.
Augstein, S., & Co., Inc., New York, N.Y. 904,350, pub. 9–29–70. Cl. 39.
Auriema, Ad., Inc., New York, N.Y. 532,860, ren. 12–15–70. Cl. 31.
Automation Industries, Inc., El Segundo, Calif. 904,314, pub. 9–29–70. Cl. 35.
Automation Training Inc., St. Louis, Mo. 904,497. Cl. 107.
Autopoint Co., The, Chicago, from Cory Corp., Chicago, Ill. 904,325, pub. 9–29–70. Cl. 37.
Averdieck, Ed., Houston, Tex. 779,193, canc. Cl. 103.
Bach Machine Co., Martinsville, Va. 779,214, canc. Cl. 23.
Baker, J. E., Co., The, York, Pa. 778,901, canc. Cl. 1.
Balamundi-Nederland N.V., Huizen N.H., Netherlands. 904,091, pub. 9–29–70. Cl. 1.
Ballantine, George, & Son Ltd., Dumbarton, Scotland. 904,417, pub. 9–29–70. Cl. 49.
Barnhill, Samuel R., d.b.a. Barnhill Associates, Denver, Colo. 779,186, canc. Cl. 101.
Baumritter Corp., New York, N.Y. 904,124, pub. 9–29–70. Cl. 8.
Bean, Judy, Ltd., St. Louis, Mo. 904,431, pub. 9–29–70. Cl. 51.
Bearfoot Sole Co., Inc., The, Wadsworth, Ohio. 778,908, canc. Cl. 1.
Beck, A. S., Shoe Corp., New York, N.Y. 779,086, canc. Cl. 39.
Beckett-Harcum Co., Wilmington, Ohio. 904,147, pub. 9–29–70. Cl. 13.
Belknap, Van F., Co., Detroit, Mich. 904,247, pub. 9–29–70. Cl. 23.
Bellingrath-Morse Foundation, The, d.b.a. Bellingrath Gardens, Mobile, Ala. 904,503. Cl. 107.
Bendel, Henri, Inc., to Genesco Inc., Nashville, Tenn. 675,276, new cert. Cl. 39.
Bennet, Donald G., d.b.a. Broadcast Academy, Colorado Springs, Colo. 904,501. Cl. 107.
Bergmann, Margo, Co. Inc., New York, N.Y. 779,224, canc. Cl. 39.
Biggs Mfg. Co., Inc., Richmond, Va. 538,503, ren. 12–15–70. Cl. 32.
Bil-Jax, Inc., Archbold, Ohio. 532,891, ren. 12–15–70. Cl. 50.
Bin-Dicator Co., The, Detroit, Mich., from Fluid Data Inc., Hauppauge, N.Y. 904,262, pub. 9–29–70. Cl. 26.
Birn, Serge A., Co., Inc., Louisville, Ky. 904,263, pub. 9–29–70. Cl. 26.
Birns & Sawyer Cine Equipment Co., Inc., Los Angeles, Calif. 904,206, pub. 9–29–70. Cl. 21.
Bishop Graphics, Inc., North Hollywood, Calif. 904,218, pub. 9–29–70. Cl. 21.
Bishop Industries Inc., Union, N.J. 904,357, pub. 9–29–70. Cl. 40.
Blair Fashions, Inc., Chicago, Ill. 779,089, canc. Cl. 39.
Bloom, Charles, Inc., New York, N.Y. 779,105, canc. Cl. 42.
Blue Banner Foods, Inc., Kent, Wash. 523,689, ren. 12–15–70. Cl. 46.
Boone, Daniel, Fried Chicken Inc., Lexington, Ky. 904,458, pub. 9–29–70. Cl. 100.
Borden, Inc., New York, N.Y. 532,341, ren. 12–15–70. Cl. 46.
Borghese, John, Ltd., New York, N.Y. 779,161, canc. Cl. 51.
Borg-Warner Corp., Chicago, Ill. 904,151, pub. 9–29–70. Cl. 18.
Braemar Knitwear Ltd., Hawick, Scotland. 898,791, canc. Cl. 39.
Breck, John H., Inc.: *See*—
American Home Products Corp.
Brentwood Sportswear Inc., Philadelphia, Pa. 904,517. Cl. 39.
British-American Tobacco Co., Ltd., London, England. 904,437, pub. 9–29–70. Multiple Class (Classes 51 and 52).
Brown Co., New York, N.Y. 904,100, pub. 9–29–70. Cl. 2.
Brown Machine Co., to Koehring Co., Milwaukee, Wis. 759,609, new cert. Cl. 23.
Broyhill Furniture Industries, Lenoir, N.C. 904,292, pub. 9–29–70. Cl. 32.
Brundage Co., The, Kalamazoo, Mich. 536,499, ren. 12–15–70. Cl. 34.
Buehler Ltd., Evanston, Ill. 904,249, pub. 9–29–70. Cl. 23.
Bulova Watch Co., Inc., New York, N.Y. 539,098, ren. 12–15–70. Cl. 27.
Burnett Instrument Co., Lawrence, Kans. 904,387, pub. 9–29–70. Cl. 44.
Burroughs Wellcome Co., from Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y. 904,178, pub. 9–29–70. Cl. 18.
Burroughs Wellcome & Co. (U.S.A.) Inc.: *See*—
Burroughs Wellcome Co.
Byers, A. M., Co., Ambridge, Pa. 904,194, pub. 9–29–70. Cl. 21.
C & C Research Products, Inc., Philadelphia, Pa. 778,976, canc. Cl. 18.
CCM Professional Magazines, Inc., Greenwich, Conn., from The Management Publishing Group, Inc. 904,332, pub. 7–9–68. Cl. 38.
CPC International Inc., Englewood Cliffs, N.J. 904,120, pub. 9–29–70. Cl. 6.
CPF Plastics Ltd., Montreal, Quebec, Canada. 904,148, pub. 9–29–70. Cl. 13.
Cajun Enterprises, Inc., Chicago, Ill. 904,455, pub. 9–29–70. Cl. 100.
Calcium Carbonate Co., Quincy, Ill. 537,543, ren. 12–15–70. Cl. 1.
Cap Sales Corp., New York, N.Y. 533,147, ren. 12–15–70. Cl. 46.
Carborundum Co., The, Niagara Falls, N.Y. 276,585, ren. 12–15–70. Cl. 12.
Cargill, Inc., Minneapolis, Minn. 904,413, pub. 9–29–70. Cl. 46.
Carpenter Corp., Muskegon, Mich. 779,044, canc. Cl. 26.
Carter Controls, Inc., Lansing, Ill. 904,504. Cl. 23.
Carton Closing Corp., Pittsburgh, Pa. 778,962, canc. Cl. 13.
Cassidy, S. E., d.b.a. The Witesoda Co., Princeton, Ill. 779,120–1, canc. Cl. 45.

Caterpillar Tractor Co., Peoria, Ill. 277,417, ren. 12–15–70. Cl. 23.
Celotex Corp., The, Tampa, Fla. 904,137, pub. 9–29–70. Cl. 12.
Central Chemical Corp., Hagerstown, Md. 904,496. Cl. 106.
Centrala Importowa-Eksportowa Przemysiu Skorzanego "Skorimpex," Lodz, Poland. 904,087, pub. 9–29–70. Cl. 1.
Centuri Engineering Co., Inc., Phoenix, Ariz. 904,128, pub. 9–29–70. Cl. 9.
Cerling, Robert G., Elmhurst, Ill. 778,993, canc. Cl. 22.
Certified Laboratories, Inc., Fort Worth, Tex. 904,105, pub. 9–29–70. Cl. 4.
Cesco Safety Products, Inc., Chicago, Ill. 904,273, pub. 5–5–70. Cl. 26.
Champion Spark Plug Co., Toledo, Ohio. 533,019, ren. 12–15–70. Cl. 23.
Chapman Chemical Co., Memphis, Tenn. 535,643, ren. 12–15–70. Cl. 6.
Chattanooga Bakery, Inc., Chattanooga, Tenn. 904,409, pub. 9–29–70. Cl. 46.
Chemetron Corp., Chicago, Ill. 766,313, cor. Cl. 23.
Christmas Doye, The, Rockport, Mass. 904,477, pub. 9–29–70. Cl. 101.
Churny Co., Inc., Somerville, Mass. 779,140, canc. Cl. 46.
Cincinnati Milacron Inc., from The Cincinnati Milling Machine Co., Cincinnati, Ohio. 904,116, pub. 9–29–70. Cl. 6.
Cincinnati Milling Machine Co., The: *See*—
Cincinnati Milacron Inc.
Cities Service Oil Co., Tulsa, Okla. 904,312, pub. 9–29–70. Cl. 34.
Clark-Hackett & Associates, Inc., Stamford, Conn. 904,460, pub. 9–29–70. Cl. 100.
Coburg Dairy, Inc., Charleston, S.C. 901,256, cor. Cl. 46.
Coca-Cola Co., The, Atlanta, Ga. 904,394–5, pub. 9–29–70. Cl. 45.
Cole-Parmer Instrument Co., from Cole-Parmer Instrument & Equipment Co., Chicago, Ill. 904,274, pub. 9–29–70. Cl. 26.
Colgate-Palmolive Co., New York, N.Y. 904,443–4, pub. 7–17–69. Cl. 52.
Collier, Ann G., Reseda, Calif. 904,468, pub. 9–29–70. Cl. 101.
Columbia Broadcasting System, Inc., New York, N.Y. 779,194, canc. Cl. 104.
Compaction Equipment Co., Inc., Bladensburg, Md. 904,254, pub. 9–29–70. Cl. 23.
Compagnie Francaise Telma, Paris, France. 904,185, pub. 9–29–70. Cl. 19.
Computer Transceiver Systems, Inc., Upper Saddle River, N.J. 904,280, pub. 9–29–70. Cl. 26.
Conchemco, Inc., from Conchemco, Inc., Kansas City, Mo. 904,182, pub. 1–30–70. Multiple Class (Classes 12 and 19).
Consolidated Cigar Corp., New York, N.Y. 904,173–5, pub. 9–29–70. Cl. 17.
Contemporaries International, Inc., Cleveland, Ohio. 904,472–3, pub. 9–29–70. Cl. 101.
Continental Can Co., New York, N.Y. 904,099, pub. 9–29–70. Cl. 2.
Continental Drill Corp., Inc., Chicago, Ill. 779,009, canc. Cl. 23.
Continental Oil Co., Ponca City, Okla. 904,115, pub. 9–29–70. Cl. 6.
Continental Oil Co., Ponca City, Okla. 904,121, pub. 9–29–70. Cl. 6.
Conwed Corp., St. Paul, Minn. 904,298, pub. 9–29–70. Cl. 32.
Conwood Corp., Memphis, Tenn. 904,171, pub. 9–29–70. Cl. 17.
Conveyor Heat Products Corp., Philadelphia, Pa. 904,508, Cl. 34.
Corning Glass Works, Corning, N.Y. 778,964, canc. Cl. 14.
Cory Corp.: *See*—
The Autopoint Co.
Cosco International, Inc., Northfield, Ill. 535,971, ren. 12–15–70. Cl. 46.
Costa Ice Cream Co., Woodbridge, N.J. 898,835, cor. Cl. 46.
Coulter Diagnostics, Inc., Hialeah, Fla. 904,265, pub. 9–29–70. Cl. 26.
Crawford, Hugh B., Denver, Colo. 779,217, canc. Cl. 23.
Crown Distillers Ltd., London, from Soda Distillers Ltd., London, England. 904,418, pub. 9–29–70. Cl. 49.
Cuinier, Henri, Marmande, Lot-etGaronne, France. 904,383, pub. 9–29–70. Cl. 44.
Curtice-Burns, Inc., Rochester, N.Y. 532,325, ren. 12–15–70. Cl. 46.
Curtis, Helene, Industries, Inc., d.b.a. Helene Curtis, Chicago, Ill. 904,519. Cl. 40.
DCA Food Industries, Inc.: *See*—
P.L.S. Corp.
Dairy Equipment Co., Madison, Wis. 536,323, ren. 12–15–70. Cl. 31.
Dart Industries Inc., d.b.a. Crestyle, Los Angeles, Calif. 904,299, pub. 9–29–70. Cl. 32.
Datadyne Corp., King of Prussia, Pa. 904,278, pub. 9–29–70. Cl. 26.
Datronic Service Corp., Chicago, Ill. 904,470, pub. 9–29–70. Cl. 101.
Davis Beverage Co., Inc., Harrisburg, Pa. 904,391, pub. 9–29–70. Cl. 45.
Dasey Mfg. Co., Los Angeles, Calif. 531,650, ren. 12–15–70. Cl. 13.
Dasey Products Co., Kansas City, Mo. 904,197, pub. 9–29–70. Cl. 21.
Deatherage, Elsie O., Selah, Wash. 778,995, canc. Cl. 22.
Decca Ltd., London, England. 904,320, pub. 9–29–70. Cl. 36.
Deering Milliken, Inc., New York, N.Y. 904,372–8, pub. 9–29–70. Cl. 42.
Dek Inc., Bloomingdale, Ill. 904,210, pub. 9–29–70. Cl. 21.
Delta Brush Mfg. Corp., Mount Vernon, N.Y. 904,289, pub. 9–29–70. Cl. 29.
Delta Des, Inc., La Mesa, Calif. 904,270, pub. 9–29–70. Cl. 26.
De Markoff, Alexandra, Sales Corp., New York. 779,168, canc. Cl. 51.
Denis-Marcus, Inc., New York, N.Y. 779,106, canc. Cl. 42.
Dentsply International Inc., York, Pa. 531,058, ren. 12–15–70. Cl. 44.
Dependable Shell Core Machines, Inc., Portland, Oreg. 904,243, pub. 9–29–70. Cl. 23.
Digital Identification Systems, Inc.: *See*—
Eaton Yale & Towne Inc.
Dolby Laboratories Inc., New York, N.Y. 904,201, pub. 9–29–70. Cl. 21.
Doubletree Inns, Inc., Phoenix, Ariz. 904,461, pub. 9–29–70. Cl. 100.
Dow Chemical Co., The, Midland, Mich. 904,182–3, pub. 9–29–70. Cl. 18.
Drackett Co., The, Cincinnati, Ohio. 530,858, ren. 12–15–70. Cl. 4.
Drackett Co., The, Cincinnati, Ohio. 531,055, ren. 12–15–70. Cl. 52.
Duke Niles Production Corp., New York, N.Y. 779,199, canc. Cl. 107.
Dun, R. G., Cigar Corp., Lima, Ohio. 904,172, pub. 9–29–70. Cl. 17.
Dunham-Bush, Inc., Harrisonburg, Va. 904,307, pub. 9–29–70. Cl. 34.
Duplan Corp., The, Winston-Salem, N.C. 534,404, ren. 12–15–70. Cl. 40.
Duplan Corp., The, Winston-Salem, N.C. 536,208, ren. 12–15–70. Cl. 40.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 278,698–9, ren. 12–15–70. Cl. 6.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 278,781–2, ren. 12–15–70. Cl. 6.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 280,805, ren. 12–15–70. Cl. 10.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 779,153, canc. Cl. 50.
Duval, Michael, Inc., New York, N.Y. 904,488, pub. 9–29–70. Cl. 51.
EG & G, Inc., Bedford, Mass. 904,507. Cl. 26.
Earthworm Tractor Co., Inc., New York, N.Y. 904,456, pub. 9–29–70. Cl. 100.
Eastern Employment Service, Inc., Baltimore, Md. 904,465, pub. 9–29–70. Cl. 101.
Eastman Kodak Co., Rochester, N.Y. 527,509, ren. 12–15–70. Cl. 46.
Eastman Kodak Co., Rochester, N.Y. 533,719, ren. 12–15–70. Cl. 26.
Eaton Allen Corp., Brooklyn, N.Y. 904,510. Cl. 37.
Eaton Yale & Towne Inc., Cleveland, Ohio, from Digital Identification Systems, Inc., Anaheim, Calif. 904,277, pub. 9–29–70. Cl. 26.
Eckholm, Robert, New York, N.Y. 904,266, pub. 9–29–70. Cl. 26.
Edlund Co., Inc., Burlington, Vt. 904,253, pub. 9–29–70. Cl. 23.
Edmos Products Corp., Glen Cove, N.Y. 904,365–7, pub. 9–29–70. Cl. 42.
Edwards Creative Products, Inc., Merchantville, N.J. 779,213, canc. Cl. 23.
Egan, Eugene C., Roslindale, Mass. 904,328, pub. 9–29–70. Cl. 37.
Egyptian Lacquer Mfg. Co., Kearny, N.J. 904,165, pub. 9–29–70. Cl. 16.
Electrix, Inc., Port Chester, N.Y. 779,026, canc. Cl. 23.
Elkhart Brass Mfg. Co., Inc., Elkhart, Ind. 539,277, ren. 12–15–70. Cl. 23.
Engel Industries, Inc., Ballwin, Mo. 904,256, pub. 9–29–70. Cl. 23.
Eutectic Corp., New York, N.Y. 531,287, ren. 12–15–70. Cl. 6.
Eutectic Corp., Flushing, N.Y. 904,305–6, pub. 9–29–70. Cl. 34.
Everfast Fabrics, Inc., New York, N.Y. 779,108, canc. Cl. 42.
Evins, Inc., New York, N.Y. 534,854, ren. 12–15–70. Cl. 39.
FMC Corp., San Jose, Calif. 904,284, pub. 9–29–70. Cl. 26.
Faberge, Inc., New York, N.Y. 904,225, pub. 9–29–70. Cl. 22.
Fabrique d'Horlogerie Wilka, Geneva, Switzerland. 531,491, ren. 12–15–70. Cl. 27.
Fairchild Hiller Corp., Germantown, Md. 904,156, pub. 9–29–70. Cl. 13.
Faircraft Engineering, Inc., Porter, Ind. 904,108, pub. 9–29–70. Cl. 3.
Farmaster Products, Inc., Shenandoah, Iowa. 904,134, pub. 9–29–70. Cl. 12.
Fashionbilt Garment Co., Inc., Kansas City, Mo. 537,547, ren. 12–15–70. Cl. 39.
Fedtro, Inc., Rockville Centre, N.Y. 904,219, pub. 7–28–70. Cl. 21.
Feinpruf, Feinmess- und Prufgerate, G.m.b.H., Gottingen, Germany. 904,261, pub. 9–29–70. Cl. 26.
Fernandez, Manuel, Sociedad Anonima, Cadiz, Spain. 904,416, pub. 9–29–70. Cl. 49.
Filtration Publishing Inc., Union City, N.J. 904,514. Cl. 38.
Firearms International Corp., from Firearms International Corp., Washington, D.C. 904,126, pub. 7–7–70. Cl. 9.
Firma Dr. Ing. h.c. F. Porsche KG, Stuttgart-Zuffenhausen, Germany. 904,186, pub. 9–29–70. Multiple Class (Classes 19 and 28).
Florence Paper Co., Inc., Florence, S.C. 904,423, pub. 9–29–70. Cl. 50.
Fluid Data Inc.: *See*—
Bin-Dicator Co., The.
Flying Film Co., Inc., San Antonio, Tex. 280,398, ren. 12–15–70. Cl. 38.
Forbes Investographs Inc., New York, N.Y. 779,082, canc. Cl. 38.
Foregger Co., Inc., The, Smithtown, N.Y. 904,389, pub. 9–29–70. Cl. 44.

Foreign Vintages, Inc., New York, N.Y. 904,420, pub. 9–29–70. Cl. 49.
Fox-Stanley Photo Products, Inc., San Antonio, Tex. 536,960, ren. 12–15–70. Cl. 106.
Freshpict Foods, Inc., Salinas, Calif. 532,681, ren. 12–15–70. Cl. 46.
Fries, Anthony J., & Son Co., Cincinnati, Ohio. 904,244, pub. 9–29–70. Cl. 23.
Fuji Photo Film Co., Ltd., Kanagawa, Japan. 904,287, pub. 9–29–70. Cl. 26.
Fuller & Dees Marketing Group, Inc., d.b.a. Parent & Child Institute, Montgomery, Ala. 904,471, pub. 9–29–70. Cl. 101.
Fuller-O'Brien Corp., Menlo Park, Calif. 904,288, pub. 9–29–70. Cl. 29.
Geo Space Corp., Houston, Tex. 904,267–8, pub. 9–29–70. Cl. 26.
Garlock Inc., Palymyra, N.Y. 904,160, pub. 9–29–70. Cl. 13.
Gehring, James H., d.b.a. Cap Systems, Fairview Park, Ohio. 904,152, pub. 9–29–70. Cl. 18.
Geibert, Heinrich, Zurich, Switzerland. 531,838, ren. 12–15–70. Cl. 23.
General Battery & Ceramic Corp.: *See*—
General Battery Corp.
General Battery Corp., from General Battery & Ceramic Corp., Reading, Pa. 904,211, pub. 9–29–70. Cl. 21.
General Electric Co., Schenectady, N.Y. 904,199, pub. 6–30–70. Multiple Class (Classes 21, 23, 29, and 44).
General Electric Co., Schenectady, N.Y. 904,275, pub. 9–29–70. Cl. 26.
General Foods Corp., White Plains, N.Y. 904,410, pub. 9–29–70. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 904,396, pub. 9–29–70. Cl. 45.
General Products, Chicago, Ill. 529,056, ren. 12–15–70. Cl. 51.
General Refractories Co., Philadelphia, Pa. 904,143, pub. 9–29–70. Cl. 12.
General Vending Corp., Kenosha, Wis. 779,215, canc. Cl. 23.
Genesco Inc., Nashville, Tenn. 529,488, ren. 12–15–70. Cl. 39.
Gibone Anstalt, Vaduz, Liechtenstein. 778,971, canc. Cl. 18.
Gibraltar Fence Co., Inc., Houston, Tex. 904,154, pub. 9–29–70. Cl. 13.
Gillette Co., The, d.b.a. The Paper Mate Co., Boston, Mass. 904,329, pub. 9–29–70. Cl. 37.
Givaudan Corp., Clifton, N.J. 904,436, pub. 9–29–70. Cl. 51.
Glade Candy Co., Salt Lake City, Utah. 536,887, ren. 12–15–70. Cl. 46.
Glasfiru, Potsfach, Germany. 904,276, pub. 9–29–70. Cl. 26.
Glen Mfg. Inc., Milwaukee, Wis. 779,096, canc. Cl. 39.
Glens Engineering Works (Proprietary) Ltd., Transvaal, Republic of South Africa. 904,157, pub. 9–29–70. Cl. 13.
Godchaux-Henderson Sugar Co., Inc., Mobile, Ala. 904,408, pub. 9–29–70. Cl. 46.
Golden Shore Seafoods, Inc., Brunswick, Ga. 538,178, ren. 12–15–70. Cl. 46.
Goodyear Tire & Rubber Co., The, Akron, Ohio. 904,315, pub. 8–4–70. Cl. 35.
Gordon, George B., d.b.a. Florists' International Delivery Association, San Francisco, Calif. 904,084, pub. 12–16–69. Cl. 1.
Grace, W. R., & Co., Duncan, S.C. 904,096, pub. 9–29–70. Cl. 2.
Gray, Dorothy, Ltd., New York, N.Y. 528,780, ren. 12–15–70. Cl. 51.
Great Western Sugar Co., The, Denver, Colo. 904,281, pub. 9–29–70. Cl. 26.
Green Acres of America, Inc., Chattanooga, Tenn. 904,463, pub. 9–29–70. Cl. 101.
Green, John W., d.b.a. J. Green Enterprises, Campbell, Calif. 779,014, canc. Cl. 23.
Green shoe Mfg. Co., The, Boston, Mass. 904,351–4, pub. 9–29–70. Cl. 39.
Griffon Graphics, Inc., Seattle, Wash. 779,084, canc. Cl. 38.
Grimes Poultry Processing Corp., Fredericksburg, Pa. 904,404, pub. 9–29–70. Cl. 46.
Groton Distributing Corp., Brooklyn, N.Y. 779,062, canc. Cl. 31.
Gude's Inc., Broadway-Hale Stores, Inc., Los Angeles, Calif. 274,044. Am. 7(d). Cl. 39.
Gulf Oil Corp., Pittsburgh, Pa. 904,127, pub. 9–29–70. Cl. 9.
Hadco Products, Inc., Littlestown, Pa. 904,302, pub. 3–4–69. Cl. 34.
Hagerstown Trust Co., Hagerstown, Md. 904,485, pub. 9–29–70. Cl. 102.
Hall, Don, Laboratories, Portland, Oreg. 904,393, pub. 9–29–70. Cl. 45.
Handi-Ramp, Inc., Mundelein, Ill., 904,422, pub. 9–29–70. Cl. 50.
Hanover Brands, Inc., Hanover, Pa. 539,087, ren. 12–15–70. Cl. 46.
Hardware & Industrial Tool Co., Inc., Philadelphia, Pa. 904,237, pub. 9–29–70. Cl. 23.
Harlan, William E., Houston, Tex. 779,190, canc. Cl. 102.
Harleysville Life Insurance Co., Harleysville, Pa. 904,483, pub. 9–29–70. Cl. 102.
Hart Schaffner & Marx, Chicago, Ill. 530,870, ren. 12–15–70. Cl. 39.
Hedwin Corp., New York, N.Y. 779,204, canc. Cl. 2.
Heller, Robert Eugene, d.b.a. Orthobed, San Mateo, Calif. 779,116, canc. Cl. 44.
Hellige, Fritz, & Co., G.m.b.H., Freiburg im Breisgau, Germany. 904,382, pub. 9–29–70. Cl. 44.
Hendler, Joseph, d.b.a. C. S. Baked Goods Co., Detroit, Mich. 779,134, canc. Cl. 46.
Henkel & Cie., G.m.b.H., Dusseldorf-Holthausen, Germany. 778,966, canc. Cl. 16.
Herba Corp., New York, N.Y. 904,430, pub. 9–29–70. Cl. 51.
Hillside Van Lines Inc., East Northport, N.Y. 904,492, pub. 9–29–70. Cl. 105.
Hiob, Manfred, d.b.a. H & W Imports, New York, N.Y. 904,092, pub. 9–29–70. Cl. 2.
Hirt Combustion Engineers, Montebello, Calif. 904,308, pub. 9–29–70. Cl. 34.
Hoch, Fred W., Associates, Inc., New York, N.Y. 904,271, pub. 9–29–70. Cl. 26.
Hoffmann-La Roche Inc., Nutley, N.J. 904,340, pub. 9–29–70. Cl. 38.
Hoffmann-La Roche Inc., Nutley, N.J. 904,384, pub. 9–29–70. Cl. 44.
Holland-Rantos Co., Inc., Piscataway, N.J. 531,927–8, ren. 12–15–70. Cl. 44.
Hollmann, Frank H., d.b.a. American Pigeon Journal Co., Warrenton, Mo. 527,340, ren. 12–15–70. Cl. 38.
Hollymatic Corp., Park Forest, Ill. 904,407, pub. 9–29–70. Cl. 46.
Hooker Chemical Corp., Niagara Falls, N.Y. 533,188, ren. 12–15–70. Cl. 6.
Hooker Chemical Corp., Niagara Falls, N.Y. 778,934, canc. Cl. 6.
Hosiery Mate Co., The, Chicago, Ill. 904,447, pub. 9–29–70. Cl. 52.
Hover, Floretta H., d.b.a. Florestone Arts, Memphis, Tenn. 778,898, canc. Cl. 1.
Hubbard Milling Co., Mankato, Minn. 539,374, ren. 12–15–70. Cl. 46.
Hudson, H. D., Mfg. Co., Chicago, Ill. 537,756, ren. 12–15–70. Cl. 23.
Hudson Wire Co., Ossining, N.Y. 904,161, pub. 9–29–70. Cl. 14.
Humble Oil & Refining Co., Houston, Tex. 776,848. Am. 7(d). Cl. 10.
IMODCO Inc., Los Angeles, Calif. 904,189, pub. 9–29–70. Cl. 19.
Igloo Import & Supply Co., Ltd., Ste. Agathe des Monts, Quebec, Canada. 904,223, pub. 9–29–70. Cl. 22.
Imperial Tobacco Group Ltd., Bedminister, Bristol, England. 904,170, pub. 9–29–70. Cl. 17.
Imperial Tolletries, Ltd., New York, N.Y. 904,441, pub. 9–29–70. Cl. 51.
Indian Head Inc., New York, N.Y. 904,341, pub. 9–29–70. Cl. 38.
Industrionics, Inc., Detroit, Mich. 778,980, canc. Cl. 21.
Infograph Inc., Northfield, Ill. 904,334, pub. 9–29–70. Cl. 38.
Information Control Systems, Inc., Ann Arbor, Mich. 904,272, pub. 9–29–70. Cl. 26.
Inmanco, Inc., to Essex International, Inc., Fort Wayne, Ind. 800,232, new cert. Cl. 21.
Instrumentation & Control Systems, Inc., Villa Park, Ill. 904,193, pub. 9–29–70. Cl. 21.
Intercraft Industries Corp., Chicago, Ill. 904,093, pub. 9–29–70. Cl. 2.
Intercraft Industries Corp., Chicago, Ill. 904,294, pub. 9–29–70. Cl. 32.
International Productions, Inc., Jacksonville, Fla. 904,478, pub. 9–29–70. Cl. 101.
International Purasil, Inc., Rogers, Ark. 778,903, canc. Cl. 1.
International Scientific Labs, Inc., Philadelphia, Pa. 904,162, pub. 9–29–70. Cl. 15.
International Television Corp., Los Angeles, Calif. 904,196, pub. 9–17–68. Cl. 21.
Interpace Corp., Parsippany, N.J. 904,250, pub. 9–29–70. Cl. 23.
Ives, Sybil, Inc., Yonkers, N.Y. 779,240, canc. Cl. 51.
Jacobsen Mfg. Co., from Jacobsen Mfg. Co., Racine, Wis. 904,235, pub. 8–26–69. Cl. 23.
Jak-Pak, Inc., Milwaukee, Wis. 904,323, pub. 9–29–70. Multiple Class (Classes 37, 50, and 51).
Janus Products, Inc., Syosset, N.Y. 778,981, canc. Multiple Class (Classes 21 and 26).
Jeffrey-Allan Industries, Inc., Chicago, Ill. 776,369–70, cor. Cl. 19.
Jetco Electronic Industries, Inc., Huntsville, Tex. 904,212, pub. 9–29–70. Cl. 21.
Johns-Manville Corp., New York, N.Y. 778,953, canc. Cl. 12.
Joseph Laboratories, Inc., Los Angeles, Calif. 904,176, pub. 9–29–70. Cl. 18.
Joyce-Cridland Co., The, Dayton, Ohio. 537,575, ren. 12–15–70. Cl. 23.
Kabushiki Kaisha Hamada Insatsuki Seizosho, d.b.a. Hamada Printing Press Mfg. Co., Ltd. Osaka-shi, Osaka-fu, Japan. 900,731, cor. Cl. 25.
Kalman Floor Co., Inc., White Plains, N.Y. 904,139, pub. 9–29–70. Cl. 12.
Kaydon Engineering Corp., The: *See*—
Keene Corp.
Keene Corp., New York, N.Y., from The Kaydon Engineering Corp., Muskegon, Mich. 904,252, pub. 8–18–70. Cl. 23.
Kee-Wah-Din Farms, Montrose, Mich. 904,088–9, pub. 9–29–70. Cl. 1.
Kelly-Springfield Tire Co., The, Cumberland, Md. 779,002, canc. Cl. 23.
Key Chemicals, Inc., Philadelphia, Pa. 904,106, pub. 7–11–67. Cl. 6.
Killebrew, Harmon, Enterprises, Inc., Salt Lake City, Utah. 904,221, pub. 9–29–70. Cl. 22.
Kimberly-Clark Corp., Neenah, Wis. 904,331, pub. 9–29–70. Cl. 37.
King, J. O., Inc., Atlanta, Ga. 904,153, pub. 9–29–70. Cl. 13.
Klopman Mills, Inc., Rockleigh, N.J. 904,368–70, pub. 9–29–70. Cl. 42.
Knight, J. B., Co., Brownfield, Tex. 778,961, canc. Multiple Class (Classes 13 and 23).
Kohnstamm, H., & Co., Inc., New York, N.Y. 904,257, pub. 9–29–70. Cl. 24.
Koscot Interplanetary, Inc., Winter Park, Fla. 904,435, pub. 9–29–70. Cl. 51.
Koscot Interplanetary, Inc., Winter Park, Fla. 904,448, pub. 9–29–70. Cl. 52.

Kraftco Corp., Chicago, Ill. 278,511, ren. 12–15–70. Cl. 46.
Krier Preserving Co., The, Belgium, Wis. 277,096–7, ren. 12–15–70. Cl. 46.
LTL Enterprises, Inc., Cuyahoga Falls, Ohio. 904,400–2, pub. 9–29–70. Cl. 46.
Lansealr, Inc., Springfield, Mo. 779,189, canc. Cl. 102.
La Salle Enterprises, Inc., Philadelphia, Pa. 778,955, canc. Cl. 13.
Lavino, E. J., & Co., Philadelphia, Pa. 778,952, canc. Cl. 12.
Leasco Systems & Research Corp., Bethesda, Md. 904,466, pub. 9–29–70. Cl. 101.
Leek-Proof, Inc., Chicago, Ill. 904,142, pub. 9–29–70. Cl. 12.
Leewood Sales Co., St. Joseph, Mo. 779,080, canc. Cl. 23.
Lehigh Valley Electronics, Inc., Fogelsille, Pa. 904,269, pub. 9–29–70. Cl. 26.
Leisuredyne, Inc., Morristown, N.J. 904,188, pub. 9–29–70. Cl. 19.
Leslie Co., Parsippany, N.J. 904,155, pub. 9–29–70. Cl. 13.
Lever Brothers Co., New York, N.Y. 904,449, pub. 9–29–70. Cl. 52.
Libros de Latino America, Inc., New York, N.Y. 904,459, pub. 9–29–70. Cl. 100.
Life Employment Services, Inc., Boston, Mass. 904,476, pub. 9–29–70. Cl. 101.
Lincoln Security Corp., Minneapolis, Minn. 904,209, pub. 9–29–70. Multiple Class (Classes 21 and 100).
Living Pictures, Inc., Houston, Tex. 779,155, canc. Cl. 50.
Loffredo, Frederick E., d.b.a. Post Chemical Co., Staten Island, N.Y. 779,173, canc. Cl. 52.
Logan, Jonathan, Inc., d.b.a. Davis Sportswear Co., North Bergen, N.J. 904,516. Cl. 39.
Logistics Industries Corp., Barrington, N.J. 534,898, ren. 12–15–70. Cl. 13.
Lovable Co., The, Atlanta, Ga. 904,355, pub. 9–29–70. Cl. 39.
Lowrie, Joni, Inc., New York, N.Y. 904,445, pub. 9–29–70. Cl. 52.
MCA Entertainment, Inc., Universal City, Calif. 904,462. pub. 9–29–70. Cl. 100.
Macton Machinery Co., Inc., to The Macton Corp., Danbury Conn. 606,369, new cert. Cl. 23.
Magazine Management Co., Inc., from Perfect Film & Chemical Copy, d.b.a. Marvel Comics Group, New York, N.Y. 904,511–12. Cl. 38.
Malmin, H., Co. Inc., New York, N.Y. 281,347, ren. 12–15–70. Cl. 21.
Man-An-So Corp., Nevada, Iowa. 904,130–1, pub. 9–29–70. Cl. 10.
Manhattan Coffee Co., St. Louis, Mo. 538,836. Am. 7(d). Cl. 46.
Martin, Jean, Tampa, Fla. 904,500. Cl. 107.
Mar-Wheat Enterprises, Inc., Clarksville, Tex. 779,079, canc. Cl. 38.
Masonite Corp., Chicago, Ill. 904,094. pub. 9–29–70. Cl. 2.
Mattel, Inc., Hawthorne, Calif. 778,994, canc. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 904,227–8, pub. 9–29–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 904,231–4, pub. 9–29–70. Cl. 22.
Maxle Industries, Inc., Beverly Hills, Calif. 522,280, ren. 12–15–70. Cl. 23.
McCormick & Co., Inc., Cockeysville, Md. 904,403, pub. 9–29–70. Cl. 46.
McCrory Corp., New York, N.Y. 904,464, pub. 9–29–70. Cl. 101.
McLeans, The, Kelowna, British Columbia, Canada. 904,187, pub. 9–29–70. Cl. 19.
McWilliams Associates, Inc., Vincentown, N.J. 904,207. pub. 9–29–70. Cl. 21.
Mead Corp., The, Dayton, Ohio. 779,019, canc. Cl. 23.
Mead Corp., The, Dayton, Ohio. 904,326, pub. 9–29–70. Cl. 37.
Medidata Sciences, Inc.: *See*—
Searle Mediata Inc.
Memo Electronic Research & Development, Plainwell, Mich. 779,034, canc. Cl. 26.
Merit House, Inc., New York, N.Y. 779,150, canc. Cl. 49.
Ministers Life & Casualty Union, The, Minneapolis, Minn. 904,482, pub. 9–29–70. Cl. 102.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 531,633, ren. 12–15–70. Cl. 37.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 778,914, canc. Cl. 1.
Miraclefoam Products, Inc., Bloomington, Ind. 904,135, pub. 9–29–70. Cl. 12.
Mission Protective Coating Co., Houston, Tex. 779,196, canc. Cl. 106.
Mr. Nifty Cleaners, Inc., Baltimore, Md. 904,488, pub. 9–29–70. Cl. 103.
Mnemotech Computer Systems, Inc., New York, N.Y. 904,467, pub. 9–29–70. Cl. 101.
Model Products Corp., Mount Clemens, Mich. 904,222, pub. 9–29–70. Cl. 22.
Monadnock Paper Mills, Inc., Bennington, N.H. 535,439, ren. 12–15–70. Cl. 37.
Monadnock Paper Mills, Inc., Bennington, N.H. 904,509. Cl. 37.
Monsanto Co., St. Louis, Mo. 904,285, pub. 9–29–70. Cl. 26.
Monsanto Co., St. Louis, Mo. 904,363, pub. 9–29–70. Cl. 42.
Montecito Mfg. Co., Santa Barbara, Calif. 904,490, pub. 9–29–70. Cl. 103.
Moon Brothers Ltd., Birkenhead, England. 533,573, ren. 12–15–70. Cl. 23.
Moore Business Forms, Inc., Niagara Falls, N.Y. 904,327. pub. 9–29–70. Cl. 37.
Morning Glory Corp., Thomasville, N.C. 904,457, pub. 9–29–70. Cl. 100.
Morodomi, Tom T., Pleasant Hill, Calif. 904,427, pub. 9–29–70. Cl. 50.
Morris, Mark, Associates, Inc., to Riviana Foods Inc., Houston, Tex. 795,008. Am. 7(d). Multiple Class (Classes 12, 88, and 46).
Most, M. Lucille, d.b.a. Elysee Cosmetic Mfg. Co., San Francisco, Calif. 444,299, ren. 12–15–70. Cl. 51.
Muller & Co., New York, N.Y. 904,479. pub. 9–29–70. Cl. 102.
Music Mountain Mineral Water Inc., Hot Springs National Park, Ark. 904,392, pub. 9–29–70. Cl. 45.
Muter Co., The, Chicago, Ill. 904,213. pub. 9–29–70. Cl. 21.
National Label Co., Lafayette Hill, Pa. 904,338. pub. 9–29–70. Cl. 38.
National Steel Construction Co., Seattle, Wash. 539,424, ren. 12–15–70. Cl. 21.
Neely, Ltd., Statesville, N.C. 904,348, pub. 9–29–70. Cl. 39.
Niagara Therapy Mfg. Corp., Brocton, N.Y. 904,386. pub. 9–29–70. Cl. 44.
Nightingale-Conant Corp., Chicago, Ill. 904,322, pub. 9–29–70. Cl. 36.
Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan. 904,321, pub. 9–29–70. Cl. 36.
Nordic Seafood Corp., Boston, Mass. 539,346, ren. 12–15–70. Cl. 46.
North American Co. for Life and Health Insurance, Chicago, Ill. 904,481, pub. 9–29–70. Cl. 102.
North American Philips Corp., New York, N.Y. 904,216, pub. 9–29–70. Cl. 21.
North American Rockwell Corp., Reading, from Wildman Jacquard Co., Norristown, Pa. 904,288, pub. 9–29–70. Cl. 23.
Northwestern Refining Co., St. Paul Park, Minn. 904,114, pub. 9–29–70. Multiple Class (Classes 6, 15, and 103).
Nuclear Electronic Laboratories Inc., Walnut Creek, Calif. 778,983, canc. Cl. 21.
Nytronics, Inc., Pelham Manor, N.Y. 904,202–3, pub. 9–29–70. Cl. 21.
O'Brien Mfg. Co., Temple, Tex. 779,087, canc. Cl. 39.
Oil-Dri Corp. of America, Chicago, Ill. 904,090, pub. 9–29–70. Cl. 1.
Ojai-Tapo Citrus Association, Somis, Calif. 533,081, ren. 12–15–70. Cl. 46.
Olin Corp., East Alton, Ill. 904,150, pub. 9–29–70. Cl. 13.
Olin Corp., Stamford, Conn. 904,230, pub. 9–29–70. Cl. 22.
Oliver Tire & Rubber Co., Oakland, Calif. 904,316, pub. 9–29–70. Cl. 35.
Omstead Fisheries 1961 Ltd., Wheatley, Ontario, Canada. 904,411, pub. 9–29–70. Cl. 46.
Oneida Ltd., Oneida, N.Y. 904,251, pub. 9–29–70. Cl. 23.
O'Neil Duro Co., Milwaukee, Wis. 281,562, ren. 12–15–70. Cl. 16.
Optron, Inc., Carrollton, Tex. 904,217, pub. 9–29–70. Cl. 21.
Orensten, Vivian C., and Henry E. Orensten, d.b.a. Vivienne Originals, Minneapolis, Minn. 904,297, pub. 9–29–70. Cl. 32.
Oshino Electric Lamp Works, Ltd., Tokyo, Japan. 904,195, pub. 9–29–70. Cl. 21.
Owens, Edward H., d.b.a. The Muse, Sarasota, Fla. 904,345, pub. 9–29–70. Cl. 38.
P.L.S. Corp., Whitestone, from DCA Food Industries, Inc., New York, N.Y. 904,200, pub. 9–29–70. Multiple Class (Classes 21 and 46).
Pacific Alaska Fisheries, Inc., Seattle, Wash. 81,165, ren. 12–15–70. Cl. 46.
Pacific Fire Extinguisher Co., San Francisco, Calif. 904,214, pub. 9–29–70. Multiple Class (Classes 21 and 103).
Panacon Corp., Cincinnati, Ohio. 537,101, ren. 12–15–70. Cl. 12.
Paneloc Corp., The, Collinsville, Conn. 904,258, pub. 9–29–70. Cl. 25.
Pantone, Inc., New York, N.Y. 904,339, pub. 9–29–70. Cl. 38.
Paramount Industries, Inc., Flint, Mich. 904,192, pub. 4–1–69. Cl. 21.
Parfums Marcel Rochas, Inc., New York, N.Y. 904,434, pub. 9–29–70. Cl. 51.
Parke, Davis & Co., Detroit, Mich. 904,349, pub. 9–29–70. Cl. 39.
Parker Rust-Proof Co. Hooker Chemical Corp., Niagara Falls, N.Y. 268,659. Am. 7(d). Cl. 6.
Parkland of Dallas, Inc., Dallas, Tex. 534,362, ren. 12–15–70. Cl. 39.
Patterson-Kelley Co., Inc., The, East Stroudsburg, Pa. 904,304, pub. 9–29–70. Cl. 34.
Pavelle Corp., The, New York, N.Y., from Pavelle Ltd., Epsom, Surrey, England. 904,110, pub. 9–29–70. Cl. 6.
Pavelle Ltd.: *See*—
Pavelle Corp., The.
Peachtree Doors, Inc., Atlanta, Ga. 904,140, pub. 9–29–70. Cl. 12.
Peavey Co., Minneapolis, Minn. 532,282, ren. 12–15–70. Cl. 46.
Perfect Film & Chemical Corp.: *See*—
Magazine Management Co., Inc.
Perham Fruit Corp., Yakima, Wash. 535,616, ren. 12–15–70. Cl. 46.
Perspective, Inc., Seattle, Wash. 904,260, pub. 9–29–70. Cl. 26.
Pepper, Lee & Co. Ltd., Saltaire, Shipley, England. 904,361, pub. 9–29–70. Cl. 42.
Petrolite Corp., St. Louis, Mo. 904,166, pub. 9–29–70. Cl. 16.
Pfizer, Chas., & Co., Inc.: *See*—
Pfizer Inc.
Pfizer Inc., from Chas. Pfizer & Co., Inc., New York, N.Y. 904,439, pub. 9–29–70. Cl. 51.
Photo Magnetic Systems, Inc., Beltsville, Md. 904,498. Cl. 107.
Pierce, Russell, d.b.a. Congress Springs Development Co., San Jose, Calif. 904,486, pub. 9–29–70. Cl. 103.
Plainfield Trust State National Bank, Plainfield, N.J. 753,875, cor. Cl. 102.
Plan-It-Kit, Inc., Westport, Conn. 904,224, pub. 9–29–70. Cl. 22.
Plastic Wire & Cable Corp., Jewett City, Conn. 532,503, ren. 12–15–70. Cl. 21.

Plough, Inc., Memphis, Tenn. 444,267, ren. 12–15–70. Cl. 18.
Plough, Inc., Memphis, Tenn. 904,177, pub. 9–29–70. Cl. 18.
Plussactor Group, Ltd., The, New York, N.Y. 904,343, pub. 9–29–70. Cl. 38.
Ponderosa Paper Products, Inc., Flagstaff, Ariz. 904,330, pub. 9–29–70. Cl. 37.
Porter & Co., Inc., Butler, N.J. 779,152, canc. Cl. 50.
Porter, P. L., Co., Los Angeles, Calif. 904,259, pub. 9–29–70. Cl. 25.
Premier Industrial Corp., Cleveland, Ohio. 904,118, pub. 9–29–70. Cl. 6.
Prescott, J. L., Co., Passaic, N.J. 80,104, ren. 12–15–70. Cl. 16.
Principle Business Enterprises, Inc., Waterville, Ohio. 778,997, canc. Cl. 22.
Procter & Gamble Co., The, Cincinnati, Ohio. 873,293, cor. Cl. 6.
Puregro Co., Los Angeles, Calif. 904,129, pub. 9–29–70. Cl. 10.
Purex Corp., Ltd., Lakewood, Calif. 276,653, ren. 12–15–70. Cl. 52.
Puritan-Bennett Corp., Kansas City, Mo. 904,180, pub. 9–29–70. Cl. 18.
Purity Supreme Super Markets, Inc., North Billarca, Mass. 904,412, pub. 9–29–70. Cl. 46.
Putman Publishing Co., Chicago, Ill. 904,346, pub. 9–29–70. Cl. 38.
Q-P, Inc., Saddle Brook, N.J. 904,098, pub. 9–29–70. Cl. 2.
Quaker Oats Co., The, Chicago, Ill. 904,414, pub. 9–29–70. Cl. 46.
Quong Sang Chong Co., Inc., San Francisco, Calif. 539,362, ren. 12–15–70. Cl. 46.
Raybestos-Manhattan, Inc., Passaic, N.J. 904,086. pub. 9–29–70. Cl. 1.
Rayex Corp., Flushing, N.Y. 534,006, ren. 12–15–70. Cl. 26.
Raymond, Gary E., Kenvil, N.J. 904,283, pub. 9–29–70. Cl. 26.
Redector Hardware Corp., Melrose Park, Ill. 904,295, pub. 9–29–70. Cl. 32.
Rehau=Plastiks G.m.b.H., Rehau, Bavaria, Germany. 778,907, canc. Cl. 1.
Reliable Luggage, Inc., West Pittsburgh, Pa. 904,104, pub. 9–29–70. Cl. 3.
Reply-O-Letter Co., The, New York, N.Y. 779,221, canc. Cl. 38.
Research Appliance Co., Allison Park, Pa. 904,279, pub. 9–29–70. Cl. 26.
Rexarc, Inc., West Alexandria, Ohio. 444,433, ren. 12–15–70. Cl. 34.
Rhodes, M. H., Inc., Hartford, Conn. 278,957, ren. 12–15–70. Cl. 21.
Richardson, Howe Scale Co., Clifton, N.J. 904,506. Cl. 26.
Roger & Gallet S.A., assignee of Roger & Gallet Curta & Co. G.m.b.H. Das, Jade Haus, Frankfurt, Germany. 767,285. Am. 7(d). Cl. 51.
Ronson Corp., Woodbridge, N.J. 904,309, pub. 9–29–70. Cl. 34.
Root, Myron, & Co., Inc., Medford, Oreg. 534,393, ren. 12–15–70. Cl. 46.
Royln Inc., Glendale, Calif. 779,242, canc. Cl. 100.
Rubberfabriek Indiana N.V., Bredaseweg, Netherlands. 904,425, pub. 9–29–70. Cl. 50.
Rudin & Roth, Inc., New York, N.Y. 779,225, canc. Cl. 39.
Rumble, C. J., & Sons, Inc., Salida, Calif. 530,274, ren. 12–15–70. Cl. 46.
SPC Industries, Inc., Jericho, N.Y. 778,968, canc. Cl. 17.
Safeway Stores, Inc., Baltimore, Md. 530,272, ren. 12–15–70. Cl. 46.
St. Regis Tobacco Corp. Ltd., Zurich, Switzerland. 904,169, pub. 9–29–70. Cl. 17.
Saldarriaga HnOS y Cia., Medellin, Colombia. 904,164, pub. 9–29–70. Cl. 16.
Sales Training Institute, Inc., New York, N.Y. 737,816, canc. Cl. 107.
Salt's Enterprises, San Rafael, Calif. 904,454, pub. 9–29–70. Cl. 100.
Samuels, T. W., Distillery, Inc., Deatsville, Ky. 904,419, pub. 9–29–70. Cl. 49.
Scannon Ltd., Morristown, N.J. 904,446, pub. 9–29–70. Cl. 52.
Schenley Distillers, Inc., New York, N.Y. 779,237, canc. Cl. 49.
Schlosser, Edward, Associates, Inc., Ridgefield Park, N.J. 779,170, canc. Cl. 52.
Scholastic Magazines, Inc., New York, N.Y. 904,336, pub. 9–29–70. Cl. 38.
Scholastic Magazines, Inc., New York, N.Y. 904,344, pub. 9–29–70. Cl. 38.
Schroeder, Victor C., d.b.a. The Vicraft Co., Kalamazoo, Mich. 778,699–700, canc. Cl. 19.
Scoda Distillers Ltd.: *See*—
Crown Distillers Ltd.
Scott, Foresman & Co., from Scott, Foresman & Co., Glenview, Ill. 904,333, pub. 9–29–70. Cl. 38.
Scott Paper Co., Delaware County, Pa. 904,442, pub. 2–17–70. Cl. 52.
Scragg, Ernest, & Sons Ltd., Macclesfield, England. 904,248, pub. 9–29–70. Cl. 23.
Sea & Ski Corp., Reno, Nev. 904,440, pub. 9–29–70. Cl. 51.
Seagram, Joseph E., & Sons, Inc., New York, N.Y. 904,421, pub. 9–29–70. Cl. 49.
Searle Medidata Inc., from Medidata Sciences, Inc., Waltham, Mass. 904,264, pub. 9–29–70. Cl. 26.
Sears, Roebuck & Co., Chicago, Ill. 531,717, ren. 12–15–70. Cl. 21.
Sears, Roebuck & Co., Chicago, Ill. 534,804, ren. 12–15–70. Cl. 103.
Sears, Roebuck & Co., Chicago, Ill. 538,081, ren. 12–15–70. Cl. 31.
Sears, Roebuck & Co., Chicago, Ill. 904,191, pub. 9–29–70. Cl. 20.
Seawol, Inc., Los Angeles, Calif. 779,027, canc. Cl. 28.
Shaw Mudge & Co., Stamford, Conn. 904,119, pub. 9–29–70. Cl. 6.
Sherwin-Williams Co., The, Cleveland, Ohio. 904,122, pub. 9–29–70. Cl. 6.
Side Kick Citric Products Co., Woodmere, N.Y. 779,119, canc. Cl. 45.
Siemens-Schuckertwerke Aktiengesellschaft, Erlangen, Germany. 779,041. canc. Cl. 26.
Sifo Co., Minneapolis, Minn. 904,220, pub. 9–29–70. Cl. 22.
Silco Knitting Mills, Inc., Gloversville, N.Y. 904,360, pub. 9–29–70. Cl. 42.
Silvey Corp., Columbia, Mo. 904,480, pub. 9–29–70. Cl. 102.
Simmons Co., New York, N.Y. 779,117, canc. Cl. 44.
Simpson Timber Co., Seattle, Wash. 778,944–5, canc. Cl. 12.
Sixty Now Inc., Toledo, Ohio. 779,198, canc. Cl. 107.
Skuttle Mfg. Co., Milford, Mich. 904,313, pub. 9–29–70. Cl. 34.
Sloane, W. & J., Inc., New York, N.Y. 904,296, pub. 9–29–70. Cl. 32.
Smoler, Boris, & Sons, Inc., Chicago, Ill. 532,760, ren. 12–15–70. Cl. 39.
Snyder, Loyal T. R., d.b.a. Myco Adjusting Service, to National Association of Independent Insurance Adjusters, Chicago, Ill. 656,601, new cert. Cl. 102.
Societa per Azioni Chianti Ruffino Esportazione Vinicola Toscana, Brescia, Italy. 537,668, ren. 12–15–70. Cl. 47.
Societe d'Emballages Plastiques, Neuilly, France. 904,095, pub. 9–29–70. Cl. 1.
Somay Products, Inc., Miami, Fla. 904,167, pub. 9–29–70. Cl. 16.
Southern Steel & Aluminum Co., St. Louis, Mo. 779,184, canc. Cl. 101.
Spare-Time Products, Inc., Minneapolis, Minn. 904,226, pub. 9–29–70. Cl. 22.
Sperry Rand Corp., d.b.a. Universal Technical Service Co., Wichita, Kans. 779,176, canc. Cl. 100.
Spray Clean Products Corp., Minneapolis, Minn. 904,159, pub. 9–29–70. Cl. 13.
Sprayline, Inc., Fresno, Calif. 779,016, canc. Cl. 23.
Spring, Muriel, New York, N.Y. 779,098, canc. Cl. 39.
Springboard International Records, Inc., New York, N.Y. 904,318, pub. 9–29–70. Cl. 36.
Springs Mills, Inc., New York, N.Y. 535,807, ren. 12–15–70. Cl. 42.
Springs Mills, Inc., New York, N.Y. 535,809, ren. 12–15–70. Cl. 42.
Squibb, E. R., & Sons, Inc., New York, N.Y. 904,184, pub. 9–29–70. Cl. 18.
Stadium Mfg. Co., Inc., New York, N.Y. 779,091, canc. Cl. 39.
Standard Oil Co., Flemington, N.J. 904,108–9, pub. 9–29–70. Cl. 6.
Steigerwald Strahltechnik Gesellschaft, Munich, Germany. 904,198, pub. 9–29–70. Cl. 21.
Stephens Mfg. Co., Inc., Muskogee, Okla. 904,303, pub. 9–29–70. Cl. 34.
Sterling Brewers, Inc., Evansville, Ind. 779,236, canc. Cl. 48.
Sterling Drug Inc., New York, N.Y. 904,453, pub. 9–29–70. Cl. 52.
Sterling Electronics Corp., Houston, Tex. 904,215, pub. 9–29–70. Cl. 21.
Sterling Electronics Corp., Houston, Tex. 904,450, pub. 9–29–70. Cl. 52.
Stevens, J. P., & Co., Inc., New York, N.Y. 779,110, canc. Cl. 42.
Stewart-Warner Corp., Chicago, Ill. 532,909, ren. 12–15–70. Cl. 19.
Stimson Lumber Co., Forest Grove, Oreg. 532,956, ren. 12–15–70. Cl. 23.
Stonetree Corp., Chicago, Ill. 904,168, pub. 9–29–70. Cl. 16.
Stretch & Sew of Oregon, Inc., Eugene, Oreg. 904,499. Cl. 107.
Sullivan, Theodore, New Rochelle, N.Y. 904,347, pub. 9–29–70. Cl. 38.
Surgitube Products Corp., Bronx, N.Y. 904,381, pub. 9–29–70. Cl. 44.
Sutton Games Corp., New York, N.Y. 778,999, canc. Cl. 22.
Swan, Lawrence, Niles, Ill. 778,991, canc. Cl. 22.
Sybron Corp., Rochester, N.Y. 904,388, pub. 9–29–70. Cl. 44.
TRW Inc., Cleveland, Ohio. 535,983–4, ren. 12–15–70. Cl. 23.
Taylor Food Products, Inc., El Segundo, Calif. 904,405, pub. 9–29–70. Cl. 46.
Taylor Provisions Co., The, Trenton, N.J. 533,600, ren. 12–15–70. Cl. 46.
Tech Laboratories, Inc., Palisades Park, N.J. 904,204, pub. 9–29–70. Cl. 21.
Teledyne, Inc., Los Angeles, Calif. 904,144, pub. 9–29–70. Cl. 18.
Telefonbau und Normalzeit G.m.b.H., Frankfurt am Main, Germany. 779,032, canc. Cl. 26.
Tele-Quick, Inc., New Haven, Ind. 904,489, pub. 9–29–70. Cl. 108.
Tension Envelope Corp., Kansas City, Mo. 537,513, ren. 12–15–70. Cl. 37.
Terrach Ceramics, Inc., Zanesville, Ohio. 779,060, canc. Cl. 30.
Thomas & Betts Corp., Elizabeth, N.J. 904,205, pub. 9–29–70. Cl. 21.
Thomas & Betts Corp., Elizabeth, N.J. 904,245, pub. 9–29–70. Cl. 23.
Thompson-Hayward Chemical Co., Kansas City, Kans. 526,867, ren. 12–15–70. Cl. 6.
Thuron Industries, Inc., Dallas, Tex. 904,118, pub. 9–29–70. Cl. 6.
Tisza, Julianna, d.b.a. Dipl. Ing. Bela Tisza & Co., Vienna, Austria. 904,085, pub. 9–29–70. Multiple Class (Classes 1, 5, 6, and 14).
Toa Wool Spinning & Weaving Co., Ltd., Higashi-ku, Osaka, Japan. 904,379, pub. 9–29–70. Cl. 48.
Topps Chewing Gum, Inc., Brooklyn, N.Y. 904,397–9, pub. 9–29–70. Cl. 46.

INDEX OF REGISTRANTS

Torrington Co., The, Torrington, Conn. 531,648, ren. 12–15–70. Cl. 23.
Transcriber Co., Inc., Attleboro, Mass. 904,317, pub. 8–4–70. Cl. 36.
Tressard Fabrics, Inc., New York, N.Y. 904,371, pub. 9–29–70. Cl. 42.
Twinpak Ltd., Lachine, Quebec, Canada. 904,324, pub. 9–29–70. Cl. 37.
Ugly Enterprises Ltd., London, England. 904,469, pub. 9–29–70. Cl. 101.
Union Carbide Corp., New York, N.Y. 904,097, pub. 9–29–70. Cl. 2.
Union Oil Co. of California, Los Angeles, Calif. 531,875, ren. 12–15–70. Cl. 103.
Union Oil Co. of California, Los Angeles, Calif. 904,342, pub. 9–29–70. Cl. 38.
Uniroyal, Inc., New York, N.Y. 904,300, pub. 9–29–70. Cl. 32.
United Gas Corp., Shreveport, La. 779,051, canc. Cl. 26.
United Merchants & Manufacturers, Inc., New York, N.Y. 904,380, pub. 9–29–70. Cl. 43.
United Paint Mfg., Inc., Spokane, Wash. 904,141, pub. 9–29–70. Cl. 12.
United Refrigerated Vendors Corp., Pittsburgh, Pa. 904,474, pub. 9–29–70. Cl. 101.
United Silver & Cutlery Co., Los Angeles, Calif. 904,239–42, pub. 9–29–70. Cl. 23.
United States Brass Corp., Los Angeles, Calif. 904,145, pub. 9–29–70. Cl. 13.
United States Gypsum Co., Chicago, Ill. 533,411, ren. 12–15–70. Cl. 12.
Universal Foods Corp., Milwaukee, Wis. 904,406, pub. 9–29–70. Cl. 46.
Universal Motor Oils Co., Inc., Wichita, Kans. 904,163, pub. 9–29–70. Cl. 15.
Upco Co., The, Cleveland, Ohio. 904,136, pub. 9–29–70. Cl. 12.
Upjohn Co., The Kalamazoo, Mich. 644,396, canc. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 904,181, pub. 9–29–70. Cl. 18.
Valley Shoe Corp., St. Louis, Mo. 278,338, ren. 12–15–70. Cl. 39.
Valley-Todeco, Inc., Sylmar, Calif. 904,158, pub. 9–29–70. Cl. 13.
Van Baerle, Edward, Chicago, Ill. 779,074, canc. Cl. 36.
Van Brode Milling Co., Inc., Clinton, Mass. 532,987, ren. 12–15–70. Cl. 23.
Van Cleave, Jr., A. W., d.b.a. Van Cleave Equipment Co., San Antonio, Tex. 779,218–9, canc. Cl. 24.
Van Ladder, Inc., Algona, Iowa. 904,505. Cl. 23.
Van Pelt Corp., Bloomingdale, Ill. 904,311, pub. 9–29–70. Cl. 34.
Veuve Clicquot-Ponsardin, Maison Fondee en 1772, Reims (Marne), France. 904,415, pub. 9–29–70. Cl. 47.
Vintage Wines, Inc., New York, N.Y. 779,235, canc. Cl. 47.
Walton, George M., d.b.a. The Walton Co., Vidalia, Ga. 904,515. Multiple Class (Classes 37 and 38).
Walton, George M., d.b.a. The Walton Co., Vidalia, Ga. 904,518. Multiple Class (Classes 37 and 38).
Ward, Robert W., Chicago, Ill. 779,200, canc. Cl. 107.
Warner-Lambert Pharmacentical Co., Morris Plains, N.J. 272,202, ren. 12–15–70. Cl. 18.
Waumbec Mills, Inc., New York, N.Y. 904,364, pub. 9–29–70. Cl. 42.
Weiner, Ronald, d.b.a. Ronnie Hair Goods, New York, N.Y. 904,358, pub. 9–29–70. Cl. 40.
Wellknit Elastic Fabrics Co., West New York, N.J. 779,111, canc. Cl. 42.
Wengert, Richard, d.b.a. Julius Wengert & Co., Pforzheim, Germany. 779,056, canc. Cl. 28.
Western Select, Inc., Monrovia, Calif. 904,255, pub. 9–29–70. Cl. 23.
Western Union Telegraph Co., New York, N.Y. 904,491, pub. 9–29–70. Cl. 104.
Westinghouse Electric Corp., Pittsburgh, Pa. 527,454, ren. 12–15–70. Cl. 23.
Westinghouse Electric Corp., Pittsburgh, Pa. 528,082, ren. 12–15–70. Cl. 23.
Westinghouse Electric Corp., Pittsburgh, Pa. 904,487, pub. 9–29–70. Cl. 103.
Weyerhaeuser Co., Tacoma, Wash. 275,853, ren. 12–15–70. Cl. 12.
Wham-O Mfg. Co., San Gabriel, Calif. 904,229, pub. 9–29–70. Cl. 22.
White Stag Mfg. Co., Portland, Oreg. 904,356, pub. 9–29–70. Cl. 39.
White, William R., d.b.a. Grand Prix Ltd., Simi, Calif. 904,429, pub. 9–29–70. Cl. 51.
Whittier Steel & Mfg., Inc., Santa Fe Springs, Calif. 904,310, pub. 9–29–70. Cl. 34.
Wig City —34th St., Inc., New York, N.Y. 779,101, canc. Cl. 40.
Wildman Jacquard Co.: *See*—
North American Rockwell.
Windward Travel Center, Camp Hill, Pa. 904,494–5. Cl. 105.
Witco Chemical Corp., New York, N.Y. 532,087, ren. 12–15–70. Cl. 18.
Wood, Mark A., Indianapolis, Ind. 904,475, pub. 9–29–70. Cl. 101.
Woodco Corp., North Bergen, N.J. 534,022, ren. 12–15–70. Cl. 12.
Woodmen of the World Life Insurance Society and/or Omaha Woodmen Life Insurance Society, Omaha, Neb. 904,337, pub. 9–29–70. Cl. 38.
Woodmen of the World Life Insurance Society and/or Omaha Woodmen Life Insurance Society, Omaha, Neb. 904,484, pub. 9–29–70. Cl. 102.
Woodstock Ventures, Inc., d.b.a. Woodstock Music & Art Fair, New York, N.Y. 904,502. Cl. 107.
Woolsey Marine Industries, Inc., New York, N.Y. 904,190, pub. 9–29–70. Multiple Class (Classes 19 and 50).
Worthington Biochemical Corp., Freehold, N.J. 904,107, pub. 1–6–70. Cl. 6.
Wright, Wm. E., Co., from Wm. E. Wright & Sons Co., West Warren, Mass. 904,123, pub. 9–29–70. Multiple Class (Classes 7, 13, 40 and 42).
Wright, Wm. E., & Sons Co.: *See*—
Wm. E. Wright Co.
Wyomissing Corp., Reading, Pa. 904,359, pub. 9–29–70. Cl. 40.
Yardley of London, Inc., New York, N.Y. 904,432, pub. 9–29–70. Multiple Class (Classes 51 and 52).
Youngstown Sheet & Tube Co., Youngstown, Ohio. 904,149, pub. 9–29–70. Cl. 13.
Zeks Industries, Inc., Malvern, Pa. 904,291, pub. 9–29–70. Cl. 31.
Zidowecki, Adele, d.b.a. Magic Music, Kearny, N.J. 904,319, pub. 9–29–70. Cl. 36.

U.S. GOVERNMENT PRINTING OFFICE: 0—1970

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 22, 1970 Volume 881 Number 4

PATENTS
NOTICES

Board of Appeals Decisions Rendered in the Month of November 1970

Examiner affirmed	140
Examiner affirmed in part	13
Examiner reversed	33
Total	186

Assignment Information for Issue Fee Transmittal Form

Rule 334, revised November 4, 1969, requires . . . "At the time of payment of the issue fee, a statement must be furnished indicating whether or not an assignment has been filed with the Patent Office. In the event an assignment has been filed, such statement must include the name of the assignee and indicate whether or not an acknowledgment of a recorded assignment has been received from the Patent Office."

The Issue Fee Transmittal Form POL-85b revised December 1969, provides space (Item 2) for Assignment Data which should be completed to comply with the Rule. Unless an assignee's name and address are identified in Item 2 of the Issue Fee Transmittal Form POL–85b, the patent will issue to the applicant. Assignment data printed on the patent will be based on information so supplied.

A request for correction of error arising from failure to correctly provide this Assignment Data in Item 2 will be considered only under the provisions of Rule 323 for a certificate of correction of applicant's mistake.

The recording of instruments in the Assignment Branch is not affected by this notice.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Sept. 28, 1970.

Certificates of Correction for the Week of Dec. 22, 1970

Re. 26,811	3,495,372	3,510,696	3,531,021
Re. 26,863	3,496,340	3,510,871	3,531,282
Re. 26,951	3,496,748	3,513,243	3,531,293
3,149,290	3,497,475	3,518,252	3,531,469
3,277,056	3,498,546	3,518,759	3,531,487
3,301,029	3,499,767	3,519,006	3,531,526
3,303,999	3,500,636	3,519,210	3,531,533
3,377,287	3,501,907	3,521,253	3,531,541
3,396,953	3,502,323	3,521,380	3,531,774
3,432,595	3,502,462	3,521,604	3,531,840
3,433,439	3,502,594	3,521,766	3,531,903
3,435,120	3,502,645	3,522,246	3,532,002
3,438,774	3,502,923	3,523,297	3,532,066
3,443,942	3,503,295	3,525,153	3,532,166
3,446,866	3,503,854	3,525,403	3,532,293
3,447,813	3,504,363	3,525,537	3,532,476
3,449,623	3,504,513	3,525,545	3,532,712
3,453,133	3,504,674	3,526,468	3,533,258
3,456,049	3,504,936	3,527,438	3,533,295
3,462,521	3,505,492	3,527,485	3,533,679
3,471,218	3,506,081	3,528,059	3,533,904
3,471,616	3,506,243	3,528,086	3,533,913
3,472,834	3,506,293	3,528,243	3,533,974
3,474,286	3,506,364	3,528,276	3,533,995
3,476,852	3,506,533	3,528,322	3,534,075
3,478,149	3,507,491	3,528,680	3,534,120
3,485,808	3,507,635	3,528,695	3,534,259
3,486,335	3,507,711	3,529,204	3,534,610
3,486,719	3,507,853	3,529,428	3,534,872
3,487,599	3,507,978	3,529,725	3,534,992
3,490,004	3,508,057	3,529,902	3,535,125
3,490,669	3,508,123	3,530,082	3,535,517
3,492,260	3,508,199	3,530,139	3,535,539
3,493,097	3,509,436	3,530,199	3,536,382
3,493,613	3,509,546	3,530,273	3,536,696
3,493,765	3,510,324	3,530,632	3,536,743
3,493,939	3,510,502	3,530,723	

New Applications Received During September 1970

Patents	8413
Designs	494
Plant Patents	4
Reissues	41
Total	8952

Issue—December 22, 1970

Patents	1750	No. 3,548,409 to No. 3,550,158, incl.
Designs	66	No. 219,503 to No. 219,568, incl.
Reissues	7	No. 27,007 to No. 27,013, incl.
Total	1823	

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 1, 1970

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-03-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-09-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	9-05-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	4-21-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-31-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	1-08-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	5-01-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	8-22-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	9-30-69
PHYSICS, GROUP 280—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	5-29-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	3-02-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-05-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	6-04-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	6-09-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. R. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-01-69
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	10-06-69

Total number of pending applications (excluding Designs)	183,410
Total number of Design applications pending	2,976

Expiration of patents: The patents within the range of numbers indicated below expire during November 1970, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,660,723 to 2,664,561, inclusive
Plant Patents	Numbers 1,232 to 1,237, inclusive

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

DUFFY-MOTT COMPANY, INC. *v.* CUMBERLAND PACKING COMPANY

No. 8253. Decided April 30, 1970

[57 CCPA —; 424 F.2d 1095; 165 USPQ 422]

1. TRADEMARK—OPPOSITION—PRIOR USE—REGISTRATIONS FILED SAME DAY.
On the issue of prior use in an opposition proceeding, and with reference to the statement by the Trademark Trial and Appeal Board that "on the basis of the registrations involved, neither party is prior since both the registration relied on by opposer and the registration acquired by applicant were filed on the same day by the same party," *Held* that "We find no error in that statement."

2. SAME—SAME—EFFECT OF FALSE AFFIDAVIT UNDER SECTIONS 8 AND 15 OF THE TRADEMARK ACT.
"We have a further reason for holding that opposer can have no advantage in these proceedings from its registration, No. 603,115, purchased from May MacGregor. We agree with applicant that the act of opposer's predecessor in interest in filing a patently false combined affidavit under sections 8 and 15 on March 15, 1960, precludes reliance in these proceedings on the registration thus maintained in force."

3. SAME—SAME—SAME—EQUITABLE DOCTRINE OF "UNCLEAN HANDS"—15 U.S.C. 1069.
"* * * we are of the view that opposer may not rely on its registration for any purpose in the Patent Office or in this court on appeal therefrom. We consider that filing a sworn statement [under sections 8 and 15; asserting continuous use on all the goods, whereas there had been use on only some of the goods] as far from the truth as was that which was filed precludes opposer from relying on the registration in these proceedings. This is in accord with the principle of the equitable doctrine of 'unclean hands.' Trademark rights under the statute are no longer divorced from equitable principles. Cf. 15 U.S.C. 1069."

4. SAME—INCONTESTABILITY—FALSE AFFIDAVIT UNDER SECTION 15—SECTION 8(a).
"The naming of the goods is * * * critical to the right acquired through the filing of the affidavit [under section 15]—an 'incontestable' right to use. This is not a question of maintaining the registration in force, which can be done by an affidavit under section 8(a) (15 U.S.C. 1058(a)) without naming any *particular* goods. (See Rule 2.162(c)). It is a matter of acquiring a new right with respect to the goods specifically recited in the affidavit. (See Rule 2.167(c)). If goods are named on which the mark has not been used continuously for 5 consecutive years, or is not currently in use, it amounts to an attempt to acquire a right as a result of a false statement. This can scarcely be characterized as mere carelessness or misunderstanding to be winked at as of no importance."

5. SAME—OPPOSITION—INCONTESTABILITY—EFFECT OF FALSE AFFIDAVIT UNDER SECTION 15.
"We deem such a sanction as we here apply necessary to deter the further development of such a cavalier attitude toward statements in affidavit under section 15 as appears in this case. Because opposer has attempted by false representations in the Patent Office to secure through this registration incontestable rights to use 'Sweet 'N Low,' it is precluded from relying on the registration in an attempt to defeat applicant's right to register."

APPEAL from Patent Office. Opposition Nos. 45,019 and 45,030.

AFFIRMED.

Sandoe, Neill, Schottler & Wikstrom, (*Nichol M. Sandoe*, of counsel) for appellant.

Alex Friedman (*Harold D. Steinberg, Steinberg & Blaike, Blum, Moscovitz, Friedman, Blum & Kaplan*, of counsel) for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and MCMANUS, *Chief Judge*, Northern District of Iowa, sitting by designation

RICH, *Acting Chief Judge*, delivered the opinion of the court.

Opposer appeals from the decision of the Patent Office Trademark Trial and Appeal Board, 154 USPQ 498, dismissing two oppositions [1] to the registration of two versions of the trademark "Sweet 'N Low" for "low calorie sugar substitute." One version [2] is merely the word-mark and the other version [3] is the word-mark superposed on a background consisting of a treble musical staff, with the treble clef to the left of the word-mark.[4] The specimens filed in both applications are

* * * * * * *

the same and depict the mark only in the second version. Applicant claims first use in June of 1958.

The two oppositions were consolidated for trial and the Board rendered a single decision. Applicant took testimony first and opposer took testimony only in rebuttal, applicant insisting throughout that it was not proper rebuttal.

The circumstances of this case are most unusual. It appears that each party, or a predecessor in business, had independently adopted and used "Sweet 'N Low," but on different goods, before applicant filed its applications in 1964. Each party, *after* commencing such use, acquired, by purchase from a third party, a registration of "Sweet 'N Low."

The record shows that May MacGregor, doing business as Ann Delafield in Pacific Palisades, California, claiming first use Feb. 20, 1954, filed two applications to register "Sweet 'N Low" on March 1, 1954. On one she obtained Reg. No. 599,748 on Dec. 21, 1954, for use on "carbonated soft drinks." On the other she obtained Reg. No. 603,115 on Mar. 8, 1955, for use on "canned, frozen, and fresh fruits and vegetables, pudding powders, jams, jellies, and prepared pie and cake mixes." There is nothing whatever in the record showing what, if any, business May MacGregor or "Ann Delafield" was doing or ever did under the mark.

By a conventional assignment of the trademark "Sweet 'N Low" and Reg. No. 603,115, together with the goodwill of the business in connection with which the trademark is used, May MacGregor, on Feb. 21, 1956, assigned her rights therein "for food products of all kinds *and not including carbonated Beverages*" (our emphasis) to Pratt-Low Preserving Company of Santa Clara, California and this assignment was recorded in the Patent Office Feb. 28, 1956. These rights came into the hands of opposer, Duffy-Mott, through mesne assignments, when opposer acquired a successor, Pratt-Low Preserving Corporation, on November 10, 1960, and set it up as a division of Duffy-Mott Company, Inc. The latter assignment was recorded Dec. 1, 1960.

Opposer predicates its opposition on this registration, No. 603,115, and also on alleged use of the trademark "on artificially sweetened, low calorie canned fruits by appellant and its predecessors in business from a time prior to appellee's date of first use of the mark * * *."

May MacGregor similarly assigned her other registration of the same mark, No. 599,748, *for use on carbonated soft drinks*, to applicant, Cumberland Packing Company, several years after Cumberland had commenced its use of the mark on a sugar substitute and had a substantial going business thereunder. Applicant is a partnership. The founding partner and directing force, Mr. Eisenstadt, testified that he bought this mark and registration in January or February of 1961.[5] Though opposer's brief argues that the record in these oppositions "is devoid of any proof that applicant is the owner of Registration No. 599,748 or that it is the owner of any rights in the trademark Sweet 'N Low derived from May MacGregor," the record contains, in addition to the above Eisenstadt testimony, a copy of the registration, issued on its face to May MacGregor, and two title reports by the Assignment Branch of the Patent Office certifying that title to that registration was in applicant as of Nov. 30, 1964. These title reports were supplied because each of the applications at bar contained sworn statements by Mr. Eisenstadt that "Applicant is the owner by assignment of U.S. Trademark Registration No. 599,748" and the Examiner requested the title reports.[6]

Each party hereto, therefore, is the owner of a Principal Register registration of "Sweet 'N Low" issued on applications having identical filing dates. There are other interesting circumstances.

Opposer's registration, No. 603,115, is on the "Sweet 'N Low" mark for use on "canned, frozen, and fresh fruits and vegetables, pudding powders, jams, jellies, and prepared pie and cake mixes." To maintain that registration in force, the then owner, Pratt-Low Preserving Corporation, on March 15, 1960, filed the usual combined affidavit under sections 8 and 15 (15 U.S.C. 1058, 1065) stating that the mark was then and had been in continuous use on all of those goods. However, in these proceedings Mr. Kearns, general manager of opposer's Pratt-Low Division, who was employed by the Pratt-Low Company and successor corporation in managerial positions from 1950, testified that neither of those organizations had ever put out, under the "Sweet 'N Low" mark, canned vegetables, pudding powder, prepared pie and cake mix, or frozen or fresh fruits and vegetables. Opposer does not deny this; it argues it was merely error due to "carelessness, misunderstanding or mistake and * * * not such as to constitute fraud." Applicant says it is such fraud as to preclude opposer from relying on the registration in this proceeding even though it is not ground for cancellation of the registration under the statute (15 U.S.C. 1064(c)), wherefore applicant could not have applied for cancellation. It urges application of the doctrine of unclean hands and says it would be "unfair" and "most inequitable" to permit opposer to rely on its registration.

On the other hand, with respect to applicant's registration of "Sweet 'N Low" and by way of the pot calling the kettle black, opposer points out that applicant has been using the R-in-a-circle symbol signifying registration of "Sweet 'N Low" as a trademark for use on low calorie sugar substitute notwithstanding the registration owned by applicant is only for use on carbonated soft drinks. Applicant says it used the R-in-a-circle symbol on advice of counsel that it could properly do so after it had purchased the registration from May MacGregor. Opposer

[1] Nos. 45,019 and 45,030.
[2] Serial No. 187,255, filed February 24, 1964.
[3] Serial No. 187,256 filed February 24, 1964.
[4] While the record does not refer to it, the genesis of the mark would appear to be Alfred Lord Tennyson's song, included in "The Princess" at the conclusion of Part II,

Sweet and low, sweet and low, Wind of the Western sea,

[5] Apparently applicant's attorney found the registration on a search and bought it for $500. Opposer's attorney appears to have been aware that the date of the assignment to applicant was Jan. 10, 1961, though the assignment is not of record in this appeal.
[6] It is interesting to note that at the same time the Examiner said, "If applicant is the owner of Registration No. 603,115, a claim of ownership should also be set forth, supported by a title report." Applicant replied that it was not the owner of that registration. Nevertheless the applications were passed to publication, notwithstanding the Examiner's awareness of the adversely held registration now relied on by opposer.

says use of the symbol is "wrongful." Furthermore, it asserts that in applying for registration of the mark applicant did not disclose its use.

The Board opinion recognizes these contentions in foot-notes but does not appear to predicate and holding thereon. It said that applican't explanation justified its use of the registration symbol. As to opposer's false affidavits, the Board merely took note of the discrepancy between the allegations and the facts brought out by the testimony. [1] What the Board did, so far as the registrations are concerned, was to say, after taking note of opposer's claim to be the prior user of the mark "in the low calorie food field because of its registration,"

> As we see it, *on the basis of the registrations involved*, neither party is prior since both the registration relied on by opposer and the registration acquired by applicant were filed on the same day by the same party [Emphasis ours.]

We find no error in that statement. Opposer's claim of error in it is predicated on what we consider a groundless assumption that applicant's low calories sugar substitute is to be classed with "food," such as opposer's canned fruits, and cannot be classed with carbonated soft drinks. Opposer argues that May MacGregor sold Pratt-Low all rights in the food field and held out only the rights in the carbonated beverage field which it later sold to applicant. Opposer's brief says:

> Opposer is clearly prior in the food field, just as applicant may well be prior in the carbonated beverage field. The rights and priorities of the respective parties in their respective fields are clearly defined and are mutually exclusive. They should remain that way.

We are no more able to equate "Sweet 'N Low" sugar substitute with food than opposer is to equate it with carbonated beverages. The evidence shows that applicant's sugar substitute, which is principally sold in small paper packets as individual 1 gram servings equivalent to two teaspoons of sugar, consisted, when the testimony was taken, of 89% lactose (milk sugar), 10% calcium cyclamate, and 1% soluble saccharin.[7] Each packet contains only 3 calories compared to 36 or 37 for sugar of equivalent sweetening power. Asked if it is a food, Mr. Eisenstadt said, "Well, it has no nutritive value, so how could it be a food?" Again, asked to admit that lactose has some nutritive value, he said it did "But the product is certainly not sold for its nutrition, it's sold for its lack of nutrition." We therefore reject the argument that the MacGregor assignment of the mark to opposer, which read "for food products of all kinds and not including carbonated beverages," is any ground for finding error in the above-quoted passage from the Board's opinion. In any event, none of the May MacGregor goods listed in her registrations was a sugar substitute or anything like it. She could not convey rights she did not have.

[2] We have a further reason for holding that opposer can have no advantage in these proceedings from its registration, No. 603,115, purchased from May MacGregor. We agree with applicant that the act of opposer's predecessor in interest in filing a patently false combined affidavit under sections 8 and 15 on March 15, 1960, precludes reliance in these proceedings on the registration thus maintained in force.

The only precedent cited to us by applicant on this point is *Stardust, Inc.* v. *Birdsboro Knitting Mills, Inc.*, 119 USPQ 270 (TTAB

[7] It is evident the formulation has been changed from time to time and we judicially notice that recently the cyclamate has been eliminated.

1958). In that case the opposer asserted a registration of "Stardust" for hosiery along with others. The Board said (footnote 5):

> The record indicates that there has been no use by opposer of its mark on hosiery since 1947 or 1948, and the statement that the mark was in use on hosiery made on behalf of opposer in the affidavit filed in 1954 in connection with Reg. No. 235,931 was untrue. Opposer therefore may not rely on this registration for any purpose in the Patent Office.

There can be no question of the substantiality of the untrue statement in that case—the registration was for hosiery alone and there had been no use thereon for several years, nor any excuse given for nonuse. so that the registration should not have remained in force. Opposer attempts to distinguish the present case on the ground that the mark "Sweet 'N Low" *had* been used on canned fruits, jams, and jellies, even though it had *not* been used on frozen and fresh fruits and vegetables, pudding powders, and pie and cake mixes, the inclusion of which in the affidavits, opposer says, was mere "carelessness, misunderstanding or mistake * * *." This raises two questions: (1) whether in fact the mark had been so used and (2) the effect of the untrue statement. We will have to discuss (1) later but for the present will direct our consideration to (2).

[3] In conformity with the holding in *Stardust*, we are of the view that opposer may not rely on its registration for any purpose in the Patent Office or in this court on appeal therefrom. We consider that filing a sworn statement as far from the truth as was that which was filed precludes opposer from relying on the registration in these proceedings. This is in accord with the principle of the equitable doctrine of "unclean hands." Trademark rights under the statute are no longer divorced from equitable principles. Cf. 15 U.S.C. 1069.

With respect to opposer's right to rely on its Registration No. 603,-115, the parties argue somewhat at cross purposes. Opposer's brief tries to make it appear that applicant is attempting to show abandonment of the mark by opposer with attendant invalidity of the registration. Applicant says it is not attacking the validity of the registration arguing, in fact, that under section 14 of the statute (15 U.S.C. 1064) there is no ground on which it could have petitioned for cancellation. This is because under section 14(c), the only paragraph of section 14 which could possibly apply here, the false statements in the affidavit were not for the purpose of *obtaining* the registration. Applicant, therefore, asks that opposer be precluded from relying, in this proceeding, on a registration which he felt could not be attacked by a petition to cancel.[8]

In deciding this issue, we consider the purpose for which the false affidavit was filed in order to determine the importance of the untrue allegations. Under section 15 (15 U.S.C. 1065), the "incontestability" provision, the registrant's *right to use the registered mark* becomes incontestable (subject to certain stated exceptions) "for the goods * * * on or in connection with which such registered mark has been in continuous use for 5 consecutive years subsequent to the date of such registration and is still in use * * *." [4] The naming of the goods is therefore critical to the right acquired through the filing of the affidavit—an "incontestable" right to use. This is not a question of maintaining the registration in force, which can be done by an affidavit under section 8(a) (15 U.S.C. 1058(a)) without naming any *particular* goods. (See Rule 2.162(c)). It is a matter of acquiring a new right

[8] We need not rule on the correctness of applicant's assumption that section 14(c) did not permit him to petition for cancellation.

with respect to the goods specifically recited in the affidavit. (See Rule 2.167(c)). If goods are named on which the mark has not been used continuously for 5 consecutive years, or is not currently in use, it amounts to an attempt to acquire a right as a result of a false statement. This can scarcely be characterized as mere carelessness or misunderstanding to be winked at as of no importance.

[5] We deem such a sanction as we here apply necessary to deter the further development of such a cavalier attitude toward statements in affidavits under section 15 as appears in this case. Because opposer has attempted by false representations in the Patent Office to secure through this registration incontestable rights to use "Sweet 'N Low," it is precluded from relying on the registration in an attempt to defeat applicant's right to register.

Apart from reliance on its registration, opposer also relies on its alleged prior use of "Sweet 'N Low" as a ground for opposing registration thereof to applicant for low calorie sugar substitute. It is not disputed that applicant's use commenced in June, 1958, has been continuous and increasing, and is now extensive. When the testimony was taken in 1966, applicant, with about 100 employees, was turning out between three and four million packets a day and doing a gross business therein of about two and a half million dollars a year. Opposer's alleged early use is that of its predecessors, the two Pratt-Low companies. The goods on which opposer alleges use of the mark comprised a line of canned fruits, jellies and preserves of low calorie content. This line was marketed originally as Pratt-Low Diet-Sweet products. It is said that the company's advertising agency did not like this dual mark and, looking for a better one, conceived of Sweet 'N Low, taking the "Sweet" from Diet-Sweet and the "Low from Pratt-Low. A trademark search was made, the MacGregor registration was turned up, and it was purchased in 1956. The first alleged use was in trade advertisements put out in 1955 but the mark was not exactly Sweet 'N Low. It was in the following form:



Exhibit 3

After buying the MacGregor registration in 1956, the next phase apparently was to use can labels on canned fruit which featured Pratt-Low beneath which were the words "diet sweet," prominently displayed on a red panel, the same label carrying on its side, i.e., between the front and back of the can, the following small panel:



Exhibit 4

The testimony and exhibits show that this use existed from 1956 into 1959. It is alleged that Sweet 'N Low was used at about the same

time on the line of jellies and preserves but the exhibits show the labels actually carried only the following mark:



What was being attempted was testified to by opposer's Pratt-Low Division General Manager as follows:

Q51. * * * it was the intent that we begin a slow transition from Pratt-Low Diet-Sweet to "Sweet 'N Low," so we entered it on the side panel, entered "Sweet 'N Low" on the side panel with the intent it would be a slow transformation into the main mark.

Q52. Why did you use the form on Exhibit 5? A. This is on Exhibit 5, the format of the "Sweet" and "Low" which was going to be our next step on the Pratt-Low Diet-Sweet canned fruit labels. It would evolve from the side mark into the main panel on the canned fruits. In other words, the jelly and preserve labels on Exhibit 5 would have been our next step on the canned fruit labels.

Q53. Now, you refer to this as plans for a transition. Did you actually ever complete this transition? A. No.

Q54. Will you explain the circumstances and why not? A. Well, this was supposed to be a slow transition, and we worked along for several years toward this end when Duffy-Mott came and acquired the assets of the corporation * * *.

* * * * * * *

Q74. Did there come a time when you finally discontinued the sale of goods under labels like Exhibit 4? A. Yes; I would estimate it would be in 1963.

This discontinuance was the result of a tapering off process that actually began in 1961 after the acquisition of Pratt-Low by Duffy-Mott on November 10, 1960. Apparently labels on hand were being used up over a period of a couple of years.

The next use of the mark was by opposer, Duffy-Mott, and consisted of "a few token shipments" of various canned fruits, "low calorie artificially sweetened," on the labels of which the primary source indication was "Mott's Sweet 'n Low brand."

These shipments were said to have been in 1964 but the company did not like the labels and they were discontinued. The last event of record involving the mark is the advent of a low calorie apple sauce first shipped in September 1965 and labeled:



This, of course, took place a few months after the filing of the notices of opposition herein and over seven years after applicant's first use. Opponent's witness in 1966 stated that sales of the apple sauce were continuing and that the company intended to put out other fruit items "under the Mott's Sweet 'n Low brand."

The Board's conclusion on the foregoing facts regarding use was thus expressed:

Insofar as any established use of the respective marks on low calorie products is concerned, applicant's use since 1958 is clearly prior to any use shown by opposer on such goods. Further, it should be noted that at the time the notices

of opposition were filed in April 1965, opposer was not using the mark on any goods and did not recommence use thereof on apple sauce until five months thereafter. * * * Under all the circumstances in this case, we are not persuaded that opposer has established that it will be damaged by the issuance of the registrations sought by applicant herein.

We are in agreement with the conclusion reached by the Board. Opposer's brief admits "that at the precise time when the notices of opposition were filed in April 1965, opposer was not using the mark." As we view the matter, moreover, the labels above-designated as Exhibits 3 and 5 do not show the marks sought to be registered. Compared to the labels bearing Pratt-Low and Diet-Sweet, they will be seen to be mere reversals of the order of those word combinations with changes in type, reading "diet Sweet" and "by Pratt Low." The products would quite surely, we feel, be called for as "Diet-Sweet." They were thus invoiced. The side panel of Exhibit 4 is a dubious trademark use of "Sweet 'n Low." Much weight is placed on the use of the R-in-a-circle after "Low" as indicating that there is a trademark "Sweet 'n Low" there. In the first place, purchasers do not go looking for the registration symbol. If they did, in the environment in which it appears they might think that "Low" is what was registered. The panel description as a whole is a descriptive statement with typographical emphasis on the "Sweet" flavor and "Low" calories of the product. In any event, all of these uses were discontinued upon the acquisition of Pratt-Low by Duffy-Mott. Finally, notwithstanding the low-calorie aspect of both opposer's canned goods and applicant's sugar substitute, the goods of the parties are very different in nature, appearance, and use and are non-competitive.

Under all the circumstances of this case, we conclude that the applicant has demonstrated rights superior to any established by opposer insofar as use of "Sweet 'N Low" as a trademark for sugar substitute is concerned. We agree with the Board that issuance of the requested registrations will not damage opposer and the decision of the Board is therefore affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE RIYAD R. IRANI AND KURT MOEDRITZER

No. 8298. Decided June 11, 1970

[57 CCPA —; 427 F.2d 806; 166 USPQ 24]

1. PATENTABILITY—OBVIOUSNESS—REFERENCE—ENABLING DISCLOSURE.

Held, as to a Petrov disclosure in connection with a rejection under 35 U.S.C. § 103:

"* * * even assuming that one skilled in the art could have predicted with reasonable certainty that crystalline anhydrous ATMP could be produced [the prior art reference to Petrov disclosing a 'glassy solid'], we are not convinced by this record that it would also have been obvious *how* this could be achieved. We note that neither the Examiner nor the Board has contended that a suitable process would have been obvious. The closest that either has come to such a contention is the Examiner's statement, based on the disclosure in the Irani patent [not prior art], that as it turns out, 'little modification of the Petrov * * * process will produce a crystalline material * * *.' Obviousness, however, must not be judged by hindsight, and a 'little modification' can be a most unobvious one."

2. SAME—PARTICULAR SUBJECT MATTER—CRYSTALLINE ANHYDROUS AMINO TRI (METHYLENEPHOSPHONIC ACID).

"The refusal of a claim to crystalline anhydrous amino tri(methylenephosphonic acid), as unpatentable over the prior art, is reversed."

APPEAL from Patent Office. Serial No. 420,795.

REVERSED.

Richard W. Sternberg, Roger R. Jones, for appellant.

Joseph Schimmel (*Jack E. Armore*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

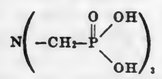
RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from a decision of the Patent Office Board of Appeals affirming the rejection of claim 1 of application Serial No. 420,795, filed December 23, 1964, entitled "Chemical Compound," stated to be a continuation-in-part of application Serial No. 152,048, filed November 13, 1961. We reverse.

The appealed claim, the only claim in the application, reads:

1. *Crystalline anhydrous* amino tri(methylenephosphonic acid). [Emphasis added.]

This compound, which is sometimes hereinafter referred to as "ATMP," has the structural formula:



The subscript "3" indicates that there are three methylenephosphonic acid radicals attached to the nitrogen atom. The application discloses that this compound is useful as "a sequestering agent, deflocculating agent, detergent builder and the like."

The references relied on are:

Kosolapoff, Organophosphorus Compounds (1950), pp. 143, 155, and 156.
Petrov, Chemical Abstracts, vol. 54 (1960), col. 260.
Pikl, 2,328,358, Aug. 31, 1943.
Bersworth, 2,841,611, July 1, 1958.
Irani, 3,234,124, Feb. 8, 1966, (filed Oct. 18, 1962).

Petrov, the primary reference, discloses amino tri(methylenephosphonic) acid, a specific *form* of which is being claimed here. This reference, which is acknowledged in appellant's specification, also sets forth a procedure for preparing ATMP and describes the product as a "*glassy solid*" (emphasis added). "Glassy" we take to mean like glass and glass is an amorphous, i.e., *non*-crystalline, material.

The Kosolapoff and Bersworth references are relied on "as showing crystalline amino phosphonic acids," and Pikl and Bersworth as showing "the use of amino substituted phosphonic acids as softeners, sequesterants or chelating agents * * *." Irani, which is *not* prior art with respect to appellant's application, is cited as showing that "little modification of the Petrov * * * process will produce a crystalline material * * *."

Claim 1 was rejected by the Examiner "as obvious under 35 U.S.C. 103 over Petrov et al. who disclose amino-tri(methylenephosphonic acid) which is considered to suggest the instantly claimed material * * *." Notwithstanding that the Examiner, and the Board, referred only to Petrov in stating this rejection, it is abundantly clear that significant reliance was and is placed on the Kosolapoff, Pikl,

and Bersworth references. Appellants, however, do not now complain of this and we will therefore consider the rejection as applied rather than as stated.

The Examiner was of the opinion that one skilled in the art knowing of Petrov's "glassy solid" form of ATMP would be motivated to attempt the preparation of crystalline anhydrous ATMP by the knowledge that some amino phosphonic acids exist in crystalline form (Kosolapoff and Bersworth) and that some amino phosphonic acids are useful as softeners, sequesterants, or chelating agents (Pikl and Bersworth).

Purporting to place less reliance on the secondary references than did the Examiner, the Board stated:

> Despite the fact that the Examiner has referred to three additional patents and one additional publication, the essential point is the obviousness of the "crystalline anhydrous" form of the claimed compound in view of the Petrov et al. disclosure of "a glassy solid" form of the same compound. As we view the comparative properties in Table 1 * * * of appellants' specification, * * * the general indication is that the Petrov et al. material is an impure form of amino tri(methylenephosphonic acid). The amorphous appearance, the broad range of melting point, the reduced titration, and the diminished sequestering activity all point to an impure state. The relative dissolution rates have little meaning in the absence of information concerning particle size, and hygroscopicity is frequently caused by impurities. Color is likewise often the result of impurities. However, we are not convinced that the claimed material is unobvious, inasmuch as it is still a solid product having the same useful property (sequestration) as the Petrov et al. product. It is recognized that Petrov et al. do not refer to sequestration activity, but the property is inherent in the compound whether explicitly described or not. Moreover, the other cited art would clearly suggest sequestering activity for a compound of this nature.
>
> Appellants may have devised a process which easily and readily results in a crystalline product, although it is evident from Example 1 of Irani (3,234,124) that little modification of the Petrov et al. process will produce a crystalline material, but we are here concerned only with the unobviousness of the claimed product over the prior art product. So far as we can ascertain, the claimed material is no more than a purer form of the Petrov et al. product, with no patentably significant change in properties or utility.
>
> * * * the impurity of the Petrov et al. product would be immediately evident to a chemist of no more than ordinary competence. It is also to be noted that the product here claimed does not exhibit any unexpectedly different characteristics as compared with the impure product.

Appellants point out that Petrov does not suggest that ATMP could exist in any form other than a glassy solid one, does not disclose any physical or chemical properties of his glassy solid product, does not suggest that it was especially impure, nor suggest any utility for it. Citing *In re Lundsford*, 53 CCPA 986, 357 F.2d 380, 148 USPQ 716 (1966), appellants complain of the Board's use of their application for its disclosure of various properties of Petrov's product (since none are disclosed in the prior art), and argue that without knowledge of these properties, the impurity of Petrov's product would not have been evident. It is also contended that "appellants' material is more than a pure form of Petrov's material."

Appellants concede that the other references show that *some* aminophosphonic acids can exist in crystalline form and that *some* can be used as sequesterants. They contend, however, that none of the compounds disclosed in these references is so closely related to ATMP that the two would be expected to have similar properties and that a method for making crystalline anhydrous ATMP would not have been obvious from these references. Appellants further urge that the anhydrous character of their product was unexpected and that its degree

of utility as a sequesterant of metal ions was unexpected in comparison with that of Petrov's product.[1]

For the reasons stated in *Lunsford*, supra, we agree with appellants that the Board's use of information which is only to be found in appellants' application was improper. Furthermore, we are not convinced that without this information, "the impurity of the Petrov * * * product would be immediately evident to a chemist of no more than ordinary competence." Moreover, and regardless of whether this would be evident, we are not convinced that the references of record would lead one of ordinary skill in the art to expect that ATMP could exist in a crystalline, anhydrous form or, assuming such an expectation, that the references would render obvious a method by which such ATMP could be produced.[2] To support the first of these conclusions, the Patent Office relies on the following generalization by Kosolapoff:

> Primary and secondary phosphonic acids are, as a rule, crystalline substances that have, respectively, dibasic and monobasic functions.

This reference goes on to disclose a number of amino alkylenephosphonic acids and their properties. However, all have only one alkylenephosphonic acid radical on the nitrogen atom (compared with three in ATMP), the most similar to ATMP being amino methylenephosphonic acid ("AMP"). Kosolapoff reports that AMP has, inter alia, the following properties: "Crystals, m. over 300° (from water); only moderately soluble in cold water." Pikl also discloses that AMP can be obtained as crystals. As stated above, Bersworth is relied on to show that some amino phosphonic acids are crystalline. This reference, however, is concerned with "N-alkyl-substituted-alkylene polyamine methylene phosphonic acids" which are markedly different in structure from ATMP. In any event, the four phosphonic acids for which Bersworth reports physical properties were described, respectively, as "partly crystalline," "crystalline," "syrupy," and "waxy solid." Certainly such a disclosure would not provide a basis for predicting with reasonable certainty that ATMP could exist in a crystalline anhydrous form.

Appellants also cited two publications in the Patent Office to show that crystalline, anhydrous ATMP could not have been predicted from what was known in the prior art. Freedman and Doak, Chemical Reviews, vol. 57, No. 3, p. 484 (1957), outline various methods of synthesizing aminoalkylphosphonic acids and with reference to products obtained with one such method state:

> The free aminophosphonic acids * * * are colorless, high-melting substances which crystallize from water *with one or two molecules of solvent of crystallizaton.* [Emphasis added.] [3]

Fields, Journal of American Chemical Society, vol. 74, pp. 1528–1531 (1952), which also discusses methods of preparing substituted amino phosphonic acids states:

> It was difficult to obtain the free amino-phosphonic acids in pure form. *Generally, non-crystallizing hygroscopic sirups resulted.* [Emphasis added.]

Upon due consideration of all these reference disclosures concerning the physical forms in which various known aminophosphonic acids exist, we think the most definite conclusion that can be reached is that

---

[1] A table in appellants' application compares the following properties of the two products: physical appearance, hygroscopicity, melting point, rate of dissolution in water, "active" concentration, sequestration of calcium ions, ease of purification, and ease of milling.

[2] Cf. *In re Cofer*, 53 CCPA 830, 354 F.2d 664, 148 USPQ 268 (1966).

[3] It should be noted that appellants are claiming "crystalline *anhydrous*" ATMP.

some of these acids can be obtained in crystalline form and some cannot, and that of the former group some can be obtained with ease by conventional procedures and some only with great difficulty by specially devised techniques. This being the case, we cannot conclude that it would have been obvious that crystalline, anhydrous ATMP could exist.

[1] As stated above, even assuming that one skilled in the art could have predicted with reasonable certainty that crystalline anhydrous ATMP could be produced, we are not convinced by this record that it would also have been obvious *how* this could be achieved. We note that neither the Examiner nor the Board has contended that a suitable process would have been obvious. The closest that either has come to such a contention is the Examiner's statement, based on the disclosure in the Irani patent, that, as it turns out, "little modification of the Petrov * * * process will produce a crystalline material * * *." Obviousness, however, must not be judged by hindsight, and a "little modification" can be a most unobvious one.

In view of the foregoing we need not consider appellants' arguments regarding the differences in properties between appellants and Petrov's forms of ATMP (supra, note 1).

[2] The decision of the Board is reversed.

REVERSED.

U.S. Court of Customs and Patent Appeals

IN RE JOSEPH FRANCIS SKRIVAN

No. 8300. Decided June 25, 1970

[57 CCPA —; 427 F.2d 801; 166 USPQ 85]

1. PATENTABILITY — DOUBLE PATENTING — TERMINAL DISCLAIMER — OVERLAPPING CLAIMS.

"It is readily apparent that the appealed claims are very narrow in the recitation of the amount of oxygen employed. The patent claims, on the other hand, recite no upper limit on the amount of oxygen used, and we are not about to imply one. Thus the claims, at least in this regard define admittedly overlapping, but different subject matter. This is enough, under the law as it now stands, to warrant giving effect to a terminal disclaimer. The rejection on double patenting grounds has, in view of the disclaimer, been obviated and is, therefore, *reversed*."

2. CLAIMS—BROADER THAN DISCLOSURE—PROCESS—OMISSION OF CONVENTIONAL PHYSICAL OPERATING CONDITION—35 U.S.C. 112

In reversing a rejection of claims as unduly broad under 35 U.S.C. 112, *Held* that "We see no more reason for requiring that appellant recite the specific angles at which the reactants in his process are to be combined than we do for requiring the recitation of flow rates or size of reactor or any other physical operating condition which might be required in order to obtain an operable process"; that "Those limitations deal with factors which must be presumed to be within the level of ordinary skill in the art"; and that "We hold that claims need not recite such factors where one of ordinary skill in the art, to whom the specification and claims are directed, would consider them obvious."

APPEAL from Patent Office. Serial No. 480,494.

REVERSED.

Theodore C. Virgil, *W. P. Spielman*, *Roland A. Dexter*, *Harry H. Kline*, for appellant.

Joseph Schimmel (*L. F. Parker*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

BALDWIN, *J.*, delivered the opinion of the court.

Skrivan appeals from the decision of the Patent Office Board of Appeals, adhered to on reconsideration, which affirmed the final rejection of claims 9–16, all of the remaining claims in his application,[1] on the ground of double patenting over his own patent.[2] Claims 9, 10 and 12–16 were rejected additionally as being "unduly broad" under 35 U.S.C. 112. We shall consider each rejection separately.

THE DOUBLE PATENTING REJECTION

The varying positions taken by the Patent Office during the prosecution of the claims on appeal reflect some of the confusion which existed before, and, hopefully, has since been clarified by, our latest opinions in this area of the law.[3] Restating those positions or setting out the language employed will serve no useful purpose in the disposition of this appeal. We note that a terminal disclaimer has been filed by appellant and was given consideration by the Patent Office. Our only concern therefore, need be a determination of whether any substantive difference exists between the subject matter of the claims on appeal and that claimed in appellant's patent or whether the only difference is in the langauge of the claims, in other words, whether the differences "are sham or real, semantic or actual." *In re Plank*, 55 CCPA 1400, 399 F.2d 241, 158 USPQ 328 (1968).

Skrivan's patent and the application presently before us are both directed to improvements in the so-called "plasma jet" process for the preparation of metal oxides, such as titanium dioxide, in finely divided form so as to be useful as pigments. That process is broadly described and its advantages summarized in the following passage taken from the patent disclosure:

> [O]xide powders, particularly titanium dioxide, [can] be produced without utilization of an auxiliary burning gas and with reduced amounts of nucleating agents by conducting the oxidation of a metal or metalloid salt with a plasma jet generator. By this method, a gas is passed through a high energy electric arc and the resulting plasma (the term "plasma" being employed to designate a very hot, partially ionized gas stream) is contacted with the material to be oxidized and oxygen. The plasma is thus the source of heat for raising the reactants to a temperature at which oxidation is initiated. No by-products of burning are introduced into the gas stream and, thus, problems above associated with the prior art methods are obviated.

According to the patent disclosure, the basic plasma-jet process had certain inherent disadvantages. These disadvantages are allegedly overcome by the process of the patent which, in concept, involves first separately mixing one or both of the reactants with a plasma stream and then combining the two streams after the reactants have, in combination, been heated by the plasma sufficiently to bring them to reaction temperature. The disclosure goes on to state that in order to properly mix the reactants, maintain a relatively constant particle size distribution of the product, and prevent reactor plugging, the streams must be combined at an angle of between about 25° and 160°, preferably between 70° and 120°. An example in which the two reactant streams were made to meet head-on, i.e., to combine at 180°

[1] Serial No. 480,494, filed Aug. 17, 1965, for "Oxide Process."
[2] U.S. Patent 3,275,412, issued September 27, 1966, on an application filed February 4, 1965.
[3] In fairness, it must be stated that a number of the opinions referred to were handed down after the administrative proceedings in this case.

was said to require discontinuation after only 62 seconds of operation "due to the growth of a very hard granular deposit of titanium dioxide" in the area at the point of contact. It is also stated that if the angle of combination is too low the streams will not properly mix with each other.

The disclosure of the application at bar substantially duplicates the patent disclosure. The issue on which appellant and the Patent Office are at loggerheads revolves around the single difference, relating to what is included in the oxygen-containing stream. The patent disclosure very specifically states that

> The amount of oxygen used will, in the first instance, depend upon the stoichiometry of the reaction. For practical results, at least a stoichiometric amount should be used based upon the salt to be oxidized. It is normally desirable to have an excess of oxygen available for reaction. This excess can, without practical inconvenience, be as high as 100% by volume, or even higher. More usually, a 15–50% by volume excess of oxygen is employed with good results.

The application, on the other hand, contains the following recitation:

> It is a particular feature of this invention that air is used to supply a part or all of the oxygen for oxidation of the metal or metalloid salts. It has been found that the control of particle size of the oxide can be achieved and maintained during the reaction by adjusting the amount of oxygen available. This is preferably done by use of air in place of pure oxygen. Decreased amounts of oxygen admixed with nitrogen can also be used. It is also possible to employ part of the off-gas from the reaction.
>
> The amount of oxygen used will, in the first instance, be dependent upon the stoichiometry of the reaction. For practical results, at least a stoichiometric amount of oxygen should be present as based upon the salt being oxidized. It has in the past, been thought desirable to have an excess of oxygen available during the reaction. Excesses of 5 to 100% by volume have been recommended in the past. Using air, or other diluted oxygen mixtures, only the amount of air or such mixture required to give the stoichiometric amount of oxygen need be used. At most, an excess of 5% by volume of oxygen in the mixture is desirable to attain the benefits of the present invention. It is highly desirable to employ the dilution effect of the inert fluid, i.e. nitrogen, either pure, or as found in air, instead of, as in the past, using excess oxygen. It is also possible to use other inert gases such as recycled off-gas recovered from the reaction zone and freed of oxide product.

Claim 1 of the patent (the broadest) follows:

> 1. In the process of continuously preparing finely divided refractory oxides by contacting an oxygen-containing stream with at least one stream of at least one member selected from the group consisting of vaporous metal and metalloid salts, the improvement which comprises admixing at least one of said reactant streams with a stream of gaseous fluid heated by means of a plasma generator to a temperature in the range of 3,000°–12,000° C., contacting said reactant streams flowing at an angle with respect to each other of between about 50° and 160°, passing the resulting mixture of reactants to a reaction zone for a period of about .001 to 1 second, and then collecting the resultant oxide product.

Patent claim 6 is narrower in most respects than claim 1 and, in particular, recites that the oxygen-containing stream contains "at least a stoichiometric amount of oxygen."

Basic claim 9 on appeal defines what appellant regards as his invention thusly:

> 9. In the process of continuously preparing finely divided refractory oxides from reactant oxygen and at least one reactant selected from the group consisting of vaporous salts of silicon, titanium, aliminum, zirconium, iron and antimony, wherein at least one of the reactant materials is admixed with a stream of gaseous fluid heated by means of a plasma generator to a temperature in the range of 3,000°–12,000° C., and the reactants are combined and passed into a reaction zone for a period of about 0.001 to 1.0 second to give the oxide product: the improvement which comprises using an oxygen-containing reactant stream consisting essentially of (*a*) 100–105% of the stoichiometric amount of oxygen based on the vaporous salt and (*b*) about 10–150%, based on oxygen, of a gaseous diluent which is inert under reaction conditions.

It is asserted in behalf of the Patent Office that the invention claimed in the instant application must be considered the same invention as that claimed in the patent when full consideration is given to what the language in the patent claims actually means. The expression "at least a stoichiometric amount of oxygen" of the patent claims, when read in light of the patent disclosure, quoted above, it is argued, "[I]mplies the minimum and obviously comprehends a slight increase of oxygen over 100%, for example up to 105%." As to the second language difference, i.e., that the oxygen-containing reactant stream also consist of "(*b*) about 10–150% based on oxygen, of a gaseous diluent which is inert under reaction conditions," it is argued that the recited claim language adds nothing to the process in the patent. It is pointed out, for example, that in patent claim 6, the plasma stream, which is an inert gaseous diluent, is mixed with the oxygen containing stream prior to reaction and that the quantity of inert fluid in the total mixture is about 3% to 95% by volume, which "is clearly within the range of that called for by the [appealed] claims." It is strongly urged that no matter what appellant has stated in his specification or argued in his briefs to the effect that the invention of the claims on appeal "adds a step to the patented process; namely the introduction of an inert gas into the oxygen-containing reactant stream," the language of the patent claims and the claims on appeal does not bring this difference out.

We have some sympathy with the arguments of the Patent Office regarding the language of the claims. At times it does become difficult to distinguish between the inert gaseous fluid which becomes the plasma, the inert gaseous fluid which serves as a diluent, and whatever else is in the "oxygen-containing stream" recited in both the patent and application claims. Nevertheless our decision does not require an interpretation of all the language in the claims. **[1]** It is readily apparent that the appealed claims are very narrow in the recitation of the amount of oxygen employed. The patent claims, on the other hand, recite no upper limit on the amount of oxygen used, and we are not about to imply one. Thus the claims, at least in this regard, define admittedly overlapping, but different subject matter. This is enough, under the law as it now stands, to warrant giving effect to a terminal disclaimer. The rejection on double patenting grounds has, in view of the disclaimer, been obviated and is, therefore, *reversed*.

THE SECTION 112 REJECTION

The board sustained this rejection "for the reasons stated in the Examiner's answer." Considering the Examiner's position, it appears that he was concerned with the fact that there was no specific recitation in the rejected claims of the angle at which the two reactant-containing streams are to be combined before being passed into the reaction zone. We quote his reasoning:

> Claims 9, 10, and 12–16 inclusive are deemed unduly broad, 35 U.S.C. 112, since these claims are readable on a minute angle, such as 1°, 2°, etc. or a large angle of 180°, and it is clear from the specification page 6, for example, that the actual range employed to *prevent* plugging, undesirable size classification, etc. is *within* the range of about 50°–160°. * * * The Y type of reactor "of co-pending application Serial No. 430,262, filed February 4, 1965" aforementioned is employed

by the appellant in this case. It is to be noted that in all of the *claims* in said case that the angle is [between] about 50° and 160° or of more limited range. Such limitations in the claims of said co-pending case were made by amendment after extended prosecution therein and as the apparent result of a similar holding by the Examiner of undue breadth of the claims in said co-pending application.

We have considered the Examiner's rejection in the light which the arguments of the parties have placed it, but find ourselves unable to agree that the limitation which the Examiner would have appellant recite in his claims is necessary.

Initially we point out that the absence of such limitation does not make the claims indefinite. Furthermore, as is evident from the "Jepson" style of the claims, the manner in which the reactants must be combined has not been relied on to distinguish over the prior art. Nor has appellant, either by statements made in his disclosure or by his attorney during the course of prosecution, indicated that the claims define anything more than he regards as his invention. Cf. *In re Borkowski*, 57 CCPA —, 422 F.2d 904, 164 USPQ 642 (1970); *In re Prater*, 56 CCPA 1381, 415 F.2d 1393, 162 USPQ 541 (1969).

Finally, we emphasize that the disputed limitation deals only with a physical operating condition of an admittedly old process. [2] We see no more reason for requiring that appellant recite the specific angles at which the reactants in his process are to be combined than we do for requiring the recitation of flow rates or size of reactor or any other physical operating condition which might be required in order to obtain an operable process. Those limitations deal with factors which must be presumed to be within the level of ordinary skill in the art. We hold that claims need not recite such factors where one of ordinary skill in the art, to whom the specification and claims are directed, would consider them obvious.

The decision of the Board is reversed.

REVERSED.

U.S. Court of Customs and Patent Appeals

IN RE THEODORE J. COLLIER

No. 8324. Decided June 18, 1970

[57 CCPA —; 427 F.2d 831; 166 USPQ 44]

1. APPLICATION—DISCLOSURE—SUFFICIENCY OF DISCLOSURE—35 U.S.C. 112, FIRST PARAGRAPH.

In affirming the refusal of certain claims, based on insufficient disclosure under the first paragraph of 35 U.S.C. 112, with respect to recitations of epoxy silanes therein, *Held* that there was an insufficient disclosure "of how to make epoxy silanes of the type recited in the claims"; and that appellant "has also failed to show that the making of such silanes was or is within the knowledge of one of ordinary skill in the art."

APPEAL from Patent Office. Serial No. 105,540.

AFFIRMED.

Herman Hersh (*McDougall, Hersh, Scott & Ladd*) (*Staelin & Overman, George A. Degnan*, of counsel) for appellant.

S. Wm. Cochran (*Fred W. Sherling*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

LANE, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals, which affirmed the rejection of claims 2, 5 and 7, all the claims in appellant's application Serial No. 105,540, filed April 26, 1961, for "Treated Glass Fibers and Methods for Treating Glass Fibers To Improve the Bonding Relation With Epoxy Resins." We affirm the Board's decision.

As suggested by the title, appellant's invention is addressed to the problem of bonding between glass fibers and epoxy resins. The specification, which is identical with that of a parent application [1] filed December 8, 1954, discloses the use of certain "anchoring agents" for this purpose, including amino silanes and also organo silanes in which an organic group attached to the silicon atom contains an epoxy group. The claims before us specifically recite the latter type of anchoring agent, which we shall call epoxy silanes. The Examiner rejected the claims as being based on insufficient disclosure, under the first paragraph of 35 U.S.C. 112. Several alleged insufficiencies were set forth by the Examiner, of which our decision requires consideration of only one: That the specification lacks a teaching of how to make the epoxy silane starting material. As to this ground the Board agreed with the Examiner, stating:

No method of making epoxy silanes is disclosed in the specification. None of the references mentioned by appellant in the first two paragraphs of page 16 of the brief show production of epoxy silanes. All of the methods there shown would, as appellant states, require modification. It would appear that material modification of these references which would be required could meet with difficulty in carrying out the processes and that more than ordinary skill in the art would be required to produce the epoxy silanes.

The Board also applied, under Rule 196(b), a new rejection under 35 U.S.C. 103, based on a patent to Plueddemann.[2] Appellant returned to the Examiner and sought to overcome the Plueddemann reference by reliance on the parent application mentioned above, which had a filing date earlier than Plueddemann's. The Examiner again rejected the claims, this time under both § 112 for the reasons given earlier and under § 103 based on Plueddemann. The latter rejection was based on the Examiner's finding that appellant's parent application did not contain a disclosure sufficient under 35 U.S.C. 112 as to the invention now claimed, and hence could not be used to overcome Plueddemann. Specifically, the Examiner mentioned the failure of the parent application to disclose a method of making epoxy silanes. The Board again affirmed, for the reasons previously given and those stated by the Examiner.

Upon the record before us, we must agree with the Examiner and the Board that both the specification of the instant application and the specification of the parent application are insufficient to enable one of ordinary skill in the art to make and use the claimed invention, as required by the first paragraph of 35 U.S.C. 112. Appellant argues that—

the art relating to the preparation of such organo silicon compounds has become so well established and so well known that one skilled in the art would have [no?] difficulty in preparing such compounds with any desired groupings in the organic group attached to the silicon atom.

Appellant's use of the words "has become" raises the intriguing question of the effect, if any, of a parent application the disclosure of which was insufficient when filed but which, due to changes in the knowledge

[1] Serial No. 474,007.
[2] U.S. Patent 2,946,701, filed Nov. 12, 1957, issued July 26, 1960.

of the art, became sufficient at some later date. The Board, in its second opinion, recognized this "possible distinction" but found that it "does not aid appellant." We agree. There is nothing in the record before us to indicate that at any time prior to the issuance of Plueddemann one of ordinary skill in the art would know how to make epoxy silanes of the type recited in the claims, and appellant has referred us to nothing from which we could take judicial notice of that fact. Appellant apparently cited references to the Examiner and the Board on this point, but chose neither to include them in the record before us nor to cite them in his brief. Appellant did not appear at oral argument. We are unwilling to find error in the expressly set-forth position of the Examiner and the Board, based on mere assertions of appellant to the contrary.

Appellant calls attention to the issuance of the parent application as a patent, contending that the Patent Office found the parent specification sufficient as to the *amino* silanes recited in the patent claims. The parent application is included in the record before us, but the patent allegedly issued thereon is not. Moreover, a patent with claims reciting amino silanes cannot be presumed to have a disclosure sufficient to teach the making of epoxy silanes, nor does the issuance of such a patent give rise to a presumption that the making of epoxy silanes is within the ordinary skill of the art.

[1] We conclude that appellant has failed to show, by the record before us, that either the instant application or the parent application contains sufficient disclosure of how to make epoxy silanes of the type recited in the claims; he has also failed to show that the making of such silanes was or is within the knowledge of one of ordinary skill in the art. Our conclusion renders it unnecessary to consider the § 103 rejection or the other bases of the Examiner and the Board for the § 112 rejection.

The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

REXALL DRUG AND CHEMICAL COMPANY, D.B.A. FIBERFIL COMPANY
v.
ROHM & HAAS COMPANY

No. 8333. Decided June 11, 1970

[57 CCPA —; 427 F.2d 782; 166 USPQ 29]

1. TRADEMARK—CONFUSING SIMILARITY—GOODS—"OROGLAS" AND "PROGLAS" FOR PLASTIC MATERIALS.

"Appellant [applicant] urges error in the Board's decision [sustaining an opposition based on likelihood of confusion], contending that PROGLAS and OROGLAS are unlikely to cause confusion, since they are applied to specifically different goods with different end applications. We do not think that the description 'plastic, specifically synthetic injection molding materials in pellet or granular form' is so different from 'synthetic resinous materials in the form of * * * molding compounds' as to eliminate likelihood of confusion. While we agree with appellant that the suffix -Glas cannot be relied upon to distinguish the goods of any particular source, we do not agree that the public would look only to the prefixes Pro- and Oro- in dealing with the goods of the parties."

2. SAME—SAME—OPPOSITION—DOUBT RESOLVED IN FAVOR OF PRIOR USER—"OROGLAS" AND "PROGLAS" FOR PLASTIC MATERIALS.

With regard to the question of confusing similarity between appellant-applicant's mark "PROGLAS" and appellee-opposer's registered mark "OROGLAS," both marks for plastic materials, *Held* that "* * * we agree with appellee that even knowledgeable persons might be confused by the marks here involved, and that in case of doubt the doubt should be resolved in favor of appellee, the prior user by some seventeen years."

APPEAL from Trademark Trial and Appeal Board. Opposition No. 45,566.

AFFIRMED.

Donald Diamond, for appellant.

Miss Bereton Sturtevant, *Howard I. Forman* (*Rohm and Haas Co.*) (*Werner H. Hutz*, of counsel) for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN and LANE, *Associate Judges*

LANE, *J.*, delivered the opinion of the court.

Rexall appeals from the decision of the Trademark Trial and Appeal Board [1] sustaining appellee's opposition to the registration of PROGLAS for plastics, specifically for synthetic injection molding materials in pellet or granular form.[2] First use in 1964 is alleged. We affirm.

Appellee predicated its opposition on likelihood of confusion arising from similarity to its registered trademarks OROGLAS,[3] for synthetic resinous materials in the form of sheets, rods, or molding compounds, and PLEXIGLAS,[4] for various synthetic resinous materials. The Board found that PROGLAS and PLEXIGLAS are readily distinguishable and not likely to cause confusion from their contemporaneous use. Comparing PROGLAS and OROGLAS, the Board reached the opposite conclusion.

The Board noted that appellee has used OROGLAS as least since 1947 and that appellee's products have been advertised under its marks in trade journals and technical bulletins which are directed primarily to the aircraft, architectural, building and construction, glazing, lighting, sign and plastic sheet molding and fabrication industries. Sales of OROGLAS molding powder exceeded, at the time of the Board's opinion, $100,000 per year. The Board then noted that appellant also advertised in trade publications and technical bulletins and that this advertising was directed to the plastic molding industry, industrial design engineers, and to manufacturers whose products contain, or might contain, plastic moldings. Appellant's sales efforts involve direct customer contact. Its sales of PROGLAS approximated $10,000 per year. Appellant's record included nine third-party registrations of marks which include the suffix -Glas for synthetic resinous and/or plastic materials. The Board concluded that on these facts PROGLAS was so similar to OROGLAS that confusion was likely. The Board stated:

Aside from the fact that these marks only differ as to their initial letter and thereby create similar impressions, there is the additional element that due to variations and interpretations of handwriting, a mistake could readily occur.

[1] Appellant urges error in the Board's decision, contending that PROGLAS and OROGLAS are unlikely to cause confusion, since they are applied to specifically different goods with different end applications. We do not think that the description "plastic, specifically synthetic injection molding materials in pellet or granular form" is so different from "synthetic resinous materials in the form of * * * molding compounds" as to eliminate likelihood of confusion. While

[1] Summarized at 155 USPQ 766 (1967).
[2] Application Serial No. 195,083, filed June 8, 1964, by appellant's assignor, Fiberfil, Inc.
[3] Reg. 501,227, July 27, 1948.
[4] Regs. 338,539, Sept. 8, 1936; 367,998, June 6, 1939; 406,199, Mar. 14, 1944; 623,869, Mar. 27, 1956.

we agree with appellant that the suffix -Glas cannot be relied upon to distinguish the goods of any particular source, we do not agree that the public would look only to the prefixes Pro- and Oro- in dealing with the goods of the parties.

Appellant further urges that there would be no likelihood of confusion because the products are promoted and sold to knowledgeable and discriminating persons. Appellant also points out that there is no evidence of actual confusion. [2] On these points we agree with appellee that even knowledgeable persons might be confused by the marks here involved, and that in case of doubt the doubt should be resolved in favor of appellee, the prior user by some seventeen years.

The decision of the Board is affirmed.

AFFIRMED.

BALDWIN, *J.*, dissents.

U.S. Court of Customs and Patent Appeals

IN RE FRANK PASSAL AND TIMOTHY P. FLYNN

No. 8319. Decided May 28, 1970

[57 CCPA —; 425 F.2d 409; 165 USPQ 702]

1. PATENTABILITY—EVIDENCE—DISCOVERY OF SOURCE OF PROBLEM—*In re Sponnoble* CONSTRUED—35 U.S.C. 103.

"In *Sponnoble*, this court found that the appellant had done more than merely combine features old in the art. * * * *Sponnoble* indicates * * * that when considering the 'subject matter' as a whole under 35 U.S.C. 103, additional inquiry as to the reason for making the combination is proper and that 'a patentable invention may lie in the discovery of the source of the problem even though the remedy may be obvious once the source of the problem is identified.'"

2. SAME—COMBINING REFERENCES—OBVIOUSNESS.

"Appellants' discovery is * * * that a nickel plating process using coumarin and saccharin, as that of Du Rose, could be speeded up allegedly without loss of brightness and smoothness. However * * * Wesley clearly suggests that high speed could be obtained by increased electrolyte flow and high current density, and it would not be unobvious for one to adopt this suggestion and combine it with the process of Du Rose. * * * The mere possibility that such combination would result in decreased smoothness and brightness does not render its successful use unobvious. Obviousness does not require absolute predictability."

3. SAME—PARTICULAR SUBJECT MATTER—"NOVEL ELECTROPLATING PROCESS."

The refusal of certain claims in an application entitled "Novel Electroplating Process," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 292,083.

AFFIRMED.

Arnold B. Christen (*Christen, Sabol & O'Brien*), *Lewis C. Brown*, for appellant.

S. Wm. Cochran (*Jere W. Sears*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

ALMOND, *J.*, delivered the opinion of the court.

This is an appeal from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1–13, all of the claims in appellants' application entitled "Novel Electroplating Process." [1]

[1] Serial No. 292,083, filed July 1, 1963.

The invention relates to a process for high-speed bright nickel plating. Prior art nickel plate production rates are undesirably slow, the specification states, while attempts to speed them up through using high plating current densities and various primary and secondary brighteners or bath additives have resulted in inadequately leveled deposits. Appellants have allegedly solved these prior art problems by maintaining a cathode current density at a level of at least 10 a.s.d. (amperes per square decimeter) and a high relative velocity between the nickel plating bath and the cathode representing the material to be plated. This velocity may be maintained by either impinging a stream of electrolyte onto the cathode or by various techniques such as vibration, rotation of the cathode and pumping of the electrolyte past the cathode.

Claim 1 is illustrative:

1. The method of high speed electroplating a bright nickel deposit which comprises electroplating said nickel deposit from a nickel-bath containing a brightening and leveling amount of coumarin and a secondary brightener, maintaining the cathode current density during said plating at a level of at least about 10 a.s.d., and maintaining a high relative velocity between said nickel-bath and said cathode thereby obtaining a highly lustrous, leveled nickel plate over a wide cathode current density range.

Claims 2–10 all depend from claim 1. Claims 2 and 3 specify the amount of coumarin as at least about 0.2 g./l. (grams per liter), and from 0.8 g./l. to 2.0 g./l., respectively. Claim 4 recites the amount of secondary brightener as from 1 g./l. to 10 g./l., and claim 5 defines the secondary brightener as saccharin. Claims 6 and 7 limit the cathode current density to values of 20–120 a.s.d. and 20–60 a.s.d., respectively. Claim 8 recites maintaining the relative velocity between the nickel-bath and cathode at 60–320 cm./second, and claim 9 further limits the relative velocity to 150 cm./second. Claim 10 defines the embodiment wherein the nickel-bath is impinged on the cathode. Claim 11 is an independent claim describing a process similar to that of claim 1, further defining the process as one wherein the nickel-bath contains 0.2 g./l. to saturation of coumarin and 1–10 g./l. of secondary brightener and wherein the cathode current density during plating is maintained at a level of about 20–120 a.s.d. Claim 12 depends from claim 11 and defines the secondary brightener as saccharin. Claim 13 also is dependent upon claim 11 and limits the cathode current density to 20–60 a.s.d.

The references relied upon are:

Michael, 3,245,886, Apr. 12, 1966.
Du Rose et al., 2,782,153, Feb. 19, 1957.
Boelter, Jr., 2,870,709, Jan. 27, 1959.
Wesley, W. A., et al., "Electrodeposition of Nickel at High Current Density," Proceedings of the 36th Annual Convention, American Electroplaters' Society, pp. 79–91 (1949).

Du Rose discloses a process for producing nickel electrodeposits of greatly increased brightness and smoothness. The patent states:

This invention is primarily concerned with the fact that although electrodeposits taken from acid nickel plating solutions containing coumarin exhibit extraordinary smoothness they are only semi-bright, and attempts to increase their brightness by the use of addition agents of the type of saccharin or naphthalene sulfonic acids result in improved brightness with loss of smoothness when the surface being coated is quite smooth, and can result in decrease in both smoothness and brightness when the surface to be coated is quite

rough. * * * If, instead of using naphthalene sulfonic acids, saccharin was used to improve the brightness, improved brightness was obtained and the gain in smoothness was about the same.

The reference discloses that the lost smoothing action can be largely restored by adding, in addition to the coumarin, not only an aromatic sulfonamide but also leveling agents such as quaternary nitrogen compounds and plating at a cathode current density which may be as high as 10.8 a.s.d.

Boelter discloses high-speed deposition of copper from a conventional bath by a method of impinging the electrolyte onto the cathode at a flow rate of 500–1000 ft./min.

Michael discloses maintaining an electroplating bath near the saturation concentration of the additive component by adding the difficultly soluble component in solid excess beyond the saturation point.

Wesley discloses that increased agitation of simple nickel plating baths, i.e., not containing brightener additives, permits higher current densities and faster plating rates.

Claims 1, 2 and 4–13 were rejected under 35 U.S.C. 103 as unpatentable over Du Rose in view of Wesley and Boelter, and claim 3 was rejected under the same section of the statute on the same references with the addition of Michael. It was the Examiner's opinion that "if one wished to deposit nickel from the bath of Du Rose et al. at higher current densities one of ordinary skill in the art would obviously apply the agitation means of Wesley et al. or Boelter, Jr. to the Du Rose et al. bath and electroplate as recited."

Claims 1–7 and 10–13 were further rejected as indefinite under 35 U.S.C. 112, the Examiner taking the position that it "is not clear what 'a high relative velocity' means."

The Board, in affirming the Examiner, took the view that Du Rose used the same type of bath utilized by appellants with the further improvement of a quaternary nitrogen compound, the addition of which was not excluded by appellants' claims. It concluded, therefore, that:

> The changes, if any, over Du Rose et al. are in the cathode current density * * * and in the relative velocity between the bath and the cathode * * *. The cathode current density of claims 1 to 5, 8, 9, and 10 does not distinguish over the Du Rose et al. disclosure of 100 a.s.f., equivalent to 10.8 a.s.d. and falling within the terms of these claims.
>
> * * * * * * *
>
> In our opinion, it would be obvious to a knowledgeable person in this art, seeking to speed up the process of Du Rose et al., to adopt the expedient suggested by Wesley et al.

The Board also sustained the rejection under 35 U.S.C. 112, stating that "the terminology adopted by appellants cannot serve to point out wherein the prior art ends and appellants' process begins."

Appellants contend that the Board erred in several respects. In their view, Du Rose discloses the disadvantage of coumarin and saccharin in that the gain in smoothness was only "about the same." Du Rose, they point out, solved the problem by utilizing a third additive, while appellants use a cathode current density of at least 10 a.s.d. and a high relative velocity between the nickel-bath and cathode, expedients not suggested by Du Rose. Moreover, they argue, the maximum limit of Du Rose's current density range corresponds to the minimum cathode current density of their invention. Wesley, appellants allege, lacks pertinence since the disclosure therein is limited to simple nickel plating baths without additives and is silent as to brightness and smoothness. Neither reference, it is argued, suggests that a combination of their teachings would permit attainment of any desired results nor that Wesley's increased electrolyte flow process with simple baths would be adaptable to Du Rose's baths. The references Boelter and Michael also lack pertinence to their invention in the opinion of appellants.

Appellants conclude their argument by citing this court's decision in *In re Sponnoble*, 56 CCPA 823, 405 F.2d 578, 160 USPQ 237 (1969), for the view that:

> A patentable invention, within the ambit of 35 U.S.C. 103 *may* result even if the inventor *has*, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use.

We are not persuaded by appellants' position. [1] In *Sponnoble*, this court found that the appellant had done more than merely combine features old in the art. More important, however, is the fact that the above-quoted language from *Sponnoble* indicates merely that when considering the "subject matter" as a whole under 35 U.S.C. 103, additional inquiry as to the reason for making the combination is proper and that "a patentable invention may lie in the discovery of the source of the problem even though the remedy may be obvious once the source of the problem is identified."

The facts of record do not warrant the conclusion that appellants were the first to discover that increased rates of flow of electrolyte permit higher current densities with their attendant faster plating rates. Nor do they contend to be the first to discover that such higher plating rates were desirable. [2] Appellants' discovery is, as we interpret it, that a nickel plating process using coumarin and saccharin, as that of Du Rose, could be speeded up allegedly without loss of brightness and smoothness. However, in our view, Wesley clearly suggests that high speed could be obtained by increased electrolyte flow and high current density, and it would not be unobvious for one to adopt this suggestion and combine it with the process of Du Rose. No reference suggests that such increased electrolyte flow would result in decreased smoothness and brightness even in a bath containing primary and secondary brighteners. The mere possibility that such combination would result in decreased smoothness and brightness does not render its successful use unobvious. Obviousness does not require absolute predictability. *In re Seyb, Jr.* (No. 8277), decided May 7, 1970; *In re Moreton*, 48 CCPA 928, 288 F.2d 940, 129 USPQ 288 (1961). We are unable to perceive on these facts that the inherent result flowing from adaption of the electrolyte flow process of Wesley to the additive bath process of Du Rose is unexpected or unpredictable. Certainly, at least, that "clear and convincing evidence" of unexpected properties required by this court in *In re Lohr*, 50 CCPA 1274, 317 F.2d 388, 137 USPQ 548 (1963), is lacking.

We have considered appellants' other arguments and authorities cited in support thereof; however, we are not convinced of error in the Board's decision with respect to the rejection under 35 U.S.C. 103. The view we take renders it unnecessary to consider the rejection under 35 U.S.C. 112.

[3] The decision is, therefore, affirmed.

AFFIRMED.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,414,685, Alexanderson, Edwards and Bowman, FOLLOW-UP CONTROL SYSTEM; **2,550,514,** E. F. W. Alexanderson, SYSTEMS FOR REPRODUCING POSITION; **2,679,138,** G. A. Kane, CONTROL SYSTEMS, **filed** Mar. 4, 1970, Ct. of Cl., Washington, D.C., Doc. 81–70, *General Electric Co.* v. *The United States of America.*

2,544,246, G. H. Butterfield, CORNEAL CONTACT LENS, **filed** Apr. 7, 1970, D.C., E.D. Mo. (St. Louis), Doc. 70C160(1), *George H. Butterfield, Sr.* v. *Ostertag Optical Service, Inc.* Order dismissing cause without prejudice, Sept. 23, 1970. **Same, filed** Apr. 8, 1970, D.C., E.D. Mo. (St. Louis), Doc. 70C167(1), *George H. Butterfield, Sr.* v. *Mo-Con Laboratories, Inc.* Order dismissing cause without prejudice, Sept. 23, 1970.

2,550,514. (See 2,414,685.)

2,589,945, R. Leduc, ATHODYD HAVING AIR PERMEABLE CONVERGING INTAKE SECTION FOR BOUNDARY LAYER CONTROLS; **2,931,167,** same, AIR INTAKE ARRANGEMENT FOR SUPERSONIC AIRCRAFT, **filed** May 20, 1970, Ct. of Cl., Washington, D.C., Doc. 165–70, *Andre Michel, administrator of the estate of Rene Leduc* v. *The United States.*

2,633,251, J. K. Bruce, PALLETIZER, **filed** Mar. 31, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c758, *Production Aids Inc.* v. *Morton International, Inc.* Consent judgment, plaintiff owner of patent, said patent good and valid and infringed, Sept. 25, 1970.

2,640,580, A. R. DeBurgh, CONVEYER SYSTEM; **2,640,607,** same, MULTIPLE CYCLE CONVEYER, **filed** Apr. 1, 1969, D.C., W.D.N.C. (Statesville), Doc. 591, *George Koch Sons, Inc.* v. *Bernhardt Furniture Co. et al.* Dismissed as to defendants, Sept. 30, 1970.

2,640,607. (See 2,640,580.)

2,653,526, W. E. Peery, PRINTING SYSTEM FOR PHOTOCOMPOSING MACHINES OR THE LIKE; **2,787,654,** same, ELECTRONIC PHOTO-TYPE-COMPOSING SYSTEM, **filed** July 16, 1970, D.C. Mass. (Boston), Doc. 70–936–M, *The Singer Company* v. *Compugraphic Corporation.*

2,679,138. (See 2,414,685.)

2,689,450, K. E. Stiegele, EXPANSIBLE BRACELET, **filed** Sept. 10, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2022 WPG, *Textron, Inc.* v. *Windert Watch Co.*

2,727,069, J. P. M. Van Waes, PREPARATION OF UREA, **filed** Sept. 8, 1970, D.C., S.D. Ohio (Cincinnati), Doc. 7663, *Stamicarbon, N.V.* v. *C & I Girdler Inc.*

2,784,132, E. N. Maisel, AIR PERMEABLE FIBROUS BATT, **filed** July 11, 1969, D.C., E.D. Mich. (Detroit), Doc. 33091, *U.S. Padding Corp. and Edward P. Bolen* v. *Union Carbide Corp.* Patent invalid and not infringed. Order of dismissal, Sept. 18, 1970.

2,787,654. (See 2,653,526.)

2,815,151, H. B. Collins, ANTI-DRIP CALKING GUN AND CARTRIDGE, **filed** Sept. 29, D.C., N.D. Calif. (San Francisco), Doc. C70–2116WTS, *Harold B. Collins* v. *Gibson Homans Company et al.*

2,834,748, Bailey and O'Connor, SILOXANE-OXYALKYLENE BLOCK COPOLYMERS, **filed** Mar. 11, 1970, D.C., E.D. La. (New Orleans), Doc. 70–580, *Union Carbide Corporation* v. *Rubicon Chemicals, Inc.*

2,871,527, C. M. G. Wallwork, METHOD OF AND MEANS FOR THE PRODUCTION OF CASTINGS, **filed** Oct. 5, 1970, D.C., W.D. Pa. (Erie), Doc. 67–70, *Owens Industries, Inc. et al.* v. *Automated Molding Systems, Inc.*

2,882,243, R. M. Milton, MOLECULAR SIEVE ADSORBENTS; **2,882,244,** same, **filed** Mar. 3, 1970, D.C., S.D.N.Y., Doc. 70–C–1174, *W. R. Grace & Co.* v. *Union Carbide Corp.* Memo opinion, defendants' motions to dismiss granted, Sept. 25, 1970.

2,882,244. (See 2,882,243.)

2,931,167. (See 2,589,945.)

3,106,285, Turnidge and Turnidge, POLICEMAN'S GLOVE; **3,258,782,** same, **filed** Sept. 25, 1970, D.C. Oreg. (Portland), Doc. C–70–656, *Cletus P. Turnidge and Lillian A. Turnidge* v. *Lawrence N. Thurlow.*

3,112,185, Ochsner and Miller, ELECTRON DISCHARGE DEVICES AND MATERIALS THEREFOR, **filed** Dec. 6, 1968, D.C., S.D.N.Y., Doc. 68–C–4862, *Texas Instruments Incorporated* v. *General Electric Co.* Filed stipulation of discontinuance with prejudice, Oct. 5, 1970.

3,191,801, R. P. Standish, BALLOON VENDING MACHINE, **filed** Apr. 14, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c802, *Miner Industries, Inc.* v. *Paramount Textile Machinery Co.* Dismissed on stipulation Rule 41(a), Sept. 10, 1970.

3,254,845, P. W. Schlosser, FLUID POWER TRANSFER APPARATUS, **filed** Feb. 6, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c201, *Panther Pumps & Equipment Company, Inc.* v. *Hydrocraft, Inc. et al.* Plaintiff's motion to include attorney's fees denied. Plaintiff's motion to increase damages denied. Motion for judgment nov denied enter judgment, Rule 58, Sept. 21, 1970.

3,258,782. (See 3,108,285.)

3,335,092, K. E. Perry, OVEN CLEANER AND METHOD OF USING THE SAME, **filed** Aug. 10, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c1393, *Shelco, Inc.* v. *The Dow Chemical Company and Harry G. Schierholz & Co.* **Same, filed** Aug. 10, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c2190, *Shelco, Inc. and Shelco Company* v. *Boyle-Midway, Inc. and American Home Products Corporation.* Final judgment order (combined), claims 1–6, 14, 16–19, 26 and 28–32 invalid under 35 U.S.C. §§ 102, 103, and 112, and 35 U.S.C. §§ 184 and 185. Plaintiffs' complaint dismissed on the merits. Defendants' first counterclaims seeking a declaration of invalidity upheld. Defendants The Dow Chemical Company and Harry G. Schierholz & Co., court retains jurisdiction of the second counterclaim, Oct. 19, 1970.

D. 214,683, S. Deutsch, FLUORESCENT LIGHTING LOUVER, **filed** Sept. 30, 1970, D.C., S.D.N.Y., Doc. 70–4258, *Contemporary Ceilings, Inc.* v. *Neo-Ray Products, Inc.*

D. 216,173, S. M. Kogutt, WALLET-CHECK HOLDER COMBINATION, **filed** Sept. 23, 1970, D.C., N.D. Tex. (Dallas), Doc. CA–3–4186–A, *Samuel M. Kogutt* v. *Numo Manufacturing Co., Inc. and Barjak Co.*

REISSUES

DECEMBER 22, 1970

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

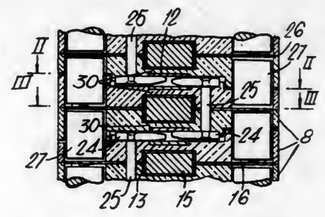
27,007
SPARK GAP DEVICES

Bruce Clifford Hicks, Caringbah, New South Wales, Australia, assignor to E.M.P. Electric Limited

Original No. 3,076,114, dated Jan. 29, 1963, Ser. No. 84,678, Jan. 24, 1961. Reissue No. 25,982, dated Mar. 22, 1966, Ser. No. 438,808, Jan. 11, 1965. This application for reissue July 11, 1968, Ser. No. 753,803

Int. Cl. H01j *1/50, 7/46, 19/80*

U.S. Cl. 313—161 **36 Claims**



There is disclosed a lightning arrester comprising a series of generally flat ceramic discs mating to form internal shallow arcing-chambers between two discs and stacked to form essentially a ceramic cylindrical configuration. A plurality of pairs of sparking gap electrodes, each in a separate arcing chamber, are connected in series by members extending through a single aperture in the disc. The arc is urged toward an outer closed ceramic wall by means of a magnetic field and intercepts integral ceramic bosslike portions to lengthen the arc path. The arc is confined in the chamber by closed peripheral ceramic structure which comprises two flat planar peripheral portions on adjacent discs in ceramic to ceramic contact. An interlocking rim is supplied to further insure against the arc escaping from the closed chamber.

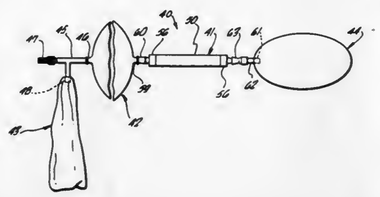
27,008
BREATH ALCOHOL DETERMINATION

Manley J. Luckey, 2866 Muscupiave Drive, San Bernardino, Calif. 92405

Original No. 3,437,449, dated Apr. 8, 1969, Ser. No. 556,053, June 8, 1966. Application for reissue Sept. 29, 1969, Ser. No. 877,909

Int. Cl. G01n *33/16*

U.S. Cl. 23—254 **13 Claims**



This invention relates to the determination of blood alcohol content by analysis of breath. Apparatus and a method of using it are provided wherein an elastic container is inflated to a selected size by a person's breath. The breath from the elastic container is then passed through a tube into an inflatable container having a predetermined volume. The tube contains a reagent providing a selected resistance to fluid flow and having a color change reaction in response to alcohol vapor for measuring the alcohol content of the breath. In the alternative, an alcohol trap in the tube can exaract alcohol for subsequent analysis. Means for connecting the tube to the containers are also provided.

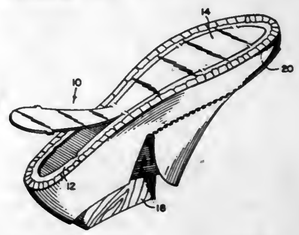
27,009
PROCESS FOR MAKING SHOE HAVING CROSS-LINKED RAND INSOLE

Charles F. Batchelder, Milton, and Jerome A. Rubico, Boston, Mass., assignors to Batchelder-Rubico, Inc., Boston, Mass., a corporation of Massachusetts

Original No. 3,345,663, dated Oct. 10, 1967, Ser. No. 310,029, Sept. 19, 1963. Application for reissue Oct. 9, 1969, Ser. No. 868,250

Int. Cl. A43d *9/00*

U.S. Cl. 12—142 **20 Claims**



A process for making a shoe which utilizes a cross-linked rand insole having a peripheral rand portion and a central core portion including the forepart and a major portion of the area between the ball tread line and the beginning of the narrow neck portion of the shank. The rand and central core portion are held together by frangible ties or links. After lasting, the central core portion is removed and the shoe is finished.

27,010
PROCESS FOR THREE COLOR PRINTING AND RESULTANT PRINTS

Edward Daniel Flynn, 52 Haven Terrace, Parlin, N.J. 08859

No Drawing. Original No. 3,253,917, dated May 31, 1966, Ser. No. 203,466, June 19, 1962. Application for reissue May 28, 1968, Ser. No. 741,811

Int. Cl. G03f *1/00, 5/00*

U.S. Cl. 96—30 **4 Claims**

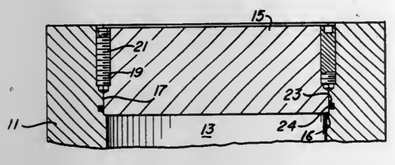
4. A process for the production of multicolor printing using a number of screen angles which number is one integer greater than the number of colors employed in said multicolor printing process to produce screened halftone positives or negatives in a number corresponding to the number of screen angles employed in a manner known per se which process comprises producing combined screened halftone negatives or positives in a number corresponding to the number of colors employed in said multicolor printing process from two of said screened halftone positives or negatives respectively and processing the resulting combined screened halftone negatives or positives into plates and running said plates on a press in colored inks corresponding to the colors of said multi-

color printing process with the proviso that one of the screen angles used is employed in each of the combined screened halftone negatives or positives produced and that the screened halftone positive or negative corresponding to such screen angle common to each combined halftone negative or positive is other than one of the colors employed in said multicolor printing process.

27,011
SHEAR STUD VESSEL CLOSURES AND SHELL JOINTS

Svend M. Jorgensen, Tenafly, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York

Original No. 3,398,853, dated Aug. 27, 1968, Ser. No. 542,328, Apr. 13, 1966. Application for reissue May 19, 1969, Ser. No. 830,554
Int. Cl. A47j *27/08, 36/10*
U.S. Cl. 220—55 **24 Claims**



A shear stud vessel closure and shell joint arrangement utilizing a plurality of threaded bolts at a closure or joint interface as a retaining means for the closure or joint and having a closure plug of outside dimensions larger than the inner dimensions of the vessel and smaller than the inner dimensions of the closure opening so that the plug fits within the opening and abuts upon a shoulder formed between the inner dimensions of the vessel and the closure opening.

27,012
METHOD OF IMAGING A DATA STORAGE MEDIUM

Elliot Berman, Quincy, and Carl F. W. Ekman, Bedford, Mass., assignors to Itek Corporation, Lexington, Mass., a corporation of Delaware

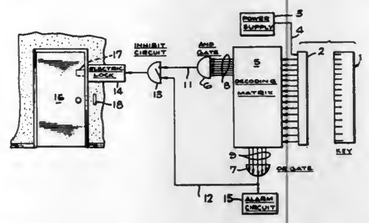
Original No. 3,390,989, dated July 2, 1968, Ser. No. 360,007, Apr. 15, 1964. Application for reissue Oct. 28, 1968, Ser. No. 786,493
Int. Cl. G03c *5/04, 5/24*
U.S. Cl. 96—27 **19 Claims**

This invention relates to methods of updating or adding information to a data storage medium comprising a photoconductor as the photosensitive component thereof. The medium may be uniformly deactivated and selectively activated to development by chemically reactive image forming materials. Also, the invention relates to a method of storing data in the form of polychromatic images by repetitive exposure and development of the said data storage medium.

27,013
KEY-ACTUATED ELECTRONIC SECURITY SYSTEM

Robert A. Hedin, San Pedro, and Alfiero F. Balzano, Placentia, Calif., assignors to Digital Identification Systems, Inc., Sun Valley, Calif., a corporation of California

Original No. 3,392,558, dated July 16, 1968, Ser. No. 503,888, Oct. 23, 1965. Application for reissue Dec. 29, 1969, Ser. No. 888,183
Int. Cl. E05b *47/04;* **G07c** *1/32;* **H01h** *47/14*
U.S. Cl. 70—277 **16 Claims**



The [electronic lock and] key-*actuated electronic security* system disclosed herein includes key means for establishing a binary *code* permutation [code] which may be electrically sensed and means responsive to the key means for transmitting the code to a plurality of output lines. An AND gate is provided having a plurality of inputs, each of which is connected *by a decoding matrix* to corresponding ones of said output lines and which is responsive to the binary [permutation code] *code permutation* to produce a first output signal. An OR gate having a plurality of inputs is provided each of which is connected *by the matrix* to a corresponding one of the output lines and which is responsive to a disparity in the binary [permutation code] *code permutation* to produce a second output signal. Also included is an INHIBIT gate having its inputs connected to the output of the AND gate and the output of the OR gate *and* which is responsive to the presence of the first output signal and the concurrent absence of the second output signal to produce a control signal. Electrically actuated lock means are connected to the output of the INHIBIT gate and operative in response to the control signal.

PATENTS

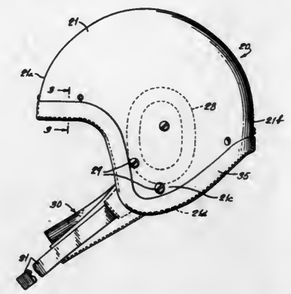
GRANTED DECEMBER 22, 1970

GENERAL AND MECHANICAL

3,548,409
BEADING ELEMENT FOR HELMET OR THE LIKE

Jackson Anthony Aileo, 200 Park St., Carbondale, Pa. 18407

Continuation of application Ser. No. 614,246, Feb. 6, 1967, now Patent No. 3,447,162. This application Dec. 26, 1968, Ser. No. 786,977
The portion of the term of the patent subsequent to June 3, 1986, has been disclaimed
Int. Cl. A42b *3/00*
U.S. Cl. 2—3 **3 Claims**

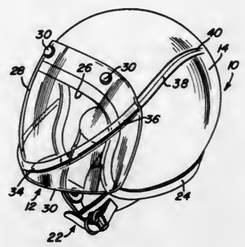


For use with a safety helmet including a rigid shell adapted to receive the wearer's head with substantial space between the head and the shell, a peripheral beading having a channel-shaped portion for engaging the margin of the shell, and an inwardly projecting cylindrical portion which serves as a buffer to prevent contact between the shell and the head, and also partially blocks air flow through the space between the shell and the head.

3,548,410
AIRFOIL FACE SHIELD AND HELMET

Jerry W. Parker, 3123 Manand St., Carmichael, Calif. 95608

Filed May 1, 1969, Ser. No. 820,999
Int. Cl. A42b *3/02*
U.S. Cl. 2—3 **4 Claims**

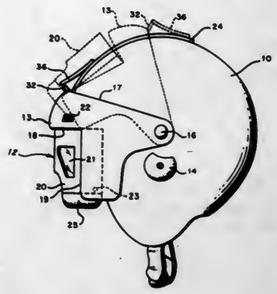


A protective head helmet and transparent face shield rigidly fixed thereto and contoured to cover substantially the entire face area of the wearer. The face shield and helmet or helmet alone includes an upwardly curved airfoil incorporated into the surface thereof to employ air pressure or wind force to hold the helmet down on the head at high speeds.

3,548,411
RETRACTABLE GOGGLES FOR HELMET

Frederick E. Barstow, Needham, and Paul Larson and Udo W. Salomon, Peabody, Mass., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Feb. 26, 1969, Ser. No. 802,524
Int. Cl. A42b *3/00*
U.S. Cl. 2—6 **6 Claims**

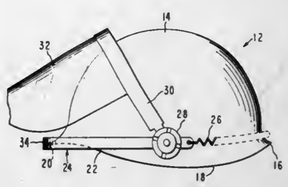


Flashblindness-protective goggles articulated on a protective helmet and retractable from a lowered operational position in front of and close to the eyes of the wearer to a raised non-operational position on the front of the helmet out of his line of vision. A pair of photochromic lenses are mounted in a dihedral frame which is pivotally attached at either side to a wrap-around canopy. The canopy, in turn, is pivotally attached at its side extremities to either side of the helmet at points just above the earphone emplacements. A center guide and lock mechanism enables free movement of the goggles over the front of the helmet between the two positions, and provides positive positioning at either position.

3,548,412
FACE SHIELD MOUNTING BRACKETS FOR HELMETS WITH CURVILINEAR RIMS

Herbert A. Raschke, Greenbrae, Calif., assignor to E. D. Bullard Company, Sausalito, Calif.

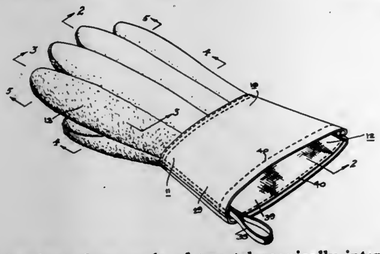
Filed July 14, 1969, Ser. No. 841,535
Int. Cl. A42b *1/00*
U.S. Cl. 2—10 **1 Claim**



A bracket adapted for removable attachment onto a rigid head protective helmet, which bracket permits a transparent face shield to be installed on the front of the

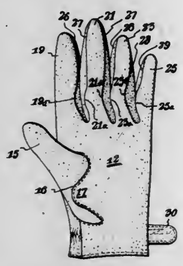
helmet. A bracket that is specially configured to accommodate helmets in which the rim surrounding the visor portion of the helmet lies at an elevation higher than the rim at the remaining portions of the helmet. The bracket is also adaptable for installation on helmets having substantially straight or linear rims.

3,548,413
FIREPLACE GLOVE
Gordon C. Jackson, R.R. 2, Marion, Wis. 54982
Filed May 28, 1969, Ser. No. 828,483
Int. Cl. A41d *13/10, 19/00*
U.S. Cl. 2—161 **3 Claims**



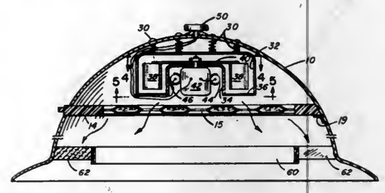
A fireplace glove made of two telescopically interfitted glove-shaped parts, the outer glove part being made of expanded leather and the inner glove part of wool fabric. The two interfitted parts of the glove are respectively provided with wrist-embracing cuff portions having their open ends perimetrally sewn together by lines of stitching which serve as the sole means of securement of the inner glove part to the outer glove part in consequence of which the palm and finger portions of the interfitted glove parts are free to move relatively to one another to preclude build-up of heat at any one point in the glove. The expanded leather of the outer glove part and the wool fabric of the inner glove part are both surface-napped to create air cells or pockets in which air is entrained as the medium for retarding conduction of heat through the superimposed leather and wool layers of the glove. The palm portion of the leather glove part is internally lined with a porous fabric to physically separate the palm portions of the interfitted glove parts, which lining being thus interposed between layers of fire resistant materials may or may not be flammable per se.

3,548,414
GOLF GLOVE
Yuta Fujita, 643-go, 17-ban, Kamiyoga 4-chome, Setagaya-ku, Tokyo, Japan
Filed Mar. 12, 1969, Ser. No. 806,464
Int. Cl. A41d *19/02*
U.S. Cl. 2—169 **2 Claims**



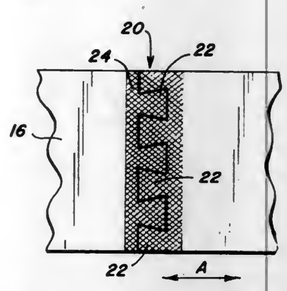
The present invention relates to a golf glove made of leather or fabric cloth by sewing and shaping it into a desired glove in such a manner that the seam lines appearing on the palm of the glove are biased so as not to come on the position where the glove when in use is contacted with the golf club so that the golf player can have a good "direct" feeling of gripping on the golf club, thus eliminating possibility of causing confusion of correct tactile impression to permit the player to enjoy a delightful golf play to his fancy. Also, there is little possibility of inflicting damage to the palm or giving excess pressing force to the seams in the glove, thus remarkably enhancing durability of the glove.

3,548,415
AIR CONDITIONED HELMET
William A. Waters, 3548 E. 49th St., Tulsa, Okla. 74135
Continuation-in-part of application Ser. No. 572,522, Aug. 15, 1966, which is a continuation-in-part of application Ser. No. 566,681, July 20, 1966. This application July 1, 1968, Ser. No. 741,535
Int. Cl. A42b *3/00;* **A42c** *5/04*
U.S. Cl. 2—171.3 **6 Claims**



A helmet provides conditioned air, either cooling or heating, by the operation of a battery-operated fan or blower mounted in the dome of the helmet which directs the flow of air over a tempreature control panel of coolant or heat source between the fan and the head of the wearer, directing such air downwardly over the head, neck and shoulders of the wearer.

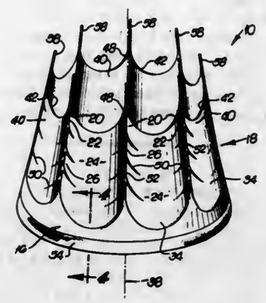
3,548,416
UNIFORM CAP
Bernard Bloom, Chicago, and Benjamin Lev, Skokie, Ill., assignors to Midway Cap Company, a corporation of Illinois
Filed Aug. 26, 1968, Ser. No. 755,286
Int. Cl. A42c *5/00*
U.S. Cl. 2—180 **1 Claim**



A uniform cap having an annular frame comprising a band of thermoplastic sheet material joined at opposed ends by dovetail connections which interlock the ends against peripheral tension on the band. The connections are heat sealed on at least one side of the band to prevent lateral disengagement. A stay assembly for the cover

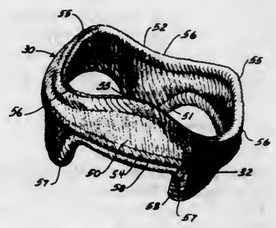
is provided, including a stay upstanding from the frame at the cap front and a generally flat stay holder removably positioned between the frame and the perspiration strip. A pair of slits are cut into the holder forming a rib in which is positioned a depending leg portion of the stay. Alternately, the slits may be cut directly into the plastic band.

3,548,417
HEART VALVE HAVING A FLEXIBLE WALL WHICH ROTATES BETWEEN OPEN AND CLOSED POSITIONS
Ronnie G. Kischer, La Habra, Calif.; Jane N. Kischer, widow of said Ronnie G. Kischer, deceased
Filed Sept. 5, 1967, Ser. No. 665,325
Int. Cl. A61f *1/22;* **A16k** *15/14*
U.S. Cl. 3—1 **13 Claims**



A cardiac valve having a winding and unwinding movement between open and closed positions and including thin sheet material extending about a central axis and having at one time a first position in which the material is openly extended to define a blood passage and at another time a second position in which the material is collapsed and pleated and partially rotated about the central axis to close the passage for blocking reverse flow of blood.

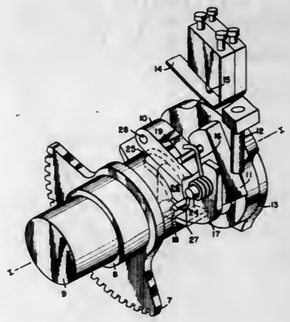
3,548,418
GRAFT VALVE TRANSPLANTATION FOR HUMAN HEARTS AND GRAFT-SUPPORT RING THEREFOR
William W. Angell, Palo Alto, and Paul Kahn, San Francisco, Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif., a corporation of Delaware
Filed May 3, 1968, Ser. No. 726,288
Int. Cl. A61f *1/22*
U.S. Cl. 3—1 **18 Claims**



A graft-support ring for graft valve transplantation. A generally annular metal frame is completely enclosed in a fabric covering to which the graft valve and the host heart tissue can be stitched. Preferably, the metal frame is made from titanium and comprises portions of two cones lying on opposite sides of a common base circle, the cone on one side having a surface-to-axis angle of about 70° and having three atrial apices spaced evenly around a circle with flat arcuate terminal edges and separated from each other by three smoothly curved atrial depressions dipping to the base circle. The cone on the other side has a surface-to-axis angle of about 77° and has three ventricular struts opposite the atrial depressions and evenly spaced around a circle and separated by three ventricular reliefs coinciding with the base circle and smoothly connected to the struts. The apices and struts terminate at the same distance from the axes of the two cones. The fabric covering preferably has a first rolled edge generally following the edge of the atrial apices and depressions, a second rolled edge generally following the edge of the ventricular struts and reliefs, and a third rolled edge generally following the edge of the ventricular relief and crossing from relief to relief across the struts. The ring is also suitable for both homograft and heterograft transplantation.

A new method of valve transplantation is also described.

3,548,419
ELECTRICALLY DRIVEN PROSTHETIC ELBOW
Roy I. Katsuren, Penfield, N.Y., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 10, 1968, Ser. No. 782,556
Int. Cl. A61f *1/04, 1/06*
U.S. Cl. 3—1.1 **4 Claims**



This invention relates to an improved electrically driven prosthetic elbow wherein the elbow is capable of being rigidly locked into place in any desired position, and upon driving the arm to the fully extended position, the elbow is automatically unlocked.

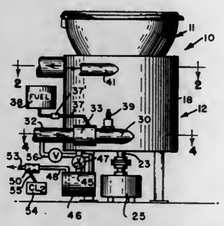
3,548,420
CUSHION STRUCTURE
Wayman R. Spence, Salt Lake City, Utah, assignor to Stryker Corporation, Kalamazoo, Mich., a corporation of Michigan
Continuation-in-part of application Ser. No. 515,525, Dec. 22, 1965. This application Mar. 6, 1967, Ser. No. 621,056
The portion of the term of the patent subsequent to Mar. 14, 1984, has been disclaimed
Int. Cl. A61f *1/02, 13/06*
U.S. Cl. 3—20 **16 Claims**

The cushion structure comprises a gel-like substance, such as an organosiloxane gel comprising the reaction product of an organosiloxane and a hydrogenosiloxane

which is preferably a copolymer of a particular combination of siloxanes combined with an additive such as dimethylpolysiloxane. The gel is covered, at least on one side, by sheet material which may be cloth, rubber, leather, foamed plastic or paper, depending upon the particular use. The cushion structure is used to at least reduce pressure necrosis in footwear, prosthesis for the upper and lower extremities, corrective braces, plaster casts and the like.



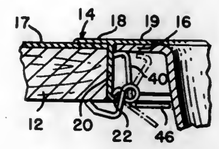
3,548,421
INCINERATOR TOILET
Joe M. Valdespino, Orlando, Fla., assignor to Tekmar Corporation, New York, N.Y.
Filed Oct. 16, 1969, Ser. No. 866,810
Int. Cl. A47k *11/02*
U.S. Cl. 4—131 **12 Claims**



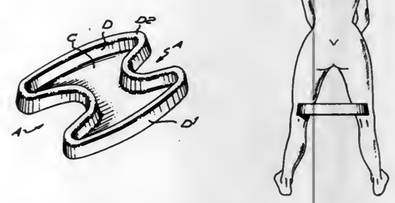
Apparatus for disposing of solid and liquid waste matter including means for separating the liquid matter from the solid matter, for comminuting and burning the solid waste matter, and for treating and discharging the liquid waste matter from the apparatus. The apparatus has means for producing and confining a flame substantially to an area around the inner wall of a combustion chamber to incinerate the comminuted solid matter, and means for chemically treating the waste liquid prior to discharge.

3,548,422
SINK RIM CLIP DEVICE
John E. Byers, 27605 15th Place S., Kent, Wash. 98031, and Wells H. Claussen, Seattle, Wash.; said Claussen assignor to said Byers
Filed Nov. 22, 1968, Ser. No. 778,049
Int. Cl. E03c *1/18*
U.S. Cl. 4—187 **12 Claims**

A clip body having a lower leg and an upper leg disclosed generally at right angles to each other, said upper leg having a downwardly-turned hook portion overlying said lower leg and adapted to be engaged in the upturned bottom edge or lip of a T-shaped sink strip. The upper leg also has an eye portion for receiving opposed depending pivot arms of a toggle body. The toggle body includes an upper support having a curved, generally perpendicularly depending head with a flattened strip along its top surface for engaging against the peripheral flange of a sink. The toggle body also has a lower handle portion for actuating the head into engagement with the sink. In one form the head and handle are on opposite sides of the pivot whereas in a modification adapted for cast iron sinks having thicker peripheral flanges, the head and handle are on the same side of the pivot.



3,548,423
PERSONAL WASHBOWL
Myer Seedman, 7 Stainbeck Walk, Leeds 7, Yorkshire, England
Filed Feb. 6, 1969, Ser. No. 797,193
Claims priority, application Great Britain, Feb. 14, 1968, 7,237/68
Int. Cl. A47k *1/04;* **E03c** *1/18*
U.S. Cl. 4—187 **4 Claims**

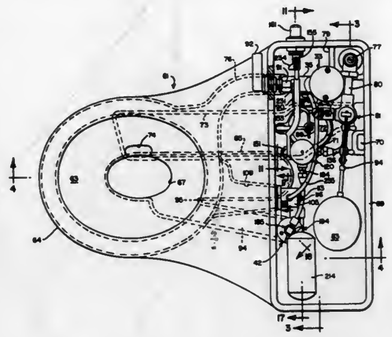




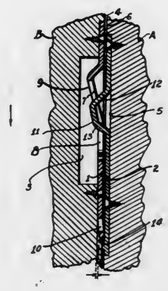
A personal washbowl formed at two opposite sides thereof with two recesses which are directed towards one another and which extend substantially vertically throughout at least the depth of the boundary wall of the bowl, said recesses being shaped to accommodate the legs of the user so that, when the bowl is placed between the legs of the user above or below the knees, the bowl can easily be held in place by inward pressure of the legs engaged within the recesses.

3,548,424
VENTILATED WATER CLOSET
James A. Ducey and Williard G. Young, Robinson, Ill., assignors to Case Manufacturing Company, Robinson, Ill., a corporation of Illinois
Filed Feb. 29, 1968, Ser. No. 709,369
Int. Cl. E03d *9/05*
U.S. Cl. 4—215 **8 Claims**

A ventilated water closet is provided in which a passage between an opening in the wall of the bowl and the soil pipe duct is formed with a trapway normally containing a water seal to block communication between such duct and bowl but water operated means selectively operable remove the water seal when desired and aspirate the bowl through the passage following which fresh water is used to reestablish the water seal.



3,548,425
ABUTMENT INTERLOCK MECHANISM
Toby Goldstein, 11 Ladue Estates, St. Louis, Mo. 63141
Filed May 1, 1968, Ser. No. 725,813
Int. Cl. A47b *47/00;* **A47c** *19/00*
U.S. Cl. 5—299 **5 Claims**

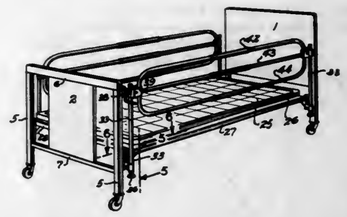


The object of this invention is to provide a connector mechanism for joining cooperating members into an intended structural relationship as an integral unit. This joining is preferably done at the final point of delivery of the structural unit, as for instance, of a head-board of a bed, usually in the home of the ultimate buyer.

The separate members may thus be stored, shipped, and otherwise handled as separate pieces, with little or no portions of the interlock projecting therefrom, that might otherwise be objectionable and interfere with ready handling.

3,548,426
HOSPITAL-TYPE BED STRUCTURE
William J. Helton, Affton, Mo., assignor to Foster Bros. Manufacturing Company, St. Louis, Mo., a corporation of Delaware
Filed July 10, 1968, Ser. No. 743,695
Int. Cl. A47c *21/00*
U.S. Cl. 5—331 **8 Claims**

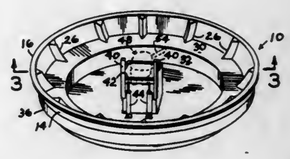
A hospital-type bed having head and foot members and side rails extending between the same. A spring and mattress carrying frame mounted on the side rails. Mechanism at the head member or the foot member for simultaneously adjusting the height of the adjacent ends of both side rails on the head and foot members. An upright carried on opposite end portions of a side rail. A safety side guard mounted on the uprights at the side of the bed and adjustable vertically independently of the height of the side rails.



3,548,427
ALKYL CARBAMATE/ISOPROPYL CARBAMATE FORMALDEHYDE RESIN COMPOSITIONS AND THE MODIFICATION OF FABRICS THEREWITH
Sidney Cohen, Hillsdale, N.J., and Morton Schlesinger, New York, N.Y., assignors to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York
No Drawing. Continuation-in-part of application Ser. No. 595,573, Nov. 21, 1966. This application Mar. 1, 1967, Ser. No. 619,575
The portion of the term of the patent subsequent to July 8, 1986, has been disclaimed
Int. Cl. D06m *13/40, 9/00;* **C08d** *51/24*
U.S. Cl. 8—115.6 **16 Claims**

In order to increase both the appearance and the durability of cellulosic fabrics after repeated launderings, the fabrics are treated with a composition containing, as the active ingredient, a mixture of a first resin consisting of isopropyl carbamate formaldehyde resin and a second resin which may be either lower alkyl, lower alkoxy or lower hydroxyalkyl carbamate formaldehyde resin, wherein the proportion of the first resin to the second resin is between about 15:85 and about 40:60 parts by weight. This resin mixture is applied to the fabric in an aqueous composition, preferably with a catalyst and, if desired, with additional components serving as lubricating agents, wetting agents, and agents to provide better "hand."

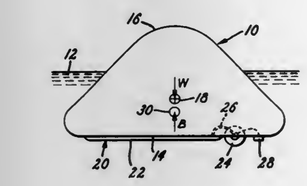
3,548,428
CIRCULAR PLEASURE BOAT
Carl E. Eades, Fortuna, Calif. (P.O. Box 701, Ferndale, Calif. 95540)
Filed Jan. 15, 1969, Ser. No. 791,238
Int. Cl. B63c *1/00;* **B63h** *1/14*
U.S. Cl. 9—1 **4 Claims**

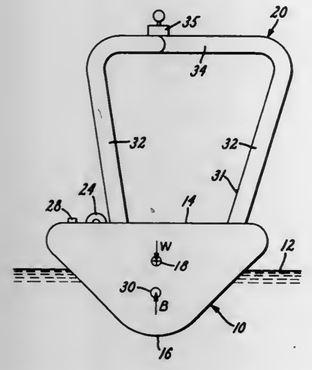


A substantially cup-shaped hull is provided with a seat extending around the inner periphery of its wall. Upstanding walls centrally connected to the bottom of the hull,

define a vertical motor accommodating opening extending through the bottom of the hull. Rams raise and lower the motor.

3,548,429
RIGHTING SYSTEM FOR VEHICLE
Edward J. Dziedziula, Phoenixville, Pa., assignor to General Electric Company, a corporation of New York
Filed Nov. 5, 1968, Ser. No. 773,608
Int. Cl. B63b *21/00*
U.S. Cl. 9—8 **13 Claims**

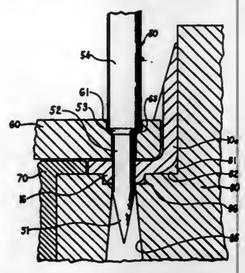




Apparatus for righting a floating body and/or maintaining it in a righted position. An elongated structure at least partially of flotation material is structured so that when fully erected the horizontal distance from a point on an upper portion of the structure to the center of gravity of the body is greater than the horizontal distance from that point to the center of buoyancy of the body, except when the vehicle is fully righted. In the fully righted position these distances are equal.

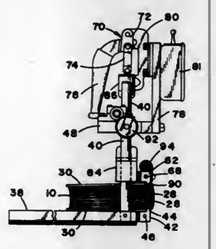
3,548,430
WEDGE NUT
Richard C. Reinker, Ashtabula, Ohio, assignor to The Ashtabula Bow Socket Company, Ashtabula, Ohio, a corporation of Ohio
Original application Dec. 15, 1966, Ser. No. 601,994. Divided and this application Aug. 2, 1968, Ser. No. 760,380
Int. Cl. B21d *53/00, 53/24*
U.S. Cl. 10—86 **1 Claim**

This disclosure relates to steel wedge nuts for cycle steering stems. The wedge nuts are stamped into a shape having a base or nut portion and an upstanding wedge portion. The base portion is pierced in a manner which provides an extruded hole and the extruded hole is tapped throughout its length for threaded engagement with the stem bolt in the fork tube. The cold working of the steel during forging of the wedge nut and piercing and extruding of the hole provides, for a given thickness of material,



both longer and stronger internal threads and prevents movement of the nut portion relative to the wedge portion when force is applied to the stem bolt.

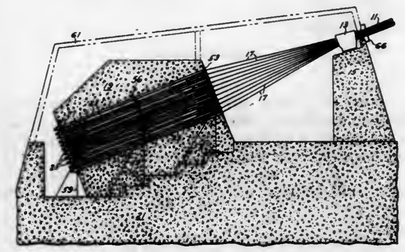
3,548,431
BOOK REPAIR DEVICE AND METHOD
Lewis William Hall, Lancaster, and Stanley E. Spangler and Samuel M. Learned, York, Pa., assignors to The Maple Press Company, York, Pa.
Filed May 14, 1969, Ser. No. 824,466
Int. Cl. B42c *17/00*
U.S. Cl. 11—1 **11 Claims**



A device and a method of repairing a damaged or weakened joint of a casebound book comprising inserting along said joint a strand of adhesive which is normally either fluid or solid at room temperature, clamping the spine portion of the book by engaging the exterior of at least the joint to be repaired by a clamping member having means to heat the same to a temperature at least sufficient to dry a fluid adhesive or melt a heat-sensitive adhesive and cause the same to adhere to and unite the case cloth and adjacent elements at the edge of the spine of the book to reestablish the joint, and when a heat-sensitive adhesive is used, permit the adhesive to cool, while the joint is clamped until the adhesive is sufficiently solid to hold the reestablished joint stable. Convenient clamping, heating and operating mechanism is included in the device which is adjustable to accommodate a wide range of books of different thicknesses.

3,548,432
SUSPENSION BRIDGE CABLE ANCHORAGE
Jackson L. Durkee, Bethlehem, and Frank W. Neeld, Jr., Riegelsville, Pa., assignors to Bethlehem Steel Corporation, a corporation of Delaware
Filed Feb. 8, 1967, Ser. No. 614,651
Int. Cl. E01d *11/00*
U.S. Cl. 14—21 **3 Claims**

An anchorage for prefabricated strands of suspension bridge cables wherein a series of adjacent hollow cylindrical members are integrally attached to a heavy backing plate to form a unitary anchorage means which is then embedded in a concrete anchorage block. Individual strands of the suspension cable are passed through the



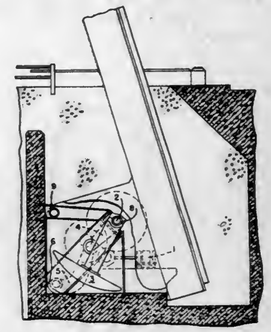
cylindrical members and secured against the backing plate so that the tension of the strands is uniformly transferred throughout the anchorage block by the backing plate and the cylindrical members.

3,548,433
MOTORIZED YARD RAMP
Ray P. Miles, 8575 W. Melody Lane, Macedonia, Ohio 44056, and Andrew E. Szucs, 4479 W. 226th St., Fairview Park, Ohio 43736
Filed Sept. 27, 1968, Ser. No. 763,175
Int. Cl. E01d *15/12*
U.S. Cl. 14—72 **6 Claims**

A motorized yard ramp is provided with means for self-locomotion and is dirigible. Controls are provided to enable a single operator to move the ramp into a work position. The ramp is further provided with means for limited vertical adjustment.

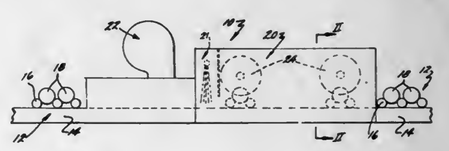
3,548,434
BASCULE BRIDGE
Reed Overson, Walla Walla, Wash., assignor to the United States of America as represented by the Secretary of the Army
Filed June 13, 1968, Ser. No. 736,628
Int. Cl. E01d *15/06*
U.S. Cl. 14—36 **6 Claims**

This invention comprises a bascule bridge mechanism wherein the bridge tail bracket is rotated about the trunnions by a force imparted by a crank arm through a connecting rod. The crank arm and an offset counterweight, which cooperate to reduce maximum crankshaft



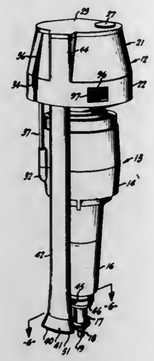
torque and control bridge tip velocity, are driven by a crankshaft powered by a conventional motor.

3,548,435
EGG-WASHING MEANS
William R. Comber, Holland, and Harverd J. Hoekje, Hamilton, Mich., assignors, by mesne assignments, to U.S. Industries, Inc., New York, N.Y., a corporation of Delaware
Original application Oct. 27, 1967, Ser. No. 678,736, now Patent No. 3,453,674, dated July 8, 1969. Divided and this application Feb. 14, 1969, Ser. No. 819,504
Int. Cl. A01k *43/00*
U.S. Cl. 15—3.17 **5 Claims**



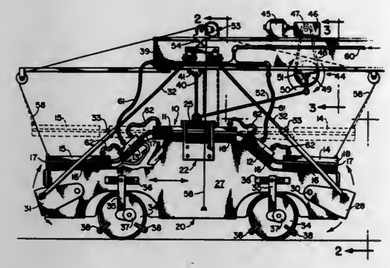
An egg washer of the type in which a conveyor moves eggs through a sequence of washing and drying stations, which includes at one of the washing stations a rotary scrubbing means in the form of a series of disc-like members mounted through their centers on a shaft, to be rotated thereby. These members are made of an abrasive fabric, preferably a mesh made of a synthetic fiber such as a polyester of the type sold commercially under, and widely known by, the trademark "Nylon." Also, a dryer station is provided, in which a single blower creates a current of air divided into a plurality of particular streams by directing vanes such that eggs upon first being brought to the drying station are exposed to a stream of relatively high pressure air which blows free water off one side of the eggs and, after having been turned one-half revolution by the conveying means, the eggs are again exposed to a high pressure stream of air which blows or drives free water off the other side of the eggs. The eggs then continue to travel onward, and are subsequently exposed to air of much milder pressures, which serves to evaporate the light film of water which may yet remain on the eggs after opposite sides thereof have had free water accumulations blown off.

3,548,436
VACUUM CLEANER ATTACHMENT FOR ELECTRIC ERASING MACHINE
Richard E. Henrich, 1542 Glen Way, Yuba City, Calif. 95991
Filed Sept. 18, 1968, Ser. No. 760,442
Int. Cl. B43l *19/00*
U.S. Cl. 15—3.53 **2 Claims**



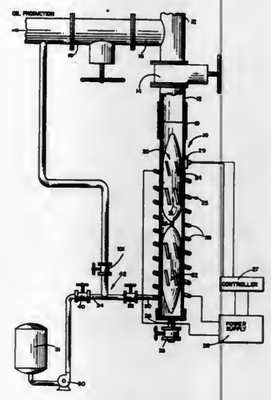
Mounted on an electric erasing machine having an eraser tip driven by a spindle is a housing enclosing a fan. Connected to the fan housing is a vacuum head located adjacent the eraser tip. Rotation of the spindle is transmitted to the fan so that during the time the eraser is in operation the vacuum head sucks in the erasure material. The erasure particles withdrawn from the working area are screened out of the air flow and are stored in the housing for periodic removal, as necessary.

3,548,437
MACHINE FOR WASHING MOTOR CARS
Charlie T. Anderson, 2516 Woodford, Shreveport, La. 71108
Filed Mar. 10, 1969, Ser. No. 805,592
Int. Cl. B60s *3/04*
U.S. Cl. 15—21 **8 Claims**



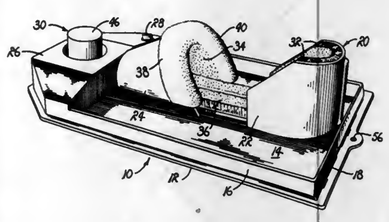
A machine for washing motor cars including a top brush assembly which is made up of a number of interconnected, flexible brushes adapted to cover the top surface of the car. A side brush assembly is pivotably attached to each of the top brush assemblies and is adapted to make firm contact with the side of the automobile. A separate front and rear brush assembly is mounted on each of the ends of the side brush assemblies and is adapted to be pivotably moved to clean the front and rear of the automobile, respectively. A reciprocating mechanism is connected to the suspension means for the brush assemblies and reciprocates all of the brushes over the car to scrub the car clean. Means to supply water to the brushes is provided.

3,548,438
AUTOMATIC OIL WELL DEWAXING SYSTEM
Edward L. Ghormley, Woodland Hills, Calif., assignor to North American Rockwell Corporation
Filed June 26, 1968, Ser. No. 740,362
Int. Cl. B08b *9/04*
U.S. Cl. 15—104.06 **2 Claims**



The invention consists of a self-cleaning tool container which is connected to a well flowline. A cleaning tool is housed within the container in the stored position and is forced through the flowline by hydraulic action to periodically clear the inside of the flowline. A heating means is mounted on the tool container to raise the temperature of the tool above the melting point of contaminants which collect on the tool, such as wax. Means are also provided for flushing the tool and housing to remove the melted contaminants.

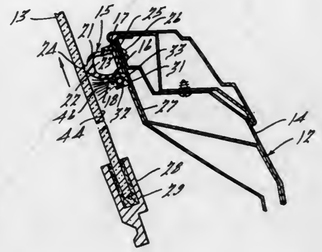
3,548,439
FOOT SOAPING AND SCRUBBING DEVICE
Clinton G. Berst, 216 San Pablo, Fresno, Calif. 93727
Filed May 31, 1968, Ser. No. 733,608
Int. Cl. A47k *7/00*
U.S. Cl. 15—104.92 **3 Claims**



A device for cleaning feet including a receptacle, an archlike structure in the receptacle having inwardly facing walls with scrubbing projections or bristles extended inwardly therefrom and adapted to receive the front

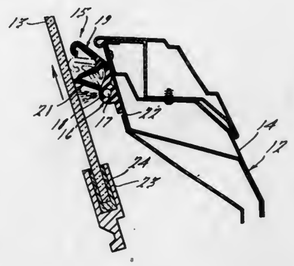
digital and instep portions of the foot for cleaning the same in response to movement of the foot, an external rib of outwardly projecting bristles on the structure for cleaning between the digits, a U-shaped heel receiving structure for similarly cleaning the heel portion of the foot, an interconnecting sole cleaning structure and a soap dispensing mechanism for delivering soap to the scrubbing and cleaning structures.

3,548,440
WINDOW CLEANING SYSTEM
Mahesh B. Kothari, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Mar. 26, 1969, Ser. No. 810,580
Int. Cl. B60s *1/46*
U.S. Cl. 15—250.01 **6 Claims**



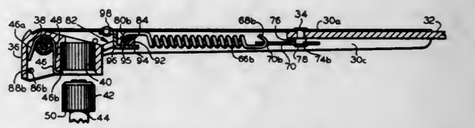
The window cleaning system comprises an elongated inflatable member carrying a squeegee and extending substantially across the width of a movable window. Contiguous to the inflatable member is a fluid dispensing conduit having a plurality of spray apertures. Washer solvent fluid under pressure is utilized to inflate the inflatable member and is dispersed through the spray apertures of the fluid dispensing conduit so that the window surface can be wetted and wiped as it moves past the fluid dispensing conduit and squeegee, respectively.

3,548,441
WINDOW CLEANING SYSTEM
Robert J. Kruger, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed May 22, 1969, Ser. No. 826,955
Int. Cl. B60s *1/46*
U.S. Cl. 15—250.01 **8 Claims**



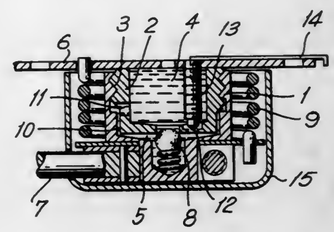
A window cleaning system comprising an elongate elastomeric member having a main body and carrying both a squeegee and a weather strip and extending substantially across the width of a movable window. Integrally formed with the elastomeric member is a fluid dispensing conduit having a plurality of spray apertures. Washer solvent fluid under pressure is utilized to inflate the elastomeric member and is dispersed through the spray apertures. During inflation, the elastomeric member moves from a configuration in which the weather strip makes a weathertight seal with the window to a configuration in which the squeegee contacts and wipes the window after the latter is wetted by dispensed solvent. This movement is made possible by the use of two different elastomeric materials having varying flexibilities in the formation of the integral elastomeric member.

3,548,442
WINDSHIELD WIPER ARM CONSTRUCTION
Donald W. Stratton, Hammond, Ind., assignor to The Anderson Company, a corporation of Indiana
Filed Apr. 25, 1968, Ser. No. 724,139
Int. Cl. B60s *1/34*
U.S. Cl. 15—250.34 **13 Claims**



A windshield wiper arm construction of the type wherein the arm is pivoted to a mounting head and spring means interconnected between the arm and the mounting head, characterized in that the spring means comprises plural tension springs of reduced dimension positioned lengthwise of the arm providing sufficient biasing force at the end of the arm while affording a low profile to the arm; also characterized in that the springs are connected to a pivoted link having improved bearing surfaces at the connections to the spring and to the mounting head, the link providing a continuously changing lever arm cooperating with the spring means to afford constant wiper arm pressure throughout the full sweep of the arm.

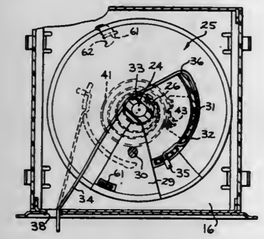
3,548,443
ROTARY DOOR CLOSER WITH FLUID CHECK
Toimi Rassa, Tampere, Finland, assignor to Oy Wartsila AB, Helsinki, Finland
Filed Aug. 21, 1968, Ser. No. 754,211
Claims priority, application Finland, Aug. 21, 1967, 2,224/67
Int. Cl. E05 *3/14*
U.S. Cl. 16—52 **7 Claims**



A door closer comprises a fixed piston and a cylinder threadably engaged on the piston for rotation thereon. The cylinder is open upwards and receives the piston in its open part. There are turning arms connected to the

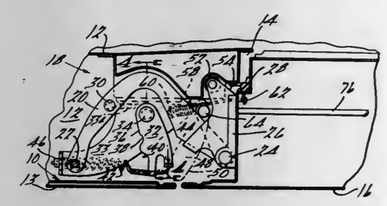
cylinder for transmitting the turning movement of a door to the cylinder. The door closer is further provided with spring means acting on said cylinder to urge it into a position in which the door is closed, and a fluid system means between the piston and the cylinder to regulate the speed of the spring actuated closing movement of the door closer.

3,548,444
DOOR CLOSURE DEVICE WITH TIME DELAY MEANS
Dwight W. Jacobus and Eugene N. Callahan, Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Feb. 28, 1969, Ser. No. 803,315
Int. Cl. E05f *1/08*
U.S. Cl. 16—78 10 Claims



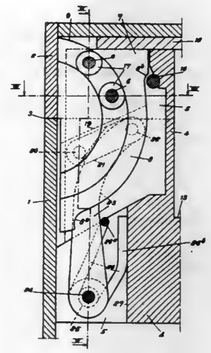
A door closure device for both slowing the closing movement of a door and thereafter holding the door in its closed position includes a spring biased cable drum closure means designed to provide a positive latching force when the door is closed and an inertia wheel operatively connected to the drum by a one way clutch for slowing the initial closing movement of the door.

3,548,445
VEHICLE DOOR HINGE
David C. Dehar, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 10, 1968, Ser. No. 745,084
Int. Cl. E05d *3/06, 11/10*
U.S. Cl. 16—146 11 Claims



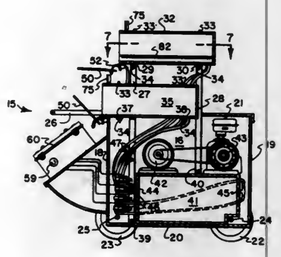
A hinge device for swingably mounting a vehicle door to vehicle body structure so that the door is movable between a closed position, a partially open position and a fully open position in a manner giving more convenient access and egress to the vehicle passenger compartment. Link means are provided for rotating the door simultaneously in a first direction about a first pivot point and in an opposite direction about a second point as the door moves from the closed position to the partially open position. During movement of the door from this latter position to the fully open position, locking means allow door rotation about only one of the pivot points.

3,548,446
CONCEALED HINGES
Robert R. Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine Francispam, Paris, France, a corporation of France
Filed Feb. 20, 1968, Ser. No. 706,824
Int. Cl. E05d *3/06*
U.S. Cl. 16—164 6 Claims



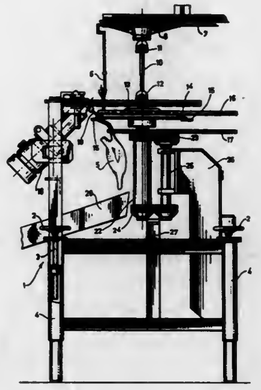
A concealed hinge for a container such as a box or case, particularly for a small case such as that of a cigarette lighter, the hinge having two main component parts, one provided with arcuate grooves which each cooperate with rollers in the other component part. A spring coupling may be provided to hold the hinge stable in the fully open and fully closed positions.

3,548,447
APPARATUS FOR HUMANELY KILLING MINKS AND THE LIKE
Thomas F. Price, Jr., Rte. 1, Box 25, Manhattan, Mont. 59741
Filed Aug. 25, 1967, Ser. No. 663,367
Int. Cl. A22b *3/00*
U.S. Cl. 17—1 6 Claims



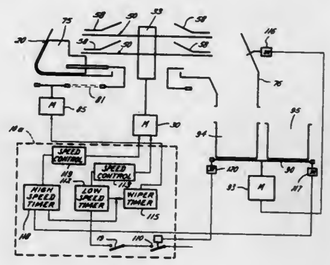
Method and apparatus for rapidly and humanely executing animals such as minks, the apparatus including at least one vacuum chamber adapted to receive the animals and means for creating a sub-atmospheric pressure in the chamber for a sufficient time after the animal is placed therein to suffocate it to death. Means are provided for automatically restoring atmospheric pressure to the chamber after the animal has expired.

3,548,448
DEVICE FOR CUTTING THROUGH THE ANKLE JOINT OF A LEG OF A BIRD HANGING BY THIS LEG
Jacobus Gerardus Vertegaal, Boxmeer, Netherlands, assignor to Stork Amsterdam N.V., Amsterdam, Netherlands
Filed Dec. 10, 1968, Ser. No. 782,644
Claims priority, application Netherlands, Oct. 21, 1968, 6815015
Int. Cl. A22c *21/00*
U.S. Cl. 17—11 6 Claims



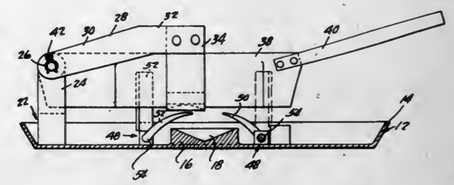
A device for cutting the ankle joint of a leg of a bird comprises a rotating guide disc which cooperates with a rotating cutting disc, and curved guide rods placed both above and beneath the guide disc at the outer edge thereof for guiding and bending the legs of the bird at the location of the joint between the guide rods and the guide disc so that the joint can be cut by means of the cutting disc.

3,548,449
CRABMEAT EXTRACTION METHOD
W. Lee Lockerby, Houston, Tex., assignor to Avico, Inc., Houston, Tex., a corporation of Texas
Filed Jan. 15, 1968, Ser. No. 697,966
Int. Cl. A22c *29/00*
U.S. Cl. 17—48 4 Claims



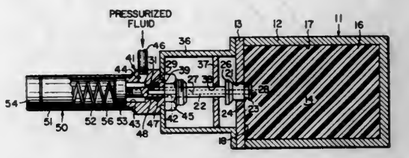
A machine and method for extracting meat from the body shells of crabs by the employment of centrifugal force, characterized by structures and procedures permitting operation at two different speeds operative to separately and successively extract the more valuable, relatively large lump meat sections in substantially unbroken condition; followed by extraction of the smaller, less valuable, flake meat sections.

3,548,450
CLAM OPENER DEVICE
George W. Helmer, R.F.D. 2, West Winfield, N.Y. 13491
Filed Aug. 23, 1968, Ser. No. 754,766
Int. Cl. A22c *29/00*
U.S. Cl. 17—76 2 Claims



A clam opener device comprising a lower clam support member and upper clam support members and an upper clam blade and a pair of lower clam blades for properly holding a clam in a rigid position so that the blades can properly open the clam and particularly the adductor muscles.

3,548,451
APPARATUS FOR REMOVING EXPANDED PLASTIC ARTICLES FROM FORMING MOLDS
Arieh Carmi and Thomas J. Rayeski, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 11, 1967, Ser. No. 637,790
Int. Cl. B29f *1/14;* B29d *27/00*
U.S. Cl. 18—2 2 Claims

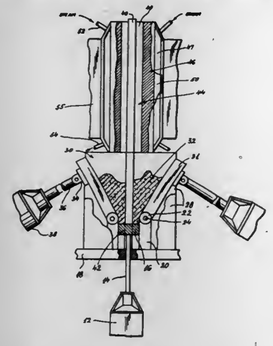


An apparatus for separating expansively molded plastic articles from forming molds comprising two or more mold parts. The head of a headed hollow piston rod is inserted through an orifice in one of the mold parts and into the mold cavity formed by such parts, and the plastic article is formed about such head to maintain the article against said one mold part during separation of the mold parts. Following separation of mold parts the rod is actuated out of said cavity to disembed the head from the formed article and pressurized fluid is supplied to the hollow of the rod to impinge upon the article and disengage it from said one mold part.

3,548,452
EXTRUSION APPARATUS FOR FABRICATING BUILDING UNITS
Abram Godwin Caleb, 4 Caribbean Ave., Kingston, Jamaica, Bahamas
Filed Dec. 20, 1967, Ser. No. 692,066
Int. Cl. B29c *1/00*
U.S. Cl. 18—5 2 Claims

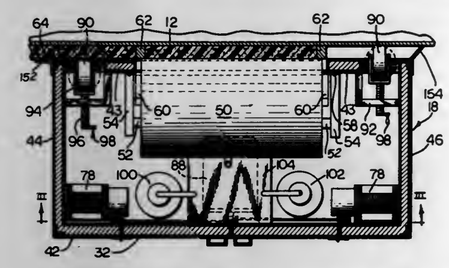
Modular building units are described made of a thermosetting mixture of materials. The units are formed in hydraulic presses having heated walls. An extrusion press; hinged book type of press and a slidable book-end type

of press are described. The presses have retractable cores which form channels in the building units. The building



units may serve as columns, posts, outside and inside walls, ceilings, roofs, and floors.

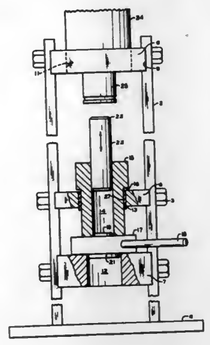
3,548,453
APPARATUS FOR FOAMED-IN-PLACE INSULATION OF VERTICAL SURFACES
Edward H. Garis, 445 S. Spring Ave., La Grange, Ill. 60525
Original application Mar. 8, 1966, Ser. No. 532,740. Divided and this application Oct. 29, 1968, Ser. No. 786,793
Int. Cl. B29d *27/04*
U.S. Cl. 18—5 **8 Claims**



An apparatus and method for insulating the vertical tank surfaces of liquid or gas storage tanks, including a framework structure adapted to move vertically adjacent a vertical surface, means for supporting a roll of sheet material on the structure so that the roll can be unwound as the structure moves upwardly adjacent the surface, means for supporting foam-in-place equipment on the structure for directing foam between the veritcal surface and the sheet material as it is unwound, and means associated with the structure for raising and lowering it relative to the vertical surface.

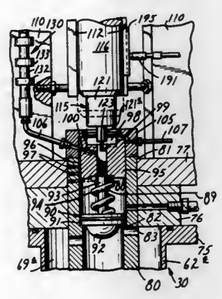
3,548,454
COMPACT PRESS
Robert H. Kallenberger, Robert E. Dollinger, John W. Byron, and Eulas W. Henderson, Borger, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed May 20, 1968, Ser. No. 730,238
Int. Cl. B30b *7/00*
U.S. Cl. 18—16 **9 Claims**

A compact, easily operated press is provided which consists of a cylinder and piston mounted below a pressure providing means, wherein relatively small amounts of a particulate sample can be subjected to a pressure in the range of from 15,000–30,000 p.s.i. The press fea-



tures unique means of alignment of the component parts to insure that the high compression does not result in galling of the piston and cylinder.

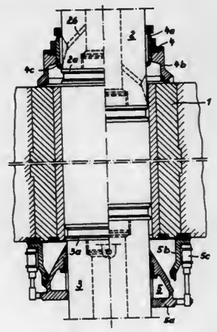
3,548,455
APPARATUS FOR DIRECT CONVERSION OF POWDERED MATERIALS INTO PARTS
Richard W. Holmquist, Minneapolis, Minn., assignor to Reuter, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 3, 1967, Ser. No. 658,128
Int. Cl. B30b *11/00*
U.S. Cl. 18—16 **10 Claims**



The apparatus includes a device for preprocessing the powdered material with an electric arc in a hydrogen or other suitable atmosphere. Upper and lower punches slideably mounted in an elongated die to receive accurately metered quantities of the preprocessed powder in an evacuated chamber therebetween are adapted to be forced together by a high velocity projectille to automatically form the powder into parts having desired configurations and preferred metallurgical properties. The upper punch is restrained during the forming process by a relatively large movable mass, which is mounted to move under the force of the high velocity projectile after the part is formed. The restrained movement of the large mass causes the force of the high velocity projectile to be sustained on the part for a time sufficient to liquify and recrystallize the grain boundaries within the part after which it absorbs the unused energy to prevent secondary shock waves

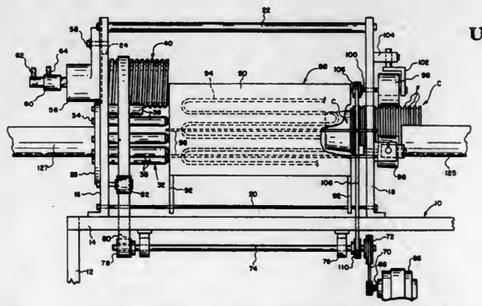
in the part. Means are also included for producing a relatively high vacuum in the die prior to insertion of the pre-processed powdered material therein and during the forming of the part.

3,548,456
APPARATUS FOR BRIQUETTING OF PULVERULENT OR GRANULATE-LIKE MATERIALS, PARTICULARLY ANODE MATERIALS FOR THE PRODUCTION OF ALUMINIUM
Albert Boesch, Dusseldorf, and Horst Hans Groos, Metzkausen, Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed May 24, 1968, Ser. No. 731,751
Claims priority, application Germany, May 26, 1967, Sch 40,780
Int. Cl. B29c *3/00*; B30b *11/00*
U.S. Cl. 18—16.5 **7 Claims**



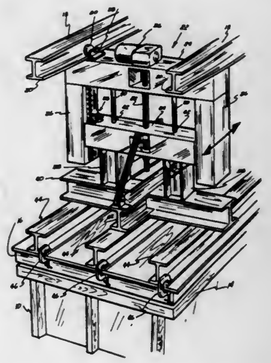
A method of and means for the briquetting of pulverulent or granulated materials, wetted or unwetted, particularly anode material for the production of aluminum, wherein the material is shaped into a briquette in the container of a press, by pressure exerted in a horizontal or vertical plane by a press ram or a pair of press rams, the material being evacuated immediately before being pressed into shape.

3,548,457
RIM CURLING APPARATUS
Frank M. Kulig, Bloomfield, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed July 23, 1968, Ser. No. 746,868
Int. Cl. B29c *17/02*; B29b *3/00*
U.S. Cl. 18—19 **6 Claims**



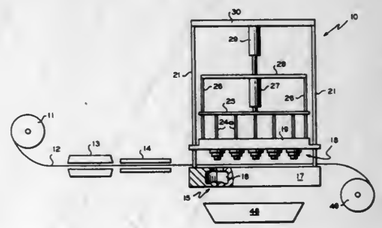
An improved cylindrical rim curling member comprising a plurality of short segments, each of which has a helically extending forming groove in its outer peripheral surface of uniform cross sectional configuration, but which differs in cross sectional configuration from that in substantially the remainder of the segments, with the segments being assembled together on end to form the member in a predetermined pattern wherein the changing configuration of the groove of the assembled segments conforms to the sequential manner in which the rim is deformed during the curling operation. In a preferred embodiment the segments are hollow and are assembled on a hollow shell.

3,548,458
APPARATUS FOR DRAWING A PLASTIC SHEET
Sol Goodman, 20310 Kentfield, Detroit, Mich. 48219
Filed June 13, 1967, Ser. No. 645,733
Int. Cl. B29c *17/00*
U.S. Cl. 18—19 **4 Claims**



A frame mounted to a pair of overhead tracks is horizontally movable between a work-station over a floor-mounted bed, and a transfer station, laterally spaced from the bed. A die support member carried by the frame is vertically adjustably movable between raised and lowered positions by a jack screw. The jack screw provides means for lowering an upper die into operative engagement with a complementary die mounted on the bed in a precisely controlled movement.

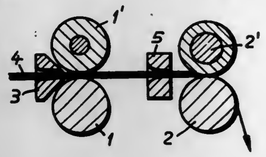
3,548,459
SHEARING RING FOR SPLIT MOLD THERMOFORMING
Calvin D. Dockery, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 8, 1968, Ser. No. 774,247
Int. Cl. B29c *3/00, 17/00*
U.S. Cl. 18—19 **6 Claims**



An apparatus for separating a thermoformed container and the sheet from which it was forced. The apparatus includes a movable mandrel providing a first shearing

edge and a ring die providing a second shearing edge. The ring die is integrally formed and is mounted on one of two relatively movable mold halves. As the mandrel moves into the die, the shearing edges pass in close conformity thereby separating the container from the sheet.

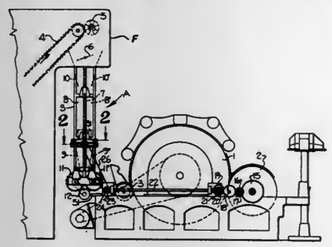
3,548,460
PROCESS FOR DRAFTING STAPLE FIBERS
Werner Naegeli, Winterthur, Switzerland, assignor to Pavena A.G., Basel, Switzerland, a corporation of Switzerland
Continuation of application Ser. No. 430,320, Feb. 4, 1965. This application June 3, 1968, Ser. No. 734,150
Claims priority, application Switzerland, Feb. 15, 1964, 1,881/64
Int. Cl. D01h *5/74*
U.S. Cl. 19—66 **11 Claims**



A process for drafting staple fibers wherein a stable band comprising individual fibers mutually adhesively bound by a setting adhesive agent is drawn through a pair of feed rollers and then through a pair of delivery rollers. The individual staple fibers of the stable band are seized, resulting in a rapidly increasing drafting force, which destroys the mutual adhesive bond between the individual staple fibers. Upon rupture of the adhesive bond there results a rapidly decreasing drafting force, so that the tensile load upon these staple fibers is only of very short duration during the drafting operation in comparison with the total drafting time of the relevant fiber. Then, the individual broken-out staple fibers are withdrawn from the stable band practically without force.

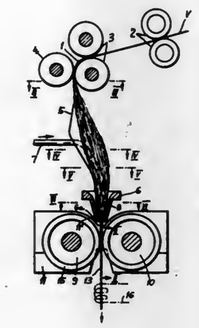
The invention also pertains to a draftable web comprising staple fibers which prior to drafting have been adhesively bonded together and which during drafting have been subjected to a high tensile load.

3,548,461
TEXTILE FIBER WEB FORMING AND FEEDING APPARATUS AND METHOD
Ferdinand Reiterer, 1 Rue des Martinets, Rueil-Malmaison, France
Continuation-in-part of application Ser. No. 422,633, Dec. 31, 1964. This application Aug. 5, 1968, Ser. No. 750,316
Int. Cl. D01g *15/40*
U.S. Cl. 19—105 **8 Claims**



An apparatus for and method of feeding textile fibers as they are introduced into the upper end of an upright chute whose open bottom is positioned closely above a pair of rotary calender rolls, wherein a pair of shutters defining the bottom portion of the chute are oscillated laterally at such amplitude and frequency as to repeatedly squeeze the fibers therebetween while forcing a substantial portion thereof upwardly and then to permit them to fall so as to intermix and form them into a lightly compacted mass of substantially uniform density as they approach the calender rolls. A vertically reciprocating packer may be provided for imparting an intermittent downwardly yielding force to the fibers between the shutters to aid in improving the uniformity of the density of the fibers as they are delivered to the calender rolls.

3,548,462
PROCESS FOR THE PREPARATION OF A FIBER ARRANGEMENT OR STRAND COMPOSED OF STAPLE FIBERS FOR UNDERGOING A SUBSEQUENT HIGH DRAFT
Werner Naegeli, Winterthur, Switzerland, assignor to Pavena A.G., Basel, Switzerland, a corporation of Switzerland
Filed Feb. 4, 1965, Ser. No. 430,255
Claims priority, application Switzerland, Feb. 15, 1964, 1,882/64
Int. Cl. D01g *11/00, 27/00*
U.S. Cl. 19—150 **24 Claims**

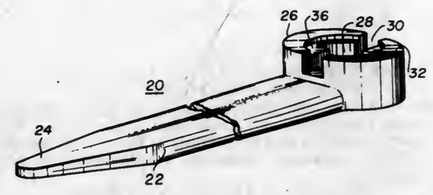


A stable band is formed from a fiber arrangement of staple fibers which, for instance, consist of a card web. The stable band can be subsequently subjected to a faultless high draft. The stable band is formed in that the fiber arrangement of staple fibers is imbued with a liquid adhesive, such is then squeezed out and the fiber arrangement is condensed at all sides, with there undergoing a setting of the liquid adhesive after the aforementioned condensing operation of the fiber arrangement. Consequently, there is produced a compact stable band possessing a homogenous bonding and capable of being effectively drafted.

3,548,463
BUNDLING STRAP
Stephen John Kohke, Bridgewater Township, Somerset County, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey
Filed Dec. 23, 1968, Ser. No. 786,197
Int. Cl. B65d *63/00*
U.S. Cl. 24—16 **11 Claims**

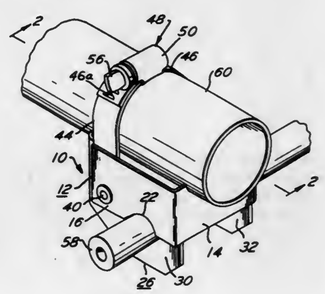
The invention is directed to improvements in the twist to lock type of article bundling strap providing for increased strength of the head end structure, ease of use and permitting the head end structure to better conform to the shape of the article, or articles, to be bundled. In

a first improvement a recess is placed in the end face of the head end member about which locking takes place, to provide for material flow during locking. The recess may be made of a depth to accept the jaw of a twisting tool and permit deflection of the surrounding walls. Strengthening ribs may be placed along the back face and atop the head structure. The entry to the transverse aper-



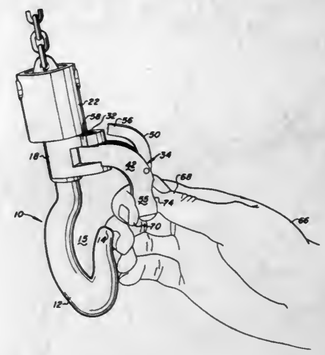
ture may be tapered at its bottom end to facilitate the entrance of the free tail end portion of the strap therein and at its upper end to permit the head end member to align more closely to the article to be bundled. Additionally, changes in the slope of the walls of the transverse aperture and the rounding of the locking slot bottoms increase the overall pull out strength of the strap when locked.

3,548,464
ROD CLAMP DEVICE
John Cecil, Jr., Skaneateles, N.Y., assignor to American Electronic Laboratories, Inc., Colmar, Pa., a corporation of Pennnsylvania
Filed Feb. 28, 1969, Ser. No. 803,171
Int. Cl. A44b *21/00*
U.S. Cl. 24—81 **8 Claims**



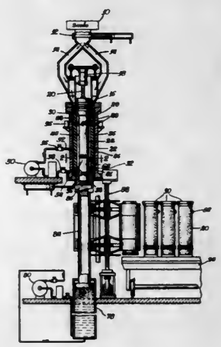
A clamp for rigidly joining two rods or tubes in noncoplanar relation which has a single actuating means which simultaneously fastens the two rods or tubes to the clamp. The clamp includes a supporting member, a clamp member pivotally connected to the supporting member and extending along one side of the supporting member, clamping strap means secured to the supporting member and extending across the other side of the supporting member, and actuating means for tightening the clamping strap means around a rod or tube. One rod or tube extends between the clamping member and the supporting member, and a second rod or tube extends between the clamping strap means and the supporting member and engages a portion of the clamping member. When the clamping strap means is tightened around the second rod or tube to secure it to the supporting member, the second rod or tube presses against the clamping member. This pivots the clamping member so as to clamp the first rod or tube between the clamping member and the supporting member.

3,548,465
SAFETY HOOK
Lawrence H. Workman, Muskegon, Mich., assignor to Gardner-Denver Company, Quincy, Ill., a corporation of Delaware
Filed Apr. 1, 1969, Ser. No. 811,821
Int. Cl. A44b *13/00*
U.S. Cl. 24—241 **5 Claims**



A safety hook having a gate pivotally mounted on the hook to operate as a movable member to close the hook throat. The pivot axis of the gate is parallel to and offset from the axis of the hook shank to provide for one handed opening and closing of the gate. A spring biased latch is located on the throat bridging portion of the gate and is operable to releasably maintain the gate in a closed or open position.

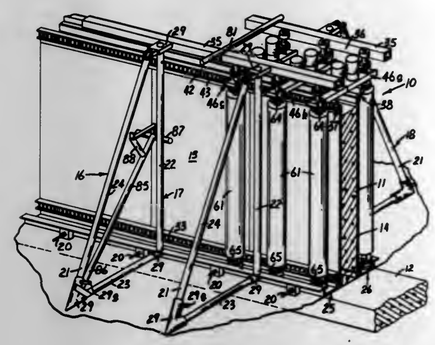
3,548,466
MAKING PIPE
John M. Stanley, Milledgeville, Ga., assignor to Amsted Industries Incorporated, Chicago, Ill., a corporation of Delaware
Filed Feb. 26, 1968, Ser. No. 708,189
Int. Cl. B28b *21/36*
U.S. Cl. 25—31 **4 Claims**



This disclosure relates to making pipe having a monolithic spur from a compressible mass of moldable material

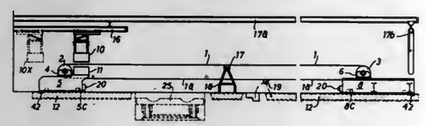
such as granular clay particles. The mandrel of an isostatic press is provided with a second mandrel removably attached to the first-mentioned mandrel and having the configuration of the interior of the spur.

3,548,467
CONCRETE WALL FORM APPARATUS
Cecil F. Allred, 1307 Oak St., Othello, Wash. 99344
Filed Sept. 11, 1968, Ser. No. 759,170
Int. Cl. B28b *7/02;* **E04g** *11/00*
U.S. Cl. 25—131 **10 Claims**



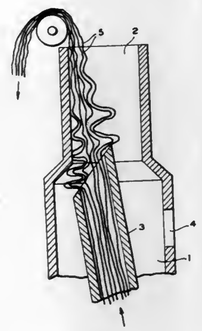
A concrete wall form apparatus is described for forming an elongated concrete wall between two forms made of plywood sheets. Two sections of an elongated frame are positioned on opposite sides of the wall, supporting tracks for carrying a carriage that is movable along the length of the wall. Backup rollers are mounted on the carriage for engaging the outside surfaces of the forms to prevent the forms form buckling or bulging when the concrete is poured and vibrated between the forms. Motors are connected to the rollers to move the carriage along the tracks. The frame is collapsible and the rollers may be easily removed from the carriage to enable the apparatus to be transported and stored in a compact bundle.

3,548,468
MACHINES FOR FINISH PROCESSING OF ENDLESS FELTS
Thomas Hindle, Blackburn, England, assignor to Hindle, Son and Company Limited, a company of the United Kingdom of Great Britain and Northern Ireland and the Isle of Man
Filed Nov. 13, 1968, Ser. No. 775,470
Claims priority, application Great Britain, Nov. 14, 1967, 51,667/67
Int. Cl. D02j *3/02*
U.S. Cl. 26—68 **6 Claims**



A machine for the finish processing of felts wherein two carriages each carrying a respective roller are movable, one relative to the other, between a first position whereat the rollers are in adjacent disposition for the loading of an endless felt thereonto or for removal of a felt therefrom. A heater means is provided to apply heat to both sides of the felt. To facilitate the removal of the felt from the rollers, such rollers are mounted in bearings from which they can be lifted, an appropriate lifting means being provided for this purpose.

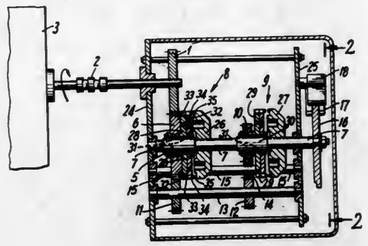
3,548,469
METHOD OF AND AN APPARATUS FOR CRIMPING SYNTHETIC YARNS
Herbert Scherzberg, Karl-August Essig, Robert Schnegg, Ernst Pobitschka, and Ernst Mossig, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Nov. 7, 1968, Ser. No. 773,986
Claims priority, application Germany, Nov. 16, 1967, 1,660,332
Int. Cl. D02g *1/10*
U.S. Cl. 28—1.4 **2 Claims**



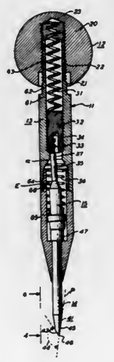
The invention relates to a process for preparing crimped multifilament yarns of synthetic, high molecular weight polymers by treating the filaments in a gas stream. The filaments being introduced into an oscillating gas column and deflecting the crimped filaments out of the gas stream without reducing the crimp contraction.

3,548,470
APPARATUS FOR AUTOMATICALLY POSITIONING THE THREAD FIELD OF A FABRIC TO BE FRINGED
Giovanni Battista Pozzolo, Lovere, Italy, assignor to S.M.I.T. Societa Macchine per l'Industria Tessile Societa per Azioni
Filed Nov. 14, 1967, Ser. No. 683,399
Claims priority, application Italy, Nov. 15, 1966, 29,922/66, Patent 782,953
Int. Cl. D06c *29/00*
U.S. Cl. 28—18 **6 Claims**

Apparatus for automatically stopping the fabric carried by a fringing machine so that the warp thread field to be fringed is centered under tension on the center line of the fringing mechanism. The movement of the fabric is directly monitored by a freely rotating cylinder which transfers the movement through alternately embodied mechanisms to a cam plate. First and second electric measuring feelers in contact with the fabric actuate the mechanisms which, in turn, cause the cam plate to pivot and actuate a switch which stops the fabric with the thread field centered. The pivoting cam may also actuate a switch which reduces the speed of the fabric just prior to its being stopped.



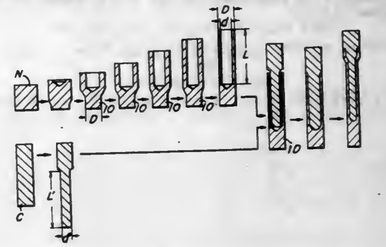
3,548,471
GEM POSITION FIXING TOOL
Hans K. Biller, 48 Britten Road, Green Village, N.J. 07935
Filed June 10, 1968, Ser. No. 735,834
Int. Cl. B23p *5/00*
U.S. Cl. 29—10 **1 Claim**



A gem position fixing tool for the setting of gems, adapted to provide hammer-action movement of a cutting edge into the setting metal to thereby form gem-setting segments.

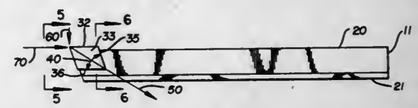
3,548,472
IGNITION PLUG AND METHOD FOR MANUFACTURING A CENTER ELECTRODE FOR THE SAME
Hisashi Urushiwara, Hiroshi Morino, and Misao Suzuki, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo-to, Japan
Filed Nov. 14, 1968, Ser. No. 775,805
Claims priority, application Japan, Nov. 15, 1967, 42/73,038
Int. Cl. F23g *3/70;* **H01t** *13/00*
U.S. Cl. 29—25.12 **6 Claims**

A method for manufacturing a center electrode for use in ignition plugs and of the type that a metal such as copper having a relatively higher heat-conductivity is inserted and buried in the closed end-tube portion of a corrosion-resistant metal such as nickel, said method comprising first subjecting two kinds of starting materials, i.e. a copper rod and a nickel rod, to cold working separately



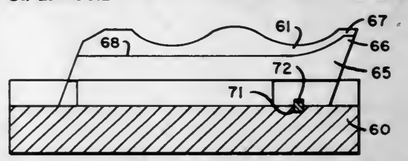
into shapes near to the desired dimensions, and thereafter assembling them together and subjecting this assembly to cold working into the required final dimensions.

3,548,473
POCKET-TYPE CUTTING INSERT
William B. Stein, Barberton, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Mar. 27, 1968, Ser. No. 716,389
Int. Cl. B23p *15/28;* **B26d** *1/00*
U.S. Cl. 29—95 **5 Claims**



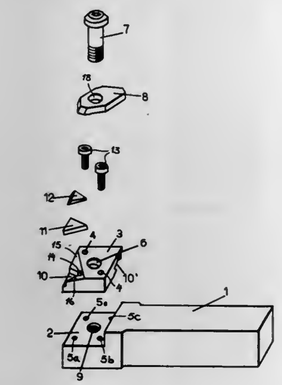
An improved cutting insert for metal cut-off tools that is characterized by an elongate pencil-like shank portion of steel having a V-shaped bottom edge and further having a pocket provided at the juncture of its front and top surfaces, with the pocket being formed by walls disposed at an angle with respect to each other and receiving a complementally shaped cutting tip that preferably has precast front, side, and rear clearance angles provided thereon. The cutting bit, preferably of a diamond shaped configuration in elevation is wedged into the pocket so as to increase the rigidity of the cutting tool during use.

3,548,474
MACHINE TOOL
Edwin L. Meyer, 376 Cleveland Ave., Bridgeport, Conn. 06604
Original application May 10, 1966, Ser. No. 549,055, now Patent No. 3,461,748, dated Aug. 19, 1969. Divided and this application Aug. 11, 1969, Ser. No. 848,979
Int. Cl. B23p *15/42;* **B26d** *1/04*
U.S. Cl. 29—95.1 **1 Claim**



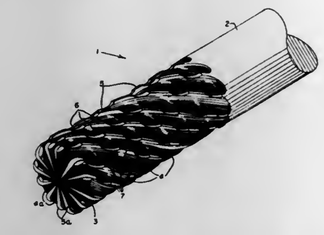
A multiblade rotary broaching tool and method of making wherein thin flat blades are assembled in a machining block at one angle and placed in a working block with separators therebetween, the blades being at a different angle to provide a "backoff" angle. In one form, there is a skiving blade at the forward end substantially at right angles to the path of travel of the assembly of the other blades which are angularly displaced relative thereto.

3,548,475
CUTTING TOOL FOR LATHES
Giorgio Fiori, Como, Italy, assignor to USAP Utensileria Speciale Alta Presisione S.p.A., Como, Italy, a corporation of Italy
Filed June 14, 1968, Ser. No. 737,151
Claims priority, appplication Italy, June 21, 1967, 804,449
Int. Cl. B26d 1/00
U.S. Cl. 29—96 8 Claims



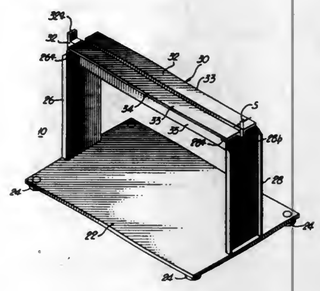
A lathe cutting tool has a shank to which a bit-holder block having two differently disposed bit seats can be fastened in different positions. A bit with a chip breaker can be clamped in either seat to attack a workpiece from different directions.

3,548,476
MILLING CUTTER CONSTRUCTION
Robert S. Cave, Bay City, Donald D. Alexander, Saginaw, and Milo W. Shaner, Bridgeport, Mich., assignors to Dixie Tool Industries, Inc., Bridgeport, Mich., a corporation of Michigan
Filed Apr. 25, 1969, Ser. No. 819,206
Int. Cl. B26d 1/12
U.S. Cl. 29—103 10 Claims



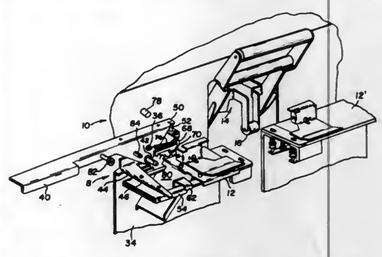
A milling cutter having a cylindrical body provided with a plurality of helical cutting edges circumferentially spaced from one another by helical flutes, each of the cutting edges being interrupted by notches spaced longitudinally of the cutting edge to form cutting teeth. The cutting edges and the flutes spiral about the body in the same direction and at the same pitch, and the notches spiral about the body in the same direction as the cutting edges and the flutes, but at a steeper pitch. The length of the teeth and the notches is substantially uniform and the depth of the notches is such that chips cut by the teeth are discontinuous.

3,548,477
PIN INSERTION FIXTURE
Ira G. Laws, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,913
Int. Cl. B23p 19/00, 19/04
U.S. Cl. 29—200 3 Claims



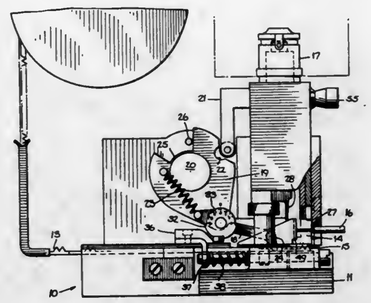
A fixture for facilitating the insertion of an elongated hinge pin through adjacent tubular socket portions formed along an open edge of an envelope comprising an elongated guide member having an elongated slot means defined therein for receiving the envelope, a pair of support legs supporting opposite ends of the guide means at each end of said slot means for guiding opposite edges of the envelope as it is inserted downwardly in the slot means. Said slot means has a transverse width slightly less than that of the socket portions on the envelope whereby wall portions defining opposite sides of the slot means force the envelope socket portions into coaxial alignment when the envelope is fully inserted into the guide means. Stop means is provided outwardly of one end of the slot means extending upwardly of the guide members and intersecting an axis in coaxial alignment with the aligned socket portions for limiting the travel of a pin inserted from the opposite end through said aligned socket portions.

3,548,478
FILM CARTRIDGE OPENING DEVICE
Robert J. Blackman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Sept. 27, 1968, Ser. No. 763,230
Int. Cl. B23p 19/04; B65h 35/00
U.S. Cl. 29—200 10 Claims



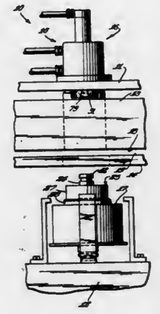
A device for breaking open a film cartridge to obtain a film spool contained therein, separating the film spool from the broken cartridge parts, disposing of the cartridge parts, and retaining the film spool on the device in a position for unwinding of the film and backing paper in preparation for splicing. By use of an adapter, the device will position a different size film spool for unwinding the film in preparation for splicing.

3,548,479
TERMINAL ATTACHING MACHINE
Louis A. Netta, North Brunswick, N.J., and Herbert G. Burkert, Crystal Lake, Ill., assignors to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey
Filed Dec. 4, 1968, Ser. No. 781,162
Int. Cl. H01r 43/04
U.S. Cl. 29—203 20 Claims



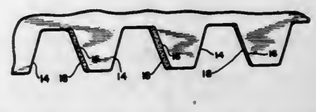
A terminal attaching machine wherein a strip of terminals is fed into a terminal crimping station by means of an indexing pawl and attached thereat to the end portion of a wire. Means are provided for adjusting the machine to accommodate different size terminals being fed thereinto. A first adjustable means is provided to vary the stroke of the indexing pawl to facilitate engagement and feeding of different size terminals. A second adjustable means is provided to vary the width of the track through which the terminals are fed into the crimping station. Another adjustable means is provided to vary the length of wire being fed into the machine for subsequent attachment to a terminal.

3,548,480
TOOL LOADER AND UNLOADER
Dennis Daniels, Williamsville, N.Y., assignor to Houdaille Industries, Inc., Buffalo, N.Y., a corporation of Delaware
Continuation-in-part of application Ser. No. 629,335, Feb. 6, 1967, which is a continuation-in-part of application Ser. No. 528,856, Feb. 21, 1966. This application June 13, 1968, Ser. No. 736,749
Int. Cl. B23p 19/04
U.S. Cl. 29—243 18 Claims



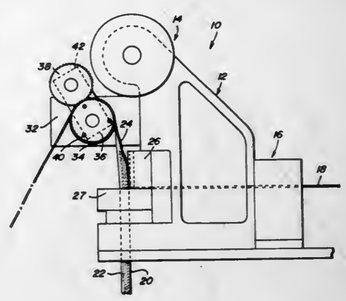
A tool loader and unloader comprising a ram and pin assembly for removing a tool from a tool station of a machine tool and a power actuated loader platform for inserting a tool into the tool station. The loader platform comprises a plurality of concentric sleeves relatively movable with respect to each other to form a stepped recessed tool-receiving surface which positions and aligns the tool as it is being inserted into the tool station.

3,548,481
METHOD OF REBUILDING WORN TEETH OF GEARS, SPLINES, SPROCKETS AND THE LIKE
Martin C. Bohn, Highland Park, John F. Brady, Wood Dale, Kenneth G. Rice, Evergreen Park, and John O. Spinello, Blackhawk Heights, Ill., assignors to Chicago Clutch Manufacturing Co., Inc., Chicago, Ill., a corporation of Illinois
Filed July 18, 1968, Ser. No. 745,752
Int. Cl. B22d 19/10
U.S. Cl. 29—401 7 Claims



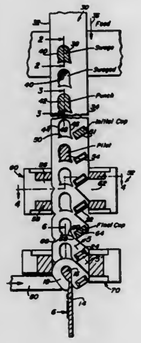
A method of rebuilding worn teeth on toothed members such as gears, splined shafts, sprockets, etc., by building up the clearance side of the teeth, and grinding the wear out of the worn side and the built up portion on the clearance side. The grinding operation is continued until the characteristics of the original teeth are obtained, that is, the same tooth thickness, shape, etc., as the original teeth. Building up of the clearance side can be accomplished by welding or bonding a suitable thin metal strip or shim onto the clearance side of the tooth.

3,548,482
METHOD AND APPARATUS FOR PRODUCING SLIDE FASTENERS
Arthur Graf, 128 W. 45th St., New York, N.Y. 10036
Filed May 29, 1968, Ser. No. 733,009
Int. Cl. B21d 53/52; B23p 19/04
U.S. Cl. 29—410 15 Claims



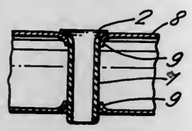
A zipper chain is produced with the locking elements deburred by sequential operations performed in a single machine to which metal stock and flexible tape are fed. The locking elements formed from the stock and clinched to the tape, are deburred by coining members rotated with the tape pulling roller of the machine which continuously advances the tape at a low speed synchronized with intermittent advancement of the stock and high speed drive of reciprocating forming tools.

3,548,483
APPARATUS AND METHOD OF MANUFACTURING FASTENERS
Arthur Graf, 323 W. 43rd St., New York, N.Y. 10036, and Richard A. Graf, 627 Maple St., River Vale, N.J. 07675
Filed Aug. 13, 1969, Ser. No. 849,796
Int. Cl. B21d *53/52*; B23p *19/04, 17/00*
U.S. Cl. 29—410 14 Claims



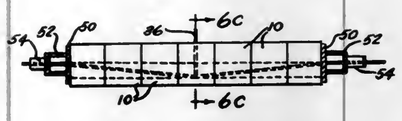
Slide fasteners made from stock intermittently advanced toward a moving tape on which the fastening elements are strung. Power operated tools swage, punch, laterally trim, cup, sever and clamp the fastener elements to the tape. Fastener elements are severed along spaced contour segments common to adjacent elements between asymmetrical leg portions. One of the leg portions has a laterally trimmed edge along which the locking projection is formed.

3,548,484
METHOD OF PREPARING FOR STRINGING THE FRAME OF A GAMES RACKET
William C. Carlton, New Hall, Ardleigh, England, assignor to Carlton Sports Company Limited, London, England, a British company
Filed Mar. 27, 1969, Ser. No. 811,100
Claims priority, application Great Britain, Apr. 3, 1968, 15,931/68
Int. Cl. B23p *17/00*
U.S. Cl. 29—423 2 Claims



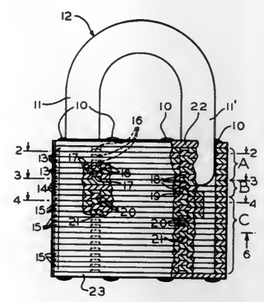
Improved grommets for the stringing apertures of badminton, tennis, squash and other games rackets are of tubular form having an outwardly-extending flange at one end and tapered at the other end. Grommets of this form are easily located in the stringing apertures of the racket. Nylon 12 and rigid p.v.c. are preferred materials for the grommet which conveniently has an external shoulder or step adjacent its tapered end. The grommets are used in a method of preparing a racket for stringing by inserting them, tapered end first, through the stringing apertures of the racket frame and then removing, such as by trimming, at least part of the protruding tapered ends. The external shoulder feature provides a ready guide as to a suitable amount by which the ends should be trimmed, of which the following is a specification.

3,548,485
METHOD OF MAKING A PRESTRESSED, SEGMENTED CONCRETE BEAM
James M. Young, 3402 W. Wells St., Milwaukee, Wis. 53208
Original application June 3, 1965, Ser. No. 460,904, now Patent No. 3,407,544, dated Oct. 29, 1968. Divided and this application Apr. 29, 1968, Ser. No. 724,812
Int. Cl. B21d *39/00*
U.S. Cl. 29—452 7 Claims



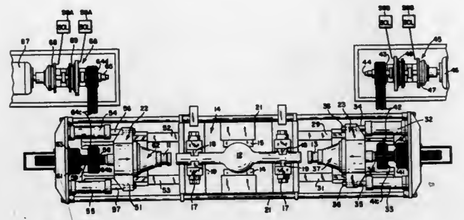
A method of making a prestressed, segmented concrete beam includes the step of arranging the blocks or segments of the beam so that the block faces are in abutting relation with longitudinal holes in the blocks in alignment. A tendon is inserted in the holes and force applied to the tendon to exert a compressive stress on the blocks. The tendon is deflected intermediate its ends to increase the internal resisting moment of the beam. The tendon is then affixed to the blocks.

3,548,486
ART OF INTERLOCKING PLATE ASSEMBLY FOR LAMINATED PADLOCK BODIES
Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis., a corporation of Wisconsin
Original application Nov. 7, 1967, Ser. No. 681,232, now Patent No. 3,422,644, dated Jan. 21, 1969. Divided and this application Sept. 27, 1968, Ser. No. 763,114
Int. Cl. B23p *21/00*
U.S. Cl. 29—469 3 Claims



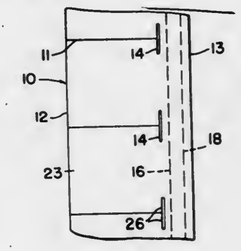
To provide for the advance assembly of plates used to form the laminated body of a padlock into groups of various multiples, the pluralities of plates of each group are formed with similarly spaced protuberances to tightly fit into correspondingly spaced recesses in each superimposed plate of said group, whereby the plural number of plates of a group will be held together. Other groups of plates for the complete padlock laminated body, with different spacing arrangements of the plate protuberances and recesses, are similarly assembled. Thereafter, the preassembled groups of plates to constitute a padlock body are arranged and registered one on another, and are secured together in perfect alignment by rivets or the like.

3,548,487
METHOD AND APPARATUS FOR FRICTION WELDING
Alex F. Stamm, Rochester, Mich., assignor, by mesne assignments, to Rockwell-Standard Corporation, a corporation of Delaware
Filed June 30, 1967, Ser. No. 650,396
Int. Cl. B23k *27/00*
U.S. Cl. 29—470.3 33 Claims



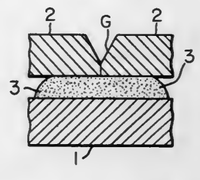
A friction welding apparatus and method wherein workpieces such as the center section and wheel bearing end spindles of a drive axle housing are frictionally welded together by rotating the end spindles and axially accelerating the rotating end spindles towards opposite ends of the center section, decelerating the advancing end spindles as they approach the center section so that they gently contact the center section, abruptly and materially increasing the axial thrust urging the rotating end spindles against the center section immediately upon contact, then gradually increasing the axial thrust applied to the rotating end psindles from the abruptly increased thrust level, stopping rotation of the end spindles, and abruptly increasing the axial thrust again to a much higher level and holding the axial engagement pressure at this last level until the welds, which are formed when the end spindles stop rotating, have cooled.

3,548,488
METHOD OF PRODUCING FINNED TUBING
Edward P. Habdas, Dearborn, Mich., assignor, by mesne assignments, to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Original application Dec. 13, 1965, Ser. No. 513,248, now Patent No. 3,455,379, dated July 15, 1969. Divided and this application Apr. 3, 1968, Ser. No. 718,619
Int. Cl. B23k *31/02*
U.S. Cl. 29—477.3 5 Claims



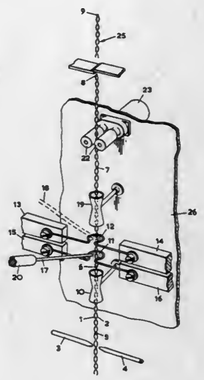
Tubing is produced by a method which comprises slitting strip material laterally from one edge to define separated fin forming portions, winding the unslitted portion into helical configuration to form a tube with the fin forming portions extending laterally therefrom. The strip before winding is formed into channel form and the sides of the channel in adjacent convolutions are abutted and bonded together.

3,548,489
ONE-SIDE BACK BEAD-FORMING BUTT-WELDING PROCESS USING A THERMOSETTING BACKING COMPOSITE
Masayasu Arikawa and Katsuro Iio, Fujisawa-shi, Japan, assignors to Kobe Steel Ltd., Fukiai-ku, Kobe, Japan
Filed July 31, 1967, Ser. No. 657,197
Claims priority, application Japan, Aug. 4, 1966, 41/51,391
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—491 7 Claims



A one-side back bead-forming butt-welding process using a thermosetting backing composition wherein a powdery backing composition is applied against the underside of the groove between workpieces to be welded together and said workpieces are butt-welded on the upperside of said groove, said backing composition including thermosetting resin powder, iron powder, and slag forming agent, wherein said thermosetting resin in said composition may be set and solidified before or only under the influence of the heat of welding to bring the composition into intimate contact with the underside of the workpieces.

3,548,490
MANUFACTURE OF THERMOCOUPLES
Frederick James Jordan and Sydney Tom Wells, Stafford, England, assignors to The English Electric Company Limited, London, England, a British company
Filed Nov. 18, 1968, Ser. No. 776,737
Claims priority, application Great Britain, Nov. 30, 1967, 54,659/67
Int. Cl. H01l *15/00*
U.S. Cl. 29—573 5 Claims



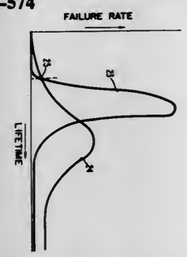
In a method of continuously producing thermocouples coated with glass or glass-ceramic, a pair of thermocouple wires pass between spot welding electrodes, which form junctions at intervals equal to the length of thermocouples required. The wires then pass through one or more molten glass beads and the resultant coating is heat treated if necessary. The wires are then severed adjacent each junction to form separate thermocouples.

3,548,491

MASS PRODUCTION OF ELECTRONIC DEVICES

Norman G. Ainslie and Devendra S. Chhabra, Poughkeepsie, Donald W. Jepsen, Tarrytown, and Walter E. Mutter, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Original application Feb. 3, 1967, Ser. No. 613,947, now Patent No. 3,474,530, dated Oct. 28, 1969. Divided and this application Nov. 14, 1968, Ser. No. 835,821
Int. Cl. B01j 17/00
U.S. Cl. 29—574 13 Claims



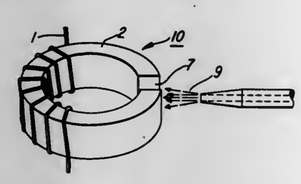
Mass produced devices affected by physical changes that require a long time to exert their influence may be accurately fabricated by a combined empirical and physical fabrication approach.

3,548,492

METHOD OF ADJUSTING INDUCTIVE DEVICES

Roger L. Weber, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Sept. 29, 1967, Ser. No. 671,697
Int. Cl. H01f 7/06
U.S. Cl. 29—602 24 Claims



Disclosed is a method of using a flow of abrasive-filled air to adjust an inductive device having a solid core by removing a portion of the core. The dimensions of the resulting air gap thus determine the final value of the device. The inductive device is adjusted after being connected in a circuit to provide the desired frequency response characteristic of the circuit by comparing the actual voltage amplitudes of selected frequency pairs with the desired voltage amplitudes of the same frequency pairs.

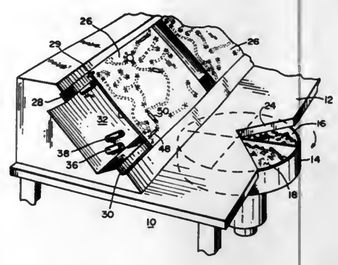
3,548,493

METHOD AND APPARATUS FOR ASSEMBLING ELECTRICAL COMPONENTS ON PRINTED CIRCUIT BOARDS

Linus O. Hubbard, Chicago, Ill., assignor to Wells-Gardner Electronics Corporation, Chicago, Ill., a corporation of Illinois

Filed Sept. 5, 1967, Ser. No. 665,418
Int. Cl. H05k 3/30
U.S. Cl. 29—626 6 Claims

As a tray of identical components comes before the assembler, one or more tiny lamps illuminate the location or locations on the printed circuit board where components from that tray are to be mounted. The assembler then inserts parts from that tray into the circuit board at the illuminated locations. Preferably a translucent board is used, and illumination comes from behind the board. The shape of the illuminated spot and its orienta-



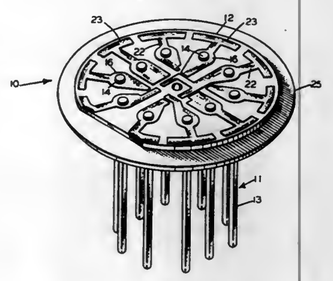
tion on the printed circuit board are adjusted so as to indicate the shape and orientation of the part being mounted.

3,548,494

METHOD OF FORMING PLATED METALLIC PATTERNS ON A SUBSTRATE

Allen R. Haring, Kutztown, Pa., assignor to Western Electric Company, Incorporated, Broadway, N.Y., a corporation of New York

Filed Jan. 31, 1968, Ser. No. 71,897
Int. Cl. H05k 3/30
U.S. Cl. 29—626 6 Claims



A method of uniformly plating a plurality of separate contact areas supported on a ceramic header, each of which surrounds a pin which protrudes through the ceramic header, by electrically connecting the areas to each other with a strip of fusible material, intermediate portions of which have reduced cross sections. Following plating, electrical energy is applied between pins to melt the reduced intermediate portion therebetween and destroy the electrical connection between the areas.

3,548,495

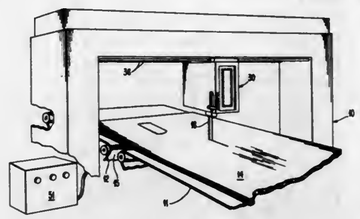
MATERIAL CUTTING MACHINE HAVING SHARPENING BANDS FOR SHARPENING RECIPROCATING CUTTING BLADE

Herman J. Baldwin and David I. McDonald, Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., a corporation of Ohio

Filed July 31, 1968, Ser. No. 749,085
Int. Cl. B24b 19/00; B25f 3/00
U.S. Cl. 30—139 9 Claims

A material cutting machine has a pair of abrasive coated bands or belts to sharpen a rotatably mounted reciprocating cutting blade. The sharpening bands are held in a

spaced and desired angular relation to the cutting blade when the cutting blade is rotated by being rotated therewith. When the cutting blade is to be sharpened, one of the bands is moved into engagement with the cutting blade during removal of the cutting blade from cutting engagement with the material with the tension on the



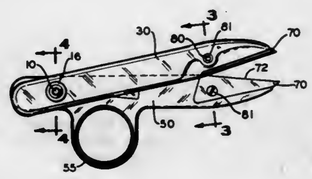
other of the bands being reduced to remove the other band further from the cutting blade. The other band is moved into engagement with the other side of the cutting blade when the cutting blade is returned into cutting engagement with the material with the tension on the one band being reduced to remove the one band further from the cutting blade.

3,548,496

FILAMENT CLIP SCISSORS

Robert W. Van Hook, Fremont, Ohio, assignor to The Clauss Cutlery Company, Division of Alco, Standard Corporation, Fremont, Ohio, a corporation of Ohio

Filed July 15, 1968, Ser. No. 744,875
Int. Cl. B26b 13/04
U.S. Cl. 30—253 5 Claims



An end pivoted, spring biased, light weight, clip scissors comprising a pair of blade holding members including stop limit means, and a substantially triangularly interiorly edge grooved recessed seat at its free end for a similar triangularly shaped detachable and replaceable blade held in the seat by a single screw.

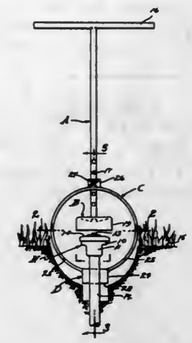
3,548,497

DIGGER AND LAWN TRIMMER FOR SPRINKLER HEADS

Robert N. Bickett, 2462 Monogram Ave., Long Beach, Calif. 90815

Filed Apr. 12, 1968, Ser. No. 721,012
Int. Cl. A01b 45/04
U.S. Cl. 30—300 21 Claims

The invention involves a manually operable shaft that carries a sprinkler head engageable locator and centering means, and a cutter adjustable on the shaft and that carries a cutter-guide. The tool is operated by engaging the cutter and cutter-guide over the sprinkler head to be trimmed, with the locator and centering means over said head and with the cutter-guide bearing against the nipple or pipe support beneath the sprinkler head, and by revolving the shaft while pressing the tool into the ground to



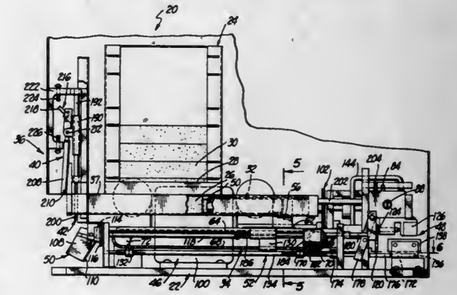
cut out a cave and simultaneously trim grass at the perimeter thereof.

3,548,498

AUTOMATIC BUTTER-PAT DISPENSING MACHINE

Urban Rios, San Pedro, Calif., assignor, by mesne assignments, to American Buttermaster Corporation, Long Beach, Calif., a corporation of California

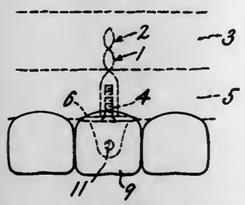
Filed Apr. 1, 1969, Ser. No. 812,032
Int. Cl. A01j 21/00
U.S. Cl. 31—5 10 Claims



An automatic machine for dispensing pats of butter from elongated blocks or sticks. The elongated blocks are disposed horizontally in a stack in a refrigerated magazine. The lowermost block is advanced to a cutting station in a step-by-step manner by a ram engaging one end of the block. A cutter at the cutting station cuts pats of butter from the block, the thickness of each pat corresponding to the length of each step of movement of the block. After the ram has completed its stroke, it is returned to an initial position to permit the next lowermost block of butter in the magazine to drop into alignment with the ram. The ram is intermittently advanced and returned, and the cutter is intermittently actuated, by an electric motor under the control of a selector system which causes the electric motor to operate the cutter actuator and the ram drive on demand at the end of a step of advance movement of the ram, and to operate

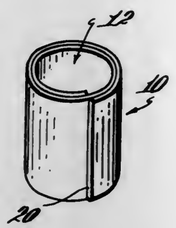
the ram return at the end of a predetermined number of steps of advance movement of the ram. This selector system includes a manual control at the cutting station, which manual control is engageable by a dish or plate to cause the electric motor to actuate the cutter to dispense one pat of butter, and to advance the ram one step to move the block into position to dispense another pat.

3,548,499
ARTIFICIAL TOOTH
Maurice Valen, 97—07 63rd Road, Rego Park, N.Y. 11374
Filed Dec. 14, 1967, Ser. No. 690,574
Int. Cl. A61c *13/22*
U.S. Cl. 32—6 **3 Claims**



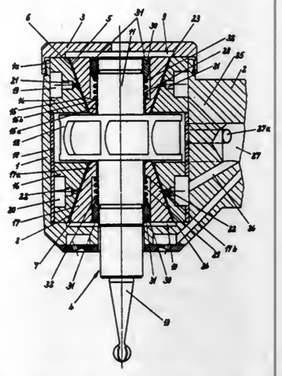
An alignment plate and means for positioning an artificial tooth. The alignment plate has a substantially flat central portion in which a hole is formed after alignment of the plate on the gum surface. It projects and engages the artificial tooth and secures it firmly in position.

3,548,500
METHOD OF TAKING DENTAL IMPRESSIONS
Theodore J. Cohen, 43 Voorhis Drive, Old Bethpage, N.Y. 11804
Filed May 8, 1969, Ser. No. 822,936
Int. Cl. A61c *9/00*
U.S. Cl. 32—17 **4 Claims**



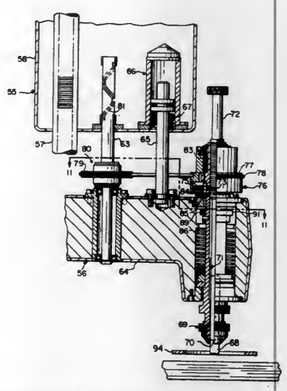
Impressions of a tooth, used ultimately to prepare a cap, bridgework, replacement, or the like, are taken by a process which first provides an expandible band of thin flexible sheet material, e.g. of copper, in the form of a cylinder with overlapping layers free to slide against each other to permit the cylinder opening to enlarge. The expandable band is placed over the tooth whose impression is to be taken, and the cylinder layers slide to accommodate the tooth and to provide a close fit. The sheet at one end of the cylinder is typically trimmed by the dentist to parallel the joint between tooth and gum, which the band is to fit closely for a full impression. After the band has been fitted to the circumferential size of the tooth, the overlapping layers of the band are secured to one another, and soft impression material is introduced into the space between tooth and band. After the impression material is firm, the band and impression material are removed from the tooth, whose impression can then be used for the typical dental purposes aforementioned.

3,548,501
TURBINE TYPE DENTAL HANDPIECE
Erich Hoffmeister, Biberach an der Riss, Germany, assignor to Kallenbach & Voigt, Biberach an der Riss, Germany, a company of Germany
Filed July 11, 1968, Ser. No. 744,163
Claims priority, application Germany, July 13, 1967, 1,566,236
Int. Cl. A61c *1/10*
U.S. Cl. 32—27 **8 Claims**



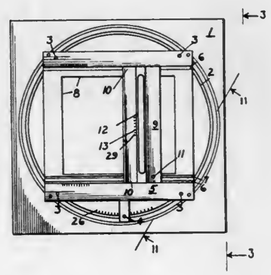
A dental handpiece comprises a turbine rotor supported in plain bearings disposed at opposite sides of the turbine impeller, each bearing comprising inner and outer bearing rings having frusto-conical bearing surfaces which face one another and between which compressed air is supplied to form a gap between the frusto-conical bearing surfaces. Each inner ring is arranged with play on the rotor shaft and has a bore formed with an enlarged portion in which there is located a compression spring confined between a clamping ring on the shaft and a shoulder within the bore so that, during operation, the inner bearing ring can rotate with the shaft.

3,548,502
MARKING DEVICE FOR MATERIAL CUTTING MACHINE
Herman J. Baldwin, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., a corporation of Ohio
Filed Aug. 6, 1968, Ser. No. 750,538
Int. Cl. B43l *13/00*
U.S. Cl. 33—18 **16 Claims**



A material cutting machine has cutting means adapted to be moved transversely of material, which is movable longitudinally relative to the cutting means. The machine has a marking device, which also is adapted to be moved transversely of the material. The machine has means to permit only one of the cutting means and the marking device to be moved transversely at any time. The marking device includes marking means that is movable into engagement with the top of the material to form a mark thereon with the marking device including means to rotate the marking means when the marking means engages the material. The marking device has means to both move the marking means into engagement with the material and away from engagement with the material. The marking device also has means to adjust the position of the marking means relative to the material in accordance with the total thickness of the material being cut.

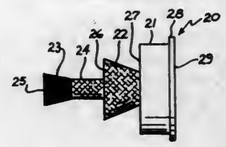
3,548,503
DRAFTING MACHINE
Bruce D. Feltenberger, 22 W. 31st St., Erie, Pa. 16508
Filed Sept. 5, 1968, Ser. No. 757,546
Int. Cl. B43l *9/00, 13/02*
U.S. Cl. 33—26 **6 Claims**



A drafting instrument for drawing straight lines, curved lines, and lines at various angles to each other. The instrument is made up of a base of sheet-like material which may be a piece of plexiglass approximately one-fourth inch thick. The base sheet has a circular groove in it which may be approximately one-eighth inch deep and one-eighth inch wide. The straight edge frame may have a window cut out of a single piece of plexiglass of the same thickness as the base. The frame has parallel grooves, one on each side of the window. The frame has four pintles which project below the frame and the pintle ends are received in the circular groove. The purpose of the circular groove is to make it possible to rotate the frame and straight edge and therefore draw a circle or curve. The straight edge has lugs that slide in the parallel grooves and is thereby guided through movement in a plane. The pencil holder may slide in the groove in the straight edge and therefore form lines on a paper that are perpendicular to the lines drawn when the frame is moved on the base.

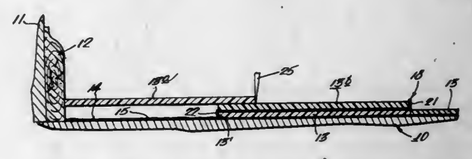
3,548,504
SIGHTING DEVICE FOR ESTABLISHING A LINE OF SIGHT
Russell F. Sykes, 303 Palmcrest Road, North Syracuse, N.Y. 13212
Filed May 15, 1968, Ser. No. 729,292
Int. Cl. A63b *69/36;* **G01c** *15/00*
U.S. Cl. 33—46 **1 Claim**

A unitary sighting device has two spaced apart round sighting surfaces, the one nearer to the observer being substantially half the diameter of the farther surface. A base spaced from the farther sighting surface is adapted to be secured to any supporting surface. Means are provided for securing the base and sighting surfaces in spaced relation. The sighting surfaces are precisely axially aligned



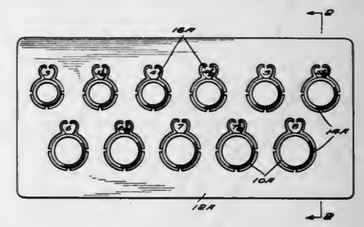
along a line of sight and the nearer surface is painted black and the farther is painted a brilliant luminescent orange for contrast enabling an observer to find the line of sight by centering the black exactly in the center of the orange.

3,548,505
TILE FITTING TOOL
John Di Candilo, 231 Bella Vista Road, Devon, Pa. 19333
Filed Jan. 7, 1969, Ser. No. 789,440
Int. Cl. G01b *3/14*
U.S. Cl. 33—174 **5 Claims**



A tile fitting tool having a square, tile-shaped configuration with an upturned lip along one edge and a downturned lip along an opposite edge is disclosed for use in gauging the amount of material to be cut from a loose tile to permit it to be laid on a narrow untiled floor-space between a wall and a contiguous tiled floor area. In use, a loose tile is placed on the tool in engagement with the upturned lip, and the downturned lip is engaged against the outer edge of a laid tile in the tiled area when the tool is positioned on the laid tile. A gauge is placed on top of the loose tile and is butted against the wall to provide an accurate measurement of the amount of material to be cut from the loose tile.

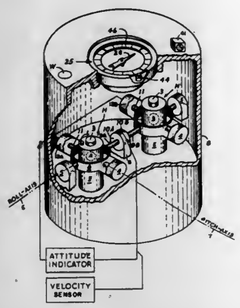
3,548,506
FINGER RING GAUGES
Francis H. Harrington, 200 Winnacunnet Road, Hampton, N.H. 03842
Filed May 20, 1968, Ser. No. 730,357
Int. Cl. G01b *3/34*
U.S. Cl. 33—178 **12 Claims**



A finger ring gauge comprising a carrying member of either planar card or strip form, and a plurality of gauging rings calibrated in increments of ring sizes

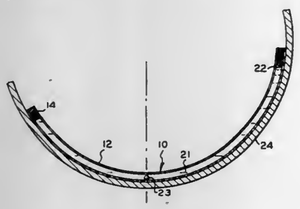
mounted on and normally fixedly secured thereto by a readily frangible connection, thus enabling any one of said gauge rings to be removed from the carrying member and worn if desired for a period of time.

3,548,507
GYROSCOPIC INDICATING SYSTEM
Fritz K. Mueller, Huntsville, Ala., assignor to Astro-Space Laboratories, Inc., Huntsville, Ala.
Filed Sept. 5, 1967, Ser. No. 665,343
Int. Cl. G01c *19/02, 19/38, 19/44*
U.S. Cl. 33—204 **16 Claims**



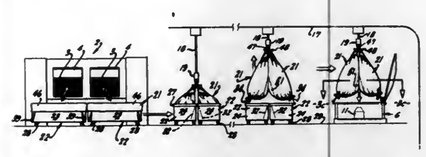
Two pendulously oscillating devices are utilized. They comprise oppositely-rotating, spherical gyroscopic rotors, on nearly frictionless bearings (air or electrostatic bearings), constructed and arranged for their axes to pendulously oscillate in substantially undamped oscillations. Each rotor is freely mounted in a rotor housing, and between this housing and the support which is adapted to be fixed to a vehicle there is a pendulously mounted gimballed assembly, on antifriction bearings, that is forced to oscillate in unison with the spherical gyroscopes. This synchronism enables measurement of the angles of tilting thru which each of the oppositely oscillating gimballed assemblies is forced to move. From the measuring devices (preferably electrical pickoffs on roll and pitch axes of the system), signals are provided which may be used in various ways; for example in compass indication and vehicle-attitude indication.

3,548,508
CENTER LOCATER DEVICE
Jon S. Jacobsen, Corvallis, Oreg., assignor to Richard F. Olson
Filed Nov. 14, 1968, Ser. No. 775,610
Int. Cl. G01c *9/24*
U.S. Cl. 33—206 **3 Claims**



A center locater device includes a transparent flexible tube having a length which is large compared to the diameter of the tube. The tube has both ends closed and is filled with a liquid except for a small volume which provides an air bubble. When the locater device is laid across the top of a horizontally disposed cylindrical member, the air bubble assumes a position in which its center is in vertical alignment with the top center of the cylindrical member. A metal ball having a diameter less than the interior diameter of the tube may also be contained in the tube. This ball will assume a position in which its center is in vertical alignment with the bottom center of the cylindrical member, if the locater device is laid in the lower portion of the interior of the cylindrical member so as to extend in a direction generally circumferentially of the member.

3,548,509
LAUNDRY DRYING SYSTEM AND METHOD AND IMPLEMENTS THEREFOR
Bernard L. Chaknova, Millbrae, Calif., assignor to Patek & Co., San Francisco, Calif., a corporation of California
Filed Mar. 4, 1968, Ser. No. 710,017
Int. Cl. D06f *31/00;* **F26b** *5/08*
U.S. Cl. 34—8 **12 Claims**



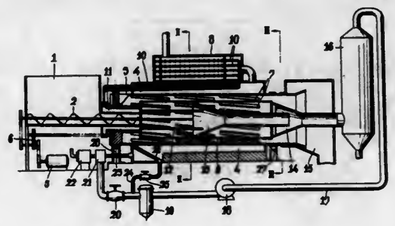
Washed fabrics are discharged from a washer into a mobile bin which can be moved manually on a supporting surface, and which contains a removably mounted flexible water-permeable container into which the washed fabrics are discharged. The container loaded with fabrics is bodily lifted from the bin by a hoist, and transported to and unloaded into a centrifugal extractor. Then the container still loaded with fabrics is removed from the extractor, and the washed fabrics are unloaded into a drier. The container is specially constructed to provide a bottom openable and recloseable by a draw cord, and has slings at the top for connection to the hoist.

The washed fabrics are discharged into two bins simultaneously, and a pair of loaded containers is handled in the manner described. Each bin has a conically surfaced protuberance at its side. When the loaded containers are removed from the bins they are placed side by side with the protuberances matching so that a cavity is formed between the loaded containers when they are lifted from the bins enabling them to be readily positioned over the usual hub in the centrifugal extractor.

3,548,510
METHOD AND APPARATUS FOR ODORLESSLY DRYING MATERIALS CONTAINING MALODOROUS COMPONENTS
Yoshiyuki Nakai and Tetsuya Yokogawa, Yokohama, Japan, assignors to Kanagawa Prefectural Government, an organ of the Japanese government
Filed Apr. 7, 1969, Ser. No. 814,046
Claims priority, application Japan, Apr. 6, 1968, 43/22,403
Int. Cl. B26b *7/00*
U.S. Cl. 34—19 **5 Claims**

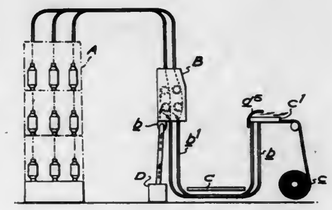
A method for odorlessly drying materials containing malodorous components which comprises feeding the materials into a heated rotating drying drum disposed in a heating chamber. Heated air is introduced into the drum to evaporate the malodorous components and water from said materials. The resulting deodorized and

dried materials are conveyed to the outside by a plurality of plates provided on the inner wall of said drum. The gas containing the evaporated malodorous components



is cooled. The water is removed and the resultant gas containing the malodorous components is burned and decomposed.

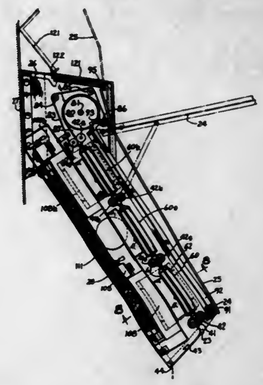
3,548,511
HUMIDIFYING APPARATUS FOR YARNS
Frederick H. Howorth, Withnall, Chorley, England, assignor to James Howorth & Company Limited, Botton, England, a body corporate of Great Britain
Filed Oct. 4, 1968, Ser. No. 765,136
Claims priority, application Great Britain, Oct. 7, 1967, 45,984/67
Int. Cl. F26b *3/00*
U.S. Cl. 34—22 **4 Claims**



A humidifying unit for supplying humidified air to yarn passing from a creel to a carpet tufting machine in which the unit is divided into two compartments separated by a porous sheet or sheets for removing surplus moisture, the humidified air passing from the second compartment to a pattern box and being delivered therefrom with yarn along tubes to the knitting positions.

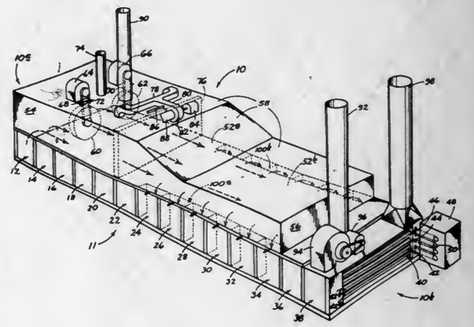
3,548,512
DRYER FOR PHOTOGRAPHIC FILMS OR THE LIKE
Charles W. Smoot, Skokie, Ill., assignor to American Photocopy Equipment Company, Evanston, Ill., a corporation of Illinois
Filed July 25, 1969, Ser. No. 844,978
Int. Cl. F26b *19/00*
U.S. Cl. 34—70 **8 Claims**

A dryer for receiving and automatically processing wet films and for discharging them at the face of the dryer in a flat, dry state. The dryer is in the form of a housing which is supported above a sink in a forwardly sloping position having an inlet opening along the lower edge into which the wet films are fed. The films pass through synchronized rollers and a succession of warm air ducts, the initial pair of rollers serving to "squeegee" the excess water back into the sink and with the successive ducts applying warm air to both sides of the film for drying out of the emulsion. The ducts, having lateral openings alined with the nips of the rollers for passage of the films, are coupled to separate sources of warm air which passes through the ducts endwise at right angles to the direction of film movement. At the top of the machine a film is turned forwardly and downwardly for gravity discharge



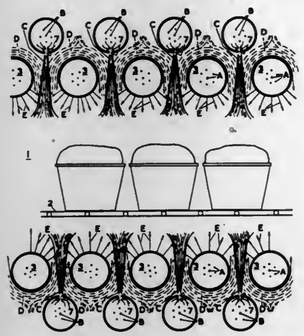
into a sloping tray at the face of the housing where the dried films are collected behind a guard for removal from time to time. The back portion of the housing forms a plenum having a filter through which fresh air is drawn prior to its heating and discharge through the ducts.

3,548,513
DRYER WITH EJECTORS
Frederick T. Taylor, 3274 NE. Everett St., Portland, Oreg. 97232
Filed May 6, 1968, Ser. No. 726,980
Int. Cl. F26b *19/00*
U.S. Cl. 34—205 **7 Claims**



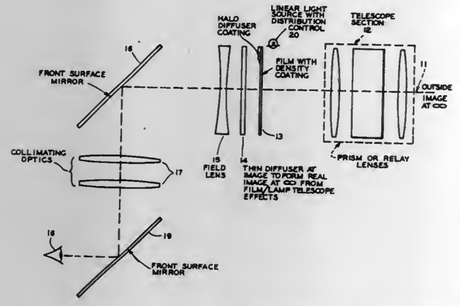
A dryer is disclosed herein including an elongated drying chamber through which articles to be dried travel, an elongated plenum chamber extending alongside the drying chamber, a blower section for producing a current of gas along and through the plenum chamber, and conduit means for conveying gas from the plenum chamber to the drying chamber, including plural ducts distributed along opposite sides of the dryer and ejectors communicating with the ducts for ejecting gas into the drying chamber with such ejected gas impinging on articles traveling through the chamber.

3,548,514
HEATING APPARATUS EMPLOYING RADIANT AND CONVECTIVE HEAT MEANS USABLE AS A BAKE OVEN
John Alfred Smith, Maxey, near Peterborough, and John Raymond Stamper, Stamford, England, assignors to Baker Perkins Incorporated, Saginaw, Mich.
Filed May 27, 1968, Ser. No. 732,203
Claims priority, application Great Britain, May 30, 1967, 24,903/67
Int. Cl. F26b *21/02*; A21b *1/06*
U.S. Cl. 34—232 5 Claims



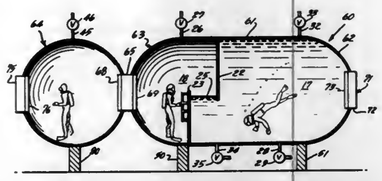
An oven chamber having a series of parallel heat radiating tubes for supplying heat to the chamber and gas circulation tubes for re-injecting recirculated chamber gas into the chamber between the radiating tubes which define nozzles therebetween to induce further gas circulation within the chamber.

3,548,515
DAY AND NIGHT FOG SIMULATOR
Arthur Simon, Fair Lawn, N.J., assignor to The Bendix Corporation, a corporation of Delaware
Filed Sept. 20, 1968, Ser. No. 761,275
Int. Cl. G09b *9/08*
U.S. Cl. 35—12 7 Claims



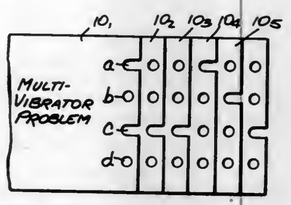
A fog simulator for use in an aircraft which is alternately effective to provide day and night time fog simulations. In one operative condition, the fog simulator causes an outside image to be brought into the system through telescopic optics and passed through a photographic film having a variable density coating to a diffuser to form a real image thereon, together with a halo of light about the image. A collimated lens system transforms the real image, together with the halo of light into a collimated image which the pilot may view by means of a front surface mirror as a nighttime fog simulation. In another operative condition of the fog simulator, a linear light source with distribution control is rendered effective to direct light rays through the photographic film and diffuser so as to provide at the front surface mirror for the view of the pilot a daytime fog simulation.

3,548,516
HORIZONTAL WET-DRY PRESSURE CHAMBER
Edward H. Lanphier, Eggertsville, and Richard A. Morin, Snyder, N.Y., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Dec. 23, 1968, Ser. No. 786,166
Int. Cl. B63c *11/02*
U.S. Cl. 35—29 14 Claims



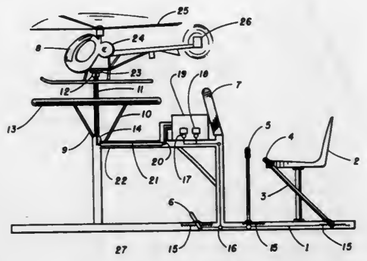
The disclosure concerns a means and method for accommodating experiments on personnel or equipment at very high pressures in a water environment wherein a water volume is maintained at one end of a pressure chamber and an air volume is maintained horizontally adjoining the water volume in the same chamber. No structure is introduced or necessary to divide the two volumes, an air-water interface being maintained in a horizontal plane by pressure conditions in the air volume of the chamber.

3,548,517
SELF-SCORING INSTRUCTION BOOK
Jaap Penraat, 315 Central Park West 10025, and Jack Deveau, 240 W. 73rd St. 10023, both of New York, N.Y.
Filed July 9, 1968, Ser. No. 743,449
Int. Cl. G09b *3/06*
U.S. Cl. 35—9 3 Claims



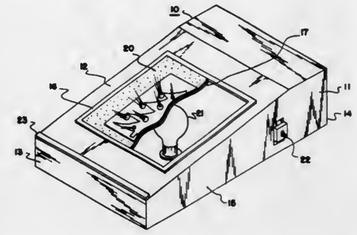
A self-scoring instruction book constituted by a stack of loose sheets partially received within a box-like pocket having a row of holes therein overlying the margin of the sheets. Printed on each sheet is instructional data or a problem followed by multi-choice answers, only one of which is correct, or both data and a problem, the number of choices in the series of possible answers being equal to the number of holes in the row. Punched into the margin of each sheet is a row of holes which lie in registration with those in the pocket, one hole being extended to the edge of the sheet to define an open slot whose position corresponds with the position of the correct answer in the series thereof, such that when a probe is inserted by a student into that hole in the pocket which registers with the slot in the sheet, this indicates that the student has answered correctly, and he is free to remove the sheet from the pocket to advance his lesson, but if the probe is inserted in the wrong pocket hole, it engages a hole in the sheet to pin the sheet against removal.

3,548,518
VISUAL GROUND HELICOPTER PILOT TRAINER
Allen A. McRae, Salem, Oreg.
(18110 Shawnee Trail, Tualatin, Oreg. 97062)
Filed Apr. 29, 1968, Ser. No. 724,972
Int. Cl. G09b *9/08*; A63h *27/00*
U.S. Cl. 35—12 1 Claim



A device that aids in the teaching of pilots of helicopters comprising an electrically powered scale model of a helicopter and a student station including a standard set of helicopter flight controls.

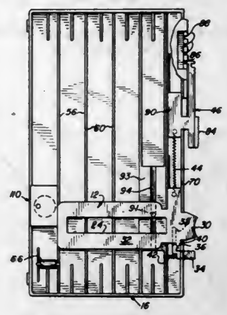
3,548,519
ILLUMINATING AMUSEMENT DEVICE FOR PERFORATING OBJECTS
Agnes R. Oliver, 1634 E. Water, Tucson, Ariz. 85719
Filed Dec. 26, 1967, Ser. No. 693,199
Int. Cl. G09b *19/00*
U.S. Cl. 35—27 5 Claims



A creative amusement device having a translucent, resilient working surface beneath which is a source of illumination. The user places a material, such as a card, picture, or the like, on the surface and perforates the card to produce any desired illuminating effect.

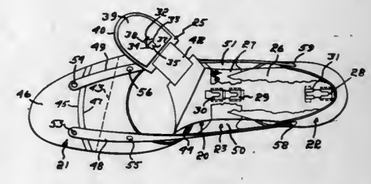
3,548,520
FLASH RECOGNITION TRAINING DEVICE WITH INDEXING MEANS
Steven A. Warren, 480 Saunders Road, Lake Forest, Ill. 60045
Filed Mar. 3, 1969, Ser. No. 803,581
Int. Cl. G09b *17/04*
U.S. Cl. 35—35 5 Claims

A tachistoscopic device for use with a sheet of symbols to be recognized when momentarily exposed. The device includes a frame having a symbol viewing window, and a shutter is movable past the window to momentarily expose the symbol to be viewed. The shutter mechanism includes means for indexing the sheet of symbols so that



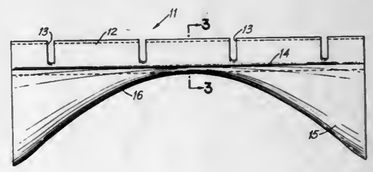
the symbols are consistently positioned in alignment with the viewing window.

3,548,521
FOOTWEAR
Maxwell Sachs, Brookline, Mass.
(887 W. Roxbury Parkway, Chestnut Hill, Mass. 02167)
Continuation-in-part of application Ser. No. 758,178, Aug. 12, 1968. This application Apr. 3, 1969, Ser. No. 813,140
Int. Cl. A43b
U.S. Cl. 36—2.5 46 Claims



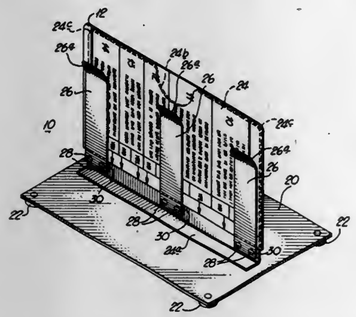
Footwear upper sections detachably attached to the sole, slidable, resilient, and adjustable features, attaching structure, attaching and covering sole layer, with resilient characteristics.

3,548,522
FOAMED PLASTIC PADDLE OR VANE
Edward Cullum Roper, Stamford, Conn., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Oct. 2, 1967, Ser. No. 672,331
Int. Cl. B32b *3/26, 5/18*; E01h *5/00*
U.S. Cl. 37—43 5 Claims



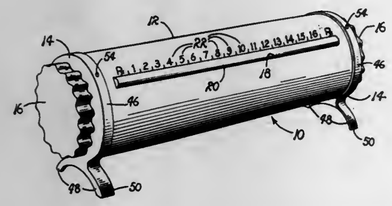
A paddle or vane having a substantially unfoamed outer skin and a foamed inner core made by molding from a polyethylene having particular properties.

3,548,523
APPARATUS FOR PLACING FLEXIBLE SHEETS IN PROTECTIVE ENVELOPES
Ira G. Laws, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware
Filed July 25, 1968, Ser. No. 747,607
Int. Cl. G09f *3/18*
U.S. Cl. 40—11 **5 Claims**



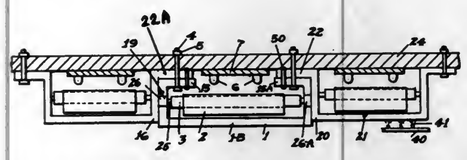
A fixture for aiding in the wrinkle-free positioning of a thin, flexible sheet between the opposite sides of a protective envelope sealed along at least one edge thereof and open along another edge, comprising an upright backing member or tongue formed of a thin sheet of relatively stiff material and including a free outer edge and an inner end. At least one deflectable clamping finger having a movable outer end portion extending in confronting relation adjacent one side of the backing member is provided and the finger extends from the inner or fixed end of the backing member to a position adjacent the free outer edge portion for holding the thin, flexible sheet against said one side of the backing member when the sheet is inserted between the backing member and the finger. The backing member is dimensioned to project between the opposite side members within the envelope when the envelope is moved downwardly onto the backing member over the thin, flexible sheet held thereagainst. The envelope and flexible sheet positioned therein are then withdrawn upwardly and off of the backing member.

3,548,524
DISPLAY DEVICE
Alan G. Rohnow, Turlock, Calif.
(1701 Holly Drive, Lodi, Calif. 95240)
Filed Mar. 18, 1968, Ser. No. 713,733
Int. Cl. G09f *11/02*
U.S. Cl. 40—77.8 **10 Claims**



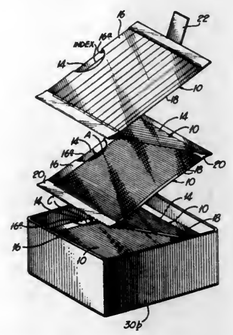
An easily assembled and disassembled display device consisting essentially of an outer tube mounted on detachable friction fitted end supports and having an elongated window through which information on a rotatable inner tube is displayed. The device includes features of construction providing for interlocking the parts by a retaining strip holding an information sheet on the inner tube, and for stacking of a plurality of the devices vertically by means of mating formations on the end supports.

3,548,525
MOVABLE WALL SURFACE COVERING AND APPARATUS AND PROCESS
Sidney German, 121 3rd St., Chelsea, Mass. 02150
Filed Sept. 19, 1968, Ser. No. 760,788
Int. Cl. G09f *4/24*
U.S. Cl. 40—86 **16 Claims**



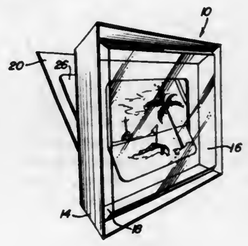
Transparent panel segments which are suitable for covering the walls of a building form a segmented receptacle panel for a design bearing web which extends upward through said receptacle between the segmented panel and the structure of the building and a plurality of said segmented vertical panels are interlocked and interconnected to form a wall covering. Said design bearing web is carried and supported between two roller mechanisms, one of each being located at the top and bottom of said segmented panel. Drive means connected to the top roller of the top roller mechanism serves as a means for changing the decorative designs of said segmented panel and the wall covering by winding up the design bearing web and shifting the exposed portion of said design bearing web to position a new portion of said web bearing a different design behind said segmented front member of said segmented panel.

3,548,526
FILING SYSTEM
Sterling A. Oakley, 1409 Sandburg Terrace, Chicago, Ill. 60610
Filed Feb. 20, 1969, Ser. No. 801,125
Int. Cl. G09f *7/00*
U.S. Cl. 40—104.19 **2 Claims**



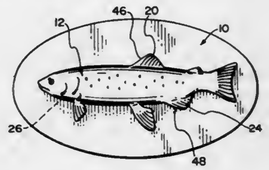
A filing system for holding a plurality of separate, similar items, such as photos, slides negative, transparencies, and the like, comprising a string or row of interconnected envelopes of transparent, glassine paper. Each envelope is formed from a unitary sheet of paper and includes a front wall and a back wall folded at the bottom and open at the top. The back wall of each enveloped is slightly wider than the front wall, thereby leaving narrow edge portions of the back wall along opposite sides exposed from the front side of the envelope. Envelopes are placed in a string or row and are hingedly interconnected by strips of transparent, adhesive tape applied over the exposed narrow edge portions of adjacent envelopes and overlapping onto the front walls of the envelopes, thereby sealing the front and back walls of each envelope together, and at the same time hingedly connected together adjacent envelopes in the row.

3,548,527
GREETING CARD WITH PIVOTED REAR PANEL
Gabriel I. Acosto and Gonzalo Acosta C., both of Dr. Lucio 55 Y 59, Xalapa, Vera Cruz, Mexico
Filed June 13, 1968, Ser. No. 736,791
Int. Cl. G09f *1/12*
U.S. Cl. 40—152.1 **6 Claims**



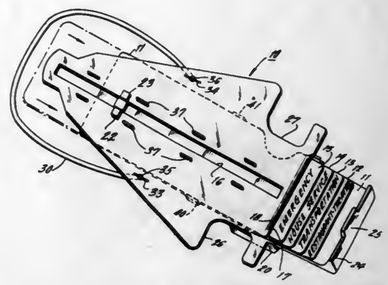
A framed card which may be used for greetings, touristic trade, cultural education, decorations, publicity and the like to display photographs in a much more attractive and artistic manner, which photographs may be changed easily in this card frame, and which through the arbitrary position, slanting and partly projecting, of the frame which is protected by a transparent film or glass sheet, from a distance produces the optical effect which is increased by the ambient light which must penetrate through the upper portion between the picture and the frame, giving an impression of depth to the picture, as well as the appearance of a lighted transparency.

3,548,528
DISPLAY AND DISPLAY MOUNTING
Paul Belokin, Jr., 6919 W. 23rd St., Berwyn, Ill. 60402
Filed July 16, 1968, Ser. No. 745,224
Int. Cl. G09f *1/12*
U.S. Cl. 40—160 **7 Claims**



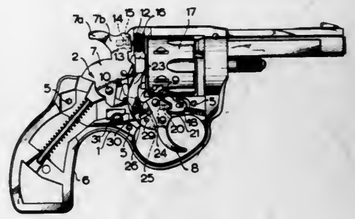
A flat mounting or plaque for molded plastic figures having a contoured aperture and tabs defined between flared cuts, the aperture being shaped to encompass the flanged edge of the plastic figure, with the tabs overlapping under and against the inside wall of the figure. The device is characterized by raised or three-dimensional effect imparted to the figure, its simplicity, ease of manufacture and good appearance.

3,548,529
TELEPHONE INDEX
Seymour Robert Oleck, 132 Chalford Lane, Scarsdale, N.Y. 10583
Filed July 25, 1968, Ser. No. 747,630
Int. Cl. G09f *3/20*
U.S. Cl. 40—336 **8 Claims**



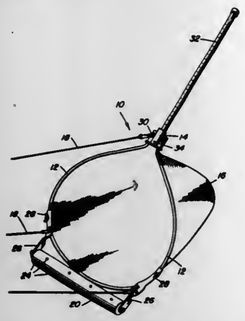
An indexed telephone directory is provided for attachment to the handset of a telephone. The directory includes a plastic frame secured to the cushioned legs of the telephone handset and a sliding train mounted to the frame for movement between positions wherein the tray is hidden beneath the telephone and wherein the tray is withdrawn from beneath the telephone. A pair of prongs on the tray are employed for the purpose of mounting the tray to the frame and at the same time securing a plurality of index cards of varying sizes to the tray.

3,548,530
REVOLVER FIRING MECHANISM HAVING A DIE-CAST HAMMER AND TRIGGER WITH STEEL INSERTS EMBEDDED THEREIN
Günter Horst Röhm, Sontheim an der Brenz, Germany, assignor to Rohm-Gesellschaft m.b.H. Werkzeur- und Maschinenfabrik, Sontheim an der Brenz, Germany
Filed June 4, 1968, Ser. No. 734,325
Claims priority, application Germany, Mar. 9, 1968, R 37,092
Int. Cl. F41c *1/00, 19/00*
U.S. Cl. 42—65 **7 Claims**



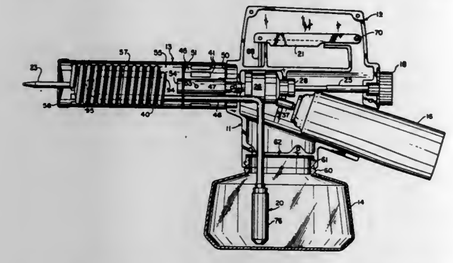
An inexpensive revolver in which the hammer and trigger are made of a die-cast metal and have coaxial pivot studs integrally on both sides for pivotably mounting them in socket holes in one side wall of a housing part of the frame and in a removable cover plate which closes the opposite open side of the housing part. Certain parts of the hammer and trigger are reinforced by steel inserts which are embedded therein by the casting process.

3,548,531
RECEPTACLE FOR LIVE BAIT
John J. Holden, 3313 Liberty Parkway, Baltimore, Md. 21222
Filed Apr. 4, 1969, Ser. No. 813,608
Int. Cl. A01k 73/02, 77/00
U.S. Cl. 43—9 5 Claims



A dip net arrangement for use in catching live bait is provided which is convertible to trawling. The handle is removable from the dip net arrangement and provision is made for the attachment of tow ropes and a bottom contacting roller. The latter is hollow for weight relief and is floodable to cancel the buoyancy of the dip net arrangement.

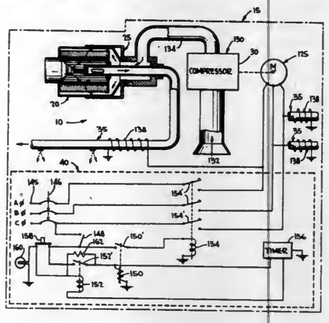
3,548,532
SELF-CONTAINED FOGGER
William E. Landwer, Antioch, Ill., assignor to Burgess Vibrocrafters, Inc., Grayslake, Ill., a corporation of Delaware
Filed Mar. 10, 1969, Ser. No. 805,432
Int. Cl. A01m 13/00
U.S. Cl. 43—129 7 Claims



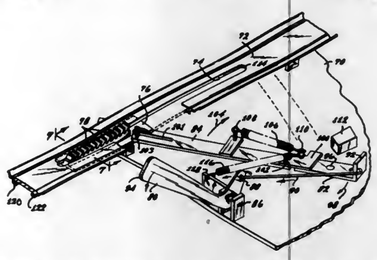
A hand-carried self-contained fogger using an atmospheric pressure liquid supply, simple mechanical lift device for adding incremental quantities of liquid to a boiler, and a special boiler-coil configuration to assure relatively smooth, constant fogging in spite of incremental addition of liquid to the boiler.

3,548,533
DISINSECTION SYSTEM AND CARTRIDGE FOR USE THEREWITH
Jens A. Jensen, Savannah, Ga., assignor to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare
Filed May 23, 1969, Ser. No. 827,352
Int. Cl. A01m 13/00
U.S. Cl. 43—129 11 Claims

A disinsection system, particularly for use in pressurized aircraft, comprising a "one shot" cartridge containing a predetermined quantity of a mixture of a propellent and an active material, preferably, dichlorvos; a manifold and support assembly for receiving the cartridge and automatically spraying the active material onto an absorbent filter means within the cartridge, a motor-compressor unit for feeding pressurized carrier air into the cartridge, through the filter means to pick up a quantity of the active material and to heated distribution conduit means for carrying the air-active material mixture to locations remote from the cartridge. A control unit is provided for delaying activation of the compressor means and conduit heater means for a time sufficient to insure complete absorption of the active material by the filter means and a timer unit which automatically deactivates the system when disinsection has been completed.



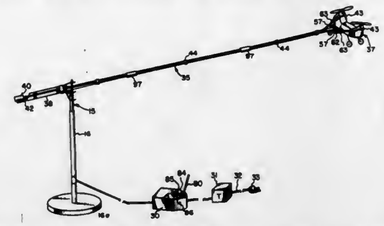
3,548,534
MOVING APPARATUS FOR A VEHICLE TOY
Janos Beny, Manhattan Beach, Daniel H. Meggs, Redondo Beach, and John W. Ryan, Los Angeles, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Dec. 23, 1968, Ser. No. 786,034
Int. Cl. A63f 9/14; B61b 13/12
U.S. Cl. 46—1 11 Claims



Apparatus for propelling a toy vehicle so it can then coast around a track, comprising a carriage with projections for engaging a vehicle and a mechanism for thrusting the carriage downpath to accelerate the vehicle. The projections extend with downpath directional components to enable a vehicle to move over them for engagement therewith, when the carriage is stationary, while allowing the projections to then push the vehicle when the carriage is thrust downpath.

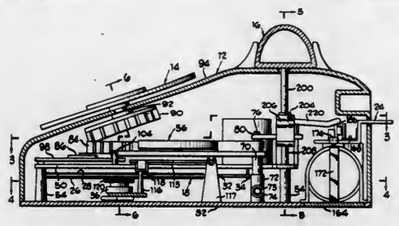
3,548,535
TOY AIRCRAFT DEVICE
Leland D. Bryan, 597 Skinner Road, Rte. 2, Highland, Mich. 48031
Filed Jan. 24, 1968, Ser. No. 700,099
Int. Cl. A63h 27/04
U.S. Cl. 46—75 10 Claims

This application discloses a captive or tethered toy aircraft, such as airplane or helicopter, connected to one end of a boom mounted at the top of a pylon to rotate around such pylon and to rock in vertical planes. The power for operating the aircraft is in the form of one or more electric motors drivingly connected to the propeller or propellers of the aircraft. An important feature of the invention lies in the fact that no elcetric motors are provided either in the aircraft or in the pylon tower as was common in the prior constructions. Electric motors, one for each propeller, are mounted on the end of the boom opposite to the end carrying the aircraft, with such motors connected to the propellers by means of flexible shafts.



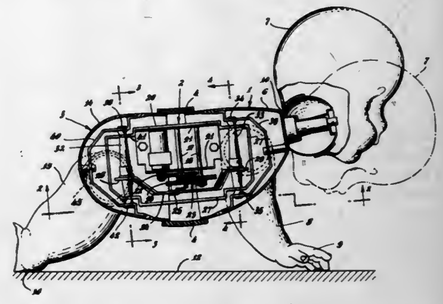
The toy aircraft is so constructed with respect to its dynamic properties, that all operations of the craft result from such properties and from rotation of the propeller. Operation of the aircraft very closely resembles that of actual aircraft; by manipulating the amount of electric current impressed on the propeller operating motor, the toy aircraft is made to perform many maneuvers similar to those performed by actual aircraft. This provides challenge for the users to develop ability to control such aircraft in a manner causing it to perform operations not heretofore attainable in toy aircraft.

3,548,536
TOY TELEPHONE
Marvin I. Glass, Chicago, and Gordon A. Barlow, Evanston, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Dec. 19, 1968, Ser. No. 785,075
Int. Cl. A63h 33/30
U.S. Cl. 46—33 11 Claims



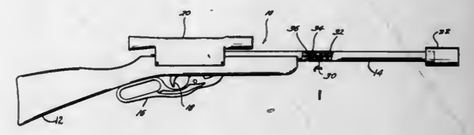
A toy telephone including a battery operated phonograph device adapted to reproduce any selected one of a plurality of discrete messages on a record. The simulated dial is connected with an indexing means for positioning a stylus on the record in accordance with the number dialed. The turntable is movable vertically from an upper position of operative engagement between the record and stylus and a lower position wherein the motor driven rotation of the turntable effects ringing of a bell. The electrical control circuit for the motor includes a time delay switch which is effective to provide a lapse of time after a main switch is turned on and/or the simulated receiver is replaced in its cradle, to thereby provide the fun of an automatic return call for the child. Further, the recorded messages are arranged in related pairs of messages, so that the return call message is related to the preceding message.

3,548,537
DOLL HAVING A BODY MOTION ENABLING IT TO CRAWL
Saul Robbins, 35 Mountain Way, West Orange, N.J. 07052
Continuation of application Ser. No. 672,782, Oct. 4, 1967. This application Oct. 13, 1969, Ser. No. 866,158
Int. Cl. A63h 13/00
U.S. Cl. 46—150 5 Claims



A doll is provided having interconnected upper and lower body sections and with its limbs disposed in a crawling position. The interconnection between the portions is articulated and has a motor and associated linkage, so that the body sections move relative to one another in lissajous motion. This motion causes the doll to "crawl" in a realistic manner.

3,548,538
TOY GUN
Julius M. Christoffel and Lester F. Phillips, Houston, Tex., assignors to Parris Manufacturing Co., Savannah, Tenn., a corporation of Iowa
Filed Mar. 4, 1968, Ser. No. 709,996
Int. Cl. A63h 5/04
U.S. Cl. 46—178 9 Claims

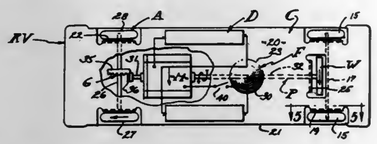


A toy gun having a stock with a barrel mounted thereon, a restriction in the barrel near the muzzle and, a spring-loaded plunger positioned in the barrel and adapted to be cocked and when released, to travel rapidly through said barrel toward the muzzle end of the barrel to force air rapidly through such restriction. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,548,539
BARRIER CONTROLLED TOY VEHICLE
Harlow B. Grow, 1650 Chattanooga Place, Pacific Palisades, Calif. 90272
Filed Mar. 15, 1968, Ser. No. 713,440
Int. Cl. A63h 17/40
U.S. Cl. 46—211 9 Claims

A toy vehicle that is self-propelled upon a planar surface and turned away from the edges and any other areas made impassible by barriers. The barriers control

the direction of propulsion at relatively high rates of speed and effect turning into avenues of direction with assured rapidity and without projection of the vehicle beyond the barriers. To these ends the vehicle comprises forward and aft supports, the aft support being wheeled and the wheel at one rear corner of the vehicle being powered. The forward support is preceded by a turning



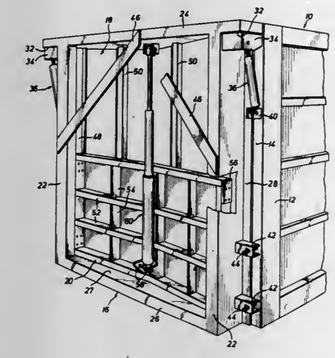
wheel held off the planar surface and operable in a direction normal to the operation of said powered wheel. And, the controlling barrier comprises an inclined plane that engages said turning wheel to lift the forward support off the planar surface while simultaneously effecting turning and/or redirection, right or left as the case may be.

3,548,540

COMBINATION SLIDING AND SWINGING DOOR STRUCTURE FOR REFUSE VEHICLES

Harold L. Cullings, Hagerstown, Md., assignor to Pak-Mor Manufacturing Co., San Antonio, Tex., a corporation of Texas

Filed May 29, 1968, Ser. No. 733,149
Int. Cl. E05d *15/48*
U.S. Cl. 49—163 **3 Claims**



A combined sliding and swinging door structure for refuse vehicles of the rear loading type, or other similar vehicles, whereby such vehicles may be loaded extending the door beyond the rear end of the vehicle, but may be unloaded by fully opening the rear end of the same.

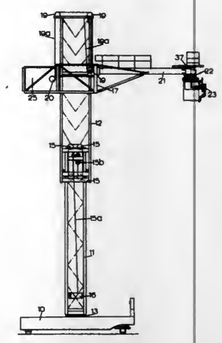
3,548,541

SUPPORTING AND MANIPULATING EQUIPMENT FOR SHOT BLASTING APPARATUS

Samuel R. F. Miller, Heswall, England, assignor to Cammell Laird (Shiprepairers) Limited, Monk Ferry Brow, Birkenhead, England, a British company

Filed July 10, 1967, Ser. No. 651,201
Claims priority, application Great Britain, July 16, 1966, 32,081/66; Nov. 25, 1966, 52,880/66
Int. Cl. B24c *3/06*
U.S. Cl. 51—8 **21 Claims**

Equipment for supporting and manipulating shot or grit blasting, painting, cleaning and like apparatus, comprises a mobile carriage, an adjustable tower or jib mounted on said carriage, articulated means mounting said shot blasting or like apparatus on the tower or jib so that the apparatus can adapt itself to a curved or irregular surface (e.g. the exterior of the hull of a ship) to be treated when moved thereover by adjustment of the tower or jib, and means for urging the shot blasting



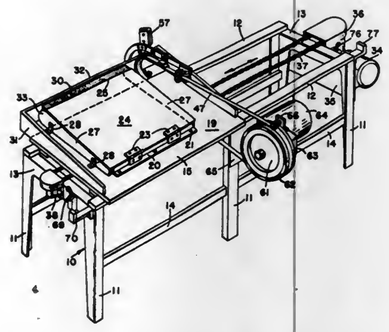
or like apparatus against such a surface. The tower or jib may be mounted on a turntable or slewing ring on the mobile carriage. In one form of the equipment the tower is a telescopic tower whereas in another form the jib has mounted on it a forwardly projecting trunnion shaft on which the articulated mounting means for the shot blasting or like apparatus is supported.

3,548,542

APPARATUS AND METHOD FOR CUTTING CONTOURS IN CUSHIONS

Cletus H. Young, High Point, and Jay E. Young, Thomasville, N.C., assignors to High Point Fabricators, Inc., High Point, N.C., a corporation of North Carolina

Continuation-in-part of application Ser. No. 438,948, Mar. 11, 1965. This application Sept. 22, 1967, Ser. No. 675,735
Int. Cl. B26d *1/46*
U.S. Cl. 51—5 **18 Claims**



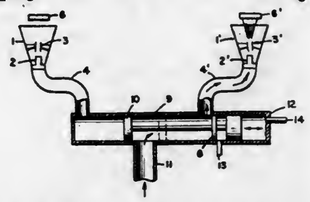
This invention concerns apparatuses and a method for cutting contours in polyurethane cushions and relates more particularly to devices for supporting and conveying polyfoam cushions along a directed path of travel into a transversely positioned longitudinally cutting blade in which adjustably curved portions of the blades cut the prescribed contours or curvatures in selected portions of the cushions.

3,548,543

DEVICES FOR POWER WASHING, SURFACE REFORMING AND THE LIKE

Dewey M. Evans, Livonia, and Frederick W. Koepke, Detroit, Mich., assignors to Ajem Laboratories, Inc., Livonia, Mich.

Original application June 7, 1961, Ser. No. 115,407, now Patent No. 3,360,400, dated Dec. 26, 1967. Divided and this application Nov. 3, 1967, Ser. No. 703,492
Int. Cl. B24c *3/04*
U.S. Cl. 51—8 **6 Claims**



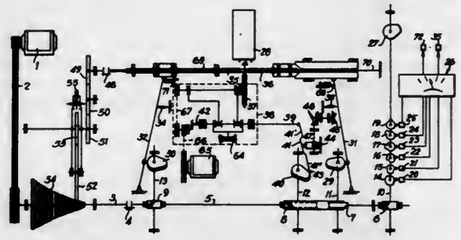
Apparatus for cleaning and/or abrasive deburring or shot peening by means of intermittent series of high impact liquid blasts timed to treat a given surface with high efficiency by the apparatus being timed to permit drainage of blocking liquid between the intermittent blasts.

3,548,544

DEVICE FOR CUTTING HELICAL GROOVE ON METALLIZED RESISTORS

Alexei Semenovich Amelchenko, Varshavskaya ul. 58, kv. 37; Jury Lukich Muzyka, Prospekt Lenina 133, kv. 64; Nikolai Zakharovich Amelichev, Ul. Bratiev Vasilievykh 6, kv. 8; and Vladimir Petrovich Myadzel, Prospekt Grazhdansky 9, korpus 4, kv. 39, all of Leningrad, U.S.S.R.

Filed Nov. 7, 1967, Ser. No. 681,227
Int. Cl. B23g *1/38*
U.S. Cl. 51—50 **5 Claims**



A resistor is supported in holders for being cut with a helical groove by a tool supported in a tool head such that the tool undergoes reciprocatory movement while the resistor is driven in rotation. The pitch of the groove is controlled by a hinge supported on a pivotal lever for movement therealong, one end of the lever riding on a cam with two mirror image profiles and the other end of the lever being coupled to the tool to effect reciprocating movement thereof. Movement of the hinge along the lever provides a variation of the length ratio of the lever arms to thereby control adjustment of the grooving pitch.

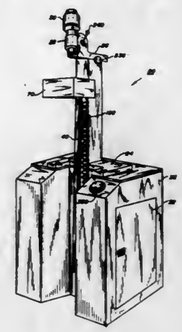
3,548,545

CENTER-HOLE GRINDER

Henry F. Swenson, 22 Holmehill Lane, Roseland, N.J. 07068

Filed Apr. 4, 1969, Ser. No. 813,592
Int. Cl. B24b *5/00, 29/00, 37/00*
U.S. Cl. 51—50 **35 Claims**

A center-hole grinder is adapted to accurately grind the center-hole portions of the ends of workpieces so that the finished ground center-holes are concentric to vital or determined reference points whether they are inside or outside configurations of the workpiece. The grinder apparatus causes the workpiece to be rotated and supported in a generally vertically disposed steady rest with the workpiece inclined at a slight angle, such as four degrees from the vertical, so as to rest against two support points of a V-type steady-rest. The thirty-degree slope of the finished center-hole of the workpiece is preferably ground to produce a center-hole whose sidewall has a slightly convex radius.

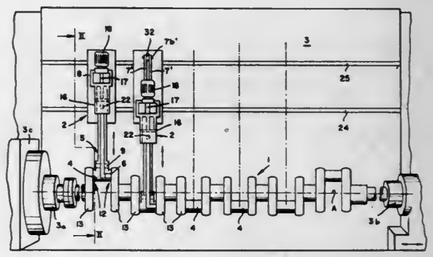


3,548,546

APPARATUS FOR MACHINING A FILLET SURFACE

Ernst Thielenhaus, Wuppertal-Elberfeld, and Rudolf Schwär, Neviges, Germany, assignors to Maschinenfabrik Ernst Thielenhaus, Wuppertal-Elberfeld, Germany, a corporation of Germany

Filed July 31, 1968, Ser. No. 749,023
Claims priority, application Germany, Aug. 2, 1967, 1,652,115
Int. Cl. B24b *7/00, 9/00*
U.S. Cl. 51—58 **10 Claims**

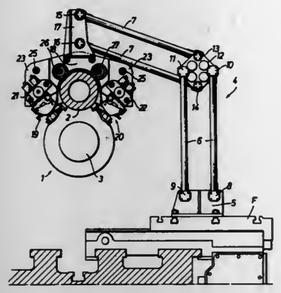


To machine, especially to finish, a toroidal fillet surface between a cylindrical workpiece portion and an adjoining annular shoulder, the workpiece is rotated about an axis parallel to its cylindrical shoulder while a tool in contact with the fillet surface is rapidly oscillated about a swing axis skew to the axis of rotation, the tool being carried on a holder which forms part of an assembly entrained by the rotating workpiece with maintenance of an invariable relative position of the two axes.

3,548,547
APPARATUS FOR MICROFINISHING CRANKPINS OF CRANKSHAFTS

Heinert Runge, Bremen-Aumund, and Karl Wieck, Stuttgart, Germany, assignors, by mesne assignments, to Bremer Vulkan Schiffbau und Maschinenfabrik, Bremen-Vegesack, Germany, a corporation of Germany

Filed June 21, 1967, Ser. No. 647,866
Claims priority, application Germany, June 22, 1966, S 57,438; Dec. 30, 1966, S 107,693
Int. Cl. B24b 5/04
U.S. Cl. 51—67 8 Claims

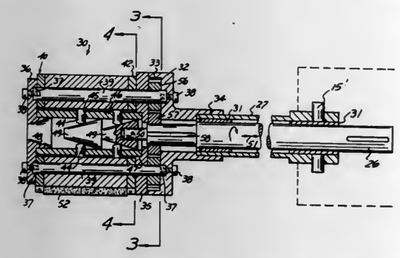


A device for highly accurate microfinishing of the crankpins of crankshafts as the crankshaft is supported on a lathe which rotates the crankshaft about its axis of rotation The accurate microgrinding or microfinishing of crankpins has been a substantial problem in the art because the crankpins follow a circular path of movement about the crankashaft as the crankshaft is rotated about its axis. In the present apparatus, the microgrinding or microfinishing head, or appliance carrier, is mounted on a supporting arm means which is so constructed that the transverse working axis of the microfinishing head remains closely parallel to the axis of the crankshaft and its supporting lathe, while at the same time the microfinishing head freely follows the circular path of the crankpin. This accurate control of the microfinishing head insures that the crankpin will be ground to a desired precision not possible with prior known apparatus or methods for performing the same operation. The basic concept takes several alternate forms.

3,548,548
HONING TOOL AND POWER DRIVE THEREFOR

Gerhard R. Held, 22644 Shiell Drive, Mount Clemens, Mich. 48043

Filed Feb. 19, 1969, Ser. No. 800,448
Int. Cl. B24b 5/06, 9/02
U.S. Cl. 51—90 11 Claims

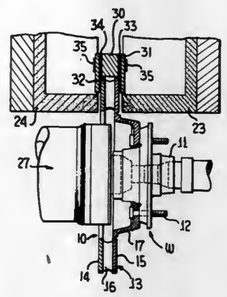


A honing tool which includes a housing power rotated at a first speed with a series of cylindrically shaped honing wheels rotatably journaled in said housing on axes paralleled to the housing axis, and capable of radial adjustment relative to the housing, and means for rotating the honing wheels at a different speed relatively to the housing. Also, an r.p.m. changer by which the honing tool is connected to a power drive for rotating the housing and said honing wheels at different speeds.

3,548,549
COOLANT CONTROL FOR DISC GRINDERS

Elman R. Dunn, Roscoe, Ill., assignor to Litton Industries, Inc., Waynesboro, Pa., a corporation of Delaware

Filed July 18, 1968, Ser. No. 745,872
Int. Cl. B24b 5/00, 55/02, 1/00
U.S. Cl. 51—118 12 Claims

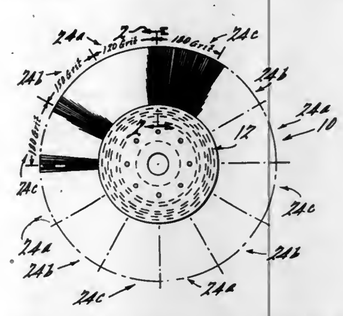


This disclosure relates to a double disc grinder which is particularly adapted for grinding opposite surfaces of an automotive type brake disc. The particular problem involved is that the two surfaces being simultaneously ground are subject to differential restraints whereby there is a tendency for the brake disc, when heated during the grinding, to distort and thus when the surfaces cool, the surfaces will not be parallel to one another. Accordingly, the disc grinder is provided with a special coolant supply arrangement which differentially applies coolant to the two surfaces being ground so as to compensate for the differential in restraint and thus assure parallel ground surfaces.

3,548,550
FLAP WHEEL

Howard J. McAleer, Detroit, Mich., assignor to Formax Manufacturing Company, Detroit, Mich., a corporation

Filed May 23, 1968, Ser. No. 731,443
Int. Cl. B24b 9/02
U.S. Cl. 51—334 13 Claims

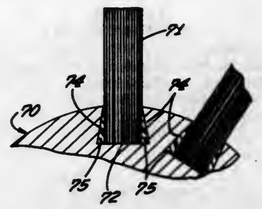


A flap wheel having a plurality of circumferentially disposed abrasive flaps with some of the flaps being of one grit size and others of a substantially different grit size.

3,548,551
FLAP-TYPE ABRASIVE WHEEL

Aleck Block, Los Angeles, Calif., assignor, by mesne assignments, to Merit Abrasive Products, Inc., Los Angeles, Calif., a corporation of California

Filed June 2, 1967, Ser. No. 643,101
Int. Cl. B24d 13/14
U.S. Cl. 51—337 7 Claims

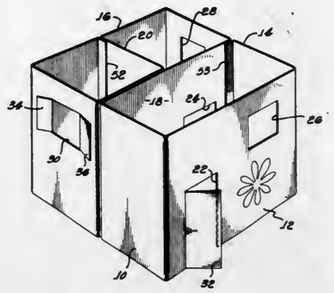


Packs of abrasive leaves are mounted on a rotary hub with enlargements at the base ends of the packs in removable interlocking engagement with corresponding longitudinal slots in the periphery of the hub. Various improvements taught by the invention relate to: provisions for replacement of portions of the slots; compacting and solidifying expensive base portions of the packs of leaves to conserve the packs; adding strips to the pack to form the enlargements thereof; and providing disposable apertured packs of leaves to cooperate interchangeably with retaining members that extend through the apertures of the packs to serve as enlargements for interlocking engagement with the grooves of the rotary hub.

3,548,552
COLORBOOK PLAYHOUSE

Darvil David McBride, 2379 Vicentia, Corona, Calif. 91760

Filed July 14, 1969, Ser. No. 841,231
Int. Cl. A63h 33/16; E04b 1/344
U.S. Cl. 52—70 10 Claims

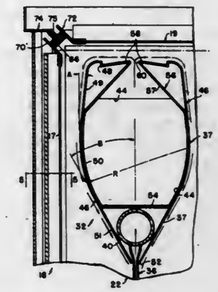


A blank and a playhouse formed therefrom having twelve rigid sections secured together by fold creases, the sections being disposed in relatively parallel and perpendicular planes to define a playhouse having four outside walls of two sections in length, one inside wall of one section in length and one inside wall of two sections in length, said sections having selectively openable doors and windows accentuated by colorable art work thereon and including colorable art work to give the impression of flowers and the like adjacent said house is disclosed. The playhouse may be made of reinforced cardboard, hinged plywood or composition panels, plastic, etc.

3,548,553
CASING STRUCTURE FOR HEAT TRANSFER UNIT

James W. McGuffey, Lansing, Mich., assignor to Tranter Manufacturing, Inc., Lansing, Mich., a corporation of Michigan

Original application Oct. 23, 1967, Ser. No. 677,343. Divided and this application Oct. 23, 1968, Ser. No. 777,541
Int. Cl. F04b 1/56; F16b 5/06
U.S. Cl. 52—281 6 Claims

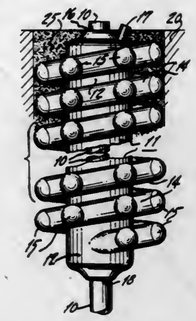


The unit features an upright external casing in which operating components of a falling film-type heat exchanger are enclosed. The casing has rectangular side and end wall panels of nonmetallic material united by composite corner devices each including two nonmetallic and one metallic corner members. The metallic member has mating, tongue and groove snap-on engagement with nonmetallic members on either side thereof; and the latter are each divergently flanged and slotted to matingly receive an edge of a wall panel to effect an articulating connection of the wall panels. The metal corner members are rigidly connected at their bottoms to a base to support the connected wall panel members.

3,548,554
LOCKING SLEEVES AND RINGS FOR USE IN CONCRETE CONSTRUCTION

Abram N. Spanel, 344 Stockton St., Princeton, N.J. 08816

Filed Apr. 21, 1969, Ser. No. 817,815
Int. Cl. E04c 5/20
U.S. Cl. 52—303 10 Claims

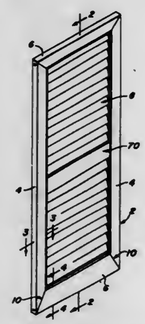


A locking sleeve comprises a hollow, screw-like member having a thread of predetermined dimensioned crests and roots disposed about the major surface thereof. A plurality of hollow spherical like structures are positioned at regular intervals along the series of threads. The member has top and bottom surfaces each including a hole disposed about the axis of symmetry of said member for accommodating a steel rod therethrough.

The sleeve, including the rod, is placed in a concrete accommodating hole in the earth or other suitable structure, the sleeve serving to accurately position the rod coupled thereto in the hole and further providing additional strength after the introduction of concrete into the accommodating hole.

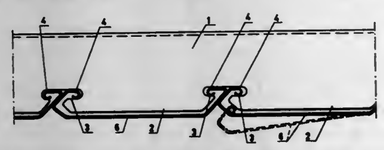
Further embodiments show locking ring structures cooperating with the locking sleeve and rod, adapting the combination for utility with a wide number of various dimensioned rods.

3,548,555
SHUTTER STRUCTURE
John W. Trostle, Allison Park, Pa., and Elton G. Kaminski, Sidney, and Richard J. Hasselbeck, Houston, Ohio, assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 10, 1969, Ser. No. 790,316
Int. Cl. E04c *2/38;* **E06b** *7/08*
U.S. Cl. 52—473 **11 Claims**



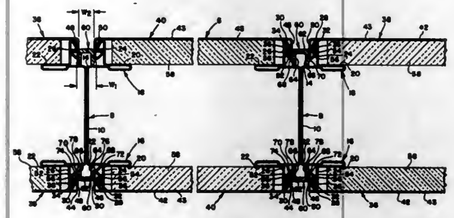
A shutter member having rearwardly open rail sections defining a rectangular shutter frame. The vertical rail sections have an outwardly open first channel adapted to receive an anchoring member and an inwardly open second channel adapted to receive a lateral edge of a shutter panel. A cove transition portion disposed intermediate the front wall of the rail and the first channel. A mullion adapted to receive the convex portion of the first channels in a snap fit and resist relative closing movement of the vertical rails. Resilient anchoring means extending over the convex portion of the second channels and into the first channels. Locking means for resisting vibration of portions of the shutter assembly and resisting relative separating movement of the vertical rails.

3,548,556
CEILING LINING, IN PARTICULAR FOR A SUSPENDED CEILING
Gerardus Cornelis Vermeulen, Rotterdam, Netherlands, assignor to Hunter Douglas International Ltd., Pointe Claire, Quebec, Canada
Filed Mar. 1, 1968, Ser. No. 709,740
Claims priority, application Germany, Mar. 8, 1967, H 58,242
Int. Cl. E04b *5/54*
U.S. Cl. 52—492 **5 Claims**



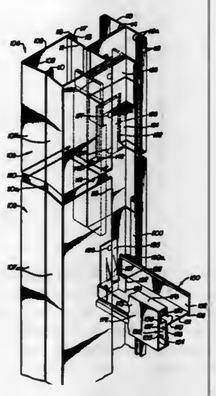
A suspended ceiling comprising lamellae with inwardly bent longitudinal marginal portions being snapped onto substantially mushroom-shaped lugs of beams arranged transversely to said lamellae, the inwardly bent longitudinal marginal portions of each lamella having an inwardly directed portion which is substantially parallel to the lining plane and which loosely rests on the laterally projecting ends of the substantially mushroom-shaped lugs.

3,548,557
PARTITION WALL
Lucien R. Downing, Jr., Avon Lake, Ohio, assignor to Donn Products, Incorporated, a corporation of Ohio
Filed July 9, 1968, Ser. No. 743,376
Int. Cl. E04b *2/78*
U.S. Cl. 52—493 **6 Claims**



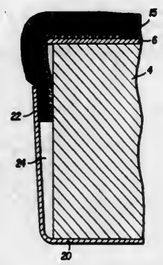
A movable partition wall comprised of panels, which are detachably mounted in parallel, planar, spaced relation on studs. A mold is disposed in the space between adjacent panels and engages the panels to maintain them in interlocked engagement with the studs.

3,548,558
RELEASABLE INTERCONNECTING MEANS FOR A CURTAIN WALL CONSTRUCTION
Abraham Grossman, 9339 Rhea, Northridge, Calif. 91325
Application Oct. 18, 1967, Ser. No. 676,240, now Patent No. 3,436,887, dated Apr. 8, 1969, which is a continuation-in-part of application Ser. No. 336,824, Jan. 9, 1964, now Patent No. 3,357,145. Divided and this application Jan. 3, 1969, Ser. No. 788,872
Int. Cl. E04b *2/60;* **E04c** *3/32*
U.S. Cl. 52—573 **5 Claims**



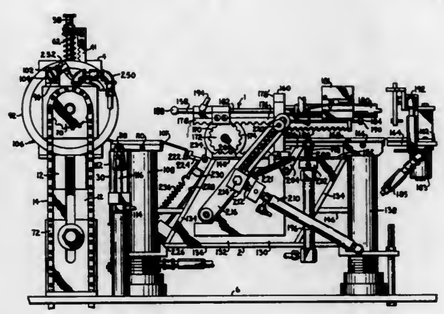
A curtain wall construction including vertical mullions anchored to a building structure and horizontal members supported from the mullions and readily assembled therewith in interlocking fashion and for permitting expansion and contraction of the horizontal members. Vertical mullions are coupled or spliced together by telescopic sleeve means to provide a weatherproof and water barrier construction. Curtain wall panels are held in assembly by separable molding clip means associated with the vertical mullions and horizontal members and by external retainer means carried by the horizontal members under resilient pressure.

3,548,559
FLOOR PANEL
Gerald Levine, Chevy Chase, and Gerald P. Reville, Jr., Baltimore, Md., assignors to Liskey Aluminum, Inc., Baltimore, Md., a corporation of Maryland
Filed May 5, 1969, Ser. No. 821,685
Int. Cl. E04b *5/08;* **E04c** *2/26, 2/52*
U.S. Cl. 52—619 **7 Claims**



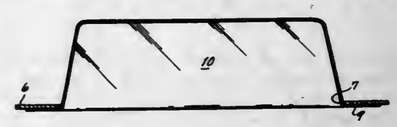
A floor panel has a lower metal sheet with its flanges turned up, a solid core that resists compression and an upper flat metal sheet. A tread surface is supported on the top of the upper sheet. A flexible member is wedged between the flanges of the lower sheet, the solid core and the periphery of the upper sheet.

3,548,560
AUTOMATIC CHECK BANDER
Richard C. Marshall, Kansas City, Mo., assignor to Automatic Bander Corporation, Kansas City, Mo., a corporation of Missouri
Continuation of application Ser. No. 613,615, Feb. 2, 1967. This application Mar. 28, 1969, Ser. No. 832,525
Int. Cl. B65b *13/20*
U.S. Cl. 53—3 **28 Claims**



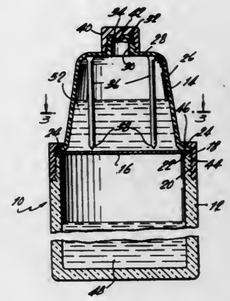
An apparatus for banding of a plurality of articles such as checks into packets including a frame with a pair of opposed spaced retaining members rotatably mounted thereon and adapted to hold a pack of items to be banded. The apparatus includes a band housing structure for containing a plurality of elongate bands with a mobile carriage movable from the band housing to the pack position and having vacuum and air means for separating bands in the housing and removing one for depositing the band in the packed position transversely thereof, and with the pack in position, the pack can band or be clamped by retaining means and the assembly then rotated to wrap the band around the pack, and upon completion of the rotation, the retaining means are released from the pack for removal of the pack from the apparatus. Said apparatus including pressure controls for the retaining means with operation of all of the steps being in time sequence whereby a stack of items is placed in the packed position and after the operation a fully banded pack is removed.

3,548,561
METHOD FOR FORMING A SEALED VACUUM PACKAGE
William E. Young, 52 Sea Beach Drive, Stamford, Conn. 06902
Continuation-in-part of application Ser. No. 650,038, June 29, 1967, which is a division of application Ser. No. 412,063, Nov. 18, 1964. This application Dec. 22, 1967, Ser. No. 695,826
Int. Cl. B65b *31/02*
U.S. Cl. 53—22 **18 Claims**



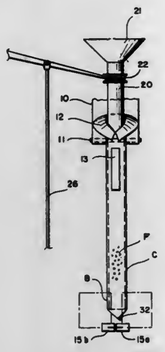
The method utilizes the steps of maintaining thin flimsy barrier films flat, smooth and unwrinkled while air is evacuated from between the films so that the films can then be sealed together to form a vacuum package. At least one of the barrier films is stretch-formed into a cup portion to receive food stuffs.

3,548,562
METHOD OF PRODUCING A MIXING PACKAGE EMPLOYING TWO SEPARATE CONTAINERS
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y. 10583
Filed June 24, 1968, Ser. No. 739,253
Int. Cl. B65d *85/00;* **B65b** *63/08*
U.S. Cl. 53—25 **1 Claim**



The method of producing a mixing package comprising a pair of containers held together by threaded locking collar with a frangible seal disposed therebetween. One of the containers is flexible and carries a pair of seal puncturing rods so that on depression thereof the different substances in the two containers can be allowed to mix and thereafter be dispensed.

3,548,563
METHOD AND APPARATUS FOR PACKAGING WITH A MOVABLE MANDREL AND PLATEN TOP SEALING JAWS
William C. Leasure, Houston, Tex., assignor to Mira-Pak, Houston, Tex.
Filed Aug. 12, 1968, Ser. No. 752,031
Int. Cl. B65b *9/08, 51/32*
U.S. Cl. 53—28 **14 Claims**



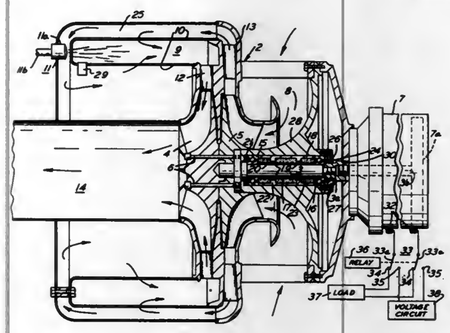
A method and an apparatus for packaging including a former for forming a tubular length of material, sealing jaws for forming a transverse seal on the length of material and a mandrel movable within the tubular length of material. The mandrel cooperates with the top of the sealing jaws to flatten the bottom end of the tubular length of material.

3,548,564
PROCESS FOR FABRICATING A PRESSURIZED CONTAINER
John K. Bruce and Theodore R. Bruce, Burbank, Calif., assignors to Sterigard Company, Burbank, Calif., a California limited partnership
Original application May 10, 1966, Ser. No. 548,963, now Patent No. 3,393,842. Divided and this application Mar. 1, 1968, Ser. No. 709,682
Int. Cl. B65b *3/10*
U.S. Cl. 53—36 **5 Claims**



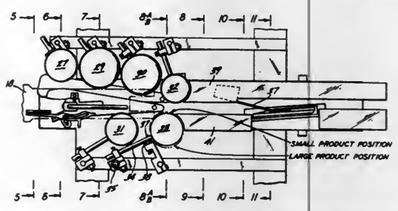
The open end of a flexible, elastic bag is stretched over the open end of a cylindrical body such that a portion of the bag is in tensioned contact with a portion of the cylindrical outside surface of the body. The sealed end of the bag is inserted in the body proximate the latter's bottom. A cover or cap is double-seamed onto the open end of the body to effect a pressure-tight seal between the bag, the cap and the body. The body and bag are respectively charged with propellant and product and a dispensing valve mounted on the cap.

3,548,565
LUBRICATION SYSTEM FOR HIGH TEMPERATURE ENGINE
Rene A. M. Toesca, Boyertown, Pa., assignor to Energy Transformation Corporation, a corporation of Delaware
Filed Dec. 11, 1967, Ser. No. 695,545
Int. Cl. F02c *7/06*
U.S. Cl. 60—39.02 **5 Claims**



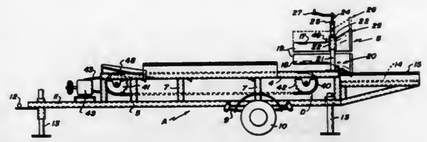
A gas turbine generator is operated with grease as lubrication for the bearings of its rotor shaft. After the turbine is turned off, i.e., when combustion ceases, the generator is used as a motor to rotate the shaft at a lower speed for at least the time required for the grease, which has been rendered less viscous by the high heat of combustion to congeal and form a coating on the bearings and the races. This coating protects the parts from rust and corrosion and provides lubrication for quick restarting of the turbine.

3,548,566
BLANK FOLDING APPARATUS FOR WRAP-AROUND CARTON BLANKS HAVING SELECTIVELY OPERABLE LOCK MEANS
Earle C. Sherman, Monroe, La., assignor to Olinkraft, Inc., a corporation of Delaware
Filed May 23, 1968, Ser. No. 731,373
Int. Cl. B65b *21/24*
U.S. Cl. 53—48 **4 Claims**



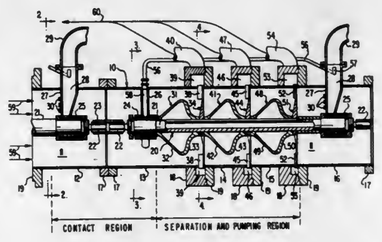
A folding apparatus and method for automatically folding and locking overlapping margins of a wrap-around article carrier blank where the blank is of the type whose margins are formed with a plurality of lock means which are selectively and automatically operable depending upon the oversize or undersize condition of the articles packaged.

3,548,567
TREE FOLDING AND PACKAGING DEVICE
Sam Manetta, Box 10, Pontypool, Ontario, Canada
Filed May 28, 1968, Ser. No. 732,773
Claims priority, application Canada, Mar. 22, 1968, 15,638
Int. Cl. B65b *1/20*
U.S. Cl. 53—124 **2 Claims**



Tree folding and packaging apparatus having an expandable and contractable cone through which the tree may be pulled to fold the branches, and resilient covering material which is drawn over the tree as it emerges from the cone to cover the tree and contain the branches in folded position.

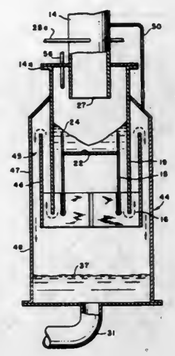
3,548,568
METHODS OF AND APPARATUS FOR LIQUID-VAPOR CONTACT AND PHASE SEPARATION
John A. Carlson, Jr., Alan H. Singleton, and Philip D. Stelts, Cleveland, Ohio, assignors to Air Products and Chemicals, Inc., Allentown, Pa., a corporation of Delaware
Filed Mar. 6, 1967, Ser. No. 620,826
Int. Cl. B01d *47/00*
U.S. Cl. 55—84 **16 Claims**



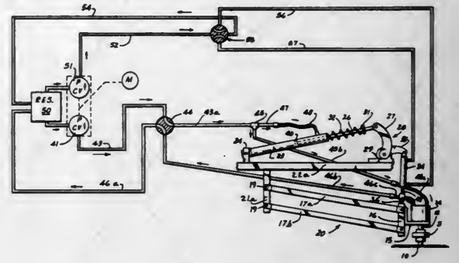
Method and apparatus including liquid-vapor contact and mass transfer arrangements involving the injection of liquid into vapor in combination with liquid-vapor separator arrangements of the rotating type. The liquid-vapor separator arrangements may be used alone and the combination may be used as a single unit or as a plurality of units connected in series relation to effect stripping, scrubbing or rectification processes; multiple-stage fractionating systems employing the different arrangements are disclosed.

3,548,569
GAS-LIQUID CYCLONE SEPARATOR
John C. Jepsen, Moraga, and James L. Ralph, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Original application Oct. 23, 1967, Ser. No. 677,461, now Patent No. 3,488,927, dated Jan. 13, 1970. Divided and this application Aug. 14, 1969, Ser. No. 862,133
Int. Cl. B04c *5/04*
U.S. Cl. 55—242 **6 Claims**

A gas-liquid cyclone separator is provided having a substantially vertical cylindrical housing with a tangential inlet for gas and liquid at the top. A vortex finder is disposed at the top of the housing and an elongated liquid-immersed seal cylinder is spaced from the housing wall between the finder and a vortex breaker. The separator also includes an effluent liquid overflow weir for removing liquid from the housing while maintaining a liquid seal within the separator.



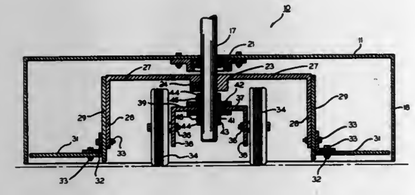
3,548,570
CUTTER BLADE CONTINUOUSLY AUTOMATICALLY ADJUSTABLE RESPONSIVE TO CHANGE IN RESISTANCE TO ITS OPERATION
Benjamin F. Knott, Henderson, and Charles W. Suggs, Raleigh, N.C., assignors, by mesne assignments, to The Thomson International Company, Thibodaux, La., a corporation of Delaware
Continuation-in-part of application Ser. No. 619,489, Jan. 23, 1967. This application Sept. 11, 1967, Ser. No. 666,755
Int. Cl. A01d *45/10;* **B23q** *5/54*
U.S. Cl. 56—15 **11 Claims**



A cutter blade assembly whose cutting height is variable in response to change in resistance to its operation in which a power operated blade is mounted on a retractable and extensible support which in turn is attached by means of a connecting linkage to a main carrier member. The assembly has a sensor connected to the power transmitting means for determining variations in the power transmitted to the cutter blade which in turn is indicative of changes in resistance to the operation of the blade. A power means is connected to the sensor and to the connecting linkage which serves to urge the connecting linkage and hence the support towards a retracted position with a force proportional to

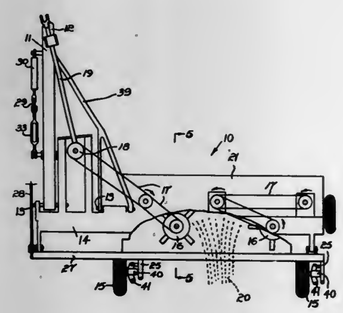
the resistance to operation of the cutter blade. The connecting linkage has a spring-type bias which serves to bias the linkage and ultimately the cutter blade towards a lowered or extended position.

3,548,571
ROTARY MOWERS
Brooksy Ray Snook, 907 N. State St., Westville, Ill. 61832
Filed Feb. 28, 1968, Ser. No. 708,972
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 1 Claim



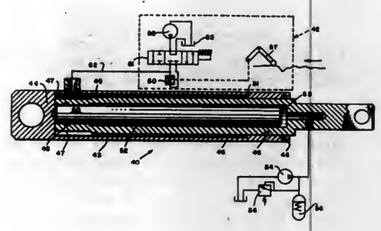
A rotary motor characterized by a frame having support wheels secured thereto, and a rotary blade shroud enclosing a blade rotor, with at least one ground engaging wheel supported on a swivelable frame having a turning center corresponding to the turning center for the blade rotor whereby the blades of the rotor can cut closely to shrubs and trees, obstructions, lawn edges or the like, and whereby the mower can turn readily in any direction. The rotor is also characterized by additional arms providing a certain suction effect picking up litter in the grass and effectively straightening out the grass blades for efficient cutting.

3,548,572
MOWING IMPLEMENT INCLUDING A SERIES OF SLASHING HEADS
Malcolm F. Ferber, Edward St., Loxton, South Australia, Australia
Filed Aug. 20, 1968, Ser. No. 753,970
Claims priority, application Republic of South Africa, Aug. 21, 1967, 67/4,980
Int. Cl. A01d *57/30*
U.S. Cl. 56—192 7 Claims



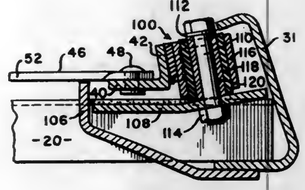
A mowing implement having a series of slashing heads arranged in groups on each side of a windrow line, the heads of one group rotating in the opposite direction to the heads of the other group.

3,548,573
CYLINDER WITH INTEGRAL ACCUMULATOR
Robert D. Krebbiel, Hutchinson, Kans., assignor to The Cessna Aircraft Company, Wichita, Kans., a corporation of Kansas
Filed Apr. 17, 1968, Ser. No. 722,016
Int. Cl. A01d *67/00*
U.S. Cl. 56—208 5 Claims



A linear hydraulic cylinder having a pressure charged accumulator integrally formed in the cylinder. The accumulator applies a continuous load moving force on the cylinder piston so that the hydraulic pressure necessary to actuate the piston under a heavy load is substantially reduced.

3,548,574
MOWING DEVICE
Roger L. Risser, Leola, Edward D. Foulke, Lancaster, and Horace G. McCarty, Leola, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Aug. 21, 1968, Ser. No. 754,270
Int. Cl. A01d *55/02*
U.S. Cl. 56—298 8 Claims

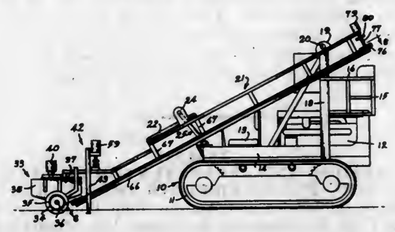


A mowing device having a frame, a sickle reciprocably mounted with respect to said frame, a drive mechanism disposed in close proximity at one end of the sickle for transmitting motion thereto and a resiliently, pivotally connected angled back-up support bar which exerts a downward force on the sickle and cooperates with the front side knife hold downs to produce a clean shearing action as the sickle reciprocates.

3,548,575
CELERY HARVESTER
Roy M. Lane, Box 192, Belle Glade, Fla. 33430
Filed Sept. 25, 1967, Ser. No. 670,279
Int. Cl. A01d *45/00*
U.S. Cl. 56—327 5 Claims

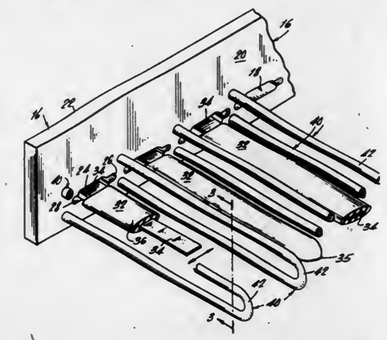
Apparatus mountable on a propelling vehicle and movable along one or more rows of celery or other growing

vegetation. Said apparatus includes means for removing the tops of the vegetation, means for severing the roots



thereof, and means for lifting the vegetation from engagement with the ground.

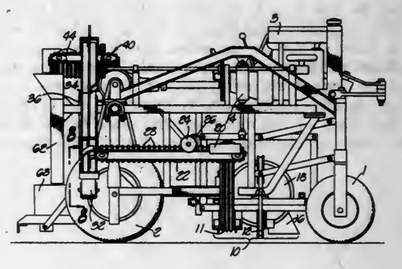
3,548,576
TEA HARVESTER
Julian Mostella Myers, Gainesville, Fla., assignor to O. H. Clapp & Co., Inc., Westport, Conn.
Filed Nov. 24, 1967, Ser. No. 685,560
Int. Cl. A01d *45/12*
U.S. Cl. 56—327 7 Claims



This invention is directed to a tea harvester in which oscillating means are adapted to move between stationary means, said tea harvester being further adapted to be adjustable to the height of the tea plants to be harvested, said oscillating means acting in association with said stationary means with the result that only ripe tea shoots are harvested thereby.

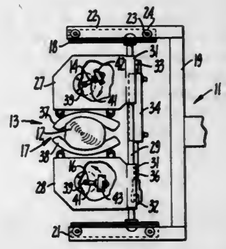
3,548,577
ASPARAGUS HARVESTER
George Barker, P.O. Box 518, Banning, Calif. 92220
Filed Oct. 25, 1968, Ser. No. 770,722
Int. Cl. A01d *45/00*
U.S. Cl. 56—327 7 Claims

An asparagus harvester which engages the growing asparagus in the field, saws the asparagus below the ground, releases the asparagus butt first onto a grooved belt, then conveys the asparagus up an incline where the asparagus is conveyed butt first onto a second grooved conveyor belt and against a stop member; this conveyor belt travels perpendicular to the first belt. After the asparagus comes to a stop, the butt portions which were growing underground are sawed off by a second saw, and the remainder of the spears are allowed to travel along this belt until they reach a sorting member at which they are sorted into two predetermined lengths: the short spears are passed directly from this member into one box. The longer spears are oriented tip first and are carried up a conveyor belt to another grooved conveyor running perpendicular and horizontal to the last conveyor. Here the longer spears are sawed to a predetermined tip length and routed



to a container. The remaining cut made here are "center cuts," which are likewise routed to a container.

3,548,578
TREE SHAKING APPARATUS
Robert M. Shipley, Jr., Preston Heights, Cloverdale, Calif., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Sept. 12, 1968, Ser. No. 759,313
Int. Cl. A01g *19/00*
U.S. Cl. 56—328 4 Claims

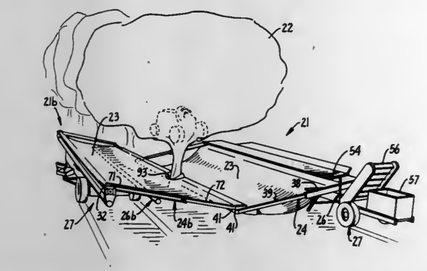


A tree shaker apparatus, having a vibrating unit adapted for attachment to a tree trunk in such manner that the vibrating unit and the tree trunk are formed generally into a single entity, said vibating unit containing a plurality of rotors, with each rotor being driven by its own motor and having a rotating off-center weight for imparting vibration to the tree and cause a shaking action, the rotors having different moments of inertia so that the motors will drive the rotors at different rates of respective angular acceleration and deceleration, thereby providing superimposed interrelated harmonic vibration having periods of concentrated shaking action, said vibrating unit preferably being driven hydraulically with the motors operating on a parallel circuit from a common hydraulic power source.

3,548,579
LOW PROFILE HARVESTER
Robert M. Shipley, Jr., Cloverdale, Calif., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Apr. 30, 1968, Ser. No. 725,280
Int. Cl. A01g *19/00*
U.S. Cl. 56—329 10 Claims

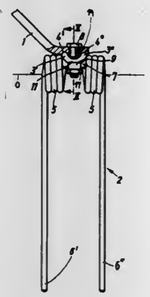
A mobile catchframe-type harvester for tree-borne fruit and nuts having an elongate chassis, a framework mounted on the chassis for transverse movement toward and away

from the tree, and a slack fabric sheet carried on the framework. The fruit falls from the tree onto the slack sheet and is collected by operation of an unloader which tenses and tilts a limited portion of the slack sheet to cause the fruit to roll off while maintaining the low profile of the harvester. One edge of the slack sheet is carried by a roller driven by the same motive means as is used to drive the framework transversely beneath the tree, so that the desired degree of tension or slackness is maintained during extension and retraction of the framework. In one form of the invention, the slack fabric is tensed and tilted by elevation of the edge of the framework



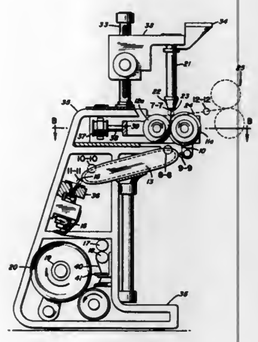
nearest the tree partway through the retraction of the framework from the tree, to load the fruit onto a conveyor adjacent to the roller. In another form of the invention, the slack fabric is tensed and tilted by the arcuate motion of a longitudinal bar beneath the fabric before the framework is retracted from the tree, to tilt the fabric toward the tree and carry the fruit off the edge of the slack sheet nearest the tree. A harvesting system is shown in which both forms of harvester are used jointly, with the second form unloading onto the first form, which in turn loads onto the takeoff conveyor, so that only one conveyor is required. An inertial shaker is shown in combination with the harvester.

3,548,580
RAKE CONSTRUCTION FOR HAYMAKING MACHINE
Josef Pürrer and Albert Krauss, Gottmadingen, Germany, assignors to Maschinenfabrik Fahr AG., Gottmadingen, Germany, a corporation of Germany
Filed Mar. 25, 1968, Ser. No. 715,649
Claims priority, application Germany, Apr. 3, 1967, M 58,386
Int. Cl. A01d *79/02*
U.S. Cl. 56—400 **5 Claims**



A two-pronged rake formed from coiled wire is clamped to an extremity of a rotating arm between that extremity and a saddle-shaped block, the latter having two rounded humps engaging a looped central portion of the wire which is curved about a transverse horizontal axis to fit the shape of the humps. To change the angle of inclination of the prongs, the clamping force is released so that the rake may be swung about the axis to the desired extent, or the block is replaced by a block of different shape.

3,548,581
METHOD AND APPARATUS FOR RINGLESS SPINNING OF FIBER-POLYMER YARNS
Emilian Bobkowicz and Andrew John Bobkowicz, both of 1435 St. Alexander St., Room 310, Montreal 111, Quebec, Canada
Filed Nov. 25, 1968, Ser. No. 778,714
Claims priority, application Canada, Oct. 2, 1968, 31,529
Int. Cl. D02g *1/02*
U.S. Cl. 57—34 **14 Claims**

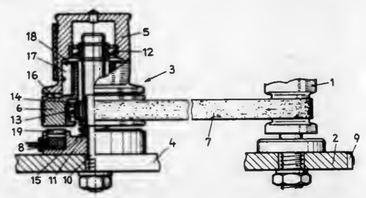


Method whereby a continuous strand of composite staple fiber-thermoplastic polymer material is linearly supplied by feed-in rolls into and through a fiber restrictive heating zone where the material is heated until the thermoplastic substrate becomes plastic but without reaching its melting point, and then twist is imparted from below to said material in this fiber restrictive heating zone so as to produce intermolecular slippage in the plastic polymer and helical rearrangement of the fibers, thereafter upon leaving the heating zone the material is cooled to coagulate the imparted twist, and finally the obtained twisted yarn is linearly wound on a collecting roll to form a yarn package, the feed-in rolls and the collecting roll constituting two fixed pinch points between which twist is imparted and substantially retained; the invention also includes an apparatus for carrying out this method.

3,548,582
SPINDLE-STOP-DRIVE FOR TEXTILE SPINDLES
Helmut P. Staufert, Stuttgart, Germany, assignor to Stuttgarter Spindelfabrik Novibra G.m.b.H., Stuttgart, Germany
Filed Nov. 25, 1968, Ser. No. 778,639
Claims priority, application Germany, Nov. 27, 1967, 1,710,013
Int. Cl. D01h *1/20, 7/22*
U.S. Cl. 57—88 **9 Claims**

A drive for spinning and twisting spindles, which includes at least one pulley unit having a rotatable member adapted to be drivingly connected to driving means

and also having a transmission stop pulley operable selectively to establish or interrupt driving connection be-



tween said rotatable member and a spindle and to stop the latter when said driving connection is interrupted.

3,548,583
FLYER PRESSER ASSEMBLY
Walter C. Boyter, 1500 Anthony Drive, and John Matthew Quinn, 2101 W. 5th Ave., both of Gastonia, N.C. 28052
Filed Jan. 16, 1969, Ser. No. 791,673
Int. Cl. D01h *1/04, 7/32*
U.S. Cl. 57—117 **4 Claims**

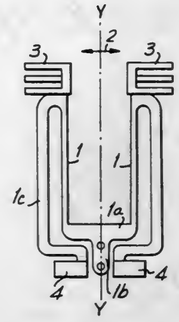


An improved presser assembly wherein the presser foot, leg, and the upper attachment member are separate components, and at least the upper member and presser foot are formed of a hard, durable plastic. Such an arrangement forms a self-lubricating joint and prevents binding or sticking of the presser assembly to the flyer leg as is the case in a conventional metal-to-metal joint. Moreover, the separable parts are more readily adapted to be manufactured by cost saving, high production methods, and if one part becomes worn or broken, it can be replaced without discarding the whole presser assembly.

3,548,584
HIGH MOLECULAR WEIGHT ORIENTED POLYAMIDE TEXTILE YARN
Bernard Silverman, Raleigh, N.C., and Leslie E. Stewart, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,782
Int. Cl. C08g *20/20;* **D02g** *3/02*
U.S. Cl. 57—140 **2 Claims**

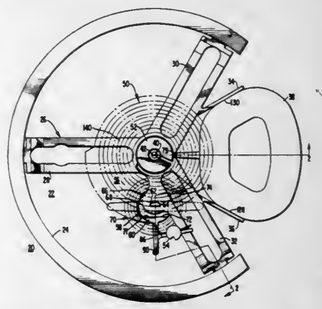
Oriented nylon fibers are provided which have an $[\eta]$ of more than 1.3 and a viscosity average molecular weight greater than 35,000. The fibers are composed of linear polyamides, i.e., those which are soluble in formic acid. The dimensional stability of these fibers is vastly improved over conventional nylon tire cords. The tenacity and toughness of the fibers also are significantly improved.

3,548,585
FLEXION-TYPE SYMMETRICAL OSCILLATOR
Remy Chopard, Neuchatel, and Heinrich Stamm, Grenchen, Switzerland, assignors to Ebauches S.A., Neuchatel, Switzerland
Continuation-in-part of abandoned application Ser. No. 547,817, May 5, 1966. This application June 6, 1969, Ser. No. 831,110
Claims priority, application Switzerland, May 28, 1965, 7,571/65
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 **11 Claims**



A flexure-type symmetrical oscillator for an electric timepiece, having a U-shaped port with two flexible limbs connected at their free ends to two rigid arms which in turn have counter-balancing masses as their free ends and drive transducers at the location where they are connected to the flexible limbs, the dimensioning of the arms and limbs being such that the instantaneous center of rotation thereof is substantially coincident with the center of gravity during flexure, whereby the frequency of the oscillator is substantially independent of changes of position and orientation of the oscillator with respect to gravity.

3,548,586
COMPOSITE BALANCE WHEEL CONSTRUCTION FOR ELECTRIC TIMEKEEPING DEVICES
John L. Klinck, Lancaster, Pa., assignor to Hamilton Watch Company, Inc., Lancaster, Pa., a corporation of Pennsylvania
Filed Oct. 1, 1968, Ser. No. 764,172
Int. Cl. G04c *3/04*
U.S. Cl. 58—28 **26 Claims**



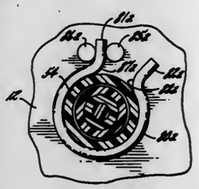
There is disclosed herein a composite balance wheel structure including an arm and rim formed by winding onto the arm a coil of insulated wire of predetermined characteristics and coated with a liquid resinous binder which is cured to form a rigid integral unit. A significant

result of this construction is production of a balance wheel with low eddy current losses, but which retains other desirable properties such as high moment of inertia to mass ratio necessary for accurate timekeeping.

3,548,587
FRICTION CONSTRUCTION FOR PLASTIC CLOCK MOVEMENT

Robert D. Wood, Athens, Ga., assignor to General Time Corporation, Stamford, Conn., a corporation of Delaware

Filed Jan. 13, 1969, Ser. No. 790,733
Int. Cl. G04b *3/10*
U.S. Cl. 58—46 **4 Claims**

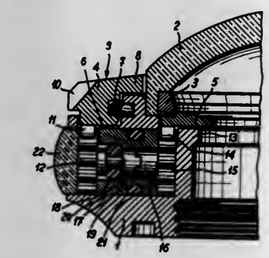


A friction construction for a plastic clock movement for producing frictional drag between relatively rotatable plastic elements, such that the elements are effectively connected under normal conditions but capable of being overpowered with intentional slippage under alternate conditions, as, for example, when the clock is set.

3,548,588
TIMEPIECE WITH TURNING BEZELS

Ervin Piquerez, 2854 Bassecourt, Switzerland

Filed Aug. 13, 1968, Ser. No. 752,192
Claims priority, application Switzerland, Aug. 16, 1967, 11,525/67
Int. Cl. G04b *39/00*
U.S. Cl. 58—91 **9 Claims**



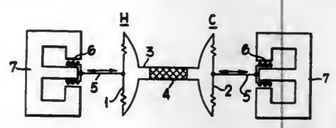
A timepiece is provided with two turning bezels positioned concentrically, one of which at least is manually actuated and located outside the casing while the other is located inside and is rotated by the first bezel.

3,548,589
HEAT ENGINES

Edmund Harry Cooke-Yarborough, Abingdon, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Jan. 15, 1969, Ser. No. 791,276
Claims priority, application Great Britain, Jan. 19, 1968, 6,128/68
Int. Cl. F03g *7/03;* **F25b** *9/00;* **H02p** *9/04*
U.S. Cl. 60—24 **11 Claims**

A Stirling heat engine has hot and cold variable volume chambers, which are intercommunicating through a regenerator, each formed at least in part by flexible walls. Separation of the gas displacement and power output movement components of the movable diaphragms of the chambers is facilitated by permitting the whole cold

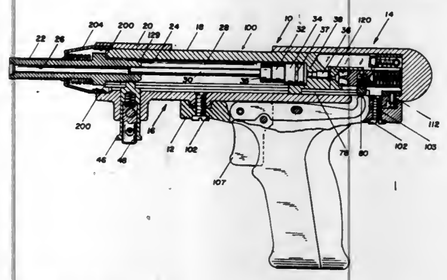


chamber to float and the regenerator, which provides mechanical connection between diaphragms of the hot and cold chambers, to move.

3,548,590
POWER ACTUATED TOOL

Lester F. Molno, Newburgh, N.Y., assignor to Star Expansion Industries Corporation, Mountainville, N.Y., a corporation of Delaware

Filed Mar. 7, 1969, Ser. No. 805,153
Int. Cl. F01b *29/08;* **B25c** *1/08*
U.S. Cl. 60—26.1 **6 Claims**

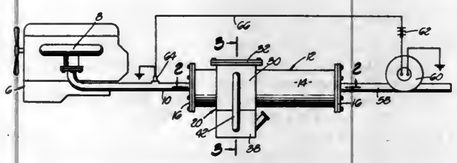


An explosively-actuated power tool including a housing and a barrel axially movable relative to said housing, said barrel being provided with an internal bore and a piston axially movable within said bore having improved means for controlling the relative position of said barrel with respect to said housing and for controlling the relative position of said piston with respect to said barrel, improved removable gripping means for said tool including improved means for minimizing or eliminating accidental firing of the tool by dropping it when loaded.

3,548,591
SMOG CONTROL DEVICE

William H. McKay, 3401 Larga Ave., Los Angeles, Calif. 90039

Filed Sept. 11, 1968, Ser. No. 759,086
Int. Cl. F01n *3/00;* **B01d** *50/00*
U.S. Cl. 60—32 **2 Claims**



An internal combustion engine exhaust purifier or smog device characterized by an elongated housing in the engine exhaust line, the housing containing a washing filter of fibrous material in the form of manifolded stacked strips of fibrous material, woven or felted, the material nearer

the inlet end of the housing being looser or of greater permeability than that less near the inlet of the housing. Means for maintaining the fibrous filter washing material in a moist condition, a finely divided charcoal filter medium in the housing, a fan or pump for driving exhaust gases through the housing and filter media to prevent back pressure of exhaust gases in the engine, and a pressure responsive pump control in the exhaust line of the engine ahead of the filter housing.

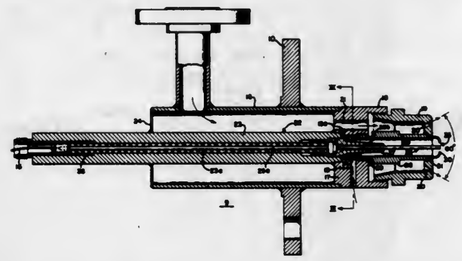
ERRATUM

For Class 60—39.2 see:
Patent No. 3,548,565

3,548,592
COMBINATION FUEL NOZZLE AND SPARK PLUG FOR A GAS TURBINE

Edward P. Hopkins, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed June 13, 1969, Ser. No. 833,134
Int. Cl. F02c *7/26*
U.S. Cl. 60—39.82 **4 Claims**

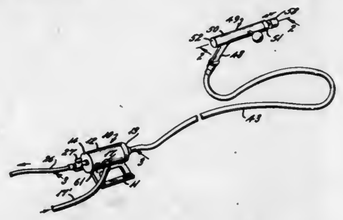


A spark plug is disposed coaxially within a fuel nozzle for the combustion chamber of a gas turbine. Gaseous fuel flows from outside through a chamber surrounding the spark plug and through fuel feed passages where it is ignited by electrodes in the nozzle face. Air for cooling and purging the electrode space is supplied through radial passages interspersed among the fuel supply passages.

3,548,593
FLUID MOTOR POWER PLANT

Joe M. Valdespino, 5023 Golf Club Parkway, Orlando, Fla. 32808

Filed Apr. 14, 1969, Ser. No. 815,594
Int. Cl. F01l *21/02;* **F15b** *11/08, 13/04*
U.S. Cl. 60—54.5 **8 Claims**

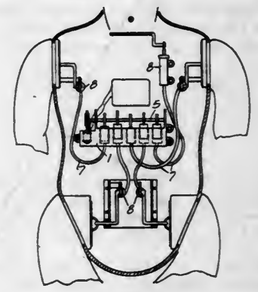


Apparatus including a fluid motor having a piston which automatically is extended and retracted rapidly by water and air under pressure from a city or other water system and adapted to exert a pulsating force which will perform work.

3,548,594
POWER-TRANSMITTING DEVICE TO ACTUATE THE MOVING PART OF TOYS

Giannantonio Ceppi, Milan, Italy, assignor to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware

Filed Apr. 17, 1969, Ser. No. 816,980
Claims priority, application Italy, Apr. 22, 1968, 15,578/68
Int. Cl. F15b *7/00;* **F16h** *53/00*
U.S. Cl. 60—54.5 **1 Claim**

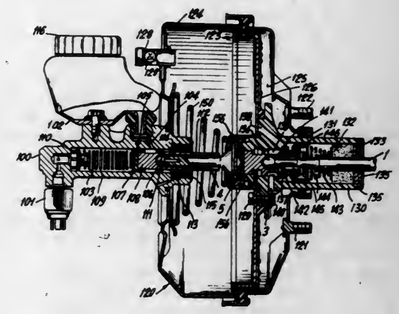


The present invention concerns a power transmitting device which, by means of a unique cam mechanism, actuates a plurality of mutually independent hydraulic system which produce the movements of a corresponding number of moving parts on a dolly, puppet, animal or toys in general.

3,548,595
VACUUM-ASSIST POWER BRAKE

Franz Pech, Neu Isenburg, and Peter Spahn, Hattingen (Ruhr), Germany, assignors to Alfred Teves G.m.b.H., Frankfurt am Main, Germany, a corporation of Germany

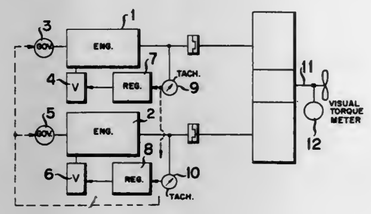
Continuation-in-part of application Ser. No. 657,619, Aug. 1, 1967, now Patent No. 3,470,697. This application July 25, 1968, Ser. No. 790,489
Claims priority, application Germany, July 26, 1967, T 34,419
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. F15b *7/08, 15/10*
U.S. Cl. 60—54.6 **5 Claims**



A vacuum-assist power-brake system wherein a power drum has a floating-vacuum power cylinder carrying a control-valve body whose valve member is actuated by

a rod from the brake pedal for shifting the member relatively to the body and thereby vent one of the power-cylinder chambers to the atmosphere while the other is exposed to reduced pressure of the engine; force transmission between the power piston and the master-cylinder piston is effected via a force-transmitting rod while a force-distribution system with a characteristic distribution ratio is provided between the valve body and valve member and the force-transmission rod. The force distributor may be a lever arrangement in which the distribution is determined by the ratio of arm lengths, a spring system in which a respective spring is provided between the rod and the valve member and valve body with predetermined force constants, or a cam system whose distribution is in proportion to the ramp angles. In addition, the force distributor may include a reaction disk and supplementary resilient elements.

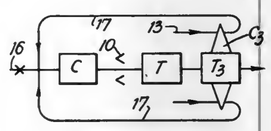
3,548,596
MULTI-GEARED SINGLE SCREW SYSTEM
Masaaki Mizushina, Fujiwawa-shi, and Koji Toyota, Yokohama-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
Filed Nov. 27, 1968, Ser. No. 779,482
Claims priority, application Japan, Dec. 5, 1967, 42/77,626
Int. Cl. F01b *21/00;* **F02b** *73/00*
U.S. Cl. 60—97 **1 Claim**



A multi-geared single screw system involves a mother governor for maintaining the revolution of one engine at a value variable according to an operator's desire so as to automatically control the opening of a fuel injection valve of said engine, and another governor for maintaining the revolution of another engine or engines respectively at a value which is slightly higher than that of the mother governor, the opening of the respective injection valves being defined by the revolutions of the engines through the control of the respective governors when the system is driven with a lower torque than determined, and on the other hand the opening of the respective injection valves being defined by the revolution of the first-mentioned engine through the control of the mother governor when the system is driven with a greater torque than determined.

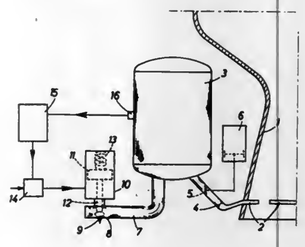
3,548,597
TURBINE ENGINE FOR AIRCRAFT HAVING A SUPPLEMENTARY COMPRESSOR DRIVEN BY A SUPPLEMENTARY TURBINE
Alexander Hossen Etessam, 4558½ Fountain Ave., Los Angeles, Calif. 90029
Filed Sept. 16, 1968, Ser. No. 760,021
Int. Cl. F02k *3/04*
U.S. Cl. 60—226 **6 Claims**

A gas turbine engine for aircraft power plants in which a supplementary compressor driven by the exhaust gases is used to pre-compress air fed to the main compressor, means being provided to close the main air inlet under selected operation conditions. The supplementary compressor may be arranged adjacent the main compressor or may be concentric with the supplementary turbine or may be mechanically connected and offset from the main power



plant. The embodiments illustrate apparatus of the invention for turbo-prop engines, helicopter engines, jet engines, supersonic power plants incorporating after-burners and power plants or vertical-take-off aircraft.

3,548,598
THRUST-VECTORING DEVICES FOR JET ENGINES
Don Pierre Louis Jean Colombani, Latresne, and Adolphe Otton Gontier Ernst, Lege, France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France
Filed May 9, 1968, Ser. No. 727,818
Claims priority, application France, May, 18, 1967, 106,831
Int. Cl. B63h *25/46;* **B64c** *15/10;* **F02k** *1/20*
U.S. Cl. 60—231 **5 Claims**

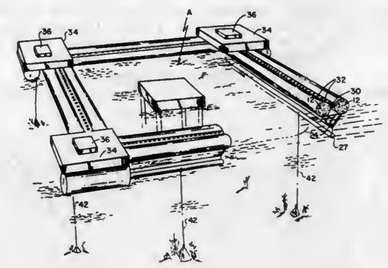


This invention relates to a thrust-vectoring device for a jet engine and of the kind having a thrust-vectoring device comprising a compressed gas generator, means mounting such generator at the side of the engine and separately therefrom, and means for effecting the controlled supply of gas from said generator to an auxiliary jet for deflecting the main jet from the engine nozzle, the invention providing an improvement in said thrust-vectoring device whereby the gas pressure in said gas generator is kept accurately constant by use of a secondary nozzle of variable area.

3,548,599
FLOATING OIL BARRIER
William A. Reilly, Dover, Mass., assignor to Sawyer-Tower Products, Inc., Watertown, Mass., a corporation of Massachusetts
Filed July 9, 1969, Ser. No. 840,353
Int. Cl. E02b *3/00, 15/04*
U.S. Cl. 61—1 **14 Claims**

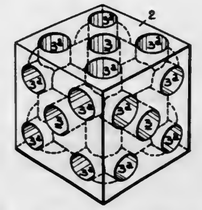
A barrier for intercepting surface spread of oil in a body of water includes a semi-flexible buoyant section and a semi-flexible submerged stabilizing section which hold the upper surface of an elongated trough-shaped deck above the normal water level, from which liquid

sloshing over one side of the barrier into the trough can be drained out of one or both ends of the trough. A series



of the barriers float in enclosing array around a source of oil leakage.

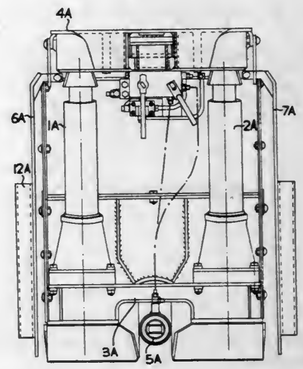
3,548,600
HYDRAULIC STRUCTURE FOR RESISTING WAVE ACTION
Jan Stolk, Jr., Rontgenstraat 2, and Johan Hendrik Stolk, Edisonstraat 47, both of Ijmuiden, Netherlands
Continuation-in-part of application Ser. No. 665,494, Sept. 5, 1967. This application Feb. 26, 1969, Ser. No. 872,781
Claims priority, application Netherlands, Sept. 5, 1966, 6612460
Int. Cl. E02b *3/06*
U.S. Cl. 61—4 **3 Claims**



This hydraulic structure comprises an embankment having thereon a heap of concrete blocks, each of which is a six-sided quandrangular prism. Each edge of each block is at least one meter in length and is not more than 10% longer than any other edge of the block. Each side of each block has therein at least one opening the area of which is at least 1% of the total area of the side, the total area of the openings in each side being from 4 to 10% of the total area of the side. Leading inward from each opening is a passage which has a substantially uniform cross-sectional area equal to the area of the opening, and which is connected to a passage leading inward from the opposite side and to passages leading inward from at least some of the adjacent sides of the block. The weight of each block is at least 70% of the weight of a solid block of the same size, and the blocks are dropped at random in the heap with the sides of different blocks facing in different directions.

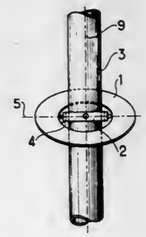
3,548,601
MINE ROOF SUPPORTS
Alexander Dalrymple McLuckie, Woodthorpe, England, assignor to W. E. & F. Dobson Limited
Filed Apr. 15, 1968, Ser. No. 726,275
Claims priority, application Great Britain, Apr. 21, 1967, 18,425/67
Int. Cl. E21d *23/00*
U.S. Cl. 61—45 **9 Claims**

For a system of powered mine roof supports, support units each comprising a plurality of hydraulic props on a common base with advancing hydraulic jacks for advancing the support units one after another, each support unit having metal side shields suspended therefrom, and having secured to a rearward part of each side thereof a resilient side shield normally projecting laterally of the support



unit for a distance substantially equal to the distance between successive support units, whereby in use the resilient side shields interact to provide barriers against entry of demolished material into the gaps between the support units.

3,548,602
DEVICE FOR SELF-CORRECTION OF POSITION FOR SEMI-SUBMERSIBLE PLATFORM
Georges Monnereau, Paris, France, assignor to Compagnie Generale d'Automatisme, Paris, France
Filed Apr. 14, 1969, Ser. No. 815,582
Claims priority, application France, Apr. 12, 1968, 148,097
Int. Cl. E02b *17/00;* **B63b** *35/44*
U.S. Cl. 61—46 **8 Claims**

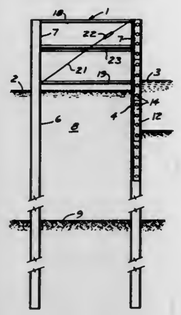


A disc-shaped element which can be inclined at will resists the disturbances due to the swell acting on submersible platforms floating or anchored to the bottom of the sea.

3,548,603
BRACED FRAME BULKHEAD
Robert J. Spinna, Crestwood, and James D. Brierley, Seaford, N.Y., assignors of one-third to Manhattan College, Bronx, N.Y., an educational institution
Filed July 18, 1968, Ser. No. 745,807
Int. Cl. E02b *3/06*
U.S. Cl. 61—49 **6 Claims**

A bulkhead is here taught which has a plurality of piles arranged in seaward and landward rows. Paired seaward and landward piles are connected to form frames. This

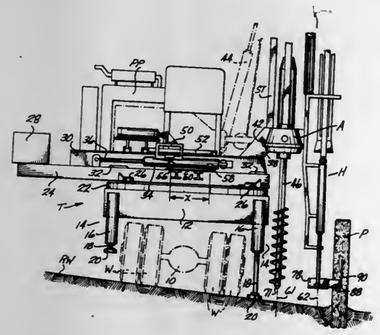
design is adaptable to many construction materials and it is particularly well suited to welding or reinforced concrete because moment resistance can be developed conveniently at upper ends of the piles.



3,548,604
POST IMPLANTING METHOD AND VEHICULAR APPARATUS

Wallace S. Campbell, Mercer Island, Wash., assignor to Stillwell-Gerard Construction Co., Bellevue, Wash.

Filed June 23, 1969, Ser. No. 835,507
Int. Cl. E02d 7/00; E21c 11/02; E01f 15/00
U.S. Cl. 61—53.5 13 Claims

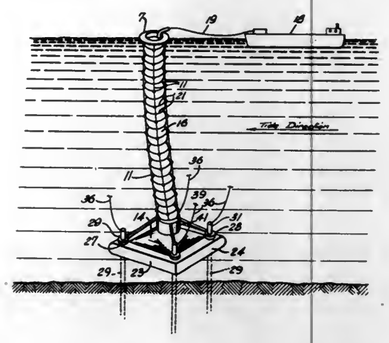


A post hole boring auger and a drop weight hammer are mounted on a carriage with the hammer outwardly of the auger. The carriage is mounted on a vehicle for longitudinal movement laterally of the vehicle. The vertical center lines of the auger and the hammer lie in a vertical plane which extends in the direction of carriage movement. The carriage is moved outwardly under manual control of an operator to center the auger with respect to a surveyed mark on the ground. Following boring an automatic portion of a control circuit is energized and the carriage is retracted. The automatic control stops the carriage once the vertical center line of the hammer is substantially coincident with the position previously occupied by the vertical center line of the auger. Then a post is set into the hole and guided and driven into the hole by the hammer.

3,548,605
SUBMERGIBLE VEHICLE FOR EMERGENCY OFFSHORE GAS LEAKAGE

Peter L. Paull, Weston, and Fontaine C. Armistead, Darien, Conn., assignors to Texaco Development Corporation, New York, N.Y., a corporation of Delaware

Filed May 7, 1969, Ser. No. 822,529
Int. Cl. E02b 3/00; E02d 23/00
U.S. Cl. 61—69 23 Claims

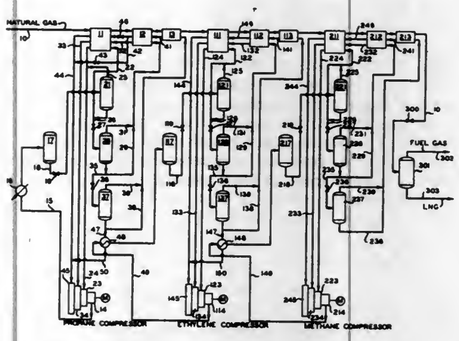


The invention relates to a self contained submersible structure adapted to be lowered through a body of water to form a provisional passage for crude oil and/or gas escaping from a well or substratum fissure. The structure includes a support frame forming a fluid guiding and entrapping means, together with a collapsible conduit which communicates the source of escaping fluid with the water's surface whereby to form a confined pool.

3,548,606
SERIAL INCREMENTAL REFRIGERANT EXPANSION FOR GAS LIQUEFACTION

Richard D. Kuerston, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Continuation of application Ser. No. 510,244, Nov. 29, 1965. This application July 8, 1968, Ser. No. 748,894
Int. Cl. F25j 1/00, 1/02, 5/00
U.S. Cl. 62—9 8 Claims

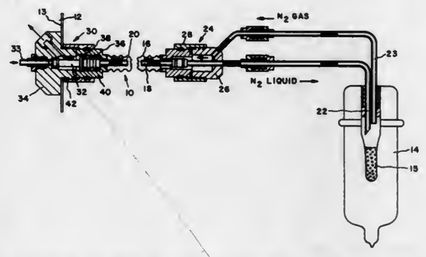


A gaseous feed stream is cooled by cascaded propane, ethylene and methane refrigerants. Each refrigerant is expanded serially to obtain different pressure level refrigerant portions. The respective different pressure level propane refrigerant portions are then passed into separate heat exchange zones to cool the gaseous feed, the lowest pressure refrigerant traversing the entire exchange zone, while the intermediate and high pressure refrigerants are introduced at spaced points intermediate the exchange zone. Ethylene and methane refrigerants are similarly serially expanded and passed through a heat exchange zone.

3,548,607
LIQUID NITROGEN TRANSFER SYSTEM USING THE LEIDENFROST PRINCIPLE

Donald M. Pillsbury, Jr., Warwick, R.I., and Russell E. Hadley, Attleboro, Mass., assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 664,539, Aug. 30, 1967. This application May 26, 1969, Ser. No. 830,203
Int. Cl. F17c 7/02; F16l 11/12
U.S. Cl. 62—52 8 Claims

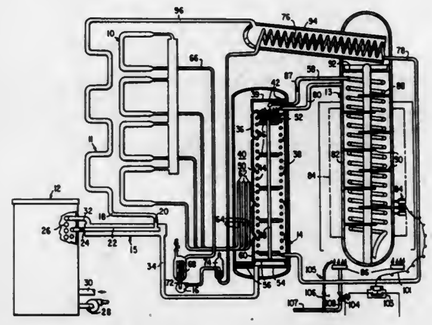


A transfer system for liquid nitrogen or other liquefied gases working on the Leidenfrost principle which has a smooth but flexible inner tube and a flexible metal outer tube, the latter being impervious to gas and water vapor. The tubing has a special bulkhead connection to the source of liquid nitrogen.

3,548,608
REFRIGERATION SYSTEM HAVING GENERATOR TEMPERATURE SENSING MEANS

John T. Fisher, Indianapolis, Ind., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed July 30, 1968, Ser. No. 748,873
Int. Cl. F25b 33/00
U.S. Cl. 62—148 1 Claim

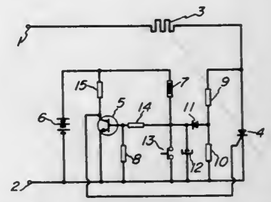


A refrigeration system comprised of a generator, solution-cooled exchanger, primary absorber, condenser, liquid-suction heat absorber, and chiller, wherein the generator is equipped with heat transfer surfaces, featuring in directly mounted relation thereon, temperature sensing means in control of the fuel combustion means effective with a remarkably high degree of accuracy to prevent development of excessive temperatures in the generator portion of the system thereby avoiding corrosion damage from the refrigerant to the generator and also to its associated heat transfer surfaces.

3,548,609
DEFROSTING CONTROLLER FOR ELECTRIC REFRIGERATOR

Zenji Kusuda, Ibaragi-shi, and Takeji Kobayashi, Kyoto, Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan, a corporation of Japan

Filed Dec. 9, 1968, Ser. No. 782,268
Claims priority, application Japan, Dec. 14, 1967, 42/81,737
Int. Cl. F25d 21/06
U.S. Cl. 62—156 5 Claims

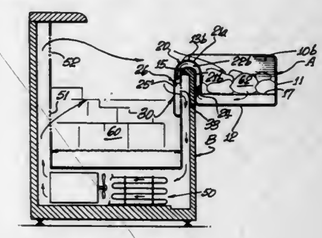


A defrosting controller for electric refrigerators which is operated under control of a temperature detector detecting the temperature within the freezer during the defrosting operation so that the defrosting operation is continued until the temperature within the freezer reaches a predetermined setting and is automatically stopped as soon as the predetermined setting is reached. Thus, the frost accumulating within the freezing compartment can completely be removed and an unnecessary temperature rise within the freezing and provisional compartments can be prevented.

3,548,610
DISPLAY TRAY

Kynoch P. Kendall, Los Angeles, and Robert McClellan, Canoga Park, Calif., assignors to Dairy Fresh Market Service, Inc., Los Angeles, Calif., a corporation of California

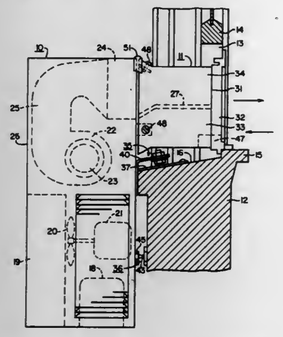
Filed Nov. 2, 1965, Ser. No. 506,084
Int. Cl. A47f 3/04
U.S. Cl. 62—256 15 Claims



1. In combination:
a refrigerated display case and an auxiliary tray mounted thereto;
said tray comprising a substantially rectangular tray housing having a front wall, a rear wall, two side walls and a bottom, said tray being open at the upper part thereof, a screen floor within said housing, said floor being parallel to and spaced above said bottom; and
duct means for connecting the interior of said tray beneath said screen floor to the interior of said case,

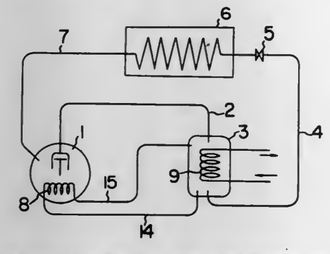
whereby cold air from said case is drawn by convection into said tray and through said screen floor to cool goods contained on said floor of said tray and returned by said duct means to said case so that said air is recooled by the refrigeration system of said case.

3,548,611
OUTSIDE MOUNTED ROOM AIR CONDITIONER
Michael D. Ulich, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 5, 1968, Ser. No. 781,516
Int. Cl. F25d *23/12*
U.S. Cl. 62—262 **9 Claims**



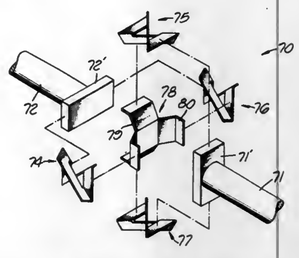
An outside mounted room air conditioner having a main section which depends along a building wall below a window, and a separate duct section extending from the upper portion of the main section to the window, and a mounting arrangement which supports the main section independently of any support provided by the duct section and which includes adjustable means for both moving the main section up and down and also plumbing the main section so that proper alignment between the main section and the window opening is easily afforded for the installation of the duct section.

3,548,612
REFRIGERATING COMPRESSOR WITH OIL COOLER
Mamoru Mitsubayashi, Yasuhiko Muraishi and Kazuichi Nishitsuji, Numazu-shi, Shizuoka-ken, Japan, assignors, by mesne assignments, to Tokyo Shibaura Denki Kabushiki Kaisha, also known as Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Kanagawa-ken, Japan, a joint-stock company of Japan
Filed Jan. 27, 1969, Ser. No. 794,096
Int. Cl. F25b *43/02*
U.S. Cl. 62—469 **3 Claims**



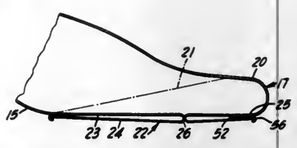
In a hermetically sealed type compressor, an oil cooler is provided to cool the lubricant contained in a casing which encloses the compressor, and a portion of a liquid refrigerant is circulated through the oil cooler from the condenser to cool the lubricant and compressor. In a modified embodiment an ejector is connected between the compressor and condenser to enhance circulation of the refrigerant through the oil cooler.

3,548,613
FLEXURE PIVOT ASSEMBLY AND METHOD OF FABRICATION
Carlyle A. Mounteer, 1250 Sierra Madre Villa, Pasadena, Calif. 91107
Filed Jan. 16, 1969, Ser. No. 791,639
Int. Cl. F16d *3/56*
U.S. Cl. 64—15 **26 Claims**



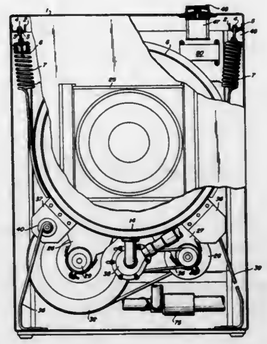
A flexure pivot assembly and method of fabricating the same from sheet spring stock, the assembled unit being formed from a pair of separate or integral right triangular rings split diagonally of their right angle apex and having their hypotenuses lying in crossing planes perpendicular to their legs. The triangular rings are held assembled back to back with the hypotenuses projecting away from a common intervening plane. This frictionless flexure pivot assembly has many uses including small arc pivots and journals, as a flexible connector between relatively moving instrument components, universal joints, torque-transmitting couplings, etc. Miniature embodiments can be manufactured inexpensively in mass quantities by photo-etching blanking from sheet stock, and larger sizes can be blanked by punching or the like. The securely connected legs at the opposite ends of the assemblies provide stable mounting webs integral with the flexure members proper.

3,548,614
METHOD OF CLOSING THE TOE OF A TUBULAR STOCKING
James H. Boyer, Jr., Shillington, and Richard M. Janda, Crestwood, Reading, Pa., assignors to North American Rockwell Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Apr. 7, 1969, Ser. No. 814,027
Int. Cl. D04b *9/54, 9/56*
U.S. Cl. 66—95 **6 Claims**



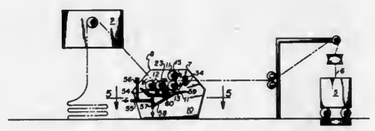
A tubular fabric such as a lady's stocking having double ply welt, leg, foot and toe portions and a multi-ply portion beneath the foot portion adjacent the outer end of the toe portion and to methods of knitting the toe portion and closing the multi-ply portion thereof on a circular knitting machine.

3,548,615
WASHING MACHINE
Toshikazu Ohnishi, Hiroki Utsumi, Toru Tazawa, Sigeto Yamane, and Katsumasa Matsuura, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Oct. 30, 1968, Ser. No. 771,919
Claims priority, application Japan, Nov. 1, 1967, 42/69,862; Nov. 10, 1967, 42/71,992
Int. Cl. D06f *37/22*
U.S. Cl. 68—23.1 **9 Claims**



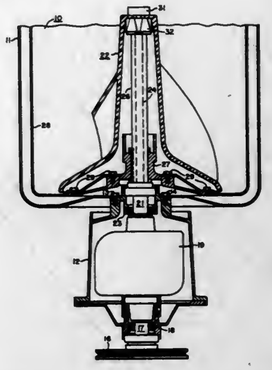
A drum-type washing machine capable of performing programmed operations ranging from a clothing operation to a spinning operation automatically, wherein a motor for driving a drum is shifted from a low rate of speed to a high rate of speed under the control of vibration detecting means provided on the drum and the drum is accelerated to a higher rate upon detecting the fact that a clothing in the drum is distributed evenly with respect to the center of rotation of said drum, whereby an excessively large vibration of the drum is prevented.

3,548,616
EXTRACTOR AND PADDERS
Frank Catallo, Elmont, and Donald Foreman, Scarsdale, N.Y., assignors to Fab-Con Machinery Development Corp., Paterson, N.J., a corporation of New Jersey
Filed June 27, 1968, Ser. No. 740,752
Int. Cl. D06f *29/00, 35/00*
U.S. Cl. 68—22 **4 Claims**



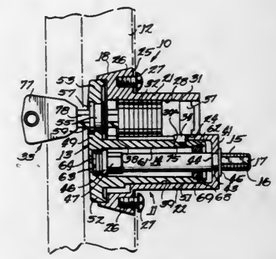
This invention is directed to an extractor and padder particularly suitable for use in connection with circular knit fabrics and includes a pair of vertically aligned nip rolls for expressing liquids from spread and flattened fabric tubes and a pair of horizontally aligned nip rolls located in close proximity to the vertically aligned nip rolls. A treating liquor supply pan is positioned beneath the horizontally aligned nip rolls which are partly immersed in the treating liquor, and rotation of these nip rolls draws the liquor into the nip so that a submerged nip effect is created. Means are provided for driving both sets of nip rolls and for driving feed rolls of an associated fabric tube spreader.

3,548,617
DRIVE HUB STRUCTURE FOR WASHING MACHINE AGITATOR
William A. Wasemann, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 3, 1968, Ser. No. 726,472
Int. Cl. D06f *17/08*
U.S. Cl. 68—133 **2 Claims**



Motion transfer structure for coupling the output shaft of an upright type clothes washing machine to the agitator structure used therewith. This structure is designed to transmit rotational movement from the output shaft to the agitator without producing radial forces which tend to produce cold-flow of certain materials utilized in the fabrication of agitator structures, for example, polypropylene, the effect of the cold-flow being such as to change the operating position of the agitator thereby effecting proper operation thereof.

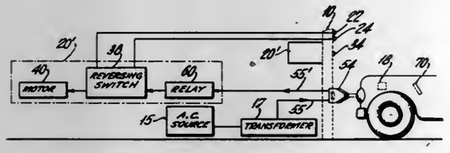
3,548,618
POP-OUT HANDLE AND LOCKING DEVICE
Robert L. Dauenbaugh, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill., a corporation of Delaware
Filed Mar. 10, 1969, Ser. No. 805,454
Int. Cl. E05b *5/04, 33/00*
U.S. Cl. 70—208 **10 Claims**



A pop-out handle and locking device for use in the door of a vending machine or other enclosure having a housing with an enlarged escutcheon secured in the door of the enclosure and provided with two parallel passages therebehind; one passage housing a tumbler lock and the other passage housing a rearwardly extending spindle with the inner end of the spindle extending beyond the housing and terminating in locking means cooperating with complementary strike means in the enclosure. A reciprocable handle is received in a

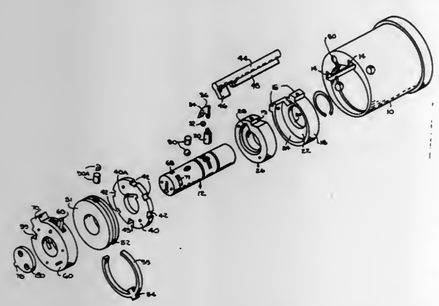
recess in the escutcheon when retracted and has an offset hub received in the passage housing the spindle with the spindle extending into the hub; and the spindle and hub having clutching means engaged when the handle is projected so that the handle and spindle rotate together. The handle covers the tumbler lock when in the recess and has a bushing therein aligned with the lock to allow entrance of a key to actuate the lock and release the handle.

3,548,619
VEHICLE-BORNE UNLOCKER OF COMBINATION-LOCK
Frederick A. Purdy, 870 United Nations Plaza, New York, N.Y. 10017
Filed Nov. 1, 1968, Ser. No. 772,763
Int. Cl. E05b *43/00*
U.S. Cl. 70—267 **12 Claims**



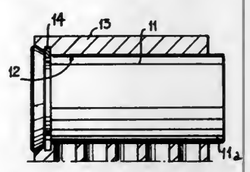
An operator for driving a garage-door open or closed, a door held closed and bolted by a combination-lock as used on doors of safes and vaults, is unlocked by projecting from the headlamp of an automobile timed beams of light onto a semi-conductor. The timing is synchronized with rotations of "tumbler"-discs having numerals adopted for the combination. The numerals and their order of ocurrence are subject to change by the owner of the automobile, as for any safe or vault permitting access by the owner's automobile to the exclusion of automobiles of others, and in contravention of rays from the sun, from ambient daylight, and from light of all kinds, intentional or sporadic.

3,548,620
CAM TYPE DISC CYLINDER LOCK
Joseph M. Genakis, 948 W. Boylston St., Worcester, Mass. 01605
Filed Jan. 6, 1969, Ser. No. 789,316
Int. Cl. E05b *27/08*
U.S. Cl. 70—364 **10 Claims**



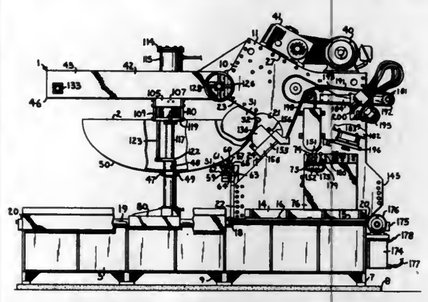
A cam type of disc lock comprising a series of key-movable cam shoes, in combination with a like series of oval cam members, the key pressing the shoes into engagement with internal cam surfaces on the cam ovals. Setting discs having notches on the peripheries thereof are attached to the cam ovals and the discs are thus aligned, with the proper key, and provide a common receptacle for a pivoted selector so that when this selector is accepted, a locking engagement is made with respect to a transmission device for a bolt or the like.

3,548,621
CYLINDER LOCK
Charles Rossetti, Avenue du Servan 24, Lausanne, Switzerland
Filed July 3, 1968, Ser. No. 742,414
Claims priority, application Switzerland, July 7, 1967, 9,723/67
Int. Cl. E05b *9/08*
U.S. Cl. 70—370 **2 Claims**



A cylinder lock comprising a casing having a bore to receive a rotatable cylinder. An entry part of the bore and an end part of the cylinder have complementary conical bearing surfaces and the cylinder is located axially in the casing by a resilient ring engaged in facing grooves formed in bearing surfaces. The lock is assembled by threading the ring onto the cylinder then pushing the cylinder, into the bore to expand or contract the ring so that it can enter the grooves, the resiliency of the ring thereafter holding the lock together.

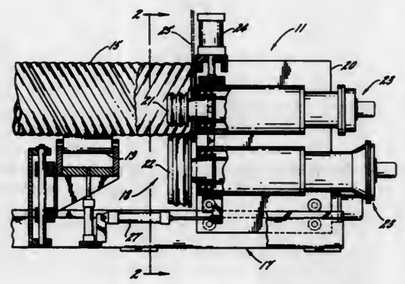
3,548,622
METAL PLATE FLANGING APPARATUS
Wayne E. Willard, Independence, Mo., assignor to Blue Valley Machine and Manufacturing Company, Kansas City, Mo., a corporation of Missouri
Filed July 8, 1968, Ser. No. 743,226
Int. Cl. B21d *22/18*
U.S. Cl. 72—81 **10 Claims**



An apparatus for flanging work pieces, such as flat metal plates or dish heads, with the apparatus having opposed adjustable rotatable work piece retaining upper and lower shoes for engaging an upper and lower surface of the workpiece respectively at the center thereof; adjustable side supports for engaging the lower surface of the work piece while permitting rotation thereof; a shaping roller having an exterior surface or outline conforming to a desired internal flange configuration of the work piece; a bending member engageable with the lower surface of the work piece at points opposed to the exterior surface of the shaping roller; power apparatus operative to effect rotation of the work piece; actuator devices operatively connected to the bending member mounting for moving same to change the point of engagement

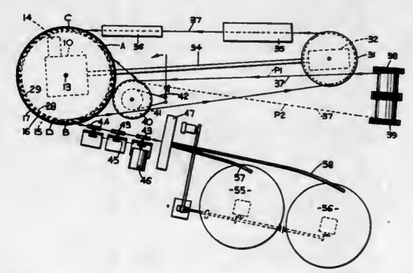
of the bending member with the work piece lower surface; and a trancer having a contact movable along a tracer pattern corresponding to the desired flange configuration of the work piece for operating the actuator devices.

3,548,623
METHOD AND APPARATUS FOR FORMING CIRCUMFERENTIAL GROOVES AND RADIAL FLANGE IN METAL PIPE ENDS
Johann T. Hess, Chicago, and Hans R. Luedi, Highland Park, Ill., assignors to Grotnes Machine Works, Inc., Chicago, Ill., a corporation of Illinois
Filed July 26, 1968, Ser. No. 747,987
Int. Cl. B21d *19/04*
U.S. Cl. 72—106 **5 Claims**



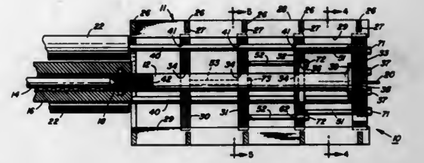
Method and apparatus for roll forming circumferential grooves and a radial flange at the ends of spirally corrugated pipe wherein the pipe is positioned between the rollers which compress the pipe completely at the line of contact with the rollers and the desired deformation occurs in a single revolution of the pipe in the direction of advance of the spiral corrugations towards the rollers. Roll forming apparatus having dimensions such that abutment of no more than three high points of spirally corrugated pipe regardless of diameter against the plate results in an optimal and continuous radial flange.

3,548,624
APPARATUS FOR PROCESSING WIRE AND THE LIKE
Kenneth Graeme Hann, Creigiau, near Cardiff, and Peter Gough Davies, Penylan, Cardiff, Wales, assignors to G.K.N. Somerset Wire Limited, Pengam Moors, Cardiff, Wales, a British company
Filed Feb. 20, 1968, Ser. No. 706,856
Claims priority, application Great Britain, Feb. 24, 1967, 8,809/67
Int. Cl. B21f *9/00*
U.S. Cl. 72—129 **12 Claims**



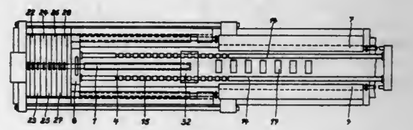
Method of and apparatus for effecting controlled permanent stretching of metal wire, strand or rope, by passing the same around a number of V-groove pulleys of different diameter, coupled together to rotate at the same angular velocity, with the V-grooves having a groove angle of not more than 30°.

3,548,625
COLLAPSIBLE FEED MECHANISM
Francis Joseph Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed July 5, 1967, Ser. No. 651,292
Int. Cl. B21c *27/00*
U.S. Cl. 72—272 **7 Claims**



This disclosure is directed to a collapsible feed mechanism for advancing and retracting a rod or rod-like member, and in particular a "slender column," which may be subjected to large compressive axial loads. The collapsible feed mechanism disclosed herein comprises a plurality of aligning plates and a drive plate all slidably mounted within a support cage. Power cylinders, connected to the drive plate by piston rods, advance and retract the rod, or slender column, which is also connected to the drive plate. The aligning plates and drive plate cooperate to centrally position, advance and retract the rod or slender column, e.g. an extrusion die ram, without bending or buckling the column, even when subjected to large compressive axial loads, e.g. the force of extrusion necessary to advance the die ram upwardly of a billet confined in a high pressure vessel, to extrude the billet into wire.

3,548,626
DRAWING PRESSES
Johann Ropertz, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a German company
Filed Nov. 19, 1968, Ser. No. 776,901
Claims priority, application Germany, Dec. 9, 1967, 1,652,939
Int. Cl. B21d *45/00*
U.S. Cl. 72—344 **4 Claims**



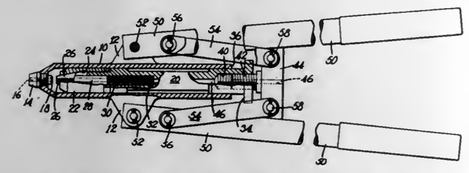
A drawing press for the production of thick-walled hollow bodies, wherein the initial workpiece is provided with a blind hole, whereby it is slipped on to a stationary mandrel, and is drawn out, upon the mandrel, into a thick-walled hollow body by means of dies or drawing bands which are pressed over the workpiece by a crossbar or the like, which is moved parallel to the longitudinal axis of the mandrel and back again into its initial position by way of tension rods, characterised by

the provision of a withdrawing device preferably engaging in recesses in the tension rods, which acts upon the closed end of the hollow body. The withdrawing device may advantageously be provided with automatically engaging and automatically releasable clamping jaws.

3,548,627
RIVETING TOOLS

James N. Henshaw, Birmingham, England, assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey

Filed June 20, 1968, Ser. No. 738,485
Int. Cl. B21d *9/05*
U.S. Cl. 72—391 **3 Claims**

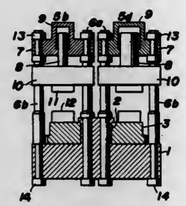


The disclosure is directed to a shears-type tool for setting blind hollow rivets each including a mandrel, which is pulled from the accessible side of the work to set the rivet on the blind side. The tool includes a body, a pulling device or chuck movable relative to the body, an actuating linkage and an adjustment between the linkage and the tool body to obtain the maximum mechanical advantage from the linkage at the time that the mandrel is broken after setting the rivet.

3,548,628
TURRET-TYPE MULTIPRESS

Akira Asari, Osaka, Japan, assignor to Kobe Steel Ltd., Osaka, Japan

Filed May 7, 1968, Ser. No. 727,279
Int. Cl. B21j *9/02*
U.S. Cl. 72—405 **3 Claims**



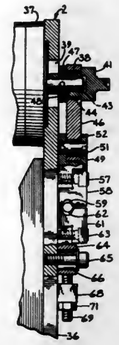
A turret type multipress includes a base having a vertical pivot thereon. A turret is rotatable around the pivot. Above the turret are mounted a plurality of presses, each of which has at least two separate pillars attached to the base. The proximal pillars extend through the pivot, while the distal pillars are fixed to the base in the outer area thereof.

3,548,629
APPARATUS FOR STRAIGHTENING STOCK MATERIAL

William J. Adlaf, North Riverside, Ill., assignor to Esterline Corporation, Broadview, Ill., a corporation of Delaware

Original application Mar. 11, 1968, Ser. No. 712,153. Divided and this application Sept. 11, 1969, Ser. No. 870,694
Int. Cl. B21d *3/10*
U.S. Cl. 72—416 **1 Claim**

Apparatus for handling and cutting metal tubing comprises a reel upon which a coil of tubing may be placed and a device that straightens the tubing as it is withdrawn from the reel and is moved into an elongated housing that stores the straightened tubing. The tubing may then be advanced, as desired, through a fixture to cut off selected tube lengths from the supply. The housing keeps the remaining supply of tubing from being bent. The fixture

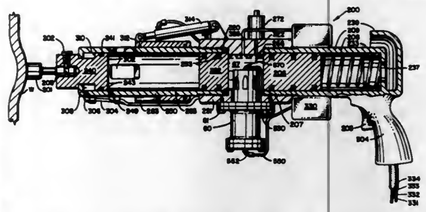


supports the tubing for rotation about its longitudinal axis and includes a knife that is drawn over the tubing transevrsely thereof. The frictional engagement of the knife with the tubing rotates the latter and the disposition of the cutting edge of the knife is such as to increase progressively the depth of cut as the knife moves through a predetermined path.

3,548,630
APPARATUS FOR FORMING MATERIAL BY SUDDEN IMPULSES

Stephen V. Chelminski, Redding, Conn., assignor to Bolt Associates, Inc., East Norwalk, Conn., a corporation of Connecticut

Original application Aug. 16, 1965, Ser. No. 479,771, now Patent No. 3,376,723, dated Apr. 9, 1968. Divided and this application Nov. 17, 1967, Ser. No. 703,806
Int. Cl. B21d *26/06*
U.S. Cl. 72—430 **14 Claims**



A device for forming material by sudden impulses. The device comprises a chamber for gas under high pressure, which gas is abruptly released into a chamber provided with liquid. The sudden release of gas in the liquid creates an impulse which is transmitted by the liquid to effect the desired working.

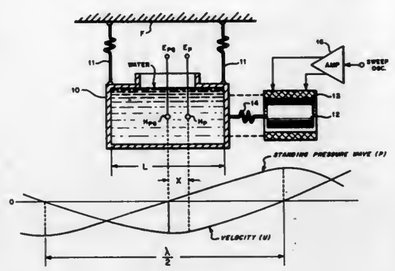
3,548,631
PRESSURE GRADIENT HYDROPHONE CALIBRATOR

Everett W. Farmer, Nashau, and Ernest E. van Ham, Lyndeborough, N.H., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed July 30, 1969, Ser. No. 846,096
Int. Cl. G01h *3/00;* **G12b** *13/00*
U.S. Cl. 73—1 **8 Claims**

A pressure-gradient hydrophone calibrator comprising a rigid-wall tank of water suspended from fixed overhead

structure and oscillated by mass reaction. A shaker fixed directly to the tank induces a pressure wave in the water as a result of the mass reaction, where the driving mass

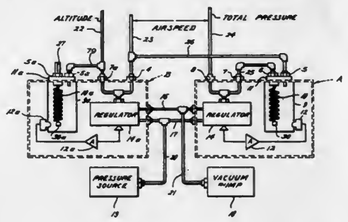


is an armature in the shaker and the reactive mass is the water-filled tank. This results in decreased ambient noise transmission to the water and less expensive construction of the calibrator.

3,548,632
APPARATUS FOR CALIBRATING ALTIMETERS, AIR SPEED INDICATORS, ETC.

John B. Damrel, Jr., and Jerry L. Fruit, Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Continuation of application Ser. No. 565,478, July 15, 1966. This application Dec. 30, 1968, Ser. No. 788,159
Int. Cl. G01l *27/00*
U.S. Cl. 73—4 **9 Claims**



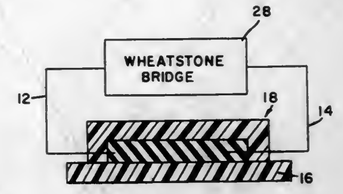
An air data test apparatus which, in one embodiment, is comprised of two Bourdon tube pressure gauges suitably interconnected such that one gauge can test altimeters by generating test fluid pressure and indicate absolute pressure and altitude while the other gauge can test air speed meters by generating the algebraic difference of the pitot tube or total pressure and the absolute pressure existent at a predetermined altitude.

3,548,633
METHOD OF EVALUATING MOISTURE BARRIER PROPERTIES OF ENCAPSULATING MATERIALS

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of William Bert Ellern, Los Angeles, Calif.

Filed Mar. 11, 1968, Ser. No. 711,898
Int. Cl. G01n *15/08*
U.S. Cl. 73—38 **7 Claims**

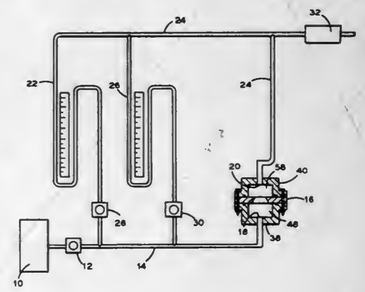
A procedure for evaluating the moisture barrier properties of encapsulating materials such as conformal coatings and embedment resins is disclosed. A humidity sensitive element such as a dry carbon composition resistor is encapsulated with the candidate material. The assembly is subjected to a humid environment, and the change in resistance representing an indication of the penetration of moisture through the encapsulating material is determined. The pressure of the encapsulating material and the temperature effects of the environment can also be determined.



3,548,634
PERMEABILITY CELL

Salil K. Roy, New Brunswick, N.J., assignor to American Standard Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 5, 1968, Ser. No. 750,148
Int. Cl. G01n *15/08*
U.S. Cl. 73—38 **10 Claims**



In this invention a method and structure is disclosed for determining pore characteristics of a porous structure wherein one surface of the porous structure is subjected to a gas under pressure, the differential of gas pressure across said porous structure is measured, and the flow of gas through the porous structure be determinable, the pressure differential and flow information being used to determine the characteristics of the porous structure.

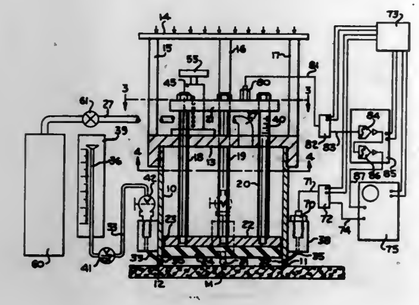
3,548,635
METHOD OF AND APPARATUS FOR TESTING DYNAMIC PERMEABILITY AND HYDRODYNAMIC SURFACE DRAINAGE OF MATERIALS

John W. Hutchinson, Teh-Yu Kao, and Laurence C. Pendley, Lexington, Ky., assignors, by mesne assignments, to The University of Kentucky Research Foundation, Lexington, Ky., a corporation of Kentucky

Filed Mar. 5, 1969, Ser. No. 804,609
Int. Cl. G01n *15/08*
U.S. Cl. 73—38 **6 Claims**

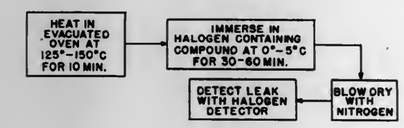
A method for determining the hydrodynamic surface drainage characteristic of a material includes confining a body of fluid in contact with the material surface and after applying a quick pressure loading to the body of fluid and gradually releasing that pressure loading, then

measuring the amount of fluid lost from the body as an indication of the drainage characteristic of the material. A testing device for carrying out the method in making in situ tests comprises a portable, compact apparatus with



a source of gas under pressure for driving a piston against the confined body of fluid, and with means for measuring the volume of confined fluid displaced by the piston and the time during which that displacement occurs.

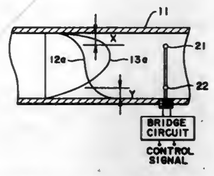
3,548,636
METHOD FOR DETECTING LEAKS IN HERMETICALLY SEALED CONTAINERS
Irving Litant, Lexington, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Sept. 30, 1968, Ser. No. 763,685
Int. Cl. G01m *3/06, 3/20*
U.S. Cl. 73—40.7 **11 Claims**



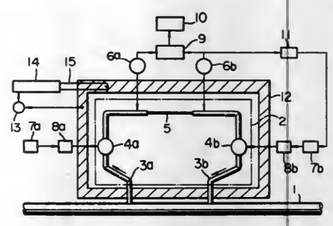
A leak detection method wherein the hermetically sealed container is vacuum heated and then immersed in a relatively cool bath of a detection fluid such as trichlorofluoromethane. Should leaks exist the detection fluid is drawn to the interior of the container by the resulting reduction of pressure. After all traces of the fluid are removed from the surface of the container, leaks are detected by means of a halogen detector or by observance of bubbles when the container is immersed in a second liquid.

3,548,637
VELOCITY PROFILE SENSOR SYSTEM FOR CONTROL OF A SLURRY PIPELINE
Moye Wicks III, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Apr. 11, 1969, Ser. No. 815,364
Int. Cl. G01n *11/00;* **G01p** *5/12*
U.S. Cl. 73—53 **5 Claims**

Apparatus and method of detecting the heterogeneous flow of a slurry so that corrective action may be taken by flowing the slurry through a pipeline so that the slurry continuously substantially occupies a preselected portion of the throughbore defined by the pipeline and selecting at least two locations within the pipeline throughbore portion with a first location being selected near the top of the pipeline and a second location being selected near the bottom of the pipeline. The slurry flow velocity at the first location is detected while the slurry flow velocity is substantially simultaneously detected at the second location. Finally, the detected slurry flow velocities at the two locations are compared to determine the heterogeneity of the slurry.



3,548,638
APPARATUS AND METHOD FOR CONTINUOUSLY DETERMINING VISCOSITY
Mitsuo Uchida, Ibaragi-shi, Yasumasa Nakamura, Ashiya-shi, Toshio Hamachi, Nishinomiya-shi, Akio Ando and Toru Yamazaki, Otsu-shi, Koichi Terao, Sunto-gun, and Shinzo Osumi, Otsu-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan, a company of Japan
Filed Oct. 3, 1968, Ser. No. 764,870
Claims priority, application Japan, Oct. 5, 1967, 42/64,171
Int. Cl. G01n *11/04*
U.S. Cl. 73—55 **4 Claims**

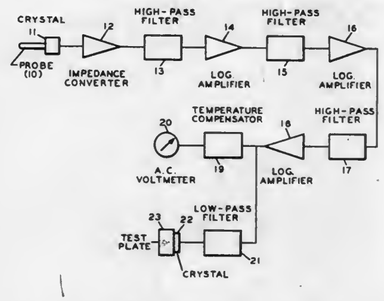


A fine tube viscosimeter employing a by-pass conduit provided with a fine tube and connected to a main conduit of a process line. Two pumps are independently inserted within the by-pass conduit sandwiching the fine tube for introduction and discharge of the liquid from and into the main conduit. Loss of the liquid pressure passing through the fine tube is picked up and used for determination of the liquid viscosity and further for control of the pump revolution. The upstream pump is driven at a faster speed than the downstream pump.

3,548,639
BROMIDE-CHLORIDE SALT MOISTURE INDICATING COMPOSITION
Walter O. Krause, Chesapeake, Va., assignor to Virginia Chemicals Inc., West Norfolk, Va., a corporation of Virginia
Original application Aug. 19, 1968, Ser. No. 753,655, now Patent No. 3,499,316, dated Mar. 10, 1970. Divided and this application Sept. 9, 1969, Ser. No. 870,339
Int. Cl. G01n *33/00;* **C01g** *51/08*
U.S. Cl. 73—61.1 **2 Claims**

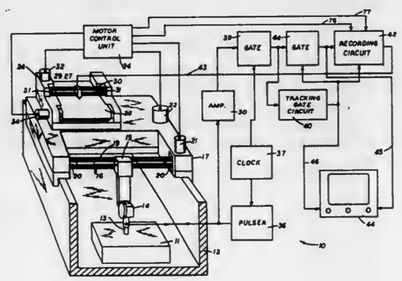
Moisture-indicating materials of the type used in refrigerant systems to detect moisture content which may have a deleterious effect upon the system capabilities, particularly a mixed salt consisting of cobaltous bromide and either barium chloride or magnesium chloride. The moisture indicator composition undergoes a reversible color change as wetted, indicating the degree of moisture within the refrigerant system.

3,548,640
CAVITATION DETECTOR
Wallace R. Deason, Akron, Ohio, and Lewis Fowler, University City, and Walter N. Trump, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Apr. 13, 1967, Ser. No. 630,667
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.2 **3 Claims**



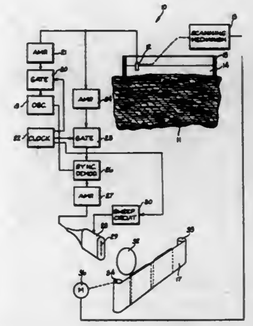
Means and method for detecting fluid cavitation within hydraulic systems. The apparatus employs a tuned piezoelectric probe assembly cooperating with filters and logarithmic amplifiers to consider frequencies between about 30,000 and about 100,000 c.p.s. By bringing the probe into contact with a servo-valve or the like, cavitation and internal leakage can be detected.

3,548,641
RECORDING SYSTEM FOR ULTRASONIC INSPECTION APPARATUS
Hugh A. Mitchell, North Hollywood, Calif., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
Filed Sept. 30, 1966, Ser. No. 583,255
Int. Cl. G01n *29/04*
U.S. Cl. 73—67.9 **20 Claims**



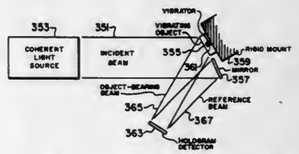
Recording system for an ultrasonic pulse-echo C-scan system in which a recording is produced at a point moved over a recording medium in synchronism with scanning of a part. Gated signals are applied to a multi-level discriminator circuit to produce and hold an output signal at one of a number of discrete output levels, the output signal being applied to the recording means. Important features relate to the discriminator circuit which includes a plurality of bistable circuits, to clipper means for removing lower amplitude portions of the gated signal, to the resetting of the discriminator circuit and to edge sensing and indicating means.

3,548,642
SYNTHETIC APERTURE ULTRASONIC IMAGING SYSTEMS
John J. Flaherty, Elk Grove Village, Kenneth R. Erikson, Niles, and Van Metre Lund, Chicago, Ill., assignors to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
Filed Mar. 2, 1967, Ser. No. 620,041
Int. Cl. G01n *29/00*
U.S. Cl. 73—67.5 **46 Claims**



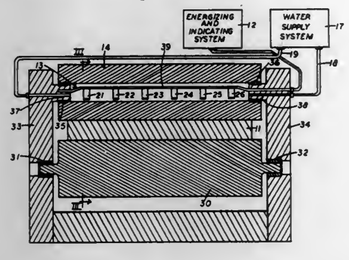
Ultrasonic systems for developing high resolution indications of the characteristics of a narrow slice-like region of a body in which bursts of ultrasonic energy are transmitted with signals reflected from the region to a multiplicity of receiving locations being stored, the signals with respect to each reflecting point being stored in a certain pattern. Processing means are provided including means responsive to the pattern of signals stored with respect to each reflecting point to produce an indication at each point of a display area in accordance with the correlated and integrated effect of the signals received from the corresponding point of the region. In one type of system, the signals are stored on film and optical processing means are provided, preferably using a coherent light source. In another type of system, storage cathode ray tubes, image converters or the like are used.

3,548,643
HOLOGRAPHIC VIBRATION ANALYSIS METHOD AND APPARATUS
Emmett N. Leith, Plymouth, and Juris Upatnieks, Ann Arbor, Mich., assignors, by mesne assignments, to The Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware
Continuation-in-part of applications Ser. No. 361,977, Apr. 23, 1964, and Ser. No. 503,993, Oct. 23, 1965. This application Oct. 29, 1965, Ser. No. 505,652
Int. Cl. G01h
U.S. Cl. 73—71.3 **3 Claims**



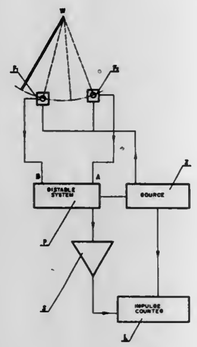
A method of analyzing the average vibration of an object over a selected period of time by vibrating the object, recording the vibration thereof in the form of a hologram and reconstructing the hologram and observing the interference fringes produced on the image of the object.

3,548,644
HOT PRODUCT INSPECTION SYSTEM
Donald T. O'Connor, Barrington, Arthur D. Debb, Blue Island, and Kenneth R. Erikson, Chicago, Ill., assignors to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
Filed Jan. 16, 1967, Ser. No. 609,641
Int. Cl. G01n *29/00*
U.S. Cl. 73—71.5 **1 Claim**



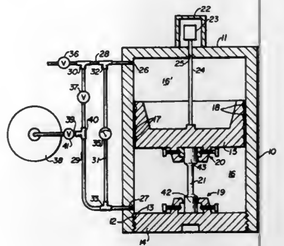
Ultrasonic inspection system including a rigid roll in rolling pressure contact with a workpiece, serving to transmit ultrasonic energy between transducer means in the workpiece. The roll may also operate as one of a pair of reduction rollers and with a hot workpiece, the roll serves to protect the transducer means against excessive temperature. Either one or a plurality of transducers may be used. In one embodiment, the roll is hollow with the transducer means supported therewithin and a liquid may flow continuously through the hollow roll for ultrasonic coupling and to carry away heat. In another embodiment, the roll is solid and the ultrasonic waves are transmitted therethrough.

3,548,645
DEVICE FOR MEASURING HARDNESS OF PLASTICS BY MEANS OF PENDULUM METHOD
Ryszard Tadeusz Sikorski, Ul. Otwarta 2/10, and Janusz Nowaczyk, Ul. Szenwalda 5/2, both of Wroclaw, Poland
Filed Jan. 24, 1968, Ser. No. 701,530
Int. Cl. G01d *5/36;* **G01n** *3/52*
U.S. Cl. 73—79 **1 Claim**



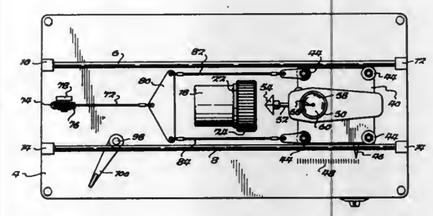
Apparatus for measuring the hardness of plastic by counting the number of swings of a pendulum whose movement is damped by the test material comprising a pair of photoelectric sensors connected to a bistable system for providing an output at each full cycle of the pendulum past both sensors, and means for counting the outputs of said bistable system.

3,548,646
TENSILE TEST APPARATUS
William R. Holman, Danville, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Feb. 28, 1969, Ser. No. 803,154
Int. Cl. G01n *3/10*
U.S. Cl. 73—97 **10 Claims**



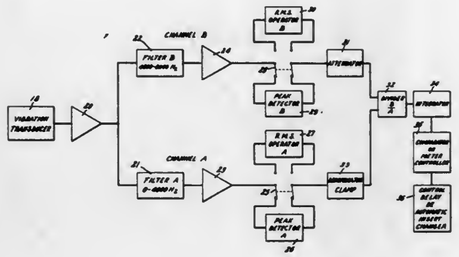
A tensile testing apparatus for measuring mechanical properties of a specimen under the influence of high pressure gaseous or liquid environments. The apparatus comprises a cylindrical enclosure with a piston therein dividing the volume thereof into two compartments. A test specimen is clamped between one side of the piston and the end of the enclosure. Pressurized gas is directed to both compartments and then allowed to escape from one, the mechanical effect on the specimen being determined from the measurement of the differential pressure between compartments and the displacement of the piston. The cylindrical enclosure may be hermetically sealed with the walls thereof of sufficient thickness to withstand the high pressures involved, but preferably located within a high pressure vessel or autoclave of a commercially available type.

3,548,647
APPARATUS FOR PAPER TESTING
Boleslaw Zbigniew Robert Zacios, Montreal, Quebec, Canada, assignor to Canadian International Paper Company, Montreal, Quebec, Canada, a corporation of Quebec
Filed June 26, 1967, Ser. No. 648,852
Int. Cl. G01n *3/26*
U.S. Cl. 73—102 **9 Claims**



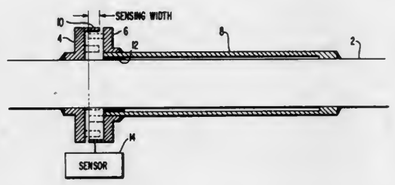
Apparatus for testing the puncture resistance of sheet material, especially kraft paper for grocery, shopping bags, and the like, that includes a holder for a paper specimen, a carriage, a force gauge on the carriage, a platen on the force gauge shaft and means for moving the holder and carriage relative to each other and for bringing the platen into contact with, and puncture, the specimen to record on the force gauge the force required for the platen to puncture the specimen.

3,548,648
SONIC WORN CUTTING TOOL DETECTOR
Bjorn Weichbrodt and Stephen E. Grabkowski, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
Filed Apr. 15, 1968, Ser. No. 721,427
Int. Cl. G01n *19/02, 29/00*
U.S. Cl. 73—104 **8 Claims**



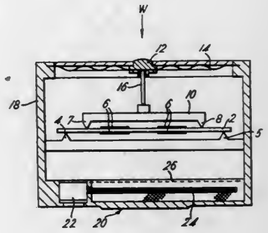
Vibrations generated by a worn cutting tool contain high frequency tonal energy not generated by a good cutting insert. The vibrations are sensed by a vibration transducer during the machining operation and separated by filters into two frequency ranges. When the ratio of the energy in the high frequency range exceeds that in the low frequency range by a predetermined amount, obtained by dividing the peak or RMS values of the respective signal components, an output indication is derived. The output can actuate an automatic cutting insert change.

3,548,649
TORQUE MEASUREMENT SYSTEM UTILIZING SHAFT DEFLECTION AND PHASE DISPLACEMENT TECHNIQUE
James R. Parkinson, Addison, Vt., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y., a corporation of New York
Filed May 27, 1969, Ser. No. 828,217
Int. Cl. G01l *3/02*
U.S. Cl. 73—136 **5 Claims**



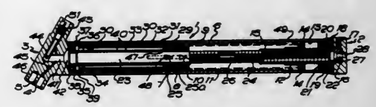
A phase displacement torque measuring system utilizing a pair of exciter wheels mounted in spaced relationship on a shaft in which each of the exciter wheels is provided with a parallel row of teeth along its periphery, with the teeth of one wheel arranged to slide between the teeth of the other wheel thus forming a row of teeth which are alternate in origin, for example, torque teeth from the torque wheel and reference teeth from the reference wheel. A single pole, variable reluctance sensor in close proximity to the rotating wheels provides an AC signal in which any two adjacent cycles of the signal will be controlled by the relative position between the two rotating wheels.

3,548,650
LOAD CELLS
Campbell Dean Boadle, Pentwyn Ponthir Road, Caerleon, Monmouthshire, Wales
Continuation of application Ser. No. 615,720, Feb. 13, 1967. This application May 13, 1969, Ser. No. 826,074
Int. Cl. G01l *1/22, 1/26*
U.S. Cl. 73—141 **3 Claims**



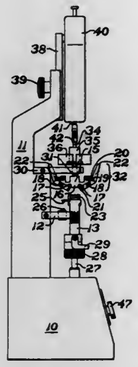
A load cell comprising in a closed chamber a simply supported beam of constant cross-section, means whereby, on application of an external load to the cell, equal deflecting forces are applied to the beam at two points each spaced inwardly of the beam supports an equal amount and strain gauges located on the beam between the points at which the deflecting force is applied.

3,548,651
DEVICES FOR THE ADJUSTMENT OF TIRE PRESSURES
Junnosuke Itoh, 345 Kynden-cho, Setagaya-ku, Tokyo, Japan
Filed Dec. 26, 1968, Ser. No. 787,158
Int. Cl. B60c *23/02*
U.S. Cl. 73—146.8 **9 Claims**



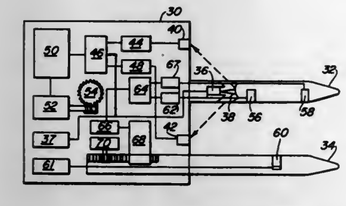
A pocket tire pressure gauge for checking and adjusting tire pressures comprising a manually-adjustable scale-set relief valve in direct communication with a member for connecting to a tire valve, so as to effect blowing-off of excess pressure in a tire, and optionally provided with an air inlet opening also in direct communication with the connecting member, to receive an air hose by means of which a tire can be inflated through the gauge to the required pressure, the air inlet being provided with a shut-off valve, to prevent escape of air through it when an air hose is not applied to it.

3,548,652
TACK TESTER
James R. Beatty and Krishna C. Baranwal, Akron, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Mar. 11, 1968, Ser. No. 712,272
Int. Cl. G01n *19/04*
U.S. Cl. 73—150 3 Claims



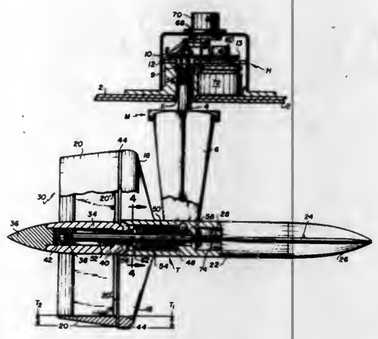
An instrument for measuring tack has upper and lower clamps for holding specimen strips at right angles. Manual lifting of the lower clamps against the upper clamps causes a determined weight to press the specimen surfaces together and starts a timer. The timer starts a motor for separating the clamps, and the separating force is indicated by a spring balance.

3,548,653
DIRECTION AND VELOCITY DETERMINING APPARATUS
Victor B. Corey, Bellevue, Wash., assignor to United Control Corporation, a corporation of Delaware
Filed Mar. 24, 1969, Ser. No. 809,837
Int. Cl. G01w *1/02*
U.S. Cl. 73—189 16 Claims



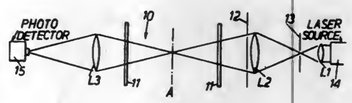
Detection apparatus for determining the direction and velocity of an incident fluid flow stream. A sonic vibration producing means axially spaced from a sonic vibration detection means is oriented parallel to the direction of flow of the incident fluid flow stream by servo means in order to determine the direction of fluid flow. A second sonic vibration producing means axially spaced from a second sonic detection means and having a common axis at 90° relative to the common axis of the first mentioned means is relatively moved by servo means to indicate velocity of fluid flow. The velocity and direction of flight of a helicopter are indicated by a pair of the above means using circuits which combine the signal outputs to eliminate rotor produced disturbances.

3,548,654
TRUE AIR SPEED METER WITH RELATIVE WIND DIRECTION
Howard W. Cole, Jr., 12 Vale Drive, Mountain Lakes, N.J. 07046
Filed Feb. 10, 1969, Ser. No. 797,742
Int. Cl. G01p *5/06*
U.S. Cl. 73—187 10 Claims



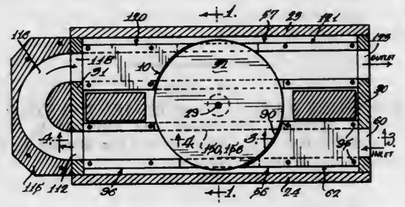
A novel apparatus and method for measuring, under widely variable speed and air flow conditions, the true air speed of any aircraft having an air flow therearound, includes a shrouded turbine rotor having a plurality of blades, a fixed shroud axially aligned with and slightly spaced from the turbine shroud, a magnetic pick-up assembly for conversion of the rotor speed to electrical pulses for the ultimate air speed measurement and a mounting assembly to afford rotation of the air speed meter around axes corresponding to the pitch and yaw axes of the aircraft. In operation, the turbine is rotated by the movement of the air over its blades and a partial vacuum is created in the gap between the rotating and fixed shrouds, thus offsetting axial forces acting on the rotating shroud and reducing friction on its bearings, while the air speed meter assembly is deflected about its mounting under the influence of the transverse air forces acting on it. The magnetic pick-up assembly employs a variable air space to effectuate reluctance change to convert the rotation of the turbine to electrical pulses and transmits these pulses to a measuring apparatus in the aircraft which records the vehicle speed.

3,548,655
MEASUREMENT OF FLUID OR SURFACE VELOCITIES
Michael J. Rudd, Westbury-on-Trym, Bristol, England, assignor to British Aircraft Corporation Limited, London, England, a British company
Filed Oct. 2, 1968, Ser. No. 764,465
Claims priority, application Great Britain, Oct. 4, 1967, 45,258/67; Feb. 23, 1968, 8,942/68
Int. Cl. G01f *1/00*; G01p *5/00*
U.S. Cl. 73—194 6 Claims



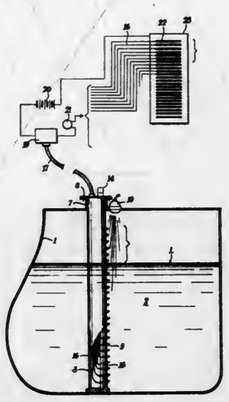
In a Laser Doppler Velocimeter particles suspended in a fluid or affixed to a moving surface pass through an interference pattern of fringes derived from a Laser source. The fringes are spaced apart in the direction of movement of the particles and the resultant periodic fluctuation in the amount of light absorbed or reflected by the particles is recorded on a fixed photo-detector. The Doppler variation in the frequency of these periodic fluctuations is representative of the velocity of the particles.

3,548,656
FLOW METER
Victor J. Guarino, Oak Park, Ill., assignor, by mesne assignments, to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Feb. 5, 1968, Ser. No. 703,112
Int. Cl. G01f *1/06*
U.S. Cl. 73—229 16 Claims



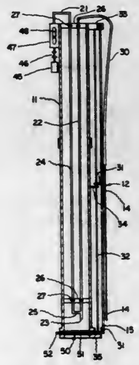
A flow meter wherein measurement is accomplished by recording the rotations of closely spaced flat discs magnetically suspended parallel to the gas stream in a rectangular flow channel so that the discs are rotated by viscous drag.

3,548,657
DEVICE FOR AN OUTSIDE DISPLAY OF THE LEVEL OF A LIQUID CONTAINED WITHIN A TANK
Maria Panerai and Giuseppe Panerai, both of 2 Piazza Galileo Ferraris, Florence, Italy
Filed Nov. 19, 1968, Ser. No. 777,084
Claims priority, application Italy, Nov. 30, 1967, 41,102/67, Patent 819,856; Mar. 27, 1968, 35,858/68; May 2, 1968, 36,692/68; May 15, 1968, 37,000/68; Oct. 9, 1968, 40,337/68
Int. Cl. G01f *23/00*
U.S. Cl. 73—293 6 Claims



A device for an outside display of the level of a liquid contained within a tank, particularly for inflammable liquids, characterized by a plurality of optical light transmitting elements located at vertical intervals within the side wall of a vertically disposed liquid tight cylindrical hollow element anchored to the bottom of and projecting from the top of the tank, and said elements projecting into said tank and cylindrical element, apparatus associated with the top of the tank for sending a light beam on said optical elements, a corresponding plurality of feeler elements within said cylindrical element and connected with each optical element to detect the light changes on said reflecting elements in dependence upon the level of the liquid, and further apparatus external of said tank and coupled to the feeler elements for transducing said light variations on said light-transmitting elements into a visible display corresponding to the metering liquid levels in said tank.

3,548,658
DRAUGHT GAGE
Roland C. Lawes, 700 Carnation Ave., Metairie, La. 70001, and Frederick Lee Jordan, 247 Marmande Ave., Lot 18, New Orleans, La. 70123
Filed Feb. 18, 1969, Ser. No. 800,216
Int. Cl. G01f *23/16*
U.S. Cl. 73—302 4 Claims

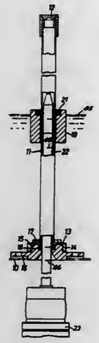


Apparatus for determining the draught of a vessel. A tube extends downward to be aligned at tis lower-most point with the bottom of the vessel at which point the tube has an opening. The tube then extends upwardly and is connected above the surface of the water to a water filled manometer. Gas is forced down the downward extension at a pressure sufficient to force gas out the opening aligned with the bottom of the vessel. The condition of flow out the opening is detected by measuring flow of the gas applied to the downward extension. The pressure necessary to force gas out the opening is read on the manometer and thus the draught of the vessel is obtained. The two extensions of the tube are enclosed in tubular housing closed at the bottom by a butterfly valve which has a small aperture to overcome the transient disturbance of waves.

3,548,659
DEVICES FOR MEASURING THE LIQUID CONTENTS OF CONTAINERS
Frederick Albert Ellis, Dorset, England, assignor to Flight Refuelling Limited, London, England
Filed May 22, 1968, Ser. No. 731,022
Claims priority, application Great Britain, May 24, 1967, 24,137/67
Int. Cl. G01f *23/10*
U.S. Cl. 73—314 4 Claims

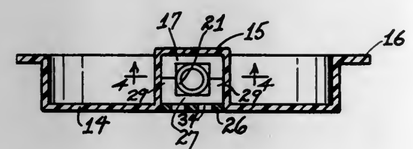
A device for measuring the quantity of liquid in a receptacle comprises a calibrated measuring rod insertable in a substantially vertical tube in the receptacle and carrying an electrically operated indicator. A float surrounding the tube and supported by the liquid carries a magnet which actuates a switch on the measuring rod

to close the circuit of the indicator when the switch arrives at the same level as the magnet, and the position



of the rod can then be read off by using the calibration marks thereon.

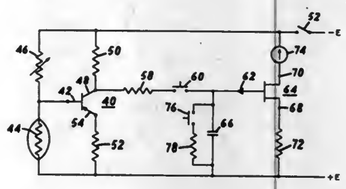
3,548,660
HUMIDITY-SENSING CLOSURE FOR A CONTAINER
Leopold Perlaky, Lanham, and Carlton E. Ohlheiser, Silver Spring, Md., assignors to Hygrodynamics, Inc., Silver Spring, Md.
Filed Aug. 1, 1968, Ser. No. 749,432
Int. Cl. G01m *25/56*
U.S. Cl. 73—336 **6 Claims**



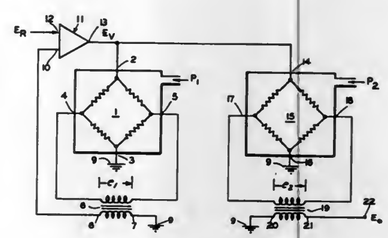
A closure for a solid rocket fuel container consisting of a threaded plug with a diametral hollow inwardly facing handle. Mounted in the handle is an electrical humidity sensing element which is thereby exposed to the interior of the container. A pair of contact blocks are mounted in the handle and are electrically connected to the terminals of the sensing element. The blocks are held in place by respective screws whose heads are exposed at the outside face of the handle so that they may be engaged by the prongs of the contact probe of a humidity indicating device.

3,548,661
ELECTRICAL THERMOMETER
Arnys Clifton Lilly, Jr., and Elwood Maurice Gentry, Richmond, Va., assignors to Philip Morris Incorporated, New York, N.Y., a corporation of Virginia
Filed Mar. 11, 1969, Ser. No. 806,219
Int. Cl. G01k *1/02, 7/24*
U.S. Cl. 73—362 **5 Claims**

An electrical thermometer for periodic temperature measurement and long-term display thereof. The thermometer embodies an electrical circuit including continuously-operating temperature detection means, a particular output signal of which is coupled through a momentarily-conductive transfer unit to a storage device and an indicator. Operation of the transfer unit provides information concerning temperature existing at a particular point in time and display thereof is continuously provided by interconnection of the storage device and indicator. A reset facility is provided whereby the contents of the storage device may be cleared and temperature information may be updated.



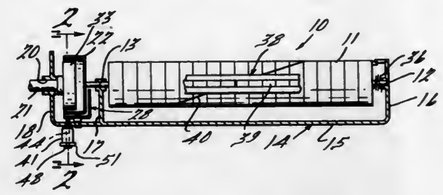
3,548,662
PRESSURE RATIO MEASUREMENT SYSTEM
William E. Brandau, Westwood, and Anthony E. Napp, Woodcliff Lake, N.J., assignors to The Bendix Corporation, a corporation of Delaware
Filed Nov. 22, 1968, Ser. No. 778,188
Int. Cl. G011 *9/04*
U.S. Cl. 73—398 **9 Claims**



A pressure ratio measurement device has an operational amplifier having an input receiving a constant reference voltage and an output providing an energizing signal. Pressure sensing means for sensing first and second pressures are energized by the energizing signal and provide first and second electrical outputs corresponding to the energizing signal and the first and second pressures respectively. The first electrical output is connected to the input of the operational amplifier to vary the energizing signal so that the second electrical output corresponds to the ratio of the first and second pressures.

3,548,663
ELECTRICAL GENERATOR INCLUDING COMPONENTS OF AN AUTOMOTIVE VEHICLE MECHANICAL SPEEDOMETER
Bernard G. Radin, Oak Park, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 31, 1968, Ser. No. 749,090
Int. Cl. G01p *3/54*
U.S. Cl. 73—510 **5 Claims**

An electrical generator for producing periodically varying electrical energy useful in automotive vehicle applications and having a frequency proportional to vehicle speed in which the electrical generator comprises a magnetic means preferably in the form of a permanent magnet having a plurality of poles coupled to a shaft that is driven at a speed proportional to vehicle speed. This magnetic means or permanent magnet forms a portion of a mechanical speedometer of the automotive vehicle that in addition has a pole face or flux collector radially spaced from the permanent magnet and means interposed between the permanent magnet and the pole face or flux collector for producing a torque that drives a vehicle speed indicating device. A coil or output winding and ferromagnetic means coupled to the coil are mounted on



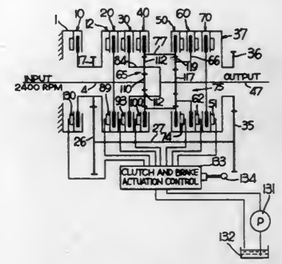
the speedometer for intercepting flux leakage from the permanent magnet and the pole face or flux collector of the speedometer mechanism. As the magnetic means or permanent magnet is rotated at a speed proportional to vehicle speed, magnetic flux coupling the coil is varied in time and produces a periodically varying output in the coil or output winding having a frequency proportional to vehicle speed.

3,548,664
RESTRAINED GYROSCOPE FOR STEERING PURPOSES
Waldemar Moller, Stelgen, Germany, assignor to Bodenseewerk Geratetechnik GmbH., a corporation of Germany
Filed Apr. 10, 1967, Ser. No. 629,480
Claims priority, application Germany, May 3, 1966, F 49,099
Int. Cl. G01c *19/04*
U.S. Cl. 74—5.5 **7 Claims**

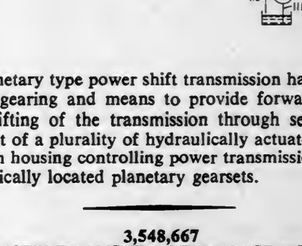
In a gyroscopic control arrangement for use for example in aircraft, a gyroscope is pivotally mounted about an axis of precession and a pneumatic restraining and damping means for the gyroscope is provided and includes first and second compression chambers intercoupled by a fluid flow damping restrictor. The first chamber has a relatively smaller volume with respect to the second chamber. Means such as a piston are positioned in the first chamber and coupled to the housing for displacing a volume of air in the first chamber in accordance with motion of the gyroscope about an axis of precession.

3,548,665
POWER SHIFT TRANSMISSION
James W. Crooks, Whitefish Bay, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 11, 1969, Ser. No. 832,357
Int. Cl. B60k *17/28;* **F16h** *37/06*
U.S. Cl. 74—15.63 **17 Claims**

A vehicle transmission having two planetary gearsets and countershaft gearing including drive and driven gears carried on rotatable input and output clutch housings. Clutches on the clutch housings selectively engage clutch discs on the elements of the planetary gearsets to provide a plurality of output speed ratios through one gearset, both gearsets, and/or the countershaft gearing of said transmission.



3,548,666
MULTIPLE SPEED TRANSMISSION
James W. Crooks, Whitefish Bay, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 23, 1969, Ser. No. 835,469
Int. Cl. B60k *17/28;* **F16h** *37/06*
U.S. Cl. 74—15.63 **10 Claims**

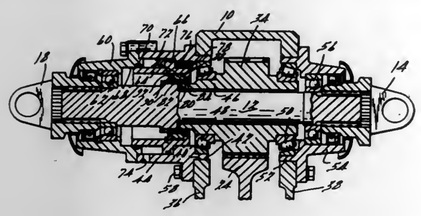


A planetary type power shift transmission having countershaft gearing and means to provide forward and reverse shifting of the transmission through selective engagement of a plurality of hydraulically actuated clutches on clutch housing controlling power transmission through concentrically located planetary gearsets.

3,548,667
TORQUE TRANSFER GEAR CASE WITH A DISENGAGEABLE POWER TAKEOFF
Robert L. Hoover, Royal Oak, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed June 12, 1969, Ser. No. 832,685
Int. Cl. F16h *37/00*
U.S. Cl. 74—15.86 **4 Claims**

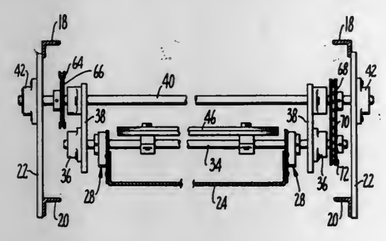
A torque transfer gear case for use in distributing torque from the power output shaft of a multiple ratio transmission mechanism in a vehicle driveline to output drive flanges for a vehicle driveshaft, said gear case including a power take-off gear connected drivably to a driving gear and a clutch mechanism for engaging and disengaging a power takeoff shaft including a fluid motor

having an annular piston concentrically positioned with respect to the power takeoff shaft and a clutch sleeve engageable with clutch elements carried by the power



takeoff gear and the power takeoff shaft, said piston effecting shifting movement of said sleeve as it is shifted axially while being held fast against rotation.

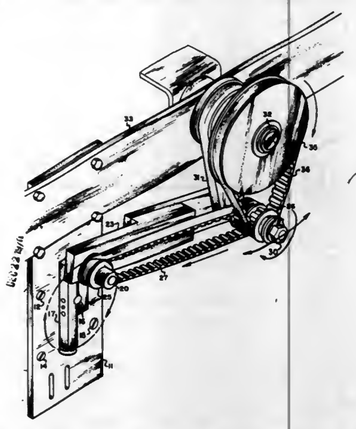
3,548,668
DUAL ECCENTRIC SHAKER
Joseph A. Amori, 1270 Pine Ave., San Jose, Calif. 95125
Filed May 29, 1969, Ser. No. 828,999
Int. Cl. B07b *1/30*; F16h *25/18*
U.S. Cl. 74—61 **2 Claims**



Apparatus including a pan or bed, adapted to serve as a shaker, a separator, a conveyor, etc., having dual eccentric support and drive means, including a novel mounting for one end thereof enabling the sets of eccentrics to be out of phase with each other without harmful results, for driving the head and tail ends in oscillatory movement.

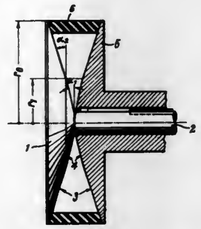
3,548,669
INTERMITTENT DRIVE
Theodore Watkin, Stamford, Conn., assignor, by mesne assignments, to Ivanhoe Research Corporation, New York, N.Y., a corporation of Delaware
Filed June 3, 1969, Ser. No. 829,905
Int. Cl. F16h *35/02*
U.S. Cl. 74—84 **4 Claims**

A first pulley, offset from an axis is revolved about the offset axis. As the first pulley revolves, it functionally rotates. The first pulley is spaced from a second pulley by a first connecting link and connected to the second pulley by a drive belt. The revolving and functional rotating motion of the first pulley is converted to an oscillating and active rotational motion of the second pulley. A second link, pivotally coupled to the axis of the second pulley at one end and pivotally coupled to a second axis at the other end, limits the oscillating motion of the second pulley essentially converting such motion into a reciprocating, arcuate motion about the second axis. A third pulley having an axis common with the second axis is coupled to the second pulley by a drive belt. As the first pulley revolves about the offset axis, the second pulley



rotates on its own axis and reciprocates about the axis which is common with the axis of the third pulley and the third pulley is driven on an intermittent basis.

3,548,670
V-BELT PULLEY
Hanspeter Schnegg, Korntal Kreis Leonberg, and Heinrich Grimm, Raidwangen Kreis Nurtingen, Germany, assignors to Ernst Heinkel Aktiengesellschaft, Stutgart-Zuffenhausen, Germany
Filed Sept. 11, 1968, Ser. No. 759,036
Claims priority, application Germany, Sept. 22, 1967, H 60,280
Int. Cl. F16h *55/52*
U.S. Cl. 74—230.17 **2 Claims**

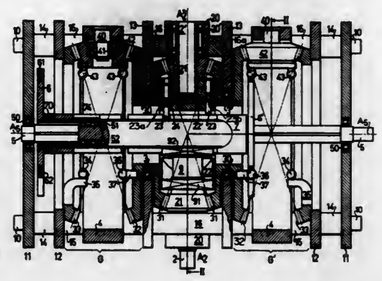


A V-belt pulley, in particular for a steplessly adjustable V-belt transmission, in which the inner conical section of the pulley forms a more acute cone angle than the outer conical section.

3,548,671
CONTROLLABLE STEPWISE DRIVE OR TRANSMISSION
Werner Mueller, Aarau, Switzerland, assignor to Contraves AG, Zurich, Switzerland, a corporation of Switzerland
Filed May 9, 1969, Ser. No. 823,355
Claims priority, application Switzerland, May 10, 1968, 7,032/68
Int. Cl. F16h *35/02*
U.S. Cl. 74—394 **10 Claims**

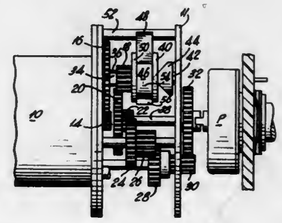
A controllable stepwise drive arrangement for deriving rotational steps and rotational step sequences for an output shaft from a motor driven input shaft as a function

of control signals. The inventive drive arrangement comprises planetary gearing means incorporating rotatably mounted sun gear means arranged behind one another at a common axis, one of said sun gear means being coupled with said driven input shaft and the others possessing stepwise therefrom different rotational speeds. A respective planetary gear revolving about the axis of said sun gear means meshing with two sun gear means of neighboring rotational speed stages, said planetary gear carrying at one end face at least one entrainment means carrying out epicycloidal movements with respect to the planes of said sun gear means. A power take-off wheel having recesses is mounted coaxially for rotation with respect to said sun gear means and is coupled with said output



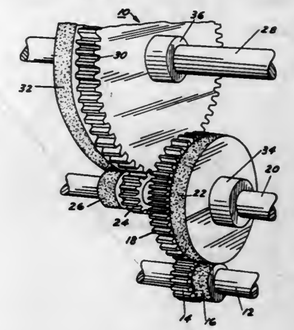
shaft, said entrainment means cooperating with said recesses of said power take-off wheel. A signal-controlled harmonic auxiliary drive arrangement cooperates with said power take-off wheel, said power take-off wheel being displaceable as a function of the input shaft in the direction of the axis of said sun gear means from discrete positions in which it is coupled with a respective sun gear means into a neighboring position, whereas during such displacements it remains coupled with at least one respective entrainment means of a planetary gear and under the action thereof is continuously accelerated and decelerated, respectively, from the rotational speed of one sun gear means to the rotational speed of the next sun gear means.

3,548,672
AUTOMATICALLY CONNECTIBLE AND DISCONNECTIBLE GEAR TRAIN
Byron Conrad, Columbus, Nebr., assignor to Dale Electronics, Inc., Columbus, Nebr., a corporation of Nebraska
Filed Mar. 26, 1969, Ser. No. 810,726
Int. Cl. F16h *57/00, 35/18*
U.S. Cl. 74—405 **7 Claims**



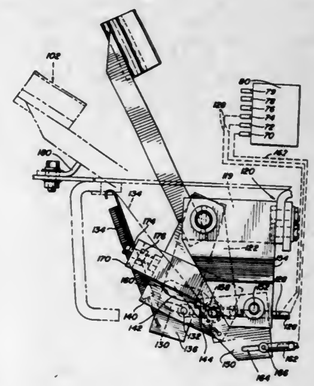
A motorized potentiometer in which the gear train can be disengaged to selectively operate the potentiometer manually. The device has an axially movable clutch which moves linearly to a position whereby the gear train is engaged. Thereafter, the friction of a spring, which initially prevents rotation of the coupling, is overcome and the latter rotates within the friction spring thereby resulting in a motorized potentiometer drive.

3,548,673
ANTIBACKLASH GEAR TRAIN
Anthony J. Suchocki, Rochester, Mich., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed June 17, 1969, Ser. No. 834,102
Int. Cl. F16h *55/18, 1/14, 55/34*
U.S. Cl. 74—409 **7 Claims**



A combination toothed gear and friction gear train which alleviates backlash.

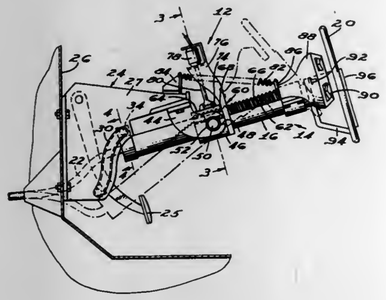
3,548,674
CONTROL VALVE LINKAGE
Robert L. McGuire, Burlington, Iowa, assignor to J. I. Case Company, a corporation of Wisconsin
Filed June 2, 1969, Ser. No. 829,595
Int. Cl. G05g *13/00*
U.S. Cl. 74—478.5 **10 Claims**



This application relates to linkage means for interconnecting two brake pedals and a modulating valve pedal

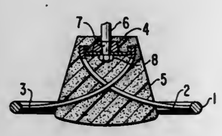
to respective valves for allowing simultaneous actuation of all pedals and individual actuation of the brake pedals. During simultaneous actuation, the linkage causes movement of the modulating valve and then subsequently movement of the brake valves while maintaining the modulating valve in the moved condition. The modulating pedal cooperates with both brake pedals to cause simultaneous actuation of the brake pedals upon actuation of the modulating pedal.

3,548,675
ADJUSTABLE STEERING MECHANISM
Delmar C. Grimes, Flint, George H. Muller, Ann Arbor, and George Ulics, Plymouth, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 16, 1968, Ser. No. 784,051
Int. Cl. B62d *1/18*
U.S. Cl. 74—493 **17 Claims**



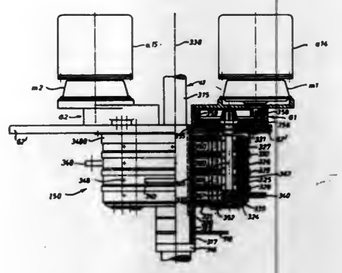
An adjustable steering mechanism for an automotive vehicle in which the steering column is slidably and pivotally connected to each of two axially spaced apart support members and in which the steering column is not constrained to pivot about a single fixed point.

3,548,676
SAFETY STEERING WHEEL
Werner Breitschwerdt, Stuttgart-Botnang, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Aug. 25, 1967, Ser. No. 663,316
Claims priority, application Germany, Aug. 30, 1966, D 50,975
Int. Cl. G05g *1/10*
U.S. Cl. 74—552 **19 Claims**



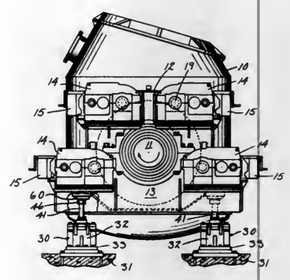
A safety steering wheel for motor vehicles which comprises a steering wheel ring connected with the hub by way of two spokes which cross one another, preferably without mutual contact, and are secured to the hub in such a manner that the inner ends of the spokes are secured to respectively opposite sides of the hub.

3,548,677
TRANSMISSION
Kurt Becker, Obernkirchen, Germany, assignor to Hermann Heye, Obernkirchen, Germany
Filed Dec. 31, 1968, Ser. No. 788,125
Claims priority, application Germany, Jan. 9, 1968, 1,704,112
Int. Cl. F16h *37/06*
U.S. Cl. 74—665 **11 Claims**



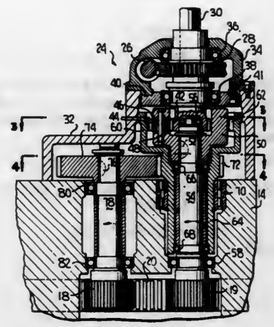
A transmission wherein two or more axially spaced driven internal gears are rotatable about a common vertical axis and carry outwardly extending output members. Each gear is driven by a separate electric motor by way of a step-down transmission. The operation of motors is controlled by a programming system.

3,548,678
TORQUE ABSORBER FOR SHAFT MOUNTED GEAR DRIVES
Allyn E. Phillips, Brookfield, Wis., assignor to The Falk Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed May 14, 1969, Ser. No. 824,505
Int. Cl. C21c *5/50;* **F16h** *37/06, 57/00*
U.S. Cl. 74—665 **7 Claims**



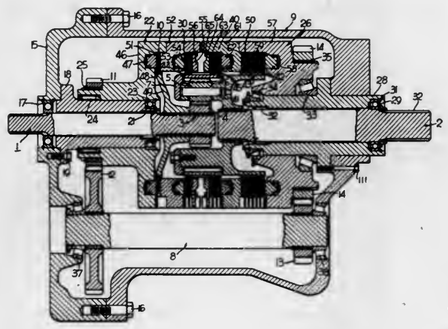
A torque absorber and torque absorbing system for limiting rotation of a shaft mounted gear drive for heavy equipment, such as a basic oxygen steel making furnace, which includes a pair of spaced torque absorbers, one on each side of the gear drive, that contact the housing of the drive to restrain its rotation and wherein the torque absorbers are especially adapted so they will undergo only compression loading during such rotation-restricting condition.

3,548,679
OUTPUT TORQUE DIVIDER
Ernest M. Woodford, Waynesboro, Pa., assignor to Litton Industries, Inc., a corporation of Delaware
Filed Oct. 29, 1968, Ser. No. 771,396
Int. Cl. F16h *37/06, 57/00*
U.S. Cl. 74—674 **10 Claims**



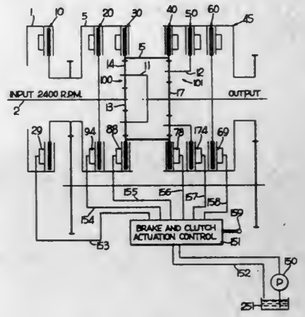
This disclosure relates to a device for effecting relative movement between a rack and two driving gears. Each of the two driving gears is interconnected with an input torque through a system of gears which divides the input torque equally for transmission to the two driving gears. The system of gears which divides the input torque includes a sun gear and a plurality of planetary pinions. The rotation of the planetary pinions about their own axes imparts rotation to one of the two driving gears while the rotation of the planetary pinions about the sun gear imparts rotation to the other of the two driving gears.

3,548,680
PLANETARY TRANSMISSION
James W. Crooks, Whitefish Bay, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 23, 1969, Ser. No. 835,468
Int. Cl. F16h *3/44, 37/06*
U.S. Cl. 74—682 **10 Claims**



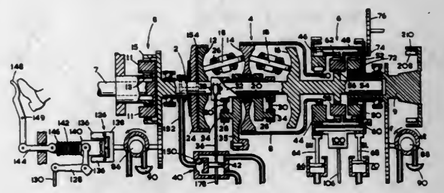
A planetary transmission having countershaft gearing connected between input and output clutch housings rotating concentrically with input and output shafts. Said clutch housing supporting a plurality of clutches for selectively clutching the sun gear, ring gear, and planetary carrier to the clutch housing to thereby provide a multispeed transmission.

3,548,681
MULTIPLE SPEED POWER SHIFT TRANSMISSION
James W. Crooks, Whitefish Bay, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 23, 1969, Ser. No. 835,672
Int. Cl. F16h *37/06;* **B60k** *17/28*
U.S. Cl. 74—682 **11 Claims**



A vehicle transmission having two planetary gearsets and a countershaft gearset with rotatable input and output clutch housing carrying clutches selectively engaging clutch discs carried on the elements of the planetary gearsets to thereby provide a plurality of speed ratios for the transmission.

3,548,682
VEHICLE TRANSMISSION SYSTEMS
Clifford Raymond Schofield and Desmond Ernest Hutchinson, Bradford, England, assignors to The English Electric Company Limited, London, England, a British company
Filed Oct. 10, 1968, Ser. No. 766,578
Int. Cl. F16h *37/06;* **B60k** *21/08*
U.S. Cl. 74—691 **4 Claims**



This invention is concerned with a variable-speed transmission system, especially for vehicles, including a steplessly variable unit and a planetary gear train. By locking one or other of two parts of the planetary gear train, two regimes of operation can be achieved. In one regime, which is the low gear regime for vehicles, and can also include a reverse drive, the planetary gear train acts as a sort of differential gear. In the other regime this differential effect is absent and the variable unit drives the output direct. The specification is particularly concerned with a regime changeover mechanism including a toggle

moved between one position to the other via finger members engaged by abutments on the co-operating members of the planetary gear train.

3,548,683

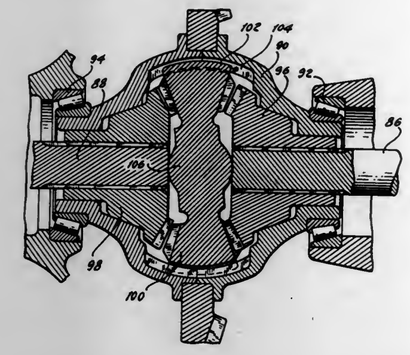
DIFFERENTIAL GEAR MECHANISM WITH WOBBLING INERTIA RING

Alan R. Fisher, Highland Park, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 779,908

Int. Cl. F16h *1/44, 1/40, 1/47*

U.S. Cl. 74—711 6 Claims



A differential gear mechanism adapted to deliver torque to each of two side gears carried by axially aligned power output shafts, including a wobbling ring gear situated between the two side gears in driving engagement therewith to develop an inertia torque bias.

3,548,684

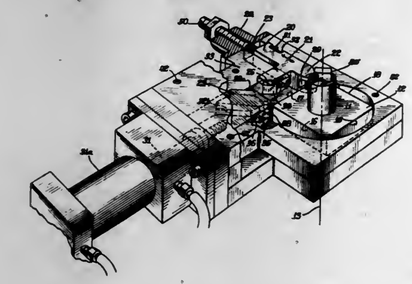
ROTARY INDEXING MECHANISM

Arthur R. Gregersen, Hinsdale, Ill., assignor to Ty Miles, Inc., Westchester, Ill., a corporation of Illinois

Filed Mar. 28, 1969, Ser. No. 811,491

Int. Cl. B23b *29/32*

U.S. Cl. 74—822 4 Claims



An indexing mechanism has a polygonal block rotatable about an axis through its midpoint. When a driving and locking plunger is withdrawn, a finger presses against one side of the block to rotate the block slightly so that a corner of the block is in the path of the plunger. The plunger then moves towards the block pushing on the said corner and rotating the block to its next dwell position where it is held by the plunger being pushed against a face of the block by a fixed wedge on the opposite side of the plunger.

3,548,685

VEHICLE ENGINE CONTROL MEANS

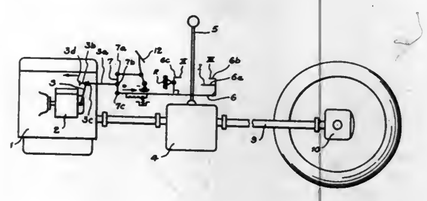
Walter Dittrich, Nuremberg, and Jakob Konrad, Nuremberg-Reichelsdorf, Germany, assignors to Maschinenfabrik Augsburg-Nuremberg Aktiengesellschaft, Nuremberg, Germany

Filed Oct. 14, 1968, Ser. No. 767,319

Claims priority, application Germany, Oct. 28, 1967, 1,630,822

Int. Cl. B60k *21/00*

U.S. Cl. 74—858 5 Claims



The drive shaft or gearshift of a vehicle is coupled to the engine fuel throttle valve so that the engine power is reduced for lower transmission ratios and vice versa.

3,548,686

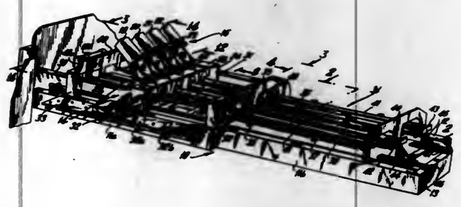
POLE DRILLING MACHINE

Theodore Marks, Hartsdale, N.Y., assignor to American Technical Machinery Corp., Mount Vernon, N.Y., a corporation of New York

Filed Nov. 13, 1967, Ser. No. 682,471

Int. Cl. B23b *39/24*

U.S. Cl. 77—22 8 Claims



An apparatus is disclosed for drilling spaced holes in the surface and along the length of a pole, the holes being drilled at an angle to the axis of the pole. The apparatus is comprised of a longitudinally disposed machine bed having cradle means for supporting poles aligned parallel to each other. A drill assembly is provided together with means for moving the drill assembly relative to the poles along the machine bed to predetermined positions. Means responsive to a signal rotate the poles to predetermined radial positions, while means are provided for actuating the drill assembly after the poles have been indexed in the predetermined radial position. The complete drilling of a pole from end-to-end is determined by a coded array of actuating means located in the path of travel of the drilling assembly.

3,548,687

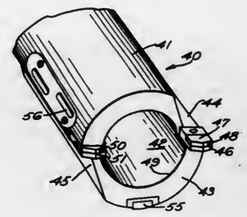
TREPANNING DRILL TOOL

William S. Holloway, Cumberland Hill, R.I., assignor to Madison Industries, Inc., a corporation of Rhode Island

Filed May 17, 1968, Ser. No. 730,168

Int. Cl. B23b *51/04*

U.S. Cl. 77—69 3 Claims



A trepanning drill for deep drilling, having a plurality of separated cutting edges located at the end of a cylindrically tubular body, the cutting edges being arranged to each take a portion of the annual cut and with the cutting edge of the control cutter taking the greatest load to provide a primary reaction force being supported by wear pads so that the wear pads and the control cutter serves as a guide contacting the outer diameter of the annular cut to guide the tool as it progresses through the work.

3,548,688

DRILL

Josef Kuch, Kressbronn, Germany, assignor to Hawera Hartmetall-Werkzeugfabrik Ravensburg, Gesellschaft mit beschrankter Haftung, Ravensburg, Germany

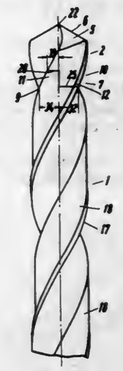
Filed Jan. 6, 1969, Ser. No. 789,306

Claims priority, application Germany, Jan. 4, 1968, 1,652,675

Int. Cl. B23b *51/02*

U.S. Cl. 77—70 15 Claims

A twist drill tip including chip grooves has a hard metal cutting head connected thereto; jaw coupling members and a centering element between the tip and twist drill include complementary conical mantle surfaces and centering protrusion recess interengaged positively at least in the direction of drill rotation; conical opening of the centering element has an angle in a range from 75 to 120°, preferably 90°. A circumferential angle of the jaw coupling member of the cutting head at least equals the circumferential angle located in the same plane and pertaining to the root of the jaw coupling member of the drill. Engaging surfaces of jaw coupling members are arranged approximately in an axial plane of symmetry of the drill located between the chip grooves of the drill. The end faces of the jaws of a jaw coupling member preferably of the cutting head and bottom surfaces of the jaw receiving recess of the other coupling member are located approximately in a plane perpendicular to the axis of the drill.



3,548,689

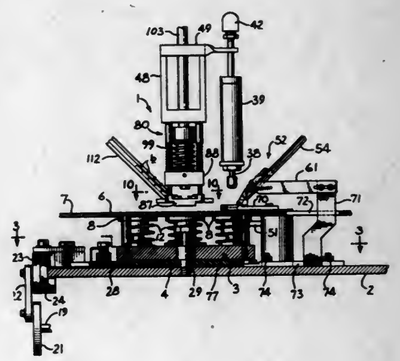
MACHINE FOR MAKING COVERED BUTTONS

Julius Newig, Elmwood Park, Ill., assignor to Handy Button Machine Co., Chicago, Ill., a corporation of Delaware

Filed Nov. 14, 1968, Ser. No. 775,628

Int. Cl. A44b *1/06*

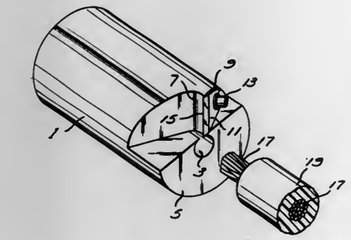
U.S. Cl. 79—5 9 Claims



A machine for making covered buttons comprises a group of lower dies on a turntable each for supporting a cloth cover and shell fed thereto. The lower dies are successively moved into alignment with a plunger that enters each lower die to cause the cover to be wrapped over the shell, the covered shell being retained in the lower die. Each covered shell-containing lower die is then advanced into alignment with an upper die assembly, parts of which vertically separate to receive a button back. The upper die

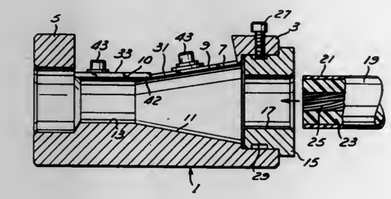
assembly parts close and a plunger forming part of the upper die assembly transfers the button back from the upper die assembly into the lower die, and the two dies cooperate to clinch the back, cloth and shell together to form a completed button for each stroke of the upper die assembly.

3,548,690
TOOL FOR REMOVING CABLE INSULATION
Raymond G. Horrocks, Parkview, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 4, 1968, Ser. No. 710,012
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 **3 Claims**



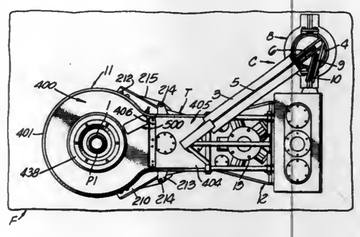
A tool for removing insulation from an electrically conductive cable including a body having a bore with a close sliding fit with the conductor of the cable and a blade having a cutting edge positioned to extend across the insulation from almost but not quite in contact with the conductor.

3,548,691
TOOL FOR REMOVING MATERIAL FROM AROUND THE ELECTRICAL CONDUCTOR OF A CABLE
Raymond G. Horrocks, Parkview, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 710,011, Mar. 4, 1968. This application Nov. 18, 1968, Ser. No. 776,377
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 **6 Claims**



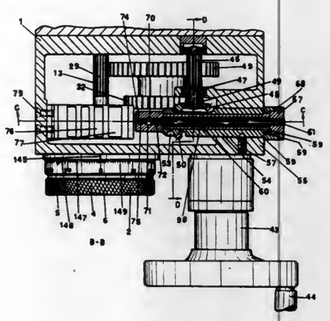
This invention relates to the art of removing material from cable such as is used in conducting high voltage electric currents and is particularly concerned with a new hand tool which is simple in construction, is easy to operate and is effective in removing either the outer layer of semi-conducting material from around the insulation of such a cable or the outer semi-conducting layer and the insulation from around an inner layer of semi-conducting material which is around and in contact with the electrical conductor of such a cable.

3,548,692
WELL PIPE TONGS
John L. Dickmann, Whittier, Calif., assignor to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware
Filed June 17, 1968, Ser. No. 737,523
The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. B25b *17/00*
U.S. Cl. 81—57.18 **6 Claims**



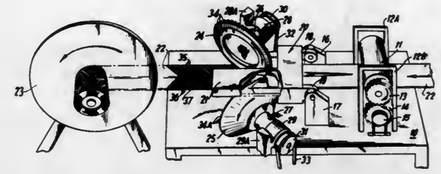
Well pipe tongs including pipe-gripping jaws positively operable to grip pipe therebetween and positively retractable in response to initial relative rotation of a jaw carrying ring and a cam ring mounted one within the other. Such tongs disposed beneath a power-operated tong to back up the power tong so as to make up and break out pipe joints, one joint part of which may be gripped in the back-up tong and a hydraulic cylinder being connected selectively to angularly spaced locations on the jaw carrying ring to enable actuation of the jaw carrying ring in opposite directions relative to the support structure. Such tongs in which the relative rotation of the jaw carrying ring and the cam ring is effected by a drive gear.

3,548,693
TOOL POSITIONING AND POSITION INDICATING APPARATUS
Romeu Romi, Sao Paulo, Brazil, assignor to Industrias Romi S.A., Sao Paulo, Brazil, a corporation of Brazil
Filed Nov. 1, 1967, Ser. No. 679,698
Claims priority, application Brazil, Nov. 16, 1966, 184,575
Int. Cl. B23b *21/00*
U.S. Cl. 82—24 **13 Claims**



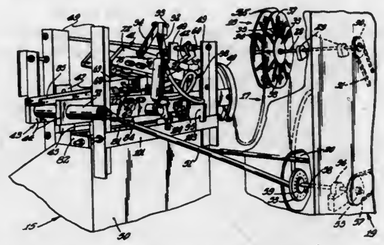
The cross slide of a lathe is moved with the tool between advanced and retracted positions toward and away from a main axis at a low speed or high speed by operation of first or second manually operated means. A decimal counter indicates the units of the distance travelled by the tool, and a fractional indicator means simultaneously indicated fractions of the unit.

3,548,694
METHOD AND APPARATUS FOR SLITTING WEB MATERIAL
Joseph T. Gelardi, Yonkers, N.Y., assignor to American Technical Industries Inc., Mt. Vernon, N.Y., a corporation of New York
Filed Jan. 16, 1969, Ser. No. 791,561
Int. Cl. B26d *1/28, 3/00*
U.S. Cl. 83—1 **10 Claims**



A method and apparatus is provided for producing transverse edge slits at an angle in a web of material in which a cutter wheel is provided mounted on a rotatable shaft and having a plurality of knife blades mounted in spaced relation on the periphery of said wheel, the knife blades having knife edges parallel with each other and disposed at an angle to the plane of the wheel. A web of material is fed in a longitudinal path across a portion of which the cutter wheel is transversely disposed in cutting relationship with the web. The cutter wheel is rotated at a rate correlated to the rate of feed of the web, such that each of the blades produces a parallel edge slit at an angle starting from within the web and extending transversely towards a side edge of the web. In a preferred embodiment, two oppositely disposed cutter wheels are employed, one for slitting the web towards one side edge of the web, and the other for slitting towards the other side edge of the web.

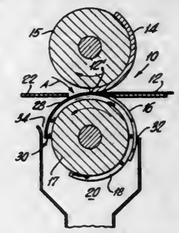
3,548,695
HIGH SPEED PLASTIC BOTTLE TAKE-OFF AND TRIMMING
Williams S. Pearson, Hampstead, Md., assignor to Cypro Incorporated, Hampstead, Md., a corporation of Maryland. by mesne assignments
Filed May 23, 1968, Ser. No. 731,584
Int. Cl. B26d *7/06*
U.S. Cl. 83—24 **20 Claims**



A takeoff device timed with a plastic bottle blow-molding machine removes a continuous chainlike string of connected bottle blanks from the machine and supplies the string to a coordinately operating plastic bottle trimmer which successively trims the individual bottles from the string.

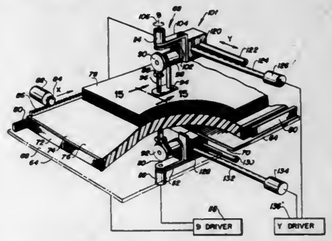
3,548,696
CHIP REMOVAL APPARATUS
Helmut O. Hornung, Altoona, Pa., assignor to F. L. Smithe Machine Co., Inc., Duncanville, Pa., a corporation of New York
Filed June 27, 1968, Ser. No. 740,587
Int. Cl. B65h *35/08*
U.S. Cl. 83—100 **8 Claims**

A chip removal device for cut portions of paper or other material severed from a moving sheet or web without the use of extraneous equipment but utilizing a vacuum source. The chips are evacuated at the point of the cutting operation.



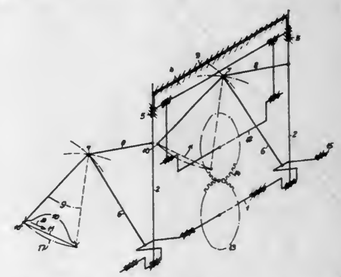
Thereafter, the chips are transported away from the point of cutting operation to the chip exhaust system.

3,548,697
APPARATUS FOR CUTTING SHEET MATERIAL
Heinz Joseph Gerber, and David R. Pearl, West Hartford, Conn., assignors to Gerber Garment Technology, East Hartford, Conn., a corporation of Connecticut
Filed May 5, 1969, Ser. No. 821,723
Int. Cl. B26d *1/46, 1/04*
U.S. Cl. 83—201.03 **20 Claims**



Apparatus for cutting sheet material includes a cutting table having a penetrable material supporting surface and a bed of penetrable material below such surface. A cutting tool extends through the penetrable surface and into the bed of penetrable material during at least a portion of the cutting process.

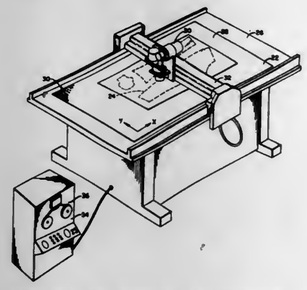
3,548,698
FLYING SHEARS
Curt Muenchbach, Pforzheim-Sonnenberg, Germany, assignor to Irma Ungerer (nec) Dollinger, F Pforzheim, Germany
Filed Dec. 9, 1968, Ser. No. 782,329
Claims priority, application Germany, Jan. 19, 1968, 1,652,789
Int. Cl. B26d *1/56;* **B23d** *25/06*
U.S. Cl. 83—311 **9 Claims**



Knife means are operable by knife-driving means to move in a predetermined direction and to cut sections having a desired length from stock traveling in said predetermined

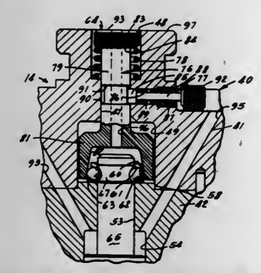
direction at a desired speed. Said knife-driving means comprise knife rocker means connected to said knife means and a linkage comprising a connecting rod, a constraining rocker, a hinge connecting said connecting rod to said constraining rocker, a pivot mounting said constraining rocker at a point on a straight support spaced from said hinge, and a coupling rod connecting said hinge to said knife rocker means. Said knife-driving means also comprise eccentric drive means connected to said knife rocker means and to said connecting rod and operable to impart oscillating motions to said knife rocker means and by means of said connecting rod to said hinge. Said hinge is constrained to oscillate through a predetermined point. Said pivot is adjustable on said support about said predetermined point.

3,548,699
DEVICE FOR CUTTING SHEET MATERIAL
Heinz Joseph Gerber, West Hartford, and Robert J. Pavone, Wapping, Conn.
Original application Sept. 21, 1966, Ser. No. 581,065, now Patent No. 3,477,322, dated Nov. 11, 1969. Divided and this application Aug. 20, 1969, Ser. No. 851,643
Int. Cl. B26d *1/04*
U.S. Cl. 83—528 **4 Claims**



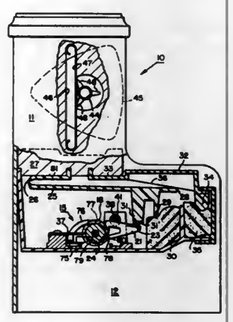
A cutter head for use with an automatically controlled sheet material cutter utilizes a reciprocating tool having a cutting edge facing the work and located in a plane perpendicular to the axis of reciprocation. The tool and its chuck are rotatable about the axis of reciprocation to allow the cutting edge to be maintained tangent to the line of cut. A presser member engages the work to limit the downward movement of the cutter head and is adjustable relative to the main frame of the head to adjust the maximum amount by which the tool projects beyond the work engaging face of the presser member during its reciprocation.

3,548,700
PUNCH HOLDER AND DRIVE ASSEMBLY
John H. Herzog, Clarence, and Ronald C. Hill, Corfu, N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y., a corporation of Delaware
Filed Mar. 21, 1968, Ser. No. 714,957
Int. Cl. B26d *7/26*
U.S. Cl. 83—698 **28 Claims**



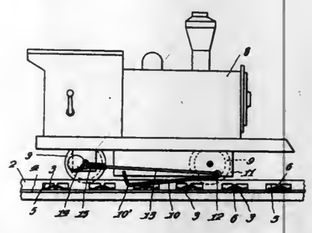
A punch holder and drive assembly for a press having a body which carries a gripping member which engages an attachment portion of a punch received in a socket of the body. The assembly further includes releasable means such as a cage, pin or sleeve which maintains the gripping member in engagement with the attachment portion of the punch. When removed from the press, the punch, stripper sleeve and die member are nested together to form a nestable tool assembly which can be rapidly inserted and removed from the punch holder and drive assembly as a unit.

3,548,701
TOY PIANO
Paul A. Martin, East Aurora, N.Y., assignor to Fisher-Price Toys, Inc., East Aurora, N.Y., a corporation of New York
Filed June 25, 1969, Ser. No. 836,536
Int. Cl. G10f *1/06*
U.S. Cl. 84—95 **11 Claims**



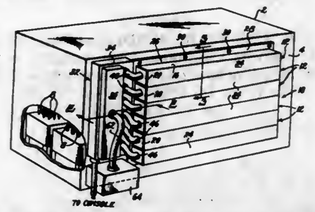
A toy piano has several music box units actuated by pawls and ratchets to play a note of a tune for each advancement. Depression of any of the piano keys moves a member to actuate one of the pawls, and a manually movable cam selects the tune to be played by controlling selective interengagement of one of the pawls with the moving member.

3,548,702
MUSIC PLAYING TOY RAILROAD
Matsuzo Kosuge, Tokyo, Japan, assignor to Cragstan Industries, Inc., New York, N.Y., a corporation of New York. by mesne assignment
Filed Oct. 23, 1965, Ser. No. 503,622
Claims priority, application Japan, May 10, 1965, Sept. 29, 1965, 40/26,853;40/78822
Int. Cl. A63h *21/00, 5/00*
U.S. Cl. 84—102 **13 Claims**



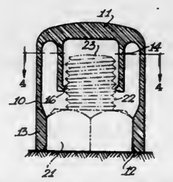
A musical toy railroad comprising a track composed of sound-emitting bodies, toy vehicle moving along said track and striking said sound-emitting bodies during movement along said track so as to play a tune.

3,548,703
HOLLOW PANEL VOLUME CONTROL FOR PIPE ORGANS
George L. Payne, 1515 Bellevue Ave., Richmond, Va.
Filed Jan. 15, 1969, Ser. No. 791,442
Int. Cl. G10b *3/16*
U.S. Cl. 84—346 **6 Claims**



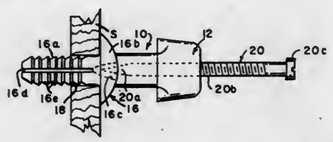
A plurality of hollow panels for mounting within the sound opening in the swell box of a pipe organ, each panel comprising a pair of spaced membranes and being connected to means for evacuating air therefrom. The panels will transmit sound therethrough when the interiors thereof are at atmospheric pressure, and become at least partial nonconductors of sound when exhausted with a light vacuum. The sound output of the pipe organ instrument is controlled by evacuating one or more of the panels, the volume decreasing as additional panels are evacuated.

3,548,704
PROTECTIVE CAP
Edward A. Kutryk, Calgary, Alberta, Canada, assignor to Barber Machinery Co., Limited, Calgary, Alberta, Canada
Filed Mar. 24, 1969, Ser. No. 809,828
Int. Cl. F16b *37/14*
U.S. Cl. 85—56 **2 Claims**



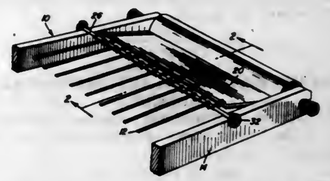
A protective cap for placing over the end of a bolt, or similar threaded member, and its associated nut, to protect from corrosion and damage. An improved appearance is also provided. The cap has a main body portion, tubular in construction, having its inner surface shaped to frictionally engage the circumference of a nut, and also has an inner projection which is adapted to engage with the thread of a bolt. Engagement with the thread prevents dislodging by axial movement and engagement with the nut prevents rotational movement.

3,548,705
QUARTER TURN CONNECTOR
Roland G. Nasser, Newburgh, N.Y., assignor to Star Expansion Industries Corporation, Mountainville, N.Y., a corporation of Delaware
Filed Sept. 12, 1968, Ser. No. 759,427
Int. Cl. F16b *13/06*
U.S. Cl. 85—84 **4 Claims**



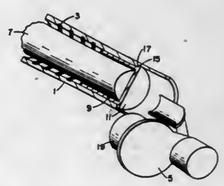
A mounting for a connector of the type which is projected through a shaped eyelet opening or the like and then turned out of phase therewith to achieve a connecting relationship, wherein two mounting elements or parts cooperate with the connector to hold it firmly in an extending position from a support so as to be advantageously presented for use while affording the necessary degree of rotative movement to the connector.

3,548,706
ATTACHMENT ASSEMBLY FOR LOOP CONSTRUCTION FABRIC
Rosaria Forlano Morcaldi D', 18 Haynes St., East Boston, Mass. 02128
Filed Oct. 8, 1968, Ser. No. 765,886
Int. Cl. D04c *3/00*; D04b *15/88, 27/34*
U.S. Cl. 87—31 **1 Claim**



Needlework involving a loop foundation formed by a single thread or strand manipulated in a manner to define loops each of which is knotted to prevent unraveling thereby enabling the material to be cut at any desired point and employed for various purposes.

3,548,707
MISSILE ROLL COMPENSATION DEVICE
James G. Hughes, Madison, Ala., assignor to the United States of America as represented by the Secretary of the Army
Continuation-in-part of application Ser. No. 787,411, Dec. 27, 1968. This application Dec. 4, 1969, Ser. No. 882,254
882,254
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.8 **1 Claim**

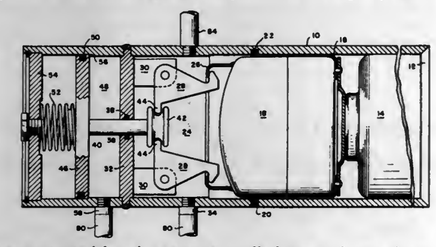


A missile roll-compensating apparatus for imparting a roll correction to a missile fired from a rifled gun tube launcher having a device for closing the breech of the launcher. This apparatus imparts the roll correction at the initial phase of missile launching and the correction is applied in a direction opposite to the spin developed by the missile during the remainder of the missile's travel in the rifled launcher. The apparatus includes a missile cap telescoped over the aft shroud of a missile. A helical groove is located in one of these members and a protuberance is located on the other member for engagement with the helical groove, thus materially diminishing the roll of the missile as it leaves the tube.

3,548,708
PNEUMATIC MISSILE LAUNCHER
Henry O. Hubigh, Upperco, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed July 22, 1968, Ser. No. 746-490
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.818 **3 Claims**

A missile launcher of the tube type having an expendable adapter piston in sliding, sealing relationship with said tube. The pneumatic charge at the rear of the adapter piston is used to propel the adapter piston and the missile from the

muzzle of the launcher tube. Prior to launch, the adapter piston is restrained against the pneumatic charge by sear fin-

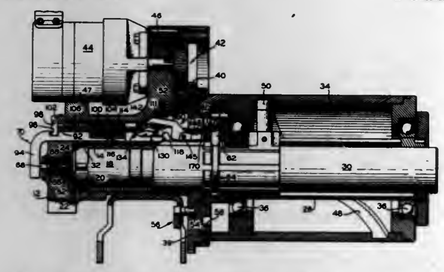


gers actuated by air pressure applied to a release piston to release the missile for launch.

3,548,709
FIRING MECHANISM FOR AUTOMATIC GRENADE LAUNCHER

Marshall D. Prince, Tustin, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Int. Cl. F41d *11/04*
U.S. Cl. 89—149 8 Claims

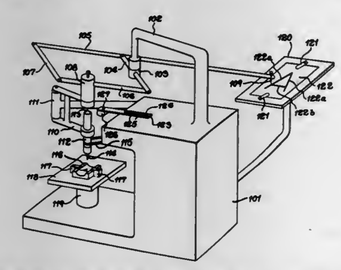


In order to reduce the overall size of a current externally powered automatic grenade launcher, the firing mechanism previously contained in a housing attached to the rear end of the receiver is relocated so that the impact arm at the rear end of a longitudinal striker is the only structure which extends rearwardly beyond the firing pin at the rear end of the receiver. The means for cocking the striker, the sear, and the sear release are each located forwardly of the firing pin in a suitable recess in the bracket attached to the side of the receiver for supporting the motor utilized to operate the launcher.

3,548,710
FORMING APPARATUS AND PROCESS

Morton S. Kaplan, Miami, Fla., assignor to Micro-Thermal Applications, Inc., Hialeah, Fla., a corporation of Delaware

Filed Oct. 8, 1968, Ser. No. 765,864
Int. Cl. B23c *1/16*; B43l *13/10*
U.S. Cl. 90—13.1 13 Claims

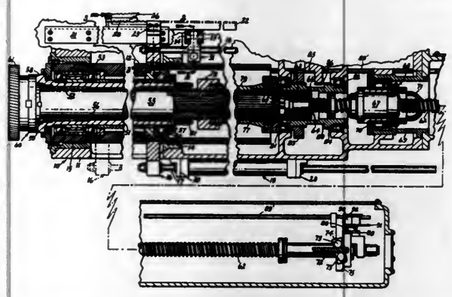


An improved apparatus and process for cutting a pattern into a workpiece by tracing a two-dimensional pattern layout. The cutting member is guided in a vertical direction to control the curvature of the cut imparted to the workpiece by means of a forming guide. The forming guide is provided with a plurality of faces thereon and/or numerous degrees of movement to enable selection of different faces or contours to engage the cutting means.

3,548,711
MACHINE TOOL SPINDLE APPARATUS

Herman J. Baldwin, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio, a corporation of Ohio

Filed Nov. 14, 1968, Ser. No. 775,701
Int. Cl. B23c *1/02*
U.S. Cl. 90—14 8 Claims

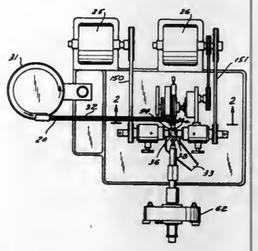


An intermediate spindle or support is disposed between a quill and a spindle in a bar-type milling machine. The intermediate spindle is rotatable with the spindle and is axially movable with the quill. When a cutting tool of relatively large diameter in comparison with the diameter of the spindle is required, an adapter plate connects the ends of the spindle and the intermediate spindle to each other to cause the intermediate spindle and the quill to move axially with the spindle, which normally moves axially relative to the intermediate spindle and the quill.

3,548,712
AUTOMATIC MACHINE FOR FORMING FASTENER ELEMENTS

Theodore Dzus, West Islip, and Conrad J. Gunther, Uniondale, N.Y., assignors to Dzus Fastener Co., Inc., Islip, N.Y., a corporation of New York

Filed Mar. 26, 1969, Ser. No. 810,722
Int. Cl. B23c *3/32*, *3/00*
U.S. Cl. 90—11 17 Claims

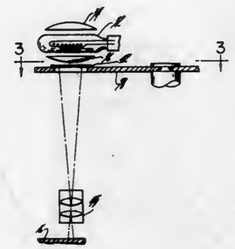


A machine is described which automatically forms stud fastener elements from blank studs. Blank studs are continuously fed to an indexing station where they are engaged by a first tool and rotated into an index orientation. The stud is then carried while in the index orientation to a slotting station where it is engaged by a second tool oriented with the stud and rotatably advanced between oppositely disposed cutters. The cutters generate slots of predetermined configuration in the stud shank to form the fastener element. The stud is thereafter withdrawn from the cutters and removed from the machine.

3,548,713
PHOTO-EXPOSURE DEVICE USING ANNULAR LIGHT BEAM

Ronald Bruce Webster, Melrose, Conn., assignor to The Gerber Scientific Instrument Company, South Windsor, Conn., a corporation of Connecticut

Filed Oct. 10, 1967, Ser. No. 674,225
Int. Cl. G03
U.S. Cl. 95—1 1 Claim

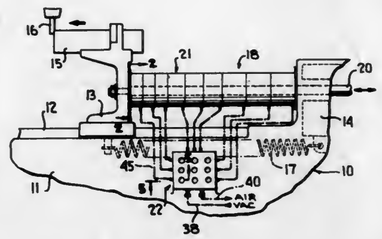


A device for projecting a beam of light onto a photosensitive surface for the purpose of exposing or generating a line as the beam is moved relative to the surface. The beam, at least at its point of contact with the surface, is annular in shape and accordingly produces an annular spot of light. The annular shape of the beam is produced by an annular aperture in the optical system, and where a number of different width lines are to be exposed a number of different apertures are provided wherein the thickness of the annular band is changed as the major diameter of the aperture changes to achieve a proper exposure for each line width.

3,548,714
BINARY DIGITAL TRANSDUCER

George M. Barrett, RR No. 5, Galt, Ontario, Canada

Filed Apr. 25, 1969, Ser. No. 819,180
Int. Cl. F15b *21/02*
U.S. Cl. 91—36 10 Claims



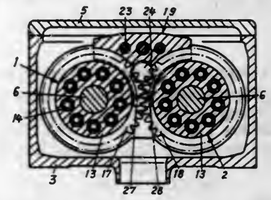
This disclosure relates to a precision movement mechanism which includes a plurality of transducer elements each particularly constructed to advance an element a predetermined distance, and the relative movements of the transducer elements being so related so as to compositely form a binary digital transducer.

3,548,715
COMPOUND HYDRAULIC MACHINE

Gerhard Bobst, Oensingen, Switzerland, assignor to Von Roll AG, Gerlafingen, Switzerland, a corporation of Switzerland

Filed Dec. 9, 1968, Ser. No. 782,237
Claims priority, application Switzerland, Dec. 15, 1967, 17,633/67
Int. Cl. F04b *23/08*, *23/12*, *1/07*
U.S. Cl. 91—61 6 Claims

An auxiliary low-pressure pump unit is connected to a high-pressure pump, or hydraulic motor unit to prevent cavitation effects at high speed; the auxiliary unit is a gear pump, both pump units are located in the same housing and one of the gears of the gear pump is directly mounted on a

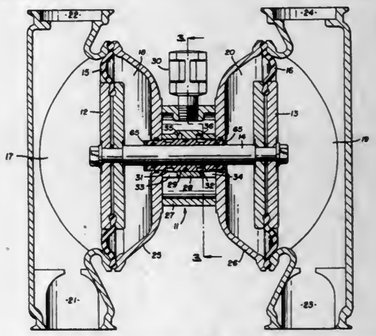


rotating element of the high-pressure unit, for example on a rotating cylinder or other rotating element thereof.

3,548,716
ACTUATOR VALVE SYSTEM FOR TWO-STAGE FLUID-OPERATED UNIT

Theodore J. Rayl, Columbus, Ohio, assignor to The Jaeger Machine Company, Columbus, Ohio, a corporation of Ohio

Filed Mar. 25, 1969, Ser. No. 810,246
Int. Cl. F01l *25/06*, *23/00*
U.S. Cl. 91—307 5 Claims

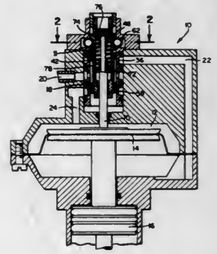


An actuator valve system for a two-stage fluid-operated unit in which a main pilot-operated valve controls the supply and exhaust of fluid to the unit and the positioning of the valve is controlled by a pilot control sleeve which is operatively connected to the valve to apply actuating fluid pressure thereto and, in turn, is positively axially moved to its different positions mechanically by movement of the fluid-actuated unit with which it is cooperatively positioned.

3,548,717
CONTROL FOR GAS-POWERED MOTOR

Charles Passaggio, Cheshire, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Delaware

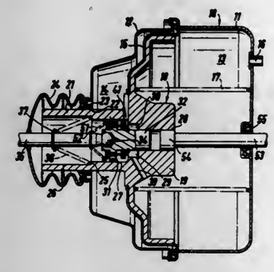
Filed June 16, 1969, Ser. No. 833,485
Int. Cl. F01l *31/08*
U.S. Cl. 91—337 2 Claims



A control valve for a reciprocating fluid motor comprises a ported body with a spool valve therein. A spool valve is driven by a drive sleeve through lost motion means. The drive sleeve is assisted by spring means engaging in indenta-

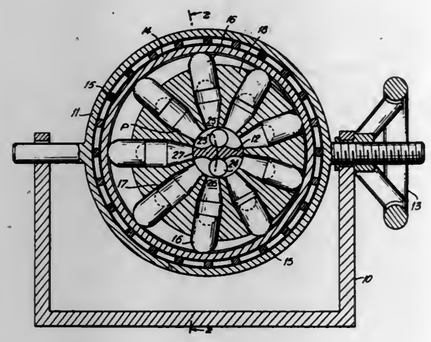
tions in the drive sleeve, positioned and proportioned so that the spring means is urging the spool valve onward when the valve is at its null points.

3,548,718
FLUID PRESSURE OPERATED MOTORS
Norman Utton, Warwickshire, England, assignor to Automotive Products Company Limited, Warwickshire, England
Filed Jan. 22, 1969, Ser. No. 793,113
Claims priority, application Great Britain, Jan. 22, 1968, 3,264/68
Int. Cl. F15b *9/10*
U.S. Cl. 91—369 13 Claims



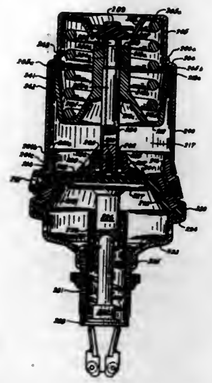
A fluid pressure operated motor in which chambers on opposite sides of a movable dividing member are normally both connected to a source of relatively low fluid pressure and a valve is provided to disconnect one of the chambers from the low-pressure source and connect it to a higher pressure source to actuate the motor, the valve comprising a first closure member to isolate the chambers one from the other and a second closure member to open the said one chamber to the higher pressure source, the second closure member cooperating with apertures in a movable wall and being connected to the first closure member by thrust means.

3,548,719
HIGH EFFICIENCY RADIAL PISTON PUMP OR MOTOR WITH IMPROVED FLOW PATTERN
Jaromir Tobias, Box 141, Rd. 2, Rhinebeck, N.Y. 12572
Filed May 27, 1969, Ser. No. 828,148
Int. Cl. F01b *1/06, 13/06*
U.S. Cl. 91—497 2 Claims



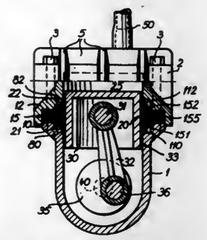
A high efficiency radial piston pump or motor of the type disclosed in U.S. Pat. No. 3,345,916 of Oct. 10, 1967, and further characterized by an improved porting configuration which minimizes losses due to turbulence in transporting fluids to and from the cylinder bores.

3,548,720
BRAKE ACTUATOR
Kenneth D. Swander, Jr., and Charles G. Wearden, Prairie Village, Kans., assignors to Certain-Teed Products Corporation, Ardmore, Pa., a corporation of Maryland
Original application Mar. 10, 1969, Ser. No. 812,538, which is a continuation-in-part of application Ser. No. 520,693, Jan. 14, 1966, now abandoned.
Divided and this application Sept. 23, 1969, Ser. No. 860,362
Int. Cl. F01b *7/00, 31/00*
U.S. Cl. 92—63 7 Claims



A vehicle spring emergency and parking brake of the "add-on" or "piggy back" type with the spring chamber outboard (with respect to the wheel, axle or brake, per se) of the service (diaphragm) chamber, said add-on brake having a mechanical release (manual spring backoff) utilizing a bolt stored within the spring chamber itself, one modification having means preventing or warning of attempts to recompress the emergency spring before the bolt is restored to its storage position within the spring chamber and one modification having a portion of the spring chamber retractable within the spring chamber housing itself when the emergency or power spring has been expanded.

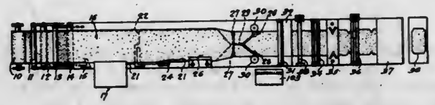
3,548,721
APPARATUS WITH PISTON
Edwin B. Eisennegger, Bildweg 657, Bronschhofen, Saint Gall, Switzerland
Filed Mar. 21, 1968, Ser. No. 714,847
Claims priority, application Switzerland, Mar. 22, 1967, 4324/67
Int. Cl. F01b *31/10*; F16j *15/18*
U.S. Cl. 92—153 14 Claims



At least one annular flexible or elastic lubricant seal/scraper is provided in the cylinder wall of a piston-containing apparatus such as an air compressor, the seal/scraper bears against the piston sidewall surface during the compression stroke of said piston to prevent passage of lubricant into the compression chamber and the seal/scraper lifts away from the piston sidewall surface during the intake stroke to allow any lubricant on the piston sidewall surface to escape into a lubricant collecting chamber and thus minimize the amount

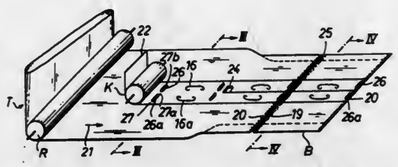
of lubricant within the compression chamber. The piston has no piston rings and consequently has a smooth, uninterrupted surface. Two diverging leg grooves may form a lubricant collecting chamber and high viscosity lubricants, such as grease, may be inserted into the chamber, if desired. Pressure from the compression stroke may be utilized for urging the lubricant in the chamber against the piston and for urging the scraper against the piston.

3,548,722
MANUFACTURE OF VALVE BAGS
Elwyn David Jones, Edward Kenneth Rowley, and Douglas Reynolds Shepherd, Beloeil, Quebec, Canada, said Jones and said Rowley assignors to Canadian Industries Limited, Montreal, Quebec, Canada
Filed Aug. 16, 1968, Ser. No. 757,207
Claims priority, application Great Britain, Aug. 21, 1967, 38464/67
Int. Cl. B31b *1/00*
U.S. Cl. 93—8 10 Claims



Valve bags having the valve formed of overlapping end panels are fabricated from a two-ply web of film employing a modification of a known bagmaking machine. The valve panels are sealed to the longitudinal edges of the web of film thus minimizing the operations carried out at film edges separating individual bags, thereby permitting an increased rate of production.

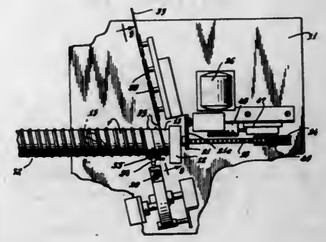
3,548,723
METHOD FOR MANUFACTURE OF A CARRYING BAG
Karl H. Sengewald, 4801 Kunsebeck, Westphalia, Germany
Filed Apr. 16, 1969, Ser. No. 816,625
Claims priority, application Germany, Jan. 4, 1969, 1,900,337
Int. Cl. B31b *1/00*
U.S. Cl. 93—35 11 Claims



Flattened thermoplastic tubing stock, produced with either integrally extruded or continuously adhesively- or weld-bonded, central, longitudinal reinforcement, with or without infolded longitudinal edges, is incised or punched in the reinforced region with spaced handgrip openings as the advancing stock is longitudinally slit; and by each of successive transverse seam welding severing cuts midway between the grip holes two like carrying bags result with handgrip openings in reinforced top or mouth edges. Variations are disclosed in method and product bags, with and without closures.

3,548,724
APPARATUS AND METHOD FOR FORMING INDEFINITE LENGTH TUBULAR ARTICLES
Marcus A. Hall, Summer Island, Branford, Conn., assignor to Automation Industries, Inc., a corporation of California
Filed June 3, 1968, Ser. No. 733,940
Int. Cl. B31c *1/00*
U.S. Cl. 93—80 19 Claims

A collapsible mandrel surface comprising an endless belt helically wound on a hollow cylindrical stationary mandrel core so that the belt is moved along the helical course from a first end to a second end of the core by driving pinions mounted within the hollow core which protrude through the core wall to engage the belt. Wall material in the form of a

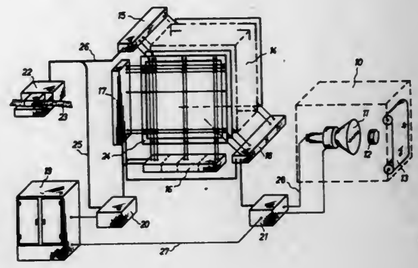


strip is fed tangentially on to the moving belt so that as the belt travels from the first end to the second end the strip is wound on a portion of itself and cemented. By the time the formed tube reaches the second end it is sufficiently self-supporting to allow the mandrel surface to be collapsed.

ERRATUM

For Class 95—1 see:
Patent No. 3,548,713

3,548,725
METHOD OF ORGANIZING THE CORE MEMORY IN ELECTRONIC PHOTOTYPE SETTERS OPERATING BY RASTERING
Eckhard Dirk Lindemann, Raisdorf Near Kiel, Germany, assignor to Dr. Rudolf Hell Kommanditgesellschaft, Kiel-Dietricksdorf, Germany, a Limited Partnership
Filed Feb. 19, 1968, Ser. No. 706,410
Claims priority, application Germany, Feb. 25, 1967, 61,955
Int. Cl. B41b *27/20*
U.S. Cl. 95—4.5 6 Claims

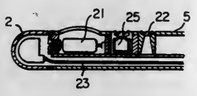


A method of organizing the core memory in an electronic phototype setter operating by rastering is disclosed wherein characters to be used in printing are called up under a binary coded number allocated to each character which number is independent of whether the number is upper or lower case or of script type and size and by addressing with this calling up number a storage cell of the core memory from which cell the address of said character in the desired script type and size in which it is to be set as well as the data concerning the width of such character are taken.

3,548,726
AUTOMATIC EXPOSURE CONTROL DEVICE OF AN ENDOSCOPIC CAMERA

Toshiyuki Mori and Kazumasa Matsuo, Tokyo, Japan, assignors to Olympus Optical Co. Ltd., Tokyo, Japan

Filed Apr. 25, 1968, Ser. No. 724,051
Claims priority, application Japan, Aug. 12, 1967, 42/51,558
Int. Cl. G03b 7/08
U.S. Cl. 95—10 4 Claims

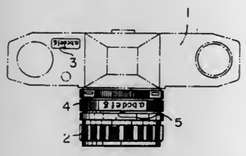


Automatic exposure control device of an endoscopic camera wherein the duration of the energization of the lamp for illuminating the object is varied by the timing circuit in the exposure control device in accordance with the intensity of the light recieved by a photoelectric element provided in the endoscopic camera for obtaining the proper exposure of the film. The photoelectric element is located intermediate the lamp and the objective lens of the endoscopic camera so that the duration of the energization of the lamp controlled by the exposure control device tends to be excessively shortened as the object approaches the objective lens. The resultant underexposure of the film is compensated for by the remaining light emanating from the lamp after deenergization of the lamp effected by the exposure control device when the object is located near the objective lens.

3,548,727
DEVICE FOR DETERMINING AND SETTING THE PROPER EXPOSURE FOR A CAMERA

Yoshihisa Maitani, Tokyo, Japan, assignor to Olympus Optical Co. Ltd, Tokyo, Japan

Continuation-in-part of application Ser. No. 528,504, Feb. 18, 1966, now abandoned. This application June 9, 1969, Ser. No. 834,316
Claims priority, application Japan, Feb. 27, 1965, 40/11,470
1965, Oct. 16, 1965, 63,40/1 Oct. 16, 1965, 40/432
Int. Cl. G03b 7/06, 9/00
U.S. Cl. 95—10 4 Claims

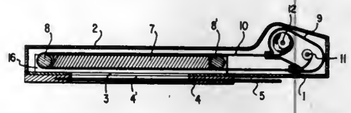


A device for determining and manually setting the proper exposure for the cameras using selectively interchangeable objective lenses of different characteristics. A common series of reference symbols is provided on each of the preset diaphragm regulating rings associated with each different objective lens, while also utilizing the same series of reference symbols for the light exposure meter scale. The diaphragm opening is regulated by manually aligning a selected one of the series of reference symbols of the regulating rings with a reference index point provided on each of the objective lenses, with each of the objective lenses mounted on the camera without any mechanical coupling between the diaphragm regulating ring and the exposure meter. The series of reference symbols are so placed relative to one another in positions to compensate for the difference in the respective focal lengths as well as the difference in the intensity of the light in peripheral zones of the lenses due to optical interference caused by elements in the lenses. The symbols commencing with those respectively succeeding the first one designate the maximum diaphragm opening for the selected lens, so that when lined up with the aforesaid reference index, the indicated diaphragm opening is one-half of that indicated by the adjacent preceding reference symbol. The respective succeeding reference symbols of the light exposure scale indicate the light intensity as being twice that of the preceding symbol, whereby the proper exposure is achieved by the stated aligning of a given reference symbol of the objective lens' diaphragm regulating ring which corresponds to the same reference symbol to which the pointer of the exposure emter is directed, with the reference index of that objective lens.

3,548,728
ROLL FILM HOLDER

Kenji Ariyasu, and Akira Tsuji, Kanagawa, Japan, assignors to Fuji Shaskin Film Kabushiki Kaisha, Kanagawa, Japan

Filed Dec. 21, 1967, Ser. No. 692,565
Claims priority, application Japan, Dec. 21, 1966, 41/16423
Int. Cl. G03b 19/04
U.S. Cl. 95—34 1 Claim

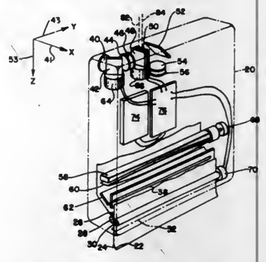


A film holder of the slide inserting type carries roll film within a double magazine. The film loop projects from the magazine surrounding a film pressure plate which forces the film against the holder film window. The plate is removably inserted within grooves formed within the film holder, after the film loop surrounds it.

3,548,729
CORRECTED OPTICAL SYSTEM FOR SHALLOW CAMERA OR THE LIKE, AND COMPONENTS THEREOF

James G. Baker, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Nov. 6, 1967, Ser. No. 680,621
Int. Cl. G03b 41/10
U.S. Cl. 95—36 13 Claims



A corrected optical system is provided for a shallow camera that is characterized by an extremely short dimension between the forward position of the first refracting surface and the rearward position of the final image surface. In the compact handheld camera illustrated herein as an example, the optical system is panoramic in operation, comprising (at one end of the camera) a pivotal scanning mirror and (at the other end of the camera) a slit, past which the photosensitive film is moved at a linear rate, with which the scanning mirror rate is synchronized in order to synthesize a complete image from a continuous sequence of increments.

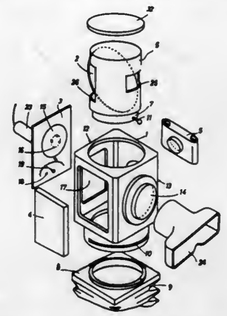
3,548,730
REFLEX CAMERA WITH BINOCULAR FOCUSING AND MICROPHOTOMETRIC CONTROL

Jean Charles Verge, Boulogne, France, assignor to Etablissement Public: Institut National De La Recherche Agronomique, Paris, France, a corporation of France

Filed Dec. 10, 1968, Ser. No. 782,526
Claims priority, application France, Dec. 19, 1967, 132,789
Int. Cl. G03b 19/12
U.S. Cl. 95—42 5 Claims

A multipurpose camera having all the advantages of previously known devices and intended essentially for microphotography and also for macrophotographic reproductions on emulsions ranging from the 24 × 36 mm. size to the 9 × 12 cm. size. The apparatus further comprises

an observation and photographic recording system which permits not only convenient location of the interesting details of the preparation to be studied, but also the focusing of

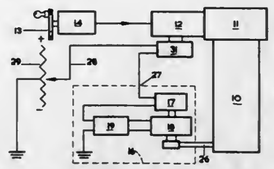


these details and their photometric analysis with binocular vision, without reference to the dial of a measuring apparatus outside the arrangement.

3,548,731
CONTROL SYSTEMS

John Denzil Barr, Oadby, and Dexter Robert Plummer, Leicester, England, assignors to The Rank Organisation Limited, London, England, a company of Great Britain and Northern Ireland

Filed Sept. 6, 1966, Ser. No. 608,235
Claims priority, application Great Britain, Sept. 3, 1965, 37,663/65
Int. Cl. G03b 3/12
U.S. Cl. 95—45 22 Claims



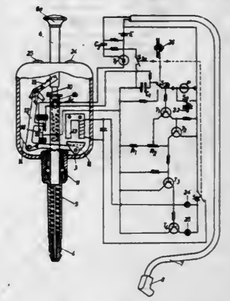
Magnification changes in a zoom lens arrangement consequent to alterations of focus setting are compensated by applying to a zoom control servo a signal derived from a focus setting mechanism so as to cause corrective changes in zoom setting in accordance with changes in focus setting. Second order compensation may be provided by modifying this signal in variable signal modifying means coupled to and set by the zoom setting mechanism.

3,548,732
EXPOSURE TIME CONTROL INSTRUMENT FOR ATTACHMENT TO A PHOTOGRAPHIC CAMERA EQUIPPED WITH A BULB DEVICE AND A FLASH CONTACT DEVICE

Waldemar T. Rentschler, Calmbach, Black Forest, Germany, assignor to Prontor-Werk Alfred Gauthier G.m.b.H., Calmbach, Black Forest, Germany

Filed Sept. 15, 1967, Ser. No. 668,085
Claims priority, application Germany, Sept. 19, 1966, 40413
Int. Cl. G03b 9/00
U.S. Cl. 95—53 7 Claims

An exposure time control instrument for attachment to the wire release terminal of a photographic camera equipped with both a bulb device and a flash contact device. This instrument has a plunger which is movable by manual actuation or by a spring drive and which brings about the release of the camera shutter and also releases for actuation the switched-on bulb device which holds the drive mechanism of the camera shutter in a position corresponding to the open position of the shutter blades for the duration of the exposure time. The bulb device is lockable in the release position by means of a locking device and is unlockable again after the exposure time interval for the purpose of freeing the release plunger, whereupon the plunger returns to its starting position under the influence of a spring and takes the bulb device out of action again. In addition, the control instrument has a shutter resistor and an electronic timing device influenceable by the shutter resistor. The electronic timing device includes a charging capacitor and another electrical switching device connectable to the terminal of the flash contact device on the camera side and controllable by the flash contact. The

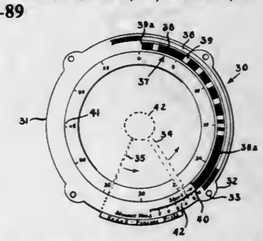


switching device is in positive connection with the timing device in such a manner that the charging process of the capacitor is started via the shutter resistor by the contact making impulse of the flash contact switch and the tripping process of the timing device, by means of which the unlocking of the locking device blocking the release plunger is caused via an electromagnet included in the electronic timing device. By this means, the plunger is released after the elapse of a time interval which depends on the influence of light on the shutter resistor and corresponds to a certain charging state of the capacitor.

3,548,733
COLOR PROCESS TIMER

Werner W. Buechner, 4407 Gladding Court, Midland, Mich.

Continuation-in-part of application Ser. No. 302,902, Aug. 19, 1963, now Patent No. 3,349,685, and a continuation-in-part of 621,382, Jan. 23, 1967. This application Oct. 23, 1967, Ser. No. 677,266
Int. Cl. G03d 3/00; G04b 19/28
U.S. Cl. 95—89 15 Claims



A timer comprising a minute and a second hand is provided with tracks of visually or optically distinct areas which represent approximately the drainage steps and the treating and washing steps of a photographic color developing process and with a track of distinct areas representing exactly the drainage steps. By visual observation of the relative positions of the minute and second hand to the said areas, the begin and end of each treating, washing and drainage step is determined with an accuracy of a second or fraction thereof.

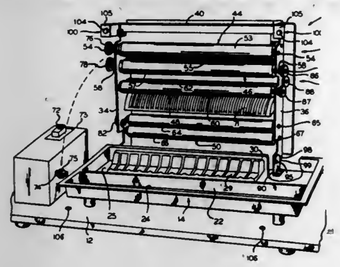
3,548,734
PHOTOGRAPHIC DEVELOPER DEVICE

Burton Greenberg, Chicago, Ill., assignor to ICP Inc., Skokie, Ill., a corporation of Illinois

Filed Oct. 16, 1967, Ser. No. 676,379
Int. Cl. G03d 5/06
U.S. Cl. 95—94 4 Claims

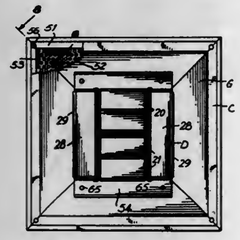
A photographic developer device having a transport system for conveying photographic sheet material through a

developing media contained in a tray. Pivot means enables the transport system to be rotated from an operative position in juxtaposition with the tray to an open position away from the tray. The pivot means comprises a slotted inclined opening formed in a bracket for receiving a pivot finger which is secured on the frame of the transport system. The inclined defining walls of the opening prevents the transport system



from slipping out of place when in the operative position and a post also secured on the frame of the transport system prevents the transport system from slipping out of place when in the open position. The transport system may be completely removed from association with the tray at a point between its operative and open positions. A pinion mounted on a drive shaft meshes with a pair of gears and drives the entire transport system.

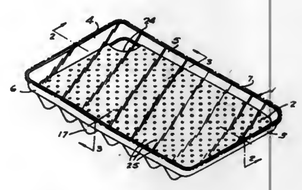
3,548,735
AIR DISTRIBUTOR
George J. Sweeney, Port Washington, N.Y., and Fred Bankowski, Lansdale, Pa., assignors to Agitair Division, Aeronca, Inc., New York, N.Y., a corporation of Ohio
Filed Jan. 14, 1969, Ser. No. 790,937
Int. Cl. F24f 13/06
U.S. Cl. 98—40 4 Claims



The present invention relates to an air distributor for controlling the outflowing ventilating or conditioning air from an internal duct system through the ceiling of a room or enclosure which has an outer perforated outlet plate. The interior of the device has replaceable units which may be fitted into place upon removal of the perforated outlet plate and which may give a one-way, two-way, three-way or four-way or vertical down blow of air and which also may be adjusted so as to give a damping effect. No additional damper may be used. The units are replaceably held in position by means of friction rivets serving as pivot pins.

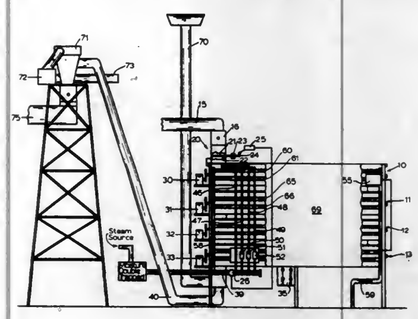
3,548,736
PACKAGE FOR BUNS TO BE USED IN HEATING AND FRESHENING THE SAME
George E. Wahl, Jr., 50 Sharly St., Wheeling, W. Va. 26003
Filed Sept. 13, 1968, Ser. No. 759,566
Int. Cl. A23l 1/34
U.S. Cl. 99—234 2 Claims

The present package is for containing a plurality of buns during the transportation and marketing thereof with the buns split in two and placed face downwardly on a perforated false bottom spaced from the actual bottom of the package and with the package sealed closed by a flexible material above said buns and which package can have water placed



below said false bottom and heated to provide steam in the package to provide hot freshened buns.

3,548,737
TERMINAL HEATING APPARATUS FOR FREEING FEED INGREDIENTS OF SALMONELLA
Monroe E. Evans, Fayetteville, N.C., assignor to Cape Fear Feed Products, Inc., Fayetteville, N.C., a corporation of North Carolina
Continuation-in-part of application Ser. No. 572,115, Aug. 12, 1966, now abandoned. This application Sept. 18, 1969, Ser. No. 859,145
Int. Cl. A23k 3/00
U.S. Cl. 99—235 7 Claims

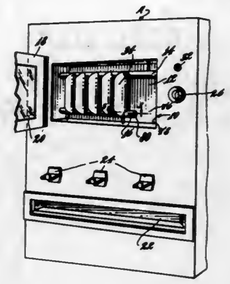


A continuous, large volume terminal heating apparatus for freeing ground, high-fat and high-bulk density, organic feed meal particles of salmonella without affecting moisture and nutritional content or the particle form includes a series of vertically stacked conveyors which in the first conveyor subject the particles to flash heating while tumbling the particles in dry steam to elevate their temperature, in subsequent conveyors cause movement of the particles while maintaining them at the elevated temperature, and finally while continuing movement in other conveyor apparatus cause the temperature of the particles to be brought down to a level at which there is no tendency for the particles to cake.

3,548,738
HOT DOG VENDING MACHINE
James McDevitt, and Victor F. Hildebrand, P.O. Box 4101, Clearwater, Fla. 33518
Filed Dec. 5, 1968, Ser. No. 781,512
Int. Cl. A47j 27/62
U.S. Cl. 99—332 3 Claims

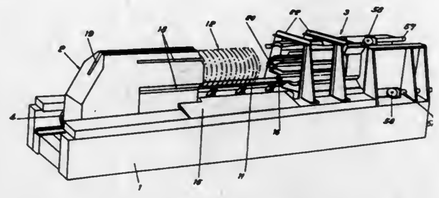
A hot dog vending machine comprising a refrigerated food storage compartment, a pair of vertically spaced actuating bars and a composite hot dog and electrode cooking package stored within the said food compartment, the said package

containing a pair of spaced electrodes each intimately bonded to the hot dog and retained within a cylindrical card-



board container which has been preformed for cooperation with the spaced actuating bars.

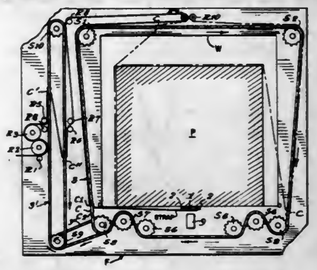
3,548,739
MACHINE FOR COMPACTING AND BINDING COILS
Jean E. Glasson, Argenteuil, France, assignor to Botalam, Paris, France, a corporation of France
Filed Mar. 24, 1969, Ser. No. 809,769
Claims priority, application France, Apr. 1, 1968, 146,658
Int. Cl. B65b 13/20
U.S. Cl. 100—7 2 Claims



A machine for compacting and binding coils having a stationary frame with a compacting carriage capable of longitudinal displacement being mounted at one end of the frame, the carriage being rigidly fixed to coil-receiving cradle. A binding unit is disposed at the other end of the frame and has a mandrel for receiving the coils. The machine further includes means for supplying a binding wire, and includes twisting heads and passages for guiding the wire. Driving means are provided for displacing the compacting carriage toward the binding unit in order to pass the coils over the mandrel and then to compact the coils, whereby a tight bond is formed around the coils thus compacted.

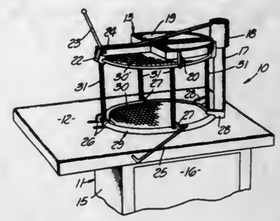
3,548,740
STRAPPING APPARATUS
Robert J. Kobiella, Rolling Meadows, Ill., assignor to Signode Corporation, a corporation of Delaware
Filed July 30, 1968, Ser. No. 748,698
Int. Cl. B65b 13/10
U.S. Cl. 100—28 29 Claims

An apparatus for providing a tensioned loop of strap about an object wherein a carrier in slip feed engagement with a length of strap moves the strap in a closed path around the object to form a closed tensioned loop having overlapping portions that are sealed to one another. The carrier is movable in opposite directions along the closed path for forming successive loops, and a single supply provides strap for the carrier in both directions of its movement. A strap storage means is associated with the carrier for accumulating strap during certain portions of the carrier movement, and for paying out strap during other portions of the carrier movement. The strap sealing means includes an anvil that is movable between a first position in the strap path during the wrapping and sealing operation and a second position displaced from the strap path allowing the strap to move into engagement with the strapped object. The sealing means further includes



a hammer that is supported on a carriage which is movable to a position wherein spring means cause the hammer to compress the overlapped strap portions against the anvil for a subsequent friction fusing operation.

3,548,741
MOLD PRESS SPREADING APPARATUS AND METHOD THEREFOR
Ronald O. Wiley, 2086 Middlebrook Road, Torrance, Calif.
Filed Nov. 1, 1967, Ser. No. 679,908
Int. Cl. B30b 13/00, 1/30
U.S. Cl. 100—35 10 Claims

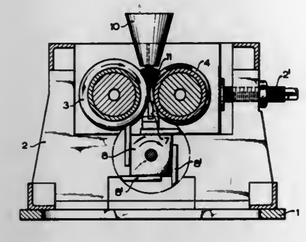


A spring-loaded meat mold is received within a mechanism having fixed and selectively actuatable clasps for securing its different parts in a spaced relationship. Pneumatic powering means is actuatable to move the so-held parts of the meat mold apart and maintain it in its second spaced relationship. A package of meat is then inserted between the spring biased portions of the meat mold. Finally, the mold parts are released, allowing them to be spring driven into compressive contacting relation to the meat package and release of the clasps then permits the meat package and mold to be removed as a unit. Unloading of the compressed meat package after cooking can be accomplished by this same apparatus.

3,548,742
APPARATUS FOR CONTINUOUSLY PROCESSING PULVERULENT OR GRANULAR FEEDS
Wilhelm Johannes Seufert, Korntal, and Heinz Otto Wilhelm Woltzel, Stuttgart-Feuerbach, Germany, assignors to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany
Filed May 2, 1968, Ser. No. 726,158
Claims priority, application Germany, May 12, 1967, 1,679,880
Int. Cl. B30b 9/00, 3/04
U.S. Cl. 100—95 13 Claims

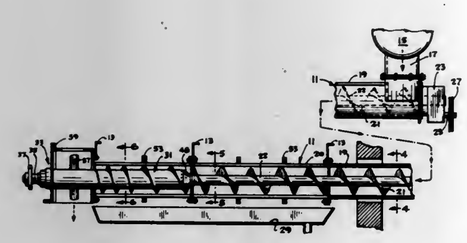
In apparatus for processing pulverulent or granular feeds to produce a plastic mass, of the type comprising a pair of counterrotating rollers displaced from each other to provide a working clearance gap, difficulties arise with temperature-sensitive feeds in that heat buildup tends to occur. This

problem is avoided according to the invention in which process apparatus is provided comprising a pair of cooperating counterrotatable rollers of different diameter provided with intercalating peripheral helical profiles displaced from one another to provide a working clearance gap between the two rollers. The rollers are exposed along their entire length



and are driven at different peripheral speeds, being of different diameters. Feed means are provided for introducing feed material into the working gap and the rollers convey the material in the axial direction of the rollers to at least one delivery end at which takeoff means are provided for removing processed material.

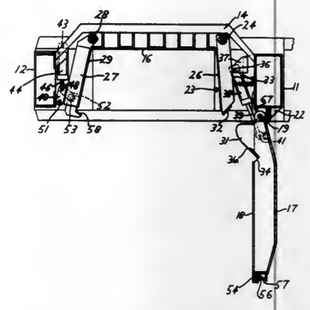
3,548,743
LIQUID EXPRESSING PRESS
John H. Pikel, Oaklawn, Ill., assignor to Chemetron Corporation, Chicago, Ill., a corporation of Delaware
Filed Mar. 7, 1968, Ser. No. 711,310
Int. Cl. B30b *9/16*
U.S. Cl. 100—145 **10 Claims**



Apparatus having a perforate housing through which liquid is expressed from a liquid-containing material by independently rotated screw conveyors that subject the material to varying pressures.

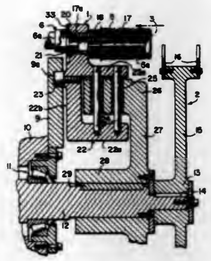
3,548,744
PRESS BOX WITH IMPROVED DOOR ARRANGEMENT
Donald W. Van Doorn; William C. Pease III. Columbus, Jack L. Colquett, Hamilton, and Robert E. Lange, Columbus, Ga., assignors to Lummus Cotton Gin Company, a corporation of Georgia
Filed Sept. 20, 1968, Ser. No. 761,208
Int. Cl. B30b *5/00*
U.S. Cl. 100—255 **10 Claims**

A door system for press boxes in which the closing of a side door automatically closes one of a pair of end doors and in which the other end door closes after the side door is closed. Lock means on the free end of the other end door engages complementary lock means on the free end of the side door, thus to hold all the three doors in locked position thereby to form three walls of the press box. Power means is



provided to close and open the side door and said other end door.

3,548,745
MANDREL ASSEMBLY FOR CONTINUOUS CAN PRINTING
Enn Sirvet, Ridgefield, Edward J. Whelan, Hasbrouck Heights, and John P. Skrypek, Clifton, N.J., assignors to Sun Chemical Corporation, New York, N.Y., a corporation of Delaware
Filed June 21, 1968, Ser. No. 739,049
Int. Cl. B41f *17/20*
U.S. Cl. 101—40 **8 Claims**

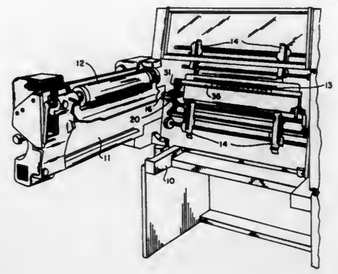


A continuously rotatable mandrel assembly for sequentially carrying a plurality of cans to the blanket of a continuously rotatable printing cylinder wherein, during the printing operation, the can is pressed into engagement with the blanket and is caused to follow the path of the blanket while permitting rotation of the can about its longitudinal axis.

3,548,746
WEB POSITIONING MEANS AND ALIGNING MEANS IN HIGH SPEED PRINTING MACHINES
Harold E. Hepp, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Sept. 30, 1968, Ser. No. 763,587
Int. Cl. B41j *15/04*
U.S. Cl. 101—93 **19 Claims**

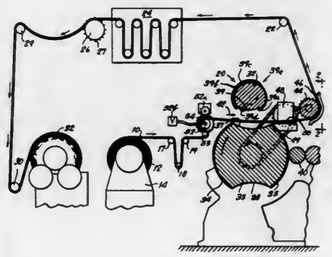
A columnar guide mechanism for use in a high-speed printer including a spring-loaded cable and pulley arrangement for moving the guide from a retracted position to a record-material-aligning position. The guide is pivoted on a swingable typedrum casting in such a way that, when the casting is swung open, the guide is automatically carried therewith while in its normal downward, or retracted, position. This positioning of the casting and the guide enables the loading of the record material into the machine and onto the

material-advancing tractor mechanism. The guide has an overriding feature, so that, with the casting open, the guide can be manually swung independently of the casting and is urged upwardly thereduring automatically by the action of a



compressed spring into a position for determining alignment of the record material in the machine. Closing the casting to the typeline position then pulls the guide downwardly against the action of the spring, and the guide is moved out of the path of the printing hammers.

3,548,747
WEB-FED ROTARY PRINTING PRESS
Salvatore F. D'Amato, Floral Park, N.Y., assignor to American Bank Note Company, New York, N.Y., a corporation of New York
Filed Dec. 5, 1968, Ser. No. 781,506
Int. Cl. B41f *9/00, 13/54;* **B65h** *17/26*
U.S. Cl. 101—153 **18 Claims**

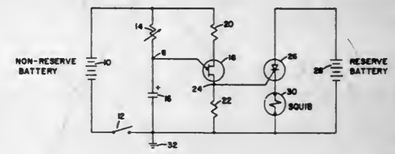


A rotary press for printing repeated impressions on a continuous punched web, having a printing couple which feeds the web intermittently and releases the web between successive feeding periods, sprocket means positioned on one side of the printing couple for engaging successive punched holes in the web, web-drawing means slidably engaging the web on the other side of the printing couple for exerting on the web a tensioning force directed away from the sprocket means, and means for actuating the sprocket means and the web-drawing means to index the web forwardly past the sprocket means each time the printing couple feeds the web and to retract the web past the printing couple each time the printing couple releases the web, in such manner as to produce a net predetermined increment of web advance through the printing couple between the start of one web-feeding period and the start of the next.

3,548,748
DUPLICATING METHOD EMPLOYING SIMULTANEOUS APPLICATION OF ELECTRIC FIELD AND EXPOSURE TO RADIATION
Warren G. Van Dorn; Thomas M. Greeno, Columbus, Ohio, and Vsevolod S. Mihajlov, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Apr. 26, 1967, Ser. No. 633,917
Int. Cl. B41m *5/00*
U.S. Cl. 101—471 **12 Claims**

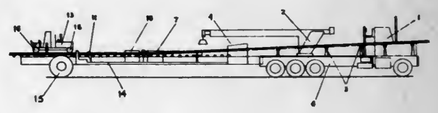
A method of preparing a highly versatile duplicating master. A photoresponsive imaging composition is interpositioned between a dual electrode system. Upon selective illumination of the photoresponsive material and separation of each electrode the photoresponsive composition fractures along the lines defined by the light pattern to which it has been exposed with complementary images being formed on the surface of each electrode. The resulting imaged surface may then be used as a printing master in various modes such as a pressure transfer master, a spirit duplicating master, or as a hectograph master.

3,548,749
TWO BATTERY TIME DELAY SQUIB CIRCUIT
David R. Dreitzler, Huntsville, Ala.
Filed Jan. 30, 1969, Ser. No. 795,184
Int. Cl. F42b *9/08;* **F42c** *13/00*
U.S. Cl. 102—70.2 **2 Claims**



An electronic delay squib circuit that has two batteries wherein one battery is utilized for charging a delay element and the other battery for providing power for the squib. A first battery provides energy to an electronic delay element and is of the primary nonreserve type such as a silver oxide cell. The second battery provides a high energy output sufficient to fire the electroexplosive squib and is of the primary reserve type such as a thermal or setback activated battery.

3,548,750
MOBILE MECHANIZED TRACK LAYER
Lloyd Oscar Hostland, Edmonton, Alberta, Canada, and Nelson Joseph Cloutier, Transcoma, Manitoba, Canada, by Guaranty Trust Company and Majorie Blanche Cloutier, administrators of said Nelson Joseph Cloutier, deceased
Filed Oct. 1, 1968, Ser. No. 764,348
Int. Cl. E01b *29/02*
U.S. Cl. 104—2 **7 Claims**

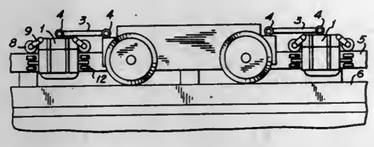


A mobile mechanical track-laying apparatus including a mobile frame which is towed by a tractor and a hoist mounted on the frame for lifting rail members onto the frame. The mobile frame also has rail support and guide means for supporting and guiding the rail members with storage means for rail ties, tie plates and related components. The mobile frame also has a means for spacing the rail ties and moving the rail members and rail ties into position along the mobile frame together with means for moving the tie plates and rail ties into position.

3,548,751
ELECTRIC LINEAR LOCOMOTIVE

Georgy Ignatievich Izhelya, Ulitsa Malopodvalnaya 14, kv. 13; Konstantin Alexeevich Bykov, Ulitsa Streletskaya 14, kv. 2; Boris Sokratovich Veneraki, Ulitsa Gorkogo, 155 kv. 28; Alexandry Ivanovich Vishnikin, Ulitsa Belorusskaya 1, kv. 17; Vladimir Andreevich Mishakin, Ulitsa Selskokhozyaistvennaya, 7/9 kv. 19; Sergei Alexeevich Rebrov, Ulitsa Nikolsko, Botanicheskaya 14 kv. 20; Itskhok Avrumovich Spektor, Ulitsa Muromskaya 3 kv. 15, and Alexandr Grigorievich Shapovalenko, Ulitsa Zatonskogo 15/41, kv. 25, all of Kiev, U.S.S.R.

Filed Mar. 4, 1968, Ser. No. 710,221
Int. Cl. B60l *13/00*; B61c *3/00*; H02k *41/02*
U.S. Cl. 104—148 4 Claims

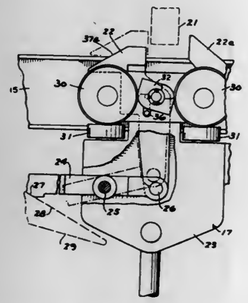


The running gear of electric stock employed on electrified monorails, comprising line induction traction motors wherein the rotor is the tractive guide rail, while the split stators are arranged on both sides of said rail, said stators being mounted on a separate bogie connected to the running bogie of the electric stock by means of a rod which transmits only longitudinal, relative to the tractive rail, efforts.

3,548,752
BRAKE FOR CONVEYOR TROLLEY

Karl R. M. Karlstrom, 16840 Eleven Mile Road, Roseville, Mich. 48066

Continuation-in-part of application Ser. No. 730,882, May 21, 1968, now abandoned. This application Mar. 20, 1969, Ser. No. 808,875
Int. Cl. B65g *17/42*; B61h *9/00*
U.S. Cl. 104—172 10 Claims



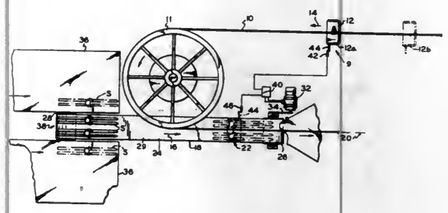
A conveyor system comprising a track along which a plurality of carriers are movable. Each carrier includes a pusher dog that is movable into and out of position for engagement by a pusher lug of a conveyor chain. Each carrier is provided with wheels and a pivoted cam brake member which is normally urged by gravity in a direction to bring surfaces thereof into engagement with the wheels to frictionally engage the wheels. When the pusher dog is in position for engagement by the pusher lug of the conveyor, a pin on the pusher dog normally holds the cam brake member out of engagement with the wheels.

3,548,753
LOADING MEANS FOR CHAIR LIFT

Edward M. Thurston, 562 Riverside Blv., Bend, Oreg. 97701

Filed June 18, 1968, Ser. No. 737,945
Int. Cl. B61b *11/00*
U.S. Cl. 104—123 4 Claims

A conveyor for loading skiers on a chair lift, the conveyor being colinear with the chair lift at least during the portion of its length past the loading point. Power means are provided periodically to accelerate the conveyor from zero speed to a speed less than that of the chair lift. Control means are provided to start the conveyor accelerating at a predetermined time before each chair reaches the loading point and to stop the conveyor after the passengers are seated on the chair. A

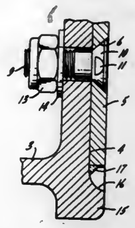


second conveyor may be disposed at an unloading point with power means to drive the second conveyor at a speed greater than that of the chair lift so that passengers alighting from a chair onto the second conveyor will be carried away from the chair. The second conveyor may also be disposed colinearly with the chair lift at least during the portion of its length past the unloading point.

3,548,754
BOLSTER DAMPENING SIDE FRAME WEAR PLATE

Ray C. Williams, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a corporation of New Jersey

Filed Aug. 27, 1968, Ser. No. 755,670
Int. Cl. B61f *5/12*; F16d *69/04*
U.S. Cl. 105—197 2 Claims



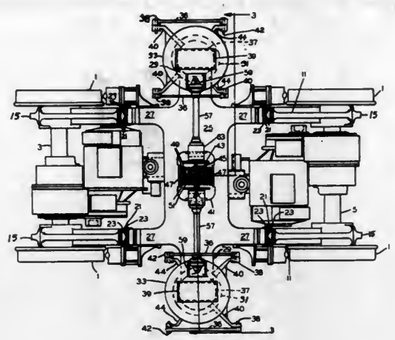
The railroad car truck side frame which supports the bolster has a separate removable wear plate on each side frame column in opposition to the stabilizing wedges carried by the side frame. The removable wear plates are of material much more resistant to wear than the structure of the side frame and must be held rigidly in place on the bolsters which form the opposite sides of the windowed side frame. Each plate is held in position by shoulder bolts extending through it and by weldments associated with the edges of the plate.

3,548,755
RESILIENT RAILWAY VEHICLE TRUCK SUPENSION

Richard L. Lich, Town and Country, Mo., assignor to General Steel Industries, Inc., Granite City, Ill., a corporation of Delaware

Filed June 26, 1968, Ser. No. 740,302
Int. Cl. B61f *3/04*, *5/08*, *5/10*
U.S. Cl. 105—199 14 Claims

Railway vehicle trucks in which light weight and simplicity are achieved by eliminating a bolster between the truck frame and car body. The car body is supported directly on upright spring devices on the sides of the truck frame. Each spring device has two parts in series, one part being yieldable in shear only transversely of the truck to accommodate limited lateral movement of the body thereon, while the other part is yieldable longitudinally of the truck to accommodate swivel. For permitting lateral and swivel movements of the truck relative to the supported body, while limiting relative longitudinal movements, the body underframe has a depending element at the center of the truck, which is connected to the truck by transverse vertical pads of elastomeric material which yield in shear to accommodate lateral and



vertical movements of the body on the supporting spring devices while opposing relative longitudinal movements of truck and body by resistance to compression.

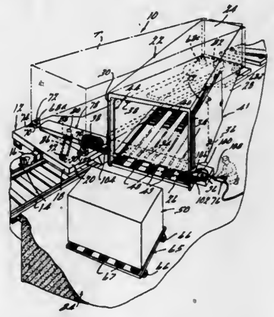
ERRATUM

For Class 105—97 see:
Patent No. 3,548,754

3,548,756
RAILCAR UNLOADING SYSTEM

Richard T. Fujioka, Oxford, Mich., assignor to Fruehauf Corporation, Detroit, Mich., a corporation of Michigan

Filed Jan. 12, 1968, Ser. No. 697,427
Int. Cl. B61d *3/04*
U.S. Cl. 105—455 26 Claims

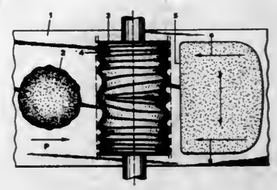


A rail car unloading system comprising a wheeled vehicle such as a railroad flat car or the like adapted to traverse a railroad track and having a generally flat horizontally extending cargo supporting bed; an elongated, generally rectangular shaped cargo carrying container disposed on the cargo bed; means in the form of a plurality of pivotable and elevatable support mechanisms interposed between the lower side of the container and the upper side of the cargo bed and located one adjacent each of the four corners of the lower side of the container, whereby the container is adapted to be pivotably biased at each of the mechanisms between a transit position and a plurality of loading and/or unloading positions, and at least one transfer bridge assembly adapted to be selectively disposed at a support position extending outwardly from the cargo bed for supporting the cargo container when it is moved to and from its loading and/or unloading positions.

3,548,757
ROLLER FOR BREAD MAKING MACHINES

Adriaan Verheij, Rotterdam, Netherlands, assignor to N.V. H. Verheij's Machines, Rotterdam, a corporation of the Netherlands

Filed May 15, 1969, Ser. No. 825,018
Int. Cl. A21c *3/02*
U.S. Cl. 107—12 2 Claims

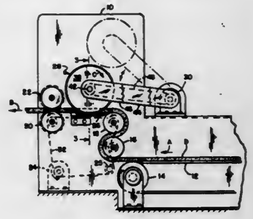


A roller for a bread making machine is provided with circumferential helical grooves extending from the middle of the roller towards its ends in opposite senses of rotation and having a gradually decreasing pitch and depth from the middle of the roller towards its ends. Slabs of dough rolled out by the roller have a virtually straight trailing edge, which provides for a straight lock when the slabs are rolled up to form loaves.

3,548,758
DOUGH SLITTER

Roy E. Singer, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

Filed Sept. 20, 1968, Ser. No. 761,100
Int. Cl. A21c *11/12*
U.S. Cl. 107—69 3 Claims



A number of circular cutting blades are mounted on a single shaft. These cutting blades are positioned to pass through the dough sheet they are slitting. The cutting blades are rotated so the speed of their peripheral edges exceeds the linear speed of such dough sheet. The portion of the dough sheet being slit is kept in tension by rollers which are positively driven.

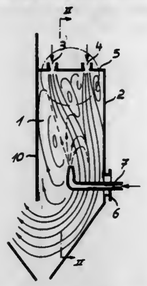
3,548,759
DEVICE FOR BURNING MOIST FINE GRANULAR SUBSTANCES AND FINE GRANULAR SUBSTANCES CONTAINED IN LIQUID MEDIA

Richard Jung, Gummersbach, Germany, assignor to L. & C. Steinmueller G.m.b.H., Gummersbach, Rhineland, Germany

Filed May 12, 1969, Ser. No. 823,568
Claims priority, application Germany, May 16, 1968, 1,751,356
Int. Cl. F23g *7/00*
U.S. Cl. 110—7 8 Claims

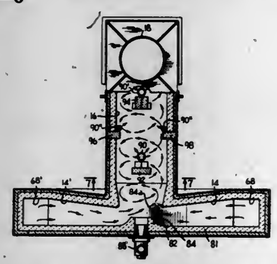
An apparatus for burning residues and moist fuel in a combustion chamber, in which the ceiling of said combustion chamber has arranged therein one or more rows of air-feed-

ing nozzle means with the mouths of said air-feeding nozzle means directed at an angle of from 5 to 30° with regard to



the respective adjacent front and rear walls of said combustion chamber.

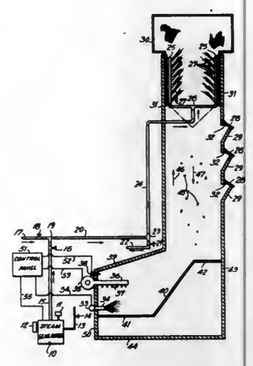
3,548,760
MULTI-PURPOSE FURNACE WITH SMOKE AFTERBURNER
William T. Yarnell, and Alexander J. Turpin, Lebanon, Pa., assignors to Buell Engineering Company, Inc., Lebanon, Pa., a corporation of Delaware
Filed Dec. 3, 1968, Ser. No. 780,749
Int. Cl. F23g *5/08*
U.S. Cl. 110—8 **28 Claims**



According to the exemplary embodiments, a multipurpose furnace for burning refuse, burning away impurities to recover salvageable materials, such as metals, for melting nonferrous metals, and for other various purposes, comprises one or more combustion chambers, each of which has a smoke burning zone, which might be termed a smoke dome, constituted by on the order of 20 percent to 30 percent of the total volume of the chamber and occupying the uppermost portion of the chamber. The smoke dome is closed above and laterally except for an outlet to a smoke afterburner section and is located above the chamber so that there is no opportunity for smoke to escape or for air to enter and cool the smoke burning zone. The smoke afterburner section is constituted by a smoke passage having formations at the inlet to establish a generally helical or spiral flow of smoke through the passage. A burner is located in the passage to add heat to the smoke, and air or another suitable oxygen-containing gas is introduced into the passage to support combustion of combustible components of the smoke. The passage contains baffles arranged to break up flow paths through the passage and establish turbulence and mixing of the gases, but the baffles are constructed so as not to substantially obstruct the flow of smoke through the passage. The furnace is capable of burning all of the combustible components of the smoke so that primarily "clear gases" are discharged from the afterburner section.

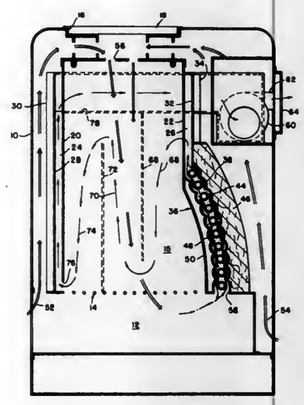
3,548,761
ANTI-POLLUTION INCINERATOR
Solomon Zalman, 101-20, Ozone Park, N.Y.
Filed Dec. 26, 1968, Ser. No. 787,107
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 **7 Claims**

An antipollution device for removing the smoke particles from exhaust gases of an incinerator or fuel burning apparatus, having a plurality of upwardly directed steam jets mounted against the walls of the chimney adjacent to its opening and supplied with steam under pressure produced by an independent source such as a steam generator. As an incinerator, the apparatus also utilizes a gas burner for igniting



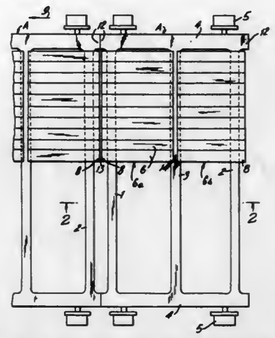
the refuse articles, and an air blower having an air jet manifold for maintaining a high temperature of combustion within the incinerator. The apparatus also includes a control panel connected to a temperature sensing device for operating the gas burner, and air blower to maintain a high temperature of combustion within its combustion chamber.

3,548,762
SMOKELESS-ODORLESS ELECTRIC INCINERATOR
Clarence A. Anderson, Dearborn, and Mitchell D. Charneski, Southfield, Mich., assignors to The Detroit Edison Company, Detroit, Mich., a corporation of New York
Continuation-in-part of application Ser. No. 668,385, Sept. 18, 1967, now Patent No. 3,467,035. This application July 11, 1969, Ser. No. 841,099
Int. Cl. F23g *3/04*
U.S. Cl. 110—18 **15 Claims**



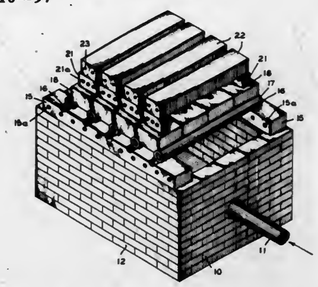
Radiant heating structure for an electric incinerator forming a part of the combustion chamber comprising a plurality of heat radiating elements disposed in alignment in a restricted passageway for products of combustion. A heat reflecting and insulating plate or wall is provided at the side of the elements remote from the chamber and a heat radiating wall is disposed between elements and the chamber.

3,548,763
GRATE SECTION FOR A TRAVELING GRATE
Hans Farber, Oberhausen-Sterkrade, Germany, assignor to Gutehoffnungshutte Sterkrade Aktiengesellschaft, Oberhausen-Sterkrade, Germany
Filed Oct. 9, 1968, Ser. No. 766,108
Claims priority, application Germany, Oct. 12, 1967, 1,583,450
Int. Cl. F23b *1/22*
U.S. Cl. 110—40 **5 Claims**



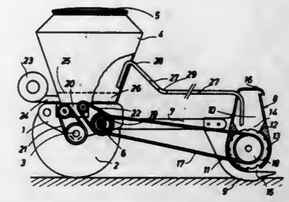
A grate section for a traveling grate is formed with a plurality of cross members extending between a pair of side members. Grate bars are supported on the cross members and extend forwardly of the cross member on the leading side of the grate section and rearwardly of the cross member on the trailing side of the grate section for protecting the surfaces of these cross members from becoming overheated. Additionally, the grate bars are movably secured to the cross members to prevent their displacement and to accommodate movement in travel and thermal expansion.

3,548,764
HEAT CONSERVING, RETAINING AND RADIATING ASSEMBLIES FOR SPACE HEATERS
John F. Navarro, III, 13 River St., New Rochelle, N.Y., and Richard T. Di Donato, 2039 Blackrock Ave., Bronx, N.Y.
Filed Mar. 17, 1969, Ser. No. 807,757
Int. Cl. F23m *9/00*
U.S. Cl. 110—97 **7 Claims**



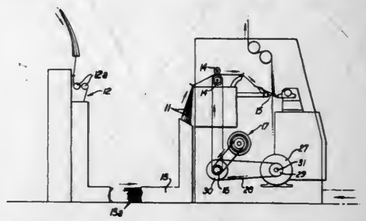
Heat conserving, retaining and radiating assemblies for installation in or immediately above the combustion chamber of a space heater, each such assembly being constituted by a plurality of uniformly spaced tubular silica rodlike elements, disposed transversly of said combustion chamber and on a horizontal plane, with refractory spacers beneath said tubular elements for preventing displacement thereof and a first layer of refractory heat-retaining blocks supported above said tubular elements in interlocking relationship therewith and having vertically disposed passages to permit free circulation therethrough of heated air. Refractory heat-retaining spacing blocks supported upon said first layer of refractory material in opposed rows and a plurality of elongated heat-retaining bars disposed thereabove in spaced relationship and parallel to the tubular silica carbide elements, said elongated bars being produced from refractory material and each having at least one stainless steel reinforcing rod extending longitudinally therethrough.

3,548,765
AGRICULTURAL DISTRIBUTING IMPLEMENT
Xavier Roger Grataloup, Montereau, France, assignor to Societe Anonyme Noget-Gougis, Montereau, France, a corporation of France
Filed Dec. 12, 1968, Ser. No. 783,190
Claims priority, application France, Dec. 27, 1967, 133949
Int. Cl. A01c *7/18*
U.S. Cl. 111—60 **5 Claims**



According to the present invention an agricultural implement distributes measured quantities of seeds or fertilizer from a central closed hopper to a plurality of vented individual distributor assemblies each having an auxiliary reservoir. The seeds or fertilizer is conveyed pneumatically from the central hopper through pipes to the auxiliary reservoirs where accumulation is controlled by positioning the ends of the pipes.

3,548,766
TUFTING MACHINES
Clifford Colbert, Braeside, Blackburn, England, assignor to Singer-Cobble Limited, Blackburn, England
Filed Dec. 5, 1968, Ser. No. 781,373
Int. Cl. D05c *15/18*
U.S. Cl. 112—79 **4 Claims**

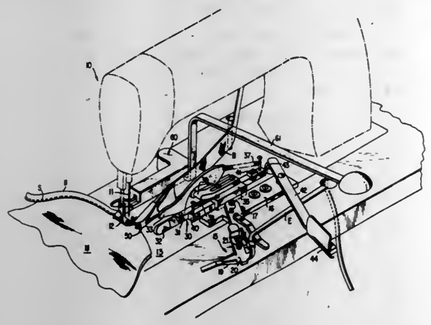


In order to minimise or eliminate "stop-marking" in a tufted product during the manufacture thereof on a tufting machine it is proposed to provide an auxiliary drive means whereby the puller rolls may be driven independently of machine operation during periods of machine stoppage to keep the yarn under tension and avoid withdrawal or retraction thereof.

3,548,767
COMBINATION SEWING APPARATUS AND IMPROVED CUTTING MEANS THEREIN
Billy G. F. Williams, Lancaster, S.C., assignor to Springs Mills, Inc., Fort Mill, S.C., a corporation of South Carolina
Filed Feb. 28, 1969, Ser. No. 803,383
Int. Cl. D05b *73/04, 35/10*
U.S. Cl. 112—130 **8 Claims**

Sewing apparatus comprising in combination sewing means for stitching desired layers of material, tensioning means adjacent the sewing means for supplying a strip of elastic material to the sewing means and for tensioning the elastic strip in an extended condition thereof and preferably pivotally mounted for swinging out of the line of feed to the

sewing means when not in use, improved cutting means mounted between the sewing means and the tensioning means for cutting the elastic strip comprising a pair of movable scissors-type cutting blade means mounted for linear reciprocating movement into and out of the line of feed of the elastic strip when cutting action is desired and is not



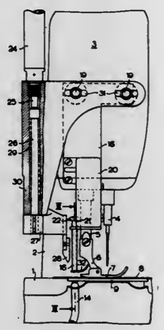
desired, edge binding strip guide and folding means mounted between the elastic strip cutting means and the sewing means for guiding and folding a strip of edge binding material in a generally inverted C-shaped configuration to the sewing means, and second cutting means disposed adjacent the sewing means on the other side thereof for cutting the edge binding strip and the line of stitching.

3,548,768

CONTROLLING SYSTEM FOR SEWING MACHINES

Hubert Juenemann; Hans Scholl, Bielefeld, and Wilfried Strothmann, Anshausen B. Bielefeld, Germany, assignors to Kochs Adlernahmaschinen Werke AG, Bielefeld, Germany

Filed Aug. 28, 1968, Ser. No. 767,598
Claims priority, application Germany, Sept. 6, 1967, K63,292
Int. Cl. D05b *65/00*
U.S. Cl. 112—252 **14 Claims**



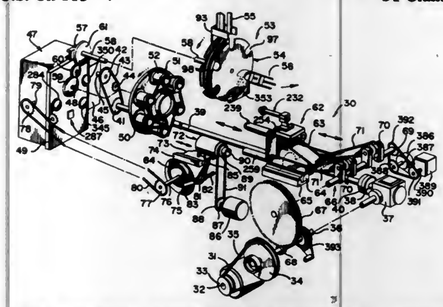
A controlling system for sewing machines or automatic sewing devices with an actuating device for control switch means operated by passing a workpiece through a medium which cannot penetrate a workpiece. The actuating device, arranged in the path of motion of the workpieces, consists of an air barrier comprising an air draft penetrating the passageway of the workpieces and a reflecting plate arranged in the effective range of the air draft and forming a part of the operating means for the control switch means.

3,548,769

MACHINE FOR FORMING CANS FROM CLOSED END TUBULAR MEMBERS

Robert F. Windstrup, Chicago; Charles W. Hale, Oak Park, and Raymond F. Galitz, La Grange Park, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed July 26, 1965, Ser. No. 474,599
Int. Cl. B21d *51/26*
U.S. Cl. 113—7 **31 Claims**



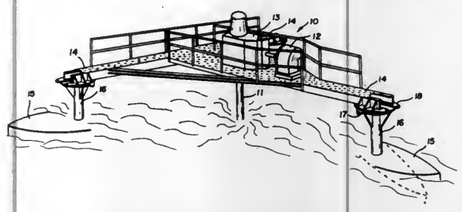
This disclosure relates to an automatically operating machine for converting closed end tubular members into one-piece cans, the apparatus including means for automatically supplying tubular members and receiving cans therefrom, a turret having a plurality of work holders particularly adapted to receive tubular members, means for indexing the turret, a tool holder cooperable with the work holders of the turret for performing the necessary operations on tubular members carried by the work holders of the turret, and means for effecting the reciprocation of the tool holder in timed relation to the indexing of the turret for sequentially performing the necessary operations on the tubular members to convert the tubular members into cans.

3,548,770

ADJUSTABLE PONTOONS FOR AERATOR PLATFORM

Richard D. Boutros, 25 Countryside Road, Fairport, N.Y. 14450

Filed Apr. 16, 1969, Ser. No. 816,559
Int. Cl. C02c *1/10*; **B01d** *47/16*; **B63b** *35/00*
U.S. Cl. 114—0.5 **6 Claims**



An aerator platform has boat shaped pontoons that are angularly adjustable through a multiple pin and slot coupling between a support plate on a shaft extending vertically from the pontoon and a bearing plate on the platform. Such an arrangement allows the liquid flow outward from the aerator impeller to be directed as desired by adjusting the orientation of the pontoons.

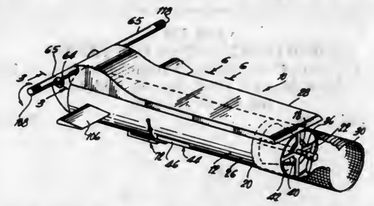
3,548,771

DIVING SLED

Caryl C. B. Hastings, Cambridge, Mass. (1 Bellingham Place, Boston, Mass, 02114)

Filed Jan. 21, 1969, Ser. No. 792,467
Int. Cl. B63g *8/00*, *8/14*; **A63c** *11/10*
U.S. Cl. 114—16 **7 Claims**

A marine propulsion device for use as a propulsion unit for a diver comprising a housing having a motor therein driving a propeller, a support platform upon which a diver may recline, ballast means for surfacing the unit and safety con-



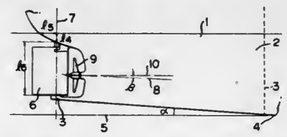
trol mechanism, and diving plane means to control the attitude of the unit.

3,548,772

SHAPE OF THE STERN FOR A VERY LARGE SHIP

Kinya Tamura, Nagasaki-Shi, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Chiyoda-ku, Tokyo, Japan

Filed Aug. 14, 1968, Ser. No. 752,564
Claims priority, application Japan, Aug. 30, 1967, 42/55162
Int. Cl. B63b *1/08*
U.S. Cl. 114—57 **11 Claims**



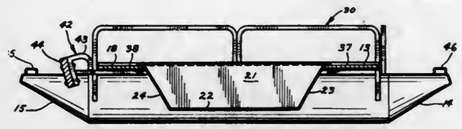
A very large size single screw ship is formed with its bottom at the stern end inclined upwardly. The length of the inclined section amounts to about 10 to 20 percent of the length between the forward and after perpendiculars of the ship. The propeller shaft extends through the hull above the inclined bottom and the path of travel of the propeller blades is above the prolongation of the line of the inclined bottom.

3,548,773

PONTOON BOAT

Joseph C. Laughlin, St. Cloud, Minn. 56301

Filed July 1, 1968, Ser. No. 741,771
Int. Cl. B63c *1/10*
U.S. Cl. 114—61 **4 Claims**



A pontoon boat comprising, in combination with a pair of elongated pontoon float members arranged in generally axially and horizontally parallel disposition, deck means mounted and secured in superimposed relationship to said pontoon float members, and a generally watertight open top cavity recessed from the surface of said deck and extending to a recessed depth which is substantially adjacent a plane coincidental with the floating axis of the pontoon float members.

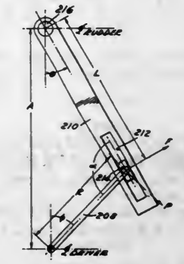
3,548,774

MARINE STEERING GEAR LINKAGE

Mark H. Pease, Pontiac Township, Oakland County, Mich., assignor to Jered Industries, Inc., Troy, Mich., a corporation of Michigan

Filed May 13, 1968, Ser. No. 728,690
Int. Cl. B63h *25/06*
U.S. Cl. 114—162 **8 Claims**

A marine steering gear linkage for controlling the angular position of a ship's rudder comprising a torque multiplying gear unit with a power input element connected drivably to a steering motor and a power output element connected drivably through a driving tiller and a rudder tiller to the rudder shaft, said tillers providing a variable mechanical advantage, the highest mechanical advantage being available when the angular displacement of the rudder is at a max-



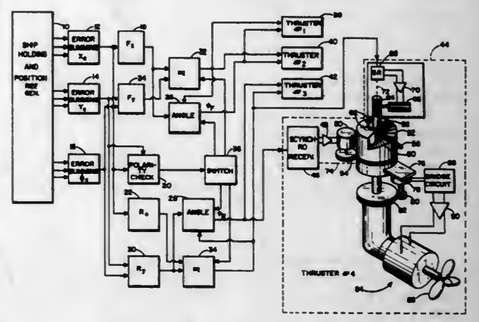
imum and the minimum mechanical advantage being available when the angular displacement is zero, and clutch and brake means including a displacement feedback mechanism for effecting torque delivery to the power input element of the gear unit in one direction or the other, depending upon the direction of movement of the ship's pilot wheel.

3,548,775

CONTROL APPARATUS

Clarence H. Hammond, Longmont, Colo., and Kurt Horn, Azusa, Calif., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware.

Filed Dec. 19, 1968, Ser. No. 785,290
Int. Cl. B63h *25/42*
U.S. Cl. 114—144 **10 Claims**



A system for providing thrust levels from zero to approximately 90 percent of total thrust capacity in any given direction with respect to the axis of a ship or vessel. This complete variability in thrust is obtained even though thrusters are used which idle at approximately 10 percent of maximum thrust. The inventive concept may be practiced in many different embodiments and is shown for illustrative purposes as a simple mechanical block diagram.

3,548,776

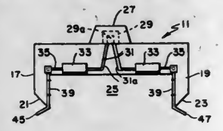
CANTED RUDDERS FOR SES

Allen G. Ford, Rockville, and Robert A. Wilson, College Park, Md., assignors to United States of America, as represented by the Secretary of the Navy

Filed Dec. 18, 1968, Ser. No. 784,689
Int. Cl. B63h *25/06*
U.S. Cl. 114—163 **6 Claims**

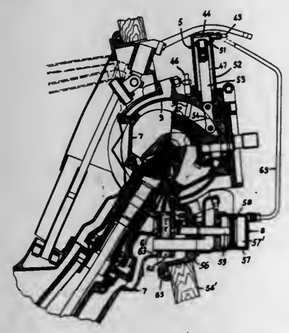
A canted rudder system for a rigid sidewall surface effect watercraft. A rudder rotatable about an outwardly and downwardly canted axis is located at the afterend of each

rigid sidewall. Turning of the rudders in the same directional sense produces a banked turn with the inward side and its



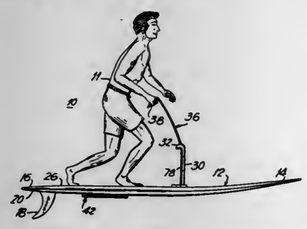
stern held in a down position. For emergency braking the rudders may be rotated oppositely.

3,548,777
HYDRAULIC MECHANISM FOR BOATS WITH TILTABLE PROPELLER HOUSING
Karl Abdon Bergstedt, Goteborg, Sweden, assignor to AB Penta, Goteborg, Sweden
Continuation of application Ser. No. 614,301, Feb. 6, 1967. now abandoned. This application Aug. 27, 1969, Ser. No. 868,661
Claims priority, application Sweden, Feb. 8, 1966, 1,592/66
Int. Cl. B63h *1/14, 5/06*
U.S. Cl. 115—41 27 Claims



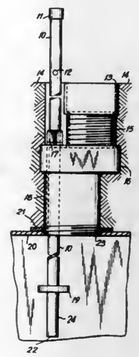
An outboard power leg mechanism including two hydraulic cylinders, valve means connected to the cylinders and a cam for controlling the valve means to retain the outboard leg in a selected desired position of tilt. A cutoff valve is connected to one of the hydraulic cylinders to lock the leg against tilting during reverse propulsion operation and a relief valve is provided to permit the leg to kickup during forward propulsion when striking an underwater object.

3,548,778
SELF-PROPELLED SURFBOARD
Edward A. Von Smagala-Romanoff, Islip, N.Y., assignor to Surf Jet Manufacturing, Inc., Lindenhurst, N.Y., a corporation of New York
Filed Oct. 10, 1968, Ser. No. 766,465
Int. Cl. B63b *35/72;* B63h *15/00*
U.S. Cl. 115—70 20 Claims



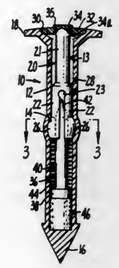
This invention relates to a self-propelled surfboard which includes a hollow cavity within which is located a power generating source and which includes further drive means in the form of a single propeller connected to the power source by means of a drive shaft which passes from within the cavity to a rearward position intermediate the cavity and the rearmost end of the board.

3,548,779
LIQUID LEVEL SIGNAL FOR TANKS
Edmund T. Green, 87 W. Oak St., Farmingdale, N.Y. 11735
Filed June 17, 1969, Ser. No. 833,944
Int. Cl. G01f *23/00*
U.S. Cl. 116—109 5 Claims



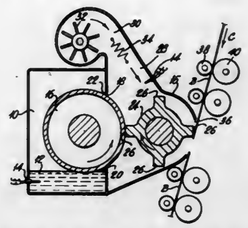
A liquid level signalling device for use with submerged or buried fuel tanks, which is coupled to the fill line of the tank below the ground level, and includes a slidably disposed alarm tube which may be raised above the ground level while the tank is being filled to permit the audible alarm to be heard in all directions. The alarm tube may then be pushed below the ground level after the delivery has been completed so that no portion of the liquid level signalling device remains disposed above the ground.

3,548,780
TEMPERATURE SIGNALING DEVICE
George G. Kliewer, 233 N. Villa, Fresno, Calif.
Filed Feb. 24, 1969, Ser. No. 801,362
Int. Cl. G01k *11/06*
U.S. Cl. 116—114.5 7 Claims



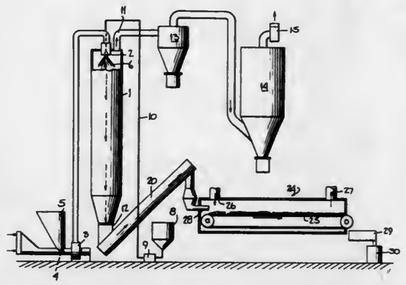
A food temperature indicator having a spring loaded indicating rod member releasable from a retracted position responsive to the disengagement thereof by a retaining member. The retaining member cooperatively engages structure on the indicator rod for maintaining the indicator rod in position within a tubular housing prior to release. To effect disengagement, the retaining member must displace a volume of fusible material. A sealing barrier is provided to seal the interior of the indicator prior to the release of the indicating member.

3,548,781
HOT MELT ADHESIVE APPLICATOR
Helmut O. Hornung, Altoona, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa., a corporation of New York
Filed June 21, 1968, Ser. No. 739,079
Int. Cl. B05c *1/00, 11/00*
U.S. Cl. 118—5 6 Claims



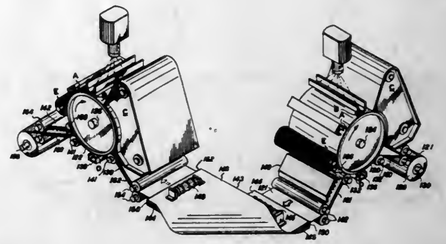
A hot melt adhesive applicator for application to a paper line, such as spaced or overlapped envelopes, in which the transfer roll is resiliently covered and is located in a chamber having a controlled temperature environment. The applicator is provided with a contiguous melt box and chamber. The melt box is provided with an opening in a wall thereof through which a part of the dispensing roller projects thereby essentially filling the opening. The dispensing roller picks up the adhesive and passes it to the transfer roller. The chamber is provided with a hot air environment in order to control the temperature of the transfer roller, the latter having a resilient covering.

3,548,782
MEANS FOR FORMING A CONTINUOUS COATING ON PARTICLES
Dwight H. Bergquist; Franklin E. Cunningham, and Charles H. Cook, Springfield, Mo., assignors to Henningsen Foods, Inc., New York, N.Y., a corporation of New York
Filed Nov. 30, 1967, Ser. No. 687,038
Int. Cl. B05b *17/00;* A23g *3/20*
U.S. Cl. 118—20 4 Claims



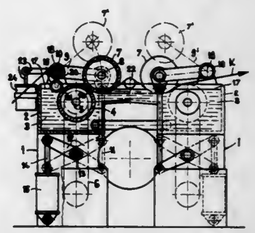
A process and apparatus for forming a continuous coating on particles which is particularly useful in applying a coating to the individual particles of powdered substances such as powdered egg products or powdered milk or other powdered products. In the process, the powdered product is first at least partially covered with a liquid covering of the coating substance which is preferably sprayed onto the powder particles as they are carried in a stream of air or otherwise agitated. The coated particles are then collected and subjected to a mechanical mixing or agitation during which the individual particles are caused to move over one another. A preferred method of mixing moves the liquid coated particles along an inclined path by a worm or screw conveyor. The combined rotational and forward movement of the particles results in the formation of a complete liquid coating over the entire surfaces of all particles. Thereafter, the particles are transferred to pans or to a conveyor where they are subjected to a drying step.

3,548,783
PAPER TRANSPORT-SHEET TURNER
Lowell W. Knapp, Victor, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Aug. 12, 1968, Ser. No. 752,056
Int. Cl. B05c *1/04;* B65h *23/32*
U.S. Cl. 118—224 2 Claims



A sheet transport apparatus for both cut sheet and web-type flexible material for changing the path of the material by driving it through guide means curved to change the direction of movement of the flexible material moved therethrough by rollers. By strategically preshaping curved units, paths of feed may be manipulated for inverting the material as the path is changed. A hollow guide track or strategically placed guides and drive rollers are used to change the path of the input.

3,548,784
SIZING BOX ARRANGEMENT
Max Wenger, Niederuzwil, Saint Gall, Switzerland, assignor to Maschinenfabrik Benninger A.G., Uzwil, Saint Gall, Switzerland
Filed Nov. 16, 1967, Ser. No. 683,694
Claims priority, application Switzerland, Nov. 22, 1966, 16,796/66
Int. Cl. B05c *3/12, 3/152*
U.S. Cl. 118—419 9 Claims

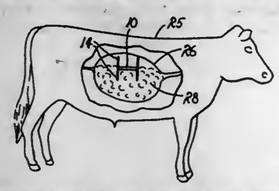


A sizing box arrangement comprising a container for the sizing agent, and at least one squeezing zone formed by two rollers between which there is guided the warp which is to be finished. These two rollers are arranged in such a manner with respect to one another, that the line of contact of the aforesaid two rollers forming a squeezing nip coincides with the level of the sizing agent in the container.

3,548,785
ARTIFICIAL RUMEN STIMULATOR
Cecil D. Cooper, 20161 Glendale Ave., Lemoore, Calif. 93245
Filed June 6, 1969, Ser. No. 830,946
Int. Cl. A01k *67/00*
U.S. Cl. 119—1 10 Claims

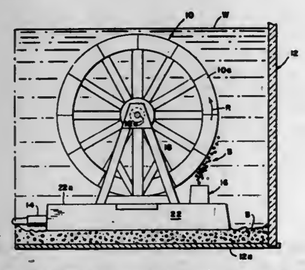
An artificial rumen stimulator for more thorough, rapid processing of a relatively greater volume of food by a ruminant providing an orally administratable body of substantially rigid lightweight material having a plurality of elongated resiliently flexible tentacles mounted thereon in an initially

contracted position tightly wrapped about the body for subsequent expansion within the rumen to extended positions for



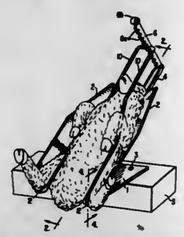
engaging the portions of the walls of the rumen which are normally stimulated by natural coarse roughages.

3,548,786
AQUARIUM WATER WHEEL
Allan H. Willinger, New Rochelle, N.Y., assignor to Metaframe Corporation, a corporation of Delaware
Filed Sept. 26, 1968, Ser. No. 762,738
Int. Cl. A01k *64/00*
U.S. Cl. 119—5 **3 Claims**



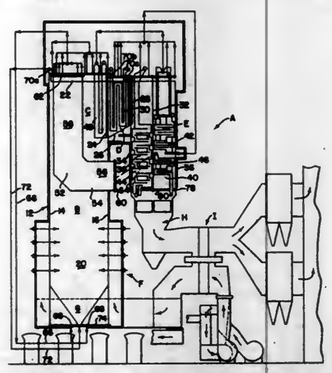
A standing base for an aquarium ornament, such as is used to hold an air supply conduit in a submerged condition, wherein the housing thereof forming the compartment for accommodating the air supply conduit has a pivotally mounted cover which when moved transversely of the housing effectively holds the ornament upright in its submerged condition.

3,548,787
LAMB REST
Wayne W. Watson, P.O. Box 201, Powers, Oreg. 97466
Filed June 25, 1969, Ser. No. 836,236
Int. Cl. A61d *03/00*
U.S. Cl. 119—103 **6 Claims**



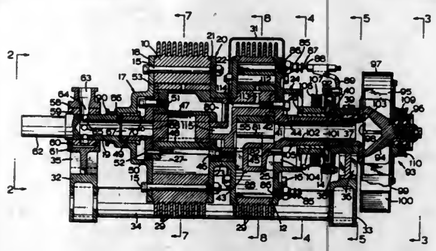
The lamb rest includes a base board on which an inclined V-shaped trough extends upwardly and rearwardly from one end over the board to receive therein a lamb in an inclined position with its back resting in the trough and with its feet uppermost. The apex of the lower end of the trough engages the base board at a point inset from said one end to form a seat at the bottom of the trough for the body of the lamb. An inverted U-shaped lamb holding frame having the lower ends of its legs out-turned and journaled in the sides of the trough is provided so that the legs of the frame will clamp the sides of the body of the lamb, the legs being disposed between said lamb's body and the front and rear legs respectively. Means are also provided at the top of the trough for maintaining the holding frame in clamping position.

3,548,788
ONCE-THROUGH VAPOR GENERATOR WITH DIVISION WALL
Joseph G. Altman, Dover, and Jan L. Friedrich, Pompton Plains, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York
Filed Jan. 23, 1969, Ser. No. 793,303
Int. Cl. F22d *7/00*
U.S. Cl. 122—406 **10 Claims**



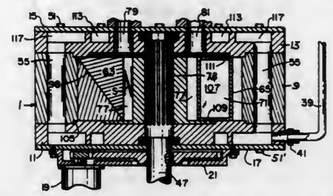
A supercritical forced-flow once-through vapor generator comprising a radiantly heated rectangular furnace enclosure which includes a plurality of parallel vertically oriented tubes defining a first fluid pass of front and rear wall panels of the enclosure, and in series therewith a second fluid pass of sidewall panels of the enclosure. The enclosure has a lower high-absorption burner zone and an upper gas exit, the generator including a convection area in gas flow communication with said upper gas exit. A partial division wall including at least one panel of tubes is positioned adjacent said upper gas exit, the generator including header connection means connecting said partial division wall so that it is upstream of said first fluid pass. The furnace enclosure is sized to limit the enthalpy pickup therein by utilizing the maximum permissible flue gas exit temperature, for the fuel fired, the furnace circuits affording a practical minimum pass furnace design which is applicable where the furnace enclosure fluid enthalpy pickup is considerable.

3,548,789
ROTARY ENGINE
John O. Creek, 135 Elizabeth St., South Brampton, Ontario, Canada
Filed Feb. 13, 1969, Ser. No. 798,901
Int. Cl. F02b *53/08*
U.S. Cl. 123—8.41 **11 Claims**



A rotary internal combustion engine comprises a precompressor and a combustion chamber, each comprising a ring gear, a pinion gear meshing with the ring gear, and a member of crescent-shape cross section cooperating with the teeth of the gears. The pinion gear teeth cooperate with the ring gear teeth and the crescent-shaped members to define first and second series of successively contracting and expanding closed pockets. Fuel mixture is precompressed in the first series of pockets and admitted through ports into the combustion chamber, the cooperating gear teeth of which constitute piston and cylinder-like devices wherein the precompressed mixture undergoes a combustion cycle to drive the engine. The cooperating gear teeth are of involute form, and the teeth of the pinion gear are preferably hollow, resilient, open-ended members.

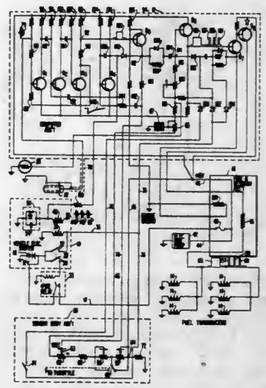
3,548,790
ROTARY VANE TYPE TURBINE ENGINE
Walter J. Pitts, Palmyra Township, Lee County, Ill. (R.R. 1, Sterling, Ill., 61081)
Filed June 6, 1968, Ser. No. 734,908
Int. Cl. F02b *55/16, 53/08*
U.S. Cl. 123—8.45 **16 Claims**



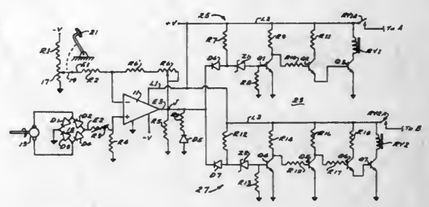
The rotor, which is of cylindrical form and of a weight to serve as the flywheel for the engine, besides being a fluid coolant and lubricant pump, and, with its radial vanes, a pump for pumping and compressing the air and fuel mixture, is mounted off center in the cylindrical bore of the housing. Air is drawn in through a carburetor into inner chambers in the radial guides for the vanes as the vanes move outwardly by spring pressure and centrifugal force, and the mixture thus formed is compressed and transferred through tubes to the outer combustion chambers defined between the neighboring vanes between the rotor and the bore of the housing, all chambers around one-half the rotor being the secondary compression chambers and those around the other half being the firing chambers, ignition occurring to one side of a dead center point and exhaust occurring at the opposite extreme point. Injection of the precompressed mixture occurs at a point about 60° removed from the exhaust port to allow air to be blown into the combustion chambers at the exhaust point to clear out spent hot gases and replace them with air while also cooling the walls sufficiently in advance of the mixture injection to avoid any likelihood of preignition. Oil for lubrication and cooling is pumped by the hollow rotor to flow from a hollow bottom plate upwardly through the rotor into a hollow top plate, where some of the oil is circulated through a cooler before transfer through a cooler before transfer through a tube to the bottom plate while the rest is circulated downwardly through passages in the hollow housing back to the bottom plate, the oil lubricating the rotor and its vanes as it passes from the bottom plate into the rotor and from the rotor into the top plate.

3,548,791
PRECISION FUEL METERING SYSTEM HAVING OPERATIONAL MODE CHANGE DURING TRANSIENT INTERVALS
Emile David Long, Elmira, N.Y., assignor to Gillett Tool Co., Inc., Buffalo, N.Y., a corporation of New York
Filed July 8, 1968, Ser. No. 743,180
Int. Cl. F02d *5/00*
U.S. Cl. 123—32 **16 Claims**

An electronic precision fuel metering system which computes the necessary amount of fuel to be delivered simultaneously to each of the cylinders at least once per engine cycle, that is once every other revolution of the engine crankshaft of a four-stroke cycle engine or once every revolution of a two stroke cycle engine, in response to the engine operating requirements under a steady state condition of operation. During a period of transient inlet manifold pressure increase, such as, but not limited to the occurrence of acceleration in which a transient interval exists from one steady state of operation to another, the system however undergoes a mode change wherein fuel is simultaneously delivered to all of the cylinders at a rate equal to the firing rate of all cylinders that is each time a cylinder fires, over a predetermined portion of one or more engine cycles. This system provides for proper computation of the fuel required by the engine under transient conditions, and is sensitive to both magnitude, duration, and rate of manifold pressure changes, such as may occur during throttle actuation. The system reverts to the steady state operational mode, of at least once per engine cycle, when the fuel requirements have been updated and provided, for transient interval during the predetermined portion of the engine cycle where the computer was operating at a rate equal to the firing rate of all cylinders. The duration of the mode change interval may also be terminated through circuit action when manifold pressure drops in response to engine requirements.

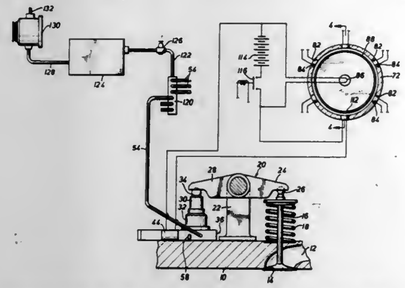


3,548,792
CONTROL APPARATUS FOR INTERNAL-COMBUSTION ENGINES
Judson G. Palmer, 34 Terrie Lane, St. Charles, Mo., and Michael C. Smayling, 3637 Silver Lake Road, St. Anthony, Minn.
Filed Feb. 11, 1969, Ser. No. 798,317
Int. Cl. F02d *5/00*
U.S. Cl. 123—32 **10 Claims**



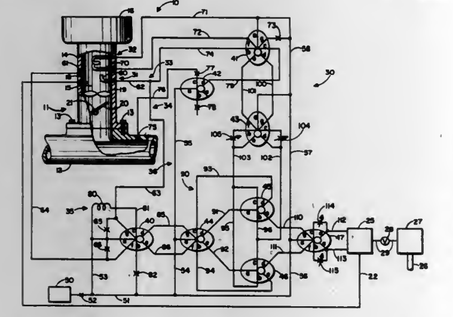
A fuel control varies the fuel-air ratio of a throttled internal combustion engine in response to its operating parameters. The apparatus includes voltage comparing means providing an output voltage which varies as a function of the difference between first and second input voltages provided thereto. The first input voltage varies as a function of the rotational speed of the engine while the second voltage varies according to the throttle opening of the engine. A sensor is responsive to the output voltage of the comparing means and supplies control signals to means for controlling fuel leaning and enriching mechanisms, the control signals being predetermined functions of both the rotational speed and the throttle opening of the engine, thereby decreasing or increasing the fuel-air ratio according to the power demanded of the engine.

3,548,793
VALVE ACTUATING MECHANISM FOR INTERNAL COMBUSTION ENGINES
James S. Richardson, 6405 Edgemoor, Houston, Tex. 77036
Filed Oct. 31, 1968, Ser. No. 772,150
Int. Cl. F01l *9/02, 9/04, 1/34*
U.S. Cl. 123—90.12 4 Claims



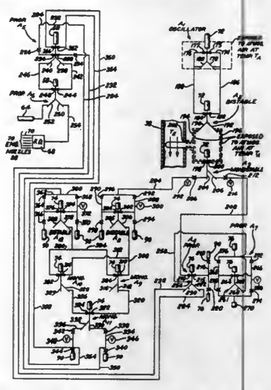
Valve actuating and timing mechanism for internal combustion engines embodying hydraulic means for opening the engine valves under the control of electrically operated hydraulic valve mechanism responsive to photoelectric timing mechanism whose timing is varied in accordance with engine speed. The mechanism includes a hydraulically operated valve-opening system having solenoid actuated hydraulic valves which are responsive to timing mechanism embodying a photoelectric cell for each engine valve to be opened, a light source, and rotary shutter means which is variable with engine speed to automatically vary the exposure of the photoelectric cells to light from said source to control the timing and duration of opening of the engine valves.

3,548,794
CONTROL APPARATUS
Jeffrey M. Lazar, Dakota, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Jan. 21, 1969, Ser. No. 792,637
Int. Cl. F02m *17/02*
U.S. Cl. 123—119 10 Claims



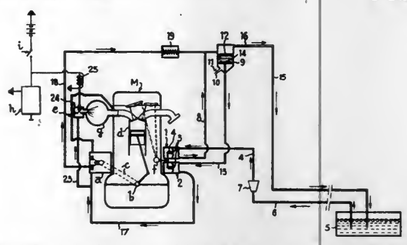
A fluidic fuel control system wherein parameters including volumetric flow rate and temperature of air entering a mixing chamber are sensed and signals indicative thereof multiplied to provide a signal for controlling fuel flow into the mixing chamber.

3,548,795
FLUIDIC FUEL INJECTION SYSTEM FOR COMBUSTION ENGINE
George R. Howland, South Bend, Ind., assignor to The Bendix Corporation, a corporation of Delaware
Filed Apr. 23, 1969, Ser. No. 818,510
Int. Cl. F02m *69/00;* F02d *3/02, 33/00*
U.S. Cl. 123—119 16 Claims
Combustion engine fuel injection apparatus having pure fluid control circuitry responsive to ambient and engine exhaust temperature and automatic in operation to control fuel flow injected to the engine cylinders to maintain a maximum engine exhaust gas temperature to optimize engine power and fuel consumption and to control fuel flow to increase the



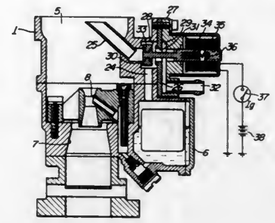
engine fuel-air ratio to a rich condition thereby establishing a predetermined relatively lower engine exhaust gas temperature corrected for ambient temperature during engine maximum power operating conditions.

3,548,796
FUEL FEED DEVICE FOR AN INJECTION ENGINE
Francois Jules Marie Gastinne, Paris, France, assignor to Automobiles Peugeot, Paris, France and Regie Nationale des Usines Renault, Billancourt, France, both bodies corporate of France
Filed Aug. 2, 1968, Ser. No. 749,734
Claims priority, application France, Sept. 13, 1967, 120,825
Int. Cl. F02m *59/00*
U.S. Cl. 123—136 3 Claims



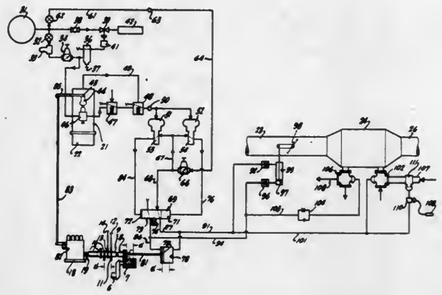
Fuel feed device comprising, located between a fuel feed tank and an injection pump, a low-pressure pump and a high-pressure pump. The low-pressure pump inlet is connected to the tank and the outlet is connected to the top of a chamber affording a pressure head. The high-pressure pump inlet is connected to a fuel takeoff point at the bottom of the chamber and its outlet is connected to the injection pump. The high-pressure pump output exceeds the injection pump output and the chamber volume above the takeoff point at least equals the volume of fuel drawn in by the injection pump when priming the low-pressure pump.

3,548,797
FUEL EVAPORATION PREVENTING DEVICE
Muraji Hagihara, Hitachi-shi, Japan, and Hisanori Moriya, Katsuta-shi, Japan, assignors to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan, a corporation of Japan
Filed Oct. 8, 1968, Ser. No. 765,880
Claims priority, application Japan, Oct. 9, 1967, (utility model), 42/85,668
Int. Cl. F02m *19/00*
U.S. Cl. 123—136 2 Claims
A fuel evaporation preventing device for preventing a fuel, evaporating from a fuel tank and a carburetor of an automotive vehicle, from being released into and polluting the atmosphere, said device including a fuel vapor absorption tank in communication with a fuel bowl of the carburetor through a pressure regulating valve and said pressure regulating valve



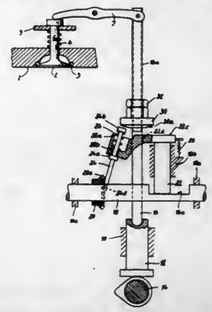
being integrally incorporated in the carburetor, whereby the length of air vent pipe is made shorter than that in a conventional device of this type and thereby an adverse effect which would otherwise be imposed on the fuel flow characteristic of the carburetor can be eliminated.

3,548,798
ENGINE CONTROLLER
Alfred R. Fleischer, Concord, and John J. Barich, San Mateo, Calif., assignors to De Laval Turbine Inc., a corporation
Filed Oct. 30, 1968, Ser. No. 771,845
Int. Cl. F02d *13/00*
U.S. Cl. 123—140 2 Claims

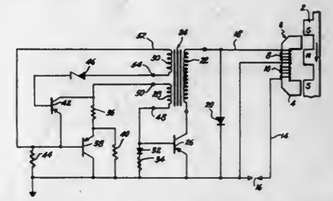


An engine controller for a poppet valve, internal combustion engine having a shiftable valve camshaft and an inlet air throttle is equipped with governor responsive means for shifting the camshaft and the throttle into one position for low speed or low load operation and into a different position for high speed or high load operation, the valve timing and inlet air pressure being thereby varied. Additionally, inlet air temperature and fuel injection timing may be correspondingly varied.

3,548,799
DECOMPRESSION DEVICE FOR INTERNAL COMBUSTION ENGINE
Josef Johann Lang, 18 Birkenstrasse, 8018 Grafing, Germany
Filed Feb. 25, 1969, Ser. No. 801,965
Claims priority, application Germany, Feb. 29, 1968, 1,601,973
Int. Cl. F01l *13/08*
U.S. Cl. 123—182 5 Claims
A decompression device for temporarily holding open the exhaust valve of an internal combustion engine. In a first position, a shaft permits normal operation of the valve and in a second position the shaft prevents full closing of the valve. An automatic device moves the shaft from the second position to the first position at the desired time to automatically terminate decompression by permitting the valve to close.

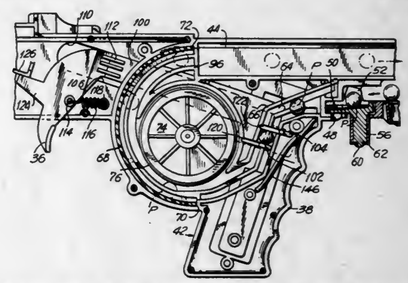


3,548,800
IGNITION SYSTEM FOR GASOLINE ENGINES
Arnaldo Lombardini, and Giorgio Ferretti, Reggio Emilia, Italy, assignors to Lombardini-Fabrica Italiana Motori S.p.A., Reggio Emilia, Italy
Continuation-in-part of application Ser. No. 699,728, Jan. 22, 1968, now abandoned. This application Nov. 3, 1969, Ser. No. 873,145
Int. Cl. F02p *1/02*
U.S. Cl. 123—149 3 Claims



A transistorized ignition system of the magneto-type which comprises a breaking transistor, a pilot transistor connected to control the timing of the breaking transistor, and a silicon transistor connected to prevent temperature changes from adversely affecting the timing.

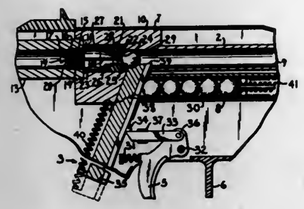
3,548,801
GUN WITH VARIABLE FIRING FREQUENCY
Raymond J. Lohr, and Merle R. Lewis, Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y., a corporation of New York
Filed Oct. 16, 1967, Ser. No. 675,537
Int. Cl. F41b *3/04*
U.S. Cl. 124—6 8 Claims



A gun which is mechanically rather than explosively actuated. The gun is capable of mechanically projecting projectiles toward a given target and the frequency with which the

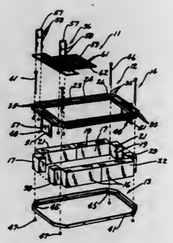
projectiles are fired can be selected. The gun has a slow-fire position where only one projectile will be thrown toward the target each time the trigger is actuated, and the gun also has a rapid-fire position where the projectiles will be thrown one after the other without interruption toward a given target as long as the trigger is held in its firing position.

3,548,802
PELLET FIRING MECHANISM AND FLUID VALVE THEREFOR
Rudolph C. Green, Highway 71 S., Springdale, Ark. 72764
Filed July 22, 1968, Ser. No. 746,451
Int. Cl. F41b *11/06*
U.S. Cl. 124—11 10 Claims



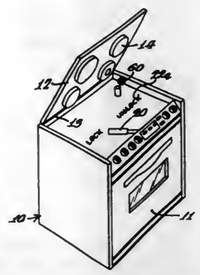
A fluid valve including a valve chamber with an inlet and outlet preferably axially aligned for use in pellet firing mechanisms having a fluid supply line for supplying fluid under pressure to the inlet, and a fluid flow line communicating with the outlet for fluid flow away from the chamber. A slidable seal member is mounted within the valve chamber for engaging the interior surface thereof in response to fluid pressure therein and said slidable seal member has a bore therethrough communicating with the outlet. A closure member or pellet is positioned in the fluid flow line to seal the outlet and engage the slidable seal member when the closure member or pellet is engaged by a retaining and release member.

3,548,803
FRAME MEMBER FOR AN OUTDOOR FIREPLACE
James L. Vogel, 7037 Wilshire Blvd., Des Moines, Iowa 50322
Filed Jan. 13, 1969, Ser. No. 790,572
Int. Cl. A47j *37/00*; F24b *3/00*
U.S. Cl. 126—25 10 Claims



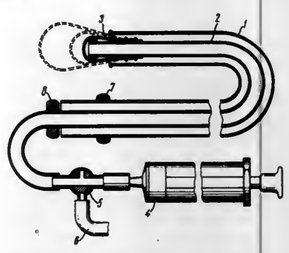
This invention relates to a frame member for an outdoor fireplace comprising a truss means, a base means, and means for connecting the truss means and base means so as to secure a plurality of noncombustible blocks therebetween and form thereby the upstanding walls of the fireplace. The truss means defines the uppermost inner and outer perimeters of the walls and engages the walls along those perimeters while the base means defines either the lowermost inner or outer perimeter of the walls and engages the walls along that perimeter. The frame member is generally equipped with a grill member and at least one draft door.

3,548,804
SELF-CLEANING OVEN
Francis L. Faehling and Stanley O. Peterson, Wisconsin Rapids, Wis., assignors to Preway Inc., a corporation of Wisconsin
Filed June 6, 1969, Ser. No. 831,080
Int. Cl. F24c *3/12*, *15/02*
U.S. Cl. 126—37 6 Claims



A self-cleaning oven for a range having a movable top panel mounting surface heating units and with an oven door which is locked during a self-cleaning cycle with a manually operated handle for operating a latch to lock the oven door. A limit switch responsive to a predetermined temperature in the oven prevents movement of the handle to unlock the oven door. The handle is positioned beneath the top panel so that access thereto can only be had by raising the top panel and a second switch operable by the top panel is provided to maintain the limit switch ineffective unless the top panel has been raised to provide access to the handle.

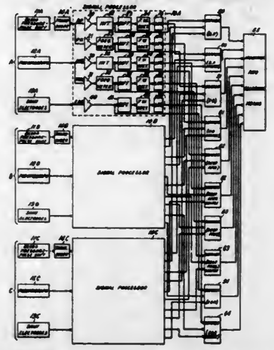
3,548,805
NASOGASTRIC SUCTION PUMP
Georgy Maximovich Datsenko, Ulitsa Lenina 72, Kv 36, and Veniamin Mikhailovich Raban, Ulitsa Lugovaya 2 Kv. 14, Lutsk, U.S.S.R.
Filed Apr. 14, 1967, Ser. No. 631,022
Int. Cl. A61b *10/00*
U.S. Cl. 128—2 2 Claims



A nasoabomasum probe provided with a hollow elastic hose having a flexible tube mounted inside thereof capable of longitudinal displacement and carrying an elastic inflatable bulb overlapping the remote end portion of said tube, the other end of the tube being connected to a device for inflating said bulb.

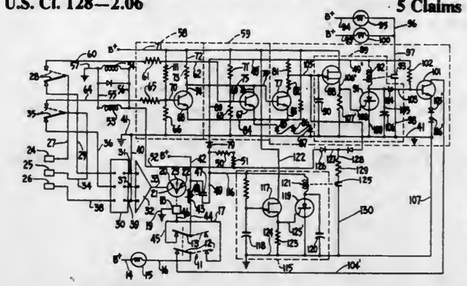
3,548,806
MASS EMOTIONAL REACTION MEASUREMENT SYSTEM
John C. Fisher, Santa Barbara, Calif., assignor to General Electric Company, a corporation of New York
Filed June 26, 1968, Ser. No. 740,379
Int. Cl. A61b *5/02*, *5/04*; E21b *47/00*
U.S. Cl. 128—2.05 9 Claims

A system for measuring changes in physiological phenomena of a group of people as they undergo emotional stress. Each individual is connected, through sensors, to apparatus for monitoring one or more of blood pressure, respiration, and skin resistance. Output signals produced by the system provide indications of collective changes in blood pressure level, pulse rate, respiration frequency, respiration



amplitude, and skin resistance, or any combination thereof. By monitoring these output signals, changes in emotional stress of the individuals as a group may be detected.

3,548,807
CARDIAC SIGNAL LOSS DETECTOR
Edward A. Crovella, Snyder, N.Y., assignor to Cardiac Electronics Inc., Clarence, N.Y., a corporation of New York
Filed May 8, 1967, Ser. No. 636,842
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 5 Claims

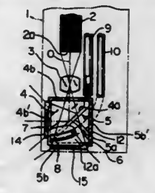


A circuit for detecting whether an electrode has become detached from a cardiac patient or whether he is experiencing cardiac difficulty, including a first circuit for actuating a signal loss lamp in the event an electrode becomes detached, a second circuit for actuating a cardiac alarm device in the event that there is an actual cardiac difficulty, and a timing circuit for preventing application of polarizing voltage to the electrodes.

3,548,808
DEVICE FOR SWITCHING THE DIRECTION OF THE OBSERVATION IN AN ENDOSCOPE
Nagashige Takahashi, and Satoru Sakamoto, Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Nov. 20, 1968, Ser. No. 777,340
Claims priority, application Japan, Nov. 22, 1967, 42/75029;42/75030
Int. Cl. A61b *1/06*, *1/30*; G02b *5/04*
U.S. Cl. 128—6 9 Claims

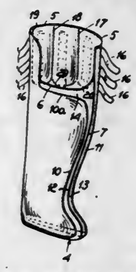
Device for switching the direction of the observation of an object in an endoscope having a forward end portion provided therein with an image forming optical system and a control housing connected to the forward end portion through an elongated tube, an image transmitting optical system extending through the elongated tube with the forward end thereof terminating adjacent to the image forming optical system so that an image of the object is formed on the forward end of the image transmitting optical system by means of the image forming optical system, the thus formed image being transmitted through the image transmitting optical system to the rearward end thereof so as to be viewed through an ocular means provided in the control housing. A pair of light reflecting prisms are located in series in front of the image forming optical system in the optical axis thereof with one of the nonreflecting surfaces of each of the pair of reflecting prisms positioned substantially normal to the optical system and with the reflecting surfaces thereof positioned in opposing relationship substantially in parallel to each other with a thin clearance held therebetween and extending obliquely with respect to the optical axis.

The other of the nonreflecting surfaces of one of the pair of reflecting prisms located adjacent to the image forming optical system is positioned so as to face sidewards outwardly of the forward end portion so that the light incident to the above described other nonreflecting surface from the side of the forward end portion is normally reflected by the reflecting surface of the prism toward the image forming optical system thereby permitting the side observation to be carried out. When a transparent fluid such as water and alcohol is introduced into the thin clearance between the pair of reflecting prisms, the pair of prisms are optically integrally joined with each other by the medium of the fluid introduced into the thin clearance so that the light incident to the front nonreflecting surface of the pair of prisms from the front of the forward end portion of the endoscope straightly passes through the pair of prisms toward the image forming optical system thereby permitting the front observation to be carried out by the endoscope.



Alternatively, the inclination of the reflecting surfaces of the pair of prisms forming therebetween the thin clearance is so set that the light incident to the front prism normally passes through the pair of prisms toward the image forming optical system for the front observation, and a light reflecting fluid such as mercury is introduced into the thin clearance so as to reflect the light incident to the sidewards facing nonreflecting surface of the rear prism toward the image forming optical system for effecting the side observation while the light from the front of the forward end portion is prevented from entering the rear prism by virtue of the fluid introduced into the thin clearance.

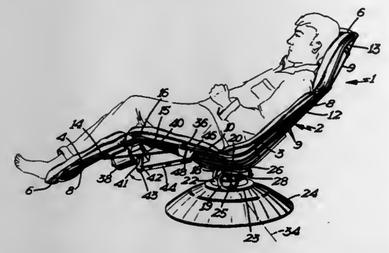
3,548,809
DEVICE FOR STIMULATING THE FLOW OF FLUIDS IN AN ANIMAL BODY
Francesco Conti, Via Borgogna 8, Milan, Italy
Filed Jan. 23, 1969, Ser. No. 793,618
Claims priority, application Italy, Aug. 7, 1968, 19,911/68
Int. Cl. A61h *1/00*
U.S. Cl. 128—24 10 Claims



A device for stimulating the flow of fluids inside an animal body, particularly the blood or lymphatic flow in the lower or upper limbs of an animal which comprising a resilient outer

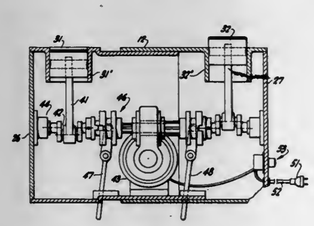
envelope member, an inner resilient envelope member inserted in said outer envelope member and connected thereto to define an interspace said envelopes being closed at one end and open at the opposite end to form an opening for receiving the limb of a body, means being provided for supplying and evacuating fluid under pressure to and from said interspace in order to increase and decrease the pressure in said interspace and cause the wall of said second envelope to move inwards and come into pressure contact with said limb.

3,548,810
THERAPEUTIC CHAIR
Ludolf J. Hoyer, 2620 Bewon St. B, Oshkosh, Wis., and John R. Caldwell, Jr., Cottonwood Lake, Windom, Minn. 56101
Filed Jan. 23, 1969, Ser. No. 793,295
Int. Cl. A61h *1/02*
U.S. Cl. 128—25 **7 Claims**



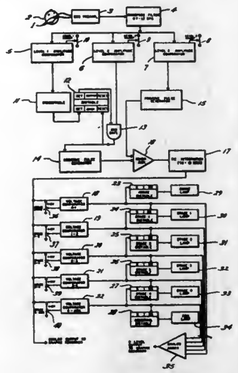
A therapeutic chair contoured to support a patient in a reclining position and tiltable forwardly and rearwardly about a first horizontal axis on a spring base, said chair being comprised of a torso-supporting segment and a leg-supporting segment pivotally connected together at a second horizontal axis located between the patient's knee and hip joints. A motor driven actuating mechanism serves to pivot the aforesaid leg-supporting segment upwardly and downwardly about said second horizontal axis to thereby alternately shift the patient's weight rearwardly and forwardly with the result that the chair rocks back and forth on said first horizontal axis. The patient's blood circulation is stimulated by the rocking movement of the chair and the raising and lowering of his legs by the pivotal movement of the aforesaid leg-supporting segment with respect to the torso-supporting segment.

3,548,811
LEG STIMULATOR AND EXERCISER
Donald R. Wilson, 2018 Christina St., Stockton, Calif. 95204
Filed Jan. 25, 1968, Ser. No. 700,490
Int. Cl. A61h *23/00*
U.S. Cl. 128—55 **6 Claims**



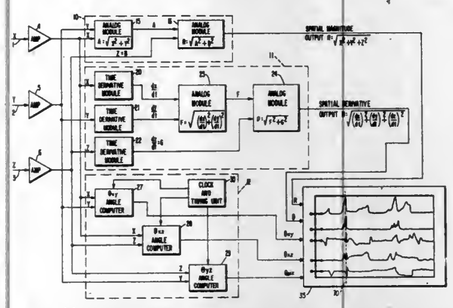
A small mechanical device adapted for removable attachment to the foot of a human being for controllably applying successive blows to the ball and/or heel of the foot, as for orthopedic purposes. A housing is provided having a surface adapted to engage the sole of the foot. Through the surface extends a pair of adjustably spaced pistons having means for alternate reciprocation within the housing.

3,548,812
EEG SLEEP ANALYZER AND METHOD OF OPERATION
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with Respect to an Invention of James D. Frost, Jr., Houston, Tex. 77036
Filed Feb. 4, 1970, Ser. No. 8,498
Int. Cl. A61b *5/05*
U.S. Cl. 128—2.1 **19 Claims**



Apparatus and method for quantitatively measuring brain activity as an automatic indication of level of consciousness. Amplitude weighted signals representative of frequency of brain activity are generated and combined to produce a level of consciousness output signal, which signal may be monitored and recorded.

3,548,813
VECTORCARDIOGRAPH ANALYZER
Arthur J. Berner, 138 Farmstead Lane, Glastonbury, Conn.
Filed Oct. 14, 1968, Ser. No. 767,358
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 **5 Claims**

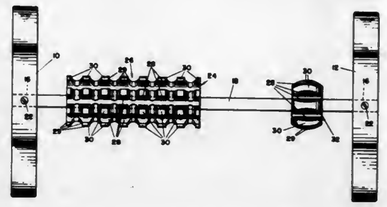


A vectorcardiograph analyzer receiving input signals proportional to the X, Y, and Z components of the heart vector and for deriving a signal proportional to the spatial magnitude of the heart vector, a signal proportional to the spatial derivative of the vector and signals proportional to orientation angles of the vector. One embodiment provides three orientation angles and another embodiment defines the position of the vector with only two orientation angles.

3,548,814
PEDIPULATOR
Harold H. Montgomery, and Vergie L. Montgomery, S. 711 Evergreen Road, Spokane, Wash. 99216
Filed Apr. 19, 1968, Ser. No. 722,628
Int. Cl. A61h *15/00*
U.S. Cl. 128—57 **4 Claims**

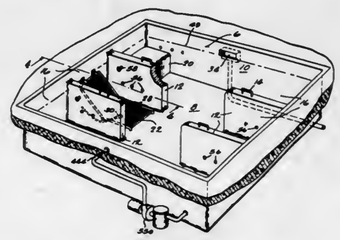
A manually portable device having a revolvable body, with

a nodulous surface, to be manipulated by the feet and effect manipulation of the feet by the reactance forces. A pair of



spaced apart base members supports a rigid rod at its ends and the revolvable body is supported on the rod.

3,548,815
THERAPEUTIC POOL
Joseph H. Everston, 328 N. Maple Drive, Beverly Hills, Calif.
Filed May 14, 1968, Ser. No. 729,032
Int. Cl. A61h *9/00*
U.S. Cl. 128—66 **10 Claims**



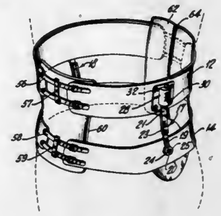
A pool provided with conventional water circulating, cleaning, chlorinating or other treating devices has alcoves to permit individual users occupying the respective alcoves to regulate the degree of turbulence to which they respectively are subject, thereby combining individual controls of turbulence with participation in the use of water purification facilities common to the entire pool. The individual therapeutic equipment comprising either compressed air or water with entrained air bubbles, or both, can conveniently be energized automatically by a pressure bulb and pressure switch when the user occupies his compartment.

3,548,816
CERVICAL HALTER
John L. Bond, P.O. Box 1128, North Wilkesboro, N.C.
Filed June 2, 1967, Ser. No. 643,168
Int. Cl. A61h *1/02*
U.S. Cl. 128—75 **10 Claims**



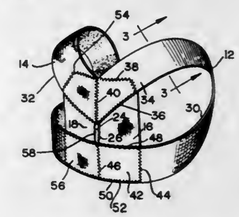
The present invention relates to orthopedic traction devices and more particularly to improved head halters useful for applying cervical traction having independently adjustable occipital and chin-supporting pads supported and positioned by flexible controllable support members adapted to be secured to a traction-applying device.

3,548,817
ORTHOPEDIC TRACTION BELT
Ronald F. Mittasch, 2450 Burnett St., Brooklyn, N.Y.
Filed Apr. 29, 1968, Ser. No. 724,911
Int. Cl. A61h *1/02*
U.S. Cl. 128—75 **10 Claims**



A traction supporting device is constructed which comprises an upper belt member, a lower belt member, a plurality of linking arms extending between said belt members, peg means fixed to one of said belt members and extending radially therefrom, means defining a rotary orifice on one end of the arm rotatably mounted on said peg means for movement thereof about said peg means while remaining axially captive relative to the peg means, a compression mechanism capable of creating an adjustable traction force tending to urge apart said upper and lower belt means disposed on at least one of said linking arms and means for gauging the traction force within said mechanism.

3,548,818
SHOULDER BRACE
David Kaplan, 124 S. Main St., Sharon, Mass.
Filed Mar. 14, 1968, Ser. No. 713,133
Int. Cl. A61f *5/02*
U.S. Cl. 128—78 **2 Claims**

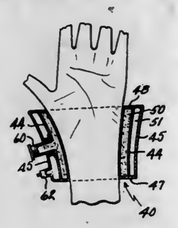


A shoulder brace having a back panel made of elastic webbing stretchable vertically and a pair of shoulder straps made of elastic webbing stitched at their ends to the top and bottom of the back panel and which extend about the shoulders when worn. The shoulder straps are stretchable in a body encircling direction, and each is provided with a Helanca lining which does not interfere with the stretch of the straps.

3,548,819
THERMAL-PRESSURE SPLINT
Otho L. Davis and Carmen M. Falcone, Duke University, Durham, N.C. 27706, and Fred R. Dunning, 3800 Oakes Road, Brecksville, Ohio 44141
Filed May 17, 1968, Ser. No. 730,068
Int. Cl. A61f *5/04*
U.S. Cl. 128—82.1 **8 Claims**

A splint for application to an injured human limb or human body portion in which a therapeutic material is carried in a sealed compartment and applied under suitable fluid pressure, such as by means of air pressure, against the injured limb and/or body part. The splint includes a fluidtight chamber into which a therapeutic material is deposited such as a material to create heat and/or cold and a second chamber into which a pressure fluid may be inserted such as, for example, air. The splint is placed over the injured human limb and/or body part in such manner that the chamber con-

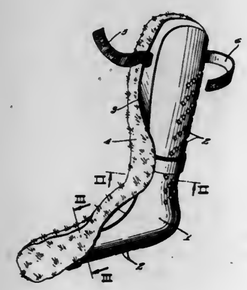
taining the therapeutic material overlies the injured portion. The pressure exerted by the pressure fluid chamber is directed against the therapeutic chamber so as to urge said therapeutic chamber under pressure against the injured body part so as to enable the thermal condition generated by the material therein to be exerted against the said injured part. The overlying and surrounding pressure fluid chamber of the splint is also positioned to surround the injured human limb



or body part and provides temporary immobility to the said injured body part so as to prevent any further aggravation of the injury thereto.

This invention relates generally to body splints and more particularly to a thermal-pressure body splint which is especially designed to exert a thermal condition such as heat and/or cold under pressure against an injured human limb and/or other body part.

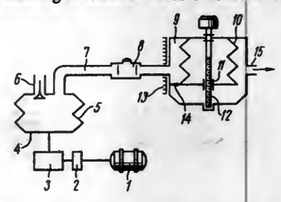
3,548,820
SPLINT LINER
Donald W. Bergen, Glenview, Ill., assignor to The Scholl Mfg. Co. Inc., Chicago, Ill., a corporation of New York
Filed July 5, 1968, Ser. No. 742,643
Int. Cl. A61f *5/04*
U.S. Cl. 128—89 **5 Claims**



A soft cushioning liner for surgical splints, especially metallic splints used in cases of fracture, lacerated or incised wounds, severe burns and other afflictions, the liner being easily sterilized and reusable.

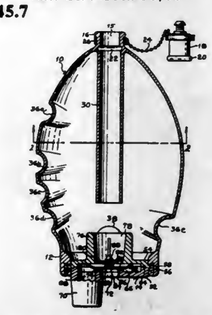
3,548,821
APPARATUS FOR ARTIFICIAL VENTILATION OF LUNGS
Vladmir Spiridonovich Gigauri, Kalyaevskaya ulitsa 39/6, kv. 75; Alexandr Semenovich Perelmutr, Giospitalny val. 5, korpus 2, kv. 2; Jury Shmulevich Galperin, Ulitsa Arbat 35, kv. 51, Moscow, and Boris Vladimirovich Smolyarov, Ulitsa Mira 3, kv. 90, Voronezh, U.S.S.R.
Filed Aug. 23, 1967, Ser. No. 662,651
Int. Cl. A62b *7/00*
U.S. Cl. 128—145.6 **2 Claims**

Apparatus for the artificial ventilation of the lungs of a patient comprises a pipe line which is successively supplied with constant volumes of gas and which contains a gas-distributing joint having inspiration and expiration channels, the joint being connected to an auxiliary chamber connected to the patient and containing a bellows whose extension is manually



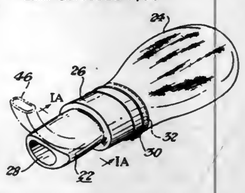
adjustable to vary the size of the space between the chamber and bellows.

3,548,822
DEVICE TO PREVENT HYPERVENTILATION
Henry W. Seeler, Dayton, Ohio, by Gerda A. Seeler, executrix of Henry W. Seeler, deceased
Original application Nov. 7, 1962, Ser. No. 236,029, now Patent No. 3,356,100 dated Dec. 5, 1967. Divided and this application Sept. 22, 1967, Ser. No. 669,973
Int. Cl. A61m *16/00*
U.S. Cl. 128—145.7 **7 Claims**



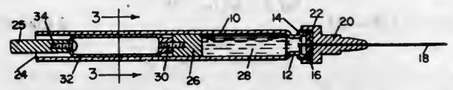
A device to prevent hyperventilation during rapidly repeated inhalation and exhalation comprises a bulbous member having an inlet port adapted to communicate with the user's airway, an outlet port and a third port adapted to communicate with the ambient atmosphere. When the user inhales through the inlet port of the bulbous member, a first pressure responsive valve closes the outlet port and a second pressure responsive valve opens the third port to permit the user to inhale fresh air. When the user exhales into the inlet port, said one first valve opens and said second valve closes to permit the user to exhale through the bulbous member to said outlet port. A storage tube disposed within the bulbous member and communicating with said inlet port retains a portion of the user's exhaled air for return to the user's lungs upon subsequent inhalation by the user from said first port. A cap is provided for closing the inlet port, and the bulbous member is resiliently compressible to allow for squeezing the bulbous member to force air through the outlet port.

3,548,823
RESPIRATORS
Joh A. Bogacik, Ridge Road, Irwin, Pa. 15642
Filed May 10, 1968, Ser. No. 728,116
Int. Cl. A61b *7/00*
U.S. Cl. 128—147 **20 Claims**



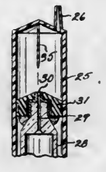
A respirator comprising a mouthpiece, a detachable filtering bag for said mouthpiece, and means on said mouthpiece for detachably receiving said bag.

3,548,824
PLUNGER EXTENSION FOR DISPOSABLE AMPOULES
Byron J. Carr, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
Filed Dec. 11, 1967, Ser. No. 689,536
Int. Cl. A61m *5/28;* **A61j** *1/06*
U.S. Cl. 128—218 **1 Claim**



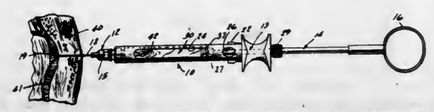
An extension for the plunger of a cartridge or ampoule containing a medicament to be injected, e.g. by a syringe, the extension being specifically for the purpose of extending the length of the cartridge plunger in cases where a relatively small amount of medicament is provided, to prevent the plunger from being withdrawn into a nonsterile area in the cartridge by the use of the syringe, e.g. in aspirating.

3,548,825
COMBINATION MIXING AND INJECTING MEDICAL SYRINGE
Joseph Denman Shaw, 508 Church St., Brownsville, Pa.
Original application Aug. 22, 1967, Ser. No. 662,340, now Patent No. 3,489,147, dated Jan. 13, 1970, which is a continuation of application Ser. No. 384,148, July 21, 1964, now abandoned. Divided and this application June 16, 1969, Ser. No. 833,466
Int. Cl. A61j *01/00;* **A61m** *05/00*
U.S. Cl. 128—218 **1 Claim**



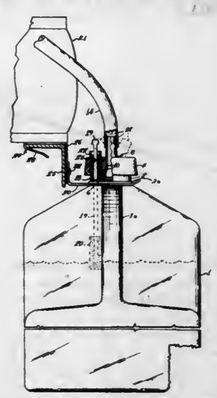
A combined mixing and injecting syringe has an outer barrel to contain a first ingredient and provided with an injection outlet, has an inner barrel slidable in a sealed manner longitudinally of the outer barrel for containing a second ingredient, and has a plunger slidable in a sealed manner longitudinally of the inner barrel. The inner barrel has a discharge opening of small diameter communicating with the hollow of the outer barrel and normally closed by a small plug. A pin is provided in the closed end of the outer barrel in position to push the small plug mechanically out of blocking position in the inner barrel discharge opening upon relative movement of the two barrels. The pin is laterally spaced from the injection outlet and is fixed within the closed end, extending inwardly in alignment with the discharge opening.

3,548,826
APPARATUS FOR ADMINISTERING INJECTABLE LIQUIDS
Charles J. Wilson, 1626 N. Prospect, Milwaukee, Wis. 53202
Original application May 8, 1967, Ser. No. 636,932, now Patent No. 3,495,591, dated Feb. 17, 1970. Divided and this application May 2, 1969, Ser. No. 843,250
Int. Cl. A61m *5/24;* **A61j** *1/06*
U.S. Cl. 128—218 **1 Claim**



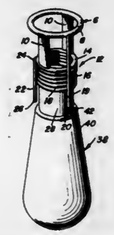
A transparent cartridge containing injectable liquid prepackaged under a negative pressure to afford completely automatic aspiration when used in a syringe.

3,548,827
BODY FLUID DRAINAGE AND COLLECTING APPARATUS
Allen J. Abel, 3110 Ridgewood Road, St. Paul, Minn. 55112
Filed July 1, 1968, Ser. No. 741,673
Int. Cl. A61m *27/00*
U.S. Cl. 128—275 **7 Claims**



Apparatus for collecting body fluids from hospital patients including a swivel bracket for mounting a collecting vessel on a bed frame in such a manner that the vessel is not tipped as the bed frame is elevated to various positions; and a coupling assembly comprising a pliable plastic cap for the inlet of the collecting vessel and a tubular connecting member of relatively hard plastic having a stem portion adapted to be connected to the outlet of a drainage tube and a substantially spherical base portion rotatably and pivotally seated within a socket formed integrally with said cap. The aforesaid collecting vessel cap also includes a vent port within which a liquid level-indicating, float stem is slidably received, the stem projecting downwardly into the vessel and having a float element on its lower end.

3,548,828
EXCREMENT COLLECTING APPLIANCE
John J. Vasile, 15–25 Utopia Parkway, Whitestone, N.Y. 11357
Filed June 14, 1968, Ser. No. 737,096
Int. Cl. A61f *5/44*
U.S. Cl. 128—283 **9 Claims**

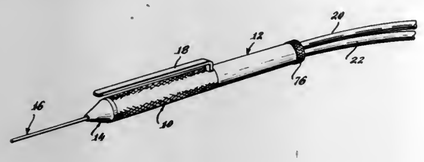


A self-contained multipurpose appliance for use in the rectum and anal canal, respectively. While usable in giving enemas, delivering fluids, nutrition and medications via the anal canal, it is primarily usable in collecting fecal matter in paraplegic and other bowel incontinent persons by way of the anal canal. It is characterized by a first indwelling inflatable ring which is stationed and anchored for as long as needed in the rectum and is connected by depending flexible straps to a second inflatable ring. This latter ring is communicatively connected with oriented and aligned inflatable coils or convolutions which provide adapter means which lines and opens and closes the anal canal and, when expanded, serves to funnel fecal matter into a disposable bag.

3,548,829
CRYOSURGICAL INSTRUMENT

Frank L. Reynolds, Monroe, and Victor A. Thyberg, Fairfield, Conn., assignors to Frigitronics, Inc., Bridgeport, Conn., a corporation of Connecticut

Filed Oct. 21, 1968, Ser. No. 769,042
Int. Cl. A61b *17/36*; F25d *3/00*; A61f *7/00*; F25b *19/00*
U.S. Cl. 128—303.1 10 Claims

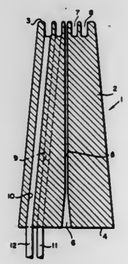


A cryosurgical instrument is disclosed which may be operated with either liquid or gaseous refrigerants. A fluid delivery tube is concentrically mounted within a probe and is reciprocable by finger pressure on an external lever to actuate fluid inlet and exhaust valves. A resilient bellows maintains the delivery tube in a position such that the instrument is normally warm. When in this condition, fluid pressure is confined primarily to the delivery tube and, whether the instrument is warm or cold, full fluid pressure is never applied to the bellows.

3,548,830
DEVICE FOR PUNCTURING OF STRETCHED MEMBRANE SKINS

Wilhelm Goey, Boppard, Rhine, and Paul Brinckmann, Bonn, Germany, assignors to DMB-Apparatebau and Hans-Mueller, Bernhardt, a German corporation

Filed Nov. 15, 1968, Ser. No. 776,047
Claims priority, application Germany, Nov. 15, 1967, 1,566,065
Int. Cl. A61b *17/42*; A61m *1/00*
U.S. Cl. 128—361 4 Claims

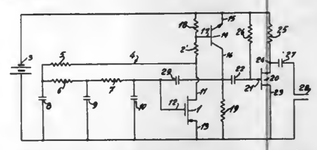


A device puncturing or piercing stretched or tensed membranes without causing rupture thereof and including a pilot member for relaxing tension in an area of the membrane to be punctured and for guiding a hollow needle. The pilot device may have a truncated conical configuration with a central pilot bore therethrough for guiding the needle and a pair of annular, radially spaced grooves formed concentrically of the pilot bore in a small, front end surface of the pilot device. A passageway extends rearwardly from each groove and opens at a rear portion of the pilot device to provide connections for the grooves to a suction source. By gently contacting the grooved end of the pilot device with the tensed membrane, sequentially applying a suction to the inner and outer grooves and then releasing the suction on the inner-groove, the area of the membrane to be pierced will be relaxed, and thus, permit the membrane to be punctured without fear of rupture.

3,548,831
CARDIAC PACER CIRCUIT

Donald Neil McLeam, P.O. Box 317, L'Orignal, Ontario; Jacob Rosensweig, 5609 Blossom Ave., Cote St. Luc; 29, Quebec, and John Saunders, 450 Victor Hugo, Brossard, Quebec, Canada

Filed Feb. 6, 1968, Ser. No. 703,470
Int. Cl. A61n *1/36*
U.S. Cl. 128—422 3 Claims

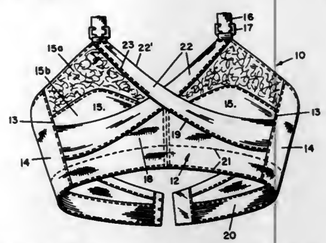


An improved circuitry of a transistorized, implantable and battery powered cardiac pacer, essentially comprising a sine wave phase shift oscillating stage, a nonlinear amplifying stage for amplifying the sine wave and to produce a square wave, a RC-differentiating stage for differentiating the square wave and to produce a pacing pulse which, as the last step, is amplified in a source follower amplifying stage and from thereon led to the heart via electric conductors.

3,548,832
BRASSIERE

Leonard A. Rosner, Great Neck, N.Y. (c/o Glamorise Foundations., Inc., 135 Madison Ave., New York, N.Y. 10016)

Filed Feb. 20, 1969, Ser. No. 800,890
Int. Cl. A41c *3/00*
U.S. Cl. 128—483 5 Claims



A brassiere front section having a pair of breast cups and an elastic front panel stitched to and extending downwardly from the lower edges of the cups. Shoulder straps are connected to the top of the cups and a pair of nonelastic, straplike slings extend downwardly and obliquely across the front section in a mutually crossed relation from the shoulder strap connection of the cup on one side to supportably underlie the cup of the opposite side. An elastic band is secured to the inside of the lower edge portion of the front panel, in downwardly spaced relation from the cups and slings.

3,548,833
BRASSIERE

Lorraine Lavergne, 505 Ritchot St., St. Boniface, Manitoba, Canada

Filed Sept. 9, 1968, Ser. No. 758,411
Int. Cl. A41c *3/00*
U.S. Cl. 128—484 5 Claims

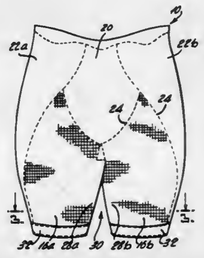


A woman's brassiere or "Bra" wherein a body-encircling belt supports a pliable girdle thereabove; a joined pair of arch-shaped frames of flat material are positioned in front of the girdle and the bottoms of the legs of said frames are secured to the belt while their upper portions are supported by shoulder straps; the outer sides of the frames are each secured to the girdle such that when the brassiere is worn and the breasts project through the openings in the frames, loose girdle material also projects through the openings to form under-sloping saddles from the belt which are end-carried by the frames to support the weight of the projecting breasts; and resiliency in the belt plus the encircling frame legs conform the breasts to a flattering bust.

3,548,834
PANTY GIRDLE

Cornelius J. Geimer, Burr Oak, Mich., assignor to Kayser-Roth Corporation, New York, N.Y., a corporation of New York

Filed Oct. 18, 1968, Ser. No. 768,636
Int. Cl. A41c *1/00*
U.S. Cl. 128—528 5 Claims

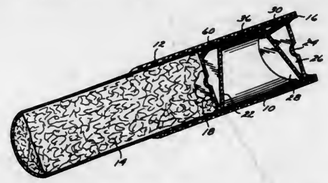


A panty girdle forming a woman's undergarment. The girdle has an upper body-encircling portion and a pair of leg-encircling portions extending from and forming a continuation of the upper body-encircling portion. These leg-encircling portions have inner wall regions located adjacent and directed toward each other. These inner wall regions of the leg-encircling portions have a seam-free construction so that the girdle has a perfectly smooth construction at the crotch thereof.

3,548,835
DEVICE FOR TRAPPING SOLIDS AND LIQUIDS IN TOBACCO SMOKE

Leonard L. Thomas, 14092 Ash, Westminster, Calif. 92683

Filed Aug. 20, 1968, Ser. No. 753,962
Int. Cl. A24d *01/04*
U.S. Cl. 131—10.5 4 Claims

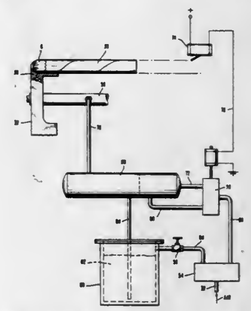


An apparatus for extracting liquid and solid constituents from tobacco smoke. The extraction device comprises a one-piece impedance means including a series of barriers of paper circles formed integrally as a single blank which is folded in a substantially W-shape and mounted within the smoker's end of a cigarette. The first upstream barrier of this series is provided with an opening and the second downstream barrier is formed so that the flow path for smoke extends around or through its outer margins adjacent the interior wall of the cigarette wrapper. The impedance means includes an additional barrier downstream from the first and second barriers and spaced a clear distance by several times than the distance between the first and second barriers. The additional barrier includes flow openings of greater area than the combined area of the first barrier opening and the second barrier flow path. The space between the second barrier and the additional barrier has a volume several times that of the space between the first and second barriers.

3,548,836
APPARATUS FOR REINFORCING THE HEAD END OF A CIGAR

Hans C. Dreher, Dallas, Pa., assignor to General Cigar Co., Inc., New York, N.Y., a corporation of New York

Original application Nov. 9, 1966, Ser. No. 593,069, now Patent No. 3,468,315, dated Sept. 23, 1969. Divided and this application Mar. 5, 1969, Ser. No. 816,466
Int. Cl. A24c *01/32*, *01/34*, *05/58*
U.S. Cl. 131—21 2 Claims

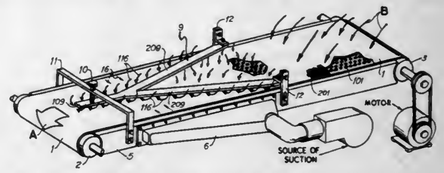


This invention relates to an apparatus for reinforcing the head end of a cigar. After the bunch is formed on a rolling table and then crimped and trimmed, a controlled amount of paste or adhesive is then applied to the outer face of the reinforcing strip by injecting a drop of paste into a header block of a cigar machine for application on the head end of the cigar bunch. A positive displacement pump supplies the controlled amount of paste from a chamber, spaced from the pump. The chamber, pump, and header block are interconnected by a pipe system. Means are provided to force the flow of the liquid from the chamber to the pump. Electrical control means are associated with the pump to enable the pump to complete one cycle of its operation each time a cigar bunch is brought to the header block. When the head of the cigar bunch is placed in the header block and the cigar bunch is rotated simultaneously with the helical application of a wrapper, the drop of paste is smeared over the outside surface of the head of the bunch.

3,548,837
TOBACCO ROD FORMING METHOD AND DEVICE

Athos Cristiani, Bologna, Italy, assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed July 5, 1968, Ser. No. 742,931
Claims priority, application Italy, July 21, 1967, Feb. 27, 1968, 7177A/67;6844A/68
Int. Cl. A24c *5/18*
U.S. Cl. 131—84 12 Claims

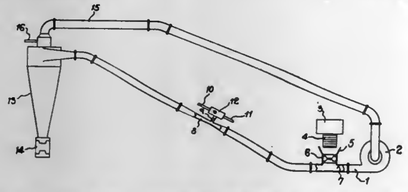


A relatively wide and thin carpet of tobacco particles is fed onto an exposed surface of a moving air-permeable conveyor. Suction is applied to the unexposed surface of the conveyor, the unexposed surface being in juxtaposition with an impervious stationary supporting member having a Y-shaped cutout arranged so that the arms of the Y converge in a downstream direction. A similar Y-shaped cover is similarly placed above the conveyor in the region of the cutout and is spaced from and parallel with the exposed surface of the conveyor so that air passing through tobacco and the air-permeable conveyor due to said suction, will cause the edges of the carpet of tobacco particles to converge in a downstream direction thereby forming a relatively narrow, thick and elongated tobacco rod stream.

3,548,838
APPLYING MENTHOL TO TOBACCO IN A PNEUMATIC SYSTEM

Robert L. Key III, and Melvin G. Christy, Durham, N.C., assignors to Liggett & Myers Incorporated, New York, N.Y., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,383
Int. Cl. A24b 03/12
U.S. Cl. 131—144 4 Claims

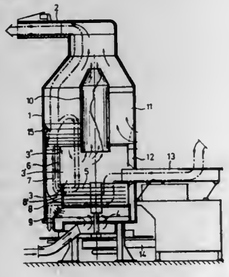


A method for the continuous application of menthol additives to tobacco. Tobacco is injected into and pneumatically conveyed in a conduit. A menthol solution is then injected into the conduit at a point downstream from the injection of the tobacco into the conduit. For example, in a pneumatic system tobacco is blown through a conduit and blended with menthol upon passage through a venturi connected with a supply of menthol.

3,548,839
MACHINE FOR THRESHING TOBACCO LEAVES AND SEPARATING THE THRESHED TOBACCO

Olof Karlsson, Stockholm, Sweden, assignor to Arenco Aktiebolag, Stockholm-Vallingby, Sweden

Filed Oct. 15, 1968, Ser. No. 767,769
Claims priority, application Sweden, Oct. 31, 1967, 14,950/67
Int. Cl. A24b 05/06, 05/10
U.S. Cl. 131—146 2 Claims



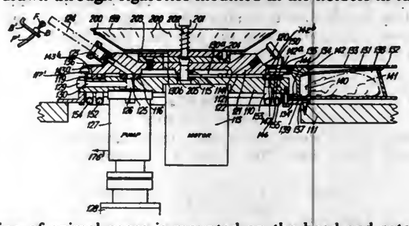
A machine for threshing tobacco leaves and separating the threshed tobacco, comprising a threshing chamber, a threshing wheel in said threshing chamber, and means to rotate said threshing wheel around a vertical shaft, all mounted within a tubular housing. Means are provided to supply tobacco leaves to said threshing chamber, and a separating chamber surrounds at least the major part of said threshing chamber. The threshing chamber has a substantially cylindrical open-topped wall and is directly connected with said separating chamber partly by a circumferential outlet opening for the threshed tobacco in the lower part of the wall, provided with a grid, and partly by an annular opening between the upper part of the threshing chamber wall and a vertical cap. The cap is tubular in shape and open at both ends and the open, upper end extends centrally in the housing and above the separating chamber. The open, bottom end of the cap extends into the open-topped part of the threshing chamber.

3,548,840
CIGARETTE SMOKING MACHINES

Henri Baumgartner, Bernex, Switzerland, assignor to Gallaher Limited, a British Company

Filed Oct. 30, 1967, Ser. No. 678,901
Int. Cl. A24f 1/00, 13/10
U.S. Cl. 131—171 6 Claims

An automatic cigarette smoking machine having a smoking head with a ring of cigarette holders which is rotatable about a vertical axis. The holders are each formed at the end of a separate smoke duct the other end of which registers in turn with a vacuum port as the head rotates so that puffs of smoke are drawn through cigarettes mounted in the holders in turn.

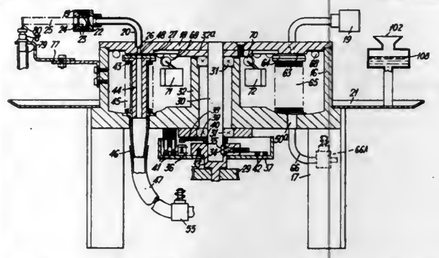


A ring of animal cages is mounted on the head and rotates with it and a series of gas ducts lead one to each cage. A gas distribution system draws the puffs of smoke through the cigarettes and distributes the smoke to the gas ducts.

3,548,841
CIGARETTE SMOKING MACHINES

Thomas A. Caughey, Belfast, Northern Ireland, assignor to Gallaher Limited, a British Company

Filed Oct. 30, 1967, Ser. No. 678,902
Int. Cl. A24f 13/10, 47/00; A24d 1/12
U.S. Cl. 131—171 15 Claims

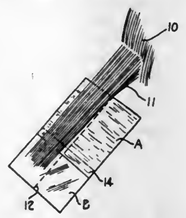


An automatic cigarette smoking machine having a smoking head which rotates about a vertical axis and has a ring of outwardly extending cigarette holders each formed at the end of a corresponding smoke duct. As the head continuously rotates in use the other ends of the smoke ducts move in turn into register with a stationary vacuum port through which vacuum is applied to draw smoke through cigarettes mounted in the holders in turn. The machine also includes a pneumatic system for ejecting spent butts, and extinguisher therefor and another pneumatic system including a portion of that employed by the ejector, for reloading the holders.

3,548,842
BLANK FOR USE IN COLD PERMANENT WAVE INCLUDING IMPERFORATED NON-ABSORBENT SHEET SECURED TO AN ABSORBENT SHEET

Barbara P. McCall, Rte 2, Box 14, Easley, S.C. 29604

Filed Sept. 18, 1968, Ser. No. 760,555
Int. Cl. A01d 2/00
U.S. Cl. 132—9 2 Claims

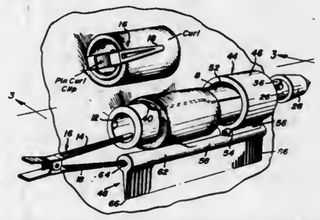


A blank for use with a cold permanent wave solution which includes an imperforate nonabsorbent sheet that is fixed to an end of an absorbent sheet. A tress of hair is encased within a folded blank with the end of the hair encased within the nonabsorbent portion of the blank so that when the tress is wound on a curler rod into a croquignole winding the nonabsorbent paper restricts application of the waving solution to the ends of the hair. This, in turn, prevents curling of the very ends of the hair, thus minimizing frizzing of the ends of the hair.

3,548,843
COMBINED HAIR ROLLER AND COMB

Ethel H. Ross, 689 J. Clyde Morris Blvd., Newport News, Va.

Filed Mar. 5, 1968, Ser. No. 710,502
Int. Cl. A45d 2/24
U.S. Cl. 132—33 2 Claims

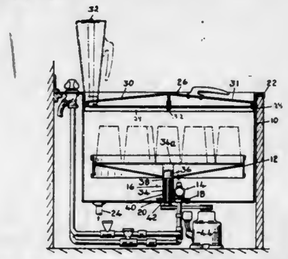


A hair roller and comb characterized by two coordinated units; namely, a roller unit and a supporting and handling unit. The roller unit comprises a mandrel on which a lock of hair is clamped and coiled. The handling unit embodies a collar provided with a changeable comb which is gripped with one hand and serves as a handle. An end of the mandrel is journaled for rotation in the collar and has a turning knob for the user's other hand. The ends of the units opposite the knob function to support a hair pin.

3,548,844
WASHING MACHINE FOR GLASSWARE

Sydney M. Sobel, Toronto, Ontario, Canada, assignor to Ontario Store Fixture Co. Limited, Toronto, Ontario, Canada, a corporation of Canada

Filed June 6, 1968, Ser. No. 735,117
Int. Cl. B08b 3/02, 9/08
U.S. Cl. 134—57 4 Claims



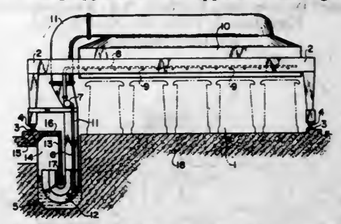
A glass washing machine for commercial establishments such as restaurants which machine will permit the use of chemical solutions (detergents, rinse agents and sterilizing agents) under precise control which will effectively wash, clean and sterilize glasses and remove all traces of lipstick during a 60 second cycle.

3,548,845
COOLING APPARATUS FOR MOLDS

Hideo Ogi; Haruo Ozaki; Masaru Mishiro; Yoshikazu Horikawa, and Shunji Mori, Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Sept. 16, 1968, Ser. No. 762,230
Claims priority, application Japan, Sept. 22, 1967, Nov. 2, 1967, 42/60482;42/70266
Int. Cl. B08b 3/02
U.S. Cl. 134—114 5 Claims

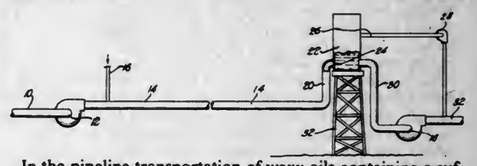
A water-cooling apparatus for use in a method of cooling molds for casting steel ingots in which the molds are air-cooled in a cooling pit until their surface temperature becomes less than about 500° C., and then water-cooled with a water-cooling apparatus. The apparatus has a gate-shaped moving deck provided with means for jetting cooling water onto the molds and which deck runs above the said cooling pit, and a cooling water channel extends along the track of said moving deck.



3,548,846
PIPELINE TRANSPORTATION OF WAXY OILS

Joseph C. Allen, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 20, 1968, Ser. No. 786,788
Int. Cl. F16d 1/16
U.S. Cl. 137—13 5 Claims

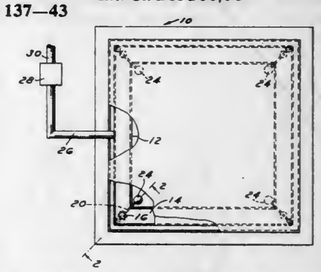


In the pipeline transportation of waxy oils containing a sufficient proportion of undissolved wax at operating pipeline temperatures to seriously interfere with the flow of oil, adding sufficient butane and/or propane to substantially dissolve such wax, and maintaining conduit pressures at all points substantially above the vapor pressure of the solvent-oil mixture in the conduit.

3,548,847
FUEL TANK VAPOR SEPARATOR SYSTEM

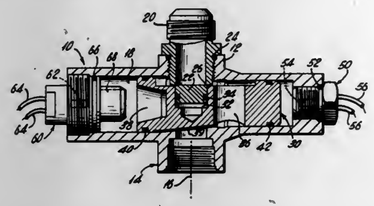
William G. Roven, Southgate, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed May 23, 1969, Ser. No. 827,398
Int. Cl. B65d 51/16
U.S. Cl. 137—43 8 Claims



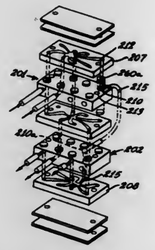
A vapor manifold corresponding to the shape of the roof of a fuel tank is mounted against the inner surface of the roof. Openings on the underside of the manifold connect the manifold interior with the interior of the fuel tank and valves responsive to the level of the liquid fuel adjacent each opening are mounted at the openings. When the liquid fuel level in the tank rises to the point where liquid fuel could enter the manifold through an opening, the valve at that opening is moved onto a seat to close off communication through the opening. When the liquid fuel level is below the opening, the valve opens to admit fuel vapors into the manifold. A conduit connects the manifold interior via a vapor storage means to the engine combustion chambers.

3,548,848
EXPLOSIVE ACTUATED VALVES
Gerhardt C. Stichling, Roseland, N.J., assignor to Cartridge Actuated Devices, Inc., Fairfield, N.J., a corporation
Filed June 3, 1968, Ser. No. 734,125
Int. Cl. F16k 13/06
U.S. Cl. 137—68 9 Claims



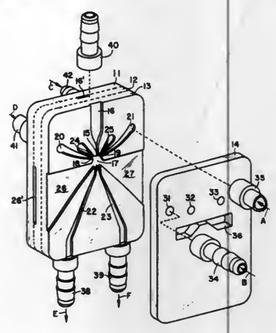
An explosive actuated valve having a valve housing provided with an inlet and an outlet situated along a common axis and defining a straight flow-through path for a fluid through the housing. The valve housing has an elongated hollow interior extending across this common axis of the inlet and outlet, and slidable within the elongated hollow interior of the housing is a piston means which has a starting position situated between the inlet and the outlet, an end position displaced from the starting position and providing for free unobstructed flow of fluid along the common axis of the inlet and outlet through the housing, and the piston means has a third, return position where the piston means cuts off the flow of fluid from the inlet to the housing, the valve being normally closed, being open when the piston means is in its end position, and being again closed when the piston means is in its return position. The housing carries at one end of its elongated hollow interior an opening explosive means for displacing the piston means from its starting to its end position upon actuation of said opening explosive means, and the housing carries, at its end which is opposed to that end where the opening explosive means is situated, a return explosive means for returning the piston means from its end position to its return position upon actuation of the return explosive means. Thus, the explosive actuated valve provides a closed-open-closed operation.

3,548,849
FLUIDIC CIRCUIT PACKAGE
Edward J. Purcell, Evanston, and Lance A. Jahnke, Rolling Meadows, Ill., assignors to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware. by mesne assignments
Filed Dec. 15, 1966, Ser. No. 601,919
Int. Cl. F15c 5/00
U.S. Cl. 137—81.5 19 Claims



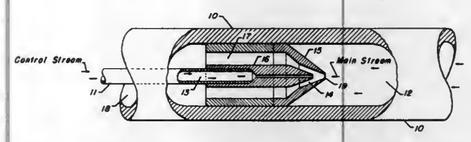
A fluidic circuit package in which planar fluidic elements are stacked, one upon the other, with aligned ports and passages in the fluidic components and manifolds, respectively, interconnected by sealing washers that selectively block communication between the ports and the passages to achieve the desired circuit configuration.

3,548,850
FLUIDIC SUMMING JUNCTION
Robert H. Bellman, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Jan. 26, 1967, Ser. No. 612,012
Int. Cl. F15c 1/12
U.S. Cl. 137—81.5 7 Claims



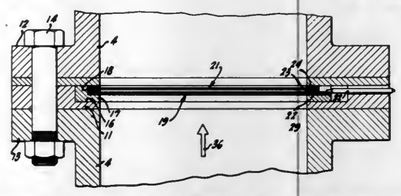
Disclosed is a fluid amplifier device which adds two pneumatic differential pressure signals into one pneumatic differential signal. Two fluid amplifiers have their output passages connected in such a manner that the algebraic sum of the inputs to both amplifiers is approximated by the output.

3,548,851
FLOW CONTROL DEVICE
Robert W. Sampson, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,100
Int. Cl. F15c 1/20
U.S. Cl. 137—81.5 1 Claim



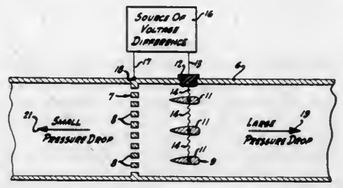
Flow control device which operates without moving parts. The device utilizes opposing flows of fluid to control the main stream flow. It is particularly useful in gaseous streams operating at relatively low flow rates. It finds particular utility in environments which tend to plug conventional moving part valve devices.

3,548,852
VALVE FOR ELECTRO VISCOUS FLUID
Richard C. Fisher, Walnut Creek, Calif., assignor to The Rucker Company, a corporation
Filed June 25, 1968, Ser. No. 739,731
Int. Cl. F15c 1/04
U.S. Cl. 137—81.5 6 Claims



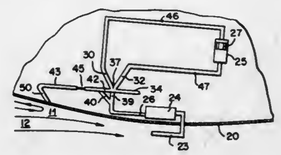
A valve for electro viscous fluids is disposed in an electro viscous fluid conduit and includes a pair of grids located upstream and downstream with respect to each other. The grids are mutually insulated electrically and are connected in a circuit which establishes an electrical voltage difference between the grids.

3,548,853
ELECTROVISCOUS FLUID RECTIFIER
Robert B. McEuen, Moraga, Calif., assignor to The Rucker Company, a corporation
Filed June 25, 1968, Ser. No. 739,755
Int. Cl. F15c 1/04
U.S. Cl. 137—81.5 9 Claims



An electroviscous-fluid rectifier for flow of electroviscous fluid in a conduit has a grid extending across the conduit, the grid being effective to promote turbulent flow in the fluid. A second grid extending across the conduit promotes laminar flow in the fluid. The second grid is disposed on one side of the first grid and a voltage difference is produced between the first grid and the second grid.

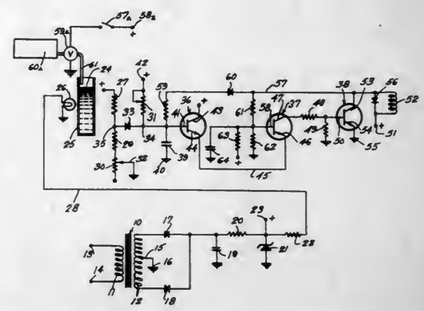
3,548,854
FLUIDIC ANGLE OF ATTACK SENSOR FOR SUPERSONIC AIRCRAFT
Raymond W. Warren, 7925 Falstaff Road, McLean, and Elmer L. Swartz, 7406 Englewood Place, Annandale, Va.
Filed Oct. 1, 1968, Ser. No. 764,251
Int. Cl. F15c 1/04, 4/00
U.S. Cl. 137—81.5 9 Claims



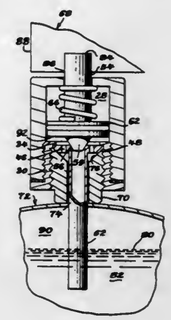
A system for determining the angle of attack of an aircraft has a series of sensor holes located in the forward portion of the underside of the aircraft wing to sense airflow past the wing. Each sensor hole communicates with a biased bistable fluid amplifier which directs the power fluid of the amplifier to a first output channel when there is no signal from the sensor hole and to a second output channel when a signal is present from the sensor hole due to a pressure gradient on the underside of the wing. The bias of the bistable amplifier is established by communicating part of the power fluid of the amplifier into a control channel. Each bistable amplifier is connected to an indicator which identifies the flow through the output channels and the readings of the indicators will give a digital readout of the angle of the attack.

3,548,855
ELECTRONIC TIMER
George H. Fathauer, Decatur, Ill., assignor to Eaton Yale & Towne Inc., a corporation of Ohio
Filed Nov. 20, 1967, Ser. No. 684,445
Int. Cl. G05d 11/00
U.S. Cl. 137—93 9 Claims

A photo copy toner density control device having means for sensing the concentrate density of a photo copier fluid and for developing an electrical signal indicative of the sensed concentrate thereof. The output of the sensing means is coupled to a series of transistors so arranged as to have a substantially higher turn "on" level than the turn "off" level thereof. A capacitive charging device is coupled to the input of the switching transistors, and a given voltage level which turns "on" the three transistors substantially simultaneously also causes the discharge of the capacitive means, the discharge of which determines the "on" time of an injection means for adding concentrate to the fluid being sensed. The capacitive means also provides a delay to prevent the too rapid cycling of the timer and thereby avoid the adding of excessive concentrate to the fluid prior to the adequate mixing of the concentrate in the fluid and the associated sensing of the so mixed concentrate by the sensing means.



3,548,856
PRESSURE RELIEF VALVE
Isadore Vant, Santa Clara, Calif., assignor to Vant Manufacturing, Co., San Jose, Calif., a corporation of California
Filed Dec. 9, 1968, Ser. No. 782,312
Int. Cl. F17c 7/02
U.S. Cl. 137—210 11 Claims

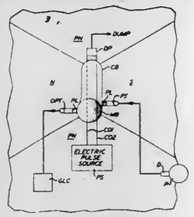


A valve for relieving the pressure of a liquid flowing under air pressure, which valve is constructed of a housing defining a valve chamber with inlet and outlet conduits, and a port for admitting into the chamber a mixture of vapors of the liquid and the pressurizing air. A valve mechanism is provided for controlling the flow of materials into the outlet conduit and has a first setting for the reception by the outlet conduit of liquid from the inlet conduit, and a second setting for the reception by the outlet conduit of the air-vapor mixture. Pressure-sensitive valve control means normally maintain the valve mechanism in its first setting, and provide for the second setting of the valve mechanism when the pressure of the air-vapor mixture reaches a predetermined level.

3,548,857
ELECTRICALLY RESPONSIVE FLUID LOGIC SYSTEM AND METHOD OF ASSEMBLY
Lewis G. Anderson, Columbus, Ohio, and David J. Thomson, Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed Aug. 10, 1967, Ser. No. 659,698
Int. Cl. F15c 3/06, 5/00; F16k 9/00
U.S. Cl. 137—251 20 Claims

A gas flow in a miniaturized fluid logic circuit is switched electrically by conducting gas flow into and out of the same

end of an elongated chamber that holds a mercury ball which is movable from a flow-obstructing to a flow-releasing position, and by selectively moving the ball with the aid of both a constant magnetic field established across the ball's track and

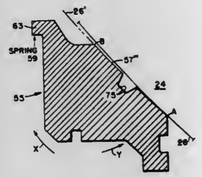


a varying current applied to the ball through contacts on the chamber walls. The action is made monostable by constricting the chamber to distort the ball in one of its positions. The distortion forces the ball back to the other position when no current flows.

3,548,858
SEAT RING FOR PLUG VALVE

Adolf Wolfensperger, Kearney, Nebr., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Original application Mar. 1, 1965, Ser. No. 435,838, now Patent No. 3,424,190, dated Jan. 28, 1969. Divided and this application Mar. 13, 1968, Ser. No. 734,504
Int. Cl. F16k *5/22*
U.S. Cl. 137—246.22 **3 Claims**

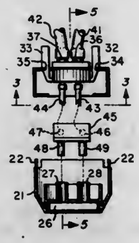


A seat ring for a ball-type plug valve assembly comprises a relatively rigid metal annulus having on one side an annular transversely and longitudinally concave nonspherical plug seating surface formed with an annular groove, and a ring of solid plastic material is permanently mounted in that groove to project from the seating surface into engagement with the plug surface. A lubricant introduction passage extends through the metal seat ring to the bottom of the groove and through the solid plastic ring to terminate at the plug seating surface.

3,548,859
APPARATUS FOR INSTALLING AND MOUNTING PNEUMATIC DEVICES

Richard K. Hedlund, Mount Prospect, Ill., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed July 30, 1969, Ser. No. 846,133
Int. Cl. F16k *27/00*; **F16l** *33/00*
U.S. Cl. 137—269 **9 Claims**

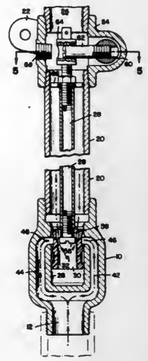


Apparatus for use in the mounting and installation of pneumatic thermostats which includes a conventional pneumatic junction box and a novel protector that temporarily fits over the junction box during plastering or the like. Separate pneumatic conduits forming the supply and signal pressure lines of a pneumatic system pass through a bushing in the junction box and initially plug into a common pressure chamber in the protector, enabling all pressure lines in the system to be tested for leakage simultaneously. Upon removal of the protector the supply and signal pressure lines are plugged into the pneumatic thermostat, which is then mounted to the junction box.

3,548,860
SELF-DRAINING VALVE FOR FLUID DISTRIBUTION SYSTEMS

Ellis H. Jacobs, Piedmont, and Ronald G. Billyard, San Francisco, Calif., assignors to Pacific Pipe Company, San Francisco, Calif., a corporation of California

Filed Sept. 5, 1968, Ser. No. 757,567
Int. Cl. E03b *9/14*
U.S. Cl. 137—289 **12 Claims**

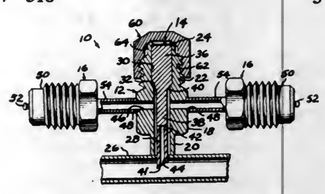


A self-draining valve having an inlet port, an outlet port, a drainage port, and a moveable valve member which automatically couples the drainage port to the outlet port when the inlet and outlet ports are uncoupled, thereby automatically draining the valve and its associated outlet conduit whenever the valve is turned off. To provide freezeproof properties, the valve is buried at a depth greater than P/D below the frost line, where P is the maximum ground water pressure at the drainage port and D is the density of the fluid to be controlled by the valve. When buried, the valve is remotely controlled by means of a linkage which extends downwardly within the outlet conduit to the interior of the valve, where it is connected to the moveable valve member. A check valve prevents fluid from entering the valve through its drainage port without blocking the discharge of fluid therefrom.

3,548,861
LINE TAPPING SERVICE VALVE

John W. Mullins, P.O. Box 20524, Oklahoma City, Okla. 73120

Continuation-in-part of application Ser. No. 592,104, Nov. 4, 1966, now Patent No. 3,448,758. This application May 19, 1969, Ser. No. 825,901
Int. Cl. F16k *43/00*
U.S. Cl. 137—318 **3 Claims**



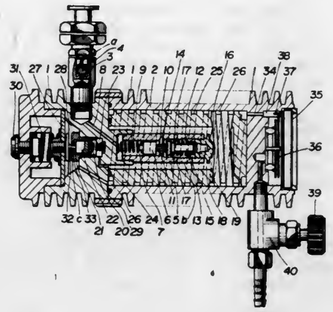
A generally cylindrical centrally bored and counterbored housing having lateral ports and external threads inter-

mediate its ends is connected at one end to a line to be tapped. A cylindrical core, having a length slightly greater than the length of the housing and having a line piercing tip, is coaxially received by and sealed with the free end portion of the housing. The inward end portion of the core is provided with a diametric bore intersected by an axial bore extending inwardly from the line piercing tip for communication between the pierced line and the ports.

3,548,862
CONTROL SYSTEM FOR A GAS DISCHARGER

Itsuro Nakamura, Yasuo Takeichi, and Teruo Saito, Tokyo, Japan, assignors to Yutaka Sangyo Kabushikikaisha, Tokyo, Japan

Filed Sept. 6, 1968, Ser. No. 757,953
Claims priority, application Japan, Apr. 27, 1968, 43/28112
Int. Cl. F16k *49/00, 31/12*
U.S. Cl. 137—340 **3 Claims**

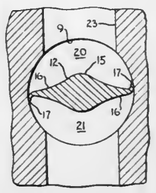


A control system for discharging gas from a reservoir of liquefied carbon dioxide where a main body comprising the first, second and third valves for depressing gas pressure fixed therein, said first valve communicates with the second valve through a perforated passage **8**; said second valve communicates with an expanded space formed therearound through a passage **17**; said expanded space communicates with the third valve through a passage **24**; a chamber for depressing gas pressure of said third valve communicates with a screwed passage **26** formed in said main body through a perforated passage **29**, and a rear end of said screwed passage communicates with a gauge fixed to said main body.

3,548,863
BAFFLE FOR COOLANT PASSAGES IN PLASTIC MOLDING DIES

Alvin C. Stippich, Waukesha, Wis., assignor to Riverside Mold & Die, Inc., Waukesha, Wis., a corporation of Wisconsin

Filed Sept. 26, 1969, Ser. No. 861,238
Int. Cl. F16l *53/00*
U.S. Cl. 137—340 **10 Claims**

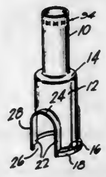


An elongated plastic stem with a threaded plug at one end thereof and fins radiating therefrom is screwed into the open end of a liquid circulating bore in a die to divide the bore into longitudinally extending passages and cause the liquid to flow serially back and forth in the bore.

3,548,864
CURB BOX MEMBER AND METHOD OF MAKING THE SAME

Harold E. Handley and Robert D. Handley, Fort Lauderdale, Fla., and Frank J. Perry, Jackson, Mich., assignors to Handley Industries, Inc., Jackson, Mich., a corporation of Michigan

Filed Mar. 26, 1969, Ser. No. 810,765
Int. Cl. F16l *5/00*
U.S. Cl. 137—364 **8 Claims**

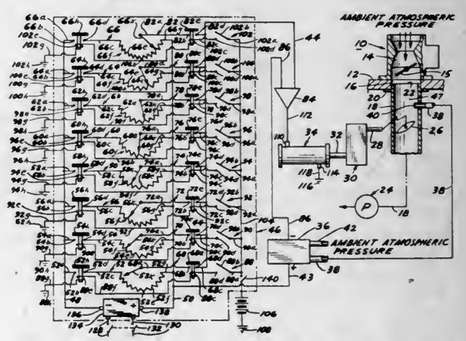


A curb box, and method for making the same, formed of a moldable synthetic material wherein the curb box is formed by expansion within a mold, and includes radially extending arched flange portions which may be severed to produce openings forming an access for conduits into the interior of the box. Various sizes of arched flange portions are defined on the box to form openings to accommodate different sizes of conduits, and permit variations in usage of the box.

3,548,865
PRESSURE CONTROL APPARATUS

Bela P. Povinger, 15400 Stansbury, Detroit, Mich. 48227

Filed Dec. 8, 1967, Ser. No. 689,148
Int. Cl. F16k *31/04*; **G05d** *7/03*
U.S. Cl. 137—486 **1 Claim**



A chamber with ends defined generally by first and second variably positionable valves has a fluid (including gases) pump connected thereto in a manner so as to place the second valve generally between the first valve and the pump. As the pump runs a flow of fluid or gas through the chamber is experienced and a reduction in pressure is experienced between the valves. Differential pressure responsive means, responsive to a reference pressure and the said reduction in pressure automatically causes the rotation of the second valve until a desired pressure is achieved in said chamber in order to obtain a desired predetermined pressure differential across the first valve.

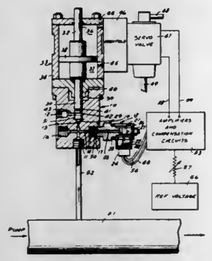
3,548,866
SERVO-CONTROLLED HIGH PRESSURE RELIEF VALVE

Willard D. Kaiser, Grove City, and John A. Kasuba, Columbus, Ohio, assignors to Houdaille Industries, Inc., Buffalo, N.Y., a corporation of Delaware

Filed June 26, 1968, Ser. No. 740,163
Int. Cl. F16k *17/02*
U.S. Cl. 137—487.5 **6 Claims**

A servo controlled conical valve which uses pressure feedback to operate the valve as a pressure relief valve. The device consists of a pressure transducer to sense the pressure, amplifiers and compensation circuits, and a reference voltage source which is used to preset the desired operating pressure

of the valve. A servovalve and manifold are used to control the flow of fluid to a hydraulic cylinder which, in turn, is

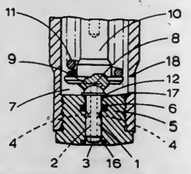


used to operate the conical valve of the pressure relief device.

3,548,867
PRESSURE RELIEF DEVICES

Hans Theodor Grisebach, Lunen, and Walter Weirich, Dortmund, Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Wethmar, near Lunen, Westfalia, Germany, a body corporate of Germany

Filed May 13, 1969, Ser. No. 824,073
Claims priority, application Germany, June 10, 1968, 1,750,834
Int. Cl. F16k *17/04*
U.S. Cl. 137—494 **4 Claims**

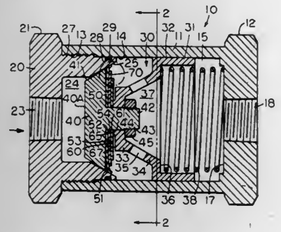


A pressure-relief device in the form of a piston slidably mounted in a bore of a housing, an O-ring being provided between the bore and the piston. The piston has a longitudinal bore extending completely through the piston which bore communicates with radial bores which can be moved inwardly beyond the O-ring against the force of a spring to permit a through flow of pressure fluid. The inner most end of the longitudinal bore is normally closed by a pressure member transmitting the spring force to the piston, the pressure member being separable from the piston. When the pressure within the longitudinal bore reaches a certain value.

3,548,868
CHECK VALVE WITH SPRING ASSISTED FLEXIBLE AUXILIARY VALVE SEAT

John Joseph Mullaney III, Warwick, R.I., assignor to Sealol, Inc., Warwick, R.I., a corporation of Delaware

Filed Feb. 14, 1968, Ser. No. 705,501
Int. Cl. F16k *15/02*
U.S. Cl. 137—515.5 **3 Claims**

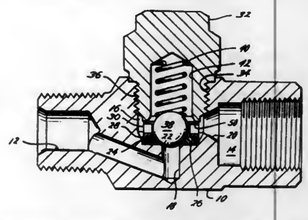


Check valve with spring assisted flexible auxiliary valve seat for fluids in cryogenics range to minus four hundred twenty degrees Fahrenheit.

3,548,869
SOFT SEATED VALVE

Irvin B. Weise, Bellaire, and William L. Anderson Jr., Houston, Tex., assignors to Anderson Greenwood & Co., Houston, Tex., a corporation of Texas

Filed Mar. 4, 1968, Ser. No. 709,997
Int. Cl. F16k *15/04*
U.S. Cl. 137—516.29 **9 Claims**

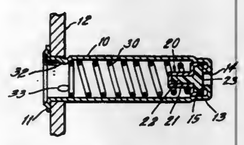


The drawings and the description of the structure illustrated in the drawings disclose a preferred form of valve having a body which defines an inlet, an outlet and a valve seat surrounding the communication from the inlet to the outlet, a resilient seat ring positioned in the body so that a valve member upon closing engages the resilient seat ring and thereafter engages the valve seat to provide a metal-to-metal seating. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,548,870
PRESSURE RELIEF VALVE

Lester C. Morton, Dunmurry, Ireland, and Frank J. Voos, Stratford, Conn., assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

Filed Dec. 28, 1967, Ser. No. 694,170
Int. Cl. F16k *17/04*
U.S. Cl. 137—540 **5 Claims**

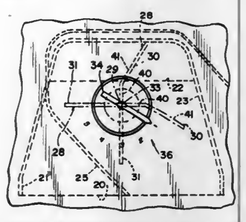


A pressure relief valve formed of a tubular stem has a reentrantly bent end forming an annular valve seat. A molded, pliable insert formed in a metal cup is biased into engagement with the annular seat by a spring captured in the tubular stem with a predetermined force.

3,548,871
AIR FLOW CONTROL

James P. O'Grady, Evansville, Ind., assignor to Whirlpool Corporation, a corporation of Delaware

Filed June 6, 1968, Ser. No. 734,976
Int. Cl. F16k *37/00, 1/22*
U.S. Cl. 137—553 **9 Claims**

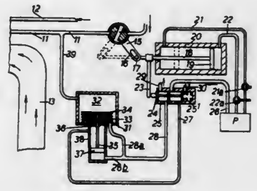


An airflow control for use in apparatus such as a forced air refrigerator. The control includes a skewed vane damper regulating the amount of air delivered through a duct having an outlet at one end. Manually operable means are provided for adjustably disposing the damper providing an improved range of control of airflow.

3,548,872
BURNER CONTROL

John James Jago, Liverpool, England, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain

Filed Sept. 19, 1968, Ser. No. 760,806
Claims priority, application Great Britain, Claims priority, application Great Britain, Sept. 21, 1967, 42,978/67
Int. Cl. F23d *11/00*
U.S. Cl. 137—565 **16 Claims**

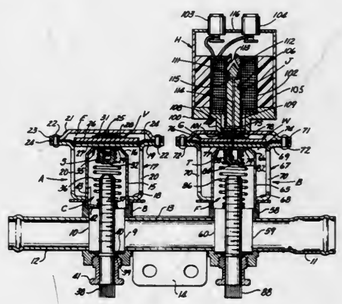


The supply of liquid fuel to a burner, for example in a glass melting tank, is controlled by apparatus including a shutoff valve in a fuel supply line, and a sealed chamber communicating with the supply line between the shutoff valve and the burner, which chamber has a flexible wall portion which enables the volume of the chamber to be varied when the shutoff valve is operated.

3,548,873
MULTI-STAGE PRESSURE RELIEF APPARATUS

Herbert W. Kaatz, Elyria, and Fred R. Wilhelm, Avon Lake, Ohio, assignors to Airborne Mfg. Co., Elyria, Ohio, a corporation of Ohio

Filed June 17, 1968, Ser. No. 737,791
Int. Cl. F16k *17/04*
U.S. Cl. 137—612.1 **16 Claims**



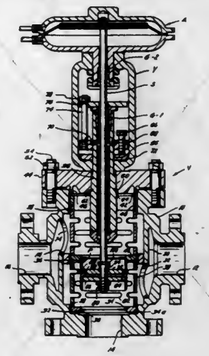
A multistage pressure controlling apparatus for selectively limiting the pressure in a pressure pneumatic system at predetermined levels. Each stage comprises a pressure relief valve having a unique set point. Self-energizing means are provided which prevent and permit functioning of selected stages of the apparatus. The stage with the the lowest set point permitted to function determines the level of system pressure. The disclosed embodiment is a two-stage apparatus adapted to selectively limit system pressure to one of two predetermined set pressures.

3,548,874
SEALING STRUCTURE

Asbury S. Parks, Houston, Tex., assignor to Dover Corporation, W. C. Norris Division, Tulsa, Okla., a corporation of Delaware

Filed Mar. 27, 1968, Ser. No. 716,644
Int. Cl. F16k *11/04*
U.S. Cl. 137—625.5 **14 Claims**

This specification discloses a sealing structure having application to sealing, such as, removable valve seats in a valve, with a metal-to-metal seal which is resiliently loaded to maintain the seal when the structure containing the seal is distorted by wide variations in temperature, pressure and mechanical stress conditions to which the seal is exposed. This abstract is neither intended to define the invention of

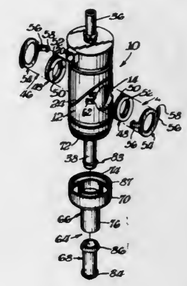


the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,548,875
VALVE CARTRIDGE

Carmen J. Lagarelli, New Castle, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware

Filed Mar. 28, 1969, Ser. No. 811,408
Int. Cl. F16k *11/00*
U.S. Cl. 137—625.17 **13 Claims**



Valve cartridge comprises valve casing with rotatable and reciprocal valve element inside casing and valve stem extending from casing. At least one inlet port in casing communicates with valve element. Improvements comprise sealing assembly at inlet port in casing and lower stem seal. Inlet sealing assembly includes washer that bears against valve element and resilient clip that retains washer against valve element. Lower stem seal includes bushing arranged to snugly receive lower end of valve stem and retainer attached to valve casing for supporting bushing relative to casing.

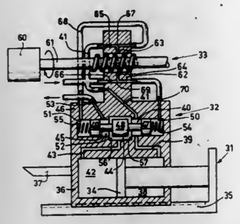
3,548,876
CONTROL ARRANGEMENT

Taco Jan Viersma, Julianalaan 26, Pijnacker, and Petrus Blok, Coymanstraat 7, Moerkapelle, Netherlands

Filed Feb. 14, 1969, Ser. No. 799,371
Claims priority, application Netherlands, Feb. 19, 1968, 6802369
Int. Cl. F15b *13/02;* **F16k** *11/07*
U.S. Cl. 137—625.62 **3 Claims**

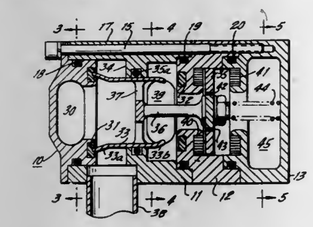
The invention relates to a control arrangement which is particularly suitable for use as a precontrol arrangement for a main control valve of a hydraulic servomotor and includes at least one duct one end of which can be connected through a flow restriction to a source of liquid of constant pressure and the other end of which is provided with at least one outlet aperture, a movable surface being arranged in front of said

outlet aperture and determining the outflow resistance dependent on its position, which surface is displaceable by a command device responding to an input signal, the pressure



in the duct section between the restriction and the outlet aperture serving as a control signal for the main control valve.

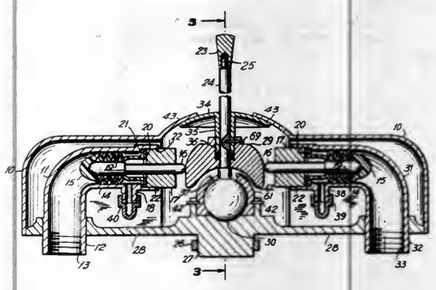
3,548,877
HIGH SPEED THREE-WAY VALVE
Hansruedi Aumayer, Suhr, Switzerland, assignor to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
Filed May 19, 1969, Ser. No. 825,563
Int. Cl. F16k *11/02, 39/00*
U.S. Cl. 137—625.65 **4 Claims**



A high speed valve is formed of a hollow, cylindrical sleeve member which moves between two spaced, coaxial sealing rings. The cylindrical valve is connected to an operating piston. A source of high pressure is connected to an annular region surrounding the cylindrical valve, and a cylinder port which is to be connected to high pressure or exhaust pressure is disposed in communication with the top of the sleeve and is isolated from the high pressure source when the sleeve is closed against the first seal. An exhaust port is disposed adjacent the second seal so that movement of the hollow, cylindrical sleeve between its upper and lower positions connects the operating cylinder alternately to either the high pressure source or the exhaust port. The sleeve is flared outwardly so that differential pressure tends to hold the sleeve against either the first or second valve seal when the sleeve reaches such a position.

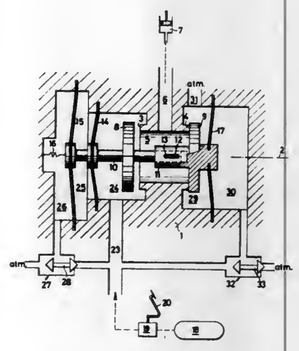
3,548,878
VALVE ASSEMBLY WITH EXPANSION PLUG
Bruno T. Brigandi, 2570 Benson Ave., Brooklyn, N.Y. 11214
Filed Apr. 1, 1969, Ser. No. 811,818
Int. Cl. F16k *11/14*
U.S. Cl. 137—636.1 **10 Claims**

An improved valve construction which utilizes a bellows type expansion plug disposed within its inlet for sealing off the outlet of the valve. The accordionlike pleats of the plug form a seal against the internal walls of the valve inlet when the plug is compressed. The plug also includes a flange along its top which when compressed into the valve housing provides both a seal against fluids escaping through the valve stem and a retaining surface for holding the expansion plug securely within the valve housing. The valve also includes a plunger which is disposed within the valve housing. The valve also includes a plunger which is disposed within the hollow chamber of the expansion plug and is capable of expanding



the bellows away from the inner walls of the inlet to permit fluid to exit from the outlet of the valve.

3,548,879
THREE-WAY VALVE
Werner Wilde, Ziegelhausen-Peterstal, Germany, assignor to Teldix GmbH, Heidelberg, Germany
Filed Nov. 12, 1968, Ser. No. 774,995
Int. Cl. E03b ; E03c ; F17d
U.S. Cl. 137—637.1 **16 Claims**

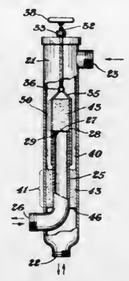


A three-way valve having two individually controllable valve elements. The valve elements each cooperate with one of two separate valve seats which are arranged on a common axis. Means are provided to maintain one of the valve elements in the closed position when the other valve element is fully opened.

3,548,880
ADJUSTABLE POROUS BED DEVICE
Melvin F. Katzer, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Original application Mar. 25, 1965, Ser. No. 442,718, now Patent No. 3,371,714, dated Mar. 5, 1968. Divided and this application Oct. 11, 1967, Ser. No. 683,753
Int. Cl. F15d *1/00*
U.S. Cl. 138—43 **2 Claims**

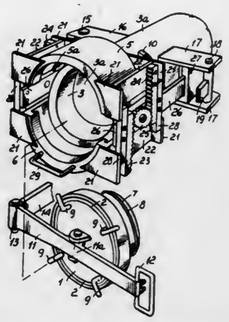
A device wherein a liquid is constrained to flow through a porous bed of particulate matter and wherein the length of such porous bed traversed by the liquid is adjustable by

means of an open-topped, movable sleeve member containing the particulate matter. The device is particularly useful



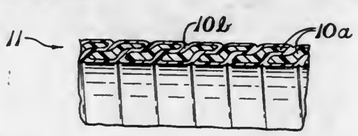
for decreasing the pressure in a flowing polymer solution with minimal degradation of the polymer.

3,548,881
SEAL CLOSURE STRUCTURE, FOR PRESSURE FLUID CONTAINERS, PARTICULARLY FOR PIPELINE TERMINALS
Amedeo Pavan, Via Caroncini 15, Milan, Italy
Filed Jan. 8, 1968, Ser. No. 696,184
Claims priority, application Italy, Jan. 12, 1967, 11407A/67
Int. Cl. F16l *55/10*
U.S. Cl. 138—89 **4 Claims**



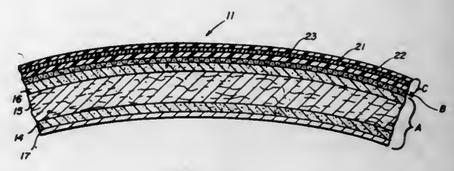
Seal closure structure, for pressure fluid containers, particularly for terminals of pressure fluid pipes such as oil pipelines and the like, comprising a lid member, gasket rings on said lid member for the sealing with the connector part of the container or pipe to which the closure structure is to be applied and radially movable half rings for clamping said lid member on said connector part, said half rings acting on peripheral facing flanges of said lid member and said connector member.

3,548,882
FLEXIBLE HOSE
William R. Rinker, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Mar. 12, 1969, Ser. No. 806,499
Int. Cl. F16l *11/04, 11/08*
U.S. Cl. 138—129 **10 Claims**



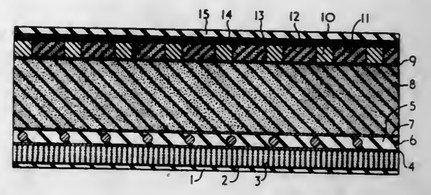
A flexible hose of generally thin wall construction of the type used for suction and open end pressure discharge, the hose being formed of a helical wrapping of a generally flat plastic ribbon having a core surrounded by a jacket with the core formed of material of greater stiffness than the jacket. The helical wrapping is such that the ribbon is disposed with the core of adjacent pitches axially overlapping.

3,548,883
SELF-SUSTAINING PAPER-TYPE LAMINAR TUBING
Felix Cohen, Denver, Colo., assignor to The Colorado Paper Products Corp., Denver, Colo., a corporation of Colorado
Filed Mar. 26, 1968, Ser. No. 716,015
Int. Cl. F16l *9/14*
U.S. Cl. 138—143 **10 Claims**



Paper-type laminar tubing formed from plurality of spirally wound strips bonded into a unitary structure including inner support composed of fibrous material and outer moistureproof pliable reinforced cover member having thermoplastic film coated on underside with tacky bituminous material to provide cohesive bond between overlapping wraps and seal inner support from exterior conditions resulting in self-sustaining structure.

3,548,884
HOSE
John Ambrose, New Waltham, Grimsby, England, assignor to The Dunlop Company Limited, London, England, a British company
Claims priority, application Great Britain, Feb. 7, 1968, 6,011/68
Int. Cl. F16l *9/16*
U.S. Cl. 138—144 **13 Claims**

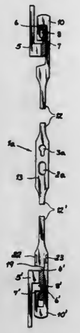


A buoyant hose for the offshore loading and discharge of oil. The hose is reinforced against expansion by an inner structure of high-tensile steel wire wound helically and coaxially, with respect to the axis of the hose, around an inner lining. A second helical and coaxial reinforcing structure of glass fibre/resin strip of greater diameter than the first reinforcing structure is also incorporated in the hose to resist any substantial charge in the volume displacement of the hose due to the effects of water pressure and crush loads. A layer of closed cell expanded rubber sponge is disposed between the two reinforcing structures.

3,548,885
HEDDLES FOR LOOM HARNESS
Curt Wagner, 161 Heppstrasse, 7411, Reutlingen-Betzingen, Germany
Filed Nov. 12, 1968, Ser. No. 775,015
Int. Cl. D03c *9/04*
U.S. Cl. 139—96 **3 Claims**

Heddles for a loom harness, conventionally provided with alternately upwardly and downwardly directed keyholes

above a centrally positioned warp eye, are formed with wedge-shaped camming edges near their lower ends to

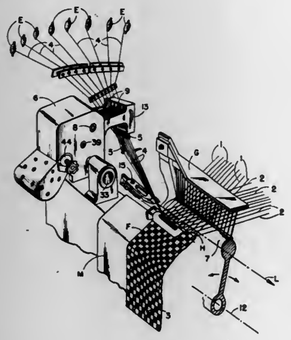


facilitate their separation by a spreading tool upon transfer to a warp-drawing machine.

3,548,886
DEVICE FOR SELECTING AND PRESENTING IN ANY ORDER DIFFERENT WEFTTHREADS IN CONTINUOUS FEED LOOMS

Vittorio Scherillo, Milan, Italy, assignor to Snam Progetti S.p.A., Milan, Italy, a company of Italy

Filed July 25, 1968, Ser. No. 747,683
Claims priority, application Italy, July 28, 1967, 18910A/67
Int. Cl. D03d *47/38*
U.S. Cl. 139—122 **10 Claims**



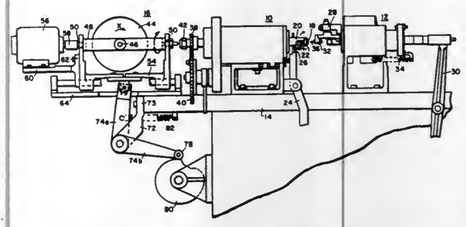
A single unit both selects the desired weft thread from a plurality of stationary weft thread supplies according to a prefixed program and presents the selected weft thread at a constant, predetermined angle of inclination with the weft thread carrier element so as to be hooked by the carrier and carried into the shed of the cloth being formed. The weft thread selector needles are vertically arranged in a row extending along the line of direction of the axis of rotation of the sley and also of the direction of movement of the weft thread carrier element. Preferably, the row of selector needles extends at a slight angle to the lines of direction of the sley rotation axis and carrier element movement. The driving mechanism is mechanically balanced and arranged so as to reduce fatigue on the biasing springs.

3,548,887
WIRE FEEDING MECHANISM

Ernest Ippisch, Belleville, and Russell T. Kleinbauer, Bloomfield,, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 18, 1968, Ser. No. 776,688
Int. Cl. B21f *3/027*
U.S. Cl. 140—71.5 **9 Claims**

A wire dispensing mechanism in combination with a coil winding machine for feeding wire in the manufacture of coiled lamp filaments in which a spool of wire is carried by a reciprocating carriage. The carriage reciprocates perpendicular to the spool axis in timed sequence with the coil winding

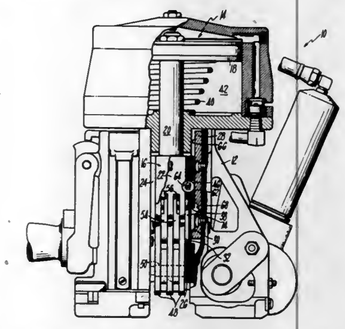


operation. The axis of the spool is further continuously rotated at a fixed speed about its midpoint in a plane perpendicular to the direction of reciprocation while also continuously rotating about its axis as the wire is pulled therefrom.

3,548,888
TOOL DRIVE TRANSFER APPARATUS

Julius Harold Bushman, Southington,, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Filed Apr. 8, 1968, Ser. No. 719,627
Int. Cl. B21f *9/02*
U.S. Cl. 140—93.2 **9 Claims**

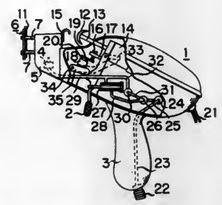


The power drive mechanism in a strapping tool incorporates a releasable interlock adapted to alternatively secure a jaw support member to the drive piston during movement between a retracted position and a work station and to the frame during the strap sealing operation of the jaws. The preferred embodiment of the interlock takes the form of a shiftable roller constantly housed by but protruding from the jaw support member.

3,548,889
APPARATUS FOR CONNECTING INSULATED WIRES

Kanichi Suzuki, Tokyo, Japan, assignor to Kabushiki Kaisha Suzuki Kosakusho, Tokyo, a corporation of Japan

Filed June 24, 1968, Ser. No. 739,308
Claims priority, application Japan, Sept. 12, 1967, 42/58,778
Int. Cl. B21f *15/04*
U.S. Cl. 140—119 **5 Claims**



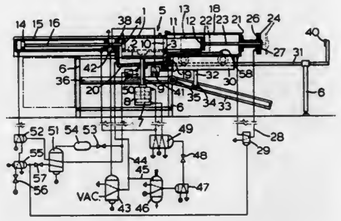
A method and apparatus for connecting insulated wires capable of ensuring an electrical connection between the

wires, wherein the ends of the insulated wires are arranged in parallel and twisted together in one direction, while the insulation is softened or burnt, until the excess portions of the connected wire ends are severed from the joint.

3,548,890
MEAT PRESSING MACHINE AND PROCESS

Hermann Josef Langen, Cuyk, Netherlands, assignor to H. J. Langen & Sons Canada Ltd., Weston, Ontario, Canada, a company

Filed Mar. 21, 1967, Ser. No. 624,928
Claims priority, application Netherlands, Mar. 21, 1966, 6603697
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—7 **4 Claims**



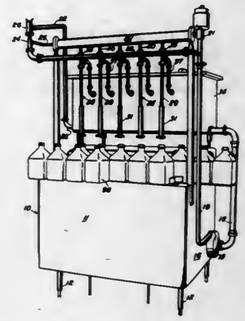
This invention relates to a process and a machine for pressing meat into a can under vacuum conditions. The meat is placed in a pressing chamber having a side opening connected with an external guide tube, on the end of which the can is placed. A vacuum chamber is moved into engagement with the pressing chamber, with which it communicates via the guide tube, and is evacuated. A support member carried by the vacuum chamber, and controlled by a piston-cylinder combination, engages the bottom of the can when the vacuum chamber is moved into engagement with the pressing chamber. Initially the meat is prepressed within the pressing chamber, and then a pressing force is applied to the meat to compress the meat into the guide tube against the bottom of the can, the support member holding the can in place to resist the pressing force. The resistance of the piston-cylinder combination supporting the support member is next reduced and a second pressing force is applied to the meat, the can being displaced from the guide tube by the second pressing force and the meat being extruded into the can. The piston of the cylinder combination is connected to the vacuum chamber by a changeover valve, which admits vacuum to the cylinder during the prepressing and first pressing operations, but which vents the cylinder to atmosphere during the final pressing operation, thus reducing the opposing force exerted by the support member. The various pressing operations on the meat are controlled in a timed sequence by a system of pneumatic valves, which system includes the changeover valve connecting the cylinder of the piston cylinder combination to the vacuum chamber.

3,548,891
METHOD AND APPARATUS FOR FILLING RECEPTACLES

Gerry G. Hull, Atlanta, Ga., assignor to Haskon, Inc., Warsaw, Ind., a corporation of Delaware

Continuation of application Ser. No. 608,874, Jan. 12, 1967, now abandoned. This application May 27, 1969, Ser. No. 828,816
Int. Cl. B65b *1/04, 3/04, 31/00;* **B67c** *3/00*
U.S. Cl. 141—7 **8 Claims**

The present invention relates to a method and apparatus for filling a flexible walled container with a liquid and includes the step of and means for introducing liquid into the container; venting the container to the atmosphere while filling; selectively sealing the container; and, adjusting the pressure exerted on the walls of the container by the liquid to

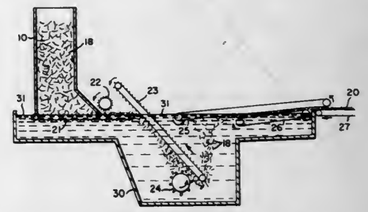


adjust the receptive volume of the container and thus the resulting volume of the liquid in the container.

3,548,892
METHOD FOR INCREASING THE STORAGE BULK-DENSITY OF CELLULAR POLYMERIC FIBERS

Edwin G. Olson, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Nov. 14, 1967, Ser. No. 682,936
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—11 **9 Claims**

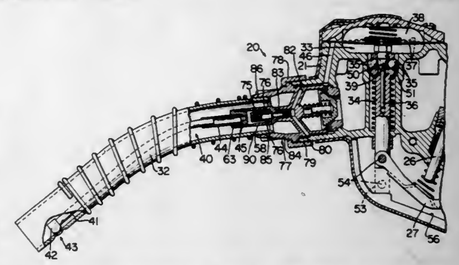


The bulk-density in storage of low-intensity staple-length cellular polymeric strands is increased by maintaining the surfaces of the strands wet with a liquid. Typically, the volume occupied by the wet strands is one-half or less than that occupied by the same strands when dry.

3,548,893
SAFETY MECHANISM FOR AUTOMATIC NOZZLE

Glenn E. Moore, Fairfield, and Chester W. Wood, Cincinnati, Ohio, assignors to Dover Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Oct. 6, 1967, Ser. No. 673,448
Int. Cl. B65b *1/30;* **B67d** *5/37*
U.S. Cl. 141—208 **9 Claims**



This disclosure relates to fluid dispensing nozzle means such as an automatic gasoline dispensing nozzle which has

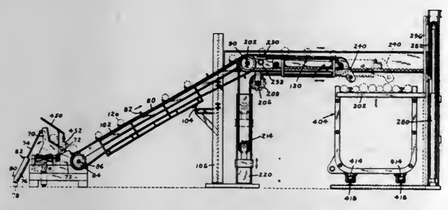
safety means incorporated therein to assure that if the dispensing nozzle is inadvertently moved or dropped from its normal dispensing position gasoline flow through such nozzle will be stopped.

3,548,894
POURING TIP WITH BREATHER FIN
Frances B. Hall, R.D. 3, Canfield, Ohio 44406
Filed Sept. 24, 1968, Ser. No. 762,104
Int. Cl. B65b *39/00*
U.S. Cl. 141—297 3 Claims



A pouring tip for application to tubular members through which liquid is poured and taking the form of a frustoconical shape having a longitudinal fin extending outwardly along one side thereof whereby registry of the pouring tip in an orifice results in a breather passage alongside the fin to prevent air blockage of the orifice.

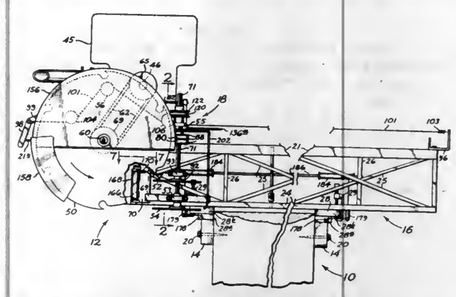
3,548,895
APPARATUS FOR BUNDLING PULPWOOD
Curtis A. Gentry, Jr., Okalossa, Fla., assignor to International Paper Company, New York, N.Y., a corporation of New York
Filed Dec. 13, 1967, Ser. No. 690,207
Int. Cl. B65g *57/11*
U.S. Cl. 143—46 7 Claims



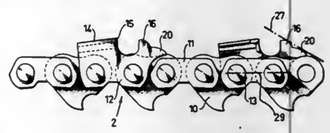
Apparatus for stacking cut tree sections that includes a conveyor for moving a tree length, delimbed tree in an axial path, saws for cutting the tree into sections, a second conveyor substantially transverse to said axial path, a transfer cradle and actuating means for transferring cut sections from the first to the second conveyor, a shuttle car at the end of the second conveyor for receiving cut sections and for discharging and stacking the cut sections substantially side-by-side and in horizontal rows, one on the other, cradle means for receiving the stack and arms on the cradle for receiving and lowering the stacked sections in the cradle.

3,548,896
DIMENSIONAL CUTTING SAW APPARATUS
Richard C. Larsen, 2171 S.E. 130th Ave., Portland, Oreg., and Jim May, 12110 S.E. Pine St., Portland, Oreg.
Continuation of application Ser. No. 304,753, Aug. 27, 1963, now abandoned. This application Mar. 30, 1967, Ser. No. 662,216
Int. Cl. B27b *5/18, 5/00*
U.S. Cl. 143—47 9 Claims

A portable saw apparatus comprising a main frame having rails on its upper side. A carriage is supported on the rails for longitudinal forward and reverse movement on the main frame and has a frame or platform portion projecting beyond one side of the main frame. The carriage supports a horizontal saw and a vertical saw both having cutting edges in adjacent relationship to cut strips from a log disposed in a stationary position. A stop arm is provided on the main frame for engagement with a vertical cut portion of the log to set the main frame for a selected cut thickness. An ejector is supported on the carriage for returning cut strips with the carriage.

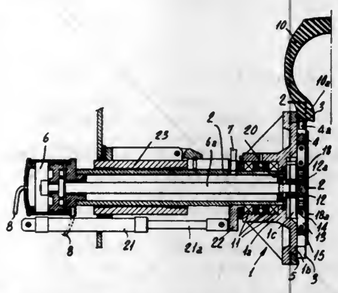


3,548,897
SAW CHAIN
Anders Lennart Ekrud, Sandviken, Sweden, assignor to Sandvikens Jernverks Aktiebolag, Sandviken, Sweden
Filed Mar. 6, 1969, Ser. No. 804,754
Claims priority, application Sweden, Apr. 2, 1968, 4344/68
Int. Cl. B27b *33/14*
U.S. Cl. 143—135 11 Claims



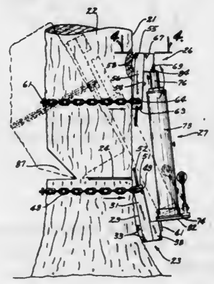
A saw chain is disclosed which has side links and center links. Alternate side links have cutters on opposite sides of the chain. Each of the cutter links has a forwardly directed deflector or projection which gives the chain a safety characteristic, and the chain is free of the objectionable characteristics of other types of safety saw chains. The deflectors or projections also aid in maintaining smooth operation, and they prevent unbalanced and excessive wear on the cutter links.

3,548,898
CHUCK FOR CLAMPING AND INFLATING A TUBELESS TYRE ON A RASPING OR ROLLING MACHINE
Vincenzo Napolitano, Via delle Rose, Inzago, Milan, Italy
Filed Apr. 3, 1969, Ser. No. 813,093
Claims priority, application Italy, Apr. 10, 1968, 15,062/A68
Int. Cl. B29h *21/00*
U.S. Cl. 144—288 3 Claims



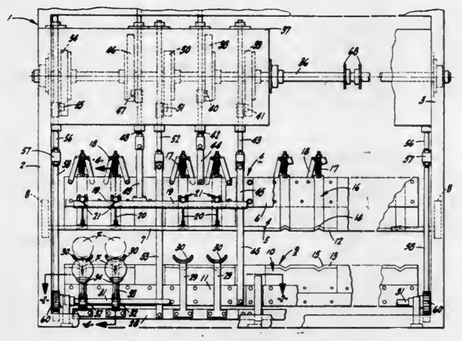
A chuck for clamping and inflating a tubeless tyre on a rasping or rolling machine, comprising a hollow central body member rotating about a hollow supporting rod, a plurality of interchangeable segmental elements for radially sliding relative to said central body member and clamping on the tyre, a control unit for causing a simultaneous radial sliding for all of said segmental elements, the chuck also comprising a plurality of channels for the passage of compressed air designed to inflate said tyre.

3,548,899
TREE FELLING DEVICE
Cristopher P. Emerson, Lamoni, Iowa 50650
Filed June 6, 1968, Ser. No. 735,081
Int. Cl. A01g *23/08*
U.S. Cl. 144—309 3 Claims



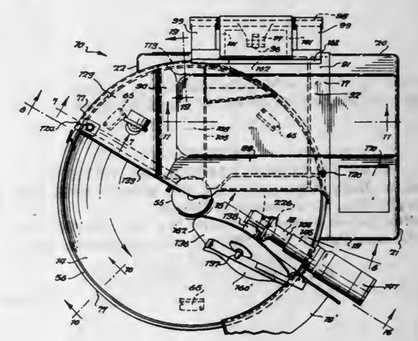
This invention relates to a tree felling device and process for controlling the direction of fall of a tree, the device comprising a pair of thrust blocks secured to the side of a tree opposite the desired direction of fall, one thrust block being secured below the line of severance, the second thrust block being secured above the line of severance and a hydraulic jack interconnecting the blocks, the jack expandable longitudinally in a direction substantially parallel to the side of the tree to tip the tree toward the desired direction of fall.

3,548,900
FREESTONE PEACH PITTING AND HALVING MACHINE
Norman E. Gaddini, Winters, Calif. (1060 Jonive Road, Sebastopol, Calif. 95472)
Filed Sept. 13, 1968, Ser. No. 759,680
Int. Cl. A23n *3/08*
U.S. Cl. 146—28 17 Claims



A machine, for pitting and halving soft-fleshed, freestone fruit (such as freestone peaches), which comprises—in cooperative association with a rotary loader and in cyclically operative array—a swinging cup assembly arranged to support individual fruit, received from the loader, in a predetermined position between initially separated blade units which then close and cut the fruit all about the pit and into fruit halves, there being retention means which—upon such cutting of the fruit and accompanying swinging away of the cup assembly—lock the pit against motion in a certain direction, and pushers thence operative to simultaneously engage and push the cut fruit halves in such direction and relative to the locked-in-place pit so that such pit then acts as an internal wedge which causes the cut fruit halves to effectively separate from the pit as such halves are moved by said pushers.

3,548,901
MEAT CUTTING MACHINE
Harold E. Schaller, East Aurora, N.Y., assignor to John E. Smith's Sons Co., Div. of Hobam, Inc., Buffalo, N.Y., a corporation of New York
Filed July 7, 1967, Ser. No. 651,922
Int. Cl. B02c *18/12, 18/22*
U.S. Cl. 146—67 6 Claims

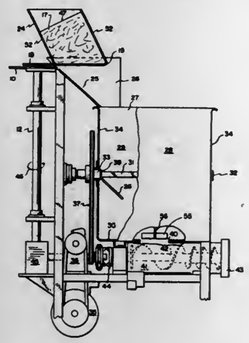


A meat cutting machine including a rotatable annular bowl driven by a variable speed hydraulic motor and a knife assembly in said bowl driven by an electric motor at predetermined selected speeds and an hydraulic system for operating accessories on the meat cutter including a cover for the knife, an unloader and lifts or loaders for dumping meat into the bowl, the bowl forming a labyrinth seal at its outer edge with a bowl ring portion of the housing to prevent meat, which can provide a focal point for contamination, from entering underneath the bowl, and the bowl being centrally suspended by a shaft which drives said bowl, and electrical circuit means for the machine which selectively permit either manual or automatic programmed operation of the machine.

3,548,902
APPARATUS FOR PRODUCING MIXED SUBDIVIDED FOOD MATERIAL
James A. Holly, Olympia, Ill., assignor to Hollymatic Corporation, a corporation of Illinois
Filed Jan. 6, 1969, Ser. No. 789,141
Int. Cl. B26d *4/28, 4/44*
U.S. Cl. 146—79 11 Claims

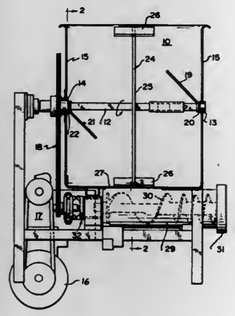
An apparatus for providing a mixed mass of subdivided food material such as meat, fish and the like from a source of such material including a block such as of frozen meat in which the apparatus comprises a mixing chamber for retaining a supply of the subdivided material for mixing thereof, a mixing device in this chamber comprising a rotatable mixing blade movable through the subdivided material therein for thorough mixing, a guide preferably in the form of a chute for directing subdivided material from the block into the chamber for mixing, a movable support member intercepting the guide during movement of the support member for retaining it in the guide while the block is being subdivided as the first step in the mixing operation in which the support member comprises means on which the block rests, a movable subdivider spaced above the support member of a length

to move through the block on movement of the food material from the block and a passage through the support member



for passing of the subdivided successive portions from the block into the chamber by way of the guide means.

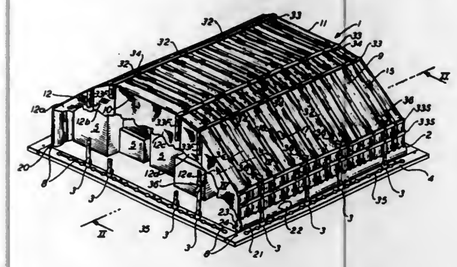
3,548,903
SUBDIVIDED MEAT MIXER AND METHOD
James A. Holly, Olympia Fields, Ill., assignor to Hollymatic Corporation, a corporation of Illinois
Continuation-in-part of application Ser. No. 689,066, Dec. 8, 1967, now Patent No. 3,506,019. This application July 3, 1968, Ser. No. 742,329
Int. Cl. B02c *18/00*; **B01f** *7/04*
U.S. Cl. 146—182 **10 Claims**



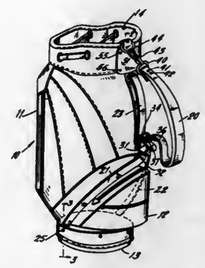
An apparatus and method for mixing subdivided meat that includes a mixing chamber and rotatable blade means laterally and angularly spaced about a rotatable shaft with the blades being angled so as to fold the meat over and over, preferably at a plurality of spaced levels, and to urge the meat alternately back and forth, all during rotation of the shaft means. The chamber includes an exit opening with means for moving the meat while mixing is going on through the opening preferably into a selectively driven grinder communicating therewith.

3,548,904
INFLATABLE CARGO BLANKET
Bernard B. Mackell, West Islip, N.Y., assignor to Davis Aircraft Products Company, Inc., Northport, N.Y., a corporation of New York
Filed Mar. 28, 1969, Ser. No. 811,534
Int. Cl. E04 *1/345*
U.S. Cl. 150—.5 **11 Claims**

A cargo blanket for covering and securing cargo to a support, said blanket including fluid impervious compartment members capable of being inflated to form the blanket into a structure having a shape defining the outline of the interior of an aircraft, or other cargo container, whereby, the blanket, in addition to its covering and securing functions, is capable of defining the bounds within which the support can be loaded.

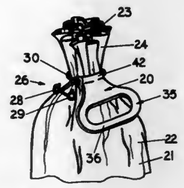


3,548,905
CARRYING HANDLE FOR GOLF BAG
Howard J. Renshaw, Yardley, Pa., assignor to Atlantic Products Corporation, Trenton, N.J., a corporation of Delaware
Filed May 31, 1968, Ser. No. 733,397
Int. Cl. A63b *55/00*
U.S. Cl. 150—1.5 **5 Claims**



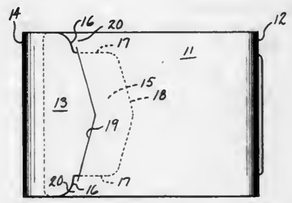
A carrying handle for a golf bag is incorporated into the carrying sling structure, and is formed of a taut strap held relatively close to the golf bag body, the strap having one end connected to the upper cuff of the golf bag, and its bottom end connected to a portion of the carrying sling harness.

3,548,906
COMBINED WIRE BAG TIE AND HANDLE
Dana L. Murphy, Nashua Road, East Pepperell, Mass. 01437
Filed Dec. 30, 1968, Ser. No. 787,791
Int. Cl. A45c *13/26*; **B65d** *33/06*
U.S. Cl. 150—12 **9 Claims**



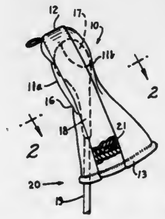
A container such as a potato bag, of the type normally closed by bunching the neck and twisting a wire tie into a loop around the neck is provided with a handgrip attached to the looped tie. The closed bag may thus be lifted by the handgrip rather than by the bunched neck. The pull on the handle snubs the wire tie into a firmer grip on the neck of the bag.

3,548,907
PASS CASE CLOSURES
Carl F. Boldt, West Bend, Wis., assignor to Enger Kress Company, West Bend, Wis., a corporation of Wisconsin
Filed Oct. 15, 1968, Ser. No. 767,784
Int. Cl. A45c *11/18*
U.S. Cl. 150—39 **1 Claim**



A self-adjusting pass case having a rear panel with a flap and having a front panel foldable into superimposed position on the rear panel, there being pass holders in leaf form attached to the case at the fold, the flap of the rear panel having a wide tongue extension which is insertable through a relatively long slit in the front panel to a position where it is engaged by the contents when the case is closed, said engagement pressurably maintaining the tongue against the inner side of the front panel in any adjusted position depending upon the condition of expansion of the case.

3,548,908
GOLF CLUB HEAD COVERS
John C. Koetting, 3703 Colquitt, Houston, Tex. 77027
Filed Aug. 19, 1968, Ser. No. 753,561
Int. Cl. A63b *57/00*
U.S. Cl. 150—52 **5 Claims**



The invention comprises a golf club head cover with two stable, nonextensible parts, as of fabric, separated by an elastic material part which extends from open skirt end upwardly around and oppositely back to skirt end. Alternately, the two parts may be hingedly joined at top and the elastic material thus divided into two parallel extending parts. The lower elastic is easily stretched to let the golf club head enter and then the upper elastic is easily stretched as the cover is pulled downwardly over the club head, the lower elastic contracting about the hosel and club shaft.

3,548,909
SWIVEL HOOK
Benjamin Sander, No. 2 Price Meadows, Olivette, Mo. 63132
Filed Nov. 15, 1968, Ser. No. 776,121
Int. Cl. B60c *27/00*
U.S. Cl. 152—241 **4 Claims**

A swivel hook for connecting cross chains and side chains of a tire chain having an enlarged head, a shank extending from said head and having a hook portion; one leg of said hook being provided with a detent resiliently biased toward the other leg for creating a restricted passage therebetween of less transverse extent than the cross section of the stock of



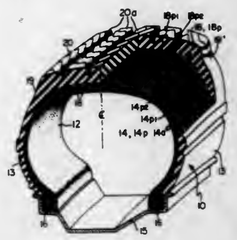
which the links of the cross chains are made so as to prevent accidental disengagement of the same from said hook after being received therein, subsequent to detent-depressing travel through said passage.

3,548,910
TIRE HAVING PLIES OF DIFFERENT COMPOSITIONS
Lawrence R. Sperberg, 6740 Fiesta Drive, El Paso, Tex. 79912
Filed July 9, 1968, Ser. No. 743,378
Int. Cl. B60c *9/10*, *9/20*
U.S. Cl. 152—359 **4 Claims**



A biased constructed tire which utilizes the high impact energy moisture resistant cord material polyester or polyethylene in the outer ply and the low growth, heat resistant material rayon in the inner ply.

3,548,911
BELT FOR BIAS-BELTED TIRE
Grover W. Rye and Paul E. Helms, Jr., Cuyahoga Falls, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Dec. 31, 1968, Ser. No. 789,048
Int. Cl. B10c *1/00*
U.S. Cl. 152—359 **25 Claims**

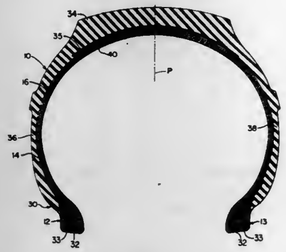


A bias-belted tire having specified tire belt cord physical characteristics of minimum, preferred and/or maximum belt weights, especially when used in a bias-belted tire with fiber glass belt cords, polyester carcass cords, and specified cord angles and relationships.

3,548,912
REDUCED NOISE LEVEL TIRE

Grover W. Rye, Cuyahoga Falls, and Michael F. Dague, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed May 23, 1968, Ser. No. 731,379
Int. Cl. B60c 9/10
U.S. Cl. 152—362 13 Claims

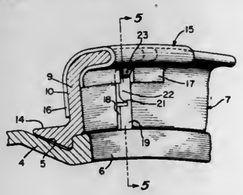


A pneumatic tire having notably improved capability for inhibiting noise and vibration transfer between the tire and a vehicle wheel on which the tire is mounted comprises successive contiguous layers of cord fabric materials, particularly between the bead cores and the bead portion surfaces engaging a wheel. Cord material in one of the layers, which includes the carcass reinforcing ply or plies, differs from the cord material of the next adjacent ply in energy absorption characteristics as represented by sound transmissibility, or hysteresis loss.

3,548,913
CLIP FOR WHEEL RIM

Gerhart L. Gerbeth, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed July 25, 1968, Ser. No. 747,686
Int. Cl. B60b 25/06, 25/22
U.S. Cl. 152—406 1 Claim



A clip for covering the ends of a split side ring on a wheel rim assembly. The clip is made of a single piece of metal bent to conform substantially in cross section to the cross-sectional contour on the side ring on which it is placed. The clip fits over the side ring in the area of the split and covers the ends of the ring in such manner that they do not chafe the tire bead. The clip has a plurality of bent tabs which prevent the clip from moving circumferentially on the side ring and a plurality of bent prongs which engage the tire bead and prevent the clip from moving radially outwardly on the side ring.

3,548,914
SOLUBLE CORE FABRICATION

Harold T. Hill; Henry G. Parker, and Anthony C. Mitchelmore, Lymington, England, assignors to Wellworthy Limited, Lymington, England, a British Company

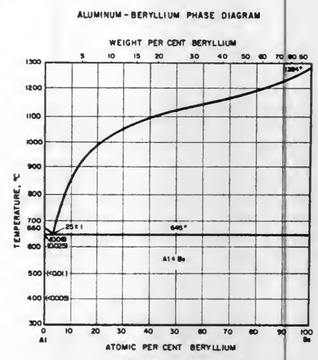
No Drawing. Filed May 29, 1967, Ser. No. 642,216
Claims priority, application Great Britain, June 6, 1966, 25,169
Int. Cl. B22c 1/18
U.S. Cl. 164—41 10 Claims

The present invention relates to soluble cores for use in the art of casting metals and provides a method of making a soluble core comprising a mixture of sodium chloride and sodium silicate, or sodium sulfate and sodium silicate, wherein said mixture is blown or rammed into a core box, whereafter the sodium silicate is gelled to strengthen the core for handling, and the core is further hardened by baking for a period of time.

3,548,915
NEW PROCEDURE FOR CHILL CASTING BERYLLIUM COMPOSITE

William J. Richmond, Reading, Leonard B. Griffiths, North Reading, and Vernon C. Potter, West Concord, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware

Continuation-in-part of application Ser. No. 793,398, Jan. 23, 1969. This application June 11, 1969, Ser. No. 832,439
832,439
Int. Cl. B22d 21/02
U.S. Cl. 164—68 15 Claims



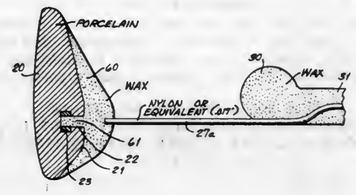
A process for casting aluminum-beryllium alloys comprising, charging a crucible with an aluminum base alloy placed at the bottom of a crucible, placing thereon a charge of beryllium in which the beryllium is in discrete chunks, lumps or particles, evacuating the furnace chamber for example to remove oxygen and other impurities from the atmosphere, raising the temperature of the charge sufficient to melt the aluminum but insufficient to melt the beryllium, maintaining the aluminum molten for a time sufficient to effect substantially degassing of the aluminum, changing the vacuum to an atmosphere of inert gas at a pressure below atmospheric, raising the temperature of the charge sufficient to melt the beryllium for the particular Be-A1 alloy composition being cast, and rapidly transferring the charge at a temperature at least approximately as low as the liquidus temperature into a mold and rapidly cooling said charge.

3,548,916
METHOD OF CASTING A DENTAL GOLD ALLOY DIRECTLY TO PREFABRICATED PORCELAIN TEETH

Emil M. Prosen, Bala-Cynwyd, Pa., assignor to Nobilium Products, Inc., Philadelphia, Pa., a corporation of Pennsylvania

Filed Nov. 7, 1968, Ser. No. 774,100
Int. Cl. B22d 19/00; B22c 9/04
U.S. Cl. 164—91 10 Claims

A method of casting a low melting point dental gold alloy having a melting point of about 1400° F. directly to prefabricated porcelain teeth, each tooth having an aperture in its lingual face and preferably a platinum ring embedded in the porcelain at the base of the aperture. The method comprises the steps of preparing a wax-up of a dental retention member or restoration, including one or more such prefabricated porcelain teeth, spruing the same with an eliminatable filament of relatively small diameter at the wax retention member for each tooth adjacent the lingual face aperture which is of relatively large diameter, and connecting such eliminatable filaments radially to an arcuate wax metal

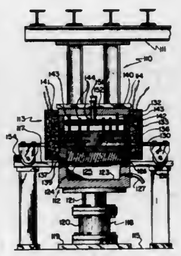


reservoir member—suitably investing the wax-up, eliminating the wax retention member, filaments, etc., by the lost wax process, and centrifugally casting a finished dental retention member or restoration including such prefabricated teeth, in the mold formed thereby.

3,548,917
MOLD MANUFACTURING APPARATUS

Herbert Greenewald, Jr., Columbus, Ohio, assignor to North American Rockwell Corporation

Original application Jan. 11, 1968, Ser. No. 703,206, now pending. Divided and this application Mar. 25, 1968, Ser. No. 715,785
Int. Cl. B22c 15/08
U.S. Cl. 164—170 1 Claim



Apparatus for manufacturing mold elements for metal casting wherein a mold composition consisting of refractory in powder form and thermosetting resin may be advantageously formed to shape in a closed cavity by the steps of mass compaction above a minimum pressure level and concurrent resin-curing at an elevated temperature. The apparatus utilizes an inverted die with a heated cavity and pressurized diaphragm means positioned below the cavity for injecting the composition into the die and simultaneously initiating mass compaction with resin curing.

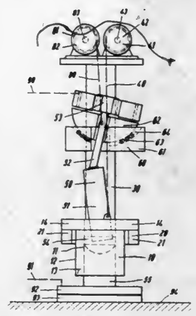
3,548,918
ELECTRODE SUSPENSION MEANS

Otmar Kleinhagauer, Wolfgang Hladny, and Peter Cerwenka, Kapfenberg, Austria, assignors to Gebr. Bohler & Co., Kapfenberg, Austria, a corporation

Filed Dec. 26, 1968, Ser. No. 786,957
Claims priority, application Austria, Dec. 27, 1967, A11663/67
Int. Cl. B22d 27/02
U.S. Cl. 164—252 6 Claims

An installation for electrically remelting a metal electrode, in particular an electrode made of steel.

The installation comprises an electrode and an electrode shaft which are rigidly connected to each other such as, for example, by welding. Means are provided for supporting the

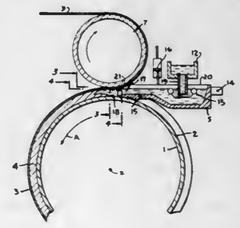


electrode in a holder in pendulumlike fashion in a supporting installation, so that each electrode assumes a vertical position which corresponds substantially to the longitudinal axis of the mold.

3,548,919
CONTINUOUS CASTING

Ivan Gyongyos, Rikon/Tosstal, Switzerland, and Helmut Kotthaus, Singen am Hohentwiel, Germany, assignors to Swiss Aluminium Ltd., Chippis, Switzerland, a corporation of Switzerland

Original application Apr. 13, 1965, Ser. No. 447,651, now Patent No. 3,428,111, dated Feb. 18, 1969. Divided and this application Dec. 3, 1968, Ser. No. 780,706
Int. Cl. B22d 11/06
U.S. Cl. 164—278 9 Claims



A continuous casting machine of the grooved rotary wheel mold type has a tundish that feeds molten metal in one direction into the mold and has spout that fits for sealing the walls of the mold.

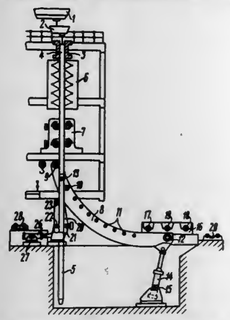
3,548,920
APPARATUS FOR DELIVERING INGOTS FROM A VERTICAL TYPE CONTINUOUS CASTING INSTALLATION

Alexandr Isaakovich Torban, Prospekt Mira, 188, Korpus 4, Kv. 46; Alexandr Stepanovich Kaushansky, Verkhnaya Maslovka 72, kv. 128; Vladimir Alexandrovich Butkevich, Lomonosky Prospekt, 23, kv. 324, and Alexey Nikolaevich Grigoriev, Prospekt Mira, 188, Korpus 3, kv. 224, Moscow, U.S.S.R.

Filed Nov. 24, 1967, Ser. No. 685,504
Claims priority, application U.S.S.R., Nov. 23, 1966, 111,984
Int. Cl. L22d 11/08
U.S. Cl. 164—282 3 Claims

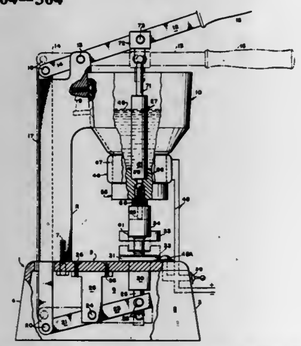
A curved guide for the removal of an ingot from a casting

plant is provided with a dummy bar and two rests for binding the ingot and separating the dummy bar. Also provided are



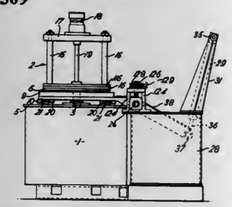
supporting and pressure rollers. The guide is pivotable in a vertical plane.

3,548,921
APPARATUS FOR MOLDING AN ARBOR TO A LENS
George H. Butterfield, 1220 SW. Stark St., Portland, Oreg. 97205
Filed Oct. 17, 1968, Ser. No. 768,292
Int. Cl. B22d *17/04*
U.S. Cl. 164—304 4 Claims



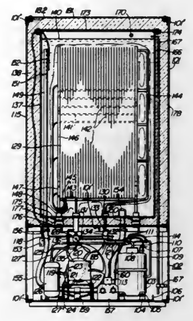
An apparatus for molding an arbor to a lens for machining and/or finishing the lens in final form. The apparatus is manually operable but functionally automatic in feeding a metered amount of arbor molding material in a fluid state into a mold in secure but removable engagement with either surface of the lens. The finished arbor is of solid formation and secured to the lens in axial alignment with the center of the lens.

3,548,922
METAL-CASTING APPARATUS
Jon Erik Marius Carlsen, c/o Llandowlais Works, Oakfield Road, Cwmbran, Monmouthshire, Great Britain
Filed July 3, 1967, Ser. No. 650,846
Claims priority, application Great Britain, Mar. 16, 1967, 12,420/67
Int. Cl. B22d *17/02*
U.S. Cl. 164—309 12 Claims



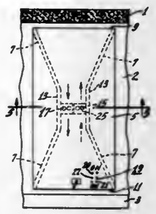
A metal-casting apparatus for low pressure die casting having a die-carrying structure pivotally supported for movement to and from an open mouth presented, by a metal-carrying duct, at the top of the furnace, the vertical position of the pivot axis of the die-carrying structure being adjustable.

3,548,923
COOLING AND HEATING APPARATUS OF HEAT STORAGE TYPE
Kazuhiro Nakano, Neyagawa-shi, Kouichiro Yamaguchi, Osaka, Kunihiko Utsunomiya, Kadoma-shi, and Shigeru Tanimoto, Nara-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Dec. 6, 1968, Ser. No. 781,856
Claims priority, application Japan, Dec. 11, 1967, June 11, 1968, June 12, 1968, 42/80517;43/40693;43/50339
Int. Cl. F24d *11/00*
U.S. Cl. 165—18 12 Claims



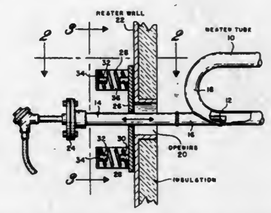
A cooling and heating apparatus of the heat storage type which is so designed that an off-peak time is utilized to store the cooling and heating energy thereby to effect the cooling and heating as required. In the apparatus, a refrigerating machine, a heater and a heat storage vessel containing a heat-storing agent are assembled as a unit so that the heat-storing agent is cooled by the refrigerating machine during the cooling for storing the cooling energy in the form of latent heat and is heated by the heater during the heating for storing the heating energy in the form of sensible heat.

3,548,924
PANEL ARRANGEMENTS
Conrad O. Gardner, Hopewell, N.J. (1329 NW 200th St. Seattle, Wash. 98177)
Filed Feb. 19, 1968, Ser. No. 706,458
Int. Cl. F24h *9/04*
U.S. Cl. 165—55 1 Claim



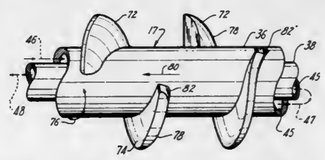
A room air circulator which may comprise a panel spaced from a wall forms a duct or air channel through which air is passed or circulated upward or downward in warm weather or cool weather respectively by electrically powered air moving means such as a reversible fan or blower positioned in the duct formed between wall and panel, thereby providing for less stratification of room air, viz. providing for relatively uniform temperature uniformity from ceiling to floor.

3,548,925
THERMAL CRACKING HEATER
Wilson J. Weber, Jr., Groves, and James L. Terry, Nederland, Tex., by Lola Irene Terry, executrix of said James L. Terry, deceased, assignors to Jefferson Chemical Company Inc., Houston, Tex., a corporation of Delaware
Continuation of application Ser. No. 654,524, July 19, 1967. This application June 6, 1969, Ser. No. 831,282
Int. Cl. F28d *1/06*
U.S. Cl. 165—74 3 Claims



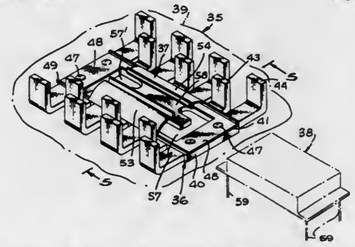
In thermal cracking heaters having a plurality of tubes a thermowell housing attached to the tubes protrudes through the heater wall. The annular opening surrounding the housing is covered by a plate oriented about the housing and held in slidable contact with the heater wall such that the thermowell may move in response to heat changes and the opening remain effectively closed.

3,548,926
SCREW TYPE MATERIAL PROCESSOR
William E. Archer, Balboa Yacht Club, P.O. Box 552, Fort Amador, Canal Zone
Filed May 10, 1968, Ser. No. 728,225
Int. Cl. F28f *5/06*
U.S. Cl. 165—87 10 Claims



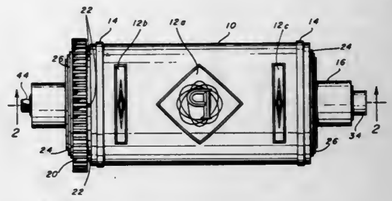
A material processor for heating or cooling and mixing flowable material while conveying such material by means of a hollow-flight screw conveyor wherein the helical flights of the conveyor screw are made up of discrete segments of approximately 360° each.

3,548,927
HEAT DISSIPATING RETAINER FOR ELECTRONIC COMPONENT
John E. Spurling, Encino, Calif., assignor to International Electronic Research Company, Burbank, Calif., a corporation of California
Filed Nov. 29, 1968, Ser. No. 780,157
Int. Cl. H01l *1/12*
U.S. Cl. 165—80 6 Claims



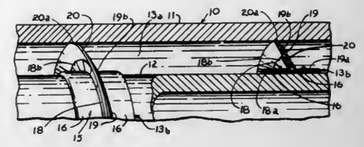
An assembly consisting of a resilient clip attached to a heat dissipating member in a relatively central location surrounded by heat dissipating elements, the clip having one or more spring elements bearing downwardly toward a central component retaining area, the spring clip being shaped in such a fashion that an electronic component can be slid under it and there pressed by the spring clip in a direction toward the retaining area of the heat dissipating member and also the area at which the heat dissipating member is mounted upon an appropriate chassis or heat sink.

3,548,928
HEAT TRANSFER DEVICE
Martin Kesten, West Hartford, Conn., assignor to Preston Engravers Inc., Windsor, Conn., a corporation of Connecticut
Filed Mar. 6, 1969, Ser. No. 804,961
Int. Cl. F28d *11/02*
U.S. Cl. 165—89 6 Claims



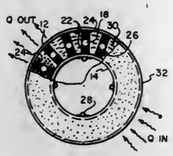
A heat-transfer device comprises a temperature-controlled support member and a transfer member movably supported in spaced relationship thereupon. Bearing members are interposed therebetween to facilitate movement of the transfer member and to conduct heat between it and limited areas of the support member.

3,548,929
HEAT-TRANSFER APPARATUS
Frank R. Gross, 3926 Woodthrush Road, Akron, Ohio 44313
Continuation-in-part of application Ser. No. 710,908, Mar. 6, 1968, now abandoned. This application Oct. 3, 1969, Ser. No. 869,441
Int. Cl. F28f *7/00*
U.S. Cl. 165—89 14 Claims



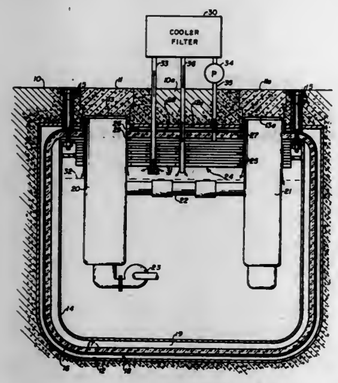
Heat exchange means as for processing rolls of the type including concentric outer and inner cylindrical shells defining therebetween an annular space for passage of flowable heat exchanging medium. Continuous partition strip or insert spirally arranged in annular space between shells is of composite structure permitting use of selectively variable materials to withstand chemical and thermal action by certain heat transfer fluids tending to erode, corrode, decompose, or otherwise destroy partitions or parts thereof made of rubber-like, elastic plastic materials heretofore used for this purpose.

3,548,930
ISOTHERMAL COVER WITH THERMAL RESERVOIRS
Ambrose W. Byrd, Huntsville, Ala.
Filed July 30, 1969, Ser. No. 845,974
Int. Cl. F28d *15/00*
U.S. Cl. 165—105 11 Claims



An isothermal cover for a spacecraft. The device is a double-walled cylinder enclosing a number of containers of fusible material, mounted on struts inside the walls of the cylinder, for use as heat reservoirs. The inside surfaces of the cylinder and the outside surfaces of the containers and struts are covered with a wicking material. The struts may also be fabricated solely of the wicking material. The cavity of the double-walled cylinder also contains a heat transfer fluid. The device functions as a heat pipe in transferring heat from its sunlit to its other (dark) side. The heat reservoirs store heat when the device is in sunlight and return the heat to the system when the device is in darkness. Electrical heaters also furnish heat to the system if needed to keep the system at constant temperature.

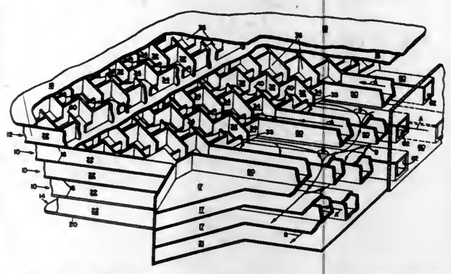
3,548,931
VESSEL FOR A SODIUM-COOLED REACTOR
John H. Germer, and Charles E. Boardman, San Jose, Calif. assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 30, 1968, Ser. No. 771,796
Int. Cl. F28d *15/00*
U.S. Cl. 165—107 10 Claims



A vessel construction or arrangement for a sodium-cooled nuclear reactor which includes a sealing arrangement permitting leakage between the inert cover gas of a hot sodium tank and an insulated outer vessel; and a system for circulating and cooling the inert gas to prevent migration of sodium vapor to the cold surfaces of the outer vessel.

3,548,932
HEAT EXCHANGER
Milton Menkus, 22 Maplewood Terrace, Springfield, Mass.
Continuation-in-part of application Ser. No. 612,927,, Jan. 31, 1967, now Patent No. 3,470,950, dated Oct. 7, 1969. This application July 8, 1969, Ser. No. 842,079
Int. Cl. F28b *3/02*
U.S. Cl. 165—165 2 Claims

A heat exchanger for imparting the heat of one fluid to another fluid without commingling of the fluids by the passage of the separate fluids through separate sinuous passages within a common structure comprising a stack of labyrinth-type heat transfer cellular elements, each element including a plurality of spaced, crisscrossed barriers disposed to define a multiplicity of coplanar chambers arranged in checkerboard fashion with portions of certain of the barriers



removed for defining ports and permitting intercommunication between certain chambers and along separate tortuous flow courses between series of adjacent interconnecting chambers, and headering means at each end of the stack accommodating to mutually perpendicular inlet flows of certain of the flow courses and outlet flows of certain other of the flow courses.

3,548,933
PLATE HEAT EXCHANGERS
Kenneth Lindsay Bain, Sevenoaks, England, assignor to Parkson Industrial Equipment Company Limited
Filed Nov. 15, 1968, Ser. No. 776,217
Claims priority, application Great Britain, Nov. 17, 1967, 52386/67
Int. Cl. F28b *3/00*
U.S. Cl. 165—167 11 Claims

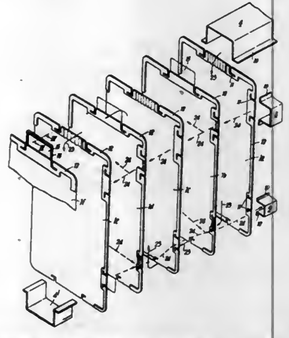
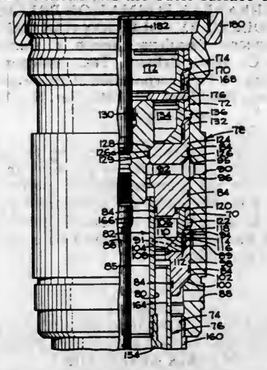


Plate heat exchangers are proposed, which are essentially based upon the use of portless heat exchange plates. The inlet and outlet connections are provided by ducts, preferably of channellike shape, which are slotted into or otherwise applied to the edges of the plates, the sealing means between the plates underneath these ducts being omitted at selected locations to provide passageways into and out from the spaces between adjacent plates.

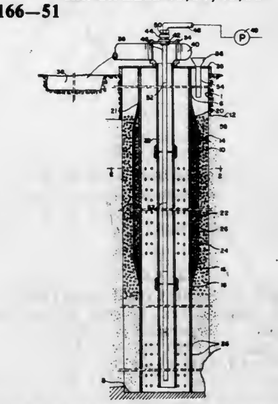
3,548,934
UNDERWATER WELL COMPLETION SYSTEM
Carl R. Hutchison, Houston, Tex., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Continuation of application Ser. No. 592,864, Nov. 8, 1966 now abandoned. This application Dec. 26, 1968, Ser. No. 789,651
Int. Cl. E21b *33/035*
U.S. Cl. 166—.5 19 Claims

An underwater wellhead completion apparatus in which a plurality of well casing extensions extend, having a plurality of remotely controllable tubular packoffs between the inner surface of the wellhead and the outer surface of each casing



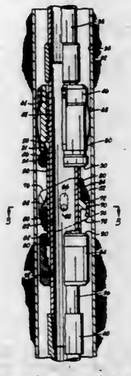
extension. A tubular production string is landed in one of the packoffs and a Christmas tree for controlling the flow in the production string is mounted on the wellhead.

3,548,935
APPARATUS FOR DEVELOPMENT AND COMPLETION OF WELLS
Acie Darrel Harkins, 420 Schley St., Hereford, Tex. 79045
Filed Oct. 10, 1968, Ser. No. 766,485
Int. Cl. E21b *43/04, 43/08*
U.S. Cl. 166—51 3 Claims



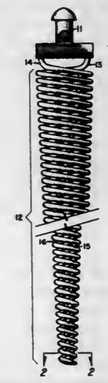
A method of developing and completing wells in a fluid-bearing strata, which strata contains fine micrograin or silt-like sands, clay and mud whereby the strata may be treated with chemicals at various levels, and then the siltlike sand, clay and mud is jetted from the bottom of the well until the fluid is clear and a filter bed of "frac sand" is interposed between the strata and the bore of the well, so that the siltlike sand, clay and mud will be prevented from reaching the education tube of the pump. Provision is made for a self-contained filter of "frac sand" through which the water flows within a jacket which surrounds the casing to additionally filter and cleanse the water of siltlike sand. Further provision is made to agitate the siltlike sand, clay, mud and foreign matter in the well, while a development pump pumps the siltlike sand, clay and mud therefrom. The "frac sand" is introduced into the top of the well, until the depth of the "frac sand" is greater than the depth of the fluid-bearing strata, so that the "frac sand" will replace the siltlike sand of the fluid bearing strata, as the sand is removed therefrom by jetting and by pumping. Further provision is made to leave a valved air inlet pipe in the well, with the outlet thereof near the bottom of the well, thereby to enable the connection of an air compressor thereto at anytime, to agitate siltlike sand or foreign matter, which may accumulate in the well, to enable the pumping of the sand or the like therefrom.

3,548,936
WELL TOOLS AND GRIPPING MEMBERS THEREFOR
Marion D. Kilgore, Houston, and Robert C. Pumpelly, Dallas, Tex., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,110
Int. Cl. E21b *23/00*
U.S. Cl. 166—216 43 Claims



A slip or gripping member that is used on well tools to lock the well tools at a desired location in a well bore. The slip is movably mounted on the well tool and is provided with wall engaging teeth on relatively opposite sides thereof adjacent to each end. The wall engaging teeth are separated on the slip by a distance that is greater than the diameter of the well bore so that movement of the slip to an angular position brings the teeth into engagement with the well bore wall. Relatively movable abutments are provided on the well tool which are brought into engagement with at least one end of the slip to cause the slip to move into the position wherein the teeth are in engagement with the well bore wall. The slip is constructed so that when the teeth are out of engagement with the well bore wall, the tool with the slips thereon is freely movable through the well bore. The slip is useful in connection with well tools such as packers or anchors and may be actuated by fluid pressure or by mechanical means.

3,548,937
RETRIEVABLE WELL SCREEN
Othar M. Kiel, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware
Filed Apr. 1, 1969, Ser. No. 812,225
Int. Cl. E03b *3/18*; E21b *43/00*
U.S. Cl. 166—232 8 Claims

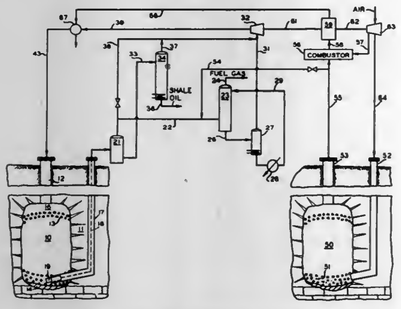


A well screen including a spearhead or similar device for engagement with a wireline tool and a self-supporting helical body formed from a metallic rod that can be unwound and straightened for removal from the wellbore by pulling on the screen from the earth's surface.

3,548,938
IN SITU METHOD OF PRODUCING OIL FROM OIL SHALE

Harry W. Parker, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed May 29, 1967, Ser. No. 641,815
Int. Cl. E21b *43/24*
U.S. Cl. 166—256 3 Claims

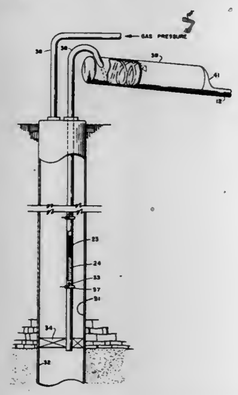


Oil is produced from a subsurface mass of fractured oil shale by injecting high heat capacity hydrocarbon gases to educe hydrocarbons from the shale. Produced high heat capacity hydrocarbon gases are recycled to the shale mass. High heat capacity hydrocarbon gases from a second, previously retorted shale mass can be used to initiate the eduction of hydrocarbons, or as fuel. Products of combustion from the second shale mass can be used to compress and heat the injection gases.

3,548,939
OIL WELL PRODUCTION SYSTEM

John D. Bennett, Richardson, Tex., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed Dec. 19, 1968, Ser. No. 785,151
Int. Cl. E21b *43/12*
U.S. Cl. 166—267 8 Claims



The particular embodiment described herein as illustrative of one form of the invention includes in a gas lift well, a flow line for delivering output from the well to a separator. The output of a well on gas lift is normally in the form of a two phase fluid flow. The nature of a two phase fluid flow produces a substantial back pressure on the producing tubing string. This back pressure causes inefficiencies in the production of the well. A fluid phase separator in accordance with this invention is provided for separating the producing fluids into separate single-phase slugs to reduce the back pressure on the well, and to permit more efficient production of the well.

3,548,940
METHOD FOR RECOVERY OF HYDROCARBONS FROM A SUBTERRANEAN FORMATION PREVIOUSLY PRODUCED BY SOLUTION GAS DRIVE

Ernesto J. Reguera, Pasadena; Joseph T. Carlin, Houston, and Joseph C. Allen, Bellaire, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

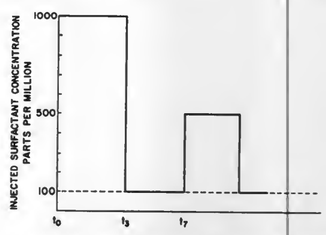
No drawing. Filed Sept. 30, 1968, Ser. No. 786,792
Int. Cl. E21b *43/20*
U.S. Cl. 166—273 2 Claims

In a subterranean hydrocarbon-bearing formation which previously has undergone a solution gas drive and in which a free gas saturation has been established, improved recovery of hydrocarbons is effected by the injection of a gas to maintain the free gas saturation at a pressure level necessary for water flooding the formation, followed by a water flood of the repressured formation.

3,548,941
CYCLIC INJECTION OF SURFACTANT FOR INCREASING OIL RECOVERY FROM FRACTURED MATRIX RESERVOIRS

John W. Graham, Bellaire and Gerald D. Ortloff, Houston, Tex., assignors to Esso Production Research Company, a corporation of Delaware

Filed Oct. 1, 1968, Ser. No. 764,198
Int. Cl. E21b *43/22*
U.S. Cl. 166—273 5 Claims

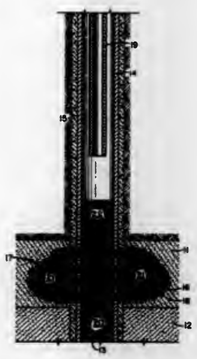


A method for recovering oil from a fractured matrix reservoir by injection of a solution containing a surface active agent in which the concentration of surface active agent is cyclically increased and decreased.

3,548,942
METHOD OF SAND CONSOLIDATION

William M. Terry, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware

Filed June 13, 1969, Ser. No. 833,052
Int. Cl. E21b *43/04, 33/138*
U.S. Cl. 166—276 8 Claims



A method for consolidating an incompetent formation surrounding a wellbore wherein a bed of coarse particulate material of sufficient height to retain gummy residues that may plug the perforations or face of the formation is placed in the wellbore adjacent the formation and resin-forming materials are injected through this bed into the formation.

3,548,943
ELECTROLESS METAL BONDING OF UNCONSOLIDATED FORMATIONS WITH BACKFLOW

Theodore A. Simon and Edwin A. Richardson, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No drawing. Filed Aug. 14, 1969, Ser. No. 850,253
Int. Cl. E21b *33/138*
U.S. Cl. 166—292 5 Claims

A method of consolidating an incompetent or unconsolidated formation, over a wide temperature range, by subjecting the formation to an incremental electroless metal plating process wherein between such treatments the formation is subjected to a backflush treatment.

3,548,944
METHOD FOR SEALING EARTH FORMATIONS

Patrick H. Hess, Diamond Bar, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No drawing. Filed Apr. 23, 1969, Ser. No. 818,834
Int. Cl. E21b *33/13*; E02d *3/12*
U.S. Cl. 166—295 3 Claims

Porous earth formations are sealed by alternately injecting aluminum chloride red oil and furfuryl alcohol into the formations.

3,548,945
METHOD FOR ACIDIZING SILICEOUS FORMATIONS

John L. Gidley, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware

No drawing. Continuation-in-part of application Ser. No. 796,168, Feb. 3, 1969. This application June 2, 1969, Ser. No. 829,773
Int. Cl. E21b *43/27*
U.S. Cl. 166—307 21 Claims

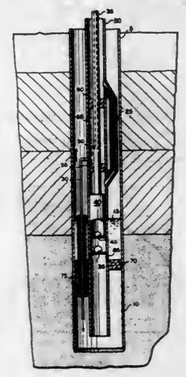
A method for improving the permeability of a sandstone or other siliceous formation surrounding a wellbore wherein an aqueous acid solution capable of attacking mineral constituents in the formation and a low molecular weight aliphatic glycol ether are injected into the formation in quantities sufficient to penetrate a substantial distance from the wellbore. The glycol ether may be incorporated in the acid solution, introduced behind the acid and followed by an aqueous afterflush, or added to an aqueous afterflush following the acid solution. If the well is an injection well, injection operations can be resumed following introduction of the treating agents. If it is a production well, the injected fluids may be produced back into the wellbore after the treating agents have been introduced.

3,548,946
APPARATUS AND METHOD FOR LIQUID INTRODUCTION IN OIL WELLS

Charles J. Engle, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Mar. 17, 1969, Ser. No. 807,745
Int. Cl. E21b *43/00*
U.S. Cl. 166—310 8 Claims

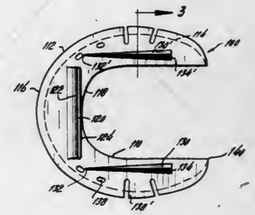
Chemical treatment of oil wells is effected by placing the particular chemical in the well bore at the desired depth by the use of subsurface apparatus comprising a hollow sucker rod, the core of which is in communication with the well bore through the production tubing. The communication ports are isolated by packing means from the produced fluid flowing upwardly through the production tubing. The produced fluid bypasses the packed off area of the production tubing through a suitable crossover flow device.



3,548,947
HORSESHOE

Matthew P. Mackay-Smith, Coatesville, Pa. (R.D. 1, Newark, Del., 19711)

Filed Jan. 15, 1969, Ser. No. 791,343
Int. Cl. A01l *07/04*
U.S. Cl. 168—29 5 Claims



A horseshoe made especially for racehorses in which the normal hoof axis relative to supporting tendon and bone alignment is preserved as the foot flies into, supports and retracts out of the track dirt-fluid medium. The horse shoe is characterized by having an inset grab caulk under the toe of a naturally trimmed foot to prevent back-slipping, plus corresponding dart configured caulks adjacent the trailing edge caulk and extending posteriorly to ensure against side slippage.

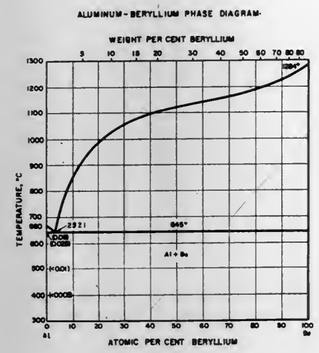
3,548,948
PROCEDURE FOR CHILL CASTING BERYLLIUM COMPOSITE

William J. Richmond, Reading, Leonard B. Griffiths, North Reading, and Vernon C. Potter, West Concord, Mass., assignors to P.R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware

Filed Jan. 23, 1969, Ser. No. 793,398
Int. Cl. B22d *21/02*
U.S. Cl. 164—68 12 Claims

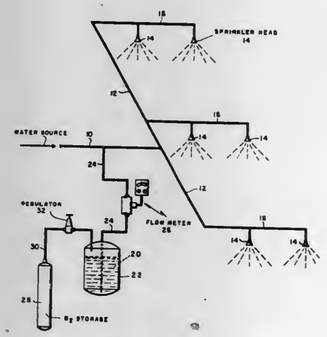
A process for casting aluminum-beryllium alloys comprising, charging a crucible with an aluminum base alloy placed at the bottom of a crucible, placing thereon a charge of beryllium in which the beryllium is in discrete lumps or chunks, evacuating the furnace chamber for example to as low as 150 microns to remove oxygen and other impurities from the atmosphere, raising the temperature of the charge sufficient to melt the aluminum but insufficient to melt the beryllium, maintaining the aluminum molten for a time suffi-

cient to degas the aluminum, changing the vacuum to an atmosphere of inert gas at a pressure below atmospheric, raising the temperature of the charge sufficient to melt the beryllium, cooling the charge to below the liquidus temperature



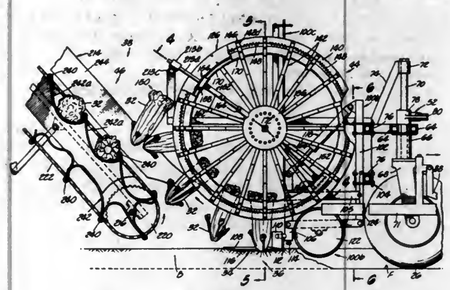
for the particular Be-Al alloy composition being cast, and rapidly pouring the charge into a mold made of a material having high thermal conductivity and having a large mass, thereby rapidly cooling said charge.

3,548,949
METHOD FOR EXTINGUISHING FIRE
Leslie Preston Williams, Groves, and Wendell Dale Barrow, Houston, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex., a corporation of Delaware
Filed Aug. 19, 1968, Ser. No. 753,581
Int. Cl. A62c *1/00*
U.S. Cl. 169—1 3 Claims



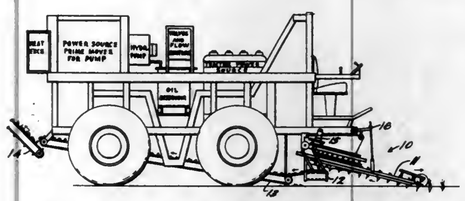
Increased protection against fire damage in Class A and Class B fires in water-deluge sprinkler system installations is achieved by introducing into the water stream, when it is being discharged, a quantity of an ethoxylated alkyl-phenol wetting agent.

3,548,950
APPARATUS FOR HARVESTING CELERY AND THE LIKE
Cyril A. Phelan and Edwin M. Taylor, Arroyo Grande, and Keith A. Rapp, Oceano, Calif., assignors to Phelan & Taylor Co., Oceano, Calif., a corporation of California
Filed Aug. 21, 1967, Ser. No. 662,077
Int. Cl. A01d *27/04*
U.S. Cl. 171—39 6 Claims



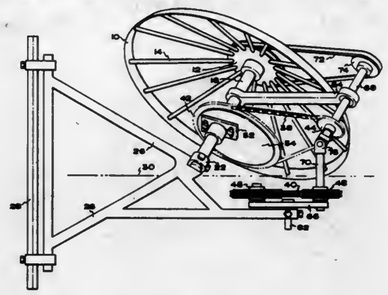
An agricultural machine for harvesting and loading on an adjacent transport vehicle row crops, such as celery, which are characterized by exposed, edible stalks, the machine having a harvesting vehicle which travels along the crop rows and means on the harvesting vehicle for severing the exposed stalks in the rows at ground level and continuously conveying the severed stalks to the transport vehicle.

3,548,951
MULTIPLE ROW CROP HARVESTING MACHINE
George E. Weasel, Jr., and Harold W. Weimer, McClure, Ohio, assignors to Tem-Cole, Inc., McClure, Ohio, a corporation of Ohio
Filed Sept. 16, 1968, Ser. No. 762,176
Int. Cl. A01d *17/10*
U.S. Cl. 171—61 9 Claims



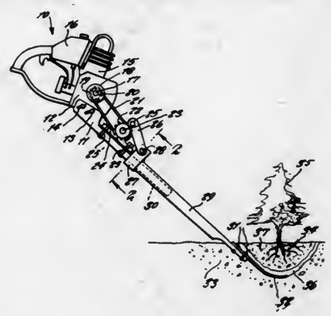
A harvesting machine for the simultaneous harvesting of a plurality of parallel, spaced-apart rows of crops. The machine includes a plurality of separate harvesting mechanisms mechanically driven by a plurality of hydraulic fluid motors whose output torque is proportional to the pressure of the hydraulic fluid supplied thereto. A source of hydraulic fluid under a predetermined constant pressure is connected to the fluid motors by fluid supply and return lines to provide a closed hydraulic system with a pressure responsive bypass valve positioned in the supply lines and effective to bypass hydraulic fluid around said motors when the pressure on said valve exceeds said predetermined constant pressure. When one of said harvesting mechanisms encounters a load, such as an obstruction, which exceeds the output torque of its associated motor, the consequent pressure increase in said fluid supply line will open said bypass valve to effectively stop said motors and their harvesting mechanisms until said obstruction is removed. The machine may further include remotely operable override means for opening said bypass valve and separate sources of motive power for said hydraulic pressure source and said harvesting machine.

3,548,952
CROP CUTTER
David E. Carhart, Cedar Point Rte., Dove Creek, Colo. 81324
Filed Feb. 29, 1968, Ser. No. 709,392
Int. Cl. A01d *15/00*
U.S. Cl. 171—95 6 Claims



A crop cutter, for pulling and severing vines from their roots implanted in spaced rows, having a cutting wheel, rotatably mounted on a support shaft, and positioning means affixed to the support shaft for drawing the cutting wheel along a row at an angle of 10 to 45 degrees with said row and at an angle of 45 to 80 degrees with ground level. Lifting means, driven by the rotating cutting wheel, can be positioned on opposite sides of the row of crops to support the vines as they are severed from their roots and lift them to an elevated position for deposit in a harvester or return to ground level.

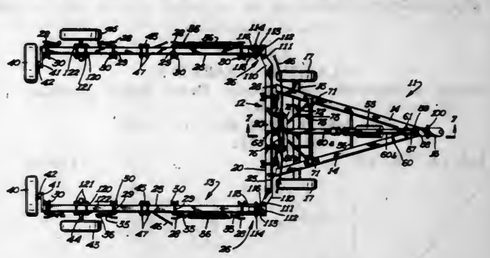
3,548,953
SHRUBBERY AND PLANT DIGGER
John D. Richardson, Sr., 2201 Robinson Drive, Mobile, Ala. 36605
Filed Jan. 29, 1969, Ser. No. 795,012
Int. Cl. A01b *39/10*
U.S. Cl. 172—41 1 Claim



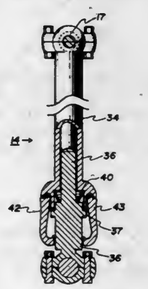
An agricultural application for digging up plants from th ground, the device comprising a longitudinally vibrating cutting blade at one end of a carrier tube, the tube being reciprocally moveable in a longitudinal direction by means of an eccentric drive operated by a gasoline motor.

3,548,954
FOLDABLE CARRIAGE FOR EARTH WORKING IMPLEMENT
Dennis E. Lindemann, Gwinner, N. Dak., assignor to Clark Equipment Company, Buchanan, Mich., a corporation of Delaware.
Filed Sept. 28, 1967, Ser. No. 671,335
Int. Cl. A01b *73/00*
U.S. Cl. 172—311 9 Claims

The invention relates to a hydraulically actuated foldable carriage for an earth working implement. The carriage may be folded from a wide field position to a narrow transport or storage position and includes features which provide for maximum safety and stability in storage, flexibility in traversing irregular terrain and toe-in adjustment of the outboard transport wheels.

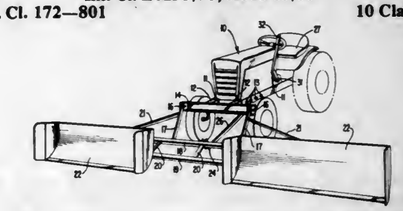


3,548,955
GRADER BLADE VERTICAL ADJUSTMENT MECHANISM
Kelly R. Hart, 5234 Landis, San Diego, Calif. 92105
Filed June 24, 1968, Ser. No. 739,342
Int. Cl. E02f *3/76*
U.S. Cl. 172—793 2 Claims



An improved grader blade vertical adjustment mechanism having a pair of floating links coupling the A-frame to the bell crank of the lifting mechanism of a grader, each linkage being telescopically received within a cylinder and being carried via a ball joint at one end of the bell crank, a pair of adjustable jaws for limiting the vertical travel of the telescoping link in its floating position and allowing for locking the linkage in an extreme downward position when desired.

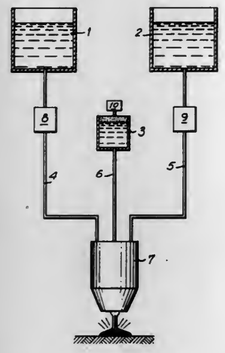
3,548,956
SCRAPER ATTACHMENT FOR GARDEN TRACTORS
Eli Hochstetler, Star Rte., Millersburg, Ohio 44654
Filed Jan. 24, 1969, Ser. No. 793,672
Int. Cl. E02f *3/76*; A01b *65/00*
U.S. Cl. 172—801 10 Claims



A simplified and economical scraper attachment for garden-type tractors which utilizes the existing lifting mechanism of the tractor and requires the manipulation of only a single bolt or pin for mounting or demounting the en-

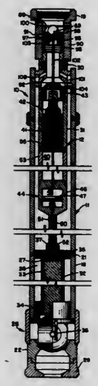
tire attachment. The attachment may embody twin-scraper blades for cleaning the manure pits in poultry houses or a single road-scraper blade.

3,548,957
BLASTING APPARATUS
Miron Abramovich Schegolevsky, Drovy dnaya ploschad, 9/10 kv. 60, Moscow, U.S.S.R.
Filed June 26, 1968, Ser. No. 740,307
Int. Cl. E21c *37/12*
U.S. Cl. 175—4.5 **3 Claims**



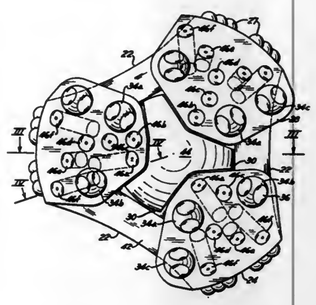
A device primarily intended for explosive destruction of hard rocks which employs a liquid high-explosive three-component mixture. The constructive design of the apparatus enables the production of a series of successive blasts controllable by their strength and by the frequency of their succession.

3,548,958
PRESSURE CORE BARREL
Robert J. Blackwell, and Robert C. Rumble, Houston, Tex., assignors to Esso Production Research Company, a corporation of Delaware
Filed July 30, 1969, Ser. No. 846,102
Int. Cl. E21b *25/00*
U.S. Cl. 175—233 **11 Claims**



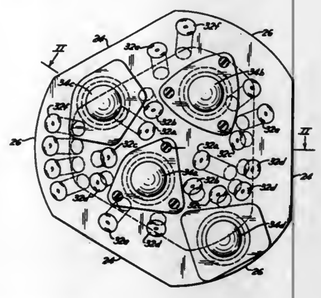
A pressure core barrel assembly for recovering cores at formation pressure. The assembly is equipped with a pressure control system for maintaining a controlled pressure on a core contained in the pressure barrel chamber. The control system includes a high-pressure gas supply, a pressure regulator, a shutoff valve, and an accumulator which in combination function to maintain a controlled pressure on the core during surfacing operations.

3,548,959
RELIEF-TYPE JET BITS
Horst H. Hasiba, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed July 10, 1969, Ser. No. 840,702
Int. Cl. E21c *15/00, 13/01;* **E21b** *7/18*
U.S. Cl. 175—393 **11 Claims**



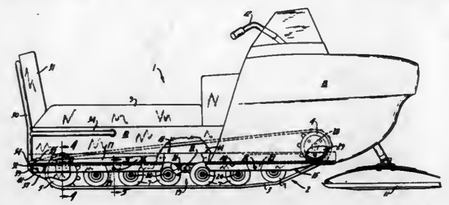
A drill bit for hydraulic jet drilling in which a plurality of plateaus extend forwardly from the working end of the bit. Nozzles extending through the forward end of the bit for the discharge of an abrasive-laden drilling liquid have their outlets in the plane of the plateaus. The plateaus are separated by relief channels which provide space for the escape of large particles of the material drilled. The bit preferably has a non-round shape to provide large passages between the bit and the wall of the hole drilled.

3,548,960
DRILL BIT HAVING ROTATING STAND-OFF ELEMENTS
Horst H. Hasiba, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed July 10, 1969, Ser. No. 840,703
Int. Cl. E21c *15/00, 13/01;* **E21b** *7/18*
U.S. Cl. 175—393 **8 Claims**



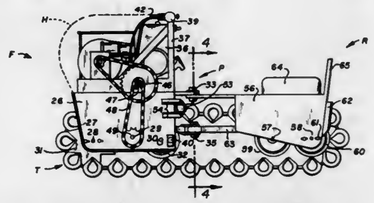
A drill bit for hydraulic jet-drilling having a hollow body open at one end to receive an abrasive-laden drilling liquid and closed at the other end. Nozzles extend through the closed end to discharge high-velocity streams of the drilling liquid from the drill bit against the material to be drilled. Standoff elements rotatably mounted in the lower end of the drill bit extend downwardly from the lower end of the drill bit to position the nozzle outlets at the desired distance from the material to be drilled. Preferred standoff elements are shaped and positioned to extend part of the way into grooves cut by the high-velocity streams and eccentrically load ridges between the grooves.

3,548,961
CHASSIS CONSTRUCTION FOR GROUND-SUPPORT VEHICLES
Neil A. Newman, Fond Du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill., a corporation of Delaware
Filed Aug. 1, 1968, Ser. No. 749,528
Int. Cl. B62m *27/00*
U.S. Cl. 180—5 **14 Claims**



An improved chassis construction is disclosed for ground-support vehicles of a type having a chassis frame of sheet material. The improved chassis construction includes longitudinally extending and transversely spaced reinforcing members disposed outwardly from the ground-support drive assembly along the respective sides of the vehicle. The reinforcing members connect the ground-support drive assembly to the chassis frame and serve to distribute the load from the assembly to the frame and increase the torsional rigidity and reduce stresses in the frame.

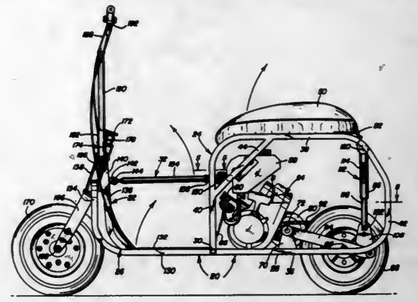
3,548,962
SINGLE TRACK CRAWLER VEHICLE
Harold E. Best, Rte. 3-Box 522, Apache Junction, Ariz.
Filed Dec. 11, 1968, Ser. No. 783,039
Int. Cl. B62d *11/22*
U.S. Cl. 180—9.44 **21 Claims**



A single track crawler vehicle wherein the body of the vehicle includes depending skirt structures to hold transverse shafts having drive and idler wheels for supporting the crawler track. A suitable motor on the body is connected to the drive wheels. The track, extended about the wheels underneath the body of the vehicle, is formed as a continuous array of transversely disposed track bars interconnected by links at each side of the bars, a pair of links interconnecting two adjacent track bars. The connection of an end of a link to a bar is in a universally articulated manner to permit not only movement of the track about the wheels, but also a lateral shifting and angling of one track bar with respect to the other. The result is that the track path may be curved. The wheel arrangement supporting the track is further adapted to be turned by angling one set of wheels with respect to the other or with respect to the longitudinal axis of the body of the vehicle to initiate movement of the track along a curved path. Accordingly, the single track vehicle is capable of turning as well as moving along a straight course.

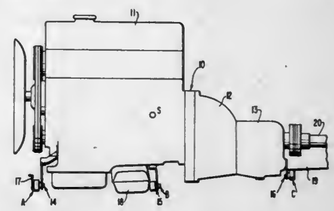
3,548,963
PORTABLE MOTOR VEHICLE
Erwin D. Schlaphoff, P. O. Box 2197, San Ysidro, Calif. 92073
Filed Jan. 2, 1968, Ser. No. 695,111
Int. Cl. B62m *25/04*
U.S. Cl. 180—32 **8 Claims**

A portable motor vehicle of the type in which the rear wheel is pivotally carried by a lever on a vehicle frame, the frame being supported through a guided spring and linkage including an arm, pivotally connected with the lever and the guide, the linkage including an abutment which can be moved into and out of resting position on the lever. The vehicle also includes a front frame which is pivotally connected



with the aforementioned frame; it carries handle bars and folds within the aforementioned frame. The front frame carries a removable fork and wheel assembly, which is receivable by the rear frame, and the handle bars are movable to a more compact position.

3,548,964
DEVICE FOR THE LIMITATION OF THE MOVEMENTS OF AN ELASTICALLY SUSPENDED DRIVE UNIT
Heinz Krauss, Korb Kreis, Waiblingen; Wolfgang Sautter, Heimerdingen, Wuerttemberg, and Uwe Ligniez, Waiblingen, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkeim, Germany
Filed June 13, 1968, Ser. No. 736,811
Claims priority, application Germany, June 15, 1967, 1,630,300
Int. Cl. B60k *5/12*
U.S. Cl. 180—64 **24 Claims**

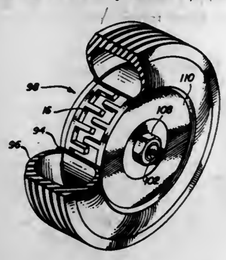


An arrangement for limiting the stroke movements of an elastically suspended drive unit, in which the elastic abutment or abutments are so arranged in or nearly within a vertical longitudinal center plane of the drive unit that in the vertical direction they come into abutment after traversing a limited, free deflection path whereas in the direction of rotation about the longitudinal axis, i.e., in particular under the effect of the engine torque, normally, they fail to come into abutment.

3,548,965
VEHICLE WHEEL DRIVE WITH OUTSIDE CLAW TOOTH ROTOR SYNCHRONOUS ROTOR
John J. Pierro, Inglewood, Calif., assignor to North American Rockwell Corporation
Filed July 1, 1968, Ser. No. 741,676
Int. Cl. B60k *7/00;* **H02k** *19/06;* **H02p** *5/34*
U.S. Cl. 180—65 **3 Claims**

A synchronous motor has a circular rotating pair of cylindrical pole pieces of clawtooth form connected with propulsion means such as a wheel, and is driven by interaction of magnetic fields produced by segmented modular stator and field windings peripherally situated at spaced locations about

the pole pieces energized by polyphase alternating current at a frequency determined by the speed of rotation of the pole pieces relative to the stationary stator and field coils. An additional DC signal is applied to the field windings. For higher power requirements, the number of segmented stator and field coil units can be increased.

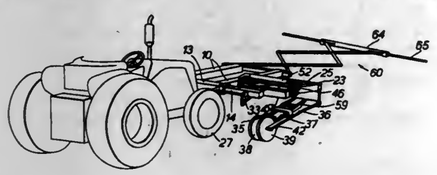


3,548,966

AUTOMATIC STEERING MEANS FOR AN AGRICULTURAL TRACTOR

John Stirling Blacket, Tamanick, Mitchell, Queensland, Australia

Filed Apr. 28, 1969, Ser. No. 819,927
Int. Cl. B62d 1/24
U.S. Cl. 180—79.2 **10 Claims**



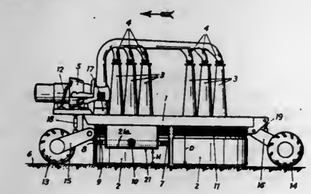
The automatic steering of a tractor is accomplished by independently-mounted guide wheels which follow a furrow adjacent the tractor and which steer the tractor front wheels. Correction means are provided to move the two guide wheels laterally when one guide wheel is raised above the other.

3,548,967

BUOYANT SYSTEM FOR SURFACE EFFECT MACHINES

Jean Henri Bertin, Neuilly-sur-Seine, France, assignor to Bertin & Cie, Boite Postale, Plaisir, France, a French company

Original application Oct. 23, 1965, Ser. No. 502,934, now Patent No. 3,478,835, Nov. 12, 1969, which is a continuation-in-part of application Ser. No. 165,634, Jan. 11, 1962, now Patent No. 3,263,764.
Divided and this application July 2, 1968, Ser. No. 741,992
Int. Cl. B60v 1/16
U.S. Cl. 180—117 **2 Claims**



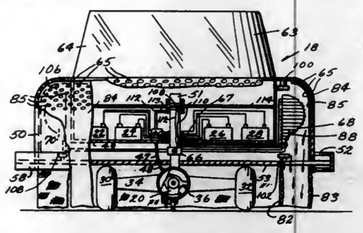
A seafaring air cushion vehicle comprising buoyant air tanks projecting from the undersurface of the vehicle within the confines of cushion bounding skirts gimballed to said air tanks.

3,548,968

AIR SUPPORTED ELECTRIC VEHICLE

Robert R. Aronson, Ferndale, Mich., assignor to Electric Fuel Propulsion, Incorporated, Ferndale, Mich., a corporation of Delaware

Filed Feb. 16, 1968, Ser. No. 706,157
Int. Cl. B60v 1/00
U.S. Cl. 180—119 **9 Claims**



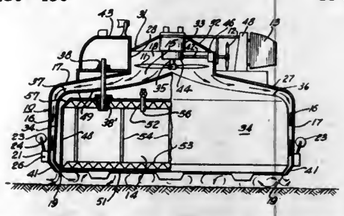
The invention relates to a vehicle which is supported by propelling members which propel the vehicle along the face of the earth and includes air directing means which serves to decrease the weight which the propelling means support. In one embodiment, fan blades are rotated to pull streams of air through a number of holes in the housing of a wheeled vehicle and into an area between two concentric, cylindrical, flexible skirts to form a cushion which partially supports the weight of the vehicle. A movable plate can be rotated or moved to alter the amount of air flowing through the holes. The fan blades may be driven through gears from a small wheel which contacts the ground. Coils may be wound on the blades and magnets disposed about the path of the blades so that currents are induced in the coils which can be rectified are used to recharge the batteries.

3,548,969

CONTAINERIZED TRANSPORT DEVICE

Peter L. Paull, Weston, and Fontaine C. Armistead, Darien, Conn., assignors to Texaco Development Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 781,298
Int. Cl. B60v 1/00
U.S. Cl. 180—130 **11 Claims**



This invention relates to a containerized transport apparatus comprising a ground effect vehicle as a carrier, adapted for travel a slight distance above a land or water surface on a supporting air cushion. The vehicle is constructed to provide an internal cavity for receiving one or more cargo holding containers. The latter are removably positioned within the cavity to form a base for the supporting air cushion when the vehicle is elevated by a peripheral air jet system. Removal of the container thereby permits the ground effect vehicle to operate in a similar manner utilizing at least a portion of the internal cavity as a plenum chamber for confining the supporting air cushion.

3,548,970

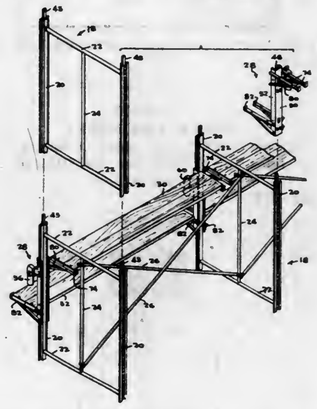
SCAFFOLDING AND MATERIAL HANDLING SYSTEM

Ralph W. Hutchens, Sr., P.O. Box 128, Toano, Va. 23168

Filed Aug. 5, 1968, Ser. No. 750,246
Int. Cl. E04g 1/06
U.S. Cl. 182—129 **18 Claims**

A vertically extendible scaffolding and material handling system in which the scaffolding is supported on vertically

movable carriages connected to vertical frame members having rack means extending along their length. The rack means being formed by rods connected between the legs of a channel member forming the vertical members and the carriage including guide rollers engaging tracks laterally extending from the channel member and a motor driven pinion engaging the rack means for moving the scaffolding in a vertical direction. The material handling portion of the invention includes a vertical chain conveyor system for lifting materials from a lower level to an upper work level for subsequent



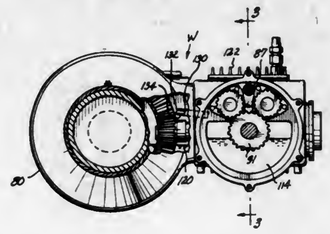
movement by a horizontal conveyor at the upper work level. Moreover, an additional feature comprises a supplemental material lifting elevator movable along a vertical frame member by a motor driven pinion means engaging the rack of the vertical frame member with which it is associated. Vertically aligned frame members are connected by a rigid connector received within the channel within the space between the legs of the channel and the outer rods so that a series of such vertical elements can be connected on above the other to increase the height of the scaffolding.

3,548,971

OIL LUBRICATION SYSTEM FOR A STAGING WINCH DRIVE

Sidney L. Fisher, Renton, Wash., assignor to Spider Staging, Inc., Seattle, Wash., a corporation of Washington

Filed Oct. 21, 1968, Ser. No. 769,286
Int. Cl. F16n 7/18
U.S. Cl. 184—6 **7 Claims**



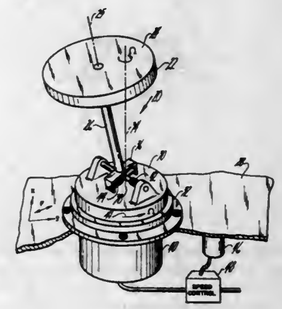
First and second gear-containing chambers are separated by a barrier. A lubricant transfer tube extends through said barrier. Its inlet end is cut at a slant and the remaining sidewall portion thereof extends into a film of lubricant picked up by a surface of a gear in one of said chambers. During rotation of the gear towards said cut the lubricant is sheared off from the gear by said wall portion and flows into the end opening of the tube. During rotation in the opposite direction the sheared lubricant enters into the tube through a side opening provided said sidewall portion.

3,548,972

VIBRATION ABSORBER WITH ROTATING MASS

William G. Flannelly, South Windsor, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn., a corporation of Delaware, by mesne assignment

Filed Mar. 18, 1969, Ser. No. 808,254
Int. Cl. F16f 7/10
U.S. Cl. 188—1 **9 Claims**



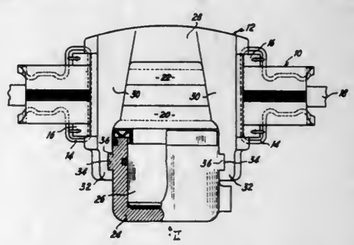
A vibration absorber for absorbing vibrations of a vibrating structure occurring in a given plane consists of a ballast mass driven in rotation about a rotational axis perpendicular to the plane of vibration. Under conditions of no vibration the center of gravity of the ballast mass is located on the rotational axis, but the mass is connected to the vibrating structure by a universal joint which permits the center of gravity to move away from the rotational axis under the influence of the vibrations. For a given speed of the ballast mass forces are produced which exactly or at least very closely cancel or oppose vibrations occurring at a given antiresonant frequency. The antiresonant frequency is dependent upon the speed of rotation of the ballast mass so that by properly selecting such speed any desired frequency of vibration may be absorbed.

3,548,973

STIRRUP FOR DISC BRAKE

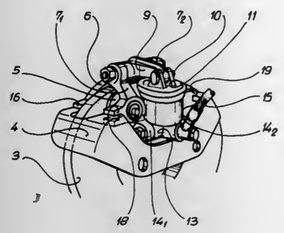
Bernard Laverdant, Vincennes, France, assignor to Societe Anonyme D.B.A.

Filed Nov. 13, 1968, Ser. No. 775,253
Claims priority, application France, Nov. 15, 1967, 128,217
Int. Cl. F16d 55/228
U.S. Cl. 188—72.5 **2 Claims**



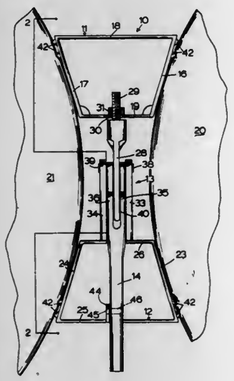
A disc brake for an automotive vehicle in which a two-piece caliper is used. One piece of the caliper includes the bridge portion that straddles the rotor of the brake and includes a pair of arms that extend outwardly from the bridge portion, thereby forming a U-shaped member presenting an open end between the arms. The other piece of the caliper includes a piston and cylinder assembly having lugs formed thereon that are slidably received in grooves formed in the arms. A releasable locking device is provided to secure the piston and cylinder assembly to the arms.

3,548,974
LEVER ACTUATED DISC BRAKE
Hermann Klaue, 3 Avenue Des Planches, Montreux, Switzerland
Filed Nov. 6, 1968, Ser. No. 773,798
Int. Cl. F16d *55/224*
U.S. Cl. 188—73 **9 Claims**



A disc brake wherein friction linings are urged against the disc by levers on each side of the disc the levers being pivotable about a common axis, the pivoting movement being caused by urging apart projections extending from the levers. Stationary brackets, nonrotatably mounted on the brake, are operatively connected to the levers for preventing rotation thereof during the braking operation.

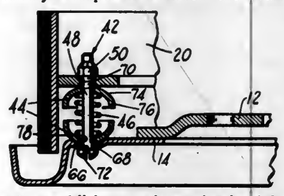
3,548,975
TANDEM WHEEL LOCK
Robert R. Herndon, 207 Short Mountain St., Smithville, Tenn. 37166
Filed Feb. 18, 1969, Ser. No. 800,144
Int. Cl. F16d *63/00*
U.S. Cl. 188—74 **3 Claims**



A wheel lock for the tandem wheels of a vehicle including upper and lower shoes, link members connecting the shoes for movement toward and away from each other and an actuator member operatively connected to the link members for drawing the shoes together to engage the opposed tandem wheel surfaces.

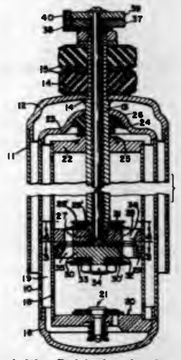
3,548,976
BRAKE SHOE BEARING MEANS
Edward K. Dombeck, South Bend, Ind., assignor to The Bendix Corporation, a corporation of Delaware
Filed Jan. 27, 1969, Ser. No. 793,955
Int. Cl. F16d *51/24*
U.S. Cl. 188—78 **8 Claims**

The invention relates in general to a drum brake. More particularly, this invention provides a brake shoe-bearing means operatively interposed between the brake shoe and



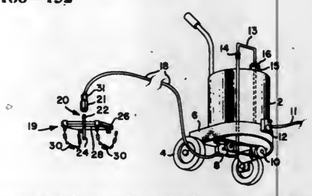
backing plate to establish a predetermined axial relationship therebetween.

3,548,977
SHOCK ABSORBERS
Frank S. Morgan, 5405 N. 27th Road, Arlington, Va. 22207
Filed Nov. 9, 1966, Ser. No. 593,016
Int. Cl. F16f *9/46*
U.S. Cl. 188—88 **6 Claims**



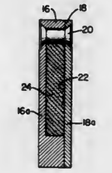
An infinitely variable fluid shock absorber having remote controls operable manually or automatically in response to changes in static pressure of the variable spring system, speed-indicating signalling device or actuation of the hydraulic braking system. A shock absorber piston assembly method which peripherally secures the flexible disc valves, rotating adjustment valves, disc travel guards, seal seat and piston rod together in one crimping operation.

3,548,978
HYDRAULIC BRAKE BLEEDING APPARATUS
Elbert S. Dyke, 24 Atlas Drive, San Jose, Calif. 95126
Filed Apr. 14, 1969, Ser. No. 815,774
Int. Cl. B60t *11/30*
U.S. Cl. 188—152 **7 Claims**



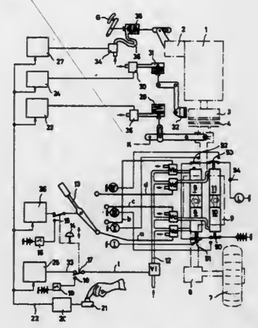
Apparatus which permits a single operator, with a minimal amount of labor, to bleed trapped air from the hydraulic brake system of a vehicle. A mobile carrier carries a brake fluid auxiliary supply source with a pump extending to the interior of the source to pump fluid through a pump line to the fluid reservoir of a master cylinder of the system which in turn extends to a wheel cylinder having a bleed valve port. A universal type connecting sealer may join the pump line for securing the pump line to the master cylinder about a filler opening extending to the reservoir. A discharge tube is fitted to the bleed valve port and extends to a hand carriable discharge reservoir.

3,548,979
BRAKE ELEMENT WITH HIGH HEAT SINK CHARACTERISTICS
John P. Nelson; Joseph F. Dernovshek; Hal E. Miller, Akron, and Clifton A. Byers, Cuyahoga Falls, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 666,705, Sept. 11, 1967, now abandoned. This application Feb. 24, 1969, Ser. No. 801,595
Int. Cl. F16d *65/84*
U.S. Cl. 188—264 **13 Claims**



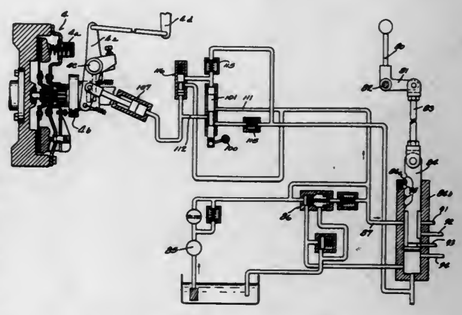
A low weight heat sink brake element which specifically encapsulates a heat sink material, such as graphite, as the core of a hollowed out, substantially standard brake element, or uses small pads mounted to the friction or braking surface of the brake element which pads encapsulate heat sink material such as graphite with a thin metal outer shell to act as the friction receiving surface. Such a design employs the metallic shell or housing as the structural member, and the core acts only as a heat absorber. Therefore, with this design, low strength, high specific heat materials that were previously incapable of functioning in a brake for purposes of heat sink action can be used.

3,548,980
GEAR-CLUTCH-BRAKE-MOTOR CONTROLS FOR SYNCHRONIZED SHIFTING
Karl Heinz Schmidt, Vorra, and Benno Bildat, Erlangen, Germany, assignors to Robert Besche GmbH Stuttgart, Germany, a limited corporation of Germany
Filed Feb. 13, 1969, Ser. No. 798,906
Claims priority, application Germany, Feb. 16, 1968, 1,655,210
Int. Cl. F16h *57/10*
U.S. Cl. 192—.09 **10 Claims**



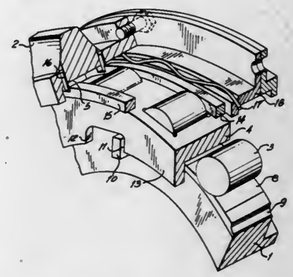
A device for the synchronized shifting of motor vehicle transmission gears from a lower to a higher gear utilizing a servodrive system with a predetermined timed characteristic for disengaging a clutch, synchronizing the speeds of the gears to be engaged by temporarily applying a brake to the engine drive shaft, shifting into neutral, reengaging the clutch, disengaging the brake, and shifting the gears as selected. The servodrive system is controlled by a signaling system having built-in operational timed characteristics, one of the major factors being that the brake application period is so timed that the ratio of the engine drive shaft speed before to after braking equals the ratio of the gears to be engaged. An additional refinement includes a further servodrive which automatically releases the accelerator pedal during the shifting operation, although this can be omitted and left to the operator.

3,548,981
POWER SHIFT TRANSMISSION HAVING SYNCHRONIZED CLUTCH CONTROL
Rodney G. Hill, Faversham, Kent, and Peter O. Koenig, Ditton, Kent, England, assignors to Twin Disc, Incorporated, Racine, Wis., a corporation of Wisconsin
Filed Feb. 25, 1969, Ser. No. 801,955
Int. Cl. F16d *67/00*
U.S. Cl. 192—3.57 **1 Claim**



A power shift transmission including a plurality of selectively operated, hydraulically actuated friction clutches for obtaining different speed ratios in a change gear mechanism. The transmission includes a master clutch driven from the power source, and which clutch is momentarily released during engagement of the speed selection clutches. The same pressure fluid which is used to engage the speed selection clutches is also used to momentarily release the main clutch by means of a hydraulic cylinder means.

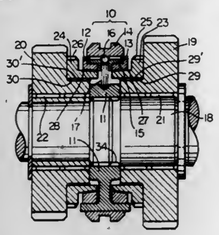
3,548,982
FREE-WHEELING CLUTCH
Pavel Alexandrovich Soloviev, Komsomolsky prospekt 90, kv. 21; Georgy Petrovich Kalashnikov, Ul. Geroev Khasana 16, kv. 53; Lev Izrailevich Kantor, Ul. Geroev Khasana, 30 kv. 37, and Sergei Nikolaevich Zamotin, Komsomolsky prospekt, 73 kv. 19, all of Perm, U.S.S.R.
Filed Sept. 26, 1968, Ser. No. 762,941
Int. Cl. F16d *15/00*
U.S. Cl. 192—45 **4 Claims**



A freewheeling clutch of a roller type includes a driving sprocket, a driven race, a roller cage interposed between the sprocket and the race, the roller cage supporting spaced rollers positioned in recesses between radially extending spaced projections provided circumferentially on the sprocket, and a plurality of stops resiliently biasing against the opposite axial

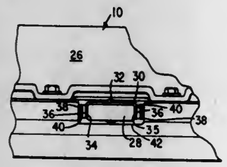
ends of the rollers, which stops are supported by the race to rotate therewith.

3,548,983
SYNCHRONIZING MECHANISM IN THE TRANSMISSION OF CONSTANT-MESH TYPE IN AN AUTOMOTIVE VEHICLE
Kazuyoshi Hiraiwa, Tokyo, Japan, assignor to Missan Motor Company, Limited, Kanagawa-ku, Yokohuma, Japan
Filed May 6, 1969, Ser. No. 822,165
Claims priority, application Japan, May 15, 1968, 43/32751
Int. Cl. F16d *23/06*; **F16h** *3/38*
U.S. Cl. 192—53 **5 Claims**



A synchronizing mechanism in the transmission of constant-mesh type in an automotive vehicle having a rotary shaft formed with splines thereon, gearwheels formed with an annular axial extension having external splines, a sleeve, sleeve retainer and synchronizer rings in which the sleeve retainer, synchronizer rings and sleeve are disposed in such a manner that an additional axial force is exercised so as to synchronize the gearwhecls by the contact between one of the tapered flanks of each of the noses formed on the sleeve and one of the tapered flanks of each of the noses formed on the sleeve for synchronizing action.

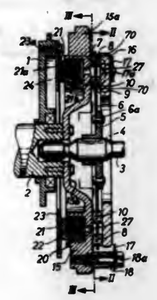
3,548,984
CLUTCH ANTI-RATTLE INNER PLATE
Robert S. Root, Syracuse, N.Y., assignor to Lipe-Rollway Corporation, Syracuse, N.Y., a corporation of New York
Filed Sept. 11, 1968, Ser. No. 770,134
Int. Cl. F16d *13/68, 3/14*
U.S. Cl. 192—70.17 **2 Claims**



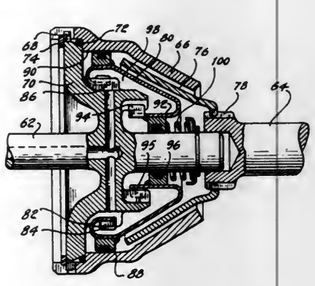
An antirattle inner plate comprising a U-shaped strap of metal secured over the drive lugs of an inner drive plate of a friction type clutch, wherein each depending leg on the metal strap has a resilient material adhered thereto and with a metal plate covering the top of the resilient material for a wear surface, forming a shock absorber between the drive and driven members of the clutch.

3,548,985
TORQUE TRANSMITTING DEVICE
Helmut Espenschied, Buhlertal, and Georg Rothfuss, Ditzingen, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Dec. 17, 1968, Ser. No. 784,362
Claims priority, application Germany, Dec. 21, 1967, 1,625,690
Int. Cl. F16d *27/10*
U.S. Cl. 192—84 **10 Claims**

A disc carrying friction linings consisting of sintered iron is located between two driven members connected for rotation and for relative axial movement so that when a magnetic flux passes through the two rotary members and the sintered iron of the linings, the two rotary members are attracted to each other and press against the linings whereby torque is transmitted from the driven rotary members to the linings and the disc.



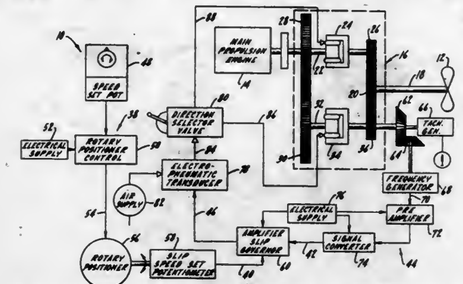
3,548,986
FLEXIBLE PISTON CONE CLUTCH
Alan R. Fisher, Highland Park, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Jan. 31, 1969, Ser. No. 795,409
Int. Cl. F16d *25/00*
U.S. Cl. 192—85 **5 Claims**



A friction torque establishing device adapted to transmit torque between two relatively movable members comprising a cone clutch element carried by one of said members, a flexible piston diaphragm carried by another of said members and defining a second cone clutch element, said piston diaphragm cooperating with the other member to define a fluid pressure chamber, the clutch elements being urged into frictional engagement upon an increase in the fluid pressure in said chamber, the piston diaphragm being adapted to yield under fluid pressure to provide a high degree of compliance between the friction surfaces on said clutch elements.

3,548,987
ELECTRIC SPEED CONTROL FOR FLUID OPERATED MARINE CLUTCHES
Bruce Erickson, South Milwaukee, and Karl F. Dudey, Milwaukee, Wis., assignors to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed July 30, 1968, Ser. No. 748,718
Int. Cl. F16d *25/10*
U.S. Cl. 192—104 **3 Claims**

A marine engine control system having slip clutches controlling propeller output speed. A manual speed set which may be remotely mounted produces a signal which is compared with a propeller output signal to provide a control signal for varying clutch slippage to achieve the selective output speed. The control signal operates a transducer connected with a direction selector valve for varying slippage in either the ahead or astern clutches.

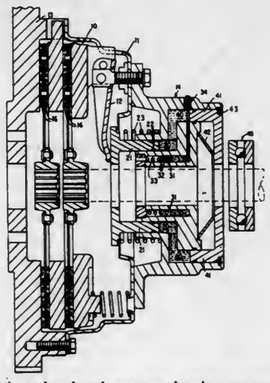


3,548,988
FRICTION CLUTCH PRESSURE PLATE
Jack W. Armstrong, Baldwinsville, N.Y., assignor to Lipe Rollway Corporation, Liverpool, N.Y., a corporation of New York
Filed Mar. 10, 1969, Ser. No. 805,479
Int. Cl. F16d *13/60, 13/66*
U.S. Cl. 192—107 **6 Claims**



The pressure plate of a friction clutch has a conic surface formed around its periphery to incline rearwardly relative to the engaging direction of the pressure plate. The angle between the plane, inner surface of the pressure plate and the conic outer surface preferably subtends from 0.030 inch to 0.400 inch at the periphery of the pressure plate, and the conic surface preferably extends inward at least one-quarter of the way from the periphery.

3,548,989
SELF-ADJUSTING CLUTCH MECHANISM
Robert S. Root, Syracuse, N.Y., assignor to Lipe-Rollway Corporation, Syracuse, N.Y., a corporation of New York
Filed Sept. 11, 1968, Ser. No. 759,042
Int. Cl. F16d *11/00, 13/60*
U.S. Cl. 192—111 **1 Claim**

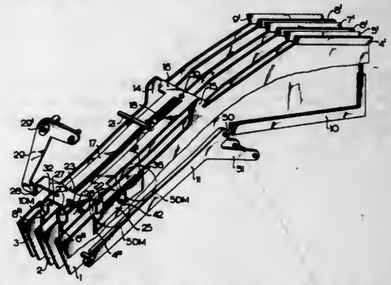


A self adjusting clutch release mechanism comprising three hydraulic cylinders all in fluid communication with each other, one cylinder having a spring biased piston keeping the hydraulic fluid under constant pressure, another cylinder operative to close a fluid port communicating with the aforementioned cylinder, the remaining cylinder having a piston reacting hydraulically by the piston closing the aforementioned port to move a clutch release lever to disengage the clutch, and is biased into contact with the clutch release lever, as the clutch wears the clutch release lever, as the clutch wears the clutch release lever moves further from the hydraulic cylinders allowing the piston that is in contact with the release lever to move lowering the pressure on the hydraulic fluid in back of it and on the return of the cylinder covering the aforementioned port the spring biased piston moves regaining the pressure in the cylinders.

ERRATUM

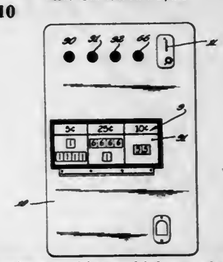
For Class 192—116.5 see:
Patent No. 3,548,992

3,548,990
COIN SELECTOR FOR VENDING MACHINE
Heinz Kelch and Eduard Schuh, Villingen, Germany, assignors to Kienzle Apparate G.m.b.H., Villingen, Germany
Filed Dec. 23, 1968, Ser. No. 786,864
Claims priority, application Germany, Dec. 27, 1967, 1,574,227
Int. Cl. G07f *1/00*
U.S. Cl. 194—1 **10 Claims**



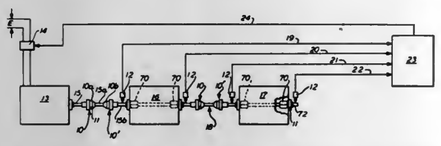
The coin selector of a vending machine effects the use of inserted coins starting with the coins of the highest value and greatest diameter and progressing towards smaller coins having a lesser value.

3,548,991
CHECK CONTROLLED STAMP-DISPENSING MACHINES
Charles H. Flubacker, Barrington, Ill., assignor to Artag Plastics Corporation, a corporation of Illinois
Filed Apr. 5, 1968, Ser. No. 719,120
Int. Cl. G07f *11/00*
U.S. Cl. 194—10 **12 Claims**



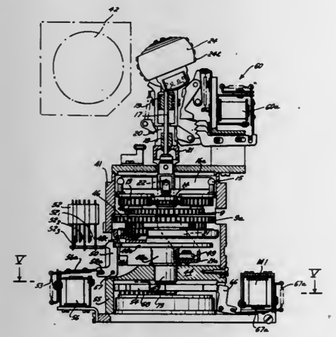
Stamp-dispensing machines which may be programmed to dispense various combinations of stamps of various denominations are disclosed. The number of stamps dispensed and the various denominations may be changed, for example, if the postal rates change, by merely changing the instructions on the face of the machines and by replacing plugs and/or terminal blocks in the machines so as to automatically accomplish the changeover and thus eliminate the need to return the machines to a factory for extensive rewiring.

3,548,992
THERMAL PROTECTION SYSTEM FOR HIGH SPEED ROTATING PARTS
Arthur E. Dawson, Gillette, N.J., assignor to Air Reduction Company, Inc., Murray Hill, N.J., a corporation of Delaware
Filed May 1, 1969, Ser. No. 821,029
Int. Cl. H02p 3/00
U.S. Cl. 192—116.5 11 Claims



A rotating machine part subject to possible overheating during high-speed operation is in mechanical vibration-transmitting relation to apparatus having vibration-sensing means for causing emergency shutdown. The rotating part includes an eccentrically mounted displaceable mass that in normal position maintains dynamic balance of the part. Upon overheating of the part, the mass is released in response to temperature rise and displaced by centrifugal force, thereby causing sensible vibration and emergency shutdown of the apparatus.

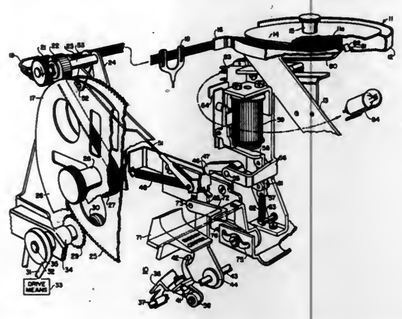
3,548,993
TYPE HEAD DRIVING AND STOPPING APPARATUS
Herbert Behrens, Neuenburg, and Hans Elsner, Bremen-Gartenstadt Vahr, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany
Filed Nov. 22, 1968, Ser. No. 778,241
Int. Cl. B41j 23/10, 1/60
U.S. Cl. 197—18 17 Claims



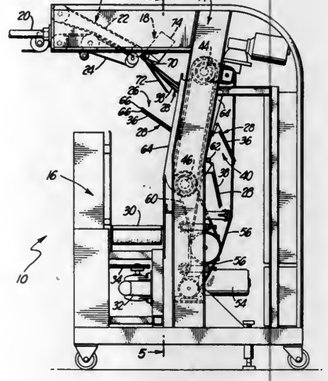
A rotary type-head is driven by means of a planetary transmission which has a normal condition in which the type-head is continuously rotated, and a stop control condition in which the type-head is turned by a coupling means moving along a cycloid path under the control of planetary gear means of the transmission, so that the type-head is stopped at the reversing point of the cycloid path in a position for printing a typeface selected by actuation of the corresponding key.

3,548,994
PROPORTIONAL CARBON RIBBON FEED MECHANISM
David H. Hudson, Holcomb, N.Y., assignor to The Singer Company, a corporation of New Jersey
Filed June 28, 1968, Ser. No. 740,936
Int. Cl. B41j 33/14, 35/36, 29/42
U.S. Cl. 197—151 4 Claims

A mechanism for conserving carbon ribbon in a proportional spacing printer wherein the ribbon may be selectively set for movement in a proportional spacing mode during printing of print characters lying with two width groups or for movement in a monospacing mode during printing of both of said groups through a bellcrank limited in movement by a solenoid in the proportional spacing mode and by an operator-controlled stop member in the monospacing mode.

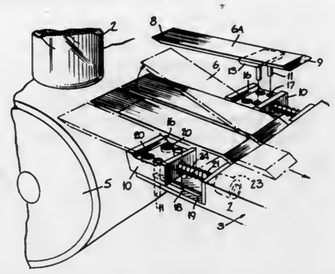


3,548,995
CONTROLLED VARIABLE SPEED STACKING DEVICE FOR PUBLICATION CONVEYOR
Samuel Oderman, Corona Del Mar; Raymond L. Wiseman, Santa Ana, and Geroge T. Rushforth, Mission Viejo, Calif., assignors to Sta-Hi Corporation, Newport Beach, Calif., a corporation of California
Filed June 13, 1968, Ser. No. 736,673
Int. Cl. B65g 47/00
U.S. Cl. 198—20 20 Claims



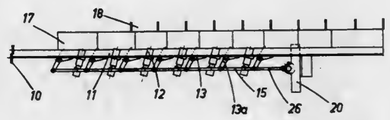
A series of support members are driven in a continuous path downwardly through a stacking region to a lower end thereof and then upwardly to return to an upper end thereof. During the support member movement through the stacking region, publications are received from a more or less continuous stream building stacks thereon for deposit at the stacking region lower end. Sensing means senses the stack upper extremity during stack buildup and controls the feed of downward movement of the particular support member to maintain the stack upper extremity within a predetermined vertical distance range from the stacking region upper end during said stack buildup. Also, the sensing means may include a safety switch arranged to override other control and temporarily provide maximum speed of support member downward movement in the event the stack upper extremity reaches a predetermined maximum vertical position during stack buildup.

3,548,996
SELF-RELIEVING ARTICLE TRANSFER PLATE
Warren L. Ellis, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, a corporation of Delaware
Filed May 7, 1968, Ser. No. 727,228
Int. Cl. B65g 47/52, 47/66
U.S. Cl. 198—23 8 Claims



An article transfer plate of the type used to transfer articles from one moving conveyor to another where the articles pass onto the transfer plate over a thin edge and where the movement of the articles across the plate is usually facilitated by the combined use of a plate vibrating means and an incline in the plate surface. The article receiving edge of the transfer or dead plate is improved by the provision of a series of small individual transfer plates. The individual plates have a floating-type mounting arrangement which permits them to swing clear of debris on the conveyor which might otherwise strike and damage the article transfer edge of the dead plate. Additionally, the small individual transfer plates are detachably mounted whereby they may be quickly replaced by a simple manipulation. In the event one of the small plates is damaged it may be quickly replaced without stopping the conveyor operation.

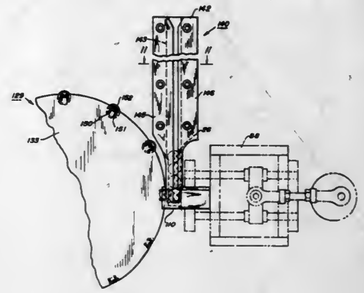
3,548,997
LIVE ROLLER FEED TABLE WITH EJECTING MEANS
Otto Karl Buchheit, 2 Eulentalstr., 667 St. Ingbert-Saar, Germany
Filed Sept. 26, 1968, Ser. No. 762,944
Claims priority, application Germany, Sept. 30, 1967, 1,602,217
Int. Cl. B65g 39/00, 47/52
U.S. Cl. 198—24 4 Claims



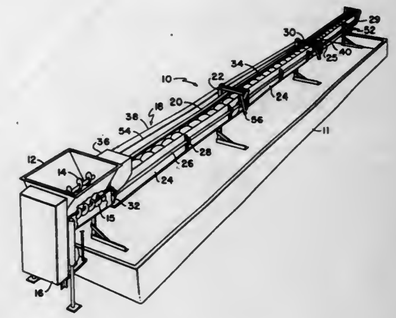
On a live roller feed table 11 used with an adjacent cooling bed for rolled elongate material horizontally mounted pivotable wipers 13 laterally eject the elongate material travelling at high speed. The drive includes a reciprocating piston-rotary drive 20—22 which pivots the wipers 13 forward and back again into the starting position during a single stroke.

3,548,998
AUTOMATIC FEEDING MECHANISM
Martin G. Heller, 78 Warren Road, West Orange, N.J. 07052
Filed Oct. 21, 1968, Ser. No. 769,109
Int. Cl. B65g 47/00
U.S. Cl. 198—24 21 Claims

A feeding mechanism is cycled in synchronism with a transistor lead cutting and shaping apparatus. This transistor feeding mechanism receives the transistors from a chute in an oriented condition and one at a time transports the transistors to the transfer mechanism for the cutting and bending operations. The feeding mechanism is reciprocated by a crank arm whose length is adjusted to provide a determined dwell time at each end of the feeding cycle.



3,548,999
BUNK FEEDER CONTROLS
Thomas R. Fischer, Wapakoneta, Ohio, assignor to Avco Corporation, Coldwater, Ohio, a corporation of Delaware
Filed May 31, 1968, Ser. No. 733,488
Int. Cl. B65h 29/58
U.S. Cl. 198—64 3 Claims

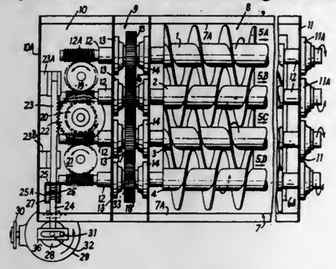


The disclosure illustrates an improved control for the opening of a door in an elongated bunk feeder comprising a rotating auger in a trough for conveying a uniform amount of feed along the length of the trough. The door control mechanism comprises a pressure switch mounted at a substantial distance from its end on the last of a series of end-to-end discharge doors. The switch is responsive to a given lateral pressure of feed to actuate opening of the doors before the feed reaches the end to minimize feed buildup.

3,549,000
SCREW CONVEYOR APPARATUS
Joseph D. Christian and Robert F. Christian, San Francisco, Calif., by Marcella B. Christian, and Robert F. Christian, executors of Joseph D. Christian, deceased, assignors to Packaged Power Terminals Inc., San Francisco, Calif.
Filed July 22, 1968, Ser. No. 747,412
Claims priority, application Great Britain, July 31, 1967, 34,993/67; Sept. 22, 1967, 43,164/67
Int. Cl. B65g 33/00, 47/16
U.S. Cl. 198—64 9 Claims

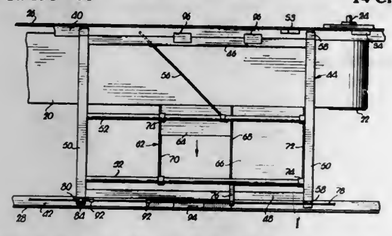
A screw conveyor apparatus comprises a housing 7 (FIG. 7) having an inlet 6 (FIG. 8) and outlet 6A (FIG. 9), a plurality of screw conveyors, 1, 2, 3, 4, rotatably mounted within the housing with their flights in an overlapping rela-

tionship, at least one of the conveyors being axially movable; and driving means (15 to 36) for rotating the screw con-



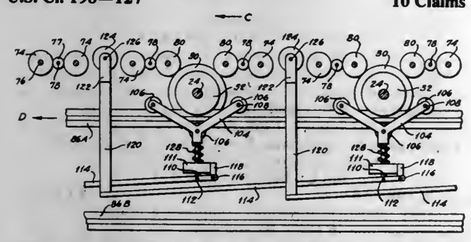
veyors and axially moving said axially movable conveyor while it rotates.

3,549,001
FEED CONVEYOR
Gerald L. Harper, and Wesley J. Bachman, Eureka, Ill., assignors to Advanced Systems, Inc., Eureka, Ill., a corporation of Illinois
Filed Sept. 30, 1968, Ser. No. 763,808
Int. Cl. B65g *47/44, 47/46*
U.S. Cl. 198—66 **14 Claims**



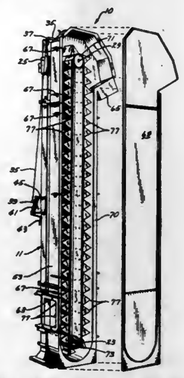
Material such as feed is transported by a conveyor and selectively delivered to either of two receiving stations by a diverter which is shiftable between a pair of delivery positions. Structure for discharging the material from the conveyor into the diverter moves with the latter as the diverter is advanced back and forth along the conveyor between spaced limits of travel by a drive therefor. Limit switches may be selectively conditioned by the operator for activation in response to the arrival of the moving diverter and cooperate with a releasable coupling between the structure and the diverter to enable the drive to shift the diverter from one delivery position to another as the diverter reverses its direction of travel.

3,549,002
ARTICLE CONVEYORS
John M. Leach, P.O. Box 341, Port Jefferson, N.Y. 11777
Continuation-in-part of application Ser. No. 726,381, May 3, 1968, now Patent No. 3,451,527, dated June 24, 1969. This application July 24, 1968, Ser. No. 747,151
Int. Cl. B65g *13/02*
U.S. Cl. 198—127 **10 Claims**



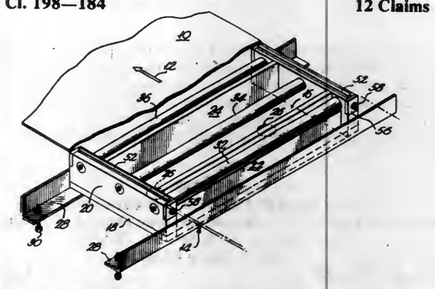
This invention relates to power driven article conveyors of the type commonly known as accumulation conveyors. In the operation of such type conveyor, whenever an article is stopped thereon for any reason, suitable mechanism is operated to stop the forward movement of the next article behind the stopped article in the direction of article flow just before or just after it touches the stopped article ahead, and this action is continued along down the line of approaching articles so as to prevent the articles from forcibly crowding together sufficiently to damage each other or make them difficult to remove from the line.

3,549,003
MATERIAL HANDLING ELEVATOR
Bernhard E. Jacobson, Cedar Falls, Iowa, assignor to Universal, Inc., Huson, Iowa, a corporation of Iowa
Filed Feb. 19, 1968, Ser. No. 706,349
Int. Cl. B65g *17/12*
U.S. Cl. 198—141 **5 Claims**



A material handling elevator for food materials or the like including a vertical support post having a first bearing means rigidly secured thereto adjacent the lower end thereof and a second bearing means vertically slidably mounted thereon adjacent the upper end thereof. A driven shaft extends through the second bearing means laterally from the post and an idler shaft is mounted in the first bearing means and extends laterally therefrom. The shafts support a cup conveyor belt means movably mounted thereon and which is enclosed by a casing secured to the support post. One side of the casing is enclosed by a removable cover to facilitate the cleaning of the interior of the casing.

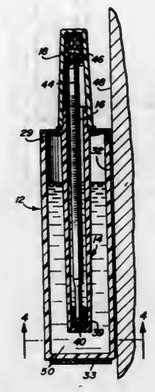
3,549,004
BELT FLATTENING DEVICE
Benjamin Zysman, Old Greenwich, Conn., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Dec. 11, 1967, Ser. No. 689,722
Int. Cl. B65g *15/42*
U.S. Cl. 198—184 **12 Claims**



This disclosure contains drawings and a description of an improved belt flattening device of the type in which a vacuum source is employed to draw a linear run portion of an impervious conveyor belt against a planar support surface.

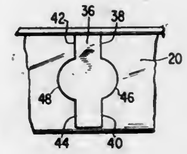
The surface is established at least in part by a pair of rollers having sealing means between the periphery of the rollers and the vacuum box assembly, as well as by additional sealing means in the form of rails extending between the rollers and at the ends thereof.

3,549,005
THERMOMETER HOLDER
Theodore P. Kalogris, P.O. Box 30025, Bethesda, Md. 20014
Filed Apr. 30, 1968, Ser. No. 725,333
Int. Cl. B65d *81/22*
U.S. Cl. 206—16.6 **3 Claims**



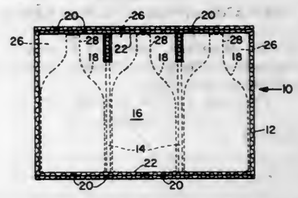
A first embodiment of the present invention includes a tubular thermometer case adapted for insertion within a vial. The case includes an aperture therein for permitting the passage of antiseptic into the case thereby sterilizing a contained thermometer. The vial functions as an antiseptic reservoir. The second embodiment includes a thermometer case containing antiseptic. No separate reservoir is provided in this latter embodiment. A holder includes a first recess permitting removable insertion of the thermometer case therein and a second recess therein for retaining a cap of the thermometer case when the case is uncapped.

3,549,006
PACKAGE
Eugene J. Meierhoefer, Chester, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 25, 1968, Ser. No. 762,442
Int. Cl. B65d *83/04*; **G07f** *11/66*
U.S. Cl. 206—56 **4 Claims**



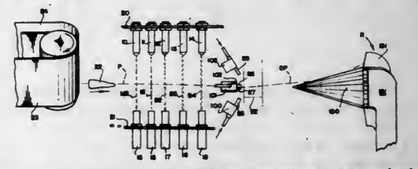
The disclosure is directed to a dispensing package for strip pack unit dose medicaments. The package is round, transparent and has a slot for strip-pack feedout. The package closure may be labeled to identify the contents.

3,549,007
CONTAINER DIVIDERS HAVING IMPROVED STACKING STRENGTH
George O. Charrier, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 10, 1968, Ser. No. 782,575
Int. Cl. B65d *1/36, 5/48, 81/05, 85/00*
U.S. Cl. 206—65 **2 Claims**



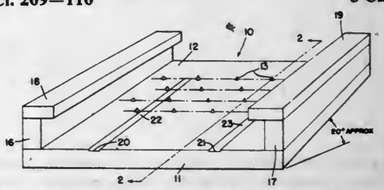
A technique for improving the stacking strength of divider-equipped containers without incurring any additional materials cost. Such improvement is realized by dimensioning the slot lengths of interlocking sheet dividers so that slots opening at the lower side of the dividers are substantially longer than those opening at the upper side.

3,549,008
PHOTOELECTRIC SIZING AND SORTING APPARATUS
Ronald L. Anderson, 1686 Best Lane, Eugene, Oreg. 97401
Filed Jan. 16, 1969, Ser. No. 791,636
Int. Cl. B07c *5/10*
U.S. Cl. 209—82 **5 Claims**



A sorting apparatus is disclosed for sorting consecutively delivered articles according to a selected criteria. Photoelectric scanning components are disposed on opposite sides of the article's path and adjacent the end of article conveyor means. The articles to be sorted are consecutively ejected from said means at a speed whereby they will follow a path or trajectory past said scanning components. Nozzles for directing an air blast at said article are located immediately downstream from said scanning components and are in communication with air solenoid valves which upon activation release a directed air blast to divert an article from its path into receiving means for that particular size of article. The scanning components are in circuit with lock out and lock in switches and with logic modules to activate the required solenoid valve for a desired dwell period.

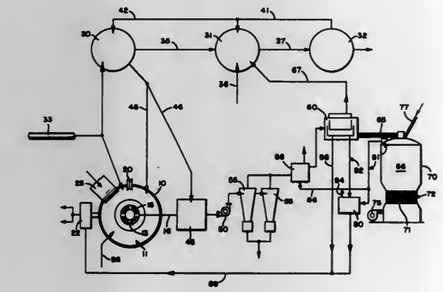
3,549,009
INSPECTION FIXTURE
John W. Potts, North Caldwell, N.J., assignor to United States of America, as represented by the Secretary of the Army
Filed Apr. 14, 1969, Ser. No. 815,735
Int. Cl. B07c *9/00*
U.S. Cl. 209—110 **3 Claims**



An inspection fixture for gauging primer tubes having its sidewall formed with predetermined flash holes. The tube is

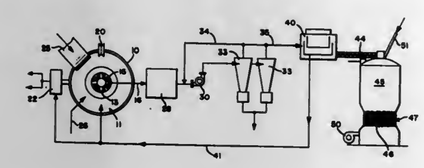
rolled lengthwise as guided by a pair of longitudinally extending opposed channels formed by sidewall constructions secured to a base member. The base contains a plurality of upstanding pins at predetermined locations and which protrude above the base upper surface. The pins will be received by the flash holes of an acceptable primer tube.

3,549,010
METHODS AND APPARATUS FOR DISPOSING OF WASTE MATERIALS
Paul G. Marsh, Hamilton, and Earl T. Blakley, Cincinnati, Ohio, assignors to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio
Filed July 1, 1968, Ser. No. 741,712
Int. Cl. B01d *21/26*
U.S. Cl. 210—71 **15 Claims**



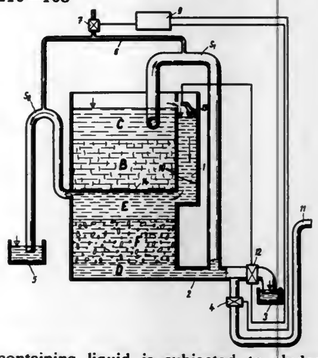
Waste sludges, particularly sludges resulting from the treatment of municipal sewage, but also including industrial waste sludges, are mixed with the residue obtained by the pulping of garbage, trash and other municipal refuse for the purpose of aiding the conjoint ultimate disposal of both types of wastes. The sludge is mixed with the pulped slurry of municipal wastes in order to take advantage of the ease with which the resulting mixed waste materials can be dewatered to a consistency appropriate for convenient ultimate disposal, especially by incineration in a fluidized bed reactor or other incinerating apparatus.

3,549,011
METHOD AND APPARATUS FOR DISPOSING OF SOLID WASTES
Paul G. Marsh, Hamilton, Ohio, assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio
Filed July 1, 1968, Ser. No. 741,713
Int. Cl. B01d *21/00*
U.S. Cl. 210—71 **8 Claims**



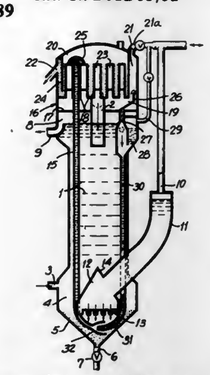
A system for disposing of municipal wastes includes a tub wherein wastes are pulped in an aqueous medium to produce a pumpable slurry which is extracted through a screen plate to a dewatering device whence it is screw fed or otherwise delivered to a fluidized bed reactor for incineration of its solid constituents.

3,549,012
METHOD AND EQUIPMENT FOR AUTOMATIC WASHING OF RAPID FILTERS
Vladimir Mackrle, Prague, and Svatopluk Mackrle and Oldrich Dracka, Brno, Czechoslovakia, assignors to Ceskoslovenska Akademie ved, Prague, Czechoslovakia
Filed Jan. 3, 1968, Ser. No. 695,420
Claims priority, application Czechoslovakia, Jan. 7, 1967, Dec. 5, 1967, 158-67; 8,620-67
Int. Cl. B01d *23/24*
U.S. Cl. 210—108 **4 Claims**



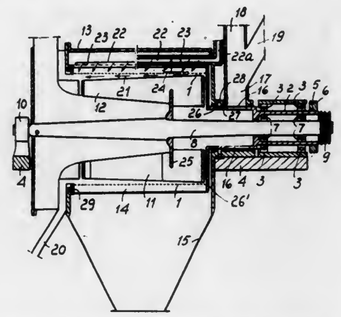
Solids-containing liquid is subjected to sludge blanket clarification. The clarified liquid, from which some of the solids have been removed while others remain, is passed from one side through a filter body to issue at the other side of the same as filtered liquid. The solids which are retained by the filter body clog the interstices thereof so that the flow resistance of the filter body increases. This causes backup of the infiltered clarified liquid at the one side and when the level of this unfiltered liquid rises to a predetermined extent, further filtration is terminated and movement of the unfiltered clarified liquid through the filter body in opposite direction is initiated in automatic response to the level rising to this extent, whereby to flush the accumulated solids out of the interstices of the filter body.

3,549,013
SORPTION TOWER HAVING HORIZONTAL PERFORATED PLATES
Evgeny Ivanovich Zakharov, Malaya Schukinskaya ulitsa 10b, kv. 22; Susanna Mikhailovna Karpacheva, 2 Schukinskaya proezd, 2, kv. 88; Valerian Matveevich Muratov, Astakhovsky pereulok, 1/2, kv. 118; Leonid Solomonovich Raginsky, Nikitinskaya ulitsa 16, Korpus I kv. 29, Moscow; and Vladimir Mikandrovich Koshkin, Novomytischinsky proezd, 26. kv, 12, Mytischi, U.S.S.R.
Filed June 26, 1968, Ser. No. 740,308
Claims priority, application U.S.S.R., June 30, 1967, 1,167,697
Int. Cl. B01d *15/02*
U.S. Cl. 210—189 **6 Claims**



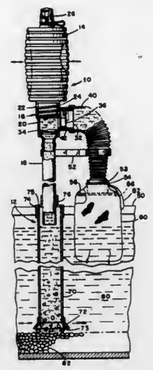
A sorption tower has a middle reactive section with horizontal plates for countercurrent flow of sorbent fed at the top of the tower and liquor fed at the bottom of the tower. The liquor is settled in a chamber at the top of the tower and the sorbent in a chamber at the bottom of the tower. The liquor in the vessel is subjected to pulsation. A vessel at the top of the tower is fed with pulp from the sorbent chamber and the pulp is subjected to oscillatory movement to separate sorbent, which is externally discharged from the vessel and tower, from liquor which is returned to the sorbent chamber where it is mixed with sorbent and thereafter recycled to the vessel by means of an ejector.

3,549,014
SCREENING DEVICE
Renzo Sponza, Via Querini 17, Mestre, (Prov. Venezia), Italy
Filed Apr. 15, 1968, Ser. No. 721,437
Int. Cl. B01d *33/06*
U.S. Cl. 210—394 **1 Claim**



Device for screening pulverulent material with a drumlike screening panel, an impeller member within the space surrounded by said screening panel, the screening panel being supported either rotatably or rigidly; the device comprising further duct means for introducing the material to be screened and circulating air, as well as chambers for collecting the screened and nonscreened material and pneumatic brushes cooperating with the screen.

3,549,015
ADJUSTABLE HAND OPERATED AQUARIUM CLEANING PUMP
Allan H. Willinger, New Rochelle, N.Y., assignor to Metaframe Corporation, Hawthorne, Calif., a corporation of Delaware.
Filed Nov. 18, 1968, Ser. No. 776,517
Int. Cl. F04b *43/00*
U.S. Cl. 210—416 **3 Claims**

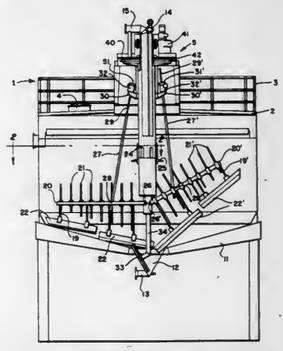


A hand operated aquarium cleaning pump comprising, in combination, a water pumping means and an adjustable inlet therefor, said pump being selectively positionable within said aquarium tank and said inlet being telescopically adjustable to a position adjacent the tank bottom which requires cleaning.

3,549,016
PERMEABLE MEMBRANE AND METHOD OF MAKING AND USING THE SAME
Peter Nicholas Rigopulos, Melrose, Mass., assignor to Amicon Corporation, Cambridge, Mass., a corporation of Massachusetts
No Drawing. Continuation of application Ser. No. 545,298, Apr. 26, 1966, now abandoned. This application Aug. 14, 1969, Ser. No. 850,263
Int. Cl. B01d *39/16*
U.S. Cl. 210—500 **11 Claims**

An anisotropic permeable membrane formed of two ionically associated polymers and having adjacent one face a zone of lesser permeability is made by casting on an impervious surface an aqueous solution of the polymers together with an electrolyte and a miscible organic solvent, gelling the cast layer and washing it with a solvent for the electrolyte while still on the casting surface, then stripping it.

3,549,017
APPARATUS FOR USE IN SLUDGE TREATMENT
Klaus Theidel, Bad Homburg, and Wilhelm Weber, Diez (Lahn), Germany, assignors to Passavant Werke, Michelbacher Hutte, Germany
Filed July 25, 1969, Ser. No. 844,985
Claims priority, application Germany, July 31, 1968, 1,784,368.4
Int. Cl. B01d *21/06*
U.S. Cl. 210—531 **9 Claims**
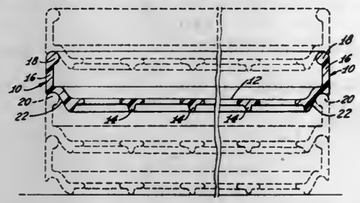


Apparatus for lifting and lowering sludge scraping or removal gear in a sludge thickener basin. The gear extends in a direction away from the sludge discharge opening and the end of the gear fartherest from the opening is lifted more than is the end closest to the opening. In a circular basin with a central discharge opening and with radially extending gear, the radial outermost ends of the gear are lifted a greater amount than the radial inner end thereof.

3,549,018
PLASTIC TRAY
James D. Wilson, Long Beach, Calif., assignor to Banner Metals, Inc., Compton, Calif., a corporation of Ohio
Filed Nov. 8, 1968, Ser. No. 774,318
Int. Cl. A47f *3/14*; **B65d** *21/02*
U.S. Cl. 211—126 **4 Claims**

A plastic tray is provided for use, for example, in the bakery industry for carrying bread and other bakery products in racks mounted on trucks, or in rack-type delivery carts, or the like; and which trays may be conveniently nested when

empty so as to be transported in a tiered condition on a dolly, or the like. The plastic tray of the invention is constructed in a manner such that it does not tend to sag, and its sides do not tend to spread when other trays are nested on top of it.

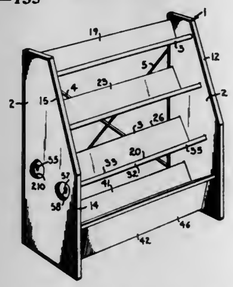


The tray includes a bottom member having sidewalls extending upward therefrom and terminating in a convexly arcuate bead through its periphery. The bottom member defines a concave shoulder directly under the sidewalls for receiving the bead of a lower like tray.

3,549,019
DISPOSABLE DISPLAY RACK

Gerald Wood, Prairie Village, Kans.; Nelson E. Orwig, Sandusky, Ohio; Harvey L. Kolster, Grain Valley, Mo., and Jack E. Kahler, Overland Park, Kans., assignors to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri, by direct and mesne assignments

Filed Dec. 4, 1968, Ser. No. 781,220
Int. Cl. A47f 5/11
U.S. Cl. 211—135 **9 Claims**



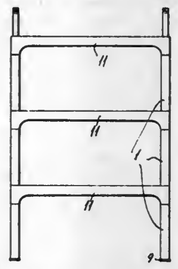
A disposable display rack for displaying merchandise has a pair of laterally spaced upright support members which support opposite ends of a plurality of vertically spaced merchandise-supporting members. Bracing members extend between the upright support members and a plurality of support dowels are mounted in edges of the merchandise-supporting members and have opposite ends supported by the upright support members to increase the rigidity of the rack. Each of the upright support members and each of the merchandise-supporting members are formed of a single sheet of material folded to form the respective members.

3,549,020
SHELVING COMPRISING COMPOSABLE MODULAR ELEMENTS

Olaf Von Bohr, Via Cesariano, 18, Milan, Italy

Filed Mar. 13, 1970, Ser. No. 19,164
Int. Cl. A47b 3/06, 7/02; A47f 5/00
U.S. Cl. 211—148 **5 Claims**

A composable shelving formed by only two types of modular elements which can be interlockingly connected to each other to form shelving uprights and shelves; each of the upright elements comprises a hollow body having an open lower end, and having an intermediate portion of a reduced size relative to the underlying portion to provide a peripheral shoulder for the shelf element, and an upper portion of a reduced size relative to the intermediate portion for inserting in the open lower end of an overlying upright element; each of the shelf elements has at each end thereof an aperture, in

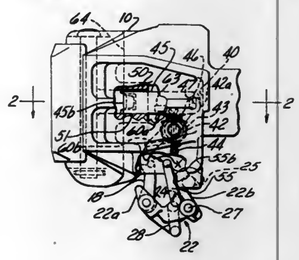


which the intermediate portion of the associated upright element is inserted.

3,549,021
AUTOMATIC CAR COUPLER

William J. Metzger, East Cleveland, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio

Filed May 22, 1968, Ser. No. 731,063
Int. Cl. B61g 3/00, 3/08
U.S. Cl. 213—110 **14 Claims**

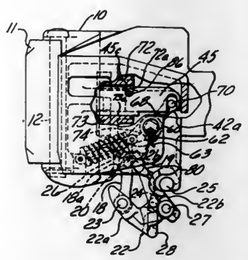


A knuckle type railway car coupler is provided with means whereby the lock for the knuckle will automatically move out of locking relationship with the knuckle and the knuckle will swing from closed to open position when a mating coupler is uncoupled from the coupler.

3,549,022
AUTOMATIC CAR COUPLER

William J. Metzger, East Cleveland, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Sept. 27, 1968, Ser. No. 763,303
Int. Cl. B61g 3/00
U.S. Cl. 213—110 **14 Claims**

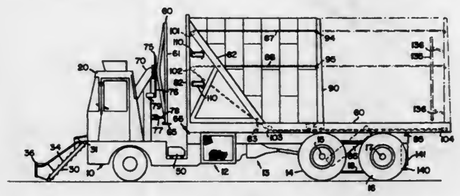


A knuckle-type railway car coupler is provided with means for automatically unlocking and opening the knuckle when a mating coupler is uncoupled from the coupler. Means is provided in the coupler head for automatic engagement with a rotor lever of the coupler for actuation of the same to unlock knuckle and swing it to open position. The means is immobilized by the knuckle of an opposing coupler when the coupler is in coupled relation with the opposing coupler.

3,549,023
AUTOMATIC BALE STACKING VEHICLE

Edward C. Backman, P.O. Box 916, Turlock, Calif. 95380

Filed June 3, 1968, Ser. No. 733,872
Int. Cl. B65g 57/32, 57/30
U.S. Cl. 214—6 **30 Claims**

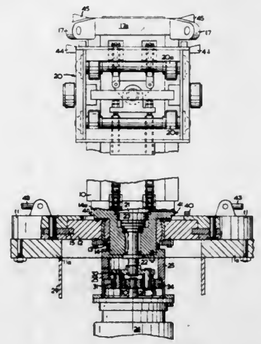


An automatic bale stacking vehicle is disclosed wherein bales are lifted from the ground by a pickup conveyor and positioned by a bale receiving table on an elevator which raises the bales into position before a vertical turntable mounted for rotation on a mast above the elevator. Grasping means on the turntable retain a plurality of bales in a desired tying configuration thereon to form a layer of bales for stacking. The turntable and mast are mounted for longitudinal translation along the vehicle on tracks to push the formed layers of bales into a stacking framework in which a horizontal stack is formed. The stacking framework is pivotally mounted for unloading stacks of bales vertically onto trucks or onto the ground by a self-unloading tailgate.

3,549,024
EQUIPMENT FOR HIGH-LINE TRANSFER

Stephen G. Schneller, Laval, Quebec, Canada, assignor to Peacock Brothers Limited, LaSalle, Quebec, Canada, a corporation of Canada

Filed Dec. 26, 1968, Ser. No. 787,171
Claims priority, application Canada, Oct. 28, 1968, 33,724
Int. Cl. B63b 27/18
U.S. Cl. 214—13 **6 Claims**

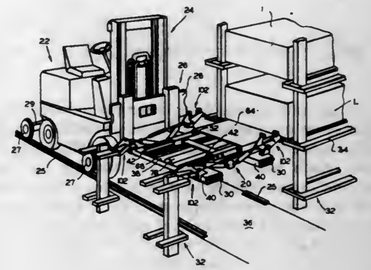


This invention relates to a retractable kingpost assembly arranged to be mounted on the deck of a ship for receiving loads transferred by a high-line system. The kingpost assembly is made up of a base member which is releasably engageable with a deck fitting, a kingpost rotatable in a bearing held by the base member and a padeye vertically movable on the kingpost. A motor attached to the base of the kingpost and rotatable therewith is provided to raise and lower the padeye on the kingpost.

3,549,025
SIDE LOADER DEVICE

John S. Messner, Battle Creek, Mich., assignor to Clark Equipment Company, a corporation of Michigan

Continuation of application Ser. No. 666,892, Sept. 11, 1967, now abandoned. This application Oct. 9, 1969, Ser. No. 866,138
Int. Cl. B66f 9/14
U.S. Cl. 214—16.4 **26 Claims**

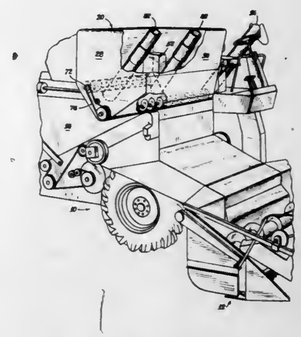


A side loader device for use with an industrial lift truck to facilitate loading and unloading of the truck lift forks from and onto storage racks adjacent the sides of the truck. The device includes a reach mechanism adapted to be supported by the lift forks for retractable extension outwardly from either side of the truck. Stabilizing bellcrank assemblies are mounted adjacent the reach mechanism and are pivotally operable to engage the adjacent material storage racks and prevent sagging and side loading moments on the truck as a load is brought onto or removed from the lift forks by the reach mechanism.

3,549,026
BIN LOADING DEVICE FOR COMBINES

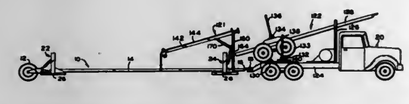
Maurice Klee, Davenport, Iowa, assignor to J. I. Case Company, a corporation of Wisconsin

Filed Apr. 9, 1969, Ser. No. 814,548
Int. Cl. B60p 1/42; A01d 90/00
U.S. Cl. 214—17 **13 Claims**



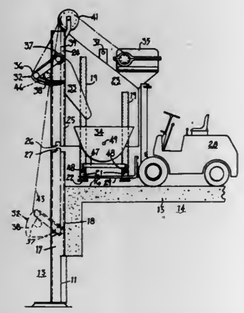
A loading and distributing device for a grain tank of a harvesting machine and which includes a first conveyor extending between spaced sidewalls of the grain tank with a plurality of second conveyors extending from said first conveyor and each having a plurality of spaced adjustable openings to evenly distribute grain received by the first conveyor within the grain tank.

3,549,027
STORAGE AND LOADING APPARATUS FOR ELONGATED LOADS
Dossie M. Batson, Portland, Oreg., assignor to Nelson Equipment Company, Portland, Oreg., a corporation of Oregon
Filed Feb. 23, 1968, Ser. No. 707,829
Int. Cl. B65g 67/12
U.S. Cl. 214—38 16 Claims



A storage and loading bunk assembly for logs and other elongate loose or containerized loads including two pairs of laterally spaced posts adjustable longitudinally along a reach member. Each post is vertically extendible by hydraulic means, and the extendible portion carries a horizontal load support arm which extends inwardly toward the support arm of the opposed post. The arms of each pair interlock to support one end of a load. The support arms can be swung from their inwardly directed positions horizontally to longitudinal positions so as to avoid obstructing a vehicle driven between the vertical support posts. The bunk assembly is wheel-mounted for mobility, and can carry hoisting equipment.

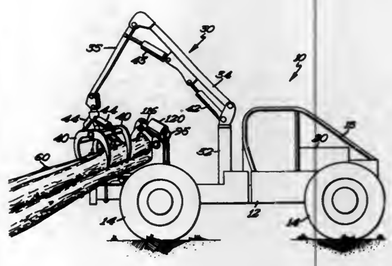
3,549,028
MOBILE SCREEN RAKE MACHINE
Karl Neumann, Michelbach, and Wilhelm Schoen, Wiesbaden, Germany, assignors to Passavant-Werke, Michelbacher Hutte, Near Michelbach, Nassau, Germany, a corporation of Germany
Filed Oct. 25, 1968, Ser. No. 770,491
Claims priority, application Germany, Nov. 3, 1967, 1,634,142
Int. Cl. B65g 67/04
U.S. Cl. 214—41 9 Claims



A screen rake machine for cleaning bar screens in sewage treatment plants, hydroelectric power plants, or the like, is completely mobile and is provided with means for operatively aligning it with differently located bar screen installations in order that a plurality of said installations can be serviced by the same machine.

3,549,029
BUNK FOR ARTICULATED LOG SKIDDER
Richard W. Rutter, Rte. 1, Box 95-A, Hibbing, Mich. 55746
Filed Nov. 26, 1968, Ser. No. 779,133
Int. Cl. B60p 1/48
U.S. Cl. 214—77 6 Claims

A bunk for an articulated log skidder in which the bunk includes a plurality of securing arms independently operated from one another and from the bunk for the purpose of securing the logs therein. The bunk is articulated and



pivotally mounted about two axes of movement for ease in loading and dragging logs.

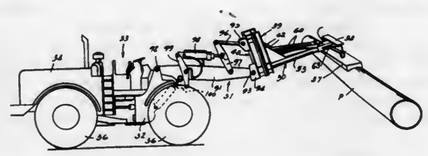
3,549,030
LOAD EJECTING VEHICLE
Samuel J. Coughran, Jr., Cedartown, Ga., and Harvey D. Burkhalter, Ruston, La., assignors to Rome Industries, Incorporated, Cedartown, Ga., a corporation of Georgia
Filed Dec. 10, 1968, Ser. No. 782,688
Int. Cl. B60p 1/48
U.S. Cl. 214—85 9 Claims



A log-transporting vehicle having fixed stakes along one side of the frame and pivoted stakes along the opposite side of the frame. The pivoted stakes are attached for pivotal connection at a point below the cargo deck and an off-loading ramp cable normally hangs slack between the upper ends of the stakes but when the pivoted stakes are swung down to the ground, the ramp cable is stretched taut to lift and roll the load off the vehicle. Each ramp cable is anchored at the upper end of a fixed stake and passes under the load and thence over a pulley at the upper end of a pivoted stake and thence downwardly to pass beneath a second pulley on the pivoted stake and then issues horizontally to pass over a pulley on the vehicle frame above the pivot point of the stakes and is deadended against a resilient stop. The compound action of the placement of the stake pivot points and the disposition of the second and fixed pulleys assures tensioning of the ramp cables in the off-loading position of the stakes.

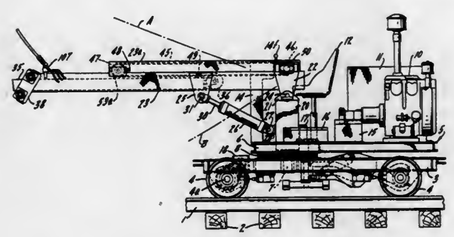
A binder cable arrangement involves a cable deadended to the upper end of the pivoted stakes and which passes over the load and down to a pulley fixed adjacent the lower end of the fixed stakes, thence up and over a second pulley and then downwardly to an anchor point. The second pulley is movably carried by a piston and cylinder arrangement to tension the load-binding cable.

3,549,031
TRACTOR ATTACHED VACUUM LIFTER
Douglass K. Blood, Wilmette, and Harold H. Hansen, Lake Zurich, Ill., assignors to Contracting and Material Company, Evanston, Ill., a corporation of Illinois
Filed Oct. 9, 1968, Ser. No. 766,053
Int. Cl. B66c 1/02
U.S. Cl. 214—147 10 Claims



A vacuum lifter attachment for the lift mechanism of tractors having vacuum shoes for seating on pipes and the like objects to be picked up and conveyed wherein each shoe has its own integrally connected adjacent vacuum reservoir and a control valve to provide fast and safe evacuation of the shoes. The attachment has controls for tilting on a horizontal axis, the shoes are mounted to accommodate misalignments and bending of the pipe being lifted and the lift mechanism is preferrably mounted on an articulated four wheel tractor.

3,549,032
TIE HANDLERS
Edward H. Krause, Jr., New Berlin, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Continuation of application Ser. No. 614,205, Feb. 6, 1967, now abandoned. This application Dec. 19, 1968, Ser. No. 786,842
Int. Cl. B66c 1/42
U.S. Cl. 214—147 5 Claims

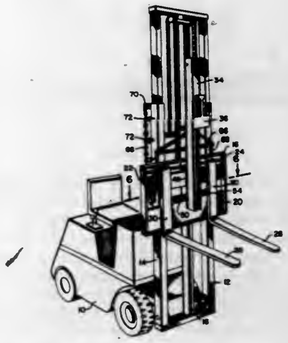


The invention, primarily for handling ties in railway track work, includes a chassis movable along a track and having an upper frame or carriage and boom rotatable about a vertical axis, the boom having an outer and an inner member, the inner member being extensible and carrying at its end a head with clamping jaws for picking up articles. The head is rotatable about an upright axis and is also rotatable, in relation to the boom, about a horizontal axis. The boom, as a whole, is rotatable about a vertical axis, through an arc of 360°, and is also rotatable about a horizontal axis. The engine and a liquid tank on the upper carriage counterweight the boom. The main engine drives hydraulic motors and cylinders to perform the following functions:

1. To move the chassis along the track. 2. To apply brakes to the chassis wheels when necessary. 3. To rotate the upper carriage and boom about a vertical axis through over 360°. 4. To rotate the boom about a horizontal axis. 5. To advance or retract the inner boom member. 6. To rotate the head about an upright axis about an arc of over 360°. 7. To rotate the head about a horizontal axis in relation to the boom; and 8. To actuate the clamping jaws of the head.

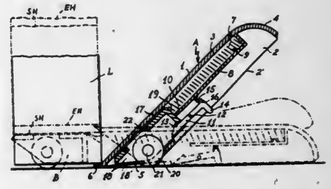
All the hydraulic motors and cylinders are under control of an operator in a seat on the upper carriage, through actuating levers and pedals.

3,549,033
AUXILIARY LIFT ATTACHMENT FOR A LIFTING DEVICE
William E. Howard, West Hartford, Conn., assignor to Materials Handling Systems, Inc., West Hartford, Conn., a corporation of Connecticut
Filed Apr. 2, 1969, Ser. No. 812,776
Int. Cl. B65g 65/34
U.S. Cl. 214—315 10 Claims



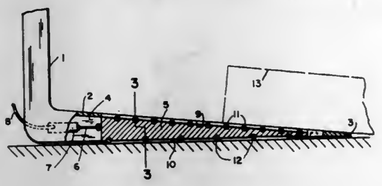
An auxiliary lift attachment is disclosed for use with a lifting device such as a fork lift truck used to lift and handle a dump box of the type having a lifting lug extending rearwardly from its rear wall. The lift attachment comprises a vertical track member and a lifting member movable along such track for engaging and raising the lift lug of a box carried by the lifting device. Raising movement of the lifting member is obtained from the normal lifting movement of the lifting device carriage and by means of a flexible member having one end attached to the lifting member and passing upwardly over a wheel at the upper end of the track member, the other end of such flexible member being connected to the stationary vertical mast of the lifting device.

3,549,034
COMBINATION LOAD LIFTING AND TRANSPORTING DEVICE
Martin Guerrico, Paraguay 1142, Buenos Aires, Argentina
Continuation-in-part of application Ser. No. 705,840, Feb. 15, 1968, now Pat. No. 3,512,663. This application June 5, 1968, Ser. No. 742,113
Int. Cl. B62b 1/00
U.S. Cl. 214—372 12 Claims



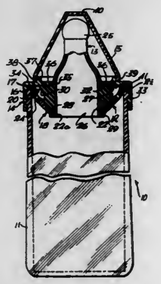
This disclosure relates to combination load lifting and transporting devices and provides a hollow load-lifting lever member carrying a detachable rolling load-transporting means with the hollow lever member being provided with spring means for thrusting the rolling load-transporting means under a load and free of the lever member when said lever member is in its full load lifting substantially horizontal position and the device can be relatively small in size and will find particular application whenever it is desired to move a relatively small and heavy load, for example, it is particularly advantageous for lifting a door off its hinges and pushing or drawing it while resting on the rolling load-transporting means to a desired location for painting, repairing or otherwise treating the door.

3,549,035
FORK ASSIST
Donald W. Soper, Cross St., Orland, Maine 04472
Filed Apr. 18, 1969, Ser. No. 834,189
Int. Cl. B66f 9/19
U.S. Cl. 214—750 5 Claims



As an assist in moving the fork of a lift truck under the load more easily and properly positioned without damage to the fork or the commodities constituting the load, an elongated flat surface wedge guided for slight longitudinal movement in each of the tines, and roller bearings arranged transversely of the wedge or wedges for sustaining the load as said rollers, embedded for half of their diameter in the wedge, are moved under the load by the said movement of the wedge which may be by hydraulic or other automatic means.

3,549,036
COMBINATION UNIT FOR FEEDING LIQUID AND SOLID FOOD
Michael C. Ritsi, 7950 S.W. 16th St., Miami, Fla.
Continuation-in-part of application Ser. No. 656,240, July 26, 1967, now abandoned. This application Dec. 24, 1968, Ser. No. 801,217
Int. Cl. A61j 9/04
U.S. Cl. 215—11 22 Claims

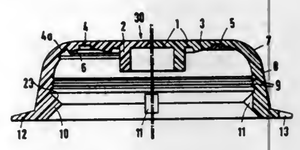


A self-venting feeder unit comprising (1) a valve seat member which also serves as a collar and is receivable at the open end of a feeder container, (2) a hollow nipple member having a protuberance extending from a nipple base portion which is seatable on the seat member, and (3) a cap member having a central nipple opening through which the protuberance extends. The cap is provided with vent means and is adapted to be removably attached to the open end of the feeder container and seatable against a valve member extending radially from the nipple base portion for normal sealing engagement over the vents of the bottle cap member, the valve member being of sufficient resiliency relative to that of the cap member to permit relative deflections thereof into and out of normal sealing engagement with the vent means of the cap member in a flutter chamber between the cap and the valve seat member under the influence of atmospheric pressure exerted through the vent means and, thus, to permit a pressure equalizing flow of air into the container through equalizing ports in the flutter chamber leading into the container interior to replace material removed in feeding.

3,549,037
CLOSURE CAP
John J. Moloney, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Original application Oct. 10, 1963, Ser. No. 315,333, now Patent No. 3,380,419. Divided and this application Dec. 1, 1967, Ser. No. 708,458
Int. Cl. B65d 41/00
U.S. Cl. 215—40 3 Claims

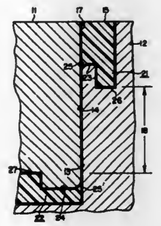
Closure caps formed of tinplate for sealing filled glass containers, in which the caps have cured plastisol gaskets and have outer surfaces coated with a thin residual film composed primarily of nonemulsifiable low molecular weight polyethylene resin (e.g. a molecular weight of 1,500) that originally formed a tinplate coating solution with paraffin wax at elevated temperature and after being deposited on the tinplate withstood temperatures in the range of about 400° F. to 475° F. for at least about one minute.

3,549,038
CAP WITH FRANGIBLE PORTIONS
Bernard Lohrer, Ulm Danube, Germany, assignor to Furstlich Hohenzollernsche Huttenver-Waltung Laucherthal, Laucherthal Hohenzollern, Germany
Filed Nov. 12, 1968, Ser. No. 774,655
Claims priority, application Germany, Nov. 23, 1967, 1,607,857
Int. Cl. B65d 41/22, 41/20, 41/24
U.S. Cl. 215—41 10 Claims



A dish-shaped bottle cap of an elastic material and having an internal peripheral retaining bead for fitting underneath the lip of a bottle mouth to form a closure on the bottle, the bead being provided with a recess to permit the bead to stretch under excess pressure applied to the cap from within the bottle and form an escape path for release of the pressure.

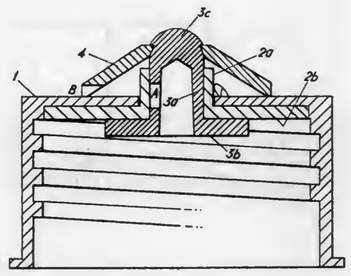
3,549,039
MOLDED ARTICLE OF MANUFACTURE HAVING SIDE HOLES
Calvin J. Holtkamp, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Oct. 7, 1965, Ser. No. 493,844, now Patent No. 3,424,425. Divided and this application Oct. 17, 1968, Ser. No. 768,239
Int. Cl. B65d
U.S. Cl. 220—1 2 Claims



A molded article of manufacture having side holes, i.e. holes which are transverse to the direction of closure of dies

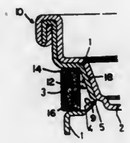
by which the article is fabricated. The side holes are delineated by opposed stepped segments corresponding in steps of which have burrs and other corresponding steps of which are burr-free.

3,549,040
VENTED CLOSURE MEMBERS
Roger Milton, Luton, England, assignor to Plysu Products Limited, Woburn, Bletchley, England, a British company
Filed Dec. 23, 1968, Ser. No. 786,241
Int. Cl. B65d 51/16
U.S. Cl. 220—44 4 Claims



A vented closure device for a container comprises: a closure cap, a resilient disc, and a plastics disc trapping the resilient disc between itself and the inner surface of the cap, all having central apertures, the two discs having coaxial tubes extending from their apertures through the aperture in the cap, the plastics tube having a venting hole under the resilient tube and terminating in a mushroom head; and a conical member engaging the mushroom head and the outer surface of the cap to hold the plastics disc in position and having a venting hole to permit the escape of gases which have passed through the venting hole in the plastics tube.

3,549,041
CONTAINER AND TEARABLE RING COVER WITH TOP
Maurice M. Kahn, Beaurepaire, France, assignor to Boxal-Beaurepaire S. A., Beaurepaire, France, a company of France
Filed Nov. 12, 1968, Ser. No. 774,828
Claims priority, application France, Nov. 14, 1967, 15916/67
Int. Cl. B65d 17/22, 17/24
U.S. Cl. 220—52 7 Claims



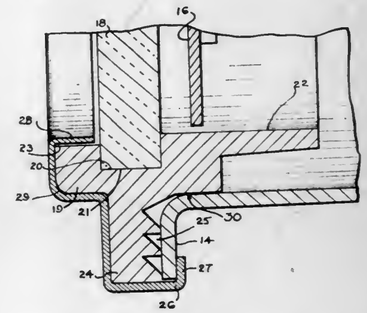
A container having a metallic cylindrical body on which is set a cover with a tearable ring for opening the cover. A part of the body is surrounded by the ring and has at least one zone of lesser resistance. The ring is set between two shoulders of the body, one on a level with the cover and above the said zone, and the other below the zone, whereby after tearing off the ring, the cover can be pushed in by breaking the zone, thereby permitting removal of the cover.

3,549,042
BUOYANT BEVERAGE CANS AND THE LIKE
Ralph J. Stolle, and Dorothy J. Stolle, Lebanon, Ohio, assignors to San Margale Farms (A division of R.I. Stolle Company), Lebanon, Ohio, a corporation of Ohio
Filed July 31, 1967, Ser. No. 657,321
Int. Cl. B65d 7/22, 25/02
U.S. Cl. 220—54 3 Claims



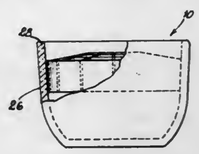
A can or container for foods, beverages or the like with a buoyancy chamber or flotation element, such that if the empty can or container is discarded on a body of water it will remain afloat.

3,549,043
GLASS LENS SEAL RING
Ralph D. Waite, Sellersville, Pa., assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 8, 1968, Ser. No. 774,283
Int. Cl. B65d 25/54, 53/02
U.S. Cl. 220—82 2 Claims



An integral closure window assembly for the open end of an instrument casing wherein a continuous unitary sealing rim of a plastic material is molded in place around the periphery of the glass lens defining the window. The glass lens is seated in an inner annular groove formed in the sealing rim, and the rim is provided with an external flange integral therewith for use in mounting the assembly to the open end of an instrument casing.

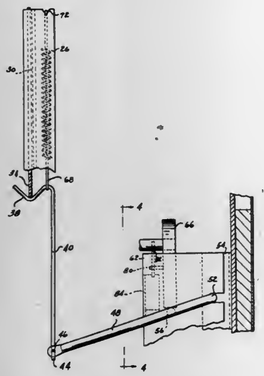
3,549,044
ANTI-SPILLING DEVICE FOR DRINKING CONTAINERS
Nathan B. Lerner, 310 N Canal St., Chicago, Ill. 60606
Filed Aug. 8, 1968, Ser. No. 751,255
Int. Cl. A47g 19/22
U.S. Cl. 220—90.4 4 Claims



A device adapted for use in a drinking container, such as a glass, cup, or the like, having ribs or walls which form a cel-

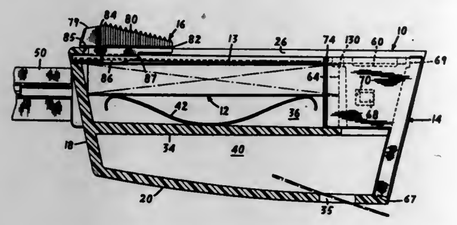
lular grid with open-ended cell-like compartments which engage the liquid in the container and limits the movement of the liquid in the upper portion of the container when the container has been jarred or moved and thereby minimizes spillage of the liquid from the container.

3,549,045
DELIVERY DOOR OPERATING MECHANISM
William Rosenhagen, Ossining, N.Y., assignor to Rowe International, Inc., Whippany, N.J., a corporation of Delaware
Filed Jan. 9, 1969, Ser. No. 790,102
Int. Cl. G07f *11/00*
U.S. Cl. 221—12 **9 Claims**



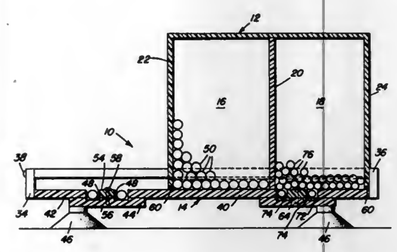
A door operating mechanism for a beverage merchandising machine in which a motor driven cam normally disables springs which urge a sliding door to an open position over a recess formed in the front of the machine cabinet to permit the door to close under the influence of gravity. The arrangement permits the door to be opened manually when the cam is in spring disabling position and also permits the door to be held closed when the cam rotates to free the springs, both without damage to the parts.

3,549,046
MOLDED PLASTIC RAZOR BLADE DISPENSER
Clemens A. Iten, Staunton, Va., assignor to Philip Morris Incorporated, New York, N.Y., a corporation of Virginia
Filed July 16, 1968, Ser. No. 745,198
Int. Cl. G07f *11/00*
U.S. Cl. 221—102 **3 Claims**



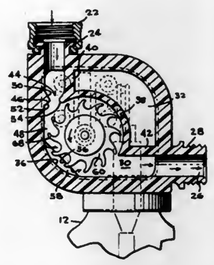
A molded plastic razor blade dispenser for use with injector-type razor blades in which a stack of blades is positioned in the dispenser body with the keen cutting edge maintained out of contact with any body surface by means of an angled lug formed on the end clip with which one end of the body is closed and a similar angled lug formed in the body adjacent the blade exit slot, the blade pusher being captively mounted in a slot formed in the top of the body and being supported on said top by relatively narrow lands so as to minimize the sliding contact the blade pusher has with the top of the body during dispensing of blades. The blade pusher also has lateral finlike projections extending below and in opposed surface contact with the top of the body, the finlike projections being of lesser thickness than the blades to be engaged therewith during dispensing. The finlike projections thus assure that only the uppermost blade in the stack is dispensed toward and thru the blade exit slot.

3,549,047
SMALL SLENDER ARTICLE DISPENSER
Gurden R. Radtke, 3228 Connecticut Ave., Joplin, Mo. 64801
Filed Nov. 6, 1968, Ser. No. 773,814
Int. Cl. B65g *59/00*
U.S. Cl. 221—116 **10 Claims**



This dispenser consists of an open bottomed box slidable on cooperating tracks back and forth across a base, larger than the open bottom, with at least one cooperating groove in the base to receive and hold a slender article therein when the box is moved to and fro thereover. The box may have two compartments provided by a vertical partition transverse to the tracks and a second groove, of a different size, to receive a different size slender article from the second compartment. A transverse finger-receiving slot in the base across the groove facilitates picking up the slender article from the groove. The slender articles may be bar or drinking straws, toothpicks, pens or pencils, drill bits for use in the home and in commercial establishments.

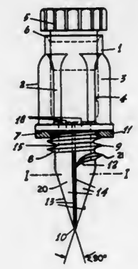
3,549,048
CHEMICAL PROPORTIONATING APPARATUS
Charles R. Goodman, 206 Minnesota Ave., Lynn Haven, Fla. 32444
Filed July 25, 1968, Ser. No. 747,619
Int. Cl. B67d *5/08*
U.S. Cl. 222—57 **4 Claims**



A fluid pressure operated chemical proportionating apparatus comprising a housing, a mixing chamber formed within said housing, fluid inlet means and a fluid outlet means connected to said chamber, a chemical supply reservoir in communication with said chamber, a rotatable impeller having a plurality of radially extending blades, a baffle plate across said mixing chamber forming in part an impeller passage, said baffle plate being provided with a suction opening communicating with said chamber, said passage including a curved partition concentric to said impeller and forming a

boundary for said impeller passage, said passage being in alignment and fluid communication with said inlet means and outlet means, constriction means positioned below said inlet means and within said impeller passage adjacent to said impeller, to increase the velocity and control the direction of the incoming fluid upon said impeller, an impeller shaft mounted for rotation within said chamber and carrying said impeller, a pump assembly operably connected to said impeller, and positioned for communication between said chamber and said reservoir, said pump assembly comprising a cylinder mounted in said housing and extending into said reservoir, a siphon tube secured to the base of said cylinder and extending to the bottom of said reservoir, a cylinder passageway through said cylinder communicating with said siphon tube, the construction and arrangement being such that fluid entering said inlet passes through said constriction means at high velocity upon said impeller to draw through said opening fluid from said mixing chamber and simultaneously operate said pump to raise fluid from said reservoir and into said mixing chamber for dispensing through said outlet.

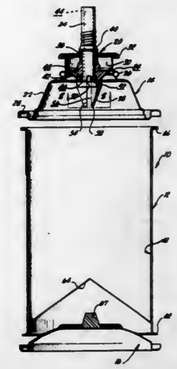
3,549,049
POURING SPOUT FOR PIERCEABLE CONTAINERS
Alwin Weber, Uetlibergstrasse 178, Zurich, Switzerland
Filed Aug. 8, 1968, Ser. No. 751,305
Claims priority, application Sweden, Aug. 14, 1967, 11533/67
Int. Cl. B67b *7/26*
U.S. Cl. 222—91 **5 Claims**



The spout at its bottom has a fluted, pointed piercing head. Above the head is a tubular, externally threaded shank. The shank is capped by a tubular housing. When the piercing head is pushed through a container wall, a hole is prepared through which the threads can be screwed, until the edges of the hole are wedged against the housing to seal the spout to the container.

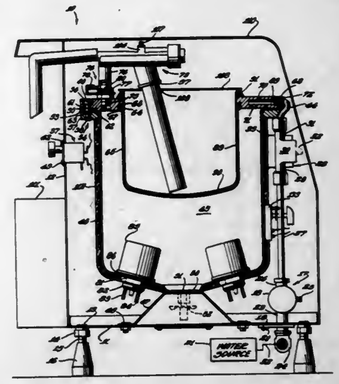
3,549,050
PRESSURIZED DISPENSER HAVING A VALVE EXTENSION
John K Bruce and Theodore R. Bruce, Burbank, Calif., assignors to Sterigard Company, Burbank, Calif., a corporation of California
Continuation of Ser. No. 718,803, filed Apr. 4, 1968, which is a continuation-in-part of application Ser. No. 548,963, May 10, 1966, now Patent No. 3,393,842. This application Oct. 8, 1969, Ser. No. 866,121
Int. Cl. B65o *35/28*
U.S. Cl. 222—95 **4 Claims**

A valve extension is associated with the dispensing valve of a pressurized dispenser to prevent blockage of the valve's orifice by a flexible, elastic bag which separates the dispenser's product from its propellant. In one form, the valve extension is carried by the stem of the dispensing valve and has a plurality of circumferentially disposed slots outside the valve's seat which allow the bag to collapse upon the body of the extension adjacent the slots without affecting product flow through the valve. In another form, the extension is a



generally cylindrical tube having a plurality of spaced-apart openings through its wall along its longitudinal extent.

3,549,051
HOT LIQUID DISPENSER
Robert S. Bencic, Chicago, Ill., assignor to Eaton Yale & Towne, Inc., Morton Grove, Ill., a corporation of Ohio
Filed Sept. 26, 1968, Ser. No. 762,945
Int. Cl. B67d *5/56*
U.S. Cl. 222—129.2 **10 Claims**

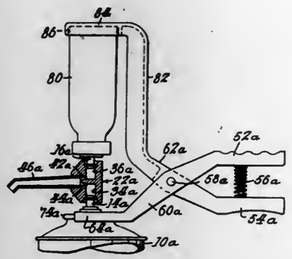


A liquid dispenser particularly suitable for dispensing beverages of the type wherein a liquid concentrate is mixed in suitable proportion with water employs separate reservoirs for the water and the concentrate and utilizes water under pressure and a venturi assembly for combining the water and the concentrate in the correct proportions as an aerated mixture. The water reservoir is provided with heating apparatus so that the dispenser is advantageously suitable for dispensing hot beverages.

3,549,052
AEROSOL DOUBLE MIXING UNIT WITH ACTUATING MEANS
Leo I. Forim, Bloomfield, N.J., assignor to Sterling Drug, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 3, 1968, Ser. No. 718,509
Int. Cl. B67d *5/52*
U.S. Cl. 222—135 **8 Claims**

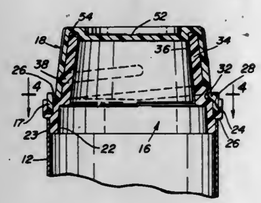
A device having separate chambers receiving the stems of two aerosol containers in opposed relation, the device includ-

ing a barrier preventing the product of either container impinging on the other, passages around the barrier to a nozzle wherein the products from the two aerosols are mixed,



and means in the form of a scissor or plier for attachment to the two aerosols providing one-handed manipulation of the same to cause the aerosol valves thereof to open simultaneously.

3,549,053
RESEALABLE CLOSURE
Douglas W. Anderson, Palatine, Ill., assignor to Dave Chapman Goldsmith and Yamasaki, Inc., Chicago, Ill., a corporation of Delaware. a trust
Filed Mar. 4, 1968, Ser. No. 710,049
Int. Cl. B67b *5/00*
U.S. Cl. 222—153 **3 Claims**

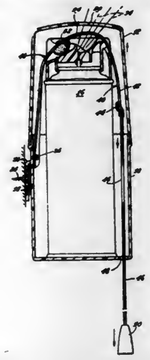


A closure for sealing over an opening in a container including a nozzle sealed to the opening in the container and a cover removably secured to the nozzle. The cover has an internally threaded cap portion and a locking portion for fixedly connecting to the nozzle. The nozzle is molded directly into the cover which has an area of weakness interposed between the cap portion and the locking portion to permit separation of the cap by unscrewing it from the nozzle.

3,549,054
AEROSOL CONTAINER-DISPENSING HOLDER
George M. Etter, 139 S. Peck Drive, Beverly Hills, Calif. 90212
Filed Jan. 29, 1969, Ser. No. 794,856
Int. Cl. B65d *83/14*
U.S. Cl. 222—180 **4 Claims**

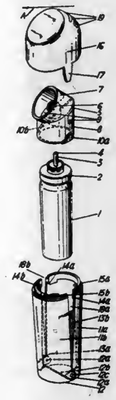
Containing means for holding an aerosol can securely on a wall or other rigid surface, through which means the contents of the can may be dispensed by pulling a cord or other flexible element accessible externally of the containing means.

An orificed flexible strap is disposed with one end secured to the inside jacket wall and extended over the top of the can to connect the other end with the cord. The strap includes a projecting element which contacts the depressible can actuator. When the cord is pulled the aerosol is discharged from



the can through the orifice in the strap and an opening in the top of the jacket.

3,549,055
AEROSOL CLAM SHELL DISPENSER
Lawrence O. Gatland, Leeds, England, assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,582
Claims priority, application Great Britain, July 4, 1967, 30706/67
Int. Cl. B67d *5/06*
U.S. Cl. 222—182 **12 Claims**

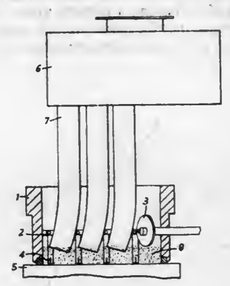


This invention relates to a clam-shell squeeze housing for an aerosol, an actuator for the aerosol, and cooperating means between the squeeze housing and actuator to move the actuator toward the aerosol and actuate it when the housing is squeezed, with means to return the parts to normal in operative position upon release of the housing.

3,549,056
POWDER FEED HOPPER FOR CAPSULE-FORMING MACHINE
Maharaj Krishen Mehta, Lakeside, Cardiff, Wales, assignor to P. Leiner & Sons (Encapsulations) Limited, Treforest, Glamorganshire, Wales
Filed Mar. 10, 1969, Ser. No. 805,686
Int. Cl. F01f *11/00, 13/00*
U.S. Cl. 222—226 **5 Claims**

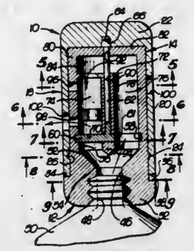
A powder feed system for an encapsulating machine having a delivery hopper closed by a feed roll having charge

chambers in its periphery for receiving charges of powder. The delivery hopper is supplied with powder from a main



hopper through flexible pipes whose lower ends are reciprocated to maintain a uniform level of powder in the delivery hopper.

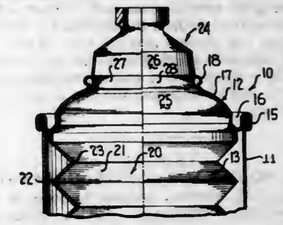
3,549,057
METERING DISPENSER FOR VISCOUS MATERIALS
Ernesto M. Perez, 1213 N. Gordon St., Hollywood, Calif. 90038
Filed Mar. 19, 1969, Ser. No. 808,470
Int. Cl. G01f *11/04*
U.S. Cl. 222—249 **10 Claims**



A dispenser for metering out equal measures of any pasty substance from a pressure-ejection type of container therefor, such as a collapsible squeeze tube. Metering is accomplished by one stroke of a double-acting, free-floating piston within a dispenser body adapted to be fixedly secured to the container. A cover shell is rotatable about the body between the first and second dispensing positions wherein the cover exposes a respective first or second dispensing orifice, the cover shell being coupled to the valve means in the body which controls the flow of the substance to opposite sides of the piston at the respective dispensing positions of the cover. Movement of the cover shell of either dispensing position toward the other automatically closes the dispenser and cleanly cuts off a dispensed ribbon of such highly viscous materials as toothpaste.

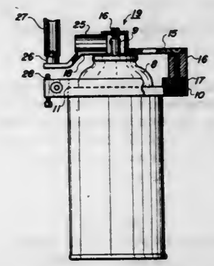
3,549,058
END UNIT AND LINER FOR AEROSOL CONTAINERS
Elmer J. Bolk, Lombard, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Dec. 13, 1968, Ser. No. 783,516
Int. Cl. B67d *5/42*; **G01f** *11/00*
U.S. Cl. 222—386.5 **10 Claims**

This disclosure relates to an end unit and a liner, and particularly means for defining a mechanical interlock therebetween, the liner being constructed from flexible material and having an annular radially outwardly opening groove joined to a frustoconical wall by a minimum radius juncture, and the diameter of the latter being greater than a central opening of the end unit defined by a peripheral curl



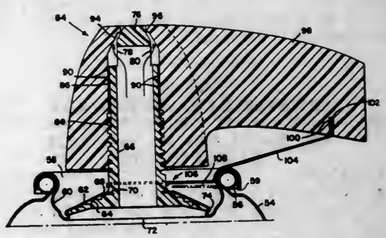
whereby the latter is received in and interlocked with the liner groove.

3,549,059
TRIGGERING APPARATUS AND WORK LOCATING MEANS FOR AEROSOL SPRAY CANS
Leonard B. Sloan, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 7, 1968, Ser. No. 765,451
Int. Cl. B65d *83/00*
U.S. Cl. 222—402.15 **1 Claim**



An aerosol spray can triggering mechanism having a frame adapted for mounting on a spray can, devices for actuating the pushbutton for the spray can and locating means positionable upon a work element and associated with the devices for positioning the spray can nozzle at a predetermined position relative to the work element.

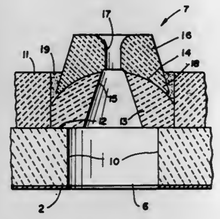
3,549,060
DISPENSING VALVE FOR A PRESSURIZED DISPENSING CONTAINER
Jerry G. Smylie, Los Banos, Calif., assignor to Avoset Company, Oakland, Calif., a corporation of Delaware
Filed Oct. 17, 1968, Ser. No. 768,247
Int. Cl. B67d *3/00*
U.S. Cl. 222—513 **2 Claims**



A pressurized dispensing container has an open end which is closed by a dispensing valve assembly having a tubular member communicating with the interior of the container

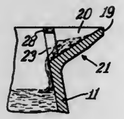
and having a conical closed outer end. A cap having a bore therethrough is threadedly connected to a portion of the exterior of the tubular member spaced below the conical outer end and receiving the conical outer end. The tubular member has a side opening intermediate the threaded connection and the conical outer end thereof and the bore of the cap has a reduced inner diameter portion adjacent the conical outer end of the tubular member and adapted to seat on the conical outer end. In one embodiment the cap is spring biased to the closed position.

3,549,061
TUNDISH NOZZLE FOR CONTINUOUS CASTING
Kristian Piene, Oslo, Norway, assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 28, 1967, Ser. No. 649,612
Int. Cl. B65d *5/72*
U.S. Cl. 222—566 **5 Claims**



The apparatus of this invention is a tundish provided with a heat insulating lining below its bottom working lining and a composite nozzle, the upper portion of which is made of refractory material of high thermal conductivity and projects above the tundish bottom working lining, and the lower portion of which is made of heat insulating refractory material.

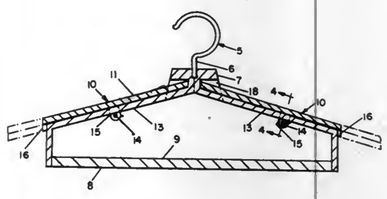
3,549,062
DRIPLESS POURING VESSEL
Macy O. Teetor, 24 Orpheum Ave., Metairie, La. 70005
Filed Jan. 2, 1969, Ser. No. 788,388
Int. Cl. B65d *5/72*
U.S. Cl. 222—571 **8 Claims**



A droplet retaining structure for a pouring vessel which retains the droplet normally formed when pouring liquids from a vessel on a drip-retaining lip secured to the vessel adjacent to the pouring portion of the peripheral wall of the vessel. The liquid's physical properties cause the retained droplet to enter a vertical slot in the pouring portion and run back into the vessel instead of forming a drip and running down the outside of the vessel.

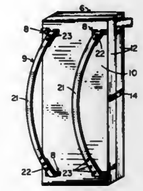
3,549,063
ADJUSTABLE GARMENT HANGER
Roy W. Campbell, 101 NW. 190th St., Miami, Fla. 33169
Filed June 13, 1969, Ser. No. 833,028
Int. Cl. A47j *51/08*
U.S. Cl. 223—88 **3 Claims**

A garment hanger having a frame with adjustable shoulder supports thereon adapted to hold any size of a man's suit, coat, or ladies' fur coat, or the like. The hanger comprises an ordinary garment hanger embodying a vertically disposed member in the longitudinal center thereof, the upper end of the aforesaid vertically disposed member terminating in a hook, while two opposed and angularly disposed supporting members extend outwardly and downwardly from the lower end of the said vertically disposed member, the outer end of each supporting member terminating in a vertically disposed end member having its lower end supporting a horizontally disposed cross member having a convex upper surface. Each of the two supporting members has an outwardly and downwardly inclined shoulder supporting member having a convex



upper surface and internal structure which fits over the two supporting members of the garment hanger. Each of the supporting members is provided with a thumb screw to firmly hold the shoulder supporting member in any longitudinal position on the two supporting members, thereby permitting the hanger to be adjustable to hold any size of garment in a way that will prevent the wrinkling of the same.

3,549,064
BACK PACK TOOL BOX
Ray H. Wilson, Near the city of Cusick, Wash., assignor to Aluminum Box Company, Cusick, Wash., a corporation of Washington.
Filed Oct. 30, 1968, Ser. No. 771,860
Int. Cl. A45f *5/00*
U.S. Cl. 224—8 **1 Claim**



A rigid tool box, to contain a plurality of small mechanic's tools, with external strap means to aid the carrying of the box supported only by a workman's shoulders. The carrying straps are releasable and may be variously positioned to provide for different carrying attitudes at the workman's side or on his back.

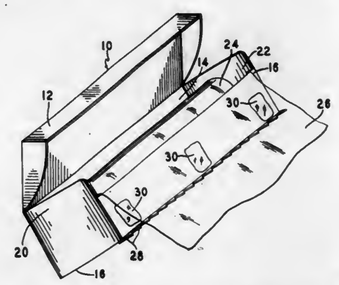
3,549,065
GARMENT CARRIERS
Thomas E. Schubert, 3359 Red Fox Run Drive NW, Warren, Ohio 44485
Filed Nov. 15, 1968, Ser. No. 776,123
Int. Cl. B65d *71/00*
U.S. Cl. 224—45 **6 Claims**



An elongated device adapted to be slung over the shoulder of a person, having a handle portion, a garment supporting

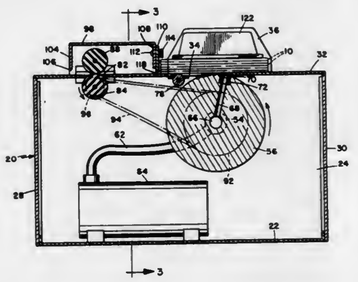
portion and a portion intermediate the two, the device when properly slung disposing the handle portion in front of the person in position to be grasped by a hand of the latter, the intermediate portion being configured to fit over and comfortably engage the shoulder of the person to support the load, and the supporting portion being disposed downwardly along the back of the person and having means to which the garments may be connected.

3,549,066
DISPENSING CARTON
Joseph E. Wankow, Somerville, N.J., assignor to Union Carbide Corporation, a corporation of New York
Filed June 18, 1968, Ser. No. 737,926
Int. Cl. B26f *3/02*
U.S. Cl. 225—25 **10 Claims**



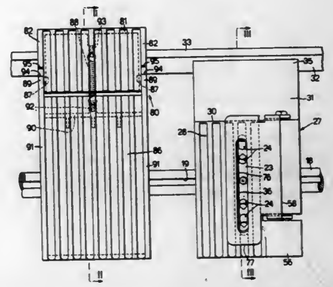
An improved dispensing carton is provided for dispensing household wrapping materials. The improvement involves positioning on the carton, means which will detachably adhere the leading edge of the wrapping material to the carton during the procedure of severing a sheet of wrapping material from the supply roll. This adherence of the leading edge of the wrapping material to the carton facilitates tearing, prevents the leading edge from withdrawing into the carton, and prevents the leading edge from being wrinkled or torn.

3,549,067
ENVELOPE OPENING MACHINE
Daniel T. Robbins, 1415 W. Clark Ave., Burbank, Calif. 91506
Filed Jan. 22, 1969, Ser. No. 793,107
Int. Cl. B26f *3/02*
U.S. Cl. 225—106 **7 Claims**



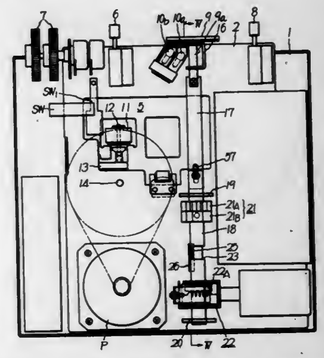
The machine automatically opens and ejects envelopes of the type having a perforated tear flap, the envelopes being stacked between guides on top of the machine and remaining flat during the opening and ejection process. A driven wheel picks up one envelope at a time by vacuum, without using timing valves or complex synchronizing means, and completely strips open and peels back the flap as the envelope is extracted by driven ejection rollers.

3,549,068
FEED AND GUIDE ARRANGEMENT FOR CONTINUOUS PERFORATED FORMS FOR OFFICE MACHINES
Giuseppe Calano, Mercenasco, Turin, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy, a corporation of Italy
Filed Jan. 16, 1969, Ser. No. 791,594
Claims priority, application Italy, Jan. 29, 1968, 50316-A/68
Int. Cl. B65h *25/04*
U.S. Cl. 226—79 **8 Claims**



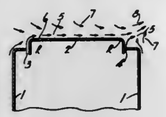
A feed and guide arrangement for continuous perforated forms using a pin wheel for engaging and guiding the forms. The pin wheel is housed in a casing and is slidable on, but rotationally fixed to, a transverse shaft. The casing comprises two elements biased towards each other in order to grip a fixed bar parallel to said shaft and prevent transverse movement of the pin wheel. The two elements are releasable in opposition to the bias to permit transverse movement of said pin wheel on said shaft.

3,549,069
MAGNETIC TAPE CARTRIDGE PLAYER
Sadanobu Watanabe, Tokyo, Japan, assignor to Kabuishiki Kaisha Taiko Denki Seisakusho, Tokyo, Japan, a corporation of Japan
Filed July 15, 1968, Ser. No. 745,001
Claims priority, application Japan, July 17, 1967, 42/45,960; July 17, 1967 (utility model), 42/61,804 and 42/61,805
Int. Cl. G11b *15/24*
U.S. Cl. 226—90 **2 Claims**



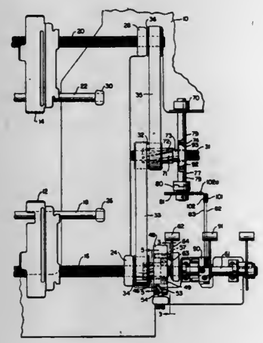
A magnetic tape cartridge player having means for driving and reproducing a magnetic tape loaded in a cartridge inserted into a cartridge holder formed in the player, a pinch roller for driving the magnetic tape in cooperation with the aforementioned means, a plurality of cams, a pin engageable with each of the plurality of cams, means for selectively operating the pinch roller in accordance with the type of the cartridge inserted into the holder, and means for engaging the pin with one of the plurality of cams in association with the pinch roller operating means.

3,549,070
FLOATATION OF SHEET MATERIALS
John W. Frost, Appleton; Roy E. Downham, and Jack F. Eckelaert, Neenah, Wis., assignors to TEC Systems, Inc., Neenah, Wis., a corporation of Wisconsin
Filed Feb. 27, 1969, Ser. No. 802,923
Int. Cl. B65h 17/32
U.S. Cl. 226—97 15 Claims



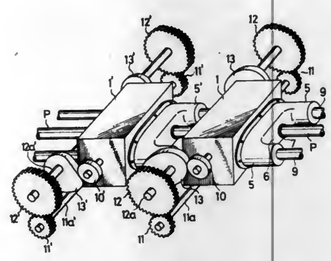
Apparatus for use in floating sheet materials in the nature of continuous strips or webs. The improved flotation apparatus is particularly useful in the drying and/or curing of sheet materials such as printed or coated paper, fabrics or metal sheets or strips.

3,549,071
ANGULARLY ADJUSTABLE DRIVE COUPLING
Jack Beery, Farmington, Mich., and Harold E. Hepp, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Aug. 28, 1968, Ser. No. 756,009
Int. Cl. B65h 23/18
U.S. Cl. 226—108 17 Claims



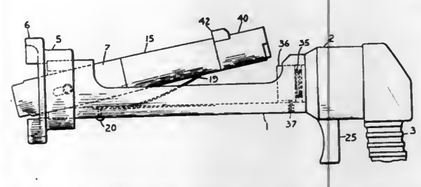
An adjustment mechanism for a recording-type business machine having input and output record material drive elements and including a cam assembly movable along a driven shaft for changing the angular rotational relationship between a driving pulley and the driven shaft. The cam assembly includes a splined hub or cylinder cam on the shaft and journaled in a box cam member, the hub having external helical splines cooperative with mating grooves in the driving pulley for establishing the drive coupling between the pulley and the shaft. The box cam member has an external camming race engageable with a plunger-type element on the machine and effective for axially moving the cam assembly when it is actuated by a rotatably lever member, the cam member being carried on a ball bearing, so that adjustment of the coupling and of the drive can be made in either the static or the dynamic condition. The machine main drive shaft carries a similar splined hub and pulley arrangement for further changing the angular relationship between the main shaft and the main drive pulley to reposition the record material drive elements for matching a desired print line with the printing characters.

3,549,072
HIGH-POWER FEED CONTROLLING GEAR FOR METALLIC PIPE AND ROD MATERIALS
Kinori Ito, 1741 Higashiterao-cho Tsurumi-ku, Yokohama, Japan
Filed Nov. 12, 1968, Ser. No. 774,990
Claims priority, application Japan, Nov. 13, 1967, 42/72911
Int. Cl. B65h 17/36
U.S. Cl. 226—112 1 Claim



The feed controlling gear has a pair of frames slideable on fixed guide shafts through the action of driven cams each pushing one of the frames at a different time, but in the same direction and each frame has a slideable chuck through which the work piece extends and said chucks are moved into work engaging positions when their frame is being moved by said cams.

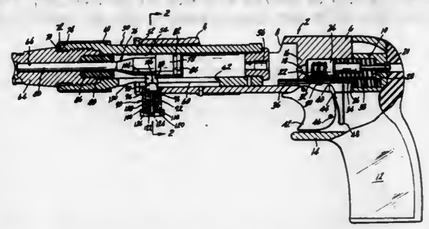
3,549,073
STUD DRIVING TOOL WITH REMOVABLE BARREL
Robert Temple, Pittsburgh, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 27, 1968, Ser. No. 779,435
Int. Cl. B27f 7/06
U.S. Cl. 227—8 8 Claims



A sleeve is pivotally mounted on a transverse axis in the front end portion of a longitudinal channel in an elongated barrel receiver. The sleeve projects from the open front end of the channel and can be tilted to swing its rear end outwardly from the channel. Slidably mounted in the sleeve is the front end portion of a barrel, the rear end of which can be swung out of the receiver when the sleeve is tilted. At the rear end of the receiver there are means for firing a cartridge in the rear end of the barrel when the barrel and sleeve are in the channel in alignment with the receiver.

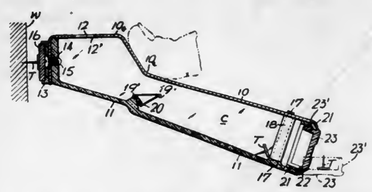
3,549,074
POWER ADJUSTMENT FOR PISTON TOOL
Lawrence J. Brunelle, East Haven, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed May 1, 1968, Ser. No. 725,857
Int. Cl. B25c 1/14
U.S. Cl. 227—10 10 Claims

Piston return and power adjusting means for an explosive-actuated tool, said means including a pawl member adapted to extend into the interior of the barrel with a first portion in a position to contact the piston to return it to its firing position when the barrel member is moved forward relative to the housing and a second portion adapted to limit the forward movement of the barrel, one of the portions of the pawl



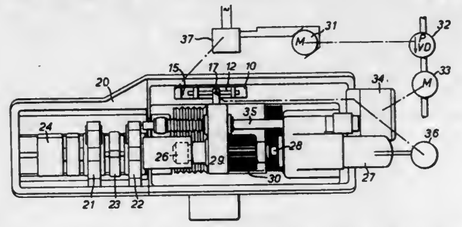
member being provided with a cutout so that the distance the piston is returned can be varied.

3,549,075
THUMBTACK HANDLER
Yasuhiko Tsunemi, No. 18-5, Higashi-Ueno 2-Chome, Daito-ku, Tokyo, Japan
Filed Jan. 3, 1968, Ser. No. 695,503
Claims priority, application Japan, Feb. 16, 1967, 42/12,551
UM, Oct. 5, 1967, 42/84,409UM
Int. Cl. B25c 11/00
U.S. Cl. 227—63 10 Claims



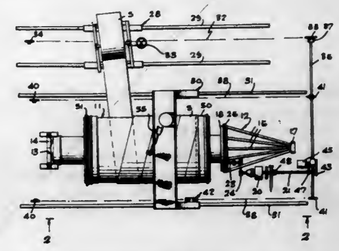
A device for anchoring, removing and accommodating thumbtacks comprising a permanent magnet disc for attractively holding an individual thumbtack thereon, a bladed circular opening for removing the thumbtack and a chamber for thumbtack accommodation.

3,549,076
FRICTION WELDING APPARATUS WITH MICROMETER WELD CONTROL
Lionel William Mills, Kinghorn, Scotland, assignor to Steelweld Limited, Grantham, England, a British company.
Filed May 14, 1968, Ser. No. 729,033
Claims priority, application Great Britain, May 16, 1967, 22,679/67
Int. Cl. B23k 27/00
U.S. Cl. 228—2 12 Claims



In friction welders, the weld formation is accurately controlled so as to avoid insufficient "burnoff" and also to avoid excessive flash formation, the control being by a measuring device set by a micrometer. The device has a control member which is moved with the welding head as soon as the workpieces make contact and which stops movement of the welding head as soon as a desired "burnoff" movement of the welding head has occurred.

3,549,077
APPARATUS FOR FABRICATING THIN-WALLED STEEL CYLINDERS
George E. Huck, Fullerton, Calif., assignor to Ameron, Inc., Monterey Park, Calif., a corporation of California. by mesne assignment
Original application Feb. 1, 1966, Ser. No. 524,018, now Patent No. 3,432,914. Divided and this application Dec. 23, 1968, Ser. No. 786,191
Int. Cl. B23k 1/20
U.S. Cl. 228—15 6 Claims



A collapsible rotatable drum on which steel strip is wound helically from a traveling carriage for the supply of strip together with a gantry carrying welding means to join the edges of the strip into a cylinder, and motorized means for coordinating movement of the carriage and gantry with rotation of the drum.

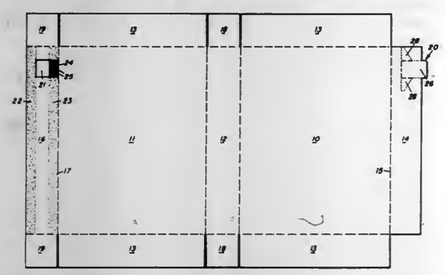
3,549,078
SOLDER REMOVER IMPLEMENT
William S. Fortune, 14250 Dearborn St., Panorama City, Calif. 91402
Filed Apr. 2, 1968, Ser. No. 718,176
Int. Cl. B23k 1/00, 5/22
U.S. Cl. 228—20 6 Claims

A vacuum desoldering tool including a spring loaded piston disposed within a hollow, cylindrical body open at one end and closed at the other by a tip member having a hollow duct member extending forward for drawing up the molten solder.

3,549,079
POUR SPOUT FOR CARTONS
David R. Northrup, Waco, Tex., assignor to Gulf States Paper Corporation, Tuscaloosa, Ala., a corporation of Delaware
Filed Feb. 6, 1969, Ser. No. 797,133
Int. Cl. B65d 5/74
U.S. Cl. 229—17 4 Claims

A pour spout for a carton having sealable overlapping flaps jointly forming a top panel. The underlying flap has a pour spout opening and is provided on opposite sides of the opening with full length, longitudinally extending glue strips for sealing the overlapping flaps. The overlying flap has an erectile pour spout blank formed therein with a central pull-tab hingedly connected, at its base, to the flap immediately adjacent the corresponding boundary of the opening in the underlying flap and normally overlies the opening. Side wings, defined by severable score lines, are connected to the pull-tab at opposite edges thereof by hinge lines running perpendicular to the pull-tab hinge line, and the edge boundaries of the pull-tab adjoining the side wing hinge lines are severable from the overlying flap by means of score lines running to the outer edge of the flap. The glue line, which is engageable by the pull-tab when sealed is provided with a section treated to render the pull-tab easily detachable therefrom. In erecting the pour spout, the pull-tab is first pulled outwardly from

the glue line of the underlying flap, which simultaneously detaches the boundaries of the side wings, which are then folded along their hinge lines and their outer edges pinched

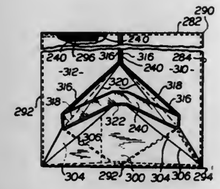


together and inserted in the opening. When released, the side wings tend to spring away from each other into frictional engagement with the boundaries of the opening and together with the pull-tab form a reclosable pour spout.

3,549,080
CARTON CONSTRUCTION WITH POUR SPOUT

Lester D. Gill, 302 North Road, Kinnelon, N.J. 07405

Original application Dec. 11, 1967, Ser. No. 689,669, now Patent No. 3,498,521, dated Mar. 3, 1970, which is a continuation-in-part of application Ser. No. 424,946, Dec. 12, 1967, now Patent No. 3,357,322. Divided and this application June 27, 1969, Ser. No. 837,062
Int. Cl. B65d 5/72
U.S. Cl. 229—17 13 Claims



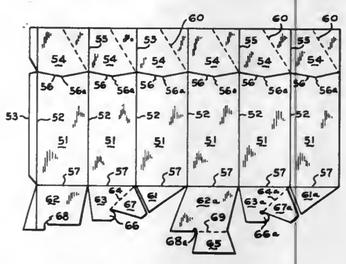
This specification discloses boxes made of paperboard and lined with plastic which makes the boxes suitable for holding liquid. The lining is correlated with the panels of the box in such a way that there are no cut edges of the paperboard exposed to liquid in the container. This prevents "wicking" of the liquid into the paperboard. Some embodiments of the invention are constructed with features that relate to the opening of the panels to provide pour spouts with or without the plastic lining; and in one modification there is a tab on the pour spout that can be tucked in under the other panels when folded down to hold the spout closed after a reclosing operation. The box blanks are shaped so that they are held in a continuous web having spaces beyond critical cut edges where the plastic lining extends beyond the cut edges and over the cut out spaces.

3,549,081
SELF-LOCKING, EASY-OPENING CONTAINER

Howard N. Nelson, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware

Continuation-in-part of application Ser. No. 779,741, Nov. 29, 1968, now abandoned. This application Sept. 5, 1969, Ser. No. 855,569
Int. Cl. B65d 5/10
U.S. Cl. 229—39 3 Claims

A collapsible, disposable container for receiving and temporarily storing waste materials or the like. The container comprises a multiwalled, open-sided tube in which flexible flaps, forming the upper and lower portion of the tube walls, are specially scored and folded in a manner to form a self-locking quick-opening closure at the top, and a self-locking floor at the bottom. The container is preferably made from disposable semirigid sheet material, such as paperboard. A plastic bag may be utilized as a liner for the container. The top portion of the liner bag cooperates with the self-locking

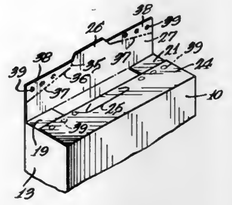


flaps in a manner to seal in odors or the like when closed. The disposable container is especially useful for receiving and storing soiled diapers. It may also find use as a garbage receptacle, a bathroom waste basket, or a sanitary waste container for hospitals and sickrooms.

3,549,082
RECLOSABLE CARTON

Warren O. Simpson, Battle Creek, Mich., assignor to Kellogg Company, Battle Creek, Mich., a corporation of Delaware

Filed May 3, 1968, Ser. No. 726,324
Int. Cl. B65d 5/54; B31b 1/16
U.S. Cl. 229—51 2 Claims



A paperboard carton characterized by a top closure flap formed with a tapered tongue partially projecting from the outer longitudinal edge thereof and which is free from the lower adjacent flap. The flap from which the tongue extends is further formed with a line of slits extending to or adjacent to the tongue root portion and which slits further extend obliquely therefrom to or adjacent to a side or transverse edge portion of the flap to define an opposed pair of substantially triangular components which are sealed against the lower adjacent flap. The top closure flap may be elevated by separating it from said triangular parts in a progressive action started by first lifting the tongue. The complete tongue is adapted for firm interlocking engagement within a complementary slit formed in an adjacent flap disposed normally therebeneath. The paperboard in the line of slits adjacent the root of the tongue is adapted to rupture relatively easier than the slits radiating outwardly therefrom. The blank from which the carton is formed may be produced in a series wherein the tongue portion projecting from one of the top flaps is interdigitated with or cut from the bottom closure flap on an adjacent carton blank.

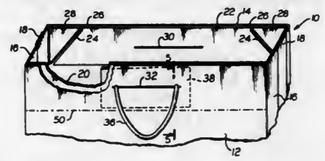
3,549,083
HANDLE AND CLOSURE FOR FLEXIBLE BOX

Leonard E. Canno, and Robert A. Krissel, New York, N.Y., assignors to Equitable Bag Co., Inc., Long Island City, N.Y., a corporation of New York

Filed Apr. 14, 1969, Ser. No. 815,895
Int. Cl. B65d 5/46, 25/28
U.S. Cl. 229—52 10 Claims

A handle and closure construction for a flexible box with the grip portion of the handle made of material stiff enough

to be pushed through a reinforced slit in one of the top panels and into position to be inserted into and pulled through a corresponding slit in the other panel to hold the top of the box closed. Attachment of the handle to a piece of

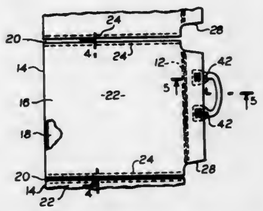


board with the uppermost fastening at a mid portion of the board permits the handle to be bent up at the fastening to support the box evenly and to provide an inexpensive construction.

3,549,084
SHOPPING BAGS

Leonard E. Canno, New York, N.Y., assignor to Equitable Bag Co., Inc., Long Island City, N.Y., a corporation of New York

Filed Feb. 14, 1969, Ser. No. 799,468
Int. Cl. B65d 33/00
U.S. Cl. 229—54 6 Claims

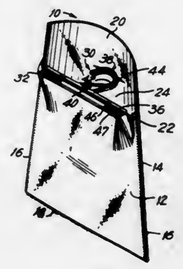


Side weld plastic bags made with stiffened edges along the mouth of the bag by bonding stiffening or reinforcing strips to opposite longitudinal edges of the web or behind the edges from which the bags are to be made. This reinforcing is part of the continuous operation in which the web is folded and severed into separate bags. The product has modified forms that fold one stiffened or reinforced edge over the other, and has arrangements for providing a handle at the top of the bag connected with stiffening or reinforcing strips or formed by punching registering hand hold openings through the stiffening or reinforcing strips.

3,549,085
BAG HAVING A SINGLE SUSPENSION MEMBER

Robert L. Hart, Manhasset Hills, N.Y., assignor to W. R. Grace & Co., a corporation of Connecticut.

Filed May 15, 1969, Ser. No. 825,021
Int. Cl. B65d 31/00, 33/06
U.S. Cl. 229—54 6 Claims

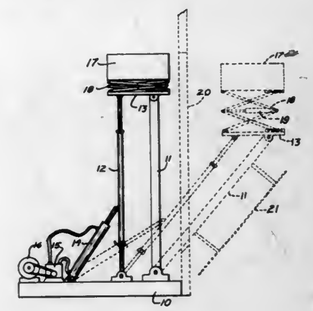


A limp flexible transparent bag includes opposed registered polyethylene walls, an open mouth and an integral flap extending alongside the mouth from one wall beyond the opposite shorter wall. The flap is foldable at its base so that it may selectively close the mouth. A molded polyethylene suspension member including a horizontal bar and a suspension hook or handle projecting upwardly therefrom is secured to the inner surface of the shorter wall adjacent its upper edge. The bar includes tiny projections along one of its faces to which the portion of the shorter wall abutting the bar is heat sealed. The suspension hook or handle is insertable through a slit in the base of the flap and once inserted therethrough, maintains the flap in a folded down position with the suspension member in operative position and also holding the flap closed.

3,549,086
DEAL TRAY AND MOUNTING THEREFOR

Arnold Berkeland, 708 N. Omaha, Sioux Falls, S. Dak. 57103

Filed Sept. 9, 1968, Ser. No. 758,489
Int. Cl. E06b 5/10
U.S. Cl. 232—44 2 Claims

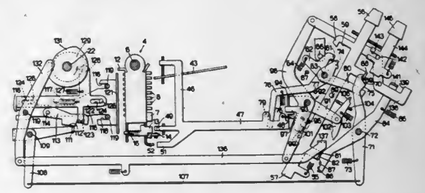


A deal tray for service from a fixed building to an automobile. The tray is mounted on a parallelogram linkage, which is power operated to extend and retract the tray. A lift may be provided to accommodate cars having windows of differing height from the ground.

3,549,087
TEN KEY CALCULATING MACHINE

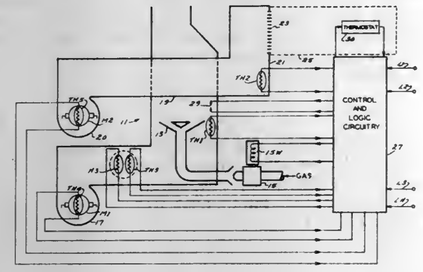
Teresio Gassino, Ivrea, Turin, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy, a corporation of Italy

Filed Apr. 15, 1968, Ser. No. 721,289
Claims priority, application Italy, Apr. 14, 1967, 51,329A/67
Int. Cl. G06c 29/00
U.S. Cl. 235—60 6 Claims



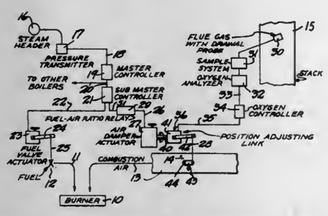
A ten key calculating machine comprising a transversely movable set up carriage, a first mechanism adapted to bring said carriage back to the transverse rest position and a second mechanism adapted to clear the amount set on said carriage is provided with a predisposing member adapted to be actuated manually to engage an element adapted to prevent the clearing of the carriage, said predisposing member being moreover adapted to cause said carriage instantaneously into the transverse position corresponding to the amount set therein.

3,549,088
ELECTROTHERMAL FURNACE CONTROL
Robert E. Obenhaus, South Easton, and David J. Squiers, North Attleboro, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Texas
Filed May 8, 1969, Ser. No. 822,901
Int. Cl. F23n *1/10*
U.S. Cl. 236—9 28 Claims



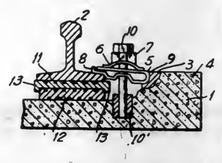
Apparatus for controlling the operation of a furnace in response to the demand of a thermostat. The furnace has an electrically energizable fuel valve which, when energized, supplies fuel to the furnace burner. A triggerable semiconductor current-switching device is conductive, when triggered, to supply power for energizing the fuel valve when the thermostat demands heat. Means is provided for normally supplying triggering current to cause triggering of the switching device. An ignition circuit is provided for igniting the fuel, this circuit being energized to cause ignition when the thermostat demands heat. A thermistor is connected in a circuit with the switching device for preventing energization of the fuel valve when the thermistor is heated above a predetermined threshold temperature. Means is provided for heating the thermistor, this means being connected with the ignition circuit and being energized to cause heating of the thermistor only when the ignition circuit is energized. When heated, the thermistor requires a predetermined heating time interval to reach the threshold temperature. Accordingly, if the fuel is not ignited within this predetermined interval, further energization of the fuel valve is prevented, thereby shutting off the supply of fuel.

3,549,089
METHOD AND MEANS FOR TRIMMING POSITION CONTROL MEMBERS
Bruce E. Hamlett, Michigan City, Ind., assignor to The Hays Corporation, Michigan City, Ind., a corporation of Indiana
Filed July 26, 1968, Ser. No. 748,030
Int. Cl. F23n *3/00*
U.S. Cl. 236—15 9 Claims



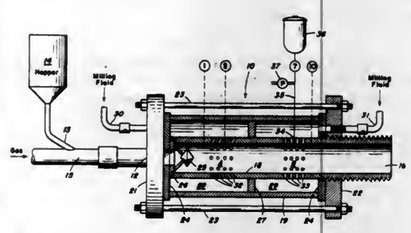
A method and means for trimming position control members. The method entails adjustment of the linkage between one controlled element of a multiple element system and a control member therefor which responds to a master controller proportionally to measurement deviations of the output of the system from optimum state without interrupting control of said system by said master controller. The means utilized is a lever member journaled on a rotatable shaft of the control member and connected to said linkage spaced from said rotatable shaft. The lever member mounts a reversible positioning motor having a drive shaft, and a worm and gear connect said drive shaft and said rotatable shaft.

3,549,090
RAILROAD TRACKS
Shigetaro Toyama, 10-4 Shiba-koen Minato-ku, Tokyo, Japan
Filed Oct. 30, 1968, Ser. No. 771,811
Int. Cl. E01b *9/68*
U.S. Cl. 238—281 10 Claims



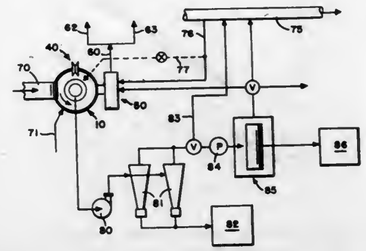
A track assembly in which a rail is held on a base by a flat spring having one end engaging the rail and an opposite end turnably engaging a wedge which is abutted against a projection extending along a side of the rail. A bolt is threaded into a plug in the base and the bolt engages the spring to clamp the rail to the base under the resiliency of the spring. A pad unit is interposed between the rail and the base to raise or lower the rail.

3,549,091
FLUID ENERGY MILLING TiO_2 PIGMENT
Richard A. Slepetys, Bricktown, N.J., assignor to National Lead Company, New York, N.Y., a corporation of New Jersey
Filed Mar. 14, 1968, Ser. No. 713,215
Int. Cl. B02c *19/06*; C09c *1/36*
U.S. Cl. 241—5 10 Claims



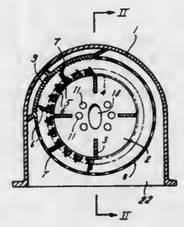
Method and means for producing titanium dioxide pigment combining both optimum pigmentary properties i.e. tinting strength, spectral characteristics, brightness, tone, etc. with optimum dispersion in coating compositions, the process being an improvement over present methods for producing TiO_2 pigments in that the TiO_2 pigmentary material is first milled at sufficiently high milling intensities to impart optimum pigmentary properties after which it is treated with a dispersing agent followed by or concurrently with a very light milling action to effect a substantially uniform coating of the dispersing agent on the individual pigment particles.

3,549,092
METHOD FOR THE TREATMENT OF GARBAGE AND OTHER WASTES
Joseph Baxter, Jr., Franklin, Ohio, assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio
Continuation of application Ser. No. 719,197, Apr. 5, 1968, now abandoned. This application Jan. 26, 1970, Ser. No. 006,041
Int. Cl. B02c *1/00*
U.S. Cl. 241—15 12 Claims



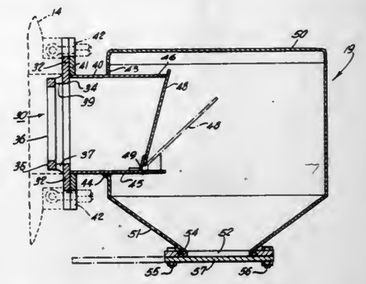
Refuse of all kinds commonly encountered in municipal waste material, such as raw garbage, rubbish, metal objects and other materials, are treated in an aqueous medium in a pulper by an impeller applying both mechanical and hydraulic forces thereto which compact the metal and other insoluble materials, while converting the organic, fibrous and other pulpable materials into a pumpable slurry. The several constituents of the mixture are sorted for individual disposal by extracting the pulped slurry from the pulper through a screen and by separately trapping and removing the compacted solid materials and the stringy materials such as wire and rope. In the preferred practice, the aqueous medium comprise sewage, the pulpable and soluble constituents of which are included in the slurry screened from the pulper.

3,549,093
COMMINUTING MACHINE FOR COMMINUTING CHIPPABLE MATERIAL, ESPECIALLY WOOD, INTO CHIPS OF PREDETERMINED SIZE
Wilhelm Pallmann, 57 Wallstrasse 666, Zweibrucken, Germany
Filed Apr. 29, 1968, Ser. No. 724,889
Claims priority, application Germany, Apr. 27, 1967, P 29,241; May 20, 1967, P 42,182
Int. Cl. B02c *18/14*
U.S. Cl. 241—49 17 Claims



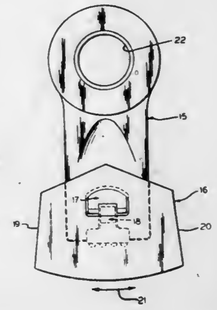
A comminuting machine for comminuting particulated wood or similar chippable material into chips of predetermined size wherein the material fed into the machine passes first through rotating rough comminuting means and then through coaxially arranged fine comminuting means to be in two successive stages comminuted in a single machine into chips of predetermined size.

3,549,094
BALL MILL
Jacob Kurtz, Teaneck, N.J., assignor to Kulite Tungsten Corporation, Ridgefield, N.J., a corporation of New Jersey
Filed Dec. 10, 1968, Ser. No. 782,532
Int. Cl. B02c *17/10*
U.S. Cl. 241—171 10 Claims



A motor operated ball mill is provided with opposed receptacles positioned over outlets so that the receptacles receive milled mat rial, a grating being provided between the mill and the receptacle retaining the balls in the mill. A flap valve is provided for the receptacles to prevent the milled material from reentering the mill.

3,549,095
PULVERIZER HAMMER FOR A HAMMER MILL
Thomas A. Ratkowski, Chicago Heights, Ill., assignor to Abex Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 19, 1968, Ser. No. 753,632
Int. Cl. B02c *13/28*
U.S. Cl. 241—197 17 Claims

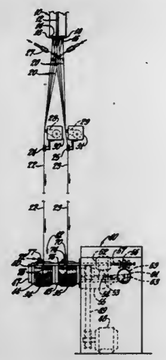


Pulverizer hammer for a hammer mill having an arm, a renewable tip for the arm that can be easily removed and replaced, and means for locking the tip onto the arm including a pin and an elastomeric lock.

3,549,096
APPARATUS FOR COLLECTING LINEAR MATERIAL
Jerome P. Klink, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Sept. 18, 1968, Ser. No. 760,641
Int. Cl. B65h *54/10*
U.S. Cl. 242—18 8 Claims

Apparatus for accumulating linear material as individual similar wound packages on collectors with at least two linear materials supplied from spaced locations along different paths relative to their respective collectors and individually

engaging the linear material with separate cam means projecting laterally from a common axis with different dimen-



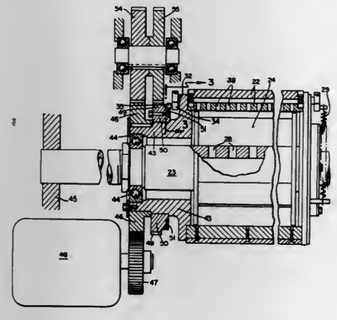
sions to move the material with substantially the same traversing cycle.

3,549,097

APPARATUS FOR CYCLICALLY ACTUATING ORBITAL MEMBERS

Joseph C. Seigh, Cranbury, N.J., assignor to Scott Paper Company, Delaware County, Pa., a corporation of Pennsylvania

Filed June 12, 1968, Ser. No. 736,321
Int. Cl. B65h *19/20*
U.S. Cl. 242—56 **16 Claims**



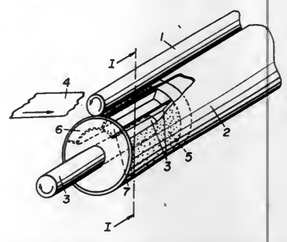
Apparatus is disclosed for cyclically actuating a member carried through an orbit so as to move the member between a first position and a second position once during a predetermined number of orbital revolutions and over a predetermined time span. The apparatus is of particular utility in moving a web-contacting member radially into and out of a recess in the surface of a rotating bedroll on a continuous web winder. The apparatus involves the use of transmission means such as two coaxially mounted gears rotationally fixed together to connect a driving means, which is arranged to rotate the bedroll, to a rotatably mounted cam coaxially disposed adjacent one end of the bedroll so that the cam undergoes one revolution relative to the bedroll during a predetermined number of revolutions of the bedroll. The cam is arranged to actuate a cam follower carried by the bedroll and operably connected to the web contacting member, so that the cam follower actuates the web-contacting member at least once during a predetermined number of revolutions of the member about its orbital path.

3,549,098

PAPER ROLLING DEVICE FOR USE IN PAPER MACHINES

Viki Heikala, and Sauli Koskela, Jyvaskyla, Finland, assignors to Valmet Oy, Helsinki, Finland, a corporation of Finland

Filed June 19, 1968, Ser. No. 738,218
Claims priority, application Finland, June 20, 1967, 1,739/67
Int. Cl. B65h *17/02*
U.S. Cl. 242—67.1 **1 Claim**



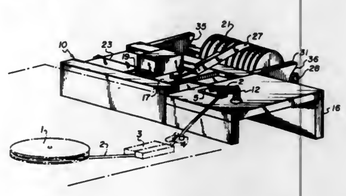
A paper rolling device for paper making machines has two adjacent rolls, one of which serves normally as a bobbin for the paper. The second roll which is a driven one has a perforated zone located close to one end of the zone. Inside the second roll and below the perforations, a suction box is located which is followed by a blow box, thereby preventing a narrow strip of paper passing between the rolls from being wound upon the second roll.

3,549,099

AUTOMATIC WINDING APPARATUS

Thomas J. Hofbauer, 48 Lake Trail E., and Frank L. Scholten, 21 Archung Road, Wayne, N.J.

Filed May 20, 1968, Ser. No. 730,497
Int. Cl. B65h *17/02*
U.S. Cl. 242—67.3 **21 Claims**



An apparatus is disclosed for automatically winding flexible material under substantially constant tension sequentially on rotating multiple reels driven in unison by a variable speed motor. The speed of the motor is controlled by voltage control means responsive to the various positions of a pivoted arm responsive to the variations in tension of the flexible material. A measuring device over which the flexible material passes intermittently activates a solenoid-operated spring-biased plunger on a slidable indexing carriage which is biased to movement but prevented from moving by the plunger sequentially engaging stops on a base frame to hold the carriage in place while each reel is being wound. A spring-biased pivoted guide arm on the carriage diverts the line from each completed reel to the next adjacent reel upon the completion of each movement of the carriage.

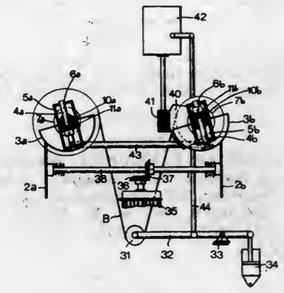
3,549,100

REWINDING APPARATUS FOR THE SINGLE OR MULTIPLE REWINDING OF WEB-LIKE MATERIAL

Hans Stoebl, Uzwil, Switzerland, assignor to Maschinenfabrik Benninger AG, Uzwil, Switzerland, a corporation of Switzerland

Filed July 1, 1968, Ser. No. 741,403
Claims priority, application Switzerland, July 3, 1967, 9,434/67
Int. Cl. B65h *17/02*
U.S. Cl. 242—67.4 **6 Claims**

A rewinding apparatus for the single or multiple rewinding of a web of material, such as fabric, between driven winding rollers. During any given winding operation one roller functions as the windup roller and the other as the wind-off roller, and their function reverses during each subsequent rewinding operation. An infinitely variable friction drive cooperates with each winding roller. Each friction drive incorporates a drive disc and a driven or power takeoff element, for instance in the form of a pivotably and rotatably mounted spherical segment. Regulator means serve to automatically control the friction drives in accordance with the progression



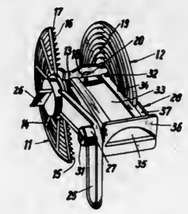
of the winding operation, such regulator means being controlled by the changes in the web-length appearing between the winding rollers. The spherical segments can be pivoted by the regulator means through the same angle in order to selectively vary the point of contact of each drive disc at its associated spherical segment, and to thus also fulfill certain required proportionality relationships between the radii of the circular path of travel of the drive discs and the associated radii of the wound package of material.

3,549,101

SPOOLS FOR PHOTOGRAPHIC FILMS

Otto W. Krause, Heinrichstrasse, 5–6 Berlin 45, Germany

Filed Oct. 15, 1968, Ser. No. 767,661
Claims priority, application Germany, Oct. 17, 1967, 1,597,699
Int. Cl. B65h *27/00*
U.S. Cl. 242—76 **16 Claims**



A spool for carrying film comprises two spirally grooved discs mounted on a spindle, a retaining flap for holding the end of the film on the spindle, and a detachable device for guiding the film onto the spindle. The detachable device includes a lead-in channel for guiding the film beneath the flap for securing it to the spindle. The spool can be used for reeling two films back to back.

ERRATUM

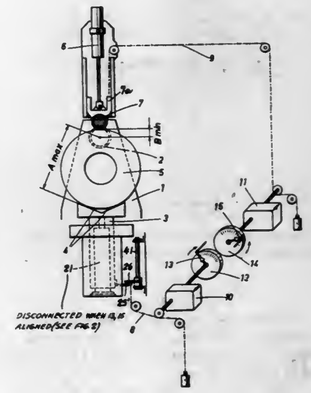
For Class 242—78.1 see:
Patent No. 3,549,443

3,549,102

COMBINATION OF AN UNCOILER AND APPARATUS FOR MOUNTING A COIL ON THE UNCOILER

Franz Sedlacek, and Hans Weinzinger, Vienna, Austria, assignors to Vereinigte Osterreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Oct. 22, 1968, Ser. No. 769,675
Claims priority, application Austria, Nov. 6, 1967, A9948/67
Int. Cl. B21c *47/16*
U.S. Cl. 242—78.6 **20 Claims**



A lifting table carrying a coil performs a lifting movement from a lowermost position to a position, in which the axes of the coil and an uncoiler are aligned. The lifting table has a coil-contacting surface. Lifting drive means impart said lifting movement to said lifting table. Deenergizing means are provided for deenergizing said lifting drive means. A feeler is adapted to follow said lifting movement and has a coil-contacting surface which is engageable with the coil in said lowermost position. First and second linkages are connected to said lifting table and feeler, respectively. A first indicating device is connected to said first linkage and adapted to produce a signal indicating the distance from said uncoiler axis to said coil-contacting surface. A second indicating device is connected to said second linkage and adapted to produce a second signal, which is comparable with said first signal and indicates the distance from said uncoiler axis to said coil-contacting surface of said feeler.

3,549,103

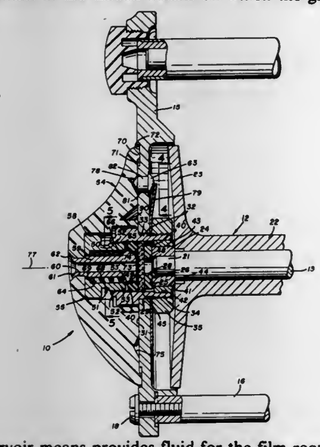
ANTIBACKLASH BRAKE MEANS FOR FISHING REELS

Thomas F. Sarah, Akron, Ohio, assignor to Shakespeare Company, Kalamazoo, Mich., a corporation of Delaware.

Filed Apr. 30, 1968, Ser. No. 725,286
Int. Cl. A01k *89/02*
U.S. Cl. 242—84.5 **4 Claims**

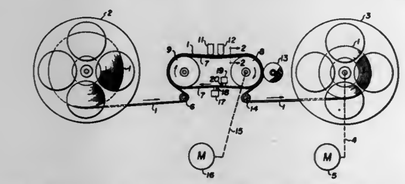
A brake mechanism for precluding backlash in fishing reels. A friction face rotatable with the line spool is engaged, through a film of fluid, by a reaction pad. The reaction pad is forced into this engagement with the friction face by a gland that compresses a resilient annulus, interposed between the gland and the reaction pad, against the latter. The gland is rotatable with, and displaceable axially with respect to, a control knob that is, in operative position, axially fixed with respect to the reel. A detent means marks rotation of the control knob into incremental units, and selective rotation of the knob moves the gland axially, on thread means, to adjust the compression of the resilient annulus and thus the pressure applied by the resilient annulus in forcing the reaction pad against the friction face. A spring means acting between

the control knob and the gland eliminates mechanical backlash in the thread means on which the gland moves. A



reservoir means provides fluid for the film required between the friction face and the reaction pad.

3,549,104
TAPE TRANSPORT MECHANISM
Robert D. Morrow, Baltimore, Md., and Andrew S. Hegeman, Glen Ridge, N.J., assignors to Par, Ltd., Clifton, N.J., a partnership of New Jersey
Filed Oct. 23, 1967, Ser. No. 677,259
Int. Cl. B65h *17/24*; **G11b** *15/26, 15/60*
U.S. Cl. 242—209 **4 Claims**

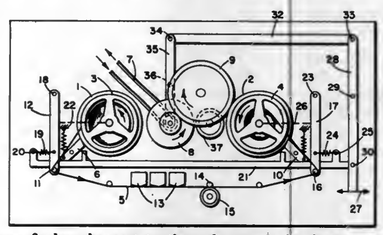


The tape in a magnetic tape recorder is driven by a belt, wider than the tape, that is looped around a driving wheel and a follower wheel. Tape leaving the supply reel is guided by a guide post onto the surface of the belt, where it is maintained by electrostatic attraction as the belt both supports the tape and drives it past the transducing heads. The tape is then separated from the belt and guided by another guide post onto the takeup reel.

Electrostatic charge is applied to the belt at a point prior to its receiving the tape, and excess electrostatic charge is removed from the tape before it is wound up on the takeup reel. A convenient height adjustment on the guide posts makes it easy to adjust the position of the tape transversely of the transducing heads.

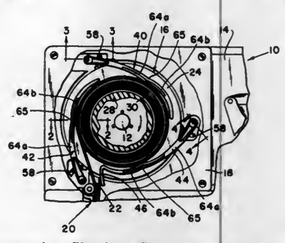
3,549,105
TAPE TENSION CONTROL SYSTEM WITH SENSING LEVERS, PARTICULARLY FOR MAGNETIC SOUND RECORDERS
Wolf Freiherr von Hornstein, Ottostr. 4a, and Albert Liebl, Am Muehleich 12,813 Starnberg, Germany
Filed Aug. 5, 1968, Ser. No. 750,151
Claims priority, application Germany, Aug. 24, 1967, 1,549,042
Int. Cl. B65h *75/34*; **G03b** *1/04*; **G11b** *15/60*
U.S. Cl. 242—210 **5 Claims**

An arrangement for regulating the tension of a tape passing between two spools such as in a magnetic tape recorder where a feeler element engages the tape adjacent each spool. The tension on each feeler element is controlled by a spring and the tension on this spring is controlled by an actuating element comprising an elongated bar which runs



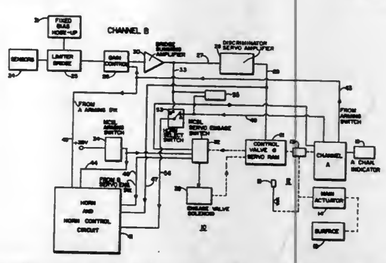
from one feeler element to the other and also has an extension which controls the drive means for the two spools.

3,549,106
PROJECTOR TAKE-UP MECHANISM
Daniel J. Stark, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 9, 1969, Ser. No. 823,262
Int. Cl. B65h *75/02*; **G11b** *15/66, 73/10*
U.S. Cl. 242—210 **6 Claims**



Fingers for contacting film in a film takeup mechanism for a motion picture projector are shaped and mounted to minimize frictional contact between the fingers, reel flanges between which the fingers are positioned, and a film strip on the reel.

3,549,107
CONTROL APPARATUS
Charles R. Zimmer, Brooklyn Park, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Mar. 25, 1968, Ser. No. 715,889
Int. Cl. B64c *13/18*
U.S. Cl. 244—77 **14 Claims**

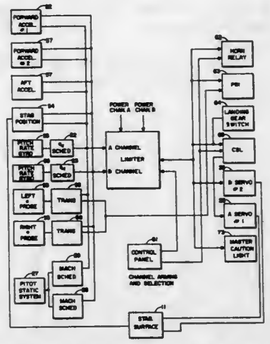


A condition control apparatus has the condition monitored by a limiter system, which modifies the operation of the apparatus to prevent the condition exceeding a predetermined magnitude or boundary limit.

The limiter system comprises dual or redundant limiter channels for improving reliability of the limiter system.

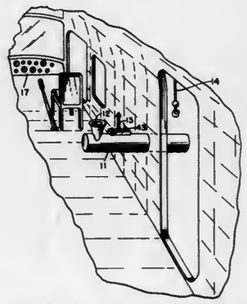
While the limiter system is fail operational, e.g., one limiter channel can function to limit the condition or place a boundary on the condition even if the other limiter channel has failed, in the event of a failure of both limiter channels in the same time period, a limiter channel monitor is responsive to such double failures and conveys such fact to an attendant.

3,549,108
CONTROL APPARATUS
Frederick L. Smith, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Mar. 25, 1968, Ser. No. 715,840
Int. Cl. B64c *13/18*
U.S. Cl. 244—77 **12 Claims**



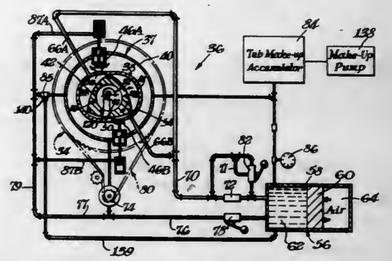
In condition control apparatus, such as flight condition control apparatus for an aircraft, a single monitoring system had previously monitored a flight condition of the craft, such as the craft normal acceleration, and had prevented application of control to the craft in excess of a magnitude of the control yielding maximum desired normal acceleration or flight condition. However, redundant monitoring systems, rather than but a single monitoring system, are herein provided to increase the reliability of monitoring the particular flight condition of the craft, since if one monitoring system fails, the other monitoring system may exert the desired limiting of the condition. In the event of actual failure of one of such monitoring control systems for controlling of the aircraft, the other or redundant system will assume control. Thus, by such redundant monitoring systems, the aircraft will have been able to complete its flight mission rather than aborting the mission on failure of one monitor. Thus, reliability of the aircraft has been increased by redundant methods.

3,549,109
OPTICAL FLIGHT CONTROL SYSTEM
James B. Gilstrap, 8440 Thames St., Springfield, Va. 22151
Continuation-in-part of application Ser. No. 475,296, July 27, 1965, now abandoned. This application Mar. 5, 1969, Ser. No. 806,024
Int. Cl. B64c *13/18, 27/68*
U.S. Cl. 244—77 **5 Claims**



A hover coupler for a hoverable or rotary wing aircraft has two-axis optical sighting means located on the aircraft remote from the pilot's position and operated by another person who may acquire without being subject to vertigo a target over which hover is eventually desired. The optical sighting means are provided with controls for feeding pitch and roll signals to stabilization amplifier means already provided on the craft so that the target may be acquired and hovered over under control of said operator with or without the assistance of the pilot. Cable or other hoisting means are located on the aircraft in alignment with said optical sighting means for improved ease of rescue.

3,549,110
ENERGY ABSORBER
Robert B. Cotton, Media, Pa., assignor to All American Engineering Company, Wilmington, Del., a corporation of Delaware
Filed Aug. 28, 1968, Ser. No. 756,035
Int. Cl. B64f *1/02*
U.S. Cl. 244—110 **20 Claims**



An energy absorbing device, which is highly effective for use in an aircraft arresting gear, is provided by mounting a rotary pump having a pressure related characteristic within a container of fluid. The pump circulates the fluid from and back into the container whereby it absorbs energy in response to a mechanical input and transmits this energy to the fluid in the container in the form of heat. A highly effective form of this device utilizes a rotary piston-type pump having an axial input channel in its shaft connected to radial passageways extending through its cam disc and rotating piston. The fluid is discharged through pressure relief valves of the compressed air cushioned type. The rotary piston-type pump is particularly advantageous for such service because its rotor rotates slower than the input shaft, thus minimizing the mass of the pump to provide a given amount of energy absorption.

3,549,111
AERIAL PERSONNEL RECOVERY APPARATUS
Fred B. Stencel, Asheville, N.C., assignor to Stencel Aero Engineering Corporation, Arden, N.C., a corporation of North Carolina
Filed May 14, 1968, Ser. No. 728,945
Int. Cl. B64d *25/10*
U.S. Cl. 244—122 **2 Claims**

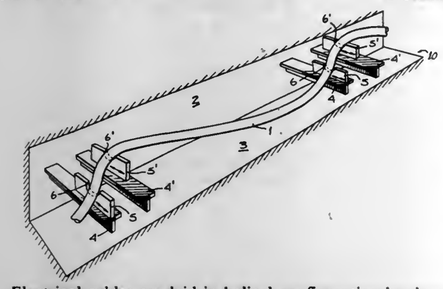


In an apparatus comprising an ejection seat, a snubbing arrangement is provided for positively decelerating the seat, with automatic release of the occupant restraint harness or belt just prior to seat deceleration, to accomplish positive separation of the occupant from the seat.

3,549,112
ELECTRICAL CABLE INSTALLATION

Nicola Palmieri, Milan, Italy, assignor to Pirelli S.p.A., Milan, Italy, a corporation of Italy

Filed Nov. 21, 1967, Ser. No. 684,832
Claims priority, application Italy, Dec. 20, 1966, 31,287/66
Int. Cl. F16l 1/00; H02g 9/00
U.S. Cl. 248—70 6 Claims

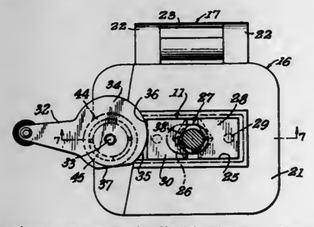


Electrical cables are laid in helical configuration by draping them over spaced supports so that they lay in a vertical plane and then displacing selected portions of the cable in directions perpendicular to the plane.

3,549,113
CAMERA ATTACHMENT FOR TRIPODS

Robert J. Pagliuso, 5268 Linda Vista Drive, La Canada, Calif. 91011

Filed May 16, 1968, Ser. No. 729,591
Int. Cl. F16m 11/12
U.S. Cl. 248—187 2 Claims

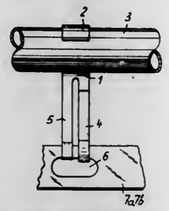


Quick-release means embodied in the top plate of a tripod and having a lever-controlled jaw and an opposite fixed jaw, said jaws having tapered edges that engage a tapered stud in a direction toward said plate, thereby to firmly seat the camera on the plate. Said top plate, when hinged to the tripod and swung to an angular position with the camera secured thereto, safely holds the camera as firmly on the plate when horizontal as when in such angular position.

3,549,114
SUSPENSION MEANS FOR FALSE CEILINGS

Rolf Juerg Eiermann, Thalwil, Switzerland, assignor to Aluphon AG., Zug, Switzerland

Filed June 19, 1968, Ser. No. 738,341
Claims priority, application Switzerland, June 19, 1967, 8,678/67
Int. Cl. E04b 5/52
U.S. Cl. 248—340 4 Claims

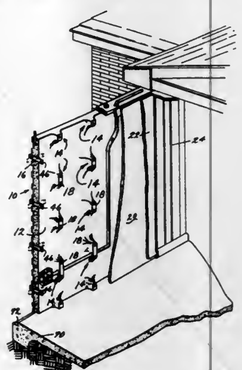


A suspension means for false ceilings composed of panels is adapted to have its lower end engaged in recesses provided in upwardly directed flanges which are formed at the edges of the ceiling panels. The suspension means has the said lower end equipped with two differently shaped tongues, one tongue being formed into a supporting hook to be engaged in a recess of the edge flanges while the other tongue is adapted to form a safety catch which extends across the supporting hook to lie applied against the upper edge of one of the edge flanges.

3,549,115
FORM FOR MONOLITHIC CONCRETE WALL CONSTRUCTION

Frank L. Williams, Newtown Square, Pa., assignor to American Cement Corporation, Los Angeles, Calif., a corporation of Delaware

Filed June 30, 1967, Ser. No. 650,508
Int. Cl. E04g 11/06
U.S. Cl. 249—33 12 Claims

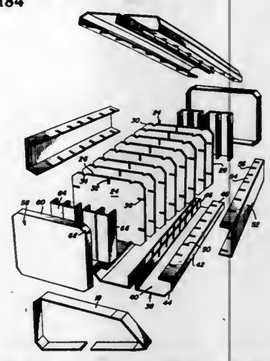


A lightweight form is provided for producing an improved surface configuration for a cast monolithic concrete wall construction. The wall is produced to include a plurality of integrally formed, spaced, pad members which project outwardly from a surface of the wall to provide places of attachment for sheet material which is fastened onto the pads in a spaced relationship from the monolithic wall. An aluminum, or other lightweight material, form is provided with specially constructed depressions to define positions of the integral pads when the monolithic wall is cast, and the form also includes a specially curved surface to provide greater strength and a better release of the form from a cast wall.

3,549,116
CORE FORM FOR CONCRETE MEMBER

Ronald R. Ferry, and Robert R. May, Roaring Spring, Pa., assignors to Roaring Spring Blank Book Co., a corporation of Pennsylvania

Filed Oct. 20, 1967, Ser. No. 676,972
Int. Cl. B28b 7/28
U.S. Cl. 249—184 13 Claims



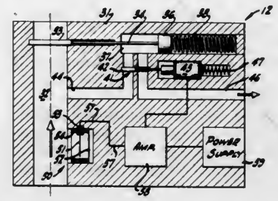
A tubular core for precast concrete beams assembled from paperboard blanks of standard sizes. An outer tubular shell is

formed by at least four, folded corner sections internally supported on longitudinally spaced panels with which inwardly extending flanges of the corner sections are interlocked. End supports space the sides of the outer shell between the flanges adjacent an end closed by an end cap.

3,549,117
VIBRATION CONTROLLED VALVE AND SYSTEM

Donald E. Hanson, 825 Burnett Ave. Apt. 12, San Francisco, Calif. 94131

Filed Mar. 19, 1969, Ser. No. 808,476
Int. Cl. F16k 31/10
U.S. Cl. 251—30 6 Claims

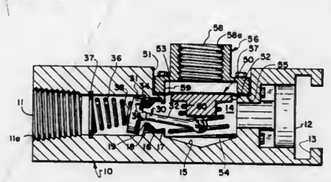


A control system for valves connected to a common header in which a vibration-responsive valve actuator is associated with each valve and communicates with the header. A control unit connected to the header includes a vibration generator establishing selected frequency vibrations of fluid in the header to resonantly energize selected actuators for operation of the valves associated therewith. The actuator includes a metallic vibration-responsive element having a predetermined resonant frequency mounted in a magnetic field and the actuator may be physically embodied in the valve structure or disposed adjacent and connected to the valve.

3,549,118
DIAPHRAGM OPERATED PIVOTED GLUE VALVE

Arthur W. Bluder, Clearwater, Fla., assignor to ABC Packaging Machine Corporation, Largo, Fla., a corporation of Florida

Filed Nov. 19, 1968, Ser. No. 777,038
Int. Cl. F16k 31/165
U.S. Cl. 251—58 5 Claims



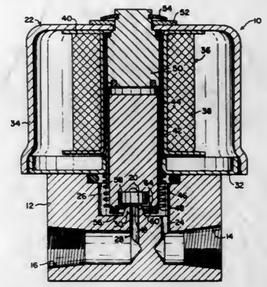
This invention relates to a valve assembly capable of providing a regulated source of fluid pressure with provision for remote on-off actuation when used in conjunction with a regulated air pressure supply, via suitable air controls, and is ideally suited for controlling, measuring and dispensing a wide range of fluid materials or plastic adhesive material such as glue. The valve portion of the assembly is composed of a tilt member controlled by movement of a diaphragm under pressure.

3,549,119
VALVE ASSEMBLY WITH FLEXIBLE VALVE ELEMENT

Roger W. Sellers, Kenosha, Wis., assignor to Webster Electric Company, Inc., Racine, Wis., a corporation of Delaware

Filed Feb. 9, 1968, Ser. No. 704,371
Int. Cl. F16k 31/06
U.S. Cl. 251—84 6 Claims

A housing includes a high-pressure inlet passage communicating with a pressure chamber, which in turn communicates through a valve seat with an outlet passageway. A flexible valve member is held in sealing relation against the seat when the valve is closed by the force resulting from pressure fluid within the chamber. A solenoid valve operator is energized in order to open the valve. A valve-opening

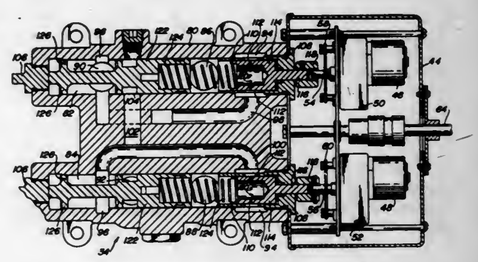


member controlled by the solenoid engages the valve member and sequentially flexes portions of the valve member away from the seat, thereby avoiding the necessity of overcoming the entire sealing force at one time.

3,549,120
REMOTE CONTROL ELECTRIC ACTUATING DEVICE

Paul C. Weiss, Evanston, Ill., assignor to AMBAC Industries, Incorporated, a corporation of New York

Original application Sept. 22, 1966, Ser. No. 581,263, now Patent No. 3,429,232, dated Feb. 25, 1969. Divided and this application Aug. 9, 1968, Ser. No. 751,446
Int. Cl. A01c 19/00; E01c 19/20
U.S. Cl. 251—131 11 Claims



Electrically controlled hydraulic valve arrangements with integral hydraulic override whereby the flow of fluid through one valve controls in part the operation of the other valve; the two valves being connected to operate different hydraulically driven motors connected respectively to a conveyor mechanism and a spreader mechanism for distribution of sand or aggregate.

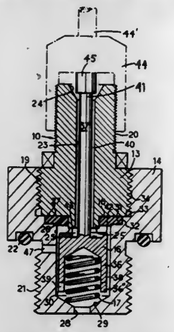
3,549,121
VALVE

Jacques H. Mercier, 1199 Park Ave., New York, N.Y. 10020

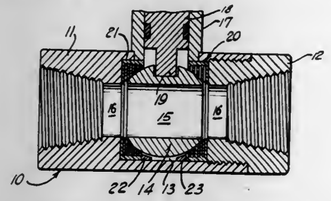
Filed June 4, 1968, Ser. No. 734,388
Claims priority, application France, June 9, 1967, 109,745
Int. Cl. F16l 29/00
U.S. Cl. 251—149.5 7 Claims

This invention relates to a valve for fluid under pressure, said valve comprising a fluid passageway having a resilient annular seat encompassing the passageway with a valve member cooperating with said seat to control said

passageway, said valve member being urged to closed position against said seat both by the fluid pressure and by associated resilient means, said valve member including a stem, the end of which is designed to be pushed to open the valve.

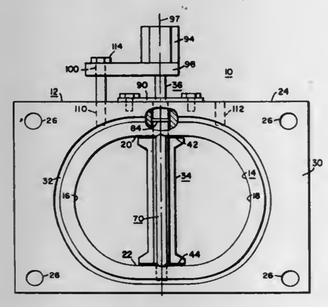


3,549,122
SEALED BALL VALVE
William J. Graham, Metairie, La., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed June 24, 1968, Ser. No. 739,469
Int. Cl. F16k *5/20*
U.S. Cl. 251—174 **5 Claims**



A ball valve wherein a rotatable ball controls the rate of fluid flow therethrough and is engaged by a sealing means which includes annular members of different materials and rigidity adjacently spaced to each other and engaging the ball.

3,549,123
BUTTERFLY VALVE
Clifford J. Bell, and Harry C. Andersen, Muncie, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 27, 1968, Ser. No. 787,391
Int. Cl. F16k *1/226*
U.S. Cl. 251—306 **3 Claims**

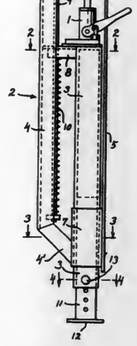


A butterfly valve having a shaft mounted closure member disposed in the fluid passageway of a valve body, which is rotatable from a fluid blocking position to a fluid flow unblocking position. The closure member defines a peripheral groove which includes portions which encircle the shaft at each of the points where the shaft extends outwardly from the closure member. A unitary resilient member is disposed in the peripheral groove of the closure member to provide shaft seals in any position of the closure member, and a passageway seal when the closure member is in the fluid blocking position.

3,549,124
COATED STOPPER HEAD FOR CONTROLLING OUTFLOW OF MOLTEN METAL THROUGH THE NOZZLE OF A BOTTOM POUR RECEPTACLE
Ronald V. Kilgore, Coraopolis, Pa., assignor to Vesuvius Crucible Company, Swissvale, Pa., a corporation of Pennsylvania
No Drawing. **Filed Aug. 26, 1968, Ser. No. 755,423**
Int. Cl. F16k *21/00*
U.S. Cl. 251—356 **4 Claims**

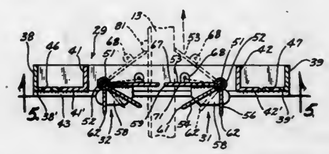
A coated stopper head for controlling outflow of molten metal through the nozzle of a bottom pour receptacle comprising a stopper head body with an insulating coating thereon so that when the stopper head is in position closing the nozzle and molten metal is introduced into contact with the relatively cold stopper head the insulating coating on the stopper head minimizes cooling of the molten metal in the vicinity of the stopper head and hence inhibits freezing of molten metal to the stopper head so that when the stopper head is subsequently urged upward to permit outflow of molten metal through the nozzle raising of the stopper head will not be substantially impeded by metal frozen thereto. The coating preferably comprises finely divided insulating material and a binder and is desirably of such consistency that it may be applied by dipping. The insulating material is preferably in unfired finely divided form. The coating is preferably formed in situ on the stopper head body.

3,549,125
EXTENSIBLE FRAME FOR HYDRAULIC JACKS
David Hamilton, 401 N. Bryan, Weatherford, Okla. 73096
Filed Sept. 20, 1968, Ser. No. 761,191
Int. Cl. B60s *9/02*
U.S. Cl. 254—86 **4 Claims**



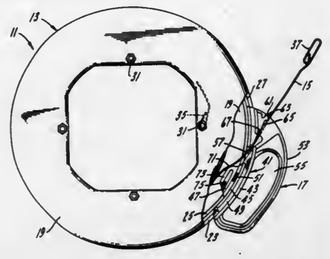
An extensible frame for a hydraulic jack particularly suitable for lifting trailers, wherein the frame comprises an elongated housing containing a telescopically extensible tube, said tube having a supporting leg at one end and a base at the other end to which the jack is secured by bolts. A stationary rod is mounted in the housing and serves as a guide for a coiled spring surrounding the stationary rod. The coiled spring is compressed when the jack is actuated and urges the extensible tube into the housing when the jacking pressure is released.

3,549,126
SELF-ENGAGING POST PULLER AND DRIVER
Larry L. DeVries, R.R. 2, Box 50, Sheffield, Iowa 50475
Filed Aug. 19, 1968, Ser. No. 753,585
Int. Cl. B66f *3/00*
U.S. Cl. 254—132 **3 Claims**



This invention relates to a self-engaging fence post puller and driver apparatus adapted for attachment to a conventional lift mechanism capable of movement in a vertical direction, the apparatus having a pair of oppositely disposed, parallel post engaging members pivotally connected to a frame structure, the engaging members opening to engage the post upon contact and converging upon the post to grip it securely upon vertical movement of the apparatus in the appropriate direction.

3,549,127
FISH TAPE WINDER
Juergen Niemann, Sycamore, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware
Filed Dec. 7, 1967, Ser. No. 688,800
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.3 **2 Claims**



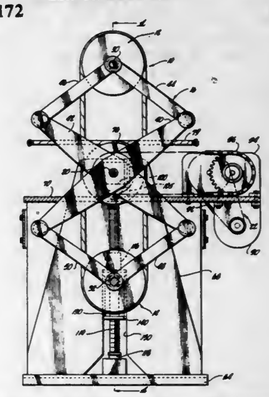
An electrician's fish tape reel assembly including an electrician's fish tape, a reel formed of a pair of annular sections which are removably connected to each other with the reel adapted to receive and hold the tape for winding and unwinding and a tape winder which is guided around the periphery of the reel. The tape winder is formed with a passage to guide the fish tape into and out of the reel and a drag surface which is positioned inside the reel and is adapted to engage the tape to maintain tension on the tape as it is wound into the reel.

3,549,128
TOOL FOR PUSHING OR PULLING A CABLE THROUGH A PIPE OR THE LIKE
Nicholas S. Homiak, Wanaque, N.J., and Robert K. Cole, Butler, N.J. 07405
Filed Aug. 14, 1968, Ser. No. 752,580
Int. Cl. E21c *29/16*
U.S. Cl. 254—134.3 **11 Claims**



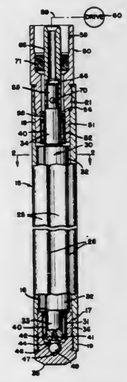
A tool for pushing or pulling a cable or wire through a pipe or the like which allows gripping the cable whenever desired and allows release of the cable as desired and may be operated with either short or long strokes as may be most conveniently accomplished. The tool has a guide casing and a pliers-type gripping tool with grippers slidable in said guiding casing. The gripping tool has handle members for pushing or pulling the gripping tool with cable attached.

3,549,129
MOTION DAMPENING DEVICE
John R. Graham, Newport Beach, and Rene M. DeLaunay, Los Angeles, Calif., assignors to Global Marine Inc., Los Angeles, Calif., a corporation of Delaware
Filed Sept. 3, 1968, Ser. No. 756,785
Int. Cl. B66d *1/48*
U.S. Cl. 254—172 **11 Claims**



The device has complementary sets of sheaves coupled together through pantographic linkage to effect a displacement in a reeved towline which is a multiple of the distance that the sheave sets move either towards or away from each other. The pantographic linkage and a pair of idler sheaves are journaled on a drive shaft. The towline enters the device over one of the idler sheaves and is then reeved over the sheave sets and leaves the device over the other idler sheave. The sheave sets are driven towards or away from each other through a pair of motorized ball race screws and nuts disposed on either side of the sheave sets.

3,549,130
CONCRETE VIBRATOR
Eugene C. Briggs, Dayton, Ohio, assignor to Koehring Company, Milwaukee, Wis., a corporation of Wisconsin
Filed May 6, 1968, Ser. No. 726,761
Int. Cl. B01f *11/00*
U.S. Cl. 259—1 **9 Claims**



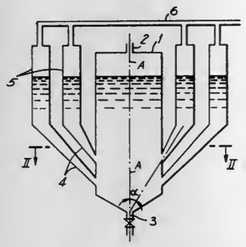
A concrete vibrator has an elongated extruded thin-walled housing which encloses a rotatably driven eccentric weight of

circular cross section and the outer surface of the housing is formed by a plurality of peripherally spaced and longitudinally extending concaved faces which are effective to produce concentrated forces within the concrete adjacent each face with minimum slippage between each face and the adjacent concrete.

3,549,131
DEVICE FOR PULSATING MIXING OF LIQUID AND LIQUID-AND-SOLID REAGENTS

Susanna Mikhailovna Karpacheva, 2 Schukinsky proezd, 2, kv. 88., Valerian Matveevich Muratov, Astakhovsky per. 1/2, kv. 118., Leonid Solomonovich Raginsky, Nikitinskaya ul., 16, korp. 1, kv. 29., Vladimir Dmitrievich Ivanov, 2 Schukinsky proezd, 11, kv. 6., and Valery Alexandrovich Chernov, ul. Dmitrova, 4, kv. 2, Moscow, U.S.S.R.

Filed Apr. 4, 1968, Ser. No. 718,701
Int. Cl. B01f *5/02*
U.S. Cl. 259—4 **5 Claims**

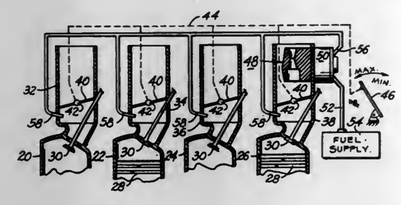


A device for the pulsating mixing of liquid and liquid-and-solid reagents comprises a tank communicating with pulsating chambers through nozzles, the nozzles being arranged in one or several rows around the periphery of said tank so that one group of the nozzles is oriented tangentially towards imaginary surfaces or rotation, having a common axis while a second group of nozzles are oriented towards this axis.

3,549,132
COMBUSTION ENGINE FUEL CONTROL

Elmer A. Haase, 22905 Edison Road, Ind. 46628

Filed Oct. 9, 1967, Ser. No. 673,815
Int. Cl. F02d *23/02, 9/10;* **F02m** *7/18*
U.S. Cl. 261—23 **4 Claims**

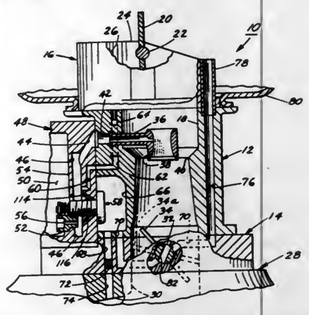


A mass airflow sensitive fuel control for controlling fuel to a multiple cylinder internal combustion engine wherein the fuel control apparatus includes mass airflow sensing element such as a high gain venturi disposed in the air induction passage for measuring the mass airflow to a single engine cylinder and a fuel control valve actuated as a function of the venturi air pressure output for controlling fuel flow to all of the engine cylinders as a function of the mass airflow to the one engine cylinder. The air induction passage includes a plurality of air passages each having a separate airflow throttle valve therein connected to the multiple engine cylinders for supplying air thereto. The mass airflow sensing venturi is connected to one of the air passages upstream from the airflow throttle valve therein for measuring the mass airflow therethrough. The venturi generates an output air pressure differential which varies as a predetermined function of the mass airflow therethrough. A fuel metering arrangement includes a fuel conduit connecting a source of pressurized fuel with the plurality of air passages downstream from the throttle valve associated therewith. A metering restriction is located in the fuel conduit for establishing the effective flow area thereof. A fuel valve member is connected to the fuel conduit for controlling a fuel pressure differential generated across the metering restriction. A pressure differential device responsive to the air pressure differential and the fuel pressure differential is operatively connected to the valve member for actuating the same. The fuel metering arrangement establishes a flow metered fuel to all of the air passages and thus the multiple cylinders as a function of the portion of the total mass airflow in accordance with the output air pressure differential derived from the venturi. The venturi is defined by a first venturi including a first converging entrance section and a first diverging discharge section connected by a first throat section defined by a circular inner body portion and a spaced apart annular outer portion concentric therewith. A second venturi including a second converging entrance section and a second diverging discharge section is connected by a second throat portion formed in the inner body portion. A conduit connects the second discharge section with the first throat portion to provide a reduced back pressure against airflow through the second venturi which results in a correspondingly relatively large pressure differential between venturi impact and throat pressures derived from the second venturi for a given total mass airflow through the first and second venturi. In one embodiment, the air induction passage includes a separate air passage and airflow throttle valve for each of the multiple cylinders for conducting air to each cylinder independently of the remaining cylinders. In another embodiment, the air induction passage includes an air induction manifold common to all of the multiple cylinders and provided with an air inlet. A plurality of airflow restrictions including the mass airflow measuring venturi are arranged in parallel airflow relationship to the inlet. An air supercharger is connected to the inlet downstream from the plurality of airflow restrictions for pressurizing air supplied to the manifold from the inlet.

3,549,133
CARBURETOR

Jerome J. Frankowski, 31139 Moceri Drive, Warren, and Thomas E. Stuck, 25544 Normandy, Roseville, Mich. 48066

Filed Oct. 11, 1968, Ser. No. 766,747
Int. Cl. F02m *7/06*
U.S. Cl. 261—51 **3 Claims**

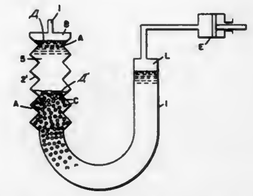


A carburetor having a body, an induction passage formed through the body with a variably positionable throttle valve situated therein and a main fuel supply system for discharging fuel into the induction passage, fuel valve means actuated in response to engine-developed vacuum being reduced below a predetermined value for supplying additional quantities of fuel to the induction passage, is provided with additional valve means actuated in accordance with throttle valve position for causing the fuel valve means to be opened to provide such additional quantities of fuel whenever the throttle valve attains a preselected degree of opening regardless of the value of the then engine-developed vacuum.

3,549,134
METHOD AND APPARATUS FOR MIXING AND DISPERSING A GAS AND A LIQUID

Susanna Mikhailovna Karpacheva, 2 Schukinsky proezd, 2, kv. 88., Valerian Matveevich Muratov, Astakhovsky pereulok, 1/2, kv. 118., Leonid Solomonovich Raginsky, Nikitinskaya ulitsa, 16, korpus 1, kv. 29., Valery Alexandrovich Chernov, ulitsa Dmitrova, 4 kv. 2., and Oleg Antonovich Khrokalo, Izmailovsky bulvar, 22, kv. 24., Moscow, U.S.S.R.

Filed June 12, 1968, Ser. No. 736,502
Int. Cl. B01f *11/00*
U.S. Cl. 261—74 **6 Claims**

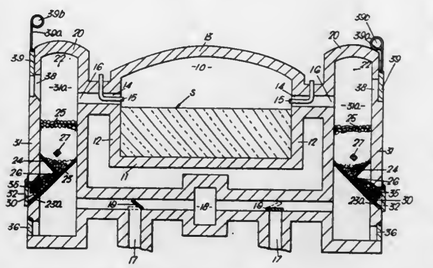


A method for mixing and dispersing a gas in a liquid comprises placing the gas above the liquid and imparting to the liquid and the surface of contact thereof with the gas, a reciprocating movement and repeatedly varying the area of the surface of contact of the liquid with the gas during each movement of the liquid. A device for effecting the method comprises a reservoir for the liquid and at least one vessel in the reservoir having a vertical inner cavity with a corrugated wall to provide a cross-sectional area which repeatedly varies along the length of the cavity, the gas being supplied to the top of the vessel through an inlet thereof, the bottom of the vessel being in communication with the reservoir. A pulsator is connected to the vessel to alternately vary the pressure in the liquid and produce reciprocal movement therein.

3,549,135
REGENERATIVE FURNACES

Hubert Cecil Wynne, St. Helens, James Edward Hall, Wigan, and William Charlton, St. Helens, England, assignors to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain

Filed Nov. 14, 1968, Ser. No. 775,740
Claims priority, application Great Britain, Nov. 14, 1967, 51778/67
Int. Cl. F27d *17/00;* **F23l** *15/00*
U.S. Cl. 263—15 **14 Claims**

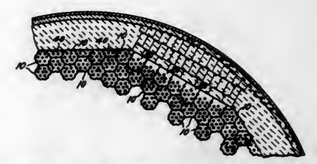


Regenerative heat exchange is effected in a regenerative furnace containing a bed of rubble; rubble is continually removed from the lower regions of the bed, is sieved and fed to the top of the bed so that fine materials are progressively moved down through the bed.

3,549,136
CHECKERS SUITABLE FOR FORMING A CHECKER WORK IN A HOT BLAST STOVE AND METHOD OF FORMING SAME

Kenneth A. Baab and James M. Blackwood, Bethlehem, Pa., assignors to Bethlehem Steel Corporation, a corporation of Delaware

Filed June 17, 1968, Ser. No. 737,529
Int. Cl. F23l *15/02*
U.S. Cl. 263—51 **2 Claims**

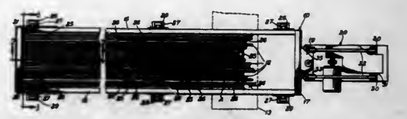


This invention relates to an improved checker for hot blast stoves generally hexagonal in cross section, having six side walls, parallel top and bottom surfaces, and a plurality of vertical parallel gas passages extending therethrough. A plurality of vertical parallel grooves are provided at the corners of the side walls and at a midpoint of the side walls. The top and bottom surfaces are provided with a plurality of projections and recesses generally triangular in cross section. Other checkers generally pentagonal in cross section and half hexagonal checkers required to form a checkerwork in a hot blast stove are described.

3,549,137
APPARATUS FOR SIZING ELONGATED ARTICLES

Edward J. Berk, Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 16, 1968, Ser. No. 706,167
Int. Cl. B23k *7/04*
U.S. Cl. 266—23 **8 Claims**



Apparatus for sizing odd length articles such as rods, pipe and the like. A reciprocating conveyor deck having a jogging plate at one end of the deck, forming a barrier to article movement along the deck, forms the sizing apparatus. The conveyor deck includes parallel sidewalls having an article supporting deck extending therebetween in which at least one open area is provided at a designated cutoff station. A bundle of rods or other articles to be sized, is loaded onto the conveyor deck. The ties for the bundle are then cut and the conveyor deck is reciprocably driven, to spread the articles along the deck and move the articles into engagement with the jogging plate. The short ends of the articles are then cutoff equal distances from the jogging plate at the cutoff station and are allowed to drop to a carry off conveyor.

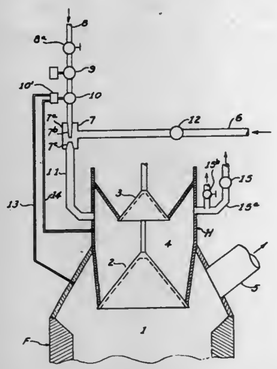
3,549,138
METHOD OF PRESSURE EQUALIZING FOR BLAST FURNACE TOP

James L. Thomas, 1558 Larchmont Ave., Lakewood, Ohio 44107

Filed Oct. 8, 1968, Ser. No. 765,828
Int. Cl. F27b *11/12*
U.S. Cl. 266—27 **9 Claims**

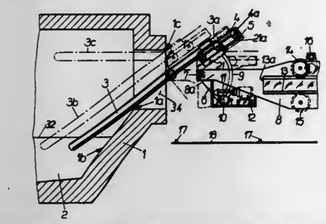
A blast furnace top structure, having the usual charging bells whereby material may be charged into the furnace without the loss of gas pressure in the furnace top, in which means are provided for discharging gas and steam simultaneously into the space between the bells and for controlling said discharge whereby the bell space pressure may quickly be elevated from substantially atmospheric to or above the furnace top pressure. The apparatus is adapted to carry out a

method for equalizing the pressure in the bell space with the furnace top pressure by use of gas from an external source (for example, cleaned furnace gas) at a pressure lower than



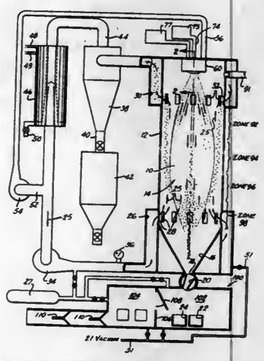
the furnace top pressure in which steam is added to the gas whereby the pressure of the air, gas and steam in the bell space is rapidly elevated to the desired degree at/or above the furnace top pressure.

3,549,139
BLAST LANCE CAR ARRANGEMENT FOR METALLURGICAL FURNACE
Werner Marxen, Duisburg, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany
Filed June 9, 1967, Ser. No. 644,980
Claims priority, application Germany, July 14, 1966, D50564
Int. Cl. C21c 7/00
U.S. Cl. 266—34 **9 Claims**



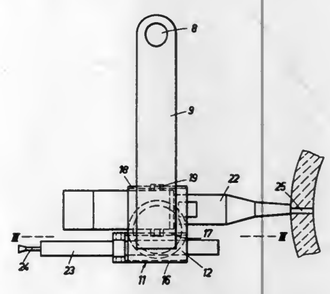
A metallurgical furnace particularly of the hearth-type includes a reduced dimension portion forming a mouth having an opening through which a lance may be inserted. In the preferred arrangement, the mouth opening may advantageously be closed by an exhaust gas hood which is adapted to move along a trackway at right angles to the opening to permit opening and closing of the mouth. A lance carrier or car is arranged to move along a trackway directly opposite the opening of the furnace in directions parallel to the axis of the opening. A lance guide or carrying trolley is movable along a pivotal trolley at the outer end of the lance car which is arranged toward the furnace mouth opening. The trolley trackway is carried on a segment member which may be pivoted about a horizontal axis in order to permit accurate orientation of the angle of the lance for penetration through the mouth of the furnace and down into the melt therein. The lance guide which carries the lance may be moved backwardly and forwardly in axial directions in respect to the lance along the top portion of the segment which defines a trackway for the guide. Pivotal movement of the segment carrying the lance guide trackway is effected by a motor drive and the movement of the lance car backwardly and forwardly along its associated trackway is effected by a separate electrical drive, the lance car being guided on its trackway by upwardly and downwardly bearing wheel sets.

3,549,140
APPARATUS FOR PRODUCING TITANIUM AND OTHER REACTIVE METALS
Dal Y. Ingersoll, 37 Elwood Ave., Flemington, N.J. 08822
Original application June 22, 1967, Ser. No. 648,061, now Patent No. 3,535,109. Divided and this application Apr. 1, 1969, Ser. No. 834,921
Int. Cl. C21c 7/00
U.S. Cl. 266—34 **2 Claims**



A reaction vessel is provided with a three-outlet nozzle for discharging titanium chloride and molten magnesium entrained within an inert helium enveloping stream into a downwardly extending flame from the upper portion of the vessel. A closed loop recirculates a counterflow stream of inert gas through the reaction vessel which opposes the motion of the reactants from the nozzle, controls the formation and agglomeration of titanium metal, and lifts out and separates the chaff and carries it out in the counterflow stream. The heavier agglomerated metal shot produced in the reaction falls under gravity and its prior inertia to the bottom of the vessel where it is collected in a collecting chamber maintained under an inert atmosphere. The collection chamber includes means for densifying the metal before it is exposed to air.

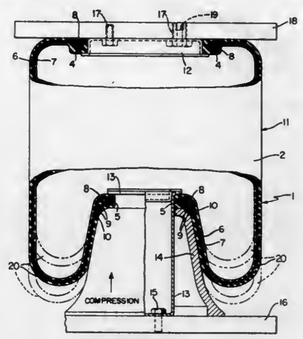
3,549,141
APPARATUS FOR OPENING AND CLOSING THE TAP HOLES OF SHAFT FURNACES
Theodor Zimmermann, and Alois Ullrich, Siegen, Westphalia, Germany, assignors to Dango & Dienenthal Kommanditgesellschaft, Siegen, Westphalia, Germany
Filed Sept. 6, 1968, Ser. No. 757,962
Claims priority, application Germany, Sept. 11, 1967, 1,583,166
Int. Cl. C21b 7/12
U.S. Cl. 266—42 **5 Claims**



In accordance with the invention a tap hole gun and a tap hole drill are mounted side by side facing in opposite directions on an upright pivot extending between them. Without moving the pivotal axis the gun and drill can in turn

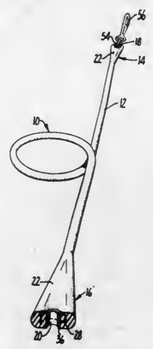
be swung around to working positions in front of a furnace tap hole.

3,549,142
FLUID SPRINGS
John B. Tilton, Hudson, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Nov. 29, 1968, Ser. No. 779,841
Int. Cl. F16f 9/04; F01b 19/00
U.S. Cl. 267—65 **42 Claims**



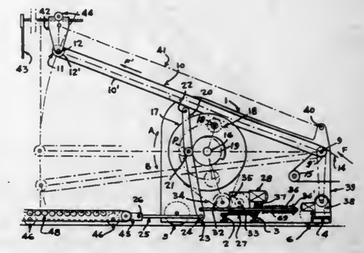
A fluid spring of the type used in a fluid pressure system which includes a flexible resilient member having an improved construction to facilitate its overall operation in the system and increase its flex life. The flexible member has a hollow body of fabric-reinforced elastomeric material which includes (1) one or more circumferential depressions adjacent to a bead ring in at least one of its peripheral ends to provide hinge points to facilitate its movement during the operation of the spring, and/or (2) a plurality of closely spaced corrugations in at least the area of the member which is subjected to dynamic contact with elements of the system to facilitate its flexing while in service. The invention is particularly useful in vehicle suspension systems, and its teachings may be applied to both bellows and piston type springs, or also to any combination thereof.

3,549,143
ELASTIC TENSION CORD
D. Howard Gilliam, 20975 Valley Green Drive, Cupertino, Calif. 95014
Filed Dec. 5, 1968, Ser. No. 783,456
Int. Cl. F16f 13/00
U.S. Cl. 267—74 **3 Claims**



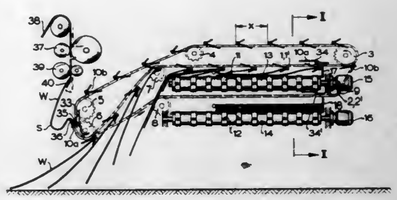
An elastic tension cord is provided with an elongated body and apertures near the ends hereof. Each aperture is surrounded by a ring member which is embedded in the elongated body.

3,549,144
SHEET STACKER WITH STACK SUPPORT POSITIONER
Raymond L. R. Lucas, P.O. Box No. 1, Prechac, Gironde, France
Filed July 9, 1968, Ser. No. 743,419
Claims priority, application France, July 10, 1967, 1,530,902
Int. Cl. B65g 57/00; B65h 29/68
U.S. Cl. 271—68 **4 Claims**



A stacking machine in which a stacking conveyor is pivotable about a horizontal axis to vertically adjust the height of the discharge end of the conveyor with respect to a stack of sheets being discharged from the conveyor with a cam connection connecting the means for adjusting the height of the conveyor to a platform support for the stack to consequently position the stack immediately beneath the discharge end of the conveyor in order that the stack will be beneath the discharge end of the conveyor regardless of the height of the discharge end of the conveyor and all sheets will be deposited in vertical alignment.

3,549,145
STACKING APPARATUS FOR PLASTICS MATERIAL SHEETING
Karl-Heinz Trautmann, an der Muhlenbreede, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany
Filed June 26, 1968, Ser. No. 740,334
Claims priority, application Germany, July 5, 1967, W44310
Int. Cl. B65h 29/28, 33/14
U.S. Cl. 271—79 **14 Claims**

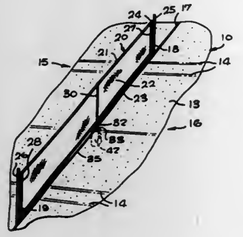


Endless conveyor chains convey the workpieces in gripping tools. Means for collecting the workpieces are provided. At least two endless chain conveyors extend through a common workpiece-charging area. The collecting means associated with the chain conveyors are spaced apart. Each chain conveyor extends as far as to the associated collecting means. The chain conveyors are provided with regularly spaced gripping tools only in sections of their length. Those length sections of the chain conveyors which are provided with gripping tools are staggered so as to move in alternation without interruption through the workpiece-charging area.

3,549,146
TENNIS NET HEIGHT INDICATOR

William M. Davis, 5851 Clinton St., Los Angeles, Calif. 90004

Filed Mar. 1, 1968, Ser. No. 715,461
Int. Cl. A63b *61/00*
U.S. Cl. 273—29 3 Claims

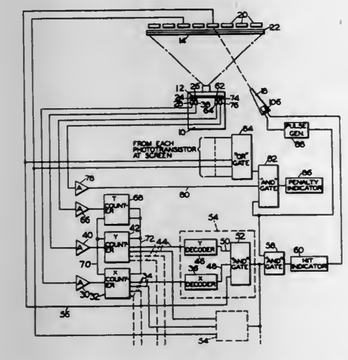


An anchor member is set in the playing surface of a game such as a tennis game at a location beneath the center of the net, there being pivotally attached to the anchor member an indicator rod which, when moved to a vertical position, shows the proper height at which the center of the net should be adjusted, and which, when released, will fall to a horizontal position adjacent the playing surface at a location in line with the net so that it will be out of the way while the game is in progress.

3,549,147
GUNNERY TRAINING APPARATUS

Gene S. Katter, Box 204, and James A. Richardson, Rte. 1, Box 54, Brownsville, Oreg.

Filed June 6, 1968, Ser. No. 735,030
Int. Cl. A63f *9/02*
U.S. Cl. 273—101.1 11 Claims

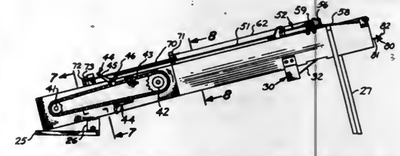


A plurality of light-responsive electric signal producing devices are arranged behind a translucent motion picture screen at different coordinate positions for selective activation by a light-emitting gun. The picture film has two magnetic tracks coded to identify the coordinate position of a target on each picture frame, a third magnetic track coded to provide an electric timing signal for stepping the coordinate counter system and to reset the counter system after each picture frame, and a fourth magnetic track coded to represent a time condition during which firing at the target imposes a penalty on the shooter. The electrical outputs of the light-responsive devices and the magnetic track pickup devices are connected to electric signal compare devices the electrical outputs of which are connected to target hit and penalty indicator devices.

3,549,148
AUTOMATIC BALL RECEIVING AND TOSSING DEVICE

Alden I. Schloss, 4806 Indianola Way, La Canada, Calif. 91011

Filed Mar. 18, 1968, Ser. No. 713,703
Int. Cl. A63b *65/12*
U.S. Cl. 273—103 1 Claim

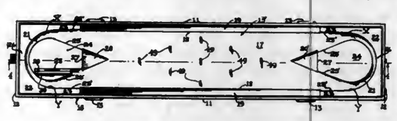


An automatic ball-receiving and tossing device having a nonrigid ball receiver typically made of canvas, mechanism including stretchable elastic bands for tossing the ball from the machine, switch means operated by the ball to start a motor windup means for stretching the elastic bands to store energy therein, and trigger means for releasing the stretched bands to toss the ball from the device with sufficient force to travel a relatively long distance of 30 to 40 feet from the device.

3,549,149
AMUSEMENT BALL-ROLLING SKILL GAME APPARATUS

Everett Leslie Dreyer, 1939 Weston Lane, Roselle 60172, Louis Cruciotti, 912 N. 24th, Melrose Park 60160, and Richard G. Emmert, 23 W. 624 Woodworth, Roselle 60172, Louis J. Pranske, 41 Armitage, Northlake, Ill. 60164

Filed Mar. 10, 1969, Ser. No. 805,779
Int. Cl. A63b *67/14*
U.S. Cl. 273—110 10 Claims

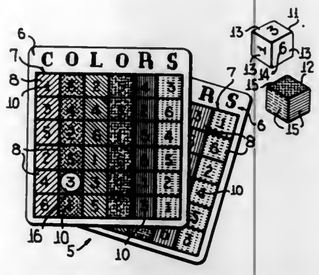


A game apparatus having a play board mounted within a cabinet in a manner such that the board has a limited pivotal motion about the long axis thereof to direct a ball toward one or more targets to control the velocity and duration of movement of the ball, resulting in maintaining the ball in motion an indefinite period of time, depending upon the skill of the player.

3,549,150
COLOR-NUMBER ASSOCIATION GAME APPARATUS

James F. Weeks, P.O. Box 5354, Macon, Ga. 31208

Filed Aug. 23, 1967, Ser. No. 662,647
Int. Cl. A63f *3/00*
U.S. Cl. 273—135 9 Claims

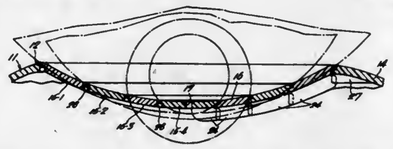


A number of playing cards are utilized and one card is to be distributed to each player in the game. Each card has a word extending across the top and a column of numbered spaces extending downwardly from each letter of the word. The numbers in each column are the same but are distributed in random fashion and the color in each column differs from each of the colors in the remaining columns. Each player attempts to complete a full row across the card by the casting of dice indicative of a color-number combination unique to a certain position on the card. One die may be used for indicating color and another for indicating a numeral, or a set of dice with the same series of numbers but individual colors may be used.

3,549,151
TARGET CUP FOR SURFACE PROJECTILES

Harold W. Long, 4008 Mountview Road, Columbus, Ohio 43221

Filed Apr. 2, 1969, Ser. No. 812,809
Int. Cl. A63b *57/00*
U.S. Cl. 273—178 9 Claims

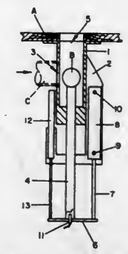


An amusement device for use with one or more balls consisting of a target cup which is mounted on a playing surface. The target cup comprises an element having an inclined skirt for directing a ball into an elevated receptacle in the form of a depression which is adapted to receive the ball. In use, the ball is projected across the playing surface and rolls up the inclined skirt at a sufficient velocity to come to rest within the receptacle. A variable degree of difficulty is embodied in the device by providing a variable slope in the skirt about the circumference of the cup and by having means to vary the effective depth of the depression, namely a series of annular rings which are removably mounted in the receptacle to form its bottom wall.

3,549,152
AUTOMATIC GOLF BALL TEEING MEANS

Joseph A. Gentiluomo, 1456 Belmont Ave., Schenectady, N.Y. 12308

Filed Mar. 1, 1967, Ser. No. 619,777
Int. Cl. A63b *57/00*
U.S. Cl. 273—201 12 Claims

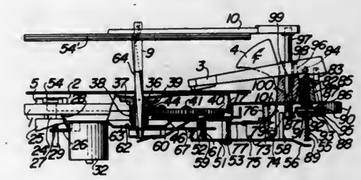


This invention relates to an automatic ball-teeing unit featuring a servosystem in combination with a base means and a ball-elevating means. Said servosystem provides a novel means of controlling said ball-elevating means. The unit can be preprogrammed to offer unlimited flexibility as to tee height positioning. The invention utilizes error detector means to measure the difference in signal between a position sensor and command transducers, to provide an error-actuating signal. Said error signal is an indication of the lack of correspondence between the input and output of the servosystem. This lack of correspondence will start the prime mover into action to reduce or eradicate the error, thus elevating the ball-elevating means to a preset position. Due to utilization of said servosystem, said ball-elevating means can be programmed to provide a lowered ball-receiving position, an elevated ball-striking position and any preset intermediate ball-striking position automatically.

3,549,153
AUTO-CHANGER

Tomoo Atsumi, Daito-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan, a corporation of Japan

Filed Dec. 26, 1967, Ser. No. 693,490
Claims priority, application Japan, Mar. 29, 1967, 42/20,418; 42/26,771; 42/20,427; 42/20,428; 42/20,420; 42/20,421
Int. Cl. G11b *17/00*
U.S. Cl. 274—10 5 Claims

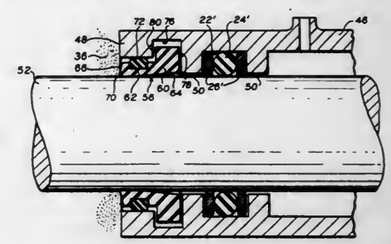


An auto-changer which is capable of playing a plurality of records mounted on the changer spindle at the center of the turntable in sequence automatically successively by dropping said records on the turntable one after another, detecting the diameter of the record being dropped on the turntable, automatically moving the pickup arm horizontally and then downwardly to locate it at the starting position of the sound track on the record to play said record, and upon completion of the playing lifting and returning the pickup arm automatically to its original position for the next cycle of operation, and which, when all the records have been played, returns the pickup arm to its original position and brings the entire mechanism of the auto-changer to an inoperative position automatically.

3,549,154
MOTION TRANSMITTING SYSTEM WITH SEAL PROTECTION

David W. Jones, East Northport, N.Y., assignor to G.E. Conover & Co., Inc., Fairfield, N.J., a corporation of New Jersey

Continuation of application Ser. No. 587,756, Oct. 19, 1966 now abandoned. This application Apr. 28, 1969, Ser. No. 819,864
Int. Cl. F16j *15/00*; E21b *33/08*
U.S. Cl. 277—24 5 Claims

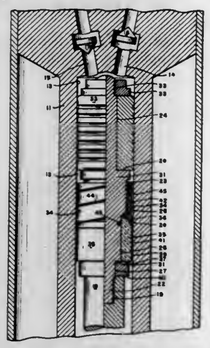


A motion-transmitting system with a piston and piston rod passing through the "crank end" of a cylinder has working fluid under pressure on the crank side of the piston. The rod passes through an end wall of a cylinder which encloses a seal for the working fluid and a seal protector beyond the seal having a body portion of substantial mass from which a lip projects in a direction away from the seal. A sharp raking corner of the lip hugs and scrapes the motion transmitting rod and the lip has a grooved midportion to provide flexibility and for holding a ring that maintains radial pressure on the lip.

3,549,155
HELICALLY CUT SLEEVE SEAL

John R. Ward, Owings, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Apr. 26, 1968, Ser. No. 724,424
Int. Cl. F16j *15/00, 9/08*
U.S. Cl. 277—116 5 Claims

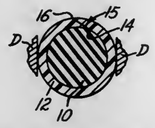


The present invention is a sealing system for high pressure air compressor pistons which will not require fluid lubricants. The piston seal comprises a helically cut, hollow cylinder or sleeve which is deformed at one end, to bear against a stationary compressor cylinder.

3,549,156
COMPOSITE O-RING

Frank Roy Van Vleet, North Reading, and David Gilbert Way, Boxborough, Mass., assignors to A. W. Chesterton Company, Everett, Mass., a corporation of Massachusetts

Continuation of application Ser. No. 499,388, dated Oct. 21, 21, 1965. This application July 30, 1968, Ser. No. 748,786
Int. Cl. F16j *15/00*
U.S. Cl. 277—228 3 Claims

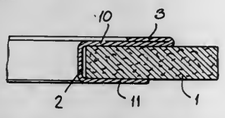


A composite O-ring having a toroidal core of elastomeric material with a fluidtight covering of a single endless band of chemically resistant, flexible, thermoplastic, heat-sealable, organic plastic sheet film material. The band is in the form of an integral closed circle with overlapping end portions in cross section bonded to one another as by heat-sealing to form a single sealed scarf joint around the entire periphery of one axially facing side of the O-ring, leaving its I.D. and O.D. surfaces entirely free of joints.

3,549,157
JACKETED GASKET

Gerd Von Bennigsen, Geisenbrunn, Post Gilching, Germany, assignor to Reinz Dichtungs-Gesellschaft mbH, Neu-Ulm-Donau, Germany, a German company

Filed Sept. 28, 1967, Ser. No. 671,442
Claims priority, application Germany, Sept. 30, 1966, R44250
Int. Cl. F16j *15/02*
U.S. Cl. 277—231 13 Claims



Jacketed gasket with at least one of its legs folded over for at the most half of its width, the fold being at a distance from the bend of the jacket which is at least equal to the thickness of the gasket in the noncompressed state.

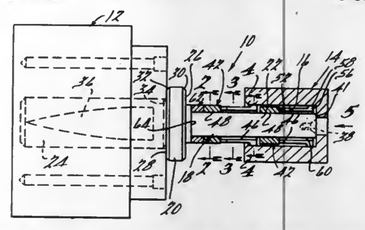
Inserts, such as annular discs, washers, wires of metal and synthetic resin, or other plastic material may be inserted into the fold.

The gasket, after compression of its jacketed part has the advantage that no flowing out or squeezing out of the gasket material on compression or tightening of the gasket between the surfaces to be sealed can take place. Thus satisfactory sealing is guaranteed.

3,549,158
ARBOR ASSEMBLY

Maxie H. Smith, McEwen, Tenn., assignor to Southern Gage Company, Erin, Tenn., a corporation of Tennessee

Filed June 12, 1968, Ser. No. 736,535
Int. Cl. B23b *31/40*
U.S. Cl. 279—2 6 Claims

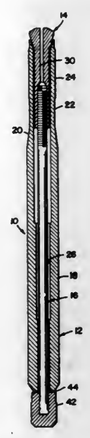


An arbor assembly comprising an elongated, generally cylindrical shaped body member and a plurality of at least two coaxially oriented work-holding members for detachably securing a workpiece on the body member, the workpiece holding members each comprising means defining a plurality of circumferentially spaced, longitudinally extending workpiece engaging jaw sections and means for supporting the jaw sections at a position spaced radially outwardly from the outer periphery of the body member, whereby the jaw sections are adapted to be received within and peripherally engage an annular bore in a workpiece and thereby exert outwardly directed compressive forces against the periphery of the bore so as to support the workpiece centrally of the body member.

3,549,159
TOOL MOUNTING UNIT

Donald F. Kroener, 1857 Emerson, Palo Alto, Calif. 94301

Filed Nov. 3, 1967, Ser. No. 680,490
Int. Cl. B23b *31/20*
U.S. Cl. 279—53 1 Claim

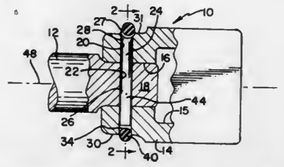


A mounting unit for a tool wherein a barrel is adapted to receive a chuck in one end thereof and a shaft in the opposite end thereof with the shaft being releasably coupled with the chuck to draw the latter into the barrel. The chuck has a tool-receiving slot, the chuck and barrel having mating beveled surfaces which engage each other to reduce the slot width and thereby clamp a tool in the slot when the chuck is drawn into the barrel by the shaft. The components of the unit are constructed to prevent "freezing" or galling at the junctions between the components.

3,549,160
SOCKET RETENTION ASSEMBLY

Elmer F. Etzkorn, Park Ridge, Ill., assignor to Skil Corporation, Chicago, Ill., a corporation of Delaware

Filed Dec. 4, 1968, Ser. No. 781,096
Int. Cl. B25g *3/26*
U.S. Cl. 279—97 8 Claims

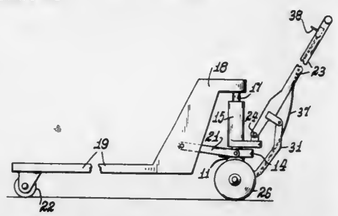


A socket retention assembly for releasably and coaxially connecting a socket member to a spindle member of a power tool by means of a retainer pin received in aligned transversely extending bores in the members, wherein movement of the retainer pin into the bores is limited by a head portion formed at one end of the shank portion of the pin and the center of gravity of the pin, when the pin is received in the bores, is offset from the axis of rotation of the members in a direction away from the head portion so that at high rotational speeds the pin will be held in the bores by the centrifugal force.

3,549,161
POWER ASSIST HAND TRUCK

Russell J. Pusztay, 15210 Oak St., Dolton 60419, and Joseph E. Olson, 301 Sheldon Ave., Downers Grove, Ill. 60515

Filed Sept. 20, 1968, Ser. No. 761,170
Int. Cl. B60k *27/00*
U.S. Cl. 280—3 6 Claims



A power assist mechanism for a hand truck comprising a front assembly including a castor wheel having draft handle operated means selectively actuable to positively rotate the castor in either direction to assist movement of the truck over surface obstacles, and means to lock the castor against reverse movement while the handle operated means is being actuated.

3,549,162
SKI CONSTRUCTION

Harold Y. Coutts, 304 Pine St., Burlington, Iowa 52601

Filed Nov. 27, 1968, Ser. No. 779,388
Int. Cl. A63c *5/06*
U.S. Cl. 280—11.13 8 Claims

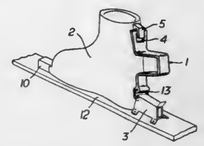


A ski includes an elongated body which is split longitudinally thereof from the rear end to a portion adjacent the midpoint of the ski to define a pair of spaced parallel longitudinal portions which are movable relative to one another. Tilt control means is interconnected with the two movable portions of the ski to maintain these movable portions parallel with one another at all times.

3,549,163
AUXILIARY SKI BINDING

Anton Wiedermann, Bad Gastein, Austria, assignor to Wiener Metallwarenfabrik Smolka & Co., Vienna, Mauer, Lindauergasse, Austria

Filed July 26, 1968, Ser. No. 748,071
Claims priority, application Austria, July 31, 1967, A 7111/67;A 7113/67
Int. Cl. A63c *9/00*
U.S. Cl. 280—11.35 18 Claims

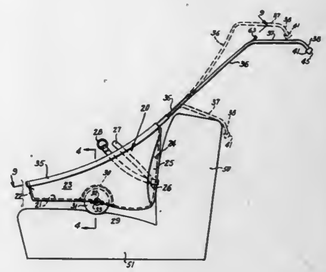


An auxiliary ski binding for preventing the separation of a ski from a ski boot in the event of unintentional release of the main ski binding. A strip-shaped elongated first member is secured to the ski and has a free end. A second member in form of a locking catch is secured to the ski boot and can be releasably coupled with the free end of the first member. The first member consists of such material and/or is so constructed and arranged as to have a predetermined resistance to longitudinal extension and a resistance to torsional stresses such as twisting which is greater than the predetermined resistance to longitudinal extension. The auxiliary binding prevents the ski, if the latter is unintentionally released by the main ski binding, from twisting or turning with reference to the ski boot.

3,549,164
COMBINATION BABY STROLLER AND VEHICLE SEAT

Gilbert E. Raynor, Box 71, North Conway, N.H. 03860

Filed Oct. 3, 1968, Ser. No. 764,858
Int. Cl. B62b *7/12*
U.S. Cl. 280—30 9 Claims



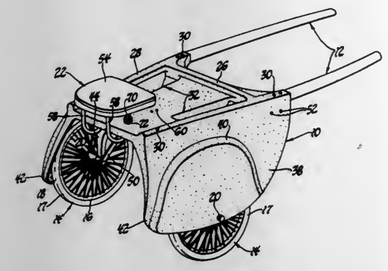
A combination baby stroller and car seat characterized by a rigid one-piece body contoured to fit a car seat and having an inset wheel providing a low center of gravity. Arcuate tubular members on the sides of the body telescopically accommodate corresponding arcuate rigid handle members having bent end portions which when extended may be moved synchronously to an inturned position to form a stroller handle, and when retracted, separate to form a hook means engageable over the back of a car seat. Synchronized bevel gears control the simultaneous turning of the handles, and

latch means are provided for securing the handles in the selected position of adjustment.

3,549,165
CART

Daniel H. Zuhlke, 990 Blacks Corners Road, and Charles J. Dotson, 6524 Bowers Road, Imlay City, Mich. 48444

Filed Aug. 30, 1968, Ser. No. 756,588
Int. Cl. B62c 1/08
U.S. Cl. 280—76 12 Claims

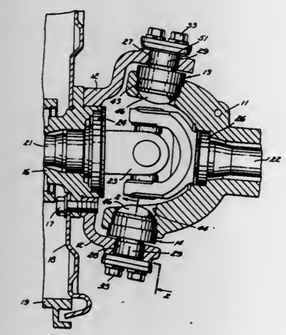


An improvement in jogging carts of the type used to exercise and train standardbred horses and including a shell supported upon and journaling spaced wheels. The shell is provided with enclosed wells to receive the feet of the driver and to protect the driver from mud, dirt and the like thrown up from the track. A seat assembly is resiliently supported on the shell and may include adjusting means to permit longitudinal movement of the seat relative to the wells, thus adapting for drivers of different physical dimensions. The shell receives spaced shafts adapted to be secured in the harness carried by the horse.

3,549,166
VIBRATION DAMPER AND PRELOADER BEARING ASSEMBLY

Thomas S. Moore, Dearborn, and James T. Ross, Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed July 18, 1968, Ser. No. 745,851
Int. Cl. B62d 7/18
U.S. Cl. 280—96.1 13 Claims

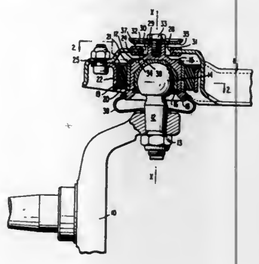


A bearing assembly that supports radial and thrust loads and which includes a preloaded elastomeric element providing torsional drag, shock absorption, and vibration damping.

3,549,167
JOINT CONNECTION FOR THE SUSPENSION OF STEERABLE WHEELS OF A MOTOR VEHICLE

Guenther Haverbeck, Plochingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed May 23, 1968, Ser. No. 731,469
Claims priority, application Germany, May 26, 1967, D53170
Int. Cl. B60g 3/00
U.S. Cl. 280—96.2 21 Claims

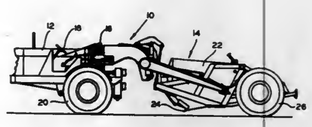


A joint connection for the suspension of steerable wheels of a motor vehicle which is disposed between the wheel carrier and a wheel guide member, especially a cross guide member pivotally connected with the wheel carrier, in which an elastic intermediate element is provided between an inner and an outer joint part; the intermediate element is so constructed and/or arranged that its yieldingness is greater in the direction of the vehicle longitudinal axis than transversely thereto.

3,549,168
SUSPENSION SYSTEM FOR A VEHICLE

Allan R. Swanson, St. Joseph, Mich., assignor to Clark Equipment Company, a corporation of Delaware

Filed Sept. 9, 1968, Ser. No. 758,324
Int. Cl. B60g 11/26
U.S. Cl. 280—124 10 Claims



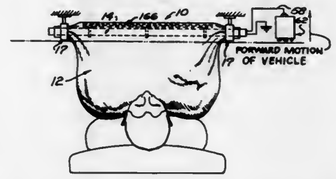
A vehicle with a fluid suspension system that maintains a substantially constant height regardless of vehicle load and dampens oscillations in the suspension system.

3,549,169
INFLATABLE SAFETY DEVICE

Sidney Oldberg, Birmingham, and William R. Carey, Farmington, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio

Original application July 1, 1966, Ser. No. 562,289, now Patent No. 3,414,292, dated Dec. 3, 1968. Divided and this application Oct. 8, 1968, Ser. No. 765,944
Int. Cl. B60r 21/00
U.S. Cl. 280—150 7 Claims

An improved vehicle safety apparatus includes a confinement which is inflated from a collapsed condition to an expanded condition to restrain the movement of an occupant of a vehicle during a collision. The confinement is inflated by activation of an explosive charge which opens a reservoir to

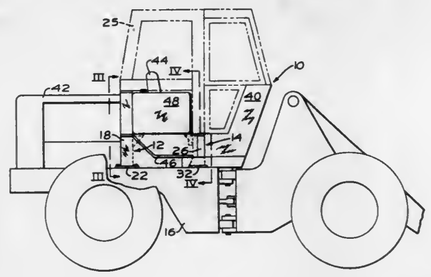


provide a flow of fluid. The explosive charge is activated by a sensor which includes switch contacts which are closed in response to the vehicle encountering a collision.

3,549,170
SUPPORT STRUCTURE FOR PROTECTION CANOPY/CAB

Robert F. Shankwitz, Oswego, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed Nov. 22, 1968, Ser. No. 778,224
Int. Cl. B60j 7/24
U.S. Cl. 280—150 5 Claims



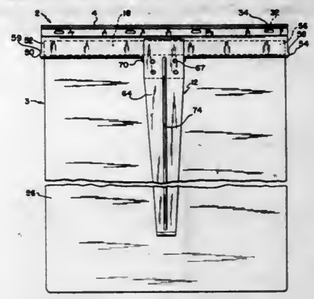
A support structure for mounting a protection canopy or cab on an earthmoving vehicle, wherein the rear support member is a welded structure consisting of legs integrally connected by a crossbeam and the front support member comprises fabricated brackets with a crossmember therebetween. Plates are welded to the front and rear support members for fixing the support members to the vehicle and the cab. The support members also carry brackets for mounting equipment such as hydraulic and fuel tanks thereon.

3,549,171
VEHICLE GUARD AND MOUNTING ASSEMBLY

Manuel Katz, Canton, Ohio, assignor to Buxbaum Products Company, Canton, Ohio, a corporation of Ohio

Filed Oct. 22, 1968, Ser. No. 769,576
Int. Cl. B62d 25/16
U.S. Cl. 280—154.5 9 Claims

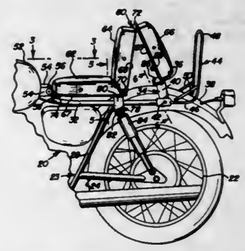
A splash guard and mounting assembly for use on vehicles including a mounting bracket having a cartridge retainer member for connection with the vehicle frame for mounting a flexible, cartridgelike headed splash guard in slidable telescopic disconnect relation therein for ready installation or removal therefrom. An antisail device pivotally coacts in cantilevered relation with the mounting bracket for substantially rigid engagement with the splash guard to selectively limit its rearward swinging movement upon forward movement of the vehicle and for yieldable engagement with the guard to control its forward swinging movement upon rearward movement of the vehicle.



3,549,172
SEATING AND BACKREST COMBINATION FOR A MULTICYCLE VEHICLE

Billy Joe McBroom, 4445 Upland, and Charles M. Garrett, Jr., 4825 La Perla Way, La Mesa, Calif. 92041

Filed Jan. 28, 1969, Ser. No. 794,492
Int. Cl. B62j 1/14
U.S. Cl. 280—202 4 Claims

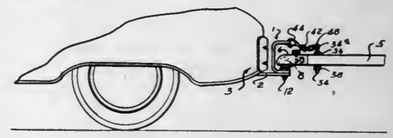


A seating and backrest combination for a multicycle vehicle including three sections hingedly connected longitudinally of one another. One of the sections forms a permanet driver's seat. The other two sections can be moved to positions in which one forms a backrest for the driver or in which the one which formed the backrest can form a seat for a second occupant and the other of the two forms a backrest for the second occupant.

3,549,173
SAFETY TRAILER DEVICE

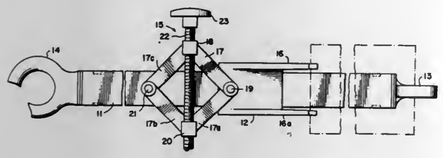
Harry M. Stanfield, 8827 Inwood Road, Dallas, Tex. 75209

Filed Jan. 29, 1969, Ser. No. 794,934
Int. Cl. B60d 1/12
U.S. Cl. 280—457 12 Claims



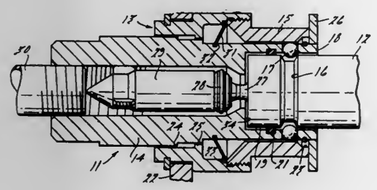
A safety trailer device having alternate connections between the motor vehicle and the towed vehicle comprising a channel member with aligned apertures in opposite ends thereof such that a ball connector may be mounted in the lower end and a safety connector may be secured to the other end vertically above the ball connector.

3,549,174
TOW BAR ASSEMBLY
Ray P. Miles, 8575 West Melody Lane, Macedonia, and Andrew E. Szucs, 4479 West 226th St., Fairview Park, Ohio
Filed Sept. 27, 1968, Ser. No. 763,117
Int. Cl. B60d 1/04
U.S. Cl. 280—491 3 Claims



The invention relates to a novel simplified tow bar assembly adapted to be used for towing larger vehicles requiring a larger degree of stability while being towed. The assembly provides an adjustable hitching member adapted to firmly engage a flat elongated portion of the rear of the vehicle being towed.

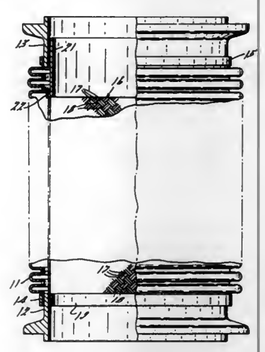
3,549,175
QUICK ACTING FLUID COUPLING
Bryce B. Evens, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.
Filed Dec. 6, 1968, Ser. No. 781,869
Int. Cl. F16l 27/00
U.S. Cl. 285—1 5 Claims



A fluid coupling having male and female bodies coupled by releasable detents on the female body. This body is made of inner and outer sections connected by a frustoconical spring washer which may be thrown overcenter to a releasing or a locking position. The outer section is fixed, for example to a tractor frame, and the detents are carried by the inner section. To couple the bodies, the male body is inserted in the inner female body section and the spring is forced overcenter. Disconnection is accomplished by pulling the male and female bodies apart until the spring snaps overcenter again.

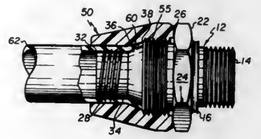
3,549,176
FLEXIBLE FLOW LINER FOR BELLOWS JOINTS
Gilbert E. Contreras, Los Angeles, Calif., assignor to Aeroquip Corporation, Jackson, Mich.
Filed Oct. 29, 1968, Ser. No. 771,403
Int. Cl. F16l 27/10, 51/02
U.S. Cl. 285—55 2 Claims

A flexible corrugated bellows connects two flanged tubes of a fluid line. A liner is disposed within the bellows and is fabricated of woven wire braid. One end of the liner is fixed



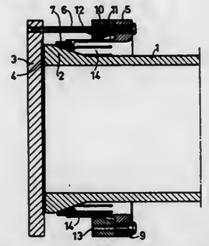
to one of the tubes and the other end has a guide which is slidable within the other tube.

3,549,177
FLEXIBLE CONDUIT FITTING
Tomas Julio Sotolongo, Long Branch, N.J., assignor to Thomas & Betts Corporation, Union, N.J., a corporation of New Jersey
Filed Nov. 29, 1968, Ser. No. 779,670
Int. Cl. F16l 33/24, 47/00
U.S. Cl. 285—175 7 Claims



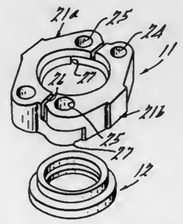
The disclosure is directed to a fitting for coupling a flexible nonmetallic raceway to an electrical enclosure. The fitting is constructed in two parts; the first being a body portion and the second being a gland. The first end of the body portion has an externally threaded region to permit attachment to the wall of an electrical enclosure and a sealing ring to provide a moisture seal between the fitting and the electrical enclosure. Intermediate the second externally threaded body portion is a region for receipt thereon of the internally threaded portion of the gland for assembly. Extending therefrom is a shoulder and thence a tapered portion and finally an externally threaded third portion extending almost to the end of the body portion. The internal passage of the gland is generally cylindrical terminating in a tapered portion which extends from the cylindrical portion to the portion having the internal thread for assembly with the body portion. The external surface of the gland is tapered to a plurality of faces upon which a wrench, or other tools, may be applied in order to facilitate the assembly of the gland to the body portion. The tapered portion of the body and the gland are complementary so that a raceway placed atop the third internally threaded portion of the body will be forced to the tapered portion and trapped between the tapered portion of the body and the gland when the body and gland are assembled. The third externally tapered portion is provided with a left-handed modified buttress thread, to permit the body to be screwed into the raceway and to form an additional holding coupling between the body portion and the raceway.

3,549,178
JOINT
Evert Flink, Nynashamn, Sweden, assignor to Rederiaktiebolaget Nordstjernan, Nymashamn, Sweden, a Swedish Joint Stock company
Filed Dec. 5, 1968, Ser. No. 781,549
Claims priority, application Sweden, Dec. 6, 1967, 16749/67
Int. Cl. F16l 55/00
U.S. Cl. 285—187 10 Claims



A joint structure is provided to compensate for motion due to temperature variations between a comparatively fragile element, e.g., fabricated of quartz, and a comparatively strong element, e.g., fabricated of metal, having sealing means therebetween. A coupling member is connected to the comparatively strong element, and supports a pressure member which engages a surface of the comparatively fragile element adjacent the sealing means. The shape and expansion coefficients of the several members forming the joint are preselected in relation to one another so that, upon occurrence of temperature variations, the pressure member remains stationary relative to the surface of the fragile element which it engages, whereby the contact pressure between said pressure member and surface, and the pressure between said elements and said sealing means, are maintained substantially constant.

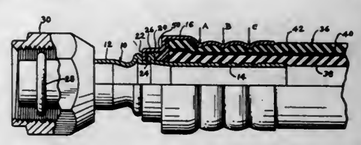
3,549,179
SPLIT FLANGE CONNECTION
Robert G. Cox, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.
Filed May 14, 1969, Ser. No. 824,468
Int. Cl. F16l 41/00
U.S. Cl. 285—189 4 Claims



A split flange for attaching an annular conduit shoulder, carrying a seal, to the face of an accessory port. The flange comprises two generally semicircular halves of indentical shape, each having three holes and overlapping ends. Two of the holes are adjacent each other at one end of each flange half, and the other hole is at the opposite end. A foot on each flange half outside the two adjacent bolt holes engages the accessory port face so that bolt tightening will cause the opposite end of the flange half to be drawn down against the shoulder because of the lever action, the foot acting as a fulcrum. The two end holes in each flange half are diametrically opposed to pull the shoulder squarely against the accessory surface.

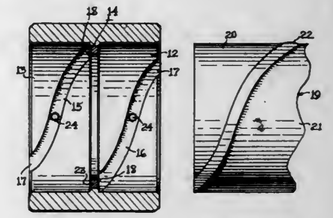
In a modified form of the invention, the foot is replaced by a nylon or other plastic shim attached to the flange halves. In a third embodiment, a corrugated washer is used for the foot.

3,549,180
HOSE AND HOSE COUPLING ASSEMBLY
Wallace MacWilliam, Ridgewood, N.J., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed May 16, 1968, Ser. No. 729,783
Int. Cl. F16l 33/20
U.S. Cl. 285—256 3 Claims



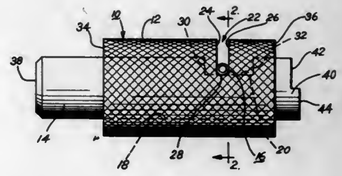
The hose includes an internal rubber tube, an outer neoprene layer, and an intermediate braided textile layer. The end is disposed in the hose-receiving annulus between the tubular portion and the ferrule of the metal coupling. The ferrule is connected to the tubular portion by a connecting wall. A thermosetting sealing compound covers the end of the hose and is not bonded to at least a portion of the connecting wall. The ferrule is indented in a peripheral zone spaced from the hose end, compressing the hose between the ferrule and the tubular portion of the coupling.

3,549,181
COUPLING FOR A SPIRALLY SEAMED PIPE
Donald J. Larson, P.O. Box 161, Arlington Heights, Ill. 60006
Filed Apr. 25, 1968, Ser. No. 724,171
Int. Cl. F16l 15/00
U.S. Cl. 285—390 1 Claim



A tubular coupling for the mating ends of the pipe constructed out of spirally formed metallic sheets having a continuous spirally extending external seam threadable into helical grooves formed in the internal bore surface of the coupling with the grooves radially located 180° from each other and extending inwardly from opposite open ends of the coupling.

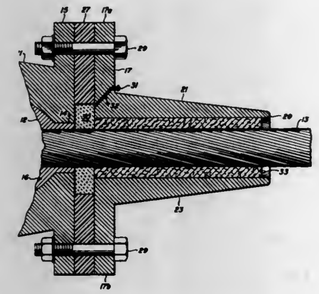
3,549,182
GAGE FASTENING DEVICE
Robert O. Bogue, and Arthur Glenton, South Bend, Ind., assignors to The Bendix Corporation, a corporation of Delaware
Filed Aug. 19, 1969, Ser. No. 851,418
Int. Cl. F16d 1/06
U.S. Cl. 287—52.08 1 Claim



A gage fastening device having a body with an axial bore therein and a transverse slot intersecting said axial bore. A

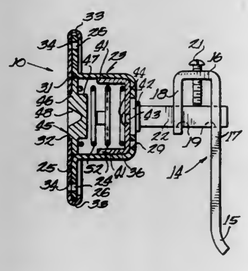
retainer means frictionally disposed in said transverse slot and projecting into said axial bore. A shaft means having thereon a transverse slot is slidably disposed in said axial bore with said transverse slot providing for axial engagement with said retaining means thereby providing for a predetermined axial movement of said shaft means with respect to said body.

3,549,183
VIBRATION DAMPED FITTING
Carl W. Smollinger, Williamsport, Pa., assignor to Bethlehem Steel Corporation, a corporation of Delaware
Filed Mar. 13, 1969, Ser. No. 807,635
Int. Cl. F16b *7/00*
U.S. Cl. 287—82 **5 Claims**



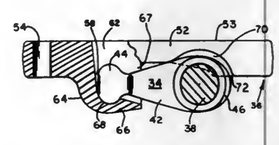
A vibration damper assembly for socket type end fittings on wire rope and strand including a flange on the end of the fitting, a flange on a clamp resiliently secured to the rope adjacent the fitting and a resilient plastic ring mounted between the flanges. A lubrication reservoir is provided about the strand within the plastic ring.

3,549,184
FLUSH SAFETY LATCH
Ralph F. Anderson, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill., a corporation of Delaware
Filed Feb. 10, 1969, Ser. No. 797,923
Int. Cl. E05c *13/02, 3/10*
U.S. Cl. 292—195 **8 Claims**



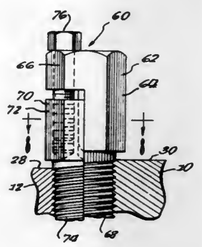
A flush safety latch for furnace doors or similar applications including a cup-shaped housing with a radially extending flange at its open end engaged by a cover clinched thereover at the peripheral edge. A generally cup-shaped cam is positioned in the housing for limited rotation therein, and a stem secured to the cam extends rearwardly through the housing and has a latch bolt secured adjacent the rear end. A turn button in the housing is biased toward the cover and has a central portion with a driver slot exposed through an opening in the cover; the turn button being fully rotatable in the housing unless depressed by a driver into clutching engagement with the cam.

3,549,185
DOOR FASTENING APPARATUS
Rudolph E. Lynn, Cleveland, Ohio, assignor to H.K. Porter Company, Inc., Cleveland, Ohio, a corporation of Delaware
Filed June 10, 1968, Ser. No. 735,715
Int. Cl. E05c *3/04*
U.S. Cl. 292—218 **3 Claims**



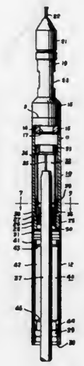
This invention is an improved keeper and latch type fastener for doors. The keeper or catch is attached to a wall adjacent the door opening. The latch or cam is fixed to a rod or tube which extends the height of the door and is attached thereto. Rigidly fixed to the rod is a handle or other means for rotating the rod and latch between locked and unlocked positions. The catch includes a pocket and a ridge. The direction faced by the pocket opening and the direction of the ridge are both transverse to the axis of the rod. The latch includes one fingerlike projection which extends into the pocket and two sloping flanges which cam into position astride the ridge when the door is locked in closed position. The combination of these elements locks the door closed, substantially reduces transverse movement of the door and fastener and greatly reduces vibration, noise and wear.

3,549,186
QUICK OPENING CLOSURE USING SPLIT SHEAR STUDS
Lyle V. Larsen, Naperville, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill., a corporation of Illinois
Filed June 6, 1969, Ser. No. 831,112
Int. Cl. B65d *45/30;* **A47j** *36/10;* **F16b** *35/02*
U.S. Cl. 292—256.71 **13 Claims**



Quick release fastening means for fastening two adjacent members along a common joint, including a multisection shear stud having at least two separable, longitudinal sections adjacently disposable in abutting relationship to define an interface extending along the length of the stud sections and for insertion along the common joint. The stud is rotatable from: (1) a locking position with the interface transverse to the joint for fastening the members together with shear forces along the stud sections at the common joint; to (2) an unlocked position with the interface substantially aligned with the joint to enable slidable displacement of one stud section with respect to the other for detaching and separating the members. Improved quick release closure means for detachably connecting an end closure plug to a vessel, such as a high pressure vessel, utilizing a plurality of multisection shear studs disposed along the joint between the end plug and the vessel.

3,549,187
BROKEN SUCKER ROD RETRIEVERS
Dixon T. Harbison, P.O. Box 2477, Fort Worth, Tex. 76101
Continuation-in-part of application Ser. No. 610,919, Jan. 23, 1967, now abandoned. This application Apr. 3, 1969, Ser. No. 822,801
Int. Cl. E21b *31/02;* **E21c** *19/00*
U.S. Cl. 294—17 **1 Claim**



A broken sucker rod retriever having a one-piece tubular gripping member of heat-treated and stress-relieved spring steel freely reciprocable between upper and lower shoulders in a housing and being split longitudinally below its upper end to provide semirigid fingers of limited flexibility. Gripping means at the lower interiors of the fingers coact to form an internal annulus of less transverse dimension than the diameter of the rod to be retrieved so as to necessitate forcing thereof over said rod, and the lower end portions of said fingers preferably being deformed inwardly so as to permanently abut one another when relaxed whereby the annulus is of noncircular contour. The limited flexibility of the fingers is sufficient only to permit spreading thereof upon engagement of the gripping member with the rod and the upper shoulder of the housing. The biting engagement of the gripping means with a retrieved rod is so positive that the gripping member can be dislodged from the rod substantially only by mechanically spreading the fingers, radial pusher means being screw-threaded in said fingers adjacent said gripping means for engagement upon inward movement with said rod to force said fingers outwardly and disengage said gripping means. Optionally, the retriever may include a secondary gripping member underlying and somewhat similar to the first gripping member but of greater flexibility and larger diameter for engagement with an enlargement of the rod.

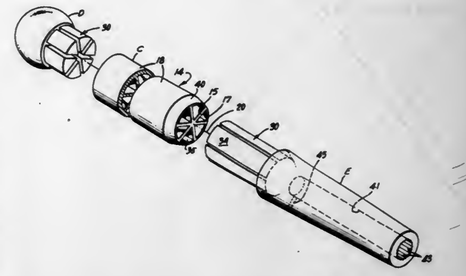
3,549,188
LIGHT BULB BASE EXTRACTOR
Anthony Cerasoli, 46 Woodmont Road, West Hartford, Conn. 06117
Filed Aug. 19, 1968, Ser. No. 753,691
Int. Cl. H01k *3/32*
U.S. Cl. 294—21 **10 Claims**

A tool for extracting a light bulb base from a socket comprises an extractor member which is partially insertable into the bulb base to frictionally engage the sidewall thereof upon the tapered outside surface of the extractor member. An aperture is defined in one end of the extractor member into which the filament support stem of the light bulb may be inserted and engaged against relative rotation. Engagement of



the sidewall and stem cooperate to provide a dual effect for removing the remains of the light bulb from the socket.

3,549,189
TOOL HANDLE
Michael Alosi, 365 North Pine, Susanville, Calif. 94108
Filed Aug. 9, 1968, Ser. No. 751,574
Int. Cl. B25g *1/10*
U.S. Cl. 294—57 **4 Claims**

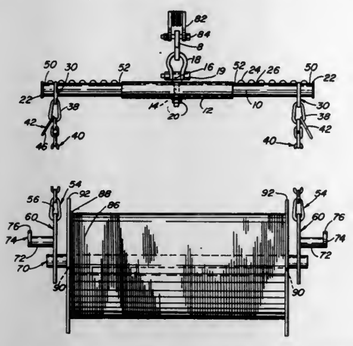


A tool handle having an elongate handle body with a cap at one end and a ferrule section at the opposite end, the ferrule section being attached to the working member of the tool, such as a spade or rake. The handle body is tubular and includes a plurality of longitudinally extending radial webs spanning the interior cross section of the tube for imparting maximum strength to minimum of handle material. Provision is made for plugs to interconnect the cap and ferrule section to the handle body.

3,549,190
CABLE REEL SLING
Robert H. Caldwell, 205 S. Kosciuski, Jacksonville, Ill. 62650
Filed July 3, 1968, Ser. No. 742,261
Int. Cl. B66c *1/10*
U.S. Cl. 294—81 **3 Claims**

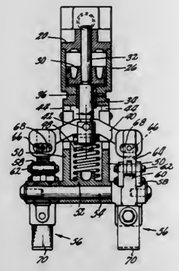
The disclosure describes a cable reel sling adapted to safely and conveniently handle different sizes of heavy telephone cable reels and the like in close quarters. The cable reel sling is characterized by being easily adjustable to handle reels of different axial lengths and different diameters, having positive safety features and adapted to be used with or without a support bar or axle through the center hub of the reel. One feature of the sling is the provision of a spreader bar with spacers along the top engaged by a pair of pear-shaped links, which can be slid along the spreader bar in an upward turned position to adjust for various reel widths, and then turned downward and locked between adjacent spacers. The links are affixed to chains, having length-adjustable grab

hooks, and the chains, in turn, support at their ends lifting fixtures adapted to engage either a bar axle or, be turned



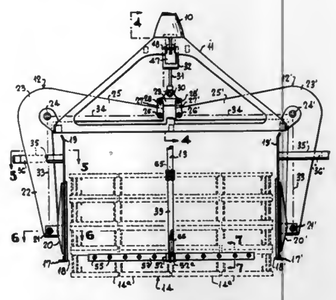
180° and provide a supporting arm to engage the center bore of the hub of any type of cable reel.

3,549,191
TAKE-OUT MECHANISM FOR GLASSWARE FORMING MACHINE
Francis A. Sarkozy, and Wasyl Bystrianyk, West Hartford, Conn., assignors to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Nov. 4, 1968, Ser. No. 773,026
Int. Cl. C03b *9/44*
U.S. Cl. 294—81 **5 Claims**



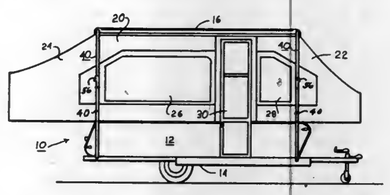
A cylindrical housing is mounted in depending relationship on an oscillating arm, and carries two sets of tongs at its lower end for transferring newly formed glassware from the interior of a glassware forming machine onto a deadplate. The housing includes a fluid actuator for reciprocating a cross bar vertically to open and close the tongs. Linkage, including a pair of toggle links connect these tongs to the ends of the cross bar for achieving opening and closing movement of the tongs, which tongs are mounted on a common rockshaft supported adjacent the lowermost end of the housing.

3,549,192
ARTICLE CLAMPING AND HOISTING APPARATUS
Neely E. Cassady, Nashville, Ark., assignor to Cassady Broiler Company, Nashville, Ark., a corporation of Arkansas
Filed Jan. 13, 1969, Ser. No. 790,596
Int. Cl. B66c *1/10*
U.S. Cl. 294—106 **6 Claims**



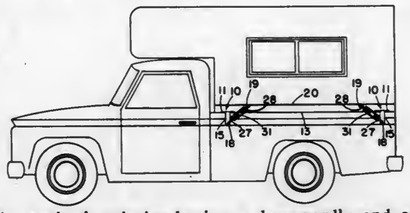
Apparatus for clamping and hoisting a plurality of substantially horizontally aligned articles. The apparatus is characterized by a pair of oppositely disposed spaced jaws for clamping the articles into an integrated beam assembly and by a retractable auxiliary unit for vertically supporting the intermediate portion of the assembly during the subsequent hoisting thereof.

3,549,193
SPRING LOADED ARM FOR CAMPING TRAILER AND THE LIKE
George T. Hunter, Howe, Inc. 46746
Filed Nov. 18, 1968, Ser. No. 776,692
Int. Cl. P60p *3/32*
U.S. Cl. 296—23 **9 Claims**



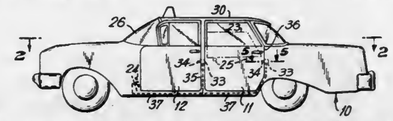
A foldable arm for supporting the top of camping trailers, including two sections pivoted together, a spring in one section and a linkage connecting the spring to the adjacent end of the other section. The pivot point of the linkage and the pivot between the two sections are offset generally laterally from one another and the linkage is substantially enclosed in the structure of the two sections.

3,549,194
ANCHORING DEVICE FOR CAMPER BODY
Clayton L. Matson, 1121 N. Viceroy Ave., Covina, Calif. 91722
Filed Aug. 8, 1968, Ser. No. 751,083
Int. Cl. B60p *7/08*
U.S. Cl. 296—23 **6 Claims**



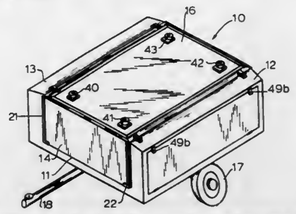
An anchoring device having a downwardly and outwardly extending arm secured to a clamping arrangement that is attachable to the upper rail of a pick-up truck bed, including an adjustable tensioning member that is attached at one end to the lower end portion of the arm of the anchoring device and having its other end atached to an engageable fixture secured to the camper body.

3,549,195
DRIVER PROTECTIVE APPARATUS FOR TAXICAB
Anthony Kallinikos, 905 E. 15th St., Brooklyn, N.Y. 11230
Filed July 9, 1968, Ser. No. 743,450
Int. Cl. B60r *21/12*
U.S. Cl. 296—24 **8 Claims**



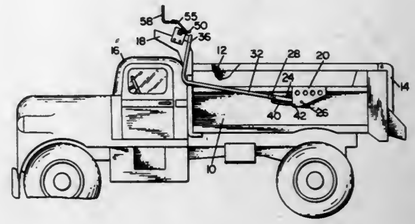
An apparatus for protecting the driver of a taxicab from injury from his passengers, consisting in part of an L-shaped shatterproof partition which allows passengers to ride in the front seat of the vehicle while the driver is still protected. The partition includes a slot for receiving payment from the passengers, and further, is contoured in design to permit the free circulation of air throughout the interior of the vehicle. The passenger doors of the vehicle are automatically locked by solenoids controlled by the driver, and the windows are prevented from opening more than half way so that the driver can detain the passengers for possible apprehension for criminal acts.

3,549,196
VEHICULAR TOWED CAMPING TRAILER
Neill M. Laney, 2430 Medway Drive, Raleigh, N.C. 27608
Filed Mar. 7, 1969, Ser. No. 805,165
Int. Cl. B60p *3/32*
U.S. Cl. 296—23 **7 Claims**



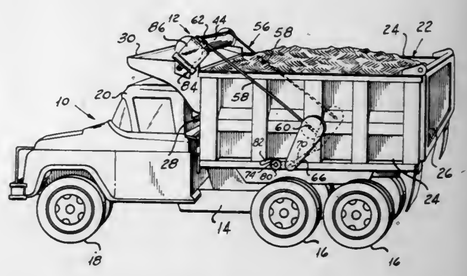
A vehicular towed camping trailer provides a covered compartment for hauling camping gear and employs removable end gates which can be converted into tables and a removable cushioned top which can be converted into a cushioned bed.

3,549,197
COVER FOR TRUCKS
Louis F. Sibley, Hardwick, Mass., assignor, by mesne assignments, to Ploneer Coveralls, Inc., Ware, Mass., a corporation of Massachusetts
Filed Jan. 10, 1966, Ser. No. 519,482
Int. Cl. B60p *7/02*
U.S. Cl. 296—100 **3 Claims**



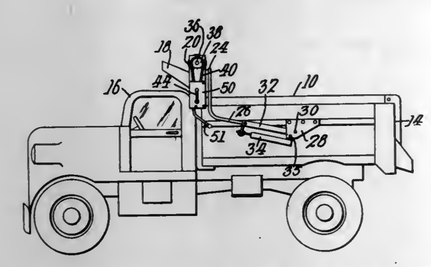
A cover for an open top vehicle body which includes a cover rolled upon a shaft, the shaft being mounted on the cab or headboard of the vehicle and including means mounted on the vehicle body sides to extend said cover over the contents of the body by unrolling the same from the roll assembly to the rear end of the vehicle body, the cover unrolling means comprising a bail assembly operated as for instance by power means including a spring, and including crank means for returning the bail and the cover to vehicle-body uncovered position.

3,549,198
DUMP TRUCK BODY COVER
Ignazio Cappello, Saddle Brook, N.J., assignor to Pioneer Coveralls, Inc., Oxford, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 524,620, Feb. 2, 1966. This application Dec. 29, 1966, Ser. No. 605,718
Int. Cl. B60p *7/04*
U.S. Cl. 296—100 **17 Claims**



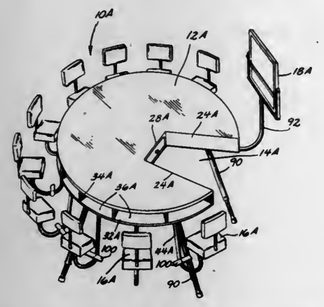
A cover for a dump truck body longitudinally movable from a retracted position upon a reel mounted upon the front end of the truck body to an extended position overlying the truck body by a yoke pivotably attached to the sides of the body.

3,549,199
COVER FOR TRUCKS
Lewis F. Sibley, Hardwick, Mass., assignor, by mesne assignments, to Pioneer Coveralls, Inc., Ware, Mass., a corporation of Massachusetts
Continuation of application Ser. No. 630,011, Apr. 11, 1967. This application July 7, 1969, Ser. No. 845,631
Int. Cl. B60p *7/02*
U.S. Cl. 296—100 **9 Claims**



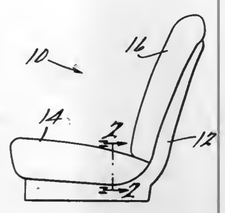
A generally automatically actuated cover for an open vehicle body comprising a rolled-up cover, a lock for holding it rolled, spring means for extending the cover to a covering position on the vehicle body, crank means associated with the lock means for rolling the cover back into the cylindrical container which is mounted e.g. on the headboard of a truck.

3,549,200
TEACHING TABLE
James W. Cooper, Eastwood Apts. 3A, 110 N. Lincoln Lane, Arlington Heights, Ill. 60004
Continuation of application Ser. No. 527,207, Feb. 14, 1966. This application Jan. 29, 1968, Ser. No. 701,403
The portion of the term of the patent subsequent to Jan. 30, 1985, has been disclaimed and dedicated to the Public
Int. Cl. A47b *39/00*
U.S. Cl. 297—157 **6 Claims**



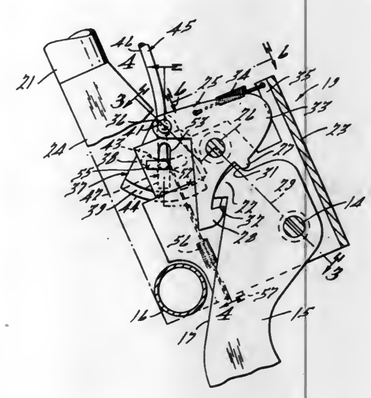
A teaching table having a semi-circular portion with a radial center at a point where the teacher will stand or sit which is coincident with the rotational axis of that person as the person rotates from side to side to give attention to students around the peripheral edge of the table. An open recess penetrates to a point sufficiently beyond the radial center of the semi-circular portion to make the radial width of the table sufficiently constant so that a person positioned within the recess at substantially the center of the semi-circular portion will be substantially centrally located with respect to and substantially equidistant from all points on the outer periphery of the semi-circular portion of the table.

3,549,201
MULTIPLE CONTOUR UPHOLSTERY PANEL
Earl W. Wolfe, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Apr. 3, 1969, Ser. No. 813,003
Int. Cl. A47c *27/08, 27/18*
U.S. Cl. 297—284 **13 Claims**



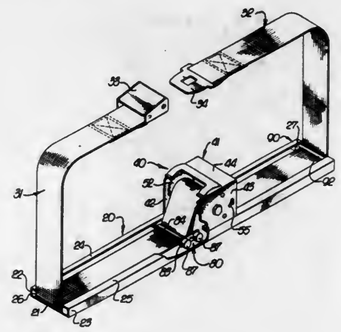
An upholstery panel adapted to support a human body and capable of being formed into various contours to accommodate bodies of various dimensions. At elevated temperatures caused by heating means contained within said panel, an encapsulated substance having a solid state at ambient temperatures becomes flowable. The weight of a supported body causes displacement of this substance and a resulting panel contour corresponding to the body causing the displacement. Maintenance of this contour may be accomplished by discontinuing heating and allowing the substance to cool to an ambient temperature.

3,549,202
SEAT BACK INERTIA LATCH
John A. Boschen, Royal Oak, and Albert R. Close, Oak Park, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed May 1, 1969, Ser. No. 821,023
Int. Cl. B60n *1/02*
U.S. Cl. 297—379 **8 Claims**



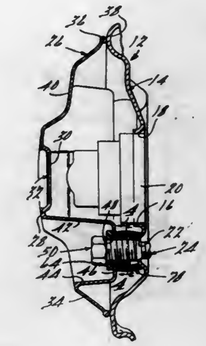
A seat back latch mechanism for a vehicle seat assembly that has a horizontal seat structure and an upstanding backrest pivotally supported on fixed support arms for tiltable movement forwardly over the seat structure. A latch pawl normally is maintained in latching attitude and its inertia is a factor in preventing backrest movement upon the occurrence of a predetermined maximum vehicle deceleration rate. For intermediate deceleration rates movement of the latch pawl from latching latitude is controlled by a secondary inertia means in the form of free swinging pendulum means. Manual activation means also are provided.

3,549,203
RETRACTABLE SAFETY BELT RESTRAINT SYSTEM
Gerry Rawson, Valencia, Calif., assignor to American Safety Equipment Corporation, New York, N.Y., a corporation of New York
Filed May 1, 1969, Ser. No. 820,900
Int. Cl. A47c *31/00;* **B65h** *75/48*
U.S. Cl. 297—388 **9 Claims**



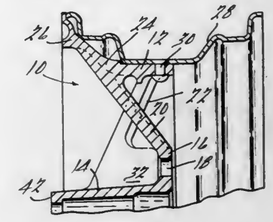
A retractable safety belt restraint system for securing a vehicle occupant in a seat including a single retractor device to which is secured the ends of two safety belt members biased for retraction to an out-of-the-way position, the members having means for latching them in operative engagement about the occupant and including slack preventing means permitting the belt members to be nonsimultaneously protracted to their operative position to effect the latching engagement. Alternative embodiments are disclosed which position the latching means of the safety belt members at a desired location with respect to the occupant when the safety belt members are in operative engagement.

3,549,204
VEHICLE WHEEL ASSEMBLY
Edward G. Spisak, Wayne, Mich., assignor to Gar Wood Industries, Inc., Wayne, Mich., a corporation of Michigan
Filed Aug. 21, 1968, Ser. No. 754,173
Int. Cl. B60b *7/06*
U.S. Cl. 301—37 **7 Claims**



A vehicle wheel assembly comprising a wheel having a wheel spider member provided with a central mounting portion and a peripheral rim engaging portion, the mounting portion defining a central hub receiving opening and a plurality of circumferentially spaced stud receiving openings arranged radially outwardly from the central opening; a wheel cover member having a central section, an outer peripheral section disposed in close proximate relation with the axially outer side of the spider member, and an intermediate section arranged radially between the central and peripheral sections, the cover member being formed with a plurality of circumferentially spaced openings each of which is radially and axially aligned with one of the stud receiving openings in the wheel spider member, a plurality of fastening members extending radially through the openings in the wheel cover member and threadably engaged with the wheel studs for operatively securing the wheel and the wheel cover member to the vehicle, and means in the form of a plurality of resilient retaining members associated one with each of the fastening members for fixedly securing the fastening members and wheel cover member to the wheel.

3,549,205
WHEEL
Donald J. Reid, Pleasant Ridge, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Sept. 23, 1968, Ser. No. 761,419
Int. Cl. B60b *1/08*
U.S. Cl. 301—65 **7 Claims**

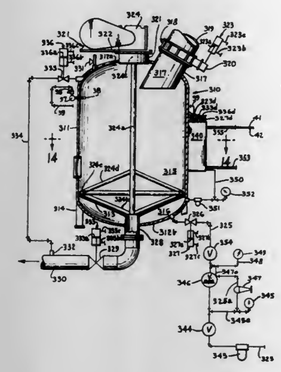


An automobile wheel having a unitary cast body in which spokes connecting radially inner and outer portions of the body are cast as an integral part of the body structure.

3,549,206
SELF-PURGING, PNEUMATIC, CONVEYING APPARATUS ADDITIONALLY EQUIPPED AS WITH AGITATOR AND/OR SCALE
Brian R. Reuter, Houston, Tex., assignor to Consolidated Engineering Company, Houston, Tex., a corporation of Texas
Continuation-in-part of applications Ser. No. 518,353, Jan. 3, 1966, and Ser. No. 686,018, Nov. 28, 1967. This application May 6, 1969, Ser. No. 822,126
Int. Cl. B65g *53/40*
U.S. Cl. 302—53 **10 Claims**

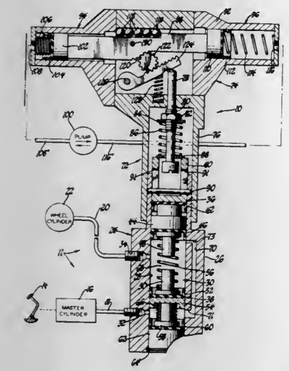
The disclosure is primarily of a self-purging pneumatic conveying pressure vessel with continuity from parent,

now patented apparatus of Pat. No. 3,555,221, differing in that material discharge is downwardly from material plenum via conduit through gas plenum, circuitry opening and then closing fill valve, delaying air valve opening and closing purge valve, opening discharge valve, then closing discharge valve and air valve, and opening purge



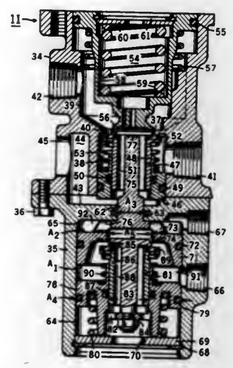
valve. This enables a motor to be mounted upon the pressure vessel to drive an agitator to assure easy material delivery through bottom discharge. In another form the pressure vessel is mounted on a scale and a pressure (weight) sensitive switch closes fill valve, other circuitry is same.

3,549,207
SAFETY BRAKE APPARATUS
Henry L. Hayes, 496 E. Baker, Clawson, Mich. 48017
Filed Feb. 24, 1969, Ser. No. 801,618
Int. Cl. B60t *7/16, 13/16*
U.S. Cl. 303—6.1 **18 Claims**



Apparatus for applying the hydraulic brakes of a vehicle upon opening the door and releasing the brake when the vehicle is conditioned for normal driving. In one embodiment, door opening energizes a pump motor operating an actuator mechanism which displaces a piston to disable the normal hydraulic brake system and to pressurize the brake lines. The brake system is restored to normal operation when the vehicle is conditioned for driving by operator actuation of the ignition switch, transmission selector lever, and the accelerator pedal. Manual operation of the system is also permitted.

3,549,208
CONTROL VALVE
Oliver B. Cruse, Florissant, Mo., assignor to Wagner Electric Corporation, Newark, N.J., a corporation of Delaware
Original application Oct. 29, 1968, Ser. No. 771,559. Divided and this application Nov. 25, 1969, Ser. No. 879,654
Int. Cl. B60t *13/44, 15/02*
U.S. Cl. 303—13 **23 Claims**

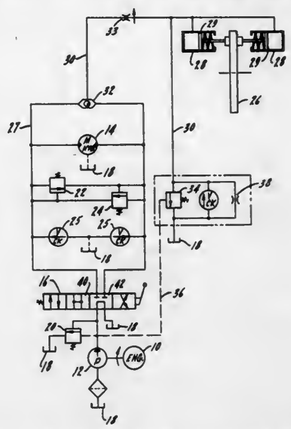


A control valve having a service member for applying service fluid pressure to the service portion of a spring set brake device to normally effect service energization of a brake connected therewith and an emergency member actuated by said service member in the event of the failure of the service fluid pressure for venting emergency fluid pressure normally applied to the emergency portion of said spring set brake device to the atmosphere to effect mechanical emergency energization of said brake, and a resilient member responsive to emergency fluid pressure less than a predetermined value for automatically isolating the emergency fluid pressure supply and venting the emergency fluid pressure applied to the emergency portion of said spring set brake device to the atmosphere.

3,549,209
HYDRAULIC BRAKING SYSTEM
Dieter Moericke, Milwaukee, Wis., assignor to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Feb. 14, 1969, Ser. No. 799,225
Int. Cl. B60t *13/22, 7/12*
U.S. Cl. 303—21 **5 Claims**

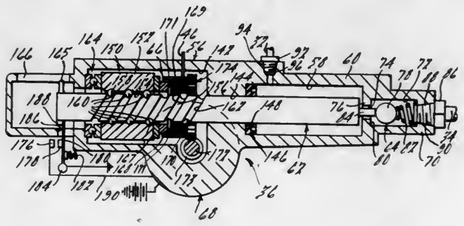
A hydraulic braking system particularly suited for hydraulically driven wheeled vehicles of the railway track type having a pump connected to the vehicle to be driven thereby, a brake cylinder for braking the wheeled vehicle and a valve to control the hydraulic pressure applied to the brake cylinder, the valve being responsive to deceleration conditions on the vehicle such that the brake cylinder will be pressurized under deceleration and will not be pressurized when the vehicle is under propulsion. In addition a controlled bleed means communicates with

the brake cylinder to relieve the cylinder of excessive pressure such that during deceleration the controlled



bleed means will prevent the brake cylinder from locking the wheels and skidding the vehicle.

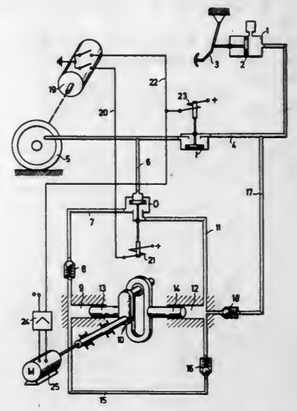
3,549,210
SKID CONTROL SYSTEM
William T. Birge, Plymouth, and David T. Ayers, Birmingham, Mich., assignors to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Feb. 14, 1969, Ser. No. 799,388
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 **10 Claims**



A skid control system adapted for operative association with the fluid actuated braking system of an automotive or similar type vehicle; the system including a modulating valve assembly for selectively controlling the flow or supply of hydraulic brake actuating fluid between the master brake cylinder of the vehicle and one or more of the wheel cylinders thereof; the modulating valve assembly including an electrically energized clutch assembly and an electric motor cooperable with the clutch assembly in selectively positioning an associated piston member which functions to selectively control the flow of hydraulic brake actuating fluid from the master cylinder to the wheel cylinders.

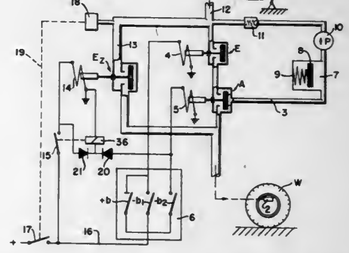
3,549,211
ANTI-LOCKING CONTROL SYSTEM FOR PRESSURE-ACTUATED VEHICLE BRAKES
Heinz Leiber, Leimen, Germany, assignor to Teldix GmbH, Heidelberg, Germany
Filed June 3, 1969, Ser. No. 829,861
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 **7 Claims**

The fluid return line of an anti-locking control system for vehicle brakes incorporates a double acting pump associated with the outlet valve for the brake system to return fluid to the master cylinder. In one position of the outlet valve, the pump merely circulates fluid in a closed path which offers resistance to fluid flow, whereas when the outlet valve is in another position the closed path is blocked and the pump then circulates fluid from the wheel



cylinder circuit back to the master cylinder. The pump operates only during periods of brake actuation and may be controlled either in conjunction with brake light operation or in association with the mechanism which operates to close the normally open inlet valve between the master cylinder and the wheel cylinder.

3,549,212
ANTI-LOCKING CONTROL SYSTEM
Heinz Leiber, Leimen, Germany, assignor to Teldix GmbH, Heidelberg, Germany
Filed June 3, 1969, Ser. No. 829,862
Int. Cl. B60t *8/06*
U.S. Cl. 303—21 **7 Claims**



An anti-locking control system for vehicle brakes includes control and auxiliary inlet valves disposed in parallel between the master cylinder and the wheel braking cylinder to allow the brake fluid pressure in the wheel cylinder to rise rapidly at the initiation of brake application. Thereafter, the auxiliary inlet valve is closed and held closed during the initiated brake application while the control inlet valve is actuated in conjunction with an outlet valve variably to control the fluid pressure in the wheel cylinder. In this way, the pressure rises of brake fluid in the control process when the auxiliary valve is closed and the control inlet valve is alternately opened and closed may be limited to rates most conducive to the desired control action without degrading the rapid rate of

pressure rise achieved at the initiation of braking application.

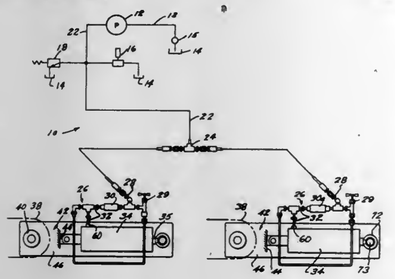
3,549,213
TRACK TIGHTENER FOR A CRAWLER TYPE VEHICLE

Fred T. Smith, 627 Cheyenne St., Aurora, Ill. 60506, and James J. Gebhardt, Jr., 4721 Schwartz St., Lisle, Ill. 60532

Continuation-in-part of application Ser. No. 664,163, Aug. 29, 1967. This application Mar. 5, 1969, Ser. No. 804,644

Int. Cl. B62d *55/30*

U.S. Cl. 305—10 **7 Claims**



A track tightener for a crawler type vehicle including a fluid cylinder associated with each track, a take-up idler and sprocket wheel engaging the track, a source of fluid under pressure for the fluid cylinder, and a hydraulic control system to regulate the pressure of the fluid in the cylinder to vary the length of the track path by adjusting the position of the idler wheel to provide automatic self adjustment of the tension in the track.

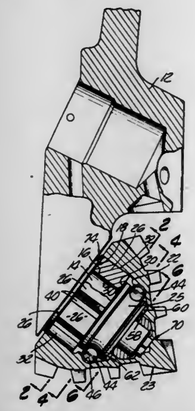
3,549,214
FLOATING SEGMENT BEARING

William J. Neilson, Whittier, Calif., assignor to Smith Industries International, Inc., Whittier, Calif., a corporation of California

Continuation-in-part of application Ser. No. 625,389, Mar. 23, 1967. This application June 13, 1969, Ser. No. 840,586

Int. Cl. F16c *17/03, 19/14*

U.S. Cl. 308—8.2 **13 Claims**



The bearing is made up of segments which lie about, within, or between rotatable parts, and are of a different coefficient of friction than that of said parts. The segments comprise unconnected arcuate increments of a 360° whole and have considerable weight bearing contact as compared with roller bearings and ball bearings. They seat against the rotatable part or parts independently of each other. In one form of assembly the segments describe a circle between relatively rotatable parts of different diameters and the inner and outer diameters of the arcuate bearing segments are so arranged that the frictional drag differences, due to their different radii, is compensated for so that the inner and outer surfaces of the segments have substantially a balanced frictional drag against their respective cooperating rotating parts, thereby permitting random indexing of the segments relative to the rotatable parts. The spaces between the segments freely admit and distribute lubricants.

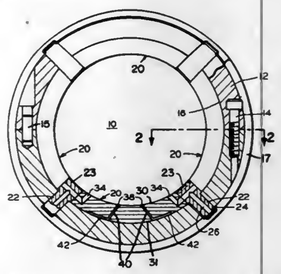
3,549,215
HYDROSTATICALLY SUPPORTED TILTING PAD JOURNAL BEARING

Leon W. Hollingsworth, Olympia, Wash., assignor to Pioneer Motor Bearing Company, South San Francisco, Calif.

Filed Oct. 21, 1968, Ser. No. 769,241

Int. Cl. F16c *17/06*

U.S. Cl. 308—73 **13 Claims**



This is a tilting pad journal bearing in which the pads are hydrostatically supported by a hydrodynamically generated oil film. The tilting pads which surround a rotating shaft are held in a carrier ring. Each pad has internal oil supply conduits communicating with an oil supply groove in the outer circumference of the carrier ring. The hydrostatic support is furnished by the hydrodynamic pressure generated in the wedge-shaped oil film between the pad and the shaft and supplied to a recess or recesses on the outer face of the pad. The recess or recesses accumulate pressurized oil from the film to support the pad.

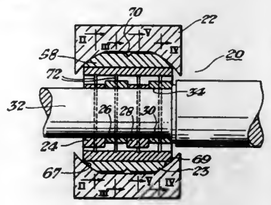
3,549,216
FLUID BEARING ARRANGEMENT

John J. Sutyak, Pittsburgh, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa., a corporation of Pennnsylvania

Filed Jan. 2, 1969, Ser. No. 788,479

Int. Cl. F16c *1/24*

U.S. Cl. 308—122 **17 Claims**



I disclose a fluid bearing arrangement comprising a shaft mounted for rotation thereof, a plurality of eccentric bearing members positioned on said shaft for rotation therewith, a bearing stator generally surrounding said bearing members and closely spaced therefrom, said stator being positioned substantially concentrically of said shaft, said eccentric bearing members being orientated with respect to said shaft so that their directional eccentricities are spaced equidistantly about said shaft whereby upon rotation of said shaft a rotating and compensating bearing force field is created.

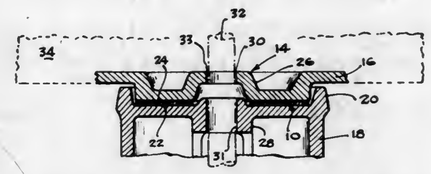
3,549,217
CENTER PLATE LUBRICATING DEVICE

William R. Watson, Oak Lawn, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

Filed Nov. 29, 1968, Ser. No. 779,885

Int. Cl. B61f *5/16*

U.S. Cl. 308—137 **5 Claims**



A high strength, non-dusting center plate lubricating device which comprises a paper disc adapted to fit between a body bolster center plate and a truck bolster center plate. The paper disc is uniformly impregnated with 10–60% by weight of molybdenum disulfide.

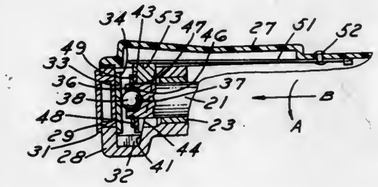
3,549,218
END THRUST CONTROL DEVICE FOR A ROTATING SHAFT

Eugene C. Cagnon, Detroit, Kenneth P. Hurlin, Farmington, and Joseph Pavlovich, Ypsilanti, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed May 2, 1969, Ser. No. 821,196

Int. Cl. F16c *19/10, 19/32*

U.S. Cl. 308—163 **7 Claims**



A device for controlling the movement of a shaft when a thrust load applied to the shaft is in a direction other than the direction of the normal thrust load on the shaft. The device employs a spring biased wedge which acts on the shaft to apply a force thereon in a direction identical to the normal thrust load applied to the shaft in an operating condition.

3,549,219
BEARING AND HUB ASSEMBLY

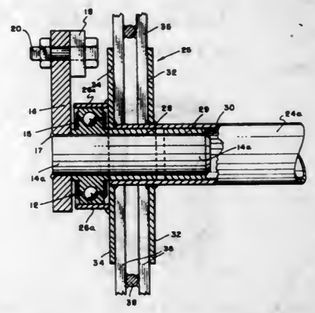
Harry L. Mowbray, 109 S. 3rd St., Medford, Okla. 73759

Filed Oct. 6, 1969, Ser. No. 863,851

Int. Cl. F16c *13/02*

U.S. Cl. 308—181 **2 Claims**

The invention is an improved bearing carrier for supporting a gang of rotary agricultural tillage implements on a common shaft. The anti-friction bearings are positioned inside the ends of a rotating hub shaft with the inner race of the bearing being supported by a stationary stub axle whereby the bearing is protected from trash balling-up on the rotary shaft and destroying the bearing seals.



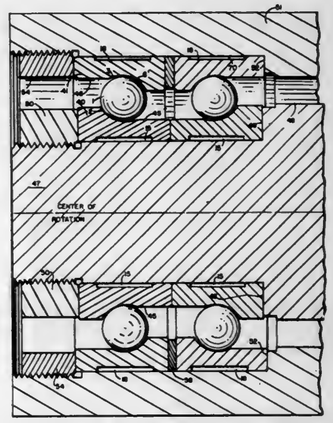
3,549,220
LOW-STRESS BALL BEARINGS

John F. Robinson, Newport Beach, and Lynn A. Shackelford, Villa Park, Calif., assignors to North American Rockwell Corporation

Filed Sept. 3, 1968, Ser. No. 756,757

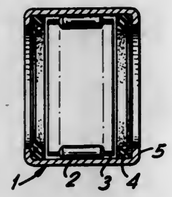
Int. Cl. F16c *19/04*

U.S. Cl. 308—184 **8 Claims**



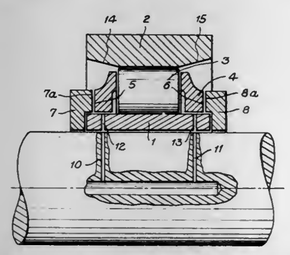
The invention relates to ball bearings in which the Hertzian stresses in the raceways are reduced by a construction in which one or both race members are so supported as to permit deflection in the manner of a beam in distinction to conventional bearings wherein the race members are supported over their entire circumferential area and compressed in effect as a solid block. By suitably proportioning the effective length and depth of the beam structure, in relation to the strength of the race material and to the applied load, a marked reduction in localized stresses and a consequent marked increase in operating life is achieved, without attendant disadvantages such as excessive decrease in stiffness, increase in friction, etc.

3,549,221
BEARING WITH SEAL
Paul W. Leak, Simsbury, Conn., assignor, by mesne assignments, to Industriewerk Schaeffler OHG, Herzogenaurach, Germany, a partnership
Application Feb. 4, 1969, Ser. No. 798,261, which is a continuation of application Ser. No. 541,838, Apr. 11, 1966. Divided and this application Dec. 2, 1969, Ser. No. 881,520
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.2 **13 Claims**



This invention relates to a needle roller bearing having an outer shell with integral radially inward flanges and a cage for retaining the needle rollers. A seal having a body of elastomeric material and a hardened retaining insert united to said seal is positioned abutting the inner face of the flange, the insert being resiliently spaced from the shell by the elastomeric material.

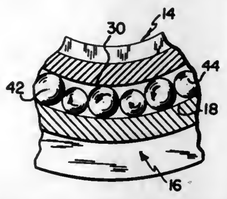
3,549,222
HIGH SPEED ANTI-FRICTION BEARING
Wolfgang Hansen, Krailling, and Klaus Hagemeister, Munich, Germany, assignors to Motoren- und Turbinen-Union, Munich, Germany
Filed Nov. 18, 1968, Ser. No. 776,588
Claims priority, application Austria, Nov. 29, 1967, A 10,790/67
Int. Cl. F16c *33/46, 33/66*
U.S. Cl. 308—187 **11 Claims**



The cage of a high speed anti-friction roller bearing is hydraulically driven by the rotating shaft by means of a hydraulic coupling.

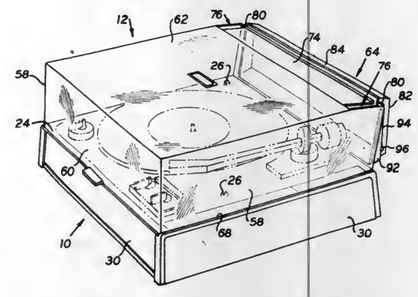
3,549,223
POLYMERIC BEARING FOR PAPERMAKING MACHINES
David G. Minick, Westfield, and David H. Sinclair, South Hadley, Mass., assignors to The Sinclair Company, Holyoke, Mass., a corporation of Massachusetts
Continuation-in-part of application Ser. No. 720,437, Apr. 4, 1968. This application Oct. 27, 1969, Ser. No. 871,459
Int. Cl. F16c *19/20*
U.S. Cl. 308—200 **8 Claims**

Dandy roll bearing and support construction having polymeric roller bearing elements disposed between the inner and outer annular race members. Alternate bearing elements are of relatively large diameter with substantially smaller diameter bearing elements disposed therebetween. The large and small diameter elements are formed of different polymeric materials, such that the large elements are relatively hard and rigid to serve as



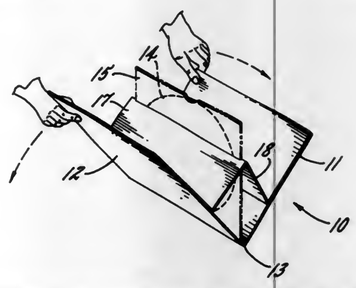
load support elements and the smaller elements are relatively soft and impact resistant.

3,549,224
PHONOGRAPH BASE AND DUST COVER THEREFOR
Stanley Bindman, Roslyn Heights, and Ralph M. Verni, Baldwin, N.Y., assignors to British Industries Corporation, Westbury, N.Y., a corporation of New York
Filed July 17, 1968, Ser. No. 745,600
Int. Cl. A47b *81/06*
U.S. Cl. 312—8 **30 Claims**



A phonograph cabinet including a base for supporting a turntable mechanism, a dust cover enclosing said mechanism and means for allowing the cover to be pivoted, lifted or moved horizontally with respect to the base.

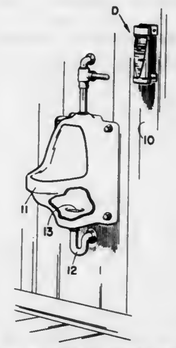
3,549,225
PHONOGRAPH RECORD HOLDER
Philip M. Scaccia, 302 W. Windsor Ave., Lombard, Ill. 60148
Filed Feb. 6, 1969, Ser. No. 797,107
Int. Cl. A47b *81/06;* **A47f** *1/04;* **G11b** *1/00*
U.S. Cl. 312—10 **3 Claims**



A pop-up record folder is disclosed in which a record is received within an inner envelope and caused to stand

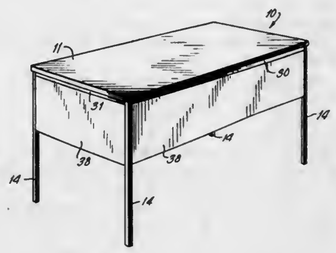
upright by a pair of opposed folding support members when the front and rear cover panels of the folder are spread open.

3,549,226
TISSUE PACK DISPENSER FOR URINALS
Joseph Edouard Samson, 83 Binscarth Road, Toronto, Ontario, Canada
Filed Aug. 4, 1967, Ser. No. 658,383
Int. Cl. A47f *3/02;* **B65d** *83/08*
U.S. Cl. 312—42 **5 Claims**



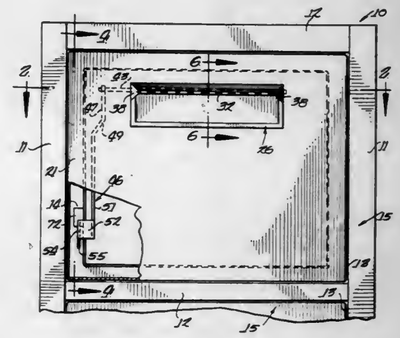
This specification discloses a tissue pack dispenser for urinals having a drain with a small round inlet port with the tissues taking the form of discs of the same size as said port and of a material that disintegrates upon contact with water and which is treated with a disinfectant and/or a deodorant. The discs are held in pack form by an adhesive strip anchored to end boards and edges of the discs. The dispenser has a tapered slot in the front and when the discs are assembled therein the adhesive strip is diametrically opposite to the slot.

3,549,227
DESK OR LIKE ARTICLE OF FURNITURE
Forest G. Stark, Jamestown, N.Y., assignor to Art Metal-Knoll Corporation, Jamestown, N.Y., a corporation of Delaware
Filed Apr. 16, 1969, Ser. No. 816,606
Int. Cl. A47b *17/00*
U.S. Cl. 312—194 **8 Claims**



A desk or the like having a flat rectangular top panel, four hollow metal tube legs of square cross section, and four brackets mounted on the lower surface of the top panel respectively adjacent to the four corners thereof for securing the legs rigidly to the top panel. Each bracket includes a solid metal post of square cross section press-fitted within the upper end of one of the legs and having bevelled vertical edges; and a pair of horizontal solid metal arms rigidly secured to and extending divergently from the upper end of the post along the top panel lower surface, in respectively parallel relation to the adjacent edges of the top panel, each arm being secured to the panel by screws. Horizontal channel sections, having inwardly projecting flanges secured by screws to the top panel lower surface, extend along the panel lower surface between adjacent brackets in parallel relation to the panel edges and enclose the horizontal arms of the brackets. A removable vertical panel may be mounted between adjacent legs, immediately beneath a horizontal channel section. The desk may also include a drawer, slidably supported on rails extending from side to side of the desk across the top panel lower surface and adapted to receive the drawer from either side of the desk; and a filler panel, simulating a drawer head in appearance, may be detachably secured to the ends of the rails on the side of the desk opposite to that on which the head of the drawer is located.

3,549,228
HANDLE LATCH AND LABEL HOLDER
Vytant P. Aleks, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Rockford, Ill., a corporation of Delaware
Filed July 26, 1968, Ser. No. 748,083
Int. Cl. A47b *95/02*
U.S. Cl. 312—320 **7 Claims**



A filing cabinet handle latch and label holder that is received within the hollow front wall of a file drawer and latches the drawer within the filing cabinet. The handle is mounted within a complementary opening in the front wall of the file drawer and has an opening therethrough to receive a transparent label holder therein. A finger bar extends across and through the handle, is pivotally mounted at one side of the handle and extends beyond the opposite side of the handle to adjacent the side of the drawer front wall; the opposite side of the handle having an opening therein to allow vertical oscillation of the finger bar about the pivot. A depending latching bar having a latching hook on the lower end is secured to the finger bar for vertical movement.

3,549,229

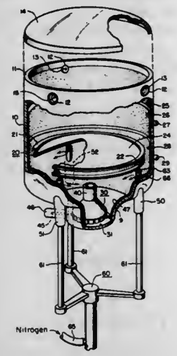
METHOD OF ASSEMBLING AN IMAGE INTENSIFIER

Josef Moegenbier, Morton Grove, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware

Original application Sept. 15, 1967, Ser. No. 669,470, now Patent No. 3,515,924, dated June 2, 1970. Divided and this application Nov. 13, 1969, Ser. No. 876,424

Int. Cl. H01j *9/38, 17/26*

U.S. Cl. 316—21 10 Claims



The envelope of the image intensifier is principally a glass cylinder closed at one end to support the viewing screen and having a sealing land at the other end with a series of apertures spaced thereabout. This end of the envelope is closed by a glass cap secured to the sealing land by a glass to glass seal. The photocathode has a supporting frame dimensioned to be positioned within the principal envelope section and having threaded mounting bushings in radial alignment with the apertures in the sealing land of the envelope, respectively. Mounting pins inserted through the openings of the envelope thread into these bushings and mechanically secure the photocathode in position. Each pin is sealed to the envelope in a vacuum-tight seal.

3,549,230

ZOOMING DEVICE FOR ADJUSTING THE LIGHT AMOUNT OF A FORMED IMAGE

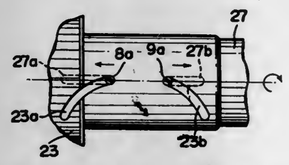
Jinichi Kato, Tokyo, and Takashi Tamori, Kawasaki-shi, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Feb. 27, 1968, Ser. No. 708,546

Claims priority, application Japan, Mar. 15, 1967, 42/21,656, 42/21,657

Int. Cl. G02b *21/06, 7/04, 15/00*

U.S. Cl. 350—14 2 Claims



A zooming lens system for a microscope is provided in which the brightness of the image formed remains constant during zooming operations and without substantially altering the aperture of the microscope objective. In one embodiment, two polarizing filters are provided, one of the filters being rotatable relative to the other about the optical axis of the system upon rotation of the zooming ring. In another embodiment, two wedge-shaped density plates are provided, at least one of the plates being movable relative to the other transversely of the optical axis upon rotation of the zooming ring.

3,549,231

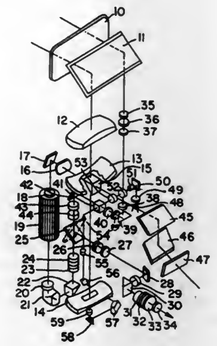
LENS PRESCRIPTION FOR OPTICAL SYSTEM FOR DAY-NIGHT PERISCOPIC SIGHT

Wright H. Scidmore, Langhorne, and Robert J. Wolfe, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army

Filed Dec. 8, 1969, Ser. No. 883,080

Int. Cl. G02b *23/08*

U.S. Cl. 350—52 1 Claim



Specific lens and components values are prescribed for a periscope for use with military tanks, the periscope being compact and usable with a 3-stage image intensifier tube, and possessing high power day and night sighting capabilities as well as unaided day vision.

3,549,232

MICROSCOPIC ALIGNMENT MECHANISM

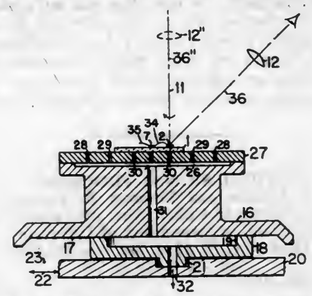
Frances Hugle, Santa Clara, Calif.; William B. Hugle, executor of said Frances Hugle, deceased, assignor to Hugle Industries, Inc., Sunnyvale, Calif., a corporation of California

Filed May 13, 1968, Ser. No. 728,492

Int. Cl. G02b *21/24, 21/32*

U.S. Cl. 350—90 4 Claims

A mechanical mechanism for adjustably micro-positioning a small workpiece of the nature of an integrated circuit. The workpiece is held to the upper surface of a grease plate, as by vacuum means. A moveable platform supports the grease plate and may be rotated manually or by means of a motor drive. By bringing the point of interest (where work is to be performed) within the field of view of a microscope by manually sliding the grease plate, subsequent rotation of the platform retains the point of interest as the center of rotation. In this way the usual plural items of work can be accomplished around a point of interest by merely energizing the motor rotational means.



3,549,233

WAVEGUIDE FOR ELECTROMAGNETIC WAVES

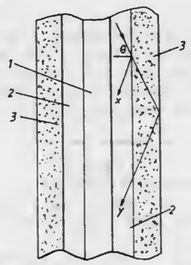
Charles Cecil Eaglesfield and Charles Kuen Kao, Harlow, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 20, 1967, Ser. No. 669,095

Claims priority, application Great Britain, Oct. 18, 1966, 46,448/66

Int. Cl. G02b *5/14*

U.S. Cl. 350—96 2 Claims



A well known form of waveguide consists of a dielectric core surrounded by a dielectric sheath, the core having a higher dielectric constant than the sheath. In general the core-sheath combination permits energy to flow in a number of core modes, each with its characteristic velocity. It is generally desirably to restrict the number of modes at which energy can flow, which is achieved by choosing a small core diameter. However, the restriction may be nullified by the sheath modes which exist due to finite diameter of the sheath. The present invention includes two sheaths around a core. The outer sheath is rather thin and of the same refractive index as the inner sheath. However, the outer sheath is more opaque than the inner sheath. In this manner, two sets of modes of energy propagation exist.

3,549,234

KELSH PLOTTER WITH VARIABLE LENS SYSTEM

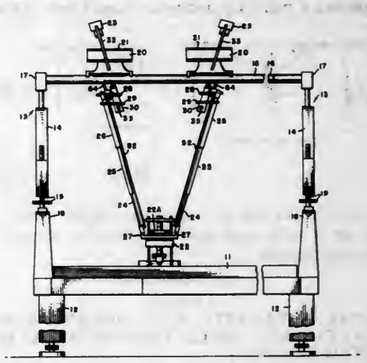
Harry T. Kelsh, 4600 Connecticut Ave. NW., Washington, D.C. 20037

Continuation-in-part of application Ser. No. 946,410, July 31, 1969. This application Aug. 20, 1969, Ser. No. 851,584

Int. Cl. G02b *27/22;* B43l *13/18*

U.S. Cl. 350—136 15 Claims

A Kelsh type plotter is modified by providing a projection lens in two parts, namely, a fixed lens element and a movable lens element. The movable lens element is constrained to move to and from the fixed lens element according to the movements of the tracing table over the mapping table thereby to adjust the focal length of the lens for optimum resolution with large aperture opening.



3,549,235

HIGH-SPEED VARIFOCAL OBJECTIVE SYSTEM

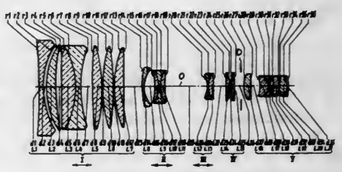
Karl Macher, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke, Bad Kreuznach, Rhineland, Germany, a corporation of Germany

Filed July 1, 1968, Ser. No. 741,773

Claims priority, application Germany, June 30, 1967, 1,572,854, 1,572,855

Int. Cl. G02b *15/14*

U.S. Cl. 350—184 13 Claims



Varifocal objective system with a relative aperture of about 1:2 and a varifocal ratio of about 10:1, including a basic multilens objective and a four-component front attachment with two movable negative components bracketed by two substantially fixed positive components; the first component, which may be limitedly shiftable (in whole or in part) for focusing purposes, includes one or two negative front lenses, a positive singlet, a negative doublet and three further positive singlets; the second component consists of a negative singlet followed by a negative triplet; the third component is a negative doublet; and the fourth component consists of two air-spaced positive singlets.

3,549,236

OPTICAL FREQUENCY DISCRIMINATOR WITH DUAL FREQUENCY RESONATOR

James W. Mink, Neptune, N.J., assignor to the United States of America as represented by the Secretary of the Army

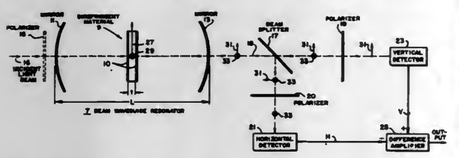
Filed Sept. 30, 1968, Ser. No. 763,692

Int. Cl. G02f *1/24*

U.S. Cl. 350—157 6 Claims

The resonator comprises a pair of confronting spherical mirrors with birefringent material between them. This structure results in two resonant frequencies within the resonator which must be excited with orthogonally

polarized light beams. The input light beam is arranged to excite each of the resonant modes equally, and a beam splitter and a pair of polarizers separate the responses of



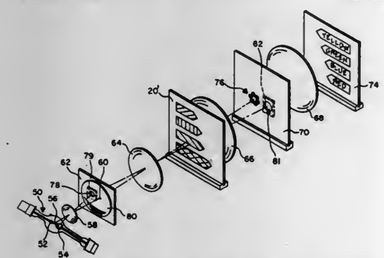
the resonator at the two resonant modes. One of such responses is subtracted from the other to form the discriminator S-curve.

3,549,237

OPTICAL APPARATUS AND METHOD FOR DISPLAYING SPATIALLY PERIODICALLY MODULATED RECORDS

Edmund L. Bouche, Lexington, and George B. Parrent, Jr., Carlisle, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass., a corporation of Delaware

Filed Dec. 18, 1967, Ser. No. 697,267
Int. Cl. G02b *27/18, 27/38*
U.S. Cl. 350—162 **23 Claims**



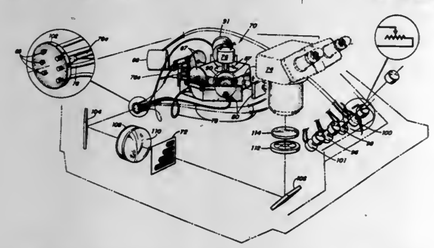
This disclosure depicts apparatus and method for recovering information which is stored on photographic records as modulation of a spatial carrier. More particularly, this disclosure depicts apparatus and method for displaying such photostored information, teaching provision of an auxiliary wideband optical channel.

3,549,238

OPTICAL DISPLAY OR VIEWING SYSTEMS WITH COAXIAL DIFFRACTED AND NON-DIFFRACTED CHANNELS

Michael Graser, Jr., Bedford, Mass., assignor to Technical Operations, Incorporated, Burlington, Mass., a corporation of Delaware

Filed Feb. 14, 1968, Ser. No. 705,431
Int. Cl. G02b *27/38*
U.S. Cl. 350—162 **16 Claims**



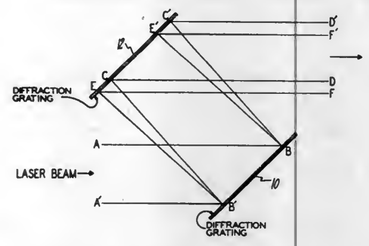
This disclosure depicts optical systems and methods especially for displaying or viewing color reconstructions from color separation information stored on a colorless record medium. Emphasis is placed upon novel light source means and methods for providing one or a substantial number of effective sources of substantially coherent radiation and/or a source of less coherent radiation. Novel techniques employing light source arrangements and spatial filtering are disclosed wherein the effective aperture requirements in the optical system employed are extremely modest.

3,549,239

OPTICAL SIGNAL PROCESSOR

Michael J. Brienza and Edmond B. Treacy, Vernon, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Nov. 19, 1968, Ser. No. 776,878
Int. Cl. G02b *27/38*
U.S. Cl. 350—162 **4 Claims**



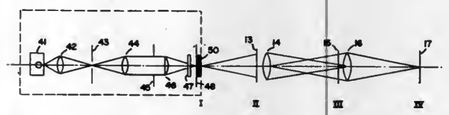
Two gratings with identical rulings are arranged with the ruled surfaces parallel and with the ruled elements on one grating parallel to those on the other. The grating pair can be used to compress optical chirped pulses, to generate chirped pulses out of short unchirped pulses, or to measure the phase structure of short pulses.

3,549,240

OPTICAL FILTERING METHOD AND APPARATUS

Takeo Sawatari, Palo Alto, Calif., assignor to Optics Technology, Inc., Palo Alto, Calif., a corporation of California

Filed Nov. 6, 1967, Ser. No. 680,649
Int. Cl. G02b *27/38*
U.S. Cl. 350—162 **7 Claims**



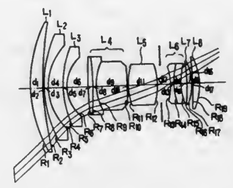
An optical filtering method and apparatus is disclosed wherein a transparency is made of the image to be modified and placed in the pupil of a lens. A line light source is provided to illuminate the transparency coherently in the direction of the noise pattern to be eliminated and incoherently in the orthogonal direction in the plane of the transparency to produce a one dimensional diffraction pattern in a plane spaced from the lens. A plurality of binary masks are sequentially placed in the plane of the diffraction pattern, said masks having opaque portions and transparent cut-out portions in the configuration or shape of a range of modulation transfer functions to be tested and a modified image of the transparency formed by a second lens for psychophysical evaluation. A spatial filter is fabricated having the desired MTF and incorporated in the image forming aperture of the image forming and recording system from which the transparency was made.

3,549,241

EXTREMELY WIDE-ANGLE OBJECT LENS

Ikuo Mori, Kawasaki-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Oct. 15, 1968, Ser. No. 767,683
Claims priority, application Japan, Oct. 24, 1967, 42/68,035
Int. Cl. G02b *9/64*
U.S. Cl. 350—176 **5 Claims**



This invention relates to the extremely wide-angle object lens which can satisfy the conditions represented by the following formulae;

(I) $1.5<R_2/R_3<4.0$

(II) $d_{13}+d_{14}>d_{15}$

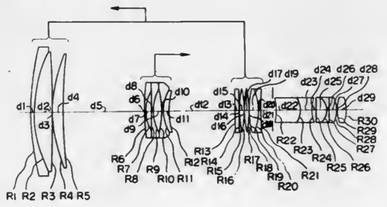
(in the above given formulae, R stands for the radius of curvature of each lens, and d stands for air-space or the central thickness of each lens) in a retrofocussing type lens which comprises forming the front group dispersing system with the positive meniscus lens L_1 and the negative meniscus lenses L_2 and L_3 whose convex surfaces are respectively directed towards the direction in which light rays are projected, arranging the positive lenses L_4 and L_5 which are respectively cemented or divided, and providing the negative lens L_6 and the positive meniscus lenses L_7 and L_8 to form the rear lens group.

3,549,242

ZOOMING LENS OF EXTREMELY HIGH ZOOMING RATIO

Takashi Higuchi, Yokohama-shi, and Soichi Nakamura, Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Oct. 18, 1967, Ser. No. 676,355
Claims priority, application Japan, Oct. 27, 1966, 41/70,456
Int. Cl. G02b *15/14*
U.S. Cl. 350—184 **2 Claims**



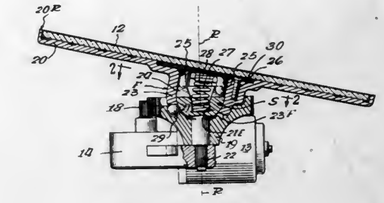
A variable focal length lens system of extremely high zooming ratio is provided comprising a first convergent member, a divergent member and a second convergent member in which the first and second convergent members are moved in unison while the divergent member is moved in an opposite direction to carry out the zooming operation.

3,549,243

REMOTE CONTROL MIRROR

Laurence G. Horwitt, New Haven, and Donald J. Mattis, Norwalk, Conn., assignors to Casco Products Corporation, Bridgeport, Conn., a corporation of Connecticut

Filed Nov. 8, 1968, Ser. No. 774,353
Int. Cl. B60r *1/06*
U.S. Cl. 350—289 **6 Claims**



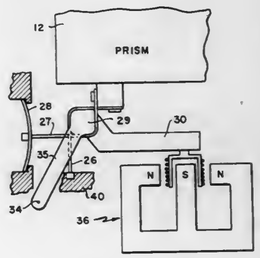
A remotely adjustable outboard mirror assembly is disclosed wherein a ball and socket joint is equipped with interengaging abutments to constrain relative movement to swivel movement about each of a pair of normal axes. A mirror mount is carried with the floating socket and is actuated through a predetermined pattern of swivel movement about each of the axes by means of a ball cam that is carried within a rotary drive gear in one-way camming engagement with an elliptical cam track provided on the floating socket. A spring holds the ball and socket firmly seated and resiliently opposes the camming action to maintain the arrangement against wobble and play.

3,549,244

PRECISION PRISM OSCILLATING MECHANISM

Allen A. Shaffer, Dallas, Tex., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Jan. 27, 1969, Ser. No. 794,294
Int. Cl. G02b *7/18*
U.S. Cl. 350—287 **9 Claims**

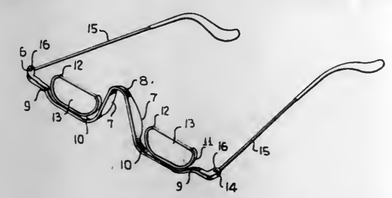


A prism mount which allows rotation of the prism about one axis with a sensitivity of less than one arc second. The prism has four support points and each support point consists of two tension bands wrapped around a post in opposite directions with each tension band being attached to the prism at one end and to a supporting base at the other end. A voice coil solenoid is arranged to exert a torque on the post, thereby changing the tension balance of the bands to cause the prism to rotate.

3,549,245
SPECTACLES HAVING RESILIENT LENS RIMS

Harold E. Bolden, 2906 Maple Road, Rome, Ga. 30161

Filed Dec. 3, 1968, Ser. No. 780,716
Int. Cl. G02c 1/04
U.S. Cl. 351—61 2 Claims

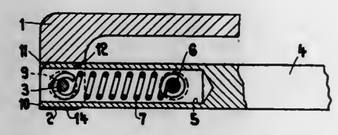


A spectacle frame specifically designed for use by surgeons wherein semi-elliptical lenses are mounted in a frame at a level so as not to obstruct the vision of the surgeon when using a microscope. The spectacle frame is formed from one piece of material bent intermediate its ends to form a nose bridge with integral nose pads on opposite sides of the bridge and having its ends bent to form recesses to receive resilient lens rims which hold the lenses in position without covering the upper edge of the lenses.

3,549,246
SPRING BIASED SPECTACLE TEMPLES

Willy Ruesch, Minusio, Switzerland, assignor to Rivo S.A., Locarno, Switzerland

Filed Dec. 14, 1967, Ser. No. 690,533
Claims priority, application Switzerland, Dec. 20, 1966, 18,186, Patent 349,425
Int. Cl. G02c 5/16
U.S. Cl. 351—113 3 Claims

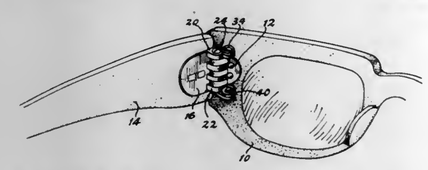


A spectacle-frame having bows adapted to be maintained in normal open and normal closed position by cam surfaces of the hinge of the bows urged against each other by spring means, said bows being elastically returned into normal open position when opened beyond this position.

3,549,247
SPECTACLE TEMPLE TENSIONER

Lewis Rabinowitz, Tonawanda, N.Y., assignor to Ellar Products, Inc., Silver Creek, N.Y.

Continuation of application Ser. No. 713,431, Mar. 15, 1968. This application Oct. 28, 1969, Ser. No. 871,984
Int. Cl. G02c 5/16; E05f 1/12
U.S. Cl. 351—113 5 Claims



A spectacle temple tensioner adapted to be applied between a temple and front frame; said device comprising spaced bar portions bearing on the front end of the temple and the back of the front frame adjacent to, but outside of, the hinge connection between said temple and frame, and coil spring portions between each side of said bar portions positioned to the inside of the hinge connection and serving to releasably hold the tensioner in place and supply desired tension to the bar portions.

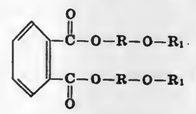
3,549,248
OPTICAL DEVICES COMPRISING CELLULOSE ACETATE AND CELLULOSE ACETATE BUTYRATE

Norman W. Schuler, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Dec. 15, 1967, Ser. No. 690,925
Int. Cl. G02c 1/06, 7/12
U.S. Cl. 351—154 3 Claims



When synthetic plastic elements comprising cellulose acetate butyrate are placed in intimate contact with conventionally plasticized cellulose acetate, plasticizer migration from the cellulose acetate to the cellulose acetate butyrate occurs resulting in undesirable effects. This may be avoided by plasticizing the cellulose acetate with a compound represented by the formula:

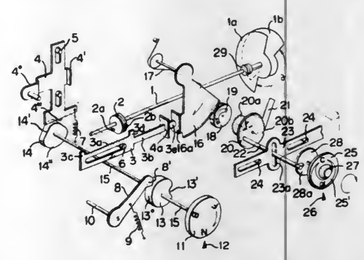


wherein R is an alkylene group containing from 1 to 4 carbon atoms, and R_1 is selected from the group consisting of methyl and ethyl groups.

3,549,249
DISSOLVING SHUTTER MECHANISM FOR MOTION PICTURE CAMERAS

Yoshihisa Katsuyama, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Jan. 5, 1968, Ser. No. 696,031
Claims priority, application Japan, Jan. 13, 1967, 42/2,210, 42/2,211
Int. Cl. G03b 21/36
U.S. Cl. 352—217 7 Claims

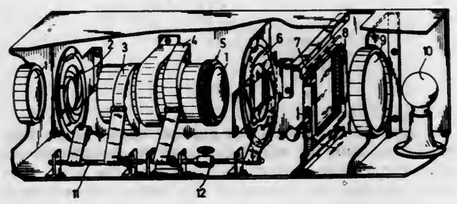


A dissolving shutter mechanism is provided for a motion picture camera wherein fade-out and fade-in operations are automatically made. A reciprocal member is provided for changing the open angle of the shutter, the reciprocal member being moved a predetermined distance to provide for fade-in operation in one direction and fade-out operation in the opposite direction. A one way interlocking member interlocks the shutter drive mechanism and the reciprocal member so that the change in the angle of opening of the shutter is complete in one direction and in the opposite direction by a half revolution of the interlocking member.

3,549,250
SLIDE PROJECTOR WITH CONTINUOUSLY VARIABLE DETAIL MAGNIFICATION

Axel Pantenburg, Rodenkirchen-Hahnwald, Cologne, Germany (65/X Staudinger Str. 8, Munich 83, Germany)

Filed Apr. 29, 1968, Ser. No. 725,092
Int. Cl. G03b 21/14
U.S. Cl. 353—97 3 Claims



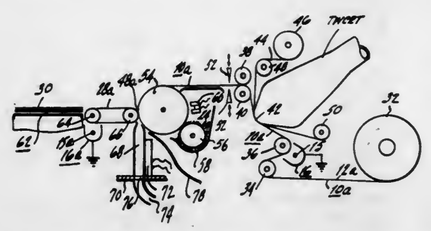
This invention relates to optical systems and more particularly to a slide projector for producing a zooming effect on a screen or exclusive projecting a slide detail independent of its geometric position within the frame, the screen image of which is automatically adapted to full screen size and constant brightness.

This projector comprising in combination a movable slide carrier, a zoom lens, a variable slide mask and a variable aperture, all arranged on a common optical axis and having coupling means, fitting the adjustments thereof together.

3,549,251
ELECTROPHOTOGRAPHIC METHOD AND APPARATUS

Roger G. Olden, Trenton, N.J., assignor to RCA Corporation, a corporation of Delaware

Original application June 12, 1964, Ser. No. 374,747, now Patent No. 3,442,645. Divided and this application Dec. 16, 1968, Ser. No. 842,034
Int. Cl. G03g 15/00
U.S. Cl. 355—3 5 Claims

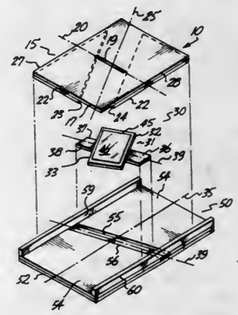


A master electrophotographic record for making copies is applied to the cylindrical surface of a drum. Toner having an electrostatic charge of one polarity are applied to the latent image on the master record to produce a visible image as the drum is rotated. An endless belt of dielectric material for supporting a transfer sheet is charged with an electrostaic charge of opposite polarity to the toner. The transfer sheet adheres to the belt by the resulting electrostatic force which also facilitates image transfer. Pressure is applied between the drum and the belt as the transfer sheet contacts the visible image of the master record. The device for charging the belt is located adjacent to the belt and remote from the contact transfer point between the drum and the belt.

3,549,252
APPARATUS FOR MAKING OBLIQUE PRINTS FROM ORTHOGRAPHIC DRAWINGS

Charles John Edwards, Redmond, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware

Filed May 31, 1968, Ser. No. 733,384
Int. Cl. G03b 27/68
U.S. Cl. 355—52 15 Claims



Equipment for converting orthographic drawings into oblique prints, so that from these prints isometric drawings can be developed with a significant saving of man hours. A masking member defining an elongated aperture slit having an axis is moved relative to a support structure such that its elongated aperture extends parallel to a first direction, while it is moved in a direction perpendicular to the first direction. An image sensitive member is supported by a carriage and placed adjacent to the masking member aperture. Interlocking motion and guide systems are provided to guide the movement of the image sensitive member in a path having a direction of 165° from the first direction as the masking means is moved relative to the support structure and the carriage is moved in a direction 240° relative to the axis of the aperture. The orthographic image, with one of its axis positioned to be parallel to the one direction, is projected through the aperture by suitable means such as an enlarger to focus on the plane of the sensitive member to form the oblique image.

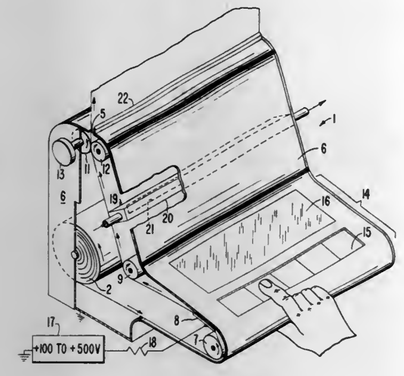
3,549,253
SKIN-OIL FREE ELECTROSTATIC FINGERPRINTING

Ivor Brodie, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Continuation of application Ser. No. 585,913, Oct. 11, 1966. This application Nov. 10, 1969, Ser. No. 871,567
Int. Cl. G03g 9/04
U.S. Cl. 355—10 6 Claims

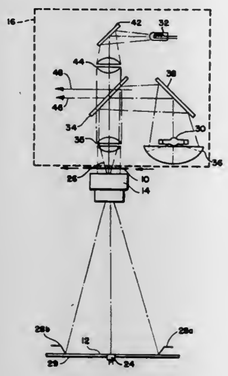
A method and an apparatus for electrostatically reproducing skin-oil free fingerprints on a dielectric recording medium. An electric potential is applied between a person's extremity and the recording medium. When the extremity of a person, which is to be printed, is brought

into contact with the recording medium a latent charge image and skin-oil image is formed. The latent image is then developed by applying a liquid toner to the image.



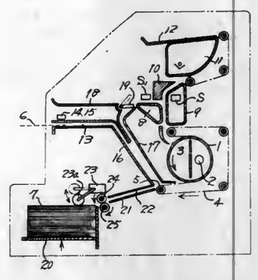
The liquid toner contains a solvent for human skin oil which substantially dissolves any skin oil image present on the recording medium.

3,549,254
OPTICAL SYSTEM
Max K. Muir, San Diego, Calif., assignor to Stromberg Datagraphics, Inc., San Diego, Calif., a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,841
Int. Cl. G03b *27/32*
U.S. Cl. 355—55 **17 Claims**



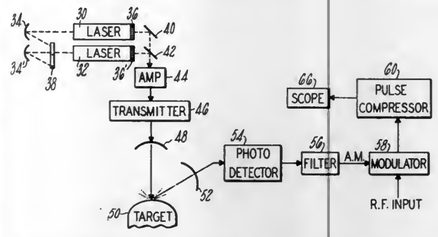
An optical system is described for projecting images from a photographic medium, such as unperforated microfilm, onto a photosensitive medium, and for projecting indicia from the photographic medium to permit registration of each image, through a single projection lens and without detrimentally affecting the photosensitive medium with the projected registration indicia. Apparatus which may employ such an optical system is also described.

3,549,255
SAFETY DEVICE FOR AUTOMATIC SEPARATION OF AN ORIGINAL FROM A LIGHT SENSITIVE COPY SHEET IN AN AUTOMATIC COPYING APPARATUS
Minoru Umahashi and Hideo Hashimoto, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan
Filed Apr. 24, 1968, Ser. No. 723,750
Int. Cl. G07b *27/12*
U.S. Cl. 355—109 **2 Claims**



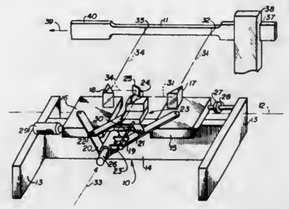
A copying machine makes multiple copies of an original by recycling the original through the machine during successive cycles, successively feeding a new copy sheet from a storage area for each cycle and superimposing it with the original during an exposure operation. The original and the copy sheet are separated and fed into different channels, the original for recycling and the copy sheet for developing. Sensors detect the presence of the original and the copy sheet in their respective channels, activating a feed mechanism for advancing a new copy sheet from the storage area for exposure during the next cycle. Failure of a copy sheet to enter its channel when the original has entered its own channel inactivates the feel mechanism and operates a diverter mechanism which halts the recycling of the original and delivers it outside the machine.

3,549,256
LASER PULSE COMPRESSION RANGING SYSTEM USING DOUBLE-CHIRPED PULSES
Michael J. Brienza and Edmond B. Treacy, Vernon, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Nov. 19, 1968, Ser. No. 777,045
Int. Cl. G01c *3/00*
U.S. Cl. 356—4 **9 Claims**



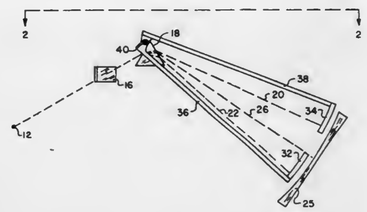
A double-chirped laser pulse is generated by a pair of laser oscillators by use of a rotating mirror. The pulse is transmitted toward a target, and the pulse echo is detected and filtered. The resultant signal then modulates a radio frequency carrier wave in a balanced modulator, carrier suppressed circuit. The modulated R.F. signal is then compressed by a standard pulse compression network to produce a narrow pulse having a range resolution corresponding to twice the bandwidth of the original laser pulse.

3,549,257
OPTICAL EXTENSOMETER
Ian Murray, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 27, 1968, Ser. No. 787,525
Int. Cl. G01b *11/16, 11/02*
U.S. Cl. 356—32 **10 Claims**



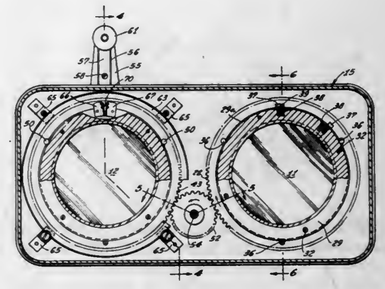
An optical device for the measurement of longitudinal changes produced in a test specimen when said specimen is subjected to either compressive or elongative forces. The device employs a single eye piece, positioned above a slide carriage, onto which are projected images of markers inscribed on the specimen. As the specimen is subjected to compressive or elongative forces, the markers and hence the image positions are altered. The amount of change is a measure of, for example, the longitudinal change in the specimen's dimensions. The device provides a low cost, accurate measurement of test materials disposed in vacuum or high temperature environments, while reducing human error and operator fatigue.

3,549,258
MONOCHROMATOR
Billie D. Henderson, La Habra, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Sept. 5, 1968, Ser. No. 757,660
Int. Cl. G01j *3/14*
U.S. Cl. 356—100 **5 Claims**



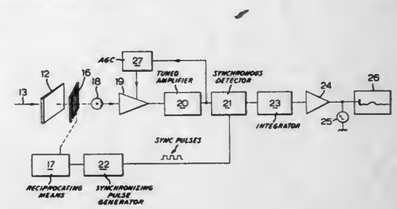
A simple monochromator particularly suitable for use with a spot illumination device in microscopes is disclosed. A nearly collimated light bundle of small diameter impinges upon a prism in which it is dispersed. The dispersed radiation is reflected by a curved mirror whose center of curvature coincides with a point from which the dispersed rays seem to be emitted. A pair of slit jaws adjustably disposed in front of the miror eliminates unwanted wavelengths. A second pass of the reflected rays through the prism results in the re-formation of the nearly parallel bundle of small diameter having the desired wavelength composition.

3,549,259
POLARISCOPE
George A. Klatchko, Levittown, Pa., assignor, by mesne assignments, to Automation Industries, Inc., a corporation of California
Original application Mar. 16, 1964, Ser. No. 352,143. Divided and this application Dec. 12, 1967, Ser. No. 712,879
Int. Cl. G01n *21/40;* **G02b** *27/28*
U.S. Cl. 356—115 **5 Claims**



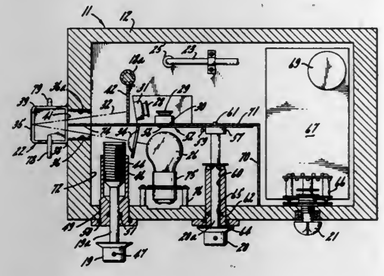
Apparatus is disclosed including first and second jointly rotatable annular support means for carrying a polarizer and an analyzer, respectively, releasable lock means for locking said support means against rotation and two retardation plates mounted on said first and second support means in front of said polarizer and analyzer for joint rotation relative thereto, so that said apparatus functions as either a plane or circular polariscope.

3,549,260
SPATIALLY DISPERSIVE CORRELATION INTERFEROMETER
Anthony Rene Barringer, Willowdale, Ontario, Canada, assignor to Barringer Research Limited, Rexdale, Ontario, Canada, a corporation
Filed Jan. 8, 1968, Ser. No. 696,165
Claims priority, application Great Britain, Jan. 10, 1967, 1,231/67
Int. Cl. G01b *9/02*
U.S. Cl. 356—112 **15 Claims**



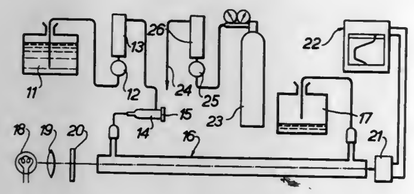
An interferometer having an interferometric element such as a wedge for producing spatially dispersed fringes in light incident upon the wedge. A photographic mask having a pattern of lines corresponding to the pattern of fringes produced in light of known spectral content (e.g. light containing SO_2 absorption spectra) is positioned in the plane where the fringes are imaged, and a photodetector is positioned to receive light which has passed through the mask. Means is provided for sweeping the fringes back and forth across the lines of the mask and the existence of correlation is indicated electronically.

3,549,261
COLORIMETER APPARATUS
Clifford C. Hach, Box 907, Ames, Iowa 50010
Filed Mar. 16, 1965, Ser. No. 440,151
Int. Cl. G01j *3/46, 3/48*
U.S. Cl. 356—180 **4 Claims**



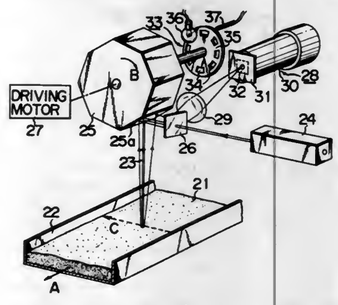
A dual beam photocell colorimeter having a pair of light-responsive electrical transducers arranged in parallel, with a series-connected electrical meter, is provided with means for adjusting the amount of light received by both transducers, and with a means for entirely preventing light from passing to one of the transducers. A sample-receiving zone is positioned in a light path from a source of light to the transducer having the positionable means. By regulation of the foregoing adjustments, the electrical meter is standardized for a reading corresponding to complete light absorption by a sample, and for a reading corresponding to no light absorption by a sample. The resulting meter readings are thus linear with light absorption. Components are protected against spillage of liquids and against electrical and optical aberrations by hermetically sealing the optical components.

3,549,262
APPARATUS FOR QUANTITATIVE ANALYSIS OF A PARTICULAR CONSTITUENT OF A SAMPLE
Keichiro Hozumi, 53–19 Izumigawa-cho, Shimogamo, Sakyo-ku, Kyoto, Japan
Filed Dec. 28, 1966, Ser. No. 605,266
Claims priority, application Japan, Dec. 29, 1965, 41/81,261, 41/81,262
Int. Cl. G01j *3/46;* **G01n** *21/12*
U.S. Cl. 356—181 **1 Claim**



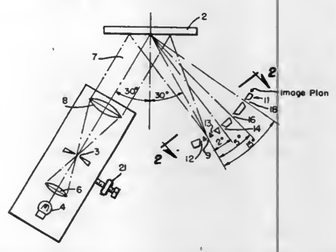
An absorption photometry apparatus for quantitative analysis. An elongated light absorption cell having a large length dimension relative to the diameter thereof is arranged between a filtered light source and a photoelectric light receiving apparatus. Means are provided to have the carrier fluid and sample flow through the elongated light absorption cell at a fixed slow speed and linger in the light absorption cell to allow diffusion of the sample throughout the carrier fluid. The photoelectric light receiving apparatus senses the variance in the transmission of light at the wave length dictated by the filter to measure both the total amount of the specimen and the constituent concentration of the specimen.

3,549,263
APPARATUS FOR DETECTING FOREIGN MATTERS MIXED WITH POWDERED OR GRANULAR MATERIALS
Hideo Osawa, Yokohama-shi, Masanori Imooka and Fukuo Taniguchi, Kawasaki-shi, and Sunao Yamashita, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed Jan. 21, 1969, Ser. No. 792,505
Claims priority, application Japan, Jan. 24, 1968, 43/3,702; May 6, 1968, 43/29,802
Int. Cl. G01n *21/16, 21/48*
U.S. Cl. 356—209 **6 Claims**



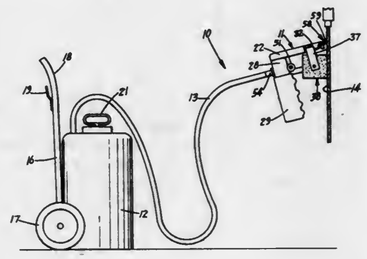
An apparatus for detecting foreign matters mixed with powdered or granular materials comprises means to convey the materials at a predetermined speed, a source of laser beam to emit parallel laser beams, scanning means including a rotatable reflecting member to cause the laser beam from said source to project upon the materials and to deflect portions of laser beams reflected from the material and passing through substantially the same path as the projected beam toward a predetermined direction, means to convert variations in the quantity of the light rays deflected by said scanning means into electrical signals and means responsive to said electrical signals to detect the presence of foreign matters.

3,549,264
INSTRUMENT FOR MEASURING THE GEOMETRIC ATTRIBUTES OF METALLIC APPEARANCE BY MEASURING LIGHT REFLECTED AT VARIOUS ANGLES FROM A SURFACE
John S. Christie, McLean, Va., assignor to Hunter Associates Laboratory, Inc., Fairfax, Va., a corporation of Virginia
Filed Nov. 13, 1968, Ser. No. 775,274
Int. Cl. G01n *21/48*
U.S. Cl. 356—210 **7 Claims**



A unitary instrument for providing quantitative values of surface appearance characteristics of bare metallic surfaces by measuring the geometric characteristics of reflectance related to appearance of such surfaces. The specific appearance attributes measured by the instrument are specular reflectance, distinctness of image, haze and diffuseness, all of the measurements being correlated within a single instrument having multiple light-receptor apertures and using fiber light-collector pipes to convey the light data to a single phototube which produces D.-C. output signals on a panel meter through solid state amplifier circuitry.

3,549,265
CLEANING APPARATUS
Francis E. Lorenz, Jr., 383 S. Brimhall, St. Paul, Minn. 55105
Filed Aug. 8, 1968, Ser. No. 751,118
Int. Cl. A47l *1/08*
U.S. Cl. 401—25 **10 Claims**



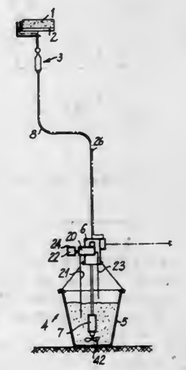
A combined washer and wiper unit having a T-shaped frame attached to a handle. A squeegee blade is secured to the top of the frame. Lateral arms adjustably mounted on the frame support a perforated tube carrying a sponge below the squeegee blade. A valve mounted on the handle is operable to control the flow of a cleaning fluid from a pressure tank to the tube and the sponge.

3,549,266
COSMETIC APPLICATOR
Martin M. Vasas, Fairfield, Conn., assignor to The Bridgeport Metal Goods Manufacturing Company, Bridgeport, Conn., a corporation of Connecticut
Filed Oct. 2, 1967, Ser. No. 672,306
Int. Cl. A46b *11/00*
U.S. Cl. 401—122 **9 Claims**



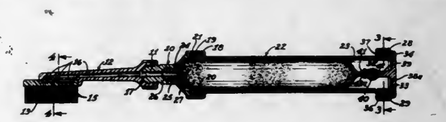
A cosmetic applicator including a reservoir for liquid cosmetic and a brush which is housed in the reservoir when not in use. The open end of the reservoir is closed by a soft diaphragm of a rubberlike material which has a concave conical shape and a central aperture. The size of the aperture and the softness of the diaphragm permit the brush to be inserted without substantial splaying of the bristles. As the brush is withdrawn, the diaphragm serves as a wiper to remove excess liquid cosmetic.

3,549,267
AUTOMATICALLY CONTROLLED COATING DEVICE
Joachim Franz Wurzer, Theodor Storm Str. 47; Rolf Werner Dohle, Paderborner Str. 11; and Wolfgang Werner Zaja, Woltmershauser Str. 200, all of 28 Bremen, Germany
Filed Apr. 24, 1968, Ser. No. 723,752
Claims priority, application Germany, Apr. 28, 1967, W 43,870
Int. Cl. B44d *3/28*
U.S. Cl. 401—147 **13 Claims**



A device for coating a surface with a fluid includes a source of fluid, a roller and flexible feeding pipe between the source and roller. The device also includes means for controlling the rate of flow for fluid to the roller in response to the speed of revolution of the roller.

3,549,268
TOOTHPASTE EJECTOR TOOTHBRUSH
James S. Casselman, 8232 E. Coolidge, Scottsdale, Ariz. 85251
Filed July 14, 1969, Ser. No. 841,218
Int. Cl. A46b *11/02*
U.S. Cl. 401—154 **4 Claims**

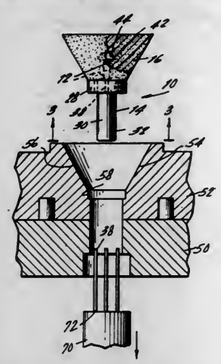


A toothbrush having a toothpaste supply in the handle which may be selectively fed to the bristles by rotating a control knob at the end of the handle, the supply of toothpaste being contained in a throwaway plastic bag container twisted to discharge its contents to the brush bristles.

3,549,269
FOAMED PLASTIC HEADED APPLICATOR AND METHOD OF MANUFACTURE
Gilbert Schwartzman, 20 Wilmot Circle, Scarsdale, N.Y. 10583
Filed Sept. 6, 1968, Ser. No. 757,818
Int. Cl. B43m *11/06*
U.S. Cl. 401—206 **4 Claims**

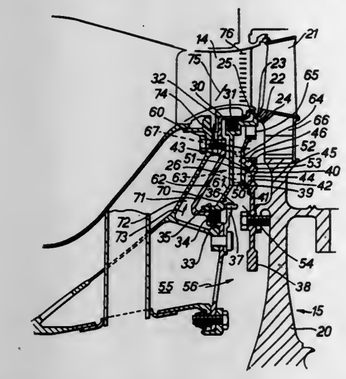
An applicator and method of manufacture which comprises the concept of inserting a rigid stem in a resilient

stretchable body. Core rods are inserted through the body and polyurethane foam is molded onto the stem and



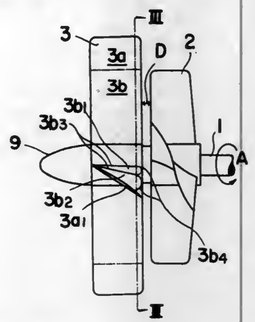
bonded to the body after which the core rods are removed to form the applicator.

3,549,270
SEALING DEVICE
James Alexander Petrie, Thomas Steel, Michael Poucher, Clifford John Franklin, and Denis McCarthy, Derby, England, assignors to Rolls-Royce Limited, Derby, England, a British company
Filed Jan. 10, 1969, Ser. No. 790,257
Claims priority, application Great Britain, Jan. 18, 1968, 2,744/68
Int. Cl. F01d *11/00;* **F03b** *11/00*
U.S. Cl. 415—112 **6 Claims**



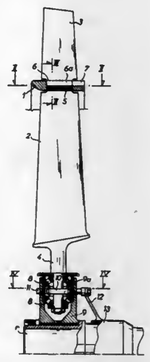
A sealing device comprises a stator, a rotor having a first part between which and the stator there is interposed a movable sealing member, the sealing member being sealed to the stator and defining a chamber therewith, a passage which is defined between the sealing member and the said first part of the rotor and which contains two restrictions with a space therebetween the size of the said restrictions varying with movement of the sealing member, and the said space communicating with the said chamber, the said passage extending between two areas of different pressures, and means for venting the said chamber, the sealing member having a portion which is spaced from said passage and which effects a seal with a second part of the rotor, the construction being such that the pressures acting on the sealing member urge the latter toward a position in which the said portion of the sealing member is slightly spaced from, but sealed to, the said second part of the rotor.

3,549,271
BACKFLOW RECOVERY PROPELLER DEVICE
Hidetsugu Kubota, 122 Kaizuka, Kameda-machi, Naka-Kanbara-gun, Niigata-ken, Japan
Filed Oct. 2, 1968, Ser. No. 764,575
Claims priority, application Japan, Oct. 12, 1967, 42/65,551
Int. Cl. B64c *11/48*
U.S. Cl. 416—124 **1 Claim**



A propeller device comprising a fixed main propeller and a freely rotatable backflow recovery propeller, both operated in the same direction on a common shaft. The recovery propeller has a collision surface for the backflow current of a high pitch and the opposite surface thereof is effectively of a low pitch. These two surfaces converge into a semicircular shaped leading edge whereby the blade thickness ratio of the backflow propeller progressively increases towards the end of the blade. Such a construction can substantially convert the backflow energy into a recovered propelling force.

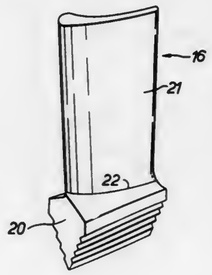
3,549,272
IMPROVEMENTS IN OR RELATING TO BLADING ARRANGEMENT FOR TURBOMACHINES
Louis Jules Bauger, Vanves, Jean Georges Bouiller, Brunoy, and Armand Jean-Baptiste Lacroix, Itteville, France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France, a company of France
Filed Dec. 10, 1968, Ser. No. 782,614
Claims priority, application France, Dec. 12, 1967, 131,915
Int. Cl. F01d *5/22*
U.S. Cl. 416—166 **3 Claims**



A blade ring, in particular for dual-flow turbomachines, in which each of the blades of the ring is made up of two sections connected with one another and arranged in

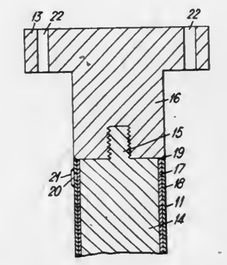
radial extension of one another, said sections cooperating, in the zone at which they are joined to one another, with an annular partitioning and stiffening element disposed coaxially with the machine axis.

3,549,273
BLADE FOR USE IN A FLUID FLOW MACHINE
Jack Raymond Bird, Chellaston, and Rodney Trenchard Bryant, Balsham, Cambridge, England, assignors to Imperial Metal Industries (Kynoch) Limited, Birmingham, England, and Rolls-Royce Limited, Derby, England, both British companies
Filed Nov. 14, 1968, Ser. No. 775,773
Claims priority, application Great Britain, Nov. 16, 1967, 52,261/67
Int. Cl. F01d *5/28*
U.S. Cl. 416—241 **2 Claims**



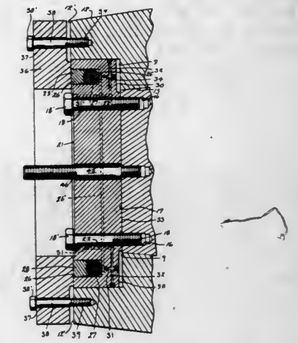
A gas turbine engine blade has its root and blade portions respectively made of different alloys having the same base metal such as niobium or titanium.

3,549,274
STIRRERS
Ronald Colgan Jewell, Ormskirk, England, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain
Filed Mar. 28, 1969, Ser. No. 811,302
Claims priority, application Great Britain, Apr. 2, 1968, 15,799/68
Int. Cl. C03b *5/18*
U.S. Cl. 416—224 **11 Claims**



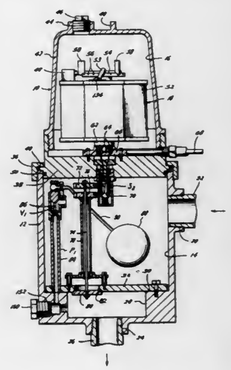
A stirrer for stirring molten glass comprises a molybdenum core coated with a refractory material and sheathed with platinum or a platinum alloy, and has the gas space between the molybdenum core and the platinum or platinum alloy sheath charged with a gas which is inert with respect to molybdenum, the refractory material and platinum or the platinum alloy. The gas space is evacuated to a pressure not exceeding 10^{-3} torr before being charged with the inert gas.

3,549,275
SHIP'S PROPELLER SECURING AND JACKING MEANS
Norman V. Laskey, Montreal, Quebec, Canada, assignor to Waukesha Bearings Corporation, Waukesha, Wis., a corporation of Wisconsin
Filed Nov. 14, 1968, Ser. No. 775,785
Int. Cl. B63h *1/20*
U.S. Cl. 416—245 **8 Claims**



To removably secure a ship's propeller on a tapered propeller shaft there is provided a securing plate adapted to be bolted to the end of said shaft and having jacking means in the form of a hydraulically-actuated annular piston for forcing said propeller into tight wedging engagement on said tapered shaft, and which plate can be removed and mounted in a reverse position for coaction with a withdrawing ring adapted to be bolted to the propeller hub to forcibly disengage and remove said propeller when desired, said securing plate fitting within a special recess in the propeller hub.

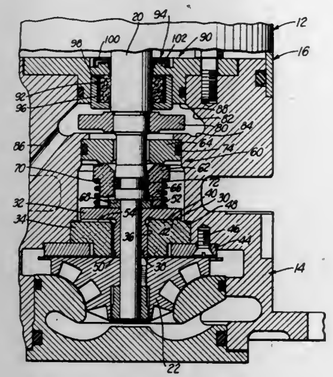
3,549,276
MECHANISM FOR CONTROLLING THE OPERATION OF PUMPS
James R. Walding, Jr., 241 Connie St., Houston, Tex. 77022
Filed Nov. 25, 1968, Ser. No. 778,587
Int. Cl. F04b *49/02;* **B67d** *5/54;* **H01h** *35/40*
U.S. Cl. 417—12 **6 Claims**



Control mechanism for use in the operation of pumps whereby operation of a pump is discontinued upon the occurrence of a non-flow condition to prevent continued

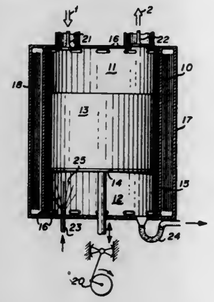
operation of the pump when no fluid is available for pumping and including means for periodically restarting the pump and continuing the operation thereof until the occurrence of non-flow conditions.

3,549,277
ELECTRIC MOTOR-DRIVEN ROTARY FUEL PUMP WITH WET CARBON BEARING
Nicholas de Kiss, North Hollywood, and Harris J. Howard, Granada Hills, Calif., assignor to DeLaval Turbine California Inc., Burbank, Calif., a corporation of California
Filed Mar. 17, 1969, Ser. No. 807,731
Int. Cl. F04d *13/02*
U.S. Cl. 417—321 **2 Claims**



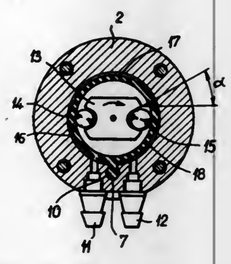
An electric motor-driven rotary fuel pump, or the like having a carbon bearing between the impeller and the main shaft seal thereof. With this construction, the carbon bearing is exposed to and lubricated by the fuel, or the like, pumped by the impeller. This wet carbon bearing carries both the radial loads and the thrust loads applied to the shaft by the various rotating components, including the armature, the impeller, and the like.

3,549,278
GAS COMPRESSION METHOD AND APPARATUS
Edward H. Giddings, 1811 Woodrow St., Wichita Falls, Tex. 76301
Filed Sept. 27, 1968, Ser. No. 763,425
Int. Cl. F04b *35/00*
U.S. Cl. 417—349 **18 Claims**



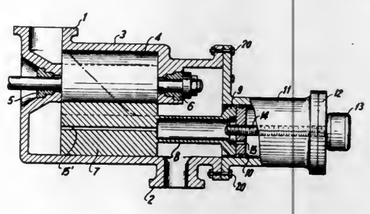
A gas compressor having a constant volume system including a closed cylindrical chamber with a displacement piston therein defining two variable volume spaces each of which is connected by ducting to an end of a thermal regenerator. An inlet check valve is provided through which gas at a given pressure and temperature is inducted, while transferring heat from the gas to the thermal regenerator, into a first variable volume space. Subsequent axial motion of the piston moves the gas from the first space back through the thermal regenerator, from which heat is transferred to the gas, to the second space. An outlet check valve is provided through which the reheated gas is exhausted from the system upon attaining a pressure greater than that at which inducted.

3,549,279
WINDSCREEN WASHER PUMPS
Pierre C. Grach, Saint-Quen, France, assignor to Stop, Saint-Quen, Seine St. Denis, France
Filed Jan. 6, 1969, Ser. No. 789,330
Claims priority, application France, Jan. 26, 1968, 137,677
Int. Cl. F04b *43/08*
U.S. Cl. 417—477 **2 Claims**



A pump applicable more particularly to windscreen washers of automotive vehicles, charatcerized in that the variable-volume capacities of the pump are created in an annular chamber having at least one elastic wall adapted to be engaged by members carried by the pump rotor and responsive to the centrifugal force so as to locally close an annular chamber and thus create two variable-volume capacities connected the one to the suction port and the other to the delivery port of the pump.

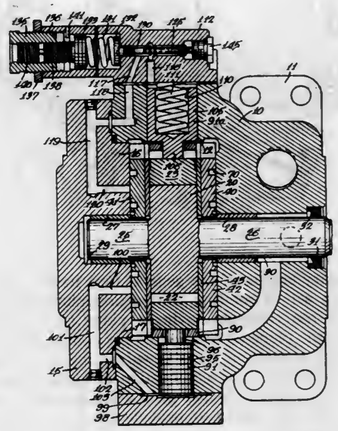
3,549,280
SCREW MACHINE
Hans Linneken, Bottrop, Germany, assignor to Gutehoffnungshutte Sterkrade Aktiengesellschaft, Oberhausen-Sterkrade, Germany
Filed Jan. 2, 1969, Ser. No. 788,511
Claims priority, application Germany, Jan. 3, 1968, 1,628,274
Int. Cl. F04c *29/10, 17/12*
U.S. Cl. 418—21 **6 Claims**



A rotary screw compressor or pump, or helical vane compressor, includes a housing having an inlet defined at one end of the compressor rotors and an outlet adjacent the outlet end. The slide is connected to a pressure

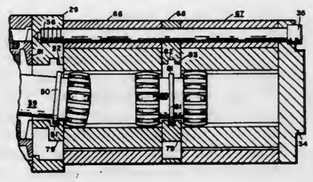
equalization piston which is charged by the exit or inlet pressure of the pump medium in a direction opposite to the charging of the slide.

3,549,281
VARIABLE VOLUME VANE TYPE PUMP
Richard R. Schink and Ernst F. Klessig, Racine, Wis., assignors to Rex Chainbelt Inc., a corporation of Wisconsin
Filed Dec. 3, 1968, Ser. No. 780,691
Int. Cl. F04c *15/04*
U.S. Cl. 418—31 **11 Claims**



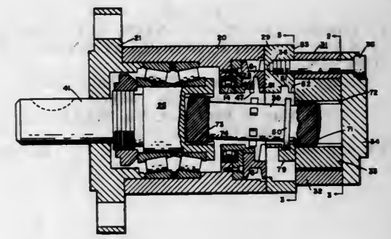
A variable volume vane type pump having a slotted rotor with vanes movably carried thereon and a control ring surrounding the rotor for controlling the position of the vanes with a pressure compensating control for the ring to establish the maximum pressure setting of the pump and with means for stabilizing the pressure compensating control including restricted passage means which tends to be self-cleaning connecting the outlet of the pump to a control piston which controls positioning of the ring. Additionally, a two stage control is disclosed including a settable pilot stage and a first stage including a control valve with a high rate spring to further stabilize the control.

3,549,282
FLUID PRESSURE DEVICE HAVING PLURALITY OF SETS OF STATOR-ROTOR MECHANISMS
George V. Woodling, 22077 W. Lake Road, Rocky River, Ohio 44116
Filed Feb. 18, 1969, Ser. No. 800,125
Int. Cl. F01c *1/10*
U.S. Cl. 418—60 **6 Claims**



Fluid pressure device having plurality of sets of stator-rotor mechanisms with each set including stator and rotor means having intermeshing teeth defining operating fluid chambers. The stator means has substantially a fixed axis and the rotor means has a movable axis disposed for orbital movement about the fixed axis and for rotational movement about its own axis. Division means separate the respective sets. Connection means are provided for holding the sets and the division means together in a side-by-side stacked relationship with the moveable axes of the rotor means in substantially axial alignment with each other, whereby operating fluid chambers of substantially instant like capacities are disposed in substantially straight longitudinal alignment with each other. The division means has fluid passage means extending therethrough and repsectively connect the aligned operating fluid chambers together. Valve system means controls the entrance of fluid to and the exit of fluid from the connected operating fluid chambers.

3,549,283
AXIAL LIMIT MEANS FOR MALE AND FEMALE SPLINE TEETH IN A FLUID PRESSURE DEVICE
George V. Woodling, 22077 W. Lake Road, Rocky River, Ohio 44116
Filed Feb. 18, 1969, Ser. No. 800,124
Int. Cl. F01c *1/10*
U.S. Cl. 418—61 **4 Claims**

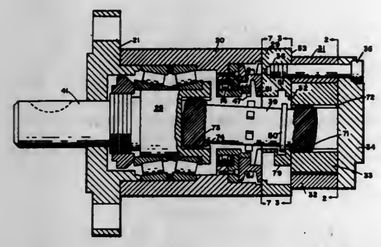


The fluid pressure device includes a stator-rotor mechanism and the axial limit means is especially adapted to limit the relative axial movement between male and female spline teeth which operate as connection means between an orbital shaft and rotor means in the stator-rotor mechanism. The axial limit means includes a side member held in facing relation to a side of said stator-rotor mechanism and disposed to sealingly engage a side of said rotor means. The side member includes inner aperture wall means constituting a shaft opening through which said orbital shaft extends. The orbital shaft and the inner aperture wall means have interengagement wall means axially abutting each other and limiting the relative axial movement between said male and female spline teeth.

3,549,284
SELF-TIMING MEANS FOR ROTARY VALVE IN FLUID PRESSURE DEVICE
George V. Woodling, 22077 W. Lake Road, Rocky River, Ohio 44116
Filed Feb. 18, 1969, Ser. No. 800,126
Int. Cl. F01c *1/10*
U.S. Cl. 418—61 **5 Claims**

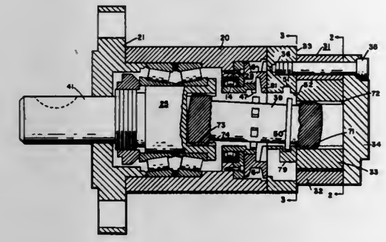
Self-timing means to insure correct timing of a rotary valve with respect to rotor means of a stator-rotor mechanism in a fluid pressure device. The stator-rotor mechanism includes stator means in which said rotor means is orbitally mounted. The self-timing means includes a stationary member to which said stator means may be mounted and an orbital shaft common to both said rotary valve and said rotor means. The shaft extends through a shaft opening in said stationary member. The

shaft opening has internal wall means therein confronted by external wall means on said orbital shaft to effect a confining wall relationship therebetween in successive order as said orbital shaft operates therein. The confining wall relationship self-locates the shaft with respect to the



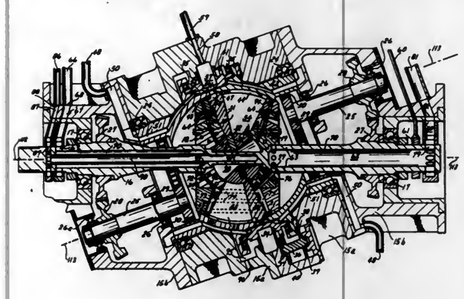
rotor means in substantially a correct timed-position, whereby the rotary valve is automatically self-timed with respect to said rotor means upon assembly of said rotor means on said self-located shaft and within said stator means for operation therein.

3,549,285
STATOR-ROTOR MECHANISM HAVING A POLYGON SHAFT AND POLYGON SHAFT OPENING
George V. Woodling, 22077 W. Lake Road, Rocky River, Ohio 44116
Filed Mar. 7, 1969, Ser. No. 805,272
Int. Cl. F01c *1/02*
U.S. Cl. 418—61 **12 Claims**



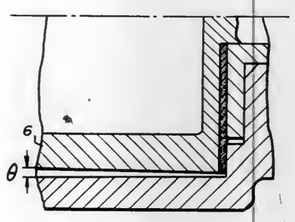
The stator-rotor mechanism includes stator and rotor means and a shaft having an operative connection with the rotor means. The operative connection of the shaft to the rotor means comprises female spline teeth in the rotor means and male spline teeth on the shaft. A rotary valve is disposed to control the entrance of fluid to and the exit of fluid from the stator-rotor mechanism. The stator and rotor means respectively have stator and rotor side face means disposed substantially in the same plane. A side member (stationary valve) has a face wall means held in facing relation to said stator and rotor side face means. The side member has a polygon shaft opening. The shaft has a shaft portion extending through the polygon shaft opening. The shaft portion has a polygon cross-section confronting the polygon shaft opening and effects a confining wall relationship therebetween which may be utilized to self-time the rotary valve relative to the rotor means. The polygon shaft portion is stronger than what an otherwise circular shaft portion would be for transmitting increased torque. Accordingly, the present invention provides for maximizing the size of the shaft at a place where the limitations arising from the geometry of the stator-rotor mechanism are the most demanding.

3,549,286
ROTARY ENGINE
Maurice J. Moriarty, 3225 W. Sahuaro Drive, Phoenix, Ariz. 85029
Continuation-in-part of application Ser. No. 381,866, July 10, 1964. This application June 22, 1967, Ser. No. 648,058
Int. Cl. F02b *53/00;* **F04c** *3/00*
U.S. Cl. 418—85 **23 Claims**



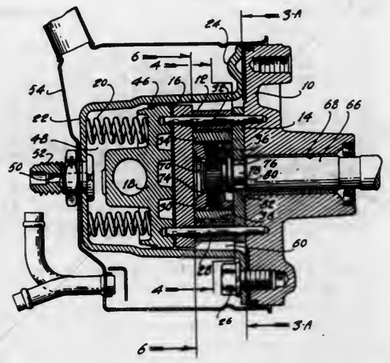
A rotary engine of the general type having a spherical casing, a set of rotating combustion chambers, and rotating piston elements having a plane of rotation at an angle to the plane of rotation of the combustion chamber elements. A rotating annular valve ring is provided circumferentially of the combustion chambers and rotates in the same direction but at a different speed from the combustion chambers to provide porting of intake and exhaust gases.

3,549,287
VANE PUMP
Touru Nakagawa, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan
Filed Apr. 30, 1969, Ser. No. 820,479
Claims priority, application Japan, May 4, 1968, 43/36,022
Int. Cl. F04c *17/00, 27/00;* **F01c** *19/00*
U.S. Cl. 418—107 **3 Claims**



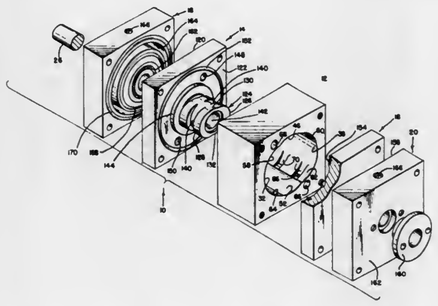
The invention discloses the improvement of a vane pump and particularly a vane pump of the type for use in supplying air to a portion just behind an exhaust valve of an internal-combustion engine of an automobile thereby reburning unburnt gas. A rotor whose axis of rotation is eccentric relative to the axis of a housing in which is disposed said rotor, is so formed that the diameter of it is gradually reduced from the end of said rotor to which is applied the driving force toward the opposite end thereof, whereby the contact of the peripheral surface of said rotor with the inner surface of the housing, that is a stripper land thereof during high speed rotation can be prevented without materially decreasing the resistance to air leakage.

3,549,288
POSITIVE DISPLACEMENT SLIPPER PUMP WITH FLANGELESS DRIVE SHAFT
Denver E. Nichols, Walled Lake, and John E. Wood, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Mar. 5, 1969, Ser. No. 804,592
Int. Cl. F04c *1/00*
U.S. Cl. 418—133 **8 Claims**



A positive displacement slipper pump comprising a rotor having arcuately spaced recesses with slippers mounted therein, a cam surrounding said rotor against which the slippers are slidably engaged, a drive shaft splined to the rotor, and a pressure plate registering with a pilot groove formed in said drive shaft, said pressure plate being eccentrically positioned with respect to the axis of the shaft thereby permitting registry between the shaft and the groove to prevent axial displacement of the shaft with respect to the rotor.

3,549,289
FLUID MOTOR
David G. Skagen, Rte. 2, Box 924, Shelton, Wash. 98584
Filed Apr. 3, 1969, Ser. No. 813,094
Int. Cl. F03c *3/00;* **F04c** *1/00, 29/00*
U.S. Cl. 418—239 **28 Claims**

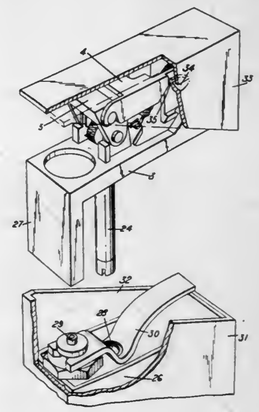


Reversible fluid motor and pump having a casing with a rotor cavity. The cavity includes working zones, sealing zones, and inlet-outlet zones. The rotor, mounted on a shaft, has radially disposed slots which receive vanes that are freely mounted for sliding movement in the slots. The vanes do not move relative to the rotor when progressing through a working zone or a sealing zone in the cavity. The casing has a closure head on each end to enclose the cavity, one of the heads including a vane guide means which projects into a recess in the rotor. The vane guide has guide surfaces which in conjunction with the zones or faces of the casing cavity positively move the free-mounted vanes. Outside of the heads are manifolds into which fluid is admitted or exhausted from the motor and which together with inlet-outlet ports in the heads direct fluid to and away from the inlet-outlet zones in the rotor cavity.

ERRATA

For Classes 105—376 thru 350—146 see:
Patent Nos. 3,549,291 thru 3,549,302

3,549,290
CIGARETTE LIGHTERS
William Retzler, Wickham, England, assignor to Tetra Molectric Limited, London, England, a British company
Filed Oct. 17, 1968, Ser. No. 768,294
Claims priority, application Great Britain, Nov. 6, 1967, 50,353/67
Int. Cl. F23q *2/16*
U.S. Cl. 431—274 **11 Claims**

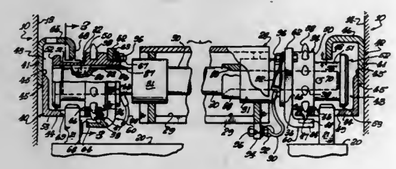


The invention relates to a cigarette lighter having a burner and an action comprising a flint wheel, an actuating member adapted to be moved backwards and downwards by thumb pressure, means connecting said actuating member to said flint wheel whereby said movement of said actuating member causes rotation of said flint wheel and a stream of sparks to be directed to ignite fuel at said burner, said connection means comprising an intermediate member and means pivotally connecting the front end of said actuating member to said intermediate member; the improvement comprises providing said actuating member in inner and outer parts, a return spring acting on said inner part to urge said actuating member to its rest position, means pivotally connecting said inner part to said intermediate member whereby said action is fully operational without said outer part, and means for securing said outer part over said inner part whereby said outer part serves to conceal said action and to transmit said operator's thumb pressure to said inner part to operate said action.

3,549,291
RETAINING STRUCTURE FOR LOAD DIVIDING GATE SUSPENSION

Paul W. Pettigrew, Seal Beach, Marion G. Konrad, Hacienda Heights, and John W. Erickson, Huntington Beach, Calif., assignors to Preco, Inc., Los Angeles, Calif., a corporation of California

Filed Apr. 15, 1968, Ser. No. 721,511
Int. Cl. B61d 45/00
U.S. Cl. 105—376 10 Claims



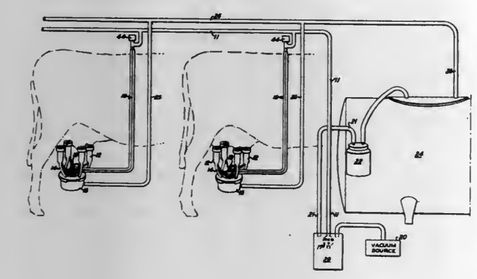
Conventional rail suspensions for load dividing gates in railway freight cars and the like are potentially capable of releasing the gate in case of failure of the normal sprocket retainer, failure of one or more sprocket teeth, or failure of the main suspension shaft.

The present support structure avoids those risks by positively trapping the shaft rollers between upper and lower rail flanges. The rail structure also typically acts as primary sprocket retainer, or retains the sprocket teeth in rail engagement if the conventional retainer should fail. Danger from shaft failure is avoided by coupling the gate to each of the trapped rollers via a normally slack cable or the like and a member journaled with respect to the roller.

3,549,292
PIPELINE MILKING SYSTEM

Lloyd P. Duncan, Washington, Mo., assignor to Zero Manufacturing Company, Washington, Mo., a corporation of Missouri

Application Oct. 12, 1965, Ser. No. 495,290, now Patent No. 3,406,663, dated Oct. 22, 1968, which is a continuation-in-part of application Ser. No. 398,192, Sept. 22, 1964. Divided and this application Mar. 20, 1968, Ser. No. 714,534
The portion of the term of the patent subsequent to Mar. 19, 1985, has been disclaimed
Int. Cl. A01j 5/04
U.S. Cl. 119—14.41 10 Claims

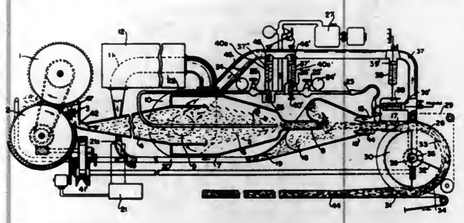


A milking system wherein a uniform vacuum is applied through a duct to the upper part of the claw of a milker and thence through short large bore vertical tubes to the teat cup whereby the cows teats are maintained at a constant vacuum during the milking operation.

3,549,293
METHOD AND DEVICE FOR FORMING A TOBACCO STRAND

Friedrich Wilde and Johannes Herrmann, Dresden, Germany, assignors to VEB Tabak- und Industriemaschinen Dresden, Dresden, Germany

Filed Sept. 26, 1966, Ser. No. 581,842
The portion of the term of the patent subsequent to Oct. 21, 1986, has been disclaimed
Int. Cl. A24c 5/18, 5/32
U.S. Cl. 131—21 16 Claims

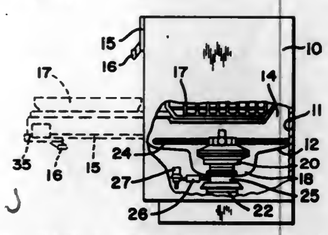


A method and apparatus for forming a continuous strand of tobacco. Shredded tobacco is introduced into an air stream which flows along a straight line, and the stream of tobacco is compacted and reduced in cross section while it flows along the straight-line path. The stream of compacted tobacco is then directed along part of a circle which is tangent to the straight-line path, and while flowing along this part of the circle, formed by a perforated rotary suction member, for example, the speed of flow of the tobacco is reduced. While flowing at the gradually reducing speed along part of the above circle, air is drawn through the tobacco to sense the characteristics of the stream, and in accordance with this latter sensing trimming of excess tobacco takes place along the straight-line path. This trimming is derived by a counter-current air stream which removes excess tobacco.

3,549,294
AUTOMATIC DISHWASHING MACHINE WITH SOAK CYCLE

Robert R. Kerr and Ben J. Vallor, Troy, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio, a corporation of Ohio

Filed Mar. 25, 1970, Ser. No. 22,578
Int. Cl. B08b 3/02
U.S. Cl. 134—58 10 Claims

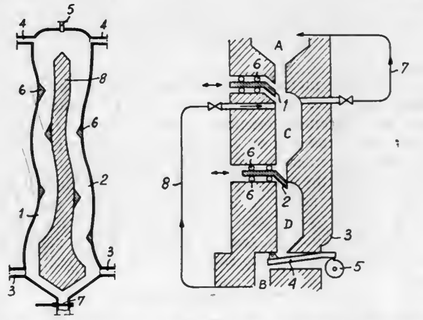


A tank defines a wash chamber in which racks are positioned for supporting articles having baked-on food soils. A motor driven timer system automatically controls the mechanical components of the machine including a fill valve for supplying water to the chamber, a wash pump for recirculating and spraying the water onto the articles and a drain pump for removing the water, according to a plurality of selectable predetermined cycles. One of the selectable cycles consists of a soak cycle where the water is combined with a cleaning compound to form a cleaning solution which is sprayed onto the articles. The wash pump is then deenergized for approximately twelve minutes to effect static soaking of the solution into the baked-on food soils on the articles. Following the soak period, the wash pump is reenergized along with the drain pump to flush the food soils from the articles and to remove the soils from the chamber with the solution. This soak period is followed by pre-rinse, wash, rinse and dry periods which may also be selected without the soak period.

3,549,295
MEANS FOR EXCHANGING HEAT BETWEEN GASEOUS AND/OR VAPOROUS AND/OR LIQUID AND/OR SOLID MEDIA AND SMALL HEAT-CARRIER PARTICLES AND THEIR APPLICATIONS FOR CARRYING OUT PHYSICO-CHEMICAL PROCESSES

Zsigmond de Galocsy, Toulon, and Jean Prunet, Paris, France, assignors to Finacalor Aktiengesellschaft, Vaduz, Liechtenstein, a society of Liechtenstein

Filed July 7, 1966, Ser. No. 563,535
Claims priority, application Great Britain, July 9, 1965, 29,274/65
Int. Cl. B01j 1/14; F28d 21/00
U.S. Cl. 165—106 3 Claims



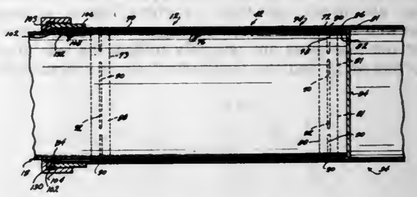
Apparatus for effecting heat heat exchange between a fluid and a heat exchange vehicle in the form of particulate material comprises a pair of heat exchangers arranged one above the other in interconnected relationship, the upper exchanger having a chamber within which a core is disposed to provide an annular space into which fluid can be introduced through an inlet and from which space it can be withdrawn to an outlet, the heat exchange vehicle being introduced into the annular space in contact with the fluid while obstacle means are provided in the annular space to cause local turbulence in the fluid. Lock means are provided for effecting transfer of the heat exchange vehicle from the upper exchanger to the lower exchanger while the two exchangers are operating at different pressures the lock means comprising a lock chamber containing a quantity of the heat exchange vehicle, a pair of sluices for opening the lock chamber and control valve means operable to admit the vehicle into the chamber.

3,549,296
LINEAR-TYPE ENERGY ABSORBER HAVING MEANS FOR ABSORBING ENERGY IN A NON-AXIAL DIRECTION

Bernard Mazelsky, West Covina, Calif., assignor to Ara, Inc., a corporation of California

Continuation-in-part of application Ser. No. 558,317, June 17, 1966. This application Jan. 22, 1968, Ser. No. 699,533
The portion of the term of the patent subsequent to Feb. 20, 1985, has been disclaimed
Int. Cl. F16f 7/12
U.S. Cl. 188—1 3 Claims

An inner member is telescopically e gaged in an outer member having cycling and energy absorbing means operatively associated therewith for absorbing energy by deformation and reverse deformation in response to mechanical energy transmitted thereto by at least one of the members. Bushing means is positioned in the open



end of the outer member and encompasses the inner member for reducing sliding friction between the members and for absorbing energy in a non-axial direction by deformation of said bushing means.

3,549,297
STANDARD REFERENCE REAGENT PACKAGE

Roland J. Starkey, Jr., North Canton, Ohio, assignor to Ben Venue Laboratories, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Original application Mar. 31, 1966, Ser. No. 538,973, now Patent No. 3,449,885, dated June 17, 1969. Divided and this application Sept. 9, 1968, Ser. No. 758,627
The portion of the term of the patent subsequent to June 18, 1986, has been disclaimed
Int. Cl. B65d 85/00
U.S. Cl. 206—46 9 Claims

Method of providing a plurality of vials or packages of viral antisera or reagent from a common lot, each of which has a uniform, homogenous equal content and moisture content and a long shelf life, in lasting compliance with and adherence to the required standard and specifications, by treating the batch or lot of viral antiserum or reagent to be packaged or vialed in bulk by freeze drying (lyophilize) the same, if necessary, pulverizing or grinding the dried serum to a uniform size and consistency, vacuum drying the bulk lot of powdered serum, with stirring or agitation, if desired, to obtain a lot of serum having a uniform, homogenous, moisture content, powder filling the separate vials or packages of the lot under sterile, moisture free conditions to a uniform fill and content, and sealing the separate vials or packages with a dry moisture free and proof seal.

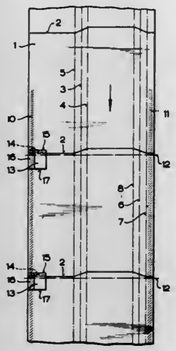
3,549,298
PLASTIC VALVED BAG

Friedrich Franz Brockmüller, Lengerich, Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

Original application Sept. 11, 1967, Ser. No. 666,775, now Patent No. 3,472,130, dated Oct. 14, 1969. Divided and this application Apr. 30, 1969, Ser. No. 840,575
Claims priority, application Germany, Sept. 21, 1966, W 42,449; Jan. 25, 1967, W 43,223
Int. Cl. B65d 31/14
U.S. Cl. 229—62.5 1 Claim

Continuous, transverse lines of weakness are formed in a single-ply web of plastics material and are relatively staggered in the longitudinal direction of the web on those web portions which are intended to form the forward and rear walls of the bags. A continuous band of adhesive is applied in the longitudinal direction along one edge of the web on one side of the sheeting and an adhesive coating is provided on the other side of the sheating along the other edge of the web at least in each area to be occupied by a valve. Valve patches of plastics material are reversely folded about a fold line extend-

ing at right angles to the longitudinal direction of the web and are applied to the adhesive coatings in such a manner that the edges of such patches on one side thereof are aligned with the side edge of the web and the free end edges of their two plies are staggered relative to each other and to the associated transverse line of weakness. The web is formed into a tubing having side gussets in that the side parts are reversely folded, the side gussets are tucked in and the longitudinal edges are adhesively



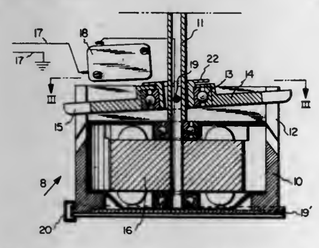
joined. Tube sections are torn along the lines of weakness from the tubing having side gussets. The ends of the tube sections are provided on the staggered side with an adhesive coating which extends over the inside of the longer ply and the outside of the shorter ply. The two plies of the tube section are reversely folded about fold lines which are closely spaced from the free edge of the shorter ply and the reversely folded portions are adhesively joined to the outside of the shorter ply.

3,549,299

METHOD FOR STORING YARN FOR THE IMMEDIATE NEED OF YARN OF KNITTING MACHINES

Karl Isac Joel Rosén, Villagatan 39–41, Ulricehamn, Sweden

Original application Apr. 27, 1967, Ser. No. 634,179, now Patent No. 3,419,225, dated Dec. 31, 1968. Divided and this application Nov. 1, 1968, Ser. No. 772,592
Claims priority, application Sweden, Mar. 22, 1967, 3,994/67
The portion of the term of the patent subsequent to Dec. 31, 1985, has been disclaimed.
Int. Cl. B65h *51/20*
U.S. Cl. 242—47.12 **4 Claims**



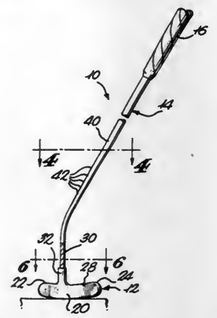
The present invention relates to a method for holding a yarn reserve ready for the immediate yarn need in knitting machines such that the yarn is fed with a very small and practically constant tension to the knitting place irrespective of the remaining quantity of yarn on the yarn cone. The quantity of yarn on the spool body controls the rotation of the spool body.

3,549,300

GOLF CLUB WITH USER ALIGNING MARKS

David T. Pelz, 13129 Oriole Drive, Beltsville, Md. 20705

Filed July 11, 1967, Ser. No. 652,465
The portion of the term of the patent subsequent to Aug. 19, 1986, has been disclaimed
Int. Cl. A63b *53/00*
U.S. Cl. 273—162 **7 Claims**



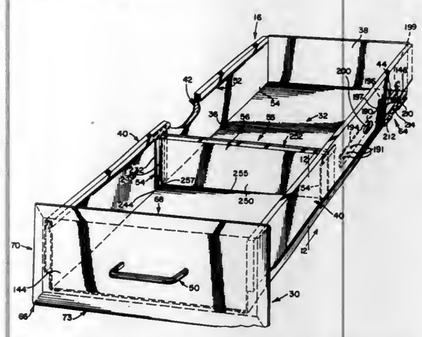
A golf club includes a shaft extending upward and toward the golfer from adjacent the toe portion of the head and alignment members formed on the top portion of the club head and on a portion of the club shaft, these alignment members being visually alignable with one another so that the golf club can be properly aligned with respect to the golfer in a direction fore and aft of the line of the stroke as well as perpendicular to the line of the stroke so that the relative position of the golfer and the golf club will be the same each time the golf club is used.

3,549,301

DRAWER CONSTRUCTION

Everett K. Harris, Geneva, John P. Ericson, St. Charles, and Richard E. Miller, Aurora, Ill., assignors to All-Steel Equipment Inc., a corporation of Illinois

Original application Oct. 30, 1969, Ser. No. 871,350. Divided and this application July 22, 1968, Ser. No. 746,609
Int. Cl. A47b *88/04*
U.S. Cl. 312—330 **15 Claims**



The disclosure relates to a drawer construction for office furniture units, such as desks, in which the drawer is made from sheet metal components, including a body member of generally U-shaped transverse cross-sectional configuration defining a drawer bottom and sides, a rear panel, and a special fabricated front made of a stamped or drawn front piece and liner secured together by a press forming operation to form a mitered border along the front of the drawer that avoids machining for smooth-

ness. The side walls of the drawer each have secured to same a side panel member that makes the sides of a double wall construction and hides brackets and the like which secure the drawer front to the drawer and houses a drawer stop device on either side of the drawer. The side panels are shaped to avoid all possible ledges, cracks, and the like that could accumulate dust, and to give the drawer as clean an appearance as possible. Associated with the drawer is a novel clip and divider arrangement that removably mounts the divider within the drawer.

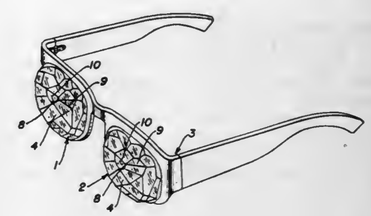
3,549,302

IMAGE DISSECTING AND MODIFYING LENSES FOR SPECTACLES

Richard Fraige, Alameda, Calif., assignor to C & F Products, Inc., San Francisco, Calif., a corporation of California

Filed Mar. 26, 1968, Ser. No. 716,031
The portion of the term of the patent subsequent to Dec. 3, 1982, has been disclaimed
Int. Cl. G02b *25/00*
U.S. Cl. 350—146 **4 Claims**

A lens for the right eye and a lens for the left eye in a spectacle frame; the lenses are formed of clear or colortinted, transparent material such as Lucite. The outside face of each lens is formed with 21 primary facets converging toward one another. The facets are of a variety of shapes so that each facet reproduces its own image and



each image is refracted in such a way that several images are seen simultaneously, depending on the viewing position of the object, and thereby a kaleidoscopic effect is produced.

CHEMICAL

3,549,303

NITRO-PARAPHENYLENEDIAMINE DERIVATIVE AND DYEING KERATINIC FIBERS THEREWITH

Gregoire Kalopissis, Paris, and Andrée Bugaut, Boulogne-sur-Seine, France, assignors to L'Oreal, Paris, France

No Drawing. Filed Apr. 21, 1966, Ser. No. 544,094
Claims priority, application France, Apr. 26, 1965, 48,468
Int. Cl. A61k *7/12*
U.S. Cl. 8—10.1 **5 Claims**

1-amino - 2 - nitro-4-(2'-hydroxyethyl)-methylaminobenzene, a new compound, is used to dye keratinic fibers, especially living human hair.

3,549,304

LEATHER DYEING AND COATING WITH A RESIN DYE COPOLYMER OF AN N-METHYLOLACRYLAMIDE AND AN ALKYL ACRYLATE

Friedrich Ebel, Mannheim, Klaus Gulbins, Ludwigshafen (Rhine), Erwin Hahn, Viernheim, Hesse, Guenter Lange, Ludwigshafen (Rhine), Rudolf Schubert, Limburgerhof, Pfalz, and Hans Wilhelm, Hans Wolf and Lothar Wuertele, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation-in-part of application Ser. No. 352,673, Mar. 17, 1964. This application Apr. 24, 1968, Ser. No. 723,912
Claims priority, application Germany, Mar. 21, 1963, 1,285,444
Int. Cl. D06p *3/32*
U.S. Cl. 8—12 **3 Claims**

Process of simultaneous dyeing and finishing of leather by applying thereto an aqueous dispersion of a colored addition copolymer obtained by the addition polymerization of a dye bearing at least one copolymerizable olefinically unsaturated group with at least one other polymerizable compound capable of yielding a transparent, adherent polymer coating on leather. For example, the leather may be finished with an aqueous dispersion of a yellow addition copolymer prepared from a yellow azo dye bearing a polymerizable N-acrylamino group, butyl acrylate, ethyl acrylate, acrylic acid and N-methylolacrylamide. The resulting finish imparts a level color to the leather and permits the leather grain to remain visible.

3,549,305

AROMATIC POLYESTER FIBER DYED WITH DISAZO DYESTUFF

Edgar E. Renfrew and Dominic A. Zanella, Lock Haven, Pa., assignors to American Aniline Products, Inc., a corporation of Delaware

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,067
Int. Cl. D06p *3/12*
U.S. Cl. 8—41 **6 Claims**

Polyester fabric is dyed with disazo dyestuffs, made by coupling an appropriate diazotized aminoazobenzene into esterified 2,2'-(phenylimino)diethanol. The disazo dyes, when appropriately dispersed, produce dyeings on aromatic polyester fabrics with excellent substantivity and sublimation fastness and good fastness to light. They are applied to polyesters, such as polyethylene terephthalate, by carrier dyeing, pressure dyeing, and thermofixation techniques.

3,549,306

SURFACE MODIFIED NYLON FIBERS PRODUCED BY PHOTOCATALYZED HALOGENATION

Herbert N. Friedlander, Raleigh, and Virginia C. Menikheim, Chapel Hill, N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Jan. 6, 1966, Ser. No. 518,979
Int. Cl. D06c *1/08;* **D06m** *3/30*
U.S. Cl. 8—115.5 **8 Claims**

Nylon fibers are treated with chlorine, bromine, iodine or mixtures thereof and subjected to irradiation with light having wavelengths in the range of about 3000 to 4000 angstroms to improve the surface wettability thereof.

3,549,307

TREATMENT OF THERMALLY STABLE SHAPED ARTICLES WITH HALIDES AND OXY-HALIDES OF GROUPS IV, V, and VI ELEMENTS

Stephen S. Hirsch, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Oct. 12, 1967, Ser. No. 674,735
Int. Cl. D06m *9/00*
U.S. Cl. 8—115.5 **16 Claims**

A process for the conversion of thermally stable shaped articles derived from wholly aromatic polyamides into dimensionally stable fireproof products which involves a

constructive heat treatment at elevated temperatures in an atmosphere containing halides and/or oxy-halides of Group IV, V and VI elements under carefully controlled conditions.

3,549,308
REGENERATED CELLULOSE FILAMENTS HAVING HIGH RESILIENCY

Mary E. Carter, Philadelphia, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Dec. 7, 1966, Ser. No. 601,287
Int. Cl. D06m *13/12, 13/34*
U.S. Cl. 8—116.3 **5 Claims**

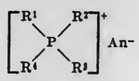
Stretch oriented, wet-gel rayon filaments having a skin-core structure, are treated with a cross-linking agent and cured to improve resiliency.

3,549,309
PHOSPHONIUM MODIFIED POLYMERS AND PROCESS OF MAKING THEM

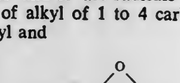
Richard N. Ring, Wood-Ridge, N.J., and Andrew Oroslan, Elmhurst, and Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignors to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 23, 1966, Ser. No. 542,187
Int. Cl. D06m *13/00, 13/46*
U.S. Cl. 8—120 **20 Claims**

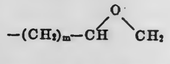
1. The phosphonium modified polymer obtained by reacting an active hydrogen-containing polymer with a quaternary phosphonium compound of the formula:



wherein R^1, R^2, R^3 and R^4 are radicals selected from the group consisting of alkyl of 1 to 4 carbons, phenyl, hydroxymethyl, vinyl and



wherein m is an integer of from 1 to 18, at least two of R^1, R^2, R^3 and R^4 being selected from the group consisting of hydroxymethyl,



and vinyl and at least one being vinyl, and wherein An^- is an anion.

3,549,310
METHOD FOR MERCERIZING STRETCHABLE CORE SPUN YARNS

Walter A. Gardner, 506 Piccadilly Circle, Gastonia, N.C. 28052

Continuation-in-part of application Ser. No. 550,526, May 16, 1966. This application July 29, 1966, Ser. No. 568,791
Int. Cl. D06m *1/02;* **D02g** *3/36*
U.S. Cl. 8—125 **6 Claims**

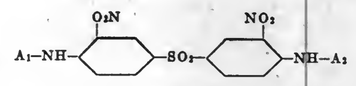
Core-spun yarns of stretchable core yarns and sheathes of stable fibers are continuously drawn from yarn packages at a rate of approximately 150 to approximately 375 yards per minute by driven rolls. The continuously moving yarn is subjected to a drag working against the driven rolls to tension the yarn and maintain the tension at approximately 80 percent of that which the yarn is capable of withstanding without breaking. The continuously moving tensioned yarn passes through a mercerizing solution and then a neutralizing solution before being dried and packaged.

3,549,311
NITRODIPHENYLAMINE DISPERSE DYES

Hans Alfred Stingl, Brookside Heights, Toms River, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J., a corporation of Delaware

No Drawing. Filed July 10, 1968, Ser. No. 743,629
Int. Cl. D06p *3/52*
U.S. Cl. 8—179 **6 Claims**

Nitrodiphenylamine compounds of the formula



in which A_1 and A_2 can be the same or different and are selected from the group consisting of cyclohexyl, methoxypropyl and a phenyl radical of the formula

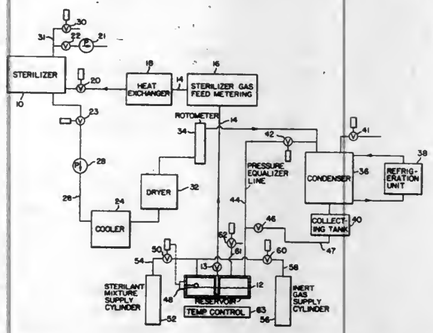


where n is 0, 1, 2 or 3 and R is hydrogen, lower alkyl, such as methyl, ethyl, propyl or butyl, hydroxy lower alkyl, lower alkoxy, such as methoxy, ethoxy, propoxy or butoxy, hydroxy lower alkoxy, halogen such as chlorine or bromine, trifluoromethyl or acylamino, such as acetylamino, carbamoyl or sulfamoyl, are yellow dyestuffs particularly suitable for the dyeing and printing of synthetic fibers, especially polyester fibers.

3,549,312
PROCESS AND APPARATUS FOR RECOVERING STERILIZATION GAS FOR REUSE

Robert R. Ernst, Rochester, N.Y., assignor to Sybron Corporation, a corporation of New York

Filed May 6, 1968, Ser. No. 726,974
Int. Cl. A61l *3/00, 13/00*
U.S. Cl. 21—58 **9 Claims**



A process and apparatus for sterilizing an object (e.g. material and/or equipment) with a gaseous sterilizing agent wherein the gaseous sterilizing agent (e.g., an alkylene oxide) is recovered from the sterilizing chamber for reuse in subsequent sterilizing operations.

3,549,313
COMPOSITION AND METHOD FOR RETARDING EVAPORATION OF WATER

George W. Eckert, Wappingers Falls, and William A. McDonald, Newburgh, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 4, 1969, Ser. No. 830,540
Int. Cl. B01j *1/18;* **C09k** *3/00*
U.S. Cl. 21—60.5 **10 Claims**

A method and composition for retarding evaporation of water from reservoirs, lakes and the like, wherein the composition consists of a mineral lubricating oil, trimer or dimer acid, a spreading agent and a petroleum or natural wax.

3,549,314
OXIDATION OF BLACK LIQUOR

Indravadan S. Shah, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y., a corporation of Delaware

Filed May 20, 1968, Ser. No. 730,294
Int. Cl. C01d *5/00*
U.S. Cl. 23—49 **6 Claims**

Black liquor is oxidized in a sinuous pipe or duct oxidizer, by dispersing an oxygen-containing gas into the continuous black liquor phase flowing within the duct. The gas is passed into the black liquor at spaced intervals, and the resulting dispersion of gas in oxidized black liquor is discharged into a vessel or other container below the level of the body of liquor in the vessel. Fully oxidized black liquor is removed from the vessel at a regulated rate, so as to maintain the level of liquor in the vessel, and oxygen-depleted gas is also removed from the vessel. The oxygen-depleted gas removed from the vessel may contain residual foam or entrained liquid droplets. In this case, the gas is passed through a mechanical foam breaker or a cyclonic gas-liquid separator, with separated black liquor being recycled to the vessel.

3,549,315
COMPLEX OXIDIC COMPOUNDS AND PROCESS FOR THEIR PRODUCTION

Fred F. Lester, Box 449, and Arvel O. Franz, Box 465, both of Cartersville, Ga. 30120

Continuation-in-part of application Ser. No. 149,507, Nov. 2, 1961. This application Jan. 12, 1967, Ser. No. 608,789
Int. Cl. C01f *11/00;* **C22b** *59/00;* **C04b** *35/26*
U.S. Cl. 23—51 **10 Claims**

The problems associated with manufacture of complex oxidic compounds such as ferrites, titanates and the like are discussed.

3,549,316
ZINC BORATE OF LOW HYDRATION AND METHOD FOR PREPARING SAME

Nelson P. Nies, Laguna Beach, and Richard W. Hulbert, Garden Grove, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada

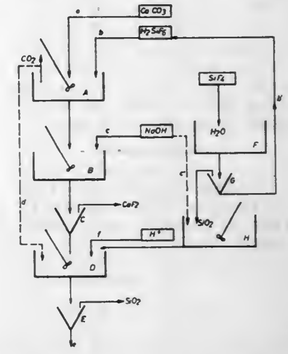
No Drawing. Filed June 26, 1967, Ser. No. 648,968
Int. Cl. C01b *25/00*
U.S. Cl. 23—59 **12 Claims**

A crystalline zinc borate having the approximate composition $2ZnO \cdot 3B_2O_3 \cdot 3.5H_2O$, and the preparation of the zinc borate. Preparation of the zinc borate is accomplished by reacting boric acid and an inorganic zinc compound in an aqueous medium at temperatures above about 70° C.

3,549,317
PROCESS FOR UTILIZING FLUOROSILICIC ACID

Ludwig Dorn, Cologne-Stammheim, and Ernst Podschus, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

Filed July 17, 1968, Ser. No. 745,621
Claims priority, application Germany, Aug. 12, 1967, F 53,223
Int. Cl. C01f *11/22;* **C01b** *33/18*
U.S. Cl. 23—88 **11 Claims**

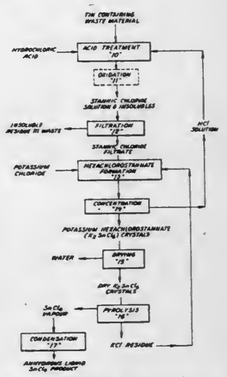


Process for the production of a silica filler having a specific surface area of about 50–200 m.²/g. and a calcium fluoride precipitate utilizing a solution of H_2SiF_6 and/or Na_2SiF_6.

3,549,318
PRODUCTION OF TIN TETRACHLORIDE

Philip Rosenblum, Downsview, Ontario, Canada, assignor to M&T Products of Canada Limited, Hamilton, Ontario, Canada, a company

Filed Jan. 17, 1969, Ser. No. 792,092
Int. Cl. C01g *19/04, 19/08*
U.S. Cl. 23—98 **17 Claims**



A process for recovering anhydrous tin tetrachloride from a solution of stannic chloride by reacting the stannic chloride in solution with potassium chloride to form potassium hexachlorostannate, recovering the hexachlorostannate as dry crystals, pyrolyzing the crystals to form tin tetrachloride and condensing the tetrachloride to form liquid anhydrous tin tetrachloride.

3,549,319
PRODUCTION OF ALKALI METAL SULFITES OR BISULFITES

William J. Wilson, Vancouver, British Columbia, and Bejoy S. Das, Toronto, Ontario, Canada, assignors to Fraser Companies Limited, Edmundston, New Brunswick, Canada

Filed May 6, 1968, Ser. No. 726,792
Int. Cl. C01d 5/14
U.S. Cl. 23—129 24 Claims

Alkali metal sulfites and bisulfites are prepared from alkali metal salts of inorganic acids by first reacting an organic carbonyl compound with sulfurous acid to produce the α-hydroxysulfonic acid corresponding to the carbonyl compound. This α-hydroxysulfonic acid is next reacted in aqueous medium with an alkali metal salt of an inorganic acid under such conditions that the alkali metal salt of the α-hydroxysulfonic acid produced is separated from the medium. The alkali metal salt of the α-hydroxysulfonic acid is then separated and decomposed to produce the alkali metal sulfite or bisulfite.

3,549,320
REGENERATION OF ACID

Charles Levi Isbell, Jr., Charleston, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Original application Mar. 3, 1964, Ser. No. 349,536. Divided and this application Feb. 6, 1968, Ser. No. 724,303
Int. Cl. C01b 17/92
U.S. Cl. 23—168 3 Claims

This invention relates to a cyclic process for the production of methyl methacrylate by the reaction of acetone cyanohydrin with sulfuric acid and methanol in which sulfuric acid is regenerated from a waste stream containing ammonium sulfate and recycled for reaction with additional acetone cyanohydrin.

3,549,321
REMOVAL OF IRON FROM SOLUTION

Peter Kenneth Everett, Toronto, Ontario, Canada, assignor to Union Carbide Canada Limited, Toronto, Ontario, Canada, a company of Canada

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,291
Int. Cl. C01g 49/02
U.S. Cl. 23—200 7 Claims

Iron is removed from an aqueous solution such as an ore leaching solution by precipitating the iron as hydrated ferric oxide. The iron in solution is converted to ferrous ion and the pH adjusted to between 2.0 and 5.0. The ferrous ions are adsorbed on particles of manganese dioxide and subsequently oxidized in accordance with the equation:

$$2Fe^{++}+MnO_2+2H_2O \rightarrow Fe_2O_3 \cdot H_2O+Mn^{++}+2H$$

The resulting ferric oxide and unreacted manganese dioxide are easily removed from solution.

3,549,322
PROCESS FOR THE MANUFACTURE OF ACICULAR RUTILE PIGMENTS FROM HYDROCHLORIC ACID TITANIUM CHLORIDE SOLUTIONS

Edgar Klein, Odenthal, Achim Kulling, Opladen, and Helmut Steinhausen, Odenthal, Germany, assignors to Titangesellschaft m.b.H., Leverkusen, Germany, a corporation of Germany

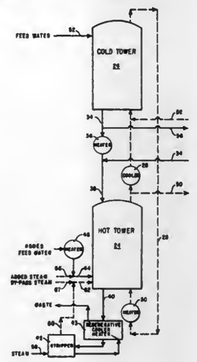
No Drawing. Filed Feb. 3, 1969, Ser. No. 796,145
Claims priority, application Germany, Feb. 17, 1968, 1,667,858
Int. Cl. C01g 23/06, 23/08
U.S. Cl. 23—202 2 Claims

The invention covers a process for the manufacture of acicular and star-shaped rutile pigments from hydrochloric acid-titanium chloride solutions in which the hydrochloric acid-titanium chloride solution is hydrolyzed in the presence of a titanium nuclei and in a particular manner; and the titanium hydrate formed is calcined in the presence of growth-retarding compounds to form acicular and star-shaped rutile pigments.

3,549,323
DUAL TEMPERATURE ISOTOPE EXCHANGE PROCESS

Dale F. Babcock, Wilmington, Del., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 16, 1968, Ser. No. 721,676
Int. Cl. B01j 1/00; C01b 5/02
U.S. Cl. 23—204 4 Claims

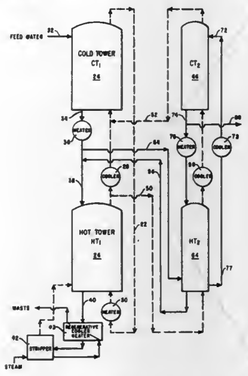


A liquid and a gas each containing a desired isotope flow countercurrently through two liquid-gas contacting towers. The towers are maintained at different temperatures to enrich the liquid in the isotope at one temperature and the gas in the isotope at the other temperature. Liquid, having the natural concentration of the desired isotope, is fed into the top of the tower in which the liquid is enriched, and as an additional feed into the lower portion of the tower in which the gas is enriched. The latter feed results in a significant increase in productivity.

3,549,324
DUAL TEMPERATURE ISOTOPE EXCHANGE PROCESS

Dale F. Babcock, Wilmington, Del., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 16, 1968, Ser. No. 721,674
Int. Cl. C01b 5/02; B01j 1/00
U.S. Cl. 23—204 3 Claims

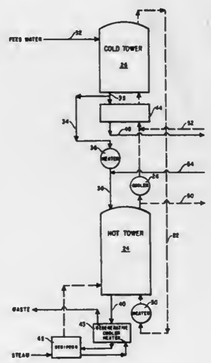


Liquid and gas containing a desired isotope flow countercurrently through two liquid-gas contacting towers in each stage of a multiple stage process. The towers are maintained at different temperatures to enrich the liquid in the isotope at one temperature and the gas in the isotope at the other temperature. Enriched liquid or gas is fed from a first to a subsequent stage into a tower operated to enrich the respective fluid. Enriched liquid from a first stage is also fed into the lower portion of a subsequent stage tower operated to enrich the gas in the isotope.

3,549,325
DUAL TEMPERATURE ISOTOPE EXCHANGE PROCESS

Dale F. Babcock, Wilmington, Del., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 16, 1968, Ser. No. 721,675
Int. Cl. C01b 5/02; B01j 1/00
U.S. Cl. 23—204 3 Claims



A liquid and gas each containing a desired isotope are made to flow countercurrently through two liquid-gas contacting towers. The towers are maintained at different temperatures to enrich the liquid in the isotope at one temperature and to enrich the gas in the isotope at the other temperature. A portion of the enriched liquid is contacted with the full flow of the enriched gas at a temperature suited for further enriching the liquid. This liquid portion is thereafter withdrawn as product of the process or as feed to a subsequent stage.

3,549,326
SPECTROCHEMICAL ANALYSIS WITH WATER VAPOR ADDED

Ralph L. Dahlquist and James L. Jones, Santa Barbara, Calif., assignors to Applied Research Laboratories, Inc., Sunland, Calif., a corporation of Delaware

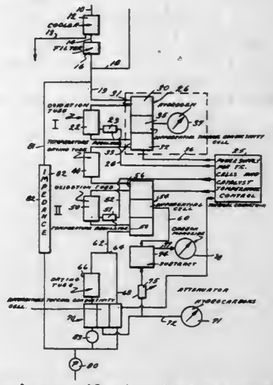
No Drawing. Filed July 3, 1968, Ser. No. 742,148
Int. Cl. G01n 21/00
U.S. Cl. 23—230 7 Claims

The addition of water vapor to the atmosphere in which a material to be spectrochemically analyzed is nebulized improves the stability and sensitivity of analysis for several analytes, particularly those such as carbon, sulfur, and many refractory metals that react with water at elevated temperatures to form gaseous or relatively fine and light reaction products. Interelement effects also are found to be reduced. The water vapor is added in amounts of fifty parts per million by volume or more.

3,549,327
METHOD AND ANALYZER FOR HYDROGEN CARBON MONOXIDE AND HYDROCARBONS IN EXHAUST GASES

Gordon J. Fergusson, Baltimore County, Md., assignor to Scientific Research Instruments Corporation, Baltimore, Md., a corporation of Maryland

Filed Dec. 5, 1967, Ser. No. 688,137
Int. Cl. G01n 25/18, 33/22
U.S. Cl. 23—232 25 Claims



The following specification discloses method and apparatus for determining hydrocarbon and carbon monoxide concentrations in the gases produced by the combustion of hydrocarbon fuels. A sample of gas is passed through a first stage wherein the free hydrogen present is selectively oxidized in a catalytic oxidation tube without oxidizing any of the hydrocarbons or carbon monoxide present therein. The sample is then passed through a drying tube wherein any water present is substantially completely removed. The dried gas is then passed through a second oxidation tube wherein the hydrocarbons and carbon monoxide are oxidized to water and carbon dioxide. The thermal conductivity change caused by the oxidation of the hydrocarbons and carbon monoxide is measured and a first signal proportional thereto is produced. The water concentration is also measured and a signal produced which is indicative of the hydrocarbon concentration. A portion of this hydrocarbon signal is subtracted from the first signal in order to generate an output indicative of the carbon monoxide content.

3,549,328
TEST PAPER FOR DETECTOR OF NIACIN

James O. Kilburn, Chamblee, Ga., assignor to the United States of America as represented by the Secretary of Health, Education, and Welfare

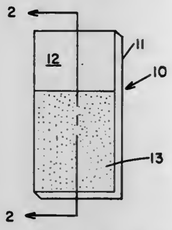
Filed Nov. 29, 1967, Ser. No. 686,494
Int. Cl. G01n 31/00, 33/00; C09k 3/00
U.S. Cl. 23—253 3 Claims



A dry test paper impregnated in separate discrete zones with an active halogen source, a source of cyanide ion

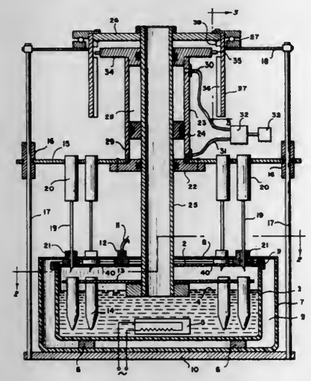
and an aromatic amine. Upon immersion of the test paper in an aqueous medium containing niacin, cyanogen halide is formed which reacts with the aromatic amine and niacin to form a yellow color in the aqueous medium. In a particular embodiment the paper is impregnated in separate zones with chloramine T, potassium thiocyanate and p-aminosalicylic acid.

3,549,329
SENSORS FOR DETECTING REDUCING VAPORS
Herbert P. Silverman, Orange, and Gino A. Giarrusso, Long Beach, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Aug. 23, 1967, Ser. No. 662,688
Int. Cl. G01n *31/00*
U.S. Cl. 23—254 **6 Claims**



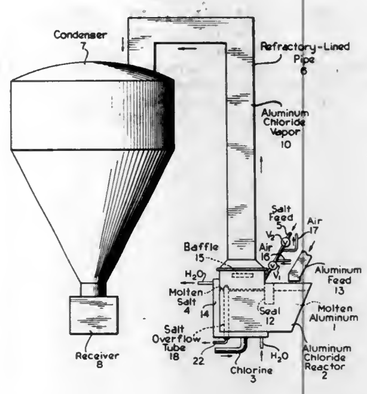
A thin film of one of the noble metals bonded to a noncorrodible backing and having a reducible metallic salt on at least a portion of the metal film, the salt being adapted to deposit its metal on the metal film when the salt is exposed to reducing vapors.

3,549,330
APPARATUS FOR ANALYZING LIQUIDS
Olof Gunnar Hugo Jungner, Hovas, and Bengt Gosta Ingmar Jungner, Stocksund, Sweden, assignors to AB Autokemi
Filed Oct. 22, 1968, Ser. No. 769,634
Claims priority, application Sweden, Feb. 16, 1968, 2,022/68
Int. Cl. B01l *1/00, 9/00*
U.S. Cl. 23—259 **14 Claims**



Apparatus for analyzing liquids under controlled pressure conditions. Sample liquid containers are mounted on a disc in an air-tight pressure controlled chamber. A number of cannulas enter the top of the chamber through air-tight fittings and move into the containers for supplying and removing liquids therefrom. The arrangement is such that upward movement of the cannulas rotates the disc one step.

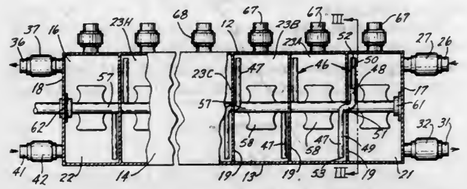
3,549,331
APPARATUS FOR PRODUCTION OF ALUMINUM CHLORIDE
Lawrence P. Gould, Syracuse, and Bernard L. Oechsli, Camillus, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Original application Dec. 23, 1965, Ser. No. 515,968, now Patent No. 3,406,009. Divided and this application May 29, 1968, Ser. No. 748,887
Int. Cl. C01f *7/58*
U.S. Cl. 23—263 **3 Claims**



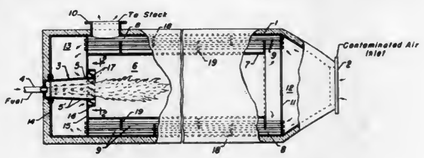
Invention relates to an apparatus for the production of aluminum chloride comprising in combination a refractory-lined reaction chamber, a partition extending from the top of the reaction chamber downwardly beneath the surface of molten aluminum in the reaction chamber to divide the metal contained in said reaction chamber into two intercommunicating sections, a reaction section and a feed section; an aluminum feed inlet for introduction of metallic aluminum into said feed section; a conduit at the top of the reaction section for removal of aluminum chloride vapors generated therein; a baffling member positioned across the upper portion of the reaction section at a point below the aluminum chloride conduit and vapors above the level of the molten aluminum body, said baffle for the removal of entrained molten aluminum and salt from the aluminum chloride; inlet means for the introduction of chlorine gas into the body of molten aluminum in the reaction section; means for the addition of salt to the upper portion of the reaction section; overflow tube disposed within the reaction section and extending upwardly from the base of the reactor to the surface of the molten body of aluminum; and cooling means surrounding the bottom and sides of the reaction section.

3,549,332
COUNTERCURRENT LIQUID-LIQUID EXTRACTION DEVICE
Chong Y. Yoon, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,770
Int. Cl. B01d *11/04*
U.S. Cl. 23—270.5 **10 Claims**

A process and an apparatus for the extraction of one or more components from a first liquid phase of one specific gravity by contacting same with a second liquid phase of a different specific gravity. A tank is provided having a plurality of adjacent closed compartments with an upper portion of each compartment being in communication with a lower portion of the next adjacent compartment by a transfer conduit. Each compartment contains agitator means therein and communicates with adjacent compartments by a small weep opening. Each of the compartments is supplied with predetermined quantities of said first and second liquid phases. The liquid quantities in each of the compartments are agitated and then allowed to settle. A pressurized quantity of one liquid is then supplied to one end compartment whereupon the corresponding liquid within the remaining compartments is caused to flow through the transfer conduits into one of the upper or lower portions of each respectively next adjacent compartment and comes into contact with the other liquid. This causes an equal volume of the corresponding liquid to be discharged from the compartment at the opposite end. The liquid body is again agitated and permitted to settle, whereupon a quantity of the other corresponding liquid is supplied to the other end compartment whereupon such liquid within the remaining compartments is caused to flow through the transfer conduits into the other of the upper or lower portions of the next respectively adjacent compartment, causing an equal volume of the other corresponding liquid to be discharged from said one end compartment. The liquid is then again agitated and permitted to settle and a new quantity of pressurized first liquid is again supplied to the one end compartment.



3,549,333
RECUPERATIVE FORM OF DIRECT THERMAL INCINERATOR
Fernando Tabak, Queens, N.Y., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed July 23, 1968, Ser. No. 746,844
Int. Cl. F01n *3/14*
U.S. Cl. 23—277 **4 Claims**



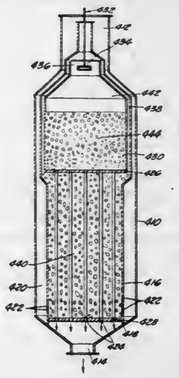
A recuperative form of direct flame incinerator unit providing a contaminated gas stream inlet plenum section which fully surrounds an axially positioned burner means so as to provide efficient mixing with the fuel within and downstream from the burner. The internally located combustion section of the unit is encompassed with an elongated annular form heat exchange section which in turn is provided with multiple tubes so as to have an elongated confined passageway for hot combustion gases and a separated adjacent passageway for the incoming gas stream. The passageways are in heat exchange relationship with one another to give a highly efficient recuperative heat transfer to the incoming gas stream and a uniform full 360° annular flow to the plenum section.

3,549,334
APPARATUS FOR FORMING A THIN FILM
Rudolf Schneider, Krefeld-Bockum, Otto Court, Neuss, Walter Damsky, Krefeld, Georg Spott and Hermann Schnell, Krefeld-Urdingen, Ludwig Bottenbruch and Ulrich Curtius, Krefeld-Bockum, and Claus Wulff, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Dec. 26, 1967, Ser. No. 693,402
Claims priority, application Germany, Dec. 27, 1966, F 51,087
Int. Cl. B01d *1/22*
U.S. Cl. 23—285 **11 Claims**



An apparatus for forming a thin film of a composition at the inside surface of a shell by means of a wiper helix, having a feed surface inclined under an angle between 100° and 175° in relation to the wiping surface of said helix and directed toward the outlet end of said shell to stabilize the distance of said wiping surface to said inside surface of said shell. Preferably the other corners of said helix are also faced or rounded to avoid deposits and incrustations of material.

3,549,335
AUTOTHERMAL REACTOR
Bernard J. Grotz, Jr., Arcadia, Calif., assignor to C. F. Braun & Company, Alhambra, Calif., a corporation of California
Original application Oct. 22, 1965, Ser. No. 501,260, now Patent No. 3,442,613, dated May 6, 1969. Divided and this application Sept. 12, 1968, Ser. No. 798,213
Int. Cl. B01j *9/04;* **C01b** *2/14, 2/30*
U.S. Cl. 23—288 **3 Claims**



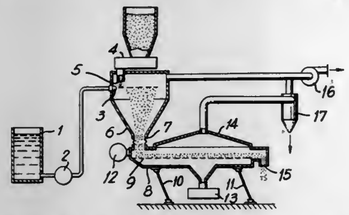
The present invention relates to a reactor for the autothermal conversion of hydrocarbons suitable for use in a process for the production of ammonia comprising an outer shell having an inlet and an outlet; within said outer shell an inner shell, said inner shell being separated from the outer shell along a major portion of its length by a fluid conducting space and being connected to said outer shell at a point proximate to the outlet of said outer shell, said inner shell having a plurality of openings in the wall thereof; within said inner shell a plurality of gas conducting tubes; and in communica-

tion with the end of said tubes a chamber for containing catalyst, the walls of said chamber being spaced from the walls of said inner shell to provide a fluid conducting space between said chamber and said inner shell.

3,549,336
AGGLOMERATING PULVERULENT MATERIAL BY CONTACTING WITH A FILM OF JETTED LIQUID

Théodore Hodel, La Tour-de-Peilz, Switzerland, assignor to Société d'Assistance Technique pour Produits Nestle S.A.

Filed Nov. 29, 1966, Ser. No. 598,881
Claims priority, application Switzerland, Dec. 7, 1965, 16,852/65
Int. Cl. B01j *1/02;* **C05b** *19/00*
U.S. Cl. 23—313 **6 Claims**

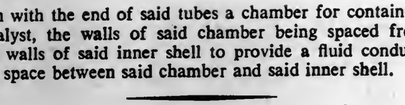


Pulverulent products are agglomerated by passing therethrough a jetted thin film of liquid at an angle no greater than 90° for a short period of time, the speed of the jetted film being 8 to 30 meters per second at a temperature between 5° C. and 26° C. collecting and drying the pulverulent material in the form of agglomerated particles.

3,549,337
METHOD OF SECURING DENSE, METAL-BONDED REFRACTORY NITRIDE BODIES TO STEEL

Alan B. Palmer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Mar. 5, 1968, Ser. No. 710,620
Int. Cl. B21c *1/00*
U.S. Cl. 29—183.5 **10 Claims**



Dense, metal-bonded refractory nitride elements such as cutting edges are secured to metal supports such as steel tool shanks by metallurgically bonding between the two materials a dense, cobalt-bonded tungsten carbide connecting element having an expansion coefficient approximating that of the nitride element.

3,549,338
WELDING WIRE

Jury Alexandrovich Sterenbogen, Ul. Kurskaya 8, kv. 11; Viktor Fedorovich Khorunov, Ul. Sapernoe pole 28, kv. 44; Jury Yakovlevich Gretsky, Ul. Vernadskogo 65, kv. 121; and Nikolai Konstantinovich Bizik, Ul. Geroev Sevastopolya 23, kv. 6, all of Kiev, U.S.S.R.; and Boris Georgievich Ivanov, Ul. Yablochkova 20, korpus 2, kv. 22; Lev Alexandrovich Avchin, Ul. Gorkogo 28, kv. 88; Alexei Vasilievich Molchanov, Ul. Klimashkina 14, kv. 49; and Jury Isaakovich Zhuravitsky, Kapelsky per. 1, kv. 3, all of Moscow, U.S.S.R.

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,324
Int. Cl. B23k *35/24*
U.S. Cl. 29—191.2 **1 Claim**

A welding wire consisting of a steel sheathing filled with a powdered charge. The powdered charge comprises crystalline graphite, ferrosilicium, ferromanganese, ferrotitanium, aluminum, iron scale and iron powder.

3,549,339
COMPOSITE BRAZING COMPOSITIONS OF A COMPOSITE METAL HAVING VARIOUS LAYERS CONTAINING NICKEL

Arthur T. Cape, Monterey, Calif., assignor to Coast Metals, Inc., Little Ferry, N.J., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 458,474, May 24, 1964. This application July 2, 1968, Ser. No. 741,861
Int. Cl. B23p *3/00*
U.S. Cl. 29—194 **6 Claims**

The invention relates to a composite brazing composition consisting of a nickel strip having thereon a coating consisting of nickel, manganese, cobalt and boron, the coated strip being especially adapted for brazing purposes.

3,549,340
FUEL COMPOSITIONS AND ADDITIVES

Lester E. Coleman, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio, a corporation of Ohio

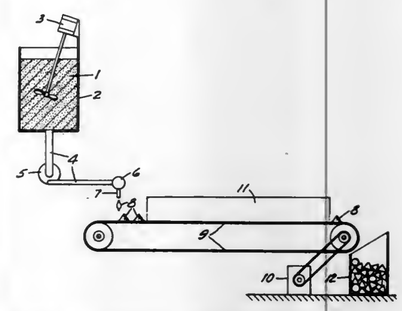
No Drawing. Filed Dec. 19, 1967, Ser. No. 691,698
Int. Cl. C10l *1/24*
U.S. Cl. 44—63 **11 Claims**

Fuel compositions for internal combustion engines containing Diels-Alder adducts of N - 3 - oxohydrocarbon acrylamides and N-3-hydroxyhydrocarbon acrylamides or derivatives thereof and conjugated diene compounds such as 1,3-butadiene, cyclopentadiene. The adducts also have utility as solubilizing agents, plasticizers, and ultraviolet absorbing additives for polymeric compositions.

3,549,341
METHOD FOR PRODUCING PYRAMIDAL SHAPED TUMBLING MEDIA

John B. Kittredge, White Bear Lake, Minn., and Guy B. Langlois, Huntington Beach, Calif., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Continuation-in-part of application Ser. No. 487,721, Sept. 16, 1965. This application Aug. 5, 1968, Ser. No. 769,769
Int. Cl. B24d *3/14;* **C08g** *51/12*
U.S. Cl. 51—293 **4 Claims**



Conical or pyramidal shaped ceramic or polymeric tumbling media having height about 0.75 to 1.5 times diameter formed by dropwise feeding from an orifice of a thixotropic composition having a viscosity between 500 and 30,000 poise, measured on a rotating spindle viscometer at 2 r.p.m., and yield stress value of at least

15,000 dynes/cm.², depositing droplets on a substantially flat surface to form upwardly tapering shapes and hardening shape to withstand a crushing force of at least 50 p.s.i.

3,549,342
METHOD OF MAKING ABRASIVES FOR GRINDING TOOLS

Erich G. Hayek, Innsbruck, Austria, assignor to Elektroschmelzwerk Kempten G.m.b.H., Munich, Bavaria, Germany, a corporation of Germany

No Drawing. Filed Dec. 2, 1968, Ser. No. 780,548
Claims priority, application Austria, Dec. 1, 1967, A 10,855/67
Int. Cl. C08g *51/12;* **C08h** *17/12*
U.S. Cl. 51—298 **1 Claim**

Manufacture of abrasives for use in grinding tools, wherein particles of a non-metallic, non-oxygenic abrasive material have their surfaces corroded and roughened and tenaciously bonded together by an inorganic or organic bonding agent.

3,549,343
METHOD FOR REMOVING TIN FROM FLAT GLASS

David Gordon Loukes, "Kenwyn" 17 Broom Close, Eccleston Park, Prescot, Lancashire, England, and John Henry Morgan, 61 Thorton Road, Chelwood Ave., Liverpool, 16 Lancashire, England

No Drawing. Continuation-in-part of application Ser. No. 465,721, June 21, 1965. This application Jan. 27, 1969, Ser. No. 794,377
Int. Cl. C03c *17/22*
U.S. Cl. 65—30 **6 Claims**

Flat glass which has been in contact with molten tin and has thereby acquired a stannous oxide content in its surface, is treated while still hot with a gaseous reagent comprising chlorine, to vaporize the tin content from the glass surface.

3,549,344
METHOD OF REMOVING TIN FROM THE SURFACE OF FLAT GLASS BY DOUBLE ION EXCHANGE

David Gordon Loukes, Prescot, and Roy Smith, Rainhill, England, assignors to Pilkington Brothers Limited, Lancashire, England, a corporation of Great Britain

No Drawing. Continuation-in-part of application Ser. No. 465,749, June 21, 1965. This application June 23, 1969, Ser. No. 835,782
Claims priority, application Great Britain, June 23, 1964, 25,953/64
Int. Cl. C03c *17/22*
U.S. Cl. 65—30 **7 Claims**

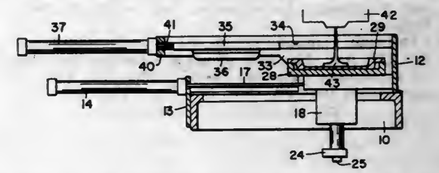
A method of flat glass manufacture in which glass in ribbon form is in contact with molten tin and tin enters the surface layer of the glass, comprising first treating the surface containing the tin ions with a strong acid to substitute the tin ions with hydrogen ions and secondly treating the said surface layer with an inorganic salt of at least one element of the group consisting of lithium, calcium, zinc, silver, manganese and copper to effect an ion exchange in said layer of at least a proportion of the hydrogen ions therein for said elements.

3,549,345
METHOD OF PRESSING GLASS ARTICLES

Vernon L. Wainwright, Albion, Mich., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Apr. 1, 1968, Ser. No. 717,783
Int. Cl. C03b *11/00*
U.S. Cl. 65—66 **4 Claims**

A method of pressing glass articles from molten glass wherein a charge of molten glass is delivered from a fixed glass delivery orifice into a mold, while the mold is in a down position. A plunger is moved above the mold and below the fixed orifice; the mold being maintained



stationary in the same down position. The charge is then press-formed into a glass article.

3,549,346
GRANULATION OF OIL-CONTAINING SOLID FINES

William E. Savage, Castro Valley, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,513
Int. Cl. C05f *11/00*
U.S. Cl. 71—11 **3 Claims**

An improved method for granulating liquid hydrocarbon containing water-soluble solid particle fines by subjecting such fines to a process capable of producing fresh or new surfaces thereon and thereafter compacting and granulating the thus treated fines.

3,549,347
MIXED CATION AMMONIUM POTASSIUM POLYPHOSPHATES AND METHODS FOR PREPARING THE SAME

John W. Lyons, St. Louis, and Howard L. Vandersall, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed May 15, 1968, Ser. No. 729,386
Int. Cl. C05b *7/00*
U.S. Cl. 71—34 **11 Claims**

A substantially water-insoluble crystalline ammonium-potassium polyphosphate having the formula

$$(NH_4)_xK_yP_nO_{3n+1}$$

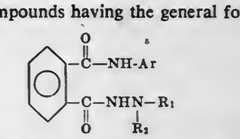
wherein n is an integer having an average value greater than 10 and $x+y$ is equal to $n+2$ and the ratio of x to y is from 1:100 to 100:1 and processes for preparing same are disclosed.

3,549,348
USE OF N-ARYL-N-SUBSTITUTED AMINO PHTHALAMIDES AS HERBICIDES

Arthur H. Gevirtz, Orange, N.J., Ronald B. Ames, Naugatuck, and Allen E. Smith, Bethany, Conn., assignors to Uniroyal Inc., New York, N.Y., a corporation of New Jersey

No Drawing. Original application Oct. 20, 1967, Ser. No. 676,695, now Patent No. 3,502,685, dated Mar. 24, 1970. Divided and this application Aug. 5, 1969, Ser. No. 847,706
Int. Cl. A01n *9/20*
U.S. Cl. 71—88 **16 Claims**

Chemical compounds having the general formula



where Ar is a naphthyl or chlorosubstituted phenyl group; and R_1 and R_2 are hydrogen or a lower alkyl group or compositely form a heterocyclic ring, or, when R_1 is hydrogen, R_2 is phenyl, naphthyl, or a chlorosubstituted derivative thereof are used as herbicides.

3,549,349
HERBICIDAL COMBINATIONS
James V. Gramlich, Greenfield, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana
No Drawing. Continuation-in-part of application Ser. No. 723,237, Apr. 22, 1968, which is a continuation-in-part of application Ser. No. 714,077, Mar. 18, 1968. This application June 30, 1969, Ser. No. 837,904
Int. Cl. A01n *9/14, 9/24, 9/20*
U.S. Cl. 71—103 4 Claims
A combination containing a N^4,N^4-di-n-propyl-3,5-dinitrosulfanilamide and 2,4–D or MCPA or dicamba or carboxyl derivatives thereof is useful for eliminating virtually all weeds from paddies in which rice has been transplanted.

3,549,350
METHOD OF TREATING SCRAP METAL
Sherwood W. McGee, Lisle, Ill., assignor to Burgess-Norton Mfg. Co., Geneva, Ill., a corporation of Illinois
No Drawing. Filed Apr. 4, 1967, Ser. No. 628,256
Int. Cl. B22f *9/00*
U.S. Cl. 75—.5 13 Claims
The invention comprises a method of producing metal powder from metal scrap such as shop scrap and it is applied both to ferrous and nonferrous metals which are treated at suitable temperatures in the following steps:

(1) The metal is oxidized.

(2) The oxidized metal is crushed.

(3) The crushed oxidized metal is screened.

(4) After the material is oxidized, crushed and screened, it is reduced to its metallic form. The reduction is carried out under a controlled atmosphere such as dissociated ammonia, hydrogen or carbon monoxide, with or without lamp black or salt.

(5) The reduced metal is fragmented and finally screened to produce the desired size of product.

3,549,351
METHOD AND APPARATUS FOR GAS-SOLIDS REACTION IN PRODUCTION OF SULFUR, IRON AND RELATED PRODUCTS
Adolph Q. Lundquist, Golden, Colo., assignor to Hy-Met Engineering, Ltd., Denver, Colo., a corporation of Colorado
Filed Jan. 16, 1968, Ser. No. 698,270
Int. Cl. C21b *1/04*
U.S. Cl. 75—6 11 Claims
Apparatus and method for promoting controlled gas-solids reaction in elongated treatment zone utilizing vibratory action for impelling progressive movement of charge and separating discrete particles of charge in each increment of applied forces with reactive gas introduced in starvation amount at spaced points along course of movement entering spaces between separated particles. Support surface of reaction zone provides controlled heat transfer during reaction and movement rate induced by vibratory action determines solids retention time in treatment zone. Treatment suitable for chlorination, sulfation, oxidation and reduction. Iron pyrites treatment for iron and elemental sulfur recovery at low cost.

3,549,352
STAGED FLUIDIZED IRON ORE REDUCTION PROCESS
Francis X. Mayer, Baton Rouge, La., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Sept. 18, 1967, Ser. No. 668,657
The portion of the term of the patent subsequent to July 16, 1985, has been disclaimed
Int. Cl. C22b *1/10, 5/14*
U.S. Cl. 75—26 6 Claims
In staged fluidized iron ore reduction processes, fouling and bogging in ferrous reduction stages can be substantially suppressed by adding to the ferrous reduction stages small amounts of oxides or carbonates of calcium or magnesium as antibogging agents. The antibogging agent particle sizes range no more than about 10 microns in diameter.

3,549,353
METHOD AND APPARATUS FOR MELTING REACTIVE MATERIALS
Henley Frank Sterling and Wilbert Ridd George, London, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 22, 1966, Ser. No. 603,841
Claims priority, application Great Britain, Jan. 28, 1966, 3,896/66
Int. Cl. C22b *61/04*
U.S. Cl. 75—84.1 10 Claims
A crucible for high-frequency heating by electromagnetically induced currents. Crucible is sectionalized to isolate induced secondary currents. These currents in turn induce tertiary heating current in material to be heated. Crucible is especially adapted for making castings of metals uncontaminated by material of crucible.

3,549,354
SULFIDATION RESISTANT COBALT-BASE ALLOYS
Claude R. Wheeler, Phoenix, Ariz., assignor to The Garrett Corporation, a corporation of California
No Drawing. Filed May 29, 1968, Ser. No. 732,898
Int. Cl. C22c *19/00*
U.S. Cl. 75—122.5 9 Claims
A sulfidation resistant cobalt-base alloy comprises a major amount of cobalt, between about 5 and about 30% chromium, between about 0.05% and about 3.0% by weight of an actinide series metal, between about 1.0% and about 6.0% by weight aluminum and preferably also containing tungsten and/or molybdenum, columbium and/or tantalum and carbon.

3,549,355
QUATERNARY SOLDERING ALLOY
Willem Johannes Postma, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 29, 1968, Ser. No. 771,590
Claims priority, application Netherlands, Nov. 1, 1967, 6714827
Int. Cl. C22c *33/00*
U.S. Cl. 75—134 2 Claims
A soldering alloy, suitable for connecting together oxide ceramic magnetic components (e.g., manganese-zinc-ferrite and nickel-zinc-ferrite, has the composition: 41.10% by weight of tin, 58.11% by weight of bismuth, 0.75% by weight of antimony, and 0.04% by weight of arsenic.

3,549,356
HIGH TEMPERATURE CORROSIVE RESISTANT COBALT-BASE ALLOYS
Chester T. Sims and Adrian M. Beltran, Ballston Lake, N.Y., assignors to General Electric Company, a corporation of New York
No Drawing. Filed Jan. 6, 1969, Ser. No. 789,390
Int. Cl. C22c *19/00*
U.S. Cl. 75—171 2 Claims
Cobalt-base alloys having improved high temperature oxidation and corrosion resistance consist essentially of, in percent by weight, carbon 0.1 to 0.8, nickel 8.5 to 11.5, chromium 24 to 35, tungsten 6 to 9, tantalum 1 to 5, manganese up to 1 max., silicon up to 0.25 max., boron 0.005 to 0.5, yttrium 0.01 to 1.0, iron up to 2.0 max., hafnium 0.05 to 2.0, with the remainder essentially cobalt except for impurities.

3,549,357
DRY IMPACT COATING OF POWDER METAL PARTS
Earl H. Osborne, Colorado Springs, Colo., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania
No Drawing. Filed June 24, 1968, Ser. No. 739,198
Int. Cl. B22f *7/02*
U.S. Cl. 75—208 4 Claims
Described herein is a method of producing coated powder metal parts by tumbling a sintered article with impacting elements in the presence of a coating material.

3,549,358
ELECTROPHOTOGRAPHIC PROCESS USING ORGANIC PHOTOCONDUCTORS HAVING AT LEAST TWO CHROMOPHORES
Nicholas J. Clecak, San Jose, and Robert J. Cox, Los Gatos, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,461
Int. Cl. G03g *5/00*
U.S. Cl. 96—1 2 Claims
The organic photoconductors are certain linear molecules having at least two chromophores such as a Schiff's base group or an azo group joined to one another through a benzene ring or series of benzene rings. These compounds have been found to be useful as photoconductors in electrophotographic processes. Some of the compounds are novel.

3,549,359
COLOR ELECTROPHOTOGRAPHY EMPLOYING DYE TRANSFER FROM A DYE-CONTAINING PHOTOSENSITIVE LAYER TO AN IMAGE RECEIVING SHEET
Satoru Honjo and Masamichi Sato, Kita-Adachigun, Saitama, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Ashigara-Kamigun, Kanagawa, Japan
No Drawing. Filed Apr. 26, 1967, Ser. No. 633,724
Claims priority, application Japan, Apr. 26, 1966, 41/26,494
Int. Cl. G03g *13/22*
U.S. Cl. 96—1.2 6 Claims
A process for the formation of a color image by forming an image of a water-insoluble toner on a layer consisting of a water soluble dye, photoconductive ZnO powders and a water-insoluble binder and bringing the image-bearing layer into contact with a dye receiving layer of moistened gelatin whereby the dye in the layer of the portions having no toner images is absorbed in the gelatin.

3,549,360
FILM FOR XEROGRAPHIC PRODUCTION OF TRANSPARENCIES AND PROCESS OF MAKING SAME
Arthur J. O'Neill, Middle Haddam, and William P. Rowland, Southington, Conn., assignors to Rowland Products, Incorporated, Kensington, Conn., a corporation of Connecticut
Filed Sept. 29, 1966, Ser. No. 583,024
Int. Cl. G03g *13/14*
U.S. Cl. 96—1.4 5 Claims
A film for xerographic production of transparencies is provided by a synthetic thermoplastic sheet material having a heat distortion temperature of at least 300° Fahrenheit and at least one surface receptive to adhesion and fusion of xerographic toner. The film has a thin transparent coating of a material providing controlled antistatic properties thereto and is flexible, essentially transparent and unoriented. Both surfaces of the sheet material are mirror-like.

The film may have sheet material adhered along an edge thereof to facilitate feeding in automatic apparatus. Polysulfone is the preferred resin.

3,549,361
ELECTROPHOTOGRAPHIC COMPOSITIONS AND ELEMENTS
Jerry B. Miller, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Aug. 1, 1966, Ser. No. 569,064
Int. Cl. G03g *5/00*
U.S. Cl. 96—1.5 19 Claims
Novel photoconductive compositions and elements are described containing substituted anthracene photoconductors. These compositions and elements are especially useful in xerographic processes.

3,549,362
NOVEL CYANINE DYES FOR THE SENSITIZATION OF ORGANIC PHOTOCONDUCTORS
James W. Carpenter, John D. Mee, and Donald W. Heseltine, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,104
Int. Cl. G03g *5/10*
U.S. Cl. 96—1.6 26 Claims
Organic photoconductors are spectrally sensitized with a polymethine dye featuring in an imidazole ring joined at the carbon atom in the 5-position of the imidazole ring to a dimethine linkage, the imidazole ring having fused to the [a] side thereof the non-metallic atoms required to complete at least one fused ring, and a second desensitizing nucleus joined at a carbon thereof to the dimethine linkage.

3,549,363
NOVEL PHOTOGRAPHIC PROCESSES TO PRODUCE PRECIPITATING NUCLEI IN SITU BY ELECTROLYSIS
Ronald F. W. Cieciuch, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Jan. 11, 1966, Ser. No. 519,886
Int. Cl. G03c *5/54*
U.S. Cl. 96—29 17 Claims
Photographic processes for forming a silver image by diffusion transfer in which a soluble silver complex formed as a function of development of an exposed silver halide emulsion is reduced to image silver in the presence of silver-precipitating nuclei to form the silver transfer image, wherein the silver-precipitating nuclei are generated in situ by electrolysis.

3,549,364
PHOTOGRAPHIC PROCESSES AND COMPOSITIONS
Meroe M. Morse, Boston, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 438,044, Mar. 8, 1965. This application Dec. 15, 1967, Ser. No. 690,728
Int. Cl. G03c *5/54, 5/30*
U.S. Cl. 96—29 11 Claims
Novel photographic processing compositions for use in silver diffusion transfer processes for forming a usable negative image along with a positive silver transfer image, the compositions including the synergistic combination of certain high energy and low energy developing agents, the latter being present in substantially greater concentration than the former, the composition further containing a silver halide solvent or combination of solvents and an alkaline material or materials in a quantity sufficient to provide a pH of at least 10.5.

3,549,365
LITHOGRAPHIC PRINTING SURFACE
Daniel C. Thomas, Covina, Calif., assignor, by mesne assignments, to Lithoplate, Inc., Philadelphia, Pa., a corporation of Illinois
No Drawing. Filed Feb. 18, 1966, Ser. No. 528,414
Int. Cl. G03f *7/02*
U.S. Cl. 96—33 **25 Claims**

A lithographic plate made by applying to a support member, such as aluminum, either directly or over a previously applied resin subcoat, a hydrophilic barrier coating formed by application of an aqueous solution of a solute consisting essentialy of an aromatic sulfonic acid, preferably one with at least three reactive groups, either amino or sulfonic acid groups. Preferably the hydrophilic barrier coating is overlaid with a water soluble zirconium or titanium salt and with a light sensitive coating.

3,549,366
ULTRAVIOLET HARDENING OF PHOTOSENSITIZED POLYACRYLAMIDE AND PRODUCTS
John D. Margerum, Chatsworth, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
No Drawing. Filed Feb. 16, 1967, Ser. No. 616,461
Int. Cl. G03c *5/00*
U.S. Cl. 96—35.1 **7 Claims**

The method of effecting photopolymer images in photosensitive acrylamide compositions and optically hardening the partially polymerized polyacrylamide composition fixing the image therein or thereon in finger readable or braille-like form, and the products produced thereby.

3,549,367
PHOTOPOLYMERIZABLE COMPOSITIONS CONTAINING TRIARYLIMIDAZOLYL DIMERS AND p-AMINOPHENYL KETONES
Catherine Teh-lin Chang, New Brunswick, and Roxy Ni Fan, East Brunswick, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed May 24, 1968, Ser. No. 731,733
Int. Cl. G03c *1/68*
U.S. Cl. 96—35.1 **14 Claims**

Photopolymerizable compositions and layers containing an ethylenically unsaturated compound capable of free-radical addition polymerization and having improved photographic speed, spectral response, aging and storage stability are obtained by using as a photoinitiating system a triarylimidazolyl dimer consisting of two lophine radicals bound together by a single covalent bound and a p-aminophenyl ketone. The system may also contain a non-polymerizable plasticizer in which case improved exposure and development temperature latitude results. Processes comprising exposing the layers imagewise and photopolymerizing the exposed layers.

3,549,368
PROCESS FOR IMPROVING PHOTORESIST ADHESION
Robert H. Collins, Poughkeepsie, and Frank T. Deverse, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed July 2, 1968, Ser. No. 742,025
Int. Cl. G03c *5/00*
U.S. Cl. 96—35.1 **10 Claims**

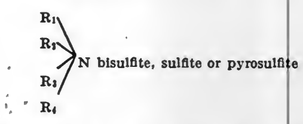
A method for applying a photoresist to a substrate whereby said photoresist is adherently bound to said substrate by means of a hexa-alkyldisilazane adhesive.

3,549,369
ANTISTATIC ACYLHYDRAZINIUM SALT
Kenichi Koda, Shoji Kikuchi, Tsuneo Wada, and Yoshimi Kuwabara, Tokyo, Sadao Sugita, Hanno-shi, and Akira Horikoshi, Yoshio Nishina, and Kensaku Tanimura, Tokyo, Japan, assignors to Konishiroku Photo Industry, Co., Ltd., Tokyo, Japan
No Drawing. Filed July 3, 1968, Ser. No. 742,144
Claims priority, application Japan, July 7, 1967, 42/43,324
Int. Cl. G03c *5/26*
U.S. Cl. 96—50 **3 Claims**

A light-sensitive silver halide photographic material containing an acylhydrazinium salt used as an anti-static agent.

3,549,370
QUATERNARY AMMONIUM BISULFITES, SULFITES OR PYROSULFITES AS DEVELOPER PRESERVATIVES
Donald J. Sykes, Upper Saddle River, N.J., Harry Kroll, Warwick, R.I., and Theron R. Finch, Northvale, N.J., assignors to Philip A. Hunt Chemical Corporation, Palisades Park, N.J., a corporation of Delaware
No Drawing. Filed June 15, 1967, Ser. No. 646,176
Int. Cl. G03c *5/30, 5/38, 7/00*
U.S. Cl. 96—55 **24 Claims**

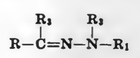
A developing solution for silver halide gelatin layers, which solution includes a conventional developing agent or agents and other conventional constituents such as restrainers, anti-foggants, sequestrants, silver halide solvents and gelatin hardeners, and which for the preservative uses a quaternary ammonium bisulfite, sulfite or pyrosulfite of the formula:



in which each of R_1, R_2, R_3, and R_4 is selected from the class consisting of alkyls of one to four carbon atoms, hydroxyalkyls of two to four carbon atoms, benzyl and phenyl.

3,549,371
STABILIZATION OF PHOTOGRAPHIC MATERIALS
Fritz W. H. Mueller, Fritz Dersch, and Giacomo Luciani, Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 15, 1968, Ser. No. 705,622
Int. Cl. G03c *5/30, 5/38*
U.S. Cl. 96—66.4 **4 Claims**

Stabilizers for light-sensitive photographic materials comprising compounds of the following structural formula:



wherein R and R_1 represent an aromatic nucleus, and R_2 and R_3 are independently selected from the group consisting of hydrogen, alkyl and aryl.

3,549,372
LITHOGRAPHIC PRINTING SURFACE
Isadore M. Richlin and Elmer S. Bornemisza, San Gabriel, Calif., assignors, by mesne assignments, to Lithoplate, Inc., Philadelphia, Pa., a corporation of Illinois
No Drawing. Filed Jan. 13, 1966, Ser. No. 520,350
Int. Cl. G03f *7/02;* **C23c** *1/10;* **B41n** *1/08*
U.S. Cl. 96—67 **15 Claims**

7. A lithographic plate comprising a support member having a hydroxylated surface, a hydrophilic barrier coating on said support comprising the reaction product of said hydroxylated surface and a metal chelate ester of a Group IV*b* metal and an alcoholic compound selected from the group consisting of glycols and alkanol amines, and a light-sensitive coating over said hydrophilic barrier coating.

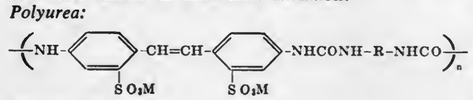
3,549,373
NEGATIVE-TO-POSITIVE REVERSIBLE COPY SHEET
Takao Hamada, Musashino, and Tsuyoshi Morishima, Machida, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan
No Drawing. Filed Mar. 13, 1967, Ser. No. 622,458
Claims priority, application Japan, Mar. 19, 1966, 41/17,154
Int. Cl. G03c *1/52, 1/64, 1/66*
U.S. Cl. 96—75 **4 Claims**

A multi-layer reversible copy sheet is provided on which a positive image is obtainable from a negative original and which is characterized by its high resolution power, long shelf life, and freedom from photo-fading tendency.

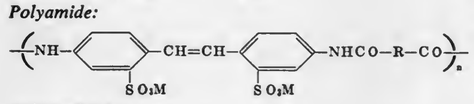
3,549,374
PHOTOGRAPHIC COLOR ELEMENTS CONTAINING POLYMERIC UV ABSORBERS
Hiroyuki Amano, Nobuo Tsuji, and Kazuo Shirasu, Kanagawa, Japan, assignors to Fuji Shashin Film Kaisha, Kanagawa, Japan
No Drawing. Filed Jan. 17, 1967, Ser. No. 609,749
Int. Cl. G03c *1/84, 1/86*
U.S. Cl. 96—84 **7 Claims**

Photographic light sensitive color element containing a compound of the following group to reduce the undesired side effects of ultraviolet radiation:

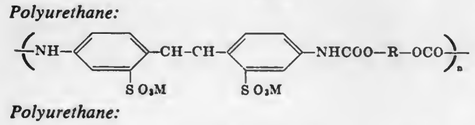
Polyurea:



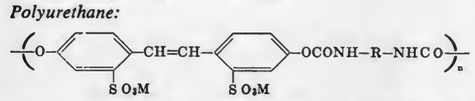
Polyamide:



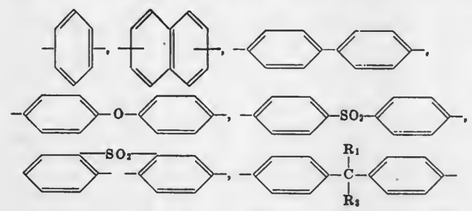
Polyurethane:



Polyurethane:



wherein M represents an alkali metal; R represents an aromatic or an aliphatic bivalent residual group, such as



in which R_1 and R_2 are hydrogen atoms or alkyl radicals containing up to 5 carbon atoms, and $+CH_2+_p$, or $+CH_2CH_2-O+_q CH_2CH_2-$, in which *p* is an integer from 1 to 10 and *q* is an integer from 1 to 3; and *n* shows the polymerization degree.

The agent may be incorporated in any layer of the element, e.g., a photographic silver halide emulsion layer, an intermediate layer or a protective layer.

3,549,375
ANTISTATIC PHOTOGRAPHIC FILM
Karl Pechmann, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed May 8, 1967, Ser. No. 636,595
Int. Cl. G03c *1/82*
U.S. Cl. 96—84 **6 Claims**

An antistatic composition and a photographic film element containing said antistatic composition, comprising (a) a film-forming organic binder and (b) an antistatic compound comprising a polyether glycol of the following structural formula:

$$HO+CH_2-CH_2-CH_2-CH_2O+_nH$$

wherein *n* represents a positive integer sufficient to provide a molecular weight within the range of from about 650 to about 2000.

3,549,376
IMAGE-FORMING COMPOSITIONS CONTAINING POLYMER BINDING AGENTS AND COORDINATION COMPLEXES OF IRON (III) ORGANIC SALTS
Leo Roos, New Shrewsburg, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Nov. 2, 1967, Ser. No. 680,014
Int. Cl. G03c *1/64*
U.S. Cl. 96—92 **11 Claims**

Light-sensitive compositions, layers and elements capable of forming vesicular images by exposure to actinic radiation and heating comprising a macromolecular organic polymer binder having dispersed therein a ferric ammonium polycarboxylate, a photoinitiator of addition polymerization, e.g., a polynuclear quinone or a vicinal ketaldonyl compound, an oxidizing agent, e.g., mercury oxylate, and an acid or acid salt, e.g., oxalic acid or ammonium oxalate.

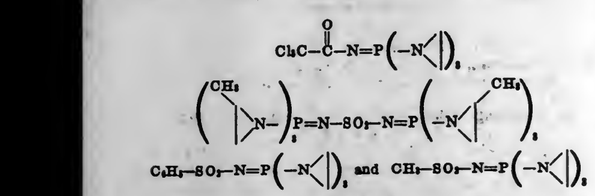
3,549,377
METHOD OF HARDENING PHOTOGRAPHIC GELATIN-CONTAINING LAYERS WITH NON-IONIC DICHLOROTRIAZINYL AMINO COMPOUNDS
Heinz Meckl, Wolfgang Himmelmann, and Franz Moll, Cologne, Germany (all % Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany), and Hans-Ludwig Honig and Erwin-Alfons Muller, both % Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 15, 1967, Ser. No. 638,626
Claims priority, application Germany, May 13, 1966, 1,522,378
Int. Cl. G03c *1/30*
U.S. Cl. 96—111 **6 Claims**

Hardening of gelatin, especially in coatings and layers employed in photographic light-sensitive materials, by incorporating therein—preferably before pouring or coating—a non-ionic dichlorotriazinyl amino compound containing hydroxyl, ether and/or ester groups.

3,549,378
TRIS(1-AZIRIDINYL)PHOSPHAZO HARDENERS
Donald M. Burness and Robert A. Silverman, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Continuation-in-part of abandoned application Ser. No. 475,599, July 28, 1965. This application Feb. 5, 1969, Ser. No. 796,929
Int. Cl. G03c *1/30*
U.S. Cl. 96—111 **30 Claims**

Hydrophilic colloids such as gelatin, casein and carboxylated polymers hardened with an aziridine compound which can be prepared from a carboxamide, a sulfonamide

or a phosphamide by treating the amide with phosphorus pentachloride followed by reaction with ethylenimine are described. Bis{tri(1-aziridinyl)phosphazo}sulfone,

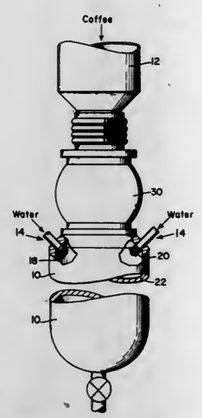


are illustrative of the aziridine hardener compounds employed.

3,549,379
COPYING MATERIALS
Thomas David Grinter Hellings and Kenneth Reynolds, Harlow, England, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Feb. 27, 1967, Ser. No. 619,013
Claims priority, application Great Britain, Mar. 1, 1966, 9,020/66
Int. Cl. G03c *1/02, 1/72*
U.S. Cl. 96—114.1 9 Claims

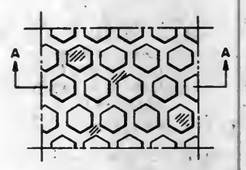
A heat-decomposable reaction product of an aryl thiol and a water-soluble silver salt of an inorganic oxyacid is made light-sensitive by treatment with halide ion and when then exposed to light is decomposable at a reduced temperature to give a visible change.

3,549,380
UNIFORM PREWETTING OF ROAST AND GROUND COFFEE TO IMPROVE THE EXTRACTION PROCESS
Jayantilal M. Patel, Reading, David A. Strang, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 31, 1968, Ser. No. 789,042
Int. Cl. A23f *1/08*
U.S. Cl. 99—71 7 Claims



Disclosed is a process of uniformly prewetting roast and ground coffee during the loading of said coffee into an extraction column.

3,549,381
PACKAGING MATERIAL
William G. Kinsinger, Indian Field, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,370
Int. Cl. A23f *3/00;* B65b *29/00*
U.S. Cl. 99—77.1 7 Claims



A flexible impervious packaging material comprising a thermoplastic film having a regularly spaced embossed pattern on at least one surface which has been drawn sufficiently to develop a preferential weakness in one direction so that the film will open into a netlike structure when stretched in the direction transverse to the first drawing and packages prepared from said material.

3,549,382
METHOD OF PREPARING POWDERED MONOGLYCERIDE MATERIAL
Francis Frederick Hansen, 224 E. Poplar St., Walla Walla, Wash. 99362
No Drawing. Continuation-in-part of application Ser. No. 627,674, Apr. 3, 1967. This application May 15, 1968, Ser. No. 729,383
Int. Cl. A21d *2/16, 2/32*
U.S. Cl. 99—91 2 Claims

A powdered antistaling compound for use in baking bread is prepared by forming a heated gel of monoglyceride and water, beating the gel while adding hydroxylated lecithin and a dry powdered edible solid such as flour, starch, skim milk solids or corn syrup solids and continuing the beating while the mixture cools to room temperature to produce a homogeneous creamy mixture which is then dried and converted to a powder.

3,549,383
FLUID SHORTENING FOR CAKES AND CREAM ICINGS
James H. Menzies, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Filed Nov. 16, 1967, Ser. No. 683,483
Int. Cl. A23d *5/00*
U.S. Cl. 99—92 5 Claims

All-purpose fluid shortening containing a combination of four additives: (a) normally solid monoester of glycerol and fatty acid having from about 12 to about 22 carbon atoms and an iodine value of less than 12; (b) monester of polyoxyethylene sorbitan (preferably containing about 20 oxyethylene units per molecule) and fatty acid having from about 14 to about 22 carbon atoms; (c) decaglycerol ester of fatty acid containing per molecule from about 2 to about 5 fatty acid groups having from about 14 to about 22 carbon atoms; and (d) monoester of propylene glycol and fatty acid containing from about 14 to about 26 carbon atoms, at least 20% of the fatty acid containing at least 22 carbon atoms.

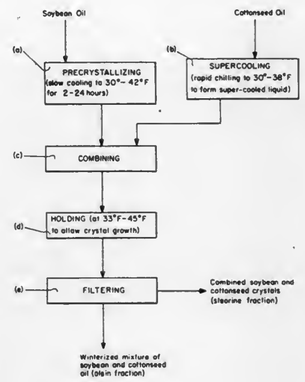
3,549,384
TOMATO PRODUCT AND METHOD OF MAKING SAME
Robert G. Walker, Glenview, and George Bosy, Park Ridge, Ill., assignors to Kraftco Corporation, New York, N.Y., a corporation of Delaware
Filed July 18, 1967, Ser. No. 654,169
Int. Cl. A23l *1/00, 1/22*
U.S. Cl. 99—100 8 Claims

Preparing tomatoes for the manufacture of catsup by breaking fresh whole tomatoes into particulate tomato solids and heating the surface of the particulate tomatoes within 10 seconds to a temperature sufficient to inactivate pectin-splitting enzymes thereon and thereafter completely heating the tomatoes within a time sufficiently short so that breakdown of the total pectin by enzymatic activity is minimized. Heating is preferably effected by contacting a flowing stream of the particulate tomato solids with sanitary steam.

3,549,385
METHOD FOR PRODUCING CORNED MEAT PRODUCTS
Harry F. Bernholdt, Park Forest, Ill., assignor to Swift & Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Mar. 15, 1967, Ser. No. 623,203
Int. Cl. A23b *1/03*
U.S. Cl. 99—107 3 Claims

A method for preparing corned meat products. The products are prepared by treatment with a brine solution containing active proteolytic enzyme in the absence of an inhibiting additive.

3,549,386
PROCESS FOR PROVIDING WINTERIZED MIXTURES OF SOYBEAN OIL AND COTTONSEED OIL
James H. Menzies, Springfield Township, Hamilton County, and Malcolm H. Thomas, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Aug. 19, 1968, Ser. No. 753,353
Int. Cl. A23d *5/00;* C11b *15/00*
U.S. Cl. 99—118 5 Claims



A process characterized by a relatively short winterization time and a rapid filtration rate which provides winterized mixtures of soybean oil and cottonseed oil. The process involves adding supercooled cottonseed oil to pre-crystallized soybean oil, crystallizing, and filtering.

3,549,387
PROCESS FOR PREPARING AN AERATED SHORTENING COMPOSITION
Alan James Howard, Newcastle-upon-Tyne, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Filed Apr. 30, 1968, Ser. No. 725,538
Claims priority, application Great Britain, May 16, 1967, 22,698/67
Int. Cl. A23d *5/02*
U.S. Cl. 99—122 8 Claims

Process for preparing aerated plastic shortening which comprises: rapidly chilling liquid fat; passing the chilled fat through two crystallizing zones; and then injecting edible gas into the fat.

3,549,388
PROCESS FOR THE PASTEURIZATION OF EGG PRODUCTS AND PRODUCTS SO PREPARED
Willibald F. Kohl, Nanuet, N.Y., and Arthur D. F. Toy, Stamford, Conn., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 738,411, June 20, 1968. This application Dec. 30, 1968, Ser. No. 788,078
Int. Cl. A23b *5/00*
U.S. Cl. 99—161 20 Claims

A process of pasteurizing egg products which comprises the addition of a responsive amount of a peroxyhydrate of an alkali metal salt of a phosphate, sulfate or carbonate thereto. The egg products are then heated to pasteurization temperatures.

3,549,389
FOOD PACKAGE
Norman R. Peterson, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Original application July 1, 1965, Ser. No. 468,886. Divided and this application Sept. 17, 1969, Ser. No. 870,960
Int. Cl. B65b *25/06*
U.S. Cl. 99—174 3 Claims

Layered barrier packaging films are disclosed which employ polyolefin outer layers and gas barrier inner layers. The films thermoform well and are eminently suited for food packaging and the like.

3,549,390
MILK-CLOTTING ENZYME PRODUCT AND PROCESS THEREFOR
Robert Lemoyne Charles, Donald Paul Gertzman, and Nicholas Melachouris, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind., a corporation of Indiana
No Drawing. Filed Sept. 9, 1968, Ser. No. 758,568
Int. Cl. A23c *19/02;* C07g *7/026*
U.S. Cl. 99—116 3 Claims

A novel milk-clotting enzyme product having a desirably high ratio of clotting activity to proteolytic activity can be prepared by growing under aerobic conditions a culture of *Mucor miehei* NRRL 3420 or mutants thereof in a medium containing appropriate nutrients and then recovering the enzyme therefrom. The resulting enzyme product can be used to coagulate milk in a cheesemaking process.

3,549,391
CORROSION PROOFING COMPOSITION AND METHOD

Charles R. Miller, Ashland, Ky., and Paul J. Holtzapfel, Ironton, Ohio, assignors to Ashland Oil, Inc., Houston, Tex., a corporation of Kentucky

No Drawing. Filed June 30, 1967, Ser. No. 650,179
Int. Cl. C09d *5/08*
U.S. Cl. 106—14 15 Claims

The application discloses protective compositions adapted for application by various modes, including especially spraying. The safety and smoothness of application, high corrosion resistance and durability of these corrosion-proofing systems in automotive undercoating and other applications are attributed to the interaction of the negative oliensis petroleum asphalt, characteristically platy particulate mineral filler, water insoluble waxy oxidate soap with acid number of about 20 to 50 and organophilic modified clay which they contain. Modified systems are also disclosed in which the mineral filler includes asbestos "floats."

3,549,392
MOLD COATING

Eugene O. Strauss, Crete, Anthony C. Walesa, Chicago, and Carl E. Johnson, Glen Ellyn, Ill., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Original application May 8, 1967, Ser. No. 636,623. Divided and this application Jan. 8, 1969, Ser. No. 789,953.
Int. Cl. B28b *7/36*
U.S. Cl. 106—38.23 3 Claims

A novel mold coating comprising humic acid and/or humic acid salts and organic bonding agents.

3,549,393
PRECISION TOLERANCE CERAMIC AND METHOD OF PREPARING SAME

Vito D. Elarde, San Diego, Calif., assignor to Ceram Corporation, La Mesa, Calif., a corporation of California

Filed Aug. 8, 1966, Ser. No. 571,124
Int. Cl. C04b *35/00, 35/18*
U.S. Cl. 106—39 12 Claims

A method of making ceramic articles of precise dimensions wherein a material portion of the particulate ceramic material which is to be fired is a sillimanite mineral such as Kyanite. After firing the article is heated under controlled temperature and time conditions so as to convert a part of the sillimanite material into mullite and silica, thereby expanding the article to a controlled extent, at least partially compensating for shrinkage which occurred in the firing. This allows precision ceramic articles to be formed before they are fired with conventional plastic molding procedures and equipment.

3,549,394
LOW THERMAL EXPANSION CERAMIC MATERIAL

Anthony J. Perrotta, Nanuet, N.Y.
(950 Harvard Road, Monroeville, Pa. 15146)

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,148
Int. Cl. C04b *33/00*
U.S. Cl. 106—39 3 Claims

A single phase solid solution of beta-eucryptite and $AlPO_4$ having the formula

$$Li_{1-x}AlP_xSi_{1-x}O_4$$

wherein x is between 0.05 and 0.65.

ERRATA

For Class 106—59 see:
Patent Nos. 3,549,400 and 3,549,402

3,549,395
ORGANOSILICONATES IN LITHIUM POLYSILICATES

George W. Sears, Wilmington, Del., and Dennis R. Smith, New London, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Feb. 28, 1968, Ser. No. 708,778
Int. Cl. C09d *1/04*
U.S. Cl. 106—84 8 Claims

Incorporation of organosiliconates such as sodium methyl siliconate in aqueous lithium polysilicate solutions, in an amount ranging from 0.0045 to 0.20 calculated as moles of silicon added as organosilicate per mole of silicon present as lithium polysilicate, results in greatly improved physical properties of the lithium polysilicate when used as an inorganic binder vehicle.

3,549,396
METHOD FOR PRODUCING PIGMENTS OF IMPROVED DISPERSIBILITY

Albert Dietz, New Martinsville, W. Va., assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

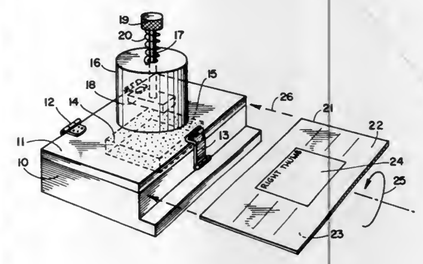
No Drawing. Continuation-in-part of application Ser. No. 506,608, Nov. 5, 1965. This application Aug. 13, 1969, Ser. No. 849,894
Int. Cl. C09c *1/00, 1/36, 3/00*
U.S. Cl. 106—300 11 Claims

Pigmentary metal oxides, e.g., titanium dioxide, are treated with an organic amine and an organic nitrogen compound containing an ionizable hydrogen atom attached to the nitrogen atom, the nitrogen atom being flanked by at least one carbonyl group.

3,549,397
METHOD FOR DEVELOPING FINGER PRINTS

Hugh C. McDonald, Santa Monica, Thomas J. Nolan, La Canada, and George W. Hoffer, Huntington Beach, Calif., assignors to World Associates, Inc., a corporation of California

Filed Feb. 3, 1969, Ser. No. 796,084
Int. Cl. B41n *3/00*
U.S. Cl. 117—.5 1 Claim

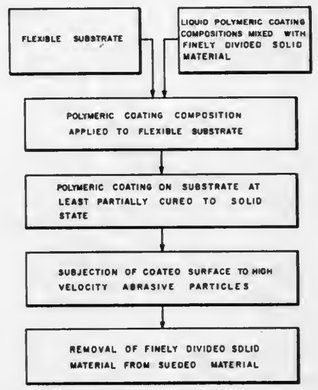


A method for developing finger prints includes the confining of a mixture of carbon particles and iron filings in a cavity. A cover is positioned over this cavity and a guide means is provided on the cover enabling manual movement of a magnet over the cavity. The arrangement is such that a card or medium upon which a person's finger print has been impressed may be inserted under the cover in a position to overlie the cavity. The magnet is then manually moved into proximity to thereby attract the mixture against the surface of the card and result in the adherence of the mixture to the impression formed on the surface of the card to render the finger print visible.

3,549,398
METHOD FOR MANUFACTURING WATER-VAPOR PERMEABLE, SYNTHETIC, SUEDE-LIKE, MATERIAL

George A. Watson, Charlotte, N.C., assignor to Fiber Industries, Inc., a corporation of Delaware

Filed Apr. 3, 1967, Ser. No. 628,024
Int. Cl. D06n *3/04, 3/14*
U.S. Cl. 117—8 9 Claims



A method for producing a synthetic suede-like leather material utilizing abrasive blasting techniques to abrade the surface of a flexible, elastomeric plastic coating on a fibrous substrate wherein the plastic coating contains removable solid particles.

3,549,399
ACCELERATOR TARGETS FOR NEUTRON PRODUCTION

Marcel Guillaume, Grivegnee, Jean-Marie Peters, Leon Winand, Jean Govaerts, Georges Gueben, and Guy Delfiore, Liege, and Serge Godar, Brussels, Belgium, assignors to European Atomic Energy Community—Euratom, Brussels, Belgium

No Drawing. Filed June 13, 1966, Ser. No. 556,906
Claims priority, application Belgium, June 18, 1965, 14,317
Int. Cl. G21g *1/00*
U.S. Cl. 117—16 6 Claims

A target for neutron-producing accelerators is prepared by coating a metal target blank with a polymer of a suitable deuterium or tritium containing momomer, preferably benzene, by pressure molding. If desired, the polymer, in powdered form, may be admixed with about 20% by weight of BeO powder and this mixture pressure molded onto the metal target base. Adhesion of the polymer to the metal base may be improved by precoating the metal with a conventional silver varnish.

3,549,400
THERMAL SHOCK RESISTANT CERAMIC MATERIAL

Irwin M. Lachman, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Sept. 15, 1967, Ser. No. 668,027
Int. Cl. C04l *35/42*
U.S. Cl. 106—59 4 Claims

Ceramic bodies composed of a plurality of phases having markedly different coefficients of thermal expansion. The ceramic bodies are characterized by grain boundary and intracrystalline cracking. The ceramics have compositions which fall within the area and along the boundaries defined by FIG. A, B, C, D, E, F, G, H, I on the accompanying ternary compositional diagram of the system R_xO_y—TiO_2-Chrome Ore. Compositions within the area of FIG. J, K, L, M, N, C, B are preferred. R_xO_y is selected from: (1) Al_2O_3, (2) $Al_2O_3+Fe_2O_3$ where Fe_2O_3 does not exceed 44.0 wt. percent, (3) Al_2O_3+ZnO where ZnO does not exceed 90.6 wt. percent, and (4) $Al_2O_3+Fe_2O_3+ZnO$ where Fe_2O_3 does not exceed 44.0 wt. percent and ZnO does not exceed 90.6 wt. percent. Articles are made by molding, pressing or otherwise forming raw material powders and then firing in the sintering range of the materials in an oxidizing atmosphere. Preferred products are liners for exhaust manifolds to facilitate complete combustion of exhaust gases from internal combustion engines or the like and thereby reduce air pollution.

3,549,401
METHOD OF MAKING ELECTROLUMINESCENT GALLIUM PHOSPHIDE DIODES

Leonard J. Buszko, Bronx, Luther M. Foster, Chappaqua, and Max R. Lorenz, Mahopac, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Dec. 20, 1966, Ser. No. 603,373
Int. Cl. H01l *7/38*
U.S. Cl. 148—175 6 Claims

Gallium phosphide light emitting diodes with controlled amounts of the p-type impurity zinc and the n-type impurity oxygen in the p region immediately adjacent the junction are prepared by epitaxial growth from a solution. An n-type wafer of gallium phosphide having a highly polished surface is placed in a chamber together with a mixture containing GaP, Ga, Zn, and Ga_2O_3. The chamber is evacuated, then filled with an inert gas and the mixture is then heated to about 1150° C. to form a liquid solution of gallium phosphide, zinc and oxygen dissolved in gallium. The container is then tipped so that the solid solution contacts the polished surface, and thereafter the wafer and solution are cooled to epitaxially grow the p-type gallium phosphide doped with zinc and oxygen in the desired amounts.

3,549,402
SILICON NITRIDE COMPOSITION AND ARTICLES THEREOF

Ellsworth D. Whitney, Amherst, and Philip H. Crayton, Alfred, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 482,166, Aug. 24, 1965, and Ser. No. 822,094, Apr. 1, 1969, the latter being a continuation of application Ser. No. 482,131, Aug. 24, 1965. This application May 6, 1969, Ser. No. 822,304
Int. Cl. C04b *35/58*
U.S. Cl. 106—55 4 Claims

A new compound lithium silicon nitride ($LiSi_2N_3$) is produced and the production of hot pressed articles from silicon nitride is improved by mixing lithium nitride or lithium silicon nitride with the silicon nitride.

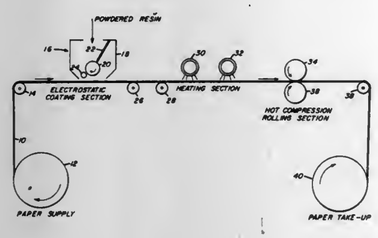
3,549,403
METHOD OF COATING PAPER WITH THERMOPLASTIC RESINS

Robert F. Williams, Jr., and Herbert S. Barbehenn, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Feb. 19, 1968, Ser. No. 706,464
Int. Cl. B44d *1/094, 1/44*
U.S. Cl. 117—17 11 Claims

Dry, powdered, thermoplastic polymeric resin, such as powdered polyethylene, is applied to a sheet of uncalendered paper in a manner providing a uniform coating, for

example, by electrostatic coating or hopper coating, and then the coated sheet is subjected to hot compression roll-



ing to form the polymer particles into an adherent film strongly bonded to the paper.

3,549,404
SEAMLESS MULTI-LAYERED COATING ASSEMBLY AND PROCESS FOR PREPARING SAME

Felix P. Liberti, Totowa Boro, and Nicholas J. Lacamera, North Plainfield, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

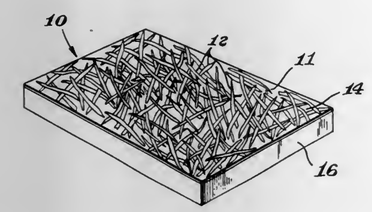
No Drawing. Filed Apr. 24, 1968, Ser. No. 723,888
Int. Cl. B44c *1/06;* **B44d** *1/14*
U.S. Cl. 117—26 **14 Claims**

Protective and decorative multi-layered coating systems resulting from the successive application to solid substrates of: (1) an underlayment coating comprising a clear or pigmented aqueous vinyl acetate polymer/polyurethane emulsion blend; (2) a seal coat comprising a clear aqueous vinyl acetate polymer/polyurethane emulsion blend; and, (3) a glaze or wear coat comprising a clear solvent-based polyurethane system. The resulting dried, multi-layered system provides seamless flooring, wall paneling, counter and table tops, and coverings for a wide variety of surfaces.

3,549,405
IRIDESCENT RESINOUS FILM BODIES AND A SUBSTRATE COATED THEREWITH

Walter J. Schrenk, Bay City, and Harold A. Walters, Beaverton, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Continuation-in-part of application Ser. No. 431,422, Feb. 9, 1965. This application Mar. 29, 1965, Ser. No. 445,852
Int. Cl. B44d *5/06;* **B44f** *1/14*
U.S. Cl. 117—33 **12 Claims**

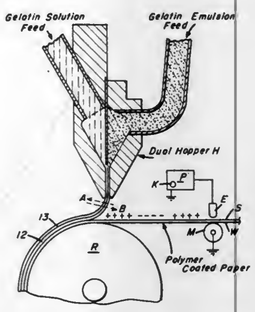


A decorative plastic material is disclosed which consists of particles of plastic film. The plastic film is iridescent. The iridescence is caused by a number of thin layers of plastics with different refractive indices.

3,549,406
PROCESS OF COATING POLYMER SURFACES ACTIVATED BY CORONA DISCHARGE

William J. Ambusk, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Continuation-in-part of application Ser. No. 511,241, Dec. 2, 1965. This application Apr. 26, 1968, Ser. No. 724,491
Int. Cl. B44d *1/092, 1/12*
U.S. Cl. 117—34 **11 Claims**



Polymeric photographic supports particularly polyethylene coated paper containing antistatic material are coated with photographic emulsion layers by corona activation of the polymer surface using a current for generating the corona having a frequency greater than about 200 cycles per second. The frequency of the power source is adjusted to the speed of the corona activation of the surface and the speed of coating the surface to obtain a uniform coating. In a representative process a 400 cycle corona is applied to the polymer surface at 125 f.p.m. and the emulsion layer coated thereon at the same speed.

3,549,407
PROCESS FOR APPLYING A TEXTURED DECORATIVE COATING TO A METAL SUBSTRATE AND ARTICLE THEREOF

James Howard Williamson, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,220
Int. Cl. B44d *1/16;* **B32b** *15/08*
U.S. Cl. 117—45 **6 Claims**

A coating composition for metal substrates which comprises a base composition which is a blend of a urethane polymer and a vinyl chloride polymer that is applied to a metal substrate and a webbing composition which is a methacrylate polymer that is applied as a decorative textured pattern over the base composition.

3,549,408
IMPREGNATION OF A MATERIAL BASED ON CARBON BY MOLTEN METALS

Roger Bonne, Aulnay-sous-Bois, Maurice Jacquot, Neuilly Plaisance, and Jacques Fourre, Epinay-sur-Seine, France, assignors to Societe Le Carbone Lorraine, Paris, France, a French body corporate

No Drawing. Filed Mar. 1, 1968, Ser. No. 709,787
Claims priority, application France, Apr. 14, 1967, 107,782
Int. Cl. B44d *1/092;* **C23c** *1/00*
U.S. Cl. 117—47 **1 Claim**

The invention relates to a method of impregnating carbon or graphite with metal by forcing molten metal into the pores under pressure, in which method the pressure necessary for impregnation is lowered and the force which tends to cause the metal to re-emerge is reduced by applying boric acid or ammonium phosphate to lower

the surface tension of the metal-carbon couple. Application may be by previous introduction into the carbon and a preferred amount is from 0.05 to 5% by weight of impregnated product.

3,549,409
PRODUCTION OF NONTHROMBOGENIC PLASTICS

Manfred F. Dyck, North Miami, Fla., assignor to Cordis Corporation, Miami, Fla., a corporation of Florida

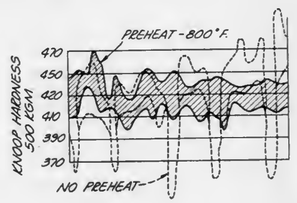
No Drawing. Continuation-in-part of application Ser. No. 650,615, July 3, 1967. This application Apr. 28, 1969, Ser. No. 820,010
Int. Cl. A61k *17/18;* **B44d** *1/092*
U.S. Cl. 117—47 **5 Claims**

Plastics are rendered nonthrombogenic by heparinizing them following a treatment with a polyvalent metal salt dissolved in a solvent capable of swelling the plastic. The metal absorbed by the plastic is thus caused to bond heparin to the surface effectively to impart anti-coagulating properties.

3,549,410
PROCESS OF REBUILDING STEEL STRUCTURES

Howard N. Farmer, Jr., Whittier, Calif., assignor to Stoody Company, Whittier, Calif., a corporation of California

Filed Dec. 4, 1967, Ser. No. 687,658
Int. Cl. C23c *1/10*
U.S. Cl. 117—50 **6 Claims**



The invention concerns an improvement in the rebuilding of steel workpieces, such as rolls, platens, and the like, wherein great uniformity in mechanical properties must be achieved throughout the rebuilt layer. In accordance with the invention, the workpiece is maintained at a temperature in excess of the martensite transformation temperature of the added steel, and not in excess of about 1300° F. during the incremental building up of the added steel layer by any conventional welding process. The martensite transformation and the subsequent tempering by succeeding welding is thereby completely avoided during the building-up process, which leads to great uniformity in the finished layer when transformation does take place.

3,549,411
METHOD OF PREPARING SILICON NITRIDE FILMS

Kenneth E. Bean, Richardson, and Paul S. Gleim, Dallas, Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex., a corporation of Delaware

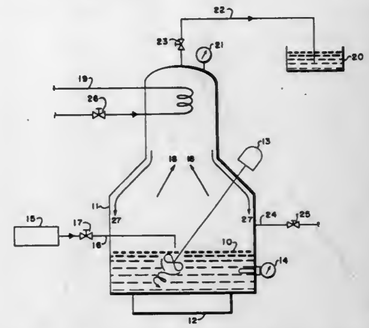
Filed June 27, 1967, Ser. No. 649,299
Int. Cl. B44d *1/02*
U.S. Cl. 117—69 **3 Claims**

Disclosed is a method for adjusting various physical and chemical properties of chemically vapor deposited silicon nitride films by regulating the composition of the reactant gas stream. Among these properties are etch resistance, refractive index, relative dielectric constant, hardness, coefficient of thermal expansion, and thermal conductivity.

3,549,412
METAL PLATING PARTICULATED SUBSTRATES

Frederick W. Frey, Jr., and David R. Carley, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

Continuation-in-part of application Ser. No. 378,145, June 26, 1964. This application Apr. 29, 1968, Ser. No. 725,119
Int. Cl. B44d *1/06;* **C23c** *3/04*
U.S. Cl. 117—100 **14 Claims**



Process for metal plating a particulated substrate by preparing a heated solvent slurry of the substrate under inert conditions and introducing a heat-decomposable metal plating compound into the heated slurry while providing agitation of the slurry and refluxing of the solvent vapors.

3,549,413
REINFORCING FILAMENTS COMPRISING COATED TUNGSTEN WIRES

Lee C. McCandless, Arlington, Va., James C. Withers, Accokeek, Md., and Charles R. Brummett, Washington, D.C., assignors to General Technologies Corporation, a corporation of Delaware

Continuation of application Ser. No. 519,625, Jan. 10, 1966. This application July 28, 1969, Ser. No. 849,242
Int. Cl. C23c *11/08*
U.S. Cl. 117—106 **8 Claims**

A high-strength low density filamentous reinforcement material adapted to be incorporated into composite structures as reinforcement, formed of a fine tungsten core wire having a coating thereon of boron silicide, silicon carbide, titanium nitride, titanium boride, or aluminum boride. The coated wire has a diameter at least four times the diameter of the core wire alone, with the coating constituting at least 93% of the cross-sectional area thereof, to give a low-density, high modulus of elasticity material.

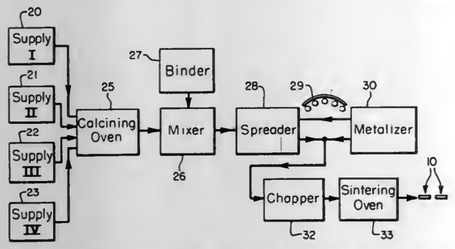
3,549,414
METHOD OF TUNING PIEZOELECTRIC RESONATORS

Daniel R. Curran, Cleveland Heights, and Donald J. Koneval, Lyndhurst, Ohio, assignors to Clevite Corporation, a corporation of Ohio

Original application Apr. 19, 1965, Ser. No. 449,063, now Patent No. 3,401,276. Divided and this application June 12, 1968, Ser. No. 736,368
Int. Cl. H01v *7/00*
U.S. Cl. 117—212 **9 Claims**

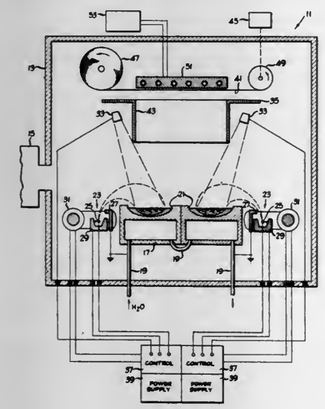
A wafer of piezoelectric material is provided with electrodes on opposite surfaces thereof. Tuning is accomplished by the application of a high Q dielectric nonconducting film over the surface of at least one electrode and the surrounding nonelectroded wafer material. The film thickness is increased until the desired resonant frequency of the electroded region is obtained. Reference is made to the claims for a legal definition of the invention.

3,549,415
METHOD OF MAKING MULTILAYER CERAMIC CAPACITORS
Raymond G. Capek, Elmhurst, and John P. Mazintas, Stickney, Ill., assignors to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed July 15, 1968, Ser. No. 745,012
Int. Cl. C23b 5/50
U.S. Cl. 117—215 5 Claims



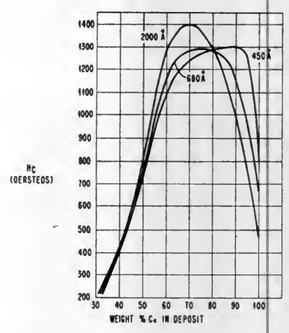
Ceramic capacitors are made of several layers of dielectric ceramic material separating metal plates. By selecting titanate ceramics having different temperature coefficients of capacitance a preselected temperature characteristic is attainable. However, in order that the several ceramic powders do not diffuse during sintering, these materials are calcined prior to forming the several dielectric layers.

3,549,416
PROCESS FOR FORMING SUPERCONDUCTIVE MATERIALS
Bjorn S. Rump, Chene-Bourgeries, Switzerland, and Robert H. Hammond, San Diego, and Charles H. Meyer, Jr., Del Mar. Calif., assignors, by mesne assignments, to Gulf Energy & Environmental Systems, Inc., San Diego, Calif., a corporation of Delaware
Filed June 1, 1965, Ser. No. 460,206
Int. Cl. B44d 1/18; C23c 13/02
U.S. Cl. 117—227 1 Claim



A process from the formation of superconductive niobium$_3$tin having a transition temperature of at least about 17° K. employs simultaneous evaporation of niobium and tin from separate sources using electron bombardment heating and vacuum conditions of about 10^{-5} torr. Codeposition is carried out on a heated substrate having a temperature of about 850° C. Uniformity and relatively high transition temperatures of the superconductive material are accomplished by maintaining the relative rates of deposition between about 1.95 and about 2.15 (niobium to tin), the rate of deposition of niobium at least about 160 A. per second and the rate of tin deposition at at least about 80 A. per second.

3,549,417
METHOD OF MAKING ISOCOERCIVE MAGNETIC ALLOY COATINGS
John S. Judge and John R. Morrison, Wappingers Falls, and Dennis E. Speliotis, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Nov. 16, 1965, Ser. No. 508,090
Int. Cl. C23c 3/02
U.S. Cl. 117—240 1 Claim



Thickness independent isocoercive magnetic alloys of 76–84% by weight cobalt, 14–22% by weight of nickel and 1–2% by weight of phosphorus produced, for example, by deposition from a chemical plating bath of the cobalt-nickel cation-hypophosphite anion type, including a ratio of cobalt cation concentration to nickel cation concentration on the order of about 4:1.

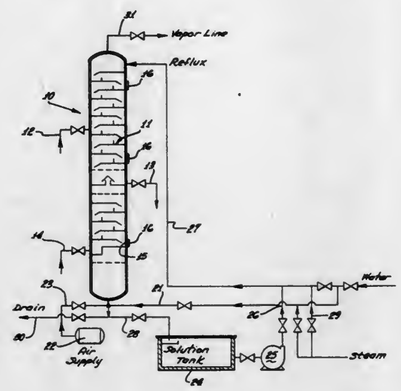
3,549,418
MAGNETIC RECORDING FILMS OF COBALT
Fred E. Luborsky, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Oct. 9, 1967, Ser. No. 673,790
Int. Cl. H01f 10/02
U.S. Cl. 117—240 2 Claims

A magnetic recording medium characterized by a nonmagnetic substrate and an overlying magnetic film consisting essentially of cobalt and molybdenum wherein molybdenum forms between 40 and 80% by weight of the film. The cobalt-molybdenum film is further characterized by a thickness less than 10 microns and possesses both a coercive force greater than 100 oersteds and a remanence greater than 500 gauss.

3,549,419
CATALYTIC METHOD FOR CLEANING SOILED OVEN SURFACES
Alvin B. Stiles, Wilshire, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Oct. 19, 1965, Ser. No. 498,125
Int. Cl. C23g 1/00; B08b 7/00; C03c 23/00
U.S. Cl. 134—2 4 Claims

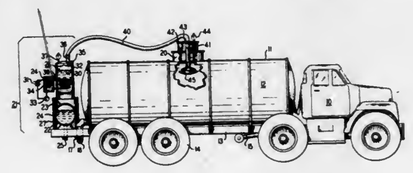
The soiled surfaces of oven interiors are cleaned by applying to these surfaces a solution of at least one catalytic metal nitrate and then heating to oxidize and decompose the food residues. The solution can optionally contain a non-ionic wetting agent.

3,549,420
METHOD FOR CLEANING PROCESS EQUIPMENT
Lawrence W. Cunningham, Westminster, Calif., assignor to Purex Corporation, Lakewood, Calif., a corporation of California
Filed Nov. 9, 1967, Ser. No. 681,719
Int. Cl. B08b 9/08, 3/08, 3/10
U.S. Cl. 134—22 17 Claims



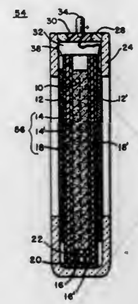
A method for cleaning or processing or refining columns of the multiple plate, e.g., bubble cap tray, type commonly used in oil and gas refining and usually equipped with normally closed manways at different elevations.

3,549,421
INDUSTRIAL TECHNIQUE
Thomas P. McFadden, Brooklyn, N.Y., Rolf Moe, Scotch Plains, N.J., and Frank B. Sidoti, Brooklyn, N.Y., assignors to Burmar Chemical Corporation, Brooklyn, N.Y., a corporation of New York
Filed Nov. 18, 1968, Ser. No. 776,666
Int. Cl. B08b 5/00
U.S. Cl. 134—31 8 Claims



A technique for rapidly and thoroughly cleansing the interior surfaces of the trailers on tank-trucks, and the like. After the tank contents have been discharged, a hose is attached from a vapor generator mounted on the trailer to a tank storage volume inlet. A degreasing solvent (preferably a mixture of mineral oil and 1,1,1-trichloroethane) is vaporized in the generator and flows through the hose and into the storage volume, usually while the truck is enroute to a new destination. The solvent vapor reduces the viscosity of the residue adhering to the tank walls, enabling it to flow to the bottom of the tank for subsequent disposal. The tank, moreover, may be cooled by means of a water spray, for example, when the structure exceeds 80 degrees F.

3,549,422
RECHARGEABLE METAL-AIR BATTERY
Otto C. Wagner, Long Branch, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 2, 1968, Ser. No. 780,496
Int. Cl. H01m 27/00
U.S. Cl. 136—86 3 Claims



A rechargeable metal-air unit cell is provided in which a flat cadmium anode is positioned intermediate of and spaced from a pair of flat air cathodes and means provided to transport the electrolyte to the electrodes. The electrolyte transport means include an electrolyte reservoir adjoining the electrodes, each cell being in combination with an electrode separation system consisting of electrolyte absorbent material layers extending from the cathode and anode faces respectively into the reservoir with layers of nonoxidizable membrane material positioned between the layers of electrolyte absorbent material.

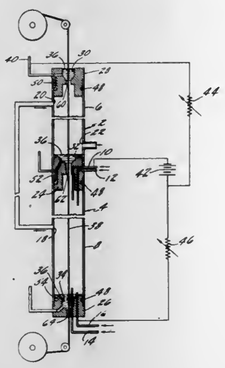
3,549,423
METHOD FOR MANUFACTURING FOAM TYPE ELECTRODE
Willard T. Grubb and Lawrence H. King, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
Filed June 30, 1967, Ser. No. 650,512
Int. Cl. H01m 13/00
U.S. Cl. 136—120 4 Claims

An open cellular structural foam is associated with a current collector. An electrocatalytically active mass which can be a mixture of an electronically conductive composition and a binder is spread into the foam. The mass is dried, heat treated, and sintered after which the foam is leached. A hydrophobic polymer coating may be applied to one major surface of the electrode.

3,549,424
METHOD FOR PRODUCING FILAMENTARY BORON
Charles K. Rice, Thompsonville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Feb. 24, 1967, Ser. No. 618,511
Int. Cl. C23c 11/00
U.S. Cl. 148—6.3 8 Claims

A chemical deposition process for producing continuous boron filaments by reducing boron trichloride on a resisitively heated tungsten wire, the wire being drawn through a vertical reactor which is divided into upper and lower stages, the reactant gas mixtures being introduced to the lower stage at both ends thereof and exhausted

near the center to provide both concurrent and countercurrent flow conditions and differing gas compositions at



the respective ends, the gas discharged from the lower stage being utilized as the feed for the upper stage.

3,549,425
PASSIVATION OF METALS
Marnell A. Segura and Leo Broussard, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Jan. 10, 1968, Ser. No. 696,712
Int. Cl. C23f 7/04
U.S. Cl. 148—6.35 6 Claims

This invention relates to the surface treatment of metals to form protective films or layers. Ferrous metals are oxidized to form surface films of wustite, and the so-treated metal is then quenched in an inert atmosphere and cooled sufficiently to disproportionate a major portion of the wustite to magnetic oxide of iron. The magnetic oxide of iron film is impervious, and quite stable, and hence forms a barrier which protects the unexposed metal lying beneath the film from further oxidation.

3,549,426
METHOD OF FORMING AN ENGINE VALVE OF A FERROUS METAL CONTAINING CHROMIUM AND NICKEL BY HEATING TREATING AND DEFORMING
Richard A. Kloske and William F. Barclay, Parma Heights, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 607,406, Jan. 5, 1967. This application Nov. 29, 1967, Ser. No. 692,618
Int. Cl. C21d 7/02
U.S. Cl. 148—12 3 Claims

Cold formable valve steel of composition 19–23% chromium, 4.0–6.5% nickel, 6.2–8.5% manganese, 0–1.5% silicon, 0.15–0.3% carbon, 0.15–0.3% nitrogen, 0–0.2% columbium and/or tantalum, 0–0.1% phosphorus, 0–0.1% sulphur, balance substantially iron, articles thereof and production. The above described alloy is utilized in making an engine poppet valve. A part made of the alloy is solution treated and quenched. Subsequently the part may be reheated for working. It is then extruded and upset to form a valve shape.

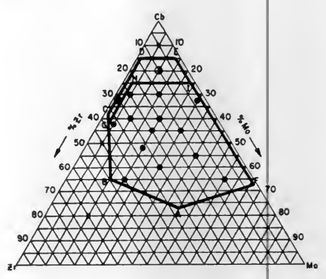
3,549,427
WEAR RESISTANT MATERIALS
John J. Rausch, Antioch, and Ray J. Van Thyne, Oak Lawn, Ill., assignors to Surface Technology Corporation, Stone Park, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 665,510, Sept. 5, 1967. This application Aug. 27, 1968, Ser. No. 755,658
Int. Cl. C23c 11/14, 9/00
U.S. Cl. 148—31.5 42 Claims

Nitrided materials consisting essentially of at least one metal selected from each of the Groups A, B and C wherein Group A consists of columbium and/or tantalum and/or vanadium; Group B is titanium, and Group C is tungsten and/or molybdenum. Such nitrided metals are characterized by excellent wear and abrasion resistance and illustrate utility as cutting tools. Includes certain novel alloy materials.

3,549,428
MAGNETIC THIN FILMS AND METHOD OF MAKING
James M. Lommel, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Feb. 26, 1968, Ser. No. 708,123
Int. Cl. C21d 1/04; H01f 10/02
U.S. Cl. 148—31.55 10 Claims

A magnetic member is prepared by a process which maintains a low anisotropy dispersion and increases the coercive force in copper diffused iron-nickel alloy magnetic thin films. An iron-nickel alloy film is deposited on a substrate under such deposition conditions and with sufficient nickel content to exhibit a negative magnetostriction. A film of copper is deposited on the alloy film. The film carrying substrate is annealed to diffuse the copper into the alloy film until it has a substantially zero magnetostriction. The magnitude of the negative magnetostriction is controlled so that the film is brought to zero magnetostriction by the desired anneal and diffusion of copper.

3,549,429
WEAR AND ABRASION RESISTANT MATERIALS
John J. Rausch, Antioch, and Ray J. Van Thyne, Oak Lawn, Ill., assignors to Surface Technology Corporation, Stone Park, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 665,510, Sept. 5, 1967. This application Aug. 27, 1968, Ser. No. 755,662
Int. Cl. C22c 15/00, 29/00
U.S. Cl. 148—32 7 Claims



Nitrided materials consisting essentially of:

(I) columbium and/or tantalum and/or vanadium;
(II) zinconium and zirconium-titanium mixtures; and
(III) tungsten and/or molybdenum.

Such nitrided metals are characterized by excellent wear and abrasion resistance and illustrate utility as cutting tools.

3,549,430
BAINITIC DUCTILE IRON HAVING HIGH STRENGTH AND TOUGHNESS
Frederick K. Kies, Tuxedo, and Robert D. Schelleng, Ramapo, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 14, 1967, Ser. No. 682,985
Int. Cl. C22c 37/00, 37/04
U.S. Cl. 148—35 3 Claims

Directed to bainitic ductile irons exhibiting high strength and machinability after a simple tempering heat treatment at about 400° F. to about 600° F. containing about 2.9% to about 3.9% carbon, about 1.7% to about 2.6% silicon, about 3.2% to about 7% nickel, with the nickel content being directly related to the section size of castings to be produced, at least about 0.15% up to about 0.4% molybdenum, not more than about 0.2% chromium, up to about 1% manganese, a graphite-spheroidizing amount of magnesium, and the balance essentially iron.

3,549,431
METHOD OF PRODUCTION OF CAST-IRON PARTS WITH A HIGH COEFFICIENT OF THERMAL EXPANSION
Gäetan de Coye de Castelet, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, Hauts-de-Seine, France
No Drawing. Filed June 28, 1966, Ser. No. 561,033
Claims priority, application France, July 27, 1965, 26,210
Int. Cl. C21d 5/00
U.S. Cl. 148—141 6 Claims

A method of treating cast-iron parts of an alloy consisting essentially of 1.4 to 4% carbon, 1.5 to 3% silicon, 0.1 to 2% manganese and the balance iron which comprises heating the parts to a temperature between about 825 and 1100° C. followed by immersing the parts in a fluid medium maintained at a temperature between about 400 and about 600° C. and thereafter transferring said parts to a furnace heated to a temperature between 200° and about 450° C., and finally cooling in air.

ERRATUM

For Class 148—175 see.
Patent No. 3,549,401

3,549,432
MULTILAYER MICROELECTRONIC CIRCUITRY TECHNIQUES
David R. Sivertsen, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed July 15, 1968, Ser. No. 744,983
Int. Cl. H01l 7/54
U.S. Cl. 148—175 15 Claims

A microelectronic circuit fabrication technique where an electron beam forms hillocks of single crystal material through a dielectric layer from a single crystal substrate. A single crystal is then grown atop each hillock over the dielectric layer by first epitaxially depositing material using the hillock as a nucleation site. The epitaxially deposited material is next expanded by means of a scanning electron beam into a broad area of single crystal material. This single crystal may be patterned to form component sites. Multilayer structures are formed by covering each previous dielectric layer and component sites with a subsequent dielectric layer and repeating the process of single crystal growth using extensions of the hillocks as nucleation sites.

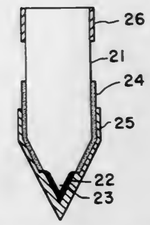
3,549,433
METHOD OF PURIFYING ETCHED SILICON SURFACES
Theodor Renner, Nuremberg-Reichelsdorf, and Ludwig Mögele, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
No Drawing. Filed July 2, 1968, Ser. No. 741,886
Claims priority, application Germany, July 5, 1967, S 110,675
Int. Cl. H01l 7/34
U.S. Cl. 148—186 4 Claims

The present invention relates generally to a method of purifying the surfaces of etched silicon bodies prior to the subsequent application and indiffusion of dopants. Primarily, it relates to the removal of chemical groups present in the etching solution, which have occupied the surface valences of the silicon, freed during etching. These chemical groups, which cannot be completely removed either by rinsing with water or heating, are removed by contacting with an aqueous iodine/potassium iodide solution.

3,549,434
LOW RESISITIVITY GROUP IIb–VIb COMPOUNDS AND METHOD OF FORMATION
Manuel Aven, Burnt Hills, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 19, 1968, Ser. No. 760,826
Int. Cl. H01l 7/62
U.S. Cl. 148—186 6 Claims

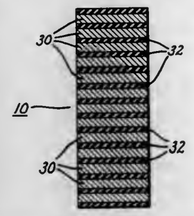
High power, low loss p-n junctions are formed in Group IIb–VIb compound wafers by firing the wafer in a liquid alloy of zinc and aluminum to diffuse the aluminum partially into the surface of said wafer, firing the wafer in selenium, sulfur or tellurium vapor to compensate the aluminum doped region and effect a p-type conductivity in the remainder of the wafer, and firing the wafer in zinc or cadmium vapor for a period preferably at least twice the period required for the metal to uncompensate a chalcogen-compensated aluminum-doped semiconductive region equal in thickness to the aluminum doped region to restore an n-type conductivity therein.

3,549,435
METHOD OF MAKING SEMICONDUCTOR P-N JUNCTION STRESS AND STRAIN SENSOR
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Jimmie J. Wortman, Durham, and Ralph R. Stockard, Raleigh, N.C.
Original application Sept. 6, 1966, Ser. No. 577,548, now Patent No. 3,432,760. Divided and this application Aug. 1, 1968, Ser. No. 763,040
Int. Cl. H01f 7/44
U.S. Cl. 148—187 3 Claims



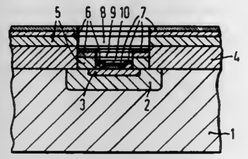
Method for making a rod of one type semiconductor material with a needle-like point at one of its ends and another type semiconductor material diffused into the surface of the rod at said one of its ends to form a P-N junction at said needle-like point. The rod with the P-N junction formed on its end is useful as a stress and strain sensor.

3,549,436
LAYERED PROPELLANT COMPOSITION CONSISTING OF AN ELECTRICAL CONDUCTOR AND AN INSULATOR
Aldo V. La Rocca, Villanova, Pa., assignor to General Electric Company, a corporation of New York
Filed Dec. 13, 1967, Ser. No. 690,168
Int. Cl. C06c *3/10*
U.S. Cl. 149—15 **2 Claims**



Discrete quantities of solid vaporizable propellant are provided as lamina of solid slug, fed by spring against insulating stop into interelectrode region where electrical discharge initially strikes down to lamina, gasifying it and then continues through gas, adding energy which causes ejection of gas with high momentum. Paschen's law causes discharges to take long path down to lamina until its complete gasification raises pressure sufficiently to permit the discharges to follow shorter path through gas. Lamina are separated by non-conductive layer; may be exothermically reactive to add thermal energy to gas.

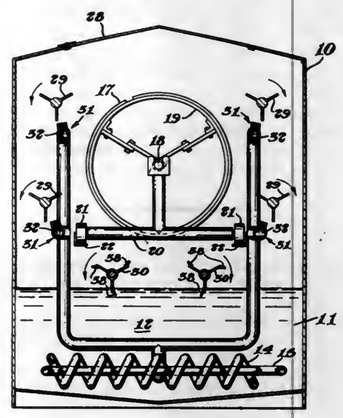
3,549,437
METHOD OF PRODUCING METAL STRUCTURES ON SEMICONDUCTOR SURFACES
Alfred Steppberger and Herbert Goetzeler, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
Filed Feb. 10, 1967, Ser. No. 615,211
Claims priority, application Germany, Feb. 11, 1966, S 101,956
Int. Cl. H01l *7/50;* **C23f** *1/02*
U.S. Cl. 156—4 **4 Claims**



Process of decreasing etching time during production of fine metal structures. An additional metal, e.g. Au or Ag, having a variable redox potential is added during vapor precipitation of metal layer, e.g. aluminum, at pressure $<10^{-5}$ torr.

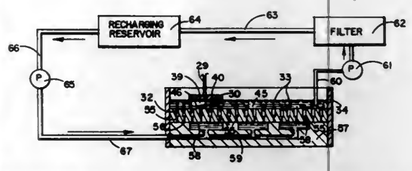
3,549,438
METHOD AND APPARATUS FOR ETCHING CURVED SURFACES
Clayton W. Hoornstra, Richard E. Moore, and John D. Hickerson, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed May 23, 1967, Ser. No. 640,562
Int. Cl. B41c *1/18;* **C23f** *1/02*
U.S. Cl. 156—14 **12 Claims**

Improved etching machine and method for the powderless etching of curved surfaces in which liquid etching composition is directed toward respective rotating vaned paddles at predetermined angles and for predetermined periods in an overall continuous manner by at least two series of jets operated alternately, cyclically and mutually exclusively. The liquid is substantially continuously flung as a splash and at a predetermined angle from the rotating paddles to an adjacent, spaced apart, substantially parallel curved plate to be etched, the curved plate being disposed with its axis substantially horizontal and the curved plate being rotated about its axis while etching proceeds. The apparatus includes a housing with a sump, a pump, agitators, a plate holder, means for rotating the plate holder, means for impinging an etching composition upon



a curved plate held by the plate holder, an etching bath composition within the sump and means for controlling the temperature of the composition within the sump. The improvement in the apparatus lies mainly in the selection, disposition and utilization of jet injectors and vaned paddles so as to provide for impinging of increments of etching composition on a curved plate in the alternating, preferably angular, manner of the present improved method of etching.

3,549,439
CHEMICAL LAPPING METHOD
Frederick S. Kaveggia, South Laguna, and David E. O'Grady, Yorba Linda, Calif., assignors to North American Rockwell Corporation
Filed Sept. 15, 1967, Ser. No. 667,916
Int. Cl. B24b *1/00;* **B24c** *1/08;* **H01l** *7/00*
U.S. Cl. 156—17 **4 Claims**

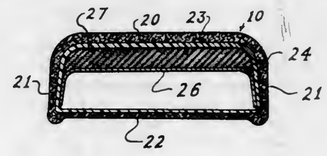


A process and apparatus for chemically lapping a specimen of quartz, ferrite, MgO, and the like. The surface of a graphite lapping plate is covered with a chemical lapping reagent comprising an organic salt which when heated splits to provide a molecule reactive with the specimen. Friction caused by relative motion of the specimen and the lapping plate causes heating of a film of the compound beneath the specimen, and the molecules thus provided preferentially lap the specimen. As this etching progresses, the specimen takes on the same curvature as the surface of the lapping plate. The lapping reagent may be maintained under positive pressure to ensure the presence of a continuous film of lapping reagent between the specimen and the graphite plate.

3,549,440
METHOD FOR SEALING A MEMBRANE TO THE MOUTH OF A CONTAINER UTILIZING INDUCED RADIO FREQUENCY CURRENT
Edmund Philip Adcock, Harpenden, and Joan Ann Stanley, Dunstable, England, assignors to United Glass Limited, Staines, Middlesex, England, a corporation of the United Kingdom
Filed Oct. 26, 1967, Ser. No. 678,310
Int. Cl. B65b *7/00*
U.S. Cl. 156—69 **10 Claims**

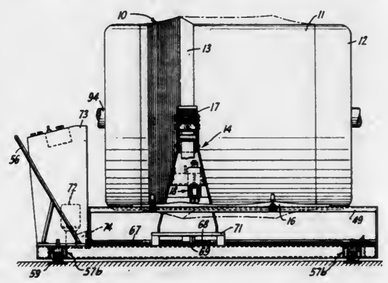
A method for sealing a membrane to the mouth of a container, with simultaneous crimping of the membrane therearound. The membrane or the container finish is of metal. A thermoplastic material is coated on the membrane or container finish. The membrane is pressed onto both the top and side of the finish. The said metal is then heated by an induced radio frequency current to effect a readily removable seal. A suitable apparatus comprises a crimping head substantially all of insulating material and an induction coil round the head.

3,549,441
METHOD OF PRODUCING A HOLLOW ARTICLE HAVING A DECORATIVE APPEARANCE
William J. Mesinger, R.R. 1, Castle Hill Road, Newtown, Conn. 06470, and Robert H. Mesinger, Lake Crest Drive, Aunt Hack Ridge, Danbury, Conn. 06810
Filed Dec. 27, 1966, Ser. No. 604,861
Int. Cl. B29c *5/04;* **B32b** *5/18*
U.S. Cl. 156—79 **9 Claims**



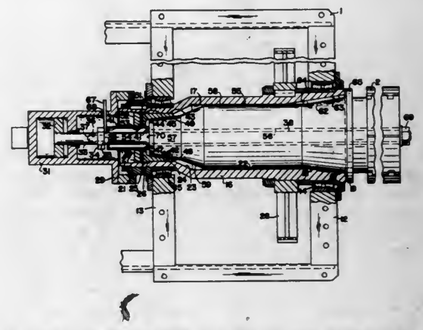
A process for producing a flexible plastic hollow article having a decorative appearance such as a cycle cover which comprises multiplane rotationally heat treating, in a hollow mold, plastic material and a minor proportion of decorative solid particles.

3,549,442
METHOD OF BUILDING A TIRE CASING FROM A STRIP OF RUBBER
Robert E. Hineline, Akron, Ohio, assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed July 26, 1967, Ser. No. 656,283
Int. Cl. B29h *17/20*
U.S. Cl. 156—117 **1 Claim**



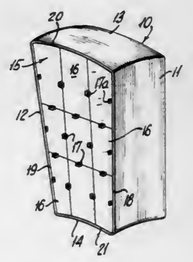
A method of building tires, such as new off-the-road tires, on a drum arrangement whereby a strip of rubber is placed thereon as the drum continually rotates. The apparatus includes an application and sensing arm which guides the material onto the drum in a predetermined pattern in accordance with a straight line template. The application and sensing arm moves in a straight line across the surface of the building drum to build a tire contour in accordance with the template configuration. The apparatus is portable and may be removed from a building station when not required and thus used to serve a number of building stations.

3,549,443
QUICK-CHANGE SPINDLE FOR REELS
John F. Salko, Beaver, and Stanley Kozak, Ellwood City, Pa., assignors to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed Sept. 25, 1968, Ser. No. 762,542
Int. Cl. B21c *47/02*
U.S. Cl. 242—78.1 **5 Claims**



A quick-change spindle for the drums of pay-off and take-up reels for coils of metal strip. The spindle is supported by a quill that is provided with a bore that tapers outwardly at its front end and that has a tapered retainer at its rear end. The spindle has a corresponding taper that engages the taper at the front end of the quill and a tapered nose portion that engages within the tapered retainer.

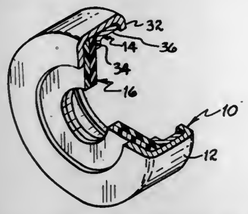
3,549,444
FILAMENT WOUND BLADE AND COMPRESSOR
Harry S. Katz, 785 Pleasant Valley Way, West Orange, N.J. 07052
Filed Dec. 28, 1967, Ser. No. 694,227
Int. Cl. B65h *81/02*
U.S. Cl. 156—175 **1 Claim**



A filament wound structure such as a compressor and the method for producing the latter in which a pair of compressor blades is formed by means of a continuous filament in which each filament turns an angle greater

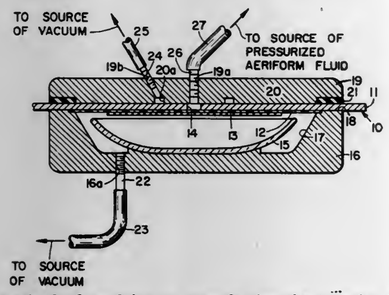
than 45°. Each pair of compressor blades is made as an integral unit and secured around the periphery of a filament wound disc. A shroud comprised of filaments is wound and secured to the tips of the blades to form a high strength compressor assembly free of internal stresses.

3,549,445
METHOD OF FORMING A LAMINATE SEALING ELEMENT
Edward G. McMahon, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Oct. 23, 1964, Ser. No. 406,074
Int. Cl. B32b 27/06
U.S. Cl. 156—222 9 Claims



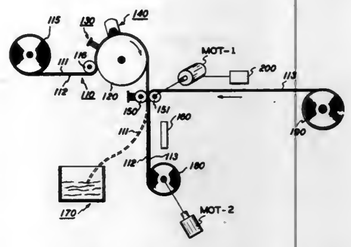
A method for forming an annulus sealing member comprising a laminate of an inert synthetic resinous material such as tetrafluoroethylene polymer bonded to an elastomeric material such as rubber, the method broadly comprising heating the interior peripheral area of the annulus and deflecting the heated area into a cone shape by inserting a male member having a diameter greater than the diameter of the annulus, followed by cooling the deflected annulus while being supported on a male member having a diameter approximately the same as the diameter of a shaft on which the cool annulus will eventually be mounted.

3,549,446
DECAL APPLYING
Robert W. Bennett and Robert F. Wrench, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 16, 1968, Ser. No. 729,695
Int. Cl. B44c 1/24, 3/08
U.S. Cl. 156—230 10 Claims



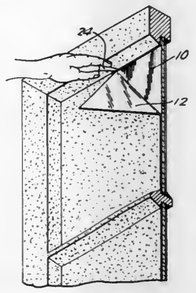
A method of applying or transferring the transfer film and an associated design of a decal to the inner surface of a dish or other dish shaped article, including the curved and sloping portions thereof, without wrinkles or blisters in such film following such transfer. A pair of complemental members capable of being hermetically cooperatively disposed to form a hermetic cavity larger than said dish are provided and such dish is disposed in said cavity with the inner surface thereof facing the entrance to the cavity. A decal, having a hole in the backing paper only, is spread over the entrance to said cavity and said members are cooperatively disposed as mentioned. Vacuum is supplied to the unfilmed surface of said backing paper to hold it in place and to said transfer film to draw such film off said backing paper while air at atmospheric or higher pressure is supplied through said hole in the backing paper to push said film off such paper and onto said inner surface.

3,549,447
IMAGING SYSTEM
Herbert Leo Bresnick, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed July 1, 1968, Ser. No. 741,628
Int. Cl. B44c 5/00
U.S. Cl. 156—230 9 Claims



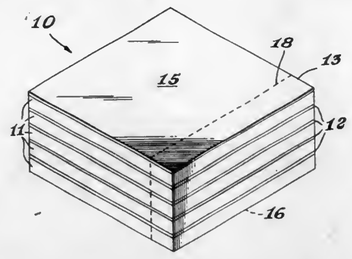
A method of adding graphic data to a support material, for example photographic film, by electrographically forming a latent electrostatic image on a suitable substrate, rendering the latent electrostatic image visible by the application of electroscopic toner powder, and transfering the substrate and developed electroscopic toner powder image supported thereon to the support material to permanently encapsulate the transferred image to the support surface.

3,549,448
COVER TO PROTECT WINDOW PANES AND THE LIKE DURING PAINTING
Joseph L. Dearing, 1525 W. Crabtree Road, Hixson, Tenn. 37343
Filed Oct. 6, 1967, Ser. No. 673,393
Int. Cl. B44d 1/52
U.S. Cl. 156—250 3 Claims



Means to protect framed window panes or the like during the painting of such frames, said means comprising: one or more webs of plastic material covering at least one entire surface of said pane and secured thereto and removable therefrom after painting the surrounding frame.

3,549,449
METHOD FOR THE PREPARATION OF A COMPOSITE PLASTIC-CONTAINING PRODUCT AND ARTICLE PRODUCED THEREBY
Leo J. Windecker, Midland, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Sept. 29, 1967, Ser. No. 671,794
Int. Cl. B32b 31/18
U.S. Cl. 156—254 5 Claims



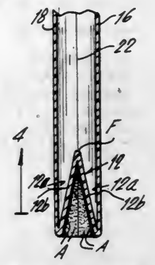
A composite article having strengthening ribs is prepared by stacking the desired laminations, adhering them together, severing sheets from the laminate and subsequently shaping the sheets to provide a composite article with high strength members extending generally between the major surfaces.

3,549,450
METHODS OF MANUFACTURING WOOD VENEERS AND THE WOOD VENEERS SO PRODUCED
Morris Allan, 92 Uphill Road, Mill Hill, London NW. 7, England
Filed May 15, 1967, Ser. No. 638,269
Claims priority, application Great Britain, May 31, 1966, 24,271/66
Int. Cl. B32b 31/18
U.S. Cl. 156—254 5 Claims



The manufacture of wood veneer having more than one section of an artificial flower with adjacent artificial flowers extending in the same direction is effected by slicing in a rotary slicing machine a block of wood laminations formed from two sections each having wood laminations of substantially the same length and breadth, but the two sections of wood laminations being separated by a wedge-shaped portion comprising wood laminations of similar breadth but of lesser length than the wood laminations in the two sections. The wood laminations comprising the whole block are all bonded together simultaneously so that all the laminations in each of the sections and in the wedge-shaped portion are adhered at the same time under the same pressure which is caused to be similar throughout the length and breadth of the block, with the result that there is no line of weakness when a continuous sheet of wood veneer is sliced from the block using a rotary slicing machine.

3,549,451
METHOD OF MANUFACTURING SATCHEL BOTTOM BAGS
Emanuel Kugler, 124 Richmond Place, Lawrence, N.Y. 11559
Filed Mar. 6, 1968, Ser. No. 710,913
Int. Cl. B29c 27/02
U.S. Cl. 156—272 8 Claims

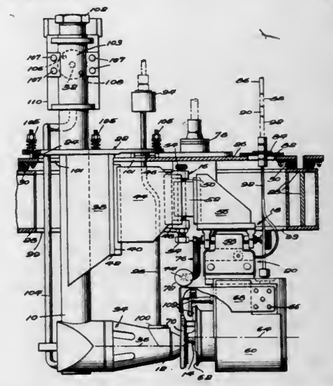


A method of economically mass producing a plastic satchel bottom bag from a conventional bottom gusset bag by eliminating, as by burning away, triangular end portions of the bottom gusset to provide the bag with a satchel bottom construction.

3,549,452
METHOD OF MAKING A LAMINATE HAVING A BARRIER LAYER THEREIN
Jerome J. Walsh, Akron, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio, a corporation of Ohio
No Drawing. Filed July 6, 1967, Ser. No. 654,313
Int. Cl. C09j 5/02
U.S. Cl. 156—315 8 Claims

A method of producing a laminated adhesive product with a barrier layer therein for preventing migration of plasticizer from a plastic layer, comprises applying a liquid polyisocyanate to the plastic layer, then applying an aqueous solution of polyvinyl alcohol resin, and thereafter drying the coating, and applying an adhesive layer to the dried surface.

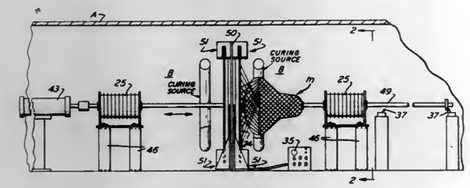
3,549,453
FLASH SPINNING APPARATUS FOR NONWOVEN FIBROUS SHEET MAKING
James Gerald Smith, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Apr. 6, 1967, Ser. No. 628,872
Int. Cl. B29j 5/00
U.S. Cl. 156—370 8 Claims



A flash-spinning apparatus for use in making nonwoven fibrous sheets including an L-shaped solution sup-

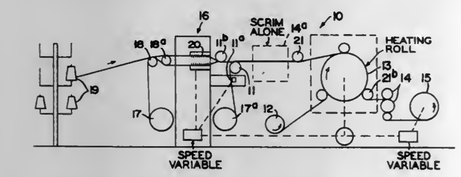
ply tube, a spinning orifice and a position-adjustable rotary deflector. Polymer solution under high temperature and pressure is supplied to a vertical arm of the tube and flash-spun through the orifice on a horizontal arm to produce a plexifilamentary strand. The deflector is positioned to receive the strand from the orifice and direct it toward a collection surface while simultaneously spreading it into a web and causing it to oscillate.

3,549,454
WINDING MACHINES
Alfred H. Roberts, 1615 Monk Road, Gladwyne, Pa. 19035
Filed Dec. 20, 1967, Ser. No. 692,162
Int. Cl. B31c *9/00, 13/00;* B65b *59/28*
U.S. Cl. 156—425 10 Claims



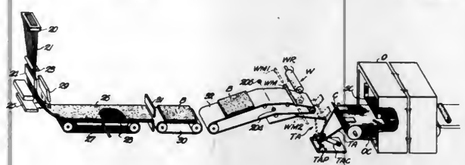
Winding apparatus for applying a plurality of strands onto a mandrel from concentric annular armatures each carrying a supply reel, the traverse motion being controlled, and sensing means responsive to the linear velocity of the strands controlling, through feedback circuitry, the driving of the armatures and if desired, of the traverse. The environment may be controlled and curing or initiation of curing may be effected during strand application to the mandrel.

3,549,455
APPARATUS FOR MAKING REINFORCED SHEET MATERIAL
Edward T. Armstrong, 490 Pepperidge Tree Terrace, Smoke Rise, Butler, N.J.
Filed Oct. 5, 1967, Ser. No. 673,164
Int. Cl. D04h *3/05*
U.S. Cl. 156—440 13 Claims



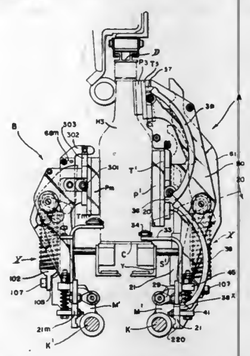
Apparatus and method for making scrim which alternately reciprocates parallel spaced combs within the edges of the scrim as yarns are fed to and withdrawn therefrom which includes articulated combs, comprised of a main comb, and reciprocating edge combs moving in a hyperbolic envelope at the edges thereof, and at intermediate points, if desired, whereby a scrim or reinforced sheet material can be made which has a uniform sinusoidal waveform of the yarns across certain portions thereof and sinusoidal waveform patterns of progressively decreasing amplitude extending from the uniform portion on each side thereof, either toward a slitting point proceeding similarly therefrom to the next uniform portion or to the edge of the scrim as described, and/or a warp reinforcement as described above but either of increased wave length and decreased wave amplitude or linear.

3,549,456
APPARATUS FOR MAKING TUBULAR ARTICLES FROM BLANKETS OF UNCURED FIBROUS MAT
Frederick N. Stephens, Leawood, Kans., Stuart J. Burhans, Kansas City, Mo., and Joseph T. Warkoczewski, Overland Park, and Jack M. Taylor, Kansas City, Kans., assignors, by mesne assignments, to Certain-Teed Saint Gobain Insulation Corporation, Ardmore, Pa., a corporation of Maryland
Continuation of application Ser. No. 654,315, July 11, 1967, which is a division of application Ser. No. 261,408, Feb. 27, 1963, now Patent No. 3,347,725, dated Oct. 17, 1967. This application May 27, 1969, Ser. No. 828,817
Int. Cl. C03b *37/10;* F16l *59/02*
U.S. Cl. 156—446 13 Claims



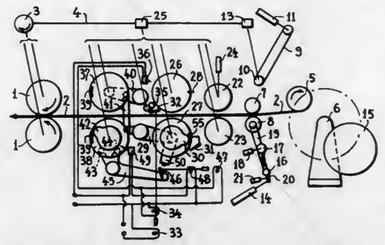
Apparatus for manufacturing tubular articles from a mat of fibers intermixed with uncured heat-reactive binder in which a mandrel is employed, being positioned adjacent to fibrous mat carried by a conveyor, to wind up the mat as a preform or build-up. The internal surface layer of the preform is cured by heat applied by the mandrel to stabilize the shape of the article and the mandrel is sectionalized so that the partially formed article may be separated from the mandrel and then conveyed to another station for completion of the curing.

3,549,457
GRIP-FINGER FOR LABELING MACHINE
Sidney T. Carter, Shrewsbury, Mass., assignor to Geo. J. Meyer Manufacturing Co., Cudahy, Wis., a corporation of Wisconsin
Filed Sept. 20, 1965, Ser. No. 488,366
Int. Cl. B65c *3/08, 3/18, 9/06*
U.S. Cl. 156—476 19 Claims



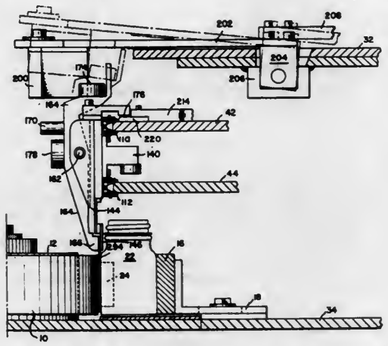
A grip-finger assembly useful in a labeling machine of the kind wherein an article to be labeled is moving along a predetermined path while receiving the label and wherein the grip-finger assembly comprises a suction pad which receives a gum-coated label from a separable-blade picker at a transfer station and carries it into affixing relation to the moving article, and wherein, to apply positive pressure to the label while it is in contact with the picker at the transfer station and also while it is in affixing relation to the moving article, a motor device is associated with and, as a whole, bodily accompanies the suction pad as the latter moves from the transfer station into affixing relation to the travelling article.

3,549,458
METHOD AND MACHINE FOR JOINTING BANDS IN MOTION
Francesco Osta, Piedmont, Italy (Rotomec, Casella Postale 2 Casale Monferrato (Alessandria), Italy)
Filed Sept. 20, 1966, Ser. No. 580,626
Claims priority, application Italy, Sept. 30, 1965, 21,986/65
Int. Cl. B31f *5/00*
U.S. Cl. 156—505 8 Claims



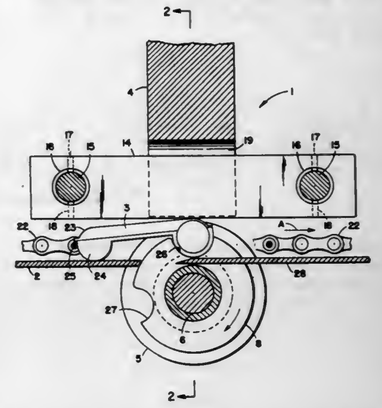
A depleted web from an old roll is replaced by a web from a new roll, with the formation of a taped butt joint, by bringing the new roll up to speed, pressing the old web against the new roll and picking the free end of the new web adhesively off the new roll thereby forming a temporary superposed joint, cutting through this temporary joint, deflecting the head end of the new web and the tail end of the old web from the feed path, and taping the new butt joint which thus formed between the old and new webs.

3,549,459
DEVICE FOR SECURING AN ARTICLE TO A CONTAINER
Alten E. Whitecar, Westville, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 8, 1968, Ser. No. 727,397
Int. Cl. B65c *9/04, 61/00*
U.S. Cl. 156—568 14 Claims



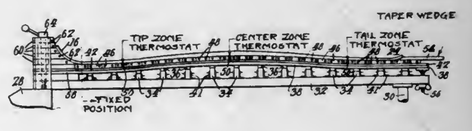
A pair of chains transport finger pickup means from article magazines to containers on a conveyor having labels partially affixed thereto. After positioning and releasing the articles at a predetermined position between the labels and the bottles, the lower portion of the finger pickup means is elevated above the top of the article. The chains lie in planes which make a substantial angle with the plane of the conveyor in order to elevate each finger pickup means after it has released its article to permit its clearing the associated bottle. Screw means provide for the elevating and lowering of the chains to provide for adjustment of the point of release of each article to accommodate different sizes of bottles.

3,549,460
ULTRASONIC SEALING OF FILM CARTRIDGES
Rudolph C. Stobb, Endwell, N.Y., assignor to GAF Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 9, 1967, Ser. No. 659,358
Int. Cl. B32b *31/20;* B06b *3/00*
U.S. Cl. 156—580 10 Claims



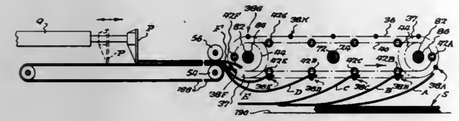
The present invention relates to an apparatus for the ultrasonic sealing of film cartridges. The apparatus consists of a stationary ultrasonic sealing member and a rotatable cylindrically-shaped anvil which is adapted to convey continuously moving cartridges into sealing contact with the sealing member. Another aspect of the invention lies in the provision of a pressure bar which extends through the ultrasonic sealing member so as to maintain the sealed cartridge in a compressed condition until the sealing sequence is completed.

3,549,461
PRESS FOR SKIS
William N. Bennett, South Miami, Fla., assignor to Skisearch, Inc., Boston, Mass., a corporation of Massachusetts
Filed Oct. 19, 1967, Ser. No. 676,520
Int. Cl. B30b *15/34;* B32b *31/20;* A63c *5/12*
U.S. Cl. 156—583 7 Claims



A press for applying a plastic base to the bottom of a ski including means for making the press conform exactly to the desired contour of the ski bottom, with a series of adjustable wedge blocks forming the contour from end to end of the ski; and including a separate alignment means for improving the accuracy of the application of the plastic base to the forward tip or shovel of the ski, this being accomplished by a series of sliding tip blocks which are used to press the plastic to the contour of the ski being processed. New and improved heating by zones is also a part of the invention.

3,549,462
APPARATUS FOR HEAT SEALING THE ENDS OF BAG BLANKS INCLUDING BAG GRIPPING DEVICES CARRIED BY TWO CONVEYORS RUNNING IN NESTED PATHS
Clinton R. Hollis, Camden, Ark., assignor to International Paper Company, New York, N.Y., a corporation of New York
Filed Nov. 3, 1967, Ser. No. 680,528
Int. Cl. B30b *3/06, 15/34;* **B32b** *31/20*
U.S. Cl. 156—583 **13 Claims**



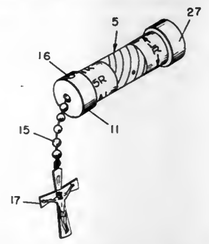
Apparatus for heat sealing thermoplastic inner liners of multiwall shipping bags in manufacture thereof in a continuous production line. Bag blanks closed at one end by stitching and taping are overlapped lengthwise and successively inserted between heating elements and backing bars carried respectively by chains continuously moving in nested paths including straightaway portions in which inserted bags are gripped between heating elements and bars to form transverse line of heat sealing adjacent to and inside the line of stitching on each bag end. Nesting of chains and overlapping of bags provides adequate pressure and retention time for sealing wide variety of bags at high production speeds in machine occupying little floor space and requiring minimum adjustments for operation on runs of bags of different sizes and constructions.

3,549,463
UNIVERSAL GRAPHIC DISPLAY MATERIAL HAVING AN EMBOSSED POLYVINYL FLUORIDE SURFACE LAYER
Everett Bryant Frech, Charlotte, N.C., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 21, 1968, Ser. No. 738,780
Int. Cl. B43l *1/12;* **G03b** *21/60;* **B32b** *3/30*
U.S. Cl. 161—2 **10 Claims**

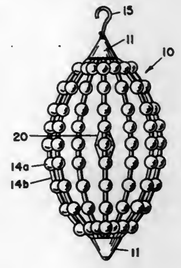
A durable graphic display material suitable for displaying written, projected, and three dimensional subject matter is disclosed. The new material includes a lenticularly embossed polyvinyl fluoride film outer surface bonded to a layer of laminating grade white vinyl plastic. The new display material also includes a ferrous component for attracting and holding magnetized articles such as display markers used for illustrative purposes.

3,549,464
ROSARY TABULATOR
Herman G. Nabinger, 311 Kirk Ave., Syracuse, N.Y. 13205
Filed Oct. 3, 1968, Ser. No. 764,670
Int. Cl. A44c *23/00*
U.S. Cl. 161—8 **4 Claims**

This invention consists of a small metal cylinder having solid nonmetallic ends that are secured together by a screw that passes through one end on into the other end in such a way that permits either end to be rotated in either direction. A bead chain has one end suitably secured to one of the aforesaid solid ends of this invention and the other end of the same chain is provided with a crucifix. The aforesaid cylinder has five decade numerals and the capital letter L and capital letter R properly engraved thereon near one end, as will hereinafter be described. Necessary pins are provided to control the rotation of the two solid ends, as one will find on reading the following specification of this rosary tabulator.

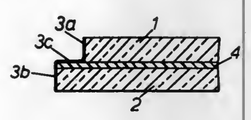


3,549,465
ORNAMENTS
Joseph B. Skelley, Jr., 1900 Belle Haven Road, Alexandria, Va. 22307
Filed Nov. 29, 1966, Ser. No. 597,639
Int. Cl. A47g *33/08*
U.S. Cl. 161—13 **6 Claims**



An ornament having a pair of crown pieces spaced axially on a center post, and circumferentially spaced elongated ribs extending between the crown pieces. In some embodiments the ribs are resiliently flexible and of a greater length than the spacing of the crown pieces so that the ribs assume a bowed form. In other embodiments the ribs are rod-like and the crown pieces are longitudinally adjustable on the center post to tension the cord-like ribs.

3,549,466
LAMINATED TRANSPARENT ASSEMBLIES WITH PREFORMED METAL FOIL EDGE SEALING MEANS
Solomon Elijah Kay and John Bradley Boucher, Solihull, England, assignors to Triplex Safety Glass Company Limited, London, England, a corporation of Great Britain
Filed July 14, 1967, Ser. No. 653,561
Claims priority, application Great Britain, Aug. 17, 1966, 36,889/66
Int. Cl. B32b *1/04, 17/06*
U.S. Cl. 161—39 **2 Claims**

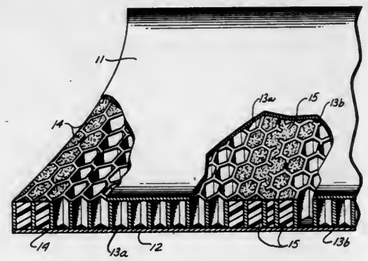


A laminated transparent assembly, for example an aircraft window, having glass sheets bonded together by one or more plastics bonding layers, in which the edges of a bonding layer are protected from the deleterious effects of atmospheric gases by a strip of metal foil or metallized plastics tape which seals around the assembly and which is bonded to the peripheral edges of the glass sheets and to the edges of the bonding layers.

3,549,467
PILE FABRIC HAVING FIBRILLATED PILE YARN AND METHOD OF MAKING SAME
Herbert W. Keuchel, Long Valley, N.J., and Emmett F. Greenwald and Richard A. Kenney, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Jan. 3, 1967, Ser. No. 606,572
Int. Cl. D05c *17/02*
U.S. Cl. 161—65 **9 Claims**

A pile fabric and the process for its preparation, the process comprising hot-melt attenuating a foamed extrudate whereby a fibrillated polymeric strand is produced wherein the fibrils have cross-sections which are substantially devoid of planar surfaces. The strand is then secured to a backing to form the pile fabric.

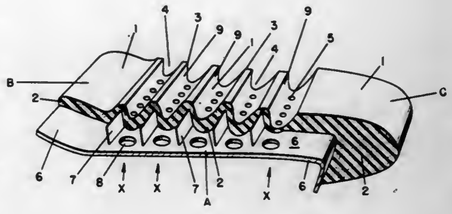
3,549,468
HONEYCOMB STRUCTURE UTILIZING POLYBENZIMIDAZOLE RESIN TO JOIN TWO CORE SECTIONS AND TO REINFORCE THE EDGES OF THE CORES
Salvatore V. Messineo, Hawthorne, and Stanley Y. Yoshino, Monterey Park, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware
Filed Feb. 28, 1967, Ser. No. 619,479
Int. Cl. B32b *3/12*
U.S. Cl. 161—68 **1 Claim**



Compositions for use in filling the edges and splicing honeycomb core for high temperatures are described. The compositions comprise a polybenzimidazole resin plus aluminum powder, arsenic thioarsenate, glass mill fibers and either colloidal silica or hollow glass microspheres. A solvent for making a viscous cohesive paste is employed in preparing the composition. Upon heat curing the solvent is removed. The compositions are particularly useful with beryllium structures.

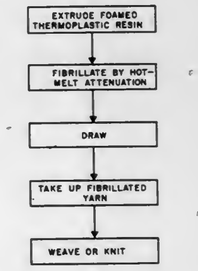
3,549,469
INTERIOR PADDING FOR VEHICLES
Karl Wilfert, Gerlingen-Waldstadt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Sept. 7, 1966, Ser. No. 577,676
Claims priority, application Germany, Sept. 15, 1965, D 48,209
Int. Cl. B32b *3/12;* **B62d** *25/14*
U.S. Cl. 161—69 **4 Claims**

A resilient protective padding for the passenger compartment or the like of motor vehicles, wherein the protective padding consists of a thin sheet-like cover layer having an elastically resilient upholstery layer underneath. The padding is also provided with elevations and depressions alternately arranged and extending transverse to incident illumination so as to reduce the glare from



light entering the vehicle passenger compartment. Air passage holes are provided in the bottom of the depressions which, together with the increased surface area of the padding, increase the heat dissipation.

3,549,470
FIBRILLATED YARN CARPET BACKING
Emmett F. Greenwald and Richard A. Kenney, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 3, 1967, Ser. No. 606,573
Int. Cl. B32b *5/16*
U.S. Cl. 161—70 **4 Claims**



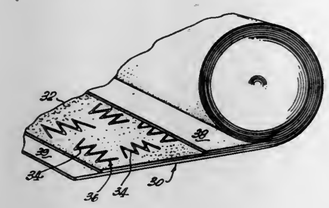
A process for the preparation of a carpet backing and the product produced thereby, the process comprising hot-melt attenuation foam fibrillating a thermoplastic extrudate to strand form, and then formulating the strands into a backing fabric.

3,549,471
LAMINATED MATERIALS FOR COVERING SURFACES OF BUILDINGS
Clyde T. Denton, Los Angeles, Calif., assignor to Resilient Services Incorporated, Los Angeles, Callf., a corporation of California
Filed Sept. 14, 1967, Ser. No. 667,705
Int. Cl. B32b *3/00*
U.S. Cl. 161—86 **10 Claims**

An underlayer for floor or wall coverings is prepared by permanently bonding upper and lower continuous layers, typically of impregnated muslin, to a membrane that is slotted to accommodate dimensional changes due

to moisture, heat, cold and the like, the cover layers preventing filling of the slots with adhesive during application.

Tile units are made up with such a composite underlayer on one face. After laying, such tiles are unified by an overcoat of fully compatible material that fills cracks between tiles.



Base and border assemblies utilize a similar underlayer, and may include a flexibly joined tack bar for securing a carpet. Flexible cove structures may be lifted to insert a carpet edge. Improved fit between the base and border assembly and the field covering is secured by means of tapered shim stock that extends from the border under the field covering.

Fit between sections of base is facilitated by an overlap with the front flange longer than the back flange.

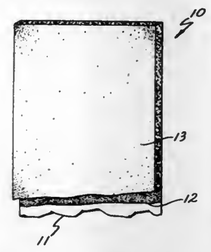
3,549,472
CORK AND FOAM PRODUCT
Robert E. King, Georgetown, Mass., and Ben V. Dardig, New York, N.Y., assignors to Cushioned Products Corporation, Boston, Mass., a corporation of New Hampshire
No Drawing. Continuation-in-part of application Ser. No. 605,985, Dec. 30, 1966, which is a continuation-in-part of application Ser. No. 524,819, Feb. 3, 1966. This application Nov. 22, 1968, Ser. No. 778,326
Int. Cl. B27k *7/00;* **C08g** *22/44, 51/20*
U.S. Cl. 161—87 **7 Claims**

Cork particles, resilient foam particles and a polyurethane resin are combined in a new composition. The mixture of the cork and foam particles with a liquid resin initially provides a free-flowing material which is easily handled without agglomeration. The mixture, when molded by the application of heat and pressure, produces a light weight, resilient, porous substance having a wide variety of uses such as inner soles for shoes and the like.

3,549,473
BINDER COMPOSITION AND USES
John R. Le Blanc and Harold P. Higginbottom, Wilbraham, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 535,678, Mar. 21, 1966. This application Jan. 2, 1968, Ser. No. 694,877
Int. Cl. B32b *17/04;* **C04b** *21/06;* **C08g** *51/04*
U.S. Cl. 161—93 **6 Claims**

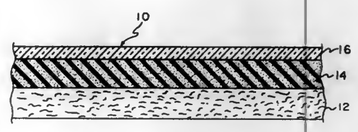
Liquid binder compositions adapted for application to inorganic materials and incorporating both an organic binder and an inorganic binder. These compositions can be used to produce three-dimensional bodies having wide-range thermal insulation capabilities and high strength properties over such range.

3,549,474
FIRE-RETARDANT INSULATION CONSTRUCTION
Thor J. G. Lonning, Suffield, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Mar. 25, 1968, Ser. No. 715,892
Int. Cl. B32b *3/00, 17/00, 22/00*
U.S. Cl. 161—151 **13 Claims**



A fire retardant low density insulation construction employing a bat of siliceous fibers laminated to a facing layer of vinyl chloride polymer plasticized with a mixture of certain halogenated hydrocarbons and trisubstituted organo phosphates.

3,549,475
METHOD FOR INCREASING THE FLEX LIFE OF SYNTHETIC LEATHER AND PRODUCT PRODUCED THEREBY
Jack Darrell Hefley and William Hugo West, Charlotte, N.C., assignors to Fiber Industries, Inc., a corporation of Delaware
Filed May 24, 1967, Ser. No. 640,975
Int. Cl. B32b *5/28;* **C08j** *1/50*
U.S. Cl. 161—159 **7 Claims**

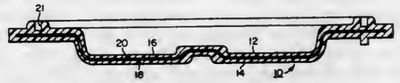


A method for increasing the flex life of a poromeric material and/or the fibrous substrate used in poromeric materials by after treating the material with a substantially non-volatile lubricant and the product produced thereby. The process is particularly applicable to polyurethane containing poromerics.

3,549,476
LAMINATED SAFETY PANES
Karl Dietzel, Krefeld-Uerdingen, Günter Peilstöcker, Krefeld-Bockum, and Hans-Peter Siemonsen, Aachen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany, and Compagnie de Saint-Gobain, Neuilly-sur-Seine, France, a corporation of France
No Drawing. Filed Dec. 12, 1966, Ser. No. 600,750
Int. Cl. B32b *17/10, 27/30*
U.S. Cl. 161—165 **4 Claims**

A relatively thick glass plate having a comparatively thin polycarbonate foil bonded thereto and the utility thereof as safety panes.

3,549,477
MOLDED COMPOSITE ARTICLE OF RESINOUS PLASTIC HAVING A VAPOR BARRIER FILM DISPOSED WITHIN THE PLASTIC
Herbert A. Burgman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 27, 1967, Ser. No. 612,110
Int. Cl. B32b *27/08*
U.S. Cl. 161—165 **6 Claims**



This invention relates to a composite plastic article and method for preparing same which article is composed of a resin that is readily permeable to fluid such as water vapor and having embedded in the resin a vapor barrier film relatively impermeable to the fluid and coextensive with the cross-section of the article.

3,549,478
GLASS LAMINATE HAVING A BROMINATED RESIN INTERLAYER
Frank H. Gillery, Allison Park, Jacob A. Dvorak, Natrona Heights, Ronald R. Rabenold, Allison Park, and John R. Peffer, Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Apr. 2, 1968, Ser. No. 718,189
Int. Cl. B32b *17/10, 31/24*
U.S. Cl. 161—185 **24 Claims**

A cured transparent bromine-containing resin selected from the group consisting of bromine-containing unsaturated polyester resins and bromine-containing epoxy resins is used as a laminating resin to bind two or more glass layers. The resulting glass laminate has outstanding X-ray absorbing properties, physical properties, and optical properties. The laminates are useful as cathode ray tubes, safety glass windshields, and the like.

3,549,479
PLASTICIZED PHENOLIC RESIN IMPREGNATION SYSTEM COMPRISING TWO DIFFERENT PHENOLIC RESOLE RESINS AND A HALO ARYL PHOSPHATE
Ronald H. Dahms, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 21, 1968, Ser. No. 738,783
Int. Cl. B23b *27/22;* **C08f** *45/50;* **C08g** *5/06*
U.S. Cl. 161—191 **5 Claims**

Compositions of two different phenolic resole resins and a compatible halo aryl phosphate. The compositions are storage stable and can be used for the single pass impregnation of cellulosic sheets which are in turn useable in the manufacture of laminates having fire retardancy, low temperature punchability, low water absorption and good electrical characteristics.

3,549,480
PLASTICIZED CRESYLIC RESIN IMPREGNATION SYSTEM COMPRISING A PHENOL-FORMALDEHYDE RESOLE RESIN, A CRESOL-FORMALDEHYDE RESOLE RESIN AND A HALO ARYL PHOSPHATE
Ronald H. Dahms, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 21, 1968, Ser. No. 738,792
Int. Cl. B32b *27/22;* **C08f** *45/50;* **C08g** *5/06*
U.S. Cl. 161—191 **5 Claims**

Compositions of a cresol-formaldehyde resole resin, a phenol-formaldehyde resole resin and a compatible halo aryl phosphate. The compositions are storage stable and can be used for the single pass impregnation of cellulosic sheets which are in turn useable in the manufacture of laminates having fire retardancy, low temperature punchability, low water absorption and good electrical characteristics.

3,549,481
ADHESION OF TEXTILE FIBER TO RUBBER WITH POLYHYDRIC PHENOL-FORMALDEHYDE-TRIS (2-HYDROXYALKYL)ISOCYANURATE RESIN
Frank C. Cesare and William D. Loeble, Jr., Columbia, S.C., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 786,439, Dec. 23, 1968. This application May 6, 1969, Ser. No. 824,022
Int. Cl. B32b *17/10, 25/08;* **C08g** *5/18*
U.S. Cl. 161—198 **15 Claims**

Improved adhesion of fiber (e.g., rayon, nylon, polyester, glass) to rubber is obtained with the aid of a polyhydric phenol - formaldehyde - tris(2 - hydroxyalkyl)isocyanurate resin, such as a resorcinol-formaldehyde-tris(2-hydroxyethyl)isocyanurate resin. The resin is used in an adhesive dip containing rubber latex.

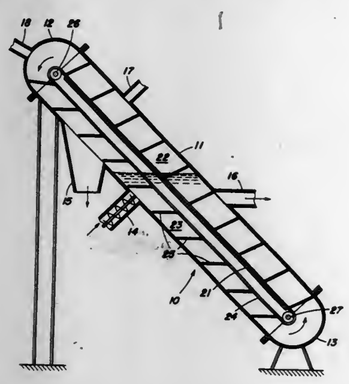
3,549,482
PRINTING MATERIAL AND PROCESS FOR PRODUCING THE SAME
Tokujiro Okutani, 432 Kamitakaido 2-chome, Suginami-ku, Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 577,614, Sept. 7, 1966. This application Mar. 20, 1967, Ser. No. 624,213
Claims priority, application Japan, Sept. 14, 1965, 40/56,013
Int. Cl. B32b *27/08;* **C09g** *3/14*
U.S. Cl. 161—254 **6 Claims**

A resinous sheet comprising 100 parts by weight of a polymer of either vinyl chloride or vinylidine chloride in admixture with an amount of greater than 50 parts by weight of a plasticizer, one surface of said resinous sheet being adhered under pressure to the surface of a fibrous backing material. The surface of the backing material which is in contact with the resinous sheet is coated with a copolymer of vinyl chloride and vinylidine chloride, a copolymer of styrol and methyl acrylate, or a copolymer of styrol and butadiene. The opposite, unadhered surface of the resinous sheet may be printed upon.

3,549,483
IMPREGNATION AND DIGESTION OF CELLULOSIC MATERIAL IN A SINGLE VESSEL
Albert Edward Harold Fair, Boston, Mass., assignor to The Lummus Company, New York, N.Y., a corporation of Delaware
Filed Aug. 4, 1967, Ser. No. 658,488
Int. Cl. D21c *3/26*
U.S. Cl. 162—19 **7 Claims**

The impregnation-digestion vessel is inclined and divided into first and second flight passages extending the length of the vessel by a partition, with a sprocket wheel provided at each end. The sprocket wheels support an endless chain which carries perforated flights continuously through both flight passages. The vessel is partially filled with cooking liquor, the level of liquor defining upper and lower portions of the vessel, the upper portion being filled with steam. The liquor is continuously fed into and taken out of the lower portion to maintain a continuous flow of cooking liquor having a quiescent vapor-liquid interface. Cellulosic material is introduced into the

lower portion of the vessel, passed through both flight passages of the lower portion, through the vapor-liquid

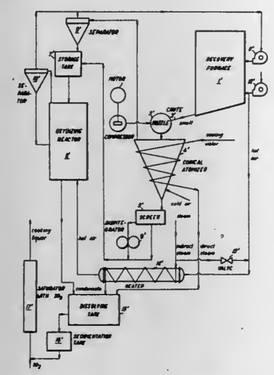


interface and then passed through both flight passages in the upper portion before being removed.

3,549,484
METHOD AND APPARATUS FOR THE RECOVERY OF SULFITE WASTE LIQUORS

Jan Hojnos and Ivan Grancic, Bratislava, Czechoslovakia, assignors to Prvni Brnenska Strojirna, Zavody Klementa Gottwalda, narodni podnik, Brno, Czechoslovakia

Continuation-in-part of application Ser. No. 435,746, Feb. 26, 1965. This application Aug. 28, 1967, Ser. No. 663,654
Int. Cl. D21c *11/12*
U.S. Cl. 162—36 **14 Claims**



A method and apparatus for the recovery of concentrated sulfite solution from sulfite and bisulfite waste liquors by heating and oxidizing the waste liquor for the removal of organic matter and water therefrom and for forming a stream of smelt of the residue of the waste liquor, which stream is penetrated by a blast of gas at superatmospheric pressure and sufficiently low temperature to convert the smelt into a solid pulverulent material which is then contacted by an oxidizing gas so that the pulverulent material will be oxidized, followed by dissolution of the oxidized pulverulent material in water and introduction of sulfur dioxide into the thus formed solution.

3,549,485
FLOCCULATION-DEFLOCCULATION STEPS IN MINERAL WOOL-CLAY BOARD FORMATION

Lewis W. Eckert, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,886
Int. Cl. D21d *3/00;* **D21h** *3/68, 5/18*
U.S. Cl. 162—152 **4 Claims**

In forming a board from a water slurry of clay and mineral wool, the slurry is flocculated prior to being introduced onto the forming machine and is subsequently deflocculated on the forming machine by showering the surface of the sheet, just after it forms on the wire, with a solution of sodium carbonate, sodium bicarbonate or sodium hydroxide.

3,549,486
PRESSING SILICIC ACID LOADED SHEET TO IMPROVE ITS CHROMATOGRAPHIC PERFORMANCE

Larry L. Pitt, Florissant, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo., a corporation of Missouri

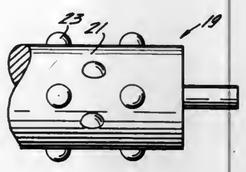
No Drawing. Filed July 31, 1967, Ser. No. 657,058
Int. Cl. D21d *3/00;* **D21h** *5/18*
U.S. Cl. 162—156 **5 Claims**

The chromatographic performance capability of sorbent-loaded fiber matrix sheets is improved by pressing the wet sheet between two smooth surfaces at pressures up to 900 p.s.i. The Chromatographic Performance Index (CPI), representing the sum of performance indices with respect to (1) resolution and definition, (2) lateral diffusion and (3) streaking increases from 8 for an unpressed sheet to 11 for a pressed sheet, relative to a CPI of 15 for a standard TLC plate.

3,549,487
VERTICAL SHAKE APPARATUS FOR PAPERMAKING WIRE

Raymond C. Clark, Orange, Conn., assignor to Huyck Corporation, Rensselaer, N.Y., a corporation of New York

Filed Jan. 12, 1967, Ser. No. 608,782
Int. Cl. D21f *1/20*
U.S. Cl. 162—356 **4 Claims**



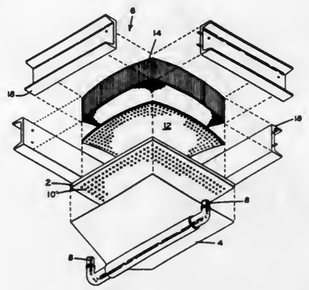
This invention relates to means for improving the formation of a continuous web in a papermaking machine, and more specifically, to means for imparting vertical shaking movement to the forming medium in the forming section of a fourdrinier papermaking machine.

3,549,488
VACUUM MOLD FOR CONTOURED CEILING TILE

Washington H. Phillips, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Aug. 29, 1967, Ser. No. 664,089
Int. Cl. D21j *1/00*
U.S. Cl. 162—387 **1 Claim**

A mold for the forming of a contoured ceiling tile by the vacuum molding technique. A frame is prepared having the desired contour and this is immersed in a tank containing a liquid pulp slurry. A vacuum is pulled on one side of a contoured screen resulting in a buildup of wet pulp fibers on the reverse side of the screen. The pulp fibers, when dried, form a contoured ceiling tile to provide a ceiling system with a noticeable third dimension.

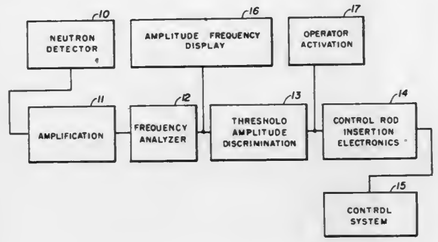


The screen is formed by placing a plurality of small tubes side by side. The open ends of the tubes form a screen-like structure on which the wet pulp fibers can build up to form the ceiling tile. The reverse end of the open tube structure rests on a perforated design plate which is contoured to the desired ceiling tile design.

3,549,489
SYSTEM FOR DETECTING SODIUM BOILING IN A REACTOR

Philip R. Pluta, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 22, 1968, Ser. No. 769,655
Int. Cl. G21c *7/06*
U.S. Cl. 176—22 **5 Claims**

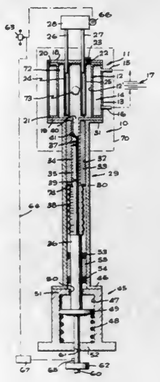


A system for detecting and controlling sodium boiling in a sodium cooled nuclear reactor. Frequency analysis of the neutron flux signal from in-core or out-of-core detectors indicates the onset of incipient sodium boiling before there is any noticeable net power change which would otherwise require corrective action to be taken. Since incipient sodium boiling has a characteristic frequency associated with the collapse of the sodium bubbles, the collapse rate or boiling frequency of the bubbles is communicated to the flux noise as a coherent signal whose amplitude is determined by filtering means. This signal is then transmitted through appropriate electronics for actuating the control rod system of the reactor for controlling the reactivity thereof, thereby providing a reactor safeguard system.

3,549,490
NUCLEAR REACTOR MOTOR

Richard L. Moore, 1618 Irvine Ave., Newport Beach, Calif. 92660

Continuation-in-part of applications Ser. No. 849,318, Oct. 28, 1959; Ser. No. 308,928, Sept. 12, 1963; and Ser. No. 554,266, May 10, 1966. This application Sept. 28, 1967, Ser. No. 671,396
Int. Cl. G21c *7/00*
U.S. Cl. 176—39 **16 Claims**



The invention resides in a reciprocating type of motor which is directly driven by the power of a nuclear reactor. A piston is reciprocatably mounted in a frame. One end of the piston is exposed to a reservoir containing a solution of nuclear fuel and the other end of the piston is connected to a reciprocating power take-off. When a fission chain reaction takes place in the nuclear fuel, part of the fluid flashes into steam and the volume of a container in which the solution is placed expands, driving the piston outwardly against tension of a return device, as for example a spring. At the same time that the volume of the container expands, the energy generated in the solution diminishes. When the piston reaches the outer end of its stroke, the creation of energy diminishes to a point where the piston returns by action of the return device causing a reduction of the volume of the container, whereupon the rate at which the nuclear fuel generates energy is then increased causing another reciprocation of the piston. An additional weight may be attached to the piston to act in cooperation with a spring to set up a resonant condition which is calculated to complement the energy generating capacity of the nuclear fuel so that the reciprocating or pulsating effect is continued, automatically controlled, in order that work can be performed by the power take-off, without the necessity for control rod regulation, control rods being used only to start and stop the reaction.

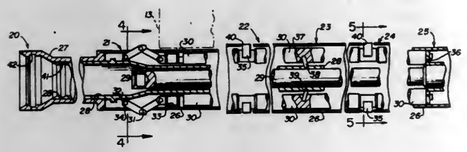
3,549,491
NUCLEAR REACTOR FUEL ELEMENT HOLD-DOWN AND TIGHTENING MECHANISM

Melvin L. Johnson, Fayetteville, Ark., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 21, 1968, Ser. No. 777,793
Int. Cl. G21c *3/14*
U.S. Cl. 176—87 **8 Claims**

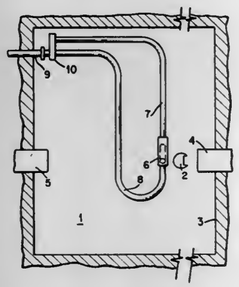
A positive means for preventing the hydraulic forces of liquid coolant from lifting fuel elements from their intended location in the core of a nuclear reactor, and to prevent disturbances of the core neutronics by preventing lateral motion or vibration of the fuel elements. This is accomplished by a bayonet lock which holds

down a central fuel element of a cluster of elements, by mechanically activated pads which load the central element outward against the adjacent elements to prevent



lateral motion, and by retractable arms which extend over the adjacent elements to prevent their upward movement.

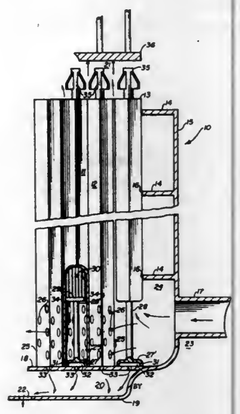
3,549,492
FLUID SUPPORTED CAPSULE HOLDER FOR HOMOGENEOUSLY IRRADIATING SAMPLES
Enzo Ricci and Thomas H. Handley, Oak Ridge, and Melvin G. Willey, Knoxville, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed May 12, 1969, Ser. No. 823,888
Int. Cl. G01c *1/00*
U.S. Cl. 176—15 **2 Claims**



A spherical multisample holder is employed so as to permit transfer from a remote loading position to an irradiating position. This holder may then be held by a column of fluid, such as air, for a sufficient irradiation time during which its orientation changes randomly due to its unique structure to thus effect a homogeneous irradiation of all samples. The spherical holder may then be returned to a remote unloading position.

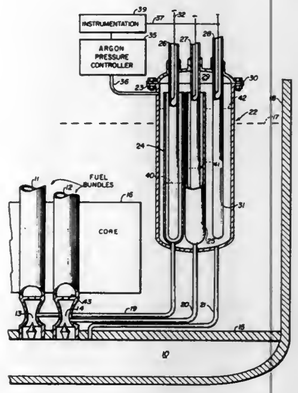
3,549,493
FAST SODIUM-COOLED REACTOR CORE STRUCTURE
John H. Germer, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Jan. 22, 1969, Ser. No. 793,040
Int. Cl. G21c *1/02, 15/00*
U.S. Cl. 176—18 **7 Claims**

A reactor core structure for a liquid metal cooled fast reactor made up of closely packed hexagonal fuel, blanket and reflector bundles which are held tightly together by an orificing pattern which imposes a higher internal pressure in the outer bundles than in the inner bundles, and which is provided with a hydraulic balancing arrangement whereby a separate unclamping arrangement for refueling is eliminated. Two types of inlet plenums are disclosed; the first with the lower end of the bundle



casing apertured for forming the plenum; the second with the bundle casing being removed at the lower end.

3,549,494
FLOW MEASURING DEVICE FOR SODIUM-COOLED REACTORS
John H. Germer, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 8, 1968, Ser. No. 751,246
Int. Cl. G21c *17/02*
U.S. Cl. 176—19 **10 Claims**



An apparatus for measuring the coolant flow at the entrance of fuel bundles in a liquid sodium-cooled nuclear reactor. The apparatus works on the principle of a flow venturi transmitting a pressure signal to a differential manometer with electrical level sensors, and is constructed such that parts thereof requiring maintenance are readily accessible.

3,549,495
PROCESS FOR LOOSENING THE FIBER STRUCTURE OF TANNED FURS
Rolf Monsheimer, Darmstadt-Eberstadt, and Ernst Pfleiderer, Darmstadt-Arheilgen, Germany, assignors to Rohm & Haas G.m.b.H., Darmstadt, Germany
No Drawing. Filed Feb. 12, 1968, Ser. No. 704,525
Claims priority, application Germany, Feb. 17, 1967, R 45,303
Int. Cl. C12b *1/00*
U.S. Cl. 195—6 **5 Claims**

Method for loosening the fiber structure of furs to improve pliability by treating tanned furs with proteolytic enzymes. Suitable enzymes include mold-fungus, bacterial, and pancreatic proteases.

3,549,496
PROCESS FOR MAKING HIGH MALTOSE SYRUP
Frederick C. Armbruster, La Grange, and William A. Jacaway, Jr., Downers Grove, Ill., assignors to CPC International Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 24, 1966, Ser. No. 588,761
Int. Cl. A23l *1/08;* **C12d** *13/02*
U.S. Cl. 195—31 **2 Claims**

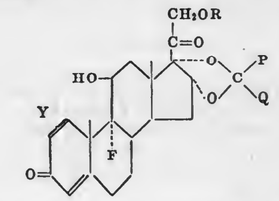
The present invention relates to an improved process for producing a starch hydrolysate having a high maltose content. A starch hydrolysate having a DE less than 20 is subjected to the hydrolytic action of *Bacillus polymyxa* amylase to produce a starch conversion product having a higher maltose content than DE value.

3,549,497
MICROBIOLOGICAL PROCESS FOR ESTROGENS
Dieter Kluepfel, 5600 Raymond, Pierrefonds, Quebec, Canada, and Claude Vezina, 11 St. Sulpice, Oka, Quebec, Canada
No Drawing. Filed Dec. 5, 1967, Ser. No. 687,987
Int. Cl. C07c *167/14*
U.S. Cl. 195—51 **2 Claims**

There is disclosed herein a process for the microbiological preparation of estrogens, in particular equilin, equilenin, and their respective dihydro derivatives, by incubating androsta-1,4,7-triene-3,17-dione with growing cultures of certain species of Actinomycetales, of Eubacteriales, and of moulds, and isolating the respective estrogens.

3,549.498
11α-SUBSTITUTED STEROIDS AND PROCESS
Patrick A. Diassi, Westfield, and Pacifico A. Principe, South River, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 2, 1968, Ser. No. 718,194
Int. Cl. C12b *1/00*
U.S. Cl. 195—51 **1 Claim**

This invention relates to a novel process and intermediates therein for the preparation of compounds having the formula:



wherein Y is a single or double bond; R is selected from the group consisting of hydrogen and acyl; P is hydrogen, lower alkyl, halo lower alkyl, monocyclic cycloalkyl, monocyclic cycloalkyl lower alkyl, monocyclic aryl, monocyclic aryl lower alkyl, monocyclic heterocyclic or monocyclic heterocyclic lower alkyl; Q is lower alkyl, halo lower alkyl, monocyclic cycloalkyl, monocyclic cycloalkyl lower alkyl, monocyclic aryl, monocyclic aryl lower alkyl, monocyclic heterocyclic or monocyclic heterocyclic lower alkyl; and, together with the carbon to which they are joined, P and Q is a monocyclic cycloalkyl or monocyclic heterocyclic radical. The final products of this invention are therapeutically active compounds which possess glucocorticoid and anti-inflammatory activity.

3,549,499
ASYMMETRIC REDUCTION OF SECO-STEROIDS
George Greenspan, Narberth, and George C. Buzby, Jr., Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 30, 1968, Ser. No. 725,509
Int. Cl. C07c *67/00*
U.S. Cl. 195—51 **1 Claim**

Optically active seco-steroids are prepared by microbiological reduction. The compounds are useful in the production of physiologically active steroids.

3,549,500
NOVEL CHONDROITINASE AND METHOD OF ITS RECOVERY
Sakaru Suzuki, Nagoya, Japan, assignor to Seikagaku Kogyo Co., Ltd., Toyko, Japan, a corporation of Japan
Filed Apr. 2, 1968, Ser. No. 718,178
Claims priority, application Japan, July 22, 1967, 42/47,123; Mar. 30, 1968, 43/20,921
Int. Cl. C07g *7/028*
U.S. Cl. 195—62 **14 Claims**

A novel enzyme which has been termed chondroitinase-AC extracted from the cell of a known soil bacterium *Flavobacterium heparinum*, which can be clearly distinguished from the known chondroitinase-ABC in respect of the properties (i) it degrades chondroitin sulfate A, (iii) it degrades chondroitin sulfate C but (ii) it does not degrade chondroitin sulfate B; and a method of extracting and recovering said novel enzyme from the said cell.

3,549,501
RECOVERY OF PEPSIN FROM LININGS OF PIG STOMACHS
Jack C. Trautman and Floyd C. Olson, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill., a corporation of Illinois
No Drawing. Filed Apr. 25, 1968, Ser. No. 724,228
Int. Cl. C07g *7/026*
U.S. Cl. 195—66 **11 Claims**

Comminuted linings of pig stomachs are extracted to provide pepsinogen extractions or solutions. The extractions are activated by addition of acid to give a pH of 1.5 to 3.5 (1.9 to 2.3 preferred). It is critical that the acid be added quickly in less than 10 minutes and preferably within not more than 45 seconds. After being held for at least about 5 minutes at 80 to 120° F. the pH of the extraction is desirably raised to 2.0 to 6.0 (2.5 to 3.0 preferred). After standing for from 30 minutes to 24 hours at 32 to 105° F. an enzyme (i.e. pepsin) solution is separated from the sludge which contains little enzymatic activity. The enzyme solution may be filtered to desired clarity and then concentrated and, if desired, dried.

3,549,502
PROCESS FOR THE PRODUCTION OF NEUTRAMYCIN

Martin Paul Kunstmann, Pearl River, N.Y., Lester Allen Mitscher, Columbus, Ohio, and John Norman Porter, Ramsey, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

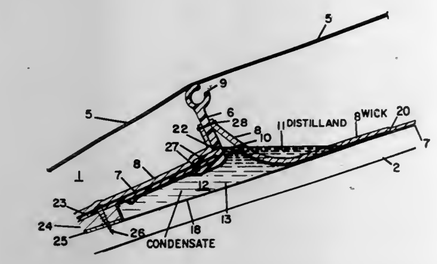
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,715
Int. Cl. C12d *9/14*
U.S. Cl. 195—80 3 Claims

This disclosure describes a process for the production of neutramycin which comprises cultivating a neutramycin producing strain of a species of the genus Streptomyces selected from the group consisting of *Streptomyces lute-overticillatus* and mutants thereof in an aqueous nutrient medium under submerged aerobic conditions.

3,549,503
PROCESS AND APPARATUS FOR THE DISTILLATION OF DISTILLAND DISPLACED BY DISTILLATE

**Harold R. Hay, Phoenix, Ariz.
(795 Roble, Menlo Park, Calif. 94025)**

Continuation-in-part of application Ser. No. 490,791, Sept. 28, 1965. This application Oct. 9, 1968, Ser. No. 772,452
Int. Cl. B01d *1/00;* C02b *1/06*
U.S. Cl. 203—11 18 Claims



Condensate collected in receivers having a displaceable rigid or flexible wall causes displacement of distilland into a distillation zone, thereby the distilland feed rate is made proportional to the production of distillate distilled by a varying heat input. A fluid or a thermal barrier affecting thermal transfer may be interposed between the distillate and the distilland in a common vessel without interfering with the displacement of distilland by collected distillate fractions.

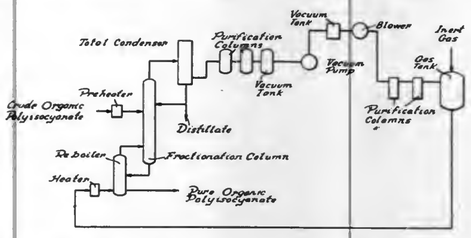
3,549,504
METHOD FOR THE PURIFICATION OF ORGANIC POLYISOCYANATES BY FRACTIONAL DISTILLATION IN PRESENCE OF AN INERT GAS OR SUPERHEATED VAPOR OF AN ORGANIC SOLVENT

Osamu Adica and Kenji Naito, Toyonaka, Katsuhiko Ogino, Minoo, and Hiroyuki Kuroda, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed May 5, 1967, Ser. No. 636,353
Claims priority, application Japan, May 5, 1966, 41/28,431; May 10, 1966, 41/29,842
Int. Cl. B01d *3/34;* C07c *69/00*
U.S. Cl. 203—49 15 Claims

Crude organic polyisocyanate is fractionated at a low temperature in the presence, in the fractionation column, of an inert gas (nitrogen gas, natural gas, carbon dioxide gas) and purified organic polyisocyanate is obtained in a high yield.

In one important aspect, crude xylylenediisocyanate is fractionated in the presence of an organic solvent having a boiling point of —20° C. to 150° C. at the pressure of

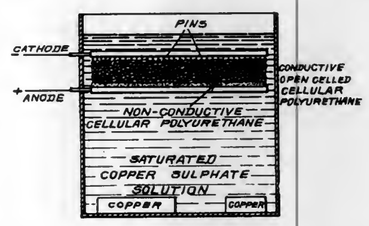


200 mm. Hg in the fractionation column under low temperature, whereby purified xylylenediisocyanate is obtained in a high yield.

3,549,505
RETICULAR STRUCTURES AND METHODS OF PRODUCING SAME

Helmut G. Hanusa, 428 S. Missouri, Cape Girardeau, Mo. 63701

Continuation-in-part of application Ser. No. 533,728, Mar. 11, 1966, which is a continuation-in-part of application Ser. No. 235,041, Nov. 2, 1962, which in turn is a continuation-in-part of application Ser. No. 90,076, Feb. 17, 1961. This application Jan. 9, 1967, Ser. No. 620,578
(Filed under Rule 47(b) and 35 U.S.C. 118)
Int. Cl. C23b *5/64, 7/00*
U.S. Cl. 204—11 9 Claims



A method of producing a substantially rigid, reticular, three-dimensional network of metallized polyurethane having macroscopic inter-connected voids therein, by first forming a reticular, electrically nonconductive, cellular structure of polyurethane having a self-supporting, three-dimensional nework of inter-connected annulets with macroscopic interconnected voids therein and having at least 98% of all cells opened, then coating the annulets throughout the network with conductive material, and finally, electrolytically depositing an adherent metal coating onto and substantially throughout the reticular conductive structure and the desired product having the polyurethane destroyed by heating.

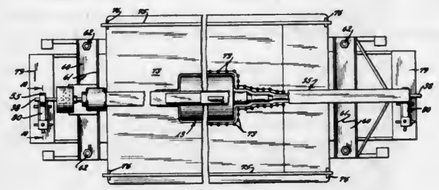
3,549,506
METHOD OF MAKING AN ELECTRO-CONDUCTIVE ROLLER

Harold E. Willingham, Sky Drive, Anniston, Ala. 36201

Filed Nov. 5, 1968, Ser. No. 773,602
Int. Cl. B01k *3/02;* C23b *5/56, 5/78*
U.S. Cl. 204—25 3 Claims

An electrical current-carrying and transferring apparatus having multiple diameters and method of making

the same with varying thicknesses of conductor material on the several diameters in accordance with the amount

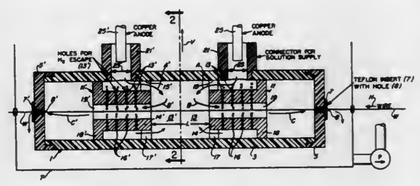


of energy conducted and the total area of conducting material.

3,549,507
METHOD OF FABRICATING A PLATED WIRE FERROMAGNETIC MEMORY ELEMENT

Peter P. Semienko, Boston, and Emil Toledo, Natick, Mass., assignors to Honeywell, Inc., Minneapolis, Minn., a corporation of Delaware

Continuation-in-part of application Ser. No. 518,184, Jan. 3, 1966, now Patent No. 3,506,546. This application Aug. 9, 1967, Ser. No. 659,388
Int. Cl. C23b *5/18, 5/50, 5/58*
U.S. Cl. 204—28 11 Claims

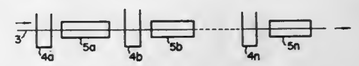


Apparatus for electroplating copper films of precise uniform surface roughness, such as onto a wire substrate at very high speeds and continuously, plus associated copper electrolytes and plating methods. The intended roughness will provide uniformly distributed spherules about 1 micron in diameter and will provide a very precise control over magnetic properties of thin superfilms (over-coatings), such as about 1 micron of Permalloy plated onto the copper. Essentially, a hollow cylinder is provided as a copper-plating cell through which the wire may be advanced and along which recirculated electrolyte may be directed. Recirculation inlets are provided to communicate with the central passage and arranged to uniformly ionize the fluid electrolyte and to inject it into the passage so as to be distributed uniformly about the passing wire substrate. As a result, the electrolyte will be directly symmetrically and radially against the wire, as well as past it, and thus provide symmetrical, highly uniform agitation along the wire during plating. Novel associated electroplating methods and electrolytes (such as copper cyanide, copper fluoborate and copper sulfate) are also described. The object is to plate copper very quickly, yet uniformly, onto the wire to provide controlled surface roughness to act as a substrate for subsequent plating of thin magnetic memory films or the like.

3,549,508
PROCESS FOR PRODUCING MAGNETIC THIN FILM WIRE BY MULTIPLE-LAYER ELECTRO-DEPOSITION

Hisao Maeda, Tokyo-to, Akira Matsushita, Kawasaki-shi, and Takashi Sakuma, Tokyo-to, Japan, assignors to Toko Kabushiki Kaisha, Ota-ku, Tokyo-to, Japan, a joint-stock company of Japan

Filed Nov. 15, 1966, Ser. No. 594,533
Claims priority, application Japan, Nov. 19, 1965, 40/71,241
Int. Cl. C23b *5/52;* G11b *5/84*
U.S. Cl. 204—37 1 Claim



A method for producing a conductor wire coated with a magnetic film comprises repeatedly electrodepositing a thin magnetic film in the circumferential direction onto a conductor wire while passing a direct current through the wire, and repeatedly subjecting the coated wire to a heat treatment while passing a direct current through the wire.

3,549,509
SOLID OBJECTS CONTAINING LIGNOCELLULOSE PARTICLES AND RADIATION-INDUCED POLYMER AND METHOD OF MAKING SAME

Samuel L. Casalina, Watsonville, Calif., assignor to Di Giorgio Corporation, a corporation of Delaware

Filed June 1, 1967, Ser. No. 642,768
Int. Cl. B01j *1/10;* C08b *15/00*
U.S. Cl. 204—159.12 7 Claims

Forestry particles, such as sawdust, wood and bark chips, are impregnated with a liquid of a monomer having a radiation-activatable reactive group, optionally with a catalyst or promoter, molded under pressure to place the particles into touching relation and form an article, which may be a sheath about a pre-existing object, and subjected to high-intensity ionizing radiation to polymerize the monomer and bind the particles into a solid object of stable shape.

3,549,510
POLYMER-TREATED IRRADIATED BENDABLE SHEETS OF LIGNO-CELLULOSE AND METHOD OF MAKING SAME

Samuel L. Casalina, Watsonville, Calif., assignor to Di Giorgio Corporation, a corporation of Delaware

Filed June 12, 1967, Ser. No. 645,293
Int. Cl. B01j *1/10;* C08b *15/00*
U.S. Cl. 204—159.12 6 Claims

Sheet material of ligno-cellulose, such as fiberboard, and tissue is impregnated at least at the surface with a liquid monomer having a radiation-activatable reactive group and which polymerizes to form a flexible polymer, and subjected to ionizing radiation to polymerize the monomer, thereby producing a composite which has a continuous resinous coating which gives the sheet increased strength while retaining yieldability, e.g., producing a sheet which is bendable without cracking.

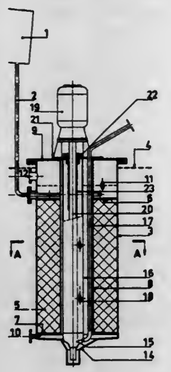
3,549,511
APPARATUS FOR THE DECOMPOSITION OF AN ALKALI METAL MERCURY AMALGAM

Robert Schoberle, Roermond, Netherlands, assignor to Solvay & Cie, Brussels, Belgium, a corporation of Belgium

Filed July 24, 1968, Ser. No. 747,304
Claims priority, application Belgium, July 26, 1967, 701,848
Int. Cl. B01k *3/00;* C22d *1/04*
U.S. Cl. 204—249 10 Claims

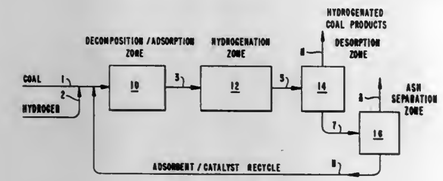
The apparatus comprises a common chamber which contains the piling used as a catalyst for the decomposi-

tion of the amalgam formed in a mobile mercury electrolytic cell and the pump which drives the recovered mercury back toward the cell for reuse. A single tank also



contained in the chamber provides for the storage of mercury collected during the decomposition which may be used as a drawing reserve for the centrifugal pump as well as storage in the event the cell is stopped.

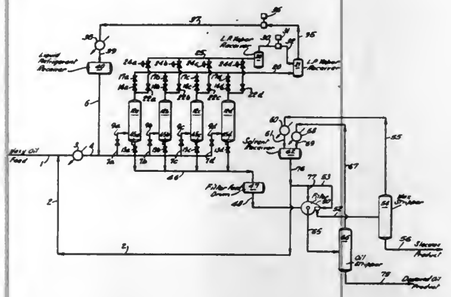
3,549,512
PROCESS FOR CONVERSION OF COAL
Russell L. Hodgson, Lafayette, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed July 23, 1968, Ser. No. 746,958
Int. Cl. C10g *1/06*
U.S. Cl. 208—10 **7 Claims**



A process for liquefication/hydrogenation of raw coal in which reactive decomposition intermediates are immediately adsorbed on a solid adsorbent, hydrogenated and desorbed in a moving bed process. Also disclosed are embodiments relating to a complete process providing recycle of adsorbent, recycle of reaction products and separation of ash and char from the adsorbent and products.

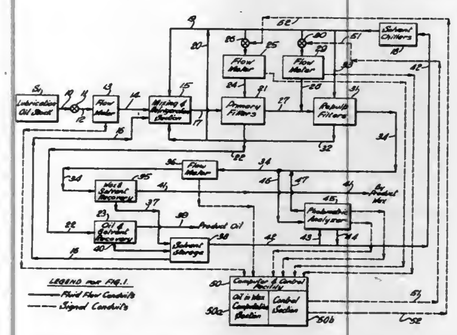
3,549,513
SOLVENT DEWAXING PROCESS WITH COOLING BY DIRECT CONTACT WITH EVAPORATING REFRIGERANT
Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed July 25, 1968, Ser. No. 747,536
Int. Cl. C10g *43/08*
U.S. Cl. 208—33 **8 Claims**

In solvent dewaxing a mineral oil, the oil is mixed with an aromatic-ketone dewaxing solvent and the mixture is chilled to dewaxing temperature by direct contact with evaporating refrigerant. The rate of cooling is controlled by reducing the pressure on the mixture of oil, solvent, and refrigerant at a controlled rate such that the cooling rate of the oil-solvent mixture is maintained within the range of about 1 to 30° F. per minute. The solvent mixture may compromise methyl ethyl ketone and toluene and the refrigerant may be a liquefied normally



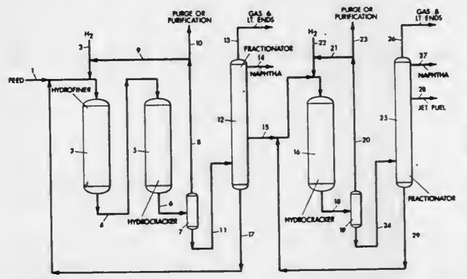
gaseous hydrocarbon such as propane, liquid ammonia, or a chlorofluorocarbon such as Freon. In one embodiment the refrigerant is expanded in two stages of pressure reduction and refrigerant evaporated in the lower pressure stage is separately compressed to a pressure at least as high as the terminal pressure of the first expansion zone.

3,549,514
METHODS AND APPARATUS FOR MONITORING AND CONTROL OF SOLVENT DEWAXING PROCESSES
William F. Brown, William E. Crockett, and Charles H. Brodeur, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 9, 1969, Ser. No. 790,113
Int. Cl. C10g *43/08*
U.S. Cl. 208—33 **16 Claims**



Disclosed are methods and apparatus for monitoring and control of a solvent dewaxing process of a lubrication oil stock. Signals are generated corresponding to the process charge rate, the wax removal rate, the amount of wax entrained solvent, and the amount of wax for removal. The signals are combined to determine and provide a signal of the amount of oil entrained in the removed wax in accordance with a mass balance relationship, thereby monitoring the process by obtaining information of its yield. To control the process in response to the latter signal suitable process variables are controlled such as the repulp liquids-to-solids ratio, the wax wash rate, and the process charge rate. Also disclosed are methods for selecting the best operating points for maximum economy of the process, and a novel method for controlling the process by controlling the repulp liquids-to-solids ratio. The apparatus includes flow rate sensing means for generating signals of the process charge rate, and the wax removal rate, a solvent detector, such as a photometric analyzer for generating a signal of the amount of wax entrained solvent, and a computer receiving the aforementioned signals for computing and providing a signal of the amount of oil entrained in the removed wax. Process control means are provided responsive to the latter signal and coupled to suitable modulating valves for controlling the process tending to control the yield by controlling the repulp liquids-to-solids ratio, the wax solvent wash rate, or the process charge rate.

3,549,515
HYDROCRACKING PROCESS FOR HIGH END POINT FEEDS
Alan J. Brainard, Pittsburgh, Pa., and Glen Porter Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed June 1, 1967, Ser. No. 642,927
Int. Cl. C10g *13/00, 23/00*
U.S. Cl. 208—89 **8 Claims**

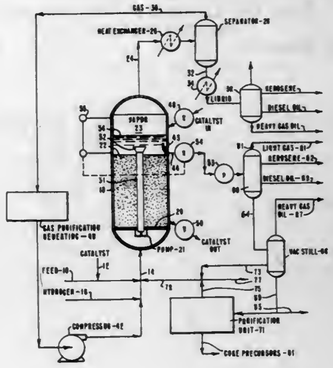


High end point petroleum oils are hydrofined, then hydrocracked in two stages with fractionation following each hydrocracking stage. A bottoms fraction from the first hydrocracking stage fractionator is recycled to the hydrofiner and a bottoms fraction from the second hydrocracking stage fractionator is recycled to the second hydrocracker.

3,549,516
PROCESS FOR PRODUCING POLYHEXAMETHYLENE SUBERAMIDE
David Kirkaldy, Raglan, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Continuation of application Ser. No. 560,783, June 27, 1966. This application Aug. 15, 1969, Ser. No. 850,677
Claims priority, application Great Britain, June 28, 1965, 27,279/65
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 **2 Claims**

A process for producing a high softening point polyhexamethylene suberamide (nylon 6.8) and the composition produced which has a Vicat softening point of at least 234 degrees centigrade. The composition is produced utilizing a novel source of very pure suberic acid. The nylon 6.8 produced is particularly suitable for textile and tire cord usage because of greatly improved properties, particularly the ease of obtaining high relative viscosities and the resulting high tenacity compared to previously known nylon 6.8 materials.

3,549,517
HIGH CONVERSION LEVEL HYDROGENATION OF RESIDUUM
Leon M. Lehman, Brooklyn, and Axel R. Johnson, North Babylon, N.Y., assignors to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed July 23, 1968, Ser. No. 747,786
Int. Cl. C10g *23/00*
U.S. Cl. 208—108 **4 Claims**



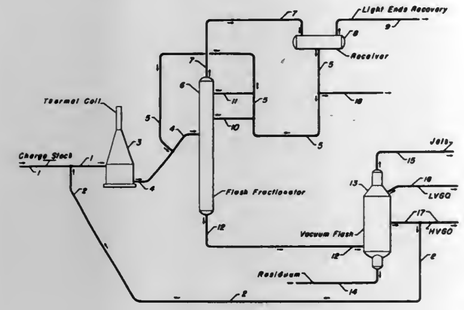
A hydrogenation of a petroleum residuum containing at least 25 volume percent of material boiling above 975° F. by reacting the feed with hydrogen at elevated temperatures and pressures in an ebullated catalytic bed reactor, separating the vapors from the liquid effluents, fractionating the liquid effluent to produce a fraction boiling above about 900° F., removing the asphaltenes and condensed polycyclic aromatics from the fraction in order to purify it and recycling the purified fraction to the reactor, which recycle results in prolonged reactor life, increased conversion of the 900° F. plus material in the feed at reduced severity levels and prevention of coking in the reactor.

3,549,518
MIXED NONNOBLE METAL CATALYST COMPOSITIONS AND PROCESSES UTILIZING SAME
Ralph Burgess Mason, Denham Springs, and Glen Porter Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 622,482, Mar. 13, 1967, which is a continuation-in-part of application Ser. No. 538,222, Mar. 29, 1966. This application June 10, 1968, Ser. No. 735,555
Int. Cl. B01j *11/26;* **C10g** *13/04*
U.S. Cl. 208—111 **18 Claims**

Improved catalyst compositions particularly useful in hydrocarbon conversion processes comprising a crystalline zeolite catalyst support base having ion-exchangeable sites steamed which has been exchanged with a mixture of nonnoble metal constituents. Preferably the base is exchanged with a first nonnoble metal and the resulting composition is then treated with a second nonnoble metal which is in an opposite valence form with respect to the first nonnoble metal and which is reactable with the aforesaid first nonnoble metal to yield a mixed nonnoble metal compound at the ion-exchangeable sites of the catalyst support material. For example, a crystalline aluminosilicate zeolite molecular sieve, preferably in the ammonium form, is steamed and ion exchanged with nickel cations and the resulting nickel ammonium zeolite is treated with

a solution of ammonium tungstate to yield a nickel tungstate on ammonium zeolite. This material is a superior hydrocarbon conversion catalyst.

3,549,519
MIXED-PHASE THERMAL CRACKING PROCESS
William H. Munro and Robert J. J. Hamblin, Deerfield, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Oct. 28, 1968, Ser. No. 771,245
Int. Cl. C10g *13/00*
U.S. Cl. 208—125 **5 Claims**



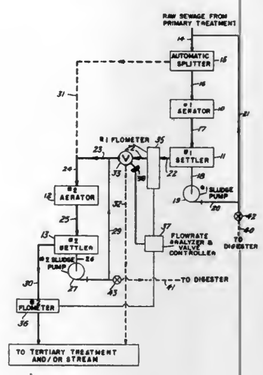
A process for thermally cracking a mixed-phase hydrocarbonaceous charge stock containing an asphaltic, nondistillable residuum. One such charge stock comprises about 53.0 mol percent propane and lighter, normally gaseous material, and about 17.0 mol percent of asphaltic residuum. The thermal cracking is effected in the presence of a lower-boiling, normally liquid diluent obtained from the thermally cracked product effluent.

3,549,520
COLOR IMPROVEMENT OF SULFUR-CONTAINING LUBRICATING OILS WITH A MORDENITE TYPE ZEOLITE
Herbert C. Morris, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed July 19, 1968, Ser. No. 745,986
Int. Cl. C10g *23/04*
U.S. Cl. 208—264 **11 Claims**

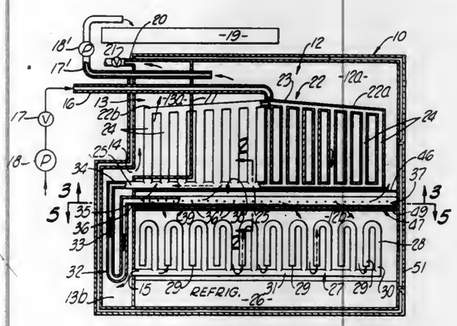
A lubricating oil is contacted with a catalyst comprising a Group VIII metal supported on a mordenite type zeolite in hydrogen form to yield a product oil of improved color with no significant change in sulfur content. The activity of the catalyst is enhanced if the zeolite is acid-treated to increase the silica-alumina mol ratio.

3,549,521
SEWAGE TREATMENT PROCESS AND SYSTEM
James I. Stevens, Bedford, Mass., assignor, by mesne assignments, to Nayadic Sciences Incorporated, West Chester, Pa., a corporation of Pennsylvania
Filed Sept. 5, 1969, Ser. No. 855,622
Int. Cl. C02c *1/08*
U.S. Cl. 210—5 **6 Claims**

The present invention comprises a process and system for treating sewage employing first and second stage activated sludge treating units. These units are arranged in series under normal sewage input flow conditions. If excessive flow prevails, the portion of the influent in excess of a predetermined amount will bypass the first stage and be diverted directly to the second stage. Approximately the same amount of fluid flowing from the first stage to the second stage treating unit will be simultaneously diverted directly to the output of the system, bypassing the second stage treating unit.



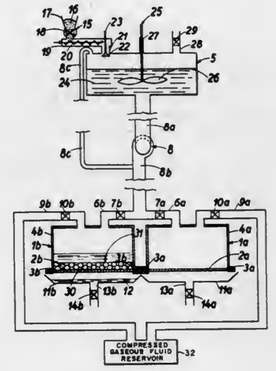
3,549,522
APPARATUS AND PROCESS FOR OBTAINING POTABLE WATER FROM SALINE SOLUTIONS
Ralph A. Nye and Dorothy M. Nye, both of 5425 Ash St., Los Angeles, Calif. 90042
Continuation-in-part of application Ser. No. 673,729, Oct. 9, 1967, which is a continuation-in-part of application Ser. No. 498,513, Oct. 21, 1965. This application Sept. 17, 1969, Ser. No. 858,777
Int. Cl. B01d *13/00*
U.S. Cl. 210—23 **12 Claims**



Apparatus and method for obtaining potable water from saline and other solutions, wherein the solution enters at a relatively high temperature and is conducted through vertical heat exchange paths of series connected first and second heat exchangers where it is pre-cooled en route to horizontally extending treating means having an upper treating section through which water of low brine

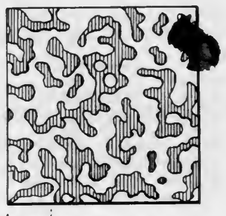
content passes through semi-permeable means containing hydrophilic and brine repelling substances to produce a potable water component, while being aided by the action of a closely underlying lower treating section containing brine-attracting hydrophobic substances operating to separate out the brine component of the solution.

3,549,523
METHOD FOR EXTRACTING SOLID PARTICLES FROM A LIQUID
Pierre Gilard, Mont sur Marchienne, and Maurice Galanti, Ransart, Belgium, assignors to Institut National du Verre A.S.B.L., Charlerol, Belgium
Filed Dec. 7, 1967, Ser. No. 688,813
Claims priority, application Luxembourg, Dec. 13, 1966, 52,592
Int. Cl. B01d *15/00*
U.S. Cl. 210—24 **11 Claims**



A device and method for extracting solid particles from a liquid in which they are suspended. At least one powdered agent is added to and mixed with the liquid which powdered agent associates with the solid particles. The mixed liquid is then passed through a liquid-permeable filter support on which a cake is formed of the powdered agent and the solid particles.

3,549,524
MATERIAL AND METHOD FOR PERFORMING STERIC SEPARATIONS
Wolfgang Haller, 4501 Connecticut Ave. NW., Apt. 406, Washington, D.C. 20008
Filed Nov. 10, 1965, Ser. No. 507,092
Int. Cl. B01d *15/08*
U.S. Cl. 210—31 **13 Claims**

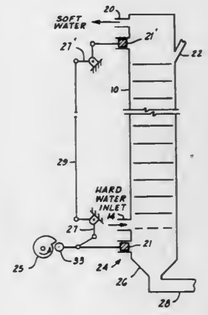


A separation medium for separating components of a liquid mixture by steric chromatography comprising a porous glass body formed with a continuous system of intercommunicating pores of controlled dimensions and a method and apparatus for performing steric separations of liquid mixtures employing such separation media.

3,549,525
PARTIALLY DEACTIVATED SILICON DIOXIDE ADSORBENTS AND METHOD
Knut Klatyk, Darmstadt, Germany, assignor to E. Merck Aktiengesellschaft, Darmstadt, Germany
No Drawing. Filed Aug. 20, 1969, Ser. No. 851,756
Claims priority, application Germany, Aug. 24, 1968, 1,798,116
Int. Cl. B01d *15/08*
U.S. Cl. 210—31 **12 Claims**

Partially deactivated silicon dioxide-containing adsorbents are produced by coating the surfaces of a surface active silicon dioxide-containing adsorbent with polyvinylpyrrolidone. The adsorbents are especially useful as chromatographic agents in the separation of proteins and the like from aqueous dispersions, said proteins being normally irreversibly adsorbed unmodified silicon dioxide-containing adsorbents.

3,549,526
CONTACT PROCESS AND APPARATUS
Hart Brown, 5300 Brownway Road, Houston, Tex. 77027
Filed Jan. 31, 1968, Ser. No. 701,906
Int. Cl. B01d *33/30*
U.S. Cl. 210—33 **23 Claims**



This specification discloses a process and apparatus for providing intimate countercurrent contact between solid particles and a fluid wherein such process may be operated as a continuous process by utilizing two columns with the solid particles being moved downwardly in one column and upwardly in the other column and also includes apparatus for transferring solid particles between columns and apparatus for providing intimate contact between the solid particles and the fluids in each column. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

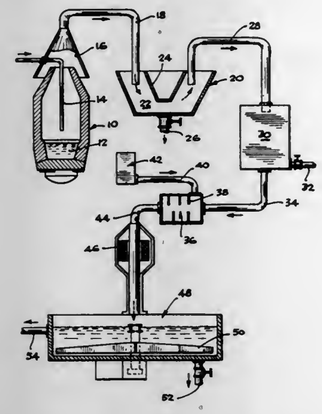
3,549,527
METHOD OF CLARIFYING AQUEOUS SUSPENSIONS

David F. Peck, Pittsburgh, Pa., Thomas J. McBride, Louisville, Ky., and Elmer W. Palmer, Woodbridge, and Douglas A. Schwartz, Elmhurst, Ill., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

Continuation-in-part of application Ser. No. 739,569, June 24, 1968. This application Nov. 14, 1969, Ser. No. 876,723

Int. Cl. C02b *1/20*

U.S. Cl. 210—54 8 Claims



Aqueous fluid suspensions, the suspended phase of which is composed of particles which are susceptible in varying degree to magnetic polarization, are readily clarified by using anionic water-soluble polymers in combination with a magnetic field.

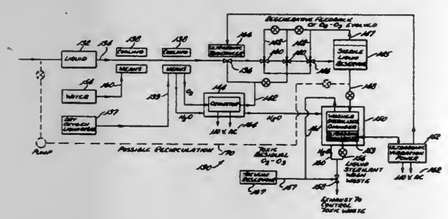
3,549,528
OZONE STERILIZATION PROCESS

Edward T. Armstrong, 490 Pepperidge Tree Terrace, Smoke Rise, Butler, N.J. 07405

Continuation-in-part of application Ser. No. 362,118, Apr. 23, 1964. This application Feb. 28, 1969, Ser. No. 813,382

Int. Cl. A61l *13/06;* C02b *1/38, 3/08*

U.S. Cl. 210—60 12 Claims



A unique utilization of oxygen and ozone generated from oxygen in a gaseous form singly or in combination as from air, or a carbon dioxide-oxygen mixture used as a solution or with superheated water vapor is contemplated in process and apparatus. A sterilant is made by passing a fluid in a flow dominated by a hydraulic pressure gradient characterized by an overall pressure drop per unit of line length reduced from the gravitational gradient pressure drop per unit of line length of one foot of fluid per foot of distance by several orders of magnitude, substantially uninfluenced by the gravitational pressure gradient incidentally present creating local areas of high momentum exchange at restrictions in the flow, and introducing gaseous oxygen-ozone into the liquid at these points where the static pressure is regained thus modifying the velocity profile in fully developed turbulent flow to achieve maximum uniformity of oxygen-ozone concentration throughout the fluid whereby the solubility of the oxygen-ozone into the fluid is greatly enhanced. Further, this process may also be operated at a reduced incident gas content in the fluid and possibly at a temperature reduced to increase the solubility of oxygen-ozone, and sterilization within the fluid conduit or container takes place during a distance in which the hydraulic pressure gradient is continuously imposed to ensure maximum solubility of the oxygen-ozone into the fluid by reason of intense mixing and restricted pressure change.

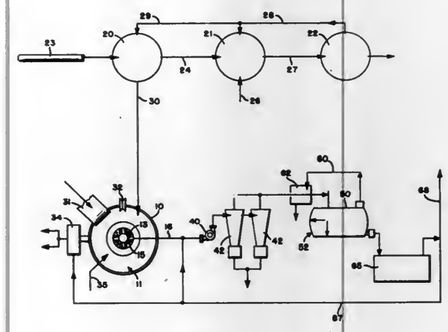
3,549,529
METHODS AND APPARATUS FOR DISPOSING OF WASTE MATERIALS

John W. Wiseman, Amelia, Ohio, assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio

Filed July 1, 1968, Ser. No. 741,596

Int. Cl. B01d *21/00*

U.S. Cl. 210—63 6 Claims



Both waste sludge, particularly sludge resulting from the treatment of municipal sewage, but also including industrial waste sludges, and ordinary garbage, trash and other municipal refuse are pulped to produce an aqueous slurry comprising particles of organic sludge and highly fibrous refuse. The solids content of the slurry is maintained within a range appropriate for ultimate disposal by aqueous state incineration in a wet oxidation reactor, and the slurry is delivered directly from the pulping device to the incinerator.

3,549,530
FINISH COMPOSITION FOR FIBERS

Thomas Jefferson Proffitt, Jr., Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 7, 1967, Ser. No. 621,132

Int. Cl. D06m *13/44*

U.S. Cl. 252—8.8 4 Claims

This invention concerns a finish composition containing (1) an alcohol of the formula $R—(OCH_2—CH_2)_7—OH$ where R is a secondary alkyl group having 11 to 15 carbon atoms, (2) the triethanolamine salt of a mixture of mono- and didecylorthophosphate, and (3) an ethylene oxide condensate of sorbitan monolaurate having on the average four ethylene oxide units.

3,549,531
MICROSPHERE SOLID METAL LUBRICANT

René Santt, Villefranche par Dun-sur-Meuse, Meuse, France, assignor to Centre National de la Recherche Scientifique, Paris, France, a society of France

Continuation of application Ser. No. 346,881, Feb. 24, 1964. This application Feb. 27, 1967, Ser. No. 624,969

Claims priority, application France, Dec. 18, 1963, 957,649

Int. Cl. C10m *5/02*

U.S. Cl. 252—26 10 Claims

Solid metal microsphere lubricants used between slidably engaged surfaces.

3,549,532
WEIGHTED CORROSION INHIBITORS

James R. Stanford and Paul G. Vogelsang, Jr., Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Sept. 11, 1967, Ser. No. 666,984

Int. Cl. C09k *3/100*

U.S. Cl. 252—8.55 4 Claims

Invert sugar is used as a weighting agent for an iron corrosion inhibitor in oil and gas wells.

3,549,533
SINGLE PHASE EMULSION INHIBITOR

Wallace F. Tabor, Fullerton, and Paul M. Williamson, Garden Grove, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Nov. 22, 1968, Ser. No. 778,331

Int. Cl. C10m *1/46*

U.S. Cl. 252—32.7 15 Claims

A lubricant emulsion inhibitor additive comprising blown castor oil, refined kerosene, and distilled tall oil and including antimony o,o-dialkylphosphorodithioate, a metal deactivator dialkyl-2,5-dimercapto-1,3,4-thiadiazole and a rust inhibitor, lauryoyloxyacetic acid and lubricant compositions containing the same are disclosed.

3,549,534
SULFURIZED CALCIUM ALKYLPHENOLATE LUBRICANT COMPOSITIONS AND METHOD OF MANUFACTURE

Richard A. Holstedt, Poughquag, James G. Dadura, Fishkill, Robert H. Krug, Cornwall, and Doris Love, Fishkill, N.Y., assignors to Texaco Development Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 5, 1969, Ser. No. 855,758

Int. Cl. C10m *1/38, 1/48*

U.S. Cl. 252—42.7 18 Claims

A lubricating oil composition containing sulfurized normal calcium alkylphenolate detergent-dispersant of improved resistance to oxidation, said dispersant prepared by the sequential reaction of alkylphenol with calcium alkoxyalkoxide followed by sulfurization of the formed calcium alkylphenolate at a temperature between 400 and 425° F. in the presence of a hydrocarbon lubricating oil, said reaction preferably followed by a deodorizing treatment of the resultant product via venting with inert gas at less than about 225° F., said composition preferably containing a supplementary detergent-dispersant comprising the ethylene oxide derivative of an inorganic phosphorus acid free, steam hydrolyzed polybutene-P_2S_5 reaction product.

3,549,535
MINERAL OILS CONTAINING A GRAFT POLYMER OF NATURAL RUBBER AND POLYDIENE

David W. Young, Homewood, and Richard F. Poss, Flossmoor, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application June 24, 1965, Ser. No. 466,822, now Patent No. 3,440,187, dated Apr. 22, 1969. Divided and this application Mar. 27, 1969, Ser. No. 841,166

Int. Cl. C10m *1/28;* C10l *1/18*

U.S. Cl. 252—52 3 Claims

Mineral oil compositions containing, as a pour point depressant, a graft polymerization product of about 80 to 99% by weight of natural, pale crepe rubber and about 1 to 20% of a polydiene which is a 1,3-diene hydrocarbon of 4 to about 12 carbon atoms, e.g. 1,3-butadiene, are disclosed. Preparation of the graft polymerization product, which has a Staudinger molecular weight of about 35,000 to 250,000 may be by milling the natural rubber in the presence of the diene polymer, e.g. at temperatures of about 150 to 200° F.

3,549,536
LEAD ZIRCONATE-TITANATE CONTAINING MANGANESE ADDITIVE

Antonio Lungo, Middleburg Heights, and Donald E. Bonnema, Maple Heights, Ohio, assignors to Clevite Corporation, a corporation of Ohio

Filed July 6, 1964, Ser. No. 380,443

Int. Cl. C04b *35/46, 35/48*

U.S. Cl. 252—62.9 18 Claims

The invention is directed to ferroelectric ceramic compositions consisting essentially of lead zirconate-titanate and containing manganese in an amount corresponding on a mol basis to an addition of about 0.05 to 0.8 weight percent of manganese oxide. The manganese additive improves the mechanical Q of the ceramics in their utility as piezoelectric transducers. Other additives such as chromium and iron in combination with the manganese and/or alkaline earths as substituents for lead up to 20 atom percent are disclosed.

3,549,537
INSULATING OIL COMPOSITIONS CONTAINING ACENAPHTHENE OR ACENAPHTHYLENE

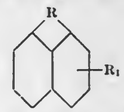
Phillip W. Brewster, Wyoming, Ontario, and Warren C. Pattenden, Moorctown, Ontario, Canada, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Aug. 1, 1967, Ser. No. 657,508

Int. Cl. C07c *7/18, 15/24;* H01b *3/22*

U.S. Cl. 252—63 8 Claims

Novel insulating oil compositions comprising a mineral insulating oil in major amount and a minor amount of a cyclic hydrocarbon having the formula:



wherein an R is a bivalent radical, i.e., —CH=CH— or $—CH_2—CH(R_1)—$, and R_1 is hydrogen, alkyl, or aryl, the alkyl and aryl ranging from C_1 to C_{12}.

3,549,538
SCALE INHIBITION AND REMOVAL IN STEAM GENERATION

Clarence Jacklin, Downers Grove, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed June 22, 1967, Ser. No. 647,920

Int. Cl. C02b *5/06*

U.S. Cl. 252—82 16 Claims

This invention is directed to a method of inhibiting and removing scale which forms in boilers used to generate

steam at a variety of pressures. The invention contemplates treating such boilers with a composition comprising two components.

The first component is (A) a nitrilo compound having the structural formula

$$N(-(CH_2-)_x-Q)_3$$

where x is an integer of from 1–2 and Q is either the

$$COOR \text{ or } -\overset{O}{\overset{\|}{P}}-(OR)_2 \text{ radical}$$

In this formula R may be either hydrogen alkali metal and ammonium with at least 2 occurrences of R being alkali metal or ammonium:

The second component is (B) a water soluble sulfoxy free polar addition polymer having a molecular weight of at least 1,000.

The invention is particularly directed to the use of nitrilo tricarboxylic acid salts in combination with anionic vinyl carboxylate containing polymers for treating industrial boilers to prevent the formation of scale and in certain cases aiding in the removal of existing deposits.

3,549,539

DISHWASHING POWDERS

Leslie Albert Stanley Mallows, Wirral, England, assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine

No Drawing. Filed Oct. 23, 1967, Ser. No. 677,079
Int. Cl. C11d *3/075, 7/56*
U.S. Cl. 252—99 **4 Claims**

An improved nonionic surfactant based detergent powder for use in a machine dishwashing powder is obtained when the nonionic surfactant is a mixture of: (A) nonylphenol-5-EO or a condensation product of a random C_{11} to C_{15} secondary alcohol and ethylene oxide with an HLB value between 11.5 and 13.5; and (B) a polyethyleneoxide-polypropyleneoxide condensate that consists of between 5 and 25% polyethyleneoxide and 95 and 75% polypropyleneoxide and has a molecular weight between 1500 and 2700.

3,549,540

METHOD AND COMPOSITIONS FOR TREATING ALUMINUM SURFACES

David Y. Dollman, Doylestown, Pa., assignor to Amchem Products, Inc., Ambler, Pa., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 590,487, Oct. 31, 1966. This application Dec. 22, 1967, Ser. No. 692,725
Int. Cl. C11d *7/54*
U.S. Cl. 252—105 **21 Claims**

This invention relates to improvements in treating solutions for aluminum surfaces designed to remove the naturally occurring oxide film on such surfaces. Such solutions are commonly termed deoxidizing solutions.

The invention, in both its method and composition aspects, involves the addition of ferricyanides, ferrocyanides and/or nitroprussides to aluminum deoxidizing solutions to prevent the formation of copper smut on aluminum surfaces treated therein. The copper, which tends to form surface smut if the invention is not utilized, derives from the copper which is an important alloying constituent in many widely used aluminum alloys. The ferricyanides, ferrocyanides and nitroprussides of the invention are effective in a wide variety of deoxidizing solutions to prevent this copper deposition. Concentrates for addition to the deoxidizing solutions to replenish the ingredients which are consumed during the use of the solution can also be prepared in accordance with this invention. Such concentrates can contain the ferricyanides, ferrocyanides and/or nitroprussides of this invention, along with deoxidizing ingredients utilized in the solution.

3,549,541

ENZYME CARRYING DETERGENT PARTICLES

Martin David Reinish, Emerson, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 31, 1968, Ser. No. 733,315
Int. Cl. C11d *3/065, 7/42, 11/00*
U.S. Cl. 252—135 **4 Claims**

Spongeous pockmarked detergent particles carrying powdered enzyme preparation on their surfaces. The spongeous particles may be made by expanding an aqueous mixture of hydratable builder salt and detergent, setting the mixture and comminuting the set mixture.

3,549,542

PROCESS FOR PREPARING LIQUID DETERGENT

Victor M. Holderby, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Oct. 2, 1967, Ser. No. 671,993
Int. Cl. C11d *1/38, 1/62, 1/65*
U.S. Cl. 252—137 **4 Claims**

A process for preparing a homogeneous liquid detergent composition containing an anionic organic detergent and a cationic polymer consisting of mixing the cationic polymer with an aqueous solution of a cellulose derivative or a hydratable colloidal clay; dispersing the resulting mixture in the anionic organic detergent using low shear mixing means; and milling the resultant dispersion in a closed system colloid mill.

3,549,543

LOW-FOAMING WASHING AND CLEANSING AGENTS

Alfred Kirstahler, Dusseldorf, Günter Jakobi, Hilden, Rhineland, and Ernst Götte, Ratingen-Tiefenbroich, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany, a corporation of Germany

No Drawing. Filed June 1, 1966, Ser. No. 554,325
Claims priority, application Germany, June 25, 1965, B 82,555; Dec. 18, 1965, B 85,038
The portion of the term of the patent subsequent to May 7, 1985, has been disclaimed
Int. Cl. C11d *1/00, 1/66*
U.S. Cl. 252—152 **10 Claims**

Low-foaming, washing and cleansing compositions particularly for use in mechanical dishwashers consisting essentially of a mixture of three types of polyoxyalkylene compounds which are: (A) ethylene oxide adducts of high molecular weight lipophilic radicals which adducts may additionally contain small amounts of oxypropylene and oxybutylene radicals, or mixed oxyethylene-oxypropylene glycols having an excess of oxyethylene units, (B) compounds of the formula

$$A_1—X—A_1$$

wherein A_1 represents high molecular weight lipophilic compounds adducted with ethylene oxide and which may also contain small amounts of oxypropylene and oxybutylene units and X is a bivalent linkage selected from the group consisting of

$$-\overset{O}{\overset{\|}{S}}-,\ -S-,\ -OC-R-CO,\ -\overset{R}{\overset{|}{N}}- \text{ and } -OC-NH\ R-NH-CO-$$

and (C) high molecular weight lipophilic radicals adducted with propylene oxide and/or butylene oxide which may contain small amounts of oxyethylene units, or mixed oxypropylene-oxyethylene glycols having an excess of oxypropylene units.

3,549,544

LIQUID SYNTHETIC DETERGENT

Keith L. Johnson, Matteson, Ill., assignor to Swift & Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Oct. 3, 1966, Ser. No. 583,920
Int. Cl. C11d *1/18, 1/20, 7/08*
U.S. Cl. 252—152 **6 Claims**

A process for the production of essentially neutral, non-aqueous, detergent concentrates is set forth. The concentrates are produced by reacting a cosmetic-type acid with an alkylol amine in the presence of a fatty amide and an alkyl aryl sulfonate.

3,549,545

SOLID COMPOSITIONS USEFUL IN DRY CLEANING

Leo Stolmeijer, Nijverdal, Netherlands, assignor to N.V. Industrieeleen Handel Mij Senzora v/h A. J. Schoemaker & Zonen

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,539
Claims priority, application Netherlands, Dec. 28, 1965, 6517034
Int. Cl. C11d *3/26, 7/32*
U.S. Cl. 252—152 **2 Claims**

The filter powder and components of the dry-cleaning bath, in addition to the solvent, are added to the bath as a single additive in solid form, containing 10–85% by weight of adsorbent, 5–70% by weight of detergent, 5–80% by weight of water, and 5–40% by weight of a finish for improving the hand of the dry-cleaned textile products, and more preferably 30–40% by weight of adsorbent, 15–17% by weight of detergent, 38–42% by weight of water, and 8–16% by weight of finish.

3,549,546

PROCESS FOR PREPARING LIQUID DETERGENT

Robert S. Moore, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Oct. 2, 1967, Ser. No. 671,960
Int. Cl. C11d *1/38, 1/65, 1/62*
U.S. Cl. 252—152 **2 Claims**

A process for preparing a homogeneous liquid detergent composition containing an anionic organic detergent and a cationic polymer, consisting of dissolving an aqueous solution of the polymer in triethanolamine; dispersing the polymer-triethanolamine solution in an aqueous solution of anionic organic detergent using low shear mixing means; and milling the resultant mixture in a closed system colloid mill.

3,549,547

STABILIZED 1,1,1-TRICHLOROETHANE COMPOSITION

Leighton S. McDonald, Angleton, Tex., and Clarence R. Crabb, Elkgrove Village, Ill., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 5, 1967, Ser. No. 688,014
Int. Cl. C09d *9/00;* **C11d** *7/50;* **C23g** *5/02*
U.S. Cl. 252—171 **6 Claims**

This invention relates to a composition of 1,1,1-trichloroethane stabilized with minor amounts of cis or trans 1,2-dimethoxy ethylene or mixtures thereof and to a process for preventing deterioration of 1,1,1-trichloroethane in contact with aluminum metal by intimately admixing with such 1,1,1-trichloroethane a stabilizing amount of cis or trans 1,2-dimethoxy ethylene or mixtures thereof.

3,549,548

METHOD OF INHIBITING SCALE FORMATION USING A CONDENSED POLYPHOSPHATE-PARTIALLY HYDROLYZED POLYACRYLONITRILE COMPOSITION

Theodore R. Newman, Oak Lawn, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 574,897, Aug. 25, 1966. This application Nov. 22, 1968, Ser. No. 778,309
Int. Cl. C02b *5/04, 5/06;* **C08f** *3/76*
U.S. Cl. 252—181 **14 Claims**

A process for preventing the formation of scale on the internal walls of cooling water systems and the like. In the process a composition comprising in combination a condensed polyphosphate and particular acrylic polymers is added to the aqueous system to be treated. The particular acrylic polymers contain both amide and carboxyl side groups in a ratio of from one to four amide groups per six to nine carboxyl groups. The molecular weight of the polymer will be up to 40,000.

3,549,549

SODIUM CHLORIDE DESICCANT TABLET

Joseph H. Henderson, 5400 McDermott Drive, Berkeley, Ill. 60163

No Drawing. Filed July 12, 1967, Ser. No. 652,712
Int. Cl. C09k *3/18*
U.S. Cl. 252—194 **7 Claims**

A desiccant tablet or pellet characterized by a highly deliquescent salt held in a matrix affording good structural qualities while the deliquescent salt is undergoing change incident to its deliquescence, and also characterized by additives in the matrix and intimately mixed therewith to provide lubrication between adjacent pellets, reduction in the pH of liquid emerging from the pellet, and a controlled rate of deliquescence.

3,549,550

FLUORESCENT CALCIUM HALOPHOSPHATE PHOSPHOR CONTAINING AT LEAST ONE OF MAGNESIUM BERYLLIUM, AND LEAD

Shigeru Kamiya, Hirakata-shi, and Haruo Shibata, Takatsuki-shi, Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan, a corporation of Japan

Filed Dec. 18, 1967, Ser. No. 691,272
Claims priority, application Japan, Dec. 28, 1966, 42/256
Int. Cl. C09k *1/36*
U.S. Cl. 252—301.4 **9 Claims**

Calcium halophosphate type fluorescent substances prevented from deterioration in luminous intensity by incorporation of at least one element selected from the group consisting of magnesium, beryllium and lead.

3,549,551

EUROPIUM ACTIVATED LITHIUM INDIUM SILICATE

Roelof Egbert Schuil, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed Jan. 30, 1968, Ser. No. 701,735
Claims priority, application Netherlands, Feb. 1, 1967, 6701518
Int. Cl. C09k *1/54*
U.S. Cl. 252—301.4 **2 Claims**

Red luminescent phosphor useful for color television display tubes comprising a europium activated lithium indium silicate.

3,549,552

CALCIUM HALOPHOSPHATE "DAYLIGHT" PHOSPHOR

Jacob Van Broekhoven, North Caldwell, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 27, 1969, Ser. No. 794,180

Int. Cl. C09k *1/36*

U.S. Cl. 252—301.4 **2 Claims**

Halophosphate phosphor of particular formulation, when used as the sole phosphor component in a fluorescent lamp, causes the operating lamp to exhibit a "daylight" color. The ratio of metal to phosphorus in the phosphor is quite low, as compared to other commercial halophosphates of different emission colors.

3,549,553

METHOD FOR PRODUCING HALOPHOSPHATE PHOSPHOR OF PLATE-LIKE PARTICLE SHAPE

Anselm Wachtel, Parlin, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,638

Int. Cl. C09k *1/36*

U.S. Cl. 252—301.6 **7 Claims**

A halophosphate phosphor of superior particle shape is prepared from a uniformly distributed raw mix in a method utilizing plate-like shaped dicalcium orthophosphate as an essential constituent. The plate-like dicalcium orthophosphate is intimately mixed with the other raw mix constituents. The primary metal additions of calcium, cadmium, and manganese to the raw mix are made by using nitrates of these metals which are soluble in their own water of hydration, or by using a metal carbonate-fluoride mixture which is slurried with the dicalcium orthophosphate. Alternatively the raw mix addition to the dicalcium orthophosphate are all thoroughly ball milled to a particle size of less than about one micron. The final mixture in each case is fired to produce the plate-like, well-formed halophosphate phosphor particles.

3,549,554

LASER PHOSPHATE GLASS COMPOSITIONS

Chikara Hirayama, Murrysville, and Nathan T. Melamed, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 514,658, Oct. 17, 1965. This application Oct. 8, 1968, Ser. No. 775,982

Int. Cl. C09k *1/36;* **C03c** *3/16, 3/28*

U.S. Cl. 252—301.6 **7 Claims**

This invention relates to phosphate glasses containing divalent manganese and having the general composition $(Mn_x, Me_{1-x})O \cdot yP_2O_5$ wherein x has a value of from 0.05 to 1, and y has a value of from 0.7× to 2, and Me represents an element from Group II–A and II–B of the Periodic Table with an atomic number not exceeding 56. By incorporating one or more trivalent rare earth ions such as neodymium, these glasses are fluorescent and are particularly useful as laser hosts. Alumina may be added up to 15 weight percent or up to 0.25 mol in the above formula, and/or ZrO_2 or TiO_2 up to 0.1 mols, the total of any two or all three not exceeding 0.25 mol. Silica may be substituted for a part of the P_2O_5 up to its limit of solid solubility, namely up to about 10% by weight.

3,549,555

ENCAPSULATION OF LIPOPHILIC LIQUID-IN-HYDROPHILIC LIQUID EMULSIONS

Everett N. Hiestand, Galesburg, and Erik H. Jensen and Peter D. Meister, Kalamazoo, Mich., assignors, by mesne assignments, to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

No Drawing. Continuation of application Ser. No. 355,416, Mar. 27, 1964, which is a continuation-in-part of applications Ser. No. 781,916, Ser. No. 781,925, Ser. No. 781,926, and Ser. No. 781,927, all Dec. 22, 1958. This application Oct. 8, 1968, Ser. No. 776,296

Int. Cl. A01n *17/00;* **A61k** *9/04;* **B01i** *13/00*

U.S. Cl. 252—316 **33 Claims**

A process for encapsulating a hydrophobic liquid in aqueous emulsion with a wall-forming polymeric material comprising causing a coacervate solution of the wall-forming polymeric material to deposit about the hydrophobic liquid in aqueous emulsion and hardening the capsule wall; also the capsular product produced from the aforedescribed process, which product is useful where ever there is need to maintain the hydrophobic liquid in aqueous emulsion in isolation from contiguous environment or there is need to control the release of the said emulsion through its capsular wall.

3,549,556

SPHERICAL METHANATION CATALYSTS

Edward K. Dienes, Louisville, Ky., assignor to Catalysts and Chemicals Inc., Louisville, Ky., a corporation of Delaware

No Drawing. Filed July 26, 1968, Ser. No. 747,846

Int. Cl. B01j *11/08, 11/40*

U.S. Cl. 252—455 **6 Claims**

Methanation involves the reaction of carbon oxides with hydrogen to form methane and water. Nickel methanation catalysts are most frequently employed, preferred catalysts being nickel on refractory cementitious supports. A nickel-cement methanation catalyst is provided having properties not heretofore obtained while still maintaining a high degree of activity.

3,549,557

ISOPARAFFIN ALKYLATION PROCESS AND CATALYST FOR USE THEREIN

Anthony P. Bolton, Buffalo, and Paul E. Pickert, North Tonawanda, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 26, 1968, Ser. No. 740,049

Int. Cl. B01j *11/40*

U.S. Cl. 252—455 **4 Claims**

The catalytic alkylation of isobutane with an olefin containing from two to five carbon atoms is carried out using a crystalline zeolitic molecular sieve having a low monovalent metal cation content and having a greatly reduced content of OH exhibiting infrared absorption in the region from 3480 to 3670 $cm.^{-1}$.

3,549,558

CRYSTALLINE ALUMINO-SILICATE CATALYST

Thomas E. Berry, Pinole, and Hans A. Benesi, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,328

Int. Cl. B01j *11/40*

U.S. Cl. 252—455 **11 Claims**

Highly active crystalline alumino-silicate zeolite catalysts are prepared by a special ion exchange/stabilization procedure which comprises: (1) substantially complete

removal of sodium ions (to below about 0.5% w.) from a zeolite of the faujasite crystalline form; (2) selective reintroduction of sodium to a level of between about 0.5 to 1%, washing to remove unexchanged sodium ions, followed by; (3) high temperature (ca. 800° C.) calcination, and (4) preferably removal of sodium following calcination by ion exchange and drying and calcining.

3,549,559

CATALYSIS

James W. Abson and Manfred Landau, Cheadle Hulme, Eric I. Clark, Cheadle, and Alan Molyneux, Ashton-on-Mersey, Sale, England, assignors to Simon-Carves Limited, Cheadle Heath, Stockport, England, a British company

No Drawing. Filed Sept. 5, 1967, Ser. No. 668,739

Claims priority, application Great Britain, Sept. 24, 1966, 42,749/66

Int. Cl. B01j *11/22*

U.S. Cl. 252—459 **6 Claims**

A method of producing a catalyst comprising the steps of contacting, under aerobic conditions, metal acetate-containing material with an aqueous culture comprising acetate-oxidizing bacteria, removing the culture from the material, and drying the material.

3,549,560

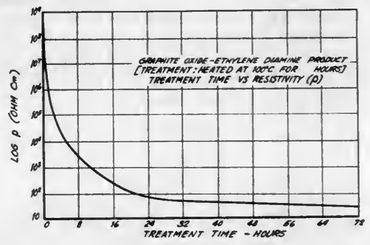
ELECTRICALLY CONDUCTING AMINE-GRAPHITE OXIDE PRODUCT

Harold G. Monsimer, Parsippany, N.J., assignor to Pennwalt Corporation, East Orange, N.J., a corporation of Pennsylvania

Filed Aug. 9, 1968, Ser. No. 751,518

Int. Cl. H01b *1/00*

U.S. Cl. 252—500 **10 Claims**



Electrically conducting amine-graphite oxide products are made by heating a graphite oxide-amine salt between about 70° C. and about 200° C. until the resistivity of the product is less than about 10^5 ohm cm.

A graphite oxide-ethylene diamine salt heated at 100° C. for 6 hours has a resistivity of 10^5 ohm cm.; heated for 24 hours, ρ is about 90 ohm cm.; at 48 hours, ρ is 39 ohm cm.

3,549,561

METHOD OF PRODUCING ELECTRICALLY SEMICONDUCTIVE MATERIAL

Willem Westerveld and Jan Willem Harmsen, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 705,289, Feb. 14, 1968, which is a continuation-in-part of application Ser. No. 395,037, Sept. 8, 1964. This application July 22, 1969, Ser. No. 849,234

Claims priority, application Netherlands, Sept. 27, 1963, 298,534

Int. Cl. H01b *1/06*

U.S. Cl. 252—520 **8 Claims**

Produce electrically semiconductive material of improved temperature stability by adding from 1 to 4% by weight of silicon dioxide to a mixture consisting mostly of magnesium oxide and about 1.5% to 2.5% of titanium dioxide and sintering the mixture in a reducing atmosphere.

3,549,562

PRODUCTION OF ION EXCHANGE RESIN PARTICLES

Morris Mindick, Chicago, and Jerry J. Svarz, La Grange, Ill., assignors, by mesne assignments, to The Dow Chemical Company, a corporation of Delaware

No Drawing. Continuation of application Ser. No. 691,541, Oct. 22, 1957. This application June 14, 1965, Ser. No. 463,923

Int. Cl. C08f *27/08*

U.S. Cl. 260—2.1 **16 Claims**

7. A process for the production of a copolymer of a monovinyl benzenoid monomer and a divinyl benzenoid monomer which comprises: dispersing in water, as a dispersion of droplets, a solution in a water-immiscible, liquid solvent selected from the group consisting of benzene, lower alkyl benzene, chlorobenzene, bromobenzene, ethylene dichloride and ethylene dibromide of a mixture of said monomers in a weight proportion of about 20% to 40% of said divinyl monomer and with the balance being said monovinyl monomer, in which solution said solvent constitutes about 30% to 70% by weight based on the weight of said monomers plus said solvent, and copolymerizing said monomers in said dispersion.

10. A process for producing a quaternary ammonium ion exchange resin which comprises chloromethylating a copolymer produced in accordance with the process of claim 7 with chloromethyl methyl ether at about reflux temperature in the presence of a Friedel-Crafts catalyst until said copolymer contains an average of 0.8 to 1.2 chloromethyl groups per aromatic nucleus of said copolymer, and thereafter quaternizing the chloromethyl groups of said copolymer with a tertiary amine.

3,549,563

POLYOLEFIN FOAM RETARDER

George R. Hill and Donald G. Needham, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed June 5, 1967, Ser. No. 643,355

Int. Cl. C08f *29/04, 45/58, 47/10*

U.S. Cl. 260—2.5 **11 Claims**

A thiobis-cresol in concentrations within the range of about 0.03 to 0.5 weight percent in conventional low density polyethylene foam recipes functions as a retarder in the foaming process, permitting higher stock temperatures to be used.

3,549,564

MODIFIED POLYURETHANE FOAMS FOR FUEL-FIRE

John A. Parker, Los Altos, and Salvatore R. Riccitiello, San Jose, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Feb. 5, 1968, Ser. No. 702,967

Int. Cl. C08g *22/44*

U.S. Cl. 260—2.5 **8 Claims**

The invention relates to flame retardant and flame suppressant materials. The main structure of the material is a rigid or semi-rigid polyurethane foam, preferably of a highly branched structure, in which are incorporated one or more materials to impart special properties. One of the added materials is an alkyl halide resin such as polyvinyl chloride which is capable of splitting off HCl and forming a polyene on heating. Other materials which may be, and preferably are, added are cetain inorganic salts (e.g., potassium fluoborate) an encapsulated volatile halogen compounds such as trifluorotrichloroethane.

3,549,565

PROCESS OF CROSSLINKING DIMERCAPTO COMPOUNDS WITH POLYMERCAPTO POLYESTER POLYETHERS AND RESULTING PRODUCT

Faber B. Jones and Billy D. Simpson, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Original application Jan. 20, 1967, Ser. No. 610,491. Divided and this application Apr. 9, 1969, Ser. No. 814,816

Int. Cl. C08g *41/04*

U.S. Cl. 260—7.5 **6 Claims**

Elastomeric materials are formed by contacting at least one dithiol with at least one polymercapto polyester polyether containing at least about three mercapto groups formed from the condensation of a polyhydroxy polyether and a mercapto hydrocarbon carboxylic acid under conditions sufficient to couple the mercapto groups of said dithiol and said polymercapto polyester polyether.

3,549,566

AQUEOUS DISPERSION PAINT COMPOSITIONS HAVING IMPROVED BRUSHING CHARACTERISTICS

Michael E. Mesirov, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 21, 1967, Ser. No. 684,616

Int. Cl. C09d *5/02;* **C08f** *29/36*

U.S. Cl. 260—8 **9 Claims**

An aqueous polymeric dispersion, useful as a pigmented or clear coating composition, which has increased brushing viscosity is disclosed. Higher brushing viscosity is obtained by adding to the dispersion the combination of a thickener and a polymeric aziridine compound.

3,549,567

AQUEOUS DISPERSION OF CARBOXYLIC POLYMERS CONTAINING AMINO-SUBSTITUTED AZIRIDINES

George M. Kagan, Rio de Janeiro, Brazil, and Robert Roper, Summit, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Mar. 14, 1968, Ser. No. 712,917

Int. Cl. C07d *23/06;* **C08f** *45/24*

U.S. Cl. 260—29.6 **4 Claims**

An aqueous coating composition or adhesive, prepared by reacting the copolymerization product of a vinyl monomer such as vinyl acetate, vinyl chloride, ethyl acrylate, dibutyl fumarate, ethylene, or styrene and an alpha, beta-olefinically unsaturated carboxylic acid with an amino-substituted aziridinyl compound such as N(2-aminoethyl) aziridine.

3,549,568

AQUEOUS STARCH-PIGMENT PAPER COATING COMPOSITIONS CONTAINING POLYACRYLAMIDE-GLYOXAL LATENT INSOLUBILIZER

Anthony Thomas Coscia, South Norwalk, and Daniel Dickerson Ritson, Riverside, Conn., Charles Frazier, Kinnelon, N.J., and Joseph Hansbro Ross, South Bend, Ind., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed May 21, 1968, Ser. No. 730,898

Int. Cl. C08g *37/36*

U.S. Cl. 260—17.3 **10 Claims**

Paper coating compositions are provided containing a pigment, starch as binder for the pigment and a latent water insolubilizing agent for the binder. Exemplary of these compositions is a fluid dispersion of clay in aqueous medium containing starch as pigment binder and from about 5 to 20% based on the weight of the starch of a blend or a reaction product of a water-soluble polyacrylamide with about 0.75 mol of glyoxal per mol of polyacrylamide. These compositions cure at low temperatures and provide coatings which possess high wet-rub resistance.

3,549,569

POLYURETHANE COATING COMPOSITIONS PREPARED FROM 1-ISOCYANATO-3-ISOCYANATOMETHYL-3,5,5-TRIMETHYLCYCLOHEXANE

Basil S. Farah, Elma, and Herbert M. Schroeder, Williamsville, N.Y., assignor to Textron Inc., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 585,262, Oct. 10, 1966, and Ser. No. 630,528, Apr. 13, 1967. This application June 29, 1967, Ser. No. 649,801

Int. Cl. C08g *22/06*

U.S. Cl. 260—18 **30 Claims**

Urethane prepolymer coating compositions are made from 1-isocyanato-3-isocyanatomethyl-3,5,5-trimethyl cyclohexane and aliphatic polyols or water at a total NCO to OH ratio of at least 1.2:1. When the coating composition is moisture-curing the polyol preferably has as its major component aliphatic polyol having a molecular weight of at least about 500. When the coating composition is polyolcuring the polyol used in making the prepolymer preferably has as its major component aliphatic polyol having a molecular weight of up to about 200, and the polyol used to cure the composition preferably has as its major portion aliphatic polyol having a molecular weight of at least about 500. These prepolymer coating compositions may contain about 3 to 35 weight percent of free isocyanate groups and the compositions are of application viscosity, at least when in a solvent, even when derived from a polyol component containing a significant proportion of polyol having three or more hydroxyl groups and therefore exhibits cross-linking tendencies. Cured coating made from the prepolymer compositions exhibit outstanding resistance to the discoloring action of ultraviolet light rays and possess other desirable properties such as good adherence to substrates and excellent abrasion resistance and strength.

3,549,570

COPOLYCARBONATES

Arthur J. Coury, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,899

Int. Cl. C08g *17/13*

U.S. Cl. 260—18 **9 Claims**

Copolycarbonates are prepared from dihydroxy-diaryl compounds and alkylene glycol esters and polyesters of dimeric fat acids. Various of these copolycarbonates find use as flexible packaging materials, as adhesives, and as molded articles.

3,549,571

POLYESTER MODIFIED ORGANOSOL COMPOSITION, A DRIED COATING OF WHICH HAS IMPROVED MAR RESISTANCE AND METAL MARKING RESISTANCE

Charles J. Berg, Jr., Oak Lawn, Ill., James R. McInerney, San Salvador, El Salvador, and Daniel D. Molt, South Holland, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 654,375, July 19, 1967, which is a continuation-in-part of application Ser. No. 619,057, Feb. 27, 1967. This application Jan. 17, 1969, Ser. No. 792,124

Int. Cl. C08g *17/16;* **C09d** *3/66*

U.S. Cl. 260—21 **13 Claims**

Normally water insoluble finely divided thermoplastic resins dispersed in organic solvents (organosols) which when heated will fuse into a continuous film are modified with polymeric polycarboxylic-polyhydric alcohol polyester resins with or without nitrogen containing cross linking agents to increase metal marking resistance and mar resistance, also to improve adherence, gloss and other properties. Compositions are especially useful when baked on aluminum, steel or galvanized steel, with or without a ground coat for siding, building sheet, awnings, roof shingles, interior curtain walls and appliances. They can also be used on other substrates, e.g., particle board, Crezon overlaid fibre board, and paper products.

3,549,572

ENHANCEMENT OF RESISTANCE OF OLEFIN POLYMERS TO COPPER-CATALYZED OXIDATIVE DEGRADATION

Motonobu Minagawa and Kenichi Nakagawa, Tokyo, Japan, assignors to Argus Chemical Corporation, Brooklyn, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 17, 1968, Ser. No. 721,919

Claims priority, application Japan, Apr. 18, 1967, 42/24,272

Int. Cl. C08f *45/58*

U.S. Cl. 260—23 **15 Claims**

Mercapto and thio hydrazides and/or ureides are provided which are useful in the enhancement of the resistance of olefin polymers to copper-catalyzed oxidative deterioration.

In addition, there are also provided stabilizer compositions consisting essentially of at least one olefin polymer stabilizer and a mercapto or thio hydrazide and/or ureide; olefin polymer compositions, such as propylene polymer compositions, containing a mercapto or thio hydrazide and/or ureide; and a process for enhancing the resistance of olefin polymers to copper-catalyzed degradation by incorporation of such compounds or of such stabilizer compositions.

3,549,573

POLYAMIDES DERIVED FROM OXYPOLYOLEFINS AND POLYMERIZED FATTY ACIDS

Tibor Gabris, Lausanne, Switzerland, assignor to Liaison, S.A., Geneva, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 577,198, Sept. 6, 1966. This application Nov. 21, 1969, Ser. No. 878,949

Int. Cl. C08g *20/00, 20/26*

U.S. Cl. 260—23 **6 Claims**

Oxidized polyolefins containing carboxyl groups are converted to polyamides by condensation reactions with polyamines. For example, an oxidized polyethylene containing carboxyl groups is condensed with a diamine such as ethylenediamine to produce a polyamide. Polymerized fatty acids are preferably present in the polymerization mixture, and other materials can also be used, such as monomeric acids, sulfur, sulfur compounds, among other compounds.

3,549,574

ADHESIVE COMPOSITION

Colin W. Hawkins, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate and politic

No Drawing. Filed Mar. 15, 1968, Ser. No. 713,321

Claims priority, application Canada, Apr. 19, 1967, 988,260

Int. Cl. C08d *9/12*

U.S. Cl. 260—27 **4 Claims**

An improved adhesive composition suitable for spraying comprises a dispersion in a volatile organic liquid of:

(a) a cross-linked polymer of isobufylene,
(b) an elastomer, and
(c) a tackifying resin.

The cross-linked polymer (a) may be a cross-linked butyl rubber having from 50 to 90% by weight of gel. The cross-linked polymer is preferably masticated before it is dispersed and then mixed with preferably ⅓–5 parts of elastomer, e.g. butadiene-styrene copolymer, and 0.25 to about 10 parts of the tackifying resin, said parts being parts by weight per 1 part of cross-linked polymer.

3,549,575

JOINT SEALANT COMPOSITION

Dana C. Payne, Redwood City, and Jack L. Chandler, Hayward, Calif., assignors to Frank D. Gaus, doing business as Superior Products Company, Oakland, Calif.

No Drawing. Continuation-in-part of application Ser. No. 535,004, Mar. 17, 1966. This application Apr. 25, 1969, Ser. No. 819,415

Int. Cl. C08c *11/70;* **C08f** *45/52;* **C09d** *3/24*

U.S. Cl. 260—28.5 **13 Claims**

A single component liquid hot pour type coal tar pitch vinyl chloride composition which is fluid prior to use and is subsequently heated and flowed into a concrete joint or the like where it forms an elastic adherent seal.

3,549,576

RESOLE VARNISH MIXTURE

George J. Anderson, Wilbraham, and Ronald H. Dahms, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 21, 1968, Ser. No. 738,775

Int. Cl. C08g *37/18*

U.S. Cl. 260—29.3 **6 Claims**

Phenolic varnishes having dissolved therein two different resole resins. These varnishes are suitable for use in the production of paper laminates having high electrical properties by using only a single pass preparation procedure.

3,549,577

WATER-SOLUBLE, POLYESTER RESIN BASE, BAKING VEHICLE AND PROCESS OF PREPARING SAME

Sanford E. Stromberg, Tonawanda, N.Y., assignor to Textron Inc., a corporation of Delaware

No Drawing. Filed Jan. 6, 1967, Ser. No. 607,629

Int. Cl. C08g *37/34, 51/24*

U.S. Cl. 260—29.4 **26 Claims**

Polyester resin base, aqueous baking vehicles are prepared by heating an aqueous polyester prepolymer solution (pH=5.5 to 6.5), containing an alkylated polymethylol melamine, at about 105 to 140° F. for time sufficient to make fast-curing but not so long as to cause gelation, for instance, 15 to 60 minutes. After the "cooking in" of the melamine cross-linking agent, the pH of the product is adjusted to about 7 to 10.

3,549,578

FREEZE-THAW RESISTANT POLYVINYL ESTER DISPERSIONS AND PROCESS FOR MAKING THEM

Werner Ehmann, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed July 2, 1968, Ser. No. 741,841

Claims priority, application Germany, July 8, 1967, F 52,899; July 21, 1967, F 53,022

Int. Cl. C08f *1/63, 4/24*

U.S. Cl. 260—29.6 **14 Claims**

The present invention provides freeze-thaw resistant aqueous dispersions of polyvinyl esters or copolymers of vinyl esters using as protective colloid a graft polymer of a vinyl sulfonate onto a water-soluble polyvinyl alcohol derivative which is added to the polymerization batch or formed therein after the polymerization of the monomers, and a process for the manufacture of the said dispersions.

3,549,579
METHOD OF MAKING CATIONIC LATICES AND THE PRODUCTS THEREOF

Edward A. Sinclair, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 23, 1965, Ser. No. 516,122
Int. Cl. C08d *7/10, 7/18*
U.S. Cl. 260—29.7 **6 Claims**

A method for converting an anionic latex into a cationic latex by treating the anionic latex with one to about 10 percent by weight of an emulsion conversion agent from the class of alkyl ammonium salts and the salts of alkylene diamine having at least one alkyl radical for each amine nitrogen, and treating to adjust the pH to at least 7.

3,549,580
PROCESS FOR THE MANUFACTURE OF SPINNABLE SOLUTIONS OF β-POLYAMIDES

Erwin Schmidt, Ernst Höroldt, Kelkheim, Taunus, and Walter Rupp, Niederhofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Nov. 14, 1968, Ser. No. 775,897
Claims priority, application Germany, Nov. 21, 1967, 1,720,751
Int. Cl. C08g *20/10, 51/44*
U.S. Cl. 260—30.2 **6 Claims**

Process for the manufacture of spinnable solutions of poly-β-amides by dissolving β-lactams which are unsubstituted at the nitrogen atom in at least one specific neutral or at most weakly basic solvent containing 0.9% to 50% by weight of at least one lithium halide or lithium pseudo halide, and carrying out the polymerization in the presence of catalysts and, optionally, activators usually employed in the anionic polymerization of β-lactams.

3,549,581
NONAGING EPOXY COMPATIBLE SIZING COMPOSITION

Tack J. Whang, Berea, Ohio, assignor to Ferro Corporation, a corporation of Ohio

No Drawing. Filed June 6, 1968, Ser. No. 734,897
Int. Cl. C08g *51/42, 43/02*
U.S. Cl. 260—31.4 **13 Claims**

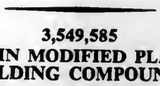
This invention relates to certain novel nonaging epoxy compatible size compositions in which the coupling agent is a mixture of an amine-containing coupling agent and an amine-free coupling agent and in which the resin portion of the composition contains both a high molecular weight linear epoxy resin, and an epoxy Novolac resin.

3,549,582
EPOXY RESIN POWDERS OF ENHANCED SHELF STABILITY WITH A TRIMELLITIC ANHYDRIDE DIMER AS CURING AGENT

William L. Payne, Wakefield, R.I., and Charles A. Fetscher, Olean, N.Y., assignors to The Dexter Corporation, Olean, N.Y., a corporation of Connecticut

No Drawing. Filed Oct. 11, 1967, Ser. No. 674,658
Int. Cl. C08g *30/12*
U.S. Cl. 260—37 **6 Claims**

In epoxy resin powders the desirable heat curing characteristics of trimellitic anhydride can be effectively utilized while avoiding the problem of very limited storage stability of systems containing trimellitic anhydride by employing a dehydrated derivative, hereinafter referred to as TMA dimer, in which two molecules of trimellitic anhydride are condensed with the formation of an intermolecular anhydride group. The pure dimer contains no free acid groups, but it is difficult and unnecessary to remove all traces of residual acidity; and epoxy resin systems containing the TMA dimer show markedly enhanced storage stability if the acid content has been reduced by at least 80% when forming the dimer. The TMA dimer is employed in the proportion of about 0.55 to 0.90, and preferably about 0.55 to 0.65, anhydride equivalents per epoxide



equivalent of resin, and on a weight basis is utilized much more effectively than the free trimellitic anhydride.

3,549,583
POLYURETHANE LIQUID CONTAINING COMPOSITIONS

Nobuyoshi Nagata, Nara-shi, and Ryuzo Mizuguchi, Osaka, Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed Dec. 12, 1967, Ser. No. 689,792
Claims priority, application Japan, Dec. 14, 1966, 41/81,547
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 **15 Claims**

A coating composition comprising a copolymer consisting of one or more kinds of polymerizable unsaturated monomer components having a hydroxyl group and tertiary aliphatic group in the molecule, and one or more kinds of monoethylenic unsaturated monomer components, and a polyisocyanate compound thereto added.

A two-pack type polyurethane coating composition having an excellent flexibility, mar resistance, chemical resistance, solvent resistance and weathering resistance can be prepared by introducing a hydroxyl group and tertiary aliphatic group into a copolymer obtained from polymerizable unsaturated monomers such as acrylic ester, methacrylic ester, vinyl compound, etc., and combining a polyisocyanate compound with the resulting copolymer by means of the reactivity of the introduced hydroxyl group.

3,549,584
NO-BAKE RESIN BINDERS

John C. Sekera, Chicago, Ill., assignor to CPC International Inc., a corporation of Delaware

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,116
Int. Cl. C08g *37/16, 37/36*
U.S. Cl. 260—38 **42 Claims**

Covers a resin useful as a no-bake binder for sand in a foundry process. Said resin comprises a three component resin system including furfuryl alcohol, formaldehyde and phenol. Also covers a method of preparing said resin in a two-step process, use of the resin in a foundry process as a binder, and resultant sand cores and molds derived from the resin binding agent.

3,549,585
KAOLIN MODIFIED PLASTIC MOLDING COMPOUNDS

David H. Solomon, Summit, N.J., assignor to Georgia Kaolin Company, a corporation of New Jersey

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,574
Int. Cl. C08g *51/04*
U.S. Cl. 260—40 **4 Claims**

A molding composition is provided comprising a neutralized kaolin in admixture with polyester resins.

3,549,586
POLYESTER COMPOSITIONS

Percy Leighton Smith, Dunbar, and Lowell Ray Comstock, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,383
Int. Cl. C08f *21/00;* **C08g** *51/04*
U.S. Cl. 260—40 **18 Claims**

Polyester molding compositions containing a polymer of a cyclic ester, these compositions being resistant to shrinkage during cure, having improved surface smoothness, and superior impact resistance.

3,549,587
STABILISATION OF POLYMERS

Eric Samuel Nicholson and Vijay Ratna Sharma, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Jan. 4, 1968, Ser. No. 695,575
Claims priority, application Great Britain, Jan. 6, 1967, 972/67; Oct. 2, 1967, 44,778/67
Int. Cl. C08f *45/60*
U.S. Cl. 260—45.8 **8 Claims**

3,5-dialkyl-4-hydroxybenzylamines, preferably in conjunction with other antioxidants, are added to polymers and copolymers of branched chain mono-α-olefins containing at least 5 carbon atoms to improve their heat stability. The highest stabilising effect is shown by di(3,5-ditert.-alkyl-4-hydroxybenzyl)ethanolamines.

3,549,588
STABILIZED POLYMER COMPOSITIONS CONTAINING AN ORGANOPHOSPHORUS SULFIDE AND A BENZOPHENONE

Adam F. Kopacki, Westwood, N.J., and Jerry Horodecky, Jackson Heights, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 406,159, Oct. 23, 1964. This application Oct. 2, 1968, Ser. No. 764,656
Int. Cl. C08f *45/60*
U.S. Cl. 260—45.8 **6 Claims**

Solid polymer compositions comprising a solid polymer selected from a poly-α-olefin formed from a monoalpha olefin having from 2 to 10 carbon atoms; polyesters including modified polyesters of the alkyd type formed by the esterification of a polycarboxylic acid or its anhydride with a polyhydric alcohol; a vinyl polymer selected from vinyl chloride, vinylidene dichloride, vinyl acetate, acrylic-acid and its esters and acrylonitrile; and copolymers and terpolymers thereof; and as a light stabilizer for the polymer a combination of 2-(2'-hydroxy-3'-tertiary butyl-5'-methyl-phenyl)-5-chloro-1, 2,3 - benzotriazole and an organophosphorus sulfide selected from bis (diphenylphosphinothioyl) monosulfide and bis (diphenylphosphinothioyl) disulfide.

3,549,589
COLOR STABILIZED INTERPOLYMERS OF ETHYLENE AND VINYL ACETATE

Edmund R. Meincke, Cuyahoga Falls, Ohio, assignor to The General Tire & Rubber Company, a corporation of Ohio

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,814
Int. Cl. C08f *45/60;* **C09d** *5/02*
U.S. Cl. 260—45.8 **9 Claims**

Interpolymers of ethylene and vinyl acetate containing 75–90 parts by weight of vinyl acetate and which may contain small amounts of other copolymerized material, e.g., acrylic acid, are stabilized against heat or age discoloration by the addition in amounts of about 0.1 to 5 parts by weight, per 100 parts by weight of the interpolymer, of a nitrogen containing organic substance having either (a) carbamide group (—NH—CO—NH—), e.g., urea, (b) carbamamidine group (—NH—CNH—NH—), e.g., dicyanamide, or (c) thiocarbamide group

(—NH—CS—NH—)

e.g., thiourea. The resulting stabilized interpolymers are usable in the form of latices as coatings and adhesives as well as in the form of dry powders for molding, cements, calendered sheets, etc.

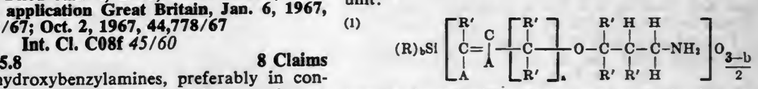
3,549,590
AMINOALKOXYALKENYL-POLYSILOXANES

Norman G. Holdstock, Scotia, Abe Berger and Terry G. Selin, Schenectady, and Raymond J. Thimineur, Scotia, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed July 17, 1968, Ser. No. 745,347
Int. Cl. C08f *11/04*
U.S. Cl. 260—46.5 **7 Claims**

Organopolysiloxanes containing the recurring structural unit:

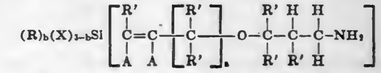
(1)



intercondensed with polysiloxane blocks having the average unit formula:

$$(R'')_eSiO_{\frac{4-e}{2}}$$

are made by reacting a compound of the formula:



with a siloxane having the average unit formula:

$$(R'')_e(OH)_dSiO_{\frac{4-e-d}{2}}$$

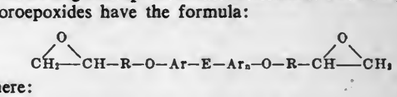
In the above formulas, A is a hydrogen atom or the Si—C bond, R is an organic radical, R' is an organic radical or hydrogen, R'' is an organic radical or hydrogen, X is a hydrolyzable radical, a has a value of 1 to 4, b has a value of 0 to 2, c has a value of 1 to 2.5, and d has a value of .002 to 1. The amino-containing organopolysiloxanes in the form of partial carboxylic acid salts are useful in detergent resistant polishes.

3,549,591
POLYFLUOROEPOXIDES AND EPOXY RESINS CONTAINING FLUORINE ON THE AROMATIC CARBON STRUCTURE AND PROCESS

James R. Griffith, Riverdale Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy

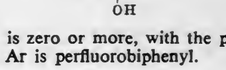
No Drawing. Filed July 30, 1968, Ser. No. 748,589
Int. Cl. C08g *30/04, 30/12*
U.S. Cl. 260—47 **18 Claims**

New diglycidyl ethers of polyhydroxy phenols, having all available aromatic hydrogen atoms substituted by fluorine are useful for producing polyfluorinated epoxy resins having an improved water resistance. The new polyfluoroepoxides have the formula:



where:

R is lower alkylene hydrocarbon radical;
Ar is a perfluorinated aromatic hydrocarbon radical;
E is the radical



n an integer, is zero or more, with the proviso that n is zero when Ar is perfluorobiphenyl.

Preferred curing agents for the new ethers have the formula:

$$Z-(R)_n-X-(R)_n-Z$$

where:

X is a perfluorinated hydrocarbon radical;
R is a hydrocarbon radical selected from the group consisting of methylene, ethylene, phenylene and lower alkyl derivatives thereof;
n is the integer 0 or 1 and wherein X is perfluorophenyl and perfluorobiphenyl when *n* is zero;
Z is an epoxy curing radical.

A specific example of a useful resin is the reaction product of 4,4'-dihydroxy-octafluorobiphenyl diglycidyl ether and tetrafluoro-m-phenylene diamine.

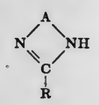
3,549,592

CURING EPOXY RESINS WITH AMIDINES

Norman Bell Godfrey and Heinz Schulze, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex., a corporation of Delaware

No Drawing. Filed Aug. 5, 1968, Ser. No. 750,008
Int. Cl. C08g *30/16*
U.S. Cl. 260—47 **10 Claims**

Epoxy resins, cured in the presence of (1) cyclic amidines of the formula:



wherein R is hydrogen, alkyl, aryl, aralkyl, alkaryl, or cycloalkyl and A is an alkylene group completing a five or six-membered ring and (2) polyoxyalkylenepolyamines, have improved physical properties and give fast and efficient cures.

3,549,593

AROMATIC POLYESTERS OF SUBSTITUTED HYDROXY BENZOIC ACIDS

Tohru Takekoshi, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Aug. 16, 1968, Ser. No. 753,076
Int. Cl. C08g *17/02*
U.S. Cl. 260—47 **7 Claims**

High molecular weight polyesters having a completely aromatic backbone are produced by the high temperature condensation of the monocarboxylic esters of substituted hydroxy benzoic acids. These polymers are high melting, crystalline materials which are useful in producing fibers, etc., and can be pressed into films, etc., for protective coatings and the like.

3,549,594

SOLID STATE POLYMERIZATION OF TETRACARBOXYLIC ACIDS DIANHYDRIDES AND AROMATIC TETRAMINES

Ian C. Twilley, Petersburg, and Stanley D. Lazarus, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation of application Ser. No. 546,617, May 2, 1966. This application Oct. 1, 1969, Ser. No. 862,977
Int. Cl. C08g *20/32, 33/02*
U.S. Cl. 260—47 **9 Claims**

Thermally stable polymers having exceptionally high melting points with average molecular weights ranging up to about 100,000 are prepared by polymerizing an aromatic tetramino compound with an aromatic dianhydride at temperatures ranging up to about 350° C. until a completely condensed linear polymer is obtained which may be characterized as having heterocyclic fused rings as recurring units in the polymeric chain.

3,549,595

POLY(PHENYLENESULFONATE) RESIN AND METHOD OF PREPARATION

Robert W. Campbell, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Mar. 11, 1969, Ser. No. 806,282
Int. Cl. C08g *23/00*
U.S. Cl. 260—49 **10 Claims**

A poly(phenylenesulfonate) polymer having regular repeating units characterized by the formula:



A process for the production of polymers comprising reacting a substituted or unsubstituted hydroxybenzenesulfonyl halide, a solvent selected from cyclic ketones and polar carboxylic acid amides, and a hydrogen halide acceptor. The concentration of the monomer is within the range of from 10 to 30 grams per 100 ml. of monomer plus solvent.

3,549,596

SEGMENTED ELASTOMERS FROM ISOMERIC MIXTURES OF 1,3-DIAMINOCYCLOHEXANE AND STERICALLY HINDERED TERTIARY DIISOCYANATES

Carl Kenneth McMillin and Wilford John Teerlink, Waynesboro, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 467,092, June 25, 1965. This application June 23, 1966, Ser. No. 559,728
The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. C08g *22/04, 22/18*
U.S. Cl. 260—75 **14 Claims**

Segmented elastomers derived from hydroxyl-terminated or amine-terminated amorphous polymers, certain sterically hindered tertiary diisocyanates, and certain isomeric mixtures of 1,3-diaminocyclohexane, exhibit good solubility in commercial solvents and may be spun to elastomeric fibers having high whiteness-retention and elastic power.

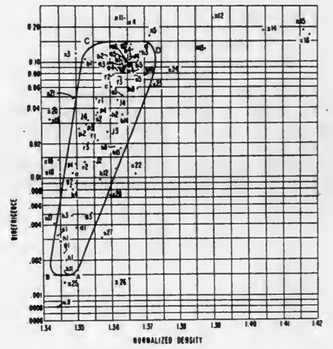
3,549,597

SPONTANEOUSLY EXTENSIBLE LINEAR TEREPHTHALATE POLYESTER FIBER

Robert E. Kitson, Wilmington, Del., and Cecil E. Reese, Kinston, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation-in-part of abandonded application Ser. No. 639,364, May 18, 1967, which is a continuation-in-part of abandoned application Ser. No. 363,015, Apr. 27, 1964, which is a continuation-in-part of abandoned application Ser. No. 718,114, Feb. 28, 1958, which in turn is a continuation-in-part of abandoned application Ser. No. 648,797, Mar. 27, 1957. This application Jan. 16, 1969, Ser. No. 814,867
Int. Cl. C08g *17/08*
U.S. Cl. 260—75 **6 Claims**

Fibers are disclosed which have the unusual property, when heated, of spontaneously increasing in length instead of shrinking. An irreversible extension along the fiber axis of about 1% to 20% may be obtained when the fiber is heated in water at 90° C. while free from tension. The fiber is not stretched to produce the elongation and the fiber does not return to its original length when cooled and dried. Additional spontaneous and irreversible extensibility is obtained at higher temperatures. The fibers are composed of ethylene terephthalate polyester oriented along the fiber axis to a birefringence value of 0.0015 to 0.15 in combination with a normalized density value within the area shown in the drawing. In preparing them, substantially amorphous fibers are stretched and heat treated under critically controlled conditions, e.g., as illustrated in the examples. Comparison examples are included to show the effect of other treatments.



The fibers are useful in sewing thread to eliminate seam puckering problems. Yarns which bulk permanently when heated are prepared by combining the fibers with other types of fibers. Extensibility can be partially developed, for textile manufacturing, by heating at one temperature and then the total extensibility can be increased by heating the fabric at a higher temperature. Desirable cotton-like fabrics can be prepared from the bulkable yarns.

3,549,598

POST TREATMENT OF POLYUREAURETHANES

Henry A. Pace, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Continuation of application Ser. No. 400,573, Sept. 30, 1964. This application May 29, 1969, Ser. No. 833,857
Int. Cl. C08g *22/00*
U.S. Cl. 260—75 **5 Claims**

This invention relates to a method of improving the physical properties of polyureaurethane articles which have been formed from a solution of the polyureaurethane in a solvent by treating the polyureaurethane article with an organic diisocyanate for a sufficient time to render the article essentially insoluble in dimethyl formamide on standing at 75° F. immersed for 24 hours in the dimethylformamide.

3,549,599

CARBOXYLIC ACID ESTER SUBSTITUTED POLYHYDANTOINS

Rudolf Merten, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,666
Claims priority, application Germany, Mar. 1, 1967, F 51,676
Int. Cl. C08g *22/02*
U.S. Cl. 260—77.5 **11 Claims**

Polymeric polycarboxylic acid esters containing hydantoin or thiohydantoin rings which can be prepared by first reacting a diester of an ethenylene-1,2-dicarboxylic acid with a primary polyamine, subsequently with a polyiso(thio)cyanate and afterwards effecting ring closure of the urea or thiourea obtained.

3,549,600

STOVING LACQUERS

Ferdinand Senge and Bernd Peltzer, Krefeld, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed July 2, 1968, Ser. No. 741,881
Claims priority, application Germany, Sept. 7, 1967, F 53,435
Int. Cl. C08g *22/06, 22/10*
U.S. Cl. 260—77.5 **3 Claims**

This invention relates to spontaneously cross-linking vehicles for stoving lacquers of copolymers of (a) 90 to 60% by weight of one or more monoethylenically unsaturated monomers different from (b); and (b) 10 to 40% by weight of a β- or γ-hydroxylalkyl ester of a monoethylenically unsaturated carboxylic acid, some of the hydroxyl groups being reacted with aromatic dicarboxylic acid anhydrides to form semiesters, and the remaining hydroxyl groups being partly or totally reacted with α-alkoxyalkylisocyanates to form corresponding urethanes. The invention also relates to a process for the production of these copolymers and stoving lacquers obtained from these copolymers.

ERRATUM

For Class 260—78 see:
Patent No. 3,549,516

3,549,601

POLYAMIDE MOLDING RESIN OBTAINED BY POLYMERIZING POLYAMIDE PRECURSORS IN THE PRESENCE OF A CRITICAL PROPORTION OF END CAPPING AGENT: BRANCHING AGENT

Peter A. Fowell, 2300 Louisiana Ave., Parkersburg, W. Va. 26101

Filed Aug. 20, 1968, Ser. No. 754,051
Int. Cl. C08 *20/38*
U.S. Cl. 260—78 **5 Claims**

Polyamide molding resin obtained by polymerizing the precursor with a branching agent and an end-capping agent. The ratio of end-capping agent to branching agent must be between about 2 to 1 and 3 to 1. A critical amount of branching agent is required.

3,549,602

POLYSULFHYDRYL POLYMERS

Gregoire Kalopissis and André Viout, Paris, France, assignors to Societe Anonyme dite: L'Oreal

No Drawing. Continuation-in-part of application Ser. No. 463,890, June 14, 1965. This application Jan. 31, 1969, Ser. No. 795,717
Claims priority, application France, June 19, 1964, 978,830; Jan. 18, 1965, 2,338
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 **17 Claims**

New polysulfhydryl polymers for permanently deforming hair and the process of preparing them by reacting soluble polymers having acid anhydride groups with mercapto amide-amines.

3,549,603
PROCESS FOR THE POLYMERIZATION OF AROMATIC POLYBENZIMIDAZOLES
Edward C. Chenevey, North Plainfield, and Anthony B. Conciatori, Chatham, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 517,854, Dec. 30, 1965. This application July 9, 1968, Ser. No. 743,314
Int. Cl. C08g *20/20, 20/42*
U.S. Cl. 260—78.4 7 Claims
Aromatic polybenzimidazoles are prepared by continuously passing nitrogen through the polymerization reaction zone while maintaining the pressure therein at least equal to atmospheric pressure.

3,549,604
POLY-m- AND p-CARBORANYLENESULFIDES
Nick S. Semenuk, New Haven, and Hansjuergen A. Schroeder, Hamden, Conn., assignors to Olin Corporation, a corporation of Virginia
No Drawing. Filed July 22, 1968, Ser. No. 746,296
Int. Cl. C08g *23/00*
U.S. Cl. 260—79.1 13 Claims
Polycarboranylenesulfides are prepared, for example by reacting 1,12-bis(halosulfenyl)-p-carborane with the dilithio salt of p-carborane in an inert solvent. Both m- and p-carboranylenesulfides can be prepared in this manner. The polycarboranylenesulfides of this invention consist essentially of recurring units of the Formula I:

$$\text{-M-S-}$$

where M represents the meta carboranylene or para carboranylene radical, or of the Formula II;

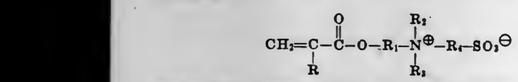
$$\text{-M-S-M'-S-}$$

where M and M' are each independently selected from the group consisting of the meta carboranylene or para carboranylene radical and with the proviso that each recurring unit contain one meta carboranylene radical and one para carboranylene radical. The polymers are useful as high energy fuels when compounded with oxidizers.

3,549,605
NOVEL POLYMERS AND THEIR USE IN PHOTOGRAPHIC APPLICATIONS
Thomas K. Dykstra and Thomas E. Whiteley, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Original application Apr. 21, 1965, Ser. No. 449,879, now Patent No. 3,411,912, dated Nov. 19, 1968. Divided and this application Feb. 19, 1968, Ser. No. 706,682
Int. Cl. C08f *15/16;* G03c *1/72, 1/78*
U.S. Cl. 260—79.3 5 Claims
Polymers which are substantially water insoluble comprising (1) units of acrylic acid, (2) units of monomer represented by the formula:

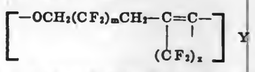


where R is a hydrogen atom or methyl group and R_1 is an alkyl radical with (3) units of monomer having the formula:



where R is a hydrogen atom or alkyl group, R_1 and R_4 are each divalent saturated aliphatic hydrocarbon radicals and R_2 and R_3 each represent hydrogen atoms or alkyl groups; wherein said interpolymer comprises up to 15%, by weight, of said (1), at least about 75%, by weight, of said (2) and up to about 10%, by weight, of said (3).

3,549,606
FLUOROALKYL ETHERS OF ALICYCLIC FLUOROOLEFINS
Virgil W. Gash, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Original application Jan. 10, 1966, Ser. No. 519,428, now Patent No. 3,497,563, dated Feb. 24, 1970. Divided and this application Sept. 23, 1969, Ser. No. 870,817
Int. Cl. C08f *3/20*
U.S. Cl. 260—91.1 1 Claim
A polymer of the formula



The polymer is a flexible fire retardant thermoplastic.

3,549,607
HIGH CIS POLYPENTENAMERS
Giulio Natta, Gino Dall'Asta, and Giorgio Mazzanti, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy
No Drawing. Continuation-in-part of application Ser. No. 339,455, Jan. 22, 1964. This application Dec. 27, 1968, Ser. No. 787,622
Claims priority, application Italy, Apr. 10, 1963, 7,421/63
Int. Cl. C08f *5/00*
U.S. Cl. 260—93.1 4 Claims
High molecular weight stereoregular high cis-polypentenamers are disclosed.

3,549,608
STEREOSYMMETRIC POLYPROPYLENE
Harry W. Coover, Jr., and Frederick B. Joyner, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Continuation of application Ser. No. 44,245, July 21, 1960. This application Dec. 5, 1966, Ser. No. 599,669
Int. Cl. C08f *1/56, 3/10*
U.S. Cl. 260—93.7 6 Claims
Solid highly crystalline polypropylene having a limited melting point of at least 180° C., a tensile strength at yield of 5,500 p.s.i. to 7,000 p.s.i. and a stiffness of 180,000 p.s.i. to 240,000 p.s.i.

ERRATUM

For Class 260—94.3 see:
Patent No. 3,550,158

3,549,609
SERIES-PARALLEL CIS POLYBUTADIENE REACTOR TRAINS
Donald D. Norwood, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Continuation-in-part of application Ser. No. 316,052, Oct. 14, 1963. This application Dec. 16, 1968, Ser. No. 787,298
Int. Cl. C08d *3/06*
U.S. Cl. 260—94.3 6 Claims
Polybutadiene polymer having improved resistance to cold flow is produced by first mixing the catalyst with vigorous agitation for from 15 to 45 seconds in the presence of a hydrocarbon diluent and the butadiene to be polymerized. The effluent from said mixing zone is then divided into a plurality of streams, and a corresponding series of reaction zones is provided, each series of reaction zones having from 2 to 3 separate reaction zones. Each of said effluent streams is introduced into the first reaction zone in the corresponding series of reaction zones. Each reaction zone of each series of reaction zones is operated under essentially the same conditions as that in the corresponding reaction zone in another series. The effluent from the last reaction zone in each series of reaction zones is combined and polymer is recovered from this combined stream as a product of the process.

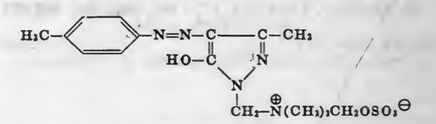
3,549,610
METHOD OF COLLECTING PROTEIN SUBSTANCES HAVING BIOLOGICAL ACTIVITY WITH RESPECT TO THE NERVOUS SYSTEM COMPRISING EXTRACTION OF PROTEIN FROM SUBMAXILLARY GLANDS WITH AMMONIUM SULFATE OR SODIUM SULFATE
Masaaki Yamamoto, 1198 Kamiodanaka, Kawasaki-shi, Kanagawa-ken, Japan, and Tsuneyuki Nakazawa, 2-443-8 Amanuma, Omiya-shi, Saitama-ken, Japan
Continuation of application Ser. No. 531,001, Mar. 1, 1966. This application June 19, 1969, Ser. No. 838,025
Claims priority, application Japan, Mar. 3, 1965, 40/12,278
Int. Cl. C07g *7/00*
U.S. Cl. 260—112 28 Claims
A process for the recovery of protein substances having a biological activity to promote the growth and development of the nervous system by the fractional precipitation from animal gland extracts, which process comprises

(a) extracting the submaxillary glands of large animals selected from the group consisting of bovine, equine, and swine with an aqueous extracting agent;
(b) recovering a fractional precipitate containing the protein substance by precipitating the protein substance from the extracted solution of (a) by a precipitating procedure selected from
  (1) adding a water-soluble inorganic salt other than a zinc salt to the extracted solution of (a) in a concentration of 50–70% saturation;
  (2) adding a water-soluble zinc salt to the extracted solution of (a) in a mol concentration of zinc within the range of 0.0067–0.014;
  (3) adding organic acid or a salt on an organic acid to the extracted solution of (*a*) in a concentration of 1–2% by weight, based on the weight of the total solution; and
  (4) adding water-soluble organic solvent to the extracted solution of (a) in a concentration of 40–50% by volume based on the volume of the total solution;
(c) collecting the precipitate of (b);
(d) dissolving the collected precipitate of (c) in an aqueous medium; and
(e) repeating one or more precipitating procedures selected from (1), (2), (3), and (4) above with collection and dissolving of the collected precipitate after each intermediate precipitating procedure.

The products produced by such process having biological activity to promote the growth and development of the nervous system are also embraced.

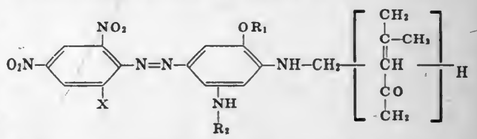
3,549,611
4-(2'- OR 4'-PYRIDYLETHYLAMINO)-AZOBENZENE DYES
Rudolf Altermatt, Tecknau, and Curt Mueller, Binningen, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
No Drawing. Continuation-in-part of application Ser. No. 481,384, Aug. 20, 1965. This application Oct. 8, 1969, Ser. No. 864,896
Claims priority, application Switzerland, Aug. 28, 1964, 11,324/64
Int. Cl. C09b *29/36;* D06p *1/18*
U.S. Cl. 260—156 12 Claims
Disperse dyes of the 4-(2'- or 4'-pyridyl-ethyl-amino)-azobenzene series yield extremely fast dyeings on fibers and fiber materials made of fully synthetic or semi-synthetic high molecular organic materials of hydrophobic character. Fastness properties include fastness to heat-setting, sublimation, pleating, gas fumes, ozone, cross-dyeing, dry-cleaning, lubricants, chlorine and wet treatments.

3,549,612
CATIONIC ARYL MONOAZO AND DISAZO-3-SUBSTITUTED-1-AMINOMETHYLPYRAZOLONE DYES
Ray Allen Clarke, Pitman, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Nov. 6, 1967, Ser. No. 680,994
Int. Cl. C07c *107/04;* C09b *29/38, 31/14*
U.S. Cl. 260—160 9 Claims
Cationic aryl monoazo and disazo-3-substituted-1-aminomethylpyrazolones, for example,



useful as dyes for acid modified acrylic, polyamide and polyester fibers, and having good water solubility, lightfastness, levelness, heat and pH stability and compatibility with other cationic dyes.

3,549,613
WATER-INSOLUBLE PHENYL-AZO-PHENYL DYESTUFFS
Helmut Lindner and Ernst Hoyer, Frankfurt am Main, and Heinz Schmidt, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Oct. 29, 1968, Ser. No. 771,609
Claims priority, application Germany, Nov. 4, 1967, 1,644,232
Int. Cl. C07c *107/06;* C09b *29/24*
U.S. Cl. 260—207 5 Claims
Water-insoluble monoazo-dyestuffs of the formula



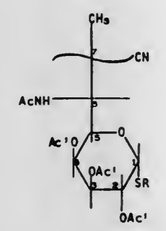
in which X represents hydrogen, chlorine or bromine, R_1 represents lower alkyl, and R_2 represents lower acyl, said dyestuffs being highly suitable for the dyeing of fibrous materials of cellulose-2½-acetate, cellulose-triacetate, polyamide, polyurethane or polyesters.

3,549,614
METHOD OF MANUFACTURE OF MIXED COMPLEX COMPOUNDS OF FERRIC IRON WITH HYDROGENATED DEXTRAN AND CITRIC ACID OR SODIUM CITRATE
Jan Zbigniew Mioduszewski and Mieczyslawa Helena Mioduszewska, both of Ul. Anielewicza 33 m. 99, Warsaw, Poland, and Andrzej Januariusz Kornacki, Ul. Koscluszki 3 m. 5, Grodzisk Mazowiecki, Poland
No Drawing. Filed July 9, 1968, Ser. No. 743,301
Claims priority, application Poland, July 13, 1967, 121,668
Int. Cl. C08b *25/04*
U.S. Cl. 260—209 6 Claims
Method of manufacture of a mixed complex compound of ferric iron with hydrogenated dextran and citric acid

or sodium citrate, which is suitable for parenteral and enteral administration in medicine and in veterinary practice. The complex is formed by mixing precipitated, washed and filtered moist ferric hydroxide with hydrogenated dextran possession the reducing power between 0.02 and 3 (as determined by the Somogyi method), adding citric acid or sodium citrate to the mixture, making the mixture alkaline with an aqueous sodium hydroxide solution and heating with stirring until the product formed is completely soluble in water.

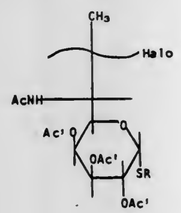
3,549,615
LINCOMYCIN DERIVATIVES AND PROCESS FOR PRODUCING THE SAME
Robert D. Birkenmeyer, Comstock Township, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Oct. 17, 1968, Ser. No. 768,527
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **12 Claims**

Novel antibacterial compounds of the formula:



I

wherein Ac' is hydrogen or a protective group and Ac is carboxyacyl or Ac' are prepared by replacement of the halogen of a compound of the fomula:



II

by a cyano group and removing the protective groups.

3,549,616
AMINO SUGAR SALTS OF N-CYCLOHEXYL SULFAMIC ACID
Edward McIntosh Acton, Menlo Park, and Carol Walker Mosher, Stanford, Calif., assignors to CPC International Inc., a corporation of Delaware
No Drawing. Filed Jan. 15, 1968, Ser. No. 697,651
Int. Cl. C07c *95/04*
U.S. Cl. 260—211 **18 Claims**

This invention covers compositions useful as synthetic sweetening agent. More particularly covers amino sugar salts of N-cyclohexyl sulfamic acid which have excellent sweetening power and exhibit little or no bitter aftertaste. A typical member of the class is the 1-amino-1-deoxy-D-glucitol salt of N-cyclohexyl sulfamic acid.

3,549,617
BRIGHTENING WATER-SOLUBLE CELLULOSE DERIVATIVES
Herbert W. Whitmeyer, Limestone Gardens, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 13, 1968, Ser. No. 712,612
Int. Cl. C08b *3/22, 11/20*
U.S. Cl. 260—232 **10 Claims**

Slurrying a water-soluble cellulose derivative in aqueous aliphatic alcohol, in which said cellulose derivative is insoluble, in the presence of bisulfite ions at a pH between about 2 to 6.9; agitating the slurry for at least about 5 minutes; and separating the brightened cellulose derivative from the aqueous aliphatic alcohol.

3,549,618
STARCH PROCESS
Edwin L. Speakman, Clinton, Iowa, assignor to Standard Brands Incorporated, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 27, 1968, Ser. No. 740,466
Int. Cl. C08b *19/01*
U.S. Cl. 260—233.3 **6 Claims**

Process for producing a formaldehyde-treated starch. After a formaldehyde-starch reaction has been terminated, a compound selected from the group consisting of sulfites, bisulfites and hydrosulfites is incorporated into the formaldehyde-treated starch. These compounds react with the unreacted or free formaldehyde present in the formaldehyde-treated starch and thus reduce the vaporization of the same.

3,549,619
METHOD FOR THE PREPARATION OF AMYLOSE ACETATE DISPERSIONS
Arthur M. Mark and Charles L. Mehltretter, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Apr. 2, 1969, Ser. No. 812,926
Int. Cl. C08b *25/02*
U.S. Cl. 260—233.5 **2 Claims**

Water-soluble food packaging films are cast from aqueous dispersions prepared by steam jet cooking high-amylose corn starch acetates of D.S. 0.21 to 0.31 at 177° C. to disintegrate the granules present. The acetates were produced in granule form by acetylating high-amylose corn starch of 70 percent apparent amylose content with acetic anhydride in a mixer at 90° to 95° C. for 30 minutes using 1.5 percent sodium hydroxide (based on dry starch) as catalyst.

3,549,620
SUBSTITUTED HEXAHYDRO-1-PHENYL-1H-2,6-BENZODIAZONINES
William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware
No Drawing. Filed June 30, 1966, Ser. No. 561,745
Int. Cl. C07d *53/00*
U.S. Cl. 260—239 **7 Claims**

Hexahydro - 6 - lower alkyl - 1 - aryl - 1H - 2,6 - benzodiazonines, e.g., 1 - p - chlorophenyl - 6 - methyl-2,3,4, 5,6,7 - hexahydro - 1H - 2,6 - benzodiazonine, are prepared from corresponding 2-(3-hydroxypropyl)-4-aryl-1-2H-phthalazinones and are useful as central nervous system stimulants.

3,549,621
12-SUBSTITUTED-6H-DIBENZ[b,f][1,4] OXAZOCIN-11(12H) ONES
Harry Louis Yale, 4 New York Ave., New Brunswick, N.J. 08901, and Ervin Richard Spitzmiller, 6 Seymore Ave., Rte. 37, Highland Park, N.J. 08904
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,174
Int. Cl. C07d *87/54*
U.S. Cl. 260—239.3 **9 Claims**

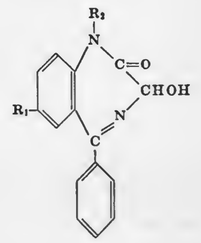
This invention relates to 12-substituted-6H-dibenz-[b,f][1,4]oxazocin-11(12H)ones and their salts, which may be used to relieve cardiac arrythmia and which may be produced by reaction of the anion of a ring substituted or unsubstituted 6H-dibenz[b,f][1,4]oxazocin-11(12H) one with an aminoalkyl halide, or alternatively, by reaction of the anion of a ring substituted or unsubstituted 6H-dibenz[b,f][1,4]oxazocin-11(12H)one first with a haloalkyl halide to give the intermediate haloalkyl derivative which is then treated with an amine to give the desired aminoalkyl compound.

3,549,622
SUBSTITUTED KETO-BENZAZOCINES
Eugene E. Galantay, Morristown, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware
No Drawing. Filed July 5, 1968, Ser. No. 742,493
Int. Cl. C07d *41/00*
U.S. Cl. 260—239.3 **4 Claims**

Substituted keto-benzazocines, e.g., 1 - (2'-dimethylamino-1'-ethyl)-2-keto-6-p-chlorophenyl-8,9 - dimethoxy-1,2,3,4-tetrahydro-1-benzazocine. The compounds are useful as diuretics.

3,549,623
7-R_1-1-(R_2)-3-HYDROXY-5-PHENYL-1H-1,4-BENZODIAZEPIN-2(3H)-ONE
Robert M. Novack, Mendham, N.J., assignor to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,937
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 **3 Claims**

The present invention relates to a novel class of 1,4-benzodiazepines of the formula:



(III)

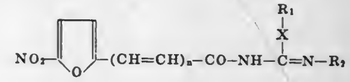
wherein R_1 is hydrogen, halogen, lower alkyl, lower alkoxy, nitro and the like; and R_2 is a cycloalkylmethyl group. These compounds are prepared by treating 7-R_1-1-(R_2)-5-phenyl-1H-1,4-benzodiazepin-2(3H)-one with acetic acid and peracetic acid to obtain its corresponding N-oxide, treating the N-oxide thus obtained with acetic anhydride to obtain the corresponding 3-acetoxy derivative followed by treating the 3-acetoxy derivative with a base. These compounds are useful as muscle relaxants. In addition, these compounds are useful as bronchodilators, as demonstrated in histamine and serotonin induced lung constriction.

3,549,624
2-SUBSTITUTED-2-Δ^2-TETRAHYDROPYRIMIDINES AND Δ^2-IMIDAZOLINES
Lloyd H. Conover, Quaker Hill, and James W. McFarland, Lyme, Conn., and William C. Austin, Deal, England, assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 515,736, Dec. 22, 1965, which is a continuation-in-part of application Ser. No. 487,654, Sept. 16, 1965, which in turn is a continuation-in-part of application Ser. No. 428,859, Jan. 28, 1965. This application Aug. 17, 1967, Ser. No. 661,220
Int. Cl. C07d *51/28*
U.S. Cl. 260—240 **10 Claims**

Certain 2-[ω-(2-thienyl)alkyl]-, 2-[2-(2-thienyl)vinyl]-Δ^2 - tetrahydropyrimidines and Δ^2 - imidazolines, the N-methyl derivatives and the non-toxic acid addition salts thereof; preparation thereof by known methods including, for example, reaction of the appropriate alkylene diamine tosylate with a ω-(2-thienyl) substituted nitrile, reaction of the iminoether hydrochloride of the aforesaid nitrile with the appropriate alkylene diamine and reaction of an ester of the ω-(2-thienyl) alkanoic acid with an appropriate alkylene diamine and the utility of said compounds as anthelmintic agents.

3,549,625
NITROFURAN DERIVATIVES OF PSEUDOUREAS
Hermann Breuer, Regensburg, Germany, assignor to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 5, 1967, Ser. No. 687,980
Claims priority, application Germany, Dec. 9, 1966, 1,543,509
Int. Cl. C07d *5/46*
U.S. Cl. 260—240 **15 Claims**

This invention relates to antimicrobially active nitrofuran derivatives of pseudoureas having the general formula



in which R_1 represents a straight or branched chain alkyl group, alkoxyalkylene, alkylthioalkylene, cycloalkyl or alkyl, R_2 represents hydrogen or an acyl group, X represents oxygen or sulfur and *n* represents 0 or 1.

3,549,626
PROCESS FOR PREPARING 1-LOWERALKYL-5-NITROIMIDAZOLES
Philip Miller, Somerset, and Carroll Sherman Montgomery, Piscataway, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed May 28, 1969, Ser. No. 828,759
Int. Cl. C07d *49/36*
U.S. Cl. 260—240 **5 Claims**

An improved method of preparing 1-lower alkyl-2-substituted-5-nitroimidazoles by a two-step process from 1-lower alkyl-2-methyl-5-nitroimidazoles. The compounds prepared by the process are useful as intermediates in the preparation of substituted imidazoles having anti-trichomonal, anti-histomonal, anti-bacterial and anti-parasitic activity.

3,549,627

2,6-DISUBSTITUTED-4H-PYRIMIDO[5,4-d][1,3] OXAZIN-4-ONES

Doug H. Kim, Wayne, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 5, 1968, Ser. No. 719,238

Int. Cl. C07d *51/56*

U.S. Cl. 260—244 **9 Claims**

The present invention is concerned with 2-methyl-6-substituted - 4H - pyrimido[5,4 - d][1,3]oxazin - 4 - ones and 2 - trifluoromethyl - 6 - substituted - 4H - pyrimido [5,4-d][1,3]oxazin - 4 - ones which are pharmacologically active as central nervous system depressants. Further these compounds are valuable intermediates in the preparation of other pharmacologically active compounds.

3,549,628

SIDE CHAIN CLEAVAGE IN DESACETOXY-CEPHALOSPORIN ESTERS

Robert R. Chauvette, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed July 7, 1967, Ser. No. 651,662

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 **8 Claims**

Process for preparing 7-aminodesacetoxycephalosporanic acid esters, and sulfonic acid salts of such esters by (a) treating 7-acylamidodesacetoxycephalosporanate esters with substantially equimolar amounts of phosphorus pentachloride and a basic neutralizing agent in anhydrous solutions above room temperature, (b) commingling alcohol, and then (c) commingling water to form the 7-aminodesacetoxycephalosporanate ester, and optionally, separating the 7-aminodesacetoxycephalosporanate ester from the resulting mixture by forming sulfonic acid salts thereof.

3,549,629

2 - SUBSTITUTED OR UNSUBSTITUTED CARBOXY TETRAHYDRO - HALO - SULFAMYL-QUINAZOLINONES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation, East Orange, N.J., a corporation of Pennsylvania

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,209

The portion of the term of the patent subsequent to Dec. 26, 1984, has been disclaimed and dedicated to the Public

Int. Cl. C07d *51/48*

U.S. Cl. 260—247.1 **46 Claims**

A 1,2,3,4-tetrahydro-halo-sulfamyl-quinazolinone having diuretic properties characterized by having in the 3-position a substituted or unsubstituted aryl or aralkyl group, and by having in the 2-position a substituted or unsubstituted carboxy group.

3,549,630

METHOD OF PREPARING ISOCYANURIC ACIDS AND THEIR SALTS

Perry A. Argabright, Littleton, Charles H. De Puy, Boulder, and Brian L. Phillips, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio

No Drawing. Filed Nov. 13, 1967, Ser. No. 682,576

Int. Cl. C07d *55/38*

U.S. Cl. 260—248 **8 Claims**

Method of preparing isocyanuric acids, particularly 1,3-disubstituted isocyanuric acids, and salts thereof, which involves forming a reaction mixture of an organic isocyanate and a metal cyanate, reacting the isocyanate with the metal cyanate in the presence of an aprotic solvent at a temperature and for a time sufficient to effect formation of a metal salt of a 1,3-disubstituted isocyanuric acid, and converting the metal salt to the desired 1,3-disubstituted isocyanuric acid. The reaction between the organic isocyanate and the metal cyanate advantageously is carried out at temperatures of from about 0° C. to about 250° C. The products may be used for intermediates in the production of pharmaceuticals, insecticides, disinfectants, and in the preparation of polymers.

3,549,631

3,6 - DISUBSTITUTED - PYRIDO[3,2-e] - TRIAZINES AND 3,6 - DISUBSTITUTED - 1,2 - DIHYDROPYRIDO[3,2-e]-TRIAZINES

Benjamin Arthur Lewis, Suffern, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,376

Int. Cl. C07d *57/04*

U.S. Cl. 260—249.5 **10 Claims**

This disclosure describes compounds of the class of 3,6-disubstituted - pyrido[3,2-e]-as-triazines and 3,6-disubstituted-1,2-dihydropyrido [3,2-e]-as-triazines useful as antibacterial, antifungal, analgesic and anti-inflammatory agents.

3,549,632

3-AMINOPYRIDO[4,3-e]-as-TRIAZINE AND 3 - AMINOPYRIDO[4,3-e]-as-TRIAZINE-1-OXIDE

Benjamin Arthur Lewis, Suffern, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Jan. 13, 1969, Ser. No. 790,879

Int. Cl. C07d *57/34*

U.S. Cl. 260—249.5 **2 Claims**

This disclosure describes 3-aminopyrido[4,3-e]-as-triazine and 3-aminopyrido[4,3-e]-as-triazine-1-oxide useful as antibacterial, antifungal and anti-inflammatory agents.

3,549,633

PROCESS FOR PREPARATION OF 1-H-IMIDAZO [4,5-b]PYRAZIN-2-ONES

Edward J. J. Grabowski, Iselin, Edward W. Tristram, Cranford, and Roger J. Tull, Metuchen, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 20, 1968, Ser. No. 777,479

Int. Cl. C07d *51/76*

U.S. Cl. 260—250 **15 Claims**

A process is described for the preparation of 1H-imidazo[4,5-b]pyrazin-2-ones substituted in the 5 and 6 positions, which comprises heating of a 3-aminopyrazinohydroxamic acid or O-acyl derivatives thereof which causes rearrangement and ring closure to the subject compounds. The products demonstrate activity as antihypertensive agents.

3,549,634

8,5 - AMINO - SUBSTITUTED - TETRAHYDRO-HALO-SULFAMYL-QUINAZOLINONES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation, East Orange, N.J., a corporation of Pennsylvania

No Drawing. Filed Mar. 28, 1968, Ser. No. 717,003

The portion of the term of the patent subsequent to Dec. 26, 1984, has been disclaimed and dedicated to the Public

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.5 **7 Claims**

A 1,2,3,4-tetrahydro - 7 - halo-6-sulfamyl-4-quinazolinone compound having diuretic properties, characterized by having in the 3-position an aryl or aralkyl radical which may be substituted in the ring with, for example, halogen or loweralkyl; and by having, in the 5- or 8-position, or both, a substituted or unsubstituted amino group.

3,549,635

PREPARATION OF SUBSTITUTED-2(1H)-QUINAZOLINONES

Hans Ott, Convent Station, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed July 1, 1968, Ser. No. 741,806

Int. Cl. C07d *51/48*

U.S. Cl. 260—251 **14 Claims**

This invention discloses processes for preparation of 1,4-substituted-2(1H)-quinazolinones by reacting a 2-aminobenzophenonimine with a carbonic acid derivative, e.g., phosgene. The quinazolinones are useful as pharmaceuticals, e.g., as anti-inflammatory agents. Also disclosed is process for production of substituted 2-nitrobenzonitriles useful as intermediates in the preparation of certain 2-aminobenzophenonimines, said 2-nitrobenzonitriles being prepared by subjecting an o-halonitrobenzene to reaction with cuprous cyanide in an organic solvent at elevated temperatures, followed by hydrolysis.

3,549,636

2-ALKANOYL, ALKANOYLALKYL, ALKANOYLOXYALKYL, AND HYDROXYALKYL SUBSTITUTED TETRAHYDRO - HALO - SULFAMYL-QUINAZOLINONES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation, East Orange, N.J., a corporation of Pennsylvania

No Drawing. Filed Feb. 29, 1968, Ser. No. 709,184

The portion of the term of the patent subsequent to Dec. 26, 1984, has been disclaimed and dedicated to the Public

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.5 **8 Claims**

A 1,2,3,4-tetrahydro-7-halo-6-sulfamyl-4-quinazolinone compound, characterized by having in the 3-position an aryl or aralkyl group, and by having in the 2-position an alkanoyl, alkanoylalkyl, hydroxyalkyl or an alkanoyloxyalkyl (a loweraliphatic ester of a hydroxyalkyl). These compounds have diuretic characteristics.

3,549,637

2-THIO SUBSTITUTED-TETRAHYDRO-HALO-SULFAMYL-QUINAZOLINONES

Bola Vithal Shetty, Rochester, N.Y., assignor to Pennwalt Corporation, East Orange, N.J., a corporation of Pennsylvania

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,839

The portion of the term of the patent subsequent to July 29, 1977, has been disclaimed and dedicated to the Public

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.5 **6 Claims**

A 1,2,3,4-tetrahydro-halo - sulfamyl - 4 - quinazolinone having diuretic properties, characterized by having in the 3-position a substituted or unsubstituted aryl or aralkyl group, and by having in the 2-position an alkylthio, aralkylthio, arylthio or cycloalkylthio, or cycloalkylalkylthio.

3,549,638

UNSATURATED SULFONE COMPOUNDS CONTAINING A HETEROCYCLIC STRUCTURE

Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Frank V. Mattei, Plainfield, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application May 5, 1961, Ser. No. 107,893, now Patent No. 3,441,954, dated Apr. 29, 1969. Divided and this application Sept. 24, 1968, Ser. No. 798,487

Int. Cl. C07d *51/70*

U.S. Cl. 260—268 **1 Claim**

Unsaturated sulfone compounds containing a heterocyclic structure represented by the formula:

wherein Y is a part of the heterocyclic ring in which the two nitrogen atoms are also a part are disclosed. These compounds are useful for the crosslinking of polymers containing active hydrogen atoms and particularly for the crosslinking of textile materials.

3,549,639

SYDNONE CHELATES

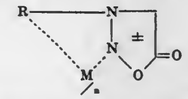
Stuart M. Lee, Orange, Calif., assignor to North American Rockwell Corporation

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,294

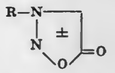
Int. Cl. C07d *31/42*

U.S. Cl. 260—270 **4 Claims**

The sydnone chelate, useful as an intermediary for cross linked polymers or as a pigment, and having the general formula



wherein R is a heterocyclic, M is a metal, and n=2 or 3. Such sydnone chelates may be prepared by reacting a sydnone of the general form



wherein R is a heterocyclic, with a compound of the form MX_n, where M is a metal, X is an anion, and n=2 or 3.

3,549,640

N-ALKYLSULFINYLALKYL- AND SULFONYLALKYL-1,2,3,4-TETRAHYDROISOQUINOLINES

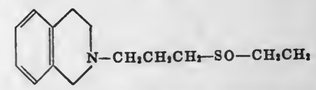
Allan Poe Gray, Bedford Village, N.Y., assignor, by mesne assignments, to Mallinckrodt Chemical Works, St. Louis, Mo., a corporation of Missouri

No Drawing. Filed Nov. 3, 1967, Ser. No. 680,354

Int. Cl. C07d *35/42*

U.S. Cl. 260—283 **8 Claims**

N-substituted 1,2,3,4-tetrahydroisoquinolines exemplified by 2-(3-ethylsulfinylpropyl)-1,2,3,4-tetrahydroisoquinoline.



exert cardiovascular effects when administered as their hydrochlorides. Such sulfinyl compounds are prepared by

oxidation of the corresponding thio ethers, which may also be oxidized to the corresponding sulfonyl compounds. Substitution on the aromatic and heterocyclic rings and variations in the side chain are disclosed.

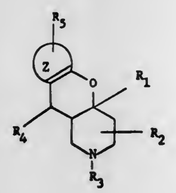
3,549,641

PYRANO PYRIDINES AND PROCESS FOR THEIR PRODUCTION

Maximilian von Strandtmann, Rockaway Township, Marvin P. Cohen, New Milford, and John Shavel, Jr., Mendham, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed June 28, 1966, Ser. No. 561,071
Int. Cl. C07d *99/04*
U.S. Cl. 260—287 **23 Claims**

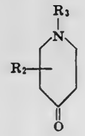
A class of pyrano pyridines of the formula:



I

wherein R_1 is diaralkylamino, lower alkyl aryl amino, hydroxy, dilower alkylamino, etc.; R_2 is hydrogen, lower alkyl, cycloalkyl, aryl and aralkyl; R_3 is hydrogen, lower alkyl, cycloalkyl, aryl and acyl; R_4 is hydrogen, lower alkyl, cycloalkyl and aryl; and Z is the aromatic nucleus.

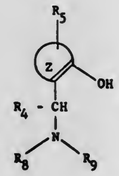
These compounds are prepared by reacting a compound of the formula:



or the enamine derivative thereof formed from an amine of the formula:



with an amino alcohol compound of the formula:



These compounds are useful as psychotropic agents.

3,549,642

6,7-DISUBSTITUTED-4-HYDROXY-QUINOLINE-3-CARBOXYLATES

Robert L. Clark, Woodbridge, and Mu Tsu Wu, Clark, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Jan. 15, 1969, Ser. No. 791,514
Int. Cl. C07d *33/48*
U.S. Cl. 260—287 **5 Claims**

Novel quinoline-3-carboxylates are provided which are useful in combatting the poultry disease coccidiosis and also malaria. Specific compounds are substituted with an alkoxy having 2–18 carbon atoms, or an aralkoxy group at the 6-position, and a substituted alkyl group at the 7-position.

3,549,643

4-AMINO-2-CARBETHOXYMETHYL-1,2,3,4-TETRAHYDROISOQUINOLINE

Franklyn W. Gubitz, Nassau, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Application Jan. 9, 1969, Ser. No. 790,900, which is a division of application Ser. No. 459,884, May 28, 1965. Divided and this application May 20, 1969, Ser. No. 826,286
Int. Cl. C07d *35/54*
U.S. Cl. 260—287 **1 Claim**

1,2,3,4,5,8-hexahydro - 4 - substituted-1,5-methanobenzo[f][1,4]diazocines and 1,2,3,4,5,6-hexahydro-4-substituted-1,5-methanobenzo[g][1,4]diazocines, useful as analgesic antagonists, are prepared by reducing the corresponding 3-oxo compounds unsubstituted in the 4-position, and N-alkylating the 4-position. Said 3-oxo compounds are in turn prepared by pyrolytic cyclization of 4-amino - 2 - carbalkoxymethyl - 1,2,3,4 - tetrahydroisoquinolines and 3 - amino-1-carbalkoxymethyl - 1,2,3,4-tetrahydroquinolines.

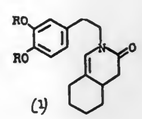
3,549,644

2,3,4,4a,5,6,8,9,13b,13c - DECAHYDRO-1H-DIBENZO[a,h]QUINOLIZINES AND PROCESS FOR THEIR PRODUCTION

John Shavel, Jr., Mendham, and Glenn Morrison, Dover, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

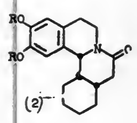
No Drawing. Filed Dec. 19, 1967, Ser. No. 691,702
Int. Cl. C07d *39/00*
U.S. Cl. 260—289 **9 Claims**

The condensation of 2-formylcyclohexaneacetic acid with 3,4-dialkoxy-phenethylamine led first to the unsaturated lactam (1)

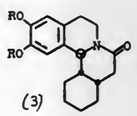


(1)

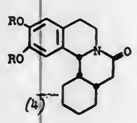
and then to the three isomeric saturated lactams (2), (3) and (4).



(2)

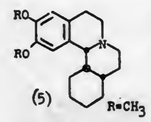


(3)

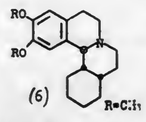


(4)

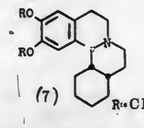
The lactams could be reduced to the corresponding bases (5), (6) and (7).



(5)

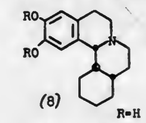


(6)

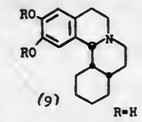


(7)

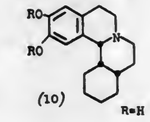
The methoxy groups were hydrolyzed to give the corresponding diphenols (8), (9) and (10).



(8)

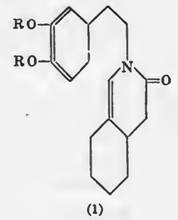


(9)



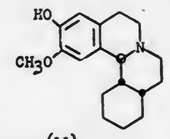
(10)

The lactam (1)



(1)

is reduced to an octahydroisoquinoline and cyclized to the base (11).



(11)

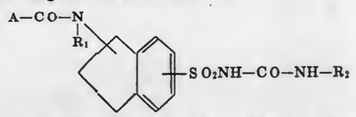
3,549,645

SULFONYL-UREA AND SULFONYL-SEMICARBAZIDE ANTIDIABETIC AGENTS

Ruth Heerdt, Mannheim-Feudenheim, Felix Helmut Schmidt, Mannheim-Neuostheim, Kurt Stach, Mannheim-Waldhof, and Helmut Weber, Frankfurt am Main-Schwanheim, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, a corporation of Germany

No Drawing. Filed May 29, 1967, Ser. No. 642,137
Claims priority, application Germany, July 2, 1966, B 87,824
Int. Cl. C07c *127/00*
U.S. Cl. 260—293.4 **8 Claims**

A novel class of blood sugar reducing agents are disclosed having the structural formula:



wherein A is alkyl, alkenyl, aryl, aralkyl, aryloxyalkyl, arylthioalkyl, cycloalkyl, cycloalkenyl, thienyl, furyl, alkoxy, alkenyloxy, aralkoxy, cycloalkoxy, cycloalkylalkoxy, cycloalkenyloxy, cycloalkenylalkoxy or the radical



wherein V and W are each hydrogen, alkyl, cycloalkyl, aryl or aralkyl or V and W can be linked together to form, with the nitrogen atom to which they are attached a heterocyclic structure and wherein A may be substituted with one or more halogen atoms, lower alkoxy- or lower alkyl-groups, R_1 is hydrogen, lower alkyl or aralkyl, and R_2 is alkyl, alkenyl or cycloalkyl, cycloalkenyl alkylcycloalkyl which can contain oxygen or sulfur atoms in their chains or rings respectively, aryl, aralkyl, alkylene-imino, alkyl-alkylene-imino containing from 3 to 7 carbon atoms which can also contain endo-alkylene groups having up to 3 carbon atoms. Therapeutic compositions containing said compounds and methods for using the same in the treatment of diabetes, are also disclosed.

3,549,646

α-PHENYL-α-(4-PIPERIDYL)TOLUIC ACIDS AND LACTONES

Robert W. Hamilton, Wilmette, and Kurt J. Rorig, Glenview, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Jan. 13, 1969, Ser. No. 790,885
Int. Cl. C07d *29/24*
U.S. Cl. 260—294 **8 Claims**

Preparation of α-phenyl-α-(4-piperidyl)toluic acids and lactones such as α - phenyl - α - (4-piperidyl)-p-toluic acid hydrochloride, and valuable biological properties thereof including anti-bacterial, anti-fungal, anti-algal, and anti-inflammatory activities, are disclosed.

3,549,647

BIS- AND TRIS-(THIO-, SULFINYL- AND SULFONYL)PYRIDINES

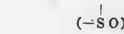
Howard Johnston, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,896
Int. Cl. C07d *31/48, 31/50*
U.S. Cl. 260—294.8 **6 Claims**

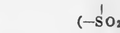
The present disclosure is directed to bis- and tris-(thio-, sulfinyl- and sulfonyl)pyridines corresponding to the formula

R—M—Z

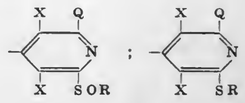
wherein each R, taken separately, represents alkyl, monohalologweralkyl, dihalologweralkyl, trihalologweralkyl, phenyl, monohalophenyl, benzyl and monohalobenzyl; M represents sulfide (—S—), sulfinyl



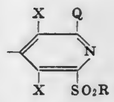
or sulfonyl



and Z represents



or



in which X represents chlorine, bromine or hydrogen and Q represents —SR, —SOR, —SO_2R, hydrogen, chlorine or bromine, with the proviso that when Z is bromine, Q is other than chlorine; the preparation and use of these compounds as pesticides is also taught.

3,549,648

CERTAIN 1,2,3,4,9,9 - HEXACHLORO - 1,4,4a,5,6,7,8,8a - OCTAHYDRO - 1,4 - METHANONAPHTHALENE-6,7-DICARBOXIMIDES

Carleton W. Roberts, Midland, and Gale D. Travis, Shepherd, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 434,709, Feb. 23, 1965. This application July 1, 1968, Ser. No. 741,325

Int. Cl. C07d *31/40*

U.S. Cl. 260—295 5 Claims

Substituted 1,2,3,4,9,9-hexachloro-1,4,4a,5,6,7,8,8a-octahydro-1,4, - methanonaphthalene - 6,7 - dicarboximides bearing a heterocyclic substituent such as pyridyl, thiazolyl or tetrazolyl on the imide nitrogen are novel compounds useful as parasiticides for the control of insects, mites and mollusks.

3,549,649

1-AMINO-PYRIDINIUM SALTS

Alexander Crawford Ritchie, Dennis George Cheesman, and Peter Garside, London, and Juliet Mary Waring, Chelmsford, England, assignors to Allen & Hanburys Limited, London, England, a British company

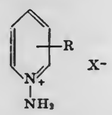
No Drawing. Original application Nov. 18, 1966, Ser. No. 587,430, now Patent No. 3,466,295, dated Sept. 9, 1969. Divided and this application Mar. 6, 1969, Ser. No. 805,055

Claims priority, application Great Britain, Oct. 21, 1965, 44,641/65

Int. Cl. C07d *31/48*

U.S. Cl. 260—294.8 3 Claims

Pyridine salts of the formula



wherein R is phenyl or phenyl substituted by at least one halogen, alkyl, hydroxy, or alkoxy and X^- is a pharmaceutically acceptable anion, are produced by reacting a pyridine of the formula



wherein R is as defined above, with an aminating agent, and recovering the pyridinium salt produced. These compounds exhibit antihypertensive activity.

3,549,650

PROCESS FOR PREPARING N-BRANCHED-CHAIN ALKYL AND CYCLOALKYL 2-BENZOTHIAZOLE SULFENAMIDES

John Joseph D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 360,138, Apr. 15, 1964, which is a continuation-in-part of application Ser. No. 153,239, Nov. 17, 1961. This application Dec. 22, 1966, Ser. No. 603,788

Int. Cl. C07d *91/48*

U.S. Cl. 260—306.6 14 Claims

Making benzothiazole sulfenamides by oxidative condensation in water miscible monohydric alcohol of substantially equivalent proportions of 2-mercaptobenzothiazole or 2,2'-dithiobis(benzothiazole) and lower secondary alkyl-, lower tertiary alkyl-, or lower cycloalkylamine with aqueous oxidizing agent such as alkali metal hypohalite and converting the organic components of the reaction mixture containing sulfenamide product to substantially complete solution.

3,549,651

PROCESS OF ENHANCING THE CRYSTALLINE UNIFORMITY OF A LINEAR POLYAMIDE COMPOSITION AND THE POLYAMIDE COMPOSITION RESULTING FROM SAID PROCESS

Hendrikus J. Oswald and Annemarie C. Reimschuessel, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 28, 1967, Ser. No. 626,380

Int. Cl. C08g *20/12, 51/48, 51/50*

U.S. Cl. 260—30.6 7 Claims

The concurrent use of a plasticizer and a nucleating agent significantly promotes the crystallinity of synthetic linear polyamides on cooling such polymers from the molten to the solid state.

3,549,652

TRICYCLIC COMPOUNDS

William R. J. Simpson, Morris Plains, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed Feb. 19, 1968, Ser. No. 706,636

Int. Cl. C07d *85/48*

U.S. Cl. 260—307 8 Claims

2 - lower alkyl-5,6-dihydro-4H-benzo[3,4]cyclohepta-[1,2-d]oxazol-4-ones are prepared from 2-lower alkyl-4-halo - 6H - benzo[3,4]cyclohepta[1,2-d]oxazoles by treating the latter with concentrated sulfuric acid to form an intermediate which is then hydrolyzed. The product oxazolones are useful as diuretics.

3,549,653

1-SUBSTITUTED-2-NITROIMIDAZOLE DERIVATIVES

Alden Gamaliel Beaman, North Caldwell, and Robert Duschinsky, Montclair, N.J., and William Paul Tautz, New York, N.Y., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Application June 10, 1966, Ser. No. 556,585, now Patent No. 3,468,902, dated Sept. 23, 1969, which is a continuation-in-part of application Ser. No. 447,087, Apr. 9, 1965. Divided and this application Apr. 23, 1969, Ser. No. 840,077

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 2 Claims

Anti-microbial 2-nitroimidazole derivatives are prepared by reacting 2-nitroimidazole with 1,2-propylene oxide or a substituted oxirane derivative, e.g., epihalohydrin. The reaction products can be further converted to the corresponding epoxides, esters, ketones or semicarbazones.

3,549,654

1,1'-ALKYLENE-BIS(3,3-DICHLORO-2-PYRROLIDINONES)

Joseph C. Collins, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,926

Int. Cl. C07d *27/08*

U.S. Cl. 260—326.3 2 Claims

The invention relates to 3,3-dichloro-2-pyrrolidinones and bis(3,3-dichloro-2-pyrrolidinones) having useful anti-inflammatory properties as determined by their inhibition of carrageenan induced edema in rats, and to intermediates for their preparation.

3,549,655

N-(SUBSTITUTED PHENYL) CYCLOBUTANE-DICARBOXIMIDES

Donald E. Bublitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,259

Int. Cl. C07d *27/10*

U.S. Cl. 260—326.5 10 Claims

N-(substituted phenyl)-1,2-cyclobutanedicarboximides are prepared by the reaction of 1,2-cyclobutane-dicarboxylic anhydride with a substituted aniline. The compounds are useful as plant growth control agents, pesticides and as central nervous system depressants.

3,549,656

ANTIDEPRESSANT 1 - AMINOALKYL - THIOPHTHALANES AND ACID ADDITION SALTS THEREOF

Povl Viggo Petersen, Virum, Niels Lassen, Gentofte, and Thorkil Ammitzboll, Greve Strand, Denmark, assignors to Kefalas A/S Copenhagen-Valby, Denmark

No Drawing. Filed Dec. 28, 1967, Ser. No. 694,070

Int. Cl. A61k *27/00;* C07d *63/22*

U.S. Cl. 260—330.5 14 Claims

1-aminoalkyl-thiophthalanes, acid addition salts thereof, methods of making and using them, and compositions thereof. The compounds are useful as thymoleptics having improved lipoid solubility and effectiveness.

3,549,657

N-ARYL-4,6-DIBROMO-3-HYDROXY-PHTHALIMIDE DERIVATIVES

Brian Webster, Kinnaird, British Columbia, Canada, assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine

No Drawing. Filed June 12, 1968, Ser. No. 736,294

Claims priority, application Canada, June 17, 1967, 993,242

Int. Cl. C07d *27/52*

U.S. Cl. 260—326 1 Claim

This disclosure relates to N-phenyl derivatives of 4,6-dibromo-3-hydroxyphthalimide and 4,6-dibromo-3-acetoxyphthalimide which possesses bacteriostatic properties against Gram positive organisms such as *Staph. aureus.* The preparation of these compounds is described.

3,549,658

1-(1-SUBSTITUTED-3-PYRROLIDINYL)-3-ARYLSULFONYLUREAS

Grover Cleveland Helsley, Richmond, Va., assignor to A. H. Robins Company, Incorporated, Richmond, Va., a corporation of Virginia

No Drawing. Filed Aug. 12, 1968, Ser. No. 751,702

Int. Cl. C07d *27/04*

U.S. Cl. 260—326.3 4 Claims

1-(1-substituted-3-pyrrolidinyl) - 3 - arylsulfonylures having hypoglycemic activity are disclosed. The novel compounds are prepared by reacting 1 - substituted-3-aminopyrrolidines with an arylsulfonyl carbamide.

3,549,659

ALPHA-ALKOXYCARBONYL BETA-IMINO GAMMA-BUTYROLACTONES AND PROCESS FOR PRODUCING THE SAME

Yoshikazu Isowa, Tokyo, Japan, assignor to Toyo Koatsu Industries, Incorporated, Tokyo, Japan, a corporation of Japan

Filed July 25, 1967, Ser. No. 655,922

Claims priority, application Germany, July 29, 1966, S 105,116

Int. Cl. C07d *5/06*

U.S. Cl. 260—343.6 10 Claims

Novel alpha-alkoxycarbonyl beta-imino gamma-butyrolactones obtained by decomposing metal chloride coordination complexes formed by alpha-halonitriles or cyanohydrins and malonates, with water or alcohols. These compounds are useful as herbicides.

3,549,660

PROCESS FOR PRODUCING LOW-POLYMER REACTION PRODUCTS

Gerhard Künstle and Herbert Siegl, Burghausen, Upper Bavaria, Germany, assignors to Wacker - Chemie G.m.b.H., Munich, Bavaria, Germany, a corporation of Germany

Filed Dec. 13, 1967, Ser. No. 690,343

Claims priority, application Germany, Dec. 23, 1966, W 43,055

Int. Cl. C07d *3/00*

U.S. Cl. 260—343.9 4 Claims

This invention relates to producing low-polymer reaction products, and it has for its object to provide a novel and improved process for this purpose.

3,549,661

METHOD OF MANUFACTURING CHEMICALLY PURE FLAVANEDIOLS

Jacques Masquelier and Jean Michaud, Bordeaux, Gironde, France, assignors to Societe: Societe Civille de Recherche Pharmaceutique et Therapeutique, Bordeaux, Gironde, France, a corporation of France

No Drawing. Filed July 31, 1968, Ser. No. 748,960

Claims priority, application France, Aug. 2, 1967, 116,632; Oct. 30, 1967, 126,402

Int. Cl. C07d *7/20*

U.S. Cl. 260—345.2 7 Claims

The invention relates to the synthetic preparation of chemically pure flavanediols by treating flavanonols previously directly reduced by sodium borohydride, with an aqueous solution of sodium chloride and adding water to form the desired hydrate. These flavanediols are useful in medicinal preparations.

3,549,662

DERIVATIVES OF BAICALEIN

Shunji Imai, Yoshio Kanai, and Hiroshi Otsuka, Suita, Akira Nohara, Toyonaka, and Yasushi Sanno, Ikeda, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Oct. 10, 1968, Ser. No. 766,619

Claims priority, application Japan, Oct. 12, 1967, 42/65,571; Nov. 9, 1967, 42/72,120

Int. Cl. C07d *7/34*

U.S. Cl. 260—345.5 15 Claims

A water-soluble salt of the partial ester of baicalein with an inorganic polybasic acid. The materials have anti-allergenic properties.

3,549,663

ANTIBACTERIAL AGENTS

Lloyd H. Conover, Quaker Hill, Conn., and James D. Johnston, Allendale, N.J., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 26,414, May 3, 1960, and Ser. No. 209,240, July 11, 1962. This application Nov. 22, 1966, Ser. No. 596,095

Int. Cl. C07c *65/20, 69/76, 97/10*

U.S. Cl. 260—351 5 Claims

The synthesis of novel 3,4,10-trioxo-1,2,3,4,4a,9,9a,10-octahydroanthracenes, of value as antimicrobial and complexing agents and as intermediates for preparation of tetracycline-type compounds by a multi-step process comprising: (a) A Claisen-type condenastion of benzoic acid

ester with succinic acid diester or an alkanoic acid ester to provide a benzoyl succinate or acetate; (b) alkylation of the succinate or acetate to produce a benzoyl adipate; (c) partial or complete reduction of the benzoyl adipate to an α-hydroxybenzyl or benzyl adipate by chemical or catalytic methods; (d) conversion of the α-hydroxybenzyl adipate by known methods to an α-amino, α-hydroxy or alkoxy alkyl or α-formylbenzyl adipate; (e) cyclization of the benzyl adipate compounds to 2-(2-carbalkoxyethyl)-4-tetralones by means of dehydrating agents; (f) cyclization of the tetralones by condensation with a dialkyl oxalate to give a 2-carbalkoxy-3,4,10-trioxooctahydroanthracene; and (g) removal of the 2-substituent by decarboxylation.

3,549,664
ANTHRAQUINONE DYESTUFFS

Manfred Groll, Cologne-Stammheim, Klaus Wunderlich, Leverkusen, and Hans-Samuel Bien, Burscheld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed May 9, 1966, Ser. No. 548,410

Claims priority, application Germany, May 20, 1965, F 46,097

Int. Cl. C09b *1/12, 1/24, 1/52*

U.S. Cl. 260—371 **10 Claims**

Anthraquinone dyestuffs especially suitable for dyeing and printing of fibre materials of cellulose esters, polyamides, polyurethanes, polyacrylonitriles, and aromatic polyesters comprising anthraquinones containing two or more auxochrome groups linked to the anthraquinone nucleus and a sulphonic acid aryl ester group linked with the anthraquinone nucleus.

3,549,665
ANTHRAQUINONE DYESTUFFS

Arthur Buehler, Rheinfelden, and René de Montmollin, Riehen, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

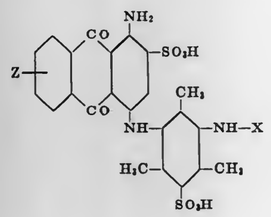
No Drawing. Continuation-in-part of application Ser. No. 561,031, June 28, 1966. This application Jan. 21, 1969, Ser. No. 792,829

Claims priority, application Switzerland, July 7, 1965, 9,557/65

Int. Cl. C09b *1/40*

U.S. Cl. 260—372 **3 Claims**

Anthraquinone compounds of the formula



in which Z represents a sulphonic acid group and X a member selected from the group consisting of the α,β-dihalogenated propionyl or α-bromacryl group, are valuable reactive dyestuffs which dye cellulose fibers and wool blue tints of good wet fastness properties.

3,549,666
HALF SULFURIC ESTERS OF 1 - AMINO - 4-(HYDROXYLOWERALKOXY) - ANILINO-ANTHRAQUINONES

Cyril Eric Vellins, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 25, 1966, Ser. No. 596,759

Claims priority, application Great Britain, Nov. 29, 1965, 50,539/65

Int. Cl. C09b *1/54;* **C07c** *141/14*

U.S. Cl. 260—378 **3 Claims**

The half sulfuric esters of 1-amino-4-(hydroxyloweralkoxy)-anilino-anthraquinones have been prepared. They are of value for the dyeing of polyamides.

3,549,667
PREPARATION OF ARYL SUBSTITUTED HYDROXY ANTHRAQUINONES

Klaus Wunderlich and Hans-Samuel Bien, Leverkusen, and Fritz Baumann, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation of application Ser. No. 251,021, Jan. 14, 1963. This application Feb. 23, 1967, Ser. No. 618,238

Claims priority, application Germany, Jan. 12, 1962, F 35,758

Int. Cl. C09b *1/50, 1/06*

U.S. Cl. 260—380 **4 Claims**

3-aryl substituted hydroxy anthraquinones and a process for producing such compounds by reacting the corresponding boric acid ester of 1,5-dihydroxy-4,8-dinitro anthraquinones with a hydroxy-phenyl, hydroxy-lower alkoxy-phenyl, or lower alkoxy phenyl reactant in the presence of an acid condensing agent of strongly acid nature such as sulfuric acid or a sulfuric-acetic acid mixture at −20° C. to 25° C. and thereafter hydrolyzing the resulting ester.

3,549,668
PROCESS FOR THE MANUFACTURE OF COENZYMES Q_9, Q_{10}, Q_{11} AND Q_{12} AND NOVEL COENZYMES Q_{11} AND Q_{12}

Hideaki Fukawa, Fukuoka-machi, Masashi Toyoda, Kawagoe-shi, Hideo Fukushima, Iruma-gun, Saitama-ken, and Toru Shimizu, Tokyo, Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan, a corporation of Japan

Filed May 25, 1967, Ser. No. 641,283

Claims priority, application Japan, May 26, 1966, 41/33,221; Dec. 9, 1966, 41/80,334

Int. Cl. C07c *49/64*

U.S. Cl. 260—396 **7 Claims**

This invention is a process for manufacturing coenzymes Q_9, Q_{10}, Q_{11} and Q_{12} wherein unsaponified contained in raw material containing components of mulberry leaves is purified by at least two of molecular distillation, fractional refrigeration precipitation and adsorption chromatography to obtain isoprenyl alcohols having 9, 11 and 12 isoprene units and the isoprenyl alcohol are condensed with 2,3-dimethoxy-5-methyl-1,4-hydroquinone or 4-acyl derivatives or the isoprenyl alcohol having 9 isoprene units is converted into isoprenyl alcohol having 10 isoprene units and then the isoprenyl alcohol having 10 isoprene units is condensed with 2,3-dimethoxy-5-methyl-1,4-hydroquinone or its 4-acyl derivatives.

3,549,669
PROCESS FOR PREPARING POLYALKYL-p-BENZOQUINONE

Milton Lewis Clemens, Jr., Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Dec. 14, 1967, Ser. No. 690,406

Int. Cl. C07c *49/64*

U.S. Cl. 260—396 **5 Claims**

Polyalkyl-p-benzoquinone is prepared by direct oxidation of the corresponding polyalkyl phenol with dilute, aqueous nitric acid in a solvent medium.

3,549,670
METHOD OF OXIDIZING PHENOLS

Eduard Spousta, Brno, Czechoslovakia, assignor to Chemopetrol, Zavody pro Zpracovani Ropy, Oborove Reditelstvi, Prague, Czechoslovakia

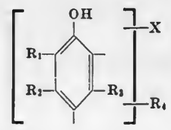
No Drawing. Filed June 10, 1968, Ser. No. 735,520

Claims priority, application Czechoslovakia, June 12, 1967, 4,277/67

Int. Cl. C08g *23/18*

U.S. Cl. 260—396 **3 Claims**

Quinones and polyphenylene ethers are produced by oxidizing a phenol of the formula



wherein X is selected from the group consisting of hydrogen, chlorine, bromine and iodine, each of R_1, R_2 and R_3, respectively, is selected from the group consisting of hydrogen, alkyl, aryl, halogenated alkyl, alkoxy and halogenated alkoxy, and R_4 is selected from the group consisting of hydrogen, chlorine, bromine, iodine, alkyl, halogenated alkyl, alkoxy and halogenated alkoxy, said oxidizing being carried out by reacting said phenol in a liquid medium with free oxygen-containing gas in the presence of a catalyst including as an essential constituent a substance selected from the group consisting of copper and copper alloys, and of a nitrogen base.

3,549,671
4-CHLORO-PREGNADIENE-STEROIDS AND METHOD OF MAKING THE SAME

Henry Laurent, Helmut Hofmeister, Friedmund Neumann, and Rudolf Wiechert, Berlin, Germany, assignors to Schering AG, Berlin and Bergkamen, Germany

No Drawing. Filed Apr. 2, 1968, Ser. No. 718,216

Claims priority, application Germany, Apr. 5, 1967, Sch 40,494

Int. Cl. C07c *169/32*

U.S. Cl. 260—397.4 **4 Claims**

4 - chloro - 1,2α - methylene - $\Delta^{4,6}$ - pregnadiene - 17α-ol-3,20-dione and the 17-esters thereof.

An example is 4-chloro-1,2α-methylene-$\Delta^{4,6}$-pregnadiene-17α-ol-3,20-dione-17-acetate.

The compounds have a high progestational and ovulation suppressing action with only very minor antiandrogenic side effects.

3,549,672
3-ALKOXY-17-HYDROXYGONA-2,5(10)-DIENES

Thomas B. Windholz, Westfield, and Arthur A. Patchett, Cranford, N.J., and John Fried, Palo Alto, Calif., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 227,559, Oct. 1, 1962. This application Mar. 22, 1966, Ser. No. 536,286

Int. Cl. C07c *169/20*

U.S. Cl. 260—397.5 **2 Claims**

The invention disclosed herein relates generally to novel steroid compounds and processes for preparing the same. More particularly, it relates to novel 3-alkoxy-17-hydroxygona - 2,5(10) - dienes, their 17α-substitution products, esters of the foregoing, and the process of preparing these novel gona-2,5(10)-diene steroids from certain polycyclic condensation products. In this process, 3 - methoxy - 13-ethyl-8,14-secogona - 1,3,5(10),9(11) - tetraene - 14,17-dione starting material is heated in the presence of acidic catalyst thereby effecting ring closure to form 3-methoxy-13-ethyl-gona-1,3,5(10),8,14-pentaen - 17 - one which is selectively hydrogenated at the Δ^{14} double bond to produce 3-methoxy-13-ethyl-gona-1,3,5(10),8-tetraen-17-one which upon further reduction with sodium borohydride is converted to 3 - methoxy - 13 - ethyl-gona - 1,3,5(10),8-tetraen-17β-ol; the latter compound is still further reduced with lithium in liquid ammonia thereby forming 3-methoxy-13-ethyl-9α,14α-gona - 2,5(10) - dien - 17β-ol. The 17α-substitution products of the foregoing are conveniently prepared by oxidizing the 17β-ol to a 17-ketone, and reacting the latter with a ketone reactive addition compound such as lithium acetylide to form the corresponding 17-α-ethynyl-17β-ol compound. The steroids of this invention possess utility as anabolic and/or progestational agents. Because of their progestational activity, they may be used to regulate the estrus cycle in domestic animals and in cases of menstrual disturbances may be used to reestablish the normal relationships between the anterior-pituitary, ovary and endometrium which are present in a normal estrus cycle. They may also be used to synchronize the estrus cycles of a herd or colony of domestic animals or to chronically suppress estrus in domestic animals. When used for these purposes, they may be supplied together or in succession with an estrogenic hormone.

3,549,673
TOTAL SYNTHESIS OF 13β-SUBSTITUTED GONAPOLYEN-17α-OLS

Takuichi Miki, Amagasaki, and Kentaro Hiraga, Ikeda, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Mar. 9, 1967, Ser. No. 621,779

Claims priority, application Japan, Mar. 11, 1966, 41/15,171; Mar. 12, 1966, 41/15,477, 41/15,478; Apr. 29, 1966, 41/27,321; May 31, 1966, 41/35,256; Oct. 15, 1966, 41/67,992, 41/67,993, 41/67,994, 41/67,995, 41/67,996

Int. Cl. C07c *171/07;* **A61k** *17/00*

U.S. Cl. 260—397.5 **4 Claims**

In the total synthesis of 13β-substituted gonapolyen-17α - ols, 13-substituted-8,14-secogona 1,3,5(10),9-tetraene-14,17-diones are reduced to give, as a racemic mixture, (±)13 - substituted - 17α-hydroxy-8,14-secogona-1,3,5(10),9-tetraen-14-ones, which are readily optically separable. Natural type isomer of the racemic mixture is converted into natural type 13-substituted gonapolyen-17α-ol, while the antipode of the natural type isomer is convertible into starting 13 - substituted - 8,14 - secogona-1,3,5(10),9-tetraene-14,17-dione or into natural type 13-substituted gonapolyen-17α-ol.

3,549,674
STEROID ESTROGEN SULFATES AND METHODS OF PREPARING THE SAME
Joseph Peter Joseph, Cliffside Park, N.J., John Paul Dusza, Nanuet, and Seymour Bernstein, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,285
Int. Cl. C07c *169/08*
U.S. Cl. 260—397.5 **10 Claims**
The preparation of aromatic steroid triethylammonium sulfate salts by reacting astradiol or estriol with sulfur trioxide-triethylamine in an anhydrous solvent, is described. These steroid salts are useful as estrogenic agents.

3,549,675
PREPARATION OF STEAROYL FLUORIDE
Edward S. Rothman and Samuel Serota, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Apr. 22, 1968, Ser. No. 723,304
The portion of the term of the patent subsequent to Feb. 24, 1987, has been disclaimed
Int. Cl. C07c *51/58;* C11c *3/00*
U.S. Cl. 260—408 **5 Claims**
Stearoyl fluoride of high purity is prepared by passing dry hydrogen fluoride through molten isopropenyl stearate or an ethereal solution of isopropenyl stearate.

3,549,676
SEPARATION OF MIXTURES OF LIQUID AND SOLID FATTY ACID COMPOUNDS
Helmut Hartmann, Langenfeld Rhineland, and Werner Stein, Unterbach, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf, Germany
No Drawing. Filed Aug. 3, 1967, Ser. No. 658,023
Int. Cl. C11b *15/00*
U.S. Cl. 260—419 **10 Claims**
A process is disclosed for the separation of liquid and fatty acid compound mixtures into components of different melting points by forming a dispersion of the fatty acid material having a temperature higher than the separation temperature in an aqueous solution of a surface active material having a temperature at which separation into liquid and solid components takes place and thereafter separating the dispersion in the conventional manner. According to the invention, it has been found that particularly favorable results are obtained if this process is carried out by cooling the fatty acid mixture in a first stage to the extent that only a portion of the fatty acid that is to be separated in solid form crystallizes out and thereafter, in a second stage, the resultant fluid-crystal mass is further cooled by dispersing the same in an aqueous solution of a surface active material having a temperature lower than that of the fluid-crystal mass, i.e., to a temperature at which separation takes place.

3,549,677
STANNOUS SALTS OF POLYPHOSPHONIC ACIDS
William J. Griebstein, Mount Healthy, Robert J. Grabenstetter, Colerain Township, Hamilton County, and James S. Widder, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Continuation-in-part of application Ser. No. 605,614, Dec. 29, 1966. This application Mar. 10, 1969, Ser. No. 805,852
Int. Cl. A61k *9/00;* C07f *7/22*
U.S. Cl. 260—429.7 **5 Claims**
Novel stannous salts of certain polyphosphonic acids useful as a source of stable and dental enamel reactive stannous tin and as anticalculus agents for incorporation in oral compositions for caries and calculus prophylaxis.

3,549,678
PROCESS FOR MAKING ORGANOMETAL COMPOUNDS OF HEAVY METALS BY MEANS OF ORGANOTRIFLUOROSILANES
Richard Muller, Radebeul, Sigrid Reichel, Dresden, and Christian Dathe, Radebeul, Germany, assignors to Institut fur Silikon- und Fluorkarbon-Chemie, Radebeul, Germany
No Drawing. Filed Dec. 27, 1967, Ser. No. 693,715
Int. Cl. C07f *1/10, 3/12, 7/24*
U.S. Cl. 260—430 **3 Claims**
Process for making organometal compounds of heavy metals by reacting salts of heavy metals directly with organotrifluoro directly with organotrifluorosilanes with the exclusion of acids forming organofluorosilicic acid and of alkali metal- or ammonium fluorides, by heating the heavy-metal compounds with an excess amount of the organotrifluorosilanes.

3,549,679
MYRCENE DERIVATIVES AND PROCESS THEREFOR
Heinrich Kappeler, Wurenlos, and Jost Wild, Zurich, Switzerland, assignors to Givaudan Corporation, Clifton, N.J., a corporation of New Jersey
No Drawing. Filed Oct. 15, 1968, Ser. No. 767,842
Claims priority, application Switzerland, Oct. 31, 1967, 15,286/67
Int. Cl. C07f *15/02;* C07c *69/00, 69/52*
U.S. Cl. 260—439 **13 Claims**
Compounds of the general formula:

$$R—CH_2—CH_2—C(=CH_2)—CH=CH_2.Fe(CO)_3 \quad (I)$$

where R is a group of one of the Formulae a–e.

$$—CHR_1—C(=CH_2)CH_3 \quad (a)$$
$$—CR_1=C(CH_3)_2 \quad (b)$$
$$—CH_2—C(OR_2)(CH_3)_2 \quad (c)$$
$$—CHOH—CH(CH_3)_2 \quad (d)$$
$$—CHOH—C(OH)(CH_3)_2 \quad (e)$$

wherein R_1 signifies acetyl or acetoxymethyl and R_2 signifies hydrogen, low alkyl (preferably containing 1–6 C-atoms such as, especially, methyl or ethyl) or lower alkanoyl (preferably containing 1–6 C-atoms such as, for example, formyl, acetyl, propionyl, butyryl). These compounds are sources for known odorants useful in perfumery.

3,549,680
METHOD OF PREPARING ORGANO-HALOGENOSILICON COMPOUNDS
Karl-Heinrich Wegehaupt and Siegfried Nitzsche, Burghausen, Upper Bavaria, Manfred Wick, Munich, and Hermann Triem, Ingelheim (Rhine), Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,826
Claims priority, application Germany, Jan. 4, 1967, W 43,112
Int. Cl. C07f *7/02*
U.S. Cl. 260—448.2 **7 Claims**
Certain phosphorous-nitrogen compounds are employed as catalysts in the reaction of halogenosilicon compounds with organosiloxanes free of halogen to produce organohalgenosilicon compounds differing from the starting materials.

3,549,681
6-SULFURIC ACID ESTERS OF 6-DEMETHYLTETRACYCLINES
Martin Tobkes, Spring Valley, N.Y., and Raymond George Wilkinson, Columbus, Ohio, assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Continuation-in-part of application Ser. No. 520,640, Jan. 19, 1966. This application Dec. 9, 1966, Ser. No. 600,376
Int. Cl. C07c *103/19, 141/14*
U.S. Cl. 260—457 **10 Claims**
This disclosure describes 6-sulfuric acid esters of 6-demethyltetracyclines useful as intermediates in the preparation of the corresponding 5a,6-anhydro-6-demethyltetracyclines.

3,549,682
PROCESS FOR THE PRODUCTION OF MIXED CARBONIC ACID ESTERS
Hugo Vernaleken and Claus Wulff, Krefeld, Ludwig Bottenbruch, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Dec. 28, 1966, Ser. No. 605,186
Claims priority, application Germany, Dec. 29, 1965, F 48,036
Int. Cl. C07c *69/00;* C08g *17/13*
U.S. Cl. 260—463 **10 Claims**
Mixed carbonic acid esters obtained by reacting a diaryl carbonate and an organic dihydroxy compound in substantially equimolar proportions at a temperature of from about 150 to 250° C. while accumulating arylhydroxy by-product and then eliminating said by-product from the reaction mixture and the utility of said esters as auxiliaries for synthetic resins, anti-oxidizing agents for rubber and as intermediates for producing polycondensation products.

3,549,683
PRODUCTION OF o-CHLOROBENZALMALONONITRILE
Jacob Rosin, Maplewood, N.J., assignor to Chris-Craft Industries, Inc., a corporation of Delaware
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,673
Int. Cl. C06d *7/00;* C07c *121/70*
U.S. Cl. 260—465 **5 Claims**
The lachrymating agent o-chlorobenzalmalononitrile, which is more commonly known by the code name CS given to this compound by the United States Army Chemical Corps, usually requires careful purification before the compound meets all military specifications. In the production of o-chlorobenzalmalononitrile, in which approximately equimolar amounts of o-chlorobenzaldehyde and malononitrile are reacted under base catalysis, it is possible to use commercial-grade malononitrile and to produce military-grade CS without the usual purification procedures by conducting the reaction in the absence of any solvent and during the course of such reaction sequentially

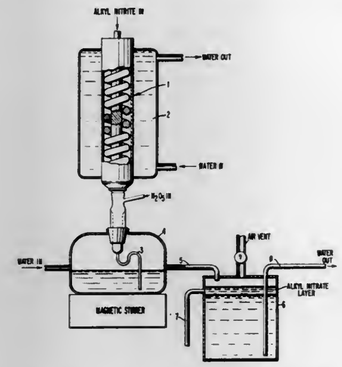
(a) allowing the reaction mixture to exothermally reach a temperature in the range from about 35° C. to about 60° C.;
(b) placing the reaction mixture under a reduced pressure greater than about 10 mm. Hg when the temperature of the reaction mixture has exothermally reached the range from about 35° C. to about 60° C.;
(c) heating the reaction mixture while under such partial vacuum to a temperature in the range from about 60° C. to about 105° C. for a period of time sufficient to form at least 80% of the theoretical amount of o-chlorobenzalmalononitrile; and
(d) further decreasing the pressure of the reaction mixture to a level below about 10 mm. Hg while rapidly heating the reaction mixture to a temperature of at least 120° C., thereby forming o-chlorobenzalmalononitrile a melting point in the range of from about 93.4° C. to 95.0° C. which meets all military specifications for CS.

3,549,684
PRODUCTION OF o-CHLOROBENZALMALONONITRILE
Jacob Rosin, Maplewood, N.J., assignor to Chris-Craft Industries, Inc., a corporation of Delaware
No Drawing. Filed Oct. 11, 1968, Ser. No. 766,971
Int. Cl. C06d *7/00;* C07c *121/70*
U.S. Cl. 260—465 **4 Claims**
Orthochlorobenzalmalononitrile, which is the lachrymating agent more commonly known by the code name CS given to this compound by the United States Army Chemical Corps, may be produced in high yields by pyrolyzing acetonitrile and a cyanide selected from the group consisting of hydrogen cyanide and cyanogen chloride at a temperature in the range from about 600° C. to about 1100° C. to form malononitrile in situ and then immediately quenching the hot reaction gas in o-chlorobenzaldehyde, which condenses with the malononitrile to form CS.

3,549,685
PROCESS FOR THE HYDRODIMERISATION OF α,β-MONO-OLEFINIC NITRILES AND ESTERS OF α,β-MONO-OLEFINIC CARBOXYLIC ACIDS
John Wilkinson Badham, Balwyn, Victoria, Peter John Gregory, Toorak, Victoria, and John Barrington Glen, East Malvern, Victoria, Australia, assignors to Imperial Chemical Industries of Australia and New Zealand Limited, Melbourne, Victoria, Australia, an Australian company
Filed Aug. 16, 1967, Ser. No. 661,063
Claims priority, application Australia, Aug. 22, 1966, 9,957/66; Sept. 12, 1966, 10,919/66
Int. Cl. C07c *121/26*
U.S. Cl. 260—465.8 **5 Claims**
A process for the reductive dimerisation of α,β-mono-olefinic nitriles or esters of α,β-mono-olefinic carboxylic acids (especially of acrylonitrile to adiponitrile) by means of alkali metal or alkaline earth metal amalgam in a medium providing protons and comprising a major proportion of a polar aprotic solvent, in which process the metal transferred from the amalgam to the organic medium during the reductive dimerisation is reacted then or subsequently with a neutralising acid, an improved method of separating the resulting salt of the metal with the neutralizing acid from the rest of the reaction mixture wherein the organic medium, either during or after the reductive dimerisation, is contacted with a separate aqueous phase so as to transfer the metal, whether as ion or salt and whether in solution or as solid, to the aqueous phase, to complete, if necessary, the reaction of the metal with the acid by adding more acid, and to complete, if necessary, precipitation of the metal salt, and then to isolate the metal salt from the aqueous phase. The process is particularly applicable to the separation of sodium bicarbonate resulting from the use of sodium amalgam with carbon dioxide as the neutralising acid.

3,549,686
PROCESS FOR THE PREPARATION OF ALKYL NITRATES
Gustave B. Bachman, Lafayette, Ind., and Neil W. Connon, Rochester, N.Y., assignors to Purdue Research Foundation, Lafayette, Ind., a corporation of Indiana
Filed July 29, 1968, Ser. No. 748,338
Int. Cl. C07c *77/02*
U.S. Cl. 260—467 **12 Claims**
A process for preparing alkyl nitrates by contacting an alkyl nitrite, such as octyl nitrite, in liquid form

with gaseous dinitrogen pentoxide to form a reaction mixture containing alkyl nitrate and nitric acid, and



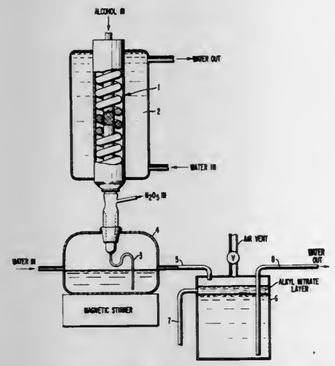
rapidly removing the alkyl nitrate from the reaction mixture.

3,549,687

PROCESS FOR THE PREPARATION OF ALKYL NITRATES

Gustave B. Bachman, Lafayette, Ind., and Neil W. Connon, Rochester, N.Y., assignors to Purdue Research Foundation, Lafayette, Ind., a corporation of Indiana

Filed July 29, 1968, Ser. No. 748,339
Int. Cl. C07c *77/02*
U.S. Cl. 260—467 **12 Claims**



A process for preparing alkyl nitrates by contacting an alcohol, such as octyl alcohol, in liquid form with gaseous dinitrogen pentoxide to form a reaction mixture containing alkyl nitrate and nitric acid and rapidly removing the alkyl nitrate from the reaction mixture.

3,549,688

PROCESS FOR THE PREPARATION OF CARBOXYLIC ACID ESTERS

Herman L. Finkbeiner, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Feb. 16, 1967, Ser. No. 616,500
Int. Cl. C07c *69/24*
U.S. Cl. 260—468 **7 Claims**

Carboxylic acid esters of aliphatic alcohols are produced by the reaction of a trihydrocarbonsilyl ester of a carboxylic acid with an aliphatic alcohol in the presence of an anhydrous hydrogen chloride. The esters produced can be employed as solvents for chemical reactions, as solvents in resin systems, and as intermediates in organic syntheses, etc.

3,549,689

PHENOXY-ALKANOIC ACIDS

Albert J. Frey, Essex Fells, Rudolf G. Griot, Florham Park, and Hans Ott, Convent Station, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed May 23, 1967, Ser. No. 640,465
Int. Cl. C07c *103/22*
U.S. Cl. 260—471 **39 Claims**

The compounds are α - (o - benzamidophenoxy)-lower alkanoic acids, e.g., 2 - [4-chloro-2-(p-chlorobenzamido)-phenoxy]-isobutyric acid. They are useful as anti-inflammatories. They are prepared by benzoylating an o-aminophenol to form the corresponding o-benzamidophenol, which is then condensed with a suitable α-halo-lower alkanoic acid alkyl ester to form the corresponding α-(o-benzamidophenoxy)-lower alkanoic acid alkyl ester, which is then hydrolyzed to its acid.

3,549,690

CARBOXYLIC ACID DERIVATIVES

Thomas Leigh and Leslie Arthur McArdle, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed June 8, 1967, Ser. No. 644,489
Claims priority, application Great Britain, June 23, 1966, 28,198/66, 28,200/66
Int. Cl. C07c *63/52, 69/76*
U.S. Cl. 260—473 **4 Claims**

The disclosure relates to biphenylylmethoxy-alkanoic acid derivatives and similar compounds which lower the concentration of cholesterol and/or triglycerides in blood serum and reduce the level of fibrinogen in blood plasma, and which possess anti-inflammatory activity. The disclosure further relates to pharmaceutical compositions containing such compounds and to a method of using such compounds in the treatment of coronary artery disease and atherosclerosis. Representative of the compounds disclosed is α-[4-(p-chlorophenyl)benzyloxy]-α-methylpropionic acid.

3,549,691

ARALKYLOXY ALKANOIC ACIDS

Thomas Leigh and Leslie Arthur McArdle, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed June 8, 1967, Ser. No. 644,492
Claims priority, application Great Britain, June 23, 1966, 28,199/66
Int. Cl. C07c *69/02, 103/26*
U.S. Cl. 260—473 **6 Claims**

The disclosure relates to aralkyloxy- or aralkylthio-alkanoic acid derivatives which lower the concentration of cholesterol and/or triglycerides in blood serum and reduce the level of fibrinogen in blood plasma, and which possess anti-inflammatory activity. The disclosure further relates to pharmaceutical compositions containing such compounds and to a method of using such compounds in the treatment of coronary artery disease and atherosclerosis. Representative of the compounds disclosed is α-p-chlorobenzyloxy-methylpropionic acid.

3,549,692

HETEROCYCLIC CATALYSTS FOR ESTERIFICATION OF AROMATIC DICARBOXYLIC ACIDS WITH CYCLIC CARBONATES OF ALKYLENE GYLCOLS

August Böckmann, Krefeld-Bockum, Hugo Vernaleken, Krefeld, Ludwig Bottenbruch and Hans Rudolph, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Aug. 28, 1967, Ser. No. 663,531
Claims priority, application Germany, Sept. 9, 1966, F 50,162
Int. Cl. C08g *17/015*
U.S. Cl. 260—475 **4 Claims**

Esterification of aromatic dicarboxylic acids with cyclic carbonates of alkylene glycols in the presence of five-membered aromatic N-heterocyclic compounds containing two to four heterocyclic nitrogen atoms and transesterification of resulting esters to produce high molecular weight, fiber-forming polyesters.

3,549,693

PROCESS FOR PRODUCING ACETOACETIC ACID ESTERS

Herbert Eck and Hellmuth Spes, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany, a corporation of Germany

No Drawing. Filed Jan. 3, 1968, Ser. No. 695,343
Claims priority, application Germany, Jan. 10, 1967, W 43,137
Int. Cl. C07c *69/72*
U.S. Cl. 260—483 **3 Claims**

This invention relates to producing acetoacetic acid esters, and it provides a novel and improved process for accomplishing this purpose by reacting diketene with an alcohol, particularly an aliphatic alcohol, which contains a catalyst in dissolved form, at a temperature between the boiling point of the alcohol and the boiling point of the acetoacetic acid ester formed, and it is characterized by the fact that the catalyst is an alkali metal salt of an acid with a pK value below 3.0.

3,549,694

α-AMINO-p-TOLUENESULFONAMIDE CITRATE

Avery A. Johnson, Jr., and Arthur D. Mason, Jr., San Antonio, and Charles R. Ritchey, Fort Sam Houston, Tex., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed May 15, 1968, Ser. No. 729,427
Int. Cl. C07c *143/00*
U.S. Cl. 260—501.21 **1 Claim**

The disclosure describes a citric acid salt of homosulfanilamide and its use in the treatment and control of *Pseudomona aeruginosa*, particularly as that bacillus is in burn wounds.

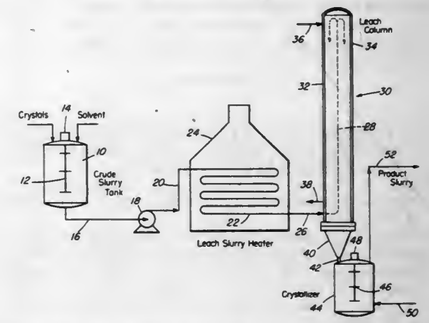
3,549,695

METHOD FOR DOWNFLOW LEACHING

Howard S. Bryant, Jr., New York, N.Y., and John Nasser, New Canaan, Conn., assignors to Mobil Oil Corporation, a corporation of New York

Filed Sept. 1, 1966, Ser. No. 576,765
Int. Cl. C07c *51/42*
U.S. Cl. 260—525 **11 Claims**

This invention relates to a purification process for leaching a slurry or suspension of small particles of an impure solid material while the entire slurry is continuously flowing downward through a substantially vertical channel or column, as well as the combination thereof with a subsequent recrystallization step and apparatus for leaching and recrystallizing such materials. In a particular



embodiment, it is concerned with the treatment of crude terephthalic acid with acetic acid as the leaching agent.

3,549,696

MANUFACTURE OF OXALIC ACID

Jacques Marius Duroux and Louis Marius Elie Pichon, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

Filed May 23, 1967, Ser. No. 640,599
Claims priority, application France, May 25, 1966, 62,973
Int. Cl. C07c *51/32*
U.S. Cl. 260—533 **3 Claims**

Oxalic acid is produced by oxidising propylene, or an intermediate product containing two or three carbon atoms which can be formed by nitric acid and/or nitrogen peroxide oxidation of propylene, with nitric acid in the presence of, as catalyst, iron, aluminium, chromium, tin, bismuth iodine or a compound thereof which is soluble in the reaction medium.

3,549,697

METHOD OF PREPARING DIBASIC ACIDS AND DERIVATIVES THEREOF

William J. Roberts, Bernardsville, and Joseph Di Pietro, New Providence, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 341,434, Jan. 30, 1964. This application Aug. 19, 1968, Ser. No. 755,502
Int. Cl. C07c *55/14, 55/02*
U.S. Cl. 260—533 **13 Claims**

A process for producing dicarboxylic acids in good yield involves the free radical addition reaction between a compound containing terminal acetylenic unsaturation and a monocarboxylic acid or reactive derivative thereof.

3,549,698

FLUOROALKYL GEM-DIOLS

Ralph I. Coon, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 449,269, Apr. 19, 1965, and a division of application Ser. No. 679,160, Oct. 30, 1967. This application Dec. 13, 1968, Ser. No. 783,753
Int. Cl. C07c *59/10*
U.S. Cl. 260—535 **3 Claims**

Fluoroalkyl gem-diols and their derivatives in which the alkyl group has 3 to 20 carbon atoms are formed by

treating a 1,2-epoxy perfluoroalkane with water to produce alpha-alpha-dihydroxy perfluoroalkane carboxylic acids, which are then converted to amides, esters, and numerous other carbonyl-derived derivatives. The compounds have useful properties based upon the combination of the gem-diol group and their fluorine content, e.g. as surfactants.

3,549,699

α - CHLORO - α - CHLOROSULFENYL-PHENYL ACETYL CHLORIDE AND A PROCESS FOR THE PREPARATION THEREOF

Myron S. Simon, Newton Centre, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 590,095, Oct. 27, 1966, which is a continuation of application Ser. No. 292,134, July 1, 1963. This application May 5, 1967, Ser. No. 636,282

Int. Cl. C07c *51/58, 63/54*

U.S. Cl. 260—544 **2 Claims**

The present invention relates to novel sulfenyl chlorides and the syntheses of these compounds by reacting phenylacetic acid or a substituted phenylacetic acid with an excess of thionyl chloride and a small amount of pyridine.

3,549,700

N-PHENYL SULFENAMIDES

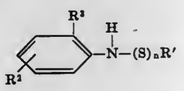
Joseph G. E. Fenyes, Oakland, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 545,887, Apr. 28, 1966. This application Jan. 30, 1969, Ser. No. 795,360

Int. Cl. C07c *145/00*

U.S. Cl. 260—551 **4 Claims**

Compounds of the formula



wherein R^2 is a cyano or nitro group in the para or meta position or a trifluoromethyl group, R^3 is hydrogen or alkyl of 1 to 3 carbon atoms when R^2 is cyano or nitro and R^3 is hydrogen when R^2 is trifluoromethyl, R′ is a polyhaloalkyl group having 1 to 2 carbon atoms and 3 to 5 halogens of atomic number 17 to 35, at least one of the halogens being bonded to the α carbon atom, a polyhalovinyl group wherein the halogens are of atomic number 17 to 35 or a 1-halo-1-nitroalkyl group having 2 to 4 carbon atoms wherein the halogen has an atomic number of 17 to 35 and *n* is 1 or 2 when R′ is said polyhaloalkyl group and *n* is 1 when R′ is said 1-halo-1-nitroalkyl group or said polyhalovinyl group. Compounds having the above formula are fungicidal.

3,549,701

TWO STAGE PROCESS FOR SYNTHESIZING UREA

Eiji Otsuka, Kazumichi Kanai, and Tadao Saki, Fujisana, and Shigeru Inoue, Kamakura, Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan, a corporation of Japan

Continuation-in-part of application Ser. No. 635,532, May 2, 1967. This application July 26, 1967, Ser. No. 656,633

Int. Cl. C07c *127/00*

U.S. Cl. 260—555 **10 Claims**

Process for synthesizing urea at high conversion rates and economies wherein urea is synthesized in a first stage without solution recycle and the products and unreacted starting materials are further processed to utilize the unreacted starting materials in a second stage of urea synthesis utilizing solution recycle techniques.

3,549,702

OXIMIDOMETHANESULFONAMIDES

Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 583,067, Sept. 29, 1966. This application Oct. 5, 1967, Ser. No. 672,998

Int. Cl. C07c *143/80*

U.S. Cl. 260—556 **6 Claims**

N,N-disubstituted - oximidomethanesulfonamides and O-substituted oximido compounds are prepared by reducing a nitromethanesulfonamide or by converting a N,N-disubstituted-methanesulfonamide to the carbanion, then treating with a nitrite ester and, optionally, further reacting the oximido compounds to prepare the O-substituted oximido compounds. The compounds are useful as emulsifying agents, plasticizers, for treating rubber, leather, paper and oil and as herbicides and antibacterials and, in addition, the O-unsubstituted oximido compounds are useful as chelating agents and the α-oximido-α-toluenesulfonamides have diuretic activity.

3,549,703

PROCESS FOR MAKING N-(3-HALOPROPYL)-N-METHYLHYDROCARBON SULFONAMIDES

Max Tishler, Westfield, John M. Chemerda, Metuchen, and Janos Kollonitsch, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation of application Ser. No. 581,669, Aug. 24, 1966, which is a division of application Ser. No. 207,406, July 3, 1962. This application May 10, 1968, Ser. No. 728,367

Int. Cl. C07c *143/78*

U.S. Cl. 260—556 **2 Claims**

The preparation of 5-(3-methylaminopropyl)-5H-dibenzo[a,d]cycloheptene is effected by reaction of an alkali metal derivative of 5H-dibenzo[a,d]cycloheptene with an N - (3 - halopropyl)-N-methyl-hydrocarbonsulfonamide followed by the formation of the resulting 5-[3-(N - hydrocarbonsulfonyl - N-methyl)aminopropyl]-5H-dibenzo[a,d]cycloheptene by hydrolysis. The intermediate products are also produced by the selective reaction of a 1,3-dihalopropane with an N-methyl-hydrocarbonsulfonamide.

3,549,704

SALICYLAMIDES

Gerrit Jantinus Katerberg, Van Houtenlaan, Weesp, and Gerrit van Vliet, Baarn, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 13, 1968, Ser. No. 728,785

Claims priority, application Netherlands, May 19, 1967, 6706931; Feb. 19, 1968, 6802364

Int. Cl. C07c *103/30*

U.S. Cl. 260—559 **3 Claims**

The invention relates to new salicylamides having anthelmintic activity against flatworms.

3,549,705

HEXAFLUOROISOPROPANOL ACRYLAMIDE

Elemer Domba, Olympia Fields, and Thaddeus A. Krolikiewicz, Westchester, Ill., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed May 28, 1969, Ser. No. 828,786

Int. Cl. C07c *103/30*

U.S. Cl. 260—561 **3 Claims**

The new compound, hexafluoroisopropanol acrylamide, its polymers and method of manufacture.

3,549,706

PROCESS FOR SEPARATING ACRYLAMIDE

Takumi Takaki, Kazumi Takagi, Akira Hisada, and Tamio Tsunokawa, Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

Continuation-in-part of application Ser. No. 523,334, Jan. 27, 1966. This application July 17, 1969, Ser. No. 842,572

Claims priority, application Japan, Feb. 1, 1965, 40/5,616

Int. Cl. C07c *103/12*

U.S. Cl. 260—561 **1 Claim**

A highly pure form of acrylamide and ammonium sulfate can be obtained by neutralizing acrylamide sulfate with ammonia in a medium of an aqueous solution containing acrylamide and ammonium sulfate to obtain upon cooling during and/or after the neutralization acrylamide-ammonium sulfate mixed crystals, which contain large size ammonium sulfate crystals, and separating out the acrylamide by methanol extraction.

3,549,707

DIFLUOROAMINO DERIVATIVES

Eugene L. Stogryn, Fords, and Michael H. Gianni, Roselle, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Dec. 17, 1962, Ser. No. 246,869

Int. Cl. C07c *93/02*

U.S. Cl. 260—584 **10 Claims**

1. Difluoroamino derivatives of divinyl ethylene oxide selected from the group consisting of di-(1-NF_2)n-propenyl ether, 1,2,3-tris-(NF_2)n-propyl 1-(NF_2)n-propenyl ether, di-[1,2,3-tris-(NF_2)]n-propyl ether and mixtures thereof.

3,549,708

POST-MAXIMALLY PREAERATED HYDROCARBONS AND PROCESSES FOR THEIR MANUFACTURE

Charles J. Norton, and Michael J. Reuter, Denver, and Ned F. Seppi, Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio

Filed Sept. 15, 1966, Ser. No. 579,561

Int. Cl. C07c *73/06*

U.S. Cl. 260—610 **9 Claims**



Contacting hydrocarbons with oxygen-containing gases until a maximum peroxide number as specified herein is reached and thereafter continuing to contact said hydrocarbons with oxygen-containing gases until said peroxide number is decreased.

3,549,709

PROCESS FOR THE PREPARATION OF PHENOLS

René Victor Julien Achard, and Noel Crenne, Lyon, Rhone, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed June 27, 1966, Ser. No. 560,824

Claims priority, application France, June 30, 1965, 22,941

Int. Cl. C07c *37/00, 43/20*

U.S. Cl. 260—612 **2 Claims**

Phenols are made by oxidizing aromatic compounds with hydrogen peroxide in the presence of boric acid, boric anhydride, or a borate ester, and hydrolyzing the product.

3,549,710

PREPARATION OF VINYL ARYL ETHERS

John O. Turner, Washington, N.J., and Samuel A. Glickman, Easton, Pa., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,193

Int. Cl. C07c *43/20*

U.S. Cl. 260—612 **9 Claims**

A process for the production of aryl vinyl ethers which comprises reacting acetylene with a monohydric phenolic compound, such as phenol, in the presence of an alkali metal hydroxide catalyst wherein the reaction is conducted in the presence of a polyglycol ether solvent such as tetraethylene glycol dimethyl ether. The reaction is carried out at a temperature of about 160° C. to about 200° C. and under a partial pressure of acetylene of about 50 to 200 p.s.i. The use of the polyglycol ether solvent, together with the other conditions of the reaction, results in improved yields and conversions and reduces the amount of catalyst necessary to be employed in the reaction.

3,549,711

HALOETHERS

Claude I. Merrill, Lancaster, Calif., and Norman L. Madison, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 20, 1967, Ser. No. 647,334

Int. Cl. C07c *43/28*

U.S. Cl. 260—614 **2 Claims**

Novel haloethers and a method of their preparation are disclosed. These compounds exhibit an excellent thermal stability and oxidation resistant characteristics when subjected to elevated temperatures.

3,549,712

COUPLING OF PHENOLS WITH QUINOL ETHERS

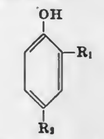
Allan S. Hay and Hans-Dieter Becker, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed Jan. 12, 1968, Ser. No. 697,310

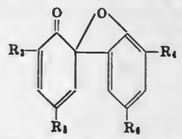
Int. Cl. C07c *39/12;* **C07d** *3/00*

U.S. Cl. 260—620 **6 Claims**

Phenols having the formula



readily react with spiro quinol ethers having the formula



in the liquid phase to produce 4,4′,6,6′-tetra-substituted o,o′-biphenols where the substituents of both of the

reactants and the product are tertiary alkyl groups having 4 to 8 carbon atoms. The biphenols are useful as plasticizers, antioxidants, polymerization inhibitors for ethylenically unsaturated monomers, etc. A portion of the biphenol may be oxidized back to the spiro quinol ether and used to couple more of the phenol to the biphenol. The biphenol products can be dealkylated to either a 4,4'-disubstituted o,o'-biphenol or completely dealkylated to o,o'-biphenol. The dealkylated biphenols readily react with dicarboxylic acids, diacyl halides or phosgene to produce polyesters, polycarbonates, etc.

3,549,713

OXIDATION OF ORGANIC COMPOUNDS

Hugh Bernard Charman, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Oct. 31, 1966, Ser. No. 590,484
Claims priority, application Great Britain, Nov. 8, 1965, 47,260/65
Int. Cl. B01j *11/82;* **C07c** *39/04, 39/14*
U.S. Cl. 260—621 **14 Claims**

A process for producing phenol wherein an aromatic hydrocarbon or a phenol is contacted in the liquid phase with hydrogen and oxygen in the presence of a reaction medium comprising a redox system and a compound of a noble metal of Group VIII of the Periodic Table.

3,549,714

6-OCTENE-1-YNES AND HYDROGENATED PRODUCTS THEREOF

Roman Marbet, Riehen, Switzerland, assignor, by mesne assignments, to Givaudan Corporation, Clifton, N.J., a corporation of New Jersey

No Drawing. Original application Oct. 8, 1964, Ser. No. 402,622. Divided and this application Mar. 21, 1968, Ser. No. 714,759
Int. Cl. C07c *33/04;* **C11b** *9/00*
U.S. Cl. 260—632 **1 Claim**

This invention is directed to 6-octene-1-ynes and hydrogenated products thereof, which are useful as odorants in perfumes and other scented compositions.

3,549,715

STABILIZATION

Charles L. Cormany, Wadsworth, William R. Dial, Akron, and Blaine O. Pray, Wadsworth, Ohio, assignors, by mesne assignments, to PPG Industries, Inc., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 712,693, Feb. 3, 1958. This application May 13, 1959, Ser. No. 812,791
Int. Cl. C07c *17/40*
U.S. Cl. 260—652.5 **3 Claims**

Methyl chloroform containing nitromethane and a lower alkanol as stabilizers against its decomposition in the presence of metals.

3,549,716

PREPARATION OF PERFLUOROOLEFINS

William Roy Deem, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,783
Claims priority, application Great Britain, Jan. 11, 1968, 1,632/68
Int. Cl. C07c *17/00;* **C08f** *3/24*
U.S. Cl. 260—653.1 **1 Claim**

Tetrafluoroethylene tetramer is made by heating higher tetrafluoroethylene oligomers, particularly the pentamer and isomeric hexamers, with a fluoride of potassium, rubidium, caseium, tetramethylammonium or tetraethylammonium in an inert solvent medium, for example dimethylformamide, under anhydrous conditions at 50° C. to 200° C.

3,549,717

PROCESS FOR THE PRODUCTION OF 1,5,9-CYCLODODECATRIENE

Jo Itakura, Hisao Tanaka, and Hiroo Ito, Aichi, Japan, assignors to Gosei Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,468
Claims priority, application Japan, Feb. 28, 1968, 43/12,278; Mar. 18, 1968, 43/17,269; July 8, 1968, 43/47,082; Aug. 13, 1968, 43/57,096; Oct. 22, 1968, 43/76,505; Oct. 23, 1968, 43/76,506
Int. Cl. C07c *13/00, 3/10*
U.S. Cl. 260—666 **26 Claims**

A process for the production of a 1,5,9-cyclododecatriene by the cyclic trimerization of a conjugated open chain diolefin using as catalyst an alkylaluminum chloride and a complex compound of titanium tetrachloride and an organic compound such as a ketone, an aromatic aldehyde, an aliphatic nitro compound, or an aromatic nitro compound. Catalyst useful for the same is also disclosed.

3,549,718

HYDROCARBON CONVERSION PROCESS

John H. Estes and George W. Eckert, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 280,429, May 14, 1963. This application May 8, 1969, Ser. No. 823,153
Int. Cl. C07c *3/56*
U.S. Cl. 260—671 **4 Claims**

An alkylation catalyst composed of alumina and about 1.0 to 10.0 weight percent combined chlorine where the combined chlorine is added to the alumina by heating the alumina and trichloroacetyl chloride at a temperature of about 300 to 650° F.

3,549,719

PROCESS FOR THE PURIFICATION OF OLEFINES

Coenraad J. Duyverman, Sittard, Netherlands, and Peter Rademakers, Susterseel, Germany, assignors to Stamicarbon N.V., Heerlen, Netherlands

Filed June 13, 1969, Ser. No. 833,091
Claims priority, application Netherlands, June 17, 1968, 6808517
Int. Cl. C07c *11/02, 11/06*
U.S. Cl. 260—677 **6 Claims**

The present invention relates to a process for the removal of contaminants from olefines, especially from ethylene and propylene, by passing said olefins, in the gaseous phase and at elevated temperature, over a mass containing cupric oxide (CuO) and capable of being regenerated by treating it with an oxygen-containing gas. In addition to cupric oxide, the said mass contains zinc oxide (ZnO); the CuO-content of the zinc oxide containing mass amounts to 20–60% by weight. The purification of the olefines is effected at a temperature of 50–200° C., at a pressure ranging from atmospheric to 50 bars. Oxygen-containing gas is containing a small amount of water in the vapour form.

3,549,720

SELECTIVE HYDROGENATION OF ACETYLENES AND CATALYST THEREFOR

James H. Wright and Cecil B. Hogg, Louisville, Ky., assignors to Catalysts and Chemicals Inc., Louisville, Ky., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 584,664, Oct. 6, 1966. This application July 22, 1969, Ser. No. 843,855
Int. Cl. C07c *5/08;* **B01j** *11/08*
U.S. Cl. 260—677 **6 Claims**

Palladium hydrogenation catalysts are known in the art and they have been especially effective for the hydrogenation of acetylenes in a gas stream containing olefins. Palladium catalysts employed in this selective reaction must possess a special set of properties in order to be completely effective. Thus one catalyst so used has a low surface area and a specific, narrow, mean pore radius. A catalyst suitable for such selective hydrogenation reactions is provided herein which does not have these properties. The catalyst has a major quantity of pores with diameters smaller than 800 angstrom units, the carrier being predominantly alumina. The carrier has the palladium uniformly distributed throughout. The catalyst must have a surface area above 80 square meters per gram.

3,549,721

CYCLOPENTADIENE REMOVAL IN ISOPRENE PURIFICATION BY AMPLIFIED DISTILLATION

George E. Sholtis, Akron, and Wallace E. Morrow, Kent, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Continuation-in-part of application Ser. No. 759,243, Sept. 11, 1968. This application Nov. 20, 1969, Ser. No. 878,574
Int. Cl. B01d *3/00;* **C07c** *7/00*
U.S. Cl. 260—681.5 **2 Claims**

There is disclosed a process of lowering the cyclopentadiene-1,3 content of a hydrocarbon stream containing at least 50 percent by weight of isoprene. The process comprises adding to such stream at least 10 percent of a mixture of 2-pentene and 2-methyl-2-butene containing at least 3 percent of 2-pentene and 5 percent of 2-methyl-2-butene, and subjecting the mixture of isoprene, cyclopentadiene, 2-pentene and 2-methyl-2-butene to fractional distillation and recovering therefrom an overhead stream containing at least 90 percent by weight of isoprene and less than 5 parts per million of cyclopentadiene.

3,549,722

OLEFIN CONVERSION IN THE PRESENCE OF CYCLIC POLYENES

Filippo Pennella, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Apr. 3, 1967, Ser. No. 627,683
Int. Cl. C07c *3/62*
U.S. Cl. 260—683 **6 Claims**

Acyclic monoolefins are converted into other olefins of different molecular weights by contact with a promoted silica catalyst, active for disproportionating propylene into ethylene and butene, in the presence of a cyclic polyene.

3,549,723

PROCESS FOR MAKING LINEAR ALPHA OLEFINS

Dimitrios V. Favis, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Mar. 13, 1967, Ser. No. 622,453
Int. Cl. C07c *3/10*
U.S. Cl. 260—683.15 **9 Claims**

Ethylene is polymerized to obtain liquid linear alpha olefins, said polymerization taking place over a catalyst system comprising (1) a compound selected from the group consisting of (a) alkyl compounds of a metal selected from Groups I to III of the Periodic Table, and (b) compounds as described in (a) wherein one or more, but not all, alkyl groups are replaced with a halogen; (2) a transition metal halide; and (3) a compound selected from the group consisting of a tertiary halide and monochloro alkyl cyclopentene, and in the presence of recycled lower molecular weight olefins, selected from a group consisting of C_6, C_8, C_{10}, and C_{12} olefins and mixtures thereof, the presence of which serves to increase the production of the desired heavier liquid olefins.

3,549,724

POLYAMIDE - POLYETHER - POLYAMIDE BLOCK COPOLYMER BLEND COMPOSITION, A PROCESS FOR THE PRODUCTION THEREOF AND SHAPED ARTICLES THEREOF

Kaoru Okazaki, Yoichi Shimokawa, and Asaharu Nakagawa, Nagoya, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Continuation-in-part of application Ser. No. 614,827, Feb. 9, 1967. This application Mar. 21, 1969, Ser. No. 809,421
Claims priority, application Japan, Feb. 11. 1966, 41/7,689
Int. Cl. C08g *41/04*
U.S. Cl. 260—857 **6 Claims**

A polymer blend capable of melt-shaping to provide a shaped article having antistatic properties and prepared by melt-blending; the polymer blend comprising:

(1) A polyamide, and

(2) A polyether-polyamide block copolymer prepared by the polycondensation reaction of:

(A) A polyamide producing monomer selected from:
- (a) lactams
- (b) ω-amino acids, and
- (c) diamines combined with dicarboxylic acids

in the presence of:

(B) A polyether having terminal groups selected from:
- (i) amino groups
- (ii) organic acid salts of such amino groups
- (iii) carboxyl groups
- (iv) organic amine salts of such carboxyl groups, and
- (v) mixtures of (i) to (iv)

in such composition the polyether segments in the block copolymer comprise 15 to 70% by weight based upon the weight of the block copolymer and 0.1 to 20% by weight based on the total weight of the polyamide and the block copolymer.

3,549,725

THERMOPLASTIC COMPOSITIONS

John Brewster Rose, St. Albans, and Carl Fraser Mathews, Eric Nield, and Peter Incledon Vincent, Ware, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Original application Apr. 4, 1966, Ser. No. 539,738. Divided and this application July 17, 1969, Ser. No. 842,708
Claims priority, application Great Britain, Apr. 9, 1965, 15,191/65; Jan. 12, 1966, 1,423/66
Int. Cl. C08f *18/40, 29/52*
U.S. Cl. 260—876 **7 Claims**

Graft copolymers comprising a substrate of a diene rubber and a superstrate containing a high proportion of copolymerized acrylontirile together with an ester of acrylic or methacrylic acid. The graft copolymers are useful in blends of acrylonitrile copolymers.

3,549,726

PREVENTING ACCUMULATION OF MACROGEL PARTICLES IN RUBBER-MODIFIED POLYMERS

Walter F. Hanzl, Pompton Plains, N.J., assignor to Dart Industries Inc., Los Angeles, Calif., a corporation of Delaware

No Drawing. Filed May 1, 1967, Ser. No. 634,827
Int. Cl. C08d *9/08;* **C08f** *1/02, 15/04*
U.S. Cl. 260—880 **11 Claims**

Undesirable macrogels are prevented from accumulating in rubber-modified polystyrene, ABS and the like, if most of the inner surface of a polymerization reactor's vapor section is maintained at least 35° C. cooler than the polymerization temperature.

3,549,727
POLYMERIC HYDROCARBON RESIN-HYDROLYZED ETHYLENE/VINYL ESTER COPOLYMER BLENDS

John S. Coates, Paul F. Dunion, Jr., and Akira Tsukamoto, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 30, 1967, Ser. No. 686,806
Int. Cl. C08f *37/18*
U.S. Cl. 260—897 10 Claims

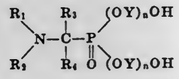
Adhesive compositions, having superior peel strength, of a polymeric hydrocarbon resin having a melt index of less than about 1,000 and a hydrolyzed ethylene/vinyl ester (e.g., vinyl acetate) copolymer are disclosed. The hydrolyzed copolymer initially contains about 5–25 mole percent copolymerized vinyl ester and is hydrolyzed to at least about 60 percent.

3,549,728
PHOSPHORUS AND NITROGEN-CONTAINING POLYOLS

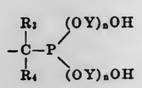
Daniel Balde, Issy-les-Moulineaux, and Georges Nagy, Montrouge, France, assignors to Societe Anonyme Ugine Kuhlmann, Paris, France, a corporation of France

No Drawing. Filed Feb. 7, 1967, Ser. No. 614,400
Claims priority, application France, Feb. 14, 1966, 45,562; Nov. 7, 1966, 82,751
Int. Cl. C07f *9/08*; C09k *3/02*; C08g *22/44*
U.S. Cl. 260—932 1 Claim

Polyols containing nitrogen and phosphorus having the formula



where R_1 and R_2 are hydrocarbons or the radical



R_3 and R_4 are hydrogen or hydrocarbons, Y is an alkylene or substituted alkylene, and n is an integer from 1 to 10, as well as the process of preparing the polyols. The polyols are useful as transfer liquids, hydraulic liquids, lubricants, plasticizers and as a starting material for a polyurethan resin.

3,549,729
SULFONATED ARYL PROSPHATES AND PROCESS FOR MAKING SAME

Joseph Di Pietro, West Millington, and Merrill N. O'Brien, Jr., New Providence, N.J., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 468,612, June 30, 1965. This application Jan. 10, 1969, Ser. No. 791,879
Int. Cl. C07f *9/12*; C08f *45/58*
U.S. Cl. 260—947 12 Claims

Sulfonated aryl phosphates and a process of preparing sulfonated aryl phosphates and alkali metal salts thereof comprising contacting an aryl phosphate with a solution of sulfur trioxide in an inert solvent. The sulfonated aryl phosphates are useful for improving the dyeability of shaped articles, such as filaments prepared from organic polymers.

3,549,730
PROCESS FOR PREPARING TRIARYLPHOSPHATES

Bush Y. Abadir, Moraga, Calif., and Mark E. Mayberry, Affton, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

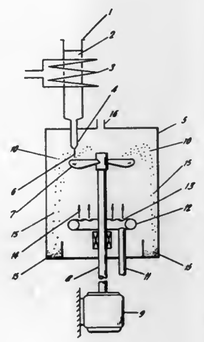
No Drawing. Continuation-in-part of application Ser. No. 341,418, Jan. 30, 1964. This application Aug. 16, 1967, Ser. No. 660,942
Int. Cl. C07f *9/12*; C08f *45/50*
U.S. Cl. 260—975 5 Claims

An improved process for preparing triarylphosphates, useful as oil additives and plasticizers, which utilizes acid-activated clay of the montmorillonite type to catalyze the reaction.

3,549,731
METHOD FOR THE PRODUCTION OF RESIN PARTICLES

David Harry Kohn, Moshe Narkis, and Jacob Weitzman, Haifa, and Walter Neumann, Nahariya, Israel, assignors to Technion Research and Development Foundation Limited, Technion City, Haifa, Israel

Filed May 6, 1968, Ser. No. 726,869
Claims priority, application Israel, May 9, 1967, 27,947
Int. Cl. B29c *23/00*
U.S. Cl. 264—8 7 Claims



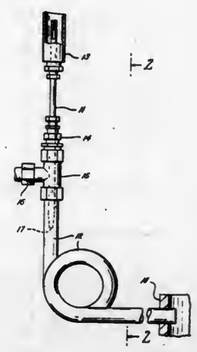
Hot viscous resin is converted into discrete hardened particles by flowing the viscous resin over an item which disperses the resin into particles and passing a cool hardening gas over the viscous particles so formed to harden same. In one embodiment, the particles are dispersed by a rotating mechanical member and the hardening gas flows sideways across the mechanical member and across the flow of viscous resin. In another embodiment the particles are dispersed by a flow of gas under pressure.

3,549,732
METHOD FOR SEPARATING A POLYMER FROM A SOLVENT

Billy D. Rice, Pasadena, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware

Original application Sept. 17, 1965, Ser. No. 487,985. Divided and this application Sept. 3, 1968, Ser. No. 810,042
The portion of the term of the patent subsequent to Mar. 12, 1985, has been disclaimed
Int. Cl. B29b *1/02*
U.S. Cl. 264—8 6 Claims

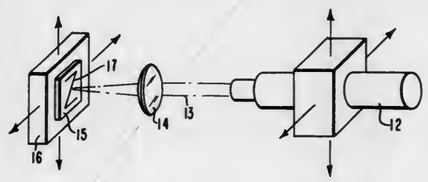
A method of separation of polymers from a solvent characterized by extruding the polymer at a positive pressure into an area of reduced pressure and impinging the polymer against an arcuate surface to achieve further separation by volatilization of the solvent and particulation of the filament.



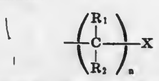
3,549,733
METHOD OF PRODUCING POLYMERIC PRINTING PLATES

Jack R. Caddell, Landenberg, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Dec. 4, 1968, Ser. No. 781,160
Int. Cl. B29c *17/08*
U.S. Cl. 264—25 23 Claims



A method for producing a polymeric printing plate by subjecting a plate, the surface of which is uniformly and substantially composed of a solid polymer selected from the group consisting of homopolymers of a unit and copolymers having a substantial number of units of the general unit formula:



where n is an integer having a value of at least one, X is selected from the group consisting of sulfur and oxygen, and R_1, R_2 are each selected from the group consisting of H, F, Cl, CF_3 and CCl_3; to a controlled laser beam of sufficient intensity to decompose the polymers and form depressions in the surface of the plate. The depth of the depression can be selectively varied by modulating the intensity of the incident laser beam, and the pattern engraved in the surface can be controlled by moving the plate or the laser, by deflecting the laser beam, or by placing a mask or transparency between the laser and the plate.

3,549,734
METHOD OF FORMING MICROFIBERS

Takeshi Yasuda, 12–302 Nigawa-Danchi, Kashio, Hyogoken, Takarazuka, Japan, and Yasuharu Fujiwara, 3–26 Tezukayamanaka, Sumiyoshi-ku, Osaka, Japan

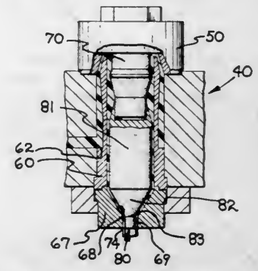
Filed June 27, 1967, Ser. No. 649,208
Int. Cl. B29b *11/04*; B29c *25/00*; D01f *3/08*
U.S. Cl. 264—37 2 Claims

Microfibers are formed by twice extruding a composite blend of two or more fiber forming linear polymers through two successive appropriate spinnerettes and as the last step by removing at least one of the polymers forming the composite fiber by means of a solvent thereby providing a plurality of continuous microfibers which are comprised of the remaining polymers and each of which has a diameter of less than 10 microns.

3,549,735
EXTRUSION APPARATUS AND METHOD

John F. Moss, College Park, Ga., assignor to Owens-Illinois, Inc., a corporation of Ohio

Filed Mar. 25, 1968, Ser. No. 715,635
Int. Cl. B29c *17/07*; B29d *3/02*
U.S. Cl. 264—39 2 Claims

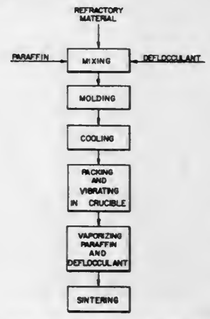


A method of maintaining uniform dispersion of colorant pigments in heated thermoplastic material is disclosed wherein plasticized material containing metallic or pearlescent pigment is extruded through a die passage having grit blasted surfaces provided by grit blasting with a grit between 60 and 80 mesh and setting the pigmented material while maintaining the desired uniform pigment dispersion.

3,549,736
PROCESS FOR FORMING SINTERED LEACHABLE OBJECTS OF VARIOUS SHAPES

Arthur Waugh, Brookline, Mass., assignor to Lexington Laboratories, Inc., Cambridge, Mass., a corporation of Massachusetts

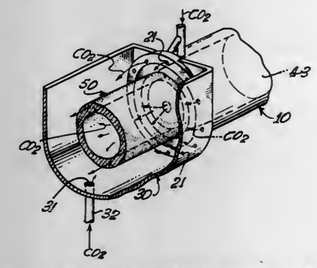
Filed Sept. 2, 1966, Ser. No. 576,851
Int. Cl. B29d *27/08*; C04b *21/06, 35/04, 35/11*
U.S. Cl. 264—44 1 Claim



A method of making leachable refractory casting cores suitable for use in investment casting. The practice of this

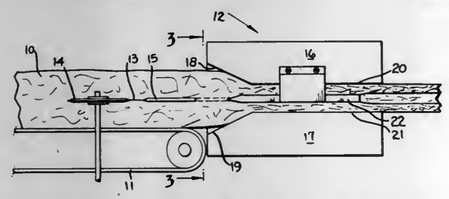
method allows the production of cores having relatively intricate shapes with minimal amounts of shrinkage and distortion occurring during processing thereof.

3,549,737
FORMING ARTICLES OF ASBESTOS-CEMENT
Herbert C. Schulze, Carlsbad, Calif. (111 El Camino Inn, 3182 Vista Way, Oceanside, Calif. 92054)
Filed Nov. 28, 1967, Ser. No. 686,175
Int. Cl. B28b *21/52;* **C04b** *15/14, 15/11*
U.S. Cl. 264—82 **4 Claims**



A process of extruding asbestos-cement pipe wherein carbon dioxide is directed onto the pipe, over the exterior and interior of said pipe as it leaves the extruder to provide an intial hardening. After extrusion the pipe undergoes conventional curing. Hot air and/or low pressure steam can be directed onto the pipe concurrently with the carbon dioxide.

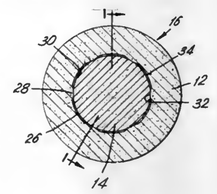
3,549,738
METHOD FOR PRODUCING FIBROUS PRODUCTS HAVING INTEGRAL TONGUE AND GROOVE EDGES
Richard Lloyd Troyer, Maumee, Ohio, assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Sept. 30, 1968, Ser. No. 763,655
Int. Cl. D04h *1/00*
U.S. Cl. 264—118 **5 Claims**



Method of consolidating, shaping and fixing the consolidated density and shape of a body of loose mass of fibers containing binders throughout to produce products of fixed configuration and density, which includes the concerted forming of integral tongue and/or groove longitudinal edges for effective complementary uniting of components with a like adjacent component, and the resulting tongue and/or groove fibrous product.

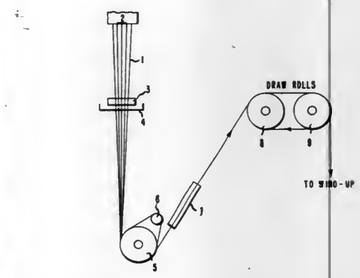
3,549,739
STRENGTHENED ARC CARBON ELECTRODE JOINTS
Martin A. Roche, Jr., Brook Park, Ohio, assignor to Union Carbide Corporation, a corporation of New York
Continuation of application Ser. No. 549,670, May 12, 1966. This application Oct. 1, 1968, Ser. No. 764,048
Int. Cl. B28b *11/08*
U.S. Cl. 264—162 **2 Claims**

A method of effecting an improved bond between a core and a shell in an arc carbon electrode. The shell is provided with a plurality of ribs along its inside surface and the core is pressed within the shell and between the



ribs. A cement is then forced between the shell and the core under pressure.

3,549,740
TREATMENT OF POLYESTER FIBERS TO IMPROVE ADHESION OF RUBBER
Eckhard Christian August Schwarz, Grifton, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Dec. 14, 1966, Ser. No. 601,661
Int. Cl. D01d *5/12*
U.S. Cl. 264—210 **6 Claims**

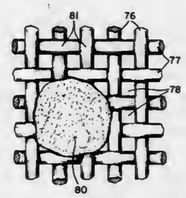


Adhesion of rubber to polyester fiber reinforcement, as in tires, is greatly improved by isocyanate treatment of the fibers during manufacture. A solution of an organic isocyanate of low volatility in an inert volatile organic liquid is applied to continuous polyester filaments intermediate of the spinning and drawing operations, and the filaments are then drawn to at least twice their length at a temperature of at least 120° C. in the presence of steam to react with the isocyanate and form a polyurea coating.

3,549,741
PROCESS FOR PREPARING IMPROVED CARPET YARN
Lloyd Caison, deceased, late of Hopewell, Va., by Mildred H. Caison, administratrix, Hopewell, Va., David E. Borenstein, Greenville, S.C., and Parker W. Longbottom, Colonial Heights, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Original application Oct. 30, 1967, Ser. No. 679,202. Divided and this application Mar. 5, 1969, Ser. No. 834,570
Int. Cl. D01d *5/12, 5/22;* **B29c** *17/02*
U.S. Cl. 264—210 **10 Claims**

The invention provides a process for preparing a carpet yarn from a dispersion of polyester in fiber-forming synthetic linear polyamide, especially poly-l-caproamide by selectively controling the spinning, drawing, crimping and aftertreating conditions whereby a yarn having excellent pattern definition, superior resilience and a velvety sheen is produced.

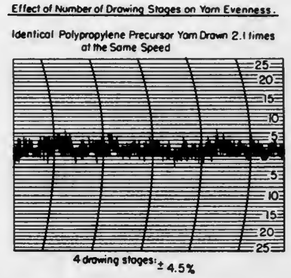
3,549,742
METHOD OF MAKING A FORAMINOUS DRAINAGE MEMBER
Charles S. Benz, Glen Mills, Pa., assignor to Scott Paper Company, Delaware County, Pa., a corporation of Pennsylvania
Filed Sept. 29, 1967, Ser. No. 671,800
Int. Cl. B29d *29/00*
U.S. Cl. 264—250 **12 Claims**



A foraminous beltlike structure is disclosed for use as a drainage member in the method and apparatus for forming apertured fibrous webs. The foraminous beltlike structure comprises a drainage member having a plurality of apertures substantially uniformly disbursed throughout, and flow control means, which in some instances comprise bodies of settable material, connected to the drainage member in a manner which prevents flow of liquid through the apertures in predetermined areas of the drainage member, the number of these predetermined areas being from about 100 to about 1300 per square inch of said member.

A method is disclosed for preparing the above-described foraminous beltlike structure including inserting filling material into apertures in the drainage member which will ultimately be open for drainage after which a settable material is inserted into the remaining apertures of the drainage member in the predetermined areas in which flow of liquid through the drainage member is to be prevented. The settable material is fixed or cured depending upon its composition, after which the filling material is removed from the drainage member, leaving the desired foraminonus beltlike structure.

3,549,743
MULTISTAGE DRAWING TECHNIQUE
Peter R. Riordon, Drummondville, Quebec, Canada, assignor to Chemcell Limited, Drummondville, Quebec, Canada
Filed May 15, 1967, Ser. No. 638,419
Int. Cl. B29c *17/02*
U.S. Cl. 264—290 **3 Claims**



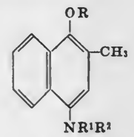
The invention relates to filamentary materials having a low apparent density and improved longitudinal uniformity (evenness). The filaments are produced by drawing an elastic fiber of polymeric material having a crystallinity of at least 20% and an elastic recovery from a 25% extension of at least 60% at some temperature below the melting point of the polymer making up said filament. The improvement comprises subjecting the filament to a multistage drawing consisting of from 3 to 6 stages wherein the total draw ratio of said multistage drawing is from 1.5:1 to 8:1.

3,549,744
METHOD OF MOLDING NONADHERENT HEAT VULCANIZABLE SILICONE RUBBER
Richard A. Compton, Milford, Conn., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Oct. 10, 1967, Ser. No. 674,108
Int. Cl. B29b *1/100*
U.S. Cl. 264—300 **3 Claims**

A heat vulcanizable silicone rubber composition which releases from metal surfaces without the use of any release agents. The heat vulcanizable silicone rubber composition includes an organopolysiloxane gum, a reinforcing filler, an organoperoxide vulcanizing agent and a metal salt of a carboxylic acid. The metal includes nickel, cadmium and copper and the carboxylic acids contain 16 to 26 carbon atoms per molecule. The metal salt of a carboxylic acid is present in amounts of 0.05 to 2 parts by weight per 100 parts by weight of the silicone rubber composition.

3,549,745
TERTIARY ALPHA-NAPHTHYLAMINES
Haydn Geoffrey Dickenson, Chesham, Colin David Granger, Wembley, Greater London, Peter Nicholl Green, Pinner, Greater London, William Kelly, Liverpool, and Hastings Wang, Halewood, near Liverpool, England, assignors to Ward Blenkinsop & Company Limited, Wembley, Greater London, England, a British company
No Drawing. Filed May 18, 1967, Ser. No. 639,308
Claims priority, application Great Britain, May 20, 1966, 22,697/66
Int. Cl. C07c *93/14*
U.S. Cl. 260—574 **8 Claims**

Alkyl ethers of tertiary alpha-naphthylamines are described having the formula



in which R is an alkyl group having one to six carbon atoms, e.g. a methyl group, and each of R^1 and R^2 is a haloalkyl group having the formula $-C_nH_{2n}X$ in which n is 2, 3 or 4 and X is a chlorine or bromine atom present on a carbon atom other than that which is linked to nitrogen, e.g. a beta-chloroethyl group. The compounds are shown to exert a selective reduction in the lymphocytes in the blood of rats and dogs and to have a high therapeutic index. Suitable pharmaceutical formulations of the compounds are also described.

3,549,746
ANTIBIOTIC COMPOSITION
Alphonse Peter Granatek, Baldwinsville, Bernard Charles Nunning, Liverpool, Nicholas George Athanas, East Syracuse, Robert Lewis Dana, Liverpool, Edmund Stanley Granatek, Baldwinsville, and Raymond George Daoust, DeWitt, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 2, 1967, Ser. No. 679,982
Int. Cl. A61k *27/00*
U.S. Cl. 424—35 **10 Claims**

A pharmaceutical composition in unit dosage form comprising coated particles of certain penicillins such as di-

cloxacillin, the coating comprising ethylcelluose and a pharmaceutically acceptable wax; and a pharmaceutical carrier when administered orally to animals including man is useful in the treatment of bacterial infections.

3,549,747

CONTACT LENS WETTING SOLUTION AND METHOD OF USING SAME

Joseph Z. Krezanoski and John C. Petricciani, Los Altos, Calif., assignors, by mesne assignments, to Flow Pharmaceuticals, Inc., Mountain View, Calif., a corporation of Nevada

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,763

Int. Cl. A61k *27/00*; **A61f** *9/00*; **G02c** *7/04*

U.S. Cl. 424—78 **12 Claims**

A hypertonic contact lens wetting solution is provided which is useful in affording clearer vision and improved comfort to contact lens wearers. The wetting solution comprises a polymeric, viscosity-building agent, such as hydroxyethyl cellulose; a wetting agent such as polyvinyl alcohol; a microbial growth inhibitor, such as benzalkonium chloride; purified water; and sufficient amounts of essentially neutral, water-soluble salts, such as sodium chloride and potassium chloride, to make the solutions hypertonic. The wetting solution can also contain a disodium ethylenediamine tetraacetate chelating agent, if desired.

3,549,748

PROCESS OF CAUSING LYSIS OF BLOOD CLOTS, AND COMPOSITION

Aldo P. Truant and Fritz G. Nordstrom, Worcester, Mass., assignors to Astra Pharmaceutical Products, Inc., Worcester, Mass., a corporation of New York, and The Governors of The University of Toronto, Toronto, Ontario, Canada

Original application Feb. 20, 1959, Ser. No. 794,729, now Patent No. 3,256,157. Divided and this application June 13, 1966, Ser. No. 557,155

Int. Cl. A61k *17/00*, *19/00*

U.S. Cl. 424—94 **6 Claims**

Fibrinolytic agents derived from specific mold cultures are intravenously administered for causing lysis of blood clots in veins and arteries of humans and warm-blooded animals and are topically applied to purulent and necrotic wounds to accelerate healing. The injectable solutions may contain heparin and/or plasmin. The topically applicable preparations are ointments, powders and the like. They may contain an antibiotic.

3,549,749

ANTHELMINTIC COMPOSITIONS AND METHODS USING 2 - SUBSTITUTED BENZIMIDAZOLES AND ORGANO-PHOSPHATES

Joseph Di Netta, Watchung, and John R. Egerton, Neshanic Station, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 456,517, May 17, 1965. This application Apr. 21, 1969, Ser. No. 818,137

Int. Cl. A61k *27/00*

U.S. Cl. 424—200 **20 Claims**

The anthelmintic activity of 2-substituted benzimidazoles and organo-phosphates is greatly enhanced when either of them is administered to domestic animals in the presence of the other. Administration of 2-substituted benzimidazoles and organo-phosphates simultaneously in a single composition, or sequentially within such period of time as will allow a beneficial interaction, affords a higher anthelmintic response than is achieved by administration of either component alone.

3,549,750

ALKOXY VINYL PHOSPHONO DITHIOATES AS NEMATOCIDES

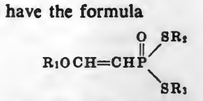
Erik K. Regel, Wuppertal-Cronenberg, Germany, and Marion F. Botts, Independence, Mo., assignors to Chemagro Corporation, Kansas City, Mo., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 612,101, Jan. 27, 1967. This application Dec. 14, 1967, Ser. No. 690,380

Int. Cl. A01n *9/36*

U.S. Cl. 424—217 **9 Claims**

Compounds have the formula



where R_1 is methyl, propyl, isopropyl or t-butyl and R_2 and R_3 are alkyl of 1 to 8 carbon atoms, phenyl, lower alkyl phenyl or chlorophenyl have nematocidal activity. Preferably R_2 and R_3 are lower alkyl. S, S-diisopropyl-2-methoxyvinyl-phosphonodithioate is particularly effective.

3,549,751

COMPOSITION CONTAINING STREPTONIGRIN AND OXYTETRACYCLINE

Tom J. McBride, Ridgewood, N.J., and Jerome J. Oleson, Pearl River, N.Y., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 455,006, May 11, 1965. This application Aug. 30, 1968, Ser. No. 756,385

Int. Cl. A61k *21/00*

U.S. Cl. 424—227 **1 Claim**

Potentiation of the antiviral activity of antiviral agents such as streptonigrin, amethopterin, 6-mercaptopurine, 9-butyl-6-mercaptopurine and triethylene melamine by administering them in conjunction with a tetracycline antibiotic.

3,549,752

STABLE SOLUTIONS OF THERAPEUTICALLY ACTIVE STEROID ENOL ETHERS AND PROCESS

Alberto Ercoli, Milan, and Rinaldo Gardi, Carate Brianza, Italy, assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed Dec. 26, 1967, Ser. No. 693,137

Claims priority, application Italy, Dec. 23, 1966, 31,494/66

Int. Cl. A61k *17/06*

U.S. Cl. 424—239 **5 Claims**

Stable oily solutions of therapeutically active 3-enol ethers of Δ^4-3-ketosteroids are obtained by the addition of from 0.01 to 0.5% by volume of a nontoxic organic base having a pK_b lower than 6. Suitable organic bases include morpholine, ethanolamine, triethanolamine, piperazine, ethylenediamine, n-butylamine, triethylamine, diethylamine, piperidine and pyrrolidine. Oily solutions of these enol ethers are stabilized against hydrolytic and oxidative degradation. The process is particularly suitable for stabilizing a sesame oil solution of quingestanol acetate (either alone or in combination with an estrogen) with piperidine.

3,549,753

CERTAIN DIBENZO-1,2-THIAZINES AS INSECTICIDES AND ACARICIDES

Wilhelm Ernst Frick, Pfeffingen, Basel-Land, and Guido Schetty, Aesch, Basel-Land, Switzerland, assignors, by mesne assignments, to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Application Mar. 25, 1966, Ser. No. 537,314, now Patent No. 3,356,678, dated Dec. 5, 1967, which is a continuation-in-part of application Ser. No. 328,175, Dec. 5, 1963. Divided and this application Aug. 26, 1966, Ser. No. 575,249

Int. Cl. A01n *9/14*, *9/22*

U.S. Cl. 424—246 **6 Claims**

Compositions containing certain 6H-dibenzo[c,e]-1,2-thiazine-5,5-dioxides (cf. U.S. Pat. No. 3,356,678) or salts thereof as active ingredients have excellent insecticidal and acaricidal activity, and are useful in protecting more especially keratinous substrates against injurious insects and acarinae.

3,549,754

COMBINATION OF 2-SUBSTITUTED BENZIMIDAZOLES AND SUBSTITUTED PHENOTHIAZINES IN THE TREATMENT OF HELMINTHIASIS

Joseph Di Netta, Watchung, and John R. Egerton, Neshanic Station, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of abandoned application Ser. No. 626,634, Mar. 28, 1967, which is a continuation of abandoned application Ser. No. 439,927, Mar. 15, 1965. This application Apr. 21, 1969, Ser. No. 818,129

Int. Cl. A61k *27/00*

U.S. Cl. 424—247 **20 Claims**

The anthelmintic activity of 2-substituted benzimidazoles and substituted phenothiazines is greatly enhanced when either of them is administered to domestic animals in the presence of other. Administration of the benzimidazoles and the phenothiazines simultaneously in a single composition, or sequentially within such period of time as will allow a beneficial interaction affords a higher anthelmintic response then is achieved by administration by either component alone.

3,549,755

USE OF 2-TRICHLOROMETHYL-4-MORPHOLINO- OR PIPERAZINO-6-SUBSTITUTED-s-TRIAZINES FOR INDUCING DEPRESSANT EFFECTS IN ANIMALS

Jiro K. Kodama and James R. Albert, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 498,099, and Ser. No. 498,118, Oct. 19, 1965. This application Mar. 27, 1968, Ser. No. 716,291

Int. Cl. A61k *27/00*

U.S. Cl. 424—248 **22 Claims**

Use of 2-trichloromethyl-4-morpholino- or -piperazino-6-substituted-s-triazines for inducing depressant effects in animals.

3,549,756

ANTITRICHOMONAL COMPOSITIONS CONTAINING 1-SUBSTITUTED - 2 - MORPHOLINYL OR THIAMORPHOLINYL-5-NITROIMIDAZOLES

Dale R. Hoff, Cranford, N.J., and David W. Henry, Menlo Park, Calif., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 565,333, June 17, 1966, which is a division of application Ser. No. 355,428, May 27, 1964, now Patent No. 3,299,090. This application Mar. 29, 1968, Ser. No. 717,364

Int. Cl. A61k *9/02*, *9/04*, *27/00*

U.S. Cl. 424—248 **2 Claims**

Antiparasitic compositions containing a 1-substituted-2-aminoalkyl - 5 - nitroimidazole or a 1-substituted -2-substituted-aminoalkyl-5-nitroimidazole.

3,549,757

USE OF 2-MORPHOLINO - 4 - AMINO-6-SUBSTITUTED-s-TRIAZINES FOR INDUCING DEPRESSANT EFFECTS IN ANIMALS

Jiro K. Kodama and James R. Albert, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of abandoned applications Ser. No. 498,099 and Ser. No. 498,118, both filed Oct. 19, 1965. This application Mar. 27, 1968, Ser. No. 716,292

Int. Cl. A61k *27/00*

U.S. Cl. 424—248 **12 Claims**

Use of 2-morpholino-4-amino-6-substituted-s-triazines for inducing depressant effects in animals.

3,549,758

5,6,7,8 - TETRAHYDRO - 2H - PYRIDO[2,3-e][1,3] OXAZINE - 2,4(3H)-DIONE AS A SEDATIVE, ANALGESIC AND ANTICONVULSANT

Franz Ostermayer, Riehen, and Ernest F. Renk and Rolf Denss, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Original application Aug. 24, 1967, Ser. No. 662,874, now Patent No. 3,489,753, dated Jan. 13, 1970. Divided and this application Feb. 14, 1969, Ser. No. 813,362

Int. Cl. A61k *27/00*

U.S. Cl. 424—248 **4 Claims**

5,6,7,8-tetrahydro-2H-pyrido[2,3 - e][1,3]oxazine - 2,4-(3H)-dione and its addition salts with inorganic or organic acids or base, which compounds have useful sedative, hypnotic and narcotic as well as narcosis potentiating activity, and also exhibit analgesic and antiphlogistic action as well as a muscle-relaxing and anticonvulsive effect, and processes for the production of these compounds; therapeutic compositions containing 5,6,7,8-tetrahydro - 2H - pyrido[2,3-e][1,3]oxazine-2,4(3H)-dione or a pharmaceutically acceptable addition salt thereof and methods of treatment, particularly methods of inducing sedative as well as analgesic effects, and of treating spastic conditions, in a host.

3,549,759

USE OF 2-(CHLORO OR TRICHLOROMETHYL)-4-AMINO-6-SUBSTITUTED - s - TRIAZINES FOR INDUCING DEPRESSANT EFFECTS IN ANIMALS

Jiro K. Kodama and James R. Albert, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of abandoned applications Ser. No. 498,116, and Ser. No. 498,118, Oct. 19, 1965. This application Mar. 27, 1968, Ser. No. 716,352

Int. Cl. A61k *27/00*

U.S. Cl. 424—249 **12 Claims**

Use of 2 - (chloro or trichloromethyl) - 4 - amino - 6-substituted-s-triazines for inducing depressant effects in animals.

3,549,760

USE OF 2,4 - DIAMINO - 6 - SUBSTITUTED - s - TRIAZINES FOR INDUCING DEPRESSANT EFFECTS IN ANIMALS

James R. Albert and Jiro K. Kodama, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 498,116, Oct. 19, 1965. This application Apr. 17, 1968, Ser. No. 721,925

Int. Cl. A61k *27/00*

U.S. Cl. 424—249 **10 Claims**

Use of 2,4-diamino-6-substituted-s-triazines for inducing depressant effects in animals.

3,549,761

METHOD OF TREATING MALARIA WITH A LOWERALKYL 4-HYDROXY - 6,7 - DISUBSTITUTED QUINOLINE-3-CARBOXYLATES

Robert L. Clark, Woodbridge, and Michael H. Fisher, Bridgewater Township, Somerville, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 706,668, Feb. 19, 1968. This application Dec. 9, 1968, Ser. No. 782,453

Int. Cl. A61k *27/00*

U.S. Cl. 424—258 6 Claims

Antimalarial compositions containing loweralkyl 4-hydroxy-6,7-disubstituted quinoline-3-carboxylates as an active ingredient, and methods for combatting malaria with such compositions.

3,549,762

USE OF 2,6-DICYANOTRICHLOROPYRIDINE AS AN INDUSTRIAL BIOCIDE

Russell M. Bimber, Painesville, Ohio, assignor to Diamond Shamrock Corporation, a corporation of Delaware

No Drawing. Filed Sept. 6, 1967, Ser. No. 665,743

Int. Cl. A01n *9/22*

U.S. Cl. 424—263 7 Claims

For industrial application, 2,6-dicyanotrichloropyridine exhibits outstanding activity as a biocidal agent for the killing and/or control of growth of microorganisms, such as fungi or bacteria on substrates such as plastics, leather, textiles or paint films. It may be incorporated in the material prior to shaping, e.g., in paint or plastics formulations, or it may be effectively applied on the surface of the substrate. Effective amounts of the compound range generally from 0.05% to 3%, preferably from 0.1% to 1%, by weight of the total formulation or by weight of the solution from which it is applied.

3,549,763

METHODS AND COMPOSITIONS FOR LOWERING BLOOD GLUCOSE LEVELS USING SUBSTITUTED PYRIDINIUM SALTS

Victor John Bauer, Montvale, N.J., Gretchen Ellen Wiegand, Pearl River, N.Y., and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company. Stamford, Conn., a corporation of Maine

No Drawing. Filed Aug. 27, 1968, Ser. No. 755,721

Int. Cl. A61k *27/00*

U.S. Cl. 424—263 10 Claims

Compositions containing furylpyridinium salts, thienylpyridinium salts and pyrrolylpyridinium salts are described. The use of these compositions as a means for the lowering of blood glucose levels in mammals is described.

3,549,764

N-[2-(2-AZA-ADAMANT-2-YL)-ETHYL]-GUANIDINE ANTIHYPERTENSIVE AGENTS

André Gagneux, Basel, Switzerland, assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Original application June 1, 1966, Ser. No. 554,327. Divided and this application Jan. 29, 1969, Ser. No. 796,644

Int. Cl. A61k *27/00*

U.S. Cl. 424—267 11 Claims

N-[2-(2-aza-adamant-2-yl)-ethyl]-guanidines are useful in methods and compositions for the treatment of hypertension. A typical embodiment is N-2[(2-aza-adamant-2-yl)-ethyl]-guanidine in the form of tablets or dragees for oral application.

3,549,765

1 - (SUBSTITUTED) - 5 - AMINOTETRAZOLES AND TREATMENT OF INFLAMMATION OF THE ANIMAL ORGANISM THEREWITH

Takashi Enkoji, Park Forest, and Charles D. Bossinger, Olympia Fields, Ill., assignors to Armour Pharmaceutical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Oct. 10, 1966, Ser. No. 585,251

Int. Cl. A61k *27/00*

U.S. Cl. 424—269 12 Claims

Methods and compositions for the therapeutic treatment of inflammation in an animal organism using 1-substituted-5-aminotetrazoles therewith and therein; and certain novel pharmacologically active 1-substituted-5-amino-tetrazoles.

3,549,766

REDUCING HYPERSENSITIVITY TO PENICILLINS WITH CERTAIN PHENOXYPROPANOLS

Frank Milan Berger and George Masaaki Fukui, Princeton, N.J., assignors to Carter-Wallace, Inc., New York, N.Y., a corporation of Maryland

No Drawing. Filed June 2, 1965, Ser. No. 460,829

Int. Cl. A61k *21/00*

U.S. Cl. 424—271 24 Claims

A method of eliminating or reducing hypersensitivity to penicillins in warm-blooded animals by administering, in conjunction with the penicillin, certain phenoxypropanols or phenoxypropanediols. Representative compounds include 1-o-toloxy-2-propanol, 3-p-chlorophenoxy-1,2-propanediol, 3-o-toloxyl - 1,2-propanediol, 3-p-chlorophenoxy-1-propanol, and 3-phenoxy-1,2 propanediol.

3,549,767

METHOD OF CONTROLLING INSECTS AND ACARINAE, EMPLOYING CERTAIN ACYLATED HYDRAZONES AND HYDRAZINES

Herbert Esser, Allschwil, and Kurt Gubler, Riehen, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed Dec. 14, 1967, Ser. No. 690,394

Claims priority, application Switzerland, Dec. 16, 1966, 18,097/66

Int. Cl. A01n *9/20*

U.S. Cl. 424—327 9 Claims

Method for controlling insects and acarinae, and new compositions for use therein which are characterized by a content of certain acylated hydrazones, hydrazines or amines derived from an aromatic or araliphatic benzaldehyde or from an araliphatic alcohol and having an aliphatic acyl moiety linked to a nitrogen atom of the hydrazono, hydrazino or amino bridge, which content is sufficient to kill the insects or acarinae, and can be held so low that a mortality rate of 100% is attained only after four days or an even longer period, because of an antifeeding effect exercised within about 24 hours on the insects or acarinae to be controlled.

3,549,768

ANTIFUNGAL AND ANTIBACTERIAL COMPOSITION AND METHOD CONTAINING CHLOROACETYLATED HYDROXYDIPHENYLS

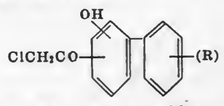
Jakob Bindler and Ernst Model, Riehen, near Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Application Jan. 20, 1966, Ser. No. 536,223, now Patent No. 3,293,124, which is a division of application Ser. No. 202,637, June 15, 1962, now Patent No. 3,251,733. Divided and this application Sept. 2, 1966, Ser. No. 581,135

Int. Cl. A01n *9/24;* A61k *27/00;* A61l *13/00*

U.S. Cl. 424—331 4 Claims

Compounds of the formula



wherein R is hydrogen or p-monochloroacetyl constitute the active ingredients of antimicrobic (antibacterial and antifungal) compositions which are applicable to substrates to be protected from bacteria and fungi.

3,549,769

HALOGENATED BICYCLOHEPTENONES

William E. Bissinger, Akron, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Original application Aug. 16, 1967, Ser. No. 660,908, which is a continuation-in-part of application Ser. No. 574,548, Aug. 24, 1966. Divided and this application May 16, 1969, Ser. No. 839,760

Int. Cl. A01n *9/24*

U.S. Cl. 424—331 7 Claims

The preparation of bicycloheptenones by the equimolar reaction of ketone or dihaloketene with cyclopentadiene is described. Halogenation of the bicycloheptenones thus produced yields biocidally active materials. Particularly described are the chlorinated products of the equimolar adduct of dichloroketene and cyclopentadiene.

3,549,770

THERAPEUTIC ADMINISTRATION OF EFFECTIVE AMOUNTS OF DIMETHYL SULFOXIDE TO HUMAN AND ANIMAL SUBJECTS

Robert J. Herschler, Camas, Wash., and Stanley W. Jacob, Oswego, Oreg., assignors, by mesne assignments, to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

No Drawing. Continuation-in-part of applications Ser. No. 329,238, Ser. No. 329,208, Ser. No. 329,205, Ser. No. 329,271, and Ser. No. 329,209, all filed Dec. 9, 1963; Ser. No. 346,366, and Ser. No. 417,781, Feb. 10, 1964; Ser. No. 417,788, and Ser. No. 417,797, Dec. 11, 1964. This application Nov. 28, 1967, Ser. No. 686,295

Int. Cl. A61k *27/00*

U.S. Cl. 424—337 37 Claims

Effective amounts of dimethyl sulfoxide, as an essential active agent or ingredient is administered to animals topically, by injection, by instillation into body orifices and orally for pharmacologic effects and to treat various disorders, namely, the relief of pain, the relief of tissue inflammation, the stimulation of tissue repair, the relief of the signs and symptoms of arthritis, the relief of the signs and symptoms of respiratory distress, the promotion of muscle relaxation, the relief of symptoms and promotion of healing of burns, the promotion of skin grafting, the relief of symptoms of vascular insufficiency and the relief of emotional overactivity and mental depression. Compositions and dosage forms for dimethyl sulfoxide administration are described including lotions, ointments, paints, suppositories, sprays and injectable solutions.

3,549,771

RETARDING THE GROWTH OF MICROORGANISMS WITH DIMETHYL SULFOXIDE

Robert J. Herschler, Camas, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

No Drawing. Continuation-in-part of application Ser. No. 346,366, Feb. 10, 1964. This application Apr. 29, 1969, Ser. No. 820,279

Int. Cl. A61l *13/00*

U.S. Cl. 424—337 20 Claims

A method for retarding the growth of microorganisms encountered in various industrial applications or in vitro by contacting such microorganisms with an effective amount of dimethyl sulfoxide. Also, a method for rendering resistant microorganisms susceptible to conventional growth-retarding agents by contacting the microorganism with an effective amount of dimethyl sulfoxide and said growth-retarding agent.

3,549,772

METHODS FOR LOWERING SERUM CHOLESTEROL IN MAMMALS USING CYCLOHEXYLIDENEBIS(ALKYLPHENOL) COMPOUNDS

James W. Barnhart, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed July 26, 1967, Ser. No. 656,044

Int. Cl. A61k *27/00*

U.S. Cl. 424—346 4 Claims

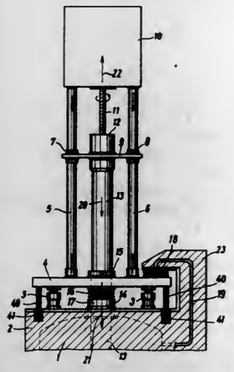
Methods useful for lowering serum chloresterol in mammals comprising administration to the animal of a hypocholesteremic amount of a cyclohexylidenebis(alkylphenol) compounds, and compositions to be employed in practicing the method.

ELECTRICAL

3,549,773
VACUUM FURNACE WITH WEIGHT FEED MECHANISM

Helmut Scheidig, Rossdorf, Alfred M. Hauff and Uwe Adolf Reimpell, Bruchkobel, Germany, assignors to Leybold Heraeus-Verwaltung G.m.b.H., Bonnerstrasse, Cologne-Bayental, Germany

Filed July 16, 1969, Ser. No. 842,280
Claims priority, application Germany, Sept. 10, 1968, 1,758,971
Int. Cl. F27d *11/10*
U.S. Cl. 13—31 4 Claims

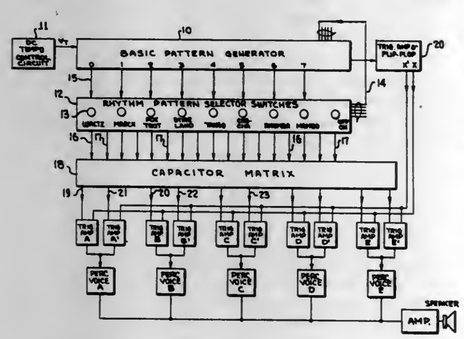


A vacuum furnace for melting block-shaped charges, under seal having a feed mechanism longitudinally movable in the furnace and a mechanism for continuously weighing with high precision the melting block.

3,549,774
RHYTHMIC ACCOMPANIMENT SYSTEM EMPLOYING AN ASYNCHRONOUS CHAIN OF DELAY CIRCUITS

David A. Bunger, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio

Filed Feb. 12, 1969, Ser. No. 798,590
Int. Cl. G10h *1/00*
U.S. Cl. 84—1.03 35 Claims

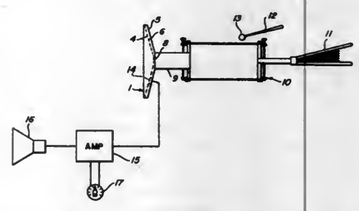


A rhythmic accompaniment system for a musical instrument, including a chain of cascaded monostable stages, which may be open ended or a closed ring, in which the delay per stage is adjustable in response to a control, which may be a control voltage, or insertion of a timing resistance, separably for each stage to modify tone pattern and simultaneously in the same sense and ratio for all stages to modify tempo. A matrix connects the stages selectively to tone signal sources, enabling generation of repetitive multitone patterns, the characters and/or the durations of which may be modified by suitably modifying the controls applied to the stages and suitably selecting interconnections by means of the matrix. Two control pulses may be inserted at a time, at different positions of the chain, and these may be derived internally or applied externally. A flip-flop circuit may be used to modify the connections of the matrix to the tone sources, for alternate measures. A more complex counter than a flip-flop may provide modification more infrequently than in alternate measures, say per three measures. The repetition may be partial by feeding back pulses from an intermediate point of the chain to the beginning, or from its end to a midpoint, i.e. there may be a chain within a chain, or a ring within a ring. Initiating a cycle of events in response to pedal actuation of an electronic organ, and utilizing an open chain, provides a semiautomatic system.

3,549,775
MUSICAL INSTRUMENT EMPLOYING ELECTRONIC REGENERATIVE APPARATUS

Abraham R. Kaminsky, 4604 North 74th St., Scottsdale, Ariz. 85251

Filed Apr. 10, 1969, Ser. No. 815,091
Int. Cl. G10h *3/00*
U.S. Cl. 84—1.05 5 Claims



A percussion instrument is provided which is capable of issuing rhythm pulses containing fundamental and harmonic frequency components directly related to the content of music intercepted by a concentrator. The concentrator is provided with a plurality of tuned strings which vibrate in sympathy with the ambient music. The vibrations from the strings are conditioned as necessary and mixed with the pulsations of a special drum to achieve and inherently more musical rhythm.

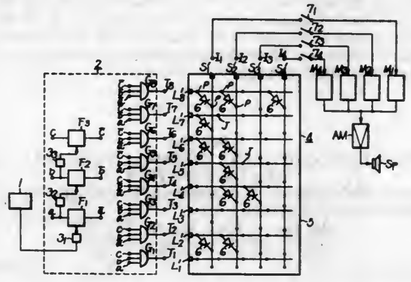
3,549,776
AUTOMATIC RHYTHM PLAYER EMPLOYING PHOTOELECTRIC AND ELECTROMAGNETIC MATRIX ELEMENTS

Takeo Shiga, Michio Okamoto, and Kiyohiko Mitsuhashi, Kawasaki-shi, Japan, assignors to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.), Tokyo, Japan, a corporation of Japan

Filed July 19, 1967, Ser. No. 654,395
Claims priority, application Japan, July 23, 1966, 41/48,204, 41/48,205, Aug. 6, 1966, 41/51,550, Feb. 2, 1967, (utility model), 42/9,111
Int. Cl. G10f *1/08*; G10h *5/02*
U.S. Cl. 84—1.03 23 Claims

An automatic rhythm player comprising a pulse oscillator generating pulses of a period corresponding to the time duration of the shortest note in a rhythm, a pulse developing circuit supplied with the output pulses of the oscillator and producing pulses sequentially phase-shifted by a time of the shortest note a rhythm-producing circuit for producing pulses corresponding to a desired rhythm, sound source circuit supplied with the pulses from the producing circuit and a

speaker for announcing the rhythm. Various means including photoelectric and electromagnetic means for providing the

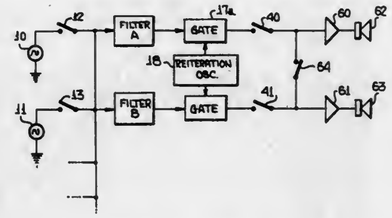


coupling between the rhythm-producing circuit and the sound source circuit are disclosed. Means for accentuating the rhythm is also incorporated.

3,549,777
ELECTRONIC MUSICAL INSTRUMENT SYSTEM FOR SOUNDING VOICES REITERATIVELY IN ALTERNATION

David A. Bunger, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio

Filed Aug. 31, 1967, Ser. No. 664,745
Int. Cl. G10h *1/02, 5/00*
U.S. Cl. 84—1.03 12 Claims



System for sounding two organ voices and/or footages reiteratively in alternation. Several embodiments are provided as follows:

1. Tone is applied via a key switch to two tone color filters in parallel and outputs of the filters are applied in alternation to a loudspeaker or to separate loudspeakers.

2. Two footages are applied to distinct tone color filters and the outputs of these applied reiteratively in alternation to a loudspeaker or to separate loudspeakers.

3. Two footages of the same tone color are applied reiteratively in alternation to a loudspeaker or to separate loudspeakers.

4. Three or more tones are applied in sequence via different tone color filters to a loudspeaker.

5. Solo tones proceed via one tone filter so long as pedal notes are not called for. When pedal note is played solo tone proceeds via a different tone filter.

3,549,778
ELECTRONIC ORGAN WITH ALTERNATE REITERATION BY THREE-NOTE GROUPS

Walter Munch, Jr., Park Hills, Covington, Ky., assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio

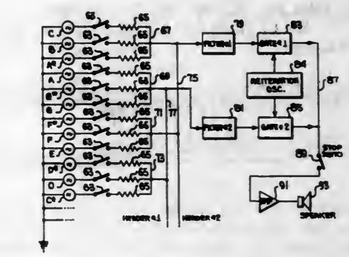
Filed Mar. 7, 1969, Ser. No. 805,217
Int. Cl. G10h *1/02, 5/00*
U.S. Cl. 84—1.03 17 Claims

System for sounding electronic organ tones reiteratively in alternation by groups of three adjacent notes. Several embodiments are provided as follows:

1. Tone signals from alternate three-note groups are collected in two common headers for separate filtering followed by alternate reiteration and conversion to sound.

2. Tone signals from alternate three-note groups are collected in two common headers for alternate reiteration, then filtering in common and conversion to sound.

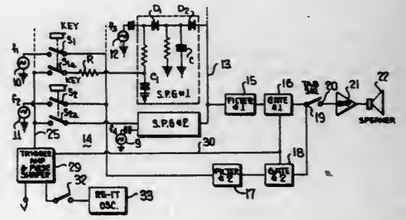
3. Tone signals from alternate three-note groups are separately filtered, then collected in two separate headers for alternate reiteration and conversion to sound.



3,549,779
PLURAL SHORT SUSTAIN PERCUSSION GATES AND COMMON GATE ARRANGEMENT FOR ELECTRONIC MUSICAL INSTRUMENTS

David A. Bunger, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio

Filed Jan. 3, 1969, Ser. No. 788,868
Int. Cl. G10h *1/02*
U.S. Cl. 84—1.26 12 Claims

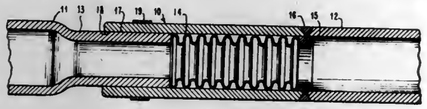


Tone sources are connected via individual percussive short sustain gates to the input of a common gate, which transfers a long sustained tone signal each time it is subject to a control impulse. Each key, when actuated, supplies tone signal to a percussive gate and a control impulse to the common gate. In addition, actuation of each key supplies tone signal to a fast-rise, fast-decay common gate, the output of which is paralleled to the output of the long sustain common gate, to provide the effect of plucking a string. The individual short sustain gates simulate a damped percussive sound when a note is depressed and released immediately, and in that case the long sustain common gate will not affect the sound, although that gate will go through a cycle of operations. The fast-rise, fast-decay common gate will affect the sound regardless of whether a note is depressed and released or depressed and held down. If the key is depressed and held down, the individual short sustain gate will remain on, but the common gate will modify the signal to provide a long sustain note. The various percussive voices can be reiterated by applying reiteration pulses to the common gates.

3,549,780
CONTRACTION JOINT

Peter Graneau, Concord, and Sayfollah Bijan Afshartous, Jamica Plain, Mass., assignors to Simplex Wire and Cable Company, Cambridge, Mass., a corporation of Massachusetts

Filed Jan. 15, 1969, Ser. No. 791,384
Int. Cl. H02g 15/24; F16l 27/12
U.S. Cl. 174—21 4 Claims

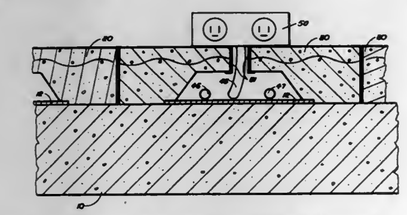


A contraction joint for tubular electric conductors employed in a high voltage transmission cable typically cooled by internal passage of refrigerant, such as liquid nitrogen, and insulated by a high vacuum.

3,549,781
UNDER-FLOOR ELECTRICAL CONSTRUCTION FOR A BUILDING

Les G. Jones, 3460 West 7th St., Apt. 1012, Los Angeles, Calif. 90005

Filed Sept. 11, 1963, Ser. No. 759,084
Int. Cl. E04c 1/39
U.S. Cl. 174—49 4 Claims

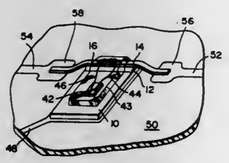


Electrical floor ducts are provided for a building by laying parallel rows of rectangular blocks on a subfloor, with the blocks having channels formed in their undersides. Selected ones of the blocks have a cross-shaped channel formed in their undersides, so that a cable may be turned at a right angle under that particular block, or may be electrically connected to another cable which runs at a right angle to it. A reinforced concrete block construction is shown. The junction block is provided with a central access opening for pulling the cables. After the blocks are installed over the subfloor an electrical connection is made from any cable to a device located above the working floor surface, by cutting an access hole in a selected block, from its upper surface to the channel on its underside.

3,549,782
SUBASSEMBLY PACKAGE

Harry C. Reifel, Topsfield, Mass., assignor to Unitrode Corporation, Watertown, Mass., a corporation of Maryland

Filed Apr. 11, 1968, Ser. No. 720,738
Int. Cl. H05k 5/06
U.S. Cl. 174—52 6 Claims

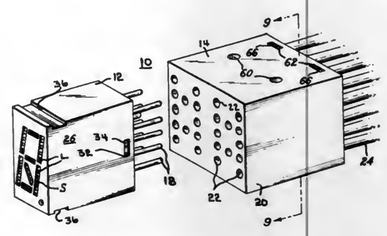


A subassembly for mounting a semiconductor device and which provides an efficient mechanical, electrical and thermal package therefor especially suitable for connection to etched or film circuits. The package includes an electrically conductive base member having one or more insulative pedestals formed thereon, to which flexible conductive leads are attached. A semiconductor device mounted on the base member and connected to the leads can be easily manipulated for purposes of testing and subsequent insertion in a circuit or another package.

3,549,783
MODULAR COMPONENT ASSEMBLY FACILITATING HEAT DISSIPATION

Joseph John Bendrick, Hummelstown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 6, 1968, Ser. No. 781,787
Int. Cl. H05k 7/10; H01r 13/46
U.S. Cl. 174—59 3 Claims

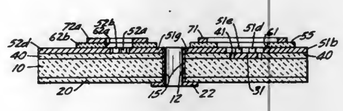


An assembly of modules and connectors is taught which features a construction enabling miniaturization and facilitating assembly and disassembly for field replacement of parts. A display module including segments capable of being selectively illuminated by incandescent lamps is housed in a block of thermally conductive, but electrically insulating, material made of plastic loaded with conductive particles. The incandescent lamps are held on a printed circuit board by a panel which can be snapped into the rear of the module and replaced if necessary. Connector blocks capable of accommodating a number of display modules are provided which include contact receptacles crimped to lead wires and fitted within such block to receive pins from the display module connected to lamps through the printed circuit board. The contact receptacles are held in apertures in the connector block by a plate snapped into the rear of the block.

3,549,784
CERAMIC-METALLIC COMPOSITE SUBSTRATE

Billy M. Hargis, Cleveland, Tenn., assignor to American Lava Corporation, Chattanooga, Tenn., a corporation of Tennessee

Filed Feb. 1, 1968, Ser. No. 702,421
Int. Cl. H05k 1/02, 3/22
U.S. Cl. 174—68.5 2 Claims



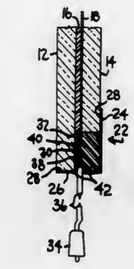
Thin multilayer ceramic substrates are formed by screening layers of metallic conductive patterns, e.g., of tungsten, molybdenum or manganese, and ceramic insulative layers, e.g., alumina, on fired or unfired ceramic bases. After all the layers have been deposited the substrates are fired to unify the ceramic. Interconnections are provided between layers of conductors by screening insulative layers with small openings over conductors in the layer below. The superposed conductive layers fill the openings and connect to the lower layers without possibility of running over and shorting to adjacent

conductors. When unfired bases are used for applying the several layers, shrinkages and warping which may occur from differences in behavior of metallic ink and ceramic are overcome by applying a balancing layer of the same metallic ink on the other side of the base so that the balancing layer has the same general area and thickness as the patterns of electrical conductors. The balancing layer may be electrically isolated. The multilayer substrates provide buried crossovers and conductors and mounting positions for various electronic circuit chips etc. in small volume.

3,549,785
LAMINATED STRUCTURE

Albert J. Timko, Jr. and Paul E. Shaffer, Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 3, 1968, Ser. No. 726,337
Int. Cl. H01q 1/32; H05k 1/00
U.S. Cl. 174—68.5 8 Claims

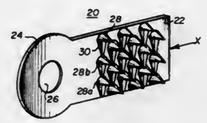


A laminated glass-plastic windshield having a notched portion along the margin of one of its glass sheets and antenna wire embedded within the windshield connected to a lead-in wire in said notched portion. An angle member of moisture-impervious material encompasses the notched portion to form an enclosed chamber that is completely filled with a filler of moisture-resistant, electrically insulating material.

3,549,786
INSULATION PIERCING CONNECTOR

Lai Che Kuo, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey

Filed Apr. 4, 1969, Ser. No. 822,804
Int. Cl. H01r 9/08; H02g 15/08
U.S. Cl. 174—84 19 Claims

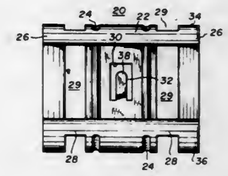


The invention is directed to the field of insulation piercing connectors wherein the conductor contact member is formed with a plurality of hardened teeth struck from the surface of such conductor contact member. The form of the teeth is such as to provide a point and from two to five cutting surfaces to cut through the insulation of the conductor in order to make a good electrical contact therewith and to make a good mechanical contact with both the insulation and the central conductor itself. The conductor contact member will have provided with it a number of coupling means for coupling the conductor to the conductor contact member or the conductor contact member itself may be fabricated in such a manner as to be mechanically deformed about a conductor to make the desired connection.

3,549,787
A CONNECTOR FOR COUPLING A GROUND CONDUCTOR TO THE SHIELD OF A SHIELDED CONDUCTOR

John J. Churla, Jr., Raritan, N.J., assignor to Thomas & Betts Corporation, a corporation of New Jersey

Filed Nov. 12, 1968, Ser. No. 774,788
Int. Cl. H01r 5/10, 11/08
U.S. Cl. 174—78 14 Claims

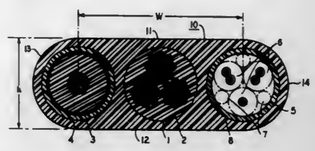


The disclosure is directed to a connector for coupling the sheath of a shielded cable to a ground point. In a first embodiment of the invention, the connector comprises a central portion having strengthening ribs thereon and two out-rigging members to provide strain relief to the insulating jacket of the conductor adjacent the central portion of the connector. The entire connector is generally C-shaped having a first curved portion with a smaller radius than the second curved portion so that the ends thereof are free to move in overlapping, wrapping relationship as the connector is coupled about the conductor. The central portion further includes an aperture, and a tab entering into said aperture, said tab being curved inwardly of the area generally defined by the C-shape, in such a manner that the bared portion of a grounding conductor can be inserted therein and trapped by the collapsing of the tab as the connector is attached to the conductor. The connector may be provided in noninsulated, or insulated, versions. A second form of the connector provides a grounding tab extending from an out-rigging member thereof which may be directly plugged into a grounding connector. A further version of the device provides the central portion of the connector with insulation piercing teeth for contact with the conductor sheath without the requirement for prestripping of the insulating outer jacket.

3,549,788
FLAT-PROFILE SUBMARINE COAXIAL CABLE WITH TORQUE BALANCE

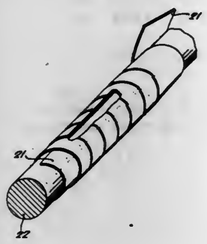
John R. Apen, Towson, and Andrew W. Lebert, Lutherville, Md., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J., a corporation of New York

Filed Jan. 13, 1969, Ser. No. 790,652
Int. Cl. H01b 7/14
U.S. Cl. 174—107 6 Claims



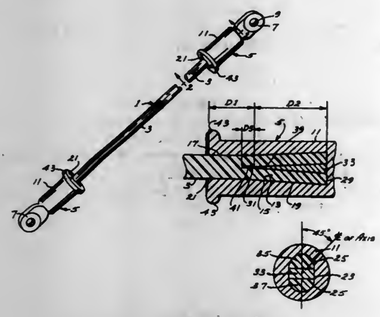
This disclosure describes a torque-balanced submarine cable structure that also resists externally applied twist. It is characterized by substantially flattened outer top and bottom walls and rounded sidewalls, with components arranged in planar fashion within. External twist present during laying is opposed at the cable sheave by forces acting through a moment arm associated with the flat aspect of the cable.

3,549,789
POLYAMIDE PAPER PRODUCT AND METHOD OF MAKING
Arthur H. Haroldson, Newark, Del., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Oct. 13, 1967, Ser. No. 675,119
Int. Cl. H01b 7/00, 13/08
U.S. Cl. 174—122 34 Claims



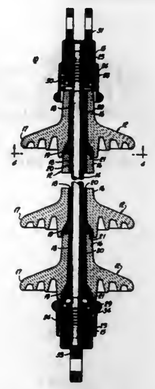
A paper web composed of fibers and fibrids of a high temperature resistant aromatic polyamide is impregnated with a solvating liquid which solvates and swells the surfaces of the fibers and fibrids without destroying them and the solvating liquid is thereafter evaporated, providing improved electrical and mechanical properties in the paper web. A plurality of such paper webs, impregnated with the solvating liquid is superposed in laminar relation and the solvating liquid is evaporated from the plies while in said superposed relation to provide an improved laminate.

3,549,790
STRAIN INSULATOR
Karl F. Reed II, Birmingham, Ala., assignor to Anderson Electric Corporation, Leeds, Ala., a corporation of Alabama
Filed Mar. 27, 1969, Ser. No. 810,952
Int. Cl. H01b 17/02, 17/38
U.S. Cl. 174—177 6 Claims



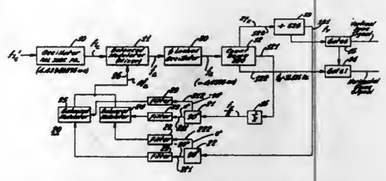
An insulator wherein the rod has a kerf in the end and the attachment member has a socket portion, part cylindrical and part tapered, for receiving the rod. The tapered portion has a cross section having two straight parallel sides connected to one another by two semicircular end portions. The radius of each semicircle substantially corresponds to that of the end portion of the rod and the length of each of the straight sides substantially corresponds to the thickness at that point of a wedge to be positioned therein. A wedge is engaged in the kerf so as to be in contact with the straight sides and separating and flaring out the portions of the rod on opposite sides of the kerf substantially completely engaging the surface of the tapered portion of the cavity.

3,549,791
PROTECTED ROD INSULATOR WITH SOFT ELASTOMER FILLER
Edward H. Yonkers, Glencoe, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois
Filed May 29, 1968, Ser. No. 733,130
Int. Cl. H01b 17/02
U.S. Cl. 174—179 3 Claims



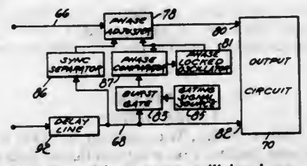
There is provided a suspension insulator for power transmission application including a central tension rod of nonconducting material such as of glass fibers. End fittings are secured to the respective ends of the tension rod. A number of insulator members are strung in axial relation on the tension rod. The insulator members each include a sheath spaced from the rod. The space between the rod and the sheaths is filled with soft-elastomer filler and the filler is spring loaded by suitable compression means to maintain void-free interface between the elastomer filler and the rod, and between the elastomer filler and the insulator members.

3,549,792
FREQUENCY CONVERTER PARTICULARLY PAL SYNC GENERATOR
Ralph R. Barclay, Camarillo, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Mar. 28, 1968, Ser. No. 716,810
Int. Cl. H04n 5/38; H04l 7/00
U.S. Cl. 178—5.4 17 Claims



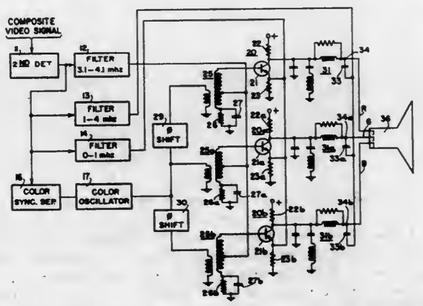
A high frequency signal such as the PAL color subcarrier is modulated and the waves of the resulting sideband are used as counting pulses to count-down to the desired lower frequency to obtain, for example, vertical and horizontal sync signals. At least one wave train developed in the count-down process is used to generate, possibly by additional modulation, the modulator signal for the HF signal. The result is a fixed nonintegral proportionality between HF and LF output. Particular configurations for the counter and linking circuitry between counter and modulation circuits is disclosed.

3,549,793
TELEVISION TRANSMITTING SYSTEM UTILIZING IMPROVIED MEANS FOR ESTABLISHING PREDETERMINED PHASE RELATIONSHIPS BETWEEN VARIOUS SIGNALS WITHIN THE SYSTEM
John D. Ross, Dollard des Ormeaux, Quebec, Canada, assignor to Central Dynamics, Ltd., Montreal, Quebec, Canada, a body corporate and Politic
Filed Apr. 26, 1968, Ser. No. 724,393
Int. Cl. H04n 5/44
U.S. Cl. 178—5.4 9 Claims



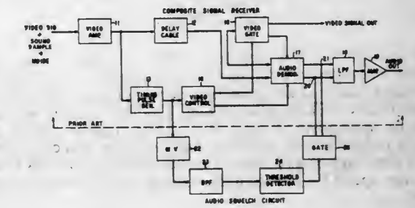
Disclosed is a television system utilizing improved means for establishing predetermined phase relationships between the color burst signals and/or synchronizing signals of two composite or noncomposite color signals. Typically, these two signals occur at the input of an additive mixer or special effects circuit where the phases of the color burst signals must be essentially equal. The additive mixer or special effects circuit is usually connected to two output lines of a switching matrix. In a first embodiment of the invention, phase adjustment can be made at all inputs to the switching matrix whereby the phase adjustment is effectuated on all output lines of the matrix including the two which are connected to the additive mixer, for example. In a second embodiment only two phase adjusters are respectively connected to the two additive mixer inputs. In this second embodiment, no phase adjustment occurs at the inputs to the switching matrix. In a third embodiment, which is a modification of the second embodiment, only one phase adjuster is employed and it is connected to one of the inputs of the additive mixer. The phase of the sync and/or color burst signals at this input is adjusted in relation to the phase of the corresponding signal at the other input to the mixer. A phase adjuster which rotates the phase of the color subcarrier signal of a picture signal is also disclosed, this phase adjuster dividing the picture signal into its chrominance and luminance components. The separated chrominance signal has its phase adjusted by different methods which are disclosed. The phase adjusted chrominance signal is then recombined with the separated luminance signal to form the desired composite color signal with phase adjusted color subcarrier.

3,549,794
DEMODULATOR CIRCUIT
William H. Slavik, Oak Lawn, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Feb. 12, 1969, Ser. No. 798,719
Int. Cl. H04n 9/50
U.S. Cl. 178—5.4 14 Claims



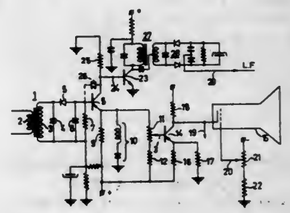
A demodulator for a composite color television signal includes a transistor, the base of which is supplied with the color subcarrier and reference oscillator signal components and the emitter of which is supplied with the low frequency brightness signal components to produce a signal at the collector which is a result of the color and the low frequency brightness components. This output signal then is combined with the remainder of the brightness signal components in order to produce a composite signal representing brightness, hue and saturation components of the television image.

3,549,795
AUDIO SQUELCH CIRCUIT FOR TIME DIVISION DIPLEXED TELEVISION
Frank J. Mullin, Freehold Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Dec. 16, 1968, Ser. No. 783,844
Int. Cl. H04n 5/21
U.S. Cl. 178—5.6 6 Claims



The horizontal sync pulses of a composite television signal in which the audio information is time division diplexed onto the video signal are applied to drive at the horizontal sweep rate an astable multivibrator that would, if allowed, run free at a significantly lower frequency. The output of the multivibrator, after passing through a bandpass filter tuned to a harmonic of the free running frequency, operates a gate to short the audio output. The audio output is therefore squelched whenever the horizontal sync pulses are degraded enough to allow the multivibrator to run free.

3,549,796
COMBINED VIDEO AND AUDIO AMPLIFIER WITH LOW INTERMODULATION LEVEL
Engelmundus Johannes Hoefgeest, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware, by mesne assignments
Filed July 6, 1967, Ser. No. 651,563
Claims priority, application Netherlands, July 6, 1966, 6609412
Int. Cl. H04n 5/62
U.S. Cl. 178—5.8 16 Claims

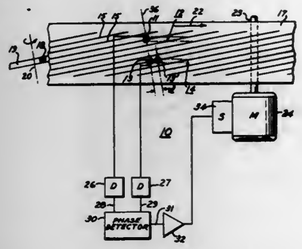


A transistor intercarrier amplifier functions as an emitter follower for the video signals and as a common emitter amplifier for the audio signals. To prevent intermodulation due to variations of the internal collector-base capacitance with signal level, an audio series trap is coupled to the emitter circuit, and either a resistor or a high turns ratio transformer is coupled to the collector circuit.

3,549,797
TRACK ALIGNMENT SYSTEM IN SLANT-TRACK VIDEO TAPE RECORDER

Bert H. Dann, Altadena, Calif., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Sept. 5, 1967, Ser. No. 665,435
Int. Cl. H04n 5/78; G11b 5/58, 15/52
U.S. Cl. 178—6.6 6 Claims

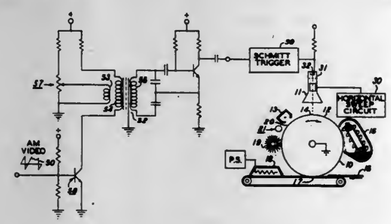


A slant-track video recorder includes equipment for correcting misalignments of recorded information in adjacent recording tracks. This correcting equipment includes a pair of stationary pickup heads which produce electric signals that are indicative of recorded synchronization signals at spaced regions of the recording tape. A phase detector compares these signals and drives a servosystem that adjusts relative tape speed for restoring the requisite signal record alignment.

3,549,798
CONTINUOUS TONE FACSIMILE RECORDER

James E. Young, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed July 19, 1967, Ser. No. 654,492
Int. Cl. H04n 1/30
U.S. Cl. 178—6.6 3 Claims



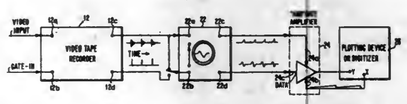
Facsimile recording apparatus for producing continuous tone images by depositing uniform size marks at varying intervals on a recording surface wherein received amplitude modulated (AM) signals are converted to frequency modulated (FM) signals, to establish spacing between the uniform marks, in a first embodiment by applying the AM signal to a variable inductor in a Colpitts oscillator and in a second embodiment by applying the AM signal to a light source to vary the resistance of a light sensitive resistor in a freerunning multivibrator.

3,549,799
TRANSIENT VIDEO SIGNAL RECORDING WITH EXPANDED PLAYBACK

Ronald C. Sander, Reed's Ferry, N.H., and Ronald J. Hruby, Campbell, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Apr. 1, 1968, Ser. No. 717,822
Int. Cl. H04n 1/28; G11b 27/36
U.S. Cl. 178—6.6 5 Claims

A transient video signal is recorded on a video recorder by triggering the recording circuits upon appearance of the transient and when the recorder is in the "stop-motion" mode. The recorded signal, or a selected portion thereof, is

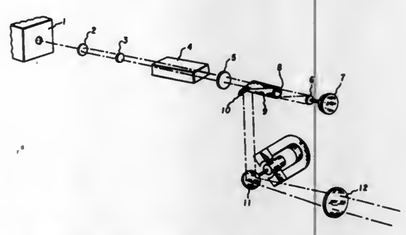


subsequently reproduced for display on a cathode ray tube and for reproduction on an expanded time scale for a plotting device and/or an analogue to digital converter.

3,549,800
LASER DISPLAY

Charles E. Baker, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Mar. 15, 1965, Ser. No. 439,857
Int. Cl. H04n 5/66, 5/74
U.S. Cl. 178—7.3 10 Claims

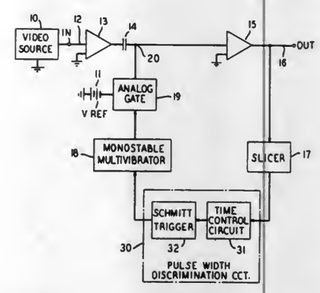


A laser display system is disclosed for displaying real time data by modulating a light beam from a laser source and projecting the modulated light beam upon a surface to form an image.

3,549,801
KEYED VIDEO CLAMPING CIRCUIT WITH A PULSE WIDTH DISCRIMINATOR TO MINIMIZE NOISE INTERFERENCE

Artice M. Davis, Laurence Harbor, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed May 7, 1968, Ser. No. 727,240
Int. Cl. H04n 3/16
U.S. Cl. 178—7.3 4 Claims

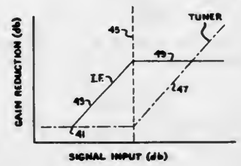


A keyed video clamping circuit is disclosed having pulse width discrimination circuitry to distinguish between a noise pulse and a synchronizing pulse so that the clamping operation will not be triggered at an improper interval. All pulses first activate a time control circuit, such as a linear ramp or an exponential RC circuit. When a pulse lasts longer than a predetermined decision period the voltage at the output of the time control circuit rises above a predetermined threshold level to trigger the clamping operation. Since most noise pulses have a short duration they will be eliminated during the decision period.

3,549,802
TRANSISTORIZED CONTROL AND AMPLIFIER CIRCUITRY FOR A TELEVISION RECEIVER

Karol Siwko and Joseph Edward Thomas, Batavia, N.Y., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed May 16, 1968, Ser. No. 729,767
Int. Cl. H04n 5/52
U.S. Cl. 178—7.3 9 Claims

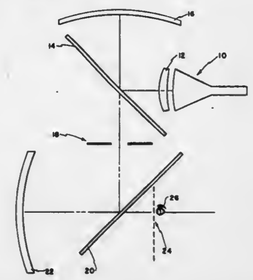


Solid state television receiver automatic gain control and amplifier circuitry providing reverse AGC bias of the IF stage and forward AGC bias of the RF tuner-amplifier including a low pass filter network in the IF stage providing control of the AC to DC gain of the IF stage and further providing a component of AC coupling from the AGC stage to the IF stage when the direct current component of the AGC supplied to the IF stage is fixed.

3,549,803
VIRTUAL IMAGE SYSTEM FOR TRAINING SIMULATOR

Cletus A. Becht, Robert M. Emerick, Akron, and James A. Horton, James E. Mount, Cuyahoga Falls, and Roberic H. O'Connor, Akron, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio, a corporation of Delaware

Filed Dec. 6, 1967, Ser. No. 688,444
Int. Cl. H01j 29/89
U.S. Cl. 178—7.88 2 Claims



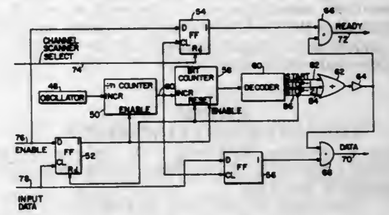
This invention relates to a reflective type of virtual image display for simulators and trainers which is achieved by using large diameter, lightweight mirrors arranged in conjunction with any input display image to achieve a virtual image.

3,549,804
BIT SAMPLING IN ASYNCHRONOUS BUFFERS

Lawrence E. Greenspan, Thorntons Ferry, and Earl J. Whitaker, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware

Filed Feb. 10, 1969, Ser. No. 797,830
Int. Cl. H04l 7/00
U.S. Cl. 178—69.5 13 Claims

In an asynchronous serial by bit transmission of characters, as in teletype operation, no clock signal is transmitted with the data and a receiving device must supply its own timing. A clock signal is generated by means of an oscillator and counter arrangement. The oscillator is set to a frequency which is a multiple of n times the incoming data bit rate. The

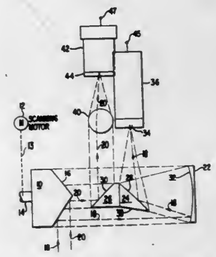


counter connected to the output of the oscillator then divides the oscillator frequency by n to provide a sampling pulse occurring at the midpoint of the received data bit, such that the maximum deviation of the sampling pulse from this midpoint is $1/n$th of the data bit interval.

3,549,805
OPTICAL SCANNING SYSTEM WITH MULTIPLE CHANNEL OUTPUT

John B. Cannon, Jr., State College, Pa., assignor to HRB-Singer, Inc., State College, Pa., a corporation of Delaware

Filed Oct. 26, 1967, Ser. No. 678,308
Int. Cl. H04n 3/08
U.S. Cl. 178—7.1 10 Claims

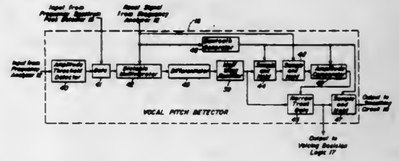


The present invention utilizes at least two optical systems having reflective surfaces arranged in a back-to-back configuration in combination with a common scanner such that one optical system utilizes rays from the central portion of the scanner while the second optical system utilizes rays from the peripheral portion of the scanner in aerial reconnaissance operations.

3,549,806
FUNDAMENTAL PITCH FREQUENCY SIGNAL EXTRACTION SYSTEM FOR COMPLEX SIGNALS

David E. Wood, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

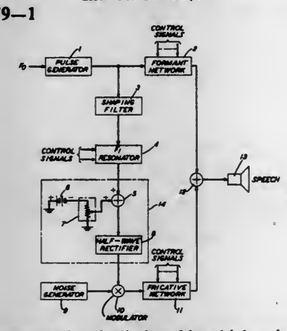
Filed May 5, 1967, Ser. No. 636,390
Int. Cl. G10l 1/04
U.S. Cl. 179—1 14 Claims



A system for extracting the fundamental pitch frequency from a full-wave rectified complex voice frequency signal in

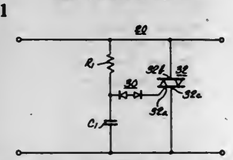
real-time by separating the signal into a spectral band of its constituent sinusoidal frequencies and repetitively scanning the spectral band starting from the low frequency end to detect the frequency of the first-occurring peak of relatively large amplitude in each scan of the spectral band. Consistent detection of the same frequency for this peak in each of the scans establishes the fundamental pitch frequency signal, allowing generation of a signal of amplitude corresponding to the fundamental pitch frequency.

3,549,807
VOICED FRICATIVE SYNTHESIZER
Lawrence R. Rabiner, Rockaway, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Sept. 18, 1967, Ser. No. 668,560
Int. Cl. G10l *1/10*
U.S. Cl. 179—1 **5 Claims**



A speech synthesizer is disclosed in which voiced fricatives are synthesized from a voiced component and an unvoiced component, the unvoiced component being generated only during those times the voiced component exceeds a selected amplitude.

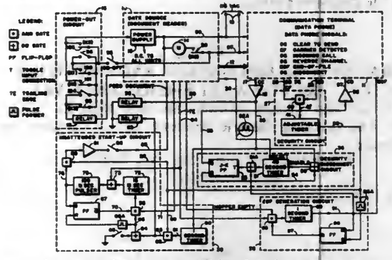
3,549,808
PROTECTIVE CIRCUIT FOR SPEAKER WINDINGS
Lester Smith, Flushing, N.Y., assignor to Marantz Company, Inc., Woodside, N.Y., a corporation of New York
Filed Oct. 9, 1967, Ser. No. 673,543
Int. Cl. H04r *3/00*
U.S. Cl. 179—1 **4 Claims**



A circuit for protecting a loudspeaker from the imposition of a direct voltage supply across its windings in which there is provided a controlling device which is unresponsive to the normal alternating currents flowing to said loudspeaker but which is responsive in the event of failure of the final amplifier stage, with the consequent imposition of the direct voltage supply, to prevent excessive current flow to the speaker windings.

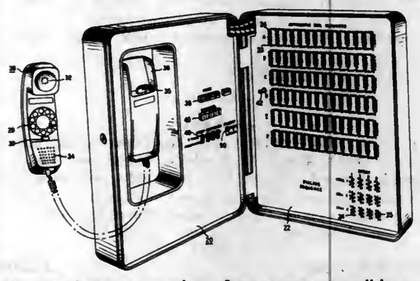
3,549,809
UNATTENDED DATA TRANSMISSION
Wolfgang G. Stehr, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Apr. 29, 1968, Ser. No. 724,813
Int. Cl. H04m *11/06*
U.S. Cl. 179—2 **12 Claims**

A data source is selectively connected through a data phone to a telephone communication network. Interface means selectively responsive to signals generated by the data phone initiate operation of the data source, such as starting the motor in a document reader and initiating data transmission after checking communication channel security. If after a predetermined time certain signals have not been continuously received, the data source is disconnected from the communication network; power is not turned off. A power-



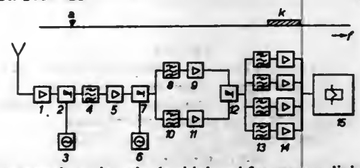
out circuit turns the power off in the data source upon the completion of transmission of data signals over the communication network.

3,549,810
TELEPHONE REPORTING SET
John J. Driscoll, Naperville, Ill., and Donald G. Hill, and Richard E. Waddell, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed Apr. 22, 1968, Ser. No. 723,067
Int. Cl. H04m *11/04, 1/45*
U.S. Cl. 179—5 **15 Claims**



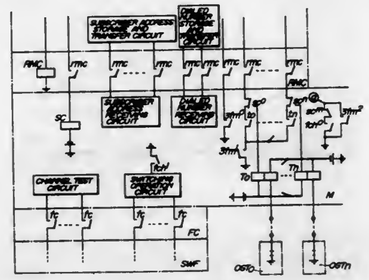
The telephone set monitors four separate conditions and reports the occurence of any one of these conditions by sequentially calling as many as three different stations from a repertory of six stations and transmitting a prerecorded message identifying its location and the occurrence of the particular condition. In addition, the reporting set indicates whether the condition continues to exist and provides the called station with the opportunity to initiate corrective action with respect to the condition. The user of the reporting set is able to control the number of calls made to the stations associated with each condition and the priority that one condition has over another. Furthermore, the reporting set may itself by called to check its operation or to check whether any of the conditions exist at the time of the call.

3,549,811
RADIO TRANSMISSION SYSTEM
Einar Borresen, Langmyrgrenda 28C, Oslo, Norway
Continuation of application Ser. No. 560,744, June 27, 1966. This application Oct. 7, 1969, Ser. No. 866,106
Int. Cl. H04j *1/00*
U.S. Cl. 179—15 **4 Claims**



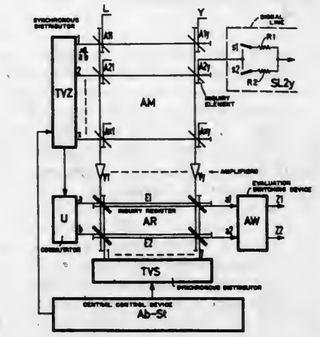
Suppressed carrier, single sideband frequency division multiplex system with auxiliary signalling and masking frequencies mixed with channel signals in transmission.

3,549,812
COMMON CONTROL SWITCHING SYSTEM WITH REGISTER SENDER PROVIDING REDUCED BLOCKING RATE BY TWO-STAGE SCAN OF MARKER
Takahiro Yui, Tokyo, Chikai Ii, Masanori Funakoshi, Hirotaka Usuda, Yokohoma, Makoto Hisamura, Kenagawa-ken, and Hidemasa Suzuki, Yokohama, Japan, assignors to Hitachi, Ltd., and Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan, a corporation of Japan
Filed Dec. 27, 1967, Ser. No. 693,888
Claims priority, application Japan, Dec. 28, 1966, 41/85,297
Int. Cl. H04q *3/48*
U.S. Cl. 179—18 **3 Claims**



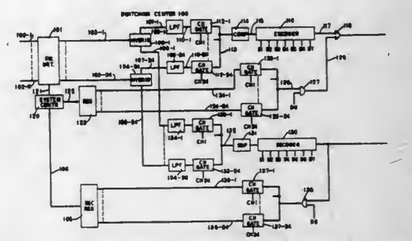
A channel-matching system for an automatic switching apparatus of the common control type having a marker and a combined register and sender in which the marker is actuated in two stages, that is, before and after the register sender receives all the digits of a dialed number. By the two-stage actuation of the marker, the high link-blocking rate inherent in the switching apparatus of the above kind can be reduced to a degree comparable with the link blocking rate in a switching apparatus in which a register and a sender are separately provided.

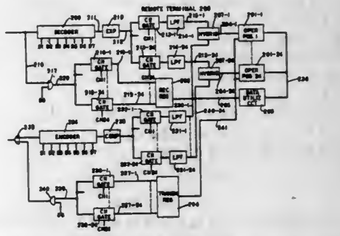
3,549,813
SYSTEM AND PROCESS FOR SUPERVISION OF SIGNAL LINES
Ulrich Tanke, Grafelfing, Dieter Voegtlen, Starnberg, and Fritz Brandt and Karl Bruninghaus, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed Mar. 30, 1967, Ser. No. 627,147
Claims priority, application Germany, Mar. 31, 1966, S 102,965
Int. Cl. H04q *3/42*
U.S. Cl. 179—18 **15 Claims**



A supervisory control system and process, wherein supervisory and evaluation circuits are employed to determine the states of a plurality of signal lines. Depending upon connections effected in a signal line, specific signals are present therein, and these signals are evaluated to determine the state of the signal line. Inquiry elements are operatively associated with the signal lines and are selectively connected to the supervisory and evaluation circuits to provide a scanning process for successive evaluation of the signal lines. Ferromagnetic or ferroelectric inquiry elements may be utilized, which are connectable to the signal lines and are responsive to the signals therein, to provide supervisory output signals that are evaluated to determine the state of the associated signal line.

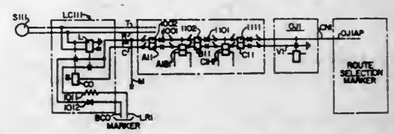
3,549,814
PULSE CODE MODULATION MULTIPLEX SIGNALING SYSTEM
Richard J. Jaeger, Jr., Colts Neck, and George Riddell, Lincroft, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed June 17, 1968, Ser. No. 737,540
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 **10 Claims**





A time division multiplex pulse code modulation system is disclosed in which each channel can simultaneously transmit a voice frequency message and one bit of a plural order binary word. All but one of the digit spaces of each channel are used to transmit the voice frequency message assigned to the channel. Each order of the binary word is associated with a different channel, and the last digit space of each channel is used to transmit the information bit for its order of the binary data word. In this manner, a conventional 24 channel system can simultaneously transmit 24 voice frequency signals and a 24 bit binary word.

3,549,815
MATRIX CONTROL SELECTION SYSTEM
Lucas Bruglemans, Antwerp, Belgium, assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Aug. 12, 1968, Ser. No. 751,865
Int. Cl. H04q *3/42*
U.S. Cl. 179—18 **4 Claims**



A communication switching network having tandem coordinate matrices with a unique path arrangement wherein the

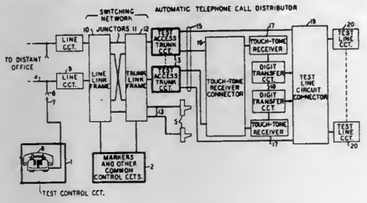
interstage links include a break contact in the link test and operate conductors. These contacts are controlled by relays responsive to the busy condition of the link to maintain this test conductor open circuited. This relay may also be operated from the marker to open those paths of the matrix not required for potential completion of a connection to a particular terminal. These relays from each of the link paths in a particular interstage group are multipled into groups to facilitate the opening of the paths during the testing operation.

3,549,816

CALL REROUTING EQUIPMENT

Ronald E. Fenstermaker, Reynoldsburgh, Ohio, and Richard M. Swanson, Holmdel, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed Aug. 8, 1968, Ser. No. 751,165
Int. Cl. H04m *3/22*; **H04q** *3/64*
U.S. Cl. 179—27 **13 Claims**



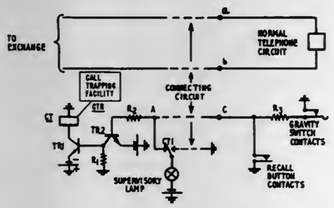
A system is disclosed for automatically distributing calls on incoming trunks through a switching network to operator positions under control of a marker. Equipment is furnished in the marker for enabling it to divert a test call from being automatically completed to a selected idle operator position and to switch it instead to a test access circuit. The diversion is initiated in response to a tone applied to the incoming trunk upon the call origination. It is detected by the marker for causing the release of a network path to a selected position and the establishment of a network path from the calling trunk to the test access circuit.

3,549,817

TELEPHONE SWITCHBOARDS WITH SIGNAL-PRODUCING MEANS

Clifford Jack Peady, Hurstville, New South Wales, Australia, assignor to Telephone Manufacturing Co. (Australasia) Proprietary Limited, Erskineville, New South Wales, Australia, a corporation of New South Wales, Australia

Filed Apr. 3, 1968, Ser. No. 718,398
Claims priority, application Australia, June 8, 1967, 22,907/67
Int. Cl. H04m *5/04*
U.S. Cl. 179—42 **4 Claims**



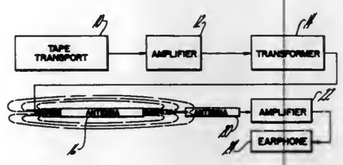
A telephone switchboard of the kind including a third connecting circuit between each extension telephone and the switchboard, the third circuit including a gravity switch, recall button and a supervisory lamp together with a relay controlling a call-trapping facility wherein the necessity for the provision of an additional relay in the normal telephone circuit is avoided by providing an arrangement such that operation of the gravity switch produces a signal different from the signal produced by the operation of the recall button.

3,549,818

TRANSMITTING ANTENNA FOR AUDIO INDUCTION COMMUNICATION SYSTEM

Justin L. Turner, Branford, Conn., assignor to Message Systems, Inc., New Haven, Conn., a corporation of Connecticut

Continuation-in-part of application Ser. No. 660,774, Aug. 15, 1967, now abandoned. This application Apr. 8, 1968, Ser. No. 719,605
Int. Cl. H01q *7/06, 1/40*; **H04g** *5/00*
U.S. Cl. 179—82 **15 Claims**



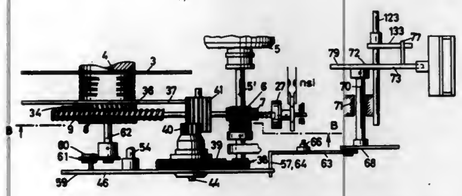
A transmitting antenna in an audio induction communication system consists of a core of silicon grain oriented steel made of laminations bonded to one another, a shrink fitted plastic insulating sleeve, and a coil of magnet wire wound on the sleeve, all of which are received in a nonmagnetic plastic shell filled with cured silicon rubber as a potting agent.

3,549,819

CONTROL DEVICE FOR OPERATING AN AUTOMATIC CURRENT-PULSE EMITTER FOR TELEPHONY OR LIKE INSTALLATIONS

August Gaisser, Ehingerstrasse, Aach, Hegau, Anton Schaumann, Reuteberg, and Willi Weber, Boerisriedstrasse Volkertshausen, Germany

Filed Oct. 28, 1968, Ser. No. 771,048
Int. Cl. H04m *1/45*
U.S. Cl. 179—90 **19 Claims**



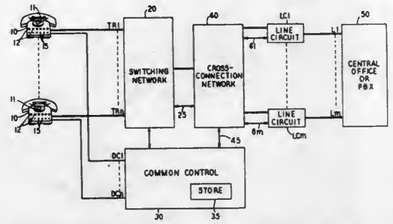
An apparatus for controlling an automatic pulse transmitter for telephony, telewriter, or similar installations with address number selection wherein the address store is represented by a plurality of selector discs rotatable by a power accumulator on which the individual addresses are represented by selector cams which through the intermediary of selector bars individually control, during one revolution, a current pulse generator. A selector key is associated with each selector bar so that it is moved from a resting position into an operating position before the initiation of a selection event and therein held during rotation by a locking bar and thereby starts the power drive which after completion of the selection event is automatically stopped after which the selector bar is returned to its starting position. A first gear train is provided for driving the selector discs at normal operating speed, a second gear train with a lower total transmission ratio is provided for driving the selector disc at a higher speed and which is connectable in circuit by means of a clutch coupling activated by a reset key whereby the reset key simultaneously with the engagement of the clutch interrupts emission of the current pulse trains.

3,549,820

KEY TELEPHONE STATION CONCENTRATOR

Dieter J. H. Knollman, Sea Bright, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed May 2, 1968, Ser. No. 726,062
Int. Cl. H04m *1/00*
U.S. Cl. 179—99 **18 Claims**



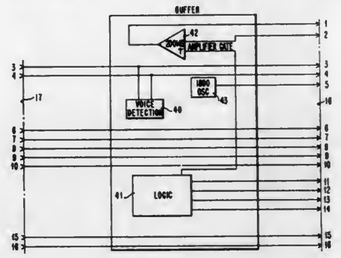
An electronic station concentrator compatible with present key telephone systems reduces the number of leads to each key telephone station set to a total of eight leads regardless of the number of keys at the station set. Lamp, ringing and A-lead signals, as well as all feature signals, are multiplexed on a duplex time division control channel. Each station set includes a shift register for receiving, storing and sending the signals over the control channel to the concentrator.

3,549,821

TONE ACTUATED DICTATION SYSTEMS WITH VOICE BUFFER

Matthew P. Langendorf and Charles L. Ridings, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 17, 1968, Ser. No. 737,642
Int. Cl. G11b *21/12*; **H04m** *1/64*
U.S. Cl. 179—100.1 **3 Claims**



The invention concerns dictation systems having facilities for selectively connecting remote stations to a central recording unit, and recognizing control tones generated at a connected remote station to effect all operations required including recording and playback of audio (voice) signals. The systems include, in several versions, circuits responsive to presence or absence of voice signals to start and stop the recording unit (respectively), an intermediate voice buffer to prevent loss of voice signals during startup time and features circuitry to insure that control tones are recognized properly, but not recorded on the media in the central recording unit.

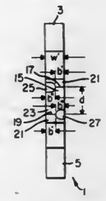
3,549,822

MAGNETIC HEAD TRANSDUCER HAVING A PAIR OF SEPARATE SPACED NONMAGNETIC GAPS

Joseph Chuplty, Mountain View, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed Dec. 7, 1967, Ser. No. 688,744
Int. Cl. G11b *5/22, 5/28*
U.S. Cl. 179—100.2 **14 Claims**

A magnetic transducer for a magnetic recorder/reproducer, the transducer having a pair of separate spaced nonmagnetic gaps for simultaneous and redundant processing of a signal to be recorded on or reproduced from dual tracks of a magnetic medium. The transducer carries an energizing coil



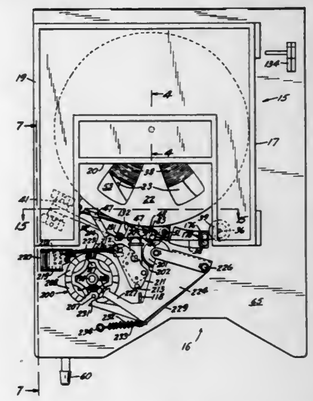
means such that during recording each gap is subjected to the common signal and during the reproduce mode summation of the sensed signals occurs at the head.

3,549,823

AUTOMATICALLY REVERSING TAPE TRANSPORT WITH COAXIAL REELS

Sheldon Lee Pastor, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn., a corporation of Delaware

Original application Sept. 23, 1965. Divided and this application Aug. 21, 1968, Ser. No. 798,206
Int. Cl. G11b *15/44, 21/12*
U.S. Cl. 179—100.2 **6 Claims**



A tape handling apparatus specifically designed for background music and having means for affording continuous uninterrupted play of the tape by affording an automatic reversing mechanism combined with movement of the magnetic head, a timing device permitting automatic interruption of music for predetermined intervals and mechanical means for fading out and in the recorded music at intervals of interruption.

3,549,824

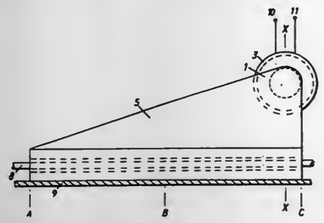
MAGNETIC RECORDING HEAD HAVING CONSTANT-WIDTH RECORDING GAP SUBJECTED TO DECAYING AMPLITUDE BIAS

Arthur Edward Brewster, Cheshunt, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed May 9, 1968, Ser. No. 727,965
Claims priority, application Great Britain, June 2, 1967, 25608/67
Int. Cl. G11b *5/22*
U.S. Cl. 179—100.2 **6 Claims**

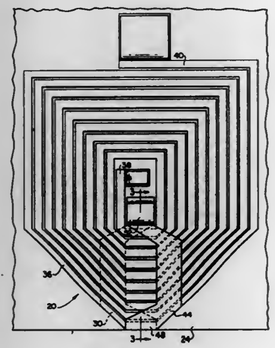
A magnetic recording head having a single magnetic recording gap extending across the width of a recording

medium. To record successively across the width of the medium, a repetitive, diminishing AC signal is applied to a magnetic coil mounted at one side of said medium and the resulting bias flux is applied to said medium via either said



gap or a separate biasing gap. In one embodiment the separate biasing gap is arranged beside the recording gap, in another it is opposite the recording gap and in a third, the recording medium itself passes through the biasing gap.

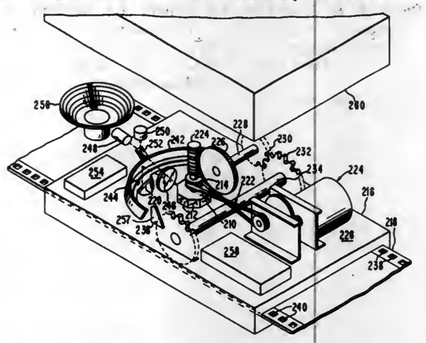
3,549,825
MAGNETIC TRANSDUCER WITH PLANAR SPIRAL COIL EXTENDING INTO THE GAP
Cebern B. Trimble, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Sept. 18, 1967, Ser. No. 668,528
Int. Cl. G11b *5/12, 5/42;* **G01d** *15/12*
U.S. Cl. 179—100.2 **7 Claims**



A planar magnetic transducer comprising a planar coil means, in the general shape of a spiral, with at least a portion of the coil means being sandwiched between the pole ends of two magnetic circuit plates. The method utilizes printed circuit techniques to batch-fabricate single and bifilar coil transducers which may be miniature in size.

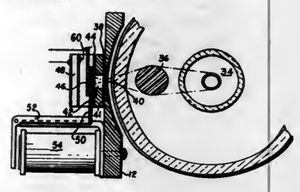
3,549,826
APPARATUS FOR READING INFORMATION IN THE FORM OF LIGHT REFLECTIVE AREAS ON A CARRIER
Iben Browning, Sunnyvale, Calif. (745 Distel Drive, Los Altos, Calif.) 94022
Filed Mar. 27, 1967, Ser. No. 626,325
Int. Cl. G11b *7/08, 21/04*
U.S. Cl. 179—100.3 **1 Claim**

Apparatus and a method for reading out information printed or otherwise carried on a surface in the form of areas having different light reflectivities with the areas extending across the surface in an orderly arrangement. The information is retrieved or read out by directing light continuously onto and across the surface in scanning relationship to the areas and the light reflected from these areas is directed to a photosensitive device coupled to means for converting an electronic signal to an observable form. The incident and reflected light paths can be substantially coincident and



means arranged progressively to attenuate the amplitude of the signal at the ends of successive rows of information areas.

3,549,827
DATA CONTROLLED VOICE UNIT
Frederick P. Willcox, 565 Oenoke Ridge, and Newland F. Smith, 140 Llewellyn Drive, New Canaan, Conn. 06840
Continuation-in-part of application Ser. No. 276,522, Apr. 29, 1963, now abandoned. This application July 25, 1967, Ser. No. 655,882
Int. Cl. G11b *7/08;* **H03k** *13/02*
U.S. Cl. 179—100.3 **9 Claims**

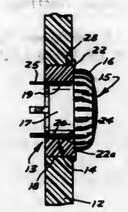


Compact apparatus controllable by binary coded electric signals for rapidly generating any desired succession of vocal or audio sounds from a repertory of recorded optical sound tracks. The individual sounds (words, phrases or the like) are recorded on individual peripheral tracks closely spaced along a transparent drum which is constantly rotating at the proper speed for sound reproduction, and these are illuminated by a single light source within the drum. An optical slit and light-tunnel unit extending closely along the outside of the drum conveys light modulated by any selected single track toward a photosensitive element beyond that unit. Selection of the individual tracks for reproduction is achieved by the setting of individual lengthy shutter blades having binary-coded apertures therein and arranged in a flat pileup in the light path. The shutter blades execute their small setting or selecting motions transverse to the slit direction, by virtue of their connection to the respective armatures of a set of conventional electromagnetic relays. Circuitry is provided to energize and deenergize the relay magnets selectively in accordance with the incoming successive binary-coded control signals or pulse groups, and at proper times during each drum rotation, for reproduction of the selected tracks in turn.

3,549,828
HEARING AID CONTROL MOUNTING
Daniel Lang, Edina, Minn., assignor to Goldentone Electronics, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Oct. 16, 1967, Ser. No. 675,573
Int. Cl. H04r *25/02*
U.S. Cl. 179—107 **2 Claims**

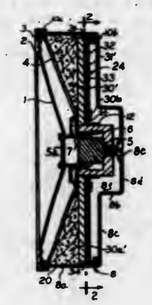
A control mounting assembly for an ear insert hearing aid is described which consists of a mounting ring element

receivable into the surface of the hearing aid having a switch receiving area defined therein wherein a portion of the mounting element will be provided with an upstanding pro-



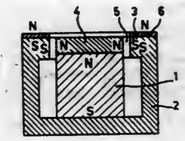
tective ring circumscribing the switch knob to prevent persons from accidentally pulling the control knob from the switch while still permitting normal operation of the switch.

3,549,829
ELECTRO-ACOUSTIC TRANSDUCER
Stephen L. Heidrich, 29 Richmond Drive, Darien, Conn. 06820
Filed Apr. 10, 1967, Ser. No. 629,623
Int. Cl. H04r *9/06*
U.S. Cl. 179—115.5 **13 Claims**



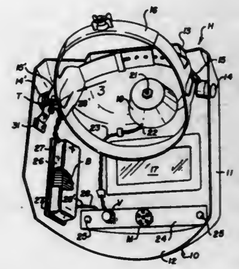
An electroacoustic high impedance transducer having radially oriented contiguous walls spaced and sealed by a circular spacing element forming thereby a precise narrow annular duct and a small annular cavity therebetween. Another cavity is responsively arranged rearward of an acoustic diaphragm and the annular duct is in fluid communication between the two cavities providing an acoustic resistance-compliance network producing optimum acoustic response comparable to the electrical input.

3,549,830
MAGNET CONFIGURATION FOR A LOUDSPEAKER
Wijtze Hofman, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corp., by mesne assignment
Filed Jan. 5, 1968, Ser. No. 696,052
Claims priority, application Netherlands, Jan. 7, 1967, 6700283
Int. Cl. H01f *7/02;* **H04r** *9/02*
U.S. Cl. 179—117 **5 Claims**



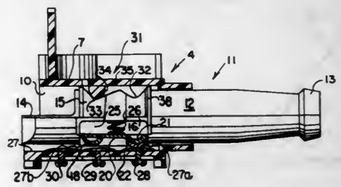
A magnetic system for use with microphones and loudspeakers. A cylindrical magnetic core is centrally located in a hollow cylindrical pot. An airgap exists between one end of the core and the rim of the pot. A permanent magnet overlies the rim of the pot and serves to counteract the stray magnetic field adjacent the airgap.

3,549,831
SPEAKER SYSTEM FOR WELDERS' HELMETS AND THE LIKE
Jack D. Forney, Fort Collins, Colo., assignor to Forney Industries, Inc., Fort Collins, Colo., a corporation of Colorado
Filed Feb. 21, 1968, Ser. No. 707,050
Int. Cl. H04m *1/05*
U.S. Cl. 179—156 **10 Claims**



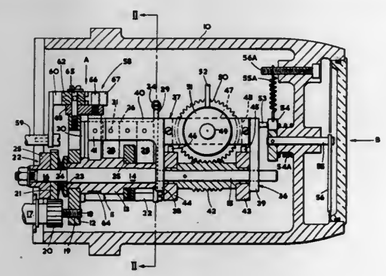
The following application discloses a welder's helmet having a speaker adapted to function whenever the helmet is lowered over the face of the welder and to turn off whenever the helmet is lifted to its retracted position. The speaker, microphone and amplifying circuit are selected, small components capable of being powered by a small battery which is also mounted within the helmet. A turn-off feature, operative whenever the helmet is lifted over the wearer's head, is provided by a switch associated with one of the pivots supporting the welder's helmet on his headband.

3,549,832
HAZARD WARNING SWITCH CONSTRUCTION
Kenneth K. Ferryman, Jr., St. Clair Shores, Mich., assignor to Essex International, Inc., Fort Wayne, Ind., a corporation of Michigan
Filed Apr. 21, 1969, Ser. No. 817,649
Int. Cl. H01h *15/00*
U.S. Cl. 200—16 **16 Claims**



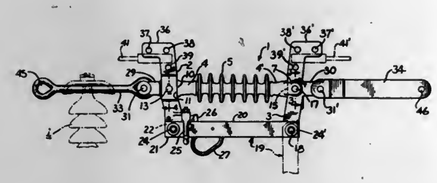
A hazard warning switch for operating simultaneously warning signals at the left- and right-hand sides of a vehicle has a reciprocable actuator mounted within a casing for movement manually from an inoperative position to an operative position, and for return movement to its inoperative position in response to rotation of the vehicle's steering mechanism. The actuator is provided with a pair of grooves spaced axially of the actuator and the casing is provided with a resiliently biased pawl adapted to seat in either groove and yieldably maintain the actuator in a selected one of its positions. The adjacent walls of the grooves converge in a direction toward the pawl whereby the bias of the pawl is operable to effect movement of the actuator from an intermediate position between the operative and in positions to a selected one of such positions.

3,549,833
ACTUATORS
Peter Horton, Luton, England, assignor to The English Electric Company Limited, London, England, a British company
Filed Aug. 19, 1968, Ser. No. 753,648
Claims priority, application Great Britain, Aug. 18, 1967, 38288/64
Int. Cl. H01h *21/28*
U.S. Cl. 200—47 **11 Claims**



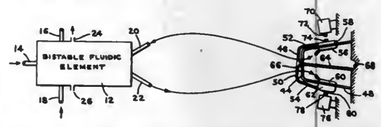
This invention concerns a switch mechanism for a rotary actuator. The mechanism includes a first rotary member which is driven by the output shaft of the actuator and which drives through a reduction gear a second rotary member mounted in a pivoted housing which swings about its pivot axis against a spring action and operates a switch when, after rotation of the second rotary member to a predetermined position, an abutment on the second rotary member engages a second abutment (preferably on the first rotary member) which stops further rotation of the second rotary member which instead then moves bodily and swings the housing about its pivot axis to operate the switch.

3,549,834
DISCONNECT SWITCH
Robert J. Spillar, Munster, Ind., assignor to Royal Electric Manufacturing Company, Inc., Chicago, Ill., a corporation of Illinois
Filed May 8, 1968, Ser. No. 728,104
Int. Cl. H01h *31/00*
U.S. Cl. 200—48 **6 Claims**



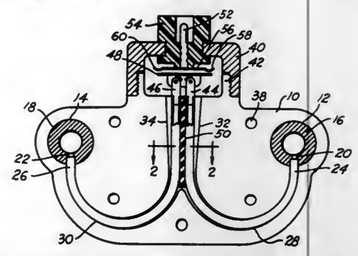
A disconnect switch of the in-line type which includes a supporting strain insulator that is adapted to be placed in series in an electrical transmission line and wherein the opposite ends of the insulator support cooperating parts of a circuit interrupter which, in its closed position, electrically shunts the opposite ends of the insulator. The insulator is of the type that includes a tongue at one end and a clevis at the other end, and the circuit interrupter includes a pair of clips, one of which is mounted on the tongue of the insulator and the other on the clevis. Each clip is a unitary structure locked to the insulator by a single pin.

3,549,835
POSITIVE ACTION, FLUIDICALLY CONTROLLED ELECTRICAL SWITCH
George E. Schaller, Lake Hiawatha, N.J., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware
Filed Feb. 25, 1969, Ser. No. 802,097
Int. Cl. H01h *35/24*
U.S. Cl. 200—81.5 **6 Claims**



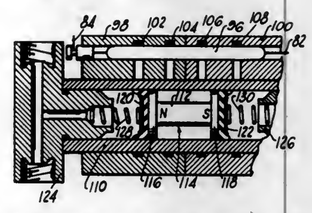
A positive action, fluidically controlled electrical switch is provided and includes a bistable fluidic element which provides first and second outputs, and first and second, mechanically interrelated expansible chamber pressure responsive means which are cooperatively associated with said fluidic element in such manner as to be effective to positively move an electrical switch between the "on" and "off" positions thereof in response to said first and second element outputs, respectively.

3,549,836
DIFFERENTIAL PRESSURE SWITCH WITH BOURDON TUBE ACTUATING MEANS
Howard R. Jilbert, St. Joseph, Mich., assignor to The Bendix Corporation, a corporation of Delaware
Filed Dec. 11, 1968, Ser. No. 782,857
Int. Cl. H01h *35/36*
U.S. Cl. 200—81.8 **6 Claims**



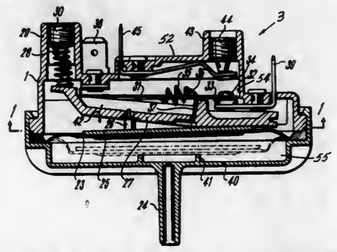
This invention relates to a switch means sensitive to differential pressures in separate hydraulic circuits to provide a completion of an electrical circuit to a remote indicator means whenever the differential pressure has approached an abnormal condition.

3,549,837
DIFFERENTIAL PRESSURE SWITCH WITH IMPROVED MAGNETIC PISTON ACTUATOR MEANS
Charles M. Barnes and Howard R. Jilbert, St. Joseph, Mich., assignors to The Bendix Corporation, a corporation of Delaware
Filed Sept. 24, 1968, Ser. No. 762,009
Int. Cl. H01h *35/38*
U.S. Cl. 200—82 **5 Claims**



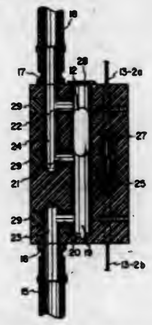
A device for use in a hydraulic circuit or between two separate hydraulic circuits which can detect a pressure differential between two portions of the circuit or between the two separate circuits and can actuate a signalling device which will indicate that a pressure differential exists or has existed.

3,549,838
SNAP SWITCH
Carl A.H.M. Waskowsky, Oberglatt, Zurich, Switzerland, assignor to Patinvest, Patent und Investment A.G., Chur, Switzerland
Filed Aug. 8, 1968, Ser. No. 751,128
Claims priority, application Germany, Sept. 15, 1967, 1,665,383
Int. Cl. H01h *35/40*; **H02b** *1/08*
U.S. Cl. 200—83 **4 Claims**



A combination of several switch units side by side in one housing includes at least one pressure-controlled switch unit actuated by a diaphragm and at least one electrically controlled switch unit actuated by an electromagnet for controlling the operation of different elements of one machine, for example, a washing machine.

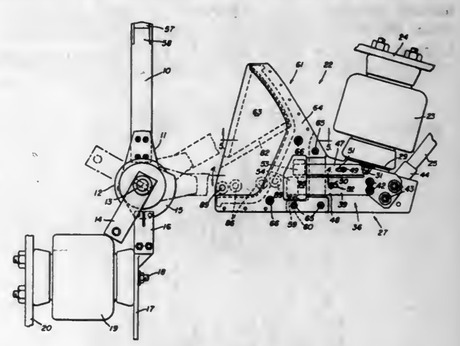
3,549,839
FLUID FLOW MONITOR
George B. Hill, and Jacob D. Noorda, Salt Lake City, Utah, assignors to Brimco Manufacturing Company, Salt Lake City, Utah, a corporation of Utah
Filed Feb. 26, 1969, Ser. No. 802,470
Int. Cl. H01h *35/40*
U.S. Cl. 200—81.9 **10 Claims**



A fluid flow monitoring device including a magnetic switch mounted adjacent a fluid-carrying conduit. A magnetic slug is contained by the conduit and is urged to the proximity of the switch by fluid flow through the conduit, thereby activating the switch.

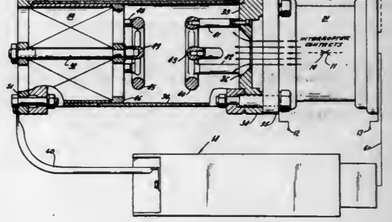
3,549,840
SWITCH CONSTRUCTION WITH LOAD BREAK DEVICE
Robert H. Harner, Park Ridge, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware
Filed July 18, 1968, Ser. No. 745,934
Int. Cl. H01n *9/38, 33/08*
U.S. Cl. 200—146 **26 Claims**

An arc extinguishing structure comprising plates of insulating arc extinguishing material movable relatively toward and away from each other is mounted on a stationary contact and is arranged to receive a rotatable switch blade that swings between the plates into and out of engagement with the contact. Expansible insulation biases the plates toward each other and acts as a seal against flow of arc products which



also are confined by engagement of portions of the plates on circuit opening and by insulating covers extending from the plates and overlying the stationary contact. The plates have heat resistant inserts to hold them out of engagement with the switch blade in closed position.

3,549,841
RESISTOR SWITCH FOR AIR BLAST CIRCUIT BREAKER
James R. McCloud, Burbank, and Lorne D. McConnell, Sierra Madre, Calif., assignors to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware. by mesne assignments
Filed Nov. 6, 1967, Ser. No. 680,848
Int. Cl. H01h *33/16, 33/82*
U.S. Cl. 200—148 **3 Claims**

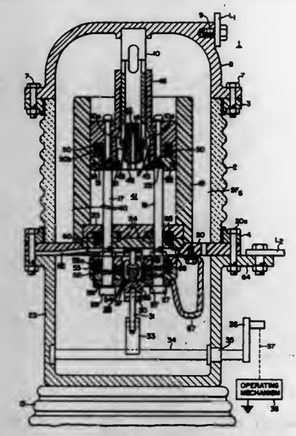


A series connected arc gap and resistor are connected in parallel with the interrupter contacts of a gas blast circuit breaker. The arc gap is positioned downstream of the interrupter contacts and consists of spaced, toroidally-shaped contacts.

3,549,842
FLUID-BLAST CIRCUIT INTERRUPTER WITH PISTON ASSEMBLY AND ELECTROMAGNETIC DRIVING MEANS
William H. Fischer, Pittsburgh, and Russell E. Frink, Forest Hills, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 21, 1966, Ser. No. 595,889
Int. Cl. H01h *33/91*
U.S. Cl. 200—148 **9 Claims**

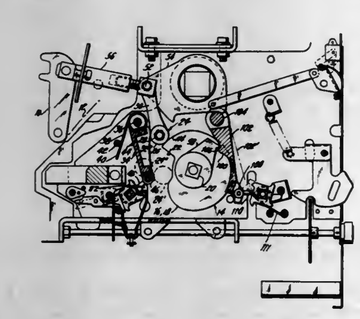
An improved fluid-blast circuit interrupter is provided utilizing magnetic forces of repulsion and attraction to ac-

celerate the opening movement of a movable piston assembly carrying the movable contact structure within an operating cylinder. An accelerating coil is carried along with the movable piston assembly and is connected serially into the circuit when the main-current arc is transferred to a centrally located movable arcing contact. A movable repulsion-coil driver unit is also connected, by a piston-rod structure, to the aforesaid movable piston assembly, the latter carrying the movable contact structure and moveable arcing contact.



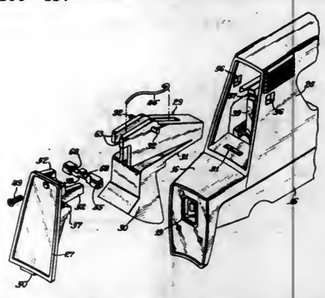
Additionally, the movable repulsion-coil driver unit itself carries a separable contact structure, which opens during the initial portion of the opening operation, and thereby inserts into series circuit the three magnetic accelerating coils. These coils, by their magnetic forces of repulsion and attraction, serve to assist the opening action of the operating mechanism in driving the movable piston assembly to its fully open-circuit position, thereby forcing fluid flow through the transferred arc at the main separable contact structure to effect the extinction thereof.

3,549,843
CIRCUIT BREAKER OPERATING MECHANISM
George A. Wilson, Media, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Sept. 5, 1968, Ser. No. 757,561
Int. Cl. H01h *3/42*
U.S. Cl. 200—153 12 Claims



Operating mechanism for moving circuit breaker contacts to their closed circuit position and for maintaining the contacts in their closed circuit position, which mechanism includes a spring-operated, rotatable cam member which, together with a defeatable guiding mechanism, controls the movement of a cam follower which, in turn, controls the movable contact of the circuit breaker.

3,549,844
TRIGGER SWITCH FOR ELECTRIC APPLIANCE
Worthy L. Chambers, Lombard, Ill., assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Original application July 10, 1967, Ser. No. 652,322, now Patent No. 3,461,556, dated Aug. 19, 1969. Divided and this application Mar. 19, 1969, Ser. No. 808,560
Int. Cl. H01h *21/04*
U.S. Cl. 200—157 7 Claims

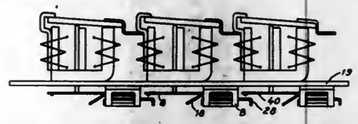


A trigger switch for an electric appliance having a simple lock or safety supported by the appliance housing and being movable between a trigger locking and trigger movement positions.

ERRATUM

For Class 200—166 see:
Patent No. 3,550,157

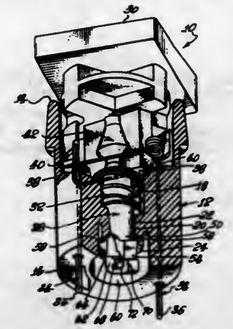
3,549,845
CONTACT SPRING ASSEMBLY FOR SELECTORS OF THE COORDINATE SELECTOR TYPE
Sten Daniel Vigren, Mosebacke Torg 16-18, Stockholm, Rolf Albin Zander, Storhagsvagen 28 A, Alvsjo, and Per Harry Elias Claesson, Osterhagens Gard, Drevviken, Sweden
Filed Dec. 14, 1967, Ser. No. 690,451
Claims priority, application Sweden, Aug. 31, 1967, 12077/1967
Int. Cl. H01h *1/12*
U.S. Cl. 200—166 11 Claims



A contact spring assembly for a selector of the coordinate selector-type arrangement having contact spring groups of fixed and movable contacts located in parallel planes and distributed over a coordinate field. The coordinate field comprising groups of rows of contact spring groups including interconnecting means for the fixed contacts of one group in the same row and interconnecting means for the movable contacts of another group in a row different from the row of the fixed contacts.

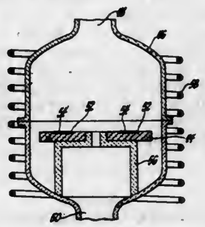
3,549,846
RELEASABLE FASTENER FOR ACTUATOR ELEMENT OF SNAP SWITCH, OR THE LIKE
James R. Francy, Los Angeles, Calif., assignor to Scantlin Electronics, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Apr. 30, 1969, Ser. No. 820,482
Int. Cl. H01h *3/12*
U.S. Cl. 200—172 7 Claims

A releasable fastener, particularly for a reciprocable actuator element of a key-operated snap switch. The actuator element terminates in a bifurcated end insertable through an opening which extends through a housing member from the front side of the member to its rear side and which is surrounded by an annular shoulder on the rear side of the member. The bifurcated end of the actuator element comprises two flexible tips which are cammed toward each other by the housing member as they are inserted through the opening. The tips have on their outer sides shoulders engageable with the annular shoulder on the rear side of the housing



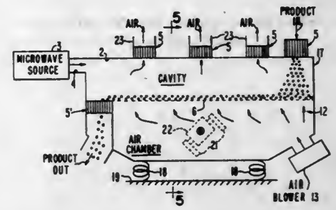
member to prevent withdrawal of the actuator element after insertion. A hinged locking tab integral with one of the tips and releasably latchable to the other prevents yielding movement of the tips toward each other to prevent disengagement of the shoulders on the tips from the annular shoulder on the rear side of the housing member. If removal of the actuator element is desired later, the locking tab may be disengaged to permit displacement of the tips toward each other for shoulder disengagement purposes.

3,549,847
GRAPHITE SUSCEPTOR
Thomas J. Clark, Troy, and Howard W. Brown, St. Clair Shores, Mich., assignors to General Electric Company, a corporation of New York
Filed Apr. 18, 1967, Ser. No. 631,820
Int. Cl. H05b *5/00, 9/00*
U.S. Cl. 219—10.49 6 Claims



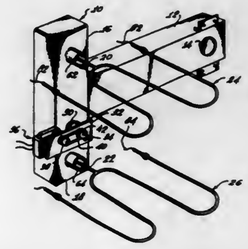
A susceptor for induction heating comprising a body of porous graphite having a surface layer of pyrolytic graphite which penetrates into the pores of the porous body to strongly mechanically interlock the pyrolytic graphite surface layer to the porous body. The pyrolytic graphite surface layer provides a chemically inert impermeable surface which rapidly and uniformly spreads the heat generated in the susceptor, and the interlock assures against separation of the surface layer or cracking from mechanical or thermal shock. The susceptor is particularly useful for the epitaxial growth of semiconductors and integrated circuits. The susceptor is preferably made by pyrolytically depositing the pyrolytic graphite on the porous graphite body first at a relatively low temperature and at low carbonaceous gas pressure and then at increased temperature and carbonaceous gas pressure to complete the deposit. This assures the desired depth of penetration of the pyrolytic deposit to provide the mechanical interlock and also a dense, smooth, continuous outer pyrolytic graphite surface and thereby provides the desired combination of chemical and physical properties for use of the susceptor in epitaxial growth processes.

3,549,848
COMPOSITE MICROWAVE APPLICATOR AND PRODUCT CONVEYOR
Norman H. Williams, San Francisco, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Feb. 6, 1969, Ser. No. 796,966
Int. Cl. H05b *9/06, 5/00*
U.S. Cl. 219—10.55 9 Claims



Microwave applicators are disclosed for applying microwave energy to a product moved through the applicator. The product being treated may be particulated, liquid, or it may be in sheet form. The microwave frequency range of interest is one such that the treatment zone within the applicator is at least a plurality of wavelengths long. The applicators of the present invention are characterized by including a composite microwave circuit portion and the product conveying structure such that the conveying structure forms a portion of the microwave circuit and such that the product being treated is physically supported upon or supported immediately adjacent the composite microwave circuit and conveyor portion. Several composite microwave circuit and conveyor structures are disclosed. These structures include vibratory conveyors, slides, air cushion conveyors, and screw conveyors.

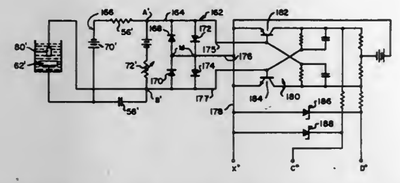
3,549,849
MICROWAVE HEATING APPARATUS AND ENERGY DISTRIBUTION MEANS THEREFOR
Helmut Boehm, Thousand Oaks, Calif., assignor to Technology Instrument Corporation of California, Newbury Park, Calif., a corporation of California
Filed Feb. 20, 1969, Ser. No. 800,842
Int. Cl. H05b *9/06*
U.S. Cl. 219—10.55 2 Claims



There is shown a waveguide T having an output probe extending from each arm thereof into an oven cavity and connected to a respective antenna element in the cavity. Microwave energy injected into and propagated through the leg of the T divides between the arms. A rotor carries an offset metal pin which extends into one arm of the T, and an external drive is provided for the rotor. Rotation of the rotor causes the pin to move in a circle to effect phase and

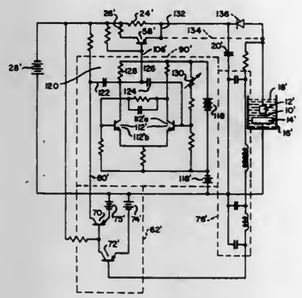
frequency shift of the generated energy, and interaction between the two arms causes the energy, change to shift back and forth therein, and thereby effects corresponding shifts in energy radiated from the antenna elements into the cavity. This results in such mode shifting of energy in the cavity as to establish a substantially uniform microwave heating effect for foodstuffs placed in the cavity. The antenna elements are also adapted to be heated by current for effecting conventional thermal heating of the foodstuffs.

3,549,850
CONTROL CIRCUIT FOR ELECTRIC DISCHARGE MACHINING APPARATUS
Terry O. Hockenberry, and Everard M. Williams, Pittsburgh, Pa., assignors to Siltronics, Inc., a corporation of Pennsylvania
Filed Dec. 19, 1966, Ser. No. 602,723
Int. Cl. B23p *1/08*
U.S. Cl. 219—69 **11 Claims**



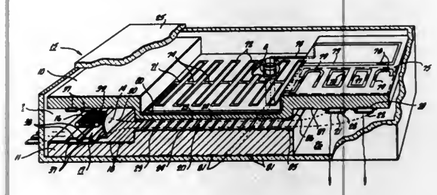
We disclose a circuit arrangement for developing a control signal, said arrangement comprising circuit means for coupling said arrangement to a source of a varying input signal, a local signal generating circuit coupled to said circuit means for superimposing a gating voltage component upon said input signal to provide a gated signal, first circuit path means for sensing said gated signal when the amplitude of said input signal is above that of said voltage component, and second circuit path means for sensing said gated signal when the amplitude of said input signal is below that of said voltage component.

3,549,851
POWER SUPPLY CIRCUITRY FOR INCREASING CAPACITANCE-CHARGING RATE AND DISCHARGE DURATION IN ELECTRIC DISCHARGE MACHINING APPARATUS
Terry O. Hockenberry, and Everard M. Williams, Pittsburgh, Pa., assignors to Siltronics, Inc., Oakmont, Pa., a corporation of Pennsylvania
Filed Dec. 19, 1966, Ser. No. 602,724
Int. Cl. B23p *1/08;* **H02n** *11/00*
U.S. Cl. 219—69 **21 Claims**



An electric discharge machining system having circuit means for charging a capacitance from a source of unidirectional potential and a charging impedance network in series with said capacitance. The impedance network includes a slower charging impedance capable of charging said capacitance at a slow rate while said gap is deionizing and a faster charging impedance coupled in parallel therewith. An electric switch is coupled in series with said faster charging impedance, and is controlled by a circuit coupled to said switch and to said tool and workpiece for closing said switch when said gap has deionized sufficiently following each discharge thereacross to permit a faster capacitance charging rate. There is also disclosed a time-variable network coupled to the control electrode of the electronic switch for prolonging the machining pulse to achieve a remarkably faster machining rate.

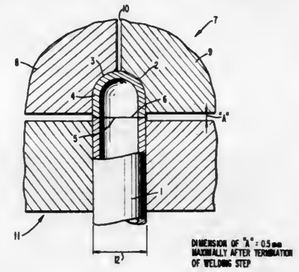
3,549,852
INTEGRAL MICROWAVE RADIATING AND GENERATING UNIT FOR HEATING
Allan W. Scott, 1272 Wendimer Drive, Los Altos, Calif. 94022
Original application Oct. 23, 1965, Ser. No. 502,867, now Patent No. 3,448,384. Divided and this application Mar. 20, 1969, Ser. No. 808,957
Int. Cl. H05b *9/06, 5/00*
U.S. Cl. 219—10.55 **37 Claims**



This invention relates in general to electronic heating apparatus utilizing ultra-high frequency energy and particularly relates to microwave heating apparatus for providing uniform heating in an over cavity. The microwave energy generator comprises a pair of dielectric sheets forming a vacuum space in which a flat electron beam is created. The essential means for converting electrical power to microwave energy are printed on the dielectric sheets. At least one antenna is printed on the surface of the dielectric sheet facing into the space of an oven cavity in which food is to be heated. Several distinct microwave frequencies may be generated in common from the flat beam, and separate printed microwave antennas are available for each frequency. In a further embodiment various collector plates for the electron beam are printed or fabricated of metal structures so as to serve the dual function of beam collection and thermal radiation for food browning. As a further embodiment a printed power control circuit, which is sensitive to a sampling of microwave output power, varies the beam location relative to a printed microwave interaction structure so as to assure a constant power for the microwave unit in spite of short or longterm variations in an ordinary line voltage supply source.

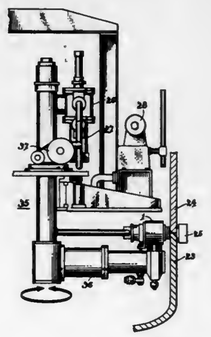
3,549,853
METHOD OF PROJECTION WELDING OF PUSH ROD
Jurgen Guido, Borsigstrasse 4, Neutraubling uber Regensburg, Germany
Continuation-in-part of application Ser. No. 618,206, Feb. 23, 1967, now abandoned. This application Sept. 30, 1968, Ser. No. 763,797
Claims priority, application Germany, Mar. 29, 1966, Ser. No. G 46,437
Int. Cl. B23k *11/14*
U.S. Cl. 219—104 **8 Claims**

A pushrod for an internal combustion engine consisting of a tubular stem having a semispherical headed cap with a tubular extension at most equal in length to the diameter, which cap is cold formed from low-carbon steel having a wall thickness approximately equal to the tubular stem. The cap is projection welded with its circularly shaped flat rim surface to the associated flat end surface of the tubular stem using at most only 10 percent of the current cycles per second. The cap is clamped by two jaws divided in an axial plane of the tubular shaft with a small spacing therebetween and with a spacing of at most 10 percent of the outer diameter of the



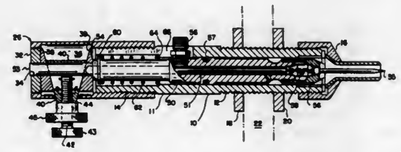
welding point with respect to the electrode clamp for the tubular stem.

3,549,854
ELECTRON BEAM WELDING METHOD
David Sciaky, 999 North Lake Shore Drive, Chicago, Ill. 60611
Filed Apr. 30, 1968, Ser. No. 733,728
Int. Cl. B23k *15/00*
U.S. Cl. 219—121 **4 Claims**



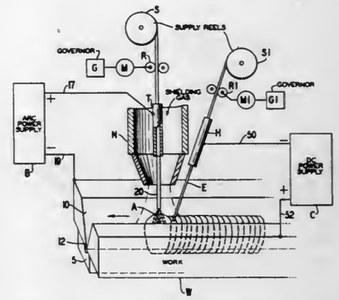
This disclosure relates to a method and apparatus for electron beam welding by which large structures may be welded without it being necessary to place these structures within a large vacuum chamber. By the method of this invention, a small area surrounding the point at which the welding is being done is sealed off from the atmosphere by a small chamber upon which is mounted the electron beam gun.

3,549,855
JIG WELDING GUN
Gerald A. Lawrence, Detroit, Mich., assignor to La-Mark Corporation, Detroit, Mich., a corporation of Michigan
Filed Mar. 21, 1968, Ser. No. 714,850
Int. Cl. B23k *9/28*
U.S. Cl. 219—130 **7 Claims**



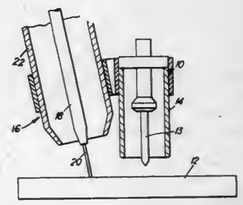
A jig welding gun being constructed in such a manner that optimum position of the tungsten rod with respect to a work piece can be easily accomplished through the combination of a rough and a fine adjusting means. These adjusting means are respectively a pair of knurled nuts located for rotation about and along the gun body, for positioning and fastening the gun at an approximate lateral required position in a jig or the like, and fine adjusting means for locating optimum position of the gun's output which is provided by a means including wedge-shaped components slidably positioned with one another for producing axial movement of the rod through the inducement of a force at an approximate 90° angle which force inturn is caused by rotation of a screw adjusting and locking means.

3,549,856
GAS METAL ARC WELDING FROM ONE SIDE
John F. Saenger, Jr., Springfield, N.J., assignor to Union Carbide Corporation, a corporation of New York
Filed Aug. 24, 1967, Ser. No. 663,010
Int. Cl. B23k *9/08*
U.S. Cl. 219—137 **8 Claims**



A process for gas metal arc welding thick workpieces forming a grooved joint from one side which consists of locating a current carrying conductor contiguous to the arc welding electrode, to directionally control the arc by selectively varying the current in the current carrying conductor. As a consequence of the tendency of the arc to deflect opposite to the direction of welding in a groove welding process, the DC power connections to the current carrying conductor and the arc electrode are of opposite polarity. The current carrying conductor can either be a consumable or nonconsumable type. In the case of the latter type, the feed rate and wire diameter are selected so that there will be a desired arcless melt-off, but preferably the power is maintained below a level where the melt-off will be substantial.

3,549,857
WELDING PROCESSES AND APPARATUS
James C. Needham, Walden, and Albert W. Carter, Stapleford, England, assignors to British Welding Research Association, Abinton, Cambridge, England, a British Body corporate
Filed Apr. 3, 1968, Ser. No. 718,503
Claims priority, application Great Britain, Apr. 5, 1967, 15,693/67
Int. Cl. B23k *9/00*
U.S. Cl. 219—137 **9 Claims**



In a consumable electrode arc welding process, the workpiece is preheated by an arc from a gas shielded tungsten

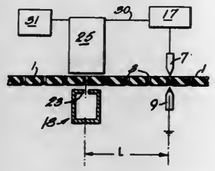
electrode spaced from the consumable electrode by a distance such that the tungsten electrode arc does not extend to a weld pool produced on the workpiece by the consumable electrode; the consumable electrode is connected to the positive terminal of a common electrical supply and the tungsten electrode to the negative terminal of the supply so that the two arcs are electrically in series. Alternatively, the tungsten electrode can be used to reheat a weld made by the consumable electrode to provide a desired finish.

3,549,858

BENCH MARKS IN SHEET OR WEB MATERIAL

Rene Larive, Grand'Mere, Quebec, Canada; Leo-Paul Gelinas, North Syracuse, N.Y.; and Richard L. C. Knight, Grand'Mere, Quebec, Canada, assignors to Consolidated Paper (Bahamas) Limited, Nassau, N.P. Bahamas

Filed Apr. 9, 1968, Ser. No. 719,954
Int. Cl. H05b 3/18
U.S. Cl. 219—384 8 Claims



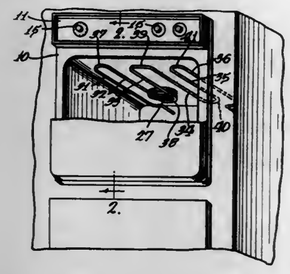
A sheet or web of material with reference marks in the form of tiny perforations. The perforations are preferably formed by sparking holes through the web.

3,549,859

SELF-CLEANING OVEN WITH SMOKE ELIMINATOR

Francis L. Faehling and Stanley O. Peterson, Wisconsin Rapids, Wis., assignors to Preway Inc., a corporation of Wisconsin

Filed Dec. 18, 1968, Ser. No. 784,701
Int. Cl. F27d 11/02
U.S. Cl. 219—393 1 Claim



A self-cleaning oven having a smoke eliminator with a catalytic element effective on heating and a broil element positioned adjacent the top of the oven and adjacent said smoke eliminator and operable a large part of the time during a self-cleaning cycle to generate sufficient heat to activate the catalytic element directly from the broil element, without any separate heating circuit for the catalytic element.

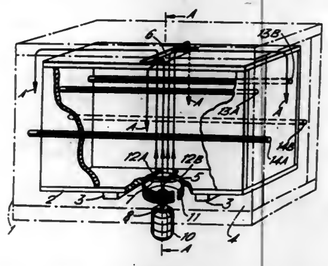
3,549,860

TEMPERATURE CONTROL APPARATUS

Leslie Kearton Parker, High Wycombe, and John Tournier, Flackwell, Heath, England, assignors to Perkin-Elmer Limited, Beaconsfield, Buckinghamshire, England, a corporation of Great Britain

Filed May 20, 1969, Ser. No. 826,196
Int. Cl. F27d 11/02, 19/00
U.S. Cl. 219—400 7 Claims

A thermally insulating outer enclosure is provided and a thermally insulating partition means is positioned within the enclosure and forms the boundary of a utilization space. The partition means is spaced in the enclosure to define as intermediate buffer space, an inflow opening and a juxtaposed outflow opening in the partition means. A heating means is provided and is adapted to cooperate with an impeller adjacent the inflow opening for circulating a temperature regulating fluid through the openings and the utilization space and the buffer space. A heat sensing means is positioned in



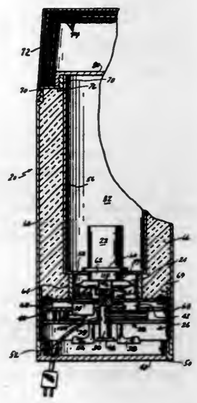
the utilization space for providing output indications representative of the temperature at the openings and in the buffer space. The heat sensing means is coupled to the heating means for regulating the temperature thereof. The apparent temperature coefficient of a thermal mass in a utilization space is thereby variable by altering the position of the heat sensing means in the buffer space and a position may be found in which the coefficient is relatively close to zero.

3,549,861

SELF-HEATED THERMOS BOTTLE

Leonard Trachtenberg and Peter Warren Trachtenberg, Pleasant Valley Way, West Orange, N.J. 07052

Filed Apr. 28, 1969, Ser. No. 819,563
Int. Cl. F27d 11/02
U.S. Cl. 219—441 10 Claims



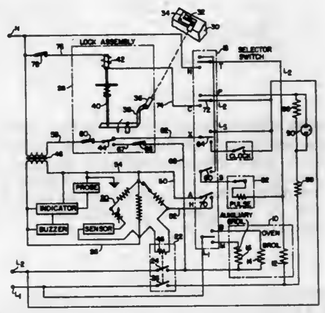
A self-heating thermos bottle having a bottom compartment closed by a cover base and in which is disposed in cable either on a reel or folded up when not in use. The cable is provided with contact plugs adapted to be fitted into either a vehicle cigar lighter receptacle or household receptacle to supply either DC current or AC current to low or high voltage coils of a heater unit within the bottle and having a threaded stem extending into the cable compartment for the mounting of parts thereon. A plug is carried by a cable reel which is axially adjustably supported on the depending stem of the heater unit to disconnect plug and allow the reel to be turned for release or windup of cable. A thermostatic switch is included in the heater unit and plug circuitry. The disconnect plug is attachable to a plug carried on a bottom partition. A special socket has been provided into which either a cigar lighter plug or a household plug can be connected. Also multiple plug receptacles have been provided on a bottom partition and wired to the heater unit and adapted to receive either the vehicle lighter plug or the household plug on respective opposite ends of a cable.

3,549,862

HEAT CLEANING COOKING OVEN AND CONTROL ARRANGEMENT

Calvin J. Holtkamp, Mansfield, Ohio, and George W. Nagel, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 5, 1968, Ser. No. 773,539
Int. Cl. H05b 1/02
U.S. Cl. 219—482 9 Claims



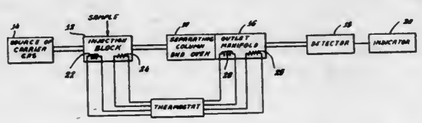
The oven is provided with a circuit and control arrangement which operates so that the oven is heated to a predetermined high temperature in the heat cleaning range and then further heating is stopped. Relay switching means in a temperature controller circuit is used both for completing a circuit to the oven heating means, and also for completing a holding circuit which is opened when the high temperature is reached. Thus upon a resultant fall in oven temperature the holding circuit remains open to prevent reenergization of the oven heating means through the temperature controller circuit.

3,549,863

TEMPERATURE CONTROL ARRANGEMENT

Wilson P. Ralston, Stamford, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed Dec. 28, 1967, Ser. No. 694,320
Int. Cl. H05b 1/02
U.S. Cl. 219—494 6 Claims



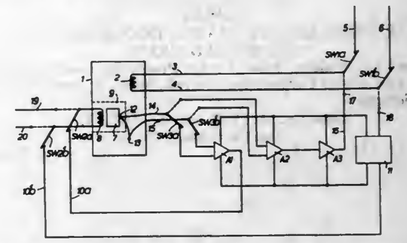
A proportional control thermostating circuit arrangement for establishing and maintaining independent set-point temperatures at a plurality of stations includes a heater and a temperature sensing element located at each of *n* stations. Circuit means including the plurality of temperature sensing elements provide *n*, periodically-recurring, phase-differing electrical indications having a characteristic thereof representative of the deviation of an associated station temperature from the desired set-point temperature. Circuit means periodically apply heating current to each of said *n* heating elements in phase synchronization with the occurrence of the associated electrical indication and in accordance with the electrical characteristic thereof for maintaining the desired station set-point temperature.

3,549,864

METHODS OF AN APPARATUS FOR TEMPERATURE CONTROL

Alan John Borer, Crowborough, Sussex, England, assignor to Servomex Controls Limited, Crowborough, England, a British Company

Filed July 26, 1968, Ser. No. 747,982
Claims priority, application Great Britain, Aug. 2, 1967, 35428/67
Int. Cl. H05b 1/02
U.S. Cl. 219—497 11 Claims



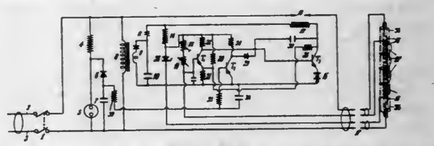
A temperature control primarily for an air circulatory oven in which a thermally insulated mass situated in the oven has its temperature controlled in a desired manner and the measured temperature difference between the mass and the oven is employed to control supply of heat to the oven so as to reduce the temperature difference towards zero.

3,549,865

ELECTRIC BLANKET AVERAGE TEMPERATURE AND HOT SPOT CONTROL

Geoffrey Frank Robert Melling, Woking, England, assignor to Crater Controls Limited, Knaphill, Woking, Surrey, England

Filed May 8, 1968, Ser. No. 727,576
Int. Cl. H05b 1/02
U.S. Cl. 219—505 7 Claims



An electronically controlled electrically heated blanket having a heat control for average temperature and a control for checking localised hot spots. The average temperature control is by a first conductor close to the heating element and the hot spot control by a second temperature sensitive conductor of high specific resistance providing a current path between the element and the first conductor. Suitable electronic switching devices are controlled by changes of temperature of the first and second conductors.

3,549,866

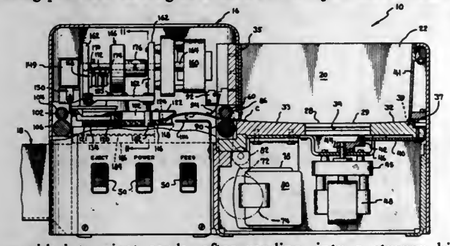
ELECTRO-MECHANICAL MEMORY APPARATUS

John Edwin McWade, Broomall, and Patrick Edward Lannan, Fort Washington, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 14, 1967, Ser. No. 623,057
Int. Cl. G06k 7/04; B65h 1/18
U.S. Cl. 235—61.11 5 Claims

An electro-mechanical memory apparatus is disclosed which utilizes punched cards for data storage. The apparatus includes a card storage bin and a feed mechanism to drive and position cards one at a time into a read position to be read by a static card reader capable of reading simultaneously all data positions on a given card with a read output

being provided as long as is desired. An eject mechanism is

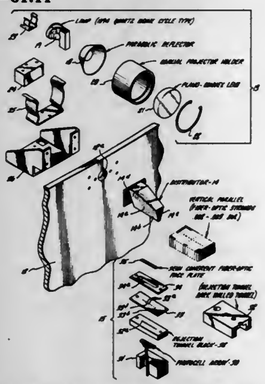


provided to eject cards, after reading, into a storage bin which positions the cards for reuse.

3,549,867
RECORD READER HAVING TRANSPARENCY THRESHOLD MEANS

Robert Lee Malone, Palos Verdes Peninsula, Calif., assignor to Ex-Cello-O Corporation, Detroit, Mich., a corporation of Michigan

Filed Dec. 4, 1967, Ser. No. 687,522
Int. Cl. G06k *7/10*
U.S. Cl. 235—61.11 **6 Claims**

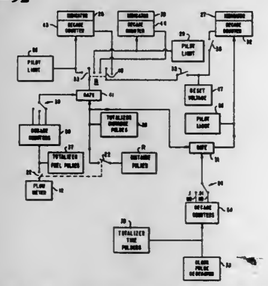


An optical record reader using optic fibers for forming and distributing the light rays and a self-cleaning quartz lamp to produce a high intensity beam. The system is adapted to employ micrologic components with provision for automatic compensation in real time for the light transmission of a record member up to 60 percent transparency without adjustment.

3,549,868
FUEL-MILEAGE COMPUTER

Federic R. Watson and Robert T. Holmes, Westport, Conn., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed June 23, 1966, Ser. No. 559,949
Int. Cl. G01m *15/00;* **G06c** *29/00*
U.S. Cl. 235—92 **7 Claims**

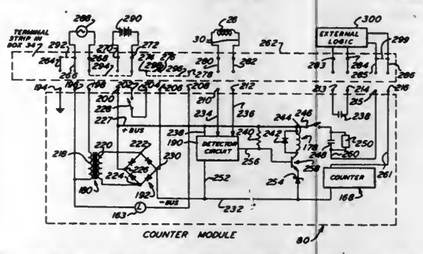


An apparatus for computing the fuel economy and/or distance traveled per unit of fuel for a motor-driven vehicle and the velocity of the vehicle during the measurements. The apparatus utilizes digital devices to measure fuel flow, distance traveled and time, and computes the desired outputs from these measurements.

3,549,869
MODULAR COUNTING SYSTEM

Gerald Kuhn, 6 Meadow Lane, Cherry Hill, N.J. 08034

Filed Feb. 9, 1967, Ser. No. 614,965
Int. Cl. G08g *1/065;* **G06m** *1/02*
U.S. Cl. 235—92 **3 Claims**

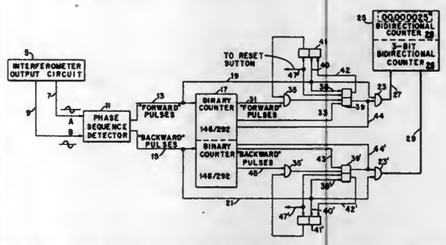


A counter module for a traffic detecting system with alternate AC and DC power inputs, separate on-off switch for each counter, inductive coils for detection, and an output to be used by external logic. The module contains a rectifying circuit and all necessary counting components so that any module may be unplugged and replaced without interfering with the operation of other modules.

3,549,870
SYSTEM FOR COMPUTING AND CONTINUOUSLY DISPLAYING INCREMENTS OF MOVEMENT OF AN OBJECT IN USEABLE UNITS OF MEASURE

Clark M. Lay, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 7, 1967, Ser. No. 629,877
Int. Cl. G06m *3/14, 3/02*
U.S. Cl. 235—92 **1 Claim**



An accurate and comparatively simple electronic computing circuit provides a digital display of its output. Voltage pulses, each representing one unit (the fringe distance) of forward or backward movement of an object relative to a reference position, taken at the output of an interferometer, are fed into a counter. Gating circuits coupled to the counter alter the pulse count to convert fringe increments to a desired unit of length, such as microinches. The output displays the object-to-reference distance in the desired units.

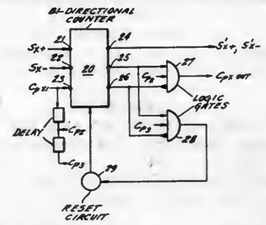
3,549,871
DIGITAL INTERPOLATOR

Kiyokazu Okamoto and Hiroshi Shinagawa, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Mar. 6, 1967, Ser. No. 620,939
Claims priority, application Japan, Mar. 8, 1966, 41/14,216
Int. Cl. G06f *15/34;* **H03k** *19/20*
U.S. Cl. 235—152 **6 Claims**

A digital interpolator for tracing *n* dimensional curves and the like which generates followup pulses in a uniform basis

with each followup pulse being separated from the previous followup pulse by a predetermined unit length to simulate stepping of the followup points in a constant uniform manner. As soon as *n* followup points are stepped along any of the *n* coordinate axes an output pulse is automatically

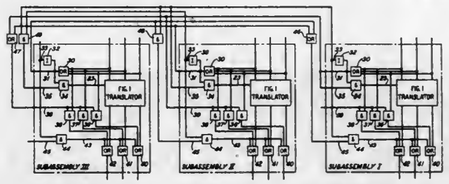


generated parallel to the associated coordinate axes wherein the followup pulse causes a step of *n* times the unit length taken by the followup points so as to provide greater operating speeds and greater curve tracing accuracy than was heretofor possible.

3,549,872
CIRCUIT FOR CHANGING A BINARY NUMBER BY ONE

Loyd R. Mc Elveen, Burlington, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Jan. 3, 1968, Ser. No. 695,409
Int. Cl. G06f *7/385, 7/50*
U.S. Cl. 235—168 **7 Claims**

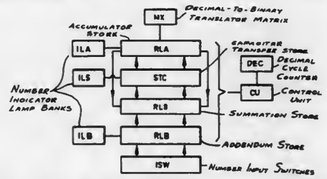


A binary number may be increased or decreased by one by starting with the least significant digit and taking the complement of each digit up to and including the first binary ZERO or binary ONE digit, respectively. These functions are performed by a control circuit in combination with a plurality of substantially identical translators each of which has a respective portion of the input member applied to it and is capable of performing these functions on its portion of the number. For each input number, only one portion of the number is operated upon by its translator while less significant portions are complemented.

3,549,873
BINARY ADDER IN WHICH BINARY NUMBERS IN DIFFERENT MULTI-STAGE STORES ARE ADDED TOGETHER INTO A THIRD STORE

David Thomas Simmonds, Luton, England, assignor to National Research Development Corporation, London, England, a British corporation

Filed Apr. 4, 1967, Ser. No. 628,414
Claims priority, application Great Britain, Apr. 4, 1966, May 23, 1966, 14,860/66; 22770/66
Int. Cl. G06 *7/42*
U.S. Cl. 235—175 **17 Claims**

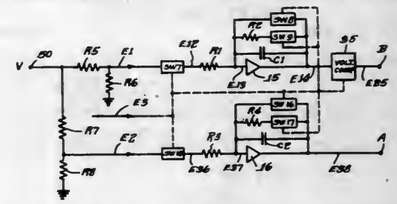


The main aspect of the present invention comprises a binary adder stage which comprises two switches controlling a

3,549,874
COMPUTER FOR SIMULTANEOUS COMPUTATION OF A REFERENCE SIGNAL AND AN INFORMATION SIGNAL UNTIL REFERENCE SIGNAL REACHES A PREDETERMINED VALUE

Alvin Vachitis, Englishtown, N.J., assignor to Dranetz Engineering Laboratories, Incorporated, Plainfield, N.J., a corporation of New Jersey

Filed Mar. 1, 1967, Ser. No. 619,710
Int. Cl. G06g *7/18, 7/16*
U.S. Cl. 235—193 **20 Claims**

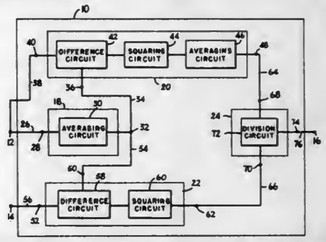


A computer utilizing a reference signal and an information signal wherein said signals are simultaneously computed (such as division and/or multiplication, or time integration) until the computed reference signal reaches a predetermined value, whereby the computed reference signal indicates the desired computation of the information signal. Where the computation is a time integration over a time interval, the time interval is determined by the time integrated reference signal reaching a predetermined voltage value corresponding to the end of the time interval, and the time integrated information signal indicates the time integral of the information signal regardless of variations in the reference signal and the related information signal. Where the reference and information signals are cyclic wave signals, the integration of said signals is begun at the start of a half-cycle (preferably the first half-cycle) of the reference signal, is continued until the time integrated reference signal reaches at least said predetermined value, and then at the start of an ensuing half-cycle (preferably the next first half-cycle) of the reference signal, the integration is stopped and the integrated reference and information signals are partially discharged until the time integrated reference signal returns to said predetermined value, whereby the time integrated information signal indicates the time integral of the information signal for an integral number of half-cycles or full cycles over the time interval.

3,549,875
BILATERAL MOMENT PROBABILITY COMPUTER

David A. Goldman, Westchester County, N.Y. (Croton Heights Road, Box 69, RFD 1, Yorktown Heights, N.Y. 10598)

Filed Aug. 28, 1968, Ser. No. 756,002
Int. Cl. G06g *7/48*
U.S. Cl. 235—193 **7 Claims**



A computer for determining a bound to the probability of a random variable equaling or exceeding the difference

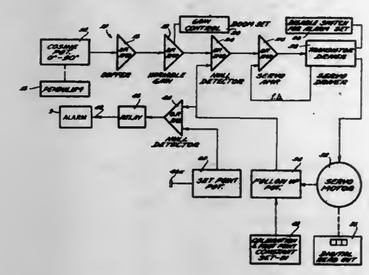
between a prescribed limit value and the variable average value, based upon the second bilateral moment of the variable about the average value. The computer includes circuitry for averaging the variable, circuitry for determining the second bilateral moment of the variable about its average value, circuitry for detecting the absolute difference between the variable average value and the limit value and circuitry for determining the ratio of the bilateral moment to the squared difference signal. The computer is illustrated in system applications involving air pollution monitoring and control and manufacturing process control.

3,549,876

CRANE OPERATING RADIUS INDICATOR

Martin W. Hamilton, Mount Prospect, Ill., assignor to Eaton Yale & Towne Inc., Morton Grove, Ill., a corporation of Ohio

Filed Mar. 7, 1968, Ser. No. 711,403
Int. Cl. G06g *7/22*
U.S. Cl. 235—186 **6 Claims**



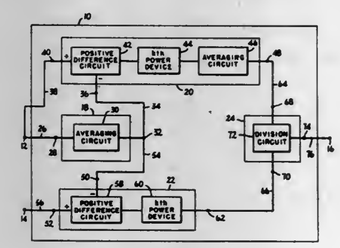
A crane operating radius indicator including a transducer responsive to the position of the boom of the crane, and a circuit responsive to the transducer signal to produce an output which is an analogue of the radius of the boom. A servoamplifier and servomotor are controlled by the radius analogue signal, and a digital readout counter driven by the servomotor indicates the radius of the boom. The analogue of the radius of the boom may also directly drive a panel meter. The invention also includes digital and panel meter outputs for other transduced signals and the method of indicating such sensings.

3,549,877

UNILATERAL MOMENT PROBABILITY COMPUTER

David A. Goldman, Westchester County, N.Y. (Croton Heights Road, Box 69-RFD 1, Yorktown Heights, N.Y., 10598)

Filed Aug. 28, 1968, Ser. No. 756,003
Int. Cl. G06g *7/48*
U.S. Cl. 235—193 **14 Claims**



A computer for determining a bound to the probability of a random variable equaling or exceeding a prescribed limit value in accordance with applicant's novel method of probability analysis. The computer includes circuitry for averaging the variable, circuitry for determining a selected unilateral moment of the variable above its average value, circuitry for determining the positive difference between the limit value and the averaged value of the variable and for raising the difference to a numerical power corresponding to the selected moment, and circuitry for determining the ratio of the unilateral moment to the raised difference. The computer is illustrated in applications involving air pollution monitoring and control and manufacturing process control.

3,549,878

LIGHT DISTRIBUTION SYSTEM

Richard E. Bailey, Miami, Fla. (429 Montgomery Ave., Apt. C202, Haverford, Pa., 19041)

Filed Sept. 9, 1968, Ser. No. 758,528
Int. Cl. F21v *21/00, 1/00*
U.S. Cl. 240—10 **13 Claims**



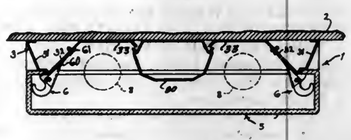
A light distribution system adapted for use to distribute a pattern of light over the clothing of a wearer. Also, a color control mechanism may be utilized in combination with the light distribution system to vary the color of the light distributed by the pattern. The device is useful, for instance, by a dancer to vary the color of the light in timed sequence with music. The control of the light color is by means of a transducer included in a circuit in the color control mechanism to cyclically move a color filter through the path of light delivered to the system to change the color of it.

3,549,879

LIGHTING FIXTURE

Carl X. Meyer, Saint Louis, Mo., assignor to Emerson Electric Co., St. Louis County, Mo., a corporation of Missouri

Filed Oct. 13, 1967, Ser. No. 675,105
Int. Cl. F21v *17/00*
U.S. Cl. 240—147 **12 Claims**



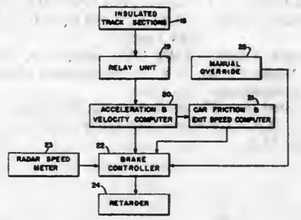
A lighting fixture for mounting on the ceiling as a plastic light-transmitting enclosure which is held in place by a releasable latch member. The base member upon which the plastic enclosure is supported has downwardly convergent sidewalls and the plastic enclosure member has an inwardly extending flange extending about its upper periphery. The flange has a prismatic surface for directing light about the base member to eliminate shadows. At each corner of the base member a fin extends from the corner of the plastic enclosure member to the corner of the base member to give the appearance of a rectangular fixture. The latch member comprises resiliently mounted hook members mounted on opposite sides of the fixture and having a shoulder for supporting the plastic member.

3,549,880

APPARATUS FOR CONTROLLING THE SPEED OF A MOVING BODY

Perry A. Seay, Huntington, N.Y., assignor to Dynamics Corporation of America, a corporation on New York

Original application Dec. 20, 1954, Ser. No. 476,278, now abandoned. Divided and this application Oct. 25, 1968, Ser. No. 770,586
Int. Cl. B61k *7/08*
U.S. Cl. 246—182 **5 Claims**



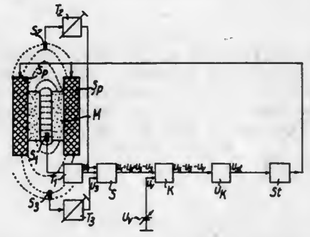
A retarder control system for a railway classification yard which includes a radar velocity measuring system for measuring the instantaneous velocity of a moving car prior to the entry of the car into the car retarder together with a circuit responsive to the instantaneous velocity of the car for determining the acceleration of the car prior to entry into the car retarder, a computer responsive to the determined acceleration and other parameters for computing an exit velocity for the car from the retarder, and control circuits responsive to measured, computed and stored information for controlling the velocity of the car through the retarder to achieve the computed exit velocity.

3,549,881

MASS SPECTROMETER CONTROL SYSTEM USING HALL PROBES TO MEAUSURE AND REGULATE THE GAP AND STRAY FIELDS OF THE ANALYZING MAGNET

Kurt G. E. Kronenberger, Bremen, Germany, assignor to Varian Mat G.m.b.H., Bremen, Germany, a Limited German company

Filed Feb. 7, 1968, Ser. No. 703,755
Claims priority, application Germany, Feb. 8, 1967, B 91,087
Int. Cl. H01j *39/34;* **G01r** *33/06*
U.S. Cl. 250—41.9 **7 Claims**



The invention is directed to an arrangement for integral measurement of a magnetic field by use of a plurality of field sensing means arranged in a gap of a magnet producing the field and arranged in the stray field, the measuring values of the various sensing means being differently weighted.

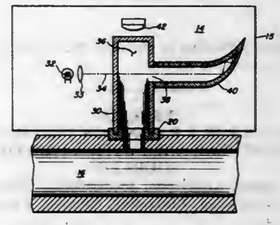
3,549,882

LEAK DETECTOR WHEREIN A PROBE IS MONITORED WITH ULTRAVIOLET RADIATION

Alfred E. Barrington, Lexington, Mass., assignor to the United States of America as represented by the Adminstrator of the National Aeronautics and Space Administration

Filed Sept. 30, 1968, Ser. No. 763,706
Int. Cl. G01n *21/26*
U.S. Cl. 250—43.5 **14 Claims**

According to the invention there is disclosed a novel method and apparatus for detecting leaks in an evacuated system by utilizing a stream of probe gas, preferably one taken from the Group 0 (zero) elements of the Periodic Table. The particular probe gas utilized is one having an intense resonance line in the vacuum ultraviolet region of the spectrum. The invention communicates with the evacuated system by means of an opening in the vacuum line into which is placed a sample cell element together with a beam of light,



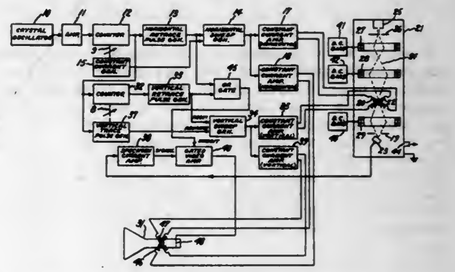
containing ultraviolet radiation, for continuously monitoring the system for leaks. The beam of light is characterized as having a wavelength substantially equal to about the wavelength of the resonance line for the probe gas, so that should any probe gas be present in the system, light from the beam will be scattered and detected.

3,549,883

SCANNING ELECTRON MICROSCOPE WHEREIN AN IMAGE IS FORMED AS A FUNCTION OF SPECIMEN CURRENT

William G. Morris, Schenectady, and Eric Lifshin, Albany, N.Y., assignors to General Electric Company, a corporation of New York

Filed Oct. 7, 1968, Ser. No. 765,323
Int. Cl. H01j *37/26*
U.S. Cl. 250—49.5 **9 Claims**



A system for producing high resolution magnified images of a specimen includes an electron beam scanning in a two-dimensional pattern over the surface of the specimen, and modulates brightness of an electromagnetically deflected cathode ray tube according to a signal proportional to instantaneous specimen current. The voltage drop across a resistor connected to the specimen comprises the specimen signal. A crystal oscillator synchronizes scanning of the electron beam to scanning of the cathode ray tube.

3,549,884

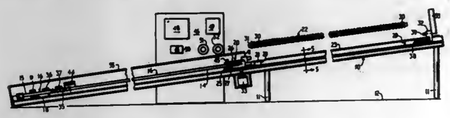
APPARATUS FOR INTERNALLY STERILIZING FLEXIBLE TUBING WITH ULTRAVIOLET RADIATION

Douglas Haigh Glasson, Marrickville, New South Wales, Australia, assignor to Aquatron Corporation (Aust.) Pty. Limited, Marrickville, New South Wales, Australia, a company of New South Wales

Filed May 12, 1969, Ser. No. 823,749
Claims priority, application Australia, May 13, 1968, 37645/68
Int. Cl. G01n *21/00*
U.S. Cl. 250—52 **5 Claims**

Apparatus for producing internally sterilized tubing by

placing the tubing over an ultraviolet ray emitting tube for a

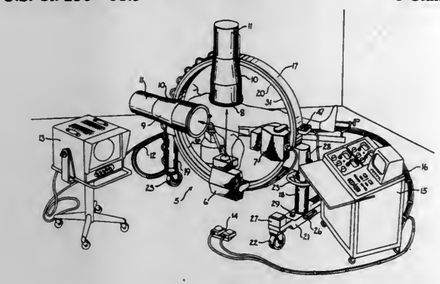


period of time sufficient to sterilize the inside of the tubing and then removing the tubing.

3,549,885
APPARATUS FOR X-RAYING ON TWO MUTUALLY PERPENDICULAR AXES WITH A PAIR OF X-RAY SOURCES

Sven-Erik Lennart Andersson, Joenkoeping, Sweden, assignor to SAAB Aktiebolag, Linkoping, Sweden, a corporation of Sweden

Filed July 8, 1968, Ser. No. 743,181
Claims priority, application Sweden, July 10, 1967, 10,404/67
Int. Cl. G03b *41/16*
U.S. Cl. 250—61.5 **6 Claims**

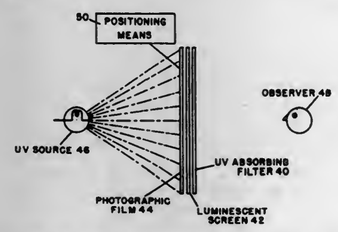


A pair of X-ray radiation units are mounted on a carrier ring, circumferentially spaced and for radiation on axes perpendicular to one another and the ring axis. A detecting unit (comprising an image amplifier and a video camera) is mounted on the ring opposite each radiation unit. The carrier ring is confined to rotation in a surrounding annular frame mounted on heightwise adjustable legs on steerable wheels. Electromagnetic locking means releasably hold the ring against rotation in the frame. The detecting units are swingable to and from inoperative positions outside the zone embraced by the carrier ring.

3,549,886
METHOD AND APPARATUS FOR CONVERTING MONOCHROMATIC IMAGERY INTO DIFFERENTIAL COLOR ON A LUMINESCENT SCREEN

Edwin H. Hilborn, Framingham, Mass. (32 Annese Road, Chelsea, Mass. 02150)

Filed Apr. 9, 1968, Ser. No. 719,868
Int. Cl. H01j *1/62*
U.S. Cl. 250—71 **13 Claims**

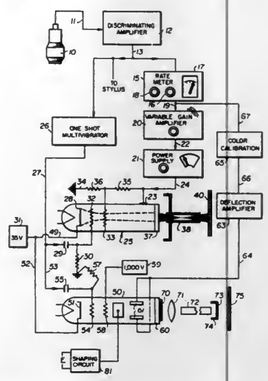


A luminescent screen composition for converting brightness differences in photographic imagery into hue differences is disclosed, comprising a plurality of phosphors having different spectral emissions, wherein at least one of the phosphors has a nonlinear response curve. By increasing the level of ultraviolet excitation to a point above the saturation of one of the phosphors, which emits a selected color, the remaining phosphor or phosphors will predominate to produce their respective color emissions.

3,549,887
SCINTILLATION SCANNING FOR PRODUCING BOTH BLACK AND WHITE MULTI-COLOR PHOTOGRAPHIC RECORDS

Carl W. Hansen, Chagrin Falls, Ohio, assignor to Picker Corporation, White Plains, N.Y., a corporation of New York, by mesne assignments

Filed Dec. 27, 1965, Ser. No. 516,593
Int. Cl. G01j *39/18*; G01t *1/20*
U.S. Cl. 250—71.5 **18 Claims**

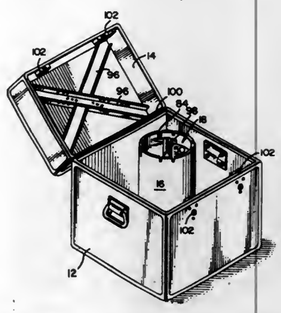


In a scintillation scanner having a probe for detecting radioactivity from an object, light pulses are provided at various positions depending on the intensity of radiation detected. The light pulses at the various positions pass through various color filters to a color film. Thus, the color of an image at various points on the film is correlated to the intensity of the radiation detected at that point in the object.

3,549,888
INTERLOCKED RADIUM SHIPPING CONTAINER

Frank Bernard Conlon, Kensington, Md., assignor to the United States of America as represented by the Secretary of the Department of Health Education and Welfare

Filed Apr. 12, 1968, Ser. No. 720,947
Int. Cl. G21f *5/00*
U.S. Cl. 250—108 **10 Claims**



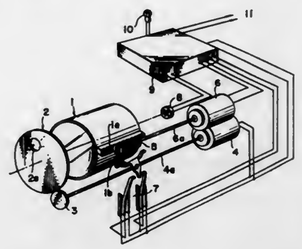
A reusable interlocked radium shipping container, sized to meet radiation exposure limitations of transportation regula-

tory agencies, includes a fireproof inner container designed to accept limited quantities of radium needles or capsules and to prevent leakage of radioactive material, a middle container for shielding, including a means to prevent insertion of the inside container therein where the shield is designed for higher or lower capacities and a means for preventing the insertion of a closure plug for the middle shielding container unless the proper inner container is in place, a locking means for locking the middle shielding container in closed position, an outer hinged shipping case including a means to prevent closure of the lid of the shipping case unless the shield closure is in locked position, and a readily releasable spring-loaded lock for the shipping case lid.

3,549,889
AUTOMATIC FOCUSING DEVICE USING THE DIFFERENTIAL COMPARISON METHOD

Hideaki Akiyama, Yokohama-shi, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan, a corporation of Japan

Filed July 9, 1968, Ser. No. 743,496
Claims priority, application Japan, July 18, 1967, 42/46,193
Int. Cl. G01d *5/36*; G01j *1/20*; H01j *39/12*
U.S. Cl. 250—201 **8 Claims**



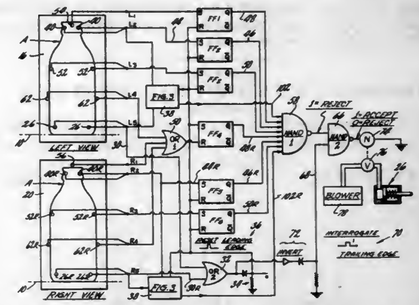
An automatic focusing device comprising a lens system, a shutter disc disposed in front of said lens system and having an aperture located eccentrically of the optical axis of said lens system; light reception means comprising photoelectric elements, said means being disposed at a position of the focus of said lens system; and control means for controlling said lens system so as to stop its axial movement when the image of an object is focused upon said light reception means through said aperture. When the image of the object is not focused upon the light reception means, the image rotates with respect to said means in response to the helicoidal movement or displacement of said aperture with respect to said lens system, but when the image is sharply focused, the lens system is stopped. When the image on the light reception means is stationary, the variation of a electric current passing through or being generated by the light reception means becomes minimum, whereby said control means is actuated.

3,549,890
ARTICLE INSPECTION APPARATUS

Rene Keller, Dietikon, Switzerland, assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut

Filed Jan. 16, 1969, Ser. No. 791,593
Int. Cl. H03k *5/18*; H01j *39/12*
U.S. Cl. 250—209 **10 Claims**

Two mutually perpendicular light beam patterns are directed across a continuously moving conveyor toward an array of light sensitive devices some of which will be illuminated and some of which will be in shadow if the shape of an inspected article is acceptable. These devices are arranged spaced in pairs, and individual signals from these pairs are stored for simultaneous recall after the article has been completely inspected. A lower pair of such devices, closely spaced in relationship to the width of the article, generate a stretched signal for a novel circuit adapted to accept an upright article although it is leaning slightly with respect to a line normal to the conveyor. This leaner inspection circuitry includes pulse generating and counting mean and utilizes the

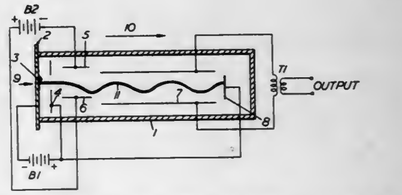


aforementioned signal from the lower pair of light sensitive devices to accomplish this inspection for excessive leaning without adversely effecting the article-shape inspection.

3,549,891
CYCLOTRON RESONANCE PHOTOTUBE HAVING AXIAL MAGNETIC FIELD AND TRANSVERSE ELECTRIC FIELD

Robert J. Strain, Plainfield, N.J., assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Aug. 18, 1966, Ser. No. 573,416
Claims priority, application Great Britain, Sept. 20, 1965, 39,903/65
Int. Cl. H01j *39/14*
U.S. Cl. 250—211 **7 Claims**

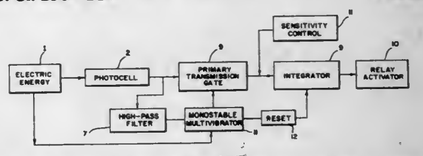


A photocathode at one end of a phototube emits an electron beam having a spiral motion at a cyclotron resonance frequency. An axial magnetic field and transverse DC electric field provide the beam with the spiral motion and the rotational energy is extracted by an output coupler. A collector electrode at the other end, having a DC potential applied thereto, collects the electron beam. A quadrupole amplifier between the field electrodes and coupler may provide improved sensitivity.

3,549,892
PHOTOELECTRIC CIRCUITRY FOR PASSIVE DETECTION SYSTEMS

David E. Perlman, Rochester, N.Y., assignor to Detection Systems, Inc., East Rochester, N.Y., a corporation of New York

Filed Dec. 17, 1968, Ser. No. 784,433
Int. Cl. H01j *39/12*
U.S. Cl. 250—214 **4 Claims**



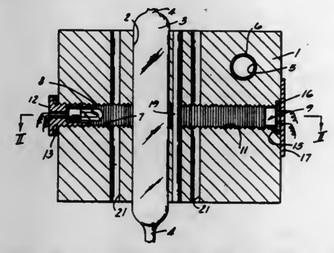
A photoelectric control circuit adapted for use in passive intruder detection systems. The circuit is provided with

means for detecting only that type of change in lighting conditions which normally accompanies the presence of an unauthorized person in a darkened area protected by such system. The circuit includes means for discriminating against transient lighting conditions which occur faster or slower than certain predetermined rates.

3,549,893
PHOTOELECTRIC LIQUID LEVEL SENSOR USING BAFFLE

Erich L. Gibbs, 3001 M. L. King Jr. Drive, Chicago, Ill. 60616

Filed Sept. 20, 1968, Ser. No. 761,082
Int. Cl. G01n *21/24*
U.S. Cl. 250—218 8 Claims

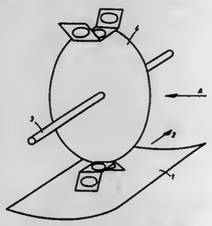


A sensing device responsive to the change in level of a liquid in a chamber disposed in the radiation path between a radiation source and a responsive radiation device, in which the optical characteristics of the liquid with respect to the radiation of said source are utilized, when such liquid intersects said radiation path, to focus radiation, passing a baffle, upon the radiation responsive device, which in the absence of liquid in said radiation path is operatively disposed in the umbra created by such baffle.

3,549,894
ARRANGEMENT FOR OPTICALLY SCANNING A RECORDING MEDIUM USING FIXED LAMPS FOR ILLUMINATION

Christian Ortmann, Marbach, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 5, 1968, Ser. No. 773,567
Claims priority, application Germany, Dec. 14, 1967, 1,549,905
Int. Cl. G06m *7/00*; H01j *39/12*; H04n *3/00*
U.S. Cl. 250—219 3 Claims



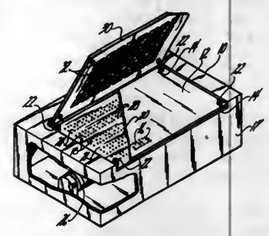
An improved arrangement for optical scanning of a recording media in which fixed lamps are used to illuminate the point of reading. The lamps are arranged about the axis of rotation of the optical wheel, and the light transducer is outside the axis of rotation at a distance further away from the medium than the axis of rotation.

3,549,895
DEVICE FOR ILLUMINATING DISCRETE DATA BEARING AREAS OF A RECORD SHEET

Raymond C. Sidorsky, Society Road, Lyme, Conn. 06333

Filed Nov. 22, 1968, Ser. No. 778,254
Int. Cl. G01n *21/30*
U.S. Cl. 250—219 14 Claims

A device for use with record sheets of the type adapted to have data recorded thereon by marking discrete data bearing areas thereof in binary form, by applying appropriate marking material to the sheet in accordance with a predetermined code, consists of a support plate having a bearing surface for receiving and supporting a record sheet and having a plurality of discrete areas distributed over such bearing surface to which light is transmitted from a source located on the opposite side of the plate. The light appearing at these discrete areas of the supporting surface passes through the record sheet supported thereon and creates illuminated visible indications of the data bearing areas of the sheet. In cases where

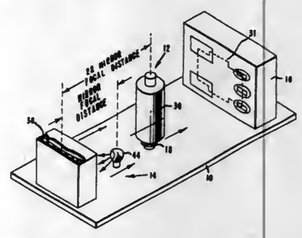


the record sheet is marked by applying an opaque ink or other opaque marking material to selected ones of the data bearing areas the device may also be used as a reader for retrieving recorded information from the record sheet by associating a photosensitive detector with each of the discrete areas of the supporting surface and illuminating the record sheet from a light source facing the supporting surface so that the amount of light passing through each data bearing area of the card is sensed by said detectors.

3,549,896
APPARATUS FOR MEASURING DIMENSIONS OF AN OPAQUE OBJECT

John Albert Masino and Eugene J. Sturdevant, Wilmington, Del., assignors to E. I. duPont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Oct. 20, 1967, Ser. No. 676,814
Int. Cl. G01n *21/30*
U.S. Cl. 250—219 4 Claims



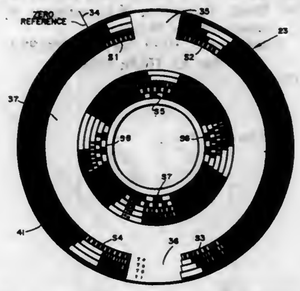
An apparatus for measuring dimensions of a cylindrical opaque object including a mirror and a light source which forms a shadow of the object on lenses coupled to photoelectric detectors adjustably arranged around the shadow boundry. The detectors are connected to electrical circuitry where their outputs are compared to preset standard values.

3,549,897
ABSOLUTE ENCODER HAVING PLURALITY OF BINARILY RELATED RETICLE TRACKS

Lawrence S. Blake, West Peabody, Mass., assignor to Dynamics Research Corporation, Stoneham, Mass., a corporation of Massachusetts

Filed Apr. 4, 1968, Ser. No. 718,724
Int. Cl. G01d *5/34*; G01b *11/26*
U.S. Cl. 250—231 8 Claims

An absolute electro-optical encoder for indicating the angular position of a shaft, and including a stationary disk and a rotary disk having a plurality of concentric reticle tracks binarily related to one another. A plurality of photocells are arranged to receive light passing through the disks, the photocells being arranged in selected combinations with respect to each reticle track, and a plurality of illumination assemblies are arranged to illuminate selected combinations

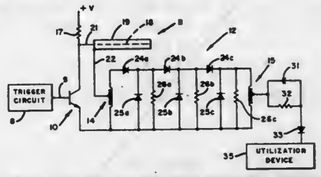


of photocells. Certain of the illumination assemblies include adjustable reflectors to precisely adjust the phase of the light impinging upon certain of the reticle tracks.

3,549,898
PULSE GENERATOR

Kenneth W. Nelson, Mountain View, Calif., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed July 2, 1969, Ser. No. 838,439
Int. Cl. H03k *3/00*
U.S. Cl. 307—106 8 Claims

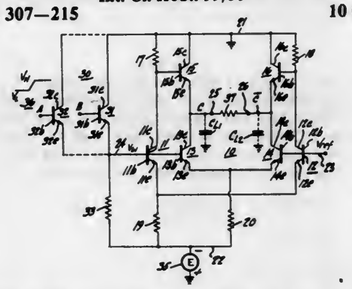


This pulser comprises a delay line storage element which is an open-circuited coaxial transmission line having a center conductor connected to the collector electrode of a common emitter avalanche transistor switch. The outer conductor of the delay line is connected through an impedance step-up transformer to a gate circuit comprising a chain of pairs of series and shunt diodes. The gate circuit reduces the amplitude of the trailing edge of the voltage pulse by bypassing this signal from the output circuit. The output pulse is coupled from the gate circuit through an impedance stepdown transformer. The transformers are employed to enhance the effect of the shunt diodes when they are conducting to bypass the signal. The emitter electrode of the avalanche transistor is directly electrically connected to ground to improve the temperature stability of the pulser.

3,549,899
INPUT AND OUTPUT EMITTER-FOLLOWER CML CIRCUITRY

Howard R. Beelitz, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Mar. 31, 1967, Ser. No. 627,399
Int. Cl. H03k *19/00*
U.S. Cl. 307—215 10 Claims

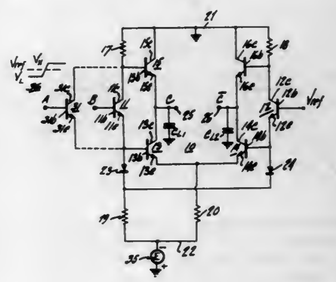


Current mode switching circuits having at least one input emitter-follower transistor and dual output emitter-follower transistors are described. Power dissipation is considerably reduced by switching a common load current path from one to the other output terminal as determined by the binary significance of the digital input signals, whereby the emitter current of only one of the emitter-follower transistors flows through the common path under steady state conditions.

3,549,900
CURRENT MODE SWITCHING CIRCUIT

Edwin K. C. Yu, Norristown, Pa., assignor to RCA Corporation, a corporation of Delaware

Filed Mar. 31, 1967, Ser. No. 627,491
Int. Cl. H03k *19/00*
U.S. Cl. 307—215 4 Claims

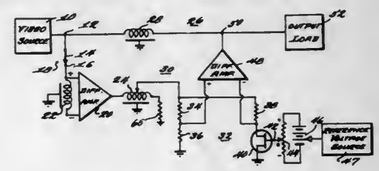


Current mode switching circuits having dual output emitter-follower output transistors are described. Power dissipation is considerably reduced by switching a common load current path from one to the other output terminal as determined by the binary significance of the digital input signals, whereby the emitter current of only one of the emitter-follower transistors flows through the common path under steady state conditions.

3,549,901
EQUALIZER CIRCUITRY INCORPORATING APERTURE CORRECTOR AND INDEPENDENT GAIN ADJUSTMENT

John D. Ross, Dollard des Ormeaux, and Ole Skrydstrup, Montreal, Quebec, Canada, assignors to Central Dynamics, Ltd., Pointe Claire, Montreal, Quebec, Canada, a body corporate and Politic

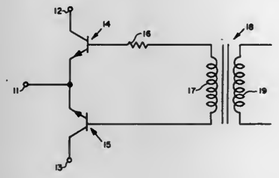
Filed June 28, 1967, Ser. No. 649,548
Claims priority, application Canada, Mar. 30, 1967, 986,626
Int. Cl. H03n *5/44*
U.S. Cl. 307—235 7 Claims



An equalizer using an aperture corrector is disclosed where typically the equalizer operates upon a composite color video signal, the color signal including luminance and chrominance signal components. The chrominance component is extracted from the composite color signal so that its amplitude may be adjusted with respect to the luminance component if this is necessary. The extraction of the chrominance signal is accomplished by an aperture corrector. After adjustment, if necessary, of the amplitude of the extracted signal in a bridge circuit, the extracted signal is recombined with the composite signal to thereby provide the desired equalization of the composite signal. The bridge circuit includes a variable resistor such as a field effect

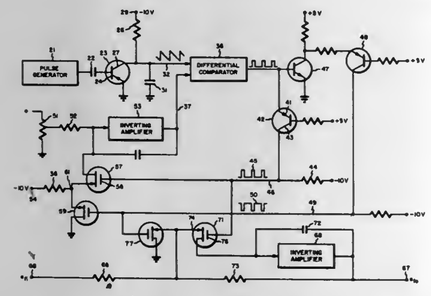
transistor to which is applied a control signal for varying the resistance thereof and thus amplitude adjustment of the extracted signal is accomplished. Also included in the bridge circuit is a resistor made of silicon, the same material as that of the field effect transistor thereby providing temperature compensation of the output signal from the bridge circuit.

3,549,902
TWO TRANSISTOR BASE-TO-BASE DRIVEN SWITCH
Leroy D. Barter, Fullerton, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Dec. 22, 1967, Ser. No. 692,751
Int. Cl. H03k *17/00*
U.S. Cl. 307—243 **4 Claims**



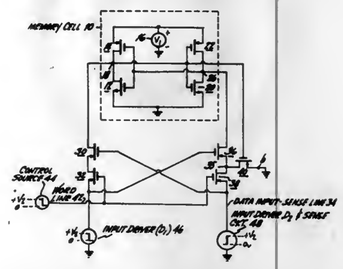
A transistor switching arrangement suitable for connecting a first terminal alternately to second and third terminals so that there is a time lapse between disconnecting one pair of terminals and connecting the other pair. Two transistors have their emitters interconnected and their base electrodes connected in a circuit loop that includes the switching voltage source. Forward current to one base-emitter diode can only flow when reverse current flows in the other base-emitter diode due to its Zener voltage being overcome by the switching voltage.

3,549,903
VARIABLE RESISTANCE AND LOW PASS FILTER CIRCUIT
John R. Lowdenslager, Ossining, N.Y., assignor to Singer-General Precision, Inc., a corporation of Delaware
Filed May 17, 1968, Ser. No. 730,082
Int. Cl. H03k *5/08*
U.S. Cl. 307—237 **3 Claims**



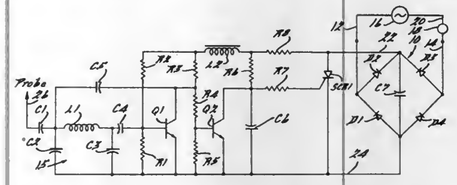
A fixed resistor having a selected potential applied thereacross is alternately switched into and out of the input circuit of an operational amplifier at an invariant rate. By varying the percentage of time during which the switch is closed the average flow of electrical charge, i.e., current, though the resistor is varied and the effective resistance of the resistor is made inversely proportional to the percentage of the switch closing time or the duty cycle thereof. The switch closing time or duty cycle is determined by a control voltage and the resistor whose effective resistance is thus determined may be included in a low pass filter circuit to provide an electronically variable filter.

3,549,904
NON-DESTRUCTIVE READ-OUT MEMORY CELL
Adolph Karl Rapp, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Aug. 7, 1968, Ser. No. 750,883
Int. Cl. H03k *3/286*
U.S. Cl. 307—247 **7 Claims**



A circuit arrangement to write information into and to read information out of an active storage or memory cell comprising a transistor flip-flop. Write-in is done by means of two coincidence gates and two input data lines. Each coincidence gate is connected between a different one of the two input/output points of the flip-flop and a respective one of the two input data lines. Readout is achieved by means of also using one or both of the input lines as sense lines in conjunction with a sense mode coincidence gate. An input-sense line is coupled to the conduction path of the sense gate whose conductivity is controlled by the data stored in the flip-flop.

3,549,905
ELECTRONIC OSCILLATOR SWITCH
Lee D. Johnson, Rochester, Mich., assignor to Johnson Controls, Inc., Rochester, Mich., a corporation of Michigan
Filed Apr. 13, 1967, Ser. No. 630,623
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **11 Claims**

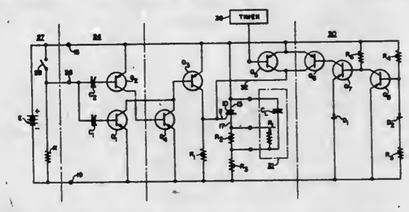


An electronic switch using an oscillator circuit and having only two leads including input and output with the oscillator circuit being placed in an oscillating and a nonoscillating condition, for providing a trigger signal, in response to actuation of a feedback circuit which includes probe means for affecting the feedback circuit.

3,549,906
CONTROL CIRCUIT RESPONSIVE TO POSITIVE OR NEGATIVE TRANSIENT SIGNAL OR TO POWER SUPPLY VOLTAGE DECREASE TO FIRE SCR
Melbourne J. Hellstrom, Severna Park, and Michael H. Oppenheimer, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 30, 1967, Ser. No. 686,911
Int. Cl. H03k *17/56*
U.S. Cl. 307—252 **8 Claims**

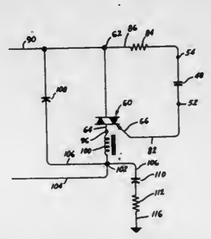
A silicon controlled rectifier (SCR) controls the application of power to a load. The SCR is triggered on by means of various input circuits one of which will trigger the SCR upon the application of a positive transient input signal, another

one of which will trigger the SCR upon the application of a negative transient input signal, and a third of which will



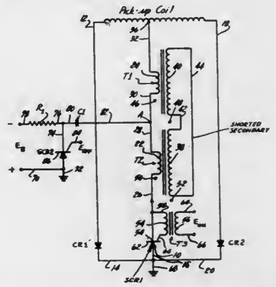
trigger the SCR in response to a decrease in the supply voltage below a predetermined level.

3,549,907
VANE OPERATED SOLID STATE LIMIT SWITCH
Everett W. Werts, Normal, Ill., assignor to General Electric Company, a corporation of New York
Filed Mar. 29, 1968, Ser. No. 717,334
Int. Cl. H03k *17/00, 17/56*
U.S. Cl. 307—252 **15 Claims**



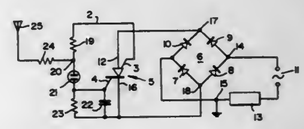
A limit switch for use with alternating current which is responsive to the position of a magnetic vane. A Triac is employed as the current interrupting element of the limit switch, interrupting current while exhibiting its normal or high impedance characteristic and conducting current while exhibiting its low impedance characteristic. A magnetic reed switch which is actuated by the magnetic vane, is connected in series with the gate of the Triac, so as to control the impedance characteristic of the Triac.

3,549,908
TURN-OFF CIRCUIT FOR DC LOAD CARRYING SCR SWITCH
Robert C. Houlne, McLean, Va., assignor by mesne assignment, to the United States of America as represented by the Secretary of the Navy
Filed Nov. 14, 1968, Ser. No. 775,796
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **5 Claims**



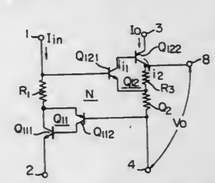
In a DC circuit in which positive load voltage is applied to the anode of an SCR load current switch, improved turnoff circuit means incorporating two transformers having their primary windings connected in series with the SCR switch and with the secondaries of the transformers connected in series and being short circuited, the polarities of the windings of the transformers being connected such that the inductive impedance to a voltage across the primaries in series is zero, together with a DC pulse-producing means connected to a control point intermediate said primary windings to provide, when said pulse means is actuated, a back bias pulse to force the load current SCR switch to commute to OFF condition, without interrupting the supply of positive DC current to the SCR switch and without introducing an undesirably high impedance value in the DC load circuit.

3,549,909
TOUCH ACTIVATED AC, FULL WAVE, TWO-WIRE SWTICHES
Alexander Michael Adelson, Elmsford, and Jerome Swartz, Stony Brook, N.Y., assignors to Hall-Barkan Instruments, Inc., Tuckahoe, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 799,163, Feb. 14, 1969, which is a division of application Ser. No. 614,477, Feb. 7, 1967 and Ser. No. 580,056, Sept. 16, 1966, now abandoned. This application Aug. 25, 1969, Ser. No. 852,858
Int. Cl. H03k *17/00*
U.S. Cl. 307—252 **12 Claims**



A solid state switch having only a pair of wires for connecting it into a circuit to be controlled thereby and having a semiconductor gated circuit in which current flow is initiated by the touch of a human finger, or the like, to cause full wave current to flow through the semiconductor device. The touch initiates conduction in the semiconductor circuit by causing a control voltage to be applied to the semiconductor gate through a normally high impedance which is changed to a low impedance state upon touching a control terminal of the said impedance.

3,549,910
ELECTRIC CURRENT-VOLTAGE CONVERTING CIRCUIT
Shinichiro Ogawa, and Toshiyuki Matsuda, Tokyo, Japan, assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Sept. 16, 1968, Ser. No. 759,908
Claims priority, application Japan, Sept. 18, 1967, 42/59,395
Int. Cl. H03k *3/26*
U.S. Cl. 307—270 **1 Claim**

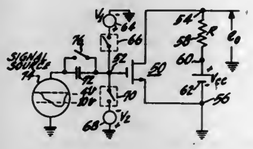


A first serial connection comprises a first resistor, a first composite transistor and a first load. A second serial connection comprises a second load, a second composite transistor, a second resistor, a third load and a third resistor which is connected in the circuit of the second composite transistor. An output voltage of a magnitude larger than the magnitude of the voltage drop due to an input current is obtained.

3,549,911
VARIABLE THRESHOLD LEVEL FIELD EFFECT MEMORY DEVICE

Joseph H. Scott, Jr., Newark, N.J., assignor to RCA Corporation, a corporation of Delaware

Filed Dec. 5, 1968, Ser. No. 781,511
Int. Cl. H03k 17/60
U.S. Cl. 307—279 **5 Claims**

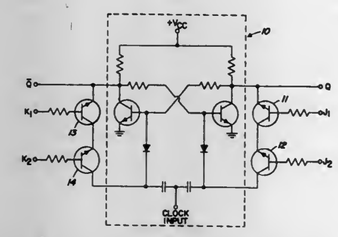


A bistable field effect transistor having a metal insulator semiconductor structure in which a charge can be stored, is used as a memory element. The application of a voltage of greater than a given amplitude between the gate and source electrodes of the transistor changes the threshold level of the device from a first to a second value depending on the polarity of the applied voltage. The threshold voltage, to which the transistor is set, is maintained and stored after the removal of the excitation voltage.

3,549,912
JK FLIP-FLOP

Roger G. Lewis, Toronto, Ontario, Canada, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed Feb. 27, 1967, Ser. No. 618,690
Int. Cl. H03k 3/12
U.S. Cl. 307—292 **5 Claims**

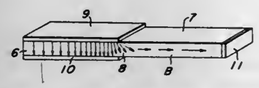


Disclosed is a JK Flip-Flop circuit using series connected transistors as the J & K inputs in place of the usual diodes. The result is a more rapid change of state of the Flip-Flop.

3,549,913
PIEZO-ELECTRIC TRANSFORMER

Juichi Moriki, Nishinomiya-shi, and Masaharu Shiosaki, Ibaregi-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Oct. 25, 1968, Ser. No. 770,517
Claims priority, application Japan, Oct. 31, 1967, 42/70,763; 42/70,764; 42/70,765; 42/70,766; 42/70,767; 42/70,768
Int. Cl. H01v 7/00
U.S. Cl. 310—9.5 **7 Claims**

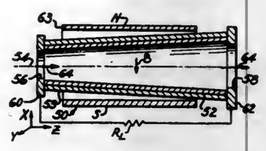


A piezo-electric transformer wherein an intermediate region is formed in the boundary portion between a driving portion and a power-generating portion, said intermediate portion being not polarized, polarized to only a small extent or the direction of polarization of which is gradually changed from the direction of polarization of said driving portion to that of said power-generating portion, thereby preventing the boundary portion between said driving portion and said power-generating portion from being destroyed by mechanical strength.

3,549,914
MONOLITHIC ELECTRODES FOR MHD GENERATORS

Malcolm S. Jones, Jr., Corona Del Mar, Calif., and William J. Conner, Tonawanda, N.Y., assignors to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio

Filed July 3, 1968, Ser. No. 742,269
Int. Cl. H02n 4/02
U.S. Cl. 310—11 **18 Claims**



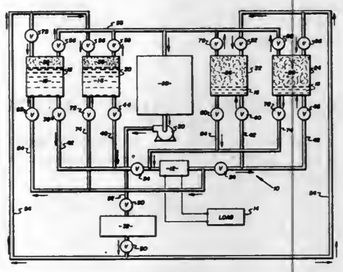
According to the present disclosure, an electrode for a magnetohydrodynamic (MHD) generator comprises a body of anisotropic material having a substantially higher electrical resistivity along one axis than along another.

The electrode is oriented with an MHD generator by aligning the axis of high resistivity with the direction of load current of the generator. In this manner, currents utilized for sustaining an electric field are permitted to flow, and short circuiting of the output is prevented.

3,549,915
METHOD AND APPARATUS FOR GENERATING PULSE ELECTRICAL POWER USING A MAGNETOHYDRODYNAMIC GENERATOR SYSTEM

Lawrence L. Prem, Tarzana, Calif., assignor to North American Rockwell Corporation

Filed July 10, 1968, Ser. No. 743,661
Int. Cl. H02m 4/02
U.S. Cl. 310—11 **3 Claims**



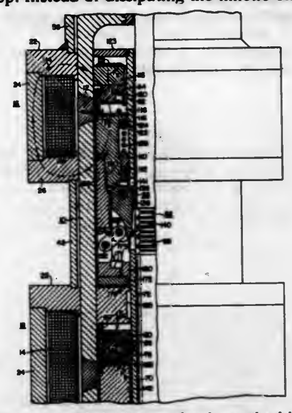
Pulse electrical power is generated by the alternate and sequential discharge of an electrically conductive fluid through a magnetohydrodynamic (MHD) generator from fluid sources connected through the MHD generator which results in a desired voltage output to an external circuit.

3,549,916
SHOCK ABSORBING MAGNET

Donald G. Sherwood, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 8, 1968, Ser. No. 727,407
Int. Cl. H02k 41/02
U.S. Cl. 310—14 **10 Claims**

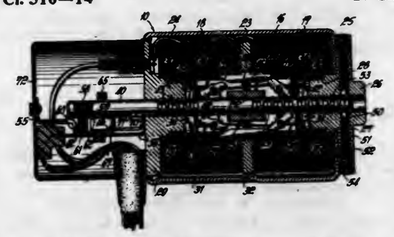
An electromagnet is provided that absorbs shock at the end of its stroke, thereby preventing detrimental effects on the magnet structure and associated apparatus. The shock is absorbed by magnetically decelerating the magnet plunger to a "soft" stop. Instead of dissipating the kinetic energy of the plunger by shock loads in the mechanisms, the kinetic energy is transferred to a magnetic field where it can be used later, that is, for opening the magnet.



3,549,917
LINEAR MOTOR ACTUATOR

Helmut Espenschied, Buhlertal, Georg Rothfuss, Ditzingen, and Herbert Weyer, Stuttgart, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Oct. 7, 1969, Ser. No. 864,450
Claims priority, application Germany, Oct. 8, 1968, 1,801,766
Int. Cl. H02k 41/02
U.S. Cl. 310—14 **17 Claims**



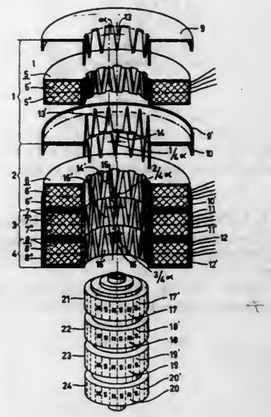
A displacement motor arrangement in which an electromagnet is provided with two spaced windings arranged axially with respect to an armature, one behind the other. A displacement member is linked to the armature through a latching arrangement which is operative in one direction only. Springs are applied to the armature for holding the latter in a central position between the windings when the armature is not actuated through energizing of the windings. The armature is loosely supported on the displacement member so that when the armature becomes actuated through energizing of the windings, the latching arrangement causes displacement or movement of the displacement member by a predetermined amount.

3,549,918
STEPPING MOTOR FOR A LARGE NUMBER OF STEPS PER REVOLUTION

Jacques Johannes Hendrik Croymans and Henricus Marinus van Hout, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed May 15, 1969, Ser. No. 824,931
Claims priority, application Netherlands, May 20, 1968, 6807144
Int. Cl. H02k 37/00
U.S. Cl. 310—49 **5 Claims**

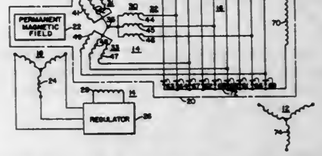
A stepping motor comprising a plurality of coaxial stators arranged in a stack along a central axis and a rotor with permanent magnet pole portions in cooperative relationship with the stator poles. The consecutive stator-rotor systems so formed are angularly displaced by an amount equal to m/n times the pitch angle of the stator poles where n is equal to the number of stator-rotor systems and m is an integer having a value between 1 and $(n-1)$. By selective energization of the stator coils the motor is made to move stepwise by an amount equal to the angular displacement of the stator-rotor systems or by half of this amount.



3,549,919
MAGNETICALLY AND THERMALLY BALANCED WINDINGS FOR ALTERNATING CURRENT EXCITERS

Andrew J. Spisak, Pittsburgh, and Sigrud R. Petersen, Irwin, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 11, 1968, Ser. No. 720,665
Int. Cl. H02k 11/00
U.S. Cl. 310—68 **3 Claims**



An alternating current exciter armature for a rotating brushless exciter having serially connected coil turns spaced equally about the periphery of the core of the armature, the coil turns having terminal end portions spaced apart with the end portions of adjacent turns located adjacent to each other.

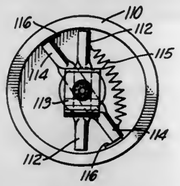
3,549,920
CORDLESS ELECTRIC VIBRATOR FOR USE ON THE HUMAN BODY

Jon H. Tavel, 17643 Belinda St., Encino, Calif. 91316

Original application Mar. 25, 1968, Ser. No. 715,631, now Patent No. 3,451,391, which is a continuation-in-part of application Ser. No. 516,867, June 30, 1966, now Patent No. 3,375,381. Divided and this application June 23, 1969, Ser. No. 835,712
Int. Cl. H02k 11/00
U.S. Cl. 310—68 **7 Claims**

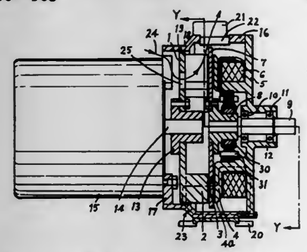
A cordless electric vibrator which is adapted for use on the human body. The vibrator is small and compact, and can be held in one hand and applied to any part of the body. The

structure is simple and compact and the exterior housing may comprise only one piece of molded plastic, except for the



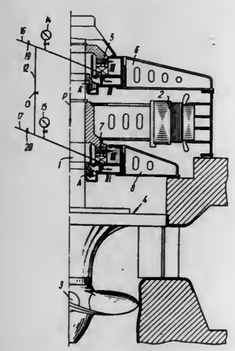
removable cap. The vibrator may be selectively operated at high or low speed by manual rotation of the end cap.

3,549,921
MAGNETIC INDUCTION COUPLINGS
Clifford Halstead and Jonathan Reed, Cambridge, England, assignors to Pye Limited, Cambridge, England, a British Company
Filed July 28, 1969, Ser. No. 845,225
Claims priority, application Great Britain, Aug. 15, 1968, 39,154/68
Int. Cl. H02k *49/02*
U.S. Cl. 310—105 **15 Claims**



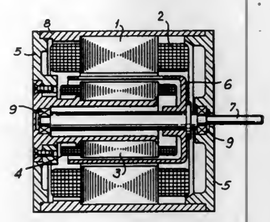
This invention relates to a magnetic induction coupling having two rotatable parts and a stator part arranged in axially spaced relationship. One of the rotatable parts comprises a disc of nonmagnetic material which is arranged between the other rotatable part carrying axial extending pole pieces and a portion of the stator. The stator has a region extending around the periphery of the poled rotatable part to define a radial air gap therebetween and means are associated with the stator for producing a magnetic field which imparts the same polarity to all the pole pieces.

3,549,922
VERTICAL SHAFT ELECTRIC MACHINE
Konstantin Fedorovich Kostin, Prospekt Lenina 48, kv. 101, and Grigory Iosifovich Shur, Ulitsa Krasnoflotsev 7, kv. 11, both of Sverdlovsk, U.S.S.R.
Filed Sept. 6, 1968, Ser. No. 757,808
Int. Cl. H02k *5/16, 7/08*
U.S. Cl. 310—157 **1 Claim**



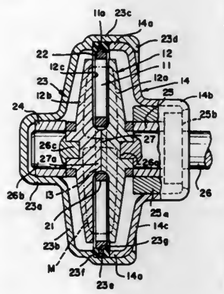
A vertical electric machine such as a hydraulic generator has at least one segmented bearing disposed above the rotor and at least one segmented bearing disposed below the rotor on supports. Each bearing is provided with a hydraulic system intercommunicating the segments thereof. The hydraulic systems of the bearings disposed above and below the rotor are interconnected hydraulically by a pipeline to allow partial movement of the fluid from one system to the other to vary the distribution of the load between the bearings.

3,549,923
LOW-SPEED SYNCHRONOUS ELECTRIC MOTOR
Alexandr Sergeevich Kurakin, Oktyabrsky prospekt 5, kv. 50, Voronezh, and Fedor Mikhailovich Juferov, Energeticheskaya ulitsa 8, Korpus 1 kv. 104, Moscow, U.S.S.R.
Filed Apr. 22, 1968, Ser. No. 723,116
Int. Cl. H02k *21/00*
U.S. Cl. 310—162 **2 Claims**



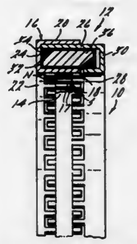
A low-speed synchronous electric motor with electromagnetic speed reduction comprises internal and external stators arranged within a motor frame and having facing surfaces with an equal number of slots which are open approximately for one-half of the tooth pitch. An AC winding is fitted in the slots of the external stator and a hollow thin wall cylindrical rotor is placed in the annular gap between the internal and external stators. The hollow rotor has a base made of a nonmagnetic material into the surface of which ferromagnetic laminations are embedded to constitute teeth.

3,549,924
EDDY-CURRENT TACHOMETERS FOR VEHICULAR BRAKE SYSTEMS AND THE LIKE
Hans-Christof Klein, Hattersheim am Main, Germany, assignor to Alfred Teves G.m.b.H., Franklin am Main, Germany, a corporation of Germany
Filed Sept. 25, 1968, Ser. No. 762,525
Claims priority, application Germany, Sept. 26, 1967, T34889
Int. Cl. H02k *19/20, 19/24*
U.S. Cl. 310—168 **9 Claims**



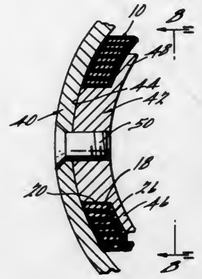
A tachometer, especially for antiskid brake-control systems, in which a stationary eddy-current disc is mounted in the tachometer housing and is flanked by a pair of rotatable magnetic portions of the tachometer rotor which is driven by the vehicle wheel. The disc is provided with openings between the inner and outer peripheries to which the output terminals of the system are respectively attached.

3,549,925
ALTERNATING CURRENT GENERATOR
Horward R. Johnson, Ann Arbor, Mich., assignor to Kelsen Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Feb. 5, 1969, Ser. No. 796,818
Int. Cl. H02k *19/24*
U.S. Cl. 310—168 **9 Claims**



A device utilizing a permanent magnet and providing an alternating current output by alternately reversing flux around an output coil and including a stator including the coil and having stator members with interdigitating fingers for defining magnetic paths around the coil with the rotor including a magnet structure with a plurality of north and south poles cooperating with the stator members so as to provide flux reversal around the coil.

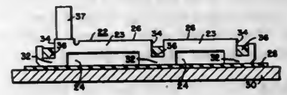
3,549,926
INSULATED COIL FOR USE IN A DYNAMOELECTRIC MACHINE
Alex M. Pentland, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Feb. 5, 1969, Ser. No. 796,665
Int. Cl. H02k *3/32*
U.S. Cl. 310—194 **12 Claims**



The disclosure relates to a dynamoelectric machine having a housing member constructed of ferromagnetic material and a pole member constructed of ferromagnetic material affixed to the housing member. A coil constructed of a number of turns of a conductor has the conductor enclosed by a sheet of insulating material. This insulating material has at least one excess tab extending from the conductor. The tab is positioned in engagement with the ferromagnetic material of one of the members to act as a cushion for holding the coil in position between the housing member and the pole member.

3,549,927
CONTOURED BARS FOR BANDED COMMUTATORS
August C. Mann, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 5, 1968, Ser. No. 773,467
Int. Cl. H01n *39/04;* **H02k** *13/00*
U.S. Cl. 310—236 **4 Claims**

A commutator comprising bars or segments secured on a supporting bushing by bands spaced apart along the axis of the bushing, each of the bars or segments having a reduced area or cutout portion between the location of the bands to reduce the total arching pressure between the bars, and to



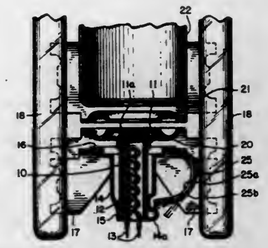
reduce the length and weight of the bars and thus the centrifugal forces when the commutator undergoes high-speed rotation.

3,549,928
ARMATURE
Theodor F. Knapp, Farmington, Mich., assignor to Dura Corporation, a wholly owned subsidiary of Walter Kidde & Company, Inc., Oak Park, Mich., a corporation of New York, by mesne assignments
Filed June 17, 1963, Ser. No. 288,152
Int. Cl. H02k *1/22*
U.S. Cl. 310—268 **26 Claims**



Disclosed are disc-type armatures formed from a plurality of layers of thin conductive sheet material insulated from one another. Each layer of conductive sheet material comprises a predetermined spaced pattern of individual conductor segments which form half-turn of the armature winding coils. The half-turn conductor segments in each layer are electrically connected to the individual conductor segments in the other layers in series relationship to form a continuous wave-type winding.

3,549,929
BIMETALLIC CONNECTOR FOR COMPLETING PATH BETWEEN CATHODE AND HEAT SINK FOR TEMPERATURE CONTROL
Nicholas P. Pappadis, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Aug. 30, 1968, Ser. No. 756,461
Int. Cl. H01j *7/24, 1/02*
U.S. Cl. 313—37 **4 Claims**



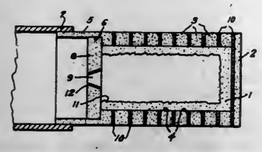
A temperature stabilized cathode assembly for a cathode-ray tube is conventional except for the addition of a bimetallic element for establishing a path of low thermal resistance between the cathode and a heat sink. One end of the bimetallic element is fixed and the other is in close proximity to but out of physical contact with the cathode. As the cathode comes to temperature and this element expands, a desired low resistance thermal connection is established to increase the heat dissipating properties of the cathode. If the cathode temperature goes beyond a desired value, further expansion of the bimetallic element breaks the connection to the heat

sink, restoring the normal temperature heater voltage characteristic of the cathode.

3,549,930
A COLLECTOR FOR TRAVELLING WAVE TUBES CONSTRUCTED OF PYROLYTIC

Helmut Katz, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

Filed Dec. 12, 1968, Ser. No. 783,277
Claims priority, application Germany, Dec. 13, 1967, 1,614,679
Int. Cl. H01j *1/38, 7/24, 23/12*
U.S. Cl. 313—44 **4 Claims**

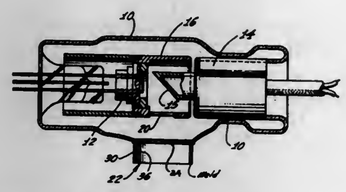


A collector for electrical discharge vessels, for example traveling wave tubes, is provided by a plurality of annular discs which range in thickness from 3 to 10 mm. and which are bonded together. The discs may be bonded vacuum tight with each other and with a wall of a discharge vessel as a continuation thereof so that the collector forms an integral part of the housing of the discharge vessel.

3,549,931
X-RAY TRANSMISSIVE WINDOW ASSEMBLY

Victor E. DeLucia, Los Angeles, Calif., assignor to Torr Laboratories, Inc., Los Angeles, Calif., a corporation of California

Continuation of application Ser. No. 752,623, Aug. 14, 1968, now abandoned. This application Dec. 4, 1968, Ser. No. 781,143
Int. Cl. H01j *35/18*
U.S. Cl. 313—55 **7 Claims**



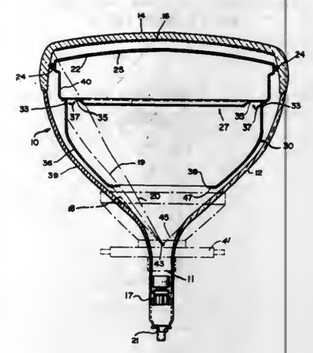
A high voltage X-ray tube is provided which includes a hooded cathode to prevent stray and secondary emission electron charges from collecting on the inner surface of the envelope of the tube, and by which improved operation is achieved through the focusing effect of the hood on the electron beam in the tube; and which includes an improved window for permitting X-rays to be passed through the envelope of the tube, and which is constructed as a separate subassembly.

3,549,932
COLOR TELEVISION TUBE WITH SHADOW MASK ASSEMBLY PROVIDED WITH SHIELD FOR REDUCING X-RAY RADIATION AND THE EFFECT OF STRAY MAGNETIC FIELDS

Richard J. Lindeman, Elmwood Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Continuation of application Ser. No. 570,888, Aug. 8, 1966, now abandoned. This application Apr. 4, 1969, Ser. No. 817,243
Int. Cl. H01j *1/52, 29/46*
U.S. Cl. 313—85 **6 Claims**

Shield means are provided inside a color television receiver cathode ray tube for preventing overscanned electrons from falling on the viewing screen, for reducing stray magnetic fields affecting the alignment of the electron beams

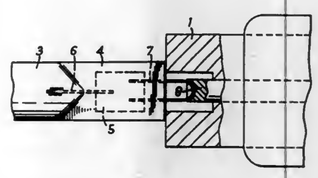


on their proper phosphors and for limiting the escaping from the tube of X-rays produced from the impingement of the electron beams on the shadow mask.

3,549,933
QUARTZ LAMPS

John Frederick Smalley, London, England, assignor to British Lighting Industries Limited, London, England

Filed Dec. 6, 1967, Ser. No. 688,451
Claims priority, application Great Britain, Feb. 6, 1967, 5,626/67
Int. Cl. H01k *1/24*
U.S. Cl. 313—113 **6 Claims**



An arc or filament lamp having a quartz envelope with molybdenum foil seals in which the external leads are of molybdenum wire with a nonoxidizing coating of platinum and are made stiff enough, preferably in loop formation, to enable the lamp to be supported directly by electrical contacts engaging the leads, thus facilitating location of the lamp in a fitting.

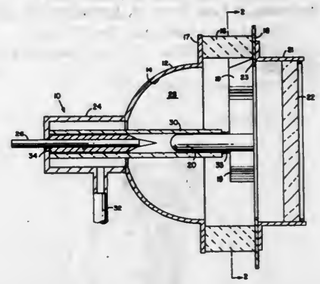
3,549,934
RESONANCE SHIELD FOR HIGH PRESSURE SHORT-ARC LAMPS

Teddy J. Peacher and Dorwin L. Kilbourn, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed Jan. 7, 1969, Ser. No. 789,529
Int. Cl. H01j *5/16*
U.S. Cl. 313—113 **3 Claims**

A short-arc lamp having means for limiting resonances occurring therein. The lamp includes an envelope enclosing a cathode and an anode in a large cavity. A tubular shield member carried in the cavity encloses the anode and

cathode, whereby the effective size and shape of the cavity is reduced and the resonances occurring in the modulated

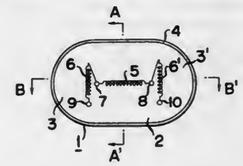


plasma is restricted by the dimensions of the tube's inner surface and plasma density.

3,549,935
HEADLIGHT LAMP FOR AUTOMOBILES HAVING SIDE REFLECTORS AND FILAMENTS TO FACILITATE VISION WHEN MAKING TURNS

Kakujiu Motoyama and Hiroshi Yako, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan

Filed Aug. 13, 1968, Ser. No. 752,287
Claims priority, application Japan, Aug. 17, 1967, 42/70,945
Int. Cl. H01j *61/40, 5/16*
U.S. Cl. 313—114 **4 Claims**

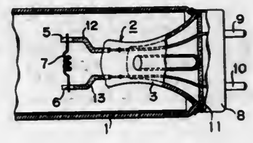


A headlight lamp for automobiles comprising side reflectors symmetrically disposed on opposite sides of central reflector and side filaments disposed within side reflectors for side illumination in addition to forward illumination.

3,549,936
LOW PRESSURE MERCURY VAPOR DISCHARGE LAMPS INCLUDING AN ALLOY TYPE GETTER COATING

Akira Hama, Himeji-shi, Tadaaki Watanabe, Hyogo-kin, and Shunji Kikuchi and Norio Kumagai, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co. Ltd., Kawasaki-shi, Japan, a corporation of Japan

Filed May 31, 1968, Ser. No. 733,706
Claims priority, application Japan, June 3, 1967, 42/46,877
Int. Cl. H01j *61/20, 61/26, 61/35*
U.S. Cl. 313—178 **11 Claims**

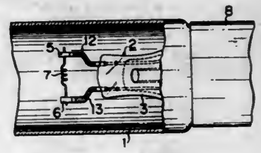


A low-pressure mercury vapor discharge lamp wherein a pair of electrode mounts are sealed to the ends of the light-transmissive elongated sealed envelope having a getter of titanium-nickel alloys containing more than 5 percent by weight of titanium. The getter effectively adsorbs free oxygen released in the discharge lamp thereby greatly restricting the possible formation of end bands or end blackenings on the inner wall of the envelope in the vicinity of the electrode.

3,549,937
LOW PRESSURE MERCURY VAPOUR DISCHARGE LAMP INCLUDING AN ALLOY TYPE GETTER COATING

Teizo Hanada, Saitama-ken, Tadaaki Watanabe, Hyogo-ken, and Kenji Enokida, Shunji Kikuchi, and Akira Someya, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan

Filed Jan. 30, 1969, Ser. No. 795,314
Claims priority, application Japan, Feb. 3, 1968, 43/6,427
Int. Cl. H01j *61/20, 61/26, 61/35*
U.S. Cl. 313—178 **8 Claims**

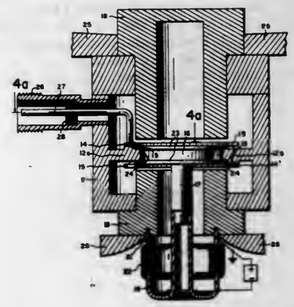


A low pressure mercury vapor discharge lamp with reduced generation of end bands and with no increase in the occurrence of anode spots, including a getter comprising an alloy of at least one selected from a first group consisting of nickel, cobalt, iron, aluminum and copper and at least one selected from a second group consisting of titanium, zirconium, hafnium, thorium, vanadium, niobium, tantalum, scandium, cerium and tungsten, said alloy excluding a titanium alloy.

3,549,938
MICROWAVE TUBE WITH A ROD ARRAY SLOW WAVE CIRCUIT HAVING CAPACITIVE COUPLING BETWEEN ALTERNATE RODS

Hunter L. McDowell, Chatham, N.J., assignor to Varian Associates, Palo Alto, Calif., a corporation of California. by mesne assignments

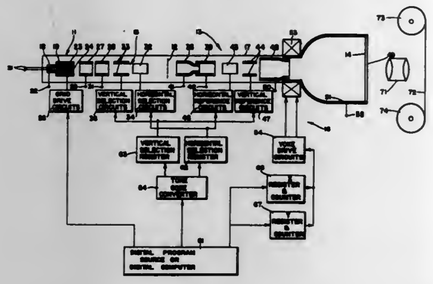
Original application Jan. 3, 1962, Ser. No. 164,008, now Patent No. 3,308,336, dated Mar. 7, 1967. Divided and this application Feb. 6, 1967, Ser. No. 614,100
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 **4 Claims**



There is disclosed herein a number of strapped vane and rod-type slow-wave circuits and tubes using same. The rod circuits of the present invention are characterized by a novel type of strapping which capacitively couples together alternate rods of the circuit to one strap and capacitively cou-

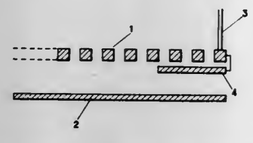
ples together the alternate intervening rods of the circuit to a second strap. This strapped rod circuit has become known as a C_{13} coupled circuit and is disclosed as being especially well suited for use in high power crossed field microwave tubes such as magnetron amplifiers for providing increased bandwidth and power handling capability.

3,549,939
CATHODE RAY TUBE SYSTEM FOR PRODUCING HALF-TONE IMAGES
Louis A. Smitzer, San Diego, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif., a corporation of Delaware
Filed Mar. 28, 1969, Ser. No. 811,531
Int. Cl. H01j *29/76*
U.S. Cl. 315—18 **16 Claims**



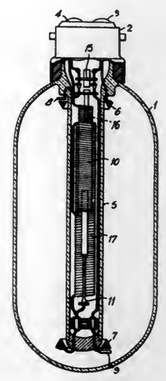
A cathode ray tube (CRT) system is described for producing a graphic image having areas of different tone levels. The image is produced by a plurality of uniformly spaced dots of different sizes, each size corresponding to one of the tone levels. The sizes of the dots are regulated by controlling the cross-sectional size of the electron beam. Beam size is determined by an apertured beam shaping plate within the tube having a plurality of apertures of graduated sizes. Beams shaped to appropriate sizes by selected apertures are positioned in succession on the uniformly spaced elemental areas of the tube screen to produce a pictorial image.

3,549,940
TAPERED CONDUCTIVE SHIELD IN A "M" TYPE TUBE TO DECOUPLE SLOW AND FAST MODES AT THE OUTPUT
Jacques Arnaud, Paris, France, assignor to CSF Compagnie Generale De Telegraphic Sans Fil, Paris, France
Original application Oct. 15, 1962, Ser. No. 230,384, now Patent No. 3,377,572. Divided and this application Aug. 7, 1967, Ser. No. 705,235
Claims priority, application France, Oct. 24, 1961, 876,828
Int. Cl. H01j *25/42;* **H01p** *1/16*
U.S. Cl. 315—39.3 **2 Claims**



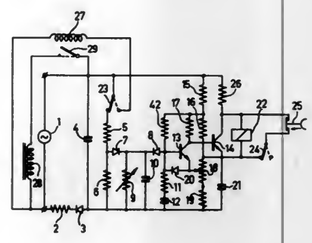
The coupling between the delay line and the interaction space bounded by the delay line and the sole of a M tube is progressively decreased in the output direction by means of a tapered conductive shield plate located in the vicinity of the output coupling system, so that there is no radiation coupling between the "fast mode" energy and the useful "slow mode" energy propagating on the delay line.

3,549,941
DISCHARGE LAMP WITH CIRCUIT ELEMENTS INCORPORATED IN THE ENVELOPE
Arnold Friedmann, 6 Gan Rehavia, Jerusalem, Israel
Filed June 3, 1968, Ser. No. 733,968
Int. Cl. H01j *17/34, 61/56;* **H05b** *41/19*
U.S. Cl. 315—58 **8 Claims**



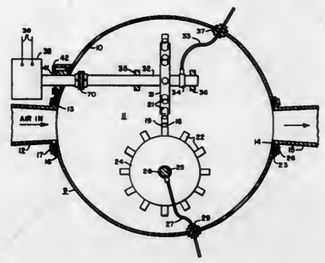
A fluorescent lamp has two external terminals only. The envelope contains a pair of main electrodes at its opposite ends and a pair of starter electrodes each close to a main electrode. On switching on the lamp discharges are struck between each main electrode and its adjacent starter electrode and current-operated relays within the envelope function to switch the supply voltage across the main electrodes when the initial discharges reach sufficient magnitudes. This causes the main discharge to strike. A ballast resistor switched in by another relay can also be included within the envelope thus enabling the external terminals to be connected directly to a mains supply.

3,549,942
CIRCUIT ARRANGEMENT FOR DELAYED CONNECTION OF A MAGNETRON TO THE HIGH VOLTAGE, AND INCLUDING AN RC NETWORK IN ITS INPUT CIRCUIT
Meinardus Antonius Gerardus Nijholt, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware. by mesne assignments
Filed Dec. 26, 1967, Ser. No. 693,565
Claims priority, application Netherlands, Dec. 31, 1966, 6618487
Int. Cl. H05b *41/04;* **H01h** *47/18*
U.S. Cl. 315—102 **6 Claims**



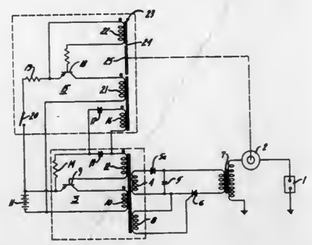
Circuit arrangement for delayed connection of a magnetron to the high voltage, and including an RC network in its input circuit.

3,549,943
ROTATING ELECTRODE AND GAS ARC HEATER EMPLOYING THE SAME
Charles H. Church, Alexandria, Va., and Leslie S. Frost, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation-in-part of application Ser. No. 435,624, Feb. 26, 1965, now abandoned. This application June 25, 1968, Ser. No. 748,120
Int. Cl. H01j *1/44, 7/24;* **H05h** *7/18*
U.S. Cl. 315—111 **14 Claims**



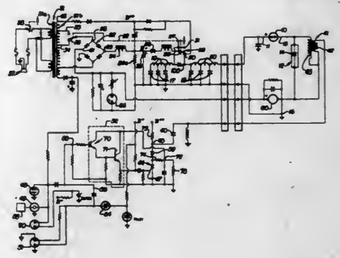
An electrode from which an arc takes place to a surface of opposite polarity is rotated to provide substantially continuous movement of the arc spot over the arcing surface to reduce the erosion rate. At least one rotating electrode is used in conjunction with an at least partially enclosed vessel containing material to be heated. A pair of electrodes, at least one of which rotates, are utilized in an arc furnace for heating air or other gas having a chamber with a reflecting wall or walls with the arc being located at substantially the optical center, radiation emitted by the arc being reimaged and passing through the chamber a number of times thereby increasing the percentage of the energy of the emitted radiation utilized in heating the gas.

3,549,944
TRIGGERED SUPPLY FOR ARC GAP UNIT
Floyd M. Minks, Cambellsport, Wis., assignor, to Brunswick Corporation, Chicago, Ill., a corporation of Delaware.
Filed Feb. 16, 1966, Ser. No. 527,866
Int. Cl. H05b *37/02, 39/04*
U.S. Cl. 315—209 **8 Claims**



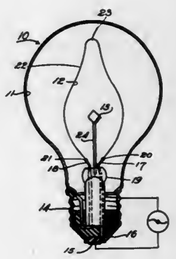
This disclosure includes a capacitor discharge ignition system having a triggered blocking oscillator connected to charge a capacitor. A gated oscillator is connected to fire the triggered oscillator. The gated oscillator includes three windings wound one on each of the three legs of an E-shaped core. A rod of ferrite rotates to selectively bridge the gap between the legs and couple two of the windings for producing a pulse to trigger the triggered blocking oscillator. The gated oscillator includes a negative feedback winding to positively hold the gated oscillator off with the rod spaced from the legs.

3,549,945
STROBE LIGHT
James G. Helmuth, Monrovia, Calif., assignor to Chadwick-Helmuth Electronics, Inc., Monrovia, Calif., a corporation of California
Filed Nov. 16, 1965, Ser. No. 508,039
Int. Cl. H05b *37/00, 39/00, 41/14*
U.S. Cl. 315—241 **8 Claims**



The disclosure concerns stroboscopic apparatus in which high intensity flashes of light are yielded from an extremely small light source.

3,549,946
INCANDESCENT LAMP WITH OSCILLATING FILAMENT
Robert J. Kyp, 526 Geneva Road, Glen Ellyn, Ill. 60137
Filed Nov. 29, 1968, Ser. No. 780,152
Int. Cl. H01k *1/02, 7/06;* **H05h** *41/16*
U.S. Cl. 315—267 **3 Claims**



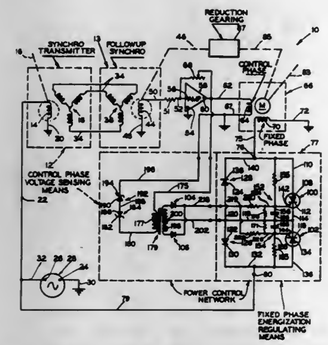
My electric light bulb has a movable filament adapted to be illuminated by AC electrical current. My filament and my envelope are each of such a size that my filament is positioned within and spaced from the envelope so that my filament will not contact the envelope, even during movement of the filament. My magnet is positioned either within or without the envelope, but in sufficient proximity to the filament to provide direct movement of the illuminated filament, and with return movement set up by the AC current to maintain vibration of the illuminated filament and to fan out light within the filament loop to produce the effect of a solid wide living burning flame. I prefer to use an aged filament, which has previously been aged by my method of subjecting it to a higher voltage than normally used.

3,549,947

METHOD AND MEANS FOR REDUCING POWER CONSUMPTION IN AN ALTERNATING CURRENT SERVO MOTOR SYSTEM DURING NULL SIGNAL OPERATING CONDITIONS

Walter Parfomak, Wallington, N.J., Robert J. Molnar, New York, N.Y., and John Aitken, Hasbrouck Heights, N.J., assignors to The Bendix Corporation, a corporation of Delaware

Filed June 11, 1968, Ser. No. 736,106
Int. Cl. G05b *5/01*
U.S. Cl. 318—681 **19 Claims**



A method and means for reducing power consumption significantly in an alternating current servomotor system during null signal operating conditions, the system being of a type including a two-phase servomotor having a controlled phase winding and a fixed phase winding, together with an input signal means and a followup signal means, each of which may be some type of alternating current transducer. The method and means for reducing the power consumption includes a means for detecting the signal voltage across the control phase winding of the servomotor, together with means for regulating energization of the fixed phase winding, and means operatively connecting the voltage sensing means to the regulating means so as to significantly reduce the fixed phase energizing current at a null signal condition without affecting the system accuracy or response. Thus as the servomotor is slewing at maximum speed, the fixed phase winding of the motor is excited with maximum alternating current, while as the alternating current signal voltage applied across the control phase winding of the motor approaches a null signal condition the excitation current applied to the fixed phase winding of the motor is gradually decreased until it reaches a minimum value of, for example, one-half the maximum excitation. In the example given, since the minimum excitation current would in effect be equal to one-half the rated voltage, the motor power at the null signal condition would be one-quarter the rated power. Moreover, in order to maintain the servo sensitivity and accuracy at or around the null signal condition the gain of the signal amplifier is effectively doubled.

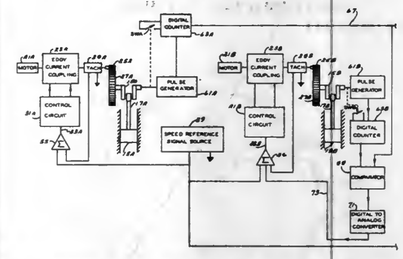
3,549,948

PRESS SYNCHRONIZING APPARATUS

Ralph L. Jaeschke, Kenosha, Wis., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio

Filed Jan. 2, 1968, Ser. No. 694,954
Int. Cl. H02p *5/52*
U.S. Cl. 317—6 **6 Claims**

Apparatus is disclosed for operating a plurality of presses in synchronism. The crankshafts of the presses are driven through respective eddy-current couplings each of which includes both an eddy-current clutch and an eddy current brake. Thus, a variable torque in either direction can be applied to each crankshaft by appropriately varying the energization levels of the clutch and brake. The apparatus includes a source for providing a reference signal having an amplitude which, at each instant, represents a preselected speed for the presses. A tachometer is coupled to each press for generating a feedback signal the amplitude of which varies as a function of the actual instantaneous speed of the respective press. One of the presses acts as a master for controlling the other or slave presses. The torque applied to the crankshaft of the master press is varied as a function of the relative amplitudes of the reference signal and the respective feedback signal so that the master press is operated substantially at the speed represented by the reference signal. Respective selsyns are driven by each of the presses, including the master press, and the signal obtained from each selsyn driven by one of the slave presses is compared with that provided by the selsyn on the master press to generate a phase error signal for each slave press having an amplitude which varies as a function of the instantaneous angular displacement between the respective slave press crankshaft and the crankshaft of the master press. The torque applied to the crankshaft of each of the slave presses is then varied as a function of the algebraic sum of the common reference signal and the respective feedback and phase error signals thereby to operate each of the slave presses in synchronism with the master press.

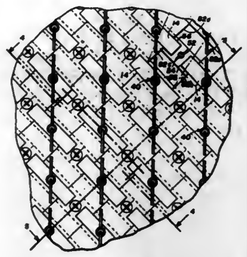


3,549,949

SOLID-STATE MODULAR MICROWAVE SYSTEM

Doyle S. Granberry, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Apr. 3, 1967, Ser. No. 628,140
Int. Cl. H05k *7/20*
U.S. Cl. 317—100 **22 Claims**



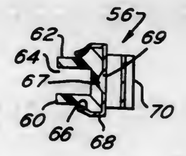
A solid-state, modular microwave transmitter-receiver assembly made up of a large number of transmit-receive modules each having an antenna. Each of the modules has functional electronic blocks mounted on both sides of a center mounting plate contained within a hermetically sealed package. The module packages generally conform to the center mounting plate and are elongated, with a greater width than thickness. The antenna extends from the front end of the module and connectors extend from the rear end. The connectors are plugged into a rear support structure and are retained in place by a series of retaining plates fastened by long screws to the rear support structure. The retaining plates also form the ground plane for the antenna array. The antennae are arrayed in horizontal rows and vertical columns, and the module packages are arranged in rows extending diagonally of the antenna rows and columns with the edges of the packages in each row abutting. A cooling fluid duct is formed between each adjacent pair of module rows by the walls of the module packages, the retaining plates and the rear support structure. A manifold and header assembly directs cooling fluid in opposite directions through alternate cooling fluid ducts. The antenna assembly of each module provides a hermetically sealed coupling between the antenna and the interior of the package, supports the dipole elements, and provides impedance and balun transforming. The functional electronic blocks are easily secured on the mounting plate by spot welded brackets and are replaceable. The hermetically sealed antenna assembly and coaxial input and output connections are connected to microstrip lines within the module by spot welded straps of solid ribbon or woven metal wire fabric, as are adjacent microstrip lines on adjacent abutting functional electronic blocks. Connections are made between functional electronic blocks on opposite faces of the mounting plate by a special coaxial structure extending through the mounting plate.

3,549,950

PRINTED CIRCUIT BOARD HOLDER

William L. Shelden, Moorestown, N.J., assignor to National Metalcrafters, Inc., Philadelphia, Pa., a corporation of Pennsylvania

Filed Feb. 10, 1969, Ser. No. 797,785
Int. Cl. H05k *5/02*; **H02b** *1/04*
U.S. Cl. 317—101 **1 Claim**



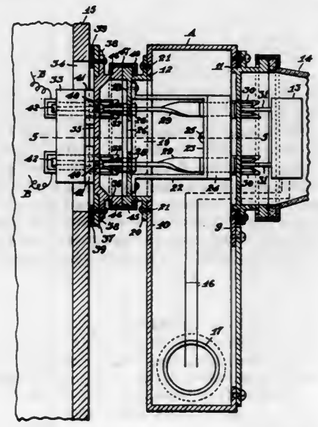
A printed circuit board holder is provided wherein a circuit board has its opposite edges connected to the holder by means of retainers. The retainers are preferably made of plastic and are removable and connected at their ends to the holder or housing. The retainers may have a friction fit with the circuit board or may permit a slight degree of play between the board and the retainers. The retainers provide a floating support for better reliability in making an electrical connection between the circuit board and related connectors.

3,549,951

METER-BOX WITH DISCHARGE SIDE MOUNTING ARRANGEMENT

Merle A. Plummer, North Hollywood, Calif., assignor to Myers Electric Products, Inc., Montebello, Calif., a corporation of California

Filed Mar. 28, 1969, Ser. No. 811,521
Int. Cl. H02b *9/00*
U.S. Cl. 317—107 **4 Claims**



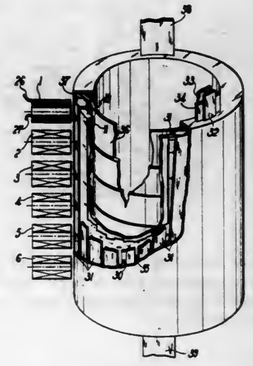
This invention pertains to a meter-box carrying an electric meter presented to the outer side thereof and to which meter electrical current is is supplied through underground conductors leading from a source of electrical supply; the invention residing in the construction and arrangement of parts constituting the discharge side of the meter-box and leading between the electric meter on the box and the electrical wiring system of an adjacent building.

3,549,952

ELECTROMAGNETIC SUPERCONDUCTING ACCUMULATOR DEVICE AND METHOD FOR ACCUMULATING ELECTRICAL ENERGY

Jean Sole, Clamart, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed July 18, 1967, Ser. No. 654,104
Claims priority, application France, July 20, 1966, 70,148
Int. Cl. H01v *11/00*
U.S. Cl. 317—123 **23 Claims**
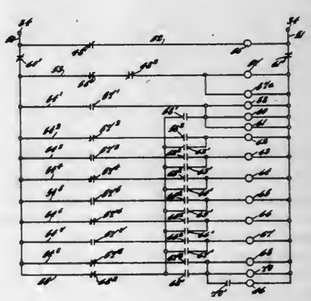


The present disclosure relates to an electromagnetic accumulator device comprising a superconducting circuit having a closed configuration and an external supply circuit. More particularly, the present disclosure concerns the trapping of electrical energy in a superconducting circuit where it is stored and maintained without loss of energy until the time of its controlled release into a load circuit.

3,549,953

REMOTE CONTROL RESET SYSTEM FOR USE WITH A GROUND MONITOR CIRCUIT

Thomas C. Stitt, 424 17th St., Barnesboro, Pa. 15714

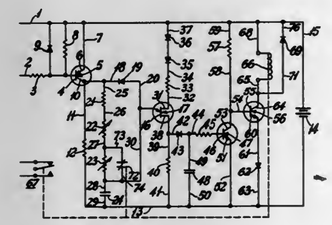
Filed Feb. 6, 1969, Ser. No. 797,170
Int. Cl. H01h *71/68*
U.S. Cl. 317—139 **9 Claims**



A remote control system particularly suitable for mine use, desirably operating on the ground monitor circuit. A single interruption of the ground monitor circuit can open a circuit breaker and a predetermined number of interruptions within

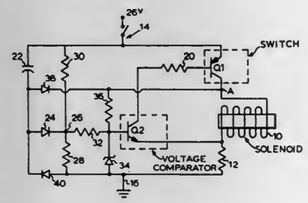
a limited time can close the circuit breaker. Each interruption of the circuit energizes a step relay, and each step relay except the last as it is energized locks itself in and closes setup contacts permitting energizing the next step relay.

3,549,954
UNIJUNCTION FREQUENCY DETECTOR
Leo B. Bourgeault, Wall Township, and Alfred Compoly, Marlboro, N.J., assignors to The Bendix Corporation, a corporation of Delaware
Filed Feb. 17, 1967, Ser. No. 616,975
Int. Cl. H01h *47/20*; G04r *23/00*
U.S. Cl. 317—147 **4 Claims**



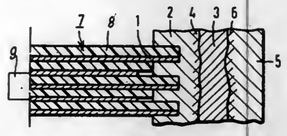
Apparatus for detecting a predetermined frequency in which the time constant of a RC network controls the firing of an unijunction transistor upon the input frequency being below a predetermined level.

3,549,955
DRIVE CIRCUIT FOR MINIMIZING POWER CONSUMPTION IN INDUCTIVE LOAD
T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of William E. Crawford, Altadena, Calif.
Filed Aug. 19, 1969, Ser. No. 851,394
Int. Cl. H01h *47/32*
U.S. Cl. 317—148.5 **16 Claims**



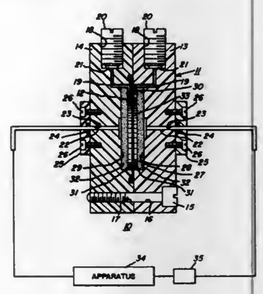
A circuit for driving an inductive load, such as a solenoid, so as to minimize the solenoid power consumption. The circuit parameters are selected so as to apply a driving voltage to the solenoid until the solenoid current exceeds the "pull-in" current. Then the circuit automatically terminates the driving voltage and the current through the solenoid is permitted to decay to a value just exceeding the "drop-out" current. The circuit then continues to cycle on and off to alternately drive current through the solenoid and permit it to decay while always maintaining the solenoid current in excess of the drop-out current but considerably below the pull-in current. This cycling continues until the solenoid activate switch is opened.

3,549,956
ELECTRICAL CONDENSOR WITH THIN REGENERABLE COATINGS AND METHOD OF MAKING THE SAME
Hubert Polle, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany
Filed Oct. 21, 1968, Ser. No. 769,057
Claims priority, application Germany, Oct. 26, 1967, S112578
Int. Cl. H01g *3/17*
U.S. Cl. 317—230 **11 Claims**



Electrical condenser bodies and method of making the same having a plurality of stacked dielectric foils covered with thin regenerable metal coatings arranged in staggered relationship with alternating lead edges which are consecutively coated with a plurality of metal layers that form alloys with each other.

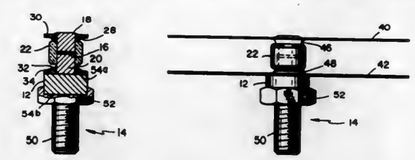
3,549,957
ELECTROCHEMICAL CELL WITH ELECTRON EXCHANGE MEMBRANE BETWEEN SOLUTIONS IN COMPARTMENTS
Joseph L. Weininger and William N. Carson, Jr., Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
Continuation-in-part of application Ser. No. 748508, July 29, 1968, now abandoned. This application Feb. 24, 1969, Ser. No. 801,515
Int. Cl. H01g *9/22*
U.S. Cl. 317—231 **5 Claims**



An electrochemical cell employs a redox couple in a solution in two separate chamber portions separated by an ion exchange membrane. A chemically inert electrode is positioned in each chamber portion in contact with the electrolytic solution. This cell operates with only an electron exchange between the oxidized and reduced form of a soluble ion upon current passage as opposed to the deposition and dissolution of a material during the operation of the device. This cell operates as a coulometer or as a very accurate, reproducible timing device upon the application of a predetermined current thereto.

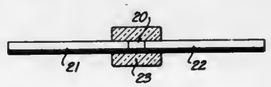
3,549,958
HIGH POWER STUD MOUNTED DIODE
David H. Margolien, Lexington, Mass., assignor to Unitrode Corporation, Watertown, Mass., a corporation of Maryland
Filed May 3, 1968, Ser. No. 726,399
Int. Cl. H01l *3/00*, *5/00*
U.S. Cl. 317—234 **8 Claims**

A high-power semiconductor diode in which an axially configured diode structure having effective thermal dissipation properties is mounted on a thermally massive structure which does not affect the electrical function of the diode terminals. The diode is rigidly mounted to a threaded stud by



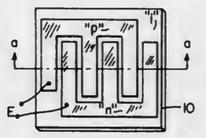
means of an electrically insulative body of high thermal conductivity to provide an efficient thermal mounting for the diode without affecting the electrical performance thereof.

3,549,959
SEALED ELECTRICAL CIRCUIT COMPONENT
Vincent J. Alessi, Playa Del Rey, Calif. (835 Seagull Lane Apt. C-212, Newport Beach, CA 92660)
Continuation of application Ser. No. 624,941, Mar. 21, 1967, now abandoned, which is a division of application Ser. No. 371,414, June 1, 1964, now Patent No. 3,365,284. This application Feb. 5, 1969, Ser. No. 798,265
Int. Cl. H01l *1/10*, *1/14*
U.S. Cl. 317—234 **3 Claims**



An electrical circuit component such as a solid state diode comprising a circuit element such as a chip having a pair of terminal faces with a wire lead butt joined to each terminal face and with a tubular glass sleeve encasing the element and lead ends and fused to the lead ends.

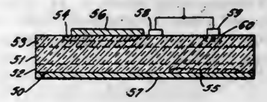
3,549,960
THERMO-PHOTOVOLTAIC CONVERTER HAVING BACK-SURFACE JUNCTIONS
Bruce D. Wedlock, Arlington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts
Filed Dec. 20, 1967, Ser. No. 692,118
Int. Cl. H01l *15/02*, *5/00*, *5/02*
U.S. Cl. 317—235 **7 Claims**



A thermophotovoltaic energy converter comprising a germanium wafer with interdigital or finger junctions on the surface of the wafer opposite that on which radiant energy impinges is described. The germanium wafer may be intrinsic, in which case the fingers are *p* and *n* type. If the germanium wafer is *n* type, the fingers are *p* and ohmic junctions.

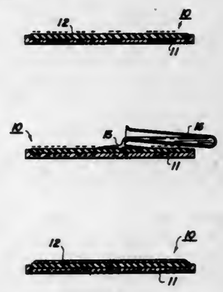
3,549,961
TRIAC STRUCTURE AND METHOD OF MANUFACTURE
John M. Gault, Manhattan Beach, Calif., assignor to International Rectifier Corporation, Los Angeles, Calif., a corporation of California
Filed June 19, 1968, Ser. No. 738,223
Int. Cl. H01l *9/12*
U.S. Cl. 317—235 **9 Claims**

A triac device in which semicircular cathode layers are epitaxially deposited on the opposite surfaces of a silicon wafer and are laterally spaced from one another by a distance of about a few minority carrier diffusion lengths. The central conductivity layer has an increased resistivity and minimizes transverse current which may cause injection of carriers into the central layer in the half of the wafer por-



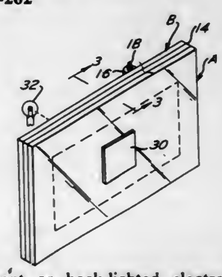
tion which has not been conducting. A gate layer is epitaxially deposited into the upper surface of the wafer and is aligned with a cathode layer on the bottom of the wafer. A second gate connection is made on the upper surface of the wafer and is laterally displaced from the bottom cathode layer.

3,549,962
UNIFORM ELECTROSTATIC CHARGING
Walter Roth, Rochester, N.Y., and Alex E. Jvirblis, Santa Clara, Calif., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 18, 1967, Ser. No. 676,278
Int. Cl. G03g *13/00*
U.S. Cl. 317—262 **5 Claims**



This invention relates to a method for uniformly charging insulating surfaces comprising providing a surface having a nonuniform charge density thereon and thereafter contacting said nonuniformly charged surface with a material causing the charged surface to attain a uniform charge density in contacted areas.

3,549,963
BACK LIGHTED ELECTROSTATIC COPYBOARD
Dolph Simons, Philadelphia, Pa., assignor to The Simco Company, Inc., Lansdale, Pa., a corporation of Pennsylvania
Filed June 17, 1968, Ser. No. 737,400
Int. Cl. H05x ; G02b
U.S. Cl. 317—262 **12 Claims**

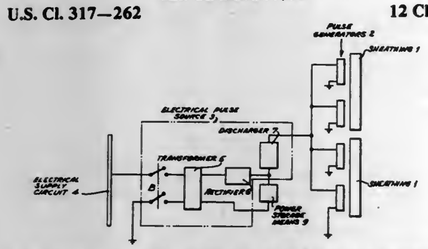


A transparent or back-lighted electrostatic copyboard which includes a transparent or translucent nonconductive face plate and a liquid which is conductive at high voltages, such as water, held in abutment with the face plate by a container, also preferably nonconductive and transparent or translucent whereby a unidirectional high voltage applied to the liquid will permit objects to electrostatically adhere to the face plate while being back illuminated therethrough.

3,549,964
DEVICE FOR DEICING SURFACES OF THIN-WALLED STRUCTURES

Igor Anatolievich Levin; Anatoly Yakovlevich Levin, both of Ulitsa Stepana Supruna, 12, kv. 74; Nikolai Eystigneevich Fedorov, Volokolamskoe shosse, 6, kv. 213; Iosif Alexandrovich Rogov, Ulitsa Vostrukhina, 7, kv. 80; and Erik Eduardovich Afanasov, Ulitsa Baumanskaya, 26, kv. 4, all of Moscow, U.S.S.R.

Filed Mar. 1, 1968, Ser. No. 709,688
Int. Cl. B64d 15/00
U.S. Cl. 317—262 12 Claims

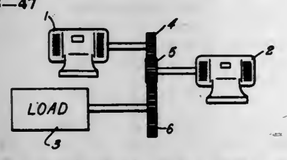


A pulse generator is installed close to walls of a thin-walled structure such as a sheathing of aircraft and ships to impart pulses to the walls and subject the walls to elastic deformations to cause any ice formed on the walls to be broken up and removed from the walls. The pulse generator may produce electromagnetic field pulses or it may produce pressure pulses in a working medium confined in a chamber proximate the walls to be deiced.

3,549,965
SYNCHRONOUS AND ASYNCHRONOUS MOTORS CONNECTED TOGETHER FOR A CONSTANT SPEED OUTPUT

Gerhard Hausmann, Munich, Germany, assignor to Siemens Aktiengesellschaft, a corporation of Germany

Filed Feb. 19, 1968, Ser. No. 706,478
Claims priority, application Germany, Feb. 22, 1967, S 108,447
Int. Cl. H02k 17/36
U.S. Cl. 318—47 4 Claims



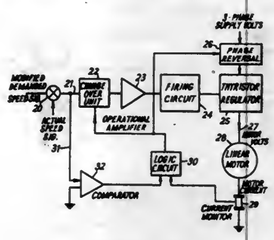
A constant speed plural motor system including a synchronous motor and an asynchronous motor, a gear train connecting the synchronous and asynchronous motors to a highly variable load. The synchronous motor acts partly as a generator and partly as a motor with a capacity corresponding to less than half the maximum load to be delivered and of the asynchronous motor delivering power corresponding to the difference between the maximum load to be delivered and the capacity of the synchronous motor. The gear train adjusts the speed of the asynchronous motor at which it delivers the desired performance to the speed of the synchronous motor. The invention also includes the method of driving a highly variable load at constant speed.

3,549,966
LINEAR MOTOR SPEED CONTROL SYSTEM

David H. Wilson, Houghton, near Preston, England, assignor to Tracked Hovercraft Limited

Filed July 8, 1969, Ser. No. 839,869
Claims priority, application Great Britain, July 18, 1968, 34,336/68
Int. Cl. H02k 41/02
U.S. Cl. 318—135 7 Claims

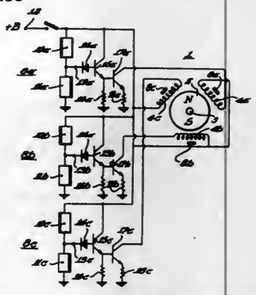
A motor speed control system for a three-phase linear motor, and in particular for a hovercraft vehicle propelled by a three-phase linear motor, by which demanded speed is compared with actual speed error signal. A modified demanded speed signal is derived, characterized by predetemined rate of change, and compared with the actual speed to provide a further error signal. This further error signal controls the firing circuit for a thyristor three-phase alternating current regulator which controls the linear motor.



3,549,967
BRUSHLESS MOTOR UTILIZING MAGNETORESISTANCE MEANS HAVING RECOMBINATION REGIONS

Saburo Uemura, 4349 Akai-dani, Kamariya, Kanazawa-ku; Toshiyuki Yamada, 61 Futamatagawa 2, Hodogaya-ku both of Yokohama-shi, Kanagawa-ken; Toshiro Nishikawa, 17-7 Tenjin-cho 4, Fuchu-shi, Toyko, and Yasuo Umezawa, 20 Shimo-iida-machi 891, Totsuka-ku, Yokohama-shi, Japan

Filed Dec. 27, 1967, Ser. No. 693,881
Claims priority, application Japan, Dec. 30, 1966, 42/1162
Int. Cl. H02k 29/00
U.S. Cl. 318—138 6 Claims



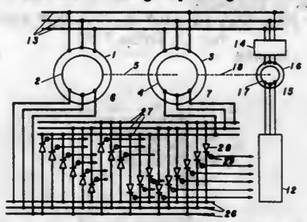
The invention is directed to a DC motor which is controlled by one or more magnetoresistance devices. The brushless motor includes a rotor having at least two magnetic poles and a stator having a plurality of field coils and a corresponding plurality of pole pieces. A plurality of magnetoresistance means each having an intrinsic semiconductor substrate is connected to the field coils of the motor. Means are provided for varying the resistance of each magnetoresistance element to control the current applied to the motor.

3,549,968
ELECTRIC CONTROL SYSTEM FOR INDUCTION MACHINE CONTAINING WINDING ELEMENTS OF TWO WOUND ROTOR INDUCTION MACHINES

Fukuo Shibata, No. 13 Tokiwa-cho, Nishinomiya, Hyogo, Japan

Original application Mar. 14, 1967, Ser. No. 624,119, now abandoned. Divided and this application May 21, 1969, Ser. No. 832,549
Claims priority application Japan, Mar. 14, 1966, 41/16,008; Mar. 31, 1966, 41/20,320
Int. Cl. H02p 7/36
U.S. Cl. 318—197 8 Claims

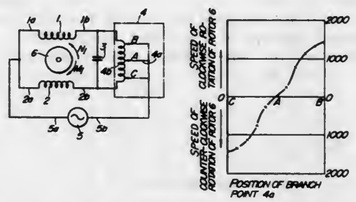
In an induction machine arrangement which contains two stator windings and two rotor windings rotating mechanically together with each other, controlled rectifiers are connected electrically between terminals of the two rotor windings, and the controlled rectifiers are divided into two groups, the anodes and cathodes of one group being connected respectively to terminals of one rotor winding and to terminals of another rotor winding, and the anodes and cathodes of the other group being connected electrically respectively to the latter terminals and to the former terminals.



3,549,969
CONDENSER SPLIT-PHASE TYPE SINGLE-PHASE INDUCTION MOTOR

Koichi Yoshimura, Kadoma-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed May 20, 1968, Ser. No. 730,288
Claims priority, application Japan, May 2, 1968, 43/29958;43/36528
Int. Cl. H02p 1/42
U.S. Cl. 318—207 3 Claims

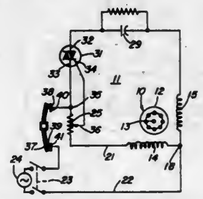


A condenser split-phase-type single-phase induction motor for use with ventilating fans, electric fans, washing machines, room coolers etc., wherein the phases of currents flowing through the windings of the motor are changed by changing the impedance values of impedance elements connected with the motor windings, whereby the rotation of the motor can be reversed and the speed thereof can be varied from zero to the maximum value.

3,549,970
SINGLE-PHASE MOTOR CONTROLS WITH COMBINATION OVERLOAD PROTECTOR AND STARTING SWITCH

Alexander J. Lewus, 9844 N. Eleventh Ave., Phoenix, Ariz.

Filed Dec. 20, 1967, Ser. No. 692,195
Int. Cl. H02p 1/44
U.S. Cl. 318—221 7 Claims

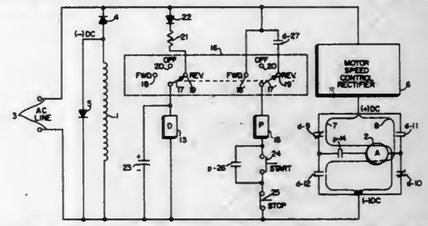


Control circuits for single-phase electric motors of the split-phase, capacitor-start inductance-run, and capacitor-start capacitor-run kinds in which the starting winding is connected to a power supply through a circuit including one or more unitary signal-controlled bidirectional gate devices, in which a thermal overload protector is incorporated in a sensing circuit that actuates the gate device or devices. Thus, the overload protector constitutes an integral operating part of the starting switch circuit for the motor.

3,549,971
REVERSING CONTROLLER

John R. Van Patten and Charles W. Spangler, Waynesboro, Va., assignors to General Electric Company, a corporation of New York

Filed May 9, 1968, Ser. No. 727,957
Int. Cl. H02b 1/22
U.S. Cl. 318—293 9 Claims

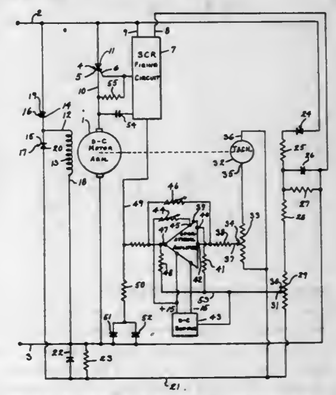


A reversing controller for providing forward or reverse current to a DC motor is described, in which it is necessary to use only a single heavy-duty relay contact, capable of withstanding reverse surge current. A power relay and a directional relay are included in the controller, the former for applying power to the armature and the second for connecting the armature in one of two current paths, each supplying armature current corresponding to a different direction of armature rotation. The controller includes a time delay switch, which may be a positive center-off switch, and is so constructed as to assure proper sequencing of the two relays for permitting operation of the directional relay to change the armature current path only when contacts of the power relay prevent the flow of armature current.

3,549,972
SPEED CONTROL CIRCUIT FOR A DC MOTOR

John E. Callan, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin

Filed June 5, 1968, Ser. No. 734,697
Int. Cl. H02p 5/00
U.S. Cl. 318—327 8 Claims

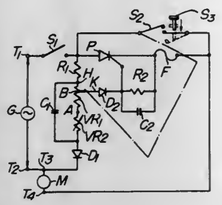


A DC motor armature is energized through an SCR. A firing circuit connected to the gate of the SCR provides an AC firing signal, the potential level of which is controlled by the algebraic sum of a DC reference signal from the sliding contact of a reference potentiometer and the output of an operational amplifier. A signal generated by a tachometer driven by the armature is fed to the inverting operational amplifier along with the reference signal from the reference potentiometer, and the output is an algebraic sum of the tachometer and reference signals.

3,549,973
SINGLE-PHASE COMMUTATOR MOTOR SPEED CONTROLLING DEVICE

Hiroshi Takemura, Osaka, Fumio Nomura and Norimasa Kondo, Hirakata-shi, Hiromichi Yamamoto, Daito-shi, and Akira Isawa, Moriguchi-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed July 27, 1967, Ser. No. 656,374
Claims priority, application Japan, Aug. 2, 1966, 41/74,140
Int. Cl. H02p 5/16; H01c 9/08
U.S. Cl. 318—345 4 Claims

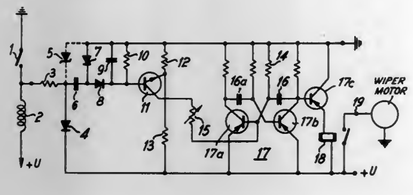


This specification discloses a device for controlling the speed of rotation of a single phase commutator motor used as the motor for a sewing machine or the like, wherein a silicon controlled rectifier element (hereinafter referred to as "S.C.R.") is connected in series with the circuit of said single phase commutator motor and the speed of rotation of the latter is controlled by controlling the conduction angle of said S.C.R.

3,549,974
VARIABLE DELAY WINDSHIELD WIPER SYSTEM IN MOTOR VEHICLES

Juergen Brüegge, Neu-Isenburg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 30, 1968, Ser. No. 701,731
Claims priority, application Germany, Feb. 9, 1967, B 91,099
Int. Cl. H02p 5/01
U.S. Cl. 318—443 8 Claims

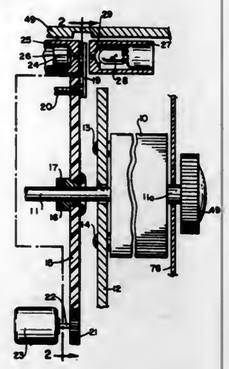


An arrangement for controlling the operation of windshield wipers in motor vehicles. A pulse emitter in the form of the primary winding of the ignition coil provides a pulse signal having a pulse repetition frequency dependent upon the engine speed. The amplitude of the pulses is limited through a limiting circuit consisting of a resistor and diode network. After the pulse signal becomes amplitude-limited to a predetermined level, the signal is applied to an integrating network. The output of this integrating network is applied to an astable circuit using capacitor-resistance networks for the timing elements of the circuit. A relay is connected to the output of the astable timing circuit, by way of a power transistor. The time intervals during which the relay is energized and de-energized determine the operating times of the windshield wipers.

3,549,975
MOTOR DRIVEN TUNING SYSTEM

Warren Francis Ferris, Iselin, N.J., assignor to National Union Electric Corporation, Jersey City, N.J., a corporation of Delaware

Filed May 10, 1967, Ser. No. 637,429
Int. Cl. H02p 3/00
U.S. Cl. 318—480 10 Claims

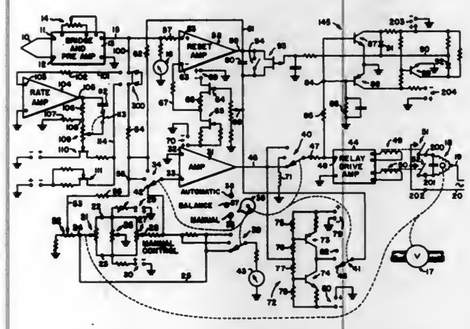


An apparatus for controlling the angular displacement of a rotating control shaft. A series of arms corresponding to preselected and adjusted angular displacements of a control shaft are mounted radially on a control shaft and sequentially intersect a light beam which strikes a light-dependent resistor. An electric motor is responsive to the output of the light-dependent resistor and revolves the control shaft until the light beam is interrupted by an arm causing the motor to stop. This invention is particularly adapted for use with a UHF television tuner of the type having a revolving control shaft.

3,549,976
PROCESS CONTROLLER SELECTIVELY PROVIDING AUTOMATIC CONTROL WITH RESET OR MANUAL CONTROL

Yves de Bretagne, Minnneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Mar. 28, 1969, Ser. No. 811,459
Int. Cl. G05b 7/00, 11/42
U.S. Cl. 318—591 10 Claims

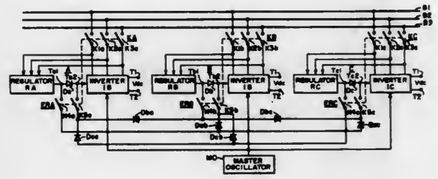


A process controller to selectively provide automatic proportional control or manual control of a valve. Proportional control is in accordance with a thermocouple input signal and includes the features of automatic reset, reset lockout and rate. A three-position switch has manual, balance and automatic positions. In the balance position, a reset capacitor is charged to provide bumpless transition when switching from manual to automatic control.

3,549,977
POWER PROCESSING SYSTEM EMPLOYING A PLURALITY OF PROCESSING UNITS HAVING PARALLEL CONNECTED OUTPUTS

Kenneth M. Watkins, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 13, 1968, Ser. No. 775,387
Int. Cl. H02j 3/38
U.S. Cl. 321—18 6 Claims

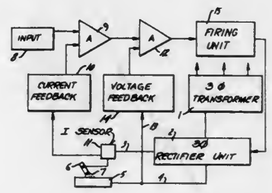


A power processing system is disclosed wherein a plurality of processing units, such as converters or inverters, are connected to supply a common output. A regulator is provided for each of the processing units and supplies regulating control signals in response to the output of the associated unit. An error restrictor is provided which supplies the regulating control signals corresponding to the highest output of a particular unit to each of the units and blocks regulating control signals from the other of the regulators from being applied to the processing units.

3,549,978
DIRECT CURRENT ARC POWER SUPPLY WITH STABILIZED FEEDBACK CONTROL

James B. Stearns, Elm Grove, and Robert W. Wendelburg, Milwaukee, Wis., assignors to Chemetron Corporation, Chicago, Ill., a corporation of Delaware

Filed Apr. 25, 1969, Ser. No. 819,204
Int. Cl. B23k 9/10; H02m 7/20
U.S. Cl. 321—19 13 Claims

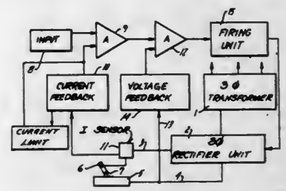


A three phase transformer and full wave rectifier including controlled rectifiers. A feedback control system includes a pair of separate and cascaded summing differential amplifiers. The first amplifier is interconnected to sum the set voltage input signal and current feedback signal. The second amplifier is connected to sum the output of the first amplifier and the voltage feedback signal. The current feedback signal is either positive or negative to provide a desired slope.

3,549,979
ARC POWER SUPPLY WITH CURRENT LEVEL CONTROL

James B. Stearns, Elm Grove, and Robert W. Wendelburg, Milwaukee, Wis., assignors to Chemetron Corporation, Chicago, Ill., a corporation of Delaware

Filed Apr. 25, 1969, Ser. No. 819,205
Int. Cl. B23k 9/10; H02m 7/20
U.S. Cl. 321—19 11 Claims

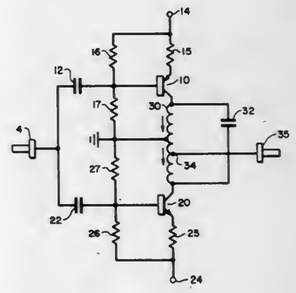


An arc welding supply having a three phase transformer and full wave rectifier including controlled rectifiers. A feedback control system includes a pair of separate and cascaded summing differential amplifiers. The first amplifier is interconnected to sum the set voltage input signal and a current feedback signal. The second amplifier is connected to sum the output of the first amplifier and the voltage feedback signal. An overload current transistor is connected to ground the first summing amplifier if the arc current rises above a selected level. The transistor is connected to the current feedback signal by a Zener diode network including a time delay capacitor.

3,549,980
LOW-DISTORTION FREQUENCY DOUBLER

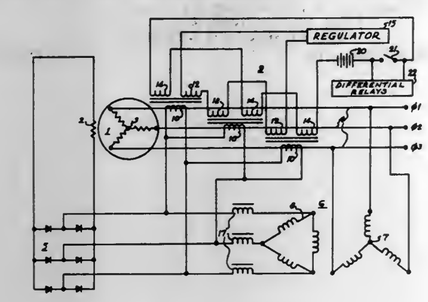
Ralph F. Getchell, Spring Lake, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Apr. 7, 1969, Ser. No. 814,004
Int. Cl. H02m 5/30
U.S. Cl. 321—69 6 Claims



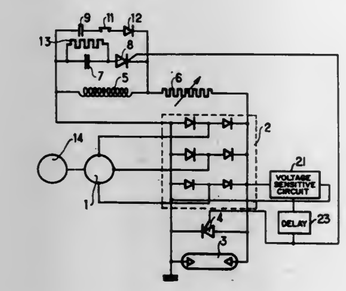
This invention relates to frequency doublers and in particularly to low distortion and high efficiency frequency doubling systems. This disclosure describes the connection of a pair of complimentary-symmetry transsistors with a common input at a given frequency to produce a common output at twice the given input frequency.

3,549,981
STATIC EXCITER FIELD SUPPRESSOR
Albert C. Dolbec, Afton, Va., assignor to General Electric Company, a corporation of New York
Filed Aug. 1, 1968, Ser. No. 749,369
Int. Cl. H02p 9/32
U.S. Cl. 322—25 5 Claims



The output of an AC generator is suppressed by a saturable current transformer which controls generator field excitation. A saturating winding on the current transformer is energized by a control circuit which suppresses the generator field voltage to near zero thus collapsing the generator output voltage.

3,549,982
DEVICE FOR PRODUCING ELECTRIC ENERGY IMPULSES HAVING A SHORT DURATION AND A VERY HIGH PEAK POWER WITH A DISRUPTIVE LOAD
Andre Jules, Sartrouville, France, assignor to Compagnie Generale d'Electricite, Paris, France, a French corporation
Filed Mar. 28, 1968, Ser. No. 716,913
Claims priority, application France, Mar. 31, 1967, 101,125
Int. Cl. H02p 9/30
U.S. Cl. 322—28 18 Claims

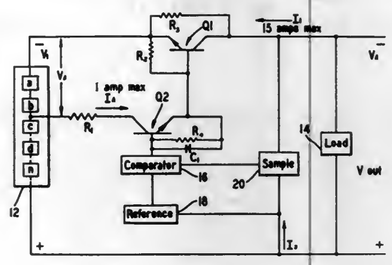


Device for producing electric energy pulses having a short duration and a very high peak power for a disruptive load, comprising an alternator feeding a rectifier bridge to the output of which the load is connected, a rectifier having a controlled conduction being disposed across the terminals of the load.

ERRATUM

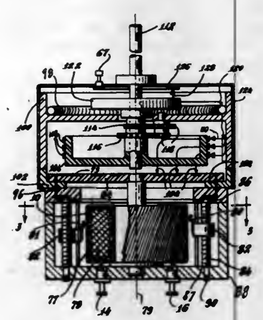
For Class 323—9 see:
Patent No. 3,549,988

3,549,983
HIGH EFFICIENCY HIGH POWER D.C. SERIES TYPE VOLTAGE REGULATOR
Gunars Sprogis, Cleveland, Ohio, assignor to Union Carbide Corporation, a corporation of New York
Filed June 18, 1968, Ser. No. 737,994
Int. Cl. G05f 1/56
U.S. Cl. 323—15 2 Claims



A series type solid state power regulator for a multicell primary source of power wherein the driver stage is connected to an auxiliary source of energizing potential formed from at least one of the primary power cells.

3,549,984
PRECISION TRANSDUCER WITH ADJUSTABLE TAP CONTACTS TRANSVERSING A RECTILINEAR PATH
Werner Woschetzky, West Redding, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York
Filed Oct. 19, 1967, Ser. No. 676,406
Int. Cl. H02p 13/08
U.S. Cl. 323—43.5 14 Claims

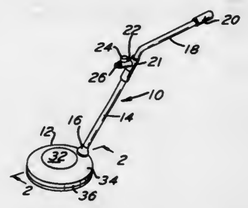


A precision transducer includes winding taps which are adjustable in a rectilinear path along an electrical length of the winding for providing different voltage pickoff points on the winding. The transducer tap positions can therefore be altered to provide a desired conformity between input and output signals.

ERRATUM

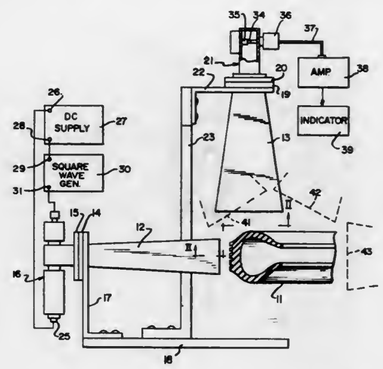
For Class 323—44 see:
Patent No. 3,549,990

3,549,985
METAL DETECTING DEVICE HAVING A DISK-SHAPED HEAD FOR HOUSING A COIL SYSTEM
Robert S. Penland, Northfield, N.J., assignor to Electronic Sensing Products, Inc., Philadelphia, Pa., a corporation of New Jersey
Continuation-in-part of application Ser. No. 692,205, Dec. 20, 1967. This application Feb. 27, 1969, Ser. No. 803,008
Int. Cl. G01v 3/10
U.S. Cl. 324—3 4 Claims



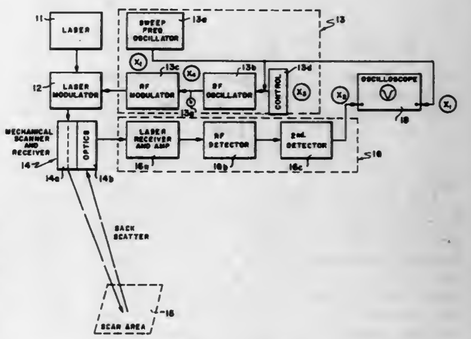
An electronic detector device construction which comprises a molded head for coil housing having grooves molded therein to receive electronic coils and having a hardened gel coating on the surface. A hollow handle extends from a socket molded or otherwise connected to the head, and this hollow handle is provided with a micronized electronic circuit wich is connected by wires extending through the handle and connected to the coils in the head.

3,549,986
MICROWAVE FLAW DETECTION SYSTEM HAVING HORNS POSITIONED WITH THEIR POLARIZATION DIRECTIONS TRANSVERSE TO EACH OTHER
David W. Prine, Maywood, Ill., assignor to Magnaflux Corporation, Chicago, Ill., a corporation of Delaware
Filed Apr. 10, 1967, Ser. No. 629,540
Int. Cl. G01r 27/04
U.S. Cl. 324—58.5 6 Claims



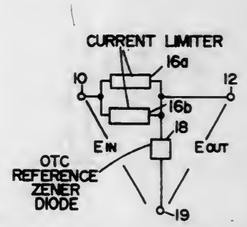
System using microwaves for detection of flaws in a sample, one form of sample being a vehicle tire. The system uses a detection means which is insensitive to energy transmitted directly from a transmitting antenna and energy reflected from surfaces of the sample, but which is highly sensitive to energy scattered by flaws within the sample. Preferably, the transmitting and receiving antenna, which may be in the form of horns, are positioned with their polarization directions generally transverse to each other.

3,549,987
LASER EPR SYSTEM
Jay S. Hall and John F. Scarzello, Annapolis, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 31, 1967, Ser. No. 679,402
Int. Cl. G01r 33/08
U.S. Cl. 324—.5 8 Claims



An electron paramagnetic resonance (EPR) spectrometer for measuring the earth's magnetic field. The coherent light of a laser beam is amplitude modulated, radiated towards the earth, and the back scattered wave is detected and observed.

3,549,988
TEMPERATURE COMPENSATED REFERENCE VOLTAGE CIRCUITRY EMPLOYING CURRENT LIMITERS AND REFERENCE VOLTAGE DIODES
Cecil Kent Walters, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Jan. 2, 1968, Ser. No. 695,183
Int. Cl. G05f 3/02
U.S. Cl. 323—9 4 Claims

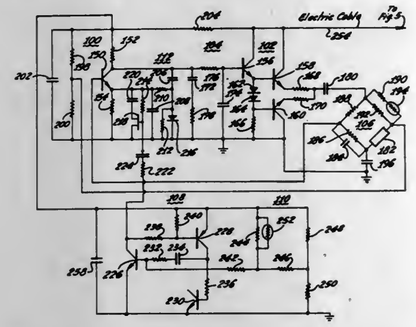


Reference voltage circuitry in which one or more current limiters, such as field effect diodes, are connected to a zero temperature coefficient (0 TC) reference or Zener diode and are selected to drive the 0 TC reference diode in a manner to provide a constant output voltage over wide ranges of temperature and input voltage.

3,549,989
MEASURING APPARATUS INCLUDING MEANS FOR AMPLITUDE MODULATING A CONDUCTIVITY SIGNAL WITH A TEMPERATURE SIGNAL

Neil L. Brown, El Cajon, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif., a corporation of California

Filed July 27, 1967, Ser. No. 656,430
Int. Cl. G01n 27/42
U.S. Cl. 324—30 14 Claims

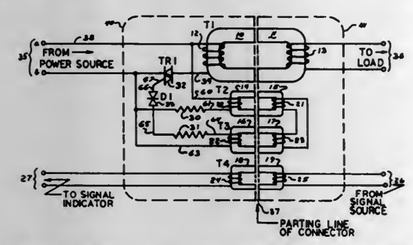


This invention relates to an expendable sensor unit. Specifically, the invention relates to an expendable sensor unit which may be used to provide for a measurement of salinity and temperature at various depths as the sensor unit freely drops downward through the sea water. The sensor unit includes a conductivity sensor and a temperature sensor, both supported on a tube of insulating material, and wherein the conductivity sensor produces a first variable frequency signal and wherein the temperature sensor produces a second variable frequency sensor. An output signal is produced by amplitude modulating the first variable frequency signal with the second variable frequency signal and wherein the means for producing the first variable frequency signal may be a phase shift oscillator including a combination bridge which produces both the sensor component and the quadrature component.

3,549,990
NON-SPARKING A-C CONNECTORS

Jerome S. Hochheiser, 8847 Oakdale Ave., Northridge, Calif. 91324

Filed Aug. 19, 1968, Ser. No. 753,645
Int. Cl. H02m 5/12
U.S. Cl. 323—44 11 Claims

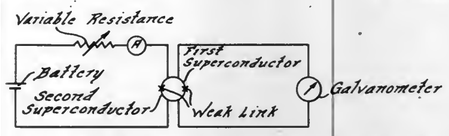


Electric non-sparking connection devices in any environment are disclosed. A-C or signal connections can be made with these connectors so that the signals or power may be transferred from a source to a load without direct wire connection which otherwise would spark on contact or on disconnect. The connection devices include a receptacle and plug, each with a respective half core on which a winding is wound. The half cores are separable and mate together. On the core of the receptacle is a primary winding. The primary is connected to a source of power or signals. The plug unit core has at least a secondary winding which is connected to a load. When the cores are brought together in mating relation by inserting the plug in the receptacle energy from the source is transferred to the load via the electromagnetic coupling through the now completed core.

3,549,991
SUPERCONDUCTING FLUX SENSITIVE DEVICE WITH SMALL AREA CONTACTS

Arnold H. Silver, Farmington, Mich., and James E. Zimmerman, Santa Ana, Calif., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Continuation-in-part of application Ser. No. 449,986, Apr. 22, 1965. This application Feb. 24, 1969, Ser. No. 801,728
Int. Cl. G01r 33/02
U.S. Cl. 324—43 12 Claims

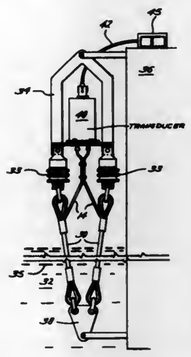


A magnetic flux sensitive device including a first and second superconductor joined to provide a plurality of superconducting paths between the first and second superconductors. Small area contacts are provided between the first and second superconductors in each superconducting path, with the superconducting paths and the superconductors together with the small area contacts forming a loop enclosing a finite area or finite areas for the reception of magnetic flux. This device may be used for measuring changes in magnetic flux by providing a means for measuring the maximum supercurrent through the two superconductors.

3,549,992
ELECTRICAL APPARATUS RESPONSIVE TO INDUCTIVE REACTANCE FOR MEASURING DISTANCE ALONG A PAIR OF CONDUCTORS

Tom R. Reinhart, 5310 Glenmont Drive, Houston, Tex. 77036

Filed Mar. 31, 1967, Ser. No. 627,509
Int. Cl. G01r 27/00
U.S. Cl. 324—57 8 Claims



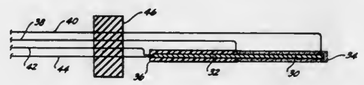
An apparatus electrically responsive to the inductance of a plurality of electrical conductors to be short circuited by an electrically conductive object whose position is to be measured including means for applying and

detecting signals on the conductors in which the frequency of the signal and the size and spacing of the conductors are selected so that the position of the conductive object along the conductors is responsive only to changes in the inductive reactance of the conductors.

3,549,993
CORROSION RATE MEASURING METHOD BY MAINTAINING ELECTROLYTIC CONTACT AND EXCLUDING ANY SUBSTANTIAL OXYGEN CONTACT WITH A TEST SPECIMEN

Glenn A. Marsh and Edward Schaschl, Fullerton, Calif., assignors to Union Oil Company of California, Los Angeles, Calif., a corporation of California

Continuation-in-part of abandoned application Ser. No. 213,171, July 30, 1962. This application June 14, 1966, Ser. No. 557,492
Int. Cl. G01n 27/00
U.S. Cl. 324—71 7 Claims

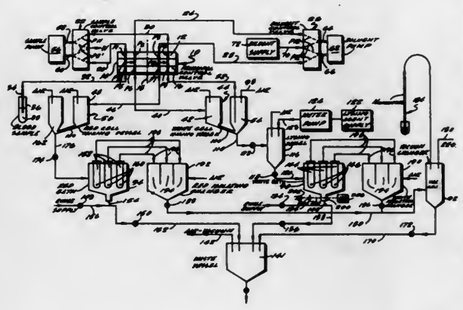


A corrosion test probe comprised of a corrodible test element enclosed in an electrically conductive, oxygen-impermeable material that renders the test element anionic, and a method for determining the maximum corrosion rate of a cathodically protected corrodible object exposed to a corrosive environment by measuring the corrosion rate of a test specimen placed in the corrosive environment and electrically connected to the corrodible object and maintained out of contact with oxygen. The test specimen can be temperature compensated for improved accuracy.

3,549,994
AUTOMATIC METHOD AND APPARATUS FOR OBTAINING DIFFERENT DILUTIONS FROM BLOOD OR THE LIKE SAMPLES AND PROCESSING THE SAME BY FLUID HANDLING AND ELECTRONICS TO OBTAIN CERTAIN NONELECTRIC PARAMETERS

William F. Rothermel and Robert I. Klein, Hialeah, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla., a corporation of Illinois

Filed Apr. 17, 1967, Ser. No. 631,284
Int. Cl. G01n 27/00
U.S. Cl. 324—71 41 Claims

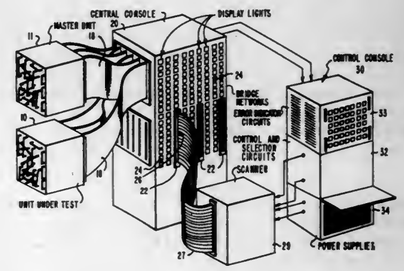


A structure in which a sample of blood is drawn into a fluid system in which it is accurately diluted with a suitable diluent, divided into two samples for red and white blood cell determinations, the red sample is counted and sized in a multiple aperture Coulter scanning device and discharged, while at the same time that the other sample is lysed to break up the red cells, and subjected to another such Coulter scanning device for a white cell count with the simultaneous examination of the sample for hemoglobin determination and discharged; the processing being carried on automatically and continuously for samples drawn into the apparatus at intervals exceeding at least a certain minimum time. The structure also includes means for combining the data automatically to ascertain certain of the parameters which are susceptible of derivation from determinations made, and producing data corresponding to all of the parameters both determined and derived from the apparatus, these parameters being blood counts, sizes, percentages, and the like, accepted in the medical arts as aids for diagnosis, treatment, and research.

3,549,995
MULTIBRIDGE COMPARISON SYSTEM FOR WIRING TESTING

Robert B. Trousdale, Downey, and Franklyn L. Wiley, Long Beach, Calif., and John T. Teska, Norman, Okla., assignors to California Computer Products, Inc., Anaheim, Calif., a corporation of California

Filed Sept. 2, 1964, Ser. No. 393,845
Int. Cl. G01r 15/12
U.S. Cl. 324—73 16 Claims



A programmable, expandable, chassis wiring and cable interconnection testing system verifies circuit wiring by comparison with the wiring of an identical, previously verified master circuit. Both the type and location of wiring short and discontinuity errors are indicated by coupling the circuit to be tested and the master circuit directly to bridge networks, applying test voltages, reversing the polarity of the test voltages and sensing voltage imbalances at bridge networks other than the directly coupled bridge networks. The system include self-testing and display features and permits a chassis to be tested without prior modification for testing.

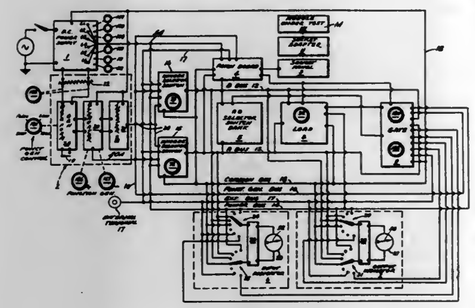
3,549,996
UNIVERSAL TESTER FOR DYNAMIC AND STATIC TESTS ON THE OPERATING EFFICIENCY OF ELECTRICAL APPARATUS

Carroll Byrd Vaughan, East Orange, N.J., assignor to The Bendix Corporation, a corporation of Delaware

Continuation of application Ser. No. 166,316, Jan. 15, 1962. This application Apr. 4, 1967, Ser. No. 642,983
Int. Cl. G01r 15/12
U.S. Cl. 324—73 13 Claims

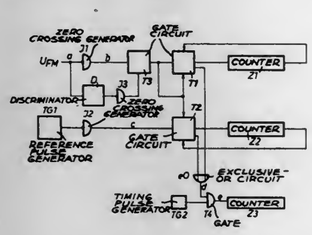
A universal tester having extreme adaptability for providing dynamic and static tests on the operating efficiency of electrical apparatus such as electronic modules having

a multiplicity of terminals and including means for generating a plurality of adjustable electrical excitations; a plurality of indicators selectively connectable to appropriate electrical contacts each measuring an electrical quantity such as D.C. or average voltage or current in relation to a corresponding terminal, one of said indicators being appropriate to the input of the tested apparatus and another to the output thereof, and a plurality of switches for selective connection between the



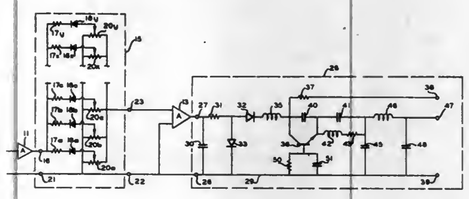
indicators, the electrical contacts and the electrical excitations, said plurality of switches including first switching means for selectively applying the several excitations to input terminals of the apparatus under test, second and third switching means for respectively and selectively connecting said one indicator so as to monitor the excitation applied to the input terminals of the tested apparatus, and said other indicator so as to monitor the electrical energy at the output terminals of the apparatus.

3,549,997
FREQUENCY DEVIATION MEASURING SYSTEM
Diethelm Rötzel, Korntal, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 3, 1968, Ser. No. 742,241
Claims priority, application Germany, July 19, 1967, 1,591,618
Int. Cl. G01r *23/02*
U.S. Cl. 324—79 **1 Claim**



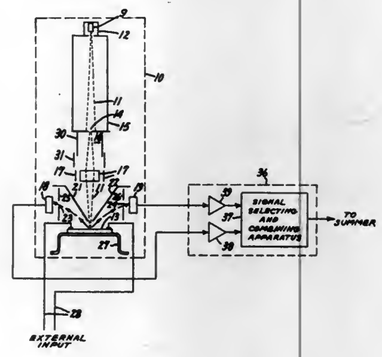
A frequency deviation measuring system wherein an FM signal and a reference signal are separately used to derive zero crossing pulses which are separately coupled to counters via gates. The FM signal is additionally coupled to a pulse shaper via a discriminator which generates a pulse which opens the gates to initiate counting. The gates are separately closed by the counters when they have reached a predetermined count. The time elapsing between the closing of the respective gates is a measure of the frequency deviation. The time is measured by coupling the gate-closing signals via an EXCLUSIVE-OR circuit to a gate which allows pulses from a timing pulse generator to reach a direct reading counter.

3,549,998
LINEAR ANALOG CONVERSION
Dale A. Fluegel, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Sept. 4, 1968, Ser. No. 757,245
Int. Cl. G01r *19/26, 15/10*
U.S. Cl. 324—120 **3 Claims**



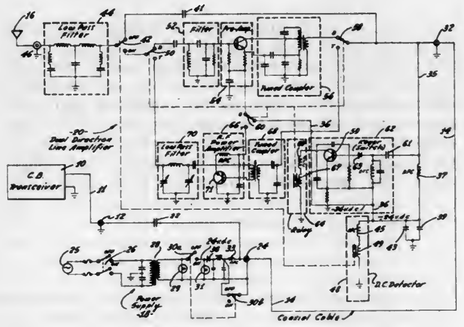
The output of a non-linear transducer is linearized by a Zener diode function generator and applied to an analog-to-digital converter. The function generator includes a set of output terminals with a plurality of potentiometers connected by their end terminal across the function generator output terminals and a plurality of series connected Zener diode and resistor units connected in parallel between an input terminal of the function generator and respective taps on the potentiometers.

3,549,999
METHOD AND APPARATUS FOR TESTING CIRCUITS BY MEASURING SECONDARY EMISSION ELECTRONS GENERATED BY ELECTRON BEAM BOMBARDMENT OF THE PULSED CIRCUIT
James F. Norton, Alplaus, N.Y., assignor to General Electric Company, a corporation of New York
Filed June 5, 1968, Ser. No. 734,738
Int. Cl. G01r *31/22, 31/02*
U.S. Cl. 324—158 **35 Claims**



Integrated circuits are tested by energizing the circuits with input pulses, scanning an electron beam over the circuits, and detecting variations in secondary emission caused by influence of integrated circuit voltages upon the low voltage secondary electrons. Electron beam potential is adjusted to a value such that a single electron from the primary scanning electron beam landing on the circuit causes a single secondary electron to leave the circuit. Data may thus be obtained to indicate whether voltages at various points in the circuit are correct or incorrect. Transient response at any point on the circuit may be obtained by observing secondary emission as a function of time during each brief interval in which the electron beam scans over that point while coincidentally applying the input pulses to the circuit.

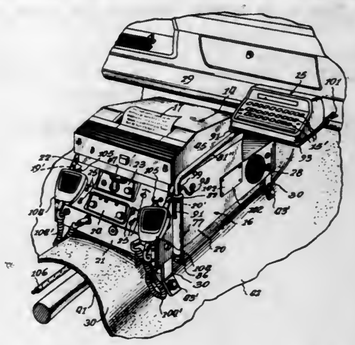
3,550,000
DUAL DIRECTION LINEAR AMPLIFIER
Henry G. Grilk, Clifton, N.J., assignor to Litton Precision Products, Morris Plains, N.J., a corporation of Delaware
Filed Apr. 12, 1968, Ser. No. 721,031
Int. Cl. H04b *1/48*
U.S. Cl. 325—15 **7 Claims**



A dual direction amplifier mounted in close proximity to an antenna of a conventional citizens band transceiver, and being supplied with operating power from a power source located at the transceiver, the amplifier having means for amplifying signals transmitted from the remotely located transmitter section of the CB transceiver, means for preamplifying incoming signals from the antenna, means for differentiating between the transmitted signals from the transmitter and incoming signals from the antenna and means responsive to the differentiating means for activating one of said incoming amplifier means and said signal transmitting amplifier means. The dual direction amplifier is transistorized with a positive ground to enable a transistor heat sink to be mounted directly to the chassis to thereby permit the chassis to function as part of the heat dissipating heat sink.

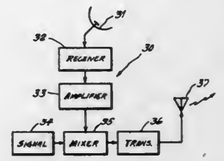
3,550,001
TELEPRINTER EQUIPMENT MOUNTING ASSEMBLY
William M. Hanley, Wilmette, Ill., assignor to SCM Corporation, New York, N.Y., a corporation of New York
Filed Aug. 1, 1968, Ser. No. 749,552
Int. Cl. B06r *7/00;* **H04b** *1/00, 1/06*
U.S. Cl. 325—15 **18 Claims**

There is disclosed an automobile with radio receiving and transmitting equipment, siren equipment, a mounting assembly secured to the "hump" of the floor under the instrument panel of the automobile, and teleprinter equipment including a keyboard transmitter and a teleprinter mounted by the mounting assembly, there being various controls mounted in said mounting assembly.



The mounting assembly provides a center for mounting the teleprinter equipment and electrical connections for the radio, siren, and teleprinter equipments.

3,550,002
PULSAR COMMUNICATION SYSTEMS
Arnold A. Shostak, Arlington, Va., and Ronald R. Troutman, Essex Junction, Vt., assignors to the United States of America as represented by the Secretary of the Navy
Filed Feb. 25, 1969, Ser. No. 802,084
Int. Cl. H04k *1/02*
U.S. Cl. 325—32 **2 Claims**

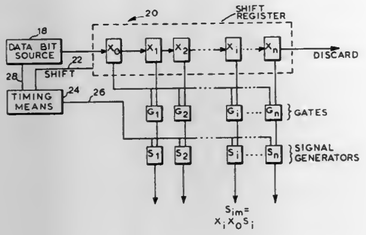


There are disclosed arrangements which utilize the signal energy from pulsars to accomplish, for example, the synchronous operation of widely spaced electronic components or the secure transmission of signal information.

3,550,003
BINARY DATA TRANSMISSION SYSTEM USING "FUTURE," "PRESENT" AND "PAST" BITS FOR REFERENCE SYNCHRONIZATION
Leonard R. Halsted, Torrance, Calif., assignor to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Oct. 17, 1966, Ser. No. 587,226
Int. Cl. H04l *27/26*
U.S. Cl. 325—38 **18 Claims**

The invention is a modulation, demodulation, and decision making process for binary data transmission called Coherent Echo Modulation and Detection. The essential features of the invention are that the last n data bits transmitted (n is an interger, e.g., $n=100$) are used to modulate one of n orthogonal subcarriers or signals and then each modulated subcarrier is again modulated by the next bit to be transmitted. All n doubly modulated subcarriers are then transmitted, doubly demodulated, and

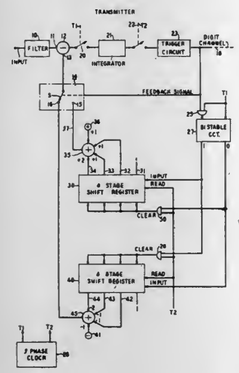
the noisy measurements of the modulating data are retained and accumulated in properly weighted sums. These properly weighted sums determine current decisions as to what the last n data bits transmitted were, and these decisions determine a reference used in the demodulating process. After n bit periods following the initial transmission of a data bit, a final decision is made on that data bit, the weighted sum of measurements determining that final decision is discarded, and the bit no longer enters into the modulation, demodulation, and decision-making process. The full advantages are acquired gradually during the transmission of the first n data bits.



3,550,004
FEEDBACK CODERS USING WEIGHTED CODE COMPANDING ON STRINGS OF EQUAL BITS

James C. Candy, Convent Station, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Dec. 13, 1968, Ser. No. 783,507
Int. Cl. H03k *13/22;* **H04l** *3/00*
U.S. Cl. 325—38 **9 Claims**

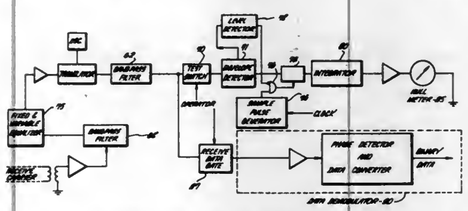


A one-bit feedback coder is companded by increasing its step size when a string of equal bits is detected in the transmitted code. The weight sequence (absolute magnitude) 1, 1, 2, 3, 5 . . . 5 is used to code and decode each string and the weight is returned to unity when the string ends. In accordance with a feature of this invention, the weighting circuit is outside the feedback loop and each output signal serves to send either of two weighted values to a subtraction circuit at the input of the coder to encode the next sample, thereby permitting very high speed operation. As a result of moving the weighting circuit outside the feedback loop the inherent low frequency instability of direct feedback current coders employing weighted companding is eliminated.

3,550,005
EQUALIZATION CIRCUIT

Sang Y. Whang, Miami, Fla., assignor to Milgo Electronic Corporation, Miami, Fla., a corporation of Florida

Filed Mar. 1, 1968, Ser. No. 709,608
Int. Cl. H04b *1/10*
U.S. Cl. 325—65 **22 Claims**

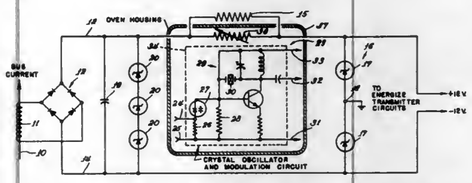


A rapid, simple-to-adjust variable equalizer circuit for use in data transmission systems is disclosed. The equalization circuit is connected at a receiver station, and it receives an output signal from a narrow bandpass-limited communication link which requires amplitude and delay compensation. At the transmitter, test patterns are generated for transmission over the communication link. A squelch circuit at the transmitter removes certain predetermined signal combinations from selected modulation intervals prior to transmission. The communication link may include narrow bandpass filters which form a composite link having a linear phase. A signal wave-form for a selected carrier frequency under ideal conditions is amplitude-peaked at the middle of its modulation interval and drops toward zero in the middle of adjacent succeeding and successive modulation intervals provided that the signals in those adjacent intervals were squelched for the given test pattern. At the receiver location the received signal is automatically sampled at precisely the locations where low amplitude is expected. The samples that are obtained are integrated and applied to a NULL meter. An operator can rapidly and simply vary the delay and amplitude characteristics of the equalizer by adjusting taps thereon until the lowest reading on a NULL meter is obtained for a variety of test patterns.

3,550,006
TEMPERATURE CONTROL FOR CRYSTAL OSCILLATOR AND MODULATION CIRCUIT OF A RADIO TRANSMITTER

Robert H. Harner, Park Ridge, Ill., assignor to S&C Electric Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 17, 1968, Ser. No. 698,547
Int. Cl. H04b *1/02;* **H03b** *3/04*
U.S. Cl. 325—113 **21 Claims**



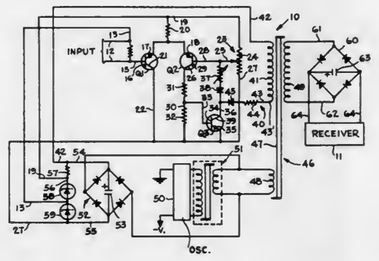
The operating temperature of the crystal oscillator and modulation circuit of a radio transmitter mounted on a

high voltage electric power transmission line conductor is controlled to prevent unwanted shift in the carrier frequency and non-linearity in the modulation circuits.

3,550,007
VARIABLE THRESHOLD SIGNAL DETECTION AND ISOLATION CIRCUIT

Herbert R. Schmitt, Arlington Heights, Ill., assignor to SCM Corporation, New York, N.Y., a corporation of New York

Filed May 29, 1967, Ser. No. 642,093
Int. Cl. H04b *1/10*
U.S. Cl. 325—324 **11 Claims**

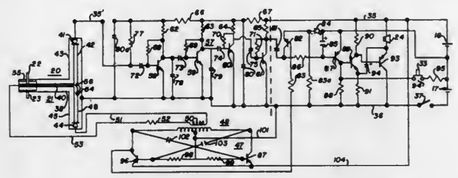


There is disclosed interface circuitry useful in communication equipment which adapts to an input signal to a receiver and which D.C. isolates the output signal from the input signal; first and second voltage thresholds of a signal are detected by a control circuit. An output circuit includes a suitable load, which in one embodiment includes a winding for a magnetic core and in another embodiment includes a light-emitting diode. In the one embodiment, the magnetic core has an input winding connected to an oscillator; there is an output winding for the magnetic core, which is connected to a full-wave bridge rectifier. When the output circuit is completed in response to an input signal, D.C. current in the winding of the output circuit drives the magnetic core into saturation and prevents induction of voltage into the output winding. The oscillator also provides a voltage source which, when rectified, supplies voltage to the control and output circuits.

3,550,008
RADIO FREQUENCY CARRIER WAVE SIGNAL DETECTOR

James A. Bright, Denver, Colo., assignor of one-half to Kenneth De John, Lakewood, Colo.

Filed Sept. 6, 1967, Ser. No. 665,815
Int. Cl. H04b *1/22*
U.S. Cl. 325—340 **7 Claims**

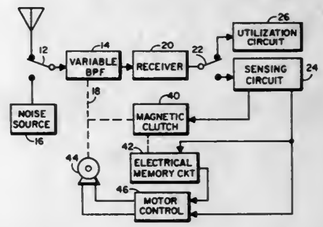


An apparatus for detecting unmodulated continuous waves at radio frequencies comprises a crystal detector and a modulating crystal diode for low frequency modulation of the received radio signal. The detector output is amplified and supplied through a synchronous detector and a filter to an alarm or indicator circuit. The apparatus makes it feasible to employ inexpensive components while securing very high sensitivity with minimum use of power.

3,550,009
AUTOMATIC TUNING SYSTEM RESPONSIVE TO PASSBAND SKIRTS

Arthur W. French, Webster, N.Y., assignor to General Dynamics Corporation, a corporation of Delaware

Filed Apr. 1, 1968, Ser. No. 717,745
Int. Cl. H04b *1/32*
U.S. Cl. 325—363 **11 Claims**

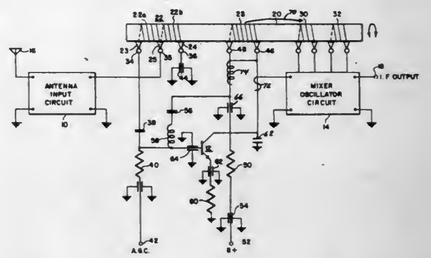


A system for tuning a preselector filter which is connected between an antenna and a receiver is described. A motor controlled by the output of the receiver varies the tuning (viz.) the passband frequency range) of the preselector filter. Noise is applied to the preselector during the tuning of the filter. A voltage corresponding to the tuning displacement of the preselector filter between predetermined levels of noise power, as detected by the receiver, are stored in a capacitor/potentiometer memory, so as to mark the passage of the leading and trailing skirts of the filter response through the frequency channel to which the receiver is tuned, the potentiometer being coupled to the motor. The motor is reversed when the trailing skirt of the passband passes through the predetermined level, until a point is reached equal to one-half of the potentiometer travel that produced the memory voltage; thus, tuning the preselector filter such that its passband is centered with respect to the center frequency of the channel to which the receiver is tuned.

3,550,010
TRAP CIRCUIT FOR TELEVISION TUNERS

Stanley C. Byers, Bloomington, Ind., assignor to Sarkes Tarzian, Inc., Bloomington, Ind., a corporation of Indiana

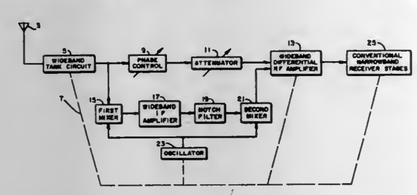
Filed Apr. 19, 1967, Ser. No. 631,925
Int. Cl. H04b *1/10*
U.S. Cl. 325—379 **8 Claims**



A fixed capacitor is connected from one of the stator contacts of a turret type tuner to ground and cooperates with a portion of one of the coils on the individual sticks of the turret tuner to provide a series resonant trap cir-

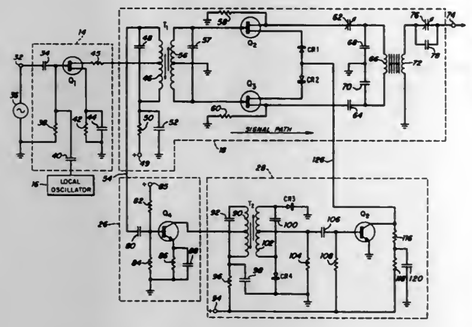
cuit which attenuates FM signals during reception in channels 7 to 13, inclusive. The resonant frequency of the trap circuit is automatically shifted to a much lower frequency than the FM band during reception of television signals in channels 2 to 6, inclusive.

3,550,011
TUNABLE ELECTRONIC PRESELECTOR FOR A RADIO RECEIVER
Palemon W. Dubowicz, Eatontown, and John S. Slechta, Shrewsbury, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Nov. 26, 1968, Ser. No. 779,041
Int. Cl. H04b *1/10*
U.S. Cl. 325—475 **5 Claims**



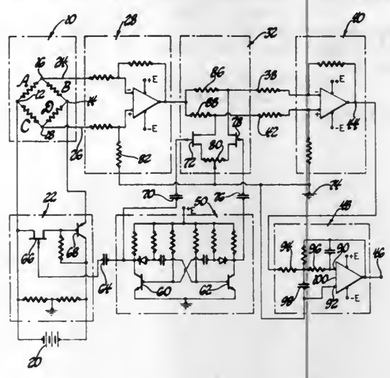
A band of frequencies centered on a desired channel is selected by means of a wideband tunable circuit and this band is heterodyned down to an intermediate frequency. The desired channel is removed from the IF by means of a notch filter and the remaining undesired channels are heterodyned up to their original frequencies and subtracted from the original group of received channels to yield only the desired channel.

3,550,012
SQUELCH SYSTEM
Harry F. Paul, Belmont, N.H., assignor to Tram Corporation, Winnisquam, N.H., a corporation of New Hampshire
Filed Sept. 10, 1968, Ser. No. 758,730
Int. Cl. H04b *1/10*
U.S. Cl. 325—478 **7 Claims**



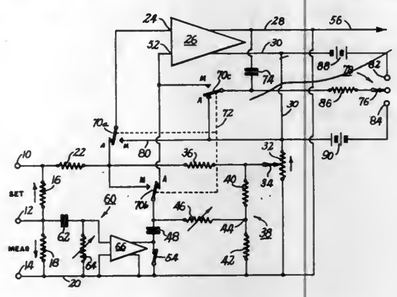
An improved noise eliminating circuit which prevents delivery of received signals to the audio stage of a radio receiver for the duration of a received noise signal exceeding a predetermined detectable magnitude. The noise eliminating circuit comprises a push-pull shunt and series arrangement of current control devices which are effective to block passage of intelligence signals from one to the other of two selected stages in response to control signals derived from noise signals received simultaneously with the intelligence-bearing signals.

3,550,013
NOISE CANCELLING SYSTEM
Ismail Macit Gurol, Farmington, Mich., assignor to GSE Incorporated, Detroit, Mich., a corporation of Michigan
Filed Jan. 10, 1969, Ser. No. 790,273
Int. Cl. H03f *1/26*
U.S. Cl. 328—1 **10 Claims**



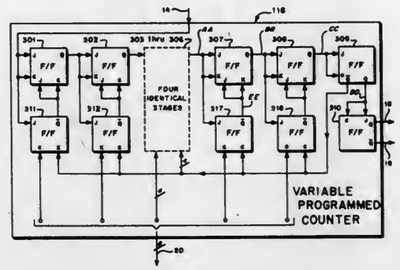
An amplifier circuit for signal generating transducers such as strain gages in which noise of various types is rejected. The signal generating transducer is connected to a power supply through a first switch. The output of the transducer is selectively connected through a second switch means to inputs of a difference amplifier. The first and second switch means are operated synchronously such that one difference amplifier input receives the sum of the transducer signal plus noise and the other difference amplifier input receives only noise. A filter connected to the amplifier output cancels any signal modulation due to the switching action.

3,550,014
ELECTRONIC CONTROL APPARATUS HAVING IMPROVED TRANSFER MEANS
David A. Richardson, Sheldonville, and Everett O. Olsen, Wrentham, Mass., assignors to The Foxboro Company, Foxboro, Mass., a corporation of Massachusetts
Continuation of application Ser. No. 760,124, Sept. 12, 1968. This application Dec. 22, 1969, Ser. No. 882,785
Int. Cl. H03k *5/00;* **H03f** *3/68*
U.S. Cl. 328—1 **29 Claims**



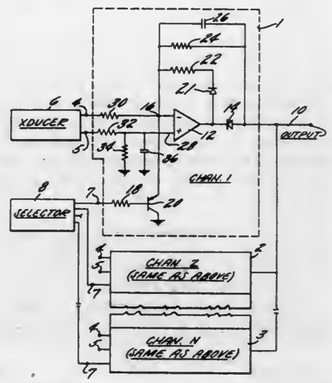
Electronic control apparatus of the type adapted to receive an electrical measurement signal and produce a corresponding electrical control signal for transmission to a process regulating device such as a valve or the like. A process controller is disclosed having means for switching directly between automatic and non-automatic conditions in either direction, and without upsetting the process.

3,550,015
VARIABLE PROGRAMMED COUNTER
Henry Naubereit, Brown's Mills, N.J., and Salvatore R. Picard, Hatboro, Pa., assignors to the United States of America as represented by the Secretary of the Navy
Original application Dec. 9, 1966, Ser. No. 600,660. Divided and this application Mar. 26, 1968, Ser. No. 716,155
Int. Cl. H03k *21/32*
U.S. Cl. 328—48 **3 Claims**



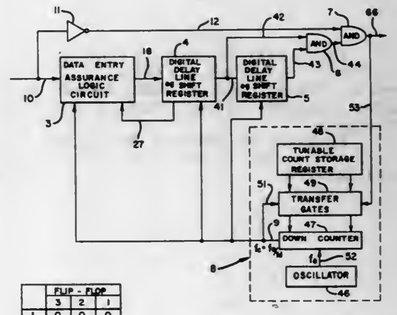
A digitally controlled frequency generator is provided having a selectively variable output frequency with crystal controlled accuracy and stability. Should the desired output frequency drift, however, a phase comparator detects the drift and compares the phase thereof with a provided reference signal. The resultant error signal is then fed into the frequency generator to shift the frequency back to its original value. In addition, should it be desired to change the output frequency of the frequency generator, a new program is applied to a variable program counter which produces an electronic response representative of the new program. This response is sensed by both the phase comparator and an acquisition circuit, the acquisition circuit providing signals to the phase comparator to achieve a "lock-in" of the system at the new desired frequency.

3,550,016
MULTIPLEXING SWITCH
Louis M. Gugliotti, Tolland, Conn., assignor to United Aircraft Corporation, Hartford, Conn., a corporation of Delaware
Filed Nov. 13, 1968, Ser. No. 775,248
Int. Cl. H03k *17/02*
U.S. Cl. 328—104 **1 Claim**



A plurality of data channels, each having a differential amplifier therein, are selectively multiplexed to a single output data channel by allowing the polarity of the amplifier output to be in phase with a unilateral impedance which is in the forward path of a feedback circuit of the amplifier. In order to disconnect a channel, conduction of a non-critical switch causes the amplifier input of one sign to be grounded, thus driving the output to the polarity which is blocked by the unilateral impedance in the forward path of the feedback circuit.

3,550,017
PHASE LOCKED PULSE TRAIN EXTRACTOR SYSTEM
James T. Whalen, San Jose, Calif., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Sept. 30, 1968, Ser. No. 763,674
Int. Cl. H03k *5/18*
U.S. Cl. 328—110 **11 Claims**



	FLIP - FLOP		
	3	2	1
1	0	0	0
2	0	0	1
3	0	1	0
4	0	1	1
5	1	0	0
6	1	0	1
7	1	1	0
8	1	1	1

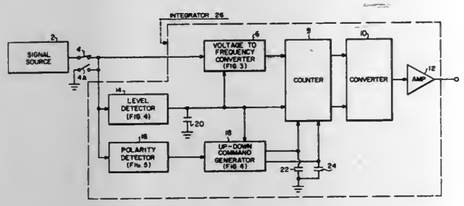
TABLE I

This system includes a resettable clock generator which controls the rate at which input pulses are clocked through a shift register. The input signal and the output of the register are combined in an AND gate which produces an output pulse when pulses are simultaneously present at the inputs thereof. The output pulse is applied to and resets the clock generator to extend for a fixed time period from generation of the output pulse, the generation of the next clock pulse and thus to phase lock the system.

3,550,018
DIGITAL INTEGRATOR-SYNCHRONIZER HAVING LOW NOISE SUSCEPTIBILITY
Robert L. James, Bloomfield, and Donald P. Vargo, Nutley, N.J., assignors to The Bendix Corporation, a corporation of Delaware
Filed Sept. 11, 1968, Ser. No. 759,181
Int. Cl. G06g *7/18*
U.S. Cl. 328—127 **8 Claims**

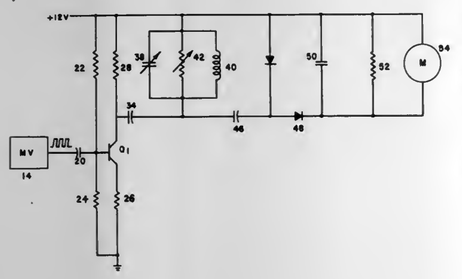
A digital integrator-synchronizer including a voltage to frequency converter for providing pulses at a frequency corresponding to the amplitude of an input signal and a counter controlled by a count-up/count-down command generator for providing a digital signal corresponding to the total number of pulses. A converter converts the digital signal to analog output signal corresponding to the integral of the input signal and the analog output signal is compared with the input signal to provide a synchronized signal. The voltage to frequency converter,

the counter and the command generator are disabled when the device is not processing the input signal, thereby



preventing response to external stimuli including electromagnetic noise.

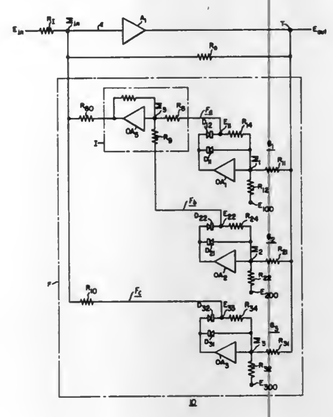
3,550,019
LINEARIZING CIRCUIT FOR NET OIL ANALYZERS
Joseph E. Thomas, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Nov. 17, 1967, Ser. No. 684,042
Int. Cl. H03b *3/04*
U.S. Cl. 328—140 **9 Claims**



A tuned circuit between a digital transducer having an electrical signal output, the frequency of which is responsive to a variable physical condition, and an integrating capacitor which indicates the average pulse rate, the tuned circuit being used to compensate for nonlinearity of the frequency response of the transducer to the condition sensed.

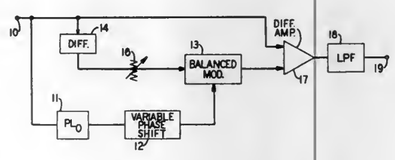
3,550,020
FUNCTION GENERATOR
Joseph Gill, Bridgeville, and George Rouvalis, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 17, 1967, Ser. No. 675,876
Int. Cl. H04b *1/04*
U.S. Cl. 328—142 **11 Claims**

This function generator provides an output which is piecewise linear approximation to a desired and predetermined output function. A number of operational amplifiers equal to the number of breakpoints desired in the piecewise linear approximation is utilized in the feedback circuit to modify the input-output relationship and thus provide the desired slope for each linear segment. Each operational amplifier is respectively caused to switch through a virtually ideal switching arrangement when



the magnitude of the function generator output signal is greater than a respective predetermined breakpoint.

3,550,021
SYSTEM FOR SETTING THE SLOPE OF A DATA SIGNAL TO ZERO AT THE SAMPLING INSTANTS WITHOUT MODIFYING THE DATA SIGNAL VALUES
Stanley L. Freeny, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Oct. 18, 1968, Ser. No. 768,812
Int. Cl. H03k *5/00*
U.S. Cl. 328—151 **5 Claims**

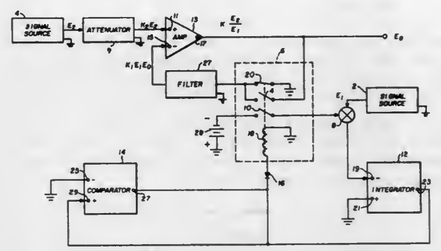


It has been found that the derivative of a data signal can be brought to zero at all sampling instants without effecting the value of the signal at the sampling instants by differentiating the data signal, modulating the differentiated signal with a sine wave having a frequency equal to the data rate and adding the modulated signal to the original data signal.

3,550,022
DIVIDER CIRCUIT
Michael J. Yareck, Staten Island, N.Y., assignor to The Bendix Corporation, a corporation of Delaware
Filed Sept. 4, 1968, Ser. No. 757,248
Int. Cl. G06g *7/16*
U.S. Cl. 328—161 **9 Claims**

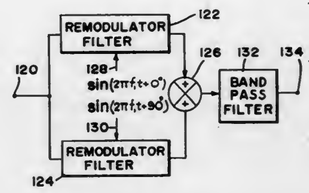
A divider including operational amplifiers for providing an oscillator which generates an output having a sawtooth waveform with a duty cycle proportitonal to a

first input signal. A second input signal is applied to an amplifier and a switch controlled by the sawtooth waveform gates the amplifier output with the same duty cycle providing a pulse having an amplitude corresponding to



the amplifier output and a duty cycle proportional to the first input signal. The switch output is fed back to the amplifier through a negative feedback path for affecting the amplifier output so that it corresponds to the second input signal divided by the first input signal.

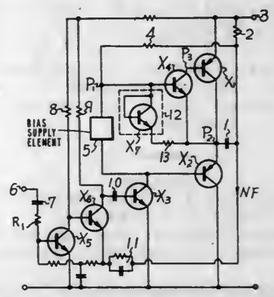
3,550,023
REMODULATOR FILTER
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Howard C. Vivian, La Canada, Calif.
Filed Apr. 24, 1968, Ser. No. 723,804
Int. Cl. H03b *1/04*
U.S. Cl. 328—165 **2 Claims**



An apparatus is disclosed for filtering an input signal to obtain the components of a particular frequency and phase. The apparatus comprises a pair of capacitors, each having a first side coupled directly to the output and coupled through a common resistor to the input. The apparatus also includes a switch which alternately connects the second side of each capacitor to ground to enable the capacitors to alternately charge toward the input signal level during alternate half cycles of the switch frequency.

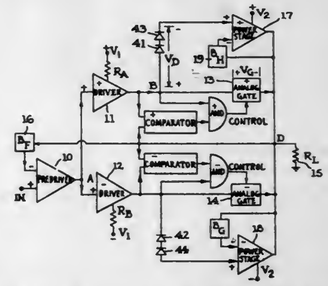
3,550,024
TRANSISTOR PUSH-PULL AMPLIFIER
Masayuki Hongu and Ikuo Shimizu, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Oct. 3, 1968, Ser. No. 764,690
Claims priority, application Japan, Oct. 13, 1967, 42/65,822
Int. Cl. H03f *3/18, 3/26*
U.S. Cl. 330—15 **6 Claims**

A single-ended push-pull amplifier having two output transistors of the same conductivity type and with a polarity-reversing transistor connected across one of the output transistors. A low impedance element is connected



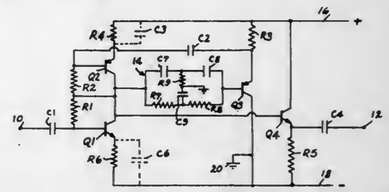
across the polarity-reversing transistor in series with an impedance to obtain an apparent h_{FE} of about one.

3,550,025
CLASS B TRANSISTOR POWER AMPLIFIER
David S. Stodolsky, 6946 S. Euclid, Chicago, Ill. 60649
Filed Oct. 16, 1968, Ser. No. 768,000
Int. Cl. H03f *3/18*
U.S. Cl. 330—17 **3 Claims**



In a class B transistor amplifier advantages of zero-bias operation and controlled overload protection are achieved through controlled power feedthrough from the driver of the amplifier to the load utilizing symmetrical driver, transistor logic, and power stages with feedback.

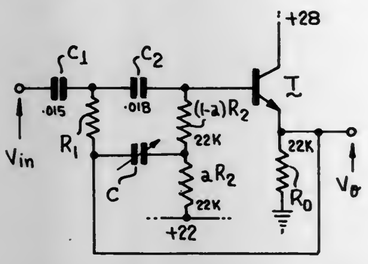
3,550,026
ACTIVE FILTER CIRCUIT
George A. Capen, Auburn, Ind., assignor to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware
Filed Apr. 17, 1969, Ser. No. 817,115
Int. Cl. H03f *3/04*
U.S. Cl. 330—21 **5 Claims**



The invention relates to an active filter circuit in which an incoming signal is amplified and supplied to a passive filter network which attenuates wanted frequencies

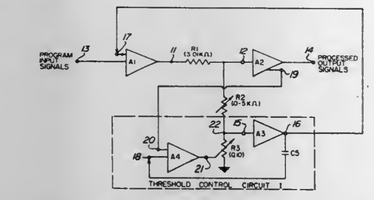
while transmitting unwanted frequencies. The unwanted frequencies are fed back and combined with the amplified input signal in a complementary circuit so as to attenuate the unwanted frequencies therein. The resultant signal containing the wanted frequencies is then amplified if desired and supplied as the output of the active filter circuit. There is provided proper input and output matching of the passive filter network as well as excellent isolation of this network from the input and output terminals of the active filter circuit.

3,550,027
PARALLEL T ACTIVE FILTERS WITH ADJUSTABLE Q
Dale M. Uetrecht, Cincinnati, Ohio, assignor to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Continuation-in-part of application Ser. No. 415,236, Dec. 2, 1964. This application June 4, 1968, Ser. No. 734,302
Int. Cl. H03f 1/38
U.S. Cl. 330—26 **5 Claims**



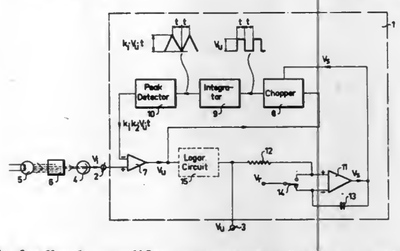
An electronic organ utilizing, as tone color filters, parallel T active filters with adjustable peaking employing a transistor in an emitter follower configuration employing parallel T RC networks, as distinct from a bridged T RC network. Adjustment of one component of one of the T networks adjusts peaking anywhere between 6 and 20 db, for a critical frequency of the filter, while maintaining the circuit stable and without modifying that critical frequency. The critical frequencies are corner frequencies for high and low pass configurations, and center frequencies for band pass and band rejection configurations.

3,550,028
COMPRESSOR-LIMITER CIRCUIT
William G. Dilley, Jr., Ogden, and Robert A. Ponto, Clearfield, Utah, assignors to Spectra Sonics, Ogden, Utah, a proprietorship of Utah
Filed July 28, 1969, Ser. No. 845,145
Int. Cl. H03g 3/30
U.S. Cl. 330—29 **17 Claims**



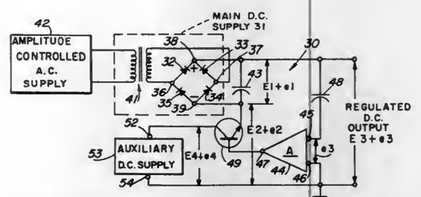
A dual-purpose electronic circuit which functions as both a compressor circuit and a limiter circuit is constructed (preferably entirely of solid state components) by interconnecting a signal-input means (preferably an input amplifier) and a signal-output means (preferably an output amplifier) through a gain-control system. The gain-control system includes attenuating means responsive to the intensity of an output signal compared with a reference voltage, threshold-control means for maintaining such a reference voltage, and slope-control means for selectively establishing a ratio of input signal gain to output signal gain. In its preferred form, the threshold-control means includes a control amplifier and a feedback amplifier. The preferred control amplifier includes novel driver and full-wave rectifier circuits. The preferred input and output amplifiers include feedback resistances in the collector circuits of their output stages. The preferred input amplifier also includes a combined voltage-dividing and biasing network of high impedance and a terminating load resistor connected through a combination filtering and coupling capacitor.

3,550,029
FEEDBACK AMPLIFIER ARRANGEMENT
Rune David Oliver Sundberg, Sollentuna, Sweden, assignor, by mesne assignments, to LKB Instruments, Inc., Rockville, Md., a corporation of Delaware
Filed Feb. 17, 1969, Ser. No. 799,807
Claims priority, application Sweden, Feb. 16, 1968, 2,086/68
Int. Cl. H03f 1/36
U.S. Cl. 330—86 **3 Claims**



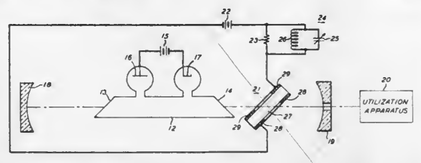
A feedback amplifier arrangement having a gain of amplification factor, which can initially be set automatically on a value inversely proportional to the magnitude of an input signal supplied to the amplifier arrangement at a given moment and subsequently be maintained on said value independently of subsequent variations in the magnitude of the input signal supplied to the amplifier arrangement.

3,550,030
TRANSIENT REGULATION OF DIRECT CURRENT ELECTRICAL POWER SUPPLIES
Carl G. Blanyer, West Covina, Calif., assignor to Abex Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,746
Int. Cl. H03f 1/00
U.S. Cl. 330—199 **4 Claims**



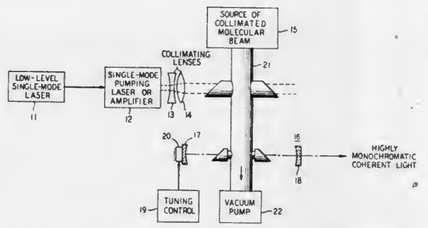
A transient and ripple suppression circuit for a DC power supply comprising an AC amplifier, having a gain —K, connected in a feedback circuit from one terminal of the DC supply to the other with the second input to the amplifier connected to a plane of reference potential, the output being taken between the first terminal of the power supply and the reference plane and affording a DC voltage in which transient or ripple fluctuations are reduced by a factor of approximately 1+K.

3,550,031
AMPLITUDE AND PHASE-LOCKING OF LASER TRANSITIONS BY PLASMA OSCILLATIONS
Solomon J. Buchsbaum, Westfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Aug. 21, 1967, Ser. No. 662,153
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 **2 Claims**



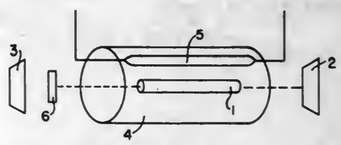
A molecular laser having multiple transitions spaced substantially equally in frequency can produce a series of output pulses when the multiple transitions are amplitude and phase-locked by an intra-resonator electro-optic effect of a bulk-effect oscillator such as the Gunn oscillator or the related limited-space-charge-accumulation device. For a carbon dioxide laser operating upon several transitions having wavelengths near 10.6 microns, a suitable bulk-effect oscillator employs a sample of gallium arsenide coupled to an external direct-current voltage source and adjustable resonant tank circuit and oriented to produce phase modulation of the resonated light.

3,550,032
LASER FOR USE AS A FREQUENCY STANDARD
Chandra K. N. Patel, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Mar. 27, 1968, Ser. No. 716,503
Int. Cl. H01s 3/09
U.S. Cl. 331—94.5 **8 Claims**



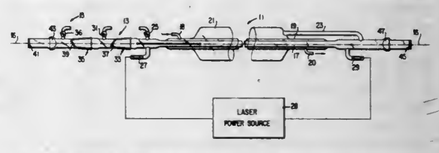
In the laser disclosed, a narrow linewidth and high frequency stability are obtained by collimating a molecular beam of SF_6 and by pumping the molecular beam transversely with single-mode coherent radiation of wavelength (e.g., 10.6 microns) closely matching the wavelength of its intended transition. The excited molecular beam is then passed through a resonator oriented transverse to its direction of longitudinal flow and tuned to the center of the intended transition. The resulting linewidth is about 1×10^{-4} times that of the pumping radiation; and, therefore, the output is usable as an infrared frequency standard.

3,550,033
CHROMIUM-DOPED $GdAlO_3$ HIGH ENERGY STORAGE LASER MATERIAL
Robert C. Ohlmann, Palo Alto, Calif., and Robert Mazelsky, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 11, 1968, Ser. No. 736,220
Int. Cl. C09j 1/04
U.S. Cl. 331—94.5 **6 Claims**



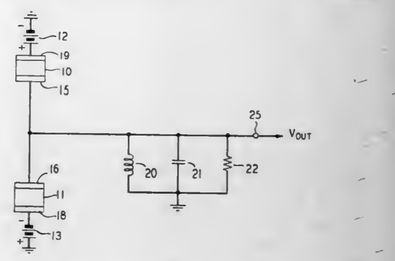
A new and improved laser material, for use as a laser in association with pump radiation is made having the formula $GdAl_{1-x}Cr_xO_3$, where x may take any value from 0.0001 to 0.01 inclusive.

3,550,034
REPETITIVELY-PULSED, WAVELENGTH-SELECTIVE LASER
Philip L. Hanst, Andover, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 20, 1969, Ser. No. 800,973
Int. Cl. H01s 3/00
U.S. Cl. 331—94.5 **13 Claims**



This disclosure describes a laser with two gas absorption cells built into the laser cavity. The first of these cells contains a gas which controls the wavelength of emission and the second contains a gas which forces the laser into a high frequency pulsed mode of operation. Alternatively, a single gas absorption cell is used, the pulsing and wavelength shifting gases are mixed prior to insertion into the cell and the mixture is then heated to induce pulsing.

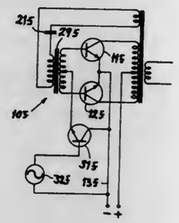
3,550,035
PUSH-PULL OSCILLATOR EMPLOYING A PAIR OF BULK SEMICONDUCTOR DEVICES
Richard B. Robrock II, Matawan Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Dec. 20, 1968, Ser. No. 785,654
Int. Cl. H03b 7/06
U.S. Cl. 331—107 **2 Claims**



A push-pull oscillator employing two series connected

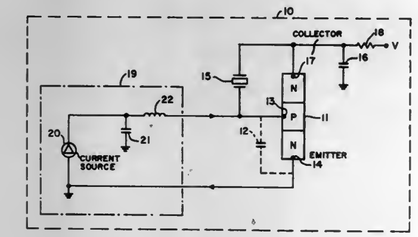
bulk semiconductor devices in which domains are alternately nucleated to drive an RLC resonant circuit connected to the common junction of the devices.

3,550,036
OSCILLATOR WITH PUSH-PULL-CONNECTED SEMICONDUCTOR ELEMENTS
Robert H. Pintell, Congers, N.Y., assignor to Intron International Inc., Congers, N.Y., a corporation of the United States of America
Filed Aug. 20, 1968, Ser. No. 753,989
Int. Cl. H03k *1/16, 3/30*
U.S. Cl. 331—113 **15 Claims**



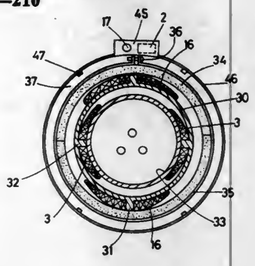
Two push-pull-connected semiconductor elements, such as transistors or controlled rectifiers, are provided with a predominantly reactive input circuit including a condenser so connected in a feedback path that, upon incipient conduction through one semiconductor element, a charging current flows through the input of that element to drive it to instant saturation. The charging current, decreasing first rapidly and then more gradually from an initial peak, reverses at the instant of switchover to drive the other semiconductor element to its saturated state.

3,550,037
OSCILLATOR FREQUENCY CONTROL USING CURRENT CONTROLLED INTERNAL TRANSISTOR CAPACITANCE
Zbigniew Wiencek, Palatine, Ill., assignor to Hazeltine Research, Inc., a corporation of Illinois
Filed Feb. 29, 1968, Ser. No. 709,381
Int. Cl. H03b *5/12, 5/36*
U.S. Cl. 331—116 **6 Claims**



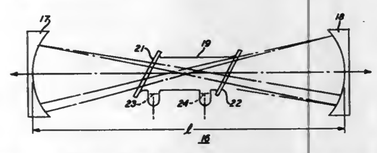
A transistorized oscillator circuit in which a variable current is supplied to the transistor to vary the magnitude of the internal base-emitter capacitance. This capacitance is used in combination with other reactance such as a piezoelectric crystal or an inductance in determining the oscillation frequency so that variation of its magnitude controls the frequency of oscillation.

3,550,038
DEFLECTION YOKE ASSEMBLY FOR TELEVISION PICTURE
Kazunori Shizu, Tokyo, Japan, assignor to Kenki Onkyo Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1969, Ser. No. 798,582
Claims priority, application Japan, Mar. 9, 1968, 43/18,237, 43/18,238
Int. Cl. H01f *7/00*
U.S. Cl. 335—210 **3 Claims**



A deflection yoke assembly for a television picture tube includes a horn-shaped body of an insulating material constituting a bobbin for the horizontal and vertical deflection coils. At its lesser diameter head, the body has a radial flange carrying means supporting a pin cushion transformer electrically connected with the deflection coils. The arrangement is such that a unit is provided which requires only four male-female or plug-type connections to the remainder of the circuitry of the television set.

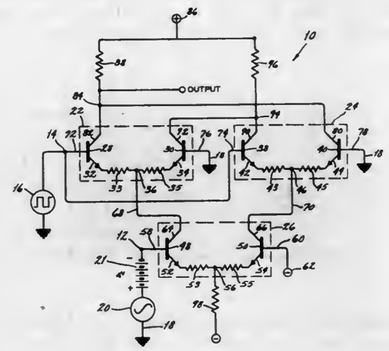
3,550,039
OPTICAL DELAY SYSTEM
Donald R. Herriott, Morris Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Dec. 19, 1967, Ser. No. 691,750
Int. Cl. H01s *3/10*
U.S. Cl. 332—7.51 **7 Claims**



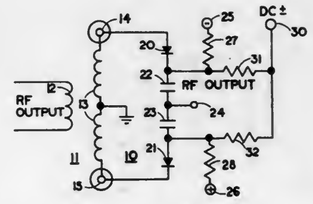
An optical delay line and information storage comprises a pair of spherical mirrors spaced apart a distance slightly less than the sum of their radii. An optical amplifier device is located in the space between the two mirrors and means are included for causing light rays to trace a plurality of different paths between the two mirrors, all of which pass through the amplifying device. Information storage is achieved by including a light feedback loop from the output to the input of the mirror system, and modulating the light in the loop with signals to be stored.

3,550,040
DOUBLE-BALANCED MODULATOR CIRCUIT READILY ADAPTABLE TO INTEGRATED CIRCUIT FABRICATION
Robert R. Sinusas, West Caldwell, N.J., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Continuation-in-part of application Ser. No. 620,890, Mar. 6, 1967. This application May 31, 1968, Ser. No. 736,543
Int. Cl. H03c *1/54*
U.S. Cl. 332—44 **10 Claims**

The disclosure of the present invention includes a circuit having three pairs of transistors each having their emitter electrodes coupled together capable of operating as a double balanced modulator and signal level multiplier. The emitter electrodes of one transistor pair are connected to a common, relatively constant current source (such as a large value resistor connected to a high voltage supply); this maintains a constant current. In this manner, a signal applied to this pair of transistors produces current signals which are out of phase with each other. The two current signals are applied to the emitters of the transistors of the remaining pairs, respectively, and are divided between the transistors of these pairs depending on the instantaneous amplitude of a second signal supplied thereto. This provides balanced currents in two output impedances and assures that the output signal taken across either impedance will contain only the product signals.



3,550,041
RF SIGNAL CONTROLLER
Walter A. Sauter, Malibu, Calif., assignor to American Nucleonics Corporation, Glendale, Calif., a corporation of California
Filed Aug. 22, 1969, Ser. No. 852,209
Int. Cl. H01p *1/10, 1/22, 5/12*
U.S. Cl. 333—7 **6 Claims**

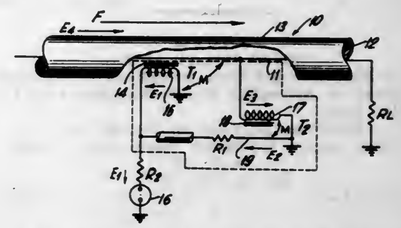


This invention relates to a voltage or current controlled device which can regulate the amplitude of a RF signal with fine resolution over a large dynamic range, the control being provided by a DC signal.

It employs a diode network including a pair of series connected PIN diodes with DC bias and control inputs.

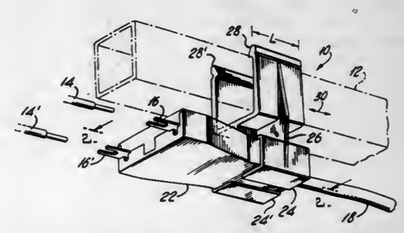
In one embodiment a pair of independent DC control input terminals and two pair of diodes are used and conjugate phase RF output is obtained from a single RF input. This invention may be used in the Interference Cancellation System of my application Ser. No. 799,781 filed Feb. 17, 1969.

3,550,042
WIDE BAND DIRECTIONAL COUPLER
Glenn C. Werlau, Susan Road, Peach Lake, Brewster, N.Y. 10509
Filed Nov. 18, 1966, Ser. No. 595,425
Int. Cl. H01p *1/00, 5/4*
U.S. Cl. 333—10 **4 Claims**



A directional coupler for sampling energy traversing a main coaxial transmission line in a preselected direction including a first toroidal winding which is adapted to receive the inner conductor of the coaxial line therethrough to provide a first transformer wherein the inner conductor forms the primary winding and the toroidal winding forms the secondary winding. A second transformer including a second toroidal winding connected between the inner conductor and one end of a load device is provided. The primary winding of the second transformer is formed by the inner conductor of a coaxial transmission line having the same characteristics as the above noted transmission line. The inner conductor of this secondary transmission line extends through the second toroidal winding and is connected across the load device. The first toroidal winding is similarly connected across the load device. Impedance means is connected in series with the secondary inner conductor to provide energy dissipating means for dissipating energy flowing in a preselected direction in the main transmission line.

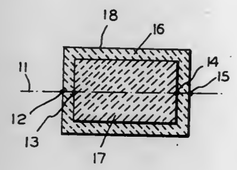
3,550,043
MICROWAVE COUPLING DEVICE AND MOUNTING THEREFOR
George M. Brooks, Sherburne, N.Y., assignor, by mesne assignments, to Jerrold Electronics Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Oct. 4, 1968, Ser. No. 765,110
Int. Cl. H03h *7/42*
U.S. Cl. 333—26 **37 Claims**

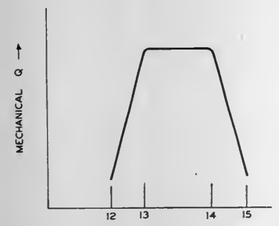


An easily assembled and installed microwave coupling device is described for interconnecting a pair of balanced leads to a coaxial cable. The device is especially suitable for television frequencies and may be conveniently clipped onto an antenna or placed near a receiver. A clip having two pairs of resilient clutching fingers is provided with one pair of fingers gripping the boom of an antenna and the other pair gripping a case enclosing the microwave network. The case includes a novel lid which retains the

case-enclosed network as well as provides protective covering thereof and is in turn lockingly retained by the case-clutching fingers of the clip. A novel coaxial cable connector is employed which further facilitates assembly of the coupling device and interconnection thereof to the coaxial cable. The entire arrangement is simply assembled yet mechanically rugged and rigid to yield excellent electrical performance.

3,550,044
SOLID DELAY LINE
Shigeru Hayakawa and Masanari Mikoda, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Mar. 24, 1969, Ser. No. 809,895
Claims priority, application Japan, Apr. 9, 1968, 43/24,169
Int. Cl. H03h *9/30*
U.S. Cl. 333—30 **10 Claims**

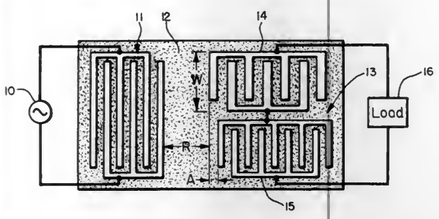




An ultrasonic delay line formed of a solid delay line medium with conventional input and output transducers. The unused surfaces have an outer region thereat which has a mechanical Q which varies from a low value at the unused surfaces to the high mechanical Q of the delay line medium at the interface of the outer region and the inner region of the body for attenuating spurious signals. The outer region can be formed by diffusing ions into the outer region by immersing the body in a bath of a fused salt containing the desired ions, or firing the body after coating it with an enamel or a paint containing the desired ions. It can also be formed by heating a body of delay medium having atoms of a material therein which act as nuclei of crystals so as to form a layer of crystallized material in which the crystals act as scattering centers for acoustic waves.

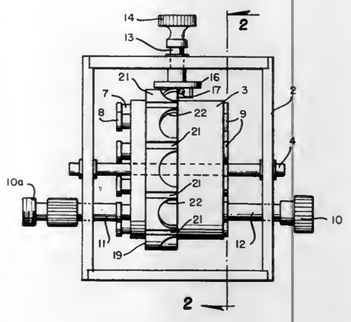
3,550,045
ACOUSTIC SURFACE WAVE FILTER DEVICES
Robert Adler, Northfield, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed June 25, 1969, Ser. No. 836,551
Int. Cl. H03h *7/30*
U.S. Cl. 333—72 **18 Claims**

Interleaved-comb-type surface-wave electromechanical transducers are spaced apart on the surface of a propagating medium. Such transducers have a frequency response characteristic that exhibits a main lobe of maximum response at a design center frequency with smaller lobes between nulls at successive lower and higher frequencies. In order to broaden the response of a transducing system between the first nulls on either side of the design frequency, the output transducing unit is segmented into a laterally spaced pair of individually transducers that are mutually unequal in frequency of maximum response and in spacing from the input transducing unit. The two output transducers are interconnected in series combination and a load is coupled across that series combination. The individual responses of the two output transducers combine to yield an overall response that is reasonably flat over a broader frequency range.



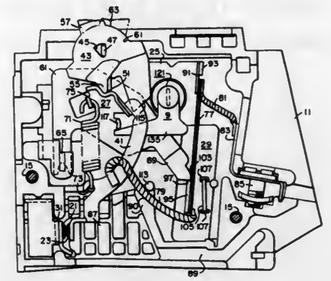
To further broaden the response of the entire device, the input transducing unit is segmented into three individual transducers spaced apart laterally. The outer two transducers are spaced from the output transducing unit a distance that is unequal to the spacing between that unit and the inner input transducer. Moreover, the two outer transducers are intercoupled in parallel combination and that combination, in turn, is intercoupled in series with the inner one of the transducers. An input signal source is coupled across the overall combination of all three transducers.

3,550,046
FLUSH CONTACT STEP ATTENUATOR FOR COAXIAL CIRCUITS
Helmut Bacher, Arlington, Va., assignor to Weinschel Engineering Co., Gaithersburg, Md., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,285
Int. Cl. H01p *1/22*
U.S. Cl. 333—81 **4 Claims**



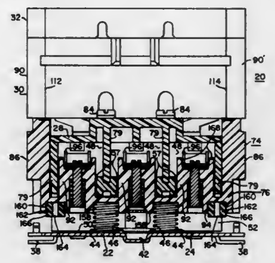
A cylinder drum step attenuator for coaxial cable microwave circuits, stepped by a full rotation cycle of the drive shaft in such fashion that during half of a rotation cycle of the drive shaft the drum is held rigidly in position with one attenuator in the circuit, and during the next half turn of the shaft, the drum is smoothly rotated an amount sufficient to put the next attenuator into the circuit.

3,550,047
CIRCUIT BREAKER WITH IMPROVED TRIP MEANS
Francis L. Gelzheiser, Fairfield, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 31, 1968, Ser. No. 788,229
Int. Cl. H01h *73/48*
U.S. Cl. 335—39 **12 Claims**



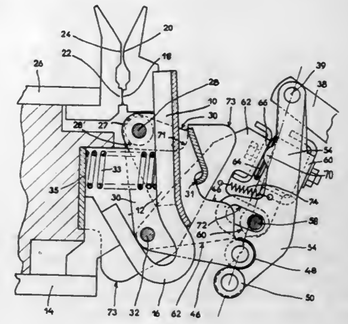
A circuit breaker comprises improved trip means for automatically tripping the breaker open upon the occurrence of certain predetermined overload current conditions. The novel construction, which provides effective low-magnetic tripping action while minimizing the problem of nuisance tripping under shock conditions, is utilized, in one embodiment, in a multi-pole breaker construction to provide an improved multi-pole breaker with dependable positive common trip action.

3,550,048
ELECTROMAGNETICALLY OPERATED SWITCH HAVING A MOVABLE CONTACT CARRIER SHOCK ABSORBER
James E. Stallman, Whitefish Bay, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed July 23, 1969, Ser. No. 843,994
Int. Cl. H01h *3/60*
U.S. Cl. 335—193 **10 Claims**



An electromagnetically operated switch having shock absorbers for reducing the bounce of the movable contacts when the contacts are moved to a circuit closing position by a movable contact carrier. The shock absorbing function is provided by a pair of elastomeric members, such as butyl rubber, which are positioned on the movable contact carrier to be compressed and absorb the rebound energy of the movable contact carrier when the movable contact carrier overshoots the normal contact closing position and to be relaxed when the movable contact carrier is at the contact closing position.

3,550,049
CURRENT LIMITING CIRCUIT BREAKER WITH ELECTRODYNAMIC COMPENSATION
Guy Blanc-Tailleur, Seyssins, France, assignor to Merlin Gerin, Societe Anonyme, Grenoble, France
Filed June 17, 1969, Ser. No. 833,922
Claims priority, application France, July 5, 1968, 158,223
Int. Cl. H01h *77/10*
U.S. Cl. 335—195 **12 Claims**

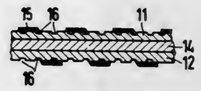


A circuit breaker having electrodynamically compensated contacts urged together in their normal closed circuit position. The contacts are locked in closed position but the movable can unlock itself in case of overcurrent. The electrodynamic forces furnish immediately after unlocking an opening force applicated to the movable contact.

ERRATUM

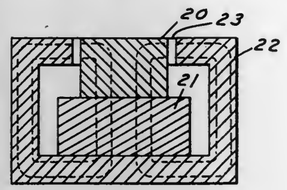
For Class 335—210 see:
Patent No. 3,550,038

3,550,050
SUPERCONDUCTING COIL WITH COOLING MEANS
Cord Albrecht, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
Filed Aug. 19, 1968, Ser. No. 753,649
Claims priority, application Germany, Aug. 17, 1967, 1,614,582
Int. Cl. H01f *7/22*
U.S. Cl. 335—216 **13 Claims**



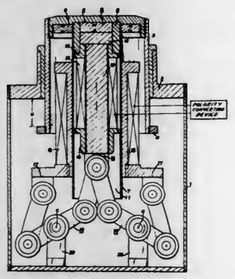
A superconducting magnetic coil with a winding whose cooling possibilities have been considerably improved. In accordance with the invention, the tape-shaped conductor of the coil winding has three layers of which the two outer ones are comprised of superconducting material and electrically normal conducting metal and the middle layer is comprised of a material which possesses high tensile strength. Cooling ducts are provided between the outer layers and the insulation placed upon said layers and/or between the outer layers and the middle layer.

3,550,051
SPEAKER MAGNET HAVING CURVED PREFERRED DIRECTION OF MAGNETIZATION
Rollin J. Parker, Greenville, Mich., assignor to General Electric Company, a corporation of New York
Continuation-in-part of application Ser. No. 515,401, Dec. 21, 1965. This application Mar. 14, 1969, Ser. No. 807,390
Int. Cl. H01f 7/00
U.S. Cl. 335—231 **6 Claims**



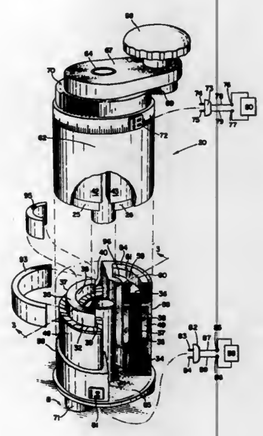
A permanent magnet has a preferred direction of magnetization along a curved path, one end of which intersects a side surface of the magnet and another end of which intersects an end surface of the magnet. Magnets with such a direction of magnetization are particularly useful in speaker structures for concentration of the magnetic flux at the air gap. Such magnets permit speaker structures of increased effectiveness, particularly by use of an inexpensive annular pole piece or by use of multiple diameter magnets.

3,550,052
ELECTROMAGNETICALLY PROPELLED APPARATUS
Masatoshi Toyoda, 1–14–9 Asakusa, Taito-ku, Tokyo, Japan
Filed Apr. 28, 1969, Ser. No. 819,718
Claims priority, application Japan, May 4, 1968, 43/29,728
Int. Cl. H01f 7/08
U.S. Cl. 335—234 **2 Claims**



An electromagnetically propelled apparatus wherein the opening of an inner casing fits in with the opening of an outer casing, said inner casing is slidably disposed, the peripheral portion of the outer casing is provided with an annular stop member bent in a L-shape cross section, the peripheral portion of the inner casing has a stop member, these stop members being intended to cooperate in preventing the inner casing from falling off the apparatus, there are disposed on the inner bottom plane of the inner casing two or more permanent magnets so arranged as to cause the opposite polarities thereof to face each other, there are also provided two or more electromagnetic devices at opposite positions to said permanent magnets, whereby the polarities of these electromagnetic devices are switched over so as to cause them alternately to impinge on the permanent magnets and in consequence the inner and outer casings to be propelled by turns.

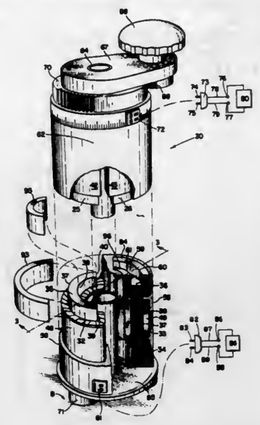
3,550,053
WELDING TRANSFORMER
Eliot Joseph Carlo, 138 McMurchy St. S., Brampton, Ontario, Canada
Filed May 15, 1969, Ser. No. 824,918
Int. Cl. H01f 21/02
U.S. Cl. 336—118 **10 Claims**



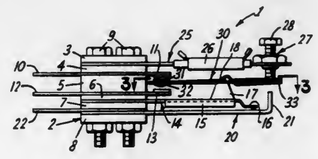
A welding transformer for continuous adjustment of electric magnitudes by means of variable induction, having a pair of cylindrical-shaped core members with a pair of notches on opposite sides of each core member defining spaced apart semi-cylindrical legs joined at one end by a base, at least one field winding on each core member, one core member being rotatable relative to the other core member for mutual angular displacement around a common axis, and a pair of semi-angular bodies of permeable magnetic material arranged opposite to one another and engaging the adjacent legs of the core members that are rotatable relative to the core members. The electrical magnitudes are adjusted by either rotation of the semi-annular bodies relative to the core members or rotation of one core member relative to the other or a combination of both.

3,550,054
LIMITED RANGE TRANSFORMER WITH A TAP CHANGING SYSTEM
Eliot Joseph Carlo, 138 McMurchy St. S., Brampton, Ontario, Canada
Filed May 15, 1969, Ser. No. 824,919
Int. Cl. H01f 21/02
U.S. Cl. 336—120 **6 Claims**

A tap changing system for transformers having a pair of cylindrical-shape core members with a pair of notches on opposite sides of each core member defining spaced apart semi-cylindrical legs joined at one end by a base, one of the core members being rotatable relative to the other for mutual angular displacement about a common axis. The tap system has at least one field winding on each leg of the core members with a plurality or coil sections, a tap connection at each end of each coil section and switching means for selectively connecting each tap connection to an adjacent tap connection of a coil section of the field windings on the same core member whereby the coil sections are connected in series or parallel or a combination of both.



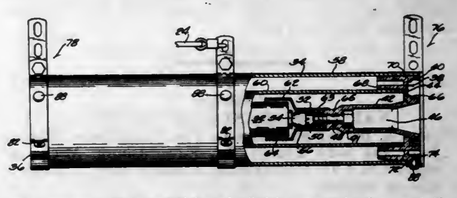
3,550,055
ELECTRICAL SWITCH WITH BIDIRECTIONAL SNAP ACTION ACTUATION AND SPRING CONTACT BLADE THEREFOR
Philip D. Grover, Two Rivers, Wis., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed May 27, 1968, Ser. No. 732,433
Int. Cl. H01h 61/04, 71/16
U.S. Cl. 337—100 **20 Claims**



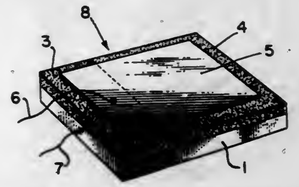
An electrical switch having blade operator means, blade support means, and an elongated spring contact blade with a pair of substantially parallel reach portions between the blade ends and being capable of bidirectional over center operation for switch actuation. One of the reach portions has a deformation for warping the blade, and the other reach portion is connected to the support means which is an ambient temperature compensator when the operator means is thermally responsive.

3,550,056
ENCLOSED FUSE
Raymond J. Bronikowski, South Milwaukee, Wis., assignor to McGraw-Edison Company, South Milwaukee, Wis., a corporation of Delaware
Filed Jan. 31, 1969, Ser. No. 795,619
Int. Cl. H01h 85/02, 85/56
U.S. Cl. 337—199 **11 Claims**

A fuse for a submersed electrical installation is housed in a sealed enclosure. The electrical field surrounding the fuse is controlled by a conductive layer on the outside of the enclosure. The conductive layer surrounds the fuse and is at ground potential with respect to the fuse which is at line potential. End bushings for closing the ends of the enclosure are held in position by a releasable clamp and are removable to afford ready access for fuse replacement. For additional field control the axially outward facing surfaces of the end bushings also carry a conductive layer at ground potential.

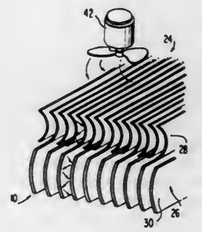


3,550,057
SENSING ELEMENT
Irving G. Young, Levittown, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Nov. 29, 1968, Ser. No. 779,804
Int. Cl. H01c 13/00
U.S. Cl. 338—34 **12 Claims**



A moisture sensing element is provided by forming upon a metal base member an insulative oxide film and an adjacent moisture sensitive oxide film. The moisture sensitive and insulative oxide films are each formed by anodizing the metal base member in sulphuric acid solutions maintained, respectively, at first and second predetermined temperatures. A metal film is formed over the moisture sensitive oxide film and overlapped onto the insulative oxide film. Electrical terminals are connected, respectively, to the portion of the metal film which overlaps onto the insulative oxide film and to the metal base member.

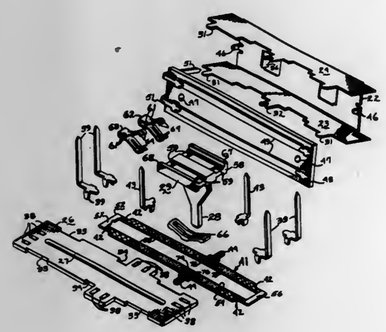
3,550,058
ELECTRICAL RESISTOR STRUCTURE
Marvin A. Du Bois, Jr., 2323 Martha St., Highland, Ind. 46322
Filed May 29, 1968, Ser. No. 732,964
Int. Cl. H01c 1/08
U.S. Cl. 338—57 **17 Claims**



A heavy duty electrical resistor is formed by combining a ventilation source to create a moving stream of forced air with a resistor grid structure designed to create

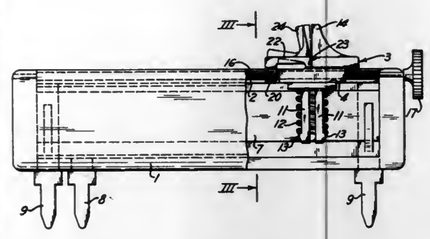
maximum air turbulence within the resistor bank. Individual resistor grids on the entrant end of the bank are inclined in a direction opposite to the direction of air flow and the grid spacing and configuration is set to create internal reversals of flow direction with increased air turbulence within the bank.

3,550,059
VARIABLE RESISTANCE CONTROL
Wayne A. Barden and John D. Van Benthuysen, Elkhart, Ind., and John Zdanys, Jr., Edwardsburg, Mich., assignors to CTS Corporation, Elkhart, Ind., a corporation of Indiana
Filed Nov. 2, 1967, Ser. No. 680,190
Int. Cl. H01c *5/02*
U.S. Cl. 338—176 **25 Claims**



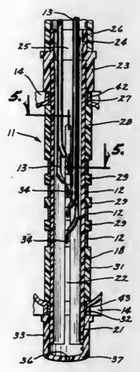
Intrinsically equalized resistance elements each comprising a separate portion of a film of resistive material supported by a discrete segment of a one-piece dielectric substrate are wipingly engaged by discrete contactors within a plural section variable resistance control housing. One or more webs of dielectric material hold the intrinsically equalized resistance elements in mechanical alignment relative to each other and stabilizing means promote smooth movement of an operating means for the control. One form of the stabilizing means comprises a spring urging the bearing surfaces of a contactor carrier against one or more reaction surfaces in the housing. Contactors provided with contactor carrier gripping means are constrained to move with a contactor carrier and include aligned wiping fingers movable sequentially into and out of engagement with an improved tap arrangement comprising a surface of conductive film deposited on the resistance elements having edges angularly disposed relative to a line normal to the longitudinal axis or center line of the resistance elements. One method of the invention includes the steps of depositing a film of resistive material on a strip of dielectric substrate material during a substantially continuous process to form a continuous and substantially homogeneous film covering spaced portions of the surface of the substrate material, and removing a plurality of discrete and intrinsically equalized resistance elements from the film-covered substrate strip by separating the strip into discrete segments held together by one or more webs of substrate material extending therebetween. An improved method of making a variable resistance control includes the steps of assembling terminals with intrinsically equalized resistance elements and fixedly positioning resistance elements, collector means, and movable contactors in a control housing.

3,550,060
POTENTIOMETER ADJUSTABLE BY SLIDE OR SCREW
Mogens W. Bang, Ridgway, Pa., assignor to Stackpole Carbon Company, St. Marys, Pa., a corporation of Pennsylvania
Filed Feb. 17, 1969, Ser. No. 799,667
Int. Cl. H01c *1/12, 9/02*
U.S. Cl. 338—181 **8 Claims**



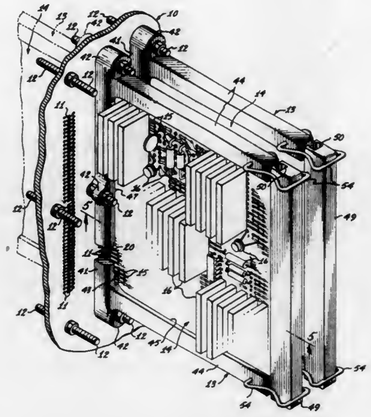
A potentiometer has a straight resistance element, along which an electric contact can be moved by a manually operable slide. For fine adjustments, the slide can be moved by a rotatable screw extending lengthwise of the resistance element. For rapid movement, the slide is easily disconnected from the screw.

3,550,061
ELECTRICAL SWIVEL CONNECTOR
Eugene G. Sukup, Sheffield, Iowa 50475
Filed Jan. 8, 1968, Ser. No. 696,359
Int. Cl. H01r *39/14*
U.S. Cl. 339—8 **1 Claim**



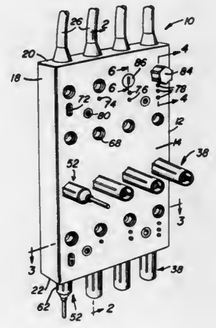
This invention relates to an improved swivel connector electrically connecting a revolving object to an electric source, the connector having a tubular core enclosing insulated wires connected to the electric source the tube having a slot extending substantially the length thereof to permit exiting of the wires enclosed within the tube to facilitate attachment of the wires to conductor rings which are then frictionally mounted upon the tube, the rings engaging spring contacts electrically connected to the revolving object.

3,550,062
CONNECTOR AND MOUNTING DEVICE FOR PRINTED WIRING BOARDS
Richard C. Drenten, Phoenix, and Charles E. Ester, Glendale, Ariz., assignors to General Electric Company, a corporation of New York
Filed Dec. 26, 1967, Ser. No. 693,599
Int. Cl. H05k *1/18;* **H01r** *13/54*
U.S. Cl. 339—17 **3 Claims**



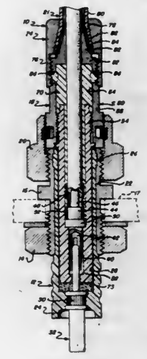
A connector and mounting device for electrically and mechanically attaching a printed wiring board to a backpanel.

3,550,063
POLYPHASE JUNCTION BOX
Gerald W. Lecocq, West Frankfort, Ill., assignor of one-fourth each to Pleasant E. Smith, Carbondale, James A. Ozbourn, Carterville, and Thomas A. Miller, Marion, Ill.
Filed Aug. 14, 1968, Ser. No. 752,680
Int. Cl. H01r *23/00, 13/16*
U.S. Cl. 339—22 **1 Claim**



A number of parallel spaced bus bars are embedded within a block of dielectric material. Each bus bar includes tapped bores therein at spaced intervals along its length. Each tapped bore is aligned with a stepped diameter opening in the dielectric block. A number of threaded modular connectors may be conductively engaged by the bus bars, the connectors being so shaped to create a weather seal with the block within the openings.

3,550,064
ELECTRICAL CONNECTOR PLUG AND CONNECTOR ASSEMBLY
James M. Caller and Paul J. Konnick, Albuquerque, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 6, 1969, Ser. No. 847,870
Int. Cl. H01r *13/62*
U.S. Cl. 339—65 **10 Claims**

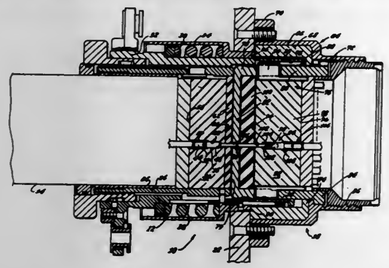


An ultraminiaturized, high-voltage coaxial cable connector including a connector plug assembly having long electrical discharge paths from its socket formed from an elongated projecting insulative member, heat shrunk insulative sleeve, and an insulative sealant injected into a chamber formed by the insulative member, insulative sleeve, cable insulator and plug housing to effectively form a unitary insulative structure within and projecting from the housing. The insulative member, insulative sleeve and cable insulator have roughened and/or primed surfaces facing the chamber for adhesive gripping by the insulative sealant. A connector receptacle assembly for mating with the plug assembly includes an elongated insulative receptacle member for receiving the projecting socket insulative structure and a contact pin to engage the plug assembly socket, the insulative receptacle member having extended external and internal electrical creepage paths to its housing.

3,550,065
ELECTRICAL CONNECTOR
John J. Phillips, Rolling Hills, Calif., assignor, by mesne assignments, to G & H Technology, Inc., Santa Monica, Calif., a corporation of Delaware
Continuation of application Ser. No. 497,064, Oct. 18, 1965. This application Jan. 11, 1968, Ser. No. 697,135
Int. Cl. H01r *13/52*
U.S. Cl. 339—94 **22 Claims**

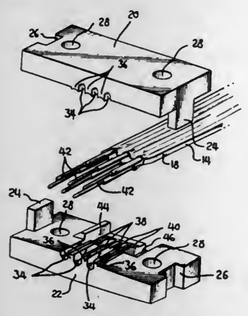
The present invention is related to electrical connectors and more particularly to electrical connectors for use in severe environments. The embodiment of the connector specifically disclosed herein contains at least three significant important improvements over the prior art whereby the connector may be utilized in environments having extremely high temperatures, electrically conductive plasmas and/or large quantities of stray electromagnetic energy, etc. One of these improvements includes a thermoplastic insert effective to flow into and around the electrical contacts when the temperature of the atmosphere approaches the region where it becomes electrically insulated from each other and from any surrounding electrically conductive atmospheres. A second im-

provement includes the use of a seal of non-communicating material having a plurality of gas filled closed bubbles whereby a rise in temperature into the above mentioned region causes the bubble to greatly expand and increase the sealing pressure and prevent any atmospheres from entering into the connector and shorting out any of the electrical contacts. A third improvement in-



cludes an electrically conductive face plate disposed in front of the contacts and includes a plurality of access passages whereby complimentary mating pin contacts may extend through the access passages. The access passages form waveguides wherein the cut-off frequency is sufficiently high to prevent any incident electromagnetic energy passing therethrough.

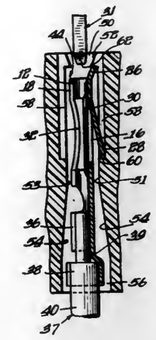
3,550,066
CONNECTOR FOR MULTIPLE CONDUCTOR CABLE
Harold Edwin Cootes, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 19, 1968, Ser. No. 760,932
Int. Cl. H01r *13/58, 33/04*
U.S. Cl. 339—196 **6 Claims**



An electrical connector is provided for multiple conductor flat or ribbon cable and comprises a header block formed of two identical halves having alternately disposed slots for receiving the individual conductors of the flat or ribbon cable and maintaining said conductors separated and electrically insulated from each other.

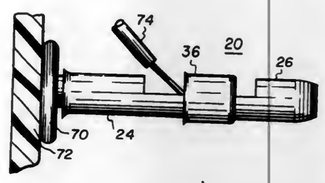
Flat cable and ribbon cable are currently being extensively used in the electrical and electronic field and this invention pertains to a means for electrically terminating such cable to provide a pluggable connection. The spacing between adjacent conductors in flat or ribbon cable is normally less than the spacing which can be achieved between adjacent electrical socket contacts. Therefore, this invention provides a means for separating adjacent conductors to a suitable spacing to permit pluggability with conventional socket contacts.

3,550,067
ELECTRICAL RECEPTACLE AND TERMINAL
Wallace Hansen, Glen Ellyn, Ill., assignor to Molex Products Company, Downers Grove, Ill., a corporation of Illinois
Filed Apr. 29, 1968, Ser. No. 724,804
Int. Cl. H01r *9/16, 13/54*
U.S. Cl. 339—217 **4 Claims**



A terminal block arrangement including a plurality of female terminals for mounting in rectangular shaped openings in the terminal block. Each of the terminals includes a one-piece, metallic body having a leading end formed in the shape of a hollow, open-ended rectangle. A tab and an opposing strip extend outwardly from one of the walls of the rectangular leading end to engage a shoulder and a recess, respectively, formed in the walls of a corresponding opening in the block to secure the terminal therein. A pair of bowed contact members formed from and connected at both ends to the opposite side wall of the leading end of the terminal, and a pair of opposing indented portions formed in the first-mentioned side wall, serve to engage a male terminal received in the leading end of the female terminal. The trailing end of the female terminal includes a crimp-on type connector for attaching a lead wire thereto.

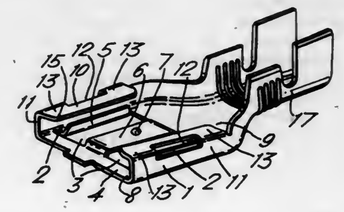
3,550,068
CONNECTOR
Edward J. Castellani, South Plainfield, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J., a corporation of New Jersey
Filed Nov. 7, 1968, Ser. No. 774,085
Int. Cl. H01r *13/12*
U.S. Cl. 339—242 **4 Claims**



The disclosure is directed to a connector for use with the contact pins of a multi-pin connector board and which permits one connector to be stacked upon another to permit the utilization of a single contact pin for a plurality of input and output conductor terminations. In a first embodiment of the connector, the conductor body is a formed hollow cylinder flared at a first end

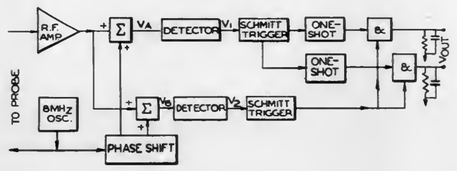
to permit the connector body to be placed upon a contact pin or upon a tab of a similar connector in stacking relationship. At the opposite end of the connector is placed a wire receiving cavity over which is placed a deformable sleeve. A window, intermediate the two ends permits the introduction of the bare portion of an insulation conductor into the second end of the body such that when the second end of the body and deformable sleeve are crimped about the conductor both ends of the connector are free and unimpeded by the presence of the conductor. In a second embodiment of the connector, a tab extension extends beyond the second end and the deformable sleeve of the connector to receive thereon additional like connectors in a stacking relationship.

3,550,069
ELECTRICAL CONNECTOR TAB RECEPTACLES
Wladimiro Teagno and Franco Trevisiol, Turin, Italy, assignors, by mesne assignments, to AMP Incorporated, Harrisburg, Pa., a corporation of New Jersey
Filed May 27, 1968, Ser. No. 732,446
Claims priority, application Great Britain, June 6, 1967, 25,966/66
Int. Cl. H01r *11/22*
U.S. Cl. 339—256 **5 Claims**



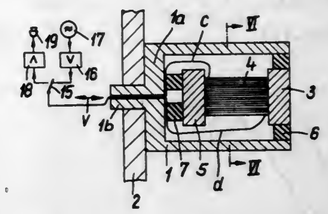
A tab receptacle comprises short turned-in sides and a base provided with spring areas having lateral inwardly-directed spring arms.

3,550,070
FLUID FLOWMETER
Francis D. McLeod, Jr., Ithaca, N.Y., assignor, by mesne assignments, to Research Corporation, New York, N.Y., a non-profit corporation of New York
Filed June 28, 1968, Ser. No. 741,187
Int. Cl. G01s *9/66*
U.S. Cl. 340—3 **5 Claims**



A flowmeter wherein carrier waves are transmitted to blood carrying tissues. Reflected waves contain both carrier and Doppler components. The reflected wave is split, and waves differing from the carrier by a fixed (both plus and minus) phase are added to each part, the sum then being detected (rectified) in each case. A zero crossing technique, utilizing Schmidt triggers, multivibrators, and gates, yields information both as to the magnitude and direction of the Doppler shift.

3,550,071
TRANSDUCER SYSTEM
Hans Schlemm and Peter Mertens, Bremen, Germany, assignors to Fried, Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany
Filed May 9, 1969, Ser. No. 823,417
Claims priority, application Germany, May 10, 1968, 1,762,258
Int. Cl. H04r *23/00*
U.S. Cl. 340—8 **5 Claims**

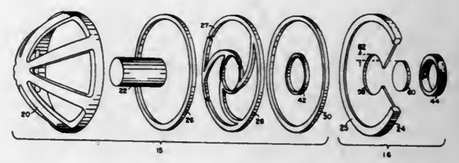


An electroacoustical transducer system for transmitting or receiving acoustical energy in which the transducer element is resiliently supported on a rigid mounting member with its sensitive axis aligned in a particular direction with respect thereto. The transducer element, having a mass M and a resilience F along its sensitive axis, is mounted along its sensitive axis between elastic members having resiliences F_1 and F_2; and in which elements having masses M_1 and M_2 forming part of the transducer assembly may be interposed between the ends of the transducer element and the elastic elements. The rigid mounting member may be rigidly affixed to a support susceptible to maximum sound-induced vibrations in a particular direction with the transducer sensitive axis aligned in such direction. If the condition

$$F_1\left(M_1+\frac{M}{2}\right)=F_2\left(M_2+\frac{M}{2}\right)$$

is satisfied, interaction between acoustic signal-related dimensional changes of the transducer element along its sensitive axis and vibration of the support is obviated. For the special case where no end masses M_1 and M_2 are used, the necessary and sufficient conditions for decoupling exist where F_1 equals F_2.

3,550,072
MINIATURE DIRECTIONAL HYDROPHONE
Jirair A. Babikyan, Providence, R.I., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed June 26, 1969, Ser. No. 836,789
Int. Cl. H04r *9/04*
U.S. Cl. 340—13 **10 Claims**



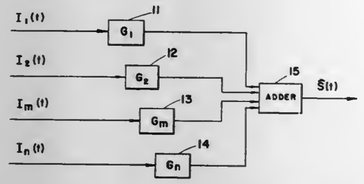
A hydrophone for detecting acoustic waves in a fluid comprises a magnetic circuit assembly providing a fixed magnetic field and a wave actuated resilient spring coil assembly moveable relative to the magnetic field, which coil assembly is driven by pressure waves. The magnetic circuit assembly includes, in part, a bell shaped housing

structure having openings in the surface for the passage of the acoustic waves, and an improved magnetic member to establish the magnetic field.

3,550,073
OPTIMUM SEISMIC VELOCITY FILTERS

Manus R. Foster, Irving, and Raymond L. Sengbush, Grand Prairie, Tex., and Robert J. Watson, State College, Pa., assignors to Mobil Oil Corporation, a corporation of New York

Filed Mar. 12, 1965, Ser. No. 439,160
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **4 Claims**



1. Apparatus for processing n seismic data traces each representing primary reflections of a seismic disturbance from reflecting interfaces in subsurface formations and coherent noise including multiple reflections of said seismic disturbance from said reflecting interfaces, comprising:

n filters each having an amplitude spectrum $G_j(\omega)$ determined by the following:

$$\sum_{j=-n/2}^{n/2} G_j(\omega)\left[\int_{-\infty}^{+\infty} e^{-i\omega(a_j\tau-a_m\tau)}p(\tau)d\tau + R_N(\omega)\int_{-\infty}^{+\infty} e^{-i\omega(a_j\tilde{\tau}-a_m\tilde{\tau})}\tilde{p}(\tilde{\tau})d\tilde{\tau} + \delta_{mj}R_U(\omega)\right]=\int_{-\infty}^{+\infty} e^{i\omega a_m\tau}p(\tau)d\tau$$

$$m=-n/2, \ldots, n/2$$

where

i represents $\sqrt{-1}$

n is the total number of traces,

j represents successive integers between $-n/2$ and $n/2$, not including zero,

m represents successive integers between $-n/2$ and $n/2$, not including zero,

ω is the frequency of the seismic disturbance,

τ represents primary reflection moveout per trace,

$\tilde{\tau}$ is the coherent noise moveout per trace,

a_j is a number equal to the distance from the estimation point to the detector producing the jth trace divided by the spacing between the successive detectors,

a_m is a number equal to the distance from the estimation point to the detector producing the mth trace divided by the spacing between the successive detectors,

δ_{mj} is equal to 1 when $m=j$; it is 0 at other times,

$R_U(\omega)$ is the random noise-to-signal power ratio,

$R_N(\omega)$ is the coherent noise-to-signal power ratio,

$p(\tau)$ is the probability density function of the primary

$\tilde{p}(\tau)$ is the probability density function of the coherent reflection moveout, and noise moveout, and

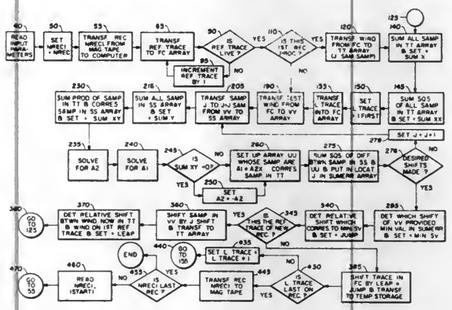
means for applying each of said n traces to a different one of said n filters, and

means for summing the outputs of said filters to form a composite trace which is substantially absent coherent noise including said multiple reflections.

3,550,074
METHOD OF DETERMINING THE STATIC SHIFT BETWEEN GEOPHYSICAL SIGNALS

Clyde W. Kerns, Irving, and Eugene K. Lee, Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

Filed Dec. 28, 1966, Ser. No. 605,290
Int. Cl. G01v *1/28*
U.S. Cl. 340—15.5 **7 Claims**

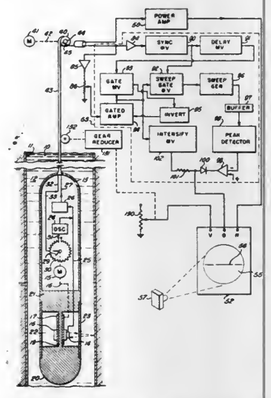


The specification discloses an automated method, which may be carried out on a general purpose digital computer, for determining and correcting for the relative static time shift between geophysical signals such as seismic traces. The method involves shifting a reference segment or window from a reference trace relative to a test trace and determining which window of the same length from the test trace best fits the reference window. The criterion for best fit is that, under a transformation to Cartesian coordinates, the best fit of the two trace windows becomes a best fit to a straight line in the Least Squares sense.

3,550,075
SYSTEM FOR DISPLAYING TIME INFORMATION IN ACOUSTIC WELL LOGGING SYSTEM

Douglas W. Hilchie, Butte, Mont., and Joseph Zemanek, Jr., Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

Filed Oct. 24, 1968, Ser. No. 770,201
Int. Cl. G01r *29/04*
U.S. Cl. 340—15.5 **12 Claims**



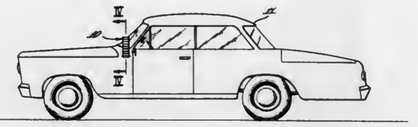
The specification discloses a directional acoustic transducer supported for rotation in a borehole and operated periodically to transmit acoustic pulses to the borehole

wall and to detect reflected acoustic energy. Circuitry is employed to produce output signals having an amplitude inversely proportional to the time between the transmission of acoustic pulses and the detection of reflected acoustic energy. These output signals are applied to an oscilloscope to modulate the intensity of its electron beam which is swept across the screen of the scope once for each rotation of the transducer. The intensity of the trace obtained varies as a function of the two-way travel time whereby a variable-density presentation, representative of distance, is obtained of the borehole configuration.

3,550,076
COLOR ZONE SYSTEM OF TRAFFIC SPEED VERIFICATION

Cornelius Varden Kent, Hinsdale, Ill., assignor to Ruth L. Kent, Hinsdale, Ill.

Filed Jan. 26, 1967, Ser. No. 611,973
Int. Cl. B60q *1/00*
U.S. Cl. 340—22 **7 Claims**

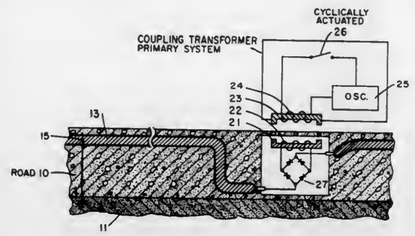


A traffic speed verifying system in which each vehicle is equipped with a device providing speed-synchronized color signals to be visually compared by the vehicle driver and the general public within sight of the vehicle with color coded speed zone markers along the road.

3,550,077
VEHICLE GUIDANCE SYSTEM

Gilbert Swift, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed Feb. 27, 1967, Ser. No. 618,984
Int. Cl. G08g *1/00*
U.S. Cl. 340—32 **1 Claim**



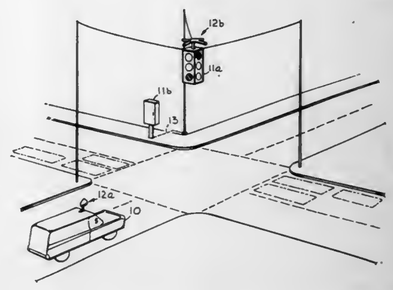
A buried wire beneath the travel path of a vehicle provides electrical signals to the vehicle as a means for steering the vehicle along a predetermined route.

3,550,078
TRAFFIC SIGNAL REMOTE CONTROL SYSTEM

William H. Long, Anaheim, Calif., assignor, by mesne assignments, to Minnesota Mining and Manufacturing Company, a corporation of Delaware

Filed Mar. 16, 1967, Ser. No. 623,765
Int. Cl. G08g *1/07*
U.S. Cl. 340—32 **14 Claims**

A system for remotely controlling traffic signals wherein a signal transmitted from an emergency vehicle causes a traffic light signal controller mounted at an intersection to operate in a remotely controlled mode to control a traffic light signaling operation in a selected phase of operation in response to the detected direction of approach of the emergency vehicle and the sensed phase of the traffic light at the time the approach of the emergency vehicle is detected. The detector preferably includes a light sensitive communications receiver which is capable of distinguishing a predetermined light communication signal having pulses of relatively sharp rise time and of a

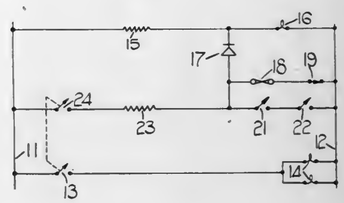


predetermined frequency, from steady state ambient light. This preferred receiver combines a photovoltaic detector having a fast response time in parallel with an inductance coil. The inductance value of the coil is chosen in relation to the photovoltaic detector capacitance to provide a resonant circuit response to a said predetermined light communication signal and, in the absence of a sharply varying light pulse, to cause the coil to act as a DC short circuit.

3,550,079
WARNING DEVICES FOR VEHICLE BRAKING SYSTEMS

Stanley Clifford, Mount Nod, England, assignor to Girling Limited, Tyseley, Birmingham, England, a British company

Filed Sept. 8, 1967, Ser. No. 666,322
Int. Cl. B60t *17/22*
U.S. Cl. 340—52 **3 Claims**

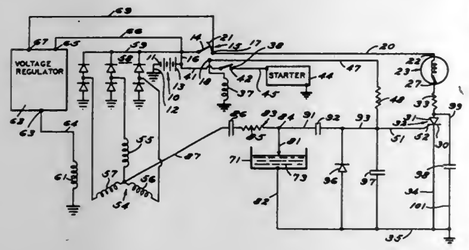


A warning device for indicating loss of pressure in a braking system on a vehicle includes a switch which is actuated when the pedal is depressed to a predetermined position. If the pressure rises in the system normally, then one or more further switches will be operated by the pressure before the pedal switch is actuated, and in these circumstances no warning will be given. However, if the pressure does not rise for any reason, then the pressure-operated switch or switches are not operated and when the pedal switch is actuated the warning is given.

3,550,080
LOW LEVEL LIQUID INDICATOR

John L. Wenzel, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Continuation of application Ser. No. 563,457, July 7, 1966. This application June 4, 1969, Ser. No. 833,887
Int. Cl. B60q 1/00; G01f 23/24
U.S. Cl. 340—59 7 Claims

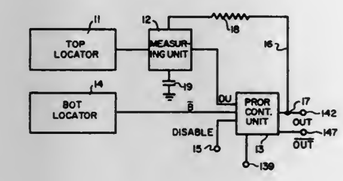


This disclosure relates to a low level liquid indicator that may be used to indicate a low liquid level in a container, for example, a radiator used in an automotive vehicle. It employs a solid state switching component, for example, a controlled rectifier, connected in circuit with a source of direct current electrical energy and a warning means for giving a warning when the level of liquid in the container falls below a satisfactory operating level. Included in the circuit is open circuiting means which will open circuit the output electrodes of the controlled rectifier from the source of direct current electrical energy periodically. The warning means preferably takes the form of a flashing lamp that operates the open circuiting means which is preferably in the form of a heat responsive switch.

3,550,081
APPARATUS FOR MEASURING THE HEIGHT OF A PRINTED CHARACTER OR THE LIKE

Harold C. Glass, Fairfax County, Va., assignor to Farrington Electronics, Inc., Springfield, Va., a corporation of Massachusetts

Filed May 25, 1966, Ser. No. 552,793
Int. Cl. G06k 9/04
U.S. Cl. 340—146.3 3 Claims

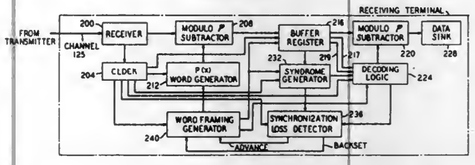


Character height measuring circuitry for providing a control signal corresponding to the height of a character being scanned by an automatic reading device, where said device includes timing circuits for measuring the length of various features of the scanned characters where the timing circuits are adjusted by the above mentioned control signal to adjust the timing period of said timing circuits according to the size of the character being read.

3,550,082
AUTOMATIC SYNCHRONIZATION RECOVERY TECHNIQUES FOR NONBINARY CYCLIC CODES

Shih Y. Tong, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Continuation-in-part of application Ser. No. 535,164, Mar. 17, 1966. This application Mar. 8, 1968, Ser. No. 711,543
Int. Cl. G08c 25/00; H04l 1/10
U.S. Cl. 340—146.1 28 Claims

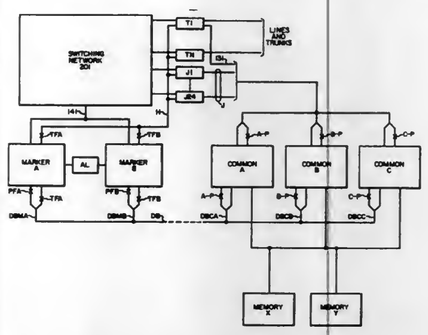


A method and system are disclosed for providing automatic synchronization recovery in data systems utilizing q-nary error-correcting cyclic codes where q represents the number of symbols in the code alphabet and is ≥ 3. In particular, each q-nary data word to be transmitted from a transmitting station to a receiving station is modified by the addition of a predetermined sequence. In one embodiment, this sequence includes an alphabetic symbol a, where a is any symbol of the code alphabet $\neq 0$. Each modified word is then transmitted to the receiving station where the predetermined sequence is subtracted from each received word. The resultant is then processed to obtain an error-pattern word. Presence of the symbol a in certain specific positions of the error pattern word indicates the occurrence of certain synchronization gains or losses. Word framing is then adjusted accordingly.

3,550,083
DATA COMMUNICATION VIA DIRECT-COUPLED INDIVIDUAL PARALLEL CONDUCTORS

Robert K. Heldman, Naperville, and Alex W. Kobylar, Chicago, Ill., assignors to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed June 2, 1969, Ser. No. 829,525
Int. Cl. H04m 3/22; H04j 3/00
U.S. Cl. 340—146.1 14 Claims



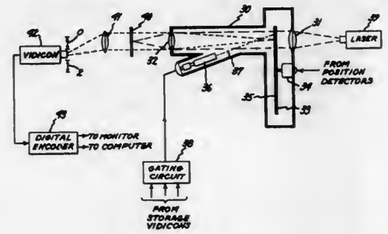
Data in the form of direct-current signals is transferred from the flip-flop data register of one subsystem to the corresponding flip-flop data register of another subsystem. The flip-flops are of the type having input coincidence gates with a direct-coupled input with a priming delay for the data signal and a capacitance-coupled input

for a clock signal. "Window" intervals are used to provide a delay between placing the data on the line at the sending subsystem and supplying clock pulses for loading it into the data register at the receiving subsystem. The data register outputs at the receiving end are connected via other conductors of the data bus to the comparison check circuit at the sending end where the signals are compared to the data which was sent. The clock pulse for loading the receive register is controlled by an accept signal from the send subsystem to provide the desired delay. In case there is an error in the data transmission as indicated by failure to find a valid comparison, then the sending subsystem maintains the accept signal on the control conductor to the receive subsystem, where its presence outside of the window interval causes the data register to be reset, and on the next occurrence of the window interval there is a repeated attempt to load the data. There are also redundant subsystem units at each end of the data bus. The specific system disclosed is a communication switching system in which one subsystem is a marker provided in duplicate and the other subsystem is a common unit provided in triplicate.

3,550,084
SYSTEM AND METHOD FOR IDENTIFYING A SET OF GRAPHIC CHARACTERS GROUPED TOGETHER ON A VISIBLE INFORMATION DISPLAY

John E. Bigelow and Charles Q. Lemmond, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed June 27, 1966, Ser. No. 560,419
Int. Cl. G06k 9/08; G02b 5/18
U.S. Cl. 340—146.3 21 Claims

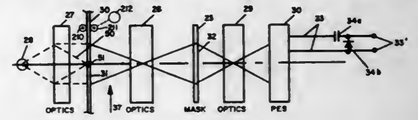


A system is disclosed for identifying graphic displays, such as license plates, including alpha-numeric combinations having a predetermined positional relationship with a common display, such as the name New York, in accordance with which an holographic recognition system is employed to recognize from information stored on a complex spatial filter the number and letter combination of a license plate recorded by electrophotographic means on a deformation medium essentially instantaneously with the optical exposure to an image of the display. The recognition is indicated by light spots on an image plane of the recognition system having positions relative to the position of the recognition spot for the fixed indicia, such as New York, dependent upon the graphic character information in the complex spatial filter and the position of the character in the license plate letter-number combination. The positional information is imaged on a camera tube and electrically converted to computer input information for utilization in comparing with stored license plate letter-number combinations in the computer. In a second modification, the spatial filters of each of the alpha-numeric characters occupy a separate area in a circular array on a rotatable disk. The angular position of the disk when recognition of a character is effected is indicative of the particular character recognized.

3,550,085
INFORMATION SYSTEM USING ARRAYS OF MULTIPLE SPOT PATTERNS

Daniel Silverman, 5969 S. Birmingham, Tulsa, Okla. 74105

Continuation-in-part of applications Ser. No. 462,679, June 9, 1965, now Patent No. 3,322,033, and Ser. No. 514,311, Dec. 16, 1965, now Patent No. 3,333,239. This application Jan. 30, 1967, Ser. No. 612,698
Int. Cl. G06k 7/14; G11b 5/06, 7/00
U.S. Cl. 340—146.3 26 Claims



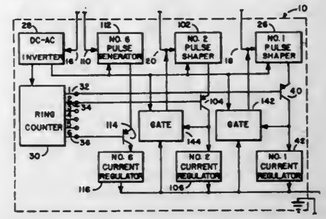
In this information system a record medium is used on which the information is recorded in the form of one or more parallel tracks or arrays of spot patterns. The patterns themselves comprise a plurality of short lines, bars, or spots arranged in a unique space pattern grouping or configuration that can be recognized in the reproducing or reading operation. Each pattern represents a digital bit. The longitudinal spacing of the patterns along the array is less than the total length of an individual pattern, so that there is overlapping between successive patterns. Successive patterns can be of the same or different configurations as the preceding patterns.

The patterns are read and detected by correlation or matched filtering with a facsimile of the recorded pattern. The spots in the pattern can be matched simultaneously, or sequentially. The record can be graphic and read optically, or it can be magnetic. If graphic, the record can be read by moving the medium past a reading spot, or spots of light or by moving a spot of light over the medium.

3,550,086
MULTIPLEX TRANSMITTER AND CENTRAL STATION SYSTEM

Harold D. Ervin, 7020 Quakertown Ave., Canoga Park, Calif. 91306

Filed Aug. 16, 1966, Ser. No. 572,766
Int. Cl. H04q 9/00
U.S. Cl. 340—150 2 Claims



A security alarm system having a multiplex transmitter unit that develops a plurality of current regulated output signals for display at a central station electrically connected to the transmitter unit.

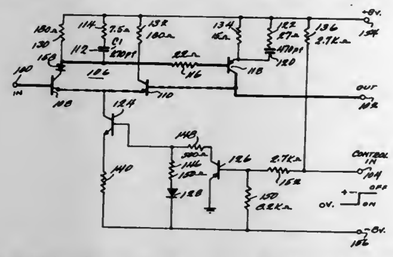
3,550,087
VIDEO SWITCHING CIRCUIT

John D. Ross, Dollard des Ormeaux, Quebec, and Kimiharu Akiyama, Dorval, Quebec, Canada, assignors to Central Dynamics, Ltd., Montreal, Quebec, Canada, a body corporate

Filed Mar. 26, 1968, Ser. No. 716,117
Int. Cl. H03k 3/26, 17/84; H04q
U.S. Cl. 340—166 23 Claims

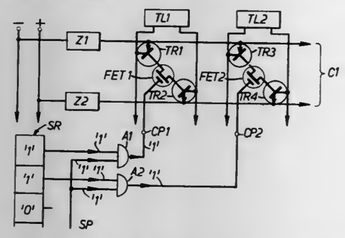
A switching matrix is disclosed where at each cross-

point of the matrix is disposed a video switching circuit which includes a differential amplifier. The amplifier forms some or all of an integrated circuit, the input video signal to each crosspoint switching circuit being applied to one of the transistors comprising the differential amplifier. A constant current source is provided for the differential amplifier, the current source including a transistor which is switched on and off by an external control signal whenever the input video signal is to be passed or



blocked by the crosspoint circuit. A feedback connection (including one of the differential amplifier transistors and a further transistor in complementary connection with the differential amplifier transistor) forms a high gain, non-inverting amplifier which provides a high input impedance and a low output impedance for the switching circuit. The use of the integrated circuit differential amplifier results in essentially zero offset between the input and output terminals of each crosspoint switching circuit.

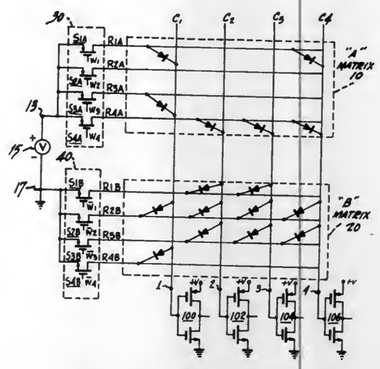
3,550,088
CONTROL MEANS FOR TRANSISTOR SWITCHING MATRIX CIRCUITS
Glyn John Jones, Pinner, England, assignor to Telephone Manufacturing Company, London, England, a British company
Filed June 25, 1968, Ser. No. 739,813
Claims priority, application Great Britain, July 21, 1967, 33,635/67
Int. Cl. H04q *3/64, 3/68*
U.S. Cl. 340—166 **2 Claims**



The specification of this application discloses a form of two-wire switching device in which a complementary pair of bipolar transistors, one in each wire, are controlled by a unipolar field effect transistor connected between their bases. The switching devices are employed as controlled crosspoints of a selection matrix.

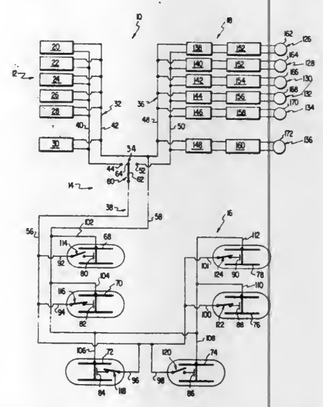
3,550,089
COMPLEMENTARY SEMICONDUCTOR MATRIX ARRAYS FOR LOW POWER DISSIPATION LOGIC APPLICATION
Richard W. Ahrons, Somerville, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Oct. 17, 1968, Ser. No. 768,557
Int. Cl. H04q *3/00*
U.S. Cl. 340—166 **10 Claims**

Two matrix arrays of semiconductor devices such as diodes. Both have equal numbers of column and row conductors and the column conductors of the two arrays are connected. Some column-row crossings in one array are connected by devices poled to conduct in one direction; the remaining column-row crossings in the other array are connected by devices poled to conduct in the



opposite direction. A sensor is connected to each column conductor. Two rows, one in each array, are energized at a time causing some sensors to be energized through diodes in one array and other sensors to be clamped to ground through diodes in the other array.

3,550,090
METHOD AND SYSTEM FOR DETERMINING WHETHER A SWITCH IS OPEN OR CLOSED
Hugh M. Baker, Jr., Washington, D.C., and John R. Cressey, Hyattsville, Md., assignors to HB Engineering Corp., Silver Spring, Md., a corporation of Maryland
Filed Jan. 16, 1968, Ser. No. 698,298
Int. Cl. G08b *25/00*; H04q *9/00*
U.S. Cl. 340—171 **8 Claims**

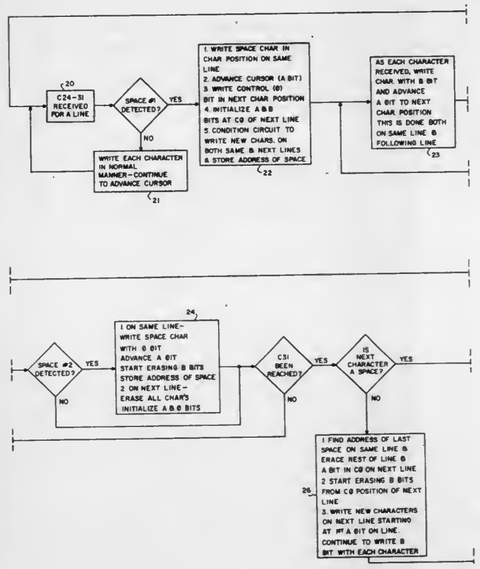


This disclosure describes a system for determining whether a remotely disposed switch is open or closed. The system includes means for transmitting a signal including a predetermined frequency to energize a resonator at a remote location. The resonator is a passive resonator which produces an output signal after the energizing signal is terminated, the output signal being transmitted to an indicator unit. Means controlled by a condition being monitored selectively permits or prevents the provision of the energizing signal to the resonator. Also, a switching circuit first connects the energizing signal to the condition controlled means and then disconnects the energizing signal while connecting the output signal from the resonator to the indicator unit.

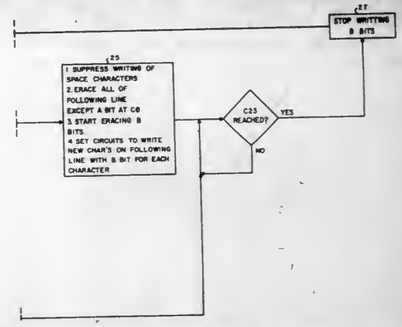
ERRATUM

For Class 340—172.5 see:
Patent No. 3,550,133

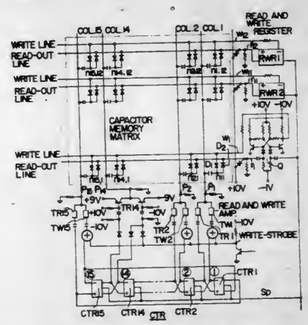
3,550,091
WHOLE WORD JUSTIFICATION AND EDITING SYSTEM
James Basil Colgan, Stamford, Angelo John Di Giugno, Norwalk, and Robert James Duggan, Monroe, Conn., assignors to The Bunker-Ramo Corporation, Stamford, Conn., a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,119
Int. Cl. B41b *3/06*
U.S. Cl. 340—172.5 **7 Claims**



A system for editing characters of information which are to be stored in a multiline format with a maximum of N characters per line in a manner such that a maximum number of characters are stored on each line while permitting breaks between lines to occur only at natural break points in the information. A means for detecting natural break points is provided. The first break point detected after a predetermined number of characters have been stored on a given line causes subsequently received characters to be stored in succeeding positions on a given line and in character positions starting at the first character position on the following line. The detection of the first subsequent break point on the given line causes erasure at the characters stored on the following line while the failure to detect a break point between the last detected break point on the given line and the beginning of the next line causes erasure of the characters stored after the last break point on the given line.



3,550,092
MEMORY CIRCUIT
Tomohisa Yoshimaru and Hiroshi Komikawa, Kawasaki-shi, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa-ken, Japan, a joint-stock company of Japan
Filed Apr. 11, 1967, Ser. No. 629,945
Claims priority, application Japan, May 4, 1966, 41/27,955; May 16, 1966, 41/30,632
Int. Cl. G11c *11/24*
U.S. Cl. 340—172.5 **7 Claims**

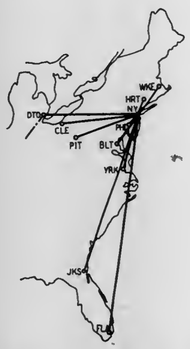


A memory element is constituted by a memory capacitor, write and read-out transistors connected to one terminal of the capacitor, and a flip-flop connected to the other terminal of the capacitor through a pair of diodes connected in parallel opposition. A plurality of such memory elements are arranged to form a matrix to provide a large capacity memory circuit, and a pair of memory circuits are interconnected by a logic element through flip-flops to form a memory and logic circuit.

3,550,093
METHOD FOR GENERATING ELECTRICAL SIGNALS REPRESENTATIVE OF ECONOMICAL NETWORK CONFIGURATIONS
Gertrude C. Watling, Red Bank, and Joseph H. Weber, Little Silver, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed June 15, 1967, Ser. No. 646,228
Int. Cl. G06f *7/00*
U.S. Cl. 340—172.5 **6 Claims**

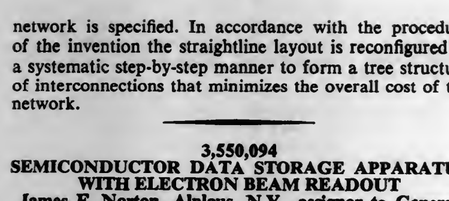
A systematic procedure is given for reconfiguring the geographical layout of a private line switched network

of the type that includes a switching center and a plurality of associated service points each directly connected to the center by a direct straightline route. The required point-to-center traffic handling capability for each point is specified. Additionally the applicable tariff schedule for the



network is specified. In accordance with the procedure of the invention the straightline layout is reconfigured in a systematic step-by-step manner to form a tree structure of interconnections that minimizes the overall cost of the network.

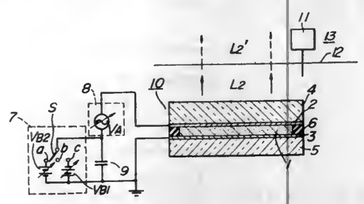
3,550,094
SEMICONDUCTOR DATA STORAGE APPARATUS WITH ELECTRON BEAM READOUT
James F. Norton, Alplaus, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 1, 1968, Ser. No. 717,500
Int. Cl. G11c *11/34*
U.S. Cl. 340—173 **4 Claims**



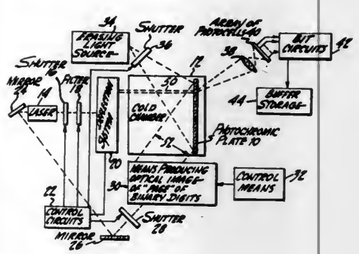
A semiconductor radiation detecting wafer having a pattern of radiation absorbing regions coated over the incident radiation receiving surface is employed as a non-volatile digital data storage device. The pattern of absorbing regions represents stored data. Interrogation is accomplished by controllably deflecting an electron beam over predetermined surface portions of the device such that the beam impinges upon either the semiconductor or a radiation absorbing region. Readout is procured by measuring output current from the semiconductor when the beam is deflected to a desired location.

3,550,095
LUMINESCENT MEMORY AND DISPLAY DEVICE
Tadao Kohashi, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Apr. 17, 1968, Ser. No. 722,072
Claims priority, application Japan, May 2, 1967, 42/28,545
Int. Cl. G11c *11/42*
U.S. Cl. 340—173 **8 Claims**

An electronic device which stores either electric or radiated information and provides a luminescent display of the stored information, comprising a luminescent element comprising electroluminescent material contained in a dielectric substrate, means for applying a DC voltage to polarize said luminescent element, means for exciting said element with an AC voltage so that said element provides a luminescent display representing the electric field remaining within said element, and means for erasing said residual electric field by applying a DC voltage which is opposite in polarity to the previously mentioned polarizing DC voltage.



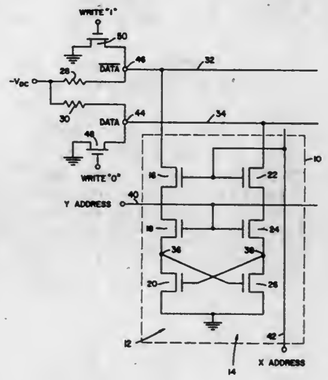
3,550,096
PHOTOCHROMIC MEMORY IN WHICH MEMORY LOCATION IS SELECTIVELY HEATED DURING WRITE CYCLE
Gerard A. Alphonse and Aline Akselrad, Princeton, N.J., assignors to RCA Corporation, a corporation of Delaware
Filed May 31, 1968, Ser. No. 733,494
Int. Cl. G11c *13/04*
U.S. Cl. 340—173 **9 Claims**



Information is written into a particular location in a memory employing photochromic material whose sensitivity to light is temperature dependent, by heating that location and optically projecting an image at the heated location. The image may be a hologram of a large number of binary digits and may be stored in a relatively small area of the memory. Information may be non-destructively read out of the memory by projecting light at an appropriate frequency band at the location of interest while that location is at a relatively low temperature.

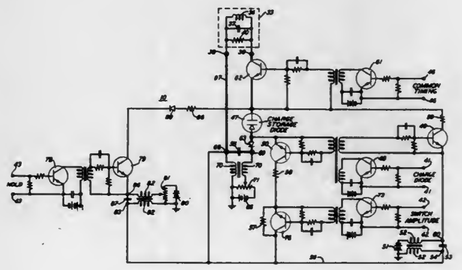
3,550,097
DC MEMORY ARRAY
John A. Reed, Los Altos, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Aug. 25, 1969, Ser. No. 852,657
Int. Cl. G11c *11/40;* **H03k** *3/286*
U.S. Cl. 340—173 **8 Claims**

The MOSFET memory cells of a random-access array are constituted as flip-flop circuits which normally draw a steady-state DC current. An individual cell can be addressed by blocking current flow in all other cells and determining whether the current drawn by the addressed cell flows in the DATA line or the $\overline{\text{DATA}}$ line.



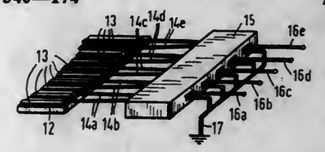
A writing operation can be accomplished by momentarily driving either the DATA or the $\overline{\text{DATA}}$ line to substrate potential while the desired cell is being addressed.

3,550,098
INTERLACED CURRENT PULSE CONFIGURATION CONTROL
John D. Heightley, Basking Ridge, Carlos B. Roundy, Neptune, and Sigurd G. Waaben, Princeton, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Nov. 1, 1967, Ser. No. 679,859
Int. Cl. G11c *7/00;* **H03k** *3/57*
U.S. Cl. 340—174 **19 Claims**



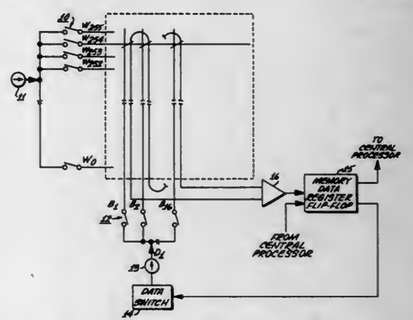
A selection circuit in a current pulse driver imposes selectable amounts of electrical charge on a charge storage diode, and subsequently the application of a load across the diode depletes the charge. The circuit path to the load for depleting the charge is of a much lower impedance than the load so that the current pulse supplied to the load has an amplitude that is primarily a function of the charge magnitude. A magnetic memory receives pulses from the driver, and a central control selects the diode charge to produce a drive pulse appropriate to a desired memory operation.

3,550,099
DATA-STORAGE APPARATUS
Karl-Ulrich Stein, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany
Filed Aug. 23, 1967, Ser. No. 662,758
Claims priority, application Germany, Aug. 24, 1966, S 105,502
Int. Cl. G11c *11/02;* **H01f** *17/04*
U.S. Cl. 340—174 **7 Claims**



A data-storing apparatus with a plurality of storage elements particularly magnetizable elements which are in operative communication with electrical conductors constructed in the manner of printed circuits, and having broad-band transformers with ferromagnetic cores, in which the ferromagnetic cores of the broad-band transformers are constructed as block-shaped ferrite bodies and provided with elongated passages, each pair of sensing lines passing through a passageway in such a ferrite body, in which the body may be of tubular form or of rectangular shaped block-like formation and may be divided into parts to enable its cooperation with printed circuit conductors and the like.

3,550,100
INFORMATION STORAGE CONTROL APPARATUS FOR A MAGNETIC CORE MEMORY
Dale L. Fausett, Phoenix, Ariz., assignor to General Electric Company, a corporation of New York
Filed Apr. 30, 1968, Ser. No. 725,448
Int. Cl. G11c *5/02*
U.S. Cl. 340—174 **7 Claims**

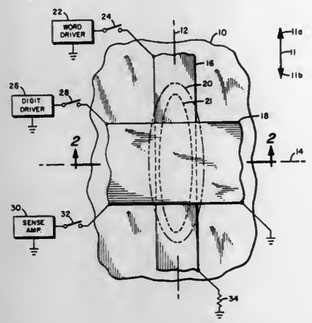


A coincident current magnetic core memory using word and bit address lines for addressing memory storage locations. Transformer-coupled data switches associated with the bit address lines are arranged to minimize the duty cycle of the coupling transformers.

3,550,101
OLIGATOMIC MAGNETIC FILM MEMORY
David S. Lo, Burnsville, Henry N. Oredson, Richfield, and Ernest J. Torok, St. Paul, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 3, 1969, Ser. No. 803,547
Int. Cl. G11c *11/14*
U.S. Cl. 340—174 **15 Claims**

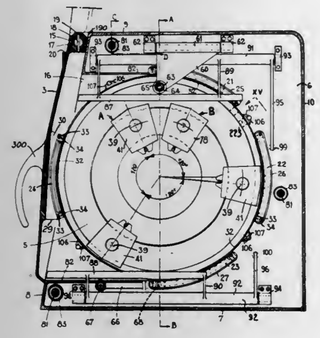
A method of operating and an apparatus comprising a very compact, bit-organized nondestructive readout

(NDRO) randon-access magnetic matrix memory system. The memory system includes a continuous oligatomic ferromagnetic film (a film that is too thin to permit either Bloch walls or cross-tie walls, but does permit Néel walls). The film has the property of uniaxial anisotropy: this property provides an easy axis in the plane of the film



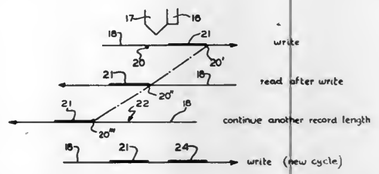
along which the film's remanent magnetization may be aligned in either of two opposed information states; and, a hard axis in the plane of the film that is perpendicular to the easy axis. The oligatomic film is further characterized by a high magnetization creep threshold and a high reversible limit H_R.

3,550,102
PERIPHERALLY SUPPORTED DISC FILE
Christian G. Delarue, Meudon, Boris Sokoloff, Fontenay-aux-Roses, and Edmond P. Warnery, Boulogne-sur-Seine, France, assignors to Societe Generale du Vide, Choisy-le-Roi, France, a corporation of France
Filed Oct. 11, 1966, Ser. No. 585,890
Claims priority, application France, Oct. 12, 1965, 34,554
Int. Cl. G11b *5/48, 5/60, 15/64*
U.S. Cl. 340—174.1 **28 Claims**



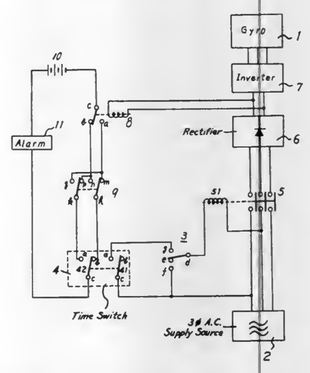
The invention relates to peripherally supported disc file. In this system a disc is "mounted" for high-speed rotation and has circumferential record tracks formed in a recording medium such as a magnetic coating or film provided on its side faces. Information-transfer means such as a set of magnetic heads are supported in cooperating relationship with the recording medium so as to read, erase and inscribe prescribed information in the tracks. The disc is supported for rotation in a centerless manner, without positive restraint against limited axial displacement. Lateral positioning members are mounted for limited axial displacement relative to the disc and include pressure-fluid-discharge orifices which coact with the adjacent disc faces to control the axial distance between these disc faces and a reference plane of the lateral positioning members. Information-transfer heads are fixedly mounted in the lateral positioning members so that a precisely determined operating clearance is maintained between the heads and the recording medium on the disc faces.

3,550,103
REVERSE WRITE AND FORWARD VERIFY READ OF A VARIABLE LENGTH DATA RECORD
George R. Cogar, Frankfort, N.Y., assignor to Mohawk Data Sciences Corporation, Stoneham, Mass.
Filed Feb. 16, 1968, Ser. No. 706,005
Int. Cl. G11b *5/02, 15/02, 15/20*
U.S. Cl. 340—174.1 **8 Claims**



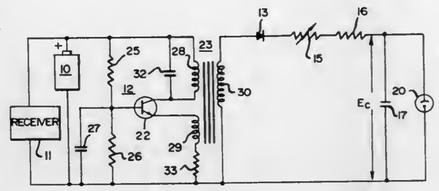
Method and apparatus for feeding tape in a data recording machine whereby the tape is moved in the reverse direction while data is being recorded on the tape and then in the forward direction for a read after write check. This results in a reduction in the required number of tape movement actuations and also in the total time required for the tape cycle operation.

3,550,104
GYROCOMPASS STARTING SYSTEM
Makoto Hashii, 126 Kamimeguro 1-chome, Meguro-ku, Tokyo, Japan, and Shin-Ichi Kawada, 943–26 Fukaya-machi, Totsuka-ku, Yokohama, Japan
Filed Apr. 6, 1967, Ser. No. 628,956
Claims priority, application Japan, Apr. 11, 1967, 41/32,702
Int. Cl. G08b *23/00*
U.S. Cl. 340—213 **2 Claims**



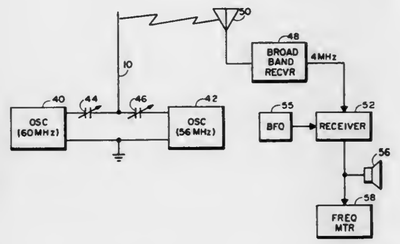
An automatic starting system for a shipboard gyrocompass in which a time switch functions to connect the gyrocompass to its power supply several hours in advance of the departure time for the ship in order that the gyro compass will have been brought up to its operating speed by the time the ship sails. The starting system also includes an alarm mechanism responsive upon a failure in the power supply after the starting time.

3,550,105
BATTERY CONDITION INDICATOR
Rinaldo E. De Cola, Park Ridge, and Irving I. Zook, Skokie, Ill., assignors to Warwick Electronics Inc., a corporation of Delaware
Filed Aug. 8, 1967, Ser. No. 659,219
Int. Cl. G08b *21/00*
U.S. Cl. 340—249 **1 Claim**



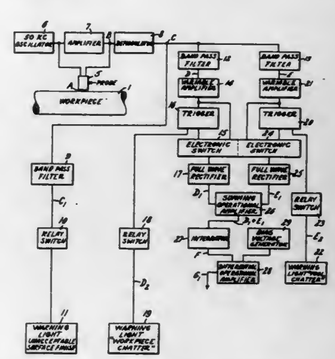
An oscillator converts a battery voltage into oscillations having an amplitude directly proportional to the battery voltage. The oscillations are rectified and coupled to an RC network, having a neon lamp connected in a relaxation oscillator circuit having a frequency related to the battery voltage. The neon lamp lights each time it conducts, flashing at a rate which is a function of the battery voltage.

3,550,106
OBJECT DETECTION SYSTEM UTILIZING ELECTROMAGNETIC WAVES
John B. Gehman, La Jolla, Calif., assignor to General Dynamics Corporation, a corporation of Delaware
Filed July 1, 1968, Ser. No. 741,505
Int. Cl. G08b *13/24*
U.S. Cl. 340—258 **16 Claims**



A sensor in the form of a whip antenna, which is unobtrusive, radiates a field by virtue of being excited by a pair of oscillators which produce frequencies in the VHF band which are offset from each other by approximately 5 to 10%. When an object enters the range over which the sensor is sensitive, the frequency of the oscillators deviates. This frequency deviation becomes cyclic as the intruder approaches or passes through the range of the sensor, which may be approximately 20 wave lengths of the oscillator frequencies. The deviation is detected by means of a receiver producing a beat note; the receiver may be located remotely from the sensor. A man walking at 4½ feet per second will frequency modulate the beat note at approximately ½ cycle per second. A vehicle traveling at 30 miles per hour will frequency modulate the beat note at 5 cycles per second. The amplitude of the note and the frequency modulation thereof is used to indicate the nature and speed of an object within the range of the sensor.

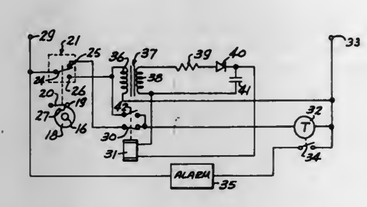
3,550,107
MACHINING STABILITY DETECTOR
Robert A. Thompson, Windham, and Stephen E. Grabkowski and Bjorn Welchbrodt, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
Filed Dec. 4, 1967, Ser. No. 687,804
Int. Cl. G08b *23/00*
U.S. Cl. 340—267 **7 Claims**



A proximity detector, such as, a capacitive probe, is located on a toolholder and its capacitance varies with the distance between the probe and the workpiece to be machined. A high frequency oscillator provides a carrier wave which is modulated according to variations in the distance between the probe and the workpiece. The demodulated output signal voltage indicates the distance separating the probe and workpiece. The output from the demodulator is conducted into three separate channels: (1) a band pass filter which removes the D.C. component and carrier voltage to provide a remaining fluctuating signal which is indicative of the distance variations between probe and workpiece, a high voltage indicating an unacceptable surface finish; (2) a "workpiece chatter predictor" circuit, the first element of which is a band pass filter having as its lower limit, about one half of the first resonant frequency of the workpiece and having as its upper limit a frequency about one and one half times the first resonant frequency of the workpiece, the output from the band pass filter being conducted through a variable amplifier into a trigger circuit which may initiate a warning indication of incipient workpiece chatter; (3) a "tool chatter predictor" circuit, the first element of which is a band pass filter set with its lower limit at about one half the first resonant frequency of the tool with toolholder and its higher limit at about three times the lower limit, the energy passing through this band pass filter actuating a warning light indicating incipient tool chatter. The energy passing through the second and third filters may be summed to give an input to a differential operational amplifier which is conducted into a device operative to control the rate of feed of the tool to the workpiece, the signal thus generated causing a control device to automatically adjust feed speed to

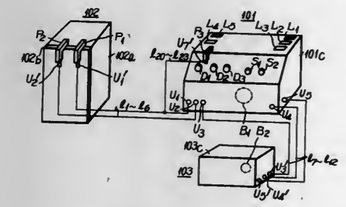
keep the machining operation just on the verge of chatter.

3,550,108
SHAFT ROTATION FAILURE SYSTEM
Daniel Orlando, Brookfield, Wis., assignor to Globe Union Inc., Milwaukee, Wis., a corporation of Delaware
Filed May 6, 1968, Ser. No. 733,205
Int. Cl. H01h *47/18, 7/00*
U.S. Cl. 340—271 **10 Claims**



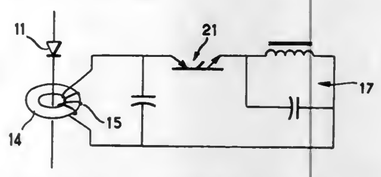
System for providing a positive indication of the failure of rotation of a shaft, having electrical circuitry for energizing a timer in alternate positions of a control means during rotation of the shaft, with means provided for resetting the timer following actuation of the control means to one position and for permitting reenergization of the timer only after a certain time interval, an alarm circuit being energized when the timer is energized for a time interval greater than the time of operation of the control means during rotation of the shaft at normal speed.

3,550,109
ALARM DEVICE
Tomezo Kato, 172 Mototerakoji, Sendai, Japan
Filed July 14, 1966, Ser. No. 565,226
Claims priority, application Japan, July 14, 1965, 40/42,683; Dec. 30, 1965, 41/12
Int. Cl. G08b *13/06*
U.S. Cl. 340—276 **9 Claims**



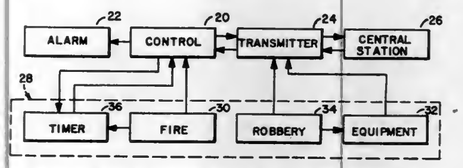
An alarm device including detecting means producing an alarm signal in response to presence of a trespasser, a first alarm means for giving an alarm, a second alarm means for giving an alarm, said first alarm means connected to both said detecting means and said second alarm means, switching means in said first alarm means and said second alarm means completing a circuit for giving an alarm in response to the detecting means producing an alarm signal, severing connections between either the first alarm means and the detecting means or the first alarm means and the second alarm means, or vibration of either alarm means, and disabling means including at least one series of stationary contacts and a movable contact selectively engaging one of the stationary contacts.

3,550,110
REMOTE INDICATION, MEASURING AND CONTROL OF DIODES AND CONTROLLED RECTIFIERS
Ferdy Mayer, 8 Boulevard Gambetta, 38 Grenoble, France
Filed Oct. 13, 1966, Ser. No. 586,532
Claims priority, application France, Oct. 13, 1965, 4,840
Int. Cl. G08b *21/00*
U.S. Cl. 340—248 **11 Claims**



A method and apparatus for monitoring the operating state of an electronic switching element of the type whose switching transient response has a high frequency component, the monitoring being effected by isolating a portion of the spectrum of such component, radiating a signal derived from such portion, and receiving the radiated signal at a distance from the radiation source.

3,550,111
SECURITY ALARM SYSTEM
Harold D. Ervin, 7020 Quakertown Ave., Canoga Park, Calif. 91306
Filed Aug. 16, 1966, Ser. No. 572,767
Int. Cl. G08b *19/00*
U.S. Cl. 340—276 **9 Claims**

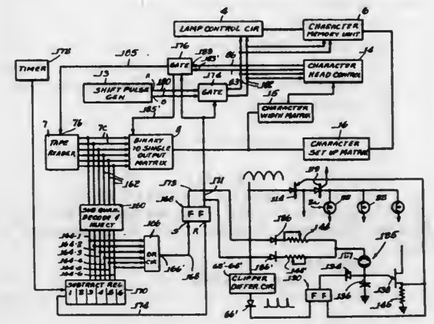


A security alarm system where one or more identifiable signals can be generated at a local station upon the happening of a predetermined occurrence at the local station, and selectively transmitted to an alarm means at the local station, and further transmitted to a central station which is responsive to the identifiable signal. System check signals can be exchanged between the local station and the central station. Where more than one signal is generated at the local station, a predetermined signal, e.g., a signal identifiable at the central station as a fire signal, takes precedence over the other generated signals. The system further limits operating current, signals the loss of circuit continuity, and permits central station monitoring of the local station.

3,550,112
SOLID STATE SIGN SYSTEM
Edward J. Schulenberg, Sr., Danville, Ill., and Ervin M. Ball, Indianapolis, Ind., assignors to Time-O-Matic, Inc., Danville, Ill., a corporation of Illinois
Original application Mar. 2, 1965, Ser. No. 436,469. Divided and this application Sept. 27, 1968, Ser. No. 798,226
Int. Cl. G09f *9/36*
U.S. Cl. 340—334 **3 Claims**

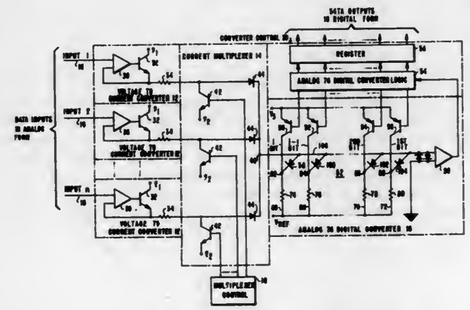
A running sign lamp bank system wherein the lamps of the bank are energized to different degrees depending

on the ambient light conditions and the frequency or rate at which a given lamp is energized to provide a relatively even constant intensity level. Thus, the rows of lamps which are located at the top, center and bottom of the



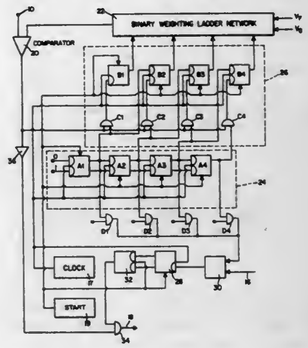
bank which display the top, center or bottom legs of block letters like E, R, B, etc., are fed with lower currents than the other rows of lamps so the average energization levels of the various rows of lamps are more nearly equal.

3,550,113
CURRENT-MODE ANALOG-TO-DIGITAL CONVERTER
Larry L. Williams, Mountain View, Calif., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Nov. 15, 1967, Ser. No. 683,316
Int. Cl. H03k *13/04*
U.S. Cl. 340—347 **13 Claims**



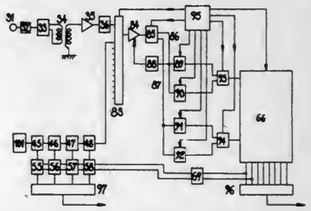
An analog-to-digital converter of the successive approximation type in which one or more continuously flowing currents in a plurality of circuit paths are applied to a comparator as a reference current and selectively or successively compared with analog input currents to provide a digital representation. The currents in each of the various paths, which are defined by a resistive network, are selectively diverted by converter logic between alternate minimum impedance paths, one of which is coupled to the comparator. Relatively little if any changes occur in the voltages or current throughout the network, which may be of the R–2R ladder type, and time delays in the conversion process due to stray capacitance and resistor inductance are minimized.

3,550,114
PREWIRED ADDRESS SEQUENCER FOR SUCCESSIVE APPROXIMATION ANALOG-TO-DIGITAL CONVERTERS
Lawrence S. Cole, Ormond Beach, Fla., assignor to General Electric Company, a corporation of New York
Filed Dec. 22, 1967, Ser. No. 692,860
Int. Cl. H04q *3/14;* **H03k** *13/14*
U.S. Cl. 340—347 **1 Claim**



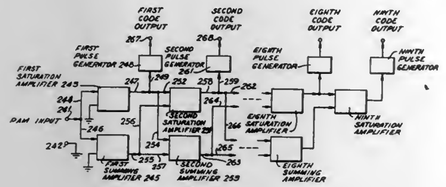
The sequencer in a successive approximation analog-to-digital converter is also used for address recognition capability. An address in binary code is sent by an interrogator to all converters in the system bit by bit. Each bit is compared by the converters with the corresponding bit of its prewired address utilizing the sequencer to initiate comparisons. The converter being addressed then sends its converted information back to the interrogating source.

3,550,115
METHOD AND MEANS FOR NUMERICAL CODING
Claude H. Picou, Paris, and Philippe A. Angelle, Nantes, France, assignors, by mesne assignments, to Compagnie Generale de Geophysique, Paris, and L'Institut Francais du Petrole, Rueil-Malmaison, France
Filed May 23, 1967, Ser. No. 640,743
Claims priority, application France, May 26, 1966, 63,010
Int. Cl. A03k *13/02*
U.S. Cl. 340—347 **6 Claims**



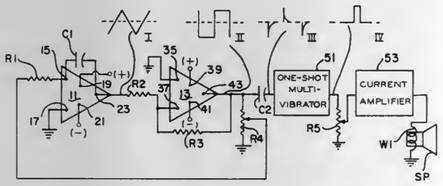
An improvement in or a modification of the copending application Ser. No. 604,221 according to which a plurality of geophones or like sources of voltages to be measured feed signals in alternation with the signals produced by a reference voltage to a common multiplexer, while an amplifier transmits the successive signals from the multiplexer through switches to corresponding sampling and storing means, whereby the latter feed in alternation an analogic to numeric converter with a reference signal and an associated useful signal, the useful signals being thus compared in succession with a reference signal. The reference voltage is advantageously a stabilized D.C. voltage.

3,550,116
ANALOG TO DIGITAL CONVERTER CODER
Zeniti Kiyasu and Tetsuya Miki, Sendai-shi, and Masao Kawashima, Yokohama-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed Oct. 30, 1967, Ser. No. 678,997
Claims priority, application Japan, Nov. 4, 1966, 41/72,712
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 **9 Claims**



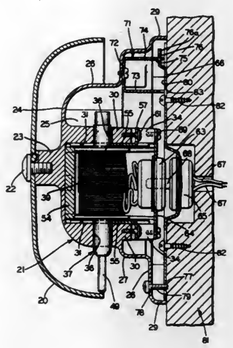
A comparator compares an input analog signal with a reference signal and provides an output signal determined by the level of the input signal relative to the reference signal. A pulse generator shapes the waveshape of the output signal of the comparator and provides a digital output signal. A bias voltage circuit provides positive and negative bias voltage signals corresponding to the output signal of the comparator. A delay delays the input signal so that it is in phase with the bias voltage signals. A summing amplifier adds the bias voltage signals and the delayed input signal to provide a resultant signal. An amplifier amplifies the resultant signal.

3,550,117
TIMING APPARATUS
Aubrey H. Smith, 6619 Pershing, Kenosha, Wis. 53140
Filed Aug. 28, 1967, Ser. No. 663,588
Int. Cl. G08b *3/00*
U.S. Cl. 340—384 **11 Claims**



A highly accurate electronic metronome is disclosed employing two amplifiers, one of which is interconnected to operate as an integrator and the other of which functions as a trigger or switching circuit having precisely defined switching thresholds. The switching amplifier is arranged to provide a first output voltage when the input signal applied thereto exceeds a first predetermined threshold and to provide a second output voltage when the input signal falls below a second predetermined threshold, the second threshold being negative with respect to the first threshold and the first and second output voltages being of substantially equal amplitude and of opposite polarity. The output voltages from the switching amplifier are applied to the integrator amplifier so that the output voltage from the integrator amplifier varies at a substantially constant rate in a direction which depends upon the polarity of the output voltage from the switching amplifier. The output voltage from the integrator amplifier is then applied to the input of the switching amplifier so that a condition of instability exists and oscillations at precisely predetermined regular periods are produced. These oscillations are employed to trigger a one-shot multivibrator which drives a loudspeaker to produce an audible signal for each such oscillation. The repetition rate is adjustable over a range making the apparatus suitable for use as a metronome.

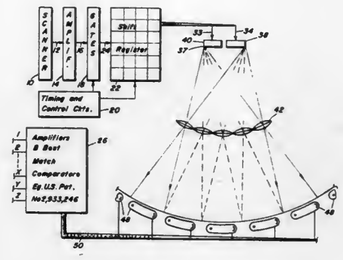
3,550,118
ELECTRIC BELL CONSTRUCTION
Wendell L. Jenkins, Canton, Ohio, assignor to The W. L. Jenkins Company, Canton, Ohio, a corporation of Ohio
Filed May 20, 1966, Ser. No. 551,691
Int. Cl. G08b *3/00*
U.S. Cl. 340—396 **11 Claims**



Electric bell construction having a bell housing, a motor structure and striker mounted within the housing, a gong shell mounted on the housing for engagement by the striker tip, and means for supplying electric power to operate the striker. The housing includes a pair of integrally formed upstanding post members, the post members including grooves for receiving a magnet, a coil bobbin, and clamp means which are attatched to the posts for retaining the coil, striker and magnet in place in the housing.

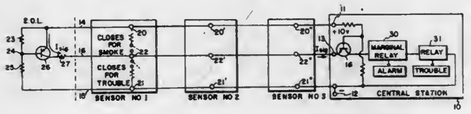
3,550,119
CHARACTER READING MACHINE PROVIDED WITH AN ARRAY OF LIGHT-EMITTING DIODES
Jacob Rabinow, Bethesda, Md., assignor to Control Data Corporation, Rockville, Md.
Filed June 4, 1968, Ser. No. 734,272
Int. Cl. G06k *9/12*
U.S. Cl. 340—146.3 **3 Claims**

A character reading machine provided with an electroluminescent array of light-emitting diodes arranged to provide a "black on white" and a "white on black" image of each character to be identified. The images of a pair are compared simultaneously to an optical mask having a negative and a positive portion for the respective images to recognize the character. For parallel comparison a single photocell and a single mask containing a negative and a positive portion are used for each character in the machine vocabularly. For sequential comparison only one photocell is needed and the mask set is moved with respect to the photocell. However, in sequential comparison (as in parallel comparison) the single photocell is exposed simultaneously to both portions of a mask for a given character.



The electroluminescent array of diodes which produce the image pairs of each printed character are driven in a manner to cause the images to undergo vertical excursions. This either solves or alleviates the vertical registration problem common to most if not all types of reading machines.

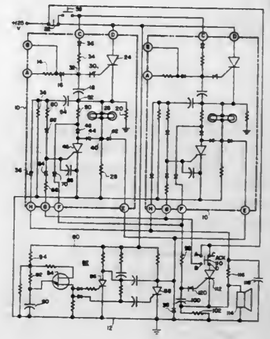
3,550,120
CONTROL APPARATUS
Arlon D. Kompelien, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Dec. 9, 1968, Ser. No. 782,381
Int. Cl. G08b *29/00*
U.S. Cl. 340—409 **5 Claims**



A combustion products detector system having a central station and one or more remote ionization type sensing stations interconnected to the central station by a three conductor line and further having a solid state end-of-line supervision circuit which reports back on one line that all three lines are in good condition. The remote station has an ionization detector across which is maintained a substantially constant voltage and through which a current flows, the current being reduced in the presence of combustion products. The circuit is specially designed to provide an output current which changes in direct proportion to the sensor current.

3,550,121
ANNUNCIATOR SYSTEM
Lester H. Porter, Jr., Dallas, Tex., assignor to Beta Corporation, a corporation of Texas
Filed June 26, 1967, Ser. No. 648,593
Int. Cl. G08b *23/00*
U.S. Cl. 340—415 **8 Claims**

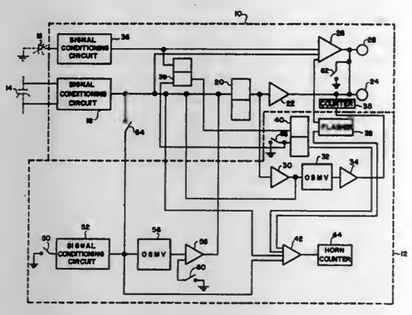
There is disclosed in the specification and drawings an annunciator system in which the lamp modules associated with variables being monitored include a silicon controlled rectifier which is switched to the low impedance state responsive to the associated variable becoming abnormal. The control rectifier, a lamp, and a flasher circuit are connected in series with a source of supply voltage. When the silicon controlled rectifier is turned on responsive to the charge on a capacitor indicating that the variable has become abnormal, the lamp will be periodically energized causing the lamp to flash on and off. There is also provided an acknowledge switch and second silicon controlled rectifier, the second silicon controlled rectifier being connected in parallel with the flasher circuit. When the acknowledge switch is operated, the second silicon controlled rectifier will be switched to its low impedance state such that ground will be continuously applied to the lamps causing the lamps to be energized steadily. In accordance with one embodiment of the invention there may also be provided an additional flasher circuit connected in parallel with the first flasher circuit and necessary control circuitry such that when the variable first becomes abnormal the lamp will flash at one rate and if the variable returns to normal after operation of the acknowledge switch the lamp will flash at a different rate. In another embodiment of the invention a first-out mode of operation is provided in which only the lamp module associated with the first variable in the series to become abnormal will flash and lamps associated with variables which thereafter become abnormal will produce a steady indication. Upon operation of the acknowledge switch, all lamps associated with variables which are abnormal at that time will produce a steady indication. The next variable which becomes abnormal will be indicated as a first-out by flashing of the lamp associated with the variable. Variables which become abnormal subsequently will be indicated by a steadily lit light.



3,550,122
DUAL POINT ANNUNCIATOR SYSTEM
Inamur Rab Siddiqi, 4914 N. Hall St., Dallas, Tex. 75201
Filed June 26, 1967, Ser. No. 648,764
Int. Cl. G08b *23/00*
U.S. Cl. 340—415 **11 Claims**

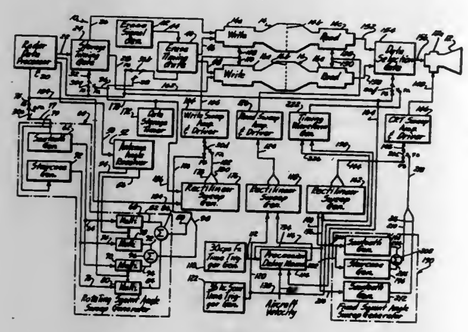
There is disclosed in the specification and drawings a dual point annunciator system in which one of the field contacts associated with a variable is operated responsive to the variable becoming abnormal and a second field contact associated with the variable is only operated responsive to the variable becoming critically abnormal. There is also provided indicator means and control circuitry associated with the two field contacts such that

the indicator provides one indication when the first field contact is operated, a second indication when neither of the field contacts are operated, a third indication when the second field contact is the first of a series to be operated and a fourth indication when the second field



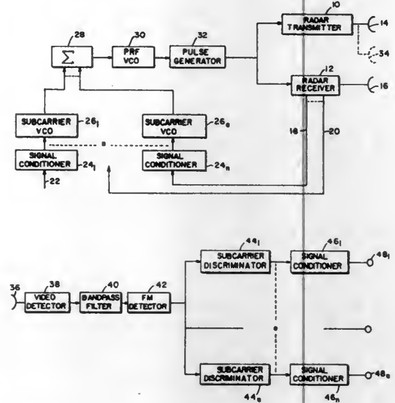
contact is operated subsequent to the first of the series. A split first-out mode of operation is also provided in which a first-out indication is provided only if the variable becomes critically abnormal subsequent to a different variable attaining a desired condition, such as the speed of a motor attaining a certain level.

3,550,123
REAL TIME PASSING SCENE DISPLAY
Henry R. Brown, Tustin, and Elberson D. Green, Santa Ana, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Dec. 7, 1967, Ser. No. 690,706
Int. Cl. G01s *7/04, 7/06*
U.S. Cl. 343—5 **6 Claims**



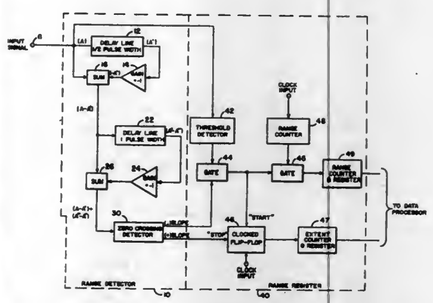
A system for providing a real time display of synthetic aperture radar gathered range data in TV format and having passing scene realism and comprising a plurality of double ended scan conversion means on which radar data is alternatively stored as gathered by a relatively slow radar scanning process, and which is read out in a conventional TV raster at a relatively high frame rate, e.g., 30 frames per second, and which system introduces a time delay in the read out and display process so as to cause the display to precess and hence move in a direction and rate corresponding to the velocity of the radar bearing airplane.

3,550,124
RADAR-TELEMETRY SYSTEM
Eugene J. Heft, Lexington, and Edward L. Bourque, Dunstable, Mass., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Oct. 21, 1968, Ser. No. 769,105
Int. Cl. G01s *9/10;* **G08c** *19/26*
U.S. Cl. 343—7.5 **7 Claims**



Apparatus is herein disclosed for transmitting data to a remote location in conjunction with a radar system. The data to be transmitted is, employing conventional FM–FM telemetry principles, used to modulate the PRF of the radar transmitter. The composite radar signal received at the remote location is detected and filtered to provide a continuous signal which is then processed employing standard FM–FM telemetry techniques to recover the telemetry data.

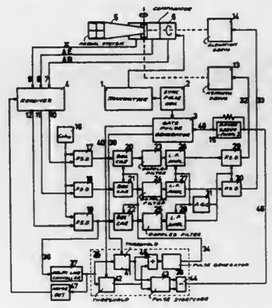
3,550,125
RANGE ESTIMATOR
Stanley A. Fierston, Kwajalein, Marshall Islands, and Harold P. Zitzow, Reading, Mass., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Oct. 25, 1968, Ser. No. 770,693
Int. Cl. G01s *9/06;* **G04f** *11/08*
U.S. Cl. 343—13 **8 Claims**



A range estimator capable of processing a variety of input pulse widths and measuring single or extended target range. A delay line is tapped at various intervals to tap the particular pulse width desired. A relay or elec-

tronic switch is used to switch the proper taps to a differential amplifier. In operation, an input pulse is fed to the delay line and tapped at several points along the line. The tapped signals are summed in two groups and connected to the differential amplifier. The amplifier output is connected to a zero crossing detector which produces a pulse whenever the amplifier output changes polarity. This zero crossing detector output is connected to a range register which indicates the range time of the single or extended return.

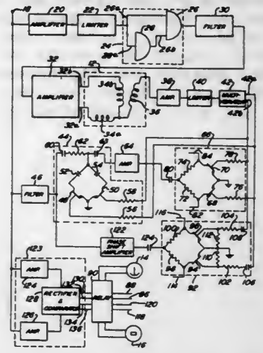
3,550,126
MONOPULSE RADAR APPARATUS
Herman Michel van Hijfte and Bernard Gellekink, Hengelo, Netherlands, assignors to N.V. Hollandse Signaalapparaten, Hengelo, Overijsel, Netherlands, a firm of the Netherlands
Filed Jan. 21, 1969, Ser. No. 792,456
Claims priority, application Netherlands, Jan. 24, 1968, 6801015
Int. Cl. G01s *9/22*
U.S. Cl. 343—16 **5 Claims**



A monopulse radar apparatus features a delay line canceller fed with one of the coherently detected output signals from the receiver. A gate is controlled by broad range gating pulses for coarsely selecting target signals from the output signal of the delay line canceller, and a range error detector is responsive to the selected target signals to produce a range error signal. A pulse regenerator is responsive to the selected target signals to produce standard output pulses; whereby, at least during a lock-on procedure, the range error signal is used for controlling the instant of occurrence of said broad range gate pulses, while the standard output pulses are used as narrow range gate pulses for controlling the gate circuit in each angle tracking channel.

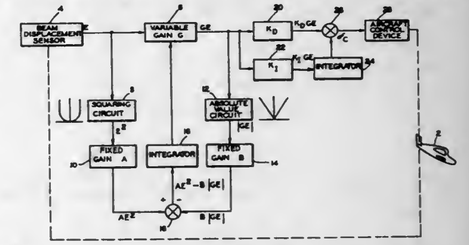
3,550,127
AIRBORNE NAVIGATION CONVERTER
Joseph A. Hrusovsky, Oreland, Pa., assignor to American Electronic Laboratories, Inc., Colmar, Pa., a corporation of Pennsylvania
Filed Jan. 31, 1969, Ser. No. 795,524
Int. Cl. G01s *1/44*
U.S. Cl. 343—106 **10 Claims**

A converter for a VHF Omnirange airborne navigation system which converts the input signal from an omni station to signals which drive a deviation indicator and an OFF/TO-FROM indicator so as to visually indicate the position of the aircraft with respect to the station. The concerter is made up of circuits which use solid state electronic components so as to eliminate inductive components and permit the circuits to be formed as small integrated microcircuits which reduce the overall size of the converter. The converter includes a pulse averaging discriminator circuit for providing the driving signal for an azimuth or course selector which provides a reference signal. A synchronous demodulator circuit compares the phase difference between the input signal to the converter



and the reference signal and provides a signal which drives the deviation indicator. A phase detector circuit compares the phase difference between the input signal to the converter and the reference signal and drives the OFF/TO-FROM indicator.

3,550,128
GAIN ADJUSTMENT MEANS FOR BEAM COUPLERS
Howard M. Pollack, Teaneck, NJ., assignor to The Bendix Corporation, a corporation of Delaware
Filed May 23, 1968, Ser. No. 731,586
Int. Cl. G01c *21/00*
U.S. Cl. 343—107 **8 Claims**

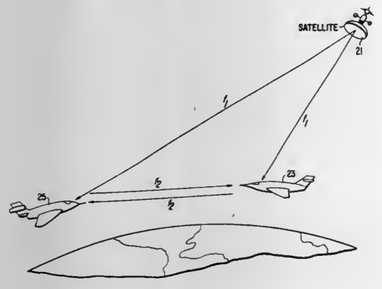


Apparatus for controlling an aircraft in response to beam displacement signals. A signal corresponding to the absolute value of beam displacement is compared to a signal corresponding to the square of beam displacement for providing a difference signal. The difference signal is integrated and beam displacement signal gain is changed as a function of the integrated signal.

3,550,129
SATELLITE AIDED VEHICLE AVOIDANCE SYSTEM
Ernest R. Steele, Belmont, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 28, 1969, Ser. No. 811,542
Int. Cl. G01s *5/02*
U.S. Cl. 343—112 **42 Claims**

This disclosure describes a method of and an apparatus for warning a pilot of an aircraft of the proximity of another aircraft. The method comprises the steps of: transmitting a repetitive synchronizing signal from a

satellite to aircraft; receiving said synchronizing signal by said aircraft generating a response signal by said aircraft in response to said synchronizing signal; opening a gate in said aircraft in response to said synchronizing signal; and, closing said gate after a predetermined time that establishes a threat detection zone to prevent the passage of a response signal through said gate from any aircraft that is outside of the thus established threat detection zone. The apparatus comprises a system including a satellite for transmitting a synchronizing signal and means onboard the aircraft for receiving



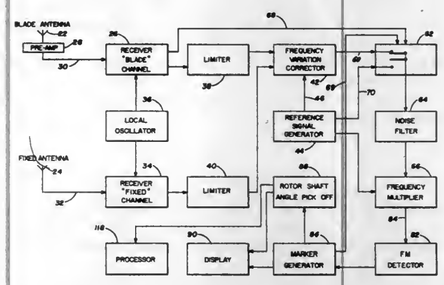
said synchronizing signal. Means are also included onboard said aircraft for generating a response signal in response to said synchronizing signal and for opening a gate upon the receipt of said synchronizing signal for receiving said response signal. The gate is maintained open for a predetermined period of time that establishes a threat detection zone so that a response signal from another aircraft passes through the gate only if the response signal is received during the predetermined period of time. The received response signal is applied to an indicator to indicate the proximity of the other aircraft or is used to compute the threat of collision and derive a display of a suitable avoidance maneuver.

3,550,130
PASSIVE DIRECTION FINDER

Hubert R. Shaw, Fort Worth, Tex., assignor to Bell Aerospace Corporation, Hurst, Tex., a corporation of Delaware

Filed Nov. 25, 1968, Ser. No. 778,598
Int. Cl. G01s *3/52*
U.S. Cl. 343—113 **15 Claims**

A passive direction finder which utilizes the Doppler frequency shift produced by rotation of a helicopter rotor blade to determine the bearing to a non-cooperative radio transmitter or other source of electromagnetic radiation. The system employs two receiving antennas, one located on the rotor blade, preferably on the tip of the blade, and the other located on the fuselage of the helicopter. As the blade rotates, the frequency of the signal received on the blade antenna is shifted due to the Doppler effect; i.e., the frequency is increased as the antenna mounted on the blade moves toward the source of signal and decreased as the antenna moves away from the source of signal. Zero frequency shift occurs when the blade points to the same azimuth as the source of signal. A receiving system coupled to both antennas determines the instant at which zero frequency shift occurs by comparing the frequency of the signal received on the blade antenna with the frequency of the same signal received simultaneously on the antenna located on the fuselage. A pickoff on the rotor shaft continuously supplies the angular position of the rotor blade with respect to the longitudinal axis of the aircraft. At the instant zero frequency shift occurs, as determined by the receiving system, the blade

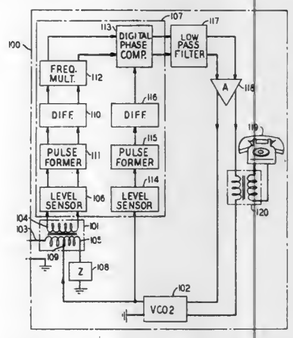


angle is read out and by suitable processing provides the bearing to the source of signal with respect to the longitudinal axis of the aircraft.

3,550,131
DIGITALIZED PHASE LOCKED LOOP DOUBLE CARRIER TRANSMISSION SYSTEM

Carl F. Kurth, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 27, 1967, Ser. No. 693,922
Int. Cl. H04b *1/52*
U.S. Cl. 343—179 **3 Claims**



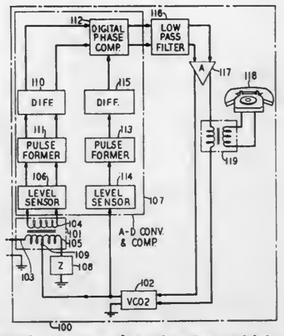
A digital double carrier bilateral transmission system is disclosed which comprises a digital transceiver at each end connected by a lossy transmission medium which introduces significant phase shift and attenuation to a modulated carrier passing therethrough. Each transceiver comprises a digital phase locked loop which transmits and receives modulated carriers having different carrier frequencies where the different frequencies are integral multiples of each other.

3,550,132
DIGITAL PHASE LOCKED LOOP

Carl F. Kurth, Andover, Mass., and Roderick C. MacLean, Atkinson, N.H., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed Dec. 27, 1967, Ser. No. 693,967
Int. Cl. H04b *1/58*
U.S. Cl. 343—179 **7 Claims**

An FM digital bilateral transmission system is disclosed comprising transceivers at each end connected by a lossy transmission medium. Each transceiver comprises a digital phase locked loop which converts the received analog

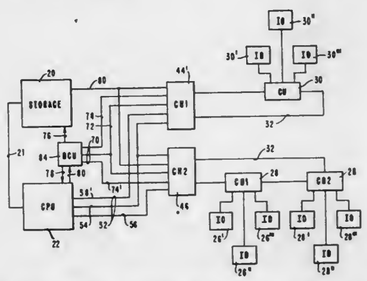


modulated carrier to a series of pulses which are representative of the analog modulated carrier.

3,550,133
AUTOMATIC CHANNEL APPARATUS

Lewis E. King, William C. Hoskinson, Eugene J. Annunziata, and Francis W. Wise, Poughkeepsie, and Edwin B. Pierce, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Original application Apr. 6, 1964, Ser. No. 357,369, now Patent No. 3,488,633, dated Jan. 6, 1970. Divided and this application Jan. 14, 1969, Ser. No. 812,510
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **9 Claims**



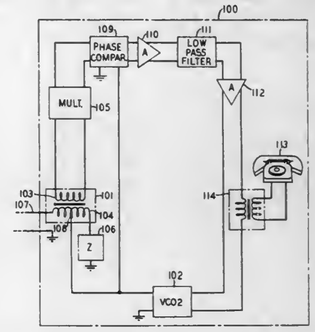
An input/output channel apparatus for a data processing system in which logical information is handled as fixed or variable length data. Logical circuitry is provided in the channel to provide for the assembly of bytes into words and to transfer the words to and from a storage in the data processing system. The data processing system may specify variable length fields which start and end on any byte position within a word. Two registers define a memory area: an address register (specifies the word location) and a mark register (specifies the byte location within a word).

3,550,134
PHASE LOCKED LOOP DOUBLE CARRIER TRANSMISSION SYSTEM

Carl F. Kurth and Francis J. Witt, Andover, Mass., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Dec. 27, 1967, Ser. No. 694,012
Int. Cl. H04b *1/52*
U.S. Cl. 343—179 **2 Claims**

A double carrier bilateral transmission system is disclosed which comprises a transceiver at each end connected by a lossy transmission medium which introduces significant phase shift and attenuation to a modulated carrier passing therethrough. Each transceiver comprises a phase locked loop which transmits and receives modulated carriers having different carrier frequencies where

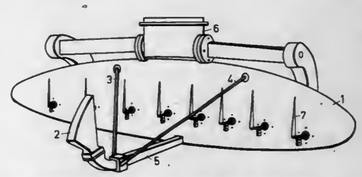


the different frequencies are integral multiples of each other. One transceiver includes an auxiliary control circuit and an automatic gain control circuit to compensate for the phase shift and attenuation suffered by the modulated carrier in the transmission medium, respectively.

3,550,135
DUAL BEAM PARABOLIC ANTENNA

Maximiliaan Hubert Bodmer, Hengelo, Netherlands, assignor to N.V. Hollandse Signaalapparaten, Hengelo, Overijsel, Netherlands, a firm of the Netherlands

Filed Mar. 21, 1968, Ser. No. 714,973
Claims priority, application Netherlands, Mar. 22, 1967, 6704219
Int. Cl. H01q *19/12, 21/00*
U.S. Cl. 343—725 **4 Claims**

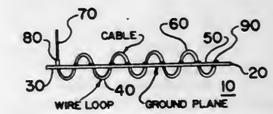


A radar antenna includes a parabolic reflector and feed horn for radiating a first directional beam, and a plurality of individual radiating elements mounted on and spaced from the reflector for radiating a second directional beam.

3,550,136
SEMI-HELICAL ANTENNA

Carlton H. Walter, Columbus, Ohio, and Anthony G. Jennetti, Lebanon, Pa., assignors to The Ohio State University Research Foundation, Columbus, Ohio

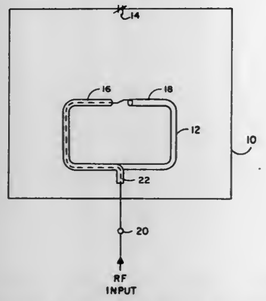
Filed Mar. 14, 1968, Ser. No. 713,161
Int. Cl. H01q *11/12, 1/48*
U.S. Cl. 343—742 **4 Claims**



The invention is for super-directive semi-helical an-

tennas, with increased directivity accomplished by excitation of a three-lobed cosine current mode.

3,550,137
CONSTANT IMPEDANCE LOOP ANTENNA
John A. Knecken, Pittsford, N.Y., assignor to General Dynamics Corporation, a corporation of Delaware
Filed Sept. 20, 1968, Ser. No. 761,182
Int. Cl. H01q 11/12
U.S. Cl. 343—744 11 Claims

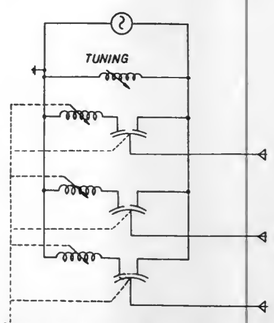


A loop antenna is described which is operative over the high frequency band and which presents a substantially constant input impedance over wide ranges of this band without readjustment. The antenna includes a three turn loop made up of conductors having a relatively large cross-sectional area. The loop is closed by a tuning capacitor. As so constructed, the loop has a high Q and presents an effective radiation resistance which varies approximately in accordance with the square of the frequency of the signal carried by the loop so as to provide the effectively constant input impedance at an input terminal of a coupling loop fabricated from a single turn of coaxial cable.

3,550,138
LOG-PERIODIC ANTENNA ARRAYS
Rudolf Julius Franz Guertler, Eastwood, New South Wales, and Raymond John Clancy Rawson, Lane Cove, New South Wales, Australia, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 3, 1968, Ser. No. 742,303
Claims priority, application Australia, July 21, 1967, 24,889/67
Int. Cl. H01q 11/10, 3/26
U.S. Cl. 343—751 5 Claims

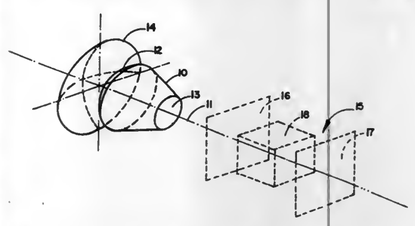


A log-periodic antenna array in which the antennas are mounted with coincident apices and equal angles between adjacent antennas. An embodiment employs dipole antennas with inductors located at the center of long dipole halves. Each antenna is coupled to a series tuned circuit which is connected in parallel across a common signal source. The tuned circuits are mechanically coupled to a steering control lever which thus allows control of



the amplitude and phase of the signal transmitted by each antenna. As a result, omnidirectional radiation, unidirectional radiation and steering of the unidirectional beam is achieved.

3,550,139
HEMISPHERICAL DIELECTRIC LENS TYPE ANTENNA EMPLOYING A UNIFORM DIELECTRIC
Jerry L. McFarland, Fullerton, Calif., assignor to North American Rockwell Corporation
Filed July 5, 1968, Ser. No. 742,818
Int. Cl. H01q 19/06, 15/08
U.S. Cl. 343—754 24 Claims

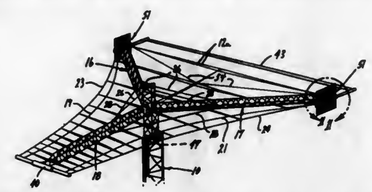


A lens type antenna employing a hemispherical dielectric lens having uniform dielectric properties. The uniform refractive index of the lens provides a substantially stationary amplitude distribution which does not change with changes in scan angle. Also, compensatory phase distribution means is included at the aperture of the lens for reducing the effects of spherical aberration over the range of scan angles of interest. Accordingly, wide-angle scanning applications may be accommodated.

3,550,140
LOG PERIODIC ROTATING ANTENNA
William L. Werner, Sunnyvale, Calif., assignor to Granger Associates, Palo Alto, Calif., a corporation of California
Filed June 23, 1967, Ser. No. 648,475
Int. Cl. H01q 3/00, 11/10
U.S. Cl. 343—766 3 Claims

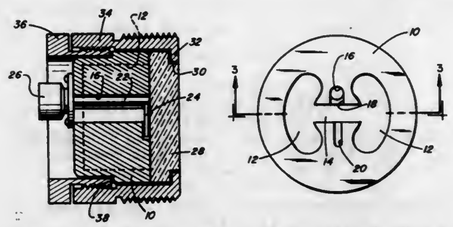
An antenna array rotates at the top of a support tower. The array is comprised generally of elongated wire portions of log periodic length relationship supported by three booms and cables strung between the boom ends. Two of the booms comprise spliced portions connected by insulating splices. The upper ends of plural conductors are connected directly to the rotatable array while the lower ends are held stationary. A number of spacers hold the conductors apart along their length during twisting of the

column of conductors when the array is rotated. Ice compensating wind vanes are carried at the ends of two booms



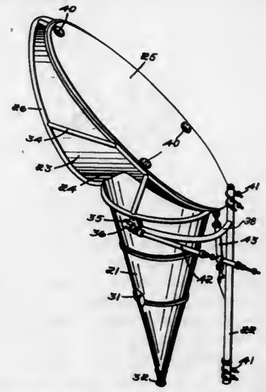
to become coated with ice and thereby provide aerodynamic balance when so coated or when ice free.

3,550,141
CAVITY SLOT ANTENNA
John R. Harris and John W. Tse, Sunnyvale, Calif., and Gerald H. Hooper, Essex Fells, N.J., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Feb. 5, 1969, Ser. No. 796,672
Int. Cl. H01g 13/18, 1/42
U.S. Cl. 343—767 10 Claims



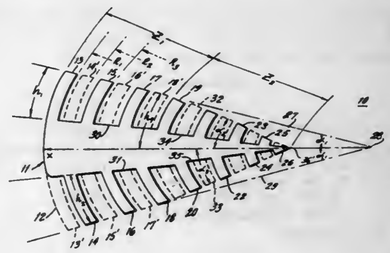
An antenna in which a pair of diametrically disposed and interconnected kidney-shaped slots in one end of a substantially cylindrical housing forms a resonant cavity therein. A dielectric window is secured to the end of the housing to cover the open cavity.

3,550,142
HORN REFLECTOR ANTENNA
John W. Dawson, Norwell, Mass., assignor to Maremont Corporation, Saco, Maine, a corporation of Illinois
Filed Mar. 18, 1968, Ser. No. 713,742
Int. Cl. H01q 3/12, 19/14, 15/20
U.S. Cl. 343—781 20 Claims



A microwave horn antenna having a closed self-supporting thin wall housing in the form of a cone with a closure across the wide end has a precision paraboloidal deflector segment supported obliquely to the axis of the cone to reflect energy between the cone and free space through a window aperture in the housing. The reflector segment is supported within the housing only at a few points on its periphery as by attaching support rods having lateral flexibility to make the electrical dimensions of the reflector independent of strain such as due to solar heating and of external loading due to wind and ice or internal loading due to pressurizing the enclosure.

3,550,143
MULTIPLE TOOTH LOG-PERIODIC TRAPEZOIDAL ARRAY
Ronald D. Grant, Urbana, Ill., assignor, by mesne assignments, to JFD Electronics Corporation, Brooklyn, N.Y., a corporation of Delaware
Filed Mar. 21, 1967, Ser. No. 624,765
Int. Cl. H01q 11/10
U.S. Cl. 343—792.5 5 Claims



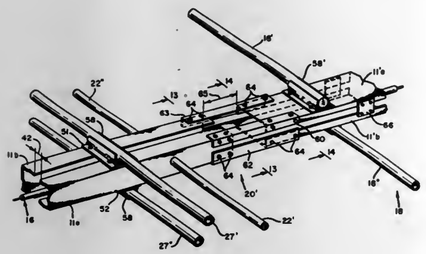
This invention teaches a multiple tooth trapezoidal antenna array comprised of first and second multiple tooth trapezoidal plates forming a driver which provides extremely high gain over a wide operating radio frequency band. The length, spacing and taper of the tooth in the array may be varied in a variety of different ways to adjust the gain-frequency response characteristic so as to yield antenna gain which increases with frequency so as to maintain constant signal at the receiver input.

3,550,144
ANTENNA BOOM AND FEED LINE STRUCTURE
Normand Barbano, Sunnyvale, and Howard Hochman, Santa Clara, Calif., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed May 6, 1968, Ser. No. 726,670
Int. Cl. H01q 11/10, 1/22
U.S. Cl. 343—792.5 7 Claims

This television antenna comprises three log periodic arrays mounted on one boom in end-to-end relation for receiving television and FM broadcast frequencies in three separate bands. All of the elements in the three arrays lie in the plane of the boom. Each of the two higher frequency arrays comprises a series of log periodic Yagi-Uda cells with each parasitic element functioning as a director for one cell and a reflector for the adjacent cell. The axial locations of the parasitic elements are adjusted to match the impedance of dipoles to the feed line and are independent of the log periodic dimensions and spacings of the dipoles. Double parasitic elements are located adjacent to the driven elements in the high VHF band to provide a smooth transition in frequency response between adjacent driven elements and insure substantially uniform antenna patterns over the band.

The single boom or longitudinal support for the active and parasitic elements is a hollow split tube, preferably rectangular in cross section, comprised of juxtaposed electrically conductive substantially identical channel members mechanically secured to each other in relation by

insulators. These members also constitute balanced feed lines for the antenna elements, being electrically connected



at one end to the inner and outer conductors, respectively, of a coaxial insulated cable which extends within the members from the opposite end.

3,550,145
MANIPOLE BROADBAND ANTENNA

Chen To Tai, Ann Arbor, Mich., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Aug. 5, 1968, Ser. No. 750,144
Int. Cl. H01q *21/00, 9/38, 1/50*
U.S. Cl. 343—826 **5 Claims**



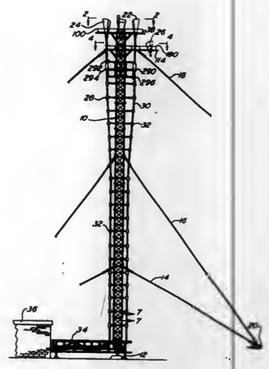
This invention relates to a broadband antenna system. The system comprises a plurality of linearly tapered vertical rods or elements of different lengths mounted on a common base or ground plane. Each of the rods is fed from the center conductor of a coaxial cable while the outer conductor of the coaxial cable is attached to the ground plane. The antenna of the instant invention is broadband both in impedance and in pattern.

3,550,146
GUYED TOWER FOR MICROWAVE HORNS

Richard J. Eberle, Gwynedd Valley, Pa., assignor to Stainless, Inc., North Wales, Pa., a corporation of Pennsylvania

Filed Mar. 1, 1967, Ser. No. 619,807
Int. Cl. H01q *21/00, 1/12*
U.S. Cl. 343—879 **7 Claims**

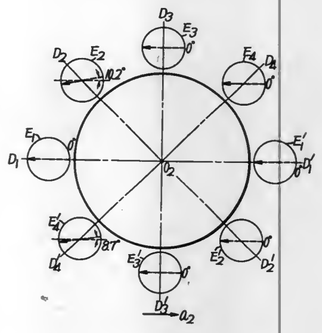
A guyed tower for supporting microwave horns having three platforms. The upper two platforms accept three horns each at 120° spacing over full 360°. A third platform is provided for passive devices. Tower includes adjustable wave guide supports and wave guide bridge.



3,550,147
OMNIDIRECTIONAL DIELECTRIC LENS REFLECTOR

Noriomi Ochiai, Tokyo, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan, a corporation of Japan

Filed Apr. 7, 1969, Ser. No. 813,987
Claims priority, application Japan, Apr. 11, 1968, 43/24,158
Int. Cl. H01q *15/02, 15/08*
U.S. Cl. 343—911 **10 Claims**

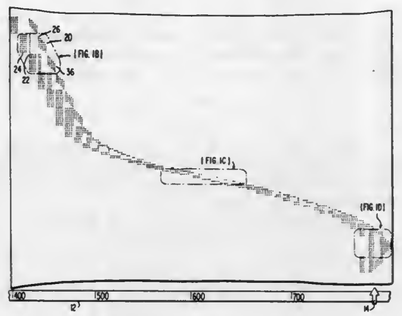


An omnidirectional dielectric lens reflector consisting of a spherical core, a plurality of spherical outer layers, and film means coated on the spherical core and each spherical outer layer for passing microwaves incident thereon at relatively small incident angles within the lens along an elliptic path in accordance with the specific dielectric constant of each outer layer and for reflecting the component of the microwaves at great incident angles perpendicular to the plane of the film means without accompanying substantial phase-shift and the component parallel to the plane of the film means with a phase-shift of about 180 degrees.

3,550,148
PROCESS FOR RECORDING DIGITAL INFORMATION SO AS TO PROVIDE AN ANALOG REPRESENTATION OF SUCH INFORMATION

Raymond C. Machler, Old Forty Foot Road, P.O. Box 22, Lansdale, R.D. 1, Pa. 19446

Filed Dec. 24, 1968, Ser. No. 786,690
Int. Cl. G01d *9/08*
U.S. Cl. 346—1 **3 Claims**

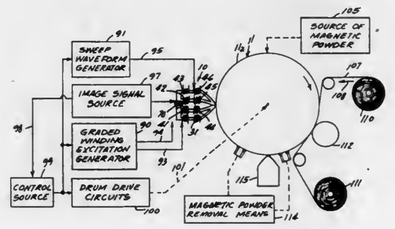


There is disclosed herein a new process for recording digital information in digital form while at the same time providing an analog showing of changes in the information being recorded. According to the invention, numbers are represented by character elements where the elements are arranged in geometric arrays by decade. For example, the numerals or digits 1 through 9 are represented by dots or the like arranged in either a diamond or triangular array. Those decades representing the least significant numerals to be recorded are arranged on a record receiver by novel means such that they provide an analog representation of the information.

3,550,149
MAGNETIC IMAGE PRINTING SYSTEM

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill., a corporation of Illinois

Filed Apr. 6, 1967, Ser. No. 628,964
The portion of the term of the patent subsequent to May 7, 1985, has been disclaimed
Int. Cl. G01d *15/12;* **G11b** *5/20;* **H04p** *1/28*
U.S. Cl. 346—74 **4 Claims**

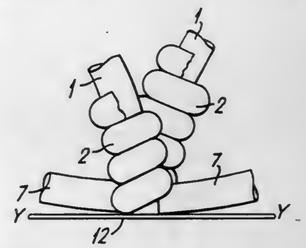


In the illustrated embodiment, core units are sequentially switched by applying first magnetomotive forces of alternating polarity and of generally rectangular waveform and second magnetomotive forces of alternating polarity and of substantially symmetrical generally triangular waveform to saturable magnetic material of the respective core units, and coordinating the frequencies, phases and amplitudes of the magnetomotive forces to provide substantially uniform time intervals between activation of the successive core units, particularly for the purpose of producing a magnetic image on a magnetizable record medium which may then be utilized to produce multiple "hard" copies of the recorded image. A special excitation waveform is also shown for precise timing of the switching of the individual core units.

3,550,150
MAGNETIC RECORDING TRANSDUCER

Gerald Marvin Gardner, London, and Jorg Wintermantel, Stortford, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed June 14, 1967, Ser. No. 645,941
Claims priority, application Great Britain, July 1, 1966, 29,687/66
Int. Cl. G11b *5/20, 5/22, 5/42*
U.S. Cl. 346—74 **2 Claims**

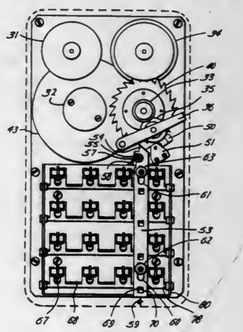


A recording head for a magnetic printing process is made by winding energising windings on thin soft iron wire cores. The windings and cores are embedded in an epoxy resin with one end of the core and winding flush with the recording surface. A magnetic flux return path between the recording surface and the other end of the cores can be provided by bending over the free ends of the cores or by inserting a separate piece of magnetic material close to the cores.

3,550,151
RECORDING MEDIUM DRIVE MECHANISM

Francis A. Fuller, Jr., Dallas, Tex., assignor to Universal Data Acquisition Co., Inc., Houston, Tex., a corporation of Texas

Filed Oct. 12, 1967, Ser. No. 674,852
Int. Cl. G01d *15/12;* **B65h** *17/22;* **F16d** *63/00*
U.S. Cl. 346—74 **9 Claims**



A drive mechanism especially suited for use in a portable data recorder which allows the recording medi-

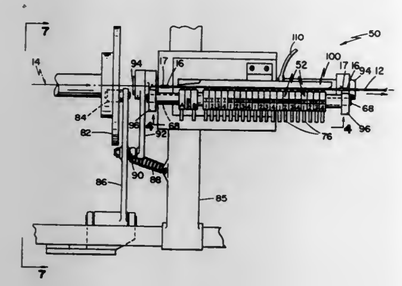
um to advance in discrete increments between record entries. A coupling mechanism including an indexing wheel is provided for coupling a source of power to the drive means for the recording medium. Normally, a pawl member engages the indexing wheel and prevents operation of the drive means. Another member disengages the pawl member when an encoding key is depressed. When disengaged, the pawl assumes a position for re-enaging the indexing wheel upon the release of the encoding key.

3,550,152

RAZOR BLADE MARKING APPARATUS

Frank Samuel Martin, Wenham, Mass., assignor to The Gillette Company, Gillette Park, Boston, Mass., a corporation of Delaware

Filed Oct. 24, 1967, Ser. No. 677,599
Int. Cl. G11b *21/12;* **G01d** *9/10, 15/12*
U.S. Cl. 346—74 **13 Claims**



Magnetic marking apparatus for recording data on segments of stainless steel strip razor blade 0.1895 inch in width in which the apparatus includes: twenty-three cylindrical permanent magnets one each 0.120 inch in diameter, mounted in housings in a line beside a path of movement of the razor blade strip thereby; biasing means biasing the magnets toward the blade strip path; carriers in which said housings are mounted; a selector on each carrier connected to the housing adapted for selecting the magnet to contact the strip by advancing the magnet to an activated condition; a support bar on which the carriers are mounted; a cam connected to the support bar for moving the activated magnets between marking positions contacting the strip material and non-marking positions remote therefrom; and a vacuum block on the other side of the strip path from the magnets exposing a vacuum chamber to the strip path via an elongated groove 0.031 inch in width for preventing transverse movement of the blade strip.

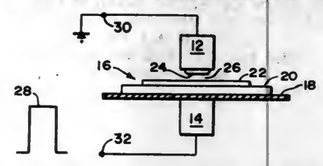
3,550,153

HIGH SPEED NON-IMPACT PRINTING

Robert W. Haeberle and Donald J. J. Lennon, Acton, and Harvey G. Schleifstein, Watertown, Mass., assignors to The Carter's Ink Company, Cambridge, Mass., a corporation of Massachusetts

Filed Dec. 27, 1967, Ser. No. 693,965
Int. Cl. G01d *15/06, 15/08, 15/12*
U.S. Cl. 346—74 **9 Claims**

Printing is effected by applying a shaped electrical field as a pulse of short duration between a donor sheet and a closely adjacent recipient sheet. The surface of the donor sheet closest to the recipient sheet carries electrically conductive particles of a printing material or pigment dispersed in or on a high resistance medium. The elec-



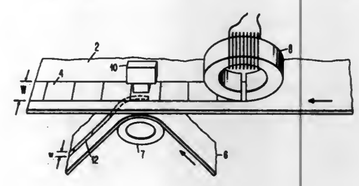
trical field causes a current flow which tarnsfers a sufficient charge to the printing material to cause it to move to the recipient sheet under the influence of the field.

3,550,154

HIGH DENSITY MAGNETIC TRANSFER

Geoffrey Bate, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,655
Int. Cl. G11b *5/86;* **G01d** *15/12*
U.S. Cl. 346—74 **9 Claims**



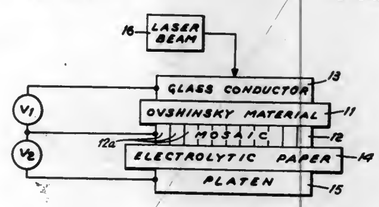
A system for producing high density magnetic records by selectively transferring a portion of a data track from a record media to a copy media. Selective transfer is obtained by utilizing a transfer transducer which propagates an idealizing field which is effective to transfer only a portion of the width of the data track to the copy media.

3,550,155

PRINTER USING A SOLID STATE SEMICONDUCTOR MATERIAL AS A SWITCH

Louis A. de Rosa, Bryn Mawr, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Delaware

Filed Jan. 18, 1968, Ser. No. 698,843
Int. Cl. G01d *15/06, 15/14*
U.S. Cl. 346—74 **3 Claims**



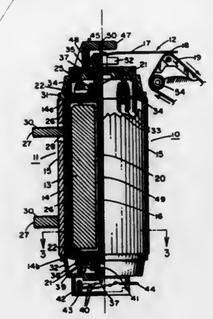
A printer is provided which comprises a solid state semiconductor material which operates as a switching device to control a character mosaic in response to laser beam excitation. The switching device has a characteristic that once it has been switched from one condition to another condition it is retained in that condition until it is again instantaneously excited.

3,550,156

EDGE WRITING RECORDER WITH CORE MAGNET

Allan R. Thompson, Westlake, Ohio, assignor to Clevite Corporation, a corporation of Ohio

Continuation of application Ser. No. 661,934, Aug. 21, 1967. This application Dec. 23, 1968, Ser. No. 789,649
Int. Cl. G01d *15/24;* **G01r** *5/06*
U.S. Cl. 346—139 **7 Claims**



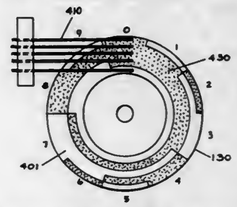
In an edge writing recorder, a cylindrical permanent core magnet, magnetized transversely across its cylindrical axis, is encompassed longitudinally by a tubular high permeability support means which acts as a magnetic flux return path. A magnetic flux is created in the gap between the core magnet and the support means. A driving coil is spaced concentrically about the core magnet and in the flux gap. The flux gap has decreasing flux density away from the maximum magnetic intensity plane of the magnet and nearly corrects for a tangent error inherent to the writing trace of edge recording devices.

3,550,157

METALLIC TAPE OR PLATE CONTACT, HAVING INSULATION SELECTIVELY DEPOSITED ON IT FOR A MULTIPOSITION SWITCH

Frederick W. Pfleger, 1152 Barbara Drive, Cherry Hill, N.J. 08034

Original application Aug. 3, 1967, Ser. No. 658,209, now Patent No. 3,435,167, dated Mar. 25, 1969. Divided and this application July 11, 1968, Ser. No. 744,139
The portion of the term of the patent subsequent to Mar. 24, 1986, has been disclaimed
Int. Cl. H01h *1/06*
U.S. Cl. 200—166 **7 Claims**



The instant disclosure is concerned essentially with multiposition-switch structures wherein is provided a rotary member, a conductive sheet or strip movable with said rotary member and selectively coated with an insulating material, and conductive contacts located for engagement with the conductive member to sense the coated areas and position of the rotary member.

3,550,158

LINEAR HIGH POLYMERS OF DIOLEFINES AND PROCESSES FOR PREPARING THE SAME

Giulio Natta, Lido Porri, and Giorgio Mazzanti, Milan, Italy, assignors to Montecatini Edison S.p.A., a corporation of Italy

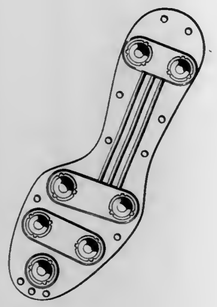
No Drawing. Continuation of application Ser. No. 535,252, Mar. 17, 1966. This application July 3, 1968, Ser. No. 755,481
Int. Cl. C08d *3/06, 3/10*
U.S. Cl. 260—94.3 **16 Claims**

There are disclosed crystalline polymers of diolefines, more particularly of butadiene, isoprene and pentadiene-1,3, showing a high percent of X-ray crystallinity due to 1,4-transconfiguration of more than 90%, and up to 99% of the diolefin units making up the polymer macromolecules, and a method for producing the same.

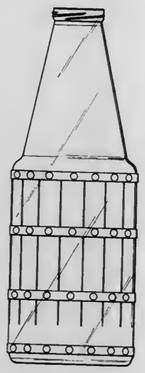
DESIGNS

DECEMBER 22, 1970

219,503
SHOE SOLE
Frank Vietas, Bedford, Mass., assignor to A. R. Hyde & Sons Co., Cambridge, Mass., a corporation of Massachusetts
Filed Aug. 19, 1969, Ser. No. 18,759
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—320



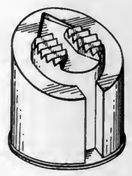
219,504
BOTTLE
Emanuel M. Terner, Oakhurst, N.J., assignor to Midland Glass Company, Inc., Cliffwood, N.J., a corporation of Delaware
Filed Sept. 26, 1969, Ser. No. 19,305
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—161



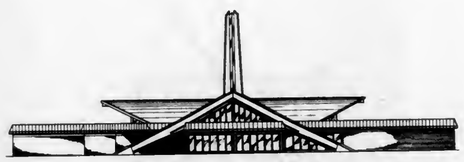
219,505
MEASURED DOSE DISPENSING CONTAINER OR THE LIKE
Katsuhiko Wakamatsu, 5-go, 10-ban, 2-chome, Momoi, Tokyo-to, Japan
Filed June 18, 1969, Ser. No. 17,757
Claims priority, application Japan Dec. 24, 1968
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—207



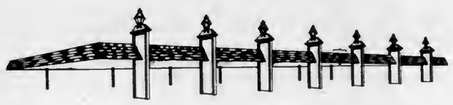
219,506
DISPENSING NOZZLE FOR A PRESSURIZED CONTAINER
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind., a corporation of Indiana
Filed Nov. 17, 1969, Ser. No. 20,120
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—258



219,507
MOTEL BUILDING
Robert J. Peebles, Jr., R.R. 3, Xenia, Ohio 45385
Filed Oct. 28, 1969, Ser. No. 19,758
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



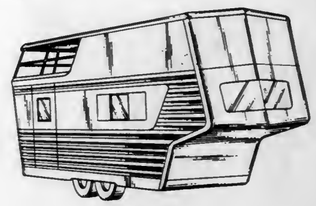
219,508
DESIGN FOR CAR WASH STRUCTURE
James W. Baker, Santa Monica, Calif., assignor to Hunter Structures, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Feb. 26, 1970, Ser. No. 21,638
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



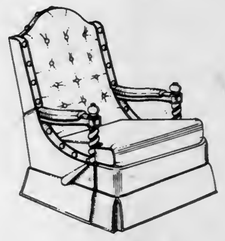
219,509
GOLF CART
Robert Maltarp, Barrie, Ontario, Canada, assignor to Rulendo Manufacturing & Eqpt. Ltd., Barrie, Ontario, Canada
Continuation-in-part of design application Ser. No. 12,806, July 7, 1968. This application Aug. 11, 1969, Ser. No. 18,616
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D14—3



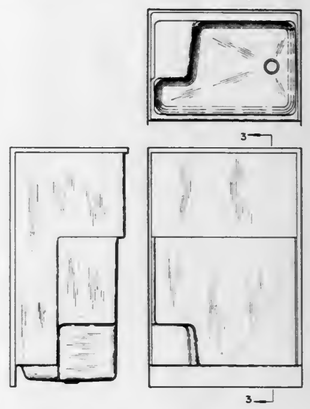
219,510
VERTICALLY EXPANDABLE AND COLLAPSIBLE MOBILE HOME
Lawrence Tofani, Yeadon, Pa. (1600 Summer St., Philadelphia, Pa. 19103)
Filed Jan. 20, 1970, Ser. No. 21,006
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3



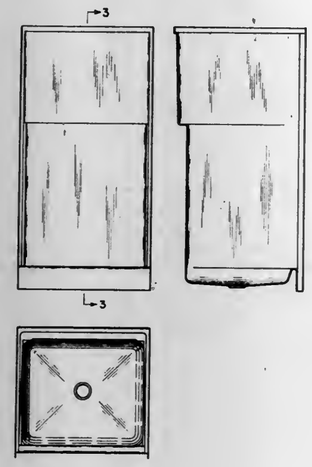
219,511
CHAIR
Morris F. Fisher, Carmel, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y., a corporation of New York
Filed Nov. 24, 1969, Ser. No. 20,261
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—11



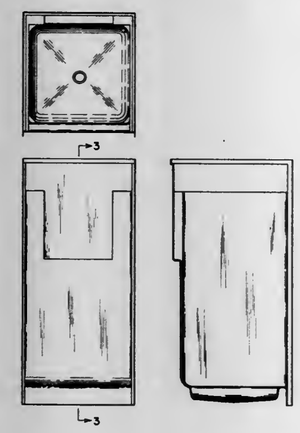
219,512
SHOWER ENCLOSURE
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1969, Ser. No. 19,863
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—57



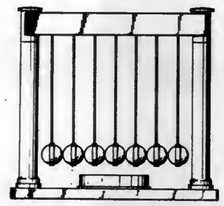
219,513
SHOWER ENCLOSURE
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1969, Ser. No. 19,862
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—57



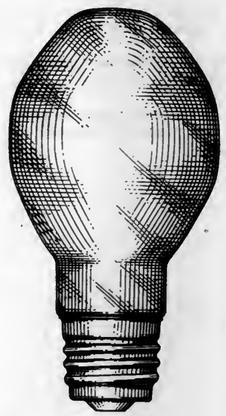
219,514
SHOWER ENCLOSURE
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1969, Ser. No. 19,869
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—57



219,515
EDUCATIONAL TOY
Edward Hurley Levitt, Kowloon, Hong Kong, assignor to Crown Industrial Co. Ltd., a company of Hong Kong
Filed July 28, 1969, Ser. No. 18,432
Term of patent 14 years
Int. Cl. D19—*08*
U.S. Cl. D25—1



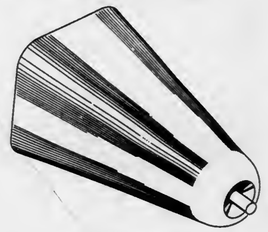
219,516
ELECTRIC LIGHT BULB
Walter K. Venema, La Grange, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill., a corporation of New York
Filed Nov. 5, 1969, Ser. No. 19,949
Term of patent 14 years
Int. Cl. D26—*01*
U.S. Cl. D26—8



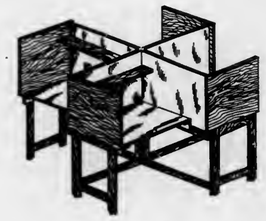
219,517
PLAQUE
George M. Wallace, 64 Clinton St., Paterson, N.J. 07522
Filed Nov. 13, 1969, Ser. No. 20,065
Term of patent 14 years
Int. Cl. D11—*99*
U.S. Cl. D29—23



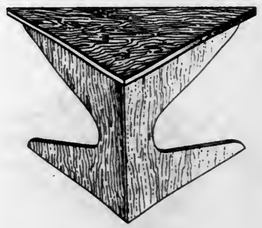
219,518
ANIMAL DRINKING FOUNTAIN OR THE LIKE
Gerald L. Pochyla and William Ralph Smith, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
Filed Oct. 31, 1968, Ser. No. 14,254
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—13



219,519
STUDY CARRELL UNIT
John L. Gianfagna, 102 Crestwood Circle, Marietta, Ohio 45750
Original design application July 17, 1968, Ser. No. 12,807. Divided and this application June 5, 1969, Ser. No. 17,530
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—11



219,520
TABLE
Reginald Gilbert, 16 Eugene St., Toronto 19, Ontario, Canada
Filed June 19, 1969, Ser. No. 17,783
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—14



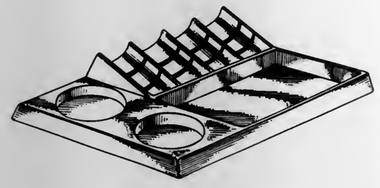
219,521
TOY FIGURE
Peter Rauls, Muhlkausen, Germany, assignor of one-half to Iris Produktions- und Vertriebsgesellschaft von Schmuckkarten und Kunstgewerblichen Artikeln m.b.H.
Original design application Jan. 21, 1969, Ser. No. 15,546. Divided and this application Sept. 25, 1969, Ser. No. 19,794
Claims priority, application Germany July 25, 1968
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—2



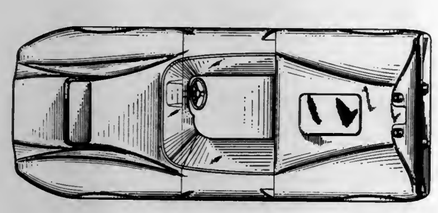
219,522
TRACK AND FIELD MARKER
Daniel M. Yeto, 1711 S. Quince St., Escondido, Calif. 92025
Filed Dec. 24, 1969, Ser. No. 20,646
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



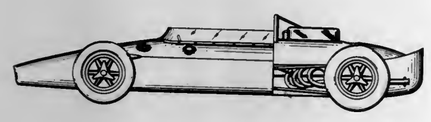
219,523
COMBINED GAME CHIP HOLDER AND COASTER TRAY OR THE LIKE
John W. Larrowe, 7609 Duchess Drive, Whittier, Calif. 90606
Filed Dec. 8, 1969, Ser. No. 20,401
Term of patent 14 years
Int. Cl. D21—*04*
U.S. Cl. D34—13



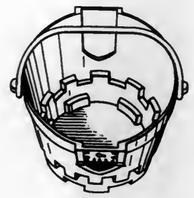
219,524
MODEL RACING CAR
Eric Harrison Broadley, Flackwell, England, assignor to Lola Cars Limited, Slough, England
Filed Aug. 25, 1969, Ser. No. 18,841
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



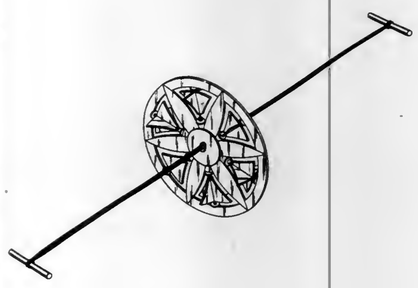
219,525
MODEL RACING CAR
Ronald Sidney Tauranac, Weybridge, England, assignor to Motor Racing Developments Limited, Weybridge, England
Filed Oct. 13, 1969, Ser. No. 19,525
Term of patent 7 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



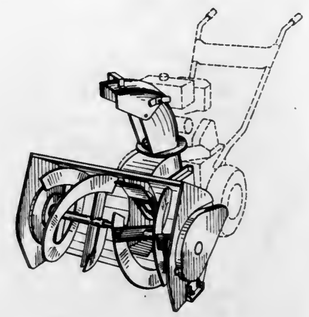
219,526
CASTELLATED SAND BUCKET
Peter William Reading, Stevenage, England, assignor to Tortoys Limited, London, England, a British company
Filed Nov. 6, 1969, Ser. No. 19,966
Claims priority, application Great Britain May 8, 1969
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



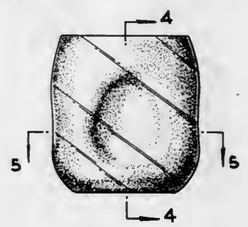
219,527
SPINNING WHEEL TOY
Carl W. Lange, Seven Hills, Ohio (9505 N. Church Drive, Parma Heights, Ohio 44130)
Filed Jan. 9, 1970, Ser. No. 20,846
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15

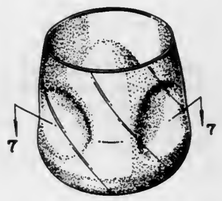


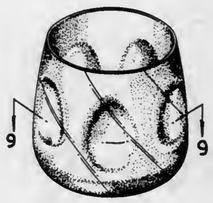
219,528
HOUSING FOR SNOW THROWER
Gerhard R. Plamper, Parma, Ohio, assignor to MTD Products Inc., Cleveland, Ohio, a corporation of Ohio
Filed June 6, 1969, Ser. No. 17,545
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D35—2



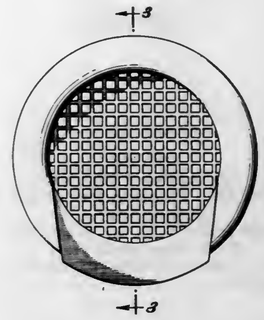
219,529
TUMBLER
Carl J. Uhrmann, Bellaire, Ohio 43906
Filed Dec. 12, 1969, Ser. No. 20,475
Term of patent 14 years
Int. Cl. D8—*01*; D23—*01, 04*; D7—*02*
U.S. Cl. D36—8



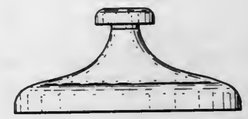




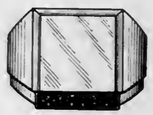
219,530
MANUAL EXCAVATING FILTER
LeRoy Edson Billings, Jr., Thousand Oaks, Calif. (8814 Nye Road, Ventura, Calif. 93001)
Filed June 25, 1969, Ser. No. 17,870
Term of patent 14 years
Int. Cl. D8—*01*; D23—*01, 04*; D7—*02*
U.S. Cl. D39—1



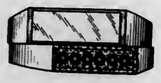
219,531
COVER FOR A CANISTER
Jack Solomon, Island Park, N.Y., assignor to Lincoln Metal Products Corporation, Brooklyn, N.Y., a corporation of New York
Filed Jan. 15, 1970, Ser. No. 20,929
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—6



219,532
FINGER RING
Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill. 60203
Filed Dec. 19, 1969, Ser. No. 20,571
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—10



219,533
FINGER RING
Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill. 60203
Filed Dec. 19, 1969, Ser. No. 20,569
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—10



219,534
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,810
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,535
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,811
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,536
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,812
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,537
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,813
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,538
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,814
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



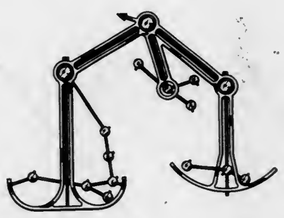
219,539
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,815
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,540
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,816
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



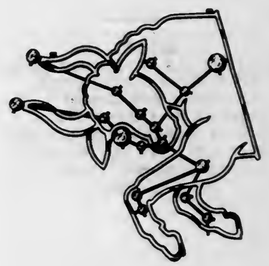
219,541
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,817
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



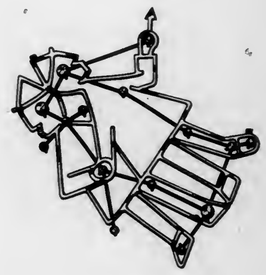
219,542
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,818
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



219,543
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,820
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



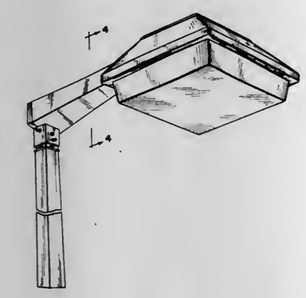
219,544
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,821
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



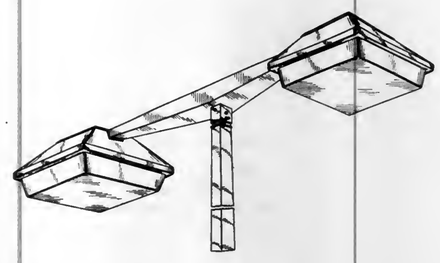
219,545
LIGHTING FIXTURE
Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden
Filed Jan. 8, 1970, Ser. No. 20,822
Term of patent 14 years
Int. Cl. D26—*02;* D20—*03;* D11—*01*
U.S. Cl. D48—20



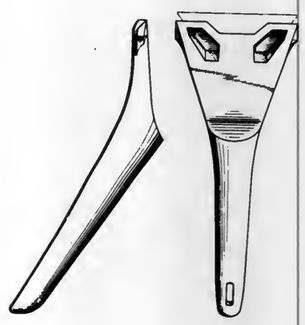
219,546
COMBINED SINGLE OUTDOOR LIGHTING FIXTURE AND SUPPORT
John Kaiser, Westchester, and Donald V. Vesely, Lombard, Ill., assignors to General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 28, 1969, Ser. No. 19,764
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



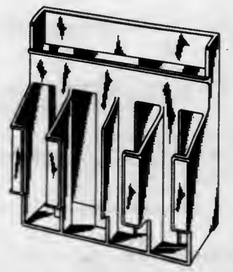
219,547
COMBINED DOUBLE OUTDOOR LIGHTING FIXTURE AND SUPPORT
John Kaiser, Westchester, and Donald V. Vesely, Lombard, Ill., assignors to General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 28, 1969, Ser. No. 19,770
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31



219,548
WINDOW SCRAPER HOLDER
Ronald David Carter, Leamington Spa, England, assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Aug. 27, 1969, Ser. No. 18,879
Term of patent 14 years
Int. Cl. D7—*06*
U.S. Cl. D49—26



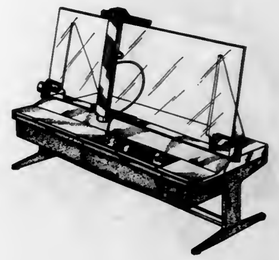
219,549
COMBINED STORAGE AND DISPENSING RACK FOR BAGS OR THE LIKE
Dwight N. Wooters, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio, a corporation of Ohio
Filed July 28, 1969, Ser. No. 18,435
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D52—2



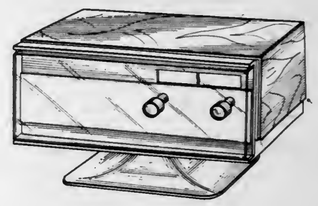
219,550
SPOON OR SIMILAR ARTICLE
Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y., a corporation of New York
Filed Feb. 17, 1970, Ser. No. 21,471
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12



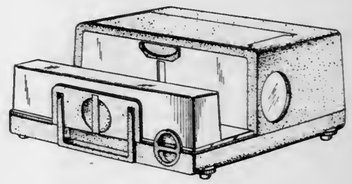
219,551
CONTROLLER FOR MACHINE TOOL
Hiroshi Saito, Taisho-ku, Osaka, Ryohei Nishimoto, Nishinari-ku, Osaka, and Iwao Nakajima, Sumiyoshi-ku, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed May 15, 1969, Ser. No. 17,166
Claims priority, application Japan Nov. 15, 1968
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D55—1



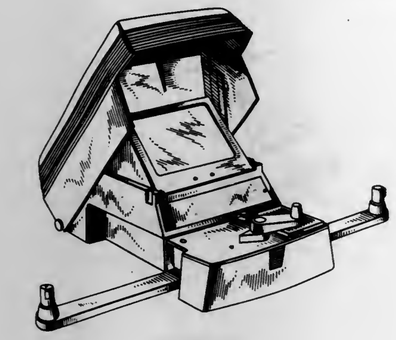
219,552
RADIO CABINET
David P. Chuboff, North Barrington, and Duane R. Picht, Chicago, Ill., assignors to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Aug. 18, 1969, Ser. No. 18,739
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4



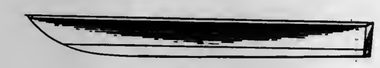
219,553
SLIDE PROJECTOR
Robert Oberheim, Schoenbornring, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed June 24, 1969, Ser. No. 17,851
Claims priority, application Germany Apr. 23, 1969
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1



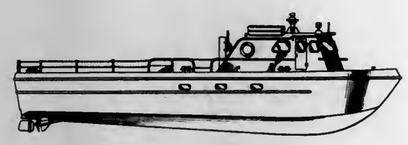
219,554
FOLDING VIEWER FOR NARROW FILM
Adolf Prazsky, Prague, Czechoslovakia, assignor to Meopta, Prerov, Czechoslovakia, a national enterprise
Filed Feb. 4, 1970, Ser. No. 21,269
Claims priority, application Czechoslovakia Aug. 5, 1969
Term of patent 7 years
Int. Cl. D16—*04*
U.S. Cl. D61—1



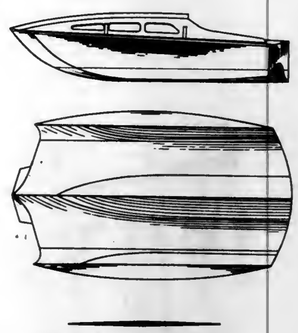
219,555
BOAT HULL
Leonard E. Field, 21 Woking St., Oxford Park, Brisbane, Queensland, Australia
Filed May 23, 1969, Ser. No. 17,305
Claims priority, application Australia Apr. 23, 1969
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



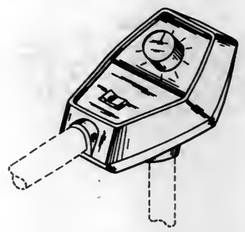
219,556
BOAT
Burt H. Keenan, P.O. Box 5C, Lafayette, La. 70501
Filed July 30, 1969, Ser. No. 18,462
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



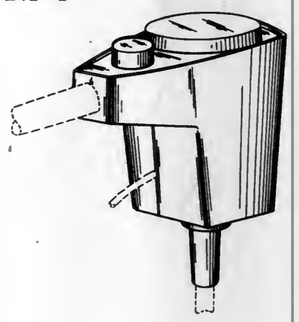
219,557
TRAILERABLE BOAT HULL
Leonard Elliot Field, 21 Woking St., Oxford Park, Brisbane, Queensland, Australia
Continuation-in-part of design application Ser. No. 13,178, Aug. 19, 1968. This application Aug. 11, 1969, Ser. No. 18,633
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1



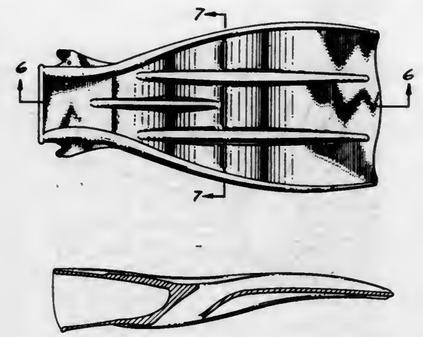
219,558
ELECTRIC FISHING MOTOR CONTROL HEAD
Harold D. Fetty, Detroit, Mich., assignor to Osborn Engineering Corporation, a corporation of Delaware
Filed Oct. 23, 1969, Ser. No. 19,688
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1



219,559
ELECTRIC FISHING MOTOR CONTROL HEAD
Harold D. Fetty, Detroit, Mich., assignor to Osborn Engineering Corporation, a corporation of Delaware
Filed Oct. 23, 1969, Ser. No. 19,689
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1

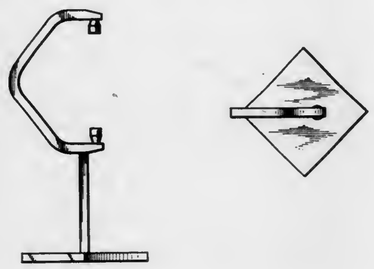


219,560
SWIM FIN
Thomas A. Chesney, 2050 Laura Ave., Huntington Park, Calif. 90255
Filed Nov. 14, 1969, Ser. No. 20,097
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D71—1

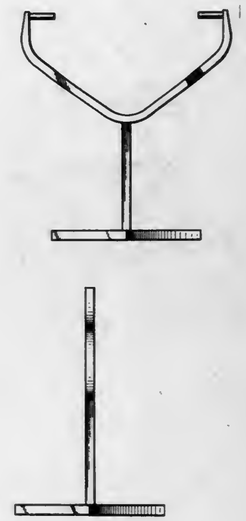


219,561
DAY CALENDAR
Jack Fairchild Fleming, Boonton, N.J., assignor to Sterling Plastics Co., Mountainside, N.J., a corporation of New Jersey
Filed Sept. 11, 1969, Ser. No. 19,107
Term of patent 14 years
Int. Cl. D19—*03*
U.S. Cl. D74—5

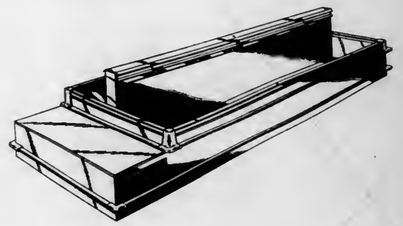
219,562
DISPLAY STAND
Ewing Krainin, P.O. Box 8606, Honolulu, Hawaii 96815
Filed Aug. 4, 1969, Ser. No. 18,518
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



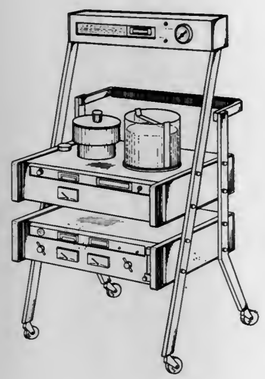
219,563
DISPLAY STAND
Ewing Krainin, P.O. Box 8606, Honolulu, Hawaii 96815
Filed Aug. 4, 1969, Ser. No. 18,534
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D80—9



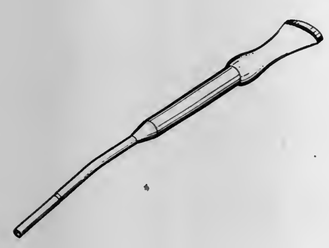
219,564
REFRIGERATED DISPLAY CASE
Ralph W. Bachman, 6010 Lyndale Ave. S. 55419, and Alvin Miller, 6100 Wayzota Blvd. 55416, both of Minnneapolis, Minn.
Filed Apr. 14, 1969, Ser. No. 16,729
Term of patent 14 years
Int. Cl. D15—*10*
U.S. Cl. D80—11



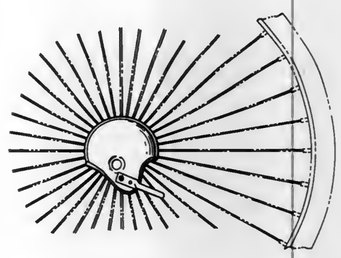
219,565
SINGLE PATIENT DIALYSTATE UNIT
Edwin A. Pecker, Los Angeles, Thomas B. Quinn, Pacific Palisades, and Peter P. Klepa, Los Angeles, Calif., assignors to Vernitron Corporation, New York, N.Y., a corporation of New York
Filed Mar. 24, 1969, Ser. No. 16,405
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1



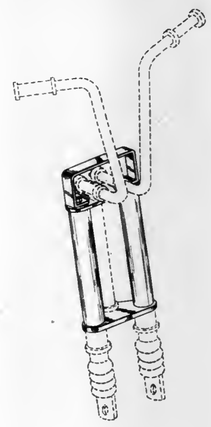
219,566
SMOKING PIPE STEM
Paul Fish, Winston-Salem, N.C., assignor to Henry Leonard & Thomas, Inc., Winston-Salem, N.C., a corporation of New York
Filed Dec. 30, 1969, Ser. No. 20,707
Term of patent 14 years
Int. Cl. D27—*02*
U.S. Cl. D85—8



219,567
CYCLE WHEEL ORNAMENT OR THE LIKE
Donald O. Ascani, 510 Miller St., and Joseph R. Ascani, 451 Broadway, both of Bangor, Pa. 18013
Term of patent 14 years
Filed Sept. 10, 1968, Ser. No. 13,477
Int. Cl. D12—*14*
U.S. Cl. D90—1



219,568
FRONT FORK FOR A MOTORCYCLE
Dale F. Stiller, R.R. 3, E. Badger Road 53711, and Orland F. Stiller, 118 W. Broadway 53716, both of Madison, Wis.
Filed Aug. 11, 1969, Ser. No. 18,634
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—9



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22D DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AB Autokemi: *See—*
Jungner, Olof Gunnar Hugo, and Jungner, Bengt Gosta Ingmar, 3,549,330.

AB Penta: *See—*
Bergstedt, Karl Abdon, 3,548,777.

Abadir, Bush Y., and Mayberry, Mark E., to Monsanto Company. Process for preparing triarylphosphates. 3,549,730, Cl. 260-975.

ABC Packaging Machine Corporation: *See—*
Bluder, Arthur W., 3,549,118.

Abel, Allen J. Body fluid drainage and collecting apparatus. 3,548,827, Cl. 128-275.

Abex Corporation: *See—*
Blanyer, Carl G., 3,550,030.
Rathkowski, Thomas A., 3,549,095.

Abson, James W., Landau, Manfred, Clark, Eric I., and Molyneux, Alan, to Simon-Carves Limited. Catalysis. 3,549,559, Cl. 252-459.

Achard, Rene Victor Julien, and Crenne, Noel, to Phone-Poulenc S.A. Process for the preparation of phenols. 3,549,709, Cl. 260-612.

Acosta, C. Gonzalo: *See—*
Acosta, Gabriel I., and Acosta, C. Gonzalo, 3,548,527.

Acosta, Gabriel I., and Acosta, C. Gonzalo. Greeting card with pivoted rear panel. 3,548,527, Cl. 40-152.1

Acton, Edward McIntosh, and Mosher, Carol Walker, to CPC International Inc. Amino sugar salts of N-cyclohexyl sulfamic acid. 3,549,616, Cl. 260-211.

Adcock, Edmund Philip, and Stanley, Joan Ann. Method for sealing a membrance to the mouth of a container utilizing induced radio frequency current. 3,549,440, Cl. 156-69.

Adelson, Alexander Michael, and Swartz, Jerome, to Hall-Barkan Instruments, Inc. Touch activated AC, full wave, two-wire switches. 3,549,909, Cl. 307-252.

Adica, Osamu, Naito, Kenji, Ogino, Katsuhiko, and Kuroda, Hiroyuki, to Takeda Chemical Industries, Ltd. Method for the purification of organic polyisocyanates by fractional distillation in presence of an inert gas or superheated vapor of an organic solvent. 3,549,504, Cl. 203-49.

Adlaf, William J., to Esterline Corporation. Apparatus for straightening stock material. 3,548,629, Cl. 72-416.

Adler, Robert, to Zenith Radio Corporation. Acoustic surface wave filter devices. 3,550,045, Cl. 333-72.

Advanced Systems, Inc.: *See—*
Harper, Gerald L., and Bachman, Wesley J., 3,549,001.

Aerojet-General Corporation: *See—*
Jones, Malcolm S., Jr., and Conner, William J., 3,549,914.

Aeroquip Corporation: *See—*
Contreras, Gilbert E., 3,549,176.
Cox, Robert G., 3,549,179.
Evans, Bryce B., 3,549,175.

Afshartous, Sayfollah Bijan: *See—*
Graneau, Peter, and Afshartous, Sayfollah Bijan, 3,549,780.

Agitair Division, Aeronca, Inc.: *See—*
Sweeney, George J., and Bankowski, Fred, 3,548,735.

Ahrons, Richard W., to RCA Corporation. Complementary semiconductor matrix arrays for low power dissipation logic application. 3,550,089, Cl. 340-166.

Aileo, Jackson Anthony. Beading element for helmet or the like. 3,548,409, Cl. 2-3.

Ainslie, Norman G., Chhabra, Devendra S., Jepsen, Donald W., and Mutter, Walter E., to International Business Machines Corporation. Mass production of electronic devices. 3,548,491, Cl. 29-574.

Air Products and Chemicals, Inc.: *See—*
Carlson, John A., Jr., Singleton, Alan H., and Stelts, Philip D., 3,548,568.

Air Reduction Company, Inc.: *See—*
Dawson, Arthur E., 3,548,992.

Airborne Mfg. Co.: *See—*
Kaatz, Herbert W., and Wilhelm, Fred R., 3,548,873.

Aitken, John: *See—*
Parfomak, Walter, Molnar, Robert J., and Aitken, John, 3,549,947.

Ajem Laboratories, Inc.: *See—*
Evans, Dewey M., and Koepke, Frederick W., 3,548,543.

Akiyama, Hideaki, to Kabushiki Kaisha Ricoh. Automatic focusing device using the differential comparison method. 3,549,889, Cl. 250-201.

Akiyama, Kimiharu: *See—*
Ross, John D., and Akiyama, Kimiharu, 3,550,087.

Akselrad, Aline: *See—*
Alphonse, Gerard A., and Akselrad, Aline, 3,550,096.

Albert, James R.: *See—*
Kodama, Jiro K., and Albert, James R., 3,549,755.
Kodama, Jiro K., and Albert, James R., 3,549,757.
Kodama, Jiro K., and Albert, James R., 3,549,759.

Albert, James R., and Kodama, Jiro K., to Shell Oil Company. Use of 2,4-diamino-6-substituted-s-trazines for inducing depressant effects in animals. 3,549,760, Cl. 424-249.

Albrecht, Cord, to Siemens Aktiengesellschaft. Superconducting coil with cooling means. 3,550,050, Cl. 335-216.

Aleks, Vytant P., to Keystone Consolidated Industries, Inc. Handle latch and label holder. 3,549,228, Cl. 312-320.

Alessi, Vincent J. Sealed electrical circuit component. 3,549,959, Cl. 317-234.

Alexander, Donald D.: *See—*
Cave, Robert S., Alexander, Donald D., and Shaner, Milo W., 3,548,476.

All American Engineering Company: *See—*
Cotton, Robert B., 3,549,110.

Allan, Morris. Methods of manufacturing wood veneers and the wood veneers so produced. 3,549,450, Cl. 156-254.

Allegheny Ludlum Steel Corporation: *See—*
Osborne, Earl H., 3,549,357.

Allen & Hanburys Limited: *See—*
Ritchie, Alexander Crawford, Cheesman, Dennis George, Garside, Peter, and Waring, Juliet Mary, 3,549,649.

Allen, Joseph C.: *See—*
Reguera, Ernesto J., Carlin, Joseph T., and Allen, Joseph C., 3,548,940.

Allen, Joseph C., to Texaco Inc. Pipeline transportation of waxy oils. 3,548,846, Cl. 137-13.

Allen-Bradley Company: *See—*
Callan, John E., 3,549,972.

Allied Chemical Corporation: *See—*
Caison, Lloyd, Borenstein, David E., and Longbottom, Parker W., 3,549,741.
Gould, Lawrence P., and Oechsli, Barnard L., 3,549,331.
Oswald, Hendrikus J., and Reimschuessel, Annemarie C., 3,549,651.
Twilley, Ian C., and Lazarus, Stanley D., 3,549,594.

Allis-Chalmers Manufacturing Company: *See—*
Crooks, James W., 3,548,665.
Crooks, James W., 3,548,666.
Crooks, James W., 3,548,680.
Crooks, James W., 3,548,681.

Allred, Cecil F. Concrete wall form apparatus. 3,548,467, Cl. 25-131.

All-Steel Equipment Inc.: *See—*
Harris, Everett K., Ericson, John P., and Miller, Richard E., 3,549,301.

Alosi, Michael. Tool handle. 3,549,189, Cl. 294-57.

Alphonse, Gerard A., and Akselrad, Aline, to RCA Corporation. Photochromic memory in which memory location is selectively heated during write cycle. 3,550,096, Cl. 340-173.

Altermatt, Rudolf, and Mueller, Curt, to Sandoz Ltd. 4-(2'-or 4'-pyridylethylamino)-azobenzene dyes. 3,549,611, Cl. 260-156.

Altman, Joseph G., and Friedrich, Jan L., to Foster Wheeler Corporation. Once-through vapor generator with division wall. 3,548,788, Cl. 122-406.

Aluminum Box Company: *See—*
Wilson, Ray H., 3,549,064.

Aluminum Company of America: *See—*
Trostle, John W., Kaminski, Elton G., and Hasselbeck, Richard J., 3,548,555.

Aluphon AG: *See—*
Eiermann, Rolf Jurg, 3,549,114.

Amano, Hiroyuki, Tsuji, Nobuo, and Shirasu, Kazuo, to Fuji Shashin Film Kaisha. Photographic color elements containing polymeric UV absorbers. 3,549,374, Cl. 96-84.

AMBAC Industries, Incorporated: *See—*
Weiss, Paul C., 3,549,120.

Ambrose, John, to Dunlop Company Limited, The. Hose. 3,548,884, Cl. 138-144.

Ambusk, William J., to Eastman Kodak Company. Process of coating polymer surfaces activated by corona discharge. 3,549,406, Cl. 117-34.

Amchem Products, Inc.: *See—*
Dollman, David Y., 3,549,540.

Amelchenko, Alexei Semenovich, Muzyka, Jury Lukich, Amelichev, Nikolai Zakharovich, and Myadzel, Vladimir Petrovich. Device for cutting helical groove on metallized resistors. 3,548,544, Cl. 51-50.

Amelichev, Nikolai Zakharovich: *See—*
Amelchenko, Alexei Semenovich, Muzyka, Jury Lukich, Amelichev, Nikolai Zakharovich, and Myadzel, Vladimir Petrovich, 3,548,544.

American Aniline Products, Inc.: *See—*
Renfrew, Edgar E., and Zanella, Dominic A., 3,549,305.

American Bank Note Company: *See—*
D'Amato, Salvatore F., 3,548,747.
American Buttermaster Corporation: *See—*
Rios, Urban, 3,548,498.
American Cement Corporation: *See—*
Williams, Frank L., 3,549,115.
American Cyanamid Company: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert, 3,549,763.
Coscia, Anthony Thomas, Ritson, Daniel Dickerson, Frazier, Charles, and Ross, Joseph Hansbro, 3,549,568.
Joseph, Joseph Peter, Dusza, John Paul, and Bernstein, Seymour, 3,549,674.
Kunstmann, Martin Paul, Mitscher, Lester Allen, and Porter, John Norman, 3,549,502.
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon, 3,549,631.
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon, 3,549,632.
Miller, Philip, and Montgomery, Carroll Sherman, 3,549,626.
Tobkes, Martin, and Wilkinson, Raymond George, 3,549,681.
American Electronic Laboratories, Inc.: *See—*
Cecil, John, Jr., 3,548,464.
Hrusovsky, Joseph A., 3,550,127.
American Home Products Corporation: *See—*
Greenspan, George, and Buzby, George C., Jr., 3,549,499.
Kim, Dong H., and Santilli, Arthur A., 3,549,627.
Meierhoefer, Eugene J., 3,549,006.
American Lava Corporation: *See—*
Hargis, Billy M., 3,549,784.
American Machine & Foundry Company: *See—*
Cristiani, Athos, 3,548,837.
Grover, Philip D., 3,550,055.
Roper, Edward Cullum, 3,548,522.
Zysman, Benjamin, 3,549,004.
American Nucleonics Corporation: *See—*
Sauter, Walter A., 3,550,041.
American Photocopy Equipment Company: *See—*
Smoot, Charles W., 3,548,512.
American Safety Equipment Corporation: *See—*
Rawson, Gerry, 3,549,203.
American Standard Inc.: *See—*
Roy, Salil K., 3,548,634.
American Technical Industries, Inc.: *See—*
Gelardi, Joseph T., 3,548,694.
American Technical Machinery Corporation: *See—*
Marks, Theodore, 3,548,686.
Ameron, Inc.: *See—*
Huck, George E., 3,549,077.
Ames, Ronald B.: *See—*
Gervitz, Arthur H., Ames, Ronald B., and Smith, Allen E., 3,549,348.
Ametek, Inc.: *See—*
Waite, Ralph D., 3,549,043.
Amicon Corporation: *See—*
Rigopulos, Peter Nicholas, 3,549,016.
Ammitzboll, Thorkil: *See—*
Petersen, Povl Viggo, Lassen, Niels, and Ammitzboll, Thorkil, 3,549,656.
Amori, Joseph A. Dual eccentric shaker. 3,548,668, Cl. 74-61.
AMP Incorporated: *See—*
Bendrick, Joseph John, 3,549,783.
Cootes, Harold Edwin, 3,550,066.
McWade, John Edwin, and Lannan, Patrick Edward, 3,549,866.
Teagno, Wladimiro, and Trevisiol, Franco, 3,550,069.
Ampex Corporation: *See—*
Chupity, Joseph, 3,549,822.
Amsted Industries Incorporated: *See—*
Stanley, John M., 3,548,466.
Anchor Hocking Glass Corporation: *See—*
Ellis, Warren L., 3,548,996.
Andersen, Harry C.: *See—*
Bell, Clifford J., and Andersen, Harry C., 3,549,123.
Anderson, Charles T. Machine for washing motor cars. 3,548,437, Cl. 15-21.
Anderson, Clarence A., and Charneski, Mitchell D., to Detroit Edison Company, The. Smokeless-odorless electric incinerator. 3,548,762, Cl. 110-18.
Anderson Company, The: *See—*
Stratton, Donald W., 3,548,442.
Anderson, Douglas W., to Chapman, Dave, Goldsmith and Yamasaki Inc. Resealable closure. 3,549,053, Cl. 222-153.
Anderson Electric Corporation: *See—*
Reed, Karl F., II, 3,549,790.
Anderson, George J., and Dahms, Ronald H., to Monsanto Company. Resole varnish mixture. 3,549,576, Cl. 260-29.3
Anderson, Greenwood & Co.: *See—*
Weise, Irvin B., and Anderson, William L., Jr., 3,548,869.
Anderson, Lewis G., and Thomson, David J., to Bell Telephone Laboratories, Incorporated. Electrically responsive fluid logic system and method of assembly. 3,548,857, Cl. 137-251.
Anderson, Ralph F., to Keystone Consolidated Industries, Inc. Flush safety latch. 3,549,184, Cl. 292-195.
Anderson, Ronald L. Photoelectric sizing and sorting apparatus. 3,549,008, Cl. 209-82.
Anderson, William L., Jr.: *See—*
Weise, Irvin B., and Anderson, William L., Jr., 3,548,869.
Andersson, Sven-Erik Lennart, to SAAB Aktiebolag. Apparatus for X-raying on two mutually perpendicular axes with a pair of X-ray sources. 3,549,885, Cl. 250-61.5
Ando, Akio: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo, 3,548,638.
Angell, William W., and Kahn, Paul, to Cutter Laboratories, Inc. Valve transplantation for human hearts and graft- support ring therefor. 3,548,418, Cl. 3-1.
Angelle, Philippe A.: *See—*
Picou, Claude H., and Angelle, Philippe A., 3,550,115.
Annunziata, Eugene J.: *See—*
King, Lewis E., Hoskinson, William C., and Annunziata, Eugene J., 3,550,133.
Apen, John R., and Lebert, Andrew W., to Bell Telephone Laboratories, Incorporated. Flat-profile submarine coaxial cable with torque balance. 3,549,788, Cl. 174-107.
Applied Research Laboratories, Inc.: *See—*
Dahlquist, Ralph L., and Jones, James L., 3,549,326.
Aquatron Corporation (Aust.) Pty. Limited: *See—*
Glasson, Douglas Haigh, 3,549,884.
Ara, Inc.: *See—*
Mazelsky, Bernard, 3,549,296.
Archer, William E. Screw type material processor. 3,548,926, Cl. 165-87.
Arenco Aktiebolag: *See—*
Karlsson, Olof, 3,548,839.
Argabright, Perry A., De Puy, Charles H., and Phillips, Brian L. Method of preparing isocyanuric acids and their salts. 3,549,630, Cl. 260-248.
Argus Chemical Corporation: *See—*
Minagawa, Motonobu, and Nakagawa, Kenichi, 3,549,572.
Arikawa, Masayasu, and Iio, Katsuro, to Kobe Steel Ltd. One-side back bead-forming butt-welding process using a thermosetting backing composite. 3,548,489, Cl. 29-491.
Ariyasu, Kenji, and Tsuji, Akira, to Fuji Shashin Film Kabushiki Kaisha. Roll film holder. 3,548,728, Cl. 95-34.
Armbruster, Frederick C., and Jacaway, William A., Jr., to CPC International Inc. Process for making high maltose syrup. 3,549,496, Cl. 195-31.
Armistead, Fontaine C.: *See—*
Paull, Peter L., and Armistead, Fontaine C., 3,548,605.
Paull, Peter L., and Armistead, Fontaine C., 3,548,969.
Armour Pharmaceutical Company: *See—*
Enkoji, Takashi, and Bossinger, Charles D., 3,549,765.
Armstrong Cork Company: *See—*
Eckert, Lewis W., 3,549,485.
Phillips, Washington H., 3,549,488.
Armstrong, Edward T. Apparatus for making reinforced sheet material. 3,549,455, Cl. 156-440.
Armstrong, Edward T. Ozone sterilization process. 3,549,528, Cl. 210-60.
Armstrong, Jack W., to Lipe Rollway Corporation. Friction clutch pressure plate. 3,548,988, Cl. 192-107.
Arnaud, Jacques, to CSJ-Compagnie Generale de Telegraphie Sans Fil. Tapered conductive shield in a 'M' type tube to decouple slow and fast modes at the output. 3,549,940, Cl. 315-39.3
Aronson, Robert R., to Electric Fuel Propulsion, Incorporated. Air supported electric vehicle. 3,548,968, Cl. 180-119.
Art Metal-Knoll Corporation: *See—*
Stark, Forest G., 3,549,227.
Artag Plastics Corporation: *See—*
Flubacker, Charles H., 3,548,991.
Asari, Akira, to Kobe Steel Ltd. Turret-type multi-press. 3,548,628, Cl. 72-405.
Ashtabula Bow Socket Company, The: *See—*
Reinker, Richard C., 3,548,430.
Astra Pharmaceutical Products, Inc.: *See—*
Truant, Aldo P., and Nordstrom, Fritz G., 3,549,748.
Astro-Space Laboratories, Inc.: *See—*
Mueller, Fritz K., 3,548,507.
Athanas, Nicholas George: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George, 3,549,746.
Atlantic Products Corporation: *See—*
Renshaw, Howard J., 3,548,905.
Atlantic Richfield Company: *See—*
Tabor, Wallace F., and Williamson, Paul M., 3,549,533.
Atsumi, Tomoo, to Matsushita Electric Industrial Co., Ltd. Autochanger. 3,549,153, Cl. 274-10.
Aumayer, Hansruedi, to I-T-E Imperial Corporation. High speed three-way valve. 3,548,877, Cl. 137-625.65
Austin, William C.: *See—*
Conover, Lloyd H., McFarland, James W., and Austin, William C., 3,549,624.
Automatic Bander Corporation: *See—*
Marshall, Richard C., 3,548,560.
Automatic Electric Laboratories, Inc.: *See—*
Bruglemans, Lucas, 3,549,815.
Heldman, Robert K., and Kobylar, Alex W., 3,550,083.

Automation Industries, Inc.: *See—*
Hall, Marcus A., 3,548,724.
Klatchko, George A., 3,549,259.
Automobiles Peugeot: *See—*
Gastinne, Francois Jules Marie, 3,548,796.
Automotive Products Company Limited: *See—*
Utton, Norman, 3,548,718.
Avchin, Lev Alexandrovich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich, 3,549,338.
Avco Corporation: *See—*
Fischer, Thomas R., 3,548,999.
Aven, Manuel, to General Electric Company. Low resistivity group IIb-VIb compounds and method of formation. 3,549,434, Cl. 148-186.
Avico, Inc.: *See—*
Lockerby, W. Lee, 3,548,449.
Avoset Company: *See—*
Smylie, Jerry G., 3,549,060.
Ayers, David T.: *See—*
Birge, William T., and Ayers, David T., 3,549,210.
Baab, Kenneth A., and Blackwood, James M., to Bethlehem Steel Corporation. Checkers suitable for forming a checkerwork in a hot blast stove and method of forming same. 3,549,136, Cl. 263-51.
Babcock, Dale F., to United States of America, Atomic Energy Commission. Dual temperature isotope exchange process. 3,549,323, Cl. 23-204.
Babcock, Dale F., to United States of America, Atomic Energy Commission. Dual temperature isotope exchange process. 3,549,324, Cl. 23-204.
Babcock, Dale F., to United States of America, Atomic Energy Commission. Dual temperature isotope exchange process. 3,549,325, Cl. 23-204.
Babikyan, Jirair A., to Sanders Associates, Inc. Miniature directional hydrophone. 3,550,072, Cl. 340-13.
Bacher, Helmut, to Weinschel Engineering Co. Flush contact step attenuator for coaxial circuits. 3,550,046, Cl. 333-81.
Bachman, Gustave B., and Connon, Neil W., to Purdue Research Foundation. Process for the preparation of alkyl nitrates. 3,549,686, Cl. 260-467.
Bachman, Gustave B., and Connon, Neil W., to Purdue Research Foundation. Process for the preparation of alkyl nitrates. 3,549,687, Cl. 260-467.
Bachman, Wesley J.: *See—*
Harper, Gerald L., and Bachman, Wesley J., 3,549,001.
Backman, Edward C. Automatic bale stacking vehicle. 3,549,023, Cl. 214-6.
Badham, John Wilkinson, Gregory, Peter John, and Glen, John Barrington, to Imperial Chemical Industries of Australia and New Zealand Limited. Process for the hydrodimerization of α,β-mono-olefinic nitriles and esters of α,β-mono-olefinic carboxylic acids. 3,549,685, Cl. 260-465.8
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar, 3,549,304.
Bailey, Richard E. Light distribution system. 3,549,878, Cl. 240-10.
Bain, Kenneth Lindsay, to Parkson Industrial Equipment Company Limited. Plate heat exchangers. 3,548,933, Cl. 165-167.
Baker, Charles E., to Texas Instruments, Incorporated. Laser display. 3,549,800, Cl. 178-7.3
Baker, Hugh M., Jr., and Cressey, John R., to HB Engineering Corporation. Method and system for determining whether a switch is open or closed. 3,550,090, Cl. 340-171.
Baker, James G., to Polaroid Corporation. Corrected optical system for shallow camera or the like, and components thereof. 3,548,729, Cl. 95-36.
Baker Perkins Incorporated: *See—*
Smith, John Alfred, and Stamper, John Raymond, 3,548,514.
Balde, Daniel, and Nagy, Georges, to Societe Anonyme Ugine Kuhlmann. Phosphorus and nitrogen-containing polyols. 3,549,728, Cl. 260-932.
Baldwin Company, D. H.: *See—*
Bunger, David A., 3,549,774.
Baldwin, D. H., Company: *See—*
Bunger, David A., 3,549,777.
Bunger, David A., 3,549,779.
Munch, Walter, Jr., 3,549,778.
Uetrecht, Dale M., 3,550,027.
Baldwin, Herman J., to Cincinnati Milling Machine Co., The. Marking device for material cutting machine. 3,548,502, Cl. 33-18.
Baldwin, Herman J., to Cincinnati Milacron Inc. Machine tool spindle apparatus. 3,548,711, Cl. 90-14.
Baldwin, Herman J., and Mc Donald, David I., to Cincinnati Milacron Inc., The. Material cutting machine having sharpening bands for sharpening reciprocating cutting blade. 3,548,495, Cl. 30-139.
Ball, Ervin M.: *See—*
Schulenberg, Edward J., Sr., and Ball, Ervin M., 3,550,112.
Bang, Mogens W., to Stackpole Carbon Company. Potentiometer adjustable by slide or screw. 3,550,060, Cl. 338-181.
Bankowski, Fred: *See—*
Sweeney, George J., and Bankowski, Fred, 3,548,735.
Banner Metals, Inc.: *See—*
Wilson, James D., 3,549,018.
Baranwal, Krishna C.: *See—*
Beatty, James R., and Baranwal, Krishna C., 3,548,652.
Barbano, Normand, and Hochman, Howard, to Sylvania Electric Products, Inc. Antenna boom and feed line structure. 3,550,144, Cl. 343-792.5
Barbehenn, Herbert S.: *See—*
William, Robert F., Jr., and Barbehenn, Herbert S., 3,549,403.
Barber Machinery Co., Ltd.: *See—*
Kutryk, Edward A., 3,548,704.
Barclay, Ralph R., to Minnesota Mining and Manufacturing Company. Frequency converter particularly PAL sync generator. 3,549,792, Cl. 178-5.4
Barclay, William F.: *See—*
Kbske, Richard A., and Barclay, William F., 3,549,426.
Barden, Wayne A., Van Benthuysen, John D., and Zdanys, John, Jr., to CTS Corporation. Variable resistance control. 3,550,059, Cl. 338-176.
Barich, John J.: *See—*
Fleischer, Alfred R., and Barich, John J., 3,548,798.
Barker, George. Asparagus harvester. 3,548,577, Cl. 56-327.
Barlow, Gordon A.: *See—*
Glass, Marvin I., and Barlow, Gordon A., 3,548,536.
Barnes, Charles M., and Jilbert, Howard R., to Bendix Corporation, The. Differential pressure switch with improved magnetic piston actuator means. 3,549,837, Cl. 200-82.
Barnhart, James W., to Dow Chemical Company. Methods for lowering serum cholesterol in mammals using cyclohexylidenebis(alkylphenol) compounds. 3,549,772, Cl. 424-346.
Barr, John Denzil, and Plummer, Dexter Robert, to Rank Organisation Limited, The. Control systems. 3,548,731, Cl. 95-45.
Barrett, George M. Binary digital transducer. 3,548,714, Cl. 91-36.
Barringer, Anthony Rene, to Barringer Research Limited. Spatially dispersive correlation interferometer. 3,549,260, Cl. 356-112.
Barringer Research Limited: *See—*
Barringer, Anthony Rene, 3,549,260.
Barrington, Alfred E., to United States of America, National Aeronautics and Space Administration. Leak detector wherein a probe gas is monitored with ultraviolet radiation. 3,549,882, Cl. 250-43.5
Barrow, Wendell Dale: *See—*
Williams, Leslie Preston, and Barrow, Wendell Dale, 3,548,949.
Barstow, Frederick E., Larson, Paul, and Salomon, Udo W., to United States of America, Navy, mesne. Retractable goggles for helmet. 3,548,411, Cl. 2-6.
Barter, LeRoy D., to Beckman Instruments, Inc. Two transistor base-to-base driven switch. 3,549,902, Cl. 307-243.
Bate, Geoffrey, to International Business Machines Corporation. High density magnetic transfer. 3,550,154, Cl. 346-74.
Batson, Dossie M., to Nelson Equipment Company. Storage and loading apparatus for elongate loads. 3,549,027, Cl. 214-38.
Battelle Development Corporation, The: *See—*
Leith, Emmett N., and Upatnieks, Juris, 3,548,643.
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert, to American Cyanamid Company. Methods and compositions for lowering blood glucose levels using substituted pyridinium salts. 3,549,763, Cl. 424-263.
Bauger, Louis Jules, Bouiller, Jean Georges, and Lacroix, Armand Jean-Baptiste, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Blading arrangement for turbomachines turbomachines. 3,549,272, Cl. 416-166.
Baumann, Fritz: *See—*
Wunderlich, Klaus, Bien, Hans-Samuel, and Baumann, Fritz, 3,549,667.
Baumgartner, Henri, to Gallaher Limited. Cigarette smoking machines. 3,548,840, Cl. 131-171.
Baxter, Joseph, Jr., to Black Clawson Company, The. Method for the treatment of garbage and other wastes. 3,549,092, Cl. 241-15.
Beaman, Alden Gamaliel, Duschinsky, Robert, and Tautz, William Paul, to Hoffmann-La Roche Inc. 1-Substituted-2-nitroimidazole derivatives. 3,549,653, Cl. 260-309.
Bean, Kenneth E., and Gleim, Paul S., to Texas Instruments, Incorporated. Method of preparing silicon nitride films. 3,549,411, Cl. 117-69.
Beatty, James R., and Baranwal, Krishna C., to Goodrich, B. F., Company, The. Tack tester. 3,548,652, Cl. 73-150.
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H., to Goodyear Aerospace Corporation. Virtual image system for training simulator. 3,549,803, Cl. 178-7.88
Becker, Hans-Dieter: *See—*
Hay, Allan S., and Becker, Hans-Dieter, 3,549,712.
Beckman Instruments, Inc.: *See—*
Barter, LeRoy D., 3,549,902.
Henderson, Billie D., 3,549,258.
Beelitz, Howard R., to RCA Corporation. Input and output emitter-follower CML circuitry. 3,549,899, Cl. 307-215.
Beery, Jack, and Hepp, Harold E., to National Cash Register Company, The. Angularly adjustable drive coupling. 3,549,071, Cl. 226-108.
Behrens, Herbert, and Elsner, Hans, to Olympia Werke AG. Type head driving and stopping apparatus. 3,548,993, Cl. 197-18.
Bekcer, Kurt, to Heye, Hermann. Transmission. 3,548,677, Cl. 74-665.
Bell & Howell Company: *See—*
Dann, Bert H., 3,549,797.

Bell Aerospace Corporation: *See—*
Shaw, Hubert R., 3,550,130.
Bell, Clifford J., and Andersen, Harry C., to Westinghouse Electric Corporation. Butterfly valve. 3,549,123, Cl. 251-306.
Bell Telephone Laboratories, Incorporated: *See—*
Anderson, Lewis G., and Thomson, David J., 3,548,857.
Apen, John R., and Lebert, Andrew W., 3,549,788.
Buchsbaum, Solomon J., 3,550,031.
Candy, James C., 3,550,004.
Davis, Artice M., 3,549,801.
Driscoll, John J., Hill, Donald G., and Waddell, Richard E., 3,549,810.
Fenstermaker, Ronald E., and Swanson, Richard M., 3,549,816.
Freeny, Stanley L., 3,550,021.
Heightley, John D., Roundy, Carlos B., and Waaben, Sigurd G., 3,550,098.
Herriott, Donald R., 3,550,039.
Jaeger, Richard J., Jr., and Riddell, George, 3,549,814.
Knollman, Dieter J. H., 3,549,820.
Kurth, Carl F., 3,550,131.
Kurth, Carl F., and MacLean, Roderick C., 3,550,132.
Kurth, Carl F., and Witt, Francis J., 3,550,134.
Mullin, Frank J., 3,549,795.
Patel, Chandra K. N., 3,550,032.
Rabiner, Lawrence R., 3,549,807.
Robrock, Richard B., II, 3,550,035.
Tong, Shih Y., 3,550,082.
Watling, Gertrude C., and Weber, Joseph H., 3,550,093.
Bellman, Robert H., to Corning Glass Works. Fluidic summing junction. 3,548,850, Cl. 137-81.5
Belokin, Paul, Jr. Display and display mounting. 3,548,528, Cl. 40-160.
Beltran, Adrian M.: *See—*
Sims, Chester T., and Beltran, Adrian M., 3,549,356.
Bencic, Robert S., to Eaton Yale & Towne, Inc. Hot liquid dispenser. 3,549,051, Cl. 222-129.2
Bendix Corporation, The: *See—*
Barnes, Charles M., and Jilbert, Howard R., 3,549,837.
Bogue, Robert O., and Glenton, Arthur, 3,549,182.
Bourgeault, Leo B., and Compoly, Alfred, 3,549,954.
Brandau, William E., and Napp, Anthony E., 3,548,662.
Dombeck, Edward K., 3,548,976.
Howland, George R., 3,548,795.
James, Robert L., and Vargo, Donald P., 3,550,018.
Jilbert, Howard R., 3,549,836.
Parfomak, Walter, Molnar, Robert J., and Aitken, John, 3,549,947.
Pollack, Howard M., 3,550,128.
Simon, Arthur, 3,548,515.
Vaughan, Carroll Byrd, 3,549,996.
Yareck, Michael J., 3,550,022.
Bendrick, Joseph John, to AMP Incorporated. Modular component assembly facilitating heat dissipation. 3,549,783, Cl. 174-59.
Benesi, Hans A.: *See—*
Berry, Thomas E., and Benesi, Hans A., 3,549,558.
Bennett, John D., to Sun Oil Company. Oil well production system. 3,548,939, Cl. 166-267.
Bennett, Robert W., and Wrench, Robert F., to Corning Glass Works. Decal applying. 3,549,446, Cl. 156-230.
Bennett, William N., to Skisearch, Inc. Press for skis. 3,549,461, Cl. 156-583.
Beny, Janos, Meggs, Daniel H., and Ryan, John W., to Mattel, Inc. Moving apparatus for a vehicle toy. 3,548,534, Cl. 46-1.
Benz, Charles S., to Scott Paper Company. Method of making a foraminous drainage member. 3,549,742, Cl. 264-250.
Berg, Charles J., Jr., McInerney, James R., and Moit, Daniel D., to Sherwin-Williams Company, The. Polyester modified organosol composition, a dried coating of which has improved mar resistance and metal marking resistance. 3,549,571, Cl. 260-21.
Bergen, Donald W., to Scholl Mfg. Co. Inc., The. Splint liner. 3,548,820, Cl. 128-89.
Berger, Abe: *See—*
Holdstock, Norman G., Berger, Abe, Selin, Terry G., and Thimineur, Raymond J., 3,549,590.
Berger, Frank Milan, and Fukui, George Masaaki, to Carter-Wallace, Inc. Reducing hypersensitivity to penicillins with certain phenoxypropanols. 3,549,766, Cl. 424-271.
Bergquist, Dwight H., Cunningham, Franklin E., and Cook, Charles H., to Henningsen Foods, Inc. Means for forming a continuous coating on particles. 3,548,782, Cl. 118-20.
Bergstedt, Karl Abdon, to AB Penta. Hydraulic mechanism for boats with tiltable propeller housing. 3,548,777, Cl. 115-41.
Berk, Edward J., to Westinghouse Air Brake Company. Apparatus for sizing elongated articles. 3,549,137, Cl. 266-23.
Berkeland, Arnold. Deal tray and mounting therefor. 3,549,086, Cl. 232-44.
Berner, Arthur J. Vectorcardiograph analyzer. 3,548,813, Cl. 128-2.06
Bernholdt, Harry F. Method for producing corned meat products. 3,549,385, Cl. 99-107.
Bernstein, Seymour: *See—*
Joseph, Joseph Peter, Dusza, John Paul, and Bernstein, Seymour, 3,549,674.
Berry, Thomas E., and Benesi, Hans A., to Shell Oil Company. Crystalline alumino-silicate catalyst. 3,549,558, Cl. 252-455.
Berst, Clinton G. Foot soaping and scrubbing device. 3,548,439, Cl. 15-104.92
Bertin, Jean Henri. Bertin & Cie Buoyant system for surface effect machines. 3,548,967, Cl. 180-117.
Best, Harold E. Single track crawler vehicle. 3,548,962, Cl. 180-9.44
Beta Corporation: *See—*
Porter, Lester H., Jr., 3,550,121.
Bethlehem Steel Corporation: *See—*
Baab, Kenneth A., and Blackwood, James M., 3,549,136.
Durkee, Jackson L., and Neeld, Frank W., Jr., 3,548,432.
Smollinger, Carl W., 3,549,183.
Bickett, Robert N. Digger and lawn trimmer for sprinkler heads. 3,548,497, Cl. 30-300.
Bien, Hans-Samuel: *See—*
Groll, Manfred, Wunderlich, Klaus, and Bien, Hans-Samuel, 3,549,664.
Wunderlich, Klaus, Bien, Hans-Samuel, and Baumann, Fritz, 3,549,667.
Bigelow, John E., and Lemmond, Charles Q., to General Electric Company. System and method for identifying a set of graphic characters grouped together on a visible information display. 3,550,084, Cl. 340-146.3
Bildat, Benno: *See—*
Schmidt, Karl Heinz, and Bildat, Benno, 3,548,980.
Biller, Hans K. Gem position fixing tool. 3,548,471, Cl. 29-10.
Billyard, Ronald G.: *See—*
Jacobs, Ellis H., and Billyard, Ronald G., 3,548,860.
Bimber, Russell M., to Diamond Shamrock Corporation. Use of 2,6-dicyanotrichloro- pyridine as an industrial biocide. 3,549,762, Cl. 424-263.
Bindler, Jakob, and Model, Ernst, to Geigy Chemical Corporation. Antifungal and antibacterial composition and method containing chloroacetylated hydroxydiphenyls. 3,549,768, Cl. 424-331.
Bindman, Stanley, and Verni, Ralph M., to British Industries Corporation. Phonograph base and dust cover therefor. 3,549,224, Cl. 312-8.
Bird, Jack Raymond, and Bryant, Rodney Trenchard, to Imperial Metal Industries (KYNOCH) Limited, and Rolls-Royce Limited. Blade for use in a fluid flow machine. 3,549,273, Cl. 416-241.
Birge, William T., and Ayers, David T., to Kelsey-Hayes Company. Skid control system. 3,549,210, Cl. 303-21.
Birkenmeyer, Robert D., to Upjohn Company, The. Lincomycin derivatives and process for producing the same. 3,549,615, Cl. 260-210.
Bissett-Berman Corporation, The: *See—*
Brown, Neil L., 3,549,989.
Bissinger, William E., to PPG Industries, Inc. Halogenated bicycloheptenones. 3,549,769, Cl. 424-331.
Bizik, Nikoli Konstantinovich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich, 3,549,338.
Black Clawson Company, The: *See—*
Baxter, Joseph, Jr., 3,549,092.
Marsh, Paul G., and Blakley, Earl T., 3,549,010.
Marsh, Paul G., 3,549,011.
Wiseman, John W., 3,549,529.
Blacket, John Stirling. Automatic steering means for an agricultural tractor. 3,548,966, Cl. 180-79.2
Blackman, Robert J., to Eastman Kodak Company. Film cartridge opening device. 3,548,478, Cl. 29-200.
Blackwell, Robert J., and Rumble, Robert C., to Esso Production Research Company. Pressure core barrel. 3,548,958, Cl. 175-233.
Blackwood, James M.: *See—*
Baab, Kenneth A., and Blackwood, James M., 3,549,136.
Blake, Lawrence S., to Dynamics Research Corporation. Absolute encoder having plurality of binarily related reticle tracks. 3,549,897, Cl. 250-231.
Blakley, Earl T.: *See—*
Marsh, Paul G., and Blakley, Earl T., 3,549,010.
Blanc-Tailleur, Guy, to Merin Gerin, Societe Anonyme. Current limiting circuit breaker with electrodynamic compensation. 3,550,049, Cl. 335-195.
Blanyer, Carl G., to Abex Corporation. Transient regulation of direct current electrical power supplies. 3,550,030, Cl. 330-199.
Blaw-Knox Company: *See—*
Salko, John F., and Kozak, Stanley, 3,549,443.
Block, Aleck, to Merit Abrasive Products, Inc., mesne. Flap-type abrasive wheel. 3,548,551, Cl. 51-337.
Blok, Petrus: *See—*
Viersma, Taco Jan, and Blok, Petrus, 3,548,876.
Blood, Douglass K., and Hansen, Harold H., to Contracting and Material Company. Tractor attached vacuum lifter. 3,549,031, Cl. 214-147.
Bloom, Bernard, and Lev, Benjamin. Heart valve having a flexible wall which rotates between open and closed positions. 3,548,417, Cl. 3-1.
Bloom, Bernard, and Lev, Benjamin, to Midway Cap Company. Uniform cap. 3,548,416, Cl. 2-180.
Bluder, Arthur W., to ABC Packaging Machine Corporation. Diaphragm operated pivoted glue valve. 3,549,118, Cl. 251-58.
Blue Valley Machine and Manufacturing Company: *See—*
Willard, Wayne E., 3,548,622.
Boadle, Campbell Dean. Load cells. 3,548,650, Cl. 73-141.
Boardman, Charles E.: *See—*
Germer, John H., and Boardman, Charles E., 3,548,931.

Bobkowicz, Andrew John: *See—*
Bobkowicz, Emilian, and Bobkowicz, Andrew John, 3,548,581.
Bobkowicz, Emilian, and Bobkowicz, Andrew John. Method and apparatus for ringless spinning of fiber-polymer yarns. 3,548,581, Cl. 57-34.
Bobst, Gerhard, to Von Roll AG. Compound hydraulic machine. 3,548,715, Cl. 91-61.
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Heterocyclic catalysts for esterification of aromatic dicarboxylic acids with cyclic carbonates of alkylene glycols. 3,549,692, Cl. 260-475.
Bodenseewerk Geratetechnik GmbH: *See—*
Moller, Waldmar, 3,548,664.
Bodmer, Maximiliaan Hubert, to N.V. Hollandse Signaalapparaten. Dual beam parabolic antenna. 3,550,135, Cl. 343-725.
Boehm, Helmut, to Technology Instrument Corporation of California. Microwave heating apparatus and energy distribution means therefor. 3,549,849, Cl. 219-10.55
Boehringer Mannheim Gesellschaft mit beschrankter Haftung: *See—*
Heerdt, Ruth, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut, 3,549,645.
Boeing Company, The: *See—*
Edwards, Charles John, 3,549,252.
Boesch, Albert, and Groos, Horst Hans, to Schloemann Aktiengesellschaft. Apparatus for briquetting of pulverulent or granulate-like materials, particularly anode materials for the production of aluminium. 3,548,456, Cl. 18-16.5
Bogacik, John A. Respirators. 3,548,823, Cl. 128-147.
Bogue, Robert O., and Glenton, Arthur, to Bendix Corporation, The. Gage fastening device. 3,549,182, Cl. 287-52.08
Bohn, Martin C., Brady, John F., Rice, Kenneth G., and Spinello, John O., to Chicago Clutch Manufacturing Co., Inc. Method of rebuilding worn teeth of gears, splines, sprockets and the like. 3,548,481, Cl. 29-401.
Boik, Elmer J., to Continental Can Company Inc. End unit and liner for aerosol containers. 3,549,058, Cl. 222-386.5
Bolden, Harold E. Spectacles having resilient lens rims. 3,549,245, Cl. 351-61.
Boldt, Carl F., to Enger Kress Company. Pass case closures. 3,548,907, Cl. 150-39.
Bolt Associates, Inc.: *See—*
Chelminski, Stephen V., 3,548,630.
Bolton, Anthony P., and Pickert, Paul E., to Union Carbide Corporation. Isoparaffin alkylation process and catalyst for use therein. 3,549,557, Cl. 252-455.
Bond, John L. Cervical halter. 3,548,816, Cl. 128-75.
Bonne, Roger, Jacquot, Maurice, and Fourre, Jacques. Impregnation of a material based on carbon by molten metals. 3,549,408, Cl. 117-47.
Bonnema, Donald E.: *See—*
Lungo, Antonio, and Bonnema, Donald E., 3,549,536.
Borenstein, David E.: *See—*
Caison, Lloyd, Borenstein, David E., and Longbottom, Parker W., 3,549,741.
Borer, Alan John, to Servomex Controls Limited. Methods of an apparatus for temperature control. 3,549,864, Cl. 219-497.
Bornemisza, Elmer S.: *See—*
Richlin, Isadore M., and Bornemisza, Elmer S., 3,549,372.
Borresen, Einar. Radio transmission system. 3,549,811, Cl. 179-15.
Bosch, Robert, GmbH: *See—*
Bruegge, Juergen, 3,549,974.
Espenschied, Helmut, and Rothfuss, Georg, 3,548,985.
Espenschied, Helmut, Rothfuss, Georg, and Weyer, Herbert, 3,549,917.
Schmidt, Karl Heinz, and Bildat, Benno, 3,548,980.
Boschen, John A., and Close, Ablert R., to Ford Motor Company. Seat back inertia latch. 3,549,202, Cl. 297-379.
Bossinger, Charles D.: *See—*
Enkoji, Takashi, and Bossinger, Charles D., 3,549,765.
Bosy, George: *See—*
Walker, Robert G., and Bosy, George, 3,549,384.
Botalam: *See—*
Glasson, Jean E., 3,548,739.
Bottenbruch, Ludwig: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus, 3,549,334.
Vernaleken, Hugo, Wulff, Claus, Bottenbruch, Ludwig, and Schnell, Hermann, 3,549,682.
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann, 3,549,692.
Botts, Marion F.: *See—*
Regel, Erik K., and Botts, Marion F., 3,549,750.
Bouche, Edmund L., and Parrent, George B., Jr., to Technical Operations Incorporated. Optical apparatus and method for displaying spatially periodically modulated records. 3,549,237, Cl. 350-162.
Boucher, John Bradley: *See—*
Kay, Solomon Elijah, and Boucher, John Bradley, 3,549,466.
Bouiller, Jean Georges: *See—*
Bauger, Louis Jules, Bouiller, Jean Georges, and Lacroix, Armand Jean-Baptiste, 3,549,272.
Bourgeault, Leo B., and Compoly, Alfred, to Bendix Corporation, The. Unijunction frequency detector. 3,549,954, Cl. 317-147.
Bourque, Edward L.: *See—*
Heft, Eugene J., and Bourque, Edward L., 3,550,124.
Boutros, Richard D. Adjustable pontoons for aerator platform. 3,548,770, Cl. 114-0.5
Boxal-Beaurepaire S.A.: *See—*
Kahn, Maurice M., 3,549,041.
Boyer, James H., Jr., and Janda, Richard M., to North American Rockwell Corporation. Method of closing the toe of a tubular stocking. 3,548,614, Cl. 66-95.
Boyter, Walter C., and Quinn, John Matthew. Flyer presser assembly. 3,548,583, Cl. 57-117.
Brady, John F.: *See—*
Bohn, Martin C., Brady, John F., Rice, Kenneth G., and Spinello, John O., 3,548,481.
Brainard, Alan J., and Hamner, Glen Porter, to Esso Research and Engineering Company. Hydrocracking process for high end point feeds. 3,549,515, Cl. 208-89.
Brandau, William E., and Napp, Anthony E., to Bendix Corporation, The. Pressure ratio measurement system. 3,548,662, Cl. 73-398.
Brandt, Fritz: *See—*
Tanke, Ullrich, Voegtlen, Dieter, Brandt, Fritz, and Bruninghaus, Karl, 3,549,813.
Braun, C. F., & Company: *See—*
Grotz, Bernard J., Jr., 3,549,335.
Breitschwerdt, Werner, to Daimler-Benz Aktiengesellschaft. Safety steering wheel. 3,548,676, Cl. 74-552.
Bremer Vulkan Schiffbau and Maschinenfabrik: *See—*
Runge, Heinert, and Wieck, Karl, 3,548,547.
Bresnick, Herbert Leo, to Xerox Corporation. Imaging system. 3,549,447, Cl. 156-230.
Breuer, Hermann, to Squibb, E. R., & Sons, Inc. Nitrofuran derivatives of pseudoureas. 3,549,625, Cl. 260-240.
Brewster, Arthur Edward, to International Standard Electric Corporation. Magnetic recording head having constant-width recording gap subjected to decaying amplitude bias. 3,549,824, Cl. 179-100.2
Brewster, Phillip W., and Pattenden, Warren C., to Esso Research and Engineering Company. Insulating oil compositions containing acenaphthene or acenaphthylene. 3,549,537, Cl. 252-63.
Bridgeport Metal Goods Manufacturing Company, The: *See—*
Vasas, Martin M., 3,549,266.
Brienza, Michael J., and Treacy, Edmond B., to United Aircraft Corporation. Optical signal processor. 3,549,239, Cl. 350-162.
Brienza, Michael J., and Treacy, Edmond B., to United Aircraft Corporation. Laser pulse compression ranging system using double-chirped pulses. 3,549,256, Cl. 356-4.
Brierley, James D.: *See—*
Spinna, Robert J., and Brierley, James D., 3,548,603.
Brigandi, Bruno T. Valve assembly with expansion plug. 3,548,878, Cl. 137-636.1
Briggs, Eugene C., to Koehring Company. Concrete vibrator. 3,549,130, Cl. 259-1.
Bright, James A., 1/2 to De John, Kenneth. Radio frequency carrier wave signal detector. 3,550,008, Cl. 325-340.
Brimco Manufacturing Company: *See—*
Hill, George B., and Noorda, Jacob D., 3,549,839.
Brinckmann, Paul: *See—*
Goey, Wilhelm, and Brinckmann, Paul, 3,548,830.
Bristol-Myers Company: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George, 3,549,746.
British Aircraft Corporation Limited: *See—*
Rudd, Michael J., 3,548,655.
British Industries Corporation: *See—*
Bindman, Stanley, and Verni, Ralph M., 3,549,224.
British Lighting Industries Limited: *See—*
Smalley, John Frederick, 3,549,933.
British Welding Research Association: *See—*
Needham, James C., and Carter, Albert W., 3,549,857.
Brockmuller, Friedrich Franz, to Windmoller & Holscher. Plastic valved bag. 3,549,298, Cl. 229-62.5
Brodeur, Charles H.: *See—*
Brown, William F., Crockett, William E., and Brodeur, Charles H., 3,549,514.
Brodie, Ivor, to Varian Associates. Skin-oil free electrostatic fingerprinting. 3,549,253, Cl. 355-10.
Bronikowski, Raymond J., to McGraw-Edison Company. Enclosed fuse. 3,550,056, Cl. 337-199.
Brooks, George M., to Jerrold Electronics Corporation, mesne. Microwave coupling device and mounting therefor. 3,550,043, Cl. 333-26.
Broussard, Leo: *See—*
Segura, Marnell A., and Broussard, Leo, 3,549,425.
Brown, Hart. Contact process and apparatus. 3,549,526, Cl. 210-33.
Brown, Henry R., and Green, Elberson D., to United States of America, Navy, mesne. Real time passing scene display. 3,550,123, Cl. 343-5.
Brown, Howard W.: *See—*
Clark, Thomas J., and Brown, Howard W., 3,549,847.
Brown, Neil L., to Bissett-Berman Corporation, The. Measuring apparatus including means for amplitude modulating a conductivity signal with a temperature signal. 3,549,989, Cl. 324-30.
Brown, William F., Crockett, William E., and Brodeur, Charles H., to Texaco Inc. Methods and apparatus for monitoring and control of solvent dewaxing processes. 3,549,514, Cl. 208-33.

Browning, Iben. Apparatus for reading information in the form of light reflective areas on a carrier. 3,549,826, Cl. 179-100.3

Bruce, John K., and Bruce, Thedore R., to Sterigard Company. Pressurized dispenser having a valve extension. 3,549,050, Cl. 222-95.

Bruce, John K., and Bruce, Theodore R., to Sterigard Company. Process for fabricating a pressurized container. 3,548,564, Cl. 53-36.

Bruce, Thedore R.: *See—*
Bruce, John K., and Bruce, Thedore R.,3,549,050.

Bruce, Theodore R.: *See—*
Bruce, John K., and Bruce, Theodore R.,3,548,564.

Bruegge, Juergen, to Bosch, Robert, GmbH. Variable delay windshield wiper system in motor vehicles. 3,549,974, Cl. 318-443.

Bruglemans, Lucas, to Automatic Electric Laboratories, Inc. Matrix control selection system. 3,549,815, Cl. 179-18.

Brummett, Charles R.: *See—*
McCandless, Lee C., Withers, James C., and Brummett, Charles R.,3,549,413.

Brunelle, Lawrence J., to Olin Mathieson Chemical Corporation. Power adjustment for piston tool. 3,549,074, Cl. 227-10.

Bruninghaus, Karl: *See—*
Tanke, Ullrich, Voegtlen, Dieter, Brandt, Fritz, and Bruninghaus, Karl,3,549,813.

Brunswick Corporation: *See—*
Minks, Floyd M., 3,549,944.
Newman, Neil A., 3,548,961.

Bryan, Leland D. Toy aircraft device. 3,548,535, Cl. 46-75.

Bryant, Howard S., Jr., and Nasser, John, to Mobil Oil Corporation. Method for downflow leaching. 3,549,695, Cl. 260-525.

Bryant, Rodney Trenchard: *See—*
Bird, Jack Raymond, and Bryant, Rodney Trenchard,3,549,273.

Bublitz, Donald E., to Dow Chemical Company, The. N-(Substituted phenyl) cyclobutanedicarboximides. 3,549,655, Cl. 260-326.5

Buchheit, Otto Karl. Live roller feed table with ejecting means. 3,548,997, Cl. 198-24.

Buchsbaum, Solomon J., to Bell Telephone Laboratories, Incorporated. Amplitude and phase-locking of laser transitions by plasma oscillations. 3,550,031, Cl. 331-94.5

Budd Company, the: *See—*
Haroldson, Arthur H., 3,549,789.

Buechner, Werner W. Color process timer. 3,548,733, Cl. 95-89.

Buehler, Arthur, and De Montmollin, Rene, to Ciba Limited. Anthraquinone dyestuffs. 3,549,665, Cl. 260-372.

Buell Engineering Company, Inc.: *See—*
Yarnell, William T., and Turpin, Alexander J., 3,548,760.

Bugaut, Andree: *See—*
Kalopissis, Gregoire, and Bugaut, Andree,3,549,303.

Bullard, E. D., Company: *See—*
Raschke, Herbert A., 3,548,412.

Bunger, David A., to Baldwin Company, D. H. Rhythmic accompaniment system employing an asynchronous chain of delay circuits. 3,549,774, Cl. 84-1.03

Bunger, David A., to Baldwin, D. H., Company. Electronic musical instrument system for sounding voices reiteratively in alternation. 3,549,777, Cl. 84-1.03

Bunger, David A., to Baldwin, D. H., Company. Plural shortsustain percussion gates and common gate arrangement for electronic musical instruments. 3,549,779, Cl. 84-1.26

Bunker-Ramo Corporation, The: *See—*
Colgan, James Basil, DiGiugno, Angelo John, and Duggan, Robert James, 3,550,091.

Burgess Vibrocrafters, Inc.: *See—*
Landwer, William E., 3,548,532.

Burgess-Norton Mfg. Co.: *See—*
McGee, Sherwood W., 3,549,350.

Burgman, Herbert A., to Westinghouse Electric Corporation. Molded composite article of resinous plastic having a vapor barrier film disposed within the plastic. 3,549,477, Cl. 161-165.

Burhans, Stuart J.: *See—*
Stephens, Frederick N., Burhans, Stuart J., Warkoczewski, Joseph T., and Taylor, Jack M.,3,549,456.

Burkert, Herbert G.: *See—*
Netta, Louis A., and Burkert, Herbert G.,3,548,479.

Burkhalter, Harvey D.: *See—*
Coughran, Samuel J., Jr., and Burkhalter, Harvey D.,3,549,030.

Burness, Donald M., and Silverman, Robert A., to Eastman Kodak Company. Tris (1-aziridinyl)phosphazo hardners. 3,549,378, Cl. 96-111.

Bushman, Julius Harold, to Stanley Works, The. Tool drive transfer apparatus. 3,548,888, Cl. 140-93.2

Buszko, Leonard J., Foster, Luther M., and Lorenz, Max R., to International Business Machines Corporation. Method of making electroluminescent gallium phosphide diodes. 3,549,401, Cl. 148-175.

Butkevich, Vladimir Alexandrovich: *See—*
Torban, Alexandr Isaakovich, Kaushansky, Alexandr Stepanovich, Butkevich, Vladimir Alexandrovich, and Grigoriev, Alexey Nikolaevich,3,548,920.

Butterfield, George H. Apparatus for molding an arbor to a lens. 3,548,921, Cl. 164-304.

Buxaum Products Company: *See—*
Katz, Manuel, 3,549,171.

Buzby, George C., Jr.: *See—*
Greenspan, George, and Buzby, George C., Jr.,3,549,499.

Byers, Clifton A.: *See—*
Nelson, John P., Dernovshek, Joseph F., Miller, Hal E., and Byers, Clifton A.,3,548,979.

Byers, John E., and Claussen, Wells H., said Claussen assor. to said Byers. Sink rim clip device. 3,548,422, Cl. 4-187.

Byers, Stanley C., to Sarkes Tarzian, Inc. Trap circuit for television tuners. 3,550,010, Cl. 325-379.

Bykov, Konstantin Alexeevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Byrd, Ambrose W., to United States of America, National Aeronautics and Space Administration. Isothermal cover with thermal reservoirs. 3,548,930, Cl. 165-105.

Byron, John W.: *See—*
Kallenberger, Robert H., Dollinger, Robert E., Byron, John W., and Henderson, Eulas W.,3,548,454.

Bystrianyk, Wasyl: *See—*
Sarkozy, Francis A., and Bystrianyk, Wasyl,3,549,191.

Caddell, Jack R., to Du Pont de Nemours, E. I., and Company. Method of producing polymeric printing plates. 3,549,733, Cl. 264-25.

Cagnon, Eugene C., Hurlin, Kenneth P., and Pavlovich, Joseph, to Ford Motor Company. End thrust control device for a rotating shaft. 3,549,218, Cl. 308-163.

Caison, Lloyd, deceased (by Caison, Mildred H., administratrix), Borenstein, David E., and Longbottom, Parker W., to Allied Chemical Corporation. Process for preparing improved carpet yarn. 3,549,741, Cl. 264-210.

Caison, Mildred H.: *See—*
Caison, Lloyd, Borenstein, David E., and Longbottom, Parker W.,3,549,741.

Calano, Giuseppe, to Olivetti, Ing. C., & C., S.p.A. Feed and guide arrangement for continuous perforated forms for office machines. 3,549,068, Cl. 226-79.

Caldwell, John R., Jr.: *See—*
Hoyer, Ludolf J., and Caldwell, John R., Jr.,3,548,810.

Caldwell, Robert H. Cable reel sling. 3,549,190, Cl. 294-81.

Caleb, Abram Godwin. Extrusion apparatus for fabricating building units. 3,548,452, Cl. 18-5.

California Computer Products, Inc.: *See—*
Trousdale, Robert B., Wiley, Franklyn L., and Teska, John T., 3,549,995.

Callahan, Eugene N.: *See—*
Jacobus, Dwight W., and Callahan, Eugene N.,3,548,444.

Callan, John E., to Allen-Bradley Company. Speed control circuit for a D-C motor. 3,549,972, Cl. 318-327.

Caller, James M., and Konnick, Paul J., to United States of America, Atomic Energy Commission. Electrical connector plug and connector assembly. 3,550,064, Cl. 339-65.

Cammell Laird (Shiprepairers) Limited: *See—*
Miller, Samuel R. F., 3,548,541.

Campbell, Robert W., to Phillips Petroleum Company. Poly(phenylenesulfonate) resin and method of preparation. 3,549,595, Cl. 260-49.

Campbell, Roy W. Adjustable garment hanger. 3,549,063, Cl. 223-88.

Campbell, Wallace S., to Stillwell-Gerard Construction Co. Post implanting method and vehicular apparatus. 3,548,604, Cl. 61-53.5

Camras, Marvin, to IIT Research Institute. Magnetic image printing system. 3,550,149, Cl. 346-74.

Canadian Industries Limited: *See—*
Jones, Elwyn David, Rowley, Edward Kenneth, and Shepherd, Douglas Reynolds, 3,548,722.

Canadian International Paper Company: *See—*
Zacios, Boleslaw Zbigniew Robert, 3,548,647.

Candy, James C., to Bell Telephone Laboratories, Incorporated. Feedback coders using weighted code companding on string of equal bits. 3,550,004, Cl. 325-38.

Canno, Leonard E., to Equitable Bag Co., Inc. Shopping bags. 3,549,084, Cl. 229-54.

Canno, Leonard E., and Krissel, Robert A., to Equitable Bag Co., Inc. Handle and closure for flexible box. 3,549,083, Cl. 229-52.

Cannon, John B., Jr., to HRB-Singer, Inc. Optical scanning system with multiple channel output. 3,549,805, Cl. 178-7.1

Cape, Arthur T., to Coast Metals, Inc. Composite brazing compositions of a composite metal having various layers containing nickel. 3,549,339, Cl. 29-194.

Cape Fear Feed Products, Inc.: *See—*
Evans, Monroe E., 3,548,737.

Capek, Raymond G., and Mazintas, John P. Method of making multilayer ceramic capacitors. 3,549,415, Cl. 117-215.

Capen, George A ., to Magnavox Company, The. Active filter circuit. 3,550,026, Cl. 330-21.

Cappello, Ignazio, to Pioneer Coveralls, Inc. Dump truck body cover. 3,549,198, Cl. 296-100.

Cardiac Electronics, Inc.: *See—*
Crovella, Edward A., 3,548,807.

Carey, William R.: *See—*
Oldberg, Sidney, and Carey, William R.,3,549,169.

Carhart, David E. Crop cutter. 3,548,952, Cl. 171-95.

Carley, David R.: *See—*
Frey, Frederick W., Jr., and Carley, David R.,3,549,412.

Carlin, Joseph T.: *See—*
Reguera, Ernesto J., Carlin, Joseph T., and Allen, Joseph C.,3,548,940.

Carlo, Eliot Joseph. Welding transformer. 3,550,053, Cl. 336-118.

Carlo, Eliot Joseph. Limited range transformer with a tap changing system. 3,550,054, Cl. 336-120.

Carlsen, Jon Erik Marius. Metal-casting apparatus. 3,548,922, Cl. 164-309.

Carlson, John A., Jr., Singleton, Alan H., and Stelts, Philip D., to Air Products and Chemicals, Inc. Methods of and apparatus for liquid-vapor contact and phase separation. 3,548,568, Cl. 55-84.

Carlton Sports Company Limited: *See—*
Carlton, William C., 3,548,484.

Carlton, William C., to Carlton Sports Company Limited. Method of preparing for stringing the frame of a games racket. 3,548,484, Cl. 29-423.

Carmi, Arieh, and Rayeski, Thomas J., to Corning Glass Works. Apparatus for removing expanded plastic articles from forming molds. 3,548,451, Cl. 18-2.

Carpenter, James W., Mee, John D., and Heseltine, Donald W., to Eastman Kodak Company. Novel cyanine dyes for the sensitization of organic photoconductors. 3,549,362, Cl. 96-1.6

Carr, Byron J., to Sterling Drug Inc. Plunger extension for disposable ampoules. 3,548,824, Cl. 128-218.

Carrier Corporation: *See—*
Fisher, John T., 3,548,608.

Carson, William N., Jr.: *See—*
Weininger, Joseph L., and Carson, William N., Jr.,3,549,957.

Carter, Albert W.: *See—*
Needham, James C., and Carter, Albert W.,3,549,857.

Carter, Mary E., to FMC Corporation. Regenerated cellulose filaments having high resiliency. 3,549,308, Cl. 8-116.3

Carter, Sidney T., to Meyer, Geo. J., Manufacturing Co. Grip-finger for labeling machine. 3,549,457, Cl. 156-476.

Carter's Ink Company, The: *See—*
Haeberle, Robert W., Lennon, Donald J. J., and Schleifstein, Harvey G., 3,550,153.

Carter-Wallace, Inc.: *See—*
Berger, Frank Milan, and Fukui, George Masaaki, 3,549,766.

Cartridge Actuated Devices, Inc.: *See—*
Stichling, Gerhardt C., 3,548,848.

Casalina, Samuel L., to Di Giorgio Corporation. Solid objects containing lignocellulose particles and radiation-induced polymer and method of making same. 3,549,509, Cl. 204-159.12

Casalina, Samuel L., to Di Giorgio Corporation. Polymer-treated irradiated bendable sheets of lignocellulose and method of making same. 3,549,510, Cl. 204-159.12

Casco Products Corporation: *See—*
Horwitt, Laurence G., and Mattis, Donald J., 3,549,243.

Case, J. I., Company: *See—*
Klee, Maurice, 3,549,026.
McGuire, Robert L., 3,548,674.

Case Manufacturing Company: *See—*
Ducey, James A., and Young, Willard G., 3,548,424.

Cassady Broiler Company: *See—*
Cassady, Neely E., 3,549,192.

Cassady, Neely E., to Cassady Broiler Company. Article clamping and hoisting apparatus. 3,549,192, Cl. 294-106.

Casselman, James S. Toothpaste ejector toothbrush. 3,549,268, Cl. 401-154.

Castellant, Edward J., to Thomas & Betts Corporation. Connector. 3,550,068, Cl. 339-242.

Catallo, Frank, and Foreman, Donald, to Fab-Con Machinery Development Corporation. Extractor and padders. 3,548,616, Cl. 68-22.

Catalysts and Chemicals Inc.: *See—*
Dienes, Edward K., 3,549,556.
Wright, James H., and Hogg, Cecil B., 3,549,720.

Caterpillar Tractor Company: *See—*
Shankwitz, Robert F., 3,549,170.

Caughey, Thomas A., to Gallaher Limited. Cigarette smoking machines. 3,548,841, Cl. 131-171.

Cave, Robert S., Alexander, Donald D., and Shaner, Milo W., to Dixie Tool Industries, Inc. Milling cutter construction. 3,548,476, Cl. 29-103.

Cecil, John, Jr., to American Electronic Laboratories, Inc. Rod clamp device. 3,548,464, Cl. 24-81.

Celanese Corporation: *See—*
Chenevey, Edward C., and Conciatori, Anthony B., 3,549,603.
Di Pietro, Joseph, and O'Brien, Merrill N., Jr., 3,549,729.
Greenwald, Emmett F., and Kenney, Richard A., 3,549,470.
Keuchel, Herbert W., Greenwald, Emmett F., and Kenney, Richard A., 3,549,467.
Roberts, William J., and Di Pietro, Joseph, 3,549,697.

Central Dyanmics, Ltd.: *See—*
Ross, John D., and Skrydstrup, Ole, 3,549,901.

Central Dynamics, Ltd.: *See—*
Ross, John D., 3,549,793.
Ross, John D., and Akiyama, Kimiharu, 3,550,087.

Centre National de la Recherche Scientifique: *See—*
Santt, Rene, 3,549,531.

Ceppi, Giannantonio, to Mattel, Inc. Power-transmitting device to actuate the moving part of toys. 3,548,594, Cl. 60-54.5

Ceram Corporation: *See—*
Elarde, Vito D., 3,549,393.

Cerasoli, Anthony. Light bulb base extractor. 3,549,188, Cl. 294-21.

Certain-Teed Products Corporation: *See—*
Swander, Kenneth D., Jr., and Wearden, Charles G., 3,548,720.

Certain-Teed Saint Gobain Insulation Corporation: *See—*
Stephens, Frederick N., Burhans, Stuart J., Warkoczewski, Joseph T., and Taylor, Jack M., 3,549,456.

Cerwenka, Peter: *See—*
Kleinhagauer, Otmar, Hladny, Wolfgang, and Cerwenka, Peter,3,548,918.

Cesare, Frank C., and Loeble, William D., Jr., to Uniroyal, Inc. Adhesion of textile fiber to rubber with polyhydric phenol-formaldehyde-tris (2-hydroxyalkyl) isocyanurate resin. 3,549,481, Cl. 161-198.

Ceskoslovenska akademie ved: *See—*
Mackrle, Vladimir, Mackrle, Svatopluk, and Dracka, Oldrich, 3,549,012.

Cessna Aircraft Company, The: *See—*
Krehbiel, Robert D., 3,548,573.

C&F Products, Inc.: *See—*
Fraige, Richard, 3,549,302.

Chadwick-Helmuth Electronics, Inc.: *See—*
Helmuth, James G, 3,549,945.

Chaknova, Bernard L., to Patek & Co. Laundry drying system and method and implements therefor. 3,548,509, Cl. 34-8.

Chambers, Worthy L., to Sunbeam Corporation. Trigger switch for electric appliance. 3,549,844, Cl. 200-157.

Chandler, Jack L.: *See—*
Payne, Dana C., and Chandler, Jack L.,3,549,575.

Chang, Catherine Teh-lin, and Fan, Roxy Ni, to Du Pont de Nemours, E. I., and Company. Photopolymerizable compositions containing triarylimidazolyl dimers and p-aminophenyl ketones. 3,549,367, Cl. 96-35.1

Chapman, Dave, Goldsmith and Yamasaki Inc.: *See—*
Anderson, Douglas W., 3,549,053.

Charles, Robert Lemoyne, Gertzman, Donald Paul, and Melachouris, Nicholas, to Miles Laboratories, Inc. Milk-clotting enzyme product and process therefor. 3,549,390, Cl. 99-116.

Charlton, William: *See—*
Wynne, Hubert Cecil, Hall, James Edward, and Charlton, William,3,549,135.

Charman, Hugh Bernard, to Imperial Chemical Industries Limited. Oxidation of organic compounds. 3,549,713, Cl. 260-621.

Charneski, Mitchell D.: *See—*
Anderson, Clarence A., and Charneski, Mitchell D.,3,548,762.

Charrier, George O., to Procter & Gamble Company, The. Container dividers having improved stacking strength. 3,549,007, Cl. 206-65.

Chauvette, Robert R., to Lilly, Eli, and Company. Side chain cleavage in desacetoxycephalosporin esters. 3,549,628, Cl. 260-243.

Cheesman, Dennis George: *See—*
Ritchie, Alexander Crawford, Cheesman, Dennis George, Garside, Peter, and Waring, Juliet Mary,3,549,649.

Chelminski, Stephen V., to Bolt Associates, Inc. Apparatus for forming material by sudden impulse. 3,548,630, Cl. 72-430.

Chemagro Corporation: *See—*
Regel, Erik K., and Botts, Marion F., 3,549,750.

Chemcell Limited: *See—*
Riordon, Peter R., 3,549,743.

Chemerda, John M.: *See—*
Tishler, Mas, Chemerda, John M., and Kollonitsch, Janos,3,549,703.

Chemetron Corporation: *See—*
Pikel, John H., 3,548,743.
Stearns, James B., and Wendelburg, Robert W., 3,549,978.
Stearns, James B., and Wendelburg, Robert W., 3,549,979.

Chemical Construction Corporation: *See—*
Shah, Indravadan S., 3,549,314.

Chemopetrol, zavody pro zpracovani ropy: *See—*
Spousta, Eduard, 3,549,670.

Chenevey, Edward C., and Conciatori, Anthony B., to Celanese Corporation. Process for the polymerization of aromatic polybenzimidazoles. 3,549,603, Cl. 260-78.4

Chernov, Valery Alexandrovich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ivanov, Vladimir Dmitrievich, and Chernov, Valery Alexandrovich,3,549,131.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Chernov, Valery Alexandrovich, and Khrokalo, Oleg Antonovich,3,549,134.

Chesterton, A. W., Company: *See—*
Van Vleet, Frank Roy, and Way, David Gilbert, 3,549,156.

Chevron Research Company: *See—*
Hess, Patrick H., 3,548,944.

Chhabra, Devendra S.: *See—*
Ainslie, Norman G., Chhabra, Devendra S., Jepsen, Donald W., and Mutter, Walter E.,3,548,491.

Chicago Bridge & Iron Company: *See—*
Larsen, Lyle V., 3,549,186.

Chicago Clutch Manufacturing Co., Inc.: *See—*
Bohn, Martin C., Brady, John F., Rice, Kenneth G., and Spinello, John O., 3,548,481.

Chopard, Remy, and Stamm, Heinrich, to Ebauches S.A. Flexion-type symmetrical oscillator. 3,548,585, Cl. 58-23.

Chris-Craft Industries, Inc.: *See—*
Rosin, Jacob, 3,549,683.
Rosin, Jacob, 3,549,684.

Christian, Joseph D., deceased (by Christian, Marcella B. Christian, Robert F., executors), and Christian, Robert F., to Packaged Power Terminals Inc. Screw conveyor apparatus. 3,549,000, Cl. 198-64.

Christian, Marcella B.: *See—*
Christian, Joseph D., and Christian, Robert F.,3,549,000.
Christian, Robert F.: *See—*
Christian, Joseph D., and Christian, Robert F.,3,549,000.
Christian, Joseph D., and Christian, Robert F.,3,549,000.
Christie, John S., to Hunter Associates Laboratory, Inc. Instrument for measuring the geometric attributes of metallic appearance by measuring light reflected at various angles from a surface. 3,549,264, Cl. 356-210.
Christoffel, Julius M., and Phillips, Lester F., to Parris Manufacturing Co. Toy gun. 3,548,538, Cl. 46-178.
Christy, Melvin G.: *See—*
Key, Robert L., III, and Christy, Melvin G.,3,548,838.
Chupity, Joseph, to Ampex Corporation. Magnetic head transducer having a pair of separate spaced nonmagnetic gaps. 3,549,822, Cl. 179-100.2
Church, Charles H., and Frost, Leslie S., to Westinghouse Electric Corporation. Rotating electrode and gas arc heater employing the same. 3,549,943, Cl. 315-111.
Churla, John J., Jr., to Thomas & Betts Corporation. Connector for coupling a ground conductor to the shield of shielded conductor. 3,549,787, Cl. 174-78.
Ciba Limited: *See—*
Buehler, Arthur, and De Montmollin, Rene, 3,549,665.
Cieciuch, Ronald F. W., to Polaroid Corporation. Novel photographic processes to produce precipitating nuclei in situ by electrolysis. 3,549,363, Cl. 96-29.
Cincinnati Milacron Inc.: *See—*
Baldwin, Herman J., 3,548,711.
Cincinnati Milacron Inc., The: *See—*
Baldwin, Herman J., and Mc Donald, David I., 3,548,495.
Cincinnati Milling Machine Co., The: *See—*
Baldwin, Herman J., 3,548,502.
Claesson, Per Harry Elias: *See—*
Vigren, Sten Daniel, Zander, Rolf Albin, and Claesson, Per Harry Elias,3,549,845.
Clapp, O. H., & Co., Inc.: *See—*
Myers, Julian Mostella, 3,548,576.
Clark Equipment Company: *See—*
Lindemann, Dennis E., 3,548,954.
Messner, John S., 3,549,025.
Swanson, Allan R., 3,549,168.
Clark, Eric I.: *See—*
Abson, James W., Landau, Manfred, Clark, Eric I., and Molyneux, Alan,3,549,559.
Clark, Raymond C., to Huyck Corporation. Vertical shake apparatus for papermaking wire. 3,549,487, Cl. 162-356.
Clark, Robert L., and Fisher, Michael H., to Merck & Co., Inc. Method of treating malaria with a loweralkyl 4-hydroxy-6,7-disubstituted quinoline-3- carboxylates. 3,549,761, Cl. 424-258.
Clark, Robert L., and Wu, Mu Tsu, to Merck & Co., Inc. 6,7-Disubstituted-4-hydroxy-quinoline-3-carboxylates. 3,549,642, Cl. 260-287.
Clark, Thomas J., and Brown, Howard W., to General Electric Company. Graphite susceptor. 3,549,847, Cl. 219-10.49
Clarke, Ray Allen, to Du Pont de Nemours, E. I., and Company. Cationic aryl monoazo and disazo-3- substituted-1-aminomethyl-pyrazolone dyes. 3,549,612, Cl. 260-160.
Clauss Cutlery Company, The: *See—*
Van Hook, Robert W., 3,548,496.
Claussen, Wells H.: *See—*
Byers, John E., and Claussen, Wells H.,3,548,422.
Clecak, Nicholas J., and Cox, Robert J., to International Business Machines Corporation. Electrophotographic process using organic photoconductors having at least two chromophores. 3,549,358, Cl. 96-1.
Clemens, Milton Lewis, Jr., to Eastman Kodak Company. Process for preparing polyalkyl-p-henzoquinone. 3,549,669, Cl. 260-396.
Clevite Corporation: *See—*
Lungo, Antonio, and Bonnema, Donald E., 3,549,536.
Thompson, Allan R., 3,550,156.
Clifford, Stanley, to Girling Limited. Warning devices for vehicle braking systems. 3,550,079, Cl. 340-52.
Close, Ablert R.: *See—*
Boschen, John A., and Close, Ablert R.,3,549,202.
Cloutier, Marjorie Blanche: *See—*
Hostland, Lloyd Oscar, Cloutier, Nelson Joseph, and Cloutier, Marjorie Blanche, administrator,3,548,750.
Cloutier, Nelson Joseph: *See—*
Hostland, Lloyd Oscar, Cloutier, Nelson Joseph, and Cloutier, Marjorie Blanche, administrator,3,548,750.
Coast Metals, Inc.: *See—*
Cape, Arthur T., 3,549,339.
Coates, John S., Dunion, Paul F., Jr., and Tsukamoto, Akira, to Du Pont de Nemours, E. I., and Company. Polymeric hydrocarbon resin-hydrolyzed ethylene/ vinyl ester copolymer blends. 3,549,727, Cl. 260-897.
Cogar, George R., to Mohawk Data Sciences Corporation. Reverse write and forward verify read of a variable length data record. 3,550,103, Cl. 340-179.1
Cohen, Felix, to Colorado Paper Products Corporation, The. Self-sustaining paper-type laminar tubing. 3,548,883, Cl. 138-143.
Cohen, Marvin P.: *See—*
von Strandtmann, Maximilian, Cohen, Marvin P., and Shavel, John, Jr.,3,549,641.
Cohen, Sidney, and Schlesinger, Morton, to Millmaster Onyx Corporation. Alkyl carbamate/isopropyl carbamate formaldehyde resin compositions and the modification of fabrics therewith. 3,548,427, Cl. 8-115.6
Cohen, Theodore J. Method of taking dental impressions. 3,548,500, Cl. 32-17.
Colbert, Clifford, to Singer-Cobble Limited. Tufting machines. 3,548,766, Cl. 112-79.
Cole, Howard W., Jr. True air speed meter with relative wind direction. 3,548,654, Cl. 73-187.
Cole, Lawrence S., to General Electric Company. Prewired address sequencer for successive approximation analog-to-digital converters. 3,550,114, Cl. 340-347.
Cole, Robert K.: *See—*
Homiak, Nicholas S., and Cole, Robert K.,3,549,128.
Coleman, Lester E., to Lubrizol Corporation, The. Fuel compositions and additives. 3,549,340, Cl. 44-63.
Colgan, James Basil, DiGiugno, Angelo John, and Duggan, Robert James, to Bunker-Ramo Corporation, The. Whole word justification and editing system. 3,550,091, Cl. 340-172.5
Colgate-Palmolive Company: *See—*
Reinish, Martin David, 3,549,541.
Collins, Joseph C., to Sterling Drug Inc.1,1'-Alkylene-bis(3,3-dichloro-2-pyrrolidones). 3,549,654, Cl. 260-326.3
Collins Radio Company: *See—*
Lewis, Roger G., 3,549,912.
Collins, Robert H., and Deverse, Frank T., to International Business Machines Corporation. Process for improving photoresist adhesion. 3,549,368, Cl. 96-35.1
Colombani, Don Pierre Louis Jean, and Ernst, Adolphe Otton Gontier, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Thrust-vectoring devices for jet engines. 3,548,598, Cl. 60-231.
Colorado Paper Products Corporation, The: *See—*
Cohen, Felix, 3,548,883.
Colquett, Jack L.: *See—*
Van Doorn, Donald W., Pease, William C., III, Colquett, Jack L., and Lange, Robert E.,3,548,744.
Comber, William R., and Hoekje, Harverd J., to U.S. Industries, Inc., mesne. Egg-washing means. 3,548,435, Cl. 15-3.17
Commissariat a l'Energie Atomique:*See—*
Sole, Jean, 3,549,952.
Compagnie de Saint-Gobain: *See—*
Dietzel, Karl, Peilstocker, Gunter, and Siemonsen, Hans-Peter, 3,549,476.
Compagnie Generale d'Automatisme:*See—*
Monnereau, Georges, 3,548,602.
Compagnie Generale de Geophysique: *See—*
Picou, Claude H., and Angelle, Philippe A., 3,550,115.
Compagnie Generale d'Electricite:*See—*
Jules, Andre, 3,549,982.
Compoly, Alfred: *See—*
Bourgeault, Leo B., and Compoly, Alfred,3,549,954.
Compton, Richard A., to Dow Corning Corporation. Method of molding non-adherent heat vulcanizable silicone rubber. 3,549,744, Cl. 264-300.
Comstock, Lowell Ray: *See—*
Smith, Percy Leighton Dunbar, and Comstock, Lowell Ray,3,549,586.
Conciatori, Anthony B.: *See—*
Chenevey, Edward C., and Conciatori, Anthony B.,3,549,603.
Conlon, Frank Bernard, to United States of America, Health, Education and Welfare. Interlocked radium shipping container. 3,549,888, Cl. 250-108.
Conner, William J.: *See—*
Jones, Malcolm S., Jr., and Conner, William J.,3,549,914.
Connon, Neil W.: *See—*
Bachman, Gustave B., and Connon, Neil W.,3,549,686.
Bachman, Gustave B., and Connon, Neil W.,3,549,687.
Conover, G. E., & Co., Inc.: *See—*
Jones, David W., 3,549,154.
Conover, Lloyd H., and Johnston, James D., to Pfizer, Chas., & Co., Inc. Antibacterial agents. 3,549,663, Cl. 260-351.
Conover, Lloyd H., McFarland, James W., and Austin, William C., to Pfizer, Chas., & Co., Inc.2-Substituted-2-Δ^2-tetrahydropyrimidines and Δ^2-imidazolines. 3,549,624, Cl. 260-240.
Conrad, Byron, to Dale Electronics, Inc. Automatically connectible and disconnectible gear train. 3,548,672, Cl. 74-405.
Consolidated Engineering Company: *See—*
Reuter, Brian R., 3,549,206.
Consolidated Paper (Bahamas) Limited: *See—*
Larive, Rene, Gelinas, Leo-Paul, and Knight, Richard L. C., 3,549,858.
Conti, Francesco. Device for stimulating the flow of fluids in an animal body. 3,548,809, Cl. 128-24.
Continental Can Company Inc.: *See—*
Boik, Elmer J., 3,549,058.
Moloney, John J., 3,549,037.
Windstrup, Robert F., Hale, Charles W., and Galitz, Raymond F., 3,548,769.
Contracting and Material Company: *See—*
Blood, Douglass K., and Hansen, Harold H., 3,549,031.

Contraves AG: *See—*
Mueller, Werner, 3,548,671.
Contreras, Gilbert E., to Aeroquip Corporation. Flexible flow liner for bellows joints. 3,549,176, Cl. 285-55.
Control Data Corporation: *See—*
Rabinow, Jacob, 3,550,119.
Cook, Charles H.: *See—*
Bergquist, Dwight H., Cunningham, Franklin E., and Cook, Charles H.,3,548,782.
Cooke-Yarborough, Edmund Harry, to United Kingdom Atomic Energy Authority. Heat engines. 3,548,589, Cl. 60-24.
Coon, Ralph I., to Minnesota Mining and Manufacturing Company. Fluoroalkyl gem-diols. 3,549,698, Cl. 260-535.
Cooper, Cecil D. Artificial rumen stimulator. 3,548,785, Cl. 119-1.
Cooper, James W. Teaching table. 3,549,200, Cl. 297-157.
Cootes, Harold Edwin, to AMP Incorporated. Connector for multiple conductor cable. 3,550,066, Cl. 339-196.
Coover, Harry W., Jr., and Joyner, Frederick B., to Eastman Kodak Company. Stereosymmetric polypropylene. 3,549,608, Cl. 260-93.7
Corey, Victor B., to United Control Corporation. Direction and velocity determining apparatus. 3,548,653, Cl. 73-189.
Cormany, Charles L., Dial, William R., and Pray, Blaine O., to PPG Industries, Inc., mesne. Stabilization. 3,549,715, Cl. 260-652.5
Corning Glass Works: *See—*
Bellman, Robert H., 3,548,850.
Bennett, Robert W., and Wrench, Robert F., 3,549,446.
Carmi, Arieh, and Rayeski, Thomas J., 3,548,451.
Wainwright, Vernon L., 3,549,345.
Coscia, Anthony Thomas, Ritson, Daniel Dickerson, Frazier, Charles, and Ross, Joseph Hansbro, to American Cyanamid Company. Aqueous starch-pigment paper coating compositions containing polyacrylamide-glyoxal latent insolubilizer. 3,549,568, Cl. 260-17.3
Cotton, Robert B., to All American Engineering Company. Energy absorber. 3,549,110, Cl. 244-110.
Coughran, Samuel J., Jr., and Burkhalter, Harvey D., to Rome Industries, Incorporated. Load ejecting vehicle. 3,549,030, Cl. 214-85.
Coulter Electronics, Inc.: *See—*
Rothermel, William F., and Klein, Robert I., 3,549,994.
Court, Otto: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.
Coury, Arthur J., to General Mills, Inc. Copolycarbonates. 3,549,570, Cl. 260-18.
Coutts, Harold Y. Ski construction. 3,549,162, Cl. 280-11.13
Cox, Robert G., to Aeroquip Corporation. Split flange connection. 3,549,179, Cl. 285-189.
Cox, Robert J.: *See—*
Clecak, Nicholas J., and Cox, Robert J.,3,549,358.
CPC International Inc.: *See—*
Acton, Edward McIntosh, and Mosher, Carol Walker, 3,549,616.
Armbruster, Frederick C., and Jacaway, William A., Jr., 3,549,496.
Sekera, John C., 3,549,584.
Crabb, Clarence R.: *See—*
Mc Donald, Leighton S., and Crabb, Clarence R.,3,549,547.
Cragstan Industries, Inc.: *See—*
Kosuge, Matsuzo, 3,548,702.
Crater Controls Limited: *See—*
Melling, Geoffrey Frank Robert, 3,549,865.
Crawford, William E.: *See—*
Paine, T. O., administrator of the National Aeronautics and Space Administration with respect to an invention of,, and Crawford, William E.,3,549,955.
Crayton, Philip H.: *See—*
Whitney, Ellsworth D., and Crayton, Philip H.,3,549,402.
Creek, John O. Rotary engine. 3,548,789, Cl. 123-8.41
Crenne, Noel: *See—*
Achard, Rene Victor Julien, and Crenne, Noel,3,549,709.
Cressey, John R.: *See—*
Baker, Hugh M., Jr., and Cressey, John R.,3,550,090.
Cristiani, Athos, to American Machine & Foundry Company. Tobacco rod forming method and device. 3,548,837, Cl. 131-84.
Crockett, William E.: *See—*
Brown, William F., Crockett, William E., and Brodeur, Charles H.,3,549,514.
Crooks, James W., to Allis-Chalmers Manufacturing Company. Power shift transmission. 3,548,665, Cl. 74-15.63
Crooks, James W., to Allis-Chalmers Manufacturing Company. Multiple speed transmission. 3,548,666, Cl. 74-15.63
Crooks, James W., to Allis-Chalmers Manufacturing Company. Planetary transmission. 3,548,680, Cl. 74-682.
Crooks, James W., to Allis-Chalmers Manufacturing Company. Multiple speed power shift transmission. 3,548,681, Cl. 74-682.
Crovella, Edward A., to Cardiac Electronics, Inc. Cardiac signal loss detector. 3,548,807, Cl. 128-2.06
Crown Zellerbach Corporation: *See—*
Herschler, Robert J., and Jacob, Stanley W., 3,549,770.
Herschler, Robert J., 3,549,771.
Croymans, Jacques Johannes Hendrik, and Van Hout, Henricus Marinus, to U.S. Philips Corporation. Stepping motor for a large number of steps per revolution. 3,549,918, Cl. 310-49.
Cruciotti, Louis: *See—*
Dreyer, Everett Leslie, Cruciotti, Louis, Emmert, Richard G., and Pranske, Louis J.,3,549,149.
Cruse, Oliver B., to Wagner Electric Corporation. Control valve. 3,549,208, Cl. 303-13.
CSJ-Compagnie Generale de Telegraphie Sans Fil: *See—*
Arnaud, Jacques, 3,549,940.
CTS Corporation: *See—*
Barden, Wayne A., Van Benthuysen, John D., and Zdanys, John, Jr., 3,550,059.
Cullings, Harold L., to Pak-Mor Manufacturing Co. Combination sliding and swinging door structure for refuse vehicles. 3,548,540, Cl. 49-163.
Cunningham, Franklin E.: *See—*
Bergquist, Dwight H., Cunningham, Franklin E., and Cook, Charles H.,3,548,782.
Cunningham, Lawrence W. Method for cleaning process equipment. 3,549,420, Cl. 134-22.
Curran, Daniel R., and Koneval, Donald J. Method of tuning piezoelectric resonators. 3,549,414, Cl. 117-212.
Curtius, Ulrich: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.
Cushioned Products Corporation: *See—*
King, Robert E., and Dardig, Ben V., 3,549,472.
Cutter Laboratories, Inc.: *See—*
Angell, William W., and Kahn, Paul, 3,548,418.
Cypro Incorporated: *See—*
Pearson, William S., 3,548,695.
Dadura, James G.: *See—*
Holstedt, Richard A., Dadura, James G., Krug, Robert H., and Love, Doris,3,549,534.
Dague, Michael F.: *See—*
Rye, Grover W., and Dague, Michael F.,3,548,912.
Dahlquist, Ralph L., and Jones, James L., to Applied Research Laboratories, Inc. Spectrochemical analysis with water vapor added. 3,549,326, Cl. 23-230.
Dahms, Ronald H.: *See—*
Anderson, George J., and Dahms, Ronald H.,3,549,576.
Dahms, Ronald H., to Monsanto Company. Plasticized phenolic resin impregnation system comprising two different phenolic resole resins and a halo aryl phosphate. 3,549,479, Cl. 161-191.
Dahms, Ronald H., to Monsanto Company. Plasticized cresylic resin impregnation system comprising a phenol-form aldehyde resole resin acresel-form aldehyde resole resin and a halo aryl phosphate. 3,549,480, Cl. 161-191.
Daimler-Benz Aktiengesellschaft: *See—*
Breitschwerdt, Werner, 3,548,676.
Haverbeck, Gunther, 3,549,167.
Krauss, Heinz, Sautter, Wolfgang, and Ligniez, Uwe, 3,548,964.
Wilfert, Karl, 3,549,469.
Dairy Fresh Market Service, Inc.: *See—*
Kendall, Kynoch P., and McClellan, Robert, 3,548,610.
Dale Electronics, Inc.: *See—*
Conrad, Byron, 3,548,672.
Dall'Asta, Gino:*See—*
Natta, Giulio, Dall'Asta, Gino, and Mazzanti, Giorgio,3,549,607.
D'Amato, Salvatore F., to American Bank Note Company. Web-fed rotary printing press. 3,548,747, Cl. 101-153.
D'Amico, John Joseph, to Monsanto Company. Process for preparing N-branched-chain alkyl and cycloalkyl 2-benzothiazole sulfenamides. 3,549,650, Cl. 260-306.6
Damrel, John B., Jr., and Fruit, Jerry L., to Texas Instruments, Incorporated. Apparatus for calibrating altimeters, air speed indicators etc.. 3,548,632, Cl. 73-4.
Damsky, Walter: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.
Dana, Robert Lewis: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George,3,549,746.
Dango & Dienenthal Kommanditgesellschaft: *See—*
Zimmermann, Theodor, and Ullrich, Alois, 3,549,141.
Daniels, Dennis, to Houdaille Industries, Inc. Tool loader and unloader. 3,548,480, Cl. 29-243.
Dann, Bert H., to Bell & Howell Company. Track alignment system in slant-track video tape recorder. 3,549,797, Cl. 178-6.6
Daoust, Raymond George: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George,3,549,746.
Dardig, Ben V.: *See—*
King, Robert E., and Dardig, Ben V.,3,549,472.
Dart Industries Inc.: *See—*
Hanzl, Walter F., 3,549,726.
Das, Bejoy S.: *See—*
Wilson, William J., and Das, Bejoy S.,3,549,319.
Dathe, Christian: *See—*
Muller, Richard, Reichel, Sigrid, and Dathe, Christian,3,549,678.
Datsenko, Georgy Maximovich, and Raban, Veniamin Mikhailovich. Nasogastric suction pump. 3,548,805, Cl. 128-2.
Dauenbaugh, Robert L., to Keystone Consolidated Industries, Inc. Pop-out handle and locking device. 3,548,618, Cl. 70-208.
Davies, Peter Gouch: *See—*
Hann, Kenneth Graeme, and Davies, Peter Gouch,3,548,624.

Davis Aircraft Products Company, Inc.: *See—*
Mackell, Bernard B., 3,548,904.

Davis, Artice M., to Bell Telephone Laboratories, Incorporated. Keyed video clamping circuit with a pulse width discriminator to minimize noise interference. 3,549,801, Cl. 178-7.3

Davis, Otho L, Falcone, Carmen M., and Dunning, Fred R. Thermal-pressure splint. 3,548,819, Cl. 128-82.1

Davis, William M. Tennis net height indicator. 3,549,146, Cl. 273-29.

Dawson, Arthur E., to Air Reduction Company, Inc. Thermal protection system for high speed rotating parts. 3,548,992, Cl 192-116.5

Dawson, John W., to Maremont Corporation. Horn reflector antenna. 3,550,142, Cl. 343-781.

Dearing, Joseph L. Cover to protect window panes and the like during painting. 3,549,448, Cl. 156-250.

Deason, Wallace R., Fowler, Lewis, and Trump, Walter N., to Monsanto Company. Cavitation detector. 3,548,640, Cl. 73-67.2

Debb, Arthur D.: *See—*
O'Connor, Donald T., Debb, Arthur D., and Erickson, Kenneth R.,3,548,644.

deBretagne, Yves, to Honeywell Inc. Process controller selectively providing automatic control with reset or manual control. 3,549,976, Cl. 318-591.

De Cola, Rinaldo E., and Zook, Irving I., to Warwick Electronics Inc. Battery condition indicator. 3,550,105, Cl. 340-249.

De Coye, De Castelet Gaetan. Method of production of cast-iron parts with a high coefficient of thermal expansion. 3,549,431, Cl. 148-141.

Deem, William Roy, to Imperial Chemical Industries Limited. Preparation of perfluoroolefins. 3,549,716, Cl. 260-653.1

de Galocsy, Zsigmond, and Prunet, Jean, to Finacalor Aktiengesellschaft. Means for exchanging heat between gaseous and/or vaporous and/or liquid and/or solid media and small heat-carrier particles and their applications for carrying out physico-chemical processes. 3,549,295, Cl. 165-106.

Dehar, David C., to Ford Motor Company. Vehicle door hinge. 3,548,445, Cl. 16-146.

De John, Kenneth: *See—*
Bright, James A., 3,550,008.

Dekiss, Nicholas, and Howard, Harris J., to DeLaval Turbine California Inc. Electric-motor-driven rotary fuel pump with wet carbon bearing. 3,549,277, Cl. 417-321.

Delarue, Christian G., Sokoloff, Boris, and Warnery, Edmond P., to Societe Generale du Vide. Peripherally supported disc file. 3,550,102, Cl. 340-174.1

De Launay, Rene M.: *See—*
Graham, John R., and De Launay, Rene M.,3,549,129.

DeLaval Turbine California Inc.: *See—*
Dekiss, Nicholas, and Howard, Harris J., 3,549,277.

De Laval Turbine Inc.: *See—*
Fleischer, Alfred R., and Barich, John J., 3,548,798.

Delfiore, Guy: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.

DeLucia, Victor E., to Torr Laboratories, Inc. X-ray transmissive window assembly. 3,549,931, Cl. 313-55.

Demag Aktiengesellschaft: *See—*
Marxen, Werner, 3,549,139.

De Montmollin, Rene: *See—*
Buehler, Arthur, and De Montmollin, Rene,3,549,665.

Denki Onkyo Co., Ltd.: *See—*
Shizu, Kazunori, 3,550,038.

Denss, Rolf: *See—*
Ostermayer, Franz, Renk, Ernst F., and Denss, Rolf,3,549,758.

Denton, Clyde T., to Resilient Services Incorporated. Laminated materials for covering surfaces of buildings. 3,549,471, Cl. 161-86.

De Puy, Charles H.: *See—*
Argabright, Perry A., De Puy, Charles H., and Phillips, Brian L.,3,549,630.

Dernovshek, Joseph F.: *See—*
Nelson, John P., Dernovshek, Joseph F., Miller, Hal E., and Byers, Clifton A.,3,548,979.

de Rosa, Louis A., to International Telephone and Telegraph Corporation. Printer using a solid state semiconductor material as a switch. 3,550,155, Cl. 346-74.

Dersch, Fritz: *See—*
Mueller, Fritz W. H., Dersch, Fritz, and Luciani, Giacomo,3,549,371.

Detection Systems, Inc.: *See—*
Perlman, David E., 3,549,892.

Detroit Edison Company, The: *See—*
Anderson, Clarence A., and Charneski, Mitchell D., 3,548,762.

Deveau, Jack: *See—*
Penraat, Jaap, and Deveau, Jack,3,548,517.

Deverse, Frank T.: *See—*
Collins, Robert H., and Deverse, Frank T.,3,549,368.

DeVries, Larry L. Self-engaging post puller and driver. 3,549,126, Cl. 254-132.

Dexter Corporation, The: *See—*
Payne, William L., and Fetscher, Charles A., 3,549,582.

Dial, William R.: *See—*
Cormany, Charles L., Dial, William R., and Pray, Blaine O.,3,549,715.

Diamond Shamrock Corporation: *See—*
Bimber, Russell M., 3,549,762.

Diassi, Patrick A., and Principe, Pacifico A., to Squibb, E. R., & Sons, Inc.11α-Substituted steroids and process. 3,549,498, Cl. 195-51.

Di Candilo, John. Tile fitting tool. 3,548,505, Cl. 33-174.

Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings, to Ward Blenkinsop & Company Limited. Tertiary-alpha-naphthylamines. 3,549,745, Cl. 260-574.

Dickmann, John L., to Jackson, Byron, Inc. Well pipe tongs. 3,548,692, Cl. 81-57.18

DiDonato, Richard T.: *See—*
Navarro, John F., III, and DiDonato, Richard T.,3,548,764.

Dienes, Edward K., to Catalysts and Chemicals Inc. Spherical methanation catalysts. 3,549,556, Cl. 252-455.

Dietz, Albert. Method for producing pigments of improved dispersibility. 3,549,396, Cl. 106-300.

Dietzel, Karl, Peilstocker, Gunter, and Siemonsen, Hans-Peter, to Farbenfabriken Bayer Aktiengesellschaft, and Compagnie de Saint-Gobain. Laminated safety panes. 3,549,476, Cl. 161-165.

Di Giorgio Corporation: *See—*
Casalina, Samuel L., 3,549,509.
Casalina, Samuel L., 3,549,510.

DiGiugno, Angelo John: *See—*
Colgan, James Basil, DiGiugno, Angelo John, and Duggan, Robert James,3,550,091.

Dilley, William G., Jr., and Ponto, Robert A., to Spectra Sonics. Compressor-limiter circuit. 3,550,028, Cl. 330-29.

Di Netta, Joseph, and Egerton, John R., to Merck & Co., Inc. Anthelmintic compositions and methods using 2- substituted benzimidazoles and organo-phosphates. 3,549,749, Cl. 424-200.

Di Netta, Joseph, and Egerton, John R., to Merck & Co., Inc. Combinations of 2-substituted benzimidazoles and substituted phenothiazines in the treatment of helminthiasis. 3,549,754, Cl. 424-247.

Di Pietro, Joseph: *See—*
Roberts, William J., and Di Pietro, Joseph,3,549,697.

Di Pietro, Joseph, and O'Brien, Merrill N., Jr., to Celanese Corporation. Sulfonated aryl phosphates and process for making same. 3,549,729, Cl. 260-947.

Dittrich, Walter, and Konrad, Jakob, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Vehicle engine control means. 3,548,685, Cl. 74-858.

Dixie Tool Industries, Inc.: *See—*
Cave, Robert S., Alexander, Donald D., and Shaner, Milo W., 3,548,476.

DMB-Apparatebau and Hans-Mueller Bernhardt: *See—*
Goey, Wilhelm, and Brinckmann, Paul, 3,548,830.

Dobson, W. E. & F., Limited: *See—*
Mc Luckie, Alexander Dalrymple, 3,548,601.

Dockery, Calvin D., to Phillips Petroleum Company. Shearing ring for split mold thermoforming. 3,548,459, Cl. 18-19.

Dohle, Rolf Werner: *See—*
Wurzer, Joachim Franz, Dohle, Rolf Werner, and Zaja, Wolfgang Werner,3,549,267.

Dolbec, Albert C., to General Electric Company. Static exciter field suppressor. 3,549,981, Cl. 322-25.

Dollinger, Robert E.: *See—*
Kallenberger, Robert H., Dollinger, Robert E., Byron, John W., and Henderson, Eulas W.,3,548,454.

Dollman, David Y., to Amchem Products, Inc. Method and compositions for treating aluminum surfaces. 3,549,540, Cl. 252-105.

Domba, Elemer, and Krolikiewicz, Thaddeus A., to Nalco Chemical Company. Hexafluoroisopropanol acrylamide. 3,549,705, Cl. 260-561.

Dombeck, Edward K., to Bendix Corporation, The. Brake shoe bearing means. 3,548,976, Cl. 188-78.

Donn Products, Incorporated: *See—*
Downing, Lucien R., Jr., 3,548,557.

Dorn, Ludwig, and Podschus, Ernst, to Farbenfabriken Bayer Aktiengesellschaft. Process for utilizing fluorosilicic acid. 3,549,317, Cl. 23-88.

Dotson, Charles J.: *See—*
Zuhlke, Daniel H., and Dotson, Charles J.,3,549,165.

Dover Corporation: *See—*
Moore, Glenn E., and Wood, Chester W., 3,548,893.
Parks, Asbury S., 3,548,874.

Dow Chemical Company: *See—*
Barnhart, James W., 3,549,772.

Dow Chemical Company, The: *See—*
Bublitz, Donald E., 3,549,655.
Johnston, Howard, 3,549,647.
Katzer, Melvin F., 3,548,880.
Mc Donald, Leighton S., and Crabb, Clarence R., 3,549,547.
Merrill, Claude I., and Madison, Norman L., 3,549,711.
Mindick, Morris, and Svarz, Jerry J., 3,549,562.
Roberts, Carleton W., and Travis, Gale D., 3,549,648.

Dow Corning Corporation: *See—*
Compton, Richard A., 3,549,744.

Downham, Roy E.: *See—*
Frost, John W., Downham, Roy E., and Eckelaert, Jack F.,3,549,070.

Downing, Lucien R., Jr., to Donn Products, Incorporated. Partition wall. 3,548,557, Cl. 52-493.

Dracka, Oldrich: *See—*
Mackrle, Vladimir, Mackrle, Svatopluk, and Dracka, Oldrich,3,549,012.

Dranetz Engineering Laboratories, Incorporated: *See—*
Vachitis, Alvin, 3,549,874.

Dreher, Hans C., to General Cigar Co., Inc. Apparatus for reinforcing the head end of a cigar. 3,548,836, Cl. 131-21.

Dreitzler, David R., to United States of America, Army. Two battery time delay squib circuit. 3,548,749, Cl. 102-70.2

Drenten, Richard C., and Ester, Charles E., to General Electric Company. Connector and mounting device for printed wiring boards. 3,550,062, Cl. 339-17.

Dresser Industries, Inc.: *See—*
Kilgore, Marion D., and Pumpelly, Robert C., 3,548,936.
Swift, Gilbert, 3,550,077.

Dreyer, Everett Leslie, Cruciotti, Louis, Emmert, Richard G., and Pranske, Louis J. Amusement ball-rolling skill game apparatus. 3,549,149, Cl. 273-110.

Driscoll, John J., Hill, Donald G., and Waddell, Richard E., to Bell Telephone Laboratories, Incorporated. Telephone reporting set. 3,549,810, Cl. 179-5.

Du Bois, Marvin A., Jr. Electrical resistor structure. 3,550,058, Cl. 338-57.

Dubowicz, Palemon W., and Slechta, John S., to United States of America, Army. Tunable electronic preselector for a radio receiver. 3,550,011, Cl. 325-475.

Ducey, James A., and Young, Willard G., to Case Manufacturing Company. Ventilated water closet. 3,548,424, Cl. 4-215.

Dudey, Karl F.: *See—*
Erickson, Bruce, and Dudey, Karl F.,3,548,987.

Duggan, Robert James: *See—*
Colgan, James Basil, DiGiugno, Angelo John, and Duggan, Robert James,3,550,091.

Duncan, Lloyd P., to Zero Manufacturing Company. Pipeline milking system. 3,549,292, Cl. 119-14.41

Dunion, Paul F., Jr.: *See—*
Coates, John S., Dunion, Paul F., Jr., and Tsukamoto, Akira,3,549,727.

Dunlop Company Limited, The: *See—*
Ambrose, John, 3,548,884.

Dunn, Elman R., to Litton Industries, Inc. Coolant control for disc grinders. 3,548,549, Cl. 51-118.

Dunning, Fred R.: *See—*
Davis, Otho L, Falcone, Carmen M., and Dunning, Fred R.,3,548,819.

Du Pont de Nemours, E. I., and Company: *See—*
Caddell, Jack R., 3,549,733.
Chang, Catherine Teh-lin, and Fan, Roxy Ni, 3,549,367.
Clarke, Ray Allen, 3,549,612.
Coates, John S., Dunion, Paul F., Jr., and Tsukamoto, Akira, 3,549,727.
Isbell, Charles Levi, Jr., 3,549,320.
Kitson, Robert E., and Reese, Cecil E., 3,549,597.
Masino, John Albert, and Sturdevant, Eugene J., 3,549,896.
McMillin, Carl Kenneth, and Teerlink, Wilford John, 3,549,596.
Mesirov, Michael E., 3,549,566.
Olson, Edwin G., 3,548,892.
Palmer, Alan B., 3,549,337.
Proffitt, Thomas Jefferson, Jr., 3,549,530.
Roos, Leo, 3,549,376.
Schwarz, Eckhard Christian August, 3,549,740.

Du Pont de Nemours, E. I., and Company: *See—*
Whitmeyer, Herbert W., 3,549,617.

Dura Corporation: *See—*
Knapp, Theodore F., 3,549,928.

Durkee, Jackson L., and Neeld, Frank W., Jr., to Bethlehem Steel Corporation. Suspension bridge cable anchorage. 3,548,432, Cl. 14-21.

Duroux, Jacques Marius, and Pichon, Louis Marius Elie, to Rhone-Poulenc S.A. Manufacture of oxalic acid. 3,549,696, Cl. 260-533.

Duschinsky, Robert: *See—*
Beaman, Alden Gamaliel, Duschinsky, Robert, and Tautz, William Paul,3,549,653.

Dusza, John Paul: *See—*
Joseph, Joseph Peter, Dusza, John Paul, and Bernstein, Seymour,3,549,674.

Duyverman, Coenraad J., and Rademakers, Peter, to Stamicarbon N.V. Process for the purification of olefines. 3,549,719, Cl. 260-677.

Dvorak, Jacob A.: *See—*
Gillery, Frank H., Dvorak, Jacob A., Rabenold, Ronald R., and Peffer, John R.,3,549,478.

Dyck, Manfred F. Production of non-thrombogenic plastics. 3,549,409, Cl. 117-47.

Dyke, Elbert S. Hydraulic brake bleeding apparatus. 3,548,978, Cl. 188-152.

Dykstra, Thomas K., and Whiteley, Thomas E., to Eastman Kodak Company. Novel polymers and their use in photographic applications. 3,549,605, Cl. 260-79.3

Dynamics Corporation of America: *See—*
Seay, Perry A., 3,549,880.

Dynamics Research Corporation: *See—*
Blake, Lawrence S., 3,549,897.

Dziedziula, Edward J., to General Electric Company. Righting system for vehicle. 3,548,429, Cl. 9-8.

Dzus Fastener Co., Inc.: *See—*
Dzus, Theodore, and Gunther, Conrad J., 3,548,712.

Dzus, Theodore, and Gunther, Conrad J., to Dzus Fastener Co., Inc. Automatic machine for forming fastener elements. 3,548,712, Cl. 90-11.

Eades, Carl E. Circular pleasure boat. 3,548,428, Cl. 9-1.

Eaglesfield, Charles Cecil, and Kao, Charles Kuen, to International Standard Electric Corporation. Waveguide for electromagnetic waves. 3,549,233, Cl. 350-96.

Eastman Kodak Company: *See—*
Ambusk, William J., 3,549,406.
Blackman, Robert J., 3,548,478.
Burness, Donald M., and Silverman, Robert A., 3,549,378.
Carpenter, James W., Mee, John D., and Heseltine, Donald W., 3,549,362.
Clemens, Milton Lewis, Jr., 3,549,669.
Coover, Harry W., Jr., and Joyner, Frederick B., 3,549,608.
Dykstra, Thomas K., and Whiteley, Thomas E., 3,549,605.
Miller, Jerry B., 3,549,361.
Stark, Daniel J., 3,549,106.
William, Robert F., Jr., and Barbehenn, Herbert S., 3,549,403.

Eaton Yale & Towne, Inc.: *See—*
Bencic, Robert S., 3,549,051.
Fathauer, George H., 3,548,855.
Hamilton, Martin W., 3,549,876.
Jaeschke, Ralph L., 3,549,948.
Oldberg, Sidney, and Carey, William R., 3,549,169.

Ebauches S.A.: *See—*
Chopard, Remy, and Stamm, Heinrich, 3,548,585.

Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Leather dyeing and coating with a resin dye copolymer of an N-methylolacrylamide and an alkyl acrylate. 3,549,304, Cl. 8-12.

Eberle, Richard J., to Stainless, Inc. Guyed tower for microwave horns. 3,550,146, Cl. 343-879.

Eck, Herbert, and Spes, Hellmuth, to Wacker-Chemie G.m.b.H. Process for producing acetoacetic acid esters. 3,549,693, Cl. 260-483.

Eckelaert, Jack F.: *See—*
Frost, John W., Downham, Roy E., and Eckelaert, Jack F.,3,549,070.

Eckert, George W.: *See—*
Estes, John H., and Eckert, George W.,3,549,718.

Eckert, George W., and McDonald, William A., to Texaco Inc. Composition and method for retarding evaporation of water. 3,549,313, Cl. 21-60.5

Eckert, Lewis W., to Armstrong Cork Company. Flocculation-deflocculation steps in mineral wool-clay board formation. 3,549,485, Cl. 162-152.

Edwards, Charles John, to Boeing Company, The. Apparatus for making oblique prints from orthographic drawings. 3,549,252, Cl. 355-52.

Egerton, John R.: *See—*
Di Netta, Joseph, and Egerton, John R.,3,549,749.
Di Netta, Joseph, and Egerton, John R.,3,549,754.

Ehmann, Werner, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Freeze-thaw resistant polyvinyl ester dispersions and process for making them. 3,549,578, Cl. 260-29.6

Eiermann, Rolf Jurg, to Aluphon AG. Suspension means for false ceilings. 3,549,114, Cl. 248-340.

Eisennegger, Edwin B. Apparatus with piston. 3,548,721, Cl. 92-153.

Ekrud, Anders Lennart, to Sandvikens Jernverks Aktiebolag. Saw chain. 3,548,897, Cl. 143-135.

Elarde, Vito D., to Ceram Corporation. Precision tolerance ceramic and method of preparing same. 3,549,393, Cl. 106-39.

Electric Fuel Propulsion, Incorporated: *See—*
Aronson, Robert R., 3,548,968.

Electronic Sensing Products, Inc.: *See—*
Penland, Robert S., 3,549,985.

Elektroschmelzwerk Kempten G.m.b.H.: *See—*
Hayek, Erich G., 3,549,342.

Ellar Products, Inc.: *See—*
Rabinowitz, Lewis, 3,549,247.

Ellern, William Bert: *See—*
United States of America, National Aeronautics and Space Administration, Administrator, 3,548,633.

Ellis, Frederick Albert, to Flight Refuelling Limited. Devices for measuring the liquid contents of containers. 3,548,659, Cl. 73-314.

Ellis, Warren L., to Anchor Hocking Glass Corporation. Self-relieving article transfer plate. 3,548,996, Cl. 198-23.

Elsner, Hans: *See—*
Behrens, Herbert, and Elsner, Hans,3,548,993.

Emerick, Robert M.: *See—*
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H.,3,549,803.

Emerson, Christopher P. Tree felling device. 3,548,899, Cl. 144-309.

Emerson Electric Co.: *See—*
Meyer, Carl X., 3,549,879.

Emhart Corporation: *See—*
Keller, Rene, 3,549,890.
Sarkozy, Francis A., and Bystrianyk, Wasyl, 3,549,191.

Emmert, Richard G.: *See—*
Dreyer, Everett Leslie, Cruciotti, Louis, Emmert, Richard G., and Pranske, Louis J.,3,549,149.
Energy Transformation Corporation: *See—*
Xoesca, Rene A. M., 3,548,565.
Enger Kress Company: *See—*
Boldt, Carl F., 3,548,907.
Engle, Charles J., to Phillips Petroleum Company. Apparatus and method for liquid introduction in oil wells. 3,548,946, Cl. 166-310.
English Electric Company Limited, The: *See—*
Horton, Peter, 3,549,833.
Jordan, Frederick James, and Wells, Sydney Tom, 3,548,490.
Schofield, Clifford Raymond, and Hutchinson, Desmond Ernest, 3,548,682.
Enkoji, Takashi, and Bossinger, Charles D., to Armour Pharmaceutical Company. 1-(Substituted)-5-aminotetrazoles and treatment of inflammation of the animal organism therewith. 3,549,765, Cl. 424-269.
Enokida, Kenji: *See—*
Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira,3,549,937.
Equitable Bag Co., Inc.: *See—*
Canno, Leonard E., and Krissel, Robert A., 3,549,083.
Canno, Leonard E., 3,549,084.
Ercoli, Alberto, and Gardi, Rinaldo, to Warner-Lambert Pharmaceutical Company. Stable solution of therapeutically active steroid enol ethers and process. 3,549,752, Cl. 424-239.
Erickson, Bruce, and Dudey, Karl F., to Nordberg Manufacturing Company. Electric speed control for fluid operated marine clutches. 3,548,987, Cl. 192-104.
Erickson, John W.: *See—*
Pettigrew, Paul W., Konrad, Marion G., and Erickson, John W.,3,549,291.
Erickson, Kenneth R.: *See—*
O'Connor, Donald T., Debb, Arthur D., and Erickson, Kenneth R.,3,548,644.
Ericson, John P.: *See—*
Harris, Everett K., Ericson, John P., and Miller, Richard E.,3,549,301.
Erikson, Kenneth R.: *See—*
Flaherty, John J., Erikson, Kenneth R., and Lund, Van Metre,3,548,642.
Ernst, Adolphe Otton Gontier: *See—*
Colombani, Don Pierre Louis Jean, and Ernst, Adolphe Otton Gontier,3,548,598.
Ernst, Robert R., to Sybron Corporation. Process and apparatus for recovering sterilizing gas for refuse. 3,549,312, Cl. 21-58.
Ervin, Harold D. Multiplex transmitter and central station system. 3,550,086, Cl. 340-150.
Ervin, Harold D. Security alarm system. 3,550,111, Cl. 340-276.
Espenschied, Helmut, and Rothfuss, Georg, to Bosch, Robert, GmbH. Torque transmitting device. 3,548,985, Cl. 192-84.
Espenschied, Helmut, Rothfuss, Georg, and Weyer, Herbert, to Bosch, Robert, GmbH. Linear motor actuator. 3,549,917, Cl. 310-14.
Esser, Herbert, and Gubler, Kurt, to Geigy Corporation. Method of controlling insects and acarinae, employing certain acylated hydrazones and hydrazines. 3,549,767, Cl. 424-327.
Essex International, Inc.: *See—*
Ferryman, Kenneth K., Jr., 3,549,832.
Essig, Karl-August: *See—*
Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst,3,548,469.
Esso Production Research Company: *See—*
Blackwell, Robert J., and Rumble, Robert C., 3,548,958.
Gidley, John L., 3,548,945.
Graham, John W., and Ortloff, Gerald D., 3,548,941.
Kiel, Othar M., 3,548,937.
Terry, William M., 3,548,942.
Esso Research and Engineering Company: *See—*
Brainard, Alan J., and Hamner, Glen Porter, 3,549,515.
Brewster, Phillip W., and Pattenden, Warren C., 3,549,537.
Favis, Dimitrios V., 3,549,723.
Kagan, George M., and Roper, Robert, 3,549,567.
Mason, Ralph Burgess, and Hamner, Glen Porter, 3,549,518.
Mayer, Francis X., 3,549,352.
Stogryn, Eugene L., and Gianni, Michael H., 3,549,707.
Ester, Charles E.: *See—*
Drenten, Richard C., and Ester, Charles E.,3,550,062.
Esterline Corporation: *See—*
Adlaf, William J., 3,548,629.
Estes, John H., and Eckert, George W., to Texaco Inc. Hydrocarbon conversion process. 3,549,718, Cl. 260-671.
Etablissement Public: Institut National de la Recherche Agronomique: *See—*
Verge, Jean Charles, 3,548,730.
Etessam, Alexander Hossen. Turbine engine for aircraft having a supplementary compressor driven by a supplementary turbine. 3,548,597, Cl. 60-226.
Etter, George M. Aerosol container-dispensing holder. 3,549,054, Cl. 222-180.
Etzkorn, Elmer F., to Skil Corporation. Socket retention assembly. 3,549,160, Cl. 279-97.
European Atomic Energy Community-EURATOM: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge, 3,549,399.
Evans, Bryce B., to Aeroquip Corporation. Quick acting fluid coupling. 3,549,175, Cl. 285-1.
Evans, Dewey M., and Koepke, Frederick W., to Ajem Laboratories, Inc. Devices for power washing, surface re-forming and the like. 3,548,543, Cl. 51-8.
Evans, Monroe E., to Cape Fear Feed Products, Inc. Terminal heating apparatus for freeing feed ingredients of salmonella. 3,548,737, Cl. 99-235.
Everett, Peter Kenneth, to Union Carbide Canada Limited. Removal of iron from solution. 3,549,321, Cl. 23-200.
Everston, Joseph H. Therapeutic pool. 3,548,815, Cl. 128-66.
Ex-Cell-O Corporation: *See—*
Malone, Robert Lee, 3,549,867.
Fab-Con Machinery Development Corporation: *See—*
Catallo, Frank, and Foreman, Donald, 3,548,616.
Faehling, Francis L., and Peterson, Stanley O., to Preway Inc. Self-cleaning oven. 3,548,804, Cl. 126-37.
Faehling, Francis L., and Peterson, Stanley O., to Preway Inc. Self-cleaning oven with smoke eliminator. 3,549,859, Cl. 219-393.
Fair, Albert Edward Harold, to Lummus Company, The. Impregnation and digestion of cellulosic material in a single vessel. 3,549,483, Cl. 162-19.
Falcone, Carmen M.: *See—*
Davis, Otho L, Falcone, Carmen M., and Dunning, Fred R.,3,548,819.
Falk Corporation, The: *See—*
Phillips, Allyn E., 3,548,678.
Fan, Roxy Ni: *See—*
Chang, Catherine Teh-lin, and Fan, Roxy Ni,3,549,367.
Farah, Basil S., and Schroeder, Herbert M., to Textron Inc. Polyurethane coating compositions prepared from 1-isocyanato-3-isocyantomethyl-3,5,5- trimethylcyclohexane. 3,549,569, Cl. 260-18.
Farbenfabriken Bayer Aktiengesellschaft: *See—*
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann, 3,549,692.
Dorn, Ludwig, and Podschus, Ernst, 3,549,317.
Groll, Manfred, Wunderlich, Klaus, and Bien, Hans-Samuel, 3,549,664.
Merten, Rudolf, 3,549,599.
Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst, 3,548,469.
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus, 3,549,334.
Senge, Ferdinand, Peltzer, Bernd, and Schnell, Hermann, 3,549,600.
Vernaleken, Hugo, Wulff, Claus, Bottenbruch, Ludwig, and Schnell, Hermann, 3,549,682.
Wunderlich, Klaus, Bien, Hans-Samuel, and Baumann, Fritz, 3,549,667.
Dietzel, Karl, Peilstocker, Gunter, and Siemonsen, Hans-Peter, 3,549,476.
Farber, Hans, to Gutehoffnungshutte Sterkrade Aktiengesellschaft. Grate section for a traveling grate. 3,548,763, Cl. 110-40.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Ehmann, Werner, 3,549,578.
Lindner, Helmut, Hoyer, Ernst, and Schmidt, Heinz, 3,549,613.
Schmidt, Erwin, Horoldt, Ernst, and Rupp, Walter, 3,549,580.
Farmer, Everett W., and Van Ham, Ernest E., to United States of America, Navy, mesne. Pressure gradient hydrophone calibrator. 3,548,631, Cl. 73-1.
Farmer, Howard N., Jr. Process of rebuilding steel structures. 3,549,410, Cl. 117-50.
Farrington Electronics, Inc.: *See—*
Glass, Harold C., 3,550,081.
Fathauer, George H., to Eaton Yale & Towne, Inc. Electronic timer. 3,548,855, Cl. 137-93.
Fausett, Dale L., to General Electric Company. Information storage control apparatus for a magnetic core memory. 3,550,100, Cl. 340-174.
Favis, Dimitrios V., to Esso Research and Engineering Company. Process for making linear alpha olefins. 3,549,723, Cl. 260-683.15
Fedorov, Nikolai Evstigneevich: *See—*
Levin, Igor Anatolievich, Levin, Anatoly Yakovlevich, and Fedorov, Nikolai Evstigneevich,3,549,964.
Feltenberger, Bruce D. Drafting machine. 3,548,503, Cl. 33-26.
Fenstermaker, Ronald E., and Swanson, Richard M., to Bell Telephone Laboratories, Incorporated. Call rerouting equipment. 3,549,816, Cl. 179-27.
Fenyes, Joseph G. E. N-phenyl sulfonamides. 3,549,700, Cl. 260-551.
Ferber, Malcolm F. Mowing implement including a series of slashing heads. 3,548,572, Cl. 56-192.
Fergusson, Gordon J., to Scientific Research Instruments Corporation. Method and analyzer for hydrogen, carbon monoxide and hydrocarbons in exhaust gases. 3,549,327, Cl. 23-232.
Ferretti, Giorgio: *See—*
Lombardini, Arnaldo, and Ferretti, Giorgio,3,548,800.
Ferris, Warren Francis, to National Union Electric Corporation. Motor driven tuning system. 3,549,975, Cl. 318-480.

Ferro Corporation: *See—*
Whang, Tack J., 3,549,581.
Ferry, Ronald R., and May, Robert R., to Roaring Spring Blank Book Co. Core form for concrete member. 3,549,116, Cl. 249-184.
Ferryman, Kenneth K., Jr., to Essex International, Inc. Hazard warning switch construction. 3,549,832, Cl. 200-16.
Fetscher, Charles A.: *See—*
Payne, William L., and Fetscher, Charles A.,3,549,582.
Fiber Industries, Inc.: *See—*
Hefley, Jack Darrell, and West, William Hugo, 3,549,475.
Watson, George A., 3,549,398.
Fierston, Stanley A., and Zitzow, Harold P., to United States of America, Army, mesne. Range estimator. 3,550,125, Cl. 343-13.
Finacalor Aktiengesellschaft: *See—*
de Galocsy, Zsigmond, and Prunet, Jean, 3,549,295.
Finch, Theron R.: *See—*
Sykes, Donald J., Kroll, Harry, and Finch, Theron R.,3,549,370.
Finkbeiner, Herman L., to General Electric Company. Process for the preparation of carboxylic acid esters. 3,549,688, Cl. 260-468.
Fiori, Giorgio, to USAP Utensileria Speciale Alta Presisione S.p.A. Cutting tool for lathes. 3,548,475, Cl. 29-96.
Fischer, Thomas R., to Avco Corporation. Bunk feeder controls. 3,548,999, Cl. 198-64.
Fischer, William H., and Frink, Russell E., to Westinghouse Electric Corporation. Fluid-blast circuit interrupter with piston assembly and electromagnetic driving means. 3,549,842, Cl. 200-148.
Fisher, Alan R., to Ford Motor Company. Differential gear mechanism with wobbling inertia ring. 3,548,683, Cl. 74-711.
Fisher, Alan R., to Ford Motor Company. Flexible piston cone clutch. 3,548,986, Cl. 192-85.
Fisher, John C., to General Electric Company. Mass emotional reaction measurement system. 3,548,806, Cl. 128-2.05
Fisher, John T., to Carrier Corporation. Refrigeration system having generator temperature sensing means. 3,548,608, Cl. 62-148.
Fisher, Michael H.: *See—*
Clark, Robert L., and Fisher, Michael H.,3,549,761.
Fisher, Richard C., to Rucker Company, The. Valve for electro viscous fluids. 3,548,852, Cl. 137-81.5
Fisher, Sidney L., to Spider Staging, Inc. Oil lubrication system for a staging winch drive. 3,548,971, Cl. 184-6.
Fisher-Price Toys, Inc.: *See—*
Martin, Paul A., 3,548,701.
Fiyitsu Limited: *See—*
Kuyasu, Zeniti, Miki, Tetsuya, and Kawashima, Masao, 3,550,116.
Flaherty, John J., Erikson, Kenneth R., and Lund, Van Metre, to Magnaflux Corporation. Synthetic aperture ultrasonic imaging systems. 3,548,642, Cl. 73-67.5
Flannelly, William G., to Kaman Aerospace Corporation, mesne. Vibration absorber with rotating mass. 3,548,972, Cl. 188-1.
Fleischer, Alfred R., and Barich, John J., to De Laval Turbine Inc. Engine controller. 3,548,798, Cl. 123-140.
Flight Refuelling Limited: *See—*
Ellis, Frederick Albert, 3,548,659.
Flink, Evert, to Rederiaktiebolaget Nordstjernan. Joint. 3,549,178, Cl. 285-187.
Flow Pharmaceuticals, Inc.: *See—*
Krezanoski, Joseph Z., and Petricciani, John C., 3,549,747.
Flubacker, Charles H., to Artag Plastics Corporation. Check controlled stamp dispensing machines. 3,548,991, Cl. 194-10.
Fluegel, Dale A., to Phillips Petroleum Company. Linear analog conversion. 3,549,998, Cl. 324-120.
FMC Corporation: *See—*
Carter, Mary E., 3,549,308.
Hutchison, Carl R., 3,548,934.
Foote, Daniel J., to Master Lock Company. Art of interlocking plate assembly for laminated padlock bodies. 3,548,486, Cl. 29-469.
Ford, Allen G., and Wilson, Robert A., to United States of America, Navy. Canted rudders for ses. 3,548,776, Cl. 114-163.
Ford Motor Company: *See—*
Boschen, John A., and Close, Ablert R., 3,549,202.
Cagnon, Eugene C., Hurlin, Kenneth P., and Pavlovich, Joseph, 3,549,218.
Dehar, David C., 3,548,445.
Fisher, Alan R., 3,548,683.
Fisher, Alan R., 3,548,986.
Grimes, Delmar C., Muller, George H., and Ulics, George, 3,548,675.
Hoover, Robert L., 3,548,667.
Kothari, Mahesh B., 3,548,440.
Kruger, Robert J., 3,548,441.
Moore, Thomas S., and Ross, James T., 3,549,166.
Nichols, Denver E., and Wood, John E., 3,549,288.
Pentland, Alex M., 3,549,926.
Radin, Bernard G., 3,548,663.
Roven, William G., 3,548,847.
Silver, Arnold H., and Zimmerman, James E., 3,549,991.
Wenzel, John L., 3,550,080.
Wolfe, Earl W., 3,549,201.
Foreman, Donald: *See—*
Catallo, Frank, and Foreman, Donald,3,548,616.
Forim, Leo I., to Sterling Drug Inc. Aerosol double mixing unit with actuating means. 3,549,052, Cl. 222-135.
Formax Manufacturing Company: *See—*
McAleer, Howard J., 3,548,550.
Forney Industries, Inc.: *See—*
Forney, Jack D., 3,549,831.
Forney, Jack D., to Forney Industries, Inc.Speaker system for welders' helmets and the like. 3,549,831, Cl. 179-156.
Fortune, William S. Solder remover implement. 3,549,078, Cl. 228-20.
Foster Bros. Manufacturing Company: *See—*
Helton, William J., 3,548,426.
Foster, Luther M.: *See—*
Buszko, Leonard J., Foster, Luther M., and Lorenz, Max R.,3,549,401.
Foster, Manus R., Sengbush, Raymond L., and Watson, Robert J., to Mobil Oil Corporation. Optimum seismic velocity filters. 3,550,073, Cl. 340-15.5
Foster Wheeler Corporation: *See—*
Altman, Joseph G., and Friedrich, Jan L., 3,548,788.
Foulke, Edward D.: *See—*
Risser, Roger L., Foulke, Edward D., and Mc Carty, Horace G.,3,548,574.
Fourre, Jacques: *See—*
Bonne, Roger, Jacquot, Maurice, and Fourre, Jacques,3,549,408.
Fowell, Peter A. Polyamide molding resin obtained by polymerizing polyamide precursors in the presence of a critical proportion of end capping agent: branching agent. 3,549,601, Cl. 260-78.
Fowler, Lewis: *See—*
Deason, Wallace R., Fowler, Lewis, and Trump, Walter N.,3,548,640.
Foxboro Company, The: *See—*
Richardson, David A., and Olsen, Everett O., 3,550,014.
Fraige, Richard, to C&F Products, Inc. Image dissecting and modifying lenses for spectacles. 3,549,302, Cl. 350-146.
Francy, James R., to Scantlin Electronics, Inc. Releasable fastener for actuator element of snap switch, or the like. 3,549,846, Cl. 200-172.
Franklin, Clifford John: *See—*
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis,3,549,270.
Frankowski, Jerome J., and Stuck, Thomas E. Carburetor. 3,549,133, Cl. 261-51.
Franz, Arvel O.: *See—*
Lester, Fred F., and Franz, Arvel O.,3,549,315.
Fraser Companies Limited: *See—*
Wilson, William J., and Das, Bejoy S., 3,549,319.
Frazier, Charles: *See—*
Coscia, Anthony Thomas, Ritson, Daniel Dickerson, Frazier, Charles, and Ross, Joseph Hansbro,3,549,568.
Frech, Everett Bryant, to Riegel Paper Corporation. Universal graphic display material having a embossed polyvinyl fluoride surface layer. 3,549,463, Cl. 161-2.
Freeny, Stanley L., to Bell Telephone Laboratories, Incorporated. System for setting the slope of a data signal to zero at the sampling instants without modifying the data signal values. 3,550,021, Cl. 328-151.
French, Arthur W., to General Dynamics Corporation. Automatic tuning system responsive to passband skirts. 3,550,009, Cl. 325-363.
Frey, Albert J., Griot, Rudolf G., and Ott, Hans, to Sandoz-Wander, Inc. Phenoxy-alkanoic acids. 3,549,689, Cl. 260-471.
Frey, Frederick W., Jr., and Carley, David R. Metal plating particulated substrates. 3,549,412, Cl. 117-100.
Frick, Wilhelm Ernst, and Schetty, Guido, to Geigy Chemical Corporation, mesne. Certain dibenzo-1,2-thiazines as insecticides and acaricides. 3,549,753, Cl. 424-246.
Fried, John: *See—*
Windholz, Thomas B., Patchett, Arthur A., and Fried, John,3,549,672.
Fried, Krupp Gesellschaft mit beschrankter Haftung: *See—*
Schlemm, Hans, and Mertens, Peter, 3,550,071.
Friedlander, Herbert N., and Menikheim, Virginia C., to Monsanto Company. Surface modified nylon fibers produced by photocatalyzed halogenation. 3,549,306, Cl. 8-115.5
Friedmann, Arnold. Discharge lamp with circuit elements incorporated in the envelope. 3,549,941, Cl. 315-58.
Friedrich, Jan L.: *See—*
Altman, Joseph G., and Friedrich, Jan L.,3,548,788.
Frigitronics, Inc.: *See—*
Reynolds, Frank L., and Thyberg, Victor A., 3,548,829.
Frink, Russell E.: *See—*
Fischer, William H., and Frink, Russell E.,3,549,842.
Frost, James D., Jr.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,548,812.
Frost, John W., Downham, Roy E., and Eckelaert, Jack F., to TEC Systems, Inc. Floatation of sheet materials. 3,549,070, Cl. 226-97.
Frost, Leslie S.: *See—*
Church, Charles H., and Frost, Leslie S.,3,549,943.
Fruehauf Corporation: *See—*
Fujioka, Richard T., 3,548,756.
Fruit, Jerry L.: *See—*
Damrel, John B., Jr., and Fruit, Jerry L.,3,548,632.
Fuchs, Francis Joseph, Jr., to Western Electric Company, Incorporated. Collapsible feed mechanism. 3,548,625, Cl. 72-272.
Fuji Shashin Film Kabushiki Kaisha: *See—*
Ariyasu, Kenji, and Tsuji, Akira, 3,548,728.
Honjo, Satoru, and Sato, Masamichi, 3,549,359.
Fuji Shashin Film Kaisha: *See—*
Amano, Hiroyuki, Tsuji, Nobuo, and Shirasu, Kazuo, 3,549,374.

Fujija, Yuta. Golf glove. 3,548,414, Cl. 2-169.
Fujioka, Richard T., to Fruehauf Corporation. Railcar unloading system. 3,548,756, Cl. 105-455.
Fujiwara, Yasuharu: *See—*
Yasuda, Takeshi, and Fujiwara, Yasuharu,3,549,734.
Fukawa, Hideaki, Toyoda, Masashi, Fukushima, Hideo, and Shimizu, Toru, to Nisshin Flour Milling Co., Ltd.Process for the manufacture of coenzymes Q_9, Q_{11}, Q_{15} and Q_{21} and novel coenzymes Q_{10} and Q_{12}. 3,549,668, Cl. 260-396.
Fukui, George Masaaki: *See—*
Berger, Frank Milan, and Fukui, George Masaaki,3,549,766.
Fukushima, Hideo: *See—*
Fukawa, Hideaki, Toyoda, Masashi, Fukushima, Hideo, and Shimizu, Toru,3,549,668.
Fuller, Francis A., Jr., to Universal Date Acquistion Co., Inc. Recording medium drive mechanism. 3,550,151, Cl. 346-74.
Funakoshi, Masanori: *See—*
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa,3,549,812.
Furstlich Hohenzollernsche Huttenverwaltung Laucherthal: *See—*
Lohrer, Bernard, 3,549,038.
G & H Technology, Inc.: *See—*
Phillips, John J., 3,550,065.
Gabris, Tibor, to Liaison, S.A. Polyamides derived from oxypolyolefins and polymerized fatty acids. 3,549,573, Cl. 260-23.
Gaddini, Norman E. Freestone peach pitting and halving machine. 3,548,900, Cl. 146-28.
GAF Corporation: *See—*
Mueller, Fritz W. H., Dersch, Fritz, and Luciani, Giacomo, 3,549,371.
Pechmann, Karl, 3,549,375.
Stobb, Rudolph C., 3,549,460.
Turner, John O., and Glickman, Samuel A., 3,549,710.
Gagneux, Andre, to Geigy CHemical Corporation. N-/2-(2-Aza-adamant-2-yl)-ethyl/-guanidine antihypertensive agents. 3,549,764, Cl. 424-267.
Gaisser, August, Schaumann, Anton, and Weber, Willi. Control device for operating an automatic current-pulse emitter for telephony or like installations. 3,549,819, Cl. 179-90.
Galantay, Eugene E., to Sandoz-Wander, Inc. Substituted ketobenzazocines. 3,549,622, Cl. 260-239.3
Galanti, Maurice: *See—*
Gilard, Pierre, and Galanti, Maurice,3,549,523.
Galitz, Raymond F.: *See—*
Windstrup, Robert F., Hale, Charles W., and Galitz, Raymond F.,3,548,769.
Gallaher Limited: *See—*
Baumgartner, Henri, 3,548,840.
Caughey, Thomas A., 3,548,841.
Galperin, Jury Shmulevich: *See—*
Gigauri, Vladimir Spiridonovich, Perelmutr, Alexandr Semenovich, Galperin, Jury Shmulevich, and Smolyarov, Boris Vladimirovich,3,548,821.
Gar Wood Industries, Inc.: *See—*
Spisak, Edward G., 3,549,204.
Gardi, Rinaldo: *See—*
Ercoli, Alberto, and Gardi, Rinaldo,3,549,752.
Gardner, Conrad O. Panel arrangements. 3,548,924, Cl. 165-55.
Gardner, Gerald Marvin, and Wintermantel, Jorg, to International Standard Electric Corporation. Magnetic recording transducer. 3,550,150, Cl. 346-74.
Gardner, Walter A. Method for mercerizing stretchable core spun yarns. 3,549,310, Cl. 8-125.
Gardner-Denver Company: *See—*
Workman, Lawrence H., 3,548,465.
Garis, Edward H. Apparatus for foamed-in-place insulation of vertical surfaces. 3,548,453, Cl. 18-5.
Garrett, Charles M., Jr.: *See—*
McBroom, Billy Joe, and Garrett, Charles M., Jr.,3,549,172.
Garrett Corporation, The: *See—*
Wheeler, Claude R., 3,549,354.
Garside, Peter: *See—*
Ritchie, Alexander Crawford, Cheesman, Dennis George, Garside, Peter, and Waring, Juliet Mary,3,549,649.
Gash, Virgil W., to Monsanto Company. Fluoroalkyl ethers of alicyclic fluoroolefins. 3,549,606, Cl. 260-91.1
Gassino, Teresio, to Olivetti, Ing. C., & C., S.p.A. Ten key calculating machine. 3,549,087, Cl. 235-60.
Gastinne, Francois Jules Marie, to Automobiles Peugeot, and Regie Nationale des Usines Renault. Fuel feed device for an injection engine. 3,548,796, Cl. 123-136.
Gatland, Lawrence O., to Sterling Drug Inc. Aerosol clam shell dispenser. 3,549,055, Cl. 222-182.
Gault, John M., to International Rectifier Corporation. Triac structure and method of manufacture. 3,549,961, Cl. 317-235.
Gaus, Frank D.: *See—*
Payne, Dana C., and Chandler, Jack L., 3,549,575.
Gebhardt, James J., Jr.: *See—*
Smith, Fred T., and Gebhardt, James J., Jr.,3,549,213.
Gebr. Bohler & Co.: *See—*
Kleinhagauer, Otmar, Hladny, Wolfgang, and Cerwenka, Peter, 3,548,918.
Gehman, John B., to General Dynamics Corporation. Object detection system utilizing electromagnetic waves. 3,550,106, Cl. 340-258.
Geigy Chemical Corporation: *See—*
Bindler, Jakob, and Model, Ernst, 3,549,768.
Frick, Wilhelm Ernst, and Schetty, Guido, 3,549,753.
Gagneux, Andre, 3,549,764.
Ostermayer, Franz, Renk, Ernst F., and Denss, Rolf, 3,549,758.
Geigy Corporation: *See—*
Esser, Herbert, and Gubler, Kurt, 3,549,767.
Geimer, Cornelius J., to Kayser-Roth Corporation. Panty Girdle. 3,548,834, Cl. 128-528.
Gelardi, Joseph T., to American Technical Industries, Inc. Method and apparatus for slitting web material. 3,548,694, Cl. 83-1.
Gelinas, Leo-Paul: *See—*
Larive, Rene, Gelinas, Leo-Paul, and Knight, Richard L. C.,3,549,858.
Gellekink, Bernard: *See—*
van Hijfte, Herman Michel, and Gellekink, Bernard,3,550,126.
Gelzheiser, Francis L., to Westinghouse Electric Corporation. Circuit breaker with improved trip means. 3,550,047, Cl. 335-39.
Genakis, Joseph M. Cam type disc cylinder lock. 3,548,620, Cl. 70-364.
General Cigar Co., Inc.: *See—*
Dreher, Hans C., 3,548,836.
General Dynamics Corporation: *See—*
French, Arthur W., 3,550,009.
Gehman, John B., 3,550,106.
Kuecken, John A., 3,550,137.
General Electric Company: *See—*
Aven, Manuel, 3,549,434.
Bigelow, John E., and Lemmond, Charles Q., 3,550,084.
Clark, Thomas J., and Brown, Howard W., 3,549,847.
Cole, Lawrence S., 3,550,114.
Dolbec, Albert C., 3,549,981.
Drenten, Richard C., and Ester, Charles E., 3,550,062.
Dziedziula, Edward J., 3,548,429.
Fausett, Dale L., 3,550,100.
Finkbeiner, Herman L., 3,549,688.
Fisher, John C., 3,548,806.
Grubb, Willard T., and King, Lawrence H., 3,549,423.
Hay, Allan S., and Becker, Hans-Dieter, 3,549,712.
Holdstock, Norman G., Berger, Abe, Selin, Terry G., and Thimineur, Raymond J., 3,549,590.
Hopkins, Edward P., 3,548,592.
Jacobus, Dwight W., and Callahan, Eugene N., 3,548,444.
Luborsky, Fred E., 3,549,418.
Morris, William G., and Lifshin, Eric, 3,549,883.
Norton, James F., 3,549,999.
Norton, James F., 3,550,094.
Parker, Rollin J., 3,550,051.
Sims, Chester T., and Beltran, Adrian M., 3,549,356.
Takekoshi, Tohru, 3,549,593.
Thompson, Robert A., Grabkowski, Stephen E., and Weichbrodt, Bjorn, 3,550,107.
Van Patten, John R., and Spangler, Charles W., 3,549,971.
Weichbordt, Bjorn, and Grabkowski, Stephen E., 3,548,648.
Weininger, Joseph L., and Carson, William N., Jr., 3,549,957.
Werts, Everett W., 3,549,907.
Wood, David E., 3,549,806.
General Mills, Inc.: *See—*
Coury, Arthur J., 3,549,570.
Singer, Roy E., 3,548,758.
General Steel Industries, Inc.: *See—*
Thurston, Edward M., 3,548,755.
General Time Corporation: *See—*
Wood, Robert D., 3,548,587.
General Tire & Rubber Company, The: *See—*
Meincke, Edmund R., 3,549,589.
Gentiluomo, Joseph A. Automatic golf ball teeing means. 3,549,152, Cl. 273-201.
Gentry, Curtis A., Jr., to International Paper Company. Apparatus for bundling pulpwood. 3,548,895, Cl. 143-46.
Gentry, Elwood Maurice: *See—*
Lilly, Arnys Clifton, Jr., and Gentry, Elwood Maurice,3,548,661.
George, Wilbert Ridd: *See—*
Sterling, Henley Frank, and George, Wilbert Ridd,3,549,353.
Georgia Kaolin Company: *See—*
Solomon, David H., 3,549,585.
Gerber Garment Technology: *See—*
Gerber, Heinz Joseph, and Pearl, David R., 3,548,697.
Gerber, Heinz Joseph, and Pavone, Robert J., to Gerber Scientific Instrument Company, The. Device for cutting sheet material. 3,548,699, Cl. 83-528.
Gerber, Heinz Joseph, and Pearl, David R., to Gerber Garment Technology. Apparatus for cutting sheet material. 3,548,697, Cl. 83-201.03
Gerber Scientific Instrument Company, The: *See—*
Gerber, Heinz Joseph, and Pavone, Robert J., 3,548,699.
Webster, Ronald Bruce, 3,548,713.
Gerbeth, Gerhart L., to Goodyear Tire & Rubber Company, The. Clip for wheel rim. 3,548,913, Cl. 152-406.
German, Sidney. Movable wall surface covering and apparatus and process. 3,548,525, Cl. 40-86.
Germer, John H., to United States of America, Atomic Energy Commission. Fast sodium-cooled reactor core structure. 3,549,493, Cl. 176-18.

Germer, John H., to United States of America, Atomic Energy Commission. Flow measuring device for sodium-cooled reactors. 3,549,494, Cl. 176-19.
Germer, John H., and Boardman, Charles E., to United States of America, Atomic Energy Commission. Vessel for a sodium-cooled reactor. 3,548,931, Cl. 165-107.
Gertzman, Donald Paul: *See—*
Charles, Robert Lemoyne, Gertzman, Donald Paul, and Melachouris, Nicholas,3,549,390.
Gervitz, Arthur H., Ames, Ronald B., and Smith, Allen E., to Uniroyal, Inc.Use of N-aryl-N' substituted amino phthalamides as herbicides. 3,549,348, Cl. 71-88.
Getchell, Ralph F., to United States of America, Army. Low-distortion frequency doubler. 3,549,980, Cl. 321-69.
Gewerkschaft Eisenhutte Westfalia: *See—*
Grisebach, Hans Theodor, and Weirich, Walter, 3,548,867.
Ghormley, Edward L., to North American Rockwell Corporation. Automatic oil well dewaxing system. 3,548,438, Cl. 15-104.06.
Gianni, Michael H.: *See—*
Stogryn, Eugene L., and Gianni, Michael H.,3,549,707.
Giarrusso, Gino A.: *See—*
Silverman, Herbert P., and Giarrusso, Gino A.,3,549,329.
Gibbs, Erich L. Photoelectric liquid level sensor using baffle. 3,549,893, Cl. 250-218.
Giddings, Edward H. Gas compression method and apparatus. 3,549,278, Cl. 417-349.
Gidley, John L., to Esso Production Research Company. Method for acidizing siliceous formations. 3,548,945, Cl. 166-307.
Gigauri, Vladimir Spiridonovich, Perelmutr, Alexandr Semenovich, Galperin, Jury Shmulevich, and Smolyarov, Boris Vladimirovich. Apparatus for artificial ventilation of lungs. 3,548,821, Cl. 128-145.6
Gilard, Pierre, and Galanti, Maurice. Method for extracting solid particles from a liquid. 3,549,523, Cl. 210-24.
Gill, Joseph, and Rouvalis, George, to Westinghouse Electric Corporation. Function generator. 3,550,020, Cl. 328-142.
Gill, Lester D. Carton construction with pour spout. 3,549,080, Cl. 229-17.
Gillery, Frank H., Dvorak, Jacob A., Rabenold, Ronald R., and Peffer, John R., to PPG Industries, Inc. Glass laminate having a brominated resin interlayer. 3,549,478, Cl. 161-185.
Gillett Tool Co., Inc.: *See—*
Long, Emile David, 3,548,791.
Gillette Company, The: *See—*
Martin, Frank Samuel, 3,550,152.
Gilliam, D. Howard. Elastic tension cord. 3,549,143, Cl. 267-74.
Gilstrap, James B. Optical flight control system. 3,549,109, Cl. 244-77.
Girling Limited: *See—*
Clifford, Stanley, 3,550,079.
Givaudan Corporation: *See—*
Kappeller, Heinrich, and Wild, Jost, 3,549,679.
Marbet, Roman, 3,549,714.
G.K.N. Somerset Wire Limited: *See—*
Hann, Kenneth Graeme, and Davies, Peter Gouch, 3,548,624.
Glass, Harold C., to Farrington Electronics, Inc. Apparatus for measuring the height of a printed character or the like. 3,550,081, Cl. 340-146.3
Glass, Marvin, & Associates: *See—*
Glass, Marvin I., and Barlow, Gordon A., 3,548,536.
Glass, Marvin I., and Barlow, Gordon A., to Glass, Marvin, & Associates. Toy telephone. 3,548,536, Cl. 46-33.
Glasson, Douglas Haigh, to Aquatron Corporation (Aust.) Pty. Limited. Apparatus for internally sterilizing flexible tubing with ultraviolet radiation. 3,549,884, Cl. 250-52.
Glasson, Jean E., to Botalam. Machine for compacting and binding coils. 3,548,739, Cl. 100-7.
Gleim, Paul S.: *See—*
Bean, Kenneth E., and Gleim, Paul S.,3,549,411.
Glen, John Barrington: *See—*
Badham, John Wilkinson, Gregory, Peter John, and Glen, John Barrington,3,549,685.
Glenton, Arthur: *See—*
Bogue, Rubert O., and Glenton, Arthur,3,549,182.
Glickman, Samuel A.: *See—*
Turner, John O., and Glickman, Samuel A.,3,549,710.
Global Marine Inc.: *See—*
Graham, John R., and De Launay, Rene M., 3,549,129.
Globe Union Inc.: *See—*
Orlando, Daniel, 3,550,108.
Godar, Serge: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.
Godfrey, Norman Bell, and Schulze, Heinz, to Jefferson Chemical Company, Inc. Curing epoxy resins with amidines. 3,549,592, Cl. 260-47.
Goetzeler, Herbert: *See—*
Steppberger, Alfred, and Goetzeler, Herbert,3,549,437.
Goey, Wilhelm, and Brinckmann, Paul, to DMB-Apparatebau and Hans-Mueller Bernhardt. Device for puncturing of stretched membrane skins. 3,548,830, Cl. 128-361.
Goldentone Electronics, Inc.: *See—*
Lang, Daniel, 3,549,828.
Goldman, David A. Bilateral moment probability computer. 3,549,875, Cl. 235-193.
Goldman, David A. Unilateral moment probability computer. 3,549,877, Cl. 235-193.
Goldstein, Toby. Abutment interlock mechanism. 3,548,425, Cl. 5-299.
Goodman, Charles R. Chemical proportionating apparatus. 3,549,048, Cl. 222-57.
Goodman, Sol. Apparatus for drawing a plastic sheet. 3,548,458, Cl. 18-19.
Goodrich, B. F., Company, The: *See—*
Beatty, James R., and Baranwal, Krishna C., 3,548,652.
Rinker, William R., 3,548,882.
Goodyear Aerospace Corporation: *See—*
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H., 3,549,803.
Goodyear Tire & Rubber Company, The: *See—*
Gerbeth, Gerhart L., 3,548,913.
Nelson, John P., Dernovshek, Joseph F., Miller, Hal E., and Byers, Clifton A., 3,548,979.
Pace, Henry A., 3,549,598.
Rye, Grover W., and Helms, Paul E., Jr., 3,548,911.
Rye, Grover W., and Dague, Michael F., 3,548,912.
Sholtis, George E., and Morrow, Wallace E., 3,549,721.
Sinclair, Edward A., 3,549,579.
Tilton, John B., 3,549,142.
Gosei Chemical Industry Co., Ltd.: *See—*
Itakura, Jo, Tanaka, Hisao, and Ito, Hiroo, 3,549,717.
Gotte, Ernst: *See—*
Kirstahler, Alfred, Jakobi, Gunter, and Gotte, Ernst,3,549,543.
Gould, Lawrence P., and Oechsli, Barnard L., to Allied Chemical Corporation. Apparatus for production of chloride. 3,549,331, Cl. 23-263.
Govaerts, Jean: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.
Grabenstetter, Robert J.: *See—*
Griebstein, William J., Grabenstetter, Robert J., and Widder, James S.,3,549,677.
Grabkowski, Stephen E.: *See—*
Weichbordt, Bjorn, and Grabkowski, Stephen E.,3,548,648.
Thompson, Robert A., Grabkowski, Stephen E., and Weichbrodt, Bjorn,3,550,107.
Grabowski, Edward J. J., Tristram, Edward W., and Tull, Roger J., to Merck & Co., Inc.Process for preparation of 1H-imidazo[4,5-b] pyrazin-2-ones. 3,549,633, Cl. 260-250.
Grace, W. R., & Co.: *See—*
Hart, Robert L., 3,549,085.
Grach, Pierre C., to Stop. Windscreen washer pumps. 3,549,279, Cl. 417-477.
Graf, Arthur. Method and apparatus for producing slide fasteners. 3,548,482, Cl. 29-410.
Graf, Arthur, and Graf, Richard A. Apparatus and method of manufacturing fasteners. 3,548,483, Cl. 29-410.
Graf, Richard A.: *See—*
Graf, Arthur, and Graf, Richard A.,3,548,483.
Graham, John R., and De Launay, Rene M., to Global Marine Inc. Motion dampening device. 3,549,129, Cl. 254-172.
Graham, John W., and Ortloff, Gerald D., to Esso Production Research Company. Cyclic injection of surfactant for increasing oil recovery from fractured matrix reservoirs. 3,548,941, Cl. 166-273.
Graham, William J., to Texaco Inc. Sealed ball valve. 3,549,122, Cl. 251-174.
Gramlich, James V., to Lilly, Eli, and Company. Herbicidal combinations. 3,549,349, Cl. 71-103.
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George, to Bristol-Myers Company. Antibiotic composition. 3,549,746, Cl. 424-35.
Granatek, Edmund Stanley: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Dana, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George,3,549,746.
Granberry, Doyle S., to Texas Instruments, Incorporated. Solid-state modular microwave system. 3,549,949, Cl. 317-100.
Grancic, Ivan: *See—*
Hojnos, Jan, and Grancic, Ivan,3,549,484.
Graneau, Peter, and Afshartous, Sayfollah Bijan, to Simplex Wire and Cable Company. Contraction joint. 3,549,780, Cl. 174-21.
Granger Associates: *See—*
Werner, William L., 3,550,140.
Granger, Colin David: *See—*
Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings,3,549,745.
Grant, Ronald D., to JFD Electronics Corporation, mesne. Multiple tooth log-periodic trapezoidal array. 3,550,143, Cl. 343-792.5
Graser, Michael, Jr., to Technical Operations, Incorporated. Optical display or viewing systems with coaxial diffracted and non-diffracted channels. 3,549,238, Cl. 350-162.
Grataloup, Xavier Roger, to Societe Anonyme. Agricultural distributing implement. 3,548,765, Cl. 111-60.
Gray, Allan Poe, to Mallinckrodt Chemical Works, mesne. N-alkylsulfinylalkyl-and sulfonylalkyl-1,2,3,4- tetrahydroisoquinolines. 3,549,640, Cl. 260-283.
Green, Edmund T. Liquid level signal for tanks. 3,548,779, Cl. 116-109.

Green, Elberson D.: *See—*
Brown, Henry R., and Green, Elberson D.,3,550,123.

Green, Peter Nicholl: *See—*
Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings,3,549,745.

Green, Rudolph C. Pellet firing mechanism and fluid valve therefor. 3,548,802, Cl. 124-11.

Greenberg, Burton, to ICP, Inc. Photographic developer device. 3,548,734, Cl. 95-94.

Greenewald, Herbert, Jr., to North American Rockwell Corporation. Mold manufacturing apparatus. 3,548,917, Cl. 164-170.

Greeno, Thomas M.: *See—*
Van Dorn, Warren G., Greeno, Thomas M., and Mihajlov, Vsevolod S.,3,548,748.

Greenspan, George, and Buzby, George C., Jr., to American Home Products Corporation. Asymmetric reduction of seco-steroids. 3,549,499, Cl. 195-51.

Greenspan, Lawrence E., and Whitaker, Earl J., to Sanders Associates, Inc. Bit sampling in asynchronous buffers. 3,549,804, Cl. 178-69.5

Greenwald, Emmett F.: *See—*
Keuchel, Herbert W., Greenwald, Emmett F., and Kenney, Richard A.,3,549,467.

Greenwald, Emmett F., and Kenney, Richard A., to Celanese Corporation. Fibrillated yarn carpet backing. 3,549,470, Cl. 161-70.

Gregersen, Arthur R., to Miles, Ty, Inc. Rotary indexing mechanism. 3,548,684, Cl. 74-822.

Gregory, Peter John: *See—*
Badham, John Wilkinson, Gregory, Peter John, and Glen, John Barrington,3,549,685.

Gretsky, Jury Yakovlevich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich,3,549,338.

Griebstein, William J., Grabenstetter, Robert J., and Widder, James S., to Procter & Gamble Company, The. Stannous salts of polyphosphonic acids. 3,549,677, Cl. 260-429.7

Griffith, James R., to United States of America, Navy. Polyfluoroepoxides and epoxy resins containing fluorine on the aromatic carbon structure and process. 3,549,591, Cl. 260-47.

Griffiths, Leonard B.: *See—*
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C.,3,548,915.
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C.,3,548,948.

Grigoriev, Alexey Nikolaevich: *See—*
Torban, Alexandr Isaakovich, Kaushansky, Alexandr Stepanovich, Butkevich, Vladimir Alexandrovich, and Grigoriev, Alexey Nikolaevich,3,548,920.

Grilk, Henry G., to Litton Precision Products. Dual direction linear amplifier. 3,550,000, Cl. 325-15.

Grimes, Delmar C., Muller, George H., and Ulics, George, to Ford Motor Company. Adjustable steering mechanism. 3,548,675, Cl. 74-493.

Grimm, Heinrich: *See—*
Schnegg, Hanspeter, and Grimm, Heinrich,3,548,670.

Griot, Rudolf G.: *See—*
Frey, Albert J., Griot, Rudolf G., and Ott, Hans,3,549,689.

Grisebach, Hans Theodor, and Weirich, Walter, to Gewerkschaft Eisenhutte Westfalia. Pressure relief devices. 3,548,867, Cl. 137-494.

Groll, Manfred, Wunderlich, Klaus, and Bien, Hans-Samuel, to Farbenfabriken Bayer Aktiengesellschaft. Anthraquinone dyestuffs. 3,549,664, Cl. 260-371.

Groos, Horst Hans: *See—*
Boesch, Albert, and Groos, Horst Hans,3,548,456.

Gross, Frank R. Heat-transfer apparatus. 3,548,929, Cl. 165-89.

Grossman, Abraham. Releasable interconnecting means for a curtain wall construction. 3,548,558, Cl. 52-573.

Grotnes Machine Works, Inc.: *See—*
Hess, Johann T., and Luedi, Hans R., 3,548,623.

Grotz, Bernard J., Jr., to Braun, C. F., & Company. Autothermal reactor. 3,549,335, Cl. 23-288.

Grover, Philip D., to American Machine & Foundry Company. Electrical switch with bidirectional snap action actuation and spring contact blade therefor. 3,550,055, Cl. 337-100.

Grow, Harlow B. Barrier controlled toy vehicle. 3,548,539, Cl. 46-211.

Grubb, Willard T., and King, Lawrence H., to General Electric Company. Method for manufacturing foam type electrode. 3,549,423, Cl. 136-120.

GSE Incorporated: *See—*
Gurol, Ismail Macit, 3,550,013.

Guaranty Trust Company: *See—*
Hostland, Lloyd Oscar, Cloutier, Nelson Joseph, and Cloutier, Marjorie Blanche, administrator,3,548,750.

Guarino, Victor J., to I-T-E Imperial Corporation, mesne. Flow meter. 3,548,656, Cl. 73-229.

Gubitz, Franklyn W., to Sterling Drug Inc. 4-Amino-2-carbethoxymethyl-1,2,3,4- tetrahydroisoquinoline. 3,549,643, Cl. 260-287.

Gubler, Kurt: *See—*
Esser, Herbert, and Gubler, Kurt,3,549,767.

Gueben, Georges: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.

Guerrico, Martin. Combination load lifting and transporting device. 3,549,034, Cl. 214-372.

Guertler, Rudolf Julius Franz, and Rawson, Raymond John Clancy, to International Standard Electric Corporation. Log-periodic antenna arrays. 3,550,138, Cl. 343-751.

Gugliotti, Louis M., to United Aircraft Corporation. Multiplexing switch. 3,550,016, Cl. 328-104.

Guido, Jurgen. Method of projection welding of push rod. 3,549,853, Cl. 219-104.

Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge, to European Atomic Energy Community-EURATOM. Accelerator targets for neutron production. 3,549,399, Cl. 117-16.

Gulbins, Klaus: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar,3,549,304.

Gulf Energy & Environmental Systems, Inc.: *See—*
Rump, Bjorn S., Hammond, Robert H., and Meyer, Charles H., Jr., 3,549,416.

Gulf Research & Development Company: *See—*
Hasiba, Horst H., 3,548,959.
Hasiba, Horst H., 3,548,960.

Gulf States Paper Corporation: *See—*
Northrup, David R., 3,549,079.

Gunther, Conrad J.: *See—*
Dzus, Theodore, and Gunther, Conrad J.,3,548,712.

Gurol, Ismail Macit, to GSE Incorporated. Noise cancelling system. 3,550,013, Cl. 328-1.

Gutehoffnungshutte Sterkrade Aktiengesellschaft: *See—*
Farber, Hans, 3,548,763.

Gutehoffnungshutte Strekrade Aktiengesellschaft: *See—*
Linneken, Hans, 3,549,280.

Gyongyos, Ivan, and Kotthaus, Helmut, to Swiss Aluminium Ltd. Continuous casting. 3,548,919, Cl. 164-278.

Haase, Elmer A. Combustion engine fuel control. 3,549,132, Cl. 261-23.

Habdas, Edward P., to Universal Oil Products Company, mesne. Method of producing finned tubing. 3,548,488, Cl. 29-477.3

Hach, Clifford C. Colorimeter apparatus. 3,549,261, Cl. 356-180.

Hadley, Russell E.: *See—*
Pillsbury, Donald M., Jr., and Hadley, Russell E.,3,548,607.

Haeberle, Robert W., Lennon, Donald J. J., and Schleifstein, Harvey G., to Carter's Ink Company, The. High speed non-impact printing. 3,550,153, Cl. 346-74.

Hagemeister, Klaus: *See—*
Hansen, Wolfgang, and Hagemeister, Klaus,3,549,222.

Hagihara, Muraji, and Moriya, Hisanori, to Hitachi, Ltd. Fuel evaporation preventing device. 3,548,797, Cl. 123-136.

Hahn, Erwin: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar,3,549,304.

Hale, Charles W.: *See—*
Windstrup, Robert F., Hale, Charles W., and Galitz, Raymond F.,3,548,769.

Hall, Frances B. Pouring tip with breather fin. 3,548,894, Cl. 141-297.

Hall, James Edward: *See—*
Wynne, Hubert Cecil, Hall, James Edward, and Charlton, William,3,549,135.

Hall, Jay S., and Scarzello, John F., to United States of America, Navy. Laser EPR system. 3,549,987, Cl. 324-0.5

Hall, Lewis William, Spangler, Stanley E., and Learned, Samuel M., to Maple Press Company, The. Book repair device and method. 3,548,431, Cl. 11-1.

Hall, Marcus A., to Automation Industries, Inc. Apparatus and method for forming indefinite length tubular articles. 3,548,724, Cl. 93-80.

Hall-Barkan Instruments, Inc.: *See—*
Adelson, Alexander Michael, and Swartz, Jerome, 3,549,909.

Haller, Wolfgang. Material and method for performing steric separations. 3,549,524, Cl. 210-31.

Halliburton Company: *See—*
Thomas, Joseph E., 3,550,019.

Hallmark Cards, Incorporated: *See—*
Wood, Gerald, Orwig, Nelson E., Kolster, Harvey L., and Kahler, Jack E., 3,549,019.

Halstead, Clifford, and Reed, Jonathan, to Pye Limited. Magnetic induction couplings. 3,549,921, Cl. 310-105.

Halsted, Leonard R., to TRW Inc.Binary data transmission system using 'future', 'present' and 'past' bits for reference synchronization. 3,550,003, Cl. 325-38.

Hama, Akira, Watanabe, Tadaaki, Kikuchi, Shunji, and Kumagai, Norio, to Tokyo Shibaura Electric Co., Ltd. Low pressure mercury vapor discharge lamps including an alloy type getter coating. 3,549,936, Cl. 313-178.

Hamachi, Toshio: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo,3,548,638.

Hamada, Takao, and Morishima, Tsuyoshi, to Kabushiki Kaisha Ricoh. Negative-to-positive reversible copy sheet. 3,549,373, Cl. 96-75.

Hamblin, Robert J. J.: *See—*
Munro, William H., and Hamblin, Robert J. J.,3,549,519.

Hamilton, David. Extensible frame for hydraulic jacks. 3,549,125, Cl. 254-86.

Hamilton, Martin W., to Eaton Yale & Towne, Inc. Crane operating radius indicator. 3,549,876, Cl. 235-186.

Hamilton, Robert W., and Rorig, Kurt J., to Searle, G. D., & Co.α-Phenyl-α-(4-piperidyl)toluic acids and lactones. 3,549,646, Cl. 260-294.

Hamilton Watch Company, Inc.: *See—*
Klinck, John L., 3,548,586.

Hamlett, Bruce E., to Hays Corporation, The. Method and means for trimming position control members. 3,549,089, Cl. 236-15.

Hammond, Clarence H., and Horn, Kurt, to Honeywell Inc. Control apparatus. 3,548,775, Cl. 114-144.

Hammond, Robert H.: *See—*
Rump, Bjorn S., Hammond, Robert H., and Meyer, Charles H., Jr.,3,549,416.

Hamner, Glen Porter: *See—*
Brainard, Alan J., and Hamner, Glen Porter,3,549,515.
Mason, Ralph Burgess, and Hamner, Glen Porter,3,549,518.

Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira, to Tokyo Shibaura Electric Co., Ltd. Low pressure mercury vapour discharge lamp including an alloy type getter coating. 3,549,937, Cl. 313-178.

Handley, Harold E., Handley, Robert D., and Perry, Frank J., to Handley Industries, Inc. Curb box member and method of making the same. 3,548,864, Cl. 137-364.

Handley Industries, Inc.: *See—*
Handley, Harold E., Handley, Robert D., and Perry, Frank J., 3,548,864.

Handley, Robert D.: *See—*
Handley, Harold E., Handley, Robert D., and Perry, Frank J.,3,548,864.

Handley, Thomas H.: *See—*
Ricci, Enzo, Handley, Thomas H., and Willey, Melvin G.,3,549,492.

Handy Button Machine Co.: *See—*
Newig, Julius, 3,548,689.

Hanley, William M., to SCM Corporation. Teleprinter equipment mounting assembly. 3,550,001, Cl. 325-15.

Hann, Kenneth Graeme, and Davies, Peter Gouch, to G.K.N. Somerset Wire Limited. Apparatus for processing wire and the like. 3,548,624, Cl. 72-129.

Hansen, Carl W., to Picker Corporation, mesne. Scintillation scanning for producing both black and white multi-color photographic records. 3,549,887, Cl. 250-71.5

Hansen, Francis Frederick. Method of preparing powered monoglyceride material. 3,549,382, Cl. 99-91.

Hansen, Harold H.: *See—*
Blood, Douglass K., and Hansen, Harold H.,3,549,031.

Hansen, Wallace, to Molex Products Company. Electrical receptacle and terminal. 3,550,067, Cl. 339-217.

Hansen, Wolfgang, and Hagemeister, Klaus, to Motoren-und Turbinen-Union. High speed anti-friction bearing. 3,549,222, Cl. 308-187.

Hanson, Donald E. Vibration controlled valve and system. 3,549,117, Cl. 251-30.

Hanst, Philip L., to United States of America, National Aeronautics and Space Administration. Repetitively-pulsed, wavelength-selective laser. 3,550,034, Cl. 331-94.5

Hanusa, Helmut G. Reticular structures and methods of producing same. 3,549,505, Cl. 204-11.

Hanzl, Walter F., to Dart Industries Inc. Preventing accumulation of macrogel particles in rubber-modified polymers. 3,549,726, Cl. 260-880.

Harbison, Dixon T. Broken sucker rod retrievers. 3,549,187, Cl. 294-17.

Hargis, Billy M., to American Lava Corporation. Ceramic-metallic composite substrate. 3,549,784, Cl. 174-68.5

Haring, Allen R., to Western Electric Company, Incorporated. Method of forming plated metallic patterns on a substrate. 3,548,494, Cl. 29-626.

Harkins, Acie Darrel. Apparatus for development and completion of wells. 3,548,935, Cl. 166-51.

Harmsen, Jan Willem: *See—*
Westerveld, Willem, and Harmsen, Jan Willem,3,549,561.

Harner, Robert H., to S&C Electric Company. Switch construction with load break device. 3,549,840, Cl. 200-146.

Harner, Robert H., to S & C Electric Company. Temperature control for crystal oscillator and modulation circuit of a radio transmitter. 3,550,006, Cl. 325-113.

Haroldson, Arthur H., to Budd Company, the. Polyamide paper product and method of making. 3,549,789, Cl. 174-122.

Harper, Gerald L., and Bachman, Wesley J., to Advanced Systems, Inc. Feed conveyor. 3,549,001, Cl. 198-66.

Harrington, Francis H. Finger ring gauges. 3,548,506, Cl. 33-178.

Harris, Everett K., Ericson, John P., and Miller, Richard E., to All-Steel Equipment Inc. Drawer construction. 3,549,301, Cl. 312-330.

Harris, John R., Tse, John W., and Hooper, Gerald H., to United States of America, Navy, mesne. Cavity slot antenna. 3,550,141, Cl. 343-767.

Hart, Kelly R. Grader blade vertical adjustment mechanism. 3,548,955, Cl. 172-793.

Hart, Robert L., to Grace, W. R., & Co. Bag having a single suspension member. 3,549,085, Cl. 229-54.

Hartmann, Helmut, and Stein, Werner, to Henkel & Cie G.m.b.H. Separation of mixtures of liquid and solid fatty acid compounds. 3,549,676, Cl. 260-419.

Hashii, Makoto, and Kawada, Shin-Ichi. Gyrocompass starting system. 3,550,104, Cl. 340-213.

Hashimoto, Hideo: *See—*
Umahashi, Minoru, and Hashimoto, Hideo,3,549,255.

Hasiba, Horst H., to Gulf Research & Development Company. Relieftype jet bits. 3,548,959, Cl. 175-393.

Hasiba, Horst H., to Gulf Research & Development Company. Drill bit having rotating stand-off elements. 3,548,960, Cl. 175-393.

Haskon, Inc.: *See—*
Hull, Gerry G., 3,548,891.

Hasselbeck, Richard J.: *See—*
Trostle, John W., Kaminski, Elton G., and Hasselbeck, Richard J.,3,548,555.

Hastings, Caryl C. B. Diving sled. 3,548,771, Cl. 114-16.

Hauff, Alfred M.: *See—*
Scheidig, Helmut, Hauff, Alfred M., and Reimpell, Uwe Adolf,3,549,773.

Hausmann, Gerhard, to Siemens Aktiengesellschaft. Synchronous and asynchronous motors connected together for a constant speed output. 3,549,965, Cl. 318-47.

Haverbeck, Gunther, to Daimler-Benz Aktiengesellschaft. Joint connection for the suspension of steerable wheels of a motor vehicle. 3,549,167, Cl. 280-96.2

Hawera Hartmetall-Werkzeugfabrik Ravensburg, Gesellschaft mit beschrankter Haftung: *See—*
Kuch, Josef, 3,548,688.

Hawkins, Colin W., to Polymer Corporation Limited. Adhesive composition. 3,549,574, Cl. 260-27.

Hay, Allan S., and Becker, Hans-Dieter, to General Electric Company. Coupling of phenols with quinol ethers. 3,549,712, Cl. 260-620.

Hay, Harold R. Process and apparatus for the distillation of distilland displaced by distillate. 3,549,503, Cl. 203-11.

Hayakawa, Shigeru, and Mikoda, Masanari, to Matsushita Electric Industrial Co., Ltd. Solid delay line. 3,550,044, Cl. 333-30.

Hayek, Erich G., to Elektroschmelzwerk Kempten G.m.b.H. Method of making abrasives for grinding tools. 3,549,342, Cl. 51-298.

Hayes, Henry L. Safety brake apparatus. 3,549,207, Cl. 303-6.1

Hayes, Kelsey, Company: *See—*
Johnson, Howard R., 3,549,925.

Hays Corporation, The: *See—*
Hamlett, Bruce E., 3,549,089.

Hazeltine Research, Inc.: *See—*
Wiencek, Zbigniew, 3,550,037.

HB Engineering Corporation: *See—*
Baker, Hugh M., Jr., and Cressey, John R., 3,550,090.

Hedlund, Richard K., to Honeywell Inc. Apparatus for installing and mounting pneumatic devices. 3,548,859, Cl. 137-269.

Heerdt, Ruth, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut, to Boehringer Mannheim Gesellschaft mit beschrankter Haftung. Sulfonyl-urea and sulfonyl-semicarbazide anti- diabetic agents. 3,549,645, Cl. 260-293.4

Hefley, Jack Darrell, and West, William Hugo, to Fiber Industries, Inc. Method for increasing the flex life of synthetic leather and product produced thereby. 3,549,475, Cl. 161-159.

Heft, Eugene J., and Bourque, Edward L., to Sanders Associates, Inc. Radar-telemetry system. 3,550,124, Cl. 343-7.5

Hegeman, Andrew S.: *See—*
Morrow, Robert D., and Hegeman, Andrew S.,3,549,104.

Heidrich, Stephen L. Electro-acoustic transducer. 3,549,829, Cl. 179-115.5

Heightley, John D., Roundy, Carlos B., and Waaben, Sigurd G., to Bell Telephone Laboratories, Incorporated. Interlaced current pulse configuration control. 3,550,098, Cl. 340-174.

Heinkel, Ernst, Aktiengesellschaft: *See—*
Schnegg, Hanspeter, and Grimm, Heinrich, 3,548,670.

Held, Gerhard R. Honing tool and power drive therefor. 3,548,548, Cl. 51-90.

Heldman, Robert K., and Kobylar, Alex W., to Automatic Electric Laboratories, Inc. Data communication via direct-coupled individual parallel conductors. 3,550,083, Cl. 340-146.1

Helkala, Viki, and Koskela, Sauli, to Valmet Oy. Paper rolling device for use in paper machines. 3,549,098, Cl. 242-67.1

Hell, Rudolf, Dr., Kommanditgesellschaft: *See—*
Lindemann, Eckhard Dirk, 3,548,725.

Heller, Martin G. Automatic feeding mechanism. 3,548,998, Cl. 198-24.

Hellings, Thomas David Grinter, and Reynolds, Kenneth. Copying materials. 3,549,379, Cl. 96-114.1

Hellstrom, Melbourne J., and Oppenheimer, Michael H., to Westinghouse Electric Corporation. Control circuit responsive to positive or negative transient signal or to power supply voltage decrease to fire SCR. 3,549,906, Cl. 307-252.

Helmer, George W. Clam opener device. 3,548,450, Cl. 17-76.

Helms, Paul E., Jr.: *See—*
Rye, Grover W., and Helms, Paul E., Jr.,3,548,911.

Helmuth, James G, to Chadwick-Helmuth Electronics, Inc. Strobe light. 3,549,945, Cl. 315-241.

Helsely, Grover Cleveland, to Robins, A. H., Company, Incorporated. 1-(1-Substituted-3-pyrrolidinyl)-3- arylsulfonylureas. 3,549,658, Cl. 260-326.3

Helton, William J., to Foster Bros. Manufacturing Company. Hospital-type bed structure. 3,548,426, Cl. 5-331.

Henderson, Billie D., to Beckman Instruments, Inc. Monochromator. 3,549,258, Cl. 356-100.

Henderson, Eulas W.: *See—*
Kallenberger, Robert H., Dollinger, Robert E., Byron, John W., and Henderson, Eulas W.,3,548,454.

Henderson, Joseph H. Sodium chloride desiccant tablet. 3,549,549, Cl. 252-194.

Henkel & Cie G.m.b.H.: *See—*
Hartmann, Helmut, and Stein, Werner, 3,549,676.
Kirstahler, Alfred, Jakobi, Gunter, and Gotte, Ernst, 3,549,543.

Henningsen Foods, Inc.: *See—*
Bergquist, Dwight H., Cunningham, Franklin E., and Cook, Charles H., 3,548,782.

Henrich, Richard E. Vacuum cleaner attachment for electric erasing machine. 3,548,436, Cl. 15-3.53

Henry, David W.: *See—*
Hoff, Dale R., and Henry, David W.,3,549,756.

Henshaw, James N., to USM Corporation. Riveting tools. 3,548,627, Cl. 72-391.

Hepp, Harold E.: *See—*
Beery, Jack, and Hepp, Harold E.,3,549,071.

Hepp, Harold E., to National Cash Register Company, The. Web positioning means and aligning means in high speed printing machines. 3,548,746, Cl. 101-93.

Herndon, Robert R. Tandem wheel lock. 3,548,975, Cl. 188-74.

Herriott, Donald R., to Bell Telephone Laboratories, Incorporated. Optical delay system. 3,550,039, Cl. 332-7.51

Herrmann, Johannes: *See—*
Wilde, Friedrich, and Herrmann, Johannes,3,549,293.

Herschler, Robert J., to Crown Zellerbach Corporation. Retarding the growth of microorganisms with dimethyl sulfoxide. 3,549,771, Cl. 424-337.

Herschler, Robert J., and Jacob, Stanley W., to Crown Zellerbach Corporation, mesne. Therapeutic administration of effective amounts of dimethyl sulfoxide to human and animal subjects. 3,549,770, Cl. 424-337.

Herzog, John H., and Hill, Ronald C., to Houdaille Industries, Inc. Punch holder and drive assembly. 3,548,700, Cl. 83-698.

Heseltine, Donald W.: *See—*
Carpenter, James W., Mee, John D., and Heseltine, Donald W.,3,549,362.

Hess, Johann T., and Luedi, Hans R., to Grotnes Machine Works, Inc. Method and apparatus for forming circumferential grooves and radial flange in metal pipe ends. 3,548,623, Cl. 72-106.

Hess, Patrick H., to Chevron Research Company. Method for sealing earth formations. 3,548,944, Cl. 166-295.

Heye, Hermann: *See—*
Bekcer, Kurt, 3,548,677.

Hickerson, John D.: *See—*
Hoornstra, Clayton W., Moore, Richard E., and Hickerson, John D.,3,549,438.

Hiestand, Everett N., Jensen, Erik H., and Meister, Peter D., to National Cash Register Company, The, mesne. Encapsulation of lipophilic liquid-in-hydrophilic liquid emulsions. 3,549,555, Cl. 252-316.

Higginbottom, Harold P.: *See—*
Le Blanc, John R., and Higginbottom, Harold P.,3,549,473.

High Point Fabricators, Inc.: *See—*
Young, Cletus H., and Young, Jay E., 3,548,542.

Higuchi, Takashi, and Nakamura, Soichi, to Nippon Kogaku K.K. Zooming lens of extremely high zooming ratio. 3,549,242, Cl. 350-184.

Hilborn, Edwin H. Method and apparatus for converting monochromatic imagery into differential color on a luminescent screen. 3,549,886, Cl. 250-71.

Hilchie, Douglas W., and Zemanek, Joseph, Jr., to Mobil Oil Corporation. System for displaying time information in acoustic well logging system. 3,550,075, Cl. 340-15.5

Hildebrand, Victor F.: *See—*
Mc Devitt, James, and Hildebrand, Victor F.,3,548,738.

Hill, Donald G.: *See—*
Driscoll, John J., Hill, Donald G., and Waddell, Richard E.,3,549,810.

Hill, George B., and Noorda, Jacob D., to Brimco Manufacturing Company. Fluid flow monitor. 3,549,839, Cl. 200-81.9

Hill, George R., and Needham, Donald G., to Phillips Petroleum Company. Polyolefin foam retarder. 3,549,563, Cl. 260-2.5

Hill, Harold T., Parker, Henry G., and Mitchelmore, Anthony C., to Wellworthy Limited. Soluble core fabrication. 3,548,914, Cl. 164-41.

Hill, Rodney G., and Koenig, Peter O., to Twin Disc, Incorporated. Power shift transmission having synchronized clutch control. 3,548,981, Cl. 192-3.5

Hill, Ronald C.: *See—*
Herzog, John H., and Hill, Ronald C.,3,548,700.

Himmelmann, Wolfgang: *See—*
Meckl, Heinz, Himmelmann, Wolfgang, Moll, Franz, Honig, Hans-Ludwig, and Muller, Erwin-Alfons,3,549,377.

Hindle Son and Company Limited: *See—*
Hindle, Thomas, 3,548,468.

Hindle, Thomas, to Hindle Son and Company Limited. Machines for finish processing of endless felts. 3,548,468, Cl. 26-68.

Hineline, Robert E. Method of building a tire casing from a strip of rubber. 3,549,442, Cl. 156-117.

Hiraga, Kentaro: *See—*
Miki, Takuichi, and Hiraga, Kentaro,3,549,673.

Hiraiwa, Kazuyoshi, to Missan Motor Company, limited. Synchronizing mechanism in the transmission of constant-mesh type in an automotive vehicle. 3,548,983, Cl. 192-53.

Hirayama, Chikara, and Melamed, Nathan T., to Westinghouse Electric Corporation. Laser phosphate glass compositions. 3,549,554, Cl. 252-301.6

Hirsch, Stephen S., to Monsanto Company. Treatment of thermally stable shaped articles with halides and oxy-halides of groups IV, V, and VI elements. 3,549,307, Cl. 8-115.5

Hisada, Akira: *See—*
Takaki, Takumi, Takagi, Kazumi, Hisada, Akira, and Tsunokawa, Tamio,3,549,706.

Hisamura, Makoto: *See—*
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa,3,549,812.

Hitachi, Ltd.: *See—*
Hagihara, Muraji, and Moriya, Hisanori, 3,548,797.
Nakagawa, Touru, 3,549,287.
Ohnishi, Toshikazu, Utsumi, Hiroki, Tazawa, Toru, and Matsuura, Katsumasa, 3,548,615.
Urushiwara, Hishashi, Morino, Hiroshi, and Suzuki, Misao, 3,548,472.
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa, 3,549,812.

Hladny, Wolfgang: *See—*
Kleinhagauer, Otmar, Hladny, Wolfgang, and Cerwenka, Peter,3,548,918.

Hobart Manufacturing Company, The: *See—*
Kerr, Robert R., and Vallor, Ben J., 3,549,294.

Hochheiser, Jerome S. Non-sparking A-C connectors. 3,549,990, Cl. 323-44.

Hochman, Howard: *See—*
Barbano, Normand, and Hochman, Howard,3,550,144.

Hochstetler, Eli. Scraper attachment for garden tractors. 3,548,956, Cl. 172-801.

Hockenberry, Terry O., and Williams, Everard M., to Siltronics, Inc. Control circuit for electric discharge machining apparatus. 3,549,850, Cl. 219-69.

Hockenberry, Terry O., and Williams, Everard M., to Siltronics, Inc. Power supply circuitry for increasing capacitance- charging rate and discharge duration in electric discharge machining apparatus. 3,549,851, Cl. 219-69.

Hocq, Robert R., to Societe Franco-Hispano-Amenaine Francispam. Concealed hinges. 3,548,446, Cl. 16-164.

Hodel, Theodore, to Societe d'Assistance Technique pour Produits Nestle S.A. Agglomerating pulverulent material by contacting with a film of jetted liquid. 3,549,336, Cl. 23-313.

Hodgson, Russell L., to Shell Oil Company. Process for conversion of coal. 3,549,512, Cl. 208-10.

Hoefgeest, Engelmundus Johannes, to U.S. Philips Corporation, mesne. Combined video and audio amplifier with low inter-modulation level. 3,549,796, Cl. 178-5.8

Hoekje, Harverd J.: *See—*
Comber, William R., and Hoekje, Harverd J.,3,548,435.

Hofbauer, Thomas J., and Scholten, Frank L. Automatic winding apparatus. 3,549,099, Cl. 242-67.3

Hoff, Dale R., and Henry, David W., to Merck & Co., Inc. Antitrichomonal compositions containing 1- substituted-2-morpholinyl or thiamorpholinyl-5- nitroimidazoles. 3,549,756, Cl. 424-248.

Hoffer, George W.: *See—*
McDonald, Hugh C., Nolan, Thomas J., and Hoffer, George W.,3,549,397.

Hoffmann-La Roche Inc.: *See—*
Beaman, Alden Gamaliel, Duschinsky, Robert, and Tautz, William Paul, 3,549,653.

Hoffmeister, Erich, to Kallenbach & Voigt. Turbine type dental handpiece. 3,548,501, Cl. 32-27.

Hofman, Wijtze. Magnet configuration for a loudspeaker. 3,549,830, Cl. 179-117.

Hofmeister, Helmut: *See—*
Laurent Henry, Hofmeister, Helmut, Neumann, Friedmund, and Wiechert, Rudolf,3,549,671.

Hogg, Cecil B.: *See—*
Wright, James H., and Hogg, Cecil B.,3,549,720.

Hojnos, Jan, and Grancic, Ivan, to Prvni Brneska Stojirna, Zavody Klementa Gottwalda narodni Podnik. Method and apparatus for the recovery of sulfite waste liquors. 3,549,484, Cl. 162-36.

Holden, John J. Receptacle for live bait. 3,548,531, Cl. 43-9.

Holderby, Victor M., to Procter & Gamble Company, The. Process for preparing liquid detergent. 3,549,542, Cl. 252-137.

Holdstock, Norman G., Berger, Abe, Selin, Terry G., and Thimineur, Raymond J., to General Electric Company. Aminoalkoxyalkenylpolysiloxanes. 3,549,590, Cl. 260-46.5

Hollingsworth, Leon W., to Pioneer Motor Bearing Company. Hydrodynamically supported tilting pad journal bearing. 3,549,215, Cl. 308-73.

Hollis, Clinton R., to International Paper Company. Apparatus for heat sealing the ends of bag blanks including bag gripping devices carried by two conveyors running in nested paths. 3,549,462, Cl. 156-583.

Holloway, William S., to Madison Industries, Inc. Trepanning drill tool. 3,548,687, Cl. 77-69.

Holly, James A., to Hollymatic Corporation. Apparatus for producing mixed subdivided food material. 3,548,902, Cl. 146-79.

Holly, James A., to Hollymatic Corporation. Subdivided meat mixer and method. 3,548,903, Cl. 146-182.

Hollymatic Corporation: *See—*
Holly, James A., 3,548,902.
Holly, James A., 3,548,903.

Holman, William R., to United States of America, Atomic Energy Commission. Tensile test apparatus. 3,548,646, Cl. 73-97.

Holmes, Robert T.: *See—*
Watson, Frederic R., and Holmes, Robert T.,3,549,868.

Holmquist, Richard W., to Reuter, Inc. Apparatus for direct conversion of powered materials into parts. 3,548,455, Cl. 18-16.

Holstedt, Richard A., Dadura, James G., Krug, Robert H., and Love, Doris, to Texaco Development Corporation. Sulfurized calcium alkylphenolate lubricant compositions and method of manufacture. 3,549,534, Cl. 252-42.7

Holtkamp, Calvin J., to Westinghouse Electric Corporation. Molded article of manufacture having side holes. 3,549,039, Cl. 220-1.

Holtkamp, Calvin J., and Nagel, George W., to Westinghouse Electric Corporation. Heat cleaning cooking oven and control arrangement. 3,549,862, Cl. 219-482.

Holtzapfel, Paul J.: *See—*
Miller, Charles R., and Holtzapfel, Paul J.,3,549,391.

Homiak, Nicholas S., and Cole, Robert K. Tool for pushing or pulling a cable through a pipe or the like. 3,549,128, Cl. 254-134.3

Honeywell Inc.: *See—*
deBretagne, Yves, 3,549,976.
Hammond, Clarence H., and Horn, Kurt, 3,548,775.
Hedlund, Richard K., 3,548,859.
Kompelien, Arlon D., 3,550,120.
Lazar, Jeffrey M., 3,548,794.
Ogawa, Shinichiro, and Matsuda, Toshiyuki, 3,549,910.
Semienko, Peter P., and Toledo, Emil, 3,549,507.
Smith, Frederick L., 3,549,108.
Young, Irving G., 3,550,057.
Zimmer, Charles R., 3,549,107.

Hongu, Masayuki, and Shimizu, Ikuo, to Sony Corporation. Transistor push-pull amplifier. 3,550,024, Cl. 330-15.

Honig, Hans-Ludwig: *See—*
Meckl, Heinz, Himmelmann, Wolfgang, Moll, Franz, Honig, Hans-Ludwig, and Muller, Erwin-Alfons,3,549,377.

Honjo, Satoru, and Sato, Masamichi, to Fuji Shashin Film Kabushiki Kaisha. Color electrophotography employing dye transfer from a dye-containing photosensitive layer to an image receiving sheet. 3,549,359, Cl. 96-1.2

Hooper, Gerald H.: *See—*
Harris, John R., Tse, John W., and Hooper, Gerald H.,3,550,141.

Hoornstra, Clayton W., Moore, Richard E., and Hickerson, John D. Method and apparatus for etching curved surfaces. 3,549,438, Cl. 156-14.

Hoover, Robert L., to Ford Motor Company. Torque transfer gear case with a disengageable power take-off. 3,548,667, Cl. 74-15.86

Hopkins, Edward P., to General Electric Company. Combination fuel nozzle and spark plug for a gas turbine. 3,548,592, Cl. 60-39.82

Horikawa, Yoshikazu: *See—*
Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji,3,548,845.

Horikoshi, Akira: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.

Horn, Kurt: *See—*
Hammond, Clarence H., and Horn, Kurt,3,548,775.

Hornung, Helmut O., to Smithe, F. L., Machine Company, Inc. Chip removal apparatus. 3,548,696, Cl. 83-100.

Hornung, Helmut O., to Smithe, F. L., Machine Company, Inc. Hot melt adhesive applicator. 3,548,781, Cl. 118-5.

Horodecky, Jerry: *See—*
Kopacki, Adam F., and Horodecky, Jerry,3,549,588.

Horoldt, Ernst: *See—*
Schmidt, Erwin, Horoldt, Ernst, and Rupp, Walter,3,549,580.

Horrocks, Raymond G., to Scott & Fetzer Company, The. Tool for removing cable insulation. 3,548,690, Cl. 81-9.5

Horrocks, Raymond G., to Scott & Fetzer Company, The. Tool for removing material from around the electrical conductor of a cable. 3,548,691, Cl. 81-9.5

Horton, James A.: *See—*
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H.,3,549,803.

Horton, Peter, to English Electric Company Limited, The. Actuators. 3,549,833, Cl. 200-47.

Horwitt, Laurence G., and Mattis, Donald J., to Casco Products Corporation. Remote control mirror. 3,549,243, Cl. 350-289.

Hoskinson, William C.: *See—*
King, Lewis E., Hoskinson, William C., and Annunziata, Eugene J.,3,550,133.

Hostland, Lloyd Oscar, Cloutier, Nelson Joseph, deceased (by Guaranty Trust Company, administrator), and Cloutier, Marjorie Blanche, administrator. Mobile mechanized track layer. 3,548,750, Cl. 104-2.

Houdaille Industries, Inc.: *See—*
Daniels, Dennis, 3,548,480.
Herzog, John H., and Hill, Ronald C., 3,548,700.
Kaiser, Willard D., and Kasuba, John A., 3,548,866.

Houlihan, William J., to Sandor-Wander, Inc. Substituted hexahydro-1-phenyl-1H-2,6- benzodiazonines. 3,549,620, Cl. 260-239.

Houlne, Robert C., to United States of America, Navy, mesne. Turn-off circuit for D.C. load carrying SCR switch. 3,549,908, Cl. 307-252.

Howard, Alan James. Process for preparing an aerated shortening composition. 3,549,387, Cl. 99-122.

Howard, Harris J.: *See—*
Dekiss, Nicholas, and Howard, Harris J.,3,549,277.

Howard, William E., to Materials Handling Systems, Inc. Auxiliary lift attachment for a lifting device. 3,549,033, Cl. 214-315.

Howland, George R., to Bendix Corporation, The. Fluidic fuel injection system for combustion engine. 3,548,795, Cl. 123-119.

Howorth, Frederick H., to Howorth, James, & Company Limited. Humidifying apparatus for yarns. 3,548,511, Cl. 34-22.

Howorth, James, & Company Limited: *See—*
Howorth, Frederick H., 3,548,511.

Hoyer, Ernst: *See—*
Lindner, Helmut, Hoyer, Ernst, and Schmidt, Heinz,3,549,613.

Hoyer, Ludolf J., and Caldwell, John R., Jr. Therapeutic chair. 3,548,810, Cl. 128-25.

Hozumi, Keichiro. Apparatus for quantitative analysis of a particular constituent of a sample. 3,549,262, Cl. 356-181.

HRB-Singer, Inc.: *See—*
Cannon, John B., Jr., 3,549,805.

Hruby, Ronald J.: *See—*
Sander, Ronald C., and Hruby, Ronald J.,3,549,799.

Hrusovsky, Joseph A., to American Electronic Laboratories, Inc. Airborne navigation converter. 3,550,127, Cl. 343-106.

Hubbard, Linus O., to Wells-Gardner Electronics Corporation. Method and apparatus for assembling electrical components on printed circuit boards. 3,548,493, Cl. 29-626.

Hubich, Henry O., to United States of America, Navy, mesne. Pneumatic missile launcher. 3,548,708, Cl. 89-1.818

Huck, George E., to Ameron, Inc., mesne. Apparatus for fabricating thin-walled steel cylinders. 3,549,077, Cl. 228-15.

Hudson, David H., to Singer Company, The. Proportional carbon ribbon feed mechanism. 3,548,994, Cl. 197-151.

Hughes Aircraft Company: *See—*
Margerum, John D., 3,549,366.

Hughes, James G., to United States of America, Army. Missile roll compensation device. 3,548,707, Cl. 89-1.8

Hugle, Francis, deceased (by Hugle, William B., executor), to Hugle Industries, Inc. Microscopic alignment mechanism. 3,549,232, Cl. 350-90.

Hugle Industries, Inc.: *See—*
Hugle, Francis, 3,549,232.

Hugle, William B.: *See—*
Hugle, Francis,3,549,232.

Hulbert, Richard W.: *See—*
Nies, Nelson P., and Hulbert, Richard W.,3,549,316.

Hull, Gerry G., to Haskon, Inc. Method and apparatus for filling receptacles. 3,548,891, Cl. 141-7.

Hunt, Philip A., Chemical Corporation: *See—*
Sykes, Donald J., Kroll, Harry, and Finch, Theron R., 3,549,370.

Hunter Associates Laboratory, Inc.: *See—*
Christie, John S., 3,549,264.

Hunter Douglas International Ltd.: *See—*
Vermeulen, Gerardus Cornelis, 3,548,556.

Hunter, George T. Spring loaded arm for camping trailer and the like. 3,549,193, Cl. 296-23.

Hurlin, Kenneth P.: *See—*
Cagnon, Eugene C., Hurlin, Kenneth P., and Pavlovich, Joseph,3,549,218.

Hutchens, Ralph W., Sr. Scaffolding and material handling system. 3,548,970, Cl. 182-129.

Hutchinson, Desmond Ernest: *See—*
Schofield, Clifford Raymond, and Hutchinson, Desmond Ernest,3,548,682.

Hutchinson, John W., Kao, Teh-Yu, and Pendley, Laurence C., to University of Kentucky Research Foundation, The, mesne. Method of and apparatus for testing dynamic permeability and hydrodynamic surface drainage of materials. 3,548,635, Cl. 73-38.

Hutchison, Carl R., to FMC Corporation. Underwater well completion system. 3,548,934, Cl. 166-0.5

Huyck Corporation: *See—*
Clark, Raymond C., 3,549,487.

Hydrocarbon Research, Inc.: *See—*
Lehman, Leon M., and Johnson, Axel R., 3,549,517.

Hygrodynamics, Inc.: *See—*
Perlaky, Leopold, and Ohlheiser, Carlton E., 3,548,660.

Hy-Net Engineering, Ltd.: *See—*
Lundquist, Adolph Q., 3,549,351.

ICP, Inc.: *See—*
Greenberg, Burton, 3,548,734.

Ideal Industries, Inc.: *See—*
Niemann, Juergen, 3,549,127.

Iio, Katsuro: *See—*
Arikawa, Masayasu, and Iio, Katsuro,3,548,489.

IIT Research Institute: *See—*
Camras, Marvin, 3,550,149.

Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi, to Takeda Chemical Industries, Ltd. Derivatives of baicalein. 3,549,662, Cl. 260-345.5

Imooka, Masanori: *See—*
Osawa, Hideo, Imooka, Masanori, Taniguchi, Fukuo, and Yamashita, Sunao,3,549,263.
Imperial Chemical Industries Limited: *See—*
Charman, Hugh Bernard, 3,549,713.
Deem, William Roy, 3,549,716.
Kirkaldy, David, 3,549,516.
Leigh, Thomas, and McArdle, Leslie Arthur, 3,549,690.
Leigh, Thomas, and McArdle, Leslie Arthur, 3,549,691.
Nicholson, Eric Samuel, and Sharma, Vijay Ratna, 3,549,587.
Rose, John Brewster, Mathews, Carl Fraser, Nield, Eric, and Vincent, Peter Incledon, 3,549,725.
Vellins, Cyril Eric, 3,549,666.
Imperial Chemical Industries of Australia and New Zealand Limited: *See—*
Badham, John Wilkinson, Gregory, Peter John, and Glen, John Barrington, 3,549,685.
Imperial Metal Industries (KYNOCH) Limited: *See—*
Bird, Jack Raymond, and Bryant, Rodney Trenchard, 3,549,273.
Industrias Romi S.A.: *See—*
Romi, Romeu, 3,548,693.
Industriewerk Schaeffler O.H.G.: *See—*
Leak, Paul W., 3,549,221.
Ingersoll, Dal Y. Apparatus for producing titanium and other reactive metals. 3,549,140, Cl. 266-34.
Inoue, Shigeru: *See—*
Otsuka, Eiji, Kanai, Kazumichi, Saki, Tadao, and Inoue, Shigeru,3,549,701.
Institut fur Silikon-und Fluorkarbon-Chemie: *See—*
Muller, Richard, Reichel, Sigrid, and Dathe, Christian, 3,549,678.
International Business Machines Corporation: *See—*
Ainslie, Norman G., Chhabra, Devendra S., Jepsen, Donald W., and Mutter, Walter E., 3,548,491.
Bate, Geoffrey, 3,550,154.
Buszko, Leonard J., Foster, Luther M., and Lorenz, Max R., 3,549,401.
Clecak, Nicholas J., and Cox, Robert J., 3,549,358.
Collins, Robert H., and Deverse, Frank T., 3,549,368.
King, Lewis E., Hoskinson, William C., and Annunziata, Eugene J., 3,550,133.
Langendorf, Matthew P., and Ridings, Charles L., 3,549,821.
Williams, Larry L., 3,550,113.
International Electronic Research Company: *See—*
Spurling, John E., 3,548,927.
International Paper Company: *See—*
Gentry, Curtis A., Jr., 3,548,895.
Hollis, Clinton R., 3,549,462.
International Rectifier Corporation: *See—*
Gault, John M., 3,549,961.
International Standard Electric Corporation: *See—*
Brewster, Arthur Edward, 3,549,824.
Eaglesfield, Charles Cecil, and Kao, Charles Kuen, 3,549,233.
Gardner, Gerald Marvin, and Wintermantel, Jorg, 3,550,150.
Guertler, Rudolf Julius Franz, and Rawson, Raymond John Clancy, 3,550,138.
Ortmann, Christian, 3,549,894.
Rotzel, Diethelm, 3,549,997.
Sterling, Henley Frank, and George, Wilbert Ridd, 3,549,353.
Strain, Robert J., 3,549,891.
International Telephone and Telegraph Corporation: *See—*
de Rosa, Louis A., 3,550,155.
Intron International Inc.: *See—*
Pintell, Robert H., 3,550,036.
Ippisch, Ernest, and Kleinbauer, Russell T., to Westinghouse Electric Corporation. Wire feeding mechanism. 3,548,887, Cl. 140-71.5
Isawa, Akira: *See—*
Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira,3,549,973.
Isbell, Charles Levi, Jr., to Du Pont de Nemours, E. I., and Company. Regeneration of acid. 3,549,320, Cl. 23-168.
Isowa, Yoshikazu, to Toyo Koatsu Industries, Incorporated. Alpha-alkoxycarbonyl beta-imino gamma- butyrolactones and process for producing the same. 3,549,659, Cl. 260-343.6
Itakura, Jo, Tanaka, Hisao, and Ito, Hiroo, to Gosei Chemical Industry Co., Ltd. Process for the production of 1,5,9-cyclododecatriene. 3,549,717, Cl. 260-666.
I-T-E Imperial Corporation: *See—*
Aumayer, Hansruedi, 3,548,877.
Guarino, Victor J., 3,548,656.
McCloud, James R., and McConnell, Lorne D., 3,549,841.
Purcell, Edward J., and Jahnke, Lance A., 3,548,849.
Wilson, George A., 3,549,843.
Iten, Clemens A., to Morris, Philip, Incorporated. Molded plastic razor blade dispenser. 3,549,046, Cl. 221-102.
Ito, Hiroo: *See—*
Itakura, Jo, Tanaka, Hisao, and Ito, Hiroo,3,549,717.
Ito, Kinori. High-power feed controlling gear for metallic pipe and rod materials. 3,549,072, Cl. 226-112.
Itoh, Junnosuke. Devices for the adjustment of tire pressures. 3,548,651, Cl. 73-146.8
Ivanhoe Research Corporation: *See—*
Watkin, Theodore, 3,548,669.
Ivanov, Boris Georgievich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich,3,549,338.
Ivanov, Vladimir Dmitrievich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ivanov, Vladimir Dmitrievich, and Chernov, Valery Alexandrovich,3,549,131.
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich. Electric linear locomotive. 3,548,751, Cl. 104-148.
Jacaway, William A., Jr.: *See—*
Armbruster, Frederick C., and Jacaway, William A., Jr.,3,549,496.
Jacklin, Clarence, to Nalco Chemical Company. Scale inhibition and removal in steam generation. 3,549,538, Cl. 252-82.
Jackson, Byron, Inc.: *See—*
Dickmann, John L., 3,548,692.
Jackson, Gordon C. Fireplace glove. 3,548,413, Cl. 2-161.
Jacob, Stanley W.: *See—*
Herschler, Robert J., and Jacob, Stanley W.,3,549,770.
Jacobs, Ellis H., and Billyard, Ronald G., to Pacific Pipe Company. Self-draining valve for fluid distribution systems. 3,548,860, Cl. 137-289.
Jacobsen, Jon S., to Olson, Richard F. Center locater device. 3,548,508, Cl. 33-206.
Jacobson, Bernhard E., to Universal, Inc. Material handling elevator. 3,549,003, Cl. 198-141.
Jacobus, Dwight W., and Callahan, Eugene N., to General Electric Company. Door closure device with time delay means. 3,548,444, Cl. 16-78.
Jacquot, Maurice: *See—*
Bonne, Roger, Jacquot, Maurice, and Fourre, Jacques,3,549,408.
Jaeger Machine Company, The: *See—*
Rayl, Theodore J., 3,548,716.
Jaeger, Richard J., Jr., and Riddell, George, to Bell Telephone Laboratories, Incorporated. Pulse code modulation multiplex signaling system. 3,549,814, Cl. 179-15.
Jaeschke, Ralph L., to Eaton Yale & Towne, Inc. Press synchronizing apparatus. 3,549,948, Cl. 317-6.
Jago, John James, to Pilkington Brothers Limited. Burner control. 3,548,872, Cl. 137-565.
Jahnke, Lance A.: *See—*
Purcell, Edward J., and Jahnke, Lance A.,3,548,849.
Jakobi, Gunter: *See—*
Kirstahler, Alfred, Jakobi, Gunter, and Gotte, Ernst,3,549,543.
James, Robert L., and Vargo, Donald P., to Bendix Corporation, The. Digital integrator-synchronizer having low noise susceptibility. 3,550,018, Cl. 328-127.
Janda, Richard M.: *See—*
Boyer, James H., Jr., and Janda, Richard M.,3,548,614.
Jefferson Chemical Company, Inc.: *See—*
Godfrey, Norman Bell, and Schulze, Heinz, 3,549,592.
Weber, Wilson J., Jr., and Terry, James L., 3,548,925.
Williams, Leslie Preston, and Barrow, Wendell Dale, 3,548,949.
Jenkins, W. L., Company, The: *See—*
Jenkins, Wendell L., 3,550,118.
Jenkins, Wendell L., to Jenkins, W. L., Company, The. Electric bell construction. 3,550,118, Cl. 340-396.
Jennetti, Anthony G.: *See—*
Walter, Carlton H., and Jennetti, Anthony G.,3,550,136.
Jensen, Erik H.: *See—*
Hiestand, Everett N., Jensen, Erik H., and Meister, Peter D.,3,549,555.
Jensen, Jens A., to United States of America, Health, Education and Welfare. Disinsection system and cartridge for use therewith. 3,548,533, Cl. 43-129.
Jepsen, Donald W.: *See—*
Ainslie, Norman G., Chhabra, Devendra S., Jepsen, Donald W., and Mutter, Walter E.,3,548,491.
Jepsen, John C., and Ralph, James L., to Shell Oil Company. Gas-liquid cyclone separator. 3,548,569, Cl. 55-242.
Jered Industries, Inc.: *See—*
Pease, Mark H., 3,548,774.
Jerrold Electronics Corporation: *See—*
Brooks, George M., 3,550,043.
Jewell, Ronald Colgan, to Pilkington Brothers Limited. Stirrers. 3,549,274, Cl. 416-224.
JFD Electronics Corporation: *See—*
Grant, Ronald D., 3,550,143.
Jilbert, Howard R.: *See—*
Barnes, Charles M., and Jilbert, Howard R.,3,549,837.
Jilbert, Howard R., to Bendix Corporation, The. Differential pressure switch with Bourdon tube actuating means. 3,549,836, Cl. 200-81.8
Johns-Manville Corporation: *See—*
McMahon, Edward G., 3,549,445.
Troyer, Richard Lloyd, 3,549,738.
Johnson, Avery A., Jr., Mason, Arthur D., Jr., and Ritchey, Charles R., to United States of America, Army. α-Amino-p-toluenesulfonamide citrate. 3,549,694, Cl. 260-501.21

Johnson, Axel R.: *See—*
Lehman, Leon M., and Johnson, Axel R.,3,549,517.
Johnson, Carl E.: *See—*
Strauss, Eugene O., Walesa, Anthony C., and Johnson, Carl E.,3,549,392.
Johnson Controls, Inc.: *See—*
Johnson, Lee D., 3,549,905.
Johnson, Howard R., to Hayes, Kelsey, Company. Alternating current generator. 3,549,925, Cl. 310-168.
Johnson, Keith L., to Swift & Company. Liquid synthetic detergent. 3,549,544, Cl. 252-152.
Johnson, Lee D., to Johnson Controls, Inc. Electronic oscillator switch. 3,549,905, Cl. 307-252.
Johnson, Melvin L., to United States of America, Atomic Energy Commission. Nuclear reactor fuel element hold-down and tightening mechanism. 3,549,491, Cl. 176-87.
Johnston, Howard, to Dow Chemical Company, The. Bis- and tris-(thio-,sulfinyl- and sulfonyl) pyridines. 3,549,647, Cl. 260-294.8
Johnston, James D.: *See—*
Conover, Lloyd H., and Johnston, James D.,3,549,663.
Jones & Laughlin Steel Corporation: *See—*
Piene, Kristian, 3,549,061.
Jones, David W., to Conover, G. E., & Co., Inc. Motion transmitting system with seal protection. 3,549,154, Cl. 277-24.
Jones, Elwyn David, Rowley, Edward Kenneth, and Shepherd, Douglas Reynolds, said Jones and said Rowley assors. to Canadian Industries Limited. Manufacture of valve bags. 3,548,722, Cl. 93-8.
Jones, Faber B., and Simpson, Billy D., to Phillips Petroleum Company. Process of crosslinking dimercapto compounds with polymercapto polyester polyethers and resulting product. 3,549,565, Cl. 260-7.5
Jones, Glyn John, to Telephone Manufacturing Company. Control means for transistor switching matrix circuits. 3,550,088, Cl. 340-166.
Jones, James L.: *See—*
Dahlquist, Ralph L., and Jones, James L.,3,549,326.
Jones, Les G. Under-floor electrical construction for a building. 3,549,781, Cl. 174-49.
Jones, Malcolm S., Jr., and Conner, William J., to Aerojet-General Corporation. Monolithic electrodes for MHD generators. 3,549,914, Cl. 310-11.
Jordan, Frederick James, and Wells, Sydney Tom, to English Electric Company Limited, The. Manufacture of thermocouples. 3,548,490, Cl. 29-573.
Jordan, Frederick Lee: *See—*
Lawes, Roland C., and Jordan, Frederick Lee,3,548,658.
Joseph, Joseph Peter, Dusza, John Paul, and Bernstein, Seymour, to American Cyanamid Company. Steroid estrogen sulfates and methods of preparing the same. 3,549,674, Cl. 260-397.5
Joslyn Mfg. and Supply Co.: *See—*
Yonkers, Edward H., 3,549,791.
Joyner, Frederick B.: *See—*
Coover, Harry W., Jr., and Joyner, Frederick B.,3,549,608.
Judge, John S., Morrison, John R., and Speliotis, Dennis E. Method of making isocoercive magnetic alloy coatings. 3,549,417, Cl. 117-240.
Juferov, Fedor Mikhailovich: *See—*
Kurakin, Alexandr Sergeevich, and Juferov, Fedor Mikhailovich,3,549,923.
Jules, Andre, to Compagnie Generale d'Electricite. Device for producing electric energy impulses having a short duration and a very high peak power with a disruptive load. 3,549,982, Cl. 322-28.
Junemann, Hubert, Scholl, Hans, and Strothmann, Wilfried, to Kochs Adlernahmaschinen Werke AG. Controlling system for sewing machines. 3,548,768, Cl. 112-252.
Jung, Richard, to Steinmuller, L. & C., G.m.b.H. Device for burning moist fine granular substances and fine granular substances contained in liquid media. 3,548,759, Cl. 110-7.
Jungner, Bengt Gosta Ingmar: *See—*
Jungner, Olof Gunnar Hugo, and Jungner, Bengt Gosta Ingmar,3,549,330.
Jungner, Olof Gunnar Hugo, and Jungner, Bengt Gosta Ingmar, to AB Autokemi. Apparatus for analyzing liquids. 3,549,330, Cl. 23-259.
Jvirblis, Alex E.: *See—*
Roth, Walter, and Jvirblis, Alex E.,3,549,962.
Kaatz, Herbert W., and Wilhelm, Fred R., to Airborne Mfg. Co. Multistage pressure relief apparatus. 3,548,873, Cl. 137-612.1
Kabushiki Kaisha Ricoh: *See—*
Akiyama, Hideaki, 3,549,889.
Hamada, Takao, and Morishima, Tsuyoshi, 3,549,373.
Umahashi, Minoru, and Hashimoto, Hideo, 3,549,255.
Kabushiki Kaisha Suzuki Kosakusho: *See—*
Suzuki, Kanichi, 3,548,889.
Kabushikikaisha Taiko Denki Seisakusho: *See—*
Watanabe, Sandanobu, 3,549,069.
Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.: *See—*
Ochiai, Noriomi, 3,550,147.
Kagan, George M., and Roper, Robert, to Esso Research and Engineering Company. Aqueous dispersion of carboxylic polymers containing amino-substituted aziridines. 3,549,567, Cl. 260-29.6
Kahler, Jack E.: *See—*
Wood, Gerald, Orwig, Nelson E., Kolster, Harvey L., and Kahler, Jack E.,3,549,019.
Kahn, Maurice M., to Boxal-Beaurepaire S.A. Container and tearable ring cover with top. 3,549,041, Cl. 220-52.
Kahn, Paul: *See—*
Angell, William W., and Kahn, Paul,3,548,418.
Kaiser, Willard D., and Kasuba, John A., to Houdaille Industries, Inc. Servo-controlled high pressure relief vlave. 3,548,866, Cl. 137-487.5
Kalashnikov, Georgy Petrovich: *See—*
Soloviev, Pavel Alexandrovich, Kalashnikov, Georgy Petrovich, Kantor, Lev Izrailevich, and Zamotin, Sergei Nikolaevich,3,548,982.
Kallenbach & Voigt: *See—*
Hoffmeister, Erich, 3,548,501.
Kallenberger, Robert H., Dollinger, Robert E., Byron, John W., and Henderson, Eulas W., to Phillips Petroleum Company. Compact press. 3,548,454, Cl. 18-16.
Kallinikos, Anthony. Driver protective apparatus for taxicab. 3,549,195, Cl. 296-24.
Kalogris, Theodore P. Thermometer holder. 3,549,005, Cl. 206-16.6
Kalopissis, Gregoire, and Bugaut, Andree, to L'Oreal. Nitro-paraphenylene-diamine derivative and dyeing keratinic fibers therewith. 3,549,303, Cl. 8-10.1
Kalopissis, Gregoire, and Viout, Andre, to Societe Anonyme Dite: L'Oreal. Polysulfhydryl polymers. 3,549,602, Cl. 260-78.
Kaman Aerospace Corporation: *See—*
Flannelly, William G., 3,548,972.
Kaminski, Elton G.: *See—*
Trostle, John W., Kaminski, Elton G., and Hasselbeck, Richard J.,3,548,555.
Kaminsky, Abraham R. Musical instrument empolying electronic regenerative apparatus. 3,549,775, Cl. 84-1.05
Kamiya, Shigeru, and Shibata, Haruo, to Matsushita Electronics Corporation. Fluorescent calcium halophosphate phosphor containing at least one of magnesium, beryllium, and lead. 3,549,550, Cl. 252-301.4
Kanagawa Prefectural Government: *See—*
Nakai, Yoshiyuki, and Yokogawa, Tetsuya, 3,548,510.
Kanai, Kazumichi: *See—*
Otsuka, Eiji, Kanai, Kazumichi, Saki, Tadao, and Inoue, Shigeru,3,549,701.
Kanai, Yoshio: *See—*
Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi,3,549,662.
Kantor, Lev Izrailevich: *See—*
Soloviev, Pavel Alexandrovich, Kalashnikov, Georgy Petrovich, Kantor, Lev Izrailevich, and Zamotin, Sergei Nikolaevich,3,548,982.
Kao, Charles Kuen: *See—*
Eaglesfield, Charles Cecil, and Kao, Charles Kuen,3,549,233.
Kao, Teh-Yu: *See—*
Hutchinson, John W., Kao, Teh-Yu, and Pendley, Laurence C.,3,548,635.
Kaplan, David. Shoulder brace. 3,548,818, Cl. 128-78.
Kaplan, Morton S., to Micro-Thermal Applications, Inc. Forming apparatus and process. 3,548,710, Cl. 90-13.1
Kappeller, Heinrich, and Wild, Jost, to Givaudan Corporation. Myrcene derivatives and process therefor. 3,549,679, Cl. 260-439.
Karlsson, Olof, to Arenco Aktiebolag. Machine for threshing tobacco leaves and separating the threshed tobacco. 3,548,839, Cl. 131-146.
Karlstrom, Karl R. M. Brake for conveyor trolley. 3,548,752, Cl. 104-172.
Karpacheva, Susanna Mikhailovna: *See—*
Zakharov, Evgeny Ivanovich, Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, and Koshkin, Vladimir Mikandrovich,3,549,013.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Chernov, Valery Alexandrovich, and Khrokalo, Oleg Antonovich. Method and apparatus for mixing and dispersing a gas and a liquid. 3,549,134, Cl. 261-74.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ivanov, Vladimir Dmitrievich, and Chernov, Valery Alexandrovich. Device for pulsating mixing of liquid and liquid- and-solid reagents. 3,549,131, Cl. 259-4.
Kasuba, John A.: *See—*
Kaiser, Willard D., and Kasuba, John A.,3,548,866.
Katerberg, Gerrit Jantinus, and Van Vliet, Gerrit, to U.S. Philips Corporation, mesne. Salicylamides. 3,549,704, Cl. 260-559.
Kato, Jinichi, and Tamori, Takashi, to Nippon Kogaku K.K. Zooming device for adjusting the light amount of a formed image. 3,549,230, Cl. 350-14.
Kato, Tomezo. Alarm device. 3,550,109, Cl. 340-276.
Katsuren, Roy I., to United States of America, Army. Electrically driven prosthetic elbow. 3,548,419, Cl. 3-1.1
Katsuyama, Yoshihisa, to Nippon Kogaku K.K. Dissolving shutter mechanism for motion picture cameras. 3,549,249, Cl. 352-217.
Katter, Gene S., and Richardson, James A. Gunnery training apparatus. 3,549,147, Cl. 273-101.1
Katz, Harry S. Filament wound blade and compressor. 3,549,444, Cl. 156-175.
Katz, Helmut, to Siemens Aktiengesellschaft. Collector for travelling wave tubes constructed of pyrolytic. 3,549,930, Cl. 313-44.
Katz, Manuel, to Buxaum Products Company. Vehicle guard and mounting assembly. 3,549,171, Cl. 280-154.5
Katzer, Melvin F., to Dow Chemical Company, The. Adjustable porous bed device. 3,548,880, Cl. 138-43.

Kaushansky, Alexandr Stepanovich: *See—*
Torban, Alexandr Isaakovich, Kaushansky, Alexandr Stepanovich, Butkevich, Vladimir Alexandrovich, and Grigoriev, Alexey Nikolaevich,3,548,920.

Kaveggia, Frederick S., and O'Grady, David E. Chemical lapping method. 3,549,439, Cl. 156-17.

Kawada, Shin-Ichi: *See—*
Hashii, Makoto, and Kawada, Shin-Ichi,3,550,104.

Kawashima, Masao: *See—*
Kuyasu, Zeniti, Miki, Tetsuya, and Kawashima, Masao,3,550,116.

Kay, Solomon Elijah, and Boucher, John Bradley, to Triplex Safety Glass Company Limited. Laminated transparent assemblies with preformed metal foil edge sealing means. 3,549,466, Cl. 161-39.

Kayser-Roth Corporation: *See—*
Geimer, Cornelius J., 3,548,834.

Kefalas A/S: *See—*
Petersen, Povl Viggo, Lassen, Niels, and Ammitzboll, Thorkil, 3,549,656.

Kelch, Heinz, and Schuh, Eduard, to Kienzle Apparate GmbH. Coin selector for vending machine. 3,548,990, Cl. 194-1.

Keller, Rene, to Emhart Corporation. Article inspection apparatus. 3,549,890, Cl. 250-209.

Kellogg Company: *See—*
Simpson, Warren O., 3,549,082.

Kelly, William: *See—*
Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings,3,549,745.

Kelsey-Hayes Company: *See—*
Birge, William T., and Ayers, David T., 3,549,210.
Reid, Donald J., 3,549,205.
Shipley, Robert M., Jr., 3,548,578.
Shipley, Robert M., Jr., 3,548,579.

Kelsh, Harry T. Kelsh plotter with variable lens system. 3,549,234, Cl. 350-136.

Kendall, Kynoch P., and McClellan, Robert, to Dairy Fresh Market Service, Inc. Display tray. 3,548,610, Cl. 62-256.

Kenney, Richard A.: *See—*
Keuchel, Herbert W., Greenwald, Emmett F., and Kenney, Richard A.,3,549,467.
Greenwald, Emmett F., and Kenney, Richard A.,3,549,470.

Kent, Cornelius Varden, to Kent, Ruth L. Color zone system of traffic speed verification. 3,550,076, Cl. 340-22.

Kent, Ruth L.: *See—*
Kent, Cornelius Varden, 3,550,076.

Kerns, Clyde W., and Lee, Eugene K., to Mobil Oil Corporation. Method of determining the static shift between geophysical signals. 3,550,074, Cl. 340-15.5

Kerr, Robert R., and Vallor, Ben J., to Hobart Manufacturing Company, The. Automatic dishwashing machine with soak cycle. 3,549,294, Cl. 134-58.

Kesten, Martin, to Preston Engravers, Inc. Heat transfer device. 3,548,928, Cl. 165-89.

Keuchel, Herbert W., Greenwald, Emmett F., and Kenney, Richard A., to Celanese Corporation. Pile fabric having fibrillated pile yarn and method of making same. 3,549,467, Cl. 161-65.

Key, Robert L., III, and Christy, Melvin G., to Liggett & Myers Incorporated. Applying menthol to tobacco in a pneumatic system. 3,548,838, Cl. 131-144.

Keystone Consolidated Industries, Inc.: *See—*
Aleks, Vytant P., 3,549,228.
Anderson, Ralph F., 3,549,184.
Dauenbaugh, Robert L., 3,548,618.

Khorunov, Viktor Fedorovich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich,3,549,338.

Khrokalo, Oleg Antonovich: *See—*
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Chernov, Valery Alexandrovich, and Khrokalo, Oleg Antonovich,3,549,134.

Kiel, Othar M., to Esso Production Research Company. Retrievable well screen. 3,548,937, Cl. 166-232.

Kienzle Apparate GmbH: *See—*
Kelch, Heinz, and Schuh, Eduard, 3,548,990.

Kies, Frederick K., and Schelleng, Robert D. Bainitic ductile iron having high strength and toughness. 3,549,430, Cl. 148-35.

Kikuchi, Shoji: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.

Kikuchi, Shunji: *See—*
Hama, Akira, Watanabe, Tadaaki, Kikuchi, Shunji, and Kumagai, Norio,3,549,936.
Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira,3,549,937.

Kilbourn, Dorwin L.: *See—*
Peacher, Teddy J., and Kilbourn, Dorwin L.,3,549,934.

Kilburn, James O., to United States of America, Health, Education and Welfare. Test paper for detector of niacin. 3,549,328, Cl. 23-253.

Kilgore, Marion D., and Pumpelly, Robert C., to Dresser Industries, Inc. Well tools and gripping members therefor. 3,548,936, Cl. 166-216.

Kilgore, Ronald V., to Vesuvius Crucible Company. Coated stopper head for controlling outflow of molten metal through the nozzle of a bottom pour receptacle. 3,549,124, Cl. 251-356.

Kim, Dong H., and Santilli, Arthur A., to American Home Products Corporation. 2,6-Disubstituted-4H-pyrimido [5,4-d] [1,3] oxazin-4-ones. 3,549,627, Cl. 260-244.

Kimberly-Clark Corporation: *See—*
Nelson, Howard N., 3,549,081.

King, Lawrence H.: *See—*
Grubb, Willard T., and King, Lawrence H.,3,549,423.

King, Lewis E., Hoskinson, William C., and Annunziata, Eugene J., to International Business Machines Corporation. Automatic channel apparatus. 3,550,133, Cl. 340-172.5

King, Robert E., and Dardig, Ben V., to Cushioned Products Corporation. Cork and foam product. 3,549,472, Cl. 161-87.

Kinsinger, William G. Packaging material. 3,549,381, Cl. 99-77.1

Kirkaldy, David, to Imperial Chemical Industries Limited. Process for producing polyhexamethylene suberamide. 3,549,516, Cl. 260-78.

Kirstahler, Alfred, Jakobi, Gunter, and Gotte, Ernst, to Henkel & Cie GmbH. Low-foaming washing and cleansing agents. 3,549,543, Cl. 252-152.

Kischer, Jane N.: *See—*
Bloom, Bernard, and Lev, Benjamin,3,548,417.

Kitson, Robert E., and Reese, Cecil E., to Du Pont de Nemours, E. I., and Company. Spontaneously extensible linear terephthalate polyester fiber. 3,549,597, Cl. 260-75.

Kittredge, John B., and Langlois, Guy B., to Minnesota Mining and Manufacturing Company. Method for producing pyramidal shaped tumbling media. 3,549,341, Cl. 51-293.

Klatchko, George A., to Automation Industries, Inc., mesne. Polariscope. 3,549,259, Cl. 356-115.

Klatyk, Knut, to Merck, E., Aktiengesellschaft. Partially deactivated silicon dioxide adsorbents and method. 3,549,525, Cl. 210-31.

Klaue, Hermann. Lever actuated disc brake. 3,548,974, Cl. 188-73.

Klee, Maurice, to Case, J. I., Company. Bin loading device for combines. 3,549,026, Cl. 214-17.

Klein, Edgar, Kulling, Achim, and Steinhausen, Helmut, to Titangesellschaft mbH. Process for the manufacture of acicular rutile pigments from hydrochloric acid titanium chloride solutions. 3,549,322, Cl. 23-202.

Klein, Hans-Christof, to Teves, Alfred, GmbH. Eddy-current tachometers for vehicular brake systems and the like. 3,549,924, Cl. 310-168.

Klein, Robert I.: *See—*
Rothermel, William F., and Klein, Robert I.,3,549,994.

Kleinbauer, Russell T.: *See—*
Ippisch, Ernest, and Kleinbauer, Russell T.,3,548,887.

Kleinhagauer, Otmar, Hladny, Wolfgang, and Cerwenka, Peter, to Gebr. Bohler & Co. Electrode suspension means. 3,548,918, Cl. 164-252.

Klessig, Ernst F.: *See—*
Schink, Richard R., and Klessig, Ernst F.,3,549,281.

Kliewer, George G. Temperature signaling device. 3,548,780, Cl. 116-114.5

Klinck, John L., to Hamilton Watch Company, Inc. Composite balance wheel construction for electric timekeeping devices. 3,548,586, Cl. 58-28.

Klink, Jerome P., to Owens-Corning Fiberglas Corporation. Apparatus for collecting linear material. 3,549,096, Cl. 242-18.

Kloske, Richard A., and Barclay, William F. Method of forming an engine valve of a ferrous metal containing chrominum and nickel by heating treating and deforming. 3,549,426, Cl. 148-12.

Kluepfel, Dieter, and Vezina, Claude. Microbiological process for estrogens. 3,549,497, Cl. 195-51.

Knapp, Lowell W., to Xerox Corporation. Paper transport-sheet turner. 3,548,783, Cl. 118-224.

Knapp, Theodore F., to Dura Corporation, mesne. Armature. 3,549,928, Cl. 310-268.

Knight, Richard L. C.: *See—*
Larive, Rene, Gelinas, Leo-Paul, and Knight, Richard L. C.,3,549,858.

Knollman, Dieter J. H., to Bell Telephone Laboratories, Incorporated. Key telephone station concentrator. 3,549,820, Cl. 179-99.

Knott, Benjamin F., and Suggs, Charles W., to Thomson International Company, The, mesne. Cutter blade continuously automatically adjustable responsive to change in resistance to its operation. 3,548,570, Cl. 56-15.

Kobayashi, Takeji: *See—*
Kusuda, Zenji, and Kobayashi, Takeji,3,548,609.

Kobe Steel Ltd.: *See—*
Arikawa, Masayasu, and Iio, Katsuro, 3,548,489.
Asari, Akira, 3,548,628.

Kobiella, Robert J., to Signode Corporation. Strapping apparatus. 3,548,740, Cl. 100-28.

Kobylar, Alex W.: *See—*
Heldman, Robert K., and Kobylar, Alex W.,3,550,083.

Kochs Adlernahmaschinen Werke AG: *See—*
Junemann, Hubert, Scholl, Hans, and Strothmann, Wilfried, 3,548,768.

Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku, to Konishiroku Photo Industry Co., Ltd. Antistatic acylhydrazinium salt. 3,549,369, Cl. 96-50.

Kodama, Jiro K.: *See—*
Albert, James R., and Kodama, Jiro K.,3,549,760.

Kodama, Jiro K., and Albert, James R., to Shell Oil Company. Use of 2-trichloromethyl-4morpholino-or- piperazino-6-substituted-s-triazines for inducing depressant effects in animals. 3,549,755, Cl. 424-248.

Kodama, Jiro K., and Albert, James R., to Shell Oil Company. Use of 2-morpholino-4-amino-6-substituted-s- triazines for inducing depressant effects in animals. 3,549,757, Cl. 424-248.

Kodama, Jiro K., and Albert, James R., to Shell Oil Company. Use of 2-(chloro or trichloromethyl)-4-amino-6- substituted-s-triazines for inducing depressant effects in animals. 3,549,759, Cl. 424-249.

Koehring Company: *See—*
Briggs, Eugene C., 3,549,130.

Koenig, Peter O.: *See—*
Hill, Rodney G., and Koenig, Peter O.,3,548,981.

Koepke, Frederick W.: *See—*
Evans, Dewey M., and Koepke, Frederick W.,3,548,543.

Koetting, John C. Golf club head covers. 3,548,908, Cl. 150-52.

Kohashi, Tadao, to Matsushita Electric Industrial Co., Ltd. Luminescent memory and display device. 3,550,095, Cl. 340-173.

Kohke, Stephen John, to Thomas & Betts Corporation. Bundling strap. 3,548,463, Cl. 24-16.

Kohl, Willibald F., and Toy, Arthur D. F. Process for the pasteurization of egg products and products so prepared. 3,549,388, Cl. 99-161.

Kohn, David Harry, Narkis, Moshe, Weitzman, Jacob, and Neumann, Walter, to Technion Research and Development Foundation Limited. Method for the production of resin particles. 3,549,731, Cl. 264-8.

Kollonitsch, Janos: *See—*
Tishler, Mas, Chemerda, John M., and Kollonitsch, Janos,3,549,703.

Kolster, Harvey L.: *See—*
Wood, Gerald, Orwig, Nelson E., Kolster, Harvey L., and Kahler, Jack E.,3,549,019.

Komikawa, Hiroshi: *See—*
Yoshimaru, Tomohisa, and Komikawa, Hiroshi,3,550,092.

Kompelien, Arlon D., to Honeywell Inc. Control apparatus. 3,550,120, Cl. 340-409.

Kondo, Norimasa: *See—*
Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira,3,549,973.

Koneval, Donald J.: *See—*
Curran, Daniel R., and Koneval, Donald J.,3,549,414.

Konishiroku Photo Industry Co., Ltd.: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku, 3,549,369.

Konnick, Paul J.: *See—*
Caller, James M., and Konnick, Paul J.,3,550,064.

Konrad, Jakob: *See—*
Dittrich, Walter, and Konrad, Jakob,3,548,685.

Konrad, Marion G.: *See—*
Pettigrew, Paul W., Konrad, Marion G., and Erickson, John W.,3,549,291.

Kopacki, Adam F., and Horodecky, Jerry, to Stauffer Chemical Company. Stabilized polymer compositions containing an organophosphorus sulfide and a benzophenone. 3,549,588, Cl. 260-45.8

Kornacki, Andrezej Januariusz: *See—*
Mioduszewski, Jan Zbigniew, Mioduszewska, Mieczyslawa Helena, and Kornacki, Andrezej Januariusz,3,549,614.

Koshkin, Vladimir Mikandrovich: *See—*
Zakharov, Evgeny Ivanovich, Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, and Koshkin, Vladimir Mikandrovich,3,549,013.

Koskela, Sauli: *See—*
Helkala, Viki, and Koskela, Sauli,3,549,098.

Kostin, Konstantin Fedorovich, and Shur, Grigory Iosifovich. Vertical shaft electric machine. 3,549,922, Cl. 310-157.

Kosuge, Matsuzo, to Cragstan Industries, Inc., mesne. Music playing toy railroad. 3,548,702, Cl. 84-102.

Kothari, Mahesh B., to Ford Motor Company. Window cleaning system. 3,548,440, Cl. 15-250.01

Kotthaus, Helmut: *See—*
Gyongyos, Ivan, and Kotthaus, Helmut,3,548,919.

Kozak, Stanley: *See—*
Salko, John F., and Kozak, Stanley,3,549,443.

Krause, Edward H., Jr., to Nordberg Manufacturing Company. Tie handlers. 3,549,032, Cl. 214-147.

Krause, Otto W. Spools for photographic films. 3,549,101, Cl. 242-76.

Krause, Walter O., to Virginia Chemicals Inc. Bromide-chloride salt moisture indicating composition. 3,548,639, Cl. 73-61.1

Krauss, Albert: *See—*
Purrer, Josef, and Krauss, Albert,3,548,580.

Krauss, Heinz, Sautter, Wolfgang, and Ligniez, Uwe, to Daimler-Benz Aktiengesellschaft. Device for the limitation of the movements of an elastically suspended drive unit. 3,548,964, Cl. 180-64.

Krehbiel, Robert D., to Cessna Aircraft Company, The. Cylinder with integral accumulator. 3,548,573, Cl. 56-208.

Krezanoski, Joseph Z., and Petricciani, John C., to Flow Pharmaceuticals, Inc., mesne. Contact lens wetting solution and method of using same. 3,549,747, Cl. 424-78.

Krissel, Robert A.: *See—*
Canno, Leonard E., and Krissel, Robert A.,3,549,083.

Kroener, Donald F. Tool mounting unit. 3,549,159, Cl. 279-53.

Krolikiewicz, Thaddeus A.: *See—*
Domba, Elemer, and Krolikiewicz, Thaddeus A.,3,549,705.

Kroll, Harry: *See—*
Sykes, Donald J., Kroll, Harry, and Finch, Theron R.,3,549,370.

Kronenberger, Kurt G. E., to Varian Mat GmbH. Mass spectrometer control system using hall probes to measure and regulate the gap and stray fields of the analyzing magnet. 3,549,881, Cl. 250-41.9

Krug, Robert H.: *See—*
Holstedt, Richard A., Dadura, James G., Krug, Robert H., and Love, Doris,3,549,534.

Kruger, Robert J., to Ford Motor Company. Window cleaning system. 3,548,441, Cl. 15-250.01

Kubota, Hidetsugu. Backflow recovery propeller device. 3,549,271, Cl. 416-124.

Kuch, Josef, to Hawera Hartmetall-Werkzeugfabrik Ravensburg, Gesellschaft mit beschrankter Haftung. Drill. 3,548,688, Cl. 77-70.

Kuecken, John A., to General Dynamics Corporation. Constant impedance loop antenna. 3,550,137, Cl. 343-744.

Kuerston, Richard D., to Phillips Petroleum Company. Serial incremental refrigerant expansion for gas liquefaction. 3,548,606, Cl. 62-9.

Kugler, Emanuel. Method of manufacturing satchel bottom bags. 3,549,451, Cl. 156-272.

Kuhn, Gerald. Modular counting system. 3,549,869, Cl. 235-92.

Kulig, Frank M., to Monsanto Company. Rim curling apparatus. 3,548,457, Cl. 18-19.

Kulite Tungsten Corporation: *See—*
Kurtz, Jacob, 3,549,094.

Kulling, Achim: *See—*
Klein, Edgar, Kulling, Achim, and Steinhausen, Helmut,3,549,322.

Kumagai, Norio: *See—*
Hama, Akira, Watanabe, Tadaaki, Kikuchi, Shunji, and Kumagai, Norio,3,549,936.

Kunstle, Gerhard, and Siegl, Herbert, to Wacker-Chemie G.m.b.H. Process for producing low-polymer reaction products. 3,549,660, Cl. 260-343.9

Kunstmann, Martin Paul, Mitscher, Lester Allen, and Porter, John Norman, to American Cyanamid Company. Process for the production of neutramycin. 3,549,502, Cl. 195-80.

Kuo, Lai Che, to Thomas & Betts Corporation. Insulation piercing connector. 3,549,786, Cl. 174-84.

Kurakin, Alexandr Sergeevich, and Juferov, Fedor Mikhailovich. Low-speed synchronous electric motor. 3,549,923, Cl. 310-162.

Kuroda, Hiroyuki: *See—*
Adica, Osamu, Naito, Kenji, Ogino, Katsuhiko, and Kuroda, Hiroyuki,3,549,504.

Kurth, Carl F., to Bell Telephone Laboratories, Incorporated. Digitalized phase locked loop double carrier transmission system. 3,550,131, Cl. 343-197.

Kurth, Carl F., and MacLean, Roderick C., to Bell Telephone Laboratories, Incorporated. Digital phase locked loop. 3,550,132, Cl. 343-179.

Kurth, Carl F., and Witt, Francis J., to Bell Telephone Laboratories, Incorporated. Phase locked loop double carrier transmission system. 3,550,134, Cl. 343-179.

Kurtz, Jacob, to Kulite Tungsten Corporation. Ball mill. 3,549,094, Cl. 241-171.

Kusuda, Zenji, and Kobayashi, Takeji, to Matsushita Electronics Corporation. Defrosting controller for electric refrigerator. 3,548,609, Cl. 62-156.

Kutryk, Edward A., to Barber Machinery Co., Ltd. Protective cap. 3,548,704, Cl. 85-56.

Kuwabara, Yoshimi: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.

Kuyasu, Zeniti, Miki, Tetsuya, and Kawashima, Masao, to Fiyitsu Limited. Analog to digital converter coder. 3,550,116, Cl. 340-347.

Kyp, Robert J. Incandescent lamp with oscillating filament. 3,549,946, Cl. 315-267.

Lacamera, Nicholas J.: *See—*
Liberti, Felix P., and Lacamera, Nicholas J.,3,549,404.

Lachman, Irwin M. Thermal shock resistant ceramic material. 3,549,400, Cl. 106-59.

Lacroix, Armand Jean-Baptiste: *See—*
Bauger, Louis Jules, Bouiller, Jean Georges, and Lacroix, Armand Jean-Baptiste,3,549,272.

Lagarelli, Carmen J., to Speakman Company. Valve cartridge. 3,548,875, Cl. 137-625.17

La-Mark Corporation: *See—*
Lawrence, Gerald A., 3,549,855.

Landau, Manfred: *See—*
Abson, James W., Landau, Manfred, Clark, Eric I., and Molyneux, Alan,3,549,559.

Landwer, William E., to Burgess Vibrocrafters, Inc. Self-contained fogger. 3,548,532, Cl. 43-129.

Lane, Roy M. Celery harvester. 3,548,575, Cl. 56-327.

Laney, Neill M. Vehicular towed camping trailer. 3,549,196, Cl. 296-23.

Lang, Daniel, to Goldentone Electronics, Inc. Hearing aid control mounting. 3,549,828, Cl. 179-107.

Lang, Josef Johann. Decompression device for internal combustion engine. 3,548,799, Cl. 123-182.

Lange, Robert E.: *See—*
Van Doorn, Donald W., Pease, William C., III, Colquett, Jack L., and Lange, Robert E.,3,548,744.
Langen, H. J., & Sons Canada Ltd.: *See—*
Langen, Hermann Josef, 3,548,890.
Langen, Hermann Josef, to Langen, H. J., & Sons Canada Ltd. Meat pressing machine and process. 3,548,890, Cl. 141-7.
Langendorf, Matthew P., and Ridings, Charles L., to International Business Machines Corporation. Tone actuated dictation systems with voice buffer. 3,549,821, Cl. 179-100.1
Langlois, Guy B.: *See—*
Kittredge, John B., and Langlois, Guy B.,3,549,341.
Lannan, Patrick Edward: *See—*
McWade, John Edwin, and Lannan, Patrick Edward,3,549,866.
Lanphier, Edward H., and Morin, Richard A., to United States of America, Navy, mesne. Horizontal wet-dry pressure chamber. 3,548,516, Cl. 35-29.
Larive, Rene, Gelinas, Leo-Paul, and Knight, Richard L. C., to Consolidated Paper (Bahamas) Limited. Bench marks in sheet or web material. 3,549,858, Cl. 219-384.
La Rocca, Aldo V. Layered propellant composition consisting of an electrical conductor and an insulator. 3,549,436, Cl. 149-15.
Larsen, Lyle V., to Chicago Bridge & Iron Company. Quick opening closure using split shear studs. 3,549,186, Cl. 292-256.71
Larsen, Richard C., and May, Jim. Dimensional cutting saw apparatus. 3,548,896, Cl. 143-47.
Larson, Donald J. Coupling for a spirally seamed pipe. 3,549,181, Cl. 285-390.
Larson, Paul: *See—*
Barstow, Frederick E., Larson, Paul, and Salomon, Udo W.,3,548,411.
Laskey, Norman V., to Waukesha Bearings Corporation. Ship's propeller securing and jacking means. 3,549,275, Cl. 416-245.
Lassen, Niels: *See—*
Petersen, Povl Viggo, Lassen, Niels, and Ammitzboll, Thorkil,3,549,656.
Laughlin, Joseph C. Pontoon boat. 3,548,773, Cl. 114-61.
Laurent Henry, Hofmeister, Helmut, Neumann, Friedmund, and Wiechert, Rudolf, to Schering AG. 4-Chloro-pregnadiene-steroids and method of making the same. 3,549,671, Cl. 260-397.4
Laverdant, Bernard, to Societe Anonyme D.B.A. Stirrup for disc brake. 3,548,973, Cl. 188-72.5
Lavergne, Lorraine. Brassiere. 3,548,833, Cl. 128-484.
Lawes, Roland C., and Jordan, Frederick Lee. Draught gage. 3,548,658, Cl. 73-302.
Lawrence, Gerald A., to La-Mark Corporation. Jig welding gun. 3,549,855, Cl. 219-130.
Laws, Ira G., to Seismograph Service Corporation. Pin insertion fixture. 3,548,477, Cl. 29-200.
Laws, Ira G., to Seismograph Service Corporation. Apparatus for placing flexible sheets in protective envelopes. 3,548,523, Cl. 40-11.
Lay, Clark M., to United States of America, Atomic Energy Commission. System for computing and continuously displaying increments of movement of an object in useable units of measure. 3,549,870, Cl. 235-92.
Lazar, Jeffrey M., to Honeywell Inc. Control apparatus. 3,548,794, Cl. 123-119.
Lazarus, Stanley D.: *See—*
Twilley, Ian C., and Lazarus, Stanley D.,3,549,594.
Leach, John M. Article conveyors. 3,549,002, Cl. 198-127.
Leak, Paul W., to Industriewerk Schaeffler O.H.G., mesne. Bearing with seal. 3,549,221, Cl. 308-187.2
Learned, Samuel M.: *See—*
Hall, Lewis William, Spangler, Stanley E., and Learned, Samuel M.,3,548,431.
Leasure, William C., to Mira-Pak. Method and apparatus for packaging with a movable mandrel and platen top sealing jaws. 3,548,563, Cl. 53-28.
Lebert, Andrew W.: *See—*
Apen, John R., and Lebert, Andrew W.,3,549,788.
Le Blanc, John R., and Higginbottom, Harold P., to Monsanto Company. Binder composition and uses. 3,549,473, Cl. 161-93.
Lecocq, Gerald W., 1/4 to Smith, Pleasant E., 1/4 to Ozbourn, James A., and 1/4 to Miller, Thomas A. Polyphase junction box. 3,550,063, Cl. 339-22.
Lee, Eugene K.: *See—*
Kerns, Clyde W., and Lee, Eugene K.,3,550,074.
Lee, Stuart M., to North American Rockwell Corporation. Sydnone chelates. 3,549,639, Cl. 260-270.
Lehman, Leon M., and Johnson, Axel R., to Hydrocarbon Research, Inc. High conversion level hydrogenation of residuum. 3,549,517, Cl. 208-108.
Leiber, Heinz, to Teldix GmbH. Anti-locking control system for pressure-actuated vehicle brakes. 3,549,211, Cl. 303-21.
Leiber, Heinz, to Teldix GmbH. Anti-locking control system. 3,549,212, Cl. 303-21.
Leigh, Thomas, and McArdle, Leslie Arthur, to Imperial Chemical Industries Limited. Carboxylic acid derivatives. 3,549,690, Cl. 260-473.
Leigh, Thomas, and McArdle, Leslie Arthur, to Imperial Chemical Industries Limited. Aralkyloxy alkanoic acids. 3,549,691, Cl. 260-473.
Leiner, P., & Sons (Encapsulations) Limited: *See—*
Mehta, Maharaj Krishen, 3,549,056.
Leith, Emmett N., and Upatnieks, Juris, to Battelle Development Corporation, The, mesne. Holographic vibration analysis method and apparatus. 3,548,643, Cl. 73-71.3
Lemmond, Charles Q.: *See—*
Bigelow, John E., and Lemmond, Charles Q.,3,550,084.
Lennon, Donald J. J.: *See—*
Haeberle, Robert W., Lennon, Donald J. J., and Schleifstein, Harvey G.,3,550,153.
Lerner, Nathan B. Anti-spilling device for drinking containers. 3,549,044, Cl. 220-90.4
Lester, Fred F., and Franz, Arvel O. Complex oxidic compounds and process for their production. 3,549,315, Cl. 23-51.
Lev, Benjamin: *See—*
Bloom, Bernard, and Lev, Benjamin,3,548,416.
Lever Brothers Company: *See—*
Mallows, Leslie Albert Stanley, 3,549,539.
Webster, Brian, 3,549,657.
Levin, Anatoly Yakovlevich: *See—*
Levin, Igor Anatolievich, Levin, Anatoly Yakovlevich, and Fedorov, Nikolai Evstigneevich,3,549,964.
Levin, Igor Anatolievich, Levin, Anatoly Yakovlevich, and Fedorov, Nikolai Evstigneevich. Device for de-icing surfaces of thin-walled structures. 3,549,964, Cl. 317-262.
Levine, Gerald, and Reville, Gerald P., Jr., to Liskey Aluminum, Inc. Floor panel. 3,548,559, Cl. 52-619.
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon, to American Cyanamid Company. 3,6-Disubstituted-pyrido[3,2-e]-as-triazines and 3,6-disubstituted-1,2-dihydropyrido[3,2-e]- triazines. 3,549,631, Cl. 260-249.5
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon, to American Cyanamid Company. 3-Aminopyrido[4,3-e]-as-triazine and 3-aminopyrido-[4,3-e]-as-triazine-1-oxide. 3,549,632, Cl. 260-249.5
Lewis, Merle R.: *See—*
Lohr, Raymond J., and Lewis, Merle R.,3,548,801.
Lewis, Roger G., to Collins Radio Company. JK flip-flop. 3,549,912, Cl. 307-292.
Lewus, Alexander J. Single-phase motor controls with combination overload protector and starting switch. 3,549,970, Cl. 318-221.
Lexington Laboratories, Inc.: *See—*
Waugh, Arthur, 3,549,736.
Leybold Heraeus-Verwaltung B.m.b.H.: *See—*
Scheidig, Helmut, Hauff, Alfred M., and Reimpell, Uwe Adolf, 3,549,773.
Liaison, S.A.: *See—*
Gabris, Tibor, 3,549,573.
Liberti, Felix P., and Lacamera, Nicholas J. Seamless multi-layered coating assembly and process for preparing same. 3,549,404, Cl. 117-26.
Liebl, Albert: *See—*
Von Hornstein, Wolf Freiherr, and Liebl, Albert,3,549,105.
Lifshin, Eric: *See—*
Morris, William G., and Lifshin, Eric,3,549,883.
Liggett & Myers Incorporated: *See—*
Key, Robert L., III, and Christy, Melvin G., 3,548,838.
Ligniez, Uwe: *See—*
Krauss, Heinz, Sautter, Wolfgang, and Ligniez, Uwe,3,548,964.
Lilly, Arnys Clifton, Jr., and Gentry, Elwood Maurice, to Morris, Philip, Incorporated. Electrical thermometer. 3,548,661, Cl. 73-362.
Lilly, Eli, and Company: *See—*
Chauvette, Robert R., 3,549,628.
Gramlich, James V., 3,549,349.
Lindeman, Richard J., to Motorola, Inc. Color television tube with shadow mask assembly provided with shield for reducing X-ray radiation and the effect of stray magnetic fields. 3,549,932, Cl. 313-85.
Lindemann, Dennis E., to Clark Equipment Company, mesne. Foldable carriage for earth working implement. 3,548,954, Cl. 172-311.
Lindemann, Eckhard Dirk, to Hell, Rudolf, Dr., Kommanditgesellschaft. Method of organizing the core memory in electronic phototype setters operating by rastering. 3,548,725, Cl. 95-4.5
Lindner, Helmut, Hoyer, Ernst, and Schmidt, Heinz, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Water-insoluble phenyl-azo-phenyl dyestuffs. 3,549,613, Cl. 260-207.
Linneken, Hans, to Gutehoffnungshutte Strekrade Aktiengesellschaft. Screw machine. 3,549,280, Cl. 418-21.
l'Institut Francais du Petrole:*See—*
Picou, Claude H., and Angelle, Philippe A., 3,550,115.
Lipe Rollway Corporation: *See—*
Armstrong, Jack W., 3,548,988.
Lipe-Rollway Corporation: *See—*
Root, Robert S., 3,548,984.
Root, Robert S., 3,548,989.
Liskey Aluminum, Inc.: *See—*
Levine, Gerald, and Reville, Gerald P., Jr., 3,548,559.
Litant, Irving, to United States of America, National Aeronautics and Space Administration. Method for detecting leaks in hermetically sealed containers. 3,548,636, Cl. 73-40.7
Lithoplate, Inc.: *See—*
Richlin, Isadore M., and Bornemisza, Elmer S., 3,549,372.
Thomas, Daniel C., 3,549,365.
Litton Industries, Inc.: *See—*
Dunn, Elman R., 3,548,549.
Woodford, Ernest M., 3,548,679.

Litton Precision Products: *See—*
Grilk, Henry G., 3,550,000.
LKB Instruments, Inc.: *See—*
Sundberg, Rune David Oliver, 3,550,029.
Lo, David S., Oredson, Henry N., and Torok, Ernest J., to Sperry Rand Corporation. Oligatomic magnetic film memory. 3,550,101, Cl. 340-174.
Lockerby, W. Lee, to Avico, Inc. Crab meat extraction method. 3,548,449, Cl. 17-48.
Loeble, William D., Jr.: *See—*
Cesare, Frank C., and Loeble, William D., Jr.,3,549,481.
Loev, Bernard, to Smith Kline & French Laboratories. Oximidomethanesulfonamides. 3,549,702, Cl. 260-556.
Lohr, Raymond J., and Lewis, Merle R., to Marx, Louis, & Co., Inc. Gun with variable firing frequency. 3,548,801, Cl. 124-6.
Lohrer, Bernard, to Furstlich Hohenzollernsche Huttenverwaltung Laucherthal. Resilient cap with frangible portions. 3,549,038, Cl. 215-41.
Lombardini, Arnaldo, and Ferretti, Giorgio, to Lombardini-Fabrica Italina Motori S.p.A. Ignition system for gasoline engines. 3,548,800, Cl. 123-149.
Lombardini-Fabrica Italina Motori S.p.A.: *See—*
Lombardini, Arnaldo, and Ferretti, Giorgio, 3,548,800.
Lommel, James M. Magnetic thin films and method of making. 3,549,428, Cl. 148-31.55
Long, Emile David, to Gillett Tool Co., Inc. Precision fuel metering system having operational mode change during transient intervals. 3,548,791, Cl. 123-32.
Long, Harold W. Target cup for surface projectiles. 3,549,151, Cl. 273-178.
Long, William H., to Minnesota Mining and Manufacturing Company, mesne. Traffic signal remote control system. 3,550,078, Cl. 340-32.
Longbottom, Parker W.: *See—*
Caison, Lloyd, Borenstein, David E., and Longbottom, Parker W.,3,549,741.
Lonning, Thor J. G., to Monsanto Company. Fire-retardant insulation construction. 3,549,474, Cl. 161-151.
L'Oreal:*See—*
Kalopissis, Gregoire, and Bugaut, Andree, 3,549,303.
Lorenz, Francis E., Jr. Cleaning apparatus. 3,549,265, Cl. 401-25.
Lorenz, Max R.: *See—*
Buszko, Leonard J., Foster, Luther M., and Lorenz, Max R.,3,549,401.
Loukes, David Gordon, and Morgan, John Henry. Method for removing tin from flat glass. 3,549,343, Cl. 65-30.
Loukes, David Gordon, and Smith, Roy, to Pilkington Brothers Limited. Method of removing tin from the surface of flat glass by double ion exchange. 3,549,344, Cl. 65-30.
Love, Doris: *See—*
Holstedt, Richard A., Dadura, James G., Krug, Robert H., and Love, Doris,3,549,534.
Lowdenslager, John R., to Singer-General Precision, Inc. Variable resistance and low pass filter circuit. 3,549,903, Cl. 307-237.
Luborsky, Fred E., to General Electric Company. Magnetic recording films of cobalt. 3,549,418, Cl. 117-240.
Lubrizol Corporation, The: *See—*
Coleman, Lester E., 3,549,340.
Lucas, Raymond L. R. Sheet stacker with stack support positioner. 3,549,144, Cl. 271-68.
Luciani, Giacomo: *See—*
Mueller, Fritz W. H., Dersch, Fritz, and Luciani, Giacomo,3,549,371.
Luedi, Hans R.: *See—*
Hess, Johann T., and Luedi, Hans R.,3,548,623.
Lummus Company, The: *See—*
Fair, Albert Edward Harold, 3,549,483.
Lummus Cotton Gin Company: *See—*
Van Doorn, Donald W., Pease, William C., III, Colquett, Jack L., and Lange, Robert E., 3,548,744.
Lund, Van Metre: *See—*
Flaherty, John J., Erikson, Kenneth R., and Lund, Van Metre,3,548,642.
Lundquist, Adolph Q., to Hy-Net Engineering, Ltd. Method and apparatus for gas-solids reaction in production of sulfur, iron and related products. 3,549,351, Cl. 75-6.
Lungo, Antonio, and Bonnema, Donald E., to Clevite Corporation. Lead zirconate-titamate containing manganese additive. 3,549,536, Cl. 252-62.9
Lynn, Rudolph E., to Porter, H. K., Company, Inc. Door fastening apparatus. 3,549,185, Cl. 292-218.
Lyons, John W., and Vandersall, Howard L., to Monsanto Company. Mixed cation ammonium potassium polyphosphates and methods for preparing the same. 3,549,347, Cl. 71-34.
Macher, Karl, to Schneider, Jos., & Co. High-speed varifocal objective system. 3,549,235, Cl. 350-184.
Machler, Raymond C. Process for recording digital information so as to provide an analog representation of such information. 3,550,148, Cl. 346-1.
Mackay-Smith, Matthew P. Horseshoe. 3,548,947, Cl. 168-29.
Mackell, Bernard B., to Davis Aircraft Products Company, Inc. Inflatable cargo blanket. 3,548,904, Cl. 150-0.5
Mackrle, Svatopluk: *See—*
Mackrle, Vladimir, Mackrle, Svatopluk, and Dracka, Oldrich,3,549,012.
Mackrle, Vladimir, Mackrle, Svatopluk, and Dracka, Oldrich, to Ceskoslovenska akademie ved. Method and equipment for automatic washing of rapid filters. 3,549,012, Cl. 210-108.
MacLean, Roderick C.: *See—*
Kurth, Carl F., and MacLean, Roderick C.,3,550,132.
MacWilliam, Wallace, to Scovill Manufacturing Company. Hose and hose coupling assembly. 3,549,180, Cl. 285-256.
Madison Industries, Inc.: *See—*
Holloway, William S., 3,548,687.
Madison, Norman L.: *See—*
Merrill, Claude I., and Madison, Norman L.,3,549,711.
Maeda, Hisao, Matsushita, Akira, and Sakuma, Takashi, to Toko Kabushiki Kaisha. Process for producing magnetic thin film wire by multiple-layer electrodeposition. 3,549,508, Cl. 204-37.
Magnaflux Corporation: *See—*
Flaherty, John J., Erikson, Kenneth R., and Lund, Van Metre, 3,548,642.
Mitchell, Hugh A., 3,548,641.
O'Connor, Donald T., Debb, Arthur D., and Erickson, Kenneth R., 3,548,644.
Prine, David W., 3,549,986.
Magnavox Company, The: *See—*
Capen, George A ., 3,550,026.
Maitani, Yoshihisa, to Olympus Optical Co., Ltd. Device for determining and setting the proper exposure for a camera. 3,548,727, Cl. 95-10.
Mallinckrodt Chemical Works: *See—*
Gray, Allan Poe, 3,549,640.
Pitt, Larry L., 3,549,486.
Mallory, P. R., & Co., Inc.: *See—*
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C., 3,548,915.
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C., 3,548,948.
Mallows, Leslie Albert Stanley, to Lever Brothers Company. Dishwashing powders. 3,549,539, Cl. 252-99.
Malone, Robert Lee, to Ex-Cell-O Corporation. Record reader having transparency threshold means. 3,549,867, Cl. 235-61.11
Manetta, Sam. Tree folding and packaging device. 3,548,567, Cl. 53-124.
Manhattan College: *See—*
Spinna, Robert J., and Brierley, James D., 3,548,603.
Mann, August C., to Westinghouse Electric Corporation. Contoured bars for banded commutators. 3,549,927, Cl. 310-236.
Maple Press Company, The: *See—*
Hall, Lewis William, Spangler, Stanley E., and Learned, Samuel M., 3,548,431.
Marantz Company Inc.: *See—*
Smith, Lester, 3,549,808.
Marathon Oil Company: *See—*
Norton, Charles J., Reuter, Michael J., and Seppi, Ned F., 3,549,708.
Marbet, Roman, to Givaudan Corporation, mesne. 6-Octene-1-ynes and hydrogenated products thereof. 3,549,714, Cl. 260-632.
Maremont Corporation: *See—*
Dawson, John W., 3,550,142.
Margerum, John D., to Hughes Aircraft Company. Ultraviolet hardening of photosensitized polyacrylamide and products. 3,549,366, Cl. 96-35.1
Margolien, David H., to Unitrode Corporation. High power stud mounted diode. 3,549,958, Cl. 317-234.
Mark, Arthur M., and Mehltretter, Charles L., to United States of America, Agriculture. Method for the preparation of amylose acetate dispersions. 3,549,619, Cl. 260-233.5
Marks, Theodore, to American Technical Machinery Corporation. Pole drilling machine. 3,548,686, Cl. 77-22.
Marsh, Glenn A., and Schaschl, Edward, to Union Oil Company of California. Corrosion rate measuring method by maintaining electrolytic contact and excluding any substantial oxygen contact with a test specimen. 3,549,993, Cl. 324-71.
Marsh, Paul G., to Black Clawson Company, The. Method and apparatus for disposing of solid wastes. 3,549,011, Cl. 210-71.
Marsh, Paul G., and Blakley, Earl T., to Black Clawson Company, The. Methods and apparatus for disposing of waste materials. 3,549,010, Cl. 210-71.
Marshall, Richard C., to Automatic Bander Corporation. Automatic check bander. 3,548,560, Cl. 53-3.
Martin, Frank Samuel, to Gillette Company, The. Razor blade marking apparatus. 3,550,152, Cl. 346-74.
Martin, Paul A., to Fisher-Price Toys, Inc. Toy piano. 3,548,701, Cl. 84-95.
Marx, Louis, & Co., Inc.: *See—*
Lohr, Raymond J., and Lewis, Merle R., 3,548,801.
Marxen, Werner, to Demag Aktiengesellschaft. Blast lance car arrangement for metallurgical furnace. 3,549,139, Cl. 266-34.
Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Dittrich, Walter, and Konrad, Jakob, 3,548,685.
Maschinenfabrik Benninger AG: *See—*
Stobi, Hans, 3,549,100.
Wenger, Max, 3,548,784.
Maschinenfabrik Ernst Thielenhaus: *See—*
Thielenhaus, Ernst, and Schwar, Rudolf, 3,548,546.
Maschinenfabrik Fahr AG: *See—*
Purrer, Josef, and Krauss, Albert, 3,548,580.

Masino, John Albert, and Sturdevant, Eugene J., to Du Pont de Nemours, E. I., and Company. Apparatus for measuring dimensions of an opaque object. 3,549,896, Cl. 250-219.

Mason, Arthur D., Jr.: *See—*
Johnson, Avery A., Jr., Mason, Arthur D., Jr., and Ritchey, Charles R.,3,549,694.

Mason, Ralph Burgess, and Hamner, Glen Porter, to Esso Research and Engineering Company. Mixed nonnoble metalcatalyst compositions and processes utilizing same. 3,549,518, Cl. 208-111.

Masquelier, Jacques, and Michaud, Jean, to Societe: Societe Civille de Recherche Pharmaceutique et Therapeutique. Method of manufacturing chemically pure flavanediols. 3,549,661, Cl. 260-345.2

Massachusetts Institute of Technology: *See—*
Wedlock, Bruce D., 3,549,960.

Master Lock Company: *See—*
Foote, Daniel J., 3,548,486.

Materials Handling Systems, Inc.: *See—*
Howard, William E., 3,549,033.

Mathews, Carl Fraser: *See—*
Rose, John Brewster, Mathews, Carl Fraser, Nield, Eric, and Vincent, Peter Incledon,3,549,725.

Matson, Clayton L. Anchoring device for camper body. 3,549,194, Cl. 296-23.

Matsuda, Toshiyuki: *See—*
Ogawa, Shinichiro, and Matsuda, Toshiyuki,3,549,910.

Matsuo, Kazumasa: *See—*
Mori, Toshiyuki, and Matsuo, Kazumasa,3,548,726.

Matsushita, Akira: *See—*
Maeda, Hisao, Matsushita, Akira, and Sakuma, Takashi,3,549,508.

Matsushita Electric Industrial Co., Ltd.: *See—*
Atsumi, Tomoo, 3,549,153.
Hayakawa, Shigeru, and Mikoda, Masanari, 3,550,044.
Kohashi, Tadao, 3,550,095.
Moriki, Juichi, and Shiosaki, Masaharu, 3,549,913.
Nakano, Kazuhiro, Yamaguchi, Kouichiro, Utsunomiya, Kunihiko, and Tanimoto, Shigeru, 3,548,923.
Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira, 3,549,973.
Yoshimura, Koichi, 3,549,969.

Matsushita Electronics Corporation: *See—*
Kamiya, Shigeru, and Shibata, Haruo, 3,549,550.
Kusuda, Zenji, and Kobayashi, Takeji, 3,548,609.

Matsuura, Katsumasa: *See—*
Ohnishi, Toshikazu, Utsumi, Hiroki, Tazawa, Toru, and Matsuura, Katsumasa,3,548,615.

Mattei, Frank V.: *See—*
Tesoro, Giuliana C., and Mattei, Frank V.,3,549,638.

Mattel, Inc.: *See—*
Beny, Janos, Meggs, Daniel H., and Ryan, John W., 3,548,534.
Ceppi, Giannantonio, 3,548,594.

Mattis, Donald J.: *See—*
Horwitt, Laurence G., and Mattis, Donald J.,3,549,243.

May, Jim: *See—*
Larsen, Richard C., and May, Jim,3,548,896.

May, Robert R.: *See—*
Ferry, Ronald R., and May, Robert R.,3,549,116.

Mayberry, Mark E.: *See—*
Abadir, Bush Y., and Mayberry, Mark E.,3,549,730.

Mayer, Ferdy. Remote indication, measuring and control of diodes and controlled rectifiers. 3,550,110, Cl. 340-248.

Mayer, Francis X., to Esso Research and Engineering Company. Staged fluidized iron ore reduction process. 3,549,352, Cl. 75-26.

Mayer, Oscar & Co., Inc.: *See—*
Trautman, Jack C., and Olson, Floyd C., 3,549,501.

Mazelsky, Bernard, to Ara, Inc. Linear-type energy absorber having means for absorbing energy in a non-axial direction. 3,549,296, Cl. 188-1.

Mazelsky, Robert: *See—*
Ohlmann, Robert C., and Mazelsky, Robert,3,550,033.

Mazintas, John P.: *See—*
Capek, Raymond G., and Mazintas, John P.,3,549,415.

Mazzanti, Giorgio: *See—*
Natta, Giulio, Dall'Asta, Gino, and Mazzanti, Giorgio,3,549,607.
Natta, Giulio, Porri, Lido, and Mazzanti, Giorgio,3,550,158.

McAleer, Howard J., to Formax Manufacturing Company. Flap wheel. 3,548,550, Cl. 51-334.

McArdle, Leslie Arthur: *See—*
Leigh, Thomas, and McArdle, Leslie Arthur,3,549,690.
Leigh, Thomas, and McArdle, Leslie Arthur,3,549,691.

McBride, Darvil David. Colorbook playhouse. 3,548,552, Cl. 52-70.

McBride, Thomas J.: *See—*
Peck, David F., McBride, Thomas J., Palmer, Elmer W., and Schwartz, Douglas A.,3,549,527.

McBride, Tom J., and Oleson, Jerome J., to Pfizer, Chas, & Co., Inc. Composition containing streptonigrin and oxytetracycline. 3,549,751, Cl. 424-227.

McBroom, Billy Joe, and Garrett, Charles M., Jr. Seating and backrest combination for a multicycle vehicle. 3,549,172, Cl. 280-202.

McCall, Barbara P. Blank for use in cold permanent wave including imperforated non-absorbent sheet secured to an absorbent sheet. 3,548,842, Cl. 132-9.

McCandless, Lee C., Withers, James C., and Brummett, Charles R. Reinforcing filaments comprising coated tungsten wires. 3,549,413, Cl. 117-106.

McCarthy, Denis: *See—*
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis,3,549,270.

Mc Carty, Horace G.: *See—*
Risser, Roger L., Foulke, Edward D., and Mc Carty, Horace G.,3,548,574.

McClellan, Robert: *See—*
Kendall, Kynoch P., and McClellan, Robert,3,548,610.

McCloud, James R., and McConnell, Lorne D., to I-T-E Imperial Corporation, mesne. Resistor switch for air blast circuit breaker. 3,549,841, Cl. 200-148.

McConnell, Lorne D.: *See—*
McCloud, James R., and McConnell, Lorne D.,3,549,841.

Mc Devitt, James, and Hildebrand, Victor F. Hot dog vending machine. 3,548,738, Cl. 99-332.

Mc Donald, David I.: *See—*
Baldwin, Herman J., and Mc Donald, David I.,3,548,495.

McDonald, Hugh C., Nolan, Thomas J., and Hoffer, George W. Method for developing finger prints. 3,549,397, Cl. 117-0.5

Mc Donald, Leighton S., and Crabb, Clarence R., to Dow Chemical Company, The. Stabilized 1,1,1-trichlorethane composition. 3,549,547, Cl. 352-171.

McDonald, William A.: *See—*
Eckert, George W., and McDonald, William A.,3,549,313.

McDowell, Hunter L., to Varian Associates, mesne. Microwave tube with a rod array slow wave circuit having capacitive coupling between alternate rods. 3,549,938, Cl. 315-3.5

McElveen, Loyd R., to Western Electric Company, Incorporated. Circuit for changing a binary number by one. 3,549,872, Cl. 235-168.

McEuen, Robert B., to Rucker Company, The. Electro viscous fluid rectifier. 3,548,853, Cl. 137-81.5

McFadden, Thomas P., Moe, Rolf, and Sidoti, Frank B. Industrial technique. 3,549,421, Cl. 134-31.

McFarland, James W.: *See—*
Conover, Lloyd H., McFarland, James W., and Austin, William C.,3,549,624.

McFarland, Jerry L., to North American Rockwell Corporation. Hemispherical dielectric lens type antenna employing a uniform dielectric. 3,550,139, Cl. 343-754.

McGee, Sherwood W., to Burgess-Norton Mfg. Co. Method of treating scrap metal. 3,549,350, Cl. 75-0.5

McGraw-Edison Company: *See—*
Bronikowski, Raymond J., 3,550,056.

McGuffey, James W., to Tranter Manufacturing, Inc. Casing structure for heat transfer unit. 3,548,553, Cl. 52-281.

McGuire, Robert L., to Case, J. I., Company. Control valve linkage. 3,548,674, Cl. 74-478.5

McInerney, James R.: *See—*
Berg, Charles J., Jr., McInerney, James R., and Moit, Daniel D.,3,549,571.

Mc Kay, William H. Smog control device. 3,548,591, Cl. 60-32.

McLean, Donald Neil, Rosensweig, Jacob, and Saunders, John. Cardiac pacer circuit. 3,548,831, Cl. 128-422.

McLeod, Francis D., Jr., to Research Corporation, mesne. Fluid flowmeter. 3,550,070, Cl. 340-3.

Mc Luckie, Alexander Dalrymple, to Dobson, W. E. & F., Limited. Mine roof supports. 3,548,601, Cl. 61-45.

McMahon, Edward G., to Johns-Manville Corporation. Method of forming a laminate sealing element. 3,549,445, Cl. 156-222.

McMillin, Carl Kenneth, and Teerlink, Wilford John, to Du Pont de Nemours, E. I., and Company. Segmented isomeric mixtures of elastomers from 1,3-diaminocyclohexane and sterically hindered tertiary diisocyanates. 3,549,596, Cl. 260-75.

McRae, Allen A. Visual ground helicopter pilot trainer. 3,548,518, Cl. 35-12.

McWade, John Edwin, and Lannan, Patrick Edward, to AMP Incorporated. Electro-mechanical memory apparatus. 3,549,866, Cl. 235-61.11

Meckl, Heinz, Himmelmann, Wolfgang, Moll, Franz, Honig, Hans-Ludwig, and Muller, Erwin-Alfons. Method of hardening photographic gelatin-containing layers with non-ionic dichlorotriazinyl amino compounds. 3,549,377, Cl. 96-111.

Mee, John D.: *See—*
Carpenter, James W., Mee, John D., and Heseltine, Donald W.,3,549,362.

Meggs, Daniel H.: *See—*
Beny, Janos, Meggs, Daniel H., and Ryan, John W.,3,548,534.

Mehltretter, Charles L.: *See—*
Mark, Arthur M., and Mehltretter, Charles L.,3,549,619.

Mehta, Maharaj Krishen, to Leiner, P., & Sons (Encapsulations) Limited. Powder feed hopper for capsule-forming machine. 3,549,056, Cl. 222-226.

Meierhoefer, Eugene J., to American Home Products Corporation. Package. 3,549,006, Cl. 206-56.

Meincke, Edmund R., to General Tire & Rubber Company, The. Color stabilized interpolymers of ethylene and vinyl acetate. 3,549,589, Cl. 260-45.8

Meister, Peter D.: *See—*
Hiestand, Everett N., Jensen, Erik H., and Meister, Peter D.,3,549,555.

Melachouris, Nicholas: *See—*
Charles, Robert Lemoyne, Gertzman, Donald Paul, and Melachouris, Nicholas,3,549,390.

Melamed, Nathan T.: *See—*
Hirayama, Chikara, and Melamed, Nathan T.,3,549,554.

Melling, Geoffrey Frank Robert, to Crater Controls Limited. Electric blanket average temperature and hot spot control. 3,549,865, Cl. 219-505.

Menikheim, Virginia C.: *See—*
Friedlander, Herbert N., and Menikheim, Virginia C.,3,549,306.

Menkus, Milton. Heat exchanger. 3,548,932, Cl. 165-165.

Menzies, James H. Fluid shortening for cakes and cream icings. 3,549,383, Cl. 99-92.

Menzies, James H., and Thomas, Malcolm H. Process for providing winterized mixtures of soybean oil and cottonseed oil. 3,549,386, Cl. 99-118.

Mercier, Jacques H. Valve. 3,549,121, Cl. 251-149.5

Merck & Co., Inc.: *See—*
Clark, Robert L., and Wu, Mu Tsu, 3,549,642.
Clark, Robert L., and Fisher, Michael H., 3,549,761.
Di Netta, Joseph, and Egerton, John R., 3,549,749.
Di Netta, Joseph, and Egerton, John R., 3,549,754.
Grabowski, Edward J. J., Tristram, Edward W., and Tull, Roger J., 3,549,633.
Hoff, Dale R., and Henry, David W., 3,549,756.
Tishler, Mas, Chemerda, John M., and Kollonitsch, Janos, 3,549,703.
Windholz, Thomas B., Patchett, Arthur A., and Fried, John, 3,549,672.

Merck, E., Aktiengesellschaft: *See—*
Klatyk, Knut, 3,549,525.

Merin Gerin, Societe Anonyme: *See—*
Blanc-Tailleur, Guy, 3,550,049.

Merit Abrasive Products, Inc.: *See—*
Block, Aleck, 3,548,551.

Merrill, Claude I., and Madison, Norman L., to Dow Chemical Company, The. Haloethers. 3,549,711, Cl. 260-614.

Merten, Rudolf, to Farbenfabriken Bayer Aktiengesellschaft. Carboxylic acid ester substituted polyhydantoins. 3,549,599, Cl. 260-77.5

Mertens, Peter: *See—*
Schlemm, Hans, and Mertens, Peter,3,550,071.

Mesinger, Robert H.: *See—*
Mesinger, William J., and Mesinger, Robert H.,3,549,441.

Mesinger, William J., and Mesinger, Robert H. Method of producing a hollow article having a decorative appearance. 3,549,441, Cl. 156-79.

Mesirov, Michael E., to Du Pont de Nemours, E. I., and Company. Aqueous dispersion paint compositions having improved brushing characteristics. 3,549,566, Cl. 260-8.

Message Systems, Inc.: *See—*
Turner, Justin L., 3,549,818.

Messineo, Salvatore V., and Yoshino, Stanley Y., to North American Rockwell Corporation. Honeycomb structure utilizing polybenzimidazole resin to join two core sections and to reinforce the edges of the cores. 3,549,468, Cl. 161-68.

Messner, John S., to Clark Equipment Company. Side loader device. 3,549,025, Cl. 214-16.4

Mesta Machine Company: *See—*
Sutyak, John J., 3,549,216.

Metaframe Corporation: *See—*
Willinger, Allan H., 3,548,786.
Willinger, Allan H., 3,549,015.

Metzger, William J., to Midland-Ross Corporation. Automatic car coupler. 3,549,021, Cl. 213-110.

Metzger, William J., to Midland-Ross Corporation. Automatic car coupler. 3,549,022, Cl. 213-110.

Meyer, Carl X., to Emerson Electric Co. Lighting fixture. 3,549,879, Cl. 240-147.

Meyer, Charles H., Jr.: *See—*
Rump, Bjorn S., Hammond, Robert H., and Meyer, Charles H., Jr.,3,549,416.

Meyer, Edwin L. Machine tool. 3,548,474, Cl. 29-95.1

Meyer, Geo. J., Manufacturing Co.: *See—*
Carter, Sidney T., 3,549,457.

Michaud, Jean: *See—*
Masquelier, Jacques, and Michaud, Jean,3,549,661.

Micro-Thermal Applications, Inc.: *See—*
Kaplan, Morton S., 3,548,710.

Midland-Ross Corporation: *See—*
Metzger, William J., 3,549,021.
Metzger, William J., 3,549,022.

Midway Cap Company: *See—*
Bloom, Bernard, and Lev, Benjamin, 3,548,416.

Mihajlov, Vsevolod S.: *See—*
Van Dorn, Warren G., Greeno, Thomas M., and Mihajlov, Vsevolod S.,3,548,748.

Miki, Takuichi, and Hiraga, Kentaro, to Takeda Chemical Industries, Ltd.Total synthesis of 13β-substituted gonapolyen-17α- ols. 3,549,673, Cl. 260-397.5

Miki, Tetsuya: *See—*
Kuyasu, Zeniti, Miki, Tetsuya, and Kawashima, Masao,3,550,116.

Mikoda, Masanari: *See—*
Hayakawa, Shigeru, and Mikoda, Masanari,3,550,044.

Miles Laboratories, Inc.: *See—*
Charles, Robert Lemoyne, Gertzman, Donald Paul, and Melachouris, Nicholas, 3,549,390.

Miles, Ray P., and Szucs, Andrew E. Motorized yard ramp. 3,548,433, Cl. 14-72.

Miles, Ray P., and Szucs, Andrew E. Tow bar assembly. 3,549,174, Cl. 280-491.

Miles, Ty, Inc.: *See—*
Gregersen, Arthur R., 3,548,684.

Milgo Electronic Corporation: *See—*
Whang, Sang Y., 3,550,005.

Miller, Charles R., and Holtzapfel, Paul J. Corrosion proofing composition and method. 3,549,391, Cl. 106-14.

Miller, Hal E.: *See—*
Nelson, John P., Dernovshek, Joseph F., Miller, Hal E., and Byers, Clifton A.,3,548,979.

Miller, Jerry B., to Eastman Kodak Company. Electrophotographic compositions and elements. 3,549,361, Cl. 96-1.5

Miller, Philip, and Montgomery, Carroll Sherman, to American Cyanamid Company. Process for preparing 1-loweralkyl-5-nitroimidazoles. 3,549,626, Cl. 260-240.

Miller, Richard E.: *See—*
Harris, Everett K., Ericson, John P., and Miller, Richard E.,3,549,301.

Miller, Samuel R. F., to Cammell Laird (Shiprepairers) Limited. Supporting and manipulating equipment for shot blasting apparatus. 3,548,541, Cl. 51-8.

Miller, Thomas A.: *See—*
Lecocq, Gerald W., 3,550,063.

Millmaster Onyx Corporation: *See—*
Cohen, Sidney, and Schlesinger, Morton, 3,548,427.

Mills, Lionel William, to Steelweld Limited. Friction welding apparatus with micrometer weld control. 3,549,076, Cl. 228-2.

Milton, Roger, to Plysu Products Limited. Vented closure members. 3,549,040, Cl. 220-44.

Minagawa, Motonobu, and Nakagawa, Kenichi, to Argus Chemical Corporation. Enhancement of resistance of olefin polymers to copper-catalyzed oxidative degradation. 3,549,572, Cl. 260-23.

Mindick, Morris, and Svarz, Jerry J., to Dow Chemical Company, The, mesne. Production of ion exchange resin particles. 3,549,562, Cl. 260-2.1

Mine Safety Appliances Company: *See—*
Temple, Robert, 3,549,073.

Minick, David G., and Sinclair, David H., to Sinclair Company, The. Polymeric bearing for paper making machines. 3,549,223, Cl. 308-200.

Mink, James W., to United States of America, Army. Optical frequency discriminator with dual frequency resonator. 3,549,236, Cl. 350-157.

Minks, Floyd M., to Brunswick Corporation, mesne. Triggered supply for arc gap unit. 3,549,944, Cl. 315-209.

Minnesota Mining and Manufacturing Company: *See—*
Barclay, Ralph R., 3,549,792.
Coon, Ralph I., 3,549,698.
Kittredge, John B., and Langlois, Guy B., 3,549,341.
Long, William H., 3,550,078.
Pastor, Sheldon Lee, 3,549,823.

Mioduszewska, Mieczyslawa Helena: *See—*
Mioduszewski, Jan Zbigniew, Mioduszewska, Mieczyslawa Helena, and Kornacki, Andrezej Januariusz,3,549,614.

Mioduszewski, Jan Zbigniew, Mioduszewska, Mieczyslawa Helena, and Kornacki, Andrezej Januariusz. Method of manufacture of mixed complex compounds of ferric iron with hydrogenated dextran and citric acid or sodium citrate. 3,549,614, Cl. 260-209.

Mira-Pak: *See—*
Leasure, William C., 3,548,563.

Mishakin, Vladimir Andreevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Mishiro, Masaru: *See—*
Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji,3,548,845.

Missan Motor Company, limited: *See—*
Hiraiwa, Kazuyoshi, 3,548,983.

Mitchell, Hugh A., to Magnaflux Corporation. Recording system for ultrasonic inspection apparatus. 3,548,641, Cl. 73-67.9

Mitchelmore, Anthony C.: *See—*
Hill, Harold T., Parker, Henry G., and Mitchelmore, Anthony C.,3,548,914.

Mitscher, Lester Allen: *See—*
Kunstmann, Martin Paul, Mitscher, Lester Allen, and Porter, John Norman,3,549,502.

Mitsubayashi, Mamoru, Muraishi, Yasuhiko, and Nishitsuji, Kazuichi, to Tokyo Shibaura Denki Kabushiki Kaisha, a/k/a Tokyo Shibaura Electric Co., Ltd. Refrigerating compressor with oil cooler. 3,548,612, Cl. 62-469.

Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Tamura, Kinya, 3,548,772.

Mitsuhashi, Kiyohiko: *See—*
Shiga, Takeo, Okamoto, Michio, and Mitsuhashi, Kiyohiko,3,549,776.

Mitsui Toatsu Chemicals Incorporated: *See—*
Otsuka, Eiji, Kanai, Kazumichi, Saki, Tadao, and Inoue, Shigeru, 3,549,701.

Mittasch, Ronald F. Orthopedic traction belt. 3,548,817, Cl. 128-75.

Mizuguchi, Ryuzo: *See—*
Nagata, Nobuyoshi, and Mizuguchi, Ryuzo,3,549,583.

Mizushina, Masaaki, and Toyota, Koji, to Nippon Kokan Kabushiki Kaisha. Multi-geared single screw system. 3,548,596, Cl. 60-97.

Mobil Oil Corporation: *See—*
Bryant, Howard S., Jr., and Nasser, John, 3,549,695.
Foster, Manus R., Sengbush, Raymond L., and Watson, Robert J., 3,550,073.
Hilchie, Douglas W., and Zemanek, Joseph, Jr., 3,550,075.
Kerns, Clyde W., and Lee, Eugene K., 3,550,074.

Model, Ernst: *See—*
Bindler, Jakob, and Model, Ernst,3,549,768.

Moe, Rolf: *See—*
McFadden, Thomas P., Moe, Rolf, and Sidoti, Frank B.,3,549,421.

Moegenbier, Josef, to Zenith Radio Corporation. Method of assembling an image intensifier. 3,549,229, Cl. 316-21.

Moericke, Dieter, to Nordberg Manufacturing Company. Hydraulic braking system. 3,549,209, Cl. 303-21.

Mogele, Ludwig: *See—*
Renner, Theodor, and Mogele, Ludwig,3,549,433.

Mohawk Data Sciences Corporation: *See—*
Cogar, George R., 3,550,103.

Moit, Daniel D.: *See—*
Berg, Charles J., Jr., McInerney, James R., and Moit, Daniel D.,3,549,571.

Molchanov, Alexei Vasilievich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich,3,549,338.

Molex Products Company: *See—*
Hansen, Wallace, 3,550,067.

Moll, Franz: *See—*
Meckl, Heinz, Himmelmann, Wolfgang, Moll, Franz, Honig, Hans-Ludwig, and Muller, Erwin-Alfons,3,549,377.

Moller, Waldmar, to Bodenseewerk Geratetechnik GmbH. Restrained gyroscope for steering purposes. 3,548,664, Cl. 74-5.5

Molnar, Robert J.: *See—*
Parfomak, Walter, Molnar, Robert J., and Aitken, John,3,549,947.

Moloney, John J., to Continental Can Company, Inc. Closure cap. 3,549,037, Cl. 215-40.

Molyneux, Alan: *See—*
Abson, James W., Landau, Manfred, Clark, Eric I., and Molyneux, Alan,3,549,559.

Monnereau, Georges, to Compagnie Generale d'Automatisme. Device for self-correction of position for semi-submersible platform. 3,548,602, Cl. 61-46.

Monsanto Company: *See—*
Abadir, Bush Y., and Mayberry, Mark E., 3,549,730.
Anderson, George J., and Dahms, Ronald H., 3,549,576.
D'Amico, John Joseph, 3,549,650.
Dahms, Ronald H., 3,549,479.
Dahms, Ronald H., 3,549,480.
Deason, Wallace R., Fowler, Lewis, and Trump, Walter N., 3,548,640.
Friedlander, Herbert N., and Menikheim, Virginia C., 3,549,306.
Gash, Virgil W., 3,549,606.
Hirsch, Stephen S., 3,549,307.
Kulig, Frank M., 3,548,457.
Le Blanc, John R., and Higginbottom, Harold P., 3,549,473.
Lonning, Thor J. G., 3,549,474.
Lyons, John W., and Vandersall, Howard L., 3,549,347.
Silverman, Bernard, and Stewart, Leslie E., 3,548,584.
Sinusas, Robert R., 3,550,040.

Monsheimer, Rolf, and Pfleiderer, Ernst, to Rohm and Haas G.m.b.H. Process for loosening the fiber structure of tanned furs. 3,549,495, Cl. 195-6.

Monsimer, Harold G., to Pennwalt Corporation. Electrically conducting amine-graphite oxide product. 3,549,560, Cl. 252-500.

Montecatini Edison S.p.A.: *See—*
Natta, Giulio, Dall'Asta, Gino, and Mazzanti, Giorgio, 3,549,607.
Natta, Giulio, Porri, Lido, and Mazzanti, Giorgio, 3,550,158.

Montgomery, Carroll Sherman: *See—*
Miller, Philip, and Montgomery, Carroll Sherman,3,549,626.

Montgomery, Harold H., and Montgomery, Vergie L. Pedipulator. 3,548,814, Cl. 128-57.

Montgomery, Vergie L.: *See—*
Montgomery, Harold H., and Montgomery, Vergie L.,3,548,814.

Moore, Glenn E., and Wood, Chester W., to Dover Corporation. Safety mechanism for automatic nozzle. 3,548,893, Cl. 141-208.

Moore, Richard E.: *See—*
Hoornstra, Clayton W., Moore, Richard E., and Hickerson, John D.,3,549,438.

Moore, Richard L. Nuclear reactor motor. 3,549,490, Cl. 176-39.

Moore, Robert S., to Procter & Gamble Company, The. Process for preparing liquid detergent. 3,549,546, Cl. 252-152.

Moore, Thomas S., and Ross, James T., to Ford Motor Company. Vibration damper and preloader bearing assembly. 3,549,166, Cl. 280-96.1

Morcaldi D', Rosaria Forlano. Attachment assembly for loop construction fabric. 3,548,706, Cl. 87-31.

Morgan, Frank S. Shock absorbers. 3,548,977, Cl. 188-88.

Morgan, John Henry: *See—*
Loukes, David Gordon, and Morgan, John Henry,3,549,343.

Mori, Ikuo, to Nippon Kogaku K.K. Extremely wide-angle object lens. 3,549,241, Cl. 350-176.

Mori, Shunji: *See—*
Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji,3,548,845.

Mori, Toshiyuki, and Matsuo, Kazumasa, to Olympus Optical Co., Ltd. Automatic exposure control device of an endoscopic camera. 3,548,726, Cl. 95-10.

Moriarty, Maurice J. Rotary engine. 3,549,286, Cl. 418-85.

Moriki, Juichi, and Shiosaki, Masaharu, to Matsushita Electric Industrial Co., Ltd. Piezo-electric transformer. 3,549,913, Cl. 310-9.5

Morin, Richard A.: *See—*
Lanphier, Edward H., and Morin, Richard A.,3,548,516.

Morino, Hiroshi: *See—*
Urushiwara, Hishashi, Morino, Hiroshi, and Suzuki, Misao,3,548,472.

Morishima, Tsuyoshi: *See—*
Hamada, Takao, and Morishima, Tsuyoshi,3,549,373.

Moriya, Hisanori: *See—*
Hagihara, Muraji, and Moriya, Hisanori,3,548,797.

Morris, Herbert C., to Texaco Inc. Color improvement of sulfur-containing lubricating oils with a mordenite type zeolite. 3,549,520, Cl. 208-264.

Morris, Philip, Incorporated: *See—*
Iten, Clemens A., 3,549,046.
Lilly, Arnys Clifton, Jr., and Gentry, Elwood Maurice, 3,548,661.

Morris, William G., and Lifshin, Eric, to General Electric Company. Scanning electron microscope wherein an image is formed as a function of specimen current. 3,549,883, Cl. 250-49.5

Morrison, Glenn: *See—*
Shavel, John, Jr., and Morrison, Glenn,3,549,644.

Morrison, John R.: *See—*
Judge, John S., Morrison, John R., and Speliotis, Dennis E.,3,549,417.

Morrow, Robert D., and Hegeman, Andrew S., to Par, Ltd. Tape transport mechanism. 3,549,104, Cl. 242-209.

Morrow, Wallace E.: *See—*
Sholtis, George E., and Morrow, Wallace E.,3,549,721.

Morse, Meroe M., to Polaroid Corporation. Photographic processes and compositions. 3,549,364, Cl. 96-29.

Morton, Lester C., and Voos, Frank J., to National Distillers and Chemical Corporation. Pressure relief valve. 3,548,870, Cl. 137-540.

Mosher, Carol Walker: *See—*
Acton, Edward McIntosh, and Mosher, Carol Walker,3,549,616.

Moss, John F., to Owens-Illinois, Inc. Extrusion apparatus and method. 3,549,735, Cl. 264-39.

Mossig, Ernst: *See—*
Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst,3,548,469.

Motoren-und Turbinen-Union: *See—*
Hansen, Wolfgang, and Hagemeister, Klaus, 3,549,222.

Motorola, Inc.: *See—*
Lindeman, Richard J., 3,549,932.
Slavik, William H., 3,549,794.
Stehr, Wolfgang G., 3,549,809.
Walters, Cecil Kent, 3,549,988.

Motoyama, Kakujiu, and Yako, Hiroshi, to Tokyo Shibaura Electric Co., Ltd. Headlight lamp for automobiles having side reflectors and filaments to facilitate vision when making turns. 3,549,935, Cl. 313-114.

Mount, James E.: *See—*
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H.,3,549,803.

Mounteer, Carlyle A. Flexure pivot assembly and method of fabrication. 3,548,613, Cl. 64-15.

Mowbray, Harry L. Bearing and hub assembly. 3,549,219, Cl. 308-181.

M&T Products of Canada Limited: *See—*
Rosenblum, Philip, 3,549,318.

Mueller, Curt: *See—*
Altermatt, Rudolf, and Mueller, Curt,3,549,611.

Mueller, Fritz K., to Astro-Space Laboratories, Inc. Gyroscopic indicating system. 3,548,507, Cl. 33-204.

Mueller, Fritz W. H., Dersch, Fritz, and Luciani, Giacomo, to GAF Corporation. Stabilization of photographic materials. 3,549,371, Cl. 96-66.4

Mueller, Werner, to Contraves AG. Controllable stepwise drive or transmission. 3,548,671, Cl. 74-394.

Muir, Max K., to Stromberg Datagraphics, Inc. Optical system. 3,549,254, Cl. 355-55.

Mullaney, John Joseph, III, to Sealol, Inc. Check valve with spring assisted flexible auxiliary valve seat. 3,548,868, Cl. 137-515.5

Muller, Erwin-Alfons: *See—*
Meckl, Heinz, Himmelmann, Wolfgang, Moll, Franz, Honig, Hans-Ludwig, and Muller, Erwin-Alfons,3,549,377.

Muller, George H.: *See—*
Grimes, Delmar C., Muller, George H., and Ulics, George,3,548,675.

Muller, Richard, Reichel, Sigrid, and Dathe, Christian, to Institut fur Silikon-und Fluorkarbon-Chemie. Process for making organometal compounds of heavy metals by means of organotrifluorosilanes. 3,549,678, Cl. 260-430.

Mullin, Frank J., to Bell Telephone Laboratories, Incorporated. Audio squelch circuit for time division diplexed television. 3,549,795, Cl. 178-5.6

Mullins, John W. Line tapping service valve. 3,548,861, Cl. 137-318.

Mulno, Lester F., to Star Expansion Industries Corporation. Power actuated tool. 3,548,590, Cl. 60-26.1

Munch, Walter, Jr., to Baldwin, D. H., Company. Electronic organ with alternate reiteration by three-note groups. 3,549,778, Cl. 84-1.03

Munchbach, Curt, to Ungerer, Irma, (Nec) Dollinger. Flying shears. 3,548,698, Cl. 83-311.

Munro, William H., and Hamblin, Robert J. J., to Universal Oil Products Company. Mixed-phase thermal cracking process. 3,549,519, Cl. 208-125.

Muraishi, Yasuhiko: *See—*
Mitsubayashi, Mamoru, Muraishi, Yasuhiko, and Nishitsuji, Kazuichi,3,548,612.

Muratov, Valerian Matveevich: *See—*
Zakharov, Evgeny Ivanovich, Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, and Koshkin, Vladimir Mikandrovich,3,549,013.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ivanov, Vladimir Dmitrievich, and Chernov, Valery Alexandrovich,3,549,131.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Chernov, Valery Alexandrovich, and Khrokalo, Oleg Antonovich,3,549,134.

Murphy, Dana L. Combined wire bag tie and handle. 3,548,906, Cl. 150-12.

Murray, Ian, to United States of America, Atomic Energy Commission. Optical extensometer. 3,549,257, Cl. 356-32.

Mutter, Walter E.: *See—*
Ainslie, Norman G., Chhabra, Devendra S., Jepsen, Donald W., and Mutter, Walter E.,3,548,491.

Muzyka, Jury Lukich: *See—*
Amelchenko, Alexei Semenovich, Muzyka, Jury Lukich, Amelichev, Nikolai Zakharovich, and Myadzel, Vladimir Petrovich,3,548,544.

Myadzel, Vladimir Petrovich: *See—*
Amelchenko, Alexei Semenovich, Muzyka, Jury Lukich, Amelichev, Nikolai Zakharovich, and Myadzel, Vladimir Petrovich,3,548,544.

Myers Electric Products, Inc.: *See—*
Plummer, Merle A., 3,549,951.

Myers, Julian Mostella, to Clapp, O. H., & Co., Inc. Tea harvester. 3,548,576, Cl. 56-327.

Nabinger, Herman G. Rosary tabulator. 3,549,464, Cl. 161-8.

Naegeli, Werner, to Pavena A.G. Process for drafting staple fibers. 3,548,460, Cl. 19-66.

Naegeli, Werner, to Pavena A.G. Process for the preparation of a fiber arrangement or strand composed of staple fibers for undergoing a subsequent high draft. 3,548,462, Cl. 19-150.

Nagata, Nobuyoshi, and Mizuguchi, Ryuzo, to Nippon Paint Co., Ltd. Polyurethane liquid containing compositions. 3,549,583, Cl. 260-37.

Nagel, George W.: *See—*
Holtkamp, Calvin J., and Nagel, George W.,3,549,862.

Nagy, Georges: *See—*
Balde, Daniel, and Nagy, Georges,3,549,728.

Naito, Kenji: *See—*
Adica, Osamu, Naito, Kenji, Ogino, Katsuhiko, and Kuroda, Hiroyuki,3,549,504.

Nakagawa, Asaharu: *See—*
Okazaki, Kaoru, Shimokawa, Yoichi, and Nakagawa, Asaharu,3,549,724.

Nakagawa, Kenichi: *See—*
Minagawa, Motonobu, and Nakagawa, Kenichi,3,549,572.

Nakagawa, Touru, to Hitachi, Ltd. Vane pump. 3,549,287, Cl. 418-107.

Nakai, Yoshiyuki, and Yokogawa, Tetsuya, to Kanagawa Prefectural Government. Method and apparatus for odorlessly drying materials containing malodorous components. 3,548,510, Cl. 34-19.

Nakamura, Itsuro, Takeichi, Yasuo, and Saito, Teruo, to Yutaka Sangyo Kabushikikaisha. Control system for a gas discharger. 3,548,862, Cl. 137-340.

Nakamura, Soichi: *See—*
Higuchi, Takashi, and Nakamura, Soichi,3,549,242.

Nakamura, Yasumasa: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo,3,548,638.

Nakano, Kazuhiro, Yamaguchi, Kouichiro, Utsunomiya, Kunihiko, and Tanimoto, Shigeru, to Matsushita Electric Industrial Co., Ltd. Cooling and heating apparatus of heat storage type. 3,548,923, Cl. 165-18.

Nakazawa, Tsuneyuki: *See—*
Yamamoto, Masaaki, and Nakazawa, Tsuneyuki,3,549,610.

Nalco Chemical Company: *See—*
Domba, Elemer, and Krolikiewicz, Thaddeus A., 3,549,705.
Jacklin, Clarence, 3,549,538.
Newman, Theodore R., 3,549,548.
Peck, David F., McBride, Thomas J., Palmer, Elmer W., and Schwartz, Douglas A., 3,549,527.
Stanford, James R., and Vogelsang, Paul G., Jr., 3,549,532.
Watson, William R., 3,549,217.

Napolitano, Vincenzo. Chuck for clamping and inflating a tubeless tyre on a rasping or rolling machine. 3,548,898, Cl. 144-288.

Napp, Anthony E.: *See—*
Brandau, William E., and Napp, Anthony E.,3,548,662.

Narkis, Moshe: *See—*
Kohn, David Harry, Narkis, Moshe, Weitzman, Jacob, and Neumann, Walter,3,549,731.

Nasser, John: *See—*
Bryant, Howard S., Jr., and Nasser, John,3,549,695.

Nasser, Roland G., to Star Expansion Industries Corporation. Quarter turn connector. 3,548,705, Cl. 85-84.

National Cash Register Company, The: *See—*
Beery, Jack, and Hepp, Harold E., 3,549,071.
Hepp, Harold E., 3,548,746.
Hiestand, Everett N., Jensen, Erik H., and Meister, Peter D., 3,549,555.
Trimble, Cebern B., 3,549,825.

National Distillers and Chemical Corporation: *See—*
Morton, Lester C., and Voos, Frank J., 3,548,870.

National Lead Company: *See—*
Slepetys, Richard A., 3,549,091.

National Metalcrafters, Inc.: *See—*
Shelden, William L., 3,549,950.

National Research Development Corporation: *See—*
Simmonds, David Thomas, 3,549,873.

National Union Electric Corporation: *See—*
Ferris, Warren Francis, 3,549,975.

Natta, Giulio, Dall'Asta, Gino, and Mazzanti, Giorgio, to Montecatini Edison S.p.A. High cis polypentenamers. 3,549,607, Cl. 260-93.1

Natta, Giulio, Porri, Lido, and Mazzanti, Giorgio, to Montecatini Edison S.p.A. Linear high polymers of diolefines and processes for preparing the same. 3,550,158, Cl. 260-94.3

Naubereit, Henry, and Picard, Salvatore R., to United States of America, Navy. Variable programmed counter. 3,550,015, Cl. 328-48.

Navarro, John F., III, and DiDonato, Richard T. Heat conserving, retaining and radiating assemblies for space heaters. 3,548,764, Cl. 110-97.

Nayadic Sciences, Incorporated: *See—*
Stevens, James I., 3,549,521.

Needham, Donald G.: *See—*
Hill, George R., and Needham, Donald G.,3,549,563.

Needham, James C., and Carter, Albert W., to British Welding Research Association. Welding processes and apparatus. 3,549,857, Cl. 219-137.

Neeld, Frank W., Jr.: *See—*
Durkee, Jackson L., and Neeld, Frank W., Jr.,3,548,432.

Neilson, William J., to Smith Industries International, Inc. Floating segment bearing. 3,549,214, Cl. 308-8.2

Nelson Equipment Company: *See—*
Batson, Dossie M., 3,549,027.

Nelson, Howard N., to Kimberly-Clark Corporation. Self-locking, easy-opening container. 3,549,081, Cl. 229-39.

Nelson, John P., Dernovshek, Joseph F., Miller, Hal E., and Byers, Clifton A., to Goodyear Tire & Rubber Company, The. Brake element with high heat sink characteristics. 3,548,979, Cl. 188-264.

Nelson, Kenneth W., to Sylvania Electric Products, Inc. Pulse generator. 3,549,898, Cl. 307-106.

Netta, Louis A., and Burkert, Herbert G., to Thomas & Betts Corporation. Terminal attaching machine. 3,548,479, Cl. 29-203.

Neumann, Friedmund: *See—*
Laurent Henry, Hofmeister, Helmut, Neumann, Friedmund, and Wiechert, Rudolf,3,549,671.

Neumann, Karl, and Schon, Wilhelm, to Passavant-Werke. Mobile screen rake machine. 3,549,028, Cl. 214-41.

Neumann, Walter: *See—*
Kohn, David Harry, Narkis, Moshe, Weitzman, Jacob, and Neumann, Walter,3,549,731.

Newig, Julius, to Handy Button Machine Co. Machine for making covered buttons. 3,548,689, Cl. 79-5.

Newman, Neil A., to Brunswick Corporation. Chassis construction for ground-support vehicles. 3,548,961, Cl. 180-5.

Newman, Theodore R., to Nalco Chemical Company. Method of inhibiting scale formation using a condensed polyphosphate-partially hydrolyzed poly- acrylonitrile composition. 3,549,548, Cl. 252-181.

Nichols, Denver E., and Wood, John E., to Ford Motor Company. Positive displacement slipper pump with flangeless drive shaft. 3,549,288, Cl. 418-133.

Nicholson, Eric Samuel, and Sharma, Vijay Ratna, to Imperial Chemical Industries Limited. Stabilisation of polymers. 3,549,587, Cl. 260-45.8

Nield, Eric: *See—*
Rose, John Brewster, Mathews, Carl Fraser, Nield, Eric, and Vincent, Peter Incledon,3,549,725.

Niemann, Juergen, to Ideal Industries, Inc. Fish tape winder. 3,549,127, Cl. 254-134.3

Nies, Nelson P., and Hulbert, Richard W., to United States Borax & Chemical Corporation. Zinc borate of low hydration and method for preparing same. 3,549,316, Cl. 23-59.

Nijholt, Meinardus Antonius Gerardus, to U.S. Philips Corporation, mesne. Circuit arrangement for delayed connection of a magnetron to the high voltage, and including an RC network in its input circuit. 3,549,942, Cl. 315-102.

Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.): *See—*
Shiga, Takeo, Okamoto, Michio, and Mitsuhashi, Kiyohiko, 3,549,776.

Nippon Electric Company, Limited: *See—*
Okamoto, Kiyokazu, and Shinagawa, Hiroshi, 3,549,871.

Nippon Kogaku K.K.: *See—*
Higuchi, Takashi, and Nakamura, Soichi, 3,549,242.
Kato, Jinichi, and Tamori, Takashi, 3,549,230.
Katsuyama, Yoshihisa, 3,549,249.
Mori, Ikuo, 3,549,241.

Nippon Kokan Kabushiki Kaisha: *See—*
Mizushina, Masaaki, and Toyota, Koji, 3,548,596.

Nippon Paint Co., Ltd.: *See—*
Nagata, Nobuyoshi, and Mizuguchi, Ryuzo, 3,549,583.

Nippon Steel Corporation: *See—*
Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji, 3,548,845.

Nippon Telegraph and Telephone Public Corporation: *See—*
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa, 3,549,812.

Nishikawa, Toshiro: *See—*
Uemura, Saburo, Yamada, Toshiyuki, Nishikawa, Toshiro, and Umezawa, Yasuo, 3,549,967.

Nishina, Yoshio: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku, 3,549,369.

Nishitsuji, Kazuichi: *See—*
Mitsubayashi, Mamoru, Muraishi, Yasuhiko, and Nishitsuji, Kazuichi, 3,548,612.

Nisshin Flour Milling Co., Ltd.: *See—*
Fukawa, Hideaki, Toyoda, Masashi, Fukushima, Hideo, and Shimizu, Toru, 3,549,668.

Nitzsche, Siegfried: *See—*
Wegehaupt, Karl-Heinrich, Nitzsche, Siegfried, Wick, Manfred, and Triem, Hermann, 3,549,680.

Nobilium Products, Inc.: *See—*
Prosen, Emil M., 3,548,916.

Nohara, Akira: *See—*
Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi, 3,549,662.

Nolan, Thomas J.: *See—*
McDonald, Hugh C., Nolan, Thomas J., and Hoffer, George W., 3,549,397.

Nomura, Fumio: *See—*
Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira, 3,549,973.

Noorda, Jacob D.: *See—*
Hill, George B., and Noorda, Jacob D., 3,549,839.

Nordberg Manufacturing Company: *See—*
Erickson, Bruce, and Dudey, Karl F., 3,548,987.
Krause, Edward H., Jr., 3,549,032.
Moericke, Dieter, 3,549,209.

Nordstrom, Fritz G.: *See—*
Truant, Aldo P., and Nordstrom, Fritz G., 3,549,748.

North American Rockwell Corporation: *See—*
Boyer, James H., Jr., and Janda, Richard M., 3,548,614.
Ghormley, Edward L., 3,548,438.
Greenewald, Herbert, Jr., 3,548,917.
Lee, Stuart M., 3,549,639.
McFarland, Jerry L., 3,550,139.
Messineo, Salvatore V., and Yoshino, Stanley Y., 3,549,468.
Pierro, John J., 3,548,965.
Prem, Lawrence L., 3,549,915.
Robinson, John F., and Shackelford, Lynn A., 3,549,220.

Northrup, David R., to Gulf States Paper Corporation. Pour spout for cartons. 3,549,079, Cl. 229-17.

Norton, Charles J., Reuter, Michael J., and Seppi, Ned F., to Marathon Oil Company. Post-maximally preaerated hydrocarbons and processes for their manufacture. 3,549,708, Cl. 260-610.

Norton, James F., to General Electric Company. Method and apparatus for testing circuits by measuring secondary emission electrons generated by electron beam bombardment of the pulsed circuit. 3,549,999, Cl. 324-158.

Norton, James F., to General Electric Company. Semiconductor data storage apparatus with electron beam readout. 3,550,094, Cl. 340-173.

Norwood, Donald D., to Phillips Petroleum Company. Series-parallel cis polybutadiene reactor trains. 3,549,609, Cl. 260-94.3

Novack, Robert M., to Warner-Lambert Pharmaceutical Company. 7-R_1-1-(R_2)-3-Hydroxy-5-phenyl-1H-1,4- benzodiazepin-2(3H)-one. 3,549,623, Cl. 260-239.3

Nowaczyk, Janusz: *See—*
Sikorski, Ryszard Tadeusz, and Nowaczyk, Janusz, 3,548,645.

Nunning, Bernard Charles: *See—*
Granatek, Alphonse Peter, Nunning, Bernard Charles, Athanas, Nicholas George, Danu, Robert Lewis, Granatek, Edmund Stanley, and Daoust, Raymond George, 3,549,746.

N.V. Hollandse Signaalapparaten: *See—*
Bodmer, Maximiliaan Hubert, 3,550,135.
van Hijfte, Herman Michel, and Gellekink, Bernard, 3,550,126.

N.V. Industrieeleen Handel Mij. 'Senzora' v/h A. J. Schoemaker & Zonen: *See—*
Stolmeijer, Leo, 3,549,545.

N.V.H. Verheij's: *See—*
Verheij, Adriaan, 3,548,757.

Nye, Dorothy M.: *See—*
Nye, Ralph A., and Nye, Dorothy M., 3,549,522.

Nye, Ralph A., and Nye, Dorothy M. Apparatus and process for obtaining potable water from saline solutions. 3,549,522, Cl. 210-23.

Oakley, Sterling A. Filing system. 3,548,526, Cl. 40-104.19

Obenhaus, Robert E., and Squiers, David J., to Texas Instruments, Incorporated. Electrothermal furnace control. 3,549,088, Cl. 236-9.

O'Brien, Merrill N., Jr.: *See—*
Di Pietro, Joseph, and O'Brien, Merrill N., Jr., 3,549,729.

obtain certain non-electric: *See—*
Rothermel, William F., and Klein, Robert I., 3,549,994.

Ochiai, Noriomi, to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd. Omnidirectional dielectric lens reflector. 3,550,147, Cl. 343-911.

O'Connor, Donald T., Debb, Arthur D., and Erickson, Kenneth R., to Magnaflux Corporation. Hot product inspection system. 3,548,644, Cl. 73-71.5

O'Connor, Roderic H.: *See—*
Becht, Cletus A., Emerick, Robert M., Horton, James A., Mount, James E., and O'Connor, Roderic H., 3,549,803.

Oderman, Samuel, Wiseman, Raymond L., and Rushforth, George T., to Sta-Hi Corporation. Controlled variable speed stacking device for publication conveyor. 3,548,995, Cl. 198-20.

Oechsli, Barnard L.: *See—*
Gould, Lawrence P., and Oechsli, Barnard L., 3,549,331.

Ogawa, Shinichiro, and Matsuda, Toshiyuki, to Honeywell Inc. Electric current-voltage converting circuit. 3,549,910, Cl. 307-270.

Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji, to Nippon Steel Corporation. Cooling apparatus for molds. 3,548,845, Cl. 134-114.

Ogino, Katsuhiko: *See—*
Adica, Osamu, Naito, Kenji, Ogino, Katsuhiko, and Kuroda, Hiroyuki, 3,549,504.

O'Grady, David E.: *See—*
Kaveggia, Frederick S., and O'Grady, David E., 3,549,439.

O'Grady, James P., to Whirlpool Corporation. Air flow control. 3,548,871, Cl. 137-553.

Ohio State University Research Foundation, The: *See—*
Walter, Carlton H., and Jennetti, Anthony G., 3,550,136.

Ohlheiser, Carlton E.: *See—*
Perlaky, Leopold, and Ohlheiser, Carlton E., 3,548,660.

Ohlmann, Robert C., and Mazelsky, Robert, to Westinghouse Electric Corporation. Chromium-doped $GdAlO_3$ high energy storage laser material. 3,550,033, Cl. 331-94.5

Ohnishi, Toshikazu, Utsumi, Hiroki, Tazawa, Toru, and Matsuura, Katsumasa, to Hitachi, Ltd. Washing machine. 3,548,615, Cl. 68-23.1

Okamoto, Kiyokazu, and Shinagawa, Hiroshi, to Nippon Electric Company, Limited. Digital interpolator. 3,549,871, Cl. 235-152.

Okamoto, Michio: *See—*
Shiga, Takeo, Okamoto, Michio, and Mitsuhashi, Kiyohiko, 3,549,776.

Okazaki, Kaoru, Shimokawa, Yoichi, and Nakagawa, Asaharu, to Toyo Rayon Kabushiki Kaisha. Polyamide-polyether polyamide block copolymer blend composition, a process for the production thereof and shaped articles thereof. 3,549,724, Cl. 260-857.

Okutani, Tokujiro. Printing material and process for producing the same. 3,549,482, Cl. 161-254.

Oldberg, Sidney, and Carey, William R., to Eaton Yale & Towne, Inc. Inflatable safety device. 3,549,169, Cl. 280-150.

Olden, Roger G., to RCA Corporation. Electrophotographic method and apparatus. 3,549,251, Cl. 355-3.

Oleck, Seymour Robert. Telephone index. 3,548,529, Cl. 40-336.

Oleson, Jerome J.: *See—*
McBride, Tom J., and Oleson, Jerome J., 3,549,751.

Olin Corporation: *See—*
Semenuk, Nick S., and Schroeder, Hansjuergen A., 3,549,604.

Olin Mathieson Chemical Corporation: *See—*
Brunelle, Lawrence J., 3,549,074.

Olinkraft, Inc.: *See—*
Sherman, Earle C., 3,548,566.

Oliver, Agnes R. Illuminating amusement device for perforating objects. 3,548,519, Cl. 35-27.

Olivetti, Ing. C., & C., S.p.A.: *See—*
Calano, Giuseppe, 3,549,068.
Gassino, Teresio, 3,549,087.

Olsen, Everett O.: *See—*
Richardson, David A., and Olsen, Everett O., 3,550,014.

Olson, Edwin G., to Du Pont de Nemours, E. I., and Company. Method for increasing the storage bulk- density of cellular polymeric fibers. 3,548,892, Cl. 141-11.

Olson, Floyd C.: *See—*
Trautman, Jack C., and Olson, Floyd C., 3,549,501.

Olson, Joseph E.: *See—*
Pusztay, Russell J., and Olson, Joseph E., 3,549,161.

Olson, Richard F.: *See—*
Jacobsen, Jon S., 3,548,508.

Olympia Werke AG: *See—*
Behrens, Herbert, and Elsner, Hans, 3,548,993.

Olympus Optical Co., Ltd.: *See—*
Maitani, Yoshihisa, 3,548,727.
Mori, Toshiyuki, and Matsuo, Kazumasa, 3,548,726.
Takahashi, Nagashige, and Sakamoto, Satoru, 3,548,808.

O'Neill, Arthur J., and Rowland, William P., to Rowland Products, Incorporated. Film for xerographic production of transparencies and process of making same. 3,549,360, Cl. 96-1.4

Ontario Store Fixture Co. Limited: *See—*
Sobel, Sydney M., 3,548,844.

Oppenheimer, Michael H.: *See—*
Hellstrom, Melbourne J., and Oppenheimer, Michael H., 3,549,906.

Optics Technology, Inc.: *See—*
Sawatari, Takeo, 3,549,240.

Oredson, Henry N.: *See—*
Lo, David S., Oredson, Henry N., and Torok, Ernest J., 3,550,101.

Orlando, Daniel, to Globe Union Inc. Shaft rotation failure system. 3,550,108, Cl. 340-271.

Oroslan, Andrew: *See—*
Ring, Richard N., Oroslan, Andrew, and Tesoro, Giuliana C., 3,549,309.

Ortloff, Gerald D.: *See—*
Graham, John W., and Ortloff, Gerald D., 3,548,941.

Ortmann, Christian, to International Standard Electric Corporation. Arrangement for optically scanning a recording medium using fixed lamps for illumination. 3,549,894, Cl. 250-219.

Orwig, Nelson E.: *See—*
Wood, Gerald, Orwig, Nelson E., Kolster, Harvey L., and Kahler, Jack E., 3,549,019.

Osawa, Hideo, Imooka, Masanori, Taniguchi, Fukuo, and Yamashita, Sunao, to Tokyo Shibaura Electric Co., Ltd. Apparatus for detecting foreign matters mixed with powdered or granular materials. 3,549,263, Cl. 356-209.

Osborne, Earl H., to Allegheny Ludlum Steel Corporation. Dry impact coating of powder metal parts. 3,549,357, Cl. 75-208.

Osta, Francesco. Method and machine for jointing bands in motion. 3,549,458, Cl. 156-505.

Ostermayer, Franz, Renk, Ernst F., and Denss, Rolf, to Geigy Chemical Corporation. 5,6,7,8-Tetrahydro-2H-pyrido 2,3-e 1,3 oxazine-2,4 (3H dione as a sedative) analgestic and anticonvulsant. 3,549,758, Cl. 424-248.

Osumi, Shinzo: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo, 3,548,638.

Oswald, Hendrikus J., and Reimschuessel, Annemarie C., to Allied Chemical Corporation. Process of enhancing the crystalline uniformity of a linear composition and the polyamide composition resulting from said process. 3,549,651, Cl. 260-30.6

Otsuka, Eiji, Kanai, Kazumichi, Saki, Tadao, and Inoue, Shigeru, to Mitsui Toatsu Chemicals Incorporated. Two stage process for synthesizing urea. 3,549,701, Cl. 260-555.

Otsuka, Hiroshi: *See—*
Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi, 3,549,662.

Ott, Hans: *See—*
Frey, Albert J., Griot, Rudolf G., and Ott, Hans, 3,549,689.

Ott, Hans, to Sandoz-Wander, Inc. Preparation of substituted -2(1H)-quinazolinones. 3,549,635, Cl. 260-251.

Overson, Reed, to United States of America, Army. Bascule bridge. 3,548,434, Cl. 14-36.

Owens-Corning Fiberglas Corporation: *See—*
Klink, Jerome P., 3,549,096.

Owens-Illinois, Inc.: *See—*
Moss, John F., 3,549,735.

Oy Wartsila AB: *See—*
Rassa, Toimi, 3,548,443.

Ozaki, Haruo: *See—*
Ogi, Hideo, Ozaki, Haruo, Mishiro, Masaru, Horikawa, Yoshikazu, and Mori, Shunji, 3,548,845.

Ozbourn, James A.: *See—*
Lecocq, Gerald W., 3,550,063.

Pace, Henry A., to Goodyear Tire & Rubber Company, The. Post treatment of polyureaurethanes. 3,549,598, Cl. 260-75.

Pacific Pipe Company: *See—*
Jacobs, Ellis H., and Billyard, Ronald G., 3,548,860.

Packaged Power Terminals Inc.: *See—*
Christian, Joseph D., and Christian, Robert F., 3,549,000.

Pagliuso, Robert J. Camera attachment for tripods. 3,549,113, Cl. 248-187.

Paine, T. O., administrator of the National Aeronautics and Space Administration with respect to an invention of,, and Crawford, William E. Drive circuit for minimizing power consumption in inductive load. 3,549,955, Cl. 317-148.5

Pak-Mor Manufacturing Co.: *See—*
Cullings, Harold L., 3,548,540.

Pallmann, Wilhelm. Comminuting machine for comminuting chippable material, especially wood, into chips of predetermined size. 3,549,093, Cl. 241-49.

Palmer, Alan B., to Du Pont de Nemours, E. I., and Company. Method of securing dense, metal-bonded refractory nitride bodies to steel. 3,549,337, Cl. 29-183.5

Palmer, Elmer W.: *See—*
Peck, David F., McBride, Thomas J., Palmer, Elmer W., and Schwartz, Douglas A., 3,549,527.

Palmer, Judson G., and Smayling, Michael. Control apparatus for internal-combustion engines. 3,548,792, Cl. 123-32.

Palmieri, Nicola, to Pirelli S.p.A. Electrical cable installation. 3,549,112, Cl. 248-70.

Panerai, Giuseppe: *See—*
Panerai, Maria, and Panerai, Giuseppe, 3,548,657.

Panerai, Maria, and Panerai, Giuseppe. Device for an outside display of the level of a liquid contained within a tank. 3,548,657, Cl. 73-293.

Pantenburg, Axel. Slide projector with continuously variable detail magnification. 3,549,250, Cl. 353-97.

Pappadis, Nicholas P., to Zenith Radio Corporation. Bimetallic connector for completing path between cathode and heat sink for temperature control. 3,549,929, Cl. 313-37.

Par, Ltd.: *See—*
Morrow, Robert D., and Hegeman, Andrew S., 3,549,104.

Parfomak, Walter, Molnar, Robert J., and Aitken, John, to Bendix Corporation, The. Method and means for reducing power consumption in an alternating current servo motor system during null signal operating conditions. 3,549,947, Cl. 318-18.

Parker, Harry W., to Phillips Petroleum Company. In situ method of producing oil from oil shale. 3,548,938, Cl. 166-256.

Parker, Henry G.: *See—*
Hill, Harold T., Parker, Henry G., and Mitchelmore, Anthony C., 3,548,914.

Parker, Jerry W. Airfoil face shield and helmet. 3,548,410, Cl. 2-3.

Parker, John A., and Riccitiello, Salvatore R., to United States of America, National Aeronautics and Space Administration. Modified polyurethane foams for fuel-fire. 3,549,564, Cl. 260-2.5

Parker, Leslie Kearton, and Tournier, John, to Perkin-Elmer Limited. Temperature control apparatus. 3,549,860, Cl. 219-400.

Parker, Rollin J., to General Electric Company. Speaker magnet having curved preferred direction of magnetization. 3,550,051, Cl. 335-231.

Parkinson, James R., to Simmonds Precision Products, Inc. Torque measurement system utilizing shaft deflection and phase displacement technique. 3,548,649, Cl. 73-136.

Parks, Asbury S., to Dover Corporation. Sealing structure. 3,548,874, Cl. 137-625.5

Parkson Industrial Equipment Company Limited: *See—*
Bain, Kenneth Lindsay, 3,548,933.

Parrent, George B., Jr.: *See—*
Bouche, Edmund L., and Parrent, George B., Jr., 3,549,237.

Parris Manufacturing Co.: *See—*
Christoffel, Julius M., and Phillips, Lester F., 3,548,538.

Passaggio, Charles, to Scovill Manufacturing Company. Control for gas-powered motor. 3,548,717, Cl. 91-337.

Passavant Werke: *See—*
Theidel, Klaus, and Weber, Wilhelm, 3,549,017.

Passavant-Werke: *See—*
Neumann, Karl, and Schon, Wilhelm, 3,549,028.

Pastor, Sheldon Lee, to Minnesota Mining and Manufacturing Company. Automatically reversing tape transport with coaxial reels. 3,549,823, Cl. 179-100.2

Patchett, Arthur A.: *See—*
Windholz, Thomas B., Patchett, Arthur A., and Fried, John, 3,549,672.

Patek & Co.: *See—*
Chaknova, Bernard L., 3,548,509.

Patel, Chandra K. N., to Bell Telephone Laboratories, Incorporated. Laser for use as a frequency standard. 3,550,032, Cl. 331-94.5

Patel, Jayantilal M., and Strang, David A. Uniform prewetting of roast and ground coffee to improve the extraction process. 3,549,380, Cl. 99-71.

Patinvest, Patent und Investment A.G.: *See—*
Waskowsky, Carl A. H. M., 3,549,838.

Pattenden, Warren C.: *See—*
Brewster, Phillip W., and Pattenden, Warren C., 3,549,537.

Paul, Harry F., to Tram Corporation. Squelch system. 3,550,012, Cl. 325-478.

Paull, Peter L., and Armistead, Fontaine C., to Texaco Development Corporation. Submergible vehicle for emergency offshore gas leakage. 3,548,605, Cl. 61-69.

Paull, Peter L., and Armistead, Fontaine C., to Texaco Development Corporation. Containerized transport device. 3,548,969, Cl. 180-130.

Pavan, Amedeo. Seal closure structure, for pressure fluid containers, particularly for pipeline terminals. 3,548,881, Cl. 138-89.

Pavena A.G.: *See—*
Naegeli, Werner, 3,548,460.
Naegeli, Werner, 3,548,462.

Pavlovich, Joseph: *See—*
Cagnon, Eugene C., Hurlin, Kenneth P., and Pavlovich, Joseph, 3,549,218.

Pavone, Robert J.: *See—*
Gerber, Heinz Joseph, and Pavone, Robert J., 3,548,699.

Payne, Dana C., and Chandler, Jack L., to Gaus, Frank D., d/b/a Superior Products Company. Joint sealant composition. 3,549,575, Cl. 260-28.5

Payne, George L. Hollow panel volume control for pipe organs. 3,548,703, Cl. 84-346.

Payne, William L., and Fetscher, Charles A., to Dexter Corporation, The. Epoxy resin powders of enhanced shelf stability with a trimellitic anhydride dimer as curing agent. 3,549,582, Cl. 260-37.

Peacher, Teddy J., and Kilbourn, Dorwin L., to United States of America, Army. Resonance shield for high pressure short-arc lamps. 3,549,934, Cl. 313-113.

Peacock Brothers Limited: *See—*
Schneller, Stephen G., 3,549,024.

Peady, Clifford Jack, to Telephone Manufacturing Co. (Australasia) Proprietary Limited. Telephone switchboards with signal-producing means. 3,549,817, Cl. 179-42.

Pearl, David R.: *See—*
Gerber, Heinz Joseph, and Pearl, David R.,3,548,697.
Pearson, William S., to Cypro Incorporated, mesne. High speed plastic bottle take-off and trimming. 3,548,695, Cl. 83-24.
Pease, Mark H., to Jered Industries, Inc. Marine steering gear linkage. 3,548,774, Cl. 114-162.
Pease, William C., III: *See—*
Van Doorn, Donald W., Pease, William C., III, Colquett, Jack L., and Lange, Robert E.,3,548,744.
Pech, Franz, and Spahn, Peter, to Teves, Alfred, GmbH. Vacuum-assist power brake. 3,548,595, Cl. 60-54.6
Pechmann, Karl, to GAF Corporation. Antistatic photographic film. 3,549,375, Cl. 96-84.
Peck, David F., McBride, Thomas J., Palmer, Elmer W., and Schwartz, Douglas A., to Nalco Chemical Company. Method of clarifying aqueous suspensions. 3,549,527, Cl. 210-54.
Peffer, John R.: *See—*
Gillery, Frank H., Dvorak, Jacob A., Rabenold, Ronald R., and Peffer, John R.,3,549,478.
Peilstocker, Gunter: *See—*
Dietzel, Karl, Peilstocker, Gunter, and Siemonsen, Hans-Peter,3,549,476.
Peltzer, Bernd: *See—*
Senge, Ferdinand, Peltzer, Bernd, and Schnell, Hermann,3,549,600.
Pelz, David T. Golf club with user aligning marks. 3,549,300, Cl. 273-162.
Pendley, Laurence C.: *See—*
Hutchinson, John W., Kao, Teh-Yu, and Pendley, Laurence C.,3,548,635.
Penland, Robert S., to Electronic Sensing Products, Inc. Metal detecting device having a disk-shaped head for housing a coil system. 3,549,985, Cl. 324-3.
Pennella, Filippo, to Phillips Petroleum Company. Olefin conversion in the presence of cyclic polyenes. 3,549,722, Cl. 260-683.
Pennwalt Corporation: *See—*
Monsimer, Harold G., 3,549,560.
Shetty, Bola Vithal, 3,549,629.
Shetty, Bola Vithal, 3,549,634.
Shetty, Bola Vithal, 3,549,636.
Shetty, Bola Vithal, 3,549,637.
Penraat, Jaap, and Deveau, Jack. Self-scoring instruction book. 3,548,517, Cl. 35-9.
Pentland, Alex M., to Ford Motor Company. Insulated coil for use in a dynamoelectric machine. 3,549,926, Cl. 310-194.
Perelmutr, Alexandr Semenovich: *See—*
Gigauri, Vladimir Spiridonovich, Perelmutr, Alexandr Semenovich, Galperin, Jury Shmulevich, and Smolyarov, Boris Vladimirovich,3,548,821.
Perez, Ernesto M. Metering dispenser for viscous materials. 3,549,057, Cl. 222-249.
Perkin-Elmer Corporation, The: *See—*
Ralston, Wilson P., 3,549,863.
Woschetzky, Werner, 3,549,984.
Perkin-Elmer Limited: *See—*
Parker, Leslie Kearton, and Tournier, John, 3,549,860.
Perlaky, Leopold, and Ohlheiser, Carlton E., to Hygrodynamics, Inc. Humidity-sensing closure for a container. 3,548,660, Cl. 73-336.
Perlman, David E., to Detection Systems, Inc. Photoelectric circuitry for passive detection systems. 3,549,892, Cl. 250-214.
Perrotta, Anthony J. Low thermal expansion ceramic material. 3,549,394, Cl. 106-39.
Perry, Frank J.: *See—*
Handley, Harold E., Handley, Robert D., and Perry, Frank J.,3,548,864.
Peters, Jean-Marie: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.
Petersen, Povl Viggo, Lassen, Niels, and Ammitzboll, Thorkil, to Kefalas A/S. Antidepressant 1-aminoalkyl-thiophthalanes and acid addition salts thereof. 3,549,656, Cl. 260-330.5
Petersen, Sigrud R.: *See—*
Spisak, Andrew J., and Petersen, Sigrud R.,3,549,919.
Peterson, Norman R. Food package. 3,549,389, Cl. 99-174.
Peterson, Stanley O.: *See—*
Faehling, Francis L., and Peterson, Stanley O.,3,548,804.
Faehling, Francis L., and Peterson, Stanley O.,3,549,859.
Petricciani, John C.: *See—*
Krezanoski, Joseph Z., and Petricciani, John C.,3,549,747.
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis, to Rolls-Royce Limited. Sealing device. 3,549,270, Cl. 415-112.
Petro-Tex Chemical Corporation: *See—*
Rice, Billy D., 3,549,732.
Pettigrew, Paul W., Konrad, Marion G., and Erickson, John W., to Preco, Inc. Retaining structure for load dividing gate suspension. 3,549,291, Cl. 105-376.
Pfizer, Chas., & Co., Inc.: *See—*
Conover, Lloyd H., McFarland, James W., and Austin, William C., 3,549,624.
Conover, Lloyd H., and Johnston, James D., 3,549,663.
McBride, Tom J., and Oleson, Jerome J., 3,549,751.
Pfleger, Frederick W. Metallic tape or plate contact, having insulation selectively deposited on it for a multiposition switch. 3,550,157, Cl. 200-166.
Pfleiderer, Ernst: *See—*
Monsheimer, Rolf, and Pfleiderer, Ernst,3,549,495.
Phelan & Taylor Produce Co.: *See—*
Phelan, Cyril A., Taylor, Edwin M., and Rapp, Keith A., 3,548,950.
Phelan, Cyril A., Taylor, Edwin M., and Rapp, Keith A., to Phelan & Taylor Produce Co. Apparatus for harvesting celery and the like. 3,548,950, Cl. 171-39.
Phillips, Allyn E., to Falk Corporation, The. Torque absorber for shaft mounted gear drives. 3,548,678, Cl. 74-665.
Phillips, Brian L.: *See—*
Argabright, Perry A., De Puy, Charles H., and Phillips, Brian L.,3,549,630.
Phillips, John J., to G & H Technology, Inc., mesne. Electrical connector. 3,550,065, Cl. 339-94.
Phillips, Lester F.: *See—*
Christoffel, Julius M., and Phillips, Lester F.,3,548,538.
Phillips Petroleum Company: *See—*
Campbell, Robert W., 3,549,595.
Dockery, Calvin D., 3,548,459.
Engle, Charles J., 3,548,946.
Fluegel, Dale A., 3,549,998.
Hill, George R., and Needham, Donald G., 3,549,563.
Jones, Faber B., and Simpson, Billy D., 3,549,565.
Kallenberger, Robert H., Dollinger, Robert E., Byron, John W., and Henderson, Eulas W., 3,548,454.
Kuerston, Richard D., 3,548,606.
Norwood, Donald D., 3,549,609.
Parker, Harry W., 3,548,938.
Pennella, Filippo, 3,549,722.
Phillips, Washington H., to Armstrong Cork Company. Vacuum mold for contoured ceiling tile. 3,549,488, Cl. 162-387.
Phone-Poulenc S.A.: *See—*
Achard, Rene Victor Julien, and Crenne, Noel, 3,549,709.
Picard, Salvatore R.: *See—*
Naubereit, Henry, and Picard, Salvatore R.,3,550,015.
Pichon, Louis Marius Elie: *See—*
Duroux, Jacques Marius, and Pichon, Louis Marius Elie,3,549,696.
Picker Corporation: *See—*
Hansen, Carl W., 3,549,887.
Pickert, Paul E.: *See—*
Bolton, Anthony P., and Pickert, Paul E.,3,549,557.
Picou, Claude H., and Angelle, Philippe A., to Compagnie Generale de Geophysique, and l'Institut Francais du Petrole, mesne. Method and means for numerical coding. 3,550,115, Cl. 340-347.
Piene, Kristian, to Jones & Laughlin Steel Corporation. Tundish nozzle for continuous casting. 3,549,061, Cl. 222-566.
Pierro, John J., to North American Rockwell Corporation. Vehicle wheel drive with outside claw tooth rotor synchronous motor. 3,548,965, Cl. 180-65.
Pikel, John H., to Chemetron Corporation. Liquid expressing press. 3,548,743, Cl. 100-145.
Pilkington Brothers Limited: *See—*
Jago, John James, 3,548,872.
Jewell, Ronald Colgan, 3,549,274.
Loukes, David Gordon, and Smith, Roy, 3,549,344.
Wynne, Hubert Cecil, Hall, James Edward, and Charlton, William, 3,549,135.
Pillsbury, Donald M., Jr., and Hadley, Russell E., to U.S. Philips Corporation, mesne. Liquid nitrogen transfer system using the Leidenfrost principle. 3,548,607, Cl. 62-52.
Pintell, Robert H., to Intron International Inc. Oscillator with push-pull-connected semiconductor elements. 3,550,036, Cl. 331-113.
Pioneer Coveralls, Inc.: *See—*
Cappello, Ignazio, 3,549,198.
Sibley, Lewis F., 3,549,199.
Sibley, Louis F., 3,549,197.
Pioneer Motor Bearing Company: *See—*
Hollingsworth, Leon W., 3,549,215.
Piquerez, Ervin. Timepiece with turning bezels. 3,548,588, Cl. 58-91.
Pirelli S.p.A.: *See—*
Palmieri, Nicola, 3,549,112.
Pitt, Larry L., to Mallinckrodt Chemical Works. Pressing silicic acid loaded sheet to improve its chromatographic performance. 3,549,486, Cl. 162-156.
Pitts, Walter J. Rotary vane type turbine engine. 3,548,790, Cl. 123-8.45
Plummer, Dexter Robert: *See—*
Barr, John Denzil, and Plummer, Dexter Robert,3,548,731.
Plummer, Merle A., to Myers Electric Products, Inc. Meter-box with discharge side mounting arrangement. 3,549,951, Cl. 317-107.
Pluta, Philip R., to United States of America, Atomic Energy Commission. System for detecting sodium boiling in a reactor. 3,549,489, Cl. 176-22.
Plysu Products Limited: *See—*
Milton, Roger, 3,549,040.
Pobitschka, Ernst: *See—*
Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst,3,548,469.

Podschus, Ernst: *See—*
Dorn, Ludwig, and Podschus, Ernst,3,549,317.
Polaroid Corporation: *See—*
Baker, James G., 3,548,729.
Ciecuch, Ronald F. W., 3,549,363.
Morse, Meroe M., 3,549,364.
Schüler, Norman W., 3,549,248.
Simon, Myron S., 3,549,699.
Pollack, Howard M., to Bendix Corporation, The. Gain adjustment means for bean couplers. 3,550,128, Cl. 343-107.
Polle, Hubert, to Siemens Aktiengesellschaft. Electrical condensor with thin regenerable coatings and method of making the same. 3,549,956, Cl. 317-230.
Polymer Corporation Limited: *See—*
Hawkins, Colin W., 3,549,574.
Ponto, Robert A.: *See—*
Dilley, William G., Jr., and Ponto, Robert A.,3,550,028.
Porri, Lido: *See—*
Natta, Giulio, Porri, Lido, and Mazzanti, Giorgio,3,550,158.
Porter, H. K., Company, Inc.: *See—*
Lynn, Rudolph E., 3,549,185.
Porter, John Norman: *See—*
Kunstmann, Martin Paul, Mitscher, Lester Allen, and Porter, John Norman,3,549,502.
Porter, Lester H., Jr., to Beta Corporation. Annunciator system. 3,550,121, Cl. 340-415.
Poss, Richard F.: *See—*
Young, David W., and Poss, Richard F.,3,549,535.
Postma, Willem Johannes, to U.S. Phillips Corporation. Quaternary soldering alloy. 3,549,355, Cl. 75-134.
Potter, Vernon C.: *See—*
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C.,3,548,915.
Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C.,3,548,948.
Potts, John W., to United States of America, Army. Inspection fixture. 3,549,009, Cl. 209-110.
Poucher, Michael: *See—*
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis,3,549,270.
Povinger, Bela P. Pressure control apparatus. 3,548,865, Cl. 137-486.
Pozzolo, Giovanni Battista, to S.M.I.T. Societa Macchine per l'Industria Tessile Societa Per Azioni. Apparatus for automatically positioning the thread field of a fabric to be fringed. 3,548,470, Cl. 28-18.
PPG Industries, Inc.: *See—*
Bissinger, William E., 3,549,769.
Cormany, Charles L., Dial, William R., and Pray, Blaine O., 3,549,715.
Gillery, Frank H., Dvorak, Jacob A., Rabenold, Ronald R., and Peffer, John R., 3,549,478.
Timko, Albert J., Jr., and Shaffer, Paul E., 3,549,785.
Pranske, Louis J.: *See—*
Dreyer, Everett Leslie, Cruciotti, Louis, Emmert, Richard G., and Pranske, Louis J.,3,549,149.
Pray, Blaine O.: *See—*
Cormany, Charles L., Dial, William R., and Pray, Blaine O.,3,549,715.
Preco, Inc.: *See—*
Pettigrew, Paul W., Konrad, Marion G., and Erickson, John W., 3,549,291.
Prem, Lawrence L., to North American Rockwell Corporation. Method and apparatus for generating pulse electrical power using a magnetohydrodynamic generator system. 3,549,915, Cl. 310-11.
Preston Engravers, Inc.: *See—*
Kesten, Martin, 3,548,928.
Preway Inc.: *See—*
Faehling, Francis L., and Peterson, Stanley O., 3,548,804.
Faehling, Francis L., and Peterson, Stanley O., 3,549,859.
Price, Thomas F., Jr. Apparatus for humanely killing minks and the like. 3,548,447, Cl. 17-1.
Prince, Marshall D., to United States of America, Army, mesne. Firing mechanism for automatic grenade launcher. 3,548,709, Cl. 89-149.
Principe, Pacifico A.: *See—*
Diassi, Patrick A., and Principe, Pacifico A.,3,549,498.
Prine, David W., to Magnaflux Corporation. Microwave flaw detection system having horns positioned with their polarization directions transverse to each other. 3,549,986, Cl. 324-58.5
Procter & Gamble Company, The: *See—*
Charrier, George O., 3,549,007.
Griebstein, William J., Grabenstetter, Robert J., and Widder, James S., 3,549,677.
Holderby, Victor M., 3,549,542.
Moore, Robert S., 3,549,546.
Proffitt, Thomas Jefferson, Jr., to Du Pont de Nemours, E. I., and Company. Finish composition for fibers. 3,549,530, Cl. 252-8.8
Prontor-Werk Alfred Gauthier GmbH: *See—*
Rentschler, Waldemar T., 3,548,732.
Prosen, Emil M., to Nobilium Products, Inc. Method of casting a dental gold alloy directly to prefabricated porcelain teeth. 3,548,916, Cl. 164-91.
Prunet, Jean: *See—*
de Galocsy, Zsigmond, and Prunet, Jean,3,549,295.
Prvni Brneska Stojirna, Zavody Klementa Gottwalda narodni Podnik: *See—*
Hojnos, Jan, and Grancic, Ivan, 3,549,484.
Pumpelly, Robert C.: *See—*
Kilgore, Marion D., and Pumpelly, Robert C.,3,548,936.
Purcell, Edward J., and Jahnke, Lance A., to I-T-E Imperial Corporation, mesne. Fluidic circuit package. 3,548,849, Cl. 137-81.5
Purdue Research Foundation: *See—*
Bachman, Gustave B., and Connon, Neil W., 3,549,686.
Bachman, Gustave B., and Connon, Neil W., 3,549,687.
Purdy, Frederick A. Vehicle-borne unlocker of combination-lock. 3,548,619, Cl. 70-267.
Purrer, Josef, and Krauss, Albert, to Maschinenfabrik Fahr AG. Rake construction for haymaking machine. 3,548,580, Cl. 56-400.
Pusztay, Russell J., and Olson, Joseph E. Power assist hand truck. 3,549,161, Cl. 280-3.
Pye Limited: *See—*
Halstead, Clifford, and Reed, Jonathan, 3,549,921.
Quinn, John Matthew: *See—*
Boyter, Walter C., and Quinn, John Matthew,3,548,583.
Raban, Veniamin Mikhailovich: *See—*
Datsenko, Georgy Maximovich, and Raban, Veniamin Mikhailovich,3,548,805.
Rabenold, Ronald R.: *See—*
Gillery, Frank H., Dvorak, Jacob A., Rabenold, Ronald R., and Peffer, John R.,3,549,478.
Rabiner, Lawrence R., to Bell Telephone Laboratories, Incorporated. Voiced fricative synthesizer. 3,549,807, Cl. 179-1.
Rabinow, Jacob, to Control Data Corporation. Character reading machine provided with an array of light-emitting diodes. 3,550,119, Cl. 340-146.3
Rabinowitz, Lewis, to Ellar Products, Inc. Spectacle temple tensioner. 3,549,247, Cl. 351-113.
Rademakers, Peter: *See—*
Duyverman, Coenraad J., and Rademakers, Peter,3,549,719.
Radin, Bernard G., to Ford Motor Company. Electrical generator including components of an automotive vehicle mechanical speedometer. 3,548,663, Cl. 73-510.
Radtke, Gurden R. Small slender article dispenser. 3,549,047, Cl. 221-116.
Raginsky, Leonid Solomonovich: *See—*
Zakharov, Evgeny Ivanovich, Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, and Koshkin, Vladimir Mikandrovich,3,549,013.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Ivanov, Vladimir Dmitrievich, and Chernov, Valery Alexandrovich,3,549,131.
Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, Chernov, Valery Alexandrovich, and Khrokalo, Oleg Antonovich,3,549,134.
Ralph, James L.: *See—*
Jepsen, John C., and Ralph, James L.,3,548,569.
Ralston, Wilson P., to Perkin-Elmer Corporation, The. Temperature control arrangement. 3,549,863, Cl. 219-494.
Rank Organisation Limited, The: *See—*
Barr, John Denzil, and Plummer, Dexter Robert, 3,548,731.
Rapp, Adolph Karl, to RCA Corporation. Non-destructive read-out memory cell. 3,549,904, Cl. 307-247.
Rapp, Keith A.: *See—*
Phelan, Cyril A., Taylor, Edwin M., and Rapp, Keith A.,3,548,950.
Raschke, Herbert A., to Bullard, E. D., Company. Face shield mounting brackets for helmets with curvilinear rims. 3,548,412, Cl. 2-10.
Rassa, Toimi, to Oy Wartsila AB. Rotary door closer with fluid check. 3,548,443, Cl. 16-52.
Rathkowski, Thomas A., to Abex Corporation. Pulverizer hammer for a hammer mill. 3,549,095, Cl. 241-197.
Rausch, John J., and Van Thyne, Ray J. Wear resistant materials. 3,549,427, Cl. 148-31.5
Rausch, John J., and Van Thyne, Ray J. Wear and abrasion resistant materials. 3,549,429, Cl. 148-32.
Rawson, Gerry, to American Safety Equipment Corporation. Retractable safety belt restraint system. 3,549,203, Cl. 297-388.
Rawson, Raymond John Clancy: *See—*
Guertler, Rudolf Julius Franz, and Rawson, Raymond John Clancy,3,550,138.
Rayeski, Thomas J.: *See—*
Carmi, Arieh, and Rayeski, Thomas J.,3,548,451.
Rayl, Theodore J., to Jaeger Machine Company, The. Actuator valve system for two-stage fluid-operated unit. 3,548,716, Cl. 91-307.
Raynor, Gilbert E. Combination baby stroller and vehicle seat. 3,549,164, Cl.
RCA Corporation: *See—*
Ahrons, Richard W., 3,550,089.
Alphonse, Gerard A., and Akselrad, Aline, 3,550,096.
Beelitz, Howard R., 3,549,899.
Olden, Roger G., 3,549,251.
Rapp, Adolph Karl, 3,549,904.
Scott, Joseph H., Jr., 3,549,911.
Yu, Edwin K. C., 3,549,900.

Rebrov, Sergei Alexeevich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Rederiaktiebolaget Nordstjernan: *See—*
Flink, Evert, 3,549,178.

Reed, John A., to Shell Oil Company. DC memory array. 3,550,097, Cl. 340-173.

Reed, Jonathan: *See—*
Halstead, Clifford, and Reed, Jonathan,3,549,921.

Reed, Karl F., II, to Anderson Electric Corporation. Strain insulator. 3,549,790, Cl. 174-177.

Reese, Cecil E.: *See—*
Kitson, Robert E., and Reese, Cecil E.,3,549,597.

Regel, Erik K., and Botts, Marion F., to Chemagro Corporation. Alkoxy vinyl phosphono dithioates as nematocides. 3,549,750, Cl. 424-217.

Regie Nationale des Usines Renault: *See—*
Gastinne, Francois Jules Marie, 3,548,796.

Reguera, Ernesto J., Carlin, Joseph T., and Allen, Joseph C., to Texaco Inc. Method for recovery of hydrocarbons from a subterranean formation previously produced by solution gas drive. 3,548,940, Cl. 166-273.

Reichel, Sigrid: *See—*
Muller, Richard, Reichel, Sigrid, and Dathe, Christian,3,549,678.

Reid, Donald J., to Kelsey-Hayes Company. Wheel. 3,549,205, Cl. 301-65.

Reifel, Harry C., to Unitrode Corporation. Subassembly package. 3,549,782, Cl. 174-52.

Reilly, William A., to Sawyer-Tower Products, Inc. Floating oil barrier. 3,548,599, Cl. 61-1.

Reimpell, Uwe Adolf: *See—*
Scheidig, Helmut, Hauff, Alfred M., and Reimpell, Uwe Adolf,3,549,773.

Reimschuessel, Annemarie C.: *See—*
Oswald, Hendrikus J., and Reimschuessel, Annemarie C.,3,549,651.

Reinhart, Tom R. Electrical apparatus responsive to inductive reactance for measuring distance along a pair of conductors. 3,549,992, Cl. 324-57.

Reinish, Martin David, to Colgate-Palmolive Company. Enzyme carrying detergent particles. 3,549,541, Cl. 252-135.

Reinker, Richard C., to Ashtabula Bow Socket Company, The. Wedge nut. 3,548,430, Cl. 10-86.

Reinz Dichtungs-Gesellschaft mbH: *See—*
Von Bennigsen, Gerd, 3,549,157.

Reiterer, Ferdinand. Textile fiber web forming and feeding apparatus and method. 3,548,461, Cl. 19-105.

Renfrew, Edgar E., and Zanella, Dominic A., to American Aniline Products, Inc. Aromatic polyester fiber dyed with disazo dyestuff. 3,549,305, Cl. 8-41.

Renk, Ernst F.: *See—*
Ostermayer, Franz, Renk, Ernst F., and Denss, Rolf,3,549,758.

Renner, Theodor, and Mogele, Ludwig. Method of purifying etched silicon surfaces. 3,549,433, Cl. 148-186.

Renshaw, Howard J., to Atlantic Products Corporation. Carrying handle for golf bag. 3,548,905, Cl. 150-1.5

Rentschler, Waldemar T., to Prontor-Werk Alfred Gauthier GmbH. Exposure time control instrument for attachment to a photographic camera equipped with a bulb device and a flash contact device. 3,548,732, Cl. 95-53.

Research Corporation: *See—*
McLeod, Francis D., Jr., 3,550,070.

Resilient Services Incorporated: *See—*
Denton, Clyde T., 3,549,471.

Retzler, William, to Tetra Molectric Limited. Cigarette lighters. 3,549,290, Cl. 431-274.

Reuter, Brian R., to Consolidated Engineering Company. Self-purging, pneumatic, conveying apparatus additionally equipped as with agitator and/or scale. 3,549,206, Cl. 302-53.

Reuter, Inc.: *See—*
Holmquist, Richard W., 3,548,455.

Reuter, Michael J.: *See—*
Norton, Charles J., Reuter, Michael J., and Seppi, Ned F.,3,549,708.

Reville, Gerald P., Jr.: *See—*
Levine, Gerald, and Reville, Gerald P., Jr.,3,548,559.

Rex Chainbelt Inc.: *See—*
Schink, Richard R., and Klessig, Ernst F., 3,549,281.

Reynolds, Frank L., and Thyberg, Victor A., to Frigitronics, Inc. Cryosurgical instrument. 3,548,829, Cl. 128-303.1

Reynolds, Kenneth: *See—*
Hellings, Thomas David Grinter, and Reynolds, Kenneth,3,549,379.

Rhone-Poulenc S.A.: *See—*
Duroux, Jacques Marius, and Pichon, Louis Marius Elie, 3,549,696.

Ricci, Enzo, Handley, Thomas H., and Willey, Melvin G., to United States of America, Atomic Energy Commission. Fluid supported capsule holder for homogeneously irradiating samples. 3,549,492, Cl. 176-15.

Riccitiello, Salvatore R.: *See—*
Parker, John A., and Riccitiello, Salvatore R.,3,549,564.

Rice, Billy D., to Petro-Tex Chemical Corporation. Method for separating a polymer from a solvent. 3,549,732, Cl. 264-8.

Rice, Charles K. Method for producing filamentary boron. 3,549,424, Cl. 148-6.3

Rice, Kenneth G.: *See—*
Bohn, Martin C., Brady, John F., Rice, Kenneth G., and Spinello, John O.,3,548,481.

Richardson, David A., and Olsen, Everett O., to Foxboro Company, The. Electronic control apparatus having improved transfer means. 3,550,014, Cl. 328-1.

Richardson, Edwin A.: *See—*
Simon, Theodore A., and Richardson, Edwin A.,3,548,943.

Richardson, James A.: *See—*
Katter, Gene S., and Richardson, James A.,3,549,147.

Richardson, James S. Valve actuating mechanism for internal combustion engines. 3,548,793, Cl. 123-90.12

Richardson, John D., Sr. Shrubbery and plant digger. 3,548,953, Cl. 172-41.

Richlin, Isadore M., and Bornemisza, Elmer S., to Lithoplate, Inc., mesne. Lithographic printing surface. 3,549,372, Cl. 96-67.

Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C., to Mallory, P. R., & Co., Inc. Procedure for chill casting beryllium composite. 3,548,915, Cl. 164-68.

Richmond, William J., Griffiths, Leonard B., and Potter, Vernon C., to Mallory, P. R., & Co. Inc. Procedure for chill casting beryllium composite. 3,548,948, Cl. 164-68.

Riddell, George: *See—*
Jaeger, Richard J., Jr., and Riddell, George,3,549,814.

Ridings, Charles L.: *See—*
Langendorf, Matthew P., and Ridings, Charles L.,3,549,821.

Riegel Paper Corporation: *See—*
Frech, Everett Bryant, 3,549,463.

Rigopulos, Peter Nicholas, to Amicon Corporation. Permeable membrane and method of making and using the same. 3,549,016, Cl. 210-500.

Ring, Richard N., Oroslan, Andrew, and Tesoro, Giuliana C., to Stevens, J. P., & Co., Inc. Phosphonium modified polymers and process of making them. 3,549,309, Cl. 8-120.

Rinker, William R., to Goodrich, B. F., Company, The. Flexible hose. 3,548,882, Cl. 138-129.

Riordon, Peter R., to Chemcell Limited. Multi-stage drawing technique. 3,549,743, Cl. 264-290.

Rios, Urban, to American Buttermaster Corporation, mesne. Automatic butter-pat dispensing machine. 3,548,498, Cl. 31-5.

Risser, Roger L., Foulke, Edward D., and Mc Carty, Horace G., to Sperry Rand Corporation. Mowing device. 3,548,574, Cl. 56-298.

Ritchey, Charles R.: *See—*
Johnson, Avery A., Jr., Mason, Arthur D., Jr., and Ritchey, Charles R.,3,549,694.

Ritchie, Alexander Crawford, Cheesman, Dennis George, Garside, Peter, and Waring, Juliet Mary, to Allen & Hanburys Limited. 1-Amino-pyridinium salts. 3,549,649, Cl. 260-294.8

Ritsi, Michael C. Combination unit for feeding liquid and solid food. 3,549,036, Cl. 215-11.

Ritson, Daniel Dickerson: *See—*
Coscia, Anthony Thomas, Ritson, Daniel Dickerson, Frazier, Charles, and Ross, Joseph Hansbro,3,549,568.

Riverside Mold & Die, Inc.: *See—*
Stippich, Alvin C., 3,548,863.

Rivo S.A.: *See—*
Ruesch, Willy, 3,549,246.

Roaring Spring Blank Book Co.: *See—*
Ferry, Ronald R., and May, Robert R., 3,549,116.

Robbins, Daniel T. Envelope opening machine. 3,549,067, Cl. 225-106.

Robbins, Saul. Doll having a body motion enabling it to crawl. 3,548,537, Cl. 46-150.

Roberts, Alfred H. Winding machines. 3,549,454, Cl. 156-425.

Roberts, Carleton W., and Travis, Gale D., to Dow Chemical Company, The. Certain 1,2,3,4,9,9-hexachloro-1,4,4a,5,6,7,8,8a- octahydro-1,4-methanonaphthalene-6,7-dicarboximides. 3,549,648, Cl. 260-295.

Roberts, William J., and Di Pietro, Joseph, to Celanese Corporation. Method of preparing dibasic acids and derivatives thereof. 3,549,697, Cl. 260-533.

Robins, A. H., Company, Incorporated: *See—*
Helsely, Grover Cleveland, 3,549,658.

Robinson, John F., and Shackelford, Lynn A., to North American Rockwell Corporation. Low-stress ball bearings. 3,549,220, Cl. 308-184.

Robrock, Richard B., II, to Bell Telephone Laboratories, Incorporated. Push-pull oscillator employing a pair of bulk semiconductor devices. 3,550,035, Cl. 331-107.

Roche, Martin A., Jr., to Union Carbide Corporation. Strengthened arc carbon electrode joints. 3,549,739, Cl. 264-162.

Rockwell Manufacturing Company: *See—*
Wolfensperger, Adolf, 3,548,858.

Rockwell-Standard Corporation: *See—*
Stamm, Alex F., 3,548,487.

Rohm and Haas G.m.b.H.: *See—*
Monsheimer, Rolf, and Pfleiderer, Ernst, 3,549,495.

Rohm, Gunter Horst, to Rohm-Gesellschaft m.b.H. Revolver firing mechanism having a die-cast hammer and trigger with steel inserts embedded therein. 3,548,530, Cl. 42-65.

Rohm-Gesellschaft m.b.H.: *See—*
Rohm, Gunter Horst, 3,548,530.

Rohnow, Alan G. Display device. 3,548,524, Cl. 40-77.8

Rolls-Royce Limited: *See—*
Bird, Jack Raymond, and Bryant, Rodney Trenchard, 3,549,273.
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis, 3,549,270.

Rome Industries, Incorporated: *See—*
Coughran, Samuel J., Jr., and Burkhalter, Harvey D., 3,549,030.

Romi, Romeu, to Industrias Romi S.A. Tool positioning and position indicating apparatus. 3,548,693, Cl. 82-24.

Roos, Leo, to Du Pont de Nemours, E. I., and Company. Image-forming compositions containing polymer binding agents and coordination complexes of iron (III) organic salts. 3,549,376, Cl. 96-92.

Root, Robert S., to Lipe-Rollway Corporation. Clutch anti-rattle inner plate. 3,548,984, Cl. 192-70.17

Root, Robert S., to Lipe-Rollway Corporation. Self-adjusting clutch mechanism. 3,548,989, Cl. 192-111.

Roper, Edward Cullum, to American Machine & Foundry Company. Foamed plastic paddle or vane. 3,548,522, Cl. 37-43.

Roper, Robert: *See—*
Kagan, George M., and Roper, Robert,3,549,567.

Ropertz, Johann, to Schloemann Aktiengesellschaft. Drawing presses. 3,548,626, Cl. 72-344.

Rorig, Kurt J.: *See—*
Hamilton, Robert W., and Rorig, Kurt J.,3,549,646.

Rose, John Brewster, Mathews, Carl Fraser, Nield, Eric, and Vincent, Peter Incledon, to Imperial Chemical Industries Limited. Thermoplastic compositions. 3,549,725, Cl. 260-876.

Rosen, Karl Isac Joel. Method for storing yarn for the immediate need of yarn of knitting machines. 3,549,299, Cl. 242-47.12

Rosenblum, Philip, to M&T Products of Canada Limited. Production of tin tetrachloride. 3,549,318, Cl. 23-98.

Rosenhagen, William, to Rowe International, Inc. Delivery door operating mechanism. 3,549,045, Cl. 221-12.

Rosensweig, Jacob: *See—*
McLean, Donald Neil, Rosensweig, Jacob, and Saunders, John,3,548,831.

Rosin, Jacob, to Chris-Craft Industries, Inc. Production of o-chlorobenzalmalononitrile. 3,549,683, Cl. 260-465.

Rosin, Jacob, to Chris-Craft Industries, Inc. Production of o-chlorobenzalmalononitrile. 3,549,684, Cl. 260-465.

Rosner, Leonard A. Brassiere. 3,548,832, Cl. 128-483.

Ross, Ethel H. Combined hair roller and comb. 3,548,843, Cl. 132-33.

Ross, James T.: *See—*
Moore, Thomas S., and Ross, James T.,3,549,166.

Ross, John D., to Central Dynamics, Ltd. Television transmitting system utilizing improved means for establishing predetermined phase relationships between various signals within the system. 3,549,793, Cl. 178-5.4

Ross, John D., and Akiyama, Kimiharu, to Central Dynamics, Ltd. Video switching circuit. 3,550,087, Cl. 340-166.

Ross, John D., and Skrydstrup, Ole, to Central Dyanmics, Ltd. Equalizer circuitry incorporating aperture corrector and independent gain adjustment. 3,549,901, Cl. 307-235.

Ross, Joseph Hansbro: *See—*
Coscia, Anthony Thomas, Ritson, Daniel Dickerson, Frazier, Charles, and Ross, Joseph Hansbro,3,549,568.

Rossetti, Charles. Cylinder lock. 3,548,621, Cl. 70-370.

Roth, Walter, and Jvirblis, Alex E., to Xerox Corporation. Uniform electrostatic charging. 3,549,962, Cl. 317-262.

Rothermel, William F., and Klein, Robert I., to Coulter Electronics, Inc. electronics to obtain certain non-electric. Automatic method and apparatus for obtaining different dilutions from blood or the like samples and processing the same by fluid handling and electronics to obtain certain nonelectric parameters. 3,549,994, Cl. 324-71.

Rothfuss, Georg: *See—*
Espenschied, Helmut, and Rothfuss, Georg,3,548,985.
Espenschied, Helmut, Rothfuss, Georg, and Weyer, Herbert,3,549,917.

Rothman, Edward S., and Serota, Samuel, to United States of America, Agriculture. Preparation of stearoyl fluoride. 3,549,675, Cl. 260-408.

Rotzel, Diethelm, to International Standard Electric Corporation. Frequency deviation measuring system. 3,549,997, Cl. 324-79.

Roundy, Carlos B.: *See—*
Heightley, John D., Roundy, Carlos B., and Waaben, Sigurd G.,3,550,098.

Rouvalis, George: *See—*
Gill, Joseph, and Rouvalis, George,3,550,020.

Roven, William G., to Ford Motor Company. Fuel tank vapor separator system. 3,548,847, Cl. 137-43.

Rowe International, Inc.: *See—*
Rosenhagen, William, 3,549,045.

Rowland Products, Incorporated: *See—*
O'Neill, Arthur J., and Rowland, William P., 3,549,360.

Rowland, William P.: *See—*
O'Neill, Arthur J., and Rowland, William P.,3,549,360.

Rowley, Edward Kenneth: *See—*
Jones, Elwyn David, Rowley, Edward Kenneth, and Shepherd, Douglas Reynolds,3,548,722.

Roy, Salil K., to American Standard Inc. Permeability cell. 3,548,634, Cl. 73-38.

Royal Electric Manufacturing Company, Inc.: *See—*
Spillar, Robert J., 3,549,834.

Rucker Company, The: *See—*
Fisher, Richard C., 3,548,852.
McEuen, Robert B., 3,548,853.

Rudd, Michael J., to British Aircraft Corporation Limited. Measurement of fluid or surface velocities. 3,548,655, Cl. 73-194.

Rudolph, Hans: *See—*
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann,3,549,692.

Ruesch, Willy, to Rivo S.A. Spring biased spectacle temples. 3,549,246, Cl. 351-113.

Rumble, Robert C.: *See—*
Blackwell, Robert J., and Rumble, Robert C.,3,548,958.

Rump, Bjorn S., Hammond, Robert H., and Meyer, Charles H., Jr., to Gulf Energy & Environmental Systems, Inc. Process for forming superconductive materials. 3,549,416, Cl. 117-227.

Runge, Heinert, and Wieck, Karl, to Bremer Vulkan Schiffbau and Maschinenfabrik. Apparatus for microfinishing crankpins of crankshafts. 3,548,547, Cl. 51-67.

Rupp, Walter: *See—*
Schmidt, Erwin, Horoldt, Ernst, and Rupp, Walter,3,549,580.

Rushforth, George T.: *See—*
Oderman, Samuel, Wiseman, Raymond L., and Rushforth, George T.,3,548,995.

Rutter, Richard W. Bunk for articulated log skidder. 3,549,029, Cl. 214-77.

Ryan, John W.: *See—*
Beny, Janos, Meggs, Daniel H., and Ryan, John W.,3,548,534.

Rye, Grover W., and Dague, Michael F., to Goodyear Tire & Rubber Company, The. Reduced noise level tire. 3,548,912, Cl. 152-362.

Rye, Grover W., and Helms, Paul E., Jr., to Goodyear Tire & Rubber Company, The. Belt for bias-belted tire. 3,548,911, Cl. 152-359.

S & C Electric Company: *See—*
Harner, Robert H., 3,550,006.

SAAB Aktiebolag: *See—*
Andersson, Sven-Erik Lennart, 3,549,885.

Sachs, Maxwell. Footwear. 3,548,521, Cl. 36-2.5

Saenger, John F., Jr., to Union Carbide Corporation. Gas metal arc welding from one side. 3,549,856, Cl. 219-137.

Safir, Sidney Robert: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert,3,549,763.

Saito, Teruo: *See—*
Nakamura, Itsuro, Takeichi, Yasuo, and Saito, Teruo,3,548,862.

Sakamoto, Satoru: *See—*
Takahashi, Nagashige, and Sakamoto, Satoru,3,548,808.

Saki, Tadao: *See—*
Otsuka, Eiji, Kanai, Kazumichi, Saki, Tadao, and Inoue, Shigeru,3,549,701.

Sakuma, Takashi: *See—*
Maeda, Hisao, Matsushita, Akira, and Sakuma, Takashi,3,549,508.

Salko, John F., and Kozak, Stanley, to Blaw-Knox Company. Quick-change spindle for reels. 3,549,443, Cl. 242-78.1

Salomon, Udo W.: *See—*
Barstow, Frederick E., Larson, Paul, and Salomon, Udo W.,3,548,411.

Sampson, Robert W., to Universal Oil Products Company. Flow control device. 3,548,851, Cl. 137-81.5

Samson, Joseph Edouard. Tissue pack dispenser for urinals. 3,549,226, Cl. 312-42.

San Margale Farms: *See—*
Stolle, Ralph J., and Stolle, Dorothy J., 3,549,042.

Sander, Benjamin. Swivel hook. 3,548,909, Cl. 152-241.

Sander, Ronald C., and Hruby, Ronald J., to United States of America, National Aeronautics and Space Administration. Transient video signal recording with expanded playback. 3,549,799, Cl. 178-6.6

Sanders Associates, Inc.: *See—*
Babikyan, Jirair A., 3,550,072.
Greenspan, Lawrence E., and Whitaker, Earl J., 3,549,804.
Heft, Eugene J., and Bourque, Edward L., 3,550,124.

Sandor-Wander, Inc.: *See—*
Houlihan, William J., 3,549,620.

Sandoz Ltd.: *See—*
Altermatt, Rudolf, and Mueller, Curt, 3,549,611.

Sandoz-Wander, Inc.: *See—*
Frey, Albert J., Griot, Rudolf G., and Ott, Hans, 3,549,689.
Galantay, Eugene E., 3,549,622.
Ott, Hans, 3,549,635.
Simpson, William R. J., 3,549,652.

Sandvikens Jernverks Aktiebolag: *See—*
Ekrud, Anders Lennart, 3,548,897.

Sanno, Yasushi: *See—*
Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi,3,549,662.

Santilli, Arthur A.: *See—*
Kim, Dong H., and Santilli, Arthur A.,3,549,627.

Santt, Rene, to Centre National de la Recherche Scientifique. Microsphere solid metal lubricant. 3,549,531, Cl. 252-26.

Sarah, Thomas F., to Shakespeare Company, mesne. Anti-backlash brake means for fishing reels. 3,549,103, Cl. 242-84.5

Sarkes Tarzian, Inc.: *See—*
Byers, Stanley C., 3,550,010.

Sarkozy, Francis A., and Bystrianyk, Wasyl, to Emhart Corporation. Take-out mechanism for glassware forming machine. 3,549,191, Cl. 294-81.

Sato, Masamichi: *See—*
Honjo, Satoru, and Sato, Masamichi,3,549,359.

Saunders, John: *See—*
McLean, Donald Neil, Rosensweig, Jacob, and Saunders, John,3,548,831.

Sauter, Walter A., to American Nucleonics Corporation. RF signal controller. 3,550,041, Cl. 333-7.

Sautter, Wolfgang: *See—*
Krauss, Heinz, Sautter, Wolfgang, and Ligniez, Uwe,3,548,964.

Savage, William E., to Shell Oil Company. Granulation of oil-containing solid fines. 3,549,346, Cl. 71-11.

Sawatari, Takeo, to Optics Technology, Inc. Optical filtering method and apparatus. 3,549,240, Cl. 350-162.

Sawyer-Tower Products, Inc.: *See—*
Reilly, William A., 3,548,599.

S&C Electric Company: *See—*
Harner, Robert H., 3,549,840.

Scaccia, Philip M. Phonograph record holder. 3,549,225, Cl. 312-10.

Scantlin Electronics, Inc.: *See—*
Francy, James R., 3,549,846.

Scarzello, John F.: *See—*
Hall, Jay S., and Scarzello, John F.,3,549,987.

Schaller, George E., to Worthington Corporation. Positive action, fluidically controlled electrical switch. 3,549,835, Cl. 200-81.5

Schaller, Harold E., to Smith's, John E., Sons Co. Meat cutting machine. 3,548,901, Cl. 146-67.

Schaschl, Edward: *See—*
Marsh, Glenn A., and Schaschl, Edward,3,549,993.

Schaumann, Anton: *See—*
Gaisser, August, Schaumann, Anton, and Weber, Willi,3,549,819.

Schegolevsky, Miron Abramovich. Blasting apparatus. 3,548,957, Cl. 175-4.5

Scheidig, Helmut, Hauff, Alfred M., and Reimpell, Uwe Adolf, to Leybold Heraeus-Verwaltung B.m.b.H. Vacuum furnace with weight feed mechanism. 3,549,773, Cl. 13-31.

Schelleng, Robert D.: *See—*
Kies, Frederick K., and Schelleng, Robert D.,3,549,430.

Scherillo, Vittorio, to Snam Progetti S.p.A. Device for selecting and presenting in any order different weftthreads in continuous feed looms. 3,548,886, Cl. 139-122.

Schering AG: *See—*
Laurent Henry, Hofmeister, Helmut, Neumann, Friedmund, and Wiechert, Rudolf, 3,549,671.

Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst, to Farbenfabriken Bayer Aktiengesellschaft. Method of and an apparatus for crimping synthetic yarns. 3,548,469, Cl. 28-1.4

Schetty, Guido: *See—*
Frick, Wilhelm Ernst, and Schetty, Guido,3,549,753.

Schink, Richard R., and Klessig, Ernst F., to Rex Chainbelt Inc. Variable volume vane type pump. 3,549,281, Cl. 418-31.

Schlaphoff, Erwin D. Portable motor vehicle. 3,548,963, Cl. 180-32.

Schleifstein, Harvey G.: *See—*
Haeberle, Robert W., Lennon, Donald J. J., and Schleifstein, Harvey G.,3,550,153.

Schlemm, Hans, and Mertens, Peter, to Fried, Krupp Gesellschaft mit beschrankter Haftung. Transducer system. 3,550,071, Cl. 340-8.

Schlesinger, Morton: *See—*
Cohen, Sidney, and Schlesinger, Morton,3,548,427.

Schloemann Aktiengesellschaft: *See—*
Boesch, Albert, and Groos, Horst Hans, 3,548,456.
Ropertz, Johann, 3,548,626.

Schloss, Alden I. Automatic ball receiving and tossing device. 3,549,148, Cl. 273-103.

Schmidt, Erwin, Horoldt, Ernst, and Rupp, Walter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of spinnable solutions of β-polyamides. 3,549,580, Cl. 260-30.2

Schmidt, Felix Helmut: *See—*
Heerdt, Ruth, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut,3,549,645.

Schmidt, Heinz: *See—*
Lindner, Helmut, Hoyer, Ernst, and Schmidt, Heinz,3,549,613.

Schmidt, Karl Heinz, and Bildat, Benno, to Bosch, Robert, GmbH. Gear-clutch-brake-motor controls for synchronized shifting. 3,548,980, Cl. 192-0.09

Schmitt, Herbert R., to SCM Corporation. Variable threshold signal detection and isolation circuit. 3,550,007, Cl. 325-324.

Schnegg, Hanspeter, and Grimm, Heinrich, to Heinkel, Ernst, Aktiengesellschaft. V-belt pulley. 3,548,670, Cl. 74-230.17

Schnegg, Robert: *See—*
Scherzberg, Herbert, Essig, Karl-August, Schnegg, Robert, Pobitschka, Ernst, and Mossig, Ernst,3,548,469.

Schneider, Jos., & Co.: *See—*
Macher, Karl, 3,549,235.

Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus, to Farbenfabriken Bayer Aktiengesellschaft. Apparatus for forming a thin film. 3,549,334, Cl. 23-285.

Schnell, Hermann: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.
Senge, Ferdinand, Peltzer, Bernd, and Schnell, Hermann,3,549,600.
Vernaleken, Hugo, Wulff, Claus, Bottenbruch, Ludwig, and Schnell, Hermann,3,549,682.
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann,3,549,692.

Schneller, Stephen G., to Peacock Brothers Limited. Equipment for high-line transfer. 3,549,024, Cl. 214-13.

Schoberle, Robert, to Solvay & Cie. Apparatus for the decomposition of an alkali metal mercury amalgam. 3,549,511, Cl. 204-249.

Schofield, Clifford Raymond, and Hutchinson, Desmond Ernest, to English Electric Company Limited, The. Vehicle transmission systems. 3,548,682, Cl. 74-691.

Scholl, Hans: *See—*
Junemann, Hubert, Scholl, Hans, and Strothmann, Wilfried,3,548,768.

Scholl Mfg. Co. Inc., The: *See—*
Bergen, Donald W., 3,548,820.

Scholten, Frank L.: *See—*
Hofbauer, Thomas J., and Scholten, Frank L.,3,549,099.

Schon, Wilhelm: *See—*
Neumann, Karl, and Schon, Wilhelm,3,549,028.

Schrenk, Walter J., and Walters, Harold A. Iridescent resinous film bodies and a substrate coated therewith. 3,549,405, Cl. 117-33.

Schroeder, Hansjuergen A.: *See—*
Semenuk, Nick S., and Schroeder, Hansjuergen A.,3,549,604.

Schroeder, Herbert M.: *See—*
Farah, Basil S., and Schroeder, Herbert M.,3,549,569.

Schubert, Thomas E. Garment carriers. 3,549,065, Cl. 224-45.

Schuh, Eduard: *See—*
Kelch, Heinz, and Schuh, Eduard,3,548,990.

Schuil, Roelof Egbert, to U.S. Philips Corporation, mesne. Europium activated lithium indium silicate. 3,549,551, Cl. 252-301.4

Schulenberg, Edward J., Sr., and Ball, Ervin M., to Time-O-Matic, Inc. Solid state sign system. 3,550,112, Cl. 340-334.

Schuler, Norman W., to Polaroid Corporation. Optical devices comprising cellulose acetate and cellulose acetate butyrate. 3,549,248, Cl. 351-154.

Schulze, Heinz: *See—*
Godfrey, Norman Bell, and Schulze, Heinz,3,549,592.

Schulze, Herbert C. Forming articles of asbestos-cement. 3,549,737, Cl. 264-82.

Schwar, Rudolf: *See—*
Thielenhaus, Ernst, and Schwar, Rudolf,3,548,546.

Schwartz, Douglas A.: *See—*
Peck, David F., McBride, Thomas J., Palmer, Elmer W., and Schwartz, Douglas A.,3,549,527.

Schwartzman, Gilbert. Method of producing a mixing package employing two separate containers. 3,548,562, Cl. 53-25.

Schwartzman, Gilbert. Foamed plastic headed applicator and method of manufacture. 3,549,269, Cl. 401-206.

Schwarz, Eckhard Christian August, to Du Pont de Nemours, E. I., and Company. Treatment of polyester fibers to improve adhesion of rubber. 3,549,740, Cl. 264-210.

Sciaky, David. Electron beam welding method. 3,549,854, Cl. 219-121.

Scidmore, Wright H., and Wolfe, Robert J., to United States of America, Army. Lens prescription for optical system for day-night periscopic sight. 3,549,231, Cl. 350-52.

Scientific Research Instruments Corporation: *See—*
Fergusson, Gordon J., 3,549,327.

SCM Corporation: *See—*
Hanley, William M., 3,550,001.
Schmitt, Herbert R., 3,550,007.

Scott & Fetzer Company, The: *See—*
Horrocks, Raymond G., 3,548,690.
Horrocks, Raymond G., 3,548,691.

Scott, Allan W. Integral microwave radiating and generating unit for heating. 3,549,852, Cl. 219-10.55

Scott, Joseph H., Jr., to RCA Corporation. Variable threshold level field effect memory device. 3,549,911, Cl. 307-279.

Scott Paper Company: *See—*
Benz, Charles S., 3,549,742.
Seigh, Joseph C., 3,549,097.

Scovill Manufacturing Company: *See—*
MacWilliam, Wallace, 3,549,180.
Passaggio, Charles, 3,548,717.

Sealol, Inc.: *See—*
Mullaney, John Joseph, III, 3,548,868.

Searle, G. D., & Co.: *See—*
Hamilton, Robert W., and Rorig, Kurt J., 3,549,646.

Sears, George W., and Smith, Dennis R. Organosiliconates in lithium polysilicates. 3,549,395, Cl. 106-84.

Seay, Perry A., to Dynamics Corporation of America. Apparatus for controlling the speed of a moving body. 3,549,880, Cl. 246-182.

Sedlacek, Franz, and Weinzinger, Hans, to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft. Combination of an uncoiler and apparatus for mounting a coil on the uncoiler. 3,549,102, Cl. 242-78.6

Seedman, Myer. Personal wash bowl. 3,548,423, Cl. 4-187.

Seeler, Gerda A.: *See—*
Seeler, Henry W.,3,548,822.

Seeler, Henry W., deceased (by Seeler, Gerda A., executrix). Device to prevent hyperventilation. 3,548,822, Cl. 128-145.7

Segura, Marnell A., and Broussard, Leo. Passivation of metals. 3,549,425, Cl. 148-6.35

Seigh, Joseph C., to Scott Paper Company. Apparatus for cylically actuating orbital members. 3,549,097, Cl. 242-56.

Seikagaku Kogyo Co., Ltd.: *See—*
Suzuki, Sakaru, 3,549,500.

Seismograph Service Corporation: *See—*
Laws, Ira G., 3,548,477.
Laws, Ira G., 3,548,523.

Sekera, John C., to CPC International Inc. No-bake resin binders. 3,549,584, Cl. 260-38.

Selin, Terry G.: *See—*
Holdstock, Norman G., Berger, Abe, Selin, Terry G., and Thimineur, Raymond J.,3,549,590.

Sellers, Roger W., to Webster Electric Company, Inc. Valve assembly with flexible valve element. 3,549,119, Cl. 251-84.

Semenuk, Nick S., and Schroeder, Hansjuergen A., to Olin Corporation. Poly-m-and p-carboranylenesulfides. 3,549,604, Cl. 260-79.1

Semienko, Peter P., and Toledo, Emil, to Honeywell, Inc. Method of fabricating a plated wire ferromegretic memory element. 3,549,507, Cl. 204-28.

Sengbush, Raymond L.: *See—*
Foster, Manus R., Sengbush, Raymond L., and Watson, Robert J.,3,550,073.

Senge, Ferdinand, Peltzer, Bernd, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Stoving lacquers. 3,549,600, Cl. 260-77.5

Sengewald, Karl H. Method for manufacturing a carrying bag. 3,548,723, Cl. 93-35.

Seppi, Ned F.: *See—*
Norton, Charles J., Reuter, Michael J., and Seppi, Ned F.,3,549,708.

Serota, Samuel: *See—*
Rothman, Edward S., and Serota, Samuel,3,549,675.

Servomex Controls Limited: *See—*
Borer, Alan John, 3,549,864.

Seufert, Wilhelm Johannes, and Woitzel, Heinz Otto Wilhelm, to Werner & Pfleiderer. Apparatus for continuously processing pulverulent or granular feeds. 3,548,742, Cl. 100-95.

Shackelford, Lynn A.: *See—*
Robinson, John F., and Shackelford, Lynn A.,3,549,220.

Shaffer, Allen A., to United States of America, Navy, mesne. Precision prism oscillating mechanism. 3,549,244, Cl. 350-287.

Shaffer, Paul E.: *See—*
Timko, Albert J., Jr., and Shaffer, Paul E.,3,549,785.

Shah, Indravadan S., to Chemical Construction Corporation. Oxidation of black liquor. 3,549,314, Cl. 23-49.

Shakespeare Company: *See—*
Sarah, Thomas F., 3,549,103.

Shaner, Milo W.: *See—*
Cave, Robert S., Alexander, Donald D., and Shaner, Milo W.,3,548,476.

Shankwitz, Robert F., to Caterpillar Tractor Company. Support structure for protection canopy/cab. 3,549,170, Cl. 280-150.

Shapovalenko, Alexandr Grigorievich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Sharma, Vijay Ratna: *See—*
Nicholson, Eric Samuel, and Sharma, Vijay Ratna,3,549,587.

Shavel, John, Jr.: *See—*
von Strandtmann, Maximilian, Cohen, Marvin P., and Shavel, John, Jr.,3,549,641.

Shavel, John, Jr., and Morrison, Glenn, to Warner-Lambert Pharmaceutical Company. 2,3,4,4a,5,6,8,9,13b,13c-Decahydro-1H-dibenzo[a,h] quinolizines and process for their production. 3,549,644, Cl. 260-289.

Shaw, Huhert R., to Bell Aerospace Corporation. Passive direction finder. 3,550,130, Cl. 343-113.

Shaw, Joseph Denman. Combination mixing and injecting medical syringe. 3,548,825, Cl. 128-218.

Shelden, William L., to National Metalcrafters, Inc. Printed circuit board holder. 3,549,950, Cl. 317-101.

Shell Oil Company: *See—*
Albert, James R., and Kodama, Jiro K., 3,549,760.
Berry, Thomas E., and Benesi, Hans A., 3,549,558.
Hodgson, Russell L., 3,549,512.
Jepsen, John C., and Ralph, James L., 3,548,569.
Kodama, Jiro K., and Albert, James R., 3,549,755.
Kodama, Jiro K., and Albert, James R., 3,549,757.
Kodama, Jiro K., and Albert, James R., 3,549,759.
Reed, John A., 3,550,097.
Savage, William E., 3,549,346.
Simon, Theodore A., and Richardson, Edwin A., 3,548,943.
Watson, Frederic R., and Holmes, Robert T., 3,549,868.
Wicks, Moye, III, 3,548,637.

Shepherd, Douglas Reynolds: *See—*
Jones, Elwyn David, Rowley, Edward Kenneth, and Shepherd, Douglas Reynolds,3,548,722.

Shepherd, Robert Gordon: *See—*
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon,3,549,631.
Lewis, Benjamin Arthur, and Shepherd, Robert Gordon,3,549,632.

Sherman, Earle C., to Olinkraft, Inc. Blank folding apparatus for wraparound carton blanks having selectively operable lock means. 3,548,566, Cl. 53-48.

Sherwin-Williams Company, The: *See—*
Berg, Charles J., Jr., McInerney, James R., and Moit, Daniel D., 3,549,571.

Sherwood, Donald G., to Westinghouse Electric Corporation. Shock absorbing magnet. 3,549,916, Cl. 310-14.

Shetty, Bola Vithal, to Pennwalt Corporation. 2-Substituted or unsubstituted carboxy tetrahydro-halo-sulfamyl-quinazolinones. 3,549,629, Cl. 260-247.1

Shetty, Bola Vithal, to Pennwalt Corporation. 8,5-Amino-substituted-tetrahydro-halo- sulfamyl-quinazolinones. 3,549,634, Cl. 260-256.5

Shetty, Bola Vithal, to Pennwalt Corporation. 2-Alkanoyl, alkanoylalkyl, alkanoyloxyalkyl, and hydroxyalkyl substituted tetrahydro-halo-sulfamyl-quinazolinones. 3,549,636, Cl. 260-256.5

Shetty, Bola Vithal, to Pennwalt Corporation. 2-Thio substituted-tetrahydro-halo- sulfamyl-quinazolinones. 3,549,637, Cl. 260-256.5

Shibata, Fukuo. Electrical control system for induction machine containing winding elements of two wound rotor induction machines. 3,549,968, Cl. 318-197.

Shibata, Haruo: *See—*
Kamiya, Shigeru, and Shibata, Haruo,3,549,550.

Shiga, Takeo, Okamoto, Michio, and Mitsuhashi, Kiyohiko, to Nippon Columbia Kabushikikaisha (Nippon Columbia Co., Ltd.). Automatic rhythm player employing photoelectric and electromagnetic matrix elements. 3,549,776, Cl. 84-1.03

Shimizu, Ikuo: *See—*
Hongu, Masayuki, and Shimizu, Ikuo,3,550,024.

Shimizu, Toru: *See—*
Fukawa, Hideaki, Toyoda, Masashi, Fukushima, Hideo, and Shimizu, Toru,3,549,668.

Shimokawa, Yoichi: *See—*
Okazaki, Kaoru, Shimokawa, Yoichi, and Nakagawa, Asaharu,3,549,724.

Shinagawa, Hiroshi: *See—*
Okamoto, Kiyokazu, and Shinagawa, Hiroshi,3,549,871.

Shiosaki, Masaharu: *See—*
Moriki, Juichi, and Shiosaki, Masaharu,3,549,913.

Shipley, Robert M., Jr., to Kelsey-Hayes Company. Tree shaking apparatus. 3,548,578, Cl. 56-328.

Shipley, Robert M., Jr., to Kelsey-Hayes Company. Low profile harvester. 3,548,579, Cl. 56-329.

Shirasu, Kazuo: *See—*
Amano, Hiroyuki, Tsuji, Nobuo, and Shirasu, Kazuo,3,549,374.

Shizu, Kazunori, to Denki Onkyo Co., Ltd. Deflection yoke assembly for television picture. 3,550,038, Cl. 335-210.

Sholtis, George E., and Morrow, Wallace E., to Goodyear Tire & Rubber Company, The. Cyclopentadiene removal in isoprene purification by amplified distillation. 3,549,721, Cl. 260-681.5

Shostak, Arnold A., and Troutman, Ronald R., to United States of America, Navy. Pulsar communication systems. 3,550,002, Cl. 325-32.

Shur, Grigory Iosifovich: *See—*
Kostin, Konstantin Fedorovich, and Shur, Grigory Iosifovich,3,549,922.

Sibley, Lewis F., to Pioneer Coveralls, Inc., mesne. Cover for trucks. 3,549,199, Cl. 296-100.

Sibley, Louis F., to Pioneer Coveralls, Inc., mesne. Cover for trucks. 3,549,197, Cl. 296-100.

Siddiqi, Inamur Rab. Dual point annunciator system. 3,550,122, Cl. 340-415.

Sidorsky, Raymond C. Device for illuminating discrete data bearing areas of a record sheet. 3,549,895, Cl. 250-219.

Sidoti, Frank B.: *See—*
McFadden, Thomas P., Moe, Rolf, and Sidoti, Frank B.,3,549,421.

Siegl, Herbert: *See—*
Kunstle, Gerhard, and Siegl, Herbert,3,549,660.

Siemens Aktiengesellschaft: *See—*
Albrecht, Cord, 3,550,050.
Hausmann, Gerhard, 3,549,965.
Katz, Helmut, 3,549,930.
Polle, Hubert, 3,549,956.
Stein, Karl-Ulrich, 3,550,099.
Tanke, Ullrich, Voegtlen, Dieter, Brandt, Fritz, and Bruninghaus, Karl, 3,549,813.

Siemonsen, Hans-Peter: *See—*
Dietzel, Karl, Peilstocker, Gunter, and Siemonsen, Hans-Peter,3,549,476.

Signode Corporation: *See—*
Kobiella, Robert J., 3,548,740.

Sikorski, Ryszard Tadeusz, and Nowaczyk, Janusz. Device for measuring hardness of plastics by means of pendulum method. 3,548,645, Cl. 73-79.

Siltronics, Inc.: *See—*
Hockenberry, Terry O., and Williams, Everard M., 3,549,850.
Hockenberry, Terry O., and Williams, Everard M., 3,549,851.

Silver, Arnold H., and Zimmerman, James E., to Ford Motor Company. Superconducting flux sensitive device with small area contacts. 3,549,991, Cl. 324-43.

Silverman, Bernard, and Stewart, Leslie E., to Monsanto Company. High molecular weight oriented polyamide textile yarn. 3,548,584, Cl. 57-140.

Silverman, Daniel. Information system using arrays of multiple spot patterns. 3,550,085, Cl. 340-146.3

Silverman, Herbert P., and Giarrusso, Gino A., to TRW Inc. Sensors for detecting reducing vapors. 3,549,329, Cl. 23-254.

Silverman, Robert A.: *See—*
Burness, Donald M., and Silverman, Robert A.,3,549,378.

Simco Company, Inc., The: *See—*
Simons, Dolph, 3,549,963.

Simmonds, David Thomas, to National Research Development Corporation. Binary adder in which binary numbers in different multistage stores are added together into a third store. 3,549,873, Cl. 235-175.

Simmonds Precision Products, Inc.: *See—*
Parkinson, James R., 3,548,649.

Simon, Arthur, to Bendix Corporation, The. Day and night fog simulator. 3,548,515, Cl. 35-12.

Simon, Myron S., to Polaroid Corporation. α-Chloro-α-chlorosulfenylphenyl acetyl chloride and a process for the preparation thereof. 3,549,699, Cl. 260-544.

Simon, Theodore A., and Richardson, Edwin A., to Shell Oil Company. Electroless metal bonding of unconsolidated formations with backflow. 3,548,943, Cl. 166-292.

Simon-Carves Limited: *See—*
Abson, James W., Landau, Manfred, Clark, Eric I., and Molyneux, Alan, 3,549,559.

Simons, Dolph, to Simco Company, Inc., The. Back lighted electrostatic copyboard. 3,549,963, Cl. 317-262.

Simplex Wire and Cable Company: *See—*
Graneau, Peter, and Afshartous, Sayfollah Bijan, 3,549,780.

Simpson, Billy D.: *See—*
Jones, Faber B., and Simpson, Billy D.,3,549,565.

Simpson, Warren O., to Kellogg Company. Reclosable carton. 3,549,082, Cl. 229-51.

Simpson, William R. J., to Sandoz-Wander, Inc. Tricyclic compounds. 3,549,652, Cl. 260-307.

Sims, Chester T., and Beltran, Adrian M., to General Electric Company. High temperature corrosive resistant cobalt- base alloys. 3,549,356, Cl. 75-171.

Sinclair Company, The: *See—*
Minick, David G., and Sinclair, David H., 3,549,223.

Sinclair, David H.: *See—*
Minick, David G., and Sinclair, David H.,3,549,223.

Sinclair, Edward A., to Goodyear Tire & Rubber Company, The. Method of making cationic latices and the products thereof. 3,549,579, Cl. 260-29.7

Sinclair Research Inc.: *See—*
Young, David W., and Poss, Richard F., 3,549,535.

Singer Company, The: *See—*
Hudson, David H., 3,548,994.

Singer, Roy E., to General Mills, Inc. Dough slitter. 3,548,758, Cl. 107-69.

Singer-Cobble Limited: *See—*
Colbert, Clifford, 3,548,766.

Singer-General Precision, Inc.: *See—*
Lowdenslager, John R., 3,549,903.

Singleton, Alan H.: *See—*
Carlson, John A., Jr., Singleton, Alan H., and Stelts, Philip D.,3,548,568.

Sinusas, Robert R., to Monsanto Company. Double-balanced modulator circuit readily adaptable to integrated circuit fabrication. 3,550,040, Cl. 332-44.

Sirvet, Enn, Whelan, Edward J., and Skrypek, John P., to Sun Chemical Corporation. Mandrel assembly for continuous can printing. 3,548,745, Cl. 101-40.

Sivertsen, David R., to Texas Instruments, Incorporated. Multilayer microelectronic circuitry techniques. 3,549,432, Cl. 148-175.

Siwko, Karol, and Thomas, Joseph Edward, to Sylvania Electric Products, Inc. Transistorized control and amplifier circuitry for a television receiver. 3,549,802, Cl. 178-7.3

Skagen, David G. Fluid motor. 3,549,289, Cl. 418-239.

Skelley, Joseph B., Jr. Ornaments. 3,549,465, Cl. 161-13.

Skil Corporation: *See—*
Etzkorn, Elmer F., 3,549,160.

Skisearch, Inc.: *See—*
Bennett, William N., 3,549,461.

Skrydstrup, Ole: *See—*
Ross, John D., and Skrydstrup, Ole,3,549,901.

Skrypek, John P.: *See—*
Sirvet, Enn, Whelan, Edward J., and Skrypek, John P.,3,548,745.

Slavik, William H., to Motorola, Inc. Demodulator circuit. 3,549,794, Cl. 178-5.4

Slechta, John S.: *See—*
Dubowicz, Palemon W., and Slechta, John S.,3,550,011.

Slepetys, Richard A., to National Lead Company. Fluid energy TiO milling pigment. 3,549,091, Cl. 241-5.

Sloan, Leonard B., to Xerox Corporation. Triggering apparatus and work locating means for aerosol spray cans. 3,549,059, Cl. 222-402.15

Smalley, John Frederick, to British Lighting Industries Limited. Quartz lamps. 3,549,933, Cl. 313-113.

Smayling, Michael: *See—*
Palmer, Judson G., and Smayling, Michael,3,548,792.

S.M.I.T. Societa Macchine per l'Industria Tessile Societa Per Azioni:*See—*
Pozzolo, Giovanni Battista, 3,548,470.

Smith, Allen E.: *See—*
Gervitz, Arthur H., Ames, Ronald B., and Smith, Allen E.,3,549,348.

Smith, Aubrey H. Timing apparatus. 3,550,117, Cl. 340-384.

Smith, Dennis R.: *See—*
Sears, George W., and Smith, Dennis R.,3,549,395.

Smith, Fred T., and Gebhardt, James J., Jr. Track tightener for a crawler type vehicle. 3,549,213, Cl. 305-10.

Smith, Frederick L., to Honeywell Inc. Control apparatus. 3,549,108, Cl. 244-77.

Smith Industries International, Inc.: *See—*
Neilson, William J., 3,549,214.

Smith, James Gerald. Flash spinning apparatus for nonwoven fibrous sheet making. 3,549,453, Cl. 156-370.

Smith, John Alfred, and Stamper, John Raymond, to Baker Perkins Incorporated. Heating apparatus employing radiant and convective heat means usable as a bake oven. 3,548,514, Cl. 34-232.

Smith Kline & French Laboratories: *See—*
Loev, Bernard, 3,549,702.
Whitecar, Alten E., 3,549,459.

Smith, Lester, to Marantz Company Inc. Protective circuit for speaker windings. 3,549,808, Cl. 179-1.

Smith, Maxie H., to Southern Gage Company. Arbor assembly. 3,549,158, Cl. 279-2.

Smith, Newland F.: *See—*
Willcox, Frederick P., and Smith, Newland F.,3,549,827.

Smith, Percy Leighton Dunbar, and Comstock, Lowell Ray, to Union Carbide Corporation. Polyester composition. 3,549,586, Cl. 260-40.

Smith, Pleasant E.,: *See—*
Lecocq, Gerald W., 3,550,063.

Smith, Roy: *See—*
Loukes, David Gordon, and Smith, Roy,3,549,344.

Smithe, F. L., Machine Company, Inc.: *See—*
Hornung, Helmut O., 3,548,696.
Hornung, Helmut O., 3,548,781.

Smith's, John E., Sons Co.:*See—*
Schaller, Harold E., 3,548,901.

Smitzer, Louis A., to Stromberg Datagraphix, Inc. Cathode ray tube system for producing half-tone images. 3,549,939, Cl. 315-18.

Smollinger, Carl W., to Bethlehem Steel Corporation. Vibration damped fitting. 3,549,183, Cl. 287-82.

Smolyarov, Boris Vladimirovich: *See—*
Gigauri, Vladimir Spiridonovich, Perelmutr, Alexandr Semenovich, Galperin, Jury Shmulevich, and Smolyarov, Boris Vladimirovich,3,548,821.

Smoot, Charles W., to American Photocopy Equipment Company. Dryer for photographic films or the like. 3,548,512, Cl. 34-70.

Smylie, Jerry G., to Avoset Company. Dispensing valve for a pressurized dispensing container. 3,549,060, Cl. 222-513.

Snam Progetti S.p.A.: *See—*
Scherillo, Vittorio, 3,548,886.

Snook, Brooksy Ray. Rotary mowers. 3,548,571, Cl. 56-25.4

Sobel, Sydney M., to Ontario Store Fixture Co. Limited. Washing machine for glassware. 3,548,844, Cl. 134-57.

Societe Anonyme: *See—*
Grataloup, Xavier Roger, 3,548,765.

Societe Anonyme D.B.A.: *See—*
Laverdant, Bernard, 3,548,973.

Societe Anonyme Dite: L'Oreal:*See—*
Kalopissis, Gregoire, and Viout, Andre, 3,549,602.

Societe Anonyme Ugine Kuhlmann: *See—*
Balde, Daniel, and Nagy, Georges, 3,549,728.

Societe d'Assistance Technique pour Produits Nestle S.A.:*See—*
Hodel, Theodore, 3,549,336.

Societe Franco-Hispano-Ameriaine Francispam: *See—*
Hocq, Robert R., 3,548,446.

Societe Generale du Vide: *See—*
Delarue, Christian G., Sokoloff, Boris, and Warnery, Edmond P., 3,550,102.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation:*See—*
Bauger, Louis Jules, Bouiller, Jean Georges, and Lacroix, Armand Jean-Baptiste, 3,549,272.
Colombani, Don Pierre Louis Jean, and Ernst, Adolphe Otton Gontier, 3,548,598.

Societe: Societe Civille de Recherche Pharmaceutique et Therapeutique: *See—*
Masquelier, Jacques, and Michaud, Jean, 3,549,661.

Sokoloff, Boris: *See—*
Delarue, Christian G., Sokoloff, Boris, and Warnery, Edmond P.,3,550,102.

Sole, Jean, to Commissariat a l'Energie Atomique. Electromagnetic superconducting accumulator device and method for accumulating electrical energy. 3,549,952, Cl. 317-123.

Solomon, David H., to Georgia Kaolin Company. Kaolin modified plastic molding compounds. 3,549,585, Cl. 260-40.

Soloviev, Pavel Alexandrovich, Kalashnikov, Georgy Petrovich, Kantor, Lev Izrailevich, and Zamotin, Sergei Nikolaevich. Free-wheeling clutch. 3,548,982, Cl. 192-45.

Solvay & Cie: *See—*
Schoberle, Robert, 3,549,511.

Someya, Akira: *See—*
Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira,3,549,937.

Sony Corporation: *See—*
Hongu, Masayuki, and Shimizu, Ikuo, 3,550,024.

Soper, Donald W. Fork assist. 3,549,035, Cl. 214-750.

Sotolongo, Tomas Julio, to Thomas & Betts Corporation. Flexible conduit fitting. 3,549,177, Cl. 285-175.

Southern Gage Company: *See—*
Smith, Maxie H., 3,549,158.

Spahn, Peter: *See—*
Pech, Franz, and Spahn, Peter,3,548,595.

Spanel, Abram N. Locking sleeves and rings for use in concrete construction. 3,548,554, Cl. 52-303.

Spangler, Charles W.: *See—*
Van Patten, John R., and Spangler, Charles W.,3,549,971.

Spangler, Stanley E.: *See—*
Hall, Lewis William, Spangler, Stanley E., and Learned, Samuel M.,3,548,431.

Speakman Company: *See—*
Lagarelli, Carmen J., 3,548,875.

Speakman, Edwin L., to Standard Brands Incorporated. Starch process. 3,549,618, Cl. 260-233.3

Spectra Sonics: *See—*
Dilley, William G., Jr., and Ponto, Robert A., 3,550,028.

Spektor, Itskhok Avrumovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Speliotis, Dennis E.: *See—*
Judge, John S., Morrison, John R., and Speliotis, Dennis E.,3,549,417.

Spence, Wayman R., to Stryker Corporation. Cushion structure. 3,548,420, Cl. 3-20.

Sperberg, Lawrence R. Tire having plies of different compositions. 3,548,910, Cl. 152-359.

Sperry Rand Corporation: *See—*
Lo, David S., Oredson, Henry N., and Torok, Ernest J., 3,550,101.
Risser, Roger L., Foulke, Edward D., and Mc Carty, Horace G., 3,548,574.

Spes, Hellmuth: *See—*
Eck, Herbert, and Spes, Hellmuth,3,549,693.

Spider Staging, Inc.: *See—*
Fisher, Sidney L., 3,548,971.

Spillar, Robert J., to Royal Electric Manufacturing Company, Inc. Disconnect switch. 3,549,834, Cl. 200-48.

Spinello, John O.: *See—*
Bohn, Martin C., Brady, John F., Rice, Kenneth G., and Spinello, John O.,3,548,481.

Spinna, Robert J., and Brierley, James D., 1/3 to Manhattan College. Braced frame bulkhead. 3,548,603, Cl. 61-49.

Spisak, Andrew J., and Petersen, Sigrud R., to Westinghouse Electric Corporation. Magnetically and thermally balanced windings for alternating current exciters. 3,549,919, Cl. 310-68.

Spisak, Edward G., to Gar Wood Industries, Inc. Vehicle wheel assembly. 3,549,204, Cl. 301-37.

Spitzmiller, Ervin Richard: *See—*
Yale, Harry Louis, and Spitzmiller, Ervin Richard,3,549,621.

Sponza, Renzo. Screening device. 3,549,014, Cl. 210-394.

Spott, Georg: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.

Spousta, Eduard, to Chemopetrol, zavody pro zpracovani ropy. Method of oxidizing phenols. 3,549,670, Cl. 260-396.

Springs Mills, Inc.: *See—*
Williams, Billy G. F., 3,548,767.

Sprogis, Gunars, to Union Carbide Corporation. High efficiency high power D.C. series type voltage regulator. 3,549,983, Cl. 323-15.

Spurling, John E., to International Electronic Research Company. Heat dissipating retainer for electronic component. 3,548,927, Cl. 165-80.

Square D Company: *See—*
Stallman, James E., 3,550,048.

Squibb, E. R., & Sons, Inc.: *See—*
Breuer, Hermann, 3,549,625.
Diassi, Patrick A., and Principe, Pacifico A., 3,549,498.

Squiers, David J.: *See—*
Obenhaus, Robert E., and Squiers, David J.,3,549,088.

Stach, Kurt: *See—*
Heerdt, Ruth, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut,3,549,645.

Stackpole Carbon Company: *See—*
Bang, Mogens W., 3,550,060.

Sta-Hi Corporation: *See—*
Oderman, Samuel, Wiseman, Raymond L., and Rushforth, George T., 3,548,995.

Stainless, Inc.: *See—*
Eberle, Richard J., 3,550,146.

Stallman, James E., to Square D Company. Electromagnetically operated switch having a movable contact carrier shock absorber. 3,550,048, Cl. 335-193.

Stamicarbon N.V.: *See—*
Duyverman, Coenraad J., and Rademakers, Peter, 3,549,719.

Stamm, Alex F., to Rockwell-Standard Corporation, mesne. Method and apparatus for friction welding. 3,548,487, Cl. 29-470.3

Stamm, Heinrich: *See—*
Chopard, Remy, and Stamm, Heinrich,3,548,585.

Stamper, John Raymond: *See—*
Smith, John Alfred, and Stamper, John Raymond,3,548,514.

Standard Brands Incorporated: *See—*
Speakman, Edwin L., 3,549,618.

Standard Car Truck Company: *See—*
Williams, Ray C., 3,548,754.

Stanfield, Harry M. Safety trailer device. 3,549,173, Cl. 280-457.

Stanford, James R., and Vogelsang, Paul G., Jr., to Nalco Chemical Company. Weighted corrosion inhibitors. 3,549,532, Cl. 252-8.55

Stanley, Joan Ann: *See—*
Adcock, Edmund Philip, and Stanley, Joan Ann,3,549,440.

Stanley, John M., to Amsted Industries Incorporated. Making pipe. 3,548,466, Cl. 25-31.

Stanley Works, The: *See—*
Bushman, Julius Harold, 3,548,888.

Star Expansion Industries Corporation: *See—*
Mulno, Lester F., 3,548,590.
Nasser, Roland G., 3,548,705.

Stark, Daniel J., to Eastman Kodak Company. Projector take-up mechanism. 3,549,106, Cl. 242-210.

Stark, Forest G., to Art Metal-Knoll Corporation. Desk or like article of furniture. 3,549,227, Cl. 312-194.

Starkey, Roland J., Jr., to Venue, Ben, Laboratories, Inc. Standard reference reagent package. 3,549,297, Cl. 206-46.

Staufert, Helmut P., to Stuttgarter Spindelfabrik NOVIBRA GmbH. Spindle-stop-drive for textile spindles. 3,548,582, Cl. 57-88.

Stauffer Chemical Company: *See—*
Kopacki, Adam F., and Horodecky, Jerry, 3,549,588.

Stearns, James B., and Wendelburg, Robert W., to Chemetron Corporation. Direct current arc power supply with stabilized feedback control. 3,549,978, Cl. 321-19.

Stearns, James B., and Wendelburg, Robert W., to Chemetron Corporation. Arc power supply with current level control. 3,549,979, Cl. 321-19.

Steel, Thomas: *See—*
Petrie, James Alexander, Steel, Thomas, Poucher, Michael, Franklin, Clifford John, and McCarthy, Denis,3,549,270.

Steele, Ernest R., to United States of America, National Aeronautics and Space Administration. Satellite aided vehicle avoidance system. 3,550,129, Cl. 343-112.

Steelweld Limited: *See—*
Mills, Lionel William, 3,549,076.

Stehr, Wolfgang G., to Motorola, Inc. Unattended data transmission. 3,549,809, Cl. 179-2.

Stein, Karl-Ulrich, to Siemens Aktiengesellschaft. Data-storage apparatus. 3,550,099, Cl. 340-174.

Stein, Werner: *See—*
Hartmann, Helmut, and Stein, Werner,3,549,676.

Stein, William B., to Warner & Swasey Company, The. Pocket-type cutting insert. 3,548,473, Cl. 29-95.

Steinhausen, Helmut: *See—*
Klein, Edgar, Kulling, Achim, and Steinhausen, Helmut,3,549,322.

Steinmuller, L. & C., G.m.b.H.: *See—*
Jung, Richard, 3,548,759.

Stelts, Philip D.: *See—*
Carlson, John A., Jr., Singleton, Alan H., and Stelts, Philip D.,3,548,568.

Stencel Aero Engineering Corporation: *See—*
Stencel, Fred B., 3,549,111.

Stencel, Fred B., to Stencel Aero Engineering Corporation. Aerial personnel recovery apparatus. 3,549,111, Cl. 244-122.

Stephens, Frederick N., Burhans, Stuart J., Warkoczewski, Joseph T., and Taylor, Jack M., to Certain-Teed Saint Gobain Insulation Corporation. Apparatus for making tubular articles from blankets of uncured fibrous mat. 3,549,456, Cl. 156-446.

Steppberger, Alfred, and Goetzeler, Herbert. Method of producing metal structures on semi- conductor surfaces. 3,549,437, Cl. 156-4.

Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich. Welding wire. 3,549,338, Cl. 29-191.2

Sterigard Company: *See—*
Bruce, John K., and Bruce, Theodore R., 3,548,564.
Bruce, John K., and Bruce, Thedore R., 3,549,050.

Sterling Drug Inc.: *See—*
Carr, Byron J., 3,548,824.
Collins, Joseph C., 3,549,654.
Forim, Leo I., 3,549,052.

Gatland, Lawrence O., 3,549,055.
Gubitz, Franklyn W., 3,549,643.

Sterling, Henley Frank, and George, Wilbert Ridd, to International Standard Electric Corporation. Method and apparatus for melting reactive materials. 3,549,353, Cl. 75-84.1

Stevens, J. P., & Co., Inc.: *See—*
Ring, Richard N., Oroslan, Andrew, and Tesoro, Giuliana C., 3,549,309.
Tesoro, Giuliana C., and Mattei, Frank V., 3,549,638.

Stevens, James I., to Nayadic Sciences, Incorporated. Sewage treatment process and system. 3,549,521, Cl. 210-5.

Stewart, Leslie E.: *See—*
Silverman, Bernard, and Stewart, Leslie E.,3,548,584.

Stichling, Gerhardt C., to Cartridge Actuated Devices, Inc. Explosive actuated valves. 3,548,848, Cl. 137-68.

Stiles, Alvin B. Catalytic method for cleaning soiled oven surfaces. 3,549,419, Cl. 134-2.

Stillwell-Gerard Construction Co.: *See—*
Campbell, Wallace S., 3,548,604.

Stingl, Hans Alfred, to Toms River Chemical Corporation. Nitrodiphenylamine disperse dyes. 3,549,311, Cl. 8-179.

Stippich, Alvin C., to Riverside Mold & Die, Inc. Baffle for coolant passages in plastic molding dies. 3,548,863, Cl. 137-340.

Stitt, Thomas C. Remote control reset system for use with a ground monitor circuit. 3,549,953, Cl. 317-139.

Stobb, Rudolph C., to GAF Corporation. Ultrasonic sealing of film cartridges. 3,549,460, Cl. 156-580.

Stobi, Hans, to Maschinenfabrik Benninger AG. Rewinding apparatus for the single or multiple rewinding of web-like material. 3,549,100, Cl. 242-67.4

Stockard, Ralph R.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,549,435.

Stodolsky, David S. Class B transistor power amplifier. 3,550,025, Cl. 330-17.

Stogryn, Eugene L., and Gianni, Michael H., to Esso Research and Engineering Company. Difluoroamino derivatives. 3,549,707, Cl. 260-584.

Stolk, Jan, Jr., and Stolk, Johan Hendrik. Hydraulic structure for resisting wave action. 3,548,600, Cl. 61-4.

Stolk, Johan Hendrik: *See—*
Stolk, Jan, Jr., and Stolk, Johan Hendrik,3,548,600.

Stolle, Dorothy J.: *See—*
Stolle, Ralph J., and Stolle, Dorothy J.,3,549,042.

Stolle, R. I., Co.: *See—*
Stolle, Ralph J., and Stolle, Dorothy J., 3,549,042.

Stolle, Ralph J., and Stolle, Dorothy J., to San Margale Farms, a division of Stolle, R. I., Co. Buoyant beverage cans and the like. 3,549,042, Cl. 220-54.

Stolmeijer, Leo, to N.V. Industrieeleen Handel Mij. 'Senzora' v/h A. J. Schoemaker & Zonen. Solid compositions useful in dry cleaning. 3,549,545, Cl. 252-152.

Stop: *See—*
Grach, Pierre C., 3,549,279.

Stork Amsterdam N.V.: *See—*
Vertegaal, Jacobus Gerardus, 3,548,448.

Strain, Robert J., to International Standard Electric Corporation. Cyclotron resonance phototube having axial magnetic field and transverse electric field. 3,549,891, Cl. 250-211.

Strang, David A.: *See—*
Patel, Jayantilal M., and Strang, David A.,3,549,380.

Stratton, Donald W., to Anderson Company, The. Windshield wiper arm construction. 3,548,442, Cl. 15-250.34

Strauss, Eugene O., Walesa, Anthony C., and Johnson, Carl E. Mold coating. 3,549,392, Cl. 106-38.23

Stromberg Datagraphics, Inc.: *See—*
Muir, Max K., 3,549,254.

Stromberg Datagraphix, Inc.: *See—*
Smitzer, Louis A., 3,549,939.

Stromberg, Sanford E., to Textron Inc. Water-soluble, polyester resin base, baking vehicle and process of preparing same. 3,549,577, Cl. 260-29.4

Strothmann, Wilfried: *See—*
Junemann, Hubert, Scholl, Hans, and Strothmann, Wilfried,3,548,768.

Stryker Corporation: *See—*
Spence, Wayman R., 3,548,420.

Stuck, Thomas E.: *See—*
Frankowski, Jerome J.,and Stuck, Thomas E.,3,549,133.

Sturdevant, Eugene J.: *See—*
Masino, John Albert, and Sturdevant, Eugene J.,3,549,896.

Stuttgarter Spindelfabrik NOVIBRA GmbH: *See—*
Staufert, Helmut P., 3,548,582.

Suchocki, Anthony J., to United States of America, Army, mesne. Antibacklash gear train. 3,548,673, Cl. 74-409.

Suggs, Charles W.: *See—*
Knott, Benjamin F., and Suggs, Charles W.,3,548,570.

Sugita, Sadao: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.

Sukup, Eugene G. Electrical swivel connector. 3,550,061, Cl. 339-8.

Sumitomo Chemical Company, Ltd.: *See—*
Takaki, Takumi, Takagi, Kazumi, Hisada, Akira, and Tsunokawa, Tamio, 3,549,706.

Sun Chemical Corporation: *See—*
Sirvet, Enn, Whelan, Edward J., and Skrypek, John P., 3,548,745.

Sun Oil Company: *See—*
Bennett, John D., 3,548,939.

Sunbeam Corporation: *See—*
Chambers, Worthy L., 3,549,844.

Sundberg, Rune David Oliver, to LKB Instruments, Inc., mesne. Feedback amplifier arrangement. 3,550,029, Cl. 330-86.

Superior Products Company: *See—*
Payne, Dana C., and Chandler, Jack L., 3,549,575.

Surf Jet Manufacturing, Inc.: *See—*
Von Smagala-Romanoff, Edward A., 3,548,778.

Sutyak, John J., to Mesta Machine Company. Fluid bearing arrangement. 3,549,216, Cl. 308-122.

Suzuki, Hidemasa: *See—*
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa,3,549,812.

Suzuki, Kanichi, to Kabushiki Kaisha Suzuki Kosakusho. Apparatus for connecting insulated wires. 3,548,889, Cl. 140-119.

Suzuki, Misao: *See—*
Urushiwara, Hishashi, Morino, Hiroshi, and Suzuki, Misao,3,548,472.

Suzuki, Sakaru, to Seikagaku Kogyo Co., Ltd. Novel chondroitinase and method of its recovery. 3,549,500, Cl. 195-62.

Svarz, Jerry J.: *See—*
Mindick, Morris, and Svarz, Jerry J.,3,549,562.

Swander, Kenneth D., Jr., and Wearden, Charles G., to Certain-Teed Products Corporation. Brake actuator. 3,548,720, Cl. 92-63.

Swanson, Allan R., to Clark Equipment Company. Suspension system for a vehicle. 3,549,168, Cl. 280-124.

Swanson, Richard M.: *See—*
Fenstermaker, Ronald E., and Swanson, Richard M.,3,549,816.

Swartz, Elmer L.: *See—*
Warren, Raymond W., and Swartz, Elmer L.,3,548,854.

Swartz, Jerome: *See—*
Adelson, Alexander Michael, and Swartz, Jerome,3,549,909.

Sweeney, George J., and Bankowski, Fred, to Agitair Division, Aeronca, Inc. Air distributor. 3,548,735, Cl. 98-40.

Swenson, Henry F. Center-hole grinder. 3,548,545, Cl. 51-50.

Swift & Company: *See—*
Johnson, Keith L., 3,549,544.

Swift, Gilbert, to Dresser Industries, Inc. Vehicle guidance system. 3,550,077, Cl. 340-32.

Swiss Aluminium Ltd.: *See—*
Gyongyos, Ivan, and Kotthaus, Helmut, 3,548,919.

Sybron Corporation: *See—*
Ernst, Robert R., 3,549,312.

Sykes, Donald J., Kroll, Harry, and Finch, Theron R., to Hunt, Philip A., Chemical Corporation. Quaternary ammonium bisulfites, sulfites or pyrosulfites as developer preservatives. 3,549,370, Cl. 96-55.

Sykes, Russell F. Sighting device for establishing a line of sight. 3,548,504, Cl. 33-46.

Sylvania Electric Products, Inc.: *See—*
Barbano, Normand, and Hochman, Howard, 3,550,144.
Nelson, Kenneth W., 3,549,898.
Siwko, Karol, and Thomas, Joseph Edward, 3,549,802.
Whalen, James T., 3,550,017.

Szucs, Andrew E.: *See—*
Miles, Ray P., and Szucs, Andrew E.,3,548,433.
Miles, Ray P., and Szucs, Andrew E.,3,549,174.

Tabak, Fernando, to Universal Oil Products Company. Recuperative form of direct thermal incinerator. 3,549,333, Cl. 23-277.

Tabor, Wallace F., and Williamson, Paul M., to Atlantic Richfield Company. Single phase emulsion inhibitor. 3,549,533, Cl. 252-32.7

Tai, Chen To, to United States of America, Army, mesne. Manipole broadband antenna. 3,550,145, Cl. 343-826.

Takagi, Kazumi: *See—*
Takaki, Takumi, Takagi, Kazumi, Hisada, Akira, and Tsunokawa, Tamio,3,549,706.

Takahashi, Nagashige, and Sakamoto, Satoru, to Olympus Optical Co., Ltd. Device for switching the direction of the observation in an endoscope. 3,548,808, Cl. 128-6.

Takaki, Takumi, Takagi, Kazumi, Hisada, Akira, and Tsunokawa, Tamio, to Sumitomo Chemical Company, Ltd. Process for separating acrylamide. 3,549,706, Cl. 260-561.

Takeda Chemical Industries, Ltd.: *See—*
Adica, Osamu, Naito, Kenji, Ogino, Katsuhiko, and Kuroda, Hiroyuki, 3,549,504.
Imai, Shunji, Kanai, Yoshio, Otsuka, Hiroshi, Nohara, Akira, and Sanno, Yasushi, 3,549,662.
Miki, Takuichi, and Hiraga, Kentaro, 3,549,673.

Takeichi, Yasuo: *See—*
Nakamura, Itsuro, Takeichi, Yasuo, and Saito, Teruo,3,548,862.

Takekoshi, Tohru, to General Electric Company. Aromatic polyesters of substituted hydroxy benzoic acids. 3,549,593, Cl. 260-47.

Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira, to Matsushita Electric Industrial Co., Ltd. Single-phase commutator motor speed controlling device. 3,549,973, Cl. 318-345.

Tamori, Takashi: *See—*
Kato, Jinichi, and Tamori, Takashi,3,549,230.

Tamura, Kinya, to Mitsubishi Jukogyo Kabushiki Kaisha. Shape of the stern for a very large ship. 3,548,772, Cl. 114-57.

Tanaka, Hisao: *See—*
Itakura, Jo, Tanaka, Hisao, and Ito, Hiroo,3,549,717.

Taniguchi, Fukuo: *See—*
Osawa, Hideo, Imooka, Masanori, Taniguchi, Fukuo, and Yamashita, Sunao,3,549,263.

Tanimoto, Shigeru: *See—*
Nakano, Kazuhiro, Yamaguchi, Kouichiro, Utsunomiya, Kunihiko, and Tanimoto, Shigeru,3,548,923.

Tanimura, Kensaku: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.

Tanke, Ullrich, Voegtlen, Dieter, Brandt, Fritz, and Bruninghaus, Karl, to Siemens Aktiengesellschaft. System and process for supervision of signal lines. 3,549,813, Cl. 179-18.

Tautz, William Paul: *See—*
Beaman, Alden Gamaliel, Duschinsky, Robert, and Tautz, William Paul,3,549,653.

Tavel, Jon H. Cordless electric vibrator for use on the human body. 3,549,920, Cl. 310-68.

Taylor, Edwin M.: *See—*
Phelan, Cyril A., Taylor, Edwin M., and Rapp, Keith A.,3,548,950.

Taylor, Frederick T. Dryer with ejectors. 3,548,513, Cl. 34-205.

Taylor, Jack M.: *See—*
Stephens, Frederick N., Burhans, Stuart J., Warkoczewski, Joseph T., and Taylor, Jack M.,3,549,456.

Tazawa, Toru: *See—*
Ohnishi, Toshikazu, Utsumi, Hiroki, Tazawa, Toru, and Matsuura, Katsumasa,3,548,615.

Teagno, Wladimiro, and Trevisiol, Franco, to AMP Incorporated, mesne. Electrical connector tab receptacles. 3,550,069, Cl. 339-256.

Technical Operations Incorporated: *See—*
Bouche, Edmund L., and Parrent, George B., Jr., 3,549,237.
Graser, Michael, Jr., 3,549,238.

Technion Research and Development Foundation Limited: *See—*
Kohn, David Harry, Narkis, Moshe, Weitzman, Jacob, and Neumann, Walter, 3,549,731.

Technology Instrument Corporation of California: *See—*
Boehm, Helmut, 3,549,849.

TEC Systems, Inc.: *See—*
Frost, John W., Downham, Roy E., and Eckelaert, Jack F., 3,549,070.

Teerlink, Wilford John: *See—*
McMillin, Carl Kenneth, and Teerlink, Wilford John,3,549,596.

Teetor, Macy O. Dripless pouring vessel. 3,549,062, Cl. 222-571.

Tekmar Corporation: *See—*
Valdespino, Joe M., 3,548,421.

Teldix GmbH: *See—*
Leiber, Heinz, 3,549,211.
Leiber, Heinz, 3,549,212.
Wilde, Werner, 3,548,879.

Telephone Manufacturing Co. (Australasia) Proprietary Limited: *See—*
Peady, Clifford Jack, 3,549,817.

Telephone Manufacturing Company: *See—*
Jones, Glyn John, 3,550,088.

Tem-Cole, Inc.: *See—*
Weasel, George E., Jr., and Weimer, Harold W., 3,548,951.

Temple, Robert, to Mine Safety Appliances Company. Stud driving tool with removable barrel. 3,549,073, Cl. 227-8.

Terao, Koichi: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo,3,548,638.

Terry, James L.: *See—*
Weber, Wilson J., Jr., and Terry, James L.,3,548,925.

Terry, Lola Irene: *See—*
Weber, Wilson J., Jr., and Terry, James L.,3,548,925.

Terry, William M., to Esso Production Research Company. Method of sand consolidation. 3,548,942, Cl. 166-276.

Teska, John T.: *See—*
Trousdale, Robert B., Wiley, Franklyn L., and Teska, John T.,3,549,995.

Tesoro, Giuliana C.: *See—*
Ring, Richard N., Oroslan, Andrew, and Tesoro, Giuliana C.,3,549,309.

Tesoro, Giuliana C., and Mattei, Frank V., to Stevens, J. P., & Co., Inc. Unsaturated sulfone compounds containing a heterocyclic structure. 3,549,638, Cl. 260-268.

Tetra Molectric Limited: *See—*
Retzler, William, 3,549,290.

Teves, Alfred, GmbH: *See—*
Klein, Hans-Christof, 3,549,924.
Pech, Franz, and Spahn, Peter, 3,548,595.

Texaco Development Corporation: *See—*
Holstedt, Richard A., Dadura, James G., Krug, Robert H., and Love, Doris, 3,549,534.
Paull, Peter L., and Armistead, Fontaine C., 3,548,605.
Paull, Peter L., and Armistead, Fontaine C., 3,548,969.

Texaco Inc.: *See—*
Allen, Joseph C., 3,548,846.
Brown, William F., Crockett, William E., and Brodeur, Charles H., 3,549,514.
Eckert, George W., and McDonald, William A., 3,549,313.
Estes, John H., and Eckert, George W., 3,549,718.
Graham, William J., 3,549,122.
Morris, Herbert C., 3,549,520.
Reguera, Ernesto J., Carlin, Joseph T., and Allen, Joseph C., 3,548,940.
Woodle, Robert A., 3,549,513.

Texas Instruments, Incorporated: *See—*
Baker, Charles E., 3,549,800.
Bean, Kenneth E., and Gleim, Paul S., 3,549,411.
Damrel, John B., Jr., and Fruit, Jerry L., 3,548,632.
Granberry, Doyle S., 3,549,949.
Obenhaus, Robert E., and Squiers, David J., 3,549,088.
Sivertsen, David R., 3,549,432.
Weber, Roger L., 3,548,492.

Textron Inc.: *See—*
Farah, Basil S., and Schroeder, Herbert M., 3,549,569.
Stromberg, Sanford E., 3,549,577.

Theidel, Klaus, and Weber, Wilhelm, to Passavant Werke. Apparatus for use in sludge treatment. 3,549,017, Cl. 210-531.

Thielenhaus, Ernst, and Schwar, Rudolf, to Maschinenfabrik Ernst Thielenhaus. Apparatus for machining a fillet surface. 3,548,546, Cl. 51-58.

Thimineur, Raymond J.: *See—*
Holdstock, Norman G., Berger, Abe, Selin, Terry G., and Thimineur, Raymond J.,3,549,590.

Thomas & Betts Corporation: *See—*
Castellant, Edward J., 3,550,068.
Churla, John J., Jr., 3,549,787.
Kohke, Stephen John, 3,548,463.
Kuo, Lai Che, 3,549,786.
Netta, Louis A., and Burkert, Herbert G., 3,548,479.
Sotolongo, Tomas Julio, 3,549,177.

Thomas, Daniel C., to Lithoplate, Inc., mesne. Lithographic printing surface. 3,549,365, Cl. 96-33.

Thomas, James L. Method of pressure equalizing for blast furnace top. 3,549,138, Cl. 266-27.

Thomas, Joseph Edward: *See—*
Siwko, Karol, and Thomas, Joseph Edward,3,549,802.

Thomas, Joseph E., to Halliburton Company. Linearizing circuit for net oil analyzers. 3,550,019, Cl. 328-140.

Thomas, Leonard L. Device for trapping solids and liquids in tobacco smoke. 3,548,835, Cl. 131-10.5

Thomas, Malcolm H.: *See—*
Menzies, James H., and Thomas, Malcolm H.,3,549,386.

Thompson, Allan R., to Clevite Corporation. Edge writing recorder with core magnet. 3,550,156, Cl. 346-136.

Thompson, Robert A., Grabkowski, Stephen E., and Weichbrodt, Bjorn, to General Electric Company. Machining stability detector. 3,550,107, Cl. 340-267.

Thomson, David J.: *See—*
Anderson, Lewis G., and Thomson, David J.,3,548,857.

Thomson International Company, The: *See—*
Knott, Benjamin F., and Suggs, Charles W., 3,548,570.

Thurston, Edward M. Loading means for chair lift. 3,548,753, Cl. 104-173.

Thurston, Edward M., to General Steel Industries, Inc. Loading means for chair lift. 3,548,755, Cl. 104-123.

Thyberg, Victor A.: *See—*
Reynolds, Frank L., and Thyberg, Victor A.,3,548,829.

Tilton, John B., to Goodyear Tire & Rubber Company, The. Fluid springs. 3,549,142, Cl. 267-65.

Time-O-Matic, Inc.: *See—*
Schulenberg, Edward J., Sr., and Ball, Ervin M., 3,550,112.

Timko, Albert J., Jr., and Shaffer, Paul E., to PPG Industries, Inc. Laminated structure. 3,549,785, Cl. 174-68.5

Tishler, Mas, Chemerda, John M., and Kollonitsch, Janos, to Merck & Co., Inc. Process for making N-(3-halopropyl)-N-methyl- hydrocarbon sulfonamides. 3,549,703, Cl. 260-556.

Titangesellschaft mbH: *See—*
Klein, Edgar, Kulling, Achim, and Steinhausen, Helmut, 3,549,322.

Tobias, Jaromir. High efficiency radial piston pump or motor with improved flow pattern. 3,548,719, Cl. 91-497.

Tobkes, Martin, and Wilkinson, Raymond George, to American Cyanamid Company. 6-Sulfuric acid esters of 6-demethyltetracyclines. 3,549,681, Cl. 260-457.

Toko Kabushiki Kaisha: *See—*
Maeda, Hisao, Matsushita, Akira, and Sakuma, Takashi, 3,549,508.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Yoshimaru, Tomohisa, and Komikawa, Hiroshi, 3,550,092.
Mitsubayashi, Mamoru, Muraishi, Yasuhiko, and Nishitsuji, Kazuichi, 3,548,612.

Tokyo Shibaura Electric Co., Ltd.: *See—*
Hama, Akira, Watanabe, Tadaaki, Kikuchi, Shunji, and Kumagai, Norio, 3,549,936.
Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira, 3,549,937.
Mitsubayashi, Mamoru, Muraishi, Yasuhiko, and Nishitsuji, Kazuichi, 3,548,612.
Motoyama, Kakujiu, and Yako, Hiroshi, 3,549,935.
Osawa, Hideo, Imooka, Masanori, Taniguchi, Fukuo, and Yamashita, Sunao, 3,549,263.

Toledo, Emil: *See—*
Semienko, Peter P., and Toledo, Emil,3,549,507.

Toms River Chemical Corporation: *See—*
Stingl, Hans Alfred, 3,549,311.

Tong, Shih Y., to Bell Telephone Laboratories, Incorporated. Automatic synchronization recovery techniques for nonbinary cyclic codes. 3,550,082, Cl. 340-146.1

Toray Industries, Inc.: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo, 3,548,638.

Torban, Alexandr Isaakovich, Kaushansky, Alexandr Stepanovich, Butkevich, Vladimir Alexandrovich, and Grigoriev, Alexey Nikolaevich. Apparatus for delivering ingots from a vertical type continuous casting installation. 3,548,920, Cl. 164-282.

Torok, Ernest J.: *See—*
Lo, David S., Oredson, Henry N., and Torok, Ernest J.,3,550,101.

Torr Laboratories, Inc.: *See—*
DeLucia, Victor E., 3,549,931.

Tournier, John: *See—*
Parker, Leslie Kearton, and Tournier, John,3,549,860.

Toy, Arthur D. F.: *See—*
Kohl, Willibald F., and Toy, Arthur D. F.,3,549,388.

Toyama, Shigetaro. Railroad tracks. 3,549,090, Cl. 238-281.

Toyo Koatsu Industries, Incorporated: *See—*
Isowa, Yoshikazu, 3,549,659.

Toyo Rayon Kabushiki Kaisha: *See—*
Okazaki, Kaoru, Shimokawa, Yoichi, and Nakagawa, Asaharu, 3,549,724.

Toyoda, Masashi: *See—*
Fukawa, Hideaki, Toyoda, Masashi, Fukushima, Hideo, and Shimizu, Toru,3,549,668.

Toyoda, Masatoshi. Electromagnetically propelled apparatus. 3,550,052, Cl. 335-234.

Toyota, Koji: *See—*
Mizushina, Masaaki, and Toyota, Koji,3,548,596.

Trachtenberg, Leonard, and Trachtenberg, Peter Warren. Self-heated thermos bottle. 3,549,861, Cl. 219-441.

Trachtenberg, Peter Warren: *See—*
Trachtenberg, Leonard, and Trachtenberg, Peter Warren,3,549,861.

Tracked Hovercraft Limited: *See—*
Wilson, David H., 3,549,966.

Tram Corporation: *See—*
Paul, Harry F., 3,550,012.

Tranter Manufacturing, Inc.: *See—*
McGuffey, James W., 3,548,553.

Trautman, Jack C., and Olson, Floyd C., to Mayer, Oscar & Co., Inc. Recovery of pepsin from linings of pig stomachs. 3,549,501, Cl. 195-66.

Trautmann, Karl-Heinz, to Windmoller & Holscher. Stacking apparatus plastics material sheeting. 3,549,145, Cl. 271-79.

Travis, Gale D.: *See—*
Roberts, Carleton W., and Travis, Gale D.,3,549,648.

Treacy, Edmond B.: *See—*
Brienza, Michael J., and Treacy, Edmond B.,3,549,239.
Brienza, Michael J., and Treacy, Edmond B.,3,549,256.

Trevisiol, Franco: *See—*
Teagno, Wladimiro, and Trevisiol, Franco,3,550,069.

Triem, Hermann: *See—*
Wegehaupt, Karl-Heinrich, Nitzsche, Siegfried, Wick, Manfred, and Triem, Hermann,3,549,680.

Trimble, Cebern B., to National Cash Register Company, The. Magnetic transducer with planar spiral coil extending into the gap. 3,549,825, Cl. 179-100.2

Triplex Safety Glass Company Limited: *See—*
Kay, Solomon Elijah, and Boucher, John Bradley, 3,549,466.

Tristram, Edward W.: *See—*
Grabowski, Edward J. J., Tristram, Edward W., and Tull, Roger J.,3,549,633.

Trostle, John W., Kaminski, Elton G., and Hasselbeck, Richard J., to Aluminum Company of America. Shutter structure. 3,548,555, Cl. 52-473.

Trousdale, Robert B., Wiley, Franklyn L., and Teska, John T., to California Computer Products, Inc. Multibridge comparison system for wiring testing. 3,549,995, Cl. 324-73.

Troutman, Ronald R.: *See—*
Shostak, Arnold A., and Troutman, Ronald R.,3,550,002.

Troyer, Richard Lloyd, to Johns-Manville Corporation. Method for producing fibrous products having integral tongue and groove edges. 3,549,738, Cl. 264-118.

Truant, Aldo P., and Nordstrom, Fritz G., to Astra Pharmaceutical Products, Inc., and University of Toronto, The Governors of the. Process of causing lysis of blood clots, and composition. 3,549,748, Cl. 424-94.

Trump, Walter N.: *See—*
Deason, Wallace R., Fowler, Lewis, and Trump, Walter N.,3,548,640.

TRW Inc.: *See—*
Halsted, Leonard R., 3,550,003.
Silverman, Herbert P., and Giarrusso, Gino A., 3,549,329.

Tse, John W.: *See—*
Harris, John R., Tse, John W., and Hooper, Gerald H.,3,550,141.

Tsuji, Akira: *See—*
Ariyasu, Kenji, and Tsuji, Akira,3,548,728.

Tsuji, Nobuo: *See—*
Amano, Hiroyuki, Tsuji, Nobuo, and Shirasu, Kazuo,3,549,374.

Tsukamoto, Akira: *See—*
Coates, John S., Dunion, Paul F., Jr., and Tsukamoto, Akira,3,549,727.

Tsunemi, Yasuhiko. Thumbtack handler. 3,549,075, Cl. 227-63.

Tsunokawa, Tamio: *See—*
Takaki, Takumi, Takagi, Kazumi, Hisada, Akira, and Tsunokawa, Tamio,3,549,706.

Tull, Roger J.: *See—*
Grabowski, Edward J. J., Tristram, Edward W., and Tull, Roger J.,3,549,633.

Turner, John O., and Glickman, Samuel A., to GAF Corporation. Preparation of vinyl aryl ethers. 3,549,710, Cl. 260-612.

Turner, Justin L., to Message Systems, Inc. Transmitting antenna for audio induction communication system. 3,549,818, Cl. 179-82.

Turpin, Alexander J.: *See—*
Yarnell, William T., and Turpin, Alexander J.,3,548,760.

Twilley, Ian C., and Lazarus, Stanley D., to Allied Chemical Corporation. Solid state polymerization of tetracarboxylic acids dianhydrides and aromatic tetramines. 3,549,594, Cl. 260-47.

Twin Disc, Incorporated: *See—*
Hill, Rodney G., and Koenig, Peter O., 3,548,981.

Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo, to Toray Industries, Inc. Apparatus and method for continuously determining viscosity. 3,548,638, Cl. 73-55.

Uemura, Saburo, Yamada, Toshiyuki, Nishikawa, Toshiro, and Umezawa, Yasuo. Brushless motor utilizing magnetoresistance means having recombination regions. 3,549,967, Cl. 318-138.

Uetrecht, Dale M., to Baldwin, D. H., Company. Parallel T active filters with adjustable Q. 3,550,027, Cl. 330-26.

Ulich, Michael D., to Westinghouse Electric Corporation. Outside mounted room air conditioner. 3,548,611, Cl. 62-262.

Ulics, George: *See—*
Grimes, Delmar C., Muller, George H., and Ulics, George,3,548,675.

Ullrich, Alois: *See—*
Zimmermann, Theodor, and Ullrich, Alois,3,549,141.

Umahashi, Minoru, and Hashimoto, Hideo, to Kabushiki Kaisha Ricoh. Safety device for automatic separation of an original from a light sensitive copy sheet in an automatic copying apparatus. 3,549,255, Cl. 355-109.

Umezawa, Yasuo: *See—*
Uemura, Saburo, Yamada, Toshiyuki, Nishikawa, Toshiro, and Umezawa, Yasuo,3,549,967.

Ungerer, Irma, (Nee) Dollinger: *See—*
Munchbach, Curt, 3,548,698.

Union Carbide Canada Limited: *See—*
Everett, Peter Kenneth, 3,549,321.

Union Carbide Corporation: *See—*
Bolton, Anthony P., and Pickert, Paul E., 3,549,557.
Roche, Martin A., Jr., 3,549,739.
Saenger, John F., Jr., 3,549,856.
Smith, Percy Leighton Dunbar, and Comstock, Lowell Ray, 3,549,586.
Sprogis, Gunars, 3,549,983.
Wankow, Joseph E., 3,549,066.

Union Oil Company of California: *See—*
Marsh, Glenn A., and Schaschl, Edward, 3,549,993.

Uniroyal, Inc.: *See—*
Cesare, Frank C., and Loeble, William D., Jr., 3,549,481.
Gervitz, Arthur H., Ames, Ronald B., and Smith, Allen E., 3,549,348.

United Aircraft Corporation: *See—*
Brienza, Michael J., and Treacy, Edmond B., 3,549,239.
Brienza, Michael J., and Treacy, Edmond B., 3,549,256.
Gugliotti, Louis M., 3,550,016.

United Control Corporation: *See—*
Corey, Victor B., 3,548,653.

United Kingdom Atomic Energy Authority: *See—*
Cooke-Yarborough, Edmund Harry, 3,548,589.

United States Borax & Chemical Corporation: *See—*
Nies, Nelson P., and Hulbert, Richard W., 3,549,316.

United States of America
Agriculture: *See—*
Mark, Arthur M., and Mehltretter, Charles L., 3,549,619.
Rothman, Edward S., and Serota, Samuel, 3,549,675.
Army: *See—*
Dreitzler, David R., 3,548,749.
Dubowicz, Palemon W., and Slechta, John S., 3,550,011.
Fierston, Stanley A., and Zitzow, Harold P., 3,550,125.
Getchell, Ralph F., 3,549,980.
Hughes, James G., 3,548,707.
Johnson, Avery A., Jr., Mason, Arthur D., Jr., and Ritchey, Charles R., 3,549,694.
Katsuren, Roy I., 3,548,419.
Mink, James W., 3,549,236.
Overson, Reed, 3,548,434.
Peacher, Teddy J., and Kilbourn, Dorwin L., 3,549,934.
Potts, John W., 3,549,009.
Prince, Marshall D., 3,548,709.
Scidmore, Wright H., and Wolfe, Robert J., 3,549,231.
Suchocki, Anthony J., 3,548,673.
Tai, Chen To, 3,550,145.
Wagner, Otto C., 3,549,422.

Atomic Energy Commission: *See—*
Babcock, Dale F., 3,549,323.
Babcock, Dale F., 3,549,324.
Babcock, Dale F., 3,549,325.
Caller, James M., and Konnick, Paul J., 3,550,064.
Germer, John H., and Boardman, Charles E., 3,548,931.
Germer, John H., 3,549,493.
Germer, John H., 3,549,494.
Holman, William R., 3,548,646.
Johnson, Melvin L., 3,549,491.
Lay, Clark M., 3,549,870.
Murray, Ian, 3,549,257.
Pluta, Philip R., 3,549,489.
Ricci, Enzo, Handley, Thomas H., and Willey, Melvin G., 3,549,492.

Health, Education and Welfare: *See—*
Conlon, Frank Bernard, 3,549,888.
Jensen, Jens A., 3,548,533.
Kilburn, James O., 3,549,328.

National Aeronautics and Space Administration, Administrator, with respect to an invention of:
Ellern, William Bert. Method of evaluating moisture barrier properties of encapsulating materials. 3,548,633, Cl. 73-38.
Frost, James D., Jr. EEG sleep analyzer and method of operation. 3,548,812, Cl. 128-2.1
Vivian, Howard C. Remodulator filter. 3,550,023, Cl. 328-165.
Wortman, Jimmie J., and Stockard, Ralph R. Method of making semiconductor P-N junction stress and strain sensor. 3,549,435, Cl. 148-187.

National Aeronautics and Space Administration: *See—*
Barrington, Alfred E., 3,549,882.
Byrd, Ambrose W., 3,548,930.
Hanst, Philip L., 3,550,034.
Litant, Irving, 3,548,636.
Parker, John A., and Riccitiello, Salvatore R., 3,549,564.
Sander, Ronald C., and Hruby, Ronald J., 3,549,799.
Steele, Ernest R., 3,550,129.

Navy: *See—*
Barstow, Frederick E., Larson, Paul, and Salomon, Udo W., 3,548,411.
Brown, Henry R., and Green, Elberson D., 3,550,123.
Farmer, Everett W., and Van Ham, Ernest E., 3,548,631.
Ford, Allen G., and Wilson, Robert A., 3,548,776.
Griffith, James R., 3,549,591.
Hall, Jay S., and Scarzello, John F., 3,549,987.
Harris, John R., Tse, John W., and Hooper, Gerald H., 3,550,141.
Houlne, Robert C., 3,549,908.
Hubich, Henry O., 3,548,708.
Lanphier, Edward H., and Morin, Richard A., 3,548,516.
Naubereit, Henry, and Picard, Salvatore R., 3,550,015.
Shaffer, Allen A., 3,549,244.
Shostak, Arnold A., and Troutman, Ronald R., 3,550,002.
Ward, John R., 3,549,155.

Unitrode Corporation: *See—*
Margolien, David H., 3,549,958.
Reifel, Harry C., 3,549,782.

Universal Date Acquistion Co., Inc.: *See—*
Fuller, Francis A., Jr., 3,550,151.

Universal, Inc.: *See—*
Jacobson, Bernhard E., 3,549,003.

Universal Oil Products Company: *See—*
Habdas, Edward P., 3,548,488.
Munro, William H., and Hamblin, Robert J. J., 3,549,519.
Sampson, Robert W., 3,548,851.
Tabak, Fernando, 3,549,333.

University of Kentucky Research Foundation, The: *See—*
Hutchinson, John W., Kao, Teh-Yu, and Pendley, Laurence C., 3,548,635.

University of Toronto, The Governors of the: *See—*
Truant, Aldo P., and Nordstrom, Fritz G., 3,549,748.

Upatnieks, Juris: *See—*
Leith, Emmett N., and Upatnieks, Juris,3,548,643.

Upjohn Company, The: *See—*
Birkenmeyer, Robert D., 3,549,615.
Yoon, Chong Y., 3,549,332.

Urushiwara, Hishashi, Morino, Hiroshi, and Suzuki, Misao, to Hitachi, Ltd. Ignition plug and method for manufacturing a center electrode for the same. 3,548,472, Cl. 29-25.12

U.S. Industries, Inc.: *See—*
Comber, William R., and Hoekje, Harverd J., 3,548,435.

U.S. Philips Corporation: *See—*
Croymans, Jacques Johannes Hendrik, and Van Hout, Henricus Marinus, 3,549,918.
Hoefgeest, Engelmundus Johannes, 3,549,796.
Katerberg, Gerrit Jantinus, and Van Vliet, Gerrit, 3,549,704.
Nijholt, Meinardus Antonius Gerardus, 3,549,942.
Pillsbury, Donald M., Jr., and Hadley, Russell E., 3,548,607.
Schuil, Roelof Egbert, 3,549,551.
Westerveld, Willem, and Harmsen, Jan Willem, 3,549,561.

U.S. Phillips Corporation: *See—*
Postma, Willem Johannes, 3,549,355.

USAP Utensileria Speciale Alta Presisione S.p.A.: *See—*
Fiori, Giorgio, 3,548,475.

USM Corporation: *See—*
Henshaw, James N., 3,548,627.

Usuda, Hirotaka: *See—*
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa,3,549,812.

Utsumi, Hiroki: *See—*
Ohnishi, Toshikazu, Utsumi, Hiroki, Tazawa, Toru, and Matsuura, Katsumasa,3,548,615.

Utsunomiya, Kunihiko: *See—*
Nakano, Kazuhiro, Yamaguchi, Kouichiro, Utsunomiya, Kunihiko, and Tanimoto, Shigeru,3,548,923.

Utton, Norman, to Automotive Products Company Limited. Fluid pressure operated motors. 3,548,718, Cl. 91-369.

Vachitis, Alvin, to Dranetz Engineering Laboratories, Incorporated. Computer for simultaneous computation of a reference signal and an information signal until reference signal reaches a predetermined value. 3,549,874, Cl. 235-193.

Valdespino, Joe M., to Tekmar Corporation. Incinerator toilet. 3,548,421, Cl. 4-131.

Valdespino, Joe M. Fluid motor power plant. 3,548,593, Cl. 60-54.5

Valen, Maurice. Artificial tooth. 3,548,499, Cl. 32-6.

Vallor, Ben J.: *See—*
Kerr, Robert R., and Vallor, Ben J.,3,549,294.

Valmet Oy: *See—*
Helkala, Viki, and Koskela, Sauli, 3,549,098.

Van Benthuysen, John D.: *See—*
Barden, Wayne A., Van Benthuysen, John D., and Zdanys, John, Jr.,3,550,059.

Van Broekhoven, Jacob, to Westinghouse Electric Corporation. Calcium halophosphate 'daylight' phosphor. 3,549,552, Cl. 252-301.4

Vandersall, Howard L.: *See—*
Lyons, John W., and Vandersall, Howard L.,3,549,347.

Van Doorn, Donald W., Pease, William C., III, Colquett, Jack L., and Lange, Robert E., to Lummus Cotton Gin Company. Press box with improved door arrangement. 3,548,744, Cl. 100-255.

Van Dorn, Warren G., Greeno, Thomas M., and Mihajlov, Vsevolod S., to Xerox Corporation. Duplicating method employing simultaneous application of electric field and exposure to radiation. 3,548,748, Cl. 101-471.

Van Ham, Ernest E.: *See—*
Farmer, Everett W., and Van Ham, Ernest E.,3,548,631.

van Hijfte, Herman Michel, and Gellekink, Bernard, to N.V. Hollandse Signaalapparaten. Monopulse radar apparatus. 3,550,126, Cl. 343-16.

Van Hook, Robert W., to Clauss Cutlery Company, The. Filament clip scissors. 3,548,496, Cl. 30-253.

Van Hout, Henricus Marinus: *See—*
Croymans, Jacques Johannes Hendrik, and Van Hout, Henricus Marinus,3,549,918.

Van Patten, John R., and Spangler, Charles W., to General Electric Company. Reversing controller. 3,549,971, Cl. 318-293.

Vant, Isadore, to Vant Manufacturing Co. Pressure relief valve. 3,548,856, Cl. 137-210.

Vant Manufacturing Co.: *See—*
Vant, Isadore, 3,548,856.

Van Thyne, Ray J.: *See—*
Rausch, John J., and Van Thyne, Ray J.,3,549,427.
Rausch, John J., and Van Thyne, Ray J.,3,549,429.

Van Vleet, Frank Roy, and Way, David Gilbert, to Chesterton, A. W., Company. Composite O-ring. 3,549,156, Cl. 277-228.

Van Vliet, Gerrit: *See—*
Katerberg, Gerrit Jantinus, and Van Vliet, Gerrit,3,549,704.

Vargo, Donald P.: *See—*
James, Robert L., and Vargo, Donald P.,3,550,018.

Varian Associates: *See—*
Brodie, Ivor, 3,549,253.
McDowell, Hunter L., 3,549,938.
Williams, Norman H., 3,549,848.

Varian Mat GmbH: *See—*
Kronenberger, Kurt G. E., 3,549,881.

Vasas, Martin M., to Bridgeport Metal Goods Manufacturing Company, The. Cosmetic applicator. 3,549,266, Cl. 401-122.

Vasile, John J. Excrement collecting appliance. 3,548,828, Cl. 128-283.

Vaughan, Carroll Byrd, to Bendix Corporation, The. Universal tester for dynamic and static tests on the operating efficiency of electrical apparatus. 3,549,996, Cl. 324-73.

VEB Tabak-und Industriemaschinen Dresden: *See—*
Wilde, Friedrich, and Herrmann, Johannes, 3,549,293.

Vellins, Cyril Eric, to Imperial Chemical Industries Limited. Half sulfuric esters of 1-amino-4-(hydroxylower- alkoxy)anilinoanthraquinones. 3,549,666, Cl. 260-378.

Veneraki, Boris Sokratovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.

Venue, Ben, Laboratories, Inc.: *See—*
Starkey, Roland J., Jr., 3,549,297.

Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft: *See—*
Sedlacek, Franz, and Weinzinger, Hans, 3,549,102.

Verge, Jean Charles, to Etablissement Public: Institut National de la Recherche Agronomique. Reflex camera with binocular focusing and microphotometric control. 3,548,730, Cl. 95-42.
Verheij, Adriaan, to N.V.H. Verheij's. Roller for bread making machines. 3,548,757, Cl. 107-12.
Vermeulen, Gerardus Cornelis, to Hunter Douglas International Ltd. Ceiling lining, in particular for a suspended ceiling. 3,548,556, Cl. 52-492.
Vernaleken, Hugo: *See—*
Bockmann, August, Vernaleken, Hugo, Bottenbruch, Ludwig, Rudolph, Hans, and Schnell, Hermann,3,549,692.
Vernaleken, Hugo, Wulff, Claus, Bottenbruch, Ludwig, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of mixed carbonic acid esters. 3,549,682, Cl. 260-463.
Verni, Ralph M.: *See—*
Bindman, Stanley, and Verni, Ralph M.,3,549,224.
Vertegaal, Jacobus Gerardus, to Stork Amsterdam N.V. Device for cutting through the ankle joint of a leg of a bird hanging by this leg. 3,548,448, Cl. 17-11.
Vesuvius Crucible Company: *See—*
Kilgore, Ronald V., 3,549,124.
Vezina, Claude: *See—*
Kluepfel, Dieter, and Vezina, Claude,3,549,497.
Viersma, Taco Jan, and Blok, Petrus. Control arrangement. 3,548,876, Cl. 137-625.62
Vigren, Sten Daniel, Zander, Rolf Albin, and Claesson, Per Harry Elias. Contact spring assembly for selectors of the coordinate selector type. 3,549,845, Cl. 200-166.
Vincent, Peter Incledon: *See—*
Rose, John Brewster, Mathews, Carl Fraser, Nield, Eric, and Vincent, Peter Incledon,3,549,725.
Viout, Andre: *See—*
Kalopissis, Gregoire, and Viout, Andre,3,549,602.
Virginia Chemicals Inc.: *See—*
Krause, Walter O., 3,548,639.
Vishnikin, Alexandr Ivanovich: *See—*
Izhelya, Georgy Ignatievich, Bykov, Konstantin Alexeevich, Veneraki, Boris Sokratovich, Vishnikin, Alexandr Ivanovich, Mishakin, Vladimir Andreevich, Rebrov, Sergei Alexeevich, Spektor, Itskhok Avrumovich, and Shapovalenko, Alexandr Grigorievich,3,548,751.
Vivian, Howard C.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,550,023.
Voegtlen, Dieter: *See—*
Tanke, Ullrich, Voegtlen, Dieter, Brandt, Fritz, and Bruninghaus, Karl,3,549,813.
Vogel, James L. Frame member for an outdoor fireplace. 3,548,803, Cl. 126-25.
Vogelsang, Paul G., Jr.: *See—*
Stanford, James R., and Vogelsang, Paul G., Jr.,3,549,532.
Von Bennigsen, Gerd, to Reinz Dichtungs-Gesellschaft mbH. Jacketed gasket. 3,549,157, Cl. 277-231.
Von Bohr, Olaf. Shelving comprising composable modular elements. 3,549,020, Cl. 211-148.
Von Hornstein, Wolf Freiherr, and Liebl, Albert. Tape tension control system with sensing levers, particularly for magnetic sound recorders. 3,549,105, Cl. 242-210.
Von Roll AG: *See—*
Bobst, Gerhard, 3,548,715.
Von Smagala-Romanoff, Edward A., to Surf Jet Manufacturing, Inc. Self-propelled surfboard. 3,548,778, Cl. 115-70.
von Strandtmann, Maximilian, Cohen, Marvin P., and Shavel, John, Jr., to Warner-Lambert Pharmaceutical Company. Pyrano pyridines and process for their production. 3,549,641, Cl. 260-287.
Voos, Frank J.: *See—*
Morton, Lester C., and Voos, Frank J.,3,548,870.
Waaben, Sigurd G.: *See—*
Heightley, John D., Roundy, Carlos B., and Waaben, Sigurd G.,3,550,098.
Wachtel, Anselm, to Westinghouse Electric Corporation. Method for producing halophosphate phosphor of plate-like particle shape. 3,549,553, Cl. 252-301.6
Wacker-Chemie G.m.b.H.: *See—*
Eck, Herbert, and Spes, Hellmuth, 3,549,693.
Kunstle, Gerhard, and Siegl, Herbert, 3,549,660.
Wegehaupt, Karl-Heinrich, Nitzsche, Siegfried, Wick, Manfred, and Triem, Hermann, 3,549,680.
Wada, Tsuneo: *See—*
Koda, Kenichi, Kikuchi, Shoji, Wada, Tsuneo, Kuwabara, Yoshimi, Sugita, Sadao, Horikoshi, Akira, Nishina, Yoshio, and Tanimura, Kensaku,3,549,369.
Waddell, Richard E.: *See—*
Driscoll, John J., Hill, Donald G., and Waddell, Richard E.,3,549,810.
Wagner, Curt. Heddles for loom harness. 3,548,885, Cl. 139-96.
Wagner Electric Corporation: *See—*
Cruse, Oliver B., 3,549,208.
Wagner, Otto C., to United States of America, Army. Rechargeable metal-air battery. 3,549,422, Cl. 136-86.
Wahl, George E., Jr. Package for buns to be used in heating and freshening the same. 3,548,736, Cl. 99-234.
Wainwright, Vernon L., to Corning Glass Works. Method of pressing glass articles. 3,549,345, Cl. 65-66.
Waite, Ralph D., to Ametek, Inc. Glass lens seal ring. 3,549,043, Cl. 220-82.
Walding, James R., Jr. Mechanism for controlling the operation of pumps. 3,549,276, Cl. 417-12.
Walesa, Anthony C.: *See—*
Strauss, Eugene O., Walesa, Anthony C., and Johnson, Carl E.,3,549,392.
Walker, Robert G., and Bosy, George. Tomato product and method of making same. 3,549,384, Cl. 99-100.
Walsh, Jerome J. Method of making a laminate having a barrier layer therein. 3,549,452, Cl. 156-315.
Walter, Carlton H., and Jennetti, Anthony G., to Ohio State University Research Foundation, The. Semi-helical antenna. 3,550,136, Cl. 343-742.
Walters, Cecil Kent, to Motorola, Inc. Temperature compensated reference voltage circuitry employing current limiters and reference voltage diodes. 3,549,988, Cl. 323-9.
Walters, Harold A.: *See—*
Schrenk, Walter J., and Walters, Harold A.,3,549,405.
Wang, Hastings: *See—*
Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings,3,549,745.
Wankow, Joseph E., to Union Carbide Corporation. Dispensing carton. 3,549,066, Cl. 225-25.
Ward Blenkinsop & Company Limited: *See—*
Dickenson, Haydn Geoffrey, Granger, Colin David, Green, Peter Nicholl, Kelly, William, and Wang, Hastings, 3,549,745.
Ward, John R., to United States of America, Navy. Helically cut sleeve seal. 3,549,155, Cl. 277-116.
Waring, Juliet Mary: *See—*
Ritchie, Alexander Crawford, Cheesman, Dennis George, Garside, Peter, and Waring, Juliet Mary,3,549,649.
Warkoczewski, Joseph T.: *See—*
Stephens, Frederick N., Burhans, Stuart J., Warkoczewski, Joseph T., and Taylor, Jack M.,3,549,456.
Warner & Swasey Company, The: *See—*
Stein, William B., 3,548,473.
Warner-Lambert Pharmaceutical Company: *See—*
Ercoli, Alberto, and Gardi, Rinaldo, 3,549,752.
Novack, Robert M., 3,549,623.
Shavel, John, Jr., and Morrison, Glenn, 3,549,644.
von Strandtmann, Maximilian, Cohen, Marvin P., and Shavel, John, Jr., 3,549,641.
Warnery, Edmond P.: *See—*
Delarue, Christian G., Sokoloff, Boris, and Warnery, Edmond P.,3,550,102.
Warren, Raymond W., and Swartz, Elmer L. Fluidic angle of attack sensor for supersonic aircraft. 3,548,854, Cl. 137-81.5
Warren, Steven A. Flash recognition training device with indexing means. 3,548,520, Cl. 35-35.
Warwick Electronics Inc.: *See—*
De Cola, Rinaldo E., and Zook, Irving I., 3,550,105.
Wasemann, William A., to Westinghouse Electric Corporation. Drive hub structure for washing machine agitator. 3,548,617, Cl. 68-133.
Waskowsky, Carl A. H. M., to Patinvest, Patent und Investment A.G. Snap switch. 3,549,838, Cl. 200-83.
Watanabe, Sandanobu, to Kabushikikaisha Taiko Denki Seisakusho. Magnetic tape cartridge player. 3,549,069, Cl. 226-90.
Watanabe, Tadaaki: *See—*
Hama, Akira, Watanabe, Tadaaki, Kikuchi, Shunji, and Kumagai, Norio,3,549,936.
Hanada, Teizo, Watanabe, Tadaaki, Enokida, Kenji, Kikuchi, Shunji, and Someya, Akira,3,549,937.
Waters, William A. Air conditioned helmet. 3,548,415, Cl. 2-171.3
Watkin, Theodore, to Ivanhoe Research Corporation, mesne. Intermittent drive. 3,548,669, Cl. 74-84.
Watkins, Kenneth M., to Westinghouse Electric Corporation. Power processing system employing a plurality of processing units having parallel connected outputs. 3,549,977, Cl. 321-18.
Watling, Gertrude C., and Weber, Joseph H., to Bell Telephone Laboratories, Incorporated. Method for generating electrical signals representative of economical network configurations. 3,550,093, Cl. 340-172.5
Watson, Frederic R., and Holmes, Robert T., to Shell Oil Company. Fuel-mileage computer. 3,549,868, Cl. 235-92.
Watson, George A., to Fiber Industries, Inc. Method for manufacturing water-vapor permeable, synthetic, suede-like, material. 3,549,398, Cl. 117-8.
Watson, Robert J.: *See—*
Foster, Manus R., Sengbush, Raymond L., and Watson, Robert J.,3,550,073.
Watson, Wayne W. Lamb rest. 3,548,787, Cl. 119-103.
Watson, William R., to Nalco Chemical Company. Center plate lubricating device. 3,549,217, Cl. 308-137.
Waugh, Arthur, to Lexington Laboratories, Inc. Process for forming sintered leachable objects of various shapes. 3,549,736, Cl. 264-44.
Waukesha Bearings Corporation: *See—*
Laskey, Norman V., 3,549,275.
Way, David Gilbert: *See—*
Van Vleet, Frank Roy, and Way, David Gilbert,3,549,156.
Wearden, Charles G.: *See—*
Swander, Kenneth D., Jr., and Wearden, Charles G.,3,548,720.

Weasel, George E., Jr., and Weimer, Harold W., to Tem-Cole, Inc. Multiple row crop harvesting machine. 3,548,951, Cl. 171-61.
Weber, Alwin. Pouring spout for pierceable containers. 3,549,049, Cl. 222-91.
Weber, Helmut: *See—*
Heerdt, Ruth, Schmidt, Felix Helmut, Stach, Kurt, and Weber, Helmut,3,549,645.
Weber, Joseph H.: *See—*
Watling, Gertrude C., and Weber, Joseph H.,3,550,093.
Weber, Roger L., to Texas Instruments, Incorporated. Method of adjusting inductive devices. 3,548,492, Cl. 29-602.
Weber, Wilhelm: *See—*
Theidel, Klaus, and Weber, Wilhelm,3,549,017.
Weber, Willi: *See—*
Gaisser, August, Schaumann, Anton, and Weber, Willi,3,549,819.
Weber, Wilson J., Jr., and Terry, James L., deceased (by Terry, Lola Irene, executrix), to Jefferson Chemical Company, Inc. Thermal cracking heater. 3,548,925, Cl. 165-74.
Webster, Brian, to Lever Brothers Company. N-Aryl-4,6-dibromo-3-hydroxyphthalimide derivatives. 3,549,657, Cl. 260-326.
Webster Electric Company, Inc.: *See—*
Sellers, Roger W., 3,549,119.
Webster, Ronald Bruce, to Gerber Scientific Instrument Company, The. Photo-exposure device using annular light beam. 3,548,713, Cl. 95-1.
Wedlock, Bruce D., to Massachusetts Institute of Technology. Thermo-photovoltaic converter having back-surface junctions. 3,549,960, Cl. 317-235.
Weeks, James F. Color-number association game apparatus. 3,549,150, Cl. 273-135.
Wegehaupt, Karl-Heinrich, Nitzsche, Siegfried, Wick, Manfred, and Triem, Hermann, to Wacker-Chemie G.m.b.H. Method of preparing organohalogenosilicon compounds. 3,549,680, Cl. 260-448.2
Weichbordt, Bjorn, and Grabkowski, Stephen E., to General Electric Company. Sonic worn cutting tool detector. 3,548,648, Cl. 73-104.
Weichbrodt, Bjorn: *See—*
Thompson, Robert A., Grabkowski, Stephen E., and Weichbrodt, Bjorn,3,550,107.
Weimer, Harold W.: *See—*
Weasel, George E., Jr., and Weimer, Harold W.,3,548,951.
Weininger, Joseph L., and Carson, William N., Jr., to General Electric Company. Electrochemical cell with electron exchange membrane between solutions in compartments. 3,549,957, Cl. 317-231.
Weinschel Engineering Co.: *See—*
Bacher, Helmut, 3,550,046.
Weinzinger, Hans: *See—*
Sedlacek, Franz, and Weinzinger, Hans,3,549,102.
Weirich, Walter: *See—*
Grisebach, Hans Theodor, and Weirich, Walter,3,548,867.
Weise, Irvin B., and Anderson, William L., Jr., to Anderson, Greenwood & Co. Soft seated valve. 3,548,869, Cl. 137-516.29
Weiss, Paul C., to AMBAC Industries, Incorporated. Remote control electric actuating device. 3,549,120, Cl. 251-131.
Weitzman, Jacob: *See—*
Kohn, David Harry, Narkis, Moshe, Weitzman, Jacob, and Neumann, Walter,3,549,731.
Wells, Sydney Tom: *See—*
Jordan, Frederick James, and Wells, Sydney Tom,3,548,490.
Wells-Gardner Electronics Corporation: *See—*
Hubbard, Linus O., 3,548,493.
Wellworthy Limited: *See—*
Hill, Harold T., Parker, Henry G., and Mitchelmore, Anthony C., 3,548,914.
Wendelburg, Robert W.: *See—*
Stearns, James B., and Wendelburg, Robert W.,3,549,978.
Stearns, James B., and Wendelburg, Robert W.,3,549,979.
Wenger, Max, to Maschinenfabrik Benninger A.G. Sizing box arrangement. 3,548,784, Cl. 118-419.
Wenzel, John L., to Ford Motor Company. Low level liquid indicator. 3,550,080, Cl. 340-59.
Werlau, Glenn C. Wide band directional coupler. 3,550,042, Cl. 333-10.
Werner & Pfleiderer: *See—*
Seufert, Wilhelm Johannes, and Woitzel, Heinz Otto Wilhelm, 3,548,742.
Werner, William L., to Granger Associates. Log periodic rotating antenna. 3,550,140, Cl. 343-766.
Werts, Everett W., to General Electric Company. Vane operated solid state limit switch. 3,549,907, Cl. 307-252.
West, William Hugo: *See—*
Hefley, Jack Darrell, and West, William Hugo,3,549,475.
Western Electric Company, Incorporated: *See—*
Fuchs, Francis Joseph, Jr., 3,548,625.
Haring, Allen R., 3,548,494.
McElveen, Loyd R., 3,549,872.
Westerveld, Willem, and Harmsen, Jan Willem, to U.S. Philips Corporation. Method of producing electrically semiconductive material. 3,549,561, Cl. 252-520.
Westinghouse Air Brake Company: *See—*
Berk, Edward J., 3,549,137.
Westinghouse Electric Corporation: *See—*
Bell, Clifford J., and Andersen, Harry C., 3,549,123.
Burgman, Herbert A., 3,549,477.
Church, Charles H., and Frost, Leslie S., 3,549,943.
Fischer, William H., and Frink, Russell E., 3,549,842.
Gelzheiser, Francis L., 3,550,047.
Gill, Joseph, and Rouvalis, George, 3,550,020.
Hellstrom, Melbourne J., and Oppenheimer, Michael H., 3,549,906.
Hirayama, Chikara, and Melamed, Nathan T., 3,549,554.
Holtkamp, Calvin J., 3,549,039.
Holtkamp, Calvin J., and Nagel, George W., 3,549,862.
Ippisch, Ernest, and Kleinbauer, Russell T., 3,548,887.
Mann, August C., 3,549,927.
Ohlmann, Robert C., and Mazelsky, Robert, 3,550,033.
Sherwood, Donald G., 3,549,916.
Spisak, Andrew J., and Petersen, Sigrud R., 3,549,919.
Ulich, Michael D., 3,548,611.
Van Broekhoven, Jacob, 3,549,552.
Wachtel, Anselm, 3,549,553.
Wasemann, William A., 3,548,617.
Watkins, Kenneth M., 3,549,977.
Weyer, Herbert: *See—*
Espenschied, Helmut, Rothfuss, Georg, and Weyer, Herbert,3,549,917.
Whalen, James T., to Sylvania Electric Products, Inc. Phase locked pulse train extractor system. 3,550,017, Cl. 328-110.
Whang, Sang Y., to Milgo Electronic Corporation. Equalization circuit. 3,550,005, Cl. 325-65.
Whang, Tack J., to Ferro Corporation. Non-aging epoxy compatible sizing composition. 3,549,581, Cl. 260-31.4
Wheeler, Claude R., to Garrett Corporation, The. Sulfidation resistant cobalt-base alloys. 3,549,354, Cl. 75-122.5
Whelan, Edward J.: *See—*
Sirvet, Enn, Whelan, Edward J., and Skrypek, John P.,3,548,745.
Whirlpool Corporation: *See—*
O'Grady, James P., 3,548,871.
Whitaker, Earl J.: *See—*
Greenspan, Lawrence E., and Whitaker, Earl J.,3,549,804.
Whitecar, Alten E., to Smith Kline & French Laboratories. Device for securing an article to a container. 3,549,459, Cl. 156-568.
Whiteley, Thomas E.: *See—*
Dykstra, Thomas K., and Whiteley, Thomas E.,3,549,605.
Whitmeyer, Herbert W., to Du Pont de Nemours, E. I.,and Company. Brightening water-soluble celluose derivatives. 3,549,617, Cl. 260-232.
Whitney, Ellsworth D., and Crayton, Philip H. Silicon nitride composition and articles thereof. 3,549,402, Cl. 106-55.
Wick, Manfred: *See—*
Wegehaupt, Karl-Heinrich, Nitzsche, Siegfried, Wick, Manfred, and Triem, Hermann,3,549,680.
Wicks, Moye, III, to Shell Oil Company. Velocity profile sensor system for control of a slurry pipeline. 3,548,637, Cl. 73-53.
Widder, James S.: *See—*
Griebstein, William J., Grabenstetter, Robert J., and Widder, James S.,3,549,677.
Wiechert, Rudolf: *See—*
Laurent Henry, Hofmeister, Helmut, Neumann, Friedmund, and Wiechert, Rudolf,3,549,671.
Wieck, Karl: *See—*
Runge, Heinert, and Wieck, Karl,3,548,547.
Wiedermann, Anton, to Wiener Metallwarenfabrik Smolka & Co. Auxiliary ski binding. 3,549,163, Cl. 280-11.35
Wiegand, Gretchen Ellen: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert,3,549,763.
Wiencek, Zbigniew, to Hazeltine Research, Inc. Oscillator frequency control using current controlled internal transistor capacitance. 3,550,037, Cl. 331-116.
Wiener Metallwarenfabrik Smolka & Co.: *See—*
Wiedermann, Anton, 3,549,163.
Wild, Jost: *See—*
Kappeller, Heinrich, and Wild, Jost,3,549,679.
Wilde, Friedrich, and Herrmann, Johannes, to VEB Tabak-und Industriemaschinen Dresden. Method and device for forming a tobacco strand. 3,549,293, Cl. 131-21.
Wilde, Werner, to Teldix GmbH. Three-way valve. 3,548,879, Cl. 137-637.1
Wiley, Franklyn L.: *See—*
Trousdale, Robert B., Wiley, Franklyn L., and Teska, John T.,3,549,995.
Wiley, Ronald O. Mold press spreading apparatus and method therefor. 3,548,741, Cl. 100-35.
Wilfert, Karl, to Daimler-Benz Aktiengesellschaft. Interior padding for vehicles. 3,549,469, Cl. 161-69.
Wilhelm, Fred R.: *See—*
Kaatz, Herbert W., and Wilhelm, Fred R.,3,548,873.
Wilhelm, Hans: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar,3,549,304.
Wilkinson, Raymond George: *See—*
Tobkes, Martin, and Wilkinson, Raymond George,3,549,681.
Willard, Wayne E., to Blue Valley Machine and Manufacturing Company. Metal plate flanging apparatus. 3,548,622, Cl. 72-81.
Willcox, Frederick P., and Smith, Newland F. Data controlled voice unit. 3,549,827, Cl. 179-100.3
Willey, Melvin G.: *See—*
Ricci, Enzo, Handley, Thomas H., and Willey, Melvin G.,3,549,492.

William, Robert F., Jr., and Barbehenn, Herbert S., to Eastman Kodak Company. Method of coating paper with thermoplastic resins. 3,549,403, Cl. 117-17.
Williams, Billy G. F., to Springs Mills, Inc. Combination sewing apparatus and improved cutting means therein. 3,548,767, Cl. 112-130.
Williams, Everard M.: *See—*
Hockenberry, Terry O., and Williams, Everard M.,3,549,850.
Hockenberry, Terry O., and Williams, Everard M.,3,549,851.
Williams, Frank L., to American Cement Corporation. Form for monolithic concrete wall construction. 3,549,115, Cl. 249-33.
Williams, Larry L., to International Business Machines Corporation. Current-mode analog-to-digital converter. 3,550,113, Cl. 340-347.
Williams, Leslie Preston, and Barrow, Wendell Dale, to Jefferson Chemical Company, Inc. Method for extinguishing fire. 3,548,949, Cl. 169-1.
Williams, Norman H., to Varian Associates. Composite microwave applicator and product conveyor. 3,549,848, Cl. 219-10.55
Williams, Ray C., to Standard Car Truck Company. Bolster dampening side frame wear plate. 3,548,754, Cl. 105-197.
Williamson, James Howard. Process for applying a textured decorative coating to a metal substrate and article thereof. 3,549,407, Cl. 117-45.
Williamson, Paul M.: *See—*
Tabor, Wallace F., and Williamson, Paul M.,3,549,533.
Willinger, Allan H., to Metaframe Corporation. Aquarium water wheel. 3,548,786, Cl. 119-5.
Willinger, Allan H., to Metaframe Corporation, mesne. Adjustable hand operated aquarium cleaning pump. 3,549,015, Cl. 210-416.
Willingham, Harold E. Method of making an electroconductive roller. 3,549,506, Cl. 204-25.
Wilson, Charles J. Apparatus for administering injectable liquids. 3,548,826, Cl. 128-218.
Wilson, David H., to Tracked Hovercraft Limited. Linear motor speed control system. 3,549,966, Cl. 318-135.
Wilson, Donald R. Leg stimulator and exerciser. 3,548,811, Cl. 128-55.
Wilson, George A., to I-T-E Imperial Corporation. Circuit breaker operating mechanism. 3,549,843, Cl. 200-153.
Wilson, James D., to Banner Metals, Inc. Plastic tray. 3,549,018, Cl. 211-126.
Wilson, Ray H., to Aluminum Box Company, mesne. Back pack tool box. 3,549,064, Cl. 224-8.
Wilson, Robert A.: *See—*
Ford, Allen G., and Wilson, Robert A.,3,548,776.
Wilson, William J., and Das, Bejoy S., to Fraser Companies Limited. Production of alkali metal sulfites or bisulfites. 3,549,319, Cl. 23-129.
Winand, Leon: *See—*
Guillaume, Marcel, Peters, Jean-Marie, Winand, Leon, Govaerts, Jean, Gueben, Georges, Delfiore, Guy, and Godar, Serge,3,549,399.
Windecker, Leo J. Method for the preparation of a composite plastic-containing product and article produced thereby. 3,549,449, Cl. 156-254.
Windholz, Thomas B., Patchett, Arthur A., and Fried, John, to Merck & Co., Inc. 3-Alkoxy-17-hydroxygona-2,5(10)-dienes. 3,549,672, Cl. 260-397.5
Windmoller & Holscher: *See—*
Brockmuller, Friedrich Franz, 3,549,298.
Trautmann, Karl-Heinz, 3,549,145.
Windstrup, Robert F., Hale, Charles W., and Galitz, Raymond F., to Continental Can Company, Inc. Machine for forming cans from closed end tubular members. 3,548,769, Cl. 113-7.
Wintermantel, Jorg: *See—*
Gardner, Gerald Marvin, and Wintermantel, Jorg,3,550,150.
Wiseman, John W., to Black Clawson Company, The. Methods and apparatus for disposing of waste material. 3,549,529, Cl. 210-63.
Wiseman, Raymond L.: *See—*
Oderman, Samuel, Wiseman, Raymond L., and Rushforth, George T.,3,548,995.
Withers, James C.: *See—*
McCandless, Lee C., Withers, James C., and Brummett, Charles R.,3,549,413.
Witt, Francis J.: *See—*
Kurth, Carl F., and Witt, Francis J.,3,550,134.
Woitzel, Heinz Otto Wilhelm: *See—*
Seufert, Wilhelm Johannes, and Woitzel, Heinz Otto Wilhelm,3,548,742.
Wolf, Hans: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar,3,549,304.
Wolfe, Earl W., to Ford Motor Company. Multiple contour upholstery panel. 3,549,201, Cl. 297-284.
Wolfe, Robert J.: *See—*
Scidmore, Wright H., and Wolfe, Robert J.,3,549,231.
Wolfensperger, Adolf, to Rockwell Manufacturing Company. Seat ring for plug valve. 3,548,858, Cl. 137-246.22
Wood, Chester W.: *See—*
Moore, Glenn E., and Wood, Chester W.,3,548,893.
Wood, David E., to General Electric Company. Fundamental pitch frequency signal extraction system for complex signals. 3,549,806, Cl. 179-1.
Wood, Gerald, Orwig, Nelson E., Kolster, Harvey L., and Kahler, Jack E., to Hallmark Cards, Incorporated, mesne. Disposable display rack. 3,549,019, Cl. 211-135.
Wood, John E.: *See—*
Nichols, Denver E., and Wood, John E.,3,549,288.
Wood, Robert D., to General Time Corporation. Friction construction for plastic clock movement. 3,548,587, Cl. 58-46.
Woodford, Ernest M., to Litton Industries, Inc. Output torque divider. 3,548,679, Cl. 74-674.
Woodle, Robert A., to Texaco Inc. Solvent dewaxing process with cooling by direct contact with evaporating refrigerant. 3,549,513, Cl. 208-33.
Woodling, George V. Fluid pressure device having plurality of sets of stator-rotor mechanisms. 3,549,282, Cl. 418-60.
Woodling, George V. Axial limit means for male and female spline teeth in a fluid pressure device. 3,549,283, Cl. 418-61.
Woodling, George V. Self-timing means for rotary valve in fluid pressure device. 3,549,284, Cl. 418-61.
Woodling, George V. Stator-rotor mechanism having a polygon shaft and polygon shaft opening. 3,549,285, Cl. 418-61.
Workman, Lawrence H., to Gardner-Denver Company. Safety hook. 3,548,465, Cl. 24-241.
Worthington Corporation: *See—*
Schaller, George E., 3,549,835.
Wortman, Jimmie J.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,549,435.
Woschetzky, Werner, to Perkin-Elmer Corporation, The. Precision transducer with adjustable tap contacts transversing a rectilinear path. 3,549,984, Cl. 323-43.5
Wrench, Robert F.: *See—*
Bennett, Robert W., and Wrench, Robert F.,3,549,446.
Wright, James H., and Hogg, Cecil B., to Catalysts and Chemicals Inc. Selective hydrogenation of acetylenes and catalyst therefor. 3,549,720, Cl. 260-677.
Wu, Mu Tsu: *See—*
Clark, Robert L., and Wu, Mu Tsu,3,549,642.
Wuertele, Lothar: *See—*
Ebel, Friedrich, Gulbins, Klaus, Hahn, Erwin, Wilhelm, Hans, Wolf, Hans, and Wuertele, Lothar,3,549,304.
Wulff, Claus: *See—*
Schneider, Rudolf, Court, Otto, Damsky, Walter, Spott, Georg, Schnell, Hermann, Bottenbruch, Ludwig, Curtius, Ulrich, and Wulff, Claus,3,549,334.
Vernaleken, Hugo, Wulff, Claus, Bottenbruch, Ludwig, and Schnell, Hermann,3,549,682.
Wunderlich, Klaus: *See—*
Groll, Manfred, Wunderlich, Klaus, and Bien, Hans-Samuel,3,549,664.
Wunderlich, Klaus, Bien, Hans-Samuel, and Baumann, Fritz, to Farbenfabriken Bayer Aktiengesellschaft. Preparation of aryl substituted hydroxy anthraquinones. 3,549,667, Cl. 260-380.
Wurzer, Joachim Franz, Dohle, Rolf Werner, and Zaja, Wolfgang Werner. Automatically controlled coating device. 3,549,267, Cl. 401-147.
Wynne, Hubert Cecil, Hall, James Edward, and Charlton, William, to Pilkington Brothers Limited. Regenerative furnaces. 3,549,135, Cl. 263-15.
Xerox Corporation: *See—*
Bresnick, Herbert Leo, 3,549,447.
Knapp, Lowell W., 3,548,783.
Roth, Walter, and Jvirblis, Alex E., 3,549,962.
Sloan, Leonard B., 3,549,059.
Van Dorn, Warren G., Greeno, Thomas M., and Mihajlov, Vsevolod S., 3,548,748.
Young, James E., 3,549,798.
Xoesca, Rene A. M., to Energy Transformation Corporation. Lubrication system for high temperature engine. 3,548,565, Cl. 60-39.02
Yako, Hiroshi: *See—*
Motoyama, Kakujiu, and Yako, Hiroshi,3,549,935.
Yale, Harry Louis, and Spitzmiller, Ervin Richard. 12-Substituted-6H-dibenz[b,f][1,4] oxazocin-11 (12H) ones. 3,549,621, Cl. 260-239.3
Yamada, Toshiyuki: *See—*
Uemura, Saburo, Yamada, Toshiyuki, Nishikawa, Toshiro, and Umezawa, Yasuo,3,549,967.
Yamaguchi, Kouichiro: *See—*
Nakano, Kazuhiro, Yamaguchi, Kouichiro, Utsunomiya, Kunihiko, and Tanimoto, Shigeru,3,548,923.
Yamamoto, Hiromichi: *See—*
Takemura, Hiroshi, Nomura, Fumio, Kondo, Norimasa, Yamamoto, Hiromichi, and Isawa, Akira,3,549,973.
Yamamoto, Masaaki, and Nakazawa, Tsuneyuki. Method of collecting protein substances having bio- logical activity with respect to the nervous system comprising extraction of protein from submaxillary glands with ammonium sulfate or sodium sulfate. 3,549,610, Cl. 260-112.
Yamashita, Sunao: *See—*
Osawa, Hideo, Imooka, Masanori, Taniguchi, Fukuo, and Yamashita, Sunao,3,549,263.
Yamazaki, Toru: *See—*
Uchida, Mitsuo, Nakamura, Yasumasa, Hamachi, Toshio, Ando, Akio, Yamazaki, Toru, Terao, Koichi, and Osumi, Shinzo,3,548,638.

Yareck, Michael J., to Bendix Corporation, The. Divider circuit. 3,550,022, Cl. 328-161.
Yarnell, William T., and Turpin, Alexander J., to Buell Engineering Company, Inc. Multi-purpose furnace with smoke afterburner. 3,548,760, Cl. 110-8.
Yasuda, Takeshi, and Fujiwara, Yasuharu. Method of forming microfibers. 3,549,734, Cl. 264-37.
Yokogawa, Tetsuya: *See—*
Nakai, Yoshiyuki, and Yokogawa, Tetsuya,3,548,510.
Yonkers, Edward H., to Joslyn Mfg. and Supply Co. Protected rod insulator with soft elastomer filler. 3,549,791, Cl. 174-179.
Yoon, Chong Y., to Upjohn Company, The. Countercurrent liquid-liquid extraction device. 3,549,332, Cl. 23-270.5
Yoshimaru, Tomohisa, and Komikawa, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Memory circuit. 3,550,092, Cl. 340-172.5
Yoshimura, Koichi, to Matsushita Electric Industrial Co., Ltd. Condenser split-phase type single-phase induction motor. 3,549,969, Cl. 318-207.
Yoshino, Stanley Y.: *See—*
Messineo, Salvatore V., and Yoshino, Stanley Y.,3,549,468.
Young, Cletus H., and Young, Jay E., to High Point Fabricators, Inc. Apparatus and method for cutting contours in cushions. 3,548,542, Cl. 51-5.
Young, David W., and Poss, Richard F., to Sinclair Research Inc. Mineral oils containing a graft polymer of natural rubber and polydiene. 3,549,535, Cl. 252-52.
Young, Irving G., to Honeywell Inc. Sensing element. 3,550,057, Cl. 338-34.
Young, James E., to Xerox Corporation. Continuous tone facsimile recorder. 3,549,798, Cl. 178-6.6
Young, James M. Method of making a prestressed, segmented concrete beam. 3,548,485, Cl. 29-452.
Young, Jay E.: *See—*
Young, Cletus H., and Young, Jay E.,3,548,542.
Young, Willard G.: *See—*
Ducey, James A., and Young, Willard G.,3,548,424.
Young, William E. Method for forming a sealed vacuum package. 3,548,561, Cl. 53-22.
Yu, Edwin K. C., to RCA Corporation. Current mode switching circuit. 3,549,900, Cl. 307-215.
Yui, Takahiro, Funakoshi, Masanori, Usuda, Hirotaka, Hisamura, Makoto, and Suzuki, Hidemasa, to Hitachi, Ltd., and Nippon Telegraph and Telephone Public Corporation. Common control switching system with register sender providing reduced blocking rate by two-stage scan of marker. 3,549,812, Cl. 179-18.
Yutaka Sangyo Kabushikikaisha: *See—*
Nakamura, Itsuro, Takeichi, Yasuo, and Saito, Teruo, 3,548,862.
Zacios, Boleslaw Zbigniew Robert, to Canadian International Paper Company. Apparatus for paper testing. 3,548,647, Cl. 73-102.
Zaja, Wolfgang Werner: *See—*
Wurzer, Joachim Franz, Dohle, Rolf Werner, and Zaja, Wolfgang Werner,3,549,267.
Zakharov, Evgeny Ivanovich, Karpacheva, Susanna Mikhailovna, Muratov, Valerian Matveevich, Raginsky, Leonid Solomonovich, and Koshkin, Vladimir Mikandrovich. Sorption tower having horizontal perforated plates. 3,549,013, Cl. 210-189.
Zalman, Solomon. Anti-pollution incinerator. 3,548,761, Cl. 110-8.
Zamotin, Sergei Nikolaevich: *See—*
Soloviev, Pavel Alexandrovich, Kalashnikov, Georgy Petrovich, Kantor, Lev Izrailevich, and Zamotin, Sergei Nikolaevich,3,548,982.
Zander, Rolf Albin: *See—*
Vigren, Sten Daniel, Zander, Rolf Albin, and Claesson, Per Harry Elias,3,549,845.
Zanella, Dominic A.: *See—*
Renfrew, Edgar E., and Zanella, Dominic A.,3,549,305.
Zdanys, John, Jr.: *See—*
Barden, Wayne A., Van Benthuysen, John D., and Zdanys, John, Jr.,3,550,059.
Zemanek, Joseph, Jr.: *See—*
Hilchie, Douglas W., and Zemanek, Joseph, Jr.,3,550,075.
Zenith Radio Corporation: *See—*
Adler, Robert, 3,550,045.
Moegenbier, Josef, 3,549,229.
Pappadis, Nicholas P., 3,549,929.
Zero Manufacturing Company: *See—*
Duncan, Lloyd P., 3,549,292.
Zhuravitsky, Jury Isaakovich: *See—*
Sterenbogen, Jury Alexandrovich, Khorunov, Viktor Fedorovich, Gretsky, Jury Yakovlevich, Bizik, Nikoli Konstantinovich, Ivanov, Boris Georgievich, Avchin, Lev Alexandrovich, Molchanov, Alexei Vasilievich, and Zhuravitsky, Jury Isaakovich,3,549,338.
Zimmer, Charles R., to Honeywell Inc. Control apparatus. 3,549,107, Cl. 244-77.
Zimmerman, James E.: *See—*
Silver, Arnold H., and Zimmerman, James E.,3,549,991.
Zimmermann, Theodor, and Ullrich, Alois, to Dango & Dienenthal Kommanditgesellschaft. Apparatus for opening and closing the tap holes of shaft furnaces. 3,549,141, Cl. 266-42.
Zitzow, Harold P.: *See—*
Fierston, Stanley A., and Zitzow, Harold P.,3,550,125.
Zook, Irving I.: *See—*
De Cola, Rinaldo E., and Zook, Irving I.,3,550,105.
Zuhlke, Daniel H., and Dotson, Charles J. Cart. 3,549,165, Cl. 280-76.
Zysman, Benjamin, to American Machine & Foundry Company. Belt flattening device. 3,549,004, Cl. 198-184.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 22ND DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Balzano, Alfiero F.: *See*—
Hedin, Robert A., and Balzano. Re. 27,013.

Batchelder, Charles F., and J. A. Rubico, to Batchelder-Rubico, Inc. Process for making shoe having cross-linked rand insole. Re. 27,009, 12–22–70, Cl. 12—142.

Batchelder-Rubico, Inc.: *See*—
Batchelder, Charles F., and Rubico. Re. 27,009.

Berman, Elliot, and C. F. W. Ekman, to Itek Corp. Method of imaging a data storage medium. Re. 27,012, 12–22–70, Cl. 96—27.

Digital Identification Systems, Inc.: *See*—
Hedin, Robert A., and Balzano. Re. 27,013.

E.M.P. Electric Ltd.: *See*—
Hicks, Bruce C. Re. 27,007.

Ekman, Carl F. W.: *See*—
Berman, Elliot, and Ekman. Re. 27,012.

Flynn, Edward D. Process for three color printing and resultant prints. Re. 27,010, 12–22–70, Cl. 96—30.

Foster Wheeler Corp.: *See*—
Jorgensen, Svend M. Re. 27,011.

Hedin, Robert A., and A. F. Balzano, to Digital Identification Systems, Inc. Key-actuated electronic security system. Re. 27,013, 12–22–70, Cl. 70—277.

Hicks, Bruce C., to E.M.P. Electric Ltd. Spark gap devices. Re. 27,007, 12–22–70, Cl. 313—161.

Itek Corp.: *See*—
Berman, Elliot, and Ekman. Re. 27,012.

Jorgensen, Svend M., to Foster Wheeler Corp. Shear stud vessel closures and shell joints. Re. 27,011, 12–22–70, Cl. 220—55.

Luckey, Manley J. Breath alcohol determination. Re. 27,008, 12–22–70, Cl. 23—254.

Rubico, Jerome A.: *See*—
Batchelder, Charles F., and Rubico. Re. 27,009.

LIST OF DESIGN PATENTEES

American Standard Inc.: *See*—
Van Skyhawk, Norman. 219,512.
Van Skyhawk, Norman. 219,513.
Van Skyhawk, Norman. 219,514.

Ascani, Donald O. and J. R. Cycle wheel ornament or the like. 219,567, 12–22–70, Cl. D90—1.

Ascani, Joseph R.: *See*—
Ascani, Donald O. and J. R. 219,567.

Bachman, Ralph W., and A. Miller. Refrigerated display case. 219,564, 12–22–70, Cl. D80—11.

Baker, James W., to Hunter Structures, Inc. Design for car wash structure. 219,508, 12–22–70, Cl. D13—1.

Billings, Le Roy E., Jr. Manual excavating filter. 219,530, 12–22–70, Cl. D32—1.

Braun Aktiengesellschaft: *See*—
Oberheim, Robert. 219,553.

Broadley, Eric H., to Lola Cars Ltd. Model racing car. 219,524, 12–22–70, Cl. D34—15.

Carter, Ronald D., to The Stanley Works. Window scraper holder. 219,548, 12–22–70, Cl. D49—26.

Chesney, Thomas A. Swim fin. 219,560, 12–22–70, Cl. D71—1.

Chuboff, David P., and D. R. Picht, to Zenith Radio Corp. Radio cabinet. 219,552, 12–22–70, Cl. D56—4.

Crown Industrial Co. Ltd.: *See*—
Levitt, Edward H. 219,515.

Edenberg, Stig A. A. Lighting fixture. 219,534, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,535, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,536, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,537, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,538, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,539, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,540, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,541, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,542, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,543, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,544, 12–22–70, Cl. D48—20.

Edenberg, Stig A. A. Lighting fixture. 219,545, 12–22–70, Cl. D48—20.

Fetty, Harold D., to Osborn Engineering Corp. Electric fishing motor control head. 219,558, 12–22–70, Cl. D71—1.

Fetty, Harold D., to Osborn Engineering Corp. Electric fishing motor control head. 219,559, 12–22–70, Cl. D71—1.

Field, Leonard E. Bull hull. 219,555, 12–22–70, Cl. D71—1.

Field, Leonard E. Trailerable boat hull. 219,557, 12–22–70, Cl. D71—1.

Fish, Paul, to Henry Leonard & Thomas, Inc. Smoking pipe stem. 219,566, 12–22–70, Cl. D85—8.

Fisher, Morris F., to Mohasco Industries, Inc. Chair. 219,511, 12–22–70, Cl. D15—11.

Fleming, Jack F., to Sterling Plastics Co. Day calendar. 219,561, 12–22–70, Cl. D74—5.

Gach, Peter P., to Sunbeam Plastics Corp. Dispensing nozzle for a pressurized container. 219,506, 12–22–70, Cl. D9—258.

General Signal Corp.: *See*—
Kaiser, John, and Vesely. 219,546.
Kaiser, John, and Vesely. 219,547.

Gianfagna, John L. Study carrell unit. 219,519, 12–22–70, Cl. D33—11.

Gilbert, Reginald. Table. 219,520, 12–22–70, Cl. D33—14.

Henry Leonard & Thomas, Inc.: *See*—
Fish, Paul. 219,566.

Hunter Structures, Inc.: *See*—
Baker, James W. 219,508.

Hyde, A. R., & Sons Co.: *See*—
Vietas, Frank. 219,503.

Iris Produktions- und Vertriebsgesellschaft von Schmuckkarten und Kunstgewerblichen Artikeln mbH: *See*—
Rauls, Peter. 219,521.

Kaiser, John, and D. V. Vesely, to General Signal Corp. Combined single outdoor lighting fixture and support. 219,546, 12–22–70, Cl. D48—31.

Kaiser, John, and D. V. Vesely, to General Signal Corp. Combined double outdoor lighting fixture and support. 219,547, 12–22–70, Cl. D48—31.

Keenan, Burt H. Boat. 219,556, 12–22–70, Cl. D71—1.

Krainin, Ewing. Display stand. 219,562, 12–22–70, Cl. D80—9.

Krainin, Ewing. Display stand. 219,563, 12–22–70, Cl. D80—9.

Lange, Carl W. Spinning wheel toy. 219,527, 12–22–70, Cl. D34—15.

Larrowe, John W. Combined game chip holder and coaster tray or the like. 219,523, 12–22–70, Cl. D34—13.

Levitt, Edward H., to Crown Industrial Co. Ltd. Educational toy. 219,515, 12–22–70, Cl. D25—1.

Lincoln Metal Products Corp.: *See*—
Solomon, Jack. 219,531.

Lola Cars Ltd.: *See*—
Broadley, Eric H. 219,524.

MTD Products Inc.: *See*—
Plamper, Gerhard R. 219,528.

Maltarp, Robert, to Rulendo Mfg. & Equpt. Ltd. Golf cart. 219,509, 12–22–70, Cl. D14—3.

Manderfield, Ellen B., to Oneida Ltd. Spoon or similar article. 219,550, 12–22–70. Cl. D54—12.

Matsushita Electric Industrial Co., Ltd.: *See*—
Saito, Hiroshi, Nishimoto, and Nakajima. 219,551.

Mechanic, Bernard I. Finger ring. 219,532, 12–22–70, Cl. D45—10.

Mechanic, Bernard I. Finger ring. 219,533, 12–22–70, Cl. D45—10.

Meopta: *See*—
Prazsky, Adolf. 219,554.

Midland Glass Co., Inc.: *See*—
Terner, Emanuel M. 219,504.

Miller, Alvin: *See*—
Bachman, Ralph W., and Miller. 219,564.

Mohasco Industries, Inc.: *See*—
Fisher, Morris F. 219,511.

Motor Racing Developments Ltd.: *See*—
Tauranac, Ronald S. 219,525.

Nakajima, Iwao: *See*—
Saito, Hiroshi, Nishimoto, and Nakajima. 219,551.

Nishimoto, Ryohei: *See*—
Saito, Hiroshi, Nishimoto, and Nakajima. 219,551.

Oberheim, Robert, to Braun Aktiengesellschaft. 219,553, 12–22–70, Cl. D61—1.

Oneida Ltd.: *See*—
Manderfield, Ellen B. 219,550.

Osborn Engineering Corp.: *See*—
Fetty, Harold D. 219,558.
Fetty, Harold D. 219,559.

Pecker, Edwin A., T. B. Quinn, and P. P. Klepa, to Vernitron Corp. Single patient dialystate unit. 219,565, 12–22–70, Cl. D38—1.

Peebles, Robert J., Jr. Motel building. 219,507, 12–22–70, Cl. D13—1.

Picht, Duane R.: *See*—
Chuboff, David P., and Picht. 219,552.

Plamper, Gerhard R., to MTD Products Inc. Housing for snow thrower. 219,528, 12–22–70, Cl. D35—2.

Pochyla, Gerald L., and W. R. Smith, to The Upjohn Co. Animal drinking fountain or the like. 219,518, 12–22–70, Cl. D30—13.

Prazsky, Adolf, to Meopta. Folding viewer for narrow film. 219,554, 12–22–70, Cl. D61—1.

Quinn, Thomas B.: *See*—
Pecker, Edwin A., Quinn, and Klepa. 219,565.

Rauls, Peter, ½ to Iris Produktions- und Vertriebsgesellschaft von Schmuckkarten und Kunstgewerblichen. Toy figure. 219,521, 12–22–70, Cl. D34—2.

Reading, Peter W., to Tortoys Ltd. Castellated sand bucket. 219,526, 12–22–70, Cl. D34—15.

Rubbermaid Inc.: *See*—
Wooters, Dwight N. 219,549.

Rulendo Mfg. & Equipt. Ltd.: *See*—
Maltarp, Robert. 219,509.

Saito, Hiroshi, R. Nishimoto, and I. Nakajima, to Matsushita Electric Industrial Co., Ltd. Controller for machine tool. 219,551, 12–22–70, Cl. D55—1.

Sears, Roebuck and Co.: *See*—
Venema, Walter K. 219,516.

Smith, William R.: *See*—
Pochyla, Gerald L., and Smith. 219,518.

Solomon, Jack, to Lincoln Metal Products Corp. Cover for a canister. 219,531, 12–22–70, Cl. D44—6.

Stanley Works, The: *See*—
Carter, Ronald D. 219,548.

Sterling Plastics Co.: *See*—
Fleming, Jack F. 219,561.

Stiller, Dale F. and O. F. Front fork for a motorcycle. 219,568, 12–22–70, Cl. D90—9.

Stiller, Orland F.: *See*—
Stiller, Dale F. and O. F. 219,568.

Sunbeam Plastics Corp.: *See*—
Gach, Peter P. 219,506.

Tauranac, Ronald S., to Motor Racing Developments Ltd. Model racing car. 219,525, 12–22–70, Cl. D34—15.

Terner, Emanuel M., to Midland Glass Co., Inc. Bottle. 219,504, 12–22–70, Cl. D9—161.

Tofani, Lawrence. Vertically expandable and collapsible mobile home. 219,510, 12–22–70, Cl. D14—3.

Tortoys Ltd.: *See*—
Reading, Peter W. 219,526.

Uhrmann, Carl J. Tumbler. 219,529, 12–22–70, Cl. D36—8.

Upjohn Co., The: *See*—
Pochyla, Gerald L., and Smith. 219,518.

Van Skyhawk, Norman, to American Standard Inc. Shower enclosure. 219,512, 12–22–70, Cl. D23—57.

Van Skyhawk, Norman, to American Standard Inc. Shower enclosure. 219,513, 12–22–70, Cl. D23—57.

Van Skyhawk, Norman, to American Standard Inc. Shower enclosure. 219,514, 12–22–70, Cl. D23—57.

Venema, Walter K., to Sears, Roebuck and Co. Electric light bulb. 219,516, 12–22–70, Cl. D26—8.

Vernitron Corp.: *See*—
Pecker, Edwin A., Quinn, and Klepa. 219,565.

Vesely, Donald V.: *See*—
Kaiser, John, and Vesely. 219,546.
Kaiser, John, and Vesely. 219,547.

Vietas, Frank, to A. R. Hyde & Sons Co. Shoe sole. 219,503, 12–22–70, Cl. D2—320.

Wakamatsu, Katsuhiko. Measured dose dispensing container or the like. 219,505, 12–22–70, Cl. D9—207.

Wallace, George M. Plaque. 219,517, 12–22–70, Cl. D29—23.

Wooters, Dwight N., to Rubbermaid Inc. Combined storage and dispensing rack for bags or the like. 219,549, 12–22–70, Cl. D52—2.

Yeto, Daniel M. Track and field marker. 219,522, 12–22–70, Cl. D34—5.

Zenith Radio Corp.: *See*—
Chuboff, David P., and Picht. 219,552.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 22, 1970

NOTE.—First number, class; second number, subclass; third number, patent number

2— 3	:	3,548,409
		3,548,410
6	:	3,548,411
10	:	3,548,412
161	:	3,548,413
169	:	3,548,414
171.3	:	3,548,415
180	:	3,548,416
3— 1	:	3,548,417
		3,548,418
.1	:	3,548,419
20	:	3,548,420
4—131	:	3,548,421
187	:	3,548,422
		3,548,423
215	:	3,548,424
5—299	:	3,548,425
331	:	3,548,426
8— 10.1	:	3,549,303
12	:	3,549,304
41	:	3,549,305
115.5	:	3,549,306
		3,549,307
.6	:	3,548,427
116.3	:	3,549,308
120	:	3,549,309
125	:	3,549,310
179	:	3,549,311
9— 1	:	3,548,428
8	:	3,548,429
10— 86	:	3,548,430
11— 1	:	3,548,431
12—142	:	RE.27,009
13— 31	:	3,549,773
14— 21	:	3,548,432
36	:	3,548,434
72	:	3,548,433
15— 3.17	:	3,548,435
.53	:	3,548,436
21	:	3,548,437
104.06	:	3,548,438
.92	:	3,548,439
250.01	:	3,548,440
		3,548,441
.34	:	3,548,442
16— 52	:	3,548,443
78	:	3,548,444
146	:	3,548,445
164	:	3,548,446
17— 1	:	3,548,447
11	:	3,548,448
48	:	3,548,449
76	:	3,548,450
18— 2	:	3,548,451
5	:	3,548,452
		3,548,453
16	:	3,548,454
		3,548,455
.5	:	3,548,456
19	:	3,548,457
		3,548,458
		3,548,459
19— 66	:	3,548,460
105	:	3,548,461
150	:	3,548,462
21— 58	:	3,549,312
60.5	:	3,549,313
23— 49	:	3,549,314
51	:	3,549,315
59	:	3,549,316
88	:	3,549,317
98	:	3,549,318
129	:	3,549,319
168	:	3,549,320
200	:	3,549,321
202	:	3,549,322
204	:	3,549,323
		3,549,324
		3,549,325
230	:	3,549,326
232	:	3,549,327
253	:	3,549,328
254	:	RE.27,008
		3,549,329
259	:	3,549,330
263	:	3,549,331
270.5	:	3,549,332
277	:	3,549,333
285	:	3,549,334
288	:	3,549,335
23—313	:	3,549,336
24— 16	:	3,548,463
81	:	3,548,464
241	:	3,548,465
25— 31	:	3,548,466
131	:	3,548,467
26— 68	:	3,548,468
28— 1.4	:	3,548,469
18	:	3,548,470
29— 10	:	3,548,471
25.12	:	3,548,472
95	:	3,548,473
.1	:	3,548,474
96	:	3,548,475
103	:	3,548,476
183.5	:	3,549,337
191.2	:	3,549,338
194	:	3,549,339
200	:	3,548,477
		3,548,478
203	:	3,548,479
243	:	3,548,480
401	:	3,548,481
410	:	3,548,482
		3,548,483
423	:	3,548,484
452	:	3,548,485
469	:	3,548,486
470.3	:	3,548,487
477.3	:	3,548,488
491	:	3,548,489
573	:	3,548,490
574	:	3,548,491
602	:	3,548,492
626	:	3,548,493
		3,548,494
30—139	:	3,548,495
253	:	3,548,496
300	:	3,548,497
31— 5	:	3,548,498
32— 6	:	3,548,499
17	:	3,548,500
27	:	3,548,501
33— 18	:	3,548,502
26	:	3,548,503
46	:	3,548,504
174	:	3,548,505
178	:	3,548,506
204	:	3,548,507
206	:	3,548,508
34— 8	:	3,548,509
19	:	3,548,510
22	:	3,548,511
70	:	3,548,512
205	:	3,548,513
232	:	3,548,514
35— 9	:	3,548,517
12	:	3,548,515
		3,548,518
27	:	3,548,519
29	:	3,548,516
35	:	3,548,520
36— 2.5	:	3,548,521
37— 43	:	3,548,522
40— 11	:	3,548,523
77.8	:	3,548,524
86	:	3,548,525
104.19	:	3,548,526
152.1	:	3,548,527
160	:	3,548,528
336	:	3,548,529
42— 65	:	3,548,530
43— 9	:	3,548,531
129	:	3,548,532
		3,548,533
44— 63	:	3,549,340
46— 1	:	3,548,534
33	:	3,548,536
75	:	3,548,535
150	:	3,548,537
178	:	3,548,538
211	:	3,548,539
49—163	:	3,548,540
51— 5	:	3,548,542
8	:	3,548,541
		3,548,543
50	:	3,548,544
		3,548,545
58	:	3,548,546
67	:	3,548,547
51— 90	:	3,548,548
118	:	3,548,549
293	:	3,549,341
298	:	3,549,342
334	:	3,548,550
337	:	3,548,551
52— 70	:	3,548,552
281	:	3,548,553
303	:	3,548,554
473	:	3,548,555
492	:	3,548,556
493	:	3,548,557
573	:	3,548,558
619	:	3,548,559
53— 3	:	3,548,560
22	:	3,548,561
25	:	3,548,562
28	:	3,548,563
36	:	3,548,564
48	:	3,548,566
124	:	3,548,567
55— 84	:	3,548,568
242	:	3,548,569
56— 15	:	3,548,570
25.4	:	3,548,571
192	:	3,548,572
208	:	3,548,573
298	:	3,548,574
327	:	3,548,575
		3,548,576
		3,548,577
328	:	3,548,578
329	:	3,548,579
400	:	3,548,580
57— 34	:	3,548,581
88	:	3,548,582
117	:	3,548,583
140	:	3,548,584
58— 23	:	3,548,585
28	:	3,548,586
46	:	3,548,587
91	:	3,548,588
60— 24	:	3,548,589
26.1	:	3,548,590
32	:	3,548,591
39.02	:	3,548,565
.82	:	3,548,592
54.5	:	3,548,593
		3,548,594
.6	:	3,548,595
97		3,548,596
226	:	3,548,597
231	:	3,548,598
61— 1	:	3,548,599
4	:	3,548,600
45	:	3,548,601
46	:	3,548,602
49	:	3,548,603
53.5	:	3,548,604
69	:	3,548,605
62— 9	:	3,548,606
52	:	3,548,607
148	:	3,548,608
156	:	3,548,609
256	:	3,548,610
262	:	3,548,611
469	:	3,548,612
64— 15	:	3,548,613
65— 30	:	3,549,343
		3,549,344
66	:	3,549,345
66— 95	:	3,548,614
68— 22	:	3,548,616
23.1	:	3,548,615
133	:	3,548,617
70—208	:	3,548,618
267	:	3,548,619
277	:	RE.27,013
364	:	3,548,620
370	:	3,548,621
71— 11	:	3,549,346
34	:	3,549,347
88	:	3,549,348
103	:	3,549,349
72— 81	:	3,548,622
106	:	3,548,623
129	:	3,548,624
272	:	3,548,625
344	:	3,548,626
391	:	3,548,627
72—405	:	3,548,628
416	:	3,548,629
430	:	3,548,630
73— 1	:	3,548,631
4	:	3,548,632
38	:	3,548,633
		3,548,634
		3,548,635
40.7	:	3,548,636
53	:	3,548,637
55	:	3,548,638
61.1	:	3,548,639
67.2	:	3,548,640
.5	:	3,548,642
.9	:	3,548,641
71.3	:	3,548,643
.5	:	3,548,644
79	:	3,548,645
97	:	3,548,646
102	:	3,548,647
104	:	3,548,648
136	:	3,548,649
141	:	3,548,650
146.8	:	3,548,651
150		3,548,652
187	:	3,548,654
189	:	3,548,653
194	:	3,548,655
229	:	3,548,656
293	:	3,548,657
302	:	3,548,658
314	:	3,548,659
336	:	3,548,660
362	:	3,548,661
398	:	3,548,662
510	:	3,548,663
74— 5.5	:	3,548,664
15.63	:	3,548,665
		3,548,666
.86	:	3,548,667
61	:	3,548,668
84	:	3,548,669
230.17	:	3,548,670
394	:	3,548,671
405	:	3,548,672
409	:	3,548,673
478.5	:	3,548,674
493	:	3,548,675
552	:	3,548,676
665	:	3,548,677
		3,548,678
		3,548,679
682	:	3,548,680
		3,548,681
691	:	3,548,682
711	:	3,548,683
822	:	3,548,684
858	:	3,548,685
75— .5	:	3,549,350
6	:	3,549,351
26	:	3,549,352
84.1	:	3,549,353
122.5	:	3,549,354
134	:	3,549,355
171	:	3,549,356
208	:	3,549,357
77— 22	:	3,548,686
69	:	3,548,687
70	:	3,548,688
79— 5	:	3,548,689
81— 9.5	:	3,548,690
		3,548,691
57.18	:	3,548,692
82— 24	:	3,548,693
83— 1	:	3,548,694
24	:	3,548,695
100	:	3,548,696
201.03	:	3,548,697
311	:	3,548,698
528	:	3,548,699
698	:	3,548,700
84— 1.03	:	3,549,774
		3,549,776
		3,549,777
		3,549,778
.05	:	3,549,775
.26	:	3,549,779
95	:	3,548,701
102	:	3,548,702
346	:	3,548,703
85— 56	:	3,548,704
84	:	3,548,705
87— 31	:	3,548,706
89— 1.8	:	3,548,707
.818		3,548,708
149	:	3,548,709
90— 11	:	3,548,712
13.1	:	3,548,710
14	:	3,548,711
91— 36	:	3,548,714
61	:	3,548,715
307	:	3,548,716
337	:	3,548,717
369	:	3,548,718
497	:	3,548,719
92— 63	:	3,548,720
153	:	3,548,721
93— 8	:	3,548,722
35	:	3,548,723
80	:	3,548,724
95— 1	:	3,548,713
4.5	:	3,548,725
10	:	3,548,726
		3,548,727
34	:	3,548,728
36	:	3,548,729
42	:	3,548,730
45	:	3,548,731
53	:	3,548,732
89	:	3,548,733
94	:	3,548,734
96— 1	:	3,549,358
.2	:	3,549,359
.4	:	3,549,360
.5	:	3,549,361
.6	:	3,549,362
27	:	RE.27,012
29	:	3,549,363
		3,549,364
30	:	RE.27,010
33	:	3,549,365
35.1	:	3,549,366
		3,549,367
		3,549,368
50	:	3,549,369
55	:	3,549,370
66.4	:	3,549,371
67	:	3,549,372
75	:	3,549,373
84	:	3,549,374
		3,549,375
92	:	3,549,376
111	:	3,549,377
		3,549,378
114.1	:	3,549,379
98— 40	:	3,548,735
99— 71	:	3,549,380
77.1	:	3,549,381
91	:	3,549,382
92	:	3,549,383
100	:	3,549,384
107	:	3,549,385
116	:	3,549,390
118	:	3,549,386
122	:	3,549,387
161	:	3,549,388
174	:	3,549,389
234	:	3,548,736
235	:	3,548,737
332	:	3,548,738
100— 7	:	3,548,739
28	:	3,548,740
35	:	3,548,741
95	:	3,548,742
145	:	3,548,743
255	:	3,548,744
101— 40	:	3,548,745
93	:	3,548,746
153	:	3,548,747
471	:	3,548,748
102— 70.2	:	3,548,749
104— 2	:	3,548,750
148	:	3,548,751
172	:	3,548,752
173	:	3,548,753
105—197	:	3,548,754
199	:	3,548,755
376	:	3,549,291
455	:	3,548,756
106— 14	:	3,549,391
106— 38.23	:	3,549,392
39	:	3,549,393
		3,549,394
55	:	3,549,402
59	:	3,549,400
84	:	3,549,395
300	:	3,549,396
107— 12	:	3,548,757
69	:	3,548,758
110— 7	:	3,548,759
8	:	3,548,760
		3,548,761
18	:	3,548,762
40	:	3,548,763
97	:	3,548,764
111— 60	:	3,548,765
112— 79	:	3,548,766
130	:	3,548,767
252	:	3,548,768
113— 7	:	3,548,769
114— .5	:	3,548,770
16	:	3,548,771
57	:	3,548,772
61	:	3,548,773
144	:	3,548,775
162	:	3,548,774
163	:	3,548,776
115— 41	:	3,548,777
70	:	3,548,778
116—109	:	3,548,779
114.5	:	3,548,780
117— .5	:	3,549,397
8	:	3,549,398
16	:	3,549,399
17	:	3,549,403
26	:	3,549,404
33	:	3,549,405
34	:	3,549,406
45	:	3,549,407
47	:	3,549,408
		3,549,409
50	:	3,549,410
69	:	3,549,411
100	:	3,549,412
106	:	3,549,413
212	:	3,549,414
215	:	3,549,415
227	:	3,549,416
240	:	3,549,417
		3,549,418
118— 5	:	3,548,781
20	:	3,548,782
224	:	3,548,783
419	:	3,548,784
119— 1	:	3,548,785
5	:	3,548,786
14.41	:	3,549,292
103	:	3,548,787
122—406	:	3,548,788
123— 8.41	:	3,548,789
.45	:	3,548,790
32	:	3,548,791
		3,548,792
90.12	:	3,548,793
119	:	3,548,794
		3,548,795
136	:	3,548,796
		3,548,797
140	:	3,548,798
149	:	3,548,800
182	:	3,548,799
124— 6	:	3,548,801
11	:	3,548,802
126— 25	:	3,548,803
37	:	3,548,804
128— 2	:	3,548,805
.05	:	3,548,806
.06	:	3,548,807
		3,548,813
.1	:	3,548,812
6	:	3,548,808
24	:	3,548,809
25	:	3,548,810
55	:	3,548,811
57	:	3,548,814
66	:	3,548,815
75	:	3,548,816
		3,548,817
78	:	3,548,818
82.1	:	3,548,819

260—207 : 3,549,613
209 : 3,549,614
210 : 3,549,615
211 : 3,549,616
232 : 3,549,617
233.3 : 3,549,618
.5 : 3,549,619
239 : 3,549,620
.3 : 3,549,621
3,549,622
3,549,623
240 : 3,549,624
3,549,625
3,549,626
243 : 3,549,628
244 : 3,549,627
247.1 : 3,549,629
248 : 3,549,630
249.5 : 3,549,631
3,549,632
250 : 3,549,633
251 : 3,549,635
256.5 : 3,549,634
3,549,636
3,549,637
268 : 3,549,638
270 : 3,549,639
283 : 3,549,640
287 : 3,549,641
3,549,642
3,549,643
289 : 3,549,644
293.4 : 3,549,645
294 : 3,549,646
.8 : 3,549,647
3,549,649
295 : 3,549,648
306.6 : 3,549,650
307 : 3,549,652
309 : 3,549,653
326 : 3,549,657
.3 : 3,549,654
3,549,658
.5 : 3,549,655
330.5 : 3,549,656
343.6 : 3,549,659
.9 : 3,549,660
345.2 : 3,549,661
.5 : 3,549,662
351 : 3,549,663
371 : 3,549,664
372 : 3,549,665
378 : 3,549,666
380 : 3,549,667
396 : 3,549,668
3,549,669
3,549,670
397.4 : 3,549,671
.5 : 3,549,672
3,549,673
3,549,674
408 : 3,549,675
419 : 3,549,676
429.7 : 3,549,677
430 : 3,549,678
439 : 3,549,679
448.2 : 3,549,680
457 : 3,549,681
463 : 3,549,682
465 : 3,549,683
3,549,684
.8 : 3,549,685
467 : 3,549,686
3,549,687
468 : 3,549,688
471 : 3,549,689
473 : 3,549,690
3,549,691
475 : 3,549,692
483 : 3,549,693
501.21: 3,549,694
525 : 3,549,695
533 : 3,549,696
3,549,697
535 : 3,549,698
544 : 3,549,699
551 : 3,549,700
555 : 3,549,701
556 : 3,549,702
3,549,703
559 : 3,549,704
561 : 3,549,705
3,549,706
574 : 3,549,745
584 : 3,549,707
610 : 3,549,708
612 : 3,549,709

260—612 : 3,549,710
614 : 3,549,711
620 : 3,549,712
621 : 3,549,713
632 : 3,549,714
652.5 : 3,549,715
653.1 : 3,549,716
666 : 3,549,717
671 : 3,549,718
677 : 3,549,719
3,549,720
681.5 : 3,549,721
683 : 3,549,722
.15: 3,549,723
857 : 3,549,724
876 : 3,549,725
880 : 3,549,726
897 : 3,549,727
932 : 3,549,728
947 : 3,549,729
975 : 3,549,730
261— 23 : 3,549,132
51 : 3,549,133
74 : 3,549,134
263— 15 : 3,549,135
51 : 3,549,136
264— 8 : 3,549,731
3,549,732
25 : 3,549,733
37 : 3,549,734
39 : 3,549,735
44 : 3,549,736
82 : 3,549,737
118 : 3,549,738
162 : 3,549,739
210 : 3,549,740
3,549,741
250 : 3,549,742
290 : 3,549,743
300 : 3,549,744
266— 23 : 3,549,137
27 : 3,549,138
34 : 3,549,139
3,549,140
42 : 3,549,141
267— 65 : 3,549,142
74 : 3,549,143
271— 68 : 3,549,144
79 : 3,549,145
273— 29 : 3,549,146
101.1 : 3,549,147
103 : 3,549,148
110 : 3,549,149
135 : 3,549,150
162 : 3,549,300
178 : 3,549,151
201 : 3,549,152
274— 10 : 3,549,153
277— 24 : 3,549,154
116 : 3,549,155
228 : 3,549,156
231 : 3,549,157
279— 2 : 3,549,158
53 : 3,549,159
97 : 3,549,160
280— 3 : 3,549,161
11.13: 3,549,162
.35: 3,549,163
30 : 3,549,164
76 : 3,549,165
96.1 : 3,549,166
.2 : 3,549,167
124 : 3,549,168
150 : 3,549,169
3,549,170
154.5 : 3,549,171
202 : 3,549,172
457 : 3,549,173
491 : 3,549,174
285— 1 : 3,549,175
55 : 3,549,176
175 : 3,549,177
187 : 3,549,178
189 : 3,549,179
256 : 3,549,180
390 : 3,549,181
287— 52.08: 3,549,182
82 : 3,549,183
292—195 : 3,549,184
218 : 3,549,185
256.71: 3,549,186
294— 17 : 3,549,187
21 : 3,549,188
57 : 3,549,189
81 : 3,549,190
3,549,191
106 : 3,549,192

296— 23 : 3,549,193
3,549,194
3,549,196
24 : 3,549,195
100 : 3,549,197
3,549,198
3,549,199
297—157 : 3,549,200
284 : 3,549,201
379 : 3,549,202
388 : 3,549,203
301— 37 : 3,549,204
65 : 3,549,205
302— 53 : 3,549,206
303— 6.1 : 3,549,207
13 : 3,549,208
21 : 3,549,209
3,549,210
3,549,211
3,549,212
305— 10 : 3,549,213
307—106 : 3,549,898
215 : 3,549,899
3,549,900
235 : 3,549,901
237 : 3,549,903
243 : 3,549,902
247 : 3,549,904
252 : 3,549,905
3,549,906
3,549,907
3,549,908
3,549,909
270 : 3,549,910
279 : 3,549,911
292 : 3,549,912
308— 8.2 : 3,549,214
73 : 3,549,215
122 : 3,549,216
137 : 3,549,217
163 : 3,549,218
181 : 3,549,219
184 : 3,549,220
187 : 3,549,222
.2 : 3,549,221
200 : 3,549,223
310— 9.5 : 3,549,913
11 : 3,549,914
3,549,915
14 : 3,549,916
3,549,917
49 : 3,549,918
68 : 3,549,919
3,549,920
105 : 3,549,921
157 : 3,549,922
162 : 3,549,923
168 : 3,549,924
3,549,926
236 : 3,549,927
268 : 3,549,928
312— 8 : 3,549,224
10 : 3,549,225
42 : 3,549,226
194 : 3,549,227
320 : 3,549,228
330 : 3,549,301
313— 37 : 3,549,929
44 : 3,549,930
55 : 3,549,931
85 : 3,549,932
113 : 3,549,933
3,549,934
3,549,935
161 : RE.27,007
178 : 3,549,936
3,549,937
315— 3.5 : 3,549,938
18 : 3,549,939
176 : 3,549,940
58 : 3,549,941
102 : 3,549,942
111 : 3,549,943
209 : 3,549,944
241 : 3,549,945
267 : 3,549,946
316— 21 : 3,549,229
317— 6 : 3,549,948
100 : 3,549,949
101 : 3,549,950
107 : 3,549,951
123 : 3,549,952
139 : 3,549,953
147 : 3,549,954
148.5 : 3,549,955
230 : 3,549,956

317—231 : 3,549,957
234 : 3,549,958
3,549,959
235 : 3,549,960
3,549,961
262 : 3,549,962
3,549,963
3,549,964
318— 47 : 3,549,965
135 : 3,549,966
138 : 3,549,967
197 : 3,549,968
207 : 3,549,969
221 : 3,549,970
293 : 3,549,971
327 : 3,549,972
345 : 3,549,973
443 : 3,549,974
480 : 3,549,975
591 : 3,549,976
681 : 3,549,947
321— 18 : 3,549,977
19 : 3,549,978
3,549,979
69 : 3,549,980
322— 25 : 3,549,981
28 : 3,549,982
323— 9 : 3,549,988
15 : 3,549,983
43.5 : 3,549,984
44 : 3,549,990
324— .5 : 3,549,987
3 : 3,549,985
30 : 3,549,989
43 : 3,549,991
57 : 3,549,992
58.5 : 3,549,986
71 : 3,549,993
3,549,994
73 : 3,549,995
3,549,996
79 : 3,549,997
120 : 3,549,998
158 : 3,549,999
325— 15 : 3,550,000
3,550,001
32 : 3,550,002
38 : 3,550,003
3,550,004
65 : 3,550,005
113 : 3,550,006
324 : 3,550,007
340 : 3,550,008
363 : 3,550,009
379 : 3,550,010
475 : 3,550,011
478 : 3,550,012
328— 1 : 3,550,013
48 : 3,550,015
104 : 3,550,016
110 : 3,550,017
127 : 3,550,018
140 : 3,550,019
142 : 3,550,020
151 : 3,550,021
161 : 3,550,022
165 : 3,550,023
330— 15 : 3,550,024
17 : 3,550,025
21 : 3,550,026
26 : 3,550,027
29 : 3,550,028
86 : 3,550,029
199 : 3,550,030
331— 94.5 : 3,550,031
3,550,032
3,550,033
3,550,034
3,550,035
113 : 3,550,036
116 : 3,550,037
332— 7.51: 3,550,039
44 : 3,550,040
333— 7 : 3,550,041
10 : 3,550,042
26 : 3,550,043
30 : 3,550,044
72 : 3,550,045
81 : 3,550,046
335— 39 : 3,550,047
193 : 3,550,048
195 : 3,550,049
210 : 3,550,038
216 : 3,550,050
231 : 3,550,051
234 : 3,550,052

336—118 : 3,550,053
120 : 3,550,054
337—100 : 3,550,055
199 : 3,550,056
338— 34 : 3,550,057
57 : 3,550,058
176 : 3,550,059
181 : 3,550,060
339— 8 : 3,550,061
17 : 3,550,062
22 : 3,550,063
65 : 3,550,064
94 : 3,550,065
196 : 3,550,066
217 : 3,550,067
242 : 3,550,068
256 : 3,550,069
340— 3 : 3,550,070
8 : 3,550,071
13 : 3,550,072
15.5 : 3,550,073
3,550,074
3,550,075
22 : 3,550,076
32 : 3,550,077
3,550,078
52 : 3,550,079
59 : 3,550,080
146.1 : 3,550,082
3,550,083
.3 : 3,550,081
3,550,084
3,550,085
3,550,119
150 : 3,550,086
166 : 3,550,087
3,550,088
3,550,089
171 : 3,550,090
172.5 : 3,550,091
3,550,092
3,550,093
3,550,133
173 : 3,550,094
3,550,095
3,550,096
3,550,097
174 : 3,550,098
3,550,099
3,550,100
3,550,101
.1 : 3,550,102
3,550,103
213 : 3,550,104
248 : 3,550,110
249 : 3,550,105
258 : 3,550,106
267 : 3,550,107
271 : 3,550,108
276 : 3,550,109
3,550,111
334 : 3,550,112
347 : 3,550,113
3,550,114
3,550,115
3,550,116
384 : 3,550,117
396 : 3,550,118
409 : 3,550,120
415 : 3,550,121
3,550,122
343— 5 : 3,550,123
7.5 : 3,550,124
13 : 3,550,125
16 : 3,550,126
106 : 3,550,127
107 : 3,550,128
112 : 3,550,129
113 : 3,550,130
179 : 3,550,131
3,550,132
3,550,134
725 : 3,550,135
742 : 3,550,136
744 : 3,550,137
751 : 3,550,138
754 : 3,550,139
766 : 3,550,140
767 : 3,550,141
781 : 3,550,142
792.5 : 3,550,143
3,550,144
826 : 3,550,145
879 : 3,550,146
911 : 3,550,147
346— 1 : 3,550,148
74 : 3,550,149

346— 74 : 3,550,150
3,550,151
3,550,152
3,550,153
3,550,154
3,550,155
139 : 3,550,156
350— 14 : 3,549,230
52 : 3,549,231
90 : 3,549,232
96 : 3,549,233
136 : 3,549,234
146 : 3,549,302
157 : 3,549,236
162 : 3,549,237
3,549,238
3,549,239
3,549,240
176 : 3,549,241
184 : 3,549,235
3,549,242
287 : 3,549,244
289 : 3,549,243
351— 61 : 3,549,245
113 : 3,549,246
3,549,247
154 : 3,549,248
352—217 : 3,549,249
353— 97 : 3,549,250
355— 3 : 3,549,251
10 : 3,549,253
52 : 3,549,252
55 : 3,549,254
109 : 3,549,255
356— 4 : 3,549,256
32 : 3,549,257
100 : 3,549,258
112 : 3,549,260
115 : 3,549,259
180 : 3,549,261
181 : 3,549,262
209 : 3,549,263
210 : 3,549,264
401— 25 : 3,549,265
122 : 3,549,266
147 : 3,549,267
154 : 3,549,268
206 : 3,549,269
415—112 : 3,549,270
416—124 : 3,549,271
166 : 3,549,272
224 : 3,549,274
241 : 3,549,273
245 : 3,549,275
417— 12 : 3,549,276
321 : 3,549,277
349 : 3,549,278
477 : 3,549,279
418— 21 : 3,549,280
31 : 3,549,281
60 : 3,549,282
61 : 3,549,283
3,549,284
3,549,285
85 : 3,549,286
107 : 3,549,287
133 : 3,549,288
239 : 3,549,289
424— 35 : 3,549,746
78 : 3,549,747
94 : 3,549,748
200 : 3,549,749
217 : 3,549,750
227 : 3,549,751
239 : 3,549,752
246 : 3,549,753
247 : 3,549,754
248 : 3,549,755
3,549,756
3,549,757
3,549,758
249 : 3,549,759
3,549,760
258 : 3,549,761
263 : 3,549,762
3,549,763
267 : 3,549,764
269 : 3,549,765
271 : 3,549,766
327 : 3,549,767
331 : 3,549,768
3,549,769
337 : 3,549,770
3,549,771
346 : 3,549,772
431—274 : 3,549,290

128— 89 : 3,548,820
145.6 : 3,548,821
.7 : 3,548,822
147 : 3,548,823
218 : 3,548,824
3,548,825
3,548,826
275 : 3,548,827
283 : 3,548,828
303.1 : 3,548,829
361 : 3,548,830
422 : 3,548,831
483 : 3,548,832
484 : 3,548,833
528 : 3,548,834
131— 10.5 : 3,548,835
21 : 3,548,836
3,549,293
84 : 3,548,837
144 : 3,548,838
146 : 3,548,839
171 : 3,548,840
3,548,841
132— 9 : 3,548,842
33 : 3,548,843
134— 2 : 3,549,419
22 : 3,549,420
31 : 3,549,421
57 : 3,548,844
58 : 3,549,294
114 : 3,548,845
136— 86 : 3,549,422
120 : 3,549,423
137— 13 : 3,548,846
43 : 3,548,847
68 : 3,548,848
81.5 : 3,548,849
3,548,850
3,548,851
3,548,852
3,548,853
3,548,854
93 : 3,548,855
210 : 3,548,856
246.22: 3,548,858
251 : 3,548,857
269 : 3,548,859
289 : 3,548,860
318 : 3,548,861
340 : 3,548,862
3,548,863
364 : 3,548,864
486 : 3,548,865
487.5 : 3,548,866
494 : 3,548,867
515.5 : 3,548,868
516.29: 3,548,869
540 : 3,548,870
553 : 3,548,871
565 : 3,548,872
612.1 : 3,548,873
625.17: 3,548,875
.5 : 3,548,874
.62: 3,548,876
.65: 3,548,877
636.1 : 3,548,878
637.1 : 3,548,879
138— 43 : 3,548,880
89 : 3,548,881
129 : 3,548,882
143 : 3,548,883
144 : 3,548,884
139— 96 : 3,548,885
122 : 3,548,886
140— 71.5 : 3,548,887
93.2 : 3,548,888
119 : 3,548,889
141— 7 : 3,548,890
3,548,891
11 : 3,548,892
208 : 3,548,893
297 : 3,548,894
143— 46 : 3,548,895
47 : 3,548,896
135 : 3,548,897
144—288 : 3,548,898
309 : 3,548,899
146— 28 : 3,548,900
67 : 3,548,901
79 : 3,548,902
182 : 3,548,903
148— 6.3 : 3,549,424
.35: 3,549,425
12 : 3,549,426
31.5 : 3,549,427
.55: 3,549,428
32 : 3,549,429
35 : 3,549,430
141 : 3,549,431
175 : 3,549,401
3,549,432
186 : 3,549,433
3,549,434
187 : 3,549,435
149— 15 : 3,549,436
150— .5 : 3,548,904

150— 1.5 : 3,548,905
12 : 3,548,906
39 : 3,548,907
52 : 3,548,908
152—241 : 3,548,909
359 : 3,548,910
3,548,911
362 : 3,548,912
406 : 3,548,913
156— 4 : 3,549,437
14 : 3,549,438
17 : 3,549,439
69 : 3,549,440
79 : 3,549,441
117 : 3,549,442
175 : 3,549,444
222 : 3,549,445
230 : 3,549,446
3,549,447
250 : 3,549,448
254 : 3,549,449
255 : 3,549,450
272 : 3,549,451
315 : 3,549,452
370 : 3,549,453
425 : 3,549,454
440 : 3,549,455
446 : 3,549,456
476 : 3,549,457
505 : 3,549,458
568 : 3,549,459
580 : 3,549,460
583 : 3,549,461
3,549,462
161— 2 : 3,549,463
8 : 3,549,464
13 : 3,549,465
39 : 3,549,466
65 : 3,549,467
68 : 3,549,468
69 : 3,549,469
70 : 3,549,470
86 : 3,549,471
87 : 3,549,472
93 : 3,549,473
151 : 3,549,474
159 : 3,549,475
165 : 3,549,476
3,549,477
185 : 3,549,478
191 : 3,549,479
3,549,480
198 : 3,549,481
254 : 3,549,482
162— 19 : 3,549,483
36 : 3,549,484
152 : 3,549,485
156 : 3,549,486
356 : 3,549,487
387 : 3,549,488
164— 41 : 3,548,914
68 : 3,548,915
3,548,948
91 : 3,548,916
170 : 3,548,917
252 : 3,548,918
278 : 3,548,919
282 : 3,548,920
304 : 3,548,921
309 : 3,548,922
165— 18 : 3,548,923
55 : 3,548,924
74 : 3,548,925
80 : 3,548,927
87 : 3,548,926
89 : 3,548,928
3,548,929
105 : 3,548,930
106 : 3,549,295
107 : 3,548,931
165 : 3,548,932
167 : 3,548,933
166— .5 : 3,548,934
51 : 3,548,935
216 : 3,548,936
232 : 3,548,937
256 : 3,548,938
267 : 3,548,939
273 : 3,548,940
3,548,941
276 : 3,548,942
292 : 3,548,943
295 : 3,548,944
307 : 3,548,945
310 : 3,548,946
168— 29 : 3,548,947
169— 1 : 3,548,949
171— 39 : 3,548,950
61 : 3,548,951
95 : 3,548,952
172— 41 : 3,548,953
311 : 3,548,954
793 : 3,548,955
801 : 3,548,956
174— 21 : 3,549,780
49 : 3,549,781

174— 52 : 3,549,782
59 : 3,549,783
68.5 : 3,549,784
3,549,785
78 : 3,549,787
84 : 3,549,786
107 : 3,549,788
122 : 3,549,789
177 : 3,549,790
179 : 3,549,791
175— 4.5 : 3,548,957
233 : 3,548,958
393 : 3,548,959
3,548,960
176— 15 : 3,549,492
18 : 3,549,493
19 : 3,549,494
22 : 3,549,489
39 : 3,549,490
87 : 3,549,491
178— 5.4 : 3,549,792
3,549,793
3,549,794
.6 : 3,549,795
.8 : 3,549,796
6.6 : 3,549,797
3,549,798
3,549,799
7.1 : 3,549,805
.3 : 3,549,800
3,549,801
3,549,802
.88: 3,549,803
69.5 : 3,549,804
179— 1 : 3,549,806
3,549,807
3,549,808
2 : 3,549,809
5 : 3,549,810
15 : 3,549,811
3,549,814
18 : 3,549,812
3,549,813
3,549,815
27 : 3,549,816
42 : 3,549,817
82 : 3,549,818
90 : 3,549,819
99 : 3,549,820
100.1 : 3,549,821
.2 : 3,549,822
3,549,823
3,549,824
3,549,825
393 : 3,548,958
3,548,959
3,548,960
176— 15 : 3,549,492
18 : 3,549,493
19 : 3,549,494
22 : 3,549,489
39 : 3,549,490
87 : 3,549,491
178— 5.4 : 3,549,792
3,549,793
3,549,794
.6 : 3,549,795
.8 : 3,549,796
6.6 : 3,549,797
3,549,798
3,549,799
7.1 : 3,549,805
.3 : 3,549,800
3,549,801
3,549,802
.88: 3,549,803
69.5 : 3,549,804
179— 1 : 3,549,806
3,549,807
3,549,808
2 : 3,549,809
5 : 3,549,810
15 : 3,549,811
3,549,814
18 : 3,549,812
3,549,813
3,549,815
27 : 3,549,816
42 : 3,549,817
82 : 3,549,818
90 : 3,549,819
99 : 3,549,820
100.1 : 3,549,821
.2 : 3,549,822
3,549,823
3,549,824
3,549,825
3,549,826
3,549,827
3,549,828
115.5 : 3,549,829
117 : 3,549,830
156 : 3,549,831
180— 5 : 3,548,961
9.44: 3,548,962
32 : 3,548,963
64 : 3,548,964
65 : 3,548,965
79.2 : 3,548,966
117 : 3,548,967
119 : 3,548,968
130 : 3,548,969
182—129 : 3,548,970
184— 6 : 3,548,971
188— 1 : 3,548,972
3,549,296
72.5 : 3,548,973
.6 : 3,548,974
74 : 3,548,975
78 : 3,548,976
152 : 3,548,978
264 : 3,548,979
282 : .548,977
192— .09: 3,548,980
3.57: 3,548,981
45 : 3,548,982
53 : 3,548,983
70.17: 3,548,984
84 : 3,548,985
85 : 3,548,986
104 : 3,548,987
107 : 3,548,988
111 : 3,548,989
116.5 : 3,548,992
194— 1 : 3,548,990
10 : 3,548,991
195— 6 : 3,549,495
31 : 3,549,496
51 : 3,549,497
3,549,498
3,549,499
62 : 3,549,500
66 : 3,549,501
80 : 3,549,502
197— 18 : 3,548,993
151 : 3,548,994
198— 20 : 3,548,995
23 : 3,548,996
24 : 3,548,997

198— 24 : 3,548,998
64 : 3,548,999
3,549,000
66 : 3,549,001
127 : 3,549,002
141 : 3,549,003
184 : 3,549,004
200— 16 : 3,549,832
47 : 3,549,833
48 : 3,549,834
81.5 : 3,549,835
.8 : 3,549,836
.9 : 3,549,839
82 : 3,549,837
83 : 3,549,838
146 : 3,549,840
148 : 3,549,841
3,549,842
153 : 3,549,843
157 : 3,549,844
166 : 3,549,845
3,550,157
172 : 3,549,846
203— 11 : 3,549,503
49 : 3,549,504
204— 11 : 3,549,505
25 : 3,549,506
28 : 3,549,507
37 : 3,549,508
159.12: 3,549,509
3,549,510
249 : 3,549,511
206— 16.6 : 3,549,005
46 : 3,549,297
56 : 3,549,006
65 : 3,549,007
208— 10 : 3,549,512
33 : 3,549,513
3,549,514
89 : 3,549,515
108 : 3,549,517
111 : 3,549,518
125 : 3,549,519
264 : 3,549,520
209— 82 : 3,549,008
110 : 3,549,009
62.5 : 3,549,298
210— 5 : 3,549,521
23 : 3,549,522
24 : 3,549,523
31 : 3,549,524
3,549,525
92 : 3,549,868
3,549,869
54 : 3,549,527
60 : 3,549,528
63 : 3,549,529
71 : 3,549,010
3,549,011
211—126 : 3,549,018
135 : 3,549,019
148 : 3,549,020
213—110 : 3,549,021
3,549,022
214— 6 : 3,549,023
13 : 3,549,024
16.4 : 3,549,025
17 : 3,549,026
38 : 3,549,027
41 : 3,549,028
77 : 3,549,029
85 : 3,549,030
147 : 3,549,031
3,549,032
315 : 3,549,033
372 : 3,549,034
750 : 3,549,035
210 : 3,549,036
40 : 3,549,037
41 : 3,549,038
219— 10.49: 3,549,847
.55: 3,549,848
3,549,849
3,549,852
69 : 3,549,850
3,549,851
104 : 3,549,853
121 : 3,549,854
130 : 3,549,855
137 : 3,549,856
3,549,857
384 : 3,549,858
393 : 3,549,859
400 : 3,549,860
441 : 3,549,861
482 : 3,549,862
494 : 3,549,863
497 : 3,549,864
505 : 3,549,865
220— 1 : 3,549,039
44 : 3,549,040
52 : 3,549,041

229— 54 : 3,549,042
55 : RE.27,011
82 : 3,549,043
90.4 : 3,549,044
221— 12 : 3,549,045
102 : 3,549,046
116 : 3,549,047
222— 57 : 3,549,048
91 : 3,549,049
95 : 3,549,050
129.2 : 3,549,051
135 : 3,549,052
153 : 3,549,053
180 : 3,549,054
182 : 3,549,055
226 : 3,549,056
249 : 3,549,057
386.5 : 3,549,058
402.15: 3,549,059
513 : 3,549,060
566 : 3,549,061
571 : 3,549,062
223— 88 : 3,549,063
224— 8 : 3,549,064
45 : 3,549,065
225— 25 : 3,549,066
106 : 3,549,067
226— 79 : 3,549,068
90 : 3,549,069
97 : 3,549,070
108 : 3,549,071
112 : 3,549,072
227— 8 : 3,549,073
10 : 3,549,074
63 : 3,549,075
228— 2 : 3,549,076
15 : 3,549,077
20 : 3,549,078
229— 17 : 3,549,079
3,549,080
39 : 3,549,081
51 : 3,549,082
52 : 3,549,083
54 : 3,549,084
3,549,085
62.5 : 3,549,298
232— 44 : 3,549,086
235— 60 : 3,549,087
61.11: 3,549,866
3,549,867
92 : 3,549,868
3,549,869
3,549,870
3,549,871
152 : 3,549,871
168 : 3,549,872
175 : 3,549,873
186 : 3,549,876
193 : 3,549,874
3,549,875
3,549,877
236— 9 : 3,549,088
15 : 3,549,089
238—281 : 3,549,090
240— 10 : 3,549,878
147 : 3,549,879
241— 5 : 3,549,091
15 : 3,549,092
49 : 3,549,093
171 : 3,549,094
197 : 3,549,095
242— 18 : 3,549,096
47.12: 3,549,299
56 : 3,549,097
67.1 : 3,549,098
.3 : 3,549,099
.4 : 3,549,100
76 : 3,549,101
78.1 : 3,549,443
.6 : 3,549,102
84.5 : 3,549,103
209 : 3,549,104
210 : 3,549,105
3,549,106
244— 77 : 3,549,107
3,549,108
3,549,109
110 : 3,549,110
122 : 3,549,111
246—182 : 3,549,880
248— 70 : 3,549,112
187 : 3,549,113
340 : 3,549,114
249— 33 : 3,549,115
184 : 3,549,116
250— 41.9 : 3,549,881
43.5 : 3,549,882
49.5 : 3,549,883
52 : 3,549,884
61.5 : 3,549,885
71 : 3,549,886
.5 : 3,549,887
3,549,888
3,549,889
3,549,890
3,549,891
3,549,892

250—218 : 3,549,893
219 : 3,549,894
3,549,895
3,549,896
231 : 3,549,897
251— 30 : 3,549,117
58 : 3,549,118
252— 8.55: 3,549,532
.8 : 3,549,530
26 : 3,549,531
32.7 : 3,549,533
42.7 : 3,549,534
52 : 3,549,535
62.9 : 3,549,536
63 : 3,549,537
82 : 3,549,538
99 : 3,549,539
105 : 3,549,540
135 : 3,549,541
137 : 3,549,542
152 : 3,549,543
3,549,544
3,549,545
3,549,546
171 : 3,549,547
181 : 3,549,548
194 : 3,549,549
301.4 : 3,549,550
3,549,551
3,549,552
.6 : 3,549,553
3,549,554
316 : 3,549,555
455 : 3,549,556
3,549,557
3,549,558
459 : 3,549,559
500 : 3,549,560
520 : 3,549,561
254— 86 : 3,549,125
132 : 3,549,126
134.3 : 3,549,127
3,549,128
172 : 3,549,129
259— 1 : 3,549,130
4 : 3,549,131
260— 2.1 : 3,549,562
.5 : 3,549,563
3,549,564
7.5 : 3,549,565
8 : 3,549,566
17.3 : 3,549,568
18 : 3,549,569
3,549,570
21 : 3,549,571
23 : 3,549,572
3,549,573
27 : 3,549,574
28.5 : 3,549,575
29.3 : 3,549,576
.4 : 3,549,577
.6 : 3,549,567
3,549,578
.7 : 3,549,579
30.2 : 3,549,580
.6 : 3,549,651
31.4 : 3,549,581
37 : 3,549,582
3,549,583
38 : 3,549,584
40 : 3,549,585
3,549,586
45.8 : 3,549,587
3,549,588
3,549,589
46.5 : 3,549,590
47 : 3,549,591
3,549,592
3,549,593
3,549,594
49 : 3,549,595
75 : 3,549,596
3,549,597
3,549,598
77.5 : 3,549,599
3,549,600
78 : 3,549,516
3,549,601
3,549,602
.4 : 3,549,603
79.1 : 3,549,604
.3 : 3,549,605
91.1 : 3,549,606
93.1 : 3,549,607
.7 : 3,549,608
94.3 : 3,549,609
3,550,158
112 : 3,549,610
156 : 3,549,611
160 : 3,549,612

D 2–320	219,503	D23– 57	219,514	D34– 15	219,525	D48– 20	219,536	D48– 31	219,547	D71– 1	219,558
D 9–161	219,504	D25– 1	219,515		219,526		219,537	D49– 26	219,548		219,559
207	219,505	D26– 8	219,516		219,527		219,538	D52– 2	219,549		219,560
258	219,506	D29– 23	219,517	D35– 2	219,528		219,539	D54– 12	219,550	D74– 5	219,561
D13– 1	219,507	D30– 13	219,518	D36– 8	219,529		219,540	D55– 1	219,551	D80– 9	219,562
	219,508	D33– 11	219,519	D39– 1	219,530		219,541	D56– 4	219,552		219,563
D14– 3	219,509	14	219,520	D44– 6	219,531		219,542	D61– 1	219,553	11	219,564
	219,510	D34– 2	219,521	D45– 10	219,532		219,543		219,554	D83– 1	219,565
D15– 11	219,511	5	219,522		219,533	D71– 1	219,544		219,555	D85– 8	219,566
D23– 57	219,512	13	219,523	D48– 20	219,534		219,545		219,556	D90– 1	219,567
	219,513	15	219,524		219,535	31	219,546		219,557	9	219,568

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,548,507	6 : 3,548,610	6 : 3,549,176	6 : 3,549,700	8 : 3,548,775	9 : 3,549,829
3,548,707	3,548,613	3,549,189	3,549,711	3,548,883	3,549,863
3,548,749	3,548,641	3,549,194	3,549,730	3,548,952	3,549,895
3,548,930	3,548,646	3,549,203	3,549,737	3,549,351	3,549,913
3,548,953	3,548,668	3,549,214	3,549,747	3,549,357	3,549,984
3,549,506	3,548,692	3,549,220	3,549,755	3,549,630	3,550,016
3,549,790	3,548,709	3,549,232	3,549,757	3,549,708	3,550,047
3,549,934	3,548,741	3,549,240	3,549,759	3,549,831	3,550,065
4 : 3,548,519	3,548,780	3,549,253	3,549,760	3,550,008	3,550,091
3,548,962	3,548,785	3,549,254	3,549,781	3,550,154	10 : 3,548,875
3,549,268	3,548,798	3,549,257	3,549,792	9 : 3,548,457	3,548,892
3,549,286	3,548,806	3,549,258	3,549,797	3,548,474	3,549,323
3,549,354	3,548,811	3,549,277	3,549,822	3,548,522	3,549,324
3,549,503	3,548,815	3,549,291	3,549,826	3,548,561	3,549,325
3,549,775	3,548,835	3,549,296	3,549,841	3,548,605	3,549,337
3,549,809	3,548,852	3,549,302	3,549,846	3,548,630	3,549,381
3,549,970	3,548,853	3,549,316	3,549,848	3,548,669	3,549,395
3,549,988	3,548,856	3,549,326	3,549,852	3,548,697	3,549,419
3,550,062	3,548,860	3,549,329	3,549,867	3,548,699	3,549,453
3,550,100	3,548,880	3,549,335	3,549,868	3,548,713	3,549,566
5 : 3,548,802	3,548,900	3,549,339	3,549,898	3,548,717	3,549,597
3,549,192	3,548,927	3,549,346	3,549,902	3,548,724	3,549,617
3,549,462	3,548,931	3,549,358	3,549,915	3,548,797	3,549,727
3,549,491	3,548,944	3,549,365	3,549,920	3,548,813	3,549,789
6 : RE.27,008	3,548,950	3,549,366	3,549,931	3,548,829	3,549,896
RE.27,013	3,548,955	3,549,372	3,549,939	3,548,888	11 : 3,548,633
3,548,410	3,548,963	3,549,393	3,549,945	3,548,928	3,548,812
3,548,412	3,548,965	3,549,397	3,549,951	3,548,969	3,549,234
3,548,417	3,548,972	3,549,410	3,549,959	3,549,004	3,549,435
3,548,418	3,548,978	3,549,416	3,549,961	3,549,033	3,549,524
3,548,428	3,548,995	3,549,420	3,549,989	3,549,074	3,549,955
3,548,436	3,549,000	3,549,439	3,549,990	3,549,188	3,550,023
3,548,438	3,549,018	3,549,468	3,549,993	3,549,191	3,550,090
3,548,439	3,549,023	3,549,471	3,549,995	3,549,221	12 : 3,548,421
3,548,497	3,549,034	3,549,489	3,550,003	3,549,239	3,548,575
3,548,498	3,549,050	3,549,490	3,550,017	3,549,243	3,548,576
3,548,509	3,549,054	3,549,493	3,550,030	3,549,256	3,548,593
3,548,524	3,549,057	3,549,494	3,550,033	3,549,266	3,548,710
3,548,534	3,549,060	3,549,509	3,550,041	3,549,360	3,548,738
3,548,539	3,549,067	3,549,510	3,550,078	3,549,424	3,548,864
3,548,551	3,549,077	3,549,512	3,550,086	3,549,441	3,548,895
3,548,552	3,549,078	3,549,522	3,550,097	3,549,474	3,549,036
3,548,558	3,549,113	3,549,533	3,550,106	3,549,487	3,549,048
3,548,564	3,549,117	3,549,558	3,550,111	3,549,568	3,549,063
3,548,569	3,549,129	3,549,564	3,550,113	3,549,604	3,549,118
3,548,577	3,549,143	3,549,575	3,550,123	3,549,624	3,549,409
3,548,578	3,549,146	3,549,616	3,550,139	3,549,663	3,549,461
3,548,579	3,549,148	3,549,639	3,550,140	3,549,744	3,549,796
3,548,591	3,549,159	3,549,647	3,550,141	3,549,818	3,549,878
3,548,597	3,549,165	3,549,655	3,550,144	3,549,827	3,549,994

12 : 3,550,005
3,550,114
13 : 3,548,466
3,548,533
3,548,587
3,548,744
3,548,891
3,549,030
3,549,150
3,549,245
3,549,315
3,549,328
3,549,735
17 : 3,548,416
3,548,424
3,548,453
3,548,481
3,548,493
3,548,512
3,548,520
3,548,526
3,548,528
3,548,532
3,548,536
3,548,549
3,548,571
3,548,618
3,548,623
3,548,629
3,548,642
3,548,644
3,548,656
3,548,684
3,548,689
3,548,734
3,548,740
3,548,743
3,548,754
3,548,769
3,548,790
3,548,820
3,548,849
3,548,851
3,548,855
3,548,859
3,548,902
3,548,903
3,548,991
3,549,001
3,549,031
3,549,037
3,549,044
3,549,051
3,549,053
3,549,058
3,549,095
3,549,120
3,549,127
3,549,137
3,549,149
3,549,160
3,549,161
3,549,170
3,549,181
3,549,184
3,549,186
3,549,190
3,549,200
3,549,213
3,549,217
3,549,225
3,549,228
3,549,229
3,549,301
3,549,350
3,549,384
3,549,385
3,549,392
3,549,415
3,549,427
3,549,429
3,549,496
3,549,519
3,549,535
3,549,538
3,549,544
3,549,548
3,549,549
3,549,562
3,549,571
3,549,584
3,549,619
3,549,646
3,549,705
3,549,765
3,549,791
3,549,794
3,549,810
3,549,840
3,549,844
3,549,854
3,549,876
3,549,893
3,549,907
3,549,929
3,549,932

17 : 3,549,946
3,549,986
3,550,001
3,550,006
3,550,007
3,550,025
3,550,037
3,550,045
3,550,063
3,550,067
3,550,076
3,550,083
3,550,105
3,550,112
3,550,143
3,550,149
18 : 3,548,442
3,548,608
3,548,795
3,548,871
3,548,976
3,549,089
3,549,123
3,549,132
3,549,182
3,549,193
3,549,349
3,549,628
3,549,686
3,549,687
3,549,772
3,549,834
3,550,010
3,550,026
3,550,058
3,550,059
19 : 3,548,674
3,548,803
3,548,899
3,549,003
3,549,026
3,549,126
3,549,162
3,549,261
3,549,618
3,550,061
20 : 3,548,573
3,548,720
3,549,019
3,549,456
21 : 3,548,444
3,548,635
3,549,391
3,549,556
3,549,720
3,549,778
3,549,821
22 : 3,548,437
3,548,566
3,548,658
3,549,062
3,549,122
3,549,352
3,549,412
3,549,425
3,549,518
23 : 3,549,035
24 : 3,548,531
3,548,540
3,548,559
3,548,660
3,548,695
3,548,708
3,548,776
3,549,005
3,549,104
3,549,155
3,549,300
3,549,327
3,549,390
3,549,591
3,549,751
3,549,788
3,549,888
3,549,906
3,549,987
3,550,119
25 : Re.27,009
Re.27,012
3,548,411
3,548,521
3,548,525
3,548,599
3,548,620
3,548,636
3,548,706
3,548,729
3,548,771
3,548,818
3,548,906
3,548,915
3,548,932
3,548,948
3,549,016
3,549,088
3,549,156

25 : 3,549,197
3,549,199
3,549,223
3,549,237
3,549,238
3,549,248
3,549,363
3,549,364
3,549,457
3,549,472
3,549,473
3,549,479
3,549,480
3,549,483
3,549,507
3,549,521
3,549,576
3,549,699
3,549,736
3,549,748
3,549,753
3,549,780
3,549,782
3,549,882
3,549,886
3,549,897
3,549,958
3,549,960
3,550,014
3,550,034
3,550,124
3,550,129
3,550,131
3,550,132
3,550,134
3,550,142
3,550,152
3,550,153
26 : 3,548,435
3,548,440
3,548,441
3,548,445
3,548,458
3,548,465
3,548,476
3,548,487
3,548,488
3,548,535
3,548,543
3,548,548
3,548,550
3,548,553
3,548,643
3,548,663
3,548,667
3,548,673
3,548,675
3,548,683
3,548,733
3,548,752
3,548,756
3,548,762
3,548,774
3,548,834
3,548,847
3,548,865
3,548,968
3,548,986
3,549,025
3,549,071
3,549,082
3,549,133
3,549,166
3,549,168
3,549,169
3,549,175
3,549,179
3,549,201
3,549,202
3,549,204
3,549,205
3,549,207
3,549,210
3,549,218
3,549,288
3,549,332
3,549,345
3,549,389
3,549,405
3,549,407
3,549,438
3,549,555
3,549,615
3,549,648
3,549,832
3,549,836
3,549,837
3,549,847
3,549,855
3,549,905
3,549,925
3,549,926
3,549,928
3,549,991
3,550,013
3,550,051

26 : 3,550,080
3,550,145
27 : 3,548,455
3,548,758
3,548,773
3,548,794
3,548,827
3,549,029
3,549,107
3,549,108
3,549,265
3,549,341
3,549,570
3,549,698
3,549,823
3,549,828
3,549,976
3,550,101
3,550,120
29 : 3,548,425
3,548,426
3,548,560
3,548,622
3,548,755
3,548,782
3,548,792
3,548,909
3,549,047
3,549,208
3,549,292
3,549,347
3,549,486
3,549,505
3,549,606
3,549,879
30 : 3,548,447
3,550,075
31 : 3,548,672
3,548,858
32 : 3,548,947
3,549,310
33 : 3,548,506
3,548,631
3,549,164
3,549,799
3,549,804
3,550,012
34 : Re.27,010
Re.27,011
3,548,427
3,548,463
3,548,471
3,548,479
3,548,515
3,548,537
3,548,545
3,548,554
3,548,625
3,548,634
3,548,654
3,548,662
3,548,745
3,548,788
3,548,848
3,548,857
3,548,887
3,548,924
3,548,992
3,548,996
3,548,998
3,549,009
3,549,052
3,549,066
3,549,080
3,549,091
3,549,094
3,549,097
3,549,099
3,549,128
3,549,140
3,549,177
3,549,198
3,549,236
3,549,251
3,549,311
3,549,348
3,549,367
3,549,370
3,549,376
3,549,404
3,549,422
3,549,444
3,549,445
3,549,455
3,549,459
3,549,467
3,549,498
3,549,528
3,549,541
3,549,552
3,549,553
3,549,560
3,549,585
3,549,588
3,549,603
3,549,612

34 : 3,549,620
3,549,621
3,549,622
3,549,623
3,549,626
3,549,633
3,549,635
3,549,641
3,549,642
3,549,644
3,549,651
3,549,652
3,549,653
3,549,672
3,549,674
3,549,683
3,549,684
3,549,689
3,549,697
3,549,703
3,549,707
3,549,710
3,549,726
3,549,729
3,549,749
3,549,754
3,549,756
3,549,761
3,549,763
3,549,766
3,549,786
3,549,787
3,549,795
3,549,801
3,549,807
3,549,814
3,549,820
3,549,835
3,549,861
3,549,869
3,549,874
3,549,891
3,549,899
3,549,904
3,549,911
3,549,938
3,549,947
3,549,950
3,549,954
3,549,975
3,549,980
3,549,985
3,549,996
3,550,000
3,550,004
3,550,011
3,550,015
3,550,018
3,550,021
3,550,031
3,550,032
3,550,035
3,550,039
3,550,040
3,550,068
3,550,082
3,550,089
3,550,093
3,550,096
3,550,098
3,550,128
3,550,157
35 : 3,550,064
36 : 3,548,419
3,548,450
3,548,451
3,548,464
3,548,478
3,548,480
3,548,482
3,548,483
3,548,491
3,548,499
3,548,500
3,548,504
3,548,516
3,548,517
3,548,529
3,548,562
3,548,590
3,548,592
3,548,603
3,548,616
3,548,619
3,548,648
3,548,686
3,548,694
3,548,700
3,548,701
3,548,705
3,548,712
3,548,719
3,548,735
3,548,747
3,548,761
3,548,764

36 : 3,548,770
3,548,778
3,548,779
3,548,783
3,548,786
3,548,791
3,548,807
3,548,817
3,548,824
3,548,828
3,548,832
3,548,850
3,548,878
3,548,896
3,548,901
3,548,904
3,548,984
3,548,988
3,548,989
3,548,994
3,549,002
3,549,015
3,549,045
3,549,059
3,549,083
3,549,084
3,549,085
3,549,106
3,549,121
3,549,152
3,549,154
3,549,180
3,549,195
3,549,224
3,549,227
3,549,247
3,549,269
3,549,309
3,549,312
3,549,313
3,549,314
3,549,331
3,549,333
3,549,356
3,549,361
3,549,362
3,549,368
3,549,371
3,549,375
3,549,378
3,549,388
3,549,394
3,549,400
3,549,401
3,549,402
3,549,403
3,549,406
3,549,417
3,549,418
3,549,421
3,549,423
3,549,428
3,549,430
3,549,434
3,549,446
3,549,447
3,549,451
3,549,460
3,549,464
3,549,502
3,549,514
3,549,517
3,549,520
3,549,534
3,549,557
3,549,569
3,549,577
3,549,590
3,549,593
3,549,605
3,549,629
3,549,631
3,549,632
3,549,634
3,549,636
3,549,637
3,549,638
3,549,640
3,549,643
3,549,654
3,549,681
3,549,688
3,549,695
3,549,712
3,549,718
3,549,746
3,549,798
3,549,802
3,549,806
3,549,808
3,549,856
3,549,875
3,549,877
3,549,880
3,549,883
3,549,892

36 : 3,549,903
3,549,909
3,549,914
3,549,957
3,549,962
3,549,977
3,549,999
3,550,009
3,550,022
3,550,036
3,550,042
3,550,043
3,550,070
3,550,084
3,550,094
3,550,103
3,550,107
3,550,133
3,550,137
37 : 3,548,542
3,548,570
3,548,583
3,548,584
3,548,737
3,548,816
3,548,819
3,548,838
3,549,111
3,549,196
3,549,306
3,549,307
3,549,398
3,549,463
3,549,470
3,549,475
3,549,530
3,549,740
3,549,872
38 : 3,548,954
39 : 3,548,430
3,548,433
3,548,473
3,548,495
3,548,496
3,548,502
3,548,557
3,548,568
3,548,611
3,548,617
3,548,640
3,548,652
3,548,690
3,548,691
3,548,711
3,548,716
3,548,746
3,548,748
3,548,822
3,548,866
3,548,873
3,548,882
3,548,893
3,548,894
3,548,911
3,548,912

39 : 3,548,913
3,548,917
3,548,929
3,548,951
3,548,956
3,548,979
3,548,999
3,549,007
3,549,010
3,549,011
3,549,021
3,549,022
3,549,039
3,549,042
3,549,065
3,549,092
3,549,096
3,549,103
3,549,130
3,549,138
3,549,142
3,549,151
3,549,171
3,549,174
3,549,185
3,549,282
3,549,283
3,549,284
3,549,285
3,549,294
3,549,297
3,549,340
3,549,380
3,549,383
3,549,386
3,549,414
3,549,426
3,549,442
3,549,452
3,549,529
3,549,536
3,549,542
3,549,546
3,549,579
3,549,581
3,549,589
3,549,598
3,549,677
3,549,715
3,549,721
3,549,738
3,549,739
3,549,762
3,549,769
3,549,774
3,549,777
3,549,779
3,549,803
3,549,816
3,549,825
3,549,862
3,549,887
3,549,983
3,550,027
3,550,118

39 : 3,550,136
3,550,156
40 : 3,548,415
3,548,459
3,548,477
3,548,523
3,548,606
3,548,861
3,548,938
3,548,946
3,549,125
3,549,219
3,549,563
3,549,565
3,549,595
3,549,609
3,549,722
3,549,998
3,550,019
41 : 3,548,508
3,548,513
3,548,518
3,548,753
3,548,787
3,548,921
3,549,008
3,549,027
3,549,147
42 : 3,548,409
3,548,429
3,548,431
3,548,432
3,548,494
3,548,503
3,548,505
3,548,555
3,548,565
3,548,574
3,548,586
3,548,614
3,548,679
3,548,696
3,548,760
3,548,781
3,548,801
3,548,823
3,548,825
3,548,836
3,548,905
3,548,916
3,548,959
3,548,960
3,549,006
3,549,043
3,549,073
3,549,110
3,549,115
3,549,116
3,549,124
3,549,136
3,549,183
3,549,216
3,549,231
3,549,259

42 : 3,549,305
3,549,308
3,549,436
3,549,443
3,549,454
3,549,477
3,549,478
3,549,485
3,549,488
3,549,499
3,549,515
3,549,527
3,549,540
3,549,554
3,549,627
3,549,675
3,549,702
3,549,733
3,549,742
3,549,783
3,549,785
3,549,805
3,549,842
3,549,843
3,549,850
3,549,851
3,549,866
3,549,900
3,549,916
3,549,919
3,549,927
3,549,953
3,549,963
3,550,020
3,550,057
3,550,060
3,550,066
3,550,127
3,550,146
3,550,148
3,550,155
44 : 3,548,607
3,548,687
3,548,868
3,549,582
3,550,072
45 : 3,548,767
3,548,842
3,549,481
3,550,056
46 : 3,549,086
47 : 3,548,975
3,549,158
3,549,448
3,549,492
3,549,608
3,549,669
3,549,784
3,549,870
48 : 3,548,449
3,548,454
3,548,492
3,548,538
3,548,563

48 : 3,548,632
3,548,637
3,548,793
3,548,846
3,548,869
3,548,874
3,548,908
3,548,910
3,548,925
3,548,934
3,548,935
3,548,936
3,548,937
3,548,939
3,548,940
3,548,941
3,548,942
3,548,943
3,548,945
3,548,949
3,548,958
3,549,079
3,549,173
3,549,187
3,549,206
3,549,244
3,549,276
3,549,278
3,549,411
3,549,432
3,549,449
3,549,513
3,549,526
3,549,532
3,549,547
3,549,592
3,549,694
3,549,732
3,549,800
3,549,949
3,549,992
3,550,073
3,550,074
3,550,077
3,550,121
3,550,122
3,550,130
3,550,151
49 : 3,548,420
3,549,839
3,550,028
50 : 3,548,649
3,550,085
51 : 3,548,977
3,548,639
3,548,661
3,548,703
3,548,843
3,548,854
3,548,970
3,549,046
3,549,109
3,549,264
3,549,413

51 : 3,549,465
3,549,594
3,549,658
3,549,741
3,549,908
3,549,943
3,549,971
3,549,981
3,550,002
3,550,046
3,550,081
52 : 3,549,596
53 : 3,548,422
3,548,434
3,548,467
3,548,604
3,548,653
3,548,814
3,548,971
3,549,064
3,549,215
3,549,252
3,549,289
3,549,382
3,549,770
3,549,771
54 : 3,548,736
3,549,320
3,549,396
3,549,586
3,549,601
3,549,650
55 : 3,548,413
3,548,485
3,548,486
3,548,665
3,548,666
3,548,678
3,548,680
3,548,681
3,548,804
3,548,810
3,548,826
3,548,863
3,548,907
3,548,961
3,548,987
3,549,032
3,549,070
3,549,081
3,549,119
3,549,209
3,549,281
3,549,501
3,549,859
3,549,944
3,549,948
3,549,972
3,549,978
3,549,979
3,550,048
3,550,055
3,550,108
3,550,117

Design Patents

6 : 219,508
219,522
219,523
219,530
219,560
219,565
15 : 219,562

15 : 219,563
17 : 219,516
219,532
219,533
219,546
219,547
219,552

18 : 219,506
219,511
22 : 219,556
25 : 219,503
26 : 219,518
219,558
219,559

27 : 219,564
34 : 219,504
219,517
219,561
36 : 219,531
219,550
37 : 219,566

39 : 219,507
219,519
219,527
219,528
219,529
219,549

42 : 219,510
219,567
49 : 219,512
219,513
219,514
55 : 219,568

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE
Official Gazette of the United States Patent Office

December 22, 1970 Volume 881 Number 4

TRADEMARKS
NOTICES

Service by Publication

Compute-A-Match, its assigns or legal representatives, take notice:

An interference having been declared by this Office between the applications of PBI Research, Inc., 400 Montgomery Street, San Francisco, California 94104, for registrations of trademarks and application Serial No. 257,369, filed October 27, 1966, by Compute-A-Match, P.O. Box 9176, Asheville, North Carolina 28805, and the order to show cause sent to the said Compute-A-Match at the said address of record having been returned by the Post Office undeliverable, notice is hereby given that unless Compute-A-Match, its assigns or legal representatives, shall enter an appearance therein within thirty days from the first publication of this order, the interference will be proceeded with as in the case of default.

This notice will be published in the OFFICIAL GAZETTE for three consecutive weeks.

JOHN H. SCHNEIDER,
Examiner-in-Chief.

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 725,249 (HEALTH CROSS AND DESIGN), A. Robinson, Inc. of Altoone, Castor oil, epsom salts, calamine lotion, tincture of iodine, aspirin tablets, vitamin tablets and capsules, milk of magnesia tablets, boric acid, saccharin tablets, rubbing alcohol, hydrogen peroxide, mild antiseptic for minor cuts and abrasions, antiseptic mouth wash, citrate of magnesia, astringent mouth wash, white petroleum jelly, cough syrups, laxatives, and preparation used for the treatment of upset stomach; **Reg. No. 773,374** (HEALTH CROSS), same, Retail drug store services; **Reg. No. 777,147** (HEALTH CROSS AND DESIGN), same, Hair shampoos; **Reg. No. 829,101** (HEALTH CROSS), White Cross Stores, Inc., Stationery—namely, writing paper, envelopes, and tablets; **Reg. No. 833,012** (HEALTH CROSS AND DESIGN), same, Rubber goods—namely, rubber bottle syringes; **Reg. No. 839,525**, same, Cutlery—namely, razor blades; **Reg. No. 840,279**, same, Cigarette lighter parts; **Reg. No. 846,881**, same, Insecticides; **Reg. No. 877,899** (HC), same, Lipstick and rouge, **filed** Aug. 31, 1970, D.C., E.D. Mich. (Detroit), Doc. 35295, *White Cross Stores, Inc.* v. *Borman's Inc., Arnold's Inc.*

Reg. No. 727,689. (See Reg. No. 736,748.)

Reg. No. 736,748 (FEDTRO), Fedtro, Inc., Electric-powered tools such as soldering irons and guns, ink and typewriter erasers, grinders and mixers, and hand tools such as screwdrivers, pliers and socket wrenches; **Reg. No. 736,763**, same, Photoelectric controls such as devices for automatically turning electric lights on and off, audio controls such as rheostats and potentiometers and electric and electronic testers such as circuit testers for television and radio circuits, tube testers for television and radio tubes, and voltage testers; **Reg. No. 727,689** (FEDTRO AND DESIGN), same, Various items of electrical equipment and supplies, such as battery chargers, mixers, speakers, power megaphones, reflex trumpet speakers, fire alarms, engine ignition power boosters, utility and signal

CONDITION OF TRADEMARK APPLICATIONS AS OF OCTOBER 31, 1970

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	23,607
Date of oldest new application	September 17, 1969
Date of oldest amended application (filing date)	March 31, 1967

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISION, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 3, 4, 5, 7, 8, 9, 10, 11, 17, 27, 28, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 50; Certification Marks, Classes A and B	12-24-69	3-31-67
(II) F. H. WETHERBEE, Classes 1, 6, 15, 18, 45, 46, 47, 48, 49, 51, 52; Collective Membership Mark, Class 200	12 16-69	12-11-67
(III) C. R. FOWLER, Classes 12, 16, 19, 21, 23, 26, 31, 34, 35, 36, 44	2-26-70	10-30-67
(IV) M. E. ABRAMSON, Classes 13, 14, 20, 22, 24, 25, 29; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, and 107	9-17-69	1-26-68
Renewals (All Classes)	9-21-70	----------
Sec. 12(c) Publications (All Classes)	10-8-70	----------

Applications filed during the month of October 1970—2,802

Registrations Issued ---------- 424—No. 904,520 to No. 904,943
Renewals Issued ---------- 85

THE TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $20.50 per annum, foreign mailing $5.75 additional; single copies, 40 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C. 20231.

lights, electronic capacitors; electric and electronic switches, soldering irons and guns; pilot lights, flashlights, batteries, earphones; radio and television filters, antennas and accessories; multiple electric outlets and other items of electric and electronic hardware and accessories; **Reg. No. 821,071,** same, Amplifiers, microphones and intercommunication equipment; burglar alarms and personal safety alarms; automatic closet lights; automatic cigarette lighter plugs; automobile defrosters, vacuum cleaners, immerision heaters, ignition guards, antenna power boosters, and trouble lights; and telephone extension jacks, plugs, and cords; **Reg. No. 834,190,** same, Magnetized metal boxes for holding keys and oil can spouts (Class 2); Adhesive tapes (Class 5); Cigarette lighters and ash trays (Class 8); Rheostats, photo-electric controls—namely, devices for automatically turning electric lights on and off; electric control devices for turning automobile headlights off after predetermined interval, and electric tapes (Class 21); Electric shavers, shaver converters, shaver power boosters and razor blade sharpeners; staplers; hand tools—namely, pliers, wire cutters, screwdrivers and socket wrenches; combination tool having sockets for interchangeably inserting various sizes and types of screwdriver blades and socket wrenches; and portable siphon pumps for transferring liquids by hand pressure (Class 23); Audio controls—namely, potentiometers; electric and electronic testers—namely, testers for radio and television tubes; voltage testers; circuit testers; pocket calculators; map measures; and thermostatically controlled fire detection devices (Class 26); Electric power tools—namely, soldering irons and guns; red plastic discs which act as warning signals upon reflection of automobile headlights beams or other electric light sources; and replacements lenses for automobile signal lights (Class 34); Phonograph arms and spindles (Class 36); Marking pens and electric ink and typewriter erasers (Class 37); Electric manicure sets and heat massagers (Class 44), filed Aug. 21, 1970, D.C. N.D. Ill. (Chicago), Doc. 70c2099, *Fedtro, Inc., Paul A. Ruston* v. *Federal Trade Company et al.*

Reg. No. 736,763. (See Reg. No. 736,748.)

Reg. No. 762,414 (WATER PIK), Aqua-Tec Corporation, Readily portable oral hygiene appliance utilizing a pulsed jet of water for massaging the gums and cleaning spaces adjacent the teeth; **Reg. No. 785,673** (WATER PIK AND DESIGN), same; **Reg. No. 809,624** (AQUA PIK), same; **3,393,673,** J. W. Mattingly, ORAL HYGIENE APPARATUS, filed July 6, 1970, D.C. Colo. (Denver), Doc. C-2405, *Teledyne Ryan Aeronautical Co., doing business as Aqua Tec Corporation* v. *Montgomery Ward & Co., Incorporated.* (Corrected copy.)

Reg. No. 773,374. (See Reg. No. 725,249.)

Reg. No. 777,147. (See Reg. No. 725,249.)

Reg. No. 785,673. (See Reg. No. 762,414.)

Reg. No. 809,624. (See Reg. No. 762,414.)

Reg. No. 821,071. (See Reg. No. 736,748.)

Reg. No. 829,101. (See Reg. No. 725,249.)

Reg. No. 833,012. (See Reg. No. 725,249.)

Reg. No. 834,190. (See Reg. No. 736,748.)

Reg. No. 839,525. (See Reg. No. 725,249.)

Reg. No. 840,279. (See Reg. No. 725,249.)

Reg. No. 846,881. (See Reg. No. 725,249.)

Reg. No. 877,899. (See Reg. No. 725,249.)

3,393,673. (See Reg. No. 762,414.)

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 279,002. Safari Camps of America, Inc., Kansas City, Mo. Filed Aug. 24, 1967.

SAFARI CAMPS

Class 38—Prints and Publications

For Printed Directories, Advertising and Business Promotional Material and Supplies, Such as Guest Information Forms, Weekly Remittance Reports, Purchase Order Forms, Invoice Forms, Direct Mail Imprint Forms, Advertising Signs, and Questionnaires (Int. Cl. 16).

Class 101—Advertising and Business

For Services of Preparing and Conducting Advertising for and Rendering to Camp Site Operators Technical Assistance in Various Phases of Their Business (Int. Cl. 35).

First use June 13, 1967.
Subj. to Intf. with SN 288,354.

SN 301,345. The Grand Union Company, East Paterson, N.J. Filed June 25, 1968.



Owner of Reg. Nos. 46,832, 848,308, and others.

Class 1—Raw or Partly Prepared Materials

For Cat Litter (Int. Cl. 31).
First use 1966.

Class 2—Receptacles

For Plastic Sandwich Bags, Plastic Utility Bags, Plastic Garbage Bags, Paper Cups, Paper Shopping Bags, Paper Lunch and Sandwich Bags, Paper Utility Bags, and Paper Garbage Bags (Int. Cls. 16 and 20).
First use November 1964, or earlier.

Class 4—Abrasives and Polishing Materials

For Floor Wax and Furniture Polish (Int. Cl. 3).
First use November 1964, or earlier.

Class 6—Chemicals and Chemical Compositions

For Air Freshener, Ammonia, Bleach, Borax, Disinfectant, Insect Sprays, Ant and Roach Killer, Starch, Water Conditioner, Fabric Softener Rinse, and Peroxide (Int. Cls. 1, 3, and 5).
First use November 1964, or earlier.

Class 14—Metals and Metal Castings and Forgings

For Aluminum Foil for Use in Wrapping Food and Other Articles, as Covers for Food and Other Containers, and as Shelf Liners (Int. Cl. 6).
First use about May 1963.

Class 18—Medicines and Pharmaceutical Preparations

For Rubbing Alcohol, Aspirin, and Vitamin Tablets (Int. Cl. 5).
First use April 1965, or earlier.

Class 29—Brooms, Brushes, and Dusters

For Cellulose Sponges (Int. Cl. 21).
First use October 1964.

Class 37—Paper and Stationery

For Writing Paper, Envelopes, Typewriter Paper, Paper Towels, Facial Tissues, Paper Napkins, Wax Paper, Freezer Paper, Bathroom Tissue, and Plastic Wrap (Int. Cl. 16).
First use April 1964, or earlier.

Class 44—Dental, Medical, and Surgical Appliances

For Sanitary Napkins (Int. Cl. 5).
First use April 1965, or earlier.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks (Int. Cl. 32).
First use about May 1963.

Class 46—Foods and Ingredients of Foods

For Saccharin, Baby Foods, Butter, Bread Crumbs, Cookies, Crackers, Margarine, Milk, Dry Milk, Flour, Sugar, Frozen Meats, Frozen Fish, Cheese Spread, Barbecue Sauce, Ground Pepper, Bird Food, Cat Food, and Dog Burgers (Int. Cls. 1, 29, 30, and 31).
First use about April 1964.

Class 48—Malt Beverages and Liquors

For Beer and Ale (Int. Cl. 32).
First use April 1967.

Class 51—Cosmetics and Toilet Preparations

For Toothpaste and Suntan Lotion (Int. Cl. 3).
First use April 1965, or earlier.

Class 52—Detergents and Soaps

For All Purpose Cleaner, Window Cleaner, Detergents, Dish Washes, Foaming Cleanser, and Soap Pads (Int. Cl. 3).
First use November 1964, or earlier.

SN 320,990. Colt Industries Inc., New York, N.Y. Mar. 7, 1969.



Owner of Reg. Nos. 49,430, 58,249, and others.

Class 9—Explosives, Firearms, Equipments, and Projectiles

For Firearms—Namely, Rifles, Pistols, Guns, Machine Guns and related Equipment and Accessories, Namely, Scopes, Holsters and Gun Mounts and Turrets; 12-Gauge Anti-Bird Depredation Shotgun Cartridges; Pyrotechnic Devices—Namely, Self-Defense CS Tear Gas Kits, 12-Gauge CS Tear Gas Cartridges, Aerial Flare Distress Kits, Orange Smoke Daylight Distress Signals, 12-Gauge Aerial Distress Flare Cartridges, and Incendiary Cartridges (Int. Cls. 11 and 13).
First use as early as February 1966.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Valves—Namely, Aircraft Cabin Air Temperature Valves, Hot Air Valves for Aircraft Jet Engine Nacelle Anti-Icing, Electro-Hydraulic Servo Valves for Machine Tool and Similar Control Applications; Pneumatic Valves for Temperature and Anti-Icing Control (Int. Cls. 6, 7, and 9).

First use on or about Mar. 15, 1965.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Engines and Engine Accessories—Namely, Magnetos, Transformers, Ignition Systems; Electric Motors and Generators; Motor Generator Sets for Use in Supplying Electrical Energy in Varied Forms and Varied Currents; Voltage Regulators and Electrical Monitor Systems; Apparatus for Electrical Discharge Machining—Namely, Electrical Power Supplies, Machine Tools, and Grinder Type Machine Tools, Electron Drills and Tap Busters for Removing Broken Taps and Drills From Metal Castings; Parts—Namely, Transformers, Controls, Power Packs, Servo-Mechanisms; Accessories—Namely, Electrodes and Electrode Materials, Including Machinable Graphite Type Materials, Machine Table Vibrators and Electrode Tool Holding Chucks; and Controls Therefor—Namely, Automatic Current Control and Protective Systems, High Voltage Finishing Circuits, and Surface Polishing Control Circuits (Int. Cls. 9 and 17).

First use on or about July 15, 1966.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Turbine Engines, Engines and Engine Accessories—Namely, Rewind Starters, Centrifigul Clutches, Internal Expanding Brakes; Transmissions—Namely, Transmission Kits for Use in Converting a 1-Speed Transmission to a 2-Speed Transmission, Hydrostatic Transmissions; Diesel, Gas and Dual Fuel Engine Motors and Generators; Power Generation Equipment; Compressors—Namely, Unit Type Reciprocating Single and Two Stage Air and Water Cooled Air Compressors of Various Sizes for General and Industrial Uses; Stationary Single Acting Reciprocating Air Compressors, and Rotary Screw Air Compressors; Pumps—Namely, Hydraulic Pumps, Horizontal Double Suction Pumps, Vertical Double Suction Pumps, Vertical Single Suction Pumps, Peripheral Turbine Pumps, Vertical Turbine Pumps, End Suction Pumps, Non-Clog Pumps, In-Line Pumps, Angle Flow Pumps, Horizontal Split Case Pumps, Multi-Stage Pumps, Turbine Pumps, Pot Pumps, Centrifugal Pumps, Propeller Pumps, Peripheral Pumps, Jet Pumps, Sump Pumps, Lawn Sprinkler Pumps and Parts Thereof—Namely, Semi-Open and Enclosed Impellers, Bowls, Bearings and Bearing Assemblies; Flexible Blade Centrifugal Gas Compressors; Hydraulic Pumps for Controlling Pitch and Feathering of Aircraft Propellers; Fuel Management for Gas Turbine and Jet Engines—Namely, Unitized Controls and Pumps, Including Overspeed Governors for Helicopters, Fixed-Wing Aircraft and Automotive Gas Turbine Applications; Main Fuel Pumps for Military and Commercial Jet Engines; Afterburner Regulators for Military Jet Engines; Fuel Management for Internal Combustion Engines—Namely, Carburetors for Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Controls for Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Regulators Controlling the Supply of Fuel to Internal Combustion Engines; Fuel Pumps for Supplying Fuel to Internal Combustion Engines; Hydraulic Pumps for Controlling Pitch and Feathering of Air Craft Propellers; Machine Tools—Namely, Automatic Turret Lathes, Tracer and Numerically Controlled Profile and Contour Milling Machines, Electrolimit Numerically and Manually Controlled Jig Borers, Numerically and Manually Controlled Rotary Tables and Numerically Controlled Machining Centers To Drill, Bore, Ream, Tap, Profile and Mill; Cutting Tools—Namely, Taps, Dies, Endmills, Reamers, Drills, Cut-Off Blades, Boring Tools; and Pump Systems Including Filters Therein for Dielectric Coolants (Int. Cl. 7).

First use as early as November 1967.

Class 26—Measuring and Scientific Appliances

For Missile Flight Control Systems—Namely, Gas, Hydraulic and Electro-Mechanical Actuation and Reaction Systems for Steering Ground-to-Ground, Anti-Tank, Air-to-Ground and Ground-to-Air Missiles and High-Altitude Research Probes, Including Cold Stored Gas Actuation, Torque-Limited Control, Proportional Control and Digital Actuation, Electro-Hydraulic Actuation; Aerospace Vehicular Flight Control Systems—Namely, Hot Gas Actuator Systems, Cold Gas Actuator Systems, Hot Gas Reaction Control Systems; Cold Gas Reaction Control Systems; Automatic Weighing Systems—Namely, Electronic, Electro-Mechanical and Mechanical Batch Weighing Systems; Electronic Scales; Electro-Mechanical Scales; Mechnical Scales; Article-Handling and Processing Apparatus; Scale Accessories—Namely, Indicator Faces; Unit Counting Dials; Attachments for Recorded Readout From Mechanical Dial and Other Scales; Parallel Digital and Serial Readout, Encoder, Analog Signal Output and Pneumatic Pressure Transducer Equipment; Automatic Unit Weights; Balance Detectors; Scoops and Test Weights; Gages—Namely, Thread Gages, Cylindrical Gages, Railroad Gages, Pipe Gages, Snap Gages, Micrometers, Calipers, Height, Radius, Planer, Depth Surface and Hole Gages, Squares, Levels, Combination Sets and Measuring Systems—Namely, Supermike Micrometers, Standard Measuring Machines, Universal Internal Comparators, Helical Path Analyzers, Twin-Head Millionth Comparators, Roundness Indicators, Coordinate Measuring Machines, Mechanical Comparators, Air Gages, Continuous Gages, Specially Designed Mechanical, Electronic and Numerically Controlled Gaging Systems; Electronic Comparators (Int. Cl. 9).

First use on or about Mar. 15, 1965.

Class 31—Filters and Refrigerators

For Desalination Equipment—Namely, Vacuum Freezing Vapor Compression Desalters Used To Transform Sea Water Into Fresh Water; and Air Filtration Systems (Int. Cl. 11).

First use on or about February 1968.

SN 321,730. Phil's (Franchises) Ltd., Calgary, Alberta, Canada, by change of name from Phil's Restaurants (Franchises) Ltd., Calgary, Alberta, Canada. Filed Mar. 14, 1969.

Phil's

Owner of Canadian Reg. No. 150,162, dated Apr. 14, 1967.

Class 46—Foods and Ingredients of Foods

For Pancakes and Waffles (Int. Cl. 30).

Class 100—Miscellaneous

For Restaurant and Drive-In Restaurant Services—Namely, the Preparation, Serving and Dispensing of Meals, Snacks, Beverages, Refreshments, and Food (Int. Cl. 42).

SN 322,376. GTI Corporation, Tonawanda, N.Y. Filed Mar. 21, 1969.

clever

Class 2—Receptacles

For Vials, Inter-Packs, Boxes, Internally Divided Crates, and Cartons (Int. Cls. 16 and 20).

Class 50—Merchandise Not Otherwise Classified

For Plastic and Metal Closures (Int. Cls. 6 and 20).

First use June 1968.

SN 322,936. Zsa Zsa Limited, New York, N.Y. Filed Mar. 27, 1969.



Class 51—Cosmetics and Toilet Preparations

For Make-Up Base (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toiletry, Bath and Body Soap (Int. Cl. 3).

First use on or before Feb. 5, 1969.

SN 322,937. Zsa Zsa Limited, New York, N.Y. Filed Mar. 27, 1969.



Class 51—Cosmetics and Toilet Preparations

For Make-Up Base (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toiletry, Bath and Body Soap (Int. Cl. 3).

First use on or before Feb. 5, 1969.

SN 322,938. Zsa Zsa Limited, New York, N.Y. Filed Mar. 27, 1969.

ZSA ZSA

Class 51—Cosmetics and Toilet Preparations

For Make-Up Base (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toiletry, Bath and Body Soap (Int. Cl. 3).

First use on or before Feb. 5, 1969.

SN 330,321. Cyclops Corporation, Pittsburgh, Pa. Filed June 18, 1969.

EMPIRE-REEVES

Class 2—Receptacles

For Containers—Namely, Tubs, Pails, Cans, Buckets, Baskets, Hods, and Rubbish Burners (Int. Cl. 21).

Class 12—Construction Materials

For Roofing, Siding and Drainage Products—Namely, Pipe, Gutters, Miters, End Caps, Slip Connectors, Spikes, Ferrules, Elbows, Conductor Pipe, Hangers, Funnels, Bands, and Strainers (Int. Cl. 6).

Class 14—Metals and Metal Castings and Forgings

For Steel and Steel Alloy Products—Namely, Sheets, Strip, Plates, Bars, Wire, Forgings, Billets, Ingots, Castings, and Shapes (Int. Cl. 6).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Shovels (Int. Cl. 8).

Class 34—Heating, Lighting, and Ventilating Apparatus

For Heating and Ventilating Pipe and Accessories Therefor—Namely, Elbows, Angles, T-Joints, Reducers, Increasers, Thimbles, Draw Bands, T-Caps, Collars, and Wall Stacks (Int. Cl. 11).

First use 1958.

SN 330,546. Programmed Systems, Inc., Milwaukee, Wis. Filed June 19, 1969.

PLAY LIKE A PRO

Class 36—Musical Instruments and Supplies

For Magnetic Tapes (Int. Cl. 9).

Class 38—Prints and Publications

For Music Sheets and Printed Instructional Manuals (Int. Cl. 16).

First use on or about Aug. 26, 1968.

SN 331,095. Royal Products Co., Bensenville, Ill. Filed June 27, 1969.



Class 21—Electrical Apparatus, Machines, and Supplies

For Electric Lather Dispensing Machines (Int. Cl. 7).

Class 51—Cosmetics and Toilet Preparations

For Shaving Cream Preparations (Int. Cl. 3).

First use Dec. 1, 1968.

SN 332,643. Avon Products, Inc., New York, N.Y. Filed July 16, 1969.

MARINA

Class 51—Cosmetics and Toilet Preparations

For Talcum Powder and After Shave Lotion (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Mar. 31, 1969.

SN 333,329. Safari Camps of America, Inc., Columbia, Mo. Filed July 24, 1969.

SAFARI CAMPS

Class 38—Prints and Publications

For Printed Matter—Namely, Business Forms, and Lists of Campground Franchise Holders Available for Distribution to the Public, and Printed Directories (Int. Cl. 16).

Class 101—Advertising and Business

For Service of Preparing and Conducting Advertising for and Rendering to Campsite Operators Technical Assistance in Various Phases of Their Business (Int. Cl. 35).

First use June 13, 1967.
Subj. to Intf. with SN 288,354.

SN 333,330. Safari Camps of America, Inc., Columbia, Mo. Filed July 24, 1969.



Class 38—Prints and Publications

For Printed Publications and Brochures, Lists of Campground Franchise Holders and the Like Which Are Available to the Public, and Printed Directories (Int. Cl. 16).

Class 101—Advertising and Business

For Preparing and Conducting Advertising for and Rendering to Campsite Operators Technical Assistance in Various Phases of Their Business (Int. Cl. 35).

First use June 13, 1967.
Subj. to Intf. with SN 288,354.

SN 333,783. Westside Lumber and Construction Co., Vail, Iowa. Filed July 28, 1969.

CESH

Class 12—Construction Materials

For Building for the Farrowing and Finishing of Swine and the Like (Int. Cl. 19).

Class 100—Miscellaneous

For Designing Buildings to the Order or Specification of Others for the Farrowing and Finishing of Swine and the Like (Int. Cl. 42).

First use Mar. 31, 1969.

SN 337,868. Seismic Computing Corp., Houston, Tex. Filed Sept. 15, 1969.

SEISCOM

Class 100—Miscellaneous

For Seismic Exploration (Int. Cl. 42).
First use at least as early as about December 1968.

Class 101—Advertising and Business

For Seismic Data Processing for Others (Int. Cl. 35).
First use at least as early as about August 1965.

SN 337,871. The Stanley Works, New Britain, Conn. Filed Sept. 15, 1969.

100 PLUS

Owner of Reg. No. 261,626.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Screw Drivers, Bit Braces, and Hand Drills (Int. Cl. 8).
First use Sept. 11, 1928.

Class 26—Measuring and Scientific Appliances

For Levels (Int. Cl. 9).
First use prior to March 1953.

SN 338,459. Serviposte S.A., Roubaix (Nord), France. Filed Sept. 19, 1969.

PULL UNDER

Owner of French Reg. No. 737,963, dated Aug. 1, 1967.

Class 39—Clothing

For Ready-To-Wear Clothing—Namely, Women's Underwear, Slips, Bras, Chemises, Girdles, Corselets, Panties, Tights, Hoods, Anklets, Knee Bands, Hosiery, Slippers, Robes and Bed Jackets, Pajamas, Children's Underwear; Men's Underwear, Shorts, Pull-Overs, Shirts, Cardigans, Waistcoats, and Vests (Int. Cl. 25).

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Table Linens, Bedspreads, and Fabrics for Use in Making the Aforementioned Articles of Clothing (Int. Cl. 24).

SN 340,294. Takiron Kagaku Kabushiki Kaisha (Takiron Chemical Co., Ltd.), Osaka-shi, Osaka-fu, Japan. Filed Oct. 9, 1969.

Takiron

Class 12—Construction Materials

For Plastic Plate and Plastic Corrugated Panel (Int. Cl. 19).

Class 14—Metals and Metal Castings and Forgings

For Plastic Coated Iron Wire for General Use (Int. Cl. 6).

First use June 20, 1960; in commerce June 20, 1960.

SN 342,582. Animated Manufacturing Company, South Holland, Ill. Filed Nov. 4, 1969.



The drawing is lined for the color orange, but no claim is made to color.

Class 14—Metals and Metal Castings and Forgings

For Metal Stampings (Int. Cl. 6).
First use at least as early as Oct. 20, 1969.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Tools and Dies (Int. Cl. 7).
First use at least as early as Oct. 20, 1969.

Class 103—Construction and Repair

For Services of Spot Welding and Riveting (Int. Cl. 37).
First use at least as early as June 1, 1969.

Class 106—Material Treatment

For Services of Custom Manufacturing of Metal Stampings and Tools and Dies and of Assembling by Joining Together One or More Metal Stampings, Screw Machine Parts, Seams, Screws, or Other Utilitary Items (Int. Cl. 40).
First use at least as early as June 1, 1969.

SN 344,250. Manufacturas Antonio Gassol S.A., Barcelona, Spain. Filed Nov. 21, 1969.



Owner of Spanish Reg. No. 420,548, dated Oct. 24, 1964.

Class 39—Clothing

For Stockings, Socks, and Hairnets (Int. Cls. 25 and 26).

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Knitted and Netted Piecegoods (Int. Cl. 24).

SN 346,239. General Signal Corporation, d.b.a. Specified Lighting Products, Rochester, N.Y. Filed Dec. 15, 1969.

SPECIFIED LIGHTING

Applicant claims no exclusive rights in "Lighting," apart from the mark as shown.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hardware for Lighting Fixtures—Namely, Poles and Brackets (Int. Cl. 11).

Class 21—Electrical Apparatus, Machines, and Supplies

For Electric Lighting Fixtures (Int. Cl. 11).

First use Nov. 7, 1969.

SN 348,380. A & W International, Inc., Santa Monica, Calif. Filed Jan. 13, 1970.

A&W

The drawing is lined for brown and orange, but no claim to color is made. Owner of Reg. Nos. 266,928, 803,485, and others.

Class 38—Prints and Publications

For Monthly Newsletter Circulated to Restaurant Franchisees (Int. Cl. 16).
First use March 1968.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks and Syrups, and Bases and Concentrates for Making Same (Int. Cl. 32).
First use January 1969.

Class 46—Foods and Ingredients of Foods

For Hot Dogs, Potato Chips, Hamburgers, Cheeseburgers, Barbecued Beef, French Fried Potatoes, Chicken and Grilled Cheese Sandwiches, Instant Coffee Creamer Powder, Salt, Sugar, Mustard, and Catsup (Int. Cls. 29 and 30).
First use January 1968.

Class 51—Cosmetics and Toilet Preparations

For Towelettes Impregnated With Cosmetic Cleansing Lotion Packed in Moisture-Proof Individual Packets (Int. Cl. 3).
First use Apr. 30, 1969.

Class 100—Miscellaneous

For Restaurant Services (Int. Cl. 42).
First use January 1968.

SN 348,614. Harper & Row, Publishers, Inc., New York, N.Y. Filed Jan. 15, 1970.



Owner of Reg. Nos. 638,798, 869,004, and others.

Class 36—Musical Instruments and Supplies

For Phonograph Records and Pre-Recorded Magnetic Tapes (Int. Cl. 9).

Class 38—Prints and Publications

For Books, Magazines and Educational Instructional and Illustrative Materials—Namely, Projectible Transparencies, Film Strips, Endless Film Loops, Story Cards, and Charts (Int. Cl. 16).

First use Sept. 1, 1967.

SN 352,024. Interdata, Incorporated, Oceanport, N.J. Filed Feb. 24, 1970.

INTERDATA

Owner of Reg. No. 873,402.

Class 101—Advertising and Business

For Designing Computer Software Specially to Customer Requirements (Int. Cl. 35).
First use at least as early as Dec. 1, 1966.

Class 103—Construction and Repair

For Installation and Maintenance of Computers (Int. Cl. 37).
First use at least as early as June 1967.

Class 107—Education and Entertainment

For Classroom Instruction in Computer Programming, Computer Maintenance and Providing Seminars in System Planning (Int. Cl. 41).
First use at least as early as Dec. 1, 1966.

SN 355,943. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

TROPICAL BERRY

Class 51—Cosmetics and Toilet Preparations

For Lip Pomade (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Feb. 13, 1970.

SN 360,855. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

ISLE OF MAY

SN 360,857. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

MOONFIRE

Class 51—Cosmetics and Toilet Preparations

For Hair Coloring Preparation, and Cologne (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Apr. 10, 1970.

SN 360,858. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

NIGHT SKY

Class 51—Cosmetics and Toilet Preparations

For Cologne and Dusting Powder (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Mar. 23, 1970.

SN 360,859. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

SUN ORCHARD

Class 51—Cosmetics and Toilet Preparations

For Lipstick and Cologne (Int. Cl. 3).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use Apr. 17, 1970.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 335,367. R. Neumann & Co., Hoboken, N.J. Filed Aug. 14, 1969.



For Wrapped Grips for Sporting Goods Articles—Namely, Golf Clubs and Tennis Rackets (Int. Cl. 28).
First use February 1968.

SN 336,494. Great Lakes Carbon Corporation, New York, N.Y. Filed Aug. 27, 1969.

FORTAFIL

For Carbon or Graphite Fibers (Int. Cl. 1).
First use May 26, 1969.

SN 349,501. Oil-Dri Corporation of America, Chicago, Ill. Filed Jan. 23, 1970.

BEAUTY ROCK

Applicant disclaims the word "Rock" apart from the mark as shown.

For Decorative Ground Cover in the Form of Rocks (Int. Cl. 19).
First use Dec. 11, 1969.

SN 352,949. Dreher Leather Manufacturing Corp., Newark, N.J. Filed Mar. 3, 1970.

ROTO

For Leather (Int. Cl. 18).
First use Dec. 18, 1969.

Class 2—Receptacles

SN 272,983. Winchell Donut House, Inc., South El Monte, Calif. Filed June 5, 1967.



Applicant disclaims the words "Fresh! See E'm Made" apart from the mark as shown.
For Paper Bags (Int. Cl. 16).
First use Mar. 18, 1958.

SN 321,486. Anthony C. Failla, d.b.a. Thermoway Industries, Lomita, Calif. Filed Mar. 12, 1969.

THERMOWAY

For Insulated Containers for Foods Containing a Chemical Heating Substance (Int. Cl. 21).
First use Feb. 28, 1969.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 344,811. Botany Industries, Inc., New York, N.Y. Filed Nov. 28, 1969.

Miss Botany

For Luggage (Int. Cl. 18).
First use on or about Sept. 15, 1967.

SN 344,812. Botany Industries, Inc., New York, N.Y. Filed Nov. 28, 1969.

Lady Botany

For Luggage (Int. Cl. 18).
First use on or about Sept. 15, 1967.

SN 345,131. Botany Industries, Inc., New York, N.Y. Filed Dec. 3, 1969.

Lord Botany

For Luggage (Int. Cl. 18).
First use on or about Sept. 15, 1967.

SN 346,604. Crown Plastic Manufacturing Company, San Fernando, Calif. Filed Dec. 18, 1969.

Carry-rite

For Travel Bags (Int. Cl. 18).
First use at least as early as February 1961.

Class 4—Abrasives and Polishing Materials

SN 328,872. Robert E. Mason, d.b.a. Mason Products, Cleveland, Ohio. Filed June 2, 1969.



For Polishing and Cleaning Wax, Particularly for Boats and Other Marine Craft (Int. Cl. 3).
First use Mar. 20, 1968.

Class 5—Adhesives

SN 336,305. Armour and Company, Chicago, Ill. Filed Aug. 26, 1969.

ARMOUR

Owner of Reg. Nos. 542,329, 843,048, and others.
For Pressure Sensitive Tape, and Vegetable, Protein, Resin and Rubber Based Adhesives and Resin-Wax Based Hot Melt Adhesives (Int. Cls. 1 and 17).
First use in or prior to January 1966 on pressure sensitive tape.

SN 363,229. Enterprise Tape Co., Inc., d.b.a. Enterprise Tape Co., Dolton, Ill. Filed June 22, 1970.

PERMA-TAC

For Self-Adhesive Transfer Tape (Int. Cl. 17).
First use Jan. 17, 1968.

Class 6—Chemicals and Chemical Compositions

SN 316,609. Caled Products Company, Inc., Brentwood, Md. Filed Jan. 15, 1969.

VEL-ODOR

For Odor Neutralizing Concentrate for Use in Cleaning With Water or Solvents (Int. Cl. 5).
First use January 1954.

SN 321,585. Allied Research Products, Inc., Baltimore, Md. Filed Apr. 11, 1969.

LO-CY

For Electroplating Solutions and Additives for Electroplating Solutions (Int. Cl. 1).
First use Mar. 20, 1968.

SN 322,655. Universal Oil Products Company, d.b.a. UOP Johnson Division, Des Plaines, Ill. Filed Mar. 24, 1969.

NU-WELL

For Pelletized Chemicals for Rehabilitation of Encrusted Wells (Int. Cl. 1).
First use Apr. 17, 1968.

SN 322,897. Naftone, Inc., New York, N.Y. Filed Mar. 26, 1969.

AQUAPLEX

For Paint Drying Composition Useful for Incorporation Into Paints, Especially Emulsion Type (Int. Cl. 1).
First use Jan. 15, 1969.

SN 323,330. Chemtrust Industries Corp., Maywood, Ill. Filed Apr. 1, 1969.

LIQUA-THERM

For Composition for Melting Ice and Snow (Int. Cl. 1).
First use Sept. 10, 1963.

SN 324,550. Western Litho Plate & Supply Co., St. Louis, Mo. Filed Apr. 14, 1969.

LITHOPLATER RED

Applicant disclaims the word "Red" apart from the mark as shown.
For Red Image Developer Composition Providing One Step Lacquering and Desensitizing of Exposed Lithographic Plates (Int. Cl. 1).
First use July 18, 1968.

SN 324,772. Wynn Oil Company, Azusa, Calif. Filed Apr. 16, 1969.

KWIK-KOOL

For Engine Radiator Coolant (Int. Cl. 1).
First use Mar. 19, 1969.

SN 325,413. Superex of Ramsey Ltd., Ramsey, N.J. Filed Apr. 23, 1969.

SUPEREX

For Air Fresheners for Use in Vehicles, Homes, and Any Confined Space (Int. Cl. 5).
First use June 24, 1968.

SN 326,735. Alco Chemical Company, Artesia, Calif. Filed May 8, 1969.

BUG JUICE

For Insecticide (Int. Cl. 5).
First use since 1960.

SN 328,552. Interstate Foods Corporation, Chicago, Ill. Filed May 28, 1969.

prolong

For Composition for Treating Edible Oils (Int. Cl. 1).
First use May 1969.

SN 329,533. Chas. S. Tanner Co., Warwick, R.I. Filed June 9, 1969.

BIOFAX

For Textile Auxiliaries—Namely, for Kier Boiling, Bleaching and Dyeing of Textiles (Int. Cls. 1 and 2).
First use in or about Jan. 1, 1953.

SN 335,931. American Photocopy Equipment Company, Evanston, Ill. Filed Aug. 22, 1969.

ULTRA 60

For Photographic Developing Liquid and X-Ray Film Developer (Int. Cl. 1).
First use June 19, 1969.

SN 344,803. Universal Oil Products Company, Des Plaines, Ill. Filed Nov. 28, 1969.

K-24

Owner of Reg. No. 850,049.
For Soluble Phosphate for Scale and Corrosion Control in Potable Water and Cooling Water Systems (Int. Cl. 2).
First use on or prior to Sept. 25, 1969.

SN 345,097. Spartan Aviation, Inc., Tulsa, Okla. Filed Dec. 2, 1969.

SPARTAN EP

For Liquid Vehicle Used for the Deposition of Dispersed Solids, Such as Metal or Ceramic Particles in the Coating of Objects (Int. Cl. 1).
First use Sept. 19, 1969.

SN 345,938. Geigy Chemical Corporation, Ardsley, N.Y. Filed Dec. 11, 1969.

FRAMODAL

Owner of Reg. Nos. 870,306 and 874,527.
For Chemical Ingredient Used in the Manufacture of Herbicides (Int. Cl. 1).
First use Oct. 30, 1969.

SN 345,993. Tesco Chemicals, Inc., Atlanta, Ga. Filed Dec. 11, 1969.

TESCO-CIDE

Owner of Reg. Nos. 732,021 and 836,170.
For Algaecide for Use in Swimming Pools (Int. Cl. 5).
First use during 1959.

SN 356,326. Baird Chemical Industries, Inc., Fairlawn, N.J. Filed Apr. 9, 1970.

BARDAC

For Industrial Chemicals—Namely, Ammonium Disinfectant Compounds (Int. Cl. 5).
First use Nov. 19, 1969.

SN 359,843. The G & O Manufacturing Company, New Haven, Conn. Filed May 15, 1970.

GANDO

For Fast Tinning Compound (Int. Cl. 1).
First use January 1969.

SN 366,836. Diamond Shamrock Corporation, Cleveland, Ohio. Filed Aug. 3, 1970.

FOAMASTER

For Defoaming Agents (Int. Cl. 1).
First use Oct. 10, 1968.

SN 367,284. Penick & Ford, Limited, Cedar Rapids, Iowa. Filed Aug. 6, 1970.

PEN-SPRAE

For Industrial Starch Modified (Int. Cl. 1).
First use Sept. 16, 1969.

SN 367,390. Diamond Shamrock Corporation, Cleveland, Ohio. Filed Aug. 7, 1970.

SANURIL

For Bactericide and Disinfectant for Treatment of Wastewater (Int. Cl. 5).
First use July 29, 1970.

SN 367,391. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 7, 1970.

KRENITE

For Herbicide (Int. Cl. 5).
First use June 23, 1970.

SN 367,392. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 7, 1970.

LIGNASAN

For Herbicide (Int. Cl. 5).
First use June 23, 1970.

SN 367,393. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 7, 1970.

KROVAR

For Weed Killer (Int. Cl. 5).
First use June 26, 1970.

Class 8—Smokers' Artides, Not Including Tobacco Products

SN 323,325. Lane Limited, New York, N.Y. Filed Apr. 1, 1969.

DANISH PRIDE

The word "Danish" is disclaimed apart from the mark as shown without any waiver of common-law rights. Owner of Reg. Nos. 890,351 and 897,224.
For Smoking Pipes (Int. Cl. 34).
First use October 1967.

Class 10—Fertilizers

SN 358,929. Atlantic Richfield Company, New York, N.Y. Filed May 6, 1970.

ARCO

For Fertilizer (Int. Cl. 1).
First use at least as early as Dec. 5, 1969.

Class 12—Construction Materials

SN 294,483. Condux International, Inc., Naperville, Ill., assignee of Elmore Concrete Products Co., Naperville, Ill. Filed Mar. 29, 1968.

WIRE BOND

Owner of Reg. No. 771,314.
For Pre-Molded Gasket and Seal for Concrete Conduit and Pipe (Int. Cl. 6).
First use Feb. 13, 1962.

SN 321,615. A.R.B. Corporation, Detroit, Mich. Filed Mar. 13, 1969.



The mark consists of the stylized representation of the letters "ARB." Owner of Reg. No. 641,975.
For Horizontal and Vertical Metal Windows (Int. Cl. 6).
First use Jan. 24, 1969.

SN 331,449. Torginol of America, Inc., Montebello, Calif. Filed June 30, 1969.

Ceramic Gem

The word "Ceramic" is disclaimed separate and apart from the mark.
For Packaged Seamless Floor System Including Both Liquid Material and Granular Particles (Int. Cl. 19).
First use Nov. 15, 1968.

SN 333,323. Port-A-Stall, Inc., Scottsdale, Ariz. Filed May 12, 1969.

PORT-A-STALL

For Small Portable Buildings Principally Used as Horse Stalls (Int. Cl. 19).
First use Feb. 10, 1968.

SN 336,335. Johns-Manville Corporation, New York, N.Y. Filed Aug. 26, 1969.

TERRACERAN

For Mineral-Glaze Coated Asbestos–Cement Sheets for Exterior Building Facing, Spandrel Panels, Bacony and Terrace Dividers, Soffits, Interior Partitions, Wainscoting, Bathroom and Kitchen Counter Tops, Domestic and Contract Furniture, Institutional Furniture and Other Uses (Int. Cls. 17 and 19).
First use at least on or about Mar. 22, 1965.

SN 340,293. Takiron Kagaku Kabushiki Kaisha (Takiron Chemical Co., Ltd.), Higashi-ku, Osaka, Japan. Filed Oct. 9, 1969.

The mark is a fanciful representation of a twisted and distorted loop of flat tape. Owner of Japanese Reg. No. 631,111, dated Dec. 6, 1963.
For Plastic Gutters for Rain Water (Int. Cl. 19).

SN 344,463. Thompson Materials Corporation, Belleville, N.J. Filed Nov. 24, 1969.

TMC EXPOFOAM

Owner of Reg. Nos. 387,137, 605,324, and 776,442.
For Control and Expansion Joint Filler (Int. Cl. 19).
First use Oct. 1, 1969.

SN 350,934. Martec Corporation, Erie, Pa. Filed Feb. 9, 1970.

MonoStone

For Structural Building Panels (Int. Cl. 19).
First use Oct. 27, 1969.

SN 352,975. Owens-Corning Fiberglas Corporation, Toledo, Ohio. Filed Mar. 3, 1970.

SC30

For Insulating and Finishing Cements (Int. Cl. 19).
First use February 1967.

SN 353,634. Alpha Portland Cement Company, Easton, Pa. Filed Mar. 10, 1970.

SUPERSET

For Cement (Int. Cl. 19).
First use Jan. 14, 1970.

SN 353,883. Johns-Manville Corporation, New York, N.Y. Filed Mar. 12, 1970.

HELI-WRAP

For Fire Proofing or Protective Thermal Insulating Sleeve (Int. Cl. 17).
First use at least on or about Sept. 25, 1968.

SN 362,124. Pfizer Inc., New York, N.Y. Filed June 9, 1970.



Applicant disclaims the word "Noise" apart from the mark as shown. Owner of Reg. Nos. 79,840, 836,967, and others.
For Acoustic Plaster for Building Purposes (Int. Cl. 19).
First use as early as 1957.

SN 362,618. Pfizer Inc., New York, N.Y. Filed June 15, 1970.



Owner of Reg. Nos. 79,840, 836,967, and others.
For Acoustic Plaster for Building Purposes (Int. Cl. 19).
First use as early as 1957.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 326,141. Shahmoon Industries, Inc., New York, N.Y. Filed May 1, 1969.

WP

For Iron Castings, to wit, Iron Pipe; Pipe Bends, T's, Crosses, Reducers, and Other Fittings; Catch Basins, Valve Boxes and Bodies, Grates, and Counterweights (Int. Cl. 6).
First use Apr. 3, 1967.

SN 334,028. Edgar B. Rumble, d.b.a. Michigan Hanger Company, Campbell, Ohio. Filed July 31, 1969.

MICHIGAN-M-CO

For Pipe Hangers (Int. Cl. 6).
First use at least as early as January 1967.

SN 335,085. United Industries, Inc., Wichita, Kans. Filed Aug. 11, 1969.

SWIM TIME

For Strainers, Anchor Sockets, Eyes and Flanges, Drains, Vacuum Fittings, Water Inlet Fittings, Spouts, Skimmers, and Valve Manifolds (Int. Cl. 6).
First use on or about May 21, 1969.

SN 335,622. Toro Manufacturing Corporation, Minneapolis, Minn. Filed Aug. 18, 1969.

GREENSKEEPER

For Fluid Flow Controllers and Irrigation Systems, and Components Thereof (Int. Cl. 11).
First use at least as early as 1962.

SN 350,760. Mission-West Manufacturing Company, Los Angeles, Calif. Filed Feb. 6, 1970.

SANIWARE

For Toilets, Valves, Couplings, Waste Tanks, Water Supply Tanks, and Pressure Caps, as Used in Sanitary Waste Disposal Systems (Int. Cl. 11).
First use Oct. 1, 1959.

SN 352,052. All States Plastic Manufacturing Co., Inc., Chicago, Ill. Filed Feb. 24, 1970.

as

For Cable Clamps and Cable Ties (Int. Cl. 6).
First use Nov. 21, 1968.

SN 352,761. Braun Manufacturing Company, Inc., Chicago, Ill. Filed Mar. 2, 1970.

HINGES BY BRAUN

For Hinges (Int. Cl. 6).
First use at least as early as April 1952.

SN 354,140. Continental Oil Company, Ponca City, Okla. Filed Mar. 16, 1970.

HY-TITE

For Extruded Plastic in Film, Pipe or Tube Form, and Pipe Fittings (Int. Cl. 17).
First use in or before December 1967.

SN 363,823. David Kamenstein, Inc., New York, N.Y. Filed June 29, 1970.

CAPRICE

For Cookware (Int. Cl. 21).
First use June 24, 1970.

SN 370,001. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Sept. 18, 1970.

SAFE-T-BROIL

For Aluminum Broiling Pans (Int. Cl. 21).
First use mid-August 1970.

SN 370,003. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Sept. 18, 1970.

CLEAN 'N EASY

For Aluminum Broiling Pans (Int. Cl. 21).
First use mid-August 1970.

Class 14—Metals and Metal Castings and Forgings

SN 297,644. American Metal Climax, Inc., d.b.a. Apex Smelting Co., New York, N.Y. Filed May 8, 1968.

APEX

Owner of Reg. No. 547,151.
For Non-Ferrous Metal Products—Namely, Aluminum Alloys and Zinc Alloys in the Form of Ingots, Plates, Bars, Cakes, Sows, Slugs, Rods, Shot and Standard Specimens for Spectrographic Analyses (Int. Cl. 6).
First use in or about September 1962.

SN 323,729. Portec, Inc., Oak Brook, Ill. Filed Apr. 4, 1969.

PORTEC POLY INSULATED

For Railway Rail Joints (Int. Cl. 6).
First use Oct. 1, 1968.

SN 344,693. Diversified Industries, Inc., Clayton, Mo. Filed Nov. 26, 1969.

CU • GRAINS

Owner of Reg. No. 855,831.
For Copper Granules (Int. Cl. 6).
First use Oct. 29, 1969.

SN 352,633. General Signal Corporation, Rochester, N.Y. Filed Feb. 27, 1970.



For Metal Castings (Int. Cl. 6).
First use during July 1969.

Class 15—Oils and Greases

SN 326,585. Baron Blakeslee, Inc., Chicago, Ill. Filed May 7, 1969.

BLACO-COAT

Owner of Reg. Nos. 855,761, 871,459, and others.
For Plastic Coating Solutions Which Function as a Lubricant and Surface Release Agent (Int. Cl. 4).
First use on or about Apr. 11, 1969.

SN 356,762. Shell Oil Company, New York, N.Y. Filed Apr. 13, 1970.

FUTURE SHELL

Owner of Reg. Nos. 279,349, 513,109, 852,113, and others.
For Gasoline (Int. Cl. 4).
First use at least as early as Mar. 11, 1970.

SN 369,038. American Air Filter Company, Inc., Louisville, Ky. Filed Aug. 26, 1970.



For Oily Viscous Liquids for Use on Dust Collecting Surfaces for Dust Retention Purposes (Int. Cl. 4).
First use Oct. 23, 1935.

Class 16—Protective and Decorative Coatings

SN 330,589. De Soto, Inc., Des Plaines, Ill. Filed June 20, 1969.

AQUAFORM

For Industrial Baking Finishes in the Nature of a Paint (Int. Cl. 2).
First use on or about May 21, 1969.

SN 350,011. Thiele-Engdahl, Inc., Elizabeth, N.J. Filed Jan. 29, 1970.

VAPOSIST

For Resinous Coating Material for Coating Paper, Paperboard and Other Packaging Materials To Prevent, or at Least Minimize, the Introduction of Moisture-Bearing Ambient Air to Package (Int. Cl. 2).
First use Sept. 19, 1969.

SN 356,658. Foy-Johnston, Inc., Cincinnati, Ohio. Filed Apr. 13, 1970.

COATASTONE

For Waterproof Paint for Interior Surfaces (Int. Cl. 2).
First use Mar. 27, 1970.

SN 357,866. Standard Brands Paint Co., Inc., of California, d.b.a. Coast-to-Coast Oil & Lead Works, Torrance, Calif. Filed Apr. 24, 1970.



For Paint (Int. Cl. 2).
First use on or about Apr. 5, 1941.

SN 357,867. Standard Brands Paint Co., Inc. of California, d.b.a. Tru-Wear Paint Co., Torrance, Calif. Filed Apr. 24, 1970.



For Paint (Int. Cl. 2).
First use on or about July 19, 1942.

SN 358,063. Ocean Chemicals, Inc., Niagara Falls, N.N.Y. Filed Apr. 27, 1970.



For Fire Retardant Paints and Varnishes (Int. Cl. 2).
First use Nov. 26, 1958.

SN 359,844. The G & O Manufacturing Company, New Haven, Conn. Filed May 15, 1970.

GANDO

For Black Radiator Paint (Int. Cl. 2).
First use June 1968.

Class 17—Tobacco Products

SN 337,689. Rembrandt Tobacco Corporation (Overseas) Limited, Zurich, Switzerland. Filed Sept. 11, 1969.

OUDE MEESTER

"Oude Meester" is in the Afrikaans language; the English equivalent of which is "old master."
For Cigarettes (Int. Cl. 34).
First use June 10, 1969; in commerce June 10, 1969.

SN 338,399. Imperial Tobacco Company of Canada Limited, Montreal, Quebec, Canada. Filed Sept. 19, 1969.

BLACK WATCH

Owner of Canadian Reg. No. 43/10,347, dated Sept. 19, 1905.
For Pipe Tobacco (Int. Cl. 34).

SN 339,357. Rothmans of Pall Mall Limited, Zurich, Switzerland. Filed Sept. 30, 1969.

FLEUR DU ROI

"Fleur du Roi" are French Words, translated mean "king's flower."
For Cigarettes (Int. Cl. 34).
First use Aug. 13, 1969; in commerce Aug. 13, 1969.

SN 354,954. Gallaher Limited, Belfast, Northern Ireland. Filed Mar. 24, 1970.



Applicant disclaims the terms "Blended With the Finest Yenidje Tobacco," "Smoking Mixture" and "Tobacco," separate and apart from the mark as shown. Owner of U.S. Reg. Nos. 618,102 and 261,652.
For Smoking Tobacco (Int. Cl. 34).
First use 1929; in commerce 1935.

SN 355,858. Bayuk Cigars Incorporated, Philadelphia, Pa. Filed Apr. 3, 1970.

CREMA LATINA

The Spanish words "Crema Latina" mean "Latin cream."
For Cigars (Int. Cl. 34).
First use Nov. 18, 1969.

SN 358,945. Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel N.V., Joure, Netherlands. Filed May 6, 1970.

DOUWE EGBERTS COUNT OF HOLLAND

Owner of Reg. Nos. 666,491, 678,340, 695,938, and 743,285.
For Smoking and Chewing Tobacco, Cigars, and Cigarettes (Int. Cl. 34).
First use Nov. 4, 1969; in commerce Jan. 15, 1970.

Class 18—Medicines and Pharmaceutical Preparations

SN 334,575. Geigy Chemical Corportaion, Ardsley, N.Y. Filed Aug. 6, 1969.

EPIRETS

Owner of Reg. No. 691,548.
For Gradual Release Medication (Int. Cl. 5).
First use July 25, 1969.

SN 334,577. Geigy Chemical Corporation, Ardsley, N.Y. Filed Aug. 6, 1969.

OMNIRETS

Owner of Reg. No. 691,548.
For Gradual Release Medication (Int. Cl. 5).
First use July 25, 1969.

SN 334,714. Janssen Pharmaceutica NV., Beerse, Belgium. Filed Aug. 7, 1969.

Tramisol

Owner of Belgian Reg. No. 2,515, dated Jan. 15, 1969; and U.S. Reg. No. 863,830.
For Pharmaceutical, Veterinary and Hygienic Preparations—Namely, Anthelmintic Preparations (Int. Cl. 5).

SN 334,756. Vineland Poultry Laboratories, Vineland, N.J. Filed Aug. 7, 1969.

S-4 NEOMED

For Medicinal Mixtures Containing Sulfa and Neomycin Compounds for Poultry and Livestock Use (Int. Cl. 5).
First use December 1964.

SN 334,758. Vineland Poultry Laboratories, Vineland, N.J. Filed Aug. 7, 1969.

S-4 PLUS TA

For Medicinal Mixtures Containing Sulfa, Thiamine and Vitamin Compounds for Poultry and Livestock Use (Int. Cl. 5).
First use May 1967.

SN 334,956. Acid-Eze Co., Inc., Trion, Ga. Filed Aug. 11, 1969.

DRUG-STIX

For Medicinal Preparation, Comprising a Pop on a Stick, for Reducing Fever or Relieving Pain Due to Common Colds, Headache, etc., in Infants and Children (Int. Cl. 5).
First use July 28, 1969.

SN 335,573. Haver-Lockhart Laboratories, Incorporated, Shawnee, Kans. Filed Aug. 18, 1969.

HAVLOGEN

For Adjuvant Incorporated as an Ingredient in Medicinal Preparations for Veterinary Use (Int. Cl. 5).
First use July 29, 1969.

SN 335,954. Dooner Laboratories Inc., Haver Hill, Mass. Filed Aug. 22, 1969.

DULLARIN

Owner of Reg. No. 884,022.
For Analgesic Preparation for Relief of Pain Such as Simple Headache, Neuralgia, Earache, Toothache, Cold Discomforts, and Aches and Pains (Int. Cl. 5).
First use Aug. 18, 1969.

SN 337,062. Mead Johnson & Company, Evansville, Ind. Filed Sept. 4, 1969.

K-LYTE-CL

Owner of Reg. No. 803,762.
For Potassium Supplement With Chloride (Int. Cl. 5).
First use Aug. 28, 1969.

SN 338,536. Cederroth International S.A., Geneva, Switzerland. Filed Sept. 22, 1969.

GERMIDOL

Owner of Swiss Reg. No. 235,108, dated July 10, 1968.
For Skin Ointments and Creams for Antiseptic Purposes; Antiseptic Sprays for Cuts and Wounds; and Antiseptic Towelettes Used for Antiseptic Purposes (Int. Cl. 5).

SN 338,700. USV Pharmaceutical Corporation, New York, N.Y. Filed Sept. 23, 1969.

PERVACOTE

For Food Supplement for Dogs and Cats To Aid Their Skins and Coats (Int. Cl. 5).
First use Sept. 3, 1969.

SN 339,880. Gilbert Laboratories, Bernardsville, N.J. Filed Oct. 6, 1969.



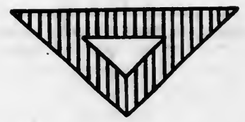
For Pharmaceuticals—Namely, Analgesics (Int. Cl. 5).
First use on or about July 1, 1969.

SN 343,994. Lavil Laboratories, Inc., Scottdale, Ga. Filed Nov. 19, 1969.

VEMICEP

For Antiseptic Lotion (Int. Cl. 5).
First use on or about July 27, 1969.

SN 346,961. Richardson-Merrell Inc., New York, N.Y. Filed Dec. 22, 1969.



The drawing is lined for the color red. Owner of Reg. Nos. 241,961, 314,175, and 322,186.
For Pharmaceutical Preparations for the Treatment of Coughs, Colds, and Respiratory Disorders (Int. Cl. 5).
First use Jan. 1, 1960.

SN 347,738. Glaxo Laboratories Limited, Greenford, Middlesex, England. Filed Jan. 5, 1970.

CEPOREX

Owner of British Reg. No. 926,552, dated June 12, 1968.
For Cephalosporin Antibiotic Preparations (Int. Cl. 5).

SN 351,437. The Delmark Company, Minneapolis, Minn. by change of name from The Dietene Company, Minneapolis, Minn. Filed Feb. 16, 1970.

PLEXIGEN

For Medicated Pads To Help Control Oily Skin, Blackheads, Pimples, and Acne (Int. Cl. 5).
First use Dec. 15, 1969.

SN 355,305. Benefax, Inc., White Plains, N.Y. Filed Mar. 30, 1970.

THRO-PAIN

For Medicated Oral Solution for Relief of Sore Gums, Throat, and the Mouth (Int. Cl. 5).
First use Jan. 29, 1970.

Class 19—Vehicles

SN 313,763. Benton Plating-Industrial, Inc., Ontario, Calif. Filed Dec. 2, 1968.



Applicant disclaims the word "Kraft" as part of the mark.
For Automobile Wheels (Int. Cl. 12).
First use July 5, 1968.

SN 325,869. Griffin Tank & Welding Service, Dallas, Tex. Filed Apr. 29, 1969.

GRIFFIN TANK

No claim is made for the word "Tank" apart from the mark as shown.
For Truck Bodies, Fluid Tanks To Be Mounted on and To Become Parts of Motor Vehicles, and Freight Cargo Trailers (Int. Cl. 12).
First use during 1946.

SN 339,297. S. Blickman, Inc., Weehawken, N.J. Filed Sept. 30, 1969.



The representation of the goods is disclaimed separate and apart from the mark as shown.
For Mobile Hot and Cold Food Cart (Int. Cl. 12).
First use Aug. 29, 1969.

SN 347,314. Phillips Petroleum Company, Bartlesville, Okla. Filed Dec. 29, 1969.

LUBE LINER

For Bearing Plates for Train Wheel Assemblies (Int. Cl. 12).
First use Nov. 6, 1969.

SN 357,943. The BKM Company, Dallas, Tex. Filed Apr. 27, 1970.

GUIDEMASTER

For Nosewheel Steering Control for Aircraft (Int. Cl. 12).
First use Oct. 10, 1969.

Class 20—Linoleum and Oiled Cloth

SN 345,997. Top Tile Building Supply Corp., New York, N.Y. Filed Dec. 11, 1969.



Applicant disclaims the use of the word "Tile." The drawing is lined for the colors yellow and blue.
For Linoleum Tile, Vinyl Tile, Rubber Tile, Plastic Tile, Asphalt Tile, and Vinyl Asbestos Tile (Int. Cl. 19).
First use Mar. 1, 1958.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 312,937. Stewart-Warner Corporation, Chicago, Ill. Filed Nov. 14, 1968.

POLICEPHOTOFAX

Applicant disclaims the term "Photofax" unless used in the combination "Policephotofax." Owner of Reg. No. 678,814.
For Electrical Facsimile Transmitting and Receiving Apparatus and Accessories Therefor for Use in Police Work (Int. Cl. 9).
First use Jan. 11, 1968.

SN 315,257. N.V. Philips' Gloeilampenfabrieken, Eindhoven, Netherlands. Filed Dec. 26, 1968.

PHILIPS

Owner of U.S. Reg. Nos. 681,200, 781,002, 837,968, and others.

For Microwave Components, Parts and Accessories Thereof—Namely, Attenuators, Circuits, Crystal Silicon, Crystal Diode, Detectors, Directional Couplers, Flanges, Flange Adaptors and Couplers, Frequency Multipliers, Horns, Hybrid Tees, Isolators, Lids, Matched Loads, Phase Shifters, Tuners, Slotted Lines, Slotted Sections, Waveguide Bends, Straight Waveguide Sections, Switches, Couplings, Twists, Passing and End Connected Waveguides, Variable Impedances, Whiskers; and Electronic Apparatus, Parts and Accessories Thereof—Namely, Amplifiers, Capacitors, Encoders, Generators, Modulators, Oscillators, Sampling Time Bases, Timers, Wobbulators, Cabinets, Electrodes, Connectors, Converters, Plugs, Sockets, Power Pack Supplies, Probes, Transformers, Capillary and Marking Pens (Int. Cl. 9).

First use at least as early as 1947 on attenuators; in commerce at least as early as 1947.

SN 318,851. In-Flight Devices Corp., Columbus, Ohio. Filed Feb. 7, 1969.

IVI

For High Intensity Strobe Light (Int. Cl. 11).
First use November 1967.

SN 320,598. Gulf Aerospace Corporation, Houston, Tex. Filed Mar. 3, 1969.

For Radio Operated Security Fire and Burglar Alarms (Int. Cl. 9).
First use March 1966.

SN 323,927. A.T.A. Control Systems, Inc., Hialeah, Fla. Filed Apr. 8, 1969.

AMERICAN TELEPHONE ALARM

AA

The applicant disclaims the term "American Telephone Alarm."

For Telephone Alarm and Monitoring Systems—Namely, Electromechanical Telephone Alarms and Electronic Control Units for Transmitting Such Alarms, Including Electromechanical Telephone Dialers and Electronic Control Units for Receiving Signals and Transmitting Them to the Dialer (Int. Cl. 9).

First use Feb. 16, 1967.

SN 331,949. Texlite Industries, Inc., Dallas, Tex. Filed July 7, 1969.

TEXLITE

INDUSTRIES

The drawing is lined for the colors red and blue, but no claim is made to color. Owner of Reg. Nos. 396,092, 587,797, and 608,553.

For Electric Signs, Plastic Facing Panels for Electric Signs, and Parts Therefor (Int. Cl. 9).

First use Apr. 1, 1969.

SN 344,955. Dreyco, Inc., New York, N.Y. Filed Dec. 1, 1969.

DREYCO

Owner of Reg. No. 673,128.

For Electrical Parts for Automotive Use—Namely, Starters, Generators, Batteries, Spark Plugs, Distributor Caps, Distributor Rotors, Ignition Points, Starter Solenoid, Condensors, Voltage Regulators, Cut Outs, Starter Switches, Ignition Coils, Dimmer Switches, and Headlight Switches (Int. Cls. 7, 9, and 12).

First use July 1, 1968.

SN 354,268. Societe Anonyme Belge d'Exploitation de la Navigation Aerienne, Brussels, Belgium. Filed Mar. 17, 1970.

S.I.M.P.L.

Priority claimed under Sec. 44(d) on Belgian Reg. No. 119,416, dated Sept. 18, 1969.

For Aircraft Wiring Systems and Components Thereof—Namely, Connectors, Circuit Boards, and Cables (Int. Cl. 9).

SN 356,257. Cato Oil and Grease Co., Oklahoma City, Okla. Filed Apr. 8, 1970.

MYSTIK

Owner of Reg. Nos. 811,548, 811,549, and 811,595.
For Support Posts for Electric Fences (Int. Cl. 6).
First use Oct. 18, 1969.

SN 356,258. Cato Oil and Grease Co., Oklahoma City, Okla. Filed Apr. 8, 1970.

ELECTRI-POST

For Support Posts for Electric Fences (Int. Cl. 6).
First use Oct. 18, 1969.

SN 358,986. Novatron, Inc., St. Paul, Minn. Filed May 6, 1970.

novatron

For Electric Control Motors and Electric Control Panels (Int. Cl. 9).
First use Dec. 3, 1969.

SN 359,589. The Cello Chemical Company, Baltimore, Md. Filed May 13, 1970.

Vac-All

For Small Vacuum Cleaners (Int. Cl. 9).
First use in or about August 1968.

SN 362,627. Roach-Appleton Manufacturing Company, South Bend, Ind. Filed June 15, 1970.

BRIEGEL

For Indentor Tools for Applying Electrical Connectors, and Jaws and Replacement Points for Such Tools (Int. Cl. 8).
First use June 1934.

SN 369,039. American Air Filter Company, Inc., Louisville, Ky. Filed Aug. 26, 1970.

AAF

For Electrical Dust Arrestors or Collectors (Int. Cl. 9).
First use May 12, 1939.

Class 22—Games, Toys, and Sporting Goods

SN 299,373. Northwestern Golf Company, Chicago, Ill. Filed May 29, 1968.

NORTHWESTERN TOURNAMENT

Owner of Reg. Nos. 776,112, 783,965, and 790,999.
For Golf Clubs (Int. Cl. 28).
First use January 1960.

SN 329,474. Holley Plastics Company, Warren, Mich. Filed June 9, 1969.

SPEED SPRAY

For Lubricant for Application to Skis and Plastic Snow (Int. Cl. 28).
First use November 1965.

SN 330,801. Western Publishing Company, Inc., Racine, Wis. Filed June 23, 1969.

WHITMAN

Owner of Reg. Nos. 697,752 and 885,922.

For Games and Toys—Namely, Board Games, Parlor Games, Action Games and Equipment, Apparatus, Pieces and Accessories Necessary to the Play Thereof; and Jigsaw Puzzles (Int. Cl. 28).

First use May 15, 1969.

SN 332,344. Robert H. Hallowell Industries, Inc., New York, N.Y. Filed July 11, 1969.

bridgeveryone

For Kit Comprising Bridge Teaching Materials, Card Dealing Apparatus and Playing Cards (Int. Cl. 16).
First use in or about February 1969.

SN 337,965. Playskool, Inc., Chicago, Ill. Filed Sept. 15, 1969.

PLAYSKOOL

Owner of Reg. Nos. 241,344, 296,101, and 877,350.
For Toy Musical Instruments (Int. Cl. 28).
First use Mar. 15, 1969.

SN 342,569. Windsurfing International, Inc., Pacific Palisades, Calif. Filed Nov. 3, 1969.



For Surfboards and Sails Therefor (Int. Cls. 22 and 28).
First use Feb. 7, 1969.

SN 343,579. The Party People, Ltd., Denver, Colo. Filed Nov. 14, 1969.

HONCHO

For Equipment Sold as a Unit for a Party-Type Amusement Game (Int. Cl. 28).
First use Oct. 31, 1969.

SN 346,694. Mattel, Inc., Hawthorne, Calif. Filed Dec. 19, 1969.

ACCELERACER

For Speed Booster for Toy Miniature Automobiles Running on Track, the Booster Being Associated With the Track To Increase the Speed of the Automobiles as They Pass Through the Booster (Int. Cl. 28).
First use Nov. 11, 1969.

SN 357,573. Urban Systems, Inc., Cambridge, Mass. Filed Apr. 22, 1970.

SMOG

For Equipment (or Apparatus), Sold as a Unit for Playing a Board-Type Parlor Game (Int. Cl. 28).
First use at least as early as Mar. 30, 1970.

SN 369,422. Mattel, Inc., Hawthorne, Calif. Filed Aug. 31, 1970.

TWIRLI-PETS

For Toy Plush Animals on Top Tops (Int. Cl. 28).
First use Aug. 14, 1970.

SN 369,423. Mattel, Inc., Hawthorne, Calif. Filed Aug. 31, 1970.

CUP LINKS

For Toy Construction Set (Int. Cl. 28).
First use Aug. 14, 1970.

SN 369,425. Mattel, Inc., Hawthorne, Calif. Filed Aug. 31, 1970.

PRINCESS PRETTY-FAST

For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use Aug. 14, 1970.

SN 369,427. Mattel, Inc., Hawthorne, Calif. Filed Aug. 31, 1970.

SECOND GUESS

For Equipment Sold as a Unit for Playing a Board Game (Int. Cl. 28).
First use July 24, 1970.

SN 369,562. Mattel, Inc., Hawthorne, Calif. Filed Sept. 1, 1970.

HILL CLIMB

For Toy Kit Comprising Motorcycles, Track, Scenic Environmental Structure, and a Rubber Band Motorcycle Starter (Int. Cl. 28).
First use Aug. 14, 1970.

SN 369,563. Mattel, Inc., Hawthorne, Calif. Filed Sept. 1, 1970.

SWINGIN' FREE

For Toy Stand for Supporting a Doll (Int. Cl. 28).
First use Aug. 14, 1970.

SN 369,564. Mattel, Inc., Hawthorne, Calif. Filed Sept. 1, 1970.

CAFÉ TODAY

For Toy Carrying Case for Doll Accessories Comprising Furniture (Int. Cl. 28).
First use Aug. 14, 1970.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 279,942. The Gorman-Rupp Company, Mansfield, Ohio. Filed Sept. 8, 1967.



No claim is made to the word "Tankleenor" apart from the mark as shown. No claim is made as to color in the drawing.
For Pump Type Cleaning Apparatus for Removing Contaminants From Liquid in a Tank or Other Container Without Removing the Liquid or Taking the Tank or Other Container Out of Service (Int. Cl. 7).
First use Aug. 11, 1967.

SN 298,712. Dorr-Oliver Incorporated, Stamford, Conn. Filed May 21, 1968.

SLUDGEMASTER

For Pumps for Solids-Carrying Liquids (Int. Cl. 7).
First use on or about Mar. 30, 1964.

SN 302,687. Hermann Pfauter, Ludwigsburg, Germany. Filed July 15, 1968.

SHOBBER

Priority claimed under Sec. 44(d) on German application filed June 7, 1968; Reg. No. 864,929, dated Jan. 12, 1970.
For Gear Cutting Machines (Int. Cl. 7).

SN 321,292. Tinkers Paradise, Inc., New York, N.Y. Filed Mar. 10, 1969.

PEERLESS PRECISION

For High Speed Drills, Bits, and High Speed Drill Sets (Int. Cl. 7).
First use Feb. 1, 1957.

SN 322,002. The Susquehanna Corporation, Alexandria, Va. Filed Mar. 17, 1969.

SOFFELEX

For Liners, Hot-Tops, Facings and Inserts for Foundry Molds (Int. Cls. 6 and 17).
First use at least as early as Jan. 1, 1967.

SN 322,515. Hewitt-Robins Incorporated, Stamford, Conn. Filed Mar. 24, 1969.

VON GAL

For Industrial Material Handling Machines—Namely, Depalletizers for Removing Material From Pallets and Other Supports and Palletizers for Placing Material on Pallets and Other Supports; and Sterilizers Which Sterilize Hose and Tubing Used in Industrial Processes by Pumping a Sterilized Liquid Therethrough (Int. Cl. 7).
First use Aug. 2, 1957.

SN 323,003. Scott E. Neill, Jr., d.b.a. Filter King Mfg., Amarillo, Tex. Filed Mar. 27, 1969.

FILTER KING

For Apparatus for Coin-Operated Machine for Washing Automobile Air Filters (Int. Cl. 7).
First use on or before Jan. 3, 1968.

SN 325,711. Builders Equipment Company, Glendale, Ariz. Filed Apr. 28, 1969.

BECO

For Truck Loaders and Unloaders—Namely, Gantry and Boom Type Cranes, Concrete Block Cubing Machines, Concrete Block Offbearing Machines, Brick Cubing Machines, Concrete Block Deburring Machines, and Concrete Block Rack Stripping Machines (Int. Cl. 7).
First use July 6, 1965.

SN 326,261. Speedfam Corporation, Des Plaines, Ill. Filed May 2, 1969.

SPEEDFAM

For Lapping Machines, Free Abrasive Machines, Polishing Machines, Abrading Machines, Grinding Machines; Parts, and Fixtures for Such Machines; and Machines for Reclamation of Abrasive Vehicle (Int. Cl. 7).
First use on or about Apr. 4, 1967, on abrading machines.

SN 328,887. Edgar Oglesbee, Dayton, Ohio. Filed June 2, 1969.

LUBRISTAT

For Centralized Lubricators for Machine Tools and the Like (Int. Cl. 7).
First use Dec. 2, 1968.

SN 345,028. Thermopatch Corporation, Bronx, N.Y. Filed Dec. 1, 1969.

PressurPac

For Air Compressor To Operate Machine for Heat Sealing Emblems, Labels, Mending and Other Tapes by Use of Heat and Pressure (Int. Cl. 7).
First use Aug. 1, 1969.

SN 345,213. Standard Tool & Manufacturing Co., Lyndhurst, N.J. Filed Dec. 3, 1969.

ROLLSCREW

For Antifriction Power Transmission Device for Converting Rotary Motion Into Linear Motion (Int. Cl. 7).
First use Sept. 11, 1969.

SN 358,106. Super-Drive Products, Inc., Los Angeles, Calif. Filed Apr. 27, 1970.

SUPER-DRIVE

For Clutches for Automotive Vehicles (Int. Cl. 12).
First use on or about June 13, 1968.

Class 25—Locks and Safes

SN 353,099. Snyder Manufacturing Company, Philadelphia, Pa. Filed Mar. 4, 1970.

"SHUR-LOCK HOMES"

For Door Jam in the Nature of an Adjustable Telescoping Security Bar (Int. Cl. 6).
First use Oct. 27, 1969.

SN 357,756. Sargent & Company, New Haven, Conn. Filed Apr. 23, 1970.

MAGNALOCK

For Door Locks and Latches (Int. Cl. 6).
First use May 12, 1959.

Class 26—Measuring and Scientific Appliances

SN 296,091. The Ansul Company, Marinette, Wis. Filed Apr. 22, 1968.

ANSUL AUTOMAN

Owner of Reg. Nos. 519,740, 718,439, and others.
For Fire Extinguisher Equipment—Namely, Release Mechanisms for Pressurized Fire Control Systems Actuatable Either Manually or Automatically in Response to Heat (Int. Cl. 9).
First use Mar. 21, 1968.

SN 319,710. Landis & Gyr AG, Zug, Switzerland. Filed Feb. 20, 1969.

BETAGYR

Owner of Swiss Reg. No. 232,783, dated July 2, 1968.
For Radioactive Thickness Measuring Gauges (Int. Cl. 9).

SN 319,711. Landis & Gyr AG, Zug, Switzerland. Filed Feb. 20, 1969.

GAMMAGYR

Owner of Swiss Reg. No. 232,784, dated July 2, 1968.
For Radioactive Density Measuring Gauges and Radioactive Level Measuring Gauges (Int. Cl. 9).

SN 321,901. Brun Sensor Systems, Inc., Columbus, Ohio. Filed Mar. 17, 1969.

INFRA GAUGE

Without waiving any common law rights the term "Gauge" is disclaimed apart from the mark as shown.
For Devices for the Measurement of: Moisture Content; the Efficiency of Drying Processes, and the Amount of Remaining Volatile Matter Remaining; the Thickness of Films, Coatings, and Tubes; of Saturation Weight; All by the Use of Infra Red Radiation; Also, Devices to Differentiate the Constituent of a "Sandwich Film," and for the Chemical Analysis of Materials by Measuring Specific Absorption in a Limited Region of the Spectrum (Int. Cl. 9).
First use Sept. 7, 1966.

SN 322,865. Harris-Intertype Corporation, Cleveland, Ohio. Filed Mar. 26, 1969.

FOTOTRONIC-CRT

Owner of Reg. No. 817,366.
For Photographic Type Composing Machines (Int. Cl. 9).
First use Jan. 2, 1968.

SN 335,316. Beckett-Harcum Company, Wilmington, Ohio. Filed Aug. 14, 1969.

AIR-LATCH

For Pilot Operated Pressure Control Valves (Int. Cl. 9).
First use Oct. 1, 1968.

SN 336,770. Combined Companies, Inc., Minneapolis, Minn. Filed Sept. 2, 1969.



For Photographic Products—Namely, Bamboo Tongs, Foot Switch, Baby Clip, Film-Clip, Graduate, Negative Files, Negative Preserver, Print Dryers, Magnifiers, Blower Brush, Exposure Meter, Changing Bags, Chamois Pouches, Photo Jacket, Aluminum Case, Filters, Flash Extension Cord, Hand Strap, Neck Strap, Camera, Body Cap, Lens Cap, Lens Hood, Extension Tubes, Soft Shutter Release, Reducing Bushing, PC Connector, Ball and Head, Hot Shoe, Flash Gun, Cable Release, and Table Tripod (Int. Cl. 9).
First use June 1, 1967.

SN 338,688. Ohaus Scale Corporation, Florham Park, N.J. Filed Sept. 23, 1969.

DIAL-O-GRAIN

For Laboratory Balances (Int. Cl. 9).
First use February 1969.

SN 342,845. Diamond Chemical Co., Bayonne, N.J. Filed Nov. 6, 1969.

METRONIC II

For Metering Pump (Int. Cl. 9).
First use June 9, 1969.

SN 355,738. Chemical Data Systems, Inc., Oxford, Pa. Filed Apr. 2, 1970.

PYROCHROM

For Chemical Analytical Apparatus—Namely, Apparatus for Pyrolyzing the Effluent of Gas Chromatographs (Int. Cl. 9).
First use Nov. 19, 1969.

SN 356,908. Slope Indicator Co., Seattle, Wash. Filed Apr. 3, 1970.

DIGITILT

For Inclinometers (Int. Cl. 9).
First use about July 1969.

SN 358,475. Ranging, Inc., East Rochester, N.Y. Filed Apr. 30, 1970.

WRISTSCOPE

For Monoculars, Binoculars, and Telescopes (Int. Cl. 9).
First use Nov. 11, 1969.

SN 364,325. Engel Industries, Inc., Ballwin, Mo. Filed July 6, 1970.

SHOPMASTER

For Magnetic Hold-Down and Layout Table for Sheet Metal Shops (Int. Cl. 9).
First use in or before 1957.

SN 369,310. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Aug. 28, 1970.

3M

For Photographic Film (Int. Cl. 1).
First use June 30, 1970.

SN 369,566. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Sept. 1, 1970.

BLACK WATCH

For Magnetic Computer Tape (Int. Cl. 9).
First use July 21, 1970.

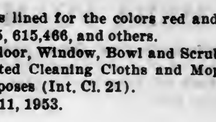
Class 29—Brooms, Brushes, and Dusters

SN 305,064. Progressive Affiliated Lumbermen Cooperative, Inc., Grand Rapids, Mich. Filed Aug. 13, 1968.

PAL

For Paint Brushes and Paint Rollers (Int. Cl. 6).
First use on or about Mar. 1, 1966.

SN 325,757. Gibson-Thomsen Co., Inc., Kearny, N.J. Filed Apr. 28, 1969.



For Hair Brushes (Int. Cl. 21).
First use Feb. 28, 1956.

SN 326,781. The Mill-Rose Company, Mentor, Ohio. Filed May 8, 1969.

QUICK TWIST

For Manual Cleaning Brushes With Stainless Steel Fibers (Int. Cl. 21).
First use Jan. 5, 1969.

SN 346,594. Avon Products, Inc., New York, N.Y. Filed Dec. 18, 1969.

AVON

Owner of Reg. No. 502,657.
For Toothbrush (Int. Cl. 21).
First use May 21, 1969.

SN 349,172. Empire Brushes, Inc., Port Chester, N.Y. Filed Jan. 21, 1970.

FOLD-UP

For Folding Hairbrushes, Folding Combination Hairbrushes and Combs, and Folding Combs (Int. Cl. 21).
First use Jan. 12, 1970.

SN 359,376. Lien Chemical Company, Franklin Park, Ill. Filed May 11, 1970.



The drawing is lined for the colors red and blue. Owner of Reg. Nos. 585,575, 615,466, and others.
For Brooms, Floor, Window, Bowl and Scrub Brushes, Dusters, Unimpregnated Cleaning Cloths and Mops, and Sponges for Cleaning Purposes (Int. Cl. 21).
First use Apr. 11, 1953.

SN 359,622. Lever Brothers Company, New York, N.Y. Filed May 13, 1970.

DRI 'N HOLD

For All Purpose Non-Woven Cloths for Wet or Dry Wiping (Int. Cl. 21).
First use Apr. 28, 1970.

Class 31 — Filters and Refrigerators

SN 333,856. Vaponics Inc., Waltham, Mass. Filed July 29, 1969.

vaponics

For Apparatus for Purifying, Storing and Handling Water, Including Water Demineralizing Apparatus of the Filter Type and Demineralizing Renewal Cartridges for Use Therein, Water Filtration Apparatus, and Associated Apparatus Including Water Distillation Equipment and Water Handling Equipment (Int. Cl. 11).
First use October 1968.

SN 339,332. Laminar Flow, Inc., Conshohocken, Pa. Filed Sept. 30, 1969.

LFI

For Air Purifying Filter Without Attendant Heating or Cooling of the Air (Int. Cl. 11).
First use Sept. 5, 1969.

SN 355,595. Ajax International Corporation, Santa Barbara, Calif. Filed Apr. 1, 1970.

AIC

For Treatment Systems—Namely, Reverse Osmosis Water Purification Apparatus (Int. Cl. 11).
First use Mar. 12, 1969.

Class 32 — Furniture and Upholstery

SN 335,997. Meda-Plast Products Company, Riverside, N.J. Filed Aug. 22, 1969.

MEDA FOAM

No claim is made to the word "Foam" apart from the mark as shown.
For Cushion Pads for Hospital Use (Int. Cl. 20).
First use May 13, 1963.

SN 348,958. Lectrabed Corp., Los Angeles, Calif. Filed Jan. 19, 1970.

Lectrabed

For Electrically Operated Adjustable Beds (Int. Cl. 20).
First use Jan. 29, 1969.

SN 349,079. The Lane Company, Inc., Altavista, Va. Filed Jan. 20, 1970.

CLYDE PEARSON

The name "Clyde Pearson" is derived from the name of the president, Clyde W. Pearson, of applicant's related company, whose consent is of record.
For Upholstered Furniture—Namely, Sofas, Chairs, Love Seats and Occasional Chairs, the Major Portions of Which Are Upholstered But Which Have Exposed Wood Parts (Int. Cl. 20).
First use July 1959.

SN 350,889. Doubinski Freres, Montreuil, Seine Saint Denis, France. Filed Feb. 9, 1970.

DF 2000

For Double Dressers, Continental Beds, Twin and Double Beds, Buffet Storage Compartments, Bachelor Chests, Bachelor Cabinets, Commodes, Bench With Drawers, Tables, Armoires, Combination Chest-Desk, Valets, Armoirettes, Buffet Servers, Coffee Tables, Occasional Tables, Combination Buffet-Desks, Medicine Cabinets, Corner Wall Cabinets, Base Cabinets, Vanity Bases, Sink or Burner Base Cabinets, Sink Fronts, Drawer Bases, Utility Cabinets, Oven Cabinets and Shelves (Int. Cl. 20).
First use January 1967; in commerce March 1968.

SN 353,014. American Cabinet Corporation, Scranton, Pa. Filed Mar. 4, 1970.

POLYAMER

For Kitchen Cabinets (Int. Cl. 20).
First use on or about Nov. 14, 1969.

SN 362,756. Supreme Equipment & Systems Corp., Brooklyn, N.Y. Filed June 15, 1970.

THIN LINE

For Filing and Storage Cabinets for Office Use (Int. Cl. 20).
First use June 1, 1969.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 338,143. Franklin Products Corp., Chicago, Ill. Filed Sept. 17, 1969.

LAMINAIRE

For Ovens Used in the Preparation and Warming of Foods Where Air Is Continuously Moved About the Oven Interior (Int. Cl. 11).
First use May 24, 1969.

SN 343,107. General Electric Company, Louisville, Ky. Filed Nov. 10, 1969.

PARATROPICO

For Room Air Conditioners (Int. Cl. 11).
First use on or about Jan. 25, 1969.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 309,126. Uniroyal, Inc., New York, N.Y. Filed Oct. 7, 1968.

SNOWPLOW

For Passenger Car Pneumatic Tires (Int. Cl. 12).
First use Sept. 12, 1968.

SN 326,403. Minnesota Rubber Company, Minneapolis, Minn. Filed May 5, 1969.

QUAD

Owner of Reg. No. 581,372.
For Seals for Oil Filter Cartridges for Automotive Vehicles and Refrigerant Seals for Compressors of Refrigerators (Int. Cl. 17).
First use in 1957.

SN 360,550. The Firestone Tire & Rubber Company, Akron, Ohio. Filed May 22, 1970.

DUALPLEX

For Resilient Vehicle Tires (Int. Cl. 12).
First use Apr. 30, 1970.

SN 360,839. National Cooperatives, Inc., Albert Lea, Minn. Filed May 26, 1970.

Agri Master

Without relinquishing any common law rights therein, the representation of a tractor is disclaimed apart from the mark as shown.
For Tires (Int. Cl. 12).
First use at least as early as Jan. 16, 1970.

SN 360,840. National Cooperatives, Inc., Albert Lea, Minn. Filed May 26, 1970.

Oval 70

Without relinquishing any common law rights therein, the word "Oval" is disclaimed apart from the mark as shown.
For Tires (Int. Cl. 12).
First use at least as early as Dec. 19, 1969.

Class 36 — Musical Instruments and Supplies

SN 330,421. Royal Sound Company, Inc., Freeport, N.Y. Filed June 18, 1969.

RSC

For Magnetic Tape on Reels (Int. Cl. 9).
First use May 15, 1969.

SN 333,156. Media Plus, Inc., Franklin Square, N.Y. Filed July 22, 1969.

MEDIA PLUS

For Phonograph Records (Int. Cl. 9).
First use on or about Apr. 26, 1969.

SN 333,157. Media Plus, Inc., Franklin Square, N.Y. Filed July 22, 1969.

M4

For Phonograph Records (Int. Cl. 9).
First use on or about Apr. 26, 1969.

SN 349,985. Interstate Industries, Inc., Mundelein, Ill. Filed Jan. 29, 1970.

SUPRO

For Electric Guitar Amplifiers, Radio-Phonograph Consoles, and Tape Recorders (Int. Cl. 9).
First use October 1969.

Class 37 — Paper and Stationery

SN 331,857. Constantine B. Calamvotsakis, Kansas City, Mo. Filed July 7, 1969.

MONDRIANVELOPES

For Personal Stationery (Int. Cl. 16).
First use June 11, 1969.

SN 339,610. Mildred E. Tubbs, Buffalo, N.Y. Filed Oct. 2, 1969.

"BILL BAILEY"

"Bill Bailey" is a fictitious name.
For Pre-Addressed Mailing Labels (Int. Cl. 16).
First use on or about Aug. 12, 1969.

SN 343,436. Tekni-Plex Inc., Brooklyn, N.Y. Filed Nov. 13, 1969.

VINYLSEAL

For Plastic Coated Paper Liner Material (Int. Cl. 16).
First use September 1959.

SN 348,356. Standun, Inc., d.b.a. Shrink Pack Equipment Co., Compton, Calif. Filed Jan. 12, 1970.

STRETCH-VENT

For Plastic Food Wrapping Film (Int. Cl. 16).
First use Feb. 5, 1965.

SN 351,454. Hallmark Cards, Incorporated, Kansas City, Mo. Filed Feb. 16, 1970.

FOR NOW . . . FOREVER

For Albums (Int. Cl. 16).
First use Jan. 5, 1970.

Class 38—Prints and Publications

SN 323,945. Walter Drake and Sons, Inc., Colorado Springs, Colo. Filed Apr. 8, 1969.

WALTER DRAKE

For Merchandise Catalogs (Int. Cl. 16).
First use in or about May 1951.

SN 330,606. The Meyercord Co., Wheaton, Ill. Filed June 20, 1969.

MINI-CALS

For Decalcomanias (Int. Cl. 16).
First use Apr. 11, 1969.

SN 333,158. Media Plus, Inc., Franklin Square, N.Y. Filed July 22, 1969.

MEN OF THOUGHT, MEN OF ACTION

For Series of Educational Material—Namely, Study Prints, Teachers' Guide or Manual, Published From Time to Time in Series (Int. Cl. 16).
First use on or about Apr. 26, 1969.

SN 333,283. Media Plus, Inc., Franklin Square, N.Y. Filed July 23, 1969.



For Educational Material—Namely, Film Strips, Study Prints, Teachers' Guide or Manual, Sold Separately or as Part of a Kit (Int. Cls. 9 and 16).
First use on or about Apr. 26, 1969.

SN 333,284. Media Plus, Inc., Franklin Square, N.Y. Filed July 23, 1969.

MEDIA PLUS

For Educational Material—Namely, Film Strips, Study Prints, Teachers' Guide or Manual, Sold Separately or as Part of a Kit (Int. Cls. 9 and 16).
First use on or about Apr. 26, 1969.

SN 334,691. Chicago Tribune Company, Chicago, Ill., assignee of Chicago American Publishing Company, Chicago, Ill. Filed Aug. 7, 1969.

CHICAGO TODAY

For Newspaper (Int. Cl. 16).
First use Apr. 28, 1969.

SN 337,608. Year Book Medical Publishers, Inc., Chicago, Ill. Filed Sept. 10, 1969.



For Medical Booklets Issued Periodically, and Medical Books (Int. Cl. 16).
First use Feb. 1, 1961.

SN 338,085. Hayden Publishing Company, Inc., New York, N.Y. Filed Sept. 17, 1969.

COMPUTER DECISIONS

For Periodical Magazine Concerning Information Systems, Automated Processing, and Related Matters (Int. Cl. 16).
First use on or prior to Aug. 20, 1969.

SN 344,273. Wine and Spirit Publications Limited, London, England. Filed Nov. 21, 1969.

WINE

For Magazine (Int. Cl. 16).
First use January 1958; in commerce January 1958.

SN 347,956. Open Road Publishing Co., Inc., Fort Worth, Tex. Filed Jan. 7, 1970.

OPEN ROAD AND THE PROFESSIONAL DRIVER

For Magazine (Int. Cl. 16).
First use Mar. 28, 1967.

SN 347,961. Quality Bakers of America Cooperative, Inc., New York, N.Y. Filed Jan. 7, 1970.



For Bulletins Issued and Distributed to Its Members by Applicant's Laboratory (Int. Cl. 16).
First use Nov. 5, 1969.

SN 348,132. Douglas Communications, Inc., New York, N.Y. Filed Jan. 9, 1970.

the communications user

For Newsletter (Int. Cl. 16).
First use Aug. 4, 1969.

SN 348,571. Olin Corporation, New Haven, Conn. Filed Jan. 14, 1970.

hth poolife

For Published Pamphlets Relating to Swimming Pools (Int. Cl. 16).
First use June 1969.

SN 351,661. Marriott Corporation, Washington, D.C. Filed Feb. 18, 1970.

MARRIOTT

Owner of Reg. Nos. 815,612 and 840,991.
For Postcards, Coloring Books, House Organs, Printed Cards Used To Notify Hotels Whether or Not Customers Are To Be Disturbed, Informational Pamphlets, and Annual Business Reports (Int. Cl. 16).
First use at least as early as 1957.

SN 352,276. Western Publishing Company, Inc., Racine, Wis. Filed Feb. 24, 1970.



For Illustrated, Bound Books Primarily Intended for Children (Int. Cl. 16).
First use Jan. 24, 1970.

SN 353,574. S. D. Scott Printing Company, Inc., New York, N.Y. Filed Mar. 9, 1970.

SCOTTGRAPH

For Pamphlets, Booklets, Brochures and Posters, Containing Half-Tone Photographic Prints (Int. Cl. 16).
First use June 1, 1969.

SN 356,598. Archie Enterprises, Inc., New York, N.Y. Filed Apr. 13, 1970.

ARCHIE

Owner of Reg. No. 403,372.
For Comic Magazines, Joke Book Magazines, and Comic Magazine Series (Int. Cl. 16).
First use on or about Nov. 12, 1942.

SN 357,298. Aktiebolaget Kvanta, Stockholm, Sweden. Filed Apr. 20, 1970.

PRID

Owner of Swedish Reg. No. 128,294, dated Aug. 15, 1969.
For Photographs and Identity Documents (Int. Cl. 16).

SN 357,402. National Home Furnishings Association, Chicago, Ill. Filed Apr. 20, 1970.

NHFA REPORTS
to the home furnishings industry

Applicant disclaims all rights to the words "Reports to the Home Furnishings Industry," apart from the mark as shown.
For Monthly Magazine (Int. Cl. 16).
First use Mar. 4, 1970.

SN 357,443. United Farm Workers Organizing Committee, Delano, Calif. Filed Apr. 20, 1970.

El Malcriado
THE VOICE OF THE FARM WORKER

Applicant disclaims any right to exclusive use of the term "The Voice of the Farm Worker," apart from the mark as a whole.
For Newspaper (Int. Cl. 16).
First use Mar. 15, 1968.

SN 357,462. Ziff-Davis Publishing Company, New York, N.Y. Filed Apr. 20, 1970.

SKIING

For Magazine Published Seven (7) Times a Year (Int. Cl. 16).
First use in 1964.

SN 357,464. Ziff-Davis Publishing Company, New York, N.Y. Filed Apr. 20, 1970.

SKIING TRADE NEWS

For Magazine Published Quarterly (Int. Cl. 16).
First use in 1964.

SN 357,473. Endowment and Research Foundation at Montana State University, Inc., Bozeman, Mont. Filed Apr. 16, 1970.

BIG SKY BOOKS

Applicant does not claim any exclusive right to the word "Books."
For Books (Int. Cl. 16).
First use Feb. 12, 1970.

SN 362,595. Esquire, Inc., New York, N.Y. Filed June 15, 1970.

GQ/FACTS

For Magazine (Int. Cl. 16).
First use May 28, 1970.

SN 363,843. Michael Rosenfeld, Cambridge, Mass. Filed June 29, 1970.

ECOLOGIC

For Cartoon Panel (Int. Cl. 16).
First use Apr. 29, 1970.

SN 367,448. The International Organization for Standardization, Geneva, Switzerland. Filed Aug. 7, 1970.

ISO

For Books, Pamphlets and Brochures Issued From Time to Time Relating to International Engineering and Industrial Standards and International Standardization Activities in Various Fields, Such as the Mechanical, Chemical, Mining, Building, Safety, Consumer Goods, Nuclear, Photographic, Traffic and Testing Fields (Int. Cl. 16).
First use December 1946; in commerce December 1946.

SN 369,432. Psychological Associates, Inc., St. Louis, Mo. Filed Aug. 31, 1970.

DIMENSIONAL

For Educational Textbooks and Pamphlets in the Fields of Sales and Management Training (Int. Cl. 16).
First use July 10, 1970.

Class 39 — Clothing

SN 280,954. John R. Jacobson, d.b.a. Sir Knight, Kansas City, Mo. Filed Sept. 22, 1967.

SIR KNIGHT

Owner of Reg. No. 856,727.
For Formal Wear (Int. Cl. 25).
First use during October 1956.

SN 316,968. Aquascutum, Limited, London, England. Filed Jan. 21, 1969.

CLUB 92

Owner of British Reg. No. 920,337, dated Jan. 30, 1968.
For Coats, Raincoats, Suits, Blazers, Jackets, Trousers, Shirts and Sports Shirts, and Beach Clothes (Int. Cl. 25).

SN 331,368. Genesis Sportswear Inc., Boston, Mass. Filed June 30, 1969.

genesis

For Dresses, Slacks, Sweaters, Jackets, Pants and Suits (Int. Cl. 25).
First use Apr. 29, 1969.

SN 334,041. Dan Berk, d.b.a. Dan Berk Shoe Co., New York, N.Y. Filed July 31, 1969.

DAN BERK

For Ladies' and Men's Shoes (Int. Cl. 25).
First use January 1967.

SN 335,328. Creations, Incorporated, San Antonio, Tex. Filed Aug. 14, 1969.

CHARLY'S BOY

For Boys' Clothing—Namely, Trousers, Coats, and Shirts (Int. Cl. 25).
First use July 28, 1969.

SN 335,562. Michael P. Ebert and William S. Ebert (joint owners), d.b.a. Ebert Enterprises, Columbia, S.C. Filed Aug. 18, 1969.

OFFICIAL RACING JACKETS

The term "Racing Jackets" is disclaimed apart from the mark as shown.
For Jackets, Wearing Apparel, and Clothing (Int. Cl. 25).
First use September 1967.

SN 337,040. Grenell Manufacturing, Inc., Gardena, Calif. Filed Sept. 4, 1969.

JOSHUA TREE CALIFORNIA

Applicant disclaims the word "California" apart from the mark as a whole.
For Dresses, Skirts, Blouses, Pants, Jackets, Vests, Suits, Pants Suits, Coats, and Sweaters (Int. Cl. 25).
First use on or about Nov. 15, 1968.

SN 337,519. College Hall Fashions, Inc., Philadelphia, Pa. Filed Sept. 10, 1969.

GATSBY CLOTH

Without waiver of its common law rights and for the purpose of this registration only, applicant disclaims any right in the word "Cloth" apart from the mark as shown.
For Men's and Boys' Suits, Sport-Coats, and Outercoats (Int. Cl. 25).
First use August 1969.

SN 339,024. Koratron Company, Inc., San Francisco, Calif., assignee of Koracorp Industries, Inc., San Francisco, Calif. Filed Sept. 26, 1969.

KORAPRESS

Owner of Reg. Nos. 657,162 and 769,609.
For Coats, Pants, and Skirts (Int. Cl. 25).
First use June 11, 1969.

SN 341,265. Ben Davis, d.b.a. Ben F. Davis Manufacturing Co., San Francisco, Calif. Filed Oct. 21, 1969.

THE ORIGINAL
BEN'S



Applicant disclaims the words "The Original" and the representation of the shirt apart from the mark as shown. The drawing is lined for the colors red and gold. Owner of Reg. Nos. 547,990 and 794,837.
For Overalls, Aprons and Smocks; Pants, Work Pants, Jeans, Work Jeans, Trousers, Work Trousers, Overalls, Coveralls, Aprons, Shirts, Work Shirts, Shop Coats, Jackets and work Jackets (Int. Cl. 25).
First use Mar. 1, 1964.

SN 341,266. Ben Davis, d.b.a. Ben F. Davis Manufacturing Co., San Francisco, Calif. Filed Oct. 21, 1969.



The drawing is lined for the colors red and gold. Owner of Reg. Nos. 547,990 and 794,837.
For Pants, Work Pants, Jeans, Work Jeans, Trousers, Work Trousers, Overalls, Coveralls, Aprons, Shirts, Work Shirts, Shop Coats, Jackets and Work Jackets (Int. Cl. 25).
First use Feb. 1, 1964.

SN 341,812. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed Oct. 27, 1969.

GOODYEAR

Owner of Reg. Nos. 57,590, 518,578, and others.
For Footwear—Namely, Boots and Shoes Made of Rubber, Canvas, or Combinations Thereof and Materials for Use in the Manufacture or Repair of Such Footwear, Namely, Soles and Heels (Int. Cl. 25).
First use since 1852.

SN 343,039. Edgar Rice Burroughs, Inc., Tarzana, Calif. Filed Nov. 10, 1969.

TARZAN

Owner of Reg. Nos. 799,908 and 824,548.
For T-Shirts, Sweat Shirts, Pajamas, and Costumes (Int. Cl. 25).
First use at least as early as Oct. 18, 1966.

SN 343,128. Ingrid of Copenhagen, Ltd., Jamaica, N.Y. Filed Nov. 10, 1969.

Ingrid of Copenhagen Ltd

Applicant disclaims "of Copenhagen" apart from the mark as shown.
For Pinafores, Aprons, Smocks, Jackets, Coats, Blouses, Shirts, Pants, Suits, Vests, and Dresses (Int. Cl. 25).
First use Feb. 5, 1969.

SN 344,035. Thornton Sales Services, Inc., Greensboro, N.C. Filed Nov. 19, 1969.

AFROPRINCESS

For Girls' Wearing Apparel—Namely, Hosiery, Panty Hose, Lingerie, Loungewear, and Sleepwear (Int. Cl. 25).
First use Oct. 27, 1969.

SN 344,036. Thornton Sales Service, Inc., Greensboro, N.C. Filed Nov. 19, 1969.

AFROPRINCE

For Boys' Knit Shirts, Dress Shirts, Pajamas, Underwear, and Socks (Int. Cl. 25).
First use Oct. 27, 1969.

SN 344,037. Thornton Sales Service, Inc., Greensboro, N.C. Filed Nov. 19, 1969.

AFROKING

For Men's Knit Shirts, Dress Shirts, Pajamas, Underwear, and Socks (Int. Cl. 25).
First use Oct. 27, 1969.

SN 344,038. Thornton Sales Service, Inc., Greensboro, N.C. Filed Nov. 19, 1969.

AFROQUEEN

For Women's Wear—Namely, Hosiery, Panty Hose, Lingerie, Loungewear, and Sleepwear (Int. Cl. 25).
First use Oct. 27, 1969.

SN 346,075. Fiorentina Shoes Societa a Responsabilita Limitata, Florence, Italy. Filed Dec. 12, 1969.

baldino

For Ladies' Shoes (Int. Cl. 25).
First use Aug. 8, 1967; in commerce Aug. 8, 1967.

SN 348,992. Regina Products Co., Fall River, Mass. Filed Jan. 19, 1970.

BUBBLE BIB

The word "Bib" is disclaimed apart from the mark as shown.
For Protective Garment To Protect the Clothing of the Wearer When Holding or Feeding Babies (Int. Cl. 25).
First use Nov. 1, 1961.

SN 353,592. E. E. Taylor Corporation, Freeport, Maine. Filed Mar. 9, 1970.

NOSOX

For Men's Shoes (Int. Cl. 25).
First use Feb. 16, 1970.

SN 353,738. Eastern Knitwear Co. Inc., Brooklyn, N.Y. Filed Mar. 11, 1970.

ANITA LORD

The name "Anita Lord" is fanciful.
For Ladies' Sweaters (Int. Cl. 25).
First use Dec. 15, 1952.

SN 353,820. Goodimade Manufacturing Company, Philadelphia, Pa. Filed Mar. 12, 1970.

Pepperkorn

For Girls' Teens' and Junior Sweaters, Vests, Jackets, Shifts, Slacks, Shorts, and Sets Thereof (Int. Cl. 25).
First use Mar. 6, 1970.

SN 353,875. Hayward Marum, Inc., Ipswich, Mass. Filed Mar. 12, 1970.

MANI-HOSE

For Men's Full Length Underwear (Int. Cl. 25).
First use Jan. 12, 1970.

SN 357,028. Consolidated Foods Corporation, Chicago, Ill. Filed Apr. 16, 1970.

ISOTONER

Owner of Reg. No. 885,094.
For Stretch Garments—Namely, Shirts, Pants, Gloves, and Hose (Int. Cl. 25).
First use Feb. 18, 1970.

SN 361,878. Rubin-Bros. (Clothiers) Limited, Montreal, Quebec, Canada. Filed June 5, 1970.

JULES DE BERGERAC

"Jules de Bergerac" is fictitious and is not the name of any known living individual.
For Suits and Jackets (Int. Cl. 25).
First use Jan. 2, 1969; in commerce Feb. 2, 1970.

SN 362,363. Famousbrands Hosiery, Inc., St. Louis, Mo. Filed June 11, 1970.

747 JET-MATES

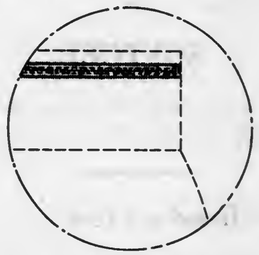
For Hosiery (Int. Cl. 25).
First use May 5, 1970.

SN 362,431. J. P. Stevens & Co., Inc., New York, N.Y. Filed June 11, 1970.

THERAPY

For Hosiery (Int. Cl. 25).
First use Feb. 9, 1970.

SN 367,540. Munsingwear, Inc., Minneapolis, Minn. Filed Aug. 10, 1970.



The mark consists of a pair of parallel maroon stripes on opposite sides of a gold stripe extending around the waistband of the goods. The drawing is lined for color, maroon and gold. Owner of Reg. No. 790,510.
For Men's Underwear (Int. Cl. 25).
First use Aug. 21, 1963.

Class 40—Fancy Goods, Furnishings, and Notions

SN 356,809. Clairol Incorporated, New York, N.Y. Filed Apr. 1, 1970.

CLAIRON

For Wigs (Int. Cl. 26).
First use Mar. 16, 1970.

SN 356,963. General Wig Manufacturers, Inc., Miami, Fla. Filed Apr. 15, 1970.

THE VANITIES OF 1970

For Wigs and Hair Pieces (Int. Cl. 26).
First use Mar. 19, 1970.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 326,642. Erba Aktiengesellschaft fur Textilindustrie, Erlangen, Germany. Filed May 7, 1969.

ERBA

For Textile Piece Goods for Making Dresses, Suits, Coats, Trousers, Shirts, Shorts, Draperies, Slip Covers, and the Like; and Bed and Table Linens (Int. Cl. 24).
First use Jan. 1, 1948; in commerce Jan. 1, 1948.

SN 330,859. Concord Fabrics, Inc., New York, N.Y. Filed June 18, 1969.

BOSUN CLOTH

Applicant disclaims the term "Cloth" separate and apart from the mark as shown.
For Sportswear Fabric for Use in Making Women's Apparel (Int. Cl. 24).
First use May 10, 1968.

SN 333,117. Foster Industries, Inc., New York, N.Y. Filed July 22, 1969.

WOOL OF THE WEST

The word "Wool" is disclaimed separate and apart from the mark as shown. Owner of Reg. No. 507,181.
For Woolen Piece Goods, Blankets, and Automobile Robes (Int. Cl. 24).
First use January 1918.

SN 338,567. Hermes, Paris, France. Filed Sept. 22, 1969.

HERMES

Owner of French Reg. No. 539,535, dated July 31, 1965 (Seine); Natl. Inst. No. 260,269.
For Tissues (Piece Goods), Bed and Table Covers; Wool Piece Goods; Cotton, Silk, Artificial Silk and Cotton, Elastic Textile Material, Jute and Other Textile Material for House Furnishings (Int. Cl. 24).

SN 342,634. Gloversville-Continental Mills, Inc., Gloversville, N.Y. Filed Nov. 4, 1969.

HOT-PAW

For Synthetic Textile Fabrics (Int. Cl. 24).
First use Oct. 28, 1969.

SN 344,335. Continental Ticking Corporation-USA, Vero Beach, Fla. Filed Nov. 24, 1969.

CT

For Mattress Ticking, Dish Towels, Table Cloths, Curtains, and Draperies (Int. Cl. 24).
First ues January 1967.

SN 344,534. Bates Manufacturing Company Incorporated, Lewiston, Maine. Filed Nov. 25, 1969.

BATES

Owner of Reg. Nos. 86,025, 812,629, and others.
For Blankets and Tablecloths (Int. Cl. 24).
First use as early as April 1949, on blankets.

SN 349,767. Klopman Mills, Inc., Rockleigh, N.J. Filed Jan. 27, 1970.

UTOPIA PLUS

Owner of Reg. No. 897,906.
For Fabrics in the Piece, Composed of Man-Made Fibers, and Fabrics in the Piece, Composed of Blends of Cotton Fibers and Man-Made Fibers (Int. Cl. 24).
First use at least as early as Apr. 12, 1968.

SN 353,835. Riegel Textile Corporation, New York, N.Y. Filed Mar. 12, 1970.

FLUSHLON

For Non-Woven Fabrics for Use in the Manufacture of Products To Be Applied to the Body To Absorb Body Fluids, Such as Disposable Diapers, Sanitary Napkins, Surgical Dressings, and the Like (Int. Cl. 24).
First use Feb. 24, 1970.

SN 357,234. J. E. Morgan Knitting Mills, Inc., Tamaqua, Pa. Filed Apr. 17, 1970.

jem

For Thermal Blankets (Int. Cl. 24).
First use Jan. 18, 1969.

SN 357,442. Union Carbide Corporation, New York, N.Y. Filed Apr. 20, 1970.

UCAR

Owner of Reg. No. 831,514.
For Carbon and Graphite Fabrics (Int. Cl. 24).
First use on or about Mar. 31, 1970.

SN 359,711. Dan River Inc., Danville, Va., by change of name from Dan River Mills, Incorporated, Danville, Va. Filed May 14, 1970.

QO

For Textile Fabrics in the Piece of Cotton or Synthetic Fibers or Any Combinations Thereof (Int. Cl. 24).
First use Apr. 6, 1970.

SN 369,168. Deering Milliken, Inc., New York, N.Y. Filed Aug. 27, 1970.

BACKBONE

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 18, 1970.

SN 369,169. Deering Milliken, Inc., New York, N.Y. Filed Aug. 27, 1970.

PONTE DI MILANO

The English translation of the mark is "bridge of Milan." Applicant disclaims the words "Di Milano" apart from the mark as shown.
For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 18, 1970.

SN 369,170. Deering Milliken, Inc., New York, N.Y. Filed Aug. 27, 1970.

FAIR-CATCH

For Textile Fabrics Made of Wool, Cotton and Synthetic Fibers and Combinations Thereof (Int. Cl. 24).
First use Aug. 20, 1970.

SN 371,129. Johnson & Johnson, d.b.a. Cel-Fibe, New Brunswick, N.J. Filed Sept. 21, 1970.

SOFTCEL

Owner of Reg. Nos. 600,165, 763,611, and 880,538.
For Table Cover (Int. Cl. 24).
First use August 18, 1970.

Class 43—Thread and Yarn

SN 337,342. Owens-Corning Fiberglas Corporation, Toledo, Ohio. Filed Sept. 8, 1969.

R GLASS

The word "Glass" is disclaimed apart from the mark as shown.
For Glass Yarns (Int. Cl. 23).
First use Aug. 18, 1969.

SN 341,615. The American Thread Company, New York, N.Y. Filed Oct. 24, 1969.

THE ANYTHING THREAD

The term "Thread" is disclaimed apart from the mark as shown.
For Thread and Yarn (Int. Cl. 23).
First use May 12, 1969.

Class 44—Dental, Medical, and Surgical Appliances

SN 346,766. Med Pak Corporation, Charleston, W. Va. Filed Dec. 19, 1969.

med pak

For Disposable Medical Items, Including Towelettes, Disposable Razors, Shave Prep Kits, Catheter Trays, and Plastic Mouthpieces (Int. Cls. 5 and 8).
First use May 25, 1967.

SN 348,836. Horizon Industries Limited, Bronx, N.Y. Filed Jan. 19, 1970.

AQUA-DUCT

For Fluid Drainage Device for Collecting and Measuring Urine and Other Body Fluids Drained From a Person's Body (Int. Cl. 10).
First use Feb. 23, 1969.

SN 348,837. Horizon Industries Limited, Bronx, N.Y. Filed Jan. 19, 1970.

BOO-TEES

For Suture Guards (Int. Cl. 10).
First use Oct. 5, 1969.

SN 352,456. Copy Systems Inc., d.b.a. Fidelity Dental Supply Co., Los Angeles, Calif. Filed Feb. 26, 1970.

FIDELITY

For Dental Carbide Burs (Int. Cl. 10).
First use Nov. 15, 1969.

SN 357,746. Precision Grinding and Mfg. Co., Inc., Baltimore, Md. Filed Apr. 23, 1970.

PRECO

For Crutches, Canes, Splints, Walkers, and Tips and Grips Therefor (Int. Cl. 10).
First use July 1956.

SN 366,209. Rodana Research Corporation, Bethesda, Md. Filed July 24, 1970.

XYLOJECTOR

For Hypodermic Injectors (Int. Cl. 10).
First use Apr. 1, 1970.

SN 366,210. Rodana Research Corporation, Bethesda, Md. Filed July 24, 1970.

XYLOPEN AUTO-INJECTOR

The term "Auto-Injector" is disclaimed apart from the mark as shown.
For Automatic-Hypodermic Injectors (Int. Cl. 10).
First use Apr. 1, 1970.

SN 369,571. Abbott Laboratories, North Chicago, Ill. Filed Sept. 1, 1970.

VOLU-FEED

For Dispensing Cap for a Nursing Bottle (Int. Cl. 10).
First use Apr. 16, 1970.

Class 45—Soft Drinks and Carbonated Waters

SN 333,437. Pokkalemon Co., Ltd., Higashi-ku, Nagoya, Japan. Filed July 24, 1969.

pokka lemon

Applicant disclaims the word "Lemon" separately and apart from the mark.
For Liquid Concentrate for Making a Honey and Lemon Flavored Drink Containing Water (Int. Cl. 32).
First use February 1957; in commerce June 21, 1969.

SN 343,522. Clairol Incorporated, New York, N.Y. Filed Nov. 14, 1969.

SECOND EFFORT

For Isotonic Soft Drink (Int. Cl. 32).
First use Oct. 30, 1969.

SN 345,459. General Foods Corporation, White Plains, N.Y. Filed Dec. 5, 1969.

COOL-IT

Owner of Reg. Nos. 238,448, 623,164, and others.
For Carbonated Soft Drinks and Fruit Juice Flavored Drinks Containing Water (Int. Cl. 32).
First use May 31, 1967, on fruit juice flavored drinks containing water.

SN 349,450. Drummer Boy, Inc., Topeka, Kans. Filed Jan. 23, 1970.

DRUMMER BOY

Owner of Reg. Nos. 526,082, 866,606, and 866,607.
For Soft Drinks (Int. Cl. 32).
First use Sept. 10, 1962.

SN 363,323. Marbert, Inc., Baltimore, Md. Filed June 22, 1970.

I. R.

For Concentrates Used in Making Cola and Other Soft Drinks (Int. Cl. 32).
First use Jan. 14, 1966.

Class 46 — Foods and Ingredients of Foods

SN 307,414. Victor J. Bergeron, d.b.a. Trader Vic's, San Francisco, Calif. Filed Sept. 16, 1968.

TRADER VIC'S

Owner of Reg. Nos. 502,788, 841,698, and others.
For French Dressing, Javanese Dressing (Oil, Vinegar, Spices, Eggs, Parsley and Onions), Bengal Salad Dressing Mix (Blend of Dry Milk Solids, Monosodium Glutamate, Pepper, Curry and Salt), Sate Spice (Blend of Coriander, Tumeric, Ginger, Chilies and Mustard), Hot Mustard, Imported Bombay Curry Powder (Blend of Tumeric, Coriander, Ginger, Pepper and Other Spices), Madras Curry Powder (Blend of Tumeric, Coriander, Ginger, Pepper and Other Spices), Susu Curry Powder (Blend of Tumeric, Coriander, Ginger, Pepper and Other Spices), Spicy Barbecue Mix, Barbecue Glaze, Smoky Barbecue Sauce, Soya Sauce, Chutney, Table Sauce (Onions, Garlic, Pepper, Tomato Paste, Vinegar, Sugar and Spices), Jasmine Tea (Formosan Jasmine Tea Leaves), Mai Tai Mix, Navy Grog Mix, Whisky Sour Mix, Scorpion Mix, Hawaiian Daiquiri Mix, Margarita Mix (Each of the Foregoing Mixes Is a Blend of Liquid Sugar, Water, Citrus Concentrates and Essential Oils), Maraschino Syrup, Creme de Menthe Syrup, Orgeat Syrup (Simple Syrup of Water and Sugar Plus Almond and Other Flavors), Pomegranate Grenadine Syrup, Rock Candy Syrup, Coco-Creme Syrup, Passion Fruit Nectar, Hot Buttered Rum Batter and Tom & Jerry Batter (Int. Cls 29 and 30).
First use October 1945.

SN 316,106. Margrove, Incorporated, Newark, N.Y. Filed Jan. 8, 1969.

CREAM CRAFT

The word "Cream" is disclaimed apart from the mark as shown.
For Dairy Products—Namely, Fluid Milk, Cream, Chocolate Milk, Cottage Cheese, Buttermilk, Butter and Sour Cream (Int. Cl. 29).
First use in 1960.

SN 317,782. Victor F. Weaver, Inc., New Holland, Pa. Filed Jan. 28, 1969.

Up Country

For Chicken Roll and Frozen Chickens, and Parts Thereof (Int. Cl. 29).
First use Jan. 8, 1969.

SN 321,467. Burgess Poultry Market, Inc., Nacogdoches, Tex. Filed Mar. 12, 1969.

MRS. BURGESS

For Fresh and Frozen Processed Poultry (Int. Cl. 29).
First use November 1953.

SN 326,392. Four'n 20 Pies, Inc., Sherman Oaks, Calif., by change of name from Majer, Inc., Burbank, Calif. Filed May 5, 1969.

FOUR N' 20

For Pies (Int. Cl. 30).
First use Apr. 23, 1969.

SN 326,457. United Oyster Producers Association, Seattle, Wash. Filed May 5, 1969.

PACIFIC KING

For Fresh Oysters (Int. Cl. 29).
First use September 1968.

SN 326,458. United Oyster Producers Association, Seattle, Wash. Filed May 5, 1969.

FLAVOR EDGE

For Frozen Oysters (Int. Cl. 29).
First use November 1962.

SN 327,403. Nibb-It Corporation of America, Studio City, Calif. Filed May 15, 1969.



The drawing is lined for the colors red, orange, and brown, but no claim to color is made. Owner of Reg. No. 839,208.
For Potato Snack Product Made From Fried and Expanded Powdered Dehydrated Potatoes and Potato Flour (Int. Cl. 29).
First use Oct. 29, 1968.

SN 330,246. Big Rebel Drive-Ins, Inc., Hickory, N.C. Filed June 17, 1969.

BIG REB

For Sandwiches (Int. Cl. 29).
First use Jan. 2, 1967.

SN 330,314. Vitelli-Elvea Co., Inc., New York, N.Y. Filed June 17, 1969.

VITELLI

Owner of Reg. Nos. 284,295 and 776,262.
For Tomato Paste, Tomato Puree, and Canned and Jarred Fruits and Vegetables (Int. Cl. 29).
First use June 1, 1968.

SN 331,394. La Reina Bakery Corp., Union City, N.J. Filed June 30, 1969.

LA REINA

The English equivalent of "La Reina" is "the queen."
For Crackers (Int. Cl. 30).
First use Apr. 21, 1969.

SN 331,721. R. F. Brown Sea Food Company, Lansing, Mich. Filed July 3, 1969.

NORTH CRYSTAL

For Fresh and Canned Oysters (Int. Cl. 29).
First use on or about Sept. 1, 1949.

SN 333,211. Valencia Bakery, Inc., Bronx, N.Y. Filed July 22, 1969.

VALENCIA

For Baked Goods—Namely, Cakes, Pastries, Cookies, Frozen Fruit Pies, and Ice Cream and Ice Cream Cakes (Int. Cl. 30).
First use not later than February 1932.

SN 336,004. J. W. Nicholls Co. Ltd., Vancouver, British Columbia, Canada. Filed Aug. 22, 1969.

R.S.V.P.

For Canned Fish, Canned Shellfish, and Canned Molluscs (Int. Cl. 29).
First use Mar. 11, 1969; in commerce July 3, 1969.

SN 336,837. Fred D. Newman, Jr., St. Louis, Mo. Filed Sept. 2, 1969.

Yummy

For Donut Mix (Int. Cl. 30).
First use Aug. 11, 1969.

SN 337,060. Koninklijke Cacao- en Chocoladefabrieken Blooker N.V., Bussum, Netherlands. Filed Sept. 4, 1969.

DURGER

For Cocoa and Cocoa Butter (Int. Cls. 29 and 30).
First use July 1, 1954; in commerce July 1, 1954.

SN 338,136. Dairylea Cooperative Inc., New York, N.Y., by change of name from Dairymen's League Co-Operative Association, Inc., New York, N.Y. Filed Sept. 17, 1969.

DARI-LEAN

Owner of Reg. Nos. 299,336, 764,386, and others.
For Dietary Dairy Products—Namely, Skim Milk, Partially Creamed Cottage Cheese, etc. (Int. Cl. 5).
First use at least Jan. 15, 1965.

SN 338,251. O. Kavli A/S, Bergen, Norway. Filed Sept. 18, 1969.



For Cheese and Flavored Cheese Spreads (Int. Cl. 29).
First use July 7, 1969; in commerce July 7, 1969.

SN 339,579. Mead Johnson & Company, Evansville, Ind. Filed Oct. 2, 1969.

SLIM PICKINS

For Snack Chips of a Corn Meal Nature (Int. Cl. 29).
First use Sept. 5, 1969.

SN 339,810. North American Laboratory Co., Inc., Indianapolis, Ind. Filed Oct. 6, 1969.

MENU-MAGIC

For Barbeque Sauce (Int. Cl. 30).
First use at least as early as Aug. 30, 1962.

SN 339,903. Las Villas Produce Company, Chicago, Ill. Filed Oct. 6, 1969.

LAS VILLAS

The words "Las Villas" are the Spanish Equivalent of "the village."
For Food Products Used in Human Consumption—Namely, Canned Fruits and Vegetables (Int. Cl. 29).
First use on or prior to May 5, 1969.

SN 341,394. Jungk Seasoning Laboratories, Inc., Overland Park, Kans. Filed Oct. 22, 1969.



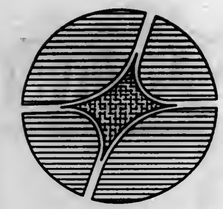
The lining on the drawing is for shading purposes only and does not represent color.
For Spices and All-Purpose Food Seasonings (Int. Cl. 30).
First use June 1, 1969.

SN 341,628. Chocolats Camille Bloch, Societe Anonyme, Courtelary, Switzerland. Filed Oct. 24, 1969.

JOLIMONT

For Candy (Int. Cl. 30).
First use Sept. 16, 1969; in commerce Sept. 16, 1969.

SN 342,176. North Star Dairy, St. Paul, Minn. Filed Oct. 30, 1969.



The drawing is lined for the colors blue and yellow.
For Milk Powders, Cheese Powders, Butter, and Natural Cheese (Int. Cl. 29).
First use Dec. 1, 1966.

SN 342,628. Franchise Growth Corporation, Rock Island, Ill. Filed Nov. 4, 1969.



For Cup of Hot Soup and a Sandwich Packaged in a Bag and Delivered to Customers (Int. Cl. 29).
First use Mar. 27, 1969.

SN 342,658. McCain Foods Limited, Florenceville, New Brunswick, Canada. Filed Nov. 4, 1969.

DOLLAR CHIPS

Applicant disclaims the word "Chips" apart from the mark as presented herein.
Owner of Canadian Reg. No. 160,955, dated Jan. 31, 1969.
For Sliced Frozen Fried Potatoes (Int. Cl. 29).

SN 342,992. The Nestle Company, Inc., White Plains, N.Y. Filed Nov. 7, 1969.



For Candy Bar (Int. Cl. 30).
First use Sept. 9, 1969.

SN 343,568. London Boy, Ltd., Inc., Warren, Ohio. Filed Nov. 14, 1969.

LONDON BOY

For French Fried Potatoes, Prepared Fish, and Malt Vinegar (Int. Cls. 29 and 30).
First use Aug. 15, 1969.

SN 344,757. Wells Dairy Company, Le Mars, Iowa. Filed Nov. 26, 1969.

BREAKFAST BUDDY

For Fat Product Usable as a Substitute for Dairy Cream in Coffee or the Like (Int. Cl. 29).
First use Nov. 3, 1969.

SN 345,155. C. A. Fortune & Company, River Forest, Ill. Filed Dec. 3, 1969.

CALORIE GALLERY

For Canned Green Beans (Int. Cl. 29).
First use Nov. 13, 1969.

SN 346,423. Samuel Klein, Maplewood, N.J. Filed Nov. 25, 1969.

CIGABAN

For Candy (Int. Cl. 30).
First use Aug. 4, 1969.

SN 349,495. National Biscuit Company, New York, N.Y. Filed Jan. 23, 1970.

SILLY SOUR

Applicant disclaims the word "Sour" apart from the mark as shown.
For Candy (Int. Cl. 30).
First use Oct. 23, 1968.

SN 351,400. Aktiebolaget Clementina, Stockholm, Sweden. Filed Feb. 16, 1970.

CLEMENTINA

For Fresh Bananas (Int. Cl. 31).
First use Mar. 4, 1969; in commerce Mar. 4, 1969.

SN 352,567. National Oats Company, Inc., Cedar Rapids, Iowa. Filed Feb. 27, 1970.

RaisinOats

For Breakfast Cereal (Int. Cl. 30).
First use Sept. 15, 1945.

SN 353,274. British Columbia Packers Limited, Richmond, British Columbia, Canada. Filed Mar. 6, 1970.

RUPERT BRAND

Applicant disclaims the right to the exclusive use of the word "Brand" apart from the mark. Owner of U.S. Reg. Nos. 143,567, 229,861, and 521,147.
For Fresh, Frozen, Salt, Smoked and Canned Fish and Fish Pastes; Frozen, Cooked and Prepared Fish and Shellfish Food Products—Namely, Cod With Spinach, Cod With Curried Rice and Shrimp, Perch With Vegetables Cantonese, Perch With Oyster Croutons, Sole in Butter Sauce, Halibut in Butter Sauce, Scallops in Butter Sauce, Shrimp Newburg, Lobster Newburg and Shrimp Creole; and Frozen Vegetables (Int. Cl. 29).
First use Jan. 2, 1915; in commerce Jan. 2, 1915.

SN 353,497. N. K. Hurst Company, Inc., Indianapolis, Ind. Filed Mar. 9, 1970.

HamPeas
Flavored

For the purposes of registration, no claim is made to the exclusive right to use the word "Peas" apart from the mark as shown; but the applicant waives none of its common law rights in said mark or any features thereof. Owner of Reg. Nos. 817,097 and 832,265.
For Dried Peas Packed With a Ham-Flavor Packet (Int. Cl. 29).
First use Jan. 18, 1965.

SN 357,220. La Preferida, Inc., Chicago, Ill. Filed Apr. 17, 1970.



Owner of Reg. No. 884,745.
For Foods, Food Adjuncts and Ingredients of Foods—Namely, Fresh, Frozen, Canned and Preserved Fruits and Vegetables; Fresh, Dry, Cured and Canned Meats; Meat Products—Namely, Chili Con Carne, Chili With and Without Beans, Beef Stew, Ravioli, Beef Tripe Stew, Potted Meat, Beans With Bacon, Spaghetti With Meat Balls; Fresh, Frozen, Dried and Canned Fish and Sea Foods—Namely, Salmon, Sardines, Shrimp, Crab Meat, Tuna, Oysters, Codfish, Pollock, Herring, Red Snapper, Cuttlefish, Octopus, Eels, Mussels, Cockles, Anchovies; Lard; Cooking, Flavoring and Salad Oils; Fresh, Frozen and Canned Fruit Juices and Nectars; Table Syrups and Flavored Syrup Toppings for Desserts; Coffee; Tea; Rice; Crackers; Bread; Spices; Soups; Flavoring Agents—Namely, Chili Seasoning; Salt, Garlic Granules, Minced Onion, and Corn Husks in Which Foods Are Wrapped and Cooked; Meat, Fish and Vegetable Sauces; Fresh, Frozen and Canned Tamales and Tortillas; Enchiladas; Corn Flour; Refried Beans, Refried Beans With Chorizo (Sausage); Jellies and Marmalades; Fruit Pastes; Tomato Pastes; Vinegar; Dairy Products, Namely, Cheeses, Cheese Dips, Butter; Candies; Chocolate for Cooking and as Flavoring To Be Mixed With Milk or Water; Edible Seeds; Cereal Breakfast Foods; Cooking Wines; Herbs; Canned and Bottled Stuffed and Unstuffed Peppers; Roasted and Peeled Hot Peppers; Desserts, Namely, Custard Mixes and Pudding Mixes; Beef Taco Filler; Taco Shells and Chips; and Tortilla Chips (Int. Cls. 29, 30, 31, and 32).
First use February 1969.

SN 359,180. Lever Brothers Company, New York, N.Y. Filed May 8, 1970.

LIFEGUARD

For Margarine (Int. Cl. 29).
First use Apr. 23, 1970.

SN 359,437. Silver Creek Packing Co., Mendota, Calif. Filed May 11, 1970.

GOLD CREEK

For Fresh Vegetables (Int. Cl. 31).
First use Mar. 20, 1970.

SN 359,438. Silver Creek Packing Co., Mendota, Calif. Filed May 11, 1970.

PANOCHE CREEK

For Fresh Vegetables (Int. Cl. 31).
First use Mar. 20, 1970.

SN 359,439. Silver Creek Packing Co., Mendota, Calif. Filed May 11, 1970.

Silver Creek

For Fresh Vegetables (Int. Cl. 31).
First use Mar. 20, 1970.

SN 360,930. Carolina By-Products Co., Inc., Greensboro, N.C. Filed May 27, 1970.

CARSOCO

For Meat, Bone and Poultry By-Products for Use as Animal Feed (Int. Cl. 31).
First use 1947.

SN 370,894. Plantation Baking Company, Inc., Lake Bluff, Ill. Filed Sept. 17, 1970.

Kris-Krunch

For Candy (Int. Cl. 30).
First use Aug. 5, 1970.

SN 371,013. Marriott Corporation, Washington, D.C. Filed Sept. 18, 1970.

FAIRFEILD FARM KITCHENS

Owner of Reg. No. 888,759 and others.
For Ice Cream (Int. Cl. 30).
First use at least as early as Aug. 17, 1970.

SN 371,025. The Quaker Oats Company, Chicago, Ill. Filed Sept. 18, 1970.

QUAKERETTES

Owner of Reg. Nos. 26,254, 768,464, and others.
For Toaster Pastries (Int. Cl. 30).
First use June 27, 1970; September 1871 as to "Quaker."

Class 47 — Wines

SN 338,680. International Distillers and Vintners Limited, London, England. Filed Sept. 23, 1969.

CROFT

Owner of British Reg. No. 869,951, dated Oct. 1, 1964; and U.S. Reg. Nos. 307,320 and 307,321.
For Port Wine (Int. Cl. 33).

SN 351,792. De La Salle Institute, Rheem Valley, Calif. Filed Feb. 19, 1970.



All wording, except "The Christian Brothers," is disclaimed apart from the mark as shown. Owner of Reg. Nos. 562,913, 870,199, and others.
For Cream Sherry (Int. Cl. 33).
First use Aug. 1, 1969.

Class 48 — Malt Beverages and Liquors

SN 287,300. Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan. Filed Dec. 20, 1967.



Priority claimed under Sec. 44(d) on Japanese application filed Aug. 30, 1967; Reg. No. 807,175, dated Feb. 1, 1969.
For Sake (Int. Cl. 32).

SN 354,794. Anheuser-Busch, Incorporated, St. Louis, Mo. Filed Mar. 23, 1970.

ANHEUSER-BUSCH

Owner of Reg. Nos. 28,866, 895,176, and others.
For Beer (Int. Cl. 32).
First use about 1876.

SN 357,196. Carling Brewing Company Incorporated, Cleveland, Ohio. Filed Apr. 17, 1970.



For Beer (Int. Cl. 32).
First use at least as early as Mar. 10, 1969.

Class 49 — Distilled Alcoholic Liquors

SN 314,106. L. J. McGuinness and Co., Limited, Toronto, Ontario, Canada. Filed Dec. 10, 1968.

THE QUIET BLEND

Priority claimed under Sec. 44(d) on Canadian application filed Aug. 2, 1968; Reg. No. 162,174, dated Apr. 11, 1969. Applicant disclaims the word "Blend" apart from the mark as shown, without prejudice to any common law rights that it has therein.
For Whiskies (Int. Cl. 33).

SN 333,880. Wine Cellars Limited, New York, N.Y. Filed July 30, 1969.

The Wine Cellar

Applicant disclaims the term "Wine" apart from the mark as shown.
For Distilled Liquors—Namely, Blended American Whiskeys, Blended Scotch Whiskeys, Blended Canadian Whiskeys, Bourbon Whiskey, Gin, Vodka, and Rum (Int. Cl. 33).
First use not later than 1963.

SN 351,398. Achaia Clauss Wine Company, Limited, Patras, Greece. Filed Feb. 16, 1970.



The portrait shown on the drawing is fanciful and represents no particular living individual. Owner of Greek Reg. No. 39,330, dated Aug. 19, 1966.
For Liqueur (Int. Cl. 33).

SN 353,445. Crown Distillers Limited, London, England. Filed Mar. 9, 1970.

MARIE CELESTE

Owner of British Reg. No. 923,466.
For Whisky, Gin, and Rum (Int. Cl. 33).

Class 51 — Cosmetics and Toilet Preparations

SN 312,062. Parfumerie Morhange, Meaux (Seine-et-Marne), France. Filed Nov. 13, 1968.

DJANGO

Priority claimed under Sec. 44(d) on French Reg. No. 779,862, dated Oct. 18, 1968.
For Perfumes, Rouge, Face Powders, Toilet Waters, Cologne Waters, Cosmetic Skin Creams and Lotions, Lipsticks, Nail Lacquers, Hair Lotions, Lotions for the Beard, Bath Salts, Talcum Powder, and Dentifrices (Int. Cl. 3).

SN 326,233. Helene Curtis Industries, Inc., Chicago, Ill. Filed May 2, 1969.

MISTY NET

For Hair Fixative Spray (Int. Cl. 3).
First use on or about Mar. 25, 1969.

SN 345,371. Pfizer Inc., New York, N.Y., by change of name from Chas. Pfizer & Co., Inc., New York, N.Y. Filed Dec. 4, 1969.

FANTASMA

For Cologne (Int. Cl. 3).
First use Oct. 8, 1969.

SN 345,653. The Mennen Company, Morristown, N.J. Filed Dec. 8, 1969.

YOUNG TURK

For After Shave Lotion (Int. Cl. 3).
First use Nov. 5, 1969.

SN 345,698. Viviane Woodard Corporation, Panorama City, Calif. Filed Dec. 8, 1969.

A BEAUTIFUL IDEA

For Cosmetic Kit Containing Skin Freshener, Facial Cleaners, Facial Cremes, Skin Moisturizer, Eye and Throat Emollient, Skin Discoloration Cover-Up, Liquid Make-Up Base, Rouge, and Translucent Face Powder (Int. Cl. 3).
First use Oct. 29, 1969.

SN 352,910. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Mar. 3, 1970.

LEGION-AIRE

For Personal Deodorant Spray (Int. Cl. 5).
First use Jan. 5, 1970.

SN 354,591. The Climalene Company, Canton, Ohio. Filed Mar. 19, 1970.

BE MINE

For Bath Oil Composition (Int. Cl. 3).
First use Mar. 11, 1970.

SN 354,817. The Dow Chemical Company, Midland, Mich. Filed Mar. 23, 1970.

SOLTEC

For Suntan Lotion (Int. Cl. 3).
First use Oct. 3, 1969.

SN 354,818. The Dow Chemical Company, Midland, Mich. Filed Mar. 23, 1970.

TOLTEC

For Suntan Lotion (Int. Cl. 3).
First use Oct. 3, 1969.

SN 355,512. Borden, Inc., New York, N.Y. Filed Mar. 31, 1970.

SILKEN SHEATH

For Bath Moisturizer (Int. Cl. 3).
First use on or before Oct. 28, 1966.

SN 356,011. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

TASTIKINS

For Lip Pomade (Int. Cl. 3).
First use Feb. 12, 1970.

SN 356,012. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

TASTILIKS

For Lip Pomade (Int. Cl. 3).
First use Feb. 12, 1970.

SN 356,013. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

LIPKINS

For Lip Pomade (Int. Cl. 3).
First use Feb. 12, 1970.

SN 356,014. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

TASTI-STICKS

For Lip Pomade (Int. Cl. 3).
First use Feb. 12, 1970.

SN 356,016. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

PARKA-PUFF

For Talcum Powder, Filled Powder Compact, and Undermakeup Moisturizer (Int. Cl. 3).
First use Feb. 12, 1970.

Class 52 — Detergents and Soaps

SN 296,667. Helene Curtis Industries, Inc., Chicago, Ill. Filed Apr. 26, 1968.

ULTRA-GENTLE

For Hair Shampoo (Int. Cl. 3).
First use on or about Apr. 2, 1968.

SN 326,194. Cetylite Industries, Inc., Long Island City, N.Y. Filed May 2, 1969.

DeeFog

Owner of Reg. No. 776,779.
For Anti-Fogging and Cleaning Compound for Use on Mirrors, Optical Lenses, Eyeglasses, Scopes, and Automobile Windshields (Int. Cl. 3).
First use Jan. 7, 1963.

SN 329,970. Fenner Industries, Inc., New Orleans, La. Filed June 13, 1969.

ffi

For Laundry Lotion for Household Use (Int. Cl. 3).
First use at least as early as Oct. 28, 1968.

SN 330,186. Petrolite Corporation, St. Louis, Mo. Filed June 16, 1969.

TOL-KLEEN

Owner of Reg. Nos. 677,917, 745,266, and 788,039.
For Industrial Cleaning and Degreasing Agents for Use in the Petroleum Industry (Int. Cl. 3).
First use Apr. 2, 1968.

SN 332,115. Chemtrust Industries Corporation, Maywood, Ill. Filed July 9, 1969.

ALL-STONE

For Masonry Cleaner and Preserver (Int. Cl. 3).
First use Mar. 7, 1964.

SN 345,010. Plaskolite, Inc., Columbus, Ohio. Filed Dec. 1, 1969.

VIBRASOL

For Non-Volatile, Non-Aqueous, Industrial Paint Solvents for Use With Ultrasonic Cleaning Equipment (Int. Cl. 3).
First use Sept. 11, 1969.

SN 346,081. Halliburton Company, d.b.a. Halliburton Services, Duncan, Okla. Filed Dec. 12, 1969.

CUTAIN

For Chemical Preparation Which Is Used for Cleaning of Industrial Plants (Int. Cl. 3).
First use Nov. 24, 1969.

SN 353,521. Staton D. Lorenz, Plymouth, Mich. Filed Mar. 9, 1970.

L-BOW GREASE

Applicant disclaims the exclusive right to use of the word "Grease" apart from the mark as shown.
For All Purpose Cleaners (Int. Cl. 3).
First use Mar. 5, 1970.

SN 360,684. Armour-Dial, Inc., Chicago, Ill. Filed May 25, 1970.

WATCH

For Rug Shampoo (Int. Cl. 3).
First use on or prior to May 12, 1970.

SN 360,685. Armour-Dial, Inc., Chicago, Ill. Filed May 25, 1970.

SPRING UP

For Rug Shampoo (Int. Cl. 3).
First use on or prior to May 12, 1970.

SN 370,494. Carter-Wallace, Inc., New York, N.Y. Filed Sept. 14, 1970.

SISTER

For Hair Shampoo (Int. Cl. 3).
First use July 23, 1970.

SERVICE MARKS

Class 100 — Miscellaneous

SN 320,476. Foundation for Full Service Banks, Philadelphia, Pa. Filed Mar. 3, 1969.

A FULL SERVICE BANK

Owner of Reg. No. 704,771.
For Association Services—Namely, Developing Advertising and Promotional Material for Banks Rendering Full Banking Service (Int. Cl. 42).
First use Oct. 24, 1959.

SN 320,477. Foundation for Full Service Banks, Philadelphia, Pa. Filed Mar. 3, 1969.

A FULL SERVICE BANK

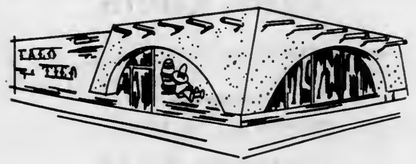
The drawing is lined for the color blue and applicant claims the color blue as a part of the mark. Owner of Reg. No. 704,771.
For Association Services—Namely, Developing Advertising and Promotional Material for Banks Rendering Full Banking Service (Int. Cl. 42).
First use Nov. 17, 1968.

SN 322,220. Allied Structural Steel Company, Calumet City, Ill. Filed Mar. 20, 1969.

ENTEC

For Services of Investigation, Planning, Design and Detailing in the Construction Field (Int. Cl. 42).
First use Feb. 28, 1969.

SN 325,792. Taco Tico, Inc., Wichita, Kans. Filed Apr. 28, 1969.



The word "Taco" is disclaimed apart from the mark as shown.
For Franchising Services—Namely, Technical Assistance in Establishment and/or Operation of Restaurants by Others (Int. Cl. 42).
First use on or about Mar. 17, 1969.

SN 329,508. Robert Polidor, d.b.a. The Lee Agency, Philadelphia, Pa. Filed June 10, 1969.

TAXAFACTION

For Income Tax Advice (Int. Cl. 42).
First use Jan. 2, 1967.

SN 329,936. Golden Bear Family Restaurants, Inc., Elmwood Park, Ill., assignee of Golden Bear Pancake House, Inc., Elmwood Park, Ill. Filed June 13, 1969.

BABY GOLDEN BEAR

Owner of Reg. No. 821,736.
For Various Food Items Prepared to Order as Part of Restaurant Services (Int. Cl. 42).
First use in or about October 1960.

SN 329,937. Golden Bear Family Restaurants, Inc., Elmwood Park, Ill., assignee of Golden Bear Pancake House, Inc., Elmwood Park, Ill. Filed June 13, 1969.

MAMA GOLDEN BEAR

Owner of Reg. No. 821,736.
For Various Food Items Prepared to Order as Part of Restaurant Services (Int. Cl. 42).
First use in or about October 1960.

SN 329,938. Golden Bear Family Restaurants, Inc., Elmwood Park, Ill., assignee of Golden Bear Pancake House, Inc., Elmwood Park, Ill. Filed June 13, 1969.

PAPA GOLDEN BEAR

Owner of Reg. No. 821,736.
For Various Food Items Prepared to Order as Part of Restaurant Services (Int. Cl. 42).
First use in or about October 1960.

SN 330,566. Longchamps, Inc., New York, N.Y. Filed June 20, 1969.

STEAK JOINT

For Restaurant Services (Int. Cl. 42).
First use May 1946.

SN 334,400. Taco Pete, Inc., Wichita, Kans. Filed Aug. 4, 1969.



Applicant disclaims the term "Taco" apart from the mark as shown.
For Restaurant and Carry-Out Services (Int. Cl. 42).
First use Nov. 1, 1967.

SN 335,459. Mobile Americana, Los Angeles, Calif. Filed Aug. 15, 1969.

MOBILE AMERICANA

For Providing Mobile Home Park Facilities (Int. Cl. 42).
First use Apr. 15, 1968.

SN 337,079. Jesse R. McClellen, d.b.a. McClellen's Spanish Village, Dallas, Tex. Filed Sept. 4, 1969.

SPANISH VILLAGE

For Restaurant Services (Int. Cl. 42).
First use Jan. 1, 1959.

SN 337,093. Pizza-Q Enterprises, Inc., Magnolia, Ark. Filed Sept. 4, 1969.



Owner of Reg. No. 859,465.
For Restaurant Services (Int. Cl. 42).
First use May 1, 1969.

SN 337,439. Cutty's, Inc., Des Moines, Iowa. Filed Sept. 9, 1969.

CUTTY'S

For Providing Campground Facilities (Int. Cl. 42).
First use at least as early as February 1969.

SN 337,859. William J. Mandelbaum, Morton Colby and Daniel R. Herbst (partnership), Valley Stream, N.Y. Filed Sept. 15, 1969.

ULTRAPET

For Animal Grooming Service (Int. Cl. 42).
First use Sept. 10, 1969.

SN 338,169. NBO Industries, Paterson, N.J. Filed Sept. 17, 1969.



For Motel Hostelry Services (Int. Cl. 42).
First use Apr. 7, 1954.

SN 338,262. Pet Pamperers International, Atlanta, Ga. Filed Sept. 18, 1969.



For Grooming Services Customarily Furnished for Pets (Particularly Dogs), Including Bathing, Trimming, Brushing, Clipping, Pedicuring and the Like (Int. Cl. 42).
First use about Aug. 1, 1969.

SN 340,557. International-Stanley Corporation, Omaha, Nebr. Filed Oct. 13, 1969.



Owner of Reg. Nos. 841,089 and 868,170.
For Grain Sampling Service (Int. Cl. 42).
First use June 26, 1966.

SN 340,568. Diversified Food Systems, Inc., Rocky Mount, N.C., assignee of The Lob Steer Inns, Inc., Rocky Mount, N.C. Filed Oct. 14, 1969.



For Restaurant Services (Int. Cl. 42).
First use July 8, 1969.

SN 340,650. Capt. Kidd's, Inc., Myrtle Beach, S.C. Filed Oct. 14, 1969.

CAPT. KIDD'S

For Restaurant Service (Int. Cl. 42).
First use May 1968.

SN 342,626. Doubletree Inns, Inc., Phoenix, Ariz. Filed Nov. 4, 1969.

COFFEE TREE

No registration rights are claimed for the word "Coffee" apart from the mark as shown, but the applicant waives none of its common-law rights in said mark or any feature thereof.
For Coffee Shop Services (Int. Cl. 42).
First use June 28, 1969.

SN 342,824. Big Daddy's Bar-B-Que Shacks, Inc., Shiremanstown, Pa. Filed Nov. 6, 1969.



The photograph is that of "James Charles Elam," a living individual whose consent is of record.
For Restaurant Services (Int. Cl. 42).
First use Oct. 22, 1969.

SN 344,300. Stand 'n Snack of America, Inc., Jacksonville, Fla., by change of name and assignment from Stand 'n Snack of America, Inc., Jacksonville, Fla. Filed Nov. 24, 1969.

SIT 'N SNACK

Owner of Reg. No. 809,675.
For Restaurant Services (Int. Cl. 42).
First use Oct. 13, 1969.

SN 344,725. Don L. Millecam, Vernal, Utah. Filed Nov. 26, 1969.

CAR 19

For Restaurant Services (Int. Cl. 42).
First use Mar. 1, 1967.

SN 350,238. Downing Square, Ltd., New York, N.Y. Filed Feb. 2, 1970.



For Restaurant Services (Int. Cl. 42).
First use January 1967.

SN 358,674. Telmar Communications Corp., New York, N.Y. Filed May 4, 1970.

UNITAB

For Providing Data Bank Facilities to Subscribers Utilizing On-Line and Batch Processing Techniques (Int. Cl. 42).
First use Feb. 16, 1970.

SN 358,677. Telmar Communications Corp., New York, N.Y. Filed May 4, 1970.

UNI-BANK

For Providing Advertising Data and Statistics to Subscribers Through the Use of Computer Storage and Retrieval Equipment (Int. Cl. 42).
First use Mar. 3, 1969.

SN 365,201. Marriott Corporation, Washington, D.C. Filed July 14, 1970.

UN·CAFETERIA

For Cafeteria Services (Int. Cl. 42).
First use in or about October 1968.

SN 367,773. Hertz System, Inc., New York, N.Y. Filed Aug. 12, 1970.



Without waiver of any common law rights in the mark as a whole or any feature thereof, applicant makes no claim of exclusive right to use of the words "Local" or "One Way."
Owner of Reg. Nos. 614,123, 694,366, and 841,039.
For Rental of Trucks (Int. Cl. 42).
First use March 1970; 1924 as to "Hertz."

Class 101 — Advertising and Business

SN 288,354. Safari Camparks of America Inc., Atlanta, Ga. Filed Jan. 8, 1968.

SAFARI

For Rendering Technical Assistance to Others in the Establishment and/or Operation of Campsite Parks; and Supervising the Operation of Franchised Campsite Parks (Int. Cl. 35).
First use October 1966.
Subj. to Intf. with SN 279,002, SN 333,329, and SN 333,330.

SN 299,671. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed June 4, 1968.

GOODYEAR

Owner of Reg. Nos. 848,792, 849,603, and others.
For Distributorship Services and Retail Store Services in the Field of Automobile Supplies, Home Appliances, Sporting Goods, Furniture, Power and Hand Tools, Cooking Utensils, Dishware and Glassware, Clothing, Cosmetics, and Toys and Electrical Appliances (Int. Cl. 35).
First use in or before 1901.

SN 313,081. DeVries Bros., Saddle Brook, N.J. Filed Nov. 26, 1968.

ERASE-RITE

For Printing Services, Specifically, Providing a Specialized Lithographic Erasable Overlay Process (Int. Cl. 35).
First use Oct. 14, 1968.

SN 318,669. On-Line Decisions, Inc., Berkeley, Calif. Filed Feb. 7, 1969.

ON-LINE DECISIONS, INC.

Without waiving any common law or other rights in the mark shown or any feature thereof applicant disclaims the words "On-Line Decisions, Inc." The drawing is lined for the color green, but color is not claimed as a feature of the mark.

For General Computer Programming and Programming of Specialized Computer Systems for the Analysis of Management Decisions, Merger Screening, Sales Forecasting, Business Operations, and Related Business Problems (Int. Cl. 35).

First use Aug. 1, 1968.

SN 323,807. Enchantresse Ltd., Des Moines, Iowa. Filed Apr. 7, 1969.

Enchantresse

For Retail Women's Apparel Store Services (Int. Cl. 35).
First use on or about Mar. 1, 1966.

SN 324,589. Handy Dan Hardware, Inc., San Antonio, Tex. Filed Apr. 15, 1969.

HANDY DAN

For Retail Home Appliance and Furnishing Store Services (Int. Cl. 35).
First use Apr. 11, 1968.

SN 325,731. Dict-A-Matic Corporation, New York, N.Y. Filed Apr. 28, 1969.



Without relinquishing any common law rights, applicant disclaims the words "You Tape It—We Type It" apart from the mark as a whole.

For Typing and Transcribing Services (Int. Cl. 35).
First use 1961.

SN 326,565. Walton Enterprises, Inc., Bentonville, Ark. Filed May 6, 1969.

WE SELL FOR LESS
WAL-MART
Discount City

No claim is made to the wording "We Sell for Less" and "Discount City," apart from the mark as shown, without waiving any common law rights therein.

For Retail Variety Store Services (Int. Cl. 35).
First use on or about May 16, 1962.

SN 327,261. The Franklin Mint, Inc., Yeadon, Pa. Filed May 14, 1969.

COIN-A-WORD

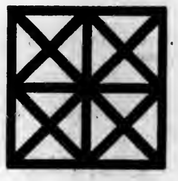
For Promoting the Sale of Goods or Services of Others Through Providing Materials and Advertising Matter Designed for a Promotional Contest (Int. Cl. 35).
First use May 1, 1969.

SN 328,186. Martin & Bayley Retail Food Management Corp., Carmi, Ill. Filed May 23, 1969.



For Retail Grocery Store Services (Int. Cl. 35).
First use July 1966.

SN 328,892. Richard J. Pinsker, d.b.a. RJP & Associates, Sunnyvale, Calif. Filed June 2, 1969.



For Professional Personnel Placement Services (Int. Cl. 35).
First use during July 1967.

SN 333,602. The Plum Tree, Inc., Bridgeport, Pa. Filed July 25. 1969.

the Plum Tree

For Rendering Technical Assistance in the Establishment and Operation of Gift Stores (Int. Cl. 41).
First use July 3, 1969.

SN 333,963. Y-Not Posters, Inc., Chariton, Iowa. Filed July 30, 1969.



For Advertising Services for Others Rendered Through the Media of Billboards, Posters, and Publications (Int. Cl. 35).
First use November 1968.

SN 334,112. Parish Systems, Inc., Detroit, Mich. Filed July 31, 1969.

parish

The drawing is lined to indicate the blue shading of each of the letters of the mark, but the particular color of the shading does not form an essential part of the mark.

For Handling Sales Promotion Programs by Direct Mail and Computer Processing Services—Namely, Maintaining Name and Address Files of Subscribers for Publishers, Classifying Subscribers for Publishers According to Various Categories, and Accounting Services (Int. Cl. 35).
First use in or about November 1968.

SN 334,356. Miller-Waltzer Associates, Inc., New York, N.Y. Filed Aug. 4, 1969.

MONEY BUTTONS

For Promoting the Sale of Goods and/or Services of Others Through the Distribution of Printed Materials and Advertising Designed for Promotional Contests (Int. Cl. 35).
First use June 6, 1969.

SN 335,950. CPU Management Advisory Corp., New York, N.Y. Filed Aug. 22, 1969.

TOTALTRAN

For Computer Programming Services That Are Rendered in Connection With the Translation of 1400 Autocoder Computer Programs Into S/360 Computer Assembler Language Programs (Int. Cl. 35).
First use Aug. 11, 1969.

SN 339,183. Haines & Company, Inc., North Canton, Ohio. Filed Sept. 29, 1969.



For Compiling and Furnishing Mailing Lists to Others (Int. Cl. 35).
First use July 16, 1969.

SN 346,328. Ultraclean Services, Inc., Huntsville, Ala. Filed Dec. 15, 1969.

ULTRACLEAN

For Aiding Others in the Establishment, Operation and Advertisement of Dry Cleaning and Laundry Services (Int. Cl. 35).
First use Nov. 1, 1963.

SN 348,219. New Family Welcome Kit Inc., Farmingdale, N.Y. Filed Jan. 12, 1970.

NEW FAMILY WELCOME KIT

For Promoting and Advertising the Goods and Services of Others by Distribution of Samples to Prospective Purchasers, Including New Home Owners (Int. Cl. 35).
First use Apr. 1, 1966.

SN 348,221. New Family Welcome Kit Inc., Farmingdale, N.Y. Filed Jan. 12, 1970.



For Promoting and Advertising the Goods and Services of Others by Distribution of Samples to Prospective Purchasers, Including New Home Owners (Int. Cl. 35).
First use Oct. 15, 1969.

SN 349,208. Real Estate Research Corporation, Chicago, Ill. Filed Jan. 21, 1970.



For Real Estate Consulting Services (Int. Cl. 35).
First use at least as early as 1950.

SN 351,724. The Plum Tree, Inc., Bridgeport, Pa. Filed Feb. 18, 1970.

THE PLUM TREE

For Rendering Technical Assistance in the Establishment and Operation of Gift Stores (Int. Cl. 35).
First use July 3, 1969.

SN 355,179. Communications Products Corporation, Inc. Miami, Fla. Filed Mar. 27, 1970.

PAC-ON

For Promoting the Goods and Services of Others by Means of Discount Merchandise Coupons (Int. Cl. 35).
First use Feb. 24, 1970.

SN 368,973. Donald E. Pruess, Rye, N.Y. Filed Aug. 25, 1970.

MOTHER NATURE'S NUTRITION CENTERS

For Operating Health Food Sales Department in Retail Stores (Int. Cl. 35).
First use Aug. 7, 1970.

Class 102 — Insurance and Financial

SN 334,069. First National Bank and Trust Company of Evanston, Evanston, Ill. Filed July 31, 1969.

FIRST RESERVE

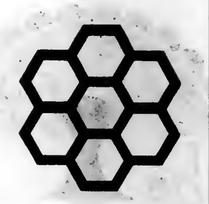
Applicant disclaims the word "Reserve" apart from the mark.
For Checking Account Services (Int. Cl. 36).
First use July 14, 1969.

SN 337,938. Inland Bank, Pomona, Calif. Filed Sept. 15, 1969.

EXPANDACCOUNT

For Banking Services (Int. Cl. 36).
First use Oct. 15, 1968.

SN 341,920. First National Bank & Trust Company of Ithaca, Ithaca, N.Y. Filed Oct. 28, 1969.



For Banking Services (Int. Cl. 36).
First use Feb. 27, 1967.

SN 344,883. Providence Washington Insurance Company, Providence, R.I. Filed Nov. 28, 1969.



No exclusive right is claimed in the phrase "Your Shield of Protection," or in the words "Employee Group Insurance Service," apart from the mark as shown.
For Underwriting Insurance (Int. Cl. 36).
First use July 29, 1969.

Class 103 — Construction and Repair

SN 270,816. Security Systems, Incorporated, Kansas City, Mo. Filed May 5, 1967.

PROTECTION

Owner of Reg. No. 860,439.
For Installation and Maintenance of Burglar, Prowler and Fire Alarm Systems (Int. Cl. 37).
First use Jan. 19, 1967.

SN 330,590. Dilcher Engineering Company, Inc., Atlanta, Ga. Filed June 20, 1969.



The drawing is lined for the color orange.
For Installation and Repair of Heat Treating Equipment, Including Melting Furnaces, Ovens, Induction Heating Equipment, Chilling and Environmental Equipment, and Metallurgical Test and Laboratory Equipment (Int. Cl. 37).
First use January 1963.

Class 105 — Transportation and Storage

SN 298,754. Out O'Mystic Schooner Cruises, Inc., Mystic, Conn. Filed May 21, 1968.

OUT O'MYSTIC

For Conducting Sea Cruises (Int. Cl. 39).
First use July 11, 1966.

SN 317,329. FNCB Services Corporation, New York, N.Y. Filed Jan. 23, 1969.



For Travel Agency Services Including Arranging Hotel and Transportation Reservations, Traveller's Itineraries, and Automobile Rentals and Selling Transportation Tickets (Int. Cl. 39).
First use Jan. 10, 1969.

SN 350,400. Northeast Travel Organization, Inc., Woodstock, Vt. Filed Feb. 3, 1970.



For Arranging for Package Weekend Vacation Trips Featuring Availability of Winter Sports and Instruction Therein (Int. Cl. 39).
First use Jan. 10, 1969.

Class 106 — Material Treatment

SN 346,010. Western Pollution Control, Inc., d.b.a. Meister Plastic Coating Company, Midland, Tex. Filed Dec. 11, 1969.

MEISTER

For Coating Articles With Plastic (Int. Cl. 40).
First use July 1964.

SN 361,631. The United Piece Dye Works, Lodi, N.J. Filed June 3, 1970.

UNIPLY

For Dyeing, Finishing and Fabric-to-Fabric Foam Bonding, or Fabric-to-Foam Bonding, of Textile Fabrics Composed of Natural or Man-Made Fibers and/or Blends Thereof (Int. Cl. 40).
First use Oct. 18, 1968.

Class 107 — Education and Entertainment

SN 264,099. The Protestant Episcopal High School in Virginia, Alexandria, Va. Filed Feb. 6, 1967.

Episcopal High School

The words "High School" are disclaimed apart from the mark as shown.
For Conducting Secondary Educational Services, Including, Scholastic and Athletic Teaching, Religious Guidance, and Examination Preparatory to Collegiate and Advanced Education (Int. Cl. 41).
First use July 1839.

SN 306,752. Cee-Bee Manufacturing Company, Inc., Dallas, Tex. Filed Sept. 6, 1968.

CORTROL

For Installation of Corrosion Resistant Construction Materials, Mainly, Sheet Linings of Synthetic Plastic (Int. Cl. 35).
First use at least as early as Apr. 1, 1967.

SN 317,312. All-America Football Associates, Inc., Sioux Falls, S. Dak., assignee of Robert O. Birney, Sioux Falls, S. Dak. Filed Jan. 23, 1969.



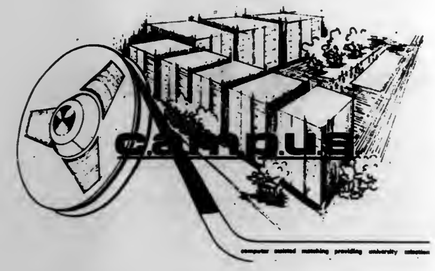
For Entertainment Services—Namely, a Radio and Television Program Featuring the Prediction of Scores of Athletic Contests (Int. Cl. 41).
First use Dec. 23, 1968.

SN 321,277. The Great-West Life Assurance Company, Winnipeg, Manitoba, Canada, assignee of SDI Associates Limited, Toronto, Ontario, Canada. Filed Mar. 10, 1969.

SCOT

Priority claimed under Sec. 44(d) on Canadian application filed Nov. 16, 1968; Reg. No. 164,270, dated July 25, 1969.
For Installation of a Computer Documentation System (Int. Cl. 41).

SN 328,094. Creative Concepts, Inc., Washington, D.C. Filed May 22, 1969.



Applicant disclaims the wording "Computer Assisted Matching Providing University Selection" apart from the mark as shown.

For Advice and Consultation to Students in the Selection of a College To Attend Through the Use of Computers (Int. Cl. 41).

First use Mar. 4, 1969.

SN 335,574. Hayden Huddleston Advertising Agency, Inc., Roanoke, Va. Filed Aug. 18, 1969.

LET'S GO TO CHURCH

For Radio Program—Namely, a Non-Denominational Religious Program (Int. Cl. 41).

First use Apr. 1, 1963.

SN 340,613. Serrich Productions, Inc., Los Angeles, Calif. Filed Oct. 13, 1969.

SERGIO MENDES & BRASIL '66

For Entertainment Services Comprising Night Club Performances, Television Programs and Public Performances (Int. Cl. 41).

First use June 1, 1966.

SN 340,614. Serrich Productions, Inc., Los Angeles, Calif. Filed Oct. 13, 1969.

BRASIL '66

For Entertainment Services Comprising Night Club Performances, Television Programs and Public Performances (Int. Cl. 41).

First use June 1, 1966.

SN 342,623. Robert K. Deunk, Cleveland, Ohio. Filed Nov. 4, 1969.

AVE

For Production of Audio-Visual Media, Such as Films and Tape Recordings for Others (Int. Cl. 41).

First use Jan. 5, 1968.

SN 352,730. Karate-Do Goju-Kai, San Francisco, Calif. Filed Mar. 2, 1970.



The Japanese characters are disclaimed apart from the mark as shown to the extent that they can be considered a particular style of karate. "Goju-Kai" is Japanese for a particular style of karate.

For Instruction in the Art of Karate and Promotion of Karate Tournaments (Int. Cl. 41).

First use as early as Jan. 1, 1932.

SN 362,590. Briar Plan of America, Inc., Chicago, Ill. Filed June 15, 1970.

BRIARPLAN

For Classroom Instruction and on the Job Training of Marketing and Sales Technique (Int. Cl. 41).

First use at least as early as Jan. 15, 1970.

SN 368,172. Marriott Corporation, Washington, D.C. Filed Aug. 17, 1970.

MARRIOTT

Owner of Reg. Nos. 815,612, 840,991, and others.

For Live Theatrical Entertainment Services (Int. Cl. 41)

First use on or about July 4, 1969.

SN 368,811. Robert Saudek Associates, Inc., New York, N.Y. Filed Aug. 24, 1970.

OMNIBUS

For Distribution of Motion Picture Films and Kinescopes (Int. Cl. 41).

First use 1952.

COLLECTIVE MEMBERSHIP MARKS

Class 200

SN 345,102. The World Future Society, Washington, D.C. Filed Dec. 2, 1969.

WORLD FUTURE SOCIETY

For Indicating Membership in Applicant.

First use July 1, 1966.

SN 357,898. Altrusa International, Inc., Chicago, Ill. Filed Apr. 27, 1970.

ALTRUSA

For Indicating Membership in Applicant.

First use June 24, 1949.

CERTIFICATION MARKS

Class A—Goods

SN 346,087. International Molders and Allied Workers Union, AFL-CIO, Cincinnati, Ohio. Filed Dec. 12, 1969.



The mark certifies that the goods were worked on by members of applicant. Applicant disclaims the words "Union Label" and "Affiliate of AFL-CIO-CLC."

For Molded Goods and Products, of All Kinds and Varieties.

First use Nov. 1, 1969.

SN 346,801. Federation Nationale des Dentelles, Tulles, Broderies, Guipures et Passementeries, Paris, France. Filed Dec. 22, 1969.

CALAIS FRENCH LACE

The exclusive use of the words "French Lace" are disclaimed apart from the mark as shown. The mark certifies that the origin of the goods is France and that the goods conform to standards set by applicant with respect to the quality of material and design. Owner of French Reg. No. 487,566, dated Apr. 15, 1960 (Paris); Natl. Inst. No. 142,927.

For Lace.

SN 361,525. United Farm Workers Organizing Committee, Delano, Calif. Filed June 2, 1970.



Applicant disclaims any right to exclusive use of the terms "Union Label" and "AFL-CIO" apart from the mark as a whole. The mark certifies that the labor involved in producing and harvesting the goods was performed by members of applicant.

For Fresh Agricultural Produce.

First use May 25, 1970.

SN 361,960. American Sheep Producers Council, Inc., Denver, Colo. Filed June 8, 1970.



Applicant disclaims exclusive rights in and to the term "Quality Guaranteed" apart from the mark as shown. The mark certifies that the lamb is produced in the United States of America and the product upholds the standards of quality specified by the American Lamb Council, a division of the American Sheep Producers Council.

For Lamb Products.

First use May 20, 1970.

TRADEMARK REGISTRATIONS ISSUED
PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

904,520. COMFORT GLASS. Comfort Glass Corporation. SN 303,397. Pub. 10–6–70. Filed 7–23–68.

904,521. PHILLIPS PETROLEUM 66 AND DESIGN. Phillips Petroleum Company. SN 352,659. Pub. 10–6–70. Filed 2–27–70.

Class 2 — Receptades

904,522. SITCO. Stainless Ice-Tainer Company. SN 324,522. Pub. 10–6–70. Filed 4–14–69.

904,523. CHEVRON. Modern Packaging, Inc. SN 326,408. Pub. 8–4–70. Filed 5–5–69.

904,524. POLY HOUSE. Frank B. McNerney. SN 333,637. Pub. 10–6–70. Filed 7–28–69.

904,525. CORNER. Modern Packaging, Inc. SN 335,046. Pub. 10–6–70. Filed 8–11–69.

904,526. OCTABIN. Ashton Containers Limited. SN 349,939. Pub. 10–6–70. Filed 1–29–70.

904,527. FINEPAC. Societe d'Emballages Plastiques. SN 351,153. Pub. 10–6–70. Filed 2–11–70.

904,528. SWING 'N SWEEP. Pretty Products, Inc. SN 355,324. Pub. 10–6–70. Filed 3–30–70.

904,529. SLOT-LOCK. Boise Cascade Corporation. SN 356,613. Pub. 10–6–70. Filed 4–13–70.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

904,530. HAPPY. Happy Baby Carrier Company. SN 325,194. Pub. 10–6–70. Filed 4–22–69.

904,531. AO DESIGN. American Optical Corporation. SN 335,651. Pub. 10–6–70. Filed 8–19–69.

904,532. ZODIAC. Zero Manufacturing Co. SN 346,784. Pub. 10–6–70. Filed 12–19–69.

Class 4 — Abrasives and Polishing Materials

904,533. BIRCHWOOD CASEY GUN CARE PRODUCTS AND DESIGN. Fuller Laboratories, Inc. MULTIPLE CLASS (Classes 4, 16, and 52). SN 310,453. Pub. 10–6–70. Filed 10–24–68.

904,534. WITHDRAWN.

904,535. PATHWAY P AND DESIGN. Pathway Products Corporation. MULTIPLE CLASS (Classes 4 and 52). SN 336,164. Pub. 10–6–70. Filed 8–25–69.

904,536. MUVISA. Muelas Vitrificadas y Especialidades, S.A. SN 353,778. Pub. 10–6–70. Filed 3–11–70.

Class 5 — Adhesives

904,537. PIPE-DREAM. East Coast Tool, Inc. SN 333,112. Pub. 10–6–70. Filed 7–22–69.

Class 6 — Chemicals and Chemical Compositions

904,538. KEY. Key Chemicals, Incorporated. SN 247,030. Pub. 7–4–67. Filed 6–1–66.

904,539. PANACIDE. The British Drug Houses Limited. SN 289,873. Pub. 3–25–69. Filed 1–30–68.

904,540. TEKRESOL. Whitmoyer Laboratories, Inc. SN 303,459. Pub. 10–6–70. Filed 7–23–68.

904,541. IRGASURF. Geigy Chemical Corporation. SN 328,170. Pub. 10–6–70. Filed 5–23–69.

904,542. SEROTECH. Dr. J. L. Silverman, d.b.a. Custom Serum Services. SN 329,766. Pub. 10–6–70. Filed 6–11–69.

904,543. ASTROCOAT. Olin Mathieson Chemical Corporation. MULTIPLE CLASS (Classes 6 and 16). SN 333,865. Pub. 10–6–70. Filed 7–30–69.

904,544. SYL-OFF. Dow Corning Corporation. SN 350,178. Pub. 10–6–70. Filed 2–2–70.

904,545. HYJET. Chevron Chemical Company. SN 353,854. Pub. 9–29–70. Filed 3–12–70.

904,546. GENERAL Q. Purex Corporation, Ltd. SN 360,939. Pub. 10–6–70. Filed 5–27–70.

904,547. ZAYRE. Zayre Corp. SN 362,207. Pub. 10–6–70. Filed 6–10–70.

904,548. JAYFLEX. Standard Oil Company. SN 364,536. Pub. 10–6–70. Filed 7–7–70.

Class 7 — Cordage

904,549. NOLARO. Columbian Rope Company. SN 332,603. Pub. 10–6–70. Filed 7–15–69.

904,550. DURALINE. Andrew Crowe & Sons, Inc. SN 343,951. Pub. 10–6–70. Filed 11–19–69.

904,551. PRO-TIE. The Hooven & Allison Company. SN 343,977. Pub. 10–6–70. Filed 11–19–69.

Class 8 — Smokers' Artides, Not Induding Tobacco Products

904,552. AQUARIUS AND DESIGN. Plantation Tobacco Company, Incorporated. SN 334,612. Pub. 10–6–70. Filed 8–6–69.

904,553. PARIS LIGHT. Consolidated Cigar Corporation. SN 363,270. Pub. 10–6–70. Filed 6–22–70.

Class 9 — Explosives, Firearms, Equipments,

904,554. FEDERAL LABORATORIES INC. ETC. AND DESIGN. Federal Laboratories, Inc. SN 302,402. Pub. 6–30–70. Filed 7–10–68.

904,555. BLACK JACK PIRATE AND DESIGN. Bernard J. Semel. SN 315,459. Pub. 10–6–70. Filed 12–31–68.

904,556. FORCITE. Canadian Industries Limited. SN 346,055. Pub. 10–6–70. Filed 12–12–69.

904,557. GULF. Gulf Oil Corporation. SN 347,870. Pub. 10–6–70. Filed 1–7–70.

904,558. SERVICE-SIX. Sturm, Ruger & Co., Inc. SN 354,231. Pub. 6–30–70. Filed 3–16–70.

904,559. SLURRAN. Gulf Oil Corporation. SN 358,009. Pub. 10–6–70. Filed 4–27–70.

Class 10 — Fertilizers

904,560. MISCELLANEOUS DESIGN. Ickes-Braun Glasshouses, Inc. MULTIPLE CLASS (Classes 10, 12, 34, and 38). SN 329,791. Pub. 10–6–70. Filed 6–12–69.

904,561. AG-ZYME. Nevada Enzymes, Inc. SN 331,930. Pub. 10–6–70. Filed 7–7–69.

904,562. TURF-ZYME. Nevada Enzymes, Inc. SN 331,932. Pub. 10–6–70. Filed 7–7–69.

904,563. HOMESTEAD. Continental Oil Company. SN 343,525. Pub. 10–6–70. Filed 11–14–69.

904,564. TERRAN. Terra Chemicals International, Inc. SN 347,441. Pub. 10–6–70. Filed 12–30–69.

904,565. GESAFLOR. Geigy Chemical Corporation. SN 356,394. Pub. 10–6–70. Filed 4–9–70.

Class 11 — Inks and Inking Materials

904,566. BRANDEEZ AND DESIGN. Brandeez Company. SN 317,314. Pub. 10–6–70. Filed 1–23–69.

904,567. DISPOZ-A-MARK. Graphic Controls Corporation. SN 361,652. Pub. 10–6–70. Filed 6–4–70.

Class 12 — Construction Materials

904,560. (See Class 10 for this trademark.)

904,568. NOVOWOOD. U.S. Plywood-Champion Papers Inc., by merger and change of name from United States Plywood Corporation. SN 211,215. Pub. 6–29–65. Filed 2–2–65.

904,569. P AND DESIGN. Patrick Industries, Inc., by change of name from Patrick Plywood Enterprises, Inc. SN 305,670. Pub. 10–6–70. Filed 8–21–68.

904,570. BISON WALL FRAME AND DESIGN. Concrete Limited. SN 311,017. Pub. 10–6–70. Filed 10–31–68.

904,571. STEP CRAFT. Step Craft Manufacturing Company. SN 329,772. Pub. 10–6–70. Filed 6–11–69.

904,572. AGGRA-VENEER. Kalman Floor Company Inc. SN 342,276. Pub. 10–6–70. Filed 10–31–69.

904,573. DURA-TRED. Johns-Manville Corporation. SN 343,300. Pub. 10–6–70. Filed 11–12–69.

904,574. M MODUCON AND DESIGN. Moducon, Inc. SN 343,733. Pub. 10–6–70. Filed 11–17–69.

904,575. STONEYHURST QUARRIES. J. Dunbar Stone, d.b.a. Stoneyhurst Quarries. SN 343,599. Pub. 10–6–70. Filed 11–14–69.

904,576. FABRI-DOME. The Firestone Tire & Rubber Company. SN 343,691. Pub. 10–6–70. Filed 11–17–69.

904,577. UP AND DESIGN. Union Products, Inc. SN 345,518. Pub. 10–6–70. Filed 12–5–69.

904,578. SILENCLOSURE. Rink Corporation. SN 347,319. Pub. 10–6–70. Filed 12–29–69.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

904,579. ARATO. Aratowerk Walter von Taschitzki. SN 303,883. Pub. 10–6–70. Filed 7–30–68.

904,580. QUESTOR. Questor Corporation, assignee of Goerlich's, Inc. MULTIPLE CLASS (Classes 13, 19, 23, and 35). SN 309,925. Pub. 4–7–70. Filed 10–18–68.

904,581. PROXIMATIC. American Standard Inc. SN 340,491. Pub. 10–6–70. Filed 10–13–69.

904,582. PRESTO. Presto Lock Co., Inc. SN 356,514. Pub. 10–6–70. Filed 4–10–70.

904,583. RIVIERA. Crane Co. SN 356,863. Pub. 10–6–70. Filed 4–14–70.

904,584. HANDI-MAN. Industrial Bolt and Nut Company. SN 356,973. Pub. 10–6–70. Filed 4–15–70.

Class 14 — Metals and Metal Castings and Forgings

904,585. HI-BOND. The Anaconda Company. SN 322,953. Pub. 6–23–70. Filed 3–27–69.

904,586. VERTX. Federal-Mogul Corporation. SN 337,031. Pub. 10–6–70. Filed 9–4–69.

904,587. METAL RECIPROCITY. Diversified Industries, Inc. SN 344,691. Pub. 10–6–70. Filed 11–26–69.

Class 15 — Oils and Greases

904,588. DOW CORNING 7. Dow Corning Corporation. SN 316,736. Pub. 10–6–70. Filed 1–16–69.

904,589. TARGET TAP AND DESIGN. Releasall Limited. SN 328,449. Pub. 10–6–70. Filed 5–27–69.

904,590. PIT STOP. Astro-Matic Lubricare, Inc. SN 336,220. Pub. 10–6–70. Filed 8–21–69.

904,591. ZEP-PAR. National Service Industries, Inc., d.b.a. Zep Manufacturing Company. SN 352,843. Pub. 10–6–70. Filed 3–2–70.

904,592. TDH. Texaco Inc. SN 362,561. Pub. 10–6–70. Filed 6–12–70.

Class 16 — Protective and Decorative Coatings

904,533. (See Class 4 for this trademark.)

904,543. (See Class 6 for this trademark.)

904,593. ARCOTE. Atlantic Richfield Company. SN 311,565. Pub. 6–2–70. Filed 11–7–68.

904,594. STRATHCLYDE PA–10. Federated Paints Limited. SN 334,830. Pub. 10–6–70. Filed 8–8–69.

904,595. BARKER'S Franklin Stores Corporation, d.b.a. Barker's. SN 335,970. Pub. 10–6–70. Filed 8–22–69.

904,596. LUSTRGILD. W. H. Kemp Company, Ltd. SN 339,022. Pub. 10–6–70. Filed 9–26–69.

904,597. NUMBER 1. The Dampney Company. SN 345,750. Pub. 10–6–70. Filed 12–10–69.

904,598. TIRE GUARD. Plasti-Kote, Inc. SN 346,290. Pub. 10–6–70. Filed 12–15–69.

904,599. VELTEXCOTE. Cotter & Company. SN 353,131. Pub. 10–6–70. Filed 3–5–70.

904,600. CENTARI. E. I. du Pont de Nemours and Company. SN 360,932. Pub. 10–6–70. Filed 5–27–70.

Class 17 — Tobacco Products

904,601. MAC BAREN'S BURLEY. Harald Halberg. SN 304,780. Pub. 10–6–70. Filed 8–9–68.

904,602. HOYO. Palicio and Co., Inc. SN 329,263. Pub. 10–6–70. Filed 6–5–69.

904,603. TOMTIP. Service d'Exploitation Industrielle des Tabacs et des Allumettes. SN 332,154. Pub. 10–6–70. Filed 7–9–69.

904,604. NEMROD. Service d'Exploitation Industrielle des Tabacs et des Allumettes. SN 332,155. Pub. 10–6–70. Filed 7–9–69.

904,605. TIPARITA. Bayuk Cigars Incorporated. SN 338,872. Pub. 10–6–70. Filed 9–25–69.

904,606. IMPALA. Loew's Theatres, Inc. SN 342,370. Pub. 10–6–70. Filed 11–3–69.

904,607. CIGAF. August F. W. Helmbold and Marita D. Helmbold (joint owners). SN 354,727. Pub. 10–6–70. Filed 3–20–70.

904,608. SERENDIPITY. Consolidated Cigar Corporation. SN 364,390. Pub. 10–6–70. Filed 7–6–70.

Class 18 — Medicines and Pharmaceutical Preparations

904,609. MYOGEN. Myzon Laboratories, Inc. SN 312,059. Pub. 10–6–70. Filed 11–13–68.

904,610. STAKALM. Brunswig Drug Company, by change of name and assignment from Brunswig Drug Company, d.b.a. Rabin-Winters. SN 316,981. Pub. 10–6–70. Filed 1–21–69.

904,611. COMPUESTO YERBASAN. The Granchel Medicine Co., Inc. SN 317,910. Pub. 10–6–70. Filed 1–30–69.

904,612. WINNERS CIRCLE. McTarnahan's Pharmaceutical Chemists. SN 320,276. Pub. 10–6–70. Filed 2–27–69.

904,613. A MICRO-DIALYSIS PRODUCT AND DESIGN. USV Pharmaceutical Corporation. SN 324,541. Pub. 10–6–70. Filed 4–14–69.

904,614. BOVAVET. The Hamilton Pharmacal Company, Inc. SN 328,698. Pub. 10–6–70. Filed 5–29–69.

904,615. JHIRMACK AND DESIGN. Jhirmack Enterprises, Inc. MULTIPLE CLASS (Classes 18 and 46). SN 330,055. Pub. 10–6–70. Filed 6–16–69.

904,616. CONSEPT II. Richardson-Merrell Inc. SN 331,773. Pub. 10–6–70. Filed 7–3–69.

904,617. OWEN. Owen Laboratories, Inc. SN 336,162. Pub. 10–6–70. Filed 8–25–69.

904,618. SWEET SLEEP. Bristol-Myers Company. SN 339,543. Pub. 10–6–70. Filed 10–2–69.

904,619. MISCELLANEOUS DESIGN. The Norwich Pharmacal Company. SN 345,846. Pub. 10–6–70. Filed 12–10–69.

904,620. Y AND DESIGN. Young's, Inc. SN 346,014. Pub. 10–6–70. Filed 12–11–69.

904,621. DIATEBEN. Farbenfabriken Bayer Aktiengesellschaft. SN 346,073. Pub. 10–6–70. Filed 12–12–69.

904,622. MAN-AN-SO. Man-An-So Corporation. SN 346,095. Pub. 10–6–70. Filed 12–12–69.

904,623. IBERET-FOLIC-500. Abbott Laboratories. SN 346,196. Pub. 10–6–70. Filed 12–15–69.

904,624. E-SON. Eastwood Pharmacal Co., Inc. SN 347,730. Pub. 10–6–70. Filed 1–5–70.

904,625. ANTISOL. Aerosmoke Limited. SN 347,871. Pub. 10–6–70. Filed 1–7–70.

904,626. TORPEL. Dow Chemical Company. SN 348,133. Pub. 10–6–70. Filed 1–9–70.

904,627. PURITALIS. Merck & Co., Inc. SN 348,308. Pub. 10–6–70. Filed 1–12–70.

904,628. MULTIFASE. Merck & Co., Inc. SN 348,309. Pub. 10–6–70. Filed 1–12–70.

904,629. RU-LOR. Rucker Pharmacal Co., Inc. SN 355,001. Pub. 10–6–70. Filed 3–25–70.

904,630. NAMRON. Norman Horwitz, d.b.a. Diversey Drugs. SN 355,313. Pub. 10–6–70. Filed 3–30–70.

904,631. LIPICIN. The Upjohn Company. SN 363,499. Pub. 10–6–70. Filed 6–24–70.

904,632. MUMPSJECT. The Dow Chemical Company. SN 364,186. Pub. 10–6–70. Filed 7–2–70.

Class 19 — Vehicles

904,580. (See Class 13 for this trademark.)

904,633. AIR-PORTER. Eaton Yale & Towne Inc. SN 339,711. Pub. 10–6–70. Filed 10–3–69.

904,634. S DESIGN. Suzuki Motor Co., Ltd. SN 340,100. Pub. 10–6–70. Filed 10–8–69.

904,635. SEARCHER. Coot Industries. SN 345,108. Pub. 10–6–70. Filed 12–3–69.

904,636. SUNDOWNER AND DESIGN. Barber & Ross Co. SN 346,023. Pub. 10–6–70. Filed 12–12–69.

904,637. EVERKLEEN. Jeffrey Allan Industries, Inc. SN 346,755. Pub. 10–6–70. Filed 12–19–69.

904,638. SAFE-T-SPRAY. Jeffrey Allan Industries, Inc. SN 346,756. Pub. 10–6–70. Filed 12–19–69.

904,639. BORN FREE AND DESIGN. Dodgen Industries, Inc. SN 347,241. Pub. 10–6–70. Filed 12–29–69.

904,640. K (DESIGN). Kawasaki Motors Corp. SN 360,473. Pub. 10–6–70. Filed 5–21–70.

Class 21 — Electrical Apparatus, Machines, and Supplies

904,641. BARRETT PERMA-CLAD ETC. AND DESIGN. Barrett Battery Inc., assignee of James H. Barrett, Jr., d.b.a. Barrett Battery Company. SN 261,084. Pub. 11–7–67. Filed 12–19–66.

904,642. STRAUSS STORES. Strauss Stores Corporation. SN 291,909. Pub. 10–6–70. Filed 2–26–68.

904,643. VOCAL MASTER. Shure Brothers Incorporated. SN 299,045. Pub. 10–6–70. Filed 5–24–68.

904,644. OSBORNE. Osborne Electric Company Limited. SN 313,965. Pub. 10–6–70. Filed 12–9–68.

904,645. SIGNATRON. Signatron, Inc. MULTIPLE CLASS (Classes 21 and 26). SN 315,515. Pub. 4–14–70. Filed 1–2–69.

904,646. CONSHELL. Waterproof Engineering Technology, Inc. SN 327,080. Pub. 10–6–70. Filed 5–12–69.

904,647. WET. Waterproof Engineering Technology, Inc. SN 327,081. Pub. 10–6–70. Filed 5–12–69.

904,648. DESIGN SERVICE TECH LAB TL QUALITY INTEGRITY COOPERATION AND DESIGN. Tech Laboratories, Inc. SN 329,394. Pub. 10–6–70. Filed 6–6–69.

904,649. RICHARDS AND DESIGN. Richards Manufacturing Company. MULTIPLE CLASS (Classes 21 and 23). SN 330,630. Pub. 10–6–70. Filed 6–20–69.

904,650. R AND DESIGN. Richards Manufacturing Company. MULTIPLE CLASS (Classes 21 and 23). SN 330,631. Pub. 10–6–70. Filed 6–20–69.

904,651. OMEGALINE AND DESIGN. Altronic Research Corporation. SN 332,302. Pub. 10–6–70. Filed 7–11–69.

904,652. A AND DESIGN. Arrow Automotive Industries, Inc. SN 333,078. Pub. 10–6–70. Filed 7–22–69.

904,653. GBC (DESIGN). GBC Closed Circuit TV Corp. SN 336,299. Pub. 10–6–70. Filed 8–26–69.

904,654. PINDUCER. Valpey-Fisher Corporation. SN 337,600. Pub. 10–6–70. Filed 9–10–69.

904,655. TRACE-A-MATIC. Communication Mfg. Co. SN 338,964. Pub. 10–6–70. Filed 9–26–69.

904,656. CAR-WATCH. Dynamic Classics, Ltd. SN 340,087. Pub. 10–6–70. Filed 10–8–69.

904,657. AIROX. Pollution Control Industries, Inc. SN 340,595. Pub. 10–6–70. Filed 10–13–69.

904,658. KSH-16. K-S-H, Inc. SN 343,986. Pub. 10–6–70. Filed 11–19–69.

904,659. KSH-17. K-S-H, Inc. SN 343,987. Pub. 10–6–70. Filed 11–19–69.

904,660. SKADI. John George Lawton, d.b.a. Lawtronics. SN 346,260. Pub. 10–6–70. Filed 12–15–69.

904,661. LESUM. Globe Universal Sciences, Inc. SN 347,551. Pub. 10–6–70. Filed 1–2–70.

904,662. ZEE-WEAVE. Electroweave, Inc. SN 351,316. Pub. 10–6–70. Filed 2–13–70.

904,663. KAPCO. Kapco Enterprises, Inc. SN 352,028. Pub. 10–6–70. Filed 2–24–70.

904,664. KAPCO AND DESIGN. Kapco Enterprises, Inc. SN 352,029. Pub. 10–6–70. Filed 2–24–70.

904,665. JULIETTE THE ACTIVE SOUND OF THE 70'S. Topp Electronics, Inc. MULTIPLE CLASS (Classes 21 and 36). SN 353,242. Pub. 10–6–70. Filed 3–6–70.

904,666. CONFUZZ. Technical Wire Products, Inc. SN 353,593. Pub. 10–6–70. Filed 3–9–70.

904,667. STOCKY. TSC Industries Inc. SN 356,776. Pub. 10–6–70. Filed 4–13–70.

Class 22 — Games, Toys, and Sporting Goods

904,668. PIECES OF PEOPLE. Chemtoy Corporation, by change of name from Chemical Sundries Co., Inc. SN 308,767. Pub. 10–6–70. Filed 10–3–68.

904,669. PEOPLE PIECES. Chemtoy Corporation, by change of name from Chemical Sundries Co., Inc. SN 308,769. Pub. 10–6–70. Filed 10–3–68.

904,670. WHITMAN IT'S KID TESTED AND DESIGN. Western Publishing Company, Inc. SN 325,099. Pub. 10–6–70. Filed 4–21–69.

904,671. SKI-EZE AND DESIGN. Ski-Eze, Inc. SN 329,387. Pub. 10–6–70. Filed 6–6–69.

904,672. MANGLE QUADRANGLE. Mattel, Inc. SN 346,567. Pub. 10–6–70. Filed 12–18–69.

904,673. PROFOUND ROUND. Mattel, Inc. SN 346,572. Pub. 10–6–70. Filed 12–18–69.

904,674. MEAN MACHINE. Mattel, Inc. SN 346,576. Pub. 10–6–70. Filed 12–18–68.

904,675. PLAY-DOH ETC. AND DESIGN. Rainbow Crafts, Inc. SN 348,224. Pub. 10–6–70. Filed 1–12–70.

904,676. PALINDROME SYNDROME. Jose A. Castaneda. SN 351,749. Pub. 10–6–70. Filed 2–19–70.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

904,580. (See Class 13 for this trademark.)

904,649. (See Class 21 for this trademark.)

904,650. (See Class 21 for this trademark.)

904,677. YAMATO. Yamato Mishin Seizo Kabushiki Kaisha. SN 239,424. Pub. 10–6–70. Filed 3–15–68.

904,678. CINCINNATI. Cincinnati Incorporated, by assignment and change of name from The Cincinnati-Forte Company. SN 300,329. Pub. 10–6–70. Filed 6–13–68.

904,679. FEINPRUF. Feinpruf, Feinmess- und Prufgerate, G.m.b.H. SN 300,812. Pub. 10–6–70. Filed 6–19–68.

904,680. MILLMASTER. The Gates Rubber Company. SN 317,551. Pub. 6–23–70. Filed 1–27–69.

904,681. LIVORNO. United Silver and Cutlery Company. SN 325,244. Pub. 10–6–70. Filed 4–22–69.

904,682. BERENDO. United Silver and Cutlery Company. SN 325,247. Pub. 10–6–70. Filed 4–22–69.

904,683. LETTER "L" LAKEWOOD INDUSTRIES AND DESIGN. Lakewood Industries, Inc. SN 328,312. Pub. 10–6–70. Filed 5–26–69.

904,684. SERVALL. Dodson Manufacturing Company. SN 329,965. Pub. 10–6–70. Filed 6–13–69.

904,685. 360° AND DESIGN. Offenhauser Equipment Corporation. SN 333,941. Pub. 10–6–70. Filed 7–30–69.

904,686. EMERALD EDGE. American Cookware Corporation. SN 335,818. Pub. 10–6–70. Filed 8–21–69.

904,687. SANDINGMASTER. Machinefabriek A. van der Linden N.V. SN 336,583. Pub. 10–6–70. Filed 8–28–69.

904,688. SCRIPTAMATIC. Scriptomatic, Inc. SN 337,360. Pub. 10–6–70. Filed 9–8–69.

904,689. FUMCELL. Energy Sciences Incorporated. SN 337,530. Pub. 10–6–70. Filed 9–10–69.

904,690. BELT VEYOR. Speed King Manufacturing Company, Inc. SN 337,618. Pub. 10–6–70. Filed 9–11–69.

904,691. MISCELLANEOUS DESIGN. The Parker Pen Company. SN 338,260. Pub. 10–6–70. Filed 9–18–69.

904,692. ELGIN RIBON. S & S Machinery Co. SN 343,004. Pub. 10–6–70. Filed 11–7–69.

904,693. EIMCOJET. Envirotech Corporation. SN 344,705. Pub. 10–6–70. Filed 11–28–69.

904,694. TAC-FLECTOR. Envirotech Corporation. SN 344,842. Pub. 10–6–70. Filed 11–26–69.

904,695. PEPPY. Ishida Mfg. Co., Ltd. SN 346,625. Pub. 10–6–70. Filed 12–18–69.

904,696. CLAIR. Clair Mfg. Co., Inc. SN 347,884. Pub. 10–6–70. Filed 1–7–70.

904,697. R. HERSCHEL. R. Herschel Manufacturing Corp. SN 348,943. Pub. 10–6–70. Filed 1–19–70.

904,698. ROTOWEEDER. The Harriman Manufacturing Company. SN 351,457. Pub. 10–6–70. Filed 2–16–70.

904,699. PI AND DESIGN. Prater Industries, Inc. SN 359,975. Pub. 10–6–70. Filed 5–18–70.

904,700. SEAM-MATE. O. & W. Machines, Inc. SN 365,011. Pub. 10–6–70. Filed 7–13–70.

Class 24 — Laundry Appliances and Machines

904,701. SOFT HEAT. Sears, Roebuck and Co. SN 356,759. Pub. 10–6–70. Filed 4–13–70.

Class 25 — Locks and Safes

904,702. PRESTOLOCK. Presto Lock Co., Inc. SN 356,513. Pub. 10–6–70. Filed 4–10–70.

Class 26 — Measuring and Scientific Appliances

904,645. (See Class 21 for this trademark.)

904,703. SYNCHRO-SCAN. Norman Industries, Inc. SN 279,674. Pub. 10–6–70. Filed 9–5–67.

904,704. SIMSCRIPT 1.5. Consolidated Analysis Centers Inc. SN 298,807. Pub. 9–9–69. Filed 5–22–68.

904,705. FEINPRUF Feinpruf, Feinmess- und Prufgerate, G.m.b.H. SN 300,815. Pub. 10–6–70. Filed 6–10–68.

904,706. SA AND DESIGN. Sanders Associates, Inc. SN 300,971. Pub. 10–6–70. Filed 6–20–68.

904,707. FILMOSOUND 8. Bell & Howell Company. MULTIPLE CLASS (Classes 26 and 36). SN 309,806. Pub. 10–6–70. Filed 10–17–68.

904,708. REFLECTOSCAN. Automation Industries, Inc. SN 312,738. Pub. 10–6–70. Filed 11–21–68.

904,709. TRANSIGRAPH. Automation Industries, Inc. SN 312,740. Pub. 10–6–70. Filed 11–21–68.

904,710. DATRAN II. Automation Industries, Inc. SN 312,741. Pub. 10–6–70. Filed 11–21–68.

904,711. POWER-O-MATIC 70 AND DESIGN. Blue M Electric Company. SN 317,313. Pub. 10–6–70. Filed 1–23–69.

904,712. MISCELLANEOUS DESIGN. Viaphone, Inc. SN 325,797. Pub. 10–6–70. Filed 4–28–69.

904,713. NUCOM AND DESIGN. Nuclear Components Incorporated. SN 325,990. Pub. 10–6–70. Filed 4–30–69.

904,714. DATA PACIFIC. Data Pacific Corporation. SN 327,005. Pub. 10–6–70. Filed 5–12–69.

904,715. ADT DESIGN. American District Telegraph Company. SN 330,685. Pub. 10–6–70. Filed 6–23–69.

904,716. HT/X. Dixson Incorporated. SN 332,328. Pub. 10–6–70. Filed 7–11–69.

904,717. DID AND DESIGN. Digital Information Devices, Inc. SN 332,610. Pub. 10–6–70. Filed 7–15–69.

904,718. BULLS-EYE. Honeywell Inc. SN 333,714. Pub. 10–6–70. Filed 7–28–69.

904,719. WIDE WELD. ESB Incorporated. SN 335,559. Pub. 10–6–70. Filed 8–18–69.

904,720. AQUA-MATES. Foster Grant Co., Inc. SN 337,035. Pub. 10–6–70. Filed 9–4–69.

904,721. LSE AND DESIGN. Laser Systems & Electronics, Inc. MULTIPLE CLASS (Classes 26, 44, and 100). SN 342,578. Pub. 10–6–70. Filed 11–4–69.

904,722. PHOTOMIC. Nippon Kogaku K.K. SN 343,735. Pub. 10–6–70. Filed 11–17–69.

904,723. A AND DESIGN. Klein Associates, Inc. SN 346,258. Pub. 10–6–70. Filed 12–15–69.

904,724. TRIANGLE DESIGN. Sigma Scientific, Inc. SN 347,332. Pub. 10–6–70. Filed 12–29–69.

Class 27 — Horological Instruments

904,725. IMAGE THREE. Thwaites & Reed Limited. SN 333,206. Pub. 10–6–70. Filed 7–22–69.

904,726. DIGIQUARTZ. Bulova Watch Company, Inc. SN 353,725. Pub. 10–6–70. Filed 3–11–70.

904,727. SUPERSONIC. Bulova Watch Company, Inc. SN 354,286. Pub. 10–6–70. Filed 3–17–70.

Class 28 — Jewelry and Precious-Metal Ware

904,728. 1 AR AND DESIGN. Gori & Zucchi S.p.A. SN 310,728. Pub. 10–6–70. Filed 10–29–68.

904,729. ACCENT INTERNATIONAL AND DESIGN. S. A. Deringer. SN 335,750. Pub. 10–6–70. Filed 8–20–69.

904,730. EB AND DESIGN. Engel Brothers Jewelry Corp. SN 355,309. Pub. 10–6–70. Filed 3–30–70.

904,731. ORANGE BLOSSOM. The Traub Company. SN 355,465. Pub. 10–6–70. Filed 3–30–70.

Class 29 — Brooms, Brushes, and Dusters

904,732. THE FOOLERS. Demert & Dougherty, Inc. SN 355,362. Pub. 10–6–70. Filed 3–30–70.

904,733. TUCEL. Tucel Industries, Inc. SN 356,233. Pub. 10–6–70. Filed 4–7–70.

Class 30 — Crockery, Earthenware, and Porcelain

904,734. HALL AND DESIGN. The Hall China Company. SN 319,707. Pub. 10–6–70. Filed 2–20–69.

Class 32 — Furniture and Upholstery

904,735. BILANCIA. Keller Manufacturing Company, Inc. SN 324,292. Pub. 10–6–70. Filed 4–11–69.

904,736. ENSENADA. Keller Manufacturing Company, Inc. SN 324,293. Pub. 10–6–70. Filed 4–11–69.

904,737. WUNDER-REST. Ray Charles Wunderlich, and Elinor Howell Wunderlich. SN 359,578. Pub. 10–6–70. Filed 5–13–70.

904,738. ADDENDA. Directional Industries, Incorporated. SN 361,290. Pub. 10–6–70. Filed 6–1–70.

904,739. EASARAIL. Edco Surgical Supply Co., Inc. SN 362,006. Pub. 10–6–70. Filed 6–8–70.

Class 33 — Glassware

904,740. TEMPRAVER. Vetreria Di Vernante S.p.A. SN 321,303. Pub. 10–6–70. Filed 3–10–69.

Class 34 — Heating, Lighting, and Ventilating Apparatus

904,560. (See Class 10 for this trademark.)

904,741. REGENCY AND DESIGN. National Supply Distributors Association, Inc. SN 288,410. Pub. 3–17–70. Filed 12–13–67.

904,742. SILL-LINE. International Telephone and Telegraph Corporation. SN 291,073. Pub. 7–15–69. Filed 2–14–68.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

904,580. (See Class 13 for this trademark.)

904,743. QUESTOR. Questor Corporation, assignee of Muskegon Piston Ring Company. SN 307,122. Pub. 3–17–70. Filed 9–11–68.

904,744. CARLISLE JET FLYTE. Carlisle Corporation. SN 325,833. Pub. 10–6–70. Filed 4–29–69.

904,745. CASEY. Cook United, Inc. SN 327,743. Pub. 10–6–70. Filed 5–20–69.

904,746. RADIAL R SPORT AND DESIGN. The Firestone Tire & Rubber Company. SN 345,931. Pub. 10–6–70. Filed 12–11–69.

Class 36 — Musical Instruments and Supplies

904,665. (See Class 21 for this trademark.)

904,707. (See Class 26 for this trademark.)

904,774. AVCO EMBASSY AND AE DESIGN. Avco Embassy Records Corporation. SN 340,347. Pub. 10–6–70. Filed 10–10–69.

904,747. ZUIKO PEARLCORDER. Olympus Optical Company Limited. SN 341,542. Pub. 10–6–70. Filed 10–23–69.

904,748. BUCKBOARD. Springboard International Records, Inc. SN 345,873. Pub. 10–6–70. Filed 12–10–69.

904,749. NOEL. Haddon Record Corp. SN 349,074. Pub. 10–6–70. Filed 1–20–70.

Class 37 — Paper and Stationery

904,750. MISCELLANEOUS DESIGN. The Gillette Company, d.b.a. The Paper Mate Company. SN 343,699. Pub. 10–6–70. Filed 11–17–69.

904,751. SEALSKIN. Georgia-Pacific Corporation. SN 345,161. Pub. 10–6–70. Filed 12–3–69.

904,752. SEALSKIN AND DESIGN. Georgia-Pacific Corporation. SN 345,162. Pub. 10–6–70. Filed 12–3–69.

904,753. BISMARCK "150." Dashen Wang. SN 345,520. Pub. 10–6–70. Filed 12–5–69.

904,754. BOOK PAL. Donald W. Vilberg, d.b.a. Pal Enterprises. SN 347,363. Pub. 10–6–70. Filed 12–29–69.

904,755. PENS AND CIRCLE DESIGN. The Gillette Company, d.b.a. The Paper Mate Company. SN 348,145. Pub. 10–6–70. Filed 1–9–70.

904,756. HOTLINER. The Gillette Company, d.b.a. The Paper Mate Company. SN 348,147. Pub. 10–6–70. Filed 1–9–70.

904,757. ELNA. Topco Associates, Inc. SN 355,501. Pub. 10–6–70. Filed 3–31–70.

904,758. KIMBIES. Kimberly-Clark Corporation. SN 363,709. Pub. 10–6–70. Filed 6–26–70.

Class 38 — Prints and Publications

904,560. (See Class 10 for this trademark.)

904,759. PROJECT HEALTH. Medical Communications, Inc. SN 314,027. Pub. 10–6–70. Filed 12–10–68.

904,760. SEE-FOR-SURE INDEX. Huebner Corp. SN 318,048. Pub. 10–6–70. Filed 1–31–69.

904,761. MARGEN. Randolph Computer Corporation. SN 330,808. Pub. 10–6–70. Filed 6–24–69.

904,762. US JAYCEES 50, ETC. AND EMBLEM DESIGN. The United States Jaycees. SN 341,250. Pub. 10–6–70. Filed 10–21–69.

904,763. ICA AND GLOBE AND CHAIN DESIGN. International Creditors Alliance. SN 344,768. Pub. 10–6–70. Filed 11–28–69.

904,764. INVITATION TO SNOWMOBILING. Ziff-Davis Publishing Company. SN 357,457. Pub. 10–6–70. Filed 4–20–70.

904,765. CAR AND DRIVER. Ziff-Davis Publishing Company. SN 357,458. Pub. 10–6–70. Filed 4–20–70.

904,766. ENTREE. Ceco Publishing Company. SN 363,128. Pub. 10–6–70. Filed 6–19–70.

904,767. MAY DAY. Carmel M. Marble, d.b.a. Marble Publications. SN 364,016. Pub. 10–6–70. Filed 6–30–70.

Class 39 — Clothing

904,768. JP'S BY PURITAN. Puritan Fashions Corp. SN 180,120. Pub. 7–29–69. Filed 10–30–63.

904,769. BOBBI FASHIONS. Bobbie Brooks, Incorporated, assignee of American Stretch Corporation. SN 290,236. Pub. 6–24–69. Filed 2–5–68.

904,770. STAR BRAND. Interco Incorporated. SN 290,296. Pub. 3–25–69. Filed 2–5–68.

904,771. W WRIGHT ETC. AND DESIGN. Oxford Industries, Inc. SN 319,941. Pub. 9–16–69. Filed 2–24–69.

904,772. LOTUS, ETC. AND DESIGN. Lotus, Limited. SN 339,202. Pub. 10–6–70. Filed 9–29–69.

904,773. LOTUS OF ENGLAND AND DESIGN. Lotus Limited. SN 339,203. Pub. 10–6–70. Filed 9–29–69.

904,774. (See Class 36 for this trademark).

904,775. FORMS-II-U. Perfect Plus Hosiery, Inc. SN 340,936. Pub. 10–6–70. Filed 10–16–69.

904,776. GOURMATES. Fieldcrest Mills, Inc. SN 342,254. Pub. 10–6–70. Filed 10–31–69.

904,777. ROYAL CHALLENGE. Wembley Industries, Inc. SN 352,699. Pub. 10–6–70. Filed 2–27–70.

904,778. FOUNTAIN SQUARE AND DESIGN. Arnal Mfg. Inc. SN 355,197. Pub. 10–6–70. Filed 3–27–70.

904,779. FJ. Renfro Hosiery Mills Company. SN 355,442. Pub. 10–6–70. Filed 3–30–70.

904,780. SKINNIES. Joseph Bancroft & Sons Company. SN 356,019. Pub. 10–6–70. Filed 4–6–70.

904,781. SKIN SUIT. The Lovable Company. SN 360,643. Pub. 10–6–70. Filed 5–25–70.

904,782. CONTURA. Marx-Haas Clothing Co., Inc. SN 332,117. Pub. 6–16–70. Filed 7–9–69.

Class 40 — Fancy Goods, Furnishings, and Notions

904,783. GOLDEN T. T.G. & Y. Stores Company. SN 300,022. Pub. 10–6–70. Filed 6–7–68.

904,784. GINCHYWIG. Delbanco. Meyer & Co., Limited. SN 333,105. Pub. 10–6–70. Filed 7–22–69.

904,785. RUBCOR. Cornell Manufacturing Co., Inc. SN 348,270. Pub. 10–6–70. Filed 1–12–70.

904,786. LATCH-O-MATIC. The Boye Needle Company. SN 337,885. Pub. 10–6–70. Filed 9–15–69.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

904,787. CARPETMATE. U.S. Fibres, Inc. SN 274,789. Pub. 8–27–68. Filed 6–26–67.

904,788. SECURITY QUALITY PLUS. Associated Dry Goods Corporation. SN 275,115. Pub. 1–14–69. Filed 6–30–67.

904,789. CONTURA. Klopman Mills, Inc. SN 341,327. Pub. 6–30–70. Filed 10–22–69.

Class 43 — Thread and Yarn

904,790. A. ZEGNA ETC. AND SEAL DESIGN. A. Zegna Societa in Accomandita Semplice. SN 340,896. Pub. 10–6–70. Filed 10–16–69.

Class 44 — Dental, Medical, and Surgical Appliances

904,721. (See Class 26 for this trademark.)

904,791. NEUROSCRIPT. Fritz Hellige & Co., GmbH. SN 305,127. Pub. 10–6–70. Filed 8–14–68.

904,792. ORA-FLEX. Orflex, Incorporated, assignee of Washington Scientific Industries, Inc. SN 325,637. Pub. 5–12–70. Filed 4–25–69.

904,793. ORFLEX AND DESIGN. Orflex, Incorporated. SN 329,585. Pub. 3–17–70. Filed 6–10–69.

904,794. VIGGO. Viggo AB. SN 350,792. Pub. 10–6–70. Filed 2–6–70.

904,795. UNIJEL. Unitek Corporation. SN 352,270. Pub. 10–6–70. Filed 2–24–70.

904,796. BIOVEST. Dentsply International Inc. SN 353,041. Pub. 10–6–70. Filed 3–4–70.

Class 45 — Soft Drinks and Carbonated Waters

904,797. SLAKEE. Southern Icee Corporation. SN 323,137. Pub. 10–6–70. Filed 3–28–69.

Class 46 — Foods and Ingredients of Foods

904,615. (See Class 18 for this trademark.)

904,798. SOUTHERN PRIDE. Consolidated Foods Corporation, by change of name and mesne assignment from Dixie Frozen Foods, Inc. SN 294,173. Pub. 3-18-69. Filed 3-26-68.

904,799. SEAWAY. Seaway Foods, Inc. SN 296,460. Pub. 10-6-70. Filed 4-24-68.

904,800. VOGUE. Crowley's Milk Company, Inc. SN 301,046. Pub. 8-12-69. Filed 6-21-68.

904,801. CAROUSEL. Ripon Foods, Inc. SN 304,252. Pub. 12-9-69. Filed 8-2-68.

904,802. GRACE AND CROWN DESIGN WITHIN AN OVAL. Grace, Kennedy & Company (Canada) Ltd. SN 308,113. Pub. 10-6-70. Filed 9-24-68.

904,803. CAPTAIN SKIPS. Arthur M. Harrington, Jr., d.b.a. Captain Skips. SN 325,195. Pub. 10-6-70. Filed 4-22-69.

904,804. FANNY FARMER AND FEMALE SILHOUETTE DESIGN. Fanny Farmer Candy Shops, Inc. SN 327,249. Pub. 10-6-70. Filed 5-14-69.

904,805. ADD ME. The Great Western Sugar Company. SN 328,980. Pub. 10-6-70. Filed 6-3-69.

904,806. ARCOR AND DESIGN. Arcor Sociedad Anonima Industrial Comercial. SN 334,684. Pub. 10-6-70. Filed 8-7-69.

904,807. MARIES ORIGINAL SQUAW BREAD MIX AND DESIGN. Marie Rooney. SN 345,204. Pub. 10-6-70. Filed 12-3-69.

904,808. PERMA-PEL. Georgia-Pacific Corporation. SN 346,889. Pub. 10-6-70. Filed 12-22-69.

904,809. TOASTY WIRLS. ITT Continental Baking Company. SN 353,698. Pub. 10-6-70. Filed 3-11-70.

904,810. TOASTER WIRLS. ITT Continental Baking Company. SN 353,699. Pub. 10-6-70. Filed 3-11-70.

904,811. MISCELLANEOUS DESIGN. Port Clyde Packing Co., Inc. SN 353,907. Pub. 10-6-70. Filed 3-12-70.

904,812. BAR-B-BROIL. John E. Hagen, d.b.a. Hagen's Bar-B-BROIL. SN 354,170. Pub. 10-6-70. Filed 3-16-70.

904,813. FORTIPIG. Honeggers' & Co., Inc. SN 354,177. Pub. 10-6-70. Filed 3-16-70.

904,814. MAGNOLIA. Magnolia Citrus Association. SN 354,196. Pub. 10-6-70. Filed 3-16-70.

904,815. NET PROFIT. Doane Products Co. SN 355,363. Pub. 10-6-70. Filed 3-30-70.

904,816. SUPER C. Wyandot Popcorn Company. SN 356,455. Pub. 10-6-70. Filed 4-9-70.

904,817. NULOGOLD. Sucrest Corporation. SN 363,619. Pub. 10-6-70. Filed 6-25-70.

Class 47 — Wines

904,818. HANNAH AND HOGG. Consolidated Distilled Products, Inc. MULTIPLE CLASS (Classes 47 and 49). SN 326,944. Pub. 10-6-70. Filed 5-12-69.

Class 49 — Distilled Alcoholic Liquors

904,818. (See Class 47 for this trademark.)

904,819. SONY. Sony Corporation. SN 317,151. Pub. 10-6-70. Filed 1-21-69.

904,820. VERVEN PAGES ETC. AND LABEL DESIGN. Pages-La Verveine du Velay. SN 334,609. Pub. 10-6-70. Filed 8-6-69.

Class 50 — Merchandise Not Otherwise Classified

904,821. NEWS. Western Litho Plate & Supply Co. SN 323,982. Pub. 10-6-70. Filed 4-8-69.

904,822. TEC-TOR. Alliance Plastics, Inc. SN 330,339. Pub. 10-6-70. Filed 6-18-69.

904,823. PRIMER. Eltra Corporation. SN 333,982. Pub. 10-6-70. Filed 7-30-69.

904,824. TRADE GOTHIC. Eltra Corporation. SN 333,983. Pub. 10-6-70. Filed 7-30-69.

904,825. WUNDA. Celange, Inc. SN 345,598. Pub. 10-6-70. Filed 12-8-69.

904,826. INTERNATIONAL MINTING & METALARTS. International Minting and Metal Arts Corporation. SN 345,636. Pub. 10-6-70. Filed 12-8-69.

904,827. SAFE-T-RIB. The Johnson Rubber Company. SN 347,611. Pub. 10-6-70. Filed 1-2-70.

Class 51 — Cosmetics and Toilet Preparations

904,828. SUNSHINE PALES. Yardley of London, Inc. SN 334,151. Pub. 10-6-70. Filed 7-31-69.

904,829. MISCELLANEOUS DESIGN. Cosmetically Yours, Inc. SN 337,638. Pub. 10-6-70. Filed 9-11-69.

904,830. VEOS YUTH-A-GEN SYSTEM. Peter N. Spello, d.b.a. P. N. Spello. SN 342,330. Pub. 10-6-70. Filed 10-31-69.

904,831. CACHET. Chesebrough-Pond's Inc. SN 342,410. Pub. 10-6-70. Filed 11-3-69.

904,832. DREAM QUARTET. Clairol Incorporated. SN 343,521. Pub. 10-6-70. Filed 11-14-69.

904,833. SHEER PUFFERY. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 357,567. Pub. 10-6-70. Filed 4-22-70.

904,834. CLINIQUE. Clinique Laboratories, Inc. SN 363,799. Pub. 10-6-70. Filed 6-29-70.

904,835. BRIGHTER YOU. Colgate-Palmolive Company. SN 364,984. Pub. 10-6-70. Filed 7-13-70.

Class 52 — Detergents and Soaps

904,533. (See Class 4 for this trademark.)

904,535. (See Class 4 for this trademark.)

904,836. SPA. Soap Products, Inc. SN 311,698. Pub. 3-17-70. Filed 11-8-68.

904,837. ORCHID PETAL. Dart Industries Inc., by change of name from Rexall Drug and Chemical Company, d.b.a. Vanda BC Co. SN 316,134. Pub. 10-7-69. Filed 1-8-69.

904,838. NAPISAN. Richardson-Merrell Ltd. SN 320,181. Pub. 10-6-70. Filed 2-26-69.

904,839. LITHOWASH. Western Litho Plate & Supply Co., d.b.a. Western Litho Plate and Supply Company. SN 323,975. Pub. 10-6-70. Filed 4-8-69.

904,840. FLEETKLEEN. Fleetwood Chemical Co., Inc. SN 324,285. Pub. 10-6-70. Filed 4-11-69.

904,841. GOLD 'N CLEAR. Bristol-Myers Company. SN 326,745. Pub. 10-6-70. Filed 5-8-69.

904,842. ELNA. Topco Associates, Inc. SN 355,502. Pub. 10-6-70. Filed 3-31-70.

Service Marks

Class 100 — Miscellaneous

904,721. (See Class 26 for this trademark.)

904,843. LITTLE GERMAN INNS ETC. AND DESIGN. Little German Inns, Inc. SN 293,285. Pub. 10-6-70. Filed 3-14-68.

904,844. SD AND DESIGN. Scan-Data Corporation. SN 308,319. Pub. 10-6-70. Filed 9-26-68.

904,845. THE CHARLES SYSTEM. Charles Equipment Company. SN 313,904. Pub. 10-6-70. Filed 12-9-68.

904,846. RNB. RNB Leasing Corp. SN 316,464. Pub. 10-6-70. Filed 1-13-69.

904,847. ENGLISH'S CHICK'N STEAK HOUSE. The English Company. SN 321,485. Pub. 10-6-70. Filed 3-12-69.

904,848. P AND DESIGN. Piece O' Pizza of America, Inc. SN 324,324. Pub. 10-6-70. Filed 4-14-69.

904,849. CANADIAN PACIFIC. Canadian Pacific Railway Company. MULTIPLE CLASS (Classes 100, 104, and 105). SN 324,967. Pub. 10-6-70. Filed 12-9-68.

904,850. AAV AND DESIGN. American Automatic Vending Corporation. SN 330,683. Pub. 10-6-70. Filed 6-23-69.

904,851. SHIELD, BOOK AND CANDLE DESIGN. Pioneer Girls. SN 335,605. Pub. 10-6-70. Filed 8-18-69.

904,852. THE ADMIRAL RISTY AND DESIGN. The Admiral Risty. SN 335,833. Pub. 10-6-70. Filed 8-21-69.

904,853. HUNGRY HERMAN AND DESIGN. H. H. One, Inc. SN 337,542. Pub. 10-6-70. Filed 9-10-69.

904,854. C AND DESIGN. Joyce Chen, Incorporated. SN 337,634. Pub. 10-6-70. Filed 9-11-69.

904,855. BAVARIAN CELLAR. A and L Enterprises, Inc. SN 337,873. Pub. 10-6-70. Filed 9-15-69.

904,856. MOHAWK. NBO Industries. SN 338,168. Pub. 10-6-70. Filed 9-17-69.

904,857. HI-FIX. Decca Limited. SN 339,788. Pub. 10-6-70. Filed 10-6-69.

904,858. CONDIMENT JAR DESIGN. Sizzlebord Restaurants, Inc. SN 341,064. Pub. 10-6-70. Filed 10-17-69.

904,859. CORK TREE. Doubletree Inns, Inc. SN 342,624. Pub. 10-6-70. Filed 11-4-69.

904,860. AT SHAKEY'S WE SERVE FUN (ALSO PIZZA). Shakey's Incorporated. SN 343,796. Pub. 10-6-70. Filed 11-14-69.

904,861. RAFFLES AND DESIGN. Raffles International, Inc. SN 346,109. Pub. 10-6-70. Filed 12-12-69.

904,862. BAR-GUARD AND DESIGN. Bar-Guard International, Inc. MULTIPLE CLASS (Classes 100 and 101). SN 351,365. Pub. 10-6-70. Filed 2-16-70.

904,863. THE MAGIC PAN CREPERIE. Magic Pan, Inc. SN 361,936. Pub. 10-6-70. Filed 6-8-70.

904,864. MAN DESIGN. Dixon's Chili Parlors, Inc. SN 362,004. Pub. 10-6-70. Filed 6-8-70.

Class 101 — Advertising and Business

904,862. (See Class 100 for this trademark.)

904,865. ATA FOUNDATION, INC. AND DESIGN. ATA Foundation, Inc. SN 166,342. Pub. 12-8-64. Filed 4-5-63.

904,866. VALU-VISION SHOW OF HOMES AND DESIGN. John S. McCusker, d.b.a. Valu-Vision Show of Homes. SN 298,749. Pub. 10-6-70. Filed 5-21-68.

904,867. MARK IV. Infofmatics, Inc. (Delaware Corporation), by merger from Informatics, Inc. (California corporation). SN 299,461. Pub. 2-17-70. Filed 5-31-68.

904,868. JOBS UNLIMITED. Jobs Unlimited of America, Inc. SN 319,608. Pub. 10-6-70. Filed 2-19-69.

904,869. LIBERTY BELLES. Belent Corp., d.b.a. The Belent Corp. SN 335,537. Pub. 10-6-70. Filed 8-18-69.

904,870. FANNING AND DESIGN. Fanning Personnel Agency, Inc. SN 335,960. Pub. 10-6-70. Filed 8-22-69.

904,871. MISCO. The McCall Information Services Company, assignee of McCall Corporation. SN 337,383. Pub. 10-6-70. Filed 9-5-69.

Class 102 — Insurance and Financial

904,872. M AND DESIGN. Milwaukee Mutual Insurance Company. SN 325,063. Pub. 10-6-70. Filed 4-21-69.

904,873. CHECKING 197. The Marina City Bank. SN 326,666. Pub. 10-6-70. Filed 5-7-69.

904,874. GOLDEN MINI-BOOK. The Marina City Bank. SN 326,668. Pub. 10-6-70. Filed 5-7-69.

904,875. THE GOLDEN APPLE AND DESIGN. National Old Line Insurance Company. SN 327,402. Pub. 10-6-70. Filed 5-15-69.

904,876. BIMA. Boston Investment Management Associates, Inc. SN 336,312. Pub. 10-6-70. Filed 8-26-69.

904,877. MISCELLANEOUS DESIGN. Cosmopolitan Investors Funding Company. SN 342,621. Pub. 10-6-70. Filed 11-4-69.

904,878. HANDI-CASH. United National Bank of Central Jersey. SN 363,140. Pub. 10-6-70. Filed 6-19-70.

904,879. BANK-PAK. Franklin National Bank. SN 363,230. Pub. 10-6-70. Filed 6-22-70.

Class 103 — Construction and Repair

904,880. RALPH'S. Ralph's Chrysler-Plymouth. SN 303,375. Pub. 10-6-70. Filed 5-31-68.

904,881. LAUNDERAMA. Zeolux Corporation. SN 315,286. Pub. 10-6-70. Filed 12-26-68.

904,882. MISCELLANEOUS DESIGN. Anderson Chemical Company. SN 324,330. Pub. 10-6-70. Filed 4-14-69.

Class 104 — Communication

904,849. (See Class 100 for this trademark.)

Class 105 — Transportation and Storage

904,849. (See Class 100 for this trademark.)

904,883. PC DESIGN. Penn Central Transportation Company, by change of name from Penn Central Company. SN 323,008. Pub. 10-6-70. Filed 3-27-69.

904,884. MISCELLANEOUS DESIGN. Canadian Pacific Railway Company. SN 324,969. Pub. 10-6-70. Filed 12-9-68.

904,885. AMBUCARE INC. AND DESIGN. Ambucare, Inc. SN 332,679. Pub. 10-6-70. Filed 7-16-69.

904,886. GO-GETTERS GO OZARK. Ozark Air Lines, Inc. SN 337,409. Pub. 6-23-70. Filed 9-9-69.

904,887. CHARGE-A-FLIGHT. Western Air Lines, Inc. SN 346,009. Pub. 10-6-70. Filed 12-11-69.

904,888. AMGO. Amgo Tours, Inc. SN 350,665. Pub. 10-6-70. Filed 2-6-70.

Class 107 — Education and Entertainment

904,889. THE CATHEDRAL HOUR. The Domestic and Foreign Missionary Society of the Protestant Episcopal Church in the United States of America. SN 326,636. Pub. 10-6-70. Filed 5-7-69.

904,890. CAPS AND CAP DESIGN. Andover Institute of Business, Inc. SN 328,799. Pub. 10–6–70. Filed 6–2–69.

904,891. HOLD-LINE. Clef, Inc. SN 328,817. Pub. 10–6–70. Filed 6–2–69.

904,892. CHOICE AND DESIGN. Mennonite Broadcasts, Inc. SN 332,247. Pub. 10–6–70. Filed 7–10–69.

904,893. CINAMERICAN. Robert F. Moeller, d.b.a. Cinamerican Pictures Company. SN 334,358. Pub. 10–6–70. Filed 8–4–69.

904,894. THE THIRTEENTH YEAR AND LAMP DESIGN. University Center, Inc. SN 342,555. Pub. 10–6–70. Filed 11–3–69.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 1—Raw or Partly Prepared Materials

904,895. The Lackawanna Leather Co., Hackettstown, N.J. SN 335,764. Filed P.R. 8–20–69; Am. S.R. 9–16–70.

MASSAGED GLAZED ANTIQUE

For Leather (Int. Cl. 18).
First use May 27, 1969.

Class 6—Chemicals and Chemical Compositions

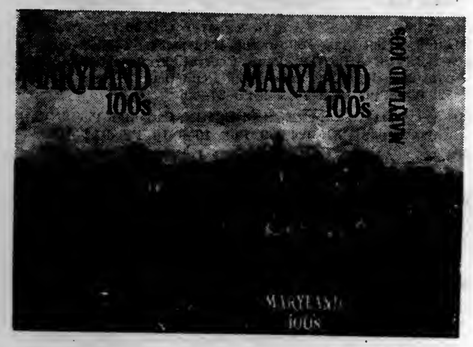
904,896. Consumer Developments, Inc., Santa Monica, Calif. SN 324,176. Filed P.R. 4–10–69; Am. S.R. 7–23–70.

RUN STOP

For Hosiery Spray for Preventing Runs in Nylon Fabrics (Int. Cl. 1).
First use Apr. 1, 1969.

Class 17—Tobacco Products

904,897. American Brands, Inc., New York, N.Y. SN 360,405. Filed 5–21–70.



Without waiver of any of its common law rights, applicant disclaims any right to exclusive use of the word "Maryland" and the numeral "100's" apart from the mark as shown.
For Cigarettes (Int. Cl. 34).
First use Feb. 23, 1970.

Class 18—Medicines and Pharmaceutical Preparations

904,898. Sandoz-Wander, Inc., Hanover, N.J., by merger and change of name from Sandoz, Inc., Hanover, N.J. SN 287,835. Filed P.R. 12–29–67; Am. S.R. 2–19–69.

CALCIUM-FORTE

For Pharmaceutical Preparation Containing Calcium (Int. Cl. 5).
First use Dec. 26, 1967.

Class 19—Vehicles

904,899. The Standard Products Company, Cleveland, Ohio. SN 314,629. Filed P.R. 12–16–68; Am. S.R. 9–28–70.

MINITRIM

For Automotive Snap on Trim for Edges (Int. Cl. 12).
First use at least as early as Mar. 1, 1963.

904,900. Fred Beisser, d.b.a. Beisser Company, Fort Dodge, Iowa. SN 343,251. Filed P.R. 11–12–69; Am. S.R. 8–31–70.

INSTANT CHROME

For Decorative and Protective Strip for Attachment to the Sides of Automotive Vehicles (Int. Cl. 12).
First use August 1967.

Class 21—Electrical Apparatus, Machines, and Supplies

904,901. Curtis-Electro Lighting, Inc., Chicago, Ill. SN 320,034. Filed P.R. 2–25–69; Am. S.R. 6–15–70.

AUDIO-LITES

For Sound Sensitive Light System Enabling the Listener To Visualize Colored Light Images Displayed on a Panel, as Well as Hear the Music To Which the Light Images Are Synchronized (Int. Cl. 11).
First use during October 1968.

904,902. General International Lites Corporation, Seattle, Wash. SN 324,189. Filed P.R. 4–10–69; Am. S.R. 9–16–70.

SUPER-BRITE

For Christmas Tree Lights (Int. Cl. 11).
First use Mar. 25, 1969.

904,903. Waters Instruments, Inc., Minneapolis, Minn., by change of name from Flo-Tronics, Inc., d.b.a. Electro-Line Products Co., Minneapolis, Minn. SN 348,027. Filed P.R. 1–8–70; Am. S.R. 9–16–70.

SUPER CHARGER

For Electric Fence Chargers (Int. Cl. 9).
First use October 1965.

Class 22—Games, Toys, and Sporting Goods

904,904. Hasbro Industries, Inc., Pawtucket, R.I., by change of name from Hassenfeld Bros. Inc., Pawtucket, R.I. SN 302,323. Filed P.R. 7–9–68; Am. S.R. 7–18–70.

POST OFFICE

For Equipment Comprising a Board, a Spinner and Moveable Pieces for Playing a Toy Game (Int. Cl. 28).
First use on or about Feb. 28, 1968.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

904,905. Waldes Kohinoor, Inc., Long Island City, N.Y. SN 344,919. Filed P.R. 11–28–69; Am. S.R. 9–4–70.

KLIPRING

For Retaining Rings (Int. Cl. 6).
First use Aug. 29, 1969.

Class 26—Measuring and Scientific Appliances

904,906. Cincinnati Incorporated, Cincinnati, Ohio, by change of name from The Cincinnati Shaper Company, Cincinnati, Ohio. SN 301,040. Filed P.R. 6–21–68; Am. S.R. 3–26–70.

CINCINNATI

For Electronic Teaching Devices Utilizing Magnetic Tapes and Visual Images Comprising Programmers for Recording and Encoding the Tapes, Reproducers for Reproducing and Decoding the Tapes, Precoded and Pre-Recorded Tapes, Automated Instruction Programs Embodied in Pre-Recorded Magnetic Tapes and Visual Materials, All the Foregoing Being Sold as a Unit (Int. Cl. 9).
First use May 17, 1968.

Class 29—Brooms, Brushes, and Dusters

904,907. Laboratoires Asepta, Monaco, Principaute de Monaco. SN 322,171. Filed P.R. 3–19–69; Am. S.R. 11–7–70.



"Lamelles" is French for a thin plate sheet or lamina; "Mousseline" is French for "muslin." The portrait is that of Miss Catherine Ronchon, whose consent is of record.
For Sponge-Like Material for the Removal of Makeup and for Beauty Care (Int. Cl. 21).
First use January 1954; in commerce September 1968.

Class 38—Prints and Publications

904,908. Central Soya Company, Inc., Fort Wayne, Ind. SN 335,199. Filed 8–13–69.

THE FOODPOWER PEOPLE

For Booklets and Pamphlets (Int. Cl. 16).
First use on or before January 1958.

904,909. Norman H. Kletzer, d.b.a. Pro Wrestling Enterprises, Mankato, Minn. SN 336,171. Filed P.R. 8–25–69; Am. S.R. 5–18–70.



For Printed Programs and Magazines (Int. Cl. 16).
First use Jan. 12, 1969.

904,910. William W. Clark, d.b.a. Butane-Propane News Co., Arcadia, Calif. SN 340,251. Filed P.R. 10–9–69; Am. S.R. 10–1–70.

BUTANE-PROPANE NEWS

For Periodical Publication in the Nature of a Trade Magazine (Int. Cl. 16).
First use Aug. 28, 1969.

904,911. Farm Journal, Inc., Philadelphia, Pa. SN 342,155. Filed P.R. 10–30–69; Am. S.R. 9–23–70.

FARMSCOPE

For Feature in a Magazine (Int. Cl. 16).
First use Sept. 20, 1969.

904,912. Business International Corporation, New York, N.Y. SN 350,045. Filed P.R. 1–30–70; Am. S.R. 9–24–70.

FINANCING FOREIGN OPERATIONS

For Loose Leaf Reference Book Issued Periodically and Supplements Therefor (Int. Cl. 16).
First use October 1961.

904,913. Business International Corporation, New York, N.Y. SN 350,047. Filed P.R. 1–30–70; Am. S.R. 9–24–70.

INVESTING, LICENSING & TRADING CONDITIONS ABROAD

For Loose Leaf Reference Book Issued Periodically and Supplements Therefor (Int. Cl. 16).
First use October 1965.

904,914. Ziff-Davis Publishing Company, New York, N.Y. SN 357,455. Filed P.R. 4–20–70; Am. S.R. 9–24–70.

35 MM PHOTOGRAPHY

For Magazine Published Semi-Annually (Int. Cl. 16).
First use in 1959.

904,915. Ziff-Davis Publishing Company, New York, N.Y. SN 357,456. Filed P.R. 4–20–70; Am. S.R. 9–17–70.

STEREO REVIEW

For Magazine Published Monthly (Int. Cl. 16).
First use November 1968.

904,916. Ziff-Davis Publishing Company, New York, N.Y. SN 357,465. Filed P.R. 4–20–70; Am. S.R. 9–17–70.

STEREO HI-FI DIRECTORY

For Semi-Annual Directory (Int. Cl. 16).
First use in the year 1957.

904,917. Ziff-Davis Publishing Company, New York, N.Y. SN 357,466. Filed P.R. 4–20–70; Am. S.R. 9–24–70.

TAPE RECORDER ANNUAL

For Magazine Published Annually (Int. Cl. 16).
First use in the year 1964.

904,918. Ziff-Davis Publishing Company, New York, N.Y. SN 357,653. Filed P.R. 4–22–70; Am. S.R. 9–17–70.

PHOTOGRAPHY DIRECTORY BUYING GUIDE

For Directory Published Annually (Int. Cl. 16).
First use in the year 1957.

904,919. McGraw-Hill, Inc., New York, N.Y. SN 359,735. Filed P.R. 5–14–70; Am. S.R. 10–5–70.

ENVIRONMENTAL ENGINEERING

For Annual Magazine (Int. Cl. 16).
First use Oct. 14, 1968.

Class 39—Clothing

904,920. Wiscassett Mills Company, Albemarle, N.C. SN 329,020. Filed P.R. 6–3–69; Am. S.R. 9–23–70.

FINE-FIT

For Hosiery and Panty Hose (Int. Cl. 25).
First use May 8, 1969.

904,921. U.S. Industries, Inc., New York, N.Y. SN 331,453. Filed P.R. 6–30–69; Am. S.R. 9–16–70.

HI HOSE

For Hosiery (Int. Cl. 25).
First use on or before Feb. 6, 1969.

904,922. The Lovable Company, Atlanta, Ga. SN 340,719. Filed P.R. 10–15–69; Am. S.R. 8–24–70.

PANTY HOSE PLUS

For Women's Foundation Garments (Int. Cl. 25).
First use May 8, 1969.

Class 46—Foods and Ingredients of Foods

904,923. Lehigh Valley Cooperative Farmers, d.b.a. Lehigh Valley Dairy, Allentown, Pa. SN 318,970. Filed P.R. 2–12–69; Am. S.R. 7–9–70.

LITE "N" UP

For Non-Dairy Cream Substitute (Int. Cl. 29).
First use Jan. 24, 1969.

904,924. Harold W. Rudnick, Pomona, Calif. SN 323,851. Filed 4–7–69.

TACO DOG

For Frozen Tortilla Wrapped Frankfurters (Int. Cl. 29).
First use June 15, 1967.

904,925. Agway, Inc. De Witt, N.Y. SN 331,003. Filed P.R. 6–26–69; Am. S.R. 9–14–70.

SUPER FLAKE

For Livestock Feed (Int. Cl. 31).
First use Mar. 19, 1969.

904,926. Schulze and Burch Biscuit Company, Chicago, Ill. SN 332,148. Filed P.R. 7–9–69; Am. S.R. 7–27–70.

APPLE PAN DOWDY

For Cookies (Int. Cl. 30).
First use May 28, 1969.

904,927. McCormick & Company, Incorporated, Cockeysville, Md. SN 336,003. Filed P.R. 8–22–69; Am. S.R. 9–28–70.

TART'N TASTY

For All-Purpose Seasoning (Int. Cl. 30).
First use July 21, 1969.

904,928. Champion Valley Farms, Inc., Camden, N.J. SN 336,893. Filed P.R. 9–3–69; Am. S.R. 8–27–70.

RECIPE

For Pet Food, Particularly Dog Food (Int. Cl. 31).
First use Aug. 26, 1969.

Class 47—Wines

904,929. Lopez Hermanos, S.A., Malaga, Spain. SN 351,801. Filed P.R. 2–19–70; Am. S.R. 8–21–70.



"Virgen" is the Spanish word for "Virgin." Owner of Spanish Reg. No. 434,995, dated Nov. 30, 1964; and U.S. Reg. No. 314,058.
For Wines (Int. Cl. 33).

Class 48—Malt Beverages and Liquors

904,930. Cerveceria Moctezuma, S.A., Mexico City, Mexico. SN 304,432. Filed P.R. 8–6–68; Am. S.R. 9–11–69.



The translation of the term "Dos Equis" into English is "two X's." Owner of Mexican Reg. No. 19,588, dated June 24, 1921.
For Beer (Int. Cl. 32).
First use July 12, 1900; in commerce July 1955.

Class 49—Distilled Alcoholic Liquors

904,931. Duncan Harwood Distillers of Canada Limited, Montreal, Quebec, Canada. SN 327,622. Filed P.R. 5–19–69; Am. S.R. 9–25–70.

HARWOOD'S

For Whisky (Int. Cl. 33).
First use Apr. 8, 1969; in commerce Apr. 8, 1969.

904,932. Diego Zamora Conesa y Cia., S.R.C. San Antonio Abad (Cartagena), Murica, Spain. SN 348,767. Filed P.R. 1–16–70; Am. S.R. 9–24–70.



Owner of Spanish Reg. No. 576,147, dated Apr. 25, 1969.
For Liqueurs (Int. Cl. 33).

Class 51—Cosmetics and Toilet Preparations

904,933. Viviane Woodard Corporation (Delaware corporation), White Plains, N.Y., assignee of Viviane Woodard Corporation (California corporation), Panorama City, Calif. SN 308,546. Filed P.R. 9–30–68; Am. S.R. 9–10–70.

Touch Of *Pensées*

For Emollient Lotion (Int. Cl. 3).
First use Sept. 5, 1968.

904,934. Viviane Woodard Corporation (Delaware corporation), White Plains, N.Y., assignee of Viviane Woodard Corporation (California corporation), Panorama City, Calif. SN 308,547. Filed P.R. 9–30–68; Am. S.R. 9–10–70.

Pensées

For Cosmetics—Namely, Bath Oil, Cologne, Perfume, Bath Emollients, and Bath Powder (Int. Cl. 3).
First use Sept. 5, 1968.

904,935. Twins Pharmaceutical Holdings Limited, Isando, Transvaal, Republic of South Africa. SN 326,279. Filed P.R. 5–5–69; Am. S.R. 3–5–70.

Carlsbad

Owner of South African Reg. No. B67/4,813, dated Oct. 30, 1967.
For Bath Oils, Bath Salts, and Body Lotions (Int. Cl. 3).

904,936. Ar. Winarick, Inc., New York, N.Y., assignee of Borden, Inc., New York, N.Y. SN 338,883. Filed P.R. 9–25–69; Am. S.R. 9–8–70.

Especially Light

For Hair Color Preparation (Int. Cl. 3).
First use on or before July 18, 1969.

904,937. Head-To-Toe Products, Rahway, N.J. SN 340,666. Filed P.R. 10–14–69; Am. S.R. 9–8–70.

EMERALD MIST

For Breath Freshener in a Spray Capsule (Int. Cl. 3).
First use Aug. 14, 1969.

Class 52 — Detergents and Soaps

904,938. Villa Chemical International, Inc., Corpus Christi, Tex. SN 316,354. Filed P.R. 1–10–69; Am. S.R. 9–21–70.

PINKY

For General Household Liquid Cleaner (Int. Cl. 3).
First use Dec. 4, 1968.

Service Marks

Class 101 — Advertising and Business

904,939. R. R. Donnelley & Sons Company, Chicago, Ill. SN 310,869. Filed P.R. 10–30–68; Am. S.R. 8–11–70.

ELECTRONIC GRAPHICS

For Composing and Printing Service.
First use Sept. 10, 1968.

904,940. John Plain & Company, Chicago, Ill. SN 312,846. Filed P.R. 11–18–68; Am. S.R. 8–31–70.

PICK-A-GIFT

For Issuance and Redemption of Gift Certificates (Int. Cl. 35).
First use September 1964.

904,941. Schaffer Diversified Corporation, Cleveland, Ohio. SN 329,131. Filed P.R. 6–4–69; Am. S.R. 8–13–70.

Cash-Back

For Promoting the Sale of Goods of Others by Issuance of Coupons Redeemable in Cash (Int. Cl. 35).
First use Jan. 24, 1969.

Class 102 — Insurance and Financial

904,942. Mason Trupp, M.D., Tampa, Fla. SN 302,871. Filed P.R. 7–16–68; Am. S.R. 9–17–70.

TAXICARD

For Taxi Credit Card Services (Int. Cl. 36).
First use June 26, 1968.

Class 103 — Construction and Repair

904,943. The New Can Company, Inc., Holbrook, Mass. SN 337,572. Filed P.R. 9–10–69; Am. S.R. 6–19–70.

NEWCAN

For Custom Fabrication of Metal Containers, Tin Cans, Perforated Metal Components for Filters, and Lockseamed Metal Tubes and Contract Slitting of Steel (Int. Cl. 37).
First use Dec. 20, 1968.

TRADEMARK REGISTRATIONS RENEWED

34,518. EUREKA. Cl. 11 (Int. Cl. 16). 4–24–1900.
35,569. CHECKERBOARD DESIGN. Cl. 46 (Int. Cl. 30). 12–11–1900.
80,077. HUB. Cl. 46 (Int. Cl. 30). 11–1–10.
81,137. "FAUST BRAND" AND DESIGN. Cl. 46 (Int. Cl. 29). 3–7–11.
269,133. MOSINEE SINGL-TOWLS. Cl. 37 (Int. Cl. 16). 3–25–30.
269,134. MOSINEE DUBLTOWLS. Cl. 37 (Int. Cl. 16). 3–25–30.
275,814. REPRESENTATION OF ANCHOR. Cl. 4 (Int. Cl. 7). 9–30–30.
275,837. MOTOROLA. Cl. 21 (Int. Cl. 9). 9–30–30.
276,709. CONTI. Cl. 52 (Int. Cl. 3). 10–28–30.
276,729. AIR-WAY. Cl. 29 (Int. Cls. 7 and 21). 10–28–30.
277,112. INSECTOR. Cl. 23 (Int. Cl. 9). 11–4–30.
277,162. GREEK LETTERS PHI ALPHA. Cl. 28 (Int. Cl. 14). 11–11–30.
277,972. KELCO. Cls. 6, 18, and 46 (Int. Cls. 1, and 5). 12–2–30.
279,294. BBS. Cl. 46 (Int. Cl. 29). 1–13–31.
279,732. SNOW MAN. Cl. 46 (Int. Cl. 30). 1–20–31.
280,315. DR. MARGARET LIVINGSTON. Cls. 18 and 51 (Int. Cls. 3 and 5). 2–10–31.
280,417. EASY. Cl. 24 (Int. Cl. 7). 2–17–31.
281,286. "VARTEX" ETC. AND DESIGN. Cl. 21 (Int. Cl. 17). 3–17–31.
281,477. INVADER. Cl. 37 (Int. Cl. 16). 3–17–31.
281,856. "JUST TRY ME." Cl. 46 (Int. Cl. 29). 3–31–31.
444,302. AJAX AND DESIGN. Cl. 23 (Int. Cl. 7). 11–7–50.
444,236. SIMPLEX. Cl. 23 (Int. Cl. 7). 9–19–50.
444,262. VIBRACHORD AND DESIGN. Cl. 36 (Int. Cl. 15). 10–10–50.
444,265. SACO. Cl. 23 (Int. Cl. 7). 10–10–50.
444,399. POLACOAT. Cl. 6 (Int. Cl. 1). 1–23–51.
523,384. TEX. Cl. 46 (Int. Cl. 29). 4–4–50.
527,537. PARAMOUNT. Cl. 36 (Int. Cl. 9). 11–11–50.
527,589. GRAND OLE OPRY. Cls. 101 and 107 (Int. Cl. 38). 7–11–50.
527,676. HITINT. Cl. 1 (Int. Cl. 2). 7–18–50.
527,962. DAYTON SAFETY AND DESIGN. Cl. 23 (Int. Cls. 7 and 8). 7–18–50.

528,249. WC. Cl. 17 (Int. Cl. 34). 8–1–50.
528,265. GOLD MEDAL. Cl. 50 (Int. Cl. 6). 8–1–50.
528,822. WOLFSCHMIDT. Cl. 49 (Int. Cl. 33). 8–8–50.
528,967. RISING OLDE QUILL D.E. Cl. 37 (Int. Cl. 16). 9–15–50.
529,432. CARIBETTES. Cl. 46 (Int. Cl. 29). 8–22–50.
529,847. SIPELIA. Cl. 23 (Int. Cl. 8). 8–29–50.
530,839. CHARD-O-MATIC. Cl. 36 (Int. Cl. 15). 9–19–50.
531,433. LYQUAFACE. Cl. 6 (Int. Cl. 1). 10–3–50.
531,471. GRAMCO AND DESIGN. Cl. 46 (Int. Cl. 31). 10–3–50.
531,622. FILIPPONE. Cl. 46 (Int. Cl. 29). 10–10–50.
531,632. PHILMY. Cl. 39 (Int. Cl. 25). 10–10–50.
531,771. HPM. Cl. 23 (Int. Cl. 7). 10–10–50.
531,808. TRI-VI-SOL. Cl. 18 (Int. Cl. 5). 10–10–50.
532,121. ROTA-LIFT. Cl. 23 (Int. Cl. 7). 10–17–50.
532,199. SURREY. Cl. 40 (Int. Cl. 21). 10–17–50.
532,334. FEDDERS. Cl. 34 (Int. Cl. 11). 10–24–50.
532,435. PARTY-PANTS. Cl. 39 (Int. Cl. 25). 10–24–50.
532,665. E & W Quadriga. Cl. 42 (Int. Cl. 24). 10–31–50.
532,685. KEY AND DESIGN. Cl. 17 (Int. Cl. 34). 10–31–50.
532,919. FRAMBERRY. Cl. 49 (Int. Cl. 33). 10–31–50.
533,008. LEWELLEN. Cl. 23 (Int. Cl. 7). 11–7–50.
533,110. BLANK SHIELD DESIGN. Cl. 21 (Int. Cl. 9). 11–7–50.
533,350. INDULIN AND DESIGN. Cl. 6 (Int. Cl. 1). 11–14–50.
533,452. BONANZA. Cl. 46 (Int. Cl. 29). 11–14–50.
534,083. CONAP. Cl. 6 (Int. Cl. 2). 11–28–50.
534,301. ARKWRIGHT. Cl. 3 (Int. Cl. 18). 12–5–50.
534,765. HOT POINT. Cl. 21 (Int. Cl. 11). 12–12–50.
538,849. ORA-SEPTINE. Cl. 18 (Int. Cl. 5). 3–6–51.
538,856. SARGENT. Cl. 16 (Int. Cl. 2). 3–6–51.
538,858. MID B DLE. Cl. 6 (Int. Cls. 1 and 30). 3–6–51.
539,097. COMMENDATION. Cl. 27 (Int. Cl. 14). 3–6–51.
539,104. THE TRAVELERS. Cl. 102 (Int. Cl. 36). 3–6–51.
539,146. CHARMODE. Cl. 39 (Int. Cl. 25). 3–13–51.
539,205. MASTER. Cl. 23 (Int. Cl. 8). 3–13–51.
539,212. GENESEE. Cl. 46 (Int. Cl. 29). 3–13–51.
539,410. FUL'O'PEP. Cl. 21 (Int. Cl. 9). 3–13–51.
539,427. JOHNSON AND DESIGN. Cl. 23 (Int. Cl. 8). 3–13–51.
539,485. NO HOSE KINK. Cl. 13 (Int. Cl. 11). 3–20–51.
539,502. GOODGIFT. Cl. 46 (Int. Cl. 31). 3–20–51.
539,601. PRESTO. Cl. 44 (Int. Cl. 11). 3–20–51.
539,720. SPACEMAKER. Cl. 12 (Int. Cl. 6). 3–20–51.
539,726. BURRUS BEST. Cl. 46 (Int. Cl. 30). 3–20–51.
539,740. SUNDE-PAK. Cl. 46 (Int. Cl. 30). 3–20–51.
539,774. LA GUSTOSA. Cl. 46 (Int. Cl. 29). 3–20–51.
539,805. HARLEY DAVIDSON. Cl. 23 (Int. Cls. 7 and 8). 3–27–51.
539,835. BLOCK. Cl. 39 (Int. Cl. 25). 3–27–51.
539,839. SHALER. Cl. 15 (Int. Cl. 1). 3–27–51.
539,928. CASTOMATIC. Cl. 14 (Int. Cl. 6). 3–27–51.
539,854. CAMEO. Cl. 42 (Int. Cl. 24). 3–27–51.
539,966. CHEMI-PULPER. Cl. 23 (Int. Cl. 7). 3–27–51.
540,024. ELEPHANT. Cl. 39 (Int. Cl. 24). 3–27–51.
540,062. LOCK DESIGN. Cl. 32 (Int. Cl. 6). 3–27–51.
540,091. COUNTER POINTS. Cl. 38 (Int. Cl. 16). 3–27–51.
540,202. HAV-A-KAR. Cl. 105 (Int. Cl. 39). 3–27–51.
540,409. ZEPHR. Cl. 40 (Int. Cl. 26). 4–3–51.

TRADEMARK REGISTRATIONS CANCELED

Section 7(d)

592,518. SUTTON. Cl. 51. 7–13–54.
626,662. OPEN HEARTH. Cl. 46. 5–8–56.
694,359. SUTTON. Cl. 52. 3–8–60.
853,856. JIM DANDY. Cl. 100. 7–30–68.
863,621. SLIM 'N TRIM. Cl. 46. 1–14–69.

Section 8

189,919. RED LINE AND DESIGN. Cl. 42. 9–30–24.
226,262. EMBASSY. Cl. 28. 4–5–27.
410,829. TRIOLOGY. Cl. 38. 12–19–44.
410,883. PERFON. Cl. 52. 12–26–44.

The following registrations issued Nov. 3, 1964

779,251. BLU-CHILLA AND DESIGN. Cl. 1.
779,258. SHOO. Cl. 4.
779,259. UNI-OXIDEC. Cl 4.
779,260. T TEXACO AND DESIGN. Cls. 4 and 52.
779,264. NILOX. Cl. 6.
779,274. ESTAB. Cl. 6.
779,280. SHAMROCK AND DESIGN. Cls. 6, 13, 21, 23, and 31.
779,281. UDS. Cl. 6.
779,282. LUMINSOL. Cl. 6.
779,293. TAKATEX. Cl. 6.
779,296. INJECTO-REFUEL. Cl. 8.
779,299. RAZORBACK AND DESIGN. Cl. 9.
779,307. NERCO. Cl. 11.
779,311. TI-IT. Cl. 13.
779,312. SURGE MASTER AND DESIGN. Cl. 13.
779,315. YELLO-JACKET. Cl. 13.
779,316. FIBRA-BASE. Cl. 13.
779,318. MIRACLE. Cl. 13.
779,319. EASTON. Cl. 13.
779,322. INTERMOLD. Cl. 14.
779,325. NUT KRAKER AND DESIGN. Cl. 15.
779,328. DPI. Cl. 15.
779,330. GHP. Cl. 16.
779,336. GOLDEN COUGH TAB. Cl. 18.
779,338. NEPHURIN. Cl. 18.
779,340. TUSSICALM T. Cl. 18.
779,341. LENSAL. Cl. 18.
779,345. D & G AND DESIGN. Cl. 18.
779,354. ACME IDEAL AND DESIGN. Cl. 18.
779,362. DECADERM–N. Cl. 18.
779,368. THIZODRIN. Cl. 18.
779,373. EL-ADE. Cl. 18.
779,374. ELBOLUS-C.D. Cl. 18.
779,377. FINGERS OF FIRE. Cl. 18.
779,378. MAG-2. Cl. 18.
779,382. AMERON. Cl. 19.
779,386. THREE TRANSVERSE RED BANDS ON BICYCLE BRAKE HUB. Cl. 19.
779,387. "SS." Cl. 19.
779,397. AMWAY. Cl. 23.
779,413. GUARDIAN. Cl. 23.
779,414. K & D. Cl. 23.
779,419. AUTO SEAM. Cl. 23.
779,425. FORE LINE. Cl. 25.
779,426. ASE AND DESIGN WITHIN A CIRCLE. Cl. 26.
779,427. BRYANT IN OVAL DESIGN. Cl. 26.
779,428. BRYANT. Cl. 26.
779,429. NILOX. Cl. 26.
779,432. AVITRONICS. Cl. 26.
779,435. PHOTOMAN. Cl. 26.
779,437. SPORTSARAMA. Cl. 26.
779,441. INFOGRAPH. Cl. 26.
779,442. HYPO-REPO AND DESIGN. Cl. 26.
779,443. THOMAS MICRO-CATALOGS. Cl. 26.
779,445. DENSIMATIC. Cl. 26.
779,446. DELPHIC-I. Cl. 26.
779,449. DETECTIRSCOPE. Cl. 26.
779,450. DEBONAIR. Cl. 26.
779,451. SPONGE-IT. Cl. 29.
779,452. LINT MITT. Cl. 29.
779,456. LANE STOWAWAY. Cl. 32.
779,462. TRACER BEAM. Cl. 36.
779,466. WYNCOTE. Cl. 36.
779,470. TURRET. Cl. 36.
779,480. THE LINDSAY SPARKLE AND DESIGN. Cl. 38.
779,481. ARCANUM. Cl. 38.
779,482. CAR MED-I-DENT. Cl. 38.
779,483. THE TA. Cl. 38.
779,485. FLEET INTERNATIONAL. Cl. 38.
779,490. ENSENADA. Cl. 39.
779,492. PEDS AND DESIGN. Cl. 39.
779,494. DEB TEEN. Cl. 39.
779,501. GARI AND DESIGN. Cl. 39.

779,510. VAL-U-WISE. Cl. 39.
779,511. U-REE-KA. Cl. 40.
779,513. TORTOISELLA. Cl. 40.
779,517. TANISHEEN. Cl. 42.
779,526. FABOUCH'E. Cl. 43.
779,527. ANALETTE. Cl. 44.
779,530. DURODENT. Cl. 44.
779,533. RAND D. Cl. 44.
779,535. POWER HOUSE. Cl. 46.
779,536. JAHN'S SINCE 1897. Cl. 46.
779,545. MARS ASTROJET AND DESIGN. Cl. 46.
779,547. YEGGS. Cl. 46.
779,548. YEGGS HARDBOILED FOR IMMEDIATE USE AND DESIGN. Cl. 46.
779,555. ST BRICET. Cl. 46.
779,557. CALV'E. Cl. 46.
779,564. FROSTY AND DESIGN. Cl. 46.
779,575. DIET GUARD AND DESIGN. Cl. 46.
779,578. LITTLE STARS. Cl. 46.
779,580. THREE SISTERS. Cl. 47.
779,582. BELL'S 6. Cl. 49.
779,583. KERRIGAN'S. Cl. 49.
779,588. DU PONT AND DESIGN. Cl. 50.
779,597. GANDHOUR. Cl. 51.
779,612. ALLEVIA. Cl. 51.
779,614. UNLOCKS. Cl. 51.
779,620. DRAW ALL AND DESIGN. Cl. 52.
779,623. ARAMIS. Cl. 52.
779,626. PLAZA 66. Cl. 100.
779,629. SQUARE, CIRCLE AND TRIANGLE DESIGN. Cl. 101.
779,630. FASHION CARE. Cl. 101.
779,636. WESTERN GIRL AND DESIGN. Cl. 101.
779,639. INFINITE SERVICE AND DESIGN. Cl. 102.
779,646. ETAMCO AND DESIGN. Cl. 106.
779,647. THE ZING TEAM OF PRO FOOTBALL THE DALLAS TEXANS ! Cl. 107.
779,648. GOLDIE & THE GINGERBREADS ETC. AND DESIGN. Cl. 107.
779,649. THE FESTIVAL ORCHESTRA. Cl. 107.
779,657. LIBERTY DISTRIBUTORS ETC. AND DESIGN. Cl. 200.
779,662. NU-BROWS. Cl. 40.
779,668. EAU DE VETIVER POUR MONSIEUR AND DESIGN. Cl. 51.
779,670. BARELY IVORY. Cl. 51.
779,671. BARELY MAUVE. Cl. 51.
779,672. BARELY PEACH. Cl. 51.
779,673. BARELY TAN. Cl. 51.

Section 18

561,884. ZOO-MAC. Cl. 46. 7–27–52.
768,127. UNIMARK. Cl. 21. 4–14–64.
776,915. COLOR-COUPLER AND DESIGN. Cl. 21. 9–15–64.
812,721. SPRINGNATIONALS. Cl. 107. 8–5–66.
842,658. CONDITIONER 5. Cl. 51. 1–16–68.
847,453. UNIMARK INTERNATIONAL. Cl. 100. 4–9–68.
877,812. CARGO. Cl. 37. 9–30–69.

INDEX OF REGISTRANTS

DECEMBER 22, 1970

(Registered ; Renewed ; Canceled ; Amended, Disclaimed, Corrected, etc. ; New Certificates ; 12c Publications.)

A & L Enterprises, Inc., Asheville, N. C. 904,855, pub. 10–6–70. Cl. 100.
AMF Inc., New York, N.Y. 539,805, ren. 12–22–70. Cl. 23.
ATA Foundation, Inc., Washington, D.C. 904,865, pub. 12–8–64. Cl. 101.
Abbott Laboratories, North Chicago, Ill. 904,623, pub. 10–6–70. Cl. 18.
Acme Markets, Inc., Philadelphia, Pa. 779,354, canc. Cl. 18.
Admiral Risty, The, Culver City, Calif. 904,852, pub. 10–6–70. Cl. 100.
Aerosmoke Ltd., Marlow, England, 904,625, pub. 10–6–70. Cl. 18.
Agway, Inc., Dewitt, N.Y. 904,925. Cl. 46.
Alliance Plastics, Inc., Erie, Pa. 904,822, pub. 10–6–70. Cl. 50.
Allied Chemical Corp., New York, N.Y. 779,319, canc. Cl. 13.
Altronic Research Corp., Cleveland, Ohio. 904,651, pub. 10–6–70. Cl. 21.
Ambucare, Inc., Rocky Mount, N.C. 904,885, pub. 10–6–70. Cl. 105.
American Automatic Vending Corp., Cleveland, Ohio, 904,850, pub. 10–6–70. Cl. 100.
American Brands, Inc., New York, N.Y. 904,897. Cl. 17.
American Cookware Corp., Milwaukee, Wis. 904,686, pub. 10–6–70. Cl. 23.
American Cyanamid Co., Wayne, N.J. 779,345, canc. Cl. 18.
American District Telegraph Co. New York, N.Y. 904,715, pub. 10–6–70. Cl. 26.
American Home Products Corp., New York, N.Y. 779,527, canc. Cl. 44.
American Optical Corp., Southbridge, Mass. 904,531, pub. 10–6–70. Cl. 3.
American Smelting & Refining Co., New York, N.Y. 539,928, ren. 12–22–70. Cl. 14.
American Standard Inc., New York, N.Y. 904,581, pub. 10–6–70. Cl. 13.
American Stretch Corp. : *See*— Brooks, Bobbie, Inc.
Amgo Tours, Inc., Indianapolis, Inc. 904,888, pub. 10–6–70. Cl. 105.
Amway Corp., Ada, Mich. 779,897, canc. Cl. 23.
Anaconda Co., The, New York, N.Y. 904,585, pub. 6–23–70. Cl. 14.
Anderson Chemical Co., Litchfield, Minn. 904,882, pub. 10–6–70. Cl. 103.
Anderson, Clayton & Co., Dallas, Tex. 863,621, canc. Cl. 46.
Andover Institute of Business, Inc., Andover, Mass. 904,890, pub. 10–6–70. Cl. 107.
Apex Beauty Products Mfg. Corp., d.b.a. Apex Beauty Products, Baltimore, Md. 842,658, canc. Cl. 51.
Aratowerk, Walter von Taschitzki, Heumarer Mauspfad, Germany. 904,579, pub. 10–6–70. Cl. 18.
Arcor Sociedad Anonima Industrial Comercial, Arroyito, Cordoba, Argentina, 904,806, pub. 10–6–70. Cl. 46.
Arkwright, Inc., New York, N.Y. 534,801, ren. 12–22–70. Cl. 3.
Armour & Co., Chicago, Ill. 523,384, ren. 12–22–70. Cl. 46.
Arnal Mfg. Inc., Cincinnati, Ohio. 904,778, pub. 10–6–70. Cl. 39.
Arrow Automotive Industries, Inc., Hudson, Mass. 904,652, pub. 10–6–70. Cl. 21.
Ashton Containers Ltd., Bristol, England. 904,526, pub. 10–6–70. Cl. 2.
Associated Dry Goods Corp., New York, N.Y. 904,788, pub. 1–14–69. Cl. 42.
Astro-Matic Lubricare, Inc., Nashville, Tenn. 904,590, pub. 10–6–70. Cl. 15.
Atlantic Richfield Co., Philadelphia, Pa. 904,593, pub. 6–2–70. Cl. 16.
Atmoore & Co., Evanston, Ill. 779,441, canc. Cl. 26.
Automation Industries, Inc., Los Angeles, Calif. 904,708–10, pub. 10–6–70. Cl. 26.
Avco Embassy Records Corp., New York, N.Y. 904,774, pub. 10–6–70. Cl. 36.
Bancroft, Joseph, & Sons Co., New York, N.Y. 904,780, pub. 10–6–70. Cl. 39.
Bank of the Southwest National Association, Houston, Tex. 779,639, canc. Cl. 102.
Barber & Ross Co., Leesburg, Va. 904,636, pub. 10–6–70. Cl. 19.
Bar-Guard International, Inc., New York, N.Y. 904,862, pub. 10–6–70. Multiple Class (Classes 100 and 101).
Barrett Battery Inc., from James H. Barrett, d.b.a. Barrett Battery Co., Toledo, Ohio, 904,641, pub. 11–7–67. Cl. 21.
Barrett, James H. : *See*— Barrett Battery Inc.
Bates, C. J., & Son, Inc., Chester, Conn. 540,409, ren. 12–22–70. Cl. 40.
Bay West Paper Co., Green Bay, Wis. 269,133–4, ren. 12–22–70. Cl. 37.
Bayuk Cigars Inc., Philadelphia, Pa. 904,605, pub. 10–6–70. Cl. 17.
Beisser, Fred, d.b.a. Beisser Co., Fort Dodge, Iowa. 904,900. Cl. 19.
Bell, Arthur, & Sons Ltd. Perth, Scotland. 779,582, canc. Cl. 49.
Bell & Howell Co., Chicago, Ill. 904,707, pub. 10–6–70. Multiple Class (Classes 26 and 36).
Bendix Corp., The, Detroit, Mich. 779,386, canc. Cl. 19.
Berlent Corp., d.b.a. The Belent Corp., King of Prussia, Pa. 904,869, pub. 10–6–70. Cl. 101.
Black Clawson Co., The, Hamilton, Ohio. 539,966, ren. 12–22–70. Cl. 23.
Blu-Chilla, Inc., Nampa, Idaho. 779,251, canc. Cl. 1.
Blue M. Electric Co., Blue Island, Ill. 904,711, pub. 10–6–70. Cl. 26.
Boise Cascade Corp., Boise, Idaho. 904,529, pub. 10–6–70. Cl. 2.
Borden, Inc. : *See*— Ar. Winarick, Inc.
Borg-Warner Corp., Chicago, Ill. 444,236, ren. 12–22–70. Cl. 23.
Borg-Warner Corp., Chicago, Ill. 444,265, ren. 12–22–70. Cl. 23.
Boston Investment Management Associates, Inc., Boston, Mass. 904,876, pub. 10–6–70. Cl. 102.
Boye Needle Co., The, Chicago, Ill. 904,786, pub. 10–6–70. Cl. 40.
Bradford Milk Co., Inc., Bradford, Pa. 853,856, canc. Cl. 100.
Brandeez Co., Maynard, Minn. 904,566, pub. 10–6–70. Cl. 11.
Brink, Joseph W., d.b.a. Buzze's Pharmaceutical Co., Seabrook, Md. 779,341, canc. Cl. 18.
Bristol International Speedway, Inc., d.b.a. Bristol International Dragway, Bristol, Tenn. 812,721, canc. Cl. 107.
Bristol-Myers Co., New York, N.Y. 904,618, pub. 10–6–70. Cl. 18.
Bristol-Myers Co., New York, N.Y. 904,841, pub. 10–6–70. Cl. 52.
British Drug Houses Ltd., The, London, England. 904,539, pub. 8–25–69. Cl. 6.
Brooks, Bobbie, Inc., Cleveland, Ohio, from American Stretch Corp., El Paso, Tex. 904,769, pub. 6–24–69. Cl. 39.
Brunswig Drug Co., Vernon, Calif. from Brunswig Drug Co., d.b.a. Rabin-Winters, El Segundo, Calif. 904,610, pub. 10–6–70. Cl. 18.
Bulova Watch Co., Inc., Flushing, N.Y. 539,097, ren. 12–22–70. Cl. 27.
Bulova Watch Co., Inc., Flushing, N.Y. 904,726–7, pub. 10–6–70. Cl. 27.
Burroughs Corp., Detroit, Mich. 34,518, ren. 12–22–70. Cl. 11.
Burrus Mills, Inc., Dallas, Tex. 539,726, ren. 12–22–70. Cl. 46.
Business International Corp., New York, N.Y. 904,912–13. Cl. 38.
Cameo Curtains Inc., New York, N.Y. 539,954, ren. 12–22–70. Cl. 42.
Cameo-Parkway Records, Inc., Philadelphia, Pa. 779,466, canc. Cl. 86.
Camille Clement Rene Pacaud, Paris, France. 779,597, canc. Cl. 51.
Canadian Industries Ltd., Montreal, Quebec, Canada. 904,556, pub. 10–6–70. Cl. 9.
Canadian Pacific Railway Co., Montreal, Quebec, Canada. 904,849, pub. 10–6–70. Multiple Class (Classes 100, 104, and 105).
Canadian Pacific Railway Co., Montreal, Quebec, Canada. 904,884, pub. 10–6–70. Cl. 105.
Carlisle Corp., Carlisle, Pa. 904,744, pub. 10–6–70. Cl. 35.
Castaneda, Jose A., Houston, Tex. 904,676, pub. 10–6–70. Cl. 22.
Ceco Publishing Co., Southfield, Mich. 904,766, pub. 10–6–70. Cl. 38.
Celange, Inc., New York, N.Y. 904,825, pub. 10–6–70. Cl. 50.
Central Nebraska Packing Co., d.b.a. Crown Prince Pet Food Co., North Platte, Nebr. 779,578, canc. Cl. 46.
Central Soya Co., Inc., Fort Wayne, Ind. 904,908. Cl. 38.
Cerveceria Moctezuma, S.A., Mexico City, Mexico. 904,930. Cl. 48.
Champion Valley Farms, Inc., Camden, N.J. 904,928. Cl. 46.
Charles Equipment Co., Villa Park, Ill. 904,845, pub. 10–6–70. Cl. 100.
Chattanooga Medicine Co., The, d.b.a. Chattem Laboratories, Chattanooga, Tenn. 779,377–8, canc. Cl. 18.
Chemical Sundries Co., Inc. : *See*— Chemtoy Corp.
Chemtoy Corp., from Chemtoy Corp., Chicago, Ill. 904,668–9, pub. 10–6–70. Cl. 22.
Chen, Joyce, Inc., Cambridge, Mass. 904,854, pub. 10–6–70. Cl. 100.
Chesebrough-Pond's Inc., New York, N.Y. 904,831, pub. 10–6–70. Cl. 51.
Chevron Chemical Co., San Francisco, Calif. 904,545, pub. 9–29–70. Cl. 6.
Cincinnati-Frote Co., The : *See*— Cincinnati Inc.
Cincinnati Inc., from The Cincinnati Shaper Co., Cincinnati, Ohio. 904,906. Cl. 26.
Cincinnati Inc., Cincinnati, Ohio, from The Cincinnati-Forte Co., Niles, Ill. 904,678, pub. 10–6–70. Cl. 28.
Cincinnati Shaper Co., The : *See*— Cincinnati Inc.

Clair Mfg. Co., Inc., Olean, N.Y. 904,696, pub. 10–6–70. Cl. 23.
Clairol Inc., New York, N.Y. 904,832, pub. 10–6–70. Cl. 51.
Clark, William W., d.b.a. Butane-Propane News Co., Arcadia, Calif. 904,910. Cl. 38.
Clef, Inc., Milwaukee, Wis. 904,891, pub. 10–6–70. Cl. 107.
Cleveland Wash Tray Mfg. Co., Inc., Cleveland, Ohio. 779,816, canc. Cl. 13.
Clinique Laboratories, Inc., New York, N.Y. 904,834, pub. 10–6–70. Cl. 51.
Codman, F. L. & J. C., Co., Rockland, Mass. 275,814, ren. 12–22–70. Cl. 4.
Colgate-Palmolive Co., New York, N.Y. 904,835, pub. 10–6–70. Cl. 51.
Colonial Knife Co., Inc., Providence, R.I. 539,205, ren. 12–22–70. Cl. 23.
Columbian Rope Co., Auburn, N.Y. 904,549, pub. 10–6–70. Cl. 7.
Comfort Glass Corp., Miami, Fla. 904,520, pub. 10–6–70. Cl. 1.
Comfort Spring Corp., Baltimore, Md. 540,062, ren. 12–22–70. Cl. 32.
Communication Mfg. Co., Long Beach, Calif. 904,655, pub. 10–6–70. Cl. 21.
Concrete Ltd., Middlesex, England. 904,570, pub. 10–6–70. Cl. 12.
Conesa, Diego Zamora, y Cia, S.R.C., San Antonio Abad (Cartagena), Murica, Spain. 904,932. Cl. 49.
Consolidated Analysis Centers Inc., Santa Monica, Calif. 904,704, pub. 9–9–69. Cl. 26.
Consolidated Cigar Corp., New York, N.Y. 904,553, pub. 10–6–70. Cl. 8.
Consolidated Cigar Corp., New York, N.Y. 904,608, pub. 10–6–70. Cl. 17.
Consolidated Distilled Products, Inc., Chicago, Ill. 904,818, pub. 10–6–70. Multiple Class (Classes 47 and 49).
Consolidated Foods Corp., Chicago, Ill., from Dixie Frozen Foods, Inc., Peachtree City, Ga. 904,798, pub. 3–18–69. Cl. 46.
Consumer Developments, Inc., Santa Monica, Calif. 904,896. Cl. 6.
Continental Oil Co., Ponca City, Okla. 904,563, pub. 10–6–70. Cl. 10.
Cook United, Inc., Maple Heights, Ohio. 904,745, pub. 10–6–70. Cl. 35.
Cooper Industries, Inc., Mount Vernon, Ohio. 444,302, ren. 12–22–70. Cl. 23.
Coot Industries, San Francisco, Calif. 904,635, pub. 10–6–70. Cl. 19.
Cornell Mfg. Co., Inc., Woonsocket, R.I. 904,785, pub. 10–6–70. Cl. 40.
Cosmetically Yours, Inc., Yonkers, N.Y. 904,829, pub. 10–6–70. Cl. 51.
Cosmopolitan Investors Funding Co., Harrisburg, Pa. 904,877, pub. 10–6–70. Cl. 102.
Cotter & Co., Chicago, Ill. 904,599, pub. 10–6–70. Cl. 16.
Crane Co., New York, N.Y. 904,583, pub. 10–6–70. Cl. 13.
Crowe, Andrew, & Sons, Inc., Warren, Maine. 904,550, pub. 10–6–70. Cl. 7.
Crowley's Milk Co., Inc., Binghamton, N.Y. 904,800, pub. 8–12–69. Cl. 46.
Curtis-Electro Lighting, Inc., Chicago, Ill. 904,901. Cl. 21.
Dallas Texans Football Club, Inc., Dallas, Tex. 779,647, canc. Cl. 107.
Dalto Electronics Corp., Norwood, N.J. 779,432, canc. Cl. 26.
Dampney Co., The, Boston, Mass. 904,597, pub. 10–6–70. Cl. 16.
Dart Industries, Inc., from Rexall Drug & Chemical Co., d.b.a. Vanda BC Co., Los Angeles, Calif. 904,837, pub. 10–7–69. Cl. 52.
Data Pacific Corp., Portland, Oreg. 904,714, pub. 10–6–70. Cl. 26.
Day, Eugene D., d.b.a. National Chemical, Lubbock, Tex. 779,325, canc. Cl. 15.
Day's Tailor-D Clothing, Inc., Tacoma, Wash. 539,835, ren. 12–22–70. Cl. 39.
Decca Ltd., London, England, 904,857, pub. 10–6–70. Cl. 100.
Delbanco, Meyer & Co., Ltd., London, England, 904,784, pub. 10–6–70. Cl. 40.
Del Monte Corp., San Francisco, Calif. 533,452, ren. 12–22–70. Cl. 46.
De Markoff, Alexandra, Sales Corp., New York, N.Y. 779,612, canc. Cl. 51.
DeMert & Dougherty, Inc., Chicago, Ill. 904,732, pub. 10–6–70. Cl. 29.
Dentsply International Inc., York, Pa. 904,796, pub. 10–6–70. Cl. 44.
Deringer, S. A., San Bernardino, Calif. 904,729, pub. 10–6–70. Cl. 28.
Digital Information Devices, Inc., Lionville, Pa. 904,717, pub. 10–6–70. Cl. 26.
Directional Industries, Inc., New York, N.Y. 904,738, pub. 10–6–70. Cl. 32.
Diversey Corp., The, Chicago, Ill. 410,883, canc. Cl. 52.
Diversified Industries, Inc. Clayton, Mo. 904,587, pub. 10–6–70. Cl. 14.
Dixie Frozen Foods, Inc.: *See*— Consolidated Foods Corp.
Dixon's Chili Parlors, Inc., Independence, Mo. 904,864, pub. 10–6–70. Cl. 100.
Dixson Inc., Grand Junction, Colo. 904,716, pub. 10–6–70. Cl. 26.
Doane Products Co., Joplin, Mo. 904,815, pub. 10–6–70. Cl. 46.
Dodgen Industries, Inc., Humboldt, Iowa. 904,639, pub. 10–6–70. Cl. 19.
Dodson Mfg. Co., Wichita, Kans. 904,684, pub. 10–6–70. Cl. 23.
Dolfi. Grande Distillerie Strasbourgeoise, Societe Anonyme, Strasbourg (Bas-Rhin), France. 532,919, ren. 12–22–70. Cl. 49.
Domestic & Foreign Missionary Society of the Protestant Episcopal Church in the United States of America, New York, N.Y. 904,889, pub. 10–6–70. Cl. 107.
Donnelley, R. R., & Sons Co., Chicago, Ill. 904,939. Cl. 101.
Doubletree Inns, Inc., Phoenix, Ariz. 904,859, pub. 10–6–70. Cl. 100.
Dow Chemical Co., The, Midland, Mich. 904,626, pub. 10–6–70. Cl. 18.
Dow Chemical Co., The, Midland, Mich. 904,632, pub. 10–6–70. Cl. 18.
Dow Corning Corp., Midland, Mich. 904,544, pub. 10–6–70. Cl. 6.
Dow Corning Corp., Midland, Mich. 904,588, pub. 10–6–70. Cl. 15.
Dunbar, J. Stone, d.b.a. Stoneyhurst Quarries, Bethesda, Md. 904,575, pub. 10–6–70. Cl. 12.
Du Pont, de Nemours, E. I., & Co., Wilmington, Del. 779,588, canc. Cl. 50.
Du Pont de Nemours, E. I., & Co., Wilmington, Del. 904,600, pub. 10–6–70. Cl. 16.
Dynamic Classics, Ltd., New York, N.Y. 904,656, pub. 10–6–70. Cl. 21.
ESB Inc., Philadelphia, Pa. 904,719, pub. 10–6–70. Cl. 26.
East Coast Tool, Inc., Woodbury, N.J. 904,537, pub. 10–6–70. Cl. 5.
Eastern Tool & Mfg. Co., Belleville, N.J. 779,646, canc. Cl. 106.
Eastman Kodak Co., Rochester, N.Y. 779,328, canc. Cl. 15.
Eastwood Pharmacal Co., Inc., Bridgeport, Conn. 904,624, pub. 10–6–70. Cl. 18.
Eaton Yale & Towne Inc., Cleveland, Ohio. 904,633, pub. 10–6–70. Cl. 19.
Edco Surgical Supply Co., Inc., New York, N.Y. 904,739, pub. 10–6–70. Cl. 32.
Electroweave, Inc., Rockland, Mass. 904,662, pub. 10–6–70. Cl. 21.
Electric Storage Battery Co., The, Philadelphia, Pa. 779,437, canc. Cl. 26.
Eltra Corp., Plainview, N.Y. 904,823–4, pub. 10–6–70. Cl. 50.
Ely & Walker Dry Goods Co., Memphis, Tenn. 532,665, ren. 12–22–70. Cl. 42.
Energy Sciences Inc., El Segundo, Calif. 904,689, pub. 10–6–70. Cl. 23.
Engel Bros. Jewelry Corp., New York, N.Y. 904,730, pub. 10–6–70. Cl. 28.
English Co., The, Salisbury, Md. 904,847, pub. 10–6–70. Cl. 100.
Envirotech Corp., Salt Lake City, Utah. 904,693–4, pub. 10–6–70. Cl. 23.
Eskimo Pie Corp., Richmond, Va. 279,732, ren. 12–22–70. Cl. 46.
Estee Lauder, Inc., New York, N.Y. 779,623, canc. Cl. 52.
Eversweet Foods, Inc., Frostproof, Fla. 779,535, canc. Cl. 46.
Ex-Cell-O Corp., Detroit, Mich. 779,427–8, canc. Cl. 26.
Fanning Personnel Agency, Inc., New York, N.Y. 904,870, pub. 10–6–70. Cl. 101.
Fanny Farmer Candy Shops, Inc., Cambridge, Mass. 904,804, pub. 10–6–70. Cl. 46.
Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany. 904,621, pub. 10–6–70. Cl. 18.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt, Germany. 779,338, canc. Cl. 18.
Farm Journal, Inc., Philadelphia, Pa. 904,911. Cl. 38.
Fedders Corp., Edison, N.J. 532,334, ren. 12–22–70. Cl. 34.
Federal Laboratories, Inc., Saltsburg, Pa. 904,554, pub. 6–30–70. Cl. 9.
Federal-Mogul Corp., Southfield, Mich. 904,586, pub. 10–6–70. Cl. 14.
Federated Paints Ltd., Glasgow, Scotland. 904,594, pub. 10–6–70. Cl. 16.
Feinpruf, Feinmess- und Prufgerate, G.m.b.H., Gottingen, Germany. 904,679, pub. 10–6–70. Cl. 23.
Feinpruf, Feinmess- und Prufgerate, G.m.b.H., Gottingen, Germany. 904,705, pub. 10–6–70. Cl. 26.
Festival Associates, Inc., New York, N.Y. 779,649, canc. Cl. 107.
Fieldcrest Mills, Inc., Eden, N.C. 904,776, pub. 10–6–70. Cl. 39.
Firestone Tire & Rubber Co., The, Akron, Ohio. 779,387, canc. Cl. 19.
Firestone Tire & Rubber Co., The, Akron, Ohio. 904,576, pub. 10–6–70. Cl. 12.
Firestone Tire & Rubber Co., The, Akron, Ohio. 904,746, pub. 10–6–70. Cl. 35.
Fleetwood Chemical Co., Inc., Holyoke, Mass. 904,840, pub. 10–6–70. Cl. 52.
Flexicraft Industries, Inc., Chicago, Ill. 779,312, canc. Cl. 13.
Flo-Tronics, Inc.: *See*— Waters Instruments, Inc.
Foster Grant Co., Inc., Leominster, Mass. 904,720, pub. 10–6–70. Cl. 26.
Frank, S. M., & Co., Inc., New York, N.Y. 779,296, canc. Cl. 8.
Franklin National Bank, Mineola, N.Y. 904,879, pub. 10–6–70. Cl. 102.
Franklin Stores Corp., d.b.a. Barker's, Bronx, N.Y. 904,595, pub. 10–6–70. Cl. 16.
Fried, Jeffrey L., d.b.a. Walton-March, Highland Park, Ill. 779,258, canc. Cl. 4.
Frosty Pet Food Co., Santa Ana, Calif. 779,564, canc. Cl. 46.
Fuller Laboratories, Inc., Eden Prairie, Minn. 904,533, pub. 10–6–70. Multiple Class (Classes 4, 16, and 52).
GBC Closed Circuit TV Corp., New York, N.Y. 904,653, pub. 10–6–70. Cl. 21.
Garmon Specialty Co., North Little Rock, Ark. 779,299, canc. Cl. 9.
Gates Rubber Co., The, Denver, Colo. 904,680, pub. 6–23–70. Cl. 23.

Geigy Chemical Corp., Ardsley, N.Y. 904,541, pub. 10–6–70. Cl. 6.
Geigy Chemical Corp., Ardsley, N.Y. 904,565, pub. 10–6–70. Cl. 10.
General International Lites Corp., Seattle, Wash. 904,902. Cl. 21.
General Electric Co., Louisville, Ky. 534,765, ren. 12–22–70. Cl. 21.
General Mills, Inc., Minneapolis, Minn. 80,077, ren. 12–22–70. Cl. 46.
Georgia-Pacific Corp., Portland, Oreg. 904,751–2, pub. 10–6–70. Cl. 37.
Georgia-Pacific Corp., Portland, Oreg. 904,808, pub. 10–6–70. Cl. 46.
Giannicchi, Americo L., New York, N.Y. 779,481, canc. Cl. 38.
Gibson Products Corp., Greenville, Mich. 280,417, ren. 12–22–70. Cl. 24.
Gillette Co., The, Boston, Mass. 779,614, canc. Cl. 51.
Gillette Co., The, d.b.a. The Paper Mate Co., Boston, Mass. 904,750, pub. 10–6–70. Cl. 37.
Gillette Co., The, d.b.a. The Paper Mate Co., Chicago, Ill. 904,755–6, pub. 10–6–70. Cl. 37.
Gladwin Ltd., London, England. 226,262, canc. Cl. 28.
Globe Universal Sciences, Inc., Midland, Tex. 904,661, pub. 10–6–70. Cl. 21.
Goerlich's, Inc.: *See*— Questor Corp.
Golden Cough Tablets, Inc., Brooklyn, N.Y. 779,336, canc. Cl. 18.
Gori & Zucchi S.p.A., Arezzo, Italy. 904,728, pub. 10–6–70. Cl. 28.
Grace, Kennedy & Co., Ltd., Montreal, Quebec, Canada. 904,802, pub. 10–6–70. Cl. 46.
Grado Laboratories, Inc., Brooklyn, N.Y. 779,462, canc. Cl. 36.
Graham, Murray, Inc., New York, N.Y. 779,501, canc. Cl. 39.
Gramco, Inc., Cattarangus, N.Y. 531,471, ren. 12–22–70. Cl. 46.
Granchel Medicine Co., Inc., The, Sabana Llana, Puerto Rico. 904,611, pub. 10–6–70. Cl. 18.
Graphic Controls Corp., Buffalo, N.Y. 904,567, pub. 10–6–70. Cl. 11.
Great Western Sugar Co., The, Denver, Colo. 904,805, pub. 10–6–70. Cl. 46.
Gries Reproducer Corp., New Rochelle, N.Y. 779,322, canc. Cl. 14.
Gulf Oil Corp., Pittsburgh, Pa. 904,557, pub. 10–6–70. Cl. 9.
Gulf Oil Corp., Pittsburgh, Pa. 904,559, pub. 10–6–70. Cl. 9.
Haddon Record Corp., Haddonfield, N.J. 904,749, pub. 10–6–70. Cl. 36.
Hagen, John E., d.b.a. Hagen's Bar-B-Broil, Renton, Wash. 904,812, pub. 10–6–70. Cl. 46.
Halberg, Harald, Mollergade, Svendborg, Denmark. 904,601, pub. 10–6–70. Cl. 17.
Hall China Co., The, East Liverpool, Ohio. 904,734, pub. 10–6–70. Cl. 30.
Hamilton Pharmacal Co., Inc., The, Hamilton, N.Y. 904,614, pub. 10–6–70. Cl. 18.
Happy Baby Carrier Co., Los Angeles, Calif. 904,530, pub. 10–6–70. Cl. 3.
Harriman Mfg. Co., The, Chattanooga, Tenn. 904,698, pub. 10–6–70. Cl. 23.
Harrington, Arthur M., Jr., d.b.a. Captain Skips, Ipswich, Mass. 904,803, pub. 10–6–70. Cl. 46.
Harsco Corp., Camp Hill, Pa. 528,265, canc. Cl. 50.
Harwood, Duncan, Distillers of Canada Ltd., Montreal, Canada. 904,931. Cl. 49.
Hasbro Industries, Inc., from Hassenfeld Bros. Inc., Pawtucket, R.I. 904,904. Cl. 22.
Hassenfeld Bros. Inc.: *See*— Hasbro Industries, Inc.
Hav-A-Kar, Los Angeles, Calif. 540,202, ren. 12–22–70. Cl. 105.
Head-To-Toe Products, Rahway, N.J. 904,937. Cl. 51.
Hellige, Fritz, & Co., GmbH, Freiburg im Breisgau, Germany. 904,791, pub. 10–6–70. Cl. 44.
Helmbold, August F. W., and Marita D. Helmbold, Summerville, S.C. 904,607, pub. 10–6–70. Cl. 17.
Herald House, Inc., Oakland, Calif. 779,547–8, canc. Cl. 46.
Herschel, R., Mfg. Corp., Peoria, Ill. 904,697, pub. 10–6–70. Cl. 23.
Honeggers' & Co., Inc., Fairbury, Ill. 904,813, pub. 10–6–70. Cl. 46.
Honeywell Inc., Minneapolis, Minn. 904,718, pub. 10–6–70. Cl. 26.
Hooven & Allison Co., The, Xenia, Ohio. 904,551, pub. 10–6–70. Cl. 7.
Horwitz, Norman, d.b.a. Diversey Drugs, Chicago, Ill. 904,630, pub. 10–6–70. Cl. 18.
Hudson Hosiery Co., Charlotte, N.C. 779,494, canc. Cl. 39.
Huebner Corp., Cleveland, Ohio. 904,760, pub. 10–6–70. Cl. 38.
ITT Continental Baking Co., Rye, N.Y. 904,809–10, pub. 10–6–70. Cl. 46.
Ickes-Braun Glasshouse, Inc., Aptakisic, Ill. 904,560, pub. 10–6–70. Multiple Class (Classes 10, 12, 34, and 38).
Imperial Camera Corp., Chicago, Ill. 779,450, canc. Cl. 26.
Industrial Bolt & Nut Co., Newark, N.J. 904,584, pub. 10–6–70. Cl. 13.
Informatics, Inc., Wilmington, Del., from Informatics, Inc., Sherman Oaks, Calif. 904,867, pub. 2–17–70. Cl. 101.
Interco Inc., St. Louis, Mo. 904,770, pub. 3–25–69. Cl. 39.
International Creditors Alliace, Inc., Bethesda, Md. 904,768, pub. 10–6–70. Cl. 38.
International Minting & Metalarts Corp., Yeadon, Pa. 904,826, pub. 10–6–70. Cl. 50.
International Playtex Corp., New York, N.Y. 532,435, ren. 12–22–70. Cl. 39.
International Telephone & Telegraph Corp., New York, N.Y. 527,962, ren. 12–22–70. Cl. 23.
International Telephone & Telegraph Corp., New York, N.Y. 904,742, pub. 7–15–69. Cl. 34.
Ishida Mfg. Co., Ltd., Saitama-ken, Japan. 904,695, pub. 10–6–70. Cl. 23.
Ivanhoe Citrus Association, Ivanhoe, Calif. 539,502, ren. 12–22–70. Cl. 46.
Jahn's Since 1897, Inc., Brooklyn, N.Y. 779,536, canc. Cl. 46.
Jeffrey-Allan Industries, Inc., Evanston, Ill. 904,637–8, pub. 10–6–70. Cl. 19.
Jhirmack Enterprises, Inc., Santa Barbara, Calif. 904,615, pub. 10–6–70. Multiple Class (Classes 18 and 46).
Jobs Unlimited of America, Inc., Mobile, Ala. 904,868, pub. 10–6–70. Cl. 101.
Johns-Manville Corp., New York, N.Y. 904,573, pub. 10–6–70. Cl. 12.
Johnson Rubber Co., The, Middlefield, Ohio. 904,827, pub. 10–6–70. Cl. 50.
K–S–H, Inc., St. Louis, Mo. 904,658–9, pub. 10–6–70. Cl. 21.
Kalman Floor Co. Inc., White Plains, N.Y. 904,572, pub. 10–6–70. Cl. 12.
Kane, J. Warren, Inc., New York, N.Y. 779,668, canc. Cl. 51.
Kapco Enterprises, Inc., Fort Atkinson, Wis. 904,663–4, pub. 10–6–70. Cl. 21.
Kawasaki Motors Corp., Santa Ana, Calif. 904,640, pub. 10–6–70. Cl. 19.
Kelco Co., San Diego, Calif. 277,972, ren. 12–22–70. Multiple Class (Classes 46, 18, and 6).
Keller Mfg. Co., Inc., Corydon, Ind. 904,735–6, pub. 10–6–70. Cl. 32.
Kelly-Springfield Tire Co., The, Cumberland, Md. 779,382, canc. Cl. 19.
Kemp, W. H., Co., Ltd., Mount Vernon, N.Y. 904,596, pub. 10–6–70. Cl. 16.
Kendrick & Davis Co., Lebanon, N.H. 779,414, canc. Cl. 23.
Key Chemicals, Inc., Philadelphia, Pa. 904,538, pub. 7–4–67. Cl. 6.
Kletzer, Norman H., d.b.a. Pro Wrestling Enterprises, Mankato, Minn. 904,909. Cl. 38.
Kimberly-Clark Corp., Neenah, Wis. 904,758, pub. 10–6–70. Cl. 37.
Klein Associates, Inc., Salem, N.H. 904,723, pub. 10–6–70. Cl. 26.
Klopman Mills, Inc., Rockleigh, N.J. 904,789, pub. 6–30–70. Cl. 42.
Koehring Co., Milwaukee, Wis. 531,771, ren. 12–22–70. Cl. 23.
Kollsman Instrument Corp., Elmhurst, N.Y. 779,446, canc. Cl. 26.
L & L Mfg., Inc., North Wilkesboro, N.C. 779,419, canc. Cl. 23.
Laboratoires Asepta, Monaco, Principaute de Monaco. 904,907. Cl. 29.
Lackawanna Leather Co., The, Hackettstown, N.J. 904,895. Cl. 1.
Lakewood Industries, Inc., Lakewood, Ohio. 904,683, pub. 10–6–70. Cl. 23.
Lamb Enterprises, Inc., Toledo, Ohio. 276,729, ren. 12–22–70. Cl. 29.
Lamb Enterprises, Inc., Toledo, Ohio. 277,112, ren. 12–22–70. Cl. 23.
Lane Co., Inc., The, Altavista, Va. 779,456, canc. Cl. 32.
La Perla Corp., Long Island City, N.Y. 531,622, ren. 12–22–70. Cl. 46.
Laser Systems & Electronics, Inc., Tullahoma, Tenn. 904,721, pub. 10–6–70. Multiple Class (Classes 26, 44, and 100).
Lashette Co., Inc., The, Natick, Mass. 779,662, canc. Cl. 40.
Lawton, John G., d.b.a. Lawtronics, Buffalo, N.Y. 904,660, pub. 10–6–70. Cl. 21.
Lehigh Valley Cooperative Farmers, d.b.a. Lehigh Valley Dairy, Allentown, Pa. 904,923. Cl. 46.
Lewellen Mfg. Co., Columbus, Ind. 538,008, ren. 12–22–70. Cl. 23.
Lewis, Tillie, Foods, Inc., Stockton, Calif. 539,774, ren. 12–22–70. Cl. 46.
Liberty Distributors, Philadelphia, Pa. 779,657, canc. Cl. 200.
Lilly, Eli, & Co., Indianapolis, Ind. 779,368, canc. Cl. 18.
Lilly, Eli, & Co., Indianapolis, Ind. 779,378–4, canc. Cl. 18.
Little German Inns, Inc., Fredericksburg, Tex. 904,843, pub. 10–6–70. Cl. 100.
Livingston, Dr. Margaret, Co., Chicago, Ill. 280,315, ren. 12–22–70. Cl. 18.
Loew's Theatres, Inc., New York, N.Y. 904,606, pub. 10–6–70. Cl. 17.
Lopez Hermanos, S.A., Malaga, Spain. 904,929. Cl. 47.
Lotus, Ltd., Stafford, England. 904,772–3, pub. 10–6–70. Cl. 39.
Lovable Co., The, Atlanta, Ga. 904,781, pub. 10–6–70. Cl. 39.
Lovable Co., The, Atlanta, Ga. 904,922. Cl. 39.
Lumin Chemical Co., Wilson, N.C. 779,282, canc. Cl. 6.
Maas-Rowe Carillons, Los Angeles, Calif. 444,262, ren. 12–22–70. Cl. 36.
Machinefabriek A. van der Linden N.V., Goes, Netherlands. 904,687, pub. 10–6–70. Cl. 23.
Madison Throwing Co., Inc., Madison, N.C. 779,526, canc. Cl. 48.
Magic Pan, Inc., Chicago, Ill. 904,863, pub. 10–6–70. Cl. 100.
Magnolia Citrus Association, Porterville, Calif. 904,814, pub. 10–6–70. Cl. 46.
Man-An-So Corp., Nevada, Iowa. 904,622, pub. 10–6–70. Cl. 18.
Manitowoc Co., Inc., The, Manitowoc, Wis. 779,630, canc. Cl. 101.
Marble, Carmel M., d.b.a. Marble Publications, San Francisco, Calif. 904,767, pub. 10–6–70. Cl. 38.
Mars, Inc., Chicago, Ill. 779,545, canc. Cl. 46.
Marx-Haas Clothing Co., Inc., St. Louis, Mo. 904,782, pub. 6–16–70. Cl. 39.

Mattel, Inc., Hawthorne, Calif. 904,672–4, pub. 10–6–70. Cl. 22.
McCall Corp.: *See*—
McCall Information Services Co., The.
McCall Information Services Co., The, Fullerton, Calif., from McCall Corp., New York, N.Y. 904,871, pub. 10–6–70. Cl. 101.
McCormick & Co., Inc., Cockeysville, Md. 904,927. Cl. 46.
McCullough & Fisher, Las Vegas, Nev. 779,311, canc. Cl. 13.
McCusker, John S., d.b.a. Valu-Vision Show of Homes, Aurora, Ill. 904,866, pub. 10–6–70. Cl. 101.
McGraw-Hill, Inc., New York, N.Y. 779,485, canc. Cl. 38.
McGraw-Hill, Inc., New York, N.Y. 904,919. Cl. 38.
McNerney, Frank B., Willowdale, Ontario, Canada. 904,524, pub. 10–6–70. Cl. 2.
McTarnahan's Pharmaceutical Chemists, Arcadia, Calif. 904,612, pub. 10–6–70. Cl. 18.
Mead Johnson & Co., Evansville, Ind. 531,808, ren. 12–22–70. Cl. 18.
Medical Communications, Inc., New York, N.Y. 904,759, pub. 10–6–70. Cl. 38.
Mennonite Broadcasts, Inc., Harrisonburg, Va. 904,892, pub. 10–6–70. Cl. 107.
Merck & Co., Inc., Rahway, N.J. 779,362, canc. Cl. 18.
Merck & Co., Inc., Rahway, N.J. 904,627–8, pub. 10–6–70. Cl. 18.
Middleby, Joseph, Jr., Inc., Boston, Mass. 538,858, ren. 12–22–70. Cl. 6.
Miles Laboratories, Inc., Elkhart, Ind. 779,293, canc. Cl. 6.
Milwaukee Mutual Insurance Co., Milwaukee, Wis. 904,872, pub. 10–6–70. Cl. 102.
Minaret Records, Inc., Val Paraiso, Fla. 779,470, canc. Cl. 36.
Mirina City Bank, The, Chicago, Ill. 904,873–4, pub. 10–6–70. Cl. 102.
Mitchell, F. O., & Bro. Inc., Perryman, Md. 281,856, ren. 12–22–70. Cl. 46.
Modern Packaging, Inc., Mount Holly, N.J. 904,523, pub. 8–4–70. Cl. 2.
Modern Packaging, Inc., Mount Holly, N.J. 904,525, pub. 10–6–70. Cl. 2.
Moducon, Inc., Nampa, Idaho. 904,574, pub. 10–6–70. Cl. 12.
Moeller, Robert F., d.b.a. Cinamerican Pictures Co., Ridgefield, Conn. 904,893, pub. 10–6–70. Cl. 107.
Motorola, Inc., Franklin Park, Ill. 275,837, ren. 12–22–70. Cl. 21.
Muelas Vitrificadas Y Especialidades, S.A., Arenys De Mar, Barcelona, Spain. 904,536, pub. 10–6–70. Cl. 4.
Muller, Otto, d.b.a. Triological Institute, Ridgebury, N.Y. 410,829, canc. Cl. 38.
Muskegon Piston Ring Co.: *See*—
Questor Corp.
Myzon Laboratories, Inc., Kansas City, Kans. 904,609. pub. 10–6–70. Cl. 18.
NBO Industries, Paterson, N.J. 904,856, pub. 10–6–70. Cl. 100.
National Instrument Laboratories, Inc., Rockville, Md. 779,445, canc. Cl. 26.
National Old Line Insurance Co., Little Rock, Ark. 904,875, pub. 10–6–70. Cl. 102.
National Presto Industries, Inc., Eau Claire, Wis. 539,601, ren. 12–22–70. Cl. 44.
National Service Industries, Inc., d.b.a. Zep Mfg. Co. Atlanta, Ga. 904,591, pub. 10–6–70. Cl. 15.
National Supply Distributors Association Inc., Boston, Mass. 904,741, pub. 3–17–70. Cl. 34.
Nerco, Inc., of Deerfield Beach, Deerfield Beach, Fla. 779,307, canc. Cl. 11.
Nevada Enzymes, Inc., Las Vegas, Nev. 904,561–2, pub. 10–6–70. Cl. 10.
New Can Co., Inc., The, Holbrook, Mass. 904,943. Cl. 103.
New Jersey Wood Finishing Co., Woodbridge, N.J. 281,286, ren. 12–22–70. Cl. 21.
Nippon Kogaku K.K., Tokyo, Japan. 904,722, pub. 10–6–70. Cl. 26.
Norman Industries, Inc., Chicago, Ill. 904,703, pub. 10–6–70. Cl. 26.
Norwich Pharmacal Co., The, Norwich, N.Y. 904,619, pub. 10–6–70. Cl. 18.
Nuclear Components Inc., Great Barrington, Mass. 904,713, pub. 10–6–70. Cl. 26.
O. & W. Machines, Inc., Mineola, N.Y. 904,700, pub. 10–6–70. Cl. 23.
Offenhauser Equipment Corp., Los Angeles, Calif. 904,685, pub. 10–6–70. Cl. 23.
Olin Mathieson Chemical Corp., New Haven, Conn. 904,543, pub. 10–6–70. Multiple Class (Classes 6 and 16).
Olympus Optical Co., Ltd., Tokyo, Japan. 904,747, pub. 10–6–70. Cl. 36.
One, H. H., Inc., College Park, Md. 904,853, pub. 10–6–70. Cl. 100.
One Wilkinson Avenue, Inc., Jersey City, N.J. 779,530, canc. Cl. 44.
Orflex, Inc., St. Louis, Mo., from Washington Scientific Industries, Inc., Minneapolis, Minn. 904,792–3, pub. 5–12–70. Cl. 44.
Osborne Electric Co. Ltd., Toronto, Ontario, Canada. 904,644, pub. 10–6–70. Cl. 21.
Owen Laboratories, Inc., Dallas, Tex. 904,617, pub. 10–6–70. Cl. 18.
Ox Fibre Brush Co., Inc., Frederick, Md. 779,451, canc. Cl. 29.
Oxford Industries, Inc., Atlanta, Ga. 904,771, pub. 9–16–69. Cl. 39.
Ozark Air Lines, Inc., St. Louis, Mo. 904,886, pub. 6–23–70. Cl. 105.
Pacer Plumbing Products Co., Inc., Moberly, Mo. 779,318, canc. Cl. 18.
Pages-La Verveine du Velay, Le Puy, Haute-Loire, France. 904,820, pub. 10–6–70. Cl. 49.
Palicio & Co., Inc., New York, N.Y. 904,602, pub. 10–6–70. Cl. 17.
Paramount Pictures Corp., New York, N.Y. 527,537, ren. 12–22–70. Cl. 36.
Parker Pen Co., The, Janesville, Wis. 904,691, pub. 10–6–70. Cl. 23.
Pathway Products Corp., Vetrona, N.J. 904,535, pub. 10–6–70. Multiple Class (Classes 4 and 52).
Patrick Industries, Inc., from Patrick Plywood Enterprises, Inc., Elkhart, Ind. 904,569, pub. 10–6–70. Cl. 12.
Patrick Plywood Enterprises, Inc.: *See*—
Patrick Industries, Inc.
Paul, Richard, Inc., Wilmington, Del. 779,492, canc. Cl. 39.
Penn Central Co.: *See*—
Penn Central Transportation Co.
Penn Central Transportation Co., from Penn Central Co., Philadelphia, Pa. 904,883, pub. 10–6–70. Cl. 105.
Perfect Plus Hosiery, Inc., Berkeley, Ill. 904,775, pub. 10–6–70. Cl. 39.
Pfetsch, K. Alfred, d.b.a. Alfred Pfetsch Co., New York, N.Y. 779,629, canc. Cl. 101.
Pfizer, Chas., & Co., Inc.: *See*—
Pfizer Inc.
Pfizer Inc., New York, N.Y. 527,676, ren. 12–22–70. Cl. 1.
Pfizer Inc., from Chas. Pfizer & Co., Inc., New York, N.Y. 904,833, pub. 10–6–70. Cl. 51.
Phillips Petroleum Co., Bartlesville, Okla. 533,110, ren. 12–22–70. Cl. 21.
Phillips Petroleum Co., Bartlesville, Okla. 779,626, canc. Cl. 100.
Phillips Petroleum Co., Bartlesville, Okla. 904,521, pub. 10–6–70. Cl. 1.
Phoenix Oil Co., Augusta, Ga. 534,083, ren. 12–22–70. Cl. 6.
Piece O' Pizza of America, Inc., Arlington, Mass. 904,848, pub. 10–6–70. Cl. 100.
Pioneer Girls, Wheaton, Ill. 904,851, pub. 10–6–70. Cl. 100.
Pittsburgh Plate Glass Co., Pittsburgh, Pa. 779,330, canc. Cl. 16.
Pittsburgh Waterproof Co., Pittsburgh, Pa. 189,919, canc. Cl. 42.
Plain, John, & Co., Chicago, Ill. 904,940. Cl. 101.
Planetary Sciences Inc., Santa Clara, Calif. 779,442, canc. Cl. 26.
Plantation Tobacco Co., Inc., New York, N.Y. 904,552, pub. 10–6–70. Cl. 8.
Plasti-Kote, Inc., Medina, Ohio. 904,598, pub. 10–6–70. Cl. 16.
Polacoat, Inc., Cincinnati, Ohio. 444,399, ren. 12–22–70. Cl. 6.
Pollution Control Industries, Inc., Stamford, Conn. 904,657, pub. 10–6–70. Cl. 21.
Port Clyde Packing Co., Inc., Hicksville, N.Y. 904,811, pub. 10–6–70. Cl. 46.
Prairie States Corp., Danville, Ill. 779,281, canc. Cl. 6.
Prater Industries, Inc., Chicago, Ill. 904,699, pub. 10–6–70. Cl. 23.
Presto Lock Co., Inc., Garfield, N.J. 904,582, pub. 10–6–70. Cl. 13.
Presto Lock Co., Inc., Garfield, N.J. 904,702, pub. 10–6–70. Cl. 25.
Pretty Products, Inc., Coshocton, Ohio. 904,528, pub. 10–6–70. Cl. 2.
Price-Pfister Brass Mfg. Co., Pacoima, Calif. 539,485, ren. 12–22–70. Cl. 13.
Purex Corp., Ltd., Lakewood, Calif. 904,546, pub. 10–6–70. Cl. 6.
Puritan Fashions Corp., New York, N.Y. 904,768, pub. 7–29–69. Cl. 39.
Quaker Hair Goods Co., Philadelphia, Pa. 779,511, canc. Cl. 40.
Questor Corp., from Goerlich's, Inc., Toledo, Ohio. 904,580, pub. 4–7–70. Multiple Class (Classes 13, 19, 23, and 35).
Questor Corp., Toledo, Ohio, from Muskegon Piston Ring Co., Muskegon, Mich. 904,743, pub. 3–17–70. Cl. 35.
R & D Corp., Chicago, Ill. 779,533, canc. Cl. 44.
RNB Leasing Corp., Beverly Hills, Calif. 904,846, pub. 10–6–70. Cl. 100.
Raffles International, Inc., Washington, D.C. 904,861, pub. 10–6–70. Cl. 100.
Rainbow Crafts, Inc., Cincinnati, Ohio. 904,675, pub. 10–6–70. Cl. 22.
Ralph's Chrysler-Plymouth, Downey, Calif. 904,880, pub. 10–6–70. Cl. 103.
Ralston Purina Co., St. Louis, Mo. 35,569, ren. 12–22–70. Cl. 46.
Ramsey Laboratories, Inc., Cleveland, Ohio. 529,432, ren. 12–22–70. Cl. 46.
Ramsey Laboratories, Inc., Cleveland, Ohio. 539,740, ren. 12–22–70. Cl. 46.
Randolph Computer Corp., Greenwich, Conn. 904,761, pub. 10–6–70. Cl. 38.
Releasall Ltd., Montreal, Quebec, Canada. 904,589, pub. 10–6–70. Cl. 15.
Reliance Mfg. Co., New York, N.Y. 779,490, canc. Cl. 39.
Renfro Hosiery Mills Co., Mount Airy, N.C. 904,779, pub. 10–6–70. Cl. 39.
Revlon, Inc., New York, N.Y. 779,513, canc. Cl. 40.
Revlon, Inc., New York, N.Y. 779,670–3, canc. Cl. 51.
Rexall Drug & Chemical Co.: *See*—
Dart Industries, Inc.
Richards Mfg. Co., Philadelphia, Pa. 904,649–50, pub. 10–6–70. Multiple Class (Classes 21 and 23).
Richardson-Merrell Inc., New York, N.Y. 904,616, pub. 10–6–70. Cl. 18.
Richardson-Merrell Ltd., London, England. 904,838, pub. 10–6–70. Cl. 52.

Rink Corp., Hazleton, Pa. 904,578, pub. 10–6–70. Cl. 12.
Ripon Foods, Inc., Ripon, Wis. 904,801, pub. 12–9–69. Cl. 46.
Rising Paper Co., Housatonic, Mass. 528,967, ren. 12–22–70. Cl. 37.
Ritchie Mfg. Co., Conrad, Iowa. 779,315, canc. Cl. 13.
Robertshaw, William R., d.b.a. Robertshaw & Co., Phoenix, Ariz. 779,620, canc. Cl. 52.
Rooney, Marie, Ruidoso, N. Mex. 904,807, pub. 10–6–70. Cl. 46.
Roussel Corp., New York, N.Y. 779,340, canc. Cl. 18.
Rucker Pharmacal Co., Inc., Shreveport, La. 904,629, pub. 10–6–70. Cl. 18.
Rudin & Roth, Inc., New York, N.Y. 779,510, canc. Cl. 39.
Rudnick, Harold W., Pomona, Calif. 904,924. Cl. 46.
S & S Machinery Co., Brooklyn, N.Y. 904,692, pub. 10–6–70. Cl. 23.
Saben, Benjamin, d.b.a. Saben Safety Enterprises, Los Angeles, Calif. 779,482, canc. Cl. 38.
Sakey's Inc., Englewood, Colo. 904,860, pub. 10–6–70. Cl. 100.
Sanders Associates, Inc., Nashua, N.H. 904,706, pub. 10–6–70. Cl. 26.
Sandoz, Inc.: *See*—
Sandoz-Wander, Inc.
Sandoz-Wander, Inc., from Sandoz, Inc., Hanover, N.J. 904,898. Cl. 18.
Sanford Ink Co., Bellwood, Ill. 877,812, canc. Cl. 37.
Sargent & Co., New Haven, Conn. 779,425, canc. Cl. 25.
Sargent Paint, Inc., Indianapolis, Ind. 538,856, ren. 12–22–70. Cl. 16.
Sauter, August, K.G., Ebingen, Wurttemburg, Germany. 779,426, canc. Cl. 26.
Scan-Data Corp., Norristown, Pa. 904,844, pub. 10–6–70. Cl. 100.
Schaffer Diversified Corp., Cleveland, Ohio. 904,941. Cl. 101.
Schenley Industries, Inc., New York, N.Y. 779,580, canc. Cl. 47.
Schulze & Burch Biscuit Co., Chicago, Ill. 904,926. Cl. 46.
Scriptomatic, Inc., Philadelphia, Pa. 904,688, pub. 10–6–70. Cl. 23.
Seagram, Joseph E., & Sons, Inc., New York, N.Y. 528,822, ren. 12–22–70. Cl. 49.
Seagram, Joseph E., & Sons, Inc., New York, N.Y. 779,583, canc. Cl. 49.
Sears, Roebuck & Co., Chicago, Ill. 538,849, ren. 12–22–70. Cl. 18.
Sears, Roebuck & Co., Chicago, Ill. 539,146, ren. 12–22–70. Cl. 39.
Sears, Roebuck & Co., Chicago, Ill. 904,701, pub. 10–6–70. Cl. 24.
Seaway Foods, Inc., Bedford Heights, Ohio. 904,799, pub. 10–6–70. Cl. 46.
Semel, Bernard J., Washington, D.C. 904,555, pub. 10–6–70. Cl. 9.
Service d'Exploitation Industrielle des Tabacs et des Allumettes, Paris, France. 904,603–4, pub. 10–6–70. Cl. 17.
Shaler Co., The, Waupun, Wis. 539,629, ren. 12–22–70. Cl. 15.
Shalom, I., & Co., Inc., New York, N.Y. 540,024, ren. 12–22–70. Cl. 39.
Shamrock Pool Equipment Co., Inc., El Monte, Calif. 779,280, canc. Multiple Class (Classes 6, 13, 21, 23, and 31).
Sherwin-Williams Co., The, Cleveland, Ohio. 532,121, ren. 12–22–70. Cl. 23.
Shure Bros. Inc., Evanston, Ill. 904,643, pub. 10–6–70. Cl. 21.
Sigma Alpha Epsilon, Evanston, Ill. 277,162, ren. 12–22–70. Cl. 28.
Sigma Scientific, Inc., Gainesville, Fla. 904,724, pub. 10–6–70. Cl. 26.
Signatron, Inc., Lexington, Mass. 904,645, pub. 4–14–70. Multiple Class (Classes 21 and 26).
Silverman, Dr. J. L., d.b.a. Custom Serum Services, Corpus Christi, Tex. 904,542, pub. 10–6–70. Cl. 6.
Sippel B. & J. Ltd., Sheffield, England. 529,847, ren. 12–22–70. Cl. 23.
Sizzlebord Restaurants, Inc., Needham Heights, Mass. 904,858, pub. 10–6–70. Cl. 100.
Ski-Eze, Inc., Warren, Mich. 904,671, pub. 10–6–70. Cl. 22.
Soap Products, Inc., North Hollywood, Calif. 904,886, pub. 3–17–70. Cl. 52.
Societe "Astra-Calve," Paris, France. 779,555, canc. Cl. 46.
Societe "Astra-Calve," Paris, France. 779,557, canc. Cl. 46.
Societe d'Emballages Platiques, Neuilly, France. 904,527, pub. 10–6–70. Cl. 2.
Sony Corp., Shinagawa-ku, Tokyo, Japan. 904,819, pub. 10–6–70. Cl. 49.
Southern Icee Corp., Baton Rouge, La. 904,797, pub. 10–6–70. Cl. 45.
Southern Instruments Ltd., Camberley, Surrey, England. 779,264, canc. Cl. 6.
Southern Instruments Ltd., Camberley, Surrey, England. 779,429, canc. Cl. 26.
Speed King Mfg. Co., Inc., Dodge City, Kans. 904,690, pub. 10–6–70. Cl. 23.
Spelio, Peter N., d.b.a. P. N. Spelio, Sherman Oaks, Calif. 904,880, pub. 10–6–70. Cl. 51.
Springboard International Records Inc., Brooklyn, N.Y. 904,748, pub. 10–6–70. Cl. 36.
Stainless Ice-Tainer Co., San Antonio, Tex. 904,522, pub. 10–6–70. Cl. 2.
Standard Electric Co., Inc., San Antonio, Tex. 539,410, ren. 12–22–70. Cl. 21.
Standard Oil Co., Flemington, N.J. 904,548, pub. 10–6–70. Cl. 6.
Standard Products Co., Cleveland, Ohio. 904,899. Cl. 19.
Steelcraft Mfg. Co., The, Cincinnati, Ohio. 539,720, ren. 12–22–70. Cl. 12.
Step Craft Mfg. Co., Freemont, Ohio. 904,571, pub. 10–6–70. Cl. 12.
Stokely-Van Camp, Inc., Columbus, Ohio. 279,294, ren. 12–22–70. Cl. 46.
Strauss Stores Corp., Maspeth, N.Y. 904,642, pub. 10–6–70. Cl. 21.
Sturm, Ruger & Co., Inc., Southport, Conn. 904,558, pub. 6–30–70. Cl. 9.
Sucrest Corp., New York, N.Y. 904,817, pub. 10–6–70. Cl. 46.
Sutton Cosmetics, Inc., New York, N.Y. 532,518, canc. Cl. 51.
Sutton Cosmetics, Inc., New York, N.Y. 904,359, canc. Cl. 52.
Suzuki Motor Co., Ltd., Hamamatsu, Japan. 904,634, pub. 10–6–70. Cl. 19.
T.G. & Y. Stores Co., Oklahoma City, Okla. 904,783, pub. 10–6–70. Cl. 40.
TSC Industries Inc., Chicago, Ill. 904,667, pub. 10–6–70. Cl. 21.
Tait Mfg. Co., The, Dayton, Ohio. 779,413, canc. Cl. 23.
Tanbro Fabrics Corp., New York, N.Y. 779,517, canc. Cl. 42.
Tech Laboratories, Inc., Palisades Park, N.J. 904,648, pub. 10–6–70. Cl. 21.
Technical Wire Products, Inc., Cranford, N.J. 904,666, pub. 10–6–70. Cl. 21.
Terra Chemicals International, Inc., Sioux City, Iowa. 904,564, pub. 10–6–70. Cl. 10.
Texaco Inc., New York, N.Y. 779,260, canc. Multiple Class (Classes 4 and 52).
Texaco Inc., New York, N.Y. 904,592, pub. 10–6–70. Cl. 15.
Thomas Publishing Co., New York, N.Y. 779,443, canc. Cl. 26.
Thompson, Robert C., d.b.a. The Trend Analyst, Glendale, Calif. 779,483, canc. Cl. 38.
Thwaites & Reed Ltd., London, England. 904,725, pub. 10–6–70. Cl. 27.
Tobin Packing Co., Inc., Rochester, N.Y. 539,212, ren. 12–22–70. Cl. 46.
Topco Associates, Inc., Skokie, Ill. 904,757, pub. 10–6–70. Cl. 37.
Topco Associates, Inc., Skokie, Ill. 904,842, pub. 10–6–70. Cl. 52.
Topp Electronics, Inc., Miami, Fla. 904,865, pub. 10–6–70. Multiple Class (Classes 21 and 36).
Traub Co., The, Detroit, Mich. 904,731, pub. 10–6–70. Cl. 28.
Travelers Insurance Co., The, Hartford, Conn. 539,104, ren. 12–22–70. Cl. 102.
Trebonik, Joseph A., d.b.a. Trebb Sales, Lorain, Ohio. 530,839, ren. 12–22–70. Cl. 36.
Trupp, Mason M. D., Tampa, Fla. 904,942. Cl. 102.
Tucel Industries, Inc., Middlebury, Vt. 904,733, pub. 10–6–70. Cl. 29.
Twins Pharmaceutical Holdings Ltd., Isando, Transvaal, South Africa. 904,935. Cl. 51.
USV Pharmaceutical Corp., New York, N.Y. 904,613, pub. 10–6–70. Cl. 18.
Unimark Corp., San Ramon, Calif. 768,127, canc. Cl. 21.
Unimark International Corp. for Des. & Marketing, Chicago, Ill. 847,453, canc. Cl. 100.
Union Products, Inc., White Pigeon, Mich. 904,577, pub. 10–6–70. Cl. 12.
Union Tank Car Co., Chicago, Ill. 779,480, canc. Cl. 38.
United National Bank of Central Jersey, Plainfield, N.J. 904,878, pub. 10–6–70. Cl. 102.
United Silver & Cutlery Co., Los Angeles, Calif. 904,681–2, pub. 10–6–70. Cl. 23.
U.S. Fibres, Inc., Detroit, Mich. 904,787, pub. 8–27–68. Cl. 42.
U.S. Industries, Inc., New York, N.Y. 904,921. Cl. 39.
United States Jaycees, The, Tulsa, Okla. 904,762, pub. 10–6–70. Cl. 38.
United States Plywood Corp.: *See*—
U.S. Plywood-Champion Papers Inc.
U.S. Plywood-Champion Papers Inc., from United States Plywood Corp., New York, N.Y. 904,568, pub. 6–29–70. Cl. 12.
United States Tobacco Co., Greenwich, Conn. 528,249, ren. 12–22–70. Cl. 17.
United States Tobacco Co., Greenwich, Conn. 532,685, ren. 12–22–70. Cl. 17.
Unitek Corp., Monrovia, Calif. 904,795, pub. 10–6–70. Cl. 44.
Universal Shellac & Supply Co., Brooklyn, N.Y. 779,259, canc. Cl. 4.
Universal Center, Inc., Boston, Mass. 904,894, pub. 10–6–70. Cl. 107.
Upjohn Co., The, Kalamazoo, Mich. 904,631, pub. 10–6–70. Cl. 18.
Valpey-Fisher Corp., Holliston, Mass. 104,654, pub. 10–6–70. Cl. 21.
Van Raalte Co., Inc., New York, N.Y. 531,632, ren. 12–22–70. Cl. 39.
Varo, Inc., Garland, Tex. 779,449, canc. Cl. 26.
Velsicol Chemical Corp., Chicago, Ill. 779,274, canc. Cl. 6.
Vetreria Di Vernante, S.p.A., Cuneo-Spinetta, Italy. 904,740, pub. 10–6–70. Cl. 33.
Viaphone, Inc., St. Louis, Mo. 904,712, pub. 10–6–70. Cl. 26.
Viggo AB, Halsingborg, Sweden. 904,794, pub. 10–6–70. Cl. 44.
Vilberg, Donald W., d.b.a. Pal Enterprises, St. Louis, Mo. 904,754, pub. 10–6–70. Cl. 37.
Villa Chemical International, Inc., Corpus Christi, Tex. 904,938. Cl. 52.
Visual Graphics Corp., New York, N.Y. 779,435, canc. Cl. 26.
Vulcanized Rubber & Plastics Co., Morrisville, Pa. 532,199, ren. 12–22–70. Cl. 40.
WSM, Inc., Nashville, Tenn. 527,589, ren. 12–22–70. Multiple Class (Classes 101 and 107).
Wagner Industries, Inc., Cicero, Ill. 779,575, canc. Cl. 46.
Waldes Kohinoor, Inc., Long Island City, N.Y. 904,905. Cl. 23.

Wallace Pencil Co., St. Louis, Mo. 281,477, ren. 12–22–70. Cl. 37.
Wallace-Murray Corp., New York, N.Y. 539,427, ren. 12–22–70. Cl. 23.
Wang, Dashen, Taipei, Taiwan. 904,753, pub. 10–6–70. Cl. 37.
Washington Scientific Industries, Inc.: *See*—Orflex, Inc.
Wass Food Products Co., Chicago, Ill. 626,662, canc. Cl. 46.
Waterproof Engineering Technology, Inc., San Diego, Calif. 904,646–7, pub. 10–6–70. Cl. 21.
Waters Instruments, Inc., from Flo-Tronics, Inc., d.b.a. Electro-Line Products Co. 904,903. Cl. 21.
Wayne-Gossard Corp., Humboldt, Tenn. 540,091, ren. 12–22–70. Cl. 38.
Western Air Lines, Inc., Los Angeles, Calif. 904,887, pub. 10–6–70. Cl. 105.
Western Girl Inc., San Francisco, Calif. 779,636, canc. Cl. 101.
Western Litho Plate & Supply Co., St. Louis, Mo. 904,821, pub. 10–6–70. Cl. 50.
Western Litho Plate & Supply Co., d.b.a. Western Litho Plate & Supply Co., St. Louis, Mo. 904,839, pub. 10–6–70. Cl. 52.
Western Publishing Co., Inc., Racine, Wis. 904,670, pub. 10–6–70. Cl. 22.
Westvaco Corp., New York, N.Y. 533,850, ren. 12–22–70. Cl. 6.
Whitehead Bros. Co., Florham Park, N.J. 531,433, ren. 12–22–70. Cl. 6.
Whitmoyer Laboratories, Inc., Myerstown, Pa. 904,540, pub. 10–6–70. Cl. 6.
Whitney-Fidalgo Seafood, Inc., Seattle, Wash. 81,137, ren. 12–22–70. Cl. 46.
Williams, J. B., Co., Inc., The, New York, N.Y. 276,709, ren. 12–22–70. Cl. 52.
Wimbley Industries, Inc., New Orleans, La. 904,777, pub. 10–6–70. Cl. 39.
Winarick, Ar., Inc., from Borden, Inc., New York, N.Y. 904,-936. Cl. 51.
Winegard Co., Inc., Burlington, Iowa. 776,915, canc. Cl. 21.
Wiscassett Mills Co., Albemarle, N.C. 904,920. Cl. 39.
Woodard, Vivian, Corp., White Plains, N.Y., from Vivian Woodard Corp., Panorama City, Calif. 904,933–4. Cl. 51.
Wright, E., Co., Decatur, Ill. 779,452, canc. Cl. 29.
Wunderlich, Ray Charles, and Elinor Howell Wunderlich, St. Petersburg, Fla. 904,737, pub. 10–6–70. Cl. 32.
Wyandot Popcorn Co., Marion, Ohio. 904,816, pub. 10–6–70. Cl. 46.
Yamato Mishin Seizo Kabushiki Kaisha, Tokonaka City, Japan. 904,677, pub. 10–6–70. Cl. 23.
Yardley of London, Inc., New York, N.Y. 904,828, pub. 10–6–70. Cl. 51.
Young's, Inc., Roaring Spring, Pa. 904,620, pub. 10–6–70. Cl. 18.
Zayre Corp., Natick, Mass. 904,547, pub. 10–6–70. Cl. 6.
Zegna, A., Societa in Accomandita Semplice, Vercelli, Italy. 904,790, pub. 10–6–70. Cl. 43.
Zelkowitz, Goldie, Brooklyn, N.Y. 779,648, canc. Cl. 107.
Zeolux Corp., Greenville, S.C. 904,881, pub. 10–6–70. Cl. 103.
Zero Mfg. Co., Burbank, Calif. 904,532, pub. 10–6–70. Cl. 3.
Ziff-Davis Publishing Co., New York, N.Y. 904,764–5, pub. 10–6–70. Cl. 38.
Ziff-Davis Publishing Co., New York, N.Y. 904,914–18. Cl. 38.
Zoo-Mac, Inc., St. Louis, Mo. 561,884, canc. Cl. 46.

U.S. GOVERNMENT PRINTING OFFICE: 0—1970

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 29, 1970 Volume 881 Number 5

PATENTS
NOTICES

Board of Appeals Decisions Rendered in the Month of November 1970

Examiner affirmed	140
Examiner affirmed in part	13
Examiner reversed	33
Total	186

Certificates of Correction for the Week of Dec. 29, 1970

Re. 26,957	3,504,826	3,522,319	3,532,722
D. 217,757	3,505,558	3,522,640	3,532,793
2,960,277	3,506,444	3,523,869	3,532,801
3,072,353	3,507,018	3,523,991	3,533,138
3,422,143	3,507,177	3,525,708	3,533,743
3,429,441	3,507,295	3,526,479	3,533,847
3,430,783	3,507,969	3,526,624	3,533,875
3,437,020	3,508,128	3,526,655	3,534,020
3,440,796	3,508,187	3,527,085	3,534,055
3,455,531	3,508,314	3,527,205	3,534,090
3,461,984	3,509,025	3,527,717	3,534,101
3,472,857	3,509,161	3,527,794	3,534,109
3,481,306	3,509,279	3,527,800	3,534,125
3,482,688	3,509,552	3,528,209	3,534,306
3,487,645	3,510,242	3,528,817	3,534,339
3,489,282	3,510,637	3,528,828	3,534,400
3,491,454	3,511,705	3,528,944	3,534,616
3,493,554	3,511,881	3,529,025	3,534,869
3,494,416	3,511,997	3,529,789	3,535,217
3,495,442	3,512,279	3,530,133	3,535,315
3,495,576	3,512,404	3,530,720	3,535,484
3,495,596	3,512,606	3,530,976	3,535,949
3,496,850	3,512,704	3,531,092	3,536,369
3,497,957	3,513,182	3,531,467	3,536,634
3,497,967	3,514,275	3,531,475	3,536,690
3,501,166	3,518,774	3,531,523	3,536,835
3,502,242	3,518,974	3,532,267	3,536,942
3,502,503	3,519,964	3,532,508	3,537,817
3,502,865	3,520,268	3,532,596	3,537,896
3,503,499	3,521,991	3,532,635	3,537,944
3,504,056	3,522,091	3,532,676	3,538,078

Serial Numbers for Design Applications

Effective January 4, 1971, the present system of assigning Serial Numbers to Design applications will be discontinued. The numbering of Design applications will be under the same system as that for numbering all other patent applications, but will continue to be properly identified as "Designs" on the filing receipts and application file jackets.

This does not affect the separate numbering system for Design *patents*.

RICHARD A. WAHL,
Dec. 11, 1970. *Assistant Commissioner.*

Changes in Legal Holidays

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, Jr.,
Dec. 2, 1970. *Commissioner of Patents.*

New Applications Received During September 1970

Patents	8413
Designs	494
Plant Patents	4
Reissues	41
Total	8952

Issue—December 29, 1970

Patents	1750	No. 3,550,159 to No.	3,551,908, incl.
Designs	68	No. 219,569 to No.	219,636, incl.
Reissues	4	No. 27,014 to No.	27,017, incl.
Total	1822		

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 15, 1970

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	3-27-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-09-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	9-09-69
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	5-20-69
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-07-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	2-02-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	6-04-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	9-15-69
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-01-69
PHYSICS, GROUP 280—R. L. EVANS, Director. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	8-12-69
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts; Household, Personal and Fine Arts.	3-04-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	9-08-69
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	6-27-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	6-24-69
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	12-29-69
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	11-03-69

Total number of pending applications (excluding Designs)	183,354
Total number of Design applications pending	2,740

Expiration of patents: The patents within the range of numbers indicated below expire during November 1970, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 82nd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents	Numbers 2,560,723 to 2,564,561, inclusive
Plant Patents	Numbers 1,232 to 1,237, inclusive

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

IN RE THEODORE S. BINDSHEDLER

No. 8289. Decided June 25, 1970

[57 CCPA —; 427 F.2d 1261; 166 USPQ 75]

1. APPEAL TO U.S. COURT OF CUSTOMS AND PATENT APPEALS—MATTER BEFORE COURT—REJECTION NOT DISPUTED BEFORE THE BOARD.

In connection with the rejection of a claim as unpatentable over a combination of references, where appellant asserted in his brief before the Board that no art had been cited against the claim and did not challenge the rejection in his reply brief so that the Board was "constrained to sustain the rejection," the Court stated "Although before us appellant argues the merits of the rejection over Peterson in view of Broido, he does not dispute the accuracy of the Board's statement or its justification of the affirmance of the the rejection," and *Held* that "We therefore are likewise constrained to affirm the rejection * * *."

2. PATENTABILITY — PARTICULAR SUBJECT MATTER — "DATA-RECORDS, AND DATA-RECORDING AND UTILIZING METHODS AND MEANS."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Data-Records, and Data-Recording and Utilizing Methods and Means" as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 285,550.

AFFIRMED.

Raymond E. Fidler, Edmond T. Patnaude (*Fidler, Bradley & Patnaude*), for appellant.

Joseph Schimmel (*Fred W. Sherling*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and ROSENSTEIN, *Judge*, United States Customs Court, sitting by designation

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals [1] affirming the rejection of claims 1–9, 14–16, and 42–49 [2] of application Serial No. 285,550, filed May 31, 1963, and entitled "Data-Records, and Data-recording and Utilizing Methods and Means." [3] Claims 17–31 have been allowed.

The Invention

The broadest claims on appeal are directed to a method and apparatus for converting data into electric signals by printing characters or symbols representative of the data with magnetic ink on a non-magnetic record member and thereafter automatically sensing or reading the printed data by electromagnetic means. Some of the claims include the steps of printing the characters with a "hard" magnetic ink and permanently magnetizing the characters in a particular direction before they are read with a magnetic sensing head. Other claims are directed to apparatus which utilizes these methods to enter data into an accounting machine.

[1] Consisting of Kreek, Keely, and Strader, Examiners-in-Chief; opinion by Keely.

[2] Originally, appellant also appealed from the Board's affirmance of the rejection of claims 10, 11, and 37–40. At oral argument, however, appellant's attorney stated that the appeal would not be pursued as to these claims.

[3] This application is stated to be "a division of application Serial Number 576,475, filed April 5, 1956, which, in turn, is a continuation of application Serial Number 237,241, filed July 17, 1951."

FIGS. 1 and 4 of appellant's drawings will suffice to explain the disclosed embodiments:

APPELLANT

Fig. 1.

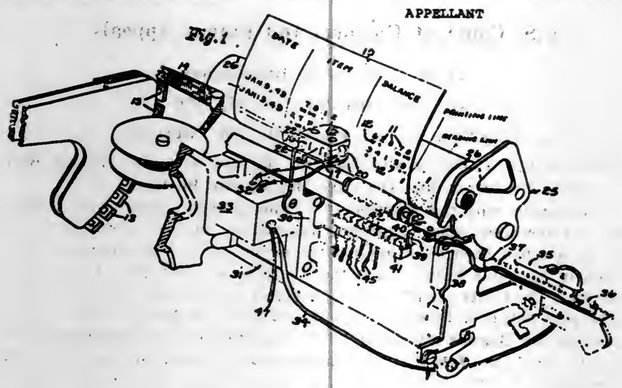


Fig. 4.

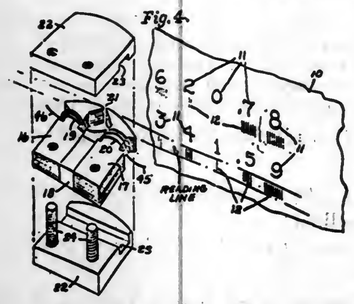


FIG. 1 shows an accounting machine embodying appellant's invention, while FIG. 4 shows in more detail the construction of pick-up head 15 shown in FIG. 1 and its association with record form 10. The record form 10 has imprinted thereon a line of arabic numerals 11 and a line of printed data representations 12 which are shown in the form of groups of laterally spaced, short, parallel lines, the number of lines in each group being equal to the value of the numeral with which it is associated. The representations 12 are formed of a magnetic ink consisting of a large proportion of finely divided magnetic material such as high permeability iron, steel, or magnetic alloys, uniformly dispersed in a carrier which may be of the nature of viscous fluid carriers commonly used in known typewriter ribbon inks. Whether numerals 11 are printed with the same magnetic ink or are printed with ordinary typewriter ribbon ink is immaterial since only representations 12 are adapted and intended to be read automatically during movement of the record 10 past the pick-up head 15.

The powdered magnetic material of which the data representations 12 are formed may be magnetically "hard" (not easily demagnetized) or magnetically "soft" (easily demagnetized).[4] When the representa-

[4] Appellant's application indicates that materials which are magnetically hard have "high values of coercivity and remanence" while those which are soft are "of low coercivity." J. Markus, Electronics and Nucleonics Dictionary (McGraw-Hill 1966), provides the following definitions:

coercive force.—The magnetizing force required to bring the flux density to zero in a magnetic material that has been magnetized alternately by equal and opposite magnetizing forces. It is the reverse magnetizing force needed to remove the residual magetism.

coercivity.—The property of a magnetic material that is measured by the coercive force corresponding to the saturation induction for the material.

remanence.—The magnetic flux density that remains in a magnetic circuit after the removal of an applied magnetomotive force. If the magnetic circuit has an air gap, the remanence will be less than the residual flux density.

tions are of "hard" material, they are preferably magnetized transversely to the lengths of the line elements (parallel to line of representations) after being deposited but before being read. If the representations are composed of "soft" material, they are not magnetized prior to being read. The construction details of the pick-up head 15 will depend upon the type of magnetic material of which the representations to be read are composed.

Reading of the data is accomplished by moving record 10 relative to pick-up head 15 in such a manner as to maintain the vertical line elements of the representations 12 parallel to the air gap 21 while transporting those line elements successively past the gap. In the case of unmagnetized data representations, the reluctance (the opposition presented to magnetic flux in a magnetic circuit) of the magnetic circuit of the pick-up head, which resides principally in the gap 21,[5] is very substantially reduced each time the gap is bridged by one of the line elements (which is more permeable to, i.e., is a better conductor of, magnetic flux than is air) and returns to its normal value as the element is displaced from the gap. Thus, as each line element passes the air gap it causes a change in the magnetic flux produced in the core of the pick-up head by the magnetized segment 18 and induces varying voltages in windings 19 and 20. When the line elements are formed of "hard" magnetic material and are magnetized transversely to their lengths prior to their being read, each element constitutes an individual magnet which produces flux changes in the core of the pick-up head (which need not include a magnetized segment 18) as it bridges or substantially bridges the gap and a cycle or pulse of alternating voltage is induced in windings 19 and 20.

The output of the pick-up head is led over conductors 32 to an amplifer 33 which is in turn connected, through conductors 34 and 47, to accumulating and registering mechanisms not shown in FIGS. 1 and 4. It is unnecessary to describe these mechanisms beyond stating that each amplified pulse causes the appropriate electromagnetically energized accumulator to be advanced by a value of one.

Utilization of the disclosed accounting machine, for example to maintain bank accounts, involves placing the record form 10 into the carriage 25, tabulating the carriage so that the existing balance appearing in the "Balance" column of the form passes by the pick-up head 15 and is thereby read into the machine, printing (by typing on a keyboard, not shown) new entries in the "Item" column (these being entered into the registering mechanism as they are printed, i.e., they need not pass by the pick-up head), and causing the machine to total the old balance and new entries and print the result in the "Balance" column.

The Rejections

The Board reversed seven of the eight rejections applied by the Examiner, cited eight references in addition to the five relied on by the Examiner, and applied five new grounds of rejection under 35 U.S.C. 103.[6]

[5] The reluctance of the air in the gap is very high compared, for example, to that of the materials comprising the rest of the magnetic circuit of the head. Stated differently, the air is a very poor conductor of magnetic flux, i.e., is of low permeability.

[6] Appellant was given an opportunity to have further prosecution before the Examiner, under the provisions of Rule 196(b), in response to these new rejections but chose instead, as he was free to do, to appeal directly to this court.

The references relied on by the Examiner are:

Tauschek, 1,933,352, Oct. 31, 1933.
Bryce I, 2,254,933, Sept. 2, 1941.
Hofgaard, 2,337,553, Dec. 28, 1943.
Peterson, 2,608,621, Aug. 26, 1952 (filed Oct. 8, 1949).
Broido (Great Britain), 538,016, July 17, 1941.

The references added by the Board of Appeals are:

Huebner, 1,820,194, Aug. 25, 1931.
Knutsen, 2,508,953, May 23, 1950.
Brand, 2,209,106, July 23, 1940.
Hay, 2,035,475, Mar. 31, 1936.
Kitsee, 1,097,131, May 19, 1914.
Clark, 2,188,650, Jan. 30, 1940.
Bryce II, 2,427,383, Sept. 16, 1947.
S. J. Begun, Magnetic Recording, pp. 49–53, 76–80, 87–91, 97–99, 108–118 and 133–134 (1949).

The Examiner's rejection affirmed by the Board was directed to claim 49 "as unpatentable over Peterson in view of Broido." With respect to this rejection the Board said:

> Appellant has asserted in his brief that no art has been cited against this claim, and in his reply brief he has not challenged the rejection of this claim on the prior art. Under these circumstances we are constrained to sustain the rejection of this claim.

[1] Although before us appellant argues the merits of the rejection over Peterson in view of Broido, he does not dispute the accuracy of the Board's statement or its justification of the affirmance of the rejection. We therefore are likewise constrained to affirm the rejection of claim 49 although we hereinafter also sustain a further rejection of that claim by the Board.

The Board's new rejections can be summarized as follows:

	Claims	*Rejection*
(1)	1–6, 9, 14–16, and 44–49	Obvious in view of Knutzen and Begun.
(2)	1–9, 14–16, and 43–49	Obvious modification of Hofgaard, Broido, or Brand in view of Knutsen and Huebner.
(3)	16, 48, and 49	Obvious modification of Clark.
(4)	44–47	Readable on Knutsen, Huebner or Hay.
(5)	42	Made obvious by Tauschek, Bryce I, or Bryce II in view of Knutsen.*

* The Solicitor believes that all these rejections could be (and implicitly "should be") "summarized and treated as a rejection under 35 U.S.C. 103 of all the appealed claims over Broido in view of Knutsen, Begun and Bryce I," a rejection not to be found anywhere in the record. We decline to so summarize and so treat these references.

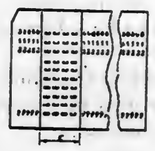
It will be noted that all the claims, except 7, 8, and 42, are rejected on either two or three *main* combinations of references. Rather than treat the rejections seriatim, we think it expedient merely to point out which of the combinations of references *relied on by the Board* most clearly supports the rejection of a given claim or group of claims.

The best rejections, in our opinion, are those based on Knutsen, Begun, Broido, Huebner, Tauschek, and Bryce I. Knutsen discloses an alleged improvement of perforated data cards wherein the data is recorded by machine or by hand [7] in the form of opaque lines readable by a photocell, electrically conductive ink readable by electric contacts, or *magnetic material* readable by suitable means not disclosed. FIG. 6 from Knutsen shows a perforable card having an area E reserved for recording data with one of the three types of material:

[7] Knutsen prefers to mark on the cards "by hand [using a suitable pencil] without resorting to a machine."

KNUTSEN

Fig. 6



The column and row in which a mark appears determines the value which it represents, the row determining the digit and the column determining whether that digit is in the one's, ten's, hundred's, etc., place.

Begun discloses various types of magnetic pickups, including appellant's type utilizing an air gap in an otherwise closed core, and describes how magnetic flux lines emanating from a magnetized record medium generate voltage changes in the pickup as the medium is moved past it. Begun also indicates that magnetization may be effected either in or transverse to the direction the medium moves and that powdered magnetic materials to be applied to non-magnetic base materials such as paper should have high coercivity and remanence values.

Broido discloses data records readable by automatic light-controlled reading mechanisms associated with "adding and tabulating machines, counters, cash registers and other statistical machines." FIG. 2 from the patent illustrates one form that these data records may take and FIG. 3 illustrates a numeral type that can be used to produce such records:

Fig. 2. BROIDO



Fig. 3.



Describing how such a record can be printed, Broido states:

> The symbols according to the invention may be incorporated in the numeral type of an ordinary typewriter, being then located adjacent the relevant numerals and occupying a position laterally of the space provided for the type head of the lever such as to identify the symbol with the particular value of the numeral carried on said lever. In order to achieve this, the width of the area occupied by each type head is assumed to be divided into ten equal sub-divisions. With this arrangement, in the case of numeral "0" the associated rectangular type block may be in one of the end sub-divisions of the type head and the rectangular type block associated with the numeral "9" may be located in the other end sub-division of the area reserved for the type head of the lever on which it is mounted, the symbols representing the intermediate numerals being located in the corresponding intermediate sub-divisions of the area reserved for the respective type heads. Values of 10 and over will be represented by *two or more symbols* as is usual with the ordinary numerals [Emphasis added.]

The value represented by a particular mark thus depends on its lateral position within a given area in a line of such areas. Broido contrasts this "single-dimensional" coding arrangement with "bi-directional" arrangements such as that used by Knutsen, and indicates that his (Brodio's basic code can be modified such that the numerical values are "*represented by more than one code character*, for example in

the manner known in the art of statistical records as a four or five point code" (emphasis added).

Huebner discloses a method and apparatus whereby printing is effected by transference of ink from a printing surface to a receiving surface without contact between the two. The ink contains magnetizable metallic substances, and transference of the ink from one surface to the other is accomplished by subjecting the surfaces to a magnetic field.

Tauschek relates to devices for reading perforated cards, the devices being adapted to be used in connection with tabulating mechanisms. At the outset the patent states:

> For the device forming the subject matter of the invention it does not matter whether the statements are arranged in the card in such a manner that the *number of holes following each other in a vertical row corresponds to the digit value of the number to be represented*, or whether the number is represented by a single hole or a plurality of holes provided at a certain place of the line to be sensed. [Emphasis added.]

Tauschek thus teaches the same relationship between the number of marks and the digit represented thereby as does appellant, the only difference being in the nature of the marks—holes in Tauschek and magnetic ink in appellant's case.

Bryce I, relied upon by the Board only with respect to claim 42, appears to us to be a particularly pertinent reference, relating as it does to

> * * * a system in which the control elements or records are provided with *magnetic conditions representing various characterizations and data*, and are adapted to be presented to a machine to convert the magnetic conditions on the control elements into *electrical currents or impulses* to control the machine in accordance with the magnetic indications. [Emphasis added.]

The reference continues:

> The specific type of *accounting system* described herein comprises a system wherein the machine control elements are controlled at differential times by the electrical energy generated by the control system by sensing *the coded or differentially positioned magnetic conditions* disposed under control records.
>
> * * * * * * *
>
> The process of magnetically recording data in the form of discrete magnetic conditions or impressions depends essentially on the phenomenon of magnetic hysteresis and on the associated property that when changes of magnetomotive force are made upon a magnetizable substance a certain remanent flux density is retained by the magnetized substance which is termed "remanence." * * *
>
> The remanent flux densities retained by the control records may then be effective at a subsequent period to *initiate electrical current conditions or impulses* which are impressed upon various control circuits to control the operation of the different machines of the present system. [Emphasis added.]

Bryce I discloses means for recording, reading, and obliterating the magnetic impressions, a system for amplifying the output from the reading means, accumulating and printing mechanisms actuated by the amplified current impulses, and several different embodiments of data records. One such record is shown in FIGS. 8 and 9:

BRYCE I

FIG.8.

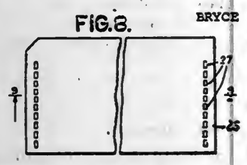


FIG.9.



One of two plies of paper stock 26 has applied thereto "individual *magnetizable portions* 27" (emphasis added) which "may be *printed* thereon similarly as ordinary printed matter" (emphasis added). In this embodiment, the plies of stock 26 are then secured together by an adhesive 28. It is apparent from the patent that the magnetizable portions are imbedded between the two plies only because this protects them from abrasion during handling and provides a more durable construction than would exist if the portions were merely deposited on the surface of a single ply. To record data on a card of the type shown in FIGS. 8 and 9, the portions 27 are selectively magnetized according to the desired coding arrangement. In another data record embodiment, a similarly shaped card has essentially its entire surface coated with magnetizable material, statistical information or data being arranged thereon in the form of "arbitrary [magnetic] indications coded according to their positions on the record." In either of the above-mentioned embodiments, the "magnetizable material * * * may be in the form of metal powder or filings suitably fixed upon a carrier" which is "preferably non-magnetic."

Describing the principle of operation of the tabulating mechanism, Bryce I states:

> * * * records having discrete magnetic impressions representing the data are presented to suitable reading magnets and the said impressions are detected while the records are in motion to initiate timed impulses in accordance with the disposition of the impressions on the record to control either *data accumulating mechanism or data printing mechanism or both* * * *. [Emphasis added.]

Claims 1–6, 14–16, and 45–49

The rejection of these claims as unpatentable over Knutsen and Begun is sound. Claims 1–6, 14, 15, and 49 are directed to methods, 16 and 48 to apparatus, and 45–47 to data records. More specifically, claims 1–6 and 49 are drawn to a method of recording and reading data wherein deposits of magnetic material are affixed to (or, as in claims 1 and 4, written on) a sheet of non-magnetic material[8] in a configuration recognizable by a human being as indicative of the data represented thereby, the configurations are magnetized in a predetermined direction, and each configuration is passed by the air gap of a magnetic reading head to produce in the reading head "electric wave shapes characteristic of" (claim 1), or a "voltage having a waveform representative of" (claim 4), or "a flux proportional to" (claims 5 and 6) the configuration of the deposit. Claims 4 and 6 also require the provision of means for identifying each configuration according to the voltage waveform induced, while claims 5 and 6 require that the magnetic material have "a high value of coercivity and a high value of remanence." Claim 4 is representative of the method claims:

> 4. A method of recording data for both visual and magnetic reading thereof, comprising
>
> writing on the surface of a non-magnetic sheet a distribution of finely divided magnetic particles,
>
> said distribution having a configuration recognizable by human beings as being indicative of the data represented thereby,
>
> magnetizing said entire distribution of particles to establish in said distribution magnetic lines of force lying parallel to a predetermined direction,
>
> thereafter passing said sheet relative to the air gap of a magnetic reading head to cause relative movement of said distribution in proximity to said air gap, the dimension of said air gap between the poles thereof extending parallel to said predetermined direction during the relative movement between said distribution of magnetic particles and said reading head to in-

[8] Claim 1 does not indicate the type of material on which the deposits are affixed and claim 49 does not positively recite the step of affixing the magnetic material to the sheet.

duce in said reading head a voltage having a waveform representative of the configuration of said distribution of particles on said sheet,

and providing means responsive to said voltage for identifying each character in accordance with the waveform of the voltage induced thereby in said reading head.

Claim 14 is similar but specifies that the line of magnetic characters be *printed*, that magnetization of the characters be done parallel to the line, and that flux produced in the reading head be utilized to control entry of the represented data into a machine. Claim 15 is also similar to claim 4, but, instead of the means-for-identifying clause, concludes with "whereby to provide a plurality of electric signals representative of said data."

Claims 16 and 48 are drawn to apparatus for reading a line of magnetic ink deposits. The apparatus includes an air-gap type of magnetic reading head, means for moving the deposits past the air gap, means for producing output voltages related to changes in magnetic flux across the gap, and means responsive to time-displaced portions of the voltage waveforms so produced in the magnetic head. Claim 16 is representative:

16. Apparatus for electrical recognition of each of a plurality of different characters written on a document as a distribution of magnetic ink and arranged in a single line spaced apart from one another comprising, in combination, a magnetic read head having a pair of opposed magnetic pole faces defining an air gap therebetween and further having means for producing an output voltage of a value related to the change in magnetic flux across the air gap, said air gap having a narrow first dimension representing the space separating the pole faces and an elongated second dimension extending at right angles to the first dimension, means for causing relative movement between a document bearing a line of such characters and said magnetic read head to cause movement of said line of characters past said air gap character with the narrow first dimension of the air gap extending in the general direction of the line of characters and with the elongated second dimension of the air gap extending in a direction substantially parallel to the height of said characters thereby to provide a progressive scan of each character in the direction of said line, said magnetic head being responsive to the magnetic characteristic of the ink of which said characters are formed and to the relative movement of each character past the air gap thereof to cause the output voltage producing means of the magnetic head to produce a unique output voltage waveform for each character scanned, and means electrically connected to said magnetic head for receiving said output waveforms and responsive to time displaced portions of said waveforms for identifying each character read.

Claims 45–47 are drawn to data records. Claim 45 recites a nonmagnetic sheet having thereon "data-significant groups" of discrete masses of ferromagnetic material of high permeability. Claim 46 calls for "data-bit representations" each being formed of a discrete "individually magnetically sensable mass of ferromagnetic material of relatively high permeability," while claim 47 just calls for groups of short parallel lines formed of ferromagnetic material of relatively high permeability. These claims do not specify that the material is magnetized.

With respect to the rejection based on Knutsen and Begun, the Board said:

[Knutsen] writes with a pencil having magnetic properties * * * on a tabulating card. The writing is adapted to be read and recognized by the human eye of one skilled in the art in the same sense as appellant's characters 12 are read and recognized by the routineer.

Knutsen's preferred mode of sensing is a photo electric or conductive form. However, he recognizes that the other forms of marking require different means of sensing * * *. *Magnetic records, their characteristics, the various directions of recording and the types of pickups * * * were well known in the magnetic recording field prior to appellant's entry into the field* and would be known and available to the routineer prior to the filing date of the present case.

No patentable significance is attached to the manipulative step of magnetizing the magnetizable material of Knutsen. If this material is not magnetized at the time it is deposited on the tabulating card by the user's pencil, or by the earth's magnetic field then it will be magnetized by the pickup head when the character is sensed during playback or reproduction. [Emphasis ours.]

Appellant's first main contention is based on the observation that neither of these references (Knutsen and Begun) teaches the *magnetization* of *discrete*, magnetic deposits. We are not impressed by the Board's statement that the deposited magnetic material, if not previously magnetized, would be magnetized by the reading head, since a number of these claims recite the reading step as taking place *after* the magnetizing step. Neither do we find any reason to think that any magnetization that might incidentally be provided by the earth's magnetic field would be of any operative significance. Nevertheless we are of the opinion that one skilled in the art surely would have considered the recited magnetization step obvious. We note in this regard that appellant has not disputed the following statement by the Board:

It is well known in magnetic recording and reproducing that a signal may be obtained from a magnetic material by (1) magnetizing the material and later drawing it under a conductor since this is a well known principle of an electric generator or (2) by drawing a magnetized ferromagnetic material into the gap of a pole piece which results in changing the reluctance of a magnetic circuit which in turn causes a change in voltage in a coil. Both procedures have been used in the recording and reproducing art.

Given this, and Knutsen's concept of using discrete deposits of magnetic material on data records, we think that one skilled in the art would have recognized immediately that the magnetic material when magnetized would induce signals of greater amplitude in a reading head than when unmagnetized.[9] Adding Begun's teaching of magnetization in a single selected direction, we are of the opinion that one skilled in the art would likewise consider it obvious to magnetize uniformly in one direction (particularly along a line of short parallel lines when using an air gap reading head situated as in appellant's FIG. 4, supra), in order to further enhance the signals induced. Begun's teaching of the desirability of high coercivity and remanence values in powdered magnetic materials would also, in our opinion, render obvious the corresponding limitations in claims 5 and 6.

Appellant's other main contention with respect to this rejection is that the references "fail to teach the use of magnetic deposits shaped to represent data." Specifically, he says this is true as to Knutsen because the "location of [the] marks on the card has data significance—not [the] configurations" and because the marks "are all identical in configuration." As for Begun, appellant says that "nowhere is there any suggestion that data significant electric waveforms might be developed from magnetic deposits having data significant geometrical configurations."

Although appellant has consistently referred to the groups of short parallel lines in his disclosed embodiment[10] as "characters," we are not persuaded that appellant's markings, in the final analysis, are any more "data significant" or "differently configured" than are those of Knutsen. In appellant's embodiment, it is apparent that each of the

[9] The "enhancement of the signal level" is one result that appellant attributes to the magnetization step.

[10] All the claims are clearly intended to encompass this embodiment.

parallel marks, even though it may be grouped with one or more others, represents one item of data, that the significance of a given mark is determined by its being located within a particular area of a line on the record form (the location of that area determining whether a one's, ten's, hundred's, etc., accumulator will be actuated by each mark therein, that each mark has an independent effect on the tabulating equipment, each causing an accumulator to be advanced by a value of "1"), and that, even though groups of marks (each group of marks being a "character") produce groups of voltage pulses (each group of pulses being a "voltage waveform"), the disclosed reading and tabulating equipment is actuated only by the individual marks and impulses induced thereby and does not in any way recognize or discriminate between the various characters or waveforms. Thus, whereas in Knutsen's record the significance of a given mark is determined by the column and row in which it is located,[11] in appellant's record, the significance of a mark is determined by its being located in a particular area (or "column") of a line.[12] Also, it is apparent that, so long as the marks are sufficiently separated so that each induces a distinct signal in the reading head, the spacing of the marks within a particular area, and consequently the "configuration" of the groups of marks or characters, is unimportant to appellant's disclosed invention. We are not persuaded that appellant's use of a number of marks which corresponds to the digit represented renders these claims patentable.

Although appellant does not so argue as to the rejection over Knutsen and Begun, he does argue elsewhere that Knutsen's data record is not "visually readable." We disagree inasmuch as anyone familiar with the coding scheme used by Knutsen obviously could decipher the information on the record by mere inspection.

Not being convinced by any of appellant's arguments regarding the rejection of claims 1–6, 14–16, and 45–49, we affirm the decision of the Board as to these claims.

Claims 7–9, 43, and 44

Claims 7–9 are directed to systems for "recording and reading characters" and claims 43 and 44 to methods of producing data records. Claims 7 and 9 recite means for printing (claim 7) or depositing (claim 9) differently shaped distributions of magnetic material on a non-magnetic record, means for causing relative movement between the record and the printing means, a magnetic reading head having an air gap, means for moving the record relative to the air gap so that voltage waveforms are induced in the reading head, and means for identifying the distributions by the waveforms. Claim 8, which is dependent on claim 7, specifies that the magnetic material has high coercivity and remanence values and is permanently magnetized.

Claim 43 is drawn to a method of forming a magnetically readable record on a non-magnetic record member by supporting the record member on the platen of a printing business machine having printing types for printing groups of spaced parallel lines and having an inking ribbon bearing a ferromagnetic composition and operating the printing types to press the inking ribbon against the record member.

[11] The column determines whether it is in the one's, ten's, hundred's, etc., place and the row determines the digit represented.
[12] The area determines whether it is in the one's, ten's, hundred's, etc. place and the number of marks in that area determines the digit represented.

Claim 44 recites a method of producing magnetic records by printing groups of lines containing ferromagnetic material on a non-magnetic record medium.

We affirm the rejection of these five claims on Broido in view of Knutsen and Huebner. Treating claims 43 and 44 first, we have pointed out above why, in our opinion, Knutsen renders obvious appellant's data record and method of transforming data. Adding Broido's disclosure of incorporating into an ordinary typewriter the numeral type in his FIG. 3, supra, we find the methods of forming data records recited in claims 43 and 44 to be equally obvious.

As for claims 7–9, we have pointed out in our discussion of the first group of claims why it would be obvious in view of Knutsen and admitted knowledge of the art to magnetize the magnetic characters before reading them, why it would be obvious to use an air-gap type of reading head to detect or read such characters, and why we are not impressed by appellant's arguments about differently configured characters and waveforms. Our conviction on the last point is strengthened by Broido's disclosure of coding arrangements in which short, parallel marks are located in particular areas of a line, the positioning of one or more marks within a given area determining the digit represented and the location of that area within the line determining whether that digit is in the one's, ten's, hundred's, etc., place. The only difference then between the coding arrangements of Broido and appellant is that, respectively, the *position* of the marks and the *number* of marks within one of the mentioned areas are significant. We do not see that this difference lends patentability to the claim. Since both Broido and Huebner teach means satisfying the printing means recitation in claims 7–9 and the former teaches means for moving a *record* relative to the printing means, and since we see nothing unobvious in combining these old features into one system, we affrm the rejection of claims 7–9, 43, and 44 over Broido in view of Knutsen and Huebner.

Claim 42

This claim, drawn to a "bookkeeping" machine, reads as follows:

42. In a bookkeeping machine using cards having record means adapted to have magnetic recordings thereon corresponding to different characters, in combination pickup means for successively sensing magnetic recordings on said record carrier means and for producing electric signals having predetermined characteristics associated with the respective sensed recordings, data storage means adapted to store information represented by said recordings, marking means having a plurality of said characters thereon and being movable between a plurality of positions, said marking means being adapted to mark on the card, in each of said positions, one of the characters represented by a recording on said record carrier means, selectively responsive means connected to said pickup means and selectively responsive to said electric signals produced thereby, and operating means controlled by said selectively responsive means for entering information into said data storage means in accordance with the predetermined characteristics of the respective signals and for subsequently moving said marking means between its positions in accordance with the information in said data storage means, whereby information is entered in said data storage means and a character may be marked on said card, said information and said character corresponding to the recording on the record carrier means.

The two rejections of this claim on Tauschek in view of Knutsen and on Bryce I in view of Knutsen are both sound, the latter in our opinion being the sounder and the one we will discuss. The Board opined that it would have been obvious to use Knutsen's type of magnetic card to control the device of Bryce I. We agree.

Appellant's only argument as to this rejection is that Bryce I "lacks any means for recording information from the storage means back onto the record card." Bryce I discloses means for printing information recorded on the data cards, indicates that the magnetic deposits can be printed on the cards, and indicates that (in addition to magnetically recorded data) written, printed, and typewritten data can be placed on his cards. Inasmuch as Knutsen discloses that the magnetic marks on his cards can be applied by machine, we think it would have been obvious to adapt the Bryce I apparatus so that information from the accumulating mechanism or storage could be recorded back onto the record cards.

[2] The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE ROBERT SMITH PRENGLE AND FREDERICK ROBERT WINTER

No. 8305. Decided June 18, 1970

[57 CCPA —; 427 F.2d 797; 166 USPQ 31]

1. PATENTABILITY—EVIDENCE—PROBLEM IN THE ART.

"* * * appellants argue that no reference mentions the problem of 'bowing,' or foreshadows their solution thereto and its concomitant superior results over a prior art process which are detailed in their specification. As far as the record shows, 'bowing' is peculiar to one particular process and apparatus appellants describe as extent in the prior art for orienting and heat-setting thermoplastic film * * *. But * * * that is *not* the process carried out by Australian [reference patent] * * *. The record does not show, in other words that the problem of 'bowing' exists in the particular orienting and heat-setting process disclosed by Australian * * *."

2. SAME—PARTICULAR SUBJECT MATTER—"PROCESS FOR HEAT TREATING POLYMERIC FILMS."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Process for Heat Treating Polymeric Films," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 450,236.

AFFIRMED.

Claude L. Beaudoin (*James T. Corle*, of counsel) for appellants.

Joseph Schimmel (*J. Nakamura*, of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, RICH, ALMOND, BALDWIN, and LANE, *Associate Judges*

WORLEY, *Chief Judge*, delivered the opinion of the court.

The issue here is whether the Board of Appeals committed reversible error in sustaining the Examiner's rejection of claims 3 and 5 [1] as obvious under 35 U.S.C. 103 in view of certain prior art.

The invention relates to a method of heat-treating biaxially oriented polyethylene terephthalate or polyvinyl chloride films to render them dimensionally stable and resistant to shrinkage at temperatures below the heat-treating temperatures. As background, appellants' specification explains the problems associated with a prior art process:

In the conventional method for the production of biaxially oriented, organic, thermoplastic, crystallizable polymeric film, such as polyethylene terephthalate film, the film, in substantially amorphous state, is first stretched in a longitudinal direction (direction of extrusion) to the desired amount between differential speed rolls. The film is then stretched in the transverse direction in a tenter frame, and the biaxially oriented film is thereafter heat treated at elevated temperatures (150° C.–200° C.) while under tension in an extension of the tenter frame to render the film dimensionally stable. This method of heat treating the film in an extension of the tenter frame has two serious drawbacks. In the first place, conventional tenter frame stretching devices are limited by practicality as to speed. * * *

Secondly, and of far more serious a nature, is the tendency for the film during transverse stretching in tenter frame to experience a lagging of its central portion behind its edges. This phenomenon, hereinafter referred to as "bowing" of the film, results from the high forces set up in the longitudinal direction during transverse direction stretching in a tenter frame. On heat treating the film at elevated temperatures, the film is softened and less resilient to the longitudinal direction forces created by the transverse direction stretching. The center of the film not subject to the restraint of the tenter clips holding the edges from "necking-in," as a consequence, suffers distortions; thereby creating considerable lag between it and the edge portions of the film. The resultant film exhibits a considerable non-uniformity in thickness and an undesirable imbalance in tensile properties, particularly as measured at an angle of 45° (along the diagonals) to the longitudinal direction. The unbalanced tensile properties along the diagonals, which properties are associated with "bowing," also result in unbalanced dimensional stability along the diagonals.

Appellants' solution to those problems generally involves replacing the above-described tenter frame extension assembly with a pair of rollers, the details of which are reflected in claim 3 considered with its independent claim 2: [2]

2. A process for heat treating film which comprises rapidly heating a continuous web of molecularly oriented polyethylene terephthalate film by continuously contact rolling said web without deformation by passing said web through the nip formed between two parallel, pressed-together, rotating cylindrical surfaces, at least one of said surfaces being maintained at a predetermined temperature effective to heat treat the film, and one of said surfaces being a resilient surface of high temperature-resistant elastomeric material; permitting the film to relax to a predetermined extent; and thereafter continuously quenching the resulting heat-treated film.

3. The process of claim 2 wherein the web is biaxially oriented polyethylene terephthalate film.

The specification explains the advantages of the claimed process:

* * * An essential feature of the present invention is that one of the surfaces between which the film is continuously passed be a resilient surface of high temperature-resistant elastomeric material. The use of such a surface on one of the rolls of each set of rolls imparts three important advantages to the process: (1) an elastomeric coated roll resistant to high temperatures will depress upon coming in contact with the film, thus giving sufficient area in which heat transfer from the roll to the film can occur. Two metal rolls would result in line contact with the film only, thus reducing the effective area of heat transfer. (2) An elastomeric covered roll allows for more even contact with the film. (3) The utilization of an elastomeric covered roll prevents any deformation of the film as it passes through the nip due to the depression of the covered roll itself. * * *

On coming in contact with the heated rolls, the film is very rapidly brought up to the desired temperature since resistance to heat transfer between the film and the roll is essentially zero at the nip of the rolls. Since air is excluded in the nip of the rolls, when dealing with thin films, heat is transferred at a tremendously higher rate than is possible with an arrangement wherein the film is wrapped around a heated roll. * * *

The references [3] are:

Chavannes, 2,812,550, Nov. 12, 1957.
Australian patent, 138,328, June 12, 1947.

[1] Appearing in application Serial No. 450,236 for "Process for Heat Treating Polymeric Films," filed April 9, 1965 as a continuation-in-part of Serial Nos. 204,270, filed June 21, 1962 and 10,216, filed February 23, 1960. At oral argument, appellants' counsel withdrew appeal as to claims 1, 2, 4 and 6–12.

[2] Dependent claim 5 and its independent claim 4 differ from the above claims in reciting the film to be polyvinyl chloride.

[3] As the Solicitor pointed out at oral argument, it is unnecessary to consider a third reference applied by the Examiner only to claims 9 and 11, among those no longer the subject of appeal.

The examiner rejected the claims as obvious over the Australian patent in view of Chavannes. As the Examiner observed, Australian discloses numerous processes for uniaxial or biaxial orientation of polyethylene terephthalate film, and subsequent heat treatment, relaxation and cooling of that film to effect thermal stability and permanence of shape. In particular, Australian states:

> The apparatus used for the heat setting and relaxing treatment may be of similar construction to that used in the orientation operation. A *one-dimensional* heat setting treatment may be carried out for example by passing the film *from a set of pinch rolls* at least one of which is heated to the required temperature, *to a second set of pinch rolls rotating* at the same speed or, *if relaxation is desired, at a slightly slower speed.* * * * Heat setting and relaxing after a *two dimensional* orientation may be carried out for example by using the system described above *for the longitudinal operation* and using clamps fitted to the edge of the film to control shrinkage in a lateral direction. * * * [Emphasis supplied.]

Noting that Australian does not specify the use of a roll surfaced with a resilient elastomeric material as one of the first pair of pinch rolls, the Examiner turned to Chavannes, who discloses a process for orienting and heat-setting polyvinyl chloride film by passing it around and over a series of heated rolls. Of particular interest, thought the Examiner, was Chavannes' disclosure of the advantages of using a rubber-covered roll, termed a "backroll," to press the film against the surface of one of the heated rolls:

> The film then passes over the backroll 20 and almost completely around the heating roll or drum 21 as at 22. The back roll 20 is preferably covered with rubber. Further, the use of a rubber backroll 20 permits the *contiguous* positioning of the back roll and the heating roll 21 so as to *press* or *forcibly apply* the film to the surface of the heating roll. Such an arrangement has been found to effect *complete surface contact* of the film with the heating roll 21 and thereby provide uniform heating of the film as it travels around the heating roll. *The contiguous relation of the back roll 20 and heating roll 21 prevents the formation of air pockets between the film and heating roll, which would result in irregular heating and wrinkling of the film.* [Emphasis supplied.]

The Board shared the Examiner's view that the claims differ from the heat-setting process disclosed by Australian mainly in the nature of the heating rolls employed. It stated:

> As indicated in * * * appellant's specification the employment of a pair of rolls one of which is heated and the other of which has an elastomeric resilient surface in the overall process results in several improvements mainly related to heat transfer and prevention of deformation of the film. Since these advantages of the employment of such a pair of rolls are well known to the art as taught in Chavannes * * * it is, in our opinion, quite obvious to one skilled in this art to replace the heating rolls of the Australian patent by a pair of rolls, one of which is heated and the other of which is rubber covered, to obtain the advantages clearly taught by Chavannes in a similar heating roll combination. Appellants' claimed process thus becomes obvious to one having no more than ordinary skill and knowledge in this art. * * *

Appellants' arguments here are, in the main, three-fold. First, they urge that Australian does not disclose heat-setting a *biaxially* oriented film by feeding it into the nip of a pair of heated rolls and then passing it to a pair of unheated rolls driven at a slower speed than the first pair—at best, they contend, Australian only discloses subjecting a *uniaxially* oriented film to such a process. The process actually disclosed by Australian for heat-treating biaxially oriented film, appellants maintain, is identical to the "conventional technique" which appellants describe in their specification, heretofore quoted, and which does not employ pinch rolls in the heat-setting operation.

As is evident from the decisions below, the Examiner and Board did not agree with appellants' interpretation of the Australian disclosure, nor do we. We think that Australian, in stating that heat-setting and relaxing of a biaxially oriented film can be carried out using "the system described above for the longitudinal [uniaxial] operation," fully discloses to one of ordinary skill in the art feeding that film to the nip of a pair of pinch rolls, one of which is suitably heated. The fallacy in appellants' argument that the process disclosed by Australian for heat-setting biaxially oriented film is the same as that described in their specification as "conventional" seems to stem from their apparent failure to recognize that Australian does pass the biaxially oriented film through a set of pinch rolls after completion of the orientation process and at the start of the heat-setting process.

Appellants further urge that the Board misapprehended and misapplied the Chavannes disclosure in relation to its discussion of the advantages of roll structures having a resilient elastomeric surface. They argue:

> * * * It is manifestly clear that rubber-covered roll 20 [of Chavannes] performs no function regarding the heating of the film structure, but, instead, the film structure is heated by the relatively long path of travel around substantially the entire periphery of heating roll 21. In fact, as depicted in FIGURE 1 of *Chavannes*, rubber-covered back roll 20 does not even engage the surface of heating roll 21, but is disposed a substantial distance from the periphery of heating roll 21. It is manifestly clear that the combination of rubber-covered back roll 20 and heating roll 21 does not provide a combination of roll structures that can properly be characterized as "nip roll structures" contemplated and comprehended by appellants. * * *

We do not agree. While it is true that FIGURE 1 of Chavannes does not illustrate the back roll 20 and heated roll 21 in actual contact to form a nip, the Board noted that the specification of Chavannes, as quoted earlier, does disclose and emphasize the advantages of "contiguous [4] positioning" of the back roll and heating roll to press or otherwise forcibly apply the film to the surface of the heating roll in a manner to exclude air and to prevent irregular heating and wrinkling of the film. In light of Chavannes' use of the word "contiguous," we think it would be fully apparent to one of ordinary skill that actual contact of the backing and heating rolls was contemplated by Chavannes as a possible, if not preferred, alternative. Moreover, appellants' disparagement of the Chavennes disclosure, based on the fact the film is heated during its travel around the periphery of the heating roll, seems misplaced in view of their own disclosure that at high speed operation sufficient "dwell time" to effect heat-setting is gained by wrapping the film about the periphery of one of the heating rolls after it leaves the nip of those rolls. We agree with the Examiner and Board that it would be obvious to one of ordinary skill to utilize a rubber-covered roll as one of the pinch rolls in Australian in consideration of the advantages ascribed to such use by Chavannes.

[1] Finally, appellants argue that no reference mentions the problem of "bowing," or foreshadows their solution thereto and its concomitant superior results over a prior art process which are detailed in their specification. As far as the record shows, "bowing" is peculiar to one particular process and apparatus appellants describe as extant in the prior art for orienting and heat-setting thermoplastic film—namely, a process in which the film is drawn longitudinally between

[4] The word "contiguous" is defined by Webster's New International Dictionary, 2nd edition (1956), as "1. In actual contact; touching; also, near though not in contact * * *."

two pairs of rolls revolving at different speeds, stretched transversely by tenter frame clips which engage the edges of the film and travel a divergent path, and finally heat-set in an extension of the tenter frame assembly wherein the film is heated while held in transverse tension by the tenter clips. But, as noted earlier, that is *not* the process carried out by Australian and, as correctly observed by the Examiner:

> While applicants dwell at length on the alleged problem of "bowing" in the film processing, there is no reason to assume and no data to support that such a problem is not solved by the process of the Australian patent which is essentially applicants' process minus the rubber covered roll.

The record does not show, in other words, that the problem of "bowing" exists in the particular orienting and heat-setting process disclosed by Australian detailed above.

With due consideration for appellants' arguments, we are satisfied the Board committed no reversible error in sustaining the rejection.

[2] The decision is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

SYDNEY ARCHER *v.* MAXWELL GORDON AND JOHN J. LAFFERTY *v.* CURT FRETER AND KARL ZEILE

MAXWELL GORDON AND JOHN J. LAFFERTY *v.* SYDNEY ARCHER *v.* CURT FRETER AND KARL ZEILE

Nos. 8116 and 8117. Decided July 9, 1970

[57 CCPA —; 427 F.2d 1402; 166 USPQ 322]

1. INTERFERENCE—BURDEN OF PROOF.

"Since the applications of all three parties [in the interference] are copending, the applicable burden of proof on the junior and intermediate parties is by a preponderance of the evidence."

APPEAL from Board of Patent Interferences. Interference No. 91,986.

AFFIRMED.

Thomas F. Reddy, Jr., J. Phillip Anderegg (*Pennie, Edmonds, Morton, Taylor and Adams*) (*Laurence and Laurence*, of counsel) for Archer.

George J. Harding, 3rd, for Gordon and Lafferty.

Nelson Littell, Jr., for Freter and Zeile.

Before RICH, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

RICH, *J.*, delivered the opinion of the court.

These combined appeals are from the decision of the Board of Patent Interferences [1] awarding priority to Freter and Zeile (hereinafter "Freter") in a three-party interference, No. 91,986, involving Freter application Serial No. 62,099, filed October 12, 1960, entitled "Derivatives of 6,7-Benzomorphan"; Gordon and Lafferty (hereinafter "Gordon") application Serial No. 13,982, filed March 10, 1960, entitled "Novel N-Allyl and N-Propargyl Benzmorphan Derivatives"; and Archer application Serial No. 72,844 filed December 1, 1960, entitled "Compounds and Preparation Thereof." [2]

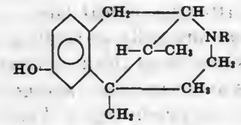
[1] Consisting of Casanova, Jr., Bailey, and Gaston, Examiners of Interferences; opinion by Bailey.

[2] The real parties in interest are C. H. Boehringer Sohn, assignee of Freter; Smith, Kline & French Laboratories, assignee of Gordon; and Sterling Drug Inc., assignee of Archer.

THE COUNTS

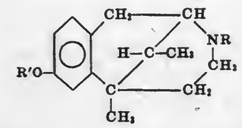
The two counts of the interference are:

1. The compound of the formula



in which R is a member of the group consisting of —CH_2—CH=CH_2 [allyl] and —CH_2—C≡CH [propargyl].

2. The compound of the formula



in which R′ is a member of the group consisting of hydrogen and methyl; and R is a member of the group consisting of —CH_2—CH=CH_2 and —CH_2—C≡CH.

The compounds of the counts are N-allyl and N-propargyl 5,9-dimethyl-6,7-benzomorphan derivatives. Count 1 is directed to 2′-hydroxy compounds while count 2 is generic both to the 2′-hydroxy compounds and to 2′-methoxy compounds. The compounds of the counts are disclosed by each of the parties as being useful as antagonists [3] of analgesics (narcotics).

SUMMARY OF THE CASE

The sole issue in this interference is priority of invention. [1] Since the applications of all three parties are copending, the applicable burden of proof on the junior and intermediate parties is by a preponderance of the evidence.

Freter took no testimony, and relied on a German priority date (35 U.S.C. 119) of October 16, 1959. It is not disputed that Freter was properly accorded the benefit of that date and therefore made senior party. Thus *October 16, 1959*,[4] is the date which must be overcome by either Gordon or Archer to prevail over Freter.

Gordon and Archer each filed a main brief and a reply brief and each was represented at oral argument. Freter, however, has relied solely on the opinion and decision of the Board.

THE CASE FOR GORDON

Gordon took extensive testimony and submitted numerous documentary exhibits in an attempt to prove (1) a reduction to practice of 2′-*methoxy*-5,9-dimethyl-2-*allyl*-6,7-benzomorphan prior to October 16 and (2) conception of 2′-*hydroxy*-5,9-dimethyl-2-*allyl*-6,7-benbomorphan prior to October 16 coupled by diligence with both actual and constructive reductions to practice after that date. The structures of these two compounds are represented by the formula in count 2, supra, when R is "allyl" and R′ is "methyl" and "hydrogen," respectively.

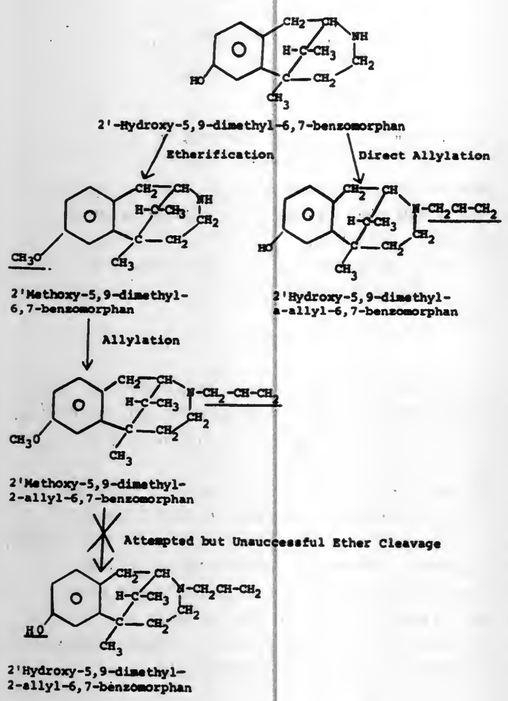
[3] Dorland's Illustrated Medical Dictionary (23d ed. 1957), provides the following definition:

> *antagonist* * * * 2. An agent, such as a remedy, which tends to nullify the action of another agent. * * *

[4] Hereinafter, all dates are in 1959 unless otherwise indicated.

The Board held that a reduction to practice of the 2′-*methoxy* compound had not been established, and Gordon does not seek to have us review that holding. As for the 2′-*hydroxy* compound,[5] the Board held that Gordon's diligence towards its reduction to practice did not begin until October 22, after the critical date.

The record shows that probably as early as May of 1959, Gordon had conceived of the structure of the 2′-hydroxy compound, had conceived of its usefulness as an analgesic antagonist, and had conceived of two synthetic routes for producing it. These two routes, which involve the use of the same starting material, are represented by the following schematic, italicization indicating the moiety introduced by each process step:



At the time these two routes were proposed, success with the three-step process (first route) was thought to be more likely. Preparation of the 2′-*methoxy*-2-allyl intermediate in this process was carried out on June 23. However, instead of using the compound as an intermediate to prepare the 2′-*hydroxy*-2-allyl compound, as originally intended, it was submitted for "biological testing." Additional quantities of the 2′-*methoxy*-2-allyl compound were produced on August 27 and September 22, and on a third date between September 22 and October 22. Eventually, all of these preparations were combined and a portion was used October 22 in the unsuccessful attempt to produce

[5] Where necessary to clearly distinguish from other compounds, the 2′-methoxy and 2′-hydroxy compounds are referred to as the "2′-methoxy-2-allyl" and "2′-hydoxy-2-allyl" compounds, respectively.

the 2′-*hydroxy*-2-allyl compound by "ether cleavage," according to the first route, supra. On that same day, October 22, the second proposed route ("direct allylation") was successfully practiced.

Gordon argues that the additional quantities of 2′-methoxy compound produced between June and October must have been produced so that they could be used to prepare the 2′-hydroxy compound, and argues that the time spent making these additional quantities should be counted as diligence towards a reduction to practice of the 2′-hydroxy compound.

We agree with the Board's conclusion that Gordon's diligence towards reduction to practice of the 2′-hydroxy compound began no earlier than October 22. The record is silent as to why the additional amounts of the 2′-methoxy compound were prepared. The inference most reasonably to be drawn from the record is that the preparations were for the purpose of carrying out further pharmacological testing of the 2′-methoxy compound rather than for the purpose of using it as an intermediate. Such being the case, the activity in question cannot be considered diligence towards a reduction to practice of the 2′-hydroxy compound.

THE CASE FOR ARCHER

Archer asserts a conception of 2′-hydroxy-5,9-dimethyl-2-allyl-6,7-benzomorphan (the same 2′-hydroxy compound referred to above) on October 8 coupled by diligence with an actual reduction to practice after October 16.

Archer alleges that he first conceived of the 2′-hydroxy-2-allyl compound and its usefulness as an analgesic antagonist in January 1959. Although Gordon contests this, we will assume, arguendo, that Archer did have a complete conception of the compound at that time. There is no allegation that anything further was done with respect to that compound until October 8. There is *testimony* that on that date, at a meeting attended by Moore (director of product development for Sterling Drug), Archer, and Suter (Archer's supervisor), among others, Moore directed Archer to prepare and test the compound. Suter, who presided over and took the minutes of the meeting, testified that Archer agreed to prepare the compound and that Archer mentioned the possibility of using phenazocine (2′-hydroxy-5,9-dimethyl - 2 - *phenethyl*-6,7-benzomorphan) as the starting material. Mayor, a chemist who had prepared phenazocine on a number of previous occasions in accordance with instructions furnished by Homiller, his superior, began the preparation of a new batch on October 8, the date of the meeting. This preparation and chemical analysis of the product was completed by October 23.

On November 11, Albertson, a chemist working under Archer, obtained from storage the batch of phenazocine produced by Mayor and attempted to prepare the 2′-hydroxy-2-allyl compound in issue by first removing the phenethyl group from phenazocine and then allylating the resulting product; this route proved unsuccessful. On November 20 Albertson began to prepare the compound in issue using different starting materials and a different synthesis route. The synthesis was successfully completed on December 2 and the product was submitted for analgesic antagonistic activity studies on December 3.

Archer contends that the record establishes the work of Mayor beginning on October 8 as being in response to the decision allegedly made at the meeting held on that date and that such work therefore

constitutes diligence from immediately prior to the critical date of October 16. With respect to this contention, the Board reached the following conclusions, with which we entirely agree:

> * * * the record does not clearly establish a proper relationship between the work of Mayor and that of Albertson on November 11. The testimony is not found to be consistent with the assertion that there was any deliberate activity on October 8 purposely directed to the ultimate synthesis of [the 2'-hydroxy-2-allyl compound] * * *. Archer himself indicated in his testimony the work did not begin until after October 8 * * *. In fact there is nothing in the record which would establish that Mayor's work was, at the time it was performed, in any way directly related to the alleged reduction to practice. The record establishes that Mayor was engaged in testing a new process for producing phenazocine in the Pilot Laboratory * * *. Mayor testified that he received his instructions from Homiller. While Homiller testified * * * that Suter in 1959 requested that the pilot plant produce phenazocine, there is no indication when in 1959 Suter made the request or that such a request was made as a result of the October 8 meeting. Since Mayor was regularly involved in synthesizing phenazocine prior to October 8 and since he began to synthesize a batch on October 8, and in view of Archer's testimony that work on the synthesis of [the 2'-hydroxy-2-allyl compound] * * * began subsequent to the October 8 meeting, it would not appear that Mayor's work * * * was a result of any decision made at [the] October 8 meeting by either Moore or Archer.

Moreover, on this record we have doubts, as did the Board, that the decision to prepare the compound in issue was made at the October 8 meeting as alleged. There is no documentary evidence which, in our opinion, even tends to support the testimony that the decision was made on that date. In fact, the minutes of the meeting, which set forth in considerable detail both past and future work discussed, make no reference whatsoever to the purportedly extensive discussion of the 2'-hydroxy-2-allyl compound. Considering all the testimony and evidence of record, we think it as likely, if not more likely, that the decision was made at a November 6 meeting about which Dr. Moore testified. We thus are not convinced that Archer's diligence began prior to October 16, the critical date.

SUMMARY

Neither Gordon nor Archer has proved diligence from immediately prior to Freter's date of October 16, 1959. Accordingly, the decision of the Board awarding priority to Freter is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE CHARLES B. VOGEL

No. 8339. Decided June 25, 1970

[57 CCPA —; 427 F.2d 790; 166 USPQ 144]

1. PATENTABILITY—PARTICULAR SUBJECT MATTER—"VELOCITY LOGGER FOR LOGGING INTERVALS."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Velocity Logger for Logging Intervals" as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 520,021.

AFFIRMED.

T. E. Bieber, for appellant.

Joseph Schimmel (*Fred W. Sherling*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN and LANE, *Associated Judges*

LANE, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1–3, 5–7 and 10–24 of application Serial No. 520,021, filed December 13, 1965, for Velocity Logger for Logging Intervals. Two claims have been allowed.

The invention is a system and method for obtaining a representation of the physical characteristics, e.g., density, of a less-than-one-foot-long portion of earth surrounding a borehole by acoustical logging.

The specification describes the system as including a downhole tool containing sending and receiving transducers spaced vertically less than one foot apart and operating at a frequency above 50 kc.; means for urging the transducers into contact with the borehole wall; a gate circuit to generate a pulse of duration proportional to the travel time of an acoustical pulse between the transducers; a voltage generator whose output amplitude is proportional to the gate pulse duration; an oscillator whose frequency is proportional to the output amplitude of the generator (and hence proportional to travel time); and a recording system to record the oscillator output.

It is further disclosed that the transducers can be constructed so that the acoustical waves transmitted and received are in a narrow beam, 90% of the energy of the beam lying within a radiating angle of 30° on either side of the transducer axis. The use of these narrow beams enables either compressional or transverse wave measurements to be made, by mounting the transducers so that their axes form a predetermined acute angle with a normal to the wall. By appropriate selection of this angle, the receiving transducer can be made primarily responsive to compressional waves, or primarily responsive to transverse waves, as desired. It is also disclosed that both horizontal and vertical velocities, amplitudes and attenuations can be measured by providing a second set of transducers horizontally spaced apart. The necessary circuitry for electrical processing of the acoustical data is set forth. An additional variation is disclosed, whereby it is possible to measure both compressional and transverse wave characteristics, in both the horizontal and vertical directions, all simultaneously.

We shall analyze the claims in four groups.

(a) *The first group*

Claims 1, 5, 10, and 24 comprise a group of claims none of which is limited as to use of a narrow beam, angular disposition of transducers, or simultaneous horizontal and vertical measuring means. Claims 10 and 24 are typical:

> 10. An acoustical logging system for logging formations penetrated by a borehole, said system comprising:
>
> an elongated downhole tool having at least one transmitting transducer and at least one receiving transducer, one of said transmitting and one of said receiving transducers being located in a common plane substantially normal to the long axis of said tool and being spaced a distance of less than one foot;
>
> means for urging said transducers into close proximity with said formations;
>
> circuit means for energizing said transmitting transducer to generate a series of acoustical waves having a frequency exceeding 50 kilocycles per second; said acoustical waves being received by said receiving transducers and converted to related electrical signals;
>
> a second circuit means coupled to said receiving transducers for converting said related electrical signals to an electrical signal indicating the transmission properties of the formations;

a transmission circuit coupled to said second circuit means for transmitting said electrical signal indicating the transmission properties of the formations to a surface recording system, said surface recording system recording the value of said electrical signal with relation to the disposition of the downhole tool within the borehole. [Paragraphing ours.]

24. A method for acoustic well logging which comprises: generating acoustic waves near one portion of the wall of an opening within the borehole of a well;

receiving acoustic waves emanating from a different portion of said wall at a point spaced from the point at which said waves are generated along a plane that is substantially normal to the axis of said opening within a borehole; and

altering the depth of the plane containing the points at which said acoustic waves are generated and received and indicating the variations with depths that occur in the waves that are received.

Claim 1 defines the electrical system more narrowly by reciting the gate circuit, voltage generator, and oscillator, which together are means for measuring wave velocities. Claim 5 recites the presence of at least two receiving transducers. These claims stand rejected as obvious over Loofbourrow [1] in view of Goodman.[2] Loofbourrow discloses an acoustical well-logging system comprising a transmitting transducer and two receiving transducers, all disposed along a vertical axis with the receivers placed two to three feet apart. The transmitting transducer produces ultrasonic waves, preferably in the range of 40–60 kc. An electrical system for measuring wave velocity is disclosed, consisting of a gate circuit, a voltage generator, an oscillator, and a depth-correlated surface recorder. As far as we can determine, the only significant features appearing in the claims under consideration and not appearing in Loofbourrow are the means for urging the transducers into contact with the borehole wall and the close spacing of the transducers. These features are shown in Goodman, which discloses an acoustical logging system in which the transducers are spring-biased against the borehole wall. The Goodman transducers are spaced 0.2 or 0.3 meter (.65 or .98 ft.) apart. Appellant contends that Goodman is improperly combined with Loofbourrow because Loofbourrow never appreciated the problems of close-interval logging and Goodman teaches a spacing of 0.3 meter only if a frequency of 10 kc. is used, and a spacing of 0.2 meter only if an 11 kc. frequency is used to obtain a 90° relationship between shear waves and compressional waves. Our study of Goodman leads us to a conclusion opposite to appellant's assertion, since it appears that Goodman's teaching is that with higher frequencies, and correspondingly shorter wavelengths, even closer spacing of the transducers may be achieved. We see nothing in Goodman which would prevent modification of the Loofbourrow system to include the close spacing and spring bias as shown in Goodman. Accordingly, we affirm the Board's decision as to claims 1, 5, 10 and 24.

(b) *The second group*

Claims 6 and 7 form a pair of claims neither of which is limited as to use of a narrow beam or angular disposition of transducers, but which do recite the feature of simultaneous measurement of horizontal and vertical transmission properties. Claim 6 is illustrative:

6. An acoustical logging system for logging formations penetrated by a borehole, said system comprising:

a downhole tool having at least one transmitting transducer and four receiving transducers, two of said receiving transducers being spaced less than

[1] U.S. Patent 2,931,455, April 5, 1960.
[2] U.S. Patent 2,943,694, July 5, 1960.

a foot from each other and disposed to one side of said transmitting transducer along a vertical axis, the other two of said receiving transducers being spaced less than a foot from each other and disposed in the same horizontal plane as said transmitting transducer;

circuit means for energizing said transmitting transducer to generate a series of acoustical waves having a frequency exceeding 50 kilocycles per second, said acoustical waves being received by said receiving transducers and converted to related electrical signals;

a second circuit means coupled to said two transducers for converting the related signals of said two receiver transducers to a first signal indicating the transmission properties of the formation in a vertical direction and transmitting it to a surface recording system;

a third circuit means coupled to the other two of said transducers for converting said related electrical signals to a second electrical signal indicating the transmission properties of the formation in a horizontal direction and transmitting said second electrical signal to said surface recording system and said surface recording system recording said first and second electrical signals with relation to the disposition of the downhole tool in the borehole. [Paragraphing ours.]

Claim 7 recites a "plurality of transducers" arranged both horizontally and vertically. Claims 6 and 7 were also rejected as obvious over Loofbourrow in view of Goodman. While the Loofbourrow transducers are vertically aligned, and hence are useful primarily in measuring vertical wave velocities, Goodman specifically states that the transducers "may be spaced from one another in a plane transverse to the longitudinal axis of the borehole," i.e., in a horizontal plane. Since simultaneous horizontal and vertical measurements require mere duplication of components, we agree with the Examiner and the Board that the provision in Loofbourrow of the additional apparatus for horizontal measurement would have been obvious. We therefore affirm the Board's decision with regard to claims 6 and 7.

(c) *The third group*

Claims 2 and 3 form a pair of claims, neither of which is limited as to angular disposition of transducers, but which do recite that the acoustical wave is in a narrow beam, 90% of the energy lying in an angle of 30° on either side of the transducer axis. Claim 2 is illustrative:

2. An acoustical logging system for logging formations penetrated by a borehole, said system comprising:

a downhole instrument having at least a transmitting transducer and a receiving transducer; said transducers being spaced from each other a distance of less than one foot;

means for urging said transducers into close proximity with the formation surrounding the borehole;

circuit means for energizing said transmitting transducer to generate a series of acoustical waves having a frequency exceeding 50 kilocycles per second and relatively narrow beam having 90 percent of the effective energy within a beam radiating less than 30 degrees from the geometric axis of the transducer, said receiving transducer responding to a narrow beam of said waves and converting them to a related electrical signal;

a second circuit means for transmitting said related electrical signal to the surface and

recording means at the surface for recording the transmitted signal. [Paragraphing ours.]

Claim 3 recites "a plurality of transducers" on the downhole tool. Claims 2 and 3 were rejected as obvious over Loofbourrow in view of both Goodman and Peterson.[3] Peterson shows a well-logging system,

[3] U.S. Patent 2,825,044, February 25, 1958.

one embodiment of which contains sending and receiving transducers each having parabolic reflectors. The reflector associated with the sending transducer causes the generated radiation, which may be ultrasonic, to be transmitted in a collimated beam. The reflector associated with the receiving transducer is apparently intended to render that transducer directionally sensitive. Appellant correctly points out that Peterson's primary purpose is to analyze the *surface* of a borehole wall, not to project waves into the wall and thereby determine interior characteristics of the formations surrounding the hole. Peterson accordingly places his transducers in the center of the hole and detects primarily waves reflected from the wall surface. Appellant contends that Peterson would not suggest employment of a narrow beam in a system like appellant's, the function of which system is to analyze wave transmission characteristics inside the formations surrounding the hole. We note, however, that one of the reasons given by appellant for using a narrow beam is that, in conjunction with angular mounting, it enables the suppression of "waves traveling in well mud or * * * in the pad structure." This is undoubtedly the main reason for Peterson's use of a narrow beam, since Peterson's object is to examine a small portion of wall formation at a time and this would require suppression of or discrimination against waves coming from other places. This same result being desirable in the Goodman and Loofbourrow systems, it would have been obvious to employ the Peterson narrow beam in either of those systems. We realize that appellant had a more important reason for using narrow-beam transducers, namely, they permit, through appropriate angular adjustment, the system to be made primarily responsive to shear waves or to compressional waves, as desired. This additional reason, however, does not detract from our conclusion of obviousness. Even though Peterson may not have appreciated the added advantage, Peterson's teaching still suggests the employment of a narrow beam for the reason above stated, and we can discern nothing in Peterson which would lead persons skilled in the art away from such employment. Accordingly, the decision of the Board is affirmed as to claims 2 and 3.

(d) *The fourth group*

Claims 11–15 and 16–23 form a group of claims each of which contains the limitation either that the axes of the sending and receiving transducers intersect behind the wall surface, or, differently stated, that one or more of the transducers have axes at an acute angle to a normal to the well wall. Claims 11–14 were rejected under 35 U.S.C. 102 as anticipated by Peterson. The other claims were rejected under 35 U.S.C. 103 on various combinations of references, all including Peterson.

We first consider claims 19–23. As to angular disposition of the transducers, each of these claims contains a limitation that the axes of the transmitting and receiving transducers intersect behind the wall of the borehole, and there is no other qualification on the angle. Claim 19 is illustrative:

19. An acoustic probing system for indicating acoustic properties of the wall of an elongated opening, which probing system comprises:
- a probe means containing at least two spaced and oriented acoustic transducers, one being capable of generating acoustic waves having a frequency exceeding 50 kilocycles per second and one being capable of receiving said waves, and both having at least one major dimension equaling at least one wavelength of the frequency of said acoustic waves;

- at least one wall-contacting pad means mounted on said probe means and disposed to maintain said spaced and oriented generating and receiving transducers in fixed orientations and spacings relative to each other and to the wall of an opening penetrated by said probe, with the geometric axes of at least one receiving and one generating transducer being aligned to at least substantially intersect behind said wall;
- circuit means coupled to said spaced and oriented generating transducer for energizing said transducer to generate acoustic waves;
- circuit means coupled to said spaced and oriented receiving transducer for producing electrical signals related to receptions of acoustic waves and transmitting signal components that are indicative of properties of said wall to a location remote from said probe; and
- means remote from said probe means for receiving and responding to characteristics of said transmitted signal components.

As to these claims, we agree with the Examiner and the Board that the subject matter as a whole was rendered obvious by Peterson and Goodman in combination with either Loofbourrow or Blizard.[4] The principal issue appears to be whether it would have been obvious to move the Peterson device, with its angled transducers, close to the wall as in Goodman, thereby causing the transducer axes to intersect behind the wall. We conclude that it would have been obvious. Peterson states that part of his radiation penetrates into formations behind the wall, and that he is not measuring only waves reflected from the wall surface. It seems clear, then, that angled transducers would be seen from Peterson to be beneficial in devices where the transducer Pad is pressed against the wall as in Goodman. Accordingly, we affirm the Board's decision as to claims 19–23.

We next consider method claims 11–15. Claim 11 is the only independent claim of this group.

11. A method of acoustical well logging comprising: generating a narrow beam of acoustical waves at a point in a borehole, said waves having a frequency exceeding 50 kilocycles per second;
- transmitting said narrow beam of acoustical waves towards the wall of the borehole at an angle of less than 90 degrees with respect to a normal to the wall of the borehole, the angle being chosen to minimize the compressional waves transmitted into the formations;
- receiving said narrow beam of acoustical waves at a position spaced from the point at which the waves were generated, the direction of said receiving being at an angle of less than 90 degrees with respect to a normal to the wall of the borehole and oriented so that the directions along which said waves are transmitted and received substantially intersect behind the wall of the borehole; and
- measuring the variation in the received waves as the points at which the waves are generated and received are moved through the borehole.

Claim 12 recites that the transducers have a dimension equal to at least one wavelength of the transmitted frequency. Claim 13 depends from claim 11 and specifies the transmission angle as 60°. Claim 14 also depends from claim 11 and specifies that the angle is chosen so that the waves cannot travel directly to the receiving position. Claim 15 depends from claim 11 and specifies that wave velocity through the formation is measured.

Claims 11–14 stand rejected as anticipated by Peterson, and claim 15 stands rejected as obvious over Peterson in view of Loofbourrow. Appellant contends that Peterson did not appreciate the difference between compressional and shear waves and therefore could not have disclosed a method for minimizing compressional waves, as required

[4] U.S. Patent 3,102,251, August 27, 1963. This reference shows the measurement of amplitude attenuation, as required by claims 18 and 23.

by claims 11–15. There is no dispute concerning Peterson's lack of express disclosure of minimizing compressional waves. The Examiner, the Board and the Solicitor rely on inherent disclosure through Peterson's FIG. 9, reproduced below.



FIG. 9.

Peterson's specification states, with reference to FIG. 9, that either transducer 139 or transducer 140 may be the transmitter, with the other one the receiver. Assuming 140 to be the transmitter, it appears that the radiation, which Peterson says may be acoustical, travels in a path which prevents it from going directly to receiver 139 and that the axis of transducer 140 intersects a normal to the borehole wall at an angle of approximately 60°. While appellant stresses Peterson's ignorance of the difference between compressional and shear waves, the claims here differ from Peterson only in the recitation "the angle being chosen to minimize the compressional waves transmitted into the formations." This recitation appears to state a result inherently obtained by use of the Peterson apparatus. Appellant has failed to point out any way in which the Peterson apparatus of FIG. 9 could be operated without achieving that result. We therefore conclude that the rejection of claims 11–14 as inherently anticipated by Peterson was correct and must be affirmed. As to claim 15, appellant asserts the impropriety of combining Peterson and Loofbourrow, but we see no reason why the Loofbourrow system could not be modified to contain angled transducers. We accordingly affirm the rejection of claim 15.

Claims 16–18 are apparatus claims of which 16 is the broadest, claims 17 and 18 being dependent thereon.

> 16. An apparatus for acoustical well logging comprising:
> at least one mounting pad having means for forcing said pad against the wall of the borehole;
> at least two spaced acoustical transducers that are each mounted in said pad, at least one of said transducers being capable of generating acoustical waves having a frequency exceeding 50 kilocycles per second and the other transducer being capable of receiving said acoustical waves, said transducers in addition having a major dimension equal to at least one wave length of the frequency of said acoustical waves;
> said transducers being mounted at an angle with their axes substantially intercepting angles of less than 90 degrees with respect to a normal from the wall of the borehole, said angle being approximately 60 degrees to minimize the response of the transducers to compressional waves;
> means coupled to said generating transducer to generate a narrow beam of acoustical waves; and
> measuring means coupled to said receiving transducers to measure a characteristic of the transducer signal of said other transducer as said pad is moved through a borehole.

Claims 16–18 stand rejected under 35 U.S.C. 103 based on either Loofbourrow (claims 16 and 17) or Blizard (claim 18), each in view of Goodman and Peterson. Each of these claims involves transducers in a pad pressed against the wall. The transducers are not merely angled so that their axes intersect behind the wall as in claims 19–23, but at a specified angle of 60°, which appellant has disclosed as being an appropriate angle for minimizing compressional waves and maximizing shear waves. Peterson was applied against each of these claims as a secondary reference. The question is not one of novelty, but of obviousness. The issue comes down to whether, in a system having the measuring means of Loofbourrow or Blizard, it would have been obvious to use a pressed-against-the-wall pad for holding the transducers, as shown in Goodman, and to fix the transducer axes at approximately 60° to a normal to the borehole wall. We find that it would have been obvious, since Peterson's FIG. 9 above shows transducers mounted approximately at that angle, as contended by the Examiner and not contested by appellant. Appellant has not convinced us of any reason why one skilled in the art would be led away from using the angle shown in Peterson. Appellant's better appreciation of the advantages of this angle is of no avail under these circumstances, since the prior art suggests the use of that very angle. Accordingly, we affirm the Board's decision as to claims 16–18.

[1] The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE JAMES W. MILLIGAN

No. 8314. Decided June 18, 1970

[57 CCPA —; 427 F.2d 1254; 166 USPQ 41]

1. PATENTABILITY—PARTICULAR SUBJECT MATTER—"PERMANENT MAGNETS AND METHOD FOR THEIR PRODUCTION."

The decision of the Board of Appeals, refusing certain claims in an application entitled "Permanent Magnets and Method for Their Production," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 109,839.

AFFIRMED.

Louis Robertson (*Darbo, Robertson & Vandenburgh*), for appellant.

Joseph Schimmel (*Joseph F. Nakamura*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 5, 6, 8, 9, and 12 of application Serial No. 109,839, filed May 15, 1961, entitled "Permanent Magnets and Methods for Their Production." There is no allowed claim in this application but it is a continuation-in-part of application Serial No. 767,560, filed Oct. 16, 1958, which has matured into Patent No. 3,114,582, dated Dec. 17, 1963, entitled "Magnetic Suspension." We affirm the Board's decision.

THE INVENTION

Applicant is concerned with making molded permanent magnets from powdered magnetic material the particles of which are bonded

with a synthetic resin of the thermosetting type. As the above patent shows, the magnets are made for such uses as parts of a magnetic suspension of rotating elements in watthour meters to produce a frictionless support. In such a suspension a hollow cylindrical stator magnet surrounds a cylindrical rotor magnet attached to a rotating shaft, the shaft being supported by magnetic attraction which balances the force of gravity. These molded magnets must be made with great dimensional accuracy and they must have dimensional stability under conditions of use including heated environments, as where the meters are installed in sunny places in hot climates. The patent states that powder molding of magnets is a known art and that there have been many proposals for suspending rotating parts magnetically.

The appealed claims are directed to compositions (claims 1 and 12) for making molded magnets and methods (claims 5, 6, 8, and 9) for making the magnets. Claim 1, the broadest composition claim, reads:

> 1. A cold-moldable heat curable composition for the production of precision parts comprising
>
> (I) a thermosetting epoxy resin composition yielding a product having a high temperature of heat distortion after curing, and
>
> (II) a sufficiently predominant proportion of finely divided magnetizable material remaining unfused at curing temperatures for said resin to maintain precise dimensions to which the composition is pressure-molded, while heat cured outside of the mold at a temperature causing the resin to pass through a liquid phase.

The matters with which we are concerned on this appeal appear primarily in part (II) of the claim. It will be noted that *such* proportion of magnetic particles to resin is used that a pressure-molded but *uncured* form maintains its precise dimensions while it is heat-cured *outside* the mold and that this is true even though the resin, in the course of being cured, passes through a liquid phase. The passing through a liquid phase appears to be necessary and desirable as it results in wetting of the magnetic particles by the resin before it sets to a solid state. It also appears to be an inherent property of the resins used to pass through a liquid phase during heat curing. The crucial matter, as appellant argues his case for patentability, is the proportion and it will be noted that in this claim it is stated functionally, i.e., such proportion as to produce the desired dimensional stability.

The point about curing the molded article *outside* of the mold is that, in a mass-production operation, this avoids having to wait for the cure to take place before removal of the articles from the mold. The articles formed in the mold by pressing can be removed therefrom immediately, thus making more economical use of the mold which is an expensive piece of equipment, considering that molding is said to be done with the aid of a press capable of producing a pressure of 40,000 p.s.i. The curing time disclosed in the application is 30 minutes at 300° F. Cold molding with curing outside the mold also eliminates the heating and cooling of the mold.

Claim 5 is representative of the method claims, which vary from one another in scope:

> 5. The method of producing a molded member comprising the steps of pressure-molding in a mold, a composition including a thermosetting resin, liquid during an early state of heat curing, and yielding a product having a high temperature of heat distortion after curing and a sufficiently predominant proportion of a finely divided magnetizable material which will not melt at curing temperatures of the resin to cause the pressure-molded piece to maintain its precise dimensions when cured through the liquid stage after being removed from the mold, removing the piece from the mold before curing, and baking it outside of the mold at a temperature to cure it and at which the resin is in a liquid state during part of its curing period.

THE REJECTION

Two decisions of the Board are involved here. The first dealt with claims 1, 5, 6, and 8–11. Thereafter prosecution resulted in eight additional papers in the file and the substitution of claim 12 for claims 10 and 11. In the first decision, the following references were relied on:

Cass, 2,683,131, July 6, 1954.
Kazenas, 2,936,287, May 10, 1960.
British, 579,698, Aug. 13, 1946.
British, 705,271, Mar. 10, 1954.

In the second decision, the following references were additionally relied on:

Wiles et al., 2,681,901, June 22, 1954.
Nagel, 3,028,251, Apr. 3, 1962 (filed Nov. 20, 1956).
Debell et al., German Plastic Practice, 1946, pages 480 and 481.
Lee et al., Epoxy Resins, 1957, pages 154–157.

In its second decision, the Board summarized all outstanding rejections as follows:

> Claims 1, 5, and 6 on British Patent 705,271 in view of British Patent 579,698 or Cass.
>
> Claims 8 and 9 on British Patent 705,271 in view of Cass.
>
> Claim 1 "as substantially met by Cass or Kazenas."
>
> Claim 12 on the art cited hereinabove and previously applied to claim 27 in Serial No. 130,206, considered together with Kazenas if necessary.[1]

OPINION

Appellant's claims on appeal call either for a "thermosetting resin" broadly or an epoxy resin. He concedes that the resins disclosed and referred to in the claims are old in saying:

> * * * appellant is willing that Milligan [who is appellant] be credited with something less than origination of the resin used, namely with selecting, with skilled help, this resin mixture, from among thousands, for best satisfying his special magnet molding needs.

Nothing of record supports the assumption of "thousands" of resins worthy of consideration. Furthermore, the references show that not only are the resins of the claims old, as is conceded, but that they have been used in the making of molded magnets by using them as binders with powdered magnetic or magnetizable materials.

British 579,698 discloses the resin. British 705,271 refers to it as disclosing a suitable resin for making molded magnets. Appellant's brief concedes both references disclose epoxy resins. The latter reference says it was previously known to make molded magnets from magnetic powder and resin binders, both thermoplastic and thermosetting, previously known resins in both categories having had certain disadvantages now found to be eliminated by using the new

[1] Serial No. 130,206 was a joint application of Milligan and Greenlee, filed May 11, 1961, in which the Board had rendered an opinion March 25, 1966, Appeal No. 348–85. At one time there was a double patenting rejection herein of claims 10 and 11 (now replaced by claim 12) on the ground that claims 27 and 34 of No. 130,206 were directed to the same subject matter. The references relied on in the other appeal were Wiles, Cass, Nagel, Debell, and Lee, all listed above. The Board's opinion in No. 130,206 is of record here and shows that all claims were rejected.

thermosetting epoxy resins. The concluding paragraph of the patent is of great significance here:

> The magnetic elements may be produced in the known manner by pressing in heated moulds, or they can be cast in such moulds. The binding agent is hardened either in the mould itself *or by thermal after-treatment of the pressed article taken from the mould.* [Emphasis ours.]

This patent also discloses that magnets thus made "retain their shape under heat" and have "greater mechanical strength."

Debell discloses the manufacture of precision magnets by compression molding a mixture of magnetic particles and a phenolic resin binder, the composition being 85% magnetic particles and 15% resin. It is stated that such magnets have only 85% of the magnetic intensity of Alnico, Alnico being the magnetic material itself. Thus, the intensity appears to be the same as the percentage of magnetic material in the molded product from which one would naturally deduce that the higher that percentage the higher the magnetic intensity.

Cass discloses appellant's epoxy resins, describes the properties of molded products containing various fillers, and includes this paragraph:

> Various magnets may be prepared by which magnetic materials, for instance, Alnico powder, may be mixed with the compositions of matter herein described and molded to give strong pieces which have been found to have breaking strengths of nearly 600 lbs. This is materially in excess of the breaking strength of similar pieces molded using phenolic resins or mixtures of other polymerizable materials and unsaturated alkyd resins as the binders.

Cass discloses that the epoxy resin passes through a liquid phase in curing, as British 579,698 does also.

Kazenas deals with magnetic particles coated with some of the same epoxy resins used by appellant and subjected to curing so as to pass through the A-, B-, and C-stages of which such resins are capable but we are not much impressed with the relevance of this reference. It does not disclose making molded objects in which the particles are bound together but rather with the adhering to *particles* of very small sizes (under 10 microns) of a visualizing coating of pigment or fluorescent material, the thus coated *particles* being used in magnetic flux systems of non-destructive inspection for locating flaws in structures of paramagnetic materials. Forming solid parts from the magnetic particles and resin is the last thing Kazenas wants to do. He wants small coated particles which can be suspended in a fluid medium to be flowed over the article to be tested so as to adhere to the surface where the flaw is. The Board used Kazenas, as does the Solicitor, principally for its disclosure of proportion of magnetic particles to resin. Kazenas says it should not be over 50 to 60 percent resin by volume, preferably is 25 to 35 percent, and that 6 to 10 percent is a "critical minimum." Even so, this has no bearing on making molded articles with dimensional stability in the "green" or uncured state.

What then of the other references relied on and their bearing on patentability? The primary issue is obviousness of the claimed subject matter in view of the references. Appellant's principal argument is that he patentably distinguished therefrom in his recitations with respect to proportions which are such that the cold-molded formed product will retain its dimensions while being cured outside the mold. Appellant gives only one example of proportions and that is 6% resin by weight. Debell discloses 15% with a different resin. Appellant does not teach any limits to the proportions. He merely writes his claims functionally so as to require that the proportion be such that he will

maintain precise dimensions during curing. He does not show that the prior art proportions would not do that.

British 705,271 clearly teaches the alternatives of curing in a heated mold or curing after forming, outside the mold. Appellant argues that in the latter situation the British patent indicates that the pressing is in a heated mold. The patent does not say so and it is evident to us that if the heating is to be done after molding, those ordinarily skilled in the art would not bother to heat the mold if it is not necessary. We think it would also be well within the skill of the art to use whatever proportions will give the desired dimensional stability to the uncured article. It is known that the epoxy resins go through a liquid phase in curing and that in itself would seem to indicate that the quantity of resin would have to be low enough not to affect dimensional stability. The Board also pointed out, and we agree, that the desire to maximize the strength of the magnet would teach minimizing the percentage of binder resin, especially in view of Debell.

We have carefully considered all of appellant's arguments but for the above and other considerations we see no reason to disagree with the Board's conclusions with respect to claims 1, 5, 6, 8, and 9. Claim 12 depends from claim 1 and adds thereto detailed limitations with respect to the nature of the resin component. The specific resin and its catalyst are shown in Nagel together with its asserted advantage of long shelf life or retention of its physical form during prolonged storage and its ability to form a thermoset coating. To put the question of patentability of claim 12 in appellant's own terms, we do not think that the "selecting, with skilled help, [of] this resin mixture" from the many available renders the composition "as a whole" unobvious within the meaning of section 103. The desired properties were known and the art discloses the resin combination selected to have those properties.

Our decision as to all claims under section 103 makes it unnecessary to discuss the rejection of claim 1 under section 102, assuming such a rejection to have been made.

[1] The decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE FRANK PASSAL

No. 8327. Decided May 28, 1970

[57 CCPA —; 426 F.2d 828; 165 USPQ 720]

1. PATENTABILITY—COMBINING REFERENCES—35 U.S.C. 103.
   "Just as piecemeal reconstruction of the prior art by selecting teachings in light of appellant's disclosure is contrary to the requirements of 35 U.S.C. 103 so is the failure to consider as a whole the references collectively as well as individually."
2. SAME—OBVIOUSNESS
   "* * * obviousness does not require absolute predictability."
3. SAME—PARTICULAR SUBJECT MATTER—"HIGH SPEED BRIGHT NICKEL PLATING."
   The refusal of certain claims in an application entitled "High Speed Bright Nickel Plating," as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 286,170.

AFFIRMED.

Lewis C. Brown (*Arnold B. Christen* (*Christen, Sabol & O'Brien*), of counsel) for appellant.

S. Wm. Cochran (*Raymond E. Martin*, of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

ALMOND, *J.*, delivered the opinion of the court.

This is an appeal from the decision of the Patent Office Board of Appeals, adhered to on reconsideration, affirming the rejection of claims 1, 2, 5–13, 15–18 and 20 of appellant's application.[1] Claims 3, 4, 14 and 19 have been allowed.

The invention relates to a process for high-speed bright nickel plating as well as to the composition of an electrolytic nickel plating bath. Prior art nickel plate production rates are undesirably slow, the specification states, while attempts to speed them up through using high plating current densities and various primary and secondary brighteners or bath additives have resulted in inadequately leveled deposits. Appellants have allegedly solved these prior art problems by maintaining a cathode current density at a level of at least 10 a.s.d. (amperes per square decimeter) and a high relative velocity between the nickel plating bath and the cathode representing the material to be plated. This velocity may be maintained by either impinging a stream of electrolyte onto the cathode or by various techniques such as vibration, rotation of the cathode and pumping of the electrolyte past the cathode.

Claims 1 and 16 are illustrative:

1. The method of high-speed electroplating a bright nickel deposit which comprises electroplating said nickel deposit from a nickel bath containing soluble nickel salts and a primary brightener consisting essentially of a brightening and leveling quantity of phenylpropiolamide, maintaining the cathode current density during said plating at a level of at least 10 a.s.d., and maintaining a high relative velocity between said nickel bath and said cathode, thereby obtaining a highly lustrous, leveled nickel plate over wide cathode current density range.

16. An aqueous electrolytic nickel bath for high-speed electrodeposition of bright nickel plate which contains soluble nickel salts and as additive a composition selected from the group consisting of (*a*) a primary brightener consisting essentially of at least 0.8 g./l. of phenylpropiolamide and (*b*) a secondary brightener together with 0.2–0.6 g./l. of phenylpropiolamide.

Claims 2 and 5 depend from claim 1 with claim 2 providing that phenylpropiolamide (hereinafter PPA) is the sole brightening and leveling additive, while claim 5 recites that a secondary brightener is also present.

Claims 6–9 depend from claim 5. In claim 6, the secondary brightener is limited to one selected from aromatic sulfonates, sulfonamides and sulfimides, while claim 7 limits the secondary brightener to saccharin. In claim 8, the amounts of PPA and secondary brightener present in the bath are limited to 0.2–0.6 g./l. (grams per liter) and 1–10 g./l., respectively. Claim 9 limits the amount of PPA in the bath to 0.2–0.6 g./l. and the amount of saccharin to 1–4 g./l.

Claims 10–13 all depend from claim 1. Claim 10 limits the cathode current density to a range of 10–120 a.s.d., and claim 11 limits the relative velocity between the nickel bath and the cathode to 60–320 cm./second. According to claim 12, the relative velocity is obtained by impinging the nickel bath against the cathode and in claim 13 the relative velocity is described as obtained by directing a stream of electrolyte against the cathode. Claim 15 is an independent claim

[1] Serial No. 286,170, filed June 7, 1963, for "High Speed Bright Nickel Plating."

describing a process similar to that of claim 1, limiting the amount of PPA to 0.2–0.6 g./l. and calling for inclusion 1–10 g./l. of a secondary brightener. The current density range is also defined as maintained at 20–60 a.s.d. Claim 17 depends from claim 16 and limits the secondary brightener to saccharin. Claim 18 depends from claim 17 and recites that the saccharin is present in an amount of 1–4 g./l. Claim 20 is drawn to an aqueous electrolytic nickel bath consisting essentially of 250–500 g./l. nickel sulfate, 20–60 g./l. boric acid and a secondary brightener together with 0.2–0.6 g./l. phenylpropiolamide.

The references relied upon are:

Kennedy et al., 2,363,973, Nov. 28, 1944.
Boelter, Jr., 2,870,709, Jan. 27, 1959.
Hartman et al., 3,139,393, June 30, 1964.
Wesley, W. A., et al., "Electrodeposition of Nickel at High Current Density," 36th Annual Proceedings of the American Electroplaters Society, pp. 79–91 (1949).

Hartman discloses the electrodeposition of semi-bright nickel deposits from nickel-plating Watts-type (200–400 g./l. nickel sulfate, 30–120 g./l. nickel chloride, 30–50 g./l. boric acid) baths containing as the brightening additive PPA. The baths are said to have excellent leveling and covering power with relatively ductile, finely grained, milky and lustrous deposits obtained. Conventional bath operating conditions including agitation are said to be applicable. Deposition from baths containing PPA under high current density results in deposits slightly more grainy and less lustrous. Current density of 0.5–12 a.s.d. may be used to obtain uniform lustrous semi-bright nickel electrodeposits when the bath contains, in addition to PPA, an effective amount of an additive such as acetylacetone. PPA is said to act as an auxiliary brightener in conjunction with a conventional secondary brightener such as saccharin to yield mirror-bright nickel. Examples using PPA alone are given in table form.

Wesley discloses that increased agitation of simple nickel plating baths, i.e., not containing brightener additives, permits higher current densities and faster plating rates.

Boelter discloses high-speed deposition of copper from a conventional bath by a method of impinging the electrolyte onto the cathode at flow rates of 500–1000 ft./min.

Kennedy discloses a copper electroplating method wherein the cathode is rotated, or motion between it and the electrolyte otherwise caused, and the electrolyte strongly agitated as by pumping or otherwise since thus a smooth coating is laid for a given current density and higher current densities may be employed.

Claims 1, 2, 5–13, 15–18 and 20 were rejected under 35 U.S.C. 103 as unpatentable over Hartman in view of Wesley, and Boelter or Kennedy. Additionally, all the above claims except 15 were further rejected under 35 U.S.C. 103 on Hartman alone. Composition claims 16–18 and 20 were also rejected under 35 U.S.C. 102 as fully met by Hartman.

The Board sustained all the above rejections except the rejection of claim 11 on Hartman alone. In its extensive treatment, the Board considered first the rejection under 35 U.S.C. 102, stating:

All that is required to meet the terms of claims 16, 17, and 18 is a nickel bath containing soluble nickel salts, 0.2–0.6 g./l. of phenylpropiolamide, and a secondary brightener, specifically, saccharin.

* * * The claims use the word "contains" and therefore do not exclude the presence of a primary brightener in addition to the phenylpropiolamide and saccharin. The claimed proportion of phenylpropiolamide (0.2–0.6 g./l.) does not distinguish from the top figure of 0.5 g./l. in the reference, from the top figure of 0.3 g./l. for the preferred range in the reference, or from the optimum quantity of 0.2 g./l. in the reference.

Claim 20 was also found to be met by the reference. With respect to the rejection under 35 U.S.C. 103 on Hartman alone, the Board referred to its discussion of claims 16–18 and 20 concerning the composition aspects, stating additionally:

Considering the manipulative aspects (current density and relative velocity) of claims 1, 2, and 5 through 13, in particular, it is seen that Hartman et al. may operate at a current density as high as 12 a.s.d. * * *, thus meeting the claim language of "at least 10 a.s.d." The patentees refer to agitation * * *, and claims 1, 2, 5 through 10, 12, and 13 refer only broadly to "a high relative velocity." The quoted phrase is too uncertain in meaning to be relied upon as distinguishing over the Hartman et al. disclosure.

Lastly, the Board held:

After careful study of all of appellant's arguments, we have come to the conclusion that the rejection of claims 1, 2, 5 through 13, 15 through 18, and 20 on the cited references, principally the combination of Hartman et al. with Wesley et al., is sound and must be sustained.

Wesley et al. clearly teach the advantages of high current density and high relative velocity in order to attain a higher rate of deposition, and we perceive no good reason why the observations made by the authors of the article would not be equally applicable to the plating baths of Hartman et al. The matter of the composition of the bath has been discussed above and need not be repeated at this point.

It is true that Boelter, Jr. and Kennedy et al. relate to the deposition of copper, but they clearly disclose impingement techniques to produce a high relative velocity and, to this extent, are certainly pertinent to this particular feature of claims 12 and 13.

Appellant alleges error on the Board's part in several respects. Interpreting Hartman, appellant takes the view that the reference discloses acetylacetone not as a secondary brightener but merely as an auxiliary additive which cooperates with PPA to give a *Semi-bright* deposit and only with such additive may the entire current density range up to 12 a.s.d. be used. Moreover, appellant alleges, the reference contemplates the use of the secondary brightener PPA only when used in conjunction with primary brighteners since the patent states:

It was found that both phenylpropiolic acid and phenylpropiolamide act as auxiliary brighteners in conjunction with the conventional sulfonated organic secondary brighteners such as saccharin, sulfonated dibenzothiophene dioxide, and in conjunction with such primary brighteners as the heterocyclic, aliphatic, and aromatic nitriles, triphenylmethane, etc., to yield mirror-bright nickel.

Appellant contends that his process results in mirror-bright nickel using PPA alone or in combination. The agitation disclosed in Hartman is alleged to be "little or moderate agitation."

Wesley, appellant argues, lacks pertinence because it is limited to conventional Watts-type baths and is silent as to brighteners or additives to be used in the plating baths. Boelter and Kennedy are alleged to be even less pertinent since they relate to electrodeposition of copper. Furthermore, it is argued, appellant is using high speeds together with a *specific* plating bath. One cannot predict that manipulative aspects found operable with one type of plating bath with or without additives would be operable with a different bath, appellant argues; therefore, one skilled in the art would not combine the various reference teachings. The references themselves, it is alleged, are devoid of

any suggestion that a combination of these teachings would permit attainment of any desired results. Hartman's preferred bath is a Watts-type, while Wesley, it is contended, discloses that such baths suffer disadvantages when plating at high current densities and therefore no good reasons for believing that the observation of Wesley would be applicable in any way to the baths of Hartman exist.

We are not persuaded by appellant's position that "while the individual steps may be shown in the various prior art references, none of the references suggests the combination of steps as claimed." [1] Just as piecemeal reconstruction of the prior art by selecting teachings in light of appellant's disclosure is contrary to the requirements of 35 U.S.C. 103 so is the failure to consider as a whole the references collectively as well as individually. Pertinent here is the view of this court expressed in *In re Rosselet*, 52 CCPA 1533, 347 F.2d 847, 146 USPQ 183 (1965), that

* * * the test of obviousness is not express suggestion of the claimed invention in any or all of the references but rather what the references taken collectively would suggest to those of ordinary skill in the art * * *.

Moreover, we do not agree with appellant that one skilled in the art would expect the manipulative aspects of Wesley to be inapplicable to the bath of Hartman. [2] As we again observed in *In re Passal* (No. 8319), decided concurrently herewith, obviousness does not require absolute predictability. Nor have we seen here clear and convincing evidence of unexpected results.

We are in agreement with the Board that the references as applied here render the claims obvious. The view we take with regard to the rejection of all the claims on the combination of references under 35 U.S.C. 103 renders it unnecessary to consider the other grounds of rejection here.

[3] The decision of the Board is, accordingly, affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

SCHENLEY DISTILLERS, INC. *v.* GENERAL CIGAR CO., INC.

No. 8328. Decided June 25, 1970

[57 CCPA —; 427 F.2d 783; 166 USPQ 142]

1. TRADEMARK—CONFUSING SIMILARITY—GOODS—SAME MARK FOR TOBACCO AND ALCOHOLIC PRODUCTS.

"With respect to appellant's contention that it has been recognized as a principle that the use of the same mark on tobacco and alcoholic beverage products results in likelihood of confusion, we are rather of opinion that this principle has been invoked only in the presence of 'special circumstances' such as unfair competition or a 'famous' or 'well known' mark. In *McKesson & Robbins, Inc.* v. *P. Lorillard Co.*, 120 USPQ 306, 308 (T.T.A.B. 1959), it was held that the mark 'Newport' was not of such character that its use on cigarettes and alcoholic beverages would be likely to cause confusion or deception. The *Johnnie Walker* case, relied upon by appellant, is distinguishable in that the decision was grounded on a finding that 'Johnnie Walker' was a 'famous' mark by reason of long use and extensive advertising, and that the applicant intended to capitalize upon the fame of the mark."

2. SAME—SAME—SAME—"OLÉ" FOR CIGARS AND TEQUILA.

Where appellant, prior owner of the mark "Olé" for tequila, opposed registration of the same mark by appellee for cigars, on the ground of likelihood of confusion in the concurrent use because of the growing pattern of corporate diversification, *Held* that "We agree that appellant's argument is viable where a widely known arbitrary mark is being used for diversified products emanating from one source and a newcomer seeks to use the same mark on

unrelated goods": and that "appellant has not used the mark on diversified products, rather it has used different marks for its closely-related beverage products"; and that "Given the industry practice, we think that the ordinary consumer would not be conditioned to expect the same mark to be used on such unrelated products as cigars and tequila."

APPEAL from Trademark Trial and Appeal Board. Opposition No. 45,711.

AFFIRMED.

Milton B. Seasonwein, for appellant.

John C. Vassil (*Morgan, Finnegan, Durham & Pine*) (*Hobart N. Durham, Harry C. Marcus*, of counsel) for appellee.

Before RICH, *Acting Chief Judge*, ALMOND, BALDWIN, LANE, *Associate Judges*, and FISHER, *Chief Judge*, Eastern District of Texas, sitting by designation

FISHER, *J.*, delivered the opinion of the court.

The issue in this case is whether there is likelihood of confusion, mistake or deception in the concurrent use of the identical trademark "Olé" for cigars and for tequila. The Trademark Trial and Appeal Board dismissed the opposition with an opinion dated October 12, 1967, 155 USPQ 742. Petitioner, Schenley Distillers, appeals.

Appellant's argument is that in today's social pattern the imbibing of alcoholic beverages and the use of tobacco products are closely associated. Appellant points out that the two products have many common places of sale, common times of customary use, a similar commercial impression, and similar drives for use. There are also instances of references to alcoholic beverage flavors or names in the advertising and trademarks of tobacco products. Further, appellant points to a growing pattern of corporate diversification and to the fact that companies in the tobacco business engage in many other enterprises—including one instance in which a tobacco company has undertaken to enter the field of distilled spirits.

Appellant relies upon *Carling Brewing Co., Inc.* v. *Philip Morris, Inc.*, 277 F. Supp. 326, 156 USPQ 70 (N.D. Ga. 1967), where the mark "Black Label" was used on beer and cigarettes. The court said:

Given the general situation where the public is generally unware of the specific corporate structure of those whose products it buys, but is aware that corporate diversification, mergers, acquisitions and operations through subsidiaries is a fact of life, it is reasonable to believe that the appearance of "Black Label" on cigarettes could lead to some confusion as to the sponsorship of EITHER or both the cigarettes and the beer.

Appellant also points to the cases of *John Walker & Sons, Ltd.* v. *Tampa Cigar Co., Inc.*, 124 F. Supp. 254, 103 USPQ 21 (S.D. Fla. 1954), aff'd 222 F.2d 460 (5th Cir. 1955), and *Geo. A. Dickel Co.* v. *Stephano Bros.*, 155 USPQ 744 (T.T.A.B. 1967), where it was held on the basis of the facts presented that use of the same mark on both liquor and tobacco products would be productive of confusion and deception.

Appellant admits that its sales of tequila are relatively small in volume and only a small fraction of its overall sales of beverage distilled spirits, but it points out that the market for tequila is as yet quite small in the United States. Appellant contends that the quantum of use of a trademark is not of significance in determining whether it is entitled to protection because of likelihood of confusion. The conflict arising from such confusion can stunt the growth of the trademark and prevent it from attaining stature. Appellant cites

cases for the proposition that it is priority of user alone which controls. *Waldes* v. *International Mfrs. Agency Inc.*, 237 F. 502 (S.D.N.Y. 1916); *Sweet Sue Kitchens, Inc.* v. *C-B Drug Co.*, 159 USPQ 242 (T.T.A.B. 1968); *Geo. A. Dickel Co.* v. *Stephano Bros.*, supra; *Phoenix Mfg. Co.* v. *Plymouth Mfg. Co.*, 286 F. Supp. 324, 160 USPQ 57 (D. Mass. 1968). In the last cited case the court said:

If the rule were otherwise, relatively small registrants whose marks were infringed by larger companies would be barred from effectively expanding the use of their marks because of their identification with the larger infringers.

Appellee argues on the other hand that appellant's trademark, "Olé," as applied to tequila, is a "weak" mark and thus not entitled to broad protection. The relative strength or weakness of a mark depends upon its distinctiveness and popularity. Appellee maintains that appellant's use of the product name in advertising and promotion has played up the suggestive connotations of the name rather than educating the public to accept the term as the hallmark of a particular source. In point of fact, the mark has not been the subject of wide or intensive advertising, nor has appellant used it on a great quantity of articles as symbols of its business. Appellant's small volume of sales of its product is cited as evidence of this.

Moreover, we note that appellant is a large producer of alcoholic beverages which employs different marks to identify each different species of beverage it sells (e.g., MacNaughton Canadian Whisky, Cook's Champagne, Dubonnet aperitif wine, etc.). No effort is made to transfer the good will of one product to another, but rather each maintains a distinct and separate image and identity. Appellee aptly points out that while the average consumer may be intellectually aware that many of these products probably have a common source, he could not be expected to know which group of products originate from the same source. It is much less likely, in the absence of a famous name or trademark evincing a common origin, that a consumer would expect that a liquor producer would employ the same name on goods even more diverse than different types of alcoholic beverage.

[1] With respect to appellant's contention that it has been recognized as a principle that the use of the same mark on tobacco and alcoholic beverage products results in likelihood of confusion, we are rather of opinion that this principle has been invoked only in the presence of "special circumstances" such as unfair competition or a "famous" or "well known" mark. In *McKesson & Robbins, Inc.* v. *P. Lorillard Co.*, 120 USPQ 306, 308 (T.T.A.B. 1959), it was held that the mark "Newport" was not of such character that its use on cigarettes and alcoholic beverages would be likely to cause confusion or deception. The *Johnnie Walker* case, relied upon by appellant, is distinguishable in that the decision was grounded on a finding that "Johnnie Walker" was a "famous" mark by reason of long use and extensive advertising, and that the applicant intended to capitalize upon the fame of the mark. Likewise, in the *Dickel* case relied upon by appellant, the Board found that "Cascade" was "at least a well known mark" for whisky and that substantial use of the mark warranted a presumption that it was sufficiently well known to lead to a likelihood of confusion. In short, the "rule" of these cases is in fact an exception carved out for the peculiar facts present in those cases and not in the one at bar.

Appellee contends that appellant's "conglomerate" argument is fallacious given the fact that the practice in the liquor as well as the

tobacco industry is to create a separate good will and image for a variety of different brands. [2] We agree that appellant's argument is viable where a widely known arbitrary mark is being used for diversified products emanating from one source and a newcomer seeks to use the same mark on unrelated goods. Absent such circumstances the same argument was rejected in the *Dickel* case, supra, and in *Con-Stan Industries, Inc.* v. *Villaamil Tobacco Products, Inc.*, 157 USPQ 397 (T.T.A.B. 1966). Appellant has not used the mark on diversified products, rather it has used different marks for its closely-related beverage products. Given the industry practice, we think that the ordinary consumer would not be conditioned to expect the same mark to be used on such unrelated products as cigars and tequila.

The decision of the Board dismissing the opposition is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE VERNON K. CHARVAT

No. 8338. Decided July 9, 1970

[57 CCPA —; 427 F.2d 1370; 166 USPQ 326]

1. PATENTABILITY—PARTICULAR SUBJECT MATTER—"COMPOSITE BRUSHING TOOL."
The decision of the Board of Appeals, refusing certain claims in an application entitled "Composite Brushing Tool" as unpatentable over the prior art, is affirmed.

APPEAL from Patent Office. Serial No. 516,379.

AFFIRMED.

John C. Oberlin (*Oberlin, Maky, Donnelly & Renner*), for appellant.

S. Wm. Cochran (*R. V. Lupo*, of counsel) for the Commissioner of Patents.

Before RICH, ALMOND, BALDWIN and LANE, *Associate Judges*

BALDWIN, *J.*, delivered the opinion of the court.

Charvat appeals from the decision of the Patent Office Board of Appeals sustaining the Examiner's rejection of all the claims in his application [1] as unpatentable under 35 U.S.C. 103.

THE INVENTION

The application discloses a composite tool of the power-driven rotary type. The tool is in the form of a wheel having radially-extending bristles of brush material embedded in a body of foamed polyurethane material for support. The bristles may be of copper or stainless steel wire, vegetable fibers such as tampico fiber and sisal, or plastic filaments such as nylon. It is "preferred" that the polyurethane be of the "'closed cell' type."

Claim 1 is representative:

1. A composite brushing tool having radially extending bristles and a polyurethane composition interposed therebetween maintaining said bristles substantially uniformly spaced apart.

Additional recitations, such that the composition is polyurethane rubber, is an elastomeric resiliently deformable composition, or is a closed cell polyurethane, and that the bristles are wire, are included in various of the other claims, numbered 2–12.

[1] Serial No. 516,379, filed December 27, 1965, for "Composite Brushing Tool."

THE REJECTION

The claims stand rejected for obviousness on Swart [2] or Stingley [3] in view of Upton,[4] with further reference to Hurst.[5] Swart and Stingley both relate to brushes in the form of wheels having radially-extending wire bristles embedded in matrixes of elastomeric material. Upton discloses a rotary abrasive wheel composed of discrete abrasive grains held in spaced relationship by a foamed polyurethane matrix. The Examiner and the Board considered it obvious to substitute polyurethane material as used in Upton for the matrix material of Swart or Stingley. They also referred to Hurst as showing that it is old in the grinding or abrading art to intrude plastic material between radial wire strands.

OPINION

Appellant regards the propriety of the rejection as depending upon the answer to "two questions," which he states as follows:

Does Upton, Jr. relate to an art which is the same or analogous to the art to which Swart and Stingley relate, and, if so, would it be obvious to one skilled in the brushing art to combine the teachings of such references?

He states that a brush, such as his structure, is a "device wherein the ends of flexible bristles engage the work in an abrading but nevertheless yielding manner so as to remove burrs and other surface irregularities and also to provide a desired surface finish on the work piece." He further states that an abrasive wheel, as is Upton's device, "relies upon the discrete abrasive grains contained therein to remove material from the workpiece and to provide a desired finish thereon, but in quite a different manner."

However, the basic similarities of a *rotary* brush and an abrasive wheel, both of which are rotated in contact with the surface of the workpiece to wear away material therefrom, are apparent even from appellant's above characterizations. We are satisfied that a person of ordinary skill in the art seeking to improve the elastomeric matrix of the Stingley brush, for example, would look to the abrasive wheel art, where Upton is found, for suggestions.

It is true that foamed polyurethane is not named as an example of the elastomers that Stingley uses. However, Upton not only discloses that foamed polyurethane holds the abrasive grains in place analogously to Stingley's elastomers holding the bristles in position, but he also discloses that it constitutes a bond for fibers embedded in the wheel for strengthening it, which fibers include fibers of steel corresponding to Stingley's metal bristles. Furthermore, Stingley specifies that elastomers which are suitable for his purpose are comparatively flexible, do not excessively smear the work under normal operating conditions and are substantially incapable of melting at working temperatures. Stingley also states that the elastomeric material should preferably be so produced as to contain a plurality of gas pockets and that the cellular structure of such material permits limited controlled movement of the brush bristle wires or filaments. The cellular structure also is described as reducing the weight of the tool and making it "more resiliently responsive." Those qualities correspond substantially to the very advantages that appellant attributes to a polyurethane matrix in his specification. Foamed polyurethane is a

[2] U.S. Patent 2,648,084, granted August 11, 1953.
[3] U.S. Patent 2,950,495, granted August 30, 1960.
[4] U.S. Patent 2,972,527, granted February 21, 1961.
[5] U.S. Patent 2,680,335, granted June 8, 1954.

well-known material and no reason is apparent why workers in this art would not be aware of its characteristics. We are convinced that a person of ordinary skill in the art would have found it obvious to substitute the foamed polyurethane of Upton for the elastomers disclosed for bonding the bristles in Stingley.

Although appellant does make independent reference in his argument to the recitation of a closed cell structure in certain claims, we note that he has not asserted critical significance in that recitation. Accordingly, we agree with the position, taken by the Board, that Stingley's disclosure that his elastomeric matrix have "gas pockets and a cellular structure" is adequate to make it obvous that the polyurethane substituted from Upton be formed with closed cells.

[1] The decision is affirmed.

AFFIRMED.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,753,694, Trow and Nelson, ICE DISINTEGRATING AND CHIP DELIVERING SPIRAL ICE CHIP PRODUCING MACHINE; **3,034,311**, M. L. Nelson, ICE MAKING APPARATUS, filed July 27, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c1389, *King Seeley Thermos Co.* v. *Reynolds Products Inc.* Plaintiff owner of patents, said patents valid and infringed. Defendants permanently enjoined, Sept. 25, 1970.

2,852,888, T. B. Howard, POWER-DRIVEN REMOTE-CONTROLLED TOY VEHICLE, filed Oct. 7, 1970, D.C., N.D. Ill. (Chicago), Doc. 2971–70, *Tulane B. Howard* v. *Louis Marx and Company, Inc.*

3,034,311. (See 2,753,694.)

3,041,187, Jordan and Sovia, COMPOSITION OF MATTER FOR DECORATING PURPOSES, filed June 20, 1969, D.C. Conn. (New Haven), Doc. 13215, *General Mills, Inc.* v. *Danberg Flock Mfg., Inc. et al.* Consent decree, injunction entered, Sept. 21, 1970.

3,146,316, N. P. Knoth, TAPE RECORDER, filed Aug. 27, 1969, D.C., N.D. Ill. (Chicago), Doc. 69c1783, *Warwick Electronics Inc.* v. *North American Philips Company, Inc.* Ordered, both complaint and counterclaim dismissed, Oct. 7, 1970.

3,154,240, I. C. Jennings, PUMPING DEVICE, filed Oct. 2, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70–C–553, *The Nash Engineering Company* v. *Aqua-Chem, Inc.*

3,195,170, T. B. Howard, LIQUID SUPPLY SYSTEM, filed Oct. 7, 1970, D.C., N.D. Ill. (Chicago), Doc. 2970–70, *Tulane B. Howard* v. *Burgess Vibocrafters, Inc.*

3,197,681, G. R. Broussard, SEMICONDUCTOR DEVICES WITH HEAVILY DOPED REGION TO PREVENT SURFACE INVERSION; **3,226,613**, J. C. Haenichen, HIGH VOLTAGE SEMICONDUCTOR DEVICE, filed Sept. 21, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2328, *Texas Instruments, Inc.* v. *Motorola, Inc.*

3,226,613. (See 3,197,681.)

3,310,824, C. C. Beer, VEHICLE WASHER, filed Oct. 1, 1970, D.C., S.D. Ohio (Columbus), Doc. 70–295, *Sherman Car Wash Equipment Company* v. *Lark Manufacturing Co., Inc.*

3,328,676, S. I. Slater, CONTINUOUSLY VARIABLE DIMMER SWITCH; **Re. 26,119**, same; **Re. 26,267**, B. H. Matthews, ELECTRICAL SWITCH WITH CAMMING BRIDGING CONTACT, filed Oct. 8, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70–C–1266, *ECC Corporation* v. *Slater Electric, Inc., Lucerne Products, Inc.*

3,356,226, Miller, Masaschi and Miller, INTEGRALLY WOUND FILTER TUBE, filed Apr. 2, 1968, D.C. Md. (Baltimore), Doc. 19366–C, *Filterite Corporation* v. *Tate Engineering, Inc.* Judgment in favor of defendants, Oct. 1, 1970.

3,375,796, Greenberg, Troast and Troast, BLANK-FORMING APPARATUS, filed Jan. 14, 1969, D.C., S.D.N.Y., Doc. 69–C–140, *I. C. Herman & Co., Inc.* v. *The Singer Company, Inc.* Plaintiff's dismissal pursuant to Rule 41(a)(1), Sept. 10, 1970.

3,481,123, W. R. Lessig, HANDLE MOUNT FOR LAWN MOWER; **3,485,018**, Beckering, Duran and Lessig, LAWN MOWER DECK HOUSING; **3,500,620**, Duran, Lessig and Stieler, ELECTRIC LAWNMOWER CONSTRUCTION, filed Sept. 28, 1970, D.C., N.D. Ohio (Cleveland), Doc. C70–918, *MTD Products Inc.* v. *The Black and Decker Manufacturing Company.*

3,484,632, Opalenik and Corey, VARIABLE SPEED CONTROLLER FOR PORTABLE ELECTRIC DEVICES, filed Sept. 30, 1970, D.C. Conn. (New Haven), Doc. 14052, *Arrow-Hart, Inc.* v. *H. B. Davis Corporation.*

3,485,018. (See 3,481,123.)

3,495,731. (See D. 212,011.)

3,500,620. (See 3,481,123.)

Re. 25,695, Cook and Farnam, EXPLOSIVE COMPOSITION COMPRISING AMMONIUM NITRATE AND HEAT-PRODUCING METAL, filed July 16, 1970, D.C. Utah (Salt Lake City), Doc. C–177–70, *Iron Ore Company of Canada* v. *University of Utah.* Same, filed Oct. 15, 1970, D.C. Utah (Salt Lake City), Doc. C–268–70, *University of Utah* v. *Melvin A. Cook, Henry E. Farnam, Jr., and Ireco Chemicals.*

Re. 26,119. (See 3,328,676.)

Re. 26,267. (See 3,328,676.)

D. 199,500, R. E. Sarafan, JUG, filed Sept. 18, 1970, D.C., N.D. Calif. (San Francisco), Doc. C–70–2020 AJZ, *Flexible Plastics Corporation* v. *Black Mountain Spring Water Inc.*

D. 212,011, Risom and Jacobs, DRAWER FOR A CARD CATALOG CABINET; **3,495,731**, same, CARD CATALOG DRAWER, filed Oct. 9, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70–C–1275, *Jens Risom Design, Inc.* v. *John E. Sjostrom Co., Inc.*

D. 217,082, H. Koenig, PANTS, filed Oct. 9, 1970, D.C., S.D. Fla. (Miami), Doc. 70–1485–C–TC, *Harold Koenig* v. *Proper Industries, Inc., doing business as Terry Sue Casuals.*

REISSUES

DECEMBER 29, 1970

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,014
METHOD FOR PRODUCING SINTERED FERROUS ARTICLE

Frank C. Russo, Parma, Ohio, by Ferro Corporation, Cleveland, Ohio, a corporation of Ohio, assignee

No Drawing. Original No. 3,120,699, dated Feb. 11, 1964, Ser. No. 211,116, July 19, 1962. Application for reissue Nov. 25, 1968, Ser. No. 785,826

Int. Cl. B22f *1/00*

U.S. Cl. 29—182.5 **8 Claims**

1. In the method of producing a ferrous metal article by compacting discrete particles of ferrous metal, consisting essentially of a minimum of 95% Fe, into a cohesive shape then sintering same at at least 1950° F., the step of introducing elemental sulphur in intimately admixed relationship with said particles of ferrous metal prior to compaction and sintering, said elemental sulphur capable of reacting exothermally with at least part of said particles of ferrous metal during said sintering, following compaction thereof, to provide an auxiliary source of heat during sintering for incipiently fusing said powdered iron particles together to provide a coherent iron article having superior strength.

27,015
ELECTRONIC KEYBOARD INSTRUMENTS

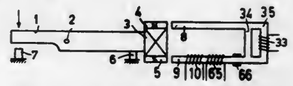
Popko Reinder Dijksterhuis, Yme Bouwinus Folkert Jan Groeneveld, and Thomas Verhey, Baarn, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Original No. 3,231,661, dated Jan. 25, 1966, Ser. No. 206,306, June 29, 1962. Application for reissue Oct. 24, 1966, Ser. No. 597,180

Claims priority, application Netherlands, July 20, 1961, 267,335

Int. Cl. G10h *1/02*

U.S. Cl. 84—1.26 **30 Claims**



An electronic musical instrument employing a key actuated mechanism which produces a control voltage varying in intensity in accordance with the intensity with which the key is struck. The control voltage causes oscillations from tone generators to pass to a speaker in a relationship dependent upon the intensity of key striking.

27,016
ELECTRIC LIMIT SWITCH HAVING A DIAGONALLY DIVIDED HOUSING, A DETACHABLE ACTUATOR, AND MECHANISMS FOR CAUSING SELECTED OPERATION OF A PUSHBUTTON SNAP SWITCH

Rudolf H. Kiessling, Glendale, Wis., and Carl A. Schaefer, Asheville, N.C., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Original No. 3,275,764, dated Sept. 27, 1966, Ser. No. 372,854, June 5, 1964. Application for reissue Oct. 17, 1969, Ser. No. 870,464

Int. Cl. H01h *15/14*

U.S. Cl. 200—47 **18 Claims**

A turret head type electric limit switch which may be of the plug-in or non plug-in type. The switch is provided with a housing that has side walls divided diagonally so that the switch will be oil tight and easy to wire and service. The housing is arranged so that different type turret head operators may be secured thereon and maintaining against movement from any one of a plurality of positions by cooperating bosses and recesses that are formed on the housing for the limit switch and the housing for the turret head operator. The operative connection between the turret head operator is provided by programmable plungers and sliders which are arranged to actuate the snap switch within the housing in response to the actuation of the turret head operator.



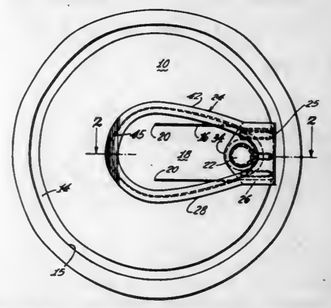
27,017
CAN END WITH FOLDED PULL TAB

Ermal C. Fraze, 355 W. Stroop Road, Dayton, Ohio 45429

Original No. 3,439,833, dated Apr. 22, 1969, Ser. No. 732,475, Apr. 25, 1968, which is a continuation of Ser. No. 528,250, Feb. 17, 1966. Application for reissue Sept. 25, 1969, Ser. No. 877,917

Int. Cl. B65d *17/20, 17/24*

U.S. Cl. 220—54 **32 claims**



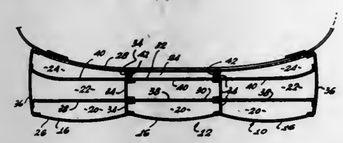
A can top is formed with a tear strip having its leading end directed toward the periphery of the can top and a pull tab for manual severance of the tear strip has a relatively long upper arm to serve as a pull handle and a relatively short arm spaced below the upper arm and connected to the upper arm by a U-shaped bend. The shorter lower arm is rigidly connected to the leading end of the tear strip and is shaped to fulcrum against the tear strip to initiate severance of the tear strip.

PATENTS

GRANTED DECEMBER 29, 1970

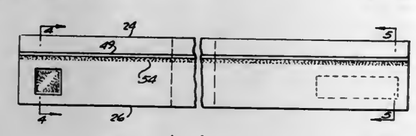
GENERAL AND MECHANICAL

3,550,159
IMPACT-ABSORBENT CELLULAR STRUCTURE
Eugenio Alarco, Malecon Armendariz 211 PH-1-Miraflores, Lima, Peru
Filed Oct. 10, 1968, Ser. No. 766,519
Int. Cl. A41d *13/00*
U.S. Cl. 2—2 9 Claims



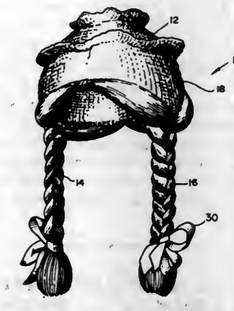
A cellular structure having a plurality of adjacent inflatable cell units, each cell unit being further divided into a plurality of compartments with communicating passages between adjacent compartments. Additionally, communicating passageways are provided between one of the compartments of each cell unit, and corresponding compartments in adjacent cell units. The cellular structure is constructed of a flexible sheet material and inflated slightly to maintain the cellular structure in an expanded condition. When the structure is subjected to an impact, the restricting passages and passageways prevent the immediate equalization of the cell pressures, and the cells resiliently absorb the impact and thereafter start to have their pressures equalized. When the cellular structure is subjected to relatively slow compression or flexing movements, the air within the cell units flows easily from one compartment to another allowing the cellular structure to conform to a desired shape.

3,550,160
CAP CONSTRUCTION
William J. Gruber, 9609 Justin Place, Harrahan, La. 70123
Filed Sept. 19, 1969, Ser. No. 859,404
Int. Cl. A42b *1/02, 1/04*
U.S. Cl. 2—197 10 Claims



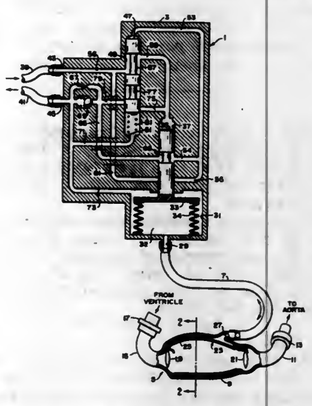
An improved cap construction of the disposable type formed of paper materials or the like, comprising an upper crown and a head band having front and rear panels, a pair of flaps in one panel having opposing free ends telescopically slidable within each other thereby providing means for head-size adjustment, and size locking means which comprises a pressure-sensitive adhesive placed behind an open window near the free end of one of the flaps. When the flaps are interengaged to an adjusted position finger pressure applied to the non-sticky side of the adhesive brings the adhesive on one flap into contact with the other flap for immediate securement thereto. For additional securement, a second pressure-sensitive adhesive mounted on the second flap, opposite the window in the first flap, is provided.

3,550,161
HEADWEAR
Graziella D. Orozco, 15 Hereford St., Boston, Mass. 02115
Filed Dec. 20, 1968, Ser. No. 785,706
Int. Cl. A42b *1/16;* A41g *3/00*
U.S. Cl. 2—198 1 Claim



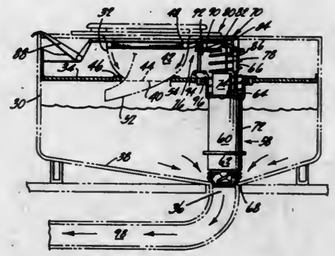
A combination hat and wig is provided for outdoor wear and in its preferred form is comprised of a knit, or the like, head-engaging cap portion around the margins of which are overlapping courses of looped strands, gathered and formed into braids resembling braided hair appearing to originate from under the cap portion.

3,550,162
BLOOD PUMP CONTROL SYSTEM
Fred N. Huffman, Sudbury, Thomas C. Robinson, West Newton, and Sotiris S. Kitrilakis, Newtonville, Mass., assignors to Thermo Electron Corporation, Waltham, Mass., a corporation of Delaware
Filed Feb. 6, 1969, Ser. No. 797,183
Int. Cl. A61f *1/24;* F04b *17/00*
U.S. Cl. 3—1 8 Claims



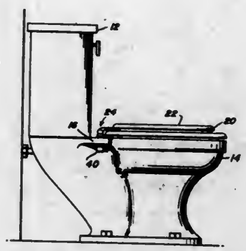
An implantable control system for an implanted blood pump connected between ventricle and aorta to supplement the natural heart, comprising means responsive to ventricular pressure for supplying pumping fluid under pressure to the blood pump at the end of the natural systole to force blood into the aorta, and means responsive to the volume of blood ejected into the pump by the ventricle during each systolic contraction to control the amount of pumping fluid supplied to the pump.

3,550,163
TOILET CONSTRUCTION
Howard W. Jong, Monterey Park, Calif., assignor to McDonnell Douglas Corporation, a corporation of Maryland
Filed Mar. 5, 1969, Ser. No. 804,433
Int. Cl. E03d *1/00, 3/00, 5/00*
U.S. Cl. 4—10 8 Claims



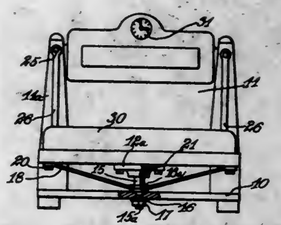
A recirculating, flush-type toilet including a pump-filter assembly and a drain valve secured in a storage container adapted to be drained periodically. The pump-filter assembly and the drain valve are incorporated into a single vertical lift arrangement which provides unrestricted egress of the contents in the storage container when the drain valve is actuated during servicing.

3,550,164
DETACHABLE SEAT TOILET
John W. Pease, 1730 Winchester Drive, Winter Park, Fla. 32789
Filed Apr. 25, 1968, Ser. No. 724,006
Int. Cl. A47k *13/12*
U.S. Cl. 4—236 4 Claims



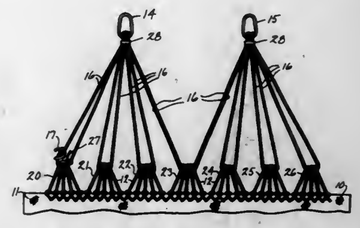
This invention relates to a detachable seat toilet wherein the seat and seat cover for the toilet may be removed by breaking the magnetic attraction of magnetic devices securing the seats to the toilet, and wherein as a further aspect of the invention the magnetic devices themselves serve as pivot means for raising and lowering the toilet seat and cover.

3,550,165
BED WITH RECIPROCABLE HEAD PORTION
Corliss L. Weltner, Rte. 3, P.O. Box 300, Parkersburg, W. Va. 26101
Filed July 24, 1969, Ser. No. 844,363
Int. Cl. E03d *13/00*
U.S. Cl. 5—109 5 Claims



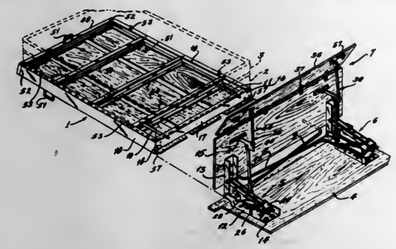
A support for the internal frame of a bed to lend the head portion of the frame lateral reciprocating motion. Such portion is hung on pivoted vertical arms, and drawn from side to side by a power unit under the head end of the bed. The power unit has a worm drive with a side link connected to the head portion of the internal frame. At the foot end of the bed the frame rests on a central ball-joint built in the base of the bedstead. With the device designed for inducing relaxation and sleep, the reciprocating movement by vertical suspension is not necessary at the foot end of the bed, and the device is therefore adaptable to beds having a low board or no board at the foot end.

3,550,166
HAMMOCK-STRINGING METHODS AND ASSEMBLIES
Aaron L. Kotler, Beverly Hills, Calif., assignor to Algoma Net Company, Algoma, Wis., a corporation of Wisconsin
Filed Sept. 24, 1968, Ser. No. 761,937
Int. Cl. A45f *3/22*
U.S. Cl. 5—122 1 Claim



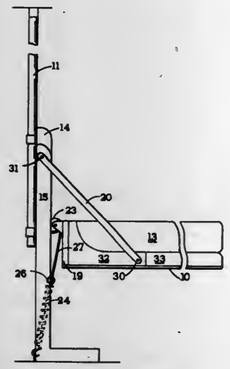
A plurality of stringing loops formed on and across the end of a hammock bed are gathered together in a plurality of spaced groups or sets through which an elongated cord is strung, said cord being inserted through a supporting ring or other cord-engaging element carried by the hammock stand after passing through each of said sets of stringing loops. Thus there is provided a single-cord stringing assembly which results in increased speed and efficiency in the stringing operation, as well as providing a supporting assembly which is self-adjusting to ensure that a weight on the hammock bed is borne uniformly by all of said stringing loops.

3,550,167
WALL BED STRUCTURE
Hilliard D. Bennett, 117 Spencer Drive, Hot Springs, Ark. 71901
Int. Cl. A47 19/06
U.S. Cl. 5—136 17 Claims



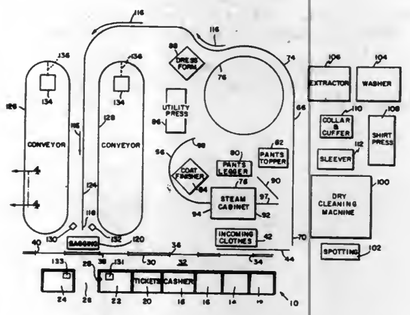
In a wall bed structure including a frame structurally connecting to the floor through a pair of hinge means, said frame adaptable for disposition in either a horizontal, functional position, or in an erect, nonoperative position, the frame includes handle means that further function as spacers for the frame upwardly from the floor when in the functional position, and further includes means for mounting the bedding fixedly to the frame. Each hinge means includes a pivotal member which when turned in one direction urges the frame into the functional position, but when turned in the opposite direction assists in moving the frame into the nonoperative position; and a linkage interconnected between the hinge means and the headboard of the frame providing for a simultaneous pivoting of an upper board member upon the first board member of the headboard while the frame moves between functional and nonoperative positions.

3,550,168
FOLDING BED
Frank W. Woodford, 78 Haley Road, Warwick, R.I. 02889
Filed June 10, 1968, Ser. No. 735,820
Int. Cl. A47c 19/06
U.S. Cl. 5—137 5 Claims



A folding bed that is movable from a vertical storage position to a horizontal position of use and that includes a bed frame that is pivotally connected to a fixed frame structure, a link and spring assembly interconnecting the bed frame to the fixed frame and providing for easy controlled movement of the bed with the bedding in place to and from the storage position and the position of use.

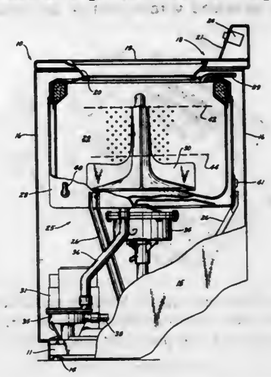
3,550,169
CLEANING AND LAUNDRY SYSTEM AND METHOD
Harry D. Forse, 220 Woods Road, Edgewood Addition, Anderson, Ind. 46011
Filed Mar. 3, 1969, Ser. No. 803,784
Int. Cl. D06f 31/00
U.S. Cl. 8—150 16 Claims



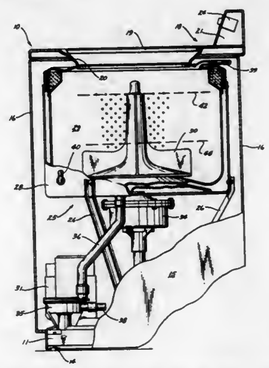
A cleaning system comprising a first conveyor track, a plurality of assembly hooks arranged to be removably mounted on the first track and moved therealong, a clip carried by each of the hooks and arranged releasably to hold a charge ticket, an accumulator track on which finished item are mounted for movement therealong, and a hopper for receiving tagged items to be cleaned and for which such a charge ticket has been made out with a tag on each item or group of items bearing coded indicia corresponding to coded indicia on a particular charge ticket. The first track has an entry end disposed adjacent the hopper and an exit end, the first track extending from the entry end past the accumulator track in close adjacency thereto. Items placed in the hopper can be cleaned using conventional cleaning and finishing apparatus and then placed on conventional hangers on the accumulator track, whereafter an item or a group of items corresponding to a particular charge ticket can be removed from the accumulator track and mounted on the same assembly hook with such a ticket and moved toward the exit end of the track. Preferably, the item processing apparatus are disposed generally between the hopper and the accumulator track. Further, preferably, a conventional, motor-driven, manually controlled, continuous conveyor having, at spaced-apart points therealong, a plurality of hooks or supports with coded indicia means identifying each of the supports and corresponding to the coded inicia on a particular charge ticket and the tag or tags associated with such a ticket is placed so that at least one point on its perimeter is in close adjacency with the exit end of the first track. Thus, finished correspondingly tagged items assembled together on one of the assembly hooks with the charge ticket associated with such items can be placed on the support of the continuous conveyor which is identified by the coded indicia on such a ticket.

3,550,170
METHOD AND APPARATUS FOR FABRIC COOL DOWN
Gordon Jerry Davis, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa, a corporation of Delaware
Filed Sept. 26, 1968, Ser. No. 762,735
Int. Cl. D06f 33/02, 35/00, 23/04
U.S. Cl. 8—158 9 Claims

Operation of a fabric washing apparatus through a liquid cool-down sequence initiated at a predetermined low liquid level under control of a pressure sensing switch and terminated at a predetermined low liquid temperature under control of temperature sensing means is disclosed.



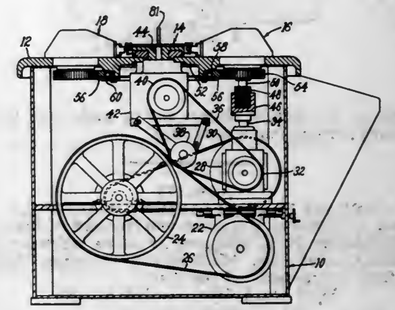
3,550,171
WASHING APPARATUS FOR PERMANENT PRESS FABRICS
Tad B. Anthony and William H. Hunter, Newton, Iowa, assignors to The Maytag Company, Newton, Iowa, a corporation of Delaware
Filed Sept. 26, 1968, Ser. No. 762,707
Int. Cl. D06f 33/02, 35/00, 23/04
U.S. Cl. 8—158 5 Claims



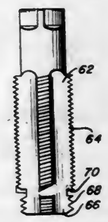
A fabric washing apparatus including control means operable for controlling the washing apparatus through a liquid cool-down sequence initiated at a predetermined low liquid level under control of a pressure sensing switch, maintained through a predetermined period of slow speed fluid extraction, and terminated after a period of agitation.

3,550,172
FASTENER MANUFACTURE
Richard E. Harding, Laconia, N.H., Ralph A. Morrison, Topsfield, Raymond L. Peterson, Beverly Farms, and Edwin P. Smalley, Wenham, Mass., assignors to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed Jan. 3, 1968, Ser. No. 695,472
Int. Cl. B23g 9/00
U.S. Cl. 10—2 8 Claims

A machine for the manufacture of self-locking fasteners which comprises an indexing dial mounted for rotary movement with respect to a plurality of tool bearing work heads movable toward and away from the dial. Timed movement of the work heads is adjustable with respect to the indexing of the dial, and the length of travel of the tools is adjustable during operation of the machine. At least one of the work heads imparts a substantial force to the dial member while performing an operation on the work piece, and structure is provided for distributing the force back into the table structure.



3,550,173
SELF-ALIGNING TAPS
Paul A. Gawlik, Sr., 3601 Monterrey St., Corpus Christi, Tex. 78411
Filed Feb. 13, 1969, Ser. No. 798,867
Int. Cl. B23g 5/06, 5/20
U.S. Cl. 10—140 2 Claims

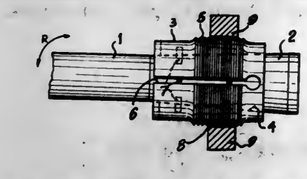


Taps for free-hand tapping of internal threads of any diameter desired to enable inserts to be placed in the internally threaded diameter to return the internal diameter to a predetermined size with the taps being self-aligning and eliminating the necessity of employing guide blocks and the like normally employed during a tapping operation.

3,550,174
METHOD AND RELATED TOOLS FOR COLD FORMING OF INSIDE THREADS AND GROOVES
Gabriel Abuhab, Sao Paulo, Brazil, assignor to Fadispel-Fabricadora de Dispositivos e Pecas Ltda., Sao Paulo, Brazil, a Brazilian industrila and commercial company
Filed Apr. 14, 1967, Ser. No. 630,921
Int. Cl. B23g 7/00, 7/02
U.S. Cl. 10—152 2 Claims

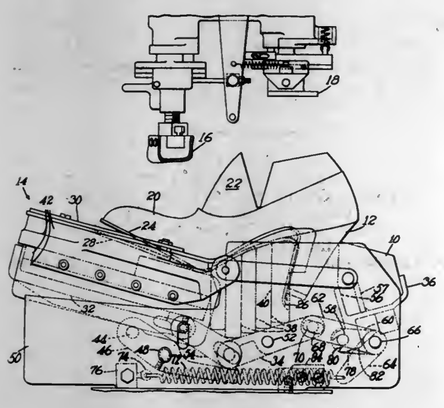
Entire internal threads and grooves are simultaneously cold formed in workpieces by the use of an expansible

cylindrical sleeve or segment chasers. A supporting shaft is provided with conical portions adapted to receive the



sleeve or the segment chasers and to guide their thread-forming portions into a workpiece.

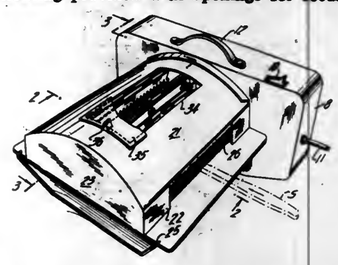
3,550,175
BREAST FLAP ATTACHING MACHINES
Frank V. Downing, Raymond, and Norman A. Bergeron, Manchester, N.H., assignors, by mesne assignments, to Inter-Coastal Shoe Machinery Corporation, Boston, Mass., a corporation of Delaware
Filed Apr. 1, 1969, Ser. No. 812,286
Int. Cl. A43d *63/00, 89/00*
U.S. Cl. 12—16.4 **6 Claims**



A machine for simultaneously applying attaching pressure on the sole and heel breast of cement lasted shoes is provided with a back part heel support responsive to relative movement of sole pad elements and a shoe holding device, the mounting of the heel support being such as to accommodate the heel with increasing back-up pressure as attaching pressure is applied to the sole and heel breast. Relative heightwise movement of the shoe being operated on causes the heel support to be pivoted about an axis widthwise of the shoe and simultaneously moved bodily heightwise thereof against the heel thereby to wrap about the heel back contour in a manner enabling increasing heel breast presure to be uniformly distributed while heel displacement on the shoe bottom is avoided.

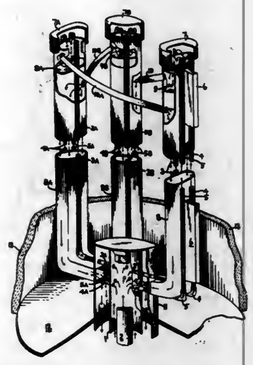
3,550,176
POLISHING MACHINE
Emil De Jesu, 37 Cathedral Ave., Garden City, N.Y. 11530
Filed May 26, 1969, Ser. No. 827,638
Int. Cl. A46b *13/04*
U.S. Cl. 15—21 **11 Claims**

A polishing machine particularly for silverware comprises four rotary brushes arranged in a square pattern with a pair of upper brushes above a like pair of lower brushes. Parallel axes of the brushes are spaced so that the bristles on each brush overlap with the horizontally and vertically adjacent brushes. The brushes are enclosed in a housing provided with openings for feeding silver-



ware between upper and lower brushes and also vertically down between the horizontally disposed brushes. Perforate troughs feed paste polish to the tips of each brush.

3,550,177
APPARATUS FOR REMOVING METAL OXIDE SCALE FROM A REACTOR WALL
Donald E. Darr, Wadsworth, Ohio, Roger S. Leiser, Decatur, Ill., and Clifford E. Loehr, Akron, and Kenneth W. Richardson, Barberton, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
Original application July 2, 1964, Ser. No. 379,825, now Patent No. 3,423,186, dated Jan. 21, 1969. Divided and this application Aug. 15, 1968, Ser. No. 753,014
Int. Cl. B08b *9/08*
U.S. Cl. 15—104.1 **14 Claims**

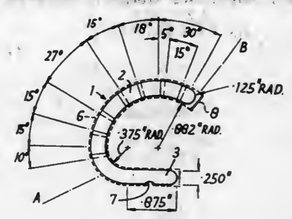


The preparation of metal oxide, e.g., titanium dioxide, by vapor phase oxidation of metal halide, e.g., titanium tetrahalide, is described. Difficulties in maintaining reactor operation because of metal oxide scale buildup within the reactor is discussed. Method and apparatus are proposed for eliminating such difficulties.

3,550,178
SELECTOR SWITCH CLEANER
Peter D. Powell, 3 Maple Road, Boston, Lincolnshire, England, Leonard George Thomas Capon, Southall, and Frederick Leslie Bellinger, Hayes, England; said Capon and said Bellinger assignors to said Powell
Filed Mar. 25, 1968, Ser. No. 715,914
Claims priority, application Great Britain, Mar. 29, 1967, 14,276/67, 14,378/67
Int. Cl. A47l *25/00;* **H01h** *1/60*
U.S. Cl. 15—210 **6 Claims**

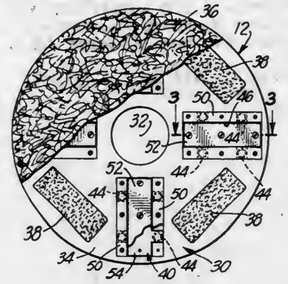
A cleaner for selector switches of the kind having banks of contacts arranged in a circular arc. A novel

cleaning arm is provided for mounting in a novel bobbin which is rotated at the centre of the circular arc, the cleaning arms being thereby drawn between the contacts to clean them. The cleaning arm is a flat, spring strip of



material having a cleaning portion with circular arcuate shape in the plane of the strip, the two faces of the cleaning portion having cleaning areas raised with respect to depressions therebetween, at least the cleaning areas being covered with cleaning material.

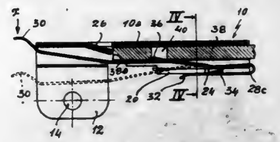
3,550,179
ROTARY WORK HEAD FOR FLOOR CLEANING MACHINES AND THE LIKE
Wayne N. Brown, 1706 Bonnnie Brae, and Milton A. Brown, 1793 N. Claremont Place, both of Pomona, Calif. 91767
Filed Aug. 12, 1968, Ser. No. 751,836
Int. Cl. A47l *11/16, 13/28*
U.S. Cl. 15—230 **8 Claims**



A rotary work head is provided for floor cleaning machines and the like. The work head has a generally disc-shaped body with a central axis of rotation and a front face normal to the axis to which may be secured a flexible work pad, such as a floor cleaning pad. Means, such as pressure pads, are movably mounted within forwardly opening cavities in the front side of the work head and are urged forwardly by springs into contact with the work pad to cause the latter to conform to irregularities in a work surface when the pad is driven in rotation by the work head while disposed in rubbing contact with the surface.

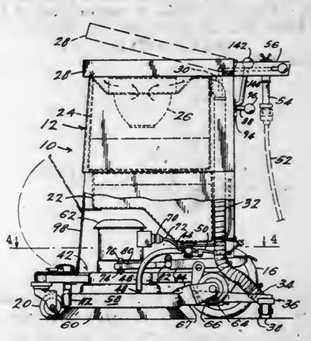
3,550,180
CONNECTOR BETWEEN THE SWINGING SUPPORT AND THE SPATTLE ARM IN A WINDSHIELD WIPER
Dario Arman, Strada Comunale Druento-Venaria, Druento, Torino, Italy
Filed July 8, 1968, Ser. No. 743,095
Claims priority, application Italy, Mar. 15, 1968, 807,923
Int. Cl. B60s *1/40*
U.S. Cl. 15—250.32 **1 Claim**

Novel connecting means between the swinging support and the spattle arm in a windshield wiper are provided, the connecting means consisting of a U-shaped flexible metal strip with anchor teeth to keep one of the extrem-



ities of the strip with the outer terminal of the support, the teeth being engaged with a seat formed therein.

3,550,181
APPARATUS FOR CLEANING FLOORS
Francis D. Dolan and Jack L. Burgoon, Toledo, Ohio, assignors, by mesne assignments, to The Scott & Fetzer Company, Lakewood, Ohio, a corporation of Ohio
Filed Jan. 24, 1968, Ser. No. 700,095
Int. Cl. A47l *11/29*
U.S. Cl. 15—320 **8 Claims**

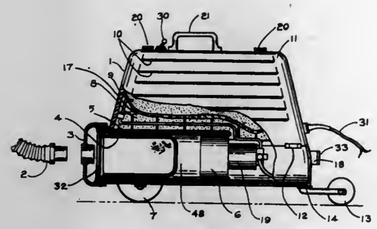


A floor scrubbing machine has improved portability, being lighter and easier to transport up or down stairs. The scrubbing machine is of the type having a rotating scrub brush and a rearwardly-mounted squeegee which, in combination with a vacuum system, removes the solution from the floor after scrubbing is completed by the brush. The rotating brush and its drive mechanism are a separate unit from the rest of the machine and can be separated when it is desired to take the machine up or down stairs to another floor, by way of example. The squeegee unit at the rear of the machine also can be retracted so that the rear wheels can be used to support the machine as it is moved up or down stairs. With this arrangement, a single operator can transport the machine as desired. The motor and drive unit also can be operated with a separate handle as a scrubber or waxer, for example, if desired.

3,550,182
VACUUM CLEANERS
Stanley E. Kivela, Rte. 1, Box 94, Marengo, Wis. 54855
Filed Oct. 30, 1967, Ser. No. 684,094
Int. Cl. A47l *9/00, 9/10*
U.S. Cl. 15—323 **11 Claims**

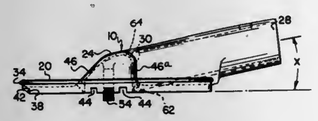
An improved apparatus for filtering the discharge air from a vacuum cleaner and with this, reducing the velocity of the discharging air to where it will not disturb adjacent residual dust or objects. The airstream from the power unit goes into a plenum chamber within the case

of the vacuum clearner. Large area final filters are in operating communication with this plenum. The airstream is



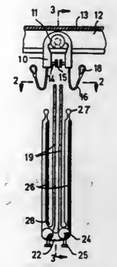
then exhausted into the atmosphere through these large area filters at a relatively low velocity.

3,550,183
CLEANING TOOL FOR VACUUM CLEANER
Lee A. Wolf, Cincinnati, Ohio, assignor to Haley Corporation, Cincinnati, Ohio, a corporation of Ohio
Filed Jan. 11, 1968, Ser. No. 697,048
Int. Cl. A47l 9/06
U.S. Cl. 15—375 **13 Claims**



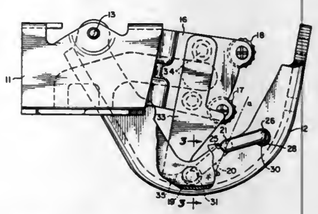
A cleaning tool for use with a vacuum cleaner of, for instance, the canister type, comprising a housing adapted for connection to an operating handle such as an elongated wand, for movement of the housing over the surface, such as a rug, to be cleaned. The housing comprises a generally flat surface-engaging portion and an elongated crowned portion extending upwardly from the surface-engaging portion and defining a suction chamber, with there being an outlet in the crowned portion adapted for communication with the operating handle. A brush is generally centrally mounted in the suction chamber and extends downwardly for engagement with the surface to be cleaned. A plurality of orifices are spaced along the lengthwise extent of the crowned portion of the housing and extend from the exterior of the housing downwardly into communication with the chamber, so as to direct jet inlet air flow diagonally downwardly to impinge against the surface being cleaned for effective jet air scrubbing of the surface and "boiling" of debris upwardly from the surface. The underside of the housing is provided with passageways extending from communication with the suction chamber to the periphery of the tool housing for cleaning out corners or other hard-to-clean areas. The total cross-sectional area of the air intake orifices and passageways in the tool is preferably within a predetermined percentage range of the cross sectional area of the hose at the canister inlet, to ensure optimum suction for the tool while providing for relative ease of movement fo the tool across the surface to be cleaned. The outlet from the suction chamber is defined by a tubular-like portion extending rearwardly from the crown portion of the housing, and which outlet is disposed very close to the surface being cleaned, to materially increase the debris "pick up" ability of the tool.

3,550,184
PLEAT FORMING DEVICE
Wilhelm Hachtel, 6994 Niederstetten, Germany
Filed Sept. 10, 1968, Ser. No. 758,797
Claims priority, application Germany, Sept. 15, 1967, 1,271,923
Int. Cl. E05d 13/02
U.S. Cl. 16—87.2 **11 Claims**



A hanging arm which supports a curtain, drape or the like is connected at its upper region to a hanger which is guided by a curtain rod. An upwardly pointed pleat holding arm extends from the lower region of the hanging arm and is moveably connected thereto.

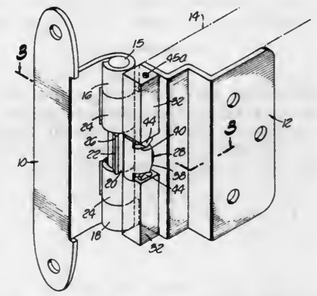
3,550,185
DOOR HINGES WITH COMBINATION HOLD-OPEN, CUSHIONING, AND ASSIST MEANS
Joseph H. Marchione, Rockford, Ill., assignor to Atwood Vacuum Machine Company, Rockford, Ill., a corporation of Illinois
Filed Jan. 21, 1969, Ser. No. 792,358
Int. Cl. E05d 11/10
U.S. Cl. 16—145 **31 Claims**



The hinge has two scalloped rollers as strikers mounted in spaced relation each on a vertical pin for rotation relative to one plate of the hinge, the other plate carrying a vertical torsion bar with one end bent in a semi-circle to provide a laterally extending arm with a substantially vertical detent portion projecting from its outer end, which is supported on the plate independently of the other plate so as to maintain a preload spring tension, the detent portion being disposed in the path of arcuate movement of the striker rollerss and movable relative to the torsion bar by deflection of said arm by said rollers in a direction to increase the spring tension in said bar when said rollers come into engagement with said detent in the door opening and closing movement of the door for a hold-open action in half-open and fully opened position, the scalloped periphery of the rollers causing the detent to drop into a scallop upon each engagement, thereby forcing the roller to turn through a certain angularity in each movement of the rollers past the detent. There is friction means resisting turning of the rollers so that the same scallop is engaged by the detent in each operation in the door opening and closing operation until each roller is turned to a new position. In addition, the same detent,

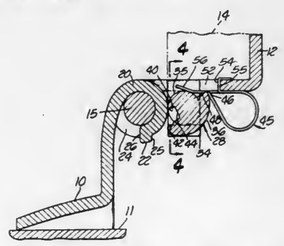
in one form, carries a roller, which, in the closing of the door rides up on a cam for increase over preload tension in the torsion bar for both door cushioning action in the closing and assist action in the opening of the door.

3,550,186
SELF-CLOSING HINGE
Dorian J. Swartz, Yorba Linda, Calif., assignor to Hyer Hardware Mfg. Co., Anaheim, Calif., a corporation of California
Filed Dec. 13, 1968, Ser. No. 783,518
Int. Cl. E05f 1/14
U.S. Cl. 16—180 **15 Claims**



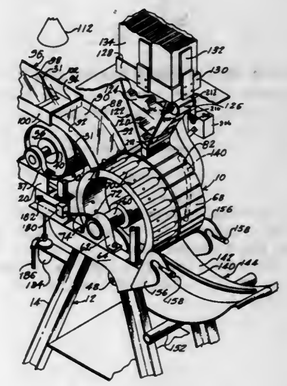
A knuckle of a first stationary hinge leaf has a fixed radial flange to cooperate with an actuator that is carried by the second hinge leaf, the actuator being rotatable about an axis that is fixed relative to the second hinge leaf. The rotary actuator has two spaced confronting peripheral shoulders to cooperate with the fixed flange as the actuator is moved in an orbit by the swinging door. First the two shoulders of the actuator move into position to straddle the flange for initial rotation of the actuator by the flange and then spring force is released to continue the rotation of the actuator with one of the shoulders acting against the flange to boost the swinging movement of the door as it approaches its closed position.

3,550,187
SNAP ACTING HINGE
Dorian J. Swartz, Yorba Linda, Calif., assignor to Hyer Hardware Mfg. Co., Anaheim, Calif., a corporation of California
Filed Dec. 13, 1968, Ser. No. 783,519
Int. Cl. E05f 1/14
U.S. Cl. 16—180 **10 Claims**



A knuckle of a first stationary hinge leaf has a radial projection that serves as a trigger for an actuator that is carried by the second hinge leaf, the actuator being rotatable about an axis that is fixed relative to the second hinge leaf. The swinging of the door towards closed position advances the rotary actuator in an orbit that is divided into three stages. In the first stage the rotary actuator is idle at a starting position. In the second stage the fixed radial projection rotates the orbitally moving actuator and thereby triggers the third stage wherein a bowed leaf spring causes the rotary actuator to act on the stationary hinge leaf to snap the door shut.

3,550,188
APPARATUS FOR CONTINUOUSLY INSERTING INDIVIDUAL RIGID MEMBERS INTO RESPECTIVE INDIVIDUAL SOFT BODIES
Henry G. Howard, Jr., De Kalb County, Lee H. Knight, Jr., Doraville, and Robert L. Morris, Decatur, Ga., assignors to Suzanna's Kitchen, Inc., Doraville, Ga., a corporation of Georgia
Filed Dec. 27, 1967, Ser. No. 693,827
Int. Cl. A22c 17/00
U.S. Cl. 17—1 **18 Claims**



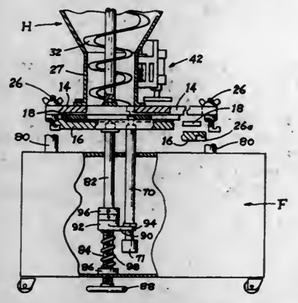
A machine which automatically inserts a stick into a respective weiner to make a weiner-on-a-stick which is sometimes battered with a corn batter and fried into a product known as a "corndog." The machine comprises a conveyor continuously transporting weiners and properly feeding each weiner into a respective depression on a drum which also has a stick depression aligned therewith. There are numerous respective weiner depressions and stick depressions spaced around the periphery of the drum and said depressions constantly are being refilled with a respective weiner and a stick. After the respective weiner and respective stick are fed into the respective depressions in the drum, a camming member forces the stick longitudinally into the weiner and thereafter the assembled stick and weiner are ejected from the drum by means of a small blast of air and ejector.

According to the present method, the weiners are placed in approximately parallel position, then driving pressure is generated on the weiners to assist in proper orientation and maintenance of alignment until a stick is inserted, the weiner is temporarily held in a slot, and a stick is inserted into the weiner by a driving force pushing the stick substantially longitudinally and axially of the weiner to insert the stick therein after which the weiner and assembled stick are collected.

3,550,189
PATTY FORMING MACHINE
Walter E. Lotz, 74 Laureleaf Road, Thornhill, Ontario, Canada
Filed Nov. 18, 1968, Ser. No. 776,380
Int. Cl. A22c 7/00
U.S. Cl. 17—32 **12 Claims**

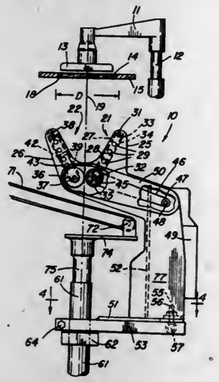
A hamburger forming machine having a continuously rotatable molding plate sandwiched between stationary

clamping plates wherein spaced molds in the molding plate can pass through a pressurized meat-charging chamber provided between the clamping plates for filling the molds therein. After filling, the molds are successively



discharged of their formed hamburgers by a pneumatically operated plunger exterior of the clamping plates; the empty molds then being recycled for recharging as above.

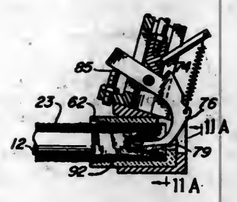
3,550,190
STEAK FOLDER
Louis R. Richards, Mokena, and Henry N. Lekan, Chicago, Ill., assignors to Richards/Lekan Engineering, Mokena, Ill., a partnership
Filed Feb. 19, 1969, Ser. No. 800,668
Int. Cl. A22c 7/00; A47j 43/20
U.S. Cl. 17—32 **9 Claims**



A steak folder comprising two continously driven open-mesh conveyor members arranged in a converging V configuration; the steak is deposited flat on the top of the V and is discharged, folded, from the bight of the V.
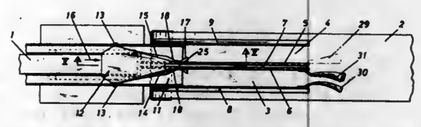
3,550,191
METHOD FOR MAKING SHIRRED CASING ARTICLES
Edward A. Matecki, Evergreen Park, Ill., assignor to Union Carbide Corporation, a corporation of New York
Original application Mar. 2, 1965, Ser. No. 436,584, now Patent No. 3,419,401, dated Dec. 31, 1968. Divided and this application Sept. 3, 1968, Ser. No. 810,043
Int. Cl. A22c 13/00
U.S. Cl. 17—49 **10 Claims**

A hollow shirred meat casing stick having a closure at one end of the casing stick's bore is prepared by a procedure wherein one end of the casing stick is crimped and the crimped casing is inturned about itself and implated in the bore of the stick. The closure is pervious to the pas-



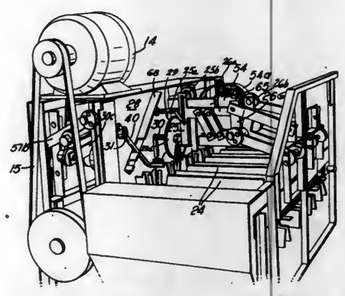
sage of a gas while maintaining its integrity to block the flow of meat emulsion during filling of the casing stick.

3,550,192
DEVICE FOR THE ORIENTATION OF FISHES
Dan Ericksson, Hisingsbacka, Sweden, assignor to Arenco Aktiebolag, Stockholm-Vallingby, Sweden
Filed Nov. 13, 1967, Ser. No. 681,977
Claims priority, application Sweden, Nov. 17, 1966, 15,783/66
Int. Cl. A22c 25/08
U.S. Cl. 17—55 **9 Claims**



A device for turning fishes so that their bellies point in a determined direction, comprising a support surface, on which the fish is conveyed in its longitudinal direction, a conveying surface including a ridge having a narrow top surface and extending in the advancing direction of the fish, guiding means to guide the fish from the support surface to said top surface of said ridge and a movable gripping means adapted to impart to the fish a movement through the guide means and along said top surface of said ridge.

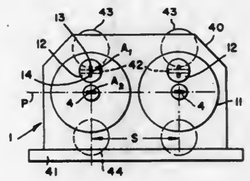
3,550,193
FISH GUTTING MACHINE
James Smith, Berry Farm, Scalloway, Shetland, Scotland
Filed July 12, 1968, Ser. No. 744,364
Int. Cl. A22c 25/14
U.S. Cl. 17—58 **2 Claims**



A fish gutting machine having an endless conveyor formed by a number of troughs into which the fish is placed and two blade mechanisms, one for cutting the fish's throat and the other for slitting the fish's belly

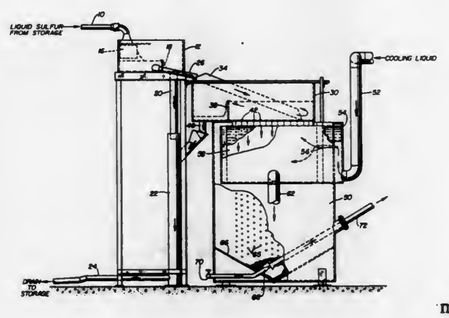
thereby to free the gut automatically, said mechanism being automatically adjustable to accommodate different sizes of fish.

3,550,194
APPARATUS FOR MAKING SLIDE-FASTENER COUPLING ELEMENTS
Alfons Frohlich, Essen, Germany, assignor to Opti-Holding AG., Glarus, Switzerland, a corporation of Switzerland
Continuation-in-part of application Ser. No. 653,421, July 14, 1967. This application Nov. 8, 1968, Ser. No. 783,447
Claims priority, application Germany, Nov. 8, 1967, 1,610,385
Int. Cl. B29c 23/00
U.S. Cl. 18—1 **7 Claims**



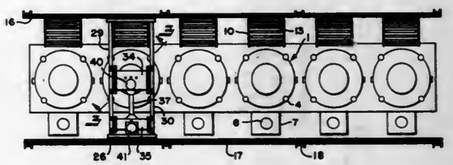
Apparatus for making slide-fastener coupling elements in which a thread-guide bushing is rotated in an orbital movement about a mandrel which is held stationary. The thread-guide bushing has a pair of bores accommodating respective thermoplastic monofilament threads and is retained in predetermined orientation with respect to the mandrel so that each turn of the coil crosses over and under the other thread at least once.

3,550,195
APPARATUS FOR PRILLING SULPHUR
Roy E. Campbell, Midland, Tex., assignor to National Sulphur Company, Midland, Tex., a corporation of Texas
Original application Sept. 17, 1964, Ser. No. 397,076, now Patent No. 3,334,159, dated Aug. 1, 1967. Divided and this application July 21, 1967, Ser. No. 664,585
Int. Cl. B22d 23/08
U.S. Cl. 18—2.7 **1 Claim**



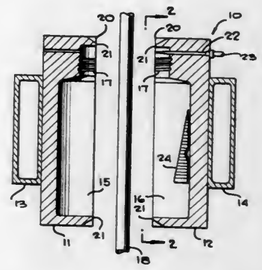
Prilled or substantially spherical sulphur particles are produced in an apparatus which maintains a constant head of molten sulphur at about 320° F. upon a perforated plate. The head of liquid and perforations are such that a continuous stream of sulphur passes into a cooling liquid positioned below the perforated plate such that sulphur particles are formed after submergence therein.

3,550,196
TIRE VULCANIZING APPARATUS
Georges Gazuit, Montlucon, France, assignor, by mesne assignments, to NRM Corporation, a corporation of Ohio
Filed Jan. 30, 1967, Ser. No. 612,391
Int. Cl. B29h 5/08
U.S. Cl. 18—4 **9 Claims**



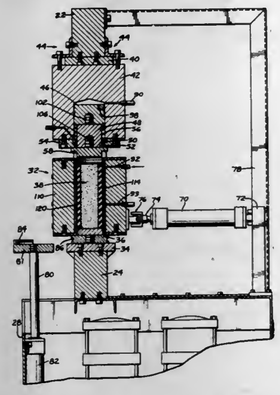
Tire curing apparatus utilizing an arrangement of presses which comprise separable top and bottom mold sections, a frame capable of traversing each of the presses with a carriage mounted on the frame which includes a mechanism for raising and lowering the top mold section and moving such section when raised laterally of the bottom mold section, the cured tire being carried with the top mold section for discharge laterally of the bottom mold section, such mechanism simultaneously with the lateral movement of the top mold section moving a green tire into position to be placed in loading position with respect to the bottom mold section.

3,550,197
MOLDS FOR BLOWING ENGRAVED APPEARING BOTTLES WITHOUT THE USE OF ENGRAVED MOLDS
John L. Szajna, Norridge, and Ronald G. Lump, Des Plaines, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 57,994, Sept. 23, 1960. This application Aug. 17, 1964, Ser. No. 391,068
Int. Cl. B29c 17/07
U.S. Cl. 18—5 **3 Claims**



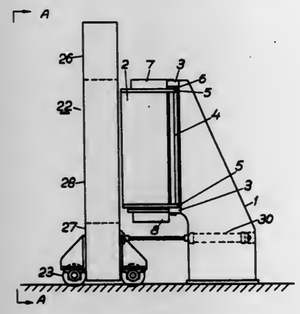
1. An insert for converting a mold having a smooth molding surface to produce articles having an engraved appearing surface, said insert including a plastic base and metallic surface layer on one face of said base, the surface of said metallic surface layer being configurated complementary to the desired molded surface, and an adhesive on the base remote from said metallic surface layer for securing the insert within a mold.

3,550,198
APPARATUS FOR COMPACTING FINELY-GRANULATED MATERIALS
Albert Samuel Roberts, Rector, Pa., assignor to Kennametal Inc., Latrobe, Pa., a corporation of Pennsylvania
Filed Dec. 22, 1967, Ser. No. 699,983
Int. Cl. B30b 5/02, 11/32; B28b 3/00
U.S. Cl. 18—5 21 Claims



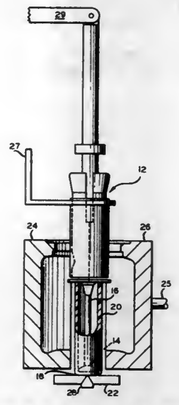
Apparatus for compacting finely granulated material in which the material to be compacted is disposed within a rubber-like sleeve and pressure is developed around the sleeve to exert radial pressure on the material for the compacting thereof while simultaneously axial pressure is developed on the material and in which the axial and radial pressures are relieved simultaneously to prevent fracturing of the compacted workpiece.

3,550,199
PRESS FOR TREATING PRODUCTS UNDER HIGH PRESSURE
Torstein Landa, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed Dec. 5, 1968, Ser. No. 781,543
Claims priority, application Sweden, Dec. 11, 1967, 16,941/67
Int. Cl. B29c 3/00; B30b 11/00; B29g 1/00
U.S. Cl. 18—5 10 Claims



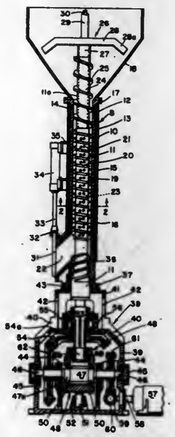
A press stand has upper and lower yokes between which a high pressure cylinder with removable end closures can be inserted when supported by a movable stand. The space between the yokes is slightly greater than the length of the cylinder when the end closures are fully inserted.

3,550,200
GROOVED TAMPING FOOT FOR SEALING AND STRETCHING OPEN END PARISON
Dixie E. Gilbert, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 13, 1968, Ser. No. 783,606
Int. Cl. B29c 5/06
U.S. Cl. 18—5 8 Claims



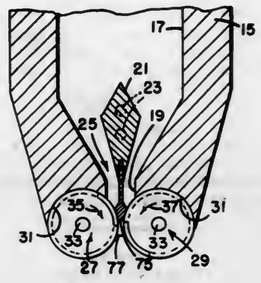
An open end parison preform is pinched shut and a grooved tamping foot is pressed against the sealed off area from the inside. Preferably the periphery of the tamping foot is formed with a radius of 1/64 to 1/16 of an inch with the upper portions sloping back toward the shaft at an angle of 15 to 45° included angle to the bottom face of the tamping foot.

3,550,201
VERTICAL MIXER, KNEADER AND REACTOR FOR PLASTIC MATERIALS AND THE LIKE
William D. Chapman, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich., a corporation of New York
Filed Jan. 22, 1968, Ser. No. 699,494
Int. Cl. B29f 3/02
U.S. Cl. 18—12 9 Claims



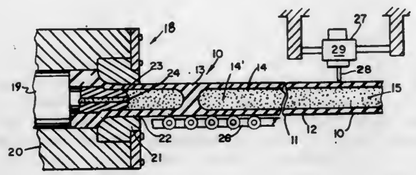
A mixer having a generally vertically disposed barrel defining a vertically extending chamber in which a generally vertically disposed mixer shaft is mounted for rotation and reciprocation, a hopper for supplying material to the upper end of the chamber, and interrupted helical flights provided on the shaft to cooperate with radially inwardly projecting, stationary lugs on the barrel.

3,550,202
APPARATUS FOR EXTRUDING WOVEN NET-LIKE STRUCTURES
Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Original application Oct. 24, 1967, Ser. No. 677,603. Divided and this application Nov. 10, 1969, Ser. No. 875,128
Int. Cl. B29f 3/04
U.S. Cl. 18—12 18 Claims



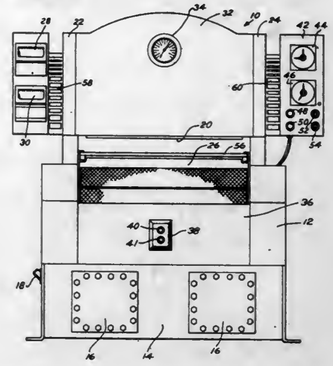
Apparatus for making woven webs or net-like structures by extrusion.

3,550,203
APPARATUS FOR ELECTRICAL CABLE
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Continuation-in-part of application Ser. No. 142,405, Oct. 2, 1961. This application Jan. 21, 1969, Ser. No. 792,725
Int. Cl. B29f 3/014
U.S. Cl. 18—13 8 Claims



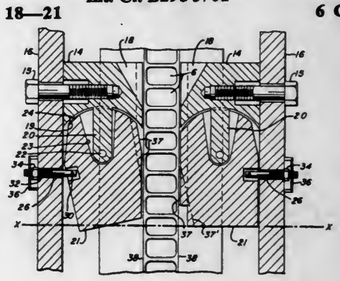
This invention relates to an apparatus and method for producing a composite extrusion such as an electrical cable made of continuously fed material such as extruded sodium or other metal, an electrolyte or other fluent conducting material which is contained or encapsulated in a plastic sheaving and to improved structures in the conductors so formed. In one form, solid portions of the filled extrusion separate hollow portions thereof and may be cut through during the fabrication of the cable or after spooling same at the side of its use without spilling or exposing the core conductor. The invention is also concerned with the fabrication of other composite extrusions containing preformed core members and with different means for supporting said core members within the extrusion.

3,550,204
DIMENSIONAL CONTROL SYSTEM
Robert C. Fink, Chicago, Ill., assignor to Ostrander-Seymour Co., Melrose Park, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 448,148, Apr. 14, 1965. This application June 26, 1968, Ser. No. 740,283
Int. Cl. B30b 5/18
U.S. Cl. 18—16 11 Claims



A dimensional control system which utilizes a pair of pneumatic orifices which are bored in the movable platen of a press. These orifices are constantly fed pneumatic pressure and the variation in the pressure (in the instant case when the orifices are restricted so as to prevent the further flow of air through them) is read by a gauge which is designed to convert pneumatic signals to electrical signals. The intelligence received by the gauge is then transmitted through appropriate solid state circuitry to drive an electric motor to open or close a discharge valve which bleeds hydraulic fluid off of the pumping system. The operation is such that when the orifices are restricted (closed) the discharge valve, after a pre-set delay, is opened to bleed off sufficient hydraulic fluid from the pumping system to allow the platen to back off a pre-set percentage and to then hold that established pressure until the end of the article forming cycle.

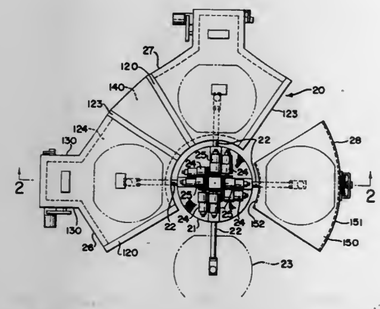
3,550,205
CHEEK PLATE FOR BRIQUETTING APPARATUS
James R. Guseman, North Huntingdon, and Donald E. Rohaus, Monroeville, Pa., assignors to United States Steel Corporation, a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,040
Int. Cl. B29c 3/02
U.S. Cl. 18—21 6 Claims



An improved cheek plate for use in enclosing the space between the rolls of apparatus for briquetting granular material, such as iron ore fines. The cheek pate has a

lower section pivotally connected to a fixed upper section. As the surface on the lower section exposed to the iron ore wears away, the lower section can be pivoted to plug the gap left by the worn surface.

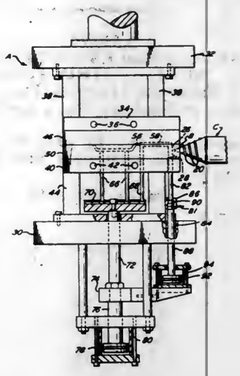
3,550,206
ROTATIONAL CASTING APPARATUS
Elmer J. von der Heide, Hudson, Ohio, assignor to Fabricators, Inc., Ravenna, Ohio, a corporation of Ohio
Filed Apr. 11, 1968, Ser. No. 720,700
Int. Cl. B29c 5/04
U.S. Cl. 18—26 19 Claims



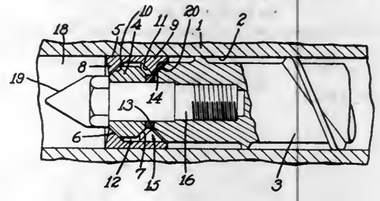
A machine and method for rotationally molding or casting thermoplastic or thermosetting resinous compositions. The machine includes a rotatable turret on which at least one mold-rotating spindle and a pair of motor drives therefor are mounted as a removable unit with the spindle projecting radially outwardly from the turret. The spindle includes means for removably mounting a pair of molds on the outer end thereof for simultaneous rotation about a pair of perpendicular axes at the same or different speeds as determined by the speeds of the motor drives, which are independently variable. The turret has provision for mounting additional spindle and motor drive units thereon with equi-angular spacing of the spindles about the turret to satisfy varying output and/or process requirements. The machine further includes treating stations through which the molds on the spindle or spindles are successively indexed. The number, type, and location of the treating stations may be varied to suit a number of different molding processes. Inert gas may be fed into each mold cavity, and maintained therein at a predetermined positive pressure during any predetermined portion of the mold processing cycle after loading and closing the molds and until they are to be opened for removal of the molded or cast article. Separate ovens with independent temperature controls may be provided at successive stations. Cooling at a cooling station is two stage, first with a wet steam spray and second with a liquid coolant spray.

3,550,207
SPRUE BUSHING PURGE PORT FOR INJECTION MOLDING MACHINE
William Strauss, Huntingdon Valley, Pa., assignor to Pennwalt Corporation, a corporation of Pennsylvania
Filed Oct. 15, 1968, Ser. No. 767,692
Int. Cl. B29f 1/00
U.S. Cl. 18—30 8 Claims

A sprue bushing for an injection molding machine in which a valve-actuated purge port is incorporated in spaced disposition with the sprue orifice. When the port is closed, a shot of plastic material may be injected under full pressure into the mold cavities. After the cavities have been charged, the valve is opened allowing the cushion of material in the nozzle in front of the injection screw to escape and drool from the port.



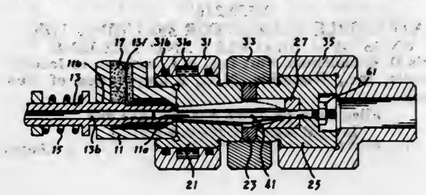
3,550,208
PLASTICATOR SCREWS HAVING NON-RETURN VALVE MEANS
Colin Peters, Bramley, England, assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed Dec. 27, 1967, Ser. No. 693,855
Claims priority, application Great Britain, Jan. 4, 1967, 424/67
Int. Cl. B29f 1/04
U.S. Cl. 18—30 5 Claims



An injection molding machine plasticator having a non-return valve comprising a valve core member attached to the leading end of the plasticator screw, a valve ring member slidably located in the barrel of the plasticator and axially displaceable relative to the valve core member, the ring member having at its leading end an inwardly directed annular flange with a rear face engageable with the valve core member, the ring member having at its other end a second inwardly projecting abutment for engagement with a corresponding part of the valve core member.

3,550,209
APPARATUS FOR MOLDING ARTICLES
David A. Carpenter, Parkton, Md., assignor to AAI Corporation, Cockeysville, Md., a corporation of Maryland
Filed Dec. 26, 1967, Ser. No. 693,572
Int. Cl. B29c 1/00
U.S. Cl. 18—34 9 Claims

A molding apparatus is disclosed for molding segmented articles such as sabots, in which apparatus a core is employed having radially extending blades arranged to contact the mold cavity in various zones thereby providing for formation of open slots between segments and to be out of contact in other zones, thereby to provide for formation of annular ring sections integral with the segments of the sabot. The core has a tang engageable within a bore in a flow-control valve member coaxial with the core, the melt charge being injected into the mold cavity coaxial with the core, core tang, and core blades.



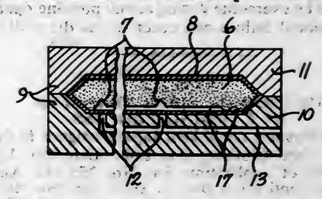
3,550,210
APPARATUS FOR MOLDING ARTICLES
Irwin R. Barr, Lutherville, Md., assignor to AAI Corporation, Cockeysville, Md., a corporation of Maryland
Filed Dec. 26, 1967, Ser. No. 693,573
Int. Cl. B29c 1/00
U.S. Cl. 18—34 7 Claims



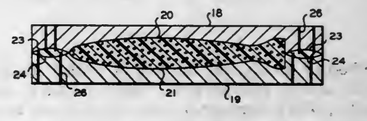
A molding arrangement is disclosed for molding tubular shaped articles or articles having a bore extending therethrough. The arrangement includes a mold unit having a cavity formed therein, and a core removably extending through the center of the cavity, with a core tang extending within an axially movable valve rod which is concentric with the core and core tang and with the injection nozzle in which it moves. The core tang seals the valve rod bore preparatory to injection, and provides a ring shaped gate opening through which the settable liquid charge may be injected into the mold cavity. This axial concentric ring injection prevents formation of longitudinal weld lines, and the core tang and this method of injection also prevent formation of a flash sheet across the desired central opening defined by the core.

3,550,211
APPARATUS FOR MOLDING A MATERIAL TO PREVENT PLUGGING OF VENT HOLES IN THE DIE
Hans-Carl Enderlein, Holsterhauser Strasse 29, Essen, Germany
Original application Jan. 13, 1966, Ser. No. 520,437, now Patent No. 3,439,081. Divided and this application Sept. 23, 1968, Ser. No. 761,516
Int. Cl. B29c 1/00
U.S. Cl. 18—34 4 Claims

A pair of molds which allow a molding material of comminuted wood fiber and resin to be heated and compressed to form a final shape and not clog vent holes in the finish mold. The first mold compresses the molding material into a blank and has projections which form recesses in the blank. The second mold heats and compresses the blank into the finished product. This die has vent holes which are aligned with the recesses in the blank.

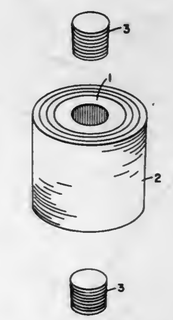


3,550,212
FOAM MOLD APPARATUS AND RECOVERY OF SCRAP MATERIAL
Lew T. Gray, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 5, 1968, Ser. No. 781,377
Int. Cl. B29d 27/04; B29c 5/00
U.S. Cl. 18—39 4 Claims



Articles are formed by stamping or compression molding of foamed thermoplastic material. The mold is provided with one or more auxiliary cavities surrounding the main mold cavity to receive excess thermoplastic material. These auxiliary cavities are of such size as to densify the scrap material when the mold is closed. Vent means are provided to permit the escape of gas from the crushed foam.

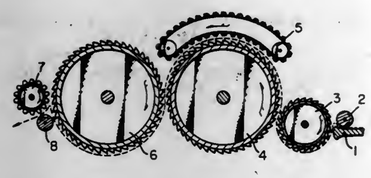
3,550,213
HIGH STRENGTH HOT-PRESS DIE
Phillip A. Ormsby, Huntsville, and Ethbert C. Thompson III, Redstone Arsenal, Ala., assignors to the United States of America as represented by the Secretary of the Army
Filed Dec. 31, 1968, Ser. No. 789,040
Int. Cl. B29c 1/02
U.S. Cl. 18—47 6 Claims



A high strength hot-press die composed of a conventional graphite inner die encased by a filament wound high strength graphite fiber. The high strength graphite fiber is filament wound on the conventional graphite inner die, and by the use of polymeric binders that will convert to carbon or graphite during bake out cycles, the fibers can

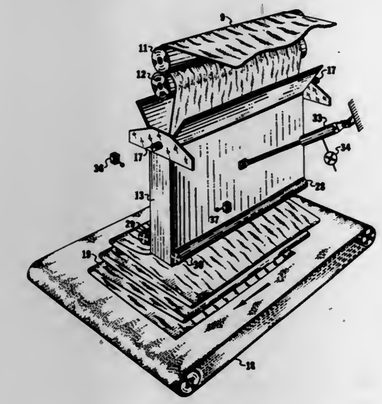
be wrapped with sufficient tension to induce a compressional load into the inner die wall. This prestress condition will have to be overcome during actual pressing operations before tensional failure can occur in the die wall.

3,550,214
METHOD OF FIBER TRANSFER IN CARDING PROCESS
Morilchi Watanabe, Aichi-ken, Japan, assignor to Nagoya Metallic Card Clothing Co., Ltd., Aichi-ken, Japan
Continuation of application Ser. No. 755,183, Aug. 26, 1968. This application Dec. 3, 1969, Ser. No. 880,463
Claims priority, application Japan, Sept. 1, 1967, 42/55,777
Int. Cl. D01g 15/02
U.S. Cl. 19—98 2 Claims



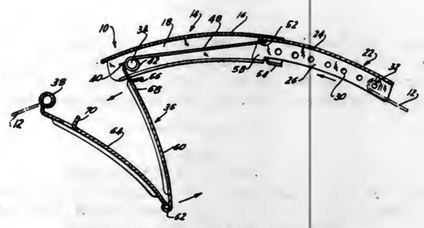
Method of transferring the web of carded staple fibers from the carding cylinder to the doffer surface by rotating the doffer, which is mounted with metallic wire, at a position close to the circumference of the rotating carding cylinder which is carrying the web of carried and paralleled staple fibers, characterized in that the doffer is rotated with a surface speed greater than that of the carding cylinder, whereby transferring the web of staple fibers on the cylinder surface to the doffer surface, while carding the said staple fibers.

3,550,215
CROSS LAPPING APPARATUS AND PROCESS
David W. Trott, Charlottesville, Va., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 18, 1968, Ser. No. 698,842
Int. Cl. D04h 11/04
U.S. Cl. 19—163 3 Claims



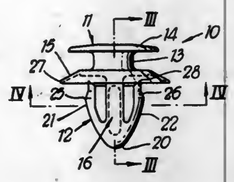
A method of producing a nonwoven batting from a lightweight web of continuous filaments by cross lapping the lightweight web and an apparatus for cross lapping such lightweight webs at increased speeds, efficiencies and uniformity.

3,550,216
EXTENDIBLE BUCKLE FOR SECURING THE ENDS OF A BRACELET AND THE LIKE
Morris D. Gandleman, Fort Lee, N.J., assignor to Jacoby-Bender, Inc., Woodside, N.Y., a corporation of New York
Filed June 13, 1969, Ser. No. 833,094
Int. Cl. A43c 11/00; A44c 5/18
U.S. Cl. 24—71 8 Claims



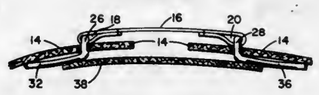
A buckle for operatively securing the ends of a bracelet and the like comprises a housing having a pin extending between its side walls. A slide member is received in that housing and is slidable between a retracted position close to the pin and an extended position remote from the pin. A bracelet securing member has a mounting portion disposed about the pin but leaves a portion of that pin exposed. A spring is disposed about that exposed portion of the pin, has its free end operatively secured to the slidable member and is thus effective to urge the slidable member to its retracted position within the housing when the buckle is closed.

3,550,217
FASTENER
Robert C. Collyer, Harefield, England, assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed July 8, 1968, Ser. No. 743,129
Claims priority, application Great Britain, July 19, 1967, 33,099/67
Int. Cl. F16b 19/00
U.S. Cl. 24—73 6 Claims



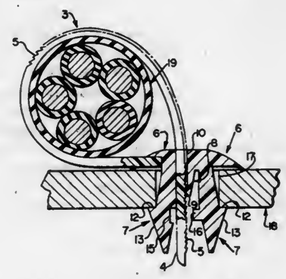
The invention relates to a synthetic plastics fastener for attachment to an apertured workpiece and comprises a head for abutment against the outer surface of the workpiece and a shank for snap-engagement through the aperture. The shank comprises a central lengthwise extending member and two lengthwise extending flanges which are joined to opposite sides of the central member by flexible webs which act as hinges rendering the flanges collapsible in a radial sense, the flanges terminating short of the head thereby increasing the range of hinging movement of the upper ends of the flanges.

3,550,218
SHOE FASTENER
Fred Melvin Woolner, Shrewsbury, Mass., assignor to New England Planning Service Corporation, Boston, Mass., a corporation of Massachusetts
Filed Sept. 20, 1968, Ser. No. 761,033
Int. Cl. A44b 21/00
U.S. Cl. 24—73 1 Claim



A shoe fastener comprising an elastic band disposed between two fastening members which are constructed for insertion into shoe eyelets. The fastening members comprise bases with legs protruding therefrom, each leg having a right angle bend whereby the leg lies flat after insertion into a shoe eyelet.

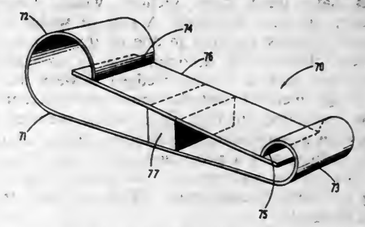
3,550,219
WIRING FASTENER
Harold S. van Buren, Jr., Lexington, Mass., assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed Sept. 20, 1968, Ser. No. 761,059
Int. Cl. A44b 21/00
U.S. Cl. 24—73 3 Claims



A one-piece, molded platsic device for securing a cable to an apertured supporting structure includes a resilient bushing adapted for snap seating in the supporting structure and a flexible strap having one end integral with the bushing and a free end which is adapted to be looped over the cable and threaded through the seated bushing. The bushing carries an integral, internal pawl and the strap has a plurality of ratchet teeth formed in its outer surface whereby the strap is tightened about the cable responsive to the interengagement of the pawl and a selected tooth on the strap.

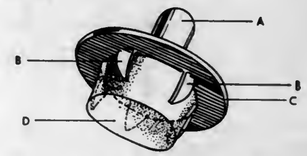
3,550,220
FASTENING MEANS
Paul J. Cormier, 1 Josselyn Place, Newton Highlands, Mass. 02161
Continuation-in-part of application Ser. No. 658,521, Aug. 4, 1967. This application Apr. 16, 1969, Ser. No. 816,530
Int. Cl. A44b 21/00
U.S. Cl. 24—81 5 Claims

A fastening means is provided having a strip with overturned ends and a backer member extending under said ends whereby clamp means are formed at either end of the fastening means. In this embodiment, a dual purpose fastening means is provided useful for at least two



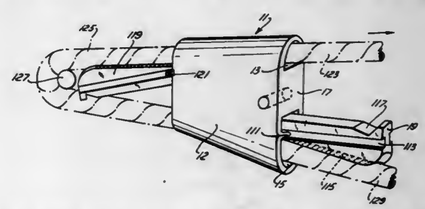
different size stacks of sheets or other materials to be clamped.

3,550,221
DEVICE FOR ATTACHING TO THE MILITARY UNIFORM ALL DECORATION
Alvin E. Thorn, Mountain Lake, Minn. (157 Garvey Drive, Springfield, Mass. 01109)
Filed June 10, 1968, Ser. No. 736,942
Int. Cl. A44b 1/18
U.S. Cl. 24—90 1 Claim



A fastening device to hold items worn on clothing, which items are fastened by means of a pin or nail-like projection projecting therefrom. The fastening device comprising of a hollow cylindrical barrel extending upward from a ring portion which ring portion consists of a number of prongs which prongs in addition to holding a neoprene piece thereto, also exert pressure upon the neoprene piece. The hollow cylindrical barrel, after penetrating the cloth to which the fastener is to be affixed, is riveted, insuring the fastening device as a permanent part of the cloth or clothing. Forceable penetration of the neoprene by the pins of the item to be worn, insures a positive attachment due to the natural resistive characteristic of neoprene in addition to the forces applied to the neoprene by the aforesaid prongs.

3,550,222
LOCKING DEVICE
Julius Pfandl, Irdning, Austria, assignor to Afrocommerce S.A., Ennetbaden, Switzerland
Filed Sept. 9, 1968, Ser. No. 758,312
Claims priority, application Switzerland, May 28, 1968, 7,900/68
Int. Cl. F16g 11/04
U.S. Cl. 24—126 7 Claims



A locking device for cables and the like includes a housing which is provided with two opposite ends and formed with two open-ended channels extending between these ends and having axes inclined towards one another

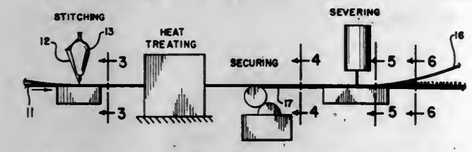
in direction from one to the other of these ends. Inner circumferential walls bound these channels the latter of which have inner cross sections which converge in mutually opposite directions. A pair of wedge members are each slidably received in one of these channels with sufficient clearance to accommodate an elongated flexible element such as a cable wedged between the respective wedge member and the inner circumferential wall of the associated channel. Each wedge member is provided with a longitudinally extending groove and an exterior surface, and a projection on the housing extends into this groove and prevents the wedge member from being accidentally completely withdrawn from the associated channel.

3,550,223

SEPARABLE FASTENING DEVICE AND METHOD OF MAKING SAME

George H. Erb, Cuttingsville, Vt., assignor to American Velcro Corporation, Manchester, N.H., a corporation of New Hampshire

Filed Dec. 22, 1967, Ser. No. 692,931
Int. Cl. A44b *21/00*; D05c *15/00*
U.S. Cl. 24—204 23 Claims



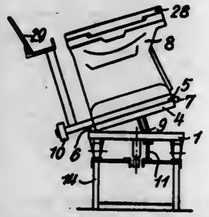
A fastening device comprising two members each having an engaging surface provided with a very large number of hooking elements of the hook and loop type, the members being joinable by pressing the surfaces together, the joined members being resistant to separating forces generally parallel to the interface plane, and being readily separable by peeling forces applied substantially normal to the plane, and a method of making the device comprising the steps of stitching rows of threads into a base sheet, thereby forming the hooking elements into loops on the front surface of the sheet and under-stitches on the rear surface, maintaining the loops in a generally upright position, and securing the stitched threads to the rear surface, the hooks being formed by the further step of severing loops or removing a segment of the loop thread.

3,550,224

APPARATUS FOR MOLDING CERAMIC ARTICLES

Erwin Gram, Wilhelmsburg, Peter Kastl, St. Polten, and Josef Schretzmayer, Wilhelmsburg, Austria, assignors to Ospag, Osterreichische Sanitar-Keramik- und Porzellan-Industrie Aktiengesellschaft, Vienna, Austria

Filed Apr. 30, 1968, Ser. No. 725,438
Claims priority, application Austria, July 7, 1967, A 6,368/67
Int. Cl. B28b *1/26*
U.S. Cl. 25—29 4 Claims



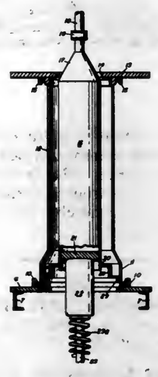
Apparatus for molding ceramic articles, such as toilet bowls and the like, embodying improved means for tilting the mold while being transported by a carriage in order to remove all excess slip from the mold after the latter has been drained by removal of a bottom plug.

3,550,225

CONCRETE PIPE MOLDING ASSEMBLY

Burton D. Smith, 1014 Hilton St., Monroe, La. 71201

Filed Mar. 1, 1968, Ser. No. 709,616
Int. Cl. B28b *21/16*
U.S. Cl. 25—30 10 Claims



A concrete pipe molding assembly having vertically disposed, coaxial, outer and inner forms, spaced to provide an annular pipe-forming area there-between. The inner form or core is vertically slidable in the outer form and has associated therewithin a detached, underlying vibrator which, in the operation of the assembly, is urged into contact with an abutment on the inner form to consolidate the concrete mix fed to the space between the forms. Means are provided for slidably retracting the inner form after the mix has been consolidated to the required extent, and an adjustable stop is adapted to halt the upward movement of the vibrator and limit its contact with the inner form just before the inner form rises out of the bell ring of the outer form. After retraction of the inner form, the outer form is removed, leaving the formed pipe on the curing floor.

3,550,226

METHOD OF WEAVING TERRY-LIKE FABRIC

Alexander Pachmann, Bahnstrasse 13, Lohhof, near Munich, Germany

No Drawing. Filed June 3, 1968, Ser. No. 733,766
Claims priority, application Germany, June 2, 1967, A 55,878; Aug. 9, 1967, A 56,461; Nov. 28, 1967, A 57,507
Int. Cl. D06c *1/00*; D03d *27/00, 27/08*
U.S. Cl. 28—76 13 Claims

Method of weaving terry-like fabric wherein the warps are essentially non-elastic and are maintained under the same tension and the wefts contain at least some elastic crimp yarns which are stretched during weaving to the limit of their elastic extensibility, the fabric during weaving is maintained correspondingly wide, and the fabric is then washed if necessary.

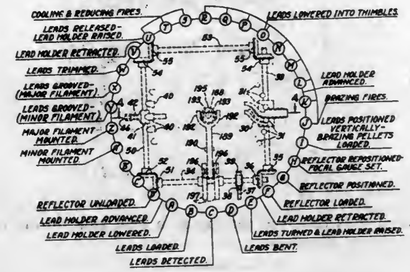
3,550,227

LAMP MOUNT MAKING APPARATUS

Russell V. Weigel, Mentor, and Zoltan W. Miklos, University Heights, Ohio, assignors to General Electric Company, a corporation of New York

Filed Nov. 4, 1968, Ser. No. 773,003
Int. Cl. H01j *9/06, 9/10, 9/46*
U.S. Cl. 29—25.19 10 Claims

A machine for forming a filament mount structure on the glass reflector sections of projector type electric incandescent lamps comprises an indexing carrier having a series of heads thereon each comprising a holder for supporting a reflector section and a movable carriage for holding a plurality of lead-in conductors so as to project therefrom, the carriage being movable into operative relation to means at certain of the work stations of the machine for reshaping and repositioning the projecting ends of the lead-in conductors held in the carriage and then securing them in metal thimbles on the reflector section,



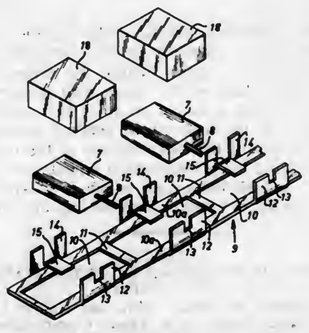
each of the heads also having an adjustable reference surface for adjustment to a predetermined height position relative to the height of the focal plane of each individual reflector section supported in the head, and mount forming mechanisms at succeeding work stations of the machine movable into engagement with the so adjusted reference surface of each head for mounting a filament on the free ends of the secured lead-in conductors on the reflector section in predetermined relation to the optical focus thereof.

3,550,228

METHOD OF ASSEMBLING LEADS TO AN ELECTRICAL COMPONENT AND POTTING SAME

Jean-Claude Asscher, 28 Rue Lauriston, Paris 16eme, France

Filed Aug. 6, 1968, Ser. No. 750,630
Claims priority, application France, Nov. 29, 1967, 130,093; Mar. 29, 1968, 3,486; Apr. 16, 1968, 3,493
Int. Cl. H01g *13/00*; H01b *13/00*
U.S. Cl. 29—25.42 6 Claims



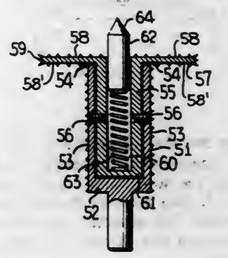
An electrical or electronic component with two electrodes to which connecting leads are attached. The component is provided with a flat face to which are attached two separate plates. These are in electrical contact with respective electrodes but are electrically insulated from each other. The method of construction is to fix the component's electrodes to metal parts of a common support, cover that assembly with a cap, turn it over and fill the cap with a plastic material, and then cut off parts of the support to leave two separate metal plates exposed at the surface of the plastic material.

3,550,229

RASP AND METHOD FOR ITS MANUFACTURE

Carl Zenses, Duppelstrasse 58, Remscheid-Haddenbach, Germany

Filed Nov. 9, 1967, Ser. No. 681,704
Claims priority, application Germany, Nov. 24, 1966, Z 12,546; Jan. 17, 1967, Z 12,649
Int. Cl. B23d *71/00, 1/12*; B23b *51/04*
U.S. Cl. 29—78 5 Claims



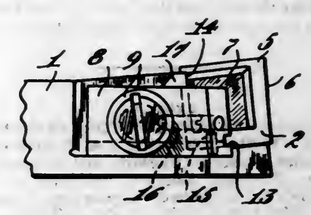
There is provided a rasp in the form of a cylindriform rasp body open at one end and closed at its other end with a shaft projecting from the closed end and adapting the rasp for mounting on a driving motor, rasp cutting serrations being angularly disposed on the end surface of the cylindrical wall at the open end of the body. The body may have thereon a flange-like widening at the open end of the body and equipped with rasp cutting media and this widening may be integral or formed on an insert mountable in the hollow of the body, or the rasp optionally may include a spring projected centering plunger in the hollow of the insert, or it may include a spiral drill projecting axially a predetermined distance beyond the open end of the body and forming an integral part of the mounting shaft.

3,550,230

CUTTING TOOL WITH CHIP BREAKER

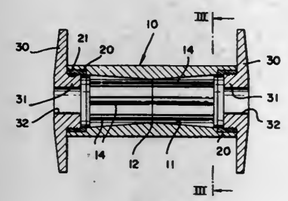
Harold F. Armstrong, Milford, and George L. Huppe, Manchester, N.H., assignors to The O.K. Tool Company Inc., Milford, N.H., a corporation of New Hampshire

Filed Aug. 21, 1968, Ser. No. 754,395
Int. Cl. B26d *1/00*
U.S. Cl. 29—96 3 Claims



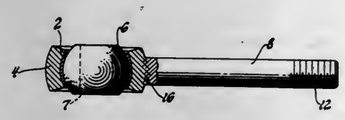
A tool comprising a bit having cutting edges meeting at a corner, a chip breaker and means for adjusting the breaker transversely of each edge.

3,550,231
FLANGED ROLLER
Dieter Rosenkranz, Wuppertal-Barmen, and Kurt Görgen, Neviges, Germany, assignors to Firma Hacoba-Textilmaschinen G.m.b.H., Wuppertal-Barmen, Germany, a corporation of Germany
Filed Mar. 21, 1969, Ser. No. 809,155
Claims priority, application Germany, Mar. 29, 1968, 1,760,067
Int. Cl. B21b *31/00*
U.S. Cl. 29—123 **7 Claims**



A hollow roller member of generally constant outside diameter has a progressively decreasing wall thickness as measured from the longitudinal roll center towards each end thereof. A ring member having externally disposed, radially projecting elements is embedded within the roller body at each end thereof. A roll end flange is secured to each ring.

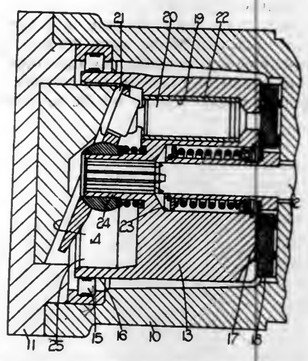
3,550,232
METHOD FOR MAKING ROD END BEARING
Frank Burnett, Costa Mesa, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed May 10, 1968, Ser. No. 728,160
Int. Cl. B23p *11/00;* **B23k** *31/02*
U.S. Cl. 29—149.5 **7 Claims**



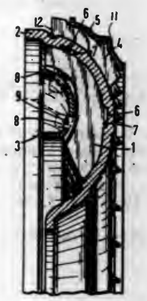
In accordance with the invention a low friction lined spherical rod-end bearing is manufactured by bending into conformity with an inner spherical bearing element, an outer bearing element which surrounds the inner element and which has a low friction liner in sliding contact with the inner element, and then welding a pre-formed rod member to the outer surface of the outer bearing element.

3,550,233
METHODS OF MAKING ROTORS FOR PISTON TYPE HYDRAULIC PUMPS AND MOTORS
Alfred Moffatt Rubery, Ormskirk, and Kenneth Arthur Harrison, Formby, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England
Filed May 8, 1968, Ser. No. 727,641
Int. Cl. B23p *15/00*
U.S. Cl. 29—156.4 **3 Claims**

A pump or motor rotor is constructed by forming the bores, inserting liners in the bores, machining them and then machining and hardening an external cylindrical bearing surface and finally forming a recess at the end of the rotor to space the bore ends from the surface, with the material thus removed serving as a heat sink during the hardening of the surface.



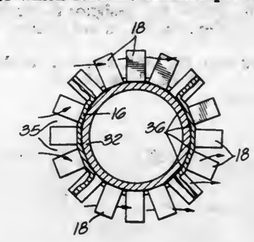
3,550,234
METHOD OF ASSEMBLING A WHEEL HAVING VANES
Werner Herold, Schweinfurt, Germany, assignor to Fichtel & Sachs Aktiengesellschaft, Schweinfurt, Germany
Filed Apr. 2, 1968, Ser. No. 718,122
Claims priority, application Germany, Apr. 7, 1967, F 52,099
Int. Cl. B21k *3/04*
U.S. Cl. 29—156.8 **8 Claims**



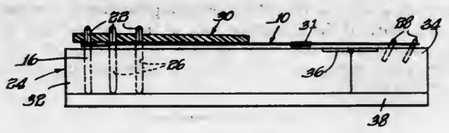
The outer and inner shells of the impeller in a hydraulic transmission element are pre-assembled with the interposed vanes by copper-plating the vanes, engaging a first group of lugs on the vanes with recesses on the outer shell, passing a second group of lugs on the vanes through slots in the inner shell, bending the projecting lug portions toward the inner surface of the inner shell, and then placing the pre-assembled impeller in a furnace hot enough to melt the copper which is drawn by capillarity into the narrow spaces between lugs and shells.

3,550,235
METHOD OF MAKING A HEAT EXCHANGER FIN TUBING
Hyrum T. Jarvis, Whittier, Calif., and Robert C. Boose, Pryor, Okla., assignors to Escoa Corporation, Pryor, Okla., a corporation of Oklahoma
Filed May 15, 1968, Ser. No. 736,912
Int. Cl. B21d *53/02*
U.S. Cl. 29—157.3 **6 Claims**

Fin style tubing for heat exchangers wherein a channel-shaped cooling fin is formed by first serrating the blank-stock strip on both lateral edges and then progressively feeding the serrated stock longitudinally through a series of roller dies which fold the serrated portions to form a U-shaped fin and then spiral wrapping the fin on a tube and welding it thereto.

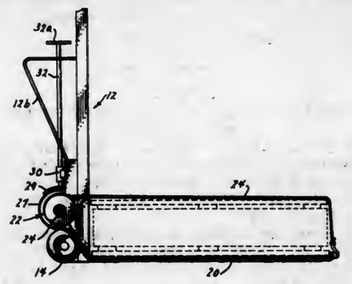


3,550,236
PIANO STRINGING METHOD
Werner M. Lienert, Elgin, Ill., assignor to The Wurlitzer Company, Chicago, Ill., a corporation of Delaware
Filed Dec. 16, 1968, Ser. No. 783,971
Int. Cl. B29d *17/00;* **B23p** *17/00*
U.S. Cl. 29—169.5 **6 Claims**



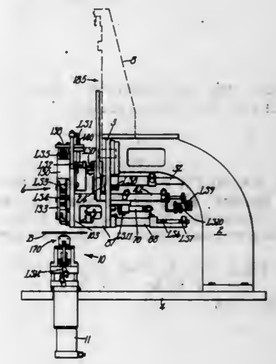
A method of installing piano strings comprises the provision of an orienting fixture having apertures sized to receive tuning pins and configured in a pattern simulating a region of the tuning pi-receiving portion of a piano string plate. A carrier is assembled to the exposed upper ends of the tuning pins of preassembled string-pin units after the same have been inserted in the orienting fixture, and then the carrier and string-pin units are separated from the fixture. Subsequently, the oriented tuning pins are installed in a piano string plate in continuation of their assembly with the carrier.

3,550,237
APPARATUS FOR OPENING BALED SPRINGS
Hendrix W. Metzger, Boonville, Ind., assignor to Metzger Construction Co., Inc., Boonville, Ind., a corporation of Indiana
Filed Apr. 19, 1968, Ser. No. 722,659
Int. Cl. B23p *19/02, 19/04*
U.S. Cl. 29—200 **9 Claims**



A portable apparatus for opening baled springs, such as innersprings, box springs or the like, typically characterized by combined cables and chains encircling the baled springs in a wrapped relationship, and brake means for selectively releasing the aforesaid cables and chains, and, hence, the springs, after the bale has been broken from its shipped condition.

3,550,238
MULTI-LEAD COMPONENT INSERTER
Melvin K. Allen, Los Angeles, Ole Gunst, Topanga, and Arthur H. Lambert, Los Angeles, Calif., assignors to USM Corporation, Boston, Mass., a corporation of New Jersey
Filed Mar. 28, 1968, Ser. No. 716,727
Int. Cl. H05k *13/04, 13/00*
U.S. Cl. 29—203 **8 Claims**

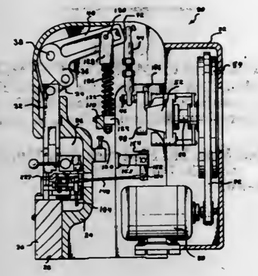


A machine for precision mounting of components having a plurality of leads. The machine includes a means to transfer the components, one at a time, from a commercially available package of these components through a plurality of zones where the leads will be oriented with respect to their component bodies for subsequent insertion. The machine is then able to accurately and precisely insert the leads of each group simultaneously into preformed holes in a receiving means such as a printed circuit board. The machine automatically feeds the components one at a time, properly orients and positions each of the leads, inserts the leads into their respective receiving holes and then secures the component in its proper position, clinching the leads to effect proper electrical connection on the underside of the receiving circuit board.

3,550,239
TERMINAL APPLICATOR HAVING MEANS FOR SEPARATING DIES
George William Rider, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 13, 1968, Ser. No. 759,578
Int. Cl. H01r *43/04;* **B21d** *11/04, 31/02*
U.S. Cl. 29—203 **6 Claims**

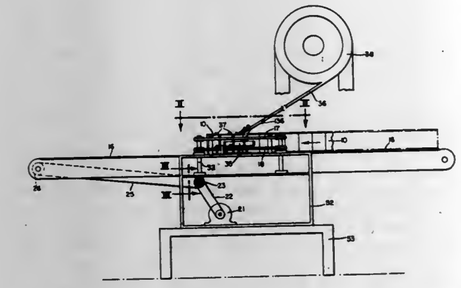
Terminal applicator for applying terminals to wires has fixed crimping die and movable crimping die. Movable die is connected by a lost motion coupling to the ram of a press and is resiliently biased, with respect to the ram, towards the fixed die. Means are provided for manually raising the movable die, when the movable die is at the upper limit of its stroke, against the force of the biasing spring in the lost motion connection thereby to permit servicing or changing of the terminal strip or

belt in the applicator. Raising of the movable die also has the effect of raising a guide plate which extends over



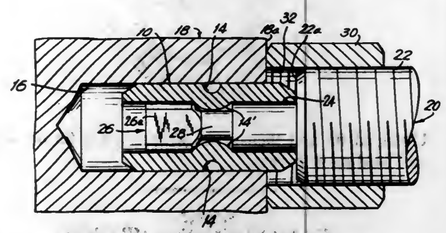
the terminal strip and opening a switch to de-energize the control circuitry for the press.

3,550,240
CAN NECK PLACING APPARATUS
Lloyd J. Bresley, King of Prussia, Pa., and Edwin H. Sharp, Clementon, N.J., assignors to R. M. Hollingshead Corporation, Camden, N.J., a corporation of New Jersey
Filed Sept. 4, 1968, Ser. No. 757,351
Int. Cl. B23g 7/10; B23p 19/04
U.S. Cl. 29—208 **9 Claims**
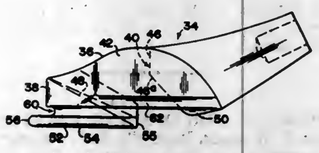


In a can-making line, means are disclosed for automatically placing fitments (such as screw necks, beaded necks, and other fitments of this general type) on the flanged open throat of the partially completed can. The necks (or other fitments) are supplied to the placing position by gravity feed down an inclined chute, the lowermost neck being retained at the mouth of the chute in suspended over-hanging inclined position by spring-loaded retaining fingers. Cam means operative in timed relation with the movement of the cans in the conveyor line are provided for raising the mouth or discharge end of the chute to raise the suspended over-hanging inclined neck above the upstanding rim at the leading edge of the can and for then lowering the chute to allow the suspended neck to be engaged and pulled out from the chute by the leading edge of the throat flange. Thereafter, the mouth of the chute is again raised to allow the next neck (which has now dropped into over-hanging suspended position) to clear the rim at the trailing edge of the can and also the rim at the leading edge of the next can in the line.

3,550,241
SPRING PIN EXTRACTION MEANS
Joseph P. Villo, Rydal, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa., a corporation of Pennsylvania
Filed Sept. 26, 1968, Ser. No. 762,909
Int. Cl. B23p 19/08
U.S. Cl. 29—229 **6 Claims**



For the removal of a spring pin from a blind hole, an internal protrusion in the spring pin and an extraction tool having a shank shaped to be inserted past the protrusion and, after rotation of the shank, to engage the protrusion, and a nut threadedly engaging the larger diameter main body of the extraction tool so that the nut may be screwed against the outer surface of the member into which the spring pin is inserted to withdraw the spring pin into the nut.

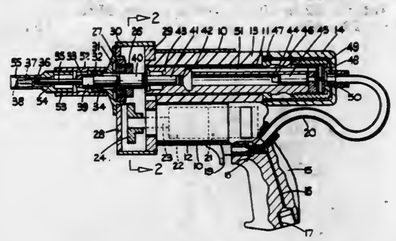
3,550,242
LOCK STRIP INSERTING TOOL
John Thomas Sarvay, Lakewood, Cuyahoga, and John A. Dallen, Port Clinton, Ottawa, Ohio, assignors to The Standard Products Company, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 11, 1968, Ser. No. 712,205
Int. Cl. B23p 19/02
U.S. Cl. 29—235 **10 Claims**



A lock strip inserting tool for gasket installation having an aperture in the tool head through which the lock strip is fed. A wedging shoe on the lower surface of the tool head separates the walls of the groove in the gasket and a heel on the tool head presses the strip into the gasket. The tool may be used either manually or with an electric or pneumatic power source.

3,550,243
METHOD AND TOOL FOR DRIVING SELF-TAPPING SCREWS
Robert Trevor Allsop, "Pinetrees," Beechlawn Drive, Stourton, near Stourbridge, Worcester, England
Continuation-in-part of application Ser. No. 678,944, Oct. 30, 1967. This application June 19, 1968, Ser. No. 738,222
Claims priority, application Great Britain, June 23, 1967, 28,981/67, 28,982/67; Oct. 7, 1967, 45,977/67
Int. Cl. B23p 19/06; B25d 9/04; B23f 3/00
U.S. Cl. 29—240 **9 Claims**

A method of driving a self-tapping screw having a piercing point into sheet metal in which the power-operated tool applies rotary torque simultaneously with vibratory impacting to the screw to cause it to pierce its own pilot hole in the workpiece and also tap its way into the workpiece. The power-operated tool has a motor for rotating a screwdriver bit and an impacting device which includes a reciprocating piston which delivers a rapid

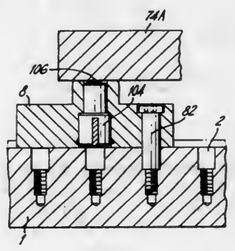


series of impacts to the screwdriver bit simultaneously with the screwdriver bit being rotated by the motor. The tool may have embodied therein a control device which operates to relieve the screwdriver bit of the vibratory impacting after a predetermined period.

3,550,244
METHOD OF MAKING CODED DOWEL PINS
Joseph P. Villo, Rydal, and William Utzy, Hatboro, Pa., assignors to Standard Pressed Steel Co., Jenkintown, Pa., a corporation of Pennsylvania
Filed July 11, 1967, Ser. No. 652,584
Int. Cl. B23q 17/00
U.S. Cl. 29—407 **1 Claim**

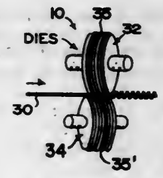
A dowel pin color coded to allow for a visual determination of the true diameter of the dowel and a method for coding dowel pins wherein a selected color, corresponding to a predetermined code and indicative of the true diameter of the dowel, is placed on an end of the dowel.

3,550,245
METHOD OF SECURING OR POSITIONING WORKPIECES FOR MACHINING OPERATIONS
Peter Grant Davis, London, England, assignor to The Molins Machine Company Limited, London, England, a corporation of Great Britain
Filed Apr. 4, 1968, Ser. No. 718,750
Claims priority, application Great Britain, Apr. 14, 1967, 17,248/67
Int. Cl. B23q 17/00
U.S. Cl. 29—407 **7 Claims**



A workpiece to be machined on opposite faces is subjected to a first machining operation whilst secured to a pallet carrying diamond tipped marking devices which mark the workpiece nominally along the axis of inversion. The workpiece is then released from the pallet, the deviation between the actual and nominal positions of the diamond tips is measured by microscope, and the workpiece is inverted and resecured to the pallet in accurate position achieved by locating the marks, with a mirror image correction applied for the measured deviation, relative to the pallet by microscope.

3,550,246
ROTARY WORM LANCE DIE AND METHOD FOR MAKING CONTINUOUS WINDLACE CORE STRIP
Robert A. Zoller, Bay Village, Ohio, assignor to The Standard Products Company, Cleveland, Ohio, a corporation of Ohio
Filed Sept. 27, 1967, Ser. No. 671,086
Int. Cl. B23p 17/00
U.S. Cl. 29—413 **8 Claims**

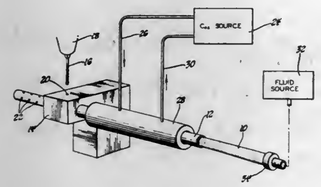


This disclosure pertains to the art of making continuous weather stripping or decorative trimming strip commonly used in the automobile industry. Strip material of this nature is made by applying a covering layer such as plastic onto a flexible steel core, sometimes referred to as windlacing. The steel core or windlacing has a series of transverse, articulated ribs joined at the ends by parallel marginal edges. The windlacing provides a surface on which to secure the plastic covering layer while giving body and shape to the strip in whatever form it may be subsequently used. In particular, the disclosure is of a pair of rotary lancing dies for making continuous windlace core strip wherein each die member is rotatable on a skewed axis with respect to the direction of strip movement and at least one die member has a square helical thread fashioned on its surface which is traced by the other die member cutting through the strip from the opposite side thereby forming the transverse ribs while continuously advancing the strip in the direction of divergence of the die axes.

3,550,247
METHOD FOR PRODUCING A METAL COMPOSITE
Lee Stanley Evans, Rugby, and Peter Ernest Morgan, Coventry, England, assignors to Courtaulds Limited, London, England, a British company
No Drawing. Filed Jan. 31, 1968, Ser. No. 701,835
Claims priority, application Great Britain, Feb. 2, 1967, 5,105/67
Int. Cl. B23p 17/00
U.S. Cl. 29—419 **8 Claims**

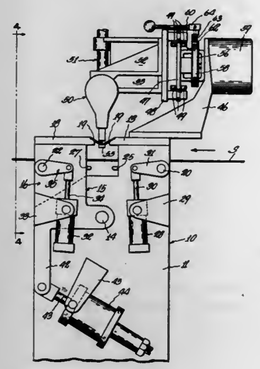
Carbon filaments are coated with a metal by electrodeposition, electroless plating or chemical plating. Preferably the carbon filaments are subjected to an oxidising treatment under strong oxidising conditions before being coated with the metal. Metal coated filaments are incorporated in the metal matrix by electroforming, powder technology techniques, casting or by subjecting the coated filaments to a combination of heat and pressure to coalesce them into a composite material.

3,550,248
METHOD OF PERFORATING TUBES
William L. Fretz, Souderton, Pa., assignor to Teleflex Incorporated, North Wales, Pa., a corporation of Delaware
Filed Mar. 29, 1968, Ser. No. 717,204
Int. Cl. B21d *53/12*; B23p *15/16, 17/00*
U.S. Cl. 29—423 13 Claims



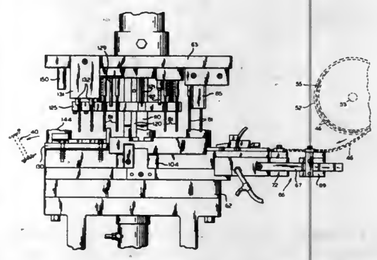
In a preferred form, the present invention relates to a method of forming apertures in the periphery of a flexible, hollow member by means of lowering the temperature of a fluid introduced into the hollow member and the hollow member itself to a predetermined point to obtain a desired rigidity to support a machining operation and then drilling or cutting apertures in the wall of the rigidified hollow member. The hollow member is also supported externally to maintain a desired dimension during the temperature changes by a fixturing device engaging the outside surface of the hollow member in the area where the temperature change takes place.

3,550,249
STRIP CUTTING AND JOINING APPARATUS
Charles H. Davis, Danville, Ill., assignor to The McKay Machine Company, Youngstown, Ohio
Filed May 14, 1968, Ser. No. 728,991
Int. Cl. B23k *37/04*
U.S. Cl. 29—428 14 Claims



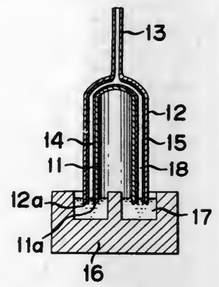
Method and apparatus for transversely severing and joining sheet-like material, such as metal strip, by clamping the material in position, severing the material with a self-contained cutting device of the type which removes small sections in rapid succession from the material, disposing the severed edges of the material to be joined in juxtaposition, and traversing the juxtapositioned material edges with a welding device which effects progressive joinder thereof.

3,550,250
MACHINE FOR APPLYING TERMINALS TO BOBBINS
Joseph J. Cervenka, 428 E. Crescent, Elmhurst, Ill. 60126, and Marvin E. Hetzel, 177 Michaux Road, Riverside, Ill. 60546
Filed Feb. 28, 1968, Ser. No. 709,109
Int. Cl. B23p *19/00*; H05k *13/04*; H01r *43/00*
U.S. Cl. 29—429 12 Claims



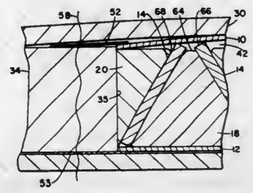
A machine for receiving a continuous strip of terminal sets and bobbins for successively mounting a set of terminals on each bobbin, wherein the machine includes means indexing the strip through a plurality of work stations and for handling the separation of the terminals from the strip, together with a holder for receiving the bobbin and inserting the bobbin onto a set of terminals, and the means staking the terminals to the bobbin.

3,550,251
METHOD FOR MANUFACTURING A HEAT INSULATING VESSEL
Eizo Goto, Chigasaki-shi, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed Aug. 7, 1968, Ser. No. 750,814
Claims priority, application Japan, Aug. 11, 1967, 42/51,397
Int. Cl. B21d *39/00*; B23p *19/04*
U.S. Cl. 29—455 2 Claims



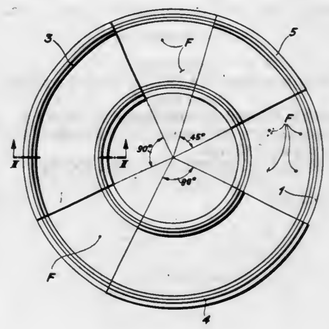
A method for manufacturing a double-walled heat insulating vessel, wherein an inner cylindrical wall member open at one end and an outer cylindrical wall member similarly open at one end and of a larger size than the former member are so arranged as to keep the open ends thereof in substantially the same plane, the open ends are dipped as so positioned in a bath of molten vitreous composition, and after removal therefrom, both wall members are bonded together in an airtight manner with the vitreous material deposited and solidified at the open ends thereof.

3,550,252
ROLL DIFFUSION BONDING METHOD
Charles E. Conn, Jr., Manhattan Beach, and Robert P. Neumann, Torrance, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware
Original application Dec. 28, 1966, Ser. No. 605,419, now Patent No. 3,444,608, dated May 20, 1969. Divided and this application Jan. 27, 1969, Ser. No. 801,912
Int. Cl. B23k *1/20*
U.S. Cl. 29—470.9 2 Claims



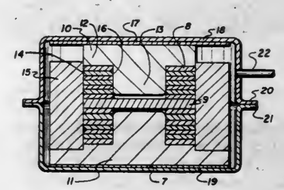
A method of diffusion bonding where workpiece components are arranged within a steel retort having side portions and contacting cover portions by placing an interlayer of thin sheet material having poor diffusion bonding properties with steel, such as titanium foil, between the confronting surface portions of the side and cover portions and thereafter closing the retort and applying heat and pressure to diffusion bond the workpiece components. The bonded article is then removed from the retort by cutting through the side and cover portions along a plane passing through the interlayer of thin sheet material.

3,550,253
PROCESS FOR MANUFACTURING PIPE BENDS FROM CAST METALLIC MATERIAL AND A PIPE BEND
Karl Frey, Rumikon-Raterschen, Zurich, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland, a corporation of Switzerland
Filed Jan. 18, 1968, Ser. No. 698,751
Claims priority, application Switzerland, Jan. 23, 1967, 955/67
Int. Cl. B23k *31/02*
U.S. Cl. 29—471.1 2 Claims



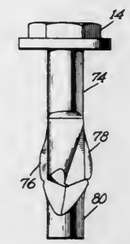
A semi-toroidal dish of casting material is cast and, after non-destructive testing, sectors of unflawed material are cut out. Sectors of equal angle are then placed on each other and welded together to form a pipe bend. The plane of bisection of the dish is at a right angle to the rotational axis of the torus.

3,550,254
METHOD AND MEANS FOR SOLID STATE JOINDER
Harold J. Greenspan, Los Angeles, and Louis F. Ecker, Beverly Hills, Calif., assignors to North American Rockwell Corporation
Filed Apr. 5, 1968, Ser. No. 719,182
Int. Cl. B23k *5/22, 31/02*
U.S. Cl. 29—493 11 Claims



Solid-state bonding of separate workpiece elements is accomplished by placing such elements within constraining tooling masses with the elements in contact at those areas where joinder is desired. The stated areas are in non-parallel planes, such as vertical, horizontal or angular. The tooling masses and materials are selected and positioned to apply pressure across the joint areas due to thermal effects on the dimensions of the masses.

3,550,255
METHOD OF MAKING ROTARY THREADED FASTENERS
Edwin J. Skierski, Riverside, Conn., assignor to Parker-Kalon Corporation, Clifton, N.J., a corporation of Delaware
Continuation-in-part of application Ser. No. 579,036, Sept. 13, 1966. This application July 5, 1968, Ser. No. 742,736
Int. Cl. B23p *13/04*
U.S. Cl. 29—557 2 Claims

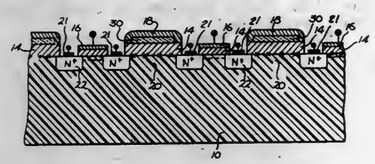


A method of manufacturing a self drilling and thread forming screw comprising annealing a screw blank, punching a pilot end on the leading end of said screw blank by means of dies which form flutes in said leading end, and simultaneously forming threads on the screw blank and removing excess material resulting from the punching step from the pilot end by means of finishing dies.

3,550,256
CONTROL OF SURFACE INVERSION OF P- AND N-TYPE SILICON USING DENSE DIELECTRICS

Bruce E. Deal, Palo Alto, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware

Filed Dec. 21, 1967, Ser. No. 692,490
Int. Cl. B01j *17/00*; H01g *13/00*
U.S. Cl. 29—571 11 Claims

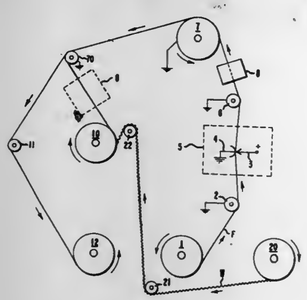


A method and device is disclosed wherein the density of fast surface states is controlled. This is accomplished by depositing a thin layer of dense dielectric (e.g., silicon nitride, silicon monoxide or silicon carbide) over selected areas of a silicon oxide surface. The device is then thermally treated thereby reducing the density of fast surface states in areas that do not have a dielectric coating. Areas under the dielectric coating have a high density of fast surface states. The control of the density of the fast surface states enables the control and prevention of a formation of inversion layers.

3,550,257
APPARATUS AND METHOD FOR FABRICATING A FILTER UNIT

Robert Glenn Brown, Burton Nathaniel Derick, Jon Ovitt Stanley, and John Mauldin Watkins, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Original application Mar. 26, 1965, Ser. No. 443,040, now Patent No. 3,487,610, dated Jan. 6, 1970. Divided and this application Apr. 16, 1969, Ser. No. 839,111
Int. Cl. H01s *4/00*
U.S. Cl. 29—592 2 Claims

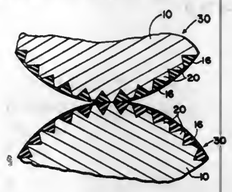


A high efficiency gas filter unit for separating charged and uncharged fine particles together with a manufacturing arrangement therefor. The filter unit does not require a separate power supply and comprises laminated structures of similar polymeric films each having an exceptionally high and stable positive electrostatic charge at one side thereof and a corresponding negative charge at the other.

3,550,258
METHOD OF MANUFACTURING A ROLLER

John W. Odlorne, Lynn, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Original application June 23, 1967, Ser. No. 648,500, now Patent No. 3,447,221, dated June 3, 1969. Divided and this application Aug. 27, 1968, Ser. No. 755,696
Int. Cl. B23p *17/00*, *25/00*
U.S. Cl. 29—527.2 5 Claims

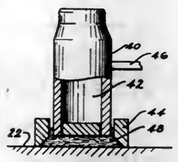


A method of manufacturing a roller, having a high coefficient of friction and a precisely controlled diameter by covering a knurled metal core with an elastomer and grinding the periphery to uncover the peaks of the knurling and recess them beneath the surface of the elastomer.

3,550,259
NIPPLE OR NOZZLE BUILDUP BY THE ELECTROSLAG CONSUMABLE NOZZLE TECHNIQUE

Joseph W. Smith, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware

Filed Apr. 4, 1968, Ser. No. 718,807
Int. Cl. B23k *19/00*
U.S. Cl. 29—527.6 4 Claims

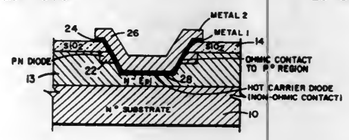


A method of providing nipples or nozzles on headers or drums by building up a metal deposit within a mold placed on the header or drum, the mold being in the general configuration of a nipple or nozzle. The weld metal is deposited within the mold by the electroslag consumable nozzle welding technique; and upon removal of the mold, the deposit is machined to its desired final shape.

3,550,260
METHOD FOR MAKING A HOT CARRIER PN-DIODE

Jack L. Saltich, Scottsdale, and James L. Rutledge, Tempe, Ariz., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Dec. 26, 1968, Ser. No. 787,024
Int. Cl. H01l *5/02*, *7/00*
U.S. Cl. 29—576 13 Claims

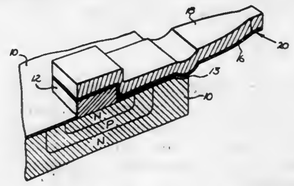


Disclosed is a Schottky barrier or hot carrier diode and process for making same wherein a diffused PN junction and a Schottky barrier junction are both formed in a body of semiconductor material. The diffused PN junction is formed by first diffusing an impurity through an opening in a diffusion mask and into one surface of the semiconductor body to form PN junction. Next, a large central portion of the region formed by the above diffusion is removed by etching or cutting, leaving unaffected by the etchant only that portion of the diffused region underlying and adjacent to the diffusion mask on the surface of the semiconductor body. The latter portion of the diffused region forms a relatively small area diffused PN junction. Finally, a Schottky barrier junction is formed in the etched out area of the semiconductor body, and the diode including the diffused and Schottky barrier junctions has a near-ideal current-voltage characteristic and still maintains its fast recovery time.

3,550,261
METHOD OF BONDING AND AN ELECTRICAL CONTACT CONSTRUCTION

Jon M. Schroeder, Palm Beach Gardens, Fla., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware

Filed Nov. 13, 1967, Ser. No. 682,193
Int. Cl. B01j *17/00*; H01l *7/66*
U.S. Cl. 29—583 7 Claims

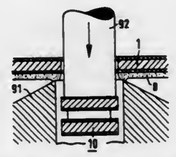


A method is disclosed for batch forming extended beam leads to the pads or contact areas of a solid state device (e.g., monolithic integrated circuit hybrid integrated circuit, discrete device) whereby external connections to the device may be made. The process involves depositing a metal or a plurality of metals over the device in a predetermined manner with the metal adhering to the device contact area but only weakly, if at all, adhering to the remainder of the surface. The device is separated by backside scribing which leaves the beams extending from the contact area of each device.

3,550,262
METHOD OF SIMULTANEOUSLY PRODUCING A MULTIPLICITY OF SEMICONDUCTOR DEVICES

Lothar Pütter and Manfred Riermeier, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany

Filed Dec. 1, 1967, Ser. No. 687,966
Claims priority, application Germany, Dec. 3, 1966, S 107,254
Int. Cl. B01j *17/00*; H01l *1/14*, *5/02*
U.S. Cl. 29—591 7 Claims

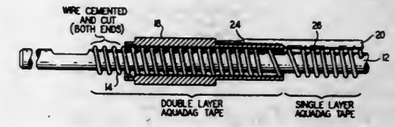


Method of simultaneously producing a multiplicity of semiconductor devices formed of monocrystalline semiconductor members such as of silicon or germanium, for example, includes cutting in at least one metallic support strip of a multiplicity of bosses spaced from one another a predetermined distance, seating semiconductor members respectively on the bosses, placing end contact members respectively on the semiconductor members, simultaneously soldering the respective members to one another, subjecting all of the members assembled on the strip to further treatment, and thereafter pressing the bosses with the members soldered thereto out of the strip member.

3,550,263
METHOD OF FABRICATING TWT HELICES

Ross T. Humer, West Lawn, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Aug. 27, 1968, Ser. No. 755,611
Int. Cl. H01p *11/00*; H01g *13/00*
U.S. Cl. 29—600 7 Claims

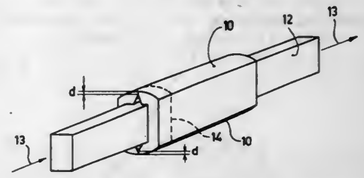


In the manufacture of the helix assembly for a traveling wave tube the contraction of helix support rods, during the cooling cycle and after the glaze has solidified at the couplers, causes fractures in the glaze joint or in the support rods themselves. The primary cause of the fractures, it has been found, is the lack of freedom of the coupler to move with the shrinking support rods. This restraint is eliminated in the method of the present invention which comprises the steps of: cementing at least one helix turn to a mandrel after the helix has been brazed to the couplers; removing helix turns locking the helix to the mandrel; securing preglazed support rods into a glazing fixture; and glazing the helix and couplers to the rods in a single furnace run.

3,550,264
METHOD OF MANUFACTURING MAGNETIC HEADS

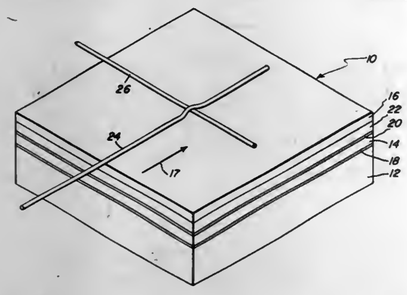
Jan Bouwma, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware

Filed June 2, 1967, Ser. No. 643,263
Claims priority, application Netherlands, June 23, 1966, 6608700
Int. Cl. H01f *7/06*
U.S. Cl. 29—603 8 Claims



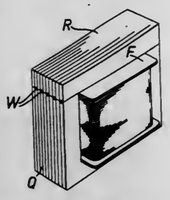
A magnetic head composed of two opposing pole pieces joined by glass bonding at the interface is accurstely assembled and gap depth accurately defined by the use of a central mandril arranged such that the head surfaces are parallel and symmetrical to the axis of rotation of said mandril. The assembly is ground circularly until the desired gap depth is obtained, after which the mandril is removed and the assembly cut.

3,550,265
METHOD OF FORMING THIN FILM MAGNETIC MEMORY DEVICES HAVING LAMINATED SUBSTRATES
John R. Rairden III, Niskayuna, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 10, 1968, Ser. No. 696,920
Int. Cl. H01f *7/06*
U.S. Cl. 29—604 **8 Claims**



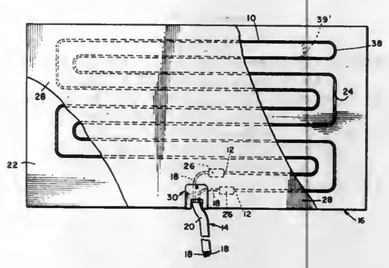
The alignment of magnetic film sites in multiple groupings for thin film magnetic memory devices is simplified by the utilization of a laminar substrate-ground plane configuration wherein a precision dimensioned high conductivity ground plane, e.g. copper, is bonded to a roughly punched light-weight substrate, e.g. aluminum. The magnetic film sites then can be aligned by interconnecting only the precision dimensioned ground planes with sufficient spacing being provided between adjacent substrates as not to interfere with alignment. To assure a tolerable spacing between adjacent substrates, the edges of the ground planes in the laminar structure either can overlap the substrate with the edges of adjacent ground planes being joined by solder in the alignment of the sites or the ground plane edges can terminate short of the substrate edges and a precision dimensioned bridging strip is employed to electrically interconnect the ground planes. Bonding of the ground plane to the substrate to produce a suitable laminar structure can be effected by such methods as roll bonding or by the use of an adhesive such as elemental silicon intermediate a copper ground plane and aluminum substrate. The copper-silicon-aluminum structure then is heated at a temperature between 550° C. and 660° C. to bond the ground plane to the substrate.

3,550,266
METHOD OF PRODUCING CORES
Kathleen M. Pickles, Purton, Harry Hirst, Wootton Bassett, and William G. French, Swindon, England, assignors to Linton and Hirst Limited
Filed Apr. 12, 1968, Ser. No. 720,873
Claims priority, application Great Britain, Apr. 20, 1967, 18,317/67; Sept. 19, 1967, 42,689/67
Int. Cl. H01f *7/06*
U.S. Cl. 29—609 **1 Claim**



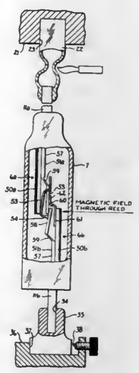
A method of manufacturing laminated cores for transformers and chokes comprising securing together stacks of laminae, produced by securing a plurality of identical laminae together by coating the edges of the laminae forming some of the side faces of the stack with an adhesive, by spot welding between opposite laminae in the stacks so that adjacent laminae in the stacks remain electrically insulated from one another.

3,550,267
METHOD OF FABRICATING A HEATING ELEMENT
Harry H. Williams, 400 E. Adams St., Muncie, Ind. 47905
Filed Oct. 9, 1967, Ser. No. 673,588
Int. Cl. H05b *3/28*
U.S. Cl. 29—611 **6 Claims**



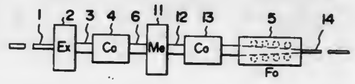
A method of fabricating a heating element having a base-sheet of fire resistant material, and an electrical cable assembly formed by a doubled over length of heating wire having a loop end and two halves extending therefrom to two free ends connected to non-heating electrical lead conductors.

3,550,268
METHOD OF ASSEMBLING DRY REED SWITCHES
John D. Santi, West Allis, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis., a corporation of Delaware
Continuation-in-part of application Ser. No. 533,695, Mar. 11, 1966. This application Apr. 24, 1969, Ser. No. 818,914
Int. Cl. H01h *11/00*
U.S. Cl. 29—622 **5 Claims**



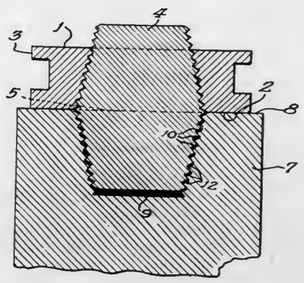
One reed is held upright while a holder of glass is fused to its upper end and the upper end of a tubular glass envelope is fused around its middle. The holder, secured in a first fixture, then pendently supports the first reed and envelope. The other reed is moved into the envelope through its open bottom and is fixed with its tip portion overlappingly juxtaposed to that of the first, being supported at its bottom by a second fixture. The holder is then heated to melting to allow the tip portions of the reeds to mutually orient one another by engagement under influence of a magnetic field through them. When the holder hardens, the magnetic field is discontinued and one fixture is moved to establish an air gap between the reed tips. The bottom part of the envelope is then fused around the medial portion of the other reed.

3,550,269
METHOD OF MANUFACTURING INSULATED BUS BAR
Hiroshi Yatabe and Takaji Takei, Yokohama, Keiji Oshima, Hiratsuka, Masatoshi Hikita, Shigeru Kanda, Yasuhiro Sato, and Takeshi Nkayama, Yokohama, and Tetsuya Nakata, Nagoya, Japan, assignors to The Furukawa Electric Company Limited, Tokyo, Japan
Filed Mar. 21, 1967, Ser. No. 624,802
Claims priority, application Japan, Mar. 26, 1966, 41/18,617; Aug. 10, 1966, 41/52,432; Sept. 26, 1966, 41/63,365; Nov. 9, 1966, 41/73,650; Feb. 17, 1967, 42/10,237; Feb. 18, 1967, 42/10,354
Int. Cl. H01b *19/00;* **H05k** *3/00*
U.S. Cl. 29—624 **5 Claims**



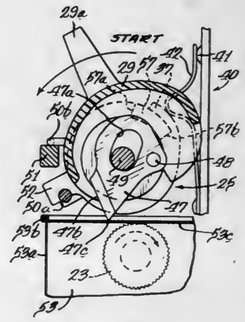
A method of manufacturing an insulated bus bar wherein at first an insulating material is applied around the outer periphery of a hollow cylindrical conductor and then the assembly is passed through a forming machine, thus compressing it into a flat form.

3,550,270
PROCESS OF MAKING NIPPLE-ELECTRODE ASSEMBLY AND JOINT
Blake F. Watson, Jr., Youngstown, N.Y., and Nally C. Stewart, Morganton, N.C., assignors to Great Lakes Carbon Corporation, New York, N.Y., a corporation of Delaware
Filed July 2, 1968, Ser. No. 741,927
Int. Cl. H01r *43/00*
U.S. Cl. 29—628 **11 Claims**



The invention relates to a process of distributing thread clearance between nipple-electrode section assemblies and joints, such as those used in electric furnaces. The nipples used are threaded and double frusto-conical and the electrode sections used contain tapered threaded sockets which correspond to the ends of the nipple. The process includes the use of an internally threaded ring which has a plane surface, or which is constructed in such a manner as to define a plane surface perpendicular to its axis. The ring is threaded onto the outside of the tapered threaded nipple to a position such that when the nipple with the ring attached is threaded into the socket of the electrode section, until the plane surface of the ring contacts the face of the electrode section, a clearance is provided between the non-load bearing flanks of the threads of the nipple and said threaded electrode socket. The aforesaid thread clearance results when the ring is hand-tightened onto the nipple and when the nipple with the ring attached is hand-tightened into the socket of the electrode section. The aforesaid clearance between the threads is maintained by locking the nipple in position in the electrode socket before unthreading the ring from the nipple.

3,550,271
AUTOMATIC CAN OPENER
Donald R. Meyer, Thiensville, and Robert W. Arel, Shorewood, Wis., assignors to John Oster Manufacturing Co., Milwaukee, Wis., a corporation of Wisconsin
Filed May 29, 1968, Ser. No. 732,977
Int. Cl. B67b *7/38*
U.S. Cl. 30—4 **12 Claims**

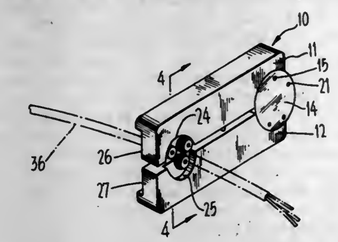


An automatic can opener having a cutter assembly which is rotatable in one direction to permit loading of the can and in the opposite direction to start the automatic piercing and the continued running of the can opener until the cover is severed from the can, at which time the motor is automatically shut off. A lost motion connection between the cutting blade and the pivotally mounted cutter support provides a means whereby a single switch actuated by the cutter support energizes the motor to pierce automatically the can cover and maintain the motor in operation until the can is opened.

3,550,272
CUTTING DEVICE FOR WIRE INSULATION
Robert B. Hendry, 45833 Warm Springs Blvd., Fremont, Calif. 94538
Filed May 31, 1968, Ser. No. 733,591
Int. Cl. B21f *13/00;* **B26b** *27/00*
U.S. Cl. 30—90.1 **9 Claims**

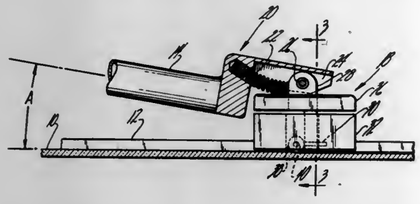
A cutting device for scoring or partially severing the outer insulation or shielding of wire or wire cables to enable such outer insulation to be removed therefrom. The cutting device includes a pair of hingedly connected jaw elements angularly movable relative to each other

between open and closed positions and equipped with a plurality of blades operative to cut such insulation upon closure of the jaw elements thereagainst and angular displacement of the cutting device and blades relative



thereto. The device is equipped with depth-limiting structure adjacent each blade and engageable with the insulation so as to limit penetration of the blades thereinto.

3,550,273
LONG REACH HAND-HELD GLASS CUTTING TOOL
Thomas A. Insollo, Bristol, Conn., assignor to The Fletcher-Terry Company, Forestville, Conn., a corporation of Connecticut
Filed May 16, 1968, Ser. No. 729,760
Int. Cl. B26b *3/00, 25/00*
U.S. Cl. 30—164.95 **5 Claims**



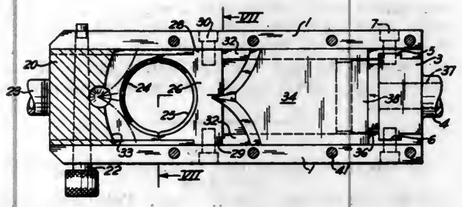
An elongated handle carries a cutting head on a bifurcated end portion thereof. The head includes a depending support post pivotally mounted to the bifurcated end portion, and also includes a glass cutting wheel holder block pivotally mounted to the lower free end of the support post for limited lateral tilting movement about a fore and aft axis extending in the direction of movement of the cutting wheel across the glass surface. The axis of rotation of the holder block is below the level of the straight edge used to guide the cutting head as it is drawn across the glass.

ERRATUM

For Class 30—217 see:
Patent No. 3,550,280

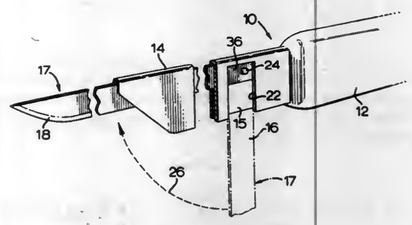
3,550,274
EXPLOSIVELY ACTUATED CUTTING TOOL
Robert Temple, Pittsburgh, Ernest E. Temple, Murrysville, and Joseph L. Glebel, Pittsburgh, Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 31, 1968, Ser. No. 788,257
Int. Cl. B26b *15/00*
U.S. Cl. 30—228 **15 Claims**

A frame has recessed longitudinal guideways in the tops of its sidewalls for receiving a plate-like blade that is held in place by a removable cover plate. Secured to the back end of the frame is a barrel that has a cartridge chamber at its back end. The piston in the barrel is provided in the back of the frame with a head, to which the rear end of the blade is detachably connected. Front and rear die blocks are mounted in the frame at the



front end of the blade and are recessed to provide a vertical opening for receiving a workpiece. The cutting end of the blade is movable completely across the opening to sever the workpiece when a cartridge is fired in said chamber to drive the piston and blade forward.

3,550,275
IMPLEMENT HANDLE
Theadore Baun, 4 Redland Crescent W., Scarborough, Ontario, Canada
Filed Feb. 12, 1968, Ser. No. 704,833
Int. Cl. B26b *5/00*
U.S. Cl. 30—339 **6 Claims**



The implement handle in which various implements, such as knife blades or tools, may be inserted; the handle includes a folded implement retainer portion in which a slot is formed in one side and pin in the other side so as to project into the slot; the implement to be fitted into the handle has as its butt end a hole formed therein so as to fit over the pin and be swingably engaged within the retainer portion.

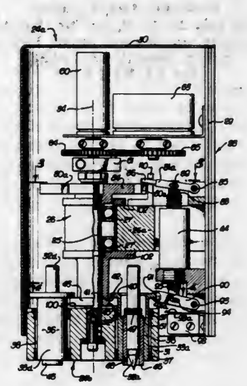
ERRATUM

For Class 30—346.51 see:
Patent No. 3,550,281

3,550,276
MULTIPLE-PEN AUTOMATIC DRAFTING MACHINE
David C. Kramer, Redondo Beach, and Waldo I. Rogers, Sierra Madre, Calif., assignors to Baldwin Kongsberg Company, Cincinnati, Ohio, a corporation of Ohio
Filed Apr. 25, 1968, Ser. No. 724,183
Int. Cl. B43l *13/00*
U.S. Cl. 33—18 **12 Claims**

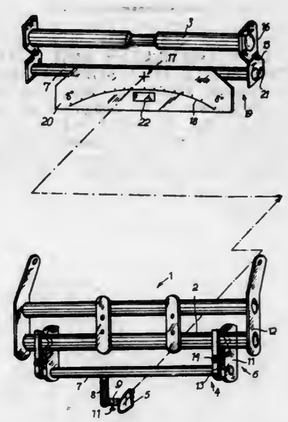
The disclosure concerns the provision in a drafting machine of a head carrying multiple drafting surface markers, with feedback control for moving the head to

bring a selected marker into predetermined positions relative to the drafting surface, unusually advantageous



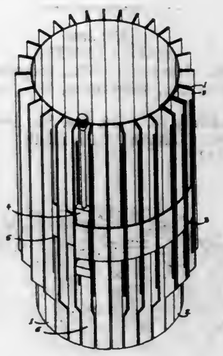
apparatus also being provided for advancing and retracting selected marker holders at and relative to the head.

3,550,277
EQUIPMENT FOR OPTICAL MEASUREMENT OF THE CHASSIS OF A VEHICLE
Roald Selnes, Hotvetvelen 160, Drammen, Norway
Filed Mar. 6, 1968, Ser. No. 711,097
Claims priority, application Norway, Mar. 8, 1967, 167,178
Int. Cl. G01c *15/00*
U.S. Cl. 33—46 **2 Claims**



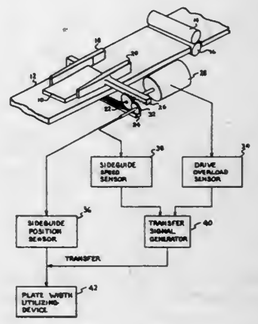
Method and means for an optical measurement of the chassis of a vehicle employing two pairs of fixed points located in pairs on the vertical symmetry plane of the chassis, namely a fore pair and a rear pair of points to which are respectively attached a projector and a measuring board, the center of the projector and measuring board being located directly between the points in the respective pairs of points or equally displaced from said center positions. On projecting recording symbols on the board which is provided with corresponding recording symbols, the projected and fixed recording symbols will be aligned or divergent according to the state of the chassis.

3,550,278
PIPE INTERSECTION MARKER
Donald E. Pruett, P.O. Box 183, Daphne, Ala. 36526
Filed Nov. 4, 1968, Ser. No. 773,702
Int. Cl. G01b *5/20*
U.S. Cl. 33—175 **1 Claim**



A geometric tool that represents a cylinder, comprising a plurality of wedge shaped ribs, the ribs being wedge shaped to form a cylinder when assembled, the ribs having longitudinal slots, a belt passing through said slots, thereby to permit movement longitudinal between the ribs and the belt and the ribs relative to each other, said ribs having a longitudinal boss or ridge along each side to assure that said ribs maintain a parallel position relative to each other, said belt having an adjustable locking device to change the belt length, belt length adjustment being desirable to change the tension on the ribs, "tension" on the ribs causes friction between the ribs, friction being necessary to keep the "ends" of the ribs in a set position.

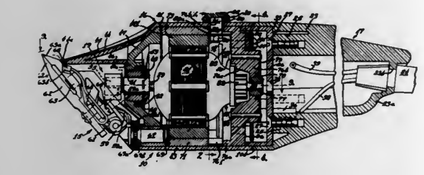
3,550,279
WIDTH GAGE FOR PLATE MILL
Donald J. Fapiano, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Feb. 7, 1969, Ser. No. 797,577
Int. Cl. G01b *7/00*
U.S. Cl. 33—143 **7 Claims**



For use in a plate mill, a width gage utilizing converging sideguides. As the sideguides are converging, one sensor is responsive to an overload condition in the drive

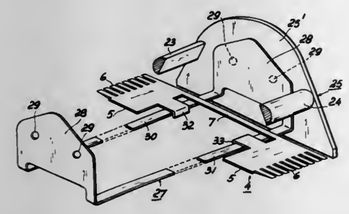
means for the sideguides while another is responsive to a condition of no sideguide movement. When both conditions exist concurrently for a predetermined period of time, indicating the sideguides are stalled against the slab, a transfer signal is generated which permits the reading of one or more shaft encoders which produce signals indicating sideguide separation; i.e., slab width.

3,550,280
HAIR CLIPPER
Bernhard Palm, Milwaukee, Wis., assignor to John Oster Manufacturing Co., Milwaukee, Wis., a corporation of Wisconsin
Filed July 18, 1966, Ser. No. 566,150
Int. Cl. B26b *19/02;* **H01h** *9/06*
U.S. Cl. 30—217 **23 Claims**



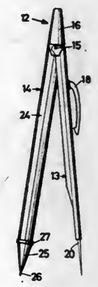
An electric hair clipper having a two part housing, a first of which contains a motor for driving a cutter and the second of which is connected to the first by an interlock arrangement for holding the two housing parts together and for supplying electrical current to the motor. A dust tight switch is mounted upon the first housing part to control the operation of the motor. A drive mechanism employing very few moving parts connects the motor output shaft to the cutter.

3,550,281
ELECTRIC SHAVERS
Aldo Loner and Otto Meier, Klagenfurt, Carinthia, Austria, assignors to Firma Carinthia Elektrogerate Gesellschaft m.b.H.
Original application July 14, 1967, Ser. No. 653,405, now Patent No. 3,456,341, dated July 22, 1969. Divided and this application July 16, 1969, Ser. No. 842,110
Claims priority, application Austria, Aug. 12, 1966, 7,746/66
Int. Cl. B26b *19/10*
U.S. Cl. 30—346.51 **3 Claims**



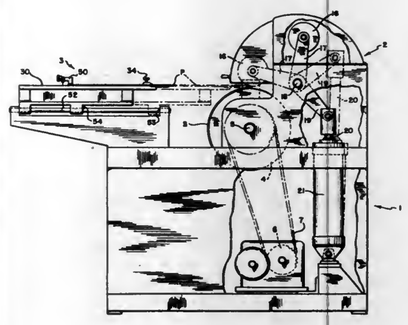
A removable cutter head for dry shavers in which a frame has a perforated cutter foil thereon as a stationary upper cutter and a further stationary upper cutter for a lateral trimmer. The cutters cooperate with reciprocating lower cutters and a U-shaped bracket supports the lower cutters. A base part is provided formed by two bridges below the lateral trimmer cutter and the latter is guided along the bridges by means of sliding elements.

3,550,282
COMPASS
Yasuhiko Tsunemi, 18–5 Higashi-Ueno 2-chome, Daito-ku, Tokyo, Japan
Filed July 28, 1969, Ser. No. 845,135
Claims priority, application Japan, Dec. 29, 1968 (utility model), 43/114,583
Int. Cl. B43l *9/02*
U.S. Cl. 33—27 **4 Claims**



A compass device tailored to adapt itself as a propelling pencil, comprising a first leg having a longitudinal slot for receiving a clip member adapted to clip the compass in a pocket, a second leg having a cylindrical portion wherein a mechanism is accommodated for propelling pencil lead, said cylindrical portion having a longitudinal recess along its entire length for engagement with said first leg when the two legs are closed, and a center pin of the compass retractively supported by said first leg.

3,550,283
METHOD AND APPARATUS FOR APPLYING A PRINTING PLATE TO A SUPPORT SADDLE
Eugene L. Bernardi, Oakland, Calif., and Rudolph T. Brazdovic, Pittstown, N.J., assignors of one-half to Wood Industries, Inc., Plainfield, N.J., a corporation of Virginia, and one-half to Reichhold Chemicals, Inc., White Plains, N.Y., a corporation of Delaware
Filed Apr. 2, 1968, Ser. No. 718,656
Int. Cl. B41b *1/00*
U.S. Cl. 33—184.5 **5 Claims**

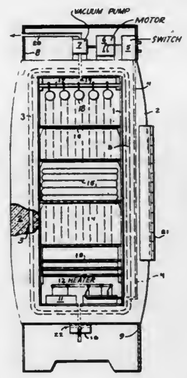


Apparatus for accurately positioning the printing portion of a flexible flat printing plate onto a curved support saddle which apparatus includes a movable layout table

having thereon a movable rear register stop adapted to engage with a raised reference or printing portion cast on a printing plate to preposition the printing portion of the plate relative to the page to be printed. Means are provided for rotating the saddle to a preselected position such that when the table and plate thereon are moved towards the saddle, the underside of the head of the plate will engage the curved surface of the saddle along a tagent thereto at a desired point between the head and foot of the saddle equal to the position down from the top of the page that the top of the printed portion is to appear. Pressure means are provided for imparting a radial pressure to the plate and saddle and rotation means are provided to rotate the saddle and pull the plate from the layout table.

Method for positioning the printing portion of a flexible flat printing plate onto a curved support saddle including the steps of positioning a rear register stop on a layout table depicting the page to be printed at a point equivalent to the position that a raised reference point or preselected printed matter is to be positioned on the page, bringing a printing plate having a raised reference portion or preselected printing portion into contact with the stop, circumferentially positioning a curved support saddle at a point where the bottom surface of the head end of the plate may engage the saddle along a tangent thereto at a point which is a predetermined distance from the head of the saddle, moving the table and plate towards the saddle such that the plate engages the saddle along a tangent thereto, and applying a radial force to the saddle plate at the point of tangency while rotating the saddle to withdraw the plate from the table.

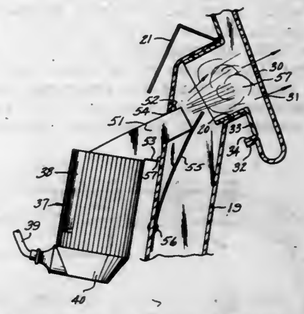
3,550,284
VACUUM CLOTHES DRYER WITH REMOVABLE SHELVES AND HANGERS
Chandley W. Lambert, Lake Dallas, Tex.; Clara I. Lambert, executrix of said Chandley W. Lambert, deceased
Filed Apr. 22, 1968, Ser. No. 722,905
Int. Cl. F26b *13/30*
U.S. Cl. 34—92 **1 Claim**



The invention is an improvement of former Pats. Nos. 3,398,463 and 3,392,457.

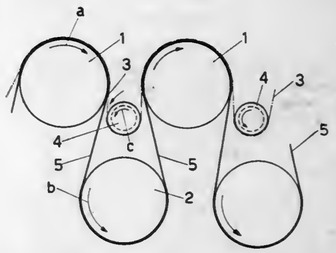
It comprises a sheet metal box having removable perforated shelves on which damp folded clothes are placed and hangers for wash and wear and permanent press fabrics. Around this box is a steel reenforcing frame which is immersed in a thick layer of plastic or Fiberglas.

3,550,285
HAIR DRYER APPARATUS
William A. Omohundro, Westport, Conn., assignor to General Electric Company, a corporation of New York
Filed Oct. 3, 1968, Ser. No. 764,747
Int. Cl. A45d *20/00*
U.S. Cl. 34—97 **8 Claims**



The disclosure herein concerns hair treating apparatus including a hair dryer and a detachable self-contained steam generator for applying water vapor to the hair, both of which may be used separately or in combination with one another.

3,550,286
GUIDING ROLL OF A PAPER MAKING MACHINE
Kauko U. Konttinen, Jyvaskyla, Finland, assignor to Valmet Oy, Helsinki, Finland, a corporation of Finland
Filed Feb. 20, 1969, Ser. No. 801,016
Claims priority, application Finland, Feb. 26, 1968, 494/68
Int. Cl. F26b *13/08*
U.S. Cl. 34—162 **4 Claims**

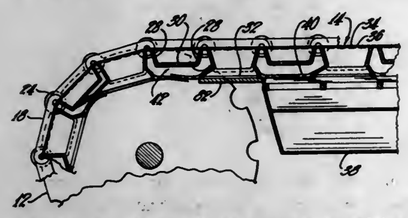


A cylinder paper drier of a paper making machine is provided with a roll guiding the endless wire of the drier. The roll guides the wire from one cylinder to another cylinder after the wire has been separated from the cylinder and from the paper web which it has pressed against that cylinder. The characteristic feature of the invention is that the guiding roll is provided with grooves of suitable shapes, including circular, helical or longitudinal grooves.

3,550,287
FILTER CONVEYOR
William B. Hullhorst, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Apr. 4, 1968, Ser. No. 718,768
Int. Cl. F26b *19/00*
U.S. Cl. 34—236 **16 Claims**

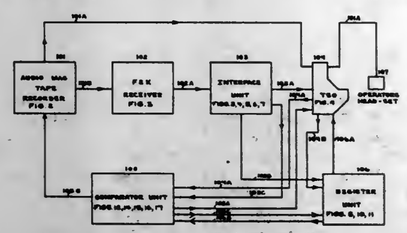
A conveyor having generally parallel flights arranged in side by side relationship. The flights are supported in

such manner that the adjacent top edges of the flights do not separate when the flights round the head or tail pulleys. A suction chamber is positioned beneath the top run of the flights, and the bottom of the flights are provided with valving means which runs longitudinally of the flights and extends over an opening in the suction box. Alternate runs of the conveyor flights have openings in their bottom surfaces which communicate through the valving means to communicate vacuum to the top surfaces of the flights when the flights are positioned over the opening in the suction box. The portions of the sealing means between conveyor flights are arranged to foreshorten when rounding the head or tail pulleys and still seal when passing over the suction box. In the preferred arrangement, the



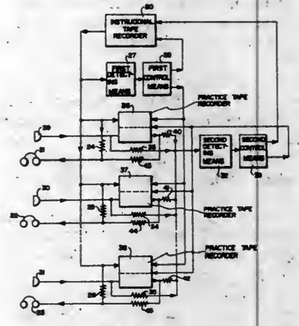
bottom surface of those flights to which the valving means is not attached, is positioned upwardly from the plane of the valving means to accommodate buckling movement of the sealing means when rounding the head or tail pulleys. In the preferred embodiment, the sealing means is formed of sections having tapered leading and trailing edges which overlap with the tapered edges of adjacent sections. The trailing tapered edge faces upwardly and is provided with a metal plate which gives smooth sealing support to the leading edge of the adjacent section. Parallel stiffener rods are embedded in the sections adjacent the tapered edges to prevent sagging transversely of the opening in the suction box while allowing vertical flexure during movement around the head and tail pulleys.

3,550,288
OPERATOR TRAINING SYSTEM
Carl Gunnar Svala and Chung-Pah Xavier Lee, Galion, Ohio, assignors to North Electric Company, Galion, Ohio, a corporation of Ohio
Filed Mar. 12, 1969, Ser. No. 806,615
Int. Cl. G09b 5/00
U.S. Cl. 35—8 **18 Claims**



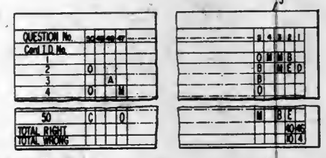
A training system for training telephone operators in handling the incoming calls at a toll service desk by selectively operating various keys on the toll service desk, wherein the training program is recorded on an audio tape having two channels (one of the channels having inaudible commands in a frequency shift code to the equipment and the other channel having a recorded voice to simulate a real subscriber or distant operator). The recorded program is advanced step by step, and the trainee's response to a particular situation is compared against the desired response; if the trainee's response matches the desired response, the program moves to its next step.

3,550,289
ELECTRONIC LANGUAGE TEACHING SYSTEM
Takao Orita, Masahiro Kosaka, and Tadamasa Fujita, Osaka, Japan, assignors to Matsushita Electric Industrial Company Limited, Osaka, Japan
Filed Jan. 24, 1969, Ser. No. 793,769
Claims priority, application Japan, Jan. 25, 1968, 43/5,055, 43/5,056; Jan. 26, 1968, 43/4,725, 43/4,726
Int. Cl. G09b 5/04
U.S. Cl. 35—35 **7 Claims**



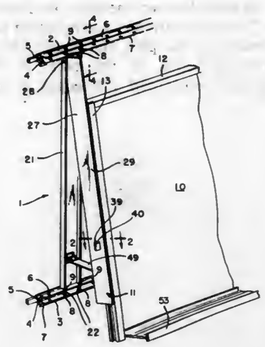
An electronic teaching apparatus. The apparatus comprises a reproducing means for reproducing an instructional tape which is supplied to an instructional tape recorder and which has an instructional program recorded intermittently thereon, and a plurality of practice tape recorders for recording and reproducing oral responses of a plurality of learners. A first detecting means is provided for detecting the moment when one of said instructional programs has been reproduced, and a first control means controls said instructional and practice tape recorders after receiving a detecting signal from said first detecting means. A second detecting means is provided for detecting the moment when the plurality of learners have finished their oral responses to said one of said instructional programs, and a second control means controls said instructional tape recorder and said practice tape recorders after receiving a detecting signal from said second detecting means.

3,550,290
OUTPUT RECORDING SYSTEM
Leo L. Azure, Jr., Richland, Wash., assignor to Automata Corporation, Richland, Wash.
Filed June 24, 1968, Ser. No. 739,257
Int. Cl. G09b 5/00; G06k 3/00
U.S. Cl. 35—48 **17 Claims**



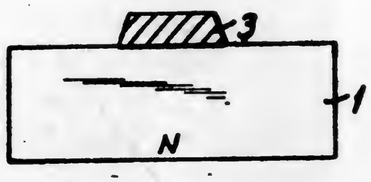
A system for producing a composite record for item analysis of scoring results for test problems having multiple choice responses. Incorrect answer responses are distinguished from correct, and the mode of error indicated.

3,550,291
ADJUSTABLE CHALKBOARD ASSEMBLY
Alto O. Albright, 818 16th Ave. W., Kirkland, Wash. 98033
Filed Aug. 6, 1968, Ser. No. 750,606
Int. Cl. B43l 1/04
U.S. Cl. 35—63 **7 Claims**



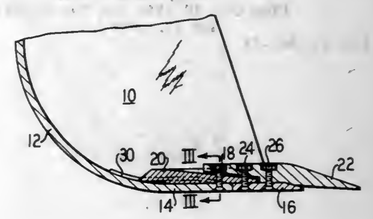
The adjustable chalkboard assembly is mounted in a chalkboard retaining adjustor which is adapted to be removably mounted in spaced mounting strips and locked therein by a gravity lock. The adjustor facilitates angular and sliding adjustment of the chalkboard and incorporates a unitary spring locking unit which forms an automatic position lock and a lock catch. The lock catch operates to positively lock the chalkboard within the adjustor.

3,550,292
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME
Toshiaki Irie and Yoshiyuki Nanko, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan, a corporation of Japan
Original application June 6, 1966, Ser. No. 555,332. Divided and this application Aug. 23, 1968, Ser. No. 777,522
Int. Cl. H01l 7/34
U.S. Cl. 148—1.5 **1 Claim**



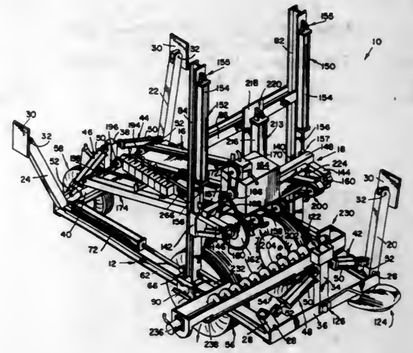
Disclosed is a method of making a semiconductor device by covering a portion of a surface of a silicon substrate with a silicon oxide film, oxidizing the remainder of the surface thereby forming a mesa structure due to the difference in oxidation rates, removing at least a portion of the first formed silicon oxide film and forming at least one p-n junction therein.

3,550,293
LOADER BUCKET CUTTING EDGE
Eugene L. Helton, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed July 23, 1968, Ser. No. 746,940
Int. Cl. E02f 9/28
U.S. Cl. 37—141 **3 Claims**



A cutting edge for a loader bucket which is bolted in place with respect to the bottom of the bucket and with which spaced bars support cutting teeth which are secured in place by the same bolts that secure the cutting edge and some of which bolts also extend through the spaced bars and the bottom of the bucket.

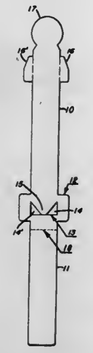
3,550,294
GRAVE DIGGER
Maurice I. Fewell, Martinsville, Ind., assignor to John H. Fewell, Martinsville, Ind., trustee
Filed Feb. 28, 1968, Ser. No. 708,902
Int. Cl. E02f 3/14, 9/28
U.S. Cl. 37—191 **10 Claims**



An excavating apparatus comprising a boom-type digger supported for pivotal movement about one of its ends, for generally vertical reciprocation and for generally horizontal reciprocation in a direction generally perpendicular to its pivot axis. The boom-type digger delivers earth to an auger which conveys the earth away from the apparatus. The apparatus is movably supported by independently driven wheels. The digger includes endless chains which carry teeth formed from metal strips to have main body portions, curved portions at each end of each main body and an extension portion connected to each curved portion. Each curved portion of a tooth is formed about an axis which defines an acute angle with the run of the

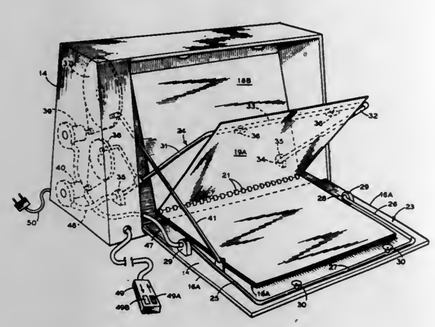
chain to which the tooth is connected so that the extension portions of the tooth extend forwardly of its body portion in the direction of movement of the tooth.

3,550,295
BAGGAGE TAG
James A. Anania, Newark, N.J., assignor to Irving U. Young, Newark, N.J.
Filed Dec. 10, 1968, Ser. No. 782,691
Int. Cl. G09f *3/13*
U.S. Cl. 40—21 2 Claims



A tag having a co-acting aperture and locking tabs for attachment of the tag to the handle of a piece of luggage and including a tear-off portion serving as a receipt.

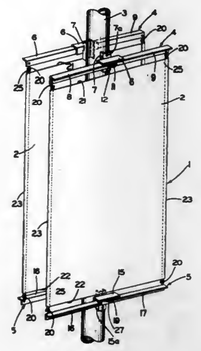
3,550,296
PAGE TURNING DEVICE
John F. Castagna, 835 Remsen Ave., Brooklyn, N.Y. 11236
Filed Sept. 3, 1968, Ser. No. 757,030
Int. Cl. G09f *11/06*
U.S. Cl. 40—104 4 Claims



A device for turning the pages or leaves of a book, newspaper or the like in either direction, utilizing pivoted arm members operating in conjunction with suction means and arranged to engage and then progressively disengage the turned page or leaf. The device may be adapted for use with the pages or leaves being turned about a horizontal axis as well as the usual substantially vertical axis.

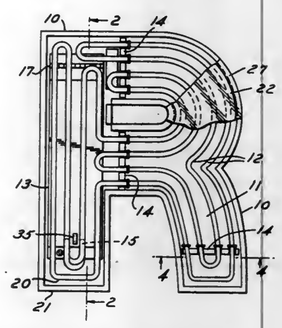
3,550,297
POLE BANNER CONSTRUCTION
Thomas Friedrichsen, Massillon, Ohio, assignor to The Massillon-Cleveland-Akron Sign Company, Massillon, Ohio, a corporation of Ohio
Filed May 26, 1969, Ser. No. 827,575
Int. Cl. G09f *7/18*
U.S. Cl. 40—128 11 Claims

The pole banner construction has all hardware for supporting a flexible banner member permanently mounted on a pole. The hardware has a supporting position extending horizontally of the pole and is movable to an inactive position inconspicuous on the pole. A flexible banner member having reinforced side edges is mounted on the



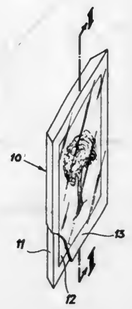
hardware and is adapted to be folded into a small package for shipment in an envelope. A pair of banner members may be similarly mounted on either side of the pole. The flexible banner members may be replaced from time to time without loss of any parts of the permanently mounted hardware.

3,550,298
LETTER CONSTRUCTION
Roger L. O'Neill, 322 N. Oak, Hinsdale, Ill. 60521
Filed June 27, 1968, Ser. No. 740,738
Int. Cl. G09f *13/00*
U.S. Cl. 40—130 6 Claims



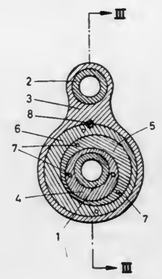
A neon-lighted letter construction for outdoor advertising use incorporating a hinged transformer facilitating neon tube terminal connection with small housing wall clearance for eliminating dark area and minimizing letter thickness.

3,550,299
DISPLAY MOUNT FOR PICTURES AND OTHER ARTICLES
Theodore Salz, 247 Parkview Ave., Bronxville, N.Y. 10461
Filed Aug. 5, 1968, Ser. No. 750,719
Int. Cl. G09f *1/12*
U.S. Cl. 40—156 12 Claims



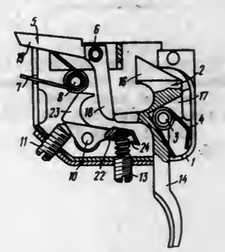
A backing panel and a transparent front panel are juxtaposed on opposite sides of an object to be displayed. One panel has beveled edges overlain by bent-over peripheral formations of the other panel so that the major panel surfaces remain unobstructed.

3,550,300
FIREARM WITH TWO OR MORE ADJUSTABLE BARRELS
Philipp Röder, Kutzerstrasse 37, Furth, Bavaria, Germany
Filed July 22, 1968, Ser. No. 746,380
Claims priority, application Germany, Feb. 8, 1968, R 47,969
Int. Cl. F41c *21/00*; F41g *1/52*
U.S. Cl. 42—1 9 Claims



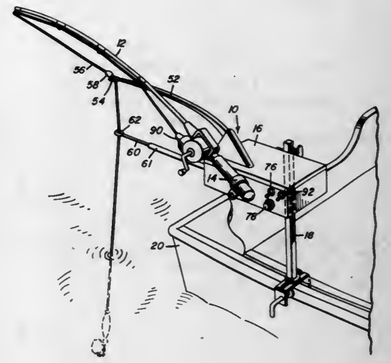
A double-barreled rifle or shotgun in which the axes of the two barrels are adjustable relative to each other in lateral and vertical directions by a system of three eccentric bushings which are disposed within and rotatable relative to each other. The innermost bushing is rotatably mounted on the muzzle end of one barrel, while the outermost bushing is rotatably mounted within a connecting element which is secured to the muzzle end of the other barrel.

3,550,301
TRIGGER MECHANISM FOR SPORTING GUNS
Alexandr Sergeevich Shesterikov, Ulitsa Pushkinskaya 244, kv. 35, Izhevsk, U.S.S.R.
Filed July 12, 1968, Ser. No. 744,521
Int. Cl. F41c *19/00*
U.S. Cl. 42—69 6 Claims



A trigger mechanism for guns is provided with a spring loaded trigger and a spring loaded sear. A lever having two arms is pivotally supported such that one of the arms is engageable with the trigger and the other arm is engageable with the sear. Two adjusting elements are provided, one for adjusting the release pressure of the mechanism by engaging one arm of the lever, and the other adjusting element for adjusting the pivotal at-rest attitude of the lever by being engageable with the other arm of the lever.

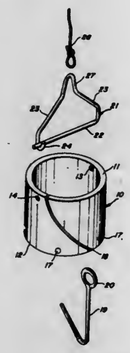
3,550,302
AUTOMATIC MOTION LURE AND ALERT FOR FISHING LINES
Leo J. Creviston, 711 Lakeview Drive, and Arthur G. Johnson, 919 E. Main St., both of Warsaw, Ind. 46580
Filed Sept. 17, 1968, Ser. No. 760,152
Int. Cl. A01k *97/12*
U.S. Cl. 43—16 8 Claims



A fishing apparatus comprising a device for imparting periodic jerking movement to a fishing line and having an alarm mechanism for alerting the fisherman to the bite of a fish. A fishing pole is mounted on a housing from which a motor-driven lever arm extends outwardly be-

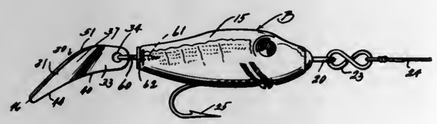
low the said pole. The outer end of the lever arm releasably engages the fishing line and the inner end of the arm has a cam surface engaged by a rotating cam with dual lobes thereon causing jerking oscillations of the lever arm, which oscillations are translated to the fishing line. When a fish bites, the line is pulled free of the lever arm in a manner to actuate the alarm mechanism.

3,550,303
FISHING LURE RETRIEVER
Delroy Western, 2801 West Maryland Ave., Phoenix, Ariz. 85017
Filed May 27, 1968, Ser. No. 732,196
Int. Cl. A01k 97/00
U.S. Cl. 43—17.2 1 Claim



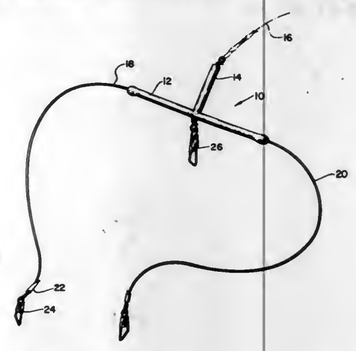
A fishing lure retriever having a cylindrical body which is guided to the submerged entangled lure by the fishing line. The body dislodges the lure and a plurality of hooks along the lower edge thereof grasp the lure. The retriever is manipulated by an attached line.

3,550,304
FISHING LURE
John Stephen Kuslich, 1064 Argyle St., St. Paul, Minn. 55103
Filed Aug. 5, 1968, Ser. No. 750,170
Int. Cl. A01k 85/00
U.S. Cl. 43—42.15 3 Claims



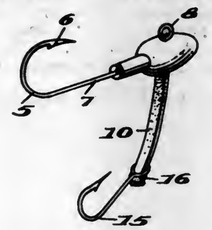
A fishing lure having an action member at the tail end thereof in a form of opened wing plates which can be rigidly or swivelly or pivotally attached to the body of a lure and in such relation to the dimensional characteristics of the body that during trolling action the wings will move laterally and give an appearance of action to lure body as well as twisting action to the lure body about its lateral and longitudinal axes.

3,550,305
FISHING DEVICE
Robert C. Santosuosso, 42 Sterling St., Malden, Mass. 02148
Filed May 26, 1969, Ser. No. 827,574
Int. Cl. A01k 91/00
U.S. Cl. 43—42.74 3 Claims



A T-shaped leader line spreader of rigid construction is provided with trapped ball swivels mounted at the ends and center thereof. Leader lines are attached to the ball swivels at opposite ends of the T cross-piece and a sinker may be attached to a center swivel at the base of the leg.

3,550,306
FISH BAIT HOLDER AND METHOD
Oliver M. Heitman, 201 N. Winter St., River Falls, Wis. 54022
Filed Dec. 16, 1968, Ser. No. 784,025
Int. Cl. A01k 85/00, 83/06
U.S. Cl. 43—42.37 8 Claims

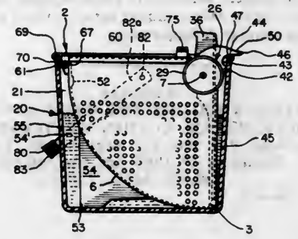


A fish bait holder has a body serving as a jig head and being substantially heavier than water. The jig head is attachable to the end of a fishing line so that it may be drawn through a body of water. A hook is rigidly fixed to and extends from one end of the jig head. An elastic band is affixed at one end to the jig head and extends a substantial distance beyond the confines of the jig head. A second hook is attached to the elastic band outside the jig head and cooperates with the first-mentioned hook to hold bait of various descriptions. The second hook may be slid along the elastic band to the desired location, thereby making possible a more secure attachment of the bait.

3,550,307
FRESH BAIT HOLDER
Norman William Donner, 5409 S. Laflin St., Chicago, Ill. 60609
Filed June 13, 1969, Ser. No. 832,937
Int. Cl. A01k 97/04
U.S. Cl. 43—56 10 Claims

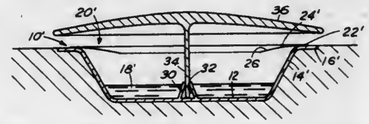
A fresh bait holder having an outer container for water and an inner container for bait, a metering bait

scoop pivoted on the inner container and having an upright position with a screen at its lower end and a metering spout at its upper end, the scoop being swingable to a position withdrawing the screen with the bait from the water and having a cam surface beneath the spout which



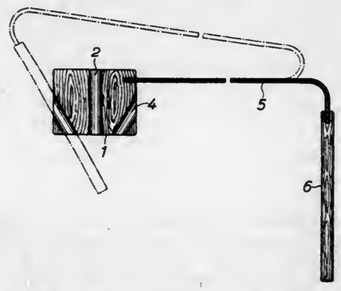
fulcrums on the upper edge of the outer container and upon the user with only one hand depressing the spout raising the screen and inner container and thereby inclining the screen toward the spout which causes the bait to migrate through the spout.

3,550,308
SLUG OR BUG TRAP
Charles W. Ibach, 7198 Versailles Road, Derby, N.Y. 14047
Filed Jan. 29, 1969, Ser. No. 794,924
Int. Cl. A01m 1/12
U.S. Cl. 43—121 4 Claims



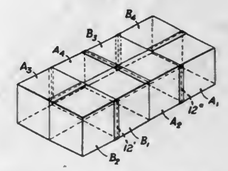
A trap for insects comprising a relatively shallow basin for containing a substance poisonous to insects. A barrier in the form of an annular ring is secured at the top edge of the basin and has a portion consisting of a plurality of tongues extending radially inwardly from the top edge above the base of the basin to prevent escape of the poisoned insects from the basin.

3,550,309
TOY
Jorma Vennola, Luoteisvayla 17B, Helsinki, Finland
Filed Jan. 31, 1969, Ser. No. 795,571
Int. Cl. A63h 3/00
U.S. Cl. 46—1 9 Claims



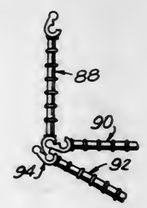
A toy comprises a massive body of wood, plastic, metal or other equivalent material, and a string, ribbon, chain or equivalent attached to the body. In the body are formed several ducts and one end of the string is provided with a threading element able to be passed through these ducts, while the opposite end of the string is prevented from passing through the ducts.

3,550,310
BODY OF VARIABLE FORM COMPOSED OF A PLURALITY OF HINGEDLY CONNECTED ORTHOGONAL PRISMS NO LESS THAN SIX
Wolfgang Bock-Greissau, 2 Ditscheinergasse, 1030 Vienna, Austria
Filed Dec. 26, 1967, Ser. No. 693,425
Claims priority, application Austria, Jan. 2, 1967, A 7/67
Int. Cl. A63h 33/06
U.S. Cl. 46—25 5 Claims



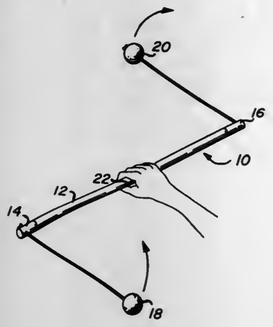
A body of variable form which comprises an even number not less than six rectangular prisms each having six rectangular faces, and hinges for connecting the prisms along edges thereof resting against one another. Each of the prisms is directly hinged to two adjacent prisms along two edges thereof, wherein the two hinged edges of each of at least half the number of the prisms cross at right angles at a distance from one another. Such bodies may assume a number of stable configurations and a plurality of such bodies may be combined into various stable block structures.

3,550,311
INTERENGAGEABLE CONSTRUCTION ELEMENTS WITH RESILIENT CLUTCHING PARTS
John J. Fouquart, 873 Park Ave., Huntington, N.Y. 11743
Filed Sept. 20, 1967, Ser. No. 669,238
Int. Cl. A63h 33/08
U.S. Cl. 46—28 8 Claims



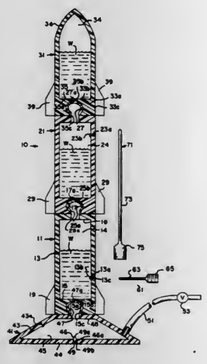
Interengageable construction elements, particularly suited for children but also useful in regular constructions, each such element being made in the form of an elongated body having resiliently engageable clutching elements at the ends thereof. This body is provided with spaced annular ribs and the clutching elements thereon form extensions of the body terminating in a cylindrical extremity. Also, each clutching element has a circular opening to receive the extremity of another clutching element.

3,550,312
AMUSEMENT AND EXERCISE APPARATUS
Yale W. East, Mountain View, Calif. (1220–393 N. Lawrence Expressway, Sunnyvale, Calif. 94086)
Filed Feb. 26, 1969, Ser. No. 802,381
Int. Cl. A63h 5/00
U.S. Cl. 46—52 4 Claims



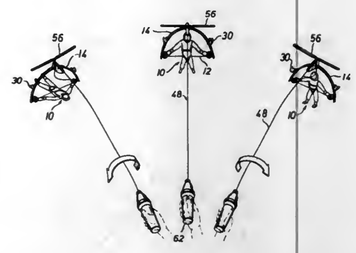
An amusement and exercise apparatus comprised of an elongated handle member having secured at either end thereof rotative assemblies adapted to rotate about the longitudinal axis of the handle member in opposite directions in response to manipulative movement of the handle portion. The rotative assemblies are respectively constrained from rotation in one direction by ratchet-like means which also produce an audible sound when the device is in operation.

3,550,313
MULTISTAGE REACTION TOY
Reginald F. Pippin, Jr., 7806 Ruxway Road, Towson, Md. 21204
Filed Oct. 24, 1965, Ser. No. 504,300
Int. Cl. A63h 27/00
U.S. Cl. 46—74 28 Claims



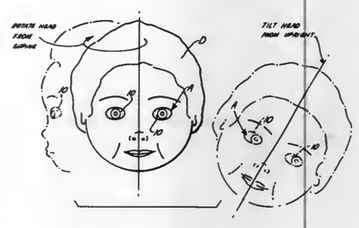
A fluid discharge reaction-propelled toy missile with multiple stages releasably interconnected by pressurizable, collapsibly flexible gripping wall sections, illustrated as pressure-expandable convex hollow bulbous gripping sections each resiliently releasably directly gripping a respective succeeding stage fluid discharge propulsion orifice and releasably sealing it from fluid discharge communication with the atmosphere. Self-sealing lateral inlet valves provided in individual stages enable separate individual stage pressurization from an external pressure source. Missiles are launched from a fluid-pressurizable ground-launching pad having a similar releasable missile-holding connection, with launch simulation enhancement provided by controlled-release lateral liquid spray orifices and a spray-enhancing annular deflector ring.

3,550,314
ASTRONAUT FIGURE TOY WITH SIMULATED WEIGHTLESS ACTION MECHANISM
Victor Stanzel, P.O. Box 171, Schulenburg, Tex. 78956
Filed July 29, 1968, Ser. No. 748,384
Int. Cl. A63h 27/04
U.S. Cl. 46—74 7 Claims



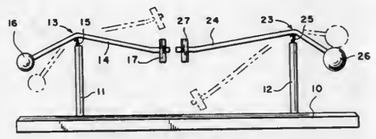
An animated figure toy carried at the end of an elongated flexible support on a rotatable frame upon which the figure is mounted for rotation on an axis substantially normal to the axis of rotation of the frame. The invention includes propeller means rotatably connected to the frame at a location to lift the frame upon rotation of the propeller means, and the frame has deflector means positioned to be affected by the current of air from the propeller means to cause the frame to turn, whereby the figure performs tumbling or oscillating movements giving the semblance of the movements of an astronuat in space under weightless conditions.

3,550,315
SIDE-TO-SIDE MOVING DOLL EYE
Harvey W. Samo, Maplewood, N.J., assignor to Margon Corporation, Rahway, N.J., a corporation of New Jersey
Filed Feb. 21, 1968, Ser. No. 707,075
Int. Cl. A63h 3/40
U.S. Cl. 46—167 4 Claims



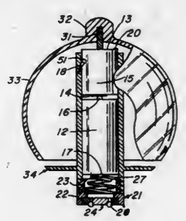
A doll eye assembly in which an eye member is pivotally mounted in a housing in a manner, and the weight of which is distributed with reference to its pivotal mounting, such that the eye member moves sidewise and from side-to-side in the eye assembly when a doll head containing the eye member is tilted when in upright position or is rotated when in supine position.

3,550,316
MAGNETIC AMUSEMENT DEVICE
Leonard Macpherson, Los Altos, Calif., assignor to Rathcon, Inc., Dallas, Tex., a corporation of Texas
Filed Dec. 11, 1969, Ser. No. 884,288
Int. Cl. A63h 33/26
U.S. Cl. 46—238 15 Claims



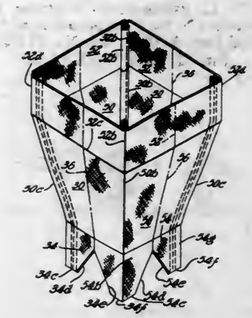
A pair of elongated balanced rotors are pivotally supported on laterally spaced pedestals to rotate without physical interference. Each rotor consists of an elongated rod with a weight at each end and a pivot boss between the ends. One weight for each rotor is a magnet oriented so that the magnetic fields of the two rotors interact with each other when the magnets approach each other to produce a change in relative motion.

3,550,317
ELECTRIC TOP
Paul L. Brown, San Francisco, Calif. (982 Lakeview Way, Redwood City, Calif. 94062)
Filed Jan. 21, 1969, Ser. No. 792,540
Int. Cl. A63h 1/00
U.S. Cl. 46—243 8 Claims



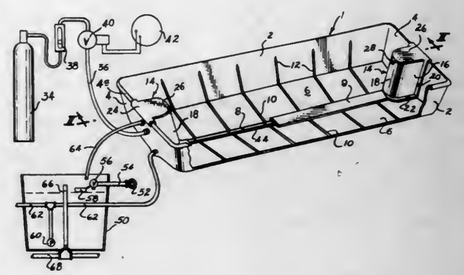
The invention comprises means for effecting three different movements in an electric top upon actuation thereof; said means comprising a base for supporting the top in an upright position on a hard horizontal surface during spinning thereof, a ball bearing unit in said base with a plurality of bearings projecting below the bottom of said base upon which the top moves randomly about on the hard horizontal surface, an electrical circuit, a motor connectable into said circuit, a battery connected to said motor for driving the same and connectable therewith into said circuit, a central vertically disposed column housing said motor and said battery. resilient means for closing and opening said circuit to effect, respectively, the actuation of the top and the cessation of operation of the top, together with a transulcent body extending about said central column, a motor shaft on said motor projecting vertically and axially of said body and connected thereto for rotation with said shaft upon actuation of said motor, and contrasting indicia on said column and on said body which simulate animation upon rotational movement of the top.

3,550,318
CONTOUR FORMED BAG AND METHODS OF MAKING AND USING SAME
Adam Robert Remke and Anna Remke, Chicago, Ill., assignors to Remke Company, Chicago, Ill., a corporation of Illinois
Filed July 11, 1968, Ser. No. 744,157
Int. Cl. A01g 23/04; B65d 29/00
U.S. Cl. 47—37 4 Claims



A contour bag for the "ball" of a removed tree or plant is specially made to fit the form of a predetermined configuration of the "ball." In one example the predetermined configuration of the "ball" results from cutting the ball out of the surrounding soil initially in the configuration of an inverted four-sided pyramid and then removing the pyramid tip portion to form an inverted frustum of a pyramid having a flat area which will allow the plant or tree to stand upright while being stored out of the ground. The contour bag conveniently fits about this form, preserves the flat bottom configuration and thereby facilitates handling, storage and display of the tree or plant. Formation of the bag is effected by cutting a number of separate pieces of material, securely joining their edges together and providing a drawstring around an upper portion.

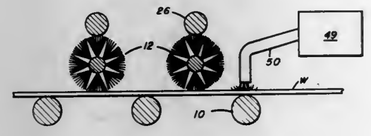
3,550,319
APPARATUS AND METHOD FOR INJECTING PURIFIED GAS TO PLANT ROOTS
Floyd C. Gaines, Jr., Waxahachie, Tex., assignor to Pan American Hydroponics, Inc., Grapevine, Tex., a corporation of Texas
Filed May 31, 1968, Ser. No. 733,400
Int. Cl. A01g 7/02, 31/02; A01n 7/00
U.S. Cl. 47—38 7 Claims



Apparatus and method for injecting purified gas to the roots of plants grown hydroponically comprising a perforated tube connected to a source of purified gas disposed

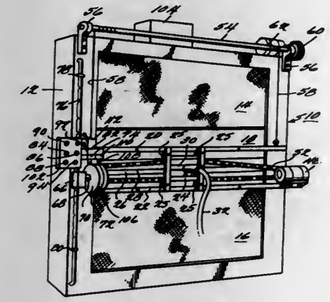
in a channel formed in the bottom of a hydroponic plant trough whereby the purified gas may be injected into contours connected with said channel for disbursing the purified gas into the aggregate supporting roots of the said plants.

3,550,320
GRAINING APPARATUS
David W. Kenyon, West Webster, and William P. Miller, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Dec. 5, 1968, Ser. No. 781,430
Int. Cl. B24b *7/00, 53/04*
U.S. Cl. 51—3 7 Claims



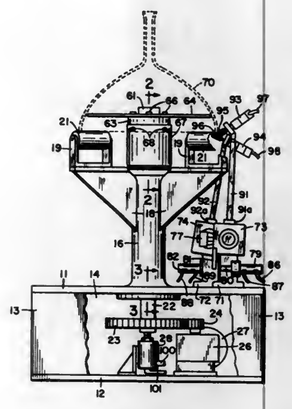
A wear bar is placed against the surface of a grainer brush to cause uniform wearing of the brush surface so that the brush can be used to grain a variety of web widths without regard to sequencing the webs in order of diminishing width.

3,550,321
ELECTRICAL CONTROL ARRANGEMENT FOR A SANDBLASTING MACHINE
Floyd S. Dye, Jr., Rte. 1, Elberton, Ga. 30635
Filed Jan. 9, 1969, Ser. No. 789,978
Int. Cl. B24c *3/00*
U.S. Cl. 51—8 8 Claims



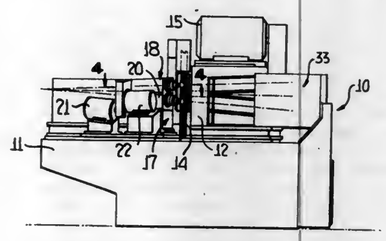
Apparatus for electrically controlling the position of the nozzle of a sandblasting machine. The control is operated either manually or automatically. A first reversible motor is utilized to cause horizontal movement of the nozzle and a second reversible motor moves the nozzle vertically. Rotation of the motors is dictated either directly from an electrical control panel or automatically by limit switches responsive to nozzle location. A solenoid valve in a sandblast generation station is provided to interrupt flow of compressed air in the absence of electrical power to the control arrangement thereby protecting the workpiece from damage by excess sandblast. Timing devices and special contour guides are employed to establish the components of movement of the nozzle and to properly position the nozzle with respect to the workpiece when the latter is not a flat surface.

3,550,322
EDGE BEVELER
Lawrence S. Rajnik and Harris G. Rodgers, Sr., Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Dec. 30, 1968, Ser. No. 787,724
Int. Cl. B24b *9/12*
U.S. Cl. 51—89 8 Claims



Apparatus for beveling the borders of the edges or rims of the open ends of vessels such as rectangular or generally elliptical television picture tube funnel and viewing panel parts or the like. Such apparatus includes means for rotatably supporting said vessels, and at least one pair of first and second motor driven grinding wheels mounted on support members which are normally biased to cause the wheels to contact, at an angle thereto, the inner and outer borders, respectively, of a vessel supported on said support means.

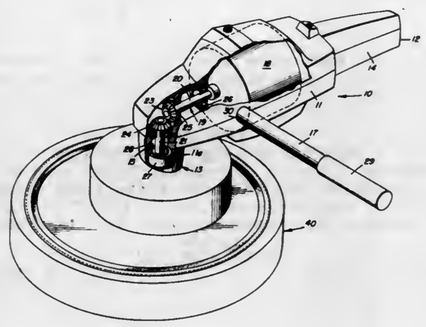
3,550,323
VALVE GRINDING MACHINE
Harold E. Balsiger, Waynesboro, Pa., assignor, by mesne assignments, to Litton Industries, Inc., a corporation of Delaware
Filed Dec. 5, 1967, Ser. No. 688,189
Int. Cl. B24b *5/02*
U.S. Cl. 51—105 11 Claims



The apparatus of this application consists of a machine bed, a grinding wheel support slidably mounted on said bed for movement toward and from a grinding position, a grinding wheel rotatably mounted on the wheel support, work supporting means having means for rotatably supporting workpieces in peripherally spaced relation to the grinding wheel, the work supporting means having axes

intersecting one another and the grinding wheel axis at substantially the same point, whereby to maintain a substantially constant angular relation between the surface of the grinding wheel and the surface of the work to be ground.

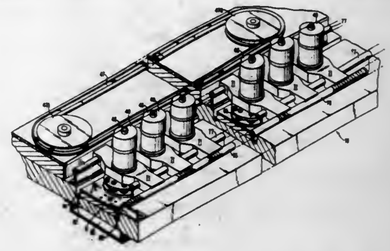
3,550,324
SURFACE TREATING APPARATUS
William J. Gerry, Mendham, N.J., assignor, by mesne assignments, to Red Arrow Enterprises, Incorporated, Bryn Mawr, Pa., a corporation of Pennsylvania
Filed Apr. 17, 1968, Ser. No. 721,986
Int. Cl. B24b *7/00, 23/02*
U.S. Cl. 51—109 20 Claims



In disclosing improvements in surface-treating machines of rotary single head type, a carrier and transmission are indicated, the carrier being mounted to be driven rotationally on a first axis which is coaxial with an angularly fixed member of the transmission. The single head of the machine is journaled on the carrier and is connected with the transmission for being angularly moved by the latter, the movement being in one direction of rotation on a second axis which is parallel to the first axis, while the transmission responds to angular movement of the carrier and the head moving together in an opposite direction of rotation about the first axis. Supplemental features disclosed are pertinent to structure for compensating for radial and moment effects of centrifugal force of the rotary head.

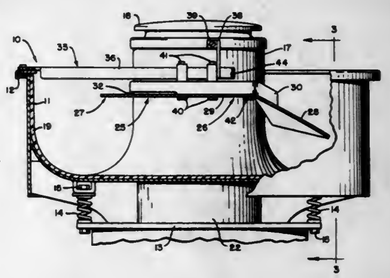
3,550,325
APPARATUS FOR PROVIDING A FINISHED SURFACE ON WORKPIECES
Fred E. Goetz, Wappingers Falls, Perry R. Druzba, Jr., Poughkeepsie, James R. Hause, La Grangeville, and Gerard Seeley, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Mar. 22, 1968, Ser. No. 715,350
Int. Cl. B24b *7/08, 25/00*
U.S. Cl. 51—156 10 Claims

This disclosure teaches the provision of a novel workpiece carrier for engaging the workpiece, and oscillating the workpiece holder relative to a finishing surface while simultaneously providing relative linear movement between the workpiece holder and the finishing surface. The apparatus includes a carrier having drive means for moving the carrier along a linear path of travel. A rotatable mount which is carried by the carrier includes a depending workpiece receiver which is rotatably connected to the mount, the receiver being mounted eccentrically with respect to the carrier. Means are provided for imparting rotation to the mount and separate means such as springs are connected between the receiver and the carrier so as to inhibit rotation of the receiver while permitting oscillation thereof. In this manner, an article being held by the receiver may be engaged and oscillated against the finishing surface in substantially coplanar relationship therewith. In addition, as herein disclosed,



the finishing table upon which the carriers ride may be provided with a plurality of finishing surfaces, each adapted for different finishing operations with intermediate cleaning surfaces to clean the workpiece of any residue adhering thereto from a previous finishing surface.

3,550,326
VIBRATION DEVICE AND METHOD WITH PARTS SEPARATION
George Robinson, Jr., Chicago, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Feb. 23, 1968, Ser. No. 707,644
Int. Cl. B24b *31/00, 1/00*
U.S. Cl. 51—163 2 Claims

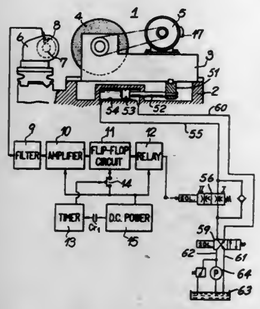


A parts separating device and method for a rotary tumbler comprises a ramp positioned within the tumbler and having a flexible platform extending from its upper end. The operational vibrations of the tumbler cause parts to travel up the ramp and cause the platform to vibrate rapidly, thereby separating the parts that have traveled up the ramp to the platform before the parts fall off of the platform.

3,550,327
FEED CONTROL APPARATUS WITH A SAFETY DEVICE
Takeshi Kusakabe, Kenji Suzuki, and Kimio Kano, Asahimachi, Aichi Prefecture, Japan, assignors to Toyoda Machine Works Ltd., Karya, Aichi Prefecture, Japan
Filed Aug. 7, 1967, Ser. No. 658,707
Claims priority, application Japan, Aug. 11, 1966, 41/52,956
Int. Cl. B24b *49/00*
U.S. Cl. 51—165 4 Claims

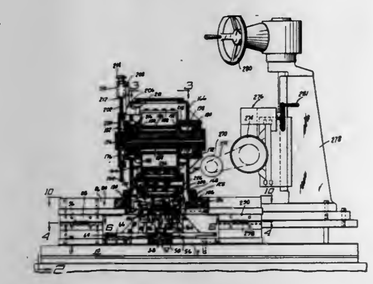
This disclosure is concerned with a feed control apparatus with a safety system, whereby idle cutting time is eliminated automatically by utilizing the semi-conductor transducer whose principle is based upon the piezo-electric

characteristics and the machine tool, particularly grinding machine, provided with the device is free from any trouble by means of the manner that a tool, particularly grinding wheel, will not advance toward a workpiece before the



device has been confirmed to function normally or return instantaneously when the device is checked to function abnormally or not to function at all even during cutting feed.

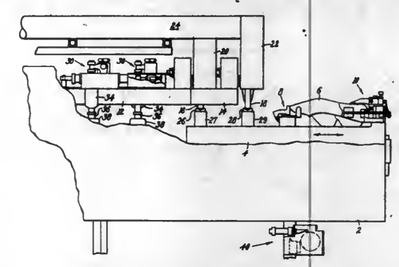
3,550,328
HELICAL GEAR GRINDER MACHINE
Thomas C. Bowen, Birmingham, Mich., assignor to G. L. Bowen and Co., Oak Park, Mich., a corporation of Michigan
Filed Feb. 5, 1968, Ser. No. 703,016
Int. Cl. B24b *47/02*
U.S. Cl. 51—232 **14 Claims**



This application describes a gear grinder machine for forming helical gear teeth on a gear blank. The machine includes a fixture adapted to mount and to index either internal or external helical gear blanks during the formation of the gear teeth. It includes also a powered sine bar assembly which is part of a compound slide mechanism capable of advancing the gear tooth blank in the direction of its axis while rotating it about its axis.

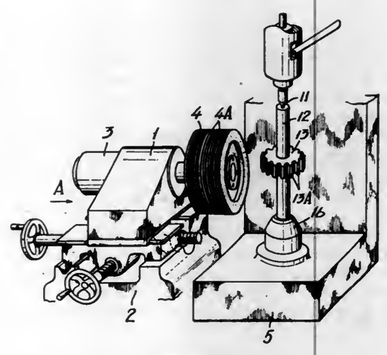
3,550,329
AUTOMATIC GRINDING ATTACHMENT FOR BOTTOM ROUGHING MACHINE
Herbert W. Boot and Frederick H. Langton, Leicester, England, assignors to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed Dec. 12, 1967, Ser. No. 689,989
Claims priority, application Great Britain, Jan. 28, 1967, 4,333/67
Int. Cl. B24b *19/00, 49/00, 51/00*
U.S. Cl. 51—241 **12 Claims**

There is disclosed an automatic resurfacing device for removing a predetermined amount of exterior material from a rotary abrasive tool. The device includes as an integral part, means for returning the abrasive surface of a



brush to a prior datum plane following the resurfacing, relieving the operator of the need to readjust the machine.

3,550,330
PROCESS FOR GRINDING GEARS
Yukiyasu Nakamura, Sayama-shi, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 4, 1967, Ser. No. 687,597
Claims priority, application Japan, Dec. 15, 1966, 41/81,827
Int. Cl. B24b *1/00*
U.S. Cl. 51—287 **3 Claims**

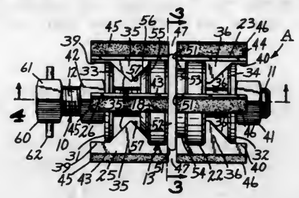


A process for grinding gears wherein the gear to be ground is rotated by light frictional engagement with a driven shaft and is meshed with a rotating toothed grindstone after which the gear is rigidly held in a chuck and the gear and grindstone are forcibly rotated at a predetermined speed ratio to effect grinding of the gear.

3,550,331
CYLINDER HONING DEVICE
Leland V. Watts, Solway, Minn. 56678
Filed June 25, 1968, Ser. No. 739,688
Int. Cl. B24b *9/02*
U.S. Cl. 51—340 **2 Claims**

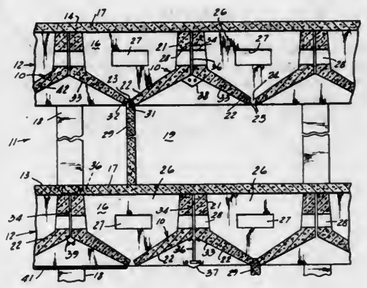
A cylinder honing device having a revoluble member with radial guides for guiding hone holders for radial movement and on which the hones are disposed and conical cams on the revoluble member axially movable relative to one another to engage cam followers on the hone holders to produce outward movement of the cams, together with adjusting means on the revoluble member for producing relative axial movement of the cams and outward radial movement of the hones, and a flexible plastic ring encircling the hone holders and urging the

same for movement toward the axis of the revoluble member. The device further includes an additional cam



and cam follower aiding in causing parallel outward movement of the hones.

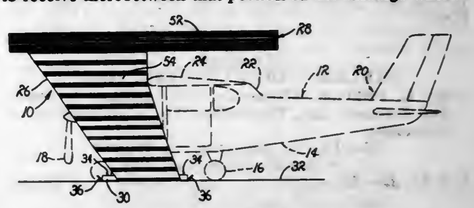
3,550,332
CONSTRUCTION SYSTEM AND CONCRETE STRUCTURAL MEMBER THEREFOR
George Carl Wiesman, Pompano Beach, Fla., assignor to Houdaille Industries, Inc., a corporation of Delaware
Filed Feb. 18, 1969, Ser. No. 800,048
Int. Cl. E04b *1/82, 1/70;* E04c *3/26*
U.S. Cl. 52—28 **9 Claims**



A building construction system wherein a plurality of parallel structural members are interconnected by transversely extending beams supported on spaced columns in a manner to form an elevated floor, roof or ceiling. Each structural member has a pair of opposed, downwardly and outwardly extending wing portions providing heat and light reflecting surfaces. The structural members are further characterized by the wing portion being formed to cooperate with wing portions of adjacent structural members and sheet members overlying an upper surface of said structural members to form longitudinal, air conducting passageways opening into areas underlying the structural members through apertures or openings intermediate the wing portions of adjacent structural members. Additionally, the structural members may include raceways for receiving conduit means encasing electrical wiring to provide electrical connections for lighting fixtures.

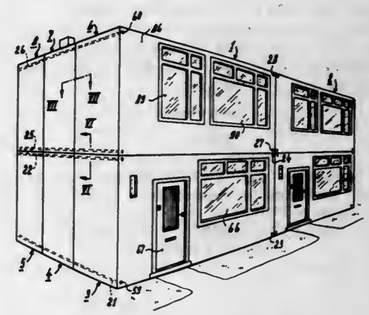
3,550,333
PORTABLE HANGAR
Homer F. Kliewer, deceased, late of Orosi, Calif., by Betty J. Kliewer, administratrix, Orosi, and John E. Rawson, Dinuba, Calif., assignors of one-third to Elmer H. Schuil, Dinuba, Calif.
Filed Sept. 18, 1968, Ser. No. 760,738
Int. Cl. E04b *1/34, 1/343, 6/44*
U.S. Cl. 52—73 **5 Claims**

A portable hangar constituting a protective housing for individual aircraft having an elongated fuselage with a pilot's compartment and wings extending transversely thereof. The housing includes a statically stable, inverted U-shaped frame structure and skin having sides adapted to receive therebetween that portion of the fuselage which



is forwardly of the wings, and a roof interconnecting the upper ends of the sides and extending rearwardly thereof in overhanging relation to the pilot's compartment.

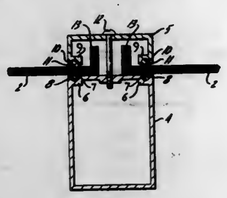
3,550,334
PLURAL STORY BUILDING COMPRISING SUPERIMPOSED BOX-SHAPED DWELLING UNITS
Cornelis van der Lely, Zug, Switzerland, assignor to Patent Concern N.V., Curacao, Netherlands, a limited-liability company of the Netherlands
Continuation-in-part of application Ser. No. 136,797, Sept. 8, 1961. This application Oct. 31, 1966, Ser. No. 590,575
The portion of the term of the patent subsequent to Dec. 19, 1983, has been disclaimed
Int. Cl. E04f *19/08;* E04b *1/02*
U.S. Cl. 52—79 **7 Claims**



A building of elongated box-shaped concrete elements, adjacent elements held together with horizontal tie rods and tongue-and-groove cooperation between contacting vertical walls, the floor of a lower element having an oversized opening which joins a similar opening in the next upper element through which the elements are bolted together, the bolt located relatively near said tie rods; three adjacent elements of an upper story having their interior longer side walls integral with the middle element and the bathroom also being located in said element, the outer elements having windows on one of their longer sides whereby all the elements have their center of gravity disposed near their actual center line so that they can be transported on a truck bed without having undue weight distributed on one side, and so that they bear uniformly on their supporting elements in the finished building; an entrance provided in an integral side wall of said middle element near a wall which is offset from the bathroom and partly surrounds said entrance whereby the builder has the option of using same as an entrance to a small bedroom or of merging the small bedroom with an adjacent bedroom to make a large bedroom and placing a wall across the offset from the bathroom to the offset wall to create a closet with access through the entrance; the shorter walls of an element extending above

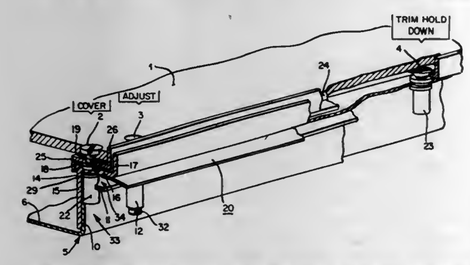
the ceiling to insure that weight from the element above is borne entirely by the walls; the elements having supporting ribs with relatively thin concrete ceilings and floors.

3,550,335
SKYLIGHT JOINT CONSTRUCTION
Larry L. Huffman, Thiensville, Wis., assignor to Super Sky Products, Inc., Thiensville, Wis., a corporation of Wisconsin
Filed Feb. 10, 1969, Ser. No. 797,869
Int. Cl. E04b *7/04*
U.S. Cl. 52—82 **3 Claims**



This invention is directed to a joint construction for skylights in which the glazing panels are of acrylic resin. In order to control the expansion and contraction of the acrylic resin panels, the panels are clamped at their joints between rods of plastic, which are confined in opposed relation in a rafter body and cap respectively and can rotate or permit easy noiseless movement of the panels therein under any tendency of the panels to expand or contract. In addition, the inner ends of the panels at the area inside the joint have upstanding flanges to prevent the panels from working out of the joints and to trap any water which might pass into the joint.

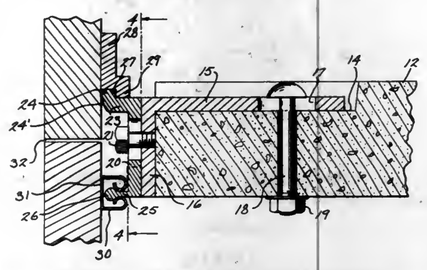
3,550,336
TRENCH DUCTS
Leo J. Halkovich and Stephen M. Janic, Parkersburg, W. Va., assignors to Textron Inc., Providence, R.I., a corporation of Delaware
Filed Feb. 24, 1969, Ser. No. 801,299
Int. Cl. E04f *17/08*
U.S. Cl. 52—127 **2 Claims**



A trench duct having a cover adjusting system providing for an initial cover leveling adjustment right after the pour and a further final cover leveling adjustment after the concrete has hardened.

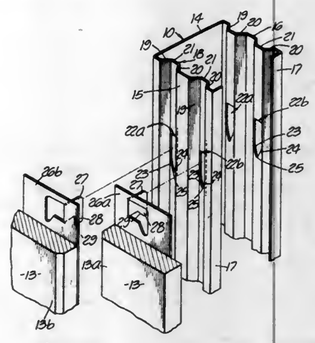
3,550,337
CRYPT CLOSURE
Howard A. Lorenz, 2433 N. 111th St., Milwaukee, Wis. 53226
Filed Nov. 5, 1968, Ser. No. 773,382
Int. Cl. E04h *13/00*; **E06b** *5/00*
U.S. Cl. 52—136 **8 Claims**

Each crypt floor has latching fixtures adjustably secured to its forward edge, each fixture having an upper forwardly projecting supporting shelf with an upwardly projecting tongue for coaction with a groove formed at the lower portion of a latching strip adhesively bonded to the inner side of one marble crypt front near the lower



edge of the latter, and each fixture having a lower horizontal latching tongue for snap insertion in a spring latching socket which is adhesively bonded to the inner surface of another marble front near the upper edge of the latter.

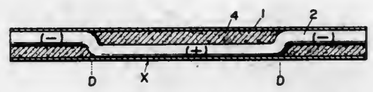
3,550,338
WALL STRUCTURE
David M. Satkin, Hidden Hills, Gene B. Helvie, Newport Beach, and Charles J. Tillotson, Sepulveda, Calif., assignors to Architectural Partitions, Los Angeles, Calif., a corporation of California
Filed Oct. 9, 1968, Ser. No. 766,197
Int. Cl. E06b *3/64*
U.S. Cl. 52—241 **7 Claims**



A removable partition or wall structure in which channel-shaped studs are supported in spaced relation by channel ceiling and floor runners, the parallel legs of the studs providing side surfaces having laterally spaced pairs of slots at longitudinally spaced intervals, the slots being arranged in the bottom wall of longitudinal channels in the stud having flanking side walls converging towards the slots, and the slots having lower end edges converging downwardly towards a point substantially coincident with the longitudinal axis of the slot, wall forming panels being removably mounted on the studs with adjacent marginal hook members projecting rearwardly from the panels, the hook members of one panel being positioned to extend into one set of the slots of the slot pairs and the hook members of the other adjacent panel being arranged to extend into the other set of the slots of the slot pairs, the hook members having a lower rear camming edge coacting, upon downward movement of the panel, with the lower end converging edges of the associated slots to

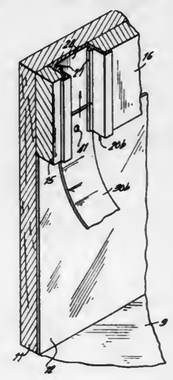
draw the panels against the stud and move the confronting margin edges of the adjacent panels into abutting relation. The flanking side walls at each slot aid in guiding the hook member into the slot.

3,550,339
COMPONENT MEMBER OF CONSTRUCTIONS
Hideo Yanai, 4–14, 3-chome, Chuo, Nakajima, Oita-shi, Japan
Filed June 26, 1968, Ser. No. 740,295
Claims priority, application Japan, July 3, 1967, 42/42,370
Int. Cl. E04b *1/14*; **E04c** *3/34*; **G05d** *11/34*
U.S. Cl. 52—250 **4 Claims**



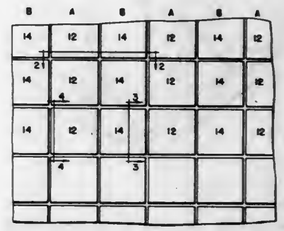
Mechanically strong, light-weight component members of generally horizontal load bearing constructions which are subjected to repeated application of bending load, said component members each comprising an outer pipe made with a material having a highly increased resistance to the applied tensile load, an inner member such as steel pipe or V-shape steel member inserted in said outer pipe, and a mass of concrete having a sufficient resistance to the applied compressive load, said mass of concrete being filled tightly in the space defined by said inner member and said outer pipe, so that the applied tensile load is adapted to be borne by said inner member and said outer pipe and that the applied compressive load is adapted to be borne by said mass of concrete.

3,550,340
MODULAR DECORATIVE WALL CONSTRUCTION
Louis E. Klein, Long Beach, N.Y., assignor to Parkline Corporation, New York, N.Y., a corporation of New York
Original application Dec. 15, 1966, Ser. No. 602,056, now Patent No. 3,458,963, dated Aug. 5, 1969. Divided and this application July 29, 1969, Ser. No. 845,704
Int. Cl. E04b *2/76*; **E04f** *13/08, 19/02*
U.S. Cl. 52—312 **1 Claim**



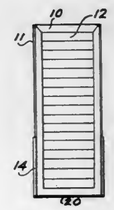
The invention is a modular decorative wall construction, particularly suitable for use in elevator cabs. A series of vertical brackets is provided, each having a right angle U-shaped channel with two outwardly extending flanges and two inwardly extending guides. The brackets are attached to the walls of the cab and the two flanges on each bracket secure the side edges of two adjacent wall panels. Flexible strips of material are contained within the guides of each bracket for decorative purposes.

3,550,341
ACOUSTICAL CEILING SYSTEM
Walter W. Thompson, Box 627, Hazlehurst, Ga. 31539
Filed May 19, 1969, Ser. No. 825,566
Int. Cl. E04b *5/55*
U.S. Cl. 52—488 **8 Claims**



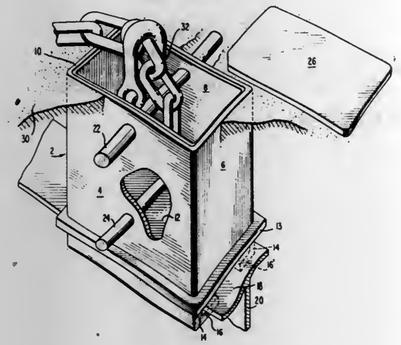
The acoustical ceiling system is made up of rows of acoustical panels supported by longitudinal and transverse bars. The panels in alternate rows are supported by the longitudinal bars. The transverse bars are disposed in the remaining rows to support the panels therein and are terminally connected to the longitudinal bars.

3,550,342
ORNAMENTAL SHUTTER AND MOUNTING THEREFOR
Donald A. South, 998 Tibbetts-Wicks Road, Girard, Ohio 44420
Filed May 5, 1969, Ser. No. 821,604
Int. Cl. E04b *1/38*; **E06b** *7/00*
U.S. Cl. 52—509 **4 Claims**



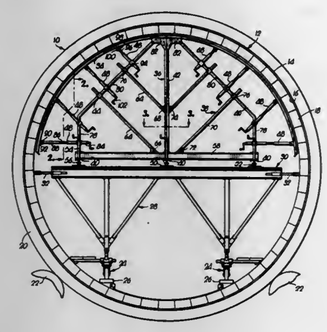
An ornamental metal shutter including an outwardly flanged frame and louvers extending between the vertical portions of the frame is provided with a mounting plate having inturned flanges on its sides and lower edge for slidably receiving the outturned flanges of the shutter frame so as to hold the same in desired ornamental position on a wall adjacent a window or door opening therein.

3,550,343
ANCHOR POT
Ervin Buske, Box 190, Gowrie, Iowa 50543
Filed Mar. 14, 1969, Ser. No. 812,548
Int. Cl. E04b *1/38*; E04c *5/00*
U.S. Cl. 52—704 2 Claims



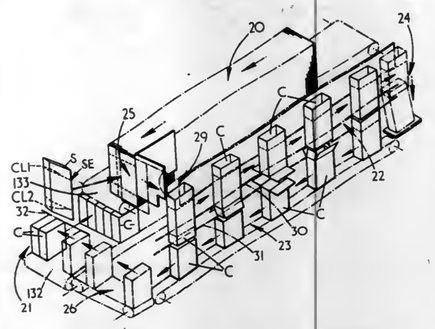
A hollow pot is set into a concrete floor. Means in the pot are provided for receiving an upstanding post or for anchoring the end of a chain.

3,550,344
ADJUSTABLE SUPPORT ASSEMBLY FOR KILN LINING APPARATUS
Robert P. Maier, Raytown, and Donald R. Byfield, Kansas City, Mo., and George G. Reintjes, Overland Park, Kans., assignors to Geo. P. Reintjes Co., Inc., Kansas City, Mo., a corporation of Missouri
Continuation of application Ser. No. 654,811, July 20, 1967. This application July 22, 1969, Ser. No. 847,521
Int. Cl. E04g *11/20*; E01g *5/14*
U.S. Cl. 52—749 1 Claim



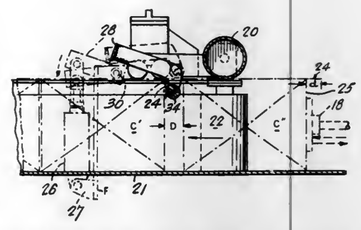
A supporting assembly including a framework to be positioned substantially vertically interiorly of a rotary kiln for adjustably supporting a rigid member in spaced relationship to the interior face of the kiln shell, the framework carrying a plurality of screws which are connected to the rigid member whereby, upon independent operation of the screws, the desired configuration of the rigid member with respect to the interior face of the shell may be maintained.

3,550,345
CARTONING MACHINES AND METHODS
Stanley Milton Silver, London, England, assignor to Keyolok Co. Inc., Dover, Del., a company of Delaware
Filed Oct. 3, 1968, Ser. No. 764,904
Claims priority, application Great Britain, Oct. 9, 1967, 46,074/67
Int. Cl. B65b *43/26*
U.S. Cl. 53—29 24 Claims



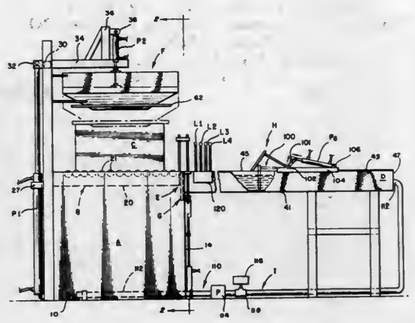
A cartoning machine in which the machine length is employed four times and includes a longitudinal magazine along which flattened cartons are conveyed for transfer at one end to an upper processing track in which the cartons are opened, bottom closed, and possibly charged, the bottom closed carton moving or being moved downwardly to a lower processing track along which it is moved in a direction counter to the upper processing track and in which it is top closed, the cartons (now top and bottom closed) being transferred transversely to a compressing conveyor under the magazine.

3,550,346
METHOD OF SEALING THE MANUFACTURER'S FLAP TO A PACKAGE
Wolfgang Hoffmann, Beaconsfield, Quebec, and Paul Wick, Valois, Quebec, Canada, assignors to Canadian International Paper Company, Montreal, Quebec, Canada
Filed Apr. 19, 1968, Ser. No. 722,603
Claims priority, application Canada, Feb. 28, 1968, 013,593
Int. Cl. B65b *11/10*
U.S. Cl. 53—32 4 Claims



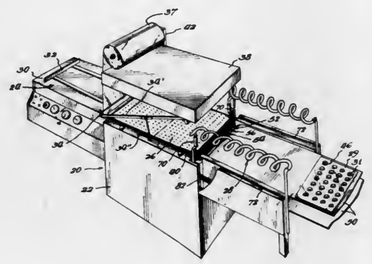
A method of closing and sealing the manufacturer's flap of a partially wrapped commodity by employing leading and trailing aligned packages. The manufacturer's flap of the leading commodity is subjected to downward pressure, and the pressure removed when the trailing commodity is close enough to prevent the flap from fully opening up, followed by bringing the leading and trailing commodities into juxtaposition whereby the juxtaposed manufacturer's flap may be sealed.

3,550,347
BINNING METHOD AND APPARATUS
Robert M. Coates, P.O. Box 64, Waynesboro, Pa. 17268
Filed Feb. 29, 1968, Ser. No. 709,409
Int. Cl. B65b *5/00*, *39/14*
U.S. Cl. 53—35 14 Claims



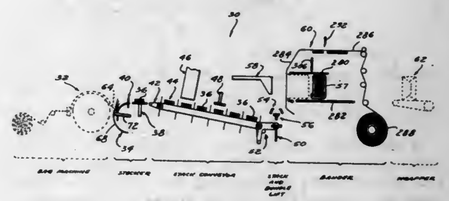
An apparatus having a deep submergence tank holding a body liquid, nonwatertight bin carrying elevator operable to submerge the bin in and surface it above the liquid body, a shallow flume leading from the tank with a tank-flume gateway therebetween (all of which is known in the art) the improvement combining with the foregoing of a collection funnel positionable onto and movable with the bin, the funnel having a gateway aligned with tank-flume gateway when the bin is in its submerged position, a movable control gate for the gateways, one or more measuring sluice gates spaced along the flume from the control gateway, and fluid recirculation means interconnecting the tank and the end of flume remote from the gateway.

3,550,348
AUTOMATIC PACKAGE HANDLING APPARATUS FOR A SKIN-PACKAGING MACHINE
Donald R. Rorer, Lake Bluff, Ill., assignor to Stone Container Corporation, Chicago, Ill., a corporation of Illinois
Filed May 28, 1968, Ser. No. 732,768
Int. Cl. B65b *61/28*
U.S. Cl. 53—112 4 Claims



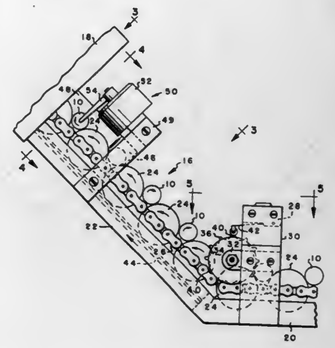
A packaging machine for encasing an article on a base pad or substrate in a thin film of thermoplastic material in which the machine is provided with novel automatic package handling apparatus for removing the skin-package from the work area of the machine immediately after vacuum forming thereof so that a rapid and continuous sequence of operation may be obtained. The apparatus includes means for partially elevating the completed package and means thereafter for engaging and removing the elevated package from the said work area.

3,550,349
BUNDLING MACHINE
William C. Kerker, Yonkers, N.Y., John J. Breen, Public Administrator of the estate of said William C. Kerker, deceased, assignor to Potdevin Machine Company, Teterboro, N.J., a corporation of New York
(Filed under Rule 47(b) and 35 U.S.C. 118)
U.S. Cl. 53—124 15 Claims



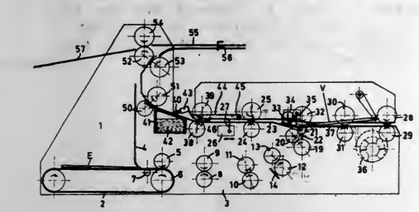
This disclosure is directed to a paper bag bundling machine adapted to remove and stack individual bags produced by a bag-making machine and thereafter convey stacks to a station at which the stacks are superimposed one upon the other and compressed to form a bundle which is adapted to be banded to retain the compressed condition and subsequently wrapped.

3,550,350
COIN CONVEYOR
John K. McCollough, Spartanburg, and Richard D. Wylie, Gaffney, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of South Carolina
Filed June 3, 1968, Ser. No. 734,053
Int. Cl. B65b *61/00*
U.S. Cl. 53—167 4 Claims



Apparatus to align misaligned coins in a package prior to completion of the final package to provide a compact roll of packaged coins. An automatic kicker is used to push a package of loosely packaged coins against a plate to straighten the coins in the package.

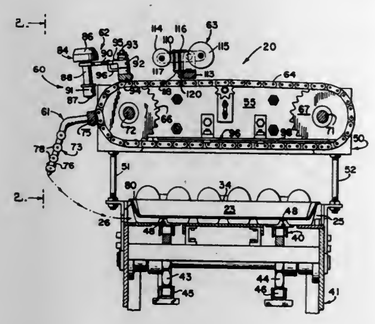
3,550,351
DEVICE FOR TRANSPORTING ENVELOPES AND THE LIKE
Jacobus Fredericus Gombault, Drachten, Netherlands, assignor to Hadewe Eerste Nederlandse Duplicatorfabrieken N.V., Drachten, Netherlands
Filed Nov. 6, 1967, Ser. No. 680,904
Claims priority, application Netherlands, June 29, 1967, 6709095
Int. Cl. B65b 11/48, 43/31
U.S. Cl. 53—187 10 Claims



A device for transporting envelopes in a flap-trailing manner throughout a filling and closing machine wherein the initial opening of the folded over flap of the envelopes taken from associated storage means, the subsequent introduction of enclosure, the moistening of the flap gum layer and the attendant sealed closing of a filled envelope by reversing the direction of envelope travel take place fully automatically.

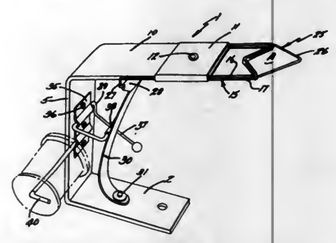
For an envelope filling machine to be considered reliable by the user, it is not only essential that the machine should be able to work undisturbedly, but in addition, a clear view and easy accessibility of the critical points are necessary.

3,550,352
MACHINE FOR CLOSING EGG CARTONS
Harold W. Voorhis, Upper Nyack, N.Y., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed July 18, 1968, Ser. No. 745,871
Int. Cl. B65b 7/26
U.S. Cl. 53—376 21 Claims



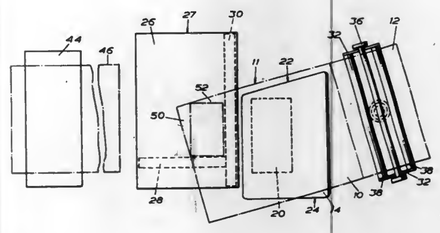
This disclosure is directed to a machine for closing egg cartons or the like, and includes a pair of conveyor chains which carry three successively operative folding mechanisms. The first of the folding mechanisms includes a pair of members normally disposed outboard of an end of a carton body and in alignment with a pair of covers thereof for contacting and progressively folding the covers about hinge lines toward a position in complete overlying relationship to the carton body. The remaining folding means progressively continue the folding operation with the last folding means being designed to effect an interlock between side walls of the covers and upwardly opening notches of the container body.

3,550,353
BAIT SACK FORMING APPARATUS
Raymond J. Haadsma, 1315 Four Mile Road NE., Grand Rapids, Mich. 49505
Filed July 3, 1968, Ser. No. 742,225
Int. Cl. B65b 67/06
U.S. Cl. 53—390 6 Claims



Apparatus for providing egg bait sacks and the like including a pair of holding elements including wire-like members, the elements lying in parallel planes in close proximity to one another and the members bent such that together they trace the perimeter of a sack receiving area, a guide for facilitating movement of one of the elements with respect to the other in their respective planes for varying the size of said area, and means for moving said one of said elements to and from a position minimizing said area defined by said members of said elements.

3,550,354
WRAPPING APPARATUS
Frederick Douglas Clavell Bate, Nelson, England, assignor to Industrial Developments (Packaging) Limited, Queens Works, Burnley, Lancashire, England, a corporation of Great Britain
Filed Feb. 17, 1969, Ser. No. 799,695
Claims priority, application Great Britain, Feb. 17, 1968, 7,864/68
Int. Cl. B65b 67/10
U.S. Cl. 53—390 4 Claims

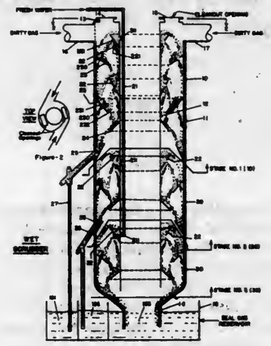


A device is provided for wrapping articles in a U-folded web of heat-shrinkable film including a swivel mount for a supply roll of film to provide for packaging articles of different sizes by inserting the article at varying angles to the axis of the film. Heat shrinking means are provided to cause the wrapper to conform to the shape of the articles.

3,550,355
OXYGEN SEPARATION PROCESS
George A. Remus, Chicago, and Albert J. Gineckert, Skokie, Ill., assignors to General American Transportation Corporation, a corporation of New York
Filed Dec. 22, 1967, Ser. No. 692,904
Int. Cl. B01d 53/22
U.S. Cl. 55—16 9 Claims

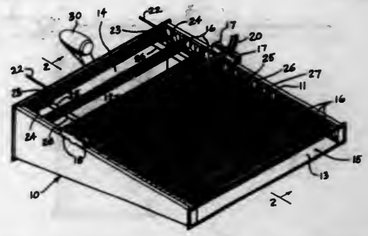
An article having a metal layer with a composition consisting essentially of silver and a minor percentage of at least one other metal is used in a process to separate oxygen gas from a gaseous mixture at an elevated temperature. This article has a longer life for use in the separation than does relatively pure silver.

3,550,356
GAS PURIFICATION PROCESS AND APPARATUS
Harry I. Abboud, 5845 Clematis Drive, Baton Rouge, La. 70808
Filed Jan. 5, 1968, Ser. No. 696,055
Int. Cl. B07d 47/10
U.S. Cl. 55—236 9 Claims



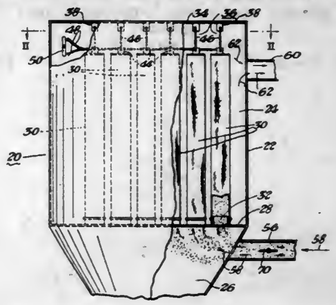
An apparatus for scrubbing aerosols, fumes, or finely divided solids, from industrial gases. In particular, a device is provided wherein a substantially downwardly flowing concentric layer, sheet, or generally continuous film of liquid is tangentially and intimately contacted with swirling aerosol-laden gases (dirty gases) to denude or clean the latter and deposit solids within the liquid. In the preferred apparatus, one or more stages are provided to achieve the desired liquid gas contact. A stage is characterized by an outer tubular shell with one or more tangential dirty gas inlets located within the tubular shell. A relatively small diameter inner tubular shell, mounted concentrically within the outer shell, provides an outlet conduit for scrubbed gases, and a space for water inlet means, if desired. Perforated frustoconic or bowl-shaped lisuid distributor plates and troughs are mounted within the annular space provided between the tubular members, these providing means for passage of liquid downwardly along the inside walls of the outer tubular member for contact with tangentially entering dirty gases. The tangential inlets can be provided at the top or at the bottom of the said outer tubular shell, and hence the entering gases can flow concurrently or countercurrently with the entering liquid.

3,550,357
SEPARATOR HAVING ADJUSTABLE LOUVERS WITH CLEANING MEANS THEREFOR
Henry D. Bowen, 2200 Charlotte Court, Raleigh, N.C. 27607, and Charles P. Stanley, Jr., Raleigh, N.C.; said Stanley assignor to said Bowen
Filed June 13, 1968, Ser. No. 736,738
Int. Cl. B01d 53/30
U.S. Cl. 55—270 3 Claims



A device for separating particles from an air stream, the device having a plurality of elongated, curved cross section, adjustably mounted louvers. Said device having a means to clean the louvers.

3,550,358
FILTER AND SHAKER MEANS THEREFOR
Robert V. McCabe, Pittsburgh, Pa. (107 Sawyer Drive, Aliquippa, Pa. 15001)
Filed June 3, 1968, Ser. No. 733,964
Int. Cl. B01d 44/04
U.S. Cl. 55—305 8 Claims

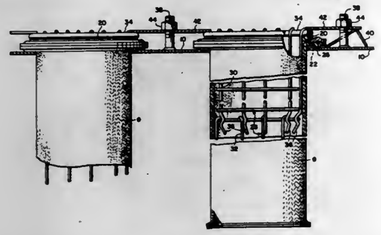


In a filter unit having at least one suspended pliable filtering member, the combination comprising suspending means for said filtering member, said suspending means including a rigid support secured to an adjacent end portion of said filtering member, a pair of link members engaging said support and a supporting structure of said filter unit for loosely and spacedly suspending said support from said supporting structure, transmission means coupled in off-center fashion to said support, and means for reciprocating said transmission means to impart compound shaking movements to said support and to said filtering member.

3,550,359
FILTER BAG CLAMPING APPARATUS
Ervin Fisher, Allentown, Pa., and Ralph W. Russell, North Royalton, and Raymond A. Golembczyk, Garfield Heights, Ohio, assignors to Fuller Company, Catasauqua, Pa.
Filed Nov. 29, 1968, Ser. No. 779,688
Int. Cl. B01d 46/02
U.S. Cl. 55—341 7 Claims

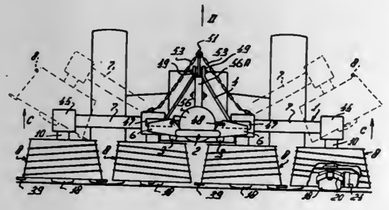
A filter bag clamping arrangement for use in a dust collector wherein the bags are mounted on a support

plate and open at the bag end secured to the support plate to allow gas flow from baghouse to plenum chamber and vice versa; each bag having an outer annular flange at its open end with a solid ring member sewn therein and of greater diameter than the bag receiving aperture of the support plate; an internal cage member adapted to be



fitted within each bag and having a ring member of greater diameter than the bag receiving aperture of the support plate, but of lesser diameter than ring member of the bag; and a clamp secured to the support plate for pressing the cage ring member, bag flange and support plate into sealingly secured relation to one another.

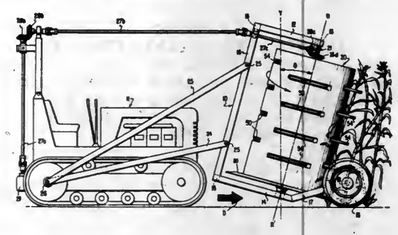
3,550,360
MOWING DEVICE
Cornelis van der Lely, 7 Bruschenrain, Zug, Switzerland
Filed June 14, 1967, Ser. No. 646,092
Claims priority, application Netherlands, June 17, 1966, 6608499
Int. Cl. A01d *75/30*
U.S. Cl. 56—6 **17 Claims**



A mowing device comprising a plurality of rotatably mounted mowing elements which are provided with cutting members and which are arranged side-by-side, with respect to the intended direction of operative travel of the device, so as to co-operate with each other to mow crop on the ground. The mowing elements are arranged so that at least one pair of mowing elements is positioned to trace a path which intersects or touches the track of a ground wheel of a propelling vehicle.

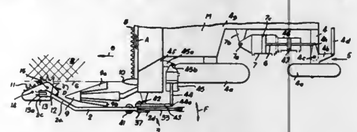
3,550,361
CANE HARVESTER
Juan Faxas, Central Aguirre, Puerto Rico
Filed May 16, 1969, Ser. No. 825,204
Int. Cl. A01d *45/10*
U.S. Cl. 56—16 **9 Claims**

Apparatus for harvesting sugar cane or similar plants which comprises an array of shaft-mounted rotating blades and a rotating slotted drum operatively connecting with and encompassing the blades, the axis of rotation of the drum being parallel with and eccentric to the axis of revolution of the blades. Each of the blades advances out of its respective slot in the drum wall and withdraws back into the drum during a full revolution of the drum. The drum-blade system is suitably mounted on a support



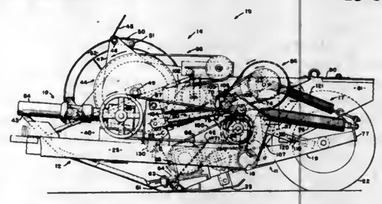
member which may be pushed or towed by a tractor. The drum may be vertically oriented but preferably is forwardly inclined with respect to the direction of travel.

3,550,362
CONTROL SYSTEM FOR THE DIRECTION OF MOVEMENT OF AGRICULTURAL MACHINES
Ewald Graeber, Waiblingen, Germany, assignor to Maschinenfabrik FAHR AG, Gottmadingen, Germany, a corporation of Germany
Filed Dec. 23, 1968, Ser. No. 785,956
Claims priority, application Germany, Dec. 21, 1967, 1,582,237; Oct. 2, 1968, 1,800,473
Int. Cl. A01d *35/02*
U.S. Cl. 56—25 **30 Claims**



A mower assembly for a field harvesting machine which has a sensing head ahead of the sickle bar, the sensing head is responsive to the stalk line for steering the vehicle and includes a pair of star wheels rotatable about substantially vertical axes and staggered transversely of the stalk line such that one of the star wheels is rotated when the stalk line is properly engaged but corrective steering is initiated when neither of the star wheels or both of the star wheels are rotated.

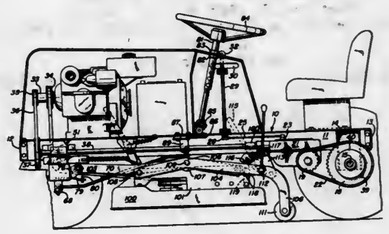
3,550,363
HARVESTER
Lawrence M. Halls, New Holland, Pa., and Joseph H. Cyr, Longvic, France, assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Continuation of application Ser. No. 589,706, Oct. 26, 1966. This application Dec. 15, 1969, Ser. No. 884,766
Int. Cl. A01d *43/10*
U.S. Cl. 56—23 **13 Claims**



A harvesting machine, having a wheel supported frame, a header, pivotally secured to the frame, transversely extending conditioning rolls mounted in the header and

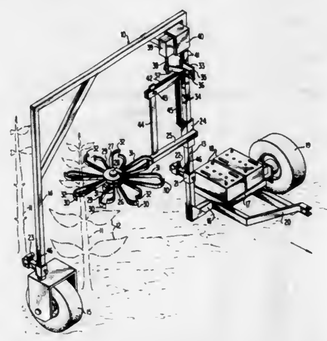
spring means for supporting the header and yieldably biasing the rolls together, whereby the header may float relative to the ground and the rolls may separate when excessive amounts of material are passed between them.

3,550,364
RIDING MOWER
Orly Musgrave, Springfield, Ohio, assignor to Mast-Foos Manufacturing Company, Incorporated, Springfield, Ohio, a corporation of Ohio
Filed Sept. 25, 1967, Ser. No. 670,151
Int. Cl. A01d *35/26*
U.S. Cl. 56—25.4 **15 Claims**



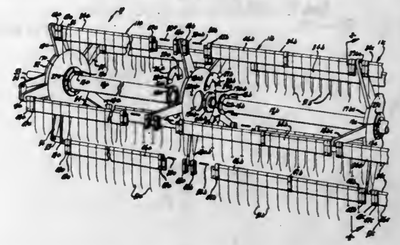
A tractor type work vehicle having a novel independent front suspension, unique support elements which stabilize its chassis, a simple disposition of controls and means for a stabilized mount thereto of working elements such as mower blades to enable the adjustment thereof in correspondence with said front suspension; preferred embodiments providing rugged, durable and highly versatile riding mowers and like vehicles.

3,550,365
TOBACCO PRIMING APPARATUS
Wilson Lovett, Green Sea, S.C. 29545, and Dale Burroughs, Rte. 1, Louis, S.C. 29569
Filed Dec. 6, 1968, Ser. No. 781,767
Int. Cl. A01d *45/16*
U.S. Cl. 56—27.5 **6 Claims**



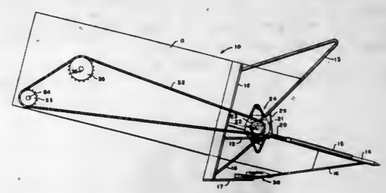
A tobacco priming apparatus which traverses a row of tobacco plants and removes tobacco leaves from selected portions of the plants by the vertical reciprocation of leaf stripping elements carried on free turning rotors, said elements having the ability to surround the main stalks of the plants prior to quick downward movement which separates the leaves from the stalks.

3,550,366
MODULAR REEL FOR HARVESTING MACHINERY
Charles M. Gibson, Stockton, Calif., assignor to Universal Harvester Co., Inc., Stockton, Calif., a corporation of California
Filed Mar. 13, 1969, Ser. No. 807,031
Int. Cl. A01d *57/02*
U.S. Cl. 56—226 **16 Claims**



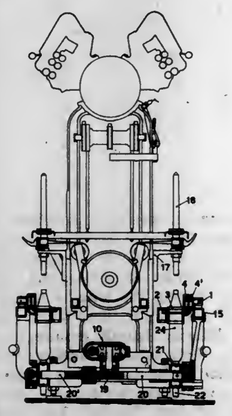
A reel structure for swathers, combines and like harvesting machinery. The reel structure is of modular construction and enables reels of substantially any desired length to be provided by assembling the requisite number of reel modules having the lengths necessary to aggregate the desired reel length, thereby conveniently accommodating the differing length requirements of a great variety of users. Such modular reel structure includes a plurality of center shafts disposed in axial succession and a plurality of drive spiders respectively connected with the shaft adjacent the ends thereof. The drive spiders are equipped with angularly spaced, radially projecting arms supporting at their outer ends bat assemblies that extend between the aligned arms of successive drive spiders. Main connector structure interconnects the adjacent ends of each successive pair of shafts and the drive spider located thereat, and additional connector structure interconnects the adjacent ends of each successive pair of bat assemblies and the associated radial arm of the drive spider providing the same.

3,550,367
ROTARY CUTTING DEVICE FOR A HARVESTING MACHINE
Delmar C. Harer, New Holland, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Apr. 1, 1968, Ser. No. 717,542
Int. Cl. A01d *63/00*
U.S. Cl. 56—315 **3 Claims**



A rotary cutting device for a harvesting machine wherein a rotary cutting device is mounted on a substantially vertical side wall of a harvesting machine header, adjacent a crop dividing means also connected to the header, so as to be able to cut crop material tending to clog at the end of a sickle means, extending across the header, and aid a crop divider means in separating the cut from the uncut material as the machine passes through dense or viney crop material.

3,550,368
AUTOMATIC SPINNING MACHINE HAVING A DEVICE FOR THE AUTOMATIC DOFFING OF THE BOBBINS AND REPLACING OF THE TUBES
Mario Marenco, Genoa-Pra, Italy, assignor to Nuova San Giorgio S.p.A., Genoa, Italy, a body corporate of Italy
Filed Aug. 16, 1968, Ser. No. 753,216
Claims priority, application Italy, Aug. 30, 1967, 811,174
Int. Cl. D01h *9/00, 9/02, 9/08*
U.S. Cl. 57—52 3 Claims



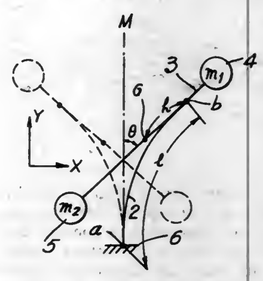
An automatic spinning machine for automatically doffing bobbins and replacing tubes characterized in that the automatic doffing and replacing device is formed of an articulated frame, supported by a bearing structure and comprising a pair of connecting rods, a pair of sliding blocks or sleeves, a round bar for guiding sliding blocks and a crosspiece carrying the clamping means, controlled for an upward and downward movement and a rigid horizontal translating movement, said device being integral part of the spinning machine, and being arranged at its rest position under the spindle-holder in a position in which the occupation of space is reduced.

3,550,369
STEAMED COUPLED-PROCESS NYLON YARN
Gilbert Pitzl, Chattanooga, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Continuation-in-part of application Ser. No. 754,160, June 17, 1968, which is a division of application Ser. No. 451,822, Apr. 29, 1965. This application Sept. 10, 1969, Ser. No. 864,256
Int. Cl. D02g *3/02*
U.S. Cl. 57—140 2 Claims



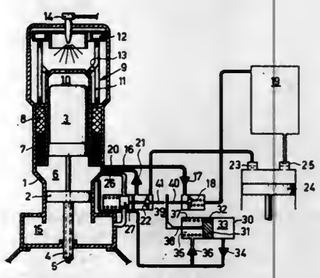
In a coupled process for making nylon yarn, steaming of the yarn after quenching and before drawing gives the filaments a rougher surface as compared to unsteamed, coupled-process yarns, but does not affect the core of the filaments. Thus, the yarn exhibits the advantages of coupled-process yarns, viz, superior strength, modulus, and rate and depth of dyeing, relative to split-process yarns, without the disadvantage of increased yarn-to-guide friction in processing. The filaments, as viewed in electron micrographs of shadowed cross-sections, exhibit a smooth core surrounded by a grainy skin. The skin is more nighly crystalline and exhibits higher birefringence than the core.

3,550,370
ELECTRIC TIMEPIECE
Tadayoshi Shimodaira, Suwa-shi, Japan, assignor to Kabushiki Kaisha Suwa Seikosha
Filed Dec. 5, 1967, Ser. No. 704,965
Claims priority, application Japan, Nov. 10, 1967, 42/72,171
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 3 Claims



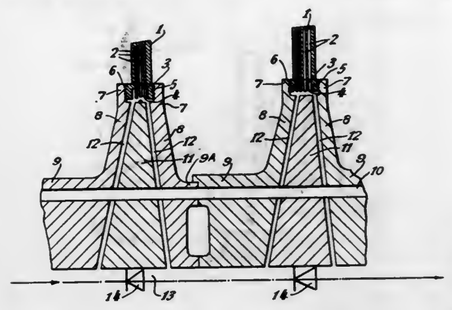
A vibrator for an electric timepiece utilizing an oscillator as a time base including an inertia body formed from an arm having a mass disposed at each end thereof and a spring connected to said inertia body at a point intermediate said masses. The inertia body is symmetrically oscillated in a plane about an axis of symmetry. The inertia body is selected to have a center of gravity which moves in a straight line on said plane normal to said axis of symmetry.

3,550,371
HOT GAS ENGINE WITH SPEED CONTROL
Hendrik Alphons Jaspers, Emmasingel, Eindhoven, Netherlands, assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 4, 1968, Ser. No. 781,011
Claims priority, application Netherlands, Dec. 22, 1967, 6717632
Int. Cl. F03g *7/06;* F25b *9/00*
U.S. Cl. 60—24 10 Claims



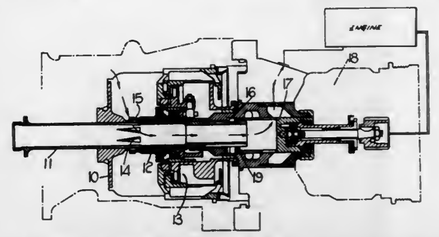
A hot-gas engine with a control means responsive to changes in engine speed via a duct communicating pneumatically with the working space, and an actuator driven by said control means responsive, to open and close valves permitting a flow of gas into and out of the working space corresponding to excessively low and high engine speeds respectively.

3,550,372
METHOD AND APPARATUS FOR OPERATING A GAS TURBINE WITH GASES INCLUDING CONTAMINANTS OF A RESIDUAL FUEL
Hugh Robert Morton Craig, Sale, England, assignor to Associated Electrical Industries Limited, London, England, a British company
Filed Aug. 5, 1968, Ser. No. 750,347
Claims priority, application Great Britain, Aug. 3, 1967, 35,641/67
Int. Cl. F02c *7/14*
U.S. Cl. 60—39.02 11 Claims



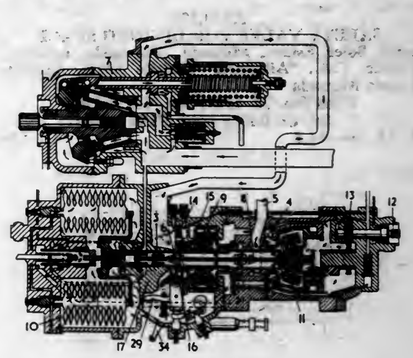
The invention is of a method of operation of a gas turbine and adaptations to enable the method to be used. It resides in preventing damage or deterioration of the surfaces which are exposed to gas containing harmful contaminant by keeping them below damage temperature and/or by providing other surfaces to be exposed so as to collect the contaminant and remove it cyclically.

3,550,373
FUEL SYSTEMS FOR GAS TURBINE ENGINES
Joseph Lewis Bloom, Baie d'Urfe, Quebec, Canada, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed July 9, 1968, Ser. No. 743,467
Int. Cl. F01c *17/06;* F02c *9/08;* F16k *29/02*
U.S. Cl. 60—39.28 1 Claim



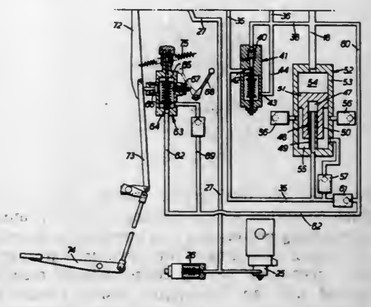
A device for controlling fuel flow to a gas turbine engine comprises a tubular member having apertures through which fuel flows to the engine, a fixed sleeve, an axially movable sleeve surrounding the tubular member to determine the fuel flow rate, the member being rotatable from the engine through a part, the member and part having interengaging portions whereby relative rotary movement between the member and part occurs as they rotate.

3,550,374
SPEED RESPONSIVE GOVERNORS
Joseph Lewis Bloom, Baie d'Urfe, Quebec, Canada, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed July 23, 1968, Ser. No. 746,876
Int. Cl. F01c *17/06;* F02c *9/08;* G01p *15/02*
U.S. Cl. 60—39.28 3 Claims



A speed responsive governor for controlling fuel supplies to a gas turbine engine comprising an engine driven element to control fuel flow, a first lever angularly movable in response to engine speed changes, a first cam surface on the first lever, an angularly movable element spring loaded against the cam surface, a control lever to affect angular movement of the angularly movable element to vary the load on the driven element, a cam connected to the angularly movable element for movement therewith, and a cam follower connected to the control lever angular movement of the control lever resulting in linear variation in fuel flow.

3,550,375
HYDRAULIC RAM APPARATUS
Hubert Veare Norton, Leslie Buckingham Norton, and Douglas Edwin Norton, Smallfield, Horley, England, assignors to Norton Tool Company Limited, Smallfield, Horley, Surrey, England
Filed Apr. 18, 1969, Ser. No. 817,324
Claims priority, application Great Britain, Apr. 22, 1968, 18,826/68
Int. Cl. F15b *15/18*
U.S. Cl. 60—52 8 Claims



Hydraulic ram apparatus supplied by a single pump which delivers fluid to an actuating element for a reservoir unit whereby a large volume of fluid is delivered

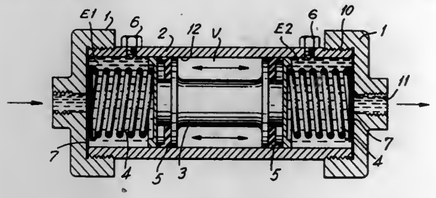
to the ram from the reservoir unit to produce a fast approach movement. A pressure-sensitive change-over valve switches the pump delivery from the reservoir actuator unit direct to the ram when the ram encounters resistance, to supply a smaller volume of fluid at high pressure for the working movement of the ram.

3,550,376

SAFETY VALVE FOR DIVIDED SPACE

Vicente Soler Esteve, Miranda, Venezuela, assignor to Tolaca, C.A., "Altamira," Distrito Sucre, Venezuela, Estado Miranda

Filed Jan. 22, 1969, Ser. No. 793,035
Int. Cl. B60t 11/10; F15b 7/00
U.S. Cl. 60—54.5 1 Claim



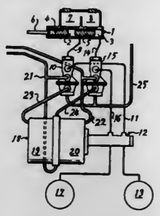
A valve is provided which has a cylinder divided into two end chambers by an intermediate piston of spool-like shape. Two springs hold the piston in centered position so that pressure can be transmitted through the cylinder without the passage of the pressure medium through the cylinder. The valve can be employed in a hydraulic system in order to isolate the source from the utilization devices which may be, for example, brake systems on a vehicle. The valve serves to prevent leaks and other defects in the braking system from affecting the operation of the pressure source in such a manner as to affect the other braking system or utilization devices.

3,550,377

INTENSIFIER FOR DUAL SYSTEM POWER BRAKES

Toyoju Mochizuki, 5–10, 7-chome Roppongi Minatoku, and Mamoru Watanabe, 16, 6-chome Takinogawa Kitaku, both of Tokyo, Japan

Filed Feb. 17, 1969, Ser. No. 799,732
Claims priority, application Japan, Feb. 15, 1968, 43/9,124
Int. Cl. F15b 7/08, 11/00
U.S. Cl. 60—54.5 9 Claims



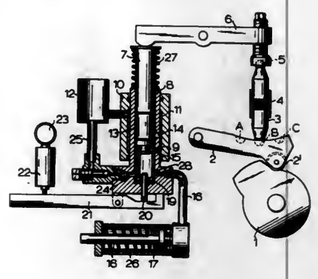
An intensifier for dual system power brakes is provided which comprises an intensifying cylinder composed of two intensifying pistons and two intensifying chambers, and a servo-motor consisting of two servo-units arranged in series, the servo-units having reciprocatable members, each engaged with an intensifying piston extension in such a manner that the reciprocatable members can move independently of each other to drive the intensifying pistons through operating strokes. One of the intensifying pistons is floating and has resetting positions in the forward and backward directions preset by engageable restrictive linkages, and the main intensifying piston has an effective diameter not less than that of said floating intensifying piston.

3,550,378

HYDROMECHANIC CONTROLS FOR AUTOMATIC MACHINE TOOLS AND MORE PARTICULARLY FOR AUTOMATIC LATHES

Siegfried Puck, Wilhelmshohe, Germany, assignor to Hugo Karrenberg & Sohn K.G., Velbert, Rhineland, a firm of Germany

Filed Feb. 13, 1969, Ser. No. 798,917
Claims priority, application Germany, Feb. 13, 1968, 1,652,691
Int. Cl. F01l 1/00; F15b 7/00
U.S. Cl. 60—54.5 4 Claims



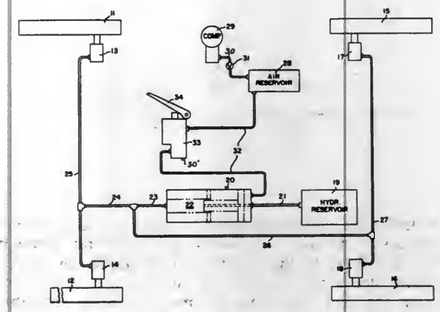
An open hydraulic-mechanic system for controlling automatic machine tools such as automatic lathes. The system comprises a hydraulic medium reservoir which is open to the surrounding atmosphere and a feed line containing a control piston such that when the control piston is in its withdrawn position the hydraulic medium has access to the pressure chamber of the control cylinder through the wall of the control cylinder via a recess in the control piston.

3,550,379

BRAKE SYSTEM AND ACTUATOR THEREFOR

Frank T. Cox, Jr., Ashtabula, and Richard L. Powers, Conneaut, Ohio, assignors, by mesne assignments, to Rockwell-Standard Company, Pittsburgh, Pa., a corporation of Delaware

Filed Feb. 12, 1969, Ser. No. 798,693
Int. Cl. F15b 7/08, 15/20
U.S. Cl. 60—54.6 8 Claims



An actuator assembly for the braking system of a wheeled vehicle comprises a hydraulic cylinder connected at one end to the wheel cylinders, a plunger slidably extending into the hydraulic cylinder, a fluid tight seal between the plunger periphery and the hydraulic cylinder, a pneumatic cylinder containing a spring biased slidable piston on which the plunger is secured, and valve means responsive to the position of the plunger for closing fluid communication between the hydraulic cylinder and a supply of hydraulic fluid except when the plunger is in a limit position corresponding to brake disengagement.

3,550,380

HYPERGOLIC ROCKET FUELS AND METHOD OF CONTROLLING COMBUSTION OF SAME

Kenneth C. Halliday, Jr., Port Washington, N.Y., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Jan. 18, 1955, Ser. No. 482,680
Int. Cl. F23r 1/00; C06d 5/08
U.S. Cl. 60—215 16 Claims

1. A hypergolic fuel for nitric acid rocket motors consisting essentially of from about 25 to 95% allylated catechol, from about 1 to 25% 2,2,4,6-tetramethyl-1,2-dihydropyridine and from 0 to 35% of at least one diluent selected from the group consisting of diallyl ether, vinyl-n-butyl ether, methylal, and n-hexane.

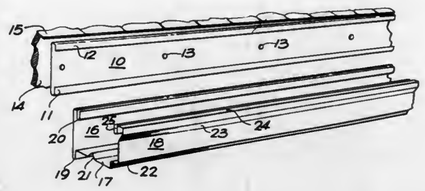
12. The method of controlling the combustion of methylal in the combustion chamber of a nitric acid rocket motor which comprises intimately mixing nitric acid and methylal and effecting said combustion by commingling the mixture with a catechol and 2,2,4,6-tetramethyl-1,2-dihydropyridine whereby said methylal is hypergolically combusted, said catechol and 2,2,4,6-tetramethyl-1,2-dihydropyridine being present in amounts of about 60 mol percent and 20 mol percent respectively, based on the amount of methylal.

3,550,381

RAIN GUTTER AND MOUNTING MEANS THEREFOR

Donald A. South, 998 Tibbetts-Wick Road, Girard, Ohio 44420

Filed May 5, 1969, Ser. No. 821,605
Int. Cl. E02b 9/04; E04d 13/00
U.S. Cl. 61—15 3 Claims



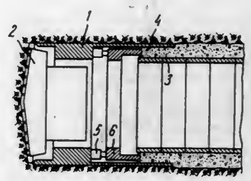
A rain gutter comprising a generally channel shaped rolled metal shape is disclosed having down turned and up turned flanges on one of its sides for registry with up turned and down turned flanges respectively on a mounting plate. A perforated sheet is arranged to cover the open top portion of the rain gutter and is provided with flanges nesting in the flanges of the gutter and the mounting plate whereby the assembly is held in assembled relation and in operative relation to the edge of a roof so as to receive rain water therefrom.

3,550,382

METHOD OF CONSTRUCTION OF TUNNEL LINING

Vladimir Alexandrovich Khodosh, Ul. Burdenko 16/12, kv. 16; Sergei Fedorovich Salov, Ul. Akademika Koroleva 9, korpus 2, kv. 284; Valentin Alexandrovich Ivanov, Ul. Konstantinova 4, kv. 25; Evstafy Andreevich Vasilenko, Rizhsky proezd 1/5, kv. 50; Leonid Ivanovich Savelíev, Otkrytoe shosse 29, korpus 11, kv. 58; Evgeny Moiseevich Bolotin, Otkrytoe shosse 24, korp. 25, kv. 12; and Leonid Konstantinovich Khaidurov, Otkrytoe shosse 24, korp. 5g, kv. 31, all of Moscow, U.S.S.R.

Filed Feb. 7, 1968, Ser. No. 703,763
Claims priority, application U.S.S.R., Feb. 8, 1967, 1,133,321
Int. Cl. E01g 5/08; E21d 11/10
U.S. Cl. 61—45 4 Claims



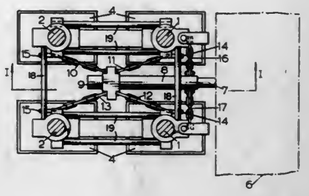
A method of constructing a tunnel lining is disclosed in which concrete is fed behind an intermittently advancing shield during each successive stage of advancement to form a lining along the tunnel as the tunnel is being cut by the shield. The concrete is compacted during and by the progressive advance of the shield and a uniform compacting pressure is applied to the concrete with counter-pressure on the shield and the face of the tunnel at the end of each advance of the shield when the latter is stationary.

3,550,383

SUPPORT PIERS FOR MINES

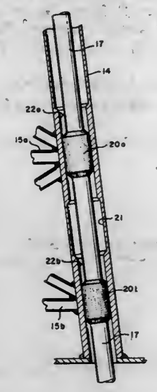
Raymond Bore, 61 Rue des Ireclaude, 42 Saint Etienne, France

Filed Apr. 3, 1968, Ser. No. 718,459
Claims priority, application France, Apr. 3, 1967, 48,489
Int. Cl. E21d 23/00
U.S. Cl. 61—45 1 Claim



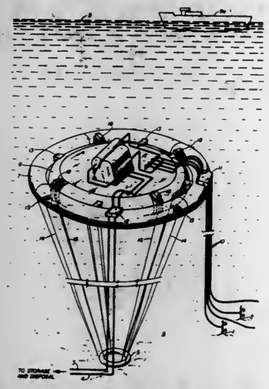
In a pier for use in mines, a horizontal jack cylinder is linked to the supporting pier jacks by four chains connected to its rear end and by two transverse chains connected to its front end. This simple configuration allows a certain degree of movement of the jack in the vertical plane, which is useful when shifting the conveyor or moving the pier forward.

3,550,384
LATERAL RESTRAINT OF PILE WITHIN JACKET LEG
John J. Bardgette, Orleans Parish, La., and William J. Ruez III, Houston, Tex., assignors to Esso Production Research Company
Filed Feb. 7, 1969, Ser. No. 797,469
Int. Cl. E02d *5/60*
U.S. Cl. 61—46 10 Claims



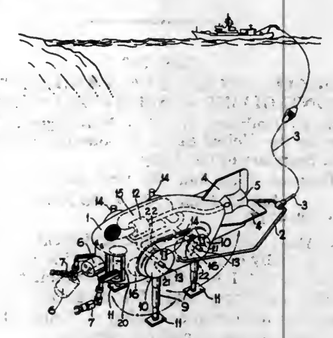
Ring members are attached to the outer surface of piles which are positioned in the lower jacket legs (hollow tubular members) used in foundations for offshore platforms. The ring members bridge the annular space between the outer surfaces of the piles and the inner surfaces of the lower jacket legs.

3,550,385
METHOD OF AND MEANS FOR FIELD PROCESSING OF SUBSEA OIL WELLS
Judson D. Lowd and Ernest C. Hill, Tulsa, Okla., assignors to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 4, 1968, Ser. No. 773,121
Int. Cl. B63b *35/44*; B63c *11/00*
U.S. Cl. 61—46.5 9 Claims



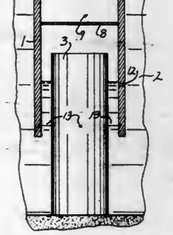
A buoyant platform is anchored to float a predetermined distance below the surface. Field processing equipment for subsea oil wells is mounted on the platform. Procedures and equipment for floating the platform to location and setting it at its subsea location are disclosed.

3,550,386
UNDERWATER VEHICLE
Hugh Anthony Ballinger, Abingdon, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Mar. 28, 1968, Ser. No. 716,730
Claims priority, application Great Britain, Mar. 31, 1967, 14,975/67
Int. Cl. B25j *3/00*; B63c *11/00*; B63g *8/00*
U.S. Cl. 61—69 8 Claims



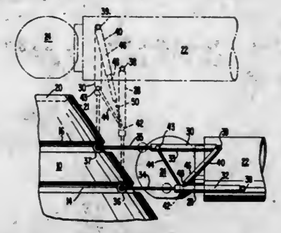
An underwater vehicle comprising a free flooding streamlined body shell attached to a control cable, one or more retractable manipulator arms mounted on a rotatable turret within the body, propulsion means and manoeuvring control means, and a retractable limb.

3,550,387
SUBMERGED APPARATUS AND METHOD OF POSITIONING THE SAME
Thomas B. Fifield, 1535 W. Dean Road, Milwaukee, Wis. 53217
Filed Oct. 17, 1968, Ser. No. 768,309
Int. Cl. B63c *11/44*; E02d *9/06*
U.S. Cl. 61—69 8 Claims



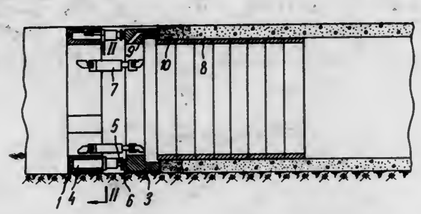
The present disclosure includes an inverted cup-shaped cylindrical container filled with air and immersed in a body of water. The gas-filled container produces a selective negative buoyancy such that the container submerges and approaches the bottom of the water body. A control post is secured to the bottom and projects upwardly into the gas-filled container. At a preselected projection of the control post into the container, the structure reaches the position of neutral buoyancy and is locked to the post.

3,550,388
LOCATING AND ATTACHMENT MEANS FOR A SUBMERSIBLE VEHICLE
Melvin Wilmer Smith, Edgewater, Md., and André Georges Brun, Paris, France, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 18, 1968, Ser. No. 776,478
Int. Cl. B63c *11/34*
U.S. Cl. 61—69 16 Claims



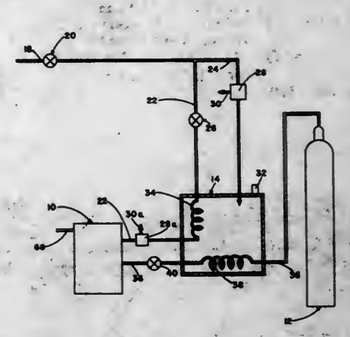
A system of extensible jacks on a submersible vehicle which is adapted to locate itself precisely on a conical or a sloping structure placed beneath the surface of the water and includes one or more recessed grooves on the outer surface thereof to which the vehicle attaches itself.

3,550,389
DEVICE FOR ERECTING MONOLITHIC CONCRETE LINING OF UNDERGROUND EXCAVATIONS
Vladimir Alexandrovich Khodosh, Ul. Burdenko 16/12, kv. 16; Sergei Fedorovich Salov, Ul. Akademika Koroleva 9, korpus 2, kv. 284; Valentin Alexandrovich Ivanov, Ul. Konstantinova 4, kv. 25; and Evstafy Andreevich Vasilenko, Rizhsky proezd 1/5, kv. 50, all of Moscow, U.S.S.R.; Budu Pavlovich Pachulia, Ul. Pavlova 8a, kv. 4; and Abesalom Iosifovich Kurashvili, Ul. Pavlova 4, kv. 23, both of Tbilisi, U.S.S.R.; Evgeny Moiseevich Bolotin, Otkrytoe shosse 24, korpus 25, kv. 12; and Leonid Konstantinovich Khaidurov, Otkrytoe shosse 24, korpus 5g, kv. 31, both of Moscow, U.S.S.R.; and Irakly Shalvovich Machavariani, Ul. Pavlova 4, kv. 26, Tbilisi, U.S.S.R.
Filed Feb. 16, 1968, Ser. No. 706,065
Claims priority, application U.S.S.R., Feb. 20, 1967, 1,134,238
Int. Cl. E01g *5/16*; E21d *11/10*
U.S. Cl. 61—84 3 Claims



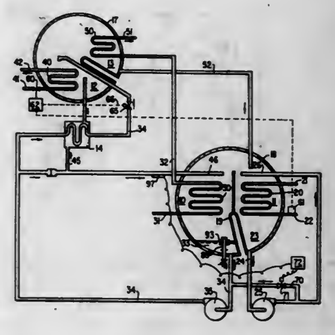
Shield-tunneling apparatus is provided with a first pressing ring adapted for compressing concrete admitted therebehind in an excavation, the pressing ring being connected by jacks to a second ring disposed ahead of the first ring and provided with radial gaps in which wedges are engaged for being radially displaced to expand and contract the second ring for engaging and disengaging the walls of the excavation. When the second ring is tightly engaged in the excavation, the jacks can be extended to cause the pressing ring to compress the concrete therebehind.

3,550,390
METHOD AND APPARATUS FOR ECONOMIZING THE USE OF REFRIGERANT
Thomas J. Puzniak, Checwick, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Original application Apr. 4, 1967, Ser. No. 628,384, now Patent No. 3,496,760, dated Feb. 24, 1970. Divided and this application Oct. 7, 1969, Ser. No. 864,418
Int. Cl. F25b *9/02*
U.S. Cl. 62—5 10 Claims



Method and apparatus for economizing the use of refrigerant in freezing or other cooling apparatus comprising a precooler vessel through which the refrigerant passes. Pressurized service air is passed through vortex coolers to be used directly at a point of use, and to precool the precooler vessel. The point of use may utilize one or both of the refrigerant or the stream of cold air, both of which pass through the precooler vessels in coils.

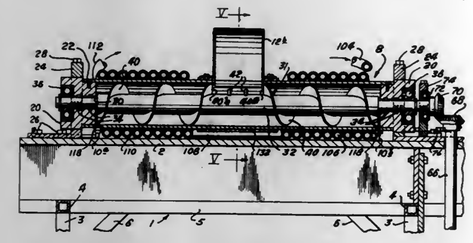
3,550,391
ABSORPTION REFRIGERATION SYSTEM HAVING COMPENSATED DILUTION CONTROL
John A. Greacen, Fayetteville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed June 23, 1969, Ser. No. 835,473
Int. Cl. F25b *15/06*
U.S. Cl. 62—103 12 Claims



An absorption refrigeration system having a dilution passage with a dilution valve therein extending between the discharge of the refrigerant pump and the inlet of the absorber pump. Three level responsive switches are

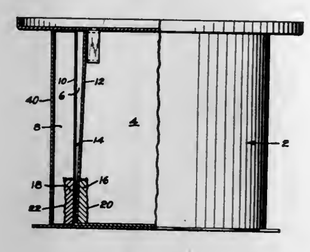
disposed at staggered levels in the absorber sump. A pair of temperature responsive thermostatic switches are disposed to sense the temperature of strong solution leaving the solution heat exchanger. A control circuit is provided to open the dilution valve and dilute the absorbent solution in response to a predetermined combination of temperature and absorbent solution level to avoid solidification of the absorbent solution.

3,550,392
ICE FLAKING MACHINE
Clifford F. Mitchell, 115 Harvard Drive, Garland, Tex. 75040
Filed Oct. 11, 1968, Ser. No. 766,676
Int. Cl. F25c *1/14*
U.S. Cl. 62—320 **15 Claims**



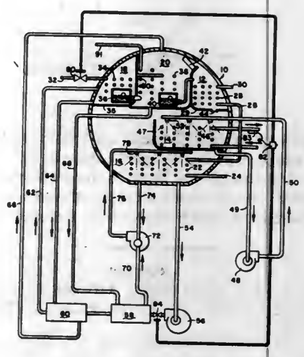
An ice flaking machine having a refrigerated freezing cylinder with opposed counterflow spiral conveyors mounted therein for continuously delivering ice to a storage container. Spaced pegs on the spiral conveyors and a triangular guide plate in the cylinder co-act to remove the ice from the conveyors and guide same into the storage container.

3,550,393
LIQUID COOLING APPARATUS
George Euwema, 611 W. Evanston Circle, Fort Lauderdale, Fla. 33313
Filed Jan. 14, 1969, Ser. No. 791,048
Int. Cl. B67d *5/62*
U.S. Cl. 62—394 **3 Claims**



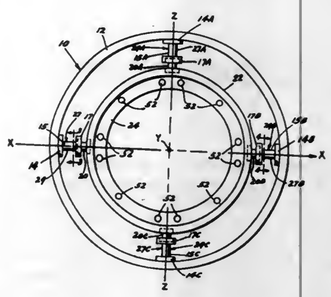
A cooling apparatus including a central tank for cooling a quantity of carbonated liquid, a refrigeration chamber surrounding said central tank, and a precooling tank surrounding the said refrigeration chamber. The refrigeration chamber is tapered with the greatest width at the top of the chamber and the smallest width at the bottom of the chamber. The refrigeration chamber cools the liquids in the central tank and the precooling tank. The liquids solidify on the outside of the walls of the refrigeration chamber to provide relatively even cooling of the tank liquids over the entire outer surface of the solidified liquids. Also the solidified liquids provide more effective cooling of the liquids in the tanks during peak load conditions.

3,550,394
CONDENSATE HEATING OF INTERMEDIATE STRENGTH SOLUTION IN TWO-STAGE ABSORPTION MACHINE
David G. Peckham, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Nov. 6, 1968, Ser. No. 773,880
Int. Cl. F25b *15/00*
U.S. Cl. 62—485 **6 Claims**



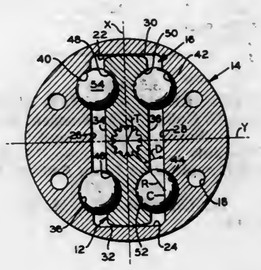
An absorption refrigeration machine containing a two-stage generator effectively utilizes heat from the first stage generator high pressure steam condensate to heat intermediate strength solution in or immediately prior to the second stage generator.

3,550,395
FLEXURAL SUPPORT STRUCTURE
Howard Allan Herzog, Binghamton, N.Y., and William Packard, Fairlawn, N.J., assignors to The Bendix Corporation, a corporation of Delaware
Original application May 18, 1967, Ser. No. 639,476, now Patent No. 3,481,192, dated Dec. 2, 1969. Divided and this application Jan. 17, 1969, Ser. No. 792,176
Int. Cl. F16c *11/12;* **F16d** *3/16;* **G01c** *19/16*
U.S. Cl. 64—15 **12 Claims**



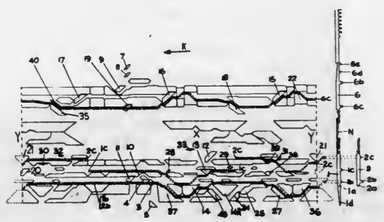
A flexural support structure of a test fixture for measuring the torque caused by any torque producing device about three orthogonal axes, simultaneously, utilizing torsional flex pivots and flexural support rod members between a stationary support and the torque producing device.

3,550,396
CONSTANT VELOCITY UNIVERSAL JOINT
Fred F. Miller, Jr., Troy, Mich., assignor to Dana Corporation, Toledo, Ohio, a corporation of Virginia
Filed Dec. 6, 1968, Ser. No. 781,786
Int. Cl. F16d *3/30*
U.S. Cl. 64—21 **9 Claims**



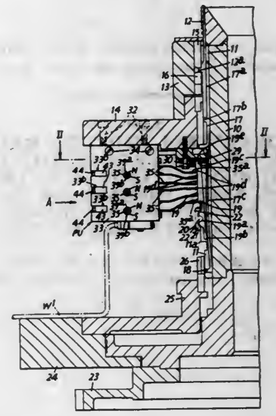
A cageless telescoping constant velocity universal joint having inner and outer members with drive balls disposed therebetween. The inner member and the opening in the outer member are elongated when viewed in transverse cross-section with the shorter sides of the inner member each slidingly engaging the adjacent inner wall of the opening in the outer member for relative angular and axial movement. Paired ball receiving grooves are formed in the longer sides of the inner member and the adjacent inner walls of the outer member and each pair of grooves has a drive ball therein.

3,550,397
PATTERNING UNIT FOR USE IN A KNITTING MACHINE
Ernest L. Farmer and Arthur T. D. Jackson, Leicester, England, assignors to Wildt Mellor Bromley Limited, Leicester, England, a British company
Filed Aug. 12, 1968, Ser. No. 752,030
Claims priority, application Great Britain, Aug. 24, 1967, 38,943/67
Int. Cl. D04b *15/74*
U.S. Cl. 66—154 **7 Claims**



A patterning assemblage for a patterning unit of the character described applicable to a knitting machine for action selectively on patterning butts or elements adapted to be influenced for producing pattern effects in knitted fabric. The assemblage comprises a carrier having longitudinal formations and a pack of discs each with internal notches whereby assembly of the discs in interlocking engagement with the carrier is effected.

3,550,398
PATTERNING MECHANISM FOR KNITTING MACHINES
Albert Henry Widdowson, Leicester, England, assignor to Wildt Mellor Bromley Limited, Leicester, England, a British company
Filed Jan. 23, 1969, Ser. No. 793,436
Claims priority, application Great Britain, Feb. 16, 1968, 7,657/67
Int. Cl. D04b *15/78*
U.S. Cl. 66—50 **12 Claims**

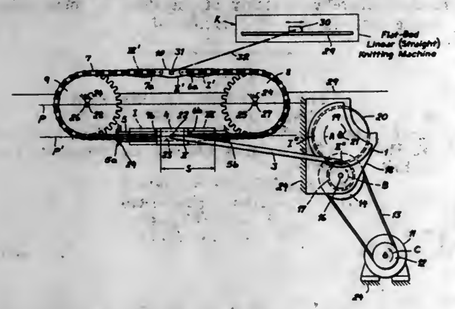


A multi-feed knitting machine equipped with instruments having patterning butts in superimposed planes. Selectors, actuated by closely adjacent electro-magnetic means act upon these butts. Pulse-producing programming means selectively control such actuation. Each selector is deflectable into an operative position to act upon the butts, and vice versa. The electro-magnetic means are pulsed in opposite directions to move the selectors to their operative and inoperative positions respectively. Permanent magnetic means are combined with the electro-magnetic means of each selector and mutual attraction of the two, as the result of a pulse, causes the selector to move to and be held in the relevant one of its positions.

3,550,399
DRIVE MECHANISM FOR RECTILINEAR KNITTING MACHINES
Virginia Juncu, Zsigmond Török, and Ioan Petra, Cluj, Rumania, assignors to Intreprinderea Industriala Metalurgica de Stat "Metalul Rosu," Cluj, Rumania, a corporation of Rumania
Filed Feb. 17, 1969, Ser. No. 799,791
Int. Cl. D04b *7/00*
U.S. Cl. 66—60 **9 Claims**

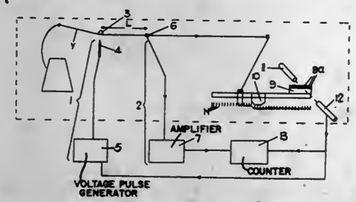
A transmission imparting reciprocating movement to the slide of a linear (straight) knitting machine, especially short-stroke slides of the type provided in rectilinear knitting machines for the production of the fingers of gloves and the like. The transmission includes a chain linked to a slide-controlling member and passing over a pair of rollers located at least in part below the bed of the knitting machine. Between these rollers along the lower reach of the chain, a link is provided for articulation to a rod connected to the eccentric of a fly-wheel

driven by a speed reducing transmission. The articulated member is guided linearly parallel to the bed of the



machine and to a plane defined by the shaft axes of the sprocket wheels about which the chain passes.

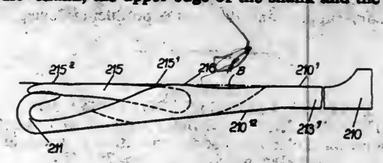
3,550,400
STITCH CONTROL UTILIZING MEANS FOR COUNTING NUMBER OF STITCHES PER UNIT RUNNING LENGTH OF YARN
Derek Peat, Aspley, Nottingham, and Richard William Bicknell Sutton, Woodthorpe, Nottingham, England, assignors to National Research Development Corporation
Filed Feb. 26, 1968, Ser. No. 708,155
Claims priority, application Great Britain, Feb. 28, 1967, 9,323/67
Int. Cl. D04b *11/00*; H01j *39/12*
U.S. Cl. 66—82 **26 Claims**



Apparatus for use in a knitting machine, for measuring the number of stitches formed from unit length of yarn or the length of yarn used to make a predetermined number of stitches so that the average stitch length can be determined and if there is a discrepancy between actual and desired stitch length, a correction may be introduced into subsequently formed stitches. The apparatus includes a marking device for putting an electrostatic charge mark on the running yarn, a detector device, at a predetermined distance from the marking device, for detecting the charge mark on the yarn, a graticule traversing with the slurcock across a light beam to a photocell, and electronic circuit for causing correction of stitch length error, indication of stitch length error, or average stitch length.

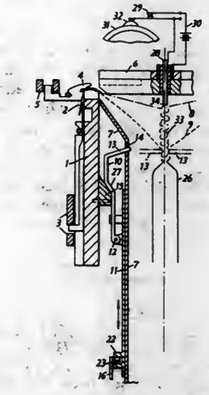
3,550,401
LATCH-TYPE KNITTING MACHINE NEEDLE
Robert Buck, Eberhard Str. 8, Rottenburg (Neckar), Germany
Original application Dec. 19, 1966, Ser. No. 602,725, now Patent No. 3,426,551, dated Feb. 11, 1969. Divided and this application Sept. 24, 1968, Ser. No. 762,074
Claims priority, application Germany, Dec. 23, 1965, B 85,124
Int. Cl. D04b *35/04*
U.S. Cl. 66—121 **2 Claims**

The needle shank, in the direction towards the hook, is formed with a throat and angled, with respect to the upper edge, in a direction away from the axis of the needle shank, the upper edge of the shank and the upper



edge of the latch, when the needle is closed, presenting an essentially aligned, straight surface to improve sliding of the loop over the needle.

3,550,402
MANUFACTURE OF KNITTED FOOTWEAR
Lewis H. Colton, 470 Mansfield Road, Nottingham, England
Filed July 2, 1968, Ser. No. 741,988
Claims priority, application Great Britain, July 8, 1967, 31,525/67
Int. Cl. D04b *9/56, 35/00*
U.S. Cl. 66—147 **9 Claims**

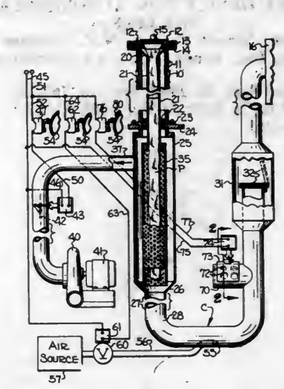


A method of and equipment for the manufacture of a stocking having a toe whereof at least the end portion includes thermoplastic yarn. The toe is closed by combined constriction and fusion of the toe fabric. The equipment employed for carrying out this method comprises constriction means for action upon the fabric and heating means adapted to apply to the constricted fabric heat of a degree sufficient to cause fusion of the thermoplastic yarn at the constriction.

3,550,403
APPARATUS AND METHOD FOR PNEUMATICALLY TENSIONING AND SUPPORTING TUBULAR FABRIC ON A CIRCULAR KNITTING MACHINE
Harper Shields, Burlington, N.C., assignor to Alamance Industries, Inc., Burlington, N.C., a corporation of North Carolina
Filed July 22, 1969, Ser. No. 851,134
Int. Cl. D04b *15/92*
U.S. Cl. 66—150 **12 Claims**

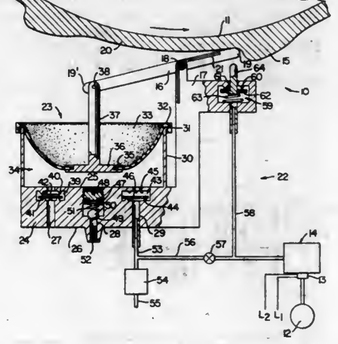
Air currents are directed downwardly in the needle cylinder to pneumatically tension an elongate tubular fabric article blank, such as panty hose blanks, and to

draw the article downwardly into the upper end of the vertically disposed portion of a conveying conduit. Air currents are also directed upwardly in the lower portion of the conveying conduit to support and limit the downward movement of the lower end of the article at a



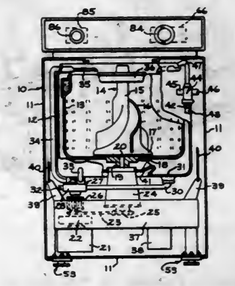
predetermined level below the needle cylinder. Since the article is confined in a relatively short space, it is not drawn out to its full length during the knitting operation and it does not become twisted as the needle cylinder rotates.

3,550,404
PNEUMATIC CONTROL SYSTEM AND PARTS THEREFOR OR THE LIKE
Douglas R. Scott, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Nov. 15, 1968, Ser. No. 776,224
Int. Cl. D06f *33/10*
U.S. Cl. 68—12 **6 Claims**



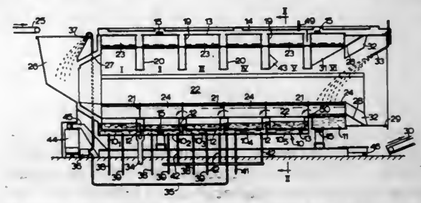
This disclosure relates to a laundry machine wherein the rotating laundry confining drum or tub is operatively interconnected to a vacuum pump to cause continuous operation of the vacuum pump during the entire movement of the confining means so as to provide a source of vacuum for controlling vacuum operated actuators of the apparatus. In addition, a pneumatically operated timer controlling the "on-off" operation of the laundry machine is repetitively actuated and deactuated by the movement of the laundry confining means.

3,550,405
POSITIVE FILL CONTROL AND WEIGHT DISTRIBUTION SYSTEM FOR AN AUTOMATIC WASHER
Edwin E. Ziegler, Lynnfield, Mass., assignor to General Electric Company, a corporation of New York
Filed Nov. 26, 1968, Ser. No. 779,037
Int. Cl. D06f *37/24, 39/08*
U.S. Cl. 68—23.3 **8 Claims**



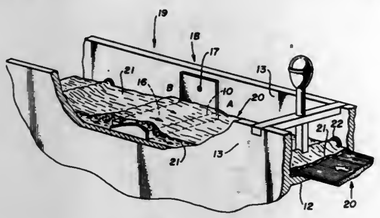
A positive fill control and weight distribution system is provided for an automatic clothes washer having a supporting structure with four legs depending from the structure and adapted to engage a supporting surface. Two of the legs comprises rigid members, and two comprise pistons reciprocally positioned within downwardly opening cylinders rigidly secured to the structure. A pressure equalization conduit interconnects the cylinders above the pistons thereby to equalize the force exerted on the pistons regardless of their differing relative extended lengths caused by unevenness of the supporting surface. A branch conduit communicates at one end with the pressure equalization conduit and at the other end with a control cylinder having an inwardly biased control piston reciprocally positioned therein. An activating means is selectively positioned within the path of reciprocation of the control piston for terminating admission of water to the washer when the pressure in the cylinders and interconnecting conduits has been increased to a predetermined value by the weight of a desired quantity of water being delivered to the washer.

3,550,406
MACHINE FOR WASHING LAUNDRY
William Jack, Jr., and Donald Martin Dalziel, Glasgow, Scotland, assignors to Baker Perkins Jaxons Limited, Glasgow, Scotland, a British company
Filed Aug. 20, 1968, Ser. No. 754,008
Claims priority, application Great Britain, Aug. 25, 1967, 39,152/67
Int. Cl. D06f *21/04*
U.S. Cl. 68—58 **6 Claims**



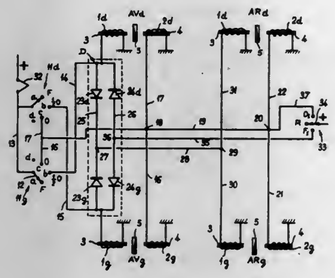
A laundry washing machine having a perforated horizontal rotary drum rotatable with its lower portion immersed in a trough, the drum being divided axially into portions of different radius and containing opposed transverse partitions which divide it into a series of compartments and containing lifters which lift the laundry from the liquid in the trough.

3,550,407
CASCADE DAM
Jerry R. Phillips, Huntsville, Ala., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Mar. 6, 1969, Ser. No. 804,939
Int. Cl. B05c 8/04
U.S. Cl. 68—181 3 Claims



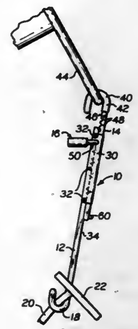
In the wet spinning process for washing tow it has been discovered that a more effective removal of solvent can be accomplished by positioning a dam within the cascade whereby residual solvent is effectively stripped from the tow and the solvent so stripped is confined to an area before the dam resulting in a solvent-free area after the dam where the tow is passed before removal from the cascade.

3,550,408
ELECTROMAGNETIC DOOR LOCKS OF AUTOMOTIVE VEHICLES
François Archaux and Pierre Bouthors, Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt, France, and Automobiles Peugeot, Paris, France
Filed Mar. 13, 1969, Ser. No. 807,001
Claims priority, application France, Mar. 13, 1968, 143,567
Int. Cl. E05b 47/06, 65/36; H03k 17/74
U.S. Cl. 70—264 7 Claims



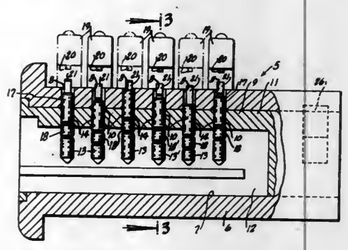
A remote-controlled electromagnetic locking device for automotive vehicles doors, wherein each door is equipped with a set of two coils having cores, and with a magnetized ferrite or a permanent magnet disposed between said coils and operatively connected to a pivoting member adapted to lock the door opening control member, this locking device being characterized in that each set of coils associated with a given door is connected to at least two central control means and that these central control means are adapted to control the energizing circuits of said coils in such a manner that the closing of a front door will cause all the other doors of the vehicles to be locked, said thus closed front door being compulsorily kept in its unlockable condition by unidirectional means inserted in said circuits.

3,550,409
ANTITHEFT DEVICE FOR AUTOMOBILES AND THE LIKE
Sidney Pariser, Mount Vernon, N.Y., assignor to RMS Electronics, Inc., Bronx, N.Y., a corporation of New York
Filed Sept. 26, 1968, Ser. No. 762,759
Int. Cl. B60r 25/00; E05b 65/12
U.S. Cl. 70—203 2 Claims



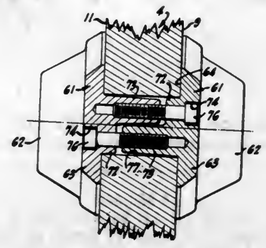
An antitheft device for automobiles having a steering wheel and a pedal diposed on the floor, comprising two elongated hooked members which are connected to one another for relative longitudinal movement. Each of the members is provided with cutouts which when registered form a passage for receiving the hasp of a padlock to prevent further relative movement.

3,550,410
INDICATING CYLINDER LOCK MECHANISM
Edwin F. Toepfer, 1016A S. 16th St., Milwaukee, Wis. 53204
Filed Apr. 19, 1967, Ser. No. 632,034
Int. Cl. E05b 27/02, 39/04
U.S. Cl. 70—364 6 Claims



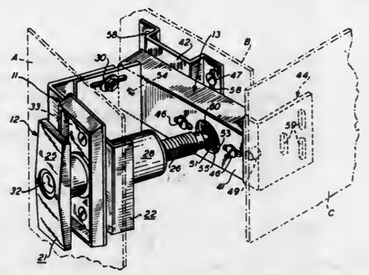
A microswitch is arranged to cooperate with each driver of a master keyed lock, to be actuated to a signaling position by actuation of the driver to an outer cylinder releasing position. Each switch actuator can comprise a leaf spring that also serves as a tumbler spring. In one embodiment the direction of cylinder rotation is controlled by bitting the key.

3,550,411
LOCK PROTECTING MECHANISM
Ralph E. Neary, San Francisco, and Ernest L. Schlage, Burlingame, Calif., assignors to Schlage Lock Company, a corporation
Continuation-in-part of application Ser. No. 590,564, Oct. 31, 1966. This application June 13, 1968, Ser. No. 736,750
Int. Cl. E05b 9/04, 9/10
U.S. Cl. 70—370 2 Claims



A protective lock mechanism includes shells applicable to a door and having portions to overlie and cover lock units installed thereon except for access holes for keys or manual operators, the shells having interior lugs received in extra bores through the door and engaging capped fastening screws disposed in opposite directions.

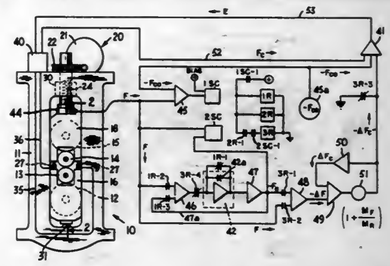
3,550,412
DOOR LOCK
Irving Pitel, Metuchen, Floyd C. Cornine, Red Bank, and Richard S. Silverman, Union, N.J., assignors to Automatic Merchandising Machine Mfg. Corporation, Avenel, N.J., a corporation of New Jersey
Filed Apr. 16, 1968, Ser. No. 721,644
Int. Cl. E05b 63/06
U.S. Cl. 70—461 17 Claims



A lock for securing an outer door to an inner door through interaction of its parts on moving the outer door, bearing the lock handle, toward the inner door, bearing the lock retainer in order to secure the parts together, the lock retainer yielding until the lock handle is properly positioned therein for convenient closing of the lock.

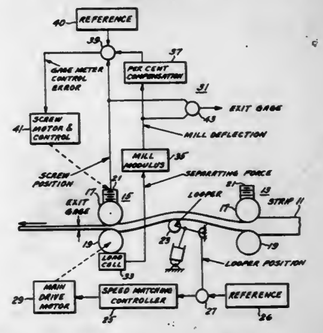
3,550,413
GAGE CONTROL FOR ROLLING MILLS
Peter J. Barnikel, New London, Conn., assignor to General Dynamics Corporation, New York, N.Y., a corporation of Delaware
Filed July 16, 1965, Ser. No. 472,583
Int. Cl. B21b 37/12
U.S. Cl. 72—8 3 Claims

In the particular embodiment of the invention described herein, a rolling mill includes hydraulic pistons applying a force tending to urge the backup roll bearing chocks apart in parallel with the separating force exerted by the material being rolled. A force detector interposed between the chocks and the mill frame detects the total roll separating force and another gage responds to the



pressure applied to the hydraulic actuators. A control system responsive to these components causes the pressure applied to the hydraulic pistons to vary in the opposite manner from the total force thereby tending to maintain the separating force constant.

3,550,414
APPARATUS FOR STABILIZING GAGEMETER CONTROL OF ROLLING MILLS
Harold A. List, 38 W. University Ave., Bethlehem, Pa. 18015
Filed Nov. 18, 1968, Ser. No. 776,599
Int. Cl. B21b 37/02, 37/08
U.S. Cl. 72—8 3 Claims

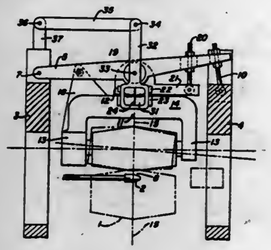


In order to stabilize a gagemeter control system for rolling mills the roll force deviation signal is partially delayed for a finite period sufficient to allow reaction of the loopers to reestablish correct tension in strip in the mill after a change in screwdown has been initiated.

3,550,415
FEED AND TOE ANGLE INDICATOR FOR BILLET-PIERCING MILL
Theodore Tarenskeen, Oakmont Borough, Allegheny County, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed Jan. 13, 1969, Ser. No. 790,783
Int. Cl. B21b 19/04
U.S. Cl. 72—35 5 Claims

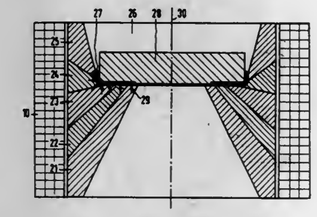
An apparatus for indicating the feed and toe angles of work-rolls relative to the centerline of the pass in a piercing mill for rolling seamless steel tubes, in which the indication is effected mechanically by a single stationary pointer cooperatively arranged with respect to a

pair of indicator dials, one of such dials being mounted on the part of the mill housing which is rotated to adjust the feed angle of the work-roll supported for rotation thereon and the other being mounted on the part of the mill housing which is rotated to adjust the toe angle of



such work-roll. The stationary pointer is carried by one arm of a linkage in the form of a pantograph that operates to hold it in a vertical position when a pivotal support for the work-roll is moved to adjust the clearance of such roll with respect to the piercing point.

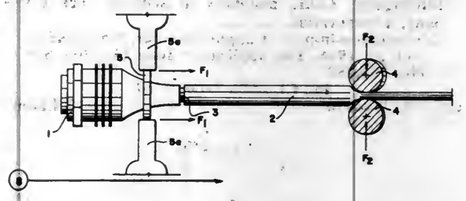
3,550,416
FIELD CONCENTRATOR DEVICE FOR FORMING OF METALLIC WORKPIECES
Horst Schenk, Erlangen, and Erhard Prölss, Katzwang, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany
Filed Jan. 21, 1969, Ser. No. 792,380
Claims priority, application Germany, Jan. 23, 1968, 1,652,638
Int. Cl. B21d *26/14*
U.S. Cl. 72—56 **3 Claims**



A field concentrator device for forming metallic workpieces has a longitudinal axis and has a plurality of annular frusto-conical parts which are stacked coaxial with the longitudinal axis and have mutually contacting conical surfaces. The parts have electrically insulating surfaces and have the same outer diameter. The plurality of parts has an inner composite wall surface defining a cavity having side and bottom walls corresponding to the side and bottom walls of the workpiece. At least two of the parts are disposed in the region where the side and bottom walls of the cavity join.

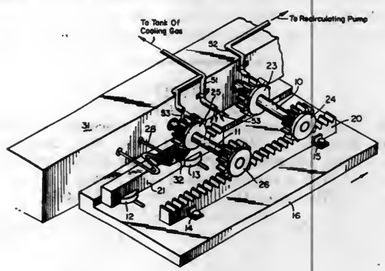
3,550,417
PROCESS FOR THE COLD FORMING OF METAL
Robert C. McMaster, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio, an institution of higher learning
Filed Mar. 14, 1968, Ser. No. 713,036
Int. Cl. B21c *37/00*
U.S. Cl. 72—57 **17 Claims**

This invention is a system using sonic power to facilitate the cold rolling and deformation of metals. Sonic vibratory energy introduced into the work material is transmitted through the material causing dynamic stresses in the material. The dynamic stresses enable the material



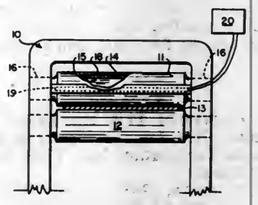
to be cold-formed at static loadings much lower than those necessary in conventional cold-forming operations.

3,550,418
RACK GEAR FORMATION
Cannell J. McLeod, 66 Shepherd Ave., East Braintree, Mass. 02184
Continuation of application Ser. No. 540,588, Apr. 6, 1966. This application June 10, 1969, Ser. No. 834,218
Int. Cl. B21d *53/00*; B21h *7/00*; B21k *1/00*
U.S. Cl. 72—192 **7 Claims**



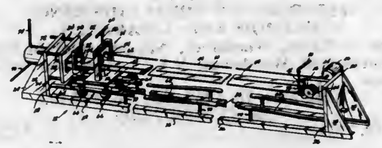
Rack forming for precision machine use, which includes heating a portion of a workpiece to a limited depth and temperature hot forming 90% of the final tooth configuration, followed by cold working the remaining 10% of final tooth configuration. Tooth-to-tooth registration is controlled by a master rack.

3,550,419
METHODS AND APPARATUS FOR METAL ROLLING
Thomas A. Fox and Joseph Zentko, both % Fox Industries, Inc., Box 358, Youngstown, Ohio 44401
Filed Mar. 4, 1968, Ser. No. 710,027
Int. Cl. B21b *11/00*
U.S. Cl. 72—199 **4 Claims**



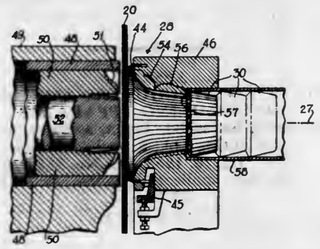
A method and apparatus for metal rolling by introducing vibrational force into at least one roll outside the bearings.

3,550,420
METAL-FORMING SYSTEM
Wilford A. Swanson, Sunland, Calif., assignor to Michael Scott Metal Shaping, Inc., a corporation of California
Filed Nov. 13, 1967, Ser. No. 682,112
Int. Cl. B21d *11/02*
U.S. Cl. 72—296 **3 Claims**



A system is disclosed for forming various metal shapes, utilizing prestressing techniques. In the illustrative example of the disclosure, a section of sheet metal is formed into a U-shaped channel, which also has a substantial variation or deviation along the length of the channel. The structure includes means for straining the section of sheet metal along an axis to resiliently elongate the sheet of metal. A two-dimentional mechanical forming die then traverses the length of sheet metal, generally along the path of strain, whereby to shape the metal to the desired configuration. Subsequent to the shaping operation, as disclosed, the stressing forces are relieved with the result that the sheet is formed in the desired three-dimensional shape.

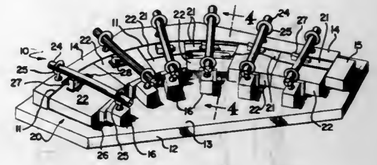
3,550,421
STACKED FLUTED-WALL RECEPTACLES
Frederick C. Stakel, New Canaan, Conn. (% Fluted Paper Products Co., Inc., 29 Haviland St. S., Norwalk, Conn. 06854)
Original application Jan. 21, 1965, Ser. No. 426,918, now Patent No. 3,460,670. Divided and this application Oct. 3, 1968, Ser. No. 764,881
Int. Cl. B21d *31/00, 22/20, 22/26*; B31d *5/02*; B31f *1/00*
U.S. Cl. 72—327 **3 Claims**



Methods for forming nested stacks of individually separable fluted cup-shaped receptacles by juxtaposing a plurality of layers of sheet material with at least one metallic foil layer interposed between two of said layers, and severing juxtaposed sections of these layers, and deforming the juxtaposed sections in fluting die-and-ram assemblies, and particularly such methods utilizing wax-impregnated layers of paper sheet and thin aluminum foil sheet materials.

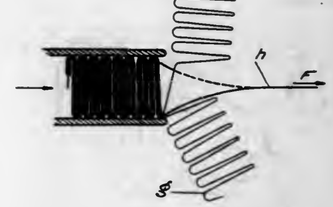
3,550,422
CREEP-FORM TOOLING
Richard M. Potter, Reynoldsburg, Ohio, assignor to North American Rockwell Corporation
Filed Apr. 1, 1969, Ser. No. 811,943
Int. Cl. B21d *1/00*
U.S. Cl. 72—342 **6 Claims**

Tooling for creep-forming flanged intermediate sheet metal details is provided with contour-control block elements that are particularly located and restrained on a base member and that function to obtain improved dimensional tolerance characteristics in the resulting parts as they are conventionally processed at elevated temperatures and without requiring subsequent special thermal treatment or special metal rework steps. The invention is



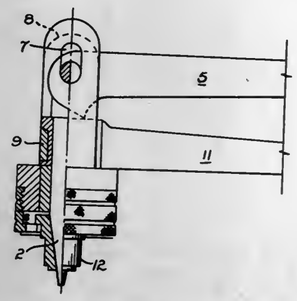
especially important with respect to the manufacture of aircraft structural parts from both stretch-formed and press-formed flanged intermediate details made of conventional ultra-high-strength alloy steel, precipitation-hardening alloy steel, or titanium alloy sheet metal materials.

3,550,423
METHOD OF MAKING A SHEET OF MATERIAL HAVING ASYMMETRICAL FOLDS
Lucien Victor Gewiss, Vernon, France, assignor to Marc Wood Societe Anonyme pour la Promotion des Eschanges Techniques Internaux, Paris, France, a company of France
Filed Apr. 11, 1966, Ser. No. 541,809
Int. Cl. B21d *5/16, 13/00*
U.S. Cl. 72—363 **7 Claims**



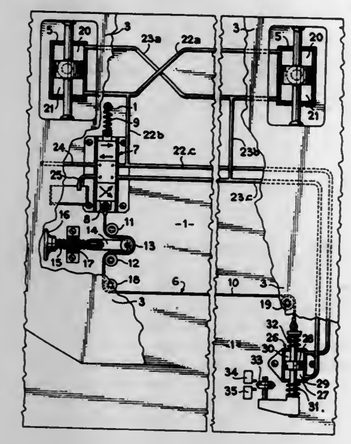
Geometrical structures having alternate asymmetrical folds of drawable or extensible material forming two main faces wherein the folds on each of the faces are substantially identical to the other folds on that face. The folds on one of the faces have a rounded profile in cross section which are somewhat wider than the profile of the folds on the other face of the structure. The method of making such asymmetrical structures comprises the steps of placing a face of the material to be folded in contact with a second sheet of material having predetermined characteristics, bending the two sheets of material while in contact along a plurality of parallel folding axes in alternately opposite directions and separating the sheets from one another. One disclosed method comprises the steps of placing two sheets of material to be folded into the described asymmetrical structures in contact with each face of a median layer, bending both of the sheets to be folded while in contact with the median layer, and separating both folded structures by tensioning the median layer.

3,550,424
TUBE EXPANDER
Wlodzimierz Rast, 38 Hillcrest Drive, Eden Hills, Adelaide, South Australia 5050, Australia
Filed June 12, 1968, Ser. No. 736,532
Int. Cl. B21d *39/08*
U.S. Cl. 72—399 **8 Claims**



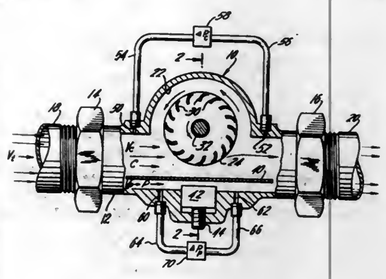
A tube expander of the type having expansible jaws operated by a tapered pin characterised in that a mechanism which operates the pin to separate the jaws is operable in stages to allow at least two strokes of an arm for full movement.

3,550,425
HYDRAULIC MACHINE FOR DEFORMING SHEET METAL
Paul Cailloux, Le Perreux, France, assignor to Promecan Sisson-Lehmann, Saint-Denis, France, a French body corporate
Filed July 24, 1968, Ser. No. 747,330
Claims priority, application France, July 26, 1967, 115,702
Int. Cl. B21j *9/12*
U.S. Cl. 72—453 **8 Claims**



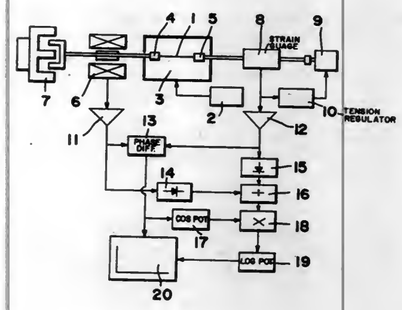
A device for correcting for elastic deformations of a press frame due to compressive stresses between fixed and movable bolsters. The correcting device includes a synchronizing device that operates in response to relative angular deviations of a fixed bolster and a moving bolster of a metal forming machine. The synchronizing device normally maintains the bolsters parallel or in a predetermined relative angular position. The modification achieved by the correcting device compensates differences in the elastic deformations of the swan-neck lateral walls of the machine under load and thus ensures that said relative position of the bolsters is maintained.

3,550,426
FLUID METER FIELD CHECKING METHOD AND APPARATUS
Joseph B. Griffo, Woodstock, N.Y., assignor to Rotron Incorporated, Woodstock, N.Y., a corporation of New York
Filed Mar. 18, 1969, Ser. No. 808,103
Int. Cl. G01f *25/00*
U.S. Cl. 73—3 **7 Claims**



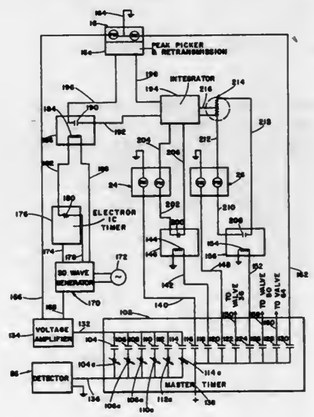
A method and apparatus for checking a fluid flow meter of the split flow type under actual operating conditions in the field are described. A pair of differential pressure measurements are taken across the meter chamber, one in each of the flow paths. These values are employed, in conjunction with the meter proof factor to compute directly the deviation of the meter from its originally calibrated response. The meter need not be disconnected for checking purposes nor is knowledge of fluid density required. Particular pressure measuring devices and a computing circuit for providing direct readings of meter deviation are disclosed.

3,550,427
AUTOMATIC CONTINUOUS DYNAMIC MODULUS DETERMINING APPARATUS
Jungo Sueyoshi, Kurashiki, Japan, assignor to Kurashiki Rayon Co., Ltd., Kurashiki, Japan
Filed Oct. 10, 1968, Ser. No. 766,470
Claims priority, application Japan, Oct. 28, 1967, 42/91,598
Int. Cl. G01n *3/32*
U.S. Cl. 73—15.6 **1 Claim**



This invention provides a dynamic modulus determining apparatus adapted to record in an XY recorder dynamic modulus variation of a test piece made of high polymers and the like dependent upon successive temperature changes of the test piece. The apparatus is characterized by tensioning means for maintaining the tension of the test piece at a proper value sufficient to transmit the oscillating stress to a strain gauge, a phase difference measuring means for measuring the phase difference between output potentials derived from a differential transformer and the strain gauge, respectively, and means for compressing a potential proportional to the dynamic modulus of the test piece.

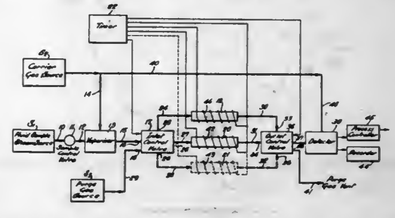
3,550,428
METHOD AND APPARATUS FOR SEPARATING MIXTURES OF HYDROCARBONS
Richard T. Mator, Plum Borough Township, Allegheny County, James A. Petrocelli, North Versailles Township, Allegheny County, and Thomas J. Puzniak, Harwick, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,362
Int. Cl. B01d *15/08;* **G01n** *31/08*
U.S. Cl. 73—23.1 **13 Claims**



An automatic hydrocarbon separation and analysis method and apparatus utilizing gas-liquid chromatography. Two columns are utilized, and a valving arrangement to permit backflushing and isolation of components within the system. A circuit is utilized to automatically perform certain calculations to determine the quantities of the various components in the sample. The circuit includes means to sum the individual members of a hydrocarbon group, such as paraffins, and to transform this value proportional to normal paraffins to a signal proportional to total paraffins, as well as means to supply every signal detected for a predetermined period of time so as to assure a final output in easily readable form.

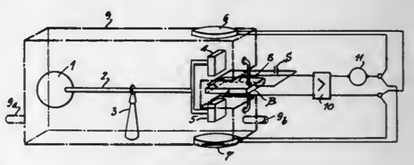
3,550,429
CHROMATOGRAPHIC ANALYSIS
Edward D. MacMurtrie and Wesley V. Taylor, Jr., Port Arthur, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 16, 1967, Ser. No. 683,497
Int. Cl. G01n *31/08*
U.S. Cl. 73—23.1 **5 Claims**

A method and apparatus for continuously monitoring a component of a fluid mixture, such as the non-normal content of a paraffin mixture, employing a plurality of chromatograph columns, preferably a pair thereof, of sorbent material which initially passes primarily only one component of the fluid, and which is readily desorbed of the sorbed components by heating or purging. A thermal conductivity detector is employed to monitor the effluent of the columns to detect the fluid component of interest. The fluid mixture is injected into one column either continuously or intermittently while the other columns are desorbed. The fluid flow to each column is



automatically interrupted prior to breakthrough of the sorbed fluid component and desorption instituted while the fluid flow is switched to a desorbed column, thereby providing substantially continuous detection of the fluid component of interest free of interruptions for desorption steps. Short columns are used to minimize response time and configured to eliminate reverse flow purging.

3,550,430
FORCE BALANCES
Sylvain Jean Janssen, Neuilly-sur-Seine, France, assignor to Compagnie des Compteurs, Pairs, France, a company of France
Filed June 16, 1969, Ser. No. 833,451
Claims priority, application France, July 5, 1968, 158,002
Int. Cl. G01g *1/18;* **G01n** *9/02*
U.S. Cl. 73—30 **4 Claims**

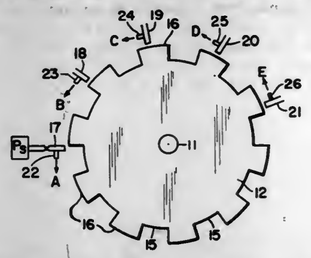


A balance beam comprising a force response device at one end and a pair of transversly displaced magnets at the other end is enclosed in a fluid tight container. A Hall plate between the magnets senses displacement of the balance and a pair of fixed coils cooperate with the magnets to rebalance the beam. The Hall plate and coils are located outside the fluid filled container.

3,550,431
PNEUMATIC POSITION-DIRECTION TRANSDUCER AND CIRCUIT WITH WEIGHTED CODE OUTPUT
Gilbert A. Cotta, San Pedro, Calif., and Lawrence W. Langley, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 8, 1969, Ser. No. 822,991
Int. Cl. G01b *13/00*
U.S. Cl. 73—37 **5 Claims**

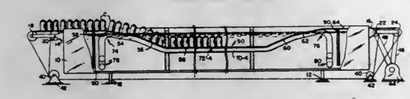
Apparatus for pneumatically sensing the angular displacement of a shaft relative to a predetermined reference and providing an indication of such displacement. A disc having a plurality of equal length teeth and slots around the periphery thereof is fixedly mounted to the shaft. A plurality of back pressure sensing probes adjacent the disc provide a plurality of fluid signals in the form of a Gray code. For each complete revolution of the disc, the Gray code is repeated a number of times which is equal to the

number of teeth in the disc. A decoder circuit translates the Gray code into a weighted code, and a counter connected



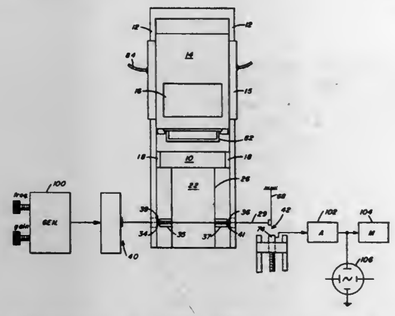
to the decoder circuit indicates the number of times which the Gray code is repeated.

3,550,432
TESTING APPARATUS
Peter H. Gundal, Quincy, and Silvio Albano, Everett, Mass., assignors to The Gillette Company, Boston, Mass., a corporation of Delaware
Filed Mar. 19, 1969, Ser. No. 808,534
Int. Cl. G01m 3/10
U.S. Cl. 73—41.2 12 Claims



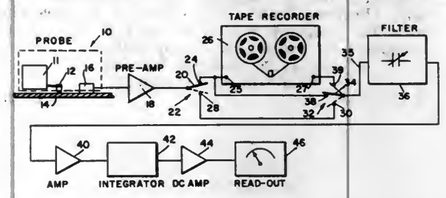
Leak test apparatus includes a water-filled tank and a series of endless conveyor belts disposed in parallel relation. A portion of each belt is submerged beneath the surface of the water in the tank and the belts are spaced apart to define gaps between adjacent belts. Elongated orifice structures are disposed in the gaps beneath the plane of the conveyor belts and a pump circulates water in the tank through the gaps between the belts of the orifice structures to produce a pressure differential that holds the articles submerged beneath the surface of the water as they are moved through the tank by the conveyor belts.

3,550,433
VISCOSITY RESPONSIVE APPARATUS
Richard S. Warburton and Raymond T. Jones, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed June 11, 1969, Ser. No. 832,174
Int. Cl. G01n 11/16
U.S. Cl. 73—54 7 Claims



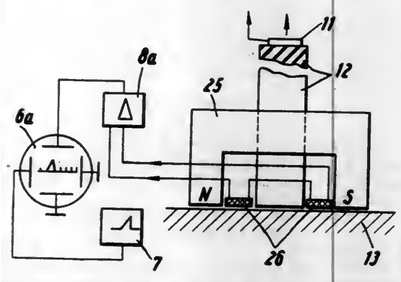
A viscosimeter for measuring the dynamic viscosity of a thin fluid film employs viscous damping as the basis of its measurement. A wire, cooperative with a vibratory driver and spring receiver, is immersed within the film; and tensions are set so that standing waves and heat producing vibrations do not occur along or within the wire. Means are provided for preventing the film from prematurely hardening to the wire at the film edges.

3,550,434
FLAW DETECTION SYSTEM AND PROBE
Rudi M. Schroeer, Enon, Thomas A. Garmhausen, Medway, and Johann E. Frank, Yellow Springs, Ohio, assignors to Arvin Systems, Inc., Dayton, Ohio, a corporation of Ohio
Filed Jan. 11, 1968, Ser. No. 697,101
Int. Cl. G01n 29/04
U.S. Cl. 73—67.2 13 Claims



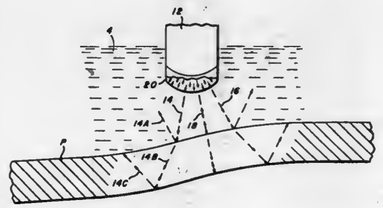
A system for detecting flaws in a workpiece. The system includes a probe for imparting shocks to a workpiece and detecting the vibrations caused by the shocks. When a flaw exists, it causes under-damped vibrations at particular frequencies. The vibrations are detected and converted into electrical signals which are coupled through a narrow-band filter for selecting only the under-damped vibrational signals. Said signals are coupled to an integrator which provides a D.C. voltage to a meter which in turn providing a reading indicating the presence or absence of a flaw. The probe comprises a D.C. vibrator having a striker engageable with the workpiece, and an accelerometer also engageable with the workpiece for receiving the vibrations in the workpiece which are created by shocks imparted by the striker and transducing them into electrical signals fed to said filter.

3,550,435
PROCESS AND APPARATUS FOR THE ULTRASONIC INSPECTION OF MATERIALS
Walter Kaule, Thurnerstr. 111, Cologne-Deutz, Germany
Filed Aug. 2, 1967, Ser. No. 657,933
Claims priority, application Germany, Aug. 6, 1966, 1,573,627; Dec. 23, 1966, 1,573,596
Int. Cl. G01b 17/00; G01n 29/04
U.S. Cl. 73—67.8 12 Claims



Method and apparatus are disclosed for non-destructive ultrasonic testing of test objects. A pulse of ultrasonic energy is applied to a test object. An electrically conductive or a magnetoelastic structure is provided at the surface of the test object to which the ultrasonic energy is applied to pick up a time varying magnetic field adjacent to the surface of the test object. A pickup coil structure is coupled to the time varying magnetic field produced by the pulse of ultrasonic energy to induce an electrical potential signal in the coil representative of the time the pulse of ultrasonic energy entered the test object. This electrical signal is used as a time mark for ultrasonic transit time measurements, i.e., thickness and flaw detection and may especially also be used for automatic control of the coupling of ultrasonic energy into the test object.

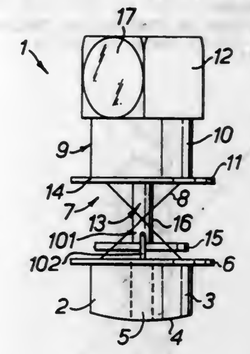
3,550,436
METHOD AND APPARATUS FOR ULTRASONIC THICKNESS GAGING OF OBJECTS IN NON-NORMAL ALIGNMENT
John A. Patsey, Penn Hills Township, Allegheny County, and Donald G. Schindler, Whitehall Borough, Pa., assignors to United States Steel Corporation, a corporation of Delaware
Filed Apr. 5, 1968, Ser. No. 719,171
Int. Cl. G01n 29/00
U.S. Cl. 73—67.8 7 Claims



Method and apparatus for gaging the distance between two parallel surfaces of an object in which ultrasonic pulses from a transducer are introduced through a liquid coupling medium into the object and reflected back from the surfaces. The end of the transducer is provided with a convex surface so that the pulses are passed into the liquid coupling medium in a divergent beam. Thus, at least part of the pulses will pass into the object and be reflected therefrom perpendicular to its surfaces regardless of whether or not the transducer and object are aligned.

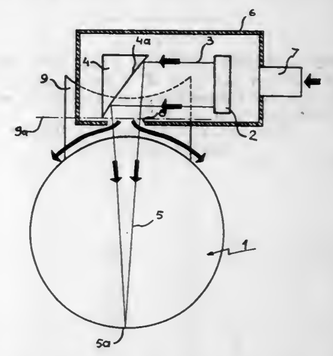
3,550,437
ACCELEROGRAPHS AND ACCELEROMETERS
Robert Ivan Skinner, Silverstream, Wellington, North Island, New Zealand, assignor to New Zealand Government Property Corporation, Wellington, North Island, New Zealand, a corporation of New Zealand
Filed Jan. 21, 1966, Ser. No. 522,225
Int. Cl. G01p 1/06, 15/02
U.S. Cl. 73—71.3 6 Claims

An accelerometer comprising a base member and a movable mass which includes a glass cube having a spherical mirror formed on one of its faces. The movable mass is movably supported in a spaced relationship from the base member by resilient strut support means. Also, damping means for applying a force to the movable mass proportional to the velocity of the moving mass and in the opposite direction are provided. The resilient strut support means comprises two pairs of crossed but separated wires, each pair of wires inclined in opposite directions and each wire contained in a plane parallel to the planes of any of the other wires. The two pairs of wires are positioned towards either side of the movable mass, and the axis of rotation of the movable mass extends through the points of intersection of the crossed wires when in rest position. The movable mass may be vibrated



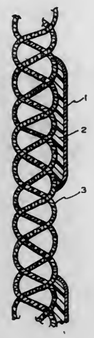
through an arcuate path and the crossed pairs of wires resist arcuate movement in any other direction other than about the axis of rotation.

3,550,438
ULTRASONIC TESTING SYSTEM FOR HOT OBJECTS
Marian Kapluszak, St. Germain-en-Laye, Yvelines, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, Yvelines, France
Filed Oct. 1, 1968, Ser. No. 764,057
Claims priority, application France, Oct. 6, 1967, 123,623
Int. Cl. H04r 17/00; G01n 29/04
U.S. Cl. 73—71.5 7 Claims



The testing head of an ultrasonic testing system has casing supplied with water under pressure and encloses a transducer. The beam emitted from the transducer is reflected outwardly through an opening in the casing wall through which the water is discharged in a column at right angles to a surface of the tested object, the casing being held by spacers at a slight distance from the object so that a passage leading away from the opening is bounded by the casing wall and the object. One or more reflecting faces in the casing cause the beam of the transducer to be concentrated in a portion of the surface cooled by the impinging water column, thus permitting the testing of rolled metal objects much hotter than 100° C.

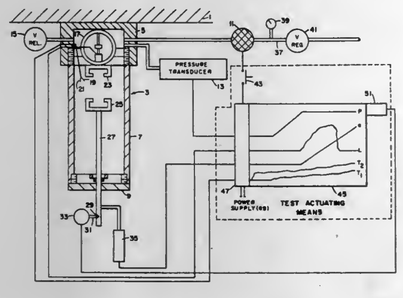
3,550,439
CLOTHING HYGROMETER
Norman R. S. Hollies, Bethesda, Md., and John A. Penoyer, Sr., North Plainfield, N.J., assignors to the United States of America as represented by the Secretary of Agriculture
Filed Sept. 30, 1968, Ser. No. 766,019
Int. Cl. G01n *5/02, 25/56*
U.S. Cl. 73—73 **2 Claims**



An electrical device and a method of measuring moisture in textiles and other fibrous materials are disclosed. A manner of making the device is described. This device is a clothing hygrometer which comprises (1) a plastic film bonded to the textile, (2) an inorganic or organic hygroscopic metal salt, and (3) an overcoat of high conductivity such as evaporated metal films which remain solid to about 212° F. to form the hygrometer electrodes.

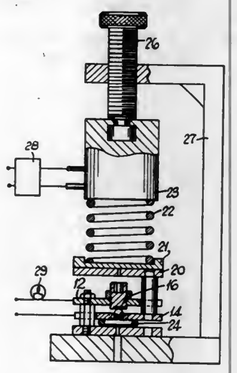
The device measures water content about from 0% to 50%, relative to the weight of the measured specimen, and is functional at temperatures about from 32° to 212° F.

3,550,440
PRESSURIZED TENSILE TEST APPARATUS
Robert E. Siron and Cecil K. King, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 8, 1969, Ser. No. 789,671
Int. Cl. G01n *3/08*
U.S. Cl. 73—90 **8 Claims**



An apparatus for testing specimens in tension under pressure. The apparatus includes a pressure chamber, a source of pressure, an oscillograph recorder and operating controls for the apparatus. The chamber has a load cell disposed therein, a pair of specimen holders one of which is fixed to the load cell and the other holder is mounted on a crosshead extension rod for slidable movement relative to the chamber. A pressure transducer is connected to the chamber and furnishes a pressure reading to the recorder. A galvanometer light beam monitors the preset test pressure level on the recorder and when the pressure reading from the pressure transducer reaches the recorder preset level the galvanometer activates a photocell to trigger the tester crosshead and thereby start the test.

3,550,441
APPARATUS FOR TESTING THE PROPERTIES OF RUBBER OR RUBBER-LIKE MATERIALS
Michael Dickinson, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Aug. 21, 1968, Ser. No. 754,246
Int. Cl. G01n *3/08*
U.S. Cl. 73—94 **3 Claims**

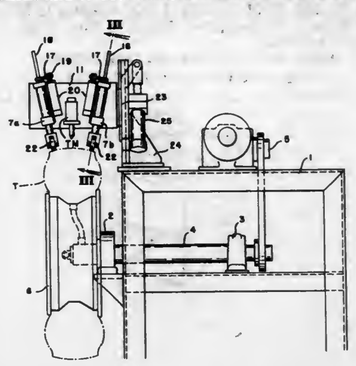


Apparatus for testing the properties of rubber or rubber-like materials which comprises a base for supporting a specimen and a clamping plate connected to the base in spaced relationship. There being disposed between the base and clamping plate a pressure plate having an electrically conductive contact piece extending from its center towards a screw plug on the clamping plate whereby a load can be applied through the contact piece and pressure plate to a specimen trapped between the pressure plate and the base. In addition, means is provided for applying an additional measurable load to the pressure plate in a direction to compress the specimen. The arrangement being such that when the additional load exceeds the load applied from the clamping plate, the contact piece will be removed from the screw means to break an electric circuit.

3,550,442
METHOD AND APPARATUS FOR MEASURING UNIFORMITY OF TIRES
Clide I. Carr, Grosse Pointe Park, Harry Friedmann, Huntington Woods, and Haig D. Tarpinian, Grosse Pointe, Mich., assignors to Uniroyal, Inc., New York, N.Y., a corporation of New Jersey
Filed Sept. 5, 1968, Ser. No. 757,663
Int. Cl. G01m *17/02*
U.S. Cl. 73—146 **17 Claims**

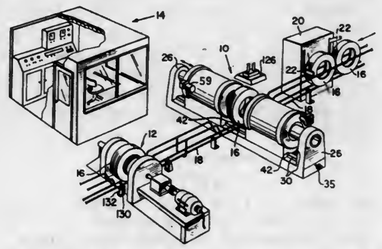
Tire uniformity measuring method and apparatus wherein radial runout on the outer tread rows is continuously averaged electrically as the tire rotates to obtain a periodic electrical signal, the period being equal to the time for one revolution of the tire. The periodic signal is electronically analyzed with an analog oscillator

circuit to obtain the maximum value of its first harmonic component and to determine and mark the location of this



maximum value on the tire itself. Associated circuitry and apparatus is disclosed.

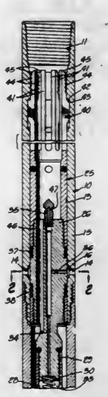
3,550,443
METHOD AND APPARATUS FOR INSPECTING TIRES
Morris A. Sherkin, 76 Ridelle Ave., Toronto, Ontario, Canada
Filed Nov. 19, 1968, Ser. No. 777,077
Int. Cl. G01n *17/02*
U.S. Cl. 73—146 **22 Claims**



A tire testing device for the non-destructive testing of the structure of a tire. The device includes a frame having a pair of oppositely disposed chucks mounted to move towards and away from one another in a tire testing station. The apparatus also includes a feeding device for feeding tires one at a time into the testing station. The chucks of the testing apparatus are adapted to engage the bead edge of a tire and to cyclically move away from another and towards one another to move the bead edges of a tire outwardly from one another to substantially flatten the tire cross-section. The apparatus also includes a device for x-raying the tire in its flattened configuration. The device also includes monitoring apparatus for monitoring the radiation signals.

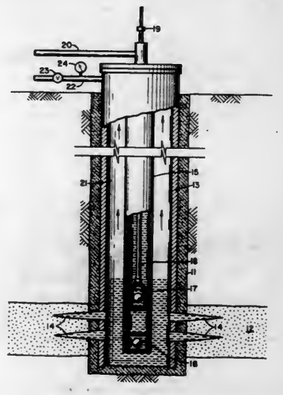
3,550,444
APPARATUS FOR TESTING A WELL WITHOUT INTERRUPTING FLOW THEREFROM
Daniel Reardon, Garden Grove, Calif., assignor to Cook Testing Co., Long Beach, Calif., a corporation of Nevada
Filed Jan. 29, 1969, Ser. No. 794,939
Int. Cl. E21b *47/06*
U.S. Cl. 73—152 **3 Claims**

Apparatus for testing the pressure, temperature or other attribute of fluid in a formation traversed by a string of well tubing includes a housing connected into the tubing string and having lateral ports in the wall thereof communicating with a central axial bore. An imperforate tubular sleeve carries axially spaced seals to contact the housing bore above and below the lateral ports. Upon removal of this sleeve by means of a wire line, a well testing assembly is insertable through the



interior of the tubing string into the housing, and has axially spaced sealing means engageable with the bore above and below the lateral ports. Releasable latch means holds the assembly in position. Passage means extend from a test device on the assembly to communicate with the lateral ports in the housing.

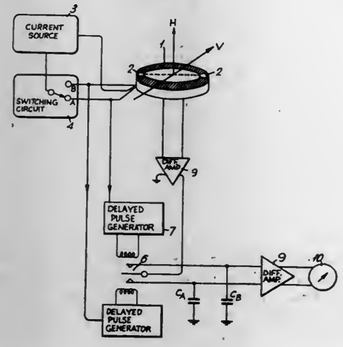
3,550,445
METHOD FOR TESTING WELLS FOR THE EXISTENCE OF PERMEABILITY DAMAGE
Othar M. Kiel, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware
Filed Jan. 19, 1968, Ser. No. 699,256
Int. Cl. E21b *47/00*
U.S. Cl. 73—155 **6 Claims**



A method for detecting formation damage, including the steps of withdrawing well effluent including a separate gas stream from a well at a substantially constant rate for a period sufficient to achieve pressure stabilization

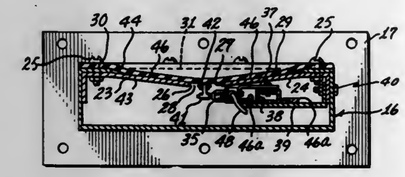
within the producing formation, restricting the flow of gas so as to cause the pressure of the separate gas stream to increase, measuring the increase of gas pressure as a function of time, and determining whether the relationship between pressure buildup and time is substantially linear or nonlinear.

3,550,446
ELECTROMAGNETIC FLOWMETERS
Malcolm John Tucker and Norman Dennis Smith, Godalming, Surrey, England, assignors to National Research Development Corporation, London, England, a British corporation
Filed Feb. 28, 1969, Ser. No. 803,322
Int. Cl. G01f *1/00*
U.S. Cl. 73—194 **3 Claims**



In an electromagnetic flowmeter the magnetic field is supplied from a DC source which is switched to cause the magnetic field to alternate between two opposite directions. E.M.F.'s generated by fluid flow are sampled in each switching period after a delay to allow transients to die away and the difference between successive samples taken when the magnetic field is in respective opposite directions is indicated to give a measure of fluid flow velocity independently of any electrochemical E.M.F.'s.

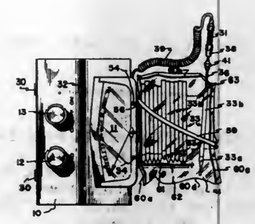
3,550,447
HOPPER MATERIAL SUPPLY INDICATOR
John I. Beresic, 2900 W. Lincoln, Phoenix, Ariz. 85005
Filed Apr. 23, 1969, Ser. No. 818,541
Int. Cl. G01f *23/16, 23/18*
U.S. Cl. 73—301 **2 Claims**



A supply indicator for measuring the level of granular material stored in a bin, tank, silo, or the like in which a series of vertically spaced sensing limit switches placed within the supply hopper and protected by a specially arranged flexible diaphragm is capable of indicating in a continuous fashion the changes in level of the materials in the hopper.

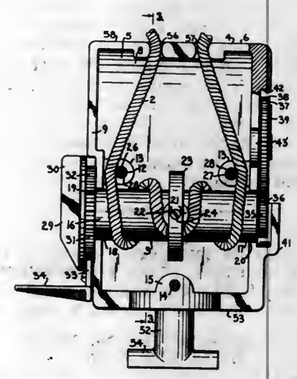
3,550,448
ELECTRONIC THERMOMETER UNIT
John D. Ensign, Brigham City, Utah, assignor to Measurement Science Corporation, Brigham City, Utah, a corporation of Utah
Filed Nov. 27, 1968, Ser. No. 779,369
Int. Cl. G01k *1/08, 1/14, 7/24*
U.S. Cl. 73—343 **11 Claims**





An electronic thermometer is mounted to swivel on a tray and carries a sanitary sheath bag holder constructed to turn with the thermometer and to allow a temperature sensing probe of the thermometer to be inserted into a sheath while the sheath is still in its protective bag and to be withdrawn with the sheath in place, ready for use without its having been touched or otherwise subjected to possible contamination.

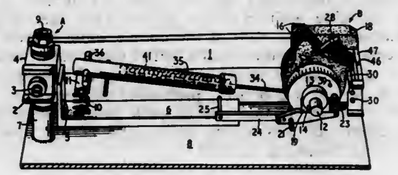
3,550,449
EXERCISING DEVICE FOR ISOMETRIC AND ISOTONIC EXERCISES
Glen E. Henson, P.O. Box 266, 1201 S. Osage, Independence, Mo. 64051
Filed Feb. 12, 1968, Ser. No. 704,889
Int. Cl. G01l *1/00*
U.S. Cl. 73—379 **11 Claims**



An exercising apparatus requiring the application of force to overcome a sliding frictional resistance between a rope and a shaft which is rotatable to vary the magnitude

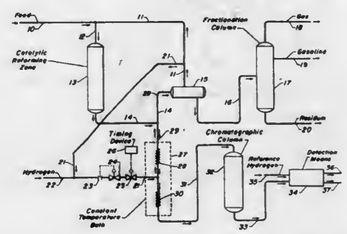
of the resistance by varying the number of turns of the rope around the shaft. A detent is associated with the shaft to hold the shaft in a selected position while the rope is pulled through the apparatus. The rope is guided onto opposite ends of the shaft by guide members and the rope is guided around the intermediate portion of the shaft by a stub shaft extending outwardly from the shaft. The apparatus is anchored against displacement during use by having a member extending outwardly from one end of the apparatus inserted into a receiver. The exercising apparatus includes a handle removably mounted on at least one end of the rope for pulling the rope through the exercising apparatus thereby exercising selected muscles by overcoming a preselected magnitude of sliding frictional resistance between the rope and the shaft.

3,550,450
GOLF METER
Ralph Gillespie Griffin, 45 Archbold Road, Roseville, New South Wales, Australia
Filed Sept. 17, 1968, Ser. No. 760,272
Claims priority, application Australia, Sept. 19, 1967, 27,414/67
Int. Cl. G01l *5/06;* **A63b** *69/36*
U.S. Cl. 73—380 **9 Claims**



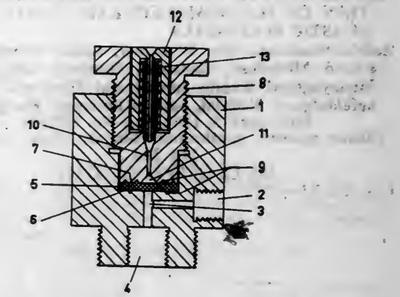
A golf meter incorporating means to support a golf ball, to record the distance a golf ball would travel under playing conditions in still air and whether in the process of making a stroke the direction of the ball has deviated to the right or to the left of the line of flight intended by the player.

3,550,451
METHOD FOR OBTAINING SAMPLES AT HIGH TEMPERATURE AND HIGH PRESSURE
Ellsworth R. Fenske, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Jan. 2, 1969, Ser. No. 788,562
Int. Cl. G01n *1/20*
U.S. Cl. 73—422 **4 Claims**



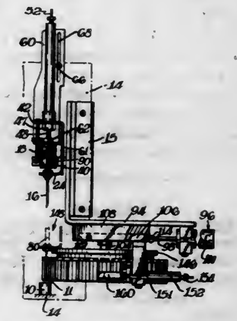
Method for obtaining a representative sample of a high temperature, high pressure reaction zone effluent. An inert gas is passed through an inlet conduit into the flowing effluent stream, said inlet conduit being placed under a constant temperature environment. The flow of inert gas is stopped for a predetermined length of time thereby permitting a sample stream of the effluent to flow into the inlet conduit in a reverse direction to the previous flow of inert gas. The withdrawn sample is introduced into detection means and the flow of inert gas is reintroduced when the predetermined time has elapsed thereby stopping the sample flow without valve means in said inlet conduit.

3,550,452
CHROMATOGRAPH INJECTION MEMBRANE MOUNT
István Halász, Kleebergstrasse 16, and Armin Kroneisen, Schmittener Strasse 21, both of 6 Frankfurt am Main, Germany
Filed Feb. 19, 1969, Ser. No. 800,665
Int. Cl. G01n *31/08*
U.S. Cl. 73—422 **6 Claims**



A mount for a sample injection membrane in a chromatographic instrument wherein the membrane is held between inner and outer clamping members, the outer member essentially having a small bore to guidingly receive a syringe needle. The outer piece is provided with a conical or inverted-cup shaped recess, as an enlargement of the bore, open toward the membrane to allow the latter to become distended thereinto.

3,550,453
AUTOMATIC LIQUID SAMPLER
Gene E. Lightner, Kennett Square, Pa., and Howard B. Muhlestein, Wilmington, Del., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Mar. 3, 1969, Ser. No. 803,634
Int. Cl. G01n *1/14*
U.S. Cl. 73—422 **1 Claim**



A syringe is mounted with its needle aligned with the entrance of a sample receiving chamber. The syringe is moved along its axis into and out of the sample receiving

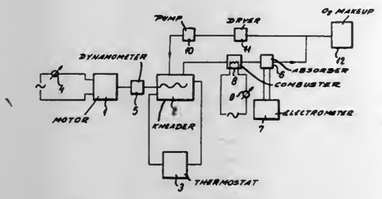
chamber. A sample rack is positioned to successively introduce each of a plurality of sample containers to a sampling location in the path of movement of the syringe needle. The syringe and syringe plunger are automatically operated to withdraw a sample from the container, await the removal of the container from the path of movement and then introduce the sample into the receiving chamber. In an alternative embodiment, the sample containers are constructed with a double aperture, each aligned with the path of movement of the syringe needle so that the syringe needle may be introduced first into the container and then passed through the sample container to introduce the sample into the sample chamber.

3,550,454

APPARATUS FOR TESTING THE THERMOOXIDATION OF MACROMOLECULAR PLASTIC AND ELASTIC MATERIALS

Zoltán Wolkober, Éva Wolkober, Gábor Bazsika, and László Miskolczy, Budapest, Hungary, assignors to Muanyagipari Kutato Intezet and Hungaria Muanyagfeldolgozo, Vallalat, both of Budapest, Hungary

Filed Sept. 3, 1968, Ser. No. 757,001
Claims priority, application Hungary, Sept. 4, 1967, Mu 384
Int. Cl. G01n *31/00, 33/44*
U.S. Cl. 73—432 **3 Claims**



An apparatus or examining the thermo-oxidative properties of elastomers and for determining the effect on thermostability of various additives and for determining the changes in mechanical force required for kneading the said elastomers. The apparatus comprises a kneading unit hermetically sealed off from the atmosphere, provided with a thermostat and fitted with a gas inlet and outlet, a motor for driving the kneading unit, means for determining the mechanical force between the motor and the kneading unit, a thermostat connected with the kneading unit, means connected to the gas inlet of the kneading unit for causing the gas to flow, electrometric means electrically coupled to the said absorbing means for measuring the changes of concentration occurring during the testing, gas-drying means connected by tubes to the gas-circulating device and to said absorbing means, and means, connected to the apparatus, automatically replacing the oxygen, used up by oxidation, to the extent corresponding to the course of the thermomechanical reaction.

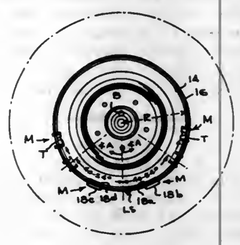
3,550,455

WHEEL BALANCING METHOD

Bernard J. Green, 905 Broad St., and Milton J. Green, 901 Anderson St., both of Bristol, Tenn. 37620

Filed Jan. 15, 1968, Ser. No. 698,053
Int. Cl. G01m *1/12*
U.S. Cl. 73—483 **5 Claims**

A method using balance weights of a single weight value to balance any and all conventional vehicle wheels regardless of the amount by which each such wheel is unbalanced comprising placing the wheel horizontally on a wheel balancing apparatus for determining a light spot on the wheel, observing the light spot on the wheel as by viewing the position of the bubble on the apparatus located within the center of the wheel, placing a pair of equal double value weight masses on the wheel, each mass being initially positioned at an angle of approximately 40 to 54 degrees, preferably 45 to 50 degrees, from the light spot, moving each mass along the wheel symmetrically and uniformly toward or away from the



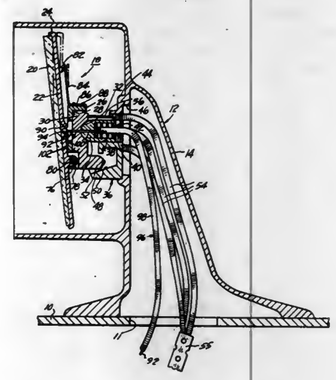
light spot which may be circumferentially towards the position of the bubble until the wheel is balanced, noting the balancing position of the masses when the wheel is balanced, dividing each of the double value masses into or replacing the masses with a pair of single value weights, each of the single value weights being of a weight between .9 and 1.2 ounces, preferably the optimum size of 1.1 ounces, affixing one of each pair of weights on the upper side and on the under side of the wheel at the same balancing location.

3,550,456

REMOTE ADJUSTABLE MIRROR

William L. Pringle, Grosse Pointe Shores, Mich., assignor to Lee Radke Associates, Inc., Detroit, Mich., a corporation of Michigan

Filed Dec. 3, 1968, Ser. No. 780,737
Int. Cl. F16c *1/10;* **G02b** *7/18*
U.S. Cl. 74—501 **11 Claims**



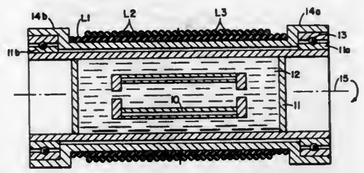
A remotely adjustable rearview mirror for vehicles adjustable in two angular positions in response to "day" or "night" driving conditions comprising a prismatic mirror secured to a mirror base which is pivoted for linear angular movement in an up and down position and having a cable attachment at its center to allow repositioning of the mirror from a remote position.

3,550,457

FLUID ACCELEROMETER

Hugh A. Raymond, Dresher, Pa., assignor to the United States of America as represented by the Secretary of the Army

Filed June 11, 1968, Ser. No. 738,717
Int. Cl. G01p *7/00*
U.S. Cl. 73—503 **6 Claims**



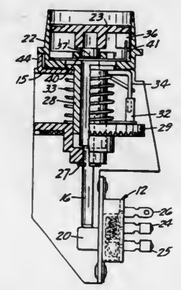
A magnetically permeable float is contained within a cylinder also containing a viscous fluid. The cylinder is spun about its longitudinal axis to center the float; and is surrounded by sensing and balancing coils. An alternating current is applied to a primary coil, and the axial position of the float is sensed by the coupling of the A-C to secondary coils. A direct current is also superimposed on the normal A-C in the coils, and causes the float to assume a central longitudinal position in the cylinder, in the absence of acceleration.

3,550,458

MECHANICAL TIMER

Alexander K. Dunlop, St. Paul, and Raymond A. Hogenson, South St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed June 23, 1969, Ser. No. 835,530
Int. Cl. F01h *43/00;* **F16h** *5/74*
U.S. Cl. 74—3.5 **6 Claims**



A mechanical timer for controlling a machine function, which timer is operable at will and automatically reset upon lapse of a predetermined time interval. The timer comprises lock means to hold a switch in closed position upon operation of a plunger, drive means operable to release the lock means upon a predetermined angular rotation, means for adjusting the angular rotation required, and means for resetting the drive means upon release of the lock means.

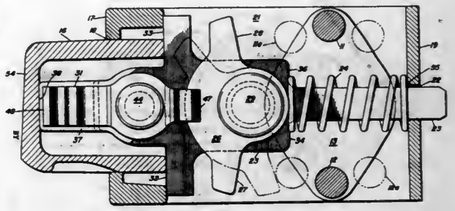
3,550,459

PUSHBUTTON TUNER

Fernand F. Pelletier and Thomas F. Gosnell, Baltimore, Md., assignors to The Bendix Corporation, a corporation of Delaware

Filed Jan. 22, 1969, Ser. No. 793,120
Int. Cl. F16h *35/18*
U.S. Cl. 74—10.33 **6 Claims**

A pushbutton tuner useful with radio receivers used in mobile vehicles such as automobiles having stringent space requirements is described. The inventive pushbutton mechanism permits a substantial decrease in the size of the tuner mechanism. This is accomplished by using the



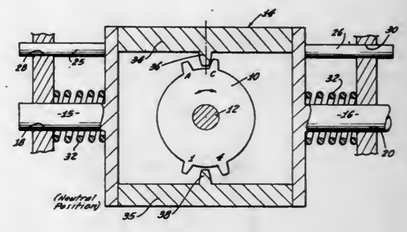
pushbutton as an extension of the slide bar which tunes the radio. The pushbutton also serves as a guide member for the slide resulting in a reduction of the number of parts required for the tuner mechanism.

3,550,460

CONTROL MECHANISM

Earl B. Muir, Rolling Hills Estates, Calif., assignor to White Motor Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Feb. 5, 1969, Ser. No. 796,709
Int. Cl. F16h *21/54*
U.S. Cl. 74—89 **21 Claims**



A slide is movable from a neutral position to two opposite limit positions to operate, for example, a four-way valve. The slide is controlled by teeth of a disk that it straddles, the disk being manually rotatable to opposite limit positions from a neutral position to cause corresponding linear movement of the slide.

3,550,461

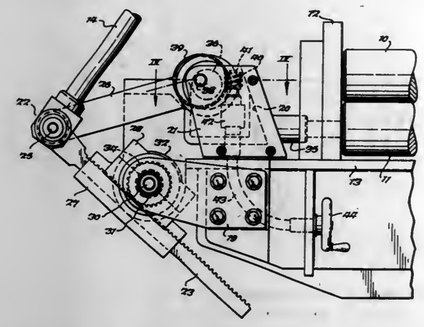
APPARATUS FOR EFFECTING FINE ADJUSTMENT IN DRIVE FOR ROLL FEED MECHANISM

Clarence O. Jones, Jr., Eggertsville, N.Y., assignor to Niagara Machine & Tool Works, Buffalo, N.Y.

Filed Oct. 31, 1968, Ser. No. 772,318
Int. Cl. F16h *21/08*
U.S. Cl. 74—89.17 **11 Claims**

Apparatus for transmitting an adjustable degree of movement to a driven pinion from a drive member having a degree of reciprocating movement adjustable to a relatively large or major degree. A rack member meshing with the pinion extends at a substantial angle to the direction of reciprocation of the drive member and an adjusting link has a pivotal mounting at one end and is pivoted at its other end to both the drive member and the rack member. The pivotal mounting of the link is adjustable about a circular path while the drive is in motion

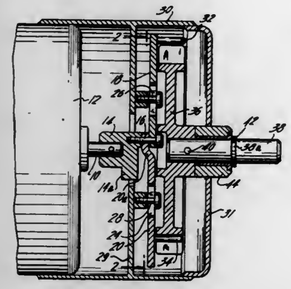
to vary the included angle between the link and the rack member thus providing an accurate minor adjustment in the amount of drive transmitted from the drive member to the pinion.



3,550,462
LINE ONE GEAR REDUCER

Joseph Laszlo, New York, N.Y., assignor, by mesne assignments, to International Patents & Development Corporation, a corporation of Delaware

Filed Nov. 8, 1968, Ser. No. 774,237
Int. Cl. F16h *1/06, 1/28, 27/00*
U.S. Cl. 74—118 10 Claims



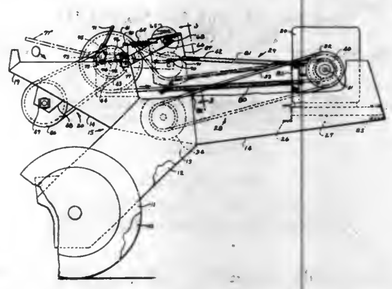
A mechanical speed reducing device in which a spur gear is driven by two pins in succession. The pins engage the teeth alternately and are situated diametrically opposite to each other. The pins are mounted upon two swivel arms actuated by an eccentric pin on the driving shaft. The swivel arms are confined so that during rotation of the eccentric pin, the two pins engaging the spur gear teeth, pass through radial motion and tangential motion in a predetermined manner for rotating the spur gear and thereby the driven shaft attached to the gear.

3,550,463
DISENGAGEABLE BELT AND SHEAVE DRIVE WITH BELT SUPPORTS

Lawrence M. Halls, New Holland, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,513
Int. Cl. F16h *7/12*
U.S. Cl. 74—226 3 Claims

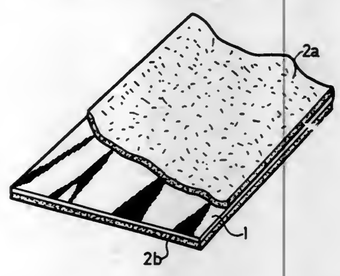
A disengageable belt and sheave drive has a roller movable between drive and non-drive conditions to tension the belts for driving and release the belts for non-driving. A power run support member and a pivotally mounted return run support member hold the belts in slack condition out of contact with the drive sheave.



3,550,464
LAMINATED TRANSMISSION BELT

Sokichi Yagii, 327–47 Osakabe, Yao-shi, Osaka, Japan; Tetsushi Saito, 15–3 Chiyodadaicho, Kawachinagano-shi, Osaka, Japan; and Takuji Watanabe, 9–21 Karitacho, Sumiyoshi-ku, Osaka-shi, Osaka, Japan

Filed Mar. 10, 1969, Ser. No. 805,511
Claims priority, application Japan, Mar. 14, 1968, 43/16,701
Int. Cl. F16g *1/04, 1/16, 1/26*
U.S. Cl. 74—232 9 Claims



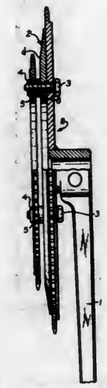
An improved laminated transmission belt provided with at least one surface sheet composed of a sheet of textile fibers and a synthetic resin reinforcing the sheet of textile fibers. If water or oil exists on the working surface of the belt, it is quite possible that the surface sheet will absorb the water or oil, due to the fact that some of the fine spaces extend to the surface of the sheet. As to a material for the textile fibers of the surface sheet, wool fiber is preferably used because of its excellent mechanical properties.

3,550,465
CHAIN FALL PREVENTION DEVICE FOR BICYCLE

Tetsuo Maeda, 12 Hamaderakoencho 1-cho, Sakai, Osaka, Japan

Filed Apr. 22, 1969, Ser. No. 818,268
Claims priority, application Japan, Mar. 7, 1969 (utility model), 44/20,885
Int. Cl. F16h *7/18, 55/30*
U.S. Cl. 74—240 6 Claims

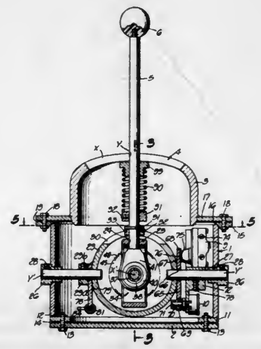
A chain fall prevention device, comprising a driving gear adapted to be operatively secured to a driving gear crank including, a first circular gear having a first plurality of first gear teeth on the outer periphery thereof, a second circular gear having a second plurality of second gear teeth on the outer periphery thereof, the second circular gear operatively secured to the first circular gear spaced axially relative thereto and having a smaller outer diameter than that of the first circular gear, a chain guide plate formed at least in part with a slanting slope at one side thereof widening in a direction inwardly away from the outer peripheral edge of the chain guide plate, and the chain guide plate positioned with its other side adjacent to the first circular gear and between the first and second circular gears and co-axial therewith thereby preventing the chain from falling down between the gears and providing a smooth shifting of gears and operation.



3,550,466
MULTIDIRECTIONAL CONTROL

John E. Ham, Long Beach, Calif., assignor to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware

Filed Nov. 26, 1968, Ser. No. 779,046
Int. Cl. G05g *9/00*
U.S. Cl. 74—471 5 Claims

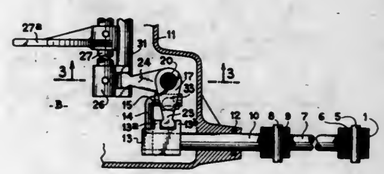


A multidirectional control for actuating control systems, in which an operating lever is movable in opposite directions in different planes, and movement of the lever in either direction in one plane actuates a control switch and drives a potentiometer, movement of the lever in either direction in the other plane actuating another switch and driving another potentiometer.

3,550,467
GEARBOX CONTROL DEVICE

Michel Forichon, Ruell-Malmaison, France, assignor to Automobiles Peugeot and Regie Nationale des Usines Renault, Paris and Billancourt, France, respectively, both French body corporates

Filed Nov. 6, 1968, Ser. No. 773,862
Claims priority, application France, Dec. 5, 1967, 130,954
Int. Cl. G05g *9/12*
U.S. Cl. 74—473 5 Claims

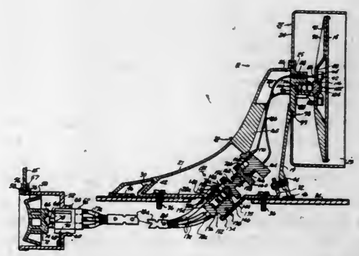


Control device for a vehicle gearbox comprising a control lever connected to a rotatable and slidable rod which is connected by connecting means to a slidable and rotatable speed selecting and changing lever. A block is rigidly fixed to the rod and has two side faces one of which grips one of the branches of the speed selecting and changing lever. The block is connected to a cranked finger having a free end parallel to the rod and engaged in a fork formed on a ring constituting the sliding and rotating hub of the speed selecting and changing lever.

3,550,468
REMOTELY CONTROLLED REAR VIEW MIRROR

William L. Pringle, Grosse Pointe Shores, and John S. Cucheran, Pleasant Ridge, Mich., assignors to Lee Radke Associates, Inc., Detroit, Mich., a corporation of Michigan

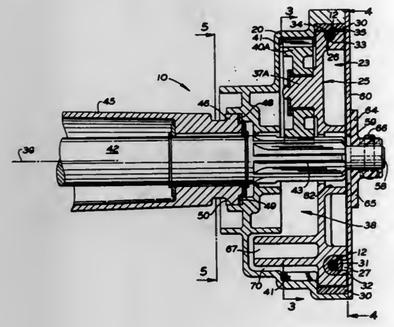
Filed Dec. 3, 1968, Ser. No. 780,738
Int. Cl. F16c *1/10;* G02b *7/18*
U.S. Cl. 74—501 11 Claims

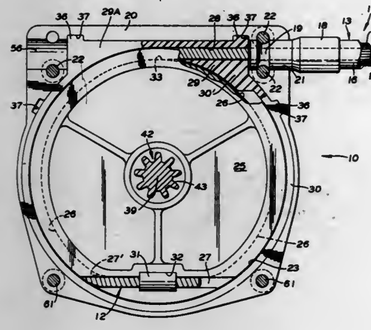


An outside rear view mirror assembly for a vehicle or the like comprising a pivotal mirror mounted exteriorly on the vehicle connected to said mirror by a plurality of cables to allow adjustment of the mirror by a manipu-

lation of the control member and including a quick disconnect coupling to permit replacement of the mirror without disassembly of the internal cable control mechanism.

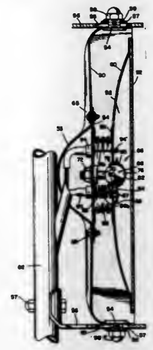
3,550,469
ROTARY ACTUATOR FOR PUSH-PULL CABLES
John F. Morse, Hudson, Ohio, assignor to Morse Controls Inc., Hudson, Ohio, a corporation of Ohio
Filed Jan. 21, 1969, Ser. No. 792,433
Int. Cl. F16c 1/10; F16h 1/28
U.S. Cl. 74—501 13 Claims





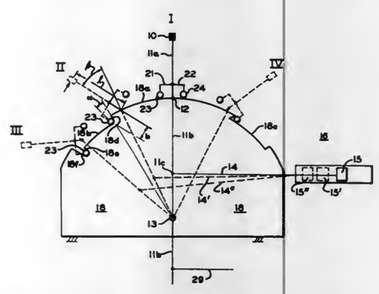
A rotary actuator for reciprocating the core of a push-pull cable. The actuator has a circular drive member received within a housing for rotation about a central axis. The cable casing is secured to the housing, but the cable core is attached to the drive member and is receivable in a peripheral groove therein. A cylindrical inner surface of an annular retaining means within the housing embraces the major portion of at least the peripheral groove. An annular gear is fixed within the housing axially of the retaining means and is intermeshed with a plurality of intermediate gears rotatably carried on the drive member. Each intermediate gear is rotatable about an individual axis located eccentrically of the central axis; the axes of the several intermediate gears being concentric to the central axis. A propelling gear means is simultaneously intermeshed with all the intermediate gears and is rotatable about the central axis selectively to rotate the drive member for winding the core into the groove or unwinding it therefrom.

3,550,470
REMOTE CONTROLLED MIRROR
John C. Brighton and George E. Scheitlin, Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind., a corporation of Indiana
Filed June 23, 1969, Ser. No. 835,451
Int. Cl. F16c 1/12
U.S. Cl. 74—501 14 Claims



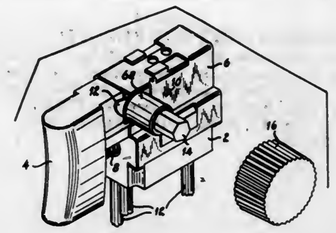
An adjustable outside rear view mirror for an automotive vehicle having remote control means therein for adjusting the position of the mirror. The mirror is adjustable with respect to a streamlining cover mounted on a frame adjustably mounted on the vehicle. The mirror is attached to said cover with a ball joint enclosed by a bellows for shielding the ball joint and for damping out vibrations. Remote control is effected by cables which pass from their connections to the mirror through the tubular frame for attachment to a control member by adjustable retaining members which permit easy and accurate adjustment of the cable lengths.

3,550,471
MANUAL CONTROL DETENT APPARATUS
Arthur Bilco, Greene, N.Y., assignor to The Raymond Corporation, a corporation of New York
Filed Nov. 12, 1968, Ser. No. 774,904
Int. Cl. G05g 5/02
U.S. Cl. 74—529 8 Claims



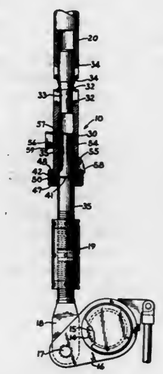
A latching arrangement for a manual control which holds the control in a predetermined position against opposing reactive forces without friction means, and in which operator effort to unlatch the control is made substantially independent of the amount of reactive force applied to the control. The manual control is shown arranged to control a hydraulic system which controls the raising of the load carriage of a fork lift truck.

3,550,472
VARIABLE TRIGGER LOCK
Merlin R. Dummer, Milwaukee, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Aug. 5, 1968, Ser. No. 750,194
Int. Cl. F16h 21/20
U.S. Cl. 74—531 10 Claims



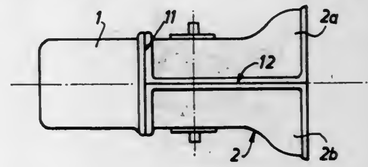
A variable trigger lock for the index finger operated trigger type actuator of a variable speed control switch for a portable electric tool such as a drill. A knob on the outside of the tool handle when depressed and rotated by the user rotates a cam that abuttingly engages a vertical shoulder on the horizontally slidable part of the trigger for stepless locking in any speed position. A slight depression of the trigger allows a spring to snap the cam out from its depressed position clear of the shoulder for automatic release.

3,550,473
OVERLOAD PROTECTION DRIVING MECHANISM
Donald E. Bernotus, Hammond, Ind., assignor to Verson Allsteel Press Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 14, 1969, Ser. No. 815,779
Int. Cl. F16p 7/02
U.S. Cl. 74—584 18 Claims



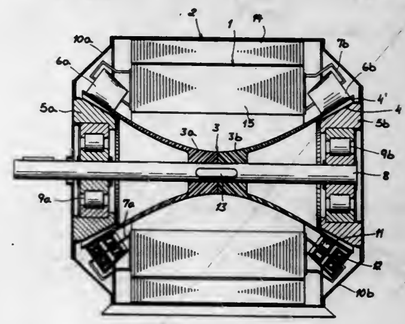
An overload protection driving mechanism is connected between a driving member and a driven member for driving the latter from the former, includes a shearable driving connection which includes a hollow housing connected to one of the members and which has an internal annular recess in one end thereof, and a shaft connected to the other member which is slidably received in the hollow housing and which has an external annular recess normally adjacent the internal annular recess of the housing. A segmented annular shear plate has the inner portions thereof removably received in the annular external recess in the shaft and the outer portions removably received in the internal annular recess in the housing. A collar about the shaft is removably secured to the housing for clamping the outer portions of the segmented annular shear plate in the internal annular recess in the housing. The segmented annular shear plate forms a driving connection between the shaft and the housing which is shearable upon the occurrence of an excessive driving load.

3,550,474
TRANSMISSION AND FINAL DRIVE UNITS
Jean Maurice and Jean Piret, Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt, Hauts-de-Seine, and Automobiles Peugeot, Paris, France
Filed Nov. 12, 1968, Ser. No. 774,652
Claims priority, application France, Dec. 5, 1967, 130,961; July 3, 1968, 157,656
Int. Cl. F16h 57/02
U.S. Cl. 74—606 7 Claims



A transmission and final drive unit for an automotive vehicle, having a composite casing and characterised in that it comprises a transmission casing and a final drive casing assembled along a joint plane extending at right angles to the longitudinal axis of the unit, and that the final drive casing comprises two sections of which the inherent joint plane comprises said longitudinal axis.

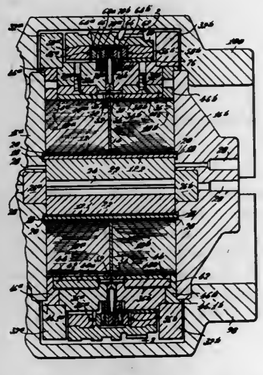
3,550,475
REDUCTION-GEAR MOTOR
Mihail Spirov Konstantinov, Sofia, Dragomir Svetoslavov Dragiev, Botevgrad, and Penka Jossifova Genova and Petar Ivanov Tzenov, Sofia, Bulgaria, assignors to Vish Machino-Flektrotechnitcheski Institut, Sofia, Bulgaria, a corporation of Bulgaria
Continuation-in-part of application Ser. No. 700,845, Jan. 26, 1968. This application May 9, 1969, Ser. No. 823,264
Claims priority, application Bulgaria, Jan. 28, 1967, 7,464
Int. Cl. F16h 33/00
U.S. Cl. 74—640 10 Claims



A torque transmitter of the strain-wave type comprises three relatively rotatable coaxial bodies, i.e., an externally

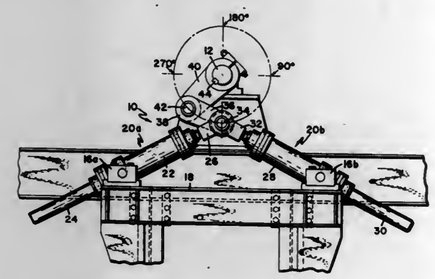
toothed rigid inner body secured to a stator, an internally toothed intermediate rotor of deformable material, and a driven outer rotor carrying two sets of frustoconical rollers which bear upon the intermediate rotor at peripherally spaced locations to force the internal teeth thereof into progressively shifting engagement with the external teeth of the inner body. The two toothed bodies have each the shape of a bambinoid, i.e., of a surface of revolution generated by an imaginary cylinder rotating about an axis which lies skew to all its generatrices.

3,550,476
PRESSURE GENERATING DEVICE
Niels O. Young, Lincoln, Mass., assignor to Block Engineering, Inc., Cambridge, Mass., a corporation of Delaware
Original application Sept. 28, 1966, Ser. No. 582,648, now Patent No. 3,453,687. Divided and this application Nov. 1, 1968, Ser. No. 803,496
Int. Cl. F16h *1/28, 37/16*
U.S. Cl. 74—640 **7 Claims**



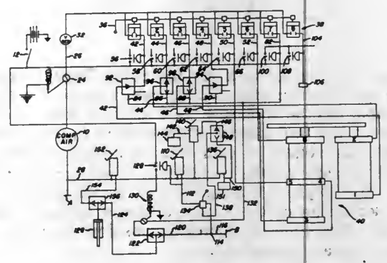
The mechanism described has harmonically meshing gears with different numbers of gears for relatively moving the ends of strips of a pressure generating device according to Pat. No. 3,453,687.

3,550,477
DRIVE MECHANISM
Roger Kinnicutt, Jr., Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass., a corporation of Massachusetts
Filed Dec. 31, 1968, Ser. No. 788,180
Int. Cl. B23b *29/32*
U.S. Cl. 74—817 **4 Claims**



An apparatus for imparting intermittent rotation to a shaft. The apparatus includes a pair of piston and cylinder units pivotally mounted on a fixed base. The pistons are each pivotally connected to an intermediate link which is in turn pivotally connected to a crank arm extending radially from the shaft. By first alternately extending and then alternately retracting the pistons the shaft is caused to rotate intermittently through four successive 90° intervals.

3,550,478
TRANSMISSION SHIFT AND THROTTLE CONTROL
William H. Bechman, Morton, and Robert T. Krumtinger, Peoria, Ill., assignors to Westinghouse Air Brake Company, Peoria, Ill., a corporation of Pennsylvania
Filed Nov. 25, 1968, Ser. No. 778,656
Int. Cl. B60k *21/00*; F01b *23/00*
U.S. Cl. 74—847 **13 Claims**

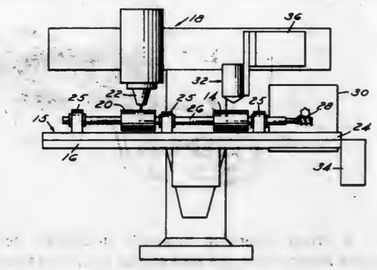


A dual drive on a machine having a prime mover unit and a trailing unit, an engine mounted in each unit connectible through a transmission to propel the unit, the engines also connectible to supply power requirements of other devices on the machine including one (a generator) requiring such a major proportion of the output of one engine that it may be desirable to limit propulsion to the other engine during part of the cycle. One selector controls both transmissions and, for all but infrequent conditions, one pedal controls both engines. A pneumatic system controls the speed of both engines; for operation in one selector position, one engine runs at high idle to operate the generator and the other engine is operator-controlled to regulate vehicle speed, by automatically blocking speed control signals to the high-idle engine while its transmission is in neutral. In other selector positions, the automatic block is removed, connecting both engines for vehicle drive and controlling both engines synchronously by the one pedal. To minimize operator fatigue, engine speed control can be "locked in" by valve means to hold engine throttles at a desired engine speed. Such speed "lock" can be relieved by operator control of: the valve means, the brake, or the retarder. Full operator control is completed by: limiting vehicle drive to the front engine when desired, by operator use of a front engine throttle pedal; and by permitting individual throttle control of the two engines.

3,550,479
METHOD FOR MAKING CYLINDRICAL DIES
Alan R. Pfaff, Jr., Orchard Lake, Mich., assignor to Bernal Incorporated, a corporation of Michigan
Filed Aug. 14, 1968, Ser. No. 752,612
Int. Cl. B21k *5/20*
U.S. Cl. 76—107 **7 Claims**

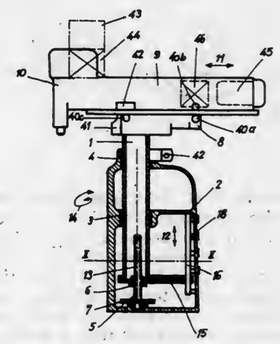
A cylindrical cutting die is made by mounting a line drawing of the pattern to be cut on a copy cylinder supported on the table of a milling machine for rotary movement in unison with a negative cylinder. A scanning device senses the pattern on the copy cylinder and coordinates rotary movement of the cylinders and linear move-

ment of the machine table to causes a cutter mounted on the machine spindle to form a grooved reproduction of the pattern on the negative cylinder, which is then used in an electrical discharge machine, equipped with a fixture for rotatably supporting the negative cylinder on the ma-



chine head in axially parallel relation with a die blank cylinder in the machine tank and for rotating the cylinders at equal rotational speed, to cause a raised cutting pattern to be machined on the die cylinder corresponding to the grooved reproduction on the negative cylinder.

3,550,480
RADIAL DRILLING MACHINE
Hellmut Müller, 91 Esslinger Strasse, 731 Plochingen (Neckar), Germany
Filed Aug. 28, 1968, Ser. No. 755,985
Int. Cl. B23b *39/12*
U.S. Cl. 77—28 **7 Claims**



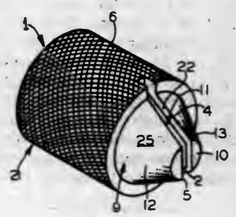
A radial drilling machine includes a base frame and a vertically extending column of circular cross-section mounted for turning in the base frame and for movement up and down therein. A clamping arrangement is provided which can be clamped to or released from the column to permit turning and which slides up and down in the frame while engaging a guide which prevents it from turning around the axis of the column. The top of the column carries a cantilever arm mounted on rollers for horizontal back and forth movement with a boring head at one end and a motor and gearing at the other.

3,550,481
DRILL DEPTH AND ANGLE GUIDE FOR HAND DRILL
Harry M. Jensen, 97 E. 4th St. N., Monroe, Utah 84754
Filed Jan. 22, 1969, Ser. No. 792,965
Int. Cl. B23b *49/00*
U.S. Cl. 77—55 **4 Claims**



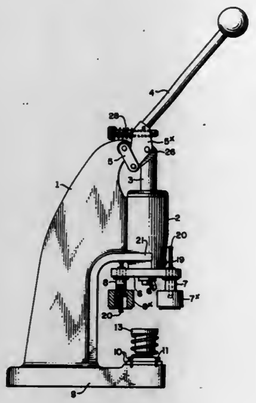
A device which supports a hand type electric drill in a detachable manner and is provided with means for setting the depth to which a drill bit operated by the drill can penetrate a work piece as well as setting the angle at which the bit enters the workpiece.

3,550,482
INTEGRAL CHAMFERING TOOL
Richard J. Lee, R.R. 2, Hartford, Wis. 53027
Filed June 26, 1968, Ser. No. 740,290
Int. Cl. B23d *79/08*
U.S. Cl. 77—73 **1 Claim**



A tool for chamfering the end of a cartridge case or the cut end of a tube, comprising an integral hollow body having a non-cylindrical main body portion and a substantially coniform hollow end bisected by a diametrical slot, with the halves of such end being offset from each other so that the lines of intersection between the sides of such slot and the interior and exterior of such end form diametrically opposite interior and exterior cutting edges; and a method of making such tool.

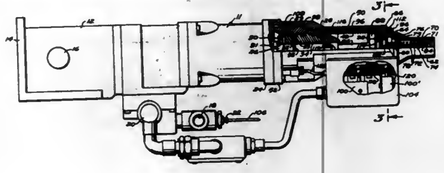
3,550,483
ASSEMBLY APPARATUS FOR COVERED BUTTONS
Kaspar Humbel, Uetikon am See, Zurich, Switzerland
Filed Apr. 18, 1968, Ser. No. 722,242
Int. Cl. D04d *7/04*
U.S. Cl. 79—5 **3 Claims**



The apparatus comprises a press body rising from a base which carries two spaced members. The first member is a loader which receives a button-covering piece which may be of fabric and above a button cup. The second member is a die which receives a second button cup which generally has a projecting eye. A cylindrical casing on the press body has within it a spring-engaged plunger assembly and at its lower end the latter carires a head with two spaced and alike die-pressure members. A lever-handle at the top of the press body enables down movement of the plunger assembly against the action of its string. A sleeve forming part of the plunger assembly has a cam groove entered by a stud carried by the casing. When the handle-lever is pulled down the plunger assembly with its head is first rotated 90° and into pick-up engagement position and engagement with the loader. In its up-movement the appropriate one die-pressure member picks up the button covering piece with the button cup on it, and is moved 90° toward the die. On the second downward movement said first die-pressure member is moved 90° into register with the die and thereon to effect final assembly of the button elements. Finally, on its up movement, the finished button is automatically discharged and the second die-pressure member picks up another button-covering piece with a button cup thereon for action as hereinbefore stated. The button-covering pieces and the button cups are manually placed in position for the foregoing action.

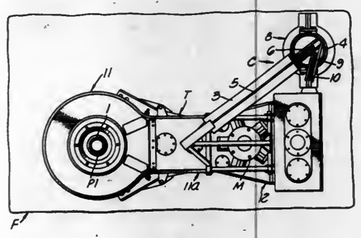
3,550,484
FASTENER TOOL
Francis R. Pecoraro, Shingle Springs, Calif., assignor to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
Filed July 26, 1968, Ser. No. 748,095
Int. Cl. B25b *13/00, 21/02*
U.S. Cl. 81—54 **11 Claims**

A fastener tool operated by a rotating power source. The fastener tool comprising an elongated housing having a cylindrical bore therethrough and having a means for mounting the housing on the rotating power source, as for example, an impact wrench. An elongated cylindrical sleeve being internally threaded at one end thereof is mounted within the housing. A driver adapter is rotatably mounted within the sleeve remote from the threaded end thereof and operably engages the driver means of the rotating power source. A fastener socket having external threads thereon screws into the threaded end of the



sleeve. A driver extension means is interposed between the driver adapter and the socket and is in operable association therewith for transmitting the rotating force to the socket. A collet and collet actuating means is mounted within the socket whereby the collet engages and holds the fastener during tool operation.

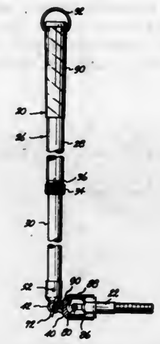
3,550,485
POWER PIPE TONGS WITH VARIABLE BRAKE
John L. Dickmann, Whittier, and Garth F. Nicolson, Huntington Beach, Calif., assignors to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,196
Int. Cl. B25b *17/00*
U.S. Cl. 81—57.15 **10 Claims**



Power pipe tongs in which pipe gripping jaws are actuated into pipe gripping positions from retracted positions by cams and cam followers on an outer driven ring and on the jaws, the jaws being carried by an inner ring, rotation of the outer ring relative to the inner ring effecting camming of the jaws to the pipe gripping positions, and in which a brake band is anchored on the tong housing and is engaged with the inner ring, a fluid pressure expansible conduit engaging the brake band to effect frictional engagement of the latter with the inner ring throughout substantially the entire extent of the brake band, the braking force being a function of the pressure applied to the expansible conduit.

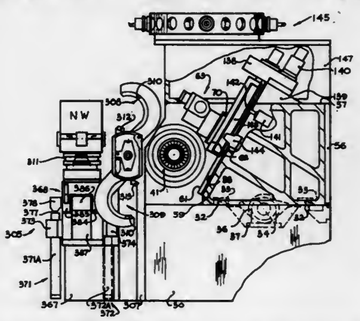
3,550,486
TOOL FOR HOLDING RIVETS AND BOLTS DURING THEIR FASTENING IN OTHERWISE INACCESSIBLE PLACES
John D. Edwards, 15315 SE. 24th St., Bellevue, Wash. 98004
Filed Nov. 15, 1967, Ser. No. 683,213
Int. Cl. B25b *13/06*
U.S. Cl. 81—125 **2 Claims**

A tool has a variable length handle terminating in a pivotal mounting of an interchangeable receiver which surrounds a holding magnet to receive rivets and bolts



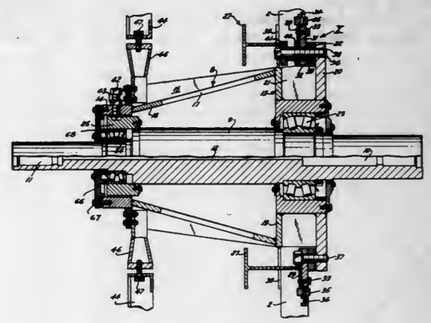
for their placement through holes to be fastened in otherwise inaccessible places in structures of all types.

3,550,487
MACHINE TOOL
John S. Randall, Shorewood, Morris L. Hutchens, Brookfield, Wallace E. Brainard, New Berlin, and Erich F. Drechsler, Milwaukee, Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis., a corporation of Wisconsin
Continuation of application Ser. No. 641,435, May 22, 1967. This application July 17, 1969, Ser. No. 866,046
Int. Cl. B23b *13/00*
U.S. Cl. 82—2.5 **6 Claims**



Disclosed herein is a machine tool having a tool storage magazine and a tool changer arm operable to interchange a previously used tool in the tool operator with a new tool from the storage magazine. The machine tool is also provided with a workpiece set up device movable between a "load" position and a workpiece change position wherein a workpiece is located in a change station. In the change station the workpiece is located in the path of travel of a workpiece changer arm which is operable to effect a simultaneous interchange of workpieces between the set up device and the spindle of the movable headstock. With a new workpiece secured to the headstock spindle, the movements of the headstock and the tool operator are coordinated to effect a desired work operation on the workpiece. During the performance of a work operation the set up device with the previously completed workpiece is returned to the "load" position wherein the workpiece is removed and a new workpiece is secured to the set up device. Thereafter, the set up device is moved from the "load" position to position the new workpiece in the change station ready for subsequent transfer to the headstock spindle. A novel method of handling workpieces between the headstock spindle and the set up device has been conceived which makes it possible to effect an interchange of intermixed different diameter workpieces between the set up device and the headstock. To this end the set up device spindle head and the headstock spindle head are standardized to accommodate the standard fixture ring. Thus, the changer arm will engage the diameter of the standard fixture ring without regard for the diameters of the workpieces being transferred. As a result, an intermixture of different size workpieces can be programmed through the machine tool without altering or adjusting the machine components to accommodate for different sizes of workpieces.

3,550,488
APPARATUS FOR AND METHOD OF MACHINING CYLINDRICAL SHELL HEADS
Axel Brix Andersen, Larchmont, N.Y., assignor to F. L. Smidth & Co., New York, N.Y., a corporation of Delaware
Filed Sept. 25, 1967, Ser. No. 670,243
Int. Cl. B23b *3/22, 5/04*
U.S. Cl. 82—4 **4 Claims**

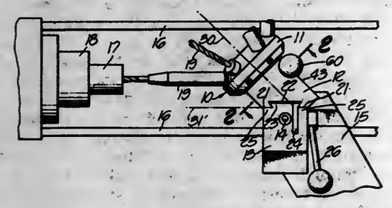


The faces or heads of large cylindrical vessels or shells are machined so that the surfaces machined are precisely parallel and have a common centerline. For example, ball mill or rod mill shells too large to place in any lathe, are machined to receive the conventional trunnions at their opposite ends. The operation is accomplished with great precision, the faces being machined parallel and any shoulders being machined on a common centerline, i.e., the axis of the shell. Two machining mechanisms are temporarily mounted within and one at each end of the shell. The tool shafts of these mechanisms are hollow and are aligned by the use of a laser or other suitable radiation beam.

3,550,489
TURRET HEAD FOR QUICK-CHANGE TOOL
Lloyd W. Kuhn, 9900 S. Haledon Ave., Downey, Calif. 90240, and William J. Fontaine, Venice, Fla.; said Fontaine assignor to said Kuhn
Filed Oct. 25, 1968, Ser. No. 770,735
Int. Cl. B23b *29/24*
U.S. Cl. 82—36 **9 Claims**

A turret head assembly for a lathe or other machine tool secured thereto by means of a quick-change tool holder has a turret head for supporting a plurality of tools, the turret head having a stub shaft received in a recess on a body. A lever pivotally mounted on the body actuates a sliding plunger which is received in any one

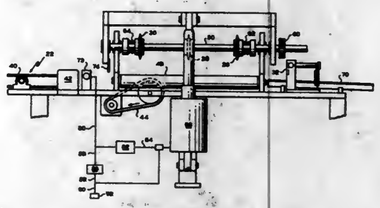
of a plurality of openings on the turret head, and the same lever also actuates a wedging pin which extends into a groove on the stub shaft to hold confronting faces on



the turret and body in solid contact. The axis of the turret intersects the plane of the body support faces at a 45° angle.

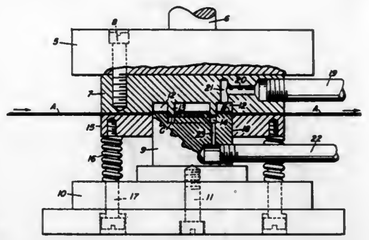
3,550,490
MULTIPLE CUTTING APPARATUS FOR ELONGATED ARTICLES
Joel T. Hicks, Little Rock, Ark., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed June 10, 1968, Ser. No. 735,852
Int. Cl. B23b *7/00*
U.S. Cl. 82—48 **6 Claims**

A length of an elongated article is cut into a plurality of shorter lengths by means of a plurality of cutting means which impinge upon the surface of said elongated article. The first of these cutting means is fixed to a rotating shaft. Spaced apart from the first cutting means is a second cutting means slidably keyed to the shaft and spring-biased toward the first cutting means. Additional cutting means slidably keyed to the shaft and biased toward the first cutting means can be provided. As the fixed cutting means is forced through the elongated article, the



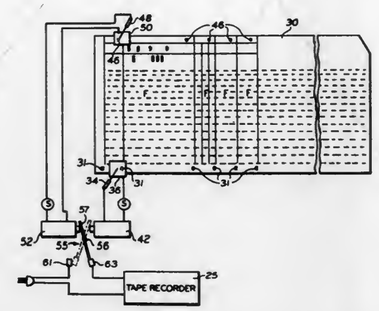
spring-biased cutting means slide axially to compensate for the wedging effect of the first cutting means. The cutting means is activated as a delayed response to a signal generated by passage of the elongated article by a sensing device so as to temporarily break a signal. Any equipment malfunction resulting in an extended break in the sensing signal allows a time delay relay means to time out and shut off the equipment.

3,550,491
PUNCH AND DIE ASSEMBLY
William F. Wingard, 1907 Indian Head Road, Ruxton, Md.
Filed Oct. 11, 1968, Ser. No. 766,745
Int. Cl. B26d *7/18*
U.S. Cl. 83—22 **8 Claims**



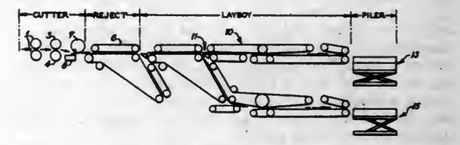
A punch and die press for producing stampings of irregular contours from a blank of relatively thin material. The male and female elements of the press are provided with cavities behind the parts being stamped from the blank, which cavities are connected with source of hydraulic pressure and have valve means automatically timed by the operation of the press to build up pressure in the cavities to force the parts being stamped against the faces of the complementary elements during stamping to maintain the parts in flat condition and to eject the parts from the respective cavities when stamping is completed.

3,550,492
DATA ENTRY ON DATA PROCESSING MEDIA
Jerry G. Bechhofer, 23 W. 47th St., New York, N.Y.
Filed Jan. 4, 1967, Ser. No. 607,208
Int. Cl. G06k *1/00*; **B26f** *1/02*
U.S. Cl. 83—50 **6 Claims**



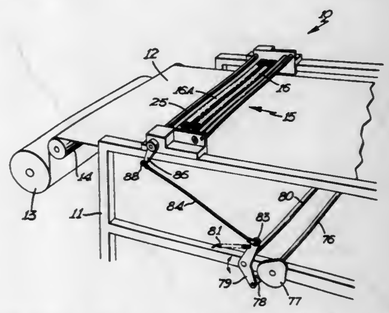
Means providing a command, preferably in the form of an audio signal informing the operator of equipment for the preparation of data processing media such as punch cards or magnetic tape of the type of information which is to be garnered from the source document for the entry of given data onto the data processing media. Signalling means, such as a tape recorder, is coupled to the data entry equipment, such as a card punch machine, so that the tape recorder will be actuated to play back a signal identifying the portion of the field of the punchcard which has been aligned with the punching mechanism of the punch machine, or the portion of the magnetic tape which has been aligned with the recording mechanism of the tape-encoding device, or any other similar type of data recording apparatus thus minimizing the attention required of the operator, and reliance on the operator's memory.

3,550,493
CUTTER PILER
Waldyn J. Benbenek, Lee, and Frank A. Grosso, Pittsfield, Mass., assignors to The Clark-Aiken Company, Lee, Mass., a corporation of Massachusetts
Filed Nov. 20, 1967, Ser. No. 684,423
Int. Cl. B65h *29/50, 29/60*; **B26d** *1/56*
U.S. Cl. 83—64 **14 Claims**



A cutter piler automatically cuts and slits traveling webs into paper sheets, cut sizes, folio sizes or large press sizes which are then delivered by a layboy to one of two vertically-spaced piling stations. The piling stations are each provided with conveyors which can automatically move the completed piles or stacks of paper laterally to a lift table discharge conveyor. The lift table is normally sequenced automatically to service alternately the lower and the upper piling stations so that the finished piles or stacks of paper can be continuously discharged to a wrapping line or another location for end-use processing as desired. This same cutter piler can be set to skid pile so that sheets are delivered to a skid placed on the lower piling station. A measuring disc assembly is included in the cutter piler to ride on a draw drum ahead of a rotary knife. This assembly pulses a sufficient number of times to accurately measure the revolutions of the measuring disc and a read out displays the length of web drawn by the draw drum. A counter is provided with electric gating means to monitor each revolution of the cutter and to feed information to a digital counter so that the revolutions of the cutter and the drum can be compared and correlated. A second counter which receives its impulse from the gap between the cut sheets is preset to permit delivery of the exact number of sheets to each piling station. Thereafter, paper is delivered to the other piling stations while the first station is discharging. A second stage or pile lowering section of this counter, presettable, permits autopile lowering for small increments of each piling station. A third section of this same counter, also presettable, controls the final lowering to the down limit of each piling station.

3,550,494
MULTIPUNCH SYSTEM FOR FLEXIBLE FILM PRODUCTS
Richard C. Adams, West Barrington, R.I., and William S. Coombes, Somerset, Mass., assignors to G. T. Schjeldahl Company, Northfield, Minn., a corporation of Minnesota
Filed May 12, 1969, Ser. No. 823,853
Int. Cl. B26f *1/04, 1/06*
U.S. Cl. 83—99 **10 Claims**



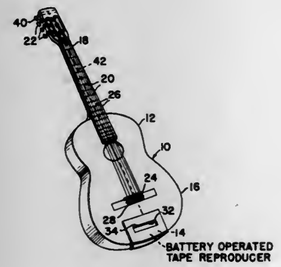
Punching means for perforating thin flexible webs of material comprising frame means supporting a carrier plate in superimposed relationship over the material to be per-

forated, a plurality of punch members retained within bores formed in the carrier plate, each punch member being mounted for free axial rotation within these bores, the punch including a cutter head with means resiliently biasing the punch member toward the top of the carrier plate and against an abutment bar or means, the punch members further including a shank portion having a top abutment surface with axial and radial segments removed therefrom to form additional abutment surfaces axially spaced from the upper surface of the shank. The arrangement is such that upon rotation of the shank, the cutting surface or cutting edge of the punch may be arranged in predetermined axial disposition relative to the material being perforated, thus permitting a variety of operations including punching, perforating, or the like with a single punch device. Preferably, the cutting surface of the punch is serrated so as to provide a basis for forming bores, or perforations, depending upon the axial disposition of the punch.

3,550,495
MUSICAL INSTRUMENT WITH MAGNETIC TYPE TAPE REPRODUCER

Albert Shotmeyer, Wyckoff, N.J. (46 Westerly Road, Saddle River, N.J. 07458)

Filed Nov. 7, 1968, Ser. No. 774,047
Int. Cl. G10d *5/00*
U.S. Cl. 84—267 **3 Claims**



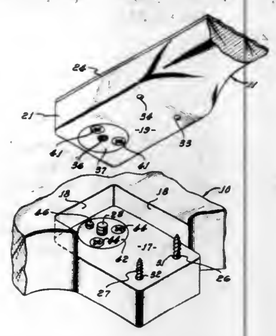
An educational or amusement device comprising a musical instrument combined with a battery-operated magnetic-type tape reproducer. As an educational device, the player can accompany, on the musical instrument, the particular selection played in the reproducer. As a toy or amusement device, the particular selection played would have the sounds of the musical instrument in which it is played, and the player would go through the motions of playing that selection on the musical instrument.

3,550,496
TILTABLE GUITAR NECK INCORPORATING THRUST-ABSORBING, PIVOT AND LOCKING ELEMENT

Clarence L. Fender, Fullerton, Calif., assignor to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York

Filed July 14, 1969, Ser. No. 841,240
Int. Cl. G10d *3/00*
U.S. Cl. 84—293 **12 Claims**

A Spanish guitar of the type in which a removable neck is secured by screws to the guitar body, the inner end of the neck seating on the guitar body at cooperating surfaces which are generally parallel to the neck. First and second thrust-absorbing washers are mounted respectively to the neck and guitar body at such cooperating surfaces, and receive a bolt which extends perpendicular to the cooperating surfaces. Such bolt serves as an axis element about which the guitar neck pivots when it is being adjusted substantially in the plane of the face of the guitar body, as a locking element to prevent undesired inclination of the guitar neck, and as a shear-absorbing element to absorb the thrust of the guitar strings. A set screw is threaded through one of the

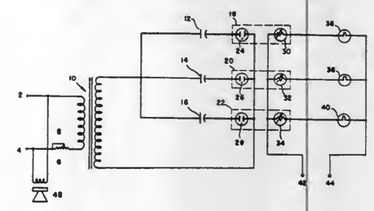


washers and into engagement with the other, in order to change the degree of inclination of the neck.

3,550,497
COLOR DISPLAY FOR SOUND REPRODUCING SYSTEMS

Gregory S. Marsh, 90 Tidewater Road Henlopen Acres, Rehoboth, Del. 19971

Filed Sept. 26, 1968, Ser. No. 763,027
Int. Cl. A63j *17/00*
U.S. Cl. 84—464 **4 Claims**



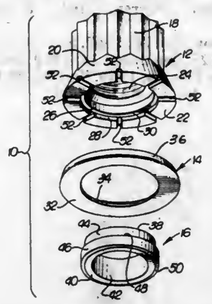
A variable color display for sound which is responsive to the combination of the frequency and amplitude of the audio frequency signal. The display includes a plurality of signal channels, each containing a series connected capacitor and neon tube with each capacitor having different capacitive values, connected in parallel whereby the neon tubes turn on and off at different times and produce light outputs that may be of different intensities in response to the same audio signal. Photoresistors located with each neon tube control the voltage supplied to different ones of a plurality of differently colored lamps. The lamps of different colors are thus selectively energized to produce a color display which has a unique relation to audio frequency signals, and particularly to music.

3,550,498
SELF-SEALING NUT ASSEMBLY

Franklin S. Briles, No. 6 Middleridge Lane, Rolling Hills, Calif. 90274

Filed July 26, 1968, Ser. No. 747,849
Int. Cl. F16b *37/00*
U.S. Cl. 85—32 **2 Claims**

A self-sealing nut assembly of the type having a deformable annular seal located in the counterbore of the nut. According to the invention a plurality of pressure control gates, preferably in the form of grooves in the nut face, communicate with the counterbore to allow controlled release of excess seal material from the counterbore cavity, while at the

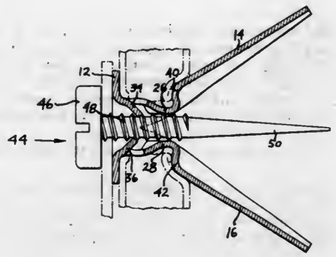


same time providing controlled sealing pressure within the counterbore.

3,550,499
SCREW ANCHOR

Stanley D. Eilenberger, 32 Summit Place, Middletown, Conn.

Filed Feb. 28, 1969, Ser. No. 803,202
Int. Cl. F16b *13/12, 13/04*
U.S. Cl. 85—84 **9 Claims**



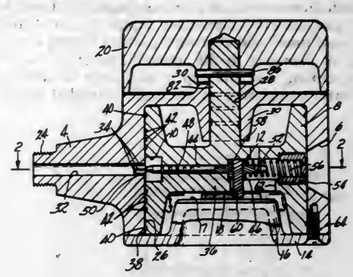
An elongated hollow member is used as a screw anchor. It is driven into a soft material which material is not normally suitable for holding screws. The hollow member has a split end which is tapered to a blunt point for ease of penetration into the soft material. Also, the split end is indented or crimped to provide a pair of inverse shoulders within the hollow member. These shoulders serve to force the halves of the split end apart so as to lock the anchor in the soft material when a connector is forced directly into the hollow member. Thread engaging tongues in the anchor are employed to hold the screw in the anchor. They are functionally independent from the locking members. A pair of conical ribs help in the various functions, and a pair of compound curved areas in the tubular end portions serve an important strength function.

3,550,500
FIRING MECHANISM

Chao H. Lin, Madison, Ill., assignor to Olin Corporation, a corporation of Virginia

Filed Nov. 26, 1968, Ser. No. 779,156
Int. Cl. F42c *15/00*
U.S. Cl. 89—1 **10 Claims**

A firing mechanism wherein a drum having a charge-receiving chamber is mounted for rotation in one direction in a housing which has a loading port and a gas port. A firing pin is provided in the drum and has a cam follower attached thereto. The cam follower cooperates with a cam mounted on the housing to move the firing pin out of the charge-receiving chamber during rotation of the drum from the point where the charge-receiving chamber is in communication with the gas port to the point where it is in communication with the loading port and to move the firing pin to a

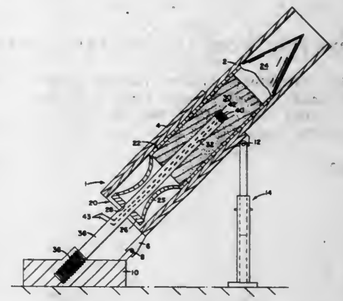


cocked position and release it after the drum has been rotated 360°.

3,550,501
ROCKET LAUNCHER FOR LAUNCHING ROCKETS WITH HIGH INITIAL ACCELERATION

John R. Munger, Huntsville, and Sherman E. Tate, Hartselle, Ala., assignors to United States of America as represented by the Secretary of the Army

Filed May 29, 1968, Ser. No. 733,193
Int. Cl. F41f *3/04*
U.S. Cl. 89—1.816 **1 Claim**



A launcher for launching a rocket, the launcher having a rigid mount, an open-breech type tube fixed at its aft end to the mount, and a mandrel fixed to the mount and extending from the mount coaxially through the open, aft end of the tube and extending coaxially within the hollow bore of the solid propellant grain of the rocket. Igniter means for firing the rocket is disposed in the space between the end of the mandrel and the inner end of the propellant grain bore.

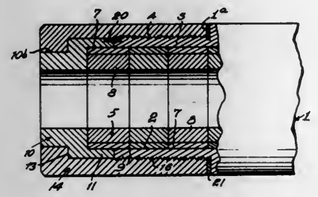
3,550,502
BREECH END SECTION OF LINED GUN BARREL

George H. Keith, East Orange, N.J., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Sept. 1, 1955, Ser. No. 532,128
Int. Cl. F41f *17/08*
U.S. Cl. 89—16 **1 Claim**

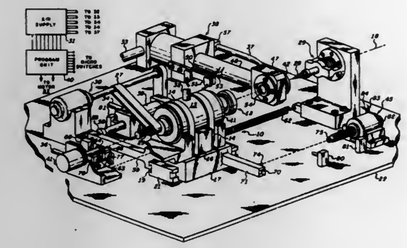
In a lined gun barrel having a longitudinal bore and terminating at its breech end in a reduced coaxial externally threaded portion defining a rearwardly facing peripheral shoulder, a barrel liner comprising a continuous tube of identical composite rings concentrically joined in end to end relation to form a continuous tube having a smooth longitudinal bore, said tube adapted to be inserted in said longitudinal bore of said barrel to a distance whereby a portion equal to substantially one half the length of one of said rings extends rearwardly of said gun barrel, each said ring including an outer ring of steel and an inner ring of molybdenum alloy, an end cap for said tube defining an enlarged forward

portion and a reduced rearward portion forming a rearwardly facing shoulder, said forward portion having an enlarged bore equal in diameter to the external diameter of said barrel liner tube and an axial dimension equal to said extending portion of said liner, said rearward portion having a reduced bore equal in diameter to the inner diameter of said rings, and means locking said end cap to said liner in said bore in said gun barrel comprising an internally threaded sleeve ter-



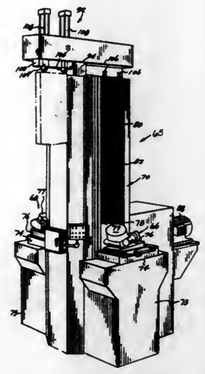
minating in an annular internal flange of the same diameter as said external diameter of said reduced portion of said end cap, said sleeve when threaded on said threaded reduced portion of said gun barrel to abut said rearwardly facing shoulder on said barrel and form a smooth peripheral surface therewith and said flange to abut said rearwardly facing shoulder on said end cap and lock said end cap in abutting relation to said liner.

3,550,503
MACHINE TOOL WORK LOADING AND UNLOADING APPARATUS
Louis Pallay, Pierrefonds, Quebec, Canada, assignor to Sperry Rand Canada Limited, Toronto, Ontario, Canada
Filed Feb. 17, 1969, Ser. No. 799,852
Claims priority, application Canada, Sept. 30, 1968, 031,294
Int. Cl. B23c *1/02*; B23b *13/02*
U.S. Cl. 90—11 **10 Claims**



Machine tool apparatus including a transfer mechanism having a rotatable work holding member for transferring work to and from the chuck mechanism of a rotating spindle. The chuck mechanism comprises a rod coaxially mounted within and keyed to the spindle, thus enabling the rod to translate relative to the spindle while rotating synchronously therewith. An actuator at one end of the rod regulates axial motion of the rod relative to the spindle such that a tapered section on the other end is operative to control chuck jaws for grasping and releasing the work as it is transferred between the spindle and transfer mechanism. In operation, the work holding member is at rest while the work is loaded into it and thereafter it is driven at a rate approximately equal to that of the spindle so that the work may be transferred thereto with minimum speed differential. Removal of the work at the completion of a machining cycle is accomplished substantially by a reversal of the loading procedure.

3,550,504
VERTICAL BROACHING MACHINE
James K. Fulks, Detroit, Mich., assignor to Colonial Broach & Machine Company, Warren, Mich., a corporation of Michigan
Original application May 26, 1967, Ser. No. 641,533, now Patent No. 3,472,123, dated Oct. 14, 1969. Divided and this application Feb. 14, 1969, Ser. No. 843,247
Int. Cl. B23d *37/08*
U.S. Cl. 90—63 **6 Claims**

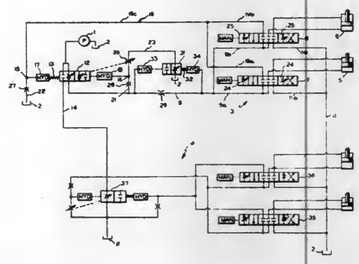


A vertical broaching machine having a pair of balanced broach handling fixtures arranged to reciprocate between downward cutting and upward return strokes. The fixtures have drive rams which are interconnected by a common drive pinion. Rotation of the pinion simultaneously raises one fixture in a noncutting return stroke while driving the companion fixture in a downward cutting stroke.

Machines for broaching internal and external surfaces are disclosed.

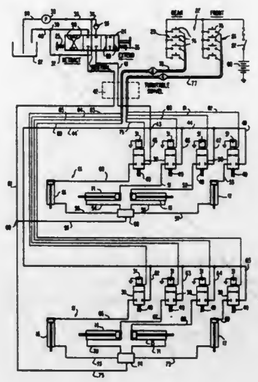
A track and carriage arrangement mounted on the frame of the external broaching machine provides means for moving the broaching tool from its handling fixture above the work station to a lateral position for replacement.

3,550,505
HYDRAULIC SYSTEM INCLUDING TWO WORK CIRCUITS
James O. Byers, Jr., Manchester, N.H., assignor to General Signal Corporation, a corporation of New York
Filed May 7, 1969, Ser. No. 822,568
Int. Cl. F15b *11/16, 15/18*
U.S. Cl. 91—411 **2 Claims**



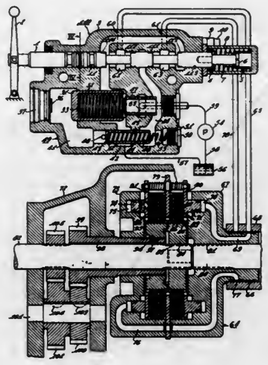
Hydraulic system for delivering fluid from a single pump to two work circuits. The system gives preference to the flow demands of the first circuit and supplies fluid to it at varying rates up to a limiting value which is less than the full output of the pump. The supply action of the system is insensitive to the relative levels of the load pressures in the two work circuits, so both circuits can always be operated simultaneously.

3,550,506
CONTROLS FOR OUTRIGGER ASSEMBLIES OF MOBILE CRANES AND THE LIKE
Eugene C. Gardenhour, Waynesboro, Pa., assignor to Grove Manufacturing Company, Shady Grove, Pa., a corporation of Pennsylvania
Filed May 9, 1969, Ser. No. 823,439
Int. Cl. F15b *9/17*; B66c *23/80*
U.S. Cl. 91—414 **11 Claims**



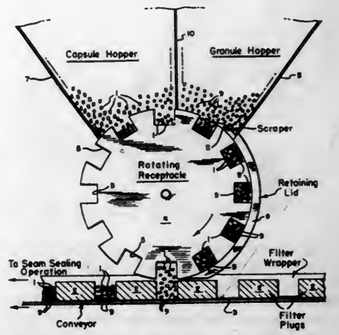
Simplified controls for the forward and rear outrigger assemblies of mobile cranes or like machines comprise a single control valve having only three positions to enable the crane operator to readily condition the fluid circuit for extension or retraction of the several cylinders of the outrigger assemblies. Coacting electrical controls permit rapid, selective operation of the several cylinders in any desired sequence from a push-button console.

3,550,507
HYDRAULIC VALVE
Robert E. Schott, New Berlin, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Aug. 16, 1968, Ser. No. 753,103
Int. Cl. F15b *11/08*; F16d *21/00*
U.S. Cl. 91—446 **9 Claims**



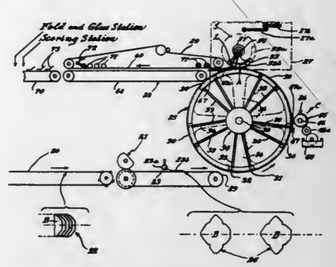
A hydraulic system including a control valve and a pressure-reducing valve in the fluid inlet passage engaged by a spring-biased accumulator to provide a minimum actuating pressure and a controlled pressure increase to a hydraulic fluid actuator.

3,550,508
METHOD OF MAKING A COMPOSITE FILTER
William B. Wartman, Jr., and Robert S. Sprinkle, III, Richmond, Va., assignors to The American Tobacco Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 28, 1968, Ser. No. 771,052
Int. Cl. B31d
U.S. Cl. 93—1 **5 Claims**



In the making of a composite filter for tobacco smoke wherein a multiplicity of frangible capsules filled with a tobacco smoke treating agent is charged to a moving receptacle cavity at the top of its circular path of travel and is thereafter discharged from the cavity to a filter pocket at the bottom of the path, the danger of rupturing the capsules by frictional contact with a stationary retaining surface as the cavity moves between the charging and the discharging stages is avoided by only partially filling each cavity with the capsules and then substantially filling the remainder of each cavity with granules of other solid material before the mouth of the cavity is moved under the retaining surface.

3,550,509
METHOD AND APPARATUS OF HIGH-SPEED MANUFACTURE OF FLAP GLUED LINED ENVELOPE
Emerick J. Mittermayer, Norridge, Ill., assignor to American Envelope Company, a corporation of Illinois
Filed Feb. 23, 1968, Ser. No. 707,563
Int. Cl. B31b *1/08*
U.S. Cl. 93—61 **16 Claims**

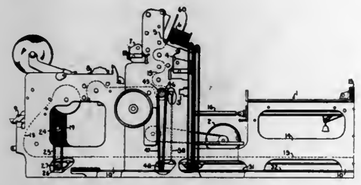


An envelope manufacturing machine utilizing a drum with suction ports to transfer blanks from a separator station past a liner-applying unit and to scoring, folding and gluing stations. The liner is glued to the blank only at the flap portion of the blank. A liner transfer element utilizes air pressure to force the unglued portion of the liner against the blank and transfer belts remove the assembled blank and liner from the drum and pass them to the scoring, folding and gluing stations. Mechanism moves a gumming unit out of contact in relation with the drum in the absence of a blank on the drum.

3,550,510
AUTOMATED ADJUSTMENT OF ENVELOPE MACHINES

James W. Lenk, Shawnee Mission; Arthur H. Burnett, Prairie Village, and Kenneth D. May, Overland Park, Kans., assignors to Berkley Machine Company, Kansas City, Mo., a corporation of Missouri

Continuation-in-part of application Ser. No. 675,376, Oct. 16, 1967, now Patent No. 3,429,238, dated Feb. 25, 1969. This application Nov. 18, 1968, Ser. No. 776,440
Int. Cl. B31b *1/00*
U.S. Cl. 93—61 14 Claims

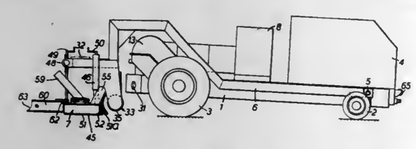


Adjustable mechanisms of an envelope making machine each have a rotatable adjustment shaft associated therewith which is independent of any operating drive members. A rotatable master shaft having a screw thread thereon extends along the machine and cooperates with a plurality of worm gears and remotely operable clutches forming parts of respective motion transmitting takeoff structures connected between the adjustment shafts and the master shaft. Electrically operated brakes are included in respective takeoff structures where necessary for selectively disengaging the operating drive members of the adjustable mechanisms during adjustment. Counting devices are associated with the takeoff structures to monitor position changes of the adjustable mechanisms during adjustment, and homing monitors are associated with the adjustable mechanisms to signal a home or zero position attained by each mechanism as a basis for accurate readjustment. A computer coordinates master shaft rotations with operating signals simultaneously directed to several brakes and clutches in accordance with a predetermined program.

3,550,511
ROAD CARPETING MACHINE

Thomas Cecil Potts, Blackburn, England, assignor to Hudswell Clark and Company Limited

Filed Mar. 29, 1968, Ser. No. 717,222
Claims priority, application Great Britain, Apr. 5, 1967, 15608/67
Int. Cl. E01c *19/48*
U.S. Cl. 94—46 1 Claim



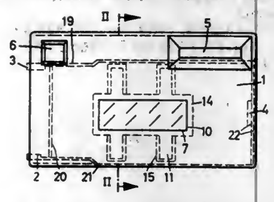
Road carpeting machine having a hopper for carpeting material tarmacadam asphalt or concrete, a pair of conveyors to discharge the material from the hopper and a screed and spreader unit to spread the laid material.

3,550,512
PHOTOGRAPHIC CAMERAS

Karl Heinz Lange, Buende-Ennigloh, Germany, assignor to Balda-Werke, Photographische Gerate und Kunststoff R. Gruter KG, Bunde (Westphalia), Germany, a company of Germany

Filed Oct. 17, 1967, Ser. No. 675,816
Claims priority, application Germany, Oct. 21, 1966, B89501
Int. Cl. G03b *17/00, 19/04*
U.S. Cl. 95—11 3 Claims

A hinged opening back or rear cover for a roll-film camera having a rectangular film viewing window, made of resilient plastic material, secured in a rectangular aperture in the cover, by mating tongue and groove portions formed along the window and aperture edges. The window member has spring finger members formed integrally therewith. These

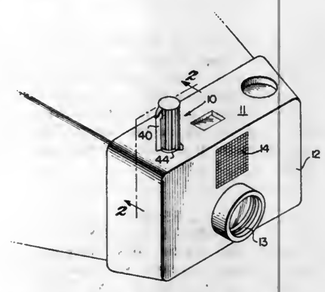


spring members serve both as film pressure springs and to provide initial opening of the camera back when it is unlocked. Auxiliary opening spring members are associated with the cover hinges.

3,550,513
LOCKING MEANS FOR PUSHBUTTON ACTUATORS

Bruce K. Johnson, Andover, and Anthony J. Schettino, Hanson, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Massachusetts

Filed Sept. 3, 1968, Ser. No. 757,045
Int. Cl. G03b *19/00*
U.S. Cl. 95—11 8 Claims



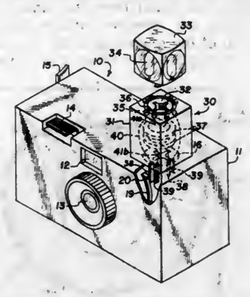
A locking arrangement for pushbutton actuators particularly of the type used to actuate exposure control mechanisms of photographic cameras. The pushbutton is provided with a longitudinal resilient finger projecting from one side thereof and engageable in an arcuate track having a pair of spaced detents cooperable with a side surface of the finger. One of the detents is slotted or open to permit depression of the pushbutton from an unlocked position.

3,550,514
ADAPTER FOR IGNITING ELECTRICALLY IGNITABLE FLASH LAMPS

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Oct. 14, 1968, Ser. No. 767,346
Int. Cl. G03b *15/02*
U.S. Cl. 95—11 15 Claims

An adapter is provided to permit use of electrically ignitable flash lamps with a photographic apparatus, such as a camera, that has been designed for use with percussion-ignitable flash lamps, the apparatus having a striker which is rapidly movable to a firing site adjacent to a flash-lamp-receiving socket to percussively contact, and thereby ignite, a percussion-ignitable flash lamp received in the socket. The adapter comprises a socket for receiving an electrically ignitable flash lamp, means for receiving a source of electrical potential, and a circuit for electrically interconnecting a received flash lamp and a received source of electrical potential, the circuit including a pair of electrical conductors which are insertable into the socket of the apparatus so that one of the conductors is thereby located at the firing site while the other of the conductors is so disposed as to become electrically connected to the conductor at the firing site in



response to movement of the striker into percussive contact with the conductor at the firing site, thereby closing the circuit and igniting the received flash lamp.

3,550,515
PHOTOGRAPHIC APPARATUS AND FILM ASSEMBLAGE FOR USE THEREWITH

Irving Erlichman, Natick, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed June 4, 1968, Ser. No. 734,310
Int. Cl. G03b *17/52*
U.S. Cl. 95—13 23 Claims

A self-developing camera including a motor and a pair of processing rolls for use with a film assemblage including a container with an exposure aperture enclosing a plurality of film units stacked behind the aperture and encompassed by an endless belt. The belt is adapted to be driven by the motor and includes an opening therein and an opaque section adapted to be moved into alignment with the exposure aperture, and members for engaging and moving an exposed film unit from the container into the nip of the processing rolls. The belt also includes structure for controlling the operation of the motor to position the opening in the belt in alignment with the exposure aperture to permit exposure of a film unit and to position the opaque section of the belt in closing relation to the exposure aperture to permit the film assemblage to be removed from the camera without exposing a film unit.

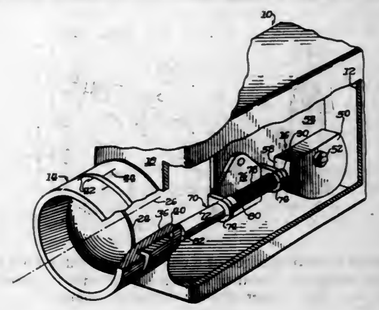
3,550,516
CAMERA FOCUSING MECHANISM USING TRIANGULATION PRINCIPLE

Henry J. Koeber, Jr., Deerfield, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed June 7, 1968, Ser. No. 735,231
Int. Cl. G03b *3/00*
U.S. Cl. 95—44 8 Claims

The "in focus" position of an objective which is adjustable longitudinally of its optical axis by rotation is determined by a pendulous range-finding cam which is freely swingable from a camera when the objective is in an unfocused condition. To condition the cam for focusing the objective, the base of a subject is sighted with the camera from a camera-operating position and thereafter the cam is releasably

secured from rotation. The objective is then rotated for axial adjustment and to axially drive a spacer rod into engagement

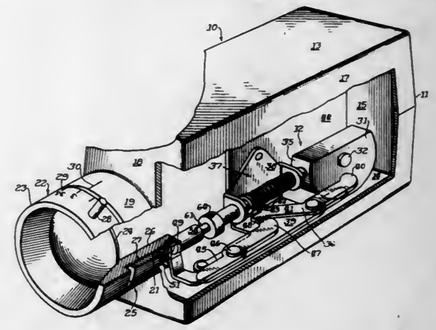


with said cam for stopping the objective at its "in focus" position.

3,550,517
TRIANGULATION RANGEFINDING MECHANISM WITH LOCKING DEVICE

Arthur C. Mueller, Niles, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed June 7, 1968, Ser. No. 735,328
Int. Cl. G03b *19/18*
U.S. Cl. 95—44 4 Claims



An improved rangefinding mechanism for a camera having a focusable objective, the mechanism including a pendulous member mounted for orientation by gravity to enable adjustment of the objective into focus on a remote subject using the principle of triangulation to determine the camera-to-subject distance. The improvement relates to a brake device actuated by a linkage controlled by the objective to release the pendulous member upon adjustment of the objective to a determined position at or beyond one end of its focusing range, and to lock the pendulous member when the objective is adjusted from the determined position.

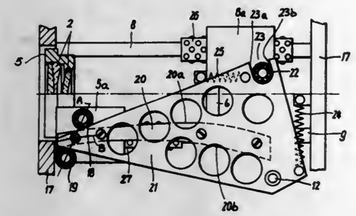
3,550,518
MECHANISM FOR DIFFERENTIALLY DISPLACING TWO OPTICAL COMPONENTS

Paul Himmelsbach and Otto Thomas, Bad Kreuznach, Germany, assignors to Jos Schneider & Co., Bad Kreuznach, Germany, a corporation of Germany

Filed May 24, 1968, Ser. No. 731,790
Claims priority, application Germany, June 2, 1967, Sch40819
Int. Cl. G03b *3/00*
U.S. Cl. 95—45 11 Claims

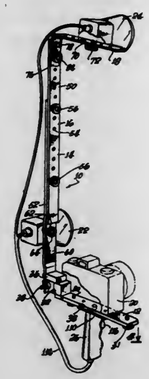
Optical objective having two components displaceable along an optical axis with relative differential motion designed to provide a predetermined optical effect, such as a

fixed image plane in a varifocal system; one of these components is freely movable by hand or by automatic means and is in positive engagement, via two spaced rollers, with



opposite camming edges of a curved guide ridge on a spring-biased swingable member having a guide slot in positive engagement with a roller on the other component.

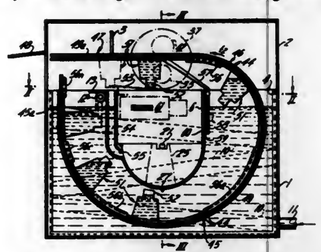
3,550,519
MULTIPLE-LIGHT BAR FOR PORTABLE CAMERA
Edward H. Lewis, 9497 Foster Road, Downey, Calif. 90242
Filed July 5, 1968, Ser. No. 742,645
Int. Cl. G03b *17/56*
U.S. Cl. 95—86 **3 Claims**



A support for mounting a portable camera includes a light support carrying two lamps. The upper lamp, located at a variable height above the camera lens, tilts downward toward the lens axis at an adjustable angle. The lower light is aimed inward at an angle toward the lens axis, allowing the two lamps to be focused at a common point. A pivot between the lamp support and camera support permits rotating the camera to either the horizontal or vertical position.

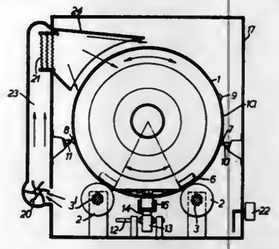
3,550,520
DEVICE FOR AUTOMATIC DEVELOPING OF PHOTOGRAPHIC SENSITIVE SURFACES
Bernard Andre Lucas, 15, Ave. du President John Kennedy, Bihorel, France
Filed Dec. 1, 1967, Ser. No. 687,238
Claims priority, application France, Dec. 2, 1966, P.V. 85,971; Nov. 24, 1967, P.V. 7,202
Int. Cl. G03d *5/02, 3/00*
U.S. Cl. 95—89 **22 Claims**

A device for developing photographic sensitive surfaces having a developer trough suspended and immersed in a water-bath tank with means for keeping the water therein at a constant level and at a predetermined constant temperature. A flexible strip having a plurality of containers adapted to be filled with chemicals for one developing cycle, which strip is propelled and guided through the water in the tank and around the trough on substantially semicircularly disposed guide bars extending to a horizontal rectilinear section above the developer trough where the containers are automatically opened for discharging the contents thereof through a duct into the developer trough. Bosses are arranged on the strip between the containers for actuating a valve through which water from the tank is admitted to the trough for rinsing the sensitive surface between the successive application of the chemicals while the surface is rotated continuously in the trough. When the rinsing water in the



trough has reached a certain level, a siphon device is primed, the trough is emptied through the siphon and the valve is closed again. The developer trough is then ready for receiving the discharge of the next following container with the chemical for the next step. When the strip has been pulled through, the developing of the photographic sensitive surface in the trough has been completed.

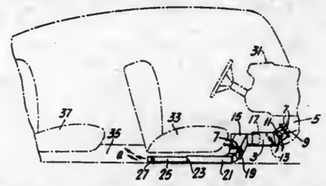
3,550,521
APPARATUS FOR PROCESSING PHOTOGRAPHIC MATERIAL
Serge Carrie, 36 Rue des Archives, Paris, France
Filed Feb. 2, 1968, Ser. No. 702,709
Claims priority, application France, Feb. 6, 1967, PV 93,750; June 23, 1967, PV 111,784
Int. Cl. G03d *3/08*
U.S. Cl. 95—93 **6 Claims**



An apparatus for processing photographic material in which the material is placed inside a rotatable hollow drum containing a processing solution. The rotatable drum has an aperture in one of its end walls for permitting the processing solution to drain from the drum by gravity after the material has been processed. The apparatus has a drive mechanism for oscillating the drum between a first and second position in which the processing solution is moved over the exposed surface of the material and is prevented from draining through the drum aperture. After the material has been processed, a control device actuates the drive mechanism to rotate the drum to a third position in which the solution is permitted to drain from the aperture.

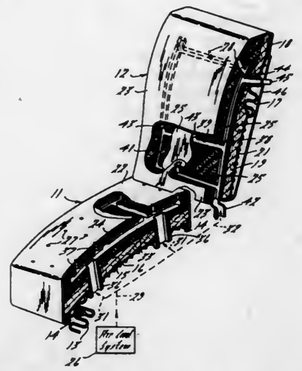
3,550,522
TELESCOPIC, PORTABLE TEMPERATURE CONTROL UNIT FOR THE REAR SEAT PORTION OF AN AUTOMOBILE
Edward J. Bauer, 1948 Dartmore St., Pittsburgh, Pa., and Jack N. Bauer, 11309 Clematis Blvd., Pittsburgh, Pa.
Filed Jan. 29, 1969, Ser. No. 795,013
Int. Cl. B60h *1/24*
U.S. Cl. 98—2 **6 Claims**

A telescopic, portable heating or cooling unit for the rear seat portion of an automobile, for use with conventional heating or cooling systems, has a feed duct, a telescopically attachable bifurcating duct, a pair of telescoping obtuse ducts and a pair of telescoping outlet ducts. The unit pro-



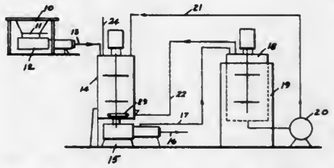
vides for the controlled passage of amounts of heated or cooled air to various portions of the rear seat area of automobiles by vent and baffle means and is readily transferred from one automobile to another.

3,550,523
SEAT CONSTRUCTION FOR AUTOMOTIVE AIR CONDITIONING
Irving Segal, Royal Oak, Mich., assignor to Richard T. Coe, Livonia, Mich., a part interest and Jacob E. Saari, Southfield, Mich., a part interest
Filed May 12, 1969, Ser. No. 823,868
Int. Cl. B60h *1/24*
U.S. Cl. 98—2 **7 Claims**



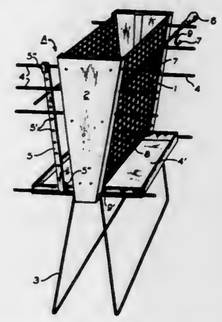
An automobile seat and seat back have foam rubber paddings, with a multipassage plenum chamber formed in the interior of each pad. Intake passages connect this chamber to the air conditioning system, and small holes in the cover material are connected to the plenum chamber by outlet passages in the foam rubber so that cool air will issue directly onto passengers on the seat. The plenum chamber is formed either by cored channels which crisscross, or cylindrical molded supports connecting spaced portion of the foam rubber.

3,550,524
APPARATUS FOR TREATING RUMEN CONTENT
Ivan S. Brumagim, Warren, Pa., assignor to Feed Processing Systems, Warren, Pa., a Company
Filed Sept. 22, 1967, Ser. No. 669,782
Int. Cl. A23k *1/10*
U.S. Cl. 99—235 **10 Claims**



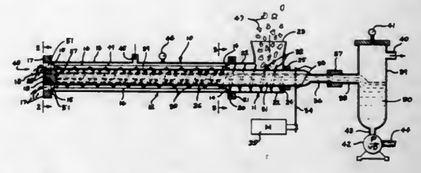
In the process disclosed herein, paunch manure is treated by sterilizing, pressing liquid from the gross solids, and evaporating the liquid to concentrate the entrained solids, minerals, and other nutrients. Heat is recirculated with the exhaust steam from the evaporation stage of the process to the sterilizing phase. It is most important that the final separation of water from the material be accomplished by evaporation. This is because the material contains (1) so many extremely small and microscopic solid particles, and (2) such a large quantity of dissolved ingredients, neither of which can be economically separated from the water content except by evaporation. The liquid effluent from the press contains approximately half of the nutrients in the raw material; however, these nutrients are proteins, carbohydrates, vitamins and fat, all of which have many times more value per pound than the fiber and other solids removed by the press previous to the concentration and recycling of its liquid effluent. The removal of the gross solids from the material by the press produces a low viscosity effluent, containing only about 5 percent solids, by weight, from which a large volume of water can be evaporated without producing an excessively viscous concentrate. The evaporator has adequate burner capacity and heat transfer surface to provide the necessary B.t.u.'s to evaporate the required water content. The quantity and nature of the ingredients in the effluent, however, requires that the evaporator be provided with scraping blades to eliminate "baking on" of the concentrate on the heat transfer surfaces and good agitation of its content to promote rapid heat penetration therein.

3,550,525
GRILLS
Sabino Correa Rabello, Rue Eduardo Porto 471, Belo Horizonte-Minas Gerais, Brazil
Filed Feb. 27, 1969, Ser. No. 802,850
Int. Cl. A47j *37/04*
U.S. Cl. 99—421 **3 Claims**



A charcoal or coal grill having a variety of locations and positions for preparing foods without melted fat, etc. dripping on the hot fuel, and having a removable ash and drip pan.

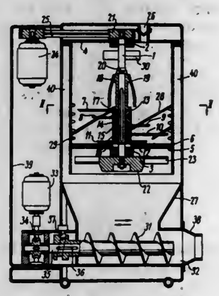
3,550,526
CONTINUOUS JUICE EXTRACTOR
Maurice W. Hoover, 3620 Merwin Road, Raleigh, N.C. 27606
Filed Jan. 29, 1968, Ser. No. 701,173
Int. Cl. B30b *9/22*
U.S. Cl. 100—37 **2 Claims**



In abstract, a preferred embodiment of this invention is a continuous operation juice extractor using a perforated screw

conveyor to move the pulp through the device. A flexible sleeve or bladder applies selectively either constant or varying pressures to the perforated screw conveyor to press the juice from the pulp. A vacuum may be applied to the hollow center portion of the perforated screw to assist in removing the juices therefrom as well as deaerate the same.

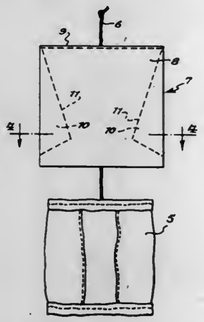
3,550,527
PAPER DISINTEGRATOR
Pavel Petrovich Sinitsin, Barnaul Altaiskogo Kraya, prospekt lenina, 101, kv. 7; and Vasily Petrovich Petrushin, Barnaul Altaiskogo Kraya, Ulitsa molodezhnaya, 30, kv. 14, Barnaul Altaiskogo Kraya, U.S.S.R.
Filed Dec. 9, 1968, Ser. No. 782,330
Claims priority, application U.S.S.R., Dec. 22, 1967, 1202356
Int. Cl. B30b *15/08*
U.S. Cl. 100—97 **2 Claims**



A paper disintegrator comprising a shaft with hammers and a material-conveying fan mounted thereon, the material-conveying fan being parted off the hammers by a perforated bottom. Mounted at the outlet opening of the paper disintegrator is a compacting device, for example, a screw conveyor, the outside diameter of which corresponds to the inside diameter of the outlet opening. The paper disintegrator is provided with ducts for directing the air, sucked by the fan, to the inlet portion of the machine for providing circulation of air within the paper disintegrator.

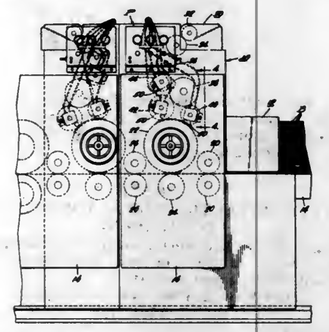
The efficiency of this disintegrator exceeds by more than two times the efficiency of the known disintegrating apparatus at the same overall dimensions.

3,550,528
TEABAG SQUEEZER AND HOLDER
Thomas Montague O'Neill, 148 College Ave., Poughkeepsie, N.Y. 12603
Filed Dec. 26, 1968, Ser. No. 786,881
Int. Cl. B30b *5/02*
U.S. Cl. 100—211 **3 Claims**



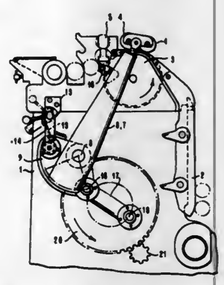
This invention is directed to a teabag holder and squeezer having a pair of front and rear panels hingedly connected along their top edges. The side edges of the panels are connected by triangular bellows-folded gussets and a perforated inner liner is secured to the inner faces of the panels.

3,550,529
INK ROLL MOUNTING MECHANISM FOR PRINTER-SLOTTERS
Edward V. Henc, 302 Netherington Drive, Broomall, and Edmund F. X. Devlin, 115 Lincoln Ave., Manoa, Pa., assignor to said Devlin assignor to said Henc
Filed Mar. 20, 1968, Ser. No. 714,616
Int. Cl. B41f *31/36, 13/40*
U.S. Cl. 101—352 **14 Claims**



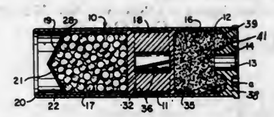
In apparatus such as a printer-slotter or the like having a plurality of cooperating rolls, roll mounting mechanism for supporting at least one of the rolls between opposed side walls of the apparatus. The roll mounting mechanism comprises a housing mounted on the side wall of the apparatus, a block member mounted for sliding back and forth movement in the housing, at least one chamber in each of the opposed end walls of the block and a piston in each chamber, and passageways in said block communicating with the chambers and adapted to be selectively connected to a suitable source of fluid pressure. Pressurization of one chamber moves the block relative to the housing in one direction to position the roll in an operative position and pressurization of the other chamber moves the block in the opposite direction to position the roll in a retracted position.

3,550,530
ASSEMBLY FOR STOPPING AND LOCKING THE PRINTING ROLLERS IN A PLATEN PRINTING PRESS
Artur Buettner, Heidelberg, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany, a corporation of Germany
Filed May 13, 1968, Ser. No. 728,736
Claims priority, application Germany, May 19, 1967, Sch40735
Int. Cl. B41f *1/50*
U.S. Cl. 101—359 **1 Claim**



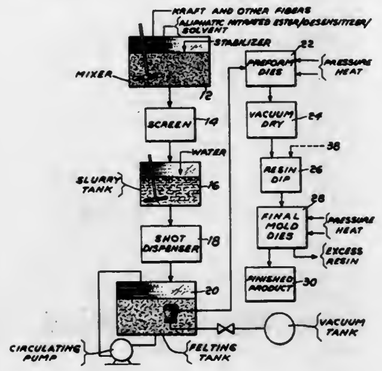
Assembly for stopping the reciprocation of the printing rollers in a platen printing press and locking them in a given position includes a member actuable for disconnecting a cylinder frame arm carrying the inking rollers from an oscillating lever freely mounted on a cylinder frame shaft, and a locking device for locking the cylinder frame arm in a given position wherein the printing rollers are in an upper limiting position on a reciprocating path traversed thereby.

3,550,531
SHOTGUN SHELL
Joseph H. Carter, 714 Medford Drive, Rockford, Ill.
Filed May 17, 1968, Ser. No. 730,144
Int. Cl. F42b *7/06, 7/08*
U.S. Cl. 102—42 **13 Claims**



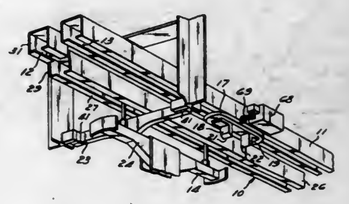
This plastic shell has a radiused leading end for easy entry into the firing chamber and is fluted longitudinally externally to cushion shock in firing and insure easier removal after firing. Its butt end is recessed annularly on the inner side and has evenly circumferentially spaced holes in the outer side leaving resilient webs therebetween to cushion shock in firing and eliminate possibility of fracturing. A conical shaped plastic overshot cover gives conical form to the forward end of the shot mass for a better shot pattern, this cover having a peripheral forwardly extending flange fitting closely in the open end of the shell, the flange being slotted lengthwise on one portion to insure sidewise movement out of the path of the shot mass or else the whole cover being made of hard fracturable plastic and provided with weakening grooves to insure shattering into small bits when the shell is fired, to avoid interference with the shot mass. Small circumferentially spaced conical projections on the flange, in either case, scratch the bore of the softer plastic shell to fasten the cover well enough without need for swaging or crimping the open end of the shell. A plastic combination shot carrier wad between the shot and the powder has a cup-shaped front end portion to receive the shot mass, this end portion being slitted longitudinally a short distance at the open end at circumferentially spaced points to enable the portions therebetween to flex outwardly under air pressure after firing of the shell to strip clear of the shot mass, a rear wad portion that serves as a gas seal in relation to the powder being connected with the cupped portion by resilient spacer struts in evenly circumferentially spaced relation, all inclined at the same small angle in the same direction relative to a plane through the axis of the shell to cushion the firing thrust and act as a spring means to help propel the shot mass out of the gun barrel.

3,550,532
MOISTURE-PROOF COMBUSTIBLE CARTRIDGE CASE
Theodore Zimmerman, 66 St. Charles Avenue, West Caldwell, N.J. 07006
Filed Aug. 25, 1967, Ser. No. 663,391
Int. Cl. F42b *5/18*
U.S. Cl. 102—43 **19 Claims**



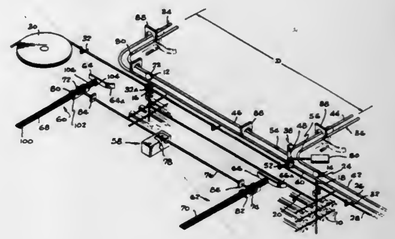
Combustible cartridge cases of fibrous materials are impregnated with an aliphatic nitrated ester, a stabilizer and a resin binder to prevent penetration of moisture into the cartridge case materials and contents while permitting high ballistic performance.

3,550,533
COUPLING MECHANISM FOR POWER CONVEYORS
Donald E. McCluckie, Aurora, and Willard D. Brown, Jr., Oswego, Ill., assignors to White Consolidated Industries, Inc., Cleveland, Ohio, a corporation of Delaware
Filed June 24, 1968, Ser. No. 739,526
Int. Cl. E01b *25/26;* **B65g** *17/42*
U.S. Cl. 104—100 **11 Claims**



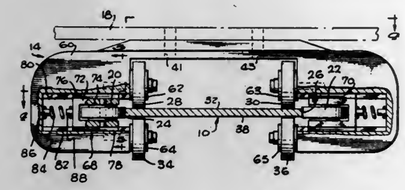
A coupling mechanism for an overhead conveyor system of the free and powered type is disclosed. The system includes a load track along which load carriages move and a power track along which pusher dogs move. The load track includes a laterally movable track section and means to position a carriage in a predetermined position thereon. Control means cause shifting of the movable track section to position a carriage for coupling when a pusher dog approaches the coupling position. The lugs on the pusher dog are arranged to trap the pusher arm therebetween so that the carriage is automatically coupled to the pusher dog and is moved thereby into the powered position of the system. An escapement mechanism is provided to prevent movement of a subsequent carriage into the movable track section until the coupled carriage is moved out of the movable track section.

3,550,534
INDEXER
Jack Rooklyn, Northridge, Calif., assignor to Republic Corporation, Beverly Hills, Calif., a corporation of California
Filed Dec. 2, 1968, Ser. No. 780,363
Int. Cl. B61b *13/12;* **B61j** *3/08*
U.S. Cl. 104—103 **7 Claims**



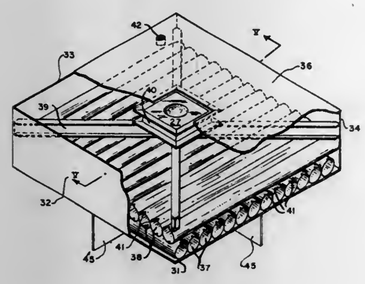
Apparatus for use with a track transportation system wherein product-supporting glides move along a track, to smoothly move onto a siding a pair of glides that support a long or heavy product. The apparatus comprises two siding tracks which intersect the main track at positions spaced a predetermined distance along the main track. A track switch allows the first glide to pass and then switches the second glide onto the second siding track, and a pusher assembly then moves both glides a limited distance along the siding.

3,550,535
TRANSPORTATION SYSTEM
Jack Rooklyn, Northridge, Calif., assignor to Republic Corporation, Beverly Hills, Calif., a corporation of California
Filed Aug. 21, 1968, Ser. No. 754,412
Int. Cl. B61b *5/00, 13/06*
U.S. Cl. 104—118 13 Claims



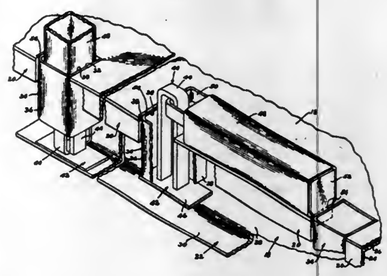
A transportation system for carrying small goods in a factory or the like comprising a single rail in the form of a flat strip, and a vehicle having collars at the front and back that carry rail-engaging wheels. Each collar includes a pair of wheels that engage the opposite edges of the rail, and wheels that engage the upper and lower surfaces of the rail.

3,550,536
AERIAL TRAMWAY SYSTEM
Edward J. Lesh, 1337 Woods Run Ave., Pittsburgh, Pa. 15230
Filed Mar. 24, 1967, Ser. No. 625,768
Int. Cl. E04h *12/00*; E01b *26/00*
U.S. Cl. 104—124 7 Claims



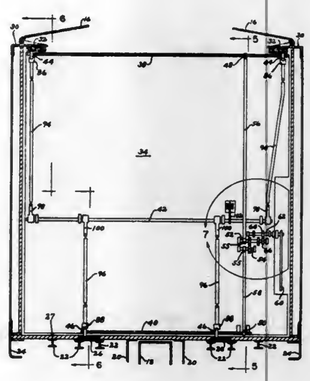
An aerial tramway is provided having a portable tower including a plurality of separably connected sections, a base means anchoring the tower, means on the tower supporting a cable for travel thereover of a tram car and including at least one detachable ring having a depending J-shaped supporting element provided with a saddle means for supporting a cable, a riser on the lowermost section of the tower, a mounting element having a socket into which the lower end of the riser is fitted and a ball and socket joint between the mounting element and base.

3,550,537
SIDE STAKE CONSTRUCTION FOR RAILWAY FLAT CARS
Jan D. Holt and Duane V. Thornton, St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Apr. 19, 1968, Ser. No. 722,686
Int. Cl. B61d *3/08*
U.S. Cl. 105—381 6 Claims



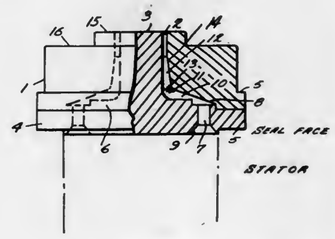
A side stake structure for a railway flat car including a side stake anchored to a stake pocket and movable to a plurality of positions about the stake pocket for a variety of selected uses. When desired to restrain loads on the flat car against sidewise movement, the side stake is positioned in a vertical direction in the normal manner. When desired to support loads on the deck of a car, the side stake is folded about pivot means to a horizontal position extending transversely of the deck of the car to support loads thereon above the deck. When desired to guide the tires of roadway vehicles, pivot means permit the side stakes to be folded on the deck to a horizontal position longitudinally of the deck of the car to aid in guiding the wheels of roadway vehicles. A modification permits the side stake to form a continuation of the deck surface in a collapsed position thereby providing a flush deck flat car.

3,550,538
MEANS TO RESTRAIN LATERAL MOVEMENT OF LADING WITHIN A RAILWAY BOX CAR
Wallace T. Geyer, Des Peres, and Robert W. Randolph, St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed July 29, 1968, Ser. No. 748,362
Int. Cl. B61d *45/00*
U.S. Cl. 105—376 7 Claims



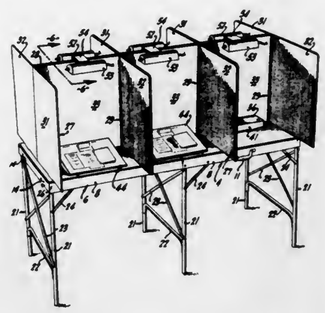
A railway box car having a bulkhead mounted in guideways or tracks for movement longitudinally of the railway car and adapted to fit against lading carried by the railway car. Means are provided to preload the bulkhead against the lading with a predetermined force. The preloading means include manual drive means for moving the bulkhead and associated tracks longitudinally of the car against the bias of resilient means thereby to preload the resilient means upon such relative longitudinal movement. Means connect the bulkhead to the tracks to transfer forces resulting from the preloading of the resilient means thereby to urge the bulkhead against the lading to restrain the lading against lateral movement within the box car.

3,550,539
TUBE EXTRUDING DIE
Robert W. LaWarre, Lima, Ohio, assignor to Beatrice Foods Co., Chicago, Ill., a corporation of Delaware
Filed May 6, 1969, Ser. No. 822,135
Int. Cl. A21c *11/16*
U.S. Cl. 107—14 6 Claims



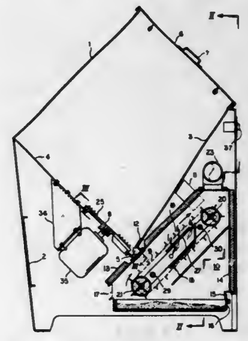
There is provided a process and apparatus for forming a continuous tubular-shaped mass by successively compressing and expanding the mass after passing through a mechanical support for holding a plug disposed in an annular die, which annulus forms the tubular shape.

3,550,540
COLLAPSIBLE VOTING COMPARTMENTS
Leonard N. Albrecht, Mill Valley, and Joseph P. Harris, Berkeley, Calif., assignors to Modern Election Equipment Co., Berkely, Calif., a corporation of California
Filed July 25, 1968, Ser. No. 747,743
Int. Cl. A47b *3/06, 3/087, 37/00*
U.S. Cl. 108—23 16 Claims



Voting compartments are used by voters in recording their votes and is comprised of a table having a top and means of attaching thereto partition panels adapted to form several individual voting compartments, screening voters from observation of their choices by others present at the polling place. The table top provides the surface on which voters may place a paper ballot while recording their choices or, alternatively, may secure a punch card voting device in correct voting position for use by voters in recording their choices. The table top is supported by legs which may be moved when not in use to a stowed position underneath the table top. The partition panels may consist of foldable sheets of initially flat material which may be opened to form three sides of a rectangle or may consist of separate connectable, segments erected above and temporarily connected to the table top to form mutually supporting voting compartment walls. At least one partition panel may have a projecting shelf engageable by a voting device. Clamps may engage and hold adjacent partition panels together and also support lights for the voting compartments.

3,550,541
APPARATUS FOR PULVERIZING LITTER AND BURNING REFUSE
Israel Oseroff, 6530 Northumberland St., Pittsburgh, Pa. 15217
Filed Oct. 10, 1969, Ser. No. 865,296
Int. Cl. F23g *5/00*
U.S. Cl. 110—8 2 Claims



Apparatus including a hopper for receiving refuse such as garbage and litter such as glass, tin cans, cardboard and wood or plastic, shaped to feed the material by gravity to a motor-driven revolving pulverizing disc from which and by which it is fed to a combustion chamber in which a chain conveyor receives the material and passes it over a burner, ashes accumulating in a removable box below the chain conveyor. The device is especially suited for domestic use or in small commercial places such as restaurants, motels, etc.

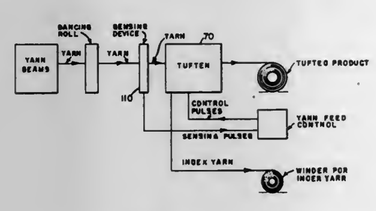
3,550,542
POISON APPLICATORS
Grady W. Hollis, Spearsville, La. 71277
Filed Feb. 7, 1969, Ser. No. 797,557
Int. Cl. A01m *17/00*
U.S. Cl. 111—95 3 Claims



A poison applicator for burrowing pests such as salamanders and the like comprising a hollow body cylindrical in

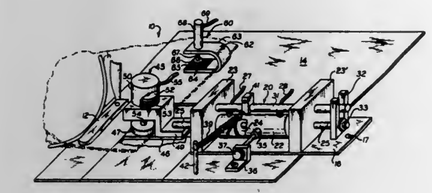
shape and serving as a storage reservoir for a quantity of poisoned grain, the body provided with a sharpened point with a grain discharge opening near the point and means for discharging a quantity of such poisoned grain directly into the burrow or raceway of the pest.

3,550,543
TEXTILE APPARATUS AND METHOD FOR TRANSVERSELY ALIGNING PATTERN MARKS
Allan H. Crawford, Amsterdam, N.Y., assignor to Mohasco Industries, Inc., Amsterdam, N.Y., a corporation of New York
Filed Nov. 16, 1967, Ser. No. 683,707
Int. Cl. D05c *15/34*
U.S. Cl. 112—79 **14 Claims**



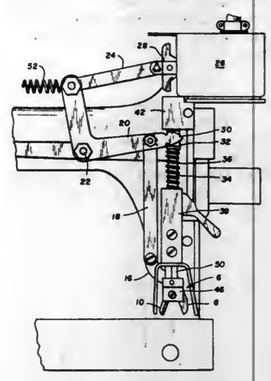
A method and apparatus for controllably feeding a preprinted plurality of yarns to a pile forming apparatus to insure transverse registration of the pattern printed on such yarns.

3,550,544
LAMP SHADE STRETCHER ATTACHMENT FOR SEWING MACHINES
Martin R. Perla, Fairfield, Conn., assignor to Verplex Company, Essex, Conn.
Filed May 16, 1969, Ser. No. 825,358
Int. Cl. D05b *21/00*
U.S. Cl. 112—121.26 **8 Claims**



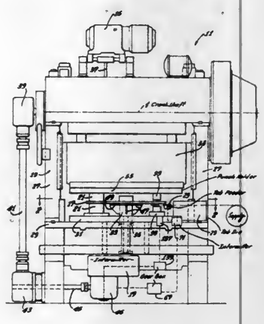
A sewing machine attachment for flatbed sewing machines implementing the sewing of fabric lampshades onto a frame in which the overlapping free edges of the outer lampshade ply and liner ply, after being positioned on the shade frame are sewn together, with the outer and inner plies pulled as they are being sewn to tension the fabric on the frame. This is accomplished by arranging clamping means to grip the overlapping plies on the side of the sewing machine foot opposite the shade frame; coupling the clamping means to shifting means for laterally shifting the clamping means engaging the overlapping plies and simultaneously permitting feeding of the overlapping plies beneath the reciprocating sewing needle; holding down by means of holding means the previously pulled overlapping plies; and bringing the clamping means back to again grip and pull the overlapping plies.

3,550,545
SEWING MACHINE CUTTER ATTACHMENT
William C. Cremer, 925 Weiser St., Reading, Pa. 19601
Filed Dec. 18, 1968, Ser. No. 784,570
Int. Cl. D05b *37/04*
U.S. Cl. 112—130 **1 Claim**



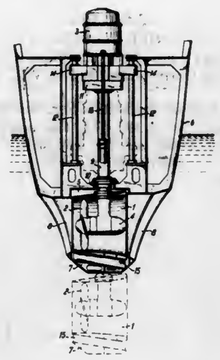
Sewing machine cutter attachment for cutting cloth and comprising a pair of scissors movable vertically, downwardly onto the bed as the result of actuation of an electrical relay and thereafter operated when in the downward position for effectively cutting the cloth after completion of a sewing operation. Normally the scissors are held in an upward position well above the cloth.

3,550,546
APPARATUS FOR MAKING EASY-OPENING CAN ENDS
Franklin C. Eickenhorst, Mason, Ohio, assignor to Ermal C. Fraze, Dayton, Ohio, by mesne assignments
Filed Apr. 8, 1968, Ser. No. 719,615
Int. Cl. B21d
U.S. Cl. 113—1 **3 Claims**



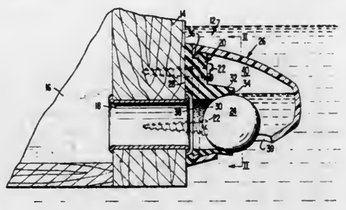
This disclosure describes a machine which is particularly adapted for converting can ends into easy-open can ends. In the embodiment of the invention illustrated, the machine includes a main dial plate which rotates intermittently to carry can ends step by step through a series of work stations at which work stations the can ends are converted into easy-open can ends. The main dial plate is rotated intermittently by an intermitter which is positioned entirely beneath the dial plate so that the dial plate can be of minimum diameter and mass. Tabs for the easy-opening can ends are made in a tab die which is operated by the ram of the press of the machine. The tabs are fed in a strip to a staking station where the tabs are affixed to the can ends.

3,550,547
AUXILIARY MANEUVERING MEANS FOR SHIPS
Friedrich W. Pleuger, 2 Hamburg 70, 80 Juthornstrasse, and Wilhelm Bey, 2 Hamburg 52, 19 Feuerbachstrasse, Hamburg, Germany
Filed Sept. 16, 1968, Ser. No. 760,022
Claims priority, application Germany, June 27, 1968, 1,756,689
Int. Cl. B63h *25/46*
U.S. Cl. 114—151 **7 Claims**



The invention relates to auxiliary maneuvering means for ships which, especially at maneuver voyages, provide an improved maneuvering capability in deep water and which also are applicable when travelling in low waters, wherein a lateral thrust device is combined with a slewing propeller. The center portion of the tunnel of the lateral thrust device together with the propeller arranged therein is located in a recess in the interior of the ship. The center portion of the tunnel is constructed as nozzle, which is downwardly extensible and in the extended position turnable around 360°.

3,550,548
AUTOMATIC BAILER
John L. De Persia, 17876 Brucker Road, Grand Haven, Mich.
Filed Sept. 30, 1968, Ser. No. 763,844
Int. Cl. B63b *13/00*
U.S. Cl. 114—183 **11 Claims**



This disclosure relates to automatic boat bailers or drain checks, preferably of the type which can be attached to the back wall of a boat. In one embodiment, the bailer has a rubber-like seat member fixed to the outside of the boat, a casing surrounding the seat member in snap-fit engagement therewith, and a ball valve member within the casing. A valve seat is formed in the seat member and a cage for the ball valve is formed in the casing. A conduit extends through the back of the seat member and through the bottom front of the casing to permit water to pass out of the boat through the bailer as the boat moves forward through the water.

In a second embodiment, a bailer has a seat member, fixed to the inside back wall of a boat and a casing which surrounds the seat member in snap-fit engagement therewith. A conduit extends through the seat member and through the bottom front portion of the casing. Check valve means include a ball valve member are provided within the casing to permit flow of water out of the boat only.

3,550,549
TENSION ANCHOR SYSTEM FOR OFFSHORE APPARATUS
Edward E. Horton, Portuguese Bend, Calif., assignor to Deep Oil-Technology, Inc., Long Beach, Calif., a corporation of California
Filed Feb. 5, 1969, Ser. No. 796,788
Int. Cl. B63b *21/00, 35/00*
U.S. Cl. 114—230 **9 Claims**



A tension type anchor system for offshore apparatus for conducting well drilling, production or the like operations including a pair of upper and lower tension means, the lower tension means being anchored and vertically maintained by a subsurface buoy at a selected depth. The upper tension means is adapted to move longitudinally relative to the lower tension means and in extended position the upper tension means and the lower tension means are provided with a connecting means for directly transmitting tension forces independently of the subsurface buoy. In nonextended relation, the upper tension means is supported by the subsurface buoy in loosely interlinked generally parallel relation with the lower tension means.

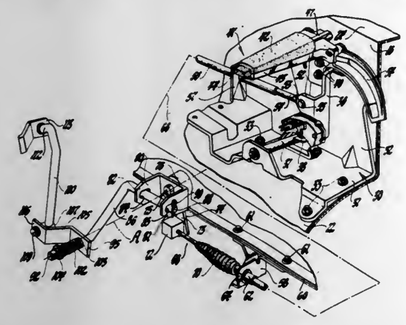
3,550,550
OCEAN-GOING BARGE
Edwin H. Fletcher, 218 W. Church St., Jacksonville, Fla.
Continuation-in-part of application Ser. No. 588,162, Oct. 20, 1966, now Patent No. 3,512,495. This application Aug. 25, 1969, Ser. No. 852,732
Int. Cl. B63b *21/00*
U.S. Cl. 114—235 **14 Claims**



An oceangoing barge comprising a skegless hull having a full ship's bow section, sidewalls, a stern and a generally flat bottom with a portion thereof forward of the stern sloping upwardly toward the stern. The barge further includes a spaced pair of stern wings extending longitudinally rearwardly from the stern of the barge with each wing including smooth, continuous and unbroken inner and outer walls which extend downwardly into the water a distance generally into the plane of the barge bottom. The outer walls being substantially parallel to and disposed in substantial alignment with and constituting aftward extensions of the respective

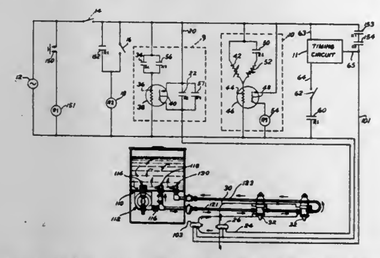
sidewalls of the barge. The inner walls being substantially parallel to respective outer walls and being spaced apart to define therebetween a protected water area aft of the barge stern.

3,550,551
TRANSMISSION CONTROL AND INDICATOR APPARATUS
Marshall W. Miller, Ann Arbor, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 22, 1969, Ser. No. 852,407
Int. Cl. G09f *9/00*
U.S. Cl. 116—124 **8 Claims**



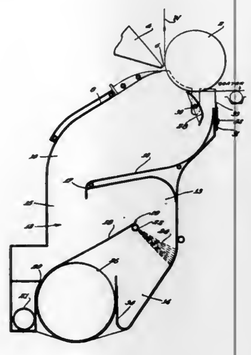
A floor-mounted console-type transmission control mechanism and an instrument panel-mounted indicator for use with an automatic transmission and linkage means therebetween including a manual range selector handle mounted in a recess formed in the console, a first shaped bracket mounted on the transmission shift rod, first linkage means between the selector handle and a first leg of the first shaped bracket, a second shaped bracket intermediate the transmission shift rod and the steering column shift tube, a first linkage rod member between an opening adjacent one end of an angled center section of the second shaped bracket and aligned openings in second and third legs of the first shaped bracket, a second linkage rod member between an opening adjacent the other end of the angled center section of the second shaped bracket and the lower portion of the shift tube, and a link pivotally connected between the upper portion of the shift tube and the indicator for readily visible indication of the driving range corresponding to the position of the selector handle.

3,550,552
TIMING CIRCUIT FOR OFFSET PREVENTION SPRAY EQUIPMENT
Edward J. Archibald, Franklin Park, Ill., assignor to Ortman-McCain Company, a corporation of Illinois
Filed Apr. 18, 1968, Ser. No. 722,331
Int. Cl. B05c *5/00, 11/00*
U.S. Cl. 118—7 **5 Claims**



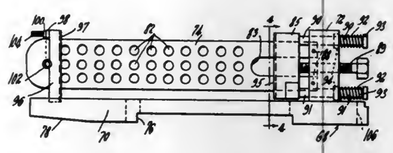
Apparatus for timing the operation of spray equipment which coats freshly printed sheets of paper coming off a printing press, the coating being applied to prevent the fresh ink from offsetting (transferring) to the back of the next sheet to be stacked at the output of the press. The spray guns are fed by input lines of compressed air and spraying material, the flow through each line being individually and precisely controlled in synchronism with the press by an electronic timing circuit. The timing and duration of the spray bursts are adjustable while the press is in operation to provide optimum performance.

3,550,553
AIR KNIFE COATING PAN
Ralph P. Mahoney, and Irvin J. Phillips, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis., a corporation of Delaware
Continuation-in-part of application Ser. No. 527,248, Feb. 14, 1966, now Patent No. 3,397,673. This application June 7, 1968, Ser. No. 735,269
Int. Cl. B05c *11/06*
U.S. Cl. 118—63 **3 Claims**



A coating mechanism for coating a traveling web wherein a layer of coating is applied to the web and an air knife smooths the coating. The mechanism is provided with a plurality of baffled chambers with an upper baffle, an interior baffle plate beneath a backing roll and a lower baffle which slopes downwardly so as to be free of any pool of liquid on its upper surface.

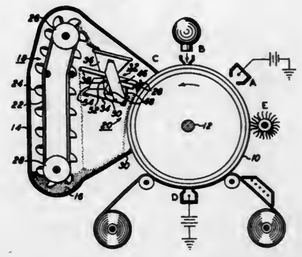
3,550,554
HOLDER FOR RAZOR BLADES
Philipp G. Grefe, Braintree, Edward M. Lewiecki, Hingham, and Meyer J. Shnitzler, Brookline, Mass., assignors to The Gillette Company, Boston, Mass., a corporation of Delaware.
Original application Oct. 5, 1964, Ser. No. 403,693, now Patent No. 3,498,257, dated Mar. 3, 1970. Continuation of application Ser. No. 331,080, Dec. 10, 1963, now abandoned. Continuation of application Ser. No. 30,265, May 19, 1960, now abandoned. Divided and this application Apr. 23, 1969, Ser. No. 833,236
Int. Cl. B05c *11/14*
U.S. Cl. 118—503 **5 Claims**



Apparatus for treating razor blades wherein a stack of razor blades disposed in a holder is successively passed

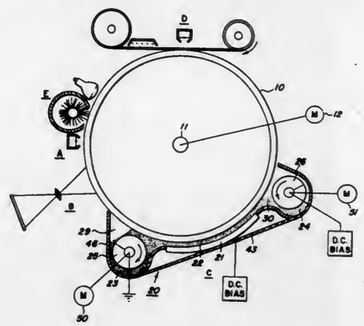
through a blade cleaning unit, a preheater, a spraying unit for depositing a thin coating of shaving facilitating material on the blade edges, a heating unit for curing said material, and a cooling unit. The blades are contained loosely in the blade holder while passing through the cleaning unit to permit them to be thoroughly cleaned and are thereafter clamped together in a compact stack for subsequent treatment. The cleaning unit includes a plurality of nozzles, the operation of which is in timed relationship with the conveyor so that only those nozzles which are opposite specific holder locations on the conveyor emit cleaning fluid.

3,550,555
XEROGRAPHIC DEVELOPER SEPARATION
Frederick W. Hudson, West Henrietta, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Aug. 9, 1967, Ser. No. 659,520
Int. Cl. B05c *11/10;* **G03g** *13/06*
U.S. Cl. 118—637 **3 Claims**



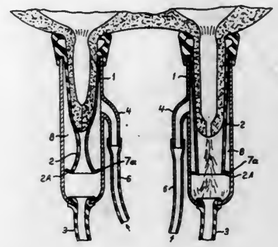
Apparatus for separating excess toner particles from overtoned two-component xerographic developer. A vibrating tray, offset from the horizontal, is positioned to receive overtoned two-component xerographic developer mix comprising carrier granules and excess toner particles. As the developer is deposited on the tray, optimumly toned carrier granules will move towards the lower end of the tray for use in the development of latent electrostatic images. Excess toner particles will move in the opposite direction for being removed from the mixture.

3,550,556
DEVELOPMENT APPARATUS
Prabhulal P. Chawda, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Jan. 11, 1968, Ser. No. 697,083
Int. Cl. B05b *5/00*
U.S. Cl. 118—637 **13 Claims**



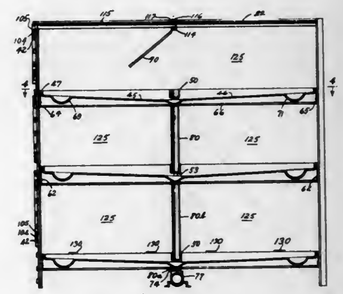
A development area is defined by a horizontally disposed drum bearing an electrostatic latent image and rotating in close proximity to a plate element generally concentric therewith and located on the upwardly moving side thereof. Separate auger means located at the entrance and exit of said area comprise means to circulate developer material therethrough. The entrance is located at the bottomside of the upwardly directed development area.

3,550,557
TEAT CUP
Frank Edward Goldsmith, Cwmbran, England, assignor to The De Laval Separator Company, Poughkeepsie, N.Y., a corporation of New Jersey, by mesne assignment
Filed June 11, 1968, Ser. No. 736,060
Claims priority, application Great Britain, June 12, 1967, 27,003/67
Int. Cl. A01j *05/04*
U.S. Cl. 119—14.36 **1 Claim**



In a teat cup having a flexible liner adapted for connection to a constant vacuum source and also having a rigid outer shell forming a pulse space around the liner, a restricted passage is provided between the pulse space and the interior of the liner; and the pulse space is alternately connected to and isolated from atmosphere without subjecting it to partial vacuum other than through the restricted passage.

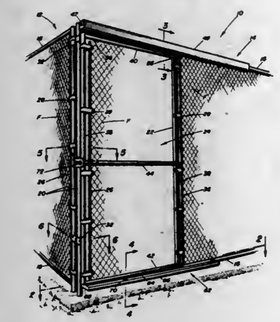
3,550,558
ANIMAL CAGES
Sidney Sachs, 540 Hobart Road, Paramus, N.J. 07652
Filed Aug. 12, 1968, Ser. No. 751,773
Int. Cl. A01k *01/02, 31/04*
U.S. Cl. 119—15 **11 Claims**



A no-space-loss multicage construction in which the cages are adjustable in height and variable in length. All cage doors are adjustable with respect to their hinges which are adjustable in height. Each vertical stack of cages, in addition to being adjustable so as to provide different sized cages, also has a completely adjustable drainage system, separated at each level and enclosed so that animal contact therewith is eliminated. Cages in any vertical stack can be changed

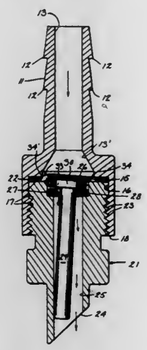
without affecting cages in any adjoining stack. Base trays have individual hygienic integral food and water receptacles and independent full gravity drainage with a main horizontal pressurized waste removal drain. Vertical posts have detachably secured thereto an anti-insect material carrier. Doors are interchangeable from outer to inner intermediate position.

3,550,559
ANIMAL ENCLOSURE
Robert L. Long, 6307 Martins Lane, Lanham, Md., and Lawrence H. Friason, 5712 Gallaway Drive, Oxon Hill, Md.
Filed Oct. 23, 1968, Ser. No. 769,896
Int. Cl. A01k *01/02*
U.S. Cl. 119—20 **5 Claims**



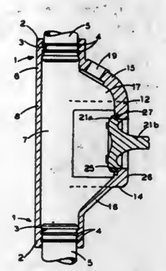
A dog kennel having a sliding gate construction. The gate is suspended from an inverted channel by roller elements and rocking about the axis of the channel is inhibited by a pintle and slot arrangement at the bottom of the gate. The kennel is formed of wire panels and pipe elements.

3,550,560
ANIMAL DRINKING DEVICES
William E. Edstrom, Rte. 1, Box 4, Waterford, Wis. 53185
Filed May 7, 1969, Ser. No. 822,561
Int. Cl. A01k *07/00*
U.S. Cl. 119—72.5 **10 Claims**



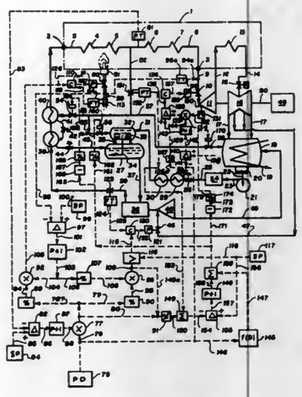
An animal-watering device including an upper fitting and a tubular lower fitting with a resilient, apertured diaphragm therebetween which pressurably bears on the top surface of a valve head having a downwardly-extending stem adapted to be pivoted laterally by an animal to cause said valve head to cant on a resilient valve seat and simultaneously deflect said apertured diaphragm to allow water to flow therethrough and downwardly around said canted valve head to the animal, the tension created by said resilient diaphragm causing said valve head to resume its sealing engagement with the valve seat upon the release of said stem, surface tension causing water to be retained between said valve stem and tubular fitting to aid an animal in locating the water supply.

3,550,561
EXPANDED JUNCTION TUBE REPAIRS
Richard Henry Evans, Fetcham, England, assignor to Babcock & Wilcox, Limited, London, England, a corporation of Great Britain
Filed Apr. 22, 1969, Ser. No. 818,229
Claims priority, application Great Britain, Apr. 23, 1968, 19086/68
Int. Cl. F22b *37/00*
U.S. Cl. 122—235 **18 Claims**



A method and apparatus for the repair of damaged tubes in a vapor generator which includes removing the damaged portion of tube and connecting the remaining tube sections through a junction member or, when required, adding a replacement tube portion and connecting each end through a junction member to a corresponding one of the remaining tube sections. The junction member is provided with an access opening and is fitted with two tubular stubs, each arranged to receive a tube end. A tool may be introduced through the access opening to expand each tube end into its corresponding stub.

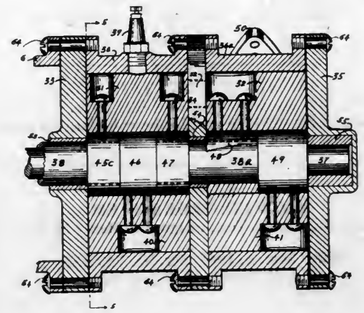
3,550,562
CONTROL SYSTEM FOR A STEAM GENERATOR
Charles Strohmeyer, Jr., Bern Township, Reading, Pa., assignor to Electrodyne Research Corporation, Reading, Pa.
Filed Nov. 6, 1968, Ser. No. 773,757
Int. Cl. F22b *37/42*
U.S. Cl. 122—448 **5 Claims**



The invention provides the means for adapting a single logic system for control of steam generators when operating

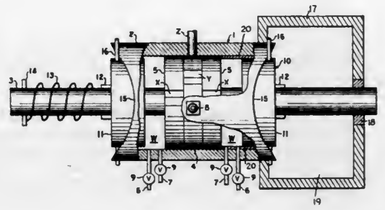
both in the once-through mode and during startup when bypass flow is extracted intermediately from the main heat absorption conduits to establish a minimum fluid flow rate in the heat absorption conduits which are exposed to high rates of heat input.

3,550,563
ROTARY ENGINE
Thomas Albert Smith, Route 2, Purvis, Miss.
Continuation-in-part of application Ser. No. 614,786, Feb. 7, 1970, now abandoned. This application Apr. 2, 1969, Ser. No. 812,724
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.07 **11 Claims**



This invention relates to rotary engines having stationary annular cylinders with pistons or vanes rotating within at a constantly changing speed relative to each other.

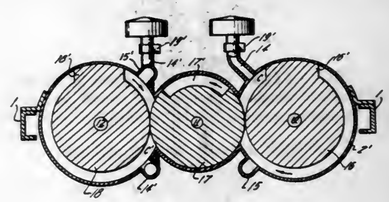
3,550,564
ROTARY INTERNAL COMBUSTION ENGINE
Louis A. Dionisio, Mastic Beach, N.Y., assignor to Peter F. Casella, Lewiston, N.Y., a part interest
Filed Mar. 7, 1968, Ser. No. 711,338
Int. Cl. F02b *53/08*
U.S. Cl. 123—8.37 **6 Claims**



A supercharged rotary internal combustion engine having a rotary engine means fixed to a drive shaft and a compressor comprised of two pistons axially and slidably mounted on said drive shaft and driven by said rotary engine means.

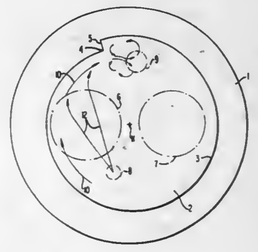
3,550,565
INTERNAL COMBUSTION ENGINE
Francisco G. Sanchez, Manzanillo 38, Mexico City, 7, D.F., Mexico
Filed Nov. 25, 1968, Ser. No. 778,674
Claims priority, application Mexico, Nov. 27, 1967, 99956
Int. Cl. F02b *53/00*
U.S. Cl. 123—8.41 **9 Claims**

A rotary internal combustion engine in which a first set of three rotary members cooperate to function as a pump and force a compressed air-fuel mixture into a second set of three rotary members. The combustible mixture is ignited and force a compressed air-fuel mixture into a second set of three



two sets of rotary members are identical in their design and construction.

3,550,566
INJECTION-TYPE INTERNAL COMBUSTION ENGINE WITH APPLIED OR EXTERNAL IGNITION
Heinrich Hoffmann, Stuttgart-Geroksruhe, Germany, assignor to (Daimler-Benz) Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed June 21, 1968, Ser. No. 738,978
Claims priority, application Germany, June 24, 1967, 1,576,004
Int. Cl. F02b *17/00*
U.S. Cl. 123—32 **23 Claims**



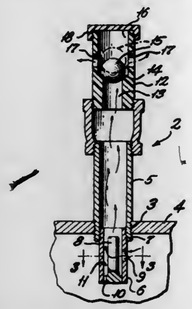
An internal combustion engine of the injection type with external ignition and with an unthrottled air supply, in which the fuel, controlled in its quantity, is injected at the end of the compression stroke into an essentially axially symmetrical combustion space in the direction of an airstream guided along the walls of the combustion space; the circumferential walls of the combustion space—as viewed in plan view—extend at least over a part of the entire circumference with a continuously decreasing radius in the direction of the airstream and are provided within the area in front of the ignition source with a wall part passing over in the circumferential wall with the larger radius under the formation of a sharp edge.

3,550,567
AUXILIARY BREATHER
Harold P. Crow, Box 98, Paxton, Nebr. 69155
Filed Apr. 18, 1968, Ser. No. 733,725
Int. Cl. F02f *9/04*; F15b *21/04*
U.S. Cl. 123—41.86 **3 Claims**

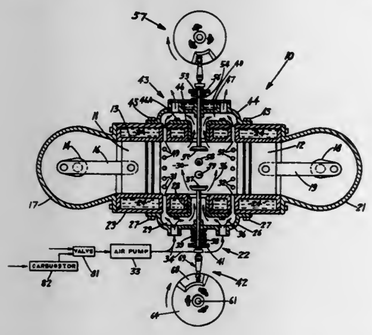
This invention relates to improvement in breather and bearings for a large one-cylinder type of oil field engine, though there are other places where these may apply and may be used.

The object of the breather is that is provides a relatively compact and easily installed, control device which separates

the oil from the vapors and then returns the oil to the crankcase. This lets oil-free vapors escape whenever there is pressure in the crankcase, but checks backflow of air into the crankcase.



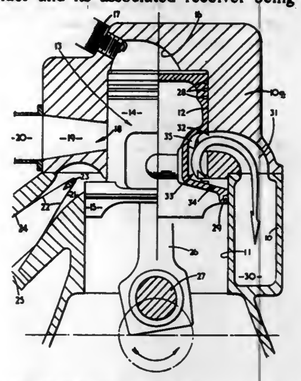
3,550,568
OPPOSING PISTON ENGINE
Maurice L. Peterson, Kerkhoven, Minn., assignor to Clayton Edwards, Kerkhoven, Minn., a part interest
Filed Dec. 11, 1968, Ser. No. 782,996
Int. Cl. F02b *75/28, 25/08*
U.S. Cl. 123—51 **15 Claims**



A two cycle opposing piston engine having a centrally located intake valve and an exhaust valve in addition to end located exhaust ports and intake ports to control the flow of air through a cylinder accommodating a pair of pistons. The pistons have a short stroke of approximately one-half the diameter of the pistons. Angularly adjustable cam discs are operable to adjust the individual timing of the valves.

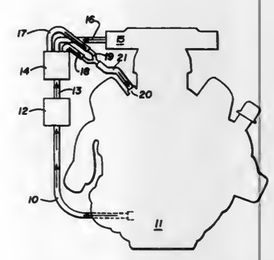
3,550,569
STEP-PISTON TWO-STROKE ENGINES
Bernard Hooper, Maybank House, Hope St. Wordsley, Stourbridge, Worcester, England
Filed Feb. 12, 1969, Ser. No. 798,688
Claims priority, application Great Britain, Jan. 3, 1969, 422/69
Int. Cl. F02b *33/10*
U.S. Cl. 123—71 **19 Claims**

The specification discloses a two-stroke internal combustion engine having one or more cylinders each containing a stepped piston, each cylinder and piston having a pumping part of larger diameter and a working part of smaller diameter, the working part of the or each cylinder being charged from the pumping part of the cylinder or one of the cylinders. Each cylinder has a receiver associated therewith into which the charge is received from said pumping part and from which it is delivered to said working part, the volume of the receiver being at least three times the swept volume of said pumping part and the sole valve means between the or each cylinder and its associated receiver being formed by



port means in the working part of the cylinder, the piston itself and recess means in the piston.

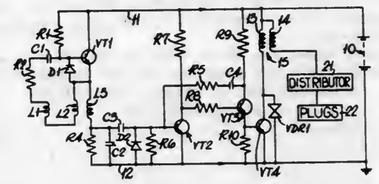
3,550,570
FLOW CONTROL SYSTEM
Hal Watson, Jr., Dallas, Tex., assignor to Harry M. Reid, Dallas, Tex.
Filed Sept. 5, 1968, Ser. No. 757,653
Int. Cl. F02f *9/00;* **F02m** *25/06*
U.S. Cl. 123—119 **3 Claims**



A flow-control valve is provided which is adapted to regulate the flow of a fluid such as air passing therethrough in response to a control vacuum pressure. This control valve is particularly adapted to act in combination with a positive crankcase ventilation system for an internal combustion engine to admix varying amounts of air, in response to intake manifold pressure, with the "blowby" gases removed from the engine's crankcase, to thereby form mixtures of air with these "blowby" gases which are injected into the engine's intake manifold.

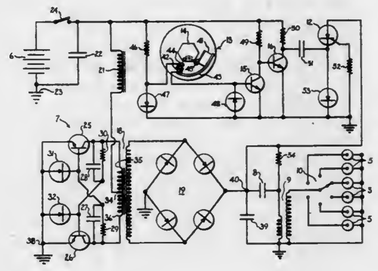
3,550,571
SPARK IGNITION SYSTEMS FOR INTERNAL COMBUSTION ENGINES
David Mainprize, Melton, Near North Ferriby, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England, a British company
Filed Nov. 19, 1968, Ser. No. 776,996
Claims priority, application Great Britain, Dec. 1, 1967, 54835/67
Int. Cl. F02p *3/02*
U.S. Cl. 123—148 **5 Claims**

In a spark ignition system for an internal combustion engine a spark-producing circuit is employed which on receiving an input from an oscillator produces a spark at a plug of the engine. The oscillator is coupled to the spark-producing circuit, but only oscillates when a spark is required. The oscillator is controlled by being provided with both positive and negative feedback so that when no spark is required it does not oscillate, and the means driven by the engine serves



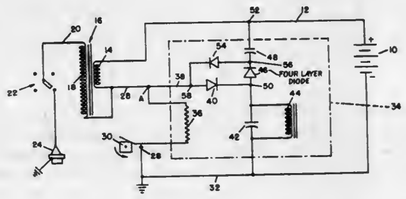
to increase the positive feedback when a spark is required so that the oscillator operates and produces a spark.

3,550,572
SOLID STATE IGNITION SYSTEM
Ralph P. Walker, 1125 Evans St., Oshkosh, Wis. 54901
Filed Dec. 4, 1968, Ser. No. 781,186
Int. Cl. F02p *3/06*
U.S. Cl. 123—148 **10 Claims**



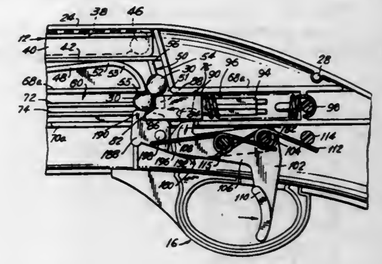
A condenser is charged from the rectified output of an oscillating circuit and is discharged through the primary of a conventional ignition coil by triggering of an SCR. SCR triggering is timed by means of a permanent magnet cooperating with a conventional breaker cam to induce AC in a detector coil that is connected with the SCR through a two stage amplifier. Clamping circuits protect the semiconductors.

3,550,573
IGNITION OR LIKE SYSTEM
Alfred C. Kowalski, 7373 Via Paraiso, Cucamonga, Calif. 91730
Filed Mar. 19, 1969, Ser. No. 809,484
Int. Cl. F02p *3/02*
U.S. Cl. 123—148 **7 Claims**



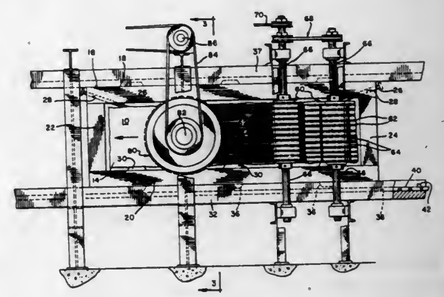
A rapidly interrupted induction system such as the ignition system for internal combustion engines in which substantially nonarcing interruption and more efficient spark plug operation is accomplished by solid state circuitry including a storage capacitor of large capacity which is connected across the interrupter and a smaller capacitor which is fed from the storage capacitor and provides high frequency oscillations through the primary of an induction transformer.

3,550,574
SPRING PROPELLED TOY PELLET GUN
Norman C. Lee, Rocky Mount, N.C., assignor to Carolina Enterprises, Inc., Tarboro, N.C., a corporation of North Carolina
Filed Dec. 2, 1968, Ser. No. 780,430
Int. Cl. F41b *7/08*
U.S. Cl. 124—27 **6 Claims**



A pump action toy rifle fires soft pellets stored in a chamber above a barrel and gravity fed into firing position in front of a spring propelled firing plunger. The firing plunger is moved to cocked position by a loading rod and there held by a trigger. A retainer tip is urged by a spring part way into the barrel forwardly of the pellet in its ready-to-fire position. When pulling the trigger releases the firing plunger the impelled pellet is forced over the retainer tip which pinches the pellet as it passes, thereby adding forward impetus to the pellet.

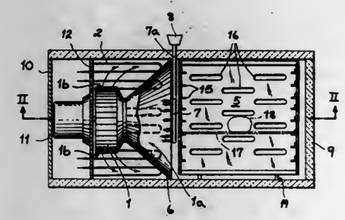
3,550,575
METHOD OF AND APPARATUS FOR SURFACING REFRACTORY SLABS OR THE LIKE
Leopold H. Metzger, Glencoe, and Harold C. Miller, Chicago, Ill., assignors to Super-Cut, Inc., Chicago, Ill., a corporation of Illinois
Continuation-in-part of application Ser. No. 521,135, June 17, 1966, now abandoned. This application May 23, 1968, Ser. No. 731,591
Int. Cl. B24b *7/00;* **B28d** *1/18*
U.S. Cl. 125—3 **3 Claims**



A method and apparatus for surfacing slabs and removing high regions therefrom wherein kerfs are sawed through the

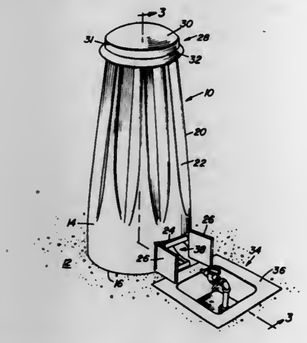
high regions to produce intervening ribs or ridges which are then fractured to produce large segments which, after removal, leave only small protuberances that are erased by the abrasive action of a planar grinding surface. The fracturing and grinding are accomplished sequentially by a simple grinding head which rotates about a vertical axis and advances endwise along the ribs to fracture and thereby eradicate them. Tungsten carbide impact segments on the periphery of the head sweep laterally against the ribs in order to fracture them while grinding segments on the head wear away the protuberances left by the impact segments.

3,550,576
FOOD-TREATMENT APPARATUS WITH WASHING MEANS
Paul Saver, Burg, Germany, assignor to Burger Eisenwerke AG., Postsach, Germany, a corporation of Germany
Filed Nov. 22, 1968, Ser. No. 778,123
Int. Cl. B08b *3/00*; F24c *15/32*
U.S. Cl. 126—21 3 Claims



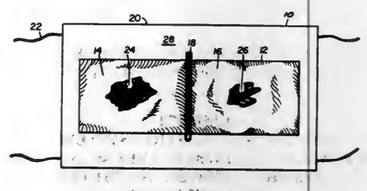
A food-treatment apparatus having an air circulator for displacing heated air in a food-treatment chamber has washing means to permit easy cleansing thereof. The washing means is a pipe which introduces a cleansing liquid into the path of air circulation so that this liquid is distributed through the apparatus.

3,550,577
ORCHARD HEATER
Joseph Carnesecca, Jr., 304 R.F.D. 1, Springville, Utah 84663
Filed Oct. 7, 1968, Ser. No. 765,348
Int. Cl. A01g *13/06*
U.S. Cl. 126—59.5 10 Claims



An upstanding corrugated frustoconical shell encloses a gas igniting element. A slot is formed in the wall of the shell to permit entry of a volatile gas jet for ignition within the shell which causes the heating of the same resulting in the emission of heat due to radiation and convection.

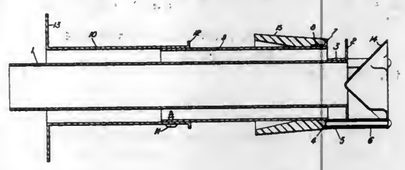
3,550,578
EXOTHERMIC COMPOSITIONS AND HEAT COLLARS CONTAINING SAID COMPOSITIONS
Robert Earl Fearon and Rudolph George Foss, Tulsa, Okla., assignors to Ciba Corporation, Summit, N.J., a corporation of Delaware
Original application Nov. 4, 1968, Ser. No. 772,991, now Patent No. 3,475,239, dated Oct. 28, 1969. Divided and this application Mar. 19, 1969, Ser. No. 829,829
Int. Cl. F24j *1/00*
U.S. Cl. 126—263 4 Claims



Exothermic compositions are provided which are comprised of a particulate oxide of an alkali metal or alkaline earth metal and a solid, particulate acid or strongly acid salt. The alkaline oxide is present in the composition in an amount sufficient to at least neutralize the acidic reactant, and preferably in an amount in excess of the theoretical amount required for neutralization. The exothermic compositions of this invention are useful in a plurality of applications wherein a controlled amount of heat is desired, such as curing of resinous materials, heating of foods, defrosting of frozen articles and other similar applications.

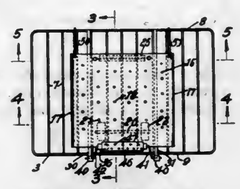
Packages are also provided which are adapted to hold the alkaline oxide reactant and acidic reactant separately from each other until immediately before use, whereupon the oxide and acidic reactants are blended together in the package, which is then secured to the object to be heated, for example, a pipe joint, and the exothermic reaction is initiated by injecting a small amount of water into the exothermic composition.

3,550,579
FLUE SEAL FOR GAS APPLIANCE
Ian P. S. Baker, Liverpool, England, assignor to United Gas Industries Limited, London, England, a British Company
Filed Jan. 24, 1969, Ser. No. 793,712
Claims priority, application Great Britain, Jan. 24, 1968, 3,842/68
Int. Cl. F16l *5/02*; F23j *11/02*
U.S. Cl. 126—307 4 Claims



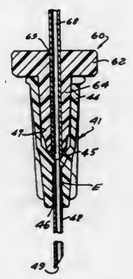
The specification describes a seal for sealing a balanced flue of a gas appliance in a hole in a wall, in which the annular sealing member is tapered or stepped on its outer surface, has a cylindrical bore to match the flue at its narrow end, the bore at the wider end being outwardly stepped or tapered. When the flue with the seal thereon is pushed into the hole, with the narrower end of the sealing member leading, the sealing member deforms to seal tightly both into the hole and onto the flue.

3,550,580
MOVABLE TRAY FOR OVENS
James Lee Wong, 1124 W. 18th St., Los Angeles, Calif. 90015
Filed Mar. 17, 1969, Ser. No. 807,829
Int. Cl. F24c *15/16*
U.S. Cl. 126—337 6 Claims



The device provides a tray movable forwardly and rearwardly relative to an oven grill positioned in an oven compartment for the purpose of supporting food being baked and to determine the degree of baking thereof.

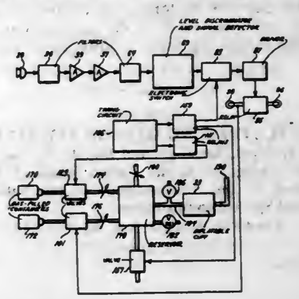
3,550,581
APPARATUS AND METHOD FOR DETERMINING THE TENDENCY TO THROMBOSE
Edwin Boyle, Jr., 4411 Sabal Palm Road, Miami, Fla. 33137
Filed Oct. 14, 1966, Ser. No. 586,893
Int. Cl. A61f *10/00*
U.S. Cl. 128—2 6 Claims



A test procedure for determining the tendency to thrombose wherein blood is caused to flow through a substantially uniform passageway from a venipuncture to a collection container. By measuring and recording the volume of blood collected with respect to time until a clot forms within the passageway, the tendency to thrombose may be determined. In carrying out this procedure, an apparatus is provided which includes a needle and removable stylet for effecting venipuncture, and a flexible elongated tube which is removably mounted to the needle after the stylet is removed. The tube is connected to the rear end of the needle in such a manner that the passageway through the needle and tube is substantially uniform in diameter whereby a uniform fluid flow through the apparatus is obtained.

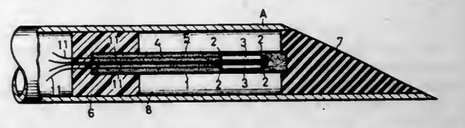
3,550,582
SYSTEM FOR CLOSELY MONITORING A BLOOD PRESSURE OVER AN EXTENDED PERIOD OF TIME
Jack L. Wilhelmson, Fenton, Mo., assignor to Hoffman-La Roche Inc., Nutley, N.J., a corporation of New Jersey
Filed Mar. 30, 1967, Ser. No. 627,124
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 3 Claims

A portable blood pressure monitor featuring plural inflation sources set at different flow rates connected to a reservoir and cuff. The Korotkoff sound sensing channel and the



various valves are controlled by a timing circuit to permit rapid as well as normal pressure buildup and release.

3,550,583
NEEDLE-SHAPED PRESSURE TRANSDUCER
Takewo Chiku, Toyota-shi, and Isemi Igarashi, Nagoya-shi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan
Filed Apr. 30, 1968, Ser. No. 725,314
Claims priority, application Japan, May 13, 1967, 42/30,476
Int. Cl. A61b *5/02*
U.S. Cl. 128—2.05 5 Claims



A transducer comprising a slender outer tube and a sensing mechanism therein, said tube being closed on its one end by a diaphragm and a plug of nonconstrictive material to sense a pressure, or other force, from the outside of the transducer and transmit the pressure to said sensing mechanism, said sensing mechanism being disposed parallel to the axis of said tube and including at least one sensing element of semiconductive material to convert said pressure when applied into a change in internal resistance by the piezoresistance effect. The transducer may be of miniature size and shaped as an injection needle suitable for insertion into a body vessel to convert and measure blood pressure, for example.

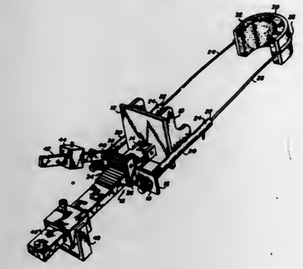
3,550,584
MOUTH GAG
Wallace H. Ring, 2996 Sequoia Ave., Salt Lake City, Utah
Filed Nov. 15, 1967, Ser. No. 683,227
Int. Cl. A61b *1/24*
U.S. Cl. 128—12 7 Claims



A mouth gag for use with a tongue depressor for oral examination and surgery, the gag being so constructed as to

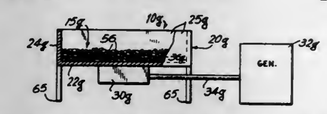
permit relative pivotal motion about a horizontal axis between the gag and the tongue depressor, and pivoting of the gag on the upper teeth of the patient, with locking of both gag and tongue depressor in positions of relative adjustment.

3,550,585
SKELETAL STRESSING METHOD AND APPARATUS
Wayne H. Howard, Saratoga, and Donald R. Young, Los Altos, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 6, 1969, Ser. No. 797,058
Int. Cl. A61h *1/00*
U.S. Cl. 128—24 **10 Claims**



A method and apparatus for applying a predetermined force to the lower leg of a subject experiencing prolonged recumbency or weightlessness. The subject's foot is placed in a stirrup or shoe means which is connected directly to the rack of a rack and pinion apparatus. A knee plate is also connected to the rack and pinion device by suitable cable means or the like so that by applying a predetermined torque to the pinion a compressive force is applied to the lower leg of the subject between the ankle and knee so as to simulate the forces to which this portion of the leg is normally subjected during ambulation.

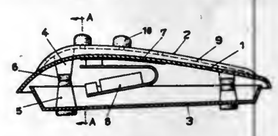
3,550,586
ULTRASONIC TREATMENT METHOD AND DEVICE FOR FERTILIZED OVA AND LIVE EMBRYOS
Lewis Balamuth, New York, N.Y., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y., a corporation of Delaware
Original application Mar. 10, 1967, Ser. No. 622,126, now Patent No. 3,499,436. Divided and this application Aug. 13, 1969, Ser. No. 849,735
Int. Cl. A61h *1/00*
U.S. Cl. 128—24 **24 Claims**



The use of coherent elastic energy waves in a defined frequency range, of generally from 500 cycles per second to 600,000 c.p.s. for the treatment of organic structures, such as fertilized ova and live embryos.

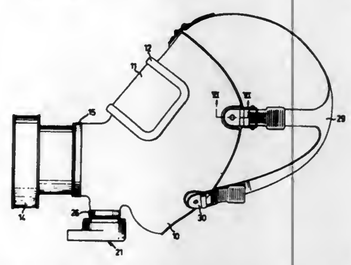
3,550,587
SPINE CORRECTOR COMBINED WITH AUTOMATIC THERAPEUTIC DEVICE FOR DIGITAL PRESSING THERAPY
Sohji Kawada, No. 49-6, Nakano 5-chome Nakano-ku, Tokyo, Japan
Filed Feb. 20, 1969, Ser. No. 801,112
Claims priority, application Japan, Mar. 25, 1968, 43/19243
Int. Cl. A61h *1/00*
U.S. Cl. 128—33 **7 Claims**

A spine corrector and automatic therapeutic device for simulated digital therapy having a cover, a bottom plate fastened thereto and a pair of parallel rails on the cover. The cover and bottom plate are fastened by connecting projections with resilient material therebetween. Vibration to the



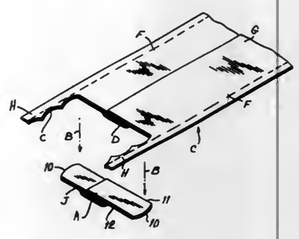
cover is imparted by a small motor mounted on a plate inside the cover. An eccentric weight mounted on the motor shaft provides the vibration. A neck adapter and massage bulbs are also provided.

3,550,588
PROTECTIVE MASKS
Ronald Stahl, Trelleborg, Sweden, assignor to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden
Filed May 17, 1968, Ser. No. 730,058
Int. Cl. A61f *13/00*
U.S. Cl. 128—141 **6 Claims**



A protective mask having a face piece arranged for self-drainage of phlegm and condensation water without increasing the noxious space of the mask, the self-drainage being obtained by mounting the exhaling valve and its fastening at the lowermost point of the mask beneath the wearer's chin with the outlet of the exhaling valve directed away from the wearer's throat and by arranging a sealing flap extending from the fastening for the exhaling valve and engaging the front of the wearer's throat.

3,550,589
PROCESS AND MECHANISM FOR MAKING ROUND END PREPARED CUT BANDAGES
Lawrence B. Wallerstein, 87 Daisy Farms Road, New Rochelle, N.Y. 10804
Original application, Sept. 20, 1967, Ser. No. 669,170, now Patent No. 3,531,847. Divided and this application Nov. 26, 1969, Ser. No. 880,334
Int. Cl. A61f *15/00*
U.S. Cl. 128—156 **4 Claims**



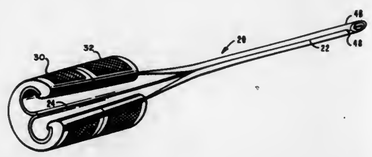
A prepared bandage system including a novel elongated straight side and rounded end edge, having backing plastic sheeting, overlapping removal strips and intermediate gauze pads.

3,550,590
SURGICAL BANDAGE
James J. Keilman, 2740 W. Granville Ave., Chicago, Ill. 60626
Filed Aug. 6, 1968, Ser. No. 750,572
Int. Cl. A61f *5/40*
U.S. Cl. 128—161 **5 Claims**



A bandage and bandage holder for use to protect the male genitals and provide comfort and protection for these parts after injury or surgery, such as circumcision. In one embodiment the invention provides a belt holder for a bandage, said bandage having an adjustable tubular portion to encompass the male genitals. The device is characterized by the comfort it provides the wearer, convenience of use, lack of interference with ordinary body functions, ease of interchange of bandages and the weight support assist borne directly by the belt.

3,550,591
INTRAVENOUS CATHETER UNIT
Douglas MacGregor, Salt Lake City, Utah, assignor to George Kessler, Los Angeles, Calif.
Filed Aug. 19, 1968, Ser. No. 753,587
Int. Cl. A61m *5/00*
U.S. Cl. 128—214.4 **3 Claims**



Catheters are flexible plastic tubes which extend through a hollow metal needle for the long term infusion of liquids into the vein of a patient. This invention relates to a hollow metal needle through which the catheter extends. The hollow needle is provided with a slit which extends along its entire length. In addition, the needle is provided with means of causing the needle to hinge open to widen the slit enough to pass the catheter through. In this way the needle may be separated from the catheter after the catheter is placed inside the vein. This arrangement protects the catheter from damage caused by the sharp point of the needle.

3,550,592
SANITARY NAPKIN AND DISPOSABLE WRAPPER THEREFOR
Leo J. Bernardin, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Dec. 23, 1968, Ser. No. 786,389
Int. Cl. A61f *13/16*
U.S. Cl. 128—290 **23 Claims**

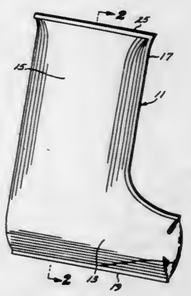
A sanitary napkin wrapper made from fibers which are normally insoluble in water but which can be converted to a water soluble form in an aqueous environment by introduction into the environment of a suitable chemical. Particularly suitable water-insoluble fibers may be made from alginic acid and the insoluble salts thereof. Such fibers can be converted to water-soluble alginate by ion exchange with a weak base. Sanitary napkins enclosed in such a wrapper may be easily flushed away after the wrapper is dissolved.

3,550,593
THERAPEUTIC APPARATUS
Jack W. Kaufman, 37-71 Junction Blvd., Corona, N.Y. 11368
Filed Feb. 2, 1967, Ser. No. 613,646
Int. Cl. A61m *7/00*
U.S. Cl. 128—260 **22 Claims**



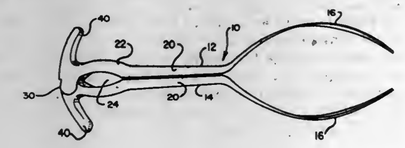
Treatment of athlete's foot or similar diseases by providing in proximity to a foot a pad comprising a semiporous covering layer over a cellular or fibrous core impregnated with antifungal medicament whereby the medicament will be slowly released over a substantial period of time to continuously diffuse over and contact the affected portion of the foot.

3,550,594
FOOT POWDER APPLICATOR
Garthop Upton, Jr., 1461 Grand Ave., Grover City, Calif. 93433
Filed Sept. 5, 1968, Ser. No. 757,548
Int. Cl. A61f *13/00*
U.S. Cl. 128—265 **5 Claims**



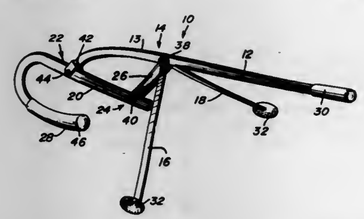
A foot powder applicator comprising a plastic package formed in the shape of an oversized sock. The package includes a quantity of foot powder therein and is openable on its top end for insertion of the user's foot. Thus, the applicator may be utilized to package foot powder and may be opened for application of the powder. The user's foot is inserted in the open package and the upper portion thereof clasped to hold it around the ankle, and the foot shaken to apply powder uniformly thereto.

3,550,595
OBSTETRICAL FORCEPS
Leonard E. Laufe, Pittsburgh, Pa., assignor to Western Pennsylvania Hospital Foundation For Medical Eduction and Research
Filed Apr. 19, 1968, Ser. No. 722,645
Int. Cl. A61b 17/44
U.S. Cl. 128—323 4 Claims



Obstetrical outlet forceps of the divergent type including a pivot lock at one end of the shanks thereof and lateral finger grips extending from the region of the pivot lock. With the forceps closed, the shanks abut each other forwardly of an enlargement formed between them adjacent the pivot lock. The shanks are also formed with a smooth perineal curve.

3,550,596
PELVIC OPENING ENLARGER
Richard L. Hodder, 312 W. Babcock St., Bozeman, Mont. 59715
Filed May 15, 1968, Ser. No. 729,183
Int. Cl. A61b 17/42; A61d 1/08
U.S. Cl. 128—361 6 Claims



A lever device including a lever handle, a pair of outwardly diverging braces pivotally connected to an intermediate length of the lever handle, the outward ends of these braces being adapted for supporting contact by hip bones. A generally U-shaped member is pivotally connected to the handle member and adapted to underlie the sacrum of a skeletal frame. Downward displacement of the handle means causes upward pivotal rotation of the U-shaped member accompanied by the generation of forces in an outward direction against each hip bone thereby forcing them apart and enlarging an associated pelvic opening.

3,550,597
FOOT SUPPORTING AND CORRECTIVE DEVICE
Carl Waddington Coplans, Capetown, South Africa, assignor to Spring-Tred, Inc., New York, N.Y., a corporation of New York. by mesne assigment
Filed Oct. 18, 1968, Ser. No. 768,823
Int. Cl. A61f 5/14
U.S. Cl. 128—585 12 Claims



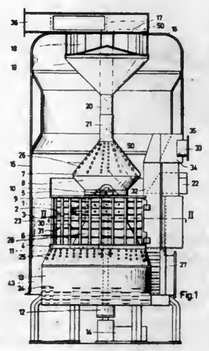
A foot supporting and corrective device for augmenting the natural torsionlike action of the foot in walking, or providing such action where it is entirely missing. The device, either as an integral part of a shoe or as a shoe accessory, is of relatively flat construction with front and rear main lifting sections rigidly connected to a resilient intermediate section twisted into the form of flat torsion spring which yieldably maintains said lifting sections in mutually inclined relation, at predetermined angles, in opposite directions about the longitudinal axis of the foot, the arrangement being such that said main lifting sections underlie the respective posterior and anterior portions of the foot. During walking, a yieldably torsional action is applied to the foot by said lifting sections, whereby the heel of the foot is urged upwardly at the inner side thereof, and the forefoot is raised upwardly at the outer side thereof, thereby producing a torsional action similar to the natural torsionlike action of the foot itself, as well as a comfortably cushioned tread.

3,550,598
RECONSTITUTED TOBACCO CONTAINING ADHERENT ENCAPSULATED FLAVORS AND OTHER MATTER
James H. McGlumphy, 67 Chatham St., Chatham, N.J.; James Orville Pfaff, 225 E. 73rd St., New York, N.Y.; Alton De Witt Quinn, 12 Franklin Ave., Cranford, N.J., and Georges Wellner, 215 E. 68th St., New York, N.Y.
Filed Aug. 15, 1967, Ser. No. 660,775
Int. Cl. A24b 03/14, 15/04, 03/12
U.S. Cl. 131—9 6 Claims



The formation of reconstituted tobacco sheet material from tobacco stems, said sheet having a subsident layer of microencapsulated flavoring material embedded in the reconstituted tobacco sheet and the incorporation thereof into smoking articles such as cigarettes, cigars, etc.

3,550,599
APPARATUS FOR THRESHING TOBACCO LEAVES AND SEPARATING THE THRESHED TOBACCO
Arne Johansson, Vallingby, Sweden, assignor to Arenco Aktiebolag, Stokholm-Vallingby, Sweden
Filed June 24, 1968, Ser. No. 739,531
Claims priority, application Sweden, June 30, 1967, 10184/1967
Int. Cl. A24b 05/06
U.S. Cl. 131—146 4 Claims

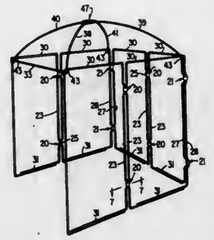


A machine for threshing tobacco leaves and separating the tobacco threshed, comprising a threshing chamber having a vertical, tubular wall and at least one rotating threshing wheel mounted on a vertical shaft in the threshing chamber. In the wall of the threshing chamber an outlet grid opening extending around at least the major part of the periphery of the threshing chamber and above the threshing chamber, a cap presenting an upwardly tapering wall. A separating chamber, in which air flows upwardly, extending between on one side the outlet opening and the cap and on the other side an outer casing. Means are provided for supplying air to the threshing chamber and the separating chamber. The air supply means includes means for directing air upwardly and centrally through the full vertical extent of the threshing chamber, the wall of the cap being provided with openings and the interior of the cap receiving air from the central portion of the threshing chamber. The cap provides the separating chamber with additional air through the openings.

3,550,600
CIGARETTE FILTERS
Henry George Horsewell, Totton, and Thomas William Charles Tolman, Southampton, England, assignors to Brown and Williamson Tobacco Corporation, Louisville, Ky., a corporation of Delaware
No Drawings. Filed Mar. 19, 1968, Ser. No. 714,340
Claims priority, application Great Britain, Nov. 29, 1967, 14,247/67
Int. Cl. A24d 01/06
U.S. Cl. 131—267 6 Claims

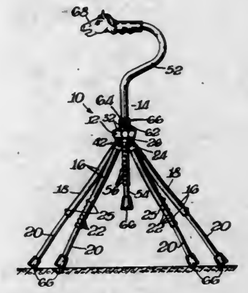
The invention concerns an improved filter for tobacco smoke comprising a tobacco-smoke filtering material supporting an addition of zinc acetate in conjunction with an addition of an organic or inorganic base capable of keeping the surface of the said filtering material substantially alkaline during filtration. The base utilized is selected from the group consisting of polyethylineimine, triethanolamine, sodium acetate and borax.

3,550,601
PORTABLE COLLAPSIBLE CHILD'S PLAY ENCLOSURE
Donald F. Peters, 33 Kingsboro Ave., Gloversville, N.Y. 12078
Filed Dec. 4, 1968, Ser. No. 781,082
Int. Cl. A45f 1/16; E04f 10/04
U.S. Cl. 135—4 5 Claims



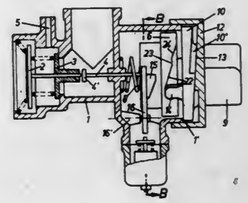
A portable collapsible child's play enclosure having side members hingedly connected at their sides to form a rectangular frame arrangement. Roof-supporting bows formed of resilient material, such as music wire, are pivotally connected at each upper corner of the frame. The bows extend diagonally of the frame and meet at a junction in the middle of the frame. In addition to supporting the roof, these bows maintain the frame in rectangular form due to the fact that the bows have a length exceeding half the distance between opposite diagonal corners of the frame. Also, the inner ends of the bows are pivotally connected to a structure at the junction. The junction structure has stop means cooperable with the bows to limit the upward movement of the structure so that the bows take an arcuate, or convex, form and exert an outward yielding force against the corners of the frame. When the junction structure is depressed below the top of the frame, the bows take a concave form, and the downward movement of the junction structure does not have a stop limit, whereby the corners of the frame can be moved inwardly, the side members folded upon themselves, and the frame collapsed to flat condition.

3,550,602
WALKING AID
Dennis Hesterman, Delaware City, Del., and Lewis E. Greth, Cinnaminson, N.J., assignors to Dynamic Products Development, Inc., Wilmington, Del., a corporation of Delaware
Filed May 16, 1969, Ser. No. 825,361
Int. Cl. A45b 01/00, 03/00
U.S. Cl. 135—45 15 Claims



A walking aid comprises a body member having central stem or cane with a handle portion and a plurality of angularly arranged legs removably secured to the body. Each of the legs is rotatable and extendable so that the positioning and numbering of the legs may be varied in accordance with the needs of an individual user.

3,550,603
ROTARY GAS SWITCH, IN PARTICULAR FOR WATER HEATERS
Gerhard Schueler, Remscheid, Germany, assignor to Joh. Vaillant KG., Remscheid, Germany
Filed Oct. 14, 1968, Ser. No. 767,265
Claims priority, application Germany, Nov. 25, 1967, 1,629,884
Int. Cl. F23d 5/16; F16k 31/524
U.S. Cl. 137—66 9 Claims

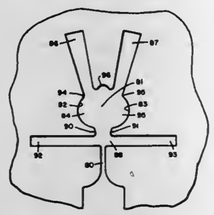


Axially aligned are a pilot gas valve closure and a main gas valve closure. A limited amount of axial movement of a valve shank first opens the pilot closure and more movement subsequently the main closure. Upon rotation of a cam disc in one direction, a cam pair on the body and disc forces the disc axially of the shank into, and along with, a cam support which also is rotated by the rotation of the cam disc. The cam support moves the valve shank. A thermally sensitive-latching apparatus holds the cam support in the rotated position and thereafter a reverse rotation of the cam disc additionally cams the cam support in the axial direction of the valve shank to open the main gas valve.

3,550,604
HIGH SPEED FLUIDIC DEVICES

Edward F. Richards and Warren B. Depperman, Orange County, Fla., assignors to Martin-Marietta Corporation, New York, N.Y., a corporation of Maryland

Filed May 2, 1966, Ser. No. 546,935
Int. Cl. F15c *1/14*
U.S. Cl. 137—81.5 25 Claims

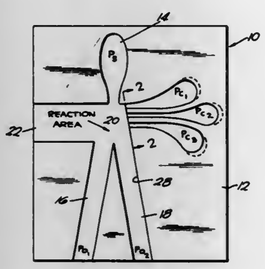


This invention relates to a high speed fluidic element configured to have at least one cavity in which low pressure is developed as a result of a stream of fluid flowing close by, such low pressure acting to hold the stream flowing into a desired receiver. Our cavity concept may also be employed in conjunction with a feedback flow injector for causing some of the fluid flowing toward the receiver to curve around and act against the stream at a location adjacent its source, thus helping stabilize the stream in the desired position. Significantly, our device can be switched much faster and has much more stability than ordinary Coanda effect devices.

3,550,605
FLUID DEVICE WITH IMPROVED FAN-IN CAPABILITY

Charles J. Ahern and Paul T. Higgins, Sidney, N.Y., and Robert S. Kiwak, Dearborn Heights, Mich., assignors to The Bendix Corporation, a corporation of Delaware

Filed Dec. 4, 1967, Ser. No. 687,832
Int. Cl. F15c *1/10*
U.S. Cl. 137—81.5 5 Claims



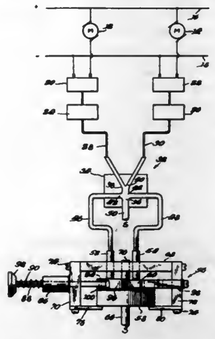
A fluid logic component having multiple isolated fluid pressure control input ports arranged in adjacent separated rows.

3,550,606
FLUIDIC SEQUENTIALS SWITCHING SYSTEM

David H. Thorburn, Oaks Park, Ill., assignor to Powers Regulator Company, Skokie, Ill., a corporation of Delaware. by mesne assignments

Filed Aug. 5, 1968, Ser. No. 750,216
Int. Cl. F15c *3/00*
U.S. Cl. 137—81.5 1 Claim

A fluidic switching system for providing sequential fluid signals to operate electrical switchgear or other fluid-actuated devices. A fluidic control unit, consisting of one or more bistable fluidic relays, is associated with a sequential switching device. Each of the relays includes a pair of control ports and a pair of associated signal ports. When a fluid control signal appears at a control port, the fluid output signal of the relay is switched to the respectively associated signal port. Each operation of the sequential switching device causes one of the control ports to become connected to a

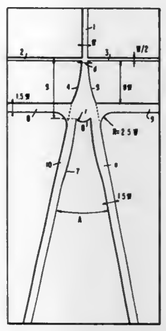


source of control signal fluid, while the other control port is simultaneously disconnected therefrom. Thus, each operation of the switching device causes switching of the relay, and consequent actuation of one, and deactuation of another, of the fluid-actuated devices.

3,550,607
CONVEX-WALLED, CUSPED, VENTED, BISTABLE FLUERIC AMPLIFIER

Turgut Sarpkaya, Carmel, Calif., assignor to the United States of America, as represented by the Secretary of the Army. by mesne assignment

Filed Sept. 13, 1968, Ser. No. 759,595
Int. Cl. F15c *1/08*
U.S. Cl. 137—81.5 7 Claims



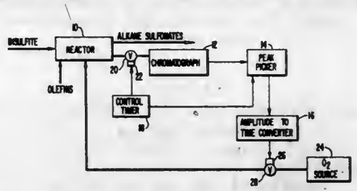
A convex-walled, cusped, vented bistable flueric amplifier having critical geometry and dimensional ratios in a narrow range to yield a nearly ideal pressure recovery response characteristic.

3,550,608
FLUID INJECTION CONTROL LOOP AND PEAK AMPLITUDE CONVERTER

Irvin D. Johnson, Gendorf, Germany, assignor to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio

Filed June 5, 1968, Ser. No. 734,687
Int. Cl. G05d *11/035*; G01n *31/08*
U.S. Cl. 137—93 9 Claims

The content of a chemical in a reaction mixture is controlled automatically by opening a feed valve to the reaction chamber for a time inversely proportional to the amount of the chemical detected in the reaction chamber during a sample time. The chamber contents are periodically sampled and fed to a chromatograph. The peak measure of the chromatograph during each sample period is electronically detected. The difference between the chemical set point and the sam-

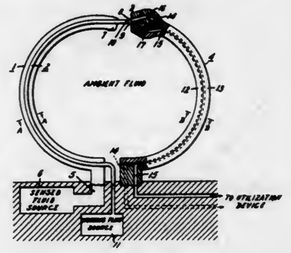


ple chemical peak is a measure of the amount of chemical which should be added. The latter difference, in the form of a voltage, is converted into a proportional time duration pulse which opens the feed valve to the reaction chamber.

3,550,609
TEMPERATURE COMPENSATING RECEIVER FOR USE WITH A BOURDON TUBE FLUIDIC TRANSDUCER

Jean A. Roché, Reading, Ohio, assignor to General Electric Company, a corporation of New York

Filed May 15, 1969, Ser. No. 824,983
Int. Cl. F15b *5/00*; G05d *16/00*
U.S. Cl. 137—83 10 Claims

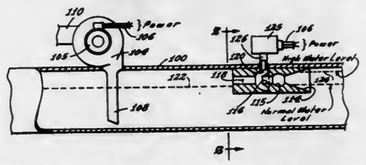


A C-type Bourdon tube which responds to pressure changes in a sensed fluid is used to selectively deflect a jet of working fluid between the ports of a proportional fluidic receiver. The proportional fluidic receiver is carried by a bimetallic support member which imparts thereto temperature-related deflection of magnitude and direction sufficient to compensate for that portion of the Bourdon tube deflection which is due to the temperature modification of its structural resilience.

3,550,610
MEANS TO DETECT CHANGES IN LEVEL OF A STREAM OF WATER

Charles Thomas Ziegler, 14242 Victory Blvd., Van Nuys, Calif. 91401

Continuation-in-part of application Ser. No. 698,958, Jan. 18, 1968, now abandoned. This application Mar. 5, 1969, Ser. No. 804,544
Int. Cl. G05d *27/02*
U.S. Cl. 137—101.25 6 Claims

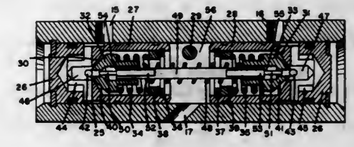


To detect when a flowing stream rises to a given level, a venturi tube is located at the given level so that a vacuum will be created therein by the flowing water. Means responsive to the vacuum signals the rise in level of the stream.

3,550,611
UNITARY COMBINATION OF PRESSURE-RESPONSIVE FLOW CONTROL UNIDIRECTIONAL VALVES FOR HYDRAULIC SYSTEMS

Johannes Vagn Bastrup, Sonderborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a company of Denmark

Filed Oct. 16, 1968, Ser. No. 768,110
Claims priority, application Germany, Oct. 17, 1967, 1,650,352
Int. Cl. G05d *11/00*
U.S. Cl. 137—111 7 Claims

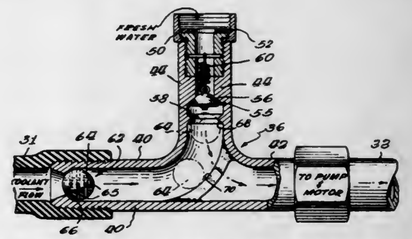


A unitary valve combination in which three pairs of valve elements in a single bore in a valve housing effect a multiplicity of fluid pressure control and equalization functions while jointly functioning as two pairs of unidirectional, flow control, pressure-responsive valves in a hydraulic system. The control valve elements are a pair of hollow pistons reciprocably actuated by fluid pressure and transporting internally thereof a second pair of inner or internal pistons relatively reciprocable thereto jointly defining two unidirectional check valves. The internal pistons are biased to valve-closing positions by separate springs, controlling the pressures at which the internal pistons reciprocate relative to the transporting outer hollow pistons, from the spring pressure applied to the hollow pistons biasing the hollow transporting pistons away from each other thus causing the unidirectional valves formed to respond to different pressures in opening and closing. Spheres cooperating with the internal pistons form another pair of check valves which are pressure-responsive and can also be opened by a rigid control member, in the form of a rod, when the hollow pistons are driven in axial directions toward each other by given fluid pressures. The fluid under pressure is applied to the valves by entry into and out of two axially spaced spaces defined in the bore by the hollow transporting pistons and an intermediate space therebetween.

3,550,612
PURGE VALVE FOR COOLING FLUID CONDUIT SYSTEMS

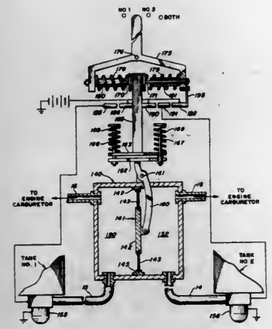
Leroy James Maxon, 1615 N. 29th Ave., Hollywood, Fla.

Filed July 1, 1968, Ser. No. 741,463
Int. Cl. F01p *3/00*
U.S. Cl. 137—112 12 Claims



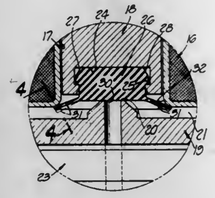
A cooling system for an internal combustion marine engine which utilizes external or sea water as a coolant and which employs a novel purge valve assembly. The engine includes an intake line having an inlet port and a pump coupled with said intake line for drawing the external coolant water into said inlet port and pumping same through the cooling system of said engine. The purging valve is interposed in the intake line so that fresh water may be introduced into the cooling system to flush out the external coolant water, which, in most instances, is contaminated with salt or other corrosive materials.

3,550,613
AUTOMATIC FLUID FLOW CONTROL APPARATUS
Theodore C. Barber, P.O. Box 5, Orovada, Nev.
Filed June 13, 1968, Ser. No. 736,803
Int. Cl. G05d 11/00
U.S. Cl. 137—113 1 Claim



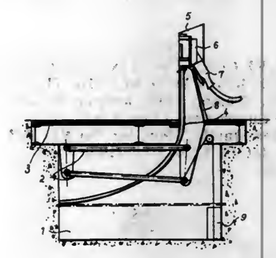
Control apparatus for automatically controlling the flow of fuel from two tanks to an engine. A movable diaphragm divides a control chamber into two compartments, each compartment receiving fuel from one of the tanks. Valves are provided in each of the compartments for controlling the flow of fuel through the control chamber to the engine, the operation of each valve being responsive to movement of the diaphragm. Differential pressure on the diaphragm as one tank is emptied causes the diaphragm to change position, automatically opening the closed valve to permit fuel flow from the other tank to the engine.

3,550,614
CONTAMINANT BARRIER FOR SOLENOID VALVES
Christer E. T. Englund, Glendora, and Ali Marandi, Azusa, Calif., assignors to Clemar Manufacturing Corp., Azusa, Calif., a corporation, by mesne assignments to
Filed Oct. 31, 1968, Ser. No. 772,269
Int. Cl. F16k 31/06, 31/40
U.S. Cl. 137—245 7 Claims



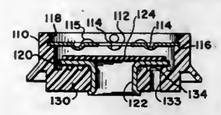
A barrier to minimize entrance of solid particles between a plunger member and a solenoid armature and a surrounding socket member in which the plunger slides; the barrier forming, when pressed against the mating surface, minute passages smaller than the clearance space between the plunger member and socket member which permit ingress of fluid as the plunger member moves outwardly relative to the socket member, the barrier moving away from its mating surface, on egress of fluid as the plunger member moves inwardly relative to the socket member to permit flushing of any particles which may have entered.

3,550,615
DEVICE FOR CONDUCTOR AND PIPE CONNECTIONS ON OPEN DECKS
Walter Eriksen and Sverre Strengelsrud, Baerum, Norway, assignors to Platgods A/S, Oslo, Norway
Filed Oct. 14, 1968, Ser. No. 767,258
Int. Cl. F16e 5/00
U.S. Cl. 137—362 3 Claims



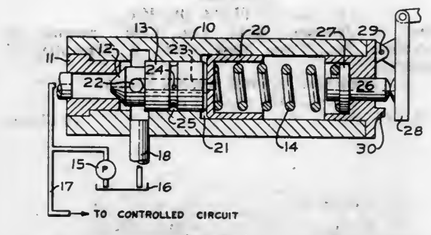
The invention concerns a device for conductor and pipe connections on open decks, said device being sunk into a cavity in the deck, whereby the connection member is connected to a cable or pipe in the cavity by means of a flexible connector and is secured to a member which may be moved upwardly above the plane of the deck and locked in operational position. According to the invention a locking mechanism in operational position engages the unit formed by the connection member, in such a manner that a connecting part cannot be connected to the connection member before the locking mechanism is in operation.

3,550,616
CHECK VALVE WITH RESTRICTED BYPASS FLOW
Marvin M. Graham, San Pedro, and Lauren D. Haskins, Long Beach, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed June 6, 1968, Ser. No. 734,926
Int. Cl. F16k 15/02
U.S. Cl. 137—513.7 1 Claim



A fluid flow check valve including a casing having a flow aperture on each end, a floating valve member preventing a free fluid flow in one direction through one end and permitting a free fluid flow through the other end; a restricted fluid flow bypasses the valve member to permit a restricted flow when the valve member is in its flow preventing position.

3,550,617
RELIEF VALVE WITH CONTROLLED STABILITY AND VARIABLE SETTING
Howard L. Johnson, Will County, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of Illinois
Filed Sept. 30, 1968, Ser. No. 763,502
Int. Cl. F16k 15/02
U.S. Cl. 137—514.5 1 Claim



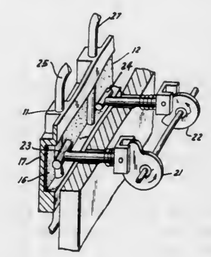
A relief valve of the spring-loaded check type with means for damping both the opening and closing action of the valve to prevent hammering and chattering, and means to vary the preload of the valve spring at will, when the purpose for which it is to be used changes.

3,550,618
ANHYDROUS AMMONIA PIPELINE SYSTEM
David A. Roach, Tulsa, Okla., assignor to Mapco Inc., Tulsa, Okla., a corporation of Delaware
Filed June 25, 1968, Ser. No. 739,880
Int. Cl. E03b 5/00
U.S. Cl. 137—566 4 Claims



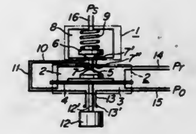
A distribution system for the delivery of liquid-anhydrous ammonia from its production location to its area of use wherein said system includes a series of pumping stations, a series of withdrawal stations and a series of storage facilities for furnishing the capacity to selectively disperse the liquid from any of said storage facilities to any of said withdrawal stations by providing said pumping stations with a bidirectional pumping ability.

3,550,619
TUBING HOLDER
Peter Robert Halasz, Park Ridge, and George Edward King, III, Waldwick, N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J., a corporation of New Jersey
Filed June 21, 1968, Ser. No. 739,053
Int. Cl. F16k 11/10; B01l 3/00; F16l 55/14
U.S. Cl. 137—595 10 Claims



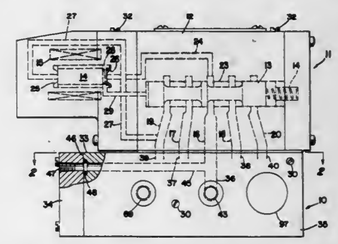
A tubing holder, particularly suitable for use in conjunction with dialysis apparatus, includes a substantially rigid member having a clearance slot extending longitudinally along its length. The holder is provided with boreholes extending transverse to the slot. The holder maintains the tubing in a predetermined position and provides a secure location for the fluid control valves in the recess formed by the clearance slot thus substantially eliminating the danger of malfunction due to misalignment and accidental contact with the flow control valves.

3,550,620
PUSH-BUTTON TYPE FLUID LOGIC ELEMENT FOR FLUID CONTROL, INDICATING OR RECORDING SYSTEM
Hikaru Hasegawa, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Nov. 6, 1968, Ser. No. 773,909
Claims priority, application Japan, Nov. 6, 1967, 42/71002
Int. Cl. F16k 11/00; G06d 1/02
U.S. Cl. 137—596.15 9 Claims



Fluid logical element comprising first and second chambers airtightly separated from each other by a flexible member, means having a portion for restricting the passage area of fluid flow and connecting the first and the second chambers with each other, valve means having one end connected with said flexible member, the other end of said valve means being connected with a member provided in the first chamber for opening and closing the fluid passage, operating means for said valve means and said flexible member provided at the side opposite to said flexible member, and fluid flow means provided in each of the first and the second chambers, the force applied by said operating means being effective to deflect said flexible member so that a portion of the fluid within said first chamber is exhausted through said fluid flow means, the other portion of the fluid within said first chamber being caused to flow into the second chamber through said connecting means.

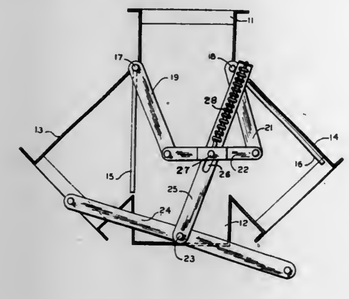
3,550,621
FLUID DISTRIBUTING MANIFOLD FOR DIRECTIONAL CONTROL VALVE
Zdenek J. Lansky, Winnetka; Kurt W. Leibfritz, Norridge, and Lester W. Malinowski, Mount Prospect, Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Aug. 20, 1968, Ser. No. 753,925
Int. Cl. F16d 1/00
U.S. Cl. 137—608 20 Claims



A distributing manifold arrangement for a directional valve that controls the supply and exhaust of fluid operated motor,

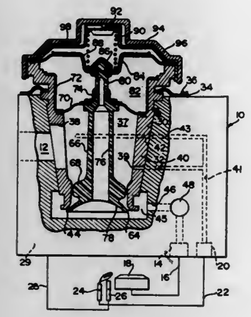
the manifold having a main block attached to the valve and having side plates and an end plate attached thereto and there being means for directing fluid flow in various manners through the block and plates.

3,550,622
MULTIPLE OUTLET SWITCHING VALVE GRANULAR MATERIAL
Clarence A. Christensen, 1002 Blaine St., Holdrege, Nebr.
Filed Aug. 2, 1968, Ser. No. 749,687
Int. Cl. F16k *11/00*
U.S. Cl. 137—609 1 Claim



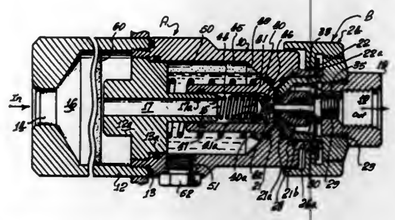
A switching valve for use in directing delivery of granular material from an inlet to a selected one of two outlets. A hinged valve member is provided in each outlet. The valve members are connected together for simultaneous movement, one outlet being fully open when the other is fully closed. A receiver is located between the outlets and beneath the inlet. Grain accumulates in this receiver and serves as a cushion to prevent degradation of the grain and protects the valve body from wear.

3,550,623
FLOW CONTROL DEVICE
Jay R. Katchka, Long Beach, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed June 2, 1967, Ser. No. 643,170
Int. Cl. F16k *17/10*
U.S. Cl. 137—613 12 Claims



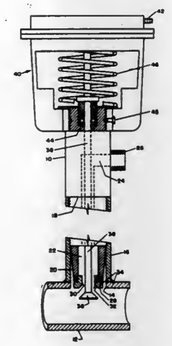
A fluid flow control device including a manual plug valve movable between a plurality of controlling positions and a pressure regulator assembly operatively disposed in the plug valve for independent movement to regulate the pressure of the fluid flow permitted by the plug valve. An outlet pressure sensing cavity in the regulator assembly is defined by a regulating diaphragm and a balancing diaphragm with loading of the regulating diaphragm being accomplished by resilient means or by pressure means.

3,550,624
FLUID COUPLING DEVICE
Fielding G. Johnson, Santa Ana, Calif., assignor to Hydrodata, Inc., Costa Mesa, Calif., a corporation of California
Filed Apr. 29, 1968, Ser. No. 724,865
Int. Cl. F16k *15/00*; F16l *37/28*
U.S. Cl. 137—614 10 Claims



A fluid coupling device having a hose portion and a bulkhead portion. A first poppet valve is located in the hose portion. The valve is adapted to open when the hose portion and the bulkhead portion are coupled together. A fluid reservoir is located in the hose portion adjacent the first poppet valve. A second poppet valve is located within the bulkhead portion of the device. Fluid under pressure enters the inlet port of the hose portion. The two portions are then coupled together and the first poppet valve is opened allowing the fluid under pressure to flow along the interfaces between the hose portion and bulkhead portion into the fluid reservoir. Thus, the hose portion and bulkhead portion are flushed and freed of contamination. Fluid flows into the bulkhead through the second poppet valve which opens under pressure.

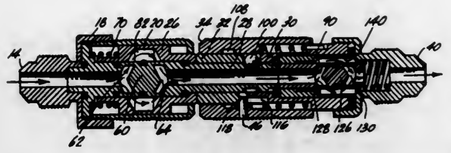
3,550,625
PURGE VALVE
William Ray Adams, Jr., Rte. 2 Box 321, Chester, Va.
Filed June 13, 1968, Ser. No. 736,741
Int. Cl. F16k *31/145*
U.S. Cl. 137—614.2 10 Claims



A valve adapted for installation in a pipeline or vessel to facilitate the injection or removal of a fluid in a closed system employed primarily for the purpose of conveying highly viscous materials or polymeric materials which have a tendency to form solid masses in static areas. A seating arrangement which is flush with the interior wall of said

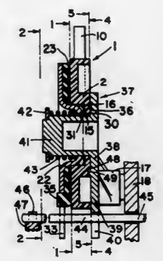
pipeline or vessel prevents the material in said system from becoming stagnant in the area adjacent to the valve seat thereby obviating a plugged condition that would occur otherwise. The valve may be provided with a second valve internally thereof which functions as a check valve to prevent backflow.

3,550,626
DOUBLE DISCONNECT DEVICE
Robert A. Daniels, 1103 West J-7; Norman B. Foster, 1500 Kildare St.; Robert P. Yeomans, 43715 N. Harwood, Lancaster, Calif., and John L. Cadley, 72 Oldfield Lane, Milford, Conn.
Filed May 9, 1968, Ser. No. 727,955
Int. Cl. F16l *29/00*
U.S. Cl. 137—614.03 3 Claims



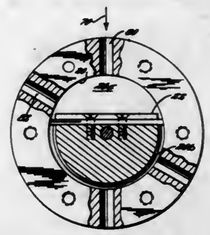
A connector device for connecting fluid lines together, with minimum back pressure, and which automatically closes and seals each line upon disconnection.

3,550,627
ROTARY FLUID VALVE CONSTRUCTION
John C. Alexander, Dearborn Heights, Mich., assignor to Essex International, Inc., Fort Wayne, Ind., a corporation of Michigan
Filed Mar. 8, 1968, Ser. No. 711,592
Int. Cl. F16k *11/06*
U.S. Cl. 137—625.46 9 Claims



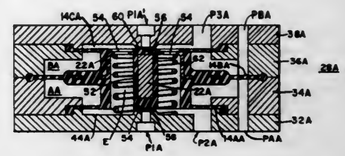
A rotary valve construction according to the invention has a fixed base provided with a plurality of circumferentially spaced fluid ports and an annular, rubberlike valve having arcuate passages overlying the ports and adapted to establish communication between selected ones of the ports. The valve's member is sandwiched between the base and an actuating member which is coupled to the value to impart rotation to the latter. A driving member is rotatably mounted on the base, and the base and the driving member have cooperable detents for maintaining the driving member in the selected position of rotary adjustment. An operating lever connects the driving member to the actuating member to effect simultaneous rotation of the driving and actuating members. A compression spring maintains the base, the valve member, the actuating member and the driving member in axially stacked relation and permits the necessary relative axial movement of the base and driving members to enable the engagement and disengagement of the cooperable detents.

3,550,628
FLUID CONTROL VALVE
Dale J. Warner, Chicago, Ill., assignor to Gits Bros. Mfg. Co., Chicago, Ill., a corporation of Delaware
Filed July 9, 1969, Ser. No. 840,374
Int. Cl. F16k *5/14*
U.S. Cl. 137—625.46 10 Claims



Efficient control of fluid is provided by an inexpensive multifunction valve having a generally cylindrical chamber with a rotatable valve means mounted therein to divide the chamber into at least two sealed spaces so that inlets and outlets are fluidly coupled in each space to allow flow of fluid therebetween. The valve means is a quadrilateral having a sealing means about its periphery. The sealing means includes a pair of L-shaped carbon elements having their free ends overlapping in sealing engagement. A retaining cover holds the sealing means adjacent a mounting body and a resilient means is interposed between the mounting body and each leg of the elements to bias the elements into engagement with a corresponding chamber surface.

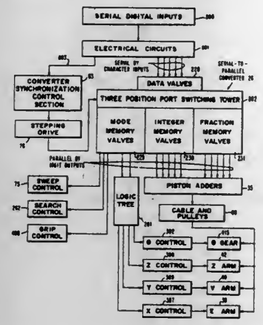
3,550,629
CONDITION RESPONSIVE PARAMETER CONTROL MEANS
Kenneth G. Kreuter, and Klaus P. Mueller, Goshen, Ind., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Original application Nov. 16, 1966, Ser. No. 594,851, now Patent No. 3,528,455. Divided and this application Dec. 15, 1969, Ser. No. 884,873
Int. Cl. F15b *5/00*; G05d *16/00*
U.S. Cl. 137—625.66 10 Claims



A unitary, multiple diaphragm structure is provided which includes integral valve means and flow passages, the structure being substantially entirely composed of a flexible resilient material. Additional rigid inserts are integrally molded into the basic structure to provide additional valving and seating arrangements for desired functional adaptability. The diaphragm structure is combined with hollow housing structures comprised of stacked plates or the like for mounting the peripheral portions of the multiple diaphragms of the unitary structure. Selective porting and pressure connections in the housing structures effect a family of differential pressure responsive modules or devices such as relays, comparators, and the like. A simplified temperature to pressure transducer is provided in which a compound bimetal spring selectively retains a spherical valve in an exhaust port to provide a modulated pressure output as a function of temperature changes. The transducer and family of differential pressure responsive modules are combined to provide a plurality of parameter control systems having a wide variety of operating modes. Several of the systems are convertible from one

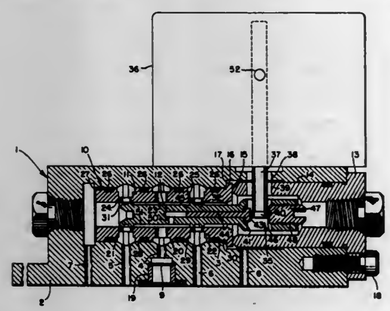
operating mode to another by merely changing the supply pressure magnitudes. The transducer is characterized by the fact that it requires no changeover adjustment to adapt it to the multiple modes of the systems.

3,550,630
SERIAL-TO-PARALLEL HYDRAULIC DEVICE
Hugo A. Panissidi, Peekskill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 2, 1968, Ser. No. 695,139
Int. Cl. F15b *21/02*; G05b *19/00*
U.S. Cl. 137—624.18 **10 Claims**



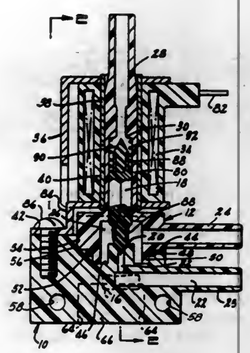
A hydraulically operated manipulator is controlled as an automatic assembly robot to grasp, position and join parts. A tape is perforated with coded instructions and dimensions to control the sequence and amount of displacement by means of incremental motions in several modes of movement of the manipulator. Such modes include grip, sweep, X, Y, Z, θ (arcuate gripper wrist motion) and search (vibratory parts matching such as inserting a pin in a hole). The main components of the manipulator are a tape reader, an electrically and hydraulically controlled hydraulic serial-to-parallel converter and memory and a hydraulic driver, integer and fraction hydraulic piston adders, an articulated series of X, Y, Z slide members with a gripper and a wrist member all driven by a common drive cable, and a vibratory hydraulic search mechanism.

3,550,631
VALVE PLUNGER DRIVE MECHANISM
Robert D. Vanderlaan and Richard J. Lappin, Kalamazoo, Mich., assignors to Pneumo Dynamics Corporation, Cleveland, Ohio, a corporation of Delaware
Filed June 17, 1968, Ser. No. 737,752
Int. Cl. F16k *11/07*
U.S. Cl. 137—625.65 **11 Claims**



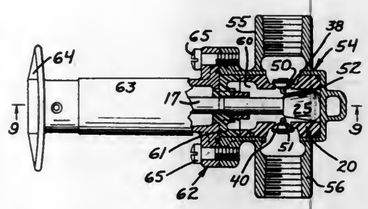
A valve plunger drive mechanism including a piston in the valve plunger pressure engageable with the valve plunger actuator for eliminating axial play, and an adjusting screw for attaining a predetermined clearance with the valve plunger actuator prior to pressure actuation of the piston. The end of the valve plunger actuator is spherical and the adjacent faces of the piston and adjusting screw are either flat or cylindrical to eliminate side load friction due to part tolerances.

3,550,632
THREE WAY SOLENOID VALVE
Thomas E. Noakes, Detroit, and James A. Kozel, Franklin, Mich., assignors to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,305
Int. Cl. F16k *31/06*
U.S. Cl. 137—625.65 **3 Claims**



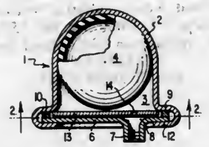
A three-way solenoid valve having a valve body formed by two molded plastic body elements clamped together by C-shaped spring clips. These body elements are configured to define three spigots adapted to receive fluid hoses, one of said spigots also acting as a guide tube for a valve element armature and a locating means for a solenoid winding. A principal feature of the arrangement is parts miniaturization with accompanying cost reduction.

3,550,633
MIXING VALVE
Robert J. Fife, Downers Grove, Ill., assignor to Crane Co., Chicago, Ill., a corporation of Illinois
Filed May 9, 1969, Ser. No. 823,423
Int. Cl. F16k *11/14*
U.S. Cl. 137—636.4 **18 Claims**



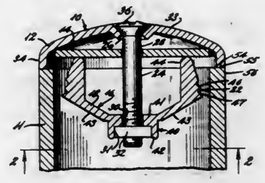
A liquid mixing valve of the single handle type for mixing hot and cold water which incorporates a unitary valve cartridge having poppet valves carried by the cartridge. The valve cartridge and poppet valves are readily removable as a unit for replacement purposes.

3,550,634
EXPANSIBLE CHAMBER TYPE PRESSURE COMPENSATOR AND ACCUMULATOR
Harry Peter Kuplec, P.O. Box 8995, Baltimore, Md.
Filed Mar. 10, 1969, Ser. No. 805,513
Int. Cl. F16l *55/04*
U.S. Cl. 138—26 **12 Claims**



The pressure compensator and accumulator comprises a casing providing a chamber which loosely houses a closed container in the form of a rubber ball. The ball is hermetically sealed and its interior may be under atmospheric or superatmospheric pressure. The casing is closed by a closure having a port connected to a flow line. A throttling means is located above the closure, within the chamber and is movable therein. The throttling means has a throttling orifice coincidental with the closure port. The inflow of fluid under a rise in pressure in the flow line lifts the throttling means away from the closure so that a rapid flow takes place into the chamber, wherein the ball is compressed, and thereby the volume of the chamber expands. Upon outflow from the chamber, the throttling means seats on the closure and the outflow is limited by the orifice. Means associated with the walls of the casing limits the inflow movement of the throttle means.

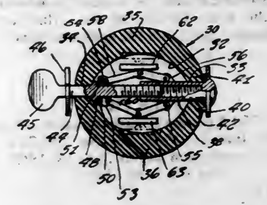
3,550,635
CAP ASSEMBLY
John B. Schroer, 815 Kenny Way, Las Vegas, Nev. 89107
Filed Apr. 30, 1968, Ser. No. 725,348
Int. Cl. F16l *57/00*
U.S. Cl. 138—89 **4 Claims**



An assembly for mounting a cap on the end of a tubular member includes an anchor member having a central bowed section extending generally transversely of the tube, foot members extending generally parallel to the tube axis from each end of the bowed section toward the cap, a bolt connecting the cap and the anchor member for biasing the ends of the bowed section outwardly into engagement with the wall of the tube, flanges on the bowed section for holding a nut threaded on the bolt against rotation, and a flat washer positioned between the anchor and the cap.

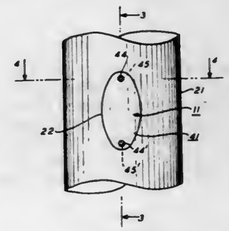
3,550,636
PLASTIC BALL, BOLT AND WING SET
Willis H. Hearne and Hildagarde M. Hearne, P.O. Box 338, Blythe, Calif. 92225
Filed Aug. 26, 1968, Ser. No. 755,187
Int. Cl. F16l *55/10*
U.S. Cl. 138—89 **6 Claims**

To provide a liquidtight closure for the open discharge end of a pipe through which a liquid such as water flows as a replacement for the customary threaded cap or plug fitted to the open end of the pipe. There is utilized a compressible solid ball of rubber or other suitable plastic material having a diameter corresponding substantially to the inside diameter of the pipe so as to be easily insertable therein. Extending diametrically through the ball is a bolt having a head at one end engageable with one side of the ball and having its threaded end portion projecting outwardly from the other side of the ball. Fitted on the threaded end portion is a wingnut. Washers are inserted on the bolt to be engaged by the head and wingnut. With the ball placed in the open end



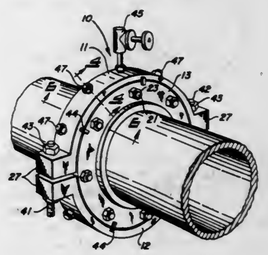
of the pipe, setting up on the wingnut will compress the ball to expand radially so as to tightly engage the inside wall of the pipe to effect a liquidtight seal.

3,550,637
HANDHOLE ACCESS ASSEMBLY
Charles Richard Briden, Middlesex, N.J., assignor to Pfaff and Kendall, Newark, N.J., a corporation of New Jersey
Filed June 10, 1968, Ser. No. 735,868
Int. Cl. F16l *55/10*
U.S. Cl. 138—92 **5 Claims**



A handhole access assembly for enabling access into a tubular shaft, the assembly having structural features such as to strengthen the shaft section from which material has been removed to create an opening for the handhole cover, and adapted to facilitate access into the tubular shaft.

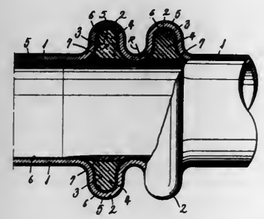
3,550,638
REPAIR COUPLING WITH DEFORMABLE METAL SEAL
Joseph B. Smith, c/o The Pipe Line Development Co., 1831 Columbus Road, Cleveland, Ohio 44113
Continuation-in-part of application Ser. No. 608,090, Jan. 9, 1967, now Patent No. 3,467,141. This application July 19, 1968, Ser. No. 746,162
Int. Cl. F16l *55/16*
U.S. Cl. 138—99 **6 Claims**



A method and apparatus for the onsite sealing of leaking, flanged pipe joints. Curved body sections of a coupling are

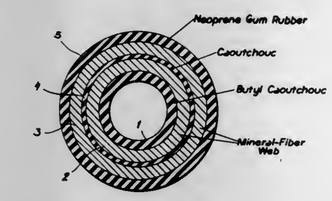
placed around the leaking flanged joint and are fastened at their ends to form a cylindrical coupling member about the joint. A deformable metal gasket for each abutting flange is provided within the curved body sections of the coupling to form a high temperature seal between these curved body sections and the periphery of the pipe flanged joint. These coupling member sections are initially formed out of round to effect a uniform mechanical seal about the periphery of the abutting flanges when these sections are drawn into a substantially cylindrical unit. A sealant is introduced under pressure into the zone defined by the cylindrical coupling member, the flanged joint, and the gasket means.

3,550,639
BUFFER PIPE
Takeo Okuda, 1250 Konoike Higashiosaka-shi, Osaka, Japan
Filed June 25, 1968, Ser. No. 739,748
Claims priority, application Japan, July 18, 1967, 42/46207
Int. Cl. F16l *11/14*
U.S. Cl. 138—121 **6 Claims**



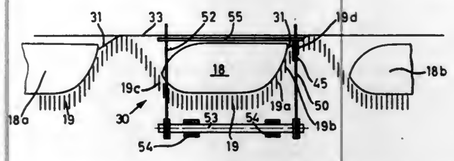
A buffer pipe for placing between metal pipes buried in the ground to absorb stresses. The buffer pipe has ring-shaped bulges or corrugations integrally formed in the pipe body and extending outwardly from the outside circumference of the pipe. The spaces within the bulges are filled with fluid-impermeable sponge rubber which fills the spaces to a point substantially level with the inside circumference wall of the pipe body.

3,550,640
BRAKE-LINE HOSE
Karl Wagner, Neu Isenburg, and Ralph Andre Hubscher, Frankfurt am Main, Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Germany, a corporation of Germany
Filed Oct. 17, 1967, Ser. No. 675,810
Claims priority, application Germany, Oct. 18, 1966, T 32,301
Int. Cl. F16l *11/00*
U.S. Cl. 138—137 **2 Claims**



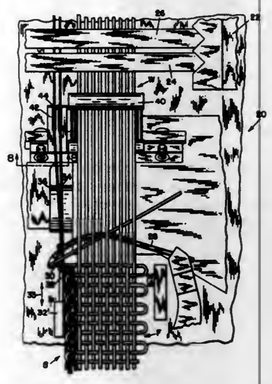
A brake-line hose for automotive vehicle brake-fluid transmission systems comprising an inner layer of an elastomeric material, i.e. inert gum rubber adapted to resist organic solvents, a reinforcing layer surrounding the inner layer of a nonbibulous filament web embedded in the rubber body, and an outer layer of rubber, the nonbibulous layer consisting of fibers having substantially no wicking capability, capillarity of water penetrability and selected from inorganic mineral fibers, especially glass fibers, and polyvinylidene chloride and polyethylene fibers.

3,550,641
ARRANGEMENT FOR THE MONITORING OF THE INSERTION OF WEFT THREADS
Edgar H. Strauss, Ruti, Zurich, Switzerland, assignor to Ruti Machinery Works, Ltd., formerly Caspar Honegger, Ruti, Zurich, Switzerland, a corporation of Switzerland
Filed Sept. 13, 1968, Ser. No. 759,613
Claims priority, application Switzerland, Sept. 21, 1967, 13232/67
Int. Cl. D03d *47/26*
U.S. Cl. 139—12 **16 Claims**



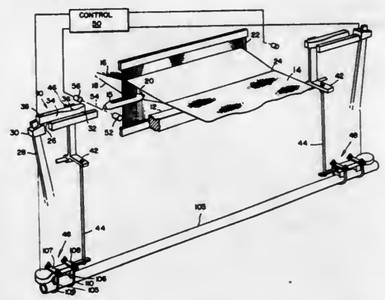
An arrangement for the monitoring of the insertion of weft threads in a loom wherein several shuttles are movable simultaneously, one after the other. The arrangement includes a monitoring means for determining the occurrence of a weft thread at a monitoring point, which is capable of being placed in an operative or a nonoperative condition. The operative condition begins during the travel of each shuttle past the monitoring point and the thread-monitoring function of the monitoring means is delayed by the shuttle in question until this shuttle has completely passed the monitoring point.

3,550,642
CATCH CORD LOCKSTITCH SELVAGE METHOD AND MECHANISM FOR PRODUCING SAME
Wilfred Francis DesRosiers, Paxton, Mass., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts
Continuation of application Ser. No. 650,304, June 30, 1967, now abandoned. This application Jan. 28, 1969, Ser. No. 801,223
Int. Cl. D03d *47/46, 51/00*
U.S. Cl. 139—124 **22 Claims**



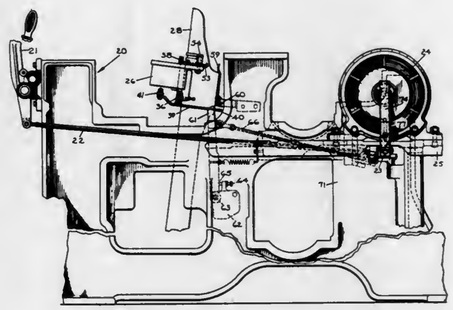
A knitted lockstitch selvage for a needle loom fabric formed from two or more catch cords which alternate in a predetermined sequence. The catch cords are mechanically controlled so that they will be separately picked up by the knitting needle which will draw loops thereof, through the weft loops according to a predetermined sequence. The invention includes mechanism for carrying out this method.

3,550,643
SOLENOID ACTUATOR
William J. Stephens, Bedford, Mass., assignor to H. F. Livermore Corporation, Boston, Mass., a corporation of Delaware. by mesne assignements
Filed Nov. 18, 1968, Ser. No. 776,725
Int. Cl. D03d *49/56*
U.S. Cl. 139—187 **6 Claims**



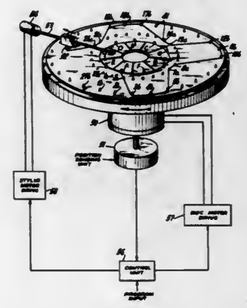
A solenoid actuator is provided for use particularly for operating the binder for the shuttle box of a high-speed loom. An arm, having a solenoid clapper at one end and connected at the opposite end to a shipping rod, is formed with a medial cam surface. A solenoid housing is mounted to the loom frame and provided with a coil opposite the clapper and a flat surface opposite the cam surface of the arm disposed within the housing. When the solenoid is energized the clapper is pulled towards the coil, rocking the arm and pulling the shipping rod. The shipping rod is drivingly connected to the binder for the shuttle box and a high mechanical advantage is obtained by the cam arm. The solenoid assembly is able to produce a force output which is different from that of a conventional solenoid actuator and determined by the cam contour.

3,550,644
LOOM STOPPING MEANS
Joseph M. Budzyna, East Douglas, and Harry William Thatcher, Mendon, Mass., assignors to John Donald Marshall and Horace L. Bomar, trustees of The Carolina Patent Development Trust. by mesne assignments
Continuation of application Ser. No. 476,979, Aug. 3, 1965, now abandoned. This application Oct. 27, 1967, Ser. No. 678,757
Int. Cl. D03d *51/02, 51/44*
U.S. Cl. 139—336 **9 Claims**



Protective control mechanism for stopping fly-shuttle looms in the event of delayed or incomplete shuttle boxing. Simplified, lightweight linkage for initiating and transmitting stopping signals from the shuttle boxes to the clutch-brake motor drive while bypassing the loom shipper device.

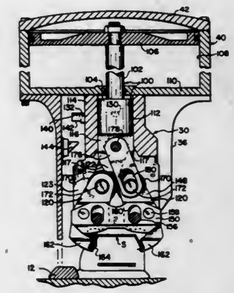
3,550,645
WIRE WOUND ARMATURE, METHOD AND APPARATUS FOR MAKING SAME
Raymond J. Keogh, Huntington, N.Y., assignor to Photocircuits Corporation, Glen Cove, N.Y., a corporation of New York
Original application Mar. 3, 1967, Ser. No. 620,306, now abandoned. Divided and this application Oct. 3, 1968, Ser. No. 798,496
Int. Cl. B21f *3/00*
U.S. Cl. 140—92.2 **6 Claims**



A wire wound motor armature constructed by forming successive groups of single turn armature coils, the coils within each group being in registry with one another, the groups being indexed relative to one another, and all coils being interconnected in a wave configuration.

The apparatus for forming the winding including a rotating winding form and a wire dispensing stylus moving radially, the movements of the form and the stylus being coordinated to form the winding.

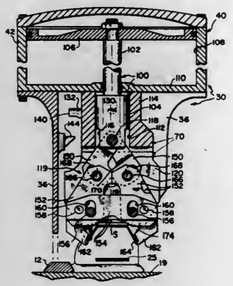
3,550,646
SEALING MECHANISM FOR STRAPPING MACHINES
Larry D. Plunkett, Algonquin, Ill., assignor to Signode Corporation, Chicago, Ill., a corporation of Delaware
Filed Dec. 4, 1967, Ser. No. 687,716
Int. Cl. B21f *9/02, 15/06*
U.S. Cl. 140—93.4 **2 Claims**



A ram-actuated, opposed jaw type seal-crimping mechanism for strapping machines employing a wedge member for actuating the crimping jaws and by means of which a shorter ram stroke with lower ram effort than has heretofore been used is made possible. Cooperating cam surfaces on the wedge member and jaw arms are so designed that initial jaw movement is rapid for wrapping the seal

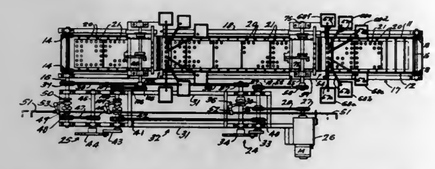
around a strap, while final jaw movement is slow but with increased mechanical advantage for effecting the final compression of the strap between the seal flanges and the crown portion of the seal.

3,550,647
SEALING MECHANISM FOR STRAPPING MACHINES
John R. Beach, Elmhurst, Ill., assignor to Signode Corporation, Chicago, Ill., a corporation of Delaware
Filed Dec. 4, 1967, Ser. No. 687,772
Int. Cl. B21f *9/02, 15/06*
U.S. Cl. 140—93.4 **2 Claims**



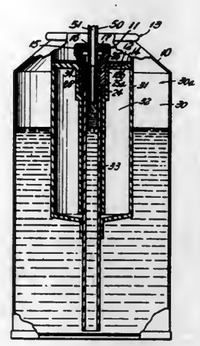
A ram-actuated, opposed jaw type seal-crimping mechanism for strapping machines employing a special toggle linkage for operating the crimping jaws and by means of which a shorter ram stroke than has heretofore been used is made possible. A pin-and-slot connection between the spreader links of the toggle joint and the jaw members reduces the overall toggle link spread necessary to close the seal-crimping jaws.

3,550,648
METHOD AND APPARATUS FOR FILLING MULTIPLE CAVITY CONTAINERS WITH MEASURED CHARGES OF LIQUID
Joseph M. Tabor, and Alfonso M. Donofrio, Toledo, Ohio, assignors to Craft Master Corporation, Toledo, Ohio, a corporation of Delaware. by mesne assignments
Filed Oct. 30, 1967, Ser. No. 679,114
Int. Cl. B65b *3/32*
U.S. Cl. 141—1 **7 Claims**



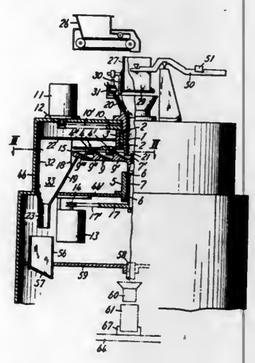
Apparatus for filling measured charges of liquid into the open tops of spaced pockets in multipocketed containers, in which the pockets are arranged in longitudinally extending and transversely spaced rows. The containers are fed along a conveyor beneath one or more pump mechanisms, each mechanism having a transverse bank of nozzles. The individual nozzles are each aligned with one of the longitudinal rows of pockets in the containers. A drive mechanism moves the conveyor intermittently a unit distance that is equal to a whole number multiple of the longitudinal center-to-center distance between pockets in the longitudinal rows. During each pause of the conveyor another mechanism actuates one or more of the pump mechanisms to discharge a measured quantity of liquid therefrom into each of the group or groups of pockets then positioned beneath the banks of nozzles. Each pump mechanism has a liquid supply tank for each nozzle in its bank of nozzles. The tanks of adjacent nozzles may be filled with the same or different liquids and the tanks of longitudinally aligned nozzles in the two banks of nozzles may be filled with the same or different liquids.

3,550,649
METHOD OF FILLING TWO COMPARTMENT CONTAINER
Philip Meshberg, 15 Stoneleigh Road, Fairfield, Conn.
Original application Feb. 8, 1968, Ser. No. 704,028, now Patent No. 3,455,589. Divided and this application Apr. 30, 1969, Ser. No. 820,500
Int. Cl. B65b *31/00*
U.S. Cl. 141—3 **1 Claim**



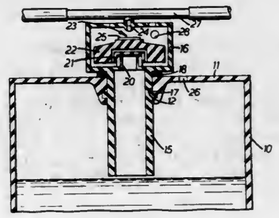
The method of filling two different compartments of an aerosol container selectively through a single-dispensing valve to produce a device for storing the two materials and for simultaneously dispensing the same.

3,550,650
APPARATUS FOR PACKING FLOWABLE MATERIALS
Hachiro Yamashita, 1032–2, 1 chrome, Ohwada machi, Omiya, Japan
Filed Jan. 3, 1967, Ser. No. 606,741
Int. Cl. B65b *43/60*
U.S. Cl. 141—145 **2 Claims**



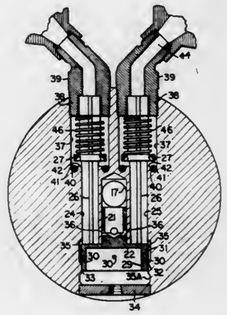
An apparatus for packing flowable materials utilizing both weighing of the material and dividing of the material into equal quantities. Where these quantities are relatively small and light, the weighing takes place before the dividing of the material into the equal quantities, whereas when the quantities are relatively large and heavy the weighing takes place after the dividing of the material into the quantities. The material is delivered in the form of a body to a predetermined central location from which the material is circumferentially spread out into a layer so as to avoid any agglomerations and so as to promote the uniformity of the division of the material into the quantities which are eventually packed in suitable containers. The quantities of material can be simultaneously introduced into a plurality of containers or they can be successively delivered to a location at which they are successively introduced into containers which may thereafter be heat sealed, for example. The flowable material can be liquid or solid, and in the case of a solid, particulate material the centrifugal spreading means not only prevents agglomerations but also promotes a very uniform distribution between the particles of the material, and it is possible to successively handle in an advantageous manner different materials of different properties without requiring any special accessories.

3,550,651
IMPROVEMENTS IN TOPPING-UP DEVICES FOR ELECTRIC BATTERIES
Patrick Ewart McKellen and Dennis Albert Clayton, Manchester, England, assignors to Electric Power Storage Limited, Manchester, England, a corporation of Great Britain
Filed Oct. 23, 1967, Ser. No. 677,333
Int. Cl. H01m *7/00*
U.S. Cl. 141—198 **13 Claims**



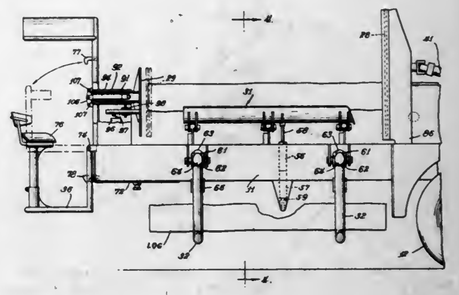
A topping-up device for electric batteries comprises an inlet chamber above the battery, communicating via a liquid trap with a filling passage leading into an airlock compartment in the battery in which a pressure head builds up when the liquid rises above a desired level, so causing the level to rise in the inlet compartment. A float-controlled valve is mounted in the inlet chamber to control the admission of further liquid to it.

3,550,652
INFLATING APPARATUS
Osyp Nimylowycz, Philadelphia, Pa.
Filed Aug. 26, 1968, Ser. No. 755,105
Int. Cl. B63c *9/16*
U.S. Cl. 141—313 **4 Claims**



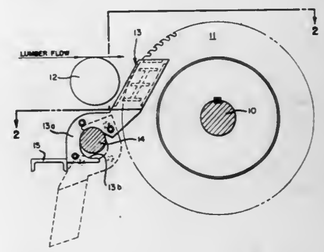
A gas generator inflating arrangement particularly employed with life rafts and having an intermediate valve body with the capacity to provide the inflatable rafts with atmospheric breathing prior to delivery of generated pressure gas through the valve body to inflate the rafts.

3,550,653
TREE TRUNK SLASHER
Edward Gauthier, Baraga, Robert A. Larson, L'Anse, and Philip E. LaTendresse, Baraga, Mich., assignors to Pettibone Corporation, a corporation of Delaware
Filed Aug. 7, 1967, Ser. No. 658,703
Int. Cl. B27b *5/00, 31/00;* **B27c** *9/00*
U.S. Cl. 143—46 **6 Claims**



A self-loading vehicle saws tree trunks to pulpwood lengths and uses the same source of power for advancing the vehicle to new operating locations. It also may be hauled at higher speed by a tractor-truck. Nearly all of its operations are hydraulic, including self-propulsion. Among its special features are some hydraulic features, some features of folding for highway travel, some yeildability of projecting parts forming bins, provision of two bins to which cut lengths may be selectively ejected, and means for holding a second tree trunk in "ready" position and dumping it onto a feed conveyor when the conveyor is clear.

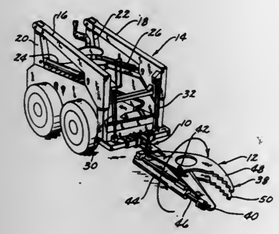
3,550,654
SAW GUIDE MOUNTING
Elbridge W. Thrasher, Ukiah, Calif., assignor to Masonite Corporation, a corporation of Delaware
Filed Oct. 23, 1968, Ser. No. 769,885
Int. Cl. B27b *25/02, 11/02*
U.S. Cl. 143—56 **3 Claims**



In a saw machine having an arbor, at least one circular saw mounted thereon and saw guides for maintaining the saw in a predetermined cutting plane, an improved saw guide support comprising a support member having a pivot axis extending substantially parallel to the saw arbor, a replaceable saw guide including a support arm having one end loosely pivoted upon said support member, and a stop member positioned for engaging and positioning said saw guide in pivotal but guiding relation to the saw, the pivotal fit between the one

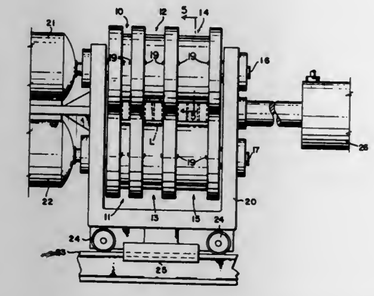
end and support member allowing said saw guide to be rocked upon the support member to move the saw guide laterally and displace the saw guide from engagement with said stop member.

3,550,655
TORQUE-ABSORBING COUPLER
Robert N. Murphy, Washington, Ga., assignor to J. I. Case Company, Racine, Wis., a corporation of Wisconsin. by mesne assignments
Filed July 5, 1968, Ser. No. 742,805
Int. Cl. A01g *23/02*
U.S. Cl. 144—34 8 Claims



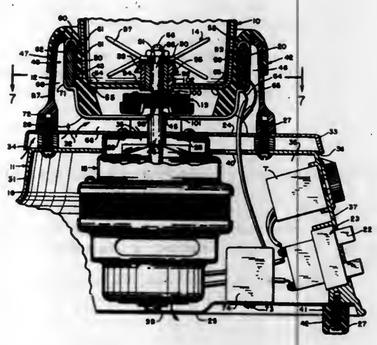
A torque-absorbing coupler adapted to permit the attachment of the tree shear means to a self-propelled vehicle having a pair of boom members pivotally mounted thereon. A mounting means is detachably secured to a crossmember extending between the forward ends of the boom members and has a shaft means extending transversely forwardly therefrom. A sleeve is rotatably mounted on the shaft and has the tree shear means rigidly secured thereto. A locking means is provided which permits the sleeve and the tree shear to be locked in various positions of its rotatable movement with respect to the shaft and the boom members.

3,550,656
PROFILE MILL HAVING AXIALLY ADJUSTABLE CUTTER HEADS
Robert E. Chapman, Vancouver, British Columbia, Canada, assignor to Ernest E. Runnion, Shelton, Wash.
Continuation of application Ser. No. 610,552, Jan. 20, 1967, now abandoned. This application June 25, 1969, Ser. No. 845,598
Int. Cl. B27c *1/08*
U.S. Cl. 144—323 5 Claims



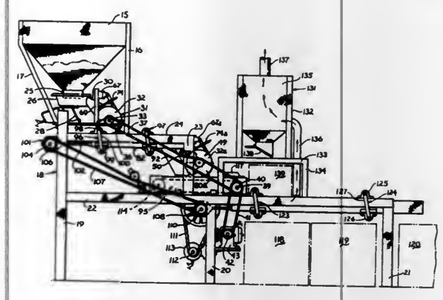
System employing multiple coaxial sets of diametrically opposite cutter heads to profile logs of small diameter conveyed along a linear travel path. As an accommodation to different sizes of logs, the sets are shiftable endwise to their axis to bring a selected one of the sets into a functioning positioner, conversely, the log path is shifted laterally.

3,550,657
HOMOGENIZING LIQUIDIZER
Roy L. Swanke, Newington, Conn., assignor to Dynamics Corporation of America, Waring Products Division, New Hartford, Conn., a corporation of New York
Filed Nov. 29, 1968, Ser. No. 780,103
Int. Cl. B02c *18/08*
U.S. Cl. 146—68 25 Claims



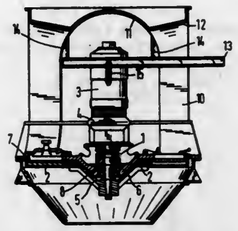
A liquid blending container is releasably held with its wall in snug-resiliency, vibration-transmitting relationship with a supersonic transducer and is provided with a combination of propeller and cutter blades rotated through a self-interlocking detachable coupling and selectively controlled either to run below liquid aerating speeds for homogenization or within the aerating speed range for sequential or simultaneous homogenization or heat, and aeration and liquidization.

3,550,658
NUT-KERNEL DICING MACHINE
John J. Lindsey, Lafayette, and William R. Lindsey, Pleasant Hills, Calif. (100 Bancroft Road, P.O. 635, Concord, Calif., 94520)
Filed May 21, 1968, Ser. No. 730,886
Int. Cl. B26d *4/28*; A23n *5/00*
U.S. Cl. 146—78 7 Claims



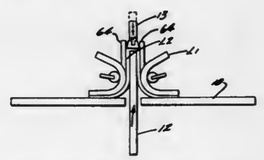
Apparatus for dicing or cutting the kernels or meats of walnuts and the like to subdivide the same into smaller units. The apparatus includes a hopper into which the nut kernels are placed, a plurality of cutting stations respectively equipped with cutting mechanisms operative to subdivide the kernels by dicing the same into smaller units, and a classification station at which the subdivided kernels are separated or classified into a plurality of groups in accordance with their sizes.

3,550,659
CUTTING DEVICES ESPECIALLY FOR SUGAR BEET AND OTHER TUBEROUS PRODUCE
Helmut Hanke, Hagen in Westphalia, Germany, assignor to H. Putsch & Comp., Hagen in Westphalia, Germany
Filed Apr. 24, 1968, Ser. No. 723,848
Claims priority, application Germany, Apr. 27, 1967, P29,248
Int. Cl. B26d *4/28*
U.S. Cl. 146—124 11 Claims



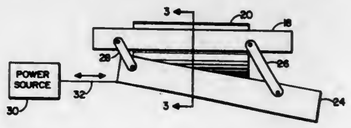
A cutter device especially for sugar beet and other tuberous produce which includes a rotary cutting disc driven by a means of a direct current motor via a reduction gear. The direct current motor together with the reduction gear is arranged substantially coaxially to the shaft on which the cutting disc is mounted.

3,550,660
DOUBLE SIDE SKINNING
Victor W. Krause, Rockford, and Martin L. Harlan, Grand Rapids, Mich., assignors to Wolverine World Wide, Inc., Rockford, Mich., a corporation of Michigan
Filed July 12, 1968, Ser. No. 744,541
Int. Cl. A22c *17/12*
U.S. Cl. 146—241 12 Claims



This specification describes a method and apparatus for skinning double animal sides, particularly double hogsides, involving the use of a feed-in plate having an edge over which the double side is folded, a cooperative pair of spaced skinning blades, and a pair of spaced pressing devices, each pair being arranged in mirror image fashion with elements on opposite sides of the plate, and drive means to cause relative advancement of the plate with respect to and between the devices and blades for simultaneous skinning of both sides.

3,550,661
METHOD OF AND APPARATUS FOR CLEANING A GRINDER SCREEN AND DISTRIBUTING MATERIALS
Eugene Charles Moller, 2017 24th St. Road, Greeley, Colo. 80631
Filed Apr. 5, 1968, Ser. No. 719,213
Int. Cl. B02c *18/08*
U.S. Cl. 146—242 4 Claims



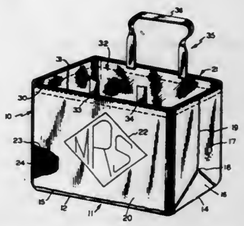
Feed grinding means including an improved shaker pan for use therewith which distributes ground foliage and actively prevents plug-up of the grinder.

3,550,662
SIDE-LACED FLAT-BOTTOM DRAWSTRING BAG FOR TREE AND SHRUB BALLING
Adam Robert Remke and Anna Remke, Chicago, Ill., assignors to Remke Company, Chicago, Ill., a corporation of Illinois
Filed July 29, 1968, Ser. No. 748,363
Int. Cl. B65d *33/28*
U.S. Cl. 150—11 6 Claims



A flat-bottomed bag having a drawstring side and top closure comprises a single piece of burlap material in a generally rectangular form having opposite straight, generally parallel, end edges, a straight top edge and a serrated bottom edge. The woof and warp of the material are parallel to or perpendicular to the straight edges of the sides and top. The edges of the serrations are joined securely to form a generally rectangular bottom for the bag. The free opposite end edges are overlapped upon each other and have aligned holes which receive a drawstring therethrough. Similarly row of holes parallel to the top edge may receive the continuation of the drawstring interlaced therethrough so that when the drawstring is pulled the overlapping side portions and the top may be drawn together by the drawstring.

3,550,663
LADIES HANDBAG
Laura D. Johnston, 1719 Hill Ave., Owensboro, Ky. 42301
Filed Oct. 14, 1968, Ser. No. 767,368
Int. Cl. A45c *3/08*
U.S. Cl. 150—28 3 Claims



A ladies handbag is made of two different fabrics in the form of a rectangular bottom panel with plain side panels to which flat fabric strips are sewn to form handles. A single seam extends up the center of each end of the body, and a design may be sewn onto one plain side panel. If reversed by turning inside out the bag displays a different fabric design.

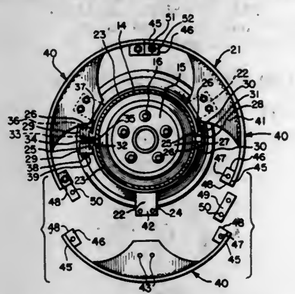
ERRATUM

For Class 151—7 see:
Patent No. 3,550,668

3,550,664
MOTOR VEHICLE SAFETY WHEEL
Donald D. Lee, 8950 S. 84th Ave., Hickory Hills, Ill. 60457
Filed Jan. 15, 1968, Ser. No. 697,673
Int. Cl. B60b *25/00*; B60c *17/04*
U.S. Cl. 152—158 2 Claims

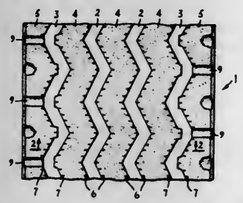
A pneumatic tire and wheel assembly for motor vehicles including a safety auxiliary rim adapted to be assembled on a

conventional vehicle wheel and disposed within the tire and be normally radially spaced from the tread and wheel rim



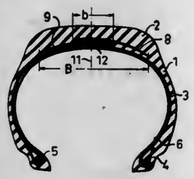
when the tire is inflated and is adapted to operatively engage the inner surface of the tire tread upon deflation of the tire.

3,550,665
TIRE COVER
Henri Verdier, Puy-de-Dome, France, assignor to Compagnie Generale Des Etablissements Michelin, raison social Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed Sept. 13, 1968, Ser. No. 759,667
Claims priority, application France, Sept. 18, 1967, 121,403
Int. Cl. B60c 11/00
U.S. Cl. 152—209 **6 Claims**



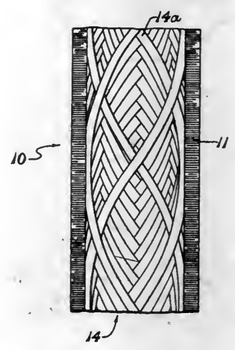
A radial tire cover for a truck or the like has a tread formed in the center zone thereof with one or more continuous or discontinuous circumferential zigzag ridges separated by parallel circumferential zigzag grooves. The cover is characterized in that the edges of at least one ridge of this zone are notched by thin cutouts each having a length ranging from 0.1 to 1.00 times the width of the adjacent zigzag groove and preferably from one-fourth to one-third of such width.

3,550,666
PNEUMATIC VEHICLE TIRE
Hans Menell, Ahlem, Hannover, and Hermann Henning, Hannover, Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed June 7, 1968, Ser. No. 735,227
Int. Cl. B60c 5/08, 9/06, 13/00
U.S. Cl. 152—354 **5 Claims**



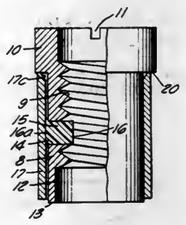
A pneumatic vehicle tire with first and second strength members in overlapping arrangement with each other and located radially inwardly of the tire tread strip, and with third strength members leading from bead to bead and while passing through the tire sidewalls and radially inwardly of the overlapping area of said first and second strength members extending substantially at a right angle with regard to the tire circumferential plane of symmetry, said first and second strength members respectively defining acute but inverse angles with said plane of symmetry whereas those sections of said third strength members which are located between said area of overlapping and the tire shoulders have an inclination opposite to the inclination of the respective adjacent portions of said first and second strength members.

3,550,667
PNEUMATIC TIRE
Donald R. Bartley, Cuyahoga Falls, and James Sidles, West Richfield, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Dec. 27, 1967, Ser. No. 693,993
Int. Cl. B60c 9/10
U.S. Cl. 152—361 **4 Claims**



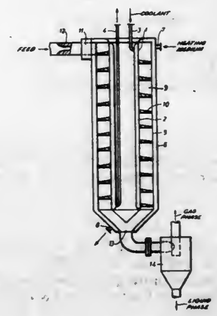
A pneumatic tire of the type having radially disposed reinforcing cords in the carcass and a restrictive belt or girdle superposed thereon, characterized by the belt or girdle being formed as a circumferentially continuously wound strip of parallel cords disposed in a plurality of sinusoidal windings alternately tangent to opposite axial edges of the belt.

3,550,668
INTERNALLY THREADED SELF-LOCKING FASTENER
Jan R. Coyle, San Dimas, Calif., assignor to Threadline Fastener Corporation, Barranca, Covina, Calif., a corporation of California, by mesne assignment
Continuation of application Ser. No. 612,656, Jan. 30, 1967, now abandoned. This application Dec. 30, 1968, Ser. No. 789,657
Int. Cl. F16b 39/24
U.S. Cl. 151—7 **10 Claims**



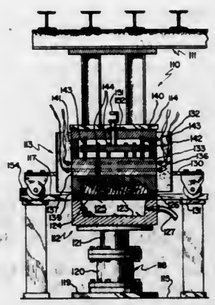
A self-locking internally threaded fastener having a resiliently deformable insert retained in a sidewall thereof by a rigid outer sleeve.

3,550,669
APPARATUS FOR CARRYING OUT EVAPORATIONS AND REACTIONS ACCOMPANIED BY THE EVOLUTION OF GASES
Axel Lippert, Ludwig Bottenbruch, Krefeld Bockum, Clemens Casper, Krefeld, Otto Court, Neuss, and Hugo Vernaleken, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Aug. 22, 1968, Ser. No. 754,629
Claims priority, application Germany, Sept. 4, 1967, F 53404
Int. Cl. B01d 1/22
U.S. Cl. 159—6 **3 Claims**



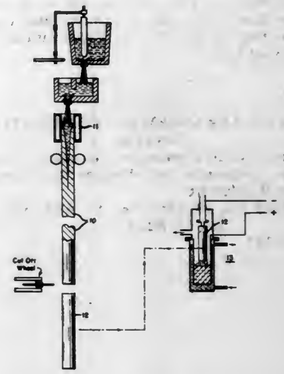
In apparatus for the evaporation of a component of a liquid mixture, the mixture is injected through an expansion nozzle into the upper end of a vertical helical coil and flows downwardly there through under the influence of gravity with the vapor phase also helping to urge the liquid phase through the coil, the liquid phase thus being subjected to centrifugal force, there being means provided for heating the liquid phase as it passes through said coil; the coil discharges into a conventional liquid-vapor separator.

3,550,670
MOLD MANUFACTURING METHOD
Herbert Greenewald, Jr., Columbus, Ohio, assignor to North American Rockwell Corporation
Continuation-in-part of application Ser. No. 498,046, Oct. 19, 1965, now abandoned. This application Jan. 11, 1968, Ser. No. 703,206
Int. Cl. B22c 15/08, 1/22
U.S. Cl. 164—37 **3 Claims**



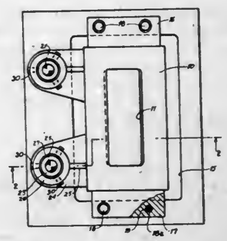
A method of manufacturing mold elements for metal casting wherein a mold composition consisting of refractory in powder form and thermosetting resin in prescribed ratio is formed to shape in a closed cavity by the steps of mass compaction above a minimum pressure level and concurrent resin-curing at an elevated temperature. Afterwards, the shaped and cured mold composition is heated in a nonoxidizing atmosphere at a temperature in an elevated range a sufficient time to provide a carbonaceous bond as between the powdered refractory particles.

3,550,671
STEELMAKING PRACTICE
Richard F. Harvey, Pittsburgh, Pa., assignor to Metaltronics, Orchard Lake, Mich., a corporation of Pennsylvania
Filed Feb. 27, 1967, Ser. No. 619,053
Int. Cl. B22d 27/02
U.S. Cl. 164—52 **2 Claims**



An improved process of making steel is provided which consists in forming an electrode of substantially uniform cross section by continuous casting, and thereafter remelting the electrode in a consumable electrode-melting process.

3,550,672
MOLD ALIGNING APPARATUS
Herbert Fastert, Wyckoff, and Horst Huber, Westfield, N.J., and Eric T. Vogel, Elmhurst, N.Y., assignors to Concast Incorporated, New York, N.Y.
Filed Dec. 12, 1967, Ser. No. 689,992
Int. Cl. B22d 11/00
U.S. Cl. 164—273 **6 Claims**



Pins on the mold table of a continuous casting machine are received in elements on the mold for aligning the mold on the table. The elements are laterally movable for adjusting the position in which the pins and cooperating elements align the mold when the mold is placed on the mold table. The position of the elements are preadjusted, before placing the mold on the table, by a template engaging a portion of the mold and having aligning members that line up with the elements if the elements are properly adjusted.

3,550,673
POLYURETHANE MOLD ARTICLES

Richard J. Gallagher, Racine, Wis., Richard J. Christensen, Glenview, Ill., and Gordon M. Dougall, Racine, Wis., assignors to Foundry Allied Industries, Inc., Racine, Wis., a corporation of Wisconsin

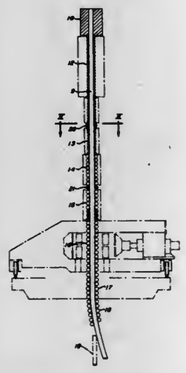
No Drawing. Filed June 10, 1968, Ser. No. 735,521
Int. Cl. B22c 7/06
U.S. Cl. 164—228 8 Claims

Urethane molds such as patterns, core boxes and liners. Urethane molds may be adhered to continuous retainers to form core liners, or the urethane molds may be formed with substantially unmodified outside surfaces to operate as core boxes without retainers. Patterns are cast and formed in various ways. The urethane bodies of the molds are formed from urethane compositions having controlled amounts of preferred diamine catalysts to prevent sand sticking, and with controlled amounts of organic miscible diluents to permit the urethane to cure into bodies without formation of voids which would interfere with castings and sand core formations. The urethane mold may be colored, and a plurality of colored layers may be provided to report various degrees of wear on the mold faces.

3,550,674
GUIDE-ROLL ARRANGEMENT FOR CONTINUOUS CASTING

Francis Gallucci, North Huntingdon Township, Westmoreland County, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Jan. 19, 1968, Ser. No. 699,150
Int. Cl. B22d 11/12
U.S. Cl. 164—282 5 Claims



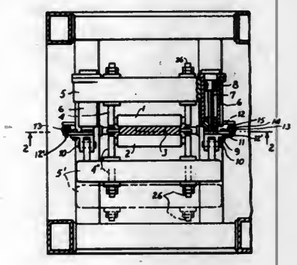
In a continuous-casting machine the guide rolls, which conduct the solidifying slab from the mold to the pinch rolls, conventionally are all idlers. The invention incorporates two sets of power-driven rolls among the guide rolls. The power-driven guide rolls, in conjunction with the usual power-driven pinch rolls below, control the forces on the descending slab and its movement as it solidifies.

3,550,675
CONTINUOUS CASTING PLANT HAVING ADJUSTABLE STRAND GUIDE MEANS

Walter Hess, Hans-Dieter Schulz, Dusseldorf, Jean Lang, Saarlouis, Karl-Heinz Bauer, and Paul Desfossex, Dillingen-Saar, Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a company of Germany

Filed Jan. 25, 1968, Ser. No. 700,478
Claims priority, application Germany, Jan. 27, 1967, Sch40145
Int. Cl. B22d 11/12
U.S. Cl. 164—282 4 Claims

In a casting plant wherein a continuously cast strand of metal emerges from a mould, groups guide rollers at opposite sides of the emerging strand are mounted on frames. The frames at one side of the strand are movable toward and away from the strand to adjust for strands of different thickness and movable spacing members are provided to be interposed between elements of opposed frames for establishing and maintaining the desired spacing. In addition the

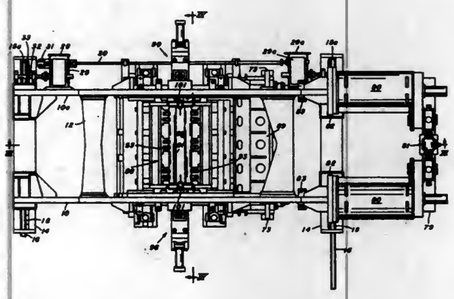


respective rollers are resiliently mounted in the frames to accommodate irregularities in the surfaces of the strand.

3,550,676
PINCH ROLL ASSEMBLY FOR A CONTINUOUS-CASTING MACHINE

Francis Gallucci, North Huntington Township, Westmoreland County, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Feb. 23, 1968, Ser. No. 707,638
Int. Cl. B22d 11/12
U.S. Cl. 164—282 9 Claims



A pinch roll assembly for use in a continuous-casting machine, which assembly can be shifted laterally from the machine to facilitate maintenance. The rolls at one side of the casting (usually journaled on fixed axes) are yieldable and positioned by springs to assure that they are aligned with the guide rolls above and bending rolls below. Assembly also includes side guides which engage starter bar as it passes through the pinch rolls, but retract while the slab is passing.

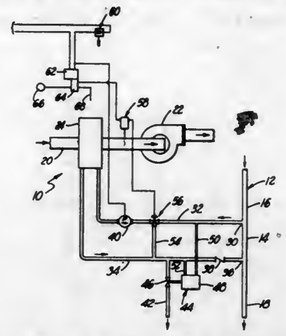
3,550,677
METHOD OF AND APPARATUS FOR PRECOOLING AIR IN A FACILITY WITH WATER USED IN THE FACILITY

James A. Knowles, Arcadia, Calif. (632 Monterey Pass Road, Monterey Park, Calif., 91754)

Filed Aug. 9, 1968, Ser. No. 751,559
Int. Cl. F28f 13/06
U.S. Cl. 165—1 5 Claims

A method of and an apparatus for precooling the air entering a facility, such as a building, with the water used in the facility. Water is diverted from the water supply system to a heat exchanger at a diversion point upstream from a point of

use of water in the facility, air flowing through the heat exchanger into the facility being precooled by the diverted water flowing therethrough. Thereafter, the diverted water is returned to the water supply system downstream from the

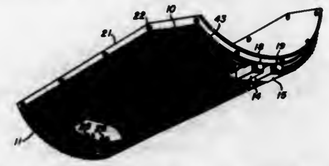


diversion point for use in the facility, any excess diverted water being bled off in the event that the rate of water use downstream from the diversion point is less than the rate of water diversion for air precooling purposes.

3,550,678
SURFACE RADIATOR

Robert R. Pfouts, Dayton, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio, a corporation of Ohio

Filed Apr. 1, 1969, Ser. No. 811,944
Int. Cl. F28f 3/00
U.S. Cl. 165—44 12 Claims

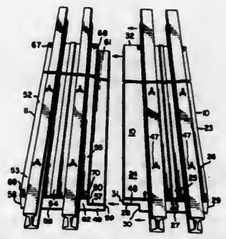


A surface radiator-locating passage means for a heated fluid in an intermediate relation to a surface plate on one side thereof and to other passage means for the confined flow of a coolant on the other side thereof. Normally cooled by air currents blowing over the surface plate, the heated fluid may in the alternative be cooled by coolant flow through the described other passage means, as for example in the absence of blowing air currents.

3,550,679
WATER COOLED PLATFORM AND METHOD OF REPAIRING COPINGS EMPLOYING THE SAME

Albert R. Benbow, and Donald J. Suray, Weirton, W. Va., assignors to National Steel Corporation, a corporation of Delaware

Filed Feb. 26, 1969, Ser. No. 802,411
Int. Cl. F23m 5/08; F28f 3/12
U.S. Cl. 165—47 12 Claims

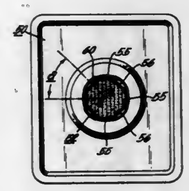


An improved water-cooled platform adapted to be placed temporarily across a top-opening furnace, such as a soaking pit, for the purpose of permitting workmen to make repairs to the coping without cooling down the furnace. The invention also provides a novel method of making repairs to the coping of soaking pits and other types of top-opening furnaces without cooling down the furnaces wherein a water-cooled platform is employed to protect the workmen.

3,550,680
FINNED TUBE HEAT EXCHANGER AND METHOD OF MAKING SAME

Charles S. Shriver, Oreland, Pa., assignor to Orbit Manufacturing Company, Inc., Perkasie, Pa., a corporation of Pennsylvania

Filed Mar. 24, 1969, Ser. No. 809,744
Int. Cl. F24h 9/08
U.S. Cl. 165—55 7 Claims

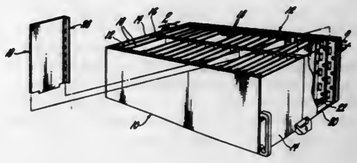


A heat exchanger is disclosed wherein each of a plurality of platelike fins is mounted on an elongated tube by a series of interference fits between each fin and the tube. The interference fits are provided by forming a noncircular aperture in the fins, forming a slightly smaller noncircular cross-sectional shape on the tube, aligning the tube with the apertures, and displacing the tube longitudinally therethrough, and, after the fins are properly positioned on the tube, locking them in place by effecting relative rotation through a portion of a turn to effect an interference fit therebetween. As an additional feature, a novel clip is provided for mounting the fins and tube in a baseboard-type housing to permit the finned tubing to undergo normal thermal expansion and contraction with a minimum of noise while facilitating access thereto by also removably mounting its front cover.

3,550,681
SELF-ADJUSTING THERMAL CONNECTOR

Paul G. Stier, Muskego, and Gust N. Scaboo, New Berlin, Wis., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 30, 1968, Ser. No. 787,782
Int. Cl. F28f 7/00
U.S. Cl. 165—80 7 Claims



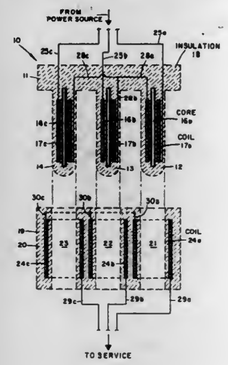
An adjustable thermal connection between a printed circuit board and a heat exchanger includes a T-shaped thermal connector having a slotted leg adjustably held in thermal contact with the circuit board by rivets passing through the slots. The head of the T-shaped thermal connector seats within a channel in the wall of the heat exchanger. A spring clip urges the head of the thermal connector against the heat

exchanger wall while allowing slidable adjustment of the connector relative to the wall, both laterally and longitudinally.

3,550,682
METHOD AND APPARATUS FOR MAKING EQUIPMENT CONNECTIONS AT REMOTE UNDERWATER LOCATIONS AND FOR PRODUCING FLUIDS FROM UNDERWATER WELLS

Ronald L. Fowler, Houston, Tex., assignor to Esso Production Research Company

Filed Oct. 18, 1968, Ser. No. 768,764
Int. Cl. E21b *43/01*
U.S. Cl. 166—.6 **14 Claims**

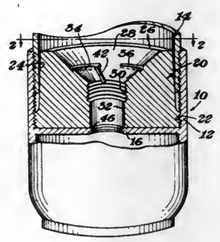


Method and apparatus for use in making electrical connections particularly at remote locations and/or under water. Also, method and apparatus for remotely processing fluids produced from subsea wells and for servicing such apparatus. A male section of an electrical connector contains at least two angularly spaced-apart prongs surrounded by electrically nonconductive material. Each prong comprises a coil arranged around a metallic (magnetic) core. A mating female section of the electrical connector engageable with the male section contains at least two angularly spaced-apart holes formed in an electrically nonconductive material. A coil imbedded in the nonconductive material is arranged around each hole. The coils of each section may be oriented linearly instead of angularly. One section is connected to a source of AC electrical power and the other section is connected to apparatus to be operated by electrical power. The other section is installed near such apparatus which may be at a remote underwater location. The one section connected to the source of AC power is then engaged with the other section to thereby connect the source of electrical power and the equipment to be operated. The connection may be made underwater by hand, by divers, by mechanical means or hydraulically by pumping the one section connected to the AC power source through a conduit. The latter hydraulic technique may also be used in making surface electrical connections remotely for the conduit may be a surface pipeline. A fixed template is arranged on the sea floor and provided with pipe connections to at least one subsea well and to a surface terminal for produced fluids. A movable template, capable of being lowered to a submerged position on the fixed template and raised therefrom to the sea surface, is provided with sealed fluid-processing equipment having intake and discharge fluid conduits connected thereto. Guide means are provided for lowering and raising the movable template onto and from the fixed template. When so arranged, one of the pipe connections is connected to the inlet conduit of the processing equipment and the other pipe connection is connected to the discharge conduit thereof. One section of the electrical connector is arranged on the fixed template and the other section thereof is mounted on the movable template. When the movable template is arranged on the fixed template, the mating sections of the electrical connector are engaged for transmission of electrical power.

3,550,683
WELL-CEMENTING APPARATUS

Bobby G. Comeaux, Marrero, La., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Sept. 12, 1969, Ser. No. 857,305
Int. Cl. F21b *33/16*
U.S. Cl. 166—156 **5 Claims**



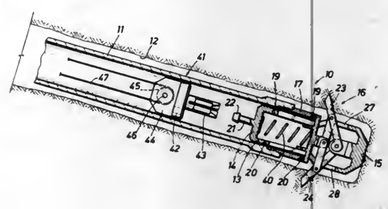
In the course of cementing well casing in place in a bore hole, a plug follows the cement down the casing and sets against a sealing surface in the casing, such as a cementing shoe in the casing. When drilling out the plug and the sealing surface after the cement has set, the plug often rotates with the rotating drill bit, making difficulty for the bit to bite into the rubber plug.

This invention provides slots in the sealing surface which mate with protuberances on the surface of the plug which face the sealing surface, whereby as the plug seats and is rotated slightly, the protuberances lock in the slots and prevent further rotation of the plug.

3,550,684
METHODS AND APPARATUS FOR FACILITATING THE DESCENT OF WELL TOOLS THROUGH DEVIATED WELL BORES

Walter E. Cubberly, Jr., Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas

Filed June 3, 1969, Ser. No. 829,959
Int. Cl. E21b *47/00, 23/00*
U.S. Cl. 166—250 **23 Claims**



To practice the invention disclosed herein, a messenger sub including a pulley trailing a doubled hauling line is dispatched through a pipe string having its lower end positioned at a selected location in a deviated well bore. Once the messenger sub is operatively anchored in the well bore, the pipe string is removed to leave the hauling line extending along the well bore between the messenger sub and the surface. Thereafter, cable-suspended well tools can be coupled to the hauling line and readily moved thereby to selected positions within the well bore above the anchored messenger sub.

3,550,685
SHALE OIL PRODUCTION

Harry W. Parker, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Dec. 20, 1967, Ser. No. 691,959
Int. Cl. E21b *43/24, 43/26*
U.S. Cl. 166—303 **10 Claims**

The sidewall permeability of a subterranean detonation fragmentation zone is reduced by contacting said sidewall with steam at a temperature below the retorting temperature of reservoir rock within said chimney, yet sufficiently above the temperature of said sidewall to expand the matrix thereof.

3,550,686
UTILIZATION OF HIGH STRENGTH ACID ON DOLOMITE

John A. Knox, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware

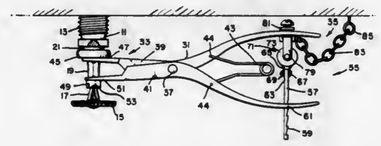
No Drawing. Filed Feb. 28, 1969, Ser. No. 803,413
Int. Cl. E21b *43/27*
U.S. Cl. 166—307 **11 Claims**

Acidizing of wells and other earthen formations is accomplished by alternately injecting into the formation a high-strength acid and water or a low-strength acid.

3,550,687
AUTOMATIC SPRINKLER SHUT-OFF DEVICE

Roger E. Thaxton, 21734 Barbara St., Torrance, Calif.

Filed Sept. 6, 1968, Ser. No. 757,882
Int. Cl. A62c *3/00*
U.S. Cl. 169—2 **5 Claims**



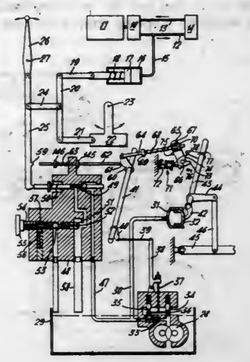
This is a device for temporarily preventing the release of water from an orifice of a previously activated automatic sprinkler head having a space between the orifice and the body of the sprinkler head. It includes a plierlike structure having a jaw and a handle portion, where the jaw portion is biased in the closed position and opened by gripping the handle which will force a resilient cushion attached to the jaw portion over the orifice when the jaw portion is inserted in the aforementioned space in the sprinkler head. The cushion is maintained over the orifice by member spanning the handle portion and which includes a heat sensing element that will disengage this member and allow the jaw portion to close when a predetermined level of heat is reached.

3,550,688
AGRICULTURAL TRACTORS

Kenneth Adrian Norcliffe, Huddersfield, England, assignor to David Brown Gear Industries Limited

Filed Mar. 27, 1967, Ser. No. 626,181
Claims priority, application Great Britain, Apr. 16, 1966, 16777/66
Int. Cl. A01b *63/112*
U.S. Cl. 172—9 **9 Claims**

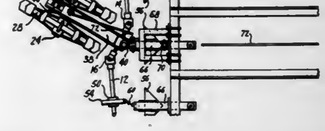
A draft-controlled power lift mechanism for a tractor having a hydrostatic power transmission mechanism, the power lift mechanism being set by a hand lever and subsequently controlled automatically by the compounding of a signal proportional to the pressure in the high-pressure side of the power transmission mechanism and a signal proportional to the motion of a pivoted weight or like device which is responsive to the pitch of the tractor, so that the working depth of an implement hitched to the tractor is influenced by the soil consistency but not by the contours of the ground.



3,550,689
ROD WEEDER

Marvin Lloyd Keck, Helena, and Glenn W. Clinard, 200 35th St. S., Great Falls, Mont. 59401; said Keck assignor, by mesne assignments, to said Clinard

Filed Oct. 11, 1966, Ser. No. 585,986
Int. Cl. A01b *39/19*
U.S. Cl. 172—44 **10 Claims**



A rod weeder rotated by ground-engaging wheels and arranged so that the wheels can swing about a vertical pivot with the rods of the rod weeder being connected to the drive through universal joint connections. The wheels are also permitted to pivot vertically about a horizontal pivot.

3,550,690
SWINGING BEAM PLOW

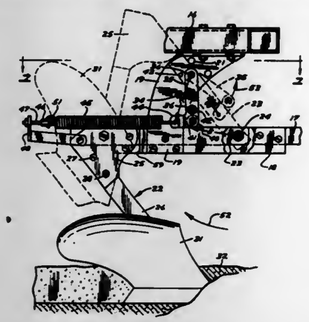
Sherman H. Quanbeck, Aneta, N. Dak. 58212

Filed Mar. 31, 1967, Ser. No. 627,485
Int. Cl. A01b *61/00, 35/24*
U.S. Cl. 172—265 **19 Claims**

The present disclosure relates to an earthworking implement and particularly a moldboard plow bottom which is mounted for movement about a single pivot on a main frame, and which when moved will actuate a lever system which in turn will stress a spring to urge the plow bottom to return to its original position. The lever arrangement operates on a near center principle to hold the plow bottom initially with a high force, and as the plow swings about its pivot the springs are progressively tensioned so that the plow bottom will automatically return to its working position.

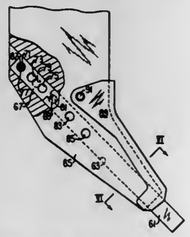
Two forms of the invention are shown. In both forms an actuating lever is pivoted to the rear of and substantially above the main beam pivot and upon swinging of the working

tool about its main pivot the actuating levers move toward the main pivot to stress the spring. In one form of the invention the lever arm has a roller on the end that actually rolls against a portion on the pivoting beam as the unit is tripped and tensions a spring that is carried by this lever and



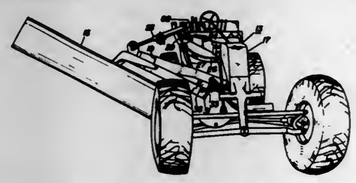
also on the pivoting beam. The second form discloses a two lever toggle link compressing a spring which is anchored onto the main plow frame itself. Shear bolts are provided so that if the plowshare should hook onto a rock and not move properly about its pivot, the shear bolt will shear to prevent damage to the moldboard itself.

3,550,691
ADJUSTABLE RIPPER TIP
James M. Davies, Orinda, Calif., Larry G. Hackmann, Peoria, Ill., Robert A. Peterson, San Leandro, Calif., and Roger M. Smith and Leon A. Wirt, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Nov. 29, 1967, Ser. No. 686,501
Int. Cl. A01b *13/08*
U.S. Cl. 172—699 **1 Claim**



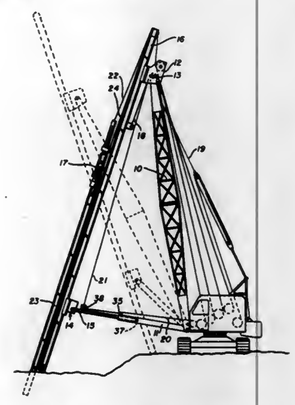
A ripper in which the ground-engaging tip can be advanced in it's holder to accommodate for wear of the ripper tip. The tip may be advanced manually or hydraulically depending on the mechanism used and is held in place by friction and/or a pinning means.

3,550,692
MOTOR GRADER ADJUSTMENT LINK
Kelly R. Hart, 8315 Blue Lake Drive, San Diego, Calif.
Substitute for application Ser. No. 524,563, Feb. 2, 1966, now abandoned. This application Jan. 21, 1969, Ser. No. 813,781
Int. Cl. E02f *3/12*
U.S. Cl. 172—793 **1 Claim**



An improved grader adjustment linkage in which first and second telescoping linkages are mounted between first and second links attached on one end to the main frame of a grader and on the opposite end to the subframe of the grader; the telescoping linkages consisting of first and second elongated hollow members with first and second telescoping rods therein; the hollow members having a plurality of apertures in cooperating relationship with a plurality of recesses in the rods and a plurality of hydraulically actuated locking pins for locking the rods with respect to the hollow members in any desired position and a third telescoping linkage mounted between said first and second linkages, each of said linkages being separately adjustable by means of three hydraulic valves mounted in proximity with the operator.

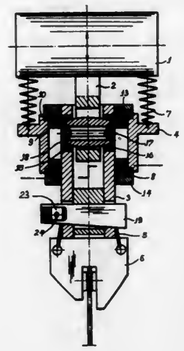
3,550,693
PILE DRIVER
Christopher W. Bermingham, Dundas, Ontario, Canada, assignor to Bermingham Construction Limited, Marine Terminal, Hamilton, Ontario, Canada
Filed June 9, 1969, Ser. No. 831,681
Claims priority, application Canada, June 19, 1968, 22,968
Int. Cl. E21c *11/00*
U.S. Cl. 173—43 **3 Claims**



This invention is directed to a crane mounted pile driving assembly, the crane being of the type having a boom which is rotatable through 360° and is vertically adjustable through operation of an extensible kicker. A lead for the hammer is vertically slidably mounted in a pair of guide members, the upper of which is mounted at the free end of the boom for pivoting about a generally horizontal axis and the lower of which is mounted at the free end of the kicker for pivoting about a generally horizontal axis. Since the overall arrangement provides for swinging of the boom through 360° about the crane body, vertical adjustment of the boom, extension of the boom at various angles, sliding of the lead relative to the guide members, and swinging of the lead in a plane at right angles to a plane containing the lead and the boom, a wider variety of pile driving operations can be carried out without shifting the location of the crane than has hitherto been possible. Furthermore, the conventional but troublesome problem of levelling the crane body is avoided.

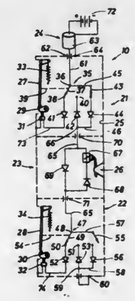
3,550,694
VIBROHAMMER
Czesław Winceuty Gawlik, Gdynia, Grottgera, and Dionizy Simson, Gdansk, Stryjewskiego, Poland, assignors to Zaklady Remontu Maszyn Budowlanych Nrz, Gdansk, Siennicka, Poland
Filed Nov. 25, 1968, Ser. No. 778,514
Claims priority, application Poland, Dec. 12, 1967, P 124,044
Int. Cl. E02d *7/06*; B06b *1/16*
U.S. Cl. 173—131 **8 Claims**

A vibrohammer used for driving and also removing piles, bulkheads and similar elements from ground including ring-shaped elastic links of variable profile which absorb the transverse and torsional vibrations of the anvil, bolt of tapered ends mounted in the holes of the anvil by means of expanded sleeves eliminating superfluous backlashes between bolts and holes of the anvil. Moreover, the said vibrohammer includes the wedge with longitudinal and transverse grooves connecting the grip of driven element with the anvil, springs,



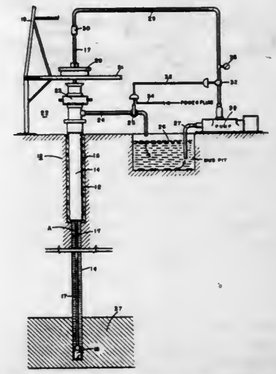
shaped conically and clamped preliminary by weight of vibrator, working on tension, as well as suspension gear, a rope of which is engaged below and above of center of gravity of vibrohammer.

3,550,695
ORIENTED PERFORATING APPARATUS
James B. Shore, Friendswood, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas
Filed July 11, 1969, Ser. No. 840,984
Int. Cl. E21b *43/119*
U.S. Cl. 175—4.51 **2 Claims**



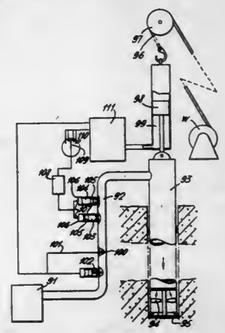
In the invention disclosed herein, outwardly biased "side kicker" arms are arranged on the upper and lower ends of a directional perforator adapted for perforating the well casing in a multiple-completion well having two or more tubing strings of unequal length. The arms are initially retained in retracted positions by explosive squibs connected to diodes operatively arranged so that an electrical current of one polarity will detonate the squibs simultaneously and release the arms in unison. Once released, the outwardly biased arms cooperate in positioning the perforator so as to avoid perforating adjacent pipe strings. Once both arms are fully extended to bring the perforator into a safe position, switches coupled to the arms complete a firing circuit including additional diodes operatively arranged so that an electrical current of the opposite polarity is required for firing the perforator.

3,550,696
CONTROL OF A WELL
John W. Kenneday, Houston, Tex., assignor to Esso Production Research Company
Continuation of application Ser. No. 625,767, Mar. 24, 1967, now abandoned. Continuation-in-part of application Ser. No. 517,036, Dec. 28, 1965, now abandoned. This application July 25, 1969, Ser. No. 849,238
Int. Cl. F21b *33/03*, *7/00*
U.S. Cl. 175—25 **21 Claims**



Well control method and apparatus for automatically maintaining an essentially constant bottomhole pressure in a well borehole during circulation of drilling fluid from a surface inlet down a drill string located in the borehole and up the annulus between the drill string and the borehole wall to a surface annulus discharge by controlling the rate of drilling fluid discharge from the annulus discharge in response to variations of drilling fluid pressure at the surface inlet from a preselected fluid pressure.

3,550,697
DRILLING CONDITION RESPONSIVE DRIVE CONTROL
Henry Hobhouse, Bottom Barn, Castle Cary, England
Filed Apr. 25, 1967, Ser. No. 633,537
Claims priority, application Great Britain, Apr. 27, 1966, 18,513/66; Aug. 18, 1966, 37,199/66; Aug. 31, 1966, 38,920/66
Int. Cl. E21c *5/00*
U.S. Cl. 175—26 **28 Claims**



A drilling apparatus having hydraulic means operable on the drill string of an earth-boring drill whereby to maintain optimum drill speed, drilling fluid conditions, torque and weight-on-bit. The hydraulic means is controlled by a signal derived directly from the drill string upon changes in drilling conditions encountered during a drilling operation. The signal controls weight-on-bit and drilling fluid flow and pressure in order to maintain optimum torque.

3,550,698
PENETRATION METHOD AND APPARATUS

Reginald W. Pauley, Belle Mead, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey

Filed July 25, 1968, Ser. No. 747,671
Int. Cl. E21b 3/08
U.S. Cl. 175—57 8 Claims

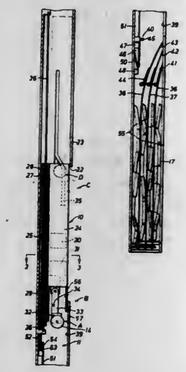


A method of penetrating the earth, or tubes, piping, conduits and the like, and apparatus for its practice; the method teaches the provisioning of, and the apparatus teaches a structure having, an auger, a rotating input shaft, and a rotary impacting torque unit couplingly disposed therebetween. The unit transforms input-rotating torque of given value to an impacting rotating torque output of greater value and imparts the latter to the auger.

3,550,699
FORMATION-SAMPLING APPARATUS

C. P. Lanmon, II, Friendswood, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas

Filed Nov. 29, 1968, Ser. No. 779,692
Int. Cl. E21b 49/02
U.S. Cl. 175—78 16 Claims



The particular embodiment described herein as illustrative of the invention is directed to formation-sampling apparatus for more reliably collecting one or more samples of earth formations traversed by a borehole. To accomplish this, the disclosed borehole apparatus includes selectively operable closure means adapted for preventing the loss of a sample once it is collected as well as for blocking the entrance of foreign matter as the apparatus is being moved through a borehole.

3,550,700
WELL-COMPLETION APPARATUS

Harold J. Urbanosky, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y., a corporation of Texas

Filed Dec. 5, 1968, Ser. No. 781,547
Int. Cl. E21b 49/06
U.S. Cl. 175—78 17 Claims

The particular embodiment described herein as illustrative of the invention is directed to new and improved well bore apparatus for more reliably performing selected well-completion operations. To accomplish this, the disclosed well bore apparatus includes an elongated support having first and second longitudinally spaced forward faces that are uniquely arranged to normally position the second forward face in advance of the first forward face. Selectively operable anchoring means are adapted for extension from the rear of the first face for urging this forward face against an adjacent well bore wall and, by virtue of the unique arrangement disclosed herein, upon constraint of the adjacent portion of the support

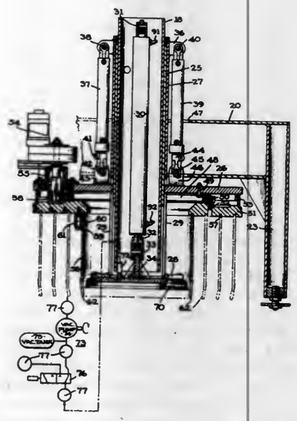


progressively flexing the support member rearwardly to urge the second forward face forwardly with a force corresponding to the degree of rearward deflection of the second forward face. In this manner, selectively operable well-completion means arranged for operation between these forward faces will be reliably positioned in relation to the adjacent well bore wall.

3,550,701
DISC CUTTER

John D. Holley, 339 Washington Ave., Montgomery, Ala.

Filed July 14, 1969, Ser. No. 841,450
Int. Cl. E21c 13/02
U.S. Cl. 175—122 11 Claims



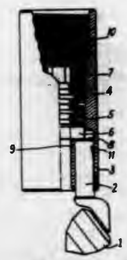
A cutter for removing circular discs from paved surfaces includes a frame mounted on a wheeled support and legs supporting the frame when in position to cut a disc. A hollow cylindrical cutter having teeth on its lower periphery is

lowered into engagement with the surface from which the disc is to be removed and is rotated by suitable driving motors. When the cutter has severed a disc, a vacuum grab engages and lifts the disc out of the opening.

3,550,702
DRILLING TOOL HAVING AN ADJUSTABLE SCRAPING ANGLE

Jean-Claude Raynal and Andre Sagot, Pau, France, assignors to Societe Nationale des Petroles d'Aquitaine, Courbevole, France, a corporation of France

Filed July 7, 1969, Ser. No. 839,508
Claims priority, application France, July 10, 1968, 158,667
Int. Cl. E21b 9/08, 9/26
U.S. Cl. 175—289 2 Claims

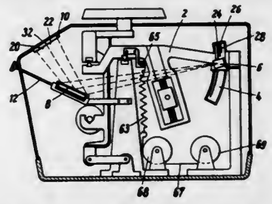


A tool for use in drilling rock, comprising a tool body having regularly spaced cylindrical cavities therein, supporting arms each having at its upper part a cylindrical portion adapted to be positioned in one of said cylindrical cavities in the tool body and capable of rotational and sliding movement therein, the supporting arms being provided with bearings and carrying cutting wheels, the said wheels being adjustable so as to be adapted to be set, at the cutting face of the tool, in dependence upon the load applied to the tool.

3,550,703
WEIGHING MACHINE WHICH GIVES A SIGNAL WHEN A SPECIFIC POSITION OF MEASURING IS EXCEEDED

Erich Emil Knothe, Gottingen-Geismar, Eckhard Billin, Gottingen, and Franz Josef Melcher, Gottingen-Nikolausberg, Germany, assignors to Sartorius-Werke G.m.b.H., Gottingen, Germany, a limited liability company of Germany

Filed Oct. 21, 1969, Ser. No. 868,122
Claims priority, application Germany, Oct. 24, 1968, 1,804,819
Int. Cl. G01g 23/32, 23/36, 23/16
U.S. Cl. 177—45 8 Claims



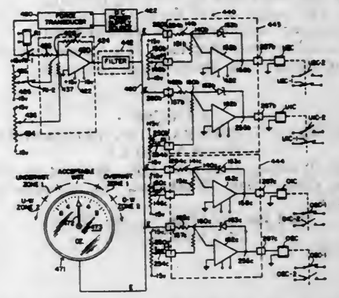
A weighing machine has a device which gives a signal when a specific position of measuring is exceeded.

The weighing machine has a microscale plate mounted on the measuring member, the microscale plate being formed with at least one reproducible mark. A screen and an optically enlarging projection device for projecting a section of the microscale plate on the screen are provided. At least one photocell is provided on the screen and adjustable thereon in the direction of movement of the scale image. A device is connected with the photocell for issuing a signal, whereby whenever at least one selectable tolerance limit of load is exceeded a signal is issued by said device.

3,550,704
AUTOMATIC BATCH AND CHECKWEIGHING APPARATUS

Gerald C. Mayer, Wayne, N.J., assignor to Howe Richardson Scale Company, Clifton, N.J., a corporation of Delaware

Continuation-in-part of application Ser. No. 658,229, Aug. 3, 1967. This application Aug. 5, 1968, Ser. No. 750,392
1968, Ser. No. 750,392
Int. Cl. G01g 19/52
U.S. Cl. 177—50 3 Claims

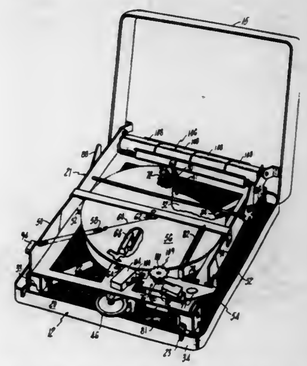


The batch-weighing system disclosed herein for successively weighing our preselected ingredients in a batch formula has a modularized weight controller circuit in which preset voltages control the weights of ingredients or materials making up the batch and in which a skeleton network is selectively built up by using logic card modules to provide selected combinations of the following functions: automatic, compensated cutoff of each ingredient delivered to the scale hopper, delivery of each ingredient to the scale hopper at a full-flow feed rate and a dribble feed rate, overweight and underweight checking of each delivered ingredient, partial batch control for delivering only a selected percentage of each ingredient to reduce the total weight of the batch while retaining the proper proportions of the ingredients in a given formula, an automatic tare to facilitate the use of nonaccumulative weight selection devices, and a maximum batch size control to provide an indication if the scale capacity is exceeded. In a second embodiment the weight controller circuit is modified to perform only checkweighing operations.

3,550,705
WEIGHING SCALE READOUT DEVICE

Ernest G. Hoffman, Hamden, Conn., assignor to Veeder Industries Inc., Hartford, Conn., a corporation of Connecticut

Filed Dec. 8, 1969, Ser. No. 882,932
Int. Cl. G01g 23/37, 7/02, 23/26
U.S. Cl. 177—210 12 Claims



A bathroom scale with a pacing disc rotatable by an electric motor in accordance with the angular displacement of

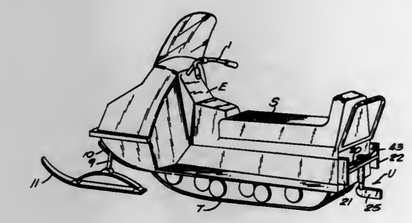
the readout disc of a conventional bathroom scale weighing mechanism. The motor is pivotally mounted to engage the followup disc and to close a first motor control switch when a person stands on the scale weighing platform, and a second motor control switch mounted on the pacing disc and connected in series with the first motor control switch is operated by an upstanding switch operator mounted on the readout disc, and the readout and pacing discs rotate together to maintain the second motor control switch closed until the discs reach a position corresponding to the applied weight. In one embodiment an electromagnetic counter positioned at eye level above the weighing platform is electrically connected to be indexed to register the applied weight by a pulse generator comprising a switch and a switch operating cam mounted on the motor shaft. In a second embodiment a counter is mechanically driven by the pacing disc.

3,550,706
STEERING ACTUATED BANKING MECHANISM FOR SNOW VEHICLE
Lucius D. Watkins, Hartland, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware
Filed Jan. 30, 1968, Ser. No. 701,604
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **6 Claims**



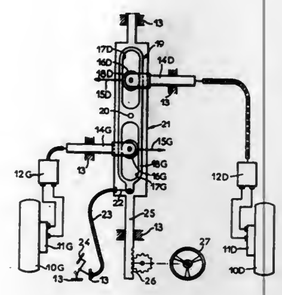
Disclosed herein is a steering actuated banking mechanism for a snow vehicle. The skis or runners utilized to support the frame of a snow vehicle are connected to columns which are movable axially in sleeves secured to the snow vehicle frame. Circumferentially and axially extending slots or cam tracks in the sleeves cooperate with rollers or cam followers mounted on the columns to move the columns axially relative to the sleeves upon rotation of the columns, during a turn, by a steering assembly. Actuation of the steering assembly to negotiate a turn causes extension of one runner from the frame and retraction of the other runner, thus banking the vehicle.

3,550,707
STEERING DEVICE FOR SNOWMOBILES
Arthur A. Lange, 5742 North 96th St., Milwaukee, Wis.
Filed Nov. 14, 1968, Ser. No. 775,607
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 **3 Claims**



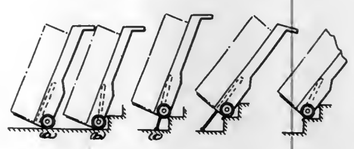
A snowmobile having a rear end steering device which is connected with the conventional front end steering mechanism so as to improve turning capabilities of the snowmobile particularly under adverse weather conditions.

3,550,708
DIRECTION AND SPEED CONTROL SYSTEM FOR MOTOR VEHICLES
Jean Michel Paramythioti, Paris, France, assignor to Albaret S. A., Rantigny, France, a corporation of France
Filed Mar. 13, 1969, Ser. No. 807,030
Claims priority, application France, Apr. 8, 1968, 147,286
Int. Cl. B62d *11/04*
U.S. Cl. 180—6.48 **9 Claims**



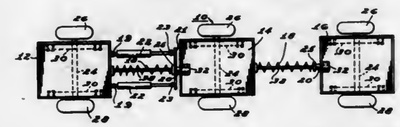
A motor vehicle has at least two driving members driven by a hydrostatic transmission under the control of two sliding control elements, movement of which is controlled by a rocking lever. The rocking lever is mounted on a slide member which can be axially moved, by means of a conventional steering wheel, together with the rocking lever to thereby change the proportional displacement of the sliding control elements and effect steering of the vehicle by providing variable speeds of each driving member. Preferably the vehicle also has a pivoted support wheel connected by an arm to the sliding member so that movement of the sliding member causes the support wheel to pivot.

3,550,709
SELF-POWERED CLIMBING HAND TRUCK
Jennings B. Hottel, Miami, Fla. (18563 Clark St., Apt. 206, Tarzana, Calif. 91356)
Filed June 27, 1968, Ser. No. 740,499
Int. Cl. B62b *5/02*
U.S. Cl. 180—8 **7 Claims**



A self-powered climbing hand truck having an upwardly extending load supporting structure, elongated rigid extensible means hingedly attached at its upper end to the load supporting structure, and means for controllably positioning the lower end of the extensible means with respect to the load supporting structure.

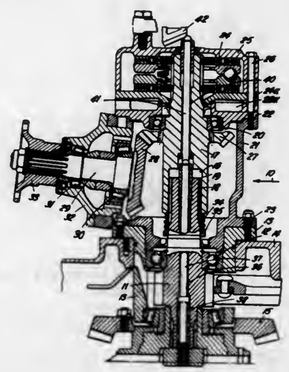
3,550,710
FLEXIBLE FRAME VEHICLE
Paul L. Spanski, Bloomfield Hills, Mich., assignor to the United States of America as represented by the Secretary of the Army
Filed Nov. 14, 1968, Ser. No. 775,722
Int. Cl. B62d *59/00*
U.S. Cl. 180—14 **10 Claims**



A vehicle adapted for rough terrain performance and obstacle negotiation comprising a plurality of units, interconnected by at least one helical spring the plurality of units thus being flexible in the pitch, yaw and roll directions.

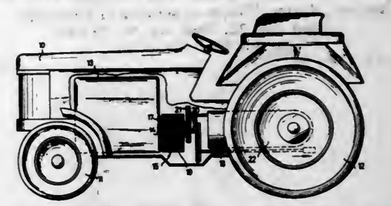
The invention described herein may be manufactured and used by or for the United States Government for governmental purposes without payment to me of any royalty thereon or therefor.

3,550,711
FOUR WHEEL DRIVE VEHICLE
Geoffrey Edward Ernest Tapp, Farnham, and Joseph Davey, Crookham; England, assignors to County Commercial Cars Limited, Aldershot, England, a British company
Filed Sept. 3, 1968, Ser. No. 757,025
Claims priority, application Great Britain, Sept. 4, 1967, 40,388/67
Int. Cl. B60k *17/34*
U.S. Cl. 180—44 **3 Claims**



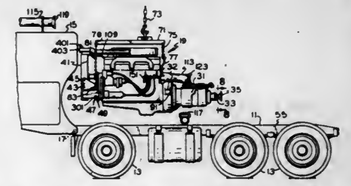
A four wheel vehicle normally driven through one pair of wheels only is adapted for drive through all four wheels by taking the drive from the shafts driving the two wheels through two transmission shafts extending between the two pairs of wheels, and each driving one of the normally undriven wheels. The drive is transmitted from each of the rear drive shafts by means of an extension shaft, connected to the drive shaft, and having gearing to turn the drive through a right angle to drive each transmission shaft. The end of the extension shaft is formed so that any braking means normally attached to the rear drive shafts may be attached to the extension shaft.

3,550,712
MOTOR VEHICLE
Friedrich Feldmann, Nieder-Modau, Germany, assignor to Lawima-Holding, A.G. Zug, Swizerland, a body corporate of Switzerland
Filed June 5, 1968, Ser. No. 734,771
Claims priority, application Germany, June 8, 1967, 56,694
Int. Cl. B60k *17/02, 25/06*
U.S. Cl. 180—53 **4 Claims**



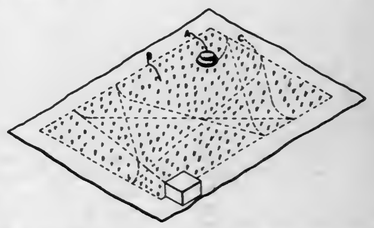
An agricultural tractor with a power takeoff has a clutch for limiting the torque applied by the engine to the transmission so that a higher powered engine can be used without modifying the transmission. The clutch can be the clutch used for disengaging the engine or it can be a separate clutch.

3,550,713
QUICK EXCHANGE ENGINE ASSEMBLY
Vernon H. Swanson, and Charles E. Day, Portland, Oreg., assignors to Freightliner Corporation, Portland, Oreg., a corporation of Delaware
Filed Oct. 18, 1968, Ser. No. 768,738
Int. Cl. B60k *5/10*
U.S. Cl. 180—64 **12 Claims**



A quick exchange engine assembly comprising an engine, a transmission, a radiator and a forward cross member of the engine frame which are so connected together that they form a self-supporting unit which is designed to be mounted directly on the side rails of the engine frame thereby eliminating the need of a subframe or tray for the unit.

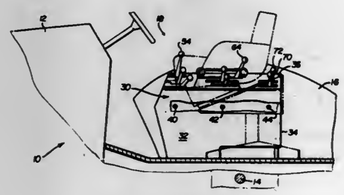
3,550,714
LAWN MOWER
Spencer Lawrence Bellinger, Sunnyvale, Calif., assignor to Mowbot, Inc., North Tonawanda, N.Y., a corporation of New York
Filed Oct. 20, 1964, Ser. No. 405,064
Int. Cl. B62d *5/04*
U.S. Cl. 180—79.1 **10 Claims**



A fully automatic self-propelled, self-guided device is described operating on the principle of random motion

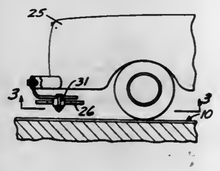
within a boundary. The boundary is established by a signal carried on a conductor and the device includes means for sensing the boundary signal as the vehicle approaches the boundary and control circuitry for steering the device away from the boundary.

3,550,715
CONTROL CONSOLE FOR VEHICLE
Donald L. Johnson, Kenosha, Wis., assignor to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed Aug. 22, 1968, Ser. No. 754,647
Int. Cl. B60k *37/06*
U.S. Cl. 180—90 **4 Claims**



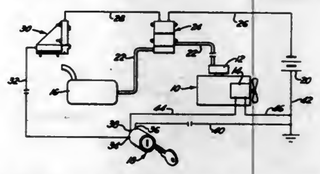
A control console located adjacent one side of an operator's compartment of a vehicle having a seat located thereon. The console houses a plurality of groups of control levers and has an upper surface inclined with respect to the horizontal plane of the vehicle to be perpendicular to the line of sight of an operator in the seat. Each group of levers has free ends which are located in a plane extending upwardly and away from the seat so that only one control lever of each group will be contacted by an operator moving his hand along a horizontal plane.

3,550,716
AUTOMOBILE SPEED-CONTROLLING MECHANISM
Svante Theodore Wickstrom, East Oakdale Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Oct. 11, 1968, Ser. No. 766,862
Int. Cl. B60k *31/00*
U.S. Cl. 180—98 **6 Claims**



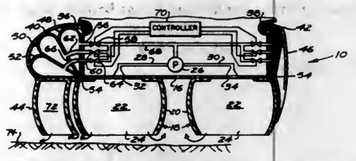
A frequency differential-accumulator for use in controlling the speed of an automobile by comparing, as to frequency, a standard signal and a signal that is derived in magnetic-flux-sensors on the automobile by passage of the sensors through a sequence of magnetic fields located along a highway according to a predetermined frequency. The frequency differential-accumulator includes two synchronous electric motors, one supplied the standard signal and the other supplied the flux-sensor-derived signal, and the motors are physically connected so that part of the motor supplied the flux-sensor-derived signal moves in proportion to any lack of correspondence between the frequency of the standard and derived signals. This movement is used to control the carburetor throttle valve of the automobile.

3,550,717
AUTOMOTIVE SAFETY DEVICES
James Franklin Doty, Jr., Northfield, Ohio, assignor to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 9, 1968, Ser. No. 758,264
Int. Cl. B60k *27/08*
U.S. Cl. 180—103 **12 Claims**



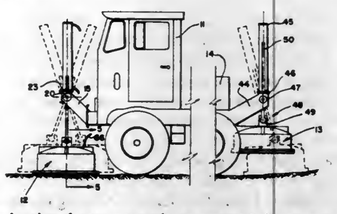
Vehicular safety and security apparatus comprising a magnetically operated normally closed fuel line switch, the coil of which is wired in series with inertia responsive elements. In the event of a collision or other abnormal condition, at least one inertia responsive element will disable the vehicle's electrical system and the fuel line via the magnetic valve. In the event of an attempt to steal the vehicle by shorting the starter motor, the magnetic valve will still hold the fuel system disabled.

3,550,718
CUSHION CELLS FOR FLUID CUSHION VEHICLES
William H. Knuth, Sacramento, and Irving Abel, Arcadia, Calif., assignors to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
Filed Apr. 1, 1969, Ser. No. 811,911
Int. Cl. B60v *1/16*
U.S. Cl. 180—121 **10 Claims**



According to the present disclosure, skirt means is provided and retractable means, mounted to the hull or body of a fluid cushion vehicle, supports the skirt means. The retractable means is adapted to move the skirt between a first position wherein the skirt forms a cushion cell outside of the displacement area of the vehicle and a second position wherein the skirt is retracted. This arrangement permits selective operation of the skirt to selectively increase the effective lifting surface area of the vehicle.

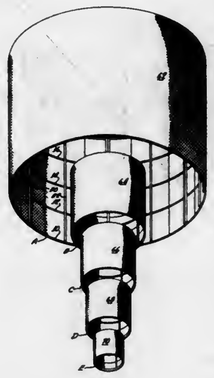
3,550,719
SEISMIC ENERGY GENERATOR HANDLING MECHANISM
William J. Meister, El Paso, Tex., assignor to Globe Universal Sciences, Inc., a corporation of Texas. by mesne assignments
Filed Dec. 14, 1967, Ser. No. 690,679
Int. Cl. G01v *1/04*
U.S. Cl. 181—0.5 **4 Claims**



A seismic signal generator is supported from a transport vehicle by means of a manipulating mechanism for raising

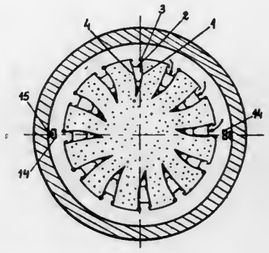
and lowering the generator whereby the generator is permitted three axes of rotational freedom to facilitate positive coupling to the ground under conditions of severe terrain contour.

3,550,720
MULTIPLE WIND SCREEN NOISE ATTENUATION SYSTEM
Harold N. Ballard and Miguel Izquierdo, El Paso, Tex., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Sept. 24, 1968, Ser. No. 762,026
Int. Cl. G10k *11/04*; **H04m** *1/19*
U.S. Cl. 181—31 **9 Claims**



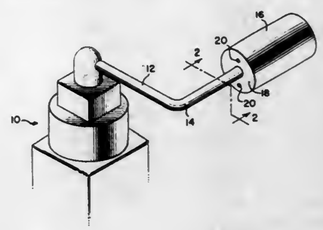
A wind screen comprising a plurality of concentric cylindrical or hemispherical screens around a low frequency sound transducer for reducing or eliminating random noise developed by wind in the vicinity of the transducer to permit reception of low sonic and infrasonic waves is disclosed.

3,550,721
SILENCING ASSEMBLY FOR JET ENGINES
Georges Bruner, Paris, France, assignor to Breguet-Aviation, Velizy, Yvelines, France, a French body corporate
Filed Apr. 3, 1968, Ser. No. 718,565
Claims priority, application France, Apr. 7, 1967, 101852
Int. Cl. F01n *1/14*; **B64d** *33/06*
U.S. Cl. 181—51 **7 Claims**



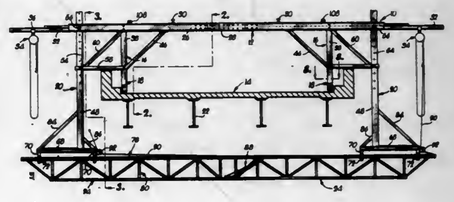
A silencer assembly for a jet aeroplane comprises an annular structure immediately in front of the nozzle exit, the annular structure defining a plurality of angularly spaced channels through which air is drawn to the jet stream.

3,550,722
CYLINDRICAL MUFFLER WITH SPACED OPENINGS IN BOTH END PLATES
David W. Young, Homewood, Ill., assignor to Atlantic Richfield Company
Filed Dec. 17, 1969, Ser. No. 885,819
Int. Cl. F01n *1/08, 7/08*
U.S. Cl. 181—60 **12 Claims**



A muffler for an internal combustion engine such as might power an oil well pump. The muffler comprises an elongated, hollow cylindrical body with end plates for each end. The first end plate is connected to the engine exhaust pipe at approximately its center and includes a plurality of small openings equally spaced radially from that center and equally spaced angularly. The second end plate includes a second plurality of small openings equally spaced radially from its center and equally spaced angularly. Preferably the exhaust pipe, coupling the engine to the muffler, includes a 90° bend.

3,550,723
BRIDGE SCAFFOLD
Tom D. Gentry, 922 Iowa, and Jerry D. Holliday, 319 N. 6th St., Neodesha, Kans.
Filed Nov. 29, 1968, Ser. No. 780,087
Int. Cl. E04g *3/14*
U.S. Cl. 182—36 **3 Claims**

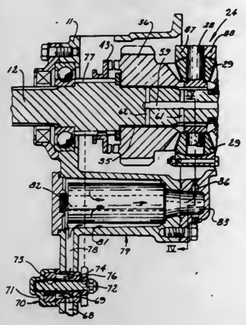


A mobile bridge scaffold comprising an elongated frame spanning a bridge transversely thereacross, a standard carried by the frame at each end thereof and depending therefrom in outwardly spaced relationship from the sides of the bridge, and elongated platforms shiftably carried by the lowermost ends of each standard for movement from cantilevered positions projecting toward the other platform beneath the bridge to provide a support for workmen, to alternate cantilevered positions projecting outwardly away from the bridge to provide clearance to permit movement of the scaffold longitudinally of the bridge.

3,550,724
PRESSURE LUBRICATION SYSTEM FOR GEARED DRIVE MECHANISM
George W. Vollmer, Chardon, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Dec. 2, 1968, Ser. No. 780,329
Int. Cl. F01m *1/08*
U.S. Cl. 184—6 **22 Claims**

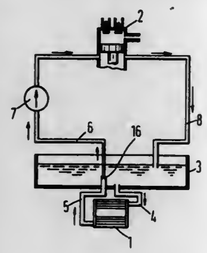
A geared drive mechanism having a pressurized lubrication system for lubricating a differential gear mechanism. A pump provides for flow of lubricant from a reservoir to a discharge nozzle located adjacent the differential gear mechanism. The

differential gear mechanism includes an annular housing having a plurality of openings therein which move past the nozzle as the housing rotates. Lubricant ejected from the nozzle passes through the openings into contact with the differential gears and the differential spider whereby the lubricant then



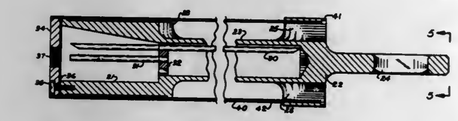
flows outwardly of the spider arms to lubricate the bearings rotatably supporting the differential gears. The pressurized lubricant can also be supplied through suitable passageways to other bearing and friction points within the geared drive mechanism.

3,550,725
OIL COOLING SYSTEM FOR INTERNAL COMBUSTION ENGINES
Emil Alois Hegglin, 246 General-Wille Shasse, Feldmeilen, Canton Zurich, Switzerland
Filed May 3, 1968, Ser. No. 726,484
Claims priority, application Germany, Feb. 8, 1968, H 65,259
Int. Cl. F01m 5/00; F16n 39/02
U.S. Cl. 184—104 **4 Claims**



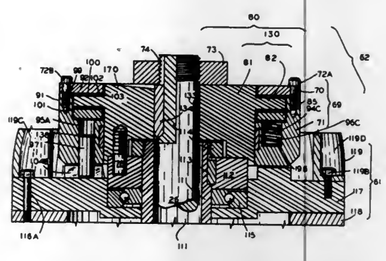
Oil cooling system for internal combustion engines having an oil pump and a heat exchanger connected to the suction side of the pump.

3,550,726
LIQUID COOLED FRICTIONAL WEIGHT LOWERING DEVICE
Jimmie A. Chezem, Falls Church, and Robert E. Bendl, Denbigh, Va., assignors to the United States of America, as represented by the Secretary of the Army
Filed Dec. 26, 1963, Ser. No. 333,773
Int. Cl. B65h 59/14
U.S. Cl. 188—65.4 **12 Claims**



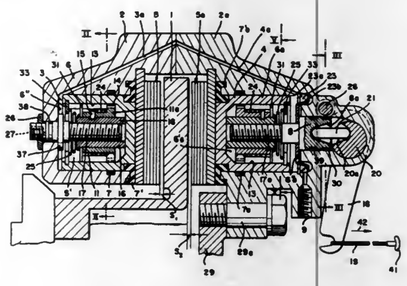
This invention relates to weight-lowering devices and particularly to a device for lowering a person along a depending line or rope and controlling the rate of descent by a snubbing action of the line on the device. Means to cool the device are contained therein.

3,550,727
SLIP COUPLING AND ONE-WAY BRAKE FOR IRRIGATION PUMP
Glendell R. McCain, Amarillo, Tex., assignor to Amarillo Gear Company, Amarillo, Tex.
Filed Nov. 25, 1968, Ser. No. 778,660
Int. Cl. F16d 41/04
U.S. Cl. 188—82.9 **2 Claims**



An irrigation pump system with a slip clutch providing for gradual slowing of the rotation of the pump drive shaft on interruption of power to the pump, the slip clutch therefor comprising a carrier assembly slidably supporting a circular array of vertically movable rigid locking pins over and in contact with a stationary circular array of wedge-shaped detents for free movement of the carrier relative to the array in one direction, and the carrier assembly enclosing a flanged collar that is attached to a vertically elongated pump drive shaft, the locking assembly readily adjustably attached to the flanged collar by resilient and friction elements for controlled slippage relations therebetween.

3,550,728
DISK-BRAKE ADJUSTMENT MECHANISM WITH STEPLESS UNIDIRECTIONAL RADIAL CLUTCH
Hermann Seip, Bad Vilbel, and Erich Rabich, Sprendlingen, Germany, assignors to Alfred Teves G.m.b.H., Frankfurt am Main, Germany, a corporation of Germany
Filed Dec. 30, 1968, Ser. No. 787,903
Claims priority, application Germany, Jan. 8, 1968, T35655
Int. Cl. F16d 65/52
U.S. Cl. 188—71.8 **9 Claims**



A wear-compensating disk brake in which the wheel brake cylinder is hydraulically, pneumatically or mechanically pressurizable to urge the piston and its brakeshoe against the disk has, in at least one yoke half of its housing, spring means for

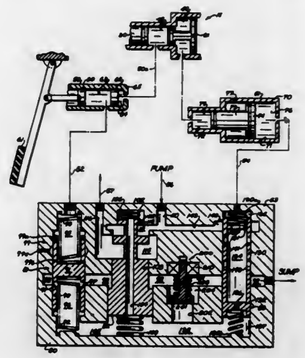
applying a restoring force to the piston whose return stroke is limited by a rotatable nut threaded on a bolt during normal operation in the cylinder wall. The bolt can be rotated from outside the housing to withdraw the piston. The nut is rotated by a cam arrangement having a pin engaged in a skew slot in a camming member or sleeve which is effective during the forward stroke of the piston to advance the sleeve on the bolt and establish a new rest position for the piston when the stroke of the latter exceeds the desired brake play. The camming member is connected with the piston by a stepless, unidirectionally effective radial clutch for angular movement only in the nut advancing direction.

3,550,729
BRAKE SHOE GAUGE TOOL ASSEMBLY
August L. Underwood, 9100 S. Vermont St., Los Angeles, Calif. 90044
Filed Jan. 10, 1969, Ser. No. 790,260
Int. Cl. F16d 65/42
U.S. Cl. 188—79.5 **7 Claims**



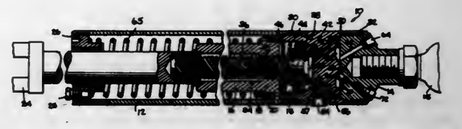
A brake shoe guage tool assembly for so positioning primary and secondary Bendix brake shoes relative to one another that when said shoes are in engagement with a star wheel adjustment screw, the shoes and screw may be reassembled on a backing plate with the assurance that the linings on said shoes are so spaced from the interior surface of the brake drum with which they will be used that no further adjustment of the brake shoes will be required. Prior to spacing of the brake shoes in the manner described, the external surfaces of the linings and the interior surface of the brake drum associated therewith are ground to the same radius of curvature.

3,550,730
FLUID BRAKE SYSTEM
Paul M. Douglas, Garden City, and William S. Nagel, Franklin, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Continuation of application Ser. No. 616,550, Feb. 16, 1967. This application Aug. 26, 1969, Ser. No. 852,998
Int. Cl. B60t 13/18
U.S. Cl. 188—152 **26 Claims**



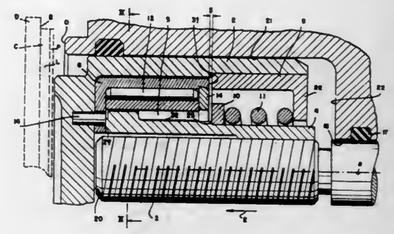
A brake system applies a greater braking force to the trailing brakeshoe at each wheel than is applied to the leading brakeshoe. The added force applied to the trailing brakeshoe is delivered to the trailing brakeshoe from an intensifier unit. The intensifier unit receives a signal from a control unit and the control unit is effective to deliver pumping fluid to the intensifier unit. A tandem master cylinder has one chamber connected with the control unit, and the control unit receives a signal from the tandem master cylinder which actuates the delivery of steering pump fluid to the intensifier unit. The control unit includes a signal valve which receives the signal from the master cylinder, a servovalve and a rate control valve for directing the steering pump fluid to the intensifier unit.

3,550,731
RAILWAY CAR BRAKING APPARATUS
Charles F. Roselius, Kinnelon, and George A. Pelikan, Closter, N.J., and Albert C. Maggio, Brooklyn, N.Y., assignors to Ellcon-National, Inc., Totowa Borough, N.J., a corporation of New York
Continuation-in-part of application Ser. No. 666,419, Sept. 8, 1967, now Patent No. 3,472,121. This application Aug. 7, 1969, Ser. No. 848,165
Int. Cl. B60t 11/14
U.S. Cl. 188—153 **13 Claims**



This invention relates to a railway car having a frame member carrying a cylinder assembly, and lever means connecting the cylinder assembly to a braking system, the cylinder assembly including a piston having an inner mechanical locking mechanism for retaining said braking system in locked condition for long periods of time.

3,550,732
WEAR COMPENSATOR FOR DISK BRAKE
Albert Beller, Bad Vilbel, Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Germany, a corporation of Germany
Filed May 20, 1968, Ser. No. 730,381
Claims priority, application Germany, May 20, 1967, T33900
Int. Cl. F16d 65/56; S16d 55/18
U.S. Cl. 188—196 **9 Claims**



A wear-compensating disk brake in which the wheel brake cylinder is actuatable both hydraulically and mechanically to urge the piston and its brakeshoe against the disk. A threaded spindle extends axially through the piston while a threaded sleeve is provided on its exterior with followers and engages, during the intake stroke of the piston and its advance beyond a desired brake play, a cooperating adjustment ring whereby the linear motion is transformed into rotational motion advancing the spindle and establishing a new rest position for the piston corresponding to the brake lining wear.

3,550,733
PACKING SYSTEM FOR HYDROPNEUMATIC SHOCK ABSORBERS

Johannes Ortheil, Allee 10, Anrath, Germany

Filed Oct. 18, 1968, Ser. No. 768,747
Claims priority, application Germany, Oct. 18, 1967, 1,650,091
Int. Cl. F16f 9/36
U.S. Cl. 188—282 1 Claim

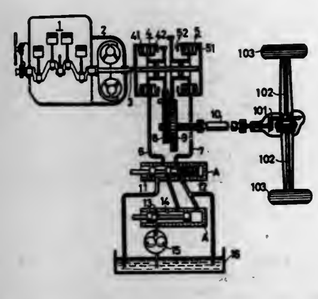


A packing system for a piston and cylinder hydropneumatic shock absorber comprising a high pressure packing between the piston rod and one end of the cylinder. A wedge packing movable between a stop and a conical shoulder is also at said one end of the cylinder. The piston rod passes through the piston, and the piston is slidable upon the piston rod between two stops. Liquid communication bores are spaced between the two stops such that when the piston is abutting one of the stops the communication means is closed, and when the piston abuts the other stop the communication means is open.

3,550,734
SPEED CHANGE CONTROLLING DEVICE FOR INDUSTRIAL VEHICLE

Akibumi Sinoda, and Mashahiko Nishii, Chita-gun, Japan, assignors to Toyoda Automatic Loom Works, Ltd., Kariyashe, Aichi-ken, Japan

Filed Jan. 30, 1969, Ser. No. 795,238
Claims priority, application Japan, Jan. 31, 1968, 43/6130
Int. Cl. F16r 31/46; F16h 57/10; F16d 67/04
U.S. Cl. 192—4 2 Claims

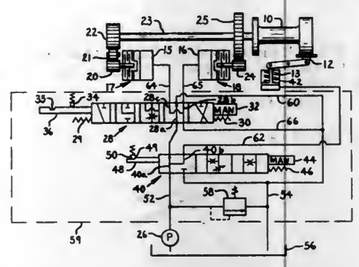


A speed change controlling device is provided with improved control valve for delivering oil under pressure into the clutch for selecting the gearing of the speed change gears in an industrial vehicle such as a lift truck having speed change gears associated with a torque converter to the effect that a change lever for initiating the effectuation of speed change can be operated only when the footbrake pedal is applied.

3,550,735
FLUID PRESSURE REVERSING CLUTCHES AND BRAKE FOR WINCH

Lawrence O. Olsen, Portland, Oreg., assignor to Hyster Company, Portland, Oreg., a corporation of Nevada

Filed Sept. 23, 1968, Ser. No. 761,422
Int. Cl. F16d 67/00
U.S. Cl. 192—17 15 Claims

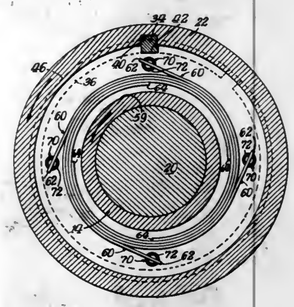


A power-controlled winch having a drum, a fluid-actuated forward and reverse friction clutch, and a fluid-actuated brake for the drum biased to an engaged position but releasable under an operating pressure is controlled by a five-position spool valve and a three-position spool valve. The five-position valve controls the flow of fluid under operating pressure to the clutches and to the brake to provide for spooling in or spooling out of the winch under power, free spooling or inching with the clutches disengaged. The overriding three-position valve controls operating pressure at the brake independently of the position of the five-position spool valve to provide fine inching control with one or the other clutch engaged, thereby enabling inching while spooling in or spooling out under power.

3,550,736
BAND CLUTCH CONSTRUCTION

Ernest U. Lang, Niles, Mich., assignor to National-Standard Company, Niles, Mich., a corporation of Delaware

Filed Oct. 18, 1968, Ser. No. 768,702
Int. Cl. F16d 41/20, 13/08
U.S. Cl. 192—41 7 Claims

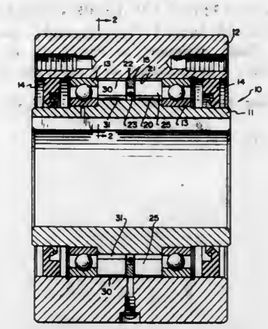


Clutch bands for use in overrunning clutches having drive and driven members, each clutch band being provided with anchoring means for pivotally anchoring the clutch band at its wider end portion to one of the clutch members for pivotal movement of the wider end portion of the clutch band on an axis transverse to the wider end portion of the clutch band and parallel to the common axis of the clutch members so as to distribute tension on the clutch band over the entire width of the wider end portion of the clutch band.

3,550,737
SPRAG ASSEMBLY FOR ONE-WAY CLUTCHES

Bryan Philip Kent, Ithaca, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 785,880
Int. Cl. F16d 41/07
U.S. Cl. 192—45.1 4 Claims

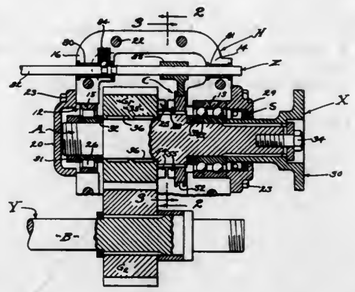


An overrunning one-way clutch is disclosed herein providing a structure whereby a drive and driven member are interconnected to provide a drive condition therebetween in one direction of relative rotation thereof and an overrunning condition therebetween in the other direction of relative rotation thereof. A sprag assembly is shown in conjunction with the overrunning clutch to provide the drive and overrunning condition between the drive and driven members. The sprag assembly includes a sprag cage for rotatably positioning sprags, sprags positioned in the cage, and means for urging the sprags into position in the cage and to rotatably urge the sprags into engagement with the drive and the driven members.

3,550,738
SPEED SYNCHRONIZING JAW CLUTCH

Henry T. Hallbrand, 6469 Nancy St., Los Angeles, Calif.

Filed Oct. 25, 1968, Ser. No. 770,554
Int. Cl. F16d 23/10, 11/10
U.S. Cl. 192—53 15 Claims

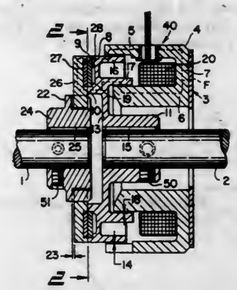


This invention provides a jaw clutch with dogs that are capable of shifting into and out of gear without the necessity of reducing rotational speeds, the angular velocity of the clutch elements being brought into synchronization by virtue of frictional engagement momentarily prior to positive interengagement of the dogs. The above functions are accomplished by means of cam-shaped interface engagement between the opposed dogs of the two clutch elements which are otherwise of what would appear to be a usual configuration. However, fragile corners are eliminated and there are unique inclined planes leading to frictional interengagement of opposed dog faces prior to the positive interengagement of the dogs. And high angular velocities are provided for by means of circumferentially spaced and stepped dogs of decreasing axial extent which follow in rotation the dogs having said frictional interengagement.

3,550,739
FRICTION COUPLING

Howard E. Wiltsey, Racine, Wis., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio

Filed Oct. 25, 1968, Ser. No. 770,576
Int. Cl. F16d 27/07, 13/60
U.S. Cl. 192—84 10 Claims

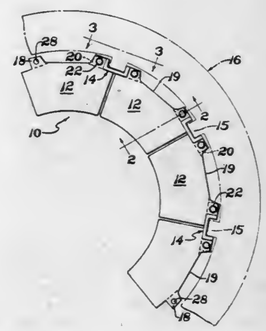


The apparatus disclosed is an electromagnetic friction coupling which may be used for power transmission purposes. A driving member is frictionally engaged with a driven member in order to transmit a braking or driving torque upon energizing a field coil. The friction coupling includes a ceramic friction lining consisting of at least 90 percent aluminum oxide (Al_2O_3) and having a relative hardness on the MHO scale of at least 8. As a result of using this type of lining in an electromagnetic friction coupling or other frictional power transmission devices, the life of the lining is substantially improved and the coefficient of friction is substantially constant over a wide range of temperatures. Furthermore, the lining of this type is impervious to grease, oils and solvents and other lubricants whereby repeated performance of a high quality is ordinarily maintained under severe and in many cases less than ideal operational conditions.

3,550,740
SEGMENTED FRICTION MEMBER FOR BRAKE OR CLUTCH

Walter J. LeBlanc, and Ralph R. Main, Troy, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

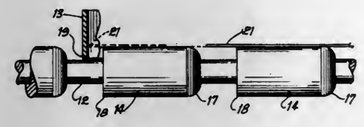
Filed May 3, 1968, Ser. No. 726,316
Int. Cl. F16d 69/00
U.S. Cl. 192—107 11 Claims



A brake or clutch mechanism that has at least one of its stators or rotors composed of individual thick plane segments

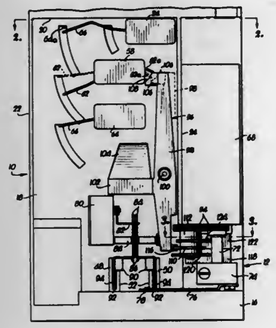
assembled to collectively form an annulus, with each segment connected from one of its corners to the corner of the next adjoining segment by a special torque-link member. The torque-link members additionally provide splined engagement with an associated part of the brake or clutch for transmitting torque to or from the annular segment assembly. Segmented assemblies of this type are especially useful as the friction engaging members in high energy disc brakes.

3,550,741
CONVEYOR FOR PAPER SHEETS AND THE LIKE
Herbert P. Sherman, 724 W. Washington St., Chicago, Ill.
Filed July 23, 1968, Ser. No. 746,805
Int. Cl. B65g *39/071, 39/18, 13/12*
U.S. Cl. 193—35 **5 Claims**



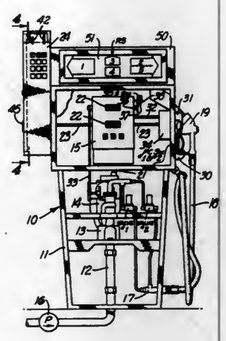
A conveyor for paper sheets and the like comprising a bed formed of a series of cylindrical rollers arranged in parallel horizontal coplanar relationship. Each roller has a annular recess in its periphery and the recesses of the series are disposed in longitudinal registration. A guide rail is arranged with its lower edge extending into the recesses below the surfaces of the rollers. The rollers carry and propel the sheets in the direction of the guide rail so as to effect alignment of the sheets with the guide rail.

3,550,742
CONVERTIBLE PRICE COIN CHANGER FOR VENDING MACHINES
Kit E. Pennell and Paul R. Hanaway, Independence, Mo., assignors to The Vendo Company, Kansas City, Mo., a corporation of Missouri
Filed Aug. 2, 1968, Ser. No. 749,718
Int. Cl. G07f *11/00*
U.S. Cl. 194—10 **17 Claims**



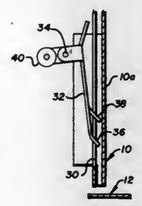
A coin changer for an article vending machine is capable of establishing the price of articles at either 15 cents or 20 cents and accepts nickels, dimes and quarters. A totalizer having two repeating totalization programs is employed to totalize nickel and dime deposits in 5 cents increments, one revolution thereof comprising a plurality of such increments (such as 12) equal in number to integer multiples of the three and four increment programs. The need for totalizing quarter deposits is eliminated by programming the operation of the change payout mechanism, the latter being directly activated by operation of a quarter coin switch when a quarter is deposited. Two position, ganged price-setting switches facilitate changeover from one price to the other.

3,550,743
COIN-ACTUATED FLUID-DISPENSING SYSTEM
Harry R. Rothschild, Santa Fe Springs, and Robert B. Young, Littlerock, Calif., assignors to Pan-Nova, Inc., Santa Fe Springs, Calif., a corporation of California, by mesne assignments
Filed Aug. 28, 1968, Ser. No. 755,998
Int. Cl. G07f *13/00*
U.S. Cl. 194—13 **15 Claims**



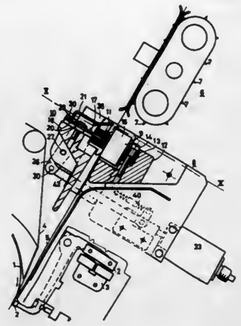
A coin-operated system for dispensing gasoline which will receive and register a variety of coins or tokens, dispense the total amount purchased or portions thereof, and make refunds for remaining credits. A control system adapted for incorporation into conventional gasoline pumping units for coin-operated dispensing.

3,550,744
MULTIPLE COIN PAWL FOR COIN OPERATED LOCK
Elphege J. Ouellette, 2541 U.S. Highway 6, Grand Junction, Colo. 81505
Filed Sept. 27, 1968, Ser. No. 763,330
Int. Cl. G07f *5/00*
U.S. Cl. 194—54 **5 Claims**



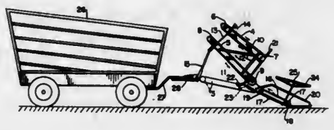
A coin acceptor mechanism for such vending machines as newspaper dispensers has a vertical coin chute providing a gravity drop of coins from a receiving slot to a stop adjacent a door lock mechanism, and a coin holding pawl mounted adjacent the slot includes a plurality of coin holding points to permit a coin and/or a combination of two or more coins in the coin chute to activate the door lock of the dispenser without changing the position of the coin holding pawl.

3,550,745
PAPER ARRESTING DEVICE FOR HIGH SPEED PRINTERS
Dario Bisone, and Armando Tessitore, Turin, Italy, assignors to General Electric Information Systems Italia S. p. A., Caluso (Turin), Italy
Filed Jan. 31, 1968, Ser. No. 702,072
Claims priority, application Italy, Feb. 8, 1967, 12,376/67
Int. Cl. B41j *5/00, 9/38*
U.S. Cl. 197—133 **5 Claims**



A device for clamping the print receiving paper in a high speed impact-type drum printer, wherein a series of electromagnets are disposed across one side of the width of the paper and a series of cooperating armatures are disposed on the other side of the paper opposite the electromagnets, and wherein during the printing phase the electromagnets are energized and attract the opposed armatures thereto, thereby preventing movement of the paper under the pull of printing impacts on the paper against the rotating drum.

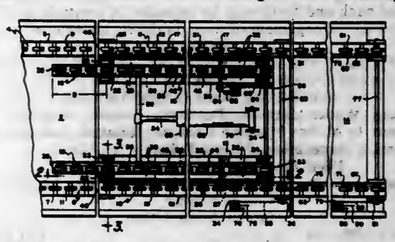
3,550,746
LOADING APPARATUS FOR BALES
Knud Dinesen Juul, and Jens Engholm Mikkelsen, Ale, Denmark
Continuation of application Ser. No. 647,037, June 19, 1967, now abandoned. This application July 11, 1969, Ser. No. 842,831
Int. Cl. B65b *65/02*
U.S. Cl. 198—8 **3 Claims**



A movable apparatus having a first adjustable conveyor system for picking up bales from the earth's surface and lifting the bales at a relatively low speed to a second conveyor system which is driven at an adjustable high speed. The second conveyor system accelerates the bales and throws them obliquely upwards into a wagon.

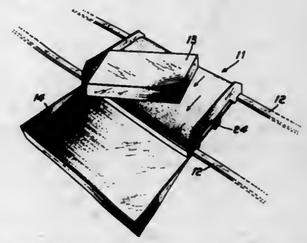
3,550,747
TRANS-LIFT SECTION CONVEYOR
Thomas A. Kornylak, Hamilton, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio
Filed Feb. 27, 1969, Ser. No. 802,905
Int. Cl. B65g *47/04*
U.S. Cl. 198—20 **5 Claims**

A transfer conveyor for conveying a load from a loading conveyor to a vertically movable conveyor in which the latter conveyor is stopped with the load-supporting surfaces above the load supporting surface of the transfer conveyor. The transfer conveyor includes a carriage mounted for movement along guideways containing ramps. The load is shifted from the loading conveyor onto the carriage and the carriage is



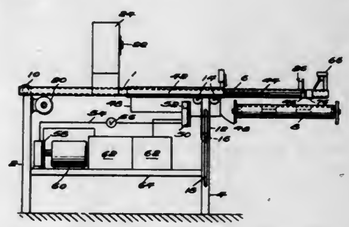
moved along the ramps to lift the load to the level of the load supporting surface on the vertically movable conveyor. A series of powered rollers carried by the carriage is energized to roll the load onto the vertically movable conveyor.

3,550,748
CONVEYOR ARRANGEMENT
Werner Hauer, Sayre, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Delaware
Filed July 23, 1968, Ser. No. 746,904
Int. Cl. B65g *43/00*
U.S. Cl. 198—38 **10 Claims**



A conveyor arrangement employing trollies 11 for the conveyance of parcels, wherein each of the trollies have means for carrying the address of the position to which the parcel is to be conveyed, and the arrangement includes actuator means responsive to the address, whereby each of the trollies are activated to cause the parcels to be unloaded at the addressed position.

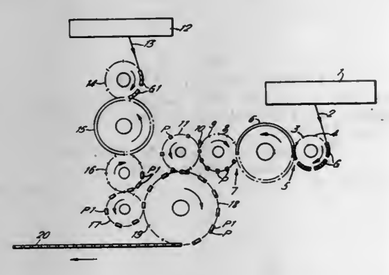
3,550,749
METHOD AND APPARATUS FOR TRANSFERRING ARTICLES
William E. Story, Knoxville, Tenn., assignor to East Tennessee Packing Company, Knoxville, Tenn., a corporation of Tennessee
Filed July 30, 1968, Ser. No. 748,791
Int. Cl. B65g *15/28, 47/26*
U.S. Cl. 198—31 **14 Claims**



Transfer equipment for conveying a series of articles in a row and depositing them in multiple rows onto a receiving conveyor. The transfer equipment includes an endless

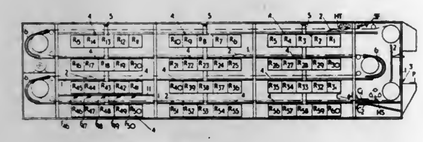
transfer conveyor having a rectilinear movable end portion which reciprocates across the surface of the receiving conveyor at a predetermined rate to deposit a row of articles on the receiving conveyor. The rate at which the end portion is moved back and forth may be adjusted by controls to effect the desired arrangement of rows on the receiving conveyor.

3,550,750
HANDLING RODLIKE ARTICLES
Norman Walter Jackson, Deptford, London, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain
Filed June 28, 1968, Ser. No. 741,186
Claims priority, application Great Britain, July 12, 1967, 32,075/67
Int. Cl. B65g *47/26*
U.S. Cl. 198—34 **14 Claims**



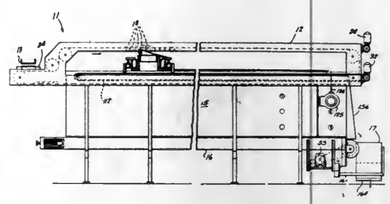
Filter plugs abutted end to end and moving in line are separated endwise by two pairs of rotatable, side-by-side discs, the discs of each pair being inclined to each other and having peripheral carriers which alternate with each other. The carriers of the first two discs are at one position in line to receive successive plugs, then diverge to stagger the plugs and transfer them to similar carriers on the second pair of faster moving discs, which accelerate the plugs and then converge to bring them back into line but spaced apart endwise.

3,550,751
ARTICLE SORTING APPARATUS
William Jack, Jr., West Kilbride, Scotland, assignor to Baker Perkins Jaxons Limited, Glasgow, Scotland, a British company
Filed Dec. 15, 1967, Ser. No. 690,918
Claims priority, application Great Britain, Dec. 16, 1966, 56,432/66
Int. Cl. B65g *47/34*
U.S. Cl. 198—38 **11 Claims**



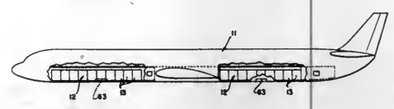
Article sorting apparatus comprising an endless conveyor following a closed path which passes by a plurality of article receptacles with at least one article carrier for movement by the conveyor around the closed path, a station for delivering articles to the carrier or carriers with means for transferring articles from the or each carrier to a receptacle when the carrier is adjacent the receptacle, control means for preselecting to which receptacle an article being delivered by the or a carrier is to be transferred and for automatically operating the transfer means when the carrier is adjacent the selected receptacle.

3,550,752
AUTOMATIC STORAGE SYSTEM FOR NON-FREE FLOWING PRODUCTS
Vaughn Gregor, 5524 Green Oak St., Hollywood, Calif.
Filed Nov. 8, 1968, Ser. No. 774,418
Int. Cl. B65g *37/00*
U.S. Cl. 198—106 **18 Claims**



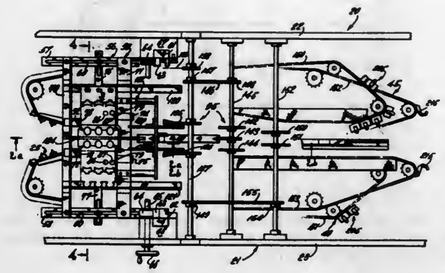
An automatic storage system for nonfree flowing products, such as cookies, cereals, bread stuffing, noodles, and similar products of irregular shape, for accepting the products at varying rates and for discharging the products, on demand. The apparatus includes a large horizontally extending storage chamber provided with a conveyor belt. The conveyor belt discharges the product at one end of the storage chamber into a transverse end chute feeding packaging machines. The storage chamber is supplied by a bucket conveyor arranged longitudinally at one side above the storage chamber, the bucket conveyor discharging into a transverse overhead feed chute reciprocating longitudinally over the storage chamber. A height sensor in the storage chamber controls the operation of the overhead chute. A photoelectric sensing system is provided in the transverse end chute controlling the conveyor belt in the storage chamber so as to prevent overloading the transverse end chute. The transverse overhead feed chute and the transverse end chute are respectively provided with vibrators to maintain the material therein in a fluent condition.

3,550,753
POWERED DRIVE ASSEMBLY
Richard B. Culp, Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Aug. 9, 1968, Ser. No. 751,619
Int. Cl. B65g *41/00*
U.S. Cl. 198—109 **4 Claims**



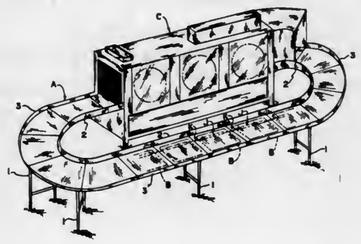
A powered drive assembly for moving containers or pallets of cargo in a remote location. Located in a cargo supporting floor, the assembly has a central pivot about which a pair of U-shaped swing arms are pivoted by their proximal ends while the distal ends each mount a rotatable pulley. An endless belt encompasses the pulleys and rises above the cargo floor thereby to engage the bottom surface of the cargo container. Motive means are connected to one or both pulleys to drive the endless belt and thereby move the container. The swing arms are resiliently biased toward the container, but are depressed by the container to a point whereby the endless belt is at the approximate level of the cargo floor when the container fully covers the drive assembly.

3,550,754
PACKAGE FORMING MACHINE
Robert H. Ganz, Bergenfield, N.J., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Sept. 27, 1967, Ser. No. 670,882
Int. Cl. B65g *15/14, 19/02*
U.S. Cl. 198—164 **13 Claims**



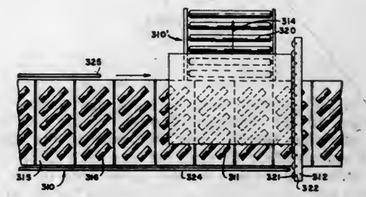
This invention relates to an apparatus for forming a package from a plurality of containers and a wraparound carrier blank. The apparatus includes a mechanism for transferring a blank from a hopper to a mechanism which applies the same to a group of bottles. The mechanism includes means for at least partially separating a lowermost blank from immediately adjacent blanks and a pair of articulately mounted gripping heads which prevent slippage between each gripped blank and the heads, as well as means for bowing each blank during the removal thereof. Articles about which the blanks are wrapped are bottom-supported by individual grouped supporting elements while being conveyed by pusher lugs. Means are provided for conveying different numbers of articles and/or different sizes thereof and means are provided for adjusting the relative position of each pusher lug and associated supporting elements depending upon the particular number and/or size of containers being conveyed. The pusher lugs are articulately carried by endless members to components for accurately sized articles and prevent breakage or damage thereto during the conveying operation.

3,550,755
ENDLESS CONVEYOR FOR A DISHWASHER WITH LINKS INTERCONNECTING ADJACENT DOLLIES
Tore H. Noren, 1350 Donner Ave., San Francisco, Calif.
Filed May 17, 1968, Ser. No. 730,019
Int. Cl. B65g *15/00*
U.S. Cl. 198—181 **3 Claims**



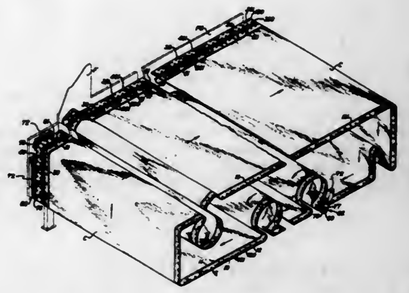
An endless conveyor for a dishwasher including a table having an endless track for supporting an endless train of dollies which in turn support dish-containing baskets, the dollies being interconnected by links. The train of dollies is intermittently moved so that only one dolly at a time with its basket is brought before an operator who places the soiled dishes in the basket. The dollies carry the dishes through the dishwasher where they are washed and sterilized after which the clean dishes can be removed from the baskets. Certain dollies carry track wipers of novel construction.

3,550,756
CONVEYOR HAVING PROVISION FOR DISCHARGING LOADS AT AN ANGLE GENERALLY TRANSVERSE TO THE LINE OF TRAVEL ON THE CONVEYOR
Andrew T. Kornylak, Hamilton, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio
Filed Sept. 13, 1967, Ser. No. 667,492
Int. Cl. B65g *39/20*
U.S. Cl. 198—183 **9 Claims**



Conveyors, having associated therewith means to divert loads from the normal line of travel, have means thereon to reduce the drag of the loads on the conveyor elements at the point of diversion. A diverter element is sometimes positioned adjacent the path of travel of a load and is provided with antifriction means on its face to reduce the friction of the load in changing its direction of travel. Antifriction means is provided on conveyor elements, either in the surface of a belt conveyor, or in the peripheral surface of conveyor rollers, which means is so arranged that it tends to cause a load to partake of motion in two directions at an angle to each other, the resultant of which is a path substantially normal to the line of travel on the conveyor.

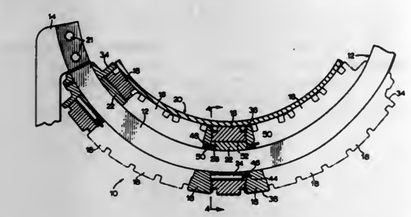
3,550,757
APPARATUS FOR SUPPORTING, TENSIONING, AND DRIVING A FLEXIBLE CONVEYOR
Peter D. Kaspar, Dover, Del., assignor to Internation Playtex Corporation, Dover, Del., a corporation of Delaware
Filed Feb. 12, 1968, Ser. No. 704,918
Int. Cl. B65g *15/00*
U.S. Cl. 198—184 **26 Claims**



Apparatus for supporting, tensioning, and driving a flexible conveyor so that it will be held taut and substantially wrinkle free during its conveying operation.

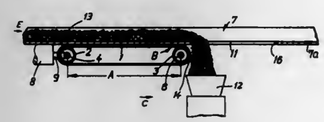
Means are provided for maintaining substantially uniform tension on the flexible conveyor as it travels both in a straight and in a curved path by providing an intermediate tensioning means between an edge of the conveyor and its associated drive means.

3,550,758
IDLER ROLLER FOR CONVEYOR BELTS
Peter Stalker, 127 Bridge St. E, Belleville, Ontario, Canada
Filed Oct. 24, 1968, Ser. No. 770,365
Int. Cl. B65g *15/08*
U.S. Cl. 198—192 4 Claims



An idler for conveyor belts having a shaft positioned at right angles to the direction of travel of the belt and a number of rollers spaced along the length of the shaft. A spacer is positioned on the shaft between each roller. Lubricant is introduced through nipples at the ends of the shaft and passes through a channel to the bearing surface of each roller. Sealing members are secured to each sidewall of the rollers and the facing spacer walls to retain lubricant therebetween and in contact with the bearing surface of each roller. A spiral groove is formed in the sidewalls of each roller. Upon rotation of the roller, the lubricant is pressurized within the groove.

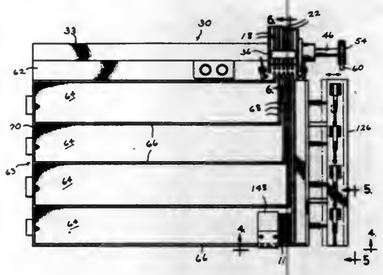
3,550,759
APPARATUS FOR TRANSPORTING TOBACCO OR THE LIKE
Udo Von Papen, Hamburg-Bergedorf, Germany, assignor to Hauni-Werke Korber & Co. Kg., Hamburg-Bergedorf, Germany
Filed July 5, 1968, Ser. No. 742,622
Claims priority, application Germany, July 22, 1967, H63357
Int. Cl. B65g *15/60, 47/38*
U.S. Cl. 198—205 16 Claims



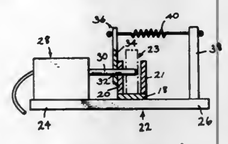
A transporting apparatus for shredded tobacco which comprises a vibrating chute having a bottom wall provided with an outlet for gravity flow of tobacco therethrough. The outlet can be closed by an endless belt or chain having an upper stringer which is rolled against the bottom wall in a direction from the upstream end toward the downstream end of the outlet at a speed which at least equals but preferably exceeds the speed of tobacco travel in the chute so that the belt reaches the downstream end of the outlet ahead of the front end of the tobacco stream. This prevents the belt from pinching particles of tobacco between its upper stretch and the bottom wall of the chute at the downstream end of the outlet.

3,550,760
ASSEMBLY APPARATUS FOR CAST LINES OF TYPE
Jack S. Troeger, South Bend, and Rudolph Fermi, Mishawaka, Ind., assignors to Andrew Troeger & Company, South Bend, Ind., a co-partnership
Filed Feb. 26, 1968, Ser. No. 708,093
Int. Cl. B41b *9/16*
U.S. Cl. 199—61 1 Claim

Apparatus for assembling line typecastings issuing from a plurality of typecasting machines each having a chute connected thereto for guiding said castings from the machines to a conveyor which carries the castings to an assembly table on which they are deposited between retainers at predetermined positions, each correlated with a selected typecasting machine whereby the castings from each machine are sequentially positioned in a group different from the grouped castings from other machines.

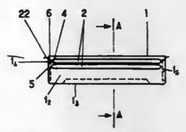


3,550,761
CASTING ASSEMBLY APPARATUS
Rudolph Fermi, Mishawaka, Ind., assignor to Andrew Troeger & Company, South Bend, Ind., a co-partnership
Filed June 17, 1968, Ser. No. 737,728
Int. Cl. B41b *9/16*
U.S. Cl. 199—61 2 Claims



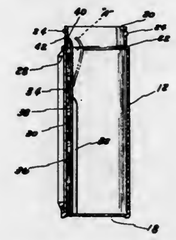
A chute used in apparatus for assembling printing type line castings and having an upper end adapted to be connected to the discharge end of a type casting machine and a lower discharge end. A retainer means normally obstructing the passageway of the chute intermediate its length is shiftable out of said passageway. Power actuated means is provided for withdrawing the retainer means from said passageway. Means responsive to the passage of a discharged casting thereacross for actuating the retainer withdrawal means is positioned above and in the path of the casting.

3,550,762
BOX, SPECIFICALLY FOR MATCHES
Christian Henri Jose Marie Gau, Paris, France, assignor to Service D'Exploitation Industrielle Des Tabacs Et Des Allumettes, Paris, France
Filed June 20, 1968, Ser. No. 738,593
Claims priority, application France, June 30, 1967, 112554
Int. Cl. A24f *27/00*
U.S. Cl. 206—20 12 Claims



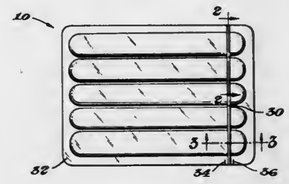
The invention relates to a box specifically for matches formed by a drawer and a cover at least partially enveloping the drawer while braking means are provided between the cover and drawer for preventing their inopportune dissociation, the drawer being made from a sheet of plastic and having a central bottom part at a lesser depth than the maximal depth of the drawer, this central bottom part being connected to bottom edges by rigidifying ribs.

3,550,763
COMBINATION CIGARETTE CASE
Daniel T. Rushlow, 4194 Biddle St., Wayne, Mich. 48184
Filed Apr. 21, 1969, Ser. No. 817,869
Int. Cl. A45c *15/00*; B65d *25/54*
U.S. Cl. 206—38 9 Claims



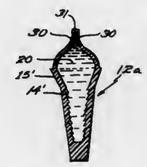
A cigarette case having a transparent wall for displaying a photograph or the like.

3,550,764
OPENING DEVICE
Ruben A. Tigner, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed July 5, 1968, Ser. No. 742,700
Int. Cl. B65d *75/58, 77/30, 85/72*
U.S. Cl. 206—46 12 Claims



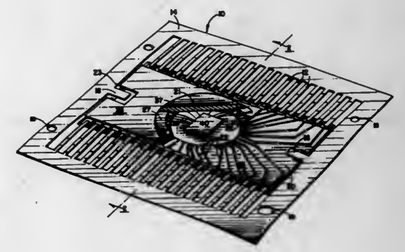
A tear opening device comprising a thickened bead integrally formed in a web of synthetic resinous thermoplastic film. The bead is formed of a crystalline thermoplastic as, for example, polyvinylidene chloride. Beads formed of such materials exhibit desirable qualities of hardness, high tensile strengths, and relatively low extensibility. Film laminates are effectively torn open by strategically arranging the different plies of the laminate according to the physical properties of each ply, and by forming the bead in a ply composed of a highly crystalline material.

3,550,765
ELECTRICALLY INSULATIVE THIMBLE WITH CONFINED VISCOUS BONDING MEDIUM
John W. Anderson, Newtown, Conn. (Barnabas Road, Hawleyville, Conn. 06440)
Filed May 28, 1968, Ser. No. 732,781
Int. Cl. B65d *85/72*; H02g *15/08*
U.S. Cl. 206—46 7 Claims



An insulative thimble for capping the bared terminal of an electric conductor. As furnished to the consumer there is contained within the hollow of the thimble prior to its application to the conductor terminal a charge of viscous or flowable substance such as an uncured cement which will solidify or harden and thus become a permanent bonding medium when exposed to a setting agent without the use of heat. The setting agent may be merely ambient air or some more specialized material such as a component of epoxy adhesive. The bonding charge is initially isolated from the setting agent or ambient air by means of an imperforate flexible thin wall joined with or forming part of the tubular wall of the thimble. Such wall is rupturable or removable when the thimble is about to be applied to the conductor terminal thereby to admit the bared conductor terminal to immersion in the thimble-contained charge before the latter is exposed to the setting agent. The thimble-closing wall can have a variety of structural forms illustrated in different views of the drawings.

3,550,766
FLAT ELECTRONIC PACKAGE ASSEMBLY
David Nixen, Anaheim, and Alvin B. Phillips, Newport Beach, Calif.
Filed Mar. 3, 1969, Ser. No. 803,903
Int. Cl. H05k *5/00*
U.S. Cl. 206—46 5 Claims

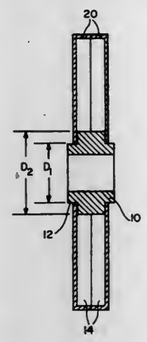


The package assembly is formed with a flat thin, metal support frame having a plurality of conductive leads extending inward towards the center of the frame. A flat insulating substrate, having an opening through its center and an electrical contact area arranged on one surface thereof, connecting points on the circumference of the opening to points of an outer edge of the insulating substrate. The insulating substrate is positioned such that the plurality of leads are each connected to at least one electrical contact area near the outer edge of the insulating substrate. At least two support members extend from the frame to the insulating substrate to support the substrate in a fixed relationship with respect to the frame when the conductive leads are severed from the frame. A top plate of insulating material sandwiches the conducting areas from substantially the edge of the insulating substrate to the edge of the defined opening. The semiconductor device is inserted into the opening and secured to the contact areas. A flat heat sink is sealed to the insulating substrate to close the opening from the bottom. A ring is sealed to the second insulating substrate around the defined opening on the top. A cap is then sealed on the ring to effect a hermetic seal around the semiconductor device.

3,550,767
PHOTOGRAPHIC FILM-REEL CONTAINER
Harry J. Halewijn, Cochituate, Mass., assignor to Synergistics Inc., East Natick, Mass., a corporation of Massachusetts by mesne assignments
Filed May 16, 1969, Ser. No. 825,338
Int. Cl. B65d *85/67*
U.S. Cl. 206—52 3 Claims

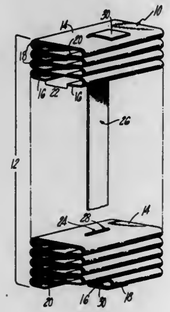
A photographic film-reel container employing a hollow cylindrical hub having a flexible disklike flange mounted on

each end of the hub. At the outer periphery of each flange and generally orthogonal to the plane of the flange is a circumferential lip extending inward toward the other flange.



When the flanges are in the first of two stable positions, the device is a light-tight container for transporting film. When the flanges are in the second stable position, the film can be transferred to and from the device.

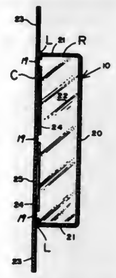
3,550,768
SEAL BLANK
Frank E. Briggs, Southington, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Mar. 14, 1969, Ser. No. 807,249
Int. Cl. B65d *63/06, 71/00, 85/62*
U.S. Cl. 206—65 **9 Claims**



Stacked sleeve seal blanks having configured apertures in their back plates are secured in a uniformly oriented manner through interengagement with a semirigid binder ribbon passing through and cooperating with the apertures. The ribbon may be bent or twisted at its ends to temporarily lock the seal blanks together until the entire stack is inserted as a unit into a suitable blank feeding device.

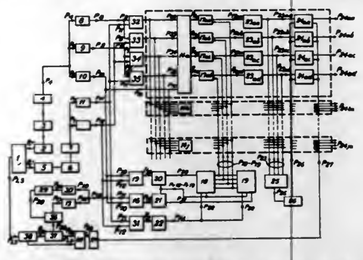
3,550,769
DISPLAY PACKAGE FOR TAPES AND THE LIKE
Allan I. Wolk, 12805 Hickory Road, North Miami Beach, and Morton Marks, 510 NE. 180th Drive, North Miami Beach, Fla. 33161
Filed May 23, 1969, Ser. No. 827,370
Int. Cl. B65d *25/54, 43/10, 85/00*
U.S. Cl. 206—78 **2 Claims**

A display package for tapes and the like made of transparent plastic material having a crown shaped receptacle with flanges extending along its edge portions forming an open chamber for receiving an article, slotted portions at the juncture of the flanges and the receptacle. A closure plate having interlocking members received by the slotted portions



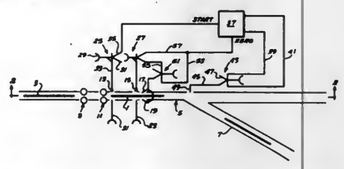
for enclosing the chamber and locking the closure plate to the receptacle.

3,550,770
METHOD FOR AUTOMATIC SORTING OR RECORDING OF OBJECTS AND APPARATUS FOR CARRYING OUT THE METHOD
Svend Aage Lund, Egebakken, and Allen Northeved, Bagsvaerd, Denmark, assignors to Svejsecentralen, Glostruk, Denmark
Filed July 5, 1968, Ser. No. 742,780
Claims priority, application Denmark, July 7, 1967, 3532/67
Int. Cl. B07c *3/14*
U.S. Cl. 209—111.7 **15 Claims**



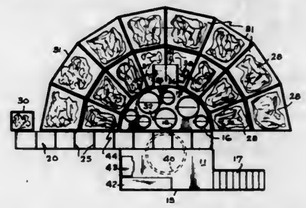
Method and apparatus for automatic sorting or recording of objects placed individually in or caused to pass the field of vision of at least one video camera, which records an optical reproduction of a visual, coded information provided on each object, said information indicating the sorting destination or other characteristics of each object by means of a code consisting of at least one group of parallel lines or concentric rings and being so formed that the complete information can be registered by a single line scanning whereafter the video signals produced by the camera via electronic circuits control sorting or registration means.

3,550,771
FLUIDIC WEIGHING AND SORTING SYSTEM
Chris E. Spyropoulos, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 12, 1969, Ser. No. 806,482
Int. Cl. B07c *5/16*
U.S. Cl. 209—121 **5 Claims**



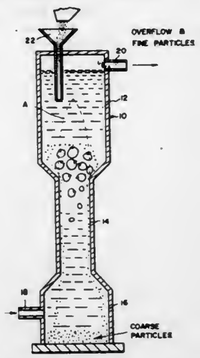
A fluidic system for weighing and sorting items transported along a main guide path into a plurality of groups. A predetermined velocity is imparted to the item, which is then acted upon by a retarding means to slow down the item at a rate proportional to the weight of the item. The item actuates a delay means which in turn operates a switching means causing items of a first weight to be diverted into a branch guide while all other items continue down the main guide.

3,550,772
AUTOMATIC LAUNDRY SORTING APPARATUS
Daniel E. Melvin and John W. Randolph, 1786 N. Spring St., Los Angeles, Calif. 91131
Filed Jan. 21, 1969, Ser. No. 792,448
Int. Cl. B07c *7/00*
U.S. Cl. 209—125 **15 Claims**



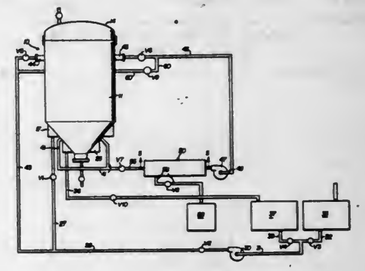
The automatic laundry sorting apparatus disclosed herein includes a sorting platform to which one end of a conveyor delivers soiled laundry for manual sorting and collection into a plurality of collection containers related to specific articles of laundry. Means are provided on each container for sensing the quantity of laundry collected and for releasing the laundry into mobile containers for transportation to washing machines when a predetermined weight or number of laundry pieces reaches a given amount. Disposed between the collection containers and the mobile containers, there is provided an extendable intermediate conveyor rotatably carried on the sorting platform adapted to carry soiled laundry from selected ones of the collection containers to selected mobile containes. Control means are employed for automatically dumping the laundry from selected collection containers onto the intermediate conveyor and for sequencing the advancement and retraction of the conveyor as well as the rotation thereof for proper alignment with selected ones of the mobile containers.

3,550,773
SIZE SEPARATION OF FINE POWDERS BY COLUMN ELUTRIATION
Gerard J. Villani, and Allen L. Klibanoff, Boston, Mass., assignors to National Research Corporation, Newton Highlands, Mass., a corporation of Massachusetts
Filed Nov. 23, 1966, Ser. No. 596,483
Int. Cl. B07b *3/00;* **B03b** *3/34*
U.S. Cl. 209—138 **2 Claims**



Apparatus for elutriating powders comprises a vertical tubular column having means for increasing the fluid velocity along a longitudinally central zone of the column.

3,550,774
METHOD OF AND APPARATUS FOR FILTERING
Gene Hirs, Birmingham, and Richard H. Wykoff, Livonia, Mich., assignors to Hydromation Engineering Company, Livonia, Mich., a corporation of Michigan
Continuation-in-part of application Ser. No. 723,446, Apr. 23, 1968, and a continuation-in-part of 696,624, Jan. 9, 1968. This application Mar. 20, 1969, Ser. No. 808,868
Int. Cl. B01d *41/00*
U.S. Cl. 210—67 **13 Claims**

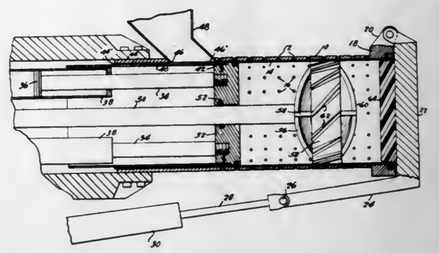


A method and apparatus for rejuvenating a granular bed of filter medium containing an appreciable amount of dirt in the form of particles smaller than the medium granules. The medium and the dirt are formed into a slurry and the slurry is passed with appreciable flow velocity over a perforate separating element, a portion of slurry being withdrawn through the perforate element to remove part of the dirt. The remaining slurry containing the medium flows past the perforate element, and the bed is reformed for subsequent filter operations. The formation of the slurry is promoted by the use as the filter medium of granules of an organic polymeric material such as polyvinyl chloride, polyethylene, polystyrene, sawdust or the like, since such materials are light in weight and are obtainable in shapes readily susceptible to slurrying. The amount of liquid in the slurry and the number of cycles during which the slurry passes the perforate element are variable to vary the extent of cleaning of the medium. Also variable is the proportion of the slurry withdrawn through the perforate element.

ERRATUM

For Class 210—69 see:
Patent No. 3,551,333

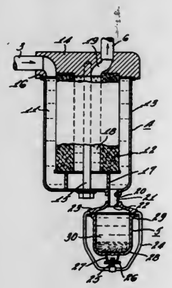
3,550,775
METHOD AND MEANS FOR SEPARATING ENTRAINED LIQUIDS FROM SOLIDS
William L. Cooley, 14215 Squirrel Hollow Lane, Saratoga, Calif. 95070
Filed Mar. 29, 1968, Ser. No. 717,318
Int. Cl. B01d *29/00*
U.S. Cl. 210—81 **5 Claims**



Means for separating entrained liquids from solids, said means comprising: a foraminous cylinder having a closed bottom; a piston reciprocable in said cylinder and means

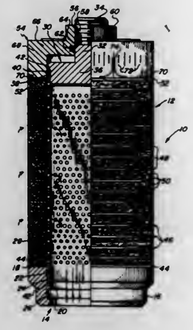
operable between said piston and said closed bottom for cleaning said foraminous cylinder. A method of separating entrained liquids from solids, said method comprising: progressively compressing a mixture of solids and liquids in a chamber having foraminous walls and during such compression repeatedly cleaning said walls.

3,550,776
FUEL LINE PURIFIER
William I. Hamilton, Chicago Heights, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 6, 1968, Ser. No. 781,750
Int. Cl. B01d *35/02*
U.S. Cl. 210—94 **9 Claims**



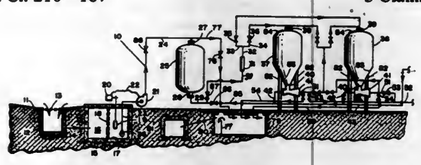
A fuel line filter and sediment trap for internal combustion engine. The filter is positioned above the bottom of the container and a conduit leads to the trap which is positioned below the filter.

3,550,777
ADJUSTABLE FILTER ELEMENT
Jack S. Singleton, Sparta, N.J., assignor to Fluid Dynamics Incorporated, Morristown, N.J., a corporation of New York
Continuation of application Ser. No. 678,280, Oct. 18, 1967, now abandoned. This application May 23, 1968, Ser. No. 733,739
Int. Cl. B01d *27/00, 29/22*
U.S. Cl. 210—91 **3 Claims**



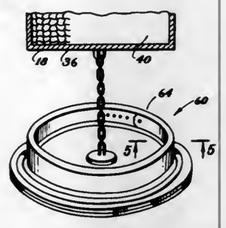
An adjustable filter element including a plurality of stacked compressible filter discs and a selectively adjustable loading plate for applying or releasing a columnar load upon the discs to compress or loosen them for varying the filter rating of the filter element.

3,550,778
WASTE WATER RECLAMATION SYSTEM
Gussie Kesselman, North Miami Beach, Fla., assignor to Gussie Kesselman, a part interest. by mesne assignment and Charles Brenner, North Miami Beach, Fla., a part interest. by mesne assignment
Filed Apr. 21, 1969, Ser. No. 817,950
Int. Cl. C02b *5/00*
U.S. Cl. 210—167 **3 Claims**



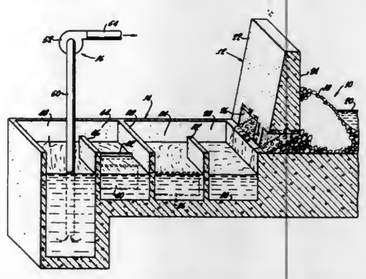
A waste water reclamation system for car wash installations having a catch basin, a lint removing trap and sand filter tank receiving the waste water from the catch basin in sequence for removing the solids from the waste water, a pair of carbon filter tanks for purifying the water, the pair of carbon filter tanks being connected so as to be used in sequence, in parallel or singly in the system and a clear well for collecting the purified water for reuse or for softening and heating prior to reusing.

3,550,779
SWIMMING POOL FILTER
Peter Alesandrio Cattano, Sr., 44 Miller Ave., Freeport, N.Y.
Filed May 8, 1969, Ser. No. 823,043
Int. Cl. E04h *3/20*
U.S. Cl. 210—169 **6 Claims**



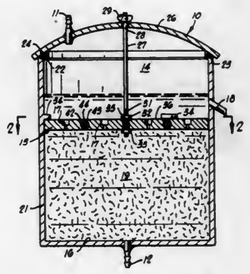
A sequential filter arrangement consisting of a perforated basket followed by a porous, fibrous material attached to the basket is provided for use with swimming pool filters.

3,550,780
COKE-WATER SEPARATOR METHOD
John Van de Velde, Long Beach, and Leonard D. Kosonen, Anaheim, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Dec. 11, 1968, Ser. No. 782,939
Int. Cl. E02b *8/02*
U.S. Cl. 210—170 **2 Claims**



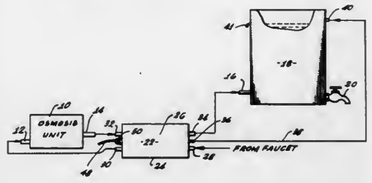
A coke-water separator method including a water settling basin and a coke pit separated by a retaining wall having specifically dimensioned passageways therethrough is disclosed. The passageways through the retaining wall are designed such that a line intersecting the edge of the basin and the top of the passageway on the coke pit side of the wall forms an angle with the bottom of the passageway approximately equal to the angle of repose of drained coke. The concept is of general application.

3,550,781
VAPORIZATION PLATE AND FLUID FILTER
George E. Barrow, 1609 Field Drive, Enid, Okla. 73707
Filed May 9, 1969, Ser. No. 823,379
Int. Cl. B01d *35/18*
U.S. Cl. 210—180 **5 Claims**



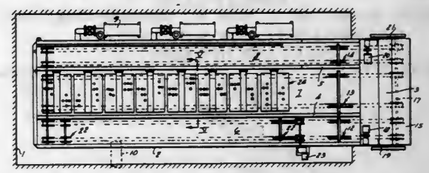
The present invention has primary utility for continuously removing contaminants from a fluid stream, and in one embodiment comprises a closed vessel having a vapor outlet at the top thereof and a liquid inlet at the bottom. Within the closed vessel may be secured heating means, such as a plate containing an electrical resistance heater, which plate is positioned to form two chambers within the vessel. A plurality of apertures having nonuniform cross-sectional areas are formed in the plate with the portion of the apertures having the larger cross-sectional area opening into the upper chamber and the portion of the apertures having the relatively smaller cross-sectional area opening into the lower chamber of the vessel. Filter means may be provided in the lower chamber and an outlet, or overflow, may be provided through the wall of the vessel above the plate for removal of the purified liquids.

3,550,782
WATER STERILIZER APPARATUS
Louis P. Veloz, 500 S. Madison, Pasadena, Calif. 91106
Filed May 9, 1968, Ser. No. 727,772
Int. Cl. B01d *57/00;* **C02 b** *3/00*
U.S. Cl. 210—192 **9 Claims**



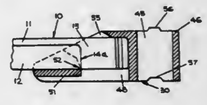
A pair of parallel quartz tubes extend through a housing. The tubes are connected in a water purification system in which water from a faucet to a reverse osmosis unit moves through one quartz tube, and water from the reverse osmosis unit moves through the other tube to a water tank. A string of ultraviolet lamps is located between the tubes so as to sterilize the water in both tubes. Also, air enters the housing through air filters, and the lamps produce ozone which is directed to the top of the water tank through an air line.

3,550,783
LIQUID TRANSFER MEANS FOR SETTLING TANKS
Daniel E. Holloway, Torrance, Calif., assignor to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware
Filed July 30, 1968, Ser. No. 752,447
Int. Cl. B01d *21/24*
U.S. Cl. 210—522 **4 Claims**



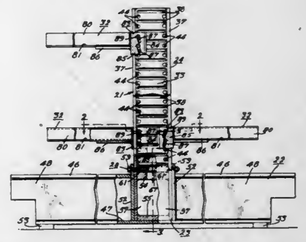
Transfer means for causing a high quantity low-velocity flow of liquid from a settling tank in liquid clarification installations, including a transfer or discharge assembly embodying increased linear feet of overflow edge.

3,550,784
HANGER OF SLACKS OR THE LIKE
John H. Batts, Grand Rapids, Mich., assignor to John Thomas Batts, Inc., Zeeland, Mich., a corporation of Michigan
Filed Nov. 7, 1967, Ser. No. 681,207
Int. Cl. A47j *51/084*
U.S. Cl. 211—116 **6 Claims**



This invention relates to the field of garment hangers of the type designed to support a garment such as slacks, when draped over a rod. The invention includes a bar having ends shaped to seat in a receiving pocket or chamber of a retainer bracket from which the bar is cantilevered for the purpose of displaying the garments. A separate retainer bracket is provided for each bar. The bars are shiftable from one retainer bracket to the other without removal of the garment but when in operating position in the retainer are held against lengthwise removal.

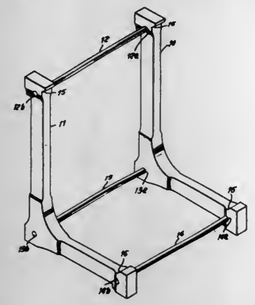
3,550,785
FREE-STANDING SUPPORT STRUCTURE
Edward A. Siez, 136 E. Third St., Landsale, Pa. 19446
Filed Oct. 12, 1967, Ser. No. 674,952
Int. Cl. A47f *5/10*
U.S. Cl. 211—176 **10 Claims**



A freestanding support structure including at least two main frame members, each having an upright, support means to store various static load materials thereon, and an elongated base to support the upright. The base has a receptacle intermediate its ends to receive one end of the upright and feet at its opposite ends to support the base sufficiently above the floor level to permit it to be deflected downwardly in the area of the receptacle when the upright is loaded, causing compression forces in the receptacle to clamp the upright

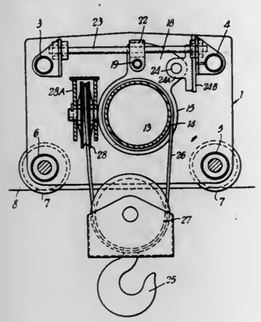
and rigidly fix it in its upright position. The several main frame members are aligned and interconnected in spaced parallel relation by horizontal beams spanning between the uprights along with tension members or sway rods spanning obliquely between the uprights in crossed relationship.

3,550,786
DISPLAY RACK
Otto C. Brown, 209 S. Main St., Rochester, N.H. 03867
Filed Feb. 17, 1969, Ser. No. 799,698
Int. Cl. A47f *5/10*; G09f *1/10*
U.S. Cl. 211—177 1 Claim



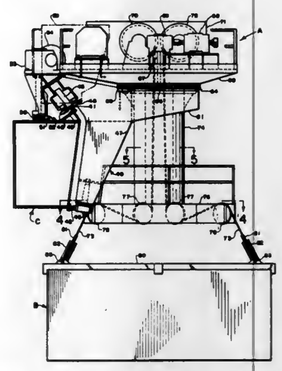
A novel merchandising display rack which is slidably connected together without the use of hardware or other fastening devices and which can be oriented in various attitudes depending on the character of the goods which are being displayed. The rack comprises a pair of substantially right angular-shaped end portions being joined together by sets of rigid tube portions received in aperture means adjacent the terminal ends thereof. Both terminal ends of each of the end portions are formed with abutment stops, whereby goods may be supported on the rack regardless of which attitude the rack assumes.

3,550,787
WINCHES
Raymond John Hicks, Llandrindod Wells, Wales, assignor to Compact Orbital Gears Limited, Rhayader, Radnorshire, Wales, a British Company
Filed Dec. 2, 1968, Ser. No. 780,381
Claims priority, application Great Britain, Dec. 2, 1967, 54,942/67
Int. Cl. B66c *19/00*
U.S. Cl. 212—125 13 Claims



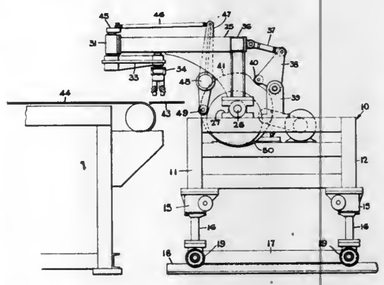
A winch, which may be of the crab-type, with a horizontal drum and an internal epicyclic gear drive. The winch drum is journaled in end plates which are suspended from a single point which takes all the weight of the drum when there is no load. The end plates are also journaled at two further points which lie in the plane tangential to the drum surface in which the load is normally applied and so take the weight of any load. The construction of the frame from which the drum and its plates are suspended and the drive to the epicyclic gear, together with the mounting arrangement for the drum, allow certain distortion to take place under load without detrimental effect.

3,550,788
OVERHEAD TRAVELING CRANE AND HOIST MECHANISM THEREFOR
Raimunds Auzins, Canton, and Stephen P. Yendrich, Jr., Beloit, Ohio, assignors to United Industrial Syndicate, Inc., Alliance, Ohio, a corporation of New York
Original application Dec. 7, 1967, Ser. No. 688,815, now Patent No. 3,467,263, dated Sept. 16, 1969. Divided and this application Apr. 29, 1969, Ser. No. 820,099
Int. Cl. B66c *19/00*
U.S. Cl. 212—128 2 Claims



An overhead traveling crane with a trolley that runs along the side of a girder or other supporting structure in cantilever fashion. The trolley has a turntable mounted thereon which supports a hoist mechanism for lifting and lowering a suspended load.

3,550,789
ARTICLE TRANSFER APPARATUS
Benjamin E. Jaeger, Plano, Ill., and Charles T. Moore, Brockport, Pa., assignors to Brockway Glass Company, Inc., Brockway, Pa.
Filed Mar. 20, 1968, Ser. No. 714,572
Int. Cl. B65g *47/52*
U.S. Cl. 214—1 5 Claims



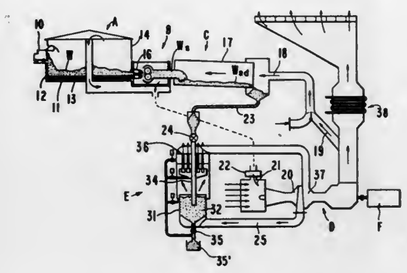
Apparatus for transferring rows of bottles from a single row relatively fast moving conveyor to a wide slower moving conveyor. A pair of elongated gripping bars simultaneously grip the tops of a row of bottles from the fast moving conveyor and then swing arcuately on parallel arms to the slow moving conveyor and release the bottles to form a rank of bottles thereon. The bars are caused to swing tangent to the row of bottles to be picked up and at the point of tangency the speed of the bars is synchronized with the speed of the feed conveyor so that the bottles are gripped by the bars without substantial change of speed or direction. In swinging to the discharge point on the slow moving conveyor the gripping bars are slowed to the speed thereof so that upon release the bottles are not abruptly speeded up or slowed down and are deposited securely upon the discharge conveyor.

3,550,790
ARTICLE RELOCATING SYSTEMS
Allen T. Nobel, 105 Crestline Drive, Boise, Idaho 83702
Filed Jan. 9, 1969, Ser. No. 790,095
Int. Cl. B65g *69/00*
U.S. Cl. 214—1 11 Claims



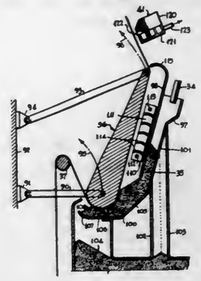
Systems for relocating articles, particularly sprinkler-irrigation pipe sections coupled in end-to-end relationship to define a pipeline and irrigating a long, narrow zone in a field. A mobile frame carrying a conveyor is moved along the pipeline. As the frame moves along the pipeline, pipe sections are uncoupled from one another, deposited on the conveyor, transported transversely to the direction of movement of the frame, and delivered onto the surface of the earth in generally end-to-end relationship and spaced from the pipeline. The delivered pipe sections are then coupled to form a second pipeline for irrigation of another zone in the field, contiguous to the first zone. The pipe sections are automatically dropped in close end-to-end relationship and with sprinkler risers in upright positions, to minimize manual manipulation of the pipe sections. Upright sprinkler riser positioning is effected by supporting the risers while on the conveyor in a position such that, upon dropping of the pipe section from the conveyor, the pipes roll to swing the risers upright. Direction of movement of the frame is maintained in alignment with crop rows by a device which detects location of the crops rows, and automatically operates a steering mechanism for the frame.

3,550,791
MATERIALS STORAGE AND CONVEYING ASSEMBLY
Richard D. Smith, Palo Alto, Dale A. Furlong, Sunnyvale, and Ronald D. Kinsey, Cupertino, Calif., assignors to Combustion Power Company, Inc., Palo Alto, Calif., a corporation of the District of Columbia.
Filed Aug. 30, 1968, Ser. No. 756,596
Int. Cl. B65g *65/38*
U.S. Cl. 214—17 6 Claims



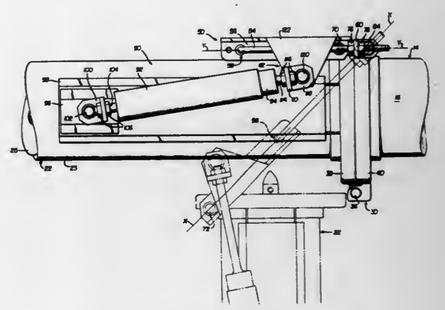
A materials storage and conveying assembly is described in the form of a turntable supportable and rotatable in a chamber, a system for controlling the elevation of the turntable in the chamber and a system for turning the turntable in the chamber for receiving and delivering material respectively to and from the turntable.

3,550,792
INK PARTICLE RESERVOIR
Philip A. Stowell, Paoli, Pa., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Original application July 12, 1965, Ser. No. 471,176, now Patent No. 3,439,650, dated Apr. 22, 1969. Divided and this application Sept. 16, 1968, Ser. No. 798,218
Int. Cl. B65g *65/32*, *65/76*
U.S. Cl. 214—17 3 Claims



An inker station for developing a previously charged dielectric web includes a housing for retaining the particles and discharging them into one input connection of a Venturi-type fitting as an airstream is passed into the other input connection of the fitting. From the fitting the entrained material is discharged into a cyclone separator where undesired small particles are removed, and then into a vibrator separator which excludes unduly large particles and passes only particles within the desired size range back into the housing to contact, and adhere to, the previously charged dielectric web as it is pulled through a portion of the housing. A sniffer disposed at the web exit removes excess background ink particles from the developed web.

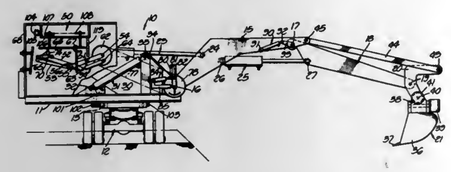
3,550,793
MOUNTING MECHANISM FOR AUGER
Martin A. Davidow, Bettendorf, and James T. Garner, Delmar, Iowa, assignors to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed Nov. 21, 1968, Ser. No. 777,624
Int. Cl. B60p *1/42*
U.S. Cl. 214—83.26 10 Claims



A mounting mechanism for an unloading auger of a combine which pivotally supports one end of a first conveyor on a free end of a second conveyor. The mounting mechanism includes a hinge interconnecting one side of the adjacent ends of the conveyors and a pair of interconnected links having adjacent ends pivotally interconnected and free ends

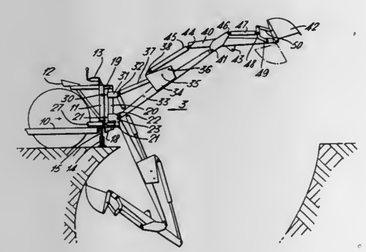
respectively pivotally connected to opposite sides of the respective conveyors with power means for moving the links between first and second positions, both of which define a locking mechanism for holding the conveyors in predetermined positions.

3,550,794
BACK HOE OR GRADER
Don Suverkrop, Bakersfield, Calif., assignor to Hopper, Inc., Bakersfield, Calif., a corporation of California
Filed Mar. 19, 1969, Ser. No. 808,442
Int. Cl. E02f *3/75*
U.S. Cl. 214—138 **10 Claims**



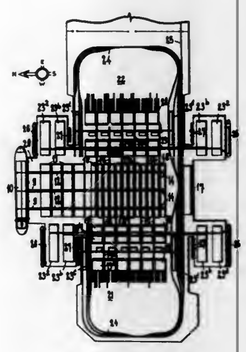
A back hoe or grader has a base member pivotally supporting a boom, and a dipper pivotally mounted at the end of the boom. Hydraulic devices swing the boom about its pivotal support and swing the dipper relative to the boom. Motions of the boom and the dipper are communicated to a control mechanism having adjustable parts to limit the extent of forward and rearward movement of the work implement as well as to control its maximum depth. The control mechanism acts through said hydraulic devices to limit the extent of their movements. A link controlling the attitude of the work implement is connected to one of two pivot locations on the boom, so that the attitude of the work implement carried by the dipper may remain constant with respect to the dipper from back hoe operations, or constant with respect to the grade being cut for grading operations. A subframe is mounted for pivotal movement coaxial with the pivotal support for the boom, and this subframe supports the hydraulic device for swinging the boom. An additional hydraulic device swings the subframe relative to the base member.

3,550,795
MECHANICAL HANDLING DEVICE FOR VEHICLES
Fred Schofield, Leigh, England, assignor to Harrison, McGregor & Guest Limited
Filed Oct. 28, 1968, Ser. No. 771,138
Claims priority, application Great Britain, Nov. 2, 1967, 49870/67
Int. Cl. E02f *3/75*
U.S. Cl. 214—138 **11 Claims**



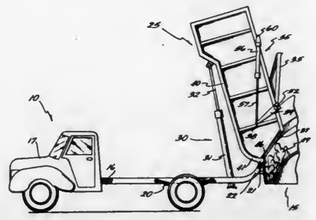
A tractor-mounted mechanical shovel or back hoe comprises a frame securable at the rear of a tractor having a king post movable about a vertical axis and provided with two vertically spaced identical attachment points. A boom member is adapted at one end to be connected pivotally to either of said attachment points. A dipperstick pivotally mounted at a point intermediate its ends on the other end of said boom has at one of its ends a pivotally mounted shovel or the like, and two attachment points, one positioned between the shovel or the like and the boom and the other at the opposite end of the dipperstick to the bucket shovel or the like. A first hydraulic jack is pivotally connected at one end to the other of the vertically spaced attachment points on the king post and at the other end to an attachment point between the ends of the boom, a second hydraulic jack is pivotally connected at one end to one of the two attachment points on the dipperstick and at the other end to an attachment point located between the ends of the boom and on the same face thereof as said first hydraulic jack. The boom, together with said first and second jacks, is detachable and invertible relative to the frame, king post and dipperstick to enable the device to be used efficiently as a digger-ditcher or alternatively as a digger-loader.

3,550,796
METHOD OF TRANSSHIPMENT OF CONTAINERS FROM A CONTAINER SHIP TO LOADING PLATFORMS
Fedde Walda, 15 Leendert Sparreboomstraat, Rotterdam, Netherlands
Filed Sept. 26, 1968, Ser. No. 762,817
Claims priority, application Great Britain, Sept. 29, 1967, 44,542/67
Int. Cl. B63b *27/00*
U.S. Cl. 214—152 **5 Claims**



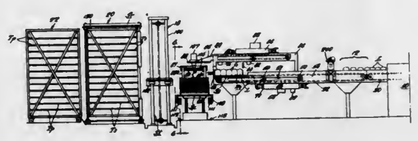
In this method the containers are transferred from the container ship to a first storage structure serving as a buffer. After the containers have been so transferred, they are conveyed to a second storage structure having substantially the same storage capacity as the first storage structure, and during the conveying the containers are sorted according to destination. The containers are stacked in groups according to destination in the second storage structure. After the containers have been so stacked, they are conveyed to a third storage structure having substantially the same storage capacity, while keeping the containers in the groups according to destination. During this conveying operation the containers are sorted within each such group into subgroups according to means of regional transportation. The containers are stacked in the third storage structure in groups according to destination divided into subgroups according to means of regional transportation, and after the containers have been so stacked they are conveyed to transfer each subgroup to a separate loading platform for regional transportation.

3,550,797
METHOD OF COLLECTING MATERIAL BY MEANS OF DUMP TRUCKS
Ronald W. Nickel, 604 Glenview Ave., Oconomowoc, Wis. 53066
Original application May 25, 1966, Ser. No. 552,765, now Patent No. 3,447,700. Divided and this application Mar. 25, 1969, Ser. No. 810,102
Int. Cl. B65g *67/02*
U.S. Cl. 214—152 **6 Claims**



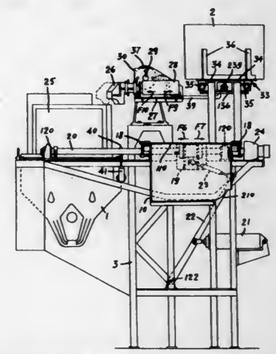
A trucking arrangement in which a small dump truck is adapted to dump its contents into a larger truck for hauling to a remote destination. The small dump truck is provided with a coupling means that engages the larger trucks when the dump body on the small truck is elevated. This couples the two trucks together so that they cannot separate during the transfer operation and the trucks are held in relative positions so that the large truck receives the contents being discharged out of the small truck.

3,550,798
METHOD FOR ARRANGING AND PLACING GROUPS OF ARTICLES IN RACKS
Robert E. Bauer, 8105 Flourtown Ave., Wyndmoor, Pa. 17752
Original application Mar. 14, 1966, Ser. No. 533,902, now Patent No. 3,432,045, dated Mar. 11, 1969. Divided and this application Jan. 22, 1969, Ser. No. 792,934
Int. Cl. B65g *47/00*
U.S. Cl. 214—152 **3 Claims**



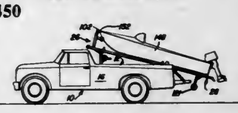
A method for handling articles such as loaves of bread discharged from the discharge conveyor of an automatic packaging machine comprising: accumulating the loaves of bread at an accumulator station, the accumulator station including a movable platen; orienting the loaves of bread at the accumulator station and then directing the oriented loaves onto the platen in a preselected pattern; and thereafter transferring the oriented loaves of bread from the platen to a pallet supported at a pallet station and delivering the oriented loaves of bread in the pallet by transferring means to a stationary rack. The method further includes transferring loaded pallets from the stationary rack to a portable rack after the stationary rack is filled with pallets to permit the oriented loaves of bread in the pallets to be moved in the portable rack to some further delivery station.

3,550,799
AUTOMATIC TRAY FEEDER FOR CIGARETTE PACKER
Renato Marradi, Bologna, Italy, assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Nov. 27, 1968, Ser. No. 779,362
Claims priority, application Italy, Nov. 27, 1967, 7,454A/67
Int. Cl. A24c *5/356*
U.S. Cl. 214—302 **6 Claims**



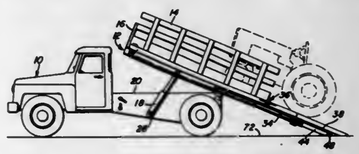
Automatic tray loading means for a cigarette packer including means for transferring and inverting a tray over the hopper and for removing the tray therefrom.

3,550,800
BOAT CARRIER AND LAUNCHER FOR PICKUP TRUCKS
W E Robinson, Rte. 1, Box 116G, Haughton, La. 71037
Filed Dec. 16, 1968, Ser. No. 784,003
Int. Cl. B60r *9/08*
U.S. Cl. 214—450 **12 Claims**



A rearwardly and downwardly inclined elongated guideway for support from the load bed of a pickup truck and having an elongated boat cradle removably guidingly engaged therewith for movement therealong and including rear ground engageable support wheels for support of the rear end of the cradle from the ground as the cradle is shifted rearwardly of the guideway. The cradle includes boat hull support means whereby a partially floating boat hull may be advanced longitudinally toward the cradle and supported therefrom and the pickup truck-mounted guideway structure includes winch means whereby the cradle, with a boat supported therefrom, may be winched into its forward and uppermost position on the guideway.

3,550,801
EXTENDABLE AND TILTABLE LOAD BED STRUCTURE
Robert W. Larson, Brielle, and Jerome M. Larson, Spring Lake Heights, N.J., assignors to Larson International Corporation, a corporation of New Jersey
Filed Oct. 18, 1968, Ser. No. 768,757
Int. Cl. B60p *1/04*
U.S. Cl. 214—505 **9 Claims**



A load bed assembly including a rear marginal edge and a first tailgate member pivotally supported therefrom for

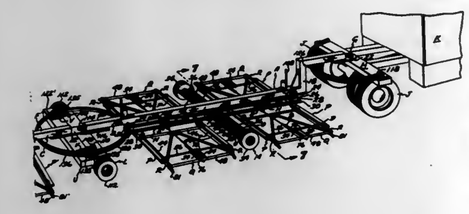
swinging between a first upstanding position and a second rearwardly projecting generally horizontally disposed position. The assembly further includes second gate member pivotally supported from the free marginal edge portion of the first member for swinging relative to the first member between a first position generally paralleling and disposed behind the first member and a second position generally coplanar with and forming an outward extension of the free edge portion of the first member. Also, the assembly includes actuator structure operative to support the second member in its first position when the first member is in its second position and to support the second member in either its first or second position when the first member is in its first position.

3,550,802

POWER-DRIVEN CONTAINER TRANSPORTING DEVICE

Charles J. Ellerd, 105 Panorama Drive, Bakersfield, Calif. 93305

Filed Apr. 14, 1969, Ser. No. 815,875
Int. Cl. B60p *1/44*
U.S. Cl. 214—512 12 Claims



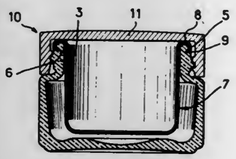
A number of vehicles that can be connected in end-to-end relationship and drawn by a forwardly disposed pair of power-driven wheels, with each vehicle including a number of vertically movable frames which extend outwardly therefrom that are adapted to engage and raise a number of mobile containers to elevated positions whereby they can be transported to a desired location. In addition, at least a portion of the vehicles are provided with pivotally movable rear wheel assemblies that automatically rotate in a horizontal plane to substantially track with the power-driven wheels and permit manipulation of the train of vehicles on narrow streets, around sharp corners, in confined areas, and the like.

3,550,803

COMPOUND GLASS AND PLASTIC RECEPTACLE

Pierre Pelli, Paris, France, assignor to Societe Anonyme dite: L'Oreal

Filed Dec. 23, 1968, Ser. No. 786,194
Claims priority, application France, Dec. 28, 1967, 134156
Int. Cl. B65d *11/16*
U.S. Cl. 215—12 4 Claims



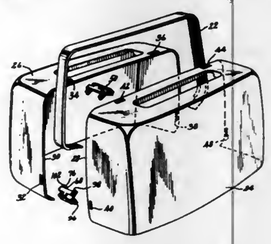
A receptacle for cosmetic creams and the like having volatile constituents, which receptacle comprises a glass outer container and a plastic inner container.

3,550,804

ELECTRIC TOASTER CASING CONSTRUCTION

Harold A. De Remer, Allentown, Pa., assignor to General Electric Company, a corporation of New York

Filed Mar. 28, 1969, Ser. No. 811,485
Int. Cl. B65d *7/12*; A47j *37/08*
U.S. Cl. 220—4 3 Claims



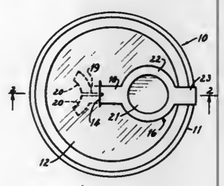
An electric toaster construction wherein a unique H-shaped clip is provided for connecting two toaster casing shells to each other.

3,550,805

CLOSURE HAVING INTEGRAL SPOON

Michele Leonforte, 19 Juniper Road, Kings Park, N.Y. 11754

Filed May 23, 1969, Ser. No. 827,320
Int. Cl. B65d *41/00*
U.S. Cl. 220—42 4 Claims



The bowl of a spoon and the handle thereof are removably embedded in apertures in a closure member which is removably engaged with the mouth of a cylindrical container. The spoon seals the closure member while engaged therewith but upon removal of the spoon from the closure member, the contents of the cylindrical container are permitted to be dispensed through the aperture previously occupied by the bowl and into said bowl from whence said contents may be dispensed by the user.

3,550,806

METALLIC STRUCTURES

Dwight E. Peerman, Leonard R. Vertnik, Minneapolis, and Edgar R. Rogier, Minnetonka, Minn., assignors to General Mills, Inc., a corporation of Delaware

Filed May 25, 1966, Ser. No. 552,980
Int. Cl. B65d *7/34*; C09j *5/00*
U.S. Cl. 220—81 6 Claims



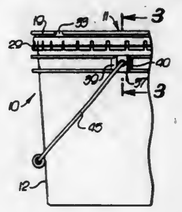
A metallic structure, particularly a metallic container or can, having lap seams in contrast to conventional hooked seams. The lap seam is bonded with polymeric fat acid polyamides wherein the polymeric fat acid has a dimeric fat acid content greater than 90 percent by weight and preferably greater than 95 percent by weight.

3,550,807

REINFORCING STRUCTURE FOR RECEIVING A BAIL

George Yates, Jr., Glendale, Calif., assignor to Growth International Industries Corporation, Peotone, Ill., a corporation of Delaware

Continuation-in-part of application Ser. No. 781,556, Dec. 5, 1968, now Patent No. 3,499,574, and a continuation-in-part of 791,937, Jan. 17, 1969. This application Sept. 15, 1969, Ser. No. 857,703
Int. Cl. B65d *25/32*, *11/26*
U.S. Cl. 220—91 5 Claims



A bucket of moldable plastic material having a tapered side wall structure and a pair of parallel spaced annular reinforcing flanges adjacent to but spaced from the open end. On diametrically opposite sides of the bucket and located between the flanges is a reinforcing structure bridging the space between the flanges, for attachment of a bail. The reinforcing structure is hollow and molded together with the bucket and its flanges and of wall thickness comparable to that of the bucket. The lower side of the reinforcing structure has an opening extending through the adjacent annular flange and a bail having locking lugs at each end extends through the lateral wall of the reinforcing structure into the hollow interior.

3,550,808

CONTAINER STACKING FEATURE

Lewis S. Mounts, Midland, and Ruben A. Tigner, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Mar. 17, 1969, Ser. No. 807,842
Int. Cl. B65d *21/04*, *43/06*
U.S. Cl. 220—97 6 Claims



A dual functional stacking feature for a base member of a two-part container, the member having a flat central portion, and a marginally disposed groove immediately surrounding the central portion. The feature comprises a plurality of raised portions or bosses located on the underside of the base at spaced intervals along the inner perimeter of the groove. Packages incorporating such base member design are readily stackable as is desired for supermarket and like displays. Further benefit pertains to such base members as stacked separately prior to their dispensing, wherein the provision of such bosses effectively prevents successive bases from jamming or locking together.

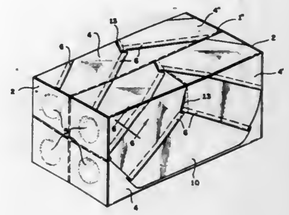
3,550,809

COMBINED CONTAINER AND DISPENSER HAVING AN EXPANSIBLE WRAPPER

Leo V. Maisonneuve, 500 Saint Peter St., New Orleans, La. 70116

Filed May 13, 1968, Ser. No. 728,540
Int. Cl. B65d *85/74*
U.S. Cl. 221—25 18 Claims

A container and dispenser for such things as butter, margarine, cheese and the like, having a central core defining four chambers for holding four sticks of table spread or the like between dimpled side members, each stick being wrapped in paper wrappers affixed to the central core and having diagonal or longitudinal Z-folds; wherein the spread is quickly and easily dispensed by pulling the wrapper taunt,



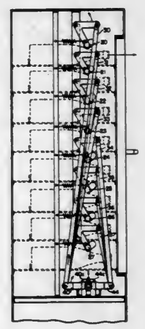
thereby extending the folds and separating the wrapper from the spread, and ejecting the spread into a waiting container. To further aid in separating the wrapper from the spread, the side folds or flaps are folded so that the first flap placed under tension when the wrapper is pulled taut is the inner most flap and so on in sequence.

3,550,810

VENDING MACHINE INTERLOCK MECHANISM

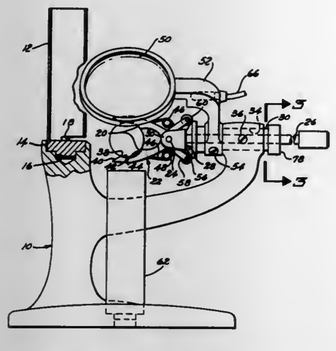
John J. Ambrose, North Wilbraham, Mass., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 31, 1969, Ser. No. 795,635
Int. Cl. B65g *59/00*
U.S. Cl. 221—125 7 Claims



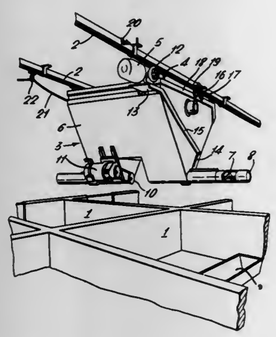
A multiple gate vending machine interlock mechanism comprising a shaft having a plurality of loosely mounted interlock levers having normal positions and individually connected to respective gates to be individually moved to an operated position in a direction other than axially of said shaft when a respective gate is moved to the vend position and to move the levers axially as only one lever is moved to the operated position, there being means to limit the axial movement of the levers in a manner to simultaneously clutch and interlock the other interlock levers against movement to the operated position and thus prevent more than one simultaneous vend.

3,550,811
COIN DISPLAY DEVICE
Leonard E. Austin, 512 S. Cortez, Prescott, Ariz. 86301
Filed Apr. 20, 1967, Ser. No. 632,303
Int. Cl. B65g *59/00*
U.S. Cl. 221—262 4 Claims



A coin display device which facilitates removal of a coin from a magazine for observation and delivery to another magazine.

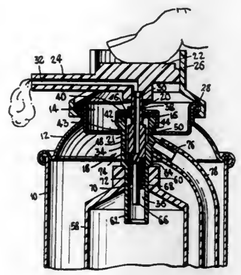
3,550,812
FEEDERS FOR LIVESTOCK
Richard J. A. Brown, Astwood Hill Farm, Astwood Bank, Redditch, England
Filed July 31, 1967, Ser. No. 657,206
Int. Cl. A01k *5/02*; G04c *23/19*
U.S. Cl. 222—70 3 Claims



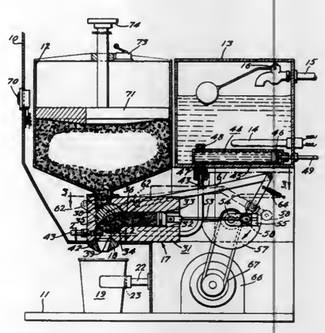
A dispenser for granular animal feeds comprises a movable hopper with a horizontal electrically driven auger discharging device at its lower end and the auger motor is run for a prearranged period opposite each animal pen, either by means of an electric manually settable timer or by driving the hopper at a steady speed past the pens and using adjustable stationary strikers in its path to start and stop the motor.

3,550,813
HAND-HELD DISPENSER FOR MIXING FLUIDS
Herbert G. Lehmann, Easton, Conn., assignor to Valve Corporation of America, Bridgeport, Conn., a corporation of Delaware
Filed June 14, 1968, Ser. No. 737,092
Int. Cl. B65d *35/22*
U.S. Cl. 222—94 11 Claims

A hand-held dispenser including a container provided with a single discharge valve operated by a stem vertically movable in a tubular valve housing. A second container within the first, communicates with the interior of the valve housing at one location, and at another location the valve housing communicates with the first or outer container. A partition constituted by the valve stem normally keeps the fluids of the first and second containers separated, except when the stem is operated to open the discharge valve.

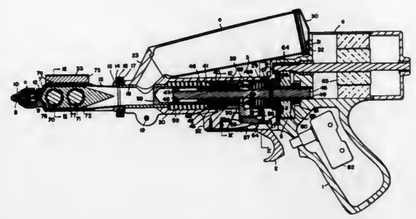


3,550,814
MIXING AND DISPENSING UNIT
Wolf A. von Lersner, Cherry Hill, N.J., assignor to Campbell Soup Company, Camden, N.J., a corporation of New Jersey
Filed Oct. 17, 1968, Ser. No. 768,312
Int. Cl. B67d *5/60*
U.S. Cl. 222—145 17 Claims



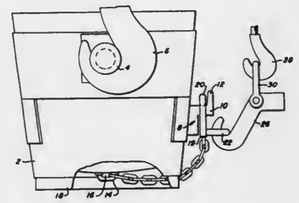
A mixing and dispensing unit adapted particularly for mixing a metered charge of a diluent such as hot water with a metered charge of a heavy concentrate such as soup mixture, and dispensing the combined ingredients. The unit includes reservoirs for the concentrate and the diluent respectively, and a metering piston for metering the charge of concentrate which is connected to its reservoir through a valve and operates to withdraw a metered charge of concentrate from the reservoir. The value is also connected to a discharge nozzle so that the piston may operate to dispense the metered change of concentrate therefrom. During discharge, the change of diluent is mixed with the concentrate. In one instance, the diluent is introduced in a swirling motion in the discharge nozzle and in a second embodiment, the diluent is sprayed through the piston head. In a modified embodiment, the reservoir of concentrate is mounted on a turntable and operation of the metering piston forces air into the reservoir to replace the concentrate drawn therefrom.

3,550,815
APPLICATOR FOR DISPENSING A MOLTEN MATERIAL
Albert R. Salonen, 560 Baxter Ave., Victoria, British Columbia, Canada
Filed Aug. 2, 1967, Ser. No. 657,983
Claims priority, application Canada, Aug. 19, 1966, 968,267
Int. Cl. B67d *5/62*
U.S. Cl. 222—146 11 Claims



An applicator for dispensing a molten material which includes a container for material to be melted; a heating chamber forward of and communicating with the container in which chamber the said material is melted; one or more nozzles forward of and communicating with the heating chamber to supply the molten material; means operable to force material in the container through the heating chamber and subsequently through the or each nozzle; and motor means for operating said material forcing means. The applicator is particularly suitable for hand-held operation.

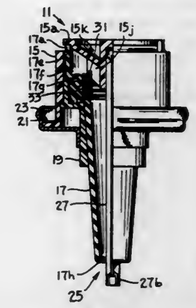
3,550,816
LADLE TILTING APPARATUS
William D. Smith III, 14310 Parnell Ave., Harvey, Ill. 60426
Filed Mar. 5, 1969, Ser. No. 804,638
Int. Cl. B67d *5/64*
U.S. Cl. 222—166 10 Claims



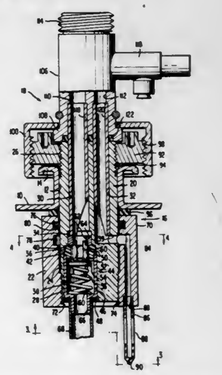
Ladle-tilting apparatus including a terminal member supported by a bracket on the side of a ladle in such a manner that it may be lifted off the bracket by a crane hook without manual hooking. Chains run from the lower end of the terminal member to the bottom of the ladle so that the ladle may be tilted by lifting the terminal member. After tilting, the terminal member is returned to the bracket and the crane hook disengaged without manual unhooking.

3,550,817
FLUID METERING AND DISPENSING VALVE HAVING FLEXIBLE TRAP CHAMBER
Frank A. Babin, Chicago, Ill., assignor to SCM Corporation, New York, N.Y., a corporation of New York
Filed Jan. 16, 1969, Ser. No. 791,564
Int. Cl. G01f *11/02*
U.S. Cl. 222—207 11 Claims

A dispenser is fastened in the mouth of an inverted container for dispensing predetermined quantities of liquid therefrom, and includes a housing having a cylinder which opens externally of the container and has disposed therein a movable valve member with a flexible diaphragm portion. An inlet port provides fluid communication between the interior of the container and the cylinder, and the valve member has a chamber for receiving liquid from the container. Movement of the valve member in one direction in the cylinder closes the inlet port and flexes the diaphragm portion to reduce the volume of the chamber. Upon flexing of the diaphragm portion, a normally closed discharge valve opens to permit fluid to flow from the chamber in response to the reduced chamber volume. The movement of the valve member, subsequent to the closure of the inlet port, is limited by stop means so as to limit the reduction in the chamber volume and thereby control the quantity of fluid dispensed. Movement of the valve member in the opposite direction extends the diaphragm portion, closes the discharge valve, and opens the inlet port to enable fluid to flow into the chamber.



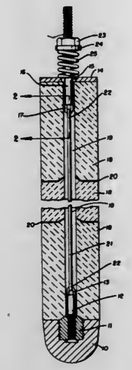
3,550,818
KEG TAPPING DEVICE
Mack S. Johnston, 26 Hitching Post Drive, Rolling Hills, Calif. 90274
Continuation-in-part of Ser. No. 773,406, Nov. 5, 1968, and Ser. No. 551,744, May 20, 1966, now Patent No. 3,435,997, said Ser. No. 773,406 is a continuation-in-part of Ser. No. 676,291, Oct. 18, 1967, now abandoned, which is a continuation-in-part of Ser. No. 611,610, Jan. 25, 1967, now Patent No. 3,410,458, which is a continuation-in-part of Ser. No. 587,687, Oct. 18, 1966, now abandoned, which is a continuation of Ser. No. 406,682; said Ser. No. 551,744 is a continuation-in-part of said Ser. No. 406,682, which is a continuation-in-part of Ser. No. 395,084, Sept. 8, 1964, now Patent No. 3,231,154, and Ser. No. 150,982, Nov. 8, 1961, now abandoned; said Ser. No. 395,084 is a continuation of Ser. No. 150,982. This application Dec. 13, 1968, Ser. No. 783,484
Int. Cl. B65d *83/00*
U.S. Cl. 222—400.7 16 Claims



Disclosed is a keg adapter having a siphon body receivable through the opening of a keg and a retainer nut within the

keg. The siphon body has liquid and gas passages extending longitudinally of the keg adapter terminating at their upper ends in a pair of bores disposed eccentrically of the axis of the opening. The gas passage terminates intermediate the ends of the siphon body in a lateral opening. The retainer nut has a central opening for receiving the lower portion of the siphon body and an annular recess for communication with the lateral siphon body opening, the recess communicating through a bore in the nut into the keg. A coupler unit having a pair of depending probes is engageable with the keg adapter with the probes being receivable in the bore holes in the siphon body. A liquid valve is disposed in the liquid passage and the lower end of the liquid probe engages an axially moveable member engageable with the valve to open the latter, permitting egress of liquid from the keg through the keg adapter and coupler unit. A flexible envelope having a slit is provided on the lower end of the retainer nut in communication with the bore therethrough to permit ingress of gas through the coupler unit and keg adapter into the keg. The body of the keg adapter is hexagonal as to be receivable within the head of a wrench.

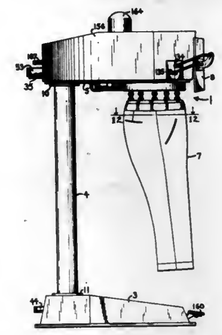
3,550,819
TENSIONED STOPPER ROD FOR METAL POURING LADLES
Ralph Allison, Canfield, Ohio, assignor to AFC Corporation, Canfield, Ohio, a corporation of Ohio.
Filed Jan. 17, 1969, Ser. No. 792,020
Int. Cl. B65d *47/00*
U.S. Cl. 222—559 **4 Claims**



A prestressed constantly tensioned multiple part stopper rod including a plurality of cylindrical ceramic body members and a graphite head assembled on a flexible metal rod assembly including terminal end portions, one of which extends externally of one end of the stopper rod and engages tensioning means for holding the several parts of the stopper rod in compression. The parts of the stopper rod are replaceable.

3,550,820
GARMENT TREATING APPARATUS
Kenneth M. O'Boyle, 210 Palomas NE., Albuquerque, N. Mex. 87108
Filed June 11, 1969, Ser. No. 832,205
Int. Cl. A41h *5/02, 43/00*
U.S. Cl. 223—73 **11 Claims**

A garment treating apparatus has a frame having an upper support portion on an upper end of a tubular standard with an expansible form depending from the upper support portion. The expansible form has a plurality of contoured and padded sections enclosed within an inflatable permeable air bag, with the expansible form section being movable by adjustment means for expanding and contracting the expansible form to conform to a garment to be treated. Steam means discharge steam into the expansible form and air bag and vacuum means introduce a vacuum within the expansible form. Control means are carried on the frame for controlling operation of the adjustment means, steam means, and vacuum means. Brake means are associated with the adjustment means for holding the expansible form in a selected position conforming to the garment to be treated. An airflow conduit extends into the air bag for flow of heated air thereinto for heating and inflating the air bag.

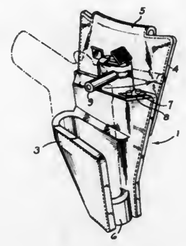


3,550,821
SIDE ARM BELT SUPPORT
Andrew G. Daigle, 8054 Cazenovia Road, Manlius, N.Y.
Filed May 21, 1969, Ser. No. 826,421
Int. Cl. F41c *33/00*
U.S. Cl. 224—1 **1 Claim**

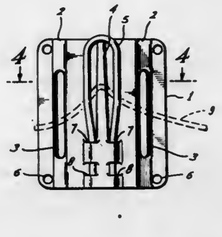
A side arm firm arm support comprising a stiff flat member having a loop to snugly embrace a belt, and an upstanding back portion of a length to over reach the upper edge of the trouser's waistband, an inwardly extending portion adapted to extend over the waistband edge and of a length to support the trigger guard of a firearm, and an upwardly extending lip on the inner end of the inwardly extending portion to engage behind the trigger guard.

3,550,822
HAND GUN HOLSTER
Thomas W. Lloyd, Coburg, Oreg., assignor to James A. Lloyd, Culver City, Calif.
Filed Dec. 26, 1968, Ser. No. 786,943
Int. Cl. F41c *33/02*
U.S. Cl. 224—2 **5 Claims**

This invention concerns a holster for a handgun, in which a handgun is retained to prevent inadvertent dislodgment, but yet is in such form that a handgun can consciously be withdrawn laterally through an open side of the holster after disengaging a spring release latch. Continued movement permits the handgun smoothly to be "pressed" into shooting position by tipping the muzzle end of the gun upwardly.

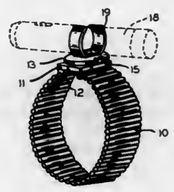


3,550,823
LINE HOLDER FOR FISH STRINGERS, AND THE LIKE
Charles F. Tofte, Jr., 4922 Larkin, Houston, Tex.
Filed June 13, 1968, Ser. No. 736,622
Int. Cl. A01k *65/00*
U.S. Cl. 224—7 **3 Claims**



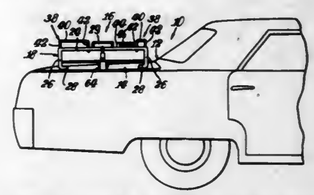
A line holder for holding a fish stringer, bait bucket line, small craft line, and the like, comprising a plate having means for mounting same on the belt of a user or on the side of a boat, and having a substantial inverted U-shaped spring clamp member to receive a line and clamp said line against said plate.

3,550,824
ADJUSTABLE SUPPORT FOR WRIST
Madeline M. Bohanski, 1522 N. 35th St., Milwaukee, Wis. 53208
Filed Nov. 18, 1968, Ser. No. 776,669
Int. Cl. F21l *15/08*
U.S. Cl. 224—28 **5 Claims**



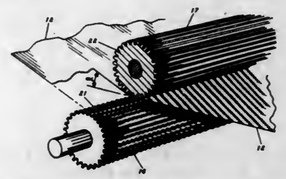
Adjustable wrist band support for holding a flashlight, or the like, aimed at a selected angle.

3,550,825
SHOPPING CARRIER FOR AUTOMOBILE
Clay H. Collier, 4418 West Congress St., Chicago, Ill. 60632
Filed July 11, 1968, Ser. No. 744,102
Int. Cl. B60r *9/06*
U.S. Cl. 224—29 **7 Claims**



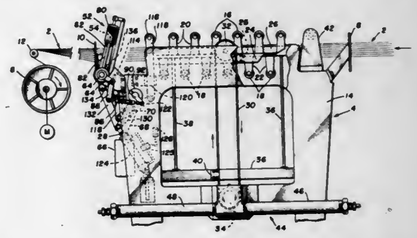
A generally rectangular shopping carrier supported on the trunk lid of an automobile, and means releasably mounting the shopping carrier to the trunk lid.

3,550,826
METHOD FOR PREPARING EXTREMELY FINE FIBROUS WEBS
John M. Salmela, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Filed July 3, 1968, Ser. No. 742,977
Int. Cl. B26f *1/20, 3/02*
U.S. Cl. 225—3 **11 Claims**



Process for preparing fibrous web from uniaxially oriented polymer film in which the film is fed under slight tension between the rotating surfaces of a first roller having parallel, longitudinal elevated rows of cutting elements on its circumferential surface and a second roller having parallel longitudinal grooves on its circumferential surface which are complementary to and mesh with the rows of cutting elements. The two rollers rotate in opposite directions substantially synchronously at peripheral speeds about 1.5 to 20 times greater than the film speed. As they rotate the rows of cutting elements are forced through the film and enter the second roller's grooves. Thus, the film is fibrillated and thereafter withdrawn from the rollers.

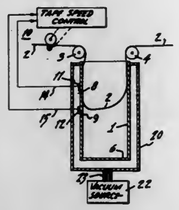
3,550,827
UNIFORM TENSION TEXTILE ACCUMULATOR
Robert W. Timbie, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed May 19, 1969, Ser. No. 825,636
Int. Cl. B65h *25/22*
U.S. Cl. 226—25 **5 Claims**



Fluid pressure controlled textile accumulator for storing and paying out a warp sheet in a warp winding operation at

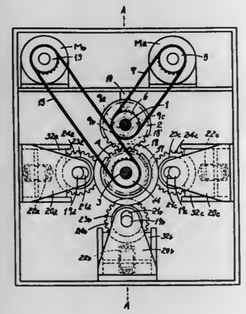
differential speeds responsively to sensed variations in warp sheet tensions.

3,550,828
TAPE LEVEL SENSOR
James P. Watson, Jupiter, Fla., assignor to RCA Corporation, a corporation of Delaware
Filed Aug. 26, 1968, Ser. No. 755,100
Int. Cl. B65h *23/18*
U.S. Cl. 226—30 6 Claims



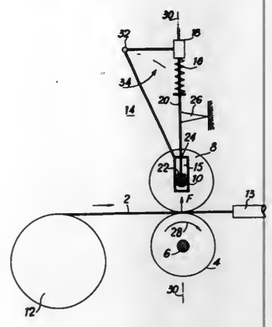
A tape storage apparatus having an open ended receptacle using vacuum to retain a loop of tape therein. Sensors mounted on a wall of the receptacle produce electrical signals representative of the position of the tape loop in the receptacle by a vibration of one end of a leaf spring which overlies a pad of self-polarized material located on a surface of the wall of the receptacle. The other end of the leaf spring projects into an air path from the inside of the receptacle to a vacuum source to produce the vibration of the leaf spring when the air path is free of the tape loop.

3,550,829
DEVICE FOR AUTOMATICALLY SELECTING AND FEEDING ROLL FILMS
Yoshio Miyauchi, Hikone, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan, a corporation of Japan
Filed Nov. 18, 1968, Ser. No. 776,704
Claims priority, application Japan, Nov. 16, 1967, 42/73346
Int. Cl. B65h *17/42*
U.S. Cl. 226—110 4 Claims



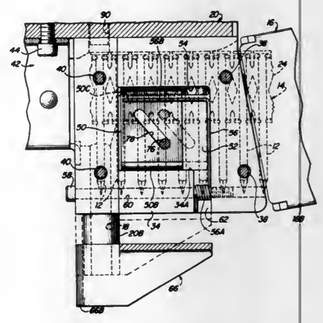
A device for automatically selecting and feeding roll films. This invention pertains to an automatic roll film selecting device by which it is possible to select the desired roll film from a number of roll films of different sensitivity and/or width installed in a photomechanical (process) camera.

3,550,830
APPARATUS FOR LONGITUDINALLY ENTRAINING ELONGATED MATERIAL
Guy Lagogue, Drancy, France, assignor to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude
Filed Mar. 7, 1969, Ser. No. 805,146
Claims priority, application France, Mar. 29, 1968, 146,338
Int. Cl. B65h *17/20*
U.S. Cl. 226—180 6 Claims



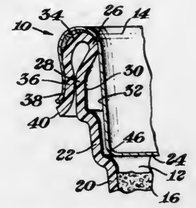
Elongated material is pressed between a driving roller and a counter roller. The counter roller is pushed towards the material by a mobile support device adapted to pivot about an axis parallel to the direction of the axis of the rollers. A stop limits the pivoting movement of the mobile support device, the pivoting axis of which is near the plane containing both the axes of rotation of the rollers.

3,550,831
MECHANICAL FASTENER FEEDING ASSEMBLY
Allen R. Obergfell, Park Ridge, Ill., assignor to Fastener Corporation, Franklin Park, Ill., a corporation of Illinois
Filed Mar. 13, 1969, Ser. No. 806,841
Int. Cl. B25c *1/04*
U.S. Cl. 227—136 11 Claims



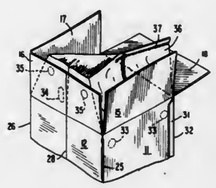
A tool for driving successive nails from a strip includes a nosepiece structure forming a drive track to which nails are fed in sequence from a guideway extending to a magazine. The strip is indexed through the guideway by a pawl assembly actuated by placing the tool against a workpiece. The pawl assembly includes a plate which has a toothed nail engaging portion and which is mounted for pivoting movement toward and away from the guideway and rectilinear movement toward and away from the guide track. An actuator reciprocated in a vertical direction by a spring and selective engagement with the workpiece carries a pin sliding in an inclined slot in the pawl plate to actuate the pawl assembly.

3,550,832
SEALED CONTAINERS
Charles E. Fitzgerald, Findlay, Ohio, assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Apr. 1, 1969, Ser. No. 811,726
Int. Cl. B65d *21/02, 3/06*
U.S. Cl. 229—1.5 8 Claims



A nestable thin-walled container for hot vacuum packaging of perishable food products. The container includes a thin-walled thermoplastic tub having a turned rim which includes recesses on both sides thereof to receive in a crimped fashion an overlying rim of a metallic lid to form an end seal, whereby creeping of the plastic from out of the sealed en seam is avoided.
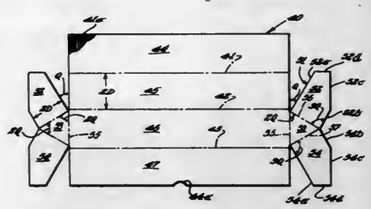
3,550,833
BAG-IN-A-BOX WITH SPOUT OPENING
Kurt R. Rahenkamp, Bridgewater, N.J., assignor to Union Camp Corporation, New York, N.Y., a corporation of Virginia
Filed Oct. 28, 1968, Ser. No. 770,998
Int. Cl. B65d *5/02, 5/58*
U.S. Cl. 229—17 2 Claims



A container having a liner bag combined with an outer supporting carton, in which the liner bag is made of aligned sheets with an unsealed portion at the top to provide a filling opening. The carton has median fold lines in opposed sides and top flaps hinged thereto. The liner is secured within the carton by an adhesive pattern which secures top corners of the bag to opposite flaps and further secures, by a weak bond, the corner of the unsealed portion to one flap whereby, when the container is in the erected position, the unsealed top portion is pulled apart to present an opening for filling the bag. After filling, the flap is forced down to break the weak bond and align the top edges of the opening for sealing.

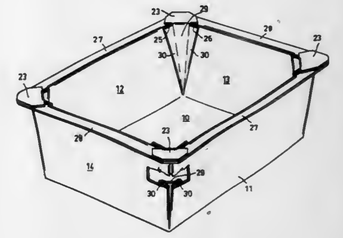
3,550,834
SHIPPING CONTAINER
Richard J. McCall, 1500 South Shore Drive, Crystal Lake, Ill. 60014
Filed Apr. 22, 1969, Ser. No. 818,282
Int. Cl. B65d *5/08*
U.S. Cl. 229—22 4 Claims

A foldable corrugated shipping container having a one-piece blank, scored, stripped and cut for assembly into an elongated triangularly-shaped container having opposed end flaps defining reinforced double-walled portions projecting



inwardly from the ends of the container protecting the contents thereof and having a closure flap with means for opening the sealed container.

3,550,835
PACKAGE, ESPECIALLY FOR FOOD PRODUCTS
Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter Pack AB, Laholmsvaegen, Halmstad, Sweden, a corporation of Sweden
Filed May 13, 1968, Ser. No. 728,407
Claims priority, application Sweden, May 17, 1967, 6900/1967
Int. Cl. B65d *5/24*
U.S. Cl. 229—31 4 Claims

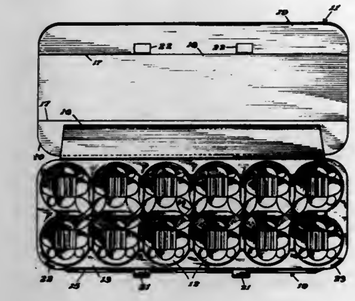


A package for food products comprising a single blank carton tray and a separate cover. The blank of the tray has corner portions foldable to three sectors forming a corner post of triangular cross section in the erected tray. The wall panels have upper edge flaps connected at their ends by connecting flaps formed as extensions of the upper ends of the central sectors of the post. The corner is sealed to the frame formed by the edge flaps and the connecting flaps.

3,550,836
EGG CARTON
Eugene E. Macchi, 63 Arbor Drive, Ho-Ho-Kus, N.J. 07423, and Henry B. Katz, 33 Westview Road, Short Hills, N.J. 07078
Filed June 18, 1968, Ser. No. 738,004
Int. Cl. B65d *5/66*
U.S. Cl. 229—44 1 Claim

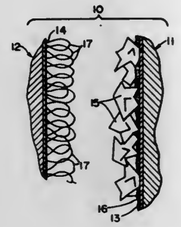
An egg carton comprising a tray and cover with upstanding front and back panels integral with the tray adapted to be resiliently pressed into bracing cushioning contact with the eggs when the cover is closed down thereover, said cover being of different and stiffer material than the tray and

providing smooth surface easily slidable onto the front or lock panel of the tray, as well as providing an outer surface



receptive of fine printing and lithographic color embellishment.

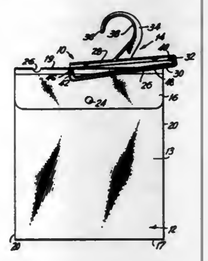
3,550,837
RELEASABLE CLOSURE FASTENING MEANS
George H. Erb, Rutland, Vt., assignor to American Velcro, Inc., a corporation of New Hampshire
Filed Apr. 14, 1969, Ser. No. 815,849
Int. Cl. B65d *45/00*
U.S. Cl. 229—45 **6 Claims**



In a closure device having two members each member has secured engaging elements which define an engaging surface the engaging elements comprising granules of a hard solid material affixed to one of the members and loops of a flexible resilient material secured to the other member.

3,550,838
MERCHANDIZING DISPLAY SUSPENSION AND BAG ASSEMBLY
Robert L. Hart, Manhasset Hills, N.Y., assignor to W. R. Grace & Co., a corporation of Connecticut
Filed Dec. 19, 1968, Ser. No. 785,256
Int. Cl. B65d *33/06*
U.S. Cl. 229—54 **12 Claims**

A suspension member having upper and lower horizontal reaches includes a suspension element joined to the midsection of the upper reach. The ends of the lower reach are upturned and are connected to the opposite ends of the upper reach when the hanger and a display merchandising bag are assembled. One set of ends of the reaches is hingedly joined while a fastening pin releasably secures the other set of ends to interconnect the hanger and bag. An upturned releasably secured end of the lower reach is inserted into a first of two spaced openings positioned along an edge of the bag. Said end is then threaded inside the bag and out through the second opening. The upturned end thereupon is secured to the mating end of the upper reach and the bag is ready to be



hung by the suspension element for display purposes. The suspension member can be readily disengaged from the bag by reversing the aforesaid steps.

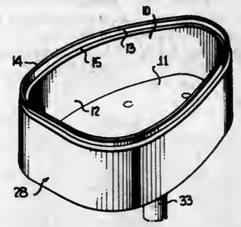
3,550,839
DOUBLED WALLED PLASTIC BAG
William J. Clayton, Fairport, and Robert J. Miller and Clair C. Smith, Holcomb, N.Y., assignors to Mobil Oil Corporation, a corporation of New York
Original application Mar. 24, 1965, Ser. No. 442,323, now Patent No. 3,466,212, dated Sept. 9, 1969. Divided and this application Dec. 16, 1968, Ser. No. 816,429
Int. Cl. B65d *33/02*
U.S. Cl. 229—55 **2 Claims**



A double-walled thermoplastic bag comprising a flattened tube formed from a thermoplastic laminate, the tube being sealed at one end and the double walls of the bag being heat sealed together along a plurality of intersecting heat sealed areas.

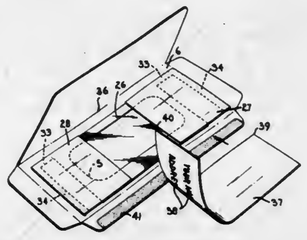
3,550,840
PLASTIC CAN WITH METAL END
James F. Fox, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 688,081, Dec. 5, 1967, now Patent No. 3,491,936. This application Apr. 11, 1969, Ser. No. 815,306
Int. Cl. B65d *3/10*
U.S. Cl. 229—5.6 **2 Claims**

This disclosure relates to a container which includes a molded flexible plastic body having a metal end unit closing the upper end thereof. The container, when molded, may not be of a true shape, and, accordingly, is provided with an in-



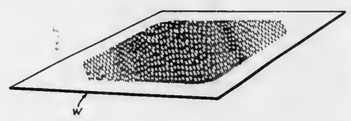
termediate supporting shoulder which cooperates with a mold during the seaming of the end unit to the body.

3,550,841
ENVELOPE WITH AUXILIARY POCKET
Eugene B. Berkley, Shawnee Mission, Kans., assignor to Tension Envelope Corporation, Kansas City, Mo., a corporation of Delaware
Filed Mar. 27, 1969, Ser. No. 810,966
Int. Cl. B65d *27/04, 27/08*
U.S. Cl. 229—71 **1 Claim**



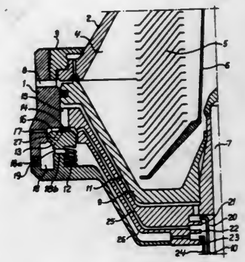
A window patch strip and a pair of auxiliary patch strips are simultaneously fed into a rotary, single blade, cutting knife which severs three patches simultaneously, the patches being transported and applied together to a gummed area on the envelope blank, the gummed area surrounding a window opening and extending laterally thereof in opposed L-shaped gum strips. The auxiliary patches are secured by the L-shaped strips and together form a pocket behind the window patch.

3,550,842
SLIT WRAPPER FOR PRODUCE
William A. Scholz, Ontario, Calif., assignor to Standun Inc., Compton, Calif., a corporation of California
Filed Jan. 27, 1969, Ser. No. 794,021
Int. Cl. B65d *65/00*
U.S. Cl. 229—87 **4 Claims**



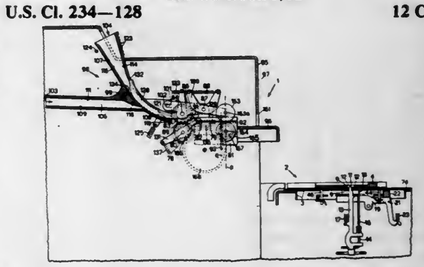
A wrapper for produce, particularly heads of lettuce and the like, comprising a diamond-shaped sheet of thin, flexible plastic material, such as polyethylene, having a novel pattern of slits which open up, when wrapped about the article of produce, to permit entry of air and moisture and to enable the initially flat sheet to form into an improved, larger "pouch" which is better adapted to conform to the produce.

3,550,843
SLUDGE CENTRIFUGE
Walter Hoffmann, Lidingo, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden, a corporation of Sweden
Filed Feb. 28, 1970, Ser. No. 803,319
Claims priority, application Sweden, Feb. 29, 1968, 2,599/68
Int. Cl. B04b *11/02*
U.S. Cl. 233—20 **8 Claims**



The centrifugal rotor is provided with a first valve movable hydraulically to open and close the peripheral outlet through which centrifugally separated sludge is discharged from the rotor, the rotor having another outlet for the operating liquid by which the valve is actuated. A second valve is hydraulically actuated to open this operating liquid outlet and is urged by a biasing means in the direction for closing the latter outlet, the rotor also having a chamber so located and dimensioned that a liquid substantially filling this chamber acts to urge the second valve in its closing direction with a force in addition to the force of said biasing means.

3,550,844
GUIDE DEVICE FOR RECORDING SUPPORTS OF DIFFERENT WIDTHS
Giovanni Cerutti and Giuseppe Ricciardi, Ivrea, Turin, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Turin, Italy, a corporation of Italy
Filed Feb. 26, 1969, Ser. No. 802,371
Claims priority, application Italy, Mar. 1, 1968, 50,727-A/68, Patent No. 831,158
Int. Cl. G06k *1/02*
U.S. Cl. 234—128 **12 Claims**

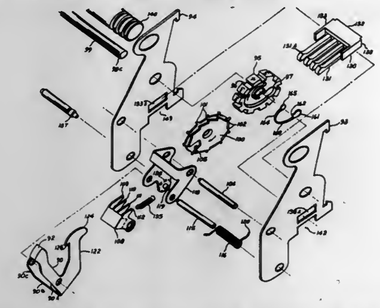


Guide devices for guiding recording supports through recording and reading apparatus in which the guide devices comprise a plurality of fixed-width guide elements operable upon insertion of a recording support of corresponding width and an adjustable guide for greater widths.

3,550,845
UNIT COUNTER
Robert H. Schnakenberg, and Robert C. Hoffman, Park Ridge, Ill., assignors to Victor Comptometer Corporation, Chicago, Ill., a corporation of Illinois
Filed Feb. 16, 1968, Ser. No. 731,347
Int. Cl. G07g *1/00*; **G06c** *29/00*
U.S. Cl. 235—6 **7 Claims**

A mechanical unit counter suited for use in a cash register includes a plurality of number wheels mounted for rotation

about a shaft. The shaft has a longitudinally extending cutout portion which cooperates with a key incorporated in the number wheels and biased to bear against the shaft and to enter the cutout. The key and cutout are so shaped as to allow the number wheels to rotate about the shaft during normal counting action but to prevent counter rotation of the

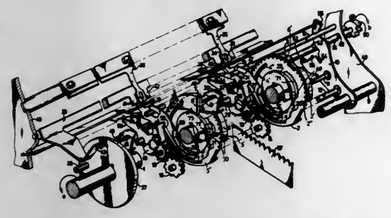


wheels, once the key enters the shaft, so that the wheels may be reset by rotating the shaft. Each of the number wheels is coupled to a rachet gear to be driven thereby. Detents for maintaining the gears and thus the wheels in positions corresponding to individual number positions of the number wheels are provided and a pawl unit is provided for advancing the gears and thus the number wheels.

ERRATUM

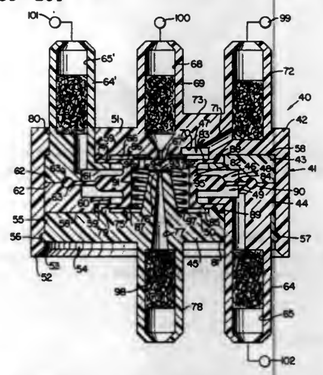
For Class 235—80 see:
Patent No. 3,551,647

3,550,846
TENS-CONTROL DEVICE FOR SPROCKET WHEEL CALCULATING MACHINES
Gottfried Burkhardt, Winkelhaid, Germany, assignor to DIEHL, Nurnberg, Germany
Filed Mar. 6, 1969, Ser. No. 804,759
Claims priority, application Germany, Mar. 6, 1968, 1,574,990
Int. Cl. G06c *15/26*
U.S. Cl. 235—137 **5 Claims**



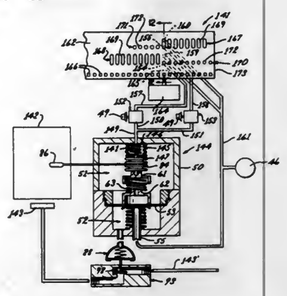
A tens-control apparatus for sprocket-wheel calculating machines having sprocket-wheel bodies and value sprockets additionally provided with a tens-control sprocket radially shiftable and engageable with a driven wheel of a countermechanism. Sprocket-wheel amount-control device-forming means include countermechanism carriage means shiftable and operative relative to ten-toothed counterwheel means in each position having two sprockets with teeth evenly extending into rotation range of sprocket-wheel bodies shiftable with respect to valve- and tens-control sprockets of the amount-control device respectively at a time for additive and subtractive calculating. Control shift means formed particularly with guide members of a tens-control lever extend over an angular range of the sprocket-wheel bodies engageable with respect to two counterwheel means. The control-shift means is adapted to maintain deflection of the tens-control sprocket of the next higher located amount-control device during resultant tens preparation. A tens-control lever alternately is formed as a ring body provided with a groove extending in circular arcforming manner within range of the counterwheels of the carriage means.

3,550,847
PNEUMATICALLY OPERATED LOGIC SYSTEM OR THE LIKE
Douglas R. Scott, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Continuation-in-part of application Ser. No. 717,586, Apr. 1, 1968, now Patent No. 3,522,661. This application May 5, 1969, Ser. No. 821,928
Int. Cl. G06d *3/00*
U.S. Cl. 235—201 **7 Claims**



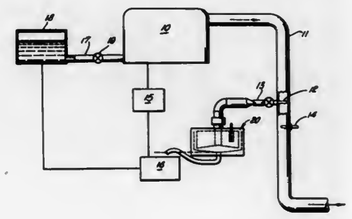
A logic unit that can be pressure operated or vacuum operated in a system to provide logic functions such as an AND function, an OR function, a NOT function, a DELAY function, a PULSE SHAPER function, a MEMORY function, an OSCILLATOR function, a FLIP-FLOP function, and the like, the logic unit comprising an integral three-diaphragm member cooperating with a housing means to define four stacked chambers respectively interconnected to four ports of the housing means with a fifth port also being fluidly interconnected to one of the outboard chambers. The diaphragm member has passage means passing therethrough always fluidly interconnecting the two outboard chambers together with the ports for the two outboard chambers defining valve seats adapted to be respectively opened and closed by the diaphragm member. Urging means tends to move the diaphragm member in one direction to close the valve seat of the outboard chamber having the fifth port interconnected thereto.

3,550,848
COOKING APPARATUS AND METHODS
William K. Body, Whittier, Russell J. Locascio and Harold W. Rice, Fullerton, and Douglas R. Scott, Santa Ana, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Original application Feb. 12, 1965, Ser. No. 432,228, now Patent No. 3,384,071. Divided and this application Dec. 18, 1967, Ser. No. 714,140
Int. Cl. F23n *5/22*; **G05d** *23/32*
U.S. Cl. 236—15 **4 Claims**



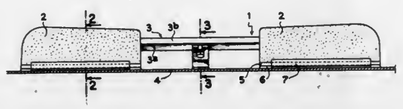
This disclosure relates to pneumatic control means utilized to control the operation of a cooking apparatus, whether the cooking apparatus has an oven, or a range type burner, or both, such pneumatic control means comprising pneumatic actuators for controlling the flow of fuel to the burner means as well as for latching the oven door means in its closed position for oven cleaning operations, adjusting the burner means to various positions thereof and automatically controlling a cooking operation thereof, such features being utilized singly or in any combination thereof.

3,550,849
APPARATUS FOR GENERATING WET STEAM HAVING SUBSTANTIALLY CONSTANT QUALITY
Stewart Haynes, Jr., and Fuad T. Saadeh, Houston, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Original application Nov. 30, 1967, Ser. No. 686,931, now Patent No. 3,499,488, dated Mar. 10, 1970. Divided and this application Mar. 27, 1969, Ser. No. 839,101
Int. Cl. F23n *1/00*
U.S. Cl. 236—20 **1 Claim**



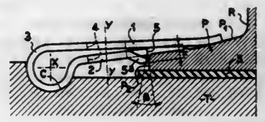
An apparatus for generating wet steam of substantially constant quality wherein the heat supplied to the steam generator apparatus is controlled by means of a signal responsive to the chloride ion concentration in the liquid portion of an adiabatically expanded sample of wet steam.

3,550,850
DEVICE FOR FIXING A COMPOSITE SLEEPER ON A RAILWAY TRACK SUPPORT WITHOUT BALLAST
Roger Paul Sonneville, 5, Rue Maurice Ravel, 92, Saint Cloud, France
Filed Nov. 12, 1968, Ser. No. 774,847
Claims priority, application France, Oct. 3, 1968, 168,579
Int. Cl. E01b *3/28*, *3/36*
U.S. Cl. 238—115 **12 Claims**



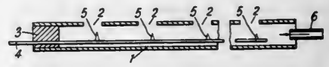
Device for fixing a railway composite sleeper having concrete blocks, interconnected by an elastically yieldable stay, to a ballast-free support. The middle part of the stay is fixed to the support whereas the blocks are free to move vertically a limited extend by elastic deformation of elastomer soles between the blocks and support.

3,550,851
ELASTICALLY YIELDABLE RAIL FASTENER
Roger Paul Sonneville, 5 Rue Maurice Ravel, 92 Saint Cloud, France
Filed Oct. 18, 1968, Ser. No. 768,785
Claims priority, application France, Nov. 20, 1967, 128,791
Int. Cl. E01b *9/34*
U.S. Cl. 238—349 **3 Claims**



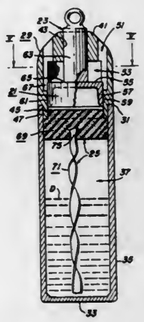
An additional abutment means is provided on an elastically yieldable railway rail fastener, including two strips interconnected by a loop portion, for laterally positioning the rail relative to the rail support prior to the tightening down of the fastener. This abutment means depends the free edge of the lower one of said strips facing the flange of the rail.

3,550,852
METHODS AND APPARATUS FOR APPLYING POWDER COATINGS TO ARTICLES
Neil Rudolph Wallis, Cariad, Goring-on-Thames, Oxfordshire, England
Filed Sept. 8, 1967, Ser. No. 666,359
Claims priority, application Great Britain, Sept. 8, 1966, 40,152/66
Int. Cl. B05b *5/00*
U.S. Cl. 239—15 **13 Claims**



An apparatus for applying powder coating material to an article comprising an elongate tubular member of insulating material having a plurality of holes opening directly through a wall thereof to the atmosphere and including a plurality of electrodes located wholly within the hollow member and disposed in the vicinity of the hole in the wall of said member and means for maintaining an electrostatic field between said electrodes and an article to be coated.

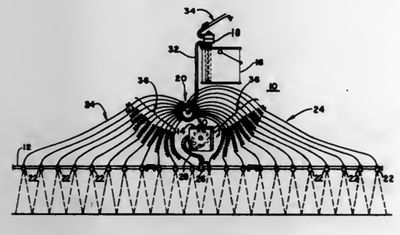
3,550,853
VAPOR DISPENSER MEANS
James R. Gray, 3409 Popular View, Pine Bluff, Ark. 71601
Continuation of application Ser. No. 714,694, Mar. 20, 1968, now abandoned , which is a continuation-in-part of application Ser. No. 548,359, May 5, 1966, now abandoned. This application June 26, 1969, Ser. No. 836,772
Int. Cl. A24f *25/00*
U.S. Cl. 239—44 **15 Claims**



A small, portable, disposable, leakproof dispenser for dispensing vapors of volatile insecticides, perfumes,

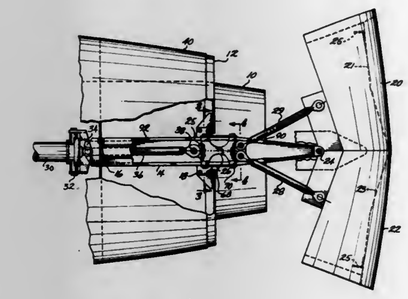
deodorants or the like. The vapor dispenser means including a tubular open-topped hollow body having a base part adapted to contain a quantity of volatile substance to be dispersed, stopper means for stopping and opening the chamber respectively for occluding or permitting vapor flow from the chamber, and vapor metering means for regulating or metering the flow of vapor passing from the chamber to the ambient air when the stopper means is in an open disposition.

3,550,854
ULTRA-LOW VOLUME SPRAYING APPARATUS AND SYSTEMS FOR INSECTICIDES AND THE LIKE
Harry C. Fischer, Goose Neck Rd., Royal Oak, Md. 21662
Filed Dec. 21, 1967, Ser. No. 692,417
Int. Cl. B05b *9/06*
U.S. Cl. 239—155 15 Claims



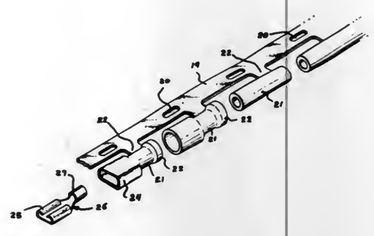
Systems and apparatus effecting direct delivery of highly concentrated liquid chemicals and the like to pneumatic spray nozzles are provided wherein individual capillary tube feed from a central chemical reservoir and valve manifold is utilized to control the volume flow of chemical to the spray nozzles. The spray nozzles are normally mounted on an ambulatory boom for overlapping spray pattern delivery and have a common compressed air supply. The capillary tubes have inside diameters which are small relative to the outside diameters and the volume flow of chemical therethrough at a given pressure is directly proportional to tube length.

3,550,855
TARGET-TYPE THRUST REVERSER
Sam H. Feld, Charles A. Buell, and Gary C. Isaacson, Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Aug. 23, 1968, Ser. No. 754,865
Int. Cl. B64c *15/04*
U.S. Cl. 239—265.29 10 Claims



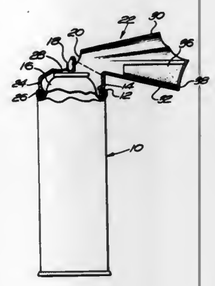
An apparatus for the reversal of jet engine thrust which comprises target-type deflector doors mounted on a single nontranslating pivot on a hollow main support beam. A load transferring sled is supported within the interior of the main beam on self-aligning runners for guided longitudinal travel. An actuator and door linkages are each attached to the sled within the interior of the main beam, at points arrayed such that the sled will react side loads directly into the main beam without tending to turn or bind during asymmetrical loading. The deflector door inner and outer surfaces are shaped to provide a continuation of existing aerodynamic contours and nacelle cooling passageways when the reverser is in the cruise flight position.

3,550,856
ELECTRICAL CONNECTOR FEED STRIP ASSEMBLY
Joseph Agusta Wise, Mechanicsburg, and Joseph Patrick Sweeney and Stewart Jacob Chenoweth, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed July 3, 1968, Ser. No. 742,426
Int. Cl. H01r *11/08*
U.S. Cl. 339—276 5 Claims



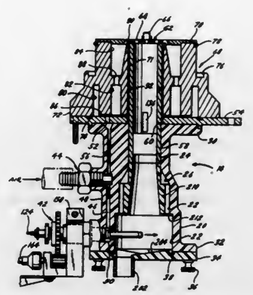
An electrical connector assembly comprises a strip of dielectric material from which integral tubular members extend, electrical terminal members carried by the tubular members forming electrical connectors for connection with conductive means, the strip defining a feeding means for feeding the connectors into crimping areas of crimping means.

3,550,857
DIRECTIONAL CAP FOR SPRAY DISPENSERS
Roland G. Ahlberg, 15A Dryer Ave., Everett, Mass. 02149
Filed Aug. 21, 1968, Ser. No. 754,207
Int. Cl. B05b *1/28*
U.S. Cl. 239—288 1 Claim



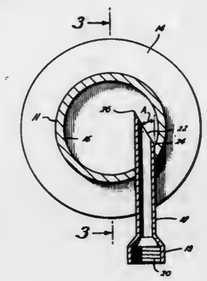
A cap is provided for use on spray dispensers such as aerosol cans and particularly for use on cosmetic spray dispensers. The cap is used in place of the conventional cover and is formed with a contoured, semiconical guide or funnel the apex of which registers with the nozzle on the dispenser and the outer end of which is configured to conform to the shape of the head and serves to direct the spray to the hair and keep it away from the face. A sponge mat is mounted over the inside lower wall of the funnel near the outer end thereof to collect and absorb condensed spray.

3,550,858
ADJUSTABLE ATOMIZER FLAME PHOTOMETER
Rand E. Herron, Stamford, Conn., and Edward W. Larrabee, Bronxville, and Carl V. Johnson, Baldwin, N.Y., assignors to Technicon Corporation, Ardsley (Chauncy), N.Y., a corporation of New York
Filed July 3, 1968, Ser. No. 742,260
Int. Cl. A61m *11/06*
U.S. Cl. 239—338 4 Claims



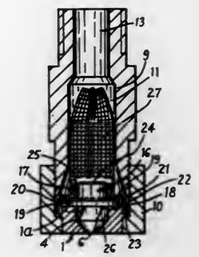
A preatomizer spectral flame burner has a sample tube whose outlet is disposed within a carrier gas conduit terminating in a nozzle. The spacing between the outlet of the sample tube and the outlet of the nozzle is adjustable during the normal operation of the analyzer system, including the burner. Means are provided to withdraw the outlet of the sample tube beyond the gas inlet to the nozzle, whereby positive gas pressure is developed in the sample tube, which is adapted to blow out any obstruction in the sample tube.

3,550,859
SPRINKLER APPARATUS
Edgar E. Pettit, Houston, Tex., assignor to Herlon Industries, Inc., a corporation of Texas
Filed July 31, 1968, Ser. No. 749,192
Int. Cl. B05b *1/34*
U.S. Cl. 239—468 6 Claims



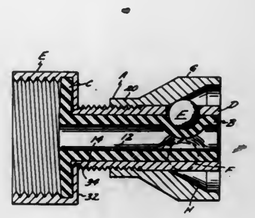
Sprinkler apparatus of the type having a water circulation chamber, a tangential water entrance, and an upper concentric water outlet. The apparatus has particular size ratios for the inlet and outlet, and the entrance is of special design to prevent turbulence within the water circulation chamber.

3,550,860
SPRAY NOZZLES
Arthur Kennedy Dorman and Frederick Albert Bartlett, Ely, England, assignors to The Dorman Sprayer Company Limited, Ely, England, a British company
Filed Nov. 14, 1968, Ser. No. 775,766
Claims priority, application Great Britain, Nov. 14, 1967, 51850/67
Int. Cl. B05b *1/34*
U.S. Cl. 239—491 14 Claims



This invention discloses spray nozzles for spraying liquids, particularly those intended for agricultural and horticultural use in the spraying of crops and the like. The spray nozzle disclosed has a conical chamber provided with an outlet orifice at its narrow end, at least one primary feed passage tangential to the conical wall of the chamber and at least one secondary feed passage nontangential, preferably radial, to said conical wall.

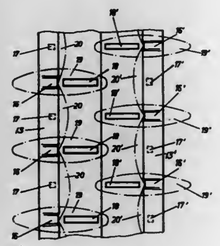
3,550,861
HOSE NOZZLE
William R. Teson, 5908 Hazelbrook Ave., Lakewood, Calif.
Filed Aug. 28, 1968, Ser. No. 755,888
Int. Cl. B05b *17/00*
U.S. Cl. 239—546 1 Claim



A hose nozzle in which a dimensionally stable resilient tubular member is so disposed in a rigid tube that a plurality of circumferentially spaced balls may be moved radially to

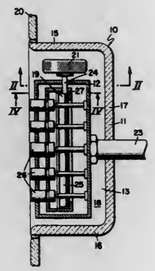
restrict the transverse interior cross section of the tubular member to such a degree as to control the rate of flow of fluid therethrough, as well as completely block the interior transverse cross section of the tubular member to prevent the flow of fluid longitudinally through the tubular member.

3,550,862
BUNSEN BURNER, IN PARTICULAR FOR GAS-HEATED ONCE-THROUGH FLOW WATER HEATERS
Georg Hein, Huckeswagen, and Gernot Rottmann, Solingen, Germany, assignors to Joh. Vaillant KG., Remscheid, Germany
Filed Apr. 23, 1969, Ser. No. 818,484
Claims priority, application Germany, July 10, 1968, 1,779,127
Int. Cl. B05b *1/14*
U.S. Cl. 239—557 **7 Claims**



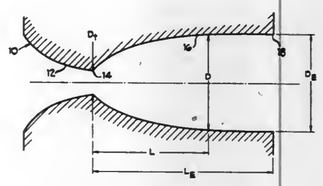
The gas-air mixture chamber of a burner is defined by two dished sides and an insert across the top, all being formed of sheet metal. The insert has vertical sides which rest on inwardly extending longitudinal beads of the sides. The tops of the sides are bent over above the insert to form flanges. The insert is crowned and has mixture discharge openings in staggered rows at each side of the crown. Adjacent the openings the flanges have indentations which bear on the insert. Between the indentations the flanges are spaced from the insert to define an internal space with a mixture discharge slit at the edge of the flange. The insert has openings between the chamber and the spaces between the flanges and the insert, intermediate the indentations.

3,550,863
SHOWER APPARATUS
Jane O. Mc Dermott, 46 Birch St., Worcester, Mass. 01603
Filed Nov. 8, 1968, Ser. No. 774,363
Int. Cl. A62c *37/20*
U.S. Cl. 239—562 **3 Claims**



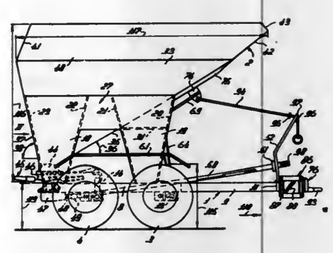
This invention relates to a shower apparatus and, more particularly, to a shower head located in a recessed shower wall element.

3,550,864
HIGH EFFICIENCY FLASHING NOZZLE
Douglas A. East, Sudbury, Mass., assignor to Borg Warner Corporation, Chicago, Ill., a corporation of Delaware. by mesne assignments
Filed Dec. 11, 1967, Ser. No. 689,653
Int. Cl. A62c *31/02*
U.S. Cl. 239—601 **2 Claims**



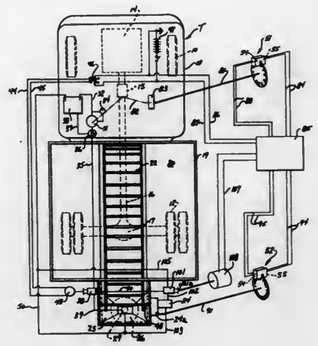
A high-efficiency flashing nozzle having a converging inlet section and a diverging outlet section. The diverging section which extends from the throat to the exit has a sufficiently rapid enlargement at or near the point where evaporation begins to prevent an excessive drop of the wall static pressure in this region.

3,550,865
TRANSPORTABLE DEVICES FOR SPREADING MATERIAL
Ian Archie MacKinnon, Burlington, Ontario, Canada, assignor to Lely Ltd., Burlington, Canada
Filed Jan. 27, 1969, Ser. No. 794,075
Claims priority, application Netherlands, Sept. 30, 1968, 6813928
Int. Cl. A01c *19/00*
U.S. Cl. 239—670 **41 Claims**



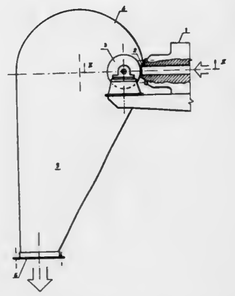
A spreading device having a large hopper with sloping walls carried by a wheeled frame. The hopper has a front wall which slopes to the rear to terminate adjacent the rear wheels of the device. A rotatable spreader member is mounted beneath the bottom of the hopper at the rear of the device. The hopper is designed and supported to carry a large amount of fertilizer. The upper rims of the hopper are bent inwardly and reinforcing beams and supports hold the hopper when the device is traveled over rough ground. A resilient towing member is attached to the frame of the device.

3,550,866
MATERIAL SPREADING APPARATUS
Eskil W. Swenson, Rockford, Ill., assignor to Swenson Spreader & Mfg. Co., Lindenwood, Ill., a corporation of Illinois
Filed Feb. 10, 1969, Ser. No. 797,921
Int. Cl. A01c *19/00*; E01c *19/20*
U.S. Cl. 239—677 **4 Claims**



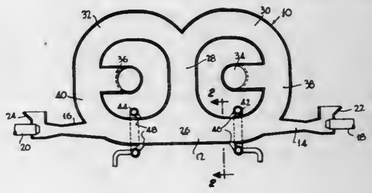
A wheeled vehicle-type material spreading apparatus for spreading material at a rate correlative with the speed of the vehicle and which has photoelectric sensing means for sensing the speed of the vehicle and operative to produce a pulse signal having a pulse repetition rate proportional to the speed of the vehicle and apparatus responsive to the pulse repetition rate for controlling the rate of discharge of material.

3,550,867
FRAGMENTING AND DRYING METHOD
Mario Ballestra, Corso Buenos Aires 92, and Domenico Triberti, Via Burlamacchi 11, Milan, Italy
Filed Dec. 6, 1967, Ser. No. 688,403
Claims priority, application Italy, Dec. 10, 1966, 779813
Int. Cl. B02c *18/22, 19/12*; B01j *2/20*
U.S. Cl. 241—3 **4 Claims**



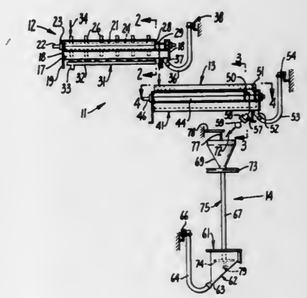
A method for fragmenting a material, for example soap, in an extruded state, by continuously detaching, successively substantially uniform chips, portions or small masses from a section of the extruded material constituting a leading section of a rod or bar of the material continuously advanced longitudinally. The detached portions are detached from the bar of material in a plastic state by ganged cutters comprising a plurality of rotationally driven coaxial cutter discs each having peripheral teeth and each inclined less than 20° relative to a plane normal to the axis of rotation of the cutters. The portions or small masses detached from the leading end or section of the rod or bar of material, which is continuously advanced longitudinally and fed to the rotary cutters, are projected along a path, in a gaseous medium, within a casing or housing where they tend to give up moisture and are at least partially solidified. The partially solidified sections are subjected to air conveyor means thereby to pelletize the detached portions and further solidify and crystallize the pellets. An example of the material to which the invention is applicable is bar soap.

3,550,868
FLUID ENERGY MILLING SOLID GRANULAR MATERIAL
Nicholas N. Stephanoff, Haverford, Pa., assignor to Fluid Energy Processing & Equipment Co., Lansdale, Pa., a corporation of Pennsylvania
Original application May 12, 1965, Ser. No. 455,265, now Patent No. 3,456,887, dated July 22, 1969. Divided and this application Apr. 4, 1969, Ser. No. 813,590
Int. Cl. B02c *19/06*
U.S. Cl. 241—5 **6 Claims**



The pulverization of solid particles by propelling two opposed streams of the particles against each other by means of high-pressure fluids. The impact between the particles is effected in a central impact chamber which is in communication with a perpendicular stack. The pulverized particles pass through this perpendicular stack and are separated into two opposed streams. The opposed streams pass in opposite directions through opposed centrifugal mills where separation of the lighter and heavier particles takes place, and from each of which the heavier particles are returned to the impact chamber for further impacts with each other as they travel in opposed directions.

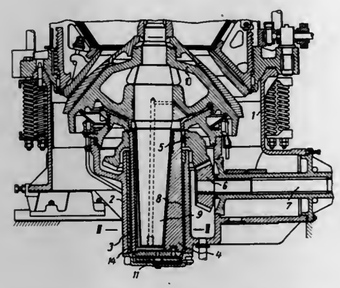
3,550,869
METHOD AND APPARATUS FOR GRINDING AND SEPARATING PRECIOUS METALS
Maurice Sterling Carter, P.O. Box 325, Murphys, Calif.
Filed June 25, 1968, Ser. No. 739,705
Int. Cl. B02c *1/00*; B03d *1/00*
U.S. Cl. 241—20 **8 Claims**



A method and apparatus for separating precious metals by amalgamation and by selective flotation and sinking in mercury comprising a container for holding mercury and mineral

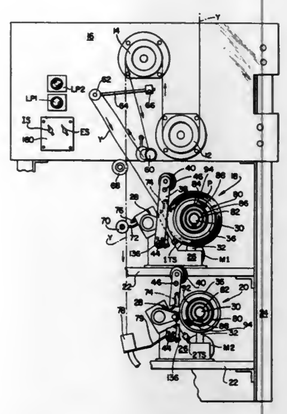
bearing slurry together with means for directing the mineral bearing slurry below the mercury level in the container and agitating the mineral bearing slurry within the mercury to improve intimate contact of mercury and amalgamable material. One form of the invention calls for a partially cylindrical container having transverse paddles rotatably mounted from an axis of the cylindrical container, with the container formed to hold a mercury level therewithin and receive mineral bearing slurry at one end; the slurry being directed downwardly through the mercury by the rotating paddles, agitated therein, and moved toward exit points at the other end of the container by controlled flow where the treated slurry is withdrawn from the upper portion through a weir and where the amalgam and heavier than mercury values are withdrawn through the lower portion of the container by controlled removal therefrom. Another form of the invention comprises utilizing a potlike container having inclined bottom walls leading to a lowest point exit for removing amalgam and heavier than mercury values and an exit near the upper operating level of liquid for removing treated mineral bearing slurry, the feed for the mineral bearing slurry being effected through a vertical tubular member held for rotation and with its lower discharge end below the operating level of the mercury, a paddle carried on the lower discharge end of the tubular member and a screen held therein for effecting agitation of the mineral bearing ore within the mercury, said tubular member also being formed with a funnellike structure at the top and vanes for imparting rotary motion to the tubular member upon impingement of said vanes by the mineral bearing slurry entering at an incline. In another form, the mercury and slurry is pressurized to improve wetting and amalgamation. In its process form, one or a plurality of machines are used, and the mineral slurry is preferably preconditioned by heating and boiling in chemical water.

3,550,870
CONE GYRATORY CRUSHER
Anatoly Alexandrovich Levishko, Ulitsa Pobedy 45, kv. 18, and Gennady Alexandrovich Kaljunov, Ulitsa Festivalnaya 23, kv. 4, Sverdlovsk, U.S.S.R.
Filed Mar. 12, 1968, Ser. No. 712,504
Int. Cl. B02c *2/04*
U.S. Cl. 241—215 **4 Claims**



A crushing cone eccentric drive of a gyratory crusher has an eccentric sleeve with an eccentric opening therein for a shaft of a crushing cone. The eccentric sleeve is rotatably mounted with a running fit in a bushing and the sleeve has a surface on the thin side thereof of oblate shape extending over an arc of 180—240°, the oblate portion gradually merging with a remaining cylindrical surface of the sleeve. The oblate surface is symmetrical relative to a plane extending at an angle of 30—60° relative to the plane of eccentricity of the eccentric sleeve and offset in the direction of rotation of the sleeve.

3,550,871
TEXTILE MACHINERY
John V. Keith, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts
Filed July 12, 1967, Ser. No. 652,819
Int. Cl. B65h *54/00, 59/38*
U.S. Cl. 242—18 **10 Claims**



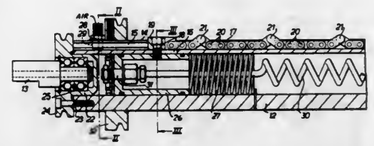
A winding machine having an active takeup head and a reserve takeup head for continuously winding an advancing strand of yarn. When a package being wound at the active head is filled to a desired size, the reserve head is activated and winding continues uninterrupted as the advancing strand of yarn is transferred for winding on the reserve head. Thereafter, the filled (formerly active) head is stopped for doffing. A preset yarn tension is maintained throughout the winding and transfer operation.

3,550,872
HUB FOR ENDLESS MAGNETIC TAPE CARTRIDGE
Erik A. Porterfield, Armonk, N.Y., assignor to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York
Filed Apr. 4, 1968, Ser. No. 718,854
Int. Cl. B65h *17/48, 75/18*
U.S. Cl. 242—55.19 **3 Claims**



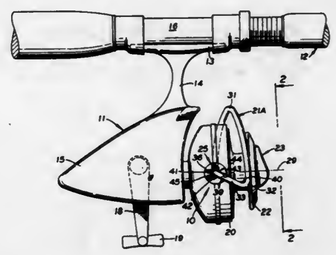
An endless magnetic tape cartridge has a rotatable reel with a hub compressible and expandable in accordance with the pressure in the coil of tape wound thereabout to preclude binding of the tape as it unwinds from the center of the coil. The compressibility of the hub is provided by one of the following: (1) a composite hub having a ringlike sponge between segments arranged circumferentially around the periphery of a central web portion; (2) a unitary hub having a series of circumferential slots terminating in enlarged apertures to define thin yieldable segments, and (3) a composite hub having peripheral sections attached to arcuate spring means.

3,550,873
LOCKING MECHANISMS
William Edward Walker, Littlebury Green, near Saffron Walden, England, assignor of one-half to Walker (Enfield) Limited, Middlesex, England, a British company
Filed Nov. 15, 1968, Ser. No. 776,179
Claims priority, application Great Britain, Sept. 12, 1968, 43,464/68
Int. Cl. B65h *75/24*
U.S. Cl. 242—72 **12 Claims**



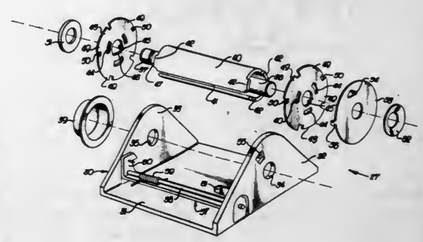
A reel carrier is formed of a shaft having a number of axially extending, cruciform-section, slots in each of which is disposed a length of chain. Some of the pins of the links of each chain are restrained against radial movement by the lateral rebates of the slots, while others are free to move radially. To lock a reel on the shaft, the chains are put into compression causing the nonretained pins to move out of the slots and into locking engagement with the reel.

3,550,874
BAIL ASSEMBLY FOR SPINNING REELS
Thomas F. Sarah, Akron, Ohio, assignor to Shakespeare of Arkansas, Inc., Fayetteville, Ark., a corporation of Arkansas. by mesne assignments
Filed May 3, 1968, Ser. No. 726,356
Int. Cl. A01k *89/00*
U.S. Cl. 242—84.2 **2 Claims**



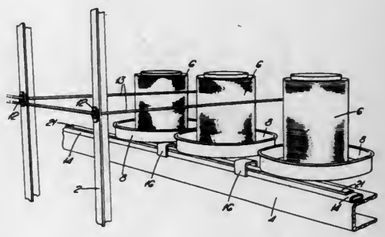
A bail assembly for spinning reels. A resilient bail is mounted from opposed sockets extending radially outwardly of the flyer for swinging movement between at least a retrieving and a casting position. First and second retaining means are provided in the radially outer edge of at least one of said sockets. A portion of the bail is received in the first of these retaining means when the bail is in the line retrieving position, and a portion of the bail is received within the second of said retaining means when the bail is in the casting position. A releasing cam on the housing of the reel is engaged by the bail upon rotation of the flyer with respect to the housing when the bail is in the casting position. This engagement biases the resilient bail out of engagement with the second retaining means and swings the bail toward the retrieving position. The bail is retained in the retrieving position by receipt of a portion of the bail within the first retaining means. A tensioning cam, inclined radially with respect to the flyer, is provided between the first and second retaining means to facilitate movement of the bail from the first retaining means to the radially outwardly displaced second retaining means, to maintain the bail selectively in the retrieving position and to assure movement of the bail from the casting to the retrieving position when released from the second retaining means. A third retaining means is included on the radially outer surface of at least one of said sockets to provide a storing position for the bail.

3,550,875
RESTRAINT APPARATUS
Raymond J. Settimi, Woodland Hills, Calif., assignor to American Safety Equipment Corporation, New York, N.Y., a corporation of New York
Filed June 28, 1968, Ser. No. 740,970
Int. Cl. B65h *75/48;* **B60r** *21/10;* **A62b** *35/02*
U.S. Cl. 242—107.4 **6 Claims**



A vehicle occupant restraint apparatus including a shoulder strap having a connector on the free end thereof adapted to be engaged with a floor-mounted connector so as to be positioned diagonally across the upper torso of an occupant, and being secured within a spring biased retraction device supported by an outer wall of the vehicle and a stowing clip also supported on the vehicle outer wall so that the shoulder strap may be stowed in an out-of-the-way position when not in use. There is also disclosed a spring biased retraction device in which a strap is wound around a reel and is put in position for use by protraction of the strap to the desired length and then allowing slight rewind or retraction of the strap whereupon the reel will be locked against further protraction or retraction.

3,550,876
CREEL
John Kay Pringle Mackie, Belfast, Ireland, assignor to James Mackie & Sons Limited, Belfast, Ireland
Filed Sept. 11, 1968, Ser. No. 759,101
Claims priority, application Great Britain, Sept. 25, 1967, 43591/67
Int. Cl. B65h *49/00*
U.S. Cl. 242—129.8 **15 Claims**

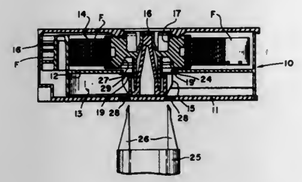


A method of braking packages mounted on a creel or the like comprising inflating or deflating, an inflatable member and employing the inflation or deflation to cause the package or a part of its support rotating therewith to be engaged by or to engage a brake surface.

3,550,877
CARTRIDGE AND METHOD FOR REMOVING FILM FROM THE CARTRIDGE

Robert C. Sutliff and Archie J. Tucker, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Apr. 4, 1969, Ser. No. 813,526
Int. Cl. G03b *1/04*
U.S. Cl. 242—180 5 Claims

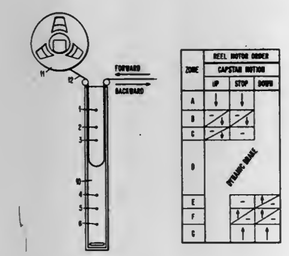


A method of removing exposed film from camera cartridges of the type having a takeup spool on which the film is wound, and having an antibackup shuttle which prevents reverse rotation of the spool to unwind the film. The antibackup shuttle is disabled by a punch which punctures the side of the cartridge and displaces the shuttle axially to an inoperative position in a cavity defined by the spool, and the exposed film is then unwound through the exposure aperture as the spool rotates in reverse. To facilitate operation of the punch the cartridge can be provided with openings defined by the internal structure of the cartridge along the predetermined path of the punch. A sidewall of the cartridge can define weakened portions where the wall is to be punctured to reduce resistance to puncture.

3,550,878
DIGITAL POSITION DETECTION AND VELOCITY COMPENSATION SYSTEM

James M. Crisp, Longmont, and Richard W. Van Pelt, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Oct. 8, 1968, Ser. No. 765,871
Int. Cl. G11b *15/06, 15/58, 23/12*
U.S. Cl. 242—184 10 Claims

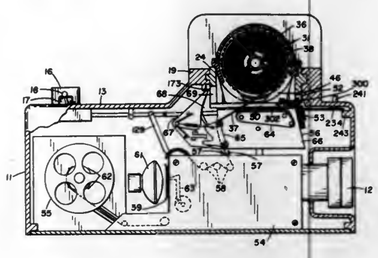


A multiplicity of detectors are arrayed so as to define zones along the path followed by a web material in a buffer chamber. The detector outputs are logically interpreted to determine which zone the web material is in and the direction it entered that zone. The logical interpretation is used to generate commands for controlling the positioning and the speed of the material in the chamber.

3,550,879
CINEMATOGRAPHIC CARTRIDGE PROJECTOR APPARATUS

John J. Bundschuh, Robert J. Roman, and Kenneth W. Thomson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Continuation of application Ser. No. 470,499, July 8, 1965, now abandoned. This application June 5, 1967, Ser. No. 643,502
Int. Cl. G11b *15/30, 15/66, 23/10*
U.S. Cl. 242—192 6 Claims

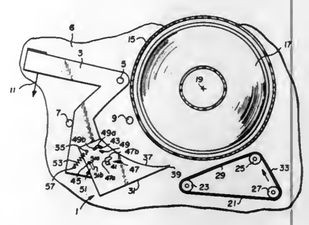


An apparatus, such as a cinematographic projector, for use with cartridges containing rolls of strip material and in which the cartridges may be selectively and/or automatically moved in sequence into operation position, the projector also being capable of use with individual cartridges containing rolls of strip material. In operating position the strip material is initially wound on the roll to tighten loose convolutions thereon, automatically moved out of the cartridge by means of a stripper mechanism and directed to an automatic threading mechanism of the apparatus, and then rewound into the cartridge after the strip material has been displayed.

3,550,880
FILM STRIPPING MECHANISM

Allan M. Palmer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed May 23, 1968, Ser. No. 731,377
Int. Cl. G11b *15/32, 15/66*
U.S. Cl. 242—192 9 Claims



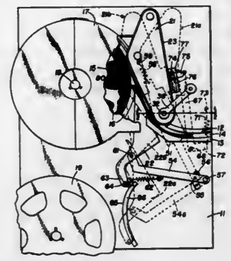
A film stripping mechanism is mounted for pivotal movement about a supporting mechanism so that it can assume various angular positions as it is moved into contact with the outer convolution of film having various diameters while maintaining the desired relation to a film driving belt.

3,550,881
MANUALLY OPERATED FILM STRIPPER MECHANISM

Robert J. Roman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Nov. 15, 1968, Ser. No. 776,083
Int. Cl. G03b *1/04*; G11b *15/32*
U.S. Cl. 242—192 8 Claims

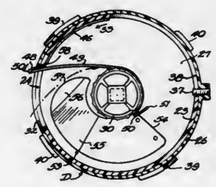
In a simplified film-stripper mechanism of the type including a drive member and a stripper finger movable into peripheral contact with a roll of film or other strip material to separate the leading end thereof from the roll and to feed it into a threading channel of a motion picture projector or similar apparatus, all of the motive power required to operate the stripping mechanism is derived from manual actuation of an operating member.



3,550,882
SELF-THREADING CAMERA CASSETTE

Jack L. Craven, Anaheim, and Ernest B. Marjoram, West Covina, Calif., assignors to Electro-Photo Corporation, Fullerton, Calif., a corporation of California

Filed Dec. 18, 1968, Ser. No. 784,658
Int. Cl. G03b *1/04*; G11b *15/32, 23/04*
U.S. Cl. 242—197 10 Claims

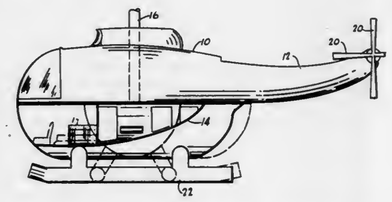


An exposed film camera cassette having a guide which becomes operable, upon opening of the cassette, to guide the forward end of a film strip from a feed sprocket into the cassette and into tangent contact with the cassette's winding arbor, in position to be coupled onto the arbor as the latter is rotated in a winding operation.

3,550,883
HELICOPTER

James E. Irby, Spartanburg, S.C. (RA 14 944 816, How Btry, 2nd Sqdn., 6th Amd., Car. Regt. Fort George G. Meade, Md. 20755)

Filed May 21, 1968, Ser. No. 730,749
Int. Cl. B64c *27/04*
U.S. Cl. 244—17.11 5 Claims

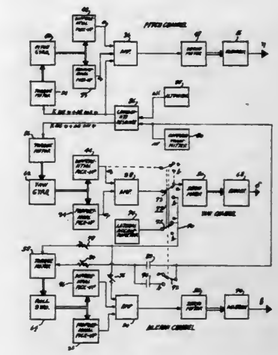


A helicopter having a fuselage with a lower section which is rotatable about a vertical axis.

3,550,884
AUTOPILOT

Waldemar Moeller, Heligenberg, Baden, Germany, assignor to Bodenseewerk Geraetetechnik, G.m.b.H., Bodensee, Germany, a corporation of Germany

Filed Jan. 24, 1968, Ser. No. 700,140
Claims priority, application Germany, Feb. 2, 1967, F51425
Int. Cl. B64c *13/18*
U.S. Cl. 244—77 6 Claims



An autopilot for controlling the turn of an aircraft at relatively high speed includes a command transmitter for generating a rate of turn signal indicative of the desired aircraft rate of turn. This signal is applied to a torque motor acting on a gyroscope having a response axis disposed in the direction of the yaw axis for the aircraft. The gyroscope generates an error signal indicative of the deviation between the actual rate of turn of the aircraft and the desired rate of turn. A signal is applied to the aileron control channel. Thus, the initiation of a turn is effected by the aileron but in a closed servoloop whereby the rate of turn can be determined accurately and independently of the flight speed.

3,550,885
RETARDATION DEVICE FOR AIR DROPPED STORES

Royale R. Crabtree and Charles W. Beeker, Baltimore, Md., assignors to the United States of America as represented by the Secretary of the Army

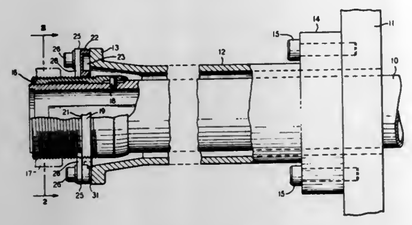
Filed Aug. 27, 1968, Ser. No. 755,637
Int. Cl. B64d *1/12*
U.S. Cl. 244—138 43 Claims



An apparatus and method for retardation of air-dropped objects comprising container means, plurality of compartment means, one fixed closed container end and one removable closure container end, payload within the container

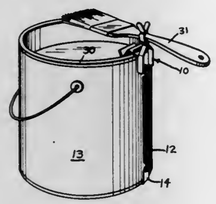
means, activator means within the removable closure, retardation means within the container, the retardation means comprising an expansion spring winding head, an expansion spring wound on the winding head, removable pins to hold the expansion spring in the wound state, hollow tube means fixedly connected to the winding head, retardation discs in contact with the upper and lower surfaces of the winding head, and the retardation means superimposed on an ejection spring.

3,550,886
RETAINING MEANS FOR HOLDING AN END OF A CYLINDRICAL OBJECT
John H. Cave, Chatham, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Dec. 31, 1968, Ser. No. 788,273
Int. Cl. F16l *5/00*
U.S. Cl. 248—56 **7 Claims**



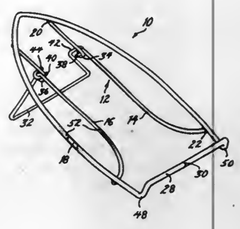
Retaining means for holding and supporting an end of a rigid cylindrical object without applying any bending force or transverse load to the cylindrical object. The retaining means comprise a tubular support for surrounding the end portion of the object. A flexible diaphragm member is adapted to encircle the end of the object. This diaphragm member is pressed and held against the end of the tubular support by a plurality of improved self-positioning rim-clenching clamps which do not need to be clamped. The construction is such that it can be easily and quickly installed by an unskilled worker.

3,550,887
PAINT BRUSH HOLDER
Rudolph J. Kwiatkowski, 816 W. 3rd St., Erie, Pa.
Filed June 6, 1968, Ser. No. 734,979
Int. Cl. B44d *3/12*
U.S. Cl. 248—113 **7 Claims**



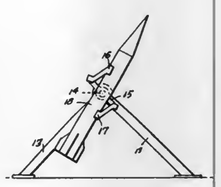
The paintbrush holder disclosed herein may be made for use on various sizes of containers, such as gallon buckets, one-quart cans or other sizes of containers. The holder is made up of a spring with a hook attached to one end and an improved bracket attached to the other end. The hook is made of sheet metal and may be hooked under the bottom of a bucket or can. The bracket is made of a sheet of metal or other suitable material. The sheet has a support portion connected to the spring. The edges of the support portion are bent at right angles to the support portion forming the legs of a channel. An arm extends upward from each leg of the channel. The arms are bent upward and toward each other then formed into an arcuate part to receive the handle of a paintbrush. The arms are flared outward from each other to form a cleft to receive the brush. A support portion is bent laterally at right angles to the sheet and a blade portion is struck downward from the support. The blade can be received in the groove in the rim of a paint bucket or it can be received under the groove when the brush is to be supported vertically. Thus, the holder can be used to support the brush either vertically or horizontally.

3,550,888
IRON REST
David Lehrman, Cheltenham, Pa., assignor to The Ironees Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Oct. 7, 1968, Ser. No. 765,532
Int. Cl. D06f *79/02*; **B44d** *1/34*
U.S. Cl. 248—117.2 **1 Claim**



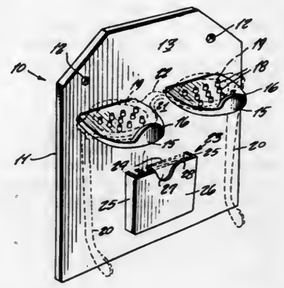
An iron rest is disclosed having an open frame-type iron supporting member and a support leg coupled to the frame to raise one edge of the frame clear of a support surface, the iron supporting member being coated with a self-lubricating, high melting point plastic polymeric material to prevent marring of a supported iron, sticking of an iron to the rest, build-up of starch on the rest, and other undesirable effects.

3,550,889
QUICK RELEASE LOCATING FIXTURE
William F. Donovan, Harford, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Nov. 26, 1968, Ser. No. 779,168
Int. Cl. F41f *3/02*
U.S. Cl. 248—176 **1 Claim**



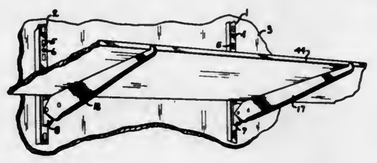
A cylindrical object is held in a selected position and then quickly released. The fixture for holding the object is pivotably mounted on a stand. The fixture has an opening therein which is larger than the object and may be noncircular (elliptical for example). When the fixture is pivoted in one direction it presents contacting surfaces to the surface of the object to be held. The contacting surfaces are preferably contoured to mate with each other. When the fixture is pivoted in another direction the mating surfaces disengage and the fixture presents an enlarged opening adjacent to the object. This permits easy removal of the object from the fixture.

3,550,890
SPECTACLE HOLDER
George B. Kemp, 614 Monticello Ave., Dayton, Ohio 45404
Filed Nov. 13, 1968, Ser. No. 775,292
Int. Cl. F16b *47/00*
U.S. Cl. 248—205 **4 Claims**



A rack upon which a pair of spectacles may be placed for being temporarily supported while being removed from the eyes of a wearer, such as while a person is in a barber's chair and having a haircut or being shaved, the rack comprising a vertical panel securable to a wall, the panel having a pair of cushioned platforms upon which the lens of the spectacles are placed.

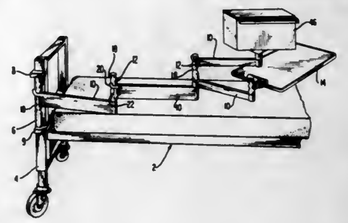
3,550,891
ADJUSTABLE SHELF BRACKET
Charles F. Scott, 234 Rochelle Ave., Lincoln, Ill. 62656
Filed Dec. 4, 1968, Ser. No. 781,225
Int. Cl. E04g *3/08*
U.S. Cl. 248—242 **2 Claims**



An adjustable shelf bracket is removably attachable to an elongated support secured to a wall structure wherein the support has a plurality of vertically spaced slots and a bracket member has a plurality of vertically spaced hooks adapted to be received within the slots. A bifurcated arm has one end thereof pivotally mounted on the bracket member which has a plurality of ratchet teeth on a periphery thereof. A bell crank pawl is pivotally mounted between spaced plates forming the bifurcated arm and has a plurality of ratchet teeth on an end of one arm adapted to be moved into interengagement with the ratchet teeth on the periphery of the bracket in response to a resilient member positioned in engagement with another arm of the bellcrank shaped pawl.

3,550,892
DETACHABLE FURNITURE SUPPORT
Robert L. Propst, Ann Arbor, Mich., assignor to Herman Miller, Inc., Zeeland, Mich., a corporation of Michigan
Filed July 1, 1968, Ser. No. 741,660
Int. Cl. A47f *7/00*
U.S. Cl. 248—282 **16 Claims**

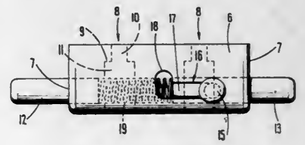
This disclosure relates to furniture construction, in which a plurality of arms can be interconnected through a connecting rod and rod gripping means on the arms, such that the arms are rotatable relative to each other. The ends of the rods are insertable into vertical holes in one end of the arms. The rods contain at least one indentation along the lengths thereof, and the arms contain fingers which are insertable through the indented portions of the arms, with the fingers extending above or below the indentations in back of the rods, to hold the arms onto the rods. The arms contain a bearing surface below the fingers, to support the arm for rotation about a



vertical axis.

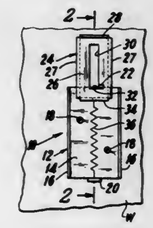
The arms can be connected to a bed post, for example, for supporting trays and cabinets over a bed surface. Means can be provided for adjusting the height of the trays and cabinets above the bed.

3,550,893
REEL HOLDER
Abe Waltzkin, Cambridge, Mass. 3 Garvey St., Everett, Mass.
Filed Oct. 23, 1968, Ser. No. 769,842
Int. Cl. A47f *5/00*
U.S. Cl. 248—309 **5 Claims**



A holder for securing a variety of fish reels to the cabin roof of a boat. The holder comprises a cylindrical metal member flattened along one longitudinal portion. Longitudinally extending pins project from each end of the cylindrical member. One of the pins is fixed to the cylindrical member. The other pin is secured for longitudinal movement with respect to the cylindrical member and is spring-tensioned outwardly thereof.

3,550,894
FRAME CLAMPING DEVICE
Louis Kaplan, 67—23 211th St., Bayside, N.Y. 11061
Filed Nov. 29, 1968, Ser. No. 779,890
Int. Cl. A47f *7/14*
U.S. Cl. 248—316 **8 Claims**

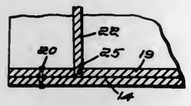


A bracket that is secured to a wall and a clamp that is relatively movable with respect to the bracket provide the means for releasably holding an article such as a frame, picture, sign or the like. Means are provided for urging the clamp into engagement with the top of the article.

3,550,895
FOLDABLE DESK

Jeremy S. Guiles, Cape Elizabeth, Maine (Box 801, Portland, Maine 04104)

Filed Oct. 11, 1968, Ser. No. 766,832
U.S. Cl. 248—459 6 Claims

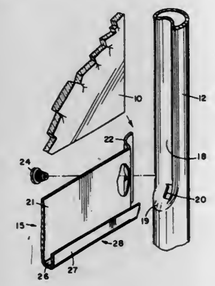


A foldable desk is disclosed consisting of interconnected front, bottom, rear, and top walls having parallel fold lines and increasing in width in the order named and with a foldable flap at the free edge of the top wall secured to the front wall below its free edge. In the collapsed position of the desk, the top and front walls lie flat against the rear and bottom walls and in the erected position, the top wall is inclined downwardly towards the front and bottom walls and the free edge of the front wall is exposed as a retainer.

3,550,896
MIRROR ASSEMBLY

Jerry A. Brown and Clayton R. Hume, Columbus, Ind., assignors to Hamilton Cosco, Inc., Columbus, Ind., a corporation of Indiana

Filed Nov. 16, 1966, Ser. No. 594,763
Int. Cl. A47g 1/24
U.S. Cl. 248—473 6 Claims

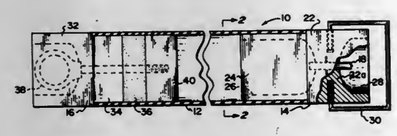


A mirror assembly in which a mirror has its lateral edges received in grooves formed in the inner faces of a pair of laterally spaced tubes, said grooves having notches formed therein for reception of the corners of said mirror. A pair of brackets are received over the adjacent ends of said mirror with their ends received in said grooves and rigidly connected to said tubes. Clamps are mounted on said brackets and a pole is received in said clamps for supporting the mirror assembly in an operative position.

3,550,897
CORES FOR CASTING CONCRETE BEAMS

Richard E. Herro, Joliet, Ill., assignor to Dearborn Rubber Corporation, Broadview, Ill., a corporation of Illinois

Filed Apr. 3, 1968, Ser. No. 718,589
Int. Cl. B28b 7/32
U.S. Cl. 249—178 2 Claims

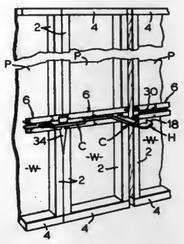


A removable core for forming an axial opening in concrete beams includes an elongated hollow tubular core member or body formed of elastomeric material, together with end caps for sealing the ends of the body and means for pressurizing the interior of the body during the concrete casting process. The body in cross section includes a square outer periphery so that the amount of concrete required to form a beam is reduced. The body maintains its square shape when pressurized without the use of reinforcing or supporting structure. In one arrangement, the walls of the body are of substantially equal thickness throughout and are bowed inwardly at the sides of the square. In another arrangement, the innner wall of the body is circular so that upon pressurization there is no tendency for the square outer shape to be distorted.

3,550,898
CONCRETE WALL FORMS

Leonard A. Ursini, Woodbridge, and Joseph J. Citrullo, Islington, Ontario, Canada, assignors to Tru-Wall Concrete Forming Limited, Municipality of Metropolitan Toronto, County of York, and Province of Ontario, Canada, a corporation of Canada

Filed Jan. 6, 1969, Ser. No. 789,170
Int. Cl. E04g 9/00
U.S. Cl. 249—195 7 Claims

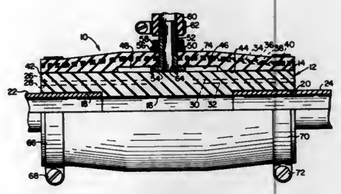


A modular section assemblable with other like sections for erecting forms for concrete walls; said section having spaced walers and a clamp pivoted for movement through the walers between stored and functional positions on the interior and exterior respectively of said section.

3,550,899
COLLAPSIBLE TUBE

John Robert Clarkson, Palo Alto, Calif., assignor to The J. R. Clarkson Company, Palo Alto, Calif., a corporation of California

Continuation of application Ser. No. 561,121, June 28, 1966, now abandoned. This application July 23, 1969, Ser. No. 849,563
Int. Cl. F16k 7/07
U.S. Cl. 251—5 6 Claims



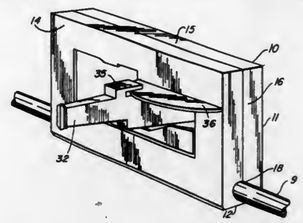
A valve assembly adapted to be introduced between opposed adjacent rigid conduit open ends comprises two concentric relatively thick-walled tubes formed primarily of elastomeric material with an annular inwardly open recess in the outer tube extending around the inner region of the inner tube to form an annular fluid pressure chamber. The outer regions of said tubes having a close peripheral fit with each other and are clamped fluid tight upon the respective opposed conduit ends. Fluid under pressure is selectively introduced into the chamber for elastically constricting the inner region of said inner tube to restrict fluid flow through

the valve assembly, and internal reenforcement is provided in the outer tube so that the outer tube undergoes substantially no radial expansion during normal operating pressures within the chamber.

3,550,900
FLOW REGULATOR

Kenneth C. Rolin, Lake Villa, Ill., assignor to Pharma Tech, Division of G & M Metal Fabricators Corporation, Franklin Park, Ill.

Filed July 22, 1968, Ser. No. 746,434
Int. Cl. F16k 7/06
U.S. Cl. 251—9 10 Claims

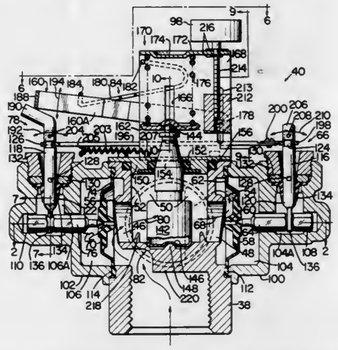


A one-piece, continuously variable, lever action flow regulator for controlling flow of liquid or gas through compressible resilient tubing. The flow regulator of my invention is particularly well suited for controlling the flow of fluids injected into the body, such as intravenous administrations.

3,550,901
VALVE CONSTRUCTION WITH MODULATING DIAPHRAGM CONSTRUCTION

Harold A. McIntosh, South Pasadena, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed Mar. 27, 1968, Ser. No. 716,556
Int. Cl. F16k 31/365
U.S. Cl. 251—38 3 Claims

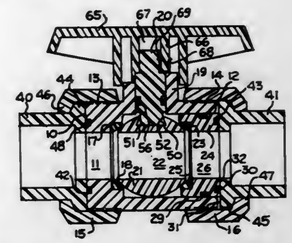


This application discloses a valve construction having a hot water inlet connected with a mixing chamber, a cold water inlet connected with the mixing chamber, and a water discharge outlet from said mixing chamber. One or more valve seats are provided in one or more of the inlets. One or more diaphragms are provided in modulating relationship with one or more of said valve seats. Each diaphragm construction includes a pilot passageway and bleed opening and an adjustable pilot in modulating relationship with the valve seat. A thermostat construction is responsive to the mixed water temperature of the mixing chamber and has adjusting means to adjust one or more pilots in modulating relationship to the water passageways in the one or more diaphragms. The thermostat construction may adjust the hot and/or cold water pilot to introduce a proper amount of hot and/or cold water into the mixing chamber. The pilot or pilots may be encased in a cavity wall construction which provides a cavity on one side of the diaphragm. One or more levers are provided with inner ends in the cavities and with sealing outward connections, so that their outer ends may be actuated by the thermostat construction to provide the modulating water control for the hot and/or cold water. This invention may also be used with other fluids than hot and cold water. Such fluids may be liquid or gaseous as desired.

3,550,902
DOUBLE-UNION BALL VALVE ASSEMBLY

Edgar J. Pidgeon, Santa Ana, Calif., and Guillermo J. Vanegas, Louisville, Ky., assignors to Cabot Corporation, Boston, Mass., a corporation of Delaware

Filed Nov. 15, 1968, Ser. No. 776,135
Int. Cl. F16k 5/06
U.S. Cl. 251—151 2 Claims

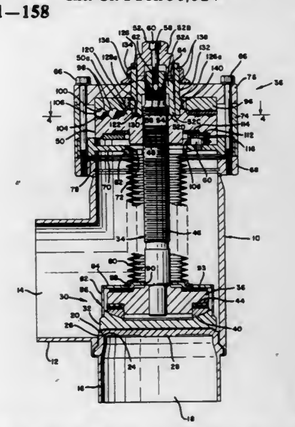


A ball valve assembly including a pair of end connectors detachably held respectively against a tubular valve body and a seal carrier slidably mounted in one end of the valve body has a rotatable ball valve actuated by a handle detachably engaging a valve stem exteriorly of the body, the ball being held in contact with annular seals carried respectively by the carrier and the valve body; a pair of union nuts serves to join the connectors detachably to the valve body and to provide for a tightening adjustment of the parts of the assembly when wear occurs upon the seals.

3,550,903
VALVE AND VALVE CLOSURE MECHANISM

Hugo Hauser, Santa Clara, Calif., assignor to Huntington Mechanical Laboratories, Inc., Mountain View, Calif., a corporation of California

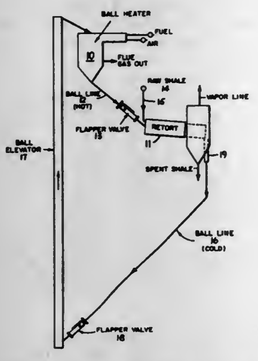
Filed June 27, 1967, Ser. No. 649,181
Int. Cl. F16k 31/524
U.S. Cl. 251—158 8 Claims



The valve of this invention comprises a valve body having inlet and outlet fluid flow passages. A valve operator is provided for movement of a valve member between valve open and valve closed positions. The valve operator includes

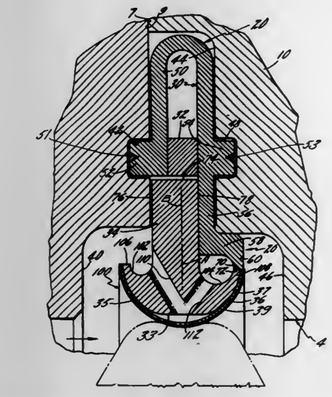
means for rapid opening and closing movement of the valve member over most of the closing and opening operations and a low torque, high mechanical advantage drive for developing large forces near the valve closed position.

3,550,904
FLAPPER VALVE ASSEMBLY
Roy Glenn Vawter, Grand Valley, Colo., assignor to The Oil Shale Corporation, New York, N.Y., a corporation of Nevada
Filed July 31, 1968, Ser. No. 749,084
Int. Cl. F16k 1/18
U.S. Cl. 251—298 **4 Claims**



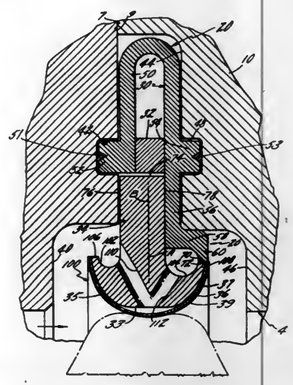
An antijamming flapper valve assembly characterized by the flap plate thereof being in spaced relationship to the upper portion of its seat and in sealable engagement with the lower portion of its seat. The antijamming flapper valve assembly is further characterized by its seat being beveled and in spaced relationship to the housing therefor.

3,550,905
VALVE SEAL
Perry P. Sifford, Palm Beach Gardens, Fla., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 8, 1969, Ser. No. 814,301
Int. Cl. F16k 1/22
U.S. Cl. 251—306 **3 Claims**



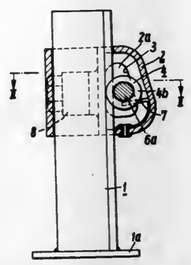
A butterfly valve is mounted in a passageway on an axis which is at an angle of less than 90° to the centerline of the passageway. The valve element engages an annular sealing surface which is mounted around the inner periphery of the passageway for sealing the passageway. This sealing surface is connected to an annular valve seat member which is connected to other sealing means which seals between the fixed mating flanges of two sections of the passageway. The invention herein described is made in the course of or under a contract with the Department of the Air Force.

3,550,906
VALVE SEAL
John L. Mayers, Juno, Fla., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 8, 1969, Ser. No. 814,302
Int. Cl. F16k 1/22
U.S. Cl. 251—306 **5 Claims**



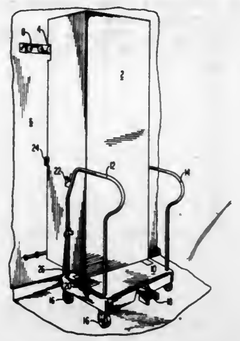
A butterfly valve is mounted in a passageway on an axis which is at an angle of less than 90° to the center line of the passageway. The valve element engages an annular sealing surface which is mounted around the inner periphery of the passageway for sealing the passageway. This sealing surface is connected to an annular valve seat member which is connected to other sealing means which seals between the fixed mating flanges of two sections of the passageway. The invention herein described is made in the course of or under a contract with the Department of the Air Force.

3,550,907
VEHICLE-LIFTING JACKS
Alexander Hahn, 1, Waldhohlweg, Schneidhain, Uber Konigstein (Taunus), Germany
Filed Dec. 5, 1967, Ser. No. 688,114
Claims priority, application Germany, Dec. 5, 1966, H62010
Int. Cl. B66f 3/02
U.S. Cl. 254—1 **3 Claims**



The specification describes an improved vehicle jack having a pinion with sharp teeth arranged to bite into a stationary upright part of the jack and thus save machining teeth in the upright part.

3,550,908
UNIT LOAD HANDLING DEVICE
Robert L. Propst, Ann Arbor, and James O. Kelley, Saline, Mich., assignors to Herman Miller Inc., Zeeland, Mich., a corporation of Michigan
Filed May 22, 1968, Ser. No. 731,014
Int. Cl. B60p 1/48
U.S. Cl. 254—8 **11 Claims**



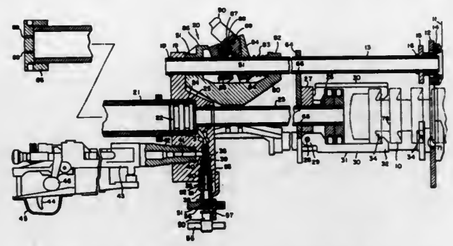
This disclosure relates to a device for handling unit loads and is particularly adapted to handle those lockers disclosed in U.S. Pat. No. 3,241,898. The device comprises a wheeled vehicle having a supporting platform with upstanding side rails forming handle gripping means at a front edge. The side rails have a locker retaining flange at an upper rear portion thereof to cooperate with a downwardly extending slotted flange on the locker to secure the position of the locker on the supporting platform.

Lifts are provided on the supporting platform to raise the locker to a position where it can be hung on a wall rail. The lift which is actuated by a foot pedal is also used in removing lockers from the wall hanging position.

The device has a sliding handle on a rear portion for pulling the vehicle. The sliding handle is rotatable and slidable on the side rails so as to permit easy removal of the load from the back portion of the device.

A train of carts can be made by attaching the foot pedal to a connecting link which is rotatable relative to the cart from which it extends.

3,550,909
STAKE EXTRACTING APPARATUS
Frank T. Pisano, Cherry Hill, N.J., assignor to the United States of America as represented by the Secretary of the Army
U.S. Cl. 254—30 **4 Claims**



As an abstract of the disclosure, the invention is directed to a stake extracting arrangement having gas generating media for operating a piston in a vertically oriented cylinder, with the lower end of the piston rod carrying a lifting hook arrangement for engaging a stake to be extracted. Preferably, a number of lift and lock devices are provided on respective support legs which are connected with a cylinder support plate and a spider, such that the lifting hook arrangement may be prepositioned vertically prior to operation.

3,550,910
CABLE GUIDE
Frank J. Kowack, Oceanside, N.Y., assignor to Columbian Slides Inc., Freeport, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 562,679, July 5, 1966, now Patent No. 3,428,369. This application Sept. 4, 1968, Ser. No. 757,393
Int. Cl. B66d 1/36
U.S. Cl. 254—190 **4 Claims**



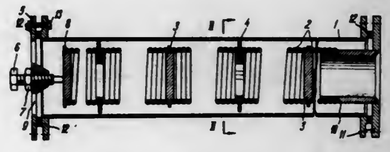
A cable guide consists of two arms with a bridge portion shaped in the form of a circular segment having a groove in which a cable can slide. One or more fingers are provided to retain the cable in the groove.

3,550,911
BARBED WIRE
William H. Burton, Sheffield, England, assignor to Tinsley Wire Industries Limited
Filed Nov. 20, 1968, Ser. No. 777,341
Claims priority, application Great Britain, Jan. 5, 1968, 806
Int. Cl. E04h 17/04
U.S. Cl. 256—7 **1 Claim**



Barbed wire consists of a single line wire of noncircular cross section, conveniently a continuously flattened circular section wire, also crimped continuously along its length, the crimping preferably being all in the same plane parallel to the flattened sides of the line wire with an amplitude preferably less than the breadth of the line wire in the same plane, and barbs consisting of pointed lengths of wire coiled tightly round the crimped line wire at intervals, the coiled length of the barbs preferably being substantially equal to at least half the pitch of the crimping of the line wire.

3,550,912
EMULSIFIER
Mikhail Alexeevich Melnikov-Eikenvald, Ulitsa vavilova, 10, korpus 20, kv. 18; Georgy Mikirtychevich Kamarian, Vorontsovskaya ulitsa, 30b, kv. 18; Vladimir Nikolaevich Suchkov, Ulitsa Marii Ulyanovoi 16, Korpus 1, kv. 53; Vadim Ippolitovich Djumulen, Ulitsa Petra Romanova, 5, kv. 8, and Alexandr Kuzmich Nesterkin, Sovetskaya ulitsa, 5, kv. 22, all of Moscow, U.S.S.R.
Filed Feb. 15, 1968, Ser. No. 705,678
Int. Cl. B01f 15/00
U.S. Cl. 259—4 **3 Claims**



An emulsifier constituted by a coil spring installed longitudinally in a tubular casing and wherein a plurality of longitudinally spaced internal and external partitions are mounted in

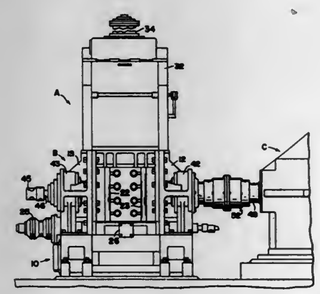
alternation between the coils of the spring to cause undulating flow of liquid between the partitions and through the coils of the spring.

3,550,913
METHOD AND APPARATUS FOR MIXING GRANULATED MATERIAL
Friedrich Jaeger, Bad Hersfeld, and Lothar Loew, Elsenfeld, and Hans-Joachim Tzschoppe, Wuppertal, Germany, assignors to Glanzstoff AG, Wuppertal, Germany
Filed Jan. 30, 1969, Ser. No. 795,164
Claims priority, application Germany, Feb. 2, 1968, 1,607,773
Int. Cl. B01f 7/16
U.S. Cl. 259—8 **10 Claims**



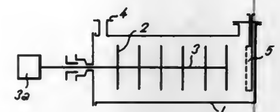
Process and apparatus for the gravity-flow mixing of solid granules or particles wherein conventional mixing by withdrawing random samples of a granular material from a storage tank at various levels and recombining the samples in a receiver or manifold is enhanced by subjecting the initially mixed granules to a cross-mixing, preferably by a rotating distributor element, as they are conducted from said receiver into a second storage tank where the same operation can be repeated.

3,550,914
MACHINE FOR PROCESSING RUBBER, PLASTIC AND THE LIKE AND METHOD
James T. Matsuoka, Brecksville, Ohio, assignor to Intercole Automation, Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 29, 1968, Ser. No. 733,087
Int. Cl. B01f 7/02
U.S. Cl. 259—104 **3 Claims**



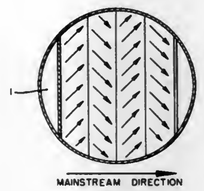
A machine for processing rubber, plastic, other elastomers and the like including a rotatable material processing member having a processing portion and a supporting shaft portion constructed so that a bearing support for the shaft portion of the rotatable processing member can be removed from the machine without disassembly of major component machine parts or relocation of a coupled drive unit.

3,550,915
AGITATING APPARATUS
Jan Kaspar and Vladislav Blčík, Pardubice, Czechoslovakia, assignors to Vyzkumny Ustav Organickych Syntez, Pardubice-Rybitvl, Czechoslovakia
Filed Apr. 10, 1968, Ser. No. 720,414
Int. Cl. B01f 7/02
U.S. Cl. 259—110 **9 Claims**



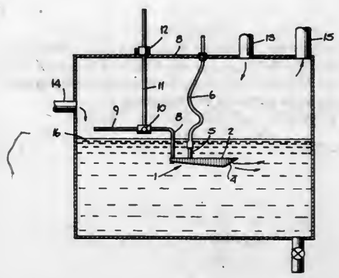
An agitating apparatus comprises a vessel having a closed inner cylindrical chamber having a longitudinal axis which includes with the horizontal an angle of at most 45°. An elongated rotary shaft extends through the chamber coaxially therewith. A plurality of agitating discs are mounted coaxially on the shaft longitudinally spaced therealong. Each disc has a diameter ranging between 50 and 95 percent of the chamber diameter. At least one radial face of each disc is provided with a plurality of arcuately curved profiled sections extending substantially tangentially of the shaft.

3,550,916
HIGH CAPACITY MASS TRANSFER PLATE FOR COLUMNS
Klaus Hoppe, and Gerhard Krueger, Magdeburg, Germany, assignors to Veb Germania Chemieanlagen-Und Apparatebau
Filed Nov. 29, 1968, Ser. No. 780,069
Int. Cl. B01d 3/16
U.S. Cl. 261—114 **7 Claims**



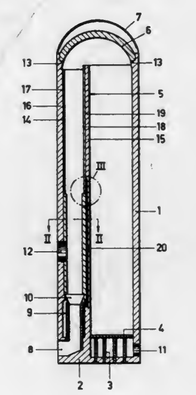
In a column for contact of a liquid or a fluidized particulate solid with a gas or vapor in which the column is upright and the gas or vapor is directed in a net upward direction through the column, a substantially horizontal plate extending substantially across the internal diameter of the column, means for causing flow of the liquid or fluidized particulate solid across the plate, the plate being provided with openings for passage of the gas or vapor therethrough, the openings being upwardly inclined at acute angles relative both to the plane of the plate and in the plane of the plate to the net direction of flow (mainstream direction) of the liquid or the solid across the plate, and the plate having at least three zones extending across the plate transversely to the net direction of flow, the zones each being characterized by the acute angle in the plane of the plate between the openings contained therein and the net flow direction being different from the corresponding angle of the openings contained in the zone or zones contiguous therewith.

3,550,917
GAS SPARGING MECHANISM
Linden Wayne Cochran, Basking Ridge, N.J., assignor to Multi-Minerals Limited, Toronto, Ontario, Canada
Filed Dec. 31, 1968, Ser. No. 788,286
Int. Cl. B01f 3/04
U.S. Cl. 261—121 **5 Claims**



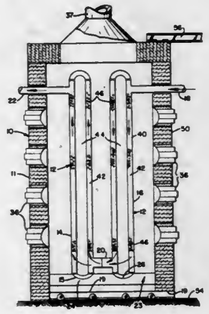
An improved gas sparging mechanism for use in a tank reactor. Such an apparatus is used to aid in the removal of volatile contaminants from the reaction medium in a reactor by the introduction of gas sparging current and is capable of both vertical and lateral adjustment in order to permit the direction of the sparging current to be directed to various parts of the reactor to enable efficient volatilization of contaminants.

3,550,918
HEAT REGENERATOR, PARTICULARLY A REGENERATIVE AIR PREHEATER FOR A BLAST FURNACE
Jacobus Van Laar, Santpoort, Netherlands, assignor to Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V., Ijmuiden, Netherlands
Filed Aug. 5, 1969, Ser. No. 847,663
Claims priority, application Netherlands, Aug. 9, 1968, 6811373
Int. Cl. F23l 15/02
U.S. Cl. 263—19 **11 Claims**



A regenerative heater such as for preheating air to be fed to a blast furnace, having a brick-lined single vertical shell and, on opposite sides of a composite separating wall therein, a burner stack and a regenerating chamber filled with checkerwork, with an insulating layer and a vertical slide joint in the separating wall, is provided, separately and in various combinations, with: (1) a sliding joint in the shell wall of the burner stack; (2) a location of the heat insulating layer at the side of the sliding joint remote from the burner stack; (3) an extension of the heat insulating layer entirely around the burner stack at the side of the sliding joint remote from the burner stack; (4) an extension of the heat insulating layer at least over the lower half of the height of the burner stack; (5) a sliding joint of a width which is exactly closed in the hot condition of the heater; (6) an extension of the bricks on the outer side of the separating wall into a recess in the inner brick layers of the shell with a sliding joint therebetween; (7) a metal plate in the dividing wall outside the insulating layers; (8) a metal plate in such location of heat resistant metal containing silicon, chromium, and molybdenum; (9) an innermost layer of fire brick extending continuously around substantially the lower half of the burner stack, itself uninterrupted by any sliding joint and separated from the next layer by a continuous sliding joint; (10) a division of said next layer into two portions by sliding joints where the separating wall meets the shell; (12) a dome covering the shell and resting on only the layers of the shell outside said sliding joints; and (12) a ceramic burner in the burner stack with the sliding joint in the shell extending down to the burner, and the sliding joint in the separating wall extending downwardly past the top of the burner.

3,550,919
FURNACE STRUCTURE
Hal B. H. Cooper, 4234 Chevy Chase Drive, Pasadena, Calif.
Filed Nov. 13, 1968, Ser. No. 775,260
Int. Cl. F23l 15/04
U.S. Cl. 263—20 **12 Claims**

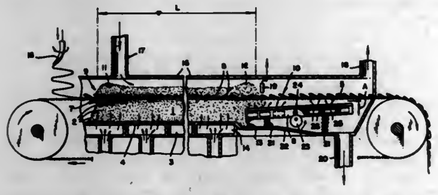


A furnace particularly suitable for the heating of corrosive gas streams which furnace comprises a fused quartz tube conduit structure having one or more vertically disposed segments with the individual segments being carried in compression by underlying supporting means.

3,550,920
FLUIDIZED BED
Hans Geipel, Oberhausen-Sterkrade, Eckehard Foerster, Oberhausen, Wilfried Heinemann, Duisburg-Hamborn, and Kurt Baranowski, Essen-Frintrop, Germany, assignors to Huttenwerk Oberhausen AG., Oberhausen, Germany, a corporation of Germany
Claims priority, application Germany, May 10, 1968, 1,758,303
Continuation-in-part of application Ser. No. 729,833, Jan. 25, 1968, now Patent No. 3,492,740. This application May 5, 1969, Ser. No. 821,700
Int. Cl. F27b 3/00, 15/00
U.S. Cl. 263—21 **5 Claims**

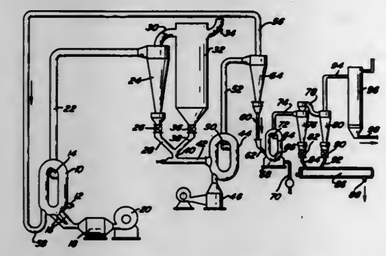
In a plant for the heat treatment of workpieces on a continuously moving apertured conveyor, the latter is surrounded by a fluidized bed of solid ceramic particles entrained by a stream of carrier gas within a tunnel whose discharge end contains an oscillatable supporting plate, upwardly inclined toward the outlet, underneath the conveyor to stop the outward movement of solid particles and accumu-

late them in a nearly stationary pile traversed by the emerging workpieces; escape of particles underneath the second



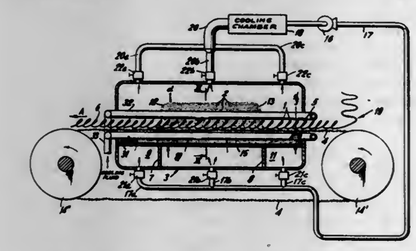
conveyor is prevented by a flexible seal between the tunnel bottom and the oscillating plate.

3,550,921
FLUID ENERGY PROCESSING SYSTEM
Nicholas N. Stephanoff, Haverford, Pa., assignor to Fluid Energy Processing & Equipment Company, Hatfield, Pa., a corporation of Pennsylvania
Filed July 29, 1968, Ser. No. 748,375
Int. Cl. C04b 11/02
U.S. Cl. 263—53 8 Claims



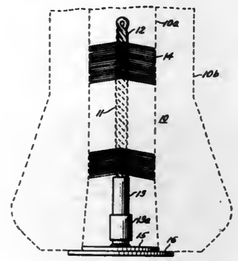
This invention relates to a system for treating solid particles wherein the particles are predried and then calcined, both the predrying and calcining being effected by entrainment of the particles in heated gaseous fluids which centrifugally whirl the particles through separate annular paths and centrifugally separate the lighter from the heavier particles at each stage. The system recycles the hot exhaust gases from the calcining stage back to the predrying stage, thereby effecting greater efficiency at less cost.

3,550,922
FLUIDIZED BED FOR CONTROLLED HEAT TREATMENT
Hans Geipel, Oberhausen-Sterkrade; Eckehard Forster, Oberhausen, and Wilfried Heinemann, Duisburg-Hamborn, Germany, assignors to Huttenwerk Oberhausen A.G., Oberhausen, Rhld., Germany, a corporation of Germany
Filed Mar. 4, 1968, Ser. No. 710,333
Claims priority, application Germany, Mar. 4, 1967, H62030
Int. Cl. C21d 9/56
U.S. Cl. 266—3 6 Claims



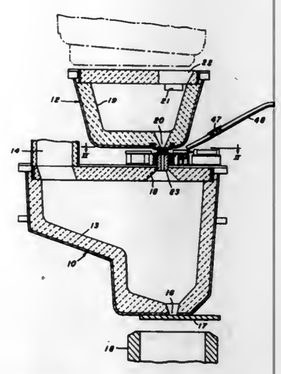
Goods to be heat-treated, e.g. coils of steel wire to be subjected to controlled cooling, are placed on an apertured conveyor passing through a tunnel into which solid ceramic particles entrained by a stream of carrier gas are admitted through a perforated base below the conveyor, the particles enveloping the conveyed goods and being then recirculated through a cooling chamber restoring their original temperature. Further cooling of the particles is effected by two sets of tubes traversing the tunnel below and above the conveyor, respectively.

3,550,923
APPARATUS AND METHOD FOR ATTACHING A WORKING DEVICE TO AN OXYGEN LANCE
Roger T. Boos, Cooperburg, Pa., assignor to Bethlehem Steel Corporation, a corporation of Delaware
Filed Oct. 3, 1968, Ser. No. 764,895
Int. Cl. C21c 7/00
U.S. Cl. 266—34 3 Claims



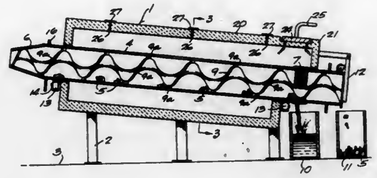
Apparatus whereby a working device may be inserted into a bore of an oxygen lance in a basic oxygen furnace, said apparatus comprising an elongated member having an upper portion and a lower portion, a centering means attached to said lower portion thereof and a plurality of flexible filaments attached to and extending radially outwardly from said upper portion of said elongated member.

3,550,924
MECHANISM FOR CONTROLLING FLOW OF LIQUID TO A VACUUM-TREATING VESSEL
John A. Grosko, Whitaker Borough, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed Dec. 6, 1968, Ser. No. 781,929
Int. Cl. C21c 7/10
U.S. Cl. 266—34 10 Claims



A flow-controlling mechanism which embodies sliding gates adapted to be positioned between the inlet of a vacuum-treating vessel and the outlet of a container for feeding liquid to the vessel. One of the gates is formed of two parts which are separable. The upper of the two parts is retained on the bottom of the container to close the outlet when the container is removed from the vessel. The vacuum in the vessel holds the lower part over the inlet opening to avoid breaking the vacuum. The operating means for positioning the gates is mounted on the top of the vessel.

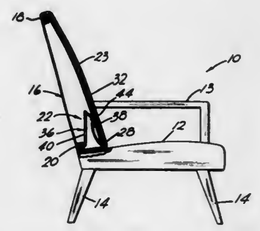
3,550,925
APPARATUS FOR SEPARATING METALS
Marvin Evans, Bayside, and David H. Miller, Whitefish Bay, Wis., assignors to College Research Corp., Whitefish Bay, Wis., a corporation of Wisconsin
Filed Aug. 30, 1968, Ser. No. 756,455
Int. Cl. C21d 1/34
U.S. Cl. 266—37 11 Claims



This invention relates to an apparatus for separating metals and particularly to an apparatus for separating two different alloys from scrap metal. The apparatus includes a retort mounted for rotation within a gas furnace and a spiral flight is secured to the inner wall of the retort. The scrap material is charged into the upper end of the retort and is carried downwardly through the retort by rotation of the spiral flight. During travel through the retort, the lower melting point alloy is melted and the molten alloy is discharged from the retort through a screen adjacent the lower end of the retort, while the unmelted higher point alloy is conveyed across the screen and discharged from the lower end of the retort into a receptacle.

The furnace extends longitudinally beyond the screen section of the retort and the gases of combustion from the furnace are drawn through the screen into the retort, and flow through the retort to its upper end to provide an increased efficiency of heating.

3,550,926
BACK SPRING ASSEMBLY
Walter V. Slominski, Lexington, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich., a corporation of Michigan
Filed Sept. 3, 1968, Ser. No. 756,974
Int. Cl. A47c 23/16, 25/02
U.S. Cl. 267—107 6 Claims



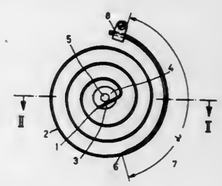
A spring assembly for a seat back structure in which an elongated wire element is of a form and has segments clipped together so as to provide a low profile back support with the same resilient feel as a high profile back support.

3,550,927
RESILIENT SEAT AND PLATFORM ASSEMBLY
Edward C. Levit, Grand Rapids, Mich., assignor to Steelcase, Inc., Grand Rapids, Mich., a corporation of Michigan
Filed Jan. 22, 1969, Ser. No. 792,951
Int. Cl. F16f 3/00, 3/02
U.S. Cl. 267—110 7 Claims



A resilient seat platform comprising a plurality of individual spring units resting on a metal seat frame. Each of said spring units consists first of a flexible metal strap, having a hole near each of its two ends, which is bent gradually over to form a small loop such that said holes are disposed underneath the rest of said strap. The ends of a slightly curved, flexible metal bar, slightly longer than the strap, fit through said holes underneath said strap and rest against said strap within the loops at the ends thereof. The bar portion of said spring unit fits near its ends into two notches or grooves which are directly opposite each other on two opposite sides of a metal seat frame. The ends or looped portions of said metal strap of said spring unit rest on the surfaces of said opposite sides of said seat frame.

3,550,928
COIL SPRING
Werner Antritter, Villingen, Germany, assignor to Kienzle Apparate G.m.n.H., Villingen, Black Forest, Germany
Filed Nov. 8, 1968, Ser. No. 774,444
Claims priority, application Germany, Nov. 9, 1967, 1,623,756
Int. Cl. F16f 1/10
U.S. Cl. 267—156 10 Claims

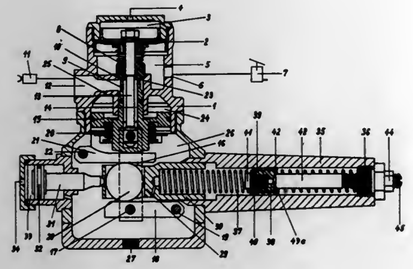


A coil spring, particularly for use in measuring devices, has an active body portion the inner end of which is to be connected rigidly with a rotatable member, and a radially outer end. An extension is connected with the outer end, or may be integral therewith, and extends from this outer end circumferentially of the spring to form a partial convolution. The free end of this extension is rigid with an abutment. The extension has greater bending resistance than the coil spring.

3,550,929
MECHANISM FOR CONTROLLING OUTPUT PRESSURE OF FLUID PRESSURE REGULATING VALVE
Werner Meyer, Harenberg, and Guenter Braun, Ronnenberg, Germany, assignors to Westinghouse Bremsen und Apparatebau, G.m.b.H., Hannover, Germany
Filed Sept. 23, 1968, Ser. No. 761,778
Claims priority, application Germany, Oct. 28, 1967, W40910
Int. Cl. F16f 9/34
U.S. Cl. 267—175 10 Claims

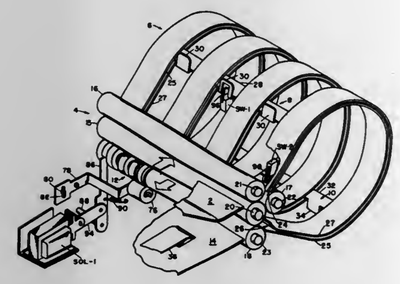
Mechanism for controlling output pressure of a fluid pressure regulating valve, in which the delivery pressure of the regulating valve is controlled in accordance with the axial position of a first member relative to a second member, the axial position being determined by a piston urging the first

member in one axial direction opposed by an adjustable spring between the members, the tension of the spring being adjustable by a third member engaging the spring and disposed for axial adjustment relative to the second member,



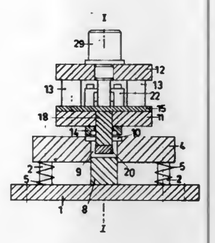
the spring constant being adjustable by axial adjustment of the third member relative to the coils of the spring to dispose a greater or lesser portion of the spring between the first and third members.

3,550,930
FOLDER IMPRINTER
Fred A. Brown, Stamford, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware
Filed Aug. 28, 1968, Ser. No. 755,993
Int. Cl. B41f *13/56*
U.S. Cl. 270—20 **5 Claims**



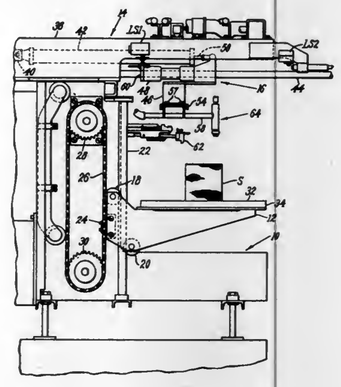
A device for imprinting information on folded sheets of paper as the latter emerge from a folding machine. The device is a rotary printer mounted on a shaft of the folding machine and driven thereby, and includes a one-revolution clutch connection with the shaft which is controlled by paper actuated switches in the folding machine so that operation of the imprinting device can be cyclically controlled to print at a preselected location on each folded sheet of paper emerging from the folding machine.

3,550,931
APPARATUS FOR FOLDING FLEXIBLE MATERIALS
Kurt Hoffmann, Heidelberg, Germany, assignor to Chrobok-Hoffmann K.G., Eppelheim near Heidelberg, Germany
Filed Feb. 10, 1969, Ser. No. 797,771
Claims priority, application Germany, Feb. 26, 1968, I,710,676
Int. Cl. B65h *45/00*
U.S. Cl. 270—61 **9 Claims**



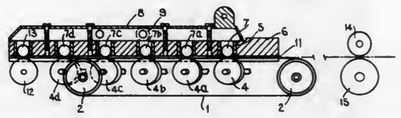
Pairs of vertically movable flat plates having die openings are used to fold the edges of flexible materials.

3,550,932
ADJUSTABLE PICK-OFF DEVICES
Ronald C. Mason, Hamilton, and George F. C. Burke, Beverly, and George A. Fuller, Jr., Wenham, Mass., assignors to USM Corporation, Flemington, N.J., a corporation of New Jersey
Filed June 17, 1968, Ser. No. 737,580
Int. Cl. B65h *3/08*
U.S. Cl. 271—26 **8 Claims**



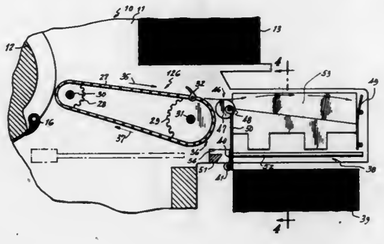
A device for transferring a preselected number of sheets of material from a stack of sheets and depositing the sheet, or sheets at a selected location. The device comprises a pickoff head which is adjustable to accommodate the difference in thickness between sheets of material to be fed, and which adjustment may be made to reliably pickoff one, two, or more sheets of material in registration, as desired.

3,550,933
DOCUMENT FEEDING APPARATUS
Eric Wilson, Letchworth, England, assignor to International Computers Limited, London, England, a British company
Filed Dec. 26, 1968, Ser. No. 787,081
Claims priority, application Great Britain, Jan. 12, 1968, 1773/68
Int. Cl. B65h *9/10*
U.S. Cl. 271—52 **7 Claims**



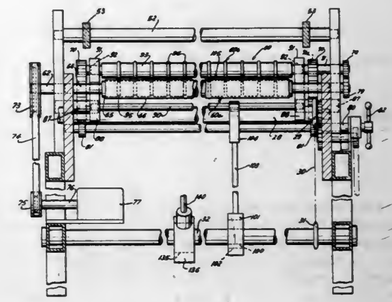
Apparatus for feeding and aligning documents is described including a rotatable feeding roller, a ball in contact with the periphery of the roller and supported in a guide so as to move freely in a direction perpendicular to the periphery of the roller at the point of contact. The fluid under pressure is applied to the guide remote from the roller to urge the ball into contact with the roller. The roller axis may be angled to the direction of feed in order to align documents with an aligning surface.

3,550,934
DELIVERY DEVICE FOR ONE-REVOLUTION CYLINDER CUTTER/CREASER PRESS
Donald D. Litt, Scarsdale, and David B. Jaroff, New York, N.Y., assignors to Techmation Corporation, Long Island City, N.Y., a corporation of New York
Filed Dec. 31, 1968, Ser. No. 788,272
Int. Cl. B65h *29/04, 31/10*
U.S. Cl. 271—68 **7 Claims**



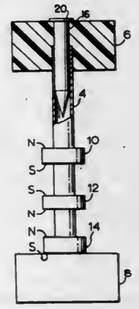
In a one-revolution cylinder cutter/creaser press in which each sheet that has been cut and/or creased is released from the impression cylinder at the back of the latter and taken up by a delivery device including sheet grippers driven through chains and sprockets to move in a closed path having a rearwardly directed upper run connected through an arcuate path portion to a forwardly directed lower run; the grippers are opened, as by a cam, as they near the back end of the upper rearwardly directed run so that each sheet is propelled rearwardly therefrom in a discharge path which is substantially a continuation of the upper run, disclike members eccentrically mounted on a lateral rod project from below into the discharge path for glancing engagement by each rearwardly propelled sheet to absorb part of the inertia of the sheet and to change its angle of attack for increased air resistance, whereby the sheet is slowed, guides are provided at the back and sides to guide each slowed sheet onto a reciprocable carriage when the latter is at a rearward position above a delivery pile, and each sheet is stripped from the carriage for deposit on the pile when the carriage is returned to a forward position.

3,550,935
BAG DELIVERY AND STACKING MECHANISM FOR BAG-MAKING MACHINE
William E. Smith, Upper Saddle River, N.J., Edward P. Primosch, Franklin Square, N.Y., and John D. Keenan, Jr., Caldwell, N.J., assignors to Amsco Packaging Machinery, Inc., a corporation of New York
Filed Oct. 7, 1968, Ser. No. 765,317
Int. Cl. B65h *29/14, 29/70*
U.S. Cl. 271—76 **2 Claims**



Delivery and stacking mechanism, particularly for plastic bags, includes a pair of conveyors one above the other. The top conveyor comprises a series of ropes trained over two rollers, and the bottom conveyor comprises an elastic belt trained over two rollers. Bottom roller at conveyor delivery end has grooves in registry with ropes above, and latter press elastic belt into grooves to corrugate bags passing between conveyors. Distance between rollers at delivery end of conveyors can be varied to vary depth of bag corrugation. Tray at delivery end of conveyors in which bags are stacked, openable gate on tray permitting removal of stack.

3,550,936
AMUSEMENT DEVICE INCLUDING ANNULAR MAGNETS SLIDABLY DISPOSED ON NONMAGNETIC TUBE
Donald W. Puttick, 473 Brierwood Ave., Ottawa, Ontario, Canada
Filed May 7, 1968, Ser. No. 727,266
Int. Cl. A63h *33/26*
U.S. Cl. 272—8 **8 Claims**

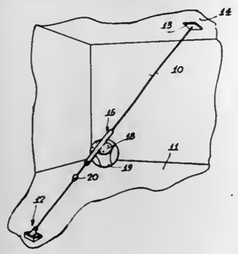


A toy, giving the impression of variable invisible springs, having strong annular magnets free to slide without tilting on a nonmagnetic tube, the magnets having their poles on the flat annular faces and being disposed on the tube with like poles next to one another, and a core of ferromagnetic material adapted to be inserted in the tube so as to give a preferential position to at least one of the magnets.

3,550,937
BASKETBALL TRAINING AID

George G. Wright, Box 306, and David E. Patterson, Box 73, Nanton, Alberta, Canada

Filed June 19, 1968, Ser. No. 738,344
Int. Cl. A63b 69/00
U.S. Cl. 273—1.5 3 Claims

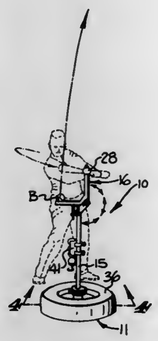


A basketball training aid comprises a track adapted to be mounted in inclined relation to a floor. A guide is slidingly mounted on the track and has directly and rigidly attached thereto a basketball-simulating member. The user shoots the basketball member along the inclined track and on its gravitational return travel along the track it engages a stop on the track.

3,550,938
PROJECTILE THROWING DEVICE

Paul G. Cunningham, Jr., 7025 Brynhurst Drive, Charlotte, N.C.

Filed May 23, 1968, Ser. No. 731,429
Int. Cl. A63b 69/40
U.S. Cl. 273—26 9 Claims



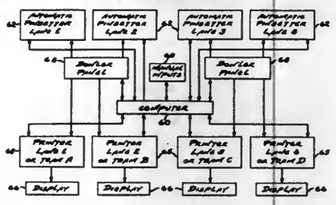
A device for throwing a projectile such as a baseball wherein the trajectory arc and direction of the projectile may be closely controlled, as in simulation of a fly ball, by controlling the disposition of the arms of an L member adapted to be struck by an instrument swung in a horizontal plane by an operator of the device.

3,550,939
ELECTRONIC SCORER FOR BOWLING GAMES

Jerome F. Walker, Kirtland, Ohio, assignor to Brunswick Corporation, a corporation of Delaware

Filed Jan. 30, 1967, Ser. No. 612,665
Int. Cl. A63d 5/04
U.S. Cl. 273—54 35 Claims

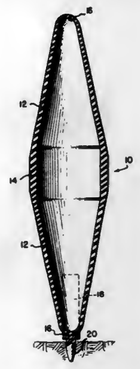
A bowling scoring system having a single computation means for computing scores bowled on any of a plurality of lanes and which (1) includes an error correction system; (2) computes anew at the end of each frame a team total score which will reflect any corrections made to bowler's scores; includes all pinfall actually earned by bowlers on the team and will be for a discrete team frame whether or not all bowlers on the team are bowling in the same frame; (3) is adapted to be selectively conditioned to score league bowling on all lanes, open bowling on all lanes or league bowling on some lanes and open bowling on other lanes; (4) includes logic which anticipates the nature of a subsequent readout and conditions a readout device for the readout in advance of the operation; (5) incorporates a separate printer for readout for each lane to be scored; and (6) is formed of a number of electronic registers fabricated primarily of semiconductor components.



3,550,940
PLACEMENT KICKING BALL WEIGHING APPROXIMATELY 7 TO 16 OUNCES

Charles F. Ball, Pompano Beach, Fla., assignor to Galaxy Marketing & Manufacturing Company, a corporation of Florida

Filed Dec. 19, 1968, Ser. No. 785,220
Int. Cl. A63b 41/10, 43/02
U.S. Cl. 273—65 7 Claims



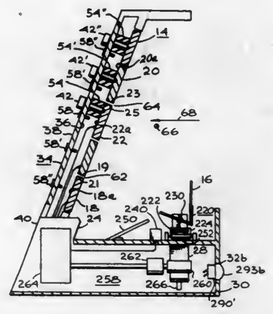
A kicking ball adapted for placement kicks in the manner of a football having an exterior configuration established by a pair of cones joined at their bases, the base diameter being less than one-third the length of the ball which approximates the length of a regulation football. The ball weighs approximately 7 to 16 ounces and is formed by a sealed shell retaining air or gas at atmospheric pressure.

3,550,941
TARGET WITH HIT ACTUATED ELECTRICAL INDICATION MEANS

Lloyd W. Spiro, 20510 Napa St., Canoga Park, Calif., and Arthur Landwald, 20457 Londelius St., Canoga Park, Calif. 91306

Filed Sept. 26, 1968, Ser. No. 762,765
Int. Cl. A63b 63/00
U.S. Cl. 273—102.2 16 Claims

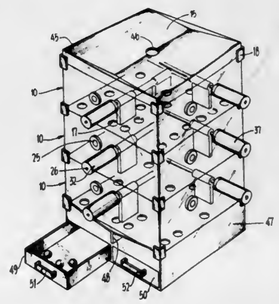
An improved target arrangement for providing selectively a visual and/or audible indication of impacts on the target by preselected projectiles. A segmented target is divided into a plurality of individual discrete segments, which, for example, may be the conventional bull's-eye type target, and also, if desired, a moving target figure may be included, or any other combination of structural arrangements. Each individual segment is responsive to impact by the projectile and, upon receiving an impact in the particular section, closes an electrical circuit. The moving target figure may be similarly responsive. One or more of the discrete targets may be connected to an electrical circuit having an audio or audio signal generator such as an audio frequency oscillator connected to a permanent magnet speaker. Thus, for a particular target segment that is impacted by the projectile and is connected to the oscillator and speaker circuit, a discrete sound is produced indicating a hit on that particular target segment. The same target segments may if desired be provided with both a visual signal means, such as a light bulb, and sound or with either light or sound or any combination thereof that may be desired. Both the lights and the sound are self-extinguishing after a predetermined time interval to allow comparatively rapid utilization of the target for another shot thereat.



3,550,942
MULTITIERED BALL GAME BOARD WITH PADDLES

Nathaniel F. Hawthorne, 855 Cedar St., Alameda, Calif.

Filed Jan. 23, 1969, Ser. No. 793,517
Int. Cl. A63d 3/02
U.S. Cl. 273—119 5 Claims

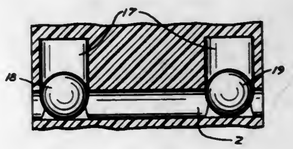


A transparent multitiered table, each tier having enclosing walls and a floor sloping to the longitudinal axis thereof. In each tier there is provided for opposing players a longitudinally extending paddle shaft, slightly offset from the longitudinal axis of the floor, and a transverse paddle shaft located near the end of each box; whereby opposing players can stand at opposite corners and one hand can control the transverse paddle shaft and the other can control the longitudinal paddle shaft. The transverse paddle shafts carry a pair of paddles whereas the longitudinal paddle shafts carry three paddles, which are in alternate relationship with the paddles of the opposing players. A plurality of holes in each floor are arranged on either side of the longitudinal axis. A single ball is dropped through a hole in the top tier and opposing players try to control the ball to cause it to drop through the holes in successive tiers and finally fall into a pocket below the lower tier.

3,550,943
APERTURED BOARD AND MARKER GAME APPARATUS

John B. Hatcher, 3104 Silver Lake Road, Minneapolis, Minn.

Filed Mar. 16, 1967, Ser. No. 623,578
Int. Cl. A63f 3/02
U.S. Cl. 273—131 11 Claims

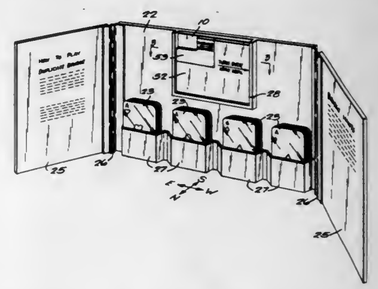


A two-sided game board with various marker-hole combinations, in which positions on both sides of the board are identified with markers, which are pushed out from the opposite side in the course of play. With large open holes, markers shorter than the hole inserted in one side conceal the movement and position of markers on the opposite side; single markers with one end identical can also be used. With long, small holes, markers which extend to within a few diameters of the end of the hole can be used, and both hole and marker may be made a dull black for even more effective concealment of the presence or absence of the marker from the opposite side. Gravity or spring restrained balls, or crooked holes, with flexible markers, are shown, as well as curved holes with correspondingly curved markers.

3,550,944
ONE TABLE DUPLICATE BRIDGE

Francis W. Chamberlin, Madison, Wis.; The First National Bank of Madison, executor of said Francis W. Chamberlin, deceased, assignor to Varigraph, Inc., Madison, Wis., a corporation of Wisconsin

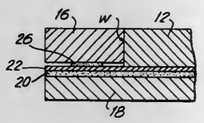
Filed July 3, 1968, Ser. No. 742,433
Int. Cl. A63f 1/14
U.S. Cl. 273—149 5 Claims



An apparatus for facilitating a new game, which simulates for only four players, the play of duplicate bridge. Four special hand indicia sheets have correlated sets of indicia thereon by which is governed each player's selection of his

particular set of playing cards so as to constitute a bridge hand among four players. A fifth indicia sheet has match point data thereon which may be selectively viewed by the players after play of each hand for comparison with previous expert play of the hand. Each player has a card case or blind, within which he places his hand indicia sheet, the card case or blind being constructed so that the indicia on the sheet is hidden from the other players. Each card case or blind includes masking pieces which are selectively arranged to reveal only one set of indicia at a time to the respective player so that he can make up his hand therefrom, and which are constructed so as to reveal consecutive sets of correlated indicia by repetitive manual selection operations.

3,550,945
JIGSAW PUZZLE AND BASE FOR RETAINING SAME
Charles Resnick, Freeport, N.Y., assignor to Fred Bronner Corporation, New York, N.Y.
Filed Sept. 19, 1968, Ser. No. 760,809
Int. Cl. A63f *9/10*
U.S. Cl. 273—157 **5 Claims**



A jigsaw puzzle is provided in which a frame defines with a base a well which accommodates a plurality of puzzle pieces, there being further provided means for selectively retaining the pieces in the well. In accordance with one embodiment of the invention a pressure-responsive adhesive is provided on the base with a removable sheet covering the same. In accordance with another aspect of the invention a transparent plastic covering or the like may be employed to retain the pieces in the well.

3,550,946
PRACTICE DEVICE FOR GOLFERS
Julius Menendez, 2678 Parkwilshire Drive, San Jose, Calif., and Louis A. Duino, 1997 Mc Daniel St., San Jose, Calif.
Filed Apr. 9, 1969, Ser. No. 814,536
Int. Cl. A63b *69/36*
U.S. Cl. 273—186 **10 Claims**

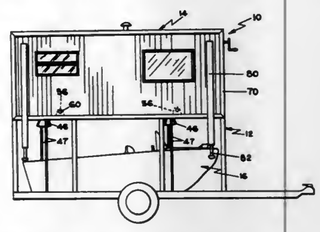


A relatively small mat includes a beveled portion having an aperture through which a golf tee is inserted to support a golf ball. An elongated element made of hinged sections is adjustably secured to one end of the mat to indicate the proper position of the golfer's lead foot while addressing the ball. Extending rearward of the mat are spaced apart elongated strips which are adjustably secured to the mat and assist the golfer to execute the proper backswing and downswing. The strips are made of hinged sections for packaging purposes. A pair of small relatively rigid flags mounted on flexible standards are adjustably secured to the mat on opposite sides of the teed ball to form an adjustable gateway through which the clubhead must pass to strike the ball.

ERRATA

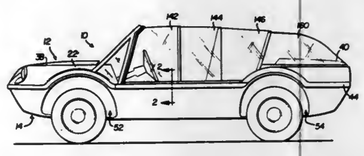
For Classes 274—4 thru 294—25 see:
Patent Nos. 3,550,983 thru 3,551,016

3,550,947
BOAT, TRAILER AND CAMPER COMBINATION
Leonard W. Kallies, 395 4th St., Pontiac, Mich. 48055
Filed Mar. 13, 1969, Ser. No. 806,905
Int. Cl. P60p *3/32*
U.S. Cl. 296—23 **2 Claims**



A sportman's boat trailer and telescopic camper assembly, the boat being suspended beneath an elevated support deck and the camper being retained on and hoistable off the support deck for expansion thereof.

3,550,948
AUTOMOBILE BODY CONSTRUCTION
McKinley W. Thompson, Jr., 18991 Mendota, Detroit, Mich.
Filed July 29, 1968, Ser. No. 748,479
Int. Cl. B62d *31/00*
U.S. Cl. 296—28 **10 Claims**

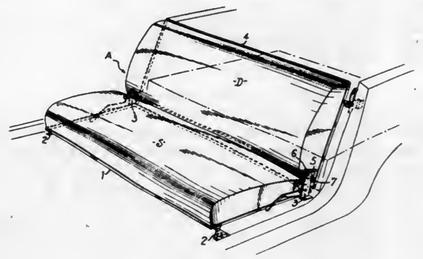


A unitary body construction consisting of two shell sections formed of a corrosion resisting material which defines a substantially sealed space housing a metal tubular frame. The structure is bonded and sealed so that the metal parts are completely covered while the shell sections define the passenger compartment, running gear and power plant compartment, and cargo compartment for the vehicle. The unitary body defines the vehicle body as well as the chassis frame and may support sliding canopy sections which enclose the passenger compartment.

3,550,949
SUPPORTING, PIVOTING AND LOCKING DEVICE FOR A CONVERTIBLE SEAT OF A VEHICLE
Michel Bonnaud, Montebeliard, France, assignor to Automobiles Peugeot, Paris, France and Regie Nationale Des Usines Renault, Billancourt, France
Filed July 10, 1968, Ser. No. 743,710
Claims priority, application France, July 21, 1967, 115,137
Int. Cl. B60n *1/10*
U.S. Cl. 296—69 **8 Claims**

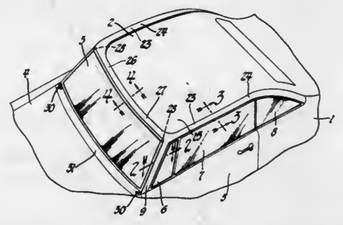
Device for connecting a convertible seat assembly to a floor. The assembly comprises two parts foldable to positions

in which a first part constitutes an extension of the floor and the second part an abutment face. The device comprises a plane element carrying said first part, a raising device for the element, and retaining means for maintaining it in an inclined



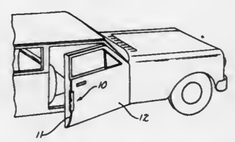
position. When the raising device is actuated in one direction, said element is raised to a position in which it is disengaged from the retaining means and can be folded forwardly to the position in which said first part extends the floor.

3,550,950
VEHICLE BODY GUTTER ARRANGEMENT
Samuel C. Pollock, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 11, 1968, Ser. No. 782,992
Int. Cl. B62d *25/06*
U.S. Cl. 296—137 **2 Claims**



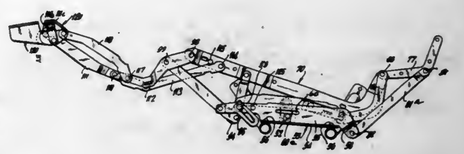
An automotive body roof panel has depressions extending along the front and sides to form rain gutters, and panel edge reinforcing strips overlie these depressed portions to substantially conceal them from view. Hollow sections of the body front corner pillars serve as downspouts for draining the gutters.

3,550,951
MOTOR VEHICLE DOOR GUARD
Ansalem O. Cobbs, Des Moines, Iowa, assignor to Cobbs Manufacturing Company, Des Moines, Iowa, a corporation of Iowa
Filed Sept. 5, 1968, Ser. No. 757,632
Int. Cl. B60r *27/00*
U.S. Cl. 296—152 **1 Claim**



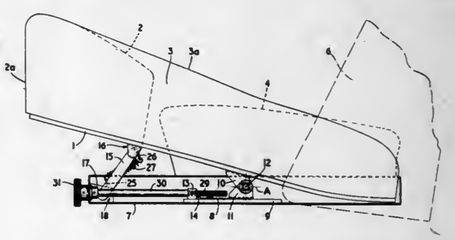
This invention relates to a flexible door guard suitable for frictional engagement with the outer flanged portion of motor vehicle doors. This door guard comprises a back wall and two sidewalls depending from the back wall. The back wall and sidewalls define a channel-shaped area wherein the distance between the innermost faces of the sidewalls, measured parallel of the innermost face of the back wall, is greater proximate the innermost face of the back wall than distal of the innermost face of the back wall.

3,550,952
RECLINING CHAIRS AND HARDWARE THEREFOR
Arlen H. Ferguson, Tupelo, Miss., assignor to Mohasco Industries, Inc., Amsterdam, N.Y., a corporation of New York. by mesne assignments
Filed Jan. 21, 1969, Ser. No. 792,418
Int. Cl. A47c *1/037*
U.S. Cl. 297—85 **16 Claims**



Two tubular cross braces interconnect the arms of a chair frame, to support the load on the seat and to keep the arms from spreading apart. The braces are at opposed upwardly divergent 45° angles to get the upper mounting points of the braces to the frame, further apart to get maximum bearing area. The braces have a middle downward bend to provide clearance for a soft seat and to strengthen the braces. The cross braces support reclining chair linkage hardware. These linkages are provided with sequencing mechanism so arranged that the chair goes from closed upright position to an intermediate TV. position before going to a fully reclined position. This sequence mechanism is embodied in a rester and also in a high legged lounger and in a low legged lounger. In the rester, the seat, when moving from TV to fully reclined positions, shifts pivot points for the seat which at the beginning of the movement, pivots about a more forward point and at the end of the movement pivots about a pivot point disposed further back to thereby maintain the balance over a longer portion of the movement. The hardware includes an ottoman which goes completely under the chair with a delaying of the movement of the ottoman mounting bracket until the seat has reached a maximum upward position (as distinguished from a back position).

3,550,953
SEATS
Eric W. Neale, Birmingham, England, assignor to Hallam, Sleigh & Cheston Limited, Birmingham, England, a British company
Filed Aug. 21, 1968, Ser. No. 754,256
Claims priority, application Great Britain, Aug. 23, 1967, 38720/67
Int. Cl. B60n *1/02*; **A47c** *1/034*
U.S. Cl. 297—312 **4 Claims**



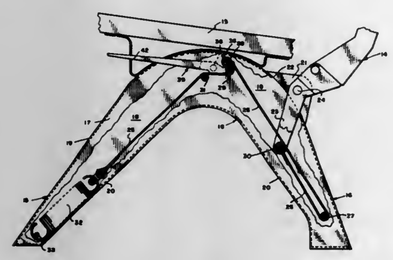
A seat is provided with pair of height-variable leg-supporting portions, one for each leg. Spring means provide spring

action to counterbalance the weight placed upon each leg-supporting portion by the occupant of the seat. Each leg-supporting portion is movable downwardly against the spring action and upwardly by spring action so that the leg-supporting portions move up and down independently of each other to allow up and down leg movement of the occupant of the seat. Means are provided for independent adjustment of the force of the spring action on each leg-supporting portion. Each leg-supporting portion forms a part of an angularly movable member connected to a fixed lower part of the seat by pivotal link means. These pivoted link means are located forward of a pivotal axis about which the angularly movable member turns. This pivotal axis is located transversely of the seat and moves in the fore-and-aft direction of the seat when the respective leg-supporting member moves upwards or downwards.

3,550,954
ADJUSTABLE BACK CHAIR AND LOCKING MECHANISM

Joseph J. Hibl, Boulder; Paul E. Ferguson, Arvada, Colo., and Vernon M. Eckels, Wichita, Kans., assignors to Beech Aircraft Corporation, Wichita, Kans., a corporation of Delaware

Filed Apr. 7, 1969, Ser. No. 814,069
Int. Cl. A47c *1/027*
U.S. Cl. 297—374 **11 Claims**



The invention comprises an adjustable aircraft seat which utilizes a spring tensioned web belt to position the pivotally mounted backrest in any desired inclination. The belt is releasably held by a slidable locking bar forced against a guide roller by the tension in the belt and released by a manual lever which pries the locking bar away from the guide roller allowing the backrest to be repositioned.

3,550,955
SEAT BELT TERMINAL JACKET

Arthur S. Nicholas, Grand Rapids, and James S. Chamberlain, Royal Oak, Mich., assignors to Leon Chemical & Plastics, Inc., Grand Rapids, Mich., a corporation of Michigan

Filed Mar. 18, 1969, Ser. No. 808,217
Int. Cl. A62b *35/60*
U.S. Cl. 297—385 **7 Claims**

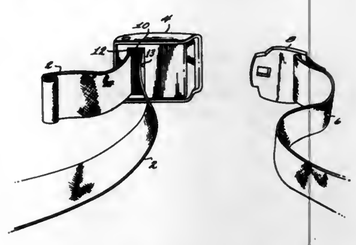


This disclosure relates to a jacket for the terminal end of a seat belt wherein the jacket encloses the end of the belt and has an anchor plate. The jacket has an opening at the bottom to permit the stud to secure the anchor plate to the support and to permit the anchor plate to project out of the bottom of the jacket. A tongue on the bottom of the jacket is also secured by the stud to hold the jacket in place. A belt-enclosing sleeve on the jacket is formed by flaps which can be opened to receive the belt and closed to encase it after the anchor plate and jacket are fixed to the support by a stud.

3,550,956
SAFETY WEBBING

John J. Lowe, South Hill, Va., assignor to Burlington Industries, Inc., Greensboro, N.C., a corporation of Delaware

Continuation of Ser. No. 682,743, Nov. 14, 1967, now abandoned. This application July 24, 1969, Ser. No. 859,520
Int. Cl. A47c *3/00*
U.S. Cl. 297—385 **1 Claim**



Woven safety webbing for use in automobile seat belts or the like characterized by increased abrasion resistance. The webbing comprises, as the warp yarn, plied yarn made up of two or more ends of singles yarn, the ply twist being in the same direction as the twist in the singles before plying.

3,550,957
SHOULDER HARNESS WITH BELT ELONGATION MEANS

Donald G. Radke, Troy, and Frederick C. Booth, Birmingham, Mich., assignors to Jim Robbins Seat Belt Co., Clemens, Mich., a corporation of Delaware

Continuation-in-part of Ser. No. 649,881, June 29, 1967, now abandoned. This application May 16, 1969, Ser. No. 860,127
Int. Cl. A62b *35/00*
U.S. Cl. 297—386 **5 Claims**



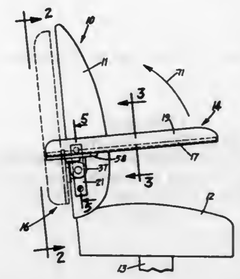
A vehicle seat belt assembly having a shoulder harness with belt elongation means disposed to be adjacent and above the shoulder of the occupant and comprising a pair of doubled sections formed by a transverse fold line and joined together by a series of longitudinally extending stitches. When the vehicle suddenly decelerates so that the occupant of the shoulder harness suddenly shifts forward, the stitches

progressively part toward the fold line to allow the doubled sections to gradually unfold so that the occupant is permitted to gradually shift forward and the tendency of the occupant to "submarine" under the lap belt is reduced.

3,550,958
MOVABLE ARM REST

Reuben J. Krein, Highway 69 S., Forest City, Iowa 50436

Filed Sept. 16, 1968, Ser. No. 762,203
Int. Cl. A47c *7/54*; B60n *1/06*
U.S. Cl. 297—417 **10 Claims**

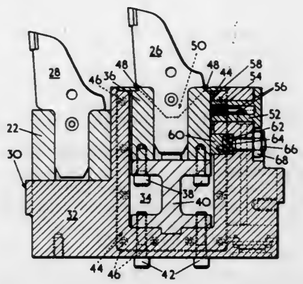


A seat having a movable armrest located in a forward position adjacent one side of the back of the seat and movable to a second position adjacent the back side of the back of the seat. An articulated connector mounts one end of the arm to the side frame of the back. The connector has three pivotally related members and releasable locks between the adjacent members to firmly hold the arm in the forward position.

3,550,959
HARDNESS SENSING ROTARY CUTTERS FOR MINERAL MINING MACHINES

Derek Alford, Rolleston-on-Dove, England, assignor to Coal Industry (Patents) Limited, London, England

Filed July 28, 1969, Ser. No. 845,194
Claims priority, application Great Britain, Aug. 6, 1968, 37466/68
Int. Cl. E21c *39/00*
U.S. Cl. 299—1 **9 Claims**

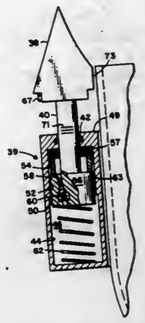


A rotary cutter for a mineral mining machine particularly a shearer loader or trepanner. The cutter comprises a cutter head equipped with fixed cutter tools distributed around the head. Immediately behind and adjacent one fixed tool there is a resiliently mounted tool which extends in the direction of its length slightly beyond the adjacent fixed tool. This ensures a constant shallow penetration for the resiliently mounted tool during cutting. A position sensitive transducer is mounted in the head to give a signal indicative of movement of the resiliently mounted tool under varying load so that change in mineral hardness at a seam boundary can be detected and the machine steered accordingly.

3,550,960
EXCAVATOR TOOTH DRIVING APPARATUS

John E. Holder, Dallas, Tex., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed July 5, 1968, Ser. No. 742,561
Int. Cl. E02f *9/28*
U.S. Cl. 299—67 **7 Claims**

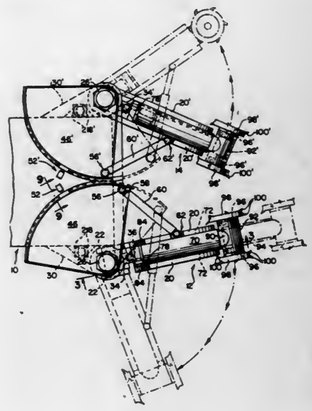


The particular embodiments described herein as illustrative of one form of the invention utilize an apparatus for imparting a jarring force to an excavator, in order to break or dislodge unusually hard material within the material being excavated. First sets of excavator teeth are movable under extreme load conditions to a recessed position permitting a second set of teeth to impose a jarring impact to hard materials imposed by a jarring operation. The first sets of teeth designed for normal excavating operations are protected from the full load of the jarring impact by movable wear plates.

3,550,961
MINING MACHINE

Charles R. Hughes, Buckhorn Road R.D., Altoona, Pa. 76601

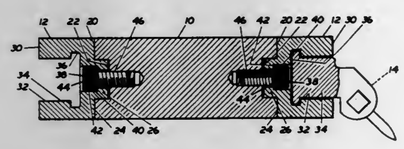
Filed Aug. 19, 1969, Ser. No. 851,366
Int. Cl. E21c *27/24*
U.S. Cl. 299—71 **8 Claims**



A frame has a pair of independently operable booms supported at two forward corners thereof. Each boom is

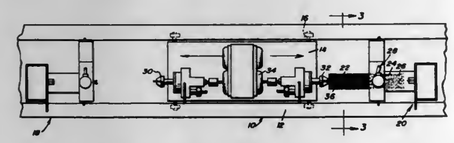
mounted for pivotal movement about both a vertical axis and a horizontal axis. A cutting head support means is supported by each boom for pivotal movement about a horizontal axis with respect to the associated boom. Each cutting head support means comprises a pair of concentric cylinders, the inner cylinder being slidable longitudinally of the outer cylinder and being rotatable with respect to the outer cylinder. Each cutting head is carried at the outer end of an associated inner cylinder and includes a pair of cutting wheels at opposite sides thereof, each cutting wheel having cutting bits carried thereby.

3,550,962
CUTTER BAR ASSEMBLY
Ross H. Goodrich, 1412 Liberty St., Franklin, Pa., and John A. Belkovicz, 20 Woodland St., Claremont, N.H.
Filed Nov. 14, 1968, Ser. No. 775,857
Int. Cl. E21c *25/30*
U.S. Cl. 299—82 **10 Claims**



A mining machine cutter bar assembly having replaceable chain guideways and more particularly having identical guideways which captively receive a portion of a circulating cutter chain therein and which are releasably secured to an elongated cutter bar body plate by fastening means extending transversely through such guideways into the longitudinal side surfaces of such body plate.

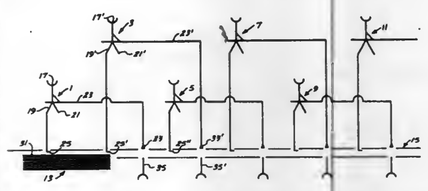
3,550,963
BRUSH MAKING APPARATUS WITH DUAL TWISTING HEADS
Anthony E. Puleo, c/o Puleo's Novelty Company, 141 Rte. 17, Elizabeth, N.J. 07652
Filed Apr. 25, 1968, Ser. No. 724,095
Int. Cl. A46d *9/00*
U.S. Cl. 300—21 **3 Claims**



A brush-making machine of the type in which two adjacent wires having bristles disposed therebetween are twisted to lock the bristles in place and forms a cylindrical brush in which dual twisting heads are employed for gripping and twisting the brush-forming wires in each direction of longitudinal movement of the twisting and gripping head in order to form a brush during each movement of the dual twisting head assembly so that the machine does not have idle time as occurs when only a single twisting head is used inasmuch as a single twisting head has to return to a wire gripping position after a brush has been formed.

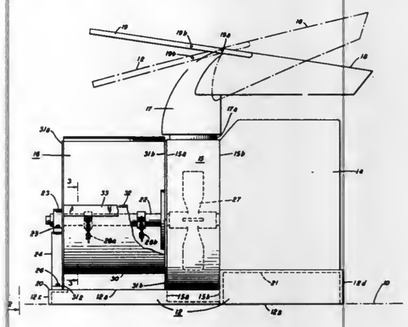
3,550,964
FLUERIC TRANSPORT SYSTEM
Chris E. Spyropoulos, Washington, D.C., assignor to the United States of America as represented by the Secretary or the Army
Filed Mar. 14, 1969, Ser. No. 807,335
Int. Cl. B65g *53/06;* **B65n** *29/24*
U.S. Cl. 302—2 **4 Claims**

A flueric system for transporting items along a guide path in serial fashion by fluid flow. As it progresses along the path the item blocks sensing ports to cutoff bias flows to fluid control devices and selectively deenergize propelling nozzles to



maintain spaced relationships among a plurality of items being transported.

3,550,965
MULCHING MACHINE
Walter J. Reinecker, 1231 Martine Ave., Plainfield, N.J., and David J. Westergard, Kent Fort Manor, Stevensville, Md.
Filed Mar. 17, 1969, Ser. No. 807,822
Int. Cl. B65g *53/40*
U.S. Cl. 302—37 **8 Claims**

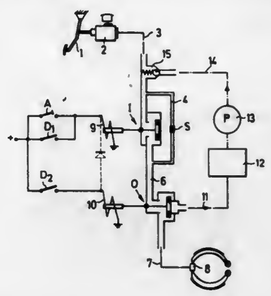


A machine is disclosed for spreading mulch material over seeded ground areas. The machine receives opened bales of mulch material, beats and flails the material in a beater chamber and, by means of a blower, forces the shredded material through a discharge spout and out onto the ground area to be covered.

3,550,966
BRAKE CONTROL SYSTEM FOR PREVENTING WHEEL LOCKING
Heinz Leiber, Leimen, Germany, assignor to Teldix GmbH, Heidelberg, Germany
Filed Nov. 25, 1968, Ser. No. 778,716
Claims priority, application Germany, Nov. 27, 1967, 1,655,460
Int. Cl. B60t *8/12*
U.S. Cl. 303—21 **3 Claims**

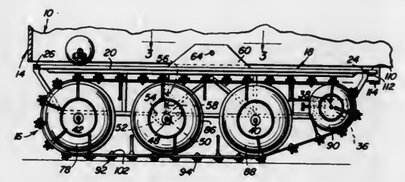
A brake control system for preventing wheel locking suitable for use with a wheeled vehicle having brakes actuated by a fluid pressure medium. The brake control system employs a normally open inlet valve connected in the path between the brake cylinder of one or more wheels and the source of brake pressure and a normally closed outlet valve connected in the path between the brake cylinder and a pressure-free outlet. The inlet valve, when closed, inhibits the application of pressure to the brake cylinder, while the outlet valve, when open, permits the pressure already present in the brake cylinder to escape. According to the invention the outlet valve is constructed as a three-way valve having two possible valve positions. In one position it opens the path between the

inlet valve and the brake cylinder and blocks the path to the pressure outlet, while in the other position it opens the path



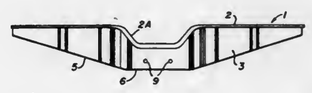
to the pressure outlet and blocks the inflow of pressure from the inlet valve.

3,550,967
SNOW VEHICLE TRACK ASSEMBLY
Roger G. Caron, 148 High St., Sanford, Maine 04073
Original application Nov. 9, 1967, Ser. No. 681,783, now Patent No. 3,481,416, dated Dec. 2, 1969. Divided and this application Nov. 28, 1969, Ser. No. 880,635
Int. Cl. B62d *55/14*
U.S. Cl. 305—27 **7 Claims**



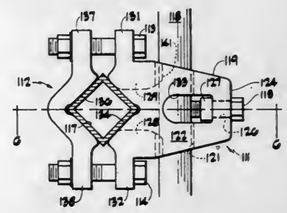
A crawler tread and support assembly including a plurality of aligned wheel assemblies with each assembly including a plurality of axially spaced wheels and an endless track member trained about the wheel assemblies and upon which the lower peripheral portions of the wheels are rollingly engaged. The endless track member includes inwardly projecting and longitudinally spaced V-shaped guide members disposed in planes extending transversely of the endless track member and having their apices disposed inwardly of the endless track member and snugly received between the adjacent wheels of each set of wheel assemblies.

3,550,968
HIGH PERFORMANCE SNOW TRACK
John E. Rymes, Calgary, Alberta, Canada, assignor to Flex-Track Equipment Ltd., Calgary, Alberta, Canada, a company of Canada, by mesne assignment
Filed Mar. 22, 1968, Ser. No. 715,378
Int. Cl. B62d *55/26*
U.S. Cl. 305—54 **3 Claims**



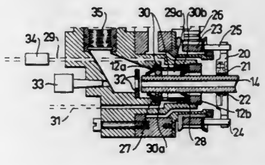
The invention concerns a grouser bar for improving the traction of tracked vehicles in deep snow or other surface conditions in which the tracks act on a yielding terrain. The grouser bar has a depending snow blade which comprises both forward-traction elements and side-thrust elements.

3,550,969
TOOL CLAMP FOR AGRICULTURAL MACHINERY
Mayes R. Robinson, P.O. Box 365, Gilroy, Calif. 95020
Filed Oct. 16, 1967, Ser. No. 675,650
Int. Cl. A01b *15/12*
U.S. Cl. 306—1.5 **9 Claims**



A single piece tool bar clamp body having seat means to receive a tool shank and tool bar with their axes in crossed relationship and with a nut slot provided in said body for holding a nut in which is threaded a screw for engaging the tool shank to hold it against the seat. A cap is placed in opposition to the tool bar seat and bolted to the body in opposition to the tool bar seat so as to hold the tool bar against its seat.

3,550,970
LEAKAGE-FREE SEALING
Vilhelm Einar Stellan Hjerten, Uppsala, Sweden, assignor to IRD Incentive Research & Development AB, Bromma, Sweden
Filed Apr. 15, 1968, Ser. No. 721,348
Claims priority, application Sweden, Apr. 20, 1967, 5528/67
Int. Cl. F16c *33/72;* **F16j** *15/00*
U.S. Cl. 308—36.1 **3 Claims**

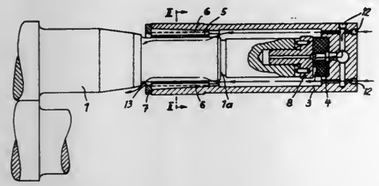


A leakage free sealing for providing insulation between liquids which are in contact with the outer wall of a rotating tube of e.g. glass or quartz, comprising a wall surrounding the rotating tube and two sealing rings mounted in said surrounding wall and spaced apart from each other. The sealing rings have a close running fit with the rotating tube and form together with the surrounding wall a chamber surrounding the rotating tube. The chamber is provided with inlet and outlet ducts for providing air circulation through said chamber in order to absorb moisture leaking into said chamber.

3,550,971
ROLL BEARINGS FOR ROLL STANDS
Josef Wochnik, Osterath, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a German company
Filed Dec. 3, 1968, Ser. No. 780,647
Claims priority, application Germany, Dec. 22, 1967, 1,602,179
Int. Cl. F16c *37/00*
U.S. Cl. 308—76 **7 Claims**

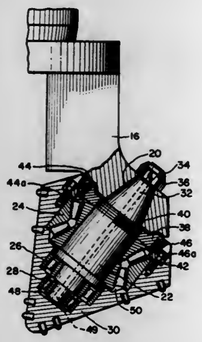
A roll bearing for roll stands with bearing bushes as radial bearings, wherein a cooling medium, with which the heat

generated in the bearing when rolling is removed, serves at the same time to lubricate the bearing, and is guided in



grooves of preferably segmental cross section, which are machined in the rubbing surface of the bearing bushes, so that these grooves also serve as lubricating grooves.

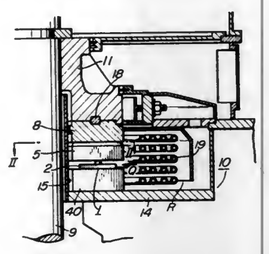
3,550,972
ROCK BIT ASSEMBLY
William D. Coski, Mercer Island, Wash., assignor to Lawrence Manufacturing Company, Seattle, Wash., a corporation of Delaware
Filed Nov. 12, 1968, Ser. No. 774,936
Int. Cl. F16c *19/14*
U.S. Cl. 308—8.2 **10 Claims**



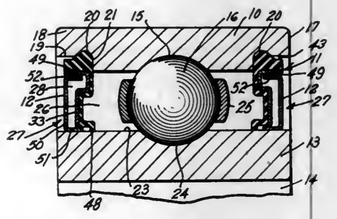
A rock bit mounted on an annular member, together with others thereof, by a single bolt or like mounting hardware, in cantilever fashion, in which removal of the single item of hardware demounts the bit. In addition, the bit is carried rotatably on a shaft, the bit and shaft defining therebetween a sealed chamber which is filled with lubricant.

3,550,973
THRUST BEARING ASSEMBLY
Yutaka Kitano, Hiroshi Sato, Hitachi-shi, and Isao Ishida, Takahagi-shi, Japan, assignors to Hitachi, Ltd., Tokyo-to, Japan
Filed Mar. 17, 1969, Ser. No. 807,514
Int. Cl. F16c *17/06*
U.S. Cl. 308—160 **14 Claims**

A thrust bearing assembly for use in vertical rotary machines, wherein an annular thrust member mounted on a rotor shaft is supported by a plurality of separate bearing shoes, each of which in turn is resiliently and tiltably supported by at least one shoe supporting member which is a spring plate having abutting projections on both main surfaces thereof, said shoe supporting members each being supported on a base which is finally supported on the ground, whereby a uniform load distribution over the whole surface of each bearing shoe is obtained with no high precision manufacture.

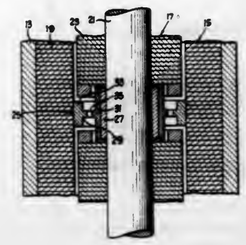


3,550,974
BEARING SEAL
John J. Kupchick, Forestville, Conn., assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 26, 1969, Ser. No. 827,765
Int. Cl. F16c *33/78*
U.S. Cl. 308—187.2 **9 Claims**



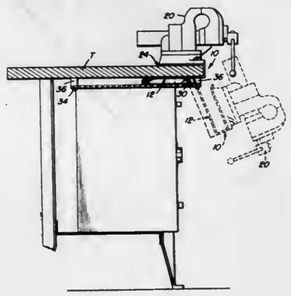
A seal for bearing assemblies adapted to be positioned at axial ends of the assembly between the inner and outer rings thereof to seal the roller element assembly for lubrication, the seal assembly comprising an elastomer ring adapted to be affixed to the outer raceway and span the distance from the outer raceway to the inner raceway, the central portions of said elastomer ring backed on the axially outermost side by a configured metal member bonded to the elastomer, the metal member not contacting either the inner or outer raceway ring, a lip seal on the elastomer portion adapted to contact the inner race ring, and a metal ring adapted to be affixed to the inner race ring and having axially projecting legs extending axially inwardly of portions of the combination elastomer and metal ring to define a labyrinth seal therebetween.

3,550,975
BEARING ARRANGEMENT FOR ELECTRIC MOTORS
Clinton A. Boyd, Tulsa, Okla., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Original application Aug. 22, 1966, Ser. No. 574,093, now Patent No. 3,506,861. Divided and this application Apr. 17, 1969, Ser. No. 839,112
Int. Cl. F16c *33/04*
U.S. Cl. 308—237 **4 Claims**



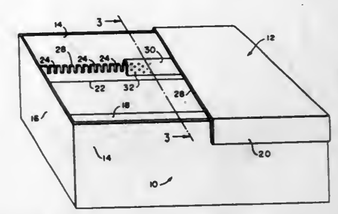
This invention relates to shaft bearing arrangements in electric motors. More particularly, it relates to shaft bearing arrangements associated with motors which are extremely long relative to their diameter, such as submersible electric motors as used in deep well pumps.

3,550,976
TOOL STORAGE FIXTURE
Charles K. Rauser, Sr., 608 Pamela Road, and Stephen J. Krupnik, Jr., 201 Ridgeley Road, both of Glen Burnie, Md. 21061
Filed Oct. 6, 1967, Ser. No. 673,477
Int. Cl. A47b *81/00*
U.S. Cl. 312—28 **7 Claims**



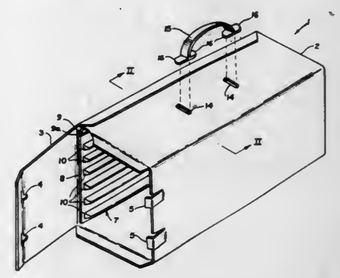
A cliplike arrangement is disclosed for removably mounting a tool on a work bench. In service, a clip grasps the edge of a bench. The lower part of the clip is captivated by an axle and roller to a trolley arrangement mounted to the underside of the bench. To remove the tool from service for storage beneath the bench, it is withdrawn with the clip from the edge of the bench and swung down to depend upon the roller. It may then be pushed back upon the track as far as desired.

3,550,977
PACKING BOX FOR SAUSAGE CASINGS
Richard H. Freda, 121 Summer St., Medford, Mass. 02155
Filed May 7, 1969, Ser. No. 822,652
Int. Cl. A24f *25/00*
U.S. Cl. 312—31 **7 Claims**



A sausage casing box having a cover and base capable of retaining liquid with a support extending across the base between opposite side walls and with slots along its upper edge in which one end of each sausage casings is hung and the rest of each case in the box. A clip extends over the support to hold the ends in their slots and is perforated to allow liquid in the box to circulate about the ends of the casings and keep them moist.

3,550,978
DISPOSABLE FOOD TRAY CARRIER
Ted N. Magee, 107 Marie Drive, Pittsburgh, Pa. 15237
Filed Jan. 15, 1969, Ser. No. 791,301
Int. Cl. A47b *87/00, 88/00*
U.S. Cl. 312—108 **4 Claims**

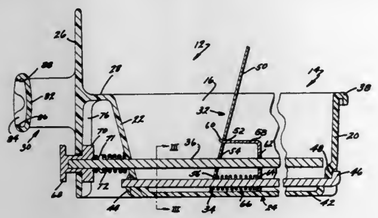


A disposable container or carrier for food trays comprising a box of paper board construction. Racks or runners of foam plastic material, such as expandable polystyrene, are provided having corrugations or ribs for supporting opposite edges of the food trays and each having a groove extending along the inner surface of the top portion of the rack to provide a hinge for the top portion. The spring-back tendency of such top portion will effect wedging of the rack to the interior surface of the top of the box without the need of fastening elements for holding the rack against the interior side of the box.

3,550,979
MOLDED CARD DRAWERS AND CABINETS THEREFOR
Peter J. Protzmann, Grand Rapids, Mich., assignor to Herman Miller, Inc., Zeeland, Mich., a corporation of Michigan
Filed June 20, 1968, Ser. No. 738,591
Int. Cl. B42f *17/16*
U.S. Cl. 312—183 **3 Claims**

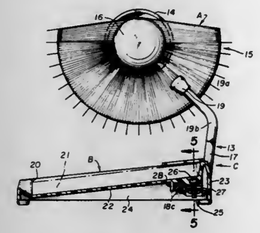
This disclosure relates to a drawer and cabinet construction for filing cards and the like. The drawer is made from an integrally molded container forming a downwardly opening recess between a bin and a front face. A card supporting

plate is carried within the bin and engages a rod in a recessed trough in the bin bottom. A card holding rod is removably secured to a front face and extends through the bin for retaining cards within the bin. The cabinet has integrally



molded rail containing support members which are fixed to the side walls of the cabinet. Outwardly extending runners at the top of the side walls of the drawer engage the rails of the support members so that the drawers can slide within the rails.

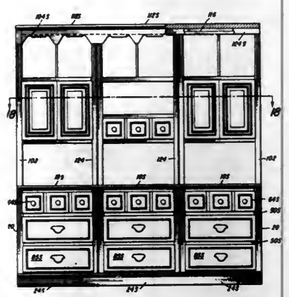
3,550,980
COMBINATION OF A ROTARY INDEX AND A SUPPORT THEREFOR
Hildaur L. Neilsen, Metuchen, N.J., assignor to Zephyr American Corporation, Long Island City, N.Y., a corporation of New York
Filed May 29, 1969, Ser. No. 828,964
Int. Cl. A47b *63/00*; B43f *9/00*
U.S. Cl. 312—186 **8 Claims**



A bent stiff support member of a rotary index has a relatively rigid foot portion extending into and clamped within receptive marginal and bottom recesses of a base element having sufficient stability to hold the rotary index against tilting. The index is firmly held in an accessible position above and clear of the base element, and the latter is adapted to a use related to the use of the rotary index as, for example, use as a memo paper holder.

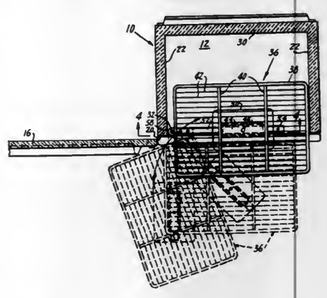
3,550,981
FURNITURE CONSTRUCTION AND METHOD OF MAKING
Robert Cohen, Houston, Tex., assignor to Triumph Industries, Inc., Houston, Tex.
Filed Mar. 6, 1968, Ser. No. 710,833
Int. Cl. A47b *47/04*, *47/00*
U.S. Cl. 312—198 **17 Claims**

The furniture construction of this invention utilizes a pair of "basic components," each of a predetermined length (e.g., 24 and 32 inches), which can be precut and inventoried for making a large variety of furniture pieces. Each furniture piece includes a preassembled front rectangular frame formed of top, bottom and side members having grooves formed along their rear faces for receiving the respective front edges of a top support member, shelves, dust bottoms and side panels. Precut tops, back, cross frame members, dust bottoms, drawers, door frames and panels and the like are fastened together to form a structurally complete furniture piece, and various precut decorator components are fastened thereto so that the appearance of the resulting individual furniture pieces may be selectively altered as desired. Longer integral base furniture pieces, such as chests, dressers and the like are made in various lengths with precut



and inventoried basic components and other basic parts. Similarly, top components having varying lengths corresponding to the lengths of such longer integral base pieces are assembled from precut basic components and parts so that they can be superimposed on the base pieces as hutches, china cabinets and the like.

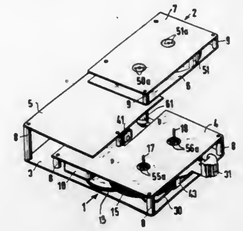
3,550,982
REFRIGERATOR SHELF
Joseph P. Zaidan, 1234 S. Broad St., Philadelphia, Pa. 19146
Filed June 12, 1969, Ser. No. 832,773
Int. Cl. A47b *88/00*
U.S. Cl. 312—302 **9 Claims**



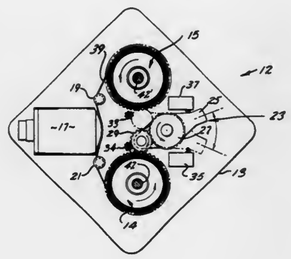
A shelf substantially coextensive with the cross-sectional shape of the interior of a refrigerator, or any other type of cabinet, is pivotally supported preferably centrally thereof by a pivot point connected to a crosshead slidable on one end of a supporting arm, the other end of which is pivotally supported on a vertical axis whereby the shelf may be moved directly forwardly from the refrigerator when the door is opened, and then swung in the arc of a circle if desired.

3,550,983
SOUND RECORDING AND REPRODUCING APPARATUS
Georg Probst, Munich, and Walter Herterich, Dachau, Germany, assignors to Grundig Elektro-Mechanische Versuchsanstalt, Inh.: Max Grundig, Fuerth, Bayern, Germany
Filed Oct. 19, 1966, Ser. No. 587,920
Claims priority, application Germany, Nov. 24, 1965, E30521
Int. Cl. G11b *5/00*, *5/32*; F11l *37/00*
U.S. Cl. 274—4 **12 Claims**

A miniature tape recorder wherein the tape is stored on two reels in a separate magazine and wherein each reel carries a clutch component. The housing of the tape recorder accommodates two intermeshing spur gears which carry second clutch components and are movable axially, independently of each other and by a single shifter, so that their clutch elements can engage the clutch elements of the corresponding reels. The gears are driven by a battery-operated electric motor.



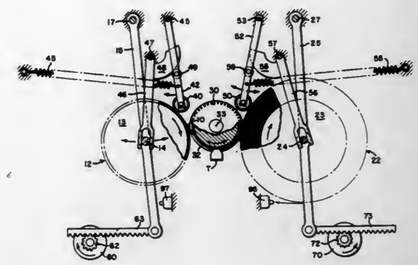
3,550,984
TAPE TRANSPORT MECHANISM
Douglas A. Moore, Rolling Hills, Calif., assignor to Northrop Corporation, Beverly Hills, Calif., a corporation of California
Filed Aug. 7, 1967, Ser. No. 658,839
Int. Cl. G11b *5/48*, *15/32*; G03b *1/12*
U.S. Cl. 274—4 **14 Claims**



An improved tape transport mechanism wherein the tape is a continuous band connected between two takeup reels. The recorder or playback head is disposed adjacent the tape between the two reels with the tape having a plurality of channels located thereon. Means is provided for rotating the tape in both directions relative to the magnetic head with an automatic return to a center position when the drive means is released.

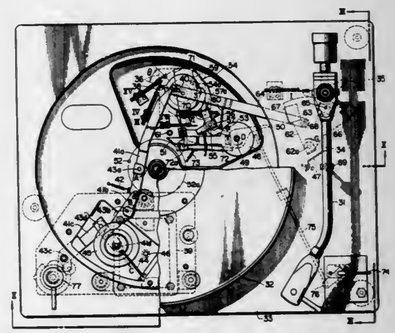
3,550,985
REVERSIBLE TAPE TRANSPORT SYSTEM
Don C. Barnett, and Kingston E. Ganske, Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind., a corporation of Indiana
Filed Sept. 6, 1968, Ser. No. 758,061
Int. Cl. G11b *5/00*
U.S. Cl. 274—4 **3 Claims**

A transport for flexible tape employs a reversible rotatable capstan with rolls on opposite sides mounted on axes parallel to the axis of rotation of and movable toward and away from the capstan as tape is moved from one roll to the other. Whichever roll is functioning as a takeup is friction driven by the capstan. A synchronous motor drives the capstan; it has a governor control for slow speed operation and a resonant



damper to minimize velocity changes at running speed. When used as a multitrack longitudinal recorder, the transducer is shifted to follow a different track at each direction change when most of the tape is wound on one of the rolls; this shift can be initiated by the motor governor control.

3,550,986
RECORD PLAYER PROVIDED WITH AN AUTOMATIC CONTROL MECHANISM
Yoshio Takahashi, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Dec. 5, 1967, Ser. No. 688,161
Claims priority, application Japan, Dec. 5, 1966, Mar. 24, 1967, 41/79,369; 42/17,926, Oct. 10, 1967; 42/64,877
Int. Cl. G11b *17/06*
U.S. Cl. 274—15 **2 Claims**

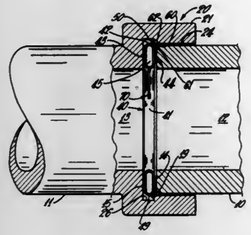


A record player is provided with a motor for driving the turntable and a separate independent drive for moving the tone arm from a position on a record to the rest position. The independent drive means may be a spring drive or a separate motor. In either case the independent drive is initiated upon the tone arm reaching a predetermined point during playback or by manual reset means.

3,550,987
RESILIENT SEALING APPARATUS

Gilbert C. Dickey, Genoa, Ohio, assignor to G. C. Dickey Corporation, Fremont, Ohio, a corporation of Ohio

Filed Apr. 16, 1968, Ser. No. 721,671
Int. Cl. F16j 15/16; F16l 21/02
U.S. Cl. 277—10 20 Claims

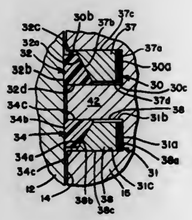


Apparatus particularly useful for sealing a joint in a female-male-type connector comprising a resilient sealing element formed for press-fit insertion into sealing position in a female coupling. The sealing element has a central opening formed therein and a finger-pull element attached thereto and extending into the central opening to aid in the removal of the sealing element from the female coupling. Resilient means on the peripheral wall of the sealing element engage an inner wall or recess of the female coupling to hold the sealing element in place in the female coupling.

3,550,988
PISTON AND PTFE RING ASSEMBLY FOR ENGINES

Robert C. Schenck, Jr., and Robert S. Storms, Dayton, Ohio, assignors to The Duriron Company, Inc., Dayton, Ohio, a corporation of New York

Filed Nov. 13, 1967, Ser. No. 682,179
Int. Cl. F16j 9/00; F02f 5/00; F16l 15/00
U.S. Cl. 277—63 10 Claims

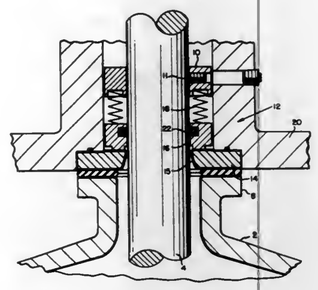


A continuous compression seal ring of filled polytetrafluoroethylene is used in conjunction with an expander ring for conformationally and sealingly engaging the cylinder to reduce blowby. The seal ring is pentagonal in cross section and urged into sealing engagement with the piston and cylinder by an expander ring of trapezoidal cross section during reciprocating movement of the piston.

3,550,989
WEAR RESISTANT ARTICLES AND FACINGS THEREFOR

Donald H. Hall and Erwin J. Nunlist, Rochester, N.Y., assignors to Sybron Corporation, Rochester, N.Y., a corporation of New York

Continuation of application Ser. No. 441,624, Mar. 22, 1965, now abandoned. This application Apr. 15, 1968, Ser. No. 721,522
Int. Cl. F16j 15/54
U.S. Cl. 277—96 5 Claims

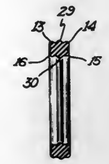


A corrosion resistant, wear resistant, glass coated seal face is disclosed wherein the glass coating is characterized by having a plurality of randomly scattered, nonconnecting, lubricant receiving voids therein which serve to receive and retain lubricant particles deposited within the voids.

3,550,990
SEALING DEVICE

John H. Rentschler and Robert W. Carlson, Jr., Edina, Minn., assignors to Minnesota Rubber Company, Minneapolis, Minn., a corporation of Minnesota

Continuation of application Ser. No. 669,013, Sept. 20, 1967, now abandoned. This application June 17, 1969, Ser. No. 838,010
Int. Cl. F16j 15/48
U.S. Cl. 277—205 19 Claims

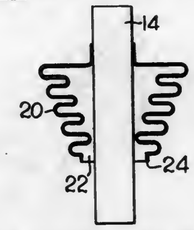


Disclosed herein is a dynamic sealing ring made of a resilient flowable material throughout and characterized by its cross-sectional configuration which in its free form is uniform and generally rectangular and has arcuate smoothly contoured convex lobes at each of its corners with two of its opposed surfaces bearing at least one additional sealing lobe disposed between the corner lobes and separated therefrom by concavities and extending outwardly therebeyond a short distance to effect a more perfect seal, particularly at high pressures, when installed in a groove of dimensions such as to slightly compress the additional sealing lobe and its adjacent corner lobes.

3,550,991
FLEXIBLE METALLIC STRESS FREE SEALING MEMBER AND ATTACHED ROD

Henry J. Wesoloski, Milton, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Oct. 21, 1965, Ser. No. 499,420
Int. Cl. F16j 3/00
U.S. Cl. 277—212 1 Claim

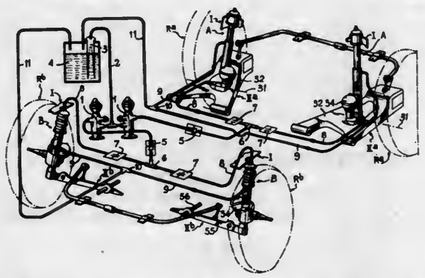


A flexible metallic stress free sealing member such as a corrugated bellows is fabricated by depositing a layer of metal on a suitable dissolvable mold and a rod to which the bellows is to be attached extends from the mold in such a way that the attachment portion of the bellows is deposited on the rod to provide a stress free joint.

3,550,992
VEHICLE SUSPENSION

Michel Grancon, Marnes-la-Coquette, France, assignor to Automobiles Peugeot, Paris, and Regie Nationale des Usines Renault, Billancourt, France, both French bodies corporate

Filed July 26, 1968, Ser. No. 748,031
Claims priority, application France, Sept. 12, 1967, 120,661
Int. Cl. B60g 17/00
U.S. Cl. 280—6 5 Claims



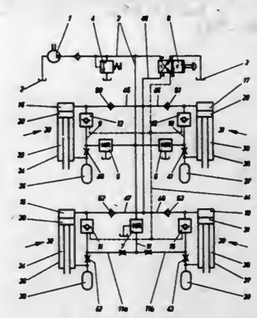
A support device in a suspension for an automobile vehicle interposed between the independent wheel and the suspended part of the vehicle. An oil discharge orifice is provided in the hollow piston slidable in the cylinder of the support device for the return of the oil to the oil supply tank when the level of the piston, corresponding to the correct angle of the vehicle, has been reached. This orifice cooperates with a flexible sealing element fixed inside the cylinder.

3,550,993
LEVEL REGULATED HYDRO-PNEUMATIC SPRING SUSPENSION SYSTEM FOR VEHICLES

Joachim Peiffer, Oberkassel, Dusseldorf, Germany, assignor to Langen & Co., Dusseldorf, Germany

Filed Oct. 22, 1968, Ser. No. 769,646
Claims priority, application Germany, Dec. 21, 1967, 1,630,758
Int. Cl. B60g 23/00
U.S. Cl. 280—6 1 Claim

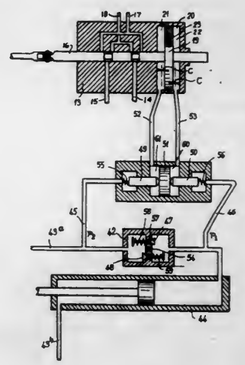
A level regulated hydro-pneumatic spring suspension system for vehicles which is provided with an operating cylinder arranged between the supporting means for each wheel and the chassis with the operating cylinder including a cylinder and a piston with the piston dividing the cylinder into a space above the piston and an annular space below the piston with the spaces of the cylinder being connectable with the pressure line or the discharge via pilot controlled check valves and level regulating valves in dependence on the mean height of the vehicle body above the wheel supporting means.



3,550,994
ANTIROLL DEVICES FOR AUTOMOTIVE VEHICLES

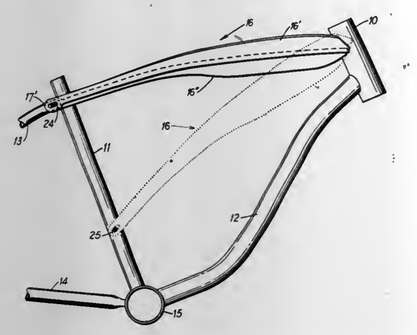
Edmond Henry-Biabaud, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France

Filed Jan. 4, 1968, Ser. No. 695,657
Claims priority, application France, Jan. 19, 1967, 91,741
Int. Cl. B60g 21/06
U.S. Cl. 280—6.11 1 Claim



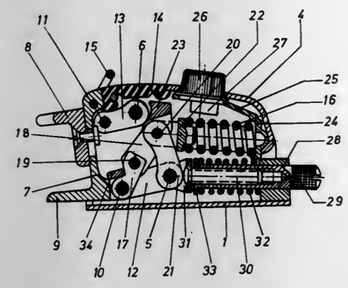
An antiroll device has a time-lag device to prevent its operation in the case of short-duration modifications in the trim of the vehicle. Actuating means responsive to the steering system eliminates or reduces the time lag. When an automotive vehicle is equipped with a hydraulic or pneumatic piston-cylinder unit or actuator providing a servo-action for controlling the steering system, there is inserted in one of the pipe lines feeding fluid to or from one of the compartments of said unit or actuator a loss-of-pressure member capable of producing a pressure differential which is utilized as a power means for moving a piston dividing a chamber into two compartments which are connected to the compartments formed in the distributor by the time-lag piston.

3,550,995
ADJUSTABLE BICYCLE TANK
Carter E. Quisenberry, Olney, Ill., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Jan. 23, 1969, Ser. No. 793,323
Int. Cl. B62k *13/08*
U.S. Cl. 280—7.11 1 Claim



A bicycle tank is adjustable by being pivotally mounted at its front end so that it can be converted for use with a boy's or girl's bike. Conversion is accomplished by pivotally raising or lowering its rear end and removably fastening the rear end in set position.

3,550,996
HEEL HOLDING DEVICE FOR SAFETY SKI BINDINGS
Hannes Marker, Garmisch-Partenkirchen, and Roland Jungkind, Farchant, Germany, assignors to Hannes Marker, Garmisch-Partenkirchen, Germany
Filed Sept. 6, 1968, Ser. No. 758,034
Claims priority, application Germany, Sept. 8, 1967, 1,578,855; July 29, 1968, 1,703,915
Int. Cl. A63c *9/084*
U.S. Cl. 280—11.35 16 Claims



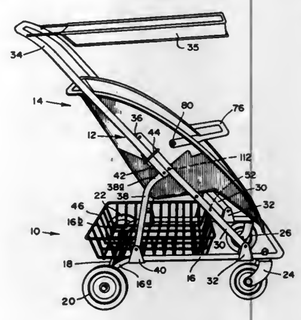
A heel holding device for safety ski bindings for a swingable supporting piece for a sole holder and a closure pedal which forms the coupler of a four-joint mechanism which functions under the influence of a spring and which upon the introduction of a ski boot into the binding automatically assumes its locked position with the spring acting upon the supporting piece with the interposition of a tip lever.

3,550,997
BACKPACK TRUNDLING ASSEMBLY
Helen R. Strand, 1600 43rd Ave. E., Seattle, Wash. 98102
Filed Oct. 1, 1968, Ser. No. 764,265
Int. Cl. B62b *1/20*
U.S. Cl. 280—30 11 Claims



An axle extends laterally between the lower end portions of a pair of wheel frame members. A single wheel is supported for free rotation on the axle. The wheel frame members diverge apart as they extend upwardly. The upper ends of such frame members are pivotally attached to lower ends of connector members. The upper ends of the connector members are secured to lower end portions of backpack frame side members. A sliding lock sleeve surrounds each connector member. The wheel frame is pivotally movable between a trundling position in which its two frame members are substantially colinear with the backpack frame side members, and a retracted position in which its two frame members are dihedrally related to, and project rearwardly from, the backpack frame side members. The lock sleeves are adapted to lock the wheel frame in each of these two positions.

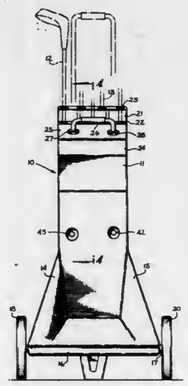
3,550,998
FOLDABLE CARRIAGE AND INFANT SEAT COMBINATION
Alban M. Boudreau, Bedford, and Stanley F. Korol, Everett, Pa., assignors to Hedstrom Union Company, Bedford, Pa.
Filed Sept. 3, 1968, Ser. No. 757,054
Int. Cl. B62b *7/14*
U.S. Cl. 280—31 21 Claims



A foldable carriage comprises a wheeled running gear and a rigid body removably and adjustably mounted on

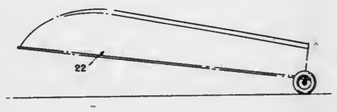
the running gear. The body is adjustable from a generally horizontal carriage position to a generally upright stroller position. Also the rigid body can be removed from the gear and function independently as an infant seat. In addition, the body and running gear are arranged so that when the carriage is folded, the carriage components including the rigid body nest into a very compact package.

3,550,999
COMBINED GOLF BAG AND CART APPARATUS
David B. Bogan, Los Angeles County, Calif. (7303 Paso Robles Ave., Van Nuys, Calif. 91406)
Filed Aug. 9, 1968, Ser. No. 751,513
Int. Cl. A63b *55/08*
U.S. Cl. 280—47.19 13 Claims



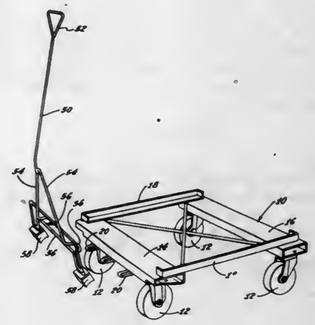
A combined golf bag and cart apparatus is disclosed herein comprising a unitary, monolithic construction incorporating a container body for storage for a plurality of playing clubs, a score card shelf, a wheel assembly, a handle means and a tripod support element cooperating with the wheel assembly to balance and support the apparatus. An accessory bag is detachably secured to the construction body to accommodate storage of accessory equipment.

3,551,000
COMBINATION BOAT DOLLY AND REINFORCING MEANS
Norman R. Griswold, 4237 S. 252nd St., Kent, Wash. 98031
Filed Sept. 3, 1968, Ser. No. 756,789
Int. Cl. B26b *1/26*
U.S. Cl. 280—47.32 5 Claims



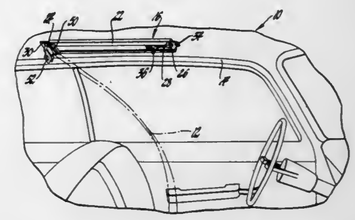
Combination boat dolly and corner reinforcing means in which the rear corners of the boat have reinforcing corner brackets receiving alined plug-in wheels and having handles.

3,551,001
DETACHABLE HAND BRAKE ASSEMBLY
James D. Wilson, Long Beach, Calif., assignor to Banner Metals, Inc., Compton, Calif., a corporation of Ohio
Filed Feb. 20, 1969, Ser. No. 801,119
Int. Cl. B62b *3/02*
U.S. Cl. 280—47.34 6 Claims



A detachable hand brake is provided for use with a wheeled carriage, such as a dolly. The detachable hand brake of the invention provides a handle for guiding the wheeled carriage down the inclined surface, and it also provides a brake for controlling its downward motion. The detachable hand brake of the invention obviates the need for a separate hand brake on each carriage, and it is particularly useful when a large number of the carriages are to be wheeled down an inclined surface as successive individual operations, and when such movement of the carriages occurs only in relatively rare instances.

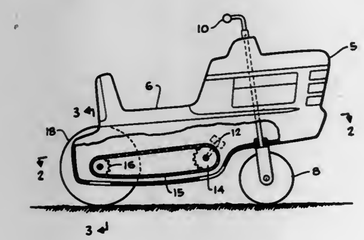
3,551,002
RESTRAINT BELT RETRACTOR BIASING RELEASE
James H. Dozois, Harper Woods, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 21, 1969, Ser. No. 826,408
Int. Cl. B60r *21/10*
U.S. Cl. 280—150 4 Claims



A biasing release for a restraint belt retractor includes a retractor roller rotatably attached to the free end of interconnected bent leg portions of a wire retainer. The retainer is pivotally attached to a spring biased carrier which slideably mounts within an elongated housing for reciprocal movement therealong. One end of a restraint belt is anchored adjacent an opening in the housing. The belt passes around the retractor roller between the retractor roller and carrier, to permit the retractor roller to

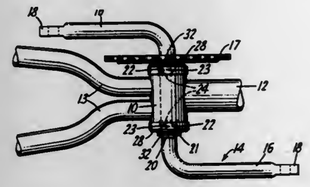
form a bight in the belt and retract the belt into the housing when not in use. Extension of the belt straightens the bight, moving the retractor roller out of the housing in an extending direction on the belt and around a guide roller attached to the housing adjacent the opening thereof. The spring biasing acting through the bent leg portions of the retainer continues the movement of the retractor roller on the guide roller in a retracting direction until the bent leg portions of the retainer engage the guide roller on either side of the belt to halt the movement of the roller. Swinging movement of the belt away from the guide roller moves the roller in an extending direction on the belt to a position thereon where the retractor roller forms a bight in the belt and retracts the belt into the housing.

3,551,003
VELOCIPEDE WITH CHAIN DRIVE
Janvier F. O'Hara, 757 Idle Hour Lane, Sierra Madre, Calif. 91024
Filed June 6, 1968, Ser. No. 735,057
Int. Cl. B62k *19/16;* **B62m** *1/02*
U.S. Cl. 280—261 **4 Claims**



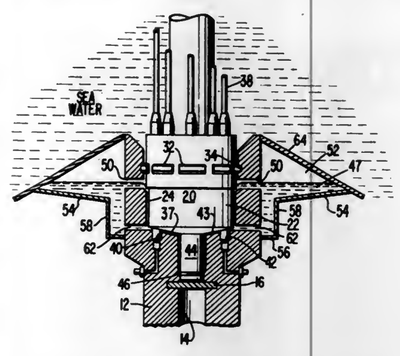
A velocipede having a vehicle body made as a hollow shell and of a thermoplastic material, in which a pedal-crank axle and driven wheel axle are journalled in the shell. The roller chain interconnecting the axles and their sprockets is affected in its degree of tension by thermal rather than mechanical control means.

3,551,004
BICYCLE IMPROVEMENT
Carter E. Quisenberry, Olney, Ill., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Nov. 19, 1968, Ser. No. 777,043
Int. Cl. B62k *19/34*
U.S. Cl. 280—281 **4 Claims**



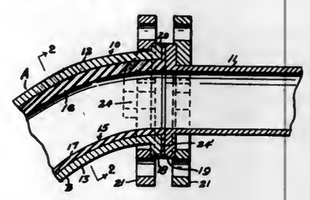
The opposite ends of the pedal crank hanger tube are notched to reduce its size while facilitating snaking the pedal crank into the hanger tube.

3,551,005
UNDERWATER CONNECTOR
Andre Georges Brun, Paris, France, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 28, 1969, Ser. No. 819,774
Int. Cl. F16l *17/00*
U.S. Cl. 285—10 **11 Claims**



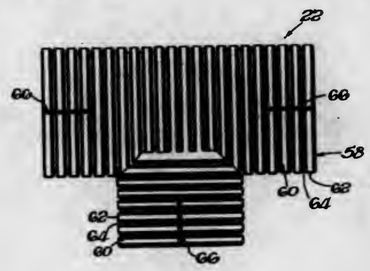
An underwater connector particularly adapted for coupling hydraulic lines from surface equipment to unattended underwater equipment wherein the female member of the connector includes a recess and a mercury pool contained in the recess which covers the mating surfaces which are normally exposed to sea water in absence of a coupyling with the male member of the connector. When a connection is made the male connector member displaces the mercury pool into an overflow chamber on the female member and a clean contact surface is provided in the recess where the coupling is then made. Upon removal of the male connector member from the recess the mercury displaced flows back into the recess through a return passage from the overflow chamber.

3,551,006
PIPE FITTINGS AND ABRASION RESISTANT LININGS THEREFOR
Ulysses S. James, P.O. Box 377, Elizabeth, N.J. 07207
Filed Aug. 4, 1967, Ser. No. 658,421
Int. Cl. F16l *55/00*
U.S. Cl. 285—16 **5 Claims**



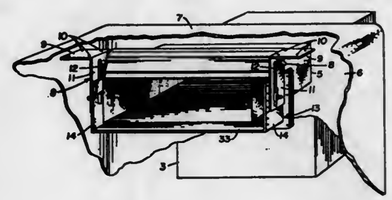
Angular pipe fittings or sections which change the direction of flow of abrasive slurries, and the like, are provided with abrasion-resistant linings which are thicker at the regions of impact than at the opposite portions of the fittings to prolong the life of the fittings while preserving a uniform flow cross-section with respect to the piping connected thereto, means being provided for liquid-tight connections with such connecting piping.

3,551,007
CORRUGATED TUBE COUPLINGS AND ADAPTERS
Ronald C. Martin, Newark, Del., and Marty E. Sixt, Napoleon, Ohio, assignors to Advanced Drainage Systems, Inc., Newark, Del., a corporation of Delaware
Filed Feb. 5, 1969, Ser. No. 796,752
Int. Cl. F16l *41/00*
U.S. Cl. 285—156 **4 Claims**



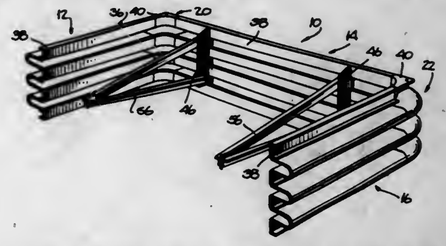
Flexible coupling for interconnecting ends of corrugated tubes comprises tubular body section having corrugations formed by alternating annular peaks and valleys. Slit in at least one end portion of tubular body section extends through at least end corrugation thereof, and slitted end portion of tubular body section is constructed and arranged to fit tightly over corrugated tube to be connected to coupling.

3,551,008
ADAPTER FOR AIR CONDITIONING DUCT
James A. Cordell, 2504 Collingwood, Dallas, Tex. 75234
Filed Oct. 17, 1966, Ser. No. 587,152
Int. Cl. F16l *25/00*
U.S. Cl. 285—177 **6 Claims**



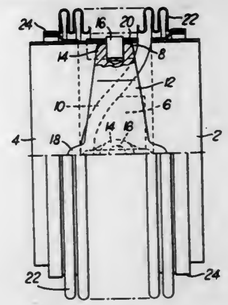
An adapter for facilitating the installation and removal of refrigeration units such as those commonly mounted on the forward wall of trailers used in transporting fungible items. The adapter includes a U-shaped frame having a resilient sealing element protruding interiorly therefrom to sealingly engage a portion of the periphery of the outlet duct of the refrigeration unit which serves to comminute cold air from the refrigeration unit into the trailer through an opening in the forward wall of the trailer. Bracket means are provided for adjustably mounting the U-shaped frame to a suitable supporting member, such as the roof of the trailer. The bracket means also supports a pivotally mounted baffle which is positioned above the frame so as to define therewith a rectangular opening through which the outlet duct may be inserted. The size of the opening may be adjusted by pivotal movement of the baffle thus permitting the accommodation of different size outlet ducts, as well as facilitating easy removal and installation of the refrigeration unit.

3,551,009
EXPANSION JOINT ASSEMBLY
John Anthony Cammuso and Lester Dudley Bruce, Worcester, Mass., assignors to Riley Stoker Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Dec. 23, 1968, Ser. No. 786,256
Int. Cl. F16l *51/02*
U.S. Cl. 285—226 **7 Claims**



This invention relates to an expansion joint assembly and method of forming same wherein a plurality of angularly disposed corrugated walls are connected to each other by a like plurality of corrugated corner walls, respectively. Each of the corrugated walls includes a plurality of U-shaped members interconnected by a plurality of C-shaped channels, and each of the corrugated corner walls includes a plurality of U-shaped rounded corner members interconnected by rounded corner flats.

3,551,010
PIPE OR DUCT JOINTS
Horace Percival Halling, Leverstock Green, England, assignor to Avica Equipment Limited, London, England, a British company
Filed Jan. 7, 1969, Ser. No. 789,572
Claims priority, application Great Britain, Jan. 11, 1968, 1,683/68
Int. Cl. F16l *27/00*
U.S. Cl. 285—226 **7 Claims**

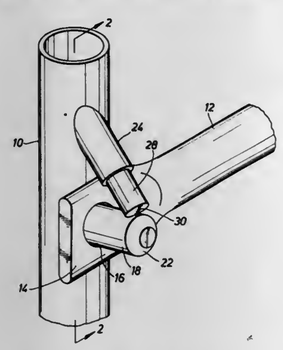


A pipe coupling of the type having end-pieces which are joined by a gimbal joint and sealed by a flexible bellows, wherein the gimbal joint is a four armed cross-piece spider each arm of which is joined to a respective lug of an end-piece by a trunnion or pivot pin.

3,551,011
QUICK RELEASING CROSS-BRACE LATCH FOR KNOCK-DOWN SCAFFOLDING
David W. Alley, 5917 Harbrook, Houston, Tex. 77017
Filed Apr. 28, 1969, Ser. No. 819,758
Int. Cl. E04g *7/22*
U.S. Cl. 287—53.5 **7 Claims**

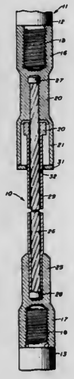
A latch mechanism for use in releasably connecting the cross-braces to the uprights of a scaffolding structure of

the knock-down type. The mechanism includes a cross-brace connecting pin extending horizontally from the upright upon which the perforated end of the cross-brace may be positioned, and a latch element slidable in a guide tube attached to the upright above the pin and extending downwardly at an angle to the horizontal, to allow the element to move downwardly by gravity into engagement at its lower end with the pin outwardly beyond the cross-



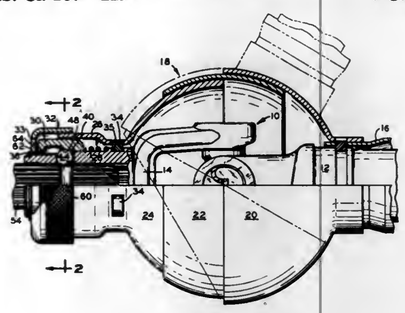
brace to hold the cross-brace against disconnection from the pin. The latch element is moved upwardly out of latching position by engagement with the cross-brace as the cross-brace is pushed onto the pin and falls by gravity into latching position when the cross-brace has passed beneath the latch element. The latch element is lifted manually out of latching position when removing the cross-brace from the pin.

3,551,012
ROD SHOCK ABSORBER
Wayne N. Sutliff and Jim L. Downen, both of 2931 Pierce Road, Bakersfield, Calif. 93308
Filed Dec. 23, 1968, Ser. No. 785,977
Int. Cl. F16b *7/00*
U.S. Cl. 287—103 **2 Claims**



An elastic flexible cable forming a tension link inserted between an adjacent pair of deep well pump sucker rods, said link being enclosed in a tube which, in case the cable breaks, confines the cable strands, preventing their "bushing," said tube also providing a "safety" over-riding tension link which thereupon assumes the function of a solid link connecting said adjacent sucker rods.

3,551,013
SAFETY SHIELD CONNECTING DEVICE
Theodore S. Trojanowski, St. Catharines, Ontario, and George P. Wills, Thorold, Ontario, Canada, assignors to Hayes-Dana Limited, Thorold, Ontario, Canada, a corporation of Canada
Filed Feb. 17, 1969, Ser. No. 799,838
Int. Cl. F16d *1/00*
U.S. Cl. 287—119 **7 Claims**



A coupling device for use with a detachable power shaft surrounded by a safety shield and which includes as an integral part of the coupling device a normally free turning means in the form of a collar for locking the detachable power shaft to the power source. This collar is further engageable with splines on the exterior of the detachable shaft, enabling an operator to quickly and easily rotate and align the detachable power shaft with a mating shaft for attachment thereto.

3,551,014
JOINT OF THIN-WALLED MEMBERS
Oleg Vladimirovich Tamruchi, 1 Khoroskevsky proezd 10, korpus 2, kv. 77, Moscow, U.S.S.R.
Filed Nov. 28, 1966, Ser. No. 597,434
Int. Cl. F16b *5/00*
U.S. Cl. 287—189.36 **2 Claims**

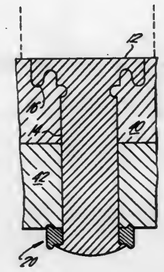


A permanent joint of thin-walled members, preferably constituted of a plastic material wherein at least one of the members has a groove in which the edge of another member is inserted and pressed thereagainst by the forceable insertion in the groove of an open channel member, the contacting walls of the member having a glue compound applied thereto which sets under the pressure of the walls against one another.

3,551,015
RIVET AND COLLAR UNIT AND JOINT FORMED THEREBY
Roger B. Whiteside, Cinnaminson, N.J., and Harry T. Long, Jr., Jamison, Pa., assignors to Standard Pressed Steel Co., Jenkintown, Pa., a corporation of Pennsylvania
Continuation of application Ser. No. 709,654, Mar. 1, 1968. This application Apr. 2, 1969, Ser. No. 859,533
Int. Cl. F16b *19/04*
U.S. Cl. 287—189.36 **18 Claims**

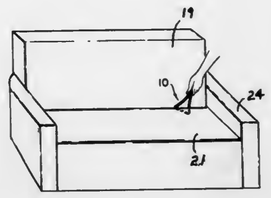
A rivet and collar combination wherein the rivet head and the collar are adapted to be embedded in opposite outside surfaces of a stack of members which are to be secured

together. The embedding of these parts causes the displacement of material in the stack members and the development of residual compressive stresses in the stack around a hole through which the rivet shank extends.



As the tail of the rivet is upset, the shank expands radially to develop an interference fit between the shank and the hole which results in the development of residual tensile stresses superimposed upon the previously developed residual compressive stresses.

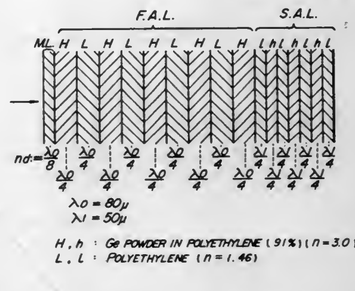
3,551,016
UPHOLSTERY TOOL
Tom A. Hooper, 429 Shores Drive, Virginia Beach, Va. 23451
Filed Jan. 28, 1969, Ser. No. 794,683
Int. Cl. B65g *7/12*
U.S. Cl. 294—25 **1 Claim**



An upholstery hand tool for working upholstery fabrics having a triangular configuration on one end and an arcuate configuration on the other substantially smaller than the triangular end being gradually curved over its entire length.

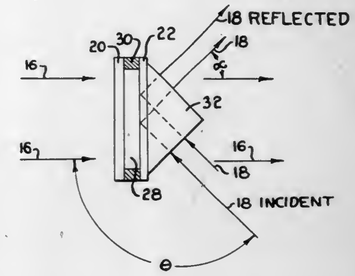
3,551,017
FAR INFRARED TRANSMISSION TYPE INTERFERENCE FILTER
Toshikatsu Iwasaki and Tsumoru Shimotakahara, Katsutashi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed May 15, 1968, Ser. No. 729,152
Claims priority, application Japan, May 19, 1967, 42/31,455
Int. Cl. G02b *5/28*
U.S. Cl. 350—1 **10 Claims**

A transmission type interference filter, particularly for use in the far infrared region of the optical spectrum, is formed from at least two groups of laminated layers of material. Each group includes a first plurality of layers of material having an index of refraction higher than the index of refraction of a second plurality of layers of material, which are alternately arranged with the first plurality of layers. Typically, the thickness of each of the layers in the first group is a quarter wavelength of a first



frequency while the thickness of each layer in the second group is a quarter wavelength of a second frequency. Adhered to the two groups of layers is a matching layer whose thickness is typically half the thickness of each layer in the immediate adjacent group of layers.

3,551,018
TOTAL INTERNAL REFLECTION HOLOGRAPHY
Karl A. Stetson, Wenner Gren Center F31, Sveavagen 166, 11346 Stockholm, Sweden
Filed May 1, 1969, Ser. No. 820,834
Int. Cl. G02 *27/22*
U.S. Cl. 350—3.5 **1 Claim**

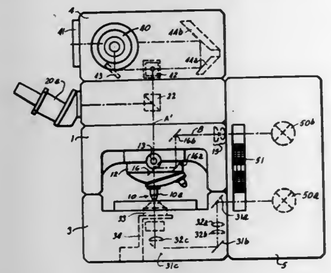


Holography technique in which either or both the object and reference beams are totally reflected from the air/emulsion surface of the hologram plate.

3,551,019
UNIVERSAL MICROSCOPE
Kurt Michel, Aalen, Wurttemberg, Germany, assignor to Carl Zeiss-Stiftung, doing business as Carl Zeiss, Heidenheim (Brenz), Wurttemberg, and Oberkochen, Wurttemberg, Germany, a corporation of Germany
Filed Nov. 20, 1968, Ser. No. 784,514
Claims priority, application Germany, Nov. 21, 1967, A 10,494
Int. Cl. G02b *21/00, 21/06*
U.S. Cl. 350—18 **5 Claims**

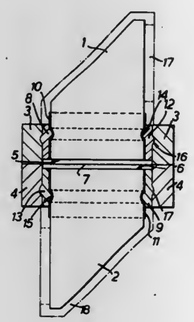
A microscope has cooperative parts and accessories in separate units. The objective and eyepiece units have a straight optical path therethrough with the eyepiece unit mounted on the base unit. A specimen stage unit is

mounted on the base unit and light sources are mounted for directing illumination either to the specimen stage or



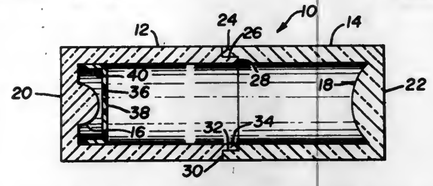
through the base unit. Image reproducing unit, measuring unit and filtering unit are also provided.

3,551,020
OPTICAL APPARATUS WITH THREE LAYER PLASTIC SEAL
David Mark Cowan, Stanley Philip Cowan, and William Thomas Rickets, Kent, England, assignors to David Mark Cowan & Stanley Philip Cowan, trading in partnership as the Helio Mirror Company
Filed Aug. 23, 1968, Ser. No. 754,820
Claims priority, application Great Britain, Aug. 23, 1967, 38,746/67
Int. Cl. G02b 7/18
U.S. Cl. 350—67 8 Claims



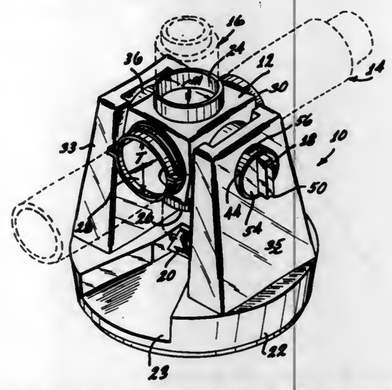
The invention concerns optical assemblies, such as periscopes, including a body of glass sealed in a rigid mounting frame, which it may be desired to remove from the frame, for example for re-working the glass, and which must be able to withstand substantial differential pressure across the seal between prism and frame. According to the invention the surface of the prism is given in the sealing region a coating of plastic material which is compliant and strippable from the glass, the seal being completed by a harder material such as epoxy resin or fusible metal, moulded in position. The compliant material allows the prism to be recovered from the mounting without damage; the hard layer gives adequate mechanical support for the assembly to withstand differential pressures.

3,551,021
HIGH-POWER MAGNIFIER
Harold W. Straat, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Sept. 19, 1968, Ser. No. 760,763
Int. Cl. G02b 7/02
U.S. Cl. 350—69 8 Claims



A magnifier of approximately 100× magnification has a tubular body made from transparent plastic material. A cooperating lens is integrally molded with the tubular body at each end thereof.

3,551,022
OPTICAL STAND
Toshio Yamasaki, Gardena, William R. Baynes and Floyd E. Schlau, Palos Verdes Peninsula, Dennis H. Merino, Harbor City, and Darold M. Shirwo, Beverly Hills, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Jan. 27, 1969, Ser. No. 793,983
Int. Cl. G02b 21/00, 21/24
U.S. Cl. 350—85 2 Claims

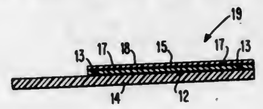


A dual optical instrument stand for holding a telescope or microscope comprising a mount with trunnions pivotally supported on a frame, the mount having two sets of apertures for receiving the tube of either optical instrument. A locking knob on the frame can be turned to force a mount trunnion hard against a support bearing on the frame, which locks the mount at a desired position.

3,551,023
PATHOLOGY SPECIMEN PROCESSING METHOD AND ARTICLE
Daniel W. Brackett, East Brunswick, N.J., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 17, 1969, Ser. No. 791,995
Int. Cl. G02b 21/34
U.S. Cl. 350—95 8 Claims

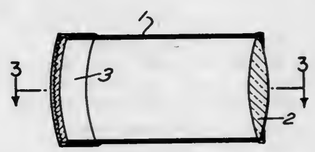
A thin flexible plastic film, the size of a conventional glass pathology slide, is adhered by a border of pressure-sensitive adhesive to the top surface of a relatively thick

and inflexible substrate. The substrate is larger than the film to provide a manually grippable portion. After a pathology specimen is placed on the unbonded top surface of the thin film, the user holds the grippable portion while immersing the specimen in conventional staining solvent. The specimen is then successively covered with conventional mounting medium and then cover-slipped with a thin flexible plastic film the same as the other film. The



film-specimen-film sandwich and underlying substrate can now be placed under a microscope to view the specimen. The sandwich is strippable from the substrate and insertable into an aperture card for processing in data processing equipment. Both films and the substrate are of materials that are optically clear under intense magnification, and are also chemically resistant to the staining solvent, mounting medium and adhesive to minimize deterioration of the specimen and/or film after mounting.

3,551,024
FLASHING RETRODIRECTIVE REFLECTOR
Benjamin H. Priest, Jr., 1105 Lexington St., Waltham, Mass. 02154
Continuation-in-part of applications Ser. No. 505,481, Oct. 28, 1965, and Ser. No. 603,234, Dec. 20, 1966. This application Feb. 17, 1969, Ser. No. 813,789
Int. Cl. G02b 5/12
U.S. Cl. 350—99 4 Claims

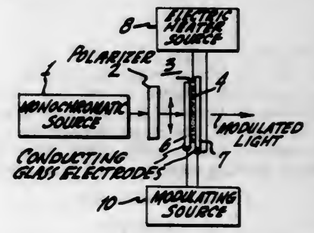


A flashing retrodirective reflector has a lens that focuses incident light upon a reflector comprising a matrix of cells having mutually perpendicular facets. As the light's angle of incidence changes with respect to the lens face, the focused light is swept across the matrix cells in the reflector, producing a retrodirective beam that sweeps back and forth. To an observer in the path of the sweeping beam, the retrodirective light appears to flash.

3,551,025
HIGHLY FLEXIBLE REFLEX REFLECTING CONSTRUCTIONS
Wallace Karl Bingham, Woodbury, and Robert C. Vanstrum, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Mar. 28, 1969, Ser. No. 811,568
Int. Cl. G02b 5/12
U.S. Cl. 350—105 6 Claims

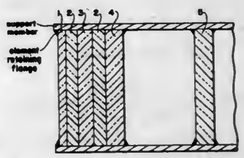
A highly flexible, reflex reflective construction comprising a layer of reflex reflecting transparent spheres in a binder and a continuous overlying transparent solid topcoat having a flat front face, said binder being a transparent elastomeric composition having a refractive index sufficiently low that the ratio of the refractive index of the transparent spheres to that of the binder is between 1.85 and 2, the refractive index of said transparent spheres being at least about 2.4, said topcoat being a transparent elastomeric composition having a Shore A hardness above 40, both said topcoat and said binder having a tensile strength at break of at least 200 p.s.i. at 75° F. and a glass transition temperature below 10° C., the maximum strain at break of the topcoat being attained at a temperature not more than 30° C. higher than the maximum strain at break of the bead binder.

3,551,026
CONTROL OF OPTICAL PROPERTIES OF MATERIALS WITH LIQUID CRYSTALS
George H. Heilmeier, Philadelphia, Pa., assignor to RCA Corporation, a corporation of Delaware
Filed Apr. 26, 1965, Ser. No. 450,949
Int. Cl. G02f 1/26
U.S. Cl. 350—150 10 Claims



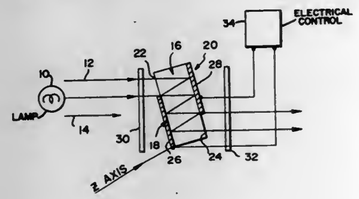
The optical characteristics of a mixture of a thermotropic nematic liquid crystal and another material are controlled by varying the molecular orientation of the nematic liquid crystal with a modulating signal. The other material can consist of either a pleochroic dye or particulate matter. Controlling the molecular orientation of the nematic liquid crystal enables control of the polarization of light passing through the mixture; while local variations in the absorption spectra of the dye can be obtained with the modulating signal. A display panel with a video modulating signal is provided.

3,551,027
OUTBOARD POLARIZING LIGHT-TRANSMITTING MEANS
Arthur D. Alexander III, Cohasset, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Jan. 11, 1968, Ser. No. 697,111
Int. Cl. G02b 5/30
U.S. Cl. 350—155 8 Claims



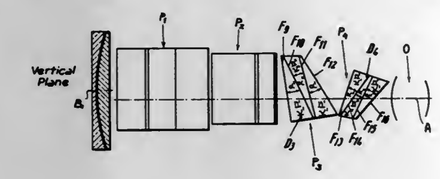
When light-polarizing material is used inboard of stressed window members which are exposed to sunlight the resultant polariscopic effect produces undesirable color patterns and striations. These may be relieved by placing the light-polarizing material outboard of the stressed window member.

3,551,028
ELECTRO-OPTICAL LIGHT MODULATOR—LOW VOLTAGE
Richard S. Ploss, Danvers, Mass., assignor to Baird-Atomic, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed July 6, 1967, Ser. No. 651,562
Int. Cl. G02f *1/28*
U.S. Cl. 350—160 **4 Claims**



An electro-optic valve is formed from an electro-optic crystal, opposite faces of which are reflectorized to establish a folded path between an entrance window and an exit window. By virtue of the relatively large number of times the beam of light passes through the crystal material, a relatively small control signal across the crystal is capable of effecting modulation of large amplitude.

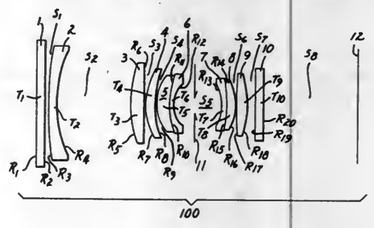
3,551,029
ANAMORPHOTIC COMPONENT WITH TWO PAIRS OF OPPOSITELY ORIENTED PRISMS
Kurt Kirchhoff, Hamburg-Lurup, Germany, assignor to ISCO Optische Werke G.m.b.H., Gottingen, Germany, a corporation of Germany
Filed Mar. 15, 1968, Ser. No. 713,375
Claims priority, application Germany, Mar. 25, 1967, J 33,297
Int. Cl. G02b *13/12, 15/14*
U.S. Cl. 350—182 **6 Claims**



Objective componens with adjustable magnification ratios in vertical and horizontal axial planes, also useful as a varifocal orthomorphotic component, for camera or projector, with two pairs of oppositely oriented prisms respectively swingable in the horizontal and the vertical plane and inserted between two spherically effective components.

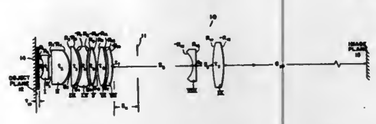
3,551,030
OBJECTIVE LENS FOR MICROFILM CAMERA
David C. Gilkeson, White Bear Lake, Minn., and Michael J. Buzawa, Rochester, N.Y., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed May 20, 1969, Ser. No. 826,105
Int. Cl. G02b *9/64, 13/24*
U.S. Cl. 350—196 **2 Claims**

A microfilm camera/processor having a constant film plane to copyboard distance and a plurality of objective lens systems mounted in a precision turret for alternative utilization to vary the magnification or reduction of the camera/processor. This particular system comprises a ten element microphotographic objective lens for providing a



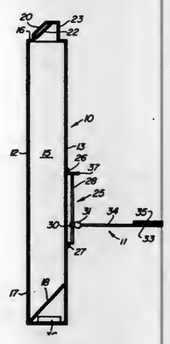
given magnification of 30× in a fixed copyboard to film distance of 82 inches.

3,551,031
HIGH MAGNIFICATION HIGH RESOLUTION PROJECTION LENS
David S. Grey, Lexington, Mass., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed July 2, 1969, Ser. No. 838,596
Int. Cl. G02b *9/64*
U.S. Cl. 350—214 **5 Claims**



A high magnification projection lens of substantially 150× having a large relative aperture of substantially *f*/1.2, said lens possessing a high resolution and being substantially diffraction limited particularly at a specified wavelength of the transmitted light, the tangential and sagittal distortion being particularly well corrected as well as less susceptible to the effects of lens tilt.

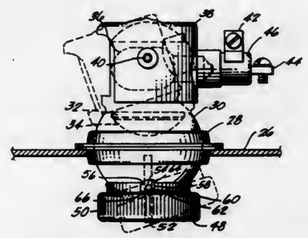
3,551,032
UNDERWATER VIEWER
Leslie S. Dunn, Jr., 717 W. 4th S., Brigham City, Utah 84302
Filed Oct. 22, 1968, Ser. No. 769,693
Int. Cl. G02b *5/08*
U.S. Cl. 350—301 **4 Claims**



An underwater viewer wherein a portable housing supports mirrors for reflecting a view from beneath the sur-

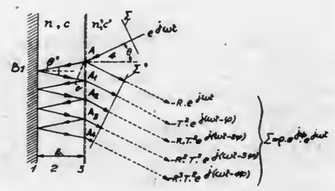
face of water to be observed at a convenient height thereabove. A support arm on the housing includes a platform on which a user stands to hold the housing in position and a universal connection and handles are provided to facilitate turning of the housing to increase the viewing range.

3,551,033
QUICK CHANGE FILTER
Robert L. Beesley, Westminster, Calif., assignor to McDonnell Douglas Corporation, a corporation of Maryland
Filed July 3, 1967, Ser. No. 651,042
Int. Cl. G02b *5/22*
U.S. Cl. 350—315 **2 Claims**



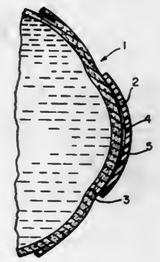
A pivotal light filter disc positioned at all times in the path of the light source and, when rotated to a plane normal to the light path, filters the light passing therethrough and, when rotated to a plane parallel to the light path, does not act as a filter nor does it cast a shadow on the object illuminated. Stop means limits the filter rotation between the two positions.

3,551,034
WAVE COMPRESSION DEVICE
Pierre Tournois and François Gires, Paris, France, assignors to CSF-Compagnie Generale de Telegraphie Sans Fil, a corporation of France
Filed June 3, 1965, Ser. No. 460,999
Claims priority, application France, June 5, 1964, 977,196
Int. Cl. G02b *5/00;* **H03h** *7/30*
U.S. Cl. 350—321 **4 Claims**



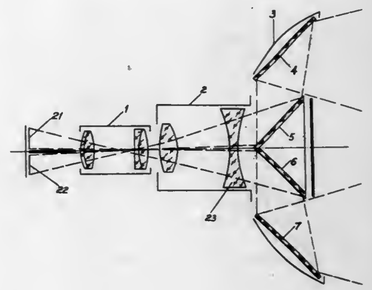
The present invention relates to systems for compressing frequency modulated pulse trains and more particularly to devices comprising a propagation medium bounded by at least one dispersive reflector arrangement having two parallel plane faces respectively partially and wholly reflecting. The dispersion action is obtained by directing a wave obliquely onto the partially reflecting face. The beam reflected from the reflector carries substantially the radiant energy of the incident beam, but shifted in time by an amount which is a function of the carrier frequency of said wave.

3,551,035
RIGID GAS PERMEABLE PLASTIC CONTACT LENS
Pandurang M. Kamath, East Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass., a corporation of Delaware
Filed Apr. 11, 1969, Ser. No. 815,322
Int. Cl. G02c *7/04*
U.S. Cl. 351—160 **1 Claim**



A rigid, oxygen permeable contact lens formed of the plastic material poly(4-methyl pentene-1). Method of making same.

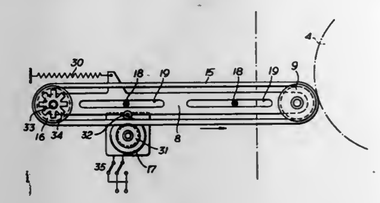
3,551,036
METHOD AND APPARATUS FOR STEREOSCOPIC PHOTOGRAPHY
Anton Bielusici, Bucharest, Rumania, assignor to Comitetul de Stat pentru Cultura si Arta, Bucharest, Rumania
Filed Oct. 17, 1966, Ser. No. 587,102
Claims priority, application Rumania, Oct. 25, 1965, 50,452
Int. Cl. G03b *35/08, 35/18*
U.S. Cl. 352—60 **3 Claims**



Two 35 mm. stereoscopic images are photographed in side-by-side relationship on a single 35 mm. motion picture film frame by laterally compressing both images through a single anamorphotic lens to approximately half of their normal width and projecting the compressed images in side-by-side relationship onto a single 35 mm.

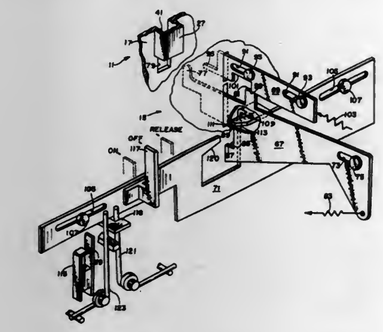
film frame. The images are expanded back to their normal width when the film is projected onto a screen for viewing.

3,551,037
FILM-FEEDING MECHANISM FOR CARTRIDGE-LOADED MOTION PICTURE APPARATUS
Gottfried Pammer, Maria-Enzersdorf-Südstadt, Austria, assignor to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria
Filed May 15, 1968, Ser. No. 729,225
Claims priority, application Austria, May 16, 1967, A 4,585/67
Int. Cl. G03b *1/56*
U.S. Cl. 352—72 **5 Claims**



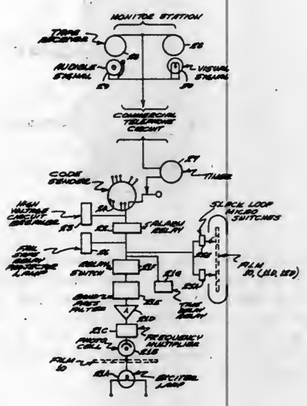
A belt-driven friction roller mounted on a horizontally-sliding bar feeds film from a cartridge. It enters a side opening in the cartridge and contacts the coil of film, driving the coil so that the leading film end emerges from the cartridge. The sliding bar moves toward the cartridge opening as a result of frictional force exerted by a spring brake located on the drive roller or on a second roller connected to the drive roller by the belt.

3,551,038
SINGLE-POINT LATCH AND INTERLOCK FOR A CARTRIDGE-LOADED MOTION PICTURE PROJECTOR
John J. Bundschuh, Penfield, and Philip N. Crawford, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 23, 1968, Ser. No. 731,464
Int. Cl. G03b *23/02*
U.S. Cl. 352—72 **6 Claims**



A latching mechanism for engaging and retaining a cartridge on a motion picture projector or the like, having a latching member which engages the cartridge at a single latching area to securely latch the cartridge to the projector. The latching mechism may also be provided with a mechanical interlock to disable the projector except when a cartridge is properly positioned thereon. Further, the latching mechanism may be tied-in with a projector "on-off-release" switch to automatically release the cartridge from the projector when the switch is moved to the release position.

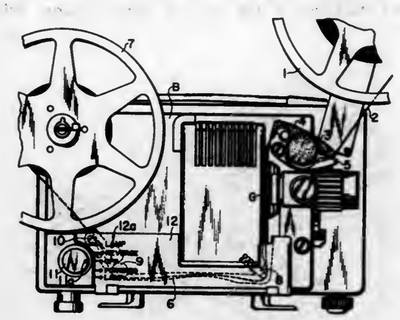
3,551,039
SYSTEM FOR UNATTENDED PROJECTION OF CLOSED LOOP FILM
Robert G. Hewitt, Minneapolis, Minn., assignor to Motion Media, Inc., Burnsville, Minn., a corporation of Minnesota
Filed Oct. 31, 1967, Ser. No. 679,416
Int. Cl. G03b *21/00*
U.S. Cl. 352—126 **5 Claims**



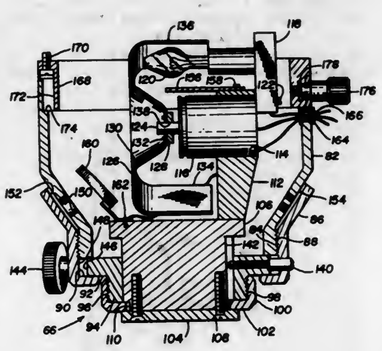
A system for the unattended projection of closed loop film is described. Synchronization within the film transport system assures delivery of the film to the film gate with a minimum of wear on the film. Built-in fail-safe circuitry utilizes a safety interlock in conjunction with elements to sense and detect key parameters such as film breakage, nonoptimum film speed, and lamp failure. Detection of a malfunction results in a power shutdown and transmission, over rented telephone lines, for example, of an alarm to a central monitoring station.

3,551,040
MOTION PICTURE PROJECTOR
Tadashi Ozawa, Shiojiri, Norio Akahane, Matsumoto, and Tutomu Kawarada, Tadao Hayami, and Mitsuo Sugawara, Tokyo-to, Japan, assignors to Kabushiki Kaisha Koparu
Filed Sept. 24, 1968, Ser. No. 762,053
Claims priority, application Japan, Sept. 29, 1967, 42/62,821, 42/62,822; Mar. 27, 1968, 43/24,302
Int. Cl. G03b *1/56*
U.S. Cl. 352—159 **4 Claims**

A motion picture projector, comprising a drive roller disposed between a supply reel and a film gate and adapted for feeding the film to said film gate, film guide means cooperating with said drive roller to cause the film to form a loop during its travel between said drive roller and said film gate and being adapted to facilitate the leading of the forward tip of said film to said film gate, a roller disposed between said film gate and a take-up reel, a snubber means disposed between said latter roller and said film gate and control means adapted to cooperate with said roller, said projector being operative in such a way that the film is always fed smoothly and without failure by the pull-down mechanism disposed in said film gate, in each of the forward and the reverse projections.



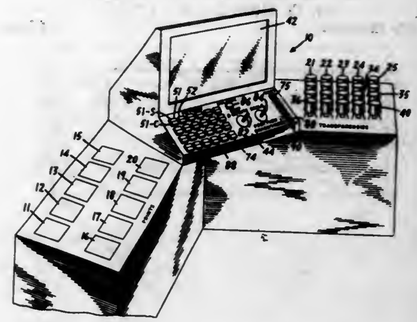
3,551,041
LAMPHOUSE ASSEMBLY FOR PHOTOGRAMMETRIC STEREO MAP PLOTTER
Robert F. McGivern, Irondequoit, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed June 21, 1968, Ser. No. 738,993
Int. Cl. G03b *21/00*
U.S. Cl. 353—6 **4 Claims**



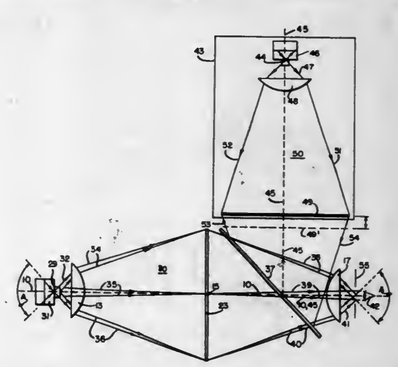
An improved lamphouse unit is provided for use in photogrammetric stereo map plotters which employ the concept of the stereo image alternator. A rotating multi-bladed shutter driven by a stepping motor rotates about a quartz-halogen constant brightness lamp.

3,551,042
EDITORIAL LAYOUT PROJECTOR
Robert M. Brink, New Canaan, and Paul E. Welch, Riverside, Conn., assignors to Time, Incorporated, New York, N.Y., a corporation of New York
Filed June 3, 1968, Ser. No. 734,074
Int. Cl. G03b *21/26*
U.S. Cl. 353—30 **6 Claims**

The page layout of a printed publication is simulated by an imaging process under the direct physical control of an editor. Controls are provided for selecting pictures and bogus type for simultaneous display on a screen in a simulated layout and for instantaneously cropping, rotating, scaling, positioning, and adjusting brightness levels so that the editor can immediately see and evaluate changes in layout.

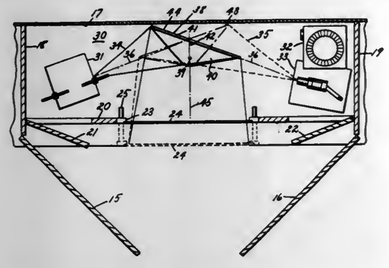


3,551,043
VIRTUAL IMAGE WINDOW DISPLAY
Thomas P. Neuberger, Baltimore, Md., and Walter E. Myles, Alexandria, Va., assignors to Singer-General Precision, Inc., Binghamton, N.Y., a corporation of Delaware
Filed Dec. 2, 1965, Ser. No. 511,149
Int. Cl. G03b *21/26*
U.S. Cl. 353—37 **5 Claims**



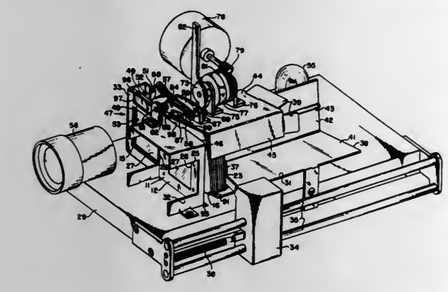
A visual system including a viewing window to present to a viewer a realistic composite image representing objects at varying distances from the viewer. Each image is generated in an appropriate generator such as a photographic transparency projector, a projection television display tube, and the like, each of which generators projects its image onto a projection screen. At least one of said screens is mounted to be movable about the focal point of the viewing lens to create the impression that the image projected thereon is a variable distance from the viewer. The system includes means for combining the several images on the separate screens in a single lens to create a composite image having portions which appear to be at varying distances from the viewer. The viewing lens and the field lenses adjacent each image generator are substantially identical, and one compensates for the aberrations of the other.

3,551,044
WALL MODULE FOR OPTICAL REAR PROJECTION SYSTEMS
Jerome Menell, 30 E. 42nd St., New York, N.Y. 10017
Filed Jan. 12, 1968, Ser. No. 697,477
Int. Cl. G03b *21/26, 21/28*
U.S. Cl. 353—94 1 Claim



An optical projection system including a rear projection translucent screen, a plurality of optical projectors, a pivotally mounted mirror disposed behind said screen, and selectively positionable with respect to the principal projection axis of each of said projectors to reflect said axes along the medial axis of said screen, to eliminate distortion in a projected image.

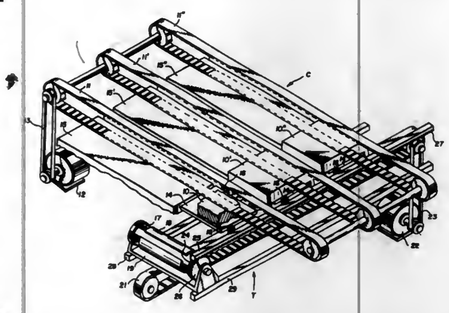
3,551,045
SLIDE EXCHANGING DEVICE
Hubert Nerwin and Frederick W. Kern, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Mar. 5, 1968, Ser. No. 710,576
Int. Cl. G03b *23/06*
U.S. Cl. 353—116 14 Claims



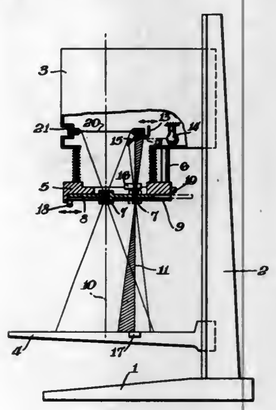
A slide exchanging device for use in a slide projector or the like adapted to simultaneously retract a slide laterally from a projection gate structure, and load another slide laterally into the gate structure. This action is accomplished by simultaneously moving both slides in opposite directions in overlapping relation to one another.

3,551,046
IMAGE TRANSFER MECHANISM
Oliver W. Gnage, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed July 1, 1968, Ser. No. 741,387
Int. Cl. G03g *15/00*
U.S. Cl. 355—4 4 Claims

In an electrostatic tone image transfer device, separate, photoconductive chips, after development of toner images thereon, are brought into registration at a transfer station against registration pins which space the chips at a distance equal to the circumference of a circle having a radius equal to the sum of the radius of a transfer roller and the thickness of the receiver sheet thereon. With this spacing, when the transfer roller is rotated by a rack and gear arrangement as it moves along a transfer path across the register chips an electrostatic toner image on each of the chips is transferred in registry onto the receiver sheet.

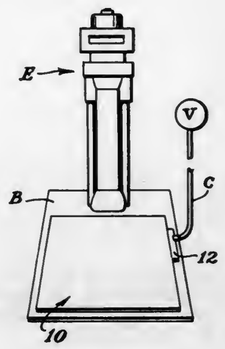


3,551,047
ELECTRONIC FOCUSING ARRANGEMENT FOR PHOTOGRAPHIC ENLARGERS
Siegfried Barbieri and Gilbert Durst, Brixen, near Bozen, Italy, assignors to Durst AG, Fabrik Fototechnischer Apparate, Bolzano-Bozen, Italy
Filed May 17, 1968, Ser. No. 730,116
Claims priority, application Italy, Mar. 7, 1968, 2,521/68
Int. Cl. G03b *27/34*
U.S. Cl. 355—59 6 Claims



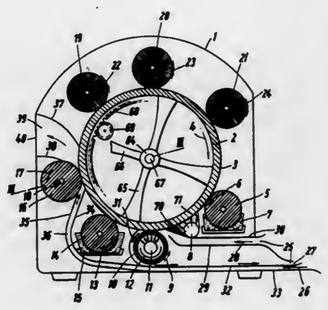
An electronic focusing arrangement includes a measuring light path parallel to the copying light path with the measuring light having its own light source with a finely adjustable shutting surface disposed along the light axis. The arrangement also includes a deflecting mirror, a diaphragm arranged in the proximity of the objective lens and movable normal to light axis and test edge, and a light receiver on the projection table.

3,551,048
VACUUM FILM HOLDER
Morris Hoffman, 240 Jerusalem Ave., Hicksville, N.Y. 11801
Filed Oct. 1, 1968, Ser. No. 764,055
Int. Cl. G03b *27/60*
U.S. Cl. 355—73 11 Claims



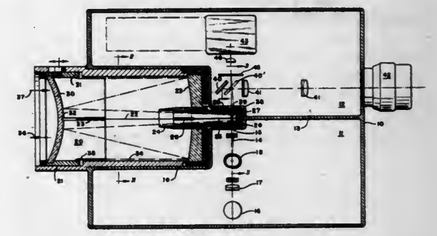
Vacuum means are provided to clamp a vacuum easel or copyboard to the baseboard of an enlarger or copy camera. Material to be clamped to the easel may be removed or replaced on the easel without shifting the easel.

3,551,049
PHOTOGRAPHIC METHOD FOR PRODUCING A COPY AND APPARATUS FOR CARRYING OUT THIS METHOD
Walter Limberger, Hamburg-Poppenbuttel, and Rudolf Wendt, Harkshelde (Bezirk), Hamburg, Germany, assignors to Lumoprint Zindler K.G., Hamburg, Germany, a corporation of Germany
Original application Mar. 10, 1964, Ser. No. 353,015, now Patent No. 3,416,920. Divided and this application Aug. 22, 1968, Ser. No. 802,298
Claims priority, application Germany, Mar. 14, 1963, L 44,359
Int. Cl. G03b *27/18*
U.S. Cl. 355—107 4 Claims



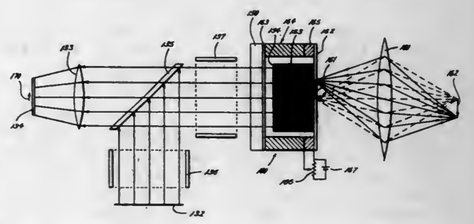
An apparatus for manufacturing a reproduction by photographic means comprising a silver plate in the form of a cylinder, the outside of which is provided with a silver coating, a light source, a first wetting device to apply sensitizing media to the silver surface before exposure to the original, a second wetting device to apply developer after such exposure, contact pressure rollers around the circumference of the cylinders and guide channels for the proper routing of original and copy within the apparatus. The cylinder is rotatably located on a frame, the wetting devices and contact pressure rollers located at points along its circumference while the entire assembly is enclosed within a single housing. At each point along the circumference, the apparatus is so constructed as to allow each step in the reproduction process to be performed automatically after manual insertion of the original and image receiving paper. Copies are produced by bringing the receiving layer into physical contact with the developed image on the silver surface.

3,551,050
DISTANCE MEASURING DEVICE HAVING A COMMON OPTICAL SYSTEM FOR THE TRANSMITTED AND RECEIVED BEAMS
Charles Fredrik Wilhelm Thorlin, Stockholm, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden, a corporation of Sweden
Continuation of application Ser. No. 414,544, Nov. 30, 1964. This application Nov. 7, 1968, Ser. No. 776,853
Claims priority, application Sweden, Dec. 12, 1963, 13,805/63
Int. Cl. G01c *3/08*
U.S. Cl. 356—4 6 Claims



An optical device for measuring distance includes a common optical system, for example a telescope, which is divided by a light-impervious partition into separate sections for the transmitted and for the received light beams.

3,551,051
INFRA-RED DETECTORS
Francis J. Salgo, Garland, Tex., assignor to General Electrodynamics Corporation, Garland, Tex., a corporation of Texas
Filed Aug. 18, 1967, Ser. No. 661,635
Int. Cl. G01n *21/34*; G01b *9/02*
U.S. Cl. 356—51 10 Claims

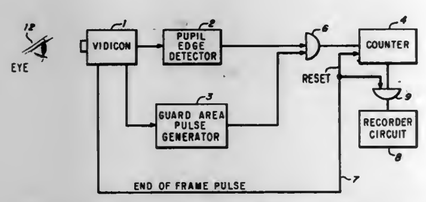


A Fabray-Perot interferometer, or etalon, may be modified by providing a semi-transparent mirror to reflect the

incident radiation onto the front plate of the etalon, making the backplate mirror of the etalon totally reflecting, and viewing the radiation leaving the etalon from the front through the semi-transparent mirror.

Incident radiation is a parallel, preferably monochromatic beam. Etalon spacing is adjusted to normally produce reinforcement of the beam reflected from the front plate by that reflected from the back plate. The body supporting the back plate mirror surface also serves as a receiver for infra-red radiation to be detected. The body expands on absorption of supra ambient infra-red to vary the etalon spacing. This causes beam interference indicating presence of the infra-red. By using a composite back plate comprising a bundle of fibers of infra-red transmitting and absorbing material of substantial temperature coefficient of expansion, each fiber having a diameter of the order of 10 to 20 microns and each with one end affixed to a base and the other end ground to a mirror finish, the radiation from the etalon will produce a sharp visible image corresponding to that of the infra-red focused on the infra-red transmitting base.

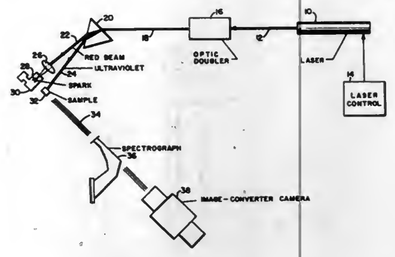
3,551,052
BOUNDARY DETECTION APPARATUS
Richard W. Reiber, Reading, Pa., assignor, by mesne assignments, to United States Testing Company, Inc., Hoboken, N.J., a corporation of New York
Filed Jan. 16, 1968, Ser. No. 698,308
Int. Cl. G01n *21/34*; G01b *11/28*
U.S. Cl. 356—51 **5 Claims**



Apparatus is disclosed for measuring the size of the pupil of an eye including means for irradiating an eye with radiant energy, a camera tube for sensing in a plurality of paths the radiation reflected from the eye, a level detecting circuit responsive to the video output of the camera tube for detecting radiation reflected from the pupil, and a counter, responsive to the level detecting circuit, for counting the number of paths containing radiation reflected from the pupil.

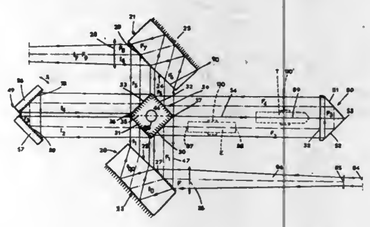
3,551,053
LASER PHOTOLYSIS AND SPECTROSCOPY SYSTEM
Maurice W. Windsor, Redondo Beach, and John Richard Novak, Canoga Park, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Oct. 14, 1968, Ser. No. 767,363
Int. Cl. G01j *3/42*
U.S. Cl. 356—85 **10 Claims**

The specification discloses an example of novel laser and frequency doubling apparatus which provides a spatially separated pair of synchronized beams, one red and one ultraviolet. The system of the example disclosed further includes means for holding a sample of a material whose absorption spectra of transient chemical species are to be examined upon which the ultraviolet beam is impressed to excite the sample and create the desired species. At the same time, the red beam is focused upon a selected second sample with intensity sufficient to create a very high energy, broadband background continuum spark of nanosecond, or less, duration. Spectral and/or time resolved spectral observation apparatus are provided for ob-



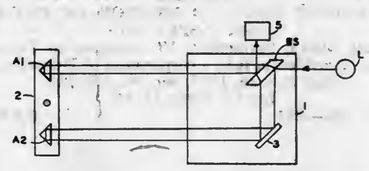
taining, on a single experiment basis, the desired display of the excited transient species. The reader is referred to the complete specification for an understanding of the structural and conceptual details.

3,551,054
INTERFEROMETERS
Claude Marcel Véret, Saint-Maur, and Jean Marcel Surget, Joinville-le-Pont, France, assignors to Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sous-Bagneux, France
Filed Apr. 18, 1967, Ser. No. 631,648
Claims priority, application France, Apr. 21, 1966, 58,421
Int. Cl. G01b *9/02*
U.S. Cl. 356—106 **11 Claims**



An interferometer for the testing of radiation-transparent articles has a solid body with at least one pair of orthogonally adjoining reflecting surfaces from which a bundle of light rays received from an input beam splitter are directed onto and received back from two orthogonally adjoining mirrors respectively confronting these surfaces in parallel relationship therewith. The rays of this bundle are then combined with those of a second bundle, also generated by the input beam splitter, in an output beam splitter to provide a coincidence pattern indicative of the optical characteristics of a test object placed in one of the ray paths; the path of the second ray bundle may include a second pair of reflecting surfaces on the solid body. The two mirrors may be limitedly and independently swingable about different axes to vary the pattern. Alternatively, the test object may be positioned with its plane of symmetry bisecting the angles included by these mirrors and by the confronting reflecting surfaces whereby the same light rays traverse respective halves of the object in opposite directions.

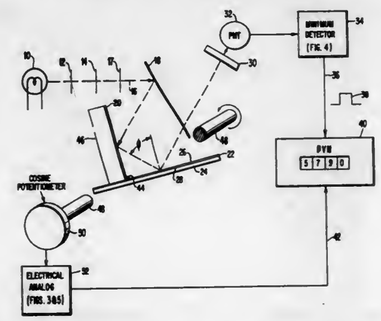
3,551,055
INTERFEROMETER FOR MAKING ANGULAR AND LINEAR MEASUREMENTS
Anwar K. Chitayat, Plainview, N.Y., assignor to OPTOmechanisms, Inc., Plainview, N.Y.
Filed Feb. 12, 1968, Ser. No. 704,756
Int. Cl. G01b *9/02*
U.S. Cl. 356—108 **1 Claim**



An interferometer for measuring the distance to, yaw angle and/or the pitch angle of movable member with three different modes of operation. First and second corner cube reflectors are spaced on the movable member in a horizontal plane and spaced from the axis of rotation of the member and a third corner cube reflector is mounted above one of first and second reflectors and in the same vertical plane.

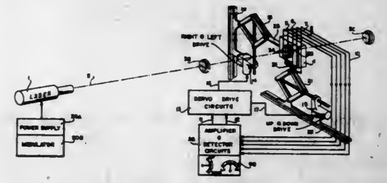
In the yaw mode of operation, the energy is split into two beams which are reflected from the first and second corner cubes. In the linear measurement mode, a corner cube reflector having "in" and "out" positions, is put in the "in" position to cut off one of the beams and to provide a fixed reference for linear measurements by the other beam. In the pitch angular measurement mode of operation a prism having "in" and "out" positions is placed in an "in" position to divert one of the beams to the third vertically displaced corner cube and receive a reflection back from it in order to provide a measurement of pitch angle.

3,551,056
APPARATUS FOR AUTOMATICALLY MEASURING THE THICKNESS OF TRANSPARENT FILMS ON SILICON WAFERS
John R. Fay, Burlington, Vt., and John P. Stinson, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 15, 1969, Ser. No. 791,361
Int. Cl. G01b *9/02*
U.S. Cl. 356—108 **10 Claims**



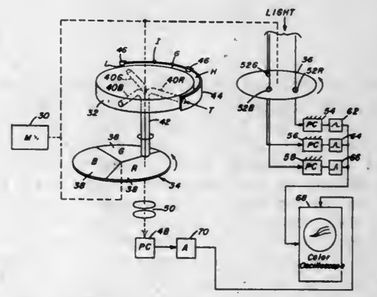
An automatic apparatus for the rapid non-destructive measurement of relatively thick (200 to about 3000 millimicrons) transparent films on silicon wafers. Monochromatic light incident upon the film is reflected from the top and bottom surfaces of the film to form an interference pattern. The film is rotated to vary the angle of incidence of the light. There is provided an electrical circuit which is the analog of an equation expressing the thickness of the film in terms of the angle of light incidence when an intensity minimum or maximum occurs in the interference pattern. The circuit includes a cosine potentiometer which is rotated with the film. The current in the circuit produces a voltage signal which is read by a digital voltmeter when a minimum or maximum occurs in the interference pattern. The voltmeter reading is the film thickness in millimicrons or angstroms.

3,551,057
LASER BEAM ALIGNMENT APPARATUS
Ralph A. Hamilton, Glendale, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Dec. 30, 1965, Ser. No. 517,644
Int. Cl. G01b *11/26*; G01c *1/00*
U.S. Cl. 356—172 **18 Claims**



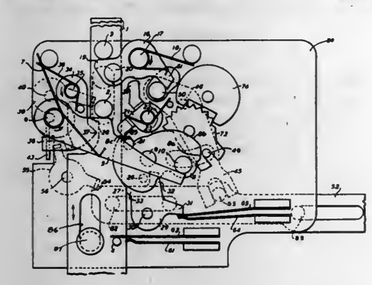
Apparatus is described for aligning large structures, such as aircraft tooling jigs and the like, with respect to a basic reference line. The reference line is established by a laser beam which is projected onto a multielement light-sensitive target secured to the structure, and which is moveable therewith. Servomotors, controlled in two coordinate axes, bring the target and the attached structure into alignment with the laser beam.

3,551,058
COLOR RESPONSIVE APPARATUS
Kay E. Dodds, Hilton, and Ying S. Yee, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed July 25, 1969, Ser. No. 844,981
Int. Cl. G01j *3/48*
U.S. Cl. 356—177 **9 Claims**



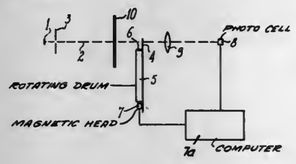
Apparatus for determining the color characteristics of a color strip is disclosed. Cast in the environment of a device for quickly determining the color densities of a wedge exposure, apparatus according to the invention matches strip length to the angular spacing between light spokes; and the number of light spokes to the number of color segments in a filter wheel. A color oscilloscope is employed to provide three color H and D traces, whereby a quick cursory evaluation of the strip may be had.

3,551,059
BRIGHTNESS OR LIGHT INTENSITY DETECTING DEVICE
Kyoshi Kitai, Tokyo, Japan, assignor to Kabushiki Kaisha Hattori Tokeiten
Filed Apr. 7, 1967, Ser. No. 629,234
Claims priority, application Japan, Apr. 9, 1966, 41/22,102
Int. Cl. G01j 1/52; G03b 9/00
U.S. Cl. 356—226 6 Claims



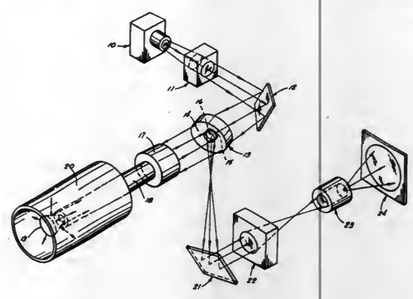
The invention relates to a device for sensing light intensity and effectuating electrical and/or mechanical movement in direct ratio to the brightness or intensity of light, to move, for example, an exposure control lever for a camera, according to the degree of brightness or light intensity.

3,551,060
PROCESS AND APPARATUS FOR DETECTING DEFECTS OF SURFACE SHEET MATERIAL
Peter Scheffler, Innsbruck, Austria, and Otto Jandeleit, Aix-la-Chapelle, Germany, assignors to Compagnie de Saint-Gobain, Neuilly-sur-Seine, Hauts-de-Seine, France
Filed Oct. 14, 1965, Ser. No. 496,111
Claims priority, application France, Oct. 19, 1964, 991,882
Int. Cl. G01n 21/32
U.S. Cl. 356—239 12 Claims



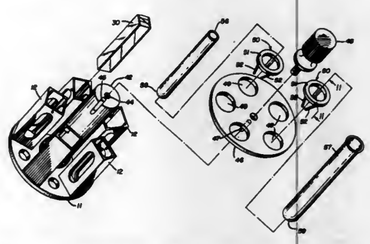
Method and apparatus for testing sheet glass for parallelism of its surfaces and for true planarity of those surfaces. A beam of light is projected along an axis and is incident upon a prism rotating a known speed about the axis and in synchronism with a magnetizable band moving adjacent an inscription and reading head. The ray deviated by the prism passes through a standard or "perfect" glass sheet and is picked up as a series of uniform and uniformly-spaced pulses which after amplification are applied as spaced magnetized spots to the band. Thereafter the test sheet or specimen is substituted for the standard sheet. When the prism is again rotated within the ray there are produced two sets of pulses which are applied to a computer providing an output signal of any phase difference between the pulses of the two sets. Any difference is conveyed to a register as a measure of the prismatism or lack of parallelism of the two surfaces of the area of the specimen under investigation. The phase difference is also differentiated and conveyed to a second register as a measure of the lenticular power or deviation from true planarity of the surfaces of the test specimen at the area under investigation. The invention comprehends traversing the test area with light rays traversing a multiplicity of angularly-related paths to thus afford a reliable test of the maximum values of prismatism and lenticular power at that area.

3,551,061
INSTRUMENT FOR AND METHOD OF OPTICAL WORK INSPECTION
Michael Glowa, Springfield, Vt., assignor to Textron Inc., Providence, R.I., a corporation of Delaware
Filed July 26, 1967, Ser. No. 656,097
Int. Cl. G01n 21/16
U.S. Cl. 356—241 6 Claims



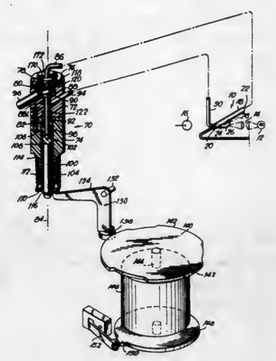
This disclosure pertains to an optical instrument and technique, especially useful in a comparator employing a lens system and a viewing screen, for projecting light on an internal surface of means defining a bore, for example, and retrieving a reflected image of the surface and any transverse openings in said means, for inspection. They are particularly useful for inspecting cavities or bores and permit viewing at one time of 360° of an axial part of an internal surface of a bore by projecting the magnified image on a screen in the form of an annulus.

3,551,062
MULTIPLE SAMPLING ACCESSORY FOR SPECTROPHOTOMETER
Maurice L. Brown, Victor, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed July 18, 1967, Ser. No. 654,260
Int. Cl. G01n 1/10, 21/24
U.S. Cl. 356—246 5 Claims



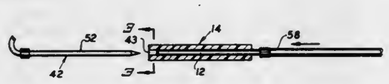
A test cell holder for a spectrophotometer that comprises a plurality of test cell retainers arranged in a carrousel fashion, each cell retainer containing an opening, in opposite sides, through which the contents of the test cell is generally viewed. The multiple cell holder rotates and indexes when used in a spectrophotometer thereby allowing the spectrophotometer to sample a plurality of test cells in a predetermined sequence.

3,551,063
DEBUBBLING MEANS AND METHOD FOR LIQUID ANALYSIS APPARATUS
William J. Smythe, Rye, and Jack Isreeli, Mamaroneck, N.Y., and Nelson G. Kling, Ringwood, N.J., assignors to Technicon Corporation, Ardsley, N.Y., a corporation of New York
Filed Sept. 13, 1967, Ser. No. 667,394
Int. Cl. G01n 1/14, 21/00
U.S. Cl. 356—246 7 Claims



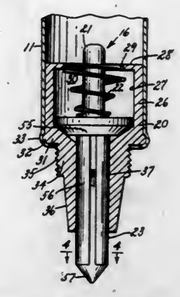
A colorimeter has a flow cell with a single inlet for receiving a gas segmented stream of liquid to be analyzed, a first outlet for passing a quotient of said stream including all of the gas segments, and a second outlet, including the sight passageway, for passing the remaining quotient of said stream. A three way valve is provided for alternatively, cyclically closing each of these outlets. The gas segments are uniformly spaced apart in the stream, and the valve time cycle is made equal to the interval between successive gas segments. The ratio of time intervals that each of the outlets is open is substantially equal to the ratio of gas to sample volumes.

3,551,064
UNITARY COMPOSITE ARTICLE AND METHOD OF MANUFACTURING THE SAME
Bernard I. Bartner, 229—07 58th Ave., Bayside, N.Y. 11364
Original application Apr. 18, 1967, Ser. No. 631,652. Divided and this application Aug. 8, 1969, Ser. No. 849,933
Int. Cl. B43k 19/02, 19/06
U.S. Cl. 401—96 5 Claims



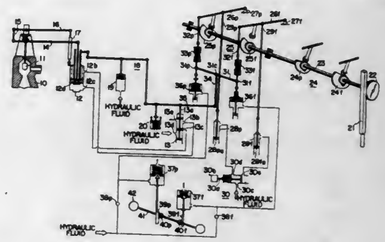
A unitary composite article wherein a body of plastic material has such characteristics as to enable it to be machined like wood and which may be used as a covering body or casing to encompass and enclose a member, such as a "lead" core. The core member and body are permanently and securely bonded together by the direct adherence and of the plastic to the core member encompassed therewithin to render the core and body an inseparable solid, and consequently a unitary composite article.

3,551,065
VALVING CONSTRUCTION FOR FELT NIB MARKING DEVICES
Arrigo Varettoni de Molin, 88 Lafayette, Park Ridge, N.J. 07656, and Sidney D. Barlow, Mount Vernon, N.Y. (161 Coolidge Ave., Englewood, N.J. 07631)
Filed June 13, 1968, Ser. No. 736,667
Int. Cl. B43k 5/18
U.S. Cl. 401—206 1 Claim



An improved valving construction for felt nib marking devices including a body member forming a chamber at an upper end thereof in direct contact with a supply of inking material, a reciprocating resiliently urged valve disposed within said chamber, a bore communicating directly with the lower end of said chamber, a grooved elongated felt nib disposed within said bore to project outwardly thereof at the lower end of said bore, pressure applied to the lower end of said nib forcing the same to project the upper end thereof directly into the chamber, against the action of resilient means operating upon the valve, whereby upon the release of pressure, said valve may exert a pumping action forcing inking material into direct communication with the grooves in the nib to be conducted rapidly to the exposed lower end of the nib.

3,551,066
STEAM TURBINE CONTROL SYSTEM
Tetsuzo Sakamoto and Osamu Ninomiya, Yokohama-shi, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki-shi, Kanagawa-ken, Japan, a joint-stock company of Japan
Filed Oct. 18, 1968, Ser. No. 768,832
Claims priority, application Japan, July 15, 1968, 43/49,028
Int. Cl. F03b 15/08
U.S. Cl. 415—40 10 Claims

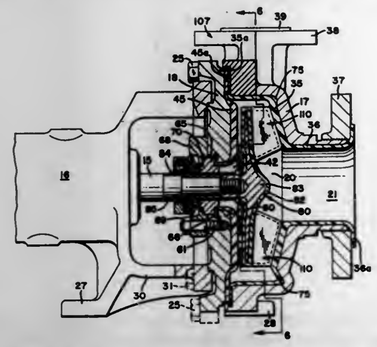


Either of a full-arc mode cam and a partial-arc mode cam of a cam pair corresponding to each of several control valves of respective inlet nozzles of a steam turbine is selectively caused to control the corresponding control valve thereby to control the flowrate of steam supplied to the nozzle. Changing over from one mode (full-arc or partial-arc) of operation can be carried out readily and smoothly during the operation of the turbine.

3,551,067
LINED CORROSION RESISTANT PUMP

Jack L. Wissman, Dayton, Ohio, assignor to The Duriron Company, Inc., Dayton, Ohio, a corporation of New York

Filed Jan. 22, 1969, Ser. No. 792,938
Int. Cl. F01d *1/02, 9/00, 25/26*
U.S. Cl. 415—134 14 Claims

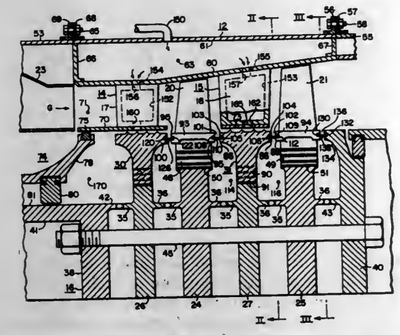


A pump includes a casing and cover assembly forming a chamber having an inlet and an outlet. The fluid contacted surfaces of the casing and cover assembly are sheathed with polytetrafluoroethylene, the sheaths including neck portions extending through the inlet and outlet and being flanged for mounting conduits in the usual way. A driven impeller is positioned within the chamber, and all fluid contacted surfaces of the impeller are covered with polytetrafluoroethylene. The sheaths include peripheral portions clamped between the casing and cover assembly to provide a seal therebetween, these peripheral portions being secured against movement radially inwardly. The inner periphery of the sheath covering the cover is also secured against radially inward movement.

3,551,068
ROTOR STRUCTURE FOR AN AXIAL FLOW MACHINE

Augustine J. Scalzo, Philadelphia, and James M. Allen, Broomall, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 25, 1968, Ser. No. 770,559
Int. Cl. F01d *1/00, 9/00, 25/12*
U.S. Cl. 415—173 6 Claims

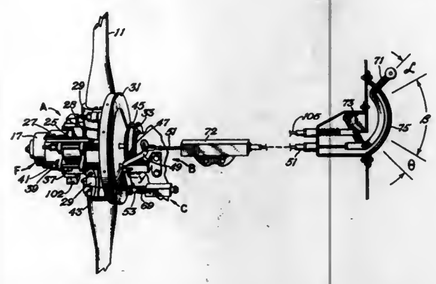


A rotor structure of the aggregative type for an axial flow elastic fluid utilizing machine having a disc carrying rotatable blades is provided with a second disc, spaced, in part, from the first disc, but jointly rotatable therewith. The second disc carries removable sealing segments on its periphery which restrict the radial flow of elastic fluid into the space between the discs.

3,551,069
THROTTLE OVERRIDE CONTROL LINKAGE

Albert Earl Morris, Jr., deceased, late of Saginaw, Tex., by Helen Knox Morris, executrix, 830 Plum St., Graham, Tex. 76046

Original application Feb. 8, 1967, Ser. No. 614,586, now Patent No. 3,446,289, dated May 27, 1969. Divided and this application May 26, 1969, Ser. No. 827,668
Int. Cl. F01d *7/00;* B64c *11/30*
U.S. Cl. 416—27 4 Claims



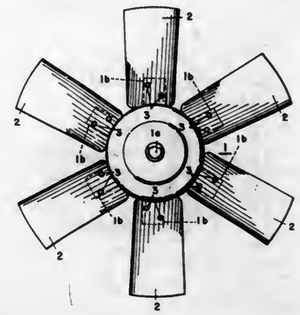
Disclosed herein is a variable pitch propeller control system which utilizes a hydraulically actuated propeller assembly and control system of the type disclosed in Biermann's U.S. Pat. No. 3,249,159. This system has been improved to enable safe application even to small aircraft by providing an upper positive pitch stop at the normal maximum pitch for the propellers, along with control linkage improvements that prevent interference with governor control of the propeller blade pitch so long as the pitch is in a selected upper positive pitch range. Downward movement of the propeller pitch control handle when the propeller blades are in the above positive pitch range tends to open the propeller pitch control valve, which is already open, thus preventing interference with governor control. Upward movement of the control handle is prevented by a positioner means or mechanical stop, thereby prohibiting control valve movement in the opposite or closed direction. The pitch control and the throttle are interconnected in one embodiment to program predetermined motions between them to eliminate necessity for operating simultaneously the throttle and the pitch control handle in many instances. Also, a governor by-pass valve is provided in one embodiment to enable rapid governor control override but only when the propeller pitch is in a range below the above described upper positive pitch range. Also disclosed are control means for utilizing an intermediate pitch range and a method that further insures safe utilization of the system on small single engine aircraft.

3,551,070
AXIAL FAN

Dov Z. Glucksman, 26 Chase Ave., West Newton, Mass. 02165

Filed May 8, 1968, Ser. No. 727,452
Int. Cl. B64c *11/26*
U.S. Cl. 416—91 6 Claims

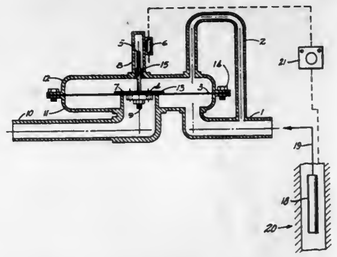
A composite axial fan including a hub member and a plurality of separate blades in the form of tubular airfoils. The hub member has substantially radially outwardly extending projections engaging the tubular airfoils, and supporting the latter. The tubular airfoils are extrusions or, in other words, all cross-sections of the airfoils taken along any cylindrical surface coaxial with the hub member of the fan between the radially inner ends and the radially outer ends of the airfoils are congruent.



3,551,071
FLOW NO-FLOW DEVICE

Jimmie N. Hoover, 2517 Cambridge St., Odessa, Tex. 79760

Filed May 14, 1968, Ser. No. 729,133
Int. Cl. F04b *49/00, 49/06*
U.S. Cl. 417—43 10 Claims



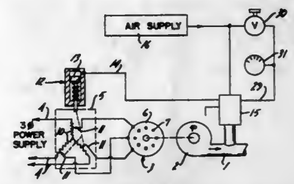
A flow no-flow sensing device which differentiates between gas and liquid fluid flow therethrough. The device includes a movable element seated on an orifice similar to a valve element and seat. The movable element remains in the opened position when liquid or a mixture of gas and liquid flows therethrough, and assumes the closed or seated position upon the occurrence of gaseous fluid flowing therethrough. A switch associated with the movable element of the device is adapted to interrupt the current flow to a motor of a pump which provides the source of fluid flow.

3,551,072
VARIABLE SPEED MOTOR DRIVEN PUMPING SYSTEM

Robert D. Zimmerly, Kenosha, Wis., assignor to Ladish Co., Cudahy, Wis., a corporation of Wisconsin

Filed Jan. 31, 1969, Ser. No. 795,427
Int. Cl. F04b *15/00, 49/00*
U.S. Cl. 417—45 11 Claims

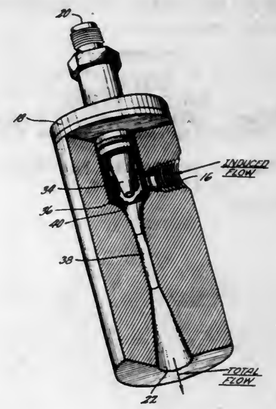
The present disclosure is directed to a pumping system having a three-phase squirrel cage motor connected to drive a centrifugal pump over a relatively wide range of varying loads and speed. A three-phase autotransformer connects the motor to a power supply. A servosystem includes an error sensor connected to the output side of the pump and connected to actuate a three-way valve for selectively supplying and exhausting air for a pneumatic actuator connected to the autotransformer. A diaphragm actuator positions the valve and a pressure feedback is provided to stabilize the operating point.



3,551,073
PUMPING SYSTEM WITH IMPROVED JET INDUCER

Paul F. Petrovits, Torrington, Conn., assignor to Chandler Evans Inc., West Hartford, Conn., a corporation of Delaware

Filed Dec. 16, 1968, Ser. No. 783,830
Int. Cl. F04b *23/04;* F00f *5/00*
U.S. Cl. 417—76 4 Claims



A fuel pumping system is disclosed having a jet inducer as the device providing a straight through method of generating fluid pressure to control the liberation of gas out of solution from a liquid fuel transported in a fuel line. The jet inducer includes an improved mixing chamber construction that induces unstratified turbulent flow in the mixing chamber thereby permitting the inducer to transfer supply fuel at vapor to liquid ratios greater than 0.30, thus providing for sustained system pumping operations in the event of failure of the system boost pump.

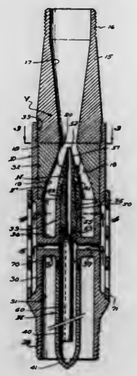
3,551,074
FLOW AUGMENTING DEVICE FOR OIL WELLS

George W. Stout, Los Angeles, Calif., assignor to Walhamlin, Inc., Los Angeles, Calif., a corporation of California

Filed Nov. 22, 1968, Ser. No. 778,069
Int. Cl. F04f *5/00, 5/44*
U.S. Cl. 417—172 2 Claims

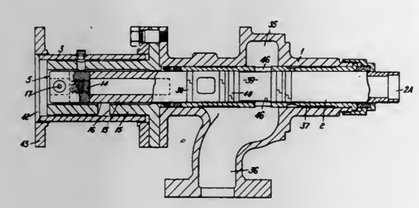
A flow augmenting steam operated gas lift at the lower end of a string of production tubing in a cased well, the

lift having a venturi, a nozzle to direct a steam jet upwardly through the venturi, means conducting steam to the nozzle, heater means ahead of the nozzle through



which the steam is diverted to heat production fluid flow and in advance of the venturi and flow directing means to accelerate the rate of flow of production fluid and to direct it into the venturi.

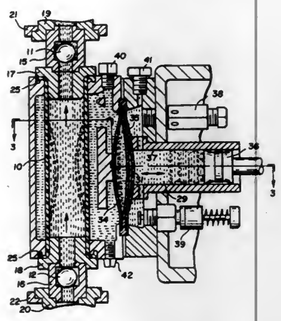
3,551,075
SOOT BLOWERS
Peter M. Wilson, Clydebank, Scotland, assignor to Clyde Blowers Limited, Clydebank, Scotland, a British company
Filed Jan. 21, 1969, Ser. No. 792,690
Int. Cl. F04f *5/16, 5/48*
U.S. Cl. 417—182 **10 Claims**



A soot blower wherein the driving motor is mounted on the outer end of the casing extension and providing a short and simple coupling between the motor and the closely adjacent driving spindle. The short coupling is preferably in the form of a toothed clutch surrounding the driving spindle and disengageable to expose the spindle end for manual rotation.

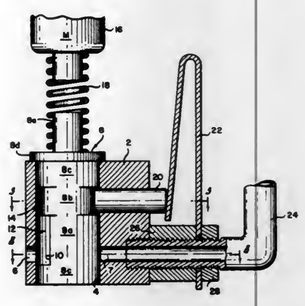
3,551,076
TUBULAR DIAPHRAGM PUMP
Lawrence F. Wilson, Caledonia, N.Y., assignor to Interpace Corporation, Parsippany, N.J., a corporation of Delaware
Filed Mar. 22, 1968, Ser. No. 715,242
Int. Cl. F04b *9/10*
U.S. Cl. 417—385 **4 Claims**

A hydraulically reciprocated diaphragm drives a tubular diaphragm through which material is pumped in positive displacements, and a predetermined volume of liquid couples the diaphragm and the tube and surrounds the tube. The diaphragm's excursion is limited, and the liquid



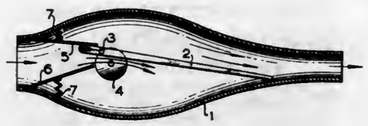
volume is set to compress but not expand the tube relative to its normal cylindrical shape.

3,551,077
CONSTANT DELIVERY PUMP
Perry Anderson, Walther Richter, and Donald F. Kleinke, Milwaukee, Wis., assignors to Dittmore-Freimuth Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed Oct. 16, 1968, Ser. No. 768,026
Int. Cl. F04b *17/00, 19/00, 37/00*
U.S. Cl. 417—415 **7 Claims**



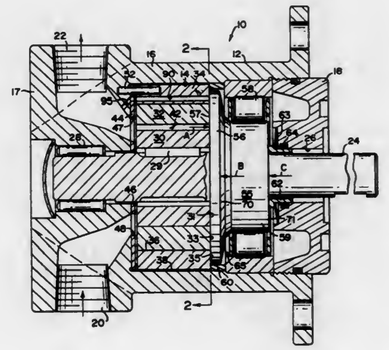
A constant delivery pump including a cylindrical rotor mounted for rotation in a housing bore and provided with successive first and second sections defining communicating pump and eccentric chambers. A reciprocatory piston is spring-biased into engagement with the eccentric cam surface of the second section and is operable to periodically pump a given quantity of liquid into the delivery outlet passage of the housing for each revolution of the rotor. During the suction cycle, the piston is displaced outwardly to increase the size of the eccentric chamber to a maximum, and during the pumping cycle, the piston is displaced inwardly to reduce the size of the eccentric chamber to a minimum. When the back pressure exceeds the spring pressure, the reciprocation of the piston is interrupted, and the rotor runs in an idle unloaded condition.

3,551,078
PUMP FOR CONVEYING FLUIDS
Klaus Affeld, 85 Wiesbadener Strasse, 1 Berlin 41, Germany
Filed Apr. 28, 1969, Ser. No. 819,584
Claims priority, application Germany, Apr. 29, 1968, 1,703,294
Int. Cl. F04d *33/00*
U.S. Cl. 417—436 **16 Claims**



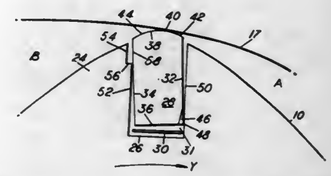
An oscillating area constructed as a rigid plate is arranged in a casing of a pump for conveying fluids, particularly for conveying sewage water. At its front edge this plate is pivotally adjacent to a driving device. The connection point between said plate and the driving device is preferably movable on a circular path. In order to avoid a partial return flow of the conveyed fluid, valve flaps are movably mounted at the pump casing and by suitable means are pressed against the front edge of said plate. Means are also provided enabling very dirty sewage water containing, for example, large foreign substances to be conveyed without difficulties.

3,551,079
PRESSURE SEALED HYDRAULIC PUMP OR MOTOR
Robert Wesley Brundage, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed May 5, 1969, Ser. No. 821,659
Int. Cl. F04c *15/00, 5/00, 1/06*
U.S. Cl. 418—39 **23 Claims**



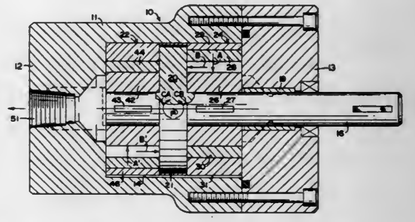
A pressure sealed hydraulic device of the internal gear type in which a sealing member is integral with the shaft and is movable axially to establish a running clearance with the gears and/or eccentric bearing. The high pressure hydraulic fluid of the device flows between the sealing member and the gears and/or bearing to a pressure seal chamber wherein the pressure builds up to move the member axially toward the gears and bearing. The amount of clearance between the gears and bearing is controlled by a metered flow of fluid from the seal chamber thereby maintaining a predetermined pressure level in the seal chamber.

3,551,080
ROTARY PISTON ENGINE COMPRISING FLUID BIASED VANE SEALS
Fritz Feller, Wistaston, Crewe, England, assignor to Rolls-Royce Limited, Derby, England, a British company
Filed Jan. 29, 1969, Ser. No. 794,936
Claims priority, application Great Britain, Feb. 13, 1968, 7,019/68
Int. Cl. F02b *53/00;* **F01c** *19/00*
U.S. Cl. 418—124 **5 Claims**



A rotary piston engine of the type having a three-sided piston rotatable in a two-lobed substantially epitrochoidal housing, the piston being provided with sealing strips located in grooves in the apices of the piston. The arrangement of the grooves and sealing strips in the piston is such that high pressure working fluid from the working chambers of the engine is conducted to the radially inner surfaces of the sealing strips within their respective grooves so as to urge them radially outwards at all times.

3,551,081
HYDRAULIC PUMP OR MOTOR
Robert Wesley Brundage, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Jan. 10, 1969, Ser. No. 790,325
Int. Cl. F01c *1/10*
U.S. Cl. 418—171 **13 Claims**

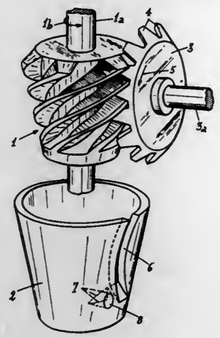


The hydraulic device has a shaft rotatably supported in the housing by conventional sleeve bearings. A pair of internal gear pumping units are secured to the shaft with a disc on the shaft separating the two units. The high pressure chambers for the two units are on opposite sides of the shaft, thereby creating opposing moment couples which radically diminish the total bearing loads.

3,551,082
GLOBOID-WORM COMPRESSORS
Bernard Zimmern, 27 Rue Delabordere, Neuilly-sur-Seine, France
Filed Jan. 27, 1969, Ser. No. 794,006
Claims priority, application France, Feb. 8, 1968, 139,172
Int. Cl. F01c *3/02, 3/06, 3/08*
U.S. Cl. 418—195 **18 Claims**

A device is provided, such as a compressor, expansion machine, pump, hydraulic motor and the like, to vary the pressure of a fluid. Such device comprises a rotor having a toroidal surface and provided with a plurality of threads, a casing having symmetry of revolution

about the axis of said rotor and adapted to cooperate with the crests of the threads of said rotor, and at least a pinion whose teeth come into mesh with said threads. According to the invention, the device is mainly characterized in that the teeth of said pinion are cut in a surface having symmetry of revolution about the rotation axis of said pinion and are inclined to said axis at an angle



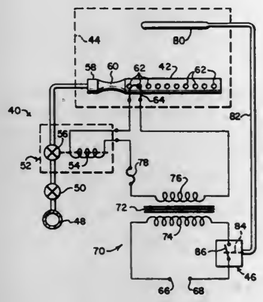
smaller than 90 degrees, in that milled slots are formed in said casing to enable said teeth to pass through the latter and to engage with said rotor and in that ports for admission and discharge of said fluid are provided on each side of said rotor, the ports for passage of the fluid on the high pressure side being located in the immediate vicinity of said pinion.

3,551,083

FUEL BURNER IGNITION

Leonard H. Michaels, La Grange, Ill., assignor to Harper-Wyman Company, Hinsdale, Ill., a corporation of Illinois

Filed July 5, 1968, Ser. No. 742,577
Int. Cl. F23n *5/00*
U.S. Cl. 431—66 **9 Claims**



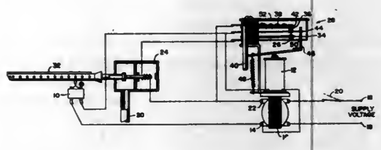
A fuel burner is ignited automatically and safely by an electrical igniter in circuit with an electrically operated fuel valve, and fuel is not admitted to the burner unless the igniter produces a reliable ignition condition. The igniter and valve are interconnected in such a way that failure of the igniter prevents operation of the valve. The valve is not opened unless the igniter is energized at a level sufficient to produce reliable ignition. Simultaneous energization of the igniter and valve may be controlled by a manual or thermostatically operated switch. A fuse in series with the igniter can protect against shorting of the igniter, and a transformer may be used to protect against grounding of the control circuit. In a multiple burner system, an igniter is provided for direct ignition of each burner, and a single electrically operated valve controls flow to the burners. The valve does not open unless a reliable ignition condition is produced at each burner.

3,551,084

ELECTRIC IGNITION SYSTEM HAVING A PTC IGNITOR ELEMENT

James R. Willson, 9342 Bixby Ave., Garden Grove, Calif. 92641

Filed Mar. 14, 1969, Ser. No. 807,183
Int. Cl. F23n *5/04*
U.S. Cl. 431—66 **10 Claims**



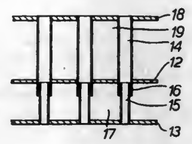
An electric ignition system for a fuel burner including an electrical resistance type ignitor, wherein the resistance element is of a type having a positive temperature coefficient and is connected in parallel with an electromagnetic holding coil and in series with a current-sensitive ballast device. The ballast device includes the parallel combination of a ballast resistor and the series circuit including a switch coupled to the holding coil and an electromagnet valve for controlling a flow of fuel to the fuel burner. The voltage drop of the circuit is primarily across the ballast device until the ignitor heats and thus increases in electrical resistance. The electromagnetic holding coil, being in parallel with the ignitor, senses the change in the voltage across the ignitor and permits energization of the fuel valve only after the ignitor has reached fuel igniting temperatures.

3,551,085

BURNER FOR FLUID FUELS

Denis Henry Desty, Walton-on-Thames, Surrey, David Montagu Whitehead, Camberley, Surrey, and John Lionel Thomas, Ottershaw, Surrey, England, assignors to The British Petroleum Company Limited, London, England

Filed Oct. 14, 1968, Ser. No. 767,339
Claims priority, application Great Britain, Oct. 26, 1967, 48,762/67
Int. Cl. F23d *11/44*
U.S. Cl. 431—243 **7 Claims**



A burner for fluid fuels comprises a plurality of combustion air tubes which pass through a fuel chamber. The tubes connect with the fuel chamber so that, during use, fuel enters the air flowing in the combustion air tubes. Preferably the fuel flow is a curtain close to the wall so that burning takes place close to the wall. Suitable ducts, e.g. annular ducts, achieve this. Conveniently the outlet ends of the combustion air tubes form a heat exchanger.

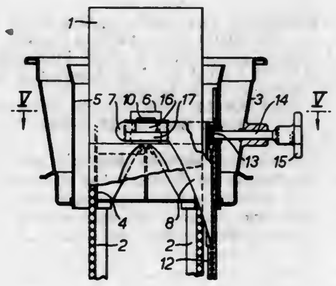
CHEMICAL

3,551,086

LIQUID FUEL BURNING HEATERS

Hugh C. Hebard, High Wycombe, England, assignor to Aladdin Industries Limited, Greenford, England, a British company

Continuation-in-part of application Ser. No. 602,910, Mar. 1, 1966. This application Sept. 20, 1968, Ser. No. 761,166
Claims priority, application Great Britain, Aug. 8, 1968, 37,892/68
Int. Cl. F23d *13/12*
U.S. Cl. 431—307 **2 Claims**



An annular wick which can be secured to a movable wick carrier without removing the latter from the burner of a liquid fuel burning heater, said wick having secured to its outer surface at least one pair of circumferentially spaced socket members which are adapted to receive arms on the wick carrier which enter into locking engagement with the socket members when the wick is rotated relative to the wick carrier.

3,551,087

SIMULTANEOUS DYEING AND BLEACHING OF PROTEINACEOUS FIBROUS MATERIAL

Oswald Schmidt, Frankenthal, Pfalz, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Sept. 29, 1965, Ser. No. 491,441
Claims priority, application Germany, Oct. 2, 1964, 1,469,607, 1,469,608
Int. Cl. D06p *5/00, 7/00*
U.S. Cl. 8—19 **9 Claims**

Process for simultaneously dyeing and bleaching a proteinaceous fibrous material in which the fibers are treated at an elevated temperature as required for dyeing wool in a neutral or acid aqueous liquor containing (a) an acid dye stable to peroxides, (b) performic acid which is preferably being formed in said liquor during the treatment, and (c) an oxygen stabilizer.

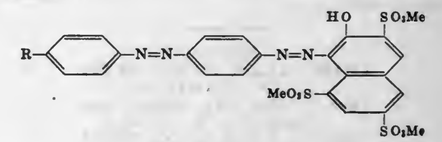
3,551,088

ACID RED DYE SOLUTION

Martin Luther Kesler, Charlotte, N.C., and Robert Francis Bann, Bridgewater Township, Somerset County, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Mar. 31, 1967, Ser. No. 627,322
Int. Cl. D06p *1/02;* **C03c** *25/00*
U.S. Cl. 8—41 **4 Claims**

A concentrated solution of a red dye having the formula:



where R is H or SO_3Me and Me is an alkali metal is prepared by adding defined amounts of the dye, water and alkali metal hydroxide to a defined amount of dimethylsulfoxide and stirring until the dye is dissolved. The dye solution is stable and fluid at temperatures down to about −25° C. and is especially suitable for dyeing fiberglass with the aid of a phenol-formaldehyde resin.

3,551,089

AMMONIUM ZIRCONYL CARBONATE TREATMENT OF CHROME-TANNED LEATHER

William Orval Dawson, Milwaukee, Wis., and Stephen C. O'Connor, North Hampton, and Frederick S. Fellowes, Exeter, N.H., assignors to Chemtan Company, Exeter, N.H., a partnership

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,666
Int. Cl. C14c *3/06*
U.S. Cl. 8—94.27 **6 Claims**

Disclosed is an improved process of chrome-retanning leather to obtain leather of increased fullness, better softness and increased chrome content. The process comprises treating an initially chrome-tanned leather with a solution of ammonium zirconyl carbonate followed by chrome-retanning.

3,551,090

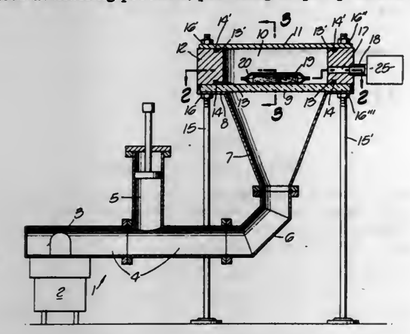
MICROWAVE REACTOR AND PROCESS FOR ASEPSIS

Robert C. Brumfield, Emerald Bay, John T. Naff, Costa Mesa, and Alonzo T. W. Robinson, Huntington Beach, Calif., assignors to Robert C. Brumfield, Costa Mesa, Calif.

Filed July 29, 1968, Ser. No. 748,428
Int. Cl. A61l *5/00*
U.S. Cl. 21—54 **5 Claims**

A process and apparatus providing sterilization of medical dressing products, such as bandages, gauzes, sponges, sutures and the like, using microwave energy to generate

a low pressure gaseous glow discharge in and around the medical dressing products, providing aseptic products. The

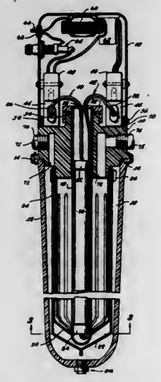


products may be pre-packaged in microporous containers, prior to sterilization.

3,551,091
COMBINATION WATER FILTER AND STERILIZER

Louis P. Veloz, 500 S. Madison Ave., Pasadena, Calif. 91106

Filed July 1, 1968, Ser. No. 741,367
Int. Cl. A61l *3/00*
U.S. Cl. 21—102 9 Claims



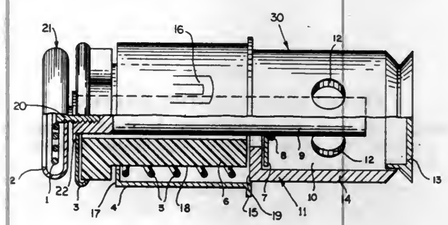
An elongated ultraviolet lamp is surrounded by a quartz tube having a closed end extending vertically into a chamber in a support body. A filter support sleeve surrounds the quartz tube, and a filter sock is attached to the sleeve. The body has inlet and outlet ports above the filter. On top, the body releasably supports an electrical housing from which a power cord extends, and wherein electrical connections to the lamp are made via mating plugs carried by the housing and the body. Water entering the inlet is filtered and directed upwardly along the quartz tube for sterilization.

3,551,092
CIGARETTE LIGHTING AND AIR REFRESHING DEVICE

Lucien Masson, 256 Kaferholzstrasse, CH-8006, Zurich, Switzerland

Filed May 9, 1969, Ser. No. 823,446
Claims priority, application Switzerland, May 11, 1968, 7,223/68
Int. Cl. A61l *9/02*
U.S. Cl. 21—119 5 Claims

A cigarette lighting and air refreshing device including an igniter unit for lighting tobacco articles and a perforated chamber spaced from the unit for holding a heat vaporizable, air refreshing material. A heat conducting member connects the igniter unit to the chamber to trans-



mit heat and vaporize the material when the unit is actuated, the vapors passing out through the perforations into the ambient air.

3,551,093
ALKALIZED ALUMINA ABSORBENT AND METHOD OF MAKING SAME

John G. Myers and Joseph H. Field, Pittsburgh, Pa., assignors to the United States of America as represented by the Secretary of the Interior

Filed Oct. 21, 1968, Ser. No. 769,217
Int. Cl. B01j *11/22, 11/82*
U.S. Cl. 23—2 23 Claims

Improved alkalized alumina absorbents and their methods of manufacture are disclosed. The alternative methods involve (a) mixing sodium aluminate with either red mud, brown mud, retorted oil shale rock or metal salts such as the sulfates, oxides, carbonates or nitrates of iron, copper or cobalt, (b) mixing sodium aluminate with alumina hydrate preferably with the addition of red mud or brown mud, retorted oil shale or the metal salts recited in (a) above, and (c) mixing alumina hydrate and sodium hydroxide preferably with the addition of red mud or brown mud, retorted oil shale, or said metal salts. Absorbents may be prepared by modification of existing processes designed to produce alumina from bauxite. The resulting absorbents possess excellent capacity and lifetime in sulfur oxide absorption.

3,551,094
PROCESS FOR PRODUCING NON-CAKING CHLORINATED TRISODIUM PHOSPHATE

Charles S. King, Joliet, Ill., and Duane L. Sawhill, Orange, Conn., assignors to Olin Corporation, a corporation of Virginia

No Drawing. Filed Nov. 28, 1967, Ser. No. 686,339
Int. Cl. C01d *11/00*
U.S. Cl. 23—50 9 Claims

Chlorinated trisodium phosphate is rendered substantially non-caking by reacting it superficially with 0.05 to 0.5% by weight with a suitable gaseous acid, for example, CO_2, SO_2, SO_3, HCl or H_2S.

3,551,095
PRODUCTION OF IRON-FREE CARBONATED HYDROUS ZIRCONIA

Warren B. Blumenthal, North Tonawanda, N.Y., assignor to National Lead Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,892
Int. Cl. C01g *25/00*
U.S. Cl. 23—61 7 Claims

Substantially iron-free carbonated hydrous zirconia (also referred to as zirconium carbonate) is produced by forming a water soluble complex by the reaction of barium zirconate and an alkali bicarbonate in an aqueous medium, recovering the complex in a filtrate, and reducing the pH of the filtrate to 6 to precipitate the product. Carbonated hydrous hafnia is produced by the same procedure from barium hafnate.

3,551,096
PREPARATION OF SODIUM CARBONATE FROM SODIUM AMALGAM

Utah Tsao, Jersey City, N.J., assignor to The Lummus Company, Bloomfield, N.J., a corporation of Delaware

Filed Mar. 14, 1968, Ser. No. 713,052
Int. Cl. C01d *7/00*
U.S. Cl. 23—63 13 Claims

A process for producing sodium carbonate from sodium amalgam, water and carbon dioxide by contacting sodium amalgam with water and an aqueous solution of sodium bicarbonate to decompose the amalgam, and form sodium hydroxide, a portion of which reacts with the sodium bicarbonate to form sodium carbonate, the remaining sodium hydroxide being reacted with carbon dioxide and sodium bicarbonate to form sodium carbonate, separating the sodium carbonate thus precipitated, contacting the remaining sodium carbonate solution with carbon dioxide to form sodium bicarbonate, separating the sodium bicarbonate thus precipitated from the saturated aqueous solution thereof and recycling the solution and crystals respectively to the amalgam decomposition step and the step wherein sodium hydroxide is reacted with carbon dioxide.

3,551,097
PRODUCTION OF SODIUM BICARBONATE USING BAFFLED COOLING TUBE COMPARTMENTS IN A TOWER

Richard Brooks, Northwich, England, and Paul Taslaux, Boltsfort, Brussels, Belgium, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain, and Solvay & Cie, Brussels, Belgium, a Belgian company

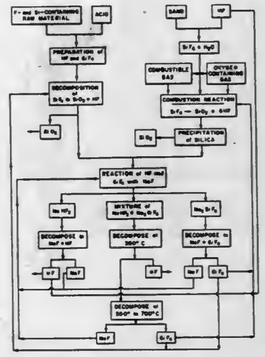
Continuation-in-part of application Ser. No. 461,333, June 4, 1965. This application Dec. 20, 1968, Ser. No. 785,716
Claims priority, application Great Britain, June 16, 1964, 24,919/64
Int. Cl. C01d *7/18*
U.S. Cl. 23—65 7 Claims

There is provided a process and apparatus for producing sodium bicarbonate by reacting carbon dioxide gas with ammonia and sodium chloride. The invention resides in providing an upward flow of carbon dioxide gas through a series of connecting compartments each of which have a perforated base for passing the gas therethrough and a conduit disposed in the said base. The ammonia and sodium chloride solution is passed from one compartment to the next thereunder by the conduit and the gas is flowed through the perforated base at a rate sufficient to agitate the solution and keep the solid crystalline sodium bicarbonate suspended therein and to prevent any substantial amount of the solution from passing through the perforated base. The compartments are maintained about one-half full of solution accomplishing a "flooded" condition. The solution is flowed laterally through at least one (1) compartment which contains a bundle of cooling tubes therein. The cooling tubes are disposed in a lateral direction and the gas is caused to pass upwardly through the bundle of cooling tubes. Baffles are arranged to guide the ascending gaseous phases issuing from the perforated plate next below said bundle up through some parts of the bundle and then down through the other portions of the cooling bundle, and thence up again to the perforated plate next above said bundle.

3,551,098
PROCESS FOR DECOMPOSING SODIUM FLUOSILICATE AND/OR SODIUM BIFLUORIDE INTO SODIUM FLUORIDE, HYDROGEN FLUORIDE AND SILICON TETRAFLUORIDE

Gösta Lennart Flemmert, Hamngatan 22, Nynashamn, Sweden

Filed Jan. 12, 1968, Ser. No. 697,452
Int. Cl. C01d *3/02, 7/22*
U.S. Cl. 23—88 11 Claims



A process is provided for decomposing sodium bifluoride and/or sodium fluosilicate into hydrogen fluoride, silicon tetrafluoride, and sodium fluoride, which comprises entraining particles of the sodium bifluoride and/or sodium fluosilicate having an average particle diameter of less than about 1 mm. in a turbulent stream of inert gas at a Reynolds number within the range from about 10^4 to about 10^6, and heating the entrained particles at a temperature at which the sodium bifluoride and/or sodium fluosilicate is decomposed, in sequence, if desired, and separating the sodium fluoride, hydrogen fluoride, and silicon tetrafluoride thereby obtained.

Apparatus also is provided for decomposing solid complex fluorides, such as sodium fluosilicate and sodium bifluoride, separately or in admixture, comprising, in combination, means for entraining particles of the complex fluorides having an average diameter below about 1 mm. in a stream of inert gas, means for introducing such gas at a Reynolds number within the range from about 10^4 to about 10^6, means for heating the entrained particles at a temperature at which they are decomposed, and means for separating the solid sodium fluoride product from the inert gas and from any gaseous decomposition products, including hydrogen fluoride and silicon tetrafluoride.

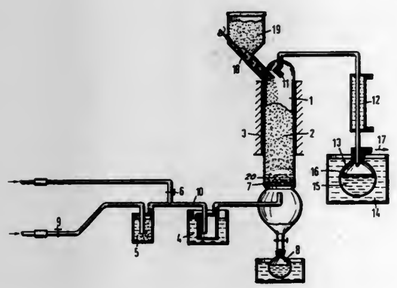
3,551,099
METHOD OF PRODUCING HIGHLY PURE ARSENIC TRICHLORIDE

Erhard Sirtl, Midland, Mich., and Josef Paulik, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany

Filed Apr. 30, 1969, Ser. No. 821,553
Claims priority, application Germany, May 3, 1968, 1,767,372
Int. Cl. C01b *27/00*
U.S. Cl. 23—98 8 Claims

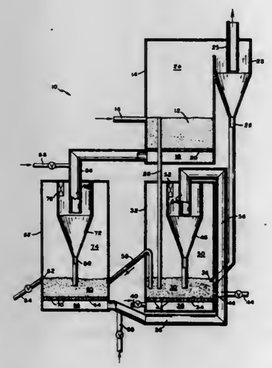
Described is a process for producing highly purified arsenic trichloride, with a sulphur content smaller than 0.1 p.p.m. The process is characterized by passing highly pure, gaseous hydrogen chloride in the presence of elemental oxygen, through arsenic trioxide, heated in a reaction chamber. The gaseous arsenic trichloride, formed

thereby, and the aqueous hydrochloric acid which contains the sulphur oxides as a distillate are received in a vessel, cooled below room temperature, so that a two-phase condensate, comprised of a solution of arsenic trichloride and aqueous hydrochloric acid, containing the sulphur oxides, forms in said receiving vessel and separating the two layers. The method is characterized in that arsenic trioxide is stacked in a reaction chamber, about



a frit which is connected with a vessel serving as a pre-precipitator. The reaction gas is supplied to the reaction chamber through the frit, whereby rinsing is effected with pure oxygen at the onset of reaction, whereafter gaseous hydrogen chloride is admixed. Additional arsenic trioxide is continuously supplied from a storage container to the reaction chamber, according to the progress of the reaction.

3,551,100
REDUCTION OF SULPHATES
Elliott J. Roberts, Westport, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn., a corporation of Delaware
Filed Sept. 11, 1967, Ser. No. 666,798
Int. Cl. C01b *17/20*
U.S. Cl. 23—137 **4 Claims**

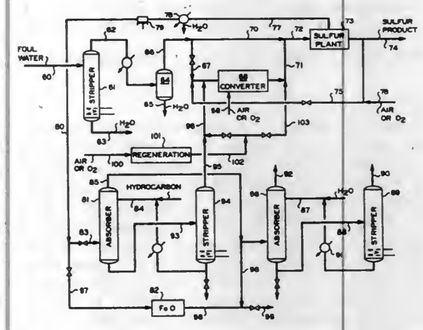


A process for reducing certain metal salt in a system of at least two fluidized bed reactors. The feed metal salt and a hydrocarbon are introduced to the primary reduction bed and the hydrocarbon is partially oxidized to generate reducing gases. The reducing gases partially reduce the feed metal salt and then the remaining reducing gases and the partially reduced metal salt are concurrently transferred to the next fluidized bed for further reduction.

3,551,101
PREPARATION OF SINTERED ALUMINUM NITRIDE
Shigetomo Matsuo, 207–6 Higashi Ohizumi-machi, Nerima-ku, Tokyo, Japan; and Yoslaki Matsuki, 3 Komukai Nakano-cho; and Katsutoshi Komeya, 2008 Nakanoshima, both of Kawasaki-shi, Japan
No Drawing. Continuation-in-part of application Ser. No. 475,882, July 29, 1965. This application Aug. 12, 1968, Ser. No. 751,709
Int. Cl. C01b *21/06*
U.S. Cl. 23—192 **1 Claim**

A method of preparing a sintered mass of aluminum nitride comprising an initial step of heating a mixture consisting of 85 to 55 percent by weight of aluminum nitride powder and 15 to 45 percent by weight of aluminum powder in a nitrogen atmosphere under pressure and at an elevated temperature to bond together the particles of aluminum nitride by melting the aluminum contained in the mixture and a final step of heating the mixture in a nitrogen atmosphere under pressure and at more elevated temperature so as to sinter the mixture.

3,551,102
RECOVERY OF AMMONIA AND SULFUR FROM WASTE STREAMS
George R. Hettick and Donald M. Little, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Feb. 23, 1968, Ser. No. 707,862
Int. Cl. C01b *17/56;* C01c *1/00*
U.S. Cl. 23—193 **9 Claims**



Treatment of H_2S-NH_3-containing streams to recover ammonia and sulfur as products therefrom comprising oxidizing the H_2S in the stream to SO_2 and reacting SO_2 and H_2S to form free sulfur and obtaining an off-gas stream comprising NH_3, N_2, CO_2, SO_2 and H_2O vapor which off-gas stream is preferably subjected to absorption by a sulfolane or a hydrocarbon for recovery of ammonia and recycle of SO_2 to the first step. As an alternative embodiment the off-gas stream is contacted with iron oxide to remove sulfur compounds prior to recovery of ammonia.

3,551,103
PROCESS FOR THE CONVERSION OF TRITHIANE INTO CARBON DISULFIDE
Hans-Dieter Rupp, Erlenbach, Gerhard Meyer, Obernburg, and Helmut Mägerlein, Erlenbach, Germany, assignors to Glanzstoff AG, Wuppertal, Germany
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,817
Claims priority, application Germany, Mar. 2, 1967, G 49,457
Int. Cl. C01b *31/26*
U.S. Cl. 23—206 **5 Claims**

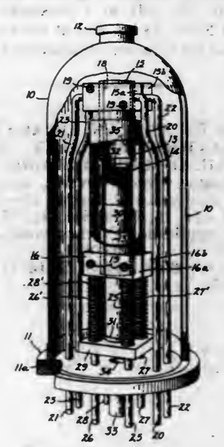
Process for converting trithiane into carbon disulfide by reacting trithiane and sulfur while both are in the gaseous stage and are conducted co-currently through a reaction tube heated to a temperature of 450–1000° C. Carbon disulfide can be isolated in a conventional manner and is useful in the production of viscose rayon.

3,551,104
METHOD OF PREPARING HYDROGEN PEROXIDE
Scott Lynn and Hendrick Hunter Paalman, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Continuation-in-part of application Ser. No. 565,783, July 18, 1966. This application Apr. 29, 1969, Ser. No. 824,355
Int. Cl. C01b *15/02;* C07c *49/68*
U.S. Cl. 23—207 **8 Claims**

Hydrogen peroxide is produced by contacting an anthraquinone dissolved in a liquid reaction system made up of a continuous water immiscible organic solvent phase and a distinct dispersed water phase, with an alkali metal amalgam wherein said liquid reaction system contains from about 0.1 to about 2 moles of said anthraquinone per liter of said solvent and said alkali metal amalgam is present in an amount ranging from about 0.1 to about 2.0 gram atoms of alkali metal per mole of said anthraquinone. The alkaline reaction system produced in the above reaction is neutralized with an acid and the organic phase is separated and contacted with an oxygen containing gas to prepare hydrogen peroxide.

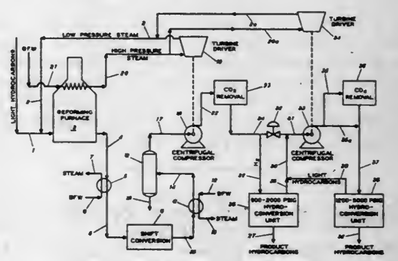
3,551,105
PURIFICATION OF ELEMENTAL BORON
Hugh S. Cooper, Shaker Heights, Ohio, assignor to Walter M. Weil
Filed Feb. 1, 1966, Ser. No. 524,242
Int. Cl. C01b *35/00;* B01j *7/00*
U.S. Cl. 23—209 **1 Claim**

Process and apparatus for purifying crude elemental boron which contains impurities including boron suboxides. A chamber containing the impure boron is evacuated to a pressure of about 0.1 micron to about 200 microns of mercury, and the boron is heated to a temperature within the range of 1800° C. to about 2100° C.



Zones within the chamber are maintained at cooler temperatures so that the boron suboxides are condensed thereon. Noncondensables are drawn away from the cooler zones and out of the chamber by continuing the evacuation of the chamber during the heating step.

3,551,106
CENTRIFUGAL COMPRESSION OF HYDROGEN TO TWO PRESSURE LEVELS
Calvin S. Smith and William J. McLeod, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Continuation-in-part of application Ser. No. 736,520, May 17, 1968, which is a continuation-in-part of application Ser. No. 665,106, Sept. 1, 1967. This application Dec. 31, 1968, Ser. No. 788,299
Int. Cl. C01b *1/02;* C10g *13/00*
U.S. Cl. 23—210 **8 Claims**



A process for producing high pressure hydrogen at two pressure levels which comprises:

(a) generating a hydrogen-rich gas stream containing CO_2;

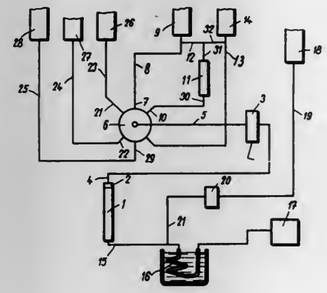
(b) centrifugally compressing the hydrogen-rich gas to a pressure between about 900 and 2,000 p.s.i.g.;

(c) removing CO_2 from the compressed hydrogen-rich gas to obtain a CO_2-lean, hydrogen-rich gas;

(d) injecting a light hydrocarbon into the CO_2-lean, hydrogen-rich gas subsequent to CO_2 removal to raise the molecular weight of the CO_2-lean, hydrogen-rich; and

(e) centrifugally compressing the hydrogen-rich gas obtained in step (d) to a pressure between about 1,200 and 5,000 p.s.i.g. and at least about 300 p.s.i. higher than the pressure obtained in accordance with step (b).

3,551,107
METHOD OF AND AN APPARATUS FOR CHROMATOGRAPHICALLY SEPARATING AMINO ACIDS MIXTURES
Jiri Hrdina, Prague, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Prague, Czechoslovakia
Filed Apr. 15, 1968, Ser. No. 721,455
Claims priority, application Czechoslovakia, Apr. 25, 1967, 3,003/67
Int. Cl. B01d *15/08;* **G01n** *31/08*
U.S. Cl. 23—230 **3 Claims**

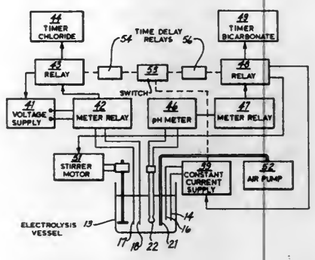


A method of and an apparatus for chromatographically separating amino acid mixtures, and more particularly of separating the amino acid pair of tyrosine-phenylalanine, provides one or a plurality of chromatographic columns, wherein at first both acidic and neutral amino acids are eluted by one or preferably more citrate buffers until the elution of the amino acid of leucine, and thereafter the amino acid pair of tyrosine-phenylanine is eluted by another buffer of which the pH-value of the normality are increased by leaps relative to the respective values of the firstmentioned buffer. The set of chromatographic columns is fed from a plurality of eluent reservoirs by means of a pump drawing the respective eluents selectively over a branched valve to the column and supplying it simultaneously with a specimen substance. The eluate to be evaluated is led from the column to an evaluating instrument over a capillary reactor, the evaluating instrument being fed with an evaluating agent by means of another pump withdrawing said agent from a reservoir.

3,551,108
CARBON OXIDE REGENERANT FOR SULFUR PRODUCTION
Le Roy F. Grantham, Calabasas, Calif., assignor to North American Rockwell Corporation
Original application May 15, 1967, Ser. No. 638,530. Divided and this application Nov. 26, 1968, Ser. No. 779,175
The portion of the term of the patent subsequent to Apr. 15, 1986, has been disclaimed
Int. Cl. C01d *7/00;* **C01b** *17/02*
U.S. Cl. 23—224 **14 Claims**

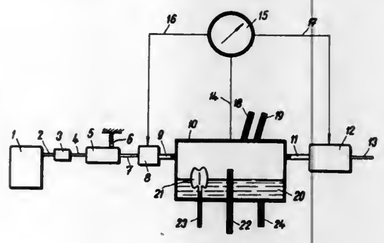
A method for recovering sulfur from a molten salt mixture containing alkali metal sulfate or sulfite by treatment of the molten salt with a reducing agent to form alkali metal sulfide, and treatment of the alkali metal sulfide with alkali metal sulfite and a gaseous mixture containing carbon monoxide, carbon dioxide, or carbon monoxide-carbon dioxide to form alkali metal carbonate and elemental sulfur.

3,551,109
METHOD AND APPARATUS FOR THE TITRATION OF CHLORIDE AND BICARBONATE IN SERUM
Harald Dahms, 22 Lakeview Road, Ossining, N.Y. 10562
Filed Dec. 13, 1967, Ser. No. 690,270
Int. Cl. G01n *27/26, 27/42, 33/16*
U.S. Cl. 23—230 **46 Claims**



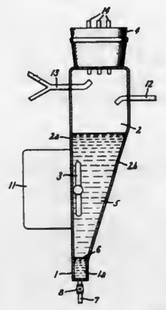
A test for analyzing both chloride and bicarbonate in blood serum, and apparatus therefor. In a preferred embodiment the sample of serum is mixed with an acidic solution containing silver ions to precipitate a portion of the chloride and to drive off CO_2. The solution is then electrolyzed to produce additional silver ions (at an anode) and hydroxyl ions (at a cathode); the chloride end point is detected amperometrically, while the acid-base end point is detected by a pH electrode.

3,551,110
APPARATUS FOR MANOSTATING EVALUATION DEVICES
Jiří Hrdina, Prague, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Prague, Czechoslovakia, a corporation of Czechoslovakia
Filed Apr. 12, 1966, Ser. No. 542,164
Claims priority, application Czechoslovakia, Apr. 13, 1965, 2,424/65
Int. Cl. G01f *15/02;* **G01n** *31/04*
U.S. Cl. 23—253 **8 Claims**



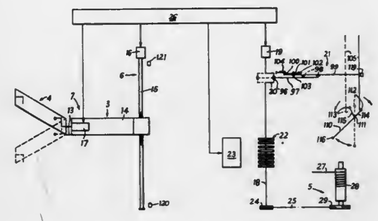
An apparatus for maintaining fluidal media at a manostatic or constant pressure in a chemical analyzer device such as a tubular detection device for analyzing amino acids. The apparatus comprises a chamber maintained at constant pressure, which chamber is provided with inlet tubes for admitting the fluidal media and outlet tubes for transferring the constant pressure to the device.

3,551,111
REACTION-EXTRACTION AND ANALYSIS CHAMBER AND RELATED EQUIPMENT
Clarence A. Carlson, Norristown, Pa., assignor to General Electric Company, a corporation of New York
Filed Mar. 28, 1968, Ser. No. 716,949
Int. Cl. B01l *3/08;* **G01n** *21/24*
U.S. Cl. 23—253 **5 Claims**



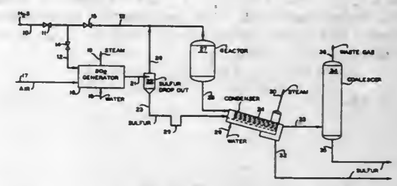
A reaction-extraction and analysis chamber, which facilitates the photometric analysis of a relatively heavy fluid phase formed in preliminary reaction and extraction stages, comprises a bottom segment having spaced, transparent walls adapted for use with a photometric analyzer, and an upper segment, including agitating means, which opens into the bottom segment. With the addition of sequencing-controlling means and/or metering means, automated or semi-automated forms of the invention are obtained.

3,551,112
MULTIPLE PIPETTING APPARATUS
Peter J. L. Sequeira, Wilmslow, and Alan Rendal Drake, Theydon Bois, England, assignors to Baird and Tatlock (London) Limited, Chadwell Heath, Essex, England, a company of Great Britain
Continuation of application Ser. No. 655,442, July 24, 1967. This application Nov. 3, 1969, Ser. No. 871,609
Claims priority, application Great Britain, July 23, 1966, 33,226/66
Int. Cl. B01l *3/02;* **G01n** *1/00, 1/14*
U.S. Cl. 23—259 **22 Claims**



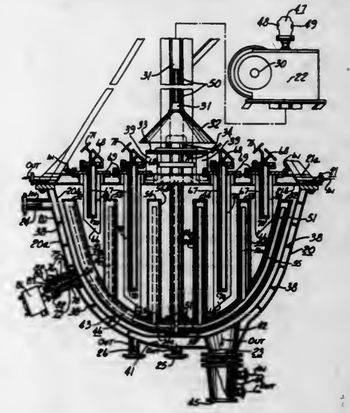
Multiple pipetting apparatus whereby successive treatment operations may be carried out on a plurality of liquid samples in individual receptacles. The apparatus may comprise a carriage for supporting a plurality of receptacles a positioning mechanism and nozzle support moveable relative to the carriage and a measuring device operable to extract liquid from or dispense liquid into predetermined receptacles via nozzles in the support.

3,551,113
SULFUR PRODUCTION
Jerrold G. Cash, Sweeny, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 27, 1967, Ser. No. 685,805
Int. Cl. C01b *17/04;* **B01j** *1/14*
U.S. Cl. 23—262 **4 Claims**



Sulfur is produced by dividing a hydrogen sulfide containing stream into two parts. One part is burned to produce sulfur dioxide, which is combined with the other part of the original stream and reacted to produce sulfur. Additional sulfur is recovered from the system by removing from the sulfur dioxide containing stream sulfur which is produced when the hydrogen sulfide stream is burned.

3,551,114
METHOD AND APPARATUS FOR SYNTHESIZING MOLTEN MATERIALS
Alonzo Leroy Hellewel, 201 9th St., Philipsburg, Pa. 16866
Filed Mar. 28, 1968, Ser. No. 716,960
Int. Cl. B01j *1/00;* **C06b** *21/00*
U.S. Cl. 23—266 **9 Claims**



A liquid and flake of materials to be placed in liquified form by heating them in a vessel, for example, thixotropic materials, such as TNT, may be readily synthesized into a uniformly heated liquid, preparatory to casting, by directing a movement of a liquid mass thereof in coaxially concentric paths in the molten soup mass within an accurately heat-controlled kettle. The directed coaxially concentric flow paths fold and roll the liquid soup mass laterally of these flow paths to maintain a circular intimate intermixing of the liquid soup mass. This lateral flow of the liquid soup mass slowly also moves the sauce into intimate contact with the heat-controlled surfaces of the smooth kettle innerwall and a central tubular or cylinder wall within the kettle, which tubular wall also functions as the stem of the flow inducing and stirring device that directs the movement of the whole mass circularly and with coaxial concentric paths which movement also gently raises

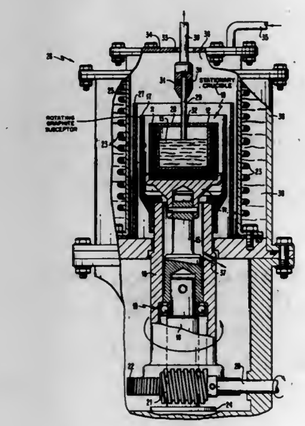
the central portion of the mass within the kettle while the perimeter of the mass is descending downwardly therein.

3,551,115

APPARATUS FOR GROWING SINGLE CRYSTALS

James E. Jamieson, Union, N.J., and Thomas H. Strudwick, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed May 22, 1968, Ser. No. 731,106
Int. Cl. B01j *17/18*; H05b *5/00*
U.S. Cl. 23—273 11 Claims



Apparatus for the growth of single crystals by Czochralski-type crystal pulling, in which the crystal is pulled from a melt contained in a central crucible which is heated by RF induction. The crucible is surrounded by an annular member of an electrically conductive refractory material which is coaxial with the crucible and rotatable about the common axis. The RF induction heat is generated in the rotating annular member by a coil encircling the member and this heat is transferred uniformly to the central crucible.

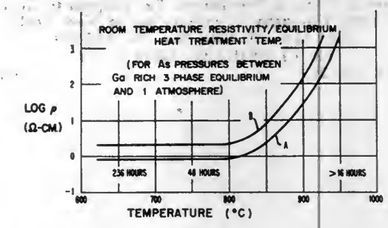
3,551,116

PROCESS FOR PREPARING LOW RESISTIVITY HIGH PURITY GALLIUM ARSENIDE

Jerry M. Woodall, Putnam Valley, and William C. Wuestenhoefer, Mahopac, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Continuation of application Ser. No. 468,898, July 1, 1965. This application June 4, 1968, Ser. No. 740,778
Int. Cl. B01j *17/00*; C01g *15/00*
U.S. Cl. 23—293 9 Claims

A heat treatment of high purity, high resistivity (semi-insulating) gallium arsenide to provide high purity, low resistivity gallium arsenide is described. The heat treatment causes the precipitation of acceptor impurities from the gallium arsenide crystal lattice which in turn affects the final resistivity of the heat treated gallium arsenide. The heat treatment may be carried out over a temperature range of 650°–950° and if heated for equilibrium times of 16–236 hours, minimum values of resistivity at a given temperature will be attained. The equilibrium time is that time at a given temperature beyond which further treating will produce no change in resistivity and increases with decreasing temperature. If heating is carried out for times less than equilibrium times the resistivity obtained will be higher than the minimum value. The process is reversible in that after heating for an equilibrium time at a given temperature, other minimum



values of resistivity may be obtained by heating at different temperatures and equilibrium times.

3,551,117

METHOD FOR GROWING SINGLE CRYSTALS OF II_B–VI_B COMPOUNDS

Tadashi Yamanaka and Akira Matsubara, Osaka-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of application Ser. No. 545,120, Apr. 25, 1966. This application Dec. 8, 1969, Ser. No. 878,981
Int. Cl. C01g *11/00, 9/00*; C01b *19/20*
U.S. Cl. 23—315 8 Claims

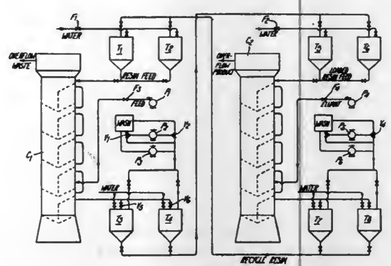
A vapour deposition method for growing a single crystal of selenides and tellurides of Cd and Zn, which comprises placing starting material which is a combination of metals selected from Cd, Zn, Se and Te and compounds selected from CdSe, CdTe, ZnSe and ZnTe at the closed end of a crystal growing tube, which has a closed bottom at one end and a pin-hole at the other end, and heating it at a sublimation temperature of the starting material. The material is heated in a furnace in an inert gas, and in which the temperature difference between the closed end and the pin-hole end is 25° C. or more, and a single crystal is produced in a block form in the vicinity of the pin-hole.

3,551,118

SOLID/FLUID CONTACTING

Francis Louis Dirk Cloete and Michael Streat, London, England, assignors to National Research Development Corporation, London, England, a British corporation

Continuation-in-part of application Ser. No. 317,180, Oct. 18, 1963. This application Oct. 12, 1967, Ser. No. 676,998
Claims priority, application Great Britain, Oct. 19, 1962, 39,707/62
Int. Cl. C01g *43/00*
U.S. Cl. 23—321 8 Claims



The invention relates to a process for countercurrent contacting of fluids and solids in a plurality of intercommunicating solid, fluid contacting chambers which involves allowing the phases to separate during the first part

of each cycle and independently transferring a portion of the settled solids. The process is useful in recovering uranium oxide, U_3O_8, from an ore leach solution containing sulphuric acid.

3,551,119

PRECIPITATION METHOD OF RECOVERING ELEMENT 95 FROM CONTAMINANTS

Louis B. Werner, Berkeley, Calif., assignor to the United States of America as represented by the Director of Office of Scientific Research and Development (now U.S. Atomic Energy Commission)

No Drawing. Filed Aug. 23, 1946, Ser. No. 692,727
Int. Cl. C01g *56/00*
U.S. Cl. 23—343 3 Claims

1. The method of separating element 95 from iron, which comprises forming an aqueous acidic solution containing ions of said elements, rendering said solution approximately 1 M with respect to potassium ions and with respect to hydrofluoric acid, recovering the precipitate thus formed and heating the same in the presence of sulfuric acid, dissolving the resulting solid in water, and thereafter contacting the solution with hydroxide ions whereby element 95 is precipitated in a substantially iron-free state in the form of its hydroxide.

3,551,120

SUBSTITUTED DODECABORATES

Henry C. Miller, Wilmington, Del., and Earl L. Muetterties, West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Continuation-in-part of applications Ser. No. 15,042, Mar. 15, 1960, Ser. No. 30,443, May 20, 1960, and Ser. No. 141,248, Sept. 25, 1961. This application Dec. 21, 1962, Ser. No. 246,636
Int. Cl. C01b *6/22*
U.S. Cl. 23—358 35 Claims

1. A compound of the formula $M_a(B_{12}H_{12-y}X_y)_b$ wherein M is a cation having a valence of 1–4; X is a monovalent element other than hydrogen, or a radical, said X being capable of bonding to the carbon of a benzene nucleus by replacement of a hydrogen bonded to said carbon; and when more than one X group is present the X's can be different; y is a positive whole number of 1 through 12, inclusive; and *a* and *b* are positive whole numbers of 1 through 3, inclusive.

3,551,121

DIGESTER FOR USE IN PAPER MAKING AND ALLIED INDUSTRIES

William T. De Long, West Manchester Township, York County, Pa., assignor, by mesne assignments, to Teledyne, Inc., Los Angeles, Calif., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 447,059, Apr. 9, 1965. This application Sept. 23, 1968, Ser. No. 761,870.
Int. Cl. B32b *15/00*
U.S. Cl. 29—196.1 2 Claims

A digester for use in paper making and allied industries comprising a clad structure having a steel base with a steel overlay completely covering the steel base, the steel overlay being resistant to fluids employed in the breaking down of wood chips to produce cellulose fibers and comprising:

	Broad, percent	Preferred, percent
Cr	21–31	23–29
Ni	4–12	6–10
Mo	[1] 2.0	[1] 0.6
Ferrite content	4–60	10–35

[1] Maximum.

3,551,122

SURFACE FINISHED ALUMINUM ALLOYS

Michael Gulla, Framingham, Mass., assignor to Shipley Company, Inc., Newton, Mass., a corporation of Massachusetts

Filed Dec. 18, 1967, Ser. No. 691,256
Int. Cl. B32b *15/20*
U.S. Cl. 29—197.5 6 Claims

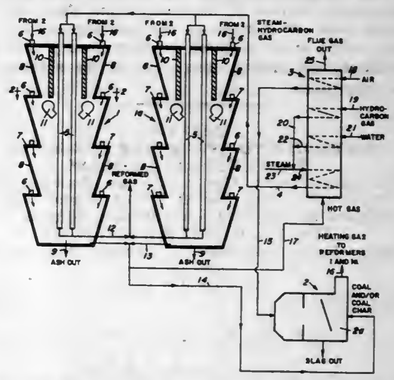
A process for preparing an aluminum allow containing at least 0.1% silicon for finishing. The process is characterized by the step of dissolving aluminum from the surface of the alloy leaving silicon and other insoluble alloying metals behind as a normally visible, adherent coating resistant to oxidation and highly receptive to finishing operations such as metal plating, painting and the like.

3,551,123

SYSTEM EMPLOYING COAL AS FUEL IN A STEAM REFORMER

Harold H. Stotler, Westfield, N.J., assignor, by direct and mesne assignments, of one-half each to Hydrocarbon Research, Inc., New York, N.Y., and to the United States of America as represented by the Secretary of the Interior

Filed Oct. 18, 1968, Ser. No. 768,663
Int. Cl. B01j *1/00*; C01b *2/14*; F23j *1/00*
U.S. Cl. 48—94 16 Claims



Coal-derived hot flue gas is cooled to about 2200° F. so that molten ash will not be present as entrained ash therein, and then the gas is employed as the heating gas in a hydrogen-producing steam reformer. To hinder ash-induced corrosion of metallic surfaces in the reformer, the reformer is designed so that the heating gas is deflected against the interior surfaces of the reformer side walls to separate out some of the ash prior to contacting the reformer tubes with the gas. Further, ash in the heating gas is prevented from substantially contacting any metal surfaces in the reformer which are heated to between about 1050° F. and 1250° F. during reforming.

3,551,124

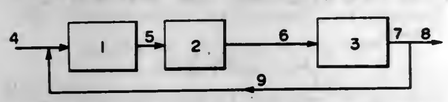
PROCESS OF GASIFYING HYDROCARBON FRACTIONS CONTAINING SULFUR

Takayuki Iwaki, Tokyo, Shohachi Egashira, Sagamihara-shi, and Akio Okagami, Tokyo, Japan, assignors to Japan Gasoline Co., Ltd., Tokyo, Japan

Filed Feb. 14, 1966, Ser. No. 527,164
Claims priority, application Japan, Feb. 17, 1965, 40/9,066
Int. Cl. C01b *2/14*; C10g *23/02*
U.S. Cl. 48—214 6 Claims

A hydrocarbon feed stock containing sulfur and hydrocarbons having 3 or more carbon atoms is subjected to hydrodesulfurizing treatment with a sulfided nickel cata-

lyst using a CO and CO_2 containing hydrogen gas to hydrogenate the sulfur compounds. The hydrogenated sulfur

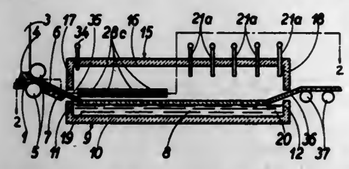


compounds are removed from the feed stock, steam is added to the feed stock which is then steam reformed.

3,551,125
METHOD OF FORMING A GRINDING WHEEL
Raymond T. Hallewell, Hillingdon Heath, England, assignor to Toolmasters Limited, Hillingdon Heath, England
No Drawing. Filed Jan. 4, 1968, Ser. No. 695,561
Claims priority, application Great Britain, Jan. 4, 1967, 587/67
The portion of the term of the patent subsequent to Dec. 10, 1985, has been disclaimed
Int. Cl. B24d *1/04*; C08g *5/06*
U.S. Cl. 51—293 **10 Claims**

A method of making a grinding member having a profiled grinding surface, the grinding member having a base a kneadable composition on the base comprising a hardenable synthetic resin. An abrasive is deposited on the exposed surface of the composition when still in a plastic state, the surface of the grinding member then being rolled to the required predetermined profile while simultaneously causing embedding of the abrasive into the composition.

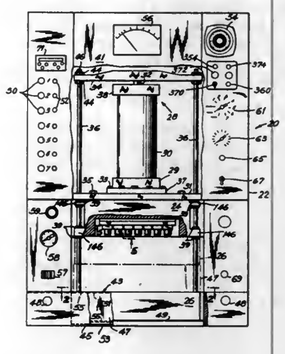
3,551,126
METHOD AND APPARATUS FOR MANUFACTURING FLAT GLASS
Jules Sacrez, Jumet, Gustave Javaux, Brussels, Gilbert Doquire, Spy, and Marcel Bodart, Namur, Belgium, assignors to Glaverbel S.A., Brussels, Belgium
Filed Feb. 28, 1967, Ser. No. 619,328
Claims priority, application Luxembourg, Mar. 14, 1966, 50,648
Int. Cl. C03b *18/02*
U.S. Cl. 65—27 **4 Claims**



Flat glass is manufactured by the float process on a molten metal bath above which substantially all of an atmosphere of protective gas is introduced at the cooler downstream end of the bath and withdrawn at the hotter upstream end of the bath. The flow of protective gas from the cooler to the hotter end of the bath removes vaporized metal compounds which would otherwise condense and be deposited as contaminants on the surface of the glass.

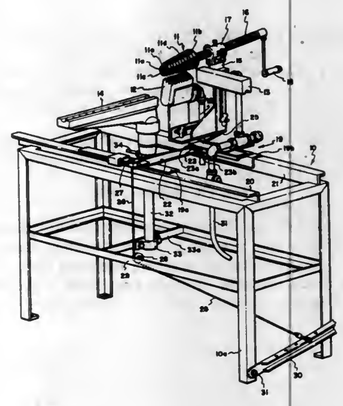
3,551,127
METHODS, APPARATUS AND SYSTEMS FOR HEAT SEALING ELECTRICAL DEVICES WITHIN FLAT GLASS PACKAGES
Milton Stoll, New York, N.Y.
(14—19 212th St., Bayside, N.Y. 11360)
Continuation-in-part of applications Ser. No. 558,142, June 16, 1966, and Ser. No. 642,627, May 4, 1967. This application July 11, 1967, Ser. No. 656,622
Int. Cl. C03b *29/00*; C03c *27/00*
U.S. Cl. 65—32 **25 Claims**

Methods, apparatus and systems for the treatment of work pieces, particularly for the heat sealing of packages, such as flat glass packages utilized to enclose electrical devices, by presenting repeatable and reproducible profiles of temperature generally uniformly across the cover side of the package with heater means comprising at least a high diffusivity layer operatively associated with a heat sink and a feedback temperature profile controller; and



presenting repeatable and reproducible heat transfer conditions to the circuit side of the package with a spring-biased, self-adjusting nest operatively associated with a heat sink, the temperature profile preferably comprising a controlled temperature rise, a controlled dwell at sealing temperature, and a controlled anneal during cooling off.

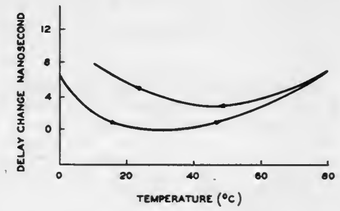
3,551,128
METHOD AND APPARATUS FOR FORMING NOVEL LIGHTING ELEMENT COILS OF FLUORESCENT GLASS TUBING
David F. Sawyer, 3532 Riverdale Road, Ogden, Utah 84403
Continuation-in-part of application Ser. No. 558,504, June 17, 1966. This application May 15, 1969, Ser. No. 839,759
Int. Cl. C03b *23/06*
U.S. Cl. 65—109 **4 Claims**



A method of and apparatus for forming helical, fluorescent, lighting coils from internally-coated, fluorescent,

glass tubing. The method involves, and the apparatus includes means for, inserting an end of a length of rectiliner fluorescent tubing into a closely-dimensioned receiving bore that extends along the longitudinal axis of a helically-formed mandrel, and heating, bending, and winding onto the mandrel the externally projecting portion of the tubing. For the winding operation, the tubing being fed to the mandrel is heated at opposite sides thereof, such heating extending over a longer length of the side of the tubing that forms the outer curvature when wound on the mandrel than of the side of the tubing that forms the inner curvature. Ribbon burners of appropriate length and mounted for movement into and away from operative positions are provided as part of the apparatus.

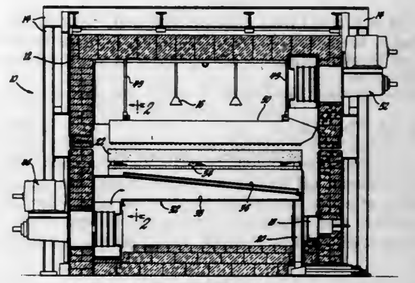
3,551,129
STABILIZATION OF GLASSES FOR ULTRASONIC DELAY LINES
John T. Krause, New Providence, N.J., assignor to Bel Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 27, 1967, Ser. No. 693,969
Int. Cl. C03b *25/02*
U.S. Cl. 65—117 **9 Claims**



The specification describes a heat treatment for establishing a condition of "un-aged" or mixmum ultrasonic delay time of alkali-lead-silicate glasses. These glasses exhibit a "temporal instability" in delay time, known generally as "aging"; which is manifested by a decrease in delay time with time. One important aspect of aging is that it is a heat-sensitive reversible process. Zero temperature coefficient glasses which have aged, have been found to exhibit significant increases in delay time (reverse of "normal aging") as a consequence of exposure to modest temperature changes of the nature encountered in the ordinary use environment. The process which initiates the delay time increase is distinct from the normal aging effect which produces moderate decreases in delay time over extended periods. This delay time hysteresis is reduced, according to the invention, by pre-exposing the glass to a modest temperature cycle. This cycle advantageously includes a soak period at the peak temperature. The glass is then in a condition of un-aged or maximum delay time.

3,551,130
APPARATUS FOR APPLYING GAS AGAINST THE OPPOSITE SURFACES OF A SHEET OF GLASS
Dexter H. McMaster, Genoa, Ohio, assignor to Permaglass, Inc., Millbury, Ohio, a corporation of Ohio
Filed Jan. 22, 1968, Ser. No. 699,632
Int. Cl. C03b *29/04*
U.S. Cl. 65—182 **10 Claims**

An apparatus including a furnace for transferring heat between a sheet of glass and gases as the sheets are supported on gases over an elongated bed disposed within the furnace. The bed has a plurality of inlet passages and a plurality of exhaust passages extending therethrough and sheet metal means is suspended from the bed for defining an inlet chamber which is coextensive with the bed and a plurality of exhaust plenums spaced from each other and from the bed by the space occupied by the inlet chamber and an inlet plenum spaced from the inlet chamber by the area occupied by the exhaust plenums and a plurality of inlet channels separating adjacent exhaust plenums and providing fluid communication between the inlet plenum and the inlet chamber. The



inlet passages extend through the bed and communicate with the inlet chamber whereas the exhaust passages extend through the bed and the inlet chamber to communicate with the exhaust plenums. The inlet plenums extend from one side of the bed to the other and converge from one side toward the other. There is included a blower for supplying gases to the large end of the inlet plenum.

3,551,131
PLANT GROWTH STIMULANT COMPOSITION AND PROCESS
John M. Musselman, Brecksville, and Richard D. Schieman, Avon Lake, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed Mar. 7, 1968, Ser. No. 711,178
Int. Cl. A01n *9/22*
U.S. Cl. 71—82 **2 Claims**

A composition which improves growth of plants when applied thereto, said composition comprising (A) a triazine herbicide, (B) a non-phytotoxic oil and (C) a nitrogen-containing fertilizer.

3,551,132
PHYTOXIC COMPOSITIONS AND METHODS
Robert F. Husted, Florissant, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 19, 1967, Ser. No. 647,190
Int. Cl. A01n *9/20*
U.S. Cl. 71—111 **25 Claims**

Compositions comprising 2',6'-diethyl - N - methoxymethyl-2-chloroacetanilide and certain 3'-(carbamoyloxy)anilides exhibit unexpected phytotoxicity.

3,551,133
GRANULAR THICKENING AGENT AND PREPARATION
Billy A. Sprayberry, North Olmsted, and Richard L. Urbanowski, Painesville, Ohio, assignors to Diamond Shamrock Corporation, a corporation of Delaware
No Drawing. Filed Aug. 1, 1966, Ser. No. 569,095
Int. Cl. A01n *9/08*
U.S. Cl. 71—116 **9 Claims**

A thickening agent composition of enhanced wettability and freedom from agglomeration in aqueous media con-

sists essentially of granules having size not substantially in excess of about 14 mesh, with less than about 12 weight percent of the granules having size between about 40–60 mesh and less than about 5 weight percent having size finer than about 60 mesh. The granules are a granulated mixture of a particulate water dispersible substance, 10–70 percent of molasses, on a dry weight basis of such substance, and less than about 15 weight percent moisture; the substance is a blend of locust bean gum and a heteropolysaccharide.

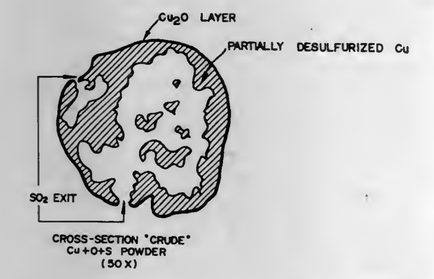
3,551,134
QUICK-KILLING HERBICIDE-OIL MIXTURE
Allen J. Brenteson, Bogota, Colombia, assignor to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed June 9, 1967, Ser. No. 644,808
Int. Cl. A01n *9/20*
U.S. Cl. 71—118 2 Claims

A biologically active formulation comprising a mixture of 3,4-dichloropropionanilide and a highly refined paraffinic petroleum oil having a narrow distillation range is applied at a low rate to the locus of an agricultural crop to quickly and effectively control the growth of weeds without causing unacceptable harm to the agricultural crop.

3,551,135
ASPHALT CONTAINING FATTY ALCOHOLS AS PLANT ROOT GROWTH RETARDANTS
Joachim Pütz, Holm-Seppensen, and Franz Sebald, Munich, Germany, assignors to Deutsche Erdol Aktiengesellschaft, Hamburg, Germany, a corporation of Germany
No Drawing. Filed June 21, 1966, Ser. No. 559,094
Claims priority, application Germany, June 24, 1965, 1,570,087
Int. Cl. A01n *9/04, 9/24, 17/08*
U.S. Cl. 71—122 1 Claim

The combination of a bituminous material and a higher fatty alcohol used as a root repelling composition.

3,551,136
PRODUCTION OF COPPER AND COPPER OXIDE POWDER FOR POWDER METALLURGY
Harbhajan S. Nayar, Waltham, Mass., assignor to Contemporary Research Inc., Natick, Mass., a corporation of Massachusetts
Filed Sept. 9, 1968, Ser. No. 758,449
Int. Cl. B22f *9/00;* B22d *23/08*
U.S. Cl. 75—.5 23 Claims

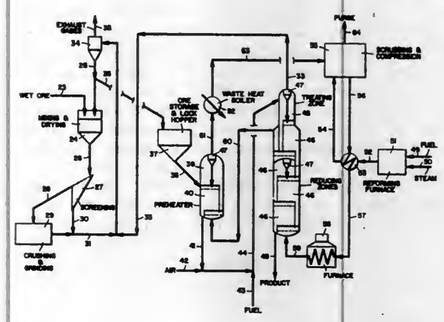


Copper base (including pure copper and copper alloy) or copper oxide powder is produced by atomizing a sulfurized copper base melt in the presence of oxygen to produce particles which are hollow as a result of sulfur dioxide formation therewithin, oxidizing the hollow particles in the presence of oxygen in order to cause weakening at the grain boundaries as a result of more sulfur dioxide formation therein, and crushing in order to make available the copper base particles. If desired, the oxidizing step, when carried for a longer time, results in oxidation of copper as well as sulfur and the crushing step results in copper oxide particles.

3,551,137
FLUX FOR ELECTROSLAG CONSUMABLE REMELTING OF NICKEL BASE SUPER ALLOYS AND CERTAIN IRON BASE ALLOYS
Gopal Krishna Bhat and Joseph B. Tobias, Pittsburgh, Pa., assignors to Electro-Slag Institute, Pittsburgh, Pa., a nonprofit corporation of Pennsylvania
No Drawing. Filed Jan. 10, 1968, Ser. No. 696,693
Int. Cl. B23k *35/34;* C22b *9/10;* C22d *7/00*
U.S. Cl. 75—10 8 Claims

The flux composition for electroslag consumable electrode remelting of nickel base and other iron base alloys in weight percentages consists of 30% CaF_2, 40% Al_2O_3, and 30% CaO+MgO. A typical specific composition consists of 30% CaF_2, 40% Al_2O_3, 17% CaO and 13% MgO.

3,551,138
IRON ORE REDUCTION PROCESS
James W. Brown, Halifax, Nova Scotia, Canada, Francis X. Mayer, Baton Rouge, La., and Theodore Kalina, West Orange, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Continuation-in-part of application Ser. No. 514,265, Dec. 16, 1965. This application Mar. 14, 1968, Ser. No. 729,853
Int. Cl. C21b *13/00;* C22b *1/10*
U.S. Cl. 75—26 20 Claims



An improved process combination for the production of metallic iron from oxidic iron ores wherein the ore is progressively treated and thence reduced. Fluidized ore is sequentially passed through a series of zones comprising staged preheat zones, an intermediate treating zone and, finally, staged reduction zones. Reducing gas is fed into the zones countercurrently to the direction of ore flow. A portion of the partially oxidized off-gas from the reducing zones is injected into the intermediate treating zone, while all or a part of the remaining reducing gas can be injected into the staged preheat zones or regenerated and recycled. Off-gas from the intermediate treating zone can be contacted with the ore entering the staged preheat zones, or injected directly thereto, this latter step being preferred where the reducing gas is not fed directly to these zones.

3,551,139
DESULPHURIZING COMPOSITION FOR TREATING IRON MELTS AND METHOD
Jan Schokkenbroek, Alkmaar, Netherlands, assignor to Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V., Ijmuiden, Netherlands
No Drawing. Filed Dec. 20, 1968, Ser. No. 785,761
Int. Cl. C21c *7/00, 7/02*
U.S. Cl. 75—53 10 Claims

Molten pig iron is desulfurized by adding a composition consisting essentially of preferably 20 to 40% calcium diamide and the remainder consisting essentially of calcium cyanamide. It is preferred to inject the composition through a lance into the melt.

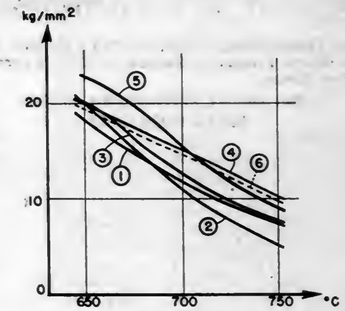
3,551,140
CONTROLLED REFINING OF PIG IRON
Paul Emile Nilles, Embourg, and Etienne Marie Denis, Grivegnee, Belgium, assignors to Centre National de Recherches Metallurgiques, Brussels, Belgium, a Belgian body corporate
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,860
Claims priority, application Luxembourg, Oct. 11, 1966, 52,150
Int. Cl. C21c *5/32*
U.S. Cl. 75—60 7 Claims

A process for the dynamic control of the pig iron refining operation carried out in a solid base converter, characterised in that, preferably relying on theoretical bases, the starting materials necessary for carrying out a predetermined refining of a given pig iron are determined, that during the course of the refining operation the value of the surface of penetration of the jet or jets of refining oxygen into the molten bath is regulated in such a way that the amount of carbon removed from the bath per unit of time follows a predetermined time graph, and that while respecting this latter condition, the conditions of blowing are regulated in such a way that the amount of oxygen absorbed per unit of time by the various constituents of the slag also follows a predetermined time graph.

3,551,141
PROCESS FOR THE PRODUCTION OF MEDIUM- TO LOW-CARBON FERROMANGANESE ALLOYS
Minoru Matsuura, Kochi-shi, Japan, assignor to Kobe Steel, Ltd., Fukiai-ku, Kobe, Japan, a corporation of Japan
No Drawing. Filed Aug. 25, 1967, Ser. No. 663,335
Claims priority, application Japan, Sept. 1, 1966, 41/58,008
Int. Cl. C22b *1/00, 9/10, 47/00*
U.S. Cl. 75—80 4 Claims

A process for the production of medium- and low-carbon ferromanganese alloys by reacting an intermediate high-silicon alloy with an ore in the presence of a flux, which is characterized by mixing the intermediate high-silicon alloy in a molten state with the ore and the flux with stirring, said ore and said flux being previously heated to a predetermined temperature, and which enables medium- and low-carbon ferromanganese to be produced in a highly rational manner in respect of heat utilization and operation.

3,551,142
AUSTENITIC STAINLESS STEELS
Jean H. Decroix, Albertville, France, assignor to Ugine Kuhlmann, Paris, France, a corporation of France
Filed Jan. 16, 1967, Ser. No. 609,503
Claims priority, application France, Dec. 14, 1966, 87,383; Dec. 15, 1966, 87,502; Dec. 16, 1966, 87,796
Int. Cl. C22c *39/20*
U.S. Cl. 75—128 8 Claims



New austenitic stainless steels with improved creep strength at high temperatures and articles made from such steels, the steels having a composition in percent by weight within the following limits: carbon ≤0.175, silicon ≤1.0, chromium 15 to 20, nickel 4 to 16, manganese 1 to 12, molybdenum 0 to 4, tungsten 1 to 6, copper 0 to 4, nitrogen ≥0.15, vanadium at least equal to 1.2 times nitrogen where vanadium plus nitrogen ≤0.65, columbium 0 to 2, boron 0.001 to 0.005 and the balance iron and incidental impurities.

3,551,143
ALUMINUM BASE ALLOYS HAVING IMPROVED HIGH TEMPERATURE PROPERTIES AND METHOD FOR THEIR PRODUCTION
Gohei Marukawa, Takashi Oikawa, and Arinobu Hamada, Tokyo, Japan, assignors to Showa Denko Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
No Drawing. Continuation-in-part of application Ser. No. 401,999, Oct. 6, 1964. This application Oct. 7, 1968, Ser. No. 765,624
Claims priority, application Japan, Oct. 10, 1963, 38/52,767
Int. Cl. C22c *21/00*
U.S. Cl. 75—138 12 Claims

An aluminum base alloy composition which has improved high temperature and corrosion resistant properties which contains a base comprising either aluminum or an aluminum alloy which has uniformly dispersed therein a nitride of a metal selected from the group consisting of metals belonging to Groups II–A, III–A, V–A and VI–A of the Periodic Table of Elements.

3,551,144
ALUMINIUM-BRONZE ALLOY
Norman Coupe Ashton, "Corby," Birkby Road, Huddersfield, Yorkshire, England, and John P. Dennison, 1 Channel View Sketty, Swansea, Glamorgan, Wales
No Drawing. Filed Dec. 6, 1967, Ser. No. 688,304
Claims priority, application Great Britain, Dec. 7, 1966, 54,760/66
Int. Cl. C22c *9/00*
U.S. Cl. 75—162 1 Claim

An aluminium-bronze alloy contains 8% to 9% aluminium or aluminium equivalent and sufficient boron (pref-

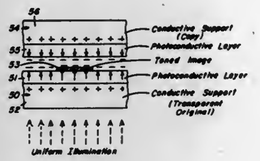
erably in the range 0.01% to 0.02%) to create nucleation of the beta phase during cooling of the alloy before the creation of the alpha base. This facilitates removal of the beta regions in subsequent heat treatment.

3,551,145

METHOD OF REPRODUCING A TONER IMAGE CARRIED BY AN ELECTROPHOTOGRAPHIC PLATE

William Trachtenberg, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Aug. 21, 1967, Ser. No. 662,049
Int. Cl. G03g 13/22
U.S. Cl. 96—1 5 Claims



A method of reproducing a fully developed and visual image carried by a xerographic plate comprising a photoconductive insulating layer overlying a transparent, conductive backing support as a latent electrostatic image on an unexposed xerographic plate. In order to eliminate any possibility of secondary discharge effects, a uniform electrostatic charge of the same polarity is applied to a surface of the photoconductive layer carrying the image and to the photoconductive layer of the unexposed xerographic plate before the charge surfaces are positioned in intimate contact for exposure through the image-carrying xerographic plate.

3,551,146

INDUCTION IMAGING SYSTEM

Robert W. Gundlach, Victor, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Continuation-in-part of applications Ser. No. 467,445, June 28, 1965, and Ser. No. 740,144, June 26, 1968. This application Oct. 16, 1969, Ser. No. 867,049
Int. Cl. C03g 13/18, 13/22, 15/18
U.S. Cl. 96—1 32 Claims

An imaging method comprising the steps of providing a first surface having a first electrostatic latent image thereon; positioning a receiving member having a resistivity between about 10^7 and 10^{14} ohm-cm. against said first surface, applying a potential to said receiving member preferably by contacting said receiving member with an electrically conductive member and stripping said receiving member from said first surface while maintaining contiguity, at least in the region where stripping is occurring, between the free surface of said receiving member and an electrically conductive member; whereby an induced electrostatic latent image, which may be the same or opposite in image sense to that of said first electrostatic latent image depending on the magnitude of said applied potential, is formed in said receiving member. The induced electrostatic latent image may be rapidly utilized preferably by developing with electroscopic marking material generally within about the relaxation time of said receiving member.

3,551,147

PROCESS FOR PRODUCING PHOTOGRAPHIC IMAGES WITH PHOTOSENSITIVE MATERIAL

Gerald Matthew Fletcher, Arlington, Mass., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

Filed July 13, 1967, Ser. No. 653,147
Int. Cl. G03c 5/04
U.S. Cl. 96—27 34 Claims

This invention relates to a process of producing photographic images by reactivating a decayed reversible latent image on a photosensitive substrate. The photosensitive substrate is comprised of a photosensitive material which becomes reversibly activated upon exposure to activating radiation but preferably remains unchanged after such exposure and is hereinafter referred to as a photoconductor. The decayed latent image is formed by exposure to a pattern of light to which the photoconductor is sensitive to form a reversible latent image which decays as a function of time. The decayed latent image is reactivated by exposure of the image to light of wavelength longer than that employed in the original image formation after which the image is rendered irreversible and visible as desired, by development by known methods, e.g. using image-producing agents. The invention also relates to an improved process of forming the original reversible latent image by use of activating means and after decay, partial or complete, of the latent image, exposing the image to light of wavelength longer than the band-gap light of the photoconductor. The quality of the visible image obtained by reactivation is improved by selection of light of specific wavelength to ensure optimum density differences between the background and the visible image.

3,551,148

PROCESS FOR THE PRODUCTION OF PRINTING PLATES

Gerhard Faulhaber, Mennheim, Herbert Henkler, Darmstadt, Hans Wilhelm, Ludwigshafen (Rhine), Rudolf Brodt, Weinheim an der Bergstrasse, and Josef Georg Floss, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 16, 1967, Ser. No. 623,553
Claims priority, application Germany, Mar. 22, 1966, 1,522,463
Int. Cl. G03c 1/68, 5/00
U.S. Cl. 96—35.1 11 Claims

A process for the production of printing plates based on linear synthetic polyamides and monomers which have polymerizable double bonds and which also contain etherified N-methylolamide groups.

3,551,149

METHOD OF CONDUCTING ELECTRIC CURRENT THROUGH DEVELOPED SILVER HALIDE IMAGES

George H. Nawn, Westwood, and William J. Timson, Belmont, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 522,827, Mar. 7, 1966. This application Jan. 23, 1969, Ser. No. 793,542
Int. Cl. G03c 5/26, 5/00, 1/02
U.S. Cl. 96—38.4 2 Claims

Electrical energy may be conducted through a circuit comprising silver filaments interconnecting the silver grains of a developed photographic image prepared by distributing an aqueous dispersion of photosensitive silver halide in a non-gelatinous polymeric binder on a substrate and exposing and developing said silver halide for a time sufficient to provide an electrical energy-conductive circuit.

3,551,150

PROCESS FOR PRODUCING LITHOGRAPHIC PLATES COMPRISING ETCH BLEACHING, ETCHING AND COPPERIZING

Robert N. Woodward and Joseph T. Leone, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed July 3, 1967, Ser. No. 650,681
Int. Cl. G03c 5/38
U.S. Cl. 96—36 9 Claims

A photographic element comprising a metal support such as aluminum having thereon an abutting gelatin silver halide emulsion having a melting point above about 180° F. is exposed, developed and processed using an etch bleach process followed by a deep etch of the support. The support is then copperized and the emulsion removed to provide a lithographic printing plate.

3,551,151

FISCHER COUPLER-GELATIN COMPOSITIONS

Rodwick L. Malan, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed July 31, 1967, Ser. No. 657,044
Int. Cl. G03c 1/76; G03c 1/02
U.S. Cl. 96—74 14 Claims

Fischer coupler-gelatin compositions in which the gelatin has an isoelectric point of at least 6.5 have substantially lower viscosities than compositions of the same couplers and gelatins having isoelectric points below 6.5 and are used to advantage to incorporate Fischer couplers in light-sensitive silver halide gelatin emulsions.

3,551,152

ANTISTATIC PHOTOGRAPHIC FILM

E. Scudder Mackey and Karl Pechmann, Binghamton, N.Y., and Robert E. Leary, Sommerville, N.J., assignors to GAF Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 17, 1968, Ser. No. 739,591
Int. Cl. G03c 1/82
U.S. Cl. 96—85 8 Claims

Photographic film comprising a base support such as cellulose triacetate having thereon at least one other layer is improved by adding to the base support and/or one or more of the layers thereon a sufficient amount of the reaction product of glycidol and an ethoxylated linear aliphatic alcohol to minimize substantially the accumulation of static electrical charges on the film. Best results are obtained when the antistatic agent is added to the outermost layer of the film.

3,551,153

PHOTOPOLYMERIZABLE COMPOSITIONS COMPRISING A FERROCENE DYE

Walter Cooper and Jacque K. Lindsay, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Aug. 4, 1967, Ser. No. 658,339
Int. Cl. G03c 1/64, 1/68
U.S. Cl. 96—86 26 Claims

A photosensitive composition of matter comprising a light sensitive ferrocene dye and a photopolymerizable olefin which can be either a vinyl monomer, or a prepolymer, or both.

3,551,154

LIGHT SENSITIVE ARTICLE COMPRISING A QUINONE DIAZIDE AND POLYMERIC BINDER

Umberto Di Blas, Gorizia, and Simone Franco, Casalgrasso, Italy, assignors to Ferrania S.p.A., Milan, Italy

No Drawing. Filed Dec. 28, 1966, Ser. No. 605,201
Int. Cl. G03c 1/52
U.S. Cl. 96—91 5 Claims

Offset printing positive diazo presensitized matrices containing photosensitive diazo compound and a resin binder which is insoluble in alkaline diazo developer solutions but which is permeable thereto.

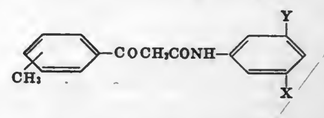
3,551,155

LIGHT SENSITIVE SILVER HALIDE MATERIALS CONTAINING YELLOW-FORMING COUPLERS

Makoto Yoshida, Momotoshi Tsuda, Kazuya Sano, and Yasushi Oishi, Ashigara-Kamigun, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Ashigara-Kamigun, Kanagawa, Japan, a corporation of Japan

Filed Jan. 23, 1967, Ser. No. 611,000
Claims priority, application Japan, Jan. 21, 1966, 41/3,236
Int. Cl. G03c 1/40
U.S. Cl. 96—100 10 Claims

The novel yellow-forming coupler having a methyl group on the benzoyl nucleus of a benzoyl acetanilide represented by



has been found to have a high coupling reactivity and a sufficient solubility in organic solvents as well as to give a yellow image of excellent fastness and a spectral absorption suitable for color photography.

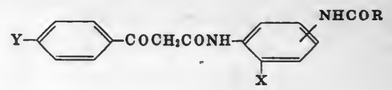
3,551,156

LIGHT SENSITIVE SILVER HALIDE MATERIALS CONTAINING YELLOW-FORMING COUPLERS

Makoto Yoshida, Momotoshi Tsuda, Kazuya Sano, and Yasushi Oishi, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Ashigara-Kamigun, Kanagawa, Japan, a corporation of Japan

Filed Jan. 23, 1967, Ser. No. 611,066
Claims priority, application Japan, Jan. 24, 1966, 41/3,985
Int. Cl. G03c 1/40
U.S. Cl. 96—100 5 Claims

The novel yellow-forming coupler having a lower alkoxyl group at the benzoyl nucleus and a halogen atom at the anilide group of a benzoyl acetoanilide, and shown by



has been found to have a high coupling reactivity and a sufficient solubility in organic solvents as well as to provide a yellow image of excellent fastness and a spectral absorption suitable for color photography.

3,551,157
ULTRASONICS FOR DISSOLVING COLOR COUPLERS

Wilho M. Salminen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 544,818, Apr. 25, 1966. This application Apr. 9, 1969, Ser. No. 814,813

Int. Cl. G03c 1/40

U.S. Cl. 96—100 24 Claims

Photographic color formers are dissolved by subjecting a mixture of color former and coupler solvent to ultrasonic vibrations.

3,551,158
PHOTOGRAPHIC SILVER HALIDE EMULSIONS WITH INCREASED SENSITIVITY

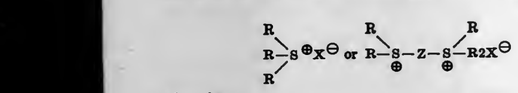
Harald Huckstadt, Cologne, Stammheim, August Randolph, Leverkusen, Wilhelm Saleck, Schildgen-Bergendorf-Gladbach, and Erwin Ranz, Leverkusen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Dec. 20, 1966, Ser. No. 603,168
Claims priority, application Germany, Dec. 28, 1965, A 51,190

Int. Cl. G03c 1/28

U.S. Cl. 96—107 5 Claims

Photographic silver halide emulsions having their sensitivity increased by the combination of a polyethylene oxide sensitizer and a sulfonium salt



wherein:

R=a branched or unbranched alkyl or alkenyl radical containing up to 6 carbon atoms which may be interrupted by hetero atoms and substituted by at least one hydroxyl, carboxyl or epoxy group;

Z=an alkylen radical having up to 18 carbon atoms that can be substituted with at least one hydroxyl, carboxyl or epoxy group, and can be interrupted by a hetero atom such as at least one oxygen atom, or aralkylen; and

X=an anion.

3,551,159
PROCESS FOR HARDENING GELATINE

Alfred Froehlich, Marly-le-Grand, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed May 15, 1967, Ser. No. 638,591
Claims priority, application Switzerland, May 25, 1966, 7,582/66

Int. Cl. G03c 1/30

U.S. Cl. 96—111 4 Claims

The present invention provides a process for hardening gelatine, especially in the form of a photographic emulsion. The hardening of gelatine requires special compounds capable of reacting with gelatine. The new hardeners are reaction products of acylisocyanates with compounds capable of reacting with a compound containing one or more exchangeable hydrogen atoms or reaction products of acid amides with special acylisocyanates. These new hardeners correspond to the formula



in which R represents a radical which in addition to 2 carbon atoms, contains 2 to 4 hydrogen atoms and as many halogen atoms as will bring the sum of hydrogen atoms plus any halogen atoms present to 3 or 5, and X represents a radical bound to the —CO— group through a hetero atom and which is capable of reacting with a compound containing one or more exchangeable hydrogen atoms. The new compounds are generally soluble in water and the reaction with gelatine proceeds easily and in the usual manner.

3,551,160
METHOD OF PREPARING PHOTOSENSITIVE POLY(2-CHLORO-1,3-BUTADIENE)

Peter Bakos, Apalachin, and Gary S. Kozak, Binghamton, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

No Drawing. Filed Oct. 13, 1967, Ser. No. 675,030

Int. Cl. G03c 1/68

U.S. Cl. 96—115 10 Claims

A method of preparing photosensitive poly(2-chloro-1,3-butadiene) (polychloroprene) is described. Polychloroprene is dissolved in a cyclic ketone. The cyclic ketone solution is rendered basic and is heated for a time sufficient to cause a reaction to occur. Photosensitive polychloroprene is precipitated from the solution by the addition of a nonsolvent. The precipitate is redissolved in a suitable solvent and is stored. This photosensitive polychloroprene solution is used as a photoresist for metal etching applications, circuit insulation, relief images and lithographic printing.

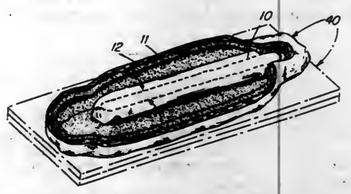
3,551,161
METHOD OF PREPARING A PROTEIN-POTATO ARTICLE

Esther Whitestone, 5800 Arlington Ave., Riverdale, N.Y. 10471

Continuation-in-part of application Ser. No. 559,809, June 23, 1966. This application Jan. 2, 1969, Ser. No. 788,429

Int. Cl. A23b 1/00

U.S. Cl. 99—1 12 Claims



An improved food product is disclosed being generally characterized as a food snack comprising an edible filler such as a frankfurter, hamburger or the like which is wrapped in a mashed potato-pastry crust wrapper. The food snack can be made in several ways including wrapping the edible filler in a wrapper comprising superposed layers of mashed potato and pastry dough or wrapping the filler in a wrapper comprised of a homogenous mixture of mashed potato and pastry dough.

3,551,162
NOVEL RUMINANT FEED SUPPLEMENT

Richard Lapham Gilbert, Jr., Princeton, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Apr. 4, 1967, Ser. No. 628,296

Int. Cl. A23k 1/22

U.S. Cl. 99—2 7 Claims

The present invention relates to a novel nitrogen-phosphorus ruminant feed supplement, and to a method for the preparation thereof. More particularly, it relates to a novel nitrogen-phosphorus feed supplement of enhanced palatability to ruminant animals. Still more particularly, the invention is concerned with a ruminant feed supplement, urea-ammonium phosphate, characterized by enhanced palatability to ruminant animals having (a) an ammonia to phosphoric acid mole ratio of from 1:1 to 1.4:1, respectively; (b) an ammonia nitrogen to urea nitrogen ratio not more than 2 to 8.75, respectively; and (c) a ratio of total nitrogen to phosphorus not less than about 3 and not more than about 10 to 1, respectively.

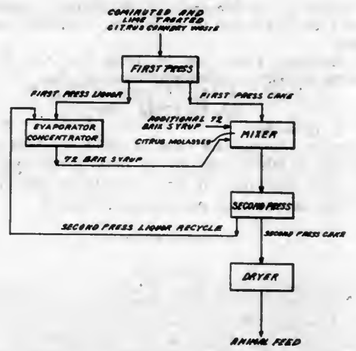
3,551,163
PRODUCING ANIMAL FEED FROM CITRUS CANNERY WASTE

Daniel B. Vincent, 2608 Watrous Ave., Tampa, Fla. 33609

Continuation-in-part of application Ser. No. 522,603, Jan. 24, 1966. This application Oct. 31, 1968, Ser. No. 780,305

Int. Cl. A23k 1/02

U.S. Cl. 99—6 8 Claims



Citrus cannery waste, pretreated with lime to break down its pectins, is pressed, the exudate dehydrated to produce a molasses, and the molasses added back to the press cake. After a brief time delay, the press cake is pressed a second time and, optionally, dried. This feed preferably contains an amount of solids about equal to the solids of the input citrus cannery waste.

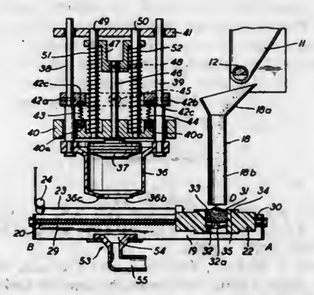
3,551,164
PROCESS FOR MAKING COFFEE DRINK

Clyde G. Weaver, 9900 Memorial, Apt. 44, Houston, Tex. 77024

Filed Apr. 15, 1968, Ser. No. 721,500

Int. Cl. A23f 1/00

U.S. Cl. 99—65 9 Claims



A process for making a coffee drink in a dispensing or vending machine, including the steps of placing a suitable amount of soluble coffee in a pressure chamber within the machine, introducing hot water into the chamber, pressurizing the chamber so that the coffee is almost completely and instantly dissolved in the pressurized hot water, and collecting the coffee drink formed in a receptacle within the machine. The soluble coffee is placed on a screen disposed in the bottom of a cup, and the cup is then moved beneath and in sealing relation with the bottom of a cylinder to form the pressure chamber. The hot water introduced into the chamber is then forced through the screen under pressure by moving a piston from the top to the bottom of the cylinder.

3,551,165
PROCESS FOR PRODUCING SHAPED DOUGH PIECES AND APPARATUS

Stanley Hamilton Reesman, 1488 W. Michigan, and James Harold Cole, 50 Woodward, both of Battle Creek, Mich. 49017

Filed Nov. 8, 1967, Ser. No. 681,353

Int. Cl. A23l 1/18

U.S. Cl. 99—81 3 Claims

A shaped dough piece is produced by extruding an amylaceous dough mass through restrictive orifices in an extrusion barrel having a plurality of flow control pins spaced from one another such that the dough flows therethrough at different velocities, thus producing reliefs or embossing patterns in the extruded product. The extrudate is then dried and puffed.

3,551,166
PROCESS FOR THE PREPARATION OF DRY CULINARY MIXES

Willi Baum, Dusseldorf, and Jürgen Sommer, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie, G.m.b.H., Dusseldorf-Holthausen, Germany, a corporation of Germany

Filed Oct. 11, 1965, Ser. No. 494,731
Claims priority, application Germany, Oct. 23, 1964, H 54,116

Int. Cl. A21d 2/00; A23l 1/00

U.S. Cl. 99—94 6 Claims

A free-flowing dry culinary mix is prepared by spraying finely divided melted shortening into a falling shower of a dry mixture of flour and shortening whereby the dry mixture envelop individual droplets of shortening and form discrete particles of dry culinary mix.

3,551,167
TREATMENT OF FLESH FOR FOOD

John H. Mahon and Kermit F. Schlamb, Pittsburgh, Pa., assignors to Calgon Corporation, a corporation of Pennsylvania

No Drawing. Filed Jan. 26, 1967, Ser. No. 611,805

Int. Cl. A22c 21/00, 25/00; A23l 1/03

U.S. Cl. 99—107 4 Claims

This invention relates to the treatment of flesh in an aqueous slurry of sodium tripolyphosphate to prevent the formation of highly concentrated areas of phosphate known in the trade as "fish eyes." The slurry is preferably formed by mixing sodium tripolyphosphate having a major portion in the size range 20 mesh to 80 mesh in water to form a very fine creamy suspension, preferably completely hydrated.

3,551,168
PROTECTIVE POLISH

James G. Atherton, Roselle, and Warren A. Wagner, Westmont, Ill., assignors, by mesne assignments, to Armour Industrial Chemical Company, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 447,981, Apr. 14, 1965. This application Aug. 1, 1966, Ser. No. 569,035

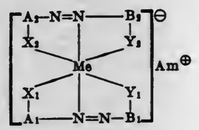
Int. Cl. C09g 1/04, 1/18

U.S. Cl. 106—8 4 Claims

A protective polish composition for auto laundries of a dicoco dimethyl quaternary, an ethoxylated tertiary amine and an emulsifiable mineral oil.

3,551,169
WAX CREAM PROCESS AND COMPOSITIONS
Paul D. Congdon, Springfield, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Continuation-in-part of application Ser. No. 634,880, May 1, 1967. This application July 3, 1969, Ser. No. 839,047
Int. Cl. C08h 9/00; C09f
U.S. Cl. 106—10 4 Claims
A process for providing a non-flowable cream wax emulsion composition from a flowable liquid wax-in-water emulsion which comprises making a flowable liquid emulsion of 40 to 75 parts petroleum paraffin wax in water, freezing the liquid emulsion to a solid state and subsequently thawing the frozen emulsion to provide a consistent non-flowable creamy wax emulsion composition.

3,551,170
ALCOHOL-SOLUBLE COLOR SALTS
Werner Kuster, Basel, Switzerland, assignor to J. L. Geigy AG, Basel, Switzerland
No Drawing. Filed Feb. 14, 1966, Ser. No. 527,081
Claims priority, application Switzerland, Dec. 10, 1965, 17,098/65
Int. Cl. C09d 11/00, 11/06, 11/08
U.S. Cl. 106—22 1 Claim
A storable composition especially suitable for printing inks is provided herein comprising a color salt of the formula



in which formula:

A_1 and A_2 each represent together with the —N=N— bridge to which they are linked a radical of a diazonium benzene moiety of an azo dyestuff, each component bearing X_1 and X_2, respectively, in ortho-position to its respective —N=N— bridge,

B_1 and B_2 each represent the radical of a benzene, naphthalene, pyrazole or acetoacetylarylamide coupling component, bearing Y_1 and Y_2, respectively, in ortho-position to the —N=N— bridge,

X_1 and X_2 each represent —O—, —COO— or —N—SO_2—R_1, wherein R_1 is an alkyl or aryl radical,

Y_1 and Y_2 each represent preferably —O— or they represent —N—R_2, wherein R_2 is hydrogen or an alkyl or aryl radical,

Me represents chromium or cobalt, and

$Am^{\oplus}$ represents a cation moiety selected from the class consisting of dehydroabietylammonium, dihydroabietylammonium, tetrahydroabietylammonium and dextropimarylammonium,

in a concentration of at least 10% calculated on the total weight of the composition, and a polar, oxygen-containing organic solvent therefor.

3,551,171
BaO—PbO—SiO_2 SEMICONDUCTOR ENCAPSULATION GLASS
George L. Thomas, Bay Village, Ohio, assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 21, 1967, Ser. No. 692,294
Int. Cl. C03c 3/04
U.S. Cl. 106—53 10 Claims
Non-contaminating, low softening point, high expansion, semiconductor encapsulation glasses having a coefficient of expansion within the range of about 80 to about 100×10^{-7} cm./cm./° C. The BaO—PbO—SiO_2 glasses contain no alkali and are sealable to dumet.

3,551,172
CERAMIC REFRACTORY
Donald L. Guile, Horseheads, N.Y., assignor to Corhart Refractories Company, Louisville, Ky., a corporation of Delaware
No Drawing. Filed Jan. 18, 1968, Ser. No. 698,709
Int. Cl. C04b 35/12, 35/112
U.S. Cl. 106—59 13 Claims
Sintered ceramic refractory bodies derived from raw batch materials of magnesia, chrome ore and titania. A portion of the magnesia particles is very coarse relative to balance of batch. Products display high hot strength and/or excellent thermal shock resistance.

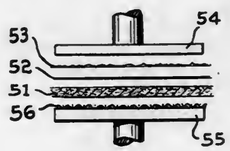
3,551,173
ZINC POWDER-SILICATE PAINT HAVING A LONG POT LIFE
Maximilian von Mildenstein, Wolfenbuttel, Germany, assignor to Fahlbert-List G.m.b.H., Wolfenbuttel, Germany
No Drawing. Filed Jan. 19, 1968, Ser. No. 699,063
Claims priority, application Germany, Jan. 21, 1967, F 51,313; Mar. 1, 1967, F 51,682
Int. Cl. C09d 1/04
U.S. Cl. 106—84 5 Claims
A zinc-powder silicate paint to which is added a glycol ether such as ethyl, isopropyl or butyl glycol and preferably propyl diglycol in an amount of up to 2% by weight to provide an extended pot life for the paint.

3,551,174
WATER-DISPERSIBLE ALUMINUM PASTES AND POWDERS, AND PROCESS FOR MAKING
Miklos Hauska, Mihaly Schutz, and Ferenc Kontra, Budapest, Hungary, assignors to Chemolimpex Magyar Vegyiaru Kulkereskedelmi Vallalat, Budapest, Hungary, a firm
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,454
Int. Cl. C04b 21/00, 31/44
U.S. Cl. 106—314 8 Claims
Aluminum powder and aluminum paste are provided, characterized by improved dispersibility in water, extended shelf life with no deterioration and without danger of explosion or fire during manufacture, storage or use. These materials are used generally where, as a result of reaction of the aluminum with alkaline or acidic media, the resulting gas formation is utilized as a blowing agent, e.g. in the manufacture of foamed concrete. In accordance with the present process and acidic anionic wetting agent reactive with ground aluminum, is used during the milling thereof in an organic solvent, then the excess wetting agent is washed out and the desired solids concentration of the resulting mass is adjusted. If aluminum powder is to be made, the adjusting of the solids concentration includes evaporation of the organic solvent. When an aluminum paste is desired, a substantially neutral pH wetting agent suitable for creating an aqueous emulsion of organic solvents and having no substantial anionic or cationic activity, is added to the adjusted mass to obtain thereby the paste product.

3,551,175
LIQUID PRETREATMENT OF AN IMAGE BEARING SURFACE TO INCREASE ABSORBENCY OF NONIMAGE AREA
Frederick J. Stryker, San Jose, and Frederik M. Verduyn, Palo Alto, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Mar. 26, 1968, Ser. No. 716,237
Int. Cl. B41m 5/02; B44d 7/04
U.S. Cl. 117—1.7 6 Claims
A process for enhancing the quality of an image which has been produced by the Reduced Layer Formation (RLF) process, comprising the pretreatment of an image bearing original with a material so as to increase the absorption of an oil in the nonimage area.

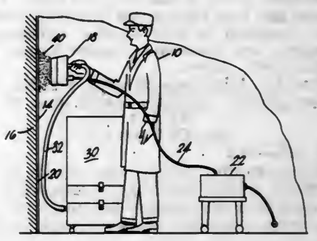
3,551,176
METHOD FOR PROVIDING HOLES IN GLASS
Joseph F. Hlista, Santa Ana, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed May 1, 1967, Ser. No. 635,087
Int. Cl. B44d 1/52
U.S. Cl. 117—5.5 2 Claims
A method for providing holes in glass layers comprising forming areas of polymerizable material where holes are to be provided, applying glass over the entire surface including the areas of polymerizable material and then treating these areas as to remove or destroy the same which also removes the glass thereover.

3,551,177
DISPOSABLE IMPRESSING SHEETS
John F. Hechtman and Harold R. Ames, Munising, Mich., assignors to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Continuation-in-part of application Ser. No. 648,072, June 22, 1967. This application Sept. 26, 1967, Ser. No. 670,671
Int. Cl. B31f 1/00
U.S. Cl. 117—11 17 Claims



A low cost patterned impression sheet for embossing decorative patterns into the surface of fiberboard panels, decorative laminates, or the like. The sheet comprises a flexible web having a release coating on one surface and a predetermined three-dimensional pattern of substantially incompressible and non-crushable material applied to the other surface. The patterned coating is of sufficient thickness to emboss the surface of the fiberboard when the sheet is interposed between a fiberboard substrate and a caul plate or press platen during conventional pressing operations. The patterned coating may be applied by first embossing the paper sheet and backfilling the embossed areas, or by printing a raised pattern on the sheet. A method for making the impression sheet is also described.

3,551,178
METHOD AND APPARATUS FOR ELECTROSTATIC FLOCKING
Alois Chmelar, Dearborn, Mich., assignor to Velvetex Industrial Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 14, 1967, Ser. No. 631,074
Int. Cl. B44c 1/08; B05b 5/02
U.S. Cl. 117—17 11 Claims
Method and apparatus for electrostatic application of flock coating are disclosed. An electrostatic flocking machine includes a portable hand-held applicator having an electrode therein which is energized to establish an electrostatic field between the electrode and a wall that is to be flocked with fibers. There is a bulk fiber storage receptacle separate and remote from the applicator. Loose fibers are blown from the receptacle through a duct to the applicator. The air which transports the fibers from the receptacle to the applicator is preferably humidified to enhance the electrostatic deposition of the fibers onto the wall. The applicator includes a baffle and screen arrangement which separates the moving fibers from the moving air and directs the fibers downwardly in front of the electrode and into the field. The baffles are constructed so



that the fibers fall downwardly toward the electrode primarily due to gravity. The screens allow moving air to escape from the applicator and substantially eliminate or, at the least, greatly reduce the effect of the moving air on the motion of the fibers just before the fibers are introduced into the electrostatic field.

3,551,179
NONAQUEOUS ADHESIVE SYSTEM FOR USE IN AN ELECTROSTATIC FLOCKING METHOD
Vincent J. Moser, Hatboro, Walter Greizerstein, Maple Glen, and Roger H. Kottke, Doylestown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Aug. 10, 1967, Ser. No. 659,587
Int. Cl. B44c 1/08
U.S. Cl. 117—17 15 Claims
An electrostatic flocking method employing as the improvement therein, an adhesive composition comprising a nonaqueous dispersion containing (A) an addition polymer which is dispersed, but not dissolved in a hydrocarbon medium, (B) an aminoplast, which is a condensate of formaldehyde with a nitrogen compound and a higher aliphatic alcohol and (C) an acid catalyst is used as an adhesive. The adhesive thus composed provides flocked articles characterized by improved water-resistance, wet abrasion or crock resistance, wet and dry peel strengths, washfastness, drycleanability and higher flock density. In addition, the flock adhesive is also characterized by improved flow properties, and a resistance to arcing when employed in electrically motivated flocking processes.

3,551,180
AQUEOUS BINDER WITH ADHERENCE ADDITIVE FOR LAMP PHOSPHOR COATING
Joseph M. Margolis, South Euclid, Ohio, assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 9, 1968, Ser. No. 782,488
Int. Cl. H01k 1/32
U.S. Cl. 117—33.5 5 Claims
In fluorescent lamp manufacture, the use of calcium halophosphate phosphors having a more uniform particle shape and size distribtuion has improved lamp efficiency but has aggravated the condition of poor coating adherence. Most known adherence additives cause a decrease in lamp efficiency, particularly when used in aqueous phosphor suspensions. The addition of $BaHPO_4 \cdot 4.5H_3PO_4$ in amounts of 0.01–0.03% based on the weight of phosphor

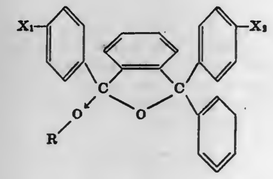
present to an ammoniacal carboxymethylcellulose suspension achieves improved adherence with negligible reduction in lamp efficiency.

3,551,181
PRESSURE-SENSITIVE COPYING PAPER EMPLOYING A PHTHALEIN COMPOUND COLOR FORMING AGENT

Shiro Kimura, Teruo Kobayashi, and Sadao Ishige, Kanagawa, and Isao Hirano and Toshiyuki Nita, Tokyo, Japan, assignors to Fuji Shashin Kabushiki Kaisha, Kanagawa, and Hodogaya Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed June 20, 1967, Ser. No. 647,304
Claims priority, application Japan, June 24, 1966, 41/41,117
Int. Cl. B41m 5/22
U.S. Cl. 117—36.2 4 Claims

A pressure-sensitive copying paper capable of producing orange-yellow colored markings in response to pressure and having a layer of rupturable microcapsules containing an oil in which a phthalein compound having the general formula:



is dissolved. By also adding to the oil other conventional color forming agents, such as, a red-purple forming agent or a blue forming agent, a black copy can be obtained.

3,551,182
COATED POLYOLEFINS

Marco Wismer, Gibsonia, and Paul J. Prucnal, Monroeville, Pa., assignors to PPG Industries, Inc., a corporation of Pennsylvania

No Drawing. Continuation-in-part of application Ser. No. 473,146, July 19, 1965. This application Dec. 11, 1967, Ser. No. 689,251
Int. Cl. B44d 1/16
U.S. Cl. 117—45 7 Claims

This invention relates to coated thermoplastic polymer substrates and preferably to olefin high polymer substrates coated with an adherent coating of an interpolymer containing a substantial portion of a poly-unsaturated hydrocarbon and at least one monoolefin having a single copolymerizable ethylenic group, said interpolymers having been obtained by the polymerization in the presence of a transition metal catalyst and characterized by the fact that they contain sufficient remaining ethylenic unsaturation in the polymer molecule to permit substantial curing of the films thereof by oxidative mechanism.

3,551,183
METHOD OF COATING A STEAM CHAMBER

Charles H. Vondracek and Anne B. Dunlap, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

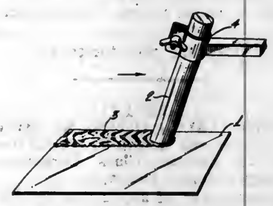
Filed Oct. 24, 1967, Ser. No. 677,643
Int. Cl. B44d 1/40
U.S. Cl. 117—49 6 Claims

A coating composition containing sodium silicate and hydrated alumina is deposited on a surface of the flash evaporation chamber in a steam ironing device. The coating is heated, most conveniently by application to an already heated surface and preferably heated to at least about 375° F., to convert it to a more insoluble form.

3,551,184
METHOD OF BONDING LITHIUM TO OTHER METALS

Charles E. Dremann, Phoenixville, and Jay R. Hitchings, West Chester, Pa., assignors to Foote Mineral Company, Exton, Pa., a corporation of Pennsylvania

Filed Mar. 9, 1967, Ser. No. 621,921
Int. Cl. C23c 11/00
U.S. Cl. 117—50 8 Claims

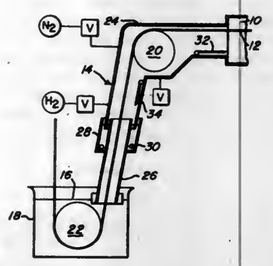


A body of solid lithium metal is rubbed across the surface of a metal body other than lithium with the metal body at a temperature above the melting point of lithium to wet the surface of the metal body with molten lithium in areas traversed by the wiping action. On solidification of the lithium a uniform bond is provided between it and the metal body. Additional lithium may be added to form a thicker coating. Two metal bodies may be bonded together by lithium so applied.

3,551,185
METHOD OF BREAKING SEAL BETWEEN FURNACE AND CLADDING POT

Roman A. Schwieterman and Kasimir Oganowski, Middletown, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio

Filed Sept. 18, 1969, Ser. No. 859,033
Int. Cl. C23c 1/00
U.S. Cl. 117—51 3 Claims



In a strand cladding operation a process for breaking the seal between the molten metal in the cladding pot and the snout which communicates with a pretreatment furnace by closing off a portion of said snout which communicates with the furnace, degassing the remaining snout portion and providing an inert gaseous environment therein, closing off said snout within said remaining portion and effecting relative movement between said snout and molten metal to break said seal.

3,551,186
FINISHING GLASS-FIBERS

Karl Martin, Frankenthal, Pfalz, and Wolfgang Stabel, Friedelsheim, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 21, 1967, Ser. No. 624,700
Claims priority, application Germany, Mar. 23, 1966, 1,494,861; Jan. 12, 1967, 1,669,577
Int. Cl. B32b 17/04; B44d 1/44; C03c 25/02
U.S. Cl. 117—65.2 11 Claims

A method of finishing glass fibers and shaped structures thereof by impregnating them with aqueous liquors which contain film-forming high molecular weight substances and, if desired, pigments, and additionally with aqueous hydrofluoric acid, drying them at a temperature of at least 50° C. and, if desired, mechanically pressing or bending them. The method gives improved anti-slip properties, colorations and delustering effects on glass fibers and shaped structures thereof, e.g. woven and non-woven fabrics.

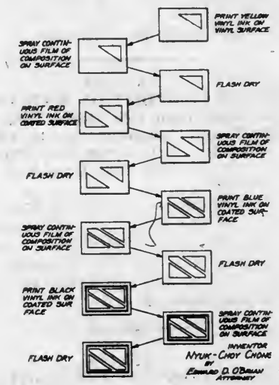
ERRATUM

For Class 117—76 see:
Patent No. 3,551,830

3,551,187
PROCESS FOR FIXING AN INK UPON A VINYL POLYMER SURFACE

Nyuk-Choy Chong, P.O. Box 1243, Redondo Beach, Calif. 90278

Filed Apr. 20, 1967, Ser. No. 632,260
Int. Cl. B44d 1/16; B44m 1/30
U.S. Cl. 117—76 5 Claims

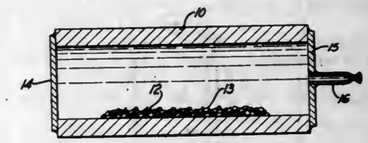


A composition for use in "fixing" an ink impression or area upon a polymer surface in which the polymer is of a conventional "vinyl" type and is selected from the group consisting of vinyl chloride polymers, copolymers of vinyl chloride and vinyl acetate, and copolymers of vinyl chloride and vinylidene chloride. The composition comprises a solvent solution of at least one vinyl polymer selected from this group and at least one film-forming acrylic polymer dissolved in tetrahydrofuran. Other secondary ingredients such as a plasticizer and other solvents may be present in the composition. The composition preferably is used by applying it by spraying onto a dried or undried ink impression or area upon such a polymer surface, and then simultaneously drying the ink and the composition.

3,551,188
METHOD OF LINING CYLINDERS

Clifford W. Lindquist, Oil City, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Dec. 7, 1967, Ser. No. 688,770
Int. Cl. B44d 1/00
U.S. Cl. 117—97 5 Claims

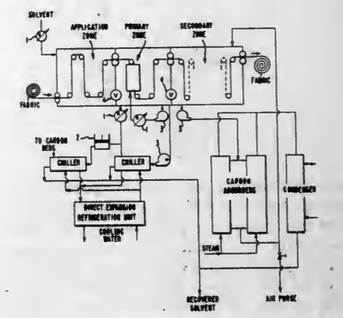


Improvement over known lining method in which pieces of lining material are placed in a metal cylinder, cylinder is heated to melt material and rotated to distribute it by centrifugal force. Improvement is to use pieces of iron-carbon eutectic alloy as solvent in lining material and dissolve high-melting materials, such as chromium, in the eutectic. Enables a cylinder to be lined centrifugally with iron-base materials having components of higher melting point than the metal of the cylinder without using separate melting facilities.

3,551,189
SOLVENT RECOVERY PROCESS AND APPARATUS

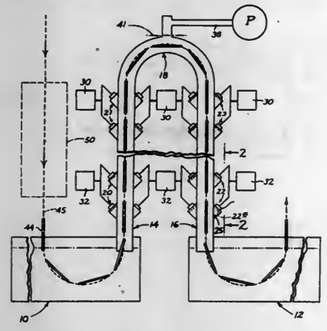
Charles L. Gray, Jr., and Robert B. Ramsey, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Continuation of application Ser. No. 425,838, Jan. 15, 1965. This application Oct. 23, 1968, Ser. No. 777,962
Int. Cl. B01d 53/14, 5/00
U.S. Cl. 117—102 11 Claims



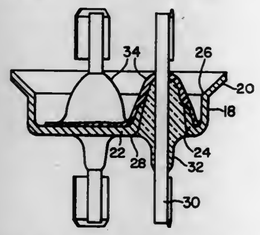
Continuous process for recovering a volatile solvent from a substrate by passing the substrate in series through an enclosed, heated primary solvent recovery zone from which solvent is recovered by a refrigeration recovery system, and an enclosed secondary solvent recovery zone from which solvent is recovered by a sorption recovery system. The substrate is passed to the primary recovery zone from a previous solvent degreasing operation, or directly from an enclosed application zone in which a material is applied to the substrate from a solvent-carried composition.

3,551,190
WOOD IMPREGNATION
Clifford E. Myers, Forest Grove, Oreg., assignor to Welsh Panel Company, Longview, Wash., a corporation of Washington
Filed Aug. 30, 1968, Ser. No. 756,578
Int. Cl. B05c 3/04
U.S. Cl. 117—116 10 Claims



Impregnation of a porous article such as wood with a liquid medium by immersing the article in the medium and using compressional wave energy directed against the article through such medium to accelerate the impregnation by removing air as such forms on the surface of the article.

3,551,191
HERMETIC COMPRESSOR TERMINAL COATING
Irving N. Elbling and Newton N. Goldberg, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 17, 1967, Ser. No. 675,838
Int. Cl. B44d 1/20, 1/46
U.S. Cl. 117—229 3 Claims



Method of coating glass bushing portions of a hermetic compressor terminal with an epoxy resin composition by using an epoxy resin composition press formed into a compact with hole means therein to permit placing the compact on the glass bushings with the conductor pins received through the hole means, and then heating the terminal to melt the compact so that it flows down over the glass bushings and forms a coating thereover.

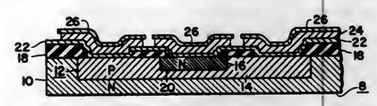
3,551,192
METHOD OF IMPARTING BIOLOGICALLY ACTIVE MATERIALS TO ARTICLES OF MANUFACTURE
Andrew J. Reinert, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed May 25, 1967, Ser. No. 641,158
Int. Cl. B44d 1/22; C09d 5/14; D02g 3/36
U.S. Cl. 117—138.8 9 Claims
Biologically active materials, such as a rodent repellent, are incorporated onto articles of manufacture by contacting the article with a mixture of a hydrocarbon diluent, amorphous polyolefin, and biologically active material.

3,551,193
WOOD SUBSTANCE AND THE PRODUCTION PROCESS THEREOF
Hisao Suzuki, Fujisawa-shi, Akira Musashi and Shinzaburo Uo, Naka-gun, and Masami Yamazaki, Chigasaki-shi, Japan, assignors to Nippon Soda Co., Ltd., Tokyo, Japan, a corporation of Japan
No Drawing. Filed July 5, 1968, Ser. No. 742,552
Claims priority, application Japan, Aug. 31, 1968, 43/62,212; Sept. 26, 1968, 43/69,113
Int. Cl. B44d 1/28; B27k 3/34
U.S. Cl. 117—148 9 Claims
An improved wood substance having impregnated therein a conjugated diolefin homopolymer or copolymer material or a mixture thereof wherein the diolefin homopolymer or copolymer or mixture thereof has an average molecular weight in the range of 500 to 20,000 and at least fifty percent of the material consists of diolefin units having a 1,2-bond.

3,551,194
POLYBUTENE-1-COMPOSITION AND METHOD OF PRINTING THEREON
Thomas Hugh Shepherd, Hopewell, and Walter Polovina, Princeton, N.J., assignors to Princeton Chemical Research, Inc., Princeton, N.J., a corporation
No Drawing. Continuation of application Ser. No. 432,006, Feb. 11, 1965. This application Jan. 26, 1969, Ser. No. 805,078
Int. Cl. B44d 5/06; C09j 7/02
U.S. Cl. 117—122 8 Claims
Method of forming indicia on shaped articles of polybutene-1 which includes incorporating in the shaped article about 15 to 50 parts per hundred parts of polymer, of an inorganic filler, forming the article to be imprinted, and subjecting the article to a strain sufficient to opacify the shaped article at the point of strain.

3,551,195
RESISTOR COMPOSITION AND ARTICLE
Mitsuo Wada and Yoshio Iida, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Sept. 5, 1968, Ser. No. 757,642
Int. Cl. C09j 1/00; C09d 5/10
U.S. Cl. 117—201 11 Claims
A resistor comprises a ceramic base and a resistor film adherent to a surface thereof, the characteristic feature being that the film is constituted by a composition consisting essentially of 20 to 92% by weight of finely divided CdO and 8 to 80% by weight of glass frit. Frit compositions are disclosed.

3,551,196
ELECTRICAL CONTACT TERMINATIONS FOR SEMICONDUCTORS AND METHOD OF MAKING THE SAME
Andrew Herczog, Painted Post, and Richard Shenk Humphries, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Jan. 4, 1968, Ser. No. 695,643
Int. Cl. H01l 5/06; C23c 13/00
U.S. Cl. 117—212 22 Claims



A semiconductor contact termination providing low resistance electrical contact to semiconductor active regions and protecting them from degradation caused by the penetration of contact material at high temperatures is disclosed.

A first layer of a transition metal sub-oxide is deposited on the surface of the semiconductor. A second layer of a metal having an electrical conductivity higher than the first layer is then deposited over the transition metal sub-oxide.

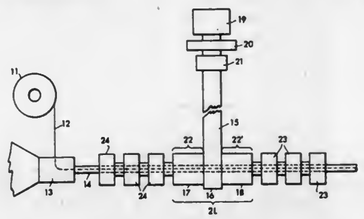
3,551,197
DIELECTRIC FILMS
Claude A. Lindquist, Jr., Easton, Pa., assignor to Pfizer Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 15, 1968, Ser. No. 697,934
Int. Cl. H01g 3/07, 3/09
U.S. Cl. 117—217 7 Claims



Dielectric films of high capacitance and high dielectric strength consisting of organic film base coated with a dispersion of finely divided ceramic in a water-insoluble organic resin matrix.

3,551,198
METHOD OF MANUFACTURING AN IMPREGNATED TUNGSTEN DISPENSER CATHODE
Antonius Johannes Alberta van Stratum and Henricus Hubertus Peeter, Emmasingel, Netherlands, assignors, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed June 6, 1967, Ser. No. 644,002
Claims priority, application Netherlands, July 1, 1966, 6609171
Int. Cl. C23d 5/00
U.S. Cl. 117—224 5 Claims
A method of impregnating a dispenser cathode without first prefusing the aluminate constituents, in which the constituents are coprecipitated, a carbon compound such as sugar added and a suspension formed which is applied to the porous tungsten, and then the assembly processed in hydrogen at a first temperature to dissociate the carbonates, a second temperature to form the aluminate, and a third temperature to melt the aluminate in.

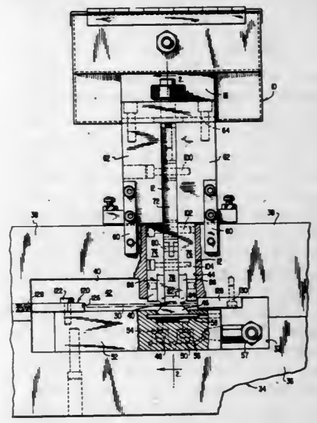
3,551,199
WIRE COATING COMPOSITION AND MICROWAVE HEATING CURING PROCESS
Eric O. Forster, Scotch Plains, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Nov. 20, 1967, Ser. No. 684,139
Int. Cl. B44d 1/50; H01b 3/28, 3/20
U.S. Cl. 117—227 7 Claims



An electrical conductor is insulated by coating with a curable polymeric composition comprising about 1 to about 18 wt. percent of metal particles less than 10 microns in diameter. Said composition is cured by microwave heating, which is accomplished within a coaxial line coupled to a wave guide.

3,551,200
ELECTRICAL COMPONENT INSULATED BY POLY(1,12 DODECAMETHYLENE PYROMELLITIMIDE) OR POLY(1,13 TRIDECAMETHYLENE PYROMELLITIMIDE)
Edward C. Stivers, Atherton, Calif., assignor to Raychem Corporation, Menlo Park, Calif., a corporation of California
No Drawing. Filed Sept 18, 1968, Ser. No. 760,659
Int. Cl. C08g 20/32
U.S. Cl. 117—232 10 Claims
Thermoplastic polyimides derived from straight chain alkylene diamines and pyromellitic anhydride are prepared and fabricated into useful articles, e.g., wire insulation. The polyimides can be crosslinked to improve their high temperature properties.

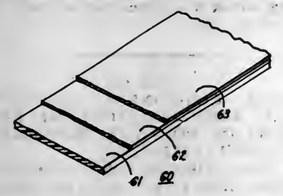
3,551,201
METHOD FOR COATING A THIN, UNIFORM THICKNESS STRIPE ON A SUBSTRATE
Michael A. Marchese, Boulder, Colo., and Lewis G. Taft, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Original application Jan. 13, 1967, Ser. No. 609,171, now Patent No. 3,461,841, dated Aug. 19, 1969. Divided and this application Mar. 4, 1969, Ser. No. 804,227
Int. Cl. H01f 10/00; B05c 1/16
U.S. Cl. 117—235 3 Claims



A stripe of varying cross-section is deposited from a die onto a moving substrate and subsequently dried into a hardened structure of uniform thickness.

3,551,202
SYSTEM COMPONENTS HAVING PROTECTIVE FILM THEREON
Archibald N. Wright, Schenectady, and Clarence J. Watters, New Hartford, N.Y., assignors to General Electric Company, a corporation of New York
Continuation-in-part of application Ser. No. 772,729, Nov. 1, 1968. This application July 22, 1969, Ser. No. 843,840
Int. Cl. G11b 5/40, 5/72, 5/84
U.S. Cl. 117—239 3 Claims
A thin film of ultraviolet surface-photopolymerized tetrafluoroethylene, hexachlorobutadiene, butadiene,

hexadiene or hexafluoropropylene is provided on a magnetic read-record head or a recording member of mag-

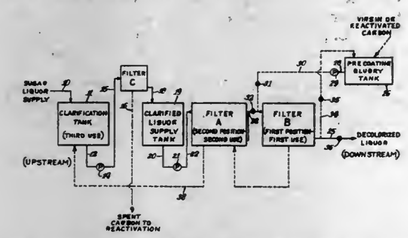


netic recording apparatus to protect the magnetic material film or coating during close clearance operation of these components.

3,551,203
METHOD OF PURIFYING SUGAR LIQUORS

Floyd L. Corson, Brookfield, and Dennis R. Johnson, Bellwood, Ill., assignors to CPC International Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 30, 1967, Ser. No. 664,433
Int. Cl. C13d *3/12*
U.S. Cl. 127—46 **23 Claims**



A method of purifying and decolorizing sugar liquors, such as starch hydrolysates, which includes the steps of passing these liquors through a plurality of filters whereby the downstream filter contains the freshest carbon filter cake. The filters are periodically substituted by cutting in downstream a fresh filter while simultaneously cutting out the filter that has been in service for the longest time. The filters contain cakes of finely divided powdered activated carbon and are of a critical depth, 1/16–1.5 inches.

The treatment of sugar liquors such as corn syrup, cane sugar, relatively impure solutions of dextrose, etc. is one of the oldest of established industrial chemical procedures, and consequently is a very highly developed art. Still, extensive time and money are spent each year on research and development work designed to improve existing methods in this field. A large percentage of such research and development is concerned with improving processes for decolorizing and purifying sugar liquors.

3,551,204
PROCESS AND COMPOSITION FOR RECOVERING ELECTRONIC DEVICES FROM ENCAPSULATION IN POTTING COMPOUNDS

Justin C. Bolger, Needham, and H. James White, Arlington, Mass., assignors to Amicon Corporation, Lexington, Mass., a corporation of Massachusetts

No Drawing. Filed Aug. 8, 1967, Ser. No. 659,012
Int. Cl. C11d *7/06, 7/50;* **C23g** *5/02*
U.S. Cl. 134—42 **1 Claim**

A solvent composition capable of selectively dissolving polyurethane and various epoxy resin systems while leaving metallic and most other polymer systems undamaged is disclosed. This composition contains (a) about 0.1 to 3.0 parts by weight water, (b) about 3 to 7 parts by weight of an alkali metal hydroxide and (c) about 90 to 96.9 parts by weight of an organic solvent selected from the group of lower monohydric alkanols of 2 to 4 carbon atoms and ethylene glycol mono alkyl ethers wherein the alkyl group contains up to 4 carbon atoms. This composition is particularly useful in providing means to recover plastic and metal electronic components which have been encapsulated in resinous potting compounds.

3,551,205
COMPOSITE PAPER ELECTRODE FOR A VOLTAIC CELL

Anthony Vincent Fraioli, Essex Fells, N.J., and William Austin Barber, Stamford, and Allan Murry Feldman, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

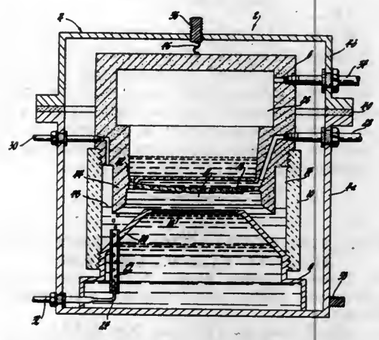
No Drawing. Filed Dec. 5, 1968, Ser. No. 781,577
Int. Cl. H01m *35/02*
U.S. Cl. 136—22 **8 Claims**

Paper electrodes useful in voltaic cells consist of a water-laid web of fibers, e.g., asbestos and cathode active electroconductive particles, e.g., acetylene black with an electroconductive scrim incorporated within the web structure. The flexible paper electrode sheet is especially suitable for shaped electrode structures such as a rolled cathode in a cell. The electrodes have advantage of high porosity providing void space for collection of solid depolarization product during cell discharge. A lithium/SO_2/carbon cell with the paper cathode has excellent capacity and high power/weight ratio.

3,551,206
ELECTRICAL INSULATION IN LITHIUM-CHLORINE ELECTROCHEMICAL CELL

Phillip T. Ross, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 20, 1968, Ser. No. 785,697
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 **4 Claims**



A method and means for electrically insulating a lithium half-cell structure from a chlorine half-cell structure in the presence of an Li-LiCl solution. A pocket of protective gas is provided between the Li-LiCl solution and a ceramic oxide to preclude loss of the ceramic's insulator characteristics.

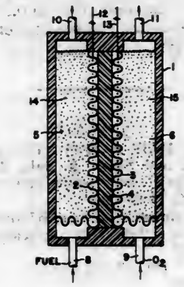
3,551,207
FUEL CELL

Walter A. Herbst, Union, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

Filed Mar. 30, 1961, Ser. No. 99,487
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 **8 Claims**

1. A fuel cell comprising in combination a first compartment, a second compartment, a first transfer means

for introducing a fluid fuel to said first compartment, a second transfer means for introducing an oxidizing gas to said second compartment, and a central reactor assembly comprising at least two electrolyte permeable electrodes providing an anode and a cathode, a catalyst free electrolyte between and in contact with such electrodes providing a medium for ionic transfer therebetween, and conducting means establishing electrical connection between said anode and cathode external to said electrolyte,

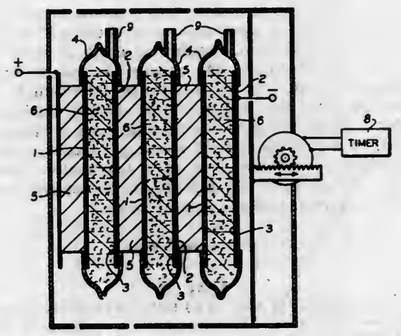


said assembly positioned between and communicating with said first compartment and said second compartment, said first compartment and said second compartment each charged with a liquid electrolyte slurry of electron-conductive, catalyst-comprising, particulate solids so as to admit of contact with said anode and said cathode respectively when fuel is admitted to said first compartment and oxidizing gas is admitted to said second compartment.

3,551,208
CELL WITH DISPLACEABLE ELECTRODE

Zbigniew Stachurski, Brooklyn, N.Y., assignor to Yardney International Corp., New York, N.Y., a corporation of New York

Filed Dec. 12, 1966, Ser. No. 600,870
Int. Cl. H01v *29/04*
U.S. Cl. 136—86 **7 Claims**



This invention is directed to an electrochemical cell or battery in which one of the electrodes is adapted to be displaced relative to the other electrode during normal operation of the cell or battery. The invention also includes a method of operating such cells so that at predetermined intervals the spacing between the two electrodes comprising the cell is modified.

3,551,209
FORMATION OF SKELETAL METAL SOLID ELECTROLYTE FUEL CELL ELECTRODES

James J. Alles and Herbert E. Ricks, Pittsburgh, Wallace D. Reed, Monroeville, and Jay B. Carter, Greensburg, Pa., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Interior

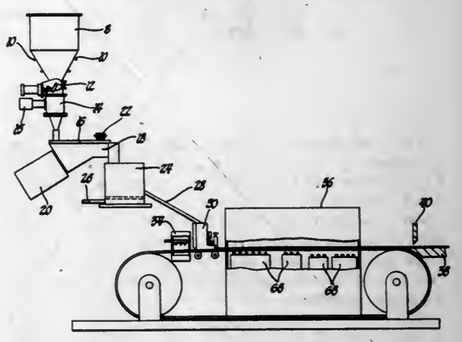
No Drawing. Filed May 21, 1969, Ser. No. 826,724
Int. Cl. C23b *5/52;* **C23f** *17/00;* **H01m** *27/04*
U.S. Cl. 136—120 **10 Claims**

A porous nickel, iron or cobalt electrode is coated on a solid ceramic electrolyte by (a) electrolessly depositing the metal on the electrolyte; (b) electrodepositing a second layer of the metal, while alloyed with molybdenum or tungsten, onto the electrolessly deposited layer; and (c) heating the electrodeposited layer in the presence of water vapor to drive off the molybdenum or tungsten as a volatile oxide.

3,551,210
PROCESS FOR THE HIGH-SPEED MANUFACTURE OF PVC BATTERY SEPARATORS

Max E. Bahler and Roger W. Kellams, Anderson, George L. Larkin, Jr., Muncie, Roy F. Selby and Robert G. Senseney, Anderson, and Webster T. Van Fleet, Yorktown, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Michigan

Filed Feb. 3, 1969, Ser. No. 796,109
Int. Cl. H01m *3/00*
U.S. Cl. 136—148 **2 Claims**



Process for the high speed manufacture of continuous strips of ribbed, sintered polyvinyl chloride (PVC) battery separators. Processing includes PVC particle moisture control, fluidization of particle stream, deaeration of particle stream by successive baffling, maintenance of kinetic mound of particles behind a contouring comb, contouring of the particles, preheating particles to subsintering temperatures and rapid sintering of the particles.

3,551,211
ANHYDROUS BATTERY UTILIZING POLYMERIC ELECTROLYTE

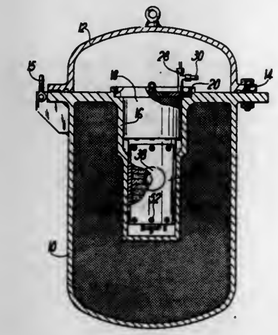
Carl A. Grulke, Berea, Ohio, assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 23, 1968, Ser. No. 786,411
Int. Cl. H01m *11/00*
U.S. Cl. 136—153 **14 Claims**

An electrolyte suitable for battery use comprising an ionically conductive material having a polymeric chain

with radicals regularly disposed along the chain. Each radical contains at least one atom capable of forming a hydrogen bond and at least one hydrogen atom capable of entering into a hydrogen bond. The radicals are of such length and geometrical configuration as to permit each radical to form at least one hydrogen bond with an adjacent radical.

3,551,212
ISOTOPIC ELECTRIC GENERATOR USING THERMOELECTRIC ELEMENTS
Jean-Pierre Freund, Creteil, and Roger Stoll, Paris, France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (SNECMA) and Compagnie Generale de Telegraphie Sans Fil (C.S.F.), Paris, France
Filed Apr. 18, 1968, Ser. No. 722,247
Claims priority, application France, Apr. 24, 1967, 103,997
Int. Cl. G21h *1/10*
U.S. Cl. 136—202 **6 Claims**



The radioisotope-powered electric generator has a thermopile clamped between a metal housing acting as a cold source and a heat collector having an internal bore which receives the isotopic source. The collector is forced toward the thermopile by springs which bear on a support secured to said housing. Heat insulating material fills the space between the heat collector and housing. The source may be inserted into the collector through a closable opening in the housing.

3,551,213
GEOMETRICALLY SELECTIVE ION BOMBARDMENT BY MEANS OF THE PHOTOELECTRIC EFFECT
Willard S. Boyle, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Sept. 4, 1968, Ser. No. 757,226
Int. Cl. H01l *7/54*
U.S. Cl. 148—1.5 **11 Claims**

Geometrically selective ion bombardment of the surface of a target body, such as a semiconductor, is accomplished by means of the photoelectric effect. The body is placed in a gas containing the desired atomic specie, while ultraviolet radiation is focussed upon the surface of the target body in accordance with a desired pattern of bombardment. Photoelectrons are emitted from the surface and are accelerated away from the surface by an applied electric field. Finally, the photoelectrons ionize the gas, and the ions created thereby are accelerated back towards the surface of the target body.

3,551,214
COPPER ALLOY EXHIBITING GAMMA ALUMINA SURFACE AND METHOD
James A. Ford, North Haven, Elmer J. Caule, New Haven, and Philip R. Sperry, North Haven, Conn., assignors to Olin Corporation, a corporation of Virginia
No Drawing. Filed Jan. 29, 1968, Ser. No. 701,062
Int. Cl. C23f *7/02*; **C22c** *9/00*
U.S. Cl. 148—6.31 **14 Claims**

A tarnish resistant alloy consisting essentially of from 1.0 to 9.5% aluminum, up to 5.5% silicon, 0.01 to 0.5% of either phorphorus, arsenic, selenium and bismuth, and at least one element from the group of from 0.05 to 1.5% zinc, 0.05 to 0.3% cadmium, 0.05 to 0.3% beryllium, and 0.05 to 0.5% magnesium, balance copper, and the method of producing the alloy.

3,551,215
METHOD OF PASSIVATING IRON
Earl B. Claiborne and Edwin E. Sale, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 600,716, Dec. 12, 1966. This application Sept. 9, 1969, Ser. No. 856,463
Int. Cl. C23f *7/04*
U.S. Cl. 148—6.35 **8 Claims**

Active forms of iron obtained from fluidized iron ore reduction processes are passivated by heating them to above about 1050° F. and then either cooling them in an oxygen-containing gas to 800 to 1000° F. within about five minutes or treating in a steam atmosphere at 1200 to 1450° F. and then further cooling them to a temperature below about 400° F. in less than about 45 minutes.

3,551,216
METHOD OF PRODUCING A STEEL PACKING STRIP OF HIGH STRENGTH
Herbert Severing, Hohenlimburg, Dieter Radtke, Letmathe, Hans-Wilhelm Grasshoff, Hagen, and Heinz Kress, Holzen, Germany, assignors to Hoesch Aktiengesellschaft Hauptverwaltung, Dortmund, Germany
No Drawing. Filed Oct. 3, 1968, Ser. No. 764,955
Claims priority, application Germany, Nov. 23, 1967, 1,608,163
Int. Cl. C21d *1/26*
U.S. Cl. 148—12 **5 Claims**

A steel packing strip with a tensile strength of around 95 to 125 kp./mm.², an elongation δ_5 of 10 to 17% and a yield point ratio of 0.86 to 0.98 is produced from a hot rolled steel strip of a composition of about 0.35 to 0.80% C., 0.15 to 0.50% Si, possibly as much as 0.045% of P and S, 0.4% to 2% Mn and/or Ni, and the balance substantially all iron of sorbitic or intermediate stage structure after hot rolling to the desired thickness of about 0.30 to 1.30 mm. is cold rolled and is finally subjected to a continuous brief recovery annealing with the beginning of recrystallation at a temperature between about 500 and 680° C., Mn and/or Ni content decreasing with increase in the content of carbon.

3,551,217
SUBMERGED ARC WELDING COMPOSITION
Thomas L. Coless, Maplewood, N.J., assignor to Union Carbide Corporation, New York, N.Y., a corporation of New York
Filed Oct. 1, 1968, Ser. No. 764,250
Int. Cl. B23k *35/38*
U.S. Cl. 148—26 **9 Claims**

A welding composition, for use in submerged arc welding of high-strength, high-impact steels, containing 40 to 50 weight percent of at least one oxide taken from the class of oxides consisting of CaO, ZrO_2, Al_2O_3 and MgO;

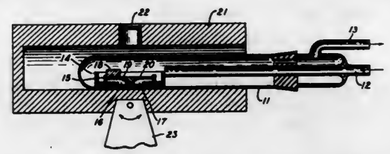


30 to 45 weight percent SiO_2; 8 to 20 weight percent fluoride; and 1 to 8 weight percent TiO_2.

3,551,218
FLUX FOR WELDING TITANIUM AND ITS ALLOYS
Samuil Mordkovich Gurevich, Kiev, U.S.S.R., assignor to Institut Elektrosvarki Im E. O. Patona, Kiev, U.S.S.R.
No Drawing. Filed Dec. 22, 1967, Ser. No. 692,651
Int. Cl. B23k *35/34*
U.S. Cl. 148—26 **4 Claims**

A flux for welding titanium and its alloys is provided. The flux contains at least 77.5% by weight of CaF_2 and may additionally contain varying amounts of NaF, $BaCl_2$ and NaCl.

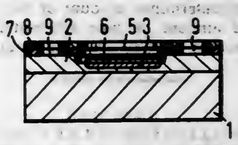
3,551,219
EPITAXIAL GROWTH TECHNIQUE
Morton B. Panish, Springfield, and Stanley Sumski, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed May 9, 1968, Ser. No. 727,927
Int. Cl. H01l *7/34*
U.S. Cl. 148—171 **7 Claims**



Epitaxial films of Group III(*a*)–V(*a*) compounds are grown by tipping techniques utilizing a novel apparatus capable of removing deleterious oxides from the surface of source solutions prior to the deposition thereon of seed crystals. The described technique permits the growth of electroluminescent p-n junction devices capable of emitting light at room temperature in the visible portion of the spectrum.

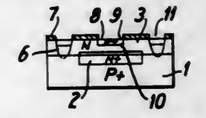
3,551,220
METHOD OF PRODUCING A TRANSISTOR
Winfried Meer, Hohenbrunn, and Wolfgang Schembs, Munich, Germany, assignors to Siemens Aktiengesellschaft, a corporation of Germany
Filed Jan. 23, 1967, Ser. No. 611,010
Claims priority, application Germany, Jan. 26, 1966, S 101,632
Int. Cl. H01l *7/36, 7/44, 7/46*
U.S. Cl. 148—175 **6 Claims**

An improvement in making transistors is described wherein a single mask is used for forming both an etched thin base region and the emitter which comprises indiffusing dopant into the surface of the transistor wafer to produce the base region, coating the base region with an etching mask which is provided with a window extending to the base region, etching a depression into said base



region at the location of said window to reduce locally the thickness of the base region and producing at the base of the depression of the base region, an emitter region.

3,551,221
METHOD OF MANUFACTURING A SEMICONDUCTOR INTEGRATED CIRCUIT
Takayuki Yanagawa, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Nov. 26, 1968, Ser. No. 779,071
Claims priority, application Japan, Nov. 29, 1967, 42/76,316
Int. Cl. H01l *7/34, 7/44*
U.S. Cl. 148—175 **4 Claims**



A method for forming a semiconductor integrated circuit of the isolated type is described wherein high resistance isolation is assured. A single crystal region of, say, n-type conductivity is isolated with p-type semiconductor regions. After the formation of the p-type isolating regions the previously removed insulative oxide film is not replaced until after the formation of a p-type region in the isolated crystal region, thus rediffusing the isolating regions with a p-type impurity. Thereafter, the insulative oxide film is replaced over the isolating regions, whereby additional diffusion steps carried out with the isolated region cannot cause the formation of n-type inversion layers between the isolating regions and the overlying insulative oxide film.

3,551,222
COATED WATER SOLUBLE INORGANIC OXIDIZERS
Martin H. Kaufman, John D. O'Drobinak, and John W. Carroz, China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Mar. 6, 1967, Ser. No. 621,732
Int. Cl. C06b *19/02*
U.S. Cl. 149—7 **10 Claims**

Ammonium perchlorate, potassium perchlorate and potassium nitrate coated with a silane or chrome complex for use in composite propellant formulations whereby improved bonding between the binder and oxidizer results in greatly increased elongations.

3,551,223
PYROTECHNIC HEATING DEVICE
Robert S. Deal, Los Altos, and Joseph H. Evans, Palo Alto, Calif., assignors to Raychem Corporation, Menlo Park, Calif., a corporation of California
No Drawing. Filed May 6, 1968, Ser. No. 727,074
Int. Cl. C06c *3/10*
U.S. Cl. 149—15 **1 Claim**

A device for heating a heat recoverable article to its heat recovery temperature comprising a shield, one sur-

face of said shield being in contact with or near the surface of a heat recoverable article and the other surface of said shield being covered with a material capable of liberating a predetermined amount of heat energy for a predetermined amount of time substantially uniformly over the surface of the heat recoverable article.

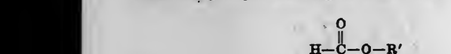
3,551,224

NITRATED CELLULOSE ROCKET PROPELLANTS WITH AMINO FLUORINE CONTAINING PLASTICIZER

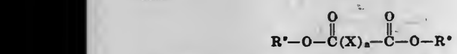
Chester W. Huskins, Clay D. Howard, and Orval E. Ayers, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 10, 1962, Ser. No. 222,736
Int. Cl. C06d *5/00*
U.S. Cl. 149—18 5 Claims

5. A propellant composition comprising 12 to 20 weight percent of a component selected from the group consisting of aluminum, boron, lithium, beryllium and their hydrides, 15 to 20 weight percent nitrocellulose, 34 to 38 weight percent plasticizer and the balance an inorganic oxidizer, said plasticizer being a compound selected from the group consisting of $N\equiv C-R$,



and



wherein R, R', and R'' are alkyl radicals having substituted thereon at each of two adjacent carbon atoms a difluoroamino group, said alkyl radicals having the respective carbon atom limitations of two to four, two to six, and two to three, X is an alkylene radical of up to two carbon atoms, and *n* has a value of zero and 1.

3,551,225

SOLID PROPELLANT COMPOSITION WITH A POLYMERIC BINDER CONTAINING AMMONIUM PERCHLORATE AND ALUMINUM

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Original application Dec. 2, 1965, Ser. No. 513,146, now Patent No. 3,506,713, dated Apr. 14, 1970. Divided and this application Dec. 10, 1968, Ser. No. 793,215
Int. Cl. C06b *11/00*
U.S. Cl. 149—19 2 Claims

Solid propellant compositions that contain aluminum, ammonium perchlorate, diisocyanate cross linking agent and a polymeric binder that contains oxidizer and fuel material.

3,551,226

GELLED MONOPROPELLANT CONTAINING HYDRAZINE AND A NONHYPERGOLIC ACID GAS GELLING AGENT

Barry D. Allan and Walter W. Wharton, Huntsville, and Theodore N. Hubbuch, Florence, Ala., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Oct. 16, 1968, Ser. No. 768,559
Int. Cl. C06c *17/00*
U.S. Cl. 149—36 4 Claims

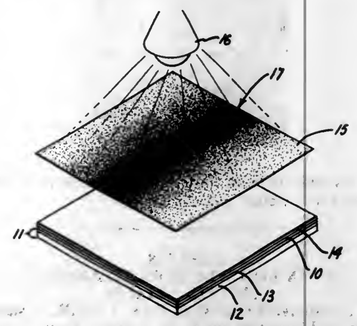
The gelling of various amines (including hydrazines) such as unsymmetrical or symmetrical dimethylhydrazine, diamide and monoethylhydrazine (alone or in admixture) by interaction of the amine and a non-hypergolic acid gas such as CO_2 to form a gelled compound for use as a fuel for rocket motors.

3,551,227

FORMATION OF TAPERED EDGES ON MAGNETIC FILMS BY PHOTOLYTIC ETCHING

James F. Burgess, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed Mar. 4, 1968, Ser. No. 709,962
Int. Cl. C23f *1/02*
U.S. Cl. 156—13 9 Claims



Smooth, tapered edges inhibiting undesirable flux concentrations in magnetic films of nickel-iron, and their alloys are formed by coating the magnetic film with a vehicle containing a photodecomposable compound and exposing the vehicle with activating radiation exhibiting a smoothly tapering power distribution at the edges of the magnetic film. Upon decomposition of the compound, a chemical species is formed point by point at the magnetic film surface in a quantity directly proportional to the power distribution of the irradiating source and the species reacts with the magnetic material to form a soluble product thereby producing a smoothly tapered etching of the magnetic film edges. The speed of reaction with the magnetic film, and therefore the degree of etching, also can be selectively controlled by application of solvent vapor to the coated magnetic film either before or after irradiation of photodecomposable compound.

3,551,228

GLASS ETCHING COMPOSITION AND METHOD OF PREPARING NONREFLECTIVE GLASS

Max Meth, Miami Beach, Fla., assignor, by mesne assignments, to Rose Meth, executrix of the estate of said Max Meth, deceased, Miami Beach, Fla.

No Drawing. Continuation-in-part of application Ser. No. 761,832, Sept. 23, 1968, which is a continuation-in-part of application Ser. No. 541,946, Apr. 12, 1966. This application Oct. 6, 1969, Ser. No. 864,209
Int. Cl. C03c *15/00*; C09k *3/00*
U.S. Cl. 156—24 18 Claims

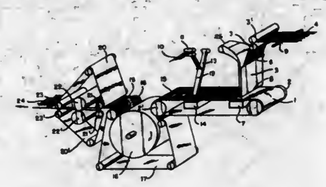
A method is disclosed for preparing high quality, nonreflective glass by a single, short dip of glass articles in an etching solution, followed by rinsing. The preferred glass etching compositions of the invention consist essentially of from about 0.6 to 0.9 part by weight of hydrofluoric acid, calculated as anhydrous HF; from about 0.85 to 1.3 parts by weight of sulfuric acid, calculated as anhydrous H_2SO_4; from about 0.23 to 0.9 part by weight of glycerine; from about 0.25 to 0.4 part by weight of a compound selected from the group consisting of ammonium bifluoride, ammonium fluoride, ammonium hydroxide, ammonium sulfate, and ammonium carbonate, and about 1 part by weight of water. Typically, glass articles, for example panes of glass for picture frames or television picture tubes, are dipped in the etching composition for a period of about 5 to 60 seconds, preferably 10 to 30 seconds, the etching composition being at ambient temperature, preferably a temperature of about 60° to 85° F.

3,551,229

METHOD FOR PRODUCING NONWOVEN FABRICS FROM SPLIT FIBERS

Masahide Yazawa, Tokyo, Japan, assignor to Polymer Processing Research Institute Ltd., Tokyo, Japan, a corporation of Japan

Filed Oct. 2, 1967, Ser. No. 672,154
Int. Cl. B29j *1/00, 5/08*
U.S. Cl. 156—62.2 11 Claims



A method for producing a web of substantially constant width useful for non-woven fabrics from split fibers having dimensional instability inherent to their network structure which are made by splitting uniaxially-stretched films or tapes, the said method comprising feeding said split fibers into a duct through which a fluid is flowing at a velocity greater than the feeding velocity of said split fibers, blowing said split fibers against a screen whereby the fluid is allowed to pass through the screen and said split fibers are allowed to deposit on the screen in the state of their any desired width, thickness and distribution by the guiding and carding action of the fluid flowing through the duct. A method for producing non-woven fabrics from the web whose fiber distribution has been predetermined by the foregoing method, which comprises fixing the fiber distribution by mechanical quilting, needle punching or adhesion by way of a binder having a softening temperature lower than that of said split fibers, and a method for affording a pattern or holes upon said nonwoven fabrics to make them more flexible, less slippery, more air-permeable and more woven-like which comprises embossing said fabrics on heating at a temperature lower than the heat-resisting temperature thereof.

3,551,230

METHOD OF INSTALLING VINYL WALL COVERINGS AND REMOVING SMEARED ADHESIVE FROM THE FRONT SURFACES THEREOF

Gary L. Hansen, 2861 Devereaux Way, Salt Lake City, Utah 84109

No Drawing. Continuation-in-part of abandoned application Ser. No. 565,692, July 18, 1966. This application Sept. 4, 1969, Ser. No. 855,427
Int. Cl. E04f *13/20*
U.S. Cl. 156—71 10 Claims

Smeared adhesive residues, particularly those of white casein type adhesives, are readily removed from vinyl sheeting, wall coverings, and the like, by washing with a dilute solution of hydroxy acid, preferably citric acid. Tartaric acid, glycollic acid, other related acids, and their common salts, such as sodium citrate, sodium tartrate, etc., can be used.

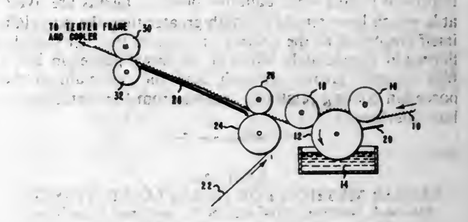
3,551,231

PROCESS FOR PREPARING A TUFTED CARPET USING A HOT MELT BACKSIZING COMPOSITION

George E. Smedberg, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed May 1, 1968, Ser. No. 725,595
Int. Cl. D05c *15/00*
U.S. Cl. 156—72 8 Claims

An improved process for preparing a tufted carpet using a hot metal adhesive backsizing composition is described. The process involves applying a specified pressure (attained by specifically set hold-down rolls) on a tufted structure while it is in contact with an applicator roll



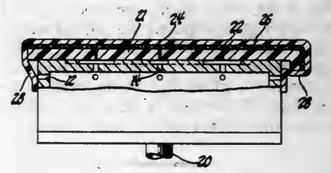
bearing a hot melt adhesive and, substantially immediately thereafter, laminating to the structure a secondary scrim. Subsequently, the laminated structure is support until the adhesive has cooled to below its hot tack temperature.

3,551,232

METHOD OF VACUUM FORMING LAMINATED ARTICLES

James T. Thompson, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 22, 1967, Ser. No. 692,962
Int. Cl. B32b *31/00, 27/38*
U.S. Cl. 156—87 4 Claims



A thermoplastic sheet is vacuum formed on and bonded to a substrate by applying an adhesive containing an inert particulate filler over the substrate and vacuum forming the thermoplastic sheet over the adhesive layer whereby entrapment of air is avoided and a smooth blister and bubble free surface is obtained.

3,551,233

METHOD OF BONDING TWO PORCELAIN COATED OBJECTS

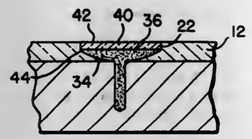
Donald H. Kohnken, Timonium, Md., assignor to SCM Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 564,760, July 13, 1966. This application Dec. 7, 1967, Ser. No. 688,682
Int. Cl. C04b *33/34*
U.S. Cl. 156—89 3 Claims

Porcelain coated metal objects, particularly porcelain coated iron or steel objects, can be joined or sealed together with improved results by adhesive sealing involving an extraneous bonding agent placed between the porcelain coated objects at the areas to be joined or united provided the porcelain coatings at said areas have a reduced thickness as compared with the thickness of the porcelain coatings at other areas. Specifically, porcelain coated objects are joined or sealed together with improved results if the porcelain coating at the location where the

porcelain coated objects are to be sealed or joined together has a thickness of about 1 mil and less, such as a thickness in the range from about 0.25 mil to about 1.5 mils. This joining of porcelain coated objects has been found to yield improved results since adhesive bonding agents are available which have tensile strength greater than the porcelain itself employed as the coating and due to the fact that the porcelain immediately adjacent the metal-porcelain interface exhibits greater strength than the porcelain in the porcelain coating relatively remote from the metal-porcelain interface.

3,551,234
REPAIR METHOD FOR GLASS LINED VESSELS
Orson J. Britton, Pittsford, N.Y., assignor to Sybron Corporation, a corporation of New York
Filed Oct. 11, 1967, Ser. No. 674,483
Int. Cl. B32b *35/00*
U.S. Cl. 156—98 3 Claims



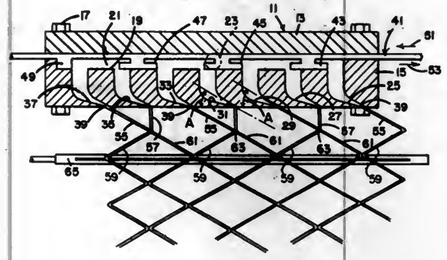
A method of repairing a defect in the coating of a glass coated metallic vessel by first grinding away a portion of the glass at the defect then counterboring, also by grinding, the sound glass adjacent the ground away portion to form an annular seat in the glass coating, the seat having a concave bottom which forms a cement reservoir and then cementing a glass disc in the seat so that the exposed surface of the disc is flush and substantially coplanar with the surface of the glass coating.

3,551,235
RADIATION-CURABLE COMPOSITIONS
Robert W. Bassemir, Jamaica, N.Y., and Richard Dennis, East Rutherford, and Gerald I. Nass, West New York, N.J., assignors to Sun Chemical Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 651,975, July 10, 1967. This application Nov. 24, 1967, Ser. No. 685,253
Int. Cl. B32b *17/00*; C08f *1/16*; C08d *1/00*
U.S. Cl. 156—99 35 Claims

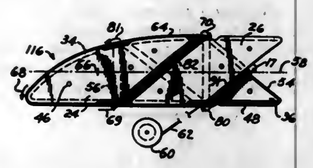
Certain halogenated hydrocarbons act as improved photoinitiators for photopolymerizable compounds comprising an ester of an ethylenically unsaturated acid and a dihydric alcohol or a trihydric alcohol and a film forming compound consisting of an aryl sulfonamide-formaldehyde resin or cetyl vinyl ether and methods of use thereof, such as coating or laminating.

3,551,236
METHOD AND APPARATUS FOR THE MANUFACTURE OF NET-LIKE MATERIALS
Theodore H. Fairbanks, R.D. 4, West Chester, Pa. 19380
Filed July 10, 1968, Ser. No. 743,759
Int. Cl. B32b *5/08*
U.S. Cl. 156—167 10 Claims

A method and apparatus for making a net-like structure in which continuous strand-forming streams, moving along periodically contacting sinuous paths, are provided by extruding flowable plastic material under pulsating pressure through individual orifices which are inclined relative to a horizontal plane, with the extruded streams being set beyond locations at which they contact.



3,551,237
METHOD OF PREPARING FILAMENT-WOUND OPEN BEAM STRUCTURES
William T. Cox, Pomona, and Harold H. Buday, West Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
Filed Apr. 18, 1967, Ser. No. 635,299
Int. Cl. B65h *54/64*, *81/06*
U.S. Cl. 156—175 9 Claims

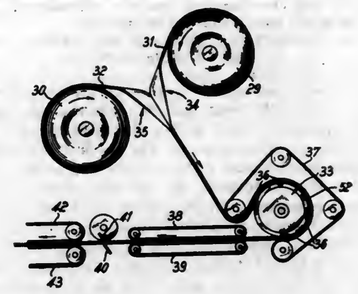


According to the present disclosure, a filament roving is continuously wrapped through several channels on a mandrel so as to form diagonal members of a structural framework. The rovings are impregnated with a bonding material which is then cured, thereby forming a continuously-wound structure.

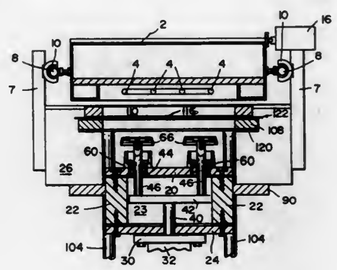
According to an optional but desirable feature of the disclosure, the mandrel is segmentable so that the structure may be continuously wound in sections, thereby affording greater strength to one section than to another section.

3,551,238
PROCESS AND APPARATUS FOR MANUFACTURING VALVED BAG OF PLASTIC MATERIAL SHEETING
Kurt Rochla, Lengerich, Germany, assignor to Windmoller & Holscher, Lengerich, Germany
Original application Aug. 19, 1965, Ser. No. 480,898. Divided and this application Jan. 5, 1968, Ser. No. 695,989
Int. Cl. B31f *1/00*
U.S. Cl. 156—201 6 Claims

Process and apparatus for manufacturing a valved bag commencing with two supply rolls, each carrying a single-ply web of plastic material. The webs are fed along a fixed path along which are disposed a heat-sealing device for forming wide heat-sealed transverse seams for joining the webs at spaced locations and a device for performing cutting operations on the sealed transverse seams.

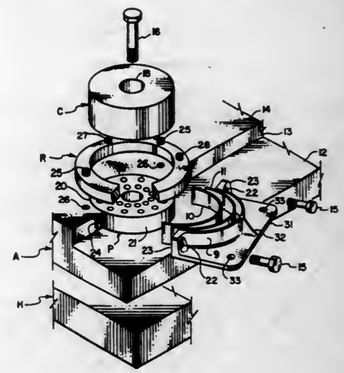


3,551,239
BOX COVERING METHOD AND APPARATUS
Ernest J. Newton, 3795 Wilson Ave., Montreal, Quebec, Canada
Filed Feb. 27, 1968, Ser. No. 708,705
Int. Cl. B29c *17/04*
U.S. Cl. 156—213 14 Claims



This invention is a machine and method for covering box shells with a deformable thermoplastic sheet material in which the material is first softened, then drawn down over a movable support for the box shells so as to cover the outside surfaces thereof, and to form tents over the shells, suction is applied to the inside of the tents to draw the sheet material tightly against the outside surfaces of the box shells and against a tucking member adapted to fit inside the shell, and then the shell is moved toward the member while maintaining the suction with the result that material is transferred from the tucking member and laid up against the inside surfaces of the sides of the box shell. Thereafter, means are used to hold the material to the box shell. The apparatus embodies a gridlike framework for pulling the plastic material down over the box shells toward a base to form the tents, suction apparatus for applying suction to the inside of the tents, and means for causing relative movement between the box shells and the aforementioned tucking member to transfer and lay the material against the inside surfaces of the box shell.

3,551,240
METHOD OF AND APPARATUS FOR BONDING
John J. Damico, Englewood, and John F. Rudy, David M. Shuford, and Theodore F. Wischhusen, Littleton, Colo., assignors to Martin Marietta Corporation, New York, N.Y., a corporation of Maryland
Filed June 5, 1967, Ser. No. 643,722
Int. Cl. B32b *31/20*
U.S. Cl. 156—228 12 Claims



This invention is a method and apparatus for bonding, particularly dissimilar metals bonded by an epoxy resin, wherein the pressure during bonding is controlled by apertures, in a block or pad of heat expandable material, such as silicone rubber, which is confined and bears against one of the parts to be bonded. The apertures are preferably uniform, spaced from the surface engaging a part and may be holes, slots, grooves, etc. When the surfaces to be bonded are arcuate or circular, the silicone rubber block is cylindrical and the apertures comprise axial holes therein. Other types of expandable pressure blocks or pads are also shown. The pressure block may also be through a clamping bolt and torque wrench.

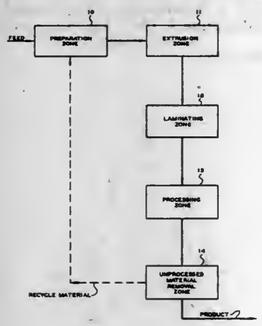
3,551,241
PROCESS FOR PRODUCING A DECORATIVE LAMINATE COMPRISING TRANSFERRING A FILM OF A TRANSPARENT NOBLE THERMOSETTING RESIN TO A DECORATIVE SHEET FROM A FLEXIBLE RELEASE TRANSFER SHEET AND REMOVING THE FLEXIBLE RELEASE SHEET AFTER THE HEAT AND PRESSURE CONSOLIDATION STEP
Albert Joseph Heeb and Gene Edward Grosheim, Cincinnati, Ohio, assignors to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware
No Drawing. Filed Aug. 23, 1967, Ser. No. 662,564
Int. Cl. B32b *31/12*; B44c *3/02*
U.S. Cl. 156—230 10 Claims

A process for preparing a decorative laminate comprising (A) superimposing in stacked relationship an assembly of (a) a rigidity imparting base member, (b) a decorative fibrous sheet impregnated with a noble thermosetting resin and (c) a flexible release transfer sheet, coated on one side only, with a film of a transparent noble thermosetting resin in contact with the derocative sheet, (B) heat and pressure consolidating the entire assembly into a unitary structure and (C) removing the flexible release sheet.

3,551,242
UNPROCESSED MATERIAL UTILIZATION THROUGH SELECTIVE CONTACT

Paul J. Boeke, Kansas City, Kans., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 19, 1966, Ser. No. 603,010
Int. Cl. B29c 29/00
U.S. Cl. 156—244 10 Claims

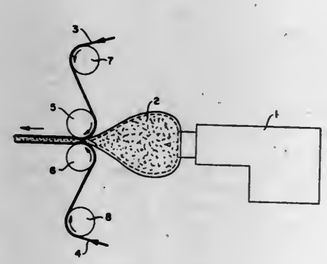


Recovery of waste plastic materials in industrial manufacturing operations is enhanced by a process which comprises applying a coating material such as polyvinylchloride to a substrate such as polyethylene in a predetermined geometrical pattern. Subsequent manufacturing operations affect only the coated portion of the substrate. The noncoated substrate outside the processing zone is readily recovered in condition for reuse.

3,551,243
METHOD OF PRODUCING A LAMINATED FOAMED THERMOPLASTIC SHEET

Gerrit Schuur and Carel J. Breukink, Delft, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Feb. 6, 1968, Ser. No. 703,379
Claims priority, application Great Britain, Feb. 20, 1967,
Int. Cl. B29d 23/04
U.S. Cl. 156—244 6 Claims



A method for the formation of a structure comprising a foamed thermoplastic sheet adhered to a non-foamed sheet such as paper or film is provided which comprises extruding foam sheet and, while at least the surface thereof is above the softening point of the thermoplastic, compressing the foam sheet and liner sheet together to an extent of at least 75% of its volume prior to compression.

3,551,244
METHOD OF PRODUCING AN ULTRATHIN POLYMER FILM LAMINATE

Ralph H. Forester, Minneapolis, Minn., and Peter S. Francis, Wallingford, Pa., assignors to North Star Research and Development Institute, Minneapolis, Minn., a nonprofit corporation of Minnesota

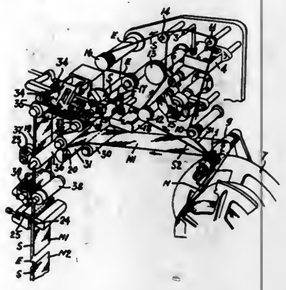
Filed Apr. 3, 1968, Ser. No. 718,384
Int. Cl. B29c 23/00
U.S. Cl. 156—246 1 Claim

A polymer solution flows down an inclined plane onto a water surface to form, on the water surface, generally in the direction of flow, a thin sheath of solution having a generally uniform thickness. The polymer solution spontaneously spreads and as the solvent evaporates, a solid, ultrathin film is formed. As the film forms, it is continuously removed from the surface by drawing a strong, elongated support membrane upwardly from below the water surface through the film-water interface at a rate such that a film of desired thickness is obtained. The film adheres to the support membrane as it is drawn from the water and is laminated to the support membrane as they dry. Alternatively, the film can be removed from the water surface in flake form after subjecting it to a high pressure, downwardly directed water spray to break it into flakes. In the flake forming process, movement of the film from the formation area to the removal area can be aided by continuously moving the water surface in that direction.

3,551,245
METHOD AND MEANS FOR FORMING FROM AND SECURING TO THIN WRAPPER WEBS A REINFORCED TEAR STRIP

Goffredo Gamberini, Bologna, Italy, assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed July 12, 1966, Ser. No. 564,578
Int. Cl. B32b 31/00
U.S. Cl. 156—260 9 Claims



Method and apparatus for forming a cellulosic wrapper wherein at least two strips are cut from a substantially endless wrapper, superimposed one on the other to form a composite tear tape and joined to the wrapper along the longitudinal axis.

3,551,246
RADIATION CURABLE COMPOSITIONS

Robert W. Bassemir, Jamaica, N.Y., and Daniel J. Carlick, Berkeley Heights, and Gerhard E. Sprenger, Carlstadt, N.J., assignors to Sun Chemical Corporation, New York, N.Y., a corporation of Delaware

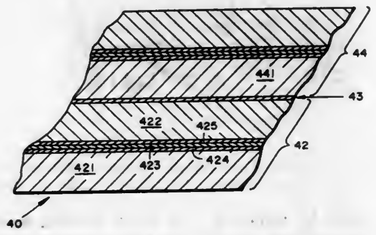
No Drawing. Continuation-in-part of application Ser. No. 651,976, July 10, 1967. This application Nov. 24, 1967, Ser. No. 685,249
Int. Cl. B29c 19/02; C08d 1/00; C08b 1/11
U.S. Cl. 156—272 32 Claims

Photopolymerizing compositions are considerably improved by incorporation therein of ethylenically unsaturated esters of pentaerythritol, dipentaerythritol, and polypentaerythritols with acrylic, methacrylic, or itaconic acids.

3,551,247
LAMINATED VACUUM COATED TITANIUM STRUCTURAL MATERIAL

Frank Feakes, Lexington, Mass., assignor to Norton Research Corporation, Cambridge, Mass.

Filed Jan. 29, 1968, Ser. No. 701,385
Int. Cl. B32b 15/20; C23c 7/00
U.S. Cl. 156—278 7 Claims

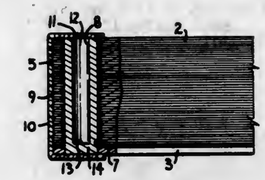


Titanium sheets are vacuum coated with a flash coat of aluminum and then vacuum coated with a thick coat of boron or boron carbide. The coated product has a higher modulus of elasticity than titanium of equivalent thickness and weight and may be laminated to form a structural material.

3,551,248
METHOD OF MAKING PADS OF SHEETS

Boyd C. Blair, Topeka, Kans., assignor to Brackett Stripping Machine Co., Inc., Topeka, Kans., a corporation of Kansas

Filed Feb. 23, 1967, Ser. No. 618,019
Int. Cl. C09j 7/04
U.S. Cl. 156—305 1 Claim



A pad formed of a plurality of sheets of material such as paper having margins adjacent one edge secured together by a substantially rigid post of adhesive extending through aligned apertures in the sheets and adhered to the edges defining said apertures, said sheets having lines of separation spaced from said posts and with the edge portion of the pad exposed or covered with a stripping. The pads or the like being formed by arranging a plurality of sheets in a stack, clamping the sheets together, punching the sheets adjacent an edge to provide through apertures, placing adhesive in surrounding relation to an inserter of lesser cross section than the apertures, inserting same into the apertures and withdrawing the inserter, leaving the adhesive to cure or harden in the respective apertures forming a rigid post bonded to the sheet edges defining the aperture.

3,551,249
METHOD OF BONDING OIL-FILMED SURFACES WITH A SOLVENT-FREE EPOXY RESIN

John W. Harp, Minneapolis, and William L. Minarik, Roseville, Minn., assignors to H. B. Fuller Company, St. Paul, Minn., a corporation of Minnesota

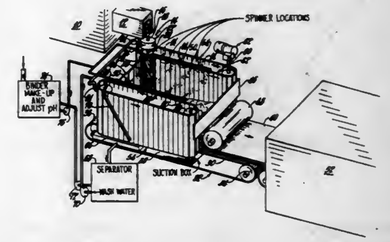
No Drawing. Filed July 18, 1966, Ser. No. 565,698
Int. Cl. C09j 5/00; B32b 27/38
U.S. Cl. 156—330 9 Claims

A method of bonding together two surfaces at least one of which is oil-coated, without need for cleaning same, by forming a solvent-free epoxy resin bonding agent which is formed of 50–95% by weight of diglycidyl ether of bisphenol A and of the balance a polyglycol epoxy resin and adding a quantity of hardener thereto, and applying a thin film of that agent to at least one of said surfaces before bringing them together for bonding.

3,551,250
APPARATUS FOR MAKING UNIFORM MATS OF INORGANIC FIBERS

Robert J. Paoletti, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Filed Dec. 29, 1967, Ser. No. 694,582
Int. Cl. B29j 5/00; B32b 5/16; D21b 1/04
U.S. Cl. 156—370 7 Claims



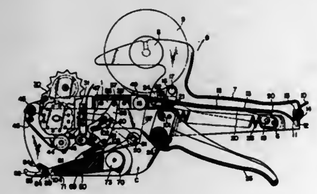
A mat of inorganic fibers is made by sucking an air stream carrying glass fibers and a spray of organic binder down upon the top surface of a foraminous conveyer. A suction box is positioned below the conveyer to draw the material onto the top of the conveyer and the fibers and spray are confined to the top surface of the conveyer by a forming hood. The side walls of the forming hood comprise a pair of parallel endless conveyers having adjacent flights which form opposite vertical side walls of the hood. The adjacent conveyers have vertical head pulleys positioned adjacent the tail pulley of the horizontal conveyer and have tail pulleys spaced in the direction of the movement of the horizontal conveyer from its tail pulley. The conveyer elements of the adjacent flights extend generally vertically and travel in the opposite direction to the horizontal conveyer. The elements of the parallel conveyers have smooth surfaces and are hinged together below these smooth surfaces so that the elements separate as they move around the head pulleys. A flow of wash water flows over and between the elements as they round the head pulley, and an end wall extends between the adjacent flights in the direction of the horizontal conveyer movement from these parallel head pulleys. After the parallel conveyer elements round their head pulleys they are squeegeed to remove the water as they travel to their tail pulleys, following which they again move into position to form hood walls which direct the fiber and binder down upon the horizontal conveyer. The vertical conveyer elements are spaced a slight distance

from the top surface of the horizontal conveyer, and the lower back sides of these conveyer elements ride along a side of a longitudinally extending board positioned just above the top surface of the horizontal conveyer outside of the forming area. The wash water is recirculated a number of times, and a side stream enriched with the binder removed from the parallel conveyers is fed to the binder mix tanks and used to form part of the binder solution.

3,551,251
PORTABLE, ONE-HAND-OPERABLE LABELING MACHINE

Yo Sato, Tokyo-to, Kiyoji Nagashima, Ageo-shi, Yoshio Murata, Omiya-shi, Kazunosuke Makino, Ageo-shi, Eiichi Matsushima, Omiya-shi, and Sozo Izumihara, Kawaguchi-shi, Japan, assignors to Sato Kiko Kabushiki Kaisha, Tokyo, Japan, a joint-stock company of Japan

Filed June 19, 1968, Ser. No. 738,176
Claims priority, application Japan, June 26, 1967, 42/40,906; Aug. 17, 1967, 42/52,452; Sept. 16, 1967, 42/59,244; Sept. 22, 1967, 42/80,476; Nov. 11, 1967, 42/72,485; Feb. 20, 1968, 43/10,474
Int. Cl. B41m 1/30
U.S. Cl. 156—384 4 Claims

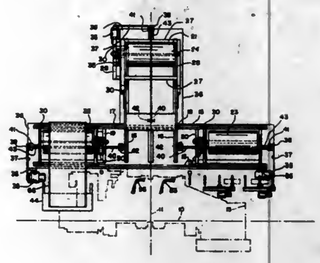


An improved portable, one-hand-operable labeling machine comprising a machine frame having a palm-grip handle integrally joined thereto, a grip lever operated by manual squeezing thereof, a roll holder holding rotatably a roll of label tape coated on one surface thereof with an adhesive material and having partial cuts aligned in the tape transverse direction and spaced at equal intervals in the tape longitudinal direction, a tape advancing means driven by movements of said grip lever to engage successively said cuts to advance said label tape step by step toward a dispensing opening of the machine frame, a tape cutting device driven by movement of said grip lever to cut successively the label tape at said cuts, a printing device driven by movement of said grip lever to imprint inscriptions on each of said cut pieces of the label tape, and a tape applying device disposed in the vicinity of the dispensing opening of the machine and operating to press each label piece onto an article to cause said adhesive material to stick the cut piece to the article. The tape advancing means has at least one pawl tooth for engaging at least one of the cuts of the label tape, said pawl tooth undergoing an intermittent reciprocating motion resulting from one cycle of the squeezing and releasing the grip lever. The tape advancing means may be a tape advancing roller provided around its cylindrical surface with projecting pawl teeth spaced at constant circumferential intervals equal to the spacing intervals of the cuts of the label tape, and may be a conveyer type mechanism. Disclosed also are various kinds of the cutting mechanism adapted to carry out improved and effective cutting of the cuts of the label tape. The adhesive material may be provided with a moisture applying device for applying moisture thereto.

3,551,252
MULTIPLE PLY STOCK SERVICER

Earl L. Bishop and Lester T. Sharp, Cuyahoga Falls, Ohio, assignors, by mesne assignments, to Eagle-Picher Industries, Inc., Cincinnati, Ohio, a corporation of Ohio

Filed Jan. 15, 1968, Ser. No. 697,671
Int. Cl. B29h 17/20
U.S. Cl. 156—406 16 Claims

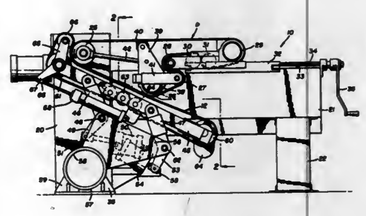


Apparatus for supplying plies of tire building stock to a tire building drum wherein two trackways are disposed behind the drum, one extending in a direction axially of the drum and the other extending in a direction normal to the axis of the drum. Carriages are mounted for movement along the respective trackways from a storage position remote from the drum to a stock applying position adjacent the drum. Each carriage has provision for storing one or more rolls of tire applying stock and one of the carriages has a pan for supporting a layer of tread stock and is adapted to be moved from a storage position remote from the drum to a tread applying position adjacent the drum.

3,551,253
TIRE BAND BUILDING MACHINE

Raymond J. Slezak, Barberton, Ohio, assignor to RJS Corporation, Akron, Ohio, a corporation of Ohio

Filed Apr. 29, 1968, Ser. No. 724,863
Int. Cl. B29h 17/02, 17/28
U.S. Cl. 156—407 6 Claims

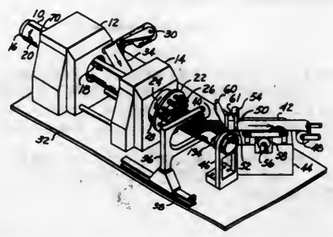


A belt-type building machine as used for making tire bands in a wide range of sizes. A machine has two conveyor-type flat endless belts used cooperatively to build up the laminate structure of a tire band. The two belts are known as a "building belt" and a "hugger belt." The "hugger belt" is selectively positioned in operative relation to the "building belt" and may be selectively driven at linear speeds compatible with movement of the "building belt."

3,551,254
METHOD AND APPARATUS FOR WINDING FILAMENT MATERIAL

Darrel M. Warner, West Covina, and Gerald A. Lunde, Rowland Heights, Calif., assignor to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio

Filed Apr. 5, 1968, Ser. No. 719,196
Int. Cl. B31c 3/00; B65h 19/00
U.S. Cl. 156—426 28 Claims



This disclosure relates to methods and apparatus for winding filament material, and particularly to methods and apparatus for producing filament bias material of extended length.

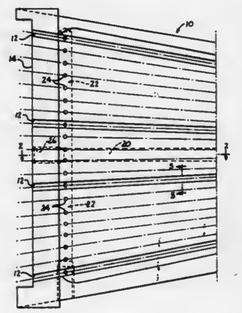
According to the present disclosure, winding apparatus is provided wherein a mandrel is rotated about its axis and is moved along its axis. Guide means is provided for guiding filament material onto the mandrel as it is rotated and moved, and drive means is provided for rotating the guide means about the mandrel axis.

According to the method of the present disclosure, a mandrel is continuously rotated about its axis. Filament material is wound onto the mandrel by rotating a supply of filament material about the mandrel axis. The filament material applied to the mandrel is then cut from the mandrel at a desired bias angle to produce a ribbon of bias material of extended length.

3,551,255
DEVICE FOR FORMING RIBBONS OF RESIN-IMPREGNATED STRANDS OF FILAMENTS

Christian Ragettli, Zurich, Switzerland, assignor to Metal Containers Limited, London, England, a company of the United Kingdom

Filed Mar. 24, 1967, Ser. No. 625,702
Claims priority, application Great Britain, Mar. 24, 1966, 12,997/66
Int. Cl. B32b 35/00
U.S. Cl. 156—434 5 Claims

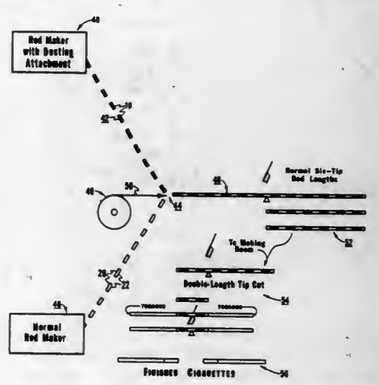


A device for forming ribbons of resin-impregnated strands of filaments for use in making filament wound vessels including a plate-shaped member having a series of laterally spaced grooves which converge at the exit end and a series of passages to provide synthetic resin to each groove individually.

3,551,256
APPARATUS FOR MAKING A MULTI-SEGMENTED FILTER

George A. Watson, Charlotte, N.C., assignor to Celanese Corporation, a corporation of Delaware

Original application Nov. 21, 1963, Ser. No. 325,255. Divided and this application Apr. 25, 1967, Ser. No. 661,484
Int. Cl. A24c 5/56
U.S. Cl. 156—441 8 Claims

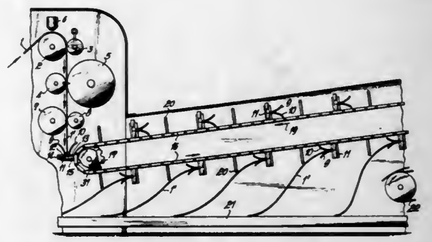


An apparatus is described for use in forming a multi-segmented filter at least a portion of the segments of which have solid particles freely associated therein.

3,551,257
MACHINE FOR MANUFACTURING OPEN BAGS OF PLASTICS MATERIAL

Kurt Rochla, Lengerich, Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

Filed May 22, 1967, Ser. No. 640,112
Claims priority, application Germany, May 25, 1966, W 41,664
Int. Cl. B32b 31/20; B30b 15/34
U.S. Cl. 156—510 23 Claims

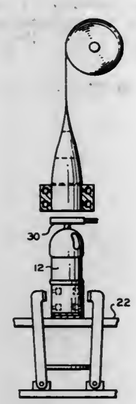


The machine comprises a device for severing the incoming tubing of plastics material and revolving endless carrying elements provided with spaced apart heat-sealing jaws. The spacing of the heat-sealing jaws is much less than the length of the bags to be manufactured. The heat-sealing jaws are incorporated in heat-sealing devices provided with means for holding and feeding the work-pieces, which are held during the heat-sealing operation only at the end which is to be heat-sealed.

3,551,258
LABEL APPLYING APPARATUS

Aldo B. Galvanoni, Charles W. Osmond, and Lloyd M. Farley, Cincinnati, Ohio, assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Mar. 21, 1969, Ser. No. 809,199
Int. Cl. B32b *31/02*; B65c *3/26*
U.S. Cl. 156—556 7 Claims

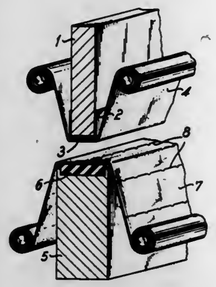


A tubing of film is fed to a vacuum ring which spreads the tubing, and a mandrel is moved into the spread tubing. The mandrel is then withdrawn with a section of the tubing. A container is moved into alignment with the mandrel, and the tubing section is transferred from the mandrel to the container. The tubing section forms a label on the container.

3,551,259
APPARATUS FOR MAKING HEAT-SEALS WITH A WEAKENED TEAR LINE

August Schwarzkopf, Lengerich, North Rhine-Westphalia, Germany, assignor to Windmoller & Holscher, Lengerich, Westphalia, Germany

Filed Oct. 27, 1967, Ser. No. 678,559
Claims priority, application Germany, Dec. 6, 1966, W 42,922
Int. Cl. B32b *31/20*; B30b *15/06*
U.S. Cl. 156—581 8 Claims

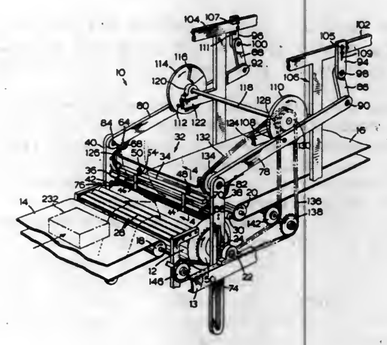


In apparatus for heat sealing at least two superimposed plies of synthetic thermoplastic sheeting with simultaneous formation of a weakened tear line adjacent to the heat-sealed seam, the heat sealing jaw comprises a heating element having a striplike heat sealing surface, the unheated backing jaw has a resilient abutment layer, and a thin bead element extends over the engaging surface of the two jaws, preferably oven the engaging surface of the unheated backing jaw, approximately along the longitudinal center line of the area of the heat-sealed seam. That portion of the bead element which protrudes from the engaging surface of the respective jaw has interruptions, which are closely spaced in the longitudinal direction. The bead element is connected to its support at least adjacent to the interruptions.

3,551,260
HEAT SEALING APPARATUS FOR SEALING TOGETHER HEAT SEALABLE FILMS

Herbert C. Catherwood, Hamilton, Ontario, Canada, assignor to William N. Histed, Hamilton, Ontario, Canada

Filed Sept. 19, 1968, Ser. No. 760,871
Int. Cl. B30b *15/34*; B65b *51/10*
U.S. Cl. 156—583 10 Claims



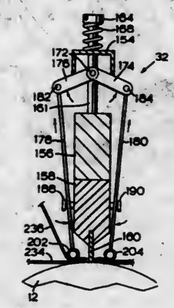
A heat sealing apparatus for sealing films of heat sealable material together comprises a film supporting surface at a sealing position and heat sealing means, which comprises at least one heat sealing blade to seal the films at the sealing position. The heat sealing blade is mounted for limited pivotal movement about a first axis and means are provided to move the first axis along a substantially elliptical path the extremities of the major axis of which are constituted by the points of nearest and farthest approach of the axis to the sealing position. The movement of the first axis is in such a direction that the blade and the films travel in substantially the same direction at the sealing position. Means are provided for heating the blade to a heat sealing temperature, and in operation the blade lies across and firmly contacts the upper of the two films at the sealing position, the temperature of the blade and the pressure of the blade on the films at the sealing position being sufficient to heat seal the films together. The elliptical path allows the packaging of bulky articles by the apparatus.

3,551,261
HEAT SEALING AND CUTTING MEMBER FOR HEAT SEALING OVERLYING FILMS OF MATERIAL

William N. Histed, 89 Empress Ave., Hamilton, Ontario, Canada

Filed Sept. 20, 1968, Ser. No. 761,188
Int. Cl. B32b *31/20*; B30b *15/34*
U.S. Cl. 156—583 8 Claims

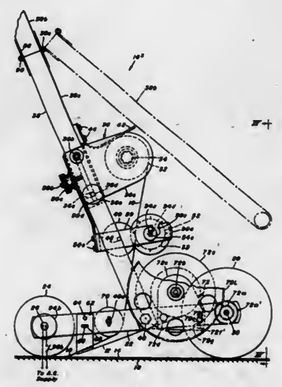
A heat sealing device for heat sealing films of heat sealable material together comprises a heat sealing blade having a film-contacting heat sealing edge and a movable shield located adjacent the blade. The shield is movable from a first position in which it extends beyond the heat sealing edge to a second position in which the heat sealing edge is exposed. In operation, the shield prevents unintentional contact between the heat sealing edge and a film to be sealed using the blade.



3,551,262
METHOD OF AND APPARATUS FOR DISPENSING AND APPLYING LABELS

Calvin E. Kelly, Franklin Township, Westmoreland County, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Oct. 16, 1967, Ser. No. 675,673
Int. Cl. B32b
U.S. Cl. 156—584 23 Claims

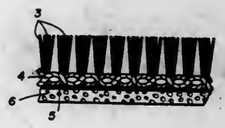


The improved product-marking system has supporting means for the elongated member, apparatus engageable with the elongated member for dispensing the pressure-sensitive adhesive labels (which labels are mounted in a first spaced relation on a label-bearing carrier strip) and for applying the labels onto the elongated member in a second spaced relation, and drive means connected to one of said supporting means and the label-dispensing and applying apparatus for causing relative movement therebetween. This apparatus has a frame provided with a first rolling means and a second rolling means, supply means on the frame for the label-bearing carrier strip, peel-off means on the frame adjacent the elongate member and having the label-bearing carrier strip adjacent one side of the peel-off means while the label-bearing carrier strip is moving in one direction toward the elongated member so that the label continues in such one direction while the carrier strip moves around the peel-off means and continues in another direction away from the elongated member. The label is moved in the one direction by the carrier strip and into engagement with the elongated member as the carrier strip moves in the other direction. Idler means are disposed between the supply means and the peel-off means for disposing the label-bearing carrier strip in the one direction, and the label is flattened against the elongated member as one of the first rolling means and the second rolling means engages the label. Storage means are provided on the frame for the carrier strip. An improved system for and method of applying such labels is also disclosed.

3,551,263
CUT PILE TYPE SYNTHETIC TURF SIMULATING GRASS

Ernest P. Carter, Durham, N.C., and Chilton T. Vest, Decatur, Ala., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Jan. 24, 1968, Ser. No. 700,235
Int. Cl. A41g *1/00*
U.S. Cl. 161—21 21 Claims



Synthetic grass products of improved quality are produced by conventional tufting of braided ribbons characterized by substantially rectangular cross sections, by conventional carpet weaving or knitting techniques, or by otherwise securing braided ribbons to a backing.

3,551,264
FLUOROCARBON SOUND RECORD

Salvatore S. Mulay, Babylon, N.Y., assignor to Tri-Point Industries, Inc., a corporation of New York

No Drawing. Original application Apr. 11, 1966, Ser. No. 542,430, now Patent No. 3,469,848, dated Sept. 30, 1969. Divided and this application June 24, 1969, Ser. No. 843,898
Int. Cl. B32b *27/06*
U.S. Cl. 161—42 10 Claims

A rigid phonograph disc record having upper and lower flat surfaces and wherein at least one of said surfaces is made substantially of polytetrafluoroethylene plastic. The disc record may have a laminated metal backing and a circular spiral grooved sound track recessed in the polytetrafluoroethylene plastic surface.

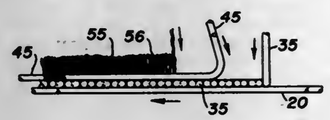
3,551,265
DIMENSIONALLY STABLE NON-WOVEN FABRIC

Robert Cheves Jackson, Dayton, Ohio, assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Original application May 17, 1968, Ser. No. 730,033, now Patent No. 3,488,819, dated Jan. 13, 1970. Divided and this application May 7, 1969, Ser. No. 823,251
Int. Cl. B32b *5/12*; D04h *5/02, 5/08*
U.S. Cl. 161—57 3 Claims

A non-woven fabric which is comprised of a non-woven scrim having parallel longitudinal warp yarns, transversely continuous filament weft yarn and randomly laid filler yarns which are mechanically interlocked into the scrim is manufactured by pneumatically depositing a continuous

weft yarn onto a foraminous conveyor belt, laying a plurality of parallel warp yarn thereon and randomly distributing a batt of filler yarns on top of the warp and weft



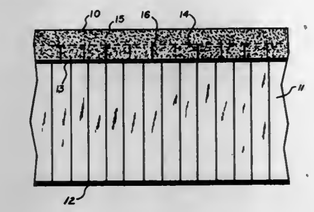
yarns so that upon needle punching, a mechanically bonded fabric is produced which had good strength, drapeability and hand.

3,551,266

CERAMIC INSULATION FOR RADIANT HEATING ENVIRONMENTS AND METHOD OF PREPARING THE SAME

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Vaughn F. Seltzinger, Fayetteville, Tenn., and Robert W. Allen, Titusville, Fla.

Filed Mar. 1, 1968, Ser. No. 709,622
Int. Cl. B32b *19/08, 3/10*
U.S. Cl. 161—69 11 Claims



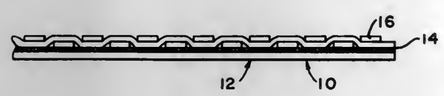
An unfired ceramic insulation containing finely divided potassium titanate, asbestos and alumina-silica refractory fibers in a gelled silica sol binder. The insulation is prepared by acidifying a silica sol, mixing the sol with the remaining components, applying the mixture to a substrate and curing. Migration of the binder during curing is prevented by acidification of the silica sol.

3,551,267

POLYPROPYLENE FABRIC CARPET WRAP

William P. Addison, Jr., Atlanta, Ga., assignor to Allied Products Corporation, Chicago, Ill., a corporation of Illinois

Filed Apr. 6, 1970, Ser. No. 25,796
Int. Cl. D03d *11/00;* D21h *1/08;* B32b *11/06*
U.S. Cl. 161—82 1 Claim



Paper, asphalt, and fabric of woven strands of longitudinally oriented polypropylene are laminated by a continuous method in spite of the fact that the softening point of polypropylene is below the laminating temperature of the asphalt. The resulting carpet wrap is more durable, cheaper, stronger and better looking than paper-burlap laminates used heretofore, and yet has much lower bulk density.

3,551,268

CROSS-FIBERED TAPE, AND USES THEREOF

James L. Casadevall, Orlando, Fla., assignor to Martin Marietta Corporation, New York, N.Y., a corporation of Maryland

Filed July 7, 1967, Ser. No. 651,771
Int. Cl. D03d *1/00;* B32b *25/02*
U.S. Cl. 161—89 8 Claims



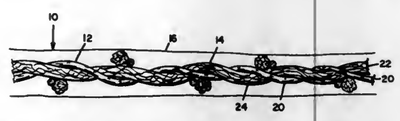
This invention relates to the use of a novel cross-fibered tape by the use of which a wide variety of structural or temperature-resistant materials can be joined together. This tape can consist of a large number of short fibers, such as of fiber glass, that are held together by a center member extending the length of the tape, but leaving both ends of the fibers free and therefore available to be joined such as by adhesive means to the two materials that are to be secured together. Even though relative motion takes place between the two materials, due for example to heating effects, the tiny fibers serve in a highly advantageous manner to prevent complete separation of the two materials.

3,551,269

GLASS FIBER-PLASTIC COMPOSITES OF IMPROVED STRENGTH

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Filed Mar. 6, 1967, Ser. No. 620,694
Int. Cl. D02g *3/18, 3/36;* D03d *15/00*
U.S. Cl. 161—93 7 Claims



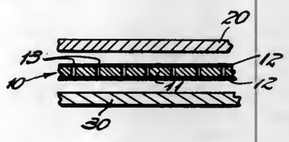
A composite wherein a plastic is reinforced by glass yarn, which yarn is formed by at least two strands twisted together to provide loops with the fibers of the loops being at least partially filamentized and longer than the fibers of the other strand which they overlay.

3,551,270

BONDING AIR-IMPERVIOUS FLEXIBLE SHEETS USING AN ADHESIVE, PERFORATED, INNER SHEET AND ARTICLE PRODUCED THEREBY

Melvin Sharkey, 1614 Hereford Road, Hewlett, N.Y. 11557

Filed Jan. 30, 1967, Ser. No. 612,651
Int. Cl. B32b *3/10, 31/12;* C09j *7/04*
U.S. Cl. 161—113 8 Claims



Lamination of flexible sheet materials in which an interior bonding sheet is provided on opposite sides with a layer of thermoplastic adhesive and sheets are bonded

to said opposite sides without the formation of air bubbles between said sheets and the bonding sheet characterized in that the bonding sheet is provided with a multiplicity of spaced holes to accommodate any trapped air.

3,551,271

NONWOVEN FABRICS CONTAINING HETEROFILAMENTS

Gwilym G. Thomas, Panteg, and Christopher R. Sissons, Raglan, England, assignors to British Nylon Spinners Limited, Pontypool, England

No Drawing. Continuation of application Ser. No. 473,824, July 21, 1965. This application July 15, 1969, Ser. No. 847,499
Claims priority, application Great Britain, July 30, 1964, 30,442/64
Int. Cl. D04h *1/04, 1/54, 3/00*
U.S. Cl. 161—150 5 Claims

A non-woven fabric is made by forming a web containing at least 5% by weight heterofilaments comprising at least two components at least one of which is an elastomer and at least one of which is potentially adhesive, and subsequently activating the adhesive component to bond the structure at the filament cross-over points. Preferably the elastomeric and potentially adhesive component are the same component.

3,551,272

PAPER OVERLAYS AND LAMINATED MATERIALS

Jacob R. Ash, Seattle, Wash., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed May 9, 1967, Ser. No. 637,087
Int. Cl. B32b *27/20, 27/42;* D06b *7/04*
U.S. Cl. 161—164 6 Claims

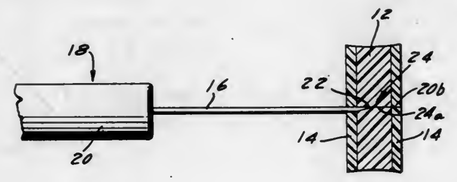
This application describes resin impregnated sheet material capable of being bonded directly to wood substrates at compressive pressures in the range of 150 to 350 p.s.i. and a temperature in the range of 250 to 400° F. while attaining superior surface properties such as abrasion resistance, appearance and the like. The sheet materials can be satisfactorily prepared by a single-pass impregnation method and are characterized by having the resin concentrated in the surface portions of the sheet material.

3,551,273

SEPTUM FOR USE IN A GAS CHROMATOGRAPH

Carlton B. McKinney, Los Angeles, Calif., assignor to Hamilton Company, Inc., Whittier, Calif., a corporation of California

Filed Oct. 15, 1965, Ser. No. 496,337
Int. Cl. B32b *7/02;* B65d *39/02*
U.S. Cl. 161—166 8 Claims



A septum or seal for chromatograph inlets, said seal having three layers of silicone rubber, the inner layer being of relatively thick, soft rubber and the outside layers being thinner and of harder rubber. The relatively soft inner layer clings to a needle thrust therethrough and returns quickly to its original shape when the needle is withdrawn, preventing sample "blow back."

3,551,274

RIGID SHOCK RESISTANT ROOF DECK BOARD MADE OF CELLULAR PELLETS

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Continuation-in-part of application Ser. No. 378,216, June 26, 1964. This application Feb. 10, 1967, Ser. No. 615,227
Int. Cl. B32b *5/18;* C03c *17/32, 11/00*
U.S. Cl. 161—168 8 Claims



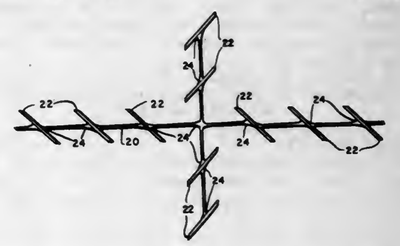
A composite, and method of making the same, wherein cellular inorganic pellets are bonded together with a thin coating of a binder which leaves interconnected interstitial voids between the coated pellets, which voids are impregnated with a plastic shock absorbent material that greatly reduces the brittle nature of the composite. The rigid shock resistant composite may be made of glass or clay cellular pellets, an organic or inorganic binder, and resilient or plastic shock absorbing materials such as bituminous materials, waxes, or various organic resin foams.

3,551,275

BRANCHED FIBER AND FIBROUS COMPOSITION FORMED THEREFROM

James Teng, Cleveland, Ohio (9530 Carnival Drive, St. Louis, Mo. 63126)

Filed Feb. 23, 1967, Ser. No. 618,131
Int. Cl. D02g *3/00;* B32b *27/02*
U.S. Cl. 161—170 6 Claims



Fibers having branched chains are useful for the preparation of fibrous products of enhanced dimensional strength and stability. Fibrous products derived from the branched fibers are useful as textile products, non-woven fabrics, filament compositions, etc. A branched fiber is disclosed having two main-trunks joined together near their midpoints in substantially perpendicular relationship, each trunk having a multiple of short branches extending therefrom.

3,551,276

HIGH TEMPERATURE INSULATION-BINDER COMPOSITION

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

No Drawing. Filed Apr. 25, 1968, Ser. No. 724,226
Int. Cl. B32b *5/16;* C03c *25/02*
U.S. Cl. 161—170 2 Claims

Bonded glass fiber insulating materials ranging from resilient, low density wool-like masses, to relatively dense,

molded board-like structures of substantially permanent shape. The glass fibers are bonded together at points of fiber-to-fiber contact by heat-setting or with a non-punking organic binder material and the resultant bonded mass is impregnated with an inorganic binder-impregnant which, upon subsequent treatment, hardens to form a ceramic-like, heat-resistant coating for the glass fibers and also serves an auxiliary bonding function.

3,551,277

HIGHLY CRIMPABLE POLYAMIDE COMPOSITE FILAMENTS

Yoshio Tamura, Settsu, and Satoshi Ando, Osaka, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

No Drawing. Filed Sept. 28, 1967, Ser. No. 671,217
Claims priority, application Japan, Oct. 10, 1966, 41/66,548
Int. Cl. D01d 5/28
U.S. Cl. 161—173 14 Claims

Production of polyamide composite filament having high crimpability, one component of which is polycapramide and the other component of which is a copolyamide consisting of 0.01 to 5% by weight of nylon salt composed of a dicarboxylic acid and a polyfunctional diamine having the general formula

$$H_2N—(CH_2)_n—R(CH_2)_n—NH_2$$

wherein R is >C=O, CHOH, >CHCl or >CHBr and n is 3 to 11, 3 to 20% by weight of another nylon salt and 75 to 95% by weight of polycapramide forming components.

3,551,278

METHOD OF PRODUCING IMPROVED SELF-CRIMPABLE CONJUGATE FILAMENTS, FROM POLYAMIDES AND POLYETHER-ESTERS

Fumimaro Ogata, Nishinomiya, and Katsuhiko Nagamine, Takatsuki, Japan, assignors to Kanegafuchi Boseki Kabushikikaisha, Tokyo, Japan and Snia Viscosa Società Nazionale Industria Applicazioni Viscosa S.p.S., Milan, Italy

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,798
Claims priority, application Japan, Jan. 14, 1967, 42/2,823, 42/2,824
Int. Cl. D02g 3/00; C08g 41/04
U.S. Cl. 161—173 9 Claims

A method for the manufacture of self-crimpable filaments, wherein two components in side-by-side or in eccentric sheath-core relationship are conjugatedly spun through a common orifice. One component consists of a homopolyamide and the other consists of a mixture including from 50% to 97% the same or a similar polyamide and from 3% to 50% of an aromatic polyester-ether alone or combined with an aromatic polyester.

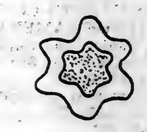
3,551,279

SYNTHETIC FIBER HAVING SILK-LIKE SURFACE LUSTER AND LIGHT TRANSPARENCY

Satoshi Ando, Osaka, Toru Uraya, Kobe, and Koetsu Nagata, Osaka, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan, and Snia Viscosa, Società Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy

Filed Aug. 19, 1968, Ser. No. 753,572
Claims priority, application Japan, Aug. 25, 1967, 42/54,598
Int. Cl. D02g 3/36
U.S. Cl. 161—174 14 Claims

Synthetic fibers having a silk-like surface luster and light transparency are prepared by spinning a polymer composition having delustering effect and another polymer composition having substantially no delustering effect through a common orifice simultaneously into a sheath-core type composite fiber having non-circular cross-section wherein the former polymer composition forms the core component and the latter polymer composition forms the sheath component. The polymer composition having delustering effect is obtained by adding at least 0.3% by weight of a delustrant of titanium oxide particles, the maximum size of which is 5μ and which comprise at least 50% by weight of particles having a size of less than 1.0μ thereto and the polymer composition having substantially no delustering effect is obtained by adding less than 0.06% by weight of the same titanium oxide particles as described above thereto.



3,551,280

SYNTHETIC TWINES AND METHOD OF PRODUCTION THEREOF

James A. Kippan, West Vancouver, British Columbia, Canada, assignor, by mesne assignments, to Delta Rope & Twine Limited, Nassau, Bahamas, a corporation of the Bahamas

Continuation of application Ser. No. 441,619, Mar. 22, 1965. This application Apr. 1, 1969, Ser. No. 853,986
Int. Cl. D02g 3/36; B28b 3/20
U.S. Cl. 161—175 6 Claims



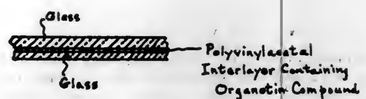
A twine comprising a bundle of longitudinally-extending, oriented synthetic monofilaments, and a thin synthetic bedding casing formed of crushable, compatible material encasing the monofilaments, said casing having been applied to said monofilaments when hot enough to fuse with the outer monofilaments with which it is in contact, and a method of making said twine.

3,551,281

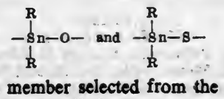
LAMINATED SAFETY GLASS WITH POLYVINYL-ACETAL INTERLAYER CONTAINING ORGANOTIN COMPOUND

Hirozō Takaura, Kouga-gun, Toshiharu Misaka, Ohtsushi, and Sumio Andō, Kurita-gun, Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed July 24, 1967, Ser. No. 655,584
Claims priority, application Japan, July 29, 1966, 41/49,947; Feb. 10, 1967, 42/8,683
Int. Cl. B32b 17/06
U.S. Cl. 161—199 14 Claims



In laminated safety-glass which comprises at least two sheets of glass adhered together with a plasticized polyvinylacetal interlayer, the improvement wherein said interlayer contains at least one organotin compound, said tin compound containing in its molecules a member selected from the group consisting of structural units of the formulas



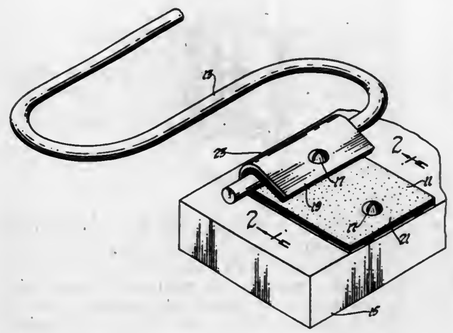
wherein R is a member selected from the group consisting of alkyl, aryl and aralkyl.

3,551,282

CLIP AND ANTIFRICTION MATERIAL

Wilford L. Hogue, Minerva, Ohio, assignor, by mesne assignments, to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware

Filed July 28, 1966, Ser. No. 568,659
Int. Cl. B32b 9/06, 15/12
U.S. Cl. 161—220 1 Claim



The subject matter of this invention is a clip for engaging a wire. It includes a metal backing member and a liner, preferably formed of paper, bonded to it. The liner is coated with a mixture that includes substantial amounts of solid paraffin, substantial amounts of a high molecular weight copolymer of methylstyrene and vinyl toluene and in addition preferably includes a small amount of edible mono and diglycerides of edible fat-forming fatty acids.

3,551,283

DECORATIVE HEAT AND PRESSURE CONSOLIDATED LAMINATE HAVING ON ITS BACK MOST SURFACE A COATING OF A POLYMER OF AN ACRYLIC MONOMER HAVING CERTAIN PARAMETERS WITH RESPECT TO FILM FORMATION TEMPERATURE, TUKON HARDNESS AND TRANSITION TEMPERATURE

Larry Zorah Isaacson and Peter Bernard Kelly, Cincinnati, and William Kuno Neidinger, Columbus, Ohio, assignors to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware

No Drawing. Filed Sept. 23, 1968, Ser. No. 761,799
Int. Cl. B32b 27/10, 27/30, 27/42
U.S. Cl. 161—248 9 Claims

A decorative heat and pressure consolidated laminate comprising a decorative sheet impregnated with a noble thermosetting resin having bonded thereto a core sheet impregnated with a thermosetting phenolic resin, a core sheet having been coated on that side furthest away from said decorative sheet with an acrylic polymeric coating material having a particle size between about 0.1 and 0.4 micron, having a minimum film formation temperature between about 0° C. and 20° C., a Tukon hardness between about 0.5 and 3.0 and a transition temperature of from about −20° C. and +30° C., said coating having been applied before the heat and pressure consolidation, wherein said thermosetting resins have been converted to the thermoset state during the heat and pressure consolidation.

3,551,284

BONDING OLEFIN COPOLYMERS TO POLYOLEFIN FIBERS

Augusto Portolani, Milan, Gino Pancirolli, Bologna, and Sandro Giovanardi, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy

No Drawing. Continuation-in-part of application Ser. No. 432,400, Feb. 12, 1965. This application Sept. 12, 1968, Ser. No. 759,515
Claims priority, application Italy, Feb. 13, 1964, 3,159/64
Int. Cl. B32h 27/08
U.S. Cl. 161—252 10 Claims

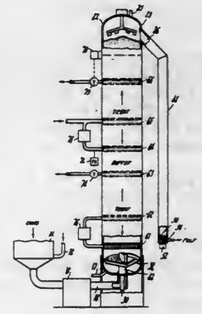
Bonding elastomeric copolymer or ethylene and another alpha-olefin to fiber of isotactic olefin homopolymer by applying film of mixture of elastomeric copolymer, organic peroxide curing agent and carbon black or white mineral reinforcing filler directly onto homopolymer fiber and then heating to vulcanize the copolymer without melting the homopolymer fiber. Fiber needs no pretreatment. No solvent is used. Coating mixture may contain dispersion promoters and neutralizing agents.

3,551,285

CONTINUOUS PULPING MULTIZONE METHODS

Lloyd N. Lang, deceased, late of Chicago, Ill., by James Lang, administrator, 1300 S. Michigan Ave., Chicago, Ill. 60605

Continuation of application Ser. No. 424,871, Dec. 9, 1964. This application Jan. 13, 1967, Ser. No. 608,722
Int. Cl. D21c 3/26
U.S. Cl. 162—18 2 Claims



Continuous pulping of wood chips or the like by multizone reaction methods within a single upright reaction vessel by the continuous three-stage treatment of the wood chip component of a wood chip-liquid mixture successively to treat said wood chip component with dissimilar chemical reagents in adjacent first and second treatment zones with further treatment in a third treatment zone within the digester vessel by continuously maintaining a generally upright elongated compacted mass of said wood chips within the vessel by progressively feeding said wood chips to the input end of said mass, progressively advancing said wood chips throughout the length of said mass and continuously discharging the treated wood chips from the output end of said mass, meanwhile simultaneously treating the same in a plurality of successive zones.

3,551,286
POLYSULFIDE PAPER PULPING COMPOSITION

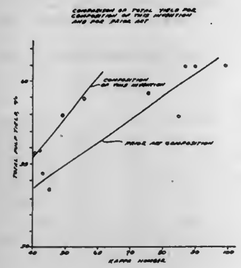
Richard G. Barker, Princeton Junction, N.J., assignor to Union Camp Corporation, New York, N.Y., a corporation of Virginia

Continuation-in-part of application Ser. No. 620,288, Mar. 3, 1967. This application Jan. 3, 1968, Ser. No. 695,495

The portion of the term of the patent subsequent to Sept. 30, 1986, has been disclaimed

Int. Cl. D21c *3/00*

U.S. Cl. 162—82 6 Claims



An aqueous, alkaline modified kraft pulping solution for obtaining increased cellulose yield in paper pulping, while minimizing corrosion and air pollution, comprising a total sulfur content of from 5 to 60 grams per liter, said sulfur consisting of from 43 to 80 percent from an alkali metal polysulfide, from 40 to 15 percent from an alkali metal sulfide, and up to 17 percent from an alkali metal thiosulfate, particularly a pulping solution, the active inorganic constituents of which are recirculated for additional pulping, after recovery.

3,551,287
TOTALLY INORGANIC PAPERS AND MEMBRANES SUITABLE FOR ION EXCHANGE MADE OF CERIUM (IV) PHOSPHATE AND PROCESS FOR PREPARING THE SAME

Giulio Alberti and Umberto Costantino, Rome, Italy, assignors to Comitato Nazionale per l'Energia Nucleare, Rome, Italy

No Drawing. Filed May 13, 1968, Ser. No. 728,775

Claims priority, application Italy, May 13, 1967, 36,739/67

Int. Cl. D21h *5/12*

U.S. Cl. 162—157 8 Claims

Inorganic layers, papers and membranes for ion exchange are made of non amorphous tetravalent cerium phosphate with a ratio PO_4/Ce in the solid ranging from 1.7 to 2.

3,551,288
PROCESS FOR INCREASING THE WET STRENGTH OF PAPER

Heinz Ziemann, Leichlingen, Karl-Friedrich Zenner, Cologne-Flittard, Wolfgang Lehmann, Leverkusen, and Gerhard Troemel, Pesch, near Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Jan. 5, 1967, Ser. No. 607,374

Claims priority, application Germany, Feb. 17, 1966, F 48,453

Int. Cl. D21h *3/48*; C08g *41/00, 49/00*

U.S. Cl. 162—164 13 Claims

High molecular weight polycondensation and polyaddition products containing nitrogen atoms and having bonded thereto at least two N-alkoxyalkyl urea or thiourea groups and the utility thereof for increasing the wet strength of paper.

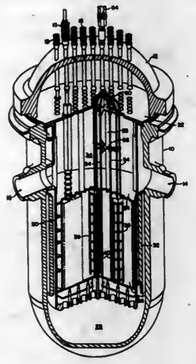
3,551,289
NUCLEAR REACTOR

Walter J. Eich, Pittsburgh, George H. Minton and Harry N. Andrews, Monroeville, and Robert J. French, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 24, 1968, Ser. No. 700,152

Int. Cl. G21c *7/08*

U.S. Cl. 176—22 7 Claims



A nuclear reactor is disclosed wherein a plurality of two-position control elements capable of producing localized or fine flux trim (FFT) are commingled with the fuel rods in such a manner as to substantially control the reactivity and power distribution of its core region at power and to supplement the principal control elements which are incrementally movable neutron absorber rods.

3,551,290
LIQUID PRESERVATIVE FOR CORNEAL GRAFTS, ITS METHOD OF PREPARATION AND USE

Yasuharu Kuwahara and Michio Sakanoue, Tokyo, Japan, assignors to Yasyharu Kuwahara, Tokyo, Japan

No Drawing. Filed Aug. 23, 1965, Ser. No. 481,923

Claims priority, application Japan, Aug. 22, 1964, 39/47,657

Int. Cl. A01n *1/02*

U.S. Cl. 195—1.7 3 Claims

A liquid preservative is provided for corneal grafts, which comprises an artificial aqueous humor, vitamin C, and an acidic mucopolysaccharide such as the sodium and potassium salts of each of keratosulfate, chondroitin sulfate A and chondroitin sulfate C. The acidic mucopolysaccharide and vitamin C are present in amounts of 0.75 to 1.25 parts by weight and 0.02 to 0.2 part by weight, respectively, per 100 parts by volume of the artificial aqueous humor.

3,551,291
METHOD FOR OBTAINING MESOTHELIAL CELLS

Eugene M. J. Pugatch, 11 Amherst Road, Stoughton, Mass. 02072

No Drawing. Filed May 20, 1969, Ser. No. 826,257

Int. Cl. A61m *37/00*

U.S. Cl. 195—1.7 3 Claims

A method for removing mesothelial cells from supportive tissue by first partially drying the mesothelial surface, applying thereto a dry water absorptive polymeric film, and thereafter stripping said film from the mesothelial surface and thereby removing a layer of mesothelial cells.

3,551,292
PROCESS OF PRODUCING L-GLUTAMIC ACID BY FERMENTATION

Akira Kamimura, Kawasaki-shi, and Ryuichiro Tsugawa and Shinji Okumura, Tokyo, Japan, assignors to Ajinomoto Co., Inc., and Sanraku Ocean Co., Ltd., both of Tokyo, Japan

No Drawing. Filed Feb. 20, 1968, Ser. No. 706,774

Claims priority, application Japan, Feb. 28, 1967, 42/12,723

Int. Cl. C12b *1/00*

U.S. Cl. 195—30 5 Claims

The yield of L-glutamic acid from an aqueous fermentation medium containing acetate ions as the principal carbon source and microorganisms capable of producing glutamic acid from such a carbon source may be increased significantly by the addition of an assimilable sulfur source to the medium. Suitable sources include cystine, cysteine, homocystine, homocysteine, methionine, thioglycolic acid, β-mercaptoethanol, and thiourea, and are employed at initial concentrations of 0.005% to 2%, preferably 0.05 to 0.5%.

3,551,293
METHOD FOR ENZYMATICALLY HYDROLYZING STARCH

Martin Seidman and Celestian L. Royal, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

No Drawing. Filed Mar. 31, 1967, Ser. No. 627,329

Int. Cl. C12d *13/02*

U.S. Cl. 195—31 3 Claims

A method for hydrolyzing starch with thermostable alpha-amylase involving initially pasting a starch slurry containing alpha-amylase by uniformly heating the starch mass for a short time period, e.g., about 15 seconds, at an elevated temperature at which alpha-amylase is unstable, e.g., about 215° F., and subsequently completing thinning of the resultant partially hydrolyzed starch mass at a temperature at which alpha-amylase is stable, e.g., 185° F.

3,551,294
ERYTHROMYCIN PROCESS

James C. French, St. Clair Shores, John D. Howells, Grosse Pointe Woods, and Lucia E. Anderson, Harper Woods, Mich., assignors to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Continuation of application Ser. No. 698,153, Jan. 16, 1968. This application May 15, 1968, Ser. No. 729,391

Int. Cl. C12d *9/20*

U.S. Cl. 195—96 6 Claims

Process for producing the antibiotic erythromycin by cultivating an erythromycin-producing microorganism of the genus Arthrobacter in an aqueous nutrient medium containing sources of assimilable carbon and nitrogen. The process produces a good yield of erythromycin (erythromycin A) without significant coproduction of closely related antibiotics.

3,551,295
MICROBIOLOGICAL DETECTION AND IDENTIFICATION SYSTEM

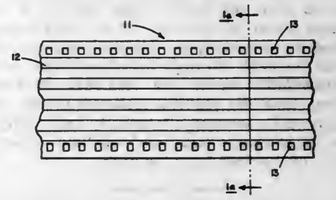
Denzel L. Dyer, Palos Verdes Peninsula, Calif., assignor to Northrup Corporation, Beverly Hills, Calif., a corporation of California

Filed Nov. 29, 1967, Ser. No. 686,596

Int. Cl. C12k *1/00*

U.S. Cl. 195—103.5 10 Claims

A tape comprised of a suitable substrate material coated with a gel such as agar, having a plurality of separate adjacent tracks thereon. Each track of the gel coated tape contains a different fluorogen such that when the tape is exposed to an environment and subsequently passes through a fluorescent scanning device, a count can be obtained of the fluorescent reactions occurring in each individual track. Since each bacterial species will have



a different reaction pattern, one can identify the species by determining what substances of those on the various tracks fluoresced, indicating reaction.

3,551,296
REAGENT AND METHOD FOR ASSAYING MALATE DEHYDROGENASE

Alfred Deutsch, Los Angeles, Calif., assignor to Calbiochem, Los Angeles, Calif., a corporation of California

No Drawing. Application June 30, 1966, Ser. No. 561,757, which is a continuation-in-part of application Ser. No. 320,004, Oct. 30, 1963. This application June 11, 1968, Ser. No. 736,000

Int. Cl. G01n *31/14*

U.S. Cl. 195—103.5 3 Claims

Substantially anhydrous, solid assay materials for the determination, inter alia, of Reagent for Assaying Malate Dehydrogenase, are rendered storage stable by the presence of certain polyhydric compounds preferably mannitol, sorbitol, lactose or polyvinyl alcohol.

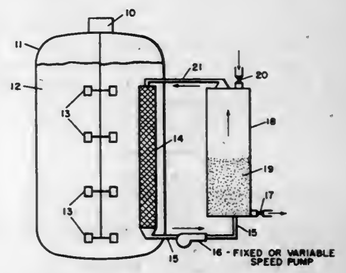
3,551,297
PROCESS AND EQUIPMENT FOR CONTINUOUS REMOVAL OF FERMENTATION PRODUCTS WITH ION EXCHANGE RESINS

Peter Hosler, Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed Aug. 30, 1967, Ser. No. 664,414

Int. Cl. C12b *1/00*

U.S. Cl. 195—143 8 Claims



A process and apparatus are provided whereby fermentation may be carried out in the presence of an ion exchange resin under conditions such that direct contact of the resin with the agitator in the fermentor is avoided, thereby preventing attrition of the resin, and separation and recovery of the resin from the broth are facilitated. This is achieved by providing a fermentation vessel with a screened-off zone within the vessel for the ion exchange

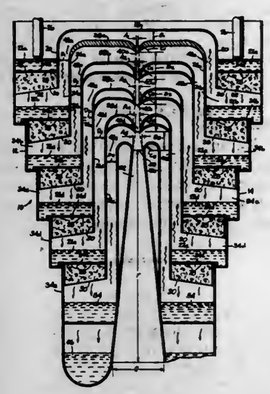
resin, which screen is permeable to the fermentation broth but not the resin, an inlet and outlet from the screened-off area connected to an external reservoir for the ion exchange resin, and a pumping means situated between the screened-off area and the reservoir for circulating the resin and broth in the form of a suspension. Increased liquid velocities at the surface of the resin are obtained by circulating the ion exchange resin from the external reservoir through the screened-off zone inside the fermentation vessel and back into the reservoir; at the same time the physical isolation of the resin from the fermentor's agitator substantially reduces the attrition of the ion exchange resin, and facilitates separation and recovery of the resin from the broth.

3,551,298

APPARATUS FOR COMBINING VAPORS

Joseph Lichtenstein, Bayside, N.Y., assignor to Saline Water Conversion Corporation, Oradell, N.J., a corporation of New York

Filed Dec. 11, 1967, Ser. No. 689,655
Int. Cl. B01d 3/06; C02b 1/06
U.S. Cl. 202—173 **6 Claims**



An evaporative recovery system employing flash evaporation in finite multiple steps approaching thermodynamic reversibility. The respective vapor streams of each step are combined in a remote nozzle system which utilizes the respective pressure differentials between the respective steps to bring all the vapor streams to a common flow velocity in a common stream. The kinetic energy of the common stream thus obtained is recompressed in a diffusor into corresponding pressure for condensation.

3,551,299

METHOD OF MINIMIZING POLYMER FORMATION DURING DISTILLATION OF VINYL ACETATE BY THE ADDITION OF ALPHA-METHYL STYRENE

Charles A. Defazio, Berkeley Heights, N.J., and Gene J. Fisher, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,929
Int. Cl. C07c 67/06
U.S. Cl. 203—8 **7 Claims**

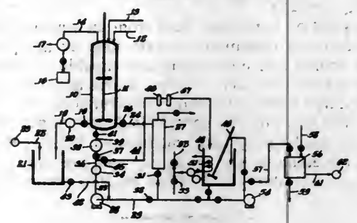
During the distillation of mixtures comprising vinyl acetate the formation of vinyl acetate polymer within the distillation column is minimized by incorporating alpha-methylstyrene into the liquid phase which is passing downwardly through the column.

3,551,300

BY-WATER DISSOLUTION, STEAM DISTILLATION, ACTIVATED CARBON AND CATION EXCHANGE TREATMENT AND CRYSTALLIZATION

Kermit D. Longley, Park Forest, Ill., assignor to Witco Chemical Corporation, New York, N.Y., a corporation of Delaware

Filed Dec. 13, 1968, Ser. No. 783,565
Int. Cl. B01d 3/38; C07c 55/14
U.S. Cl. 203—31 **4 Claims**



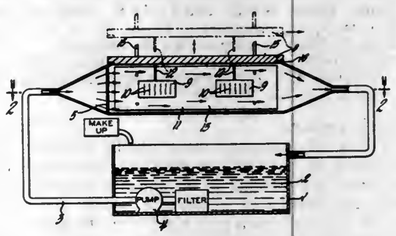
Process of purifying crude adipic acid obtained by the air oxidation of mixtures of cyclohexanone and cyclohexanol comprising forming a strong to concentrated aqueous solution of the crude adipic acid and to which solution there is preferably added a small percentage of a strong, volatile oxidizing agent such as nitric acid and/or hydrogen peroxide, steam distilling said solution, contacting the steam distilled solution with activated carbon, then contacting the resulting activated carbon treated solution with a cation exchange resin, and then crystallizing adipic acid from the solution.

3,551,301

LEVELING HIGH SPEED PLATING

Arthur Cowen, Detroit, Lynn T. Davies, Pontiac, and Richard L. Teno, East Detroit, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Apr. 14, 1966, Ser. No. 542,671
Int. Cl. C23b 5/02
U.S. Cl. 204—29 **5 Claims**



Improving the leveling of electroplated, polished workpieces by immersing the workpieces in a stream of flowing electrolyte and orienting the polishing grit lines at an acute angle to the direction of flow of the electrolyte.

3,551,302

GOLD-PLATING PROCESS

Roger M. Woods, Oxon Hill, Md. (9601 Taylor Court, Washington, D.C. 20022), and David R. Moul, Seat Pleasant, Md. (7203 Clearfield Court, Washington, D.C. 20027)

No Drawing. Filed Sept. 19, 1967, Ser. No. 668,927
Int. Cl. C23b 1/00, 5/06, 5/24
U.S. Cl. 204—32 **7 Claims**

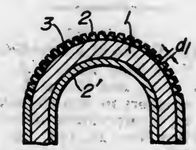
This invention relates to a process of producing a thin, adherent, durable gold plate on a chromium surface of an article. The process comprises the steps of conventional cleaning of the article, activation of the chromium surface, rinsing preferably with an acid dip, plating in a gold plating solution at optimum conditions of about five to ten seconds, and about 25 to 75 amps per square foot, rinsing and thereafter heating the gold plated article at temperatures of about 200° F. to 900° F. for a period of about two minutes to two hours. The gold plate is in the range of about one to ten millionths of an inch.

3,551,303

METHOD FOR FORMING ANODIC OXIDE FILM ON ALUMINUM OR ALUMINUM ALLOY

Takashi Suzuki and Takesi Hamabe, Toyonaka-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan, a corporation of Japan

Filed Aug. 28, 1967, Ser. No. 663,628
Claims priority, application Japan, Sept. 5, 1966, 41/59,108; Sept. 30, 1966, 41/64,699; Dec. 16, 1966, 41/83,418; Mar. 1, 1967, 42/13,532
Int. Cl. C23b 5/50
U.S. Cl. 204—35 **1 Claim**



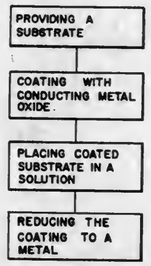
A method for forming an anodic oxide film of a desired thickness on an aluminum or an aluminum alloy which has an improved withstand voltage when a bending stress is applied, which comprises forming an anodic oxide film thinner than a desired thickness, cracking said film in a suitable manner, then conducting an anodic oxidation again and, if necessary, repeating said cracking and said anodic oxidation, whereby there is formed an anodic oxide film on an aluminum or an aluminum alloy.

3,551,304

METHOD FOR PRODUCING A COMPOSITE ARTICLE

Eugene C. Letter, Penfield, and Philip J. Sullivan, East Rochester, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed July 12, 1965, Ser. No. 471,150
Int. Cl. C23b 5/48, 5/60; C23f 17/00
U.S. Cl. 204—38 **9 Claims**



A method for making a composite article comprising coating a glass substrate with a thin conducting coating and reducing portions of the coating to form opaque areas. The method is used to produce reticles or circuits on a glass substrate.

3,551,305

GOLD ELECTROPLATING ELECTROLYTES

Ian Michael Dalton, 69 The Moor, Carlton, Bedfordshire, England, and Donald Jones, Sonnenheim, 54 Beverly Road, Royal Leamington Spa, Warwickshire, England

Filed June 23, 1967, Ser. No. 657,718
Int. Cl. C23b 5/28, 5/46
U.S. Cl. 204—46 **6 Claims**

An electrolytic gold plating solution comprising .5 to 25 grams per litre of gold in the form of a soluble gold salt, 20 to 450 grams per litre of the sodium salt of N,N-di-2-hydroxyethylglycine or an amino acid, 30 to 1600 grams per litre of an aliphatic dicarboxylic acid and 15 to 800 grams per litre of an alkali metal hydroxide.

3,551,306

PROCESS FOR COATING A METAL

Patrick F. Grosso, Stamford, and Robert E. Rutherford, Jr., New Canaan, Conn., and Donald E. Sargent, Schenectady, N.Y., assignors to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York

Filed Jan. 21, 1969, Ser. No. 792,575
Int. Cl. C23b 11/00
U.S. Cl. 204—56 **6 Claims**

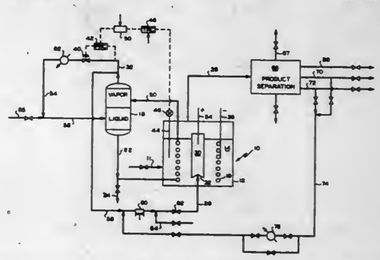
A novel electrodeposition process is disclosed for the preparation of thin adherent films of various oxides or hydroxides. Formation of these films is achieved by electrolyzing a quiescent solution of a soluble salt of the corresponding metal in an organic solvent miscible with water containing from about 0.01% to about 1% volume water, and having an electrolyte concentration in the order of 0.5–25 mg./ml. The novel process of this invention may be used in conjunction with cataphoretic deposition of luminescent materials to prepare a film of these materials cemented to the substrate surface with the metal oxide or hydroxide. Metal oxide or hydroxide films of various colors may be formed by providing for the presence of a color forming compound capable of reacting with these metal oxides or hydroxides to yield highly colored precipitates.

3,551,307

TEMPERATURE CONTROL IN ELECTROCHEMICAL CONVERSION PROCESSES

Earl H. Gray, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Sept. 18, 1968, Ser. No. 760,582
Int. Cl. B01k 3/00
U.S. Cl. 204—59 **12 Claims**

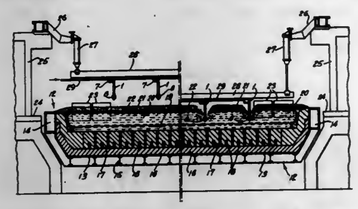


Temperature control in an electrochemical conversion process is maintained by using process feedstock as a coolant medium for the electrolyte in the electrolytic cell. Said coolant is passed into indirect heat exchange with said electrolyte. At least a portion of said coolant is permitted to vaporize during said heat exchange so as to remove heat from said electrolyte, and at least a portion of said vaporized coolant is passed into the cell as feedstock. A combination of apparatus is provided for determining the temperature of said electrolyte and controlling the pressure on the heat exchange means in accordance with said determined temperature.

3,551,308
OPERATION OF FURNACE FOR THE ELECTROLYTIC FUSION RECOVERY OF ALUMINUM

Wolfgang Capitaine and Martin Bard, Rheinfelden, Germany, assignors to Swiss Aluminium Ltd., Chippis, Switzerland, a joint-stock company of Switzerland

Filed Apr. 4, 1968, Ser. No. 718,704
Claims priority, application Switzerland, Apr. 7, 1967, 4,990/67
Int. Cl. C22d *3/12, 3/02*
U.S. Cl. 204—67 9 Claims

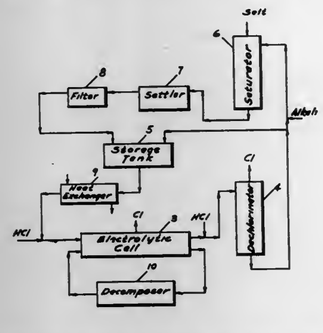


Methods and apparatus for the elimination of the anode effect in furnaces for the recovery of aluminum by fusion electrolysis which involve piercing the crust on the surface of the electrolyte by mechanically driven tools and supplying gas through ducts located in the tools. The pressure of the gas may be varied at different stages.

3,551,309
PROCESS FOR ELECTROLYSIS OF ALKALI METAL CHLORIDE

Luther L. Dunn, Jr., and Norval Magnusson, Bellingham, Wash., assignors to Georgia-Pacific Corporation, Portland, Oreg., a corporation of Georgia

Filed Dec. 4, 1967, Ser. No. 687,790
Int. Cl. C01b *1/08*
U.S. Cl. 204—99 9 Claims



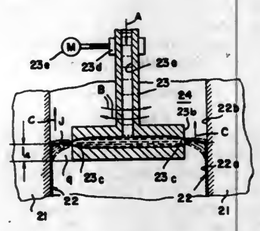
A process for the electrolysis of an alkali metal chloride brine in a mercury cathode electrolytic cell using a portion of the dechlorinated brine for the acidification of the resaturated, purified brine being returned to the cell.

3,551,310
GAS-PRESSURE GATE ARRANGEMENT FOR ELECTROCHEMICAL MACHINING

Kiyoshi Inoue, 16–8, 3-chome, Kamiyoga, Setagaya-ku, Tokyo, Japan

Filed June 10, 1968, Ser. No. 735,605
Claims priority, application Japan, Oct. 4, 1967, 42/63,959, 42/63,960; Oct. 28, 1967, 42/69,239
Int. Cl. B23p *1/00*
U.S. Cl. 204—143 16 Claims

A gas-pressure gate for the electrochemical machining of annular workpiece surfaces in which electrolyte is supplied to the annular gap between an electrode and a workpiece while an electrolytic machining current erodes the workpiece material into the electrolyte; gas



pressure ahead of the electrode excludes electrolyte from the region of the workpiece which has previously been machined to prevent overcutting.

3,551,311
RADIATION-CURABLE COMPOSITIONS

Gerald I. Nass, West New York, N.J., Robert W. Bassemir, Jamaica, N.Y., and Daniel J. Carlick, Berkeley Heights, N.J., assignors to Sun Chemical Corporation, New York, N.Y., a corporation of Delaware

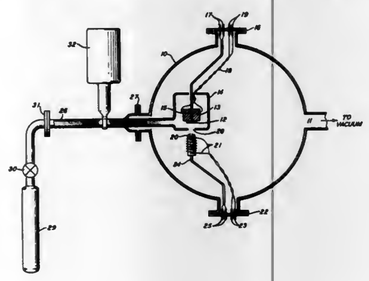
No Drawing. Filed Nov. 24, 1967, Ser. No. 685,259
Int. Cl. B01j *1/00*; C08d *1/00*; C08f *1/00*
U.S. Cl. 204—159.18 33 Claims

Ethylenically unsaturated esters of pentaerythritol, dipentaerythritol, and polypentaerythritols with a halogenated hydrocarbon initiator result in improved energy curing compositions.

3,551,312
VACUUM EVAPORATION DEPOSITION OF GROUP III–A METAL NITRIDES

Dawon Kahng, Somerville, and Bernard B. Kosicki, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed May 20, 1968, Ser. No. 730,562
Int. Cl. C23c *11/14*
U.S. Cl. 204—177 11 Claims

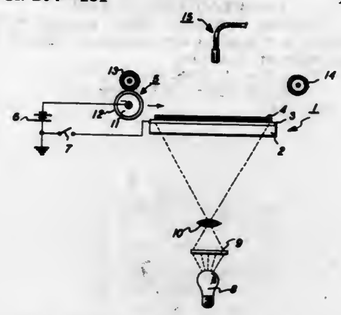


The specification describes a process for depositing nitride films of the group III–A metals. The process relies on a modified two-source evaporation technique in which the nitrogen becomes activated by passing through a plasma prior to reaction at the substrate surface. In this way highly reactive gas species can be produced without plasma bombardment of the substrate. Epitaxial deposits are also described.

3,551,313
IMAGE CONTRAST CONTROL IN PHOTOELECTROPHORETIC IMAGING

Arthur Walsh, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Sept. 3, 1968, Ser. No. 756,800
Int. Cl. G03g *13/22*
U.S. Cl. 204—181 11 Claims

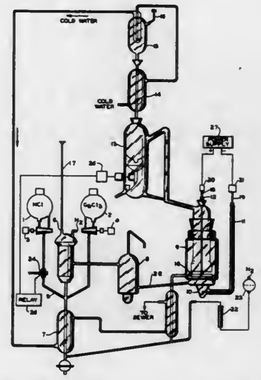


A method of controlling the contrast of polychromatic and monochromatic photoelectrophoretic images by selectively varying the potential applied to the imaging rollers of the system.

3,551,314
APPARATUS FOR THE PRODUCTION OF HIGH-PURITY GALLIUM

Robert I. Stearns, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Continuation-in-part of application Ser. No. 245,199, Dec. 17, 1962. Division of application Ser. No. 410,344, Nov. 2, 1964, now Patent No. 3,423,301. This application May 7, 1968, Ser. No. 737,250
Claims priority, application Canada, Dec. 4, 1963, 890,511
Int. Cl. B01k *3/00*
U.S. Cl. 204—194 3 Claims

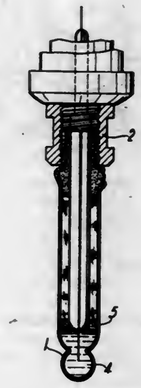


Apparatus for the continuous electrolysis of a solution of gallium ions comprising an enclosed vessel, a pool of liquid gallium in said vessel adapted to function as a cathode, an anode extending into said vessel, an electrolyte, sensing means for detecting changes in the level of electrolyte, refluxing-condensate discharging means attached to said vessel and means for converting said refluxing and said condensate discharging means from refluxing action to discharging action and vice-versa, said converting means being operatively associated with said sensing means and said refluxing-condensate discharging means.

3,551,315
ELECTRODES FOR THE MEASUREMENT OF pH VALUES UNDER PRESSURE

Claude Friconneau, Manosque, Alain Leboutet, Aix-en-Provence, and Marcel Lepeintre, Paris, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed May 3, 1968, Ser. No. 726,431
Claims priority, application France, May 8, 1967, 105,600
Int. Cl. G01n *27/28, 27/36*
U.S. Cl. 204—195 12 Claims

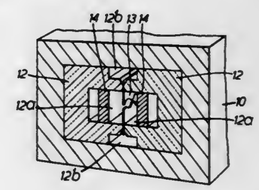


An improvement in electrodes for the measurement of pH values under pressure which essentially consists in covering the top surface of the electrolyte and of the insulating liquid with a thin layer of elastic resin and in filling the pocket which is already located above the insulating liquid with an elastic resin.

3,551,316
APPARATUS FOR SHARPENING CUTTING EDGES ELECTROLYTICALLY

Robert J. Gale, Swindon, Wiltshire, England, assignor to Wilkinson Sword Limited, London, England, a British company

Filed Jan. 24, 1966, Ser. No. 522,668
Claims priority, application Great Britain, Jan. 28, 1965, 3,736/65
Int. Cl. B01k *3/00*
U.S. Cl. 204—206 8 Claims

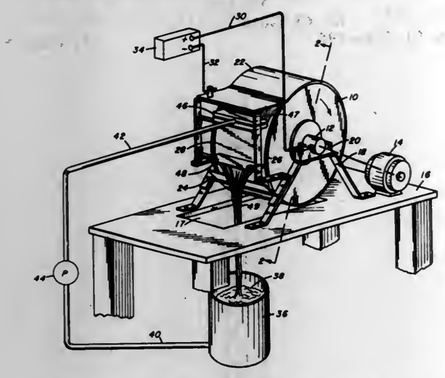


An electrolytic cell for electroforming or electrofinishing the cutting edge of a razor blade comprises screening means adjacent which the edge of the razor blade is located, so that the passage of electric current from the razor blade to the cathode of the cell is limited in a differential manner. As a consequence more metal is removed from the tip of the blade and progressively less metal as the distance from the tip increases.

3,551,317
ELECTROLYTIC APPARATUS FOR RECOVERING A METAL FROM A SOLUTION

Austin C. Cooley, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Aug. 29, 1968, Ser. No. 756,225
Int. Cl. C23b 5/68; B23p 1/00; B01k 3/04
U.S. Cl. 204—212 12 Claims

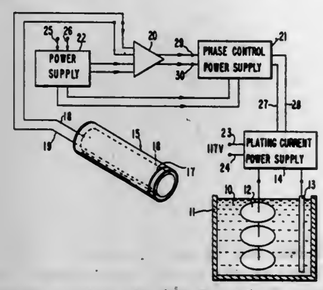


Apparatus for recovering a metal from a solution in which the metal is present in ionic form, including a cylindrical electrode which is rotated about its axis, a flexible sheet electrode spaced from and partially surrounding the surface of the cylindrical electrode, means for impressing an electric potential across the electrodes, and means for directing the solution onto the surface of the cylindrical electrode so that it is conveyed through the gap separating the electrodes by the rotation of the cylindrical electrode, whereby the metal ions in the solution plate out on the electrode surface of lower potential. The apparatus is particularly well suited for use with viscous solutions, for example, in the recovery of silver from vicous fixing solutions employed in photographic processing.

3,551,318
AUTOMATIC CONTROL APPARATUS FOR SILVER RECOVERY

Peter B. Snook, Los Altos, and Omar, E. Snyder, Palo Alto, Calif., assignors to W. B. Snook Mfg. Co., Inc., Palo Alto, Calif., a corporation of California

Filed Feb. 23, 1968, Ser. No. 707,864
Int. Cl. B01k 3/06, 3/08
U.S. Cl. 204—228 8 Claims

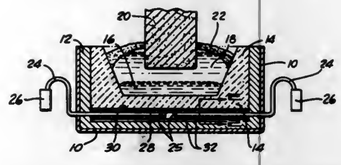


Automatic control apparatus for the recovery of silver metal from a solution of silver ions by plating the silver onto a cathode. Includes an electrolytic sensing cell resting in the solution and a plating current control connected to the cell which varies the plating current inversely proportional to the cell output voltage and wherein the variations in plating current are substantially independent of the voltage between the cell and either the cathode or anode of the plating apparatus.

3,551,319
CURRENT COLLECTOR

Charles H. Elliott, Waveland, Miss., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

Filed Sept. 6, 1968, Ser. No. 757,844
Int. Cl. C22d 3/02; B01k 3/04
U.S. Cl. 204—243 4 Claims

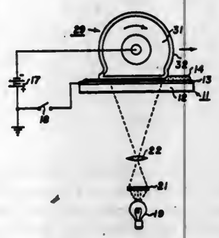


The instant invention relates to an electrolytic cell for the production of aluminum. The cell comprises a shell having an anode suspended therein. A carbonaceous lining is provided for the shell. One or more cathodic current collectors are embedded in the lining. A ferrous sheath having a copper core is utilized for the cathodic current collector so that the major portion of the current during cell operation will flow out of the cell in the copper core and the ferrous sheath functions as a shield to reduce magnetic field of the collector at the point of interaction with the molten metal pad which forms a lining during the operation of the cell. This reduces undesirable movements and unequal elevation of the molten metal pad formed on the lining during cell operation.

3,551,320
IMAGING APPARATUS

Arthur L. Krieger, Webster, and Ira S. Stein and Vesvolod Tulagin, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Original application May 3, 1965, Ser. No. 452,651, now Patent No. 3,474,019, dated Oct. 21, 1969. Divided and this application Nov. 1, 1968, Ser. No. 798,828
Int. Cl. B01d 13/02; B01k 3/04, 5/02
U.S. Cl. 204—299 7 Claims

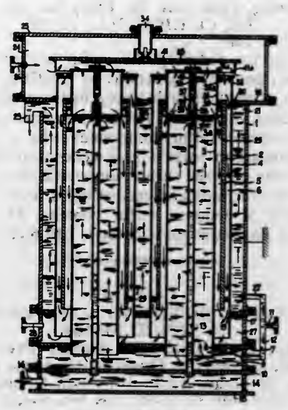


Apparatus for photoelectrophoretic imaging is described wherein the imaging suspension is contacted by a large surface area of a flexible, tread-like electrode. The electrode may be a compressible material, an endless belt, or an elongated web. The image produced may be either monochromatic or polychromatic.

3,551,321
TUBULAR OZONIZER

Jean Guillerd, Paris, and Fernand Travers, Chennevieres, Marne, France, assignors to Compagnie des Eaux et de l'Ozone, Paris, France

Filed May 22, 1968, Ser. No. 731,220
Claims priority, application France, May 22, 1967, 107,185
Int. Cl. C01b 13/12
U.S. Cl. 204—321 3 Claims

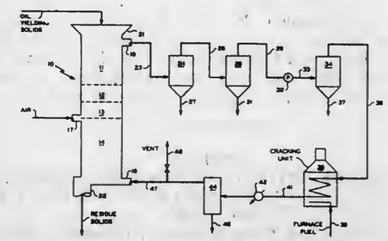


A tubular ozonizer is provided with a high voltage electrode coaxially interposed between two tubular dielectrics to produce two discharge fields, one on each side of the high voltage electrode. A gas to be ionized is passed through the fields, either in parallel or in succession and the ozonized gas is collected at an outlet. The dielectrics are cooled by the circulation therepast of a thermally and electrically conducting fluid connected to ground.

3,551,322
CONVERSION OF OIL SHALE RETORTING GASES

Richard L. Clampitt, Rifle, Colo., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Apr. 3, 1967, Ser. No. 627,937
Int. Cl. C10g 11/00; C10b 53/06
U.S. Cl. 208—11 3 Claims

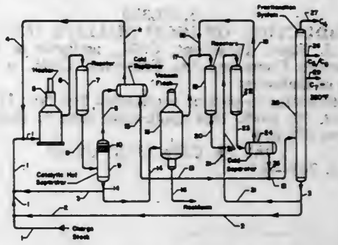


Valuable hydrocarbon products are recovered from the gases present in an oil shale retorting process by cracking the hydrocarbons in the off-gas stream from the liquid recovery step in such a process. The converted hydrocarbons are condensed and recovered from the gas stream after the conversion step; the gas stream can then be recycled to the retorting zone or vented to the atmosphere.

3,551,323
BLACK OIL CONVERSION FOR MAXIMUM GASOLINE PRODUCTION

Robert J. J. Hamblin, Deerfield, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 786,025
Int. Cl. G10g 37/02
U.S. Cl. 208—58 9 Claims

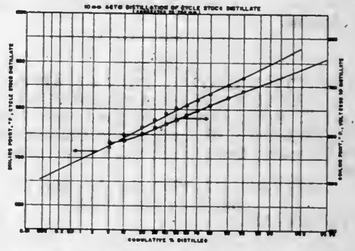


A multiple-stage catalytic process for maximizing the yield of desulfurized gasoline boiling range hydrocarbons from asphaltic charge stocks containing non-distillable hydrocarbonaceous material. The product effluent from the intial conversion zone is first separated into a principally liquid and a principally vaporous phase, the latter being withdrawn from the separation zone through a mass, or bed, of hydrogenation/desulfurization catalyst disposed therein.

3,551,324
TRANSFORMER OIL PRODUCTION BY ACETIC ACID EXTRACTION

James G. Lillard, deceased, late of Baytown, Tex., by Thelma C. Lillard, executrix, 3200 Garth Road, Apt. 56, Baytown, Tex. 77520

Filed July 26, 1968, Ser. No. 749,912
Int. Cl. C10g 17/04, 21/16
U.S. Cl. 208—87 9 Claims



An improved transformer oil is obtained by subjecting a transformer oil base stock to extraction with concentrated acetic acid. Preferably, acetic acid containing no more than 5 weight percent of water will be employed at temperatures from 80 to 100° F. under conditions chosen to yield 90–95 volume percent raffinate. A solvent-to-oil ratio of 0.5 to 1.0 is preferred.

After-treatment may include hydrogenation and clay percolation.

3,551,325
PROCESS FOR THE PRODUCTION OF A LUBRICATING OIL

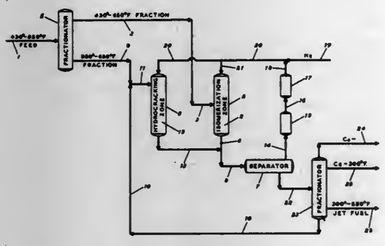
Maurice K. Rausch, South Holland, Ill., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 16, 1967, Ser. No. 623,546
Int. Cl. C10g 13/02
U.S. Cl. 208—89 8 Claims

Lubricating oil with an enhanced susceptibility to the action of pour point depressors is prepared by subjecting

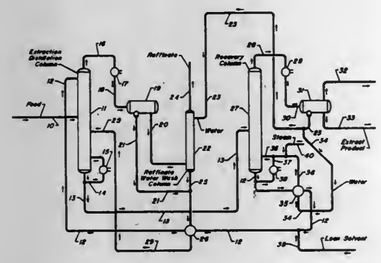
a solvent-extracted, solvent-dewaxed mineral oil to a two-step hydrogenation, the first step being one of low hydrogen consumption in presence of sulfur insensitive catalyst (e.g., Co-MoO_3/Al_2O_3), the second being one of high hydrogen consumption in presence of platinum group metal-alumina catalyst promoted with about 1 to 15 wt. percent of fluorine.

3,551,326
PRODUCTION OF HIGH QUALITY JET FUEL
Clark J. Egan, Piedmont, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware
Continuation-in-part of application Ser. No. 771,880, Oct. 30, 1968. This application June 9, 1969, Ser. No. 831,690
Int. Cl. C10g *13/10, 39/00*
U.S. Cl. 208—93 **5 Claims**



A hydrocarbon feed boiling above 550° F. is hydrocracked to a jet fuel boiling range material having low freeze point at hydrocracking conditions and in the presence of hydrogen with a catalyst comprising from 0.01 to 3 weight percent of a platinum group component and from 0.01 to 5 weight percent rhenium associated with alumina.

3,551,327
EXTRACTIVE DISTILLATION OF AROMATICS WITH A SULFOLANE SOLVENT
Michael F. Kelly, London, England, and Kenneth D. Uitti, Bensenville, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Mar. 12, 1969, Ser. No. 806,379
Int. Cl. C10g *21/22*
U.S. Cl. 208—325 **4 Claims**

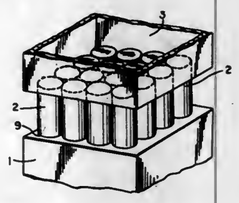


Process for the recovery of aromatic hydrocarbons utilizing the steps of extractive distillation, water washing of the raffinate phase, recovery and reuse of the wash water, and fractionation of the extract phase. Sulfolane is the preferred solvent and benzene is recovered as a preferred product stream.

3,551,328
DESULFURIZATION OF A HEAVY HYDROCARBON FRACTION
Edward L. Cole and Raymond F. Wilson, Fishkill, and Sheldon Herbstman, Spring Valley, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 26, 1968, Ser. No. 779,202
Int. Cl. C10g *29/22, 27/04*
U.S. Cl. 208—240 **15 Claims**

A process for reducing the sulfur content of heavy hydrocarbon petroleum fractions by oxidizing the sulfur compounds present in such heavy hydrocarbon fractions and contacting the heavy hydrocarbon fraction containing such oxidized sulfur compounds with a lower paraffinic hydrocarbon solvent in a concentration sufficient to separate the oxidized sulfur compounds from the heavy hydrocarbon fractions and recovering a heavy hydrocarbon fraction of reduced sulfur content. The preferred solvents are alkanes containing from 3 to 6 carbon atoms.

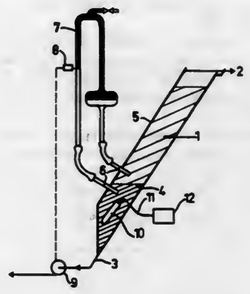
3,551,329
PROCESS OF DIFFUSING A MATERIAL IN A LIQUID PHASE
Fritz Lange, Berlin-Buch, and Gunter Dreyer, Berlin, Germany, assignors to Deutsche Akademie der Wissen Schaften zu Berlin, Berlin-Adlershof, Germany
Filed July 11, 1966, Ser. No. 564,304
Int. Cl. B01d *11/04*
U.S. Cl. 210—19 **2 Claims**



The diffusion zone is formed by the limiting surface between two liquid bodies in a capillary tube. The capillary tube communicates with a first vessel containing a liquid body with a suspended material, and with a second vessel containing the liquid into which the material is to be diffused. A reciprocating plunger is disposed in one of the vessels to bulge alternately the limiting surface from one liquid body into the other one and thus increase the effective area of the diffusion zone.

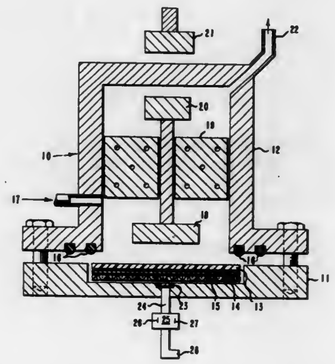
3,551,330
METHOD OF OPTIMUM OPERATING A SEDIMENTATION APPARATUS AND A DEVICE FOR CARRYING OUT THE METHOD
Åke Jernqvist and Bengt Hedström, Goteborg, Sweden, assignors to Rederiaktiebolaget Nordstjernan, Nynashamn, a Swedish joint-stock company
Filed July 1, 1968, Ser. No. 741,483
Claims priority, application Sweden, June 30, 1967, 10,073/67
Int. Cl. B01d *21/00, 35/20*
U.S. Cl. 210—19 **11 Claims**

Apparatus for separating sediment from liquid at an optimum rate includes a feed, an underflow for the sediment, and an overflow for the clear liquid. The feed rate and/or the underflow rate is adjusted so that a discontinuity in the vertical concentration of the sediment appears



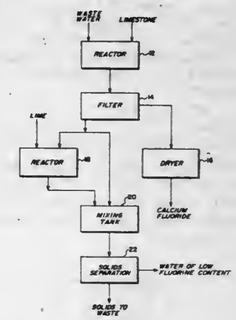
at a level between the feed and the underflow. A sensor and control automatically maintain the discontinuity at that level, thereby assuring that the apparatus operates at capacity.

3,551,331
REVERSE OSMOSIS SEPARATIONS USING A TREATED POLYAMIDE MEMBRANE
Lawrence Anthony Cescon, Wilmington, and Harvey Herbert Hoehn, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Continuation of application Ser. No. 674,425, Oct. 11, 1967. This application Sept. 22, 1969, Ser. No. 863,745
Int. Cl. B01d *13/00*
U.S. Cl. 210—23 **14 Claims**



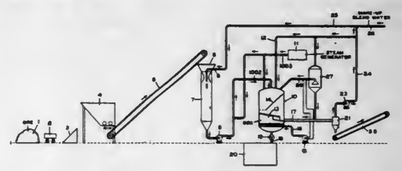
Reverse osmosis separation of the components of aqueous mixtures, especially saline and brackish waters, using a treated nylon membrane characterized by a high water permeability and sulfate salt rejection obtained by treating a thin nylon membrane with a treating agent which dissolves a small amount of the membrane and otherwise changes its crystalline structure. Effective treating agents include protonic acids of suitable acid strength, specified Lewis acids, and selected lyotropic salts. The thin membrane may be a flat film or hollow fiber.

3,551,332
PURIFICATION OF FLUORINE-CONTAINING INDUSTRIAL WASTE WATERS
Arthur N. Baumann and Richard E. Bird, Lakeland, Fla., assignors to International Minerals & Chemical Corporation, a corporation of New York
Filed June 16, 1969, Ser. No. 833,556
Int. Cl. C02c *5/02*
U.S. Cl. 210—53 **17 Claims**



Fluorine values are removed from an aqueous fluosilicic acid solution by adding limestone to precipitate calcium fluoride, separating the calcium fluoride by filtration or otherwise, adding lime to a portion of the filtrate to form a slurry, combining the slurry with the remaining portion of the filtrate, allowing solids to form and settle, and removing the settled solids. In a preferred embodiment of this invention, the amount of fluorine removed from aqueous phosphorus contaminated fluorine-containing acid is improved by adding lime after the limestone addition but prior to the calcium fluoride separation step.

3,551,333
SURFACE SULFUR RECOVERY
Xerxes T. Stoddard, Rosenberg, and John A. Sutherland and Ruel C. Terry, Houston, Tex., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Apr. 2, 1968, Ser. No. 718,143
Int. Cl. B01d *37/00*
U.S. Cl. 210—69 **7 Claims**



A process for the extraction of sulfur from ore at or near ground level in which the molten sulfur is passed through a bed in opposing direction to the flow of hot water.

3,551,334
BACTERIOCIDAL TREATMENT OF LIQUIDS
Joseph B. Michaelson, North Hollywood, Calif., assignor to Applied Biological Sciences Laboratory, Inc., Glendale, Calif., a corporation of California
No Drawing. Filed Aug. 9, 1967, Ser. No. 659,320
Int. Cl. A01n *9/20;* **E21b** *43/22*
U.S. Cl. 252—8.55 **4 Claims**

A new compound, coco dimethyl benzyl ammonium p-nitrosophenate is disclosed. Useful as a bacteriocide, es-

pecially against Desulfovibrio desulfuricans, the compound may be mixed with fresh or saline water to be used for secondary oil recovery operations to prevent biosynthetic generation of hydrogen sulfide during such operations.

3,551,335
METAL WORKING LUBRICANTS
Norbert Schwartz, James F. Richards, and Joseph F. Pistell, Homer, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Continuation-in-part of application Ser. No. 686,300, Nov. 28, 1967. This application Feb. 14, 1969, Ser. No. 799,492
Int. Cl. C10m *1/24, 1/32*
U.S. Cl. 252—34.7 9 Claims

Lubricant compositions particularly useful for metal working comprising a soap base and as an improving agent, an ester reaction product of an acetylenic alcohol or an acetylenic glycol with a fatty acid containing at least about eight carbon atoms or an anhydride, ester, or amide of such fatty acid.

3,551,336
LUBRICANT CONTAINING ETHYLENE-ALPHA-OLEFIN POLYMER
Norman Jacobson, East Brunswick, Darrell W. Brownawell, Scotch Plains, and Edward N. Kresge, Watchung, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Continuation-in-part of application Ser. No. 657,064, July 31, 1967. This application June 30, 1969, Ser. No. 837,733
Int. Cl. C10m *1/16*
U.S. Cl. 252—59 10 Claims

An essentially haze-free oil composition comprising a lubricating oil and an oil-soluble polymer comprised of ethylene and a C_3 to C_{18} alpha-olefin, preferably propylene, said polymer being characterized by the following combination of parameters: (a) an ethylene content within the range between about 60 and 80 mole percent, wherein said polymer contains no more than about 1.3% by weight of a polymer fraction which is insoluble in normal decane at 45° C.; (b) a degree of crystallinity less than about 25%; (c) an $\overline{M}w/\overline{M}n$ ratio less than about 4.0; and (d) a viscosity average molecular weight within the range between about 10,000 and 200,000.

The polymers are prepared by polymerizing ethylene and an alpha-olefin in the presence of a controlled amount of hydrogen and a soluble species of a Ziegler catalyst. Polymers of ethylene and propylene prepared in the presence of a cataylst comprised of vanadium oxy trichloride and ethyl aluminum sesquichloride are especially preferred.

3,551,337
LIQUID DEVELOPERS FOR ELECTROSTATIC IMAGES
Gene H. Robinson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Sept. 1, 1967, Ser. No. 664,918
Int. Cl. G03g *9/04, 13/00*
U.S. Cl. 252—62.1 8 Claims

A liquid xerographic developer comprised of at least two pigments of the same charge polarity dispersed in a liquid carrier. This developer is prepared by wetting the pigments with an alkyd resin, finely grinding the wetted mixture under high shear conditions and then dispersing the finely ground pigments into an electrically insulating carrier liquid such as cyclohexane. Of the pigments used, at least one is a phthalocyanine and serves as a charge control agent.

3,551,338
PREVENTION OF DISCOLORATION OF CLOTH
Anthony A. Rapisarda, Elmhurst, N.Y., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
No Drawing. Filed Sept. 15, 1967, Ser. No. 668,163
Int. Cl. C11d *7/56*
U.S. Cl. 252—99 8 Claims

The specification discloses a stain inhibitor system which prevents or diminishes staining which occurs when textiles are laundered in a solution containing manganese ions and a bleaching agent which is capable of oxidizing the manganese.

The inhibitor system comprises a water-soluble titanium compound and an inorganic condensed polyphosphate. This inhibitor system can be incorporated into a detergent formulation, a bleach formulation, or it can be added to the bath separately before the bleach is added.

3,551,339
BUILT DETERGENT COMPOSITIONS
Oscar T. Quimby, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Filed Dec. 16, 1966, Ser. No. 602,161
Int. Cl. C11d *3/26, 3/36*
U.S. Cl. 252—152 5 Claims

A detergent composition is provided containing an organic detergent and a triphosphonate builder, the ratio by weight of builder to detergent being from 10:1 to 1:3.

3,551,340
LIQUID ADDITIVE FOR ALKALINE PAINT STRIPPERS
Harold A. Skinner, % Wyandotte Chemicals Corp., Wyandotte, Mich. 48192
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,817
Int. Cl. C11d *7/06*
U.S. Cl. 252—156 4 Claims

Alkaline paint strippers are prepared by the addition of organic solvents and surfactants which enhance the stripping action of highly caustic types of paint strippers and which will additionally form an evaporation retardant on the surface of the solutions.

3,551,341
CHEMILUMINESCENT SMOKES
Urho Albert Lehikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed June 29, 1967, Ser. No. 649,821
Int. Cl. C09k *3/00*
U.S. Cl. 252—188.3 16 Claims

Chemiluminescent smoke, that is, a smoke visible both by day and night, is produced when a composition consisting essentially of (a) an aluminum alkyl, (b) an ether or an amine complexing agent, and (c) a porphine, is contacted with air and water.

3,551,342
CHEMILUMINESCENT SMOKES
Urho Albert Lehikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed June 29, 1967, Ser. No. 649,835
Int. Cl. C09k *3/00*
U.S. Cl. 252—188.3 16 Claims

Chemiluminescent smoke, that is, a smoke visible both by day and night, is produced when a composition consisting essentially of (a) an aluminum alkyl, (b) an ether or an amine complexing agent, and (c) an imidazole, is contacted with air and water.

3,551,343
CHEMILUMINESCENT AND SMOKE PRODUCING COMPOSITION AND METHOD
Urho A. Lehikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Continuation-in-part of application Ser. No. 561,418, June 29, 1966. This application Nov. 22, 1968, Ser. No. 778,316
Int. Cl. B09k *3/00*
U.S. Cl. 252—188.3 8 Claims

A chemiluminescent smoke composition which consists essentially of an aluminum alkyl, an ether which is free of acetylenic bonds, and a tetrakis(di-lower alkyl amino) ethylene. A method of producing a chemiluminescent smoke which comprises mixing said smoke composition with water.

3,551,344
PHOTOCHROMIC PLASTIC AND METHOD OF MAKING
Zachariah G. Gardlund, Utica, and Clifford C. Duff, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
No Drawing. Filed Mar. 20, 1967, Ser. No. 624,201
Int. Cl. G02b *1/04*
U.S. Cl. 252—300 3 Claims

A photochromic plastic article may be prepared from vinyl-type resins and photochromic organic compounds by dissolving the vinyl resin together with up to about 5% by weight of the resin of a small amount of a photochromic material such as a polyaromatic organic compound having a plurality of fused benzene rings, in a suitable solvent, freezing the resulting solution, vaporizing all of the solvent from the frozen mass under conditions such that no melting occurs at any time within the residue, and then molding the residual photochrome-containing vinyl powder under suitable temperatures and pressures to obtain a plastic which reversibly changes its color at room temperature when exposed to sunlight.

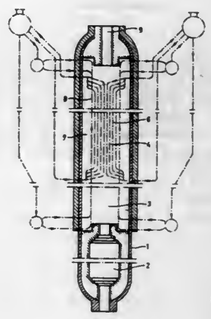
3,551,345
CHELATED LANTHANIDE COMPOSITIONS
Marcos Y. Kleinerman, Southbridge, Mass., assignor, by mesne assignments, to American Optical Corporation, Southbridge, Mass., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 364,022, Apr. 30, 1964. This application May 24, 1967, Ser. No. 640,810
The portion of the term of the patent subsequent to Jan. 14, 1986, has been disclaimed
Int. Cl. C09k *1/02*
U.S. Cl. 252—301.2 4 Claims

A composition of Lewis bases with lanthanide chelates, either alone or in a solvent or other carrier, for substantially enhancing the fluorescence properties of the chelates. Such compositions provide strong fluorescence at room temperature for those chelates known to have poor fluorescence properties at such temperatures.

3,551,346
METHOD OF MAKING DUAL WALL CAPSULES
William H. Breen, Menlo Park, and Gloria F. Sirine, Palo Alto, Calif., assignors, by mesne assignments, to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
No Drawing. Filed Nov. 23, 1966, Ser. No. 596,447
Int. Cl. A01n *17/00;* B01j *13/02;* B44d *1/16*
U.S. Cl. 252—316 4 Claims

A process is provided of encapsulating water-sensitive materials, such as toluene diisocyanate, by including in the water-sensitive material a siloxane and in an aqueous phase a silanolate, causing reaction of the siloxane and silanolate at the interface of the water-sensitive material and the aqueous phase to form, very quickly and before the water-sensitive material has been excessively degraded, a precoating of polymer of the siloxane and silanolate, and thereafter providing a more durable permanent coating on the precoated material by coacervation.

3,551,347
OXIDATION PROCESS WITH IMPROVED WASTE HEAT BOILER
Ferdinand Markert, Limburgerhof, Pfalz, and Michael Schunck and Georg Weber, Ludwigshafen (Rhine), Germany, assignors to Texaco Development Corporation, New York, N.Y.
Filed Aug. 24, 1967, Ser. No. 662,955
Claims priority, application Germany, Sept. 5, 1966, B 88,777
Int. Cl. C01b *2/14*
U.S. Cl. 252—373 7 Claims



A gaseous mixture comprising hydrogen and oxygen is produced by the partial oxidation of a hydrocarbon fuel in an elongated pressure vessel at an autogenous temperature of 1200 to 1500° C. The hot product gas is passed through a two-step cooling zone containing water cooled thin-walled tubes and then through an exit zone in succession in the same pressure vessel. Water is introduced into the bottom of a cooling wall comprising a plurality of thin-walled tubes running lengthwise through said two-step cooling zone and forming with the wall of said pressure vessel an annular space free from solid insulation through which substantially no gas flows, thereby controlling the temperature of the wall of the pressure vessel. A collection and distribution system separated from the hot product gases is provided for collecting and separating the steam and water departing from said two-step cooling zone and then recycling the water to said two-step cooling zone.

3,551,348
ALLENICS FOR INHIBITING CORROSION
Arthur H. Du Rose, Richmond Heights, Ohio, assignor to Kewanee Oil Company, Bryn Mawr, Pa., a corporation of Delaware
No Drawing. Filed Sept. 21, 1967, Ser. No. 669,400
Int. Cl. C23f *11/10*
U.S. Cl. 252—388 10 Claims

This invention covers the use of allenic compounds as corrosion inhibitors in acidic aqueous solutions to protect ferrous, zinc and aluminum containing materials. The concentration can range from about 0.005 to about 4 grams per liter.

3,551,349
COMPOSITION FOR INHIBITING CORROSION CONTAINING A HYDRAZINE AND A QUINONE
Herbert Kallfass, Cologne-Stammheim, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Aug. 11, 1967, Ser. No. 659,959
Claims priority, application Germany, Dec. 14, 1966, F 50,928
Int. Cl. C23f *11/12, 11/18*
U.S. Cl. 252—392 8 Claims
Aqueous corrosion protection composition containing a mixture of aqueous hydrazine, e.g. used in the form of 24% hydrazine hydrate, and a water-soluble o- or p-quinone compound in the ratio by weight of the quinone compound to hydrazine, i.e., N_2H_4, of between about 1:15–1500, usable in quiescent and running bodies of water in metal containers such as vessels and pipe systems to protect the metal components of such containers against corrosion caused by oxygen present in the water.

3,551,350
REAGENT SOLUTIONS FOR USE IN SERUM BICARBONATE AND CHLORIDE ANALYSIS
Harald Dahms, 22 Lakeview Road, Ossining, N.Y. 10562
No Drawing. Continuation-in-part of application Ser. No. 690,270, Dec. 13, 1967. This application Mar. 20, 1968, Ser. No. 714,408
Int. Cl. C09k *3/00*; G01n *33/16*
U.S. Cl. 252—408 10 Claims
Aqueous solutions, for use as reagents in a new coulometric analysis of blood serum for bicarbonate and chloride, containing a water-soluble silver salt, a strong acid such as nitric or perchloric acid and a supporting electrolyte. A dissolved or dispersed antifoam agent may also be present.

3,551,351
REGENERATION OF NYLON USED TO TREAT BEER
David W. Murray and Richard Charles Quittenton, London, Ontario, Canada, assignors to John Labatt Limited, London, Ontario, Canada
No Drawing. Filed Mar. 5, 1968, Ser. No. 710,626
Int. Cl. B01d *15/06*
U.S. Cl. 252—415 2 Claims
Nylon pieces which have been used to stabilize beer and have adsorbed polyphenolics from the beer are regenerated by being placed in a dilute solution of hypochlorite bleach, e.g. a solution containing about 0.5 to 5% by weight of sodium hypochlorite or calcium hypochlorite.

3,551,352
CATALYTIC INORGANIC POLYMER OF SILICON, OXYGEN, AND AN IRON GROUP METAL AND METHOD OF MAKING
Norman L. Carr, Allison Park, Harry A. Hamilton, Natrona Heights, and Meredith M. Stewart, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 615,910, Feb. 14, 1967. This application June 20, 1969, Ser. No. 835,247
Int. Cl. B01j *11/34, 11/74*
U.S. Cl. 252—439 11 Claims
A catalyst having the elements silicon, oxygen and an iron group metal chemically associated together in the form of an inorganic polymer. The catalyst is prepared by the calcination of the solid product resulting from the cogelation of a mixture of a silica sol and a solution of an iron group metal salt, such as ferric chloride.

3,551,353
DEALUMINIZATION OF MORDENITE
Nai Yuen Chen and Fritz A. Smith, Cherry Hill, N.J., assignors to Mobil Oil Corporation, a corporation of New York
Filed Oct. 4, 1968, Ser. No. 765,031
Int. Cl. C10g *35/08*
U.S. Cl. 252—455 6 Claims
A method for increasing the silica/alumina mol ratio of crystalline aluminosilicates having a silica/alumina mol ratio greater than 10, e.g., mordenite, by a process comprising alternate steam and acid treatment of the same, the resulting catalyst composition produced thereby, and hydrocarbon conversion therewith.

3,551,354
PROCESS FOR REDUCING THE LOSS DUE TO ABRASION OF ALUMINA EXTRUDATES AND OF EXTRUDED CATALYSTS BASED ON ALUMINA
Maarten Schutten, Amsterdam, Netherlands, assignor to Koninklijke Zwavelzuurfabrieken v/h Ketjen N.V., Amsterdam, Netherlands, a corporation of the Netherlands
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,620
Claims priority, application Netherlands, Oct. 4, 1967, 6713461
Int. Cl. B01j *11/08, 11/22*
U.S. Cl. 252—466 13 Claims
In order to reduce the loss or powdering of alumina extrudates, or of catalysts based thereon, due to abrasion, the alumina extrudates after being calcined are wetted with water and then subjected to attrition or a mutual rubbing action, as by tumbling in a rotated drum or by vibration against each other in a polishing machine. The attrition treatment may be followed by an acid leaching, whereupon the acid-leached extrudates are dried and calcined again.

3,551,355
RESISTOR COMPOSITION AND ELEMENT
Jason D. Provance, Glendora, Calif., assignor to Bourns, Inc., a corporation of California
No Drawing. Filed July 12, 1967, Ser. No. 652,674
Int. Cl. H01b *1/06*; C03c *3/04*
U.S. Cl. 252—514 12 Claims
An electrical resistance composition and element of the cermet type for a potentiometer or variable resistor, characterized by low resistivity and low metal content and low contact-resistance variation, the composition comprising as a glassy matrix the product of a glass-making operation in which a nucleating agent is included with constituents of a lead borosilicate glass, the product thus comprising numerous crystallites, the composition further comprising within the glassy matrix a dispersion of metal selected from among the platinum family, the composition being adapted to form a film characterized by low resistivity of the order of 100 ohms per square (sheet resistivity, e.g., a film one inch square and one mil thick) and a low metal content of the order of less than 7% by weight, and low contact resistance variation when fired.

3,551,356
TREATMENT OF ZINC OXIDE
Robert S. Bowman, Pittsburgh, Pa., assignor to St. Joseph Lead Company, New York, N.Y., a corporation of New York
No Drawing. Continuation-in-part of applications, Ser. No. 520,376, Jan. 31, 1966, Ser. No. 596,422, Nov. 23, 1966, and Ser. No. 715,194, Mar. 22, 1968. This application Dec. 1, 1969, Ser. No. 881,279
Int. Cl. H01b *1/06*
U.S. Cl. 252—518 17 Claims
The properties of zinc oxide are improved by heating the zinc oxide with halogen compounds at temperatures

in the range from about 600° C. to about 950° C. in air or in non-oxidizing or reducing atmospheres. Heating with fluorine compounds is particularly useful in improving the color and/or the conductivity of zinc oxides under various conditions. Stable white sintered zinc oxides and electrically conductive or semiconductive zinc oxides can be produced with various activating halogen compounds and conditions of treatment.

3,551,357
PROCESS FOR THE PRODUCTION OF CROSS-LINKED ACRYLATED COPOLYMERS
Herbert Corte, Opladen, and Harold Heller, Leichlingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,933
Claims priority, application Germany, June 14, 1967, F 52,675, F 52,677
Int. Cl. C08f *19/00*
U.S. Cl. 260—2.1 11 Claims
A hydrolysis-resistant, insoluble cross-linked acrylate copolymer of an acrylic acid ester and a crosslinking agent of the formula

$$X-A-Y$$
$$|$$
$$Z_n$$

in which A represents an aromatic or cycloaliphatic radical, X represents an alkyl radical containing a terminal olefinic unsaturation or has the same meaning as Y, Y represents the radical

$$-C=C-R'$$
$$|\quad|$$
$$R\quad R$$

in which R represents a hydrogen atom or a lower alkyl radical and R' represents a carboxyl, alkoxycarbonyl, cycloalkoxycarbonyl, phenoxycarbonyl, chlorocarbonyl, carbamoyl or cyano radical, Z represents a lower alkyl radical or a halogen atom and *n* represents 0 or an integer from 1 to 4: and the corresponding anion and cation exchangers utilizing the defined copolymer as a matrix.

3,551,358
MACROPOROUS ION-EXCHANGE RESINS INCORPORATING A DRYING OIL
Paul D. Grammont and Louis E. Werotte, Chauny, France, assignors to Diamond Shamrock Corporation, Cleveland, Ohio, a corporation of Delaware
No Drawing. Filed Feb. 5, 1968, Ser. No. 702,814
Claims priority, application France, Mar. 13, 1967, 98,468
Int. Cl. C08f *27/07, 27/08*
U.S. Cl. 260—2.2 4 Claims
An improved ion-exchange resin is obtained by attaching strong anion- or cation-exchange groups to a polymer skeleton obtained by co-polymerizing a monovinyl aromatic monomer, a polyvinyl aromatic or aliphatic monomer and a drying oil.

3,551,359
PROCESS OF GELLING, FOAMING, AND VULCANIZING A BLEND OF HIGH SOLIDS SYNTHETIC LATICES
Colin P. Mason, Sarnia, Ontario, Canada, assignor to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate
No Drawing. Filed Mar. 28, 1967, Ser. No. 626,390
Claims priority, application Canada, Apr. 30, 1966, 959,254
Int. Cl. C08j *1/16*; C08d *7/00*
U.S. Cl. 260—2.5 6 Claims
A high solids latex blend of natural rubber latex or synthetic rubber latex with a butadiene/alkyl-substituted acrylonitrile latex is claimed. The blend is suitable for the production of improved latex films and foam rubber goods.

3,551,360
SELF-EXTINGUISHING STYRENE POLYMER COMPOSITIONS
Hans Dressler, Monroeville, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
Filed Sept. 19, 1968, Ser. No. 760,987
Int. Cl. C08f *33/02, 45/60, 47/10*
U.S. Cl. 260—2.5 8 Claims
Self-extinguishing styrene polymer compositions are formed by incorporating into the styrene polymer from 0.5–10% by weight of specific brominated phenylsulfonyl compounds such as (phenylsulfonyl) dibromoacetonitrile, (phenylsulfonyl) dibromoacetamide, and phenyl tribromomethyl sulfone.

3,551,361
METHOD OF FOAMING AN OLEFIN POLYMER USING STARCH AS A NUCLEATING AGENT
Donald G. Needham, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Oct. 13, 1967, Ser. No. 675,065
Int. Cl. C08j *1/22*; C08f *47/10*
U.S. Cl. 260—2.5 6 Claims
A method for foaming a foamable polymer composition wherein a starch is employed to control the foaming process and produce a foamed article having a more uniform cell size.

3,551,362
MICROPOROUS SHEET AND PROCESS FOR ITS PRODUCTION
Erhard K. H. Decker, Quickborn, Germany, assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
No Drawing. Filed Dec. 20, 1967, Ser. No. 691,923
Claims priority, application Germany, Jan. 5, 1967, G 48,931
Int. Cl. C08g *37/16, 53/08*
U.S. Cl. 260—2.5 6 Claims
A microporous sheet composed of a mixture of (A) a resin of a polyhydroxy benzene having at least one active ortho or para position (e.g., resorcinol) and a reactive aldehyde or ketone (e.g., formaldehyde); and (B) a thermoplastic polymer which is compatible with the resin (e.g., polyvinyl chloride). The sheet can be made by adding the polyhydroxy benzene and aldehyde or ketone to an aqueous dispersion of the thermoplastic polymer, curing the resulting mixture under conditions which do not permit the loss of volatile components and evaporating the volatile components.

3,551,363
OPEN CELLED SHAPED ARTICLES OF OXYMETHYLENE POLYMERS
Harry Brody, Chester, England, assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 474,965, July 26, 1965. This application Dec. 3, 1968, Ser. No. 781,710
Int. Cl. C08d *13/08*; C08f *47/08*; C08j *1/30*
U.S. Cl. 260—2.5 4 Claims
Open-celled shaped articles such as fibers are made of oxymethylene polymer and may have in the tensionless state a crystallinity of at least 20 percent, an open-celled structure in which the entrance passageways of the cells

are no larger than about 5000 angstroms as porosimetrically determined by mercury penetration, and an apparent density no greater than about 1.0 gram per cubic centimeter.

3,551,364

PROCESSES FOR MAKING MICROPOROUS POLYURETHANE BODIES EMPLOYING NON-BOILING LIQUID ALKYL ETHERS OR LIQUID ALIPHATIC HYDROCARBONS

John J. McGarr, Beverly, Mass., assignor to USM Corporation, Flemington, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 500,155, Oct. 21, 1965. This application Jan. 23, 1969, Ser. No. 794,478

Int. Cl. C08c *17/08;* C08d *13/08;* C08g *22/44*

U.S. Cl. 260—2.5 10 Claims

A microporous resilient sheet or coating is formed by casting an emulsion having a reactive mixture as the continuous phase and having dispersed droplets of a volatile liquid as the internal phase. The reaction mixture includes a material having active isocyanate groups and a second material having active hydrogens for reaction with the first material to form a resilient solid. The droplets of liquid are held in the solidified material and the liquid is removed, as by evaporation, leaving pores and discontinuities for passage of air and vapor.

3,551,365

COMPOSITE CROSS-LINKING AGENT/RESIN FORMER COMPOSITIONS AND COLD-SETTING AND HEAT-SETTING RESINS PREPARED THEREFROM

Ralph Matalon, 432 Cherry Hill Blvd., Cherry Hill, N.J. 08034

No Drawing. Continuation-in-part of application Ser. No. 736,984, June 14, 1968, which is a continuation-in-part of application Ser. No. 711,208, Mar. 7, 1968. This application Nov. 29, 1968. Ser. No. 780,293

Int. Cl. C08g *37/12, 37/14*

U.S. Cl. 260—17.2 27 Claims

There are disclosed herein composite cross-linking agent/resin-former compositions comprising a reducing sugar, water, a polyhydric phenol having at least two hydroxy groups in the meta position and phosphoric acid, as well as cold-setting and heat-setting, flameproof and fireproof, resinous binders comprising the reaction product of the composite cross-linking agent/resin-former composition with either furfuryl alcohol or a furfuryl alcohol-formaldehyde resin. The cold-setting and heat-setting, flameproof and fireproof, resinous binder can be blended with foundry sands to form cores and molds.

3,551,366

AUXILIARY AGENTS FOR THE DISPERSION POLYMERIZATION OF VINYL ESTERS

Joachim Galinke and Miklos Danielisz, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie. G.m.b.H., Dusseldorf-Holthausen, Germany, a corporation of Germany

No Drawing. Filed Sept. 30, 1966, Ser. No. 583,438
Claims priority, application Germany, Nov. 11, 1965, H 57,647

Int. Cl. C08f *1/13, 3/56*

U.S. Cl. 260—17.4 5 Claims

The present invention relates to use of water-soluble auxiliary agents, particularly hydroxyalkyl ethers of galactomannans, together with polyvinyl alcohol, for the dispersion polymerization of vinyl esters of alkanoic acids having from 2 to 4 carbon atoms, in particular of vinyl acetate in aqueous phase.

3,551,367

ARYLATED FATTY ACID-MODIFIED WATER-DISPERSIBLE POLYESTERS

Alton J. Gasper, Minneapolis, and David D. Taft, Edina, Minn., assignors to Ashland Oil, Inc., a corporation of Kentucky

No Drawing. Filed June 28, 1968, Ser. No. 740,986

Int. Cl. C08g *17/16;* C09d *3/64, 3/66*

U.S. Cl. 260—20 19 Claims

An aryl substituted higher fatty acid, such as phenyl stearic acid, is incorporated as a reactant in the preparation of water-dispersible polyesters, especially those derived from polyoxyalkylene glycols, to internally plasticize the polyester. The modified polyesters are suitable as coating resins alone or in mixtures with water-dispersible phenoplast or aminoplast resins.

3,551,368

METAL PRIMERS COMPRISING PARTIAL FATTY ACID ESTERS OF STYRENE-ALLYL ALCOHOL COPOLYMERS AND ADIPIC ACID

Atam P. Sahni, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Aug. 18, 1967, Ser. No. 661,512

Int. Cl. C09d *3/74, 5/08, 5/10*

U.S. Cl. 260—23 9 Claims

Disclosed herein is a primer for metal surfaces which may be applied to surfaces which have not been previously cleaned of oxidation products; greasy, oily contaminants; or drawing compound. The coating is based upon a blend of adipic acid, polyvinyl butyral and the esterification product of the reaction between a styrene-allyl alcohol copolymer and an unsaturated fatty acid containing 10–24 carbon atoms. The coating may also contain chromium trioxide to enhance corrosion resistance and may further contain aluminum powder and zinc dust to impart weldability. The procedure necessary for the preparation of the coating is also disclosed.

3,551,369

ANTIFOULING COMPOSITIONS COMPRISING A DISPERSION OF A MIXED POWDER IN A CARRIER

Katsuji Shimizu, 3–79 Miyahara, Omiya, Saitama, Japan, and Kinzo Sekiyama, 1248 Shukugawara, Kawasaki, Kanagawa, Japan

No Drawing. Filed June 12, 1968, Ser. No. 736,284

Int. Cl. C09d *3/42, 5/16*

U.S. Cl. 260—23.3 3 Claims

An antifouling composition, comprising a dispersion of a mixed powder in a carrier, the mixed powder comprising a substance toxic to sea organisms and a complex of a non-crystalline sodium silicate and a colloidal aluminum silicate, the grains of said mixed powder being coated with a water-soluble synthetic resin in the state of a gel.

3,551,370

METHOD OF AGGLOMERATING LATICES

William O. Dalton, Ludlow, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,870

Int. Cl. C08f *47/02*

U.S. Cl. 260—23.7 11 Claims

There is disclosed a process for agglomerating latices of a polymer to provide larger particles. An acid anhydried is admixed with an aqueous latex of a polymer which contains an inorganic electrolyte and an organic acid salt emulsifying agent for the latex and the admixture is allowed to stand for a period sufficient to hydrolyze the acid anhydride and produce agglomeration of the polymer particles. Thereafter, the latex is stabilized with emulsifying agent.

3,551,371

COATING COMPOSITIONS CONTAINING MODIFIED ROSIN FOR IMPARTING STRIPPABILITY

Herman F. Weindel, Uniondale, N.Y., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Aug. 28, 1967, Ser. No. 663,485

Int. Cl. C09j *3/26*

U.S. Cl. 260—27 12 Claims

Strippable coating compositions are provided comprising petroleum wax; primary fatty amide; a copolymer selected from the group consisting of copolymers of ethylene and vinyl acetate and copolymers of ethylene and ethyl acrylate; mineral oil; and a modified rosin.

3,551,372

COMPOSITION AND PROCESS FOR COVERING, COATING AND FILLING CAVITIES OR DEPRESSIONS

Erich Bader, Hanau am Main, and Hubert Koert and Gerd Brod, Grossauheim, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Continuation of application Ser. No. 404,511, Oct. 16, 1964. This application Dec. 20, 1967, Ser. No. 692,248

Claims priority, application Germany, Dec. 12, 1963, D 43,156

Int. Cl. C08f *15/30, 45/52*

U.S. Cl. 260—28.5 3 Claims

A polymerizable composition useful for coating, filling, sealing and waterproofing various substrates, and the process for the use thereof, which consists essentially of

(A) about 50 to 95% by weight of said composition of polymerizable monomer compounds consisting of

(i) about 1 to 50% by weight of said composition of acrylic acid esters and methacrylic acid esters whose alcohol components contain more than 4 carbon atoms, and

(ii) the remainder of said polymerizable monomer compounds consisting of methacrylic acid esters whose alcohol components contain 2 to 4 carbon atoms,

(B) about 5 to 50% by weight of said composition of polymeric compounds consisting of

(i) a vinyl chloride interpolymer which is soluble in said (A) monomers, and

(ii) any remainder of the polymeric compound consisting of polymers of the (A) monomers which are soluble in the (A) monomers, and

(C) sufficient quantities of catalyst to effect the polymerization of the (A) monomers.

3,551,373

ACRYLONITRILE COPOLYMERS

Jeno Szita, Cologne, Worringen, and Horst Wieden, Heinrich Rinkler, Alfred Nogaj, Herbert Marzolph, and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

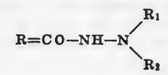
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,693

Claims priority, application Germany, Feb. 3, 1967, F 51,430

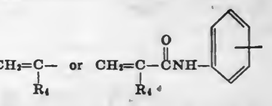
Int. Cl. C07d *87/46;* C08f *15/02*

U.S. Cl. 260—79.3 5 Claims

The invention relates to fibre-forming acrylonitrile copolymers showing a high affinity for acid dyes, and to a process for their production by copolymerising acrylonitrile with an unsaturated carboxylic acid hydrazide of the general formula



or with a quaternised derivative thereof, wherein R_1 and R_2 represent alkyl radicals or together with the nitrogen atom form a heterocyclic ring and R represents a radical of the formulae



R_4 being hydrogen or methyl.

3,551,374

CAULKING AND SEALING COMPOUNDS

Hans Reinhard, Limburgerhof, Pfalz, Germany, and Bernhard Dotzauer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 28, 1967, Ser. No. 626,424

Claims priority, application Germany, Apr. 2, 1966, 1,569,910

Int. Cl. C08f *29/50, 45/24*

U.S. Cl. 260—29.6 6 Claims

Caulking and sealing compounds composed of an emulsion polymer of an alkyl ester of an ethylenically unsaturated carboxylic acid and 0.25 to 2.5 parts of a polymer having a K value of 10 to 70 and derived from an acrylic ester and/or methacrylic ester of an alkanol, and/or of a vinyl alkyl ether and/or of butadiene and/or a polymer having a K value of 5 to 40 and derived from isobutylene and/or isoprene, which have been prepared by mixing or emulsifying a practically anhydrous, solvent-free, emulsifiable polymer with or in at least a 50% aqueous dispersion of another polymer, and 0.5 to 2.5 times the weight of the polymer of a conventional filler, can be gunned and extruded into profiles without difficulty, adhere well and shrink to only a very slight extent.

3,551,375

ADHESIVE PRIMER COMPOSITIONS

Jean Dumoulin, La Terrasse-sur-Dorlay, and Jacques Sanfourche, Saint-Fons, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed Dec. 19, 1966, Ser. No. 602,473

Claims priority, application France, Nov. 7, 1966, 82,763

Int. Cl. C08g *51/28, 51/34*

U.S. Cl. 260—31.2 10 Claims

Adhesive primer compositions are disclosed comprising a cross-linked isocyanate terminated polymers, and inert anhydrous organic solvent, and an organoalkoxysilane of the formula:

$$R_nR'_mSi(OR'')_{4-m-n}$$

where R is a monovalent hydrocarbon radical containing one or more double bonds, an acrylyloxyalkyl or methacrylyloxyalkyl radical, R′ is a monovalent, saturated or aromatic hydrocarbon radical, R″ is alkyl or alkoxyalkyl, n is 1 or 2, m is 0 or 1, and $m+n$ is at most 2.

3,551,376

ADHESION-RESISTANT ORGANOPOLYSILOXANE COATINGS

Klaus Seyfried, Cologne, and Hans Toepsch, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed June 13, 1968, Ser. No. 741,149

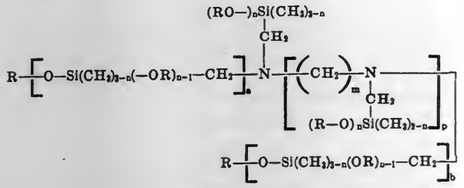
Claims priority, application Germany, June 28, 1967, F 52,816

Int. Cl. C08g *51/34*

U.S. Cl. 260—32.8 6 Claims

An adhesion-resistant coating on the surface of an article is produced by applying to the surface a solution of

(1) an essentially linear α,ω-di-hydroxy-polydiorganosiloxane having a viscosity greater than 500 cp. at 20° C. and, in a proportion of 1 to 25 percent by weight, referred to the polysiloxane, of (2) an alkoxysilyl-methylamino compound of the general formula



in (3) an inert solvent, and heating the film thus applied. In the formula n is 1, 2 or 3, a is zero or 1, b is zero or 1, m is an integer greater than 1, p is zero or a positive integer at least equal to $3-n-a-b$, and R is R'R'—O—CH_2—CH_2—, or R'$_2$N—CH_2CH_2—, R' representing an alkyl radical containing 1 to 4 carbon atoms.

3,551,377
METHOD OF PRODUCING HEAT-RESISTANT RUBBER
Kuzma Andrianovich Andrianov, Ul. Fersmana 3, kv. 102, Moscow, U.S.S.R.
No Drawing. Filed July 10, 1968, Ser. No. 743,603
Int. Cl. C08g *51/04*
U.S. Cl. 260—37 **8 Claims**

Heat-resistant rubber is prepared by vulcanizing a mixture of a polydiorganosiloxane, a polyorganoelemento dimethyl (methylphenyl) siloxane, a filler and a vulcanizing agent. An even more heat-resistant product is obtained if a metal oxide is added to the mixture.

3,551,378
GRAFT COPOLYMERS OF UNSATURATED POLYESTERS
Ronald R. Rabenold, Allison Park, and Edward S. Kondrad, New Kensington, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Aug. 1, 1968, Ser. No. 749,292
Int. Cl. C08f *21/00;* **C08g** *51/04*
U.S. Cl. 260—40 **11 Claims**

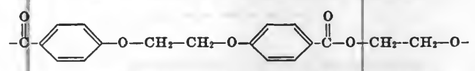
Unsaturated polyesters are graft polymerized onto thermoplastic polymers by esterification or transesterification. The graft copolymers derived therefrom may be used as glass fiber binders and more particularly in matched metal molds to produce moldings having excellent surface properties.

3,551,379
PROCESS FOR THE MANUFACTURE OF NON-GLOWING POLYVINYL CHLORIDE
Franz-Josef Dany, Hurth, Joachim Kandler, Lechenich, and Peter Münch, Bruhl-Pingsdorf, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany
No Drawing. Filed Mar. 7, 1968, Ser. No. 711,177
Claims priority, application Germany, Mar 23, 1967, K 61,814
Int. Cl. C08f *45/08*
U.S. Cl. 260—41 **5 Claims**

Non-glowing polyvinyl chloride, which may contain carbon black in a proportion of up to about 50 parts by weight per 100 parts by weight polyvinyl chloride, is produced by incorporation of red phosphorus in a proportion of about 0.3 to 10 parts by weight per 100 parts by weight polyvinyl chloride.

3,551,380
PRODUCTION OF POLYESTERETHERS
Hidehiko Kobayashi and Kiichiro Sasaguri, Tokyo, Hiroshi Komoto, Saitama-ken, and Sukeo Kawashima and Noboru Tanimura, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,967
Claims priority, application Japan, Oct. 21, 1966, 41/68,955; Apr. 6, 1967, 42/21,482, 42/21,485; Apr. 10, 1967, 42/22,402
Int. Cl. C08g *23/16*
U.S. Cl. 260—45.7 **7 Claims**

The production of linear polyesterethers containing at least 90 mole percent of the unit of the formula;



based upon the recurring unit in the molecular chain, comprising adding 1,2-bis(p-carboxy-phenoxy)ethane to 1,2-bis[p-(β - hydroxycarboethoxy)phenoxy]ethane in such amounts as to provide the mole ratio of

—$COOCH_2CH_2OH$

to —COOH being 1.0 to 4.0, heating the obtained mixture at a temperature of from 250 to 300° C. under a pressure of from the atmospheric pressure to 30 kg./cm.^{2} to approximate the said mole ratio of above 1 to 1 as much as possible and polycondensing the obtained reaction product at elevated temperatures under reduced pressures in the absence of any polycondensation catalyst.

3,551,381
SATURATED LINEAR POLYESTERS THERMALLY STABILIZED WITH AMINES
Mary J. Stewart, Riddlewood, Media, and Otto K. Carlson, Marcus Hook, Pa., assignors to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Jan. 17, 1968, Ser. No. 698,393
Int. Cl. C08g *51/60*
U.S. Cl. 260—45.9 **9 Claims**

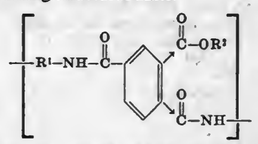
A thermal stabilized polyester composition comprising a saturated linear polyester and a thermal stabilizer selected from the group consisting of secondary and tertiary aliphatic, aromatic, or mixed aliphatic-aromatic amines.

3,551,382
STRUCTURE CONTROL ADDITIVE FOR CONVERTIBLE ORGANOPOLYSILOXANES, AND PREPARATION THEREOF
Karl Schnurrbusch, Leverkusen-Steinbuechel, and Wilfried Kniege, Cologne-Muelheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Apr. 10, 1968, Ser. No. 720,364
Claims priority, application Germany, Apr. 19, 1967, F 52,179
Int. Cl. C08g *31/02*
U.S. Cl. 260—46.5 **2 Claims**

Compositions comprising linear organopolysiloxanes convertible into the solid elastic state by heating in the presence of an organic peroxide, finely divided silica such as fume silica as reinforcing filler, and diphenyl-silanediol as structure control additives are well known in the art. In the following a satisfactory process of the production of finely divided diphenyl-silane-diol is disclosed in which process diphenyldichlorosilane is poured with very intensive stirring into a large excess of weakly alkaline water at below 40° C. The diphenyl-silane-diol precipitate obtained thereby is filtered off, washed, dried, ground to a particle size of less than 50 microns, and forthwith mixed with an approximately equal amount of a convertible organopolysiloxane. The preparation thus obtained can be stored without risk of agglomeration and can easily be used as structure control additive at any later time.

3,551,383
AROMATIC POLYAMIDE-ESTERS AND A PROCESS FOR PREPARING THEM
James C. Fang, Media, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 30, 1967, Ser. No. 650,196
Int. Cl. C08g *20/30*
U.S. Cl. 260—47 **7 Claims**

A polyamide-ester and process for making this polymer, which is convertible into a polyamide-imide, by polymerizing the mono-ester of trimellitic anhydride and an organic diisocyanate wherein the polyamide-ester has the following recurring structural units.



wherein the arrows denote isomerism, and in which R^1 is a divalent organic radical having at least 2 carbon atoms and R^2 is either an alkyl radical, aryl radical or a cycloaliphatic radical. A process for forming a polyamide-diester from the diester of pyromellitic dianhydride and an organic diisocyanate. The novel polyamide-ester is useful, for example, as a coating composition, an adhesive and as a wire enamel.

3,551,384
WATER SOLUBLE POLYMERS OF DIACETONE ACRYLAMIDE
Herbert J. Zeh, Jr., Pittsburgh, Pa., assignor to Calgon Corporation, Pittsburgh, Pa.
No Drawing. Continuation of application Ser. No. 738,089, June 19, 1968. This application Mar. 16, 1970, Ser. No. 18,792
Int. Cl. C08g *15/00*
U.S. Cl. 260—63 **3 Claims**

Novel copolymers are disclosed comprising units derived from diacetone acrylamide and diallyl dialkyl quaternary ammonium compounds.

3,551,385
AROMATIC POLYAMIDES FROM DIAMINOBENZILS
Hartwig C. Bach, Durham, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Dec. 30, 1965, Ser. No. 517,813
Int. Cl. C08g *20/00*
U.S. Cl. 260—63 **6 Claims**

Novel polymers have been prepared from condensation of aromatic diacid halides and 4,4'-diaminobenzil. The polymers are useful for the formation of temperature resistant fibers.

3,551,386
POLYESTER POLYMERIZATION PROCESS, PREPOLYMER AND PRODUCT
Eugene E. Berkau, Durham, and William R. Hocutt, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed June 26, 1968, Ser. No. 750,386
Int. Cl. C08g *17/003*
U.S. Cl. 260—75 **5 Claims**

Partially esterified low molecular weight linear polyester prepolymers especially suitable for substantially facilitated single-step transesterification and further esterification in production of high quality high molecular weight polyester polymers are produced with increased efficiency by partially esterifying a dicarboxylic acid with a glycol under acid esterification conditions which foster a molecular weght of from about 500 to about 10,000 and a free carboxyl end group concentration of between about $1.6(10^6)M_n^{-0.98}$ and $6.7(10^6)M_n^{-1.35}$ (where M_n=number average molecular weight of the prepolymer).

If the esterification is conducted at atmospheric pressure the ratio of carboxyl end groups to hydroxyl end groups in the improved prepolymer of a molecular weight of from about 1000 to 1800 units will be from about 0.20 to 0.46.

3,551,387
PROCESS FOR PREPARING POLYESTER RESINS FROM AROMATIC DINITRILES
Ralph Landau, Northport, N.Y., assignor to Halcon International, Inc., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 638,580, May 15, 1967. This application Aug. 14, 1969, Ser. No. 850,264
Int. Cl. C08g *17/003*
U.S. Cl. 260—75 **5 Claims**

This invention relates to a process for the preparation of materials suitable for conversion, by polymerization techniques, to polyester resins. More particularly, this invention relates to the preparation of materials suitable for conversion to polyester resins from aromatic dinitriles. In a particularly preferred embodiment, this invention relates to the production of such polyester resins employing terephthalonitrile as the starting material.

3,551,388
POLYAMIDE FIBERS OF IMPROVED DYEABILITY PREPARED IN THE PRESENCE OF ETHYLENE OR PROPYLENE CARBONATE
Arnulf C. T. Sippel and Maria-Lotte Bumiller, Freiburg im Breisgau, and Paul Vollmer, Gundelfingen, near Freiburg im Breisgau, Germany, assignors to Deutsche Rhodiaceta A.G., Freiburg im Breisgau, Germany
No Drawing. Filed Mar. 21, 1968, Ser. No. 714,799
Claims priority, application Germany, Mar. 21, 1967, D 52,589
Int. Cl. C08g *17/13; 20/00, 20/38*
U.S. Cl. 260—77.5 **15 Claims**

The dyeability of polyamide fibers with acid dyes is improved by addition during the polymerizable of 1–5% of an alkylene carbonate. Even better results are obtained if another amide, in the amount up to 20%, is added, so that copolyamides are obtained. The chain length is preferably regulated with chain breakers.

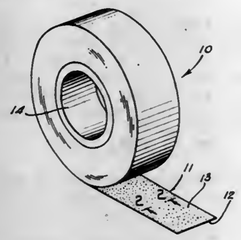
3,551,389
PROCESS FOR THE POLYMERIZATION OF AROMATIC POLYBENZIMIDAZOLES
Arthurt E. Prince, Jr., Basking Ridge, N.J., assignor to Celanese Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,309
Int. Cl. C08g *33/02*
U.S. Cl. 260—78.4 **9 Claims**

Aromatic polybenzimidazoles are prepared by an improved two-stage process wherein the second stage reaction is conducted in the presence of phenol to increase the molecular weight of the resulting polymer product.

3,551,390
COPOLYMERS OF PARA-ISOPROPENYLPHENYL ISOCYANATE
Heinrich Krimm, Krefeld-Bockum, Georg Malamet, Krefeld, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Oct. 19, 1967, Ser. No. 676,618
Claims priority, application Germany, Oct. 20, 1966, F 50,491
Int. Cl. C08f *19/00, 27/10*
U.S. Cl. 260—78.5 **10 Claims**

Copolymers prepared by reacting vinyl compounds or maleic or fumaric acid derivatives with the reaction product of p-isopropenylphenyl isocyanate and a masking agent in the presence of a catalyst.

3,551,391
MODIFIED ACRYLATE ADHESIVE PRODUCT
Guy J. Crocker, North Brunswick, and Donald F. Doehnert, Millington, N.J., assignors to Johnson & Johnson, a corporation of New Jersey
Filed Dec. 9, 1968, Ser. No. 782,298
Int. Cl. C08f *27/00, 15/40, 37/06*
U.S. Cl. 260—78.5 **17 Claims**



Acrylate pressure-sensitive adhesive products based on an adhesive copolymer of monomers comprising a major amount of a medium chain length alkyl acrylate monomer, preferably a minor amount of a cohesion inducing short chain monomer, and about 0.5–5.0 parts by weight of the total monomer solids, preferably about 1–3 parts of the total monomers, of maleic anhydride; to which is added a small amount, preferably about 0.02–0.5 part of amine nitrogen by weight of the total monomer solids of a ring-opening amine modifier preferably containing no more than one functional group selected from the class consisting of primary amine groups, secondary amine groups and hydroxyl groups. The monomers are copolymerized in a suitable organic solvent to form a stable copolymer solution, and the amine modifier is added subsequent to polymerization. A small amount of a polymerizable cross-linking monomer, such as an alkoxy silyl cross-linking monomer, may be copolymerized with the other monomers when it is desired to permanently cross-link the adhesive either with or without the addition of a suitable cross-linking catalyst.

3,551,392
PROCESS FOR THE PREPARATION OF BRANCHED CONJUGATED DIENE POLYMERS
John L. Snyder, Long Beach, Roger H. Mann, Corona del Mar, and Mary J. Pate, Torrance, Calif., said Mary J. Pate now by change of name to Mary J. Papvasiliou, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 12, 1968, Ser. No. 759,518
Int. Cl. C08d *5/02;* **C08f** *27/00*
U.S. Cl. 260—78.4 **4 Claims**

Conjugated diene polymers having a branched molecular configuration are prepared by first polymerizing a conjugated diene with an alkyl lithium initiator and thereafter coupling the first polymer with a diester of dicarboxylic acids with monohydric alcohol to form a low molecular weight polymer having satisfactory coagulation characteristics, driability, and processability.

3,551,393
PREPARATION OF WATER SOLUBLE POLYMERIC VINYL AROMATIC SULFONATES
Thaddeus M. Muzyczko, Melrose Park, Samuel Shore, Roselle, and Sanford Schulert, Chicago, Ill., assignors to The Richardson Company, Melrose Park, Ill., a corporation of Ohio
No Drawing. Filed June 13, 1967, Ser. No. 645,588
Int. Cl. C08f *27/07*
U.S. Cl. 260—79.3 **5 Claims**

The invention is directed to the preparation of water soluble, polymeric, vinyl aromatic sulfonates in high yields and without appreciable formation of insoluble sulfones. Illustrative of the water soluble sulfonates is a water soluble polystyrene sulfonate. The process utilizes a polymeric vinyl aromatic suspended in a reaction medium, a sulfonating agent and a phosphoric acid as a sulfone inhibitor.

3,551,394
MANUFACTURE OF HIGH MOLECULAR WEIGHT SUBSTANCES
Taketami Sakuragi, Tokyo, and Shinichi Akiyama, Kamakura-shi, Japan, assignors to The Japanese Geon Co., Ltd., Tokyo, Japan
No Drawing. Filed July 19, 1967, Ser. No. 654,338
Claims priority, application Japan, July 26, 1966, 41/48,515; Jan. 26, 1967, 42/4,814
Int. Cl. C08f *47/00*
U.S. Cl. 260—80.7 **5 Claims**

A method for manufacturing a high molecular weight material by reacting an unsaturated, high molecular weight substance containing a diene as one of its constituents, and a compound having at least one functional group which contains phosphorus, sulphur or arsenic, and which is capable of reacting by addition reaction with a carbon-to-carbon double bond, with the aid of an alkyl hypohalite at a temperature between —40° C. and 120° C. The products are valuable as industrial materials or intermediates.

3,551,395
PROCESS FOR THE MANUFACTURE OF AMORPHOUS COPOLYMERS OF ETHYLENE AND HIGHER α-OLEFINS
Helmut Schaum, Bad Soden, Taunus, and Gerhard Hörlein, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
Filed June 11, 1968, Ser. No. 736,200
Claims priority, application Germany, June 22, 1967, F 52,764
Int. Cl. C08f *15/40*
U.S. Cl. 260—80.78 **13 Claims**

The invention relates to a process for the manufacture of amorphous copolymers consisting of ethylene, higher α-olefins and, if desired, a small amount of a diolefin with modified organometal mixed catalysts in suspension. Alkoxy derivatives of perhalogenated open-chain or cyclic olefins are used as catalyst reactivators and the yields are so high that the complicated removal of catalyst from the polymer may be dispensed with. The products obtained are characterized by advantageous industrial properties.

3,551,396
CONTINUOUS VINYL POLYMERIZATION PROCESS
Raymond Lanthier, Pierrefonds, Quebec, Canada, assignor to Gulf Oil Canada Limited, Toronto, Ontario, Canada
No Drawing. Filed Dec. 24, 1968, Ser. No. 786,767
Claims priority, application Canada, Jan. 5, 1968, 009,241
Int. Cl. C08f *1/06, 1/60, 1/62*
U.S. Cl. 260—85.7 **13 Claims**

A polymerizing charge of vinyl monomer in a liquid medium in which the resulting polymer is insoluble is circulated repeatedly through a circulating pump and substantially closed "loop" reactor to which additional monomer, liquid medium, and polymerization initiator are continuously added and from which liquid medium containing solid polymer are continuously withdrawn at the same rate; the polymerization initiator decomposes substantially quantitatively to liberate free radicals in the time required for it to circulate through the reactor once, and liberates sufficient free radicals to initiate polymerization of the simultaneously added monomer to a desired degree of conversion. The liquid medium can be

an aqueous medium, in which vinyl monomers generally are immiscible and vinyl polymers insoluble, or an organic liquid medium in which the resultant polymer is insoluble (and in which the vinyl monomers generally are miscible), or it can be merely an excess of the vinyl monomer to be polymerized in cases where the resulting polymer is insoluble in such monomer. Products are dispersions of polymer in liquid medium, which may be stable, e.g. stable aqueous emulsions of polymers, or dispersions from which solid polymer is readily separated and recovered from the liquid medium.

3,551,397
PROCESS FOR POLYMERIZATION OF ETHYLENE
Manfred Rätzsch and Reinhard Nitzsche, Leuna, Rolf Kilian, Bad Durrenberg, Klaus-Dieter Ebster, Leuna, and Arnulf Ulrich, Bad Durrenberg, Germany, assignors to VEB Leuna-Werke "Walter Ulbricht," Leuna, Germany
Filed Oct. 23, 1967, Ser. No. 718,273
Int. Cl. C08f *1/60, 3/04*
U.S. Cl. 260—86.7 **8 Claims**

A process for making ethylene polymers and copolymers with other polymerizable compounds in tubular reactors at pressures above 1300 atm. and temperatures between 100 and 350° C. in the presence of oxygen as radical-forming initiator, if desired with addition of other coreactants and other initiators, wherein reaction gas is introduced at two different points, one at the inlet and the other at some other point along the reactor, by dividing the fresh ethylene gas containing oxygen and, if desired said other reactants, at a pressure of 100–400 atmospheres into two streams, which are made into reacting gas streams by additional re-cycled residual reaction gas, compressing the two reacting gas streams to at least 1300 atm., introducing one of the reacting gas streams at the inlet to the reactor and the other at a point along the reactor, whereby the distribution of the oxygen-containing, and sometimes coreactants containing, fresh ethylene is so effected that at the inlet of the reactor and directly behind the second introduction of gas into the reactor, the concentration of oxygen in the reactor will be 0.0005 to 0.5% by weight, and that of coreactant, if present, 0.1–60% by weight.

3,551,398
FLUORINE CONTAINING COPOLYMERS
Yutaka Kometani, Takarazuka-shi, Hyogo-ken, and Masayoshi Tatemoto, Takatsuki-shi, Osaka-fu, Japan, assignors to Daikin Kogy Kabushiki Kaisha, Kita-ku, Osaka-shi, Japan
No Drawing. Filed Oct. 12, 1966, Ser. No. 586,051
Claims priority, application Japan, Oct. 22, 1965, 40/64,992
Int. Cl. C08f *15/06*
U.S. Cl. 260—87.5 **2 Claims**

A cross-linkable copolymer comprising between 30 and 98.5 mole percent of an unsaturated hydrofluoro compound having the formula:

$$R_f—CH=CF_2$$

wherein R_f is one member of the group consisting of fluorine, perfluoroalkyl of 1 to 3 carbon atoms, ω-chloroperfluoroalkyl of 1 to 3 carbon atoms and ω-hydroperfluoroalkyl of 1 to 3 carbon atoms; and between 1.5 to 70 mole percent of an unsaturated fluoro compound having the formula:

$$R'_f—CF=CF_2$$

wherein R'_f is one member of the group consisting of perfluoroalkyl of 1 to 3 carbon atoms, ω-chloroperfluoroalkyl of 1 to 3 carbon atoms and ω-hydroperfluoroalkyl of 1 to 3 carbon atoms.

3,551,399
MANUFACTURING METHOD OF VINYL CHLORIDE POLYMERS FOR PASTE RESIN
Shuzo Yonezu, Yasuhiro Nojima, and Kimio Ban, Osaka, Japan, assignors to Kanegafuchi Chemical Industry Company, Limited, Osaka, Japan, a corporation of Japan
No Drawing. Filed Feb. 1, 1967, Ser. No. 613,129
Claims priority, application Japan, Jan. 31, 1966, 41/5,782
Int. Cl. C08f *1/13, 1/78, 3/30*
U.S. Cl. 260—92.8 **2 Claims**

A manufacturing method of vinyl chloride polymers for paste resin which includes the steps of homogenizing an aqueous dispersion comprising vinyl chloride monomer, emulsifier, saturated aliphatic compound having more than eight carbon atoms and azobis (α, γ-dimethyl) valeronitrile or its mixture with isopropylperoxydicarbonate as a catalyst and then suspension polymerizing it under heating.

3,551,400
METHOD FOR MANUFACTURING THE CHLORINATED POLYVINYL CHLORIDE HAVING IMPROVED QUALITY
Shuzo Yonezu, Yasuhiro Nojima, and Takashi Motaki, Osaka, Japan, assignors to Kanegafuchi Chemical Industry Co., Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Dec. 14, 1967, Ser. No. 690,372
Claims priority, application Japan, Jan. 13, 1967, 42/2,528
Int. Cl. C08f *27/03, 3/30*
U.S. Cl. 260—92.8 **10 Claims**

A process for manufacturing the chlorinated polyvinyl chloride characterized in subjecting the chlorinated polyvinyl chloride having gone through the chlorination reaction to reduction before the chlorine dissolved therein or hypochlorous acid which should be introduced by the reaction of chlorine and the water reacts with it.

3,551,401
EASILY DYEABLE POLYOLEFIN COMPOSITION
Yoshisato Fujisaki and Itsuho Aishima, Tokyo, Noboru Fukuma, Nobeoka-shi, Atsuo Nakanishi, Yokohama-shi, and Kenichi Matsui, Tsukasa Shima, and Chiyouzi Nakai, Nobeoka-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan
No Drawing. Filed June 29, 1967, Ser. No. 649,864
Claims priority, application Japan, Dec. 29, 1966, 41/85,636
Int. Cl. C08f *29/04, 29/02, 37/00*
U.S. Cl. 260—93.7 **14 Claims**

An easily dyeable polyolefin composition comprising (a) a polyolefin; (b) a compound having a basic nitrogen atom; and (c) an inorganic compound. Both (b) and (c) are of a particle size less than 1 micron and are present in amounts of 0.5–20 wt. percent provided however that (c) is present in an amount of more than ⅓ the amount of (b).

3,551,402
HALOGENATION OF LIQUID POLYMERS
Douglas C. Edwards, Sarnia, Ontario, and Richard H. Wunder, Corunna, Ontario, Canada, assignors to Polymer Corporation Limited, Sarnia, Ontario, Canada, a body corporate and body politic
No Drawing. Filed Dec. 12, 1968, Ser. No. 783,398
Claims priority, application Canada, Jan. 15, 1968, 9,841
Int. Cl. C08d *5/04;* **C08f** *27/03, 27/08*
U.S. Cl. 260—94.7 **10 Claims**

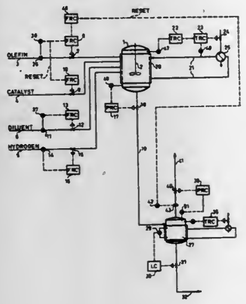
A liquid polymer of a conjugated alkadiene containing molecules with more than one allyl hydroxyl group is

halogenated with hydrogen halide to produce a halogenated polymer in which allyl hydroxyl groups are replaced by allyl halide groups.

3,551,403
PROCESS FOR THE REGULATION OF THE POLYMERIZATION OF OLEFINS

André Delbouille and Alfred Hoffait, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium, a Belgian corporation

Filed Aug. 1, 1968, Ser. No. 749,442
Claims priority, application France, Aug. 1, 1967, 116,431
Int. Cl. C08d *3/04, 3/06, 3/08*
U.S. Cl. 260—94.9 **5 Claims**



The process and device therefor concerns the regulation of the polymerization of gaseous olefins in a reactor operating continuously at a low pressure, and in the presence of a diluent, a polymerization catalyst and a chain transfer agent. The process which is carried out under constant conditions of temperature and pressure and with substantially constant concentrations is regulated by immediately adjusting the olefin input flow into the reactor in response to a variation in the gaseous output from the process and then adjusting the input flow of catalyst in the reactor to return the input flow of olefin to its initial value. The device includes a continuous type reactor, a separator communicating with the reactor, means for maintaining constant conditions in the reactor and separator and means for adjusting the concentrations of olefin and catalyst in the reactor in response to the gaseous outflow from the separator.

3,551,404
PROCESS FOR REMOVING COLOR AND ODOR IN TALL OIL ROSIN

Gerald S. Watkins, Jr., Apalachicola, Fla., assignor to SCM Corporation, Cleveland, Ohio, a corporation of New York

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,703
Int. Cl. C09f *1/02*
U.S. Cl. 260—97.6 **1 Claim**

This invention sets forth a method of improving the color and odor in tall oil rosin. More specifically, it contemplates heating distilled tall oil rosin at a temperature sufficiently high and for a period long enough to convert the odor and color bodies contained therein to relatively nondistillable compounds or heavy ends.

Heavy ends obtained on heating the distilled tall oil rosin are then separated from the rosin fraction, usually by distillation. The resultant final distillate cut contains a substantially odorless and colorless tall oil rosin while the residue consists essentially of the converted color and odor bodies in the form of heavy ends.

3,551,405
PROCESS FOR PRODUCING DESULFONATED LIGNIN RESINS

Dale W. Read, West Vancouver, British Columbia, Canada, assignor to Canadian International Paper Company, Montreal, Quebec, Canada, a corporation of Quebec

No Drawing. Filed Apr. 15, 1968, Ser. No. 721,208
Int. Cl. C07g *1/00;* **B32b** *29/06*
U.S. Cl. 260—124 **6 Claims**

The process of reacting a lignosulfonate-containing spent sulfite liquor, obtained from the sulfite pulping of wood products, with a caustic alkali in the presence of a miscible aliphatic alcohol and, optionally, salts of metals which form water-insoluble sulfides, to produce a desulfonated lignin resin. The thermosetting lignin resin thus obtained, when reacted with a phenol-formaldehyde resin, produces a resin which can be employed as a partial replacement for conventional phenolic resins in many applications where phenolic resins are normally employed.

3,551,406
CHROMIUM COMPLEXES OF A MONOAZO COMPOUND AND A COLORLESS LIGAND

Elbert M. Idelson, Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 487,033, Sept. 13, 1965. This application Mar. 4, 1969, Ser. No. 804,315
Int. Cl. C07c *107/00;* **C09b** *45/16;* **G03e** *5/24*
U.S. Cl. 260—147 **8 Claims**

Photographic products, processes and compositions for forming dye images employing a metal-complexed dye having bonded to the metal-complexing atom by at least one coordinating atom a substantially colorless ligand containing a silver halide developing function, which complexes may be illustrated schematically as follows:

Dye—Me—Ligand-developer

3,551,407
MONOAZO DYES DERIVED FROM AMINOPHTHALIMIDES

Johannes Dehnert and Gerhard Gnad, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,587
Claims priority, application Germany, Apr. 19, 1967, 1,644,058; Mar. 6, 1968, 1,719,062
Int. Cl. C09b *29/36;* **D06p** *1/02*
U.S. Cl. 260—152 **2 Claims**

Monoazo dyes derived from 3-aminophthalimides or 4-aminophthalimides and naphthalene sulfonic acids which are especially useful for dyeing synthetic polyamides.

3,551,408
TRITERPENE DERIVATIVES, PROCESS FOR PREPARING SAME, AND APPLICATIONS THEREOF

Marguerite Laroche Navarron, Paris, France, assignor to Laboratoires Laroche Navarron, Levallois, France, a French body corporate

No Drawing. Filed June 5, 1967, Ser. No. 643,402
Claims priority, application France, Aug. 8, 1966, 72,364
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 **4 Claims**

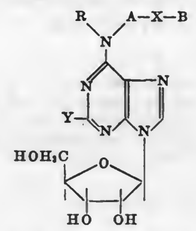
New triterpene derivatives consisting of an oside of empirical formula $C_{48}H_{78}O_{20}$, named Madecassoside, and of the aglycone thereof formed by a triterpene acid of empirical formula $C_{30}H_{48}O_6$, named Madecassic acid, extracted from the water-alcoholic steep liquors of the plant *Centella asiatica*. They possess therapeutic properties, and particularly a modifying action on the connective tissue.

3,551,409
ADENOSINE DERIVATIVES

Wolfgang Kampe, Heddesheim, Max Thiel, Mannheim, and Kurt Stach, Wolfgang Schaumann, and Karl Dietmann, Mannheim-Waldhof, Germany, assignors to Boehringer Mannheim Gesellschaft mit beschrankter Haftung, a corporation of Germany

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,124
Claims priority, application Germany, Dec. 21, 1966, B 90,400
Int. Cl. C07d *51/54*
U.S. Cl. 260—211.5 **9 Claims**

Novel adenosine derivatives of the formula:



wherein Y is halogen or hydroxyl, R is hydrogen or lower alkyl, A is saturated or unsaturated, straight, branched chain or cyclic, substituted or unsubstituted aliphatic hydrocarbyl, wherein said substituent is hydroxyl or acyloxy, X is a valency bond, oxygen, sulfur, imino, alkylated imino or acylated imino, and B is hydrogen, substituted or unsubstituted phenyl or naphthyl wherein said substituent is halogen, hydroxyl, alkyl, haloalkyl, alkoxy, aryloxy, acyloxy or alkylmercapto.

The above adenosine derivatives are possessed of hemodynamic and coronary dynamic activity. They are particularly important because of their ability to at least partially reverse the hemodynamic abnormalities of congestive heart failure and other low cardiac-output states.

3,551,410
METHOD OF INCREASING THE WATER-RETENTIVITY OF CELLULOSE FIBERS AND THE PRODUCT PRODUCED THEREBY

Donald M. MacDonald and Madhu P. Godsay, Monroe, N.Y., assignors to Canadian International Paper Company, Montreal, Quebec, Canada, a corporation of Quebec, Canada

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,221
Int. Cl. C08b *3/22, 15/04, 23/00*
U.S. Cl. 260—212 **10 Claims**

The ability of a carboxy cellulose to retain water is greatly increased by soaking the carboxy cellulose in a salt solution, consisting of a mixture of water-soluble salts, buffering at an initial pH value between about 6.0 and about 7.5, and where the change in pH, i.e., ΔpH, of the salt solution, after treatment of the carboxy cellulose, is from about 0 to about 0.5 pH units.

3,551,411
2,5-BENZODIAZONINE COMPOUNDS

William J. Houlihan, Mountain Lakes, and Robert E. Manning, Parsippany, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed Mar. 17, 1967, Ser. No. 623,850
Int. Cl. C01d *53/00, 57/04*
U.S. Cl. 260—239 **2 Claims**

This invention relates to nitrogeneous heterocyclic compounds which are useful as anti-depressants. The compounds are of three classes, i.e., (A) 4-loweralkyl-2-oxa-1,2,3,5,6,10b-hexahydoimidazo [2,1-a] isoquinolinium halides, e.g., 8,9-dimethoxy-4-methyl-1,2,3,5,6,10b-hexahydroimidazo[2,1-a]isoquinolinium iodide; (B) 5-loweralkyl-2,5-benzodiazonin-3-ones, e.g., 9,10-dimethoxy-5-methyl-2,5-benzodiazonin-3-one; and (C) 5-loweralkyl-2,5-diazonines, e.g., 9,10-dimethoxy-5 methyl-2,5-benzodiazonine bimaleate. Compounds (A) may be obtained by treating a 1,2,3,5,6,10b-hexahydroimidazo[2,1-a]isoquinolin-2-one with a lower alkyl halide, e.g., methyl iodide. Compounds (B) may be obtained by reducing compounds (A) with sodium in liquid ammonia. Compounds (C) may be obtained by reducing compounds (B) with lithium aluminum hydride.

3,551,412
5-SUBSTITUTED BENZODIAZEPINES

Josef Schmitt, L'Hay-les-Roses, Val de Marne, France, assignor to Etablissements Clin-Byla, Paris, France, a company of France

No Drawing. Continuation-in-part of application Ser. No. 517,434, Dec. 29, 1965. This application Oct. 29, 1968, Ser. No. 773,368
Claims priority, application France, Aug. 8, 1967, 117,190
The portion of the term of the patent subsequent to Feb. 4, 1986, has been disclaimed
Int. Cl. C07d *53/06*
U.S. Cl. 260—239.3 **21 Claims**

Pharmacologically valuable benzodiazepines having the formula:



in which R^1 is phenyl, lower α-alkenyl, α-cycloalkenyl or is a group of the formula



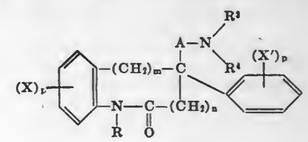
in which each of R^5 and R^6 is hydrogen, chlorine or lower alkyl or R^5 and R^6 taken together with the carbon atom to which they are attached represent cycloalkyl and R^7 is hydrogen or chlorine, R^2 is hydrogen, chlorine or lower alkyl subject to at least one of R^2, R^5, R^6 and R^7 being chlorine or R^2 being chlorine when R^1 is phenyl; R^3 is hydrogen or lower alkyl; and R^4 is hydrogen, halogen, lower alkyl, lower alkoxy, trifluoro methyl or nitro. The compounds have sedative and hypnotic properties.

3,551,413
BENZO-LACTAMS

John Krapcho, Somerset, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 567,831, July 26, 1966. This application Mar. 12, 1969, Ser. No. 806,697
Int. Cl. C07d *41/00, 33/46*
U.S. Cl. 260—239.3 **11 Claims**

New compounds are provided having the general formula



wherein X and X' are the same or different and can be hydrogen, lower alkyl, lower alkoxy and halogen; R can be lower alkyl, lower alkenyl, aryl loweralkyl, and aryl loweralkenyl; A is lower alkylene; and



is a basic nitrogen containing radical of less than fourteen carbon atoms; *p* is 1, 2, or 3; *m* is 1 or 2; and *n* is 0 or 1. These compounds are useful as central nervous system stimulants.

3,551,414

6,7-DIHYDRO-5H-DIBENZ[c,e]AZEPIN-7-ONES

John O. Hawthorne and Edward L. Mihelic, Penn Hills Township, Allegheny County, Pa., assignors to United States Steel Corporation, a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 529,258, Feb. 23, 1966. This application May 16, 1969, Ser. No. 825,440

Int. Cl. C07d *41/08*

U.S. Cl. 260—239.3 4 Claims

N-substituted 2 - aminomethyl-2'-biphenylcarboxylic acid and derivatives thereof are prepared by reacting 2-formyl-2'-biphenylcarboxylic acid or an ester thereof with ammonia or a primary amine with hydrogenation of the product. The compounds are useful as intermediates in the preparation of 6-substituted-6,7-dihydro-5H-dibenz [c,e]-azepines which may be used to inhibit or reverse the physiological effect of epinephrine.

3,551,415

PREPARATION OF 1,4-BENZODIAZEPIN-2-ONES

James Valentine Earley, Cedar Grove, Rodney Ian Fryer, North Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Continuation-in-part of application Ser. No. 776,767, Nov. 18, 1968. This application Sept. 4, 1969, Ser. No. 855,428

Int. Cl. C07d *53/06*

U.S. Cl. 260—239.3 17 Claims

Substituted 1,4-benzodiazepin - 2 - ones are prepared from correspondingly substituted 2,3-dihydro - 4(1H)isoquinolones utilizing Schmidt rearrangement conditions. In one embodiment of the process, intermediate 1,4-benzodiazepin-2-ones having a hydrogen in the 1-position are alkylated. The product 1,4 - benzodiazepin-2-ones form a class of compounds having pharmacological usefulness as muscle relaxants, sedatives and anti-convulsants.

3,551,416

PIPERIDEIDES

Hermann Oediger, Cologne-Stammheim, and Anton Oberdorf, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed June 29, 1967, Ser. No. 649,863

Claims priority, application Germany, Aug. 5, 1966, F 49,877

Int. Cl. C07d *29/38*

U.S. Cl. 260—240 17 Claims

New acid piperideides useful as choleretics are provided from certain piperideines such as 4-methyl- or 3,4-dimethyl-Δ^3-piperideines by reaction with certain aromatic acid halides such as phenylacetic acid halides and their acetoxy, acetamino, alkoxy and other analogs and their hydroxy products of hydrolysis.

3,551,417

PESTICIDAL HETEROCYCLIC SULFIDES

Ted Symon, Lombard, and Anthony J. Guarnaccio, Niles, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 398,086, Sept. 21, 1964. This application Aug. 28, 1967, Ser. No. 663,561

Int. Cl. C07d *93/06*

U.S. Cl. 260—243 6 Claims

Novel compositions of matter comprising substituted sulfide compounds which are prepared by reacting a haloalkane which contains a phenoxy-, thiophenoxy-, or anilino substituents with a heterocyclic compound containing a sulfur substituent possess pestiologically active properties and are useful as pesticides.

3,551,418

TETRA TERTIARY AMINO METHANES AND THEIR PREPARATION

Harold I. Weingarten, St. Louis, and William A. White, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Apr. 18, 1966, Ser. No. 543,080

Int. Cl. C07d *87/40*

U.S. Cl. 260—246 8 Claims

The present invention relates to amine compounds and the preparation thereof, particularly the group of tetrakis-(disubstitutedamino)methane compounds. These compounds have utility as aminating agents in organic chemistry, and also in the manufacture of chelating agents. Other uses are as herbicides, insecticides, bacterocides, and as catalysts in urethane polymerizations.

3,551,419

AMINO ACID AMIDES AND PROCESS FOR THEIR PRODUCTION

Giorgio Da Re, Milan, and Luigi Rovati, Monza, Italy, assignors to Rotta Research Laboratorium S.p.A.

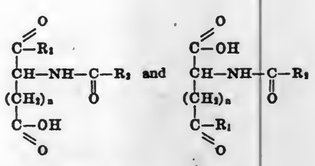
No Drawing. Filed July 23, 1965, Ser. No. 474,450

Claims priority, application Italy, July 31, 1964, 25,676

Int. Cl. C07d *87/42*

U.S. Cl. 260—247.2 14 Claims

Compounds having the following formula:



wherein:

R_2 is either phenyl or benzyl;

n is either 1 or 2;

R_1 and R_3 may be:

(a) mono- and di-substituted amino-groups in which the substituent may be:

(i) linear and branched chain alkyl radicals containing from 3 to 17 carbon atoms when *n* is 2;

(ii) linear and branched chain alkyl radicals having from 1 to 17 carbon atoms when *n* is 1; and

(iii) a carboalkoxy-substituted phenyl group;

(b) a heterocyclic group which is a morpholino-, piperidino-, pyrrolindino-, 4-antipyrilamino- and hexamethyleneimino radicals;

(c) a benzolamino radical when *n* is 1.

The above compounds exert either a depressing or stimulating effect on the central nervous system, and are particularly effective as anti-secretory agents in the gastrointestinal tract of warm-blooded mammals. Numerous examples of environments wherein the compounds of the present invention find utility are disclosed in the specification.

3,551,420

1,2-DIHYDRO - 1 - HYDROXY-6-ALKYL-2-(AMINOMETHYLIMINO)PYRIMIDINES AND 1,6 - DIHYDRO-1-HYDROXY - 2 - ALKYL - 6-(AMINOMETHYLIMINO)PYRIMIDINES

William C. Anthony, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Jan. 23, 1967, Ser. No. 610,800

Int. Cl. C07d *51/34*

U.S. Cl. 260—247.5 7 Claims

1,2-dihydro-1-hydroxy-6-alkyl-2 - (aminomethylimino) pyrimidines and 1,6 - dihydro - 1 - hydroxy - 2 - alkyl-6-(aminomethylimino)pyrimidines and methods of their synthesis are disclosed. These compounds are useful for lowering the blood pressure in animals.

3,551,421

NOVEL TRIAZINES

Daniel Bertin, Montrouge, and Jacques Perronnet, Paris, France, assignors to Roussel-UCLAF, Paris, France, a corporation of France

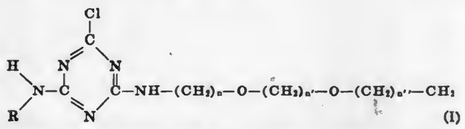
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,545

Claims priority, application France, Nov. 16, 1967, 128,510

Int. Cl. C07d *55/46*

U.S. Cl. 260—249.8 3 Claims

Novel triazines of the formula



(I)

wherein R is a lower alkyl of 1 to 7 carbon atoms and *n* and *n'* are 1 or 2 and *n''* is 0, 1 or 2 which are useful as herbicides and their preparation.

3,551,422

N-(OXYMETHYL) DERIVATIVES OF PHOSPHONOPOLYAMINO-s-TRIAZINES

Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Stephen B. Selio, Cedar Grove, Donald R. Moore, Rutherford, and Rudolf F. Wurster, Weehawken, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,323

Int. Cl. C07d *55/20*

U.S. Cl. 260—249.9 20 Claims

There are disclosed N-(oxymethyl) derivatives of phosphonopolyamino-s-triazines, such as 2,4-bis - (hydroxymethyl)-6-(O,O'-diethylphosphonomethyl)-s-triazine and the corresponding 2,4-bis(methoxymethyl) derivative. These compounds are produced by reaction of the corresponding amine, e.g., 2,4-diamino-6-(O,O'-diethylphosphonomethyl)-s-triazine, with formaldehyde, either alone or in combination with an alkanol, such as methanol, in aqueous medium. The products are useful either alone or in combination with organo-nitrogen compounds as flame-retardant agents for cellulose. A durable treatment is obtained by insolubilization with acidic catalysts or hydrogen peroxide.

3,551,423

PRODUCTION OF AMIDES SUBSTITUTED ON THE NITROGEN ATOM

Harro Petersen, Frankenthal, Pfalz, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 18, 1967, Ser. No. 661,515

The portion of the term of the patent subsequent to Nov. 3, 1987, has been disclaimed

Int. Cl. C07d *51/18*

U.S. Cl. 260—251 9 Claims

Production of amides bearing an aliphatic radical having an aldehyde group in β-position as a substituent on the nitrogen atom, by reaction of appropriate amides with formaldehyde and an appropriate CH-acid aldehyde in one or two steps and also the new amides bearing as a substituent on the nitrogen atom an aliphatic radical having an aldehyde group in β-position. The new products are textile finishes and valuable intermediates for the production of amino aldehydes and aminocarboxylic acids, pharmaceuticals and aminoplasts.

3,551,424

METHANODIOXOCINS AND A PROCESS FOR MAKING THEM

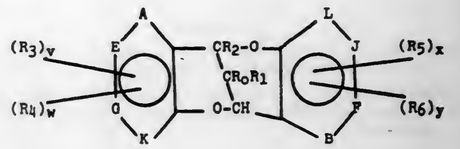
Henry E. Hennis, Coleman, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 22, 1967, Ser. No. 669,694

Int. Cl. C07d *7/04*, *51/46*

U.S. Cl. 260—251 21 Claims

New methanodioxocins having the formula



are made by reacting an o-vinylhydroxy aromatic compound and an o-hydroxyaldehyde aromatic compound in the presence of an acid catalyst. A, B, E, F, G, J, K, and L are N or CH. They are useful as herbicides, insecticides and chemical intermediates.

3,551,425
PRODUCTION OF 2-OXOHEXAHYDRO-PYRIMIDINES

Harro Petersen, Frankenthal, Pfalz, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

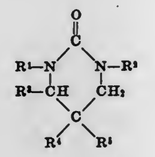
No Drawing. Filed June 26, 1968, Ser. No. 740,067

Claims priority, application Germany, July 1, 1967, 1,670,241

Int. Cl. C07d *51/18*

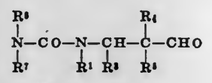
U.S. Cl. 260—251 11 Claims

Production of 2-oxohexahydropyrimidines having the formula



(I)

in which R^1, R^2 and R^3 are members selected from the group consisting of hydrogen, alkyl of 1 to 6 carbon atoms, aralkyl of 7 to 10 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, or phenyl, R^4 and R^5 are alkyl of 1 to 6 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 10 carbon atoms, or phenyl by reacting a β-ureidopropionaldehyde having the formula



(II)

in which R^6 and R^7 are alkyl of 1 to 6 carbon atoms, aralkyl of 7 to 10 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenyl or are common members of a heterocyclic ring having 4 to 5 carbon atoms and which may contain an oxygen or a nitrogen atom in place of a carbon atom, are reacted with ammonia or a primary amine and with hydrogen in the presence of a hydrogenation catalyst. The products are valuable starting materials for the production of textile and leather auxiliaries, aminoplast and surface coatings.

3,551,426
3-PHENYL AND SUBSTITUTED PHENYL IMIDAZO AND PYRIMIDO THIAZOLES

Robert E. Manning, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Filed Dec. 16, 1968, Ser. No. 791,847

Int. Cl. C07d *91/52*

U.S. Cl. 260—251 9 Claims

3-phenyl and substituted phenyl-imidazo and pyrimido thiazoles, e.g., 2-chloro-3-(p-chlorophenyl)-5,6-dihydro-imidazo[2,1-b]thiazole and 2-chloro-3-phenyl-6,7-dihydro-5H-thiazolo[3,2-a]pyrimidine, are prepared by reacting α-choloro-α-haloactetophenones with appropriate cyclic alkylene thiones, and are useful as anti-depressants.

3,551,427
4-THIENYL-2-(1H)-QUINAZOLONES

Hans Ott, Pfeffingen, Basel-Land, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 637,637, May 11, 1967, which is a continuation-in-part of application Ser. No. 595,639, Nov. 21, 1966. This application May 9, 1969, Ser. No. 823,500

Int. Cl. C07d *51/48*

U.S. Cl. 260—251 16 Claims

Compounds of the class of 4-thienyl-2(1H)-quinazolones, e.g., 1-methyl-4-(2-thienyl)-2(1H)-quinazolone, which are useful as anti-inflammatory agents.

3,551,428
NEW 1- (or 2-) SUBSTITUTED 4-MERCAPTO-PYRAZOLO[3,4-d]PYRIMIDINES

Jean Druey, Riehen, and Paul Schmidt, Therwil, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

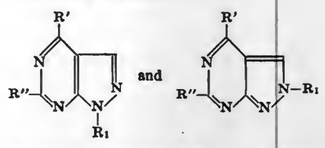
No Drawing. Division of application Ser. No. 292,783, July 3, 1963, now Patent No. 3,399,196, which is a continuation-in-part of application Ser. No. 815,826, May 26, 1959, which is a continuation-in-part of application Ser. No. 775,334, Nov. 21, 1958, which is a continuation-in-part of application Ser. No. 667,042, June 20, 1957, now Patent No. 2,980,677; application Ser. No. 292,783 is a continuation-in-part of application Ser. No. 815,824, May 26, 1959, now Patent No. 3,187,006, which is a continuation-in-part of application Ser. No. 775,356, Nov. 21, 1958, which in turn is a continuation-in-part of application Ser. No. 637,895, Feb. 4, 1957. This application June 27, 1967, Ser. No. 649,118

Claims priority, application Switzerland, Feb. 10, 1956, 29,762/56

Int. Cl. C07d *57/16*

U.S. Cl. 260—256.5 10 Claims

Compounds of the formulae



and

in which R_1 stands for branched alkyl, alkenyl or cycloalkyl having at least 3 carbon atoms or hydroxyalkyl, R′ stands for free or substituted amino, hydrazino, halogen or free or etherified mercapto, and R″ stands for hydrogen, alkyl or for R′ for example: the 2-isopropyl-4-mercapto-pyrazolo[3,4-d]pyrimidine.

Use: Coronary dilatating, diuretic, analgetic or antibacterial agents.

3,551,429
1-(α,α - DIMETHYL - β - ACETOXYPROPIONYL)-3 - ISOPROPYL - 2,4 - DIOXODECAHYDRO-QUINAZOLINE

Adolf Zeidler, Ludwigshafen (Rhine), Adolf Fischer, Mutterstadt, Pfalz, and Gert Buerger and Franz Merger, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany,

No Drawing. Filed Mar. 27, 1968, Ser. No. 716,294

Claims priority, application Germany, Apr. 7, 1967, B 91,956

Int. Cl. C07d *51/48*

U.S. Cl. 260—260 1 Claim

1 - (α,α-dimethyl-β-acetoxypropionyl)-3-isopropyl-2,4-dioxodecahydroquinazoline, said compound being useful as a herbicide.

3,551,430
ESTERS OF HEXAHYDRO - 9,10 - DIALKOXY - 2H-BENZO[a]QUINOLIZINE-1-PROPIONIC ACID

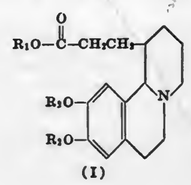
Holger V. Hansen, Denville, and Robert I. Meltzer, Rockaway, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 559,118, June 21, 1966. This application Aug. 8, 1969, Ser. No. 848,680

Int. Cl. C07d *39/12*

U.S. Cl. 260—287 2 Claims

A class of quinolizine derivatives of the formula:



(I)

in which R_1 and R_2 are lower alkyl.

These compounds are useful in cardiac failure.

3,551,431
ISONIPECOTONITRILES

Hans Herbert Kühnis and Rolf Denss, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed June 24, 1968, Ser. No. 739,194

Claims priority, application Switzerland, Jan. 11, 1968, 420/68

Int. Cl. C07d *29/32*

U.S. Cl. 260—293 5 Claims

Piperidine derivatives with a cyano group in 4-position and acid addition salts thereof possessing useful antitussive action; therapeutic compositions containing these piperidine derivatives or their pharmaceutically acceptable acid addition salts for producing antitussive effects in warm-blooded animals, particularly mammals. An illustrative embodiment is 1-(2-phenylethyl)isonipecotonitrile.

3,551,432
1-LOWERALKANOYL-NIPECOTONITRILES

Norman L. Wendler, Summit, David Taub, Metuchen, and Chan Hwa Kuo, South Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Original application June 3, 1966, Ser. No. 554,999, now Patent No. 3,435,044. Divided and this application June 10, 1968, Ser. No. 765,713

Int. Cl. C07d *29/32*

U.S. Cl. 260—294.3 4 Claims

Nicotinonitrile is produced by reacting 1-acyl-3-cyano-4-amino-1,2,5,6-tetrahydropyridine with a strong acid to produce a tautomeric mixture of 1-acyl-3-cyano-4-keto-hexahydropyridine and 1-acyl-3-cyano-4-hydroxy-1,2,5,6-tetrahydropyridines, reducing this tautomeric mixture with borohydride to produce a mixture of cis and trans isomers of 1 - acyl-3-cyano-4-hydroxyhexahydropyridine, acylating these isomers to produce the corresponding 4-acyloxy derivatives, and dehydrogenating the latter derivatives with a noble metal. Alternatively, the 4-acyloxy derivative is contacted with a strong base to produce 1-acyl-3-cyano-1,2,5,6-tetrahydropyridine which is reacted with a noble metal to produce nicotinonitrile. Nicotinonitrile is useful as an intermediate in the preparation of nicotinamide.

3,551,433
PREPARATION OF 4-PHENYL-4-ACYLOXYPIPERIDINE

William R. Hydro, Bel Air, Md., and Richard J. Sundberg, Charlottesville, Va., assignors to the United States of America as represented by the Secretary of the Army

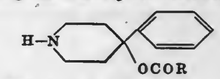
No Drawing. Filed June 21, 1967, Ser. No. 648,546

Int. Cl. C07d *29/24*

U.S. Cl. 260—294.3 7 Claims

The method of preparing 4-phenyl-4-acyloxypiperidine comprising: the steps of reacting 4-phenyl-4-piperidinol with an amino protecting group to selectively inhibit the further reaction of the N-bond in piperidinol. The blocked piperidinol is acylated with an isopropenyl ester and subsequent hydrogenation cleaves the protecting group from the N-bond on the piperidine and restoring the original N—H bond of piperidine.

The new compound having the following structure:



R is from 2 to 18 carbon atoms.

3,551,434
CERTAIN 5-(2-PYRIDYL)-4,5-DIHYDRO-1,3,4-THIADIAZOLE-2-THIOL DERIVATIVES

Karl-Heinz Mayer, Leverkusen, Konrad Swinicki, Cologne-Stammheim, Siegfried Petersen, Leverkusen, Robert Bierling and Hans-Joachim Seidel, Wuppertal-Elberfeld, and Dieter Steinhoff, Bochum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Feb. 5, 1968, Ser. No. 702,819

Claims priority, application Germany, Feb. 18, 1967, F 51,569, F 51,570, F 51,571

Int. Cl. C07d *31/50*

U.S. Cl. 260—294.8 5 Claims

A one-step process is provided for producing in good yield and high purity 4,5-dihydro-1,3,4-thiadiazole-2-thiols substituted in the 5-position by pyridyl or alkylpyridyl. The process involves the reaction of a carbonyl compound



wherein R^1 is pyridyl or alkylpyridyl and R^2 is hydrogen, lower alkyl or phenyl, with at least the stoichiometric amount of carbon disulphide and hydrazine or hydrazine-hydrate in an organic solvent or in an organic solvent and water at about 20–100° C. 5-(pyridyl-2)-4,5-dihydro-1,3,4-thiadiazole-2-thiol is exemplary, the pyridyl group being derived from a pyridine aldehyde. Water-soluble crystalline salts can also be obtained which are also useful for their inhibiting action against transplanted tumors in animals. The production of stable crystalline salts of compounds which are chemically relatively unstable aldehyde derivatives is most surprising. Details of tumor-inhibiting action are given for rats and mice against a variety of tumors with good results.

3,551,435

CERTAIN 4-(PYRIDYLMETHYLENE)-3,4-DIHYDRO-1-BENZOTHIEPIN-5(2H)-ONES

Richard J. Mohrbacher, Fort Washington, and Vasken Paragamian, Dresher, Pa., assignors to McNeil Laboratories, Incorporated, a corporation of Pennsylvania

No Drawing. Application Aug. 12, 1968, Ser. No. 753,018, which is a continuation-in-part of applications Ser. No. 462,403, June 8, 1965, and Ser. No. 635,389, May 2, 1967. Divided and this application July 22, 1969, Ser. No. 870,932

Int. Cl. C07d *31/50*

U.S. Cl. 260—294.8 4 Claims

The compounds are of the class of dihydrobenzothiepin-5(2H)-ones, useful for their respective pharmacological properties, such as hypotensive, vasopressor or anti-inflammatory activity, depending upon the type of derivative considered.

3,551,436

CERTAIN 4-(THIAZOLYL) AND 4-(OXAZOLYL) PYRIDINIUM SALTS

Victor John Bauer, Montvale, N.J., Gretchen Ellen Wiegand, Pearl River, N.Y., and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 669,705, Sept. 22, 1967. This application Nov. 10, 1969, Ser. No. 875,525

Int. Cl. C07d *31/50*

U.S. Cl. 260—294.8 5 Claims

The preparation of quaternary lower alkoxy(lower) alkylthiazolylpyridinium salts and quaternary lower alkoxy(lower)alkyl-oxazolylpyridinium salts is described. These compounds are useful as hypoglycemic agents evidenced by their ability to lower blood sugar levels.

3,551,437

CERTAIN 4-(1,2,4-OXADIAZOLE-3 OR 5-YL) PYRIDINIUM SALTS AND DERIVATIVES THEREOF

Victor John Bauer, Montvale, N.J., William Joseph Fanshawe, Pearl River, N.Y., and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Continuation-in-part of application Ser. No. 676,706, Oct. 20, 1967. This application Nov. 10, 1969, Ser. No. 875,527

Int. Cl. C07d *31/42*

U.S. Cl. 260—296 4 Claims

Quaternary lower alkoxy(lower)alkyl-1,2,4-oxadiazolylpyridinium salts are described along with methods of preparing the same. These compounds show hypoglycemic activity evidenced by their ability to lower blood sugar levels.

3,551,438

HYDROXY-PHENYL-ACETIC ACID-Δ^3-PIPERIDEIDE

Hermann Oediger, Cologne-Stammheim, and Anton Oberdorf, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed June 30, 1967, Ser. No. 650,213

Claims priority, application Germany, Aug. 5, 1966, F 49,878

Int. Cl. C07d *29/38*

U.S. Cl. 260—297 4 Claims

Homogentisic acid lactone or other 5-ring member aromatic lactone is reacted with an alkyl or dialkyl or other selected amine to produce homogentisic acid or other said amides having strong and long acting choleretic activity with low toxicity when administered orally. Representative compounds are homogentisic acid morpholide, pyrrolidide, 4-methyl-Δ^3-piperideide, diethylamide and allylamide and o-hydroxy-phenylacetic acid-(4-methyl-Δ^3-piperideide).

3,551,439

BASIC DYES OF THE PERINAPHTHOLACTAM SERIES

Hans Baumann and Guenter Hansen, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 6, 1967, Ser. No. 625,901

Claims priority, application Germany, Mar. 12, 1966, 1,569,645; June 25, 1966, 1,569,652

Int. Cl. C07d *49/10*

U.S. Cl. 260—299 3 Claims

New basic dyes of the perinaphtholactam series which contain a para-pyrazolinoaryl substituent and dye polymers of acrylonitrile blue shades.

3,551,440

3 PHENYL - 5(ALKYL)ISOTHIAZOLE - 4 - CARBOXYLIC ACIDS AND INTERMEDIATES THEREOF

Takayuki Naito and Susumu Nakagawa, Tokyo, Japan, assignors, by mesne assignments, to Bristol-Myers Company, a corporation of Delaware

No Drawing. Original application July 25, 1966, Ser. No. 567,375, now Patent No. 3,341,518. Divided and this application Dec. 12, 1966, Ser. No. 600,780

Int. Cl. C07d *91/12*

U.S. Cl. 260—302 14 Claims

3-(substituted-phenyl)-5-alkyl-4-isothazole-nitriles, carboxylic acid amides and carboxylic acids are useful as intermediates for reaction with 6-aminopenicillanic acid to make penicillins. In one of several processes, 4-cyano-3-phenylisothiazole is reacted with n-butyl lithium and then methyl iodide to produce 4-cyano-5-methyl-3-phenyl-isothiazole which is hydrolyzed to the amide with sulfuric acid and thence to 5-methyl-3-phenyl-isothiazole-4-carboxylic acid by nitrous acid. Treatment with thionyl chloride then provides the acid chloride which is reacted with 6-aminopenicillanic acid to produce the corresponding penicillin having potent antibacterial properties.

3,551,441

N,N' - DI - SUBSTITUTED UREAS AND ANTISEPTIC DETERGENT COMPOSITIONS CONTAINING SAME

Moneeb Hassan Zakaria, Chicago, Ill., assignor to Armour and Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Aug. 18, 1967, Ser. No. 661,521

Int. Cl. C07d *91/46*

U.S. Cl. 260—305 7 Claims

The products resulting from the reaction of halogenated amino benzothiazoles with 3,4-dichlorophenyl isocyanate in a dry inert organic solvent are disclosed. These products have a high degree of activity against bacteria such as *S. aureus* 209 and are thus useful as the active ingredients in antiseptic compositions.

3,551,442

THIAZOLE DERIVATIVES

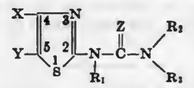
Jean Claude Guillot, Esubonne, Pierre Poignant, Lyon, and Jacques de Bazelaire de Lesseux, Rueil-Malmaison, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Apr. 5, 1966, Ser. No. 540,192

Int. Cl. C07d *91/34*

U.S. Cl 260—306.8 5 Claims

A thiazole derivative having the general formula



and pesticidal compositions containing the same.

3,551,443

2-PHENYLBENZOXAZOLE DERIVATIVES

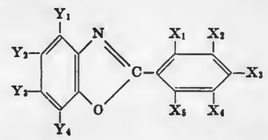
Max Duennenberger, Frenkendorf, and Leonard Guglielmetti, Birsfelden, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Continuation of application Ser. No. 538,242, Mar. 29, 1966. This application Oct. 30, 1968, Ser. No. 775,577

Int. Cl. C07d *85/48*

U.S. Cl. 260—307 2 Claims

New compounds are provided which are represented by the formula



wherein one symbol or two symbols, if belonging to different ring systems, of the series Y_2, Y_3, X_1, X_2, and X_3 is a substituent selected from the group COOA, $COOR_1$ or $CONR_2R_3$, in which A represents a hydrogen atom, an alkali metal ion, an ammonium ion or an amine salt ion, R_1 represents a hydrocarbon residue or polyalkylene oxide residue containing up to 20 carbon atoms, and R_2 and R_3 denote hydrogen or an alkyl residue containing up to 20 carbon atoms, with R_2 and R_3 together not containing more than 20 carbon atoms. One to three residues of the series Y_1, Y_2, Y_3, Y_4, X_1, X_2, X_3 X_4 and X_5, to the extent that they do not already have the significance given above, denote a hydrogen atom, an alkyl group containing up to 4 carbon atoms or a halogen atom. The remaining X and Y symbols each denote a hydrogen atom.

The compounds of this invention are especially useful as ultraviolet absorbers in cosmetic preparations.

3,551,444

LOWER ALKYL SULFINYL METHYL IMIDAZOLES

Tsung-Ying Shen, Westfield, Alexander Matzuk, Colonia, and Conrad P. Dorn, Jr., Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Original application Nov. 9, 1966, Ser. No. 592,977, now Patent No. 3,438,992. Divided and this application Dec. 12, 1968, Ser. No. 783,430

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 4 Claims

Antiinflammatory lower alkyl sulfinyl methyl imidazoles.

3,551,445

3-(2-AMINOPHENYL)-OXO-ISOINDOLE-2-ACETIC ACID DERIVATIVES

Goetz E. Hardtmann, Florham Park, and Hans Ott, Convent Station, N.J., asisgnors to Sandoz-Wander, Inc., a corporation of Delaware

No Drawing. Original application Apr. 14, 1967, Ser. No. 630,835, now Patent No. 3,506,647. Divided and this application Nov. 18, 1969, Ser. No. 871,304

Int. Cl. C07d *41/06, 27/50*

U.S. Cl. 260—325 2 Claims

The title compounds are of the class of isoindolo-[2,1-d][1,4]benzodiazepin-6,9(7H,13bH)diones, e.g., 2-chloro-5-methylisoindolo[2,1-d][1,4]benzodiazepin - 6,9-(7H,13bH)dione. The compounds are useful as anticonvulsants, sedatives and tranquilizers. The title compounds may be obtained by converting an appropriate 3-(5-unsubstituted or -5-halo-, 2-methyl- or 2-ethylaminophenyl)isoindolin-1-one to its corresponding 2-acetic acid lower alkyl ester, which is then cyclized to the corresponding title compound.

3,551,446

1-ARYLOXYALKYLCARBONYL-3-INDOLYL ALIPHATIC ACID DERIVATIVES

Hisao Yamamoto, Nishinomiya-shi, Yasushi Nakamura, Hirakata-shi, Masaru Nakao, Osaka, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed June 8, 1967, Ser. No. 644,494

Claims priority, application Japan, June 10, 1966, 41/37,628; June 30, 1966, 41/42,720, 41/42,722; July 21, 1966, 41/48,062; Jan. 10, 1967, 42/2,058, 42/2,059; Jan. 11, 1967, 42/2,370; Jan. 13, 1967, 42/2,618; Mar. 1, 1967, 42/13,328, 42/13,329; Mar. 6, 1967, 42/14,346, 42/14,347

Int. Cl. C07d *27/56*

U.S. Cl. 260—326.13 2 Claims

A 1-acyl-3-indolyl aliphatic acid derivative having antiinflammatory and anticholesterolemic effects which is characterized in that the 1-acyl-substituent is an aryloxyalkylcarbonyl or an arylthioalkylcarbonyl group, of which aromatic ring may be unsubstituted or substituted by a lower alkyl, a lower alkoxy or a lower alkylthio, and the mentioned alkylcarbonyl group has up to 6 carbon atoms, and processes for producing such compound.

3,551,447

PERHYDROCYCLOPENTA[1,2-C:3,4-C^1] DIPYRROLES

Donald F. Page, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 15, 1967, Ser. No. 683,109

Int. Cl. C07d *27/30*

U.S. Cl. 260—326.3 7 Claims

Perhydrocyclopenta[1,2-c:3,4-c']dipyrroles and N,N'-disubstituted derivatives thereof are prepared by reacting cyclopentane-1,2,3,4-tetracarboxylic acid anhydride with a primary amine and reducing the resulting cyclopentane-1,2,3,4-tetracarboximide or N,N'-disubstituted derivative thereof with lithium aluminum hydride. The compounds are insecticides, and also affect the central nervous and cardiovascular system of mammalian species.

3,551,448

METHYL α-(METHYLSUCCINIMIDO) ACRYLATE

Martin Cole, Leigh, near Reigate, Surrey, and George Newbolt Rolinson, Newdigate, Surrey, England, assignors to Beecham Group Limited, Brentford, Middlesex, England, a British company

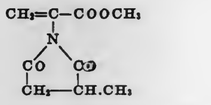
No Drawing. Filed Oct. 8, 1968, Ser. No. 765,990

Claims priority, application Great Britain, Oct. 14, 1967, 46,945/67

Int. Cl. C07d *27/10*

U.S. Cl. 260—326.3 **1 Claim**

Methyl α-(methylsuccinimido) acrylate of the formula



is produced from *Aspergillus versicolor*. The compound is useful as an insecticide.

3,551,449

BIS(ALKOXYPHENYL)PYRROLES AND PYRROLINES

Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Original application Apr. 25, 1966, Ser. No. 544,847, now Patent No. 3,462,451, dated Aug. 19, 1969. Divided and this application Mar. 3, 1969, Ser. No. 804,013

Int. Cl. C07d *27/22*

U.S. Cl. 260—326.3 **3 Claims**

Disclosed are bis(alkoxyphenyl)pyrroles and pyrrolines useful as central nervous system depressants in animals and as sun-screening agents.

3,551,450

3-(2-AMINOALKYL)-2-HYDROXY-3-PHENYL-INDOLINES

Albert J. Frey, Essex Fells, and William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., a corporation of Delaware

No Drawing. Application Apr. 21, 1967, Ser. No. 632,555, now Patent No. 3,457,268, dated July 22, 1969, which is a continuation-in-part of application Ser. No. 562,537, July 5, 1966, which in turn is a continuation-in-part of application Ser. No. 464,839, June 17, 1965. Divided and this application Mar. 28, 1969, Ser. No. 811,592

Int. Cl. C07d *27/38*

U.S. Cl. 260—326.11 **1 Claim**

3a-phenyl - 1,2,3,3a,8,8a - hexahydropyrrolo[2,3-b]indoles (A), 4a-phenyl-2,3,4,4a,9,9a-hexahydro-1H-pyrido-[2,3-b]indoles (B) and 5a-phenyl-1,2,3,4,5,5a,10,10a-octahydroazepino[2,3-b]indoles (C) are CNS-active compounds useful as, e.g., antidepressants, hypotensive-antihypertensives and analgesics. They are prepared from corresponding 3-phenyloxindoles (D) by, e.g., substituting in the 3-position of (D) the corresponding cyanoalkyl group and effecting ring closure of the resultant (E) in the presence of lithium aluminum hydride to obtain either (A), (B) or (C), depending upon whether (E) is prepared with a haloacetonitrile, halopropionitrile or halobutyronitrile.

3,551,451

TRIFLUOROMETHYL-SUBSTITUTED 2,3-BIS-(p-METHOXYPHENYL)INDOLES

Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed May 26, 1967, Ser. No. 641,448

Int. Cl. C07d *27/56*

U.S. Cl. 260—326.16 **5 Claims**

Trifluoromethyl-2,3-bis-(p-methoxyphenyl) indoles and methods for their preparation are disclosed. These compounds are useful as anti-inflammatory, antipyretic, and analgesic agents.

3,551,452

3-OXIMINO-BENZO-1,2-DITHIOLS

Agostino Baruffini, Pavia, Pietro de Pietri Tonelli, Milan, Franco Gialdi, Pavia, Giovanni Pellegrini, Milan, and Riccardo Ponci, Pavia, Italy, assignors of fifty percent to Montecatini Edison S.p.A., Milan, and fifty percent to Agostino Baruffini, Franco Gialdi, and Riccardo Ponci, Milan and Pavia, Italy

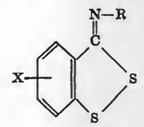
No Drawing. Filed July 14, 1967, Ser. No. 653,329

Claims priority, application Italy, July 18, 1966, 16,594/66

Int. Cl. A01n *9/12;* **C07d** *79/00*

U.S. Cl. 260—327 **6 Claims**

Disclosed are antifungus compositions containing as an active ingredients at least one compound with the class



wherein H=halogen, nitro or monovalent alkyl and R=hydroxy or acyloxy.

3,551,453

OXADITHIAADAMANTANOLES AND PROCESS FOR THEIR MANUFACTURE

Kjell P. Olsson and Sven-Olof O. Almqvist, Uppsala, Sweden, assignors to Pharmacia AB, Uppsala, Sweden, a company of Sweden

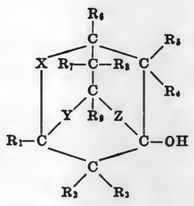
No Drawing. Filed Feb. 23, 1968, Ser. No. 707,443

Claims priority, application Sweden, Feb. 28, 1967, 2,740

Int. Cl. A61k *27/00;* **C07d** *79/00*

U.S. Cl. 260—327 **5 Claims**

Novel oxadithiaadamantanoles having the general formula:



wherein R_1–R_9 are each a member selected from the group consisting of hydrogen and lower alkyl and X; Y; and Z

are each a member selected from the group consisting of oxygen and sulfur, one of the symbols being oxygen and the remaining two sulfur atoms, and their method of preparation are provided. A particular example of the above compounds is an isomer mixture of DL-3,5,7-trimethyl - 2-oxa - 4,6-dithia-1-adamantanol, DL-3,5,7-trimethyl - 4 - oxa - 2,6 - dithia-1-adamantanol and DL-3,5,7 - trimethyl - 6 - oxa - 2,4-dithia-1-adamantanol. The novel compounds are preferably to be used for the preparation of drugs.

3,551,454

PREPARATION OF OPTICALLY ACTIVE (—)-ZEARALENONE AND INTERMEDIATES THEREFOR

David Taub, Metuchen, and Chan-Hwa Kuo, South Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed July 26, 1967, Ser. No. 656,075

Int. Cl. C07d *9/00*

U.S. Cl. 260—343.2 **10 Claims**

The optically active naturally occurring anabolic agent (—)-zearalenone, heretofore available only through fermentation techniques, is prepared by chemical resolution from synthetically available racemic (±)-zearalenone 2,4-diloweralkyl ethers. The technique involves converting the racemic (±)-zearalenone 2,4-diloweralkyl ether into the corresponding racemic 4-monoloweralkyl ether; treating said 4-monoloweralkyl ether with optically active (—)-menthoxyacetyl chloride; crystallizing optically active (—) -zearalenone 4-monoloweralkyl ether-2-(—)-menthoxyacetate from methanolether; saponifying said menthoxyacetate to obtain optically active (—)-zearalenone 4-monoloweralkyl ether; and cleaving the ether grouping to obtain optically active (—)-zearalenone identical to the naturally occurring compound.

3,551,455

TOTAL SYNTHESIS OF ZEARALENONE

Narindar N. Girotra, Rahway, and Norman L. Wendler, Summit, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 13, 1967, Ser. No. 667,361

Int. Cl. C07d *7/24, 9/00*

U.S. Cl. 260—343.2 **9 Claims**

The potent anabolic macrolide (±)-zearalenone and 4-mono- and 2,4-diether derivatives thereof are prepared by total chemical synthesis involving condensation of 3,5-diloweralkoxyhomophthalic anhydride with 4-(2'-methoxy-6'-methyltetrahydropyran - 2 - yl)-butyraldehyde to form the lactonic acid, 3-(4'-oxo-8'-hydroxynonyl)-6,8-diloweralkoxy-3,4-dihydroisocoumarin - 4 - carboxylic acid; heating said lactonic acid to produce 2-(10'-hydroxy-6'-oxo-1'-undecenyl)-4,6 - diloweralkoxybenzoic acid; cyclizing said benzoic acid with trifluoroacetic anhydride to give (±)-zearalenone diloweralkyl ether; and selectively cleaving said diether with boron tribromide to give (±)-zearalenone or the corresponding 4-monoloweralkyl ether.

3,551,456

ACETYL DERIVATIVES OF SUBSTITUTED CHROMANS AND COUMARANS

Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Apr. 18, 1968, Ser. No. 722,146

Int. Cl. C07d *5/36, 7/20*

U.S. Cl. 260—345.2 **6 Claims**

Acetyl derivatives of substituted chromans and coumarans which are prepared by condensing a phenolic compound with a dienic hydrocarbon and thereafter acetylating the resultant compound are useful as components of aroma compositions of matter.

3,551,457

FREE-FLOWING FORM OF TOCOPHERYL SUCCINATE

Jerome J. Ross, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware

No Drawing. Filed Oct. 22, 1968, Ser. No. 769,748

Int. Cl. C07d *7/22*

U.S. Cl. 260—345.5 **5 Claims**

A process for producing free-flowing d-α-tocopheryl succinate having an increased bulk density whereby crude d-α-tocopheryl succinate is melted and crystallized in a very shallow pan, allowed to harden, and ground at a very low temperature, i.e. —78° C. This product can then be readily used in vitamin E tablets.

3,551,458

2-[2 - (LOWER ALKYL)-AMINO - 1-HYDROXY-ETHYL]BENZOFURAN HAVING A HYDROCARBON CYCLIC MOIETY BRIDGING POSITIONS 6 AND 7

John Mervyn Osbond, Hatfield, Graham Alwyn Fothergill, Knebworth, and James Charles Wickens, St. Albans, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 19, 1967, Ser. No. 631,867

Claims priority, application Great Britain, Apr. 29, 1966, 18,815/66

Int. Cl. A61k *27/00;* **C07d** *5/42*

U.S. Cl. 260—346.2 **10 Claims**

2-[2-(lower alkyl)-amino - 1 - hydroxy-ethyl]benzofurans bearing a trimethylene, a tetramethylene or butadien-(1,3)-ylene-(1,4) group bridging positions 6 and 7 of the benzofuran nucleus and processes for preparing the foregoing. Such benzofuran derivatives possess marked β-type adrenergic blocking properties; and, hence, are useful in the treatment of cardiac disorders such as cardiac arrhythmia and angina pectoris.

3,551,459

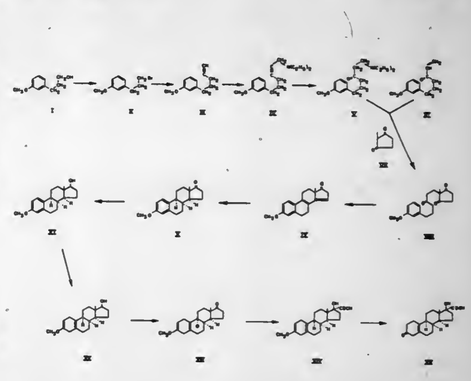
13-METHYL-8-ISOGONANES

Gordon A. Hughes, Wayne, Pa., and Herchel Smith, 500 Chestnut Lane, Wayne, Pa. 19807; said Hughes assignor to said Smith

Filed Apr. 15, 1965, Ser. No. 448,417

Int. Cl. C07c *169/20*

U.S. Cl. 260—397.4 **3 Claims**



The total synthesis of 13-methyl-8-isogonanes unsaturated at the 5(10)-position and bearing an alkynyl and an oxygen function at the 17-position is described. The products possess varying hormone effects in animals and in particular are active progestational agents.

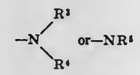
3,551,460
PROCESS FOR SULPHONATION
Austen E. Sowerby, Cumberland, England, assignor to Electric Reduction Company of Canada Ltd., Toronto, Ontario, Canada, a company of Canada
Filed Feb. 26, 1968, Ser. No. 708,191
Claims priority, application Great Britain, Mar. 1, 1967, 9,735/67; July 12, 1967, 32,084/67; Oct. 30, 1967, 49,246/67
Int. Cl. C07c *143/90;* C11d *1/28*
U.S. Cl. 260—401 13 Claims
A process for suphating and sulphonating organic compounds by means of free sulphur trioxide wherein the product of the reaction of SO_3 with the organic compound is subsequently reacted with an amino compound to form a further compound, the reaction between SO_3 and the organic compound taking place in the presence of at least some of the further compound. Suitable amino compounds for the purpose include aliphatic aromatic and heterocyclic amines, complexes of amines, salts of amines and ammonia.

3,551,461
MOTOR FUEL MULTIPURPOSE AGENTS
Helen I. Thayer, Oakmont, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Original application Apr. 25, 1966, Ser. No. 544,840, now Patent No. 3,497,333, dated Feb. 24, 1970. Divided and this application Aug. 19, 1968, Ser. No. 753,738
Int. Cl. A23j *7/00*
U.S. Cl. 260—403 4 Claims
Monoethoxylated or monopropoxylated derivatives of dialkylene triamines or trialkylene tetramines and lecithin mixtures with and derivatives of said triamines or tetramines are advantageous motor fuel multipurpose agents.

3,551,462
N-SUBSTITUTED AMIDES OF NATURAL FATTY ACIDS
Takashi Seki, Toyonaka, Katsuyuki Toki, Nishinomiya, Hiroshi Nakatani, Toyonaka, Yoshio Suzuki, Amagasaki, Hideaki Fukushima, Takatsuki, and Yoshio Nawashiro, Moriguchi, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan
No Drawing. Filed Apr. 23, 1965, Ser. No. 450,534
Claims priority, application Japan, Apr. 28, 1964, 39/24,061; May 20, 1964, 39/28,284; June 8, 1964, 39/32,324; Aug. 28, 1964, 39/49,073; Sept. 1, 1964, 39/49,812; Sept. 5, 1964, 39/50,947
Int. Cl. C09f *7/00*
U.S. Cl. 260—404 4 Claims
Compounds of the formula

$$R^1—COR^2$$

wherein R^1 is a natural fatty acid residue, and R^2 is



R^3 is alkyl, alkenyl, cycloalkyl, alkylcycloalkyl, hydroxycycloalkyl, alkoxycycloalkyl, aryl, alkylaryl, hydroxyaryl, alkoxyaryl, halogenoaryl, halogenoalkylaryl, alkoxyhalogenoaryl, halogenoalkylhalogenoaryl, aralkyl, alkylaralkyl, hydroxyaralkyl or alkoxyaralkyl having not more than 36 carbon atoms, R^4 is H or an R^3 radical, and R^5 is bivalent alkylene, oxygen-interrupted bivalent alkylene or oxygen-interrupted bivalent alkenylene, R^5 having not more than 7 carbon atoms, are excellently suitable for use as agents for reducing elevated cholesterol level in the blood.

3,551,463
SYNTHESIS OF UNSATURATED HYDROCARBONS
Norbert F. Cywinski, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed May 14, 1964, Ser. No. 367,581
Int. Cl. C07c *67/00*
U.S. Cl. 260—410 9 Claims
Non-conjugated diolefins, unsaturated aldehydes and unsaturated ketones are produced by reacting acetylenic hydrocarbons with cyclic or acyclic monoolefins, a primary or secondary allylic alcohol or an ester of a primary or a secondary allylic alcohol.

3,551,464
ESTERIFICATION
Eugene J. Miller, Jr., Wheaton, Ill., and Ago Mais, Trenton, N.J., assignors, by mesne assignments, to Armour Industrial Chemical Company, a corporation of Delaware
No Drawing. Filed Apr. 12, 1967, Ser. No. 630,189
Int. Cl. C11c *3/00*
U.S. Cl. 260—410.6 8 Claims
Long chain aliphatic acids and esters are esterified or transesterified with polyols to form the polyol monoester in high yield utilizing large excesses of HF as the catalyst and as the reaction media.

3,551,465
PREPARATION OF ORGANIC ESTERS FROM ALPHA-NITRO-KETONES
Alan F. Ellis, Murrysville, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Mar. 24, 1967, Ser. No. 625,608
Int. Cl. C07c *69/28, 69/76;* C11c *3/00*
U.S. Cl. 260—410.9 16 Claims
An organic ester is produced by a proces comprising:
contacting in the liquid phase an alpha-nitro-ketone which contains at least three carbon atoms and which has at least one hydrogen atom attached to the same carbon atom which bears the nitro group;
with an organic compound having from 1 to 10 carbon atoms and from 1 to 2 alcoholic hydroxyl groups attached to primary or secondary carbon atoms;
in the presence of a basic catalyst under substantially anhydrous conditions; and wherein the stoichiometric ratio of said alcohol to said ketone is at least 0.8:1.

3,551,466
METAL SALTS OF REACTION PRODUCT OF ALKENYL SUCCINIC ANHYDRIDE WITH A POLYAMINE AND SALICYLALDEHYDE
Paul Y. C. Gee, Woodbury, and Harry J. Andress, Jr., Pitman, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Original application Apr. 18, 1968, Ser. No. 722,153, now Patent No. 3,498,766, dated Mar. 3, 1970. Divided and this application Oct. 2, 1968, Ser. No. 798,495
Int. Cl. C07f *13/06, 13/00, 15/06*
U.S. Cl. 260—429 5 Claims
Liquid sydrocarbon compositions are provided which contain small amounts, sufficient to impart stabilizing properties, of metal salts of reaction products of alkenyl succinic acid anhydrides with a polyamine and salicylaldehyde, as stabilizers. A method for preparing these stabilizers is also provided.

3,551,467
PROCESS FOR PREPARING DIOLEFIN NICKEL HALIDE COMPLEXES
Takaaki Arakawa and Kenji Saeki, Iwakuni-shi, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan, a corporation of Japan
Filed May 27, 1968, Ser. No. 732,126
Claims priority, application Japan, May 31, 1967, 42/34,198
Int. Cl. C07c *3/10;* C07f *15/04*
U.S. Cl. 260—439 11 Claims
A process for preparing diolefin nickel halide complexes which can be utilized for providing a catalyst system for an oligomerization of olefins, and is characterterized in that a system obtained by reducing a nickel salt (inorganic or organic salts of nickel, inclusive of nickel chelate compounds) with an organoaluminum compound in the presence of a conjugated diolefin is reacted with a compound of the following formula



wherein Z is a halogen, R_1, R_2 and R_3 are each a member, which may be the same or different, selected from the group consisting of halogens, alkyl and aryl, exclusive than R_1, R_2 and R_3 are aryl at the same time.

3,551,468
STABILIZATION OF ORGANIC ISOCYANATES
David H. Chadwick, New Martinsville, W. Va., assignor to Mobay Chemical Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Mar. 22, 1966, Ser. No. 536,309
Int. Cl. C07c *119/04*
U.S. Cl. 260—453 6 Claims
Organic isocyanates are stabilized with compounds having the formula $R_2C(OR')_2$ wherein R is a hydrogen atom or an organic radical and R' is an alkyl radical having from 1 to 18 carbon atoms or aralkyl.

3,551,469
1,3,5-CYCLOHEXANE TRIISOCYANATE
Herman H. Weyland, Folsom, and Edward E. Hamel, Roseville, Calif., assignors to Aerojet-General Corporation, El Monte, Calif., a corporation of Ohio
No Drawing. Filed Nov. 6, 1967, Ser. No. 680,985
Int. Cl. C07c *61/08, 119/04;* C08g *22/28*
U.S. Cl. 260—453 1 Claim
1,3,5-cyclohexane triisocyanate useful as a cross-linking agent for polybutadiene and other functional polymeric material is disclosed.

3,551,470
PROCESS FOR THE AMMOXIDATION OF OLEFINS TO UNSATURATED NITRILES
Wilfrid G. Shaw, Lyndhurst, Robert K. Grasselli, Warrensville Heights, and Harley F. Hardman Lyndhurst, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed Dec. 20, 1967, Ser. No. 691,943
Int. Cl. C07c *121/02*
U.S. Cl. 260—465.3 3 Claims
A catalyst is provided which is useful in the oxidation of olefins to aldehydes, acids and conjugated dienes and in the ammoxidation of olefins to nitriles. The catalyst comprises the combined oxides of antimony, uranium and molybdenum. An effective promoter for the instant catalyst is iron.

3,551,471
LIQUID HYDROXY TERMINATED POLYMERS OF BUTADIENE-ACRYLONITRILE
Alan R. Siebert, Maple Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
No Drawing. Filed May 22, 1968, Ser. No. 731,281
Int. Cl. C07c *121/40*
U.S. Cl. 260—465.4 1 Claim
Hydroxyl terminated polymers are prepared by the reaction of carboxyl terminated polymers with ethylene oxide in the presence of a tertiary amine catalyst. They are useful as adhesives and caulking compounds.

3,551,472
LIQUID HYDROXYL TERMINATED POLYMERS OF BUTADIENE-ACRYLONITRILE
Alan R. Siebert, Maple Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
No Drawing. Filed May 22, 1968, Ser. No. 731,269
Int. Cl. C07c *121/40*
U.S. Cl. 260—465.4 3 Claims
Hydroxyl terminated polymers are prepared by the reaction of carboxyl terminated polymers with a diol in the presence of an acid catalyst. They are useful as adhesives and caulking compounds.

3,551,473
PREPARATION OF DIAMINOMALEONITRILE BY THE REDUCTION OF DIIMINOSUCCINONITRILE
Donald R. Hartter, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed July 19, 1968, Ser. No. 745,955
Int. Cl. C07c *121/42*
U.S. Cl. 260—465.5 9 Claims
Diaminomaleonitrile (HCN tetramer) is prepared in high yield by the reduction of diaminosuccinonitrile by direct liquid-phase hydrogenation in the presence of a Group VIII transition metal hydrogenation catalyst under mild conditions if desired, e.g., in acetonitrile with a Pd/C catalyst at room temperature and preferably up to 100 atmospheres of hydrogen pressure.

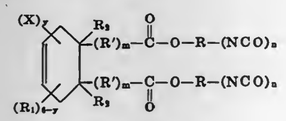
3,551,474
PROCESS OF ISOMERIZING 3-PENTENENITRILE TO 4-PENTENENITRILE
William Charles Drinkard, Jr., Wilmington, Del., and Brian William Taylor, Verona, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Continuation-in-part of application Ser. No. 680,947, Nov. 6, 1967. This application Sept. 12, 1969, Ser. No. 857,535
Int. Cl. C07c *121/04, 121/26, 121/02*
U.S. Cl. 260—465.9 5 Claims
Process of isomerizing 3-pentenenitrile to 4-pentenenitrile using compounds of iron, or ruthenium having a valence of +2 or less as a catalyst and of adding hydrogen cyanide to carbon-carbon double bonds such as in 4-pentenenitrile at from −25 to 200° C., using as catalysts ruthenium or iron compounds having a valence of +2 or less.

3,551,475
POLYISOCYANATES AND REACTION PRODUCTS OF THE SAME

Thomas K. Brotherton and John W. Lynn, Charleston, and Robert J. Knopf, St. Albans, W. Va., assignors to Union Carbide Corporation, a corporation of New York

Continuation-in-part of applications Ser. No. 256,495, Jan. 25, 1963, and Ser. No. 256,548, Feb. 6, 1963. This application Sept. 7, 1965, Ser. No. 485,285
Int. Cl. C07c *69/74*
U.S. Cl. 260—468 10 Claims

Polyisocyanates and reaction products thereof having the following structural formula:



3,551,476
3-(HYDROXYPHENYL)-4-AMINOVALERATES

Meyer Sletzinger, North Plainfield, and George Gal, Summit, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 11, 1968, Ser. No. 720,485
Int. Cl. C07c *101/18*
U.S. Cl. 260—471 4 Claims

3-(hydroxyphenyl)-4-aminovalerate esters are cyclized by treatment with alkali metal ferricyanides or nitrosodisulfonates to form 5-hydroxy-2-methylindolyl-3-acetic acids. When the amino group in the valerate is acylated, the acyl radical appears on the 1-position of the indole. The 5-hydroxy group is then methylated with any standard methylating agent. The process, when the acyl group is p-chlorobenzoyl, gives esters of indomethacin, active as anti-inflammatory compounds.

3,551,477
NOVEL BISCARBAMATES

Karl-Heinz Koenig, Ludwigshafen (Rhine), Gustav Steinbrunn, Schwegenheim, Pfalz, Hermann Windel, Frankenthal, Pfalz, and Adolf Fischer, Mutterstadt, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 27, 1967, Ser. No. 649,097
Claims priority, application Germany, July 6, 1966, 1,568,138
Int. Cl. C07c *101/44*
U.S. Cl. 260—472 4 Claims

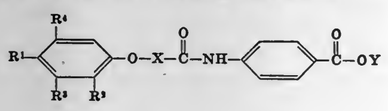
Biscarbamates and their use for controlling undesirable plant growth.

3,551,478
BASIC PHENOXY ACETAMIDES

Josef Schmitt, L'Hay-les-Roses, and Roger Raveux and Marcel Daniel Pierre Brunaud, Paris, France, assignors to Etablissements Clin-Byla, Paris, France, a French body corporate

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,484
Claims priority, application France, Dec. 7, 1966, 86,463
Int. Cl. C07c *103/22*
U.S. Cl. 260—472 6 Claims

The dialkylaminoalkyl esters of para(phenoxyacetamido)benzoic acids corresponding to the formula



in which R^1 is a hydrogen or halogen atom or a lower alkyl, lower alkenyl, phenyl, phenylalkyl, hydroxyl, alkoxy, alkenoxy, cycloalkoxy, phenylalkoxy, acyl, nitro, amino or sulphamyl group, R^2 is a hydrogen or halogen atom or a lower alkyl, phenyl, phenylalkyl, alkoxy or lower acyl group, R^3 is a hydrogen atom, a lower alkyl, trifluoromethyl or alkoxy group, R^4 is a hydrogen atom or an alkyl group, X is a methylene group which may be substituted by one or two alkyl groups or by a phenyl group and Y is a group having the formula

$$-C_nH_{2n}NR^5R^6$$

in which *n* is 2 or 3 and each of R^5 and R^6 is a lower alkyl group or R^5 and R^6 taken together with the nitrogen atom to which they are attached form a heterocyclic group which may contain a nuclear oxygen atom, provided that when R^1 is a halogen atom and R^2 is a hydrogen atom the methylene group X has less than two substituents, and the addition salts of such esters with acids, are provided. The esters are used in the treatment of pathological states relating to lipid metabolism.

3,551,479
SULFONIC ALKYLENE ESTERS OF ITACONIC AND ALPHA-METHYLENE GLUTARIC ACIDS AND HOMOPOLYMERS THEREOF

William D. Emmons, Huntingdon Valley, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Mar. 20, 1967, Ser. No. 624,170
Int. Cl. C08f *13/00*; C07c *69/60, 69/62*
U.S. Cl. 260—485 3 Claims

This invention relates to polymerizable emulsifying agents having both a hydrophilic ester radical portion and a hydrophobic ester radical portion that are chemically bound to the polymer in such a manner as to prevent migration of the emulsifying agent on coagulation and provide an internally stabilized polymer. The polymerizable emulsifying agents of this invention are anionic α,β-unsaturated dicarboxylic acid substituted esters having a hydrophilic sulfo-ester radical portion alpha to or conjugated with a polymerizable double bond and a hydrophobic ester radical portion beta to or unconjugated with the polymerizable double bond. Polymer dispersions formed according to this invention may be used in the preparation of adhesives, coatings, impregnating and dispersing compositions.

3,551,480
PROCESS FOR THE MANUFACTURE OF CRYSTALLIZABLE PHOSPHONIC ACIDS

Hans-Günther Germscheid, Hosel, and Joachim Schiefer, Opladen-Lutzenkirchen, Germany, assignors to Henkel & Cie GmbH, Dusseldorf, Germany

No Drawing. Continuation-in-part of application Ser. No. 446,721, Apr. 8, 1965, which is a continuation-in-part of application Ser. No. 159,158, Dec. 13, 1961. This application Feb. 2, 1967, Ser. No. 613,415
Claims priority, application Germany, July 3, 1961, H 43,034, Patent 1,148,551
Int. Cl. C07f *9/28*; C11d *1/02, 3/36*
U.S. Cl. 260—501.19 10 Claims

A process for the manufacture of phosphonic acids having at least two phosphorus atoms in their molecules which are crystallizable. They are produced by the reaction of phosphorous acid with anhydrides or chlorides of aliphatic acids having 2 to 12 carbon atoms or mixtures thereof, or by reacting PCl_3 with aliphatic acid having 2 to 12 carbon atoms; followed by a hydrolysis at elevated temperatures.

3,551,481
PROCESS FOR THE PRODUCTION OF TRIMELLITIC ACID AND TRIMELLITIC ACID ANHYDRIDE

Hans-Leo Hülsmann, Wengern, Gerhart Hoffmann, Witten-Rudinghausen, and Gustav Renckhoff and Albino Pastura, Witten (Ruhr), Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed Oct. 20, 1967, Ser. No. 676,720
Claims priority, application Germany, Oct. 20, 1966, 51,368
Int. Cl. C07c *63/02*
U.S. Cl. 260—524 13 Claims

A process for the production of trimellitic acid, using the residues obtained in the liquid phase during the production of dimethyl terephthalate by the oxidation of p-xylene by way of p-toluic acid methyl ester, which comprises distilling said residues in vacuo, withdrawing therefrom a distillate fraction enriched in trimellitic acid methyl esters, saponifying said fraction, and separating trimellitic acid from resultant hydrolysate.

3,551,482
CYCLOHEXANE OXIDATION PRODUCTS RECOVERY

Werner Gey, Offenbach, Hansdieter Hofmann, Petterweil, Friedrich Bende, Bergen-Enkheim, and Peter Bönders, Offenbach, Germany, assignors to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany, a corporation of Germany

Filed June 14, 1966, Ser. No. 557,463
Int. Cl. C07c *51/20*
U.S. Cl. 260—533 4 Claims

In a method where cyclohexane is converted by contact with a molecular oxygen-containing gas to a reaction product containing cyclohexanol, cyclohexanone and by-products including adipic acid and water, the improved separation procedure which comprises allowing the reaction product to settle without further addition of water to produce an aqueous phase containing adipic acid and an organic phase, washing the organic phase with dilute aqueous nitric acid to produce a wash effluent containing nitric acid and adipic acid and a nitric acid treated organic phase, contacting the nitric acid treated organic phase with dilute aqueous caustic solution to decompose cyclohexanol esters to cyclohexanol, contacting the caustic treated organic phase with water to remove water-soluble components and produce a combined caustic and water treatment effluent and a washed organic phase, and treating the washed organic phase by distillation to remove therefrom unreacted cyclohexane and a mixture of cyclohexanol and cyclohexanone substantially free of impurities.

3,551,483
2,4-DISULFONYL HALIDE SUBSTITUTED ACYLANILIDES

William M. McLamore, Kew Gardens, N.Y., and Gerald D. Laubach, Niantic, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Application Aug. 4, 1959, Ser. No. 831,462, now Patent No. 3,440,244, dated Apr. 22, 1969, which is a continuation-in-part of abandoned application Ser. No. 780,675, Dec. 16, 1958, which in turn is a continuation-in-part of application Ser. No. 715,482, Feb. 17, 1958, now Patent No. 3,110,716. Divided and this application Dec. 5, 1967, Ser. No. 703,811
Int. Cl. C07c *143/70*
U.S. Cl. 260—543 7 Claims

Novel 3,6 - disubstituted - 7 - sulfamylbenzo - 1,1 - dioxo - 1 - thia - 2,4 - diazines, their utility as diuretic agents and 5 - substituted - 2,4 - disulfamylacylanilide and 5 - substituted - 2,4 - disulfamylaniline intermediates for the same.

3,551,484
3,5-DISUBSTITUTED BENZAMIDES

Sheldon N. Lewis, Willow Grove, Patrick J. McNulty, Wyndmoor, and Kenneth L. Viste, Warminster, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,904
Int. Cl. C07c *103/30*
U.S. Cl. 260—558 4 Claims

Novel compounds which belong to the class of N-(1,1-dimethylpropenyl) - 3,5 - disubstituted benzamides. These compounds are herbicidal.

3,551,485
PRODUCTION OF BIS-(4-AMINOCYCLOHEXYL)-ALKANES

Paul Raff, Ludwigshafen (Rhine), Hans Georg Peine, Frankenthal, Pfalz, and Ludwig Schuster and Karl Adam, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Filed Sept. 12, 1967, Ser. No. 667,092
Claims priority, application Germany, Sept. 17, 1966, B 88,963
Int. Cl. C07c *85/06*
U.S. Cl. 260—563 8 Claims

Production of bis-(4-aminocyclohexyl)-alkanes by reaction of bis-(4-hydroxycyclohexyl)-alkanes with ammonia in the presence of hydrogen and hydrogenation catalysts at elevated temperature and at superatmospheric pressure in liquid phase, hydrogenation catalysts being used which contain 90 to 99% by weight of cobalt, 1 to 10% by weight of manganese and 0.5 to 10% by weight of phosphoric acid. Bis-(4-aminocyclohexyl)-alkanes are suitable for the production of polyamides.

3,551,486
PROCESS FOR PREPARING DICYCLOHEXYLAMINE

Jack M. Solomon, West Caldwell, Bernard Isbitsky, Jr., Garfield, and Bernard R. Bluestein, Glen Rock, N.J., assignors to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 6, 1968, Ser. No. 734,860
Int. Cl. C07c *85/08*
U.S. Cl. 260—563 4 Claims

Process of preparing dicyclohexylamine from cyclohexanone which comprises passing cyclohexanone, together with ammonia and hydrogen, in the vapor phase at atmospheric pressure, over a heated nickel on kieselguhr (or other inert carrier) catalyst.

3,551,487
PROCESS FOR PREPARING CYCLOHEXYLAMINE

Bernard R. Bluestein, Glen Rock, Jack M. Solomon, West Caldwell, and Lawrence B. Nelson, Franklin Lakes, N.J., assignors to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 6, 1968, Ser. No. 734,895
Int. Cl. C07c *85/06, 85/08*
U.S. Cl. 260—563 7 Claims

Process of preparing cyclohexylamine from mixtures of cyclohexanol and cyclohexanone by passing such mix-

tures, together with ammonia and hydrogen, in the vapor phase at atmospheric pressure, over a heated copper chromite/nickel catalyst.

3,551,488

PROCESS FOR PREPARING DICYCLOHEXYLAMINE

Bernard R. Bluestein, Glen Rock, and Jack M. Solomon, West Caldwell, N.J., assignors to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 6, 1968, Ser. No. 734,896
Int. Cl. C07c *85/06, 85/08*
U.S. Cl. 260—563 5 Claims

Process of preparing dicyclohexylamine from cyclohexanol or cyclohexanone, or mixtures of cyclohexanol and cyclohexanone, by passing the same together with ammonia and hydrogen, in the vapor phase at atmospheric pressure, over a heated two-component catalyst in the form of a layer of copper chromite above a layer of nickel, or an admixture of copper chromite and nickel, on an inert carrier such as kieselguhr.

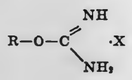
3,551,489

AQUEOUS PROCESS FOR PREPARING PSEUDOUREAS AND ACID SALTS THEREOF

Frederic Charles Schaefer, Darien, Conn., and William Douglas Zimmermann, New York, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Jan. 16, 1968, Ser. No. 698,122
Int. Cl. C07c *123/00*
U.S. Cl. 260—564 5 Claims

Pseudourea salts of the formula:



where R is derived from an organic alcohol as defined in (c) below and X is HCl or HBr, are prepared by bringing into contact in an aqueous environment containing substantial amounts of water:

(a) an acid, X, as defined above,
(b) a cyanamide compound and,
(c) a monohydric organic alcohol having at least partial miscibility with water.

3,551,490

METHOD FOR PREPARING TETRAMETHYLGUANIDINE

Kenneth George Flynn, Bridgewater, N.J., and Dalia Regina Jakas, Norristown, Pa., assignors to American Cyanamid Company, a corporation of Maine

No Drawing. Filed May 21, 1968, Ser. No. 730,900
Int. Cl. C07c *129/08*
U.S. Cl. 260—564 3 Claims

Dimethylamine hydrochloride and dimethylcyanamide are reacted in the presence of nitrobenzene or isophorone at temperatures of at least about 140° C. for a period of time sufficient to produce tetramethylguanidine. Product yields of 90% or better are obtainable with reaction times of about 4 to 5 hours.

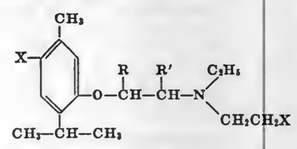
3,551,491

4 - HALOTHYMYL - [N - ETHYL - N - β - CHLOROETHYL - 1- AND-2 - AMINO PROPYL(2) AND (1)] ETHER AND SALTS THEREOF

Gerhard Renwanz, Karl Credner, and Berthold Geisel, Berlin, and Hermann Engelhard, Gottingen, Germany, assignors to Diwag Chemische Fabriken G.m.b.H., Berlin, Germany, a corporation

No Drawing. Continuation of application Ser. No. 327,172, Nov. 27, 1963. This application Feb. 16, 1967, Ser. No. 617,417
Claims priority, application Germany, Nov. 28, 1962, D 40,371
Int. Cl. C07c *93/06*
U.S. Cl. 260—570.7 3 Claims

Thymyl ethers of the formula



or acid addition salts thereof wherein at least one R or R' is methyl and the other is hydrogen. These compounds have improved sympathicolytic activity and reduced toxicity as compared to their non-methyl substituted homologs.

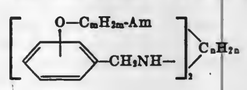
3,551,492

N,N'-DIAMINOALKOXY-BENZYL-DIAMINOALKANES AND THE SALTS THEREOF

Renat Herbert Mizzoni, Long Valley, N.J., assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Continuation-in-part of application Ser. No. 358,625, Apr. 9, 1964. This application Oct. 31, 1967, Ser. No. 679,512
Int. Cl. C07c *93/06*
U.S. Cl. 260—570.7 6 Claims

N,N'-aralkyl-alkylenediamines, e.g. such of the formula



Am=sec. or tert. amino
m=2–7
n=6–20

N-oxides, quaternaries and salts thereof exhibit antiparasitic effects.

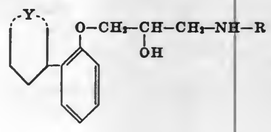
3,551,493

ALKYL- AND CYCLOALKYL-AMINO-PROPANOL-CYCLOPENTYL- AND CYCLOPENTENYL-PHENOL ETHERS

Heinrich Ruschig, Bad Soden, Taunus, Karl Schmitt, Frankfurt am Main, Hans Lessenich, Kelkheim, Taunus, and Gunther Hartfelder, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Mar. 7, 1968, Ser. No. 711,182
Claims priority, application Germany, Mar. 10, 1967, F 51,784; Dec. 8, 1967, F 54,258
Int. Cl. C07c *93/06*
U.S. Cl. 260—570.7 3 Claims

Basically substituted cyclopentyl- or cyclopentenyl-phenol ethers,



in which R represents a branched chain alkyl or cycloalkyl containing 3 to 6 carbon atoms and Y is

$$-CH_2-CH_2- \text{ or } -CH=CH-$$

their optically active isomers and salts of the racemic or optically active bases, are disclosed to have a depressing activity on the stimulated heart metabolism.

3,551,494

PROCESS FOR THE PREPARATION OF 1,1,1-TRI(SUBSTITUTED NITROGEN-CONTAINING ARYL)ETHANES

Selden Arthur Knudson and Michael Jay Spitulnik, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Dec. 21, 1967, Ser. No. 692,276
Int. Cl. C07c *87/28*
U.S. Cl. 260—576 7 Claims

1,1-bis(p-diethylaminophenyl)-1-phenylethane and 1,1-diphenyl-1-(2-pyridyl)ethane are prepared by reacting specified 1,1-di(substituted nitrogen-containing aryl) ethylenes with benzene in the presence of a hydrogen chloride-aluminum chloride catalyst.

3,551,495

POLYMERIC AMINES

Gerhard H. Alt, Creve Coeur, Mo., and Robert J. Strelau, West Palm Beach, Fla., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,427
Int. Cl. A23k *1/00;* C07c *85/12, 87/20*
U.S. Cl. 260—583 11 Claims

Polymeric amines possessing in excess of approximately 60% tertiary groups, are prepared by the catalytic hydrogenation of a dinitrile or a mixture of a dinitrile and hexamethyleneimine. The polymeric amines have an amine number of 435–465 and the approximate ranges of primary, secondary and tertiary amines in the polymer are 0.1 to 10%, 25–38% and 60–65% respectively.

These polymeric amines have utility as feed additives.

3,551,496

DIFLUOROAMINES AND PREPARATION THEREOF

Anthony J. Passannante, Metuchen, and Leland K. Beach, Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Dec. 24, 1959, Ser. No. 862,744
Int. Cl. C07c *87/04, 87/22, 87/26*
U.S. Cl. 260—583 11 Claims

Difluoroamine compounds are prepared by reacting nonconjugated diolefins, i.e. 1,4-pentadiene and 1,5-hexadiene with tetrafluorohydrazine at a temperature in the range of from about 20 to about 300° C. The organic difluoroamino compounds formed by the above-described reactions are useful as oxidizers in rocket propellants.

3,551,497

CATALYSIS OF THE EXCHANGE REACTION BETWEEN SECONDARY ALCOHOLS AND KETONES

Charles E. Wymore, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 3, 1969, Ser. No. 804,009
Int. Cl. C07c *49/78*
U.S. Cl. 260—592 11 Claims

Alumina has been found to be an excellent catalyst for the liquid phase exchange reaction between a saturated secondary alcohol and a saturated ketone wherein the ketone is reduced to the corresponding alcohol and the starting alcohol is oxidized to a ketone. The exchange reaction is conducted at a pressure sufficient to provide liquid reactants and preferably at a temperature between about 150 and 300° C.

3,551,498

DEHYDROGENATION OF 10,11-DIHYDRO-5H-DIBENZO[a,d]CYCLOHEPTENE-5-ONE

Edward W. Tristram, Cranford, Roger J. Tull, Metuchen, and Burwell F. Powell, Somerville, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 23, 1969, Ser. No. 818,840
Int. Cl. C07c *49/76, 49/80*
U.S. Cl. 260—590 6 Claims

There is provided a novel method of converting a 10,11-dihydro-5H-dibenzo[a,d]cycloheptene-5-one to the corresponding 5H-dibenzo[a,d]cyclohepten-5-one by reaction with sulfur in a high boiling solvent suitably in the presence of a basic catalyst.

3,551,499

PROCESS OF PRODUCING ORGANIC SULFUR-CONTAINING COMPOUNDS

Ernst Wilhelm Krockow, Kleinkarlbach, Rheinpfalz, Germany, assignor to Dr. Spiess G.m.b.H., Kleinkarlbach, Rheinpfalz, Germany, a corporation of Germany

No Drawing. Continuation-in-part of application Ser. No. 371,188, May 29, 1964. This application July 26, 1966, Ser. No. 567,835
Claims priority, application Germany, June 5, 1963, S 85,539
Int. Cl. C07c *51/00, 149/00, 151/00*
U.S. Cl. 260—607 10 Claims

A process of exchanging one or more halogen atoms bound to a carbon atom in a halide whose halogen atom is selected from chlorine, bromine or iodine with a thiol or thiono group comprising reacting one mole of the halide with about one mole of an alkali metal or alkaline earth salt of trithiocarbonic acid for each halogen atom of the halide at a temperature not exceeding about 30° C. to form the monoester salt and splitting the monoester salt to produce the corresponding thio when there is one halogen attached to a single carbon or thiono when there are two halogens attached to a single carbon.

3,551,500

2-HYDROXY-4-HALO-DIPHENYL SULFONES

Ernst Model and Karl Gätzi, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Filed June 30, 1967, Ser. No. 650,189
Claims priority, application Switzerland, July 5, 1966, 9,759/66
Int. Cl. A01n *9/14;* C07c *147/10*
U.S. Cl. 260—607 8 Claims

Antimicrobial diphenylsulphones wherein one benzene ring is substituted in o-position to the $-SO_2-$ bridge by hydroxyl and in p-position to the said bridge by halogen of an atomic number of at most 35, both benzene rings being optionally substituted further by halogen or lower alkyl; which novel compounds are especially of antifungal activity e.g. against phytopathogenic fungi, and also of antibacterial activity; compositions containing the new compounds as antimicrobial ingredient, and methods of controlling microbial growth with the aid of the new compounds.

3,551,501

SEPARATION AND PURIFICATION OF 4,4'-DIHYDROXY DIPHENYL SULFONE

John R. Clark, Nutley, N.J., assignor to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 19, 1967, Ser. No. 676,604
Int. Cl. C07c *147/10*
U.S. Cl. 260—607 11 Claims

4,4'-dihydroxy diphenyl sulfone is separated from crude commercial grade 4,4'-dihydroxy diphenyl sulfone con-

taining 2,4'-dihydroxy diphenyl sulfone as the principal impurity by extraction with an ester solvent having the general formula $R(COOR')_n$ where R may be hydrogen when *n* is 1; and R and R' may be unsubstituted or substituted lower alkyl, alkylene, alkenyl or alkoxy radicals containing from 1 to 10 carbon atoms, or phenyl radicals, when *n* is 1 or 2; which selectively dissolves the 2,4'-isomer. The 4,4'-isomer may be further refined to 99% pure, white crystals by treatment in hot aqueous alkaline solution with decolorinzing adsorbent.

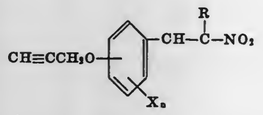
3,551,502

(2-PROPYNYLOXY)-BETA-NITRO-STYRENES

Shigeo Seki, Tokyo, Kazuo Ichikawa, Hiratsuka-shi, Yujiro Yamada and Kozo Nagaoka, Yokohama-shi, and Bunzo Nomiya, Tokyo, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed July 19, 1968, Ser. No. 745,990
Claims priority, application Japan, Feb. 10, 1968, 43/8,035
Int. Cl. C07c *43/20*
U.S. Cl. 260—612 **10 Claims**

(2 - propynloxy) - beta - nitro - styrenes of the general formula:



wherein R is a hydrogen atom or an alkyl radical of 1 to 4 carbon atoms and X is a hydrogen atom or a halogen atom and *n* is an integer of 1 or 2. These compounds are useful for the treatment of Ehrlich ascites tumor and leukemia in mice.

3,551,503

PREPARATION OF DIHYDROXY-NITROPHENOLS

Henry J. Peterson, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Original application Nov. 12, 1963, Ser. No. 323,069, now Patent No. 3,461,173, dated Aug. 12, 1969. Divided and this application July 3, 1968, Ser. No. 742,169
Int. Cl. C07c *79/24*
U.S. Cl. 260—622 **8 Claims**

Preparation of dihydroxy nitrophenols by contacting a halogen substituted nitrobenzene with a weight percent excess of powdered potassium hydroxide at a temperature in the range of 0° C. to 100° C. for 0.1 hour to 72 hours. Water is then added to the reaction mass at a temperature in the range of 60° C. to 100° C. The resulting solution is acidified and the desired product separated and recovered.

3,551,504

PREPARATION OF ALCOHOLS

Louis Schmerling, Riverside, and Robert A. Dombro, Chicago, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,693
Int. Cl. C07c *31/02, 141/04*
U.S. Cl. 260—632 **9 Claims**

A primary, secondary, or tertiary alcohol may be prepared by the hydrolysis of a hydrocarbonsulfonic acid or salt thereof at elevated temperatures using an alcoholic alkali medium.

3,551,505

STABILIZED CHLORINATED HYDROCARBON

André Ryckaert and Julien Mulders, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium, a corporation of Belgium

No Drawing. Filed Jan. 15, 1969, Ser. No. 791,486
Claims priority, application Belgium, Jan. 17, 1968, 53,435
The portion of the term of the patent subsequent to Nov. 18, 1986, has been disclaimed
Int. Cl. C07c *17/40, 17/42*
U.S. Cl. 260—652.5 **6 Claims**

The stabilized chlorinated hydrocarbon contains both a diaziridine compound and a base having a pyrrole nucleus.

3,551,506

VINYL CHLORIDE PRODUCTION

Norman J. Weinstein, Somerville, N.J., assignor to Princeton Chemical Research, Inc., Princeton, N.J., a corporation of New Jersey

Filed Dec. 5, 1967, Ser. No. 688,103
Int. Cl. C07c *21/06*
U.S. Cl. 260—656 **12 Claims**

This specification discloses a process for converting ethane to vinyl chloride by vapor phase oxychlorination of ethane to a vapor product containing vinyl chloride, ethylene, water and hydrogen chloride; oxychlorinating the ethylene in the liquid phase to 1,2-dichloroethane, referred to as ethylene dichloride, using at least in part, aqueous hydrogen chloride recovered from the vapor product of the ethane oxychlorination, and recycling the ethylene dichloride to the ethane oxychlorination.

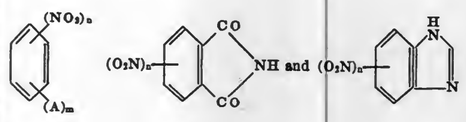
3,551,507

METHOD OF REDUCING THE TENDENCY OF BUTADIENE TO POLYMERIZE

Taketami Sakuragi, Tokyo, and Tatsuo Sakashita, Kanagawa-ken, Japan, assignors to The Japanese Geon Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Dec. 18, 1968, Ser. No. 784,941
Claims priority, application Japan, Dec. 30, 1967, 43/84,764
Int. Cl. B01d *3/34;* C07c *7/08, 7/18*
U.S. Cl. 260—666.5 **5 Claims**

Substituted aromatic nitro compounds of the general formulae:



wherein A is selected from the group consisting of —COOR, —CH_2COOR, —CH=CHCOOR, —OR, —NR_2, —COX, —CH_2X, CH_2OH, —CH_2CN, —CH_2NH_2, —$NHNH_2$, —CHO, —NCO, —CN, —$CONH_2$, —$NHCOCH_3$, and —COC_6H_5; *n* and *m* are each integer of 1–2; X is a halogen and R is hydrogen or an alkyl group of 1–4 carbon atoms at 0.01–10% concentration in polar solvents such as dimethyl formamide, N-methyl pyrrolidone, acetonitrile etc. inhibit polymerization of butadiene.

3,551,508

WITHDRAWN

3,551,509

MOVING BED PROCESS USING SIEVE CATALYST TO MAKE XYLENES BY TOLUENE DISPROPORTIONATION AND TRANSALKYLATION WITH C_9–C_{10} ALKYLBENZENES

Owen H. Thomas, South Holland, Thomas A. Beck, Park Forest, and Robert F. Wickman, Dolton, Ill., assignors to Sinclair Oil Corporation, New York, N.Y., a corporation of New York

No Drawing. Continuation-in-part of application Ser. No. 747,840, July 26, 1968. This application Feb. 10, 1969, Ser. No. 798,185
Int. Cl. C01b *33/28;* C07c *3/50, 3/58*
U.S. Cl. 260—672 **12 Claims**

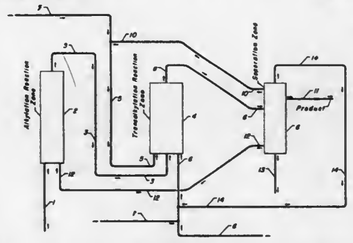
There is disclosed a process for catalytically disproportionating toluene to benzene and xylenes. The toluene is disproportionated over a rare-earth and hydrogen-exchanged crystalline aluminosilicate catalyst at about atmospheric pressure and a temperature of about 700 to 1100° F. Methylaromatics of 9 to 10 carbon atoms and 1 to 4 methyl groups may also be introduced into the reaction zone to increase the xylene/benzene ratio in the product.

3,551,510

ALKYLATION-TRANSALKYLATION PROCESS

Ernest L. Pollitzer, Skokie, George R. Donaldson, Barrington, and Richard C. Hawkins, McHenry, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Aug. 15, 1968, Ser. No. 764,363
Int. Cl. C01b *33/28;* C07c *3/50, 3/58*
U.S. Cl. 260—672 **6 Claims**



An alkyl aromatic compound is produced utilizing the the steps of alkylation, transalkylation and separation.

3,551,511

METHOD OF PURIFYING CUMENE IN CUMENE PHENOL PROCESS

Giancarlo Aglietti, Roberto Canavesi and Cesare Reni, Milan, Italy, assignors to Societá Italiana Resine S.p.A. Milan, Italy, an Italian joint-stock company

No Drawing. Filed Nov. 5, 1968, Ser. No. 773,659
Claims priority, application Italy, Nov. 11, 1967, 22,584/67
Int. Cl. C07c *7/00*
U.S. Cl. 260—674 **10 Claims**

Cumene from the acid decomposition products of cumene hydroperoxide or from the exhaust gases of the oxidation of cumene to cumene hydroperoxide is purified hydrogenatively using a supported cobalt/molybdenum or nickel/cobalt/molybdenum catalyst.

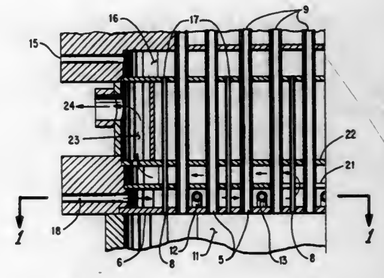
3,551,512

PRESSURE PROCESS FOR PREPARING ACETYLENE

David P. Keckler, Laporte, and John Edward Loeffler, Jr., Houston, Tex., assignors to Diamond Shamrock Corporation, Cleveland, Ohio, a corporation of Delaware

Filed Nov. 1, 1968, Ser. No. 772,724
Int. Cl. C07c *11/24, 3/00*
U.S. Cl. 260—679 **5 Claims**

In the superatmospheric pressure production of acetylene by the partial oxidation of hydrocarbons in a flame reaction, there can be fed through a gas distributor, for reaction in a flame chamber, two separate gaseous materials, i.e., a reactant gas formed from a premixture of hydrocarbons and oxidizing gas, and also supplemental oxidizing gas. In elevated pressure operation, acetylene



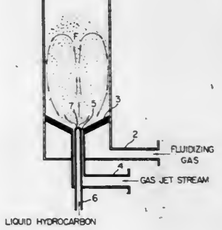
production is enhanced by feeding an auxiliary gas through the distributor, also directly into the flame chamber, which gas contains inert material, or substances capable of forming acetylene, or both. Such gas is introduced into the zones of aspiration in the flame chamber created by the premixed gas flowing into such chamber.

3,551,513

PROCESS FOR THE PREPARATION OF OLEFINS BY CRACKING OF LIQUID HYDROCARBON

Yuichi Suzukawa, Hisashi Kono, Kenji Terai, and Takazumi Niwa, Ube-shi, Japan, assignors to Ube Industries, Ltd., Nishihonmachi, Ube-shi, Yamaguchi-ken, Japan, a corporation of Japan

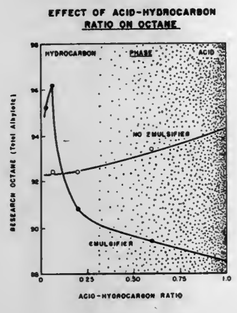
Filed Apr. 23, 1968, Ser. No. 723,543
Claims priority, application Japan, Apr. 25, 1967, 42/25,995
Int. Cl. C07c *3/30;* C10g *13/18*
U.S. Cl. 260—683 **8 Claims**



Process for preparing olefins from liquid hydrocarbon which comprises cracking liquid hydrocarbon by contacting the hydrocarbon with a bed of solid particles fluidized by a fluidizing gas containing oxygen and steam at a temperature of from 600 to 1000° C. for from 0.05 to 3 seconds, characterized by feeding a part of the fluidizing gas to the fluidized bed through a gas distributor provided below the fluidized bed, directly injecting the other part of said fluidizing gas as a jet stream into the fluidized bed

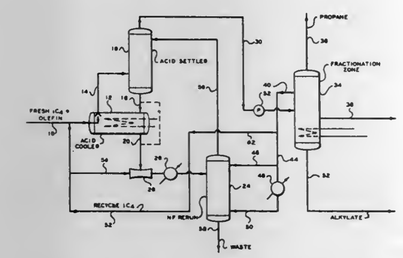
through injection openings at a linear gas velocity higher than the superficial velocity of the whole fluidizing gas in the bed, thereby forcing the solid particles in the bed to flow circulatingly and feeding the liquid hydrocarbon into the fluidized bed.

3,551,514
PROCESS FOR ALKYLATING ISOPARAFFINS WITH SULFURIC ACID AND AN EMULSIFYING AGENT
Bernard Lewis Evering, Chicago, Ill., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana
Filed Sept. 23, 1968, Ser. No. 761,507
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.59 **10 Claims**



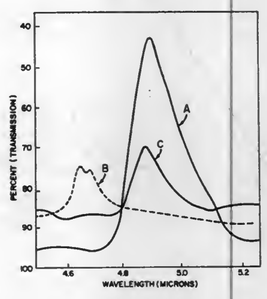
An improved process for reacting isoparaffins such as isobutane with monoolefins such as isobutylene in the presence of a sulfuric acid catalyst of a predetermined acid strength to produce alkylated isoparaffins comprising carrying out the reaction with an acid to hydrocarbon ratio of from 0.033 to 0.10 with the sulfuric acid having added thereto from 0.2 to 1.5 percent by weight of an emulsifying agent.

3,551,515
CHARGING SPENT ACID CATALYST IN HF ALKYLATION
Harvey F. Gentry, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 16, 1968, Ser. No. 753,283
Int. Cl. C07c *3/54*
U.S. Cl. 260—683.48 **4 Claims**



An improved alkylation process is provided wherein in the HF alkylation catalyst regeneration system high pressure recycled isoparaffin actuates an eductor to charge HF catalyst to regeneration. The recycled isoparaffin plus recovered HF is returned to the reaction system.

3,551,516
HYDROCARBON CONVERSION CATALYST AND PROCESS
Kenneth D. Ashley, Sarasota, Fla., and John H. Estes, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Continuation-in-part of applications Ser. No. 102,641 and Ser. No. 102,668, Apr. 13, 1961. This application Dec. 21, 1964, Ser. No. 419,755
Int. Cl. C07c *5/24*
U.S. Cl. 260—683.68 **13 Claims**



A catalyst for isomerization of paraffinic hydrocarbons is prepared by contacting a composite of platinum and alumina with an activating agent selected from the group consisting of carbon tetrachloride, chloroform, methylene chloride, phosgene and trichloroacetyl chloride.

3,551,517
ADHESION-PROMOTING EPOXY RESINS
Rostyslaw Dowbenko and Roger M. Christenson, Gibsonia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Original application Nov. 16, 1967, Ser. No. 683,474. Divided and this application July 14, 1969, Ser. No. 841,603
Int. Cl. C08g *45/04*; C09d *3/80*
U.S. Cl. 260—834 **13 Claims**

A hydrogenated bisphenol is reacted with an epihalohydrin to form an epoxy resin. The preferred epoxy resin is the reaction product of epichlorohydrin and hydrogenated bisphenol A. These novel epoxy resins are used as adhesion-promoting additives for thermosetting resin coating compositions.

3,551,518
GRAFTED COPOLYMERS
René Pornin, Arthez-de-Bearn, France, assignor to Societe Nationale des Petroles d'Aquitane, Courbevole, France
No Drawing. Filed Apr. 3, 1968, Ser. No. 718,381
Claims priority, application France, Apr. 6, 1967, 102,189
Int. Cl. C08g *45/04*
U.S. Cl. 260—836 **8 Claims**

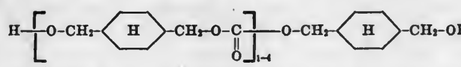
Method of preparing a thermoplastic graft copolymer, which consists in: mixing a polymeric material deriving from a monomer having 2 to 8 carbon atoms, epoxidized to a degree of 0.1 to 25 mole percent of epoxy groups, with an unsaturated polymerizable non-acid compound having 2 to 10 carbon atoms, and a catalytic amount of a monovalent ionic compound; heating the mixture at 50° to 150° C. until graft copolymer is formed; and separating the graft copolymer from the reaction mixture thus obtained.

3,551,519
EPOXY RESIN COMPOSITIONS CONTAINING VINYL COMPOUNDS AND CHELATES
George Jon Dubsky, London, and Bernard Peter Stark, Stapleford, Cambridge, England, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Continuation-in-part of application Ser. No. 362,993, Apr. 27, 1964. This application May 20, 1968, Ser. No. 730,600
Claims priority, application Great Britain, May 1, 1963, 17,277/63
Int. Cl. C08g *45/04*
U.S. Cl. 260—836 **2 Claims**

Hardenable compositions may be prepared from an epoxy resin containing more than one 1,2-epoxy group per molecule and a vinyl compound having a 3,4-dihydro-2H-pyran nucleus, with at least one chelate compound in which the coordinating atom is bound by one or more of its valences to a halogen atom and by one or more of its valences to an oxygen or sulfur atom. In an example 90 parts of a polyglycidyl ether of bisphenol A were reacted with 10 pts. of (3,4-dihydro-2H-pyran-2-yl)methyl 3,4-dihydro-2H-pyran-2-carboxylate and 2 parts of a complex prepared from the treatment of 10 pts. of acetoacetanilide with 40 ml. of boron trifluoride diethyl etherate. The product was a hard infusible resin.

3,551,520
UNSATURATED POLYESTERS HAVING IMPROVED PROPERTIES FROM CYCLOHEXANE DIMETHANOL CARBONATES
Rudolf Nehring and Klaus Heidel, Marl, and Karl Hamann, Leonberg, Germany, assignors to Chemische Werke Hüls A.G., Marl, Germany
No Drawing. Filed May 23, 1967, Ser. No. 640,506
Claims priority, application Germany, June 4, 1966, C 39,268
Int. Cl. C08f *21/02*
U.S. Cl. 260—861 **7 Claims**

Unsaturated polyesters of unsaturated polybasic acids or anhydrides and dihydric alcohols of the formula:



such esters after cross-linking being alkali-resistant and exhibiting a combination of high impact strength and excellent heat distortion stability.

3,551,521
POLYPROPYLENE COMPOSITIONS CONTAINING POLYESTER AMINES
Walter W. Thomas, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 13, 1968, Ser. No. 736,562
Int. Cl. C08f *29/10*
U.S. Cl. 260—873 **13 Claims**

Polypropylene and other olefin polymers are modified by the addition thereto of a polyester resin containing tertiary amine groups. The polyester is present in an amount sufficient to provide 0.1 to 1% by weight of carbonyloxy group and 0.1 to 2% tertiary amine nitrogen. The additives improve light stability of the polymer and also contribute disperse and acid dyeability.

3,551,522
METHOD FOR FORMING HIGH IMPACT POLYMERS
John M. Miles, Wilbur N. Killebrew, Jr., and James Q. Wood Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Oct. 26, 1967, Ser. No. 678,168
Int. Cl. C08f *19/04, 15/04*
U.S. Cl. 260—878 **4 Claims**

A high impact polymer is formed by providing a mixture of at least one conjugated diene and at least one 1-olefin, polymerizing the conjugated diene, completing the polymerization at a temperature above the upper cloud point of the polymerization reaction mixture, removing a portion of the 1-olefins if desired, adding at least one monovinyl-substituted aromatic compound, and polymerizing the monovinyl-substituted aromatic compound and the 1-olefin.

3,551,523
POLYMERIZATION PROCESS FOR PREPARING HIGH IMPACT POLYMERS
John J. Killoran, Worcester, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 319,490, Oct. 28, 1963, which is a continuation-in-part of application Ser. No. 123,425, July 11, 1961. This application Sept. 22, 1966, Ser. No. 581,186
Int. Cl. C08f *7/04, 15/04*
U.S. Cl. 260—880 **9 Claims**

A method of producing a high impact polymeric material by partially bulk polymerizing at least one monovinyl aromatic monomer in the presence of a rubbery polymer and then completing the polymerization in aqueous suspension. The suspension system for said process consists of (1) a polyvinyl alcohol suspending agent, (2) an anionic surfactant of the class consisting of sodium and potassium dodecylbenzene sulfonates and (3) an electrolyte.

3,551,524
NOVEL INTERPOLYMERS
Alvin Stein, Stamford, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,837
Int. Cl. C08f *15/40*
U.S. Cl. 260—880 **6 Claims**

There are disclosed novel compositions comprising interpolymers of monomers of an ethylenically unsaturated nitrile, a monovinylidene aromatic hydrocarbon and a norbornene compound. The compositions may be polyblends of a matrix of such an interpolymer and a graft phase comprised of a rubber substrate having a superstrate of the interpolymerized monomers.

3,551,525
SURFACE COATING COPOLYMERS CONTAINING ETHERIFIED N-METHYLOLAMIDE
Hans Wilhelm, Heinsheim, Ernst Penning, Ludwigshafen, Klaus Gulbins and Heinrich Hartmann, Limburgerhof, and Ernst Wilhelm Hann, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Nov. 19, 1968, Ser. No. 777,174
Claims priority, application Germany, Nov. 24, 1967, 1,669,090
Int. Cl. C08f *15/40*
U.S. Cl. 260—881 **6 Claims**

Production of coating agents in which a mixture of copolymerizable olefinically unsaturated compounds which contains an etherified N-methylolamide of a copolymerizable olefinically unsaturated carboxylic acid is subjected to free-radical polymerization under conventional polymerization conditions in an organic liquid

which contains dissolved therein a copolymer of olefinically unsaturated compounds and etherified N-methylolamides of copolymerizable olefinically unsaturated carboxylic acids.

3,551,526
CHLORINATED ETHYLENE POLYMER MOLDING MATERIALS

Hans-Georg Trieschmann, Hambach, and Gerhard Zeitler, Hessheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 21, 1968, Ser. No. 754,467
Claims priority, application Germany, Aug. 26, 1967, 1,669,718
Int. Cl. C08f *29/12, 29/22*
U.S. Cl. 260—897 **3 Claims**

Molding materials containing mixtures of chlorinated low-density polyethylene with chlorinated high-density polyethylene.

3,551,527
1,4,2-DIAZAPHOSPHOLIDINE DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Christian Weber, Cologne-Stammheim, and Rudolf Merten, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Continuation-in-part of application Ser. No. 742,190, July 3, 1968. This application Sept. 20, 1968, Ser. No. 761,318
Claims priority, application Germany, July 7, 1967, F 52,883
Int. Cl. C07c *119/04;* **C07f** *9/36*
U.S. Cl. 260—927 **4 Claims**

The invention is concerned with new 1,4,2-diazaphospholidine derivatives useful as catalysts for the preparation of carbodiimides from isocyanates as well as with a process for the preparation of these compounds which comprises the reaction of mono- and polyisocyanates or mono- and polyisothiocyanates with α-alkylamino-alkan(thio)phosphonic acid diesters or monoisocyanates o. monoisothiocyanates with bis- or tris-α-alkylamino-alkan(thio)phosphonic diesters.

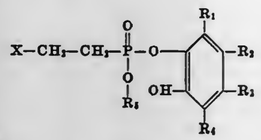
3,551,528
PHOSPHONIC ACID ESTERS AND THE METHOL FOR THEIR PREPARATION

David I. Randall, Easton, Pa., assignor to GAF Corporation, a corporation of Delaware

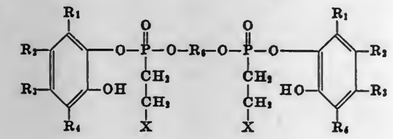
No Drawing. Filed Feb. 23, 1967, Ser. No. 617,819
Int. Cl. A01n *9/36;* **C07f** *9/38*
U.S. Cl. 260—928 **21 Claims**

The compounds are mixed esters of beta-haloethylphosphonic acid represented by the following structural Formulae *a* and *b*:

(*a*)



(*b*)



wherein X is halo, R_1–R_4 are either hydrogen, alkyl, alkoxy, or halo and two of the substituent groups may form a condensed ring, R_5 is aryl or an aliphatic or cycloaliphatic group and R_6 is alkylene.

A representative compound is ethyl 2-hydroxyphenyl betachloroethylphosphonate. The compounds possess plant growth regulating properties, e.g. control of apical dominance, and are prepared by the transesterification of the catechol and substituted catechol cyclic esters of beta-haloethylphosphonic acid.

3,551,529
DI-LOWER ALKYL PHOSPHITES OF 2-(LOWER-ALKYLTHIO)ALKANALDOXIMES

Girts Kaugars, Cooper Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Nov. 9, 1967, Ser. No. 681,888
Int. Cl. A01n *9/36;* **C07f** *9/08*
U.S. Cl. 260—944 **5 Claims**

Certain new di-lower-alkylphosphates of 2-(lower-alkylthio)alkanaldoximes are acetylcholinesterase inhibitors and are active against invertebrate animal pests such as insects and mites. The 2-(lower-alkylthio) group can be sulfide, sulfinyl, or sulfonyl, and a thiophosphate embodiment is described. Activity against cotton boll weevil, the two-spotted spider mite, and other arthropod pests is demonstrated, and various compositions and methods of use are described.

3,551,530
ASYMMETRIC ALKALINE EARTH METAL PHENATE-PHOSPHITES AND METHOD OF MAKING SAME

Gordon M. Jureidine, Cleveland Heights, Ohio, assignor to Synthetic Products Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Original application Dec. 5, 1966, Ser. No. 599,416. Divided and this application Aug. 15, 1967, Ser. No. 660,615
Int. Cl. C07f *9/12;* **C08f** *45/58;* **C10l** *1/26*
U.S. Cl. 260—967 **11 Claims**

Asymmetric alkaline earth metal phenate-phosphites useful in stabilizing high polymers, oils and various materials against degradation are prepared by reacting in a solvent-diluent around equal molar amounts of a phenol, an alkaline earth metal hydroxide and a phosphite having all three oxygen valences connected to hydrocarbon or halogenated hydrocarbon radicals of 4 to 18 carbon atoms and at least one of said oxygen valences connected to aryl or aralkyl. Alternatively, equal moles of the metal hydroxide and phenol may be first reacted and the resulting product reacted with the phosphite. The superior compatibility of the asymmetric phenate-phosphites with vinyl polymers reduces or eliminates the tendency of migration of stabilizer to the surface of articles where it degrades surfaces and interferes with heat-sealing.

3,551,531
METHOD OF MAKING AN INCENDIARY FORMULATION CONTAINING WHITE PHOSPHORUS

Samuel Sass, Bel Air, Benjamin Witten, Baltimore, and Paul Davis, Bel Air, Md., assignors to the United States of America as represented by the Secretary of the Army

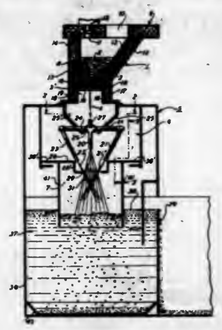
No Drawing. Original application Aug. 25, 1967, Ser. No. 663,443, now Patent No. 3,441,955, dated Apr. 29, 1969. Divided and this application Sept. 4, 1968, Ser. No. 797,289
Int. Cl. C06b *21/02*
U.S. Cl. 264—3 **1 Claim**

New compositions of blended mixtures of white phosphorus with at least one solid combustible organic compound and method of preparation thereof. White phosphorus, when exposed to air, produces flame which ignites the solid fuel, and the white phosphorus serves as a fuze (igniter) for the combustible material as well as a contributor to the heat of ignition as an incendiary agent. Combustible organic compounds, such as hexamethylene tetramine, intimately mixed with white phosphorus, reduce the required temperature for ignition of the phosphorus.

3,551,532
METHOD OF DIRECTLY CONVERTING MOLTEN METAL TO POWDER HAVING LOW OXYGEN CONTENT

William B. Laird, Murray Hill, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed May 25, 1967, Ser. No. 641,284
Int. Cl. B22d *23/08*
U.S. Cl. 264—11 **1 Claim**



Molten iron is stream from a tundish and quenched and comminuted by high velocity jets of water as the melt enters an atomizing chamber. The melt is entrained within a confluence of the jets that jointly define a closed-end trough for uniform and predictable quenching and comminution.

The atomizing chamber is open at its lower end and mounted within a tank containing the powder-collecting water, the level of which is maintained above the lower edge of the chamber. The steam generated incident to quenching completely fills the chamber for excluding air and maintaining therein a complete steam ambient through which the iron powder passes from the area of comminution to the collecting water.

3,551,533
METHOD OF FORMING PARTICULATE MATERIAL

Frank R. Monforte, Passaic Township, Morris County, and Frank J. Schnettler, Morris Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York

Filed Apr. 10, 1967, Ser. No. 629,788
Int. Cl. B22d *23/08*
U.S. Cl. 264—14 **5 Claims**

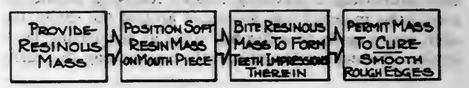
Particulate matter of a wide range of materials including refractory oxides is prepared by freeze-drying an atomized solution. The matter may be in the form of uniform spheres or of fine powder.

3,551,534
METHOD OF FORMING A RETAINING SURFACE ON A SMOKING DEVICE

Frank Kipnis, 118 Chadwick Drive, Charleston, S.C. 29407

Filed Apr. 25, 1968, Ser. No. 724,136
Int. Cl. A24f *7/00*
U.S. Cl. 264—16 **3 Claims**

The method of applying a self-curing mass of resinous material to the mouthpiece of a pipe, placing the mouthpiece in the individual's mouth in the normal pipe smoking position, bringing the teeth of an individual into biting engagement with the mass, and maintaining this

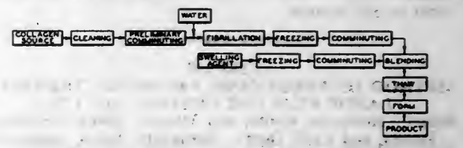


biting engagement until the mass hardens to form a permanent dental impression which serves as a retaining surface of the mouthpiece.

3,551,535
FREEZING-MIXING PROCESS FOR MAKING HOMOGENEOUS COLLAGEN MIXTURES

William E. Henderson and Camilla B. Ross, Hinsdale, Ill., assignors to Union Carbide Corporation, a corporation of New York

Continuation of application Ser. No. 414,969, Dec. 1, 1964. This application Sept. 14, 1967, Ser. No. 667,849
Int. Cl. A23b *1/06, 1/08*
U.S. Cl. 264—28 **23 Claims**



To obtain homogeneous mixtures of collagen and materials that are normally reactive with collagen dry or frozen free flowing particles of collagen are mixed with frozen particles of a collagen swelling agent. After the mixing is complete the mixture can be thawed to obtain the desired reaction product. A shrink control agent selected from the group consisting of cellulose fibers, rayon fibers, cotton fibers, alginates and starches can also be blended into the mixture in either dry or frozen particulate form. In one embodiment the frozen particulate collagen mixture is fed to an extrusion machine where it is thawed while being extruded into the form of a sausage casing.

3,551,536
TEMPERING PROCESS FOR POLYURETHANE RUBBER MATERIAL

Antone M. Guerreiro, Hawthorne, Calif., assignor to Northrop Corporation, Beverly Hills, Calif., a corporation of California

No Drawing. Continuation-in-part of application Ser. No. 550,639, May 17, 1966. This application May 13, 1968, Ser. No. 735,485
Int. Cl. B29c *25/00;* **C08g** *22/00*
U.S. Cl. 264—28 **4 Claims**

A cured polyurethane rubber product is tempered to improve its properties by heating the product to an elevated temperature below the decomposition temperature thereof, immediately submerging the heated product in a cold bath, having a temperature below —50° F., removing the product from the cold bath and allowing it to stabilize at ambient temperature.

3,551,537
METHOD FOR FORMING MONOLITHIC PIPE IN SITU

Larry V. Thomason, 528 E. Lansing Way, Fresno, Calif. 93704

Filed Apr. 12, 1968, Ser. No. 720,936
Int. Cl. B28b *21/88;* **E04b** *1/16*
U.S. Cl. 264—33 **9 Claims**

A method for forming monolithic pipe utilizing a tubular shell having a longitudinal gap extending the length

thereof and telescopically related at its ends to other similar shells, the shells so related being supported in the bottom of a formed trench on stable supports and in turn supporting a traveling hopper receiving plastic cementitious material and flowing it around the shells, the shell being made of a flexible material and having latch devices therewithin for selectively maintaining the shells



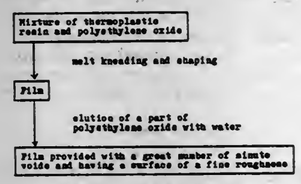
in open gap position, the shells being contractible to relatively closed gap position for reducing the diameter thereof and held in such position by the latch devices for shell removal after the formed pipe has hardened, the contracted shells being interconnected at adjacent ends to produce a lost motion effect for reducing the amount of adjacent shell overlap in response to pulling of the shells from an end thereof.

3,551,538

METHOD OF PRODUCING PAPERLIKE THERMOPLASTIC FILM FOR GRAPHIC ART USE

Sadao Yamamoto, Kyoto, and Minoru Okubo, Seiichiro Honda, and Kenji Ogura, Ibaraki-shi, Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha

Filed Oct. 17, 1966, Ser. No. 586,986
Claims priority, application Japan, Oct. 20, 1965, 40/64,578; Feb. 2, 1966, 41/6,317; May 18, 1966, 41/31,947; June 28, 1966, 41/42,582
Int. Cl. B29d *7/04, 7/14, 27/00*
U.S. Cl. 264—49 **14 Claims**



Method of producing paper-like thermoplastic film suitable for use in graphic arts which comprises mixing and kneading thermoplastic resin and polyethylene oxide of a meander type, forming the mixture into film, contacting it with water to elute a part of the polyethylene oxide, optionally impregnating the film with a foaming agent before or after said elution, and providing the film surface with a fine roughness by heating the film to decompose the foaming agent, or by contacting the polyethylene oxide-eluted film with a solvent to swell the film and contacting it with a liquid which does not dissolve the film.

3,551,539

METHOD OF RETARDING SUBSTRATE SURFACE FOULING

James K. Clark, Wadsworth, and Larry H. Watters, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,637
Int. Cl. B29c *13/04;* **B29d** *7/02;* **C08g** *53/16*
U.S. Cl. 264—85 **8 Claims**

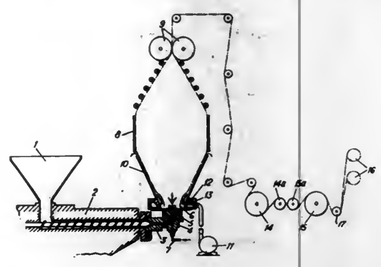
A method of retarding the fouling of a substrate surface where the substrate surface is exposed to at least one of the group consisting of amine compounds having primary amino groups, secondary amino groups and primary and secondary amino groups by exposing the substrate surface to at least one of the said amine compounds in an atmosphere substantially free of water and carbon dioxide therein the said atmosphere contains no more than 0.01 weight percent carbon dioxide.

3,551,540

PROCESS FOR THE CONTINUOUS PRODUCTION OF UNIAXIALLY AND BIAXIALLY ORIENTED FILMS

Giorgio Lodovico Pellicciari and Ugo Lodovico Frisinghelli, Milan, Italy, assignors to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut

Filed Nov. 24, 1967, Ser. No. 685,435
Claims priority, application Great Britain, Nov. 30, 1966, 53,704/66
Int. Cl. B29c *17/02, 17/07, 25/00*
U.S. Cl. 264—89 **5 Claims**



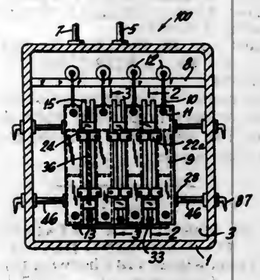
The invention provides a novel process for the production of oriented films useful for example in packaging. In the process a tubular film is first prevailingly transversely oriented by the bubble technique and is then longitudinally oriented by stretching. Films having particularly valuable shrinkage characteristics can be obtained.

3,551,541

METHOD OF POLYMERIZING MONOMERIC MATERIAL INTO CAST POLYMER SHEETS AND THE APPARATUS FOR THE CASTING OF SAID POLYMERIC SHEETS

Carlo Rossetti, % Rostero S.A. Acacias, 13 Av. Industrielle, Geneva, Switzerland

Continuation of application Ser. No. 534,525, Mar. 15, 1966. This application Dec. 11, 1969, Ser. No. 880,500
Int. Cl. B29d *7/08*
U.S. Cl. 264—102 **19 Claims**



Apparatus for the casting of resin sheets from polymerizable flowable material is formed of a casing defining a sealable chamber and containing a plurality of vertically

arranged spaced plate members. Glass mold members are supported on the plate members, and in combination with compressible sealing means form mold chambers. Means are provided for adjustably positioning the mold plates apart and for pushing the plate members together during the polymerization operation.

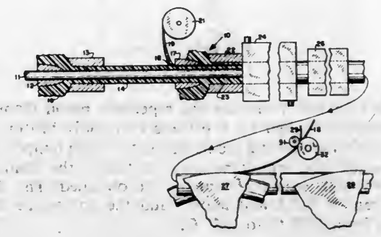
A method of polymerizing a flowable monomeric material into a cast polymer sheet in a mold is comprised of the steps of pouring the material into a vertically arranged mold open on its top, pushing the mold members together, evacuating the mold and heat polymerizing the monomeric material by uniformly heating the surfaces of the mold.

3,551,542

MARKING METHOD FOR ELECTRIC CABLE

Rosario J. Perrone, Marion, Ind., assignor to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Apr. 5, 1968, Ser. No. 719,201
Int. Cl. B29c *25/00;* **B29f** *3/10;* **B29h** *5/28*
U.S. Cl. 264—166 **7 Claims**



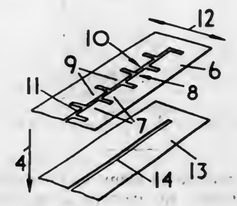
Extruded articles such as electric cable jackets that are vulcanized under heat and pressure in a continuous process are permanently marked during the extrusion and vulcanizing operation by expressing the extrudate through two dies, with only a thin layer being applied by the final die. An embossed tape is applied to the surface ahead of the second die with the result that the outer extrusion covers both the tape and the inner layer. After vulcanization the tape is separated, tearing away the portion of the outer layer that covers it.

3,551,543

MANUFACTURE OF PLASTIC NET

Frank Brian Mercer and Keith Fraser Martin, Blackburn, England, assignors to Plastic Textile Accessories Limited, Mill Hill, Blackburn, Lancashire, England, a British company

Filed Sept. 6, 1967, Ser. No. 665,820
Int. Cl. D01d *5/20*
U.S. Cl. 264—167 **1 Claim**



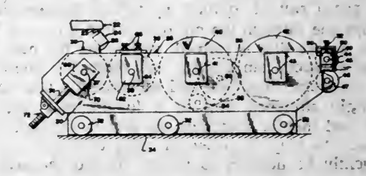
Plastics material is extruded through a moving pair of dies which form the material into a net or trellis (FIG. 1) comprising spaced transverse strands interconnected by short spaced strands extending in the direction of extrusion and so arranged that the short strands interconnecting one adjacent pair of transverse strands are nonaligned with the short strands interconnecting the previous and subsequent transverse strands such that haul-off tension applied to the extruding net opens out the meshes into a generally diamond shape in which the transverse strands take up a zig-zag configuration.

3,551,544

METHOD OF CONTINUOUSLY FORMING AN ELONGATED CLEATED RUNNER OF PLASTIC MATERIAL

Charles F. Hlinka, Franklin Park, Ill., assignor to Tenex Corporation, a corporation of Illinois

Original application Dec. 6, 1965, Ser. No. 511,964, now Patent No. 3,430,291, dated Mar. 4, 1969. Divided and this application Apr. 25, 1968, Ser. No. 736,244
Int. Cl. B29b *5/04;* **B29c** *15/00;* **B29d** *7/14*
U.S. Cl. 264—175 **3 Claims**



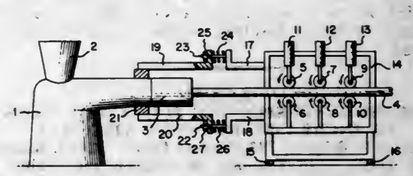
A process for forming an elongated web-like runner of plastic material with different patterns defined on opposite surfaces of the web consists of vertically feeding a web of molten plastic to and through a forming station where different patterns are defined by simultaneously embossing and extruding, and simultaneously venting any air trapped in the extrusion cavities by the side of the web being extruded. The opposite sides of the web-like runner are also subjected to different temperatures of about 140° F. on the extrusion side and about 90° F. on the embossing side.

3,551,545

METHOD FOR PROCESSING SYNTHETIC THERMOPLASTICS INTO SHAPED STRUCTURES

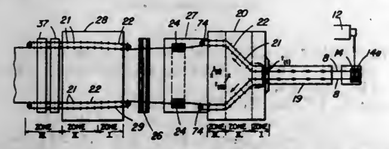
Wigle S. Overdiep, Dieren, Gilderland, Netherlands, assignor to American Enka Corporation, Enka, Buncombe, N.C., a corporation of Delaware

Filed Jan. 8, 1968, Ser. No. 696,331
Claims priority, application Netherlands, Jan. 27, 1967, 6701289
Int. Cl. B28b *3/20;* **B29f** *3/00*
U.S. Cl. 264—176 **3 Claims**



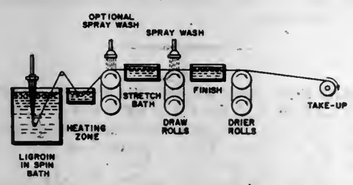
A method of producing a shaped structure from synthetic thermoplastics is disclosed. The method comprises transporting molten thermoplastic material under pressure through an extruder, forming the molten material into a shaped structure in a die connected to the extruder, periodically applying a tensile force to the shaped structure and then alternately drawing-off the shaped structure in a periodic manner from the die whereby a structure having a smooth surface is produced.

3,551,546
METHOD FOR THE PRODUCTION OF BIAXIALLY ORIENTED POLYPROPYLENE FILM
David L. Gosper, Canandaigua, and Myron L. Moffitt, Fairport, N.Y., assignors to Mobil Oil Corporation, a corporation of New York
Filed July 5, 1968, Ser. No. 742,680
Int. Cl. B29d 7/24
U.S. Cl. 264—178 19 Claims



A continuous method for the high speed production of biaxially oriented polypropylene film having substantially uniform gage which comprises the steps, in sequence, of extruding a polypropylene melt through a flat film die into a spaced pair of rotating nip rollers; passage of the polypropylene through the nip rollers into a quench bath whereby a base film is formed; preheating the base film to an orientation temperature and thereafter stretching it in a transverse direction; and subsequently passing the transversely stretched film to a longitudinal direction orienter and therein stretching the film in a longitudinal direction. The biaxially oriented polypropylene film may subsequently be heat-set to impart thereto thermal stability.

3,551,547
METHOD FOR PREPARING PERMANENTLY OPAQUE FIBERS
John P. Knudsen, Raleigh, N.C., assignor to Monsanto Company, a corporation of Delaware
Filed Sept. 5, 1967, Ser. No. 665,605
Int. Cl. D01f 7/00
U.S. Cl. 264—182 8 Claims



Method of making smooth delustered acrylic fibers having highly porous internal microvoid structures which are permanently sealed and not collapsed by drying wherein coagulation of solution spun acrylic polymer is carried out in a coagulation bath containing substantial volumes of ligroin dissolved therein and the fiber is then heated.

3,551,548
METHOD FOR SPINNING POLYAMIDE YARN OF INCREASED RELATIVE VISCOSITY
Edmond P. Brignac, 782 Whitney Drive 32503; Bascum H. Duke, 1118 Dunmire St. 35204; and Walter J. Nunning, 2375 Scenic Highway, Apt. 210 32503, all of Pensacola, Fla.; and Rupert J. Snooks, Jr., 402 Poinciana Drive, Gulf Breeze, Fla. 32561
No Drawing. Filed Jan. 8, 1968, Ser. No. 696,108
Int. Cl. B28b 3/20; B29c 25/00
U.S. Cl. 264—234 5 Claims

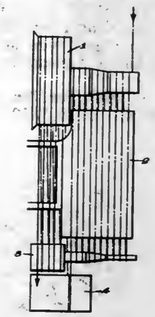
Continuous-filament high relative viscosity polyamide yarn is provided by fabricating continuous-filament yarn from polyamide containing from 0.01 to 15% by weight of certain phosphorous compounds, drawing the yarn and subsequently heating the drawn yarn below its melting point.

3,551,549
STRETCHING NYLON FILAMENTS IN A GAS VORTEX
Edward H. Sundbeck, Chapel Hill, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed May 13, 1965, Ser. No. 455,394
Int. Cl. B29c 17/02; F26b 3/04
U.S. Cl. 264—290 3 Claims



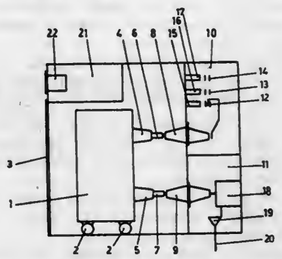
Thermoplastic filaments and especially nylon filaments are highly stretched by a process of rapidly heating the filaments by subjecting the filaments to a high temperature gas vortex and simultaneously stretching the filaments whereby high tenacity filaments are obtained. The draw ratio can be 5.5:1 and above, and the gas temperature can be from 250° C. to 325° C.

3,551,550
PROCESS FOR PREHEATING AND DRAWING FILAMENTS OF SYNTHETIC LINEAR POLYESTERS
Gunther Bauer, Bobingen, and Ingolf Jacob, Strassberg, near Augsburg, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft, Frankfurt am Main, Germany, a corporation of Germany
Continuation of application Ser. No. 515,967, Dec. 23, 1965. This application Mar. 18, 1969, Ser. No. 808,722
Claims priority, application Germany, Dec. 31, 1964, F 44,850
Int. Cl. B29c 17/02, 25/00
U.S. Cl. 264—290 5 Claims



Process of preheating filaments for drawing using conical rollers whereby the increase in diameter of the rollers compensates for the increase in length during heating. The diameter varies over the length of the roller by 0.5 to 5% and for polyester filaments heating is effected at a temperature in the range of 80 to 150° C. for an exposure time of 1 to 5 seconds. High speed processing is possible. A uniformly drawn product is achieved.

3,551,551
METHOD OF MAKING A SOLID INSULATING MEMBER COMPRISING EPOXY RESIN AND FILLER FREE FROM SILICON AND BORON
Litty Hugi, Wettingen, Switzerland, assignor to Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company
Original application Aug. 24, 1966, Ser. No. 574,769, now Patent No. 3,467,760, dated Sept. 16, 1969. Divided and this application Mar. 25, 1968, Ser. No. 715,891
Claims priority, application Switzerland, Aug. 26, 1965, 12,021/65
Int. Cl. B29c 5/04; H01b 3/02
U.S. Cl. 264—311 5 Claims



Based on the discovery of the real nature and causalities of the well known surface resistance decrease observed on solid insulating parts of circuit breakers and the like filled with SF_6 or other fluorine compound that is subjected to decomposition by arcing, the invention teaches to avoid Si and B and their compounds as constituents of the solid insulating parts, at least at their surfaces. The insulating parts may consist of any hardenable cast resin such as an epoxy resin and, optionally, of a filler free of Si and B and their compounds, e.g., corundum, calcium fluoride and so forth. Splintery grain form of the filler assures excellent mechanical properties of the cast resin parts.

3,551,552
METHOD EMPLOYING GASKETS FOR CASTING PLASTIC ARTICLES
Vincent J. Opalewski, Rockaway, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Feb. 24, 1969, Ser. No. 801,831
Int. Cl. B29c 1/02, 5/00
U.S. Cl. 264—331 11 Claims

A compressible and wettable paper gasket is provided in a mold for casting articles from a non-viscous change of casting composition. The paper is compressed between the mold parts to fill gross variations between the mating surfaces thereof, and it swells upon being wetted with the non-viscous charge to fill fine variations between the mating surfaces.

3,551,553
LUBRICATING METAL MOLD SURFACES AND DISPERSING CARBON BLACK IN MANUFACTURE OF INORGANIC HYDRAULICALLY BONDED ARTICLES
Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
No Drawing. Filed Aug. 21, 1968, Ser. No. 754,481
Int. Cl. C04b 13/04, 15/16, 27/00
U.S. Cl. 264—338 13 Claims

A method of lubricating metal molds in a process of making an inorganic, hydrated, cementitious material from aqueous slurries. A nucleophilic nonionic or cationic material selected from the group consisting of polyoxyethylene ethers, thioethers, esters, amines and amides in which the ethylene oxide comprises at least 50% of the molecule and the remainder is at least one terminal oleophilic portion is incorporated into the aqueous slurry in small amounts prior to molding. After molding the slurry and mold are heated causing the nucleophilic material to migrate out of the article and to deposit a lubricating parting layer on the metal mold surface. This additive also acts to disperse carbon black in the slurry, when it is present, to prevent "fish eyes."

3,551,554
ENHANCING TISSUE PENETRATION OF PHYSIOLOGICALLY ACTIVE AGENTS WITH DMSO
Robert John Herschler, Camas, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada
Continuation-in-part of application Ser. No. 329,151, Dec. 9, 1963. This application Aug. 16, 1968, Ser. No. 753,231
Int. Cl. A61k 27/00
U.S. Cl. 424—7 42 Claims

A method of enhancing tissue penetration of physiologically active agents, including physiologically active steroids, antineoplastic agents, antigens, anti-unicellular microorganism agents, antihistaminic agents, neuropharmacologic agents, antiinflammatory agents, anticoagulants, vasodilators, ultra-violet screening agents, diagnostic dyes and radiopaque agents and nutrients, by conjointly applying them to the tissue with dimethyl sulfoxide. Penetration of the skin and the mucous membranes of the body cavities by these agents may be enhanced by conjoint application of such agents and dimethyl sulfoxide directly to such membranes. Preferably, for penetration of agents through the skin compositions of DMSO at concentrations of 50% and above are employed and for penetration through mucous membranes, compositions including DMSO at concentrations of 10% and above are employed. Antineoplastic agents, steroids, central nervous system-active agents, local anaesthetics, anti-inflammatory agents, diagnostic dyes and radiopaque agents, and vasodilators may be advantageously administered by injection with DMSO in concentrations preferably up to 20% by weight to enhance penetration of internal tissue membrane barriers to achieve better distribution of these agents.

3,551,555
COATED IMMUNOCHEMICAL REAGENT PARTICLES AND PROCESS OF PREPARATION
Antonius Hermanus Wilhelmus Maria Schuurs, Oss, Netherlands, assignor to Organon Inc., West Orange, N.J., a corporation of New Jersey
No Drawing. Filed Mar. 28, 1966, Ser. No. 537,692
Claims priority, application Netherlands, Apr. 15, 1965, 6504823
Int. Cl. G01n 31/00, 33/16
U.S. Cl. 424—12 15 Claims

A reagent for immunochemical determinations is prepared by precoating finely divided solid carrier particles with a protein which is inert to and does not take part in the immunochemical reaction, and then adsorbing on said particles either an antigen or an antibody.

3,551,556
CARRIERS FOR BIOLOGICALLY ACTIVE SUBSTANCES
Karel Kliment, Jiří Vacík, Zdenek Ott, Vladimír Majkus, Vladimír Stoy, Miroslav Stol and Otto Wichterle, Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia
No Drawing. Filed Jan. 6, 1967, Ser. No. 607,637
Claims priority, application Czechoslovakia, Jan. 6, 1966, 83/66
Int. Cl. A61k 27/12
U.S. Cl. 424—21 3 Claims

Drugs are released gradually to a living organism after oral ingestion, implantation, or external application to the

skin or a mucous membrane through a layer of a nonionogenic, neutral hydrogel of a polymer of ethylene glycol methacrylate or similar monomer cross-linked sufficiently to make the polymer insoluble in all body liquids. The drug may be distributed in the monomer mixture prior to polymerization or enveloped by an outer coating of the hydrogel.

3,551,557
ISOTACTIC POLYPROPYLENE BANDAGES

Joaquin Morales Garcia, Barcelona, Spain, assignor to La Espana Industrial, S.A., Barcelona, Spain, a corporation of Spain

Filed Mar. 16, 1964, Ser. No. 352,199
Claims priority, application Spain, Oct. 9, 1963, 292,641
Int. Cl. A61d *13/00*
U.S. Cl. 424—28 **2 Claims**

A bandage comprising a gauze of polypropylene fibers which has been impregnated with a material selected from the group consisting of disinfectants, antiseptics and bacteriocides. The bandage may be prepared by passing the polypropylene gauze through a solution comprising beeswax and a material selected from the group consisting of antiseptics, disinfectants, and bacteriocides. This bandage is nonadherent to wounds and can be reused without danger of infection.

3,551,558
THERAPEUTICAL AEROSOL COMPOSITION AND PREPARATION THEREOF

Toshio Takebe, Saitama Prefecture, and Masanori Kayano and Noboru Naruse, Tokyo, Japan, assignors to Eisai Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Aug. 18, 1967, Ser. No. 661,524
Int. Cl. A61k *27/00*
U.S. Cl. 424—46 **1 Claim**

This invention provides a novel aerosol composition of a dispersion or suspension type to be used for therapeutical purposes; the composition consisting of a nontoxic liquefied propellant, a micropulverized solid medical substance in a varied concentration, a dispersing agent consisting of a phosphorous lipoid of natural source and an ester of orthophosphoric acid and a linear or branched higher alcohol containing 11 to 30 carbon atoms and presenting a liquid form at ordinary temperature.

The present invention further provides a process for the preparation of the above-mentioned aerosol composition by admixing the aforementioned constituents in accordance with a conventional manner employed for the preparation of the known similar aerosol compositions.

3,551,559
PROCESS FOR PRODUCING DEAERATED TOOTHPASTE

John J. Miles, Woodcliff Lake, N.J., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine

No Drawing. Filed July 16, 1968, Ser. No. 745,127
Int. Cl. A61k *7/16*
U.S. Cl. 424—49 **7 Claims**

An improvement in the process for deaerating toothpaste having entrained air therein which improvement comprises incorporating a highly volatile material into the toothpaste prior to the deaeration thereof.

3,551,560
PROCESS OF RECONSTRUCTING TENDONS, CARTILAGE, NERVE SHEATHS, AND PRODUCTS

Heinrich F. Thiele, 23 Kiel, Germany

No Drawing. Filed Oct. 2, 1967, Ser. No. 671,981
Int. Cl. A61k *27/00, 17/00*
U.S. Cl. 424—95 **9 Claims**

Tendons, cartilage tissue, nerve sheaths and the like materials which are useful in surgery for replacing damaged tissue of this type and for implantation into the body, are obtained by first preparing a colloidal solution of animal or human tendons, cartilage tissue, nerve sheaths, and the like by exposing such material to the action of a swelling agent which is capable of splitting up hydrogen and sulfur bridges but does not cause denaturation of the proteins, removing the mucopolysaccharides therefrom either before or during swelling, and reconstituting the tendon, cartilage, or nerve sheath from said colloidal solution by allowing ions to diffuse into the colloidal solution preferably after addition of the mucopolysaccharide or a polyuronic acid compound, such as an alginate to the sol. The resulting gel consists of oriented filamentary molecules and is similar in its composition and structure to natural human or animal tendon, cartilage, nerve sheath material. It is well tolerated and readily accepted by the human and animal body.

Examples of swelling agents are salts such as sodium chloride or salts with hydrotropic activity such as lithium rhodanide, zinc chloride, acids such as phosphoric acid, formic acid, lactic acid, urea, organic amines, and especially alkali metal hydroxides, preferably lithium hydroxide and sodium hydroxide.

Examples of gelling ions are ions of copper, cadmium, calcium, aluminum, lanthanum and other polyvalent metals. Hydrogen ions are also useful.

The strength properties and stability of the resulting gels can be improved by a treatment with cross-linking agents.

3,551,561
GELBECIDINE AND A PROCESS FOR MAKING THE SAME

Adorjan Aszalos, Kendall Park, Robert S. Robison, North Brunswick, Felix E. Pansy, Jamesburg, and Bernard Berk, Westfield, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 29, 1968, Ser. No. 756,181
Int. Cl. A61k *21/00*
U.S. Cl. 424—119 **2 Claims**

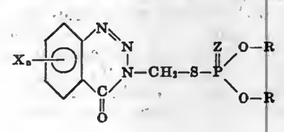
An antibiotic selected from the group consisting of gelbecidine, said gelbecidine being an amorphous, yellow material having the following elemental analysis (percent): C, 56.98; H, 6.93; O, 36.09; a melting point (with decomposition) at 169 to 170° C.; a sintering point of 161° C.; which is soluble in trichloromethane, ethyl acetate, ethanol, methanol and acetone; and which possesses an infrared absorption spectrum and an ultraviolet absorption spectrum as shown in FIGS. 1 and 2, respectively. Gelbecidine is useful as an antimicrobial agent.

3,551,562
INSECTICIDAL USE OF S-((4-OXO-1,2,3-BENZOTRIAZIN - 3(4H)-YL) - METHYL) PHOSPHOROTHIOATES AND PHOSPHORODITHIOATES

Raymond H. Rigterink, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application May 5, 1967, Ser. No. 636,581, now Patent No. 3,502,670, dated Mar. 24, 1970. Divided and this application July 25, 1969, Ser. No. 870,984
Int. Cl. A01n *9/22*
U.S. Cl. 424—200 **22 Claims**

The present invention is directed to S-((4-oxo-1,2,3-benzotriazin - 3(4H) - yl)methyl) phosphorothioates and phosphorodithioates of the formula



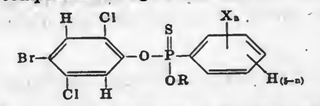
and to methods employing and compositions comprising these phosphorothioates and phosphorodithioates for controlling parasites, especially arthropod pests such as insects and arachnids. In the above and succeeding formulae in the present specification and claims, Z represents oxygen or sulfur; each X independently represents bromo or chloro; each R independently represents lower alkyl; and *n* represents an integer of from 1 to 4, both inclusive.

3,551,563
HALO-SUBSTITUTED PHENYL THIOPHOSPHONATES AS INSECTICIDES

Sidney B. Richter, Chicago, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Illinois

No Drawing. Original application Oct. 11, 1965, Ser. No. 494,909, now Patent No. 3,459,836, dated Aug. 5, 1969. Divided and this application Dec. 13, 1968, Ser. No. 823,198
Int. Cl. A01n *9/36*
U.S. Cl. 424—222 **4 Claims**

This invention discloses the use as insecticides of new chemical compounds having the formula



wherein R is alkyl; X is selected from the group consisting of alkyl, alkoxy, alkylthio, halogen, nitro and mixtures thereof; and *n* is an integer from 0 to 5, provided that a maximum of three X's are nitro.

3,551,564
PARENTERAL SULFONAMIDE AND SULFONAMIDE POTENTIATOR COMBINATIONS

Heinrich Kläui and Walter Rehm, Riehen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 28, 1967, Ser. No. 634,472
Claims priority, application Switzerland, May 9, 1966, 6,716/66
Int. Cl. A61k *27/00*
U.S. Cl. 424—229 **14 Claims**

Parenteral solutions containing a sulfonamide, for example, 5-methyl - 3 - sulfanilamido-isoxazole; 2,4-dimethoxy-6-sulfanilamido-pyrimidine; 5,6-dimethoxy-4-sulfanilamido-pyrimidine, or the like, and a pyrimidine-type potentiator, for example, 2,4-diamino-5-(3,4,5-trimethoxybenzyl)pyrimidine; 2,4-diamino-5-(3,4-dimethoxybenzyl)pyrimidine; 2,4-diamino-5-(3,4-dimethoxy-6-methylbenzyl)pyrimidine or the like, are disclosed.

3,551,565
PHARMACEUTICAL COMPOSITIONS AND USES OF OXAZINOISOQUINOLINE DERIVATIVES

Frank H. Clarke, Jr., Armonk, N.Y., assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Application Apr. 26, 1968, Ser. No. 724,622, now Patent No. 3,470,171, dated Sept. 30, 1969, which is a continuation-in-part of application Ser. No. 634,856, May 1, 1967. Divided and this application Feb. 18, 1969, Ser. No. 825,467
Int. Cl. A61k *27/00*
U.S. Cl. 424—248 **21 Claims**

3-carboxamido, and substituted carboxamido, derivatives of 9,10-dialkoxy-, 9,10,11-trialkoxy-, and 9,10-methylenedioxy - 1,3,4,6,7,11b - hexahydro - [1,4]oxazino [3,4a]isoquinolines, and their salts, possess tranquilizing and muscle relaxant properties. They can be prepared through treatment of derivatives of the corresponding 3-carboxylic acid with an amine. Typical embodiments are 3-carboxamido - 9,10 - dimethoxy - 1,3,4,6,7,11b-hexahydro - [1,4]oxazino[3,4a]isoquinoline and 3 - (N,N-diethylcarboxamido)-9,10-dimethoxy - 1,3,4,6,7,11b - hexahydro-[1,4]oxazino[3,4a]isoquinoline.

3,551,566
FISH DISEASE TREATING COMPOSITION AND METHOD OF USING SAME

Masanao Shimizu, Kobe-shi, Yoshiyuki Takase, Amagasaki-shi, and Saburoh S. Kubota, Tsu-shi, Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Osaka-shi, Japan

No Drawing. Filed Sept. 27, 1967, Ser. No. 671,131
Int. Cl. A61k *27/00*
U.S. Cl. 424—263 **9 Claims**

A method for preventing and treating infectious diseases of fish caused by pathogenic microorganisms which comprises applying as an active ingredient 2-[2-5-nitro-2-furyl)vinyl]-6-hydroxymethylpyridine to fish.

3,551,567
COMPOSITIONS CONTAINING INDOLYLPYRIDINIUM SALTS AND METHOD OF USE

William Joseph Fanshawe, Pearl River, N.Y., and Victor John Bauer, Montvale, and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Aug. 7, 1968, Ser. No. 750,751
Int. Cl. A61k *27/00*
U.S. Cl. 424—263 **10 Claims**

Compositions containing indolylpyridinium salts and a method of using these compositions for the lowering of blood glucose levels in warm-blooded animals.

3,551,568
TRANQUILIZER COMPOSITIONS AND METHOD OF TREATMENT

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Application Sept. 22, 1967, Ser. No. 669,707, which is a continuation-in-part of application Ser. No. 620,628, Mar. 6, 1967. Divided and this application Oct. 10, 1969, Ser. No. 865,475
Int. Cl. A61v *27/00*
U.S. Cl. 424—267 **15 Claims**

1- (thianaphthenylalkyl or benzofuranylalkyl) - 4 - phenyl - 4 - piperidinols, prepared by various methods starting with a halomethylthianaphthene or benzofuran, or a thianaphthene- or benzofuranalkanoic acid. 4-phenyl-4-piperidinols are condensed with acid halides, ester anhydrides, or diazoketones to give amides, which are reduced to the products with lithium aluminum hydride. Esters are prepared by acylation of the piperidinols. Tetrahydropyridines are prepared by dehydration of the piperidinols. The piperidinol and tetrahydropyridine compounds have tranquilizing activity, while the esters have analgesic activity.

3,551,569
ANTIBACTERIAL COMPOSITION CONTAINING 2,6-DIAMINOPHENYL PENICILLIN OR SALT THEREOF

Peter Baumann, Fullinsdorf, Basel-Land, and Markus Zimmermann, Riehen, near Basel, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

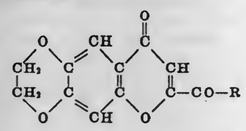
No Drawing. Original application Aug. 30, 1965, Ser. No. 483,827. Divided and this application Mar. 26, 1969, Ser. No. 833,225
Int. Cl. A61k *21/00*
U.S. Cl. 424—271 **4 Claims**

Antibacterial compositions comprising 2,6-diaminophenyl penicillin or a salt thereof, and a carrier.

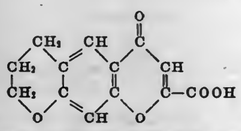
3,551,570
COMPOSITION AND METHOD FOR TREATING INFLAMMATION WITH OXYPHENBUTAZONE AND INDOMETHACIN
Gerhard Wilhelmi, Riehen, Switzerland, assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware
Continuation of application Ser. No. 524,605, Feb. 2, 1966. This application Feb. 28, 1969, Ser. No. 805,998
Claims priority, application Switzerland, Nov. 25, 1965, 16,238/65; Nov. 29, 1965, 16,390/65
Int. Cl. A61k *27/00*
U.S. Cl. 424—273 2 Claims
A method and compositions for the treatment of inflammatory conditions utilizing mixtures of either phenylbutazone or oxyphenbutazone and indomethacin.

3,551,571
METHODS FOR REDUCING PAIN, REDUCING FEVER AND ALLEVIATING INFLAMMATORY SYNDROMES WITH HETEROAROMATIC PYRROL-3-YL KETONES
Irwin J. Pachter, Woodbury, and David L. Nicholas, Flushing, N.Y., assignors to Endo Laboratories, Inc., Garden City, N.Y., a corporation of New York
No Drawing. Filed May 19, 1967, Ser. No. 639,620
Int. Cl. A61k *27/00*
U.S. Cl. 424—274 9 Claims
A method for administering heteroaromatic pyrrol-3-yl ketones to mammals and therapeutic compositions incorporating such compounds and orally, parenterally or rectally administrable pharmaceutical carriers as well as novel heteroaromatic pyrrol-3-yl ketones are disclosed. The heteroaromatic pyrrol-3-yl ketones have antiinflammatory, analgetic and antipyretic properties.

3,551,572
METHODS AND COMPOSITION FOR TREATING ASTHMA
Arthur Hedley Wragg, Ashlands, Middlewich Road, Middlewich, England
No Drawing. Continuation-in-part of application Ser. No. 266,036, Mar. 18, 1963. This application Oct. 21, 1966, Ser. No. 588,322
Claims priority, application Great Britain, Apr. 2, 1966, 14,730/66
Int. Cl. A61k *27/00*
U.S. Cl. 424—278 12 Claims
There are disclosed pharmaceutical compositions comprising a pharmaceutical carrier or dilutent together with a chromone derivative selected from chromone derivatives of the formulae:

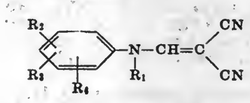


and

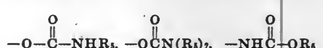


and salts, esters and amides thereof, wherein R is a hydroxy group or the radical —NH—R^1—COOH wherein R^1 is a straight or branched lower alkylene chain (for example a methylene, ethylene, propylene or isopropylene chain). The compositions are disclosed to inhibit the release and/or action of toxic products which arise from the combination of certain types of antibody and specific antigen. Specifically, the compositions are of value in the prophylactic treatment of asthma.

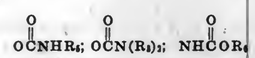
3,551,573
INSECTICIDAL COMPOSITION AND METHOD CONTAINING ANILINOMETHYLENE MALONITRILES
Joseph W. Baker, Kirkwood, and Robert K. Howe, Bridgeton, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Nov. 8, 1967, Ser. No. 681,578
Int. Cl. A01n *9/20*
U.S. Cl. 424—304 24 Claims
Pesticidal and systemic insecticidal anilino-methylene compounds of the formula



wherein R_1 is selected from the group consisting of hydrogen and alkyl having a maximum of 8 carbon atoms; R_2, R_3 and R_4 are independently selected from the group consisting of hydrogen, alkyl having a maximum of 8 carbon atoms, hydroxy, alkoxy having a maximum of 4 carbon atoms, halogen, nitro, carboalkoxy having a maximum of 5 carbon atoms, trifluoromethyl, trichloromethyl,



and NH_2SO_2— where R_5 and R_6 are alkyl having a maximum of 5 carbon atoms; provided that when R_2, R_3 and R_4 are alkyl branched on the alpha carbon or are trichloromethyls, they are on other than adjacent positions; further provided that when one of the groups R_2, R_3 and R_4 is



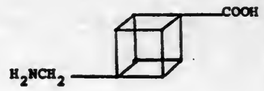
or NH_2SO_2— the remaining groups are hydrogen. Compounds in which at least one of the groups R_2, R_3 or R_4 is trifluoromethyl group are new compounds.

3,551,574
METHODS OF COMBATTING FUNGI USING HYDROAROMATIC HYDROXAMIC ACIDS
Paul-Ernst Frohberger, Burscheid, Engelbert Kühle, Bergisch Gladbach, and Ewald Urbschat, Cologne-Mulheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed May 31, 1966, Ser. No. 553,690
Claims priority, application Germany, June 5, 1965, F 46,270
Int. Cl. A01n *9/20, 9/24*
U.S. Cl. 424—311 11 Claims
Fungitoxic preparation in the form of a mixture of a dispersible finely divided solid and/or a dispersible liquid containing a surface-active agent, and a fungitoxic amount of a hydroaromatic hydroxamic acid or alkali metal salt thereof, and methods of combatting fungi therewith.

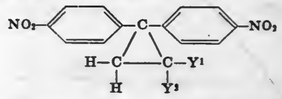
3,551,575
TREATMENT OF INFLUENZA A INFECTIONS
Eugène L. Lerol, Bievres, and Jean A. Renault, Paris, France, assignors, by mesne assignments, to Societe Civile de Rechercher d'Applications Scientifiques, Issy-les-Moulineaux, France
No Drawing. Filed Mar. 11, 1968, Ser. No. 711,894
Claims priority, application Great Britain, Mar. 13, 1967, 11,720/67
Int. Cl. A61k *27/00*
U.S. Cl. 424—316 1 Claim
This invention relates to a method of treating patients suffering from influenza infection with mercaptosucci-

nates of 1-phenyl 2-amino ethane or 1-phenyl 1-amino ethane.

3,551,576
ANTI-FIBRINOLYTIC AGENT
Larry J. Loeffler, North Wales, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Original application Feb. 28, 1968, Ser. No. 708,770. Divided and this application July 28, 1969, Ser. No. 870,905
Int. Cl. A61k *27/00*
U.S. Cl. 424—319 1 Claim
The method of treating a pathological fibrinolytic state in mammals which involves the daily oral administration of from 1 to 20 mg./kg. of body weight of the compound:



3,551,577
1-(4-NITROPHENYL)-1-(4'-NITROPHENYL)-2,2-DIHALOCYCLOPROPANE INSECTICIDES
George Holan, Brighton, Victoria, Australia, assignor to Monsanto Company (Australia) Limited, West Footscray, Victoria, Australia, a company of Victoria
No Drawing. Original application Dec. 11, 1967, Ser. No. 689,317, now Patent No. 3,481,993, dated Sept. 13, 1969. Divided and this application Jan. 30, 1969, Ser. No. 810,071
Int. Cl. A01n *9/20*
U.S. Cl. 424—349 2 Claims
Compounds of the formula



wherein Y^1 is selected from the group consisting of chlorine, bromine and fluorine and Y^2 is selected from the group consisting of chlorine and bromine provided that when Y^1 is fluorine Y^2 is chlorine, are useful in combating insects.

ELECTRICAL

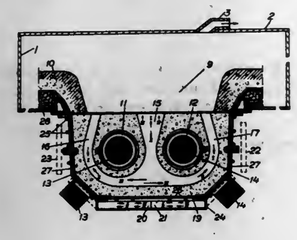
3,551,578
CHANNEL TYPE FURNACE FOR VACUUM

Per Erik Hammarlund and Bengt Fredrikson, Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Continuation of application Ser. No. 678,326, Oct. 26, 1970, now abandoned. This application Aug. 7, 1969, Ser. No. 849,601

Int. Cl. N05b *5/00, 5/14*

U.S. Cl. 13—29 9 Claims



A channel type induction furnace with inductor units of single or double-channel type, provided with stirrers for circulating the melt in desired direction. The inductor unit is enclosed in a vacuum or pressuretight cover with the stirrers on the outside of such cover, and the furnace is provided with an evacuation or pressure conduit for evacuation or overpressure respectively, at the surface of the melt within said furnace.

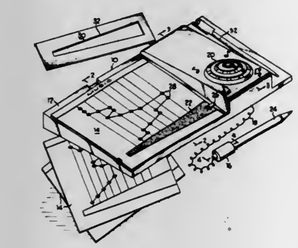
3,551,579
TOY ELECTRONIC MUSICAL INSTRUMENT

Norman Kramer, Skokie, Burton C. Meyer, Chicago, and Harry Disko, Park Ridge, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership

Filed Feb. 24, 1969, Ser. No. 801,305

Int. Cl. G09b *15/04*; G10h *1/00, 5/04*

U.S. Cl. 84—1.01 6 Claims



A toy musical instrument including an electronic oscillator for producing musical tones through variation of a resistance in the circuit. The variable resistance comprises an area of pencil lead or graphite deposited on a paper sheet, which is contacted by a graphite pencil also connected in the circuit to produce a musical sound. The position of the pencil point along the length of the graphite area determines the amount of resistance in the oscillator circuit and, consequently, the frequency of the sound produced. The paper sheet is preferably marked to indicate the sequence of positions for the pencil point to produce a particular melody.

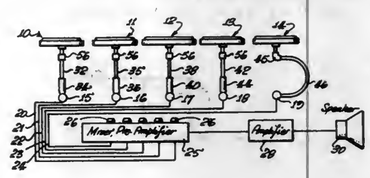
3,551,580
METHOD AND PLURAL MINIATURE DRUM-TYPE MUSICAL INSTRUMENTS PRODUCING PERCUSSION SOUNDS AND ELECTRONIC REPRODUCTION SYSTEM THEREFOR WITH CARRYING CASE

Thomas R. Glenn, and Marlon C. Waters, 9453 Alder St., Cucamonga, Calif. 91730

Filed June 17, 1969, Ser. No. 834,098

Int. Cl. G10d *13/02, 15/00*; G10h *3/00*

U.S. Cl. 84—1.02 24 Claims



A plurality of miniature drums are connected by miniature air columns to corresponding pickups for converting low level percussion sounds into electrical signals, which signals are mixed, amplified and then converted into high level sound through a loudspeaker or fed to a recorder if desired. A carrying case is provided on which the drums are removably mounted to permit packing the system in the case for transportation. Tones from other musical instrument pickups may be combined with the percussion sounds in the mixer.

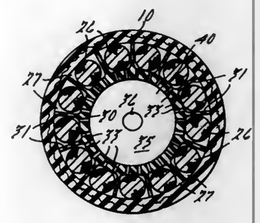
3,551,581
WATER COOLED ELECTRIC CABLE

Daniel J. Goodman, St. Clair Shores, Mich., assignor to Gar Wood Industries, Inc., Wayne, Mich., a corporation of Michigan

Filed June 20, 1968, Ser. No. 738,579

Int. Cl. H01b *7/34*

U.S. Cl. 174—15 7 Claims



A flexible electric cable for heavy currents comprises a flexible hoselike core having external fins extending longitudinally thereon and defining channels for flexible electrical conductors. An external hose covers the channels and the conductors. Cooling water is introduced into the interior at one end and withdrawn at the other end through electric terminals. The cylindrical wall of the internal core is provided near each terminal with a plurality of perforations connecting the interior of the core to the conductor channels in such areas near the terminals, the wall of the core member being imperforate throughout the central region of the cable. A pair of restriction elements are provided in the core, one between the imperforate mid region and each of the perforated areas. Each such restriction member has an orifice therein of lesser cross section than the total cross-sectional area of the apertures in the adjacent perforated region. At the water inlet end the restriction creates a back pressure tending to force the water radially outwardly through the wall into the channels and along the channels to the outlet end, the water then flowing inwardly through the orifices at the outlet end and into the interior of the core, from which it flows to the water outlet of the terminal.

3,551,582
ACCESSORIES FOR CABLES CARRYING VERY HEAVY CURRENTS

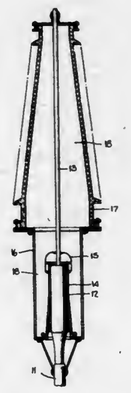
Nicola Palmieri, Milan, Italy, assignor to Pirelli Societa Per Azioni, Milan, Italy, a corporation of Italy

Filed July 10, 1968, Ser. No. 743,831

Claims priority, application Italy, Aug. 4, 1967, 19,205/67; Nov. 11, 1967, 22,583/67

Int. Cl. H02g *15/20*

U.S. Cl. 174—19 8 Claims



The insulation for an accessory intended for use in conjunction with high current capacity electric cables is formed from three concentric components of which the innermost component is represented by impregnated paper disposed over the current carrying members, the intermediate component consists of a tubular structure of mechanically strong insulating material around the innermost component, and the outermost component is represented by a quantity of electronegative gas confined between the intermediate component and an outer gastight casing of rigid material.

3,551,583
MULTIPURPOSE JUNCTION BOX FOR CONDUCTOR WIRES ADAPTED FOR INSTALLATION WITH A COMBINED CABLE

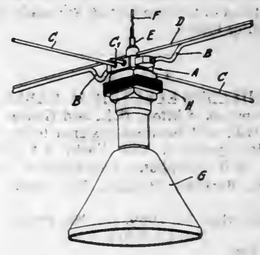
Johann Buser, Basel, Switzerland, assignor to Bufix-Konsortium Dr. Gottfried Burger, Dr. Heinrich Schutzger, Benno Buser-Wechsler, Liestal, Switzerland, a firm

Filed Apr. 23, 1968, Ser. No. 723,511

Int. Cl. H02g *7/00*

U.S. Cl. 174—41 5 Claims

The invention provides a multipurpose junction box for installing conductors, wires and cables for supplying points of consumption of electrical power; said multipurpose junction box being in the form of a distributing, through-type, branch-type and/or terminal box as may be required and so contrived that said box can at least partly undertake supporting and suspending functions in a prefabricated installational network. Said junction box contains terminal strips suitably disposed to permit any desired connection between incoming and outgoing conductors to be established therein.



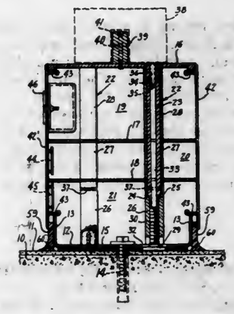
3,551,584
CABLE DUCT OR RACEWAY AND SUPPORT FOR PARTITION WALLS

Ellsworth S. Rose, 8266 Stevenson Ave., Sacramento, Calif.

Filed June 17, 1969, Ser. No. 833,917

Int. Cl. H02g *3/28*

U.S. Cl. 174—49 10 Claims



A readily movable cable duct or raceway which also serves to support full height or partial height partition walls in office buildings and the like. The structure is modular and has readily removable face plates for easy access. A locator rail for the partition wall to be supported is provided on the top of the raceway.

3,551,585
ELECTRICAL DISTRIBUTION SYSTEMS

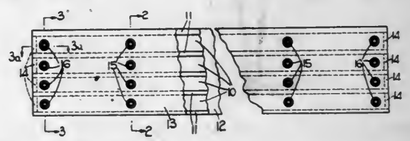
Ivan Frank Smart and Melvin Lyndon Andrews, Sutton Coldfield, England, assignors to George Ellison Limited, Birmingham, England

Filed May 8, 1968, Ser. No. 727,640

Claims priority, application Great Britain, May 10, 1967, 21,750/67

Int. Cl. H02b *1/06*; H02g *5/00*

U.S. Cl. 174—72 6 Claims



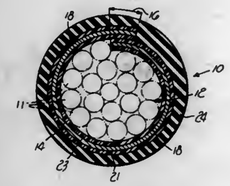
A laminated assembly for use in electric power distribution is laminated from two outer layers of insulating material ad-

hesively bonded to an interlayer consisting of elongated conductive flat strips in spaced parallel coplanar relation separated by insulating strips. The assembly runs coolly and has high mechanical resistance to breakdown under magnetic loads. Connections to the conductors are made through holes in one of the outer layers.

3,551,586
SHIELDED ELECTRICAL CABLE

Matthew R. Dembiak, Clifton, N.J., and George H. Webster, Timonium, Md.; said Dembiak assignor to Western Electric Company, Incorporated, New York, N.Y.; said Webster assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., both corporations of New York

Filed Mar. 24, 1969, Ser. No. 809,547
Int. Cl. H01b *7/18*
U.S. Cl. 174—107 **13 Claims**

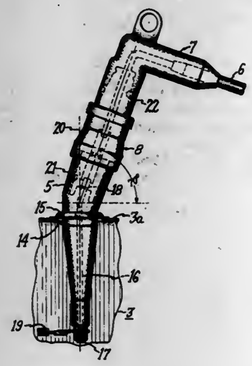


A metallic tape having a release agent material applied selectively in at least one longitudinal strip on one major surface thereof is then coated over the strip and both major surfaces with an adhesive material. The tape is wrapped longitudinally about a cable core, with the one major surface facing the core, to form an overlapped seam which is then heated to bond the adhesive on the one major surface to the adhesive on the other major surface. The strip of release agent material may be easily removed together with the overlying adhesive to bare the metal to facilitate grounding at a splice location.

3,551,587
INCLINED BUSHING FOR TRANSFORMERS AND RELATED DEVICES

Richard F. Propst, Pittsfield, Mass., assignor to General Electric Company, a corporation of New York.

Filed July 17, 1969, Ser. No. 842,531
Int. Cl. H01b *17/26*
U.S. Cl. 174—152 **8 Claims**

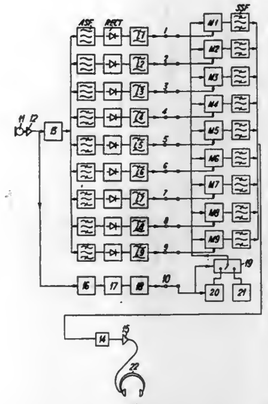


A high voltage transformer bushing is provided with an angular body portion that causes the outermost end of the bushing to be inclined with respect to the top of a transformer through which the bushing is mounted in operation. The resultant inclined bushing arrangement is particularly useful on transformers mounted in subterranean vaults to which high voltage electric power is supplied through a cable that terminates in a conductor termination module that is adapted to be manually connected to the inclined transformer bushing. The inclined bushing makes it convenient for a lineman to connect or disconnect the cable termination while standing back from the transformer vault cover in a safe position from which he can manipulate the cable termination with a lineman's hotstick.

3,551,588
VOCODER FILTER SYSTEM

Donald Anthony Acott Roworth, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed June 28, 1967, Ser. No. 649,518
Claims priority, application Great Britain, July 1, 1966, 29684/66,29685/66;2968666
Int. Cl. G10l *1/00*
U.S. Cl. 179—1 **13 Claims**



A vocoder or voice synthesizer includes a plurality of filters which are used to analyze human speech signals so that they may be synthesized. The original voice signal is separated by a plurality of high Q-filters. A variable resistor is coupled across these filters to selectively increase or decrease the quality factor or Q of the filters. Time controlled clamping means are provided for alternately sampling speech via high Q-filters and then discharging the filter elements by lowering the Q. This way, the energy stored in the filters during one speech sample does not degrade the response to the next speech sample.

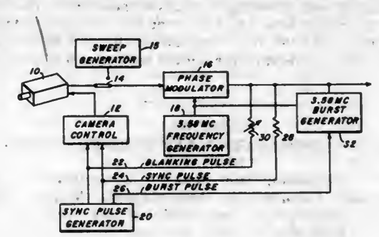
3,551,589
APPARATUS FOR CONVERTING MONOCHROME TELEVISION SIGNALS TO COLOR SIGNALS

Irving Moskovitz, Roslyn Heights, N.Y., assignor to Ward Electronic Industries, a corporation of New Jersey. by mesne assignments

Filed Mar. 23, 1967, Ser. No. 625,554
Int. Cl. H04n *9/04*
U.S. Cl. 178—5.4 **7 Claims**

This invention relates to apparatus for converting monochrome (i.e., black and white) television signals into color signals, wherein each gray level in the monochrome

signal takes on an associated hue. More particularly, the invention relates to apparatus of the type described in which

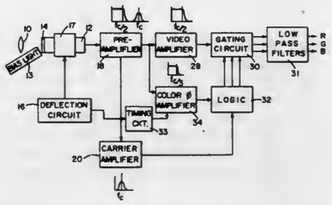


the luminance of a black and white video signal is utilized to phase modulate a color carrier signal.

3,551,590
SINGLE TUBE COLOR TELEVISION CAMERA

Wilson P. Boothroyd, Carlisle, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware

Filed June 14, 1967, Ser. No. 646,061
Int. Cl. H04n *5/42*
U.S. Cl. 178—5.4 **6 Claims**



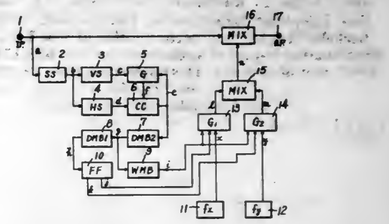
A single image tube color television camera employing an image tube having operatively associated therewith an optical filter composed of a plurality of vertically disposed red, green and blue light transmissive stripes separated by opaque stripes and arranged in a repetitive horizontal sequence. A set of phasing stripes are arranged on one side of the colored stripe array to synchronize the color decoding operation. The output signal from the pickup tube contains two components, one containing the color video information and the other, information representing the position of the vidicon beam relative to the color stripe array. Individual color signals are provided by digital gating circuitry controlled by the phasing signal.

3,551,591
SUPERVISORY AND CONTROL SYSTEM OF TELEVISION IMAGE SIGNAL FOR THE BROADCASTING PROGRAM

Yuko Nakamura, Hisakichi Yamane, Tokyo, and Akio Yanagimachi, Kawasaki, Japan, assignors to Japan Broadcasting Corporation, Tokyo, Japan

Filed Mar. 27, 1967, Ser. No. 626,017
Claims priority, application Japan, Mar. 31, 1966, 41/19748
Int. Cl. H04n *5/00*
U.S. Cl. 178—5.6 **6 Claims**

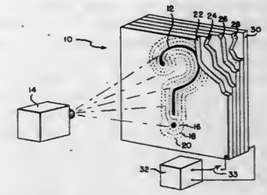
This invention relates to a supervisory and control system for television image signals for the operation of program control or a fault supervision over an extensive television broadcasting signal transmitting network. The system comprises means in the transmitting equipment to insert pulses consisting of two different frequencies selected from a group of frequencies to form an information signal and means in the receiving equipment to detect the transmitted information signal by using a frequency discriminating circuit and an amplitude emphasizing circuit. The system of the invention can afford a great advantage of preventing false operation of the information signal by signal imitation while using a very simple detecting circuit, thus obtaining a reliable transmission of the required information signal.



3,551,592
PATTERN PROCESSING SYSTEM

Larry D. Nichols, West Roxbury, and Daniel B. Kapustin, Brighton, Mass., assignors to Moleculon Research Corporation, Cambridge, Mass., a corporation of Massachusetts

Filed June 24, 1967, Ser. No. 655,543
Int. Cl. H04n *3/10*
U.S. Cl. 178—6 **17 Claims**

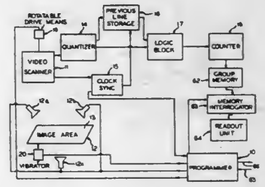


An apparatus for parallel processing a two-dimensional input pattern in which the pattern is propagated in a medium at a predetermined velocity everywhere normal to the local boundary direction. In addition, all confluent boundaries of the propagating pattern are annihilated. One or more selected parameters of the pattern are extracted from the propagating pattern for subsequent processing.

3,551,593
PARTS COUNTER

Henri L. Gaudriot, 1 Highland Heights, Rochester, N.Y., and LeRoy J. Ryan, Jr., 5300 W. Hutchinson, Chicago, Ill.

Filed Mar. 25, 1968, Ser. No. 715,593
Int. Cl. H04n *7/18, 7/02*
U.S. Cl. 178—6 **16 Claims**

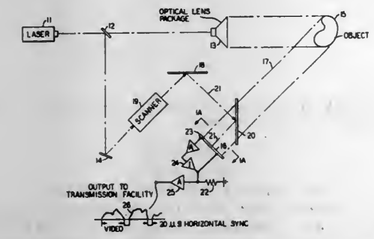


An electronic parts counter including a comparative video scanning unit and parts supporting platform mounted to be vibrated at predetermined frequencies for predetermined durations between scanning operations and lighted from different angles and intensities during the counting operations.

3,551,594
REAL TIME HOLOGRAPHIC TELEVISION SYSTEM

Louis H. Enloe, Colts Neck; William C. Jakes, Jr., Rumson, and Charles B. Rubinstein, Colts Neck, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Continuation-in-part of application Ser. No. 635,124, May 1, 1967, now abandoned. This application Nov. 29, 1968, Ser. No. 779,843
Int. Cl. H04n 5/82, 9/56, 9/58
U.S. Cl. 178—6.5 7 Claims

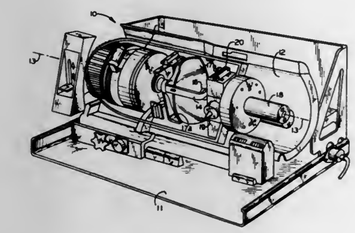


This disclosure relates to a television system that utilizes holographic techniques to provide a real time, three-dimensional image at the receiving end of the system, with the image changing in perspective as the object and/or observer moves. The object is illuminated using coherent light. The light reflected from the object impinges on the photosensitive surface of a photomultiplier plate or equivalent while a narrow reference beam of coherent light scans, in a raster type manner, the photosensitive surface to thereby generate a signal which is modulated in phase and amplitude in accordance with the hologram pattern related to the object reflected light. The signals carrying the hologram information, and interspersed sync pulses, are then transmitted to a remote receiver. At the receiving end, the holographic signals are impinged on a video display surface by an electron beam using conventional television techniques. After each frame of the latter signals are so impinged, a coherent light source is pulsed with the light therefrom directed toward the written frame of holographic information. In this manner, an instantaneous image of the original object is obtained at the receiver. The described operation is continuously carried out a frame at a time.

3,551,595
OPTICAL SYSTEM FOR FACSIMILE SCANNER

Gerard De Vries, Champaign, Ill., assignor to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware

Filed Oct. 18, 1968, Ser. No. 768,635
Int. Cl. H04n 1/06
U.S. Cl. 178—7.1 9 Claims

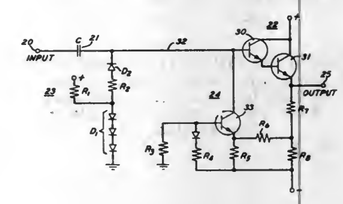


An optical system for the light path in the scanner of a facsimile scanner is mounted in a compact, rotary housing. The housing has a longitudinal bore and two light openings extend along a common diameter between the bore and the sides of the housing. A plastic lens having a flat aperture surface and a convex surface is mounted in the bore. A plastic prism having two reflecting surfaces is mounted in the bore and on the plastic lens. Light entering the two light openings is reflected by the two reflecting surfaces to the lens aperture surface, and is focused by the convex surface at a selected location.

3,551,596
ERROR COMPENSATION NETWORK FOR VIDEO SIGNALS

David P. Borenstein, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed May 17, 1968, Ser. No. 730,193
Int. Cl. H04n 5/16
U.S. Cl. 178—7.3 4 Claims



Compensation for low frequency distortion and other errors in a composite video signal is achieved by selectively draining charge from a capacitor in a direct current restoring circuit. The magnitude of the charge drained from the capacitor is controlled to vary in an inverse relationship to the restored video signal magnitude. Thus, a continuous correction in a potential developed across the capacitor compensates for distortion on the restored video signal.

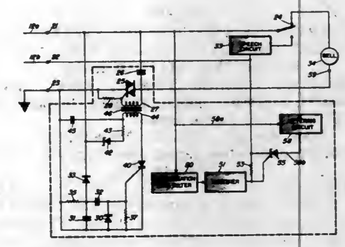
ERRATUM

For Class 179—1 see:
Patent No. 3,551,588

3,551,597
TELEPHONE TELEMETRY

James L. Russell, York, Pa., assignor to The Bendix Corporation, a corporation of Delaware

Filed Sept. 28, 1967, Ser. No. 671,424
Int. Cl. H04m 11/02
U.S. Cl. 179—2 6 Claims

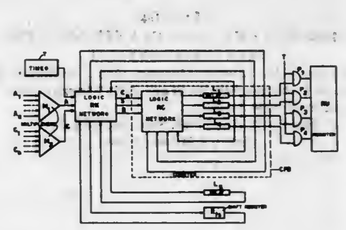


A telemetry system used with conventional domestic telephones for automatically reading remotely located utility meters utilizing an interrogator which dials the remotely located telephone and superimposes on the ringing tone an interrogation tone. Also, a telemetering control circuit connected into the remote telephone circuit using a normally open bilateral switch and associated circuitry which normally holds the telephone ringing circuit open to suppress the first ringing tone burst. The first tone burst charges a capacitor which holds the switch open until the burst terminates, at which time, discharge of the capacitor turns on a silicon controlled rectifier which closes the bilateral switch so that subsequent ringing tone bursts activate the telephone ringing circuits. An interrogation tone filter passes the interrogation signal, if any, to turn on a second silicon controlled rectifier controlling a metering circuit clock. The clock strobes a counter, in which is stored the desired meter reading in digital form, so as to make the counter read-out its stored data into the telephone line. Clock pulses are superimposed on the read-out data for synchronizing the interrogator. Turn on of the second silicon controlled rectifier causes the impedance across the telephone line to drop in a manner identical to the dropping of line impedance when the telephone is removed from its cradle, thereby turning off the ringing tone generator at the central exchange to prevent ringing of the subscriber telephone when interrogated.

3,551,598
SIGNAL-EVALUATING LOGIC WITH CIRCULATING MEMORY FOR TIME-SHARING TELECOMMUNICATION SYSTEM

Giorgio de Varda, and Saverio Martinelli, Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens Sp. A., Milan, Italy, a corporation of Italy

Filed Oct. 18, 1967, Ser. No. 676,135
Claims priority, application Italy, Oct. 20, 1966, 29035-A/66
Int. Cl. H04m 15/00
U.S. Cl. 179—7.1 11 Claims

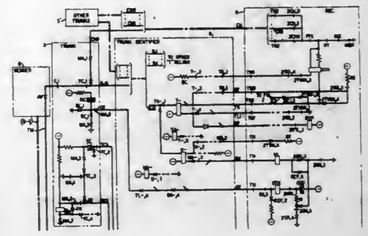


A circulating memory with four delay lines L_1—L_4 in the output of a pulse counter CPB stores bits relating to line seizure, dialing and other signals appearing on a set of lines of a time-sharing telecommunication system which are sampled during respective time slots c_1, c_2 etc. of 10 μs during a 100-μs scanning period T_a recurring at intervals T_c of 6 ms, every 100 μs. Each time slot is subdivided into 10 phases φ_1, φ_2 etc. of 1 μs each, the first phase φ_1 of each time slot determining the permanence of a voltage change on a corresponding test wire A and entering a bit in an auxiliary delay line L_5 for recirculation on detection of a state of energization of the test wire lasting for at least four recurrence intervals T_c, as determined by counter CPB and registered in binary code form on its first two delay lines L_1, L_2, to eliminate the effect of spurious transients. A shift register R_{fs}, responding to the bits recirculated by line L_5 and the output of a binary decimal matrix (FIG. 5) connected across the main delay lines L_1—L_4, stores for 1 μs an effective transition from battery potential to ground or vice versa during the first phase φ_1 and, upon the grounding of test wire A, enables the counter in the second phase φ_2 to start a chronometric sequence advancing by one count every 12 ms. In the remaining phases φ_3—φ_{10} the shift register R_{fs} and the delay line L_5 control the recognition of dialing pulses and switching signals occurring during certain stages of operation as established by the chronometric count in phase φ_2. The ten phases of the last time slot c_{10} are used to step a clock circuit which counts time continuously in ten denominational orders from 10^{-4} seconds to 10 hours, the register R_{fs} serving to shift from one denominational order to the next.

3,551,599
AUTOMATIC MESSAGE ACCOUNTING SYSTEM TO INSURE THAT TRUNKS DESIRING TO BE IDENTIFIED FOR TIMING PURPOSES WILL NOT BE DEPRIVED OF ACCESS TO THE IDENTIFIER BY TRUNKS DESIRING TO HAVE AN INITIAL ENTRY RECORDED

Wayne H. White, Reynoldsburg, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed Apr. 26, 1968, Ser. No. 724,383
Int. Cl. H04n 15/18
U.S. Cl. 179—7.1 6 Claims

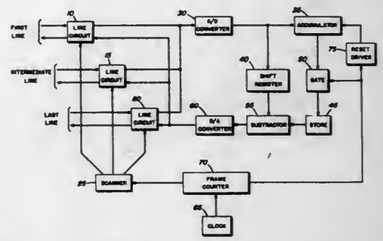


Portions of an automatic message accounting system for recording the identity of a call-carrying trunk when the trunk is first called for use on a chargeable call and again when the times of answer and disconnect are to be recorded are disclosed. A trunk identifier circuit is used to identify the call-carrying trunks on each occasion. A preference reservation relay is provided and is operated when a timing entry requesting trunk operates the first of its identifier relays to insure that such a trunk will not be deprived of access to the recorder by another trunk requesting access merely to record an initial entry. In addition, circuitry is provided for preventing the loss of a timing entry if a trunk should time out after operating its identifier relays.

3,551,600
HIGH CAPACITY, HIGH SIDE-TONE SUPPRESSION, 4-WIRE CONFERENCE CIRCUIT

William H. Berch, Penfield, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware

Filed Feb. 23, 1968, Ser. No. 707,603
Int. Cl. H04m 3/56
U.S. Cl. 179—18 12 Claims

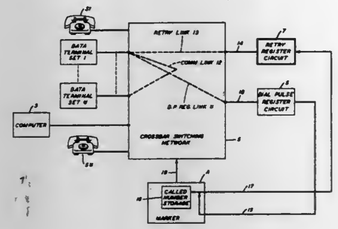


Conference circuit for time division multiplex communication systems in which the output of each line circuit is converted to digital form and summed during each time frame. The sum of the outputs less the contribution of the respective line circuit is then reconverted to analog from and applied during each time slot to said line circuits in a subsequent time frame.

3,551,601
EQUIPMENT FOR AUTOMATICALLY RETRYING CUSTOMER DIALED CALLS

William W. Sloan, Concord, Michael J. Sturtevant, Berkeley, and Kenneth R. Walters, Pleasant Hill, Calif., assignors to American Telephone and Telegraph Company, New York, N.Y., a corporation of New York

Filed Apr. 2, 1968, Ser. No. 718,111
Int. Cl. H04m *3/42*
U.S. Cl. 179—18 14 Claims

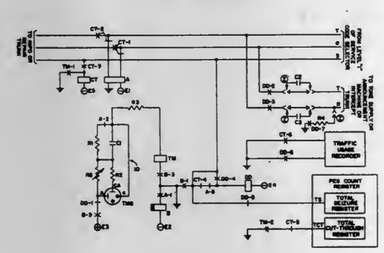


Call retry equipment is disclosed in a communication switching office for automatically retrying calls which are not completed when first attempted. The equipment is connectable to a calling station over a link path of a switching network and it stores the dialed address which is utilized by the common control circuits to process subsequent call retries. During the time that the calling party is connected to the retry equipment, various tone signals are returned to the caller to indicate both the actual retrying of a call and a pause timing interval between successive retries.

3,551,602
DIVERSION CIRCUIT

Norman W. Dawson, and William G. Jack, Ottawa, Ontario, Canada, assignors to The Bell Telephone Co. of Canada, Montreal, Quebec, Canada

Filed Apr. 19, 1968, Ser. No. 722,617
Int. Cl. H04m *3/54*
U.S. Cl. 179—18 10 Claims

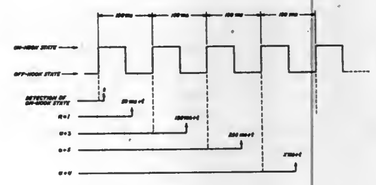


The diversion circuit comprises a timing circuit which delays the connection of an incoming call to the information or repair desk for a predetermined time interval. If no further digits are received during that interval, a connection is made to the information or repair desk. However, if additional pulses are received during that interval because a calling subscriber dials an additional digit, the call is diverted to a tone supply, an announcement machine, or a special intercepting trunk circuit.

3,551,603
SWITCHING SYSTEM SCANNING ARRANGEMENT

George Haugk, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed May 17, 1968, Ser. No. 729,989
Int. Cl. H04q *3/18*
U.S. Cl. 179—18 6 Claims

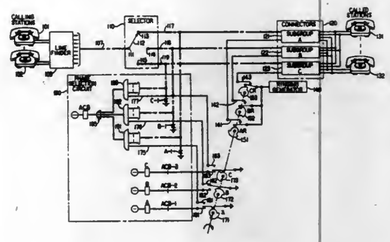


In a switching system in which voice connections are scanned at 100 millisecond intervals, when the scanner detects an on-hook state of the line, the scanning rate is interrupted and a hit-timing interval is introduced which is an odd multiple of one-half of the total dial pulse interval, with continuation of the normal scanning rate at the end of the hit-timing interval thereby preventing disconnection when dial pulses are transmitted on the connection.

3,551,604
IMMEDIATE RINGING IN A STEP-BY-STEP TELEPHONE SYSTEM

Amos E. Joel, Jr., South Orange, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J., a corporation of New York

Filed Feb. 26, 1969, Ser. No. 802,440
Int. Cl. H04m *3/04*
U.S. Cl. 179—18 8 Claims

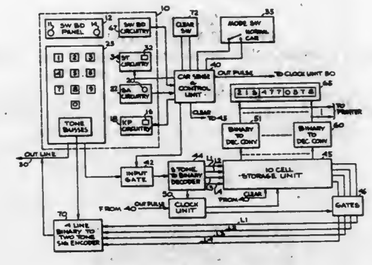


A circuit is disclosed for providing immediate ringing to telephone lines in a step-by-step central office. The connectors of the step-by-step network are subdivided into three groups with each group receiving ringing of a different phase from a three-phase ringing generator. As each ringing phase is activated, its associated connector subgroup becomes "preferred" for seizure. The nonpreferred groups have ground imposed on their sleeve leads to reflect an artificial "busy" condition to the final selector which picks the idle connector through which the call is to be completed. This insures the seizure of only a connector in that subgroup which will obtain the appropriate phase of ringing when the connector completes the call. Should all connectors of the preferred subgroup actually be busy, ground is removed from the nonpreferred subgroups to permit seizure of any idle connector.

3,551,605
TELEPHONE CALL HANDLING SYSTEM WITH NUMBER DISPLAY

Phineas J. Icenbice, Jr., Northridge, Calif., assignor to Republic Corporation, Beverly Hills, Calif., a corporation of California

Filed Dec. 14, 1967, Ser. No. 690,616
Int. Cl. H04m *3/64*
U.S. Cl. 179—27 15 Claims

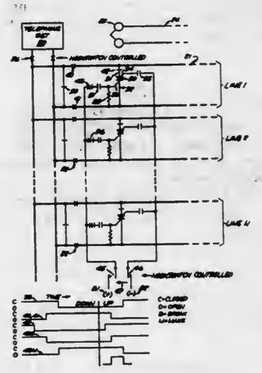


A system is disclosed which is incorporable in presently existing telephone call handling equipment. The system includes an arrangement which stores and displays a multidigit number to be communicated via telephone trunk lines, so that numbers are communicated only after their accuracy is verified. The system includes control circuitry which is coupled to the telephone call handling equipment in order to reduce the number of steps which have to be manually performed.

3,551,606
ELECTRONIC KEY TELEPHONE

Stephen H. Chapman, R.R. 3, Milan, Tenn. 38358

Filed Feb. 21, 1968, Ser. No. 707,214
Int. Cl. H04m *1/00*
U.S. Cl. 179—99 8 Claims

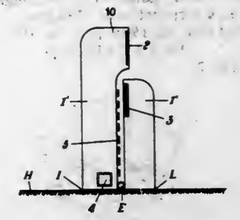


A silicon controlled switch (SCS) is connected across each line of a keyset telephone. The switch is turned on to place a hold on a line during transfer condition. The SCS hold bridge is controlled by the sequence in which line key contacts open and close and by current divisions when a plurality of telephone sets are connected to the same line.

3,551,607
PIVOTABLE TELEPHONE HANDSET

Giovanni Battista Tommasi, and Marco Zanuso, Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy, a corporation of Italy

Continuation-in-part of application Ser. No. 275,962, Apr. 26, 1963, now abandoned. This application Dec. 26, 1967, Ser. No. 693,261
Int. Cl. H04n *1/02*
U.S. Cl. 179—100 9 Claims

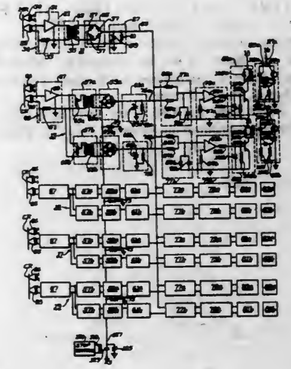


Telephone handset divided into two parts of unequal length which are hingedly interconnected and, in a folded position, can stand flat on a table by means of a pair of coplanar bottom surfaces in the region of the hinge, the longer part terminating in a head which overhangs a dial and carries an earpiece standing clear of the shorter part when the handset is folded up, the latter part carrying a mouthpiece confronting the dial in the folded position.

3,551,608
DISCREPANCY INDICATOR FOR RECORD DUPLICATING APPARATUS

Andrew Balint, Park Ridge, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Apr. 7, 1967, Ser. No. 629,317
Int. Cl. G11b *5/86*
U.S. Cl. 179—100.2 8 Claims



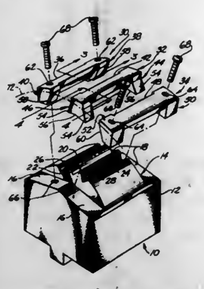
The disclosed apparatus simultaneously compares a master audio record with a plurality of copies reproduced from the master record. The recording and comparison of the copies takes place at high speed, i.e., the records move at a faster rate than the rate at which the master record was originally recorded. During the comparison operation transducers sense the master record and each copy record. The signal derived from the master record is amplified, rectified and integrated to provide a signal of one polarity while the signals derived from the copy records are amplified, rectified and integrated to provide signals of the opposite polarity. A zero-

crossing detector is provided for each copy record. The rectified copy record signal is applied to the corresponding detector while the rectified master record signal is applied to every detector. A detector generates an output signal when the copy record signal drops below a predetermined level and this signal is used to actuate an indicator device.

3,551,609
MAGNETIC RECORDING HEAD WITH INTERLOCKING "V" BARS

Cecil Winthrop Libby, Thousand Oaks, and Robert H. Sand, Diamond Bar, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Feb. 10, 1969, Ser. No. 797,769
Int. Cl. G11b 5/26
U.S. Cl. 179—100.2 12 Claims

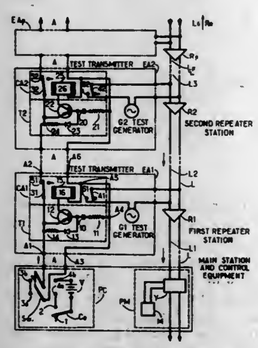


A dual-gap magnetic recording transducer having a series of parallel indentations defining record and reproduce portions of the transducer is provided with interlocking inserts secured in the indentations. Overlapping end portions of outside elements mate with corresponding end portions of an interior element to lock the interior element in position. The pair of outside elements are secured to the body portion of the transducer by suitable fastening means.

3,551,610
DEVICES FOR DISTANT SUPERVISION OF THE WORKING CONDITION OF TELEPHONE LINES REPEATERS BY MEANS OF LOCAL GENERATORS ASSOCIATED THEREWITH

Michel Georges André Pichot, Conflans-Sainte-Honorine, and Raymond Jacques Charles Roquet, Saint-Rémy les-Chevreuse, France, assignors to Lignes Telegraphiques & Telephoniques, Paris, France

Filed July 10, 1967, Ser. No. 652,206
Claims priority, application France, July 27, 1966, July 30, 1966, 71,013;71,577
Int. Cl. H04b 3/46
U.S. Cl. 179—175.31 6 Claims

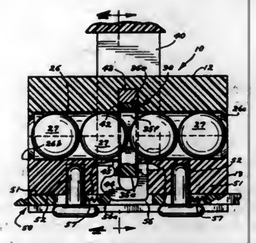


Devices for selectively supervising from a distant main receiving station unattended repeaters inserted in a telephone circuit by means of a direct or alternating control current transmitted from said main station and causing test signals from a local generator associated with each of said repeaters to be successively applied to the input thereof in the order of the increasing distances of said repeaters from said main station, in which the time of application and duration of said test signals are either automatically or manually controlled at said main station, and in which each of said generators is operated by delayed action control means and immediate or delayed switching means controlled by said control current.

3,551,611
SWITCH MECHANISM

Gerald A. Fechner, 2853 Brook St., St. Paul, Minn. 55119

Filed Jan. 21, 1969, Ser. No. 800,796
Int. Cl. H01h 9/26
U.S. Cl. 200—5 18 Claims

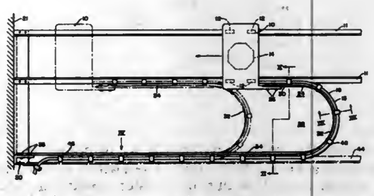


This invention relates to a switch mechanism utilizing a unique contact-shifting device including a flexible hinge-type element arranged and constructed to convert a normal downward shifting movement into a horizontal contact-shifting component whereby the height of the switch may be substantially decreased. The unit further includes a coupling technique and structure for coordinating the action of a plurality of switches which will control the interaction thereof such that only one switch in a set may be actuated at a given instance with the sets of switches interacting to release the switch previously actuated upon the switching of a new switch member. The switch is designed to be compact in nature and provides means for arranging a plurality of such switches in a relatively small amount of space. The unique contact-shifting element includes a live hinge mechanism to insure return of the switch plunger upon actuation of a subsequent switch unit.

3,551,612
FLEXIBLE CONDUCTOR HORIZONTAL LOOP-SUPPORTING APPARATUS

Robert L. Guentner, Catonsville, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 11, 1968, Ser. No. 744,209
Int. Cl. H02g 11/00; H05g 1/02
U.S. Cl. 191—12 1 Claim



Exemplified is a horizontal loop-supporting apparatus for flexible conductors which employs a thin elongated metal

conductor support member in the form known as a concavo-convex spring strip extending horizontally in a doubled-back attitude as a U-shaped loop configuration having two straight parallel transversely arcuate legs that smoothly merge with a transversely flattened constant-diameter bend region, during relative movement of such legs in their lengthwise direction. Metal straps retain the conductors on the support strip at external locations therealong and rest in parallel side rails along the straight-leg portions of such strip.

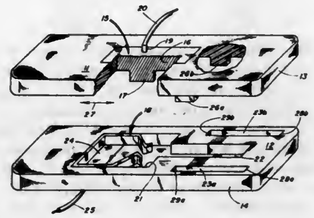
ERRATUM

For Class 200—5 see:
Patent No. 3,551,611

3,551,613
MINIATURE ELECTRICAL CONTACT WITH LEGS OF DIFFERING MASS, THICKNESS OR LENGTH FOR CONNECTOR OR SWITCH STRUCTURE

Theodore A. Cocca, Silver Spring, Md.

Filed June 18, 1969, Ser. No. 834,407
Int. Cl. H01h 1/06, 15/00
U.S. Cl. 200—16 8 Claims



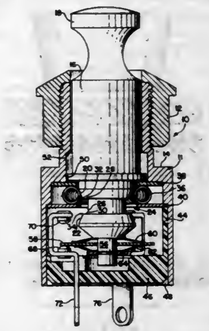
An electrical connector whose pair of housing members slide relative to each other in guides located within the housing when in a contiguous relationship. The relative movement of the housing members allows engagement or disengagement of a male electrical contact extending from one of the housing members with a female electrical contact located within the other housing member to effect interruption or closure of the circuit path through the electrical connector. The female electrical contact includes a U-shaped end portion, leg portions of diverse mass and resonant frequencies, and end portions for engaging the male electrical contact.

3,551,614
SWITCH ACTUATOR ASSEMBLY

Otto Babler, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed July 28, 1969, Ser. No. 845,369
Int. Cl. H01h 15/18
U.S. Cl. 200—16 8 Claims

Actuator assembly for electric switch provides high initial resistance to switch actuation to insure positive feel and to assure quick follow through so as to actuate the switch with a minimum of arcing. In its preferred embodiment, the actuator comprises a conical cam surface which is interrupted by a reduced diameter section so as to form an abrupt corner. A tensioned garter spring surrounds the actuator member and in the unactuated position of the actuator is positioned in the interrupted area with a point on the side of its innermost semicircular cross section in engagement with the abrupt corner. Due to the changes which take place in the angle at which force is applied to the garter spring during actuation as it is moved past the abrupt corner and onto the cam surface, the switch actuating force required to axially move the actuator decreases significantly as soon as the garter spring is on the cam surface and thus facilitates the further movement of the actuator to cause a positive, substantially unteasible switching action. A spring biased shorting plate mounted on the actuator member and adapted to connect a plurality of

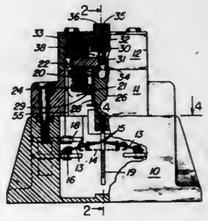


contacts permits a limited degree of overtravel of the actuator without damaging the contacts.

3,551,615
PNEUMATIC TIME DELAY SWITCH WITH IMPROVED DASHPOT STRUCTURE

John J. Dennison, Southington, Conn., assignor to Arrow-Hart, Inc., Hartford, Conn., a corporation of Connecticut

Filed May 23, 1969, Ser. No. 827,323
Int. Cl. H01h 7/03
U.S. Cl. 200—34 4 Claims



An electrical switch includes a pneumatic time delay mechanism to provide a delay between movement of the actuator and transfer of the contacts. The pneumatic mechanism is vented to ambient air pressure until movement of the actuator to insure repeatability of the delay time irrespective of the frequency of actuation.

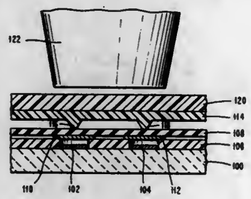
3,551,616
MULTIPLE SWITCH ENCODING DEVICE

Hans Y. Juliusburger, Putnam Valley, Morris Krakinowski, Ossining, and George R. Stilwell, Jr., West Nyack, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1969, Ser. No. 791,406
Int. Cl. H01h 43/08
U.S. Cl. 200—46 4 Claims

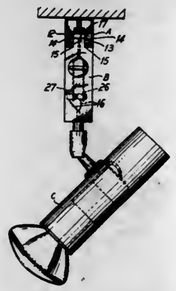
An encoding device is provided in which a first plurality of parallel conductive lines are located proximate to a second plurality of lines extending normal to the first plurality. The intersection points of the lines are selectively connected by switches to connect pairs of the lines to form current paths. The lines are also permanently connected together by contacts to reduce the number of output lines required for a given number of switches. The first set of lines is located on the upper surface of a substrate and the second set of lines is

located on the lower surface of a diaphragm separated from the substrate by an insulating layer having holes at the inter-



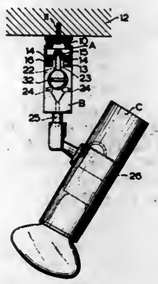
section points of the lines. The lines are connected by pressing the diaphragm through the holes.

3,551,617
LIGHTING DEVICE WITH SUPPORTING LEDGES AND CONNECTING BOXES
Heinz Seelbach, Kierspe, Germany, assignor to Reininghaus & Co., Ludenscheid, Germany, a corporation of Germany
Filed May 29, 1969, Ser. No. 829,018
Claims priority, application Germany, May 29, 1968, 1,764,385
Int. Cl. H01r *13/70*
U.S. Cl. 200—51 **1 Claim**



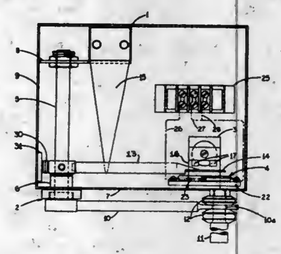
An illuminating device which comprises hollow carrying rails to be secured in, on or at a distance from a securing face. The hollow carrying rails being open in lateral direction and conducting wires and a grounding wire are received in the hollow chamber defined by the carrying rails and accessible from the side. Terminal boxes support lighting units and include a head portion received by the carrying rails. The terminal boxes receive a plurality of spring tongs projecting from the head portion and serve in pairs as holding tongs, contact tongs and a grounding tong operatively connectable with the grounding wire, a cam shaft is turnable by means of a switch member sitting on the outside of the terminal box, to transfer all the tongs into an engaging operative and into an inoperative position, respectively. The cam shaft assumes an inoperative and three further operative positions. The first of the three operative positions provides a prelocking position of the holding tongs and a contact position of the grounding tong. The second of the three operative positions provides a final clamping position of the holding tongs, while maintaining the contact position of the grounding tong, and the third of the three operative positions provides, in addition to the positions of the tongs in the second of the three operative positions, a contact engagement of the conducting wires in the carrying rails.

3,551,618
CONNECTING BOXES INCLUDING SWITCHING MEANS FOR ILLUMINATING DEVICES
Heinz Seelbach, Kierspe, Germany, assignor to Reininghaus & Co., Ludenscheid, Germany, a corporation of Germany
Filed Aug. 18, 1969, Ser. No. 850,793
Claims priority, application Germany, Aug. 20, 1968, 1,764,854
Int. Cl. H01r *13/70*
U.S. Cl. 200—51 **4 Claims**



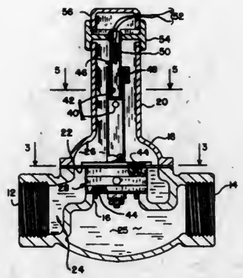
A lighting device, which comprises a hollow carrying rail to be secured to at or adjacent to a securing face and the carrying rail is open towards one side. Conducting rails are received in the carrying rail and are accessible in the hollow space of the latter from the inside. A connection carries a lighting fixture and has an upper, setoff head part, penetrating the hollow space of the carrying rail, as well as being equipped with a plurality of spring tongues. The said spring tongues emerge laterally from the setoff serving partly as holding tongues and at least as two contact tongues and are transferrable selectively into an engaging or inoperative position by means of switching cams of a cam roller, which is switchable by means of a switching knob sitting on the outside on the connection box. Transmission members are provided between the switching cams of the cam roller and the spring tongues, the transmission members have outer faces remote from the switching cams, and the spring tongues are secured over the greater part of their length, with the exception of their engaging end parts, to the outer faces of the transmission members.

3,551,619
MECHANICALLY ACTIVATED MAGNETIC ELECTRIC SWITCH
William Bowler, Pierrefonds, and Pierre P. Berthiaume, Montreal, Quebec, Canada, assignors to Canadian National Railway Company, Montreal, Quebec, Canada
Filed Apr. 7, 1969, Ser. No. 813,848
Claims priority, application Canada, Jan. 29, 1969, 41490
Int. Cl. H01h *3/16*
U.S. Cl. 200—61.41 **10 Claims**



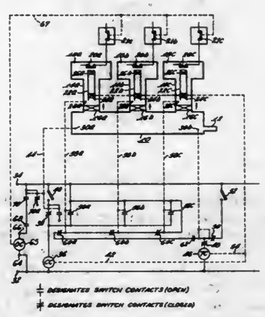
A switch has a lever arm which is depressed by the passage of a wheel. Movement of the lever arm causes a shaft to rotate which in turn moves a steel shutter. A magnet is located on one side of the shutter and a relay on the other side. Movement of the steel shutter permits the magnetic force from the magnet to impinge on the relay, causing the relay to close and give the desired signal.

3,551,620
FLOW, NO-FLOW DEVICE
Jimmie N. Hoover, 2517 Cambridge St., Odessa, Tex. 79760
Filed Mar. 14, 1969, Ser. No. 807,290
Int. Cl. H01h *35/40*
U.S. Cl. 200—83 **10 Claims**



A flow, no-flow device which differentiates between gas and liquid fluid flow therethrough. The device includes a movable element which cooperates with an orifice in a manner similar to a valve element and valve seat. The movable element remains in the opened position when liquid is flowing therethrough and assumes the closed position upon the occurrence of gaseous fluid flowing therethrough. A switch associated with the movable element of the device is adapted to interrupt the current flow to a motor of a pump which provides the source of fluid flow, thus obviating a "pump-off" condition in a well bore.

3,551,621
CONTROL FOR MONITORING PRESSURE IN A GAS BLAST CIRCUIT BREAKER
Thomas F. Clark, Canton, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Feb. 28, 1968, Ser. No. 709,096
Int. Cl. H01h *33/83*
U.S. Cl. 200—148 **10 Claims**

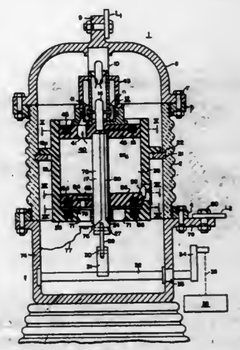


An air or gas blast circuit breaker comprises a tank of pressurized air or gas to which three hollow insulating columns are connected through one-way check valves. Pressure-monitoring means are provided in the tank and in each column. With the breaker initially closed, air loss from the tank causes all the circuit breaker contacts to open simultaneously. Further loss of tank pressure causes opening of auxiliary protective devices such as disconnect switches. After a time lapse during which air column pressure intentionally falls, all circuit-breaker contacts reclose. With the breaker initially closed, a slow loss of gas pressure from one or more columns causes all circuit-breaker contacts to open simultaneously and all the auxiliary protective devices to open. With the breaker initially closed, a rapid loss of gas pressure from one or more columns causes all circuit-breaker contacts to remain closed and the auxiliary protective devices remain closed. With the breaker initially open, air loss from the tank allows the breaker contacts to remain open but causes the auxiliary protective devices to open. With the breaker initially open, air loss from one or more columns causes all the circuit breaker contacts to close simultaneously but the auxiliary protective devices do not open.

3,551,622
ALLOY MATERIALS FOR ELECTRODES OF VACUUM CIRCUIT BREAKERS
Hisasuke Takeuchi, Tadatoshi Toda, and Tsuneyoshi Takasuna, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Continuation of application Ser. No. 603,739, Dec. 22, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 353,614, Mar. 20, 1964, now abandoned. This application Aug. 9, 1968, Ser. No. 751,334
Claims priority, application Japan, Mar. 22, 1963, 38/3,436
Int. Cl. H01h *1/02*; **C22c** *9/06*
U.S. Cl. 200—144 **11 Claims**

A vacuum circuit breaker adapted for making and breaking an electrical circuit in a vacuum comprising an envelope evacuated to a high vacuum, and a pair of electrode contacts made of alloys which consist essentially of from about 3 to 30 percent by weight of iron-group-element, the balance being copper and very small amounts of gaseous impurities, said alloys having a substantial composite structure of copper rich phase and an iron-group-element rich phase, wherein the alloys have lower chopping current and larger dielectric strength than that of copper contacts.

3,551,623
FLUID-BLAST CIRCUIT INTERRUPTERS WITH PISTON-DRIVING MEANS AND COOPERABLE FLOATING PISTON WITH ACCELERATING COIL
Robert G. Colclaser, Jr., Delmont, and William H. Fischer, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 1, 1966, Ser. No. 576,575
Int. Cl. H01h *33/91*
U.S. Cl. 200—148 **11 Claims**



A fluid-blast circuit interrupter is provided having a movable fluid-driving piston carrying the movable contact struc-

ture and, additionally, a movable accelerating coil. An operating mechanism causes motion of this piston. The movable piston moves within an operating cylinder having a stationary second accelerating coil in the base portion thereof. A floating piston, carrying a movable third accelerating coil, is also reciprocally movable within the operating cylinder, and is magnetically repelled by the stationary accelerating coil when the three accelerating coils are inserted serially into the circuit during the opening operation.

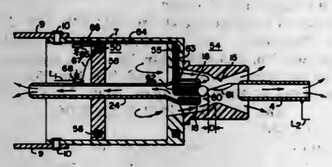
The movable piston also carries an arcing horn to which the moving terminal of the established arc is transferred by fluid flow during initial motion of the moving piston. This transfer of the arc terminal effects the series insertion of all three accelerating coils into the circuit to reduce the force requirements imposed upon the operating mechanism.

3,551,624

GAS-FLOW CIRCUIT INTERRUPTERS HAVING IMPROVED ORIFICE AND CONTACT CONSTRUCTIONS

William H. Fischer, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Sept. 1, 1966, Ser. No. 576,583
Int. Cl. H01h *33/70*
U.S. Cl. 200—148 **13 Claims**



A fluid-blast circuit interrupter is provided having an improved orifice construction and improved flow conditions through separate tubular venting contacts.

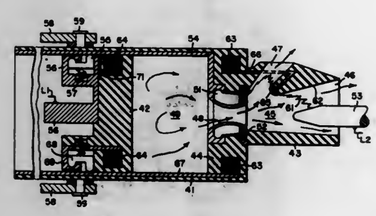
The orifice construction is so arranged that arc transfer to an arcing contact inserts either accelerating coils, or a series resistance into the circuit. The distance between the moving arcing contact and the constricted portion of the orifice is such as to eliminate high back-pressure forces exerted by the established arc.

3,551,625

CIRCUIT BREAKERS

William H. Fischer, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Sept. 1, 1966, Ser. No. 576,707
Int. Cl. H01h *33/91*
U.S. Cl. 200—148 **12 Claims**



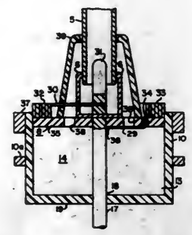
An improved fluid-blast circuit interrupter is provided having accelerating coil means electrically switched into the circuit during interruption so as to aid by magnetic attraction movement of a movable piston means. A movable probe means, connected to a pair of accelerating coils, has the arc transferred thereto by a blast of fluid generated by the piston means. A movable orifice structure supporting the movable probe means may be utilized, and one of the main contacts may be apertured to facilitate arc transfer.

3,551,626

FLUID-BLAST CIRCUIT INTERRUPTERS WITH IMPROVED ELECTROMAGNETIC DRIVING MEANS

Stanislaw A. Millanowicz, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 16, 1967, Ser. No. 616,544
Int. Cl. H01h *33/70*
U.S. Cl. 200—148 **8 Claims**



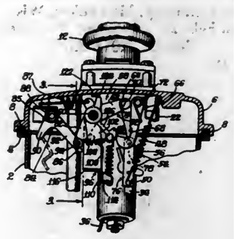
A fluid-blast type of circuit interrupter has a movable piston carrying the movable contact and also a movable primary accelerating coil, which has the series line current transferred therethrough during the opening operation. A stationary short-circuited secondary coil on the outside of the operating cylinder is so positioned relevant to the movable primary accelerating coil that the former coil repels the latter coil, and so assists the mechanical driving effort of the operating mechanism.

3,551,627

CIRCUIT INTERRUPTER HAVING A QUICK CLOSING ACTION

John A. Bordak, Milwaukee, and Walter Kowalski, Oak Creek, Wis., assignors to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware

Filed July 17, 1968, Ser. No. 745,572
Int. Cl. H01h *5/10, 3/32*
U.S. Cl. 200—153 **8 Claims**



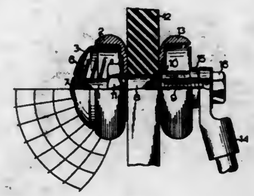
A circuit interrupter provided with movable contacts and an operating mechanism connected to the contacts and latched in position when the contacts are open. A manually operated movable drive member charges a pair of closing springs which apply force to the operating mechanism through a bias transfer member urging the operating mechanism to close the open contacts. The operating mechanism continues to be held latched until the drive member reaches a predetermined position during its movement where it releases the latched operating mechanism which then rapidly acts in response to the force of the charged closing springs to snap the contacts closed.

3,551,628

HIGH VOLTAGE SWITCHING DEVICE

Alexander Bleibtreu, Regensburg, Germany, assignor to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G., Regensburg, Germany

Filed Apr. 1, 1969, Ser. No. 812,078
Claims priority, application Germany, May 24, 1968, 1,765,467
Int. Cl. H01h *1/22*; **H01n** *1/50*
U.S. Cl. 200—166 **12 Claims**



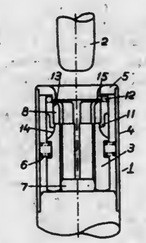
A high voltage switching device of the type including fixed contact means and a movable contact bridge for conductively interconnecting said fixed contact means is provided with means for effectively controlling the electric field established between separated contacts.

3,551,629

ELECTRIC CONTACT MEANS

Samuel Berg, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a Swedish Corporation.

Filed May 12, 1969, Ser. No. 823,771
Claims priority, application Sweden, May 15, 1968, 6524/68
Int. Cl. H01h *1/48*
U.S. Cl. 200—166 **5 Claims**



In a contact arrangement for circuit breakers an elongated contact element is arranged resiliently in a contact element holder and provided at one end with a contact tip of arc-resistant contact metal. To attach the contact tip to the contact element, the contact tip is provided with an anchoring fin engaging in a groove in the contact element and projecting behind a supporting edge on the contact element holder.

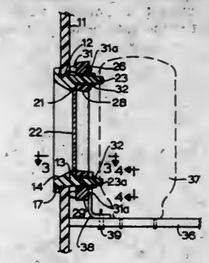
3,551,630

BEZEL FOR PANEL OPENINGS AND RETAINER THEREFOR

Lloyd A. Griffith, c/o Griffith Plastic Products Company, 1027 California Drive, Burlingame, Calif. 94010

Filed Apr. 10, 1969, Ser. No. 814,933
Int. Cl. H01h *9/02*
U.S. Cl. 200—168 **7 Claims**

A bezel fits into and has generally the same shape as, the opening in a panel. The bezel has an edge fitting over the outside of the panel opening, an inward slanted main body portion which fits within the panel opening, and studs projecting inside the panel. A retainer of the same shape as the opening fits behind the panel and is apertured to receive the studs. Push-on nuts fitting over the studs hold the bezel and retainer in place. A lens covering the opening is held between the bezel and retainer. Digital read-out tubes and



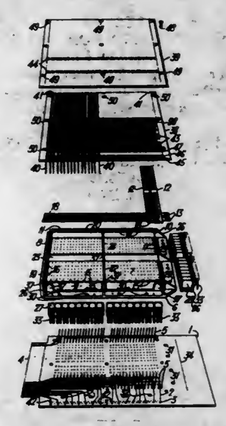
similar objects inside the panel may be observed through the lens. The studs may also serve to align brackets for a circuit board on which the tubes are mounted.

3,551,631

MINIATURE CROSSBAR MULTISWITCH

Charles Vazquez; Guy Dufresnoy, Paris; Serge Maelstaf, Bagneux, and Michel Barbaut, Saulgny-Sur-Orge, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Apr. 10, 1968, Ser. No. 720,248
Claims priority, application France, Apr. 21, 1967, 103/657
Int. Cl. H01h *67/14*
U.S. Cl. 200—175 **8 Claims**



This is a miniature crossbar switch mounted on a printed circuit board. A number of mechanical features make the switch operate more reliably and in a more efficient manner. One of these features involves a wall, floor, or platform positioned above the printed circuit card to distribute the bending forces of the finger springs and thereby reduce metal fatigue.

3,551,632

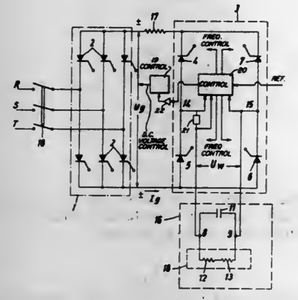
METHOD OF MAINTAINING A CONSTANT OUTPUT VOLTAGE IN STATIC FREQUENCY CHANGERS

Herbert Geisel, Remscheid-Luttringhausen, Germany, assignor to AEG-Elotherm GmbH, Remscheid-Hasten, Germany

Filed Dec. 23, 1968, Ser. No. 786,299
Claims priority, application Germany, Dec. 29, 1967, 1,615,126
Int. Cl. H05b *5/00, 5/04*
U.S. Cl. 219—10.43 **3 Claims**

Inductive heating plant for heating small ingots at present in use consists of a static frequency changer comprising a

rectifier unit for converting alternating current to direct current, a static inverter for converting the rectified current to alternating current by firing in turn silicon-controlled diodes, and an oscillatory circuit in parallel with the inverter in which the inductor for the said heating of ingots forms part

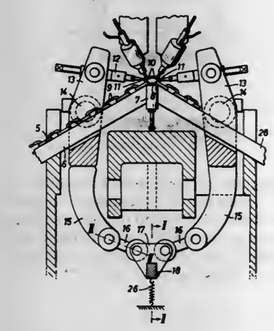


of the oscillatory circuit. The invention provides a method of operating such plant whereby a rise in the direct current above the rated current for the static frequency changer is prevented, by controlling the operating frequency during the filling and emptying of the inductor with the ingots.

3,551,633
PROCESS AND APPARATUS FOR THE BUTT WELDING OF CHAIN LINKS

Wilhelm Wattler, Cologne-Zollstock, and Adolf Englisch, Cologne-Raderthal, Germany, assignors to Meyer, Roth & Pastor, Raderbergerstrasse, Germany, a corporation of Germany

Filed July 12, 1968, Ser. No. 745,335
Claims priority, application Germany, July 18, 1967, M 74,797
Int. Cl. B21l *3/02*
U.S. Cl. 219—51 **7 Claims**

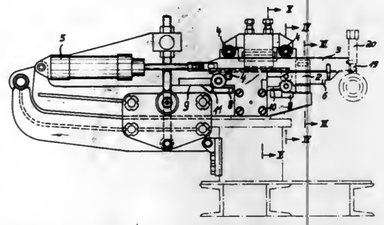


The invention refers to a process and apparatus for electrical pressure butt welding of various articles, such as wires, particularly bent C-shaped chain links, whereby the ends to be welded are moved toward each other up to contact, then the welding current is applied, the ends to be welded are heated, then the current is switched off and the ends are upset. The invention is particularly characterized in that, during the heating, the ends are moved by a power-applying adjustable drive while, during the upsetting operation, they are moved by direct guided motion.

3,551,634
APPARATUS FOR FEEDING CERAMIC RINGS

Willi Veldgen, Gummersbach, Rospe, Germany, assignor to L. & C. Steinmuller G.m.b.H., Gummersbach, Rhineland, Germany

Filed Dec. 9, 1968, Ser. No. 782,252
Claims priority, application Germany, Dec. 9, 1967, 1,556,263
Int. Cl. B23k *9/20*
U.S. Cl. 219—98 **2 Claims**



An apparatus for feeding ceramic rings for studs to be welded to pipes by a welding gun, which includes: feeding means for feeding ceramic rings to a welding station, holding means, reciprocable transfer means movable in a direction perpendicular to the feeding direction of said feeding means and operable to grasp one ceramic ring at a time advanced by said feeding means and to transfer the respective grasped ring to said holding means, said holding means being operable in response to the insertion of a stud into the respective ceramic ring in said holding means and to the downward movement of said respective ring to yield so as to release said ceramic ring and permit the same to slide on the respective stud onto the pipe to be studded.

3,551,635
ELECTRIC RESISTOR ELEMENTS AND PROCEDURE FOR THEIR MANUFACTURE

Nils Gustav Schrewelius, Hallstahammar, Sweden, assignor to Aktiebolaget Kanthal, Hallstahammar, Sweden

No Drawing. Continuation of application Ser. No. 551,885, May 23, 1966, now abandoned. This application Aug. 19, 1968, Ser. No. 757,208
Int. Cl. B22f *3/00*; B23k *11/02*
U.S. Cl. 219—104 **4 Claims**

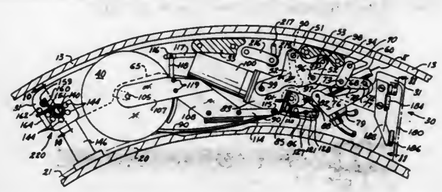
The specification discloses a method of providing an electric resistor element having (1) a heating zone comprising a stiffening framework of recrystallized silicon carbide the pores of which may be filled with a difficult to fuse silicide such as molybdenum silicide, and (2) thermoplastic terminal leads comprising molybdenum silicide, and an amount of grain growth inhibiting additive consistent with the terminal leads being ductile at temperatures in the range of 1,300° C. to 1,800° C., and up to 30 or 40 volume percent non-recrystallized silicon carbide, said method comprising the steps of placing the terminal leads in contact with the ends of the heating zone part and heating the resulting composite to soften the terminal leads sufficiently for them to assume the shape of the ends of the heating zone part and sinter thereto.

3,551,636
AUTOMATIC PIPELINE WELDING METHOD AND APPARATUS THEREFOR

Jerome W. Nelson, Houston, Tex., assignor to CRC-Crose International Inc., a corporation of Oklahoma

Filed Aug. 26, 1968, Ser. No. 755,285
Int. Cl. B23k *9/12*
U.S. Cl. 219—125 **12 Claims**

An automatic system for clamping and welding metal members together along a joinder line employs quickly removable and interchangeable replaceable cartridge welding units. Each unit comprises a miniature frame structure, carrying its own supply of consumable electrode wire, with feeding mechanism therefor, a welding head, and means for maintaining close control of electrode feed rate and tension. Means are provided to automatically vary the head angle of

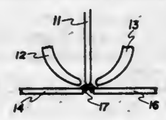


electrode projection towards the weld. The system is designed especially for single pass internal pipeline welds, but may be used for other operations.

3,551,637
MAGNETIC CONTROL OF A WELDING ARC

Gerald L. Lampson, San Diego, Calif., assignor to Data Science Corporation, San Diego, Calif., a corporation of California

Filed Apr. 1, 1968, Ser. No. 723,343
Int. Cl. B23k *9/08*
U.S. Cl. 219—123 **7 Claims**

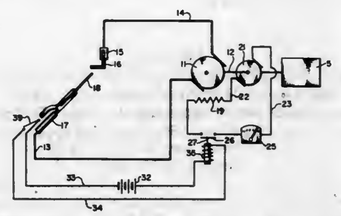


A magnetic control of a welding arc in which a variable duty cycle current is applied to an electromagnet to generate a pulsating magnetic field which is placed in proximity to a welding arc for sweeping the welding arc between two work pieces and varying the dwell time and/or the frequency of the sweep. The dwell time of the sweep can be automatically controlled by heat sensing devices on each of the two work pieces or on different areas of a single work piece. The electrical signals from the sensors are coupled to the current generator for varying the symmetry of the waveform and/or DC level with the frequency being automatically controlled by coupling the electrical output from a speed sensor on the work carriage drive motor to the current generator and an automatic arc positioning control for finely positioning the static position of the arc magnetically by coupling the output from a deviation detector to either a bias electromagnet or to the generator for controlling the DC level.

3,551,638
FAIL-SAFE SYSTEM FOR DIRECT CURRENT WELDING MACHINES

Elvin L. Campbell, P.O. Box 51, St. Francisville, La. 70775

Filed Mar. 3, 1969, Ser. No. 803,790
Int. Cl. B23k *9/10*
U.S. Cl. 219—134 **5 Claims**

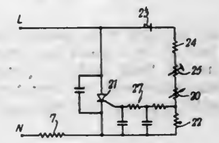


A control system for a DC welding machine is provided, permitting control by the operator at a point remote from the generator, i.e., at the welding station or position. Means adjacent or associated with the electrode holder permit discontinuance, by volition or by "fail-safe" operation, of welding potential, whereby inadvertent electric shock and flash can be eliminated.

3,551,639
SOLDERING IRON

Paul Gotley, Essex, England, assignor to Electrical Remote Control Company Limited, Essex, England

Filed June 21, 1967, Ser. No. 647,656
Claims priority, application Great Britain, Dec. 30, 1966, 58,478/66
Int. Cl. H05b *1/02*; B23k *3/04*
U.S. Cl. 219—241 **13 Claims**

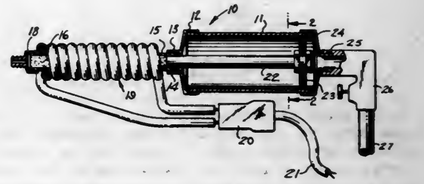


A soldering iron has a soldering bit carried by a handle and a heating element and a temperature-sensing element for the bit. The handle contains bit temperature control circuitry connected to the heating element and the sensing element. The heating element is in series with a thyristor and the sensing element is in series with resistance to provide a voltage divider the tap of which is connected to the control electrode of the thyristor. Delay circuitry may be connected between the tap and the control electrode to render the soldering iron applicable to a wide range of operating voltages.

3,551,640
BALL JOINT REBUILDER

John W. Duke, Jr., 610 Burnett Ferry Road, Rome, Ga.

Filed Nov. 13, 1968, Ser. No. 775,441
Int. Cl. B29f *1/08*; H05b *1/00*
U.S. Cl. 219—214 **1 Claim**



A gun-like device and an especially prepared cartridge of tempered plastic for relining or rebushing a ball joint or tie rod end or other joint that does not have ball bearings or the like. The material injected with the use of this gun, is hard enough to remove the looseness and wear of a joint. This device utilizes air under pressure which drives a rod forward to remove the especially prepared plastic material from the cartridge and inject it through an adapter into the joint to be relined. The device also includes an electrically heated coil for heating the specially prepared plastic of the cartridge prior to forcing it into the joint.

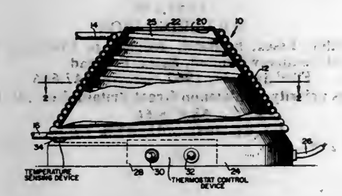
3,551,641
REFRIGERATED INTRAVENOUS LIQUID WARMING DEVICE

Andrew Truhan, R.D. 3 Box 392T, Somerset, N.J. 08873

Filed May 3, 1968, Ser. No. 726,411
Int. Cl. H05b *1/02*; A61f *7/00*
U.S. Cl. 219—303 **6 Claims**

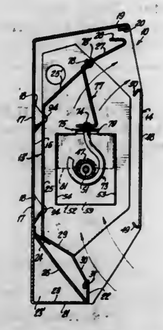
An intravenous liquid-warming device for thermally conditioning stored blood, the components thereof, etc., prior to

transfusion into a subject comprises a preformed, disposable, plastic multiturn coil slidably superimposed over and in contact with the outer surface of a base complementary in size and shape to the coil. The base carries electric-heating means for uniformly heating the portion thereof contacted by the



coil. An inlet for the fluid to be heated communicates with the uppermost turn of the coil and the lowermost turn is provided with a heated fluid outlet. A temperature sensing device in thermal contact with the lowermost turn of the coil adjacent the outlet regulates the heating means through a control unit.

3,551,642
BASEBOARD HEATER
David Knoll, 36 Knolls Drive, New Hyde Park, N.Y.
Filed Sept. 16, 1968, Ser. No. 762,206
Int. Cl. H05b *3/02*
U.S. Cl. 219—368 6 Claims



A baseboard heater having an outer housing, an inner heater assembly including a concave deflector having a heater therein which is rigidly secured at the center and movably supported at the ends, said deflector and housing forming a closed bottom wireway and an upper substantially dead air space to insulate the deflector from the housing and brackets carried by the deflector for supporting a narrow cover shielding the heater.

A front cover plate spaced from said heater and supported by brackets carried by said deflector, said cover plate forming upper and lower longitudinal openings between it and the deflector to form air inlet and outlet means and provide free flow of air through the heater fins.

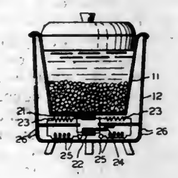
3,551,643
ELECTRIC HEATER FOR HEATING FLUIDS FLOWING LONGITUDINALLY THERETHROUGH
Theodore J. Pricenski, Ipswich, Mass., and Alan H. Plaisted, North Hampton, N.H., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Oct. 12, 1967, Ser. No. 674,823
Int. Cl. H05b *3/02*
U.S. Cl. 219—381 9 Claims

A fluid heater having an elongated heating element which is made of a continuous coiled length of resistance wire and enclosed in a cylindrical insulating tube. The periphery of the individual turns of the element forms a cyclical, spiral shape about the axis of the heater, thereby obstructing the axial flow of the fluid through the heater and increasing the efficiency of heat transfer from the wire to the fluid.



An elongated insulating cylinder is positioned within the bore of the heating element and an adapter is attached to the inlet end of the fluid heater for the purpose of connecting it to a source of fluid. Electrical supply terminals for connecting the heating element to an external source of electrical power are located at the inlet end of the fluid heater.

3,551,644
AUTOMATIC ELECTRIC RICE COOKER
Yoshiaki Sano, Hyogo-ken, and Kaoru Yamazaki, Eisuke Kurokawa, Hiromu Sasaki, and Shigeru Hayakawa, Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan
Filed May 28, 1968, Ser. No. 732,667
Int. Cl. F27d *11/02*; A47j *27/62*
U.S. Cl. 219—441 4 Claims

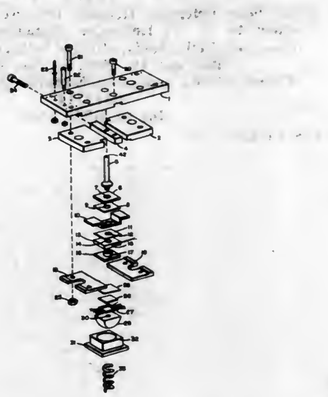


An automatic electric rice cooker having a pot for containing the rice to be cooked and a body supporting said pot and having a heater circuit capable of quickly switching from a large current to a small current upon completion of the cooking of the rice. The small current keeps the cooked rice warm. The heater circuit comprises an alloy resistor and at least one resistor having a positive temperature coefficient of electrical resistance in series with the alloy resistor and thermally coupled with said pot.

3,551,645
HEATER FOR SEALING FLAT-PACKS AND THE LIKE
Milton Stoll, 14—19 212th St., Bayside, N.Y. 11360
Continuation-in-part of application Ser. No. 654,024, June 14, 1967, now Patent No. 3,502,706. This application Feb. 15, 1968, Ser. No. 712,578
Int. Cl. H05b *3/00*
U.S. Cl. 219—462 15 Claims

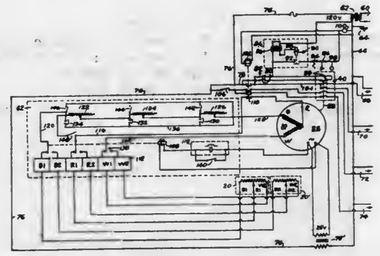
The sealing of electronic flat-packs is accomplished by a heater comprising a ribbonlike like heater. Heat is distributed by means of a high thermal conductivity pad. The package is heat-sinked in order to protect the enclosed circuitry from

exposure to excessive temperatures. The heating pad is connected with a heat sink, to provide accurate positive tem-



perature control and a controlled cooling profile. This heater is particularly adapted to feedback temperature control.

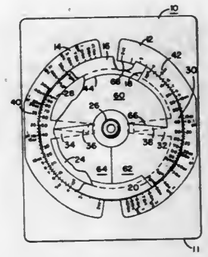
3,551,646
DEMAND-LIMITING ELECTRICAL HEATING SYSTEM
Paul V. Harmon, Nashville, Tenn., assignor to Precision Parts Corporation, Nashville, Tenn., a corporation of Tennessee
Filed May 12, 1969, Ser. No. 823,806
Int. Cl. H05b *1/02*
U.S. Cl. 219—485 8 Claims



A demand-limiting control for electrical space-heating systems of the modulating type in which the number of heaters brought into action is controlled by stepwise progressive energization thereof; the control provides individually adjustable upper limits for the number of heaters energized for each of several sub ranges of outside air temperature, so that the instantaneous electrical power demand cannot exceed a level appropriate to the anticipated need for heat build up.

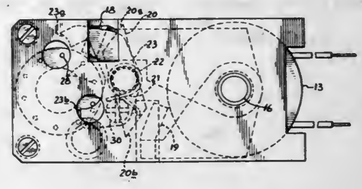
3,551,647
PRICE COMPARATOR
James S. Luster, 7111 Galewood St., San Diego, Calif. 92120
Filed Oct. 30, 1968, Ser. No. 771,874
Int. Cl. G06c *3/00*
U.S. Cl. 235—88 1 Claim

A price comparator for comparing unit price-weight ratios of a commodity in different size containers, which comparator has a separate pair of aligned unit-weight and unit-price logarithm scales in which the price and weight of the commodity in a given size container is placed on one of the price-weight scales and the price and weight of the commodity in a second different size container is placed on the other price-weight scale, and an indicator on the price comparator dis-



plays which container has the lower price per unit-weight of the commodity.

3,551,648
NEW EVENTS COUNTER
George V. Zimmerman, St. Charles, and Neil K. Carlisle, Glen Ellyn, Ill., assignors to General Time Corporation, Stamford, Conn., a corporation of Delaware
Filed Nov. 3, 1966, Ser. No. 591,740
Int. Cl. G06m *1/02*
U.S. Cl. 235—92 9 Claims

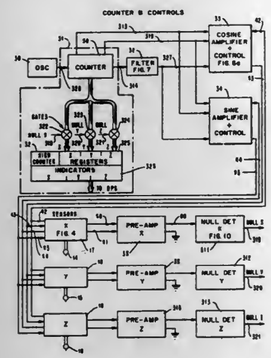


An improved new events counter for registering repetitive events represented by received electrical pulses. The counter includes an electromechanical transducer incorporating a solenoid and a spring biased armature responsive to energization of the solenoid. A display device is advanced to a new position with each oscillatory motion of the armature due to a motion-translating pallet assembly. In its preferred form, the spring balancing the armature is adjustable to enhance the efficiency of the overall electromechanical conversion.

3,551,649
POSITION MEASURING SYSTEM
Edward V. Weber, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Mar. 23, 1967, Ser. No. 625,471
Int. Cl. G06m *7/00*; H03k *21/30*
U.S. Cl. 235—92 5 Claims

The invention is disclosed in the environment of a conveyor system having a number of work stations, at least one of which work stations includes a number of probes connected to position sensors. The position sensors transducers affect a source signal supplied to the two primary windings of each transducer as a function of the physical position of the associated probes. A single oscillator and a common counter supply the source signal to the position sensors on predetermined counts. The counter is connected to a gate and an indicator associated with each sensor. The output signal of the

secondary windings of the transducers is used to gate the current count of the counter to the indicators when the output



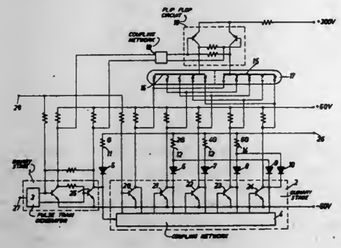
signal has a predetermined value, thus indicating the position of the probe.

3,551,650

BIGUINARY COUNTER FOR DIGITAL INDICATORS

Hans Kubach, Viernheim, Germany, assignor to Brown, Boveri & Cie Aktiengesellschaft, Kailstadterstr., Mannheim-Kafertal, Germany, a corporation of Germany

Filed Sept. 21, 1966, Ser. No. 580,938
Claims priority, application Germany, Sept. 28, 1965, B83914
Int. Cl. H03k *21/08, 23/08;* **G06f** *5/00*
U.S. Cl. 235—92 **3 Claims**



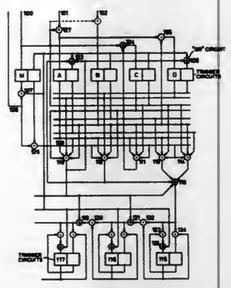
A counter includes a binary input section and a quinary output section to provide a biquinary counter, the binary section including a pair of active devices and the quinary section including five stages each including an active device, each of the stages representing a chosen unit numerical quantity, each of the active devices having an output resistance with a respective conductivity corresponding to the quantity represented by its active device, means for connecting the resistances in chosen additive relationships to provide a current therethrough having a value which is an analog representation of the numerical contents of the counter, and a plurality of diodes connected in circuit with corresponding ones of the active devices and the output resistances for decoupling the currents in the resistances from each other, one of the active devices in the binary section and three of the active devices in the quinary section including an output decoupling diode and output resistance, the resistances being chosen to have respective conductivities weighted in the ratio of 1:2:4:6, a fourth of the active devices in the quinary section being connected to the output resistances weighted 2 and 6 through other corresponding decoupling diodes.

3,551,651

ARRANGEMENT FOR DIGITALLY ESTABLISHING A VALUE

Rienk Pieter Offereins, Hengelo, Overijsel, Netherlands, assignor to N. V. Hollandse Signaalapparaten, Hengelo (Overijsel), Netherlands, a firm of Netherlands

Filed Sept. 19, 1966, Ser. No. 580,283
Claims priority, application Netherlands, Sept. 9, 1966, 6612714
Int. Cl. H03k *21/10*
U.S. Cl. 235—92 **3 Claims**



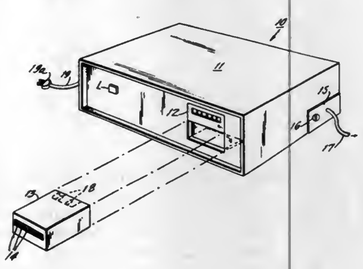
A device for establishing a digital value between two electrical signals including a binary counter, a control circuit and a source of counting pulses. The control circuit responds to a measure order signal for preparing the counter to be set to a unit on previous to the zero position. The control unit then permits the counter to count until a reference or measure pulse is reached. The control signal responds to the first pulse to stop the counter and to the second to stop and complement the counter, thereby providing digitization of the period in either case.

3,551,652

KEY-COUNTER

Rudolf Faude, Eatontown, N.J., assignor to Hecon Corporation, New Shrewsbury, N.J., a corporation of New Jersey

Filed Dec. 27, 1966, Ser. No. 604,962
Int. Cl. B41l *39/02;* **H01h** *27/00*
U.S. Cl. 235—92 **3 Claims**



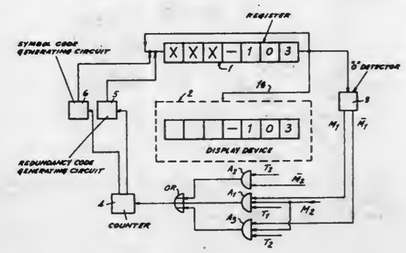
A control device and cooperating key-counter which incorporates an electronic defeating device and counter means. The control device is coupled between a power source and a machine whose use is to be prevented by unauthorized personnel. In the absence of insertion of the key-counter into the control device, a transient condition in the power line is sensed, causing the power source to be disconnected from the machine. The machine may not be placed back into operation until and unless the key-counter is inserted into the control device. A threshold detection circuit is utilized to distinguish between a selected transient condition and normal power condition to generate a pulse of sufficient length for both advancement of the counter indicating amount of use of the machine and for isolating the power source from the machine in instances where the key-counter device has not been inserted into the control device.

3,551,653

NUMBER AND SYMBOL DISPLAY SYSTEM

Yuzuru Yanagisawa, Kanagawa-ken, and Shinji Kusunoki, Tokyo, Japan, assignors to Sony Corporation, Shinagawa-Ku, Tokyo, Japan, a corporation of Japan

Filed Nov. 1, 1968, Ser. No. 772,638
Claims priority, application Japan, Nov. 2, 1967, 42/70428
Int. Cl. H03k *21/34, 21/18*
U.S. Cl. 235—92 **9 Claims**



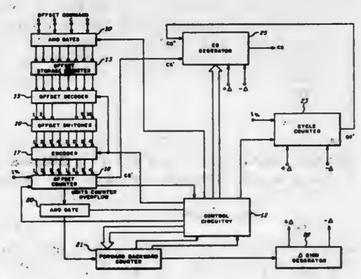
In a number and symbol display system for an electronic computer in which those digit portions of the register that do not contain codes representing digits of an effective number to be displayed initially contain 0 representing codes and hence would each normally result in the display of futile 0, the sequential output of the register is detected for futile 0's and, in response to the detection of such futile 0's, a symbol code, for example, representing the symbol "—" is supplied to the register to substitute for the coded futile 0 at the digit position which is one or two digit positions higher than that of the most significant digit of the effective number, and further in response to the detection of futile 0's redundancy code is supplied to the register either to substitute for the 0 codes at digit positions higher than the said most significant digit, that is, for futile 0 codes, or to substitute for the 0 codes representing digits of the effective number to be displayed. After such substitution of the symbol code and redundancy code in the contents of the register, the register output is sequentially supplied to a display device which either does not decode the redundancy code, or does not decode the 0 code and decodes the redundancy code as representing 0, whereby to display the effective number without futile 0's and with the symbol either one or two digit positions higher than the position of the most significant digit of the displayed number.

3,551,654

OFFSET CHANGE APPARATUS FOR TRAFFIC CONTROL SYSTEMS

David Arlen, and John J. King, Jericho, N.Y., assignors to Sperry Rand Corporation, a corporation of Delaware

Filed Sept. 29, 1967, Ser. No. 671,737
Int. Cl. G06f *15/48;* **G08g** *1/00*
U.S. Cl. 235—150.24 **15 Claims**



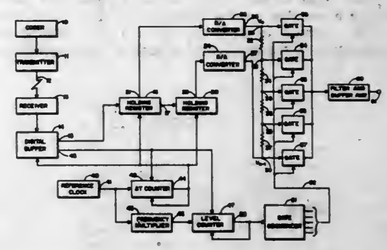
Offset change apparatus for vehicular traffic control systems for gradually and accurately changing the operative offset from an initial value to a new value by the shortest route utilizing a reversible counter to obtain the algebraic difference between the initial value and the new desired offset value.

3,551,655

CONTROL APPARATUS FOR APPROXIMATING A SIGNAL WAVEFORM

Dale M. Walsh, Clearwater, Fla., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed Dec. 23, 1968, Ser. No. 785,976
Int. Cl. G06g *7/26*
U.S. Cl. 235—150.53 **7 Claims**



A discrete step curvefitter receives samples of a signal waveform and constructs an approximation of the signal from the samples. The system shown is designed to approximate or reconstruct a signal from samples taken at maximum and minimum points of the sampled signal. The signal is reconstructed by dividing the interval between each sample and the succeeding sample into *n* discrete steps thereby providing a staircase waveform which can be smoothed or filtered.

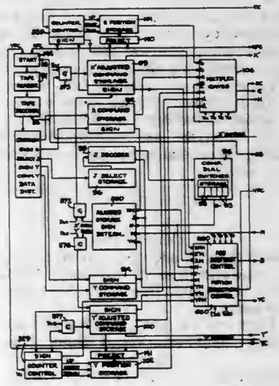
3,551,656

NUMERICAL CONTROL SYSTEM

Jack A. Wohlfeil, Fond du Lac, Wis., assignor to Giddings & Lewis Inc., Fond du Lac, Wis., a corporation of Wisconsin

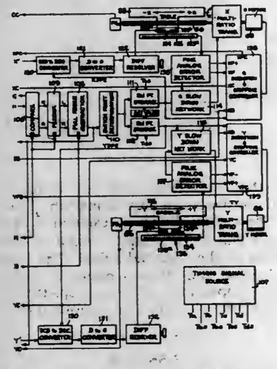
Filed Apr. 12, 1965, Ser. No. 447,291
Int. Cl. G06j *3/00;* **G05b** *19/38*
U.S. Cl. 235—151.11 **35 Claims**

A numerically controlled positioning system primarily, but not exclusively, for machine tools. A numerically defined commanded position is read in BCD notation from a record



(punched tape) into a storage resgister and then algebraically combined in a digital adder-subtractor with an "adjustment" or "correction" number which the operator has dialed in to account for factors which the programmer could not foresee.

The resulting adjusted command number accurate to the nearest .0001 inches is then placed in a storage resigster. The actual position of the movable part is continuously signaled in BCD notation by a reversible counter which counts forwardly or reversely in response to a pulse generator coupled to be driven from the movable part, the signaled position being accurate to the nearest .001 inches. The adder-subtractor then rapidly and repeatedly computes and signals the error or difference between the adjusted command number and the actual position number and the signaled error number is compared with stored "switch point values" to effect corrective drive of the member until the error is less than ±.025 inches. When such coarse digital positioning is completed, a fine servosystem is rendered operative. This includes a digital-to-analog converter responsive to the last few lower order digits of the stored adjusted command number for exciting a suitable analog device such as a linear Inductosyn (T.M.) which in turn produces a fine analog error signal indicative of the sense and extent of the position error



over repeating fine spans, e.g., spans of .050 inches. The latter signal is caused to continue corrective drive of the movable part until the signal is reduced substantially to zero and the part is stopped precisely in the adjusted command position. When this occurs, means are activated to preset the reversible counter to agree with the then stored adjusted command number so as to obviate any cumulative errors due to loss of or pickup of spurious feedback pulses. The system then causes reading of the next set of command data after any machining operation at the position is completed.

The system may include apparatus for positioning along one or more axes, and a single adder-substractor operates on a rapidly repeating cyclic basis to perform the algebraic combination of correction numbers and of commanded and actual position numbers for all axes of control. As each computed and signaled error number falls below successively lower and predetermined "switch point values," comparing apparatus conditions the drive means to move the part at a lower velocity along the axis corresponding to that error number. No digital-to-analog conversion of the digital error number is required.

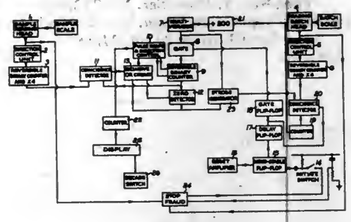
3,551,657

COUNTING

Philip R. Darrington, Staincross, near Barnsley, England, assignor to Ashworth Ross & Company Limited, Midland Iron Works, Scout Hill, Dewsbury, Yorkshire, England, a British company

Filed Oct. 11, 1967, Ser. No. 674,609
Claims priority, application Great Britain, Nov. 23, 1966, 52406/66
Int. Cl. G06m *3/04*; H03k *23/00*; G01g *23/37*
U.S. Cl. 235—151.33 **3 Claims**

First and second counters of a counting system are connected to be indicative respectively of the weight of a known number of components to be counted and a batch of such components. A third counter receiving pulses from a pulse generator is connected to be cyclically reversible upon coincidence with the first counter, and these reversals are indicated on a display device. A fourth counter also receiving pulses from the pulse generator is connected to cut off the



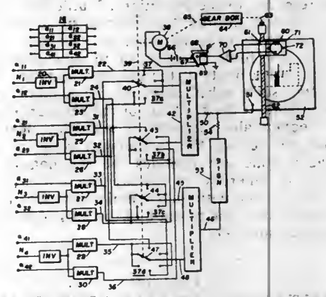
supply of pulses from the pulse generator and therefore stop the counting indicated at the display device when it reaches coincidence with the second counter.

3,551,658

REDUCTION OF DATA FROM SPECTRAL ANALYSIS

Charles D. Prater, Pitman, and James Wei, Princeton, N.J., assignors to Mobil Oil Corporation, a corporation of New York

Continuation of application Ser. No. 155,236, Nov. 20, 1961, now abandoned, which is a continuation-in-part of application Ser. No. 49,921, Aug. 16, 1960, now abandoned. This application Sept. 2, 1969, Ser. No. 854,698
Int. Cl. G06g *7/34*; G01n *21/00*
U.S. Cl. 235—151.35 **16 Claims**



In spectrographic analysis, the combination of m of the n available peaks of a spectrogram is automatically selected for use in concentration determination with reduced susceptibility to error. Functions are generated representing the determinants of sets of equations relating the concentrations of the constituents and the peaks in the spectrogram. One of the larger, or the largest determinant, identifies that set of equations to be used in determining error concentration. The search for the determinants of greatest magnitude includes generating simplexes derived from all combinations of the simultaneous equations to identify the $m \times m$ determinants of greatest magnitude.

3,551,659

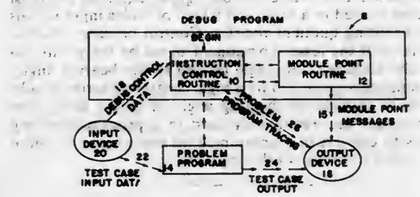
METHOD FOR DEBUGGING COMPUTER PROGRAMS

Charles O. Forsythe, 892 Helen St., Teaneck, N.J. 07666

Filed May 5, 1969, Ser. No. 833,814
Int. Cl. G06f *11/04*
U.S. Cl. 235—153 **14 Claims**

A debugging method is provided in a debugging program which is fed into the computer along with the problem program being tested. The debugging method is intended to enable a problem program to be automatically debugged in the minimum number of test shots by uncovering the maximum

number of errors in each test case during every test shot. The debugging method includes a module point checking routine capable of returning the problem program to the proper path in the processing each time a branching error occurs, correcting all error values checked, and keeping the programmer advised as to what has been done; an instruction control routine capable of controlling the execution of each



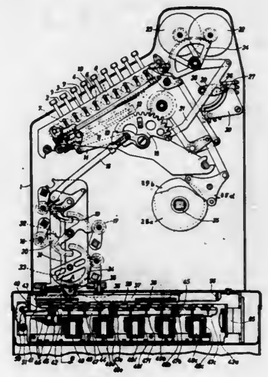
successive instruction in the problem program so that if certain types of serious errors are encountered they will be noted for the programmer allowing the processing of the problem program to continue instead of terminating the test shot prematurely. Each test case in every test shot will be processed to its logical conclusion despite problem program errors that would normally stop or sidetrack the processing of that case.

3,551,660

ELECTROMECHANICAL APPARATUS FOR CONVERTING CODED INTO DECODED DIGITAL VALUES

Gerhard Rethmeier, 4811 Oldentrup. Nr. 116, and Horst Herger, Flurstr 31, 48 Bielefeld, Germany

Filed Mar. 1, 1967, Ser. No. 621,724
Claims priority, application Germany, Mar. 3, 1966, A51731
Int. Cl. H04l *3/00*; G06f *5/02*; H03k *13/24*
U.S. Cl. 235—155 **2 Claims**



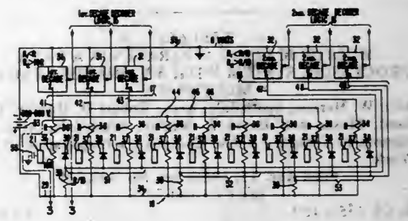
An electromagnetical code converter for use between a decimal-system business machine and a binary-system electronic computer, each decimal digit being represented by a multibit coded binary number. Displaceable structures for the respective bits of the binary number are shifted under control by respective magnets. The resulting group combination of settings of these structures corresponds to the value of the decimal digit. At least one of the magnets is controlled in response to mechanical operation of the business machine. The other magnets are controlled by signals from the electronic computer.

3,551,661

DIODE DECODING CIRCUIT FOR SELECTIVELY ENERGIZING AN ARRAY OF ELECTROGRAPHIC WRITING ELECTRODES

Arthur E. Bliss, Sunnyvale, and William A. Lloyd, San Jose, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California

Filed Aug. 28, 1968, Ser. No. 755,849
Int. Cl. H03k *13/02*
U.S. Cl. 235—155 **4 Claims**



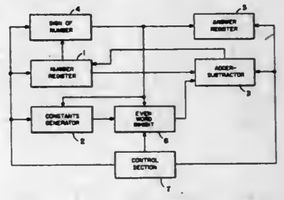
An electrographic apparatus such as a recorder or printer is disclosed. The electrographic apparatus includes means such as an analog-to-digital converter or conventional digital circuit for producing a coded binary output signal representative of information to be electrographically portrayed. An array of separately energizable electrographic writing electrodes are arranged over an electrographic recording medium for depositing a charge image pattern on the recording medium containing the information to be recorded. A diode decoding circuit for each electrode is connected in circuit intermediate the source of binary coded signals and the electrographic writing electrodes for decoding the binary output signal and for applying the writing potential to separate ones of the array of writing electrodes to produce the charge image pattern on the recording medium. Each diode decoding circuit includes a series connection of a relatively high and a relatively low resistance connected across the source of writing potential. The writing electrode is connected intermediate the resistances for applying the writing potential developed across the high resistance to the electrode. A second circuit branch consisting of a diode and a third resistor is connected in shunt with the high resistance. A first gate is connected in series with the potential divider network for supplying one binary input to the diode decoder. A second gate is connected in series with the third resistor for selectively controlling the bias on the diode to selectively control the shunting effect of the parallel branch, thereby providing the second binary data input to the diode decoder. The diode decoder circuits are interconnected in a matrix in such a manner that the first gate supply first decade inputs and the second gate provides second decade inputs and inputs from both gates must be obtained to cause a writing potential to be applied to the writing electrode.

3,551,662

SQUARE ROOT APPARATUS

Gerald W. Price, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 14, 1966, Ser. No. 601,812
Int. Cl. G06f *7/38*, *1/04*
U.S. Cl. 235—158 **1 Claim**



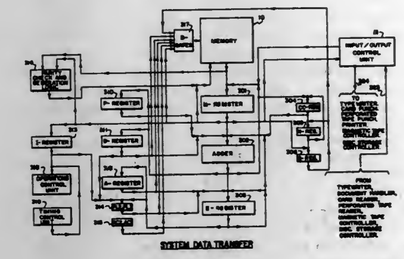
The apparatus includes a number register in which the

number whose square root is desired is entered. In response to signals from a control section, a constants generator provides successive integers. The successive odd integers are subtracted, in an adder-subtractor, from the number, until a change of sign of the remainder is detected by sign-of-number detector. The number of subtractions necessary before the change of sign of the remainder is accumulated in an answer register. An inhibit circuit is included to exclude even integers from the adder-subtractor. The adder-subtractor, sign-of-number detector, inhibit circuit, number register, and answer register are all controlled by the control section.

3,551,663
MULTIPLICATION APPARATUS IN A DATA PROCESSING SYSTEM WITH A VARIABLE LENGTH MULTIPLIER

Edwin W. Herron, Scottsdale, Ariz.; Robert D. Hunter, Wayland, Mass., and David E. Keefer, Scottsdale, Ariz., assignors to General Electric Company, a corporation of New York

Filed Apr. 15, 1965, Ser. No. 448,538
Int. Cl. G06f *7/52*
U.S. Cl. 235—159 **5 Claims**

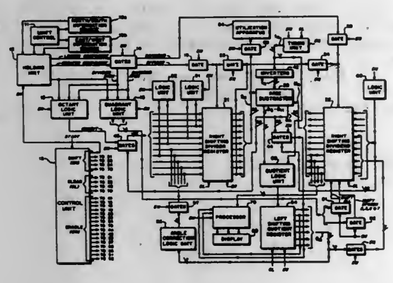


A data processing system includes multiplication apparatus in which a multiplier decimal character is shifted into a special register and is multiplied by the characters of a multiplicand and a product is formed by accumulatively adding the products of a multiplicand and the characters of a variable length multiplier.

3,551,664
BEARING ANGLE COMPUTER

George W. Mebus, Feasterville, Pa., assignor to the United States of America, as represented by the Secretary of the Navy

Filed Dec. 22, 1967, Ser. No. 692,899
Int. Cl. G06f *7/38, 7/52, 7/56*
U.S. Cl. 235—164 **10 Claims**

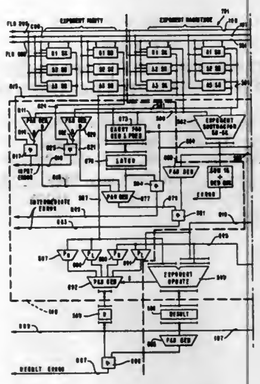


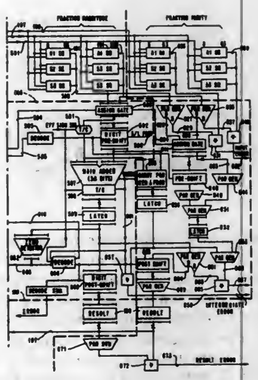
A special purpose digital computer which includes a special digital divider and which is adapted for computing and providing or displaying a bearing angle from a pair of orthogonal component binary signals. The computer includes a right-shifting divisor register whose last stage is connected to receive as an input signal the greater of the component signals and also to receive through gating the output signal of the first stage thereof. The parallel output signals of the divisor register and of a dividend register whose last stage is connected to receive the lesser component signal are fed to a ring subtracter whose difference signals may be fed to the registers and some of whose borrow signals including the most significant are fed to a logic unit which provides input signals to a left-shifting quotient register. Control circuitry enables the division of the lesser component signal by the greater to obtain the tangent of an angle related to the bearing angle, which tangent is corrected by a logic controlled series of subtractions to provide the bearing angle in binary form. The same registers are additionally used in a process involving divisions to convert the binary bearing angle signal to three binary coded decimals for driving a display.

3,551,665
FLOATING POINT BINARY ADDER UTILIZING COMPLETELY SEQUENTIAL HARDWARE

Don M. Powers, Robert J. Litwiller, Poughkeepsie, N.Y., and Robert E. Goldschmidt, Hyde Park, Mass., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Sept. 13, 1966, Ser. No. 579,082
Int. Cl. G06f *7/50*
U.S. Cl. 235—175 **15 Claims**



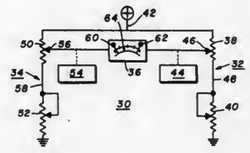


A high-speed adder utilizing a unique pipelining or serial flow-through design. By providing a plurality of latch points within the system as many as three separate addition operations may be processed or in execution concurrently within the adder circuitry. The latch points or interlocks prevent the mixing or inadvertent dumping of one operation into another. The exponent operations for preaddition decimal point alignment and for postaddition normalization and shifting are performed by completely separate units so that no unit of functional hardware within the adder is used more than one time in a given operation.

3,551,666
STATISTICAL COMPUTER

George B. Price, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Continuation of application Ser. No. 423,719, Jan. 6, 1965, now abandoned. This application July 7, 1969, Ser. No. 842,813
Int. Cl. G06g *7/00*; **G06f** *15/46*
U.S. Cl. 235—179 **5 Claims**

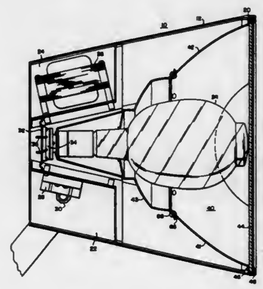


Taps on parallel potentiometers are stepped so that the voltage across a load is increased in equal increments of a first magnitude for each acceptable sample, and decreased by equal increments of a different magnitude for each rejected sample. The load responds to variation of voltage above and below preset limits.

3,551,667
HEAVY DUTY FLOODLIGHT WITH REPLACEABLE OPTICAL SYSTEM

Donald E. Husby, Fairview Park, and Alfred K. Goetz, Cleveland, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 6, 1968, Ser. No. 710,854
Int. Cl. F21p *5/00*
U.S. Cl. 240—3 **6 Claims**

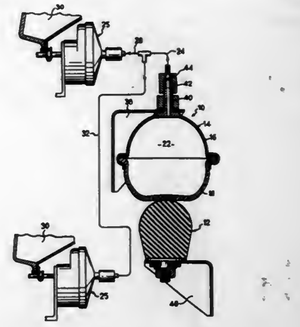


A heavy-duty floodlight having a replaceable optical system which includes a reflective housing and light transmissive closure member within which is mounted a lamp socket and lamp. The replaceable optical system is removably connected to the floodlight housing by means of male electrical connector blades extending from the narrow end or neck of the "television tube" like optical system and a female electrical receptacle within the floodlight housing. At its other end the replaceable optical system closes off the front of the floodlight housing. The floodlight is further provided with a mounting bracket which facilitates both vertical and horizontal selective aiming of the floodlight.

3,551,668
HEADLIGHT ADJUSTING SYSTEM

Charles Rivolier, Paris, France, assignor to Societe Anonyme D.B.A.

Filed Sept. 27, 1967, Ser. No. 671,019
Claims priority, application France, Oct. 4, 1966, Dec. 16, 78,675; Dec. 16, 1966, 87,780
Int. Cl. B60g *1/06*
U.S. Cl. 240—61.1 **9 Claims**

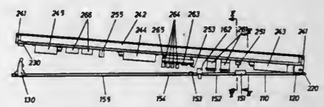


An automatic automobile headlight-positioning system is provided with a fluid actuator which has a plurality of stable balanced positions to provide discrete levels of angular adjustment. The system utilizes a fluid pressure differential control to sense vehicle load by sensing depression of the body of the vehicle relative to the chassis. The fluid pressure within the chamber is thus a function of the load of the vehicle. By communicating the fluid pressure to an actuator at the headlights of the vehicle, the angular relationship between the headlights and the vehicle body may be varied to provide a substantially uniform angular relationship between the headlights and the chassis, regardless of vehicle load. The actuator is provided with a plurality of nested pistons of increasing diameter which provide a sequence of discrete adjustment positions so that minor variations in load will not cause the angular relationship of the headlights (with respect to the vehicle body) to vary.

3,551,669
REPLACEABLE CHASSIS SECTION FOR LIGHT FITTINGS

Josef Muller and Eberhard Lenze, Neheim-Husten, Germany, assignors to Trilux-Lenze KG, Neheim-Husten, Germany, a firm

Filed Feb. 15, 1968, Ser. No. 705,643
Claims priority, application Germany, Feb. 20, 1967, T33246
Int. Cl. F21s *1/02*
U.S. Cl. 240—73 **13 Claims**



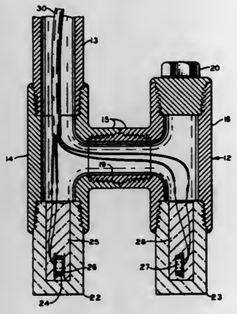
A wall lighting fitting for sick rooms, hospital wards and the like, which comprises an elongated channel section casing carrying special overhead bed lighting lamps on its outside and two or more chassis units in its interior. Each chassis unit consists of an underchassis permanently mounted inside the casing and a replaceable upper chassis hingedly connected at one end to the underchassis and in operating position attachable to the other end of the underchassis by use of a releasable fastener. For each bed one chassis unit is provided which contains all tapping points for electric power, for the connection of telephone extensions, switch extensions for overhead bed lights, call lights and like services, as well as the associated wiring. All tapping points are accessible through openings in the underside of the casing and in the underchassis. The entire upper chassis and the installational

equipment which it contains can be easily removed as a unit. The operation of removing the upper chassis automatically disconnects the entire equipment from the supply. All the contacts on the upper chassis are then accessible without risk of shock. The supply wires and cables secured to the underchassis are all properly insulated and therefore safe so that in the event of a fault or defect the entire upper chassis can be released, removed and replaced by a fresh previously tested chassis already fitted with lamps.

3,551,670
SLUDGE LEVEL DETECTOR USING AN INFRARED SOURCE AND DETECTOR

George J. Topol, Reston, and Larry R. Carr, Vienna, Va., assignors to Bowser, Inc., a corporation of Indiana

Filed July 3, 1968, Ser. No. 742,447
Int. Cl. G01n *21/26, 23/12*
U.S. Cl. 250—43.5 12 Claims

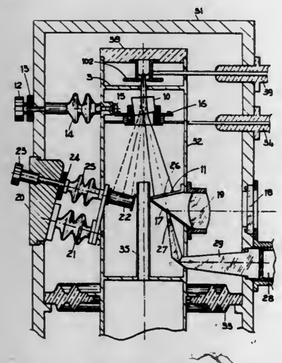


The level of sludge in a liquid is determined by a detector mounted on an elongated, vertical, cylindrical support. The detector includes a source of infrared light which does not promote the growth of algae and other life, and an infrared detector which is protected from sunlight by the liquid. The detector is mounted on the support in a smooth structure to prevent accumulation of sludge and sediment.

3,551,671
ION-ELECTRON IMAGE CONVERTER FOR USE WITH ION MICROANALYZERS

Jean-Michael Rouberol, Courbevoie, Franceue (C. A. M. E.Compagnie DApplications Mecaniques A L'Electronique Au Cinema et A L'atomistique (C. A. M. E.Compagn, a corporation of France

Filed Apr. 5, 1968, Ser. No. 719,047
Claims priority, application France, Apr. 13, 1967, 102,608
Int. Cl. H01l *37/00*; G01n *23/00*
U.S. Cl. 250—49.5 5 Claims

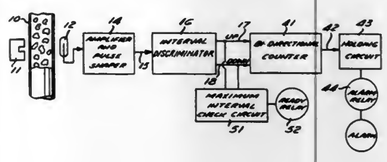


In an ion-electron converter, wherein an ion beam is directed normally to the electron emitting target, a magnetic deflector inserted in this path, is adjusted to deflect the secondary electron beam therefrom without noticeably affecting the trajectory of the incident ion beam.

3,551,672
METHOD AND APPARATUS FOR MEASURING RATES OF RANDOM PULSES AND ALARM ACTUATED THEREBY

John C. Homer III, Willoughby, and John R. Stock, Fairview Park, Ohio, assignors to Stock Equipment Company, Cleveland, Ohio, a corporation of Ohio

Filed June 28, 1967, Ser. No. 649,528
Int. Cl. G01n *23/12*
U.S. Cl. 250—43.5 20 Claims



Apparatus for discriminating between rates of pulses that occur randomly in time, such as pulses derived from emissions by radioactive materials, and an alarm, such as an alarm for indicating a reduction in the flow of material through a conduit, controlled by the circuit. The apparatus discriminates between different rates of occurrence of pulses by comparing the interval between successive pulses to a predetermined but variable interval and providing electrical pulses "down pulses" corresponding to radiation pulses occurring at intervals greater than the predetermined interval and electrical pulses "up pulses" occurring at intervals less than predetermined interval. These up pulses and down pulses may be utilized, for example, to give an indication of a rate of radioactive emission or to actuate an alarm or control.

3,551,673
SELF-OPENING DENTAL X-RAY FILM PACK

Harold Siegel, 230 E. 69th St. New York, N.Y. 10021

Filed Apr. 8, 1968, Ser. No. 719,640
Int. Cl. G03b *17/26*
U.S. Cl. 250—69 1 Claim

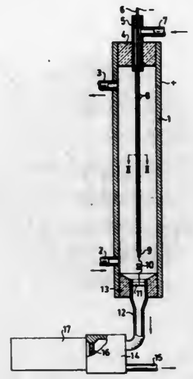


A self-opening dental X-ray film pack including the usual X-ray-sensitive film proper; two black paper sheets, one on each side of the film; an outer moistureproof envelope; and a lead shield between one black paper sheet and the outer envelope. The pack, after exposure of the film, is adapted, along with similar packs, to be mounted in rack-supported clips which engage only the marginal regions of the envelope and film so that when the envelope is slid longitudinally away from the film, the black paper sheets, lead shield and envelope are withdrawn, leaving only the film and small ruptured fragments of the envelope in supported relationship on the clip. This obviates difficult envelope-opening and film-mounting procedure.

3,551,674
LIQUID-RINSED PRECIPITATION ELECTRODE FOR A DEVICE FOR PRECIPITATING AND COLLECTING CHARGED PARTICLES FROM A GAS

Ove Magnus Strindehag, Nykoping, Sweden, assignor to Aktiebolaget Atomenergi, Stockholm, Sweden

Filed Feb. 14, 1967, Ser. No. 615,973
Claims priority, application Sweden, Feb. 18, 1966, 2147/66
Int. Cl. G01t *1/20*
U.S. Cl. 250—83 4 Claims

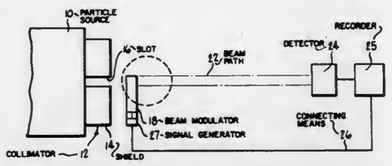


The invention is concerned with a device for precipitation and collection of charged particles from a gas on a precipitation electrode. The electrode consists of two parallel vertical wires. Water flows along the electrode and forms a thin film between the wires. The water thus has the dual function of increasing the surface of the electrode and rinsing the wires.

3,551,675
METHOD AND APPARATUS FOR MODULATING THE DENSITY OF A BEAM OF PARTICLES AND DETERMINING THE VELOCITY DISTRIBUTION OF THE PARTICLES

Park H. Miller, Jr., Del Mar, and William L. Whittemore, La Jolla, Calif., assignors to Gulf Energy & Environmental Systems, Inc., San Diego, Calif., a corporation of Delaware. by mesne assignments

Filed Aug. 2, 1967, Ser. No. 657,843
Int. Cl. G01t *3/00*
U.S. Cl. 250—83.1 13 Claims

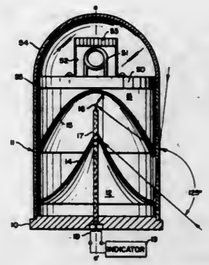


To determine the velocity distribution of particles, such as neutrons from a reactor, a beam of the particles is modulated at a first point by varying the particle density in accordance with an applied signal. The particles are detected at a subsequent point in the beam to produce a series of pulses corresponding to the detected particles, the time distribution of which is related to the applied signal and to the velocity distribution of the particles. The beam may be modulated cyclically and the detection pulses occurring at respective times in the cycle may be accumulated. The resulting signals may then be demodulated, using some function of the applied signal, for example by a correlation technique, to produce a signal indicative of the distribution of particle velocities. The particle density may be varied by apparatus comprising a series of absorbers and transparent bodies movable alternately across the beam.

3,551,676
AIRCRAFT COLLISION WARNING SYSTEM WITH PANORAMIC VIEWING REFLECTIONS

Russell W. Runnels, Rte. No. 1, Wilmington, Ohio 45177

Filed Apr. 19, 1968, Ser. No. 722,737
Int. Cl. G01j *1/28*
U.S. Cl. 250—83.3 14 Claims

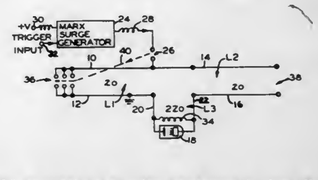


An aircraft warning system adapted to be mounted on an aircraft and to alert the pilot to the presence of nearby aircraft is disclosed. The warning system has a panoramic reflector with coaxial primary and secondary reflecting surfaces of revolution facing each other. One or more radiation detectors is positioned between the reflecting surfaces to receive radiation emitted by other aircraft, and electrical alarm indicator means are connected to the detector to warn the pilot that such radiation is being detected. In another preferred embodiment one or more aircraft beacons is included integrally with the sensor system and means are provided for inhibiting the electrical indicator from responding to radiation emitted by the aircraft's own beacon.

3,551,677
FIELD REVERSAL TYPE PULSE GENERATOR HAVING A SHORTING SWITCH IN THE FORM OF A PLURALITY OF PARALLEL SPARK GAPS

John L. Brewster, McMinnville, Oreg., assignor to Field Emission Corporation, McMinnville, Oreg., a corporation of Oregon

Filed Jan. 3, 1967, Ser. No. 606,864
Int. Cl. H05g *1/20*
U.S. Cl. 250—93 14 Claims

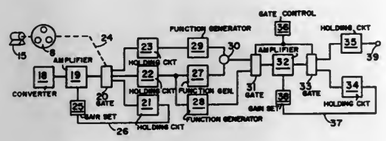


A field reversal-type pulse generator is described in which a plurality of parallel spark gaps are employed as the shorting switch at the end of one of a pair of coaxial transmission lines in such pulse generator. The parallel spark gaps have gas dielectrics and are caused to break down simultaneously by being irradiated with ultraviolet light emitted from the ionized gas of a main spark gap when charging current pulses are transmitted from a charging pulser through such main gap to the pulse generator. A Marx surge generator or a strip transmission line pulser is employed as the charging pulser. In one embodiment the field reversal pulse generator produced an output pulse of 600 kilovolts and 7000 amperes, having a width of 3 nanoseconds. The load connected to the output of the pulse is an electron radiation tube or an X-ray tube, both having field emission cathodes in the form of a plurality of spaced needle-shaped emitters.

3,551,678
PAPER PARAMETER MEASUREMENT USING INFRARED RADIATION

Richard L. Mitchell, Rochester, N.Y., assignor to Sybron Corporation, Rochester, N.Y., a corporation of New York

Filed Feb. 13, 1967, Ser. No. 615,422
Int. Cl. G01n 21/18
U.S. Cl. 250—83.3 21 Claims

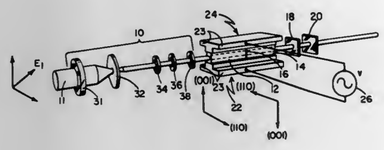


Infrared radiation at 1.935μ, 2.11μ and 1.8μ is passed through paper. The ratio of 1.935μ radiation intensity to 1.8μ intensity, after passage through the paper, and the ratio of 2.11μ radiation intensity to 1.8μ intensity, after passage through the paper, are determined. A mathematical expression is proposed relating these ratios and moisture content. The expression, based on the Lambert-Beer equation, gives moisture content as the logarithm of the former ratio modified by two other terms, each a function of the latter ratio. Tests of many papers to determine the numerical values of said functions, indicates that the one function is the slope of a straight line fitted to a plot of the negative of the logarithm of the said former ratio versus moisture content, that the other is the intercept of that straight line with the logarithm axis, and that a plot of slope versus ratio for these papers defines a single exponential curve from which, given a measurement of the ratio, the slope for almost any paper can be predicted closely. A corresponding plot of intercept versus ratio defines a single exponential curve from which the intercept for almost any paper can be predicted. In general, all paper parameters that might affect the measurement appear to be accounted for by these functions.

3,551,679
LOW DRIVE POWER WIDEBAND OPTICAL MODULATOR

Charles J. Peters, Wayland and William J. Rattman, Needham, Mass., assignors to Sylvania Electric Products, Inc., a corporation of Delaware

Filed Sept. 28, 1967, Ser. No. 671,258
Int. Cl. H04b 9/00
U.S. Cl. 250—199 7 Claims

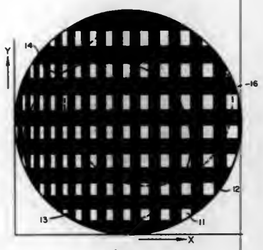


A wideband optical modulator operable with very low drive power and including electro-optic crystals of small height disposed between the electrodes of a thermally stable, low capacitance transmission line structure, and a beam condenser to reduce the diameter of an input light beam.

3,551,680
STAR FIELD OBSERVATION APPARATUS HAVING RETICLE WITH EXPONENTIALLY VARYING OPTICAL TRANSMITTIVITY AND MIRROR SWEEPING THE STAR FIELD ACROSS THE MIRROR AT EXPONENTIALLY VARYING VELOCITY

Sheldon A. Knight, Mountain View, Calif., assignor to American Standard Inc., a corporation of Delaware

Filed Nov. 23, 1964, Ser. No. 412,907
Int. Cl. G01j 1/20
U.S. Cl. 250—203 12 Claims

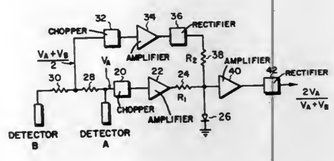


An apparatus for generating signals having frequency components corresponding to the position of discrete data comprising a transducer for receiving data images and generating a representative signal, means for projecting an image of each discrete data onto said transducer, a mask disposed to intercept said images, and means providing rectilinear relative movement between said images and said mask, said mask having an optical transmission which repeatedly varies in the direction of said relative movement whereby to modulate the intensity of each image so that a signal component is generated by the transducer corresponding thereto.

3,551,681
NON-SCANNING HORIZON POSITION INDICATOR INDEPENDENT OF PLANET RADIANCE VARIATIONS UTILIZING INVERTED OVERLAPPING FIELDS OF VIEW

Robert W. Astheimer, Westport, Conn., assignor to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware

Filed Sept. 4, 1964, Ser. No. 394,585
Int. Cl. H01j 39/12, 39/00
U.S. Cl. 250—209 2 Claims

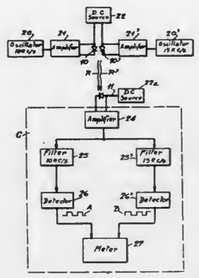


A nonscanning horizon position indicator is provided having at least two radiometric cells comprised of an objective, a triangular field mask positioned in the focal plane of the objective, a field lens and a radiation detector. The cells are positioned to provide inverted overlapping triangular fields of view with the outputs from their detectors combined and ratioed to provide an output which is linearly proportional to the horizon position and independent of planet radiance.

3,551,682
DEVICE FOR MEASURING RELATIVE DISPLACEMENT BETWEEN PLURAL LIGHT SOURCES AND A SCALE UTILIZING FREQUENCY MULTIPLEXING

Jean-Claue Kerhoas, Choisy-Le-Roi, Michel Paul Marie Metayer, Chilly-Mazarin, and James Remy Albert Teboul, Montrouge, France, assignors to Compagnie des compteurs, Paris, France, a company of France

Filed Apr. 18, 1969, Ser. No. 817,395
Claims priority, application France, Apr. 26, 1968, 149,562
Int. Cl. G01b 11/04; G02f 1/28; H01j 39/12
U.S. Cl. 250—214 6 Claims

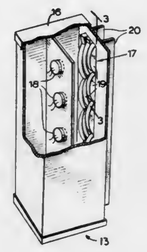


A photoelectric device for measuring relative displacement between a scale provided with equidistant lines and the image of a source on the scale in which the source is constituted by two electroluminescent diodes modulated by two different frequencies, the image of the source being received by a single photoelectric receiver provided with detecting means, the two detected frequencies actuating numbering means.

3,551,683
APPARATUS FOR DETECTING THE PRESENCE OF AN OBJECT IN A ZONE HAVING PHOTOCELLS AND A SERIES OF STAGGERED AND OVERLAPPING LENSES FOR PRODUCING MULTIPLE IMAGES ON SAID PHOTOCELLS

Gordon R. Tothill, Chatham, Ontario, Canada, assignor to Electro Dynamics & Telecom Limited, Chatham, Ontario, Canada, a corporation of Canada

Filed Sept. 24, 1968, Ser. No. 761,987
Int. Cl. G06m 7/00
U.S. Cl. 250—221 18 Claims

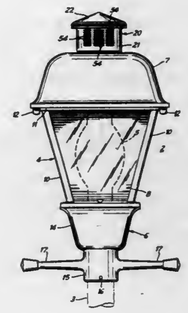


Apparatus for detecting the presence of an object in a zone traversed by a beam of light which includes a longitudinal light source with a series of overlappingly staggered lenses arranged opposite the source and photodetector means behind the lenses for responding to shadows cast by the object. Associated circuitry includes provision for triggering at predetermined threshold levels of light.

3,551,684
OUTDOOR LUMINAIRE ASSEMBLY HAVING PHOTOCONTROL HOUSING WITH LOUVERED LIGHT ADMITTING MEANS

James R. Burton, Franklin, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed June 27, 1968, Ser. No. 740,716
Int. Cl. F21s 1/10; H01j 5/16
U.S. Cl. 250—239 1 Claim

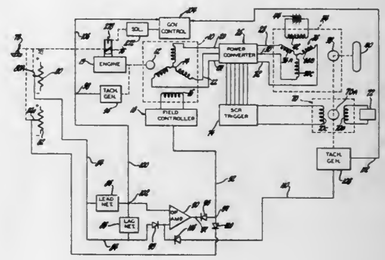


An outdoor luminaire assembly with a housing for ambient light sensitive control means. The housing encloses photocell means and has on one side a light admitting area comprising a series of parallel slits or louvers for substantially limiting the direction of the entry of ambient light to the photocell without unduly restricting the amount of ambient light from the desired direction of ambient light.

3,551,685
VEHICLE ELECTRIC DRIVE SYSTEM

Thomas M. Corry, Goleta, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

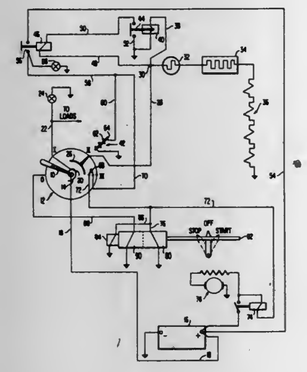
Filed Mar. 25, 1969, Ser. No. 810,250
Int. Cl. B60l 11/02
U.S. Cl. 290—14 8 Claims



A motive power system for a vehicle comprising an engine driven alternating current generator coupled to an electric drive motor through a power converter. The engine for driv-

ing the alternating current generator is an internal combustion engine and a control system is provided for operating the engine near optimum fuel consumption over varying speeds of the engine. This control system includes a device which provides a signal that is a function of the position of an engine fuel controlling throttle and this signal is compared with a signal that represents engine speed. The speed of the generator and engine are then controlled in accordance with any error signal that is detected by varying field current of the generator in response to the error signal. The control mode that has just been described can be modified by the operator and is modified during certain conditions of operation including a mode of operation where engine speed is increased when the ratio of the output frequency of the alternating current generator to motor frequency is less than a predetermined value. In addition the system includes a speed limiting circuit for the engine and vehicle as well as a circuit that prevents lurching of the vehicle when the vehicle is being accelerated from a stopped position.

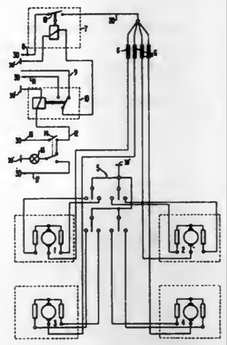
3,551,686
STARTER SYSTEM FOR A DIESEL ENGINE
Werner Koehler, Stuttgart-Schonberg, and Ulrich Kiess, Esslingen-Hegensberg, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Nov. 3, 1967, Ser. No. 680,418
Claims priority, application Germany, Nov. 5, 1966, D51477
Int. Cl. F02n *17/02*
U.S. Cl. 290—38 **12 Claims**



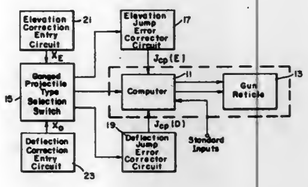
A starter installation for a Diesel engine provided with preliminary heating means, in which starting is controlled with the rotatable switch arm of a rotary switch; the switch arm is normally returned to its normal rest position and is prevented by a blocking means from reaching the starting position while the blocking means, in turn, is controlled by a heat-sensing device which senses the temperature of the engine.

3,551,687
ELECTRIC INSTALLATION FOR THE ACTUATING SWITCHES OF ELECTRICALLY OPERATED WINDOWS IN MOTOR VEHICLES
Egon Frey, Stuttgart-Degerloch, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Mar. 21, 1968, Ser. No. 714,902
Claims priority, application Germany, Mar. 21, 1967, D52585
Int. Cl. B60r *25/00*
U.S. Cl. 307—10 **8 Claims**

A current supply installation for the actuating switches of electrically operated window lifts in motor vehicles in which voltage can be selectively applied to the actuating switches either by means of the ignition switch or by means of an auxiliary switch that is operated in the manner of a door-closure switch.



3,551,688
JUMP ERROR CORRECTION SYSTEM
Roger H. Edelson, Los Angeles, and Millard M. Frohock, Jr., Thousand Oaks, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Apr. 30, 1969, Ser. No. 820,363
Int. Cl. H02j *1/00*
U.S. Cl. 307—11 **13 Claims**

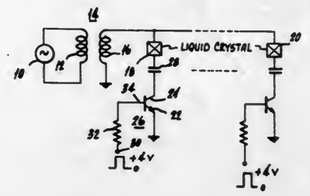


A system for automatically providing to a gun computer in a fire control system the proper jump error correction signals to compensate for the jump errors associated with each of a plurality of different types of projectiles to be fired by a gun. The system comprises elevation and deflection channels, each of which includes a single control for supplying a short term correction signal to compensate for the variation in environmental effects through a switching circuit to a corrector circuit which scales the associated short term correction signal and adds thereto a predetermined fixed jump signature signal derived as a function of the selected projectile type in order to produce the proper jump error correction signal for the selected projectile type.

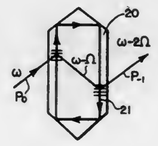
3,551,689
ALTERNATING CURRENT DRIVEN LOAD CIRCUIT
Louis A. Zanoni, Trenton, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Mar. 21, 1969, Ser. No. 809,180
Int. Cl. H02j *3/14*
U.S. Cl. 307—38 **4 Claims**

A simple switch for an alternating current driven liquid crystal element. The switch comprises the emitter-to-collector path of a bipolar transistor in series with a capacitor. A

liquid crystal display employs one switch per display element and this provides sufficient isolation among the elements that a single alternating current source may be employed for the entire display.

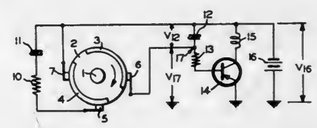


3,551,690
WAVE GENERATOR
Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Feb. 13, 1967, Ser. No. 615,398
Int. Cl. H03f *7/00*
U.S. Cl. 307—88.3 **8 Claims**



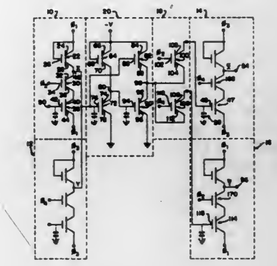
Electromagnetic waves, e.g., millimeter waves, are generated in an electro-optic material by directing a beam of electromagnetic radiation such as light at an angle, to the path of the generated waves, corresponding to the complement of the negative Bragg angle of interaction at the two different frequencies of the waves in the beam and the generated waves. In another aspect, wave energy is caused to propagate around a closed loop path in a ring-type cavity and a beam of electromagnetic waves is directed across the waves in the closed loop path at the Bragg angle; in this case, the waves propagated in that path may be either acoustic or electromagnetic waves.

3,551,691
DEVICE FOR DETECTING ROTATION
Katsutoshi Nishimura, Kiyoji Fujisawa, Isao Kozu, and Kozo Yamamoto, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Oct. 30, 1968, Ser. No. 771,905
Claims priority, application Japan, Nov. 2, 1967, 42/71049
Int. Cl. H01h *35/02*
U.S. Cl. 307—120 **13 Claims**



A rotation detecting device. A mechanical switch is provided which operates as a single-pole double throw switch. An electric circuit is responsive to the action of the mechanical switch. The mechanical switch comprises a rotating body which has at least one conductive segment on the surface thereof and contacts for electrically connecting the rotating body with the electric circuit. The electric circuit includes capacitors, the electric charge of which is controlled by the rotation of the rotating body.

3,551,692
INSULATED-GATE FIELD-EFFECT TRANSISTOR COUPLING CIRCUITS
Yao Tung Yen, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Nov. 25, 1968, Ser. No. 778,497
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 **20 Claims**

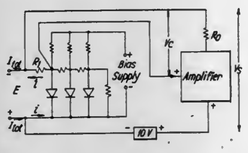


Insulated-gate field-effect transistor coupling circuits for coupling logic signals between clocked insulated-gate field-effect transistor logic circuits which are located on separate logic arrays are disclosed.

3,551,693
CLOCK LOGIC CIRCUITS
Joseph R. Burns, Trenton, and John James Gibson, Princeton, N.J., assignors to RCA Corporation, a corporation of Delaware
Continuation of application Ser. No. 513,396, Dec. 13, 1965, now abandoned. This application Aug. 25, 1969, Ser. No. 852,993
Int. Cl. H03k *19/08*
U.S. Cl. 307—205 **10 Claims**

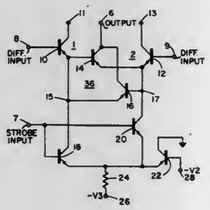
Clocked logic circuits employing only semiconductor devices. A plurality of semiconductor devices have their conduction paths connected in series across a pair of operating power terminals. At least one of the devices is driven by a clock signal and at least one other of the devices is driven by a data signal. The output signal is taken from a common connection of the conduction paths of the data and clock device conduction paths.

3,551,694
FLUID FLOW SIMULATION APPARATUS
Edward R. Boxall, Stevenage, England, assignor to British Aircraft Corporation, Limited, London, England, a British company.
Filed Nov. 22, 1967, Ser. No. 685,188
Int. Cl. G06g 7/12
U.S. Cl. 307—229 4 Claims



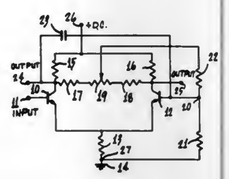
A circuit for simulating fluid flow in a pipe in a direct analog water network analyzer includes a pair of input terminals, a curve forming network connected to the input terminals and having a network of resistances and bias rectifiers to provide a progressively changing number of resistor-rectifier paths in response to a progressively changing input voltage. The network includes a first resistance which is always effective. The circuit also has an amplifier with a load resistor, the amplifier having high output impedance and a current characteristic such that current through the load resistor is dependent upon the input voltage to the amplifier and substantially independent of the supply voltage to the amplifier. The amplifier supply voltage terminals are connected to the circuit input terminals and the amplifier input terminals are connected to the supply circuit input terminals through a part of the first resistance of the function generating circuit.

3,551,695
BIPOLAR DIFFERENTIAL DISCRIMINATOR
William R. Fowler, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Nov. 30, 1967, Ser. No. 687,068
Int. Cl. H03k 5/20
U.S. Cl. 307—235 10 Claims



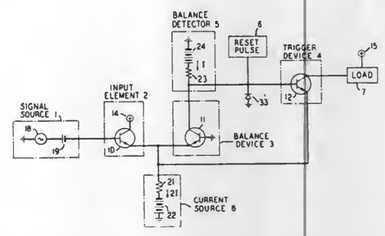
Disclosed is a bipolar differential discriminator and a system in which the discriminator is used. In the discriminator, first and second differentially connected input transistors are connected in cascade respectively with first and second discriminating transistors for driving same when the differential signal at the input transistors reaches a predetermined level. The discriminating transistors are connected to a common current output point and to a strobe gate containing one or more gating transistors. These gating transistors are differentially switched against a reference transistor when strobe signals applied thereto reach a certain level. The strobe signals enable the gating transistors to conduct and provide a current path from the discriminating transistors when the differential signals applied to the first and second input transistors reach the predetermined level.

3,551,696
OSCILLATING VOLTAGE RANGE INDICATOR
George William Gray, Lambertville, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Apr. 28, 1967, Ser. No. 634,727
Int. Cl. H03l 5/20
U.S. Cl. 307—235 6 Claims



Apparatus including a feedback amplifier for providing an oscillating output at an output terminal thereof when the apparatus is operating properly and only when the input voltage applied to an input terminal thereof is within a certain range of voltages, that is, within a voltage window.

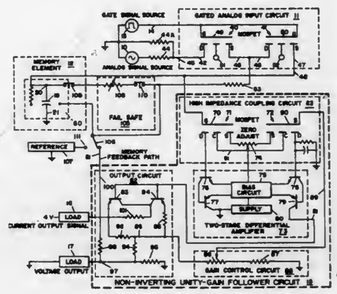
3,551,697
TRIGGER CIRCUIT EMPLOYING CONSTANT CURRENT SOURCES
James C. Candy, Convent Station, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed Mar. 13, 1968, Ser. No. 712,675
Int. Cl. H03k 5/20
U.S. Cl. 307—235 11 Claims



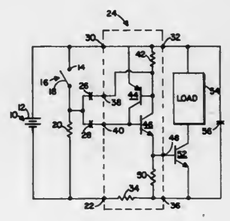
Signals which differ from a reference voltage by as little as 10^{-3} volts are detected in approximately 3 nanoseconds by an extremely stable and precise trigger circuit. As this circuit has a high input impedance, it neither unduly loads the signal source nor feeds significant transients back to its own input when it triggers. In addition, once triggered its output is insensitive to changes in input signal level.

3,551,698
ANALOG MEMORY SYSTEM
Lawrence R. Smith, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Feb. 1, 1968, Ser. No. 702,440
Int. Cl. G11c 5/06
U.S. Cl. 307—238 21 Claims

Two MOSFETs form a gated analog input circuit for selectively connecting an analog source to a capacitive memory element. The capacitive memory element is also connected through a MOSFET to a differential-amplifier type noninverting unity-gain follower circuit. The output signal of the follower circuit is supplied to a metallic layer forming a potential plane in juxtaposition to the capacitive memory element. A supporting insulated binding post for the capacitive memory element is mounted on the potential plane for reducing leakage losses from the memory element. The output signal is also supplied through a suitable resistor to the gated analog input circuit intermediate the two MOSFETs. This connection substantially reduces leakage through the input circuit. In this manner an extremely high impedance is provided for the memory element whenever its voltage is not being changed, such that even when power is removed voltage on the capacitive memory element is not altered over extended periods of time.



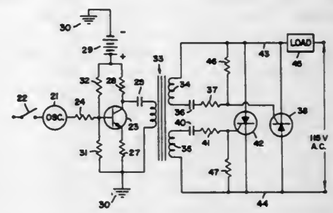
3,551,699
CONTROL APPARATUS
Fred Karwacki, Hopkins, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed July 10, 1967, Ser. No. 652,195
Int. Cl. H03k 17/00
U.S. Cl. 307—246 7 Claims



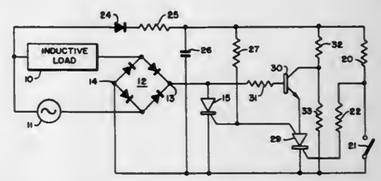
A circuit for providing a positive output pulse upon either the opening or closing of a switch which provides either positive or negative going input signals to the circuit.

3,551,700
SOLID-STATE LINE VOLTAGE SWITCH
Richard E. Greenan, Sunnyvale, Calif., assignor to Uthe Technology, Inc., Mountain View, Calif., a corporation of California
Filed Oct. 30, 1967, Ser. No. 678,810
Int. Cl. H03k 17/00
U.S. Cl. 307—252 1 Claim

A solid-state line voltage switch is disclosed for on-off control of AC power sources wherein a pair of one-way semiconductor switches are coupled back-to-back in parallel across the lines of the power source and in series with the load and wherein the gates of the one-way semiconductor switches are controlled by a signal derived from a small signal AC voltage generator operating in the low frequency range, amplified and put through a signal divider to the respective gates of the semiconductor switches.

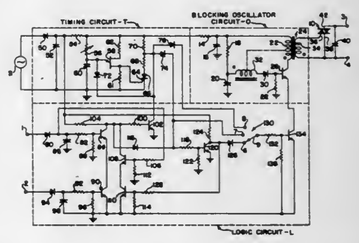


3,551,701
ELECTRONIC AC SWITCH
Donald A. Carlson, Des Plaines, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Mar. 22, 1968, Ser. No. 715,393
Int. Cl. H03k 17/00, 17/56
U.S. Cl. 307—252 1 Claim



An electronically-controlled AC switch uses a silicon-controlled rectifier circuit for initially supplying AC power to a load only when there is substantially no voltage across the load and for discontinuing the supply of AC power to the load only when there is substantially no current flowing through the load, irrespective of the times at which the load control switch contacts are opened or closed.

3,551,702
DUAL-INPUT TIME-DELAY SWITCHING CIRCUIT
Martin E. Levine, Bettendorf, Iowa, assignor to Gulf & Western Industries, Inc., New York, N.Y., a corporation of Delaware. by mesne assignments
Filed Sept. 26, 1968, Ser. No. 762,789
Int. Cl. H03k 17/00
U.S. Cl. 307—252 7 Claims



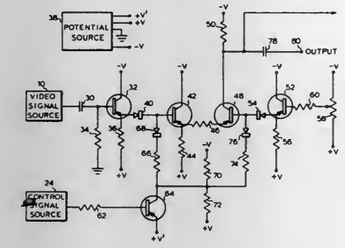
There is provided a dual-input, time-delay switching circuit for switching an alternating voltage source across a load after a predetermined period of time, comprising an electronic control means, such as a triac, having a first, second, and control electrode, and exhibiting the characteristic of

presenting a low impedance to current flow from the alternating voltage source to the load when a forward biasing signal is applied to the control electrode; and, circuit means for applying a forward biasing signal to the control electrode of the electronic control means. The circuit means includes a first and second actuatable switching means, for, when both are actuated, applying a forward biasing signal to the control electrode of the electronic control means; means for actuating the first actuatable switching means; timing circuit means for actuating the second actuatable switching means at a predetermined time after receipt of a second level signal; and, first and second circuit means each having a first and second condition, for, when both are actuated to the second condition, applying a second level signal to the timing circuit means so that the second actuatable switching means is actuated at a predetermined period of time after the first and second circuit means are actuated to the second condition.

3,551,703
ANALOG SWITCHING DEVICE

Vincent E. Bischoff, River Grove, Ill., assignor to A. B. Dick Company, Chicago, Ill., a corporation of Illinois

Filed Feb. 28, 1968, Ser. No. 708,966
Int. Cl. H03k *17/60, 17/16*
U.S. Cl. 307—254 **5 Claims**

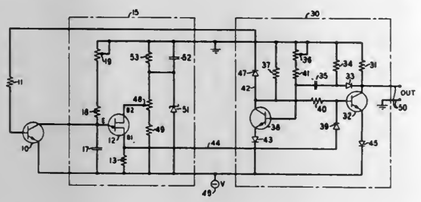


A switching circuit for switching analog signals is provided wherein a difference amplifier has diode switches connected thereto in a manner such that the analog signal at the input is amplified and passed to the output while the switching control signal levels are canceled and also without affecting the DC level of the signals being switched.

3,551,704
PULSE GENERATOR

Roger D. Baum, Middletown, and David L. Favin, Little Silver, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York

Filed Mar. 26, 1968, Ser. No. 716,201
Int. Cl. H03k *1/18*
U.S. Cl. 307—265 **10 Claims**

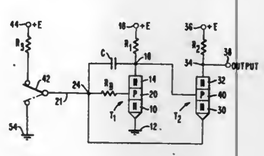


A unijunction transistor relaxation oscillator produces an output voltage pulse when the voltage across a charging capacitor in the oscillator reaches the predetermined voltage at which the unijunction transistor fires. A monostable multivibrator is triggered into its unstable state in response to the output voltage pulse from the relaxation oscillator and, in addition, is caused to clamp the potential across said capacitor during the unstable state to substantially zero volts, thereby preventing the capacitor from charging during the unstable state. Consequently, the period during which the monostable multivibrator is in its stable state is determined by the time constants associated with said relaxation oscillator and the period during which the monostable multivibrator is in its unstable state is determined by the timing constants associated with the monostable multivibrator. In addition, variations in the valley voltage associated with the unijunction transistor are prohibited from affecting the timing of the relaxation oscillator. The DC potential between the base electrodes of the unijunction transistor is provided from a circuit capable of providing a changeable potential in order to compensate for variations between unijunction transistors in the intrinsic standoff ratio.

3,551,705
ASYMMETRIC DELAY CIRCUIT

Hans Y. Juliusburger, Putnam Valley, N.Y., assignor to International Bussiness Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1969, Ser. No. 791,423
Int. Cl. H03k *17/26*
U.S. Cl. 307—293 **9 Claims**



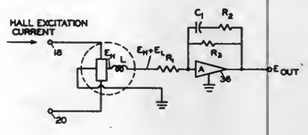
A delay circuit arrangement is provided wherein the output level is changed a predetermined time after a change of input level and that output level is then maintained until the input is returned to its original level. A first transistor T_1 is normally conducting and a second transistor T_2 is normally cut off. Both the input and output levels are up and a capacitor C is charged positively. When the input signal is applied, by closed a switch in the base circuit of T_1, the capacitor C is connected to ground. Both transistors are now cut off and the capacitor discharges to the ground connection until a value is reached at which T_2 will turn on. The time delay between input and output is substantially independent of the particular transistor characteristics and directly proportional to the value of C.

When the input switch is opened, a very rapid recharge of C takes place, very quickly cutting off T_2 and restoring the original output level.

3,551,706
HALL EFFECT DEVICE CONFIGURATIONS FOR EXTENDED FREQUENCY RANGE

Richard M. Chapman, Columbus, Ohio, assignor to F. W. Bell, Inc., Columbus, Ohio, a corporation of Ohio

Filed Oct. 15, 1968, Ser. No. 767,619
Int. Cl. G01r *33/06*
U.S. Cl. 307—309 **17 Claims**

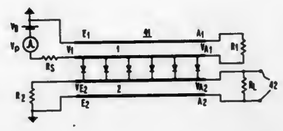


The invention is for an improved means of measuring the Hall voltage produced in a Hall effect semiconductor plate by an alternating magnetic field. In particular, the invention relates to a means of compensating for the induced pickup in the output lead connections to the Hall plate. The useful frequency range of the Hall effect semiconductor is thereby extended.

3,551,707
COUPLED TRANSMISSION LINES ARRANGEMENT

Dieter Seitzer, Zurich, Switzerland, assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Dec. 14, 1967, Ser. No. 690,592
Claims priority, application Switzerland, Dec. 22, 1966, 18382/66
Int. Cl. H01l *19/00;* **H01p** *5/12*
U.S. Cl. 307—317 **6 Claims**



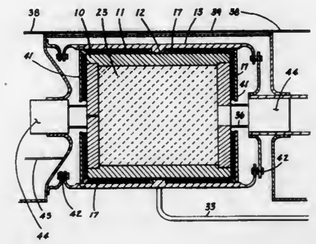
This disclosure provides a semiconductor diode, e.g., Schottky-barrier diode, coupled transmission lines arrangement wherein the electrodes of the coupling diode form input and output transmission lines. The transmission lines are arranged and coupled in such a way as to provide a directional coupling system which includes the parasitic elements of the coupling diode for preventing the occurrence of noise signals at the output terminal of the output transmission line when the coupling diode is backward biased. When the coupling diode is forward biased, an input pulse at the input of one transmission line is controllably transmitted with enhanced characteristics to the output of the other transmission line.

Through practice of the disclosed coupled transmission lines arrangement, noise signals caused by parasitic elements at high frequencies are suppressed. The arrangement is operable in the picosecond range and is useful in circuits employed for increasing the pulse slope steepness. It is also useful in suppressor and limiter circuits.

3,551,708
HEAT SHIELDED THERMIONIC CONVERTER

Robert R. Hobson, San Jose, Calif., assignor to General Electric Company, a corporation of New York

Filed Nov. 28, 1967, Ser. No. 686,112
Int. Cl. H01j *45/00*
U.S. Cl. 310—4 **16 Claims**



A thermionic converter useful to convert heat energy to electrical energy is disclosed. The thermionic converter has a collector electrode spaced adjacent an emitter electrode, the collector electrode being reduced in area to decrease cooling of the emitter electrode and permit the use of heat sources of lower heat density.

3,551,709
IMPROVEMENTS IN PYROMAGNETIC MOTORS

Miklos Kemenczky, Point Pleasant Beach, N.J., assignor to Paul Guidien, New York, N.Y.

Filed June 25, 1968, Ser. No. 739,680
Int. Cl. H02n *7/00*
U.S. Cl. 310—4 **14 Claims**

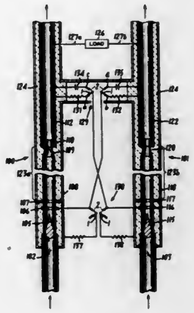


A pyromagnetic motor of the type including a radiant energy source and means confining source emissions to a localized sector of the ferromagnetic rotor lying within the magnetic field of a stator magnet wherein the surface of the stator magnet is made reflective to incident radiant energy. A radiant energy reflective element is associated with the stator magnet to direct onto the sector radiations emanating from both the source and the sector itself thereby increasing irradiation of the sector and averting deleterious heating of the magnet.

3,551,710
ELECTROGASDYNAMIC GENERATING SYSTEMS

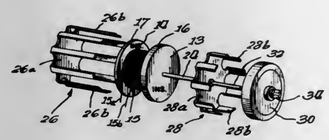
Meredith C. Gourdine, West Orange, N.J., assignor to Gourdine Systems, Incorporated, Livingston, N.J., a corporation of Delaware

Original application June 16, 1967, Ser. No. 655,977, now abandoned, which is a continuation-in-part of application Ser. No. 477,516, Aug. 5, 1965, now abandoned. Divided and this application Jan. 27, 1969, Ser. No. 794,273
Int. Cl. H02n *3/00*
U.S. Cl. 310—10 **5 Claims**



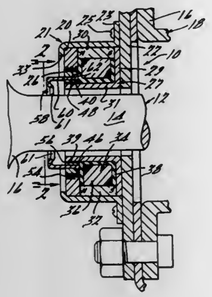
Electrogasdynamic systems operating in a stream of gas for obtaining a conversion between gaseous kinetic energy and electrical energy, in which two electrogasdynamic devices each comprised of ionizing electrodes and a collector electrode, separated by a dielectric channel wall, are electrically coupled regeneratively. In specific embodiments the collector electrode of each device is coupled to the ionizing electrode circuit of the other device through a resistive or reactive impedance to alternately change the polarity of electrical charges injected into the gas stream upon which each device operates.

3,551,711
ENCAPSULATED ELECTRIC MOTOR HAVING P-M ROTOR AND CLAW TOOTH STATION
Dhu Aine J. Davis, Wheaton, Ill., assignor to Hermetic Coil Co., Inc., a corporation of Connecticut
Filed Jan. 21, 1969, Ser. No. 792,722
Int. Cl. H02k *1/04, 21/12*
U.S. Cl. 310—43 **6 Claims**



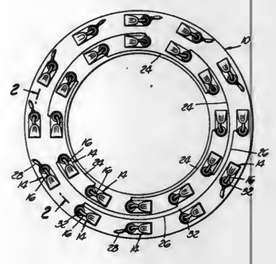
An encapsulated electric motor with a toroidal coil, a claw tooth stator and a permanent magnet rotor. The coil is positioned within a recess formed by the pole plate and pole pieces of the field poles of the stator with the first pole plate adjacent to one end of the core and the pole plate of the second field pole adjacent the other end of the core. The pole pieces of both poles extend in the same direction beyond one end of the core forming a recess within which a permanent magnet rotor is positioned. A unitary encapsulating casing of insulating material is molded about the motor to provide a hermetic seal, to hold the pole pieces against the coil, and to position and support the coil and pole pieces concentric with the longitudinal axis.

3,551,712
SENSOR WITH FLEXIBLE COUPLING
Malcolm D. Jones, Belleville, Mich., and Hugh E. Riordan, Wyckoff, N.J., assignors to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed July 25, 1968, Ser. No. 747,507
Int. Cl. H02k *11/00*
U.S. Cl. 310—67 **11 Claims**



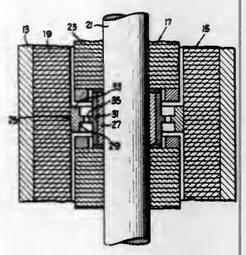
An electrical sensor for sensing rotational speed between a pair of relatively rotatable members with sensor including a pair of relatively rotatable poles being mounted, such that there will be substantially no change in air gap despite relative radial and axial movement between the relatively rotatable members.

3,551,713
MOTOR HOOK-UP RING
Franklin A. White, P.O. Box 4, Sunnymead, Calif. 92388
Filed Oct. 23, 1967, Ser. No. 677,390
Int. Cl. H02k *7/00*
U.S. Cl. 310—71 **6 Claims**



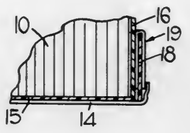
A device for completing the connections of a three-phase electrical motor. The device comprises a nonconductive ring having a plurality of connectors corresponding in number and position to the wires extending out of the motor, the ring having perforations through which the motor wires may be passed to permit connection to their respective connectors. The ring is prewired to establish the desired internal and external circuit connections.

3,551,714
SUBMERSIBLE MOTOR AND BEARING ARRANGEMENT THEREFOR
Clinton A. Boyd, Tulsa, Okla., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Delaware
Filed Dec. 30, 1968, Ser. No. 787,907
Int. Cl. F16c *17/14;* **H02k** *5/12, 5/16*
U.S. Cl. 310—87 **8 Claims**



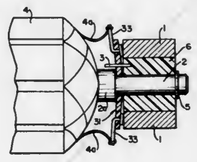
An elongated submersible electric motor having a stator comprising a plurality of magnetic laminations. A rotor including a plurality of segments and a supporting shaft is disposed within the stator. The rotor is supported by a plurality of spaced apart bearing assemblies which include a stationary journal supported by the stator and a sleeve which rotates with the shaft. The journal is made of a ceramic material such as for instance dialumina trioxide or beryllium oxide and has a resistivity of about 10^{14} ohms/cm.^{3} measured at 25° C.

3,551,715
STATOR WINDING WITH PRINTED CIRCUIT CONNECTORS
Cyril Silvertown, London, and Eddie Wharton, Beaconsfield, England, assignors to Rotax Limited, London, England, a British Company
Filed Apr. 23, 1969, Ser. No. 818,740
Claims priority, application Great Britain, May 6, 1968, 21264/68
Int. Cl. H02k *3/26*
U.S. Cl. 310—179 **2 Claims**



A dynamo electric machine including an annular stator structure on the internal periphery of which is secured a plurality of conductive strips which constitute the output strips being achieved by conductor configurations carried upon a printed circuit board.

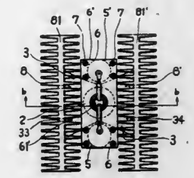
3,551,716
ELECTRIC CONTACTS FOR COLLECTOR LAMELLAE
Knut Jensen, Joachim Witting, and Gerhard Schwarze, Karl-Marx-Stadt, Germany, assignors to Zentrallaboratorium Elektrogerate der VVB Elektrogerate, Karl-Marx-Stadt, Germany
Filed Sept. 16, 1969, Ser. No. 858,410
Int. Cl. H02k *13/00*
U.S. Cl. 310—234 **11 Claims**



Electric contacts between nonmetallic, such as carbon, collector lamellae and metallic armature windings of electric motors, comprising a resilient, electrically nonconductive carrier disk to be disposed on the rotor shaft of the motor between the lamellae and the armature, and a plurality of rigid, conductive pressure members secured to the disk in a symmetrical, radial arrangement, the number of the members corresponding to that of the lamellae, for providing proper electric contact between the ends of the windings and the lamellae.

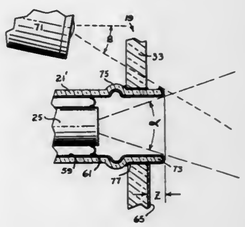
3,551,717
FINNED COOLER OF THE SOLID BLOCK TYPE FOR MAGNETRONS
Yoshio Kato, Mino, and Osamu Konosu, Otokuni-gun, and Yoshio Nakagawa, Fushimi-ku, Japan, assignors to Matsushita Electronics Corporation, Kadoma, Osaka-prefecture, Japan
Filed Mar. 6, 1969, Ser. No. 804,772
Claims priority, application Japan, Mar. 8, 1968, 43/15734
Int. Cl. H01j *7/42, 19/74, 25/50*
U.S. Cl. 313—46 **3 Claims**

The magnetron device of the present invention comprises a magnetron tube, a heat conducting core surrounding the said magnetron tube, heat radiating fins fixed to the said heat conducting core, and a magnetic circuit device for operation of the magnetron tube. The heat radiation system of the present invention assures sufficient spontaneous heat radiation for a magnetron tube of high frequency output as large as 500 watts.



The shape of the core is so designed that the heat of the magnetron tube can be conducted through it to the fins evenly as well as efficiently.

3,551,718
MEANS FOR CONTROLLING ELECTROSTATIC CHARGE ON THE REAR WINDOW OF A CATHODE RAY TUBE
Chris F. Bossers, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 20, 1968, Ser. No. 785,648
Int. Cl. H01j *29/34;* **H01i** *29/89*
U.S. Cl. 313—64 **3 Claims**

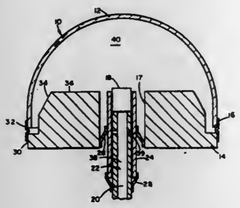


Means for controlling the electrostatic charge on the rear window of a cathode ray tube wherein a substantially annular-shaped optical access rear window is oriented in the tube envelope in substantially symmetrical relationship to the longitudinal axis thereof. The window which provides a substantially annular viewing area for observing the electron impinged side of the screen has electrical conductive means symmetrically associated therewith to control the electrostatic charge thereon.

3,551,719
ARC LAMP WITH CONCENTRIC ELECTRODES
Teddy J. Peacher and Dorwin L. Kilbourn, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 7, 1969, Ser. No. 789,526
Int. Cl. H01j *61/06, 61/30*
U.S. Cl. 313—110 **4 Claims**

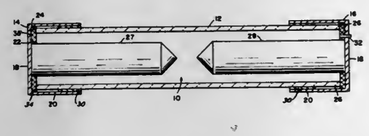
A concentric electrode arc lamp having a first electrode disposed in spaced concentric sealed relation about a second electrode and an envelope secured to the first electrode to provide an enclosure for retention of a gas therein. The second electrode is provided with a passage communicating into the interior of the enclosure for directing gas therein.

The electrodes are disposed for activation by application of an electric potential therebetween to cause arcing



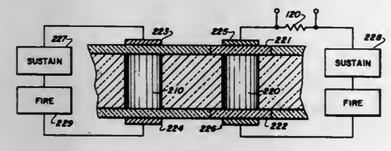
therebetween. The arc energizes the gas to produce radiation.

3,551,720
SEAL FOR HIGH PRESSURE SHORT-ARC LAMPS
Dorwin K. Kilbourn and Teddy J. Peacher, Huntsville, Raymond F. Askew, Auburn, Ala., and William D. Foster, Niceville, Fla.
Filed Jan. 28, 1969, Ser. No. 794,633
Int. Cl. H01j *61/36*
U.S. Cl. 313—182 **4 Claims**



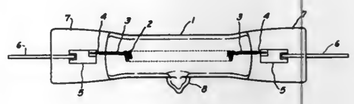
A high pressure arc lamp including an envelope enclosing a pair of electrodes. A pair of end caps are provided with a cylindrical portion enclosing the ends of the envelope. An epoxy bond is placed between the envelope and caps for securing the caps to the envelope. A deformable seal member is positioned between the ends of the envelope and the caps to enhance sealing therebetween.

3,551,721
GAS-FILLED DISPLAY DEVICE HAVING CAPACITIVE ENVELOPE
George E. Holz, North Plainfield, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Sept. 11, 1967, Ser. No. 668,290
Int. Cl. H01j *17/04, 61/04*
U.S. Cl. 313—204 **3 Claims**



The disclosure is of a gas plasma cell having electrode carrying end walls of a material having a high dielectric constant, greater than that of glass, so that the cell has high capacitance. The disclosure is also of a matrix of such cells and combinations of such cells and other cells having lower capacitance.

3,551,722
HALOGEN REGENERATIVE CYCLE INCANDESCENT LAMPS
Richard H. Holcomb, South Euclid, and John J. McHale, Cleveland Heights, Ohio, assignors to General Electric Company, a corporation of New York
Filed Sept. 9, 1968, Ser. No. 758,494
Int. Cl. H01r *1/50*
U.S. Cl. 313—222 **2 Claims**



A halogen cycle incandescent lamp contains, as the source of halogen, a hydrocarbon compound of iodine, such as methyl iodide.

3,551,723
LIGHTING FIXTURE WHICH IS FLEXIBLE AND CAN BE COILED
Henri Popko Van Groningen, Essendonkstraat 6, Essen-near-Antwerp, Belgium
Filed June 19, 1968, Ser. No. 738,257
Claims priority, application Belgium, June 28, 1967, 46,991, 700,597; Dec. 18, 1967, 47,992, 708,103; May 28, 1968, 47,504, 715,757
Int. Cl. H01d *1/88, 19/42*
U.S. Cl. 313—250 **6 Claims**

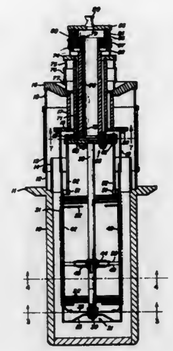


Flexible lighting fixture consisting of a transparent tubular element formed by an open section provided with two longitudinal grooves containing electric leads, said section being subsequently bent to form a tube and containing a series of bulbs contacting said leads.

3,551,724
CATHODE STRUCTURE HAVING THERMAL EXPANSION COMPENSATING MEANS
William H. Nevins, Stamford, Conn., assignor to The Machlett Laboratories, Incorporated, Springdale, Conn., a corporation of Connecticut
Filed June 16, 1967, Ser. No. 646,602
Int. Cl. H01j *1/96, 19/50;* **H01k** *1/18*
U.S. Cl. 313—278 **6 Claims**

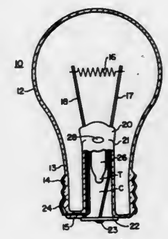
A supporting structure for a filamentary cathode of an electron tube, which structure includes a conductive bellows at one end of the cathode structure for connecting a filament-supporting cylinder to a cathode terminal part of the tube envelope while simultaneously permitting longitudinal

motion of the cylinder under thermal expansion stresses, and resilient members connected to the filaments for permitting



independent longitudinal motion of the filaments when undergoing thermal elongation.

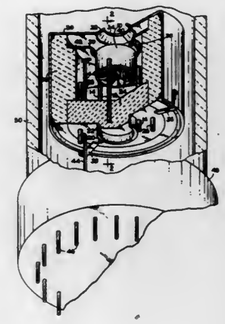
3,551,725
METHOD OF TIPPING-OFF THE EXHAUST TUBE OF AN ELECTRIC LAMP, AND A BASELESS SINGLE-ENDED INCANDESCENT LAMP PRODUCED BY SUCH METHOD
William L. Brundige, West Caldwell, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 7, 1969, Ser. No. 805,231
Int. Cl. H01j *5/50*
U.S. Cl. 313—318 **8 Claims**



The exhaust tube of an electric lamp is tipped off at a point which is recessed within the stem cavity by fabricating the envelope and stem from infrared-radiation transmitting glass and by fabricating the exhaust tube from infrared-radiation absorbing glass. The exhaust tube is tipped off within the stem cavity by a focused beam of infrared-radiation that is generated by an external source and passes through the intervening portions of the lamp envelope and stem tube. Since the tipping-off operation is accomplished without gas fires, it can be performed in a pressurized chamber. This, in turn, facilitates the manufacture of incandescent lamps containing a fill gas at supraatmospheric pressure.

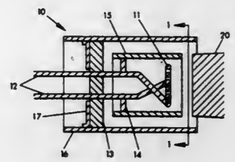
The recessed tipping-off of the exhaust tube also provides a practical single-ended baseless incandescent lamp wherein the lead wires are electrically connected to side and end contacts that are fastened directly to the sealed neck of the envelope.

3,551,726
THERMIONIC ELECTRON EMISSION DEVICE HAVING LOW HEAT LOSS
Luther Earl Blankenship, Hillsboro, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Sept. 23, 1968, Ser. No. 761,702
Int. Cl. H01j *1/22, 19/16, 29/04*
U.S. Cl. 313—337 **11 Claims**



An indirectly heated cathode of small size and low power dissipation is described including a cathode member mounted on a plurality of hollow tubular supports of low heat conductivity material to reduce heat conduction loss. In addition, a heat shield of ceramic material is provided around the cathode member and its heater filament to reduce heat radiation loss. As a result the cathode requires only 0.4 watt of heater input power to heat the cathode to approximately 800° C. and cause an electron discharge current of approximately 10 milliamperes to be emitted from an emitting surface on the cathode member of 0.1 inch diameter. Thus the ratio of emitting area per input power is very high for the present cathode at .02 square inch per watt.

3,551,727
THERMIONIC CONVERTER HAVING A LOW WORK FUNCTION COLLECTOR ELECTRODE
Andrew O. Jensen, and David H. Pollock, Arcadia, Calif., assignors to Xerox Corporation, a corporation of New York, by mesne assignment
Filed June 15, 1967, Ser. No. 646,298
Int. Cl. H01j *1/14, 19/06*
U.S. Cl. 313—346 **5 Claims**

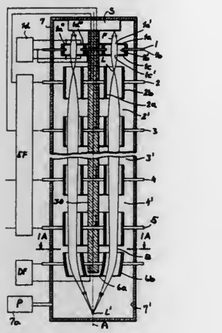


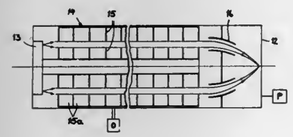
A high temperature, low "work function" composite surface, particularly for the collector electrode of thermionic converters, which is formed by a thin layer of refractory metal containing less than 1 percent insulating metal oxide. A method of forming a high temperature, low "work function" composite surface by simultaneously vapor-depositing a refractory metal and an insulating metal oxide on a substrate.

3,551,728
HIGH INTENSITY LINEAR ACCELERATORS

Petrica Croitoru, Bucharest, Rumania, assignor to Insitutul De Fizica Atomica, Bucharest, Rumania, and institute of Rumania

Filed Apr. 9, 1968, Ser. No. 719,963
Claims priority, application Rumania, Apr. 10, 1967, 53,518
Int. Cl. H01j *25/34, 25/10*
U.S. Cl. 315—3.5 12 Claims



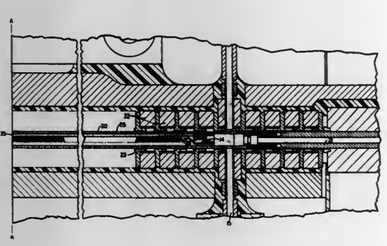


A particle accelerator of the electrostatic, wave guide or cavity-resonator type in which a tubular electron or ion beam is introduced at one side of the elongated evacuated chamber at an annular-beam source, may be focused by an intermediate electrostatic lens, and accelerated by particle-accelerator means of annular construction through the evacuated chamber. At the output end of the accelerator, an annular axially symmetrical deflector arrangement is provided to focus the beam upon the axis of symmetry of the device.

3,551,729
TRAVELING WAVE TUBE HELIX SUPPORT STRUCTURE

Charles E. Bradford, Wyomissing, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed June 25, 1969, Ser. No. 836,452
Int. Cl. H01j *25/34*
U.S. Cl. 315—3.5 5 Claims

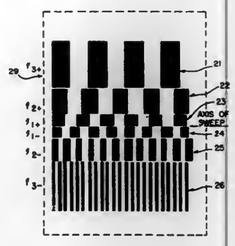


In a traveling-wave tube using a periodic permanent magnet focusing system, a plurality of helix turns nearest the collector are unsupported by the dielectric support rods. This increases the tolerable electron impingement of the helix by reducing the heat transfer to the support rods and resultant contamination by out-gassing.

3,551,730
METHOD OF ALIGNING A SCAN PATTERN WITH A SURFACE PATTERN

Brian Keith Conrad, 1307 Capulet Court, McLean, Va.

Filed Mar. 7, 1969, Ser. No. 805,341
Int. Cl. H01j *29/72*
U.S. Cl. 315—10 16 Claims

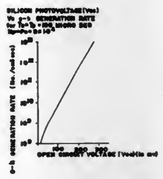


Method of aligning a scan pattern with a surface pattern. A deflectable beam is swept to form the desired scan pattern. The beam is swept across incremental segments of an alignment pattern to obtain lateral and angular displacement correction information indicative of a lack of coincidence condition of the scan and surface patterns. This pattern coincidence error recognition information is processed and applied to a set of deflection plates to correct the scan pattern configuration and orientation to make it coincident with the surface pattern.

3,551,731
IMAGE CONVERSION BY A SEMICONDUCTOR JUNCTION ARRAY

Joseph W. C. Harpster, Columbus, Ohio, assignor to The Ohio State University, Columbus, Ohio, an Institution of Higher Learning

Filed Dec. 8, 1967, Ser. No. 689,128
Int. Cl. H01j *29/41*
U.S. Cl. 315—12 15 Claims



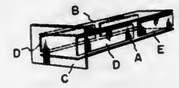
The invention is for an image conversion or intensification device utilizing the photovoltaic characteristics of semiconductor junctions and an electron beam scan of the radiation induced voltage.

3,551,732
ASYMMETRIC DEFLECTION SYSTEMS FOR CATHODE RAY TUBES

Tadao Urano, Tokyo, Japan, assignor to Iwatsu Electric Company Ltd., Suginami-Ku, Tokyo, a corporation of Japan

Filed Apr. 16, 1969, Ser. No. 816,757
Claims priority, application Japan, Apr. 18, 1968, 43/26104
Int. Cl. H01j *29/74*
U.S. Cl. 315—18 3 Claims

In an electrostatic type asymmetrical deflection system for cathode ray tubes comprising a pair of spaced apart parallel deflection plates for defining a passage for an electron beam and an accelerating means, sets of opposing electrodes are provided in parallel with the electron beam and substantially perpendicular to the deflection plates. One of the deflection

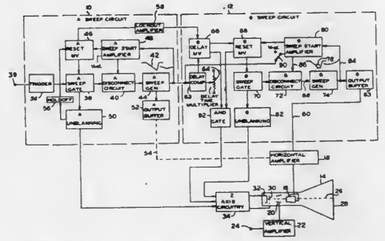


plates and one set of electrodes close to the accelerating means are connected to a source of signal and the other deflection plates and the other set of electrodes are grounded.

3,551,733
MULTIPLE SWEEP DISPLAY

Robert M. Johnson, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon

Filed Apr. 7, 1969, Ser. No. 813,945
Int. Cl. H01j *29/52, 29/72*
U.S. Cl. 315—22 18 Claims

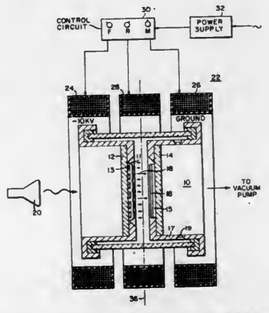


The sweep circuitry of a cathode ray oscilloscope includes first and second independently operable time base generators. The first is triggerable in timed relation with an input waveform, and the second controls the horizontal electron beam deflection in a cathode ray tube. The second time base generator is adjustably triggered from the sweep waveform output of the first time base generator as the latter reaches a selected value. Prior to triggering of the second time base generator, the output of the second time base generator is completely controlled by the first, but after triggering, the second time base generator output is adjustable entirely independently of the first.

3,551,734
MULTI-COIL ELECTRON IMAGE CONTROL APPARATUS

Terence W. O'Keeffe, Pittsburgh, Pa., and James Vine, Ilford, Essex, England, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 18, 1968, Ser. No. 784,585
Int. Cl. H01j *29/56*
U.S. Cl. 315—31 12 Claims

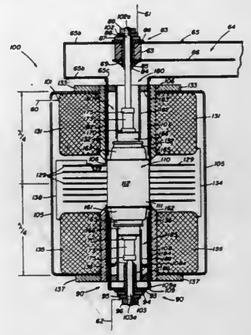


The invention is an arrangement of three electromagnetic coils disposed in coaxial relationship about an image tube to control the magnetic field strength and magnetic field uniformity for the purpose of adjusting the image focus, rotation, and magnification.

3,551,735
CROSSED-FIELD DISCHARGE DEVICES AND OSCILLATORS AND AMPLIFIERS INCORPORATING THE SAME

James E. Staats, Louisville, Ky., assignor to General Electric Company, a corporation of New York

Continuation of application Ser. No. 483,733, Aug. 30, 1965, now abandoned. This application Sept. 10, 1969, Ser. No. 860,155
Int. Cl. H01j *25/34*
U.S. Cl. 315—39.3 64 Claims

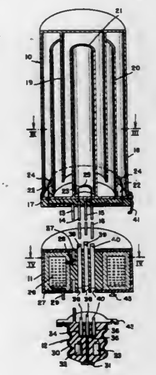


There is disclosed a crossed-field discharge device including a hollow anode structure and a cathode structure disposed therein and cooperating therewith to define an axially extending interaction space, the anode structure having axially extending anode recesses therein in which are mounted rods supported independently both of said anode structure and said cathode structure, and a pair of end structures joining respectively the opposite ends of the anode structure and the cathode structure and the rods for mechanically supporting the same while providing electrical insulation therebetween; there also are disclosed oscillators and amplifiers incorporating the crossed-field discharge devices therein.

3,551,736
FLUORESCENT LAMPS CONSTRUCTED FOR USE IN CONVENTIONAL LIGHT FIXTURES

Gunther Anthony Doehner, 8 Tyson Lane, Rumson, N.J.

Filed Apr. 2, 1968, Ser. No. 718,076
Int. Cl. H01j *61/33;* H05b *41/232*
U.S. Cl. 315—100 3 Claims



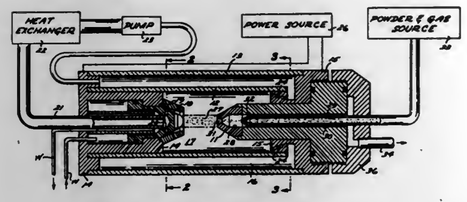
Special fluorescent lamp tubes of size to go into an ordinary light fixture and having a screw contact form of base to go into the screw socket usually provided for an incandescent

lamp and said screw base having combined with it the ballast and starter required for operation of the fluorescent tube.

3,551,737
GAS VORTEX-STABILIZED RADIATION SOURCE AND METHOD, AND ADDITIVE-INTRODUCTION MEANS THEREFOR

Ronald E. Sheets, Westminster, Calif., assignor to Geotel, Inc., a corporation of Delaware

Continuation-in-part of application Ser. No. 491,120, Sept. 29, 1965, now abandoned. This application June 20, 1966, Ser. No. 558,693
Int. Cl. H01j 17/26; H05b 31/26
U.S. Cl. 315—111 27 Claims

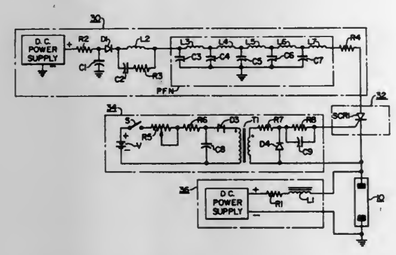


A gas vortex-stabilized radiation source in which one electrode has an opening therein, and in which only a minor proportion of the vortically flowing gas is drained from the arc chamber through such opening. The disclosure also relates to an additive-type radiation source in which means are provided to entrain additive into a carrier gas and thereby conduct the additive to a region located in the vicinity of the electric arc, in combination with means to drain the carrier gas from such region in order to minimize cooling and disruption of the arc by the carrier gas.

3,551,738
CONDENSER DISCHARGE LAMP CIRCUIT WITH A PULSE FORMING NETWORK AND A KEEP ALIVE CIRCUIT

Robert G. Young, Nutley, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 30, 1969, Ser. No. 795,258
Int. Cl. H01s 3/09; H03k 3/53; H05b 41/232
U.S. Cl. 315—171 7 Claims

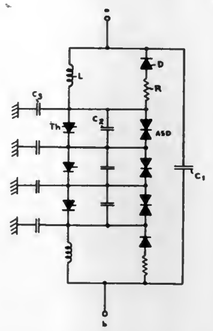


Pulse operative combination discharge device and operational means therefor, which provides high light output, and superior maintenance for a long operative lifetime. The discharge device comprises a capillary arc-tube with an inert gas fill. The pulse operational means comprises a pulse operative power supply network connected to the discharge device by a fast acting, repetitively operable switching means which is controlled by means for opening and closing the switching means for predetermined repetitive periods of time, and a keep-alive reactive network and power supply connected in parallel with the discharge device for sustaining a discharge in the capillary arc-tube when the switching means is open.

3,551,739
THYRISTOR CHAIN COMPRISING THYRISTORS CONNECTED IN SERIES

Hans Jurg Bossi, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint stock company

Filed Feb. 17, 1969, Ser. No. 799,631
Claims priority, application Switzerland, Feb. 16, 1968, 2331/68
Int. Cl. H05b 37/00
U.S. Cl. 315—200 2 Claims

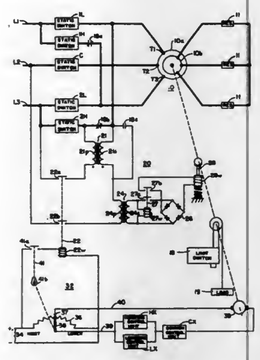


A thyristor chain comprises a number of series-connected thyristor groups each of which contains a series connection of several thyristors paralleled by avalanche diodes and an inductance, and a capacitance connected in parallel with the entire group. The inductance is composed of two parts located in the series circuit at opposite ends of the group and a bridging diode oppositely poled with respect to the conducting direction of the thyristors is connected in parallel with each inductance part.

3,551,740
LIMIT CONTROL FOR AN ALTERNATING CURRENT MOTOR

Frank Alan Manners, Cleveland Heights, Ohio, assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed May 31, 1970, Ser. No. 733,431
Int. Cl. H02k 17/02
U.S. Cl. 318—203 6 Claims



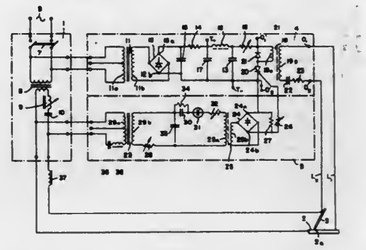
An electrical control system for a polyphase motor driving a hoist mechanism and including a power circuit limit switch. The direction and magnitude of the torque of the motor are controlled by static variable impedance devices in the power circuit. The voltage across an operating coil of a brake is maintained constant during normal hoisting and lowering operation, regardless of the voltage at the motor terminals,

by a brake control circuit including a control transformer which has its primary and secondary windings connected in series with each other through a normally closed contact of the limit switch. Upon overhoisting, the limit switch trips and the motor and brake are disconnected from the source and can be energized only to permit operation of the motor in the lowering direction.

3,551,741
ARC STRIKING OR STABILIZATION NETWORK HAVING A DETECTING TRANSFORMER AND CAPACITOR CONNECTED TO THE ELECTRODE

Franz Tajbl, Pullach, Isartal, and Max Gillitzer, Munich, Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany, a corporation of Germany

Filed June 28, 1968, Ser. No. 741,065
Claims priority, application Germany, July 4, 1967, 1,615,363
Int. Cl. H05b 39/02, 39/04
U.S. Cl. 315—209 17 Claims

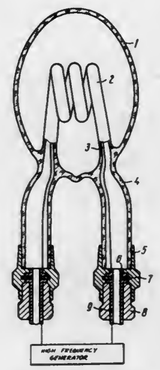


A method of and a circuit for the stabilization of electric arcs and for the ignition of welding or plasma arcs in which a zero-passage detecting transformer is connected across the alternating current input to the arc electrode system and supplies a storage capacitor discharging upon conductivity of a breakdown device to operate a solid-state semiconductor switch (thyristor) to discharge the main storage capacitor and apply the pulse thereof to the arc gap just after zero-passage in the welding alternating current or just before the maximum of the supply current is reached for ignition.

3,551,742
ELECTRODELESS HIGH-FREQUENCY LIGHT SOURCE

Valentin Anatolievich Gruzdev, Zelenograd Korpus 338 "b," kv. 87; Alexandr Alexeevich Bakeev, Zelenograd korpus 425, kv. 28, and Boris Vasilievich Skvortsov, Zelenograd Korpus 308, kv. 25, all of Moscow, U.S.S.R.

Filed Mar. 6, 1969, Ser. No. 804,800
Int. Cl. H01j 7/26, 11/02; H05h 41/24
U.S. Cl. 315—248 2 Claims



An electrodeless high-frequency light source, wherein a field coil which is essentially a solenoid supplied from a high-frequency generator, is enclosed throughout its length into an envelope and is displaced within a bulb filled with operating gas; the ends of the insulation envelope are led out from the bulb to supply coolant into the envelope.

3,551,743
STATIC ELIMINATOR

Donald H. Koepke, Elgin, and Lewis F. Jennings, McHenry, Ill., assignors to Varco Incorporated, a corporation of Illinois

Filed Feb. 21, 1968, Ser. No. 707,163
Int. Cl. H05x 3/04
U.S. Cl. 317—2 4 Claims

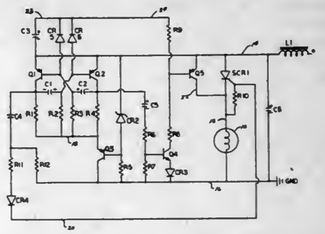


A generator-type static electricity neutralizer, preferably for use in business machines wherein webs of material, such as paper, are fed therethrough characterized in that the several emitter points of the neutralizer have a smooth shape which terminates in a sharp point, thereby eliminating undesired secondary emitting points.

3,551,744
FLASHER CONTROL CIRCUIT

Adam L. Keller, Michigan City, and Marvin R. Baugh, LaPorte County, Ind., assignors to Meridian Industries, Inc., a corporation of Delaware, by mesne assignments

Filed Nov. 16, 1967, Ser. No. 783,614
Int. Cl. H05b 37/03; H02h 3/08
U.S. Cl. 317—16 6 Claims

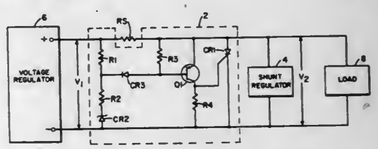


A flasher circuit including a silicon controlled rectifier serving as a switching means and having a low cost transistor with a saturation level lower than the holding voltage of the switching rectifier in shunt connected operative control thereacross.

3,551,745
SHUNT REGULATOR OVERVOLTAGE TRIP

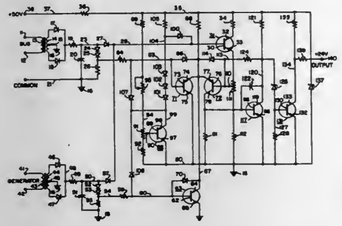
John F. Nicholas, Liverpool, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed July 8, 1968, Ser. No. 743,167
Int. Cl. H02h 3/20
U.S. Cl. 317—16 5 Claims



A device wherein a silicon controlled rectifier connected across a regulator output is turned on to short the regulator output when the regulator output voltage exceeds a nominal level. The gate current to key the silicon controlled rectifier into operation is supplied by a circuit in which a transistor compares the regulator output voltage with a fixed bias voltage.

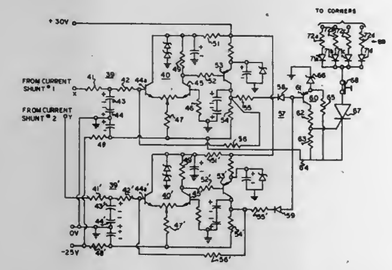
3,551,746
VOLTAGE ACCEPTOR CIRCUIT AND OVERVOLTAGE UNDERVOLTAGE DETECTOR FOR USE THEREIN
Tibor Rubner, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 2, 1968, Ser. No. 695,020
Int. Cl. H02h *3/36*
U.S. Cl. 317—26 **24 Claims**



An overvoltage-undervoltage detector suitable for use in generator-synchronizing equipment and other electrical apparatus gives a signal suitable for indication or control, such as permitting or preventing electrical connection, when any one of several alternating voltages is outside a certain band, the bandwidth being adjustable, in one embodiment the center voltage of the band also being adjustable. When the invention is used in generator synchronizing equipment, the voltage on an energized line, hereinafter referred to as the "bus voltage," and the voltage of a generator to be connected to the bus are full wave rectified and filtered to obtain direct current voltages. Both these voltages after division are supplied to a level detector including a differential amplifier preferably with positive feedback. In one embodiment, inputs to the level detector are clamped by a Zener diode, the voltage thereacross being selected so that its value corresponds to the voltages obtained when both bus and generator voltages are at the desired voltage. The threshold of the level detector is adjustable and is calibrated to have a value at which the threshold level is exactly the same as the Zener diode voltage while the arm of a potentiometer is at the end thereof of greater voltage. A circuit arrangement of diodes and transistors is provided which senses both undervoltage and overvoltage of either the bus or generator.

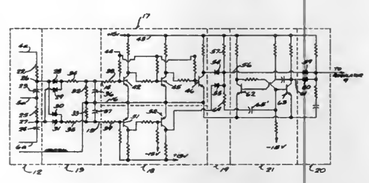
In another embodiment the Zener diode is replaced by a variable reference voltage.

3,551,747
PULSE WIDTH MODULATED BRIDGE POWER AMPLIFIER PROTECTION CIRCUIT
John A. Joslyn and William J. Lubitz, Dalton, Mass., assignors to General Electric Company, a corporation of New York
Filed Feb. 24, 1969, Ser. No. 801,368
Int. Cl. H02h *7/08*
U.S. Cl. 317—33 **10 Claims**



A bridge power amplifier protection circuit for simultaneously shutting down on all four corners of a bridge power amplifier in response to an overcurrent condition being sensed by an overcurrent-sensing resistor connected in series circuit relationship with the power-switching devices and load or power input terminals of a bridge power amplifier. The bridge power protection circuit comprises a control signal shaping and amplifying circuit that is responsive to the output from the overcurrent-sensing resistor for amplifying and shaping a control signal indicative of the overcurrent condition. A common, fast responding, gate-controlled conducting device such as a silicon control rectifier or other thyristor device has its control gate operatively coupled to and controlled by the output from the control signal shaping an amplifying circuit. The gate control conducting device is connected in common to respective corner-connecting circuits for connecting the common gate control conducting device to control the operation of the respective corner power-switching devices of the bridge power amplifier for turning off all four corner power devices simultaneously in response to the gate-controlled conducting device being rendered conductive upon an overcurrent condition being sensed by the overcurrent-sensing resistor. The overcurrent-sensing resistor preferably is comprised by a plurality of overcurrent-sensing resistors connected in series circuit relationship with the corner power-switching devices and the load and the power input terminals of the bridge power amplifier and an OR gate selection circuit is provided to which the output from the various overcurrent-sensing resistors are supplied. The output of the OR gate selection circuit in turn preferably is supplied to a threshold detecting circuit that operates to turn on the gate-controlled conducting device only upon the output signal level from the OR gate selection circuit exceeding a preset threshold level.

3,551,748
POLYPHASE FULL WAVE RECTIFIED POWER CIRCUIT HAVING PHASE DETECTION MEANS
John T. Maynard, New Berlin, and John E. Lunz, Milwaukee, Wis., assignors to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York
Filed Oct. 10, 1968, Ser. No. 766,588
Int. Cl. H02h *3/26*; **H02p** *7/00*; **H02m** *1/18*
U.S. Cl. 317—47 **15 Claims**

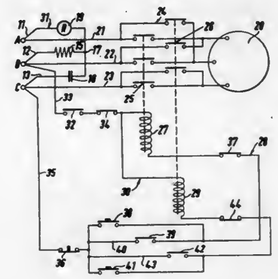


This disclosure includes a three-phase full wave rectified system for energizing a motor armature.

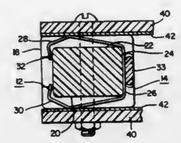
A series resistor-capacitor R-C network is connected across each of two different phases with the resistance and the capacitors oppositely connected with respect to a common line. A full wave rectifier and divider establish a positive control signal and a negative control signal which are fed to a logic circuit and establish a control output only in the presence of proper phase sequence and a minimum phase voltage. As a result of the two-phase rectification, a gap occurs in the control output which is overridden by a hold circuit.

3,551,749
VALVE ACTUATING MECHANISMS
Donald L. Hore, Bath, England, assignor to Rotork Engineering Company Limited, Bath, England
Filed Dec. 8, 1967, Ser. No. 689,188
Claims priority, application Great Britain, Dec. 15, 1966, 56165/66
Int. Cl. H02h *3/26*
U.S. Cl. 317—48 **6 Claims**

This invention relates to a polyphase electric motor operated actuator which has a reversing starter circuit forming an integral part of the actuator assembly and which is selectively operable for changing the phase rotation of the motor supply to reverse the direction of rotation of the motor. The actuator includes a star-connected control circuit which is sensitive to the phase sequence of the electrical supply. The circuit comprises a voltage sensing relay, a resistor and a capacitor. The relay is operative to prevent energization of the starter circuit unless the actuator supply is properly phase connected.



3,551,750
CIRCUIT BOARD CONNECTOR
Maurice S. Sterling, Willow Grove, Pa., assignor to Hugh H. Eby, Co., Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 21, 1969, Ser. No. 817,769
Int. Cl. H02b *1/02*
U.S. Cl. 317—101 **10 Claims**

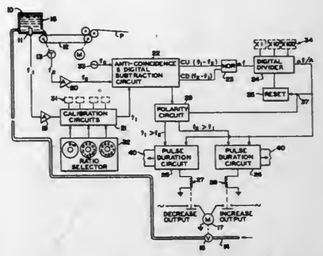


A circuit board connector having spring contact elements received in transverse channels is provided with retaining means for exerting a clamping bias at the intermediate portions of the spring contact elements.

3,551,751
SWITCHING SYSTEM FOR INDUCTIVE LOADS
Friedel Twellsiek, Milse, near Bielefeld, Germany, assignor to Schleicher Regelautomatik GmbH & Co., KG, Bielefeld, Germany, a corporation of Germany
Filed Feb. 19, 1968, Ser. No. 706,392
Claims priority, application Germany, Feb. 18, 1967, Sch 40,271; Mar. 10, 1967, 1,638,279; Mar. 25, 1967, 1,638,280; Apr. 19, 1967, 1,638,283; June 21, 1967, 1,638.288; July 8, 1967, 1,638,289; Oct. 14, 1967, 1,588,826; Dec. 13, 1967 1,638,295
Int. Cl. H02h *1/00*
U.S. Cl. 317—123 **14 Claims**

One or more inductive loads are individually energized from a source of pulsating or continuous direct current and are shunted by respective condensers, or by a common condenser, which upon disconnection of any load from the source receive the inertia current of the load by way of a low-ohmic charging circuit including a diode; the condenser is subsequently discharged over a high-ohmic circuit which may lead, e.g. through another diode, over a resistor or over a different inductive load to be energized upon deenergization of the first load. With pulsating current, energization may be initiated by the triggering of a controlled rectifier which cuts off after the first half cycle while the condenser keeps the load current flowing, the cutoff being inductively translated into a command voltage which triggers the same or another controlled rectifier to repeat the cycle, possibly with a different operating voltage; the switchover from one voltage to another may also occur under the control of an RC network in the input circuit of the first controlled rectifier.

3,551,752
DIGITAL EFFLUX RATIO CONTROLLER
Lambert Haner, Rocky River, and Philip C. Dolsen, Garfield Heights, Ohio, assignors to Avtron Manufacturing Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 28, 1967, Ser. No. 671,394
Int. Cl. G06f *15/46*
U.S. Cl. 317—138 **4 Claims**

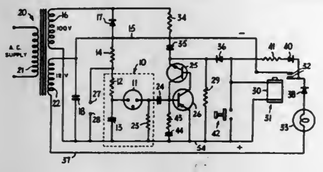


Digital frequency differencing and control apparatus useful as a speed ratio controller has an outwardly adjustable calibrator for one pulse train input, a digital subtractor which subtracts the frequency of the output of the calibrator from the frequency of another pulse train input, an adjustable digital divider fed by the subtractor, adjustable duration circuits fed by the divider, and a pair of relays respectively fed by said circuits to be alternatively operative, thus to maintain a speed ratio as predetermined at the calibrator and at a proportional rate predetermined by divider and duration circuits adjustments.

3,551,753
THREAD END DETECTOR
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation, a corporation of Delaware
Filed Mar. 6, 1968, Ser. No. 710,855
Int. Cl. H01h *47/12*, *47/04*; **G08b** *21/00*
U.S. Cl. 317—146 **10 Claims**

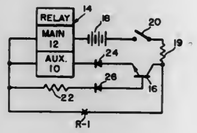
A detector is described for sensing a conductive portion on a thread and then activating an indicator which remains active after the conductive portion has left the sensing station.

The circuit includes a relaxation oscillator, a semiconductor switch, a relay and an indicating means. A normalizing switch



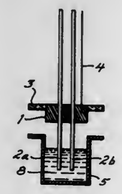
may be operated to return the circuit to its original condition.

3,551,754
SENSITIVE PICK-UP RELAY
William E. Shaffer, Rochester, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware
Filed Nov. 4, 1968, Ser. No. 772,964
Int. Cl. H01b 47/06
U.S. Cl. 317—155.5 6 Claims



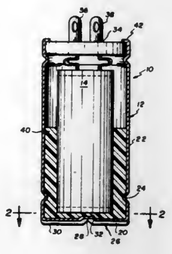
An arrangement for increasing the sensitivity of a relay or other electromechanical actuator. In the preferred case, an auxiliary winding is used in series with a switching transistor and the main winding. The auxiliary winding and transistor are shunted by a pair of normally open contacts of the relay. When an energizing voltage is applied, the transistor conducts, and the auxiliary winding contributes to the sensitivity of the relay. When the relay picks up, the auxiliary winding is shunted out of the circuit, and the transistor is biased to cut off, effectively open-circuiting the auxiliary winding and making it ineffective to delay subsequent drop out of the relay when it is deenergized. An alternative arrangement omits the transistor, simply shorting the auxiliary winding when the relay picks up.

3,551,755
ELECTROCHEMICAL CONTROL CELL INCLUDING NOVEL ELECTROLYTE AND ELECTRODES
Hans Bode; Karin G. Meyer, Ernst Rieder, Frankfurt am Main, and Ernst Voss, Niederhofheim, Taunus, Germany, assignors to Varta Aktiengesellschaft Hagen, Germany, a corporation of Germany
Filed May 23, 1966, Ser. No. 552,325
Claims priority, application Germany, May 22, 1965, V28530
Int. Cl. H01g 9/00
U.S. Cl. 317—230 3 Claims



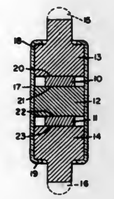
An electrochemical measurement and control cell comprising an electrolyte which has a solution of an anhydrous salt of a working metal dissolved in an anhydrous, inert, nonionizing, low freezing organic solvent typified by an alkyl nitrile or dimethylsulfoxide.

3,551,756
ELECTROLYTIC CAPACITORS WITH MECHANICALLY STABILIZED ELECTRODE ASSEMBLY
Eugene F. Frekko, Sanford, N.C., assignor to Cornell-Dubilier Electric Corporation, Newark, N.J., a corporation of Delaware
Filed Nov. 6, 1968, Ser. No. 773,794
Int. Cl. H01g 9/06
U.S. Cl. 317—230 11 Claims



An electrolytic capacitor having an electrode winding impregnated with electrolyte is contained in an envelope and held in position and against rotation in the envelope by a potting mass. The envelope has ribs and grooves that interlock with the potting material so there is no dependence on adhesion between the potting mass and the envelope. The impregnant contains a solvent, e.g. dimethylformamide, and the potting mass is a material that resists the solvent, e.g. polypropylene, polyethylene, and epoxy resins.

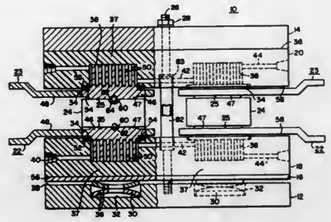
3,551,757
ZENER DIODE MADE WITHOUT DOPING OF SEMICONDUCTOR MATERIAL
Ib Knud Kristensen, Nordborg, Denmark, assignor to Danfoss AS, Nordborg, Denmark, a company of Denmark
Filed Nov. 10, 1966, Ser. No. 593,403
Int. Cl. H01l 9/00
U.S. Cl. 317—234 1 Claim



A semiconductor diode having Zener characteristics having a body of semiconductor material between metallic electrodes bearing with pressure on the semiconductor material to form a surface area contact defining a rectifying barrier layer between the electrode without doping of the semiconductor material. Conduction can occur in the semiconductor material by a form of field emission that suddenly increases the number of carriers in the barrier layer upon application of a potential across the barrier layer in a direction and magnitude to effect nondestructive breakdown of the barrier layer. Another body of semiconductor material is sandwiched between one of the metallic electrodes and another metallic electrode forming a surface area contact defining a rectifying barrier layer between the electrodes and similar to the first-mentioned layer. Means are provided to hold the electrodes

applying pressure to each body of material and ohmic contacts are provided to apply the potential to the outermost electrodes and the entire assembly can function as two diodes in series.

3,551,758
FLUID COOLED HEAT SINK ASSEMBLY FOR PRESSURE CONTACTED SEMICONDUCTOR DEVICES
Herbert E. Ferree, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 8, 1969, Ser. No. 789,836
Int. Cl. H01l 1/12
U.S. Cl. 317—234 5 Claims



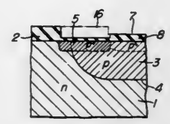
Leveling of one or more flat package semiconductor devices in a fluid cooled heat sink assembly is achieved by employing an electrically insulating heat sink housing having one or more flexible portions cooperating with a resilient sealing member disposed between the housing and an electrically and thermally conductive heat sink in pressure contact with each flat packaged semiconductor device. The flexible portions resiliently permit limited movement of the heat sink with respect to the semiconductor device to conform with the abutting surfaces of the device. The thermal energy created by each device is transferred by the heat sink to a coolant fluid circulated through the heat sink housing. This arrangement enables not only individual semiconductor devices to be applied to contact the entire surface of a heat sink, but also enables several semiconductor devices with height differences and surface nonparallelism to be made into a satisfactory assembly.

3,551,759
SEMICONDUCTOR
Manfred Tschermak, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany, a corporation of Germany
Continuation-in-part of application Ser. No. 737,653, June 17, 1968, now abandoned. This application Mar. 28, 1969, Ser. No. 814,512
Int. Cl. H01l 1/14
U.S. Cl. 317—234 8 Claims



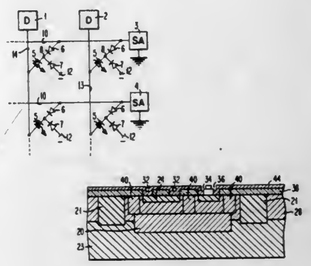
The invention relates to a compact lead-in of at least one electrical and/or heat conductor through an insulator. According to the invention, the conductor is a porous sintered metal body, which is enclosed and at least partly penetrated by a synthetic material which simultaneously forms the insulator. The conductor may comprise at least one housing portion of metal which is contacted with one of the connecting faces of the semiconductor body. The housing portion and jacket portion together with the conductor structure completely encapsulate the semiconductor body. The housing portion and/or the conductor portion, at least at the locality adjacent to the plastic material of the jacket, consists of sintered material.

3,551,760
SEMICONDUCTOR DEVICE WITH AN INVERSION PREVENTING LAYER FORMED IN A DIFFUSED REGION
Takashi Tokuyama; Shigeru Nishimatsu; Keijiro Uehara, and Takaaki Mori, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Mar. 23, 1967, Ser. No. 625,523
Claims priority, application Japan, Mar. 28, 1966, 41/18721
Int. Cl. H01l 11/06
U.S. Cl. 317—235 16 Claims



A semiconductor device in which a $p+$-type inversion preventing layer with high impurity concentration is formed in a p-type base diffused region in the vicinity of and including the edge portion of a collector-base junction to prevent induction of an $n+$-type inversion layer and hence an abnormal increase in the backward current.

3,551,761
INTEGRATED PHOTODIODE ARRAY
Carl E. Ruoff, Appalachin, and Edward F. Winter, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Aug. 13, 1968, Ser. No. 752,317
Int. Cl. H01l 15/00, 19/00
U.S. Cl. 317—235 3 Claims

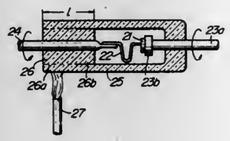


A monolithic integrated circuit chip having a matrix of photosensitive cells in a wafer material. The photosensitive cells are arranged so that they may be selected in a columnar fashion. Each cell is isolated within the chip and consists of a multianode common cathode photosensitive structure.

3,551,762
SEMICONDUCTOR DEVICE AND METHOD OF MAKING SAME
Takio Naitoo, Yamanashi-ken, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed July 26, 1967, Ser. No. 656,222
Claims priority, application Japan, Aug. 5, 1966, 41/73,680
Int. Cl. H01l 1/08
U.S. Cl. 317—236 17 Claims

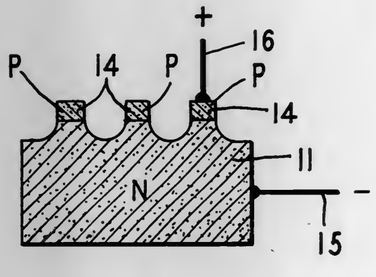
An encased semiconductor device comprising a cylindrical case of glass have an opening at one end and a leadout wire

to which a semiconductor pellet is mounted on the other end, a whisker contacting to said pellet, and a glass bead adapted to said opening, said bead having a lead connected to said



whisker and being partially welded along the inner wall of said opening, and the remaining part of said bead serving as a guide for maintaining said whisker in a right position, and a method of making the semiconductor device.

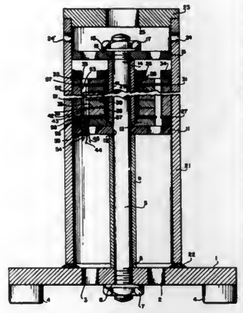
3,551,763
MAGNESIUM ZINC TELLURIDE AND ELECTROLUMINESCENT DEVICE
Basil W. Hakki, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J., a corporation of New York
Filed Sept. 6, 1968, Ser. No. 757,821
Int. Cl. H01l *3/20*
U.S. Cl. 317—237 **3 Claims**



$(Mg_x Zn_{1-x})$ Te semiconductor compositions, wherein x ranges from 0.15 to 0.04, have been found to be amphoteric and manifest electroluminescent properties.

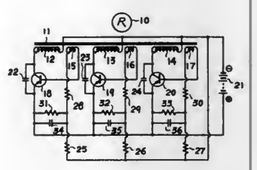
3,551,764
PIEZOELECTRIC LINEAR ACTUATOR
Ernest B. Evans, Valencia, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Feb. 28, 1969, Ser. No. 803,257
Int. Cl. H02n
U.S. Cl. 318—116 **8 Claims**

An electrically-powered actuator is described having a selectively reversible, rectilinear, mechanical output. A fixed pair of piezoelectric elements is cyclically energized to provide a series of very small incremental displacements which cause an output member to move with a cumulative motion. One of the piezoelectric elements of the pair provides a controlled frictional restraint to clamp the output member while



the remaining piezoelectric element imparts an incremental motion thereto. Staged elements increase the power output.

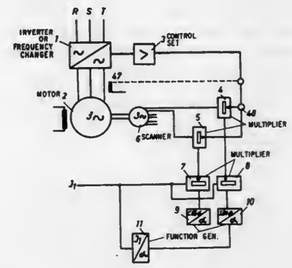
3,551,765
COMMUTATORLESS MOTOR
Takao Miyasaka, Yokohama, Japan, assignor to Victor Company of Japan Limited, Yokohama City, Japan, a corporation of Japan
Filed Feb. 27, 1968, Ser. No. 708,636
Claims priority, application Japan, Mar. 3, 1967, 42/13,456
Int. Cl. H02p *7/28*
U.S. Cl. 318—138 **5 Claims**



A commutatorless motor for use with a DC power source including a three-phase inverter circuit formed by field coils of symmetrical three-phase detection coils, each in the same phase as each of said field coils. Transistor circuits are disposed outwardly of the motor with each connected to each of said coils, whereby rotating fields are generated in the motor stator by said field coils to rotate the motor rotor.

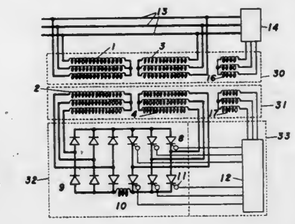
3,551,766
REGULATABLE AND CONTROLLABLE INVERTER OR FREQUENCY CHANGER ARRANGEMENT FOR FEEDING AC MOTORS
Herbert Stemmler, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint stock company
Filed Feb. 26, 1968, Ser. No. 708,370
Claims priority, application Switzerland, Mar. 10, 1967, 3,492/67
Int. Cl. H02p *5/28*
U.S. Cl. 318—179 **7 Claims**

A control circuit for operating a multiphase alternating current of the synchronous or asynchronous type from the output of a multiphase inverter includes a scanner which produces for each motor phase a first sinusoidal voltage representative of the instantaneous position of the motor rotor and a second output voltage similar to the first output voltage but phase displaced from the latter by 90°. The voltages produced by the scanner are combined in multipliers with other voltages representative of phase current and other



motor characteristics and the output voltages of the multipliers are used to control operation of the inverter.

3,551,767
ELECTRIC CONTROL SYSTEM FOR INDUCTION MACHINE CONTAINING WINDING ELEMENTS OF TWO WOUND ROTOR INDUCTION MACHINES
Fukuo Shibata, 13 Tokiwa-cho, Nishinomiya, Japan
Original application Mar. 14, 1970, Ser. No. 624,119, now Patent No. 3,531,701. Divided and this application May 21, 1969, Ser. No. 832,550
Claims priority, application Japan, Mar 14, 1966, 41/16,008; Mar. 31, 1966, 41/20,320
Int. Cl. H02p *7/36*
U.S. Cl. 318—197 **10 Claims**



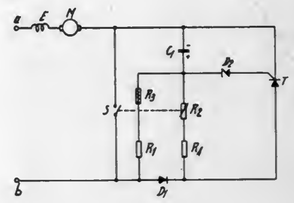
In an induction machine arrangement having elements of two wound rotor induction machines which contains two stator windings and two rotor windings rotating mechanically together with each other, the two stator windings are embedded in slots of one stator, and the two rotor windings are embedded in slots of one rotor, further controlled rectifiers are connected electrically between terminals of the two rotor windings; whereby are obtained a control system of a wide speed range when operating as a motor and a constant frequency control system when operating as a generator.

ERRATUM

For Class 318—203 see:
Patent No. 3,551,740

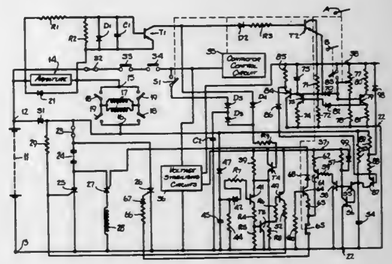
3,551,768
ADJUSTING SYSTEM FOR UNIVERSAL MOTORS
Jean-Claude Lagier, Onex-Geneva, Switzerland, assignor to Mefina S. A. Fribourg, Switzerland, a corporation of Switzerland
Filed May 28, 1968, Ser. No. 732,624
Claims priority, application Switzerland, May 31, 1967, 7730/67
Int. Cl. H02p *5/00*
U.S. Cl. 318—245 **2 Claims**

A system for adjusting under similar conditions an alternating current motor fed by mains of different voltages, wherein the thyristor or the like means controlling the feed of the motor is energized through a Zener diode which is in its turn fed by the discharge of a condenser. The latter is connected



with an element having a nonlinear characteristic curve such as a resistance of the VDR type, which compensates the influence of the nominal voltages of the different mains.

3,551,769
ELECTRICAL CONTROL SYSTEMS FOR THE DRIVE MOTOR OF AN INDUSTRIAL TRUCK
David C. Tedd, Cornwells Heights, Pa., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Jan. 11, 1968, Ser. No. 697,202
Int. Cl. H02p *5/06*
U.S. Cl. 318—285 **1 Claim**

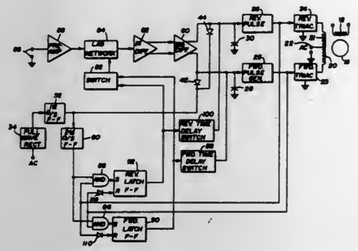


The drive motor of an industrial truck is operated by power pulses normally held to a constant width by the charging of a capacitor, with speed control by a pedal operated potentiometer that varies the charging of a further capacitor so as to vary the interval between power pulses. For plugging control, there is a usual power contactor interlock, and a transistor antiplugging arrangement that controls the further capacitor to reduce the interval between pulses. To prevent excessive current during the constant width pulses, there is a switch operated by release of the driver's control pedal so as to cause the first-mentioned capacitor to reduce the pulse width. If the pedal then is depressed in an attempt to plug, the plugging current will cause a diode to hold the first capacitor in pulse reducing condition. A brake operated switch will short circuit the potentiometer so that the speed control pedal need not be released when the brake is applied.

3,551,770
MOTOR DRIVE CIRCUIT
Wayne R. Isaacs, Houston, Tex., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Nov. 5, 1968, Ser. No. 773,398
Int. Cl. G05f *1/08*
U.S. Cl. 318—597 **11 Claims**

A circuit is disclosed for driving a motor with periodic current pulses that vary in duration. A detection circuit monitors

the duration of the pulses to determine when the motor is in a slew and/or limit condition. The detection circuit inac-

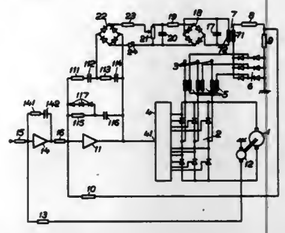


tivates a portion of the drive circuit when in the limit condition until the input signal reverses the direction of travel.

3,551,771
STATIC SHUNT MOTOR CRANE HOIST CONTROL SYSTEM WITH FIELD SUPPLY ON POWER FAILURE
Robert L. Risberg, Milwaukee, and Richard P. Serbiak, Glendale, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed June 17, 1968, Ser. No. 737,709
Int. Cl. H02p *5/04*
U.S. Cl. 318—302 **5 Claims**

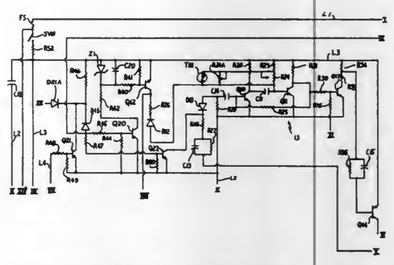
A static control system for the shunt field motor of a crane hoist control having a static field supply and a solid state reversing chopper supplied from a constant potential bus for armature control with a first SCR controlled resistor loop for 75 percent second quadrant retarding torque and a second SCR controlled resistor loop usable with the first one for 150 percent fourth quadrant retarding torque. Bootstrap circuits minimize the firing circuit power supply requirements for the resistor loops. Solid state antiplugging control is incorporated in the direction and speed control circuit. Limit stop backout at reduced torque and speed is provided from the constant potential bus. A unidirectional diode circuit affords automatic field energization from the armature in the event of power failure. Commutating inductor energy decaying resistors are relocated in the chopper circuit to protect the chopper and directional SCR's from induced voltages during commutation and to protect the bus from a short circuit if both SCR's fail as added functions. Field weakening and field strengthening controls are incorporated in the direction and speed control circuit.

3,551,772
CLOSED CONTROL SYSTEM HAVING MEANS RESPONSIVE TO THE AMPLITUDE OF SELF-OSCILLATIONS TO MODIFY ONE OR MORE PARAMETERS OF THE SYSTEM
Vilmos Torok, and Curt Hansson, Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed Nov. 27, 1967, Ser. No. 685,922
Claims priority, application Sweden, Nov. 29, 1966, 16,283/66
Int. Cl. G05b *11/01;* **H02p** *5/12*
U.S. Cl. 318—308 **4 Claims**



In a closed control system, in which the amplitude of self-oscillations is dependent on one of the parameters of the system, means is provided responsive to variations in the amplitude of the self-oscillations to modify such parameter in such a direction as to stabilize the system.

3,551,773
DRIVE SYSTEM FOR AN ELECTRIC TRUCK
Alan C. Dannettell, Robert V. Nemiroff, Philadelphia, and David C. Tedd, Cornwells Heights, Pa., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Mar. 22, 1967, Ser. No. 625,148
Int. Cl. H02p *7/28*
U.S. Cl. 318—341 **20 Claims**

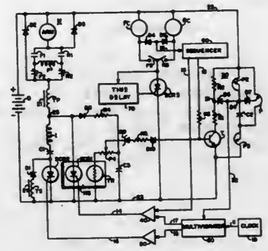


In an electric truck having a DC motor which is energized by unidirectional current pulses of uniform amplitude which are applied at a substantially fixed frequency and have a duration which may be adjusted over a predetermined range to vary the energization of the motor, means are provided for limiting the durations of the pulses and the rate of increase of the durations to predetermined values to limit the acceleration of the truck according to a predetermined function and to protect the system from overloads under various conditions.

3,551,774
CURRENT LIMITING CIRCUIT FOR A SOLID STATE D. C. MOTOR CONTROL CIRCUIT
Philip H. Rusch, Wauwatosa, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Apr. 4, 1969, Ser. No. 813,535
Int. Cl. H02p *5/16*
U.S. Cl. 318—341 **5 Claims**

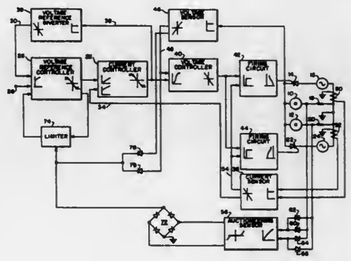
A current limiting circuit for a solid state DC motor control circuit wherein the energizing current to the motor is

controlled by a silicon controlled rectifier that is intermittently switched to a conductive state so that the motor is supplied with pulses of direct current. The current limiting circuit is controlled by a means that is responsive to the temperature of the rectifier as the rectifier is heated by the current pulses and a means that is responsive to the height of voltage spikes which appear at the anode of the rectifier



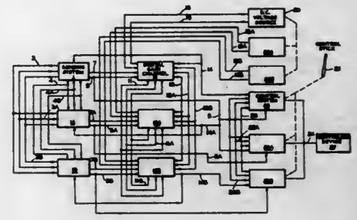
when the rectifier is switched to a nonconductive state. The height of the voltage spikes are proportional to the current flow through the motor. The current limiting circuit responds to the height of the voltage spikes and the temperature of the rectifier and causes the solid state circuit to progressively decrease the duration of the current pulses in response to a progressive increase in the current flow and the temperature of the rectifier.

3,551,775
CURRENT LIMIT PROTECTION FOR INDIVIDUAL MOTORS FOR A MULTIMOTOR DRIVE SYSTEM
Mohammed Safiuddin, Buffalo, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 12, 1968, Ser. No. 759,276
Int. Cl. H02p *7/74*
U.S. Cl. 318—434 **8 Claims**



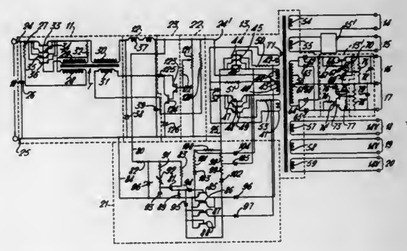
Described is a motor control system for a plurality of motors employing current limit protection, wherein the current through each motor is sensed and if the current through any motor should exceed a predetermined maximum limit, a signal is fed back to a voltage adjustable limiter for the outer voltage or speed controller for the motors.

3,551,776
TRIPLE REDUNDANT SERVO FLIGHT CONTROL INCLUDING DIGITAL RESYNCHRONIZATION OF CHANNELS, DETECTION OF FAILED CHANNELS, AND VOTED OUTPUT
David A. Tawfik, Rego Park, N.Y.; Frank J. Thomas, West Paterson, and George H. Pfersch, Randolph Township, Dover, Morris County, N.J., assignors to The Bendix Corporation, a corporation of Delaware
Filed Oct. 1, 1968, Ser. No. 764,245
Int. Cl. G05b *11/00*
U.S. Cl. 318—564 **11 Claims**



A triple redundant system for controlling an aircraft in response to gain-adjusted error signals. Each servochannel includes a separate sensing means for providing voted outputs of the actual and expected response of the aircrafts. These outputs are sampled and the differences in digital form are accumulated in a counter for each channel. A comparison is made between counters and they are resynchronized if necessary and if possible. A failure alarm indicates only if a channel cannot be synchronized for three successive attempts to prevent nuisanse disengagements. A voted output of all three channels is provided.

3,551,777
INVERTER-CONVERTER WITH REGULATION OF AC AND DC OUTPUTS
Donald W. Bingley, South Woodford, London, England, assignor to AMP, Incorporated, Harrisburg, Pa.
Continuation of application Ser. No. 526,900, Feb. 11, 1966. This application Dec. 26, 1968, Ser. No. 788,690
Int. Cl. H02p *13/26;* **H03b** *3/00*
U.S. Cl. 321—2 **6 Claims**

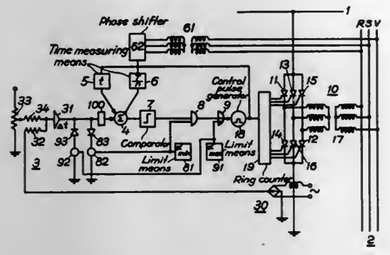


An unregulated DC supply voltage is pulse-width-modulated, regulated and integrated to provide a preregulated DC voltage which is applied to an inverter, the frequency of which is controlled by a synchronizer energized by the preregulated DC voltage. Networks coupled to the output from the inverter provide regulated AC and DC outputs.

3,551,778
CONTROL SYSTEM FOR A STATIC CONVERTER CONNECTING A DC NETWORK TO AN AC NETWORK

Åke Ekström, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Filed Nov. 27, 1968, Ser. No. 779,368
Claims priority, application Sweden, Dec. 1, 1967, 16,515/67
Int. Cl. H02m 1/08, 1/18, 7/72
U.S. Cl. 321—5 6 Claims

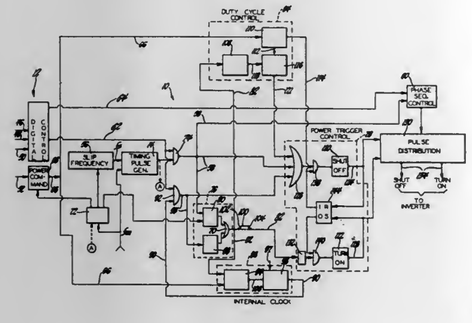


A static converter connecting a D.C. network and an A.C. network has a control system for controlling a control pulse generator for the rectifiers of the converter. Said control system comprises two time measuring means one of which measures the time T/n where T is the period time of said A.C. network while n is the pulse number of the converter. The other time measuring means measures the time t from the last control pulse from the control pulse generator. Said two time measuring means are connected to the input of a comparator which gives an output signal to the control pulse generator each time t passes T/n.

3,551,779
ELECTRIC DRIVE MOTOR LOGIC CONTROL SYSTEM

Duncan B. Campbell, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Original application Oct. 27, 1966, Ser. No. 589,927, now Patent No. 3,477,022, dated Nov. 4, 1969. Divided and this application Apr. 14, 1969, Ser. No. 840,873
Int. Cl. H02m 1/08, 7/52
U.S. Cl. 321—5 5 Claims

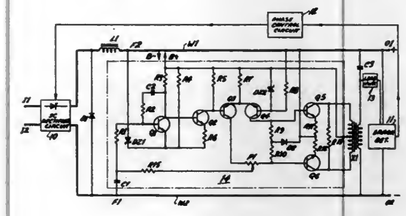


A logic control system for controlling the gating of a controlled rectifier inverter circuit includes analog and digital circuits for developing inverter power pulses having a controlled duty cycle and frequency. A timing pulse generator synchronizes the operation of the internal logic circuit and controls the frequency at which power pulses are developed by the inverter. A duty cycle control circuit controls the pulse width of the power pulses in response to a desired power control signal. An internal clock circuit develops internal clock pulses which control the rate at which power pulses are developed in the time intervals between timing pulses.

3,551,780
ELECTRONIC RIPPLE FILTER

George A. Gautherin, Woodside, N.Y., assignor to Lambda Electronics Corporation, Huntington, N.Y., a corporation of New York

Filed Dec. 5, 1968, Ser. No. 781,441
Int. Cl. H02m 1/14
U.S. Cl. 321—10 9 Claims

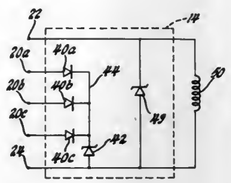


An electronic filtering system is disclosed which employs a dynamic electronic circuit to achieve filtering for D-C power supplies and thereby eliminates the need for large filtering capacitors in the output of the power supply. The filtering circuit, utilizing an amplifier in a negative feedback loop, develops a voltage across its output equal in magnitude but 180° out of phase with the ripple voltage developed across the output capacitor thereby yielding a substantial reduction in the net ripple across the output terminals of the supply.

3,551,781
TRANSIENT VOLTAGE SUPPRESSION CIRCUIT

Earl D. Smith, Naperville, Ill., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 26, 1969, Ser. No. 836,839
Int. Cl. H02m 1/18
U.S. Cl. 321—11 8 Claims

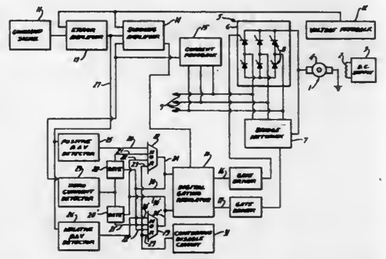


A full-wave bridge for rectifying alternating current polyphase energy from a source and coupling the resulting direct current to a load. Steering diodes and selenium devices for diverting load and source transient voltages from the rectifying devices are provided to prevent such transients from damaging the devices that form the bridge or alter their control of the energy to the load.

3,551,782
BIDIRECTIONAL POWER CIRCUIT HAVING CROSSOVER CONTROL MEANS

John T. Maynard, New Berlin, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York

Filed Apr. 18, 1968, Ser. No. 722,413
Int. Cl. H02m 1/18; H02p 1/22
U.S. Cl. 321—13 6 Claims

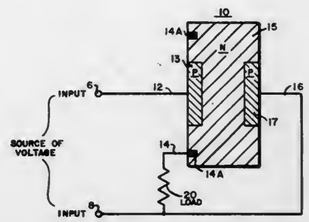


A pair of oppositely polarized full wave rectifiers connect a reversible D.C. motor to a three-phase source. Each leg of the bridges includes a silicon-controlled rectifier with the latter phase controlled in accordance with an input voltage and an armature voltage feedback to a closed loop servo to provide motoring or regenerating operation. A digital gating regulator and associated gate driver are controlled by the output of an error amplifier in the servo. A logic circuit selectively enables the regulator and gate drives to actuate one rectifier and including two "nor" logic transistors each having a plurality of inputs and a digital output to selectively enable and disable the bridge networks. A zero current detector interconnected to the incoming power supply lines, a pair of polarity detectors connected to an error amplifier, and a fault detector provide logic inputs to a selected "nor" logic transistor to actuate the regulator and enable a corresponding bridge network.

3,551,783
RECTIFIER AND TRANSIENT SUPPRESSOR

Bernard Reich, Wanamassa, N.J., assignor to the United States of America as represented by the Secretary of the Army

Continuation of application Ser. No. 708,626, Feb. 27, 1968. This application Jan. 21, 1970, Ser. No. 4,467
Int. Cl. H02h 7/14; H02m 1/18
U.S. Cl. 321—14 4 Claims

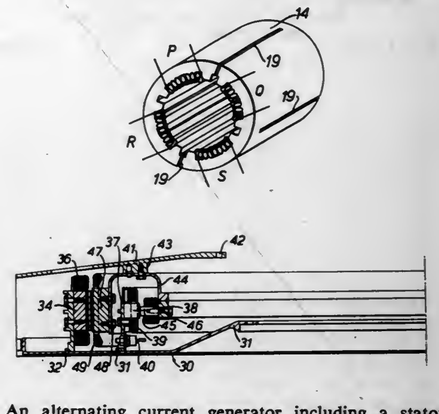


This disclosure relates to transient voltage suppressors and, in particular, to a transient-voltage suppressing device that uses one junction of a multi-junction, solid-state device as a normal diode that is connected to a load in a conventional rectifying or detecting circuit, and another junction of the multi-junction solid-state device as a reverse-connected punch-through diode that is connected across both the normal diode junction and the load to act as a short circuit, for peak, transient voltages, that bypass both the normal diode and the load.

3,551,784
ALTERNATING CURRENT GENERATORS HAVING PLURAL OUTPUT WINDINGS

Fred Shaw, North Wembley, and Eddie Wharton, Beaconsfield, England, assignors to Rotax Limited, London, England, a British company

Filed July 22, 1968, Ser. No. 746,634
Claims priority, application Great Britain, July 24, 1967, 33,492/67
Int. Cl. H02p 9/00; H02k 19/34
U.S. Cl. 322—90 1 Claim

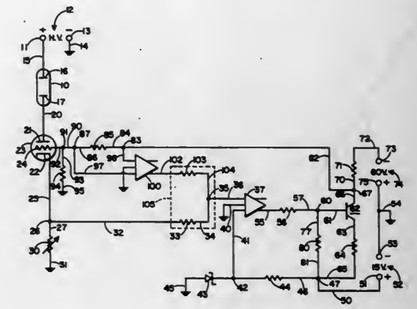


An alternating current generator including a stator structure having a casing and a plurality of arcuate stator sections each of which carries an output winding whereby a plurality of outputs can be obtained which are electrically isolated from each other.

3,551,785
REGULATION TUBE CONTROL APPARATUS WITH COMPENSATION OF LOAD CURRENT AND GRID CURRENT

John J. Ferrara, West Acton, Mass., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed May 16, 1969, Ser. No. 825,161
Int. Cl. G05f 1/52; H02j 1/04
U.S. Cl. 323—4 3 Claims



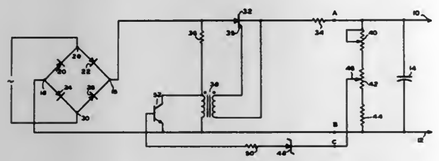
An arrangement for regulating the current in a load of which the impedance may not be stable and may even become negative, by energizing the load in a series circuit

with a regulating tube and a current sampling impedance, varying the grid voltage of the tube as the sampled current varies, and modifying the grid voltage to compensate for grid current in the sampling impedance.

ERRATUM

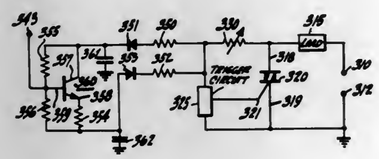
For Class 323—8 see:
Patent No. 3,551,799

3,551,786
CIRCUIT FOR ADJUSTABLY INCREASING OR DECREASING THE CHARGE ON A CAPACITOR
Johan L. Van Gulik, Lake Oswego, Oreg., assignor to Omark Industries, Inc., Portland, Oreg., a corporation of Oregon
Filed Dec. 5, 1967, Ser. No. 688,206
Int. Cl. G05f *1/56, 1/60*
U.S. Cl. 323—22 **14 Claims**



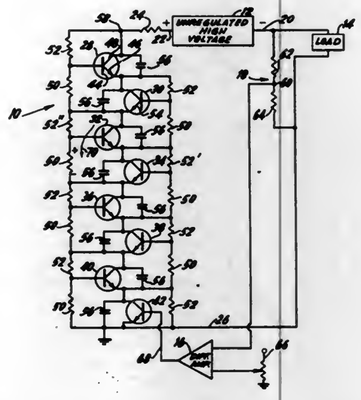
A voltage regulating circuit for a capacitor used in welding includes a silicon-controlled rectifier which is normally activated to charge the capacitor. When the capacitor is charged to a predetermined voltage level, shunting means removes the cotrol voltage from the rectifier's gate electrode whereby charging is discontinued. A Zener diode connects the shunting means to an adjustable voltage divider coupled across the capacitor for selecting a desired charging level. Also, a shunting circuit under the control of the adjustable voltage divider is disposed across the capacitor for lowering the capacitor voltage when desired.

3,551,787
THYRISTOR CONTROL CIRCUIT USING D.C. CONTROLLABLE TRIGGERING MEANS
William R. Walters, Medford, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Feb. 19, 1968, Ser. No. 706,517
Int. Cl. G05f *3/04*
U.S. Cl. 323—22 **3 Claims**



A D.C. controllable circuit for directing the supply of A.C. power to a load. The main electrodes of a triac are connected in series with the load to a pair of input terminals to which a source of alternating current is connected. A time constant circuit for providing a triggering signal to the gate electrode of the triac is coupled to the main electrodes and gate electrode of the triac. The D.C. controllable circuit is coupled to the time constant circuit and is responsive to an external D.C. signal for controlling the generation of the triggering signal by the time constant circuit.

3,551,788
HIGH VOLTAGE TRANSISTORIZED STACK WITH LEAKAGE CURRENT COMPENSATION
Steven E. Summer, Hauppauge, N.Y., assignor to Servo Corporation of America, Hicksville, N.Y., a corporation of New York
Filed Sept. 13, 1968, Ser. No. 759,711
Int. Cl. G05f *1/56*
U.S. Cl. 323—22 **4 Claims**

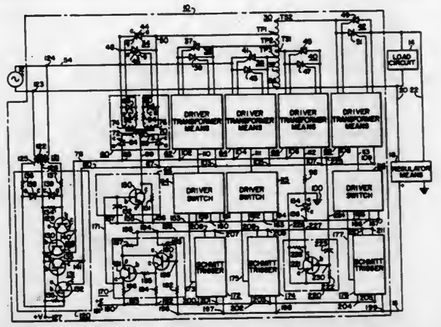


A high voltage variable impedance stack circuit is described which uses transistors to control the impedance. A plurality of transistor emitter follower stages are connected in series and selectively interconnected by two high voltage bleeder strings of series-connected resistors to compensate for leakage current effects and improve the high-voltage-sustaining capability of the entire stack. Several high voltage control circuits are shown.

3,551,789
STEP-TYPE STATIC TAP CHANGER APPARATUS WITH HYSTERESIS AND STEERING MEANS
Donal E. Baker, Lima, and Robert E. Skamfer, Elida, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 11, 1968, Ser. No. 736,037
Int. Cl. H02p *13/06*
U.S. Cl. 323—43.5 **27 Claims**

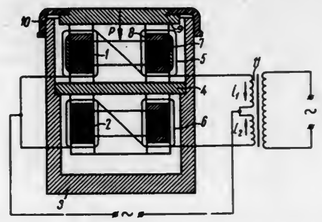
Static tap changer apparatus for sequentially changing taps on a transformer in response to the magnitude of a unidirectional control voltage. The transformer, which is connected between a source of AC potential and a load circuit, includes at least one winding having a plurality of sequentially numbered tap connections. Each tap connection includes static bilateral AC switching means, gate drive means for providing switching signals for the AC switching means, and a threshold detector for activating the drive means. The threshold detectors are connected to the control voltage, with each being arranged to switch from a first output level to a second output level at predetermined different magnitudes of the control voltage, and to switch back to their first output levels at predetermined different magnitudes of the control voltage, which

are lower than the predetermined voltage magnitudes at which they switched to their second output levels. The drive means associated with the highest numbered tap connection which has a threshold detector providing its



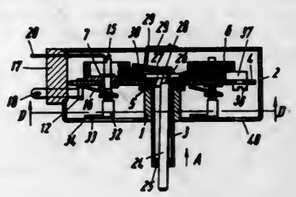
second output level, provides drive signals for its associated AC switching means. As the control voltage increases or decreases, the tap changer changes taps to increase or decrease the output voltage of the transformer, in steps.

3,551,790
TRANSDUCER FOR CONVERTING MECHANICAL FORCE TO AN ELECTRIC OUTPUT SIGNAL
Arkady Matveevich Shapiro, Ul. Anagskaya 38, kv. 30; Ripsime Grigorievna Sisoyan, pl. Lenina 4; Anzor Markozovich Alania, Ul. Barnova 26; Teodör Maiseevich Shnaider, Ul. Merkviladze 4V.; and Mikhail Grigorievich Goldman, Ul. Atarbekova 2, all of Tbilisi, U.S.S.R.
Filed Feb. 20, 1968, Ser. No. 706,878
Int. Cl. H02p *13/10;* **H02m** *5/12*
U.S. Cl. 323—51 **2 Claims**



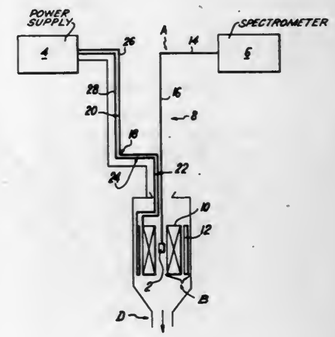
A transducer for converting mechanical force into an electric output signal comprises two identical ferromagnetic bodies each made as stacks of annular plates which have natural curvature and are disposed in contact on top of one another. The ferromagnetic bodies carry windings. One of said ferromagnetic bodies is mounted on a dividing partition in the upper part of a casing, the ferromagnetic body serving as an active element capable of sensing the force to be measured. The other ferromagnetic body is arranged in the lower part of the casing, and is employed as a passive element. The plates of the ferromagnetic bodies of the active and passive elements are disposed one above the other leaving air clearances therebetween and they are capable of bending resiliently and compressing to reduce the air clearance therebetween, thereby increasing the density of the eddy currents in the body with decreasing the total resistance of the primary element winding. The windings of the active and passive elements are connected in series with the symmetrical sections of the primary winding of a matching transformer and in parallel with a variable voltage source.

3,551,791
PLURAL VOLTAGE DIVIDER AGGREGATE
Wolfgang Labude and Karl-Heinz Bauer, Bad Neustadt (Saale), Germany, assignors to PREH Electro-Feinmechanische Werke, Bad Neustadt (Saale), Germany
Filed Sept. 10, 1968, Ser. No. 758,828
Claims priority, application Germany, June 27, 1968, 1,765,664
Int. Cl. H01c *9/02, 9/08*
U.S. Cl. 323—80 **20 Claims**



A rotary adjusting aggregate for producing selectively adjustable operating voltages for the control of tuning elements, such as variable capacitance diodes, in which voltage memories include voltage dividers each provided with a rotary gear and positioned at equal angular distances from each other on a common and rotating supporting plate. The supporting plate is rotated by a hollow shaft and can assume any one of a plurality of fixed angular positions. Each voltage divider is actuated by a gear. The actuating gear is fixed to an adjusting shaft which is axially displaceable, to thereby engage a voltage divider. The adjusting shaft is carried within the hollow shaft.

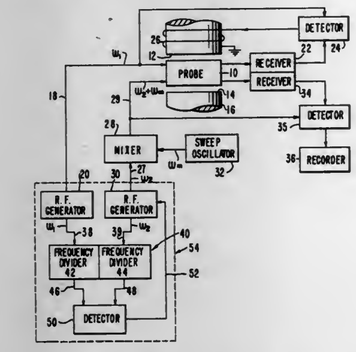
3,551,792
ELECTRON PARAMAGNETIC RESONANCE SPECTROMETER FOR NUCLEAR REACTORS
Daniel Galland and Jacques Perrin, Grenoble, Christian Santier, Meylan, and Pierre Servoz-Gavin and Michel Soutif, Grenoble, France, assignors to Commissariat a l'Energie Atomique, Paris, France
Filed Aug. 21, 1967, Ser. No. 662,060
Claims priority, application France, Sept. 5, 1966, 75,297
Int. Cl. G01n *27/78*
U.S. Cl. 324—.5 **6 Claims**



The spectrometer forms part of an installation for detecting faults caused by irradiation in solid, liquid or gaseous specimens placed in proximity to the core of a swimming-pool reactor and for determining the kinetics of fault formation. The installation comprises a cooling system, a spectrometer and a power supply unit which are

respectively coupled by means of a pole to a cooling loop, to a resonant cavity containing the specimen to be studied and to a solenoid which produces a continuous, stable and homogeneous magnetic field to which the specimen is subjected. The solenoid comprises a main coil unit made up of two coaxial windings associated either in series or in parallel and separated by an insulating screen as well as an auxiliary coil unit which is intended to compensate for first-order heterogeneities of the magnetic field and which is made up of two identical coaxial windings disposed on each side of the midplane, the complete solenoid assembly being directly cooled by the pool water of the reactor.

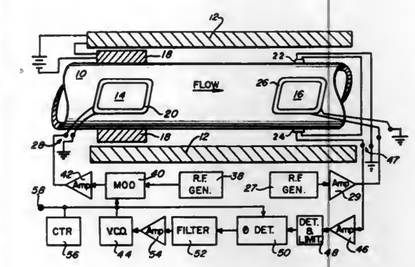
3,551,793
FREQUENCY CONTROL MEANS FOR GYROMAGNETIC RESONANCE APPARATUS
Raymond Freeman, Menlo Park, and William Siebert, Jr., Palo Alto, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Oct. 31, 1967, Ser. No. 679,373
Int. Cl. G01n *27/78*
U.S. Cl. 324—.5 **7 Claims**



A frequency selection and control apparatus is disclosed for use in a gyromagnetic resonance spectrometer system which enables the selective detection and recording of the resonance spectra of any desired nuclei using a single analytical sample. A frequency division and comparison network provides a means for selecting a particular nuclear excitation frequency and for automatically locking this frequency to the resonance frequency of a reference material.

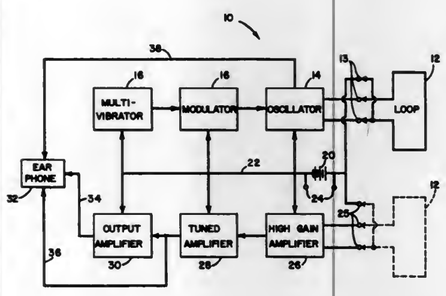
3,551,794
PHASE LOCKED NMR FLOWMETERING SYSTEM
William H. Vander Heyden, Menomonee Falls, and Joseph H. Battocletti, River Hills, Wis., assignors to Badger Meter Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Feb. 5, 1968, Ser. No. 703,018
Int. Cl. G01n *27/70*
U.S. Cl. 324—.5 **21 Claims**

This disclosure relates to NMR flowmeters, in which the fluid is magnetically tagged by being given a modulated net magnetization in a predetermined direction at a tagging station, and the magnetization level is detected at a detection station located downstream from the tagging station. A phase detector at the detection station senses the phase of the detected signal, and controls a tagging generator at the tagging station to maintain a constant phase relationship between the net magnetization at the tagging and detection stations. In one embodiment, tagging is accomplished by modulating the level of magnetization with a modulated D.C. signal applied to a magnetization coil. In another embodiment, the fluid is premagnetized and tagging is accomplished by injecting a modulated R.F. signal in a direction normal to the premagnetization direction. In still another embodiment, the



fluid is premagnetized and tagging is accomplished by modifying, near the detection station, the intensity profile of a magnetic field aligned with a premagnetization direction.

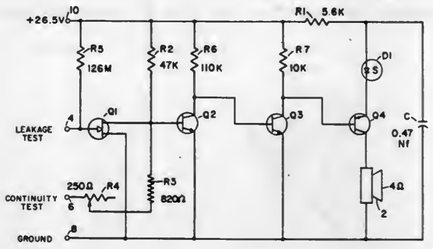
3,551,795
TRANSCEIVER APPARATUS FOR GENERATING AND RESPONDING TO AN ALTERNATING MAGNETIC FIELD
Ditmar H. Bock, Cheektowaga, and John G. Lawton, Snyder, N.Y., assignors to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y., a corporation of New York
Filed Apr. 10, 1968, Ser. No. 720,250
Int. Cl. H04b *1/16, 1/38*
U.S. Cl. 324—3 **7 Claims**



A transceiver unit applicable to the location of lost or buried objects, having a signal transmitting and receiving loop, the reception stage of which contains a high gain amplifier, a tuned amplifier and an output amplifier. The high gain amplifier has a volume control arranged in such a manner that the amplifier noise increases as the volume is increased. An earphone is connected across the output amplifier to increase the dynamic range.

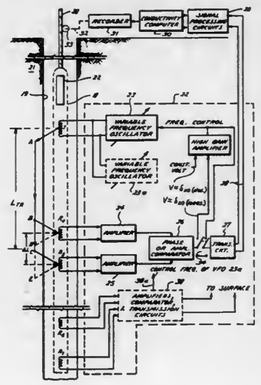
3,551,796
AUDIO OUTPUT DEVICE FOR TESTING LEAKAGE AND CONTINUITY OF A CIRCUIT
James D. Holder, Huntsville, and Hugh W. Greene, Somerville, Ala., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 3, 1969, Ser. No. 788,813
Int. Cl. G01r *31/02*
U.S. Cl. 324—51 **2 Claims**

An audible output device for testing the continuity and leakage of very sensitive circuits. Continuity in the item under test allows a bias to be applied to a transistor. A relaxation type oscillator connected to a speaker is energized in response to conduction in the transistor. Leakage



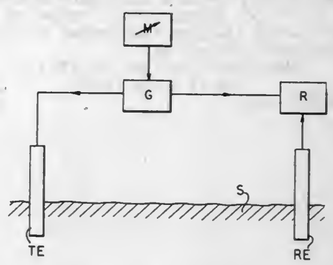
resistance below a certain predetermined level causes a junction field-effect transistor to ultimately energize the relaxation type oscillator.

3,551,797
HIGH FREQUENCY ELECTROMAGNETIC WELL LOGGING METHODS AND APPARATUS
Michel Marie Albert Gouilloud, Houston, Tex., and André Levy, Paris, France, assignors to Societe de Prospection Electrique Schlumberger, S.A., Paris, France, a corporation of France
Filed Sept. 28, 1967, Ser. No. 671,255
Claims priority, application France, Sept. 29, 1966, 78,146
Int. Cl. G01v *3/12, 3/18*
U.S. Cl. 324—6 **17 Claims**



The particular embodiments described herein as illustrative of the invention describe techniques for investigating earth formations traversed by a borehole by emitting electromagnetic energy from a transmitter into the adjoining formations. The parameters of the investigating system are selected such that the electromagnetic energy will propagate through the formations. This propagating electromagnetic energy is received by a plurality of receivers, spaced a suitable distance from the transmitter, to provide a measure of a characteristic of the adjoining formations.

3,551,798
METHOD FOR GEOPHYSICAL EXPLORATION WITH SIGNALS CONFORMING TO AN EXPONENTIAL LAW
Boris Samollovich Enenshtein, Alexei Petrovich Ivanov, and Anatoly Petrovich Boltalin, Moscow, and Georgy Mikhailovich Iova, Mytischi, U.S.S.R., assignors to Geologichesky Institut An U.S.S.R., Moscow, U.S.S.R.
Filed Feb. 19, 1968, Ser. No. 706,261
Int. Cl. G01v *3/12*
U.S. Cl. 324—6 **1 Claim**



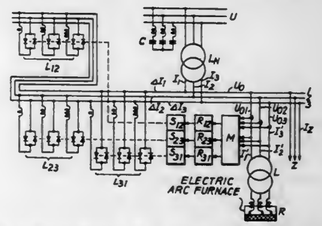
A method of geological survey is provided according to which continuous sounding is effected by means of a signal which is varied in conformity with an exponential law. More particularly, the signal depends upon an operating frequency band and a preset value of nonlinear distortions of the feed-current, the relationship being as follows:

$$T=\left(\frac{1_e\omega_1}{1_e\omega_o}-1\right)\cdot\frac{100}{\delta}$$

where:

T is the time of varying the feed-current frequency within the operating frequency band (in sec.),
ω_1 is the cyclic frequency of the upper limit of the operating frequency band (in c.),
ω_0 is the cyclic frequency of the lower limit of the operating frequency band (in c.), and
δ is a value of nonlinear distortions of the feed-current (in percent).

3,551,799
MAINS VOLTAGE STABILIZING APPARATUS PROVIDING CONSTANT REACTIVE CURRENT
Floris Koppelmann, Berlin, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Mar. 24, 1969, Ser. No. 809,919
Claims priority, application Germany, Mar. 23, 1968, 1,763,018
Int. Cl. G05f *1/20*
U.S. Cl. 323—8 **15 Claims**



Apparatus for stabilizing the voltage on a power supply mains having a load which draws varying amounts of reactive current. The apparatus includes an electrically variable inductance connected to the mains, either in series or in parallel with the load, and an electronic control circuit which regulates the instantaneous value of inductance of the variable inductance. The instantaneous

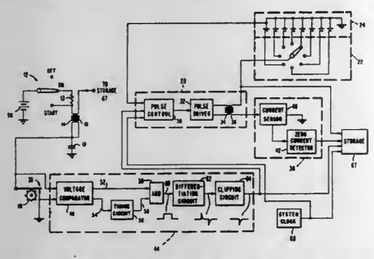
value of inductance is chosen so that the reactive current drawn by the variable inductance will supplement the reactive current drawn by the load in such a way as to maintain the total reactive current drawn from the mains approximately constant.

3,551,800

TEST APPARATUS FOR ANALYZING THE PERFORMANCE CHARACTERISTICS OF INTERNAL COMBUSTION ENGINE IGNITION SYSTEMS

Albert X. Widmer, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed June 6, 1968, Ser. No. 735,136
Int. Cl. G01m *15/00*
U.S. Cl. 324—15 **4 Claims**



A system of test apparatus for analyzing the performance of the ignition system of an internal combustion engine is provided. The apparatus is connected to appropriate elements of the internal combustion engine's ignition system and provides data which indicates whether the ignition system is functioning properly. One element of the test system is a pulse generator which provides a pulse which emulates the pulse usually obtained from the secondary of the ignition coil. The ignition coil is disconnected from the engine distributor and the pulse generator is used instead to provide a well-defined pulse to the distributor rotor. The output of the pulse generator may be controlled, for example, by a source of control signals to vary the pulse parameters. Another element of the test system is a "points open detector" which provides an indication of the exact time when the engine breaker points open. The "points open detector" employs a voltage level detector in combination with a timing device. Still another element of the test system is a "spark end detector." the "spark end detector" provides an indication of the time when the ignition spark discharge ends. The "spark end detector" includes the use of a current sensor connected to the aforesaid pulse generator. The output signals from the points open detector and the spark end detector may be transmitted to a data processing means for analysis.

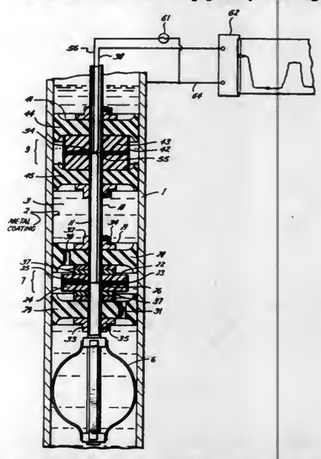
3,551,801

METHOD AND APPARATUS UTILIZING AN ELECTROLYTE FOR DETECTING HOLIDAYS IN METALLIC COATING ON PIPE

Fenton M. Wood, Sugarland, and Barnard P. Goodman and Noel B. Proctor, Houston, Tex., assignors to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey

Filed Mar. 27, 1967, Ser. No. 626,019
Int. Cl. G01n *27/26*
U.S. Cl. 324—29 **12 Claims**

To detect holidays larger than a predetermined size in the metallic coating on the interior of the metal pipe, an electrode is disposed within the pipe with an electrolyte to initiate electrochemical action between the electrode and a selected area within the pipe. The portion of the pipe being inspected is depolarized prior to inspection. Then an electrode insulated from electrochemical action with the metallic coating in other than the selected area, is made to electrochemically scan the metallic coated surface. The electrochemical action between the electrode and the metallic coating on the pipe creates a potential between the electrode and the pipe. By sensing deviations



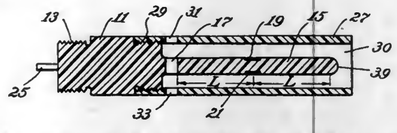
of this potential from that of similarly constituted cells where the condition of the coating is known, the presence of holidays may be detected. Moreover, by varying the size of the selected area of the pipe exposed to electrochemical action, the system may be made to discriminate between holidays of different sizes.

3,551,802

ELECTROLYTIC CONDUCTIVITY CELL EMPLOYING A TUBE AND A BARRIER MEMBER

Eugene R. Kuczynski, Glenside, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Feb. 8, 1968, Ser. No. 703,932
Int. Cl. G01r *27/22*
U.S. Cl. 324—30 **2 Claims**



A conductivity cell for measuring the specific conductivity of fluids utilizing two fluid guide chambers, each containing an electrode with a barrier therebetween which may easily be pierced anywhere along its length to provide fluid passages between the chambers, thereby allowing a wide range of cell constants from a basic conductivity cell structure.

3,551,803

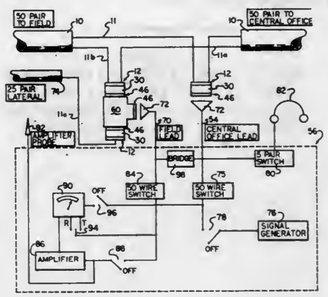
APPARATUS INCLUDING TANGED CONNECTOR MEANS FOR TESTING CABLE WIRES

Jimmy C. Ray, Rte. 2, Box 33, Denison, Tex. 75020

Filed Feb. 1, 1968, Ser. No. 702,375
Int. Cl. G01r *31/02*; H01r *11/08*
U.S. Cl. 324—51 **3 Claims**

A wire from each of two communication cables to be spliced is inserted into a tanged connector. The tanged connector is one of many mounted in a block. The connectors each containing wire, are crimped by forcing each connector into a tapered hole, the plurality of tapered

holes being located in a crimp block. Crimping the connector also cuts off excess wire. The crimp block is left permanently attached to the connectors in the completed splice. The holes in the cramp block extend through the crimp block leaving the end of each connector exposed for future connections, which might be either to a third cable or to a test set. The future connection is made by telescoping a helical spring over a square pin.



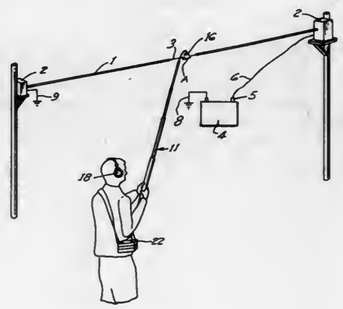
A testing apparatus is provided with plugs so that the plug might be inserted onto the square pin, as described above. A switch in the test apparatus provides for connecting ear phones or signal generators or other testing apparatus onto any pair of wires within the cable.

3,551,804

METHOD AND APPARATUS FOR SONIC DETECTION OF OPEN BREAKS IN OVERHEAD TELEPHONE CABLES

Vernon W. Weddle, Sunrise Trailer Court, Box 156, Warrenton, Mo. 63383

Filed Oct. 28, 1968, Ser. No. 770,970
Int. Cl. G01r *31/08*
U.S. Cl. 324—52 **5 Claims**



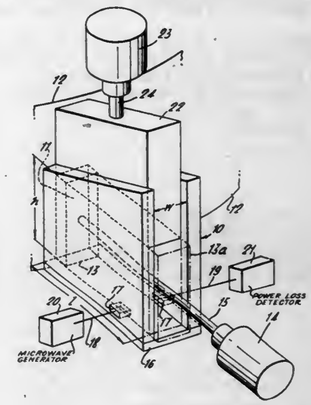
A break in a wire of a sheathed multiwire cable is located by grounding one terminal of the selected wire and connecting to its other terminal the output terminal of an intermittent electrical spark producing device which then causes a succession of electric arcs to jump across the break. A telephonic transmitter mounted on an insulated pole operates a telephonic receiver carried by a workman. The transmitter is moved by the workman along the length of the cable being tested in close proximity to the exterior of the cable sheath. The maximum intensity of the receiver signal indicates to the workman when the transmitter is exactly alongside the arc.

3,551,805

GRANULAR MATERIAL MEASURING APPARATUS HAVING A COMPRESSION AND MOISTURE CONTENT SENSING CELL

Ronald George Godding, Birmingham, England, assignor to The British Cast Iron Research Association, Birmingham, England, a British company

Filed July 18, 1966, Ser. No. 566,142
Claims priority, application Great Britain, July 24, 1965, 31,670/65
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 **7 Claims**



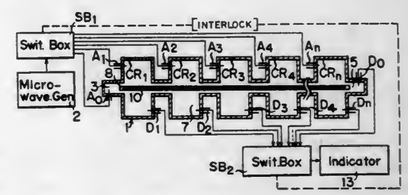
A device for the measurement of moisture content of granular materials is provided in which a sample of sand is subjected to compression in a long, narrow cell, open at one end, up to a predetermined minimum pressure corresponding to a packing density which is substantially constant irrespective of moisture content. An electrical characteristic of the sand which varies as a known function of water content—preferably absorption of microwave power—is then measured while under this pressure. Finally, the sample is ejected, and may be returned to its original source.

3,551,806

MICROWAVE APPARATUS FOR DETERMINING MOISTURE CONTENT OF HYGROSCOPIC WEBS, ESPECIALLY DURING MANUFACTURE

Shinichi Sasaki, 5–17–19 Tokiwa-cho, Urawa-shi, Saitama-ken, Japan

Filed Apr. 1, 1968, Ser. No. 717,601
Claims priority, application Japan, Apr. 3, 1967, 42/20,856, 42/20,857; Feb. 15, 1968, 43/9,295
Int. Cl. G01r *27/04*
U.S. Cl. 324—58.5 **4 Claims**



An apparatus for determining the amounts of moisture contained in a sample of, for example, paper which is being continuously transported. At one end of a rectangular waveguide is disposed an exciter member for

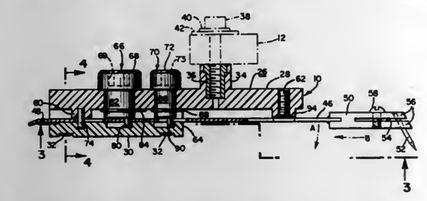
supplying microwaves, at the other end a detecting member for detecting transmitted microwaves, on the opposite walls of the central part a slot for allowing the passage of the aforesaid material and on one side wall thereof a plurality of spatially arranged detection terminals. To the detecting member and detection terminals is connected an indicator so as to electrically determine and display the amounts of moisture contained in the whole or part of the aforementioned material.

3,551,807

MANUALLY ADJUSTABLE ELECTRICAL PROBE FOR TESTING PRINTED CIRCUITS AND THE LIKE

Walter Kulischenko, Staten Island, N.Y., and Joseph A. Burke, Elizabeth, N.J., assignors to Pennwalt Corporation, a corporation of Pennsylvania

Filed Dec. 16, 1968, Ser. No. 784,116
Int. Cl. G01r *1/06, 31/02*
U.S. Cl. 324—72.5 3 Claims



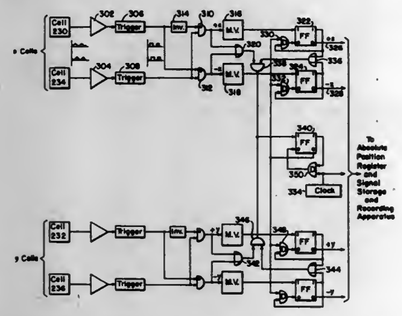
A probe for checking or monitoring an electrical circuit is provided with simplified structure including a unitary resilient member and three screw cams engaging the resilient member for manually adjusting the probe tip in all directions relative to its fixed supporting body.

3,551,808

PHASE COMPARATOR CIRCUIT

Herbert P. Grossimon, Lexington, and James O. McDonough, Concord, Mass., and Gerald T. Moore, Glenview, Ill., assignors to Concord Control Inc., Boston, Mass., a corporation of Massachusetts

Continuation-in-part of application Ser. No. 353,793, Mar. 20, 1964. This application Nov. 12, 1968, Ser. No. 774,692
Int. Cl. G01r *25/00*
U.S. Cl. 324—83 2 Claims



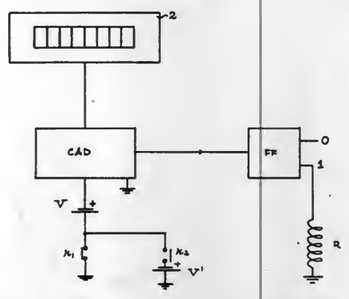
This invention relates to apparatus for determining the relative phase of a pair of pulse trains. In a first embodiment, one pulse train is supplied to corresponding input terminals of a pair of AND gates and the gates are therefore open when the pulses have one value and closed when the pulses have a second value. The second pulse train is supplied directly to the other terminal of one AND gate and logically inverted to the other terminal of a second gate. The gates respond only to transitions in one direction. Thus a pulse appears on one or the other of the AND gate output terminals for each transition of the input pulse train depending upon whether the second pulse train is leading or lagging the reference pulse train. In a second embodiment of the phase comparator the information available is used to provide multiple output pulses for each transition of the input pulse train, the lead on which said pulses appear being dependent on the relative phase of the input pulse trains.

3,551,809

APPARATUS FOR ELIMINATING DIGITAL INDICATOR FLUCTUATIONS

Paolo Dufour, Via Bovio 3, Genoa, Italy

Filed May 18, 1967, Ser. No. 639,394
Int. Cl. G01r *17/06*
U.S. Cl. 324—99 2 Claims



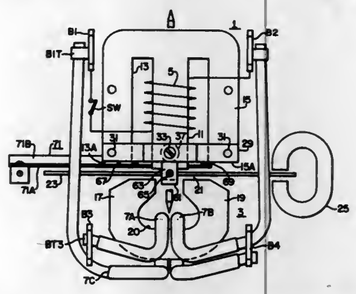
Conversion of a given quantity from analog to digital form gives rise often to a fluctuation in the last digit or digits visually indicated. This fluctuation, which prevents an exact reading of the digits, is prevented by adding to (or subtracting from) the quantity being digitally indicated a known quantity smaller than unity. This method is carried out by means of a flip-flop circuit (provided with suitable relays) connected to an analog digital converter.

3,551,810

THREE-WIRE INDUCTION METER WITH MINIMIZED UNBALANCE ERRORS

William J. Zisa, Cary, and James E. Ramsey, Jr., Raleigh, N.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 28, 1968, Ser. No. 755,911
Int. Cl. G01r *11/02*
U.S. Cl. 324—137 4 Claims



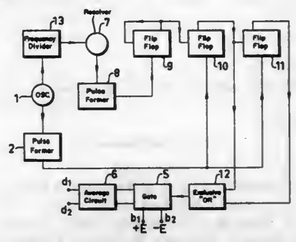
A three-wire induction meter has its current windings and the leads for the current windings located to minimize errors due to unbalance in the energizations of the current windings.

3,551,811

METHOD AND APPARATUS FOR DETERMINING THE FREQUENCY OF AN ELECTRICAL SIGNAL

Gunnar Axel Kihlberg, Stockholm, Sweden, assignor to Jungner Instrument Aktiebolag, Stockholm, Sweden, an organization of Sweden

Filed Sept. 4, 1968, Ser. No. 757,380
Claims priority, application Sweden, Sept. 20, 1967, 12,947/67
Int. Cl. G01p *3/12*
U.S. Cl. 324—173 2 Claims



A speed measuring apparatus and method which produces a D.C. output signal related in magnitude to the speed or frequency of rotation (f_x) and in polarity to the direction of rotation being monitored. With a reference source of f_0 a pulse signal whose repetition rate is related to f_1, where

$$f_1=\frac{f_0}{2}+nf_x$$

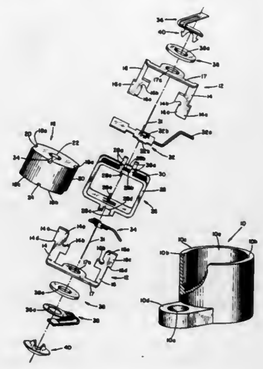
is formed. The duration of the pulses are related to $1/f_0$. This signal forms one input to an Exclusive "OR." The other input is the identical signal, delay $1/f_0$. The output of the Exclusive "OR" controls a gate to apply either a positive or negative voltage of predetermined magnitude to an averaging circuit. The output of the averaging circuit is proportional in magnitude to f_x and its polarity is an indication of the rotational direction being monitored.

3,551,812

ELECTRICAL MEASURING MOVING COIL MECHANISM

Donald A. Mothes, Manchester, N.H., assignor, by mesne assignments, to Jewell Electrical Instruments, Inc., Manchester, N.H., a corporation of Delaware

Filed Mar. 10, 1966, Ser. No. 533,139
Int. Cl. G01r *1/04*
U.S. Cl. 324—151 5 Claims



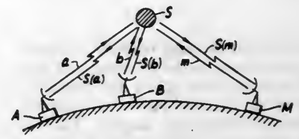
In an assembly arrangement for an electrical measuring moving coil mechanism having a core member which is accurately located by and with respect to a pair of frame members; the frame members in turn being accurately located by and with respect to a yoke member.

3,551,813

TIME DIVISION SATELLITE COMMUNICATION SYSTEM

Hisashi Kaneko and Yukio Takimoto, Tokyo-to, Japan, assignors to Nippon Electric Company, Limited, Tokyo-to, Japan, a corporation of Japan

Filed Nov. 16, 1967, Ser. No. 683,639
Claims priority, application Japan, Nov. 19, 1966, 41/75,881
Int. Cl. H04b *1/44*
U.S. Cl. 325—4 4 Claims



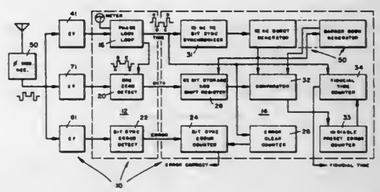
A time division satellite communication system in which an artificial satellite is used solely as a relay station, the time division allocations and referencing taking place at the earth based stations. Each earth station includes means in which the time difference between a slot used as a standard of synchronization and the time slot of that station contained in the received signal is monitored and when the time difference is varied, the amount of variation is compensated to adjust the transmission timing. During synchronization locking of the particular station, continuous pulse codes covering a plurality of frames are transmitted at a lower power than rated power and transmission timing is adjusted so that the pulse code at each frame enters into the corresponding time slot previously allocated to that station. The time slot number modulated into the pulse code is detected over a plurality of frames and after the detection, the transmission is started dependent upon the time slot number. Power is raised to rated power after confirming that the transmission has been effectuated only in the allocated time slot.

3,551,814

COMMUNICATION SYSTEM TIME RECOVERY UNIT

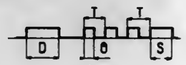
Loran F. McCormick, Canoga Park, and Joseph J. Kovar and Claude W. Brown, China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Oct. 30, 1967, Ser. No. 679,060
Int. Cl. H04k *1/08*
U.S. Cl. 325—38 4 Claims



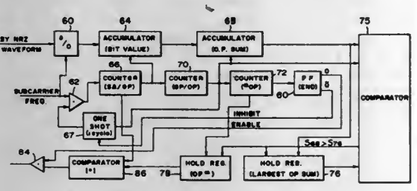
A Time Recovery Unit is provided in conjunction with a communications receiver and designed to issue an output pulse a specific length of time after a coded signal has been received. The unit decodes the signal, identifies and separates the time signal from other data being received, establishes the proper time between identification and issuance of the pulse and then issues the pulse.

3,551,815
CALL CONTROL SYSTEM FOR A RADIO-COMMUNICATION NETWORK
Leon Berman, Asmieres, France, assignor to C.I.T.-Compagnie Industrielle des Telecommunications, Paris, France, a corporation of France
Filed Oct. 31, 1967, Ser. No. 679,411
Claims priority, application France, Nov. 5, 1966, 82,681
Int. Cl. H04b *1/16*
U.S. Cl. 325—55 **10 Claims**



A radio communication network, wherein a given subscriber is selectively called by means of a specific number of equally spaced pulses which are transmitted in the form of a pulse train. The said pulses are received by a counter with a specific numerical display. The called device is driven by means of a coincidence of the first pulse of the train after passing a specific delay network, with a pulse which is transmitted by the counter after receiving the last pulse of the train.

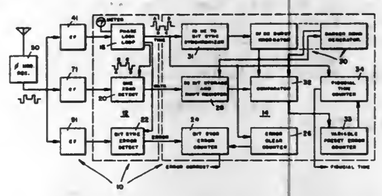
3,551,816
DIGITAL SYNCHRONIZER
T. O. Paine, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Tage O. Anderson, Arcadia, Calif. 91006
Filed Mar. 10, 1969, Ser. No. 805,406
Int. Cl. H04b *1/16*; H04l *7/00*
U.S. Cl. 325—325 **11 Claims**



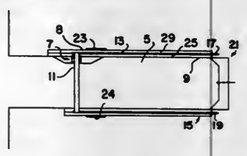
A digital synchronizer for providing a bit clock for use as a bit sync signal in extracting binary data in a receiver of a PSK/PCM communication system. The synchronizer operates in the digital domain by summing digital samples produced from an analog noisy NRZ binary waveform which contains the data to be extracted. The samples are accumulated regarding sign, to form group sums which are then accumulated disregarding sign to provide sums of multigroup observation periods. The phase of the observation period having the largest digital value is used to obtain the phase of the first bit clock or bit sync signal, which is repeated at the bit rate.

3,551,817
DOUBLET BIT SYNCHRONIZER AND DETECTOR
Joseph J. Kovar, Ridgecrest, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 31, 1967, Ser. No. 679,400
Int. Cl. H04b *1/06*; H04l *7/00*
U.S. Cl. 325—346 **2 Claims**

Demodulating apparatus is provided for a phase modulation communications receiver designed to obtain a time correlated measurement of the Doppler frequency received from an orbiting transmitter. The demodulating apparatus comprises a ONE:ZERO detector and a BIT SYNC Error Detector and is used to synchronize and detect the "ONES" and "ZEROS" transmitted as the phase modulated signals so that recovery of time information can be achieved.

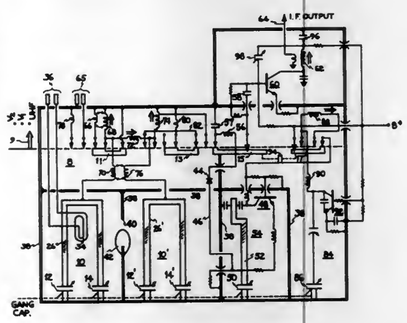


3,551,818
ELECTRONICALLY CONTROLLED SLOT ANTENNA-AMPLIFIER
Anthony G. Jennetti, Columbus, Ohio, assignor to The Ohio State University Research Foundation
Filed Jan. 16, 1967, Ser. No. 609,622
Int. Cl. H04b *1/18*; H01a *13/10*
U.S. Cl. 325—374 **5 Claims**



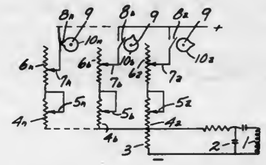
A tunable slot antenna-amplifier, the gain of which is electronically variable over a wide range. The radiating element consists of a probe-fed, cavity-backed slot antenna, a transistorized amplifier being directly matched into the probe feed system.

3,551,819
UHF–VHF TUNER WITH U-SHAPED STRIP BALANCED TRANSMISSION LINE
David J. Carlson, Indianapolis, Ind., assignor to RCA Corporation, a corporation of Delaware
Filed Aug. 28, 1967, Ser. No. 663,760
Int. Cl. H04
U.S. Cl. 325—461 **1 Claim**



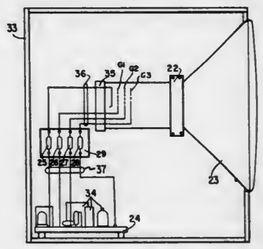
A UHF–VHF television tuner having a double tuned input circuit operable on both bands includes two mutually coupled resonant circuits, respectively made up of balanced quarter wave-lengths shorted sections of transmission lines and having tuning capacitors across the open ends thereof. During UHF operation, a voltage null exists at the shorted end of the lines so that switch connections made at these points for placing inductors in parallel with the tuned lines for VHF operation do not affect UHF performance.

3,551,820
INDEPENDENTLY ADJUSTABLE MULTIOUTPUT VOLTAGE DIVIDER AND VOLTAGE RESPONSIVE CAPACITANCE TUNER UTILIZING SAME
Richard S. Bagwell, Erie, Pa., assignor to Erie Technological Products, Inc., Erie, Pa., a corporation of Pennsylvania
Filed Jan. 15, 1969, Ser. No. 791,284
Int. Cl. H03j *3/06*; H04b *1/16*
U.S. Cl. 325—465 **15 Claims**



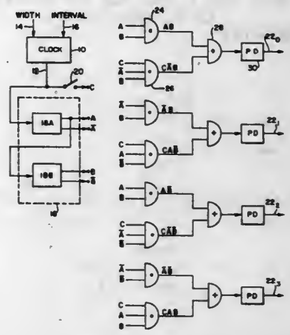
A voltage divider having a plurality of independently selectable and adjustable taps in which selection of a tap activates a fine and coarse tuning adjustment for the selected tap. One use is to supply a voltage responsive condenser in a tuning circuit in order to tune the circuit to a given resonant frequency.

3,551,821
ARC TRIGGER SQUELCH FOR A TELEVISION RECEIVER
Donald E. Griffey, Skokie, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Mar. 21, 1969, Ser. No. 809,116
Int. Cl. H02h *7/20*
U.S. Cl. 328—8 **6 Claims**



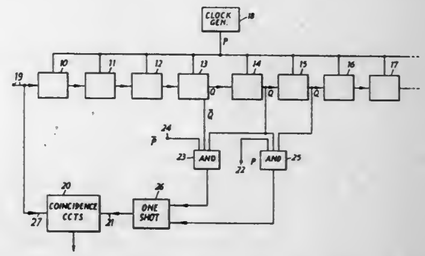
A circuit for preventing cathode ray tube arcs from acting as a trigger to initiate breakdown or arc-over on the printed circuit board of a television receiver is provided in the form of voltage limiting resistors connected in series in the input leads between the input terminals of the cathode ray tube and the printed circuit board outputs. The resistors are provided in the cathode, G–1, G–2, and G–3 leads for the cathode ray tube and are physically located away from the printed circuit board on an additional printed circuit board; so that the high voltage, caused by cathode ray tube arc-over, at the end of the resistor connected to the cathode ray tube input is isolated from the television receiver printed circuit board by the series resistor.

3,551,822
TIMING DEVICE FOR GENERATING A PLURALITY OF CONTROLLABLE PULSE TRAINS
Patrick M. McNelis, East Northport, N.Y., assignor to Emtec Designs, Inc., New York, N.Y., a corporation of New York
Filed Sept. 30, 1968, Ser. No. 763,810
Int. Cl. H03k *3/64*
U.S. Cl. 328—62 **2 Claims**



A timing device for producing a plurality of output pulse trains which are delayed in time with respect to each other, comprises a source of clock pulses wherein the time interval between pulses as well as the duration of the pulses can be varied, and a gating circuit for combining selected ones of the clock pulses with each of a plurality of first pulse trains to produce output pulse trains wherein the pulses of successive trains overlap each other in time and wherein the extent of the overlap can be adjusted along with the pulse width and the time interval between pulses.

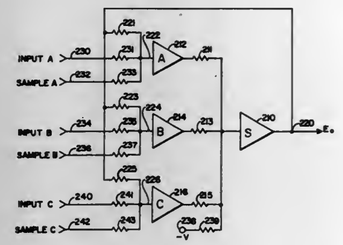
3,551,823
ELECTRICAL PULSE DECODERS
Michael Charles Stevens, London, England, assignor to A. C. Cossor Limited, Harlow, Essex, England
Filed Mar. 1, 1968, Ser. No. 709,577
Claims priority, application Great Britain, Apr. 24, 1967, 18,826/67
Int. Cl. H03k *5/00*
U.S. Cl. 328—119 **4 Claims**



In order to reduce the uncertainty in the delay provided by a single shift register in a pulse decoder to half a clock period instead of one clock period a different pattern is entered into the register depending upon which half of the clock period a first input pulse occurs. Further along the register different gating arrangements detect the

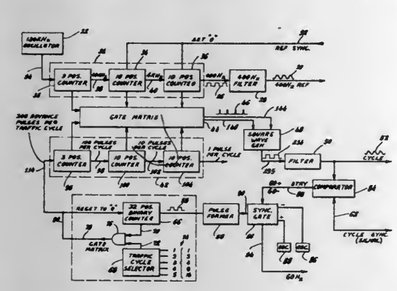
two different patterns and provide respective outputs of which one is half a clock period delayed relative to the other. The output thus provided is compared with the second input pulse in the conventional manner.

3,551,824
CONTROL APPARATUS
Donald J. Rotier, St. Paul, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Aug. 1, 1967, Ser. No. 657,480
Int. Cl. H04b *1/04*
U.S. Cl. 328—147 **11 Claims**



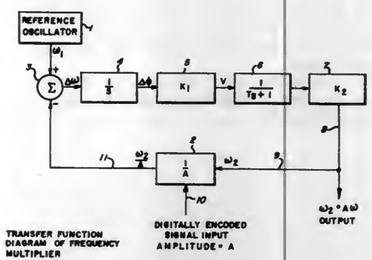
An integrated monitor and cross-feeding circuit for providing an output of a given characteristic from similar control channels of a two, three, or four channel control system.

3,551,825
PHASE SHIFT CYCLE GENERATOR FOR A TRAFFIC CONTROL SYSTEM
Charles L. Du Vivier, Darien, Peter C. Brockett, Milford, Alan F. Barney, Bethel, and Ludwig R. Pallat, Stamford, Conn., assignors to LFE Corporation, Waltham, Mass., a corporation of Delaware
Filed Jan. 3, 1969, Ser. No. 788,870
Int. Cl. H03b *3/04*
U.S. Cl. 328—155 **8 Claims**



An improved cycle generator for providing a signal control traffic cycle in a traffic control system. The cycle generator is adapted to produce two single phase wave energies of identical frequencies one derived from the other wherein one wave energy is adapted to incrementally shift in phase with respect to the other. The shifting wave energy is obtained by periodically generating a first pulse defining the start of each wave and a second pulse defining the midpoint of the wave and occurring in time midway between 2 adjacent starting pulses. The desired traffic control cycle is obtained between adjacent coincidences of the two wave energies which is equivalent to the time required for the shiftable wave energy to pass through 360° of phase angle with respect to the reference wave energy.

3,551,826
FREQUENCY MULTIPLIER AND FREQUENCY WAVEFORM GENERATOR
Raymond B. Sepe, Johnston, R.I., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed May 16, 1968, Ser. No. 729,701
Int. Cl. G06g *7/16;* **H03k** *29/00*
U.S. Cl. 328—160 **10 Claims**



A frequency multiplier is shown in which a frequency divider is coupled in a feedback loop. The divider is responsive to an external input magnitude signal A for dividing an oscillator generator output frequency w_2 by A. A frequency difference signal is obtained by comparing the frequency divided signal

$$\frac{w_2}{A}$$

with a reference frequency w_1. This difference frequency is used to vary the oscillator frequency w_2 such that

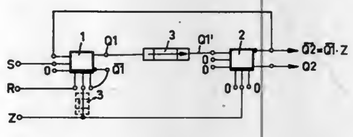
$$w_2 = k\left(w_1 - \frac{w_2}{A}\right)$$

k being a proportionality constant and $|k|>1$. The frequency divider may further be made digitally responsive.

Frequency waveforms are generated as the external input signal $A(t)$ is made a function of time. Also, a fractional multiplier is formed when the output of a frequency multiplier having an output frequency $w_1A(t)$ is applied to a frequency divider. If the frequency divider is also responsive to an externally applied time varying input signal $B(t)$, then the divider output frequency signal is

$$\frac{A(t)w_1}{B(t)}$$

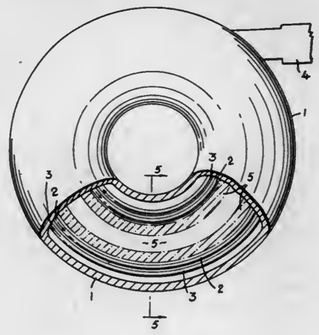
3,551,827
T-FLIP-FLOP COMPOSED OF LOGIC CIRCUITS
Herbert Stopper, Litzelstetten, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany
Filed July 31, 1968, Ser. No. 749,100
Claims priority, application Germany, Aug. 1, 1967, 1,537,463
Int. Cl. H03k *3/12, 3/286, 23/08*
U.S. Cl. 328—206 **7 Claims**



A T-flip-flop composed of a first stage having at least one direct input, one negated input, one direct output and one negated output, an AND-circuit having one input

connected to the direct output of the first stage and its output connected to present the direct input to the first stage, and means for applying a train of counting pulses to one negated input of the first stage and the second input of the AND-circuit, the negated output of the first stage being directly connected to one negated input thereof, a signal appearing at the direct output of the first stage whenever a signal is applied to one direct input thereof and a signal appearing at the negated output of the first stage whenever a signal is applied to one of its negated inputs and no signal is applied to any of its direct inputs, whereby the output of the AND-circuit presents a pulse in response to every other counting pulse.

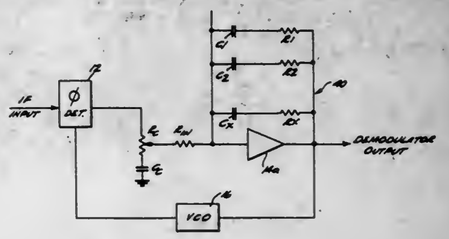
3,551,828
PLASMA CONTAINMENT APPARATUS AND METHOD
Rudolph F. Stengel, Los Angeles, Calif., assignor to Entropy Limited, Toronto, Ontario, Canada, a corporation of Ontario, Canada
Filed July 1, 1968, Ser. No. 741,540
Int. Cl. H01j *1/50;* **H05h** *1/02*
U.S. Cl. 328—233 **6 Claims**



A hollow toroidal enclosure for plasma containment comprising a plurality of current-carrying assemblies operable to generate an electromagnetic field within the enclosure, said electromagnetic field being directed substantially tangentially to a circle disposed in the plane of each cross-section of the enclosure and unidirectionally about said circle at every point thereof, each current-carrying assembly comprising two parallel current-carrying conductors in close, radially-spaced proximity to each other and in perpendicular orientation to said cross-section.

3,551,829
PHASE LOCK RECEIVER WITH A CONSTANT SLOPE NETWORK
Theodore F. Haggai, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed May 2, 1968, Ser. No. 726,016
Int. Cl. H03b *3/08*
U.S. Cl. 329—122 **24 Claims**

A phase-lock receiver with a new loop filter is disclosed. The filter provides constant loop damping despite variations in loop gain and bandwidth adjustments. The loop filter consists of a plurality of pole-zero pairs distributed in frequency over the frequency bandwidth of interest with geometric uniformity. The loop filter provides a gain slope, expressed in db/octave which is constant to within an arbitrarily small ripple error and extends over several decades of frequency. A single gain control adjustment

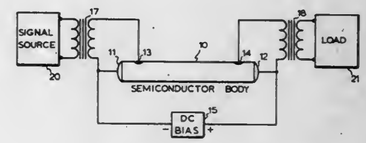


is provided to optimize the loop operation over a wide range of spectral bandwidths.

3,551,830
GLOSSY MICROPOROUS SHEET MATERIAL
George R. Hodge, Old Hickory, Tenn., and Angelos Vlasus Patsis, New Paltz, N.Y., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Oct. 22, 1968, Ser. No. 769,708
Int. Cl. B44d *1/32;* **D06n** *3/08*
U.S. Cl. 117—76 **6 Claims**

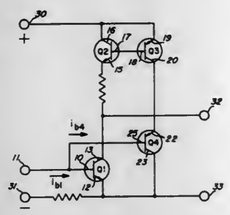
A vapor permeable glossy sheet material of a microporous fibrous substrate which is either natural leather or a synthetic leather that is coated with a glossy vapor permeable coating that is free from a surface tack in which the polymer of the coating consists essentially of an isocyanate terminated polyurethane, a vinyl chloride polymer and a reactive polysiloxane.

3,551,831
TRAVELING-WAVE SOLID-STATE AMPLIFIER UTILIZING A SEMICONDUCTOR WITH NEGATIVE DIFFERENTIAL MOBILITY
Gordon S. Kino, Stanford, Calif., and Peter N. Robson, Sheffield, England, assignors to Research Corporation, New York, N.Y., a non-profit corporation of New York
Filed June 21, 1968, Ser. No. 739,072
Int. Cl. H03f *3/14*
U.S. Cl. 330—5 **14 Claims**



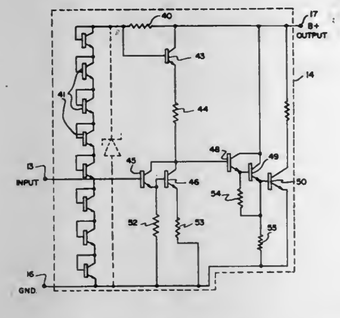
A distributed two-port, traveling-wave solid-state amplifier using the transferred electron mechanism in certain semiconductor compounds is provided with two electrodes alloyed to ends of a specimen of N-type gallium arsenide so biased as to provide an electric field over most of its length, and two probes, one to inject a signal near the most negative point in the field, and the other to extract the signal near the most positive point in the field with a gain of 2 to 4 db in the 700 to 1500 mHz. frequency range.

3,551,832
TRANSISTOR BASE CURRENT COMPENSATION SYSTEM
Jerald G. Graeme, Tucson, Ariz., assignor to Burr-Brown Research Corporation, a corporation of Arizona
Filed Aug. 1, 1969, Ser. No. 846,898
Int. Cl. H03f *3/18*
U.S. Cl. 330—17 **8 Claims**



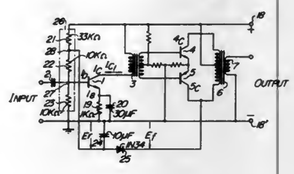
An input connection is made to the base electrode of an input transistor, the emitter-collector circuit of which is connected in series with the emitter-collector circuit of a sensing transistor. Both transistors are of the same conductivity type and form a first series circuit. A biasing transistor and a compensating transistor of opposite conductivity type are connected with their respective emitter-collectors in series to form a second series circuit; the first and second series circuits are connected in parallel. The base electrodes of the sensing and biasing transistors are interconnected as well as the base electrodes of the input and compensating transistors.

3,551,833
CIRCUIT HAVING A REDUCED NUMBER OF EXTERNAL CONNECTIONS
Francis H. Hilbert, River Grove, and Tin Ohn, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed May 1, 1969, Ser. No. 820,926
Int. Cl. H03f *3/04*
U.S. Cl. 330—22 **10 Claims**



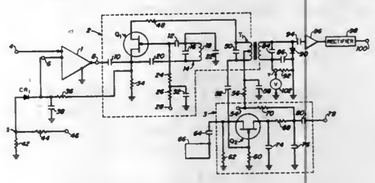
A multiple-stage transistor integrated-circuit audio amplifier is constructed to permit a reduction from the usual four bonding pads required to three bonding pads, so that the circuit may be mounted in a standard transistor three-lead package. This is accomplished by supplying the B+ operating potential for the amplifier through an external load resistor connected to a common B+ and signal output pad on the amplifier. This pad then is connected directly to the collector of the output amplifier transistor, and also is connected to a voltage divider including a Zener diode or a string of series-connected forward-biased diodes, across which a stabilized DC potential is developed. This stabilized potential then is utilized in the amplifier circuit as the DC operating potential therefor. The excursions of the AC output signals across the load resistor are such that the threshold potential across the Zener diode is maintained or exceeded at all times, thereby isolating the AC output signals from the DC operating potential for the amplifier.

3,551,834
AUTOMATIC GAIN CONTROLLING CIRCUIT
Seishi Yamazaki and Masao Kaneda, Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed May 14, 1969, Ser. No. 824,621
Claims priority, application Japan, May 15, 1968, 43/32,209
Int. Cl. H03g *3/30*
U.S. Cl. 330—29 **7 Claims**



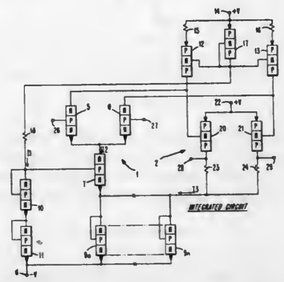
In an automatic gain controlling circuit, comprising a first transistor adapted to amplify an input signal, a second transistor adapted to amplify the output of said first transistor, and first, second and third resistors connected in series with a power source, said third resistor being grounded at one end thereof, the connection point between the second and third resistors being connected with the base of said first transistor, wherein a diode is inserted in such a direction as to permit current flow from the connection point between the first and second resistors to the collector of the output transistor, and said diode is so adapted as to be rendered conductive only when the input exceeds a predetermined level.

3,551,835
SOLID STATE TUNED AMPLIFIER
Harry F. Paul, Belmont, N.H., assignor to Tram Corporation, Winnisquam, N.H., a corporation of New Hampshire
Filed June 27, 1969, Ser. No. 837,102
Int. Cl. H03f *1/14*
U.S. Cl. 330—27 **10 Claims**



A tuned field effect transistor amplifier that provides exceptionally high amplification with minimum distortion of phase or frequency. The input signal is applied to the source electrode and novel resonant circuit means between the source and gate electrodes provide in response to the input signal a voltage change at the gate electrode which increases the total signal gain.

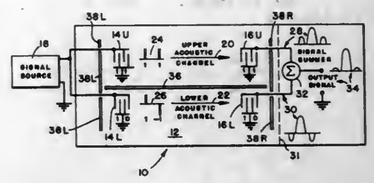
3,551,836
DIFFERENTIAL AMPLIFIER CIRCUIT ADAPTED FOR MONOLITHIC FABRICATION
James C. Greeson, Jr., Woodstock, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Jan. 17, 1968, Ser. No. 698,594
Int. Cl. H03f *3/10, 3/68*
U.S. Cl. 330—30 **5 Claims**



An improved amplifier achieves greater dynamic range than existing amplifiers with no sacrifice in common mode rejection. The amplifier includes first and second differential amplifying stages. A reference voltage is set by supplying constant current to two series-connected diodes which are in the form of transistors having their base-collector electrode short-circuited. The total collector current from the second stage produces a voltage drop across a third diode in the form of a transistor having its base and collector electrodes short-circuited. A single transistor amplifier compares the voltage across the third diode with the reference voltage to supply current to the first stage at a level which is an inverse function of the second stage collector current. The diodes and the single transistor amplifier have substantially matched base-emitter voltage-current characteristics to establish accurate and stable operating current relationships. Collector return is provided for the first stage by transistors whose current is determined by one or more diodes, each in the form of a transistor having its base and collector electrodes short-circuited, current being supplied to the latter diodes by the same source that supplies current to the first two diodes. The latter transistors and diodes have substantially matched base-emitter voltage-current characteristics. This permits a dynamic range which is equal to the voltage supply differential minus approximately three diode voltage drops (e.g., each diode drop can be in the order of seven-tenths volt).

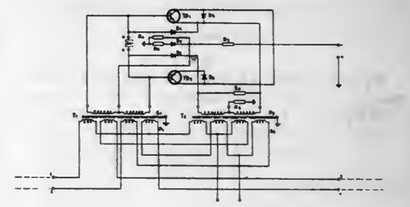
3,551,837
SURFACE WAVE TRANSDUCERS WITH SIDE LOBE SUPPRESSION
Jeffrey M. Speiser, Pasadena, and Harper John Whitehouse, Hacienda Heights, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Aug. 13, 1969, Ser. No. 849,667
Int. Cl. H03h *7/30, 9/00*
U.S. Cl. 333—30 **19 Claims**

An acoustic wave device including a plurality of sets of interdigitated transducers, wherein a plurality of distinct acoustic paths are utilized, one for each transducer set, with each transducer having wanted and unwanted temporal lobes, the plurality of propagating signals being combined so as to produce one resultant signal. The interdigitations of the transducers are so configured that the unwanted transducer temporal side lobes are combined in such a manner as to be reduced in magnitude in the resultant signal, in comparison with the magnitude of the main lobe. Moreover, the wanted signal components may be combined in such a manner as to appear in the resultant signal with a greater amplitude than in any one distinct signal. The distributed-transducer acoustic wave



device may include at least a pair of inter-digitated electrodes which are coded to correspond with a mathematical series of two elements known as a Golay complementary series, or sequence. This type of configuration results in a pulse output for a pulse input, and is effectively a wide-band amplifier.

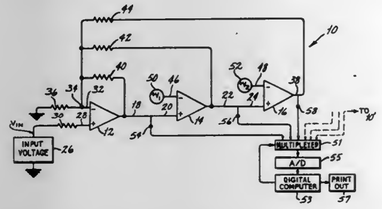
3,551,838
NEGATIVE IMPEDANCE REPEATER
Cesare Valfre, Via Gianfrancesco Re 47, Turin, Italy
Continuation-in-part of application Ser. No. 554,196, May 31, 1966. This application May 5, 1969, Ser. No. 821,660
Claims priority, application Italy, May 31, 1965, 12,464/65
Int. Cl. H03f *15/00*
U.S. Cl. 330—61 **6 Claims**



A negative impedance repeater having its input terminals connected to the primary of a first transformer and the output terminals connected to the secondary of a second transformer. The primary of the first transformer and the secondary of the second transformer are each divided in four equal winding sections, and two winding sections of each transformer are serially connected to each wire of a two-wire telephone circuit. The secondary winding of said first transformer has each terminal connected to the base of a transistor. The primary of said second transformer has its terminals connected to the emitters of the same two transistors, while the collectors of said transistors are connected to he power supply. A balancing impedance is conneced between the bases of said transistors. A diode is connected between the base and emitter of each transistor and a diode is connected between the emitter and collector of each transistor. A resistor is connected between the emitters of said transistors. The center tap of the secondary of said first transformer is grounded via a resistor-diode network,

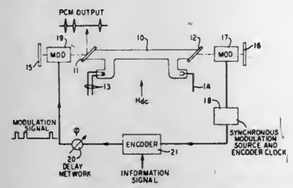
while the center tap of the primary of said second transformer is grounded through a resistor.

3,551,839
AUTOMATIC RANGING CIRCUITRY
George E. Barker, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Oct. 14, 1968, Ser. No. 767,389
Int. Cl. H03f 1/36; H05f 3/34
U.S. Cl. 330—99 9 Claims



An electronic automatic ranging circuit including a non-inverting amplifier cascade-coupled to a single-ended differential amplifier, which in turn is cascade-coupled to a second single-ended differential amplifier. One input of the non-inverting amplifier is coupled to a source of input signals having a wide dynamic range and the inverting inputs of each single-ended amplifier are biased to cut-off for input signals less than a predetermined value. Each of the amplifiers in the cascaded chain has a different gain and feedback is supplied from their output terminals to the other input of the non-inverting amplifier. Each single-ended amplifier produces an output only when its input is greater than the biasing potential applied to it. Means are provided for monitoring the outputs of each amplifier and thereby provide an amplified signal corresponding to the input signal of interest.

3,551,840
PULSE CODE MODULATED OPTICAL MASER
Merton H. Crowell, Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Jan. 18, 1965, Ser. No. 426,063
Int. Cl. H01s 3/10
U.S. Cl. 331—94.5 8 Claims

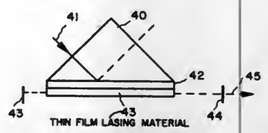


This application describes a pulse code modulated optical maser employing two intracavity modulators. The first modulator is an intracavity synchronous modulator used to mode lock the laser and, thereby, generate a train of optical pulses. Brewster windows, or other polarization selective means, are employed to polarize the optical wave energy along a given direction.

The second modulator rotates the direction of polarization of selected pulses in accordance with the information supplied to the second modulator. The rotated pulses are then diverted out of the laser cavity by the polarization selective means.

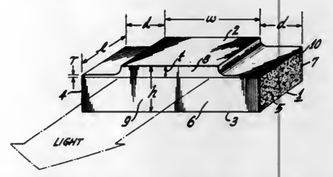
Improved performance is obtained by constructing the first modulator and one of the cavity mirrors as a unit.

3,551,841
THIN FILM LASER DEVICE EMPLOYING AN OPTICAL CAVITY
Nicolas J. Harrick, Ossining, N.Y., assignor, by mesne assignments, to U.S. Philips Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 30, 1967, Ser. No. 612,428
Int. Cl. H01j 39/02; H01s 3/09
U.S. Cl. 331—94.5 4 Claims



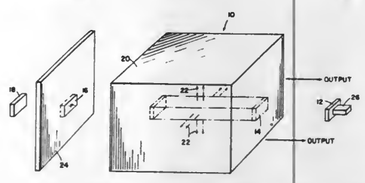
Combining an optical cavity with a radiation-responsive electrical device to increase the absorption of the radiation in the device at preferred wavelengths. Improved photoemitters, photoconductvie devices and thin film lasers result.

3,551,842
SEMICONDUCTOR LASER HAVING HIGH POWER OUTPUT AND REDUCED THRESHOLD
Herbert Nelson, Princeton, N.J., assignor to RCA Corporation, a corporation of Delaware
Filed Mar. 27, 1968, Ser. No. 716,538
Int. Cl. H01s 3/18
U.S. Cl. 331—94.5 8 Claims



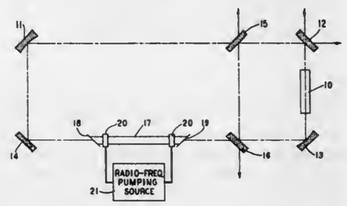
A semiconductor laser of the injection type in which the width of the light emitting region is greater than the length of the semiconductor body between the reflective surfaces which form the resonant optical cavity. Current flow is confined to a principal portion of the P-N junction plane. The remainder of the junction plane does not exhibit gain, and serves as a photon absorbing region to attenuate undesired parasitic optical modes, thus reducing the lasing threshold of the device.

3,551,843
NONCAVITY LASER CONFIGURATION
Charles M. Cason III, and James F. Perkins, Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 8, 1969, Ser. No. 789,687
Int. Cl. H01s 3/05
U.S. Cl. 331—94.5 3 Claims



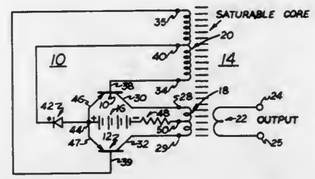
A non-cavity laser has the gain-possessing-medium outside of a Fabry-Perot cavity. A low power laser having a Fabry-Perot cavity is used to provide the driving signal for a high power non-cavity laser. The electric field of the active Fabry-Perot cavity extends beyond the cavity to stimulate emission in the active medium of the high power laser and synchronize the output thereof with the cavity oscillation. Due to the synchronization between the output laser and the control laser, a detector that measures a low percentage of the light frequency of the control laser is readily calibrated to indicate output power.

3,551,844
RING-TYPE PARAMETRIC OSCILLATOR
Peter W. Smith, Little Silver, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed June 18, 1968, Ser. No. 737,955
Int. Cl. H03f 7/00
U.S. Cl. 331—107 5 Claims



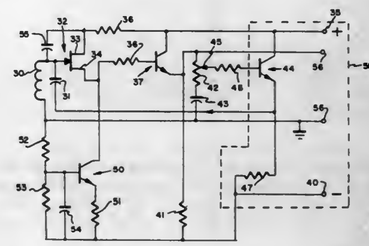
A ring-type parametric oscillator includes a ring laser having an auxiliary ring resonator which contains a parametric crystal. The auxiliary resonator is made highly selective at the pump frequency and resonant at both the signal and idler frequencies. Unidirectional traveling wave propagation of all radiation prevents interference effects present in standing-wave configurations, and, together with simultaneous resonance of signal and idler, promotes high efficiency.

3,551,845
TRANSISTOR-MAGNETIC OSCILLATORS INCORPORATING VOLTAGE REFERENCE MEANS TO REGULATE THE OUTPUT FREQUENCY
William B. Zelina, Erie, Pa., assignor to General Systems, Inc., Erie, Pa., a corporation of Pennsylvania
Filed May 9, 1968, Ser. No. 727,938
Int. Cl. H02m 7/52
U.S. Cl. 331—113 15 Claims



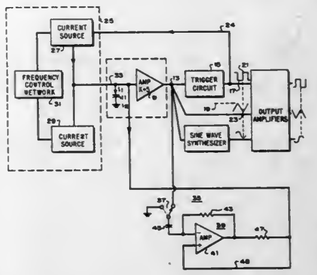
An oscillator circuit of the transistor-magnetic type wherein the effect on output frequency due to fluctuations in the supply voltage is minimized by connecting the transformer for operation as a current transformer for the transistor collector current, limiting the magnitude of such collector current and providing a voltage reference against which the feed-back winding of the transformer operates to thereby set the rate of change of flux in the transformer core and establish a nearly constant switching cycle for the transistors.

3,551,846
ELECTRONICALLY TUNABLE RESONANT CIRCUITS
David O. Hansen, Westminster, and Neal L. Roy, Redondo Beach, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed Sept. 20, 1968, Ser. No. 761,152
Int. Cl. H03b 5/12
U.S. Cl. 331—117 15 Claims



An electronic circuit including a complex reactive impedance element and having a feedback path so that the impedance may be varied electronically by varying the gain of a feedback amplifier. For example, the capacitance of a capacitor or the inductance of an inductor may be varied in this manner. The capacitor and inductor may form part of a parallel or series resonant circuit and may be used for tuning a broadcast receiver. Alternatively, the resonant circuit may provide a bandpass or band-rejection filter having a controllable width. The gain of the feedback amplifier may also be controlled electronically, for example, by varying the voltage applied to a field-effect transistor.

3,551,847
LOW FREQUENCY GENERATOR
Stephen B. Venzke, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Feb. 10, 1969, Ser. No. 797,758
Int. Cl. H03k 3/02
U.S. Cl. 331—143 3 Claims

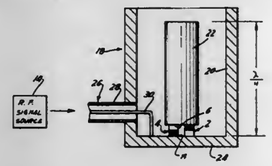


A low-frequency function generator includes an integrator which produces a triangle waveform from an applied square wave and which includes two feedback circuits around an operational amplifier. The first feedback path includes a capacitor and the second feedback path includes a complex circuit which alters the current division between the two feedback ciruits for produing ultralow frequencies using only low values of capacitance in the first feedback path.

3,551,848
LASER MODULATING SYSTEM

Arthur L. Rossoff, Huntington Station, N.Y., assignor to General Instrument Corporation, Newark, N.J., a corporation of New Jersey

Filed June 30, 1966, Ser. No. 561,778
Int. Cl. H01s 3/10
U.S. Cl. 332—7.51 3 Claims

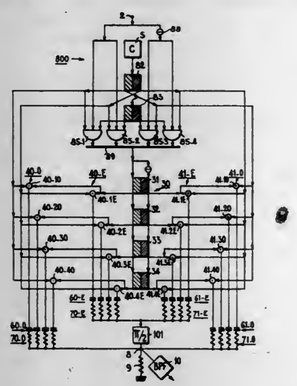


Two diodes, at least one of which is a laser diode, are connected in parallel and in oppositely poled relationship, the thus-defined network being connected in series with a resonant circuit, thereby producing a modulated light output.

3,551,849
DIGITAL INFORMATION SIGNAL MODULATING SYSTEM AND METHOD

Michel Choquet, Epinay-sur-Seine, France, assignor to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, Paris, France, a corporation of France

Filed July 13, 1967, Ser. No. 653,241
Claims priority, application France, July 19, 1966, 69,843
Int. Cl. H03k 7/00
U.S. Cl. 332—9 18 Claims

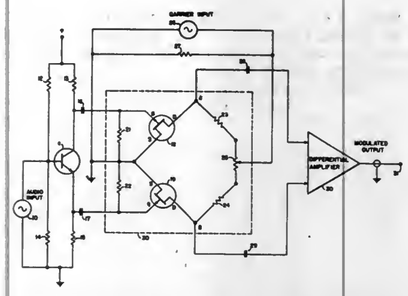


A binary stepping register (30, FIG. 4), has a sequence of binary signals applied to its input (2) and steps the signals through the register stages. A clock generator (5) produces sharp needle-type sampling pulses at the same rate as the binary signal rate and these pulses serve to sample the incoming digit signals in coincidence gates (40 and 41). Of the pair of gates associated with each binary stage, one is a POSITIVE-AND gate and the other a NEGATIVE-AND gate. The sample pulses from the gate outputs are passed through capacitors (60) and selectively weighted summing resistors (70) to the input of a linear bandpass filter (10) of predetermined frequency characteristics. The filter's output signal to each weighted sum of sample pulses is a waveform comprising at least one semi-cycle of a predetermined carrier frequency, and the sequence of said output waveforms constitutes a suppressed-carrier amplitude-modulated modulating of the sequence of input signals.

3,551,850
SUPPRESSED-CARRIER MODULATOR

Louis R. Rudolph, Annandale, Va., and Joseph A. Dalpee, Hyattsville, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed Nov. 14, 1968, Ser. No. 775,839
Int. Cl. H03c 1/52
U.S. Cl. 332—44 6 Claims

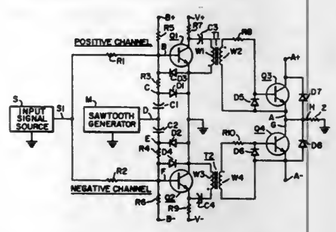


A transformerless suppressed-carrier modulator comprising a field-effect transistor bridge circuit which modulates a carrier frequency signal with two audio input signals, which differ in phase by 180°, to produce two modulated signals having carrier, upper sideband, and lower sideband components with polarities such that after subtraction by a differential amplifier the carrier components cancel and only the upper and lower sideband signals are fed to the output of the device.

3,551,851
CLASS A-B PULSE WIDTH MODULATING AMPLIFIERS

Joseph C. Engel, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 27, 1968, Ser. No. 732,174
Int. Cl. H03k 7/08
U.S. Cl. 332—9 5 Claims



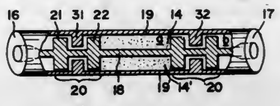
A pulse width modulated amplifier is disclosed capable of being operated in the class A–B amplifying mode and employing double-edge modulation. In the amplifier, a source of modulating signals is provided which may have, for example, a sawtooth waveform. The sawtooth waveform is respectively clamped to opposite polarities in the two channels of the amplifier. In one channel of the amplifier the input signal thereto and a biasing potential are compared with one polarity of the clamped sawtooth, with the comparison thereof determining the pulse duration of output signals of one polarity. In the other channel of the amplifier, the input signals and a biasing potential are compared with the clamped sawtooth of the other polarity, with the duration of the output pulses being

dependent upon this comparison. The output pulses are supplied by switching devices, such as transistors, whose duty cycle is controlled by the comparison in the respective channels of the amplifier.

3,551,852
CIRCULATOR

Yoshihiro Konishi, Sagamihara, Japan, assignor to Japan Broadcasting Corporation, Chiyoda-ku, Tokyo, Japan

Filed Dec. 9, 1968, Ser. No. 782,380
Claims priority, application Japan, Dec. 19, 1967, 42/80,870
Int. Cl. H01p 1/32; 5/12
U.S. Cl. 333—1.1 5 Claims

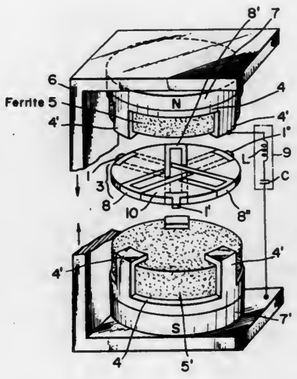


A circulator for use in the VHF band comprising ferrite plates loaded at the central portion of the center conductor, wherein peripheral portions of the ferrite plates, which are effective to produce a rotating magnetic field in the central portions of the ferrite plates but are not effective with respect to the non-reciprocal property of the circulator, are replaced by slow wave circuits in order to minimize the dimension of the ferrite plates so as to realize a lightweight and economized circulator especially suitable for use for high power VHF purposes.

3,551,853
WIDE BAND CIRCULATOR COMPRISING A LUMPED ELEMENT SERIES RESONANCE CIRCUIT

Yoshihiro Konishi, Sagamihara, Japan, assignor to Nippon Hoso Kyokai, Chiyoda-ku, Tokyo, Japan

Continuation-in-part of application Ser. No. 718,890, Apr. 4, 1968. This application Dec. 18, 1969, Ser. No. 886,326
Claims priority, application Japan, Apr. 27, 1967, 42/26,555
Int. Cl. H01p 1/32, 5/12
U.S. Cl. 333—1.1 7 Claims

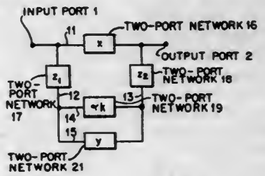


A wide frequency band lumped element type Y-circulator comprising an outer case, an outer conductor plate insulated from the outer case with respect to direct current and an LC series circuit connected between the outer conductor plate and the outer case. This LC series circuit is selected to be resonant at the center frequency of the circulator so that only the same phase component of the excitation energy applied at any of the circulator terminals is fed to the series circuit. This circulator is able to widen the range of operating frequency, which had been restricted by a difference of impedance variation factors between the same phase excitation component and the positive or negative phase excitation component of the excitation energy.

3,551,854
VARIABLE EQUALIZER

Koichi Endo, Tokyo, Kiyoto Aizawa, Yokohama-shi, Takamoto Kojima and Hirosuke Tanaka, Kawasaki-shi, and Koichi Watanabe, Yokohama-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan

Filed Mar. 18, 1968, Ser. No. 713,859
Claims priority, application Japan, Mar. 16, 1967, 42/16,811; Apr. 5, 1967, 42/21,628; Apr. 18, 1967, 42/24,987; Dec. 23, 1967, 42/82,780
Int. Cl. H03h 7/14; H04b 3/04
U.S. Cl. 333—28 7 Claims



A plurality of two-part networks are connected in a loop between an input port and an output port. The loop has a transfer coefficient which determines the variable frequency characteristic of the variable equalizer and the transfer coefficient has a real coefficient which determines the proportional variation of the magnitude of transmission of an electrical signal from the input to the output port.

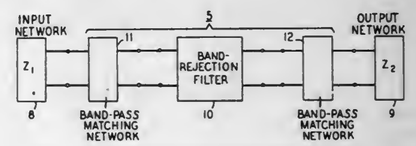
ERRATUM

For Class 333—30 see:
Patent No. 3,551,837

3,551,855
IMPEDANCE TRANSFORMER

Harold Seidel, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York

Filed June 6, 1969, Ser. No. 831,051
Int. Cl. H03h 7/38
U.S. Cl. 333—33 8 Claims



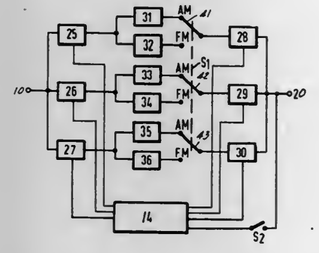
By applying the Weissfloch theorem, which states that any reactive two-port can be represented by an ideal transformer and lengths of transmission line, it is shown that a band-rejection filter can be employed as an impedance transformer. This makes it possible to achieve large impedance transformation ratios (i.e., 10^4) not heretofore realizable by conventional methods.

3,551,856
MINIATURIZED CIRCUIT DEVICE
Gary R. Hoffman, Glenarm, Md., assignor to The Bendix Corporation, a corporation of Delaware
Filed Sept. 27, 1968, Ser. No. 763,227
Int. Cl. H01p 3/08, 5/00
U.S. Cl. 333—35 3 Claims



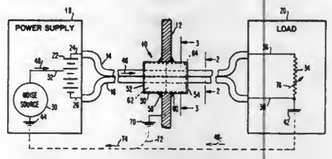
This invention describes a circuit device which is useful with miniature circuits. Depending upon the structure of the device it can be used as either an impedance transformer or as a directional coupler. When used as an impedance transformer an impedance matching center conductor is sandwiched between two dielectric elements and a ground plane is added to the opposite sides of the dielectric elements. A slotted spindle is placed transversely across the several layers of material at the approximate center of the longitudinal dimension of the device. The layers are then rolled around the spindle in a bifilar manner. This type of rolling accomplishes two purposes: firstly, it allows a substantial decrease in the longest dimension of the layers of material, and secondly, the bifilar winding serves to cancel out the inductive reactance which would be formed due to the winding. For use as a directional coupler two stripline elements are placed in a substantially parallel relationship and then inserted between the two dielectric elements. Two conductive elements are then positioned on the opposite sides of the dielectric elements to serve as ground planes after the element is rolled around the slotted spindle.

3,551,857
AM-FM N-PATH FILTER ARRANGEMENT WITH CENTER FREQUENCY AND BAND WIDTH ADJUSTMENTS
Erik Langer, Munich, Germany, assignor to Siemens Aktiengesellschaft, a corporation of Germany
Filed Apr. 3, 1968, Ser. No. 718,469
Claims priority, application Germany, Apr. 11, 1967, S 109,285
Int. Cl. H03h 7/12; H04b 1/16
U.S. Cl. 333—70 7 Claims



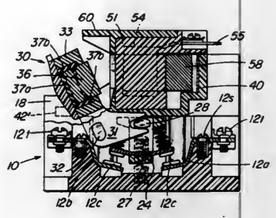
A filtering arrangement which might be used, for example, in the intermediate stages of either an AM or FM receiver is disclosed and which utilizes N-path filters. Two embodiments are disclosed with the first one utilizing a parallel switch arrangement for switching from a first to a second frequency range and the second embodiment using a series switching arrangement for switching from a first to a second frequency range.

3,551,858
HIGH CURRENT FEED-THROUGH FILTER SYSTEM
John R. Cielo, Hurley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed June 14, 1967, Ser. No. 646,076
Int. Cl. H01h 7/14
U.S. Cl. 333—79 9 Claims



A compact filter usable in high current circuits for the suppression of common mode noise and particularly adaptable to construction as a feed-through fitting for an interference shield, comprises a plurality of linear conductors disposed generally axially within a cylinder of ferrite material which itself is disposed within a cylindrical conductive sheath by which the device may be mounted in the shield. Common mode signals on the conductors see the inductive and resistive serial impedance presented by the ferrite and capacitative shunt impedance through the ferrite to the sheath. Closed circuit signals in the conductors exhibit mutually cancelling fields so that the ferrite is not saturated. Nested configuration of the conductors minimize signal leakage. The ferrite material may comprise plural axially adjacent segments of differing frequency response.

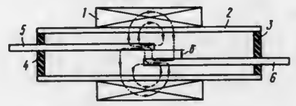
3,551,859
ELECTROMAGNETIC CONTACTOR
Harold E. Schleicher, West Hartford, Conn., assignor to Arrow-Hart, Inc., a corporation of Connecticut
Filed Feb. 9, 1968, Ser. No. 704,363
Int. Cl. H01h 67/02
U.S. Cl. 335—128 13 Claims



An electromagnetic switching device made of insulation bodies which fit together in interengaging and interlocking relation, on which are supported fixed contacts, a movable contact carrier electromagnetic solenoid, field piece and armature parts. No metal parts other than screws are used for the mounting or support of the fixed and movable contacts and other parts of the device.

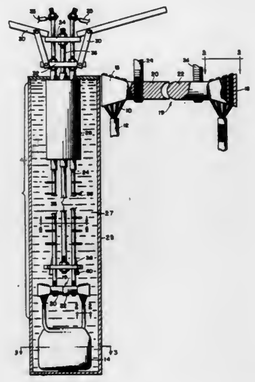
Provision is made on the bodies for the attachment and annexation of supplementary poles and/or auxiliary smaller switches by interengagement and interlocking of the casings with formations that are provided on the main device so that when the bodies of the main device are assembled together they hold the supplementary or auxiliary devices.

3,551,860
ELECTROMAGNETIC DEVICE FOR ELECTRIC-CIRCUIT CONTROL AND PROTECTION SYSTEMS
Vladimir Alexeevich Smirnov, Ul. Panfilova 20, korp. 2, kv. 128, and Vadim Nikolaevich Shoffa, 1 Dubrovskaya ul. 6a, kv. 11, both of Moscow, U.S.S.R.
Filed Nov. 20, 1968, Ser. No. 777,380
Claims priority, application U.S.S.R., Nov. 23, 1967, 1,195,561
Int. Cl. H01h 1/66
U.S. Cl. 335—151 5 Claims



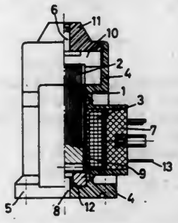
An electromagnetic device for electric-circuit control and protection systems, comprising elastically mounted magnetically controlled long cores whose overlapping free ends are arranged with a certain air gap relative to each other when the magnetizing coil is deenergized so that in the case of a rising magnetic field around the magnetizing coil the magnetically controlled cores first come closer together until they reach a certain air gap between them, and then move apart before they completely close, which makes it possible to use said device as an adjustable capacitance and also for electric-circuit switching. In the latter case the device is provided with contact tips or springs.

3,551,861
PERSISTENT SWITCH MEANS FOR A SUPERCONDUCTING MAGNET
Roger W. Boom, Woodland Hills, Luther Carlton Salter, Jr., Los Angeles, and James B. Vetrano, Woodland Hills, Calif., assignors to North American Rockwell Corporation, a corporation of Delaware
Continuation of application Ser. No. 369,205, May 21, 1964. This application July 28, 1969, Ser. No. 847,814
Int. Cl. H01f 7/22
U.S. Cl. 335—216 16 Claims



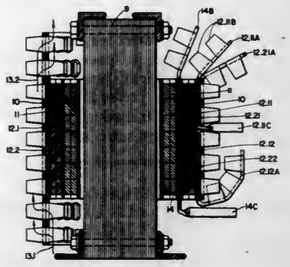
A superconducting magnet incorporating a multistrand conductor in solenoid configuration is operated within a cryogenic fluid. A superconducting persistence switch is provided whereby in its closed position current is trapped in the superconducting circuit of the magnet and switch.

3,551,862
ENCAPSULATED ELECTROMAGNETIC ACTUATOR WITH THE ARMATURE THEREOF BEING COMPLETELY ENCLOSED
Heinz Haug, Schwenningen am Neckar, Germany, assignor to Binder Magnete KG, Villingen, Black Forest, Germany, a corporation of Germany
Filed Aug. 12, 1968, Ser. No. 771,376
Claims priority, application Germany, Aug. 11, 1967, B 72,199
Int. Cl. H01f 7/08
U.S. Cl. 335—260 5 Claims



Actuating magnet has a magnet core surrounded by an excitation coil, and a housing formed of synthetic material, the magnet core and excitation coil being embedded in the housing.

3,551,863
TRANSFORMER WITH HEAT DISSIPATOR
Louis L. Marton, 7424–1/4 Arizona Ave., Los Angeles, Calif. 90045
Filed Mar. 18, 1968, Ser. No. 718,972
Int. Cl. H01f 27/10
U.S. Cl. 336—58 9 Claims

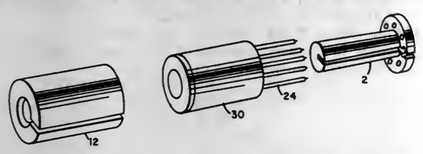


This invention relates to transformers equipped with more effective new heat dissipators for the purpose of reducing the external and/or internal resistances in the path of the heat flow. This reduction is achieved by applying dissipators equipped with a multiplicity of fins having narrow surfaces exposed to the stream of the cooling medium. On surfaces having small dimensions in the direction of the flow, a negligible boundary-layer develops; thus the heat transfer can be substantially improved.

3,551,864
MINIATURE INDUCTIVE DEVICES
Joseph N. Sweeney, Woodbury, and Henry Spoldi, Bronxville, N.Y., assignors to Pico Electronics, Inc., Mount Vernon, N.Y., a corporation of New York
Continuation-in-part of application Ser. No. 702,429, Feb. 1, 1968. This application Dec. 12, 1969, Ser. No. 884,595
Int. Cl. H01f 15/02
U.S. Cl. 336—83 19 Claims

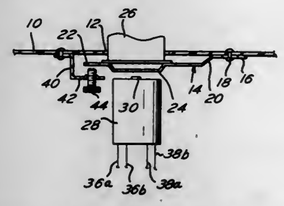
A miniature electronic device comprising a magnetic core including a magnetic rivet, magnetic wafer and container, a winding attached to said rivet, and the magnetic

container enclosing the rivet, wafer, and winding wherein the components are tightly attached to provide durable



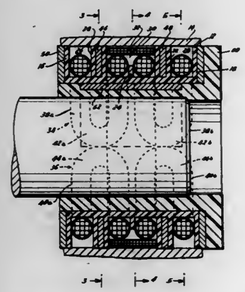
and duplicable air gaps including a minimum gap in said core.

3,551,865
KEYBOARD SWITCH MEANS
Amotz Frenkel, Lansdale, Pa., assignor to Transducer Systems, Inc., Willow Grove, Pa., a corporation of Pennsylvania
Filed Aug. 20, 1968, Ser. No. 754,067
Int. Cl. H01f *21/06*
U.S. Cl. 336—130 **9 Claims**



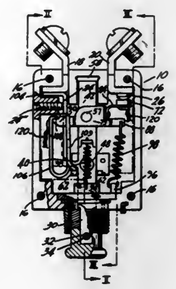
A pushbutton operated switch for a keyboard comprising a pushbutton mounted on a member of magnetic metal, a proximity transducer mounted beneath the member with the end of the core of the transducer being in closely spaced relation with the member, and spring means normally holding the member in spaced relation with the core but permitting the member to be moved toward the core. When the pushbutton is pressed the member is moved closer to the core of the transducer so as to increase the electrical output of the transducer.

3,551,866
ROTARY VARIABLE DIFFERENTIAL TRANSFORMER
Jacob Chass, Forest Hills, N.Y., assignor to Pickering & Company, Inc., Plainview, N.Y., a corporation of New York
Filed July 3, 1969, Ser. No. 838,836
Int. Cl. H01f *21/06*
U.S. Cl. 336—132 **5 Claims**



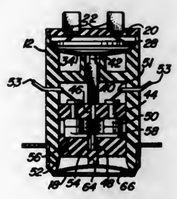
A rotary variable differential transformer having a wide angle linear output range is provided. The transformer includes two secondary windings connected in bucking series and disposed on diametrically opposed sides of a core contained within an incomplete magnetic circuit and a magnetic rotor adapted to complete a portion of the magnetic circuit about all or a part of one or both secondary windings.

3,551,867
CIRCUIT BREAKER
Richard C. Ingwersen, Treasure Island, Fla., assignor to Allied Control Company, Inc., New York, N.Y.
Filed Mar. 12, 1969, Ser. No. 806,664
Int. Cl. H01h *71/16*
U.S. Cl. 337—63 **7 Claims**



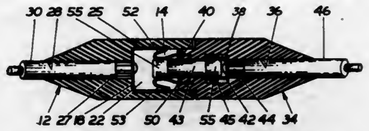
A trip-free circuit breaker of the "push-pull" type having a rocker lever carried on the "push-pull" actuator, the rocker lever having a fulcrum point at one end and a contact at the other end, and a mechanical latch carried on the rocker lever and having unitary pivotal movement therewith for supporting the rocker lever in circuit closing position.

3,551,868
THERMAL RELAY AND LIMIT SWITCH
George R. Good, 1703 Toplea, Euless, Tex. 76039
Filed Jan. 22, 1969, Ser. No. 792,982
Int. Cl. H01h *37/52, 61/013*
U.S. Cl. 337—96 **6 Claims**



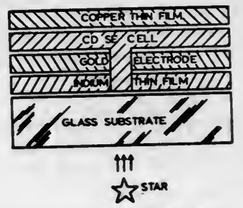
A thermal relay switch having normally opened contacts slidably mounted within a housing. To close the contacts, a heater within the housing is energized which causes a bimetallic disk to deform in a direction causing contacts to close. A second bimetallic disk normally supporting one of the contacts is sensitive to the temperature of a space being monitored. When the temperature in the space exceeds a preselected minimum, the second bimetallic disk deforms thereby resulting in the loss of support for the second contact which insures the separation or disengagement between the contacts.

3,551,869
DEAD FRONT FUSED ELECTRICAL CONNECTOR
Donald Brown Robinson, 538 Iron Ave., Dover, Ohio 44622
Filed June 14, 1968, Ser. No. 737,063
Int. Cl. H01h *85/48*
U.S. Cl. 337—201 **9 Claims**



An electrical connector having mating housings formed to establish a fused circuit and in which the line side housing has a dead front upon separation of the housings.

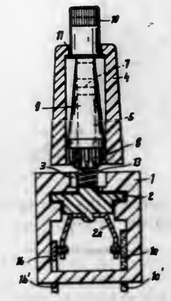
3,551,870
PHOTOCONDUCTIVE THIN FILM CELL RESPONDING TO A BROAD SPECTRAL RANGE OF LIGHT INPUT
Frederick W. Reynolds, Ridgewood, and Arthur E. Meixner, Saddle Brook, N.J., assignors to Singer-General Precision, Inc., Little Falls, N.J., a corporation of Delaware
Original application Oct. 12, 1964, Ser. No. 403,124, now Patent No. 3,447,234, dated June 3, 1969. Divided and this application Feb. 26, 1968, Ser. No. 725,973
Int. Cl. H01c *7/08*
U.S. Cl. 338—15 **3 Claims**



A photoconductive cell having a thin film indium bonding agent deposited on the flat surface of a glass substrate includes a thin film of gold deposited on the substrate overlying the indium which latter serves to bond the gold thin film thereto. A narrow section of the gold film and indium bonding agent is then etched away to form a thin slit aperture cooperating with the substrate surface and to define a pair of spaced electrodes (i.e., the gold film). An extremely thin film of cadmium selenide material is next deposited over the gold film wherein the cadmium selenide extends into the slit into contact with the glass substrate and extends over the gold film electrodes on eithed side of the slit. Finally, a thin layer of suitable accepter impurity such as copper, for example, is deposited over the cadmium selenide layer to form the completed photoconductive cell.

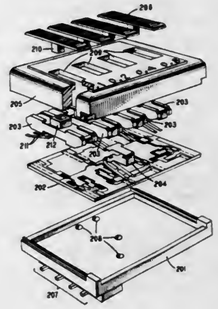
3,551,871
SLIDE RESISTOR WITH FINE ADJUSTMENT
Helmut Eberwein, Brendlorenzen, and Waldemar Bogsch, Bad Neustadt an der Saale, Germany, assignors to Preh Elektro-Feinmechanische Werke, Jakob Preh Nachf., Bad Neustadt an der Saale, Germany
Filed Dec. 18, 1968, Ser. No. 784,589
Claims priority, application Germany, Dec. 23, 1967, 1,665,405
Int. Cl. H01c *1/12, 9/02*
U.S. Cl. 338—122 **3 Claims**

In a slide resistor being roughly adjustable by slidingly moving an operating button or handle, the provision of a fine adjustment. The operating button being provided in its interior with a rotatable pinion engaging a gear rack connected with the slide resistor. The button for



slidingly adjusting the slide resistor serving simultaneously for turning the pinion.

3,551,872
THIN FILM ADJUSTABLE ATTENUATOR WITH S-SHAPED BIFURCATED CONTACTS
John T. Emmott, East Hanover Township, Morris County, Nathan G. Lesh, Livingston, and Mead F. Stevens, Pompton Plains, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J., a corporation of New York
Filed Dec. 20, 1968, Ser. No. 785,715
Int. Cl. H01c *1/12, 9/02*
U.S. Cl. 338—202 **3 Claims**

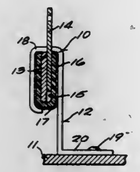


An adjustable attentuator is provided by an integral unit which includes a thin film substrate with a preselected pattern of area resistors deposited thereon. Dual spring contacts, arranged for sliding movement across areas of the film, selectively bridge different portions of the resistive pattern to provide incremental adjustments in the attenuation level.

3,551,873
RESISTOR
Lionel E. Weyenberg, N 35 W 23575 Capitol Drive, Pewaukee, Wis. 53072
Filed Nov. 25, 1968, Ser. No. 778,730
Int. Cl. H01c *1/02*
U.S. Cl. 338—253 **17 Claims**

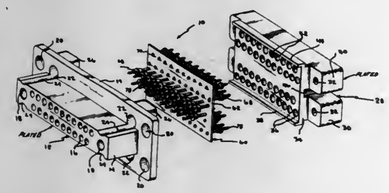
A resistor comprising an electrically conductive resist-

ance strip which is press fitted within a slot in a rigid insulating casing. Terminals or leads secured to the strip



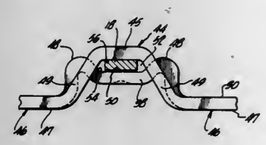
project outwardly through the slot in the casing and the strip is sealed within the casing by an insulating coating.

3,551,874
MULTIPLE COAXIAL CONNECTOR
Robert Volinskie, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed July 31, 1968, Ser. No. 749,029
Int. Cl. H01r *23/24*
U.S. Cl. 339—17 **9 Claims**



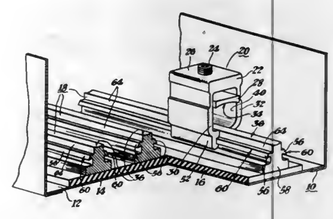
A multiple coaxial connector assembly is disclosed which features a printed circuit board having contact pins staked thereto interconnected by conductive paths on the board. The contact pins extend outwardly from the board in a pattern to be engaged by coaxial connectors mounted in mating blocks which extend around the board.

3,551,875
BUS BAR
Gordon G. Jarosek, Westminster, Calif., assignor to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Mar. 21, 1968, Ser. No. 715,001
Int. Cl. H01r *31/08*
U.S. Cl. 339—19 **14 Claims**



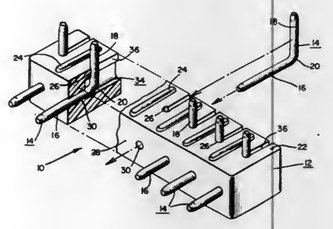
A bus bar for electrically coupling a plurality of spaced apart, parallel terminal pins arranged in banks. The bus bars are constructed of elongated strips of electrically conductive material. A portion of the bar is slitted and offset from an adjacent remainder of the bar whereby the two define a passageway through which the pins are inserted. The passageway has a configuration complementary to that of the pin and the slitted portion and the remainder of the bar cooperate to engage the pin and apply a holding force thereto.

3,551,876
WIREWAYS AND CONNECTOR CLAMPS
Gerard S. Walter, Pittsburgh, Pa., assignor to Walter Electrical Manufacturing Company, Pittsburgh, Pa.
Filed Apr. 17, 1968, Ser. No. 721,954
Int. Cl. H01r *7/08*
U.S. Cl. 339—21 **14 Claims**



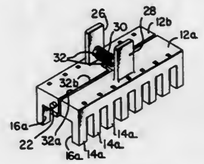
There is disclosed an electrical wireway comprising at least one fixed elongated conductor, means for mounting said conductor in electrically isolated relationship on said wireway, at least one electrically conductive connector for said conductor, means for slidably and electrically engaging said connector with said conductor for movement therealong, and means for securing an electrical cable to said connector. In other arrangements of my invention, the electrical cable is secured generally between the connector and conductor for direct electrical contact with the wireway conductor. In the latter arrangement such securance desirably terminates potential sliding movement between the connector and the conductor.

3,551,877
ELECTRICAL CONNECTOR
William Telmosse, Meadowbrook, and Maurice S. Sterling, Willow Grove, Pa., assignors to Hugh H. Eby Co., Philadelphia, Pa., a corporation of Pennsylvania
Filed Nov. 20, 1968, Ser. No. 777,254
Int. Cl. H01r *13/48, 13/50*
U.S. Cl. 339—62 **10 Claims**



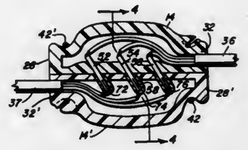
An electrical connector has an L-shaped pin with two legs held by an insulating body. The body is provided with a first hole establishing a press fit with the protruding end of one leg of the pin. The other leg protrudes from a second hole in the body. Further provided the body is an entrance slot extending inwardly toward the first and second holes from a side of the body opposite the first hole. The slot makes an interference fit with the pin, whereby the connector can be assembled by inserting one leg of the pin first through the slot toward the first hole, meanwhile applying force to the other leg of the pin to pass the pin through the slot for subsequent reception and secure retention of the legs in their respective holes.

3,551,878
TEST CONNECTOR FOR INTEGRATED CIRCUIT MODULE
Donald Rossman, Jenkintown, Pa., assignor to Elco Corporation, Willow Grove, Pa., a corporation of Delaware
Filed Apr. 26, 1968, Ser. No. 724,549
Int. Cl. H01r *13/54*
U.S. Cl. 339—75 **5 Claims**



An electrical connector for use in testing circuitry of an integrated circuit module has a pair of pivotally interconnected elements, each of which has fingers for engaging the insulating body of the integrated circuit module between its leads to releasably retain said connector to said module. Electrical contacts in each element make electrical connections with the respective leads of the module.

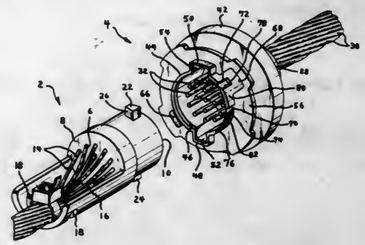
3,551,879
NONLOOSENING ELECTRICAL CONNECTOR
Edmund M. Waller, Sr., 3228 Sleepy Hollow Road, Falls Church, Va. 22042
Filed Dec. 20, 1968, Ser. No. 785,534
Int. Cl. H01r *13/54*
U.S. Cl. 339—75 **3 Claims**



A connector assembly including a male connector having outwardly extending slanted prongs adapted to engage similarly slanted receptacles, the latter being recessed within a female connector. Upon coupling the connectors together, oppositely directed shearing forces exerted upon the connectors cause more complete engagement between the prongs and receptacles thereby inhibiting loosening.

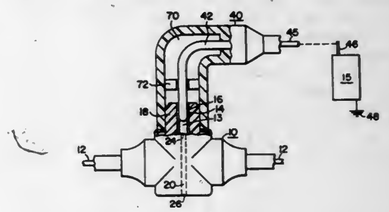
3,551,880
ELECTRICAL CONNECTOR HAVING IMPROVED LOCKING MEANS
Ronald Groff Hartwell, Hummelstown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 23, 1968, Ser. No. 761,448
Int. Cl. H01r *13/54*
U.S. Cl. 339—89 **4 Claims**

Multi-contact electrical connector comprises cylindrical plug and cylindrical socket or receptacle having hood extending therefrom which is adapted to receive the plug. Both parts are molded of a relatively firm insulating material such as polycarbonate or a modified polysulfone and have contacts mounted in their body portions which are engaged with each other when the connector parts are coupled. Hood portion of the receptacle has an axially extending slot and plug portion has a radially extending boss which is adapted to move into the slot when the parts are engaged with each other. A locking ring is mounted rotatably on the hood for rotation in its own plane and has a notch therein which, when the locking ring is in one position, permits passage of the boss or ear on the plug and which, when in a second position, prevents movement



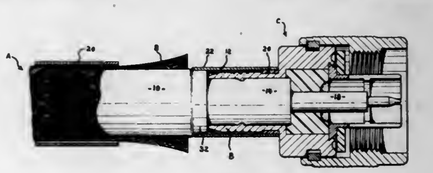
of the boss past the plane of the locking ring. The locking ring thereby functions to hold the parts in assembled relationship and prevents accidental disengagement.

3,551,881
PLUG-IN TYPE CONNECTOR FOR A HIGH CURRENT AND HIGH VOLTAGE CIRCUIT
Arthur M. Lockie, Sharpsville, Pa., and Merrill G. Leonard, Fowler, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 28, 1968, Ser. No. 716,841
Int. Cl. H01r *13/52*
U.S. Cl. 339—112 **1 Claim**



A plug-in type connector for high current-high voltage distribution circuits comprising a stationary contact member and a plug-in contact member, and means for cooling gas generated when an arc occurs between the stationary contact member and plug-in contact member during closing of the circuit.

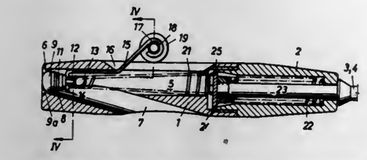
3,551,882
CRIMP-TYPE METHOD AND MEANS FOR MULTIPLE OUTER CONDUCTOR COAXIAL CABLE CONNECTION
Michael Francis O'Keefe, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Nov. 29, 1968, Ser. No. 779,745
Int. Cl. H01r *5/10, 17/18;* **H02g** *15/04*
U.S. Cl. 339—177 **3 Claims**



A method and means is disclosed for terminating coaxial connectors to coaxial cable of a type having two layers of outer braid. A malleable ferrule is crimped

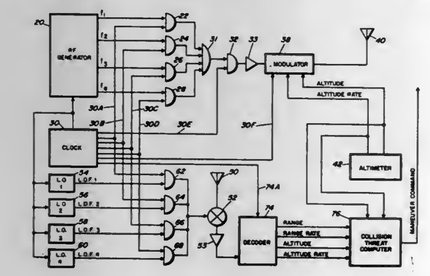
down onto the inner braid to terminate it to the connector and an outer ferrule is then crimped down onto the outer braid directly over the inner ferrule to join it to the connector.

3,551,883
CLAMPING DEVICES
Max Pasbrig, Allmandstrasse 15, Leutkirch, Germany
Filed Jan. 26, 1968, Ser. No. 700,933
Int. Cl. H01r *7/06;* **F16g** *11/04*
U.S. Cl. 339—273 **25 Claims**



An improved device for releasably clamping flexible, elongated connecting elements for connecting such elements to each other or for mounting them on a fixed stationary anchorage, comprising a tubular, self-locking and releasable element in which the tensioned section of the connecting element passes through an opening in one end face of the tubular element and the tensionally relieved section through a lateral hole in the said tubular element.

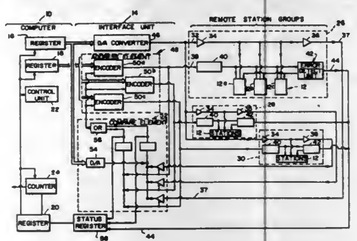
3,551,884
FREQUENCY DIVERSITY TIME MULTIPLEX MEANS FOR INCREASING CAPACITY OF A COOPERATIVE COLLISION AVOIDANCE SYSTEM
Wayne G. Shear, Pompano Beach, Fla., and Merlin E. Olmstead, Baltimore, Md., assignors to The Bendix Corporation, a corporation of Delaware
Filed Dec. 28, 1967, Ser. No. 694,239
Int. Cl. G01s *1/00*
U.S. Cl. 340—23 **7 Claims**



A frequency diversity time multiplex means for increasing the capacity of a cooperative collision avoidance system wherein the carrier frequency of transmissions in adjacent time slots is varied stepwise on a predetermined schedule.

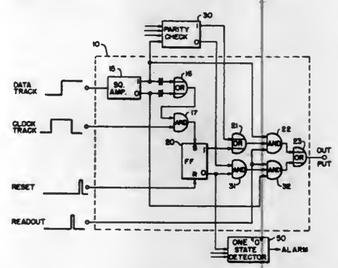
3,551,885
VALIDITY APPARATUS FOR COMPUTER BASED PROCESS CONTROL EQUIPMENT
Russell A. Henzel, Sudbury, Mass., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Jan. 18, 1968, Ser. No. 701,527
Int. Cl. H04g *9/00;* **G08c** *25/00*
U.S. Cl. 340—146.1 **15 Claims**

Monitoring apparatus for computer-based process control systems detects and reports invalid operations, including the erroneous addressing of stations, transmission of data, and instruction of stations, and inhibits further response to a recognized error condition. Data errors are detected by comparing the data arriving at a station with



a complementary function of the data sent to the station. Invalid codes of address and instruction signals signify errors of these functions.

3,551,886
AUTOMATIC ERROR DETECTION AND CORRECTION SYSTEM
Harold D. Cook, Wheaton, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed July 16, 1968, Ser. No. 745,247
Int. Cl. G06f *11/08;* **G11b** *27/22*
U.S. Cl. 340—146.1 **3 Claims**

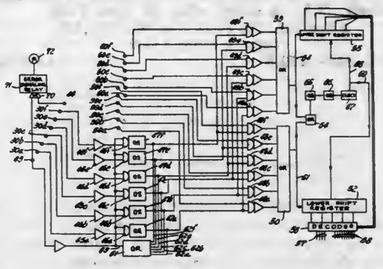


In an automatic error detection and correction system for a parallel magnetic tape recorder employing phase modulation recording, an index track and a separate vertical parity check track are recorded on the tape in addition to the normal data tracks, with the outputs of the data tracks and the parity check track being supplied to a parity check circuit or counter. A detector is provided to detect whether or not a signal transition occurs in each track of a recorded character, and if a signal transition is missing in any track, the output of the parity check circuit is gated with the output signal for the track having no transition in order to provide an output which is indicative of the proper missing bit. For tracks in which signal transitions are detected, the parity check circuit output has no effect.

3,551,887
CHARACTER READING APPARATUS
Angelo Vaccaro, Port Washington, and Harold F. E. Dixon, Douglaston, N.Y., assignors to Columbia Controls Research Corporation, Glen Cove, N.Y., a corporation of New York
Filed Dec. 12, 1967, Ser. No. 689,841
Int. Cl. G06r *9/04*
U.S. Cl. 340—146.3 **8 Claims**

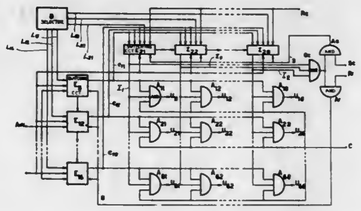
A character reading apparatus that has a plurality of vertically aligned and spaced reading elements and a plurality of sequentially actuatable registering elements with

the leading edge of a character to be read initially actuating the first registering element which then selects certain ones of the reading elements that are to be em-



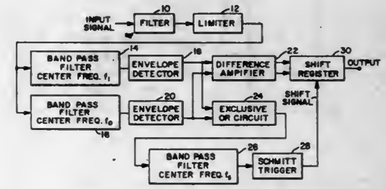
ployed to provide the character scan signals that are then translated into an output signal unique to the character.

3,551,888
PULSE DISTRIBUTOR FOR TIME-SHARING SYSTEMS
Fabio Balugani and Franco Mammucari, Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy, a corporation of Italy
Filed Dec. 7, 1967, Ser. No. 707,341
Claims priority, application Italy, Dec. 9, 1966, 30,876/66
(Filed under Rule 47(a) and 35 U.S.C. 116)
Int. Cl. H04q *9/00*
U.S. Cl. 340—166 **17 Claims**



A set of coincidence gates A_{11}, A_{12} . . . A_{68} are disposed in an orthogonal matrix, akin to a cross-bar switch, so as to form n rows and m columns under the control of respective row switches E_{11}, E_{12} . . . E_{16} and column switches E_{21}, E_{22} . . . E_{28} which respond in turn to row-identification and column-identification signals originating from a selector B with mn individually actuatable units B_{11}, B_{12} . . . B_{68}. At the beginning of a distribution cycle, the row switches assigned to all actuated selector units are enabled by a start signal Avv whereas the assigned column switches are merely conditioned for subsequent enablement upon activation of the corresponding row switches. The first enabled row switch is also activated by the start signal Avv and conditions every column switch assigned to a common selector unit for enablement by a periodically recurring sampling pulse Sc which also activates the first column switch so enabled. A periodically recurring input signal C then passes the coincidence gate (e.g. A_{11}) controlled by the activated row and column switches (e.g. E_{11}, E_{21}) to produce a pulse on the corresponding output line (e.g. U_{11}) whereupon the activated column switch responds to a column-reset pulse Rc and immediately activates the next enabled column switch. After all the enabled column switches have been reset, a row-reset pulse Rr disables the previously activated row switch with resulting activation of the next enabled row switch, the latter in turn enabling the first conditioned column switch assigned to a common selector unit for activation or reactivation by the next sampling pulse Sc. A presetting pulse Ps at the end of a cycle restores any remaining off-normal row and column switches to normal preparatorily to the arrival of the next starting pulse Avv.

3,551,889
REMOTE SIGNALING OF CONTROL SIGNALS
Chauncey S. Miller, Concord, Mass., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 11, 1967, Ser. No. 637,683
Int. Cl. H04q *9/00*
U.S. Cl. 340—171 **12 Claims**



The remote signaling of command signals through operation of a frequency shifted or keyed signal communication system is described for the transmission of binary coded control signal information for application to control the operation of a device such as a railway train. A binary signal ONE is represented by a first frequency f_1 and a binary signal ZERO is represented by a second frequency f_2. These signal frequencies may be but are not necessarily chosen to have an integral number of cycles during a predetermined signal bit time period or interval T_s. The following relationship characterizes this signaling time interval

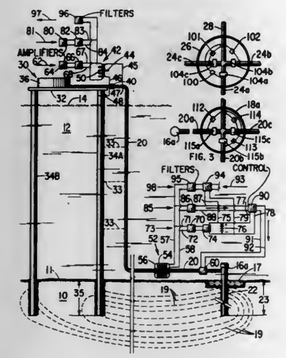
$$T_s = \frac{N_0}{f_0} = \frac{N_1}{f_1}$$

for the case where N_0 and N_1 are integers, f_0 and f_1 are measured in cycles/second, and the time interval T_s is measured in seconds. A signal of either frequency f_0 or f_1 can be made to have either a 0° or a 180° phase angle relationship at the beginning of each signaling interval T_s and with the signal being modulated so the phase thereof is reversed at the beginning of each such time interval.

3,551,890
ELECTRICAL COMMUNICATION SYSTEM FOR OIL FIELD GATHERING SYSTEM
Daniel Silverman, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed Aug. 16, 1968, Ser. No. 753,280
Int. Cl. G01v *3/00;* **H04b** *13/00*
U.S. Cl. 340—171 **22 Claims**

In a gathering system for oil wells drilled in water locations, the wells are connected by gathering pipelines laid on the ocean floor to a central storage area. Appropriate measuring devices, communication means, control valves, etc., are maintained at each of the wells which are accessible only with great difficulty. In accordance with this invention, these, and other devices at the wells, are communicated with, supplied with power, and controlled by appropriate signals transmitted over the connecting insulated metal pipelines. At each selected point, such as on a platform, where the pipelines are ungrounded, signal

and power currents are transformed into and out of the gathering lines by step-down transformers, with low turns windings connected between the lines and ground. Toroidal transformers are used at the underwater wells



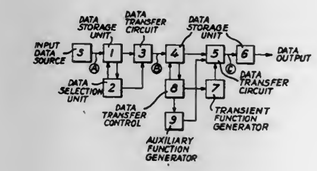
where the gathering lines are grounded through casing in the wells to the earth. Separate signals to a given well are isolated from other signals and from other wells by appropriate filters.

3,551,891

METHOD AND APPARATUS FOR SIMULATING VARIABLES

Heinz Hermes, Hamburg, Klaus-Dietrich Thieme, Wedel, Holstein, Herbert Sedlacek, Hamburg, Peter Koerv, Anzing, and Walter Mehnert, Munich, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, and Entwicklungsring Sud G.m.b.H., Munich, Germany

Filed Feb. 23, 1967, Ser. No. 618,205
Claims priority, application Germany, Feb. 24, 1966, L 52,935
Int. Cl. G11b *5/04, 27/00*
U.S. Cl. 340—172.5 **18 Claims**



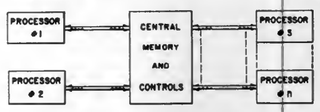
Varying electrical signals which accurately represent physical and/or electrical variables for testing the performance of electrical components are stored in a first storage unit. Portions of the stored signals which are of interest for testing electrical components are selected and transferred to a second storage unit. The selected signals are then transferred in time sequence to a third storage unit and transient functions are simultaneously inserted between the end of one selected signal portion and the beginning of the next selected signal portion to produce a continuous signal for testing the electrical components. Auxiliary functions which are not included in the stored signals can also be inserted between the selected signal portions when they are transferred from the second to the third storage unit.

3,551,892

INTERACTION IN A MULTI-PROCESSING SYSTEM UTILIZING CENTRAL TIMERS

Graham C. Driscoll, Jr., Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1969, Ser. No. 791,258
Int. Cl. G06f *15/16*
U.S. Cl. 340—172.5 **14 Claims**



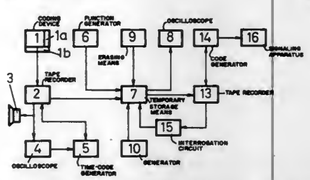
In a multi-processor computer system including a plurality of individual processors and a central memory accessible to all processors, interaction control means for allowing all processors to communicate with each other over existing data busses. Means are provided in each processor for storing a message in central memory from a sending processor and further means are provided in each processor for recognizing that a message is present and for retrieving same. The system utilizes an expanded timer storage facility in central memory together with special hardware to accomplish the requisite communications.

3,551,893

POWER FLUCTUATION SIMULATOR

Walter Mehnert, Munich, Peter Koerv, Anzing, Heinz Hermes, Hamburg, Klaus-Dietzl Thieme, Wedel, and Herbert Sedlacek, Hamburg, Germany, assignors to Licentia Patent-Verwaltungs GmbH, Frankfurt am Main, and Entwicklungsring Sud GmbH, Munich, Germany, both corporations of Germany

Filed Jan. 24, 1967, Ser. No. 611,377
Claims priority, application Germany, Jan. 24, 1966, L 52,697
Int. Cl. G01r *1/00*
U.S. Cl. 340—172.5 **6 Claims**



A series of voltages characteristic of the output of a power supply system operating under various conditions is recorded in a selected sequence on a magnetic tape. The magnetic tape is played back and used to test the reaction of various elements in an electrical system to fluctuations in power which might be encountered in actual operation.

3,551,894

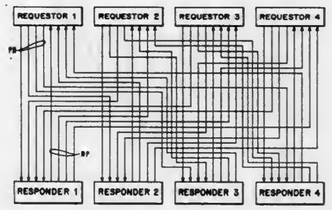
SERIAL CROSS-BAR BUSSING SYSTEM

Meir M. Lehman, Bronx, Jack L. Rosenfeld, Tarrytown, and Hans P. Schlaeppi, Chappaqua, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Dec. 28, 1967, Ser. No. 694,216
Int. Cl. G06f *3/00*
U.S. Cl. 340—172.5 **7 Claims**

A bussing arrangement adaptable for use in a multiprocessor system wherein there is provided a separate bus for each of a number of processors or requestors, the busses respectively connecting the processors to the selection circuit of each of a number of memory modules or responders. Addresses, operation commands, and data words are all transmitted serially byte-by-byte over these busses. In the operation of the arrangement, a byte-string

which specifies the address of a memory word to be read out or written in, as well as the memory operation which is requested, is repetitively and continually presented on a bus interconnecting a requestor and a responder concurrently with a request for service signal. Consequently, as soon as the responder such as a memory module makes the decision to accept a request, it concurrently commences to accept the address information. After the complete address is assembled, a responder



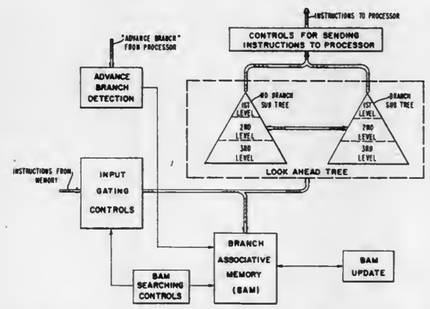
control immediately transmits an acceptance signal to the requestor. Upon the reception of the acceptance signal, the requestor transmits a byte-string representing the data word, sending such word only once. The propagation delays of the acceptance signal and of the data byte-string can be overlapped with other responder operation events whereby only the request signal, the address byte-string and the data string contribute propagation delay to the total effective responder access time as far as the requestor is concerned.

3,551,895

LOOK-AHEAD BRANCH DETECTION SYSTEM

Graham C. Driscoll, Jr., Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,677
Int. Cl. G06f *9/18*
U.S. Cl. 340—172.5 **19 Claims**



The present invention relates to a look-ahead branch detection system for use with high speed electronic computing systems. The system utilizes a special Advance Branch Instruction which will be located in an instruction sequence a number of positions prior to the actual potential branch point. It specifices the point at which the branch is to be taken if conditions require and also the point to which the branch is to go. The system utilizes a Look-ahead Tree in which instructions are stored prior to transfer to the actual processor on request. Each time a branch point is detected in the system, a decision is made, if possible, as to whether or not the branching conditions have been met. If it is possible to make this decision, only the proper instruction specified thereby is fetched; otherwise the instructions along both the branch and sequential path are accessed and stored at appropriate locations in the Look-ahead Tree. Included in the system is a Branch Associative Memory which is utilized to test the address of each instruction fetched to see whether or or not it is an instruction immediately following which a branch may be taken.

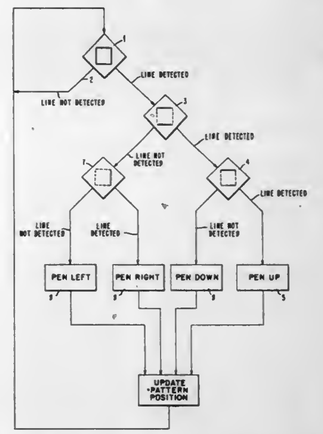
This system is intended to enhance instruction fetching in high speed electronic computing systems wherein instruction fetching comprises a significant portion of the overall computational cycle and it is desired that a minimum hold up of the processor be allowed for purposes of such instruction fetching. At the same time the system contains condition checking controls whereby instruction accessing in the memory is kept to a minimum.

3,551,896

DEDUCTIVE LIGHT PEN TRACKING SYSTEM

Herbert B. Baskin, Mohegan Lake, and Larry E. Rittenhouse, Crompond, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 15, 1968, Ser. No. 697,869
Int. Cl. G09f *9/38*
U.S. Cl. 340—172.5 **16 Claims**



A system for producing a light pen tracking pattern on the screen of a cathode ray tube of the type having a rectilinear raster. The system includes means for initially generating a closed geometric pattern on the cathode ray tube screen. A light pen is initially pointed to the center of the pattern. As the light pen moves, it will encounter and edge of the pattern and initiate means for generating a second display consisting of portions of the first display. The system continues to branch and generate another display to ultimately determine the direction of movement of the light pen.

3,551,897

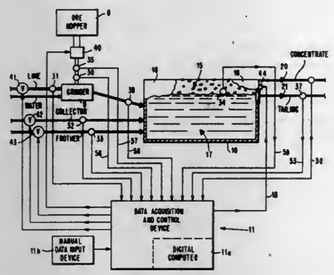
METHOD OF CONTROLLING ORE FLOTATION

Harrison R. Cooper, San Jose, Calif., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Continuation of application Ser. No. 504,423, Oct. 24, 1965. This application Sept. 6, 1968, Ser. No. 791,198
Int. Cl. B03d *1/02;* **G06f** *15/18, 15/46*
U.S. Cl. 340—172.5 **3 Claims**

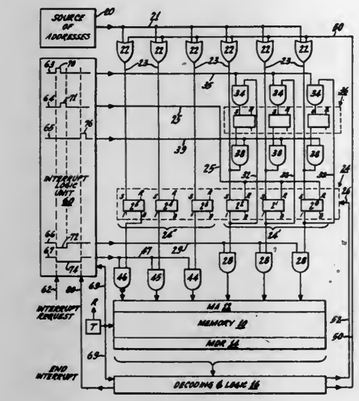
A method for combing economic optimization and operating optimization in an ore flotation plant. The method consists of measuring the operating conditions

of the plant at a plurality of different closely related operating states; calculating a plurality of coefficients that, together with certain equations, describe the process



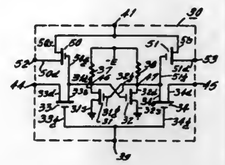
at that particular time, utilizing the same equations and calculated coefficients to determine an operating state that results in greater profits, and changing the operating conditions of the plant so that increased profit is achieved.

3,551,898
COMPUTER MEMORY ADDRESSING
Anthony Prieto, Palm Beach, Fla., assignor to RCA Corporation, a corporation of Delaware
Filed Nov. 1, 1967, Ser. No. 679,703
Int. Cl. G11c *7/00*
U.S. Cl. 340—172.5 **6 Claims**



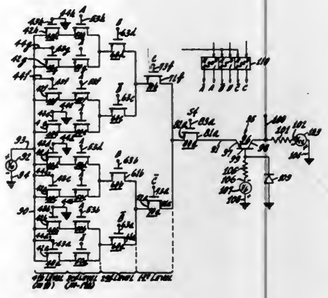
In a computer, an address register or counter cyclically supplies addresses of instructions through gates to a memory. In the event of an interrupt, such as for an input-output operation, an interrupt control unit transfers the contents of the low order bits portion of the register to an auxiliary register, and supplies a control signal to the gates to generate high order bits, which together with "0" low order bits, constitutes a predetermined address containing the first instruction of an interrupt subroutine. At the end of the interrupt, the contents of the high order bits portion of the register, and the low order bits returned from the auxiliary register, are supplied to the memory. The switching between main program and interrupt subroutine is accomplished without loss of a memory cycle.

3,551,899
ASSOCIATIVE MEMORY EMPLOYING BISTABLE CIRCUITS AS MEMORY CELLS
Ryo Igarashi, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan
Filed Nov. 28, 1967, Ser. No. 686,052
Int. Cl. G11c *11/40;* **H03k** *3/286*
U.S. Cl. 340—173 **7 Claims**



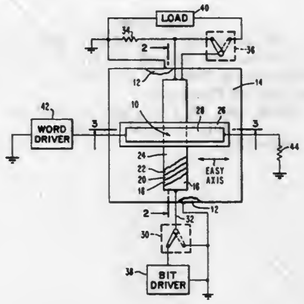
An associative memory in which memory cells of the bistable type and preferably employing FET transistors are arranged to form word groups wherein the words are arranged in regular rows and columns in a matrix fashion. An interrogation signal source is provided in common to all the columns and a plurality of word driving circuits are respectively connected to the rows of the matrix through a first group of logic circuits. A second group of logic circuits detects the presence of a match in any row between the interrogation signals and the associated digit positions of the row. A selection circuit causes sequential readout of all rows having a match of at least one word with the interrogation signals, and further logic circuitry is employed to cause readout of only those words in a row which match and cause suppression of those remaining words in the row in which a mismatch occurs between interrogation signals and such remaining words.

3,551,900
INFORMATION STORAGE AND DECODER SYSTEM
Joseph E. Annis, Stoneham, Mass., assignor to RCA Corporation, a corporation of Delaware
Filed Oct. 8, 1968, Ser. No. 765,773
Int. Cl. H03k *13/25, 17/62*
U.S. Cl. 340—173 **5 Claims**



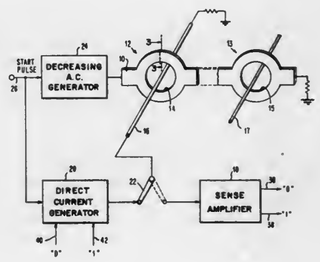
An information storage system having n bits of storage and only $3n-2$ field effect switching devices connected in an m level tree for selecting one only of the n bits for readout. The numbers of devices in the mth and $m-1$th levels are both equal to n and the number of devices per level increases by a factor of two from the first level through the $m-1$th level. The mth level devices are each responsive to a different bit of storage and the rest of the devices are responsive to an address signal for selecting one of the n bits for readout.

3,551,901
COUPLED MAGNETIC FILM MEMORIES
George E. Keefe, Montrose, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed July 14, 1967, Ser. No. 653,392
Int. Cl. C11c *5/02, 11/14*
U.S. Cl. 340—174 **9 Claims**



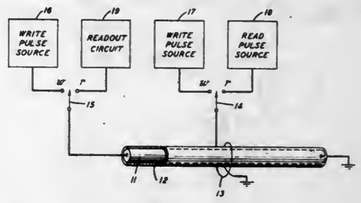
A storage system having a pair of magnetic films disposed on one side of an electrically conductive substrate. A first electrically conductive line is disposed between the films and the substrate and a second electrically conductive line is disposed parallel to the first line and between the films. The first and second conductive lines are spaced so that the magnetic field intensity in each of the films is substantially equal when current is passing through these lines in the same direction. Means are also provided for establishing a magnetic field in the films perpendicular to the magnetic field produced by the current in the conductive lines.

3,551,902
MAGNETIC STRIP MEMORY
James C. Sagnis, Jr., Highland, and Paul E. Stuckert, Katonah, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Feb. 1, 1963, Ser. No. 255,479
Int. Cl. G11c *7/00, 11/14*
U.S. Cl. 340—174 **11 Claims**



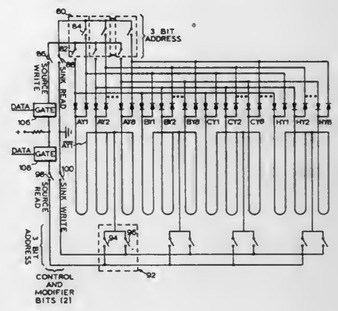
A conductive magnetizable strip having at least one aperture therein. A conductor is positioned within said aperture. Sources are provided for concurrently energizing said conductor and magnetizable strip so as to switch the flux in said strip around said aperture.

3,551,903
ELEMENT INCLUDING BERYLLIUM-COPPER BASE
Robert F. Jack, Springfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., a corporation of New York
Filed Sept. 30, 1966, Ser. No. 583,207
Int. Cl. G11c *11/14;* **C22c** *9/00*
U.S. Cl. 340—174 **9 Claims**



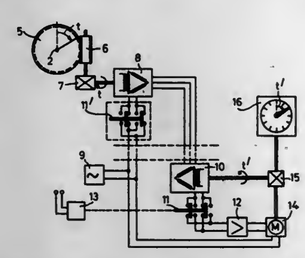
When layers are deposited on wire made from commercially available beryllium-copper alloys, imperfections are observed which have been traced back to irregularities in the original wire surface caused by the cobalt, nickel and iron additives included in all commercially available alloys for added strength. Wires of greatly improved surface characteristics have been produced using new alloys substantially free of these additives.

3,551,904
MEMORY SYSTEM
Carlos A. Tomaszewski, Canoga Park, and Timothy A. R. Goodliffe, Woodland Hills, Calif., assignors to Wyle Laboratories, El Segundo, Calif., a corporation of California
Filed Feb. 29, 1968, Ser. No. 709,253
Int. Cl. G11c *7/02*
U.S. Cl. 340—174 **7 Claims**



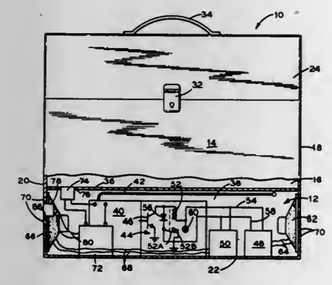
A digital memory system which utilizes a matrix of magnetic elements (e.g., cores) and which has its Y drive wires connected in series pairs to thus reduce the number of Y switch drivers required. A different Y switch driver is associated with each series pair and connected so that an applied Y drive current traverses one of the pair wires in one direction and the other pair wire in the opposite direction. Selection of one of the X drive wires causes a coincident effect at one of the associated cores of the selected Y series pair and an anticoincident effect at the other.

3,551,905
DEVICE FOR INDICATING ASTRONOMICAL COORDINATES OF ASTRONOMICAL INSTRUMENTS
Christoph Kühne, Heidenheim, Germany, assignor to Carl Zeiss-Stiftung, doing business as Carl Zeiss, Heidenheim (Brenz), Wurttemberg, Germany, a corporation of Germany
Filed June 13, 1968, Ser. No. 736,693
Claims priority, application Germany, June 14, 1967, Z 12,891
Int. Cl. G08c *19/42, 21/00*
U.S. Cl. 340—198 **10 Claims**



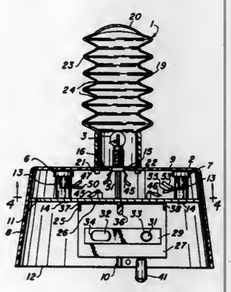
A device for indicating angular coordinates in an astronomical instrument which is rotatable about a polar axis and a declination axis has transmitter synchros connected to be operated by rotation of the instrument about the axis for generating voltages which are transmitted respectively to receiver synchros for producing voltages in the rotors of the latter. Voltages from the rotors of the receiver synchros are applied through servomotors to operate indicating devices. The rotors of the transmitter synchros are also connected to the respective servomotors. Commutators are in the electric circuits from either the rotors of the receiving synchros or the rotors of the transmitting synchro to the respective servomotors. The commutators are operable to reverse the direction of polarity of voltages in the respective circuits and are operated through a relay and contacts which are arranged to operate the commutators when the instrument is rotated over the poles and/or across the celestial equator.

3,551,906
REMOTE CONTROL ALARM SYSTEM
Leslie A. Cooper, Garden City, N.Y.
(P.O. Box 3392, St. Thomas, Virgin Islands 00801)
Filed Apr. 28, 1967, Ser. No. 634,547
Int. Cl. G08b *13/22*
U.S. Cl. 340—224 **2 Claims**



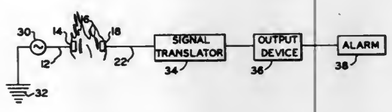
A remote control alarm system including a portable transmitting device and a receiving device carried by a protected article. The receiving device includes an alarm indicating device which is adapted to be operated by receiving means in response to the detection of an alarm signal which is generated by the transmitting device. Accordingly, the alarm indicating device may be actuated from a place remote from the location of the article whereby the alarm emanates directly from the article to notify people in the vicinity that the article is in the possession of unauthorized personnel.

3,551,907
TEMPERATURE WARNING DEVICES
Jay Earl Newton and Russell Arthur Schmitt, Madison, Wis., assignors to Newell' Corporation, Madison, Wis., a corporation of Wisconsin
Filed Aug. 30, 1967, Ser. No. 664,344
Int. Cl. G08b *17/06*
U.S. Cl. 340—227.1 **5 Claims**



A warning device which embodies high and low temperature, thermostatically actuated switches for effecting a warning signal in response to a decrease or increase in temperature beyond a predetermined temperature range.

3,551,908
FLAME DETECTOR
William W. Landon, Jr., Hebron, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Dec. 26, 1967, Ser. No. 693,308
Int. Cl. G08b *17/12*
U.S. Cl. 340—228.1 **6 Claims**



A flame detecting apparatus utilizing the ionization pattern of a flame gas to modulate a low voltage carrier signal impressed between a sender electrode and a receiver electrode. The result modulated signal at the receiver electrode is used to gate a gated latching switch, such as an SCR, which actuates an output switch to a readout device to indicate flame presence, both qualitatively and quantitatively. The voltage of the carrier signal is below the gating threshold of the latching switch so that upon flame cessation, the latching switch will not gate, thus deactivating the output switch. Upon output switch deactivation, flame failure may be indicated by any suitable alarm.

DESIGNS

DECEMBER 29, 1970

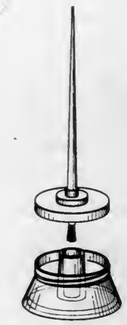
219,569
CONFECTION
William N. Prifti, 106 Green St., Worcester, Mass. 01608
Filed Jan. 22, 1969, Ser. No. 15,444
Term of patent 14 years
Int. Cl. D1—*02*
U.S. Cl. D1—1



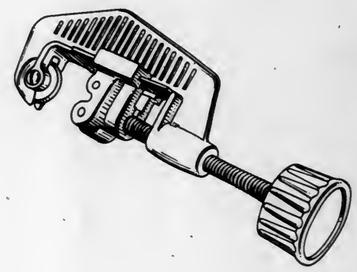
219,570
HEEL FOR LADY'S SHOE
Ivo Barbaresi, Florence, Italy, assignor to Salvatore Feragamo S.p.A., Firenze, Italy
Filed Dec. 27, 1968, Ser. No. 15,132
Claims priority, application Italy July 9, 1968
Term of patent 7 years
Int. Cl. D2—*04*
U.S. Cl. D2—325



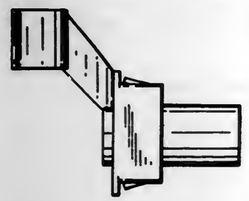
219,571
COMBINED PAINT HOLDER AND BRUSH THEREFOR
Samuel F. Speers, North Attleboro, Mass., assignor, by mesne assignments, to Hasbro Industries, Inc., Pawtucket, R.I., a corporation of Rhode Island
Filed July 25, 1969, Ser. No. 18,418
Term of patent 14 years
Int. Cl. D4—*04*
U.S. Cl. D4—7

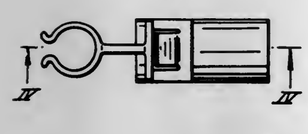


219,572
TUBE CUTTER
Sidney J. Shames, 57 Holly Place, Briarcliff Manor, N.Y. 10510, and Harold Shames, 5 Agnes Circle, Ardsley, N.Y. 10502
Filed Sept. 5, 1969, Ser. No. 19,038
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—60



219,573
WIRING CLIP
Fred G. Weiss, Agincourt, Ontario, Canada, assignor to Universal Sections Limited, Scarborough, Ontario, Canada, a corporation of Canada
Filed Jan. 27, 1970, Ser. No. 21,110
Claims priority, application Canada Sept. 11, 1969
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—230

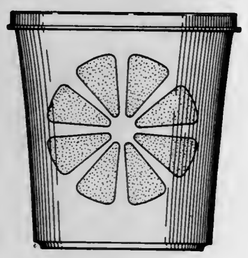




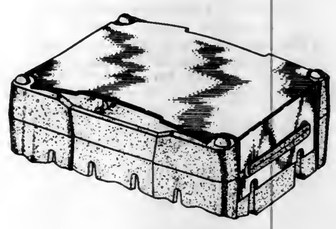
219,574
COMBINATION MOORING BIT, CLEAT, CHOCK, LIGHT AND LIFT
Edward B. Cahen, 14521 NW. 13th Road, Miami, Fla. 33167
Filed Oct. 27, 1969, Ser. No. 19,740
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D8—232



219,575
COMBINED FOOD PACKAGING CUP AND COVER THEREFOR
David Douglas, 1332 S. 26th St., Manitowoc, Wis. 54220
Filed Oct. 10, 1969, Ser. No. 19,493
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D9—220



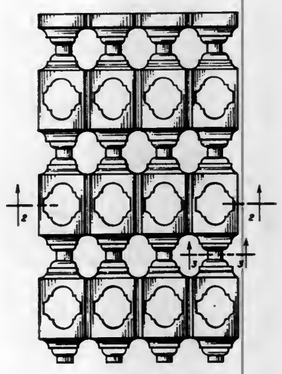
219,576
FRUIT CONTAINER
Champlyn K. Sulger, Box 959, and John F. Pandolfo, 23467 Esberg Road, both of Los Altos, Calif. 94022
Filed Dec. 10, 1968, Ser. No. 14,871
Term of patent 3½ years
Int. Cl. D9—*04*
U.S. Cl. D9—224



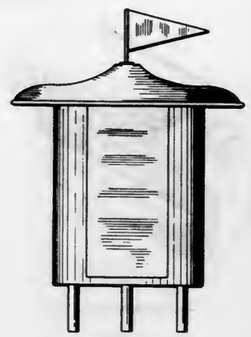
219,577
COMBINATION SERVICE STATION AND CAR WASH
Fred Fiedler, Los Angeles, and Charles D. Caserta, North Hollywood, Calif., assignors to Uniwash, Inc., Los Angeles, Calif., a corporation of California
Filed Oct. 2, 1968, Ser. No. 13,812
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



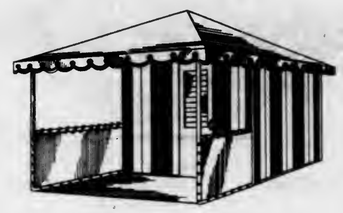
219,578
GRILLE
Robert T. Bogan, Jr., 3620 High St. NE., Albuquerque, N. Mex. 87107
Original design application Aug. 14, 1968, Ser. No. 13,135, now Patent No. 215,577, dated Oct. 14, 1969. Divided and this application June 3, 1969, Ser. No. 17,860
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D13—1



219,579
PLAYGROUND EQUIPMENT STORAGE SHELTER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,365
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



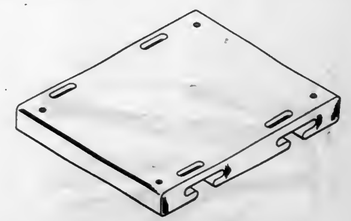
219,580
PORTABLE CABANA
Frank Fritz, Asbury Park, N.J., assignor to John Boyle & Company, Incorporated, a corporation of New York
Filed Feb. 13, 1970, Ser. No. 21,426
Term of patent 14 years
Int. Cl. D25—*04*
U.S. Cl. D13—1



219,581
TRASH CART
Milton Parsons, Waynesboro, Ga., assignor to Keller Industries, Inc., Miami, Fla., a corporation of Florida
Filed Sept. 15, 1969, Ser. No. 19,148
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D14—3



219,582
PALLET
Glen E. Stout, Jr., 2320 W. La Habra Blvd., La Habra, Calif. 90631
Filed Feb. 24, 1970, Ser. No. 21,588
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D14—3



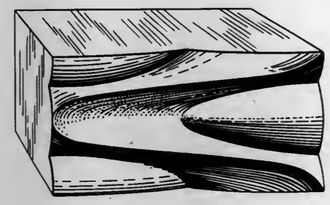
219,583
CHAIR
Harry Zellick, 86 Hyde Ave., and Louis H. Zellick, 106 Whittington St., both of Newton, Mass. 02158, and Philip Zellick, 47 Nottinghill Road, Brighton, Mass. 02135
Filed June 13, 1969, Ser. No. 17,688
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—1



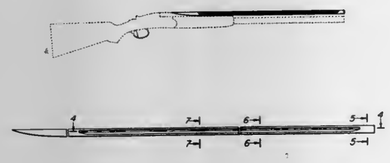
219,584
BUCKET SEAT
Steven T. McQueen, Los Angeles, Calif. (14732 Oxnard St., Van Nuys, Calif. 91401)
Filed Dec. 8, 1969, Ser. No. 20,416
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D15—8



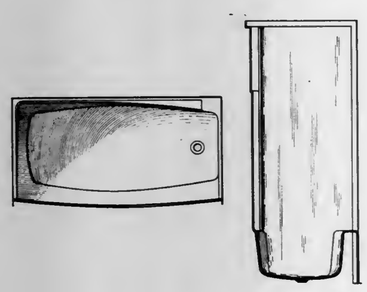
219,585
BUILDING BLOCK
James D. Wallner, 664 N. Michigan Ave., Chicago, Ill. 60611
Filed Feb. 19, 1969, Ser. No. 15,832
Term of patent 3½ years
Int. Cl. D25—*01*
U.S. Cl. D18—2



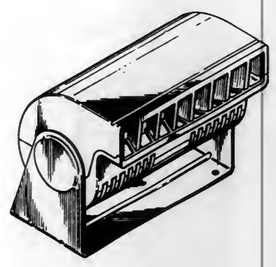
219,586
VENTILATED SIGHTING RIB FOR GUNS
Richard E. Purchase, Ithaca, N.Y., assignor to Ithaca Gun Company, Inc., Ithaca, N.Y., a corporation of New York
Filed May 9, 1969, Ser. No. 17,101
Term of patent 14 years
Int. Cl. D22—*02*
U.S. Cl. D22—8



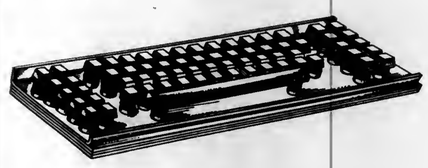
219,587
COMBINED BATHTUB AND SHOWER ENCLOSURE
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1969, Ser. No. 19,861
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49



219,588
BLOWER FAN
Richard Laupot, New York, N.Y. (% Universal Metal Chain Co., 75 Clymer St., Brooklyn, N.Y. 11211)
Filed Nov. 26, 1969, Ser. No. 20,284
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—155



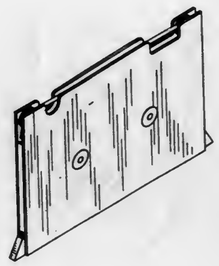
219,589
COMBINED KEYBOARD AND ELECTRONIC MODULE
Meryl E. Miller, Palos Verdes Peninsula, Calif., assignor to Datanetics Corporation, Redondo Beach, Calif., a corporation of California
Filed Mar. 7, 1969, Ser. No. 16,126
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



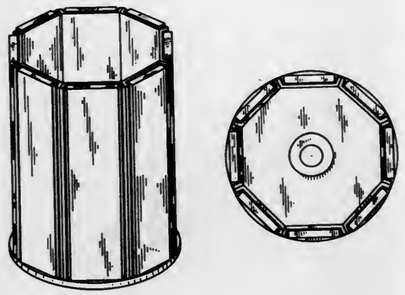
219,590
ELECTRICAL STRAIN INSULATOR OR SIMILAR ARTICLE
Fred C. Vose, Severna Park, Md., assignor to General Electric Company, a corporation of New York
Filed Jan. 8, 1968, Ser. No. 10,080
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—10



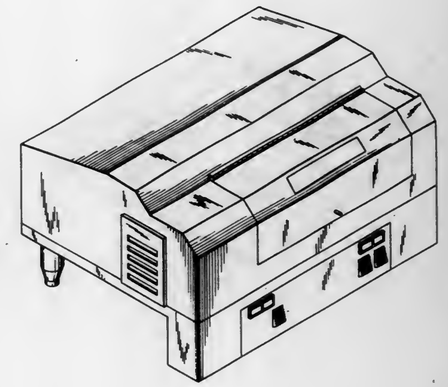
219,591
TAPE CARTRIDGE
Arthur I. Protas, Cupertino, Calif., assignor to Cartridge Television, Inc., New York, N.Y., a corporation of New York
Filed Aug. 13, 1969, Ser. No. 18,667
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



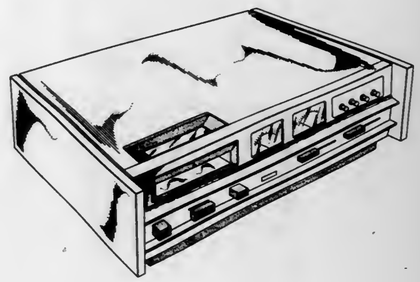
219,592
TELEVISION OR RADIO RECEIVING ANTENNA
Christopher Owen Gibbons, 495 East 1350 North, Bountiful, Utah 84010
Filed Sept. 2, 1969, Ser. No. 19,021
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14



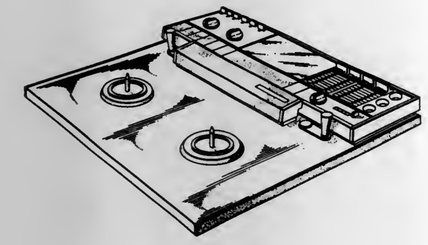
219,593
FACSIMILE TRANSMITTER
Edmund F. Friesmetz, Baldwin, N.Y., assignor to Electronic Transmission Systems, Inc., New York, N.Y.
Filed Oct. 28, 1969, Ser. No. 19,769
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



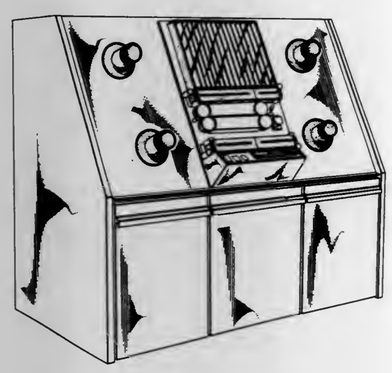
219,594
CASSETTE TRANSPORT
Hari Matsuda, Evanston, Ill., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Nov. 3, 1969, Ser. No. 19,898
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



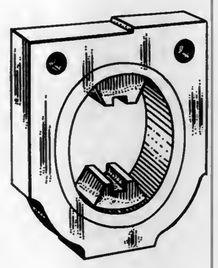
219,595
TAPE DECK
Terrance N. Taylor, Palatine, Ill., assignor to Ampex Corporation, Redwood City, Calif., a corporation of Califoria
Filed Dec. 17, 1969, Ser. No. 20,542
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14



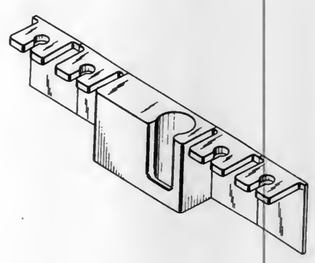
219,596
MAGNETIC TAPE DUPLICATOR
Darrell S. Staley, Santa Clara, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Mar. 9, 1970, Ser. No. 21,799
Term of patent 14 years
Int. Cl. D14—*01, 02*
U.S. Cl. D26—14



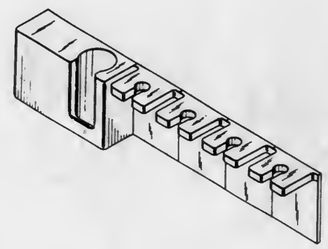
219,597
CURRENT TRANSFORMER
John A. Smith, Rochester, N.H., assignor to General Electric Company, a corporation of New York
Filed Nov. 10, 1969, Ser. No. 20,012
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D26—15



219,598
COMBINED HOLDER FOR AN ELECTRICAL TOOTHBRUSH AND TOOTHBRUSH ATTACHMENTS
Dieter Rams, Koenigstein, Taunus, and Juergen Greubel, Eschenhahn, Germany, assignors to Braun Aktiengeseilschaft, Frankfurt am Main, Germany
Filed Nov. 5, 1969, Ser. No. 19,952
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—28



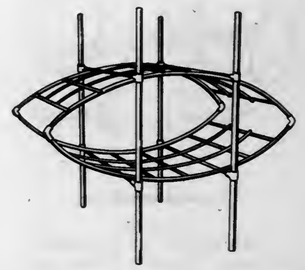
219,599
COMBINED HOLDER FOR AN ELECTRICAL TOOTHBRUSH AND TOOTHBRUSH ATTACHMENTS
Dieter Rams, 46 Alkoenigstr. 624 Koenigstein, Taunus, Germany, and Jurgen Greubel, Schoene Aussicht, 6271 Eschenhahn, Germany
Filed Nov. 5, 1969, Ser. No. 19,953
Claims priority, application Germany May 9, 1969
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D33—28



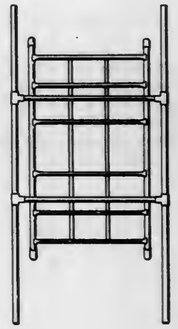
219,600
POST-MOUNTED PLAYGROUND CLIMBER
Eva R. Reichl, 244 Connecting Road, Mount Lebanon Township, Pa. 15228
Filed June 5, 1969, Ser. No. 17,523
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



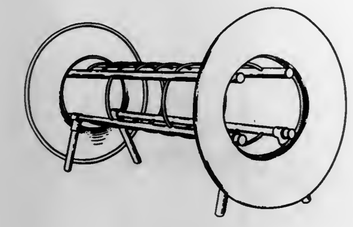
219,601
PLAYGROUND CLIMBER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,351
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



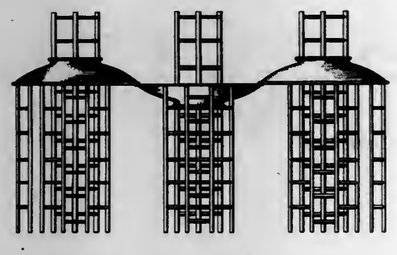
219,602
PLAYGROUND CLIMBER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,355
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



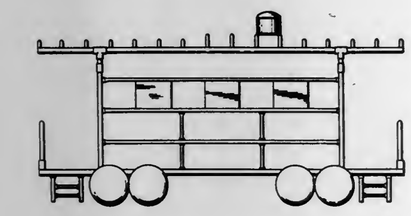
219,603
PLAYGROUND CLIMBER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,356
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



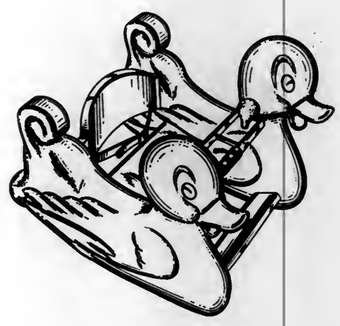
219,604
PLAYGROUND CLIMBER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,357
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



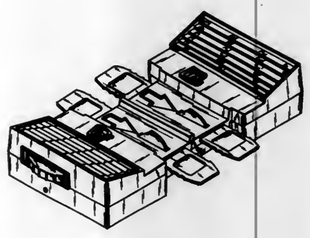
219,605
PLAYGROUND CLIMBER
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich., a corporation of Michigan
Filed Feb. 9, 1970, Ser. No. 21,363
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—5



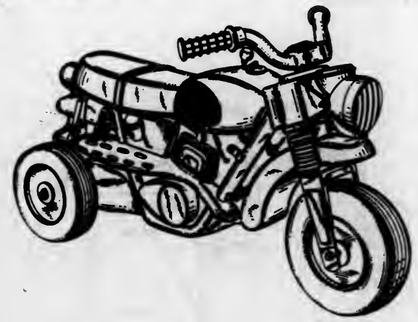
219,606
ROCKING TOY
Laurie Jay Campbell, Erie, Pa., assignor to Louis Marx & Co., Inc., New York, N.Y., a corporation of New York
Filed Feb. 16, 1970, Ser. No. 21,445
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5



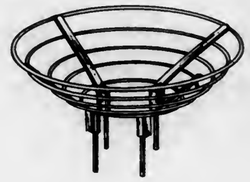
219,607
LAP COUNTER OR THE LIKE
Paul Tam, Los Angeles, Calif., assignor to Mattel, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Feb. 2, 1970, Ser. No. 21,260
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—15



219,608
TOY VEHICLE
Richard N. Carver and Paul G. Goodwin, Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y., a corporation of New York
Filed Feb. 4, 1970, Ser. No. 21,268
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D34—15



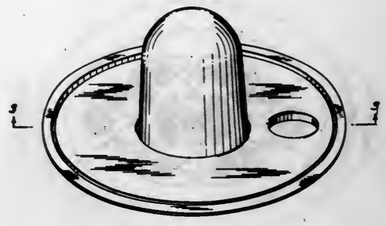
219,609
TOMATO VINE SUPPORT
Henry Orthman, R.R. 2, Lexington, Nebr. 68850
Filed Oct. 15, 1969, Ser. No. 19,575
Term of patent 14 years
Int. Cl. D31
U.S. Cl. D35—1



219,610
COMBINED DIAL AND HANDS FOR A CLOCK OR SIMILAR ARTICLE
Jack R. Vaught, 618 Genine Court, San Jose, Calif. 95127
Filed Sept. 22, 1969, Ser. No. 19,253
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D42—7



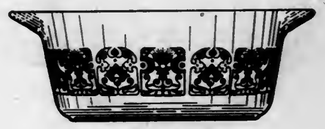
219,611
CLOSURE FOR A FOOD MOLD OR THE LIKE
James B. Swett, Barrington, and Harold P. Ashton, Providence, R.I., assignors to Dart Industries, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Aug. 13, 1969, Ser. No. 18,663
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D44—1



219,612
PERCOLATOR OR THE LIKE
Robert R. Gibson, Reisterstown, Md., assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
Filed Nov. 21, 1969, Ser. No. 20,225
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—26



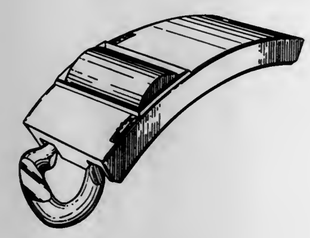
219,613
CASSEROLE DISH OR THE LIKE
Robert R. Gibson, Reisterstown, Md., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Nov. 24, 1969, Ser. No. 20,237
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—15



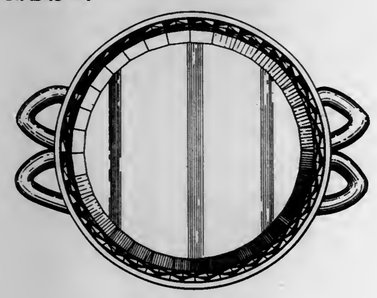
219,614
CASSEROLE COVER
Robert R. Gibson, Reisterstown, Md., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Nov. 24, 1969, Ser. No. 20,242
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—15



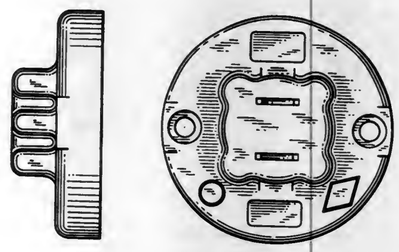
219,615
LINK FOR AN IDENTIFICATION BRACELET OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to Textron Inc., Providence, R.I., a corporation of Delaware
Filed July 16, 1969, Ser. No. 18,230
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—4



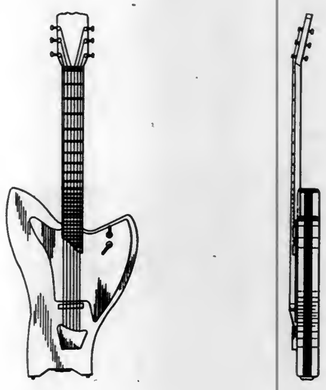
219,616
LINK FOR AN IDENTIFICATION BRACELET OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to Textron Inc., Providence, R.I., a corporation of Delaware
Filed July 18, 1969, Ser. No. 18,259
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D45—4



219,617
THERMOSTAT SOCKET
James L. Swift, Staten Island, and Thomas I. Halpin, South Farmingdale, N.Y., assignors to American District Telegraph Company, Jersey City, N.J., a corporation of New Jersey
Filed Aug. 15, 1969, Ser. No. 18,703
Term of patent 14 years
Int. Cl. D10—*09, 99;* D13—*99*
U.S. Cl. D52—7



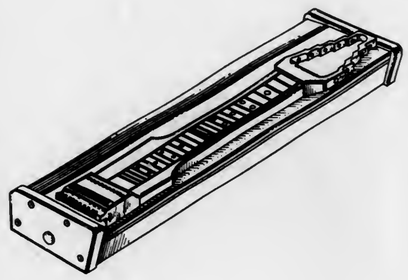
219,618
GUITAR OR SIMILAR ARTICLE
Orbra W. Appleton, 614 S. 12th St., Burlington, Iowa 52601
Filed May 5, 1969, Ser. No. 17,007
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1



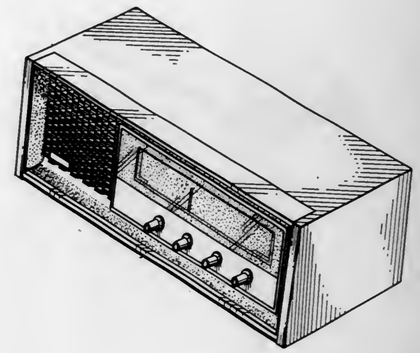
219,619
COMBINATION PORTABLE COLLAPSIBLE HOIST AND LADDER
George Petkus, Chicago, Ill., assignor to Josephine Petkus, Chicago, Ill.
Filed Aug. 30, 1968, Ser. No. 13,331
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D54—1



219,620
ELECTRICAL GUITAR
Charles E. Moore, R.F.D. 1, Highway 32W., Winchester, Ind. 47394
Filed Oct. 31, 1969, Ser. No. 19,865
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D56—1



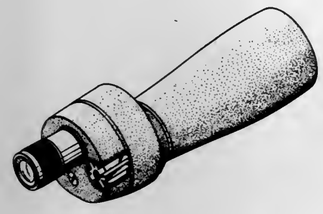
219,621
RADIO RECEIVER
Katsuhiko Makino, Moriguchi-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Nov. 22, 1968, Ser. No. 14,603
Claims priority, application Japan June 11, 1968
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4

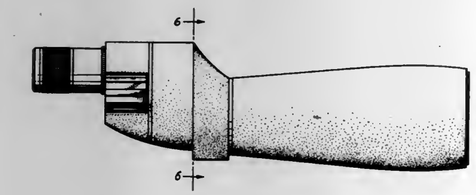


219,622
PORTABLE RADIO
Richard Culbertson, Manlius, N.Y., assignor to General Electric Company, a corporation of New York
Filed Dec. 10, 1969, Ser. No. 20,429
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D56—4

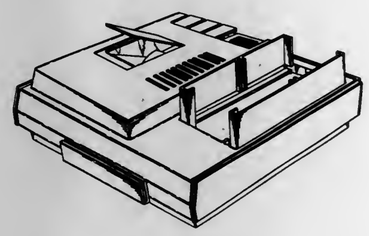


219,623
TELESCOPE
David P. Bushnell, 2124 Midlothian Drive, Altadena, Calif. 91001
Filed Oct. 20, 1969, Ser. No. 19,648
Term of patent 14 years
Int. Cl. D16—*08*
U.S. Cl. D57—1

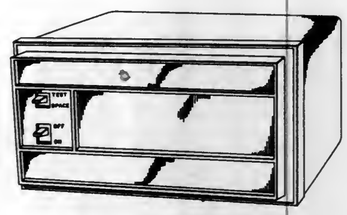




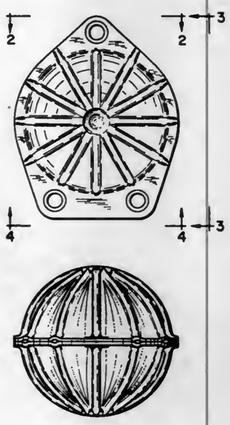
219,624
MOTION PICTURE PROJECTOR OR THE LIKE
Dianne B. Ainslie, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Aug. 22, 1969, Ser. No. 18,818
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D61—1



219,625
DATA PRINTER
James J. Belcher, Canoga Park, Calif., assignor to Clary Corporation, San Gabriel, Calif., a corporation of California
Filed July 31, 1969, Ser. No. 18,490
Term of patent 14 years
Int. Cl. D18—*03*
U.S. Cl. D64—11

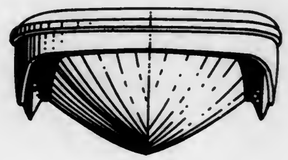


219,626
FLOAT FOR CABLES OR THE LIKE
Robert A. Bruce, 24 Hillcrest Drive, Painted Post, N.Y. 14870, and Kenneth G. Pollock, Olde Mill Apts., Town Garden Drive, Bldg. 4, Apt. 7, Liverpool, N.Y. 13088
Filed Sept. 19, 1969, Ser. No. 19,227
Term of patent 14 years
Int. Cl. D12—*99*
U.S. Cl. D71—1

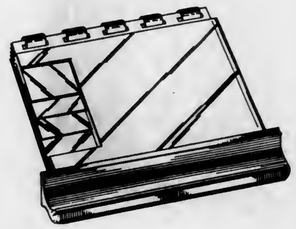


219,627
HULL FOR PLANING BOAT
Richard C. Cole, 19701 Whispering Pines Road, Miami, Fla. 33157
Filed Nov. 21, 1969, Ser. No. 20,215
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D71—1





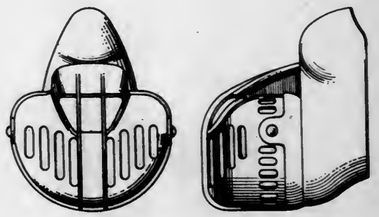
219,628
RECIPE INDEX OR THE LIKE
Donald Barnabas Hendricks, Bloomington, Minn., assignor to Litton Precision Products, Inc., Minneapolis, Minn., a corporation of Delaware
Filed Apr. 16, 1969, Ser. No. 16,769
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—1



219,629
COMBINED CART AND COOKING APPARATUS
Walter Koziol, Russell, Ill., assignor to Charnglow Manufacturing Co., Antioch, Ill., a corporation of Illinois
Filed June 30, 1969, Ser. No. 17,972
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D81—10



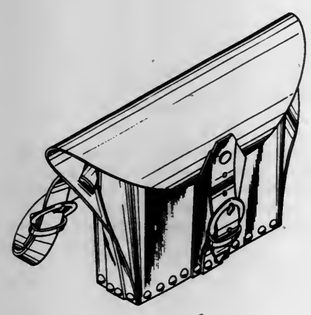
219,630
ANTI-DUST BREATHING MASK
Bohumil Ubr, Brno, Czechoslovakia, assignor to Okula, narodni podnik, Nyrsko, Czechoslovakia
Filed Oct. 7, 1969, Ser. No. 19,450
Claims priority, application Czechoslovakia Apr. 16, 1969
Term of patent 7 years
Int. Cl. D24—*99*; D2—*03*
U.S. Cl. D83—1

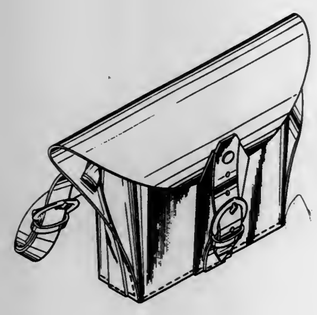


219,631
TEETHER AND PACIFIER COMBINATION
William R. Bartels and Dorothy S. Bartels, both of 824 E. Barker Ave., Michigan City, Ind. 46360
Filed Feb. 18, 1969, Ser. No. 15,825
Term of patent 14 years
Int. Cl. D24—*05*
U.S. Cl. D83—8



219,632
HANDBAG
Gladys I. Spear, 205 Allen St., New York, N.Y. 10002
Filed Mar. 4, 1970, Ser. No. 21,744
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D87—3

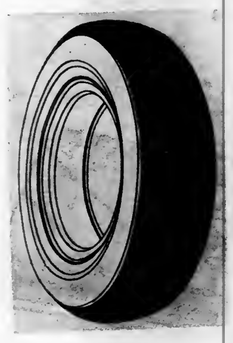




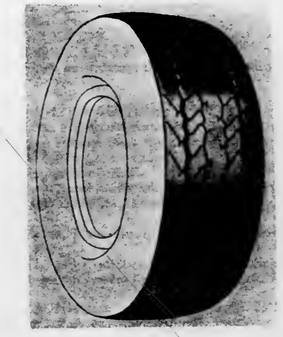
219,633
CHAIN SPROCKET FOR A BICYCLE
Keizo Shimano and Norio Sato, both % Shimano Industrial Company Ltd., 77, 3-cho, Oimatsu-cho, Sakai, Osaka, Japan
Filed June 2, 1969, Ser. No. 17,470
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—17



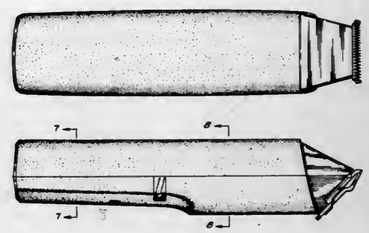
219,634
TIRE
Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France
Filed Sept. 19, 1969, Ser. No. 19,215
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



219,635
TIRE
Robert L. Marlowe, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Nov. 24, 1969, Ser. No. 20,243
Term of patent 14 years
Int. Cl. D12—*14*
U.S. Cl. D90—20



219,636
HAIR CLIPPER
Herbert R. Carpenter, Kenilworth, Ill., assignor to Andis Clipper Co., Racine, Wis., a corporation of Wisconsin
Filed Sept. 22, 1969, Ser. No. 19,243
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 29TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AAI Corporation: *See—*
Barr, Irwin R., 3,550,210.
Carpenter, David A., 3,550,209.

Abboud, Harry I. Gas purification process and apparatus. 3,550,356, Cl. 55-236.

Abel, Irving: *See—*
Knuth, William H., and Abel, Irving,3,550,718.

Abuhab, Gabriel, to Fadispel-Fabricadora de Dispositivos e Pecas Ltda. Method and related tools for cold forming of inside threads and grooves. 3,550,174, Cl. 10-152.

ACF Industries, Incorporated: *See—*
Geyer, Wallace T., and Randolph, Robert W., 3,550,538.
Holt, Jan D., and Thornton, Duane V., 3,550,537.

Adam, Karl: *See—*
Raff, Paul, Peine, Hans Georg, Schuster, Ludwig, and Adam, Karl,3,551,485.

Adams, Richard C., and Coombes, William S., to Schjeldahl, G. T., Company. Multi-punch system for flexible film products. 3,550,494, Cl. 83-99.

Adams, William Ray, Jr. Purge valve. 3,550,625, Cl. 137-614.2

Addison, William P., Jr., to Allied Products Corporation. Polypropylene fabric carpet wrap. 3,551,267, Cl. 161-82.

Advanced Drainage Systems, Inc.: *See—*
Martin, Ronald C., and Sixt, Marty E., 3,551,007.

AEG-Elothern GmbH: *See—*
Geisel, Herbert, 3,551,632.

Acrojet-General Corporation: *See—*
Cox, William T., and Buday, Harold H., 3,551,237.
Knuth, William H., and Abel, Irving, 3,550,718.
Pecoraro, Francis R., 3,550,484.
Warner, Darrel M., and Lunde, Gerald A., 3,551,254.
Weyland, Herman H., and Hamel, Edward E., 3,551,469.

AFC Corporation: *See—*
Allison, Ralph, 3,550,819.

Affeld, Klaus. Pump for conveying fluids. 3,551,078, Cl. 417-436.

Afrocommerce S.A.: *See—*
Pfandl, Julius, 3,550,222.

AGA Aktiebolag: *See—*
Thorlin, Charles Fredrik Wilhelm, 3,551,050.

Agfa-Gevaert Aktiengesellschaft: *See—*
Huckstadt, Harald, Randolph, August, Saleck, Wilhelm, and Ranz, Erwin, 3,551,158.

Aglietti, Giancarlo, Canavesi, Roberto, and Reni, Cesare, to Societa Italiana Resine S.p.A. Method of purifying cumene in cumene phenol process. 3,551,511, Cl. 260-674.

Ahern, Charles J., Higgins, Paul T., and Kiwak, Robert S., to Bendix Corporation, The. Fluid device with improved fan-in capability. 3,550,605, Cl. 137-81.5

Ahlberg, Roland G. Directional cap for spray dispensers. 3,550,857, Cl. 239-288.

Air Reduction Company, Incorporated: *See—*
Laird, William B., 3,551,532.

Aishima, Itsuho: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.

Aizawa, Kiyoto: *See—*
Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi,3,551,854.

Ajinomoto Co., Inc.: *See—*
Kamimura, Akira, Tsugawa, Ryuichiro, and Okumura, Shinji, 3,551,292.

Akahane, Norio: *See—*
Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo,3,551,040.

Akiyama, Shinichi: *See—*
Sakuragi, Taketami, and Akiyama, Shinichi,3,551,394.

Aktiebolaget Atomenergi: *See—*
Strindehag, Ove Magnus, 3,551,674.

Aktiebolaget Kanthal: *See—*
Schrewelius, Nils Gustav, 3,551,635.

Aktiengesellschaft Brown, Boveri & Cie: *See—*
Bossi, Hans Jurg, 3,551,739.
Stemmler, Herbert, 3,551,766.

Aladdin Industries Limited: *See—*
Hebard, Hugh, 3,551,086.

Alamance Industries, Inc.: *See—*
Shields, Harper, 3,550,403.

Alania, Anzor Markozovich: *See—*
Shapiro, Arkady Matveevich, Sisoyan, Ripsime Grigorievna, Alania, Anzor Markozovich, Shnaider, Teodor Maiseevich, and Goldman, Mikhail Grigorievich,3,551,790.

Alarco, Eugenio. Impact-absorbent cellular structure. 3,550,159, Cl. 2-2.

Albano, Silvio: *See—*
Gundal, Peter H., and Albano, Silvio,3,550,432.

Albaret S.A.: *See—*
Paramythioti, Jean Michel, 3,550,708.

Alberti, Giulio, and Constantino, Umberto, to Comitato Nazionale per l'Energia Nucleare. Totally inorganic papers and membranes suitable for ion exchange made of cerium(IV) phosphate and process for preparing the same. 3,551,287, Cl. 162-157.

Albrecht, Leonard N., and Harris, Joseph P., to Modern Election Equipment Co. Collapsible voting compartments. 3,550,540, Cl. 108-23.

Albright, Alto O. Adjustable chalkboard assembly. 3,550,291, Cl. 35-63.

Alexander Arthur D., III, to Polaroid Corporation. Outboard polarizing light-transmitting means. 3,551,027, Cl. 350-155.

Alexander, John C., to Essex International, Inc. Rotary fluid valve construction. 3,550,627, Cl. 137-625.46

Alfa-Laval AB: *See—*
Hoffmann, Walter, 3,550,843.

Alford, Derek, to Coal Industry (Patents) Limited. Hardness sensing rotary cutters for mineral mining machines. 3,550,959, Cl. 299-1.

Algoma Net Company: *See—*
Kotler, Aaron L., 3,550,166.

Allamanna Svenska Elektriska Aktiebolaget: *See—*
Ekstrom, Ake, 3,551,778.

Allan, Barry D., Wharton, Walter W., and Hubbuch, Theodore N., to United States of America, Army. Gelled monopropellant containing hydrazine and a non-hypergolic acid gas gelling agent. 3,551,226, Cl. 149-36.

Allen, James M.: *See—*
Scalzo, Augustine J., and Allen, James M.,3,551,068.

Allen, Melvin K., Gunst, Ole, and Lambert, Arthur H., to USM Corporation. Multi-lead component inserter. 3,550,238, Cl. 29-203.

Allen, Robert W.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,551,266.

Alles, James J., Ricks, Herbert E., Reed, Wallace D., and Carter, Jay B., to United States of America, Interior. Formation of skeletal metal solid electrolyte fuel cell electrodes. 3,551,209, Cl. 136-120.

Alley, David W. Quick releasing cross-brace latch for knock-down scaffolding. 3,551,011, Cl. 287-53.5

Allied Chemical Corporation: *See—*
Opalewski, Vincent J., 3,551,552.
Stoddard, Xerxes T., Sutherland, John A., and Terry, Ruel C., 3,551,333.

Allied Controls Company, Inc:: *See—*
Ingwersen, Richard C., 3,551,867.

Allied Products Corporation: *See—*
Addison, William P., Jr., 3,551,267.

Allis-Chalmers Manufacturing Company: *See—*
Clark, Thomas F., 3,551,621.
Hamilton, William I., 3,550,776.
Schott, Robert E., 3,550,507.
Wesoloski, Henry J., 3,550,991.

Allison, Ralph, to AFC Corporation. Tensioned stopper rod for metal pouring ladles. 3,550,819, Cl. 222-559.

Allmanna Svenska Elektriska Aktiebolaget: *See—*
Berg, Samuel, 3,551,629.
Hammarlund, Per Erik, and Fredrikson, Bengt, 3,551,578.
Landa, Torstein, 3,550,199.
Torok, Vilmos, and Hansson, Curt, 3,551,772.

Allsop, Robert Trevor. Method and tool for driving self-tapping screws. 3,550,243, Cl. 29-240.

Almqvist, Sven-Olof O.: *See—*
Olsson, Kjell P., and Almqvist, Sven-Olof O.,3,551,453.

Alt, Gerhard H., and Strelau, Robert J., to Monsanto Company. Polymeric amines. 3,551,495, Cl. 260-583.

Amarillo Gear Company: *See—*
McCain, Glendell R., 3,550,727.

Ambrose, John J., to Westinghouse Electric Corporation. Vending machine interlock mechanism. 3,550,810, Cl. 221-125.

American Cpanamid Company: *See—*
Flynn, Kenneth George, and Jakas, Dalia Regina, 3,551,490.

American Cyanamid Company: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert, 3,551,436.
Bauer, Victor John, Fanshawe, William Joseph, and Safir, Sidney Robert, 3,551,437.
Fanshawe, William Joseph, Bauer, Victor John, and Safir, Sidney Robert, 3,551,567.

Fraioli, Anthony Vincent, Barber, William Austin, and Feldman, Allan Murry, 3,551,205.
Gilbert, Richard Lapham, Jr., 3,551,162.
Kesler, Martin Luther, and Bann, Robert Francis, 3,551,088.
Schaefer, Frederic Charles, and Zimmermann, William Douglas, 3,551,489.

American Enka Corporation: *See—*
Overdiep, Wigle S., 3,551,545.

American Envelope Company: *See—*
Mittermayer, Emerick J., 3,550,509.

American Machine & Foundry Company: *See—*
Marradi, Renato, 3,550,799.
Quisenberry, Carter E., 3,550,995.
Quisenberry, Carter E., 3,551,004.
Wood, Fenton M., Goodman, Barnard P., and Proctor, Noel B., 3,551,801.

American Optical Corporation: *See—*
Kamath, Pandurang M., 3,551,035.
Kleinerman, Marcos Y., 3,551,345.

American Safety Equipment Corporation: *See—*
Settimi, Raymond J., 3,550,875.

American Standard Inc.: *See—*
Knight, Sheldon A., 3,551,680.
Noakes, Thomas E., and Kozel, James A., 3,550,632.

American Telephone and Telegraph Company: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R., 3,551,601.

American Tobacco Company, The: *See—*
Wartman, William B., Jr., and Sprinkle, Robert S., III, 3,550,508.

American Velcro Corporation: *See—*
Erb, George H., 3,550,223.

American Velcro, Inc.: *See—*
Erb, George H., 3,550,837.

Ames, Harold R.: *See—*
Hechtman, John F., and Ames, Harold R.,3,551,177.

Amicon Corporation: *See—*
Bolger, Justin C., and White, Harrison James, 3,551,204.

AMP Incorporated: *See—*
Bingley, Donald W., 3,551,777.
Hartwell, Ronald Groff, 3,551,880.
O'Keefe, Michael Francis, 3,551,882.
Rider, George William, 3,550,239.
Volinskie, Robert, 3,551,874.
Wise, Joseph Agusta, Sweeney, Joseph Patrick, and Chenoweth, Stewart Jacob, 3,550,856.

Amsco Packaging Machinery, Inc.: *See—*
Smith, William E., Primosch, Edward P., and Keenan, John D., Jr., 3,550,935.

Anaconda Wire and Cable Company: *See—*
Perrone, Rosario J., 3,551,542.

Anania, James A., to Young, Irving U. Baggage tag. 3,550,295, Cl. 40-21.

Andersen, Axel Brix, to Smidth, F. L., & Co. Apparatus for and method of machining cylindrical shell heads. 3,550,488, Cl. 82-4.

Anderson, John W. Electrically insulative thimble with confined viscous bonding medium. 3,550,765, Cl. 206-46.

Anderson, Lucia E.: *See—*
French, James C., Howells, John D., and Anderson, Lucia E.,3,551,294.

Anderson, Perry, Richter, Walther, and Kleinke, Donald F., to Dittmore-Freimuth Corporation. Constant delivery pump. 3,551,077, Cl. 417-415.

Anderson, Tage O.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,551,816.

Ando, Satoshi: *See—*
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko,3,551,277.

Ando, Satoshi, Uraya, Toru, and Nagata, Koetsu, to Kanegafuchi Boseki Kabushiki Kaisha, and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A. Snythetic fiber having silk-like surface luster and light transparency. 3,551,279, Cl. 161-174.

Ando, Sumio: *See—*
Takaura, Hirozo, Masaka, Toshiharu, and Ando, Sumio,3,551,281.

Andress, Harry J., Jr.: *See—*
Gee, Paul Y. C., and Andress, Harry J., Jr.,3,551,466.

Andrews, Harry N.: *See—*
Eich, Walter J., Minton, George H., Andrews, Harry N., and French, Robert J.,3,551,289.

Andrews, Melvin Lyndon: *See—*
Smart, Ivan Frank, and Andrews, Melvin Lyndon,3,551,585.

Andrianov, Kuzma Andrianovich. Method of producing heat-resistant rubber. 3,551,377, Cl. 260-37.

Annis, Joseph E., to RCA Corporation. Information storage and decoder system. 3,551,900, Cl. 340-173.

Anthony, Tad B., and Hunter, William H., to Maytag Company, The. Washing apparatus for permanent press fabrics. 3,550,171, Cl. 8-158.

Anthony, William C., to Upjohn Company, The. 1,2-Dihydro-1-hydroxy-6-alkyl-2-(aminomethylimino) pyrimidines and 1,6-dihydro-1-hydroxy-2-alkyl-6- (aminomethylimino)pyrimidines. 3,551,420, Cl. 260-247.5

Antritter, Werner, to Kienzle Apparate GmbH. Coil spring. 3,550,928, Cl. 267-156.

Applied Biological Sciences Laboratory, Inc.: *See—*
Michaelson, Joseph B., 3,551,334.

Arakawa, Takaaki, and Saeki, Kenji, to Mitsui Petrochemical Industries, Ltd. Process for preparing diolefin nickel halide complexes. 3,551,467, Cl. 260-439.

Archaux, Francois, and Bouthors, Pierre, to Regie Nationale des Usines Renault Automobiles Peugeot. Electromagnetic door locks of automotive vehicles. 3,550,408, Cl. 70-264.

Archibald, Edward J., to Ortman-McCain Company. Timing circuit for offset prevention spray equipment. 3,550,552, Cl. 118-7.

Architectural Partitions: *See—*
Satkin, David M., Helvie, Gene B., and Tillotson, Charles J., 3,550,338.

Arel, Robert W.: *See—*
Meyer, Donald R., and Arel, Robert W.,3,550,271.

Arenco Aktiebolag: *See—*
Ericksson, Dan, 3,550,192.
Johansson, Arne, 3,550,599.

Arlen, David, and King, John J., to Sperry Rand Corporation. Offset change apparatus for traffic control systems. 3,551,654, Cl. 235-150.24

Arman, Dario. Connector between the swinging support and the spattle arm in a windshield wiper. 3,550,180, Cl. 15-250.32

Armco Steel Corporation: *See—*
Schwieterman, Roman A., and Oganowski, Kasimir, 3,551,185.

Armour and Company: *See—*
Zakaria, Moneeb Hassan, 3,551,441.

Armour Industrial Chemical Company: *See—*
Atherton, James G., and Wagner, Warren A., 3,551,168.
Miller, Eugene J., Jr., and Mais, Ago, 3,551,464.

Armstrong, Harold F., and Huppe, George L., to O. K. Tool Company Inc., The. Cutting tool with chip breaker. 3,550,230, Cl. 29-96.

Arrow-Hart, Inc.: *See—*
Dennison, John J., 3,551,615.
Schleicher, Harold E., 3,551,859.

Arvin Industries, Inc.: *See—*
Barnett, Don C., and Ganske, Kingston E., 3,550,985.
Brighton, John C., and Scheitlin, George E., 3,550,470.

Arvin Systems, Inc.: *See—*
Schroeer, Rudi M., Garmhausen, Thomas A., and Frank, Johann E., 3,550,434.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi, 3,551,401.
Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru, 3,551,380.

Ash, Jacob R., to Monsanto Company. Paper overlays and laminated materials. 3,551,272, Cl. 161-164.

Ashland Oil, Inc.: *See—*
Chapman, Duane K., Green, William Sidney, and Newman, John W., 3,551,508.
Gasper, Alton J., and Taft, David D., 3,551,367.

Ashley, Kenneth D., and Estes, John H., to Texaco Inc. Hydrocarbon conversion catalyst and process. 3,551,516, Cl. 260-683.68

Ashton, Norman Coupe, and Dennison, John P. Aluminium-bronze alloy. 3,551,144, Cl. 75-162.

Ashworth Ross & Company Limited: *See—*
Darrington, Philip R., 3,551,657.

Askew, Raymond F.: *See—*
Kilbourn, Dorwin L., Peacher, Teddy J., Askew, Raymond F., and Foster, William D.,3,551,720.

Asscher, Jean-Claude. Method of assembling leads to an electrical component and potting same. 3,550,228, Cl. 29-25.42

Associated Electrical Industries Limited: *See—*
Craig, Hugh Robert Morton, 3,550,372.

Astheimer, Robert W., to Barnes Engineering Company. Non-scanning horizon position indicator independent of planet radiance variations utilizing inverted overlapping fields of view. 3,551,681, Cl. 250-209.

Aszalos, Adorjan, Robison, Robert S., Pansey, Felix E., and Berk, Benard, to Squibb, E.R. & Sons, Inc. Gelbecidine and a process for making the same. 3,551,561, Cl. 424-119.

Atherton, James G., and Wagner, Warren A., to Armour Industrial Chemical Company, mesne. Protective polish. 3,551,168, Cl. 106-8.

Atkins, Carl E., to Wagner Electric Corporation. Thread end detector. 3,551,753, Cl. 317-146.

Atlantic Richfield Company: *See—*
Van De Velde, John, and Kosonen, Leonard D., 3,550,780.
Young, David W., 3,550,722.

Atwood Vacuum Machine Company: *See—*
Marchione, Joseph H., 3,550,185.

Austin, Leonard E. Coin display device. 3,550,811, Cl. 221-262.

Automata Corporation: *See—*
Azure, Leo L., Jr., 3,550,290.

Automatic Merchandising Machine Mfg. Corporation: *See—*
Pitel, Irving, Cornine, Floyd C., and Silverman, Richard S., 3,550,412.

Automobiles Peugeot & Regie Nationale des Usines Renault: *See—*
Forichon, Michel, 3,550,467.

Automobiles Peugeot: *See—*
Bonnaud, Michel, 3,550,949.

Auzins, Raimunds, and Yendrich, Stephen P., Jr., to United Industrial Syndicate, Inc. Overhead traveling crane and hoist mechanism therefor. 3,550,788, Cl. 212-128.

Avica Equipment Limited: *See—*
Halling, Horace Percival, 3,551,010.

Avtron Manufacturing, Inc.: *See—*
Haner, Lambert, and Dolsen, Philip C., 3,551,752.

Ayers, Orval E.: *See—*
Huskins, Chester W., Howard, Clay D., and Ayers, Orval E.,3,551,224.

Azure, Leo L., Jr., to Automata Corporation. Output recording system. 3,550,290, Cl. 35-48.

Baatrup, Johannes Vagn, to Danfoss A/S. Unitary combination of pressure-responsive flow control unidirectional valves for hydraulic systems. 3,550,611, Cl. 137-111.

Babcock & Wilcox, Limited: *See—*
Evans, Richard Henry, 3,550,561.

Babin, Frank A., to SCM Corporation. Fluid metering and dispensing valve having flexible trap chamber. 3,550,817, Cl. 222-207.

Babler, Otto, to Illinois Tool Works Inc. Switch actuator assembly. 3,551,614, Cl. 200-16.

Bach, Hartwig C. Aromatic polyamides from diaminobenzils. 3,551,385, Cl. 260-63.

Bader, Erich, Koert, Hubert, and Brod, Gerd, to Deutsche Gold -und Silber-Scheideanstalt vormals Roessler. Composition and process for covering, coating and filling cavities or depressions. 3,551,372, Cl. 260-28.5

Badger Meter Manufacturing Company: *See—*
Vander Heyden, William H., and Battocletti, Joseph H., 3,551,794.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See—*
Baumann, Hans, and Hansen, Guenter, 3,551,439.
Dehnert, Johannes, and Gnad, Gerhard, 3,551,407.
Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg, 3,551,489.
Koenig, Karl-Heinz, Steinbrunn, Gustav, Windel, Hermann, and Fischer, Adolf, 3,551,477.
Martin, Karl, and Stabel, Wolfgang, 3,551,186.
Petersen, Harro, 3,551,423.
Petersen, Harro, 3,551,425.
Raff, Paul, Peine, Hans Georg, Schuster, Ludwig, and Adam, Karl, 3,551,485.
Reinhard, Hans, and Dotzauer, Bernhard, 3,551,374.
Trieschmann, Hans-Georg, and Zeitler, Gerhard, 3,551,526.
Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm, 3,551,525.
Zeidler, Adolf, Fischer, Adolf, Buerger, Gert, and Merger, Franz, 3,551,429.

Bagwell, Richard S., to Erie Technologicial Products, Inc. Independently adjustable multi output voltage divider and voltage responsive capacitance tuner utilizing same. 3,551,820, Cl. 325-465.

Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T., to General Motors Corporation. Process for the high-speed manufacture of PVC battery separators. 3,551,210, Cl. 136-148.

Baird and Tatlock (London) Limited: *See—*
Sequeira, Peter J. L., and Drake, Alan Rendal, 3,551,129.

Baird-Atomic, Inc.: *See—*
Ploss, Richard S., 3,551,028.

Bakeev, Alexandr Alexeevich: *See—*
Gruzdev, Valentin Anatolievich, Bakeev, Alexandr Alexeevich, and Skvortsov, Boris Vasilievich,3,551,742.

Baker, Donal E., and Skamfer, Robert E., to Westinghouse Electric Corporation. Step-type static tap changer apparatus with hysteresis and steering means. 3,551,789, Cl. 323-43.5

Baker, Ian P. S., to United Gas Industries Limited. Flue seal for gas appliance. 3,550,579, Cl. 126-307.

Baker, Joseph W., and Howe, Robert K., to Monsanto Company. Insecticidal composition and method containing anilinomethylene malonitriles. 3,551,573, Cl. 424-304.

Baker Perkins Inc.: *See—*
Chapman, William D., 3,550,201.

Baker Perkins Jaxons Limited: *See—*
Jack, William, Jr., and Dalziel, Donald Martin, 3,550,406.
Jack, William, Jr., 3,550,751.

Baker, Richard G., to Union Camp Corporation. Polysulfide paper pulping composition. 3,551,286, Cl. 162-82.

Bakos, Peter, and Kozak, Gary S., to International Business Machines Corporation. Method of preparing photosensitive poly 02-chloro-1,3-butadiene). 3,551,160, Cl. 96-115.

Balamuth, Lewis, to Ultrasonic Systems, Inc. Ultrasonic treatment method and device for fertilized ova and live embryos. 3,550,586, Cl. 128-24.

Balda-Werke Photographische Gerate und Kunststoff h. Gruter KG: *See—*
Lange, Karl Heinz, 3,550,512.

Baldwin Kongsberg Company: *See—*
Kramer, David C., and Rogers, Waldo I., 3,550,276.

Balint, Andrew, to Bell & Howell Company. Discrepancy indicator for record duplicating apparatus. 3,551,608, Cl. 179-100.2

Ball, Charles F., to Galaxy Marketing & Manufacturing Company. Placement kicking ball weighing approximately 7 to 16 ounces. 3,550,940, Cl. 273-65.

Ballard, Harold N., and Izquierdo, Miguel, to United States of America, Army, mesne. Multiple wind screen noise attenuation system. 3,550,720, Cl. 181-31.

Ballestra, Mario, and Triberti, Domenico. Fragmenting and drying method. 3,550,867, Cl. 241-3.

Ballinger, Hugh Anthony, to United Kingdom Atomic Energy Authority. Underwater vehicle. 3,550,386, Cl. 61-69.

Balsiger, Harold E., to Litton Industries, Inc., mesne. Valve grinding machine. 3,550,323, Cl. 51-105.

Balugani, Fabio, and Mammucari, Franco, to Societa Italiana Telecomunicazioni Siemens S.p.A. Pulse distributor for time-sharing systems. 3,551,888, Cl. 340-166.

Ban, Kimio: *See—*
Yonezu, Shuzo, Nojima, Yasuhiro, and Ban, Kimio,3,551,399.

Bann, Robert Francis: *See—*
Kesler, Martin Luther, and Bann, Robert Francis,3,551,088.

Banner Metals, Inc.: *See—*
Wilson, James D., 3,551,001.

Baranowski, Kurt: *See—*
Geipel, Hans, Forster, Eckehard, Heinemann, Wilfried, and Baranowski, Kurt,3,550,920.

Barbaut, Michel: *See—*
Vazquez, Charles, Dufresnoy, Guy, Maelstaf, Serge, and Barbaut, Michel,3,551,631.

Barber, Theodore C. Automatic fluid flow control apparatus. 3,550,613, Cl. 137-113.

Barber, William Austin: *See—*
Fraioli, Anthony Vincent, Barber, William Austin, and Feldman, Allan Murry,3,551,205.

Barbieri, Siegfried, and Durst, Gilbert, to Durst AG, Fabrik Fototechnischer Apparate. Electronic focusing arrangement for photographic enlargers. 3,551,047, Cl. 355-59.

Bard, Martin: *See—*
Capitaine, Wolfgang, and Bard, Martin,3,551,308.

Bardgette, John J., and Rue z, William J., III., to Esso Production Research Company. Lateral restraint of pile within jacket leg. 3,550,384, Cl. 61-46.

Barker, George E., to Monsanto Company. Automatic ranging circuitry. 3,551,839, Cl. 330-99.

Barlow, Sidney D.: *See—*
Le Molin, Arrigo Varettoni, and Barlow, Sidney D.,3,551,065.

Barnes Engineering Company: *See—*
Astheimer, Robert W., 3,551,681.

Barnett, Don C., and Ganske, Kingston E., to Arvin Industries, Inc. Reversible tape transport system. 3,550,985, Cl. 274-4.

Barney, Alan F.: *See—*
DuVivier, Charles L., Brockett, Peter C., Barney, Alan F., and Pallat, Ludwig R.,3,551,825.

Barnikel, Peter J., to General Dynamics Corporation. Gage control for rolling mills. 3,550,413, Cl. 72-8.

Barr, Irwin R., to AAI Corporation. Apparatus for molding articles. 3,550,210, Cl. 18-34.

Barrow, George E. Vaporization plate and fluid filter. 3,550,781, Cl. 210-180.

Bartlett, Frederick Albert: *See—*
Dorman, Arthur Kennedy, and Bartlett, Frederick Albert,3,550,860.

Bartley, Donald R., and Sidles, James, to Goodrich, B. F., Company, The. Pneumatic tire. 3,550,667, Cl. 152-361.

Bartner, Bernard I. Unitary composite article and method of manufacturing the same. 3,551,064, Cl. 401-96.

Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco, 50% to Montecatina Edison S.p.A., 50% to Gialdi, Franco, and Ponci, Riccardo. 3-Oximino-benzo-1,2-dithiols. 3,551,452, Cl. 260-327.

Baskin, Herbert B., and Rittenhouse, Larry E., to International Business Machines Corporation. Deductive light pen tracking system. 3,551,896, Cl. 340-172.5

Bassemir, Robert W.: *See—*
Nass, Gerald I., Bassemir, Robert W., and Carlick, Daniel J.,3,551,311.

Bassemir, Robert W., Carlick, Daniel J., and Sprenger, Gerhard E., to Sun Chemical Corporation. Radiation curable compositions. 3,551,246, Cl. 156-272.

Bassemir, Robert W., Dennis, Richard, and Nass, Gerald I., to Sun Chemical Corporation. Radiation-curable compositions. 3,551,235, Cl. 156-99.

Bate, Frederick Douglas Clavell, to Industrial Development (Packaging) Limited. Wrapping apparatus. 3,550,354, Cl. 53-390.

Battocletti, Joseph H.: *See—*
Vander Heyden, William H., and Battocletti, Joseph H.,3,551,794.

Batts, John H., to Batts, John Thomas, Inc. Hanger of slacks or the like. 3,550,784, Cl. 211-116.

Batts, John Thomas, Inc.: *See—*
Batts, John H., 3,550,784.

Bauer, Gunther, and Jacob, Ingolf, to Farbwerke Hoechst Aktiengesellschaft. Process for preheating and drawing filaments synthetic linear polyesters. 3,551,550, Cl. 264-290.

Bauer, Karl-Heinz: *See—*
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul,3,550,675.
Labude, Wolfgang, and Bauer, Karl-Heinz,3,551,791.

Bauer, Robert E. Method for arranging and placing groups of articles in racks. 3,550,798, Cl. 214-152.

Bauer, Victor John: *See—*
Fanshawe, William Joseph, Bauer, Victor John, and Safir, Sidney Robert,3,551,567.

Bauer, Victor John, Fanshawe, William Joseph, and Safir, Sidney Robert, to American Cyanamid Company. Certain 4-(1,2,4-oxadiazole-3 or 5-yl) pyridinium salts and derivatives thereof. 3,551,437, Cl. 260-296.

Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert, to American Cyanamid Company. Certain 4-(thiazolyl) and 4-(oxazolyl) pyridinium salts. 3,551,436, Cl. 260-294.8

Baum, Roger D., and Favin, David L., to Bell Telephone Laboratories, Incorporated. Pulse generator. 3,551,704, Cl. 307-265.

Baum, Willi, and Sommer, Jurgen, to Henkel & Cie G.m.b.H. Process for the preparation of dry culinary mixes. 3,551,166, Cl. 99-94.

Baumann, Arthur N., and Bird, Richard E., to International Minerals & Chemical Corporation. Purification of fluorine-containing industrial waste waters. 3,551,332, Cl. 210-53.

Baumann, Hans, and Hansen, Guenter, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Basic dyes of the perinaphtholactam series. 3,551,439, Cl. 260-299.

Baumann, Peter, and Zimmermann, Markus, to Geigy Chemical Corporation. Antibacterial composition containing 2,6- diaminophenyl penicillin or salt thereof. 3,551,569, Cl. 424-271.

Baun, Theadore. Implement handle. 3,550,275, Cl. 30-339.

Bausch & Lomb Incorporated: *See—*
Brown, Maurice L., 3,551,062.
Grey, David S., 3,551,031.
Isaacs, Wayne R., 3,551,770.
Letter, Eugene C., and Sullivan, Philip J., 3,551,304.
McGivern, Robert F., 3,551,041.
Straat, Harold W., 3,551,021.

Baynes, William R.: *See—*
Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M.,3,551,022.

Bazsika, Gabor: *See—*
Wolkober, Zoltan, Wolkober, Eva, Bazsika, Gabor, and Miskolczy, Laszlo,3,550,454.

Beach, John R., to Signode Corporation. Sealing mechanism for strapping machines. 3,550,647, Cl. 140-93.4

Beach, Leland K.: *See—*
Passannante, Anthony J., and Beach, Leland K.,3,551,496.

Beatrice Foods Co.: *See—*
LaWarre, Robert W., 3,550,539.

Bechhofer, Jerry G. Data entry on data processing media. 3,550,492, Cl. 83-50.

Bechman, William H., and Krumtinger, Robert T., to Westinghouse Air Brake Company. Transmission shift and throttle control. 3,550,478, Cl. 74-847.

Beck, Thomas A.: *See—*
Thomas, Owen H., Beck, Thomas A., and Wickman, Robert F.,3,551,509.

Becton, Dickinson and Company: *See—*
Halasz, Peter Robert, and King, George Edward, III, 3,550,619.

Beech Aircraft Corporation: *See—*
Hibl, Joseph J., Ferguson, Paul E., and Eckels, Vernon M., 3,550,954.

Beecham Group Limited: *See—*
Cole, Martin, and Rolinson, George Newbolt, 3,551,448.

Becker, Charles W.: *See—*
Crabtree, Royale R., and Becker, Charles W.,3,550,885.

Beesley, Robert L., to McDonnell Douglas Corporation. Quick change filter. 3,551,033, Cl. 350-315.

Belkovicz, John A.: *See—*
Goodrich, Ross H., and Belkovicz, John A.,3,550,962.

Bell & Howell Company: *See—*
Balint, Andrew, 3,551,608.
Koeber, Henry J., Jr., 3,550,516.
Mueller, Arthur C., 3,550,517.

Bell, F. W., Inc.: *See—*
Chapman, Richard M., 3,551,706.

Bell Telephone Co. of Canada: *See—*
Dawson, Norman W., and Jack, William G., 3,551,602.

Bell Telephone Laboratories, Incorporated: *See—*
Baum, Roger D., and Favin, David L., 3,551,704.
Borenstein, David P., 3,551,596.
Boyle, Willard S., 3,551,213.
Bradford, Charles E., 3,551,729.
Candy, James C., 3,551,697.
Cave, John H., 3,550,886.
Crowell, Merton H., 3,551,840.
Emmott, John T., Lesh, Nathan G., and Stevens, Mead F., 3,551,872.
Enloe, Louis H., Jakes, William C., Jr., and Rubinstein, Charles B., 3,551,594.
Hakki, Basil W., 3,551,763.
Haugk, George, 3,551,603.
Humer, Ross T., 3,550,263.
Jack, Robert F., 3,551,903.
Joel, Amos E., Jr., 3,551,604.
Kahng, Dawon, and Kosicki, Bernard B., 3,551,312.
Krause, John T., 3,551,129.
Monforte, Frank R., and Schnettler, Frank J., 3,551,533.
Panish, Morton B., and Sumski, Stanley, 3,551,219.
Seidel, Harold, 3,551,855.
Smith, Peter W., 3,551,844.
White, Wayne H., 3,551,599.

Beller, Albert, to Teves, Alfred, G.m.b.H. Wear compensator for disk brake. 3,550,732, Cl. 188-196.

Bellinger, Frederick Leslie: *See—*
Powell, Peter D., Capon, Leonard George Thomas, and Bellinger, Frederick Leslie,3,550,178.

Bellinger, S. Lawrence, to Mowbot, Inc. Lawn mower. 3,550,714, Cl. 180-79.1

Beloit Corporation: *See—*
Mahoney, Ralph P., and Phillips, Irvin J., 3,550,553.

Benbenek, Waldyn J., and Grosso, Frank A., to Clark-Aiken Company, The. Cutter piler. 3,550,493, Cl. 83-64.

Benbow, Albert R., and Suray, Donald J., to National Steel Corporation. Water cooled platform and method of repairing copings employing the same. 3,550,679, Cl. 165-47.

Bende, Friedrich: *See—*
Gey, Werner, Hofmann, Hansdieter, Bende, Friedrich, and Bonders, Peter,3,551,482.

Bendix Corporation, The: *See—*
Ahern, Charles J., Higgins, Paul T., and Kiwak, Robert S., 3,550,605.
Herzog, Howard Allan, and Packard, William, 3,550,395.
Hoffman, Gary R., 3,551,856.
Pelletier, Fernand F., and Gosnell, Thomas F., 3,550,459.
Russell, James L., 3,551,597.
Shear, Wayne G., and Olmstead, Merlin E., 3,551,884.
Tawfik, David A., Thomas, Frank J., and Pfersch, George H., 3,551,776.

Bendl, Robert E.: *See—*
Chezem, Jimmie A., and Bendl, Robert E.,3,550,726.

Bennett, Hilliard D. Wall bed structure. 3,550,167, Cl. 5-136.

Bentley Engineering Company Limited, The: *See—*
Deans, Frederick Edward, and Carter, Richard James, 3,550,397.

Berch, William H., to Stromberg-Carlson Corporation. High capacity, high side-tone suppression, 4-wire conference circuit. 3,551,600, Cl. 179-18.

Beresic, John I. Hopper material supply indicator. 3,550,447, Cl. 73-301.

Berg, Samuel, to Allmanna Svenska Elektriska Aktiebolaget. Electric contact means. 3,551,629, Cl. 200-166.

Bergeron, Norman A.: *See—*
Downing, Frank V., and Bergeron, Norman A.,3,550,175.

Berk, Benard: *See—*
Aszalos, Adorjan, Robison, Robert S., Pansey, Felix E., and Berk, Benard,3,551,561.

Berkau, Eugene E., and Hocutt, William R., to Monsanto Company. Polyesterolymerization process, prepolymer and product. 3,551,386, Cl. 260-75.

Berkley, Eugene B., to Tension Envelope Corporation. Envelope with auxiliary pocket. 3,550,841, Cl. 229-71.

Berkley Machine Company: *See—*
Lenk, James W., Burnett, Arthur H., and May, Kenneth D., 3,550,510.

Berman, Leon, to C.I.T—Compagnie Industrielle des Telecommunications. Call control system for a radiocommunication network. 3,551,815, Cl. 325-55.

Bermingham, Christopher W., to Bermingham Construction Limited. Pile driver. 3,550,693, Cl. 173-43.

Bermingham Construction Limited: *See—*
Bermingham, Christopher W., 3,550,693.

Bernal Incorporated: *See—*
Pfaff, Alan R., Jr., 3,550,479.

Bernardi, Eugene L., and Brazdovic, Rudolph T., 1/2 to Wood Industries, Inc., and 1/2 to Reichhold Chemicals, Inc. Method and apparatus for applying a printing plate to a support saddle. 3,550,283, Cl. 33-184.5

Bernardin, Leo J., to Kimberly-Clark Corporation. Sanitary napkin and disposable wrapper therefor. 3,550,592, Cl. 128-290.

Bernotus, Donald E., to Verson Allsteel Press Company. Overload protection driving mechanism. 3,550,473, Cl. 74-584.

Berthiaume, Pierre P.: *See—*
Bowler, William, and Berthiaume, Pierre P.,3,551,619.

Bertin, Daniel, and Perronnet, Jacques, to Roussel UCLAF. Novel triazines. 3,551,421, Cl. 260-249.8

Bethlehem Steel Corporation: *See—*
Boos, Roger T., 3,550,923.

Bey, Wilhelm: *See—*
Pleuger, Friedrich W., and Bey, Wilhelm,3,550,547.

Bhat, Gopal Krishna, and Tobias, Joseph B., to Electro-Slag Institute. Flux for electroslag consumable remelting of nickel base super alloys and certain iron base alloys. 3,551,137, Cl. 75-10.

Bicik, Vladislav: *See—*
Kaspar, Jan, and Bicik, Vladislav,3,550,915.

Bielusici, Anton, to Comitetul de Stat pentru Cultura si Arta. Method and apparatus for stereoscopic photography. 3,551,036, Cl. 352-60.

Bierling, Robert: *See—*
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter,3,551,434.

Bilco, Arthur, to Raymond Corporation, The. Manual control detent apparatus. 3,550,471, Cl. 74-529.

Billin, Eckhad: *See—*
Knothe, Eich Emil, Billin, Eckhad, and Melche, Fanz Josef,3,550,703.

Binder Magnete KG: *See—*
Dye, Floyd S., Jr., 3,550,321.
Haug, Heinz, 3,551,862.

Bingham, Wallace Karl, and Vanstrum, Robert C., to Minnesota Mining and Manufacturing Company. Highly flexible reflex reflecting constructions. 3,551,025, Cl. 350-105.

Bingley, Donald W., to AMP Incorporated. Inverter-converter with regulation of AC and DC outputs. 3,551,777, Cl. 321-2.

Bird, Richard E.: *See—*
Baumann, Arthur N., and Bird, Richard E.,3,551,332.

Bischoff, Vincent E., to Dick, A. B., Company. Analog switching device. 3,551,703, Cl. 307-254.

Bishop, Earl L., and Sharp, Lester T., to Eagle-Picher Industries, Inc., mesne. Multiple ply stock servicer. 3,551,252, Cl. 156-406.

Bisone, Dario, and Tessitore, Armando, to General Electric Information Systems Italia S.p.A. Paper arresting device for high speed printers. 3,550,745, Cl. 197-133.

Blair, Boyd C., to Brackett Stripping Machine Co., Inc. Method of making pads of sheets. 3,551,248, Cl. 156-305.

Blankenship, Luther Earl, to Tektronix, Inc. Thermionic electron emission device having low heat loss. 3,551,726, Cl. 313-337.

Bleibtreu, Alexander, to Maschinenfabrik Reinhausen Gebruder Scheubeck K.G. High voltage switching device. 3,551,628, Cl. 200-144.

Bloy, Arthur E., and Lloyd, William A., to Varian Associates. Diode decoding circuit for selectively energizing an array of electrographic writing electrodes. 3,551,661, Cl. 235-155.

Bloch, Herman S., to Universal Oil Products Company. Acetyl derivatives of substituted chromans and coumarans. 3,551,456, Cl. 260-345.2

Block Engineering, Inc.: *See—*
Young, Niels O., 3,550,476.

Bloom, Joseph Lewis, to Lucas, Joseph, (Industries) Limited. Fuel systems for gas turbine engines. 3,550,373, Cl. 60-39.28

Bloom, Joseph Lewis, to Lucas, Joseph, (Industries) Limited. Speed responsive governors. 3,550,374, Cl. 60-39.28

Bluestein, Bernard R.: *See—*
Solomon, Jack M., Isbitsky, Bernard, Jr., and Bluestein, Bernard R.,3,551,486.

Bluestein, Bernard R., and Solomon, Jack M., to Witco Chemical Company, Inc. Process for preparing dicyclohexylamine. 3,551,488, Cl. 260-563.

Bluestein, Bernard R., Solomon, Jack M., and Nelson, Lawrence B., to Witco Chemical Company, Inc. Process for preparing cyclohexylamine. 3,551,487, Cl. 260-563.

Blumenthal, Warren B., to National Lead Company. Production of iron-free carbonated hydrous zirconia. 3,551,095, Cl. 23-61.

Bock, Ditmar H., and Lawton, John G., to Cornell Aeronautical Laboratory, Inc. Transceiver apparatus for generating and responding to an alternating magnetic field. 3,551,795, Cl. 324-3.

Bock-greissau, Wolfgang. Body of variable form composed of a plurality of hingedly connected orthogonal prisms no less than six. 3,550,310, Cl. 46-25.

Bodart, Marcel: *See—*
Sacrez, Jules, Javaux, Gustave, Doquire, Gilbert, and Bodart, Marcel,3,551,126.

Bode, Hans, Meyer, Karin G., Rieder, Ernst, and Voss, Ernst, to Varta Aktiengesellschaft Hagen. Electrochemical control cell including novel electrolyte and electrodes. 3,551,755, Cl. 317-230.

Bodenseewerk Geraetetechnik, GmbH: *See—*
Moller, Waldemar, 3,550,884.

Body, William K., Locascio, Russell J., Rice, Harold W., and Scott, Douglas R., to Robertshaw Controls Company. Cooking apparatus and methods. 3,550,848, Cl. 236-15.

Bochringer Mannheim Gesellschaft mit beschrankter Haftung: *See—*
Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl, 3,551,409.

Boeing Company, The: *See—*
Feld, Sam H., Bucll, Charles A., and Isaacson, Gary C., 3,550,855.

Boeke, Paul J., to Phillips Petroleum Company. Unprocessed material utilization through selective contact. 3,551,242, Cl. 156-244.

Bogan, David B. Combined golf bag and cart apparatus. 3,550,999, Cl. 280-47.19

Bogsch, Waldemar: *See—*
Eberwein, Helmut, and Bogsch, Waldemar,3,551,871.

Bohanski, Madeline M. Adjustable support for wrist. 3,550,824, Cl. 224-28.

Bolger, Justin C., and White, Harrison James, to Amicon Corporation. Process and compositions for recovering electronic devices from encapsulation in potting compounds. 3,551,204, Cl. 134-42.

Bolotin, Evgeny Moiseevich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.

Boltalin, Anatoly Petrovich: *See—*
Enenshtein, Boris Samoilovich, Ivanov, Alexei Petrovich, Boltalin, Anatoly Petrovich, and Iova, Georgy Mikhailovich,3,551,798.

Bomar, Horace L.: *See—*
Budzyna, Joseph M., and Thatcher, Harry William, 3,550,644.

Bonders, Peter: *See—*
Gey, Werner, Hofmann, Hansdieter, Bende, Friedrich, and Bonders, Peter,3,551,482.

Bonnaud, Michel, to Automobiles Peugeot, and Regie Nationale des Usines Renault. Supporting, pivoting and locking device for a convertible seat of a vehicle. 3,550,949, Cl. 296-69.

Boom, Roger W., Salter, Luther Carlton, Jr., and Vetrano, James B., to North American Rockwell Corporation. Persistent switch means for a superconducting magnet. 3,551,861, Cl. 335-216.

Boos, Roger T., to Bethlehem Steel Corporation. Apparatus and method for attaching a working device to an oxygen lance. 3,550,923, Cl. 266-34.

Boose, Robert C.: *See—*
Jarvis, Hyrum T., and Boose, Robert C.,3,550,235.

Boot, Herbert W., and Langton, Frederick H., to USM Corporation. Automatic grinding attachment for bottom roughing machine. 3,550,329, Cl. 51-241.

Booth, Frederick C.: *See—*
Radke, Donald G., and Booth, Frederick C.,3,550,957.

Boothroyd, Wilson P., to Sylvania Electric Products, Inc. Single tube color television camera. 3,551,590, Cl. 178-5.4

Bordak, John A., and Kowalski, Walter, to McGraw-Edison Company. Circuit interrupter having a quick closing action. 3,551,627, Cl. 200-153.

Bore, Raymond. Support piers for mines. 3,550,383, Cl. 61-45.

Borenstein, David P., to Bell Telephone Laboratories, Incorporated. Error compensation network for video signals. 3,551,596, Cl. 178-7.3

Borg Warner Corporation: *See—*
East, Douglas A., 3,550,864.

Borg-Warner Corporation: *See—*
Boyd, Clinton A., 3,550,975.
Boyd, Clinton A., 3,551,714.
Kent, Bryan Philip, 3,550,737.
Stowell, Philip A., 3,550,792.

Bossers, Chris F., to Sylvania Electric Products, Inc. Means for controlling electrostatic charge on the rear window of a cathode ray tube. 3,551,718, Cl. 313-64.

Bossi, Hans Jurg, to Aktiengesellschaft Brown, Boveri & Cie. Thyristor chain comprising thyristors connected in series. 3,551,739, Cl. 315-200.

Bottenbruch, Ludwig: *See—*
Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernaleken, Hugo,3,550,669.

Boudreau, Alban M., and Korol, Stanley F., to Hedstrom Union Company. Foldable carriage and infant seat combination. 3,550,998, Cl. 280-31.

Bourns, Inc.: *See—*
Provance, Jason D., 3,551,355.

Bouthors, Pierre: *See—*
Archaux, Francois, and Bouthors, Pierre,3,550,408.

Bouwma, Jan, to U.S. Philips Corporation, mesne. Method of manufacturing magnetic heads. 3,550,264, Cl. 29-603.

Bowen, G. L., and Co.: *See—*
Bowen, Thomas C., 3,550,328.

Bowen, Henry D., and Stanley, Charles P., Jr., said Stanley assor. to said Bowen. Separator having adjustable louvers with cleaning means therefor. 3,550,357, Cl. 55-270.

Bowen, Thomas C., to Bowen, G. L., and Co. Helical gear grinder machine. 3,550,328, Cl. 51-232.

Bowler, William, and Berthiaume, Pierre P., to Canadian National Railway Company. Mechanically activated magnetic electric switch. 3,551,619, Cl. 200-61.41

Bowman, Robert S., to St. Joseph Lead Company. Treatment of zinc oxide. 3,551,356, Cl. 252-518.

Bowser, Inc.: *See—*
Topol, George J., and Carr, Larry R., 3,551,670.

Boxall, Edward R., to British Aircraft Corporation. Fluid flow simulation apparatus. 3,551,694, Cl. 307-229.

Boyd, Clinton A., to Borg-Warner Corporation. Bearing arrangement for electric motors. 3,550,975, Cl. 308-237.

Boyd, Clinton A., to Borg-Warner Corporation. Submersible motor and bearing arrangement therefor. 3,551,714, Cl. 310-87.

Boyle, Edwin, Jr. Apparatus and method for determining the tendency to thrombose. 3,550,581, Cl. 128-2.

Boyle, Willard S., to Bell Telephone Laboratories, Incorporated. Geometrically selective ion bombardment by means of the photoelectric effect. 3,551,213, Cl. 148-1.5

Brackett, Daniel W., to International Business Machines Corporation. Pathology specimen processing method and article. 3,551,023, Cl. 350-95.

Brackett Stripping Machine Co., Inc.: *See—*
Blair, Boyd C., 3,551,248.

Bradford, Charles E., to Bell Telephone Laboratories, Incorporated. Traveling wave tube helix support structure. 3,551,729, Cl. 315-3.5

Brainard, Wallace E.: *See—*
Randall, John S., Hutchens, Morris L., Drechsler, Erich F., and Brainard, Wallace E.,3,550,487.

Braun, Gunter: *See—*
Meyer, Werner, and Braun, Gunter,3,550,929.
Brazdovic, Rudolph T.: *See—*
Bernardi, Eugene L., and Brazdovic, Rudolph T.,3,550,283.
Breen, William H., and Sirine, Gloria F., to National Cash Register Company, The. Method of making dual wall capsules. 3,551,346, Cl. 252-316.
Breguet-Aviation: *See—*
Bruner, Georges, 3,550,721.
Brenner, Charles: *See—*
Kesselman, Gussie, 3,550,778.
Brenteson, Allen J., to Rohm and Haas Company. Quick-killing herbicide-oil mixture. 3,551,134, Cl. 17-118.
Bresley, Lloyd J., and Sharp, Edwin H., to Hollingshead, R. M., Corporation. Can neck placing apparatus. 3,550,240, Cl. 29-208.
Breukink, Carel J.: *See—*
Schuur, Gerrit, and Breukink, Carel J.,3,551,243.
Brewster, John L., to Field Emission Corporation. Field reversal type pulse generator having a shorting switch in the form of a plurality of parallel spark gaps. 3,551,677, Cl. 250-93.
Briden, Charles Richard, to Pfaff and Kendall. Handhole access assembly. 3,550,637, Cl. 138-92.
Briggs & Stratton Corporation: *See—*
Santi, John D., 3,550,268.
Briggs, Frank E., to Stanley Works, The. Seal blank. 3,550,768, Cl. 206-65.
Brighton, John C., and Scheitlin, George E., to Arvin Industries, Inc. Remote controlled mirror. 3,550,470, Cl. 74-501.
Brignac, Edmond P., Duke, Bascum H., Nunning, Walter J., and Snooks, Rupert J., Jr. Method for spinning polyamide yarn of increased relative viscosity. 3,551,548, Cl. 264-234.
Briles, Franklin S. Self-sealing nut assembly. 3,550,498, Cl. 85-32.
Brink, Robert M., and Welch, Paul E., to Time, Incorporated. Editorial layout projector. 3,551,042, Cl. 353-30.
Brinkard, William Charles, Jr., and Taylor, Brian William, to Du Pont de Nemours, E. I., and Company. Process of isomerizing 3-pentenenitrile to 4- pentenenitrile. 3,551,474, Cl. 260-465.9
Bristol-Myers Company: *See—*
Naito, Takayuki, and Nakagawa, Susumu, 3,551,440.
British Aircraft Corporation: *See—*
Boxall, Edward R., 3,551,694.
British East Iron Research Association, The: *See—*
Godding, Ronald George, 3,551,805.
British Nylon Spinners Limited: *See—*
Thomas, Gwilym G., and Sissons, Christopher R., 3,551,271.
British Petroleum Company Limited: *See—*
Desty, Denis Henry, Whitehead, David Montagu, and Thomas, John Lionel, 3,551,085.
Britton, Orson J., to Sybron Corporation. Repair method for glass lined vessels. 3,551,234, Cl. 156-98.
Brockett, Peter C.: *See—*
DuVivier, Charles L., Brockett, Peter C., Barney, Alan F., and Pallat, Ludwig R.,3,551,825.
Brockway Glass Company, Inc.: *See—*
Jaeger, Benjamin E., and Moore, Charles T., 3,550,789.
Brod, Gerd: *See—*
Bader, Erich, Koert, Hubert, and Brod, Gerd,3,551,372.
Brodt, Rudolf: *See—*
Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg,3,551,489.
Brody, Harry, to Celanese Corporation. Open celled shaped articles of oxymethylene polymers. 3,551,363, Cl. 260-2.5
Bronner, Fred, Corporation: *See—*
Resnick, Charles, 3,550,945.
Brooks, Richard, and Tasiaux, Paul, to Imperial Chemical Industries Limited, and Solway & Cie. Production of sodium bicarbonate using baffled cooling tube compartments in a tower. 3,551,097, Cl. 23-65.
Brotherton, Thomas K., Lynn, John W., and Knopf, Robert J., to Union Carbide Corporation. Polyisocyanates and reaction products of the same. 3,551,475, Cl. 260-468.
Brown & Williams Tobacco Corporation: *See—*
Horsewell, Henry George, and Tolman, Thomas William Charles, 3,550,600.
Brown Boveri & Cie: *See—*
Hugi, Litty, 3,551,551.
Brown, Boveri & Cie Aktiengesellschaft: *See—*
Kubach, Hans, 3,551,650.
Brown, Claude W.: *See—*
McCormick, Loran F., Kovar, Joseph J., and Brown, Claude W.,3,551,814.
Brown, David, Gear Industries Limited: *See—*
Norcliffe, Kenneth Adrian, 3,550,688.
Brown, Fred A., to Pitney-Bowes, Inc. Folder imprinter. 3,550,930, Cl. 270-20.
Brown, James W., Mayer, Francis X., and Kalina, Theodore, to Esso Research and Engineering Company. Iron ore reduction process. 3,551,138, Cl. 75-26.
Brown, Jerry A., and Hume, Clayton R., to Hamilton Cosco, Inc. Mirror assembly. 3,550,896, Cl. 246-473.
Brown, Maurice L., to Bausch & Lomb Incorporated. Multiple sampling accessory for spectrophotometer. 3,551,062, Cl. 325-246.
Brown, Milton A.: *See—*
Brown, Wayne N., and Brown, Milton A.,3,550,179.
Brown, Otto C. Display rack. 3,550,786, Cl. 211-177.
Brown, Paul L. Electric top. 3,550,317, Cl. 46-243.
Brown, Richard J. A. Feeders for livestock. 3,550,812, Cl. 222-70.
Brown, Robert Glenn, Derick, Burton Nathaniel, Stanley, Jon Ovitt, and Watkins, John Mauldin, Jr., to Du Pont de Nemours, E. I., and Company. Apparatus and method for fabricating a filter unit. 3,550,257, Cl. 29-592.
Brown, Wayne N., and Brown, Milton A. Rotary work head for floor cleaning machines and the like. 3,550,179, Cl. 15-230.
Brown, Willard D., Jr.: *See—*
McCluckie, Donald E., and Brown, Willard D., Jr.,3,550,533.
Brownawell, Darrell W.: *See—*
Jacobson, Norman, Brownawell, Darrell W., and Kresge, Edward N.,3,551,336.
Bruce, Lester Dudley: *See—*
Cammuso, John Anthony, and Bruce, Lester Dudley,3,551,009.
Brumagim, Ivan S., to Feed Processing Systems. Apparatus for treating rumen content. 3,550,524, Cl. 99-235.
Brumfield, Robert C.: *See—*
Brumfield, Robert C., Naff, John T., and Robinson, Alonzo T. W., 3,551,090.
Brumfield, Robert C., Naff, John T., and Robinson, Alonzo T. W., to Brumfield, Robert C. Microwave reactor and process for asepsis. 3,551,090, Cl. 21-54.
Brun, Andre Georges: *See—*
Smith, Melvin Wilmer, and Brun, Andre Georges,3,550,388.
Brun, Andre Georges, to Westinghouse Electric Corporation. Underwater connector. 3,551,005, Cl. 285-10.
Brunaud, Marcel Daniel Pierre: *See—*
Schmitt, Josef, Raveux, Roger, and Brunaud, Marcel Daniel Pierre,3,551,478.
Brundage, Robert Wesley, to Emerson Electric Co. Pressure sealed hydraulic pump or motor. 3,551,079, Cl. 418-39.
Brundage, Robert Wesley, to Emerson Electric Co. Hydraulic pump or motor. 3,551,081, Cl. 418-171.
Brundige, William L., to Westinghouse Electric Corporation. Method of tipping-off the exhaust tube of an electric lamp, and a baseless single-ended incandescent lamp produced by such method. 3,551,725, Cl. 313-318.
Bruner, Georges, to Breguet-Aviation. Silencing assembly for jet engines. 3,550,721, Cl. 181-51.
Brunswick Corporation: *See—*
Walker, Jerome F., 3,550,939.
Buck, Robert. Latch-type knitting machine needle. 3,550,401, Cl. 66-121.
Buday, Harold H.: *See—*
Cox, William T., and Buday, Harold H.,3,551,237.
Budzyna, Joseph M., and Thatcher, Harry William, to Marshall, John Donald, and Bomar, Horace L., trustee of Carolina Patent Development Trust, The. Loom stopping means. 3,550,644, Cl. 139-336.
Buell, Charles A.: *See—*
Feld, Sam H., Buell, Charles A., and Isaacson, Gary C.,3,550,855.
Buerger, Gert: *See—*
Zeidler, Adolf, Fischer, Adolf, Buerger, Gert, and Merger, Franz,3,551,429.
Bufix-Konsortium Dr. Gottfried Burger, Dr. Heinrich Schutzger: *See—*
Buser, Johann, 3,551,583.
Bumiller, Maria-Lotte: *See—*
Sippel, Arnulf C. T., Bumiller, Maria-Lotte, and Vollmer, Paul,3,551,388.
Bundschuh, John J., and Crawford, Philip N., to Eastman Kodak Company. Single-point latch and interlock for a cartridge-loaded motion picture projector. 3,551,038, Cl. 352-72.
Bundschuh, John J., Roman, Robert J., and Thomson, Kenneth W., to Eastman Kodak Company. Cinematographic cartridge project apparatus. 3,550,879, Cl. 242-192.
Burger Eisenwerke AG: *See—*
Sauer, Paul, 3,550,576.
Burgess, James F., to General Electric Company. Formation of tapered edges on magnetic films by photolytic etching. 3,551,227, Cl. 156-13.
Burgoon, Jack L.: *See—*
Dolan, Francis D., and Burgoon, Jack L.,3,550,181.
Burke, George F. C.: *See—*
Mason, Ronald C., Burke, George F. C., and Fuller, George A., Jr.,3,550,932.
Burke, Joseph A.: *See—*
Kulsichenko, Walter, and Burke, Joseph A.,3,551,807.
Burkhardt, Gottfried, to DIEHL. Tens-control device for sprocket wheel calculating machines. 3,550,846, Cl. 235-137.
Burlington Industries, Inc.: *See—*
Lowe, John J., 3,550,956.
Burnett, Arthur H.: *See—*
Lenk, James W., Burnett, Arthur H., and May, Kenneth D.,3,550,510.
Burnett, Frank, to Lear Siegler, Inc. Method for making rod end bearing. 3,550,232, Cl. 29-149.5
Burns, Joseph R., and Gibson, John James, to RCA Corporation. Clock logic circuits. 3,551,693, Cl. 307-205.
Burr-Brown Research Corporation: *See—*
Graeme, Jerald G., 3,551,832.
Burroughs Corporation: *See—*
Holz, George E., 3,551,721.
Libby, Cecil Winthrop, and Sand, Robert H., 3,551,609.
Burroughs, Dale: *See—*
Lovett, Wilson, and Burroughs, Dale,3,550,365.

Burton, James R., to McGraw-Edison Company. Outdoor luminaire assembly having photocontrol housing with louvered light admitting means. 3,551,684, Cl. 250-239.
Burton, William H., to Tinsley Wire Industries Limited. Barbed wire. 3,550,911, Cl. 256-7.
Buser, Johann, to Bufix-Konsortium Dr. Gottfried Burger, Dr. Heinrich Schutzger. Multi-purpose junction box for conductor wires adapted for installation with a combined cable. 3,551,583, Cl. 174-41.
Buske, Ervin. Anchor pot. 3,550,343, Cl. 52-704.
Buttner, Artur, to Heidelberger Druckmaschinen Aktiengesellschaft. Assembly for stopping and locking the printing rollers in a platen printing press. 3,550,530, Cl. 101-359.
Buzawa, Michael J.: *See—*
Gilkeson, David C., and Buzawa, Michael J.,3,551,030.
Byers, James O., Jr., to General Signal Corporation. Hydraulic system including two work circuits. 3,550,505, Cl. 91-411.
Byfield, Donald R.: *See—*
Maier, Robert P., Byfield, Donald R., and Reintjes, George G.,3,550,344.
Cabot Corporation: *See—*
Pidgeon, Edgar J., and Vanegas, Guillermo J., 3,550,902.
Cadley, John L.: *See—*
Daniels, Robert A., Foster, Norman B., Yeomans, Robert P., and Cadley, John L.,3,550,626.
Cailloux, Paul, to Promecam Sisson-Lehmann. Hydraulic machine for deforming sheet metal. 3,550,425, Cl. 72-453.
Calbiochem: *See—*
Deutsch, Alfred, 3,551,296.
Calgon Corporation: *See—*
Mahon, John H., and Schlamb, Kermit F., 3,551,167.
Zeh, Herbert J., Jr., 3,551,384.
Cammuso, John Anthony, and Bruce, Lester Dudley, to Riley Stoker Corporation. Expansion joint assembly. 3,551,009, Cl. 285-226.
Campbell, Duncan B., to General Motors Corporation. Electric drive motor logic control system. 3,551,779, Cl. 321-5.
Campbell, Elvin L. Fail-safe system for direct current welding machines. 3,551,638, Cl. 219-134.
Campbell, Roy E., to National Sulphur Company. Apparatus for prilling sulphur. 3,550,195, Cl. 18-2.7
Campbell Soup Company: *See—*
von Lersner, Wolf A., 3,550,814.
Canadian International Paper Company: *See—*
Hoffmann, Wolfgang, and Wick, Paul, 3,550,346.
MacDonald, Donald M., and Godsay, Madhu P., 3,551,410.
Read, Dale W., 3,551,405.
Canadian National Railway Company: *See—*
Bowler, William, and Berthiaume, Pierre P., 3,551,619.
Canavesi, Roberto: *See—*
Aglietti, Giancarlo, Canavesi, Roberto, and Reni, Cesare,3,551,511.
Candy, James C., to Bell Telephone Laboratories, Incorporated. Trigger circuit employing constant current sources. 3,551,697, Cl. 307-235.
Capitaine, Wolfgang, and Bard, Martin, to Swiss Aluminium Ltd. Operation of furnace for the electrolytic fusion recovery of aluminum. 3,551,308, Cl. 204-67.
Capon, Leonard George Thomas: *See—*
Powell, Peter D., Capon, Leonard George Thomas, and Bellinger, Frederick Leslie,3,550,178.
Carborundum Company, The: *See—*
Holloway, Daniel E., 3,550,783.
Carinthia Elektrogerate Gesellschaft m.b.H., Firma: *See—*
Loner, Aldo, and Meier, Otto, 3,550,281.
Carl Zeiss-Stiftung: *See—*
Kuhne, Christoph, 3,551,905.
Carlick, Daniel J.: *See—*
Bassemir, Robert W., Carlick, Daniel J., and Sprenger, Gerhard E.,3,551,246.
Nass, Gerald I., Bassemir, Robert W., and Carlick, Daniel J.,3,551,311.
Carlisle, Neil K.: *See—*
Zimmerman, George V., and Carlisle, Neil K.,3,551,648.
Carlson, Clarence A., to General Electric Company. Reaction-extraction and analysis chamber and related equipment. 3,551,111, Cl. 23-253.
Carlson, David J., to RCA Corporation. UHF-VHF tuner with U-shaped strip balanced transmission line. 3,551,819, Cl. 325-461.
Carlson, Donald A., to Teletype Corporation. Electronic AC switch. 3,551,701, Cl. 307-252.
Carlson, Otto K.: *See—*
Stewart, Mary J., and Carlson, Otto K.,3,551,381.
Carlson, Robert W., Jr.: *See—*
Rentschler, John H., and Carlson, Robert W., Jr.,3,550,990.
Carnesecca, Joseph, Jr. Orchard heater. 3,550,577, Cl. 126-59.5
Carolina Enterprises, Inc.: *See—*
Lee, Norman C., 3,550,574.
Caron, Roger G. Snow vehicle track assembly. 3,550,967, Cl. 305-27.
Carpenter, David A., to AAI Corporation. Apparatus for molding articles. 3,550,209, Cl. 18-34.
Carr, Clide I., Friedmann, Harry, and Tarpinian, Haig D., to Uniroyal, Inc. Method and apparatus for measuring uniformity of tires. 3,550,442, Cl. 73-146.
Carr, Larry R.: *See—*
Topol, George J., and Carr, Larry R.,3,551,670.
Carr, Norman L., Hamilton, Harry A., and Stewart, Meredith M., to Gulf Research & Development Company. Catalytic inorganic polymer of silicon, oxygen, and an iron group metal and method of making. 3,551,352, Cl. 252-439.
Carrie, Serge. Apparatus for processing photographic material. 3,550,521, Cl. 95-93.
Carrier Corporation: *See—*
Greacen, John A., 3,550,391.
Carroz, John W.: *See—*
Kaufman, Martin H., O'Brobinak, John D., and Carroz, John W.,3,551,222.
Carter, Ernest P., and Vest, Chilton T., to Monsanto Company. Cut pile type synthetic turf simulating grass. 3,551,263, Cl. 161-21.
Carter, Jay B.: *See—*
Alles, James J., Ricks, Herbert E., Reed, Wallace D., and Carter, Jay B.,3,551,209.
Carter, Joseph H. Shotgun shell. 3,550,531, Cl. 102-42.
Carter, Maurice Sterling. Method and apparatus for grinding and separating precious metals. 3,550,869, Cl. 241-20.
Carter, Richard James: *See—*
Deans, Frederick Edward, and Carter, Richard James,3,550,397.
Casadevall, James L., to Martin-Marietta Corporation. Cross-fibered tape, and uses thereof. 3,551,268, Cl. 161-89.
Case, J. I., Company: *See—*
Davidow, Martin A., and Garner, James T., 3,550,793.
Johnson, Donald L., 3,550,715.
Murphy, Robhrt N., 3,550,655.
Casella, Peter F.: *See—*
Dionisio, Louis A., 3,550,564.
Cash, Jerrold G., to Phillips Petroleum Company. Sulfur production. 3,551,113, Cl. 23-262.
Cason, Charles M., III, and Perkins, James F., to United States of America, Army. Non-cavity laser configuration. 3,551,843, Cl. 331-94.5
Caspar Honegger: *See—*
Strauss, Edgar H., 3,550,641.
Casper, Clemens: *See—*
Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernaleken, Hugo,3,550,669.
Castagna, John F. Page turning device. 3,550,296, Cl. 40-104.
Caterpillar Tractor Company: *See—*
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A., 3,550,691.
Helton, Eugene L., 3,550,293.
Johnson, Howard L., 3,550,617.
Catherwood, Herbert C., to Histed, William N. Heat sealing apparatus for sealing together heat sealable films. 3,551,260, Cl. 156-583.
Cattano, Peter Alesandrio, Sr. Swimming pool filter. 3,550,779, Cl. 210-169.
Caule, Elmer J.: *See—*
Ford, James A., Caule, Elmer J., and Sperry, Philip R.,3,551,214.
Cave, John H., to Bell Telephone Laboratories, Incorporated. Retaining means for holding an end of a cylindrical object. 3,550,886, Cl. 248-56.
Celanese Corporation: *See—*
Brody, Harry, 3,551,363.
Prince, Arthur E., Jr., 3,551,389.
Trott, David W., 3,550,215.
Watson, George A., 3,551,256.
Centre National de Recherches Metallurgiques: *See—*
Nilles, Paul Emile, and Denis, Etienne Marie, 3,551,140.
Cerutti, Giovanni, and Ricciardi, Giuseppe, to Olivetti, C., Ing., & C., S.p.A. Guide device for recording supports of different widths. 3,550,844, Cl. 234-128.
Cervenka, Joseph J., and Hetzel, Marvin E. Machine for applying terminals to bobbins. 3,550,250, Cl. 29-429.
Cescon, Lawrence Anthony, and Hoehn, Harvey Herbert, to Du Pont de Nemours, E. I., and Company. Reverse osmosis separations using a treated polyamide membrane. 3,551,331, Cl. 210-23.
Ceskoslovenska akademie ved: *See—*
Hrdina, Jiri, 3,551,107.
Hrdina, Jiri, 3,551,110.
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto, 3,551,556.
Chadwick, David H., to Mobay Chemical Company. Stabilization of organic isocyanates. 3,551,468, Cl. 260-453.
Chamberlain, James S.: *See—*
Nicholas, Arthur S., and Chamberlain, James S.,3,550,955.
Chamberlin, Francis W., deceased (by The First National Bank of Madison, executor), to Varigraph, Inc. One table duplicate bridge. 3,550,944, Cl. 273-149.
Chapman, Duane K., Green, William Sidney, and Newman, John W., to Ashland Oil, Inc. Production of polyphenyls from substituted and unsubstituted aromatic compounds. 3,551,508, Cl. 260-670.
Chapman, Richard M., to Bell, F. W., Inc. Hall effect device configurations for extended frequency range. 3,551,706, Cl. 307-309.
Chapman, Robert E., to Runnion, Ernest E. Profile mill having axially adjustable cutter heads. 3,550,656, Cl. 144-323.
Chapman, Stephen H. Electronic key telephone. 3,551,606, Cl. 179-99.
Chapman, William D., to Baker Perkins Inc. Vertical mixer, kneader and reactor for plastic materials and the like. 3,550,201, Cl. 18-12.
Chass, Jacob, to Pickering & Company, Inc. Rotary variable differential transformer. 3,551,866, Cl. 336-132.

Chawda, Prabhulal P., to Xerox Corporation. Development apparatus. 3,550,556, Cl. 118-637.

Chemische Werke Huels A.G.: *See—*
Nehring, Rudolf, Heidel, Klaus, and Hamann, Karl, 3,551,520.

Chemolimpex Magyar Vegyiaru Kulkereskedelmi Vallalat: *See—*
Hauska, Miklos, Schutz, Mihaly, and Kontra, Ferenc, 3,551,174.

Chemtan Company: *See—*
Dawson, William Orval, O'Connor, Stephen C., and Fellowes, Frederick S., 3,551,089.

Chen, Nai Yuen, and Smith, Fritz A., to Mobil Oil Corporation. Dealuminization of mordenite. 3,551,353, Cl. 252-455.

Chenoweth, Stewart Jacob: *See—*
Wise, Joseph Agusta, Sweeney, Joseph Patrick, and Chenoweth, Stewart Jacob,3,550,856.

Chevron Research Company: *See—*
Salmela, John M., 3,550,826.
Smith, Calvin S., and McLeod, William J., 3,551,106.

Chevron Research Company, Inc.: *See—*
Egan, Clark J., 3,551,326.

Chezem, Jimmie A., and Bendl, Robert E., to United States of America, Army. Liquid cooled frictional weight lowering device. 3,550,726, Cl. 188-65.4

Chiku, Takewo, and Igarashi, Isemi, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Needle-shaped pressure transducer. 3,550,583, Cl. 128-2.05

Chitayat, Anwar K., to OPT Omechanisms, Inc. Interferometer for making angular and linear measurements. 3,551,055, Cl. 350-108.

Chmelar, Alois, to Velvetex Industrial Corporation. Method and apparatus for electrostatic flocking. 3,551,178, Cl. 117-17.

Chong, Nyuk-Choy. Process for fixing an ink upon a vinyl polymer surface. 3,551,187, Cl. 117-76.

Choquet, Michel, to Compagnie Francaise Thomson Houston-Hotchkiss Brandt. Digital information signal modulating system and method. 3,551,849, Cl. 332-9.

Christensen, Clarence A. Multiple outlet switching valve for granular material. 3,550,622, Cl. 137-609.

Christensen, Richard J.: *See—*
Gallagher, Richard J., Christensen, Richard J., and Dougall, Gordon M.,3,550,673.

Christenson, Roger M.: *See—*
Dowbenko, Rostyslaw, and Christenson, Roger M.,3,551,517.

Chrobok-Hoffmann K.G.: *See—*
Hoffmann, Kurt, 3,550,931.

Ciba Corporation: *See—*
Druey, Jean, and Schmidt, Paul, 3,551,428.
Fearon, Robert Earl, and Foss, Rudolph George, 3,550,578.
Mizzoni, Renat Herbert, 3,551,492.

Ciba Limited: *See—*
Dubsky, George Jon, and Stark, Bernard Peter, 3,551,519.
Duennenberger, Max, and Guglielmetti, Leonard, 3,551,443.
Frochlich, Alfred, 3,551,159.

Ciclo, John R., to International Business Machines Corporation. High current feed-through filter system. 3,551,858, Cl. 333-79.

C.I.T—Compagnie Industrielle des Telecommunications: *See—*
Berman, Leon, 3,551,815.

Citrullo, Joseph J.: *See—*
Ursini, Leonard A., and Citrullo, Joseph J.,3,550,898.

Claiborne, Earl B., and Sale, Edwin E., to Esso Research and Engineering Company. Method of passivating iron. 3,551,215, Cl. 148-6.35

Clampitt, Richard L., to Phillips Petroleum Company. Conversion of oil shale retorting gases. 3,551,322, Cl. 208-11.

Clark, James K., Watters, Larry H., and Ogura, Kenji, to Goodyear Tire & Rubber Company, The. Method of retarding substrate surface fouling. 3,551,539, Cl. 264-85.

Clark, John R., to Witco Chemical Company, Inc.Separation and purification of 4,4'- dihydroxy diphenyl sulfone. 3,551,501, Cl. 260-607.

Clark, Thomas F., to Allis-Chalmers Manufacturing Company. Control for monitoring pressure in a gas blast circuit breaker. 3,551,621, Cl. 200-148.

Clark-Aiken Company, The: *See—*
Benbenck, Waldyn J., and Grosso, Frank A., 3,550,493.

Clarke, Frank H., Jr., to Geigy Chemical Corporation. Pharmaceutical compositions and uses of oxazinoisoquinoline derivatives. 3,551,565, Cl. 424-248.

Clarkson, J. R., Company, The: *See—*
Clarkson, John Robert, 3,550,899.

Clarkson, John Robert, to Clarkson, J. R., Company, The. Collapsible tube. 3,550,899, Cl. 251-5.

Clayton, Dennis Albert: *See—*
McKellen, Patrick Ewart, and Clayton, Dennis Albert,3,550,651.

Clayton, William J., Miller, Robert J., and Smith, Clair C., to Mobil Oil Corporation. Doubled walled plastic bag. 3,550,839, Cl. 229-55.

Clemar Manufacturing Corporation: *See—*
Englund, Christer E. T., and Marandi, Ali, 3,550,614.

Clinard, Glenn W.: *See—*
Keck, Marvin Lloyd, and Clinard, Glenn W.,3,550,689.

Cloete, Francis Louis Dirk, and Streat, Michael, to National Research Development Corporation. Solid/fluid contacting. 3,551,118, Cl. 23-321.

Clyde Blowers Limited: *See—*
Wilson, Peter M., 3,551,075.

Coal Industry (Patents) Limited: *See—*
Alford, Derek, 3,550,959.

Coates, Robert M. Binning method and apparatus. 3,550,347, Cl. 53-35.

Cobbs, Ansalem O., to Cobbs Manufacturing Company. Motor vehicle door guard. 3,550,951, Cl. 296-152.

Cobbs Manufacturing Company: *See—*
Cobbs, Ansalem O., 3,550,951.

Cocca, Theodore A., to United States of America, Navy. Miniature electrical contact with legs of differing mass, thickness or length for connector or switch structure. 3,551,613, Cl. 200-16.

Cochran, Linden Wayne, to Multi-Minerals Limited. Gas sparging mechanism. 3,550,917, Cl. 261-121.

Coe, Richard T.: *See—*
Segal, Irving, 3,550,523.

Cohen, Robert, to Triumph Industries, Inc. Furniture construction and method of making. 3,550,981, Cl. 312-198.

Colclaser, Robert G., Jr., and Fischer, William H., to Westinghouse Electric Corporation. Fluid-blast circuit interrupters with piston-driving means and cooperable floating piston with accelerating coil. 3,551,623, Cl. 200-148.

Cole, Edward L., Wilson, Raymond F., and Herbstman, Sheldon, to Texaco Inc. Desulfurization of a heavy hydrocarbon fraction. 3,551,328, Cl. 208-240.

Cole, James Harold: *See—*
Reesman, Stanley Hamilton, and Cole, James Harold,3,551,165.

Cole, Martin, and Rolinson, George Newbolt, to Beecham Group Limited. Methyl α-(methylsuccinimido) acrylate. 3,551,448, Cl. 260-326.3

Coless, Thomas L., to Union Carbide Corporation. Submerged arc welding composition. 3,551,217, Cl. 148-26.

College Research Corporation: *See—*
Evans, Marvin, and Miller, David H., 3,550,925.

Collier, Clay H. Shopping carrier for automobile. 3,550,825, Cl. 224-29.

Collyer, Robert C., to United-Carr Incorporated. Fastener. 3,550,217, Cl. 24-73.

Colonial Broach & Machine Company: *See—*
Fulks, James K., 3,550,504.

Colton, Lewis H. Manufacture of knitted footwear. 3,550,402, Cl. 66-147.

Columbia Broadcasting System, Inc.: *See—*
Fender, Clarence L., 3,550,496.
Grosso, Patrick F., Rutherford, Robert E., Jr., and Sargent, Donald E., 3,551,306.
Poterfield, Erik A., 3,550,872.

Columbia Controls Research Corporation: *See—*
Vaccaro, Angelo, and Dixon, Harold F.E., 3,551,887.

Columbian Slides Inc.: *See—*
Kowack, Frank J., 3,550,910.

Combustion Engineering, Inc.: *See—*
Landon, William W., Jr., 3,551,908.
Lowd, Judson D., and Hill, Ernest C., 3,550,385.
Smith, Joseph W., 3,550,259.

Combustion Power Company, Inc.: *See—*
Smith, Richard D., Furlong, Dale A., and Kinsey, Ronald D., 3,550,791.

Comeaux, Bobby G., to Dow Chemical Company, The. Well cementing apparatus. 3,550,683, Cl. 166-156.

Comitato Nazionale per l'Energia Nucleare:*See—*
Alberti, Giulio, and Constantino, Umberto, 3,551,287.

Comitetul de Stat pentru Cultura si Arta: *See—*
Bielusici, Anton, 3,551,036.

Commissariat a l'Energie Atomique:*See—*
Friconneau, Claude, Leboutet, Alain, and Lepeintre, Marcel, 3,551,315.
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel, 3,551,792.

Compact Orbital Gears Limited: *See—*
Hicks, Raymond John, 3,550,787.

Compagnie d'Applications Mecaniques a l'Electronique au Cinema et a l'Atomistique (C.A.M.E.C.A.):*See—*
Rouberol, Jean-Michel, 3,551,671.

Compagnie de Saint-Gobain: *See—*
Scheffler, Peter, and Jandeleit, Otto, 3,551,060.

Compagnie des Compteurs: *See—*
Janssen, Sylvain Jean, 3,550,430.
Kerhoas, Jean-Claude, Metayer, Michel Paul Marie, and Teboul, James Remy Albert, 3,551,682.

Compagnie des Eaux et de l'Ozone:*See—*
Guillerd, Jean, and Travers, Fernand, 3,551,321.

Compagnie Francaise Thomson Houston-Hotchkiss Brandt: *See—*
Choquet, Michel, 3,551,849.

Compagnie Generale de Telegraphie Sans Fils (C.S.F.): *See—*
Freund, Jean-Pierre, and Stoll, Roger, 3,551,212.

Compagnie Generale des Etablissements Michelin, raison Social Michelin & Cie: *See—*
Verdier, Henri, 3,550,665.

Concast Incorporated: *See—*
Fastert, Herbert, Huber, Horst, and Vogel, Eric T., 3,550,672.

Concord Control Inc.: *See—*
Grossimon, Herbert P., McDonough, James O., and Moore, Gerald T., 3,551,808.

Congdon, Paul D., to Sun Oil Company. Wax cream process and compositions. 3,551,169, Cl. 106-10.

Conn, Charles E., Jr., and Neumann, Robert P., to North American Rockwell Corporation. Roll diffusion bonding method. 3,550,252, Cl. 29-470.9

Conrad, Brian Keith. Method of aligning a scan pattern with a surface pattern. 3,551,730, Cl. 315-10.

Constantino, Umberto: *See—*
Alberti, Giulio, and Constantino, Umberto,3,551,287.

Contemporary Research Inc.: *See—*
Nayar, Harbhajan S., 3,551,136.

Continental Can Company, Inc.: *See—*
Fox, James F., 3,550,840.
Ganz, Robert H., 3,550,754.
Szajna, John L., and Lump, Ronald G., 3,550,197.
Voorhis, Harold W., 3,550,352.

Continental Gummi-Werke Aktiengesellschaft: *See—*
Menell, Hans, and Henning, Hermann, 3,550,666.

Cook, Harold D., to Teletype Corporation. Automatic error detection and correction system. 3,551,886, Cl. 340-146.1

Cook Testing Co.: *See—*
Reardon, Daniel, 3,550,444.

Cooley, Austin C., to Eastman Kodak Company. Electrolytic apparatus for recovering a metal from a solution. 3,551,317, Cl. 204-212.

Cooley, William L. Method and means for separating entrained liquids from solids. 3,550,775, Cl. 210-81.

Coombes, William S.: *See—*
Adams, Richard C., and Coombes, William S.,3,550,494.

Cooper, Hal B. H. Furnace structure. 3,550,919, Cl. 263-20.

Cooper, Harrison R., to International Business Machines Corporation. Method of controlling ore flotation. 3,551,897, Cl. 340-172.5

Cooper, Hugh S., to Weil, Walter M. Purification of elemental boron. 3,551,105, Cl. 23-209.

Cooper, Leslie A. Remote control alarm system. 3,551,906, Cl. 340-224.

Cooper, Walter, and Lindsay, Jacque K., to Eastman Kodak Company. Photopolymerizable compositions comprising a ferrocene dye. 3,551,153, Cl. 96-86.

Coplans, Carl Waddington, to Spring-Fred, Inc., mesne. Foot supporting and corrective device. 3,550,597, Cl. 128-585.

Cordell, James A. Adapter for air conditioning duct. 3,551,008, Cl. 285-177.

Corhart Refractories Company: *See—*
Guile, Donald L., 3,551,172.

Cormier, Paul J. Fastening means. 3,550,220, Cl. 24-81.

Cornell Aeronautical Laboratory, Inc.: *See—*
Bock, Ditmar H., and Lawton, John G., 3,551,795.

Cornell-Dubilier Electric Corporation: *See—*
Frekko, Eugene F., 3,551,756.

Cornine, Floyd C.: *See—*
Pitel, Irving, Cornine, Floyd C., and Silverman, Richard S.,3,550,412.

Corning Glass Works: *See—*
Cotta, Gilbert A., and Langley, Lawrence W., 3,550,431.
Herczog, Andrew, and Humphries, Richard Shenk, 3,551,196.
Rajnik, Lawrence S., and Rodgers, Harris G., Sr., 3,550,322.

Corry, Thomas M., to General Motors Corporation. Vehicle electric drive system. 3,551,685, Cl. 290-14.

Corson, Floyd L., and Johnson, Dennis R., to CPC International Inc. Method of purifying sugar liquors. 3,551,203, Cl. 127-46.

Corte, Herbert, and Heller, Harold, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of crosslinked acrylated copolymers. 3,551,357, Cl. 260-2.1

Coski, William D., to Lawrence Manufacturing Company. Rock bit assembly. 3,550,972, Cl. 308-8.2

Cossor, A.C., Limited: *See—*
Stevens, Michael Charles, 3,551,823.

Cotta, Gilbert A., and Langley, Lawrence W., to Corning Glass Works. Pneumatic position-direction transducer and circuit with weighted code output. 3,550,431, Cl. 73-37.

County Commercial Cars Limited: *See—*
Tapp, Geoffrey Edward Ernest, and Davey, Joseph, 3,550,711.

Court, Otto: *See—*
Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernalcken, Hugo,3,550,669.

Courtaulds Limited: *See—*
Evans, Lee Stanley, and Morgan, Peter Ernest, 3,550,247.

Cowan, David Mark,: *See—*
Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas, 3,551,020.

Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas, to Cowan, David Mark, Cowan, Stanley Philip, and trading in partnership as the Helio Mirror Company. Optical apparatus with three layer plastic seal. 3,551,020, Cl. 350-67.

Cowan, Stanley Philip: *See—*
Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas,3,551,020.

Cowan, Stanley Philip: *See—*
Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas, 3,551,020.

Cowen, Arthur, Davies, Lynn T., and Teno, Richard L., to General Motors Corporation. Leveling high speed plating. 3,551,301, Cl. 204-29.

Cox, Frank T., Jr., and Powers, Richard L., to Rockwell-Standard Company, mesne. Brake system and actuator therefor. 3,550,379, Cl. 60-54.6

Cox, William T., and Buday, Harold H., to Aerojet-General Corporation. Method of preparing filament-wound open beam structures. 3,551,237, Cl. 156-175.

Coyle, Jan R., to Fastener Corporation, mesne. Internally threaded self-locking fastener. 3,550,668, Cl. 151-7.

CPC International Inc.: *See—*
Corson, Floyd L., and Johnson, Dennis R., 3,551,203.

Crabtree, Royale R., and Beeker, Charles W., to United States of America, Army. Retardation device for air dropped stores. 3,550,885, Cl. 244-138.

Craft Master Corporation: *See—*
Tabor, Joseph M., and Donofrio, Alfonso M., 3,550,648.

Craig, Hugh Robert Morton, to Associated Electrical Industries Limited. Method and apparatus for operating a gas turbine with gases including contaminants of a residual fuel. 3,550,372, Cl. 60-39.02

Crane Co.: *See—*
Fife, Robert J., 3,550,633.

Craven, Jack L., and Marjoram, Ernest B., to Electro-Photo Corporation. Self-threading camera cassette. 3,550,882, Cl. 242-197.

Crawford, Allan H., to Mohasco Industries, Inc. Textile apparatus and method for transversely aligning pattern marks. 3,550,543, Cl. 112-79.

Crawford, Philip N.: *See—*
Bundschuh, John J., and Crawford, Philip N.,3,551,038.

CRC-Crose International Inc.: *See—*
Nelson, Jerome W., 3,551,636.

Credner, Karl: *See—*
Renwanz, Gerhard, Credner, Karl, Geisel, Berthold, and Engelhard, Hermann,3,551,491.

Cremer, William C. Sewing machine cutter attachment. 3,550,545, Cl. 112-130.

Creviston, Leo J., and Johnson, Arthur G. Automatic motion lure and alert for fishing lines. 3,550,302, Cl. 43-16.

Crisp, James M., and Van Pelt, Richard W., to International Business Machines Corporation. Digital position detection and velocity compensation system. 3,550,878, Cl. 242-184.

Crocker, Guy J., and Doehnert, Donald F., to Johnson & Johnson. Modified acrylate adhesive product. 3,551,391, Cl. 260-78.5

Croitoru, Petrica, to Institutul de Fizica Atomica. High intensity linear accelerators. 3,551,728, Cl. 315-3.5

Crompton & Knowles Corporation: *See—*
DesRosiers, Wilfred Francis, 3,550,642.

Crow, Harold P. Auxiliary breather. 3,550,567, Cl. 123-41.86

Crowell, Merton H., to Bell Telephone Laboratories, Incorporated. Pulse code modulated optical maser. 3,551,840, Cl. 331-94.5

Crown Zellerbach Corporation: *See—*
Herschler, Robert John, 3,551,554.

Cubberly, Walter E., Jr., to Schlumberger Technology Corporation. Methods and apparatus for facilitating the descent of well tools through deviated well bores. 3,550,684, Cl. 166-250.

Cucheran, John S.: *See—*
Pringle, William L., and Cucheran, John S.,3,550,468.

Culp, Richard B., to Lockheed Aircraft Corporation. Powered drive assembly. 3,550,753, Cl. 198-109.

Cunningham, Paul G., Jr. Projectile throwing device. 3,550,938, Cl. 273-26.

Cutler-Hammer, Inc.: *See—*
Dummer, Merlin R., 3,550,472.
Risberg, Robert L., and Serbiak, Richard P., 3,551,771.

Cyr, Joseph H.: *See—*
Halls, Lawrence M., and Cyr, Joseph H.,3,550,363.

Cywinski, Norbert F., to Phillips Petroleum Company. Synthesis of unsaturated hydrocarbons. 3,551,463, Cl. 260-410.

Dahms, Harald. Method and apparatus for the titration of chloride and bicarbonate in serum. 3,551,109, Cl. 23-230.

Dahms, Harald. Reagent solutions for use in serum bicarbonate and chloride analysis. 3,551,350, Cl. 252-408.

Daigle, Andrew G. Side arm belt support. 3,550,821, Cl. 224-1.

Daikin Kogy Kabushiki Kaisha: *See—*
Kometani, Yutaka, and Tatemoto, Masayoshi, 3,551,398.

Daimler-Benz Aktiengesellschaft: *See—*
Frey, Egon, 3,551,687.
Hoffmann, Heinrich, 3,550,566.
Kohler, Werner, and Kiess, Ulrich, 3,551,686.

Dainippon Pharmaceutical Co., Ltd.: *See—*
Shimizu, Masanao, Takase, Yoshiyuki, and Kubota, Saburoh S., 3,551,566.

Dainippon Screen Mfg. Co., Ltd.: *See—*
Miyauchi, Yoshio, 3,550,829.

Dallen, John A.: *See—*
Sarvay, John Thomas, and Dallen, John A.,3,550,242.

Dalpee, Joseph A.: *See—*
Rudolph, Louis R., and Dalpee, Joseph A.,3,551,850.

Dalton, Ian Michael, and Jones, Donald. Gold electroplating electrolytes. 3,551,305, Cl. 204-46.

Dalton, William O., to Monsanto Company. Method of agglomerating latices. 3,551,370, Cl. 260-23.7

Dalziel, Donald Martin: *See—*
Jack, William, Jr., and Dalziel, Donald Martin,3,550,406.

Damico, John J., Rudy, John F., Shuford, David M., and Wischhusen, Theodore F., to Martin Marietta Corporation. Method of and apparatus for bonding. 3,551,240, Cl. 156-228.

Dana Corporation: *See—*
Miller, Fred F., Jr., 3,550,396.

Danfoss A/S: *See—*
Baatrup, Johannes Vagn, 3,550,611.
Kristensen, Ib Knud, 3,551,757.
Danielisz, Miklos: *See—*
Galinke, Joachim, and Danielisz, Miklos,3,551,366.
Daniels, Robert A., Foster, Norman B., Yeomans, Robert P., and Cadley, John L. Double disconnect device. 3,550,626, Cl. 137-614.03
Dannettell, Alan C., Nemiroff, Robert V., and Tedd, David C., to Eaton Yale & Towne, Inc. Drive system for an electric truck. 3,551,773, Cl. 318-341.
Dany, Franz-Josef, Kandler, Joachim, and Munch, Peter, to Knapsack Aktiengesellschaft. Process for the manufacture of non-glowing polyvinyl chloride. 3,551,379, Cl. 260-41.
Da Re, Giorgio, and Rovati, Luigi, to Rotta Research Laboratorium S.p.A. Amino acid amides and process for their production. 3,551,419, Cl. 260-247.2
Darr, Donald E., Leiser, Roger S., Loehr, Clifford E., and Richardson, Kenneth W., to PPG Industries, Inc. Apparatus for removing metal oxide scale from a reactor wall. 3,550,177, Cl. 15-104.1
Darrington, Philip R., to Ashworth Ross & Company Limited. Counting. 3,551,657, Cl. 235-151.33
Data Science Corporation: *See—*
Lampson, Gerald L., 3,551,637.
Davey, Joseph: *See—*
Tapp, Geoffrey Edward Ernest, and Davey, Joseph,3,550,711.
Davidow, Martin A., and Garner, James T., to Case, J. I., Company. Mounting mechanism for auger. 3,550,793, Cl. 214-83.26
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A., to Caterpillar Tractor Company. Adjustable ripper tip. 3,550,691, Cl. 172-699.
Davies, Lynn T.: *See—*
Cowen, Arthur, Davies, Lynn T., and Teno, Richard L.,3,551,301.
Davis, Charles H., to McKay Machine Company, The. Strip cutting and joining apparatus. 3,550,249, Cl. 29-428.
Davis, Dhu Aine, to Hermetic Coil Co., Inc. Encapsulated electric motor having P-M rotor and claw tooth stator. 3,551,711, Cl. 310-43.
Davis, Gordon Jerry, to Maytag Company, The. Method and apparatus for fabric cool down. 3,550,170, Cl. 8-158.
Davis, Paul: *See—*
Sass, Samuel, Witten, Benjamin, and Davis, Paul,3,551,531.
Davis, Peter Grant, to Molins Machine Company Limited, The. Method of securing or positioning workpieces for machining operations. 3,550,245, Cl. 29-407.
Dawson, Norman W., and Jack, William G., to Bell Telephone Co. of Canada. Diversion circuit. 3,551,602, Cl. 179-18.
Dawson, William Orval, O'Connor, Stephen C., and Fellowes, Frederick S., to Chemtan Company. Ammonium zirconyl carbonate treatment of chrome-tanned leather. 3,551,089, Cl. 8-94.27
Day, Charles E.: *See—*
Swanson, Vernon H., and Day, Charles E.,3,550,713.
Deal, Bruce E., to Fairchild Camera and Instrument Corporation. Control of surface inversion of P and N-type silicon using dense dielectrics. 3,550,256, Cl. 29-571.
Deal, Robert S., and Evans, Joseph H., to Raychem Corporation. Pyrotechnic heating device. 3,551,223, Cl. 149-15.
Deans, Frederick Edward, and Carter, Richard James, to Bentley Engineering Company Limited, The. Circular knitting machines. 3,550,397, Cl. 66-14.
Dearborn Rubber Corporation: *See—*
Herro, Richard E., 3,550,897.
De Blas, Umberto, and Franco, Simone, to Ferrania S.p.A. Light sensitive article comprising a quinone diazide and polymeric binder. 3,551,154, Cl. 96-91.
Decker, Erhard K.H., to Grace, W. R., & Co. Microporous sheet and process for its production. 3,551,362, Cl. 260-2.5
Decroix, Jean H., to Ugine Kuhlmann. Austenitic stainless steels. 3,551,142, Cl. 75-128.
Deep Oil Technology, Inc.: *See—*
Horton, Edward E., 3,550,549.
Deering Milliken Research Corporation: *See—*
McCollough, John K., and Wylie, Richard D., 3,550,350.
Defazio, Charles A., and Fisher, Gene J. Method of minimizing polymer formation during distillation of vinyl acetate by the addition of alphamethyl styrene. 3,551,299, Cl. 203-8.
Dehnert, Johannes, and Gnad, Gerhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Monoazo dyes derived from aminophthalimides. 3,551,407, Cl. 260-152.
Dejesa, Emil. Polishing machine. 3,550,176, Cl. 15-21.
De Laval Separator Company, The: *See—*
Goldsmith, Frank Edward, 3,550,557.
Delbouille, Andre, and Hoffait, Alfred, to Solvay & Cie. Process for the regulation of the polymerization of olefins. 3,551,403, Cl. 260-94.9
de Lesseaux, Jacques de Bazelaire: *See—*
Guillot, Jean Claude, Poignant, Pierre, and de Lesseaux, Jacques de Bazelaire,3,551,442.
Delong, William T., to Teledyne, Inc., mesne. Digester for use in paper making and allied industries. 3,551,121, Cl. 29-196.1
Delta Rope & Twine Limited: *See—*
Kippan, James A., 3,551,280.
Dembiak, Matthew R., and Webster, George H., said Dembiak assor. to Western Electric Company, Incorporated, and said Webster assor. to Bell Telephone Laboratories, Incorporated. Shielded electrical cable and method of making same. 3,551,586, Cl. 174-107.
Denis, Etienne Marie: *See—*
Nilles, Paul Emile, and Denis, Etienne Marie,3,551,140.
Dennis, Robert: *See—*
Bassemir, Robert W., Dennis, Richard, and Nass, Gerald I.,3,551,235.
Dennison, John J., to Arrow-Hart, Inc. Pneumatic time delay switch with improved dashpot structure. 3,551,615, Cl. 200-34.
Dennison, John P.: *See—*
Ashton, Norman Coupe, and Dennison, John P.,3,551,144.
Denss, Rolf: *See—*
Kuhnis, Hans Herbert, and Denss, Rolf,3,551,431.
De Persia, John L. Automatic bailer. 3,550,548, Cl. 114-183.
de Pietri Tonelli, Pietro: *See—*
Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco,3,551,452.
Depperman, Warren B.: *See—*
Richards, Edward F., and Depperman, Warren B.,3,550,604.
De Remer, Harold A., to General Electric Company. Electric toaster casing construction. 3,550,804, Cl. 220-4.
Derick, Burton Nathaniel: *See—*
Brown, Robert Glenn, Derick, Burton Nathaniel, Stanley, Jon Ovitt, and Watkins, John Mauldin, Jr.,3,550,257.
Desfossex, Paul: *See—*
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul,3,550,675.
DesRosiers, Wilfred Francis, to Crompton & Knowles Corporation. Catch cord lockstitch selvage method and mechanism for producing same. 3,550,642, Cl. 139-124.
Desty, Denis Henry, Whitehead, David Montagu, and Thomas, John Lionel, to British Petroleum Company Limited. Burner for fluid fuels. 3,551,085, Cl. 431-243.
Deutsch, Alfred, to Calbiochem. Reagent and method for assaying malate dehydrogenase. 3,551,296, Cl. 195-103.5
Deutsche Akademie der Wissen Schaften Zu Berlin: *See—*
Lange, Fritz, and Dreyer, Gunter, 3,551,329.
Deutsche Erdol Aktiengesellschaft: *See—*
Putz, Joachim, and Sebald, Franz, 3,551,135.
Deutsche Gold -und Silber-Scheideanstalt vormals Roessler: *See—*
Bader, Erich, Koert, Hubert, and Brod, Gerd, 3,551,372.
Deutsche Rhodiaceta A.G.: *See—*
Sippel, Arnulf C. T., Bumiller, Maria-Lotte, and Vollmer, Paul, 3,551,388.
De Varda, Giorgio, and Martinelli, Saverio, to Societa Italiana Telecomunicazioni Siemens S.p.A. Signal-evaluating logic with circulating memory for time-sharing telecommunication system. 3,551,598, Cl. 179-7.1
Devlin, Edmund F. X.: *See—*
Henc, Edward V., and Devlin, Edmund F. X.,3,550,529.
deVries, Gerard, to Magnavox Company, The. Optical system for facsimile scanner. 3,551,595, Cl. 178-7.1
Diamond Shamrock Corporation: *See—*
Grammont, Paul D., and Werotte, Louis E., 3,551,358.
Keckler, David P., and Loeffler, John Edward, Jr., 3,551,512.
Sprayberry, Billy A., and Urbanowski, Richard L., 3,551,133.
Dick, A. B., Company: *See—*
Bischoff, Vincent E., 3,551,703.
Dickey, G. C., Corporation: *See—*
Dickey, Gilbert C., 3,550,987.
Dickey, Gilbert C., to Dickey, G. C., Corporation. Resilient sealing apparatus. 3,550,987, Cl. 277-10.
Dickinson, Michael, to Lucas, Joseph, (Industries) Limited. Apparatus for testing the properties of rubber or rubber-like materials. 3,550,441, Cl. 73-94.
Dickmann, John L., and Nicolson, Garth F., to Jackson, Byron, Inc. Power pipe tongs with variable brake. 3,550,485, Cl. 81-57.15
DIEHL: *See—*
Burkhardt, Gottfried, 3,550,846.
Dietmann, Karl: *See—*
Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl,3,551,409.
Dionisio, Louis A., 1/2 to Casella, Peter F. Rotary internal combustion engine. 3,550,564, Cl. 123-837.
Disko, Harry: *See—*
Kramer, Norman, Meyer, Burton C., and Disko, Harry,3,551,579.
Dittmore-Freimuth Corporation: *See—*
Anderson, Perry, Richter, Walther, and Kleinke, Donald F., 3,551,077.
Diwag Chemische Fabriken GmbH: *See—*
Renwanz, Gerhard, Credner, Karl, Geisel, Berthold, and Engelhard, Hermann, 3,551,491.
Dixon, Harold F.E.: *See—*
Vaccaro, Angelo, and Dixon, Harold F.E.,3,551,887.
Djumulen, Vadim Ippolitovich: *See—*
Melnikov-Eikhenvald, Mikhail Alexeevich, Kamarian, Georgy Mikirtychevich, Suchkov, Vladimir Nikolaevich, Djumulen, Vadim Ippolitovich, and Nesterkin, Alexandr Kuzmich,3,550,912.
Dodds, Kay E., and Yee, Ying S., to Eastman Kodak Company. Color responsive apparatus. 3,551,058, Cl. 356-177.
Doehner, Gunther Anthony. Fluorescent lamps constructed for use in conventional light fixtures. 3,551,736, Cl. 315-100.
Doehnert, Donald F.: *See—*
Crocker, Guy J., and Doehnert, Donald F.,3,551,391.
Dolan, Francis D., and Burgoon, Jack L., to Scott & Fetzer Company, The, mesne. Apparatus for cleaning floors. 3,550,181, Cl. 15-320.

Dolsen, Philip C.: *See—*
Haner, Lambert, and Dolsen, Philip C.,3,551,752.
Dombro, Robert A.: *See—*
Schmerling, Louis, and Dombro, Robert A.,3,551,504.
Donaldson, George R.: *See—*
Pollitzer, Ernest L., Donaldson, George R., and Hawkins, Richard C.,3,551,510.
Donner, Norman William. Fresh bait holder. 3,550,307, Cl. 43-56.
Donofrio, Alfonso M.: *See—*
Tabor, Joseph M., and Donofrio, Alfonso M.,3,550,648.
Donovan, William F., to United States of America, Army. Quick release locating fixture. 3,550,889, Cl. 248-176.
Doquire, Gilbert: *See—*
Sacrez, Jules, Javaux, Gustave, Doquire, Gilbert, and Bodart, Marcel,3,551,126.
Dorman, Arthur Kennedy, and Bartlett, Frederick Albert, to Dorman Sprayer Company Limited, The. Spray nozzles. 3,550,860, Cl. 239-491.
Dorman Sprayer Company Limited, The: *See—*
Dorman, Arthur Kennedy, and Bartlett, Frederick Albert, 3,550,860.
Dorn, Conrad P., Jr.: *See—*
Shen, Tsung-Ying, Matzuk, Alexander, and Dorn, Conrad P., Jr.,3,551,444.
Dorr-Oliver Incorporated: *See—*
Roberts, Elliott J., 3,551,100.
Doty, James Franklin, Jr., to Gulf Oil Corporation. Automotive safety devices. 3,550,717, Cl. 180-103.
Dotzauer, Bernhard: *See—*
Reinhard, Hans, and Dotzauer, Bernhard,3,551,374.
Dougall, Gordon M.: *See—*
Gallagher, Richard J., Christensen, Richard J., and Dougall, Gordon M.,3,550,673.
Douglas, Paul M., and Nagel, William S., to Eaton Yale & Towne, Inc. Fluid brake system. 3,550,730, Cl. 188-152.
Dow Chemical Company, The: *See—*
Comeaux, Bobby G., 3,550,683.
Fitzgerald, Charles E., 3,550,832.
Hennis, Henry E., 3,551,424.
Lynn, Scott, and Paalman, Hendrick Hunter, 3,551,104.
Mounts, Lewis S., and Tigner, Ruben A., 3,550,808.
Rigterink, Raymond H., 3,551,562.
Tigner, Ruben A., 3,550,764.
Wymore, Charles E., 3,551,497.
Dowbenko, Rostyslaw, and Christenson, Roger M., to PPG Industries, Inc. Adhesion-promoting epoxy resins. 3,551,517, Cl. 260-834.
Downen, Jim L.: *See—*
Sutliff, Wayne N., and Downen, Jim L.,3,551,012.
Downing, Frank V., and Bergeron, Norman A., to Inter-Costal Shoe Machinery Corporation, mesne. Breast flap attaching machines. 3,550,175, Cl. 12-16.4
Dozois, James H., to General Motors Corporation. Restraint belt retractor biasing release. 3,551,002, Cl. 280-150.
Dragiev, Dragomir Svetoslavov: *See—*
Konstantinov, Mihail Spirov, Dragiev, Dragomir Svetoslavov, Genova, Penka Jossifova, and Tzenov, Petar Ivanov,3,550,475.
Drake, Alan Rendal: *See—*
Scqueira, Peter J. L., and Drake, Alan Rendal,3,551,129.
Drechsler, Erich F.: *See—*
Randall, John S., Hutchens, Morris L., Drechsler, Erich F., and Brainard, Wallace E.,3,550,487.
Dremann, Charles E., and Hitchings, Jay R., to Foote Mineral Company. Method of bonding lighium to other metals. 3,551,184, Cl. 117-50.
Dressler, Hans, to Koppers Company, Inc. Self-extinguishing styrene polymer compositions. 3,551,360, Cl. 260-2.5
Dreyer, Gunter: *See—*
Lange, Fritz, and Dreyer, Gunter,3,551,329.
Driscoll, Graham C., Jr., to International Business Machines Corporation. Interaction in a multi-processing system utilizing central timers. 3,551,892, Cl. 340-172.5
Driscoll, Graham C., Jr., to International Business Machines Corporation. Look-ahead branch detection system. 3,551,895, Cl. 340-172.5
Drucy, Jean, and Schmidt, Paul, to Ciba Corporation. 1-(or 2-) Substituted 4-mercapto-pyrazolo [3,4-d] pyrimidines. 3,551,428, Cl. 260-256.5
Druzba, Perry R., Jr.: *See—*
Goetz, Fred E., Druzba, Perry R., Jr., Hause, James R., and Seeley, Gerard,3,550,325.
Dubsky, George Jon, and Stark, Bernard Peter, to Ciba Limited. Epoxy resin compositions containing vinyl compounds and chelates. 3,551,519, Cl. 260-836.
Duennenberger, Max, and Guglielmetti, Leonard, to Ciba Limited. 2-Phenylbenzoxazole derivatives. 3,551,443, Cl. 260-307.
Duff, Clifford C.: *See—*
Garlund, Zachariah G., and Duff, Clifford C.,3,551,344.
Dufour, Paolo. Apparatus for eliminating digital indicator fluctuations. 3,551,809, Cl. 324-99.
Dufresnoy, Guy: *See—*
Vazquez, Charles, Dufresnoy, Guy, Maelstaf, Serge, and Barbaut, Michel,3,551,631.
Duino, Louis A.: *See—*
Menendez, Julius, and Duino, Louis A.,3,550,946.
Duke, Bascum H.: *See—*
Brignac, Edmond P., Duke, Bascum H., Nunning, Walter J., and Snooks, Rupert J., Jr.,3,551,548.
Duke, John W., Jr. Ball joint rebuilder. 3,551,640, Cl. 219-214.
Dummer, Merlin R., to Cutler-Hammer, Inc. Variable trigger lock. 3,550,472, Cl. 74-531.
Dumoulin, Jean, and Sanfourche, Jacques, to Rhone-Poulenc S.A. Adhesive primer compositions. 3,551,375, Cl. 260-31.2
Dunlap, Anne B.: *See—*
Vondracek, Charles H., and Dunlap, Anne B.,3,551,183.
Dunlop, Alexander K., and Hogenson, Raymond A., to Minnesota Mining and Manufacturing Company. Mechanical timer. 3,550,458, Cl. 74-3.5
Dunn, Leslie S., Jr. Underwater viewer. 3,551,032, Cl. 350-301.
Dunn, Luther L., Jr., and Magnusson, Norval, to Georgia-Pacific Corporation. Process for electrolysis of alkali metal chloride. 3,551,309, Cl. 204-99.
Du Pont de Nemours, E. I., and Company: *See—*
Brinkard, William Charles, Jr., and Taylor, Brian William, 3,551,474.
Brown, Robert Glenn, Derick, Burton Nathaniel, Stanley, Jon Ovitt, and Watkins, John Mauldin, Jr., 3,550,257.
Cescon, Lawrence Anthony, and Hoehn, Harvey Herbert, 3,551,331.
Fang, James C., 3,551,383.
Gray, Charles L., Jr., and Ramsey, Robert B., Jr., 3,551,189.
Hartter, Donald R., 3,551,473.
Hodge, George R., and Patsis, Angelos Vlasus, 3,551,830.
Miller, Henry C., and Muetterties, Earl L., 3,551,120.
Pitzl, Gilbert, 3,550,369.
Smedberg, George E., 3,551,231.
Duriron Company, Inc., The: *See—*
Schenck, Robert C., Jr., and Storms, Robert S., 3,550,988.
Wissman, Jack L., 3,551,067.
Du Rose, Arthur H., to Kawanee Oil Company. Allenics for inhibiting corrosion. 3,551,348, Cl. 252-388.
Durst AG, Fabrik Fototechnischer Apparate: *See—*
Barbieri, Siegfried, and Durst, Gilbert, 3,551,047.
Durst, Gilbert: *See—*
Barbieri, Siegfried, and Durst, Gilbert,3,551,047.
DuVivier, Charles L., Brockett, Peter C., Barney, Alan F., and Pallat, Ludwig R., to LFE Corporation. Phase shift cycle generator for a traffic control system. 3,551,825, Cl. 328-155.
Dye, Floyd S., Jr., to Binder Magnete KG. Electrical control arrangement for a sandblasting machine. 3,550,321, Cl. 51-8.
Dyer, Denzel L., to Northrop Corporation. Microbiological detection and identification system. 3,551,295, Cl. 195-103.5
Dynamic Products Development, Inc.: *See—*
Hesterman, Dennis, and Greth, Lewis E., 3,550,602.
Dynamics Corporation of America, Waring Products Division: *See—*
Swanke, Roy L., 3,550,657.
Dynamit Nobel Aktiengesellschaft: *See—*
Hulsmann, Hans-Leo, Hoffmann, Gerhart, Renckhoff, Gustav, and Pastura, Albino, 3,551,481.
Eagle-Picher Industries, Inc.: *See—*
Bishop, Earl L., and Sharp, Lester T., 3,551,252.
Earley, James Valentine, Fryer, Rodney Ian, and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. Preparation of 1,4-benzodiazepin-2-ones. 3,551,415, Cl. 260-239.3
East, Douglas A., to Borg Warner Corporation, mesne. High efficiency flashing nozzle. 3,550,864, Cl. 239-601.
East Tennessee Packing Company: *See—*
Story, William E., 3,550,749.
East, Yale W. Amusement and exercise apparatus. 3,550,312, Cl. 46-52.
Eastman Kodak Company: *See—*
Bundschuh, John J., Roman, Robert J., and Thomson, Kenneth W., 3,550,879.
Bundschuh, John J., and Crawford, Philip N., 3,551,038.
Cooley, Austin C., 3,551,317.
Cooper, Walter, and Lindsay, Jacque K., 3,551,153.
Dodds, Kay E., and Yee, Ying S., 3,551,058.
Gnage, Oliver W., 3,551,046.
Harvey, Donald M., 3,550,514.
Kenyon, David W., and Miller, William P., 3,550,320.
Knudson, Selden Arthur, and Spitulnik, Michael Jay, 3,551,494.
Malan, Rodwick L., 3,551,151.
Nerwin, Hubert, and Kern, Frederick W., 3,551,045.
Palmer, Allan M., 3,550,880.
Robinson, Gene H., 3,551,337.
Roman, Robert J., 3,550,881.
Salminen, Wilho M., 3,551,157.
Sutliff, Robert C., and Tucker, Archie J., 3,550,877.
Trachtenberg, William, 3,551,145.
Warburton, Richard S., and Jones, Raymond T., 3,550,433.
Woodward, Robert N., and Leone, Joseph T., 3,551,150.
Eaton Yale & Towne, Inc.: *See—*
Dannettell, Alan C., Nemiroff, Robert V., and Tedd, David C., 3,551,773.
Douglas, Paul M., and Nagel, William S., 3,550,730.
Tedd, David C., 3,551,769.
Vollmer, George W., 3,550,724.
Wiltsey, Howard E., 3,550,739.

Eberwein, Helmut, and Bogsch, Waldemar, to Preh Elektro-Feinmechanische Werke. Slide resistor with fine adjustment. 3,551,871, Cl. 338-122.

Ebster, Klaus-Dieter: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf,3,551,397.

Eby, Hugh H., Co.: *See—*
Sterling, Maurice S., 3,551,750.
Telmosse, William, and Sterling, Maurice S., 3,551,877.

Eckels, Vernon M.: *See—*
Hibl, Joseph J., Ferguson, Paul E., and Eckels, Vernon M.,3,550,954.

Ecker, Louis F.: *See—*
Greenspan, Harold J., and Ecker, Louis F.,3,550,254.

Edelson, Roger H., and Frohock, Millard M., Jr., to Hughes Aircraft Company. Jump error correction system. 3,551,688, Cl. 307-11.

Edstrom, William E. Animal drinking devices. 3,550,560, Cl. 119-72.5

Edwards, Clayton: *See—*
Peterson, Maurice L., 3,550,568.

Edwards, Douglas C., and Wunder, Richard H., to Polymer Corporation Limited. Halogenation of liquid polymers. 3,551,402, Cl. 260-94.7

Edwards, John D. Tool for holding rivets and bolts during their fastening in otherwise inaccessible places. 3,550,486, Cl. 81-125.

Egan, Clark J., to Chevron Research Company, Inc. Production of high quality jet fuel. 3,551,326, Cl. 208-93.

Egashira, Shohachi: *See—*
Iwaki, Takayuki, Egashira, Shohachi, and Okagami, Akio,3,551,124.

Eich, Walter J., Minton, George H., Andrews, Harry N., and French, Robert J., to Westinghouse Electric Corporation. Nuclear reactor. 3,551,289, Cl. 176-22.

Eickenhorst, Franklin C., to Fraze, Ermal C., mesne. Apparatus for making easy-opening can ends. 3,550,546, Cl. 113-1.

Eilenberger, Stanley D. Screw anchor. 3,550,499, Cl. 85-84.

Eisai Kabushiki Kaisha: *See—*
Takebe, Toshio, Kayano, Masanori, and Naruse, Noboru, 3,551,558.

Ekstrom, Ake, to Allamanna Svenska Elektriska Aktiebolaget. Control system for a static converter connecting a DC network to an AC network. 3,551,778, Cl. 321-5.

Elbling, Irving N., and Goldberg, Newton N., to Westinghouse Electric Corporation. Hermetic compressor terminal coating. 3,551,191, Cl. 117-229.

Elco Corporation: *See—*
Rossman, Donald, 3,551,878.

Electric Power Storage Limited: *See—*
McKellen, Patrick Ewart, and Clayton, Dennis Albert, 3,550,651.

Electric Reduction Company of Canada Ltd.: *See—*
Sowerby, Austen E., 3,551,460.

Electrical Remote Control Company Limited: *See—*
Gotley, Paul, 3,551,639.

Electro Dynamics & Telecom Limited: *See—*
Tothill, Gordon R., 3,551,683.

Electrodyne Research Corporation: *See—*
Strohmeyer, Charles, Jr., 3,550,562.

Electro-Photo Corporation: *See—*
Craven, Jack L., and Marjoram, Ernest B., 3,550,882.

Electro-Slag Institute: *See—*
Bhat, Gopal Krishna, and Tobias, Joseph B., 3,551,137.

Ellcon-National, Inc.: *See—*
Roselius, Charles F., Pelikan, George A., and Maggio, Albert C., 3,550,731.

Ellerd, Charles J. Power-driven container transporting device. 3,550,802, Cl. 214-512.

Elliott, Charles H., to Kaiser Aluminum & Chemical Corporation. Current collector. 3,551,319, Cl. 204-243.

Ellis, Alan F., to Gulf Research & Development Company. Preparation of organic esters from alpha- nitro-ketones. 3,551,465, Cl. 260-410.9

Ellison, George, Limited: *See—*
Smart, Ivan Frank, and Andrews, Melvin Lyndon, 3,551,585.

Emerson Electric Co.: *See—*
Brundage, Robert Wesley, 3,551,079.
Brundage, Robert Wesley, 3,551,081.

Emmons, William D., to Rohm & Haas Company. Sulfonic alkylene esters of itaconic and alpha- methylene glutaric acids and homopolymers thereof. 3,551,479, Cl. 260-485.

Emmott, John T., Lesh, Nathan G., and Stevens, Mead F., to Bell Telephone Laboratories, Incorporated. Thin film adjustable attenuator with S-shaped bifurcated contacts. 3,551,872, Cl. 338-202.

Emtec Designs, Inc.: *See—*
McNelis, Patrick M., 3,551,822.

Enderlein, Hans-Carl. Apparatus for molding a material to prevent plugging of vent holes in the die. 3,550,211, Cl. 18-34.

Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi, to Fujitsu Limited. Variable equalizer. 3,551,854, Cl. 333-28.

Endo Laboratories, Inc.: *See—*
Pachter, Irwin J., and Nicholas, David L., 3,551,571.

Enenshtein, Boris Samoilovich, Ivanov, Alexei Petrovich, Boltalin, Anatoly Petrovich, and Iova, Georgy Mikhailovich, to Geologichesky Institut An USSR,. Method for geophysical exploration with signals conforming to an expanential law. 3,551,798, Cl. 324-6.

Engel, Joseph C., to Westinghouse Electric Corporation. Class A-B pulse width modulating amplifiers. 3,551,851, Cl. 332-9.

Engelhard, Hermann: *See—*
Renwanz, Gerhard, Credner, Karl, Geisel, Berthold, and Engelhard, Hermann,3,551,491.

Englisch, Adolf: *See—*
Wattler, Wilhelm, and Englisch, Adolf,3,551,633.

Englund, Christer E. T., and Marandi, Ali, to Clemar Manufacturing Corporation, mesne. Contaminant barrier for solenoid valves. 3,550,614, Cl. 137-245.

Enloe, Louis H., Jakes, William C., Jr., and Rubinstein, Charles B., to Bell Telephone Laboratories, Incorporated. Real time holographic television system. 3,551,594, Cl. 178-6.5

Ensign, John D., to Measurement Science Corporation. Electronic thermometer unit. 3,550,448, Cl. 73-343.

Entropy Limited: *See—*
Stengel, Rudolph F., 3,551,828.

Entwicklungsring Sud GmbH: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter, 3,551,891.
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert, 3,551,893.

Erb, George H., to American Velcro Corporation. Separable fastening device and method of making same. 3,550,223, Cl. 24-204.

Erb, George H., to American Velcro, Inc. Releasable closure fastening means. 3,550,837, Cl. 229-45.

Ericksson, Dan, to Arenco Aktiebolag. Device for the orientation of fishes. 3,550,192, Cl. 17-55.

Erie Technologicial Products, Inc.: *See—*
Bagwell, Richard S., 3,551,820.

Eriksen, Walter, and Strengelsrud, Sverre, to Plategods A/S. Device for conductor and pipe connections on open decks. 3,550,615, Cl. 137-362.

Erlichman, Irving, to Polaroid Corporation. Photographic apparatus and film assemblage for use therewith. 3,550,515, Cl. 95-13.

Escoa Corporation: *See—*
Jarvis, Hyrum T., and Boose, Robert C., 3,550,235.

Essex International, Inc.: *See—*
Alexander, John C., 3,550,627.

Esso Production Research Company: *See—*
Bardgette, John J., and Rue z, William J., III., 3,550,384.
Fowler, Ronald L., 3,550,682.
Kenneday, John W., 3,550,696.
Kiel, Othar M., 3,550,445.

Esso Research and Engineering Company: *See—*
Brown, James W., Mayer, Francis X., and Kalina, Theodore, 3,551,138.
Claiborne, Earl B., and Sale, Edwin E., 3,551,215.
Forster, Eric O., 3,551,199.
Herbst, Walter A., 3,551,207.
Jacobson, Norman, Brownawell, Darrell W., and Kresge, Edward N., 3,551,336.
Passannante, Anthony J., and Beach, Leland K., 3,551,496.

Estes, John H.: *See—*
Ashley, Kenneth D., and Estes, John H.,3,551,516.

Esteve, Vicente Soler, to Tolaca, C.A., 'Altamira'. Safety valve for divided space. 3,550,376, Cl. 60-54.5

Etablissements Clin-Byla: *See—*
Schmitt, Josef, 3,551,412.
Schmitt, Josef, Raveux, Roger, and Brunaud, Marcel Daniel Pierre, 3,551,478.

Ethyl Corporation: *See—*
Lehikoinen, Urho A., 3,551,343.
Lehikoinen, Urho Albert, 3,551,341.
Lehikoinen, Urho Albert, 3,551,342.

Euwema, George. Liquid cooling apparatus. 3,550,393, Cl. 62-394.

Evans, Chandler, Inc.: *See—*
Petrovits, Paul F., 3,551,073.

Evans, Ernest B., to Lockheed Aircraft Corporation. Piezoelectric linear actuator. 3,551,764, Cl. 318-116.

Evans, Joseph H.: *See—*
Deal, Robert S., and Evans, Joseph H.,3,551,223.

Evans, Lee Stanley, and Morgan, Peter Ernest, to Courtaulds Limited. Method for producing a metal composite. 3,550,247, Cl. 29-419.

Evans, Marvin, and Miller, David H., to College Research Corporation. Apparatus for separating metals. 3,550,925, Cl. 266-37.

Evans, Richard Henry, to Babcock & Wilcox, Limited. Expanded junction tube repairs. 3,550,561, Cl. 122-235.

Evering, Bernard Lewis, to Standard Oil Company. Process for alkylating isoparaffins with sulfuric acid and an emulsifying agent. 3,551,514, Cl. 260-683.59

Fabricators, Inc.: *See—*
von der Heide, Elmer J., 3,550,206.

Fadispel-Fabricadora de Dispositivos e Pecas Ltda.: *See—*
Abuhab, Gabriel, 3,550,174.

Fahlbert-List GmbH: *See—*
Von Mildenstein, Maximilian, 3,551,739.

Fairbanks, Theodore H., to FMC Corporation. Apparatus for extruding woven net-like structures. 3,550,202, Cl. 18-12.

Fairbanks, Theodore H. Method and apparatus for the manufacture of net-like materials. 3,551,236, Cl. 156-167.

Fairchild Camera and Instrument Corporation: *See—*
Deal, Bruce E., 3,550,256.
Schroeder, Jon M., 3,550,261.

Fang, James C., to Du Pont de Nemours, E. I., and Company, Aromatic polyamide-esters and a process for preparing them. 3,551,383, Cl. 260-47.

Fanshawe, William Joseph: *See—*
Bauer, Victor John, Fanshawe, William Joseph, and Safir, Sidney Robert,3,551,437.

Fanshawe, William Joseph, Bauer, Victor John, and Safir, Sidney Robert, to American Cyanamid Company. Compositions containing indolylpyridinium salts and method of use. 3,551,567, Cl. 424-263.

Fapiano, Donald J., to General Electric Company. Width gage for plate mill. 3,550,279, Cl. 33-143.

Farbenfabriken Bayer Aktiengesellschaft: *See—*
Corte, Herbert, and Heller, Harold, 3,551,357.
Frohberger, Paul-Ernest, Kuhle, Engelbert, and Urbschat, Ewald, 3,551,574.
Kallfass, Herbert, 3,551,349.
Krimm, Heinrich, Malamet, Georg, and Schnell, Hermann, 3,551,390.
Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernaleken, Hugo, 3,550,669.
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter, 3,551,434.
Oediger, Hermann, and Oberdorf, Anton, 3,551,416.
Oediger, Hermann, and Oberdorf, Anton, 3,551,438.
Schnurrbusch, Karl, and Kniege, Wilfried, 3,551,382.
Seyfried, Klaus, and Toepsch, Hans, 3,551,376.
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther, 3,551,373.
Weber, Christian, and Merten, Rudolf, 3,551,527.
Ziemann, Heinz, Zenner, Karl-Friedrich, Lehmann, Wolfgang, and Troemel, Gerhard, 3,551,288.

Farbwerke Hoechst Aktiengesellschaft: *See—*
Bauer, Gunther, and Jacob, Ingolf, 3,551,550.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See—*
Ruschig, Heinrich, Schmitt, Karl, Lebenich, Hans, and Hartfelder, Gunther, 3,551,493.
Schaum, Helmut, and Horlein, Gerhard, 3,551,395.

Farley, Lloyd M.: *See—*
Galvanoni, Aldo B., Osmond, Charles W., and Farley, Lloyd M.,3,551,258.

Fastener Corporation: *See—*
Coyle, Jan R., 3,550,668.
Obergfell, Allen R., 3,550,831.

Fastert, Herbert, Huber, Horst, and Vogel, Eric T., to Concast Incorporated. Molding aligning apparatus. 3,550,672, Cl. 164-273.

Faude, Rudolf, to Hecon Corporation. Key-counter. 3,551,652, Cl. 235-92.

Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Process for the production of printing plates. 3,551,489, Cl. 96-35.1

Favin, David L.: *See—*
Baum, Roger D., and Favin, David L.,3,551,704.

Faxas, Juan. Cane harvester. 3,550,361, Cl. 56-16.

Fay, John R., and Stinson, John P., to International Business Machines Corporation. Apparatus for automatically measuring the thickness of transparent films on silicon wafers. 3,551,056, Cl. 356-108.

Feakes, Frank, to Norton Research Corporation. Laminated vacuum coated titanium structural material. 3,551,247, Cl. 156-278.

Fearon, Robert Earl, and Foss, Rudolph George, to Ciba Corporation. Exothermic compositions and heat collars containing said compositions. 3,550,578, Cl. 126-263.

Fechner, Gerald A. Switch mechanism. 3,551,611, Cl. 200-5.

Feed Processing Systems: *See—*
Brumagim, Ivan S., 3,550,524.

Feld, Sam H., Buell, Charles A., and Isaacson, Gary C., to Boeing Company, The. Target-type thrust reverser. 3,550,855, Cl. 239-265.29

Feldman, Allan Murry: *See—*
Fraioli, Anthony Vincent, Barber, William Austin, and Feldman, Allan Murry,3,551,205.

Feldmann, Friedrich, to Lawima-Holding A.G. Motor vehicle. 3,550,712, Cl. 180-53.

Feller, Fritz, to Rolls-Royce Limited. Rotary piston engine comprising fluid biased vane seals. 3,551,080, Cl. 418-124.

Fellowes, Frederick S.: *See—*
Dawson, William Orval, O'Connor, Stephen C., and Fellowes, Frederick S.,3,551,089.

Fender, Clarence L., to Columbia Broadcasting System, Inc. Tiltable guitar neck incorporating thrust-absorbing, pivot and locking element. 3,550,496, Cl. 84-293.

Fenske, Ellsworth R., to Universal Oil Products Company. Method for obtaining samples at high temperature and high pressure. 3,550,451, Cl. 73-422.

Ferguson, Arlen H., to Mohasco Industries, Inc., mesne. Reclining chairs and hardware therefor. 3,550,952, Cl. 297-85.

Ferguson, Paul E.: *See—*
Hibl, Joseph J., Ferguson, Paul E., and Eckels, Vernon M.,3,550,954.

Fermi, Rudolph: *See—*
Troeger, Jack S., and Fermi, Rudolph,3,550,760.

Fermi, Rudolph, to Troeger, Andrew, & Company. Casting assembly apparatus. 3,550,761, Cl. 199-61.

Ferrania S.p.A.: *See—*
De Blas, Umberto, and Franco, Simone, 3,551,154.

Ferrara, John J., to Honeywell Inc. Regulation tube control apparatus with compensation of load current and grid current. 3,551,785, Cl. 323-4.

Ferree, Herbert E., to Westinghouse Electric Corporation. Fluid cooled heat sink assembly for pressure contacted semiconductor devices. 3,551,758, Cl. 317-234.

Fewell, John H.: *See—*
Fewell, Maurice I., 3,550,294.

Fewell, Maurice I., to Fewell, John H. Grave digger. 3,550,294, Cl. 37-191.

Fichtel & Sachs Aktiengesellschaft: *See—*
Herold, Werner, 3,550,234.

Field Emission Corporation: *See—*
Brewster, John L., 3,551,677.

Field, Joseph H.: *See—*
Myers, John G., and Field, Joseph H.,3,551,093.

Fife, Robert J., to Crane Co. Mixing valve. 3,550,633, Cl. 137-636.4

Fifield, Thomas B. Submerged apparatus and method of positioning the same. 3,550,387, Cl. 61-69.

Fink, Robert C., to Ostrander-Seymour Co. Dimensional control system. 3,550,204, Cl. 18-16.

Fischer, Adolf: *See—*
Zeidler, Adolf, Fischer, Adolf, Buerger, Gert, and Merger, Franz,3,551,429.
Koenig, Karl-Heinz, Steinbrunn, Gustav, Windel, Hermann, and Fischer, Adolf,3,551,477.

Fischer, Harry C. Ultra-low volume spraying apparatus and systems for insecticides and the like. 3,550,854, Cl. 239-155.

Fischer, William H.: *See—*
Colclaser, Robert G., Jr., and Fischer, William H.,3,551,623.

Fischer, William H., to Westinghouse Electric Corporation. Gas-flow circuit interrupters having improved orifice and contact constructions. 3,551,624, Cl. 200-148.

Fischer, William H., to Westinghouse Electric Corporation. Circuit breakers. 3,551,625, Cl. 200-148.

Fisher, Ervin, Russell, Ralph W., and Golembczyk, Raymond A., to Fuller Company. Filter bag clamping apparatus. 3,550,359, Cl. 55-341.

Fisher, Gene J.: *See—*
Defazio, Charles A., and Fisher, Gene J.,3,551,299.

Fitzgerald, Charles E., to Dow Chemical Company, The. Sealed containers. 3,550,832, Cl. 229-1.5

Flemmert, Gosta Lennart, Sirtl, Erhard, and Paulik, Josef, to Siemens Aktiengesellschaft. Process for decomposing sodium fluosilicate and/or sodium bifluoride into sodium fluoride, hydrogen fluoride and silicon tetrafluoride Method of producing highly pure arsenic trichloride. 3,551,098, Cl. 23-98.

Fletcher, Edwin H. Ocean-going barge. 3,550,550, Cl. 114-235.

Fletcher, Gerald Matthew, to Itek Corporation. Process for producing photographic images with photosensitive material. 3,551,147, Cl. 96-27.

Fletcher-Terry Company, The: *See—*
Insolio, Thomas A., 3,550,273.

Flex-Track Equipment Ltd.: *See—*
Rymes, John E., 3,550,968.

Floss, Josef Georg: *See—*
Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg,3,551,489.

Fluid Dynamics Incorporated: *See—*
Singleton, Jack S., 3,550,777.

Fluid Energy Processing & Equipment Co.: *See—*
Stephanoff, Nicholas N., 3,550,868.

Fluid Energy Processing & Equipment Company: *See—*
Stephanoff, Nicholas N., 3,550,921.

Flynn, Kenneth George, and Jakas, Dalia Regina, to American Cpanamid Company. Method for preparing tetramethylguanidine. 3,551,490, Cl. 260-564.

FMC Corporation: *See—*
Fairbanks, Theodore H., 3,550,202.
Stewart, Mary J., and Carlson, Otto K., 3,551,381.

Fontaine, William J.: *See—*
Kuhn, Lloyd W., and Fontaine, William J.,3,550,489.

Foote Mineral Company: *See—*
Dremann, Charles E., and Hitchings, Jay R., 3,551,184.

Ford, James A., Caule, Elmer J., and Sperry, Philip R., to Olin Corporation. Copper alloy exhibiting gamma alumina surface and method. 3,551,214, Cl. 148-6.31

Forester, Ralph H., and Francis, Peter S., to North Star Research and Development Institute. Method of producing an ultrathin polymer film laminate. 3,551,244, Cl. 156-246.

Forichon, Michel, to Automobiles Peugeot & Regie Nationale des Usines Renault. Gearbox control device. 3,550,467, Cl. 74-473.

Formica Corporation: *See—*
Heeb, Albert Joseph, and Grosheim, Gene Edward, 3,551,241.
Isaacson, Larry Zorah, Kelly, Peter Bernard, and Neidinger, William Kuno, 3,551,283.

Forse, Harry D. Cleaning and laundry system and method. 3,550,169, Cl. 8-150.

Forster, Eckehard: *See—*
Geipel, Hans, Forster, Eckehard, Heinemann, Wilfried, and Baranowski, Kurt,3,550,920.
Geipel, Hans, Forster, Eckehard, and Heinemann, Wilfried,3,550,922.
Forster, Eric O., to Esso Research and Engineering Company. Wire coating composition and microwave heating process. 3,551,199, Cl. 117-227.
Forsythe, Charles O. Method for debugging computer programs. 3,551,659, Cl. 235-153.
Foss, Rudolph George: *See—*
Fearon, Robert Earl, and Foss, Rudolph George,3,550,578.
Foster Grant Co., Inc.: *See—*
Killoran, John J., 3,551,523.
Foster, Norman B.: *See—*
Daniels, Robert A., Foster, Norman B., Yeomans, Robert P., and Cadley, John L.,3,550,626.
Foster, William D.: *See—*
Kilbourn, Dorwin L., Peacher, Teddy J., Askew, Raymond F., and Foster, William D.,3,551,720.
Fothergill, Graham Alwyn: *See—*
Osbond, John Mervyn, Fothergill, Graham Alwyn, and Wickens, James Charles,3,551,458.
Foundry Allied Industries, Inc.: *See—*
Gallagher, Richard J., Christensen, Richard J., and Dougall, Gordon M., 3,550,673.
Fouquart, John J. Interengageable construction elements with resilient clutching parts. 3,550,311, Cl. 46-28.
Fowler, Ronald L., to Esso Production Research Company. Method and apparatus for making equipment connections at remote underwater locations and for producing fluids from underwater wells. 3,550,682, Cl. 166-0.6
Fowler, William R., to Motorola, Inc. Bipolar differential discriminator. 3,551,695, Cl. 307-235.
Fox, James F., to Continental Can Company, Inc. Plastic can with metal end. 3,550,840, Cl. 229-5.6
Fox, Thomas A., and Zentko, Joseph. Methods and apparatus for metal rolling. 3,550,419, Cl. 72-199.
Fraioli, Anthony Vincent, Barber, William Austin, and Feldman, Allan Murry, to American Cyanamid Company. Composite paper electrode for a voltaic cell. 3,551,205, Cl. 136-22.
Francis, Peter S.: *See—*
Forester, Ralph H., and Francis, Peter S.,3,551,244.
Franco, Simone: *See—*
De Blas, Umberto, and Franco, Simone,3,551,154.
Frank, Johann E.: *See—*
Schroeer, Rudi M., Garmhausen, Thomas A., and Frank, Johann E.,3,550,434.
Fraze, Ermal C.: *See—*
Eickenhorst, Franklin C., 3,550,546.
Freda, Richard H. Packing box for sausage casings. 3,550,977, Cl. 312-31.
Fredrikson, Bengt: *See—*
Hammarlund, Per Erik, and Fredrikson, Bengt,3,551,578.
Freeman, Raymond, and Siebert, William, Jr., to Varian Associates. Frequency control means for gyromagnetic resonance apparatus. 3,551,793, Cl. 324-0.5
Freightliner Corporation: *See—*
Swanson, Vernon H., and Day, Charles E., 3,550,713.
Frekko, Eugene F., to Cornell-Dubilier Electric Corporation. Electrolytic capacitors with mechanically stabilized electrode assembly. 3,551,756, Cl. 317-230.
French, James C., Howells, John D., and Anderson, Lucia E., to Parke, Davis & Company. Erythromycin process. 3,551,294, Cl. 195-96.
French, Robert J.: *See—*
Eich, Walter J., Minton, George H., Andrews, Harry N., and French, Robert J.,3,551,289.
French, William G.: *See—*
Pickles, Kathleen M., Hirst, Harry, and French, William G.,3,550,266.
Frenkel, Amotz, to Transducer Systems, Inc. Keyboard switch means. 3,551,865, Cl. 336-130.
Fretz, William L., to Teleflex Incorporated. Method of perforating tubes. 3,550,248, Cl. 29-423.
Freund, Jean-Pierre, and Stoll, Roger, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (Snecma) , and Compagnie Generale de Telegraphie Sans Fils (C.S.F.). Isotopic electric generator using thermoelectric elements. 3,551,212, Cl. 136-202.
Frey, Albert J., Houlihan, William J., and Manning, Robert E., to Sandoz-Wander, Inc. 3-(2-Aminoalkyl)-2-hydroxy-3-phenylindolines. 3,551,450, Cl. 260-326.11
Frey, Egon, to Daimler-Benz Aktiengesellschaft. Electric installation for the actuating switches of electrically operated windows in motor vehicles. 3,551,687, Cl. 307-10.
Frey, Karl, to Sulzer Brothers, Ltd. Process for manufacturing pipe bends from cast metallic material and a pipebend. 3,550,253, Cl. 29-471.1
Friason, Lawrence H.: *See—*
Long, Robert L., and Friason, Lawrence H.,3,550,559.
Friconneau, Claude, Leboutet, Alain, and Lepeintre, Marcel, to Commissariat a l'Energie Atomique. Electrodes for the measurement of PH values under pressure. 3,551,315, Cl. 204-195.
Friedmann, Harry: *See—*
Carr, Clide I., Friedmann, Harry, and Tarpinian, Haig D.,3,550,442.
Friedrichse, Thomas, to Massilon-Cleveland, Akron, Sign Company, The. Pole banner construction. 3,550,297, Cl. 40-128.
Frishinghelli, Ugo Lodovico: *See—*
Pellicciari, Giorgio Lodovico, and Frishinghelli, Ugo Lodovico,3,551,540.
Froeger, Andrew, & Company: *See—*
Troeger, Jack S., and Fermi, Rudolph, 3,550,760.
Froehlich, Alfred, to Ciba Limited. Process for hardening gelatine. 3,551,159, Cl. 96-111.
Frohberger, Paul-Ernest, Kuhle, Engelbert, and Urbschat, Ewald, to Farbenfabriken Bayer Aktiengesellschaft. Methods of combatting fungi using hydroaromatic hydroxamic acids. 3,551,574, Cl. 424-311.
Frohlich, Alfons, to Opti-Holding AG. Apparatus for making slide-fastener coupling elements. 3,550,194, Cl. 18-1.
Frohock, Millard M., Jr.: *See—*
Edelson, Roger H., and Frohock, Millard M., Jr.,3,551,688.
Fryer, Rodney Ian: *See—*
Earley, James Valentine, Fryer, Rodney Ian, and Sternbach, Leo Henryk,3,551,415.
Fuji Shashin Film Kabushiki Kaisha: *See—*
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi, 3,551,155.
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi, 3,551,156.
Fuji Shashin Kabushiki Kaisha: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki, 3,551,181.
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi, to Asahi Kasei Kogyo Kabushiki Kaisha. Easily dyeable polyolefin composition. 3,551,401, Cl. 260-93.7
Fujisawa, Kiyoji: *See—*
Nishimura, Katsutoshi, Fujisawa, Kiyoji, Kozu, Isao, and Yamamoto, Kozo,3,551,691.
Fujita, Tadamasa: *See—*
Orita, Takao, Kosaka, Masahiro, and Fujita, Tadamasa,3,550,289.
Fujitsu Limited: *See—*
Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi, 3,551,854.
Fukuma, Noboru: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.
Fukushima, Hideaki: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio,3,551,462.
Fulks, James K., to Colonial Broach & Machine Company. Vertical broaching machine. 3,550,504, Cl. 90-63.
Fuller Company: *See—*
Fisher, Ervin, Russell, Ralph W., and Golembczyk, Raymond A., 3,550,359.
Fuller, George A., Jr.: *See—*
Mason, Ronald C., Burke, George F. C., and Fuller, George A., Jr.,3,550,932.
Fuller, H. B., Company: *See—*
Harp, John W., and Minarik, William L., 3,551,249.
Furlong, Dale A.: *See—*
Smith, Richard D., Furlong, Dale A., and Kinsey, Ronald D.,3,550,791.
Furukawa Electric Company Limited, The: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya, 3,550,269.
GAF Corporation: *See—*
Mackey, E. Scudder, Pechmann, Karl, and Leary, Robert E., 3,551,152.
Randall, David I., 3,551,528.
Gaines, Floyd C., Jr., to Pan American Hydroponics, Inc. Apparatus and method for injecting purified gas to plant roots. 3,550,319, Cl. 47-38.
Gal, George: *See—*
Sletzinger, Meyer, and Gal, George,3,551,476.
Galaxy Marketing & Manufacturing Company: *See—*
Ball, Charles F., 3,550,940.
Gale, Robert J., to Wilkinson Sword Limited. Apparatus for sharpening cutting edges electrolytically. 3,551,316, Cl. 204-206.
Galinke, Joachim, and Danielisz, Miklos, to Henkel & Cie. G.m.b.H. Auxiliary agents for the dispersion polymerization of vinyl esters. 3,551,366, Cl. 260-17.4
Gallagher, Richard J., Christensen, Richard J., and Dougall, Gordon M., to Foundry Allied Industries, Inc. Polyurethane mold articles. 3,550,673, Cl. 164-228.
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel, to Commissariat a l'Energie Atomique. Electron paramagnetic resonance spectrometer for nuclear reactors. 3,551,792, Cl. 324-0.5
Gallucci, Francis, to United States Steel Corporation. Guide-roll arrangement for continuous casting. 3,550,674, Cl. 164-282.
Gallucci, Francis, to United States Steel Corporation. Pinch roll assembly for a continuous-casting machine. 3,550,676, Cl. 164-282.
Galvanoni, Aldo B., Osmond, Charles W., and Farley, Lloyd M., to Phillips Petroleum Company. Label applying apparatus. 3,551,258, Cl. 156-556.

Gamberini, Goffredo. American Machine & Foundry Company Method and means for forming from and securing to thin wrapper webs a reinforced tear strip. 3,551,245, Cl. 156-260.
Gandelman, Morris D., to Jacoby-Bender, Inc. Extendible buckle for securing the ends of a bracelet and the like. 3,550,216, Cl. 24-71.
Ganske, Kingston E.: *See—*
Barnett, Don C., and Ganske, Kingston E.,3,550,985.
Ganz, Robert H., to Continental Can Company, Inc. Package forming machine. 3,550,754, Cl. 198-164.
Gar Wood Industries, Inc.: *See—*
Goodman, Daniel J., 3,551,581.
Garcia, Joaquin Morales, to La Espana Industrial, S.A. Isotactic polypropylene bandages. 3,551,557, Cl. 424-28.
Gardenhour, Eugene C., to Grove Manufacturing Company. Controls for outrigger assemblies of mobile cranes and the like. 3,550,506, Cl. 91-414.
Garlund, Zachariah G., and Duff, Clifford C., to General Motors Corporation. Photochromic plastic and method of making. 3,551,344, Cl. 252-300.
Garmhausen, Thomas A.: *See—*
Schroeer, Rudi M., Garmhausen, Thomas A., and Frank, Johann E.,3,550,434.
Garner, James T.: *See—*
Davidow, Martin A., and Garner, James T.,3,550,793.
Gasper, Alton J., and Taft, David D., to Ashland Oil, Inc. Arylated fatty acid-modified water-dispersible polyesters. 3,551,367, Cl. 260-20.
Gatzi, Karl: *See—*
Model, Ernst, and Gatzi, Karl,3,551,500.
Gau, Christian Henri Jose Marie, to Service d'Exploitation Industrielle des Tabacs et des Allumettes. Box, specifically for matches. 3,550,762, Cl. 206-20.
Gaudriot, Henri L., and Ryan, Le Roy J., Jr. Parts counter. 3,551,593, Cl. 178-6.
Gautherin, George A., to Lambda Electronics Corporation. Electronic ripple filter. 3,551,780, Cl. 321-10.
Gauthier, Edward, Larson, Robert A., and LaTendresse, Philip E., to Pettibone Corporation. Tree-trunk slasher. 3,550,653, Cl. 143-46.
Gawlik, Czeslaw Winceuty, and Simson, Dionizy, to Zaklady Remontu Maszyn Budowlanych Nr 3. Vibrohammer. 3,550,694, Cl. 173-131.
Gawlik, Paul A., Sr. Self-aligning taps. 3,550,173, Cl. 10-140.
Gazuit, Georges, to NRM Corporation, mesne. Tire vulcanizing apparatus. 3,550,196, Cl. 18-4.
Gee, Paul Y. C., and Andress, Harry J., Jr., to Mobil Oil Corporation. Metal salts of reaction product of alkenyl succinic anhydride with a polyamine and salicylaldehyde. 3,551,466, Cl. 260-429.
Geigy Chemical Corporation: *See—*
Baumann, Peter, and Zimmermann, Markus, 3,551,569.
Clarke, Frank H., Jr., 3,551,565.
Kuhnis, Hans Herbert, and Denss, Rolf, 3,551,431.
Model, Ernst, and Gatzi, Karl, 3,551,500.
Wilhelmi, Gerhard, 3,551,570.
Geigy, J. L., AG: *See—*
Kuster, Werner, 3,551,170.
Geipel, Hans, Forster, Eckehard, and Heinemann, Wilfried, to Huttenwerk Oberhausen AG. Fluidized bed for controlled heat treatment. 3,550,922, Cl. 266-3.
Geipel, Hans, Forster, Eckehard, Heinemann, Wilfried, and Baranowski, Kurt, to Huttenwerk Oberhausen AG. Fluidized bed. 3,550,920, Cl. 263-21.
Geisel, Berthold: *See—*
Renwanz, Gerhard, Credner, Karl, Geisel, Berthold, and Engelhard, Hermann,3,551,491.
Geisel, Herbert, to AEG-Elotherm GmbH. Method of maintaining a constant output voltage in static frequency changers. 3,551,632, Cl. 219-10.43
General American Transportation Corporation: *See—*
Remus, George A., and Glueckert, Albert J., 3,550,355.
General Dynamics Corporation: *See—*
Barnikel, Peter J., 3,550,413.
General Electric Company: *See—*
Burgess, James F., 3,551,227.
Carlson, Clarence A., 3,551,111.
De Remer, Harold A., 3,550,804.
Fapiano, Donald J., 3,550,279.
Herron, Edwin W., Hunter, Robert D., and Keefer, David E., 3,551,663.
Hobson, Robert R., 3,551,708.
Holcomb, Richard H., and McHale, John J., 3,551,722.
Joslyn, John A., and Lubitz, William J., 3,551,747.
Margolis, Joseph M., 3,551,180.
Omohundro, William A., 3,550,285.
Propst, Richard F., 3,551,587.
Rairden, John R., III, 3,550,265.
Roche, Jean A., 3,550,609.
Staats, James E., 3,551,735.
Thomas, George L., 3,551,171.
Weigel, Russell V., and Miklos, Zoltan W., 3,550,227.
Wright, Archibald N., and Watters, Clarence J., 3,551,202.
Ziegler, Edwin E., 3,550,405.
General Electric Information Systems Italia S.p.A.: *See—*
Bisone, Dario, and Tessitore, Armando, 3,550,745.
General Electrodynamics Corporation: *See—*
Salgo, Francis J., 3,551,051.
General Instrument Corporation: *See—*
Rossoff, Arthur L., 3,551,848.
General Mills, Inc.: *See—*
Peerman, Dwight E., Vertnik, Leonard R., and Rogier, Edgar R., 3,550,806.
Ross, Jerome J., 3,551,457.
General Motors Corporation: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T., 3,551,210.
Campbell, Duncan B., 3,551,779.
Corry, Thomas M., 3,551,685.
Cowen, Arthur, Davies, Lynn T., and Teno, Richard L., 3,551,301.
Dozois, James H., 3,551,002.
Garlund, Zachariah G., and Duff, Clifford C., 3,551,344.
Miller, Marshall W., 3,550,551.
Pollock, Samuel C., 3,550,950.
Ross, Phillip T., 3,551,206.
Smith, Earl D., 3,551,781.
Stier, Paul G., and Scaboo, Gust N., 3,550,681.
Thompson, James T., 3,551,232.
General Signal Corporation: *See—*
Byers, James O., Jr., 3,550,505.
General Systems, Inc.: *See—*
Zelina, William B., 3,551,845.
General Time Corporation: *See—*
Zimmerman, George V., and Carlisle, Neil K., 3,551,648.
Genova, Penka Jossifova: *See—*
Konstantinov, Mihail Spirov, Dragiev, Dragomir Svetoslavov, Genova, Penka Jossifova, and Tzenov, Petar Ivanov,3,550,475.
Gentry, Harvey F., to Phillips Petroleum Company. Charging spent acid catalyst in HF alkylation. 3,551,515, Cl. 260-683.48
Gentry, Tom D., and Holliday, Jerry D. Bridge scaffold. 3,550,723, Cl. 182-36.
Geologichesky Institut An USSR,: *See—*
Enenshtein, Boris Samoilovich, Ivanov, Alexei Petrovich, Boltalin, Anatoly Petrovich, and Iova, Georgy Mikhailovich, 3,551,798.
Georgia-Pacific Corporation: *See—*
Dunn, Luther L., Jr., and Magnusson, Norval, 3,551,309.
Geotel Inc.: *See—*
Sheets, Ronald E., 3,551,737.
Germscheid, Hans-Gunther, and Schiefer, Joachim, to Henkel & Cie GmbH. Process for the manufacture of crystallizable phosphonic acids. 3,551,480, Cl. 260-501.19
Gerry, William J., to Red Arrow Enterprises, Incorporated, mesne. Surface treating apparatus. 3,550,324, Cl. 51-109.
Gewiss, Lucien Victor, to Marc Wood Societe Anonyme Pour la Promotion des Exchanges Techniques Internaux. Method of making a sheet of material having asymmetrical folds. 3,550,423, Cl. 72-363.
Gey, Werner, Hofmann, Hansdieter, Bende, Friedrich, and Bonders, Peter, to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen. Cyclohexane oxidation products recovery. 3,551,482, Cl. 260-533.
Geyer, Wallace T., and Randolph, Robert W., to ACF Industries, Incorporated. Means to restrain lateral movement of lading within a railway box car. 3,550,538, Cl. 105-376.
Gialdi, Franco: *See—*
Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco,3,551,452.
Gialdi, Franco: *See—*
Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco, 3,551,452.
Gibson, Charles M., to Universal Harvester Co., Inc. Modular reel for harvesting machinery. 3,550,366, Cl. 56-226.
Gibson, John James: *See—*
Burns, Joseph R., and Gibson, John James,3,551,693.
Giddings & Lewis Inc.: *See—*
Wohlfeil, Jack A., 3,551,656.
Giebel, Joseph L.: *See—*
Temple, Robert, Temple, Ernest E., and Giebel, Joseph L.,3,550,274.
Gilbert, Dixie E., to Phillips Petroleum Company. Grooved tamping foot for sealing and stretching open end parison. 3,550,200, Cl. 18-5.
Gilbert, Richard Lapham, Jr., to American Cyanamid Company. Novel ruminant feed supplement. 3,551,162, Cl. 99-2.
Gilkeson, David C., and Buzawa, Michael J., to Minnesota Mining and Manufacturing Company. Objective lens for microfilm camera. 3,551,030, Cl. 350-196.
Gillette Company, The: *See—*
Grefe, Philipp G., Lewiecki, Edward M., and Shnitzler, Meyer J., 3,550,554.
Gundal, Peter H., and Albano, Silvio, 3,550,432.
Gillitzer, Max: *See—*
Tajbl, Franz, and Gillitzer, Max,3,551,741.
Giovanardi, Sandro: *See—*
Portolani, Augusto, Panciroli, Gino, and Giovanardi, Sandro,3,551,284.
Gires, Francois: *See—*
Tournois, Pierre, and Gires, Francois,3,551,034.
Girotra, Narindar N., and Wendler, Norman L., to Merck & Co., Inc. Total synthesis of zearalenone. 3,551,455, Cl. 260-343.2
Gits Bros. Mfg. Co.: *See—*
Warner, Dale J., 3,550,628.

Glanzetoff AG: *See—*
Rupp, Hans-Dieter, Meyer, Gerhard, and Magerlein, Helmut, 3,551,103.
Glanzstoff AG: *See—*
Jaeger, Friedrich, Low, Lothar, and Tzschoppe, Hans-Joachim, 3,550,913.
Glass, Marvin, & Associates: *See—*
Kramer, Norman, Meyer, Burton C., and Disko, Harry, 3,551,579.
Glaverbel S.A.: *See—*
Sacrez, Jules, Javaux, Gustave, Doquire, Gilbert, and Bodart, Marcel, 3,551,126.
Glenn, Thomas R., and Waters, Marion C. Method and plural miniature drum-type musical instruments producing percussion sounds and electronic reproduction system therefor with carrying case. 3,551,580, Cl. 84-1.02
Globe Universal Sciences, Inc.: *See—*
Meister, William J., 3,550,719.
Glowa, Michael, to Textron, Inc. Instrument for and method of optical work inspection. 3,551,061, Cl. 356-241.
Glucksman, Dov Z. Axial fan. 3,551,070, Cl. 416-91.
Glueckert, Albert J.: *See—*
Remus, George A., and Glueckert, Albert J.,3,550,355.
Gnad, Gerhard: *See—*
Dehnert, Johannes, and Gnad, Gerhard,3,551,407.
Gnage, Oliver W., to Eastman Kodak Company. Image transfer mechanism. 3,551,046, Cl. 355-4.
Godding, Ronald George, to British East Iron Research Association, The. Granular material measuring apparatus having a compression and moisture content sensing cell. 3,551,805, Cl. 324-58.5
Godsay, Madhu P.: *See—*
MacDonald, Donald M., and Godsay, Madhu P.,3,551,410.
Goetz, Alfred K.: *See—*
Husby, Donald E., and Goetz, Alfred K.,3,551,667.
Goetz, Fred E., Druzba, Perry R., Jr., Hause, James R., and Seeley, Gerard, to International Business Machines Corporation. Apparatus for providing a finished surface on workpieces. 3,550,325, Cl. 51-156.
Goldberg, Newton N.: *See—*
Elbling, Irving N., and Goldberg, Newton N.,3,551,191.
Goldman, Mikhail Grigorievich: *See—*
Shapiro, Arkady Matveevich, Sisoyan, Ripsime Grigorievna, Alania, Anzor Markozovich, Shnaider, Teodor Maiseevich, and Goldman, Mikhail Grigorievich,3,551,790.
Goldschmidt, Robert E.: *See—*
Powers, Don M., Litwiller, Robert J., and Goldschmidt, Robert E.,3,551,665.
Goldsmith, Frank Edward, to De Laval Separator Company, The, mesne. Teat cup. 3,550,557, Cl. 119-14.36
Golembczyk, Raymond A.: *See—*
Fisher, Ervin, Russell, Ralph W., and Golembczyk, Raymond A.,3,550,359.
Gombault, Jacobus Fredericus, to Hadewe Eerste Nederlandse Duplicatarfabrieken N.V. Device for transporting envelopes and the like. 3,550,351, Cl. 53-187.
Good, George R. Thermal relay and limit switch. 3,551,868, Cl. 337-96.
Goodliffe, Timothy A. R.: *See—*
Tomaszewski, Carlos A., and Goodliffe, Timothy A. R.,3,551,904.
Goodman, Barnard P.: *See—*
Wood, Fenton M., Goodman, Barnard P., and Proctor, Noel B.,3,551,801.
Goodman, Daniel J., to Gar Wood Industries, Inc. Water cooled electric cable. 3,551,581, Cl. 174-15.
Goodrich, B. F., Company, The: *See—*
Bartley, Donald R., and Sidles, James, 3,550,667.
Le Blanc, Walter J., and Main, Ralph R., 3,550,740.
Siebert, Alan R., 3,551,471.
Siebert, Alan R., 3,551,472.
Goodrich, Ross H., and Belkovicz, John A. Cutter bar assembly. 3,550,962, Cl. 299-82.
Goodyear Tire & Rubber Company, The: *See—*
Clark, James K., Watters, Larry H., and Ogura, Kenji, 3,551,539.
Gorgen, Kurt: *See—*
Rosenkranz, Dieter, and Gorgen, Kurt,3,550,231.
Gosnell, Thomas F.: *See—*
Pelletier, Fernand F., and Gosnell, Thomas F.,3,550,459.
Gosper, David L., and Moffitt, Myron L., to Mobil Oil Corporation. Method for the production of biaxially oriented polypropylene film. 3,551,546, Cl. 264-178.
Gotley, Paul, to Electrical Remote Control Company Limited. Soldering iron. 3,551,639, Cl. 219-241.
Goto, Eizo, to Tokyo Shibaura Electric Co., Ltd. Method for manufacturing a heat insulating vessel. 3,550,251, Cl. 29-455.
Gouilloud, Michel Marie Albert, and Levy, Andre, to Societe de Prospection Electrique Schlumberger, S.A. High frequency electromagnetic well logging methods and apparatus. 3,551,797, Cl. 324-6.
Gourdine, Meredith C., to Gourdine Systems, Incorporated. Electrogasdynamic generating systems. 3,551,710, Cl. 310-10.
Gourdine Systems, Incorporated: *See—*
Gourdine, Meredith C., 3,551,710.
Grace, W. R., & Co.: *See—*
Decker, Erhard K.H., 3,551,362.
Hart, Robert L., 3,550,838.
Pellicciari, Giorgio Lodovico, and Frishinghelli, Ugo Lodovico, 3,551,540.
Graeber, Ewald, to Maschinenfabrik FAHR AG. Control system for the direction of movement of agricultural machines. 3,550,362, Cl. 56-25.
Graeme, Jerald G., to Burr-Brown Research Corporation. Transistor base current compensation system. 3,551,832, Cl. 330-17.
Graham, Marvin M., and Haskins, Lauren D., to Robertshaw Controls Company. Check valve with restricted bypass flow. 3,550,616, Cl. 137-513.7
Gram, Erwin, Kastl, Peter, and Schretzmayer, Josef, to Ospag, Osterreichische Sanitar-Kermik- und Porzellan-Industrie Aktiengesellschaft. Apparatus for molding ceramic articles. 3,550,224, Cl. 25-29.
Grammont, Paul D., and Werotte, Louis E., to Diamond Shamrock Corporation. Macroporous ion-exchange resins incorporating a drying oil. 3,551,358, Cl. 260-2.2
Grancon, Michel, to Regie Nationale des Usines Renault and. Vehicle suspension. 3,550,992, Cl. 280-6.
Grantham, Leroy F., to North American Rockwell Corporation. Carbon oxide regenerant for sulfur production. 3,551,108, Cl. 23-224.
Grasselli, Robert K.: *See—*
Shaw, Wilfrid G., Grasselli, Robert K., and Hardman, Harley F.,3,551,470.
Grasshoff, Hans-Wilhelm: *See—*
Severing, Herbert, Radtke, Dieter, Grasshoff, Hans-Wilhelm, and Kress, Heinz,3,551,216.
Gray, Charles L., Jr., and Ramsey, Robert B., Jr., to Du Pont de Nemours, E. I., and Company. Solvent recovery process and apparatus. 3,551,189, Cl. 177-102.
Gray, Earl H., to Phillips Petroleum Company. Temperature control in electrochemical conversion processes. 3,551,307, Cl. 204-59.
Gray, George William, to RCA Corporation. Oscillating voltage range indicator. 3,551,696, Cl. 307-235.
Gray, James R. Vapor dispenser means. 3,550,853, Cl. 239-44.
Gray, Lew T., to Phillips Petroleum Company. Foam mold apparatus and recovery of scrap material. 3,550,212, Cl. 18-39.
Greacen, John A., to Carrier Corporation. Absorption refrigeration system having compensated dilution control. 3,550,391, Cl. 62-103.
Great Lakes Carbon Corporation: *See—*
Watson, Blake F., Jr., and Stewart, Nally C., 3,550,270.
Green, Bernard J., and Green, Milton J. Wheel balancing method. 3,550,455, Cl. 73-483.
Green, Milton J.: *See—*
Green, Bernard J., and Green, Milton J.,3,550,455.
Green, William Sidney: *See—*
Chapman, Duane K., Green, William Sidney, and Newman, John W.,3,551,508.
Greenan, Richard E., to Uthe Technology, Inc. Solid state line voltage switch. 3,551,700, Cl. 307-252.
Greene, Hugh W.: *See—*
Holder, James D., and Greene, Hugh W.,3,551,796.
Greenewald, Herbert, Jr., to North American Rockwell Corporation. Mold manufacturing method. 3,550,670, Cl. 164-37.
Greenspan, Harold J., and Ecker, Louis F., to North American Rockwell Corporation. Method and means for solid state joinder. 3,550,254, Cl. 29-493.
Greeson, James C., Jr., to International Business Machines Corporation. Differential amplifier circuit adapted for monolithic fabrication. 3,551,836, Cl. 330-30.
Grefe, Philipp G., Lewiecki, Edward M., and Shnitzler, Meyer J., to Gillette Company, The. Holder for razor blades. 3,550,554, Cl. 118-503.
Gregor, Vaughn. Automatic storage system for non-free flowing products. 3,550,752, Cl. 198-106.
Greizerstein, Walter: *See—*
Moser, Vincent J., Greizerstein, Walter, and Kottke, Roger H.,3,551,179.
Greth, Lewis E.: *See—*
Hesterman, Dennis, and Greth, Lewis E.,3,550,602.
Grey, David S., to Bausch & Lomb Incorporated. High magnification high resolution projection lens. 3,551,031, Cl. 350-214.
Griffey, Donald E., to Motorola, Inc. Arc trigger squelch for a television receiver. 3,551,821, Cl. 328-8.
Griffin, Ralph Gillespie. Golf meter. 3,550,450, Cl. 73-380.
Griffith, Lloyd A. Bezel for panel openings and retainer therefor. 3,551,630, Cl. 200-168.
Griffo, Joseph B., to Rotron Incorporated. Fluid meter field checking method and apparatus. 3,550,426, Cl. 73-3.
Griswold, Norman R. Combination boat dolly and reinforcing means. 3,551,000, Cl. 280-47.32
Grosheim, Gene Edward: *See—*
Heeb, Albert Joseph, and Grosheim, Gene Edward,3,551,241.
Grosko, John A., to United States Steel Corporation. Mechanism for controlling flow of liquid to a vacuum-treating vessel. 3,550,924, Cl. 266-34.
Grossimon, Herbert P., McDonough, James O., and Moore, Gerald T., to Concord Control Inc. Phase comparator circuit. 3,551,808, Cl. 324-83.
Grosso, Frank A.: *See—*
Benbenek, Waldyn J., and Grosso, Frank A.,3,550,493.
Grosso, Patrick F., Rutherford, Robert E., Jr., and Sargent, Donald E., to Columbia Broadcasting System, Inc. Process for coating a metal. 3,551,306, Cl. 204-56.

Grove Manufacturing Company: *See—*
Gardenhour, Eugene C., 3,550,506.
Growth International Industries Corporation: *See—*
Yates, George, Jr., 3,550,807.
Gruber, William J. Cap construction. 3,550,160, Cl. 2-197.
Grulke, Carl, to Union Carbide Corporation. Anhydrous battery utilizing polymeric electrolyte. 3,551,211, Cl. 136-153.
Grundig E.M.V. Elektro-Mechanische Versuchs- Anstalt INH.: Max Grundig: *See—*
Probst, Georg, and Herterich, Walter, 3,550,983.
Gruzdev, Valentin Anatolievich, Bakeev, Alexandr Alexeevich, and Skvortsov, Boris Vasilievich. Electrodeless high-frequency light source. 3,551,742, Cl. 315-248.
Guarnaccio, Anthony J.: *See—*
Symon, Ted, and Guarnaccio, Anthony J.,3,551,417.
Guentner, Robert L., to Westinghouse Electric Corporation. Flexible conductor horizontal loop supporting apparatus. 3,551,612, Cl. 191-12.
Guerreiro, Antone M., to Northrop Corporation. Tempering process for polyurethane rubber material. 3,551,536, Cl. 264-28.
Guglielmetti, Leonard: *See—*
Duennenberger, Max, and Guglielmetti, Leonard,3,551,443.
Guilden, Paul: *See—*
Kemenczky, Miklos, 3,551,709.
Guile, Donald L., to Corhart Refractories Company. Ceramic refractory. 3,551,172, Cl. 106-59.
Guiles, Jeremy S. Foldable desk. 3,550,895, Cl. 248-459.
Guillerd, Jean, and Travers, Fernand, to Compagnie des Eaux et de l'Ozone. Tubular ozonizer. 3,551,321, Cl. 204-321.
Guillot, Jean Claude, Poignant, Pierre, and de Lesseaux, Jacques de Bazelaire, to Produits Chimiques Pechiney-Saint-Gobain. Thiazole derivatives. 3,551,442, Cl. 260-306.8
Gulbins, Klaus: *See—*
Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm,3,551,525.
Gulf & Western Industries, Inc.: *See—*
Levine, Martin E., 3,551,702.
Gulf Energy & Environmental Systems, Inc.: *See—*
Miller, Park H., Jr., and Whittemore, William L., 3,551,675.
Gulf Oil Canada Limited: *See—*
Lanthier, Raymond, 3,551,396.
Gulf Oil Corporation: *See—*
Doty, James Franklin, Jr., 3,550,717.
Gulf Research & Development Company: *See—*
Carr, Norman L., Hamilton, Harry A., and Stewart, Meredith M., 3,551,352.
Ellis, Alan F., 3,551,465.
Mator, Richard T., Petrocelli, James A., and Puzniak, Thomas J., 3,550,428.
Puzniak, Thomas J., 3,550,390.
Thayer, Helen I., 3,551,461.
Gulla, Michael, to Shipley Company, Inc. Surface finished aluminum alloys. 3,551,122, Cl. 29-197.5
Gundal, Peter H., and Albano, Silvio, to Gillette Company, The. Testing apparatus. 3,550,432, Cl. 73-41.2
Gundlach, Robert W., to Xerox Corporation. Induction imaging system. 3,551,146, Cl. 96-1.
Gunst, Ole: *See—*
Allen, Melvin K., Gunst, Ole, and Lambert, Arthur H.,3,550,238.
Gurevich, Samuil Mordkovich, to Institut Elektrosvarki Im E.O. Patona. Flux for welding titanium and its alloys. 3,551,218, Cl. 148-26.
Guseman, James R., and Rohaus, Donald E., to United States Steel Corporation. Check plate for briquetting apparatus. 3,550,205, Cl. 18-21.
Haadsma, Raymond J. Bait sack forming apparatus. 3,550,353, Cl. 53-390.
Hachtel, Wilhelm. Pleat forming device. 3,550,184, Cl. 16-87.2
Hackmann, Larry G.: *See—*
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A.,3,550,691.
Hacoba-Textilmaschinen G.m.b.H., Firma: *See—*
Rosenkranz, Dieter, and Gorgen, Kurt, 3,550,231.
Hadewe Eerste Nederlandse Duplicatarfabrieken N.V.: *See—*
Gombault, Jacobus Fredericus, 3,550,351.
Haggai, Theodore F., to Hughes Aircraft Company. Phase lock receiver with a constant slope network. 3,551,829, Cl. 329-122.
Hahn, Alexander. Vehicle lifting jacks. 3,550,907, Cl. 254-1.
Hakki, Basil W., to Bell Telephone Laboratories, Incorporated. Magnesium zinc telluride and electroluminescent device. 3,551,763, Cl. 317-237.
Halasz, Istvan, and Kroncisen, Armin. Chromatograph injection membrane mount. 3,550,452, Cl. 73-422.
Halasz, Peter Robert, and King, George Edward, III, to Becton, Dickinson and Company. Tubing holder. 3,550,619, Cl. 137-595.
Halcon International, Inc.: *See—*
Landau, Ralph, 3,551,387.
Halewijn, Harry J., to Synergistics, Inc., mesne. Photographic film-reel container. 3,550,767, Cl. 206-52.
Haley Corporation: *See—*
Wolf, Lee A., 3,550,183.
Halibrand, Henry T. Speed synchronizing jaw clutch. 3,550,738, Cl. 192-53.
Halkovich, Leo J., and Janic, Stephen M., to Textron Inc. Trench ducts. 3,550,336, Cl. 52-127.
Hall, Donald H., and Nunlist, Erwin J., to Sybron Corporation. Wear resistant articles and facings therefor. 3,550,989, Cl. 277-96.
Hallam, Sleigh & Cheston Limited: *See—*
Neale, Erick W., 3,550,953.
Hallewell, Raymond T. Toolmasters Limited. 3,551,125, Cl. 51-293.
Halliburton Company: *See—*
Knox, John A., 3,550,686.
Halliday, Kenneth C., Jr., to United States of America, Army. Hypergolic rocket fuels and method of controlling combustion of same. 3,550,380, Cl. 60-215.
Halling, Horace Percival, to Avica Equipment Limited. Pipe or duct joints. 3,551,010, Cl. 285-226.
Halls, Lawrence M., to Rand, Sperry, Corporation. Disengageable belt and sheave drive with belt supports. 3,550,463, Cl. 74-226.
Halls, Lawrence M., and Cyr, Joseph H., to Sperry Rand Corporation. Harvester. 3,550,363, Cl. 56-23.
Ham, John E., to Jackson, Byron, Inc. Multi-directional control. 3,550,466, Cl. 74-471.
Hamabe, Takesi: *See—*
Suzuki, Takashi, and Hamabe, Takesi,3,551,303.
Hamada, Arinobu: *See—*
Marukawa, Gohei, Oikawa, Takashi, and Hamada, Arinobu,3,551,143.
Hamann, Karl: *See—*
Nehring, Rudolf, Heidel, Klaus, and Hamann, Karl,3,551,520.
Hamblin, Robert J. J., to Universal Oil Products Company. Black oil conversion for maximum gasoline production. 3,551,323, Cl. 208-58.
Hamel, Edward E.: *See—*
Weyland, Herman H., and Hamel, Edward E.,3,551,469.
Hamilton Company, Inc.: *See—*
Mc Kinney, Carlton B., 3,551,273.
Hamilton Cosco, Inc.: *See—*
Brown, Jerry A., and Hume, Clayton R., 3,550,896.
Hamilton, Harry A.: *See—*
Carr, Norman L., Hamilton, Harry A., and Stewart, Meredith M.,3,551,352.
Hamilton, Ralph A., to Lockheed, Aircraft Corporation. Laser beam alignment apparatus. 3,551,057, Cl. 356-172.
Hamilton, William I., to Allis-Chalmers Manufacturing Company. Fuel line purifier. 3,550,776, Cl. 210-94.
Hammarlund, Per Erik, and Fredrikson, Bengt, to Allmanna Svenska Elektriska Aktiebolaget. Channel type furnace for vacuum. 3,551,578, Cl. 13-29.
Hanaway, Paul R.: *See—*
Pennell, Kit E., and Hanaway, Paul R.,3,550,742.
Haner, Lambert, and Dolsen, Philip C., to Avtron Manufacturing, Inc. Digital efflux ratio controller. 3,551,752, Cl. 317-138.
Hanke, Helmut, to Putsch, H., & Company. Cutting devices especially for sugar beet and other tuberous produce. 3,550,659, Cl. 146-124.
Hann, Ernst Wilhelm: *See—*
Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm,3,551,525.
Hannes Marker: *See—*
Marker, Hannes, and Jungkind, Roland, 3,550,996.
Hansen, David O., and Roy, Neal L., to TRW Inc. Electronically tunable resonant circuits. 3,551,846, Cl. 331-117.
Hansen, Gary L. Method of installing vinyl wall covering and removing smeared adhesive from the front surfaces thereof. 3,551,230, Cl. 156-71.
Hansen, Guenter: *See—*
Baumann, Hans, and Hansen, Guenter,3,551,439.
Hansson, Curt: *See—*
Torok, Vilmos, and Hansson, Curt,3,551,772.
Harding, Richard E., Morrison, Ralph A., Peterson, Raymond L., and Smalley, Edwin P., to USM Corporation. Fastener manufacture. 3,550,172, Cl. 10-2.
Hardman, Harley F.: *See—*
Shaw, Wilfrid G., Grasselli, Robert K., and Hardman, Harley F.,3,551,470.
Hardtmann, Goetz E., and Ott, Hans, to Sandoz-Warner, Inc. 3-(2-Aminophenyl)-oxo-isoindole-2- acetic acid derivatives. 3,551,445, Cl. 260-325.
Harer, Delmar C., to Sperry Rand Corporation. Rotary cutting device for a harvesting machine. 3,550,367, Cl. 56-315.
Harlan, Martin L.: *See—*
Krause, Victor W., and Harlan, Martin L.,3,550,660.
Harmon, Paul V., to Precision Parts Corporation. Demand-limiting electrical heating system. 3,551,646, Cl. 219-485.
Harp, John W., and Minarik, William L., to Fuller, H. B., Company. Method of bonding oil-filmed surfaces with a solvent-free epoxy resin. 3,551,249, Cl. 156-330.
Harper-Wyman Company: *See—*
Michaels, Leonard H., 3,551,083.
Harpster, Joseph W. C., to Ohio State University, The. Image conversion by a semiconductor junction array. 3,551,731, Cl. 315-12.
Harrick, Nicolas J., to U.S. Philips Corporation, mesne. Thin film laser employing an optical cavity. 3,551,841, Cl. 331-94.5
Harris, Joseph P.: *See—*
Albrecht, Leonard N., and Harris, Joseph P.,3,550,540.
Harrison, Kenneth Arthur: *See—*
Rubery, Alfred Moffatt, and Harrison, Kenneth Arthur,3,550,233.
Harrison, McGregor & Guest Limited: *See—*
Schofield, Fred, 3,550,795.
Hart, Kelly R. Motor grader adjustment link. 3,550,692, Cl. 172-793.

Hart, Robert L., to Grace, W. R., & Co. Merchanidizing display suspension and bag assembly. 3,550,838, Cl. 229-54.
Hartfelder, Gunther: *See—*
Ruschig, Heinrich, Schmitt, Karl, Lebenich, Hans, and Hartfelder, Gunther,3,551,493.
Hartman, Heinrich: *See—*
Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm,3,551,525.
Hartter, Donald R., to Du Pont de Nemours, E. I., and Company. Preparation of diaminoamaleonitrile by the reduction of diiminosuccinonitrile. 3,551,473, Cl. 260-465.5
Hartwell, Ronald Groff, to AMP Incorporated. Electrical connector having improved locking means. 3,551,880, Cl. 339-89.
Harvey, Donald M., to Eastman Kodak Company. Adapter for igniting electrically flash lamps. 3,550,514, Cl. 95-11.
Harvey, Richard F., to Metaltronics. Steelmaking practice. 3,550,671, Cl. 164-52.
Hasegawa, Hikaru, to Hitachi, Ltd. Push-button type fluid logic element for fluid control indicating or recording system. 3,550,620, Cl. 137-596.15
Haskins, Lauren D.: *See—*
Graham, Marvin M., and Haskins, Lauren D.,3,550,616.
Hatcher, John B. Apertured board and marker game apparatus. 3,550,943, Cl. 273-131.
Hauer, Werner, to International Telephone and Telegraph Corporation. Conveyor arrangement. 3,550,748, Cl. 198-38.
Haug, Heinz, to Binder Magnete KG,. Encapsulated electromagnetic actuator with the armature thereof being completely enclosed. 3,551,862, Cl. 335-260.
Haugk, George, to Bell Telephone Laboratories, Incorporated. Switching system scanning arrangement. 3,551,603, Cl. 179-18.
Hauni-Werke Korber & Co. KG: *See—*
Von Papen, Udo, 3,550,759.
Hause, James R.: *See—*
Goetz, Fred E., Druzba, Perry R., Jr., Hause, James R., and Seeley, Gerard,3,550,325.
Hauser, Hugo, to Huntington Mechanical Laboratories, Inc. Valve and valve closure mechanism. 3,550,903, Cl. 251-158.
Hauser, Raimund: *See—*
Pammer, Gottfried, 3,551,037.
Hauska, Miklos, Schutz, Mihaly, and Kontra, Ferenc, to Chemolimpex Magyar Vegyiaru Kulkereskedelmi Vallalat. Water-dispersible aluminum pastes and powders, and process for making. 3,551,174, Cl. 106-314.
Hawkins, Richard C.: *See—*
Pollitzer, Ernest L., Donaldson, George R., and Hawkins, Richard C.,3,551,510.
Hawthorne, John O., and Mihelic, Edward L., to United States Steel Corporation. 6,7-Dihydro-5H-dibenz[c,e]azepin-7-ones. 3,551,414, Cl. 260-239.3
Hawthorne, Nathaniel F. Multitiered ball game board with paddles. 3,550,942, Cl. 273-119.
Hayakawa, Shigeru: *See—*
Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru,3,551,644.
Hayami, Tadao: *See—*
Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo,3,551,040.
Hayes-Dana Limited: *See—*
Trojanowski, Theodore S., and Wills, George P., 3,551,013.
Haynes, Stewart, Jr., and Saadeh, Fuad T., to Texaco Inc. Apparatus for generating wet steam having substantially constant quality. 3,550,849, Cl. 236-20.
Hcansen, Holger V., Meltzer, Robert I., and Merger, Franz, to Warner-Lambert Pharmaceutical Company. Esters of hexahydro-9,10-dialkoxy-2H- benzo[α] quinolizine-1-propionic acid. 3,551,430, Cl. 260-287.
Hearne, Hildagarde M.: *See—*
Hearne, Willis H., and Hearne, Hildagarde M.,3,550,636.
Hearne, Willis H., and Hearne, Hildagarde M. Plastic ball, bolt and wing set. 3,550,636, Cl. 138-89.
Hebard, Hugh, to Aladdin Industries Limited. Liquid fuel burning heaters. 3,551,086, Cl. 431-307.
Hechtman, John F., and Ames, Harold R., to Kimberly-Clark Corporation. Disposable impressing sheets. 3,551,177, Cl. 117-11.
Hecon Corporation: *See—*
Faude, Rudolf, 3,551,652.
Hedstrom, Bengt: *See—*
Jernqvist, Ake, and Hedstrom, Bengt,3,551,330.
Hedstrom Union Company: *See—*
Boudreau, Alban M., and Korol, Stanley F., 3,550,998.
Heeb, Albert Joseph, and Groshcim, Gene Edward, to Formica Corporation. Process for producing a decorative laminate comprising transferring a film of a transparent noble thermosetting resin to a decorative sheet from a flexible release transfer sheet and removing the flexible release sheet after the heat and pressure consolidation step. 3,551,241, Cl. 156-230.
Hegglin, Emil Alois. Oil cooling system for internal combustion engines. 3,550,725, Cl. 184-104.
Heidel, Klaus: *See—*
Nehring, Rudolf, Heidel, Klaus, and Hamann, Karl,3,551,520.
Heidelberger Druckmaschinen Aktiengesellschaft: *See—*
Buttner, Artur, 3,550,530.
Heilmeier, George H., to RCA Corporation. Control of optical properties of materials with liquid crystals. 3,551,026, Cl. 350-150.
Hein, Georg, and Rottmann, Gernot, to Vaillant, Joh., KG. Bunsen burner, in particular for gas-heated once-through flow water heaters. 3,550,862, Cl. 239-557.
Heinemann, Wilfried: *See—*
Geipel, Hans, Forster, Eckehard, Heinemann, Wilfried, and Baranowski, Kurt,3,550,920.
Geipel, Hans, Forster, Eckehard, and Heinemann, Wilfried,3,550,922.
Heitman, Oliver M. Fish bait holder and method. 3,550,306, Cl. 43-42.37
Heller, Harold: *See—*
Corte, Herbert, and Heller, Harold,3,551,357.
Hellewell, Alonzo Leroy. Method and apparatus for synthesizing molten materials. 3,551,114, Cl. 23-266.
Helton, Eugene L., to Caterpillar Tractor Company. Loader bucket cutting edge. 3,550,293, Cl. 37-141.
Helvie, Gene B.: *See—*
Satkin, David M., Helvie, Gene B., and Tillotson, Charles J.,3,550,338.
Henc, Edward V., and Devlin, Edmund F. X., said Devlin assor. to said Henc. Ink roll mounting mechanism for printer-slotters. 3,550,529, Cl. 101-352.
Henderson, William E., and Ross, Camilla B., to Union Carbide Corporation. Freezing-mixing process for making homogenous collagen mixtures. 3,551,535, Cl. 264-28.
Hendry, Robert B. Cutting device for wire insulation. 3,550,272, Cl. 30-90.1
Henkel & Cie G.m.b.H.: *See—*
Baum, Willi, and Sommer, Jurgen, 3,551,166.
Galinke, Joachim, and Danielisz, Miklos, 3,551,366.
Germscheid, Hans-Gunther, and Schiefer, Joachim, 3,551,480.
Henkler, Herbert: *See—*
Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg,3,551,489.
Henning, Hermann: *See—*
Menell, Hans, and Henning, Hermann,3,550,666.
Hennis, Henry E., to Dow Chemical Company, The. Methanodioxocins and a process for making them. 3,551,424, Cl. 260-251.
Henry-Biabaud, Edmond, to Societe Anonyme Andre Citroen. Antiroll devices for automotive vehicles. 3,550,994, Cl. 280-6.11
Henson, Glen E. Exercising device for isometric and isotonic exercises. 3,550,449, Cl. 73-379.
Henzel, Russell A., to Honeywell Inc. Validity apparatus for computer based process control equipment. 3,551,885, Cl. 340-146.1
Herbst, Walter A., to Esso Research and Engineering Company. Fuel cell. 3,551,207, Cl. 136-86.
Herbstman, Sheldon: *See—*
Cole, Edward L., Wilson, Raymond F., and Herbstman, Sheldon,3,551,328.
Hercules Incorporated: *See—*
Thomas, Walter W., 3,551,521.
Herczog, Andrew, and Humphries, Richard Shenk, to Corning Glass Works. Electrical contact terminations for semiconductors and method of making the same. 3,551,196, Cl. 117-212.
Herger, Horst: *See—*
Rethmeier, Gerhard, and Herger, Horst,3,551,660.
Herlon Industries, Inc.: *See—*
Pettit, Edgar E., 3,550,859.
Hermes, Heinz: *See—*
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert,3,551,893.
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter, to Licenta Patent Verwaltungs-G.m.b.H., and Entwicklungsring Sud GmbH. Method and apparatus for simulating variables. 3,551,891, Cl. 340-172.5
Hermetic Coil Co., Inc.: *See—*
Davis, Dhu Aine, 3,551,711.
Herold, Werner, to Fichtel & Sachs Aktiengesellschaft. Method of assembling a wheel having vanes. 3,550,234, Cl. 29-156.8
Herro, Richard E., to Dearborn Rubber Corporation. Cores for casting concrete beams. 3,550,897, Cl. 249-178.
Herron, Edwin W., Hunter, Robert D., and Keefer, David E., to General Electric Company. Multiplication apparatus in a data processing system with a variable length multiplier. 3,551,663, Cl. 235-159.
Herron, Rand E., Larrabee, Edward W., and Johnson, Carl V., to Technicon Corporation. Adjustable atomizer flame photometer. 3,550,858, Cl. 239-338.
Herschler, Robert John, to Crown Zellerbach Corporation. Enhancing tissue penetration of physiologically active agents with DMSO. 3,551,554, Cl. 424-7.
Herterich, Walter: *See—*
Probst, Georg, and Herterich, Walter,3,550,983.
Herzog, Howard Allan, and Packard, William, to Bendix Corporation, The. Flexural support structure. 3,550,395, Cl. 64-15.
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul, to Schloemann Aktiengesellschaft. Continuous casting plant having adjustable strand guide means. 3,550,675, Cl. 164-282.
Hesterman, Dennis, and Greth, Lewis E., to Dynamic Products Development, Inc. Walking aid. 3,550,602, Cl. 135-45.
Hettick, George R., and Little, Donald M., to Phillips Petroleum Company. Recovery of ammonia and sulfur from waste streams. 3,551,102, Cl. 23-193.

Hetzel, Marvin E.: *See—*
Cervenka, Joseph J., and Hetzel, Marvin E.,3,550,250.
Hewitt, Robert G., to Motion Media, Inc. System for unattended projection of closed loop film. 3,551,039, Cl. 352-126.
Hewlett Packard Company: *See—*
Venzke, Stephen B., 3,551,847.
Hewlett-Packard Company: *See—*
Lightner, Gene E., and Muhlestein, Howard B., 3,550,453.
H. Giken Kogyo Kabushiki Kaisha: *See—*
Nakamura, Yukiyasu, 3,550,330.
Hibl, Joseph J., Ferguson, Paul E., and Eckels, Vernon M., to Beech Aircraft Corporation. Adjustable back chair and locking mechanism. 3,550,954, Cl. 297-374.
Hicks, Joel T., to Phillips Petroleum Company. Multiple cutting apparatus for elongated articles. 3,550,490, Cl. 82-48.
Hicks, Raymond John, to Compact Orbital Gears Limited. Winches. 3,550,787, Cl. 212-125.
Higgins, Paul T.: *See—*
Ahern, Charles J., Higgins, Paul T., and Kiwak, Robert S.,3,550,605.
Hikita, Masatoshi: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.
Hilbert, Francis H., and Ohn, Tin, to Motorola, Inc. Circuit having a reduced number of external connections. 3,551,833, Cl. 330-22.
Hill, Ernest C.: *See—*
Lowd, Judson D., and Hill, Ernest C.,3,550,385.
Himmelsbach, Paul, and Thomas, Otto, to Schneider, Jos., & Co. Mechanism for differentially displacing two optical components. 3,550,518, Cl. 95-45.
Hirano, Isao: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki,3,551,181.
Hirs, Gene, and Wykoff, Richard H., to Hydromation Engineering Company. Method of and apparatus for filtering. 3,550,774, Cl. 210-67.
Hirst, Harry: *See—*
Pickles, Kathleen M., Hirst, Harry, and French, William G.,3,550,266.
Histed, William N.: *See—*
Catherwood, Herbert C., 3,551,260.
Histed, William N. Heat sealing and cutting member for heat sealing overlying films of material. 3,551,261, Cl. 156-583.
Hitachi, Ltd.: *See—*
Hasegawa, Hikaru, 3,550,620.
Iwasaki, Toshikatsu, and Shimotakahara, Tsumoru, 3,551,017.
Kitano, Yutaka, Sato, Hiroshi, and Ishida, Isao, 3,550,973.
Naitoo, Takio, 3,551,762.
Takeuchi, Hisasuke, Toda, Tadatoshi, and Takasuna, Tsuneyoshi, 3,551,622.
Tokuyama, Takashi, Nishimatsu, Shigeru, Uehara, Keijiro, and Mori, Takaaki, 3,551,760.
Yamazaki, Seishi, and Kaneda, Masao, 3,551,834.
Hitchings, Jay R.: *See—*
Dremann, Charles E., and Hitchings, Jay R.,3,551,184.
Hjerten, Vilhelm Einar Stellan, to IRD Incentive Research & Development AB. Leakage-free sealing. 3,550,970, Cl. 308-36.1
Hlinka, Charles F., to Tenex Corporation. Method of continuously forming an elongated cleated runner of plastic material. 3,551,544, Cl. 264-175.
Hlista, Joseph F., to Hughes Aircraft Company. Method for providing holes in glass. 3,551,176, Cl. 117-5.5
Hobhouse, Henry. Drilling condition responsive drive control. 3,550,697, Cl. 175-26.
Hobson, Robert R., to General Electric Company. Heat shielded thermionic converter. 3,551,708, Cl. 310-4.
Hocutt, William R.: *See—*
Berkau, Eugene E., and Hocutt, William R.,3,551,386.
Hodder, Richard L. Pelvic opening enlarger. 3,550,596, Cl. 128-361.
Hodge, George R., and Patsis, Angelos Vlasus, to Du Pont de Nemours, E. I., and Company. Glossy microporous sheet material. 3,551,830, Cl. 117-76.
Hodogaya Kagaku Kogyo Kabushiki Kaisha: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki, 3,551,181.
Hoehn, Harvey Herbert: *See—*
Cescon, Lawrence Anthony, and Hoehn, Harvey Herbert,3,551,331.
Hoesch Aktiengesellschaft Hauptverwaltung: *See—*
Severing, Herbert, Radtke, Dieter, Grasshoff, Hans-Wilhelm, and Kress, Heinz, 3,551,216.
Hoffait, Alfred: *See—*
Delbouille, Andre, and Hoffait, Alfred,3,551,403.
Hoffman, Ernest G., to Veeder Industries, Inc. Weighing scale readout device. 3,550,705, Cl. 177-210.
Hoffman, Gary R., to Bendix Corporation, The. Miniaturized circuit device. 3,551,856, Cl. 333-35.
Hoffman, Morris. Vacuum film holder. 3,551,048, Cl. 355-73.
Hoffman, Robert C.: *See—*
Schnakenberg, Robert H., and Hoffman, Robert C.,3,550,845.
Hoffman-La Roche Inc.: *See—*
Klaui, Heinrich, and Rehm, Walter, 3,551,564.
Hoffmann, Gerhart: *See—*
Hulsmann, Hans-Leo, Hoffmann, Gerhart, Renckhoff, Gustav, and Pastura, Albino,3,551,481.
Hoffmann, Heinrich, to Daimler-Benz Aktiengesellschaft. Injection-type internal combustion engine with applied or external ignition. 3,550,566, Cl. 123-32.
Hoffmann, Kurt, to Chrobok-Hoffmann K.G. Apparatus for folding flexible materials. 3,550,931, Cl. 270-61.
Hoffmann, Walter, to Alfa-Laval AB. Sludge centrifuge. 3,550,843, Cl. 233-20.
Hoffmann, Wolfgang, and Wick, Paul, to Canadian International Paper Company. Method of sealing the manufacturer's flap to a package. 3,550,346, Cl. 53-32.
Hoffmann-La Roche Inc.: *See—*
Earley, James Valentine, Fryer, Rodney Ian, and Sternbach, Leo Henryk, 3,551,415.
Osbond, John Mervyn, Fothergill, Graham Alwyn, and Wickens, James Charles, 3,551,458.
Wilhelmson, Jack L., 3,550,582.
Hofmann, Hansdieter: *See—*
Gey, Werner, Hofmann, Hansdieter, Bende, Friedrich, and Bonders, Peter,3,551,482.
Hogenson, Raymond A.: *See—*
Dunlop, Alexander K., and Hogenson, Raymond A.,3,550,458.
Hogue, Wilford L., to Lear Siegler, Inc., mesne. Clip and anti-friction material. 3,551,282, Cl. 161-220.
Holan, George, to Monsanto Company (Australia) Limited. 1-(4-Nitrophenyl)-1-(4'-nitrophenyl)-2,2- dihalocyclopropane insecticides. 3,551,577, Cl. 424-349.
Holcomb, Richard H., and McHale, John J., to General Electric Company. Halogen regenerative cycle incandescent lamps. 3,551,722, Cl. 313-222.
Holder, James D., and Greene, Hugh W., to United States of America, Army. Audio output device for testing leakage and continuity of a circuit. 3,551,796, Cl. 324-51.
Holder, John E., to Sun Oil Company. Excavator tooth driving apparatus. 3,550,960, Cl. 299-67.
Holley, John D. Disc cutter. 3,550,701, Cl. 175-122.
Holliday, Jerry D.: *See—*
Gentry, Tom D., and Holliday, Jerry D.,3,550,723.
Hollies, Norman R. S., and Penoyer, John A., Sr., to United States of America, Agriculture. Clothing hygrometer. 3,550,439, Cl. 73-73.
Hollingshead, R. M., Corporation: *See—*
Bresley, Lloyd J., and Sharp, Edwin H., 3,550,240.
Hollis, Grady W. Poison applicators. 3,550,542, Cl. 111-95.
Holloway, Daniel E., to Carborundum Company, The. Liquid transfer means for settling tanks. 3,550,783, Cl. 210-522.
Holt, Jan D., and Thornton, Duane V., to ACF Industries, Incorporated. Side stake construction for railway flat cars. 3,550,537, Cl. 105-381.
Holz, George E., to Burroughs Corporation. Gas-filled display device having capacitive envelope. 3,551,721, Cl. 313-204.
Homer, John C., III, and Stock, John R., to Stock Equipment Company. Method and apparatus for measuring rates to random pulses and alarm actuated thereby. 3,551,672, Cl. 250-43.5
Honda, Seiichiro: *See—*
Yamamoto, Sadao, Okubo, Minoru, Honda, Seiichiro, and Ogura, Kenji,3,551,538.
Honeywell Inc.: *See—*
Ferrara, John J., 3,551,785.
Henzel, Russell A., 3,551,885.
Karwacki, Fred, 3,551,699.
Rotier, Donald J., 3,551,824.
Walsh, Dale M., 3,551,655.
Hooper, Bernard. Step-piston two-stroke engines. 3,550,569, Cl. 123-71.
Hooper, Tom A. Upholstery tool. 3,551,016, Cl. 294-25.
Hoover Ball and Bearing Company: *See—*
Slominski, Walter V., 3,550,926.
Hoover, Jimmie N. Flow no-flow device. 3,551,071, Cl. 417-43.
Hoover, Jimmie N. Flow, no-flow device. 3,551,620, Cl. 200-83.
Hoover, Maurice W. Continuous juice extractor. 3,550,526, Cl. 100-37.
Hoppe, Klaus, and Krueger, Gerhard, to Veb Germania Chemieapparatebau. High capacity mass transfer plate for columns. 3,550,916, Cl. 261-114.
Hopper, Inc.: *See—*
Suverkrop, Don, 3,550,794.
Hore, Donald L., to Rotork Engineering Company Limited. Valve actuating mechanisms. 3,551,749, Cl. 317-48.
Horlein, Gerhard: *See—*
Schaum, Helmut, and Horlein, Gerhard,3,551,395.
Horsewell, Henry George, and Tolman, Thomas William Charles, to Brown & Williams Tobacco Corporation. Cigarette filters. 3,550,600, Cl. 131-267.
Horton, Edward E., to Deep Oil Technology, Inc. Tension anchor system for offshore apparatus. 3,550,549, Cl. 114-230.
Hosler, Peter, to Sun Oil Company. Process and equipment for continuous removal of fermentation products with ion exchange resins. 3,551,297, Cl. 195-143.
Hottel, Jennings B. Self-powered climbing hand truck. 3,550,709, Cl. 180-8.
Houdaille Industries, Inc.: *See—*
Wiesman, George Carl, 3,550,332.

Houlihan, William J.: *See—*
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,551,450.
Houlihan, William J., and Manning, Robert E., to Sandoz-Wander, Inc. 2,5-Benzodiazonine compounds. 3,551,411, Cl. 260-239.
Howard, Clay D.: *See—*
Huskins, Chester W., Howard, Clay D., and Ayers, Orval E.,3,551,224.
Howard, Henry G., Jr., Knight, Lee H., Jr., and Morris, Robert L., to Suzanna's Kitchen, Inc. Apparatus for continuously inserting individual rigid members into respective individual soft bodies. 3,550,188, Cl. 17-1.
Howard, Wayne H., and Young, Donald R., to United States of America, National Aeronautics and Space Administration. Skeletal stressing method and apparatus. 3,550,585, Cl. 128-24.
Howe Richardson Scale Company: *See—*
Mayer, Gerald C., 3,550,704.
Howe, Robert K.: *See—*
Baker, Joseph W., and Howe, Robert K.,3,551,573.
Howells, John D.: *See—*
French, James C., Howells, John D., and Anderson, Lucia E.,3,551,294.
Hrdina, Jiri, to Ceskoslovenska akademie ved. Method of and an apparatus for chromatographically separating amino acids mixtures. 3,551,107, Cl. 23-230.
Hrdina, Jiri, to Ceskoslovenska akademie ved. Apparatus for manostating evaluation devices. 3,551,110, Cl. 23-253.
Hubbuch, Theodore N.: *See—*
Allan, Barry D., Wharton, Walter W., and Hubbuch, Theodore N.,3,551,226.
Huber, Horst: *See—*
Fastert, Herbert, Huber, Horst, and Vogel, Eric T.,3,550,672.
Hubscher, Ralph Andre: *See—*
Wagner, Karl, and Hubscher, Ralph Andre,3,550,640.
Huckstadt, Harald, Randolph, August, Saleck, Wilhelm, and Ranz, Erwin, to Agfa-Gevaert Aktiengesellschaft. Photographic silver halide emulsions with increased sensitivity. 3,551,158, Cl. 96-107.
Hudson, Frederick W., to Xerox Corporation. Xerographic developer separation. 3,550,555, Cl. 118-637.
Hudswell Clarke and Company Limited: *See—*
Potts, Thomas Cecil, 3,550,511.
Huffman, Fred N., Robinson, Thomas C., and Kitrilakis, Sotiris S., to Thermo Electron Corporation. Blood pump control system. 3,550,162, Cl. 3-1.
Huffman, Larry L., to Super Sky Products, Inc. Skylight joint construction. 3,550,335, Cl. 52-82.
Hughes Aircraft Company: *See—*
Edelson, Roger H., and Frohock, Millard M., Jr., 3,551,688.
Haggai, Theodore F., 3,551,829.
Hlista, Joseph F., 3,551,176.
Hughes, Charles R. Mining machine. 3,550,961, Cl. 299-71.
Hughes, Gordon A., and Smith, Herchel, said Hughes assor to said Smith. 13-Methyl-8-isogonanes. 3,551,459, Cl. 260-397.4
Hugi, Litty, to Brown Boveri & Cie. Method of making a solid insulating member comprising epoxy resin and filler free from silicon and boron. 3,551,551, Cl. 264-311.
Hullhorst, William B., to Owens-Corning Fiberglas Corporation. Filter conveyor. 3,550,287, Cl. 34-236.
Hulsmann, Hans-Leo, Hoffmann, Gerhart, Renckhoff, Gustav, and Pastura, Albino, to Dynamit Nobel Aktiengesellschaft. Process for the production of trimellitic acid and trimellitic acid anhydride. 3,551,481, Cl. 260-524.
Humbel, Kaspar. Assembly apparatus for covered buttons. 3,550,483, Cl. 79-5.
Hume, Clayton R.: *See—*
Brown, Jerry A., and Hume, Clayton R.,3,550,896.
Humer, Ross T., to Bell Telephone Laboratories, Incorporated. Method of fabricating TWT helices. 3,550,263, Cl. 323-600.
Humphries, Richard Shenk: *See—*
Herczog, Andrew, and Humphries, Richard Shenk,3,551,196.
Hunter, Robert D.: *See—*
Herron, Edwin W., Hunter, Robert D., and Keefer, David E.,3,551,663.
Hunter, William H.: *See—*
Anthony, Tad B., and Hunter, William H.,3,550,171.
Huntington Mechanical Laboratories, Inc.: *See—*
Hauser, Hugo, 3,550,903.
Huppe, George L.: *See—*
Armstrong, Harold F., and Huppe, George L.,3,550,230.
Husby, Donald E., and Goetz, Alfred K., to Westinghouse Electric Corporation. Heavy duty floodlight with replaceable optical system. 3,551,667, Cl. 240-3.
Huskins, Chester W., Howard, Clay D., and Ayers, Orval E., to United States of America, Army. Nitrated cellulose rocket propellants with amino fluorine containing plasticizer. 3,551,224, Cl. 149-18.
Husted, Robert F., to Monsanto Company. Phytoxic compositions and methods. 3,551,132, Cl. 71-111.
Hutchens, Morris L.: *See—*
Randall, John S., Hutchens, Morris L., Drechsler, Erich F., and Brainard, Wallace E.,3,550,487.
Huttenwerk Oberhausen AG: *See—*
Geipel, Hans, Forster, Eckehard, Heinemann, Wilfried, and Baranowski, Kurt, 3,550,920.
Geipel, Hans, Forster, Eckehard, and Heinemann, Wilfried, 3,550,922.
Hydro, William R., and Sundberg, Richard J., to United States of America, Army. Preparation of 4-phenyl-4-acyloxypiperidine. 3,551,433, Cl. 260-294.3
Hydrocarbon Research, Inc.: *See—*
Stotler, Harold H., 3,551,123.
Hydrodata, Inc.: *See—*
Johnson, Fielding G., 3,550,624.
Hydromation Engineering Company: *See—*
Hirs, Gene, and Wykoff, Richard H., 3,550,774.
Hyer Hardware Mfg. Co.: *See—*
Swartz, Dorian J., 3,550,186.
Swartz, Dorian J., 3,550,187.
Hyster Company: *See—*
Olsen, Lawrence O., 3,550,735.
Ibach, Charles W. Slug or bug trap. 3,550,308, Cl. 43-121.
Icenbice, Phineas J., Jr., to Republic Corporation. Telephone call handling system with number display. 3,551,605, Cl. 179-27.
Ichikawa, Kazuo: *See—*
Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo,3,551,502.
Idelson, Elbert M., to Polaroid Corporation. Chromium complexes of a monoazo compound and a colorless ligand. 3,551,406, Cl. 260-147.
Igarashi, Isemi: *See—*
Chiku, Takewo, and Igarashi, Isemi,3,550,583.
Igarashi, Ryo, to Nippon Electric Company. Associative memory employing bistable circuits as memory cells. 3,551,899, Cl. 340-173.
Iida, Yoshio: *See—*
Wada, Mitsuo, and Iida, Yoshio,3,551,195.
Illinois Tool Works Inc.: *See—*
Babler, Otto, 3,551,614.
Imperial Chemical Industries Limited: *See—*
Brooks, Richard, and Tasiaux, Paul, 3,551,097.
Industrial Development (Packaging) Limited: *See—*
Bate, Frederick Douglas Clavell, 3,550,354.
Ingersoll-Rand Company: *See—*
Pauley, Reginald W., 3,550,698.
Ingwersen, Richard C., to Allied Controls Company, Inc. Circuit breaker. 3,551,867, Cl. 337-63.
Inoue, Kiyoshi. Gas-pressure gate arrangement for electrochemical machining. 3,551,310, Cl. 204-143.
Insolio, Thomas A., to Fletcher-Terry Company, The. Long reach hand-held glass cutting tool. 3,550,273, Cl. 30-164.95
Institut de Recherches de la Siderurgie Francaise: *See—*
Kapluszak, Marian, 3,550,438.
Institut Elektrosvarki Im E.O. Patona: *See—*
Gurevich, Samuil Mordkovich, 3,551,218.
Institutul de Fizica Atomica: *See—*
Croitoru, Petrica, 3,551,728.
Intercole Automation, Inc.: *See—*
Matsuoka, James T., 3,550,914.
Inter-Costal Shoe Machinery Corporation: *See—*
Downing, Frank V., and Bergeron, Norman A., 3,550,175.
International Business Machines Corporation: *See—*
Bakos, Peter, and Kozak, Gary S., 3,551,160.
Baskin, Herbert B., and Rittenhouse, Larry E., 3,551,896.
Brackett, Daniel W., 3,551,023.
Cielo, John R., 3,551,858.
Cooper, Harrison R., 3,551,897.
Crisp, James M., and Van Pelt, Richard W., 3,550,878.
Driscoll, Graham C., Jr., 3,551,892.
Driscoll, Graham C., Jr., 3,551,895.
Fay, John R., and Stinson, John P., 3,551,056.
Goetz, Fred E., Druzba, Perry R., Jr., Hause, James R., and Seeley, Gerard, 3,550,325.
Greeson, James C., Jr., 3,551,836.
Jamieson, James E., and Strudwick, Thomas H., 3,551,115.
Juliusburger, Hans Y., Krakinowski, Morris, and Stilwell, George R., Jr., 3,551,616.
Juliusburger, Hans Y., 3,551,705.
Keefe, George E., 3,551,901.
Lehman, Meir M., Rosenfeld, Jack L., and Schlaeppi, Hans P., 3,551,894.
Marchese, Michael A., and Taft, Lewis G., 3,551,201.
Panissidi, Hugo A., 3,550,630.
Powers, Don M., Litwiller, Robert J., and Goldschmidt, Robert E., 3,551,665.
Ruoff, Carl E., and Winter, Edward F., 3,551,761.
Sagnis, James C., Jr., and Stuckert, Paul E., 3,551,902.
Seitzer, Dieter, 3,551,707.
Weber, Edward V., 3,551,649.
Widmer, Albert X., 3,551,800.
Woodall, Jerry M., and Wuestenhefer, William C., 3,551,116.
International Computers Limited: *See—*
Wilson, Eric, 3,550,933.
International Minerals & Chemical Corporation: *See—*
Baumann, Arthur N., and Bird, Richard E., 3,551,332.
International Patents & Development Corporation: *See—*
Laszlo, Joseph, 3,550,462.
International Playtex Corporation: *See—*
Kaspar, Peter D., 3,550,757.
International Standard Electric Corporation: *See—*
Roworth, Donald Anthony Acott, 3,551,588.
Vazquez, Charles, Dufresnoy, Guy, Maelstaf, Serge, and Barbaut, Michel, 3,551,631.

International Telephone and Telegraph Corporation: *See—*
Hauer, Werner, 3,550,748.
Interpace Corporation: *See—*
Wilson, Lawrence F., 3,551,076.
Intreprindera Industriala Metalurgica de Stat 'Metalul Rosu': *See—*
Juncu, Virginia, Torok, Zsigmond, and Petra, Ioan, 3,550,399.
Iova, Georgy Mikhailovich: *See—*
Enenshtein, Boris Samoilovich, Ivanov, Alexei Petrovich, Boltalin, Anatoly Petrovich, and Iova, Georgy Mikhailovich,3,551,798.
Irby, James E. Helicopter. 3,550,883, Cl. 244-17.11
IRD Incentive Research & Development AB: *See—*
Hjerten, Vilhelm Einar Stellan, 3,550,970.
Irie, Toshiaki, and Nanko, Yoshiyuki, to Nippon Electric Company, Limited. Semiconductor device and method of manufacturing the same. 3,550,292, Cl. 148-1.5
Ironees Company, The: *See—*
Lehrman, David, 3,550,888.
Isaacs, Wayne R., to Bausch & Lomb Incorporated. Motor drive circuit. 3,551,770, Cl. 318-18.
Isaacson, Gary C.: *See—*
Feld, Sam H., Buell, Charles A., and Isaacson, Gary C.,3,550,855.
Isaacson, Larry Zorah, Kelly, Peter Bernard, and Neidinger, William Kuno, to Formica Corporation. Decorative heat and pressure consolidated laminate having on its back most surface a coating of a polymer of an acrylic monomer having certain parameters with respect to film formation temperature, tukon hardness and transition. 3,551,283, Cl. 161-248.
Isbitsky, Bernard, Jr.: *See—*
Solomon, Jack M., Isbitsky, Bernard, Jr., and Bluestein, Bernard R.,3,551,486.
ISCO Optische Werke GmbH: *See—*
Kirchhoff, Kurt, 3,551,029.
Ishida, Isao: *See—*
Kitano, Yutaka, Sato, Hiroshi, and Ishida, Isao,3,550,973.
Ishige, Sadao: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki,3,551,181.
Isreeli, Jack: *See—*
Smythe, William J., Isreeli, Jack, and Kling, Nelson G.,3,551,063.
Itek Corporation: *See—*
Fletcher, Gerald Matthew, 3,551,147.
Ivanov, Alexei Petrovich: *See—*
Enenshtein, Boris Samoilovich, Ivanov, Alexei Petrovich, Boltalin, Anatoly Petrovich, and Iova, Georgy Mikhailovich,3,551,798.
Ivanov, Valentin Alexandrovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.
Iwaki, Takayuki, Egashira, Shohachi, and Okagami, Akio, to Japan Gasoline Co., Ltd. Process of gasifying hydrocarbon fractions containing sulfur. 3,551,124, Cl. 48-214.
Iwasaki, Toshikatsu, and Shimotakahara, Tsumoru, to Hitachi, Ltd. Far infrared transmission type interference filter. 3,551,017, Cl. 350-1.
Iwatsu Electric Company Ltd.: *See—*
Urano, Tadao, 3,551,732.
Izquierdo, Miguel: *See—*
Ballard, Harold N., and Izquierdo, Miguel,3,550,720.
Izumihara, Sozo: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo,3,551,251.
Jack, Robert F., to Bell Telephone Laboratories, Incorporated. Element including beryllium-copper base. 3,551,903, Cl. 340-174.
Jack, William G.: *See—*
Dawson, Norman W., and Jack, William G.,3,551,602.
Jack, William, Jr., to Baker Perkins Jaxons Limited. Article sorting apparatus. 3,550,751, Cl. 198-38.
Jack, William, Jr., and Dalziel, Donald Martin, to Baker Perkins Jaxons Limited. Machine for washing laundry. 3,550,406, Cl. 68-58.
Jackson, Byron, Inc.: *See—*
Dickmann, John L., and Nicolson, Garth F., 3,550,485.
Ham, John E., 3,550,466.
Jackson, Norman Walter, to Molins Machine Company Limited. Handling rod-like articles. 3,550,750, Cl. 198-34.
Jackson, Robert Cheves, to Monsanto Company. Dimensionally stable non-woven fabric. 3,551,265, Cl. 161-57.
Jacob, Ingolf: *See—*
Bauer, Gunther, and Jacob, Ingolf,3,551,550.
Jacobson, Norman, Brownawell, Darrell W., and Kresge, Edward N., to Esso Research and Engineering Company. Lubricant containing ethylene-alpha-olefin polymer. 3,551,336, Cl. 252-59.
Jacoby-Bender, Inc.: *See—*
Gandelman, Morris D., 3,550,216.
Jaeger, Benjamin E., and Moore, Charles T., to Brockway Glass Company, Inc. Article transfer apparatus. 3,550,789, Cl. 214-1.
Jaeger, Friedrich, Low, Lothar, and Tzschoppe, Hans-Joachim, to Glanzstoff AG. Method and apparatus for mixing granulated material. 3,550,913, Cl. 259-8.
Jakas, Dalia Regina: *See—*
Flynn, Kenneth George, and Jakas, Dalia Regina,3,551,490.
Jakes, William C., Jr.: *See—*
Enloe, Louis H., Jakes, William C., Jr., and Rubinstein, Charles B.,3,551,594.
James, Ulysses S. Pipe fittings and abrasion resistant linings therefor. 3,551,006, Cl. 285-16.
Jamieson, James E., and Strudwick, Thomas H., to International Business Machines Corporation. Apparatus for growing single crystals. 3,551,115, Cl. 23-273.
Jandeleit, Otto: *See—*
Scheffler, Peter, and Jandeleit, Otto,3,551,060.
Janic, Stephen M.: *See—*
Halkovich, Leo J., and Janic, Stephen M.,3,550,336.
Janssen, Sylvain Jean, to Compagnie des Compteurs. Force balances. 3,550,430, Cl. 73-30.
Japan Broadcasting Corporation: *See—*
Konishi, Yoshihiro, 3,551,852.
Nakamura, Yuko, Yamane, Hisakichi, and Yanagimachi, Akio, 3,551,591.
Japan Gasoline Co., Ltd.: *See—*
Iwaki, Takayuki, Egashira, Shohachi, and Okagami, Akio, 3,551,124.
Japanese Geon Co., Ltd., The: *See—*
Sakuragi, Taketami, and Akiyama, Shinichi, 3,551,394.
Sakuragi, Taketami, and Sakashita, Tatsuo, 3,551,507.
Jaroff, David B.: *See—*
Litt, Donald D., and Jaroff, David B.,3,550,934.
Jarosek, Gordon G., to Lear Siegler, Inc. Bus bar. 3,551,875, Cl. 339-19.
Jarvis, Hyrum T., and Boose, Robert C., to Escoa Corporation. Method of making a heat exchanger fin tubing. 3,550,235, Cl. 29-157.3
Jaspers, Hendrik Alphons, to U.S. Philips Corporation. Hot gas engine with speed control. 3,550,371, Cl. 60-24.
Javaux, Gustave: *See—*
Sacrez, Jules, Javaux, Gustave, Doquire, Gilbert, and Bodart, Marcel,3,551,126.
Jennetti, Anthony G., to Ohio State University Research Foundation, The. Electronically controlled slot antenna-amplifier. 3,551,818, Cl. 325-374.
Jennings, Lewis F.: *See—*
Koepke, Donald H., and Jennings, Lewis F.,3,551,743.
Jensen, Andrew O., and Pollock, David H., to Xerox Corporation, mesne. Thermionic converter having a low work function collector electrode. 3,551,727, Cl. 313-346.
Jensen, Harry M. Drill depth and angle guide for hand drill. 3,550,481, Cl. 77-55.
Jensen, Knut, Witting, Joachim, and Schwarze, Gerhard, to Zentrallaboratorium Elektrogerate der VVB Elektrogerate. Electric contacts for collector lamellae. 3,551,716, Cl. 310-234.
Jernqvist, Ake, and Hedstrom, Bengt, to Rederiaktiebolaget Nordstjernan. Method of optimum operating a sedimentation apparatus and a device for carrying out the method. 3,551,330, Cl. 210-19.
Jewell Electrical Instruments, Inc.: *See—*
Mothes, Donald A., 3,551,812.
Joel, Amos E., Jr., to Bell Telephone Laboratories, Incorporated. Immediate ringing in a step-by-step telephone system. 3,551,604, Cl. 179-18.
Johansson, Arne, to Arenco Aktiebolag. Apparatus for threshing tobacco leaves and separating the threshed tobacco. 3,550,599, Cl. 131-146.
Johnson & Johnson: *See—*
Crocker, Guy J., and Doehnert, Donald F., 3,551,391.
Johnson, Arthur G.: *See—*
Creviston, Leo J., and Johnson, Arthur G.,3,550,302.
Johnson, Bruce K., and Schettino, Anthony J., to Polaroid Corporation. Locking means for push button actuators. 3,550,513, Cl. 95-11.
Johnson, Carl V.: *See—*
Herron, Rand E., Larrabee, Edward W., and Johnson, Carl V.,3,550,858.
Johnson, Dennis R.: *See—*
Corson, Floyd L., and Johnson, Dennis R.,3,551,203.
Johnson, Donald L., to Case, J. I., Company. Control console for vehicle. 3,550,715, Cl.
Johnson, Fielding G., to Hydrodata, Inc. Fluid coupling device. 3,550,624, Cl. 137-614.
Johnson, Howard L., to Caterpillar Tractor Company. Relief valve with controlled stability and variable setting. 3,550,617, Cl. 137-514.5
Johnson, Irvin D., to Marathon Oil Company. Fluid injection control loop and peak amplitude converter. 3,550,608, Cl. 137-93.
Johnson, Robert M., to Tektronix, Inc. Multiple sweep display. 3,551,733, Cl. 315-22.
Johnston, Laura D. Ladies handbag. 3,550,663, Cl. 150-28.
Johnston, Mack S. Keg tapping device. 3,550,818, Cl. 222-400.7
Jones, Clarence O., Jr., to Niagara Machine & Tool Works. Apparatus for effecting fine adjustment in drive for roll feed mechanism. 3,550,461, Cl. 74-89.17
Jones, Donald: *See—*
Dalton, Ian Michael, and Jones, Donald,3,551,305.
Jones, Malcolm D., and Riordan, Hugh E., to Kelsey-Hayes Company. Sensor with flexible coupling. 3,551,712, Cl. 310-67.

Jones, Raymond T.: *See—*
Warburton, Richard S., and Jones, Raymond T.,3,550,433.

Jong, Howard W., to McDonnell Douglas Corporation. Toilet construction. 3,550,163, Cl. 4-10.

Joslyn, John A., and Lubitz, William J., to General Electric Company. Pulse width modulated bridge power amplifier protection circuit. 3,551,747, Cl. 317-33.

Juliusburger, Hans Y., to International Business Machines Corporation. Asymmetric delay circuit. 3,551,705, Cl. 307-293.

Juliusburger, Hans Y., Krakinowski, Morris, and Stilwell, George R., Jr., to International Business Machines Corporation. Multiple switch encoding device. 3,551,616, Cl. 200-46.

Juncu, Virginia, Torok, Zsigmond, and Petra, Ioan, to Intreprindera Industriala Metalurgica de Stat 'Metalul Rosu'. Drive mechanism for rectilinear knitting machines. 3,550,399, Cl. 66-60.

Junger Instrument Aktiebolag: *See—*
Kihlberg, Gunnar Axel, 3,551,811.

Jungkind, Roland: *See—*
Marker, Hannes, and Jungkind, Roland,3,550,996.

Juredine, Gordon M., to Synthetic Products Company. Asymmetric alkaline earth metal phenate-phosphites and method of making same. 3,551,530, Cl. 260-967.

Juul, Knud Dinesen, and Mikkelsen, Jens Engholm. Loading apparatus for bales. 3,550,746, Cl. 198-8.

Kabushiki Kaisha Hattori Tokeiten: *See—*
Kitai, Kyoshi, 3,551,059.

Kabushiki Kaisha Koparu: *See—*
Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo, 3,551,040.

Kabushiki Kaisha Suwa Seikosha: *See—*
Shimodaira, Tadayoshi, 3,550,370.

Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*
Chiku, Takewo, and Igarashi, Isemi, 3,550,583.

Kahng, Dawon, and Kosicki, Bernard B., to Bell Telephone Laboratories, Incorporated. Vacuum evaporation deposition of group III-A metal nitrides. 3,551,312, Cl. 204-177.

Kaiser Aluminum & Chemical Corporation: *See—*
Elliott, Charles H., 3,551,319.

Kaiser, Carl, and Zirkle, Charles L., to Smith Kline & French Laboratories. Tranquilizer compositions and method of treatment. 3,551,568, Cl. 424-267.

Kalina, Theodore: *See—*
Brown, James W., Mayer, Francis X., and Kalina, Theodore,3,551,138.

Kaljunov, Gennady Alexandrovich: *See—*
Levishko, Anatoly Alexandrovich, and Kaljunov, Gennady Alexandrovich,3,550,870.

Kallfass, Herbert, to Farbenfabriken Bayer Aktiengesellschaft. Composition for inhibiting corrosion containing a hydrazine and a quinone. 3,551,349, Cl. 252-392.

Kallics, Leonard W. Boat, trailer and camper combination. 3,550,947, Cl. 296-23.

Kamarian, Georgy Mikirtychevich: *See—*
Melnikov-Eikhenvald, Mikhail Alexeevich, Kamarian, Georgy Mikirtychevich, Suchkov, Vladimir Nikolaevich, Djumulen, Vadim Ippolitovich, and Nesterkin, Alexandr Kuzmich,3,550,912.

Kamath, Pandurang M., to American Optical Corporation. Rigid gas permeable plastic contact lens. 3,551,035, Cl. 351-160.

Kamimura, Akira, Tsugawa, Ryuichiro, and Okumura, Shinji, to Ajinomoto Co., Inc., and Sanraku Ocean Co., Ltd. Process of producing L-glutamic acid by fermentation. 3,551,292, Cl. 195-30.

Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl, to Boehriner Mannheim Gesellschaft mit beschrankter Haftung. Adenosine derivatives. 3,551,409, Cl. 260-211.5

Kanda, Shigeru: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.

Kandler, Joachim: *See—*
Dany, Franz-Josef, Kandler, Joachim, and Munch, Peter,3,551,379.

Kaneda, Masao: *See—*
Yamazaki, Seishi, and Kaneda, Masao,3,551,834.

Kanegafuchi Boseki Kabushiki Kaisha: *See—*
Ando, Satoshi, Uraya, Toru, and Nagata, Koetsu, 3,551,279.
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko, 3,551,277.

Kanegafuchi Chemical Industry Co., Ltd.: *See—*
Yonezu, Shuzo, Nojima, Yasuhiro, and Motoki, Takashi, 3,551,400.

Kanegafuchi Chemical Industry Company, Limited: *See—*
Yonezu, Shuzo, Nojima, Yasuhiro, and Ban, Kimio, 3,551,399.

Kanegajuchi Boseki Kabushiki Kaisha: *See—*
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko, 3,551,277.

Kaneko, Hisashi, and Takimoto, Yukio, to Nippon Electric Company, Limited. Time division satellite communication system. 3,551,813, Cl. 325-4.

Kano, Kimio: *See—*
Kusakabe, Takeshi, Suzuki, Kenji, and Kano, Kimio,3,550,327.

Kaplan, Louis. Frame clamping device. 3,550,894, Cl. 248-316.

Kapluszak, Marian, to Institut de Recherches de la Siderurgie Francaise. Ultrasonic testing system for hot objects. 3,550,438, Cl. 73-71.5

Kapustin, Daniel B.: *See—*
Nichols, Larry D., and Kapustin, Daniel B.,3,551,592.

Karrenberg, Hugo, & Sohn K.-G: *See—*
Puck, Siegfried, 3,550,378.

Karwacki, Fred, to Honeywell Inc. Control apparatus. 3,551,699, Cl. 307-246.

Kaspar, Jan, and Bicik, Vladislav, to Vyzkumny Ustav Organickych Syntez. Agitating apparatus. 3,550,915, Cl. 259-110.

Kaspar, Peter D., to International Playtex Corporation. Apparatus for supporting, tensioning, and driving a flexible conveyor. 3,550,757, Cl. 198-184.

Kastl, Peter: *See—*
Gram, Erwin, Kastl, Peter, and Schretzmayer, Josef,3,550,224.

Katchka, Jay R., to Robertshaw Controls Company. Flow control device. 3,550,623, Cl. 137-613.

Kato, Yoshio, Konosu, Osamu, and Nakagawa, Yoshio, to Matsushita Electronics Corporation. Finned cooler of the solid block type for magnetrons. 3,551,717, Cl. 313-46.

Katz, Henry B.: *See—*
Macchi, Eugene E., and Katz, Henry B.,3,550,836.

Kaufman, Jack W. Therapeutic apparatus. 3,550,593, Cl. 128-260.

Kaufman, Martin H., O'Brobinak, John D., and Carroz, John W., to United States of America, Navy. Coated water soluble inorganic oxidizers. 3,551,222, Cl. 149-7.

Kaugars, Girts, to Upjohn Company, The. Di-lower alkyl phosphites of 2-(lower alkylthio) alkanaldoximes. 3,551,529, Cl. 260-944.

Kaule, Walter. Process and apparatus for the ultrasonic inspection of materials. 3,550,435, Cl. 73-67.8

Kawada, Sohji. Spine corrector combined with automatic therapeutic device for digital pressing therapy. 3,550,587, Cl. 128-33.

Kawanee Oil Company: *See—*
Du Rose, Arthur H., 3,551,348.

Kawarada, Tutomu: *See—*
Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo,3,551,040.

Kawashima, Sukeo: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru,3,551,380.

Kayano, Masanori: *See—*
Takebe, Toshio, Kayano, Masanori, and Naruse, Noboru,3,551,558.

Kearney & Trecker Corporation: *See—*
Randall, John S., Hutchens, Morris L., Drechsler, Erich F., and Brainard, Wallace E., 3,550,487.

Keck, Marvin Lloyd, and Clinard, Glenn W., said Keck assor. to said Clinard, mesne. Rod weeder. 3,550,689, Cl. 172-44.

Keckler, David P., and Loeffler, John Edward, Jr., to Diamond Shamrock Corporation. Pressure process for preparing acetylene. 3,551,512, Cl. 260-679.

Keefe, George E., to International Business Machines Corporation. Coupled magnetic film memories. 3,551,901, Cl. 340-174.

Keefer, David E.: *See—*
Herron, Edwin W., Hunter, Robert D., and Keefer, David E.,3,551,663.

Keenan, John D., Jr.: *See—*
Smith, William E., Primosch, Edward P., and Keenan, John D., Jr.,3,550,935.

Keilman, James J. Surgical bandage. 3,550,590, Cl. 128-161.

Keith, George H., to United States of America, Army, mesne. Breech end section of lined gun barrel. 3,550,502, Cl. 89-16.

Keith, John V., to Leesona Corporation. Textile machinery. 3,550,871, Cl. 242-18.

Kellams, Roger W.: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T.,3,551,210.

Keller, Adam L., to Meridian Industries, Inc., mesne. Flasher control circuit. 3,551,744, Cl. 317-16.

Kelley, James O.: *See—*
Propst, Robert L., and Kelley, James O.,3,550,908.

Kelly, Calvin E., to United States Steel Corporation. Method of and apparatus for dispensing and applying labels. 3,551,262, Cl. 156-584.

Kelly, Michael F., and Uitti, Kenneth D., to Universal Oil Products Company. Extractive distillation of aromatics with a sulfolane solvent. 3,551,327, Cl. 208-325.

Kelly, Peter Bernard: *See—*
Isaacson, Larry Zorah, Kelly, Peter Bernard, and Neidinger, William Kuno,3,551,283.

Kelsey-Hayes Company: *See—*
Jones, Malcolm D., and Riordan, Hugh E., 3,551,712.

Kemenczky, Miklos, to Guilden, Paul. Improvements in pyromagnetic motors. 3,551,709, Cl. 310-4.

Kemp, George B. Spectacle holder. 3,550,890, Cl. 248-205.

Kennametal Inc.: *See—*
Roberts, Albert Samuel, 3,550,198.

Kenneday, John W., to Esso Production Research Company. Control of a well. 3,550,696, Cl. 175-25.

Kent, Bryan Philip, to Borg-Warner Corporation. Sprag assembly for one-way clutches. 3,550,737, Cl. 192-45.1

Kenyon, David W., and Miller, William P., to Eastman Kodak Company. Graining apparatus. 3,550,320, Cl. 51-3.

Keogh, Raymond J., to Photocircuits Corporation. Wire wound armature, method and apparatus for making same. 3,550,645, Cl. 140-92.2

Kerhoas, Jean-Claude, Metayer, Michel Paul Marie, and Teboul, James Remy Albert, to Compagnie des Compteurs. Device for measuring relative displacement between plural light sources and a scale utilizing frequency multiplexing. 3,551,682, Cl. 250-214.

Kerker, William C. Bundling machine. 3,550,349, Cl. 53-124.

Kern, Frederick W.: *See—*
Nerwin, Hubert, and Kern, Frederick W.,3,551,045.

Kesler, Martin Luther, and Bann, Robert Francis, to American Cyanamid Company. Acid red dye solution. 3,551,088, Cl. 8-41.

Kesselman, Gussie: *See—*
Kesselman, Gussie, 3,550,778.

Kesselman, Gussie, 1/2 to Kesselman, Gussie, and 1/2 to Brenner, Charles, mesne. Waste water reclamation system. 3,550,778, Cl. 210-167.

Kessler, George: *See—*
MacGregor, Douglas, 3,550,591.

Keyolok Co., Inc.: *See—*
Silver, Stanley Milton, 3,550,345.

Khaidurov, Leonid Konstantinovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.

Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich. Method of construction of tunnel lining. 3,550,382, Cl. 61-45.

Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich. Device for erecting monolithic concrete lining of underground excavations. 3,550,389, Cl. 61-84.

Kiel, Othar M., to Esso Production Research Company. Method for testing wells for the existence of permeability damage. 3,550,445, Cl. 73-155.

Kienzle Apparate GmbH: *See—*
Antritter, Werner, 3,550,928.

Kiess, Ulrich: *See—*
Kohler, Werner, and Kiess, Ulrich,3,551,686.

Kihlberg, Gunnar Axel, to Junger Instrument Aktiebolag. Method and apparatus for determining the frequency of an electrical signal. 3,551,811, Cl. 324-173.

Kilbourn, Dorwin L.: *See—*
Peacher, Teddy J., and Kilbourn, Dorwin L.,3,551,719.

Kilbourn, Dorwin L., Peacher, Teddy J., Askew, Raymond F., and Foster, William D., to United States of America, Army, mesne. Seal for high pressure short-arc lamps. 3,551,720, Cl. 313-182.

Kilian, Rolf: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf,3,551,397.

Killebrew, Wilbur N., Jr.: *See—*
Miles, John M., Killebrew, Wilbur N., Jr., and Wood, James O.,3,551,522.

Killoran, John J., to Foster Grant Co., Inc. Polymerization process for preparing high impact polymers. 3,551,523, Cl. 260-880.

Kimberly-Clark Corporation: *See—*
Bernardin, Leo J., 3,550,592.
Hechtman, John F., and Ames, Harold R., 3,551,177.

Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki, to Fuji Shashin Kabushiki Kaisha, and Hodogaya Kagaku Kogyo Kabushiki Kaisha. Pressure-sensitive copying paper employing a phthalein compound color-forming agent. 3,551,181, Cl. 117-36.2

King, Cecil K.: *See—*
Siron, Robert E., and King, Cecil K.,3,550,440.

King, Charles S., and Sawhill, Duane L., to Olin Corporation. Process for producing non-caking chlorinated trisodium phosphate. 3,551,094, Cl. 23-50.

King, George Edward, III: *See—*
Halasz, Peter Robert, and King, George Edward, III,3,550,619.

King, John J.: *See—*
Arlen, David, and King, John J.,3,551,654.

Kinnicutt, Roger, Jr., to Morgan Construction Company. Drive mechanism. 3,550,477, Cl. 74-817.

Kino, Gordon S., and Robson, Peter N., to Research Corportion. Traveling-wave solid-state amplifier utilizing a semiconductor with negative differential mobility. 3,551,831, Cl. 330-5.

Kinsey, Ronald D.: *See—*
Smith, Richard D., Furlong, Dale A., and Kinsey, Ronald D.,3,550,791.

Kipnis, Frank. Method of forming a retaining surface on a smoking device. 3,551,534, Cl. 264-16.

Kippan, James A., to Delta Rope & Twine Limited, mesne. Synthetic twines and method of producing thereof. 3,551,280, Cl. 161-175.

Kirchhoff, Kurt, to ISCO Optische Werke GmbH. Anamorphotic component with two pairs of oppositely oriented prisms. 3,551,029, Cl. 350-182.

Kitai, Kyoshi, to Kabushiki Kaisha Hattori Tokeiten. Brightness or light intensity detecting device. 3,551,059, Cl. 356-226.

Kitano, Yutaka, Sato, Hiroshi, and Ishida, Isao, to Hitachi, Ltd. Thrust bearing assembly. 3,550,973, Cl. 308-160.

Kitrilakis, Sotiris S.: *See—*
Huffman, Fred N., Robinson, Thomas C., and Kitrilakis, Sotiris S.,3,550,162.

Kivela, Stanley E. Vacuum cleaners. 3,550,182, Cl. 15-323.

Kiwak, Robert S.: *See—*
Ahern, Charles J., Higgins, Paul T., and Kiwak, Robert S.,3,550,605.

Klaui, Heinrich, and Rehm, Walter, to Hoffman-La Roche Inc. Parental sulfonamide and sulfonamide potentiator combinations. 3,551,564, Cl. 424-229.

Klein, Louis E., to Parkline Corporation. Modular decorative wall construction. 3,550,340, Cl. 52-312.

Kleinerman, Marcos Y., to American Optical Corporation, mesne. Chelated lanthanide compositions. 3,551,345, Cl. 252-301.2

Kleinke, Donald F.: *See—*
Anderson, Perry, Richter, Walther, and Kleinke, Donald F.,3,551,077.

Klibanoff, Allen L.: *See—*
Villani, Gerard J., and Klibanoff, Allen L.,3,550,773.

Kliewer, Betty J.: *See—*
Kliewer, Homer F., and Rawson, John E.,3,550,333.

Kliewer, Homer F., deceased (by Kliewer, Betty J., administratrix), and Rawson, John E., 1/3 to Schuil, Elmer H. Portable hanger. 3,550,333, Cl. 52-73.

Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto, to Ceskoslovenska akademie ved. Carriers for biologically active substances. 3,551,556, Cl. 424-21.

Kling, Nelson G.: *See—*
Smythe, William J., Isreeli, Jack, and Kling, Nelson G.,3,551,063.

Knapsack Aktiengesellschaft: *See—*
Dany, Franz-Josef, Kandler, Joachim, and Munch, Peter, 3,551,379.

Kniege, Wilfried: *See—*
Schnurrbusch, Karl, and Kniege, Wilfried,3,551,382.

Knight, Lee H., Jr.: *See—*
Howard, Henry G., Jr., Knight, Lee H., Jr., and Morris, Robert L.,3,550,188.

Knight, Sheldon A., to American Standard Inc. Star field observation apparatus having reticle with exponentially varying optical transmittivity and mirror sweeping the star field across the mirror at exponentially varying velocity. 3,551,680, Cl. 250-203.

Knoll, David. Baseboard heater. 3,551,642, Cl. 219-368.

Knopf, Robert J.: *See—*
Brotherton, Thomas K., Lynn, John W., and Knopf, Robert J.,3,551,475.

Knothe, Eich Emil, Billin, Eckhad, and Melche, Fanz Josef, to Sartorius-Werke GmbH. Weighing machine which gives a signal when a specific position of measuring is exceeded. 3,550,703, Cl. 177-45.

Knowles, James A. Method of and apparatus for precooling air in a facility with water used in the facility. 3,550,677, Cl. 165-1.

Knox, John A., to Halliburton Company. Utilization of high strength acid on dolomite. 3,550,686, Cl. 166-307.

Knudsen, John P., to Monsanto Company. Method for preparing permanently opaque fibers. 3,551,547, Cl. 264-182.

Knudson, Selden Arthur, and Spitulnik, Michael Jay, to Eastman Kodak Company. Process for the preparation of 1,1,1-tri (substituted nitrogen-containing aryl) ethanes. 3,551,494, Cl. 260-576.

Knuth, William H., and Abel, Irving, to Aerojet-General Corporation. Cushion cells for fluid cushion vehicles. 3,550,718, Cl. 180-121.

Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru; to Asahi Kasei Kogyo Kabushiki Kaisha. Production of polyesterethers. 3,551,380, Cl. 260-45.7

Kobayashi, Teruo: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki,3,551,181.

Kobayashi, Tsuyoshi: *See—*
Yamamoto, Hisao, Nakamura, Yasushi, Nakao, Masaru, and Kobayashi, Tsuyoshi,3,551,446.

Kobe Steel, Ltd.: *See—*
Matsuura, Minoru, 3,551,141.

Koeber, Henry J., Jr., to Bell & Howell Company. Camera focusing mechanism using triangulation principle. 3,550,516, Cl. 95-44.

Koenig, Karl-Heinz, Steinbrunn, Gustav, Windel, Hermann, and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Novel bis carbamates. 3,551,477, Cl. 260-472.

Koepke, Donald H., and Jennings, Lewis F., to Varco Incorporated. Static eliminator. 3,551,743, Cl. 317-2.

Koert, Hubert: *See—*
Bader, Erich, Koert, Hubert, and Brod, Gerd,3,551,372.

Koerv, Peter: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter,3,551,891.

Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert,3,551,893.
Kohler, Werner, and Kiess, Ulrich, to Daimler-Benz Aktiengesellschaft. Starter system for a diesel engine. 3,551,686, Cl. 290-38.
Kohnken, Donald H., to SCM Corporation. Method of bonding two porcelain coated objects. 3,551,233, Cl. 156-89.
Kojima, Takamoto: *See—*
Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi,3,551,854.
Kometani, Yutaka, and Tatemoto, Masayoshi, to Daikin Kogy Kabushiki Kaisha. Fluorine containing copolymers. 3,551,398, Cl. 260-87.5
Komeya, Katsutoshi: *See—*
Matsuo, Shigetomo, Matsuki, Yosiaki, and Komeya, Katsutoshi,3,551,101.
Komoto, Hiroshi: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru,3,551,380.
Kondrad, Edward S.: *See—*
Rabenold, Ronald R., and Kondrad, Edward S.,3,551,378.
Konimkijke Nederlandsche Hoogovens en Staalfabrieken N.V.: *See—*
Schokkenbroek, Jan, 3,551,139.
Koninklijke Nederlandsche Hoogovens en Staalfgbrieken N.V.: *See—*
Van Laar, Jacobus, 3,550,918.
Koninklijke Zwavelzuurfabrieken v/h Ketjen N.V.: *See—*
Schutten, Maarten, 3,551,354.
Konishi, Yoshihiro, to Japan Broadcasting Corporation. Circulator. 3,551,852, Cl. 333-1.1
Konishi, Yoshihiro, to Nippon Hoso Kyokai. Wide band circulator comprising a lumped element series resonance circuit. 3,551,853, Cl. 333-1.1
Kono, Hisashi: *See—*
Suzukawa, Yuichi, Kono, Hisashi, Terai, Kenji, and Niwa, Takazumi,3,551,513.
Konosu, Osamu: *See—*
Kato, Yoshio, Konosu, Osamu, and Nakagawa, Yoshio,3,551,717.
Konstantinov, Mihail Spirov, Dragiev, Dragomir Svetoslavov, Genova, Penka Jossifova, and Tzenov, Petar Ivanov, to Vish Machino-Elektrotechnitcheski Institut. Reduction-gear motor. 3,550,475, Cl. 74-640.
Kontra, Ferenc: *See—*
Hauska, Miklos, Schutz, Mihaly, and Kontra, Ferenc,3,551,174.
Konttinen, Kauko U., to Valmet Oy, Helsinki. Guiding roll of a paper making machine. 3,550,286, Cl. 34-162.
Koppelmann, Floris, to Licentia Patent-Verwaltungs-G.m.b.H. Mains voltage stablizing apparatus providing constant reactive current. 3,551,799, Cl. 323-8.
Koppers Company, Inc.: *See—*
Dressler, Hans, 3,551,360.
Kornylak, Andrew T., to Kornylak Corporation. Conveyor having provision for discharging loads at an angle generally transverse to the line of travel on the conveyor. 3,550,756, Cl. 198-183.
Kornylak Corporation: *See—*
Kornylak, Andrew T., 3,550,756.
Kornylak, Thomas A., 3,550,747.
Kornylak, Thomas A., to Kornylak Corporation. Trans-lift section conveyor. 3,550,747, Cl. 198-20.
Korol, Stanley F.: *See—*
Boudreau, Alban M., and Korol, Stanley F.,3,550,998.
Korpel, Adrianus, to Zenith Radio Corporation. Wave generator. 3,551,690, Cl. 307-88.3
Kosaka, Masahiro: *See—*
Orita, Takao, Kosaka, Masahiro, and Fujita, Tadamasa,3,550,289.
Kosicki, Bernard B.: *See—*
Kahng, Dawon, and Kosicki, Bernard B.,3,551,312.
Kosonen, Leonard D.: *See—*
Van De Velde, John, and Kosonen, Leonard D.,3,550,780.
Kotler, Aaron L., to Algoma Net Company. Hammock-stringing methods and assemblies. 3,550,166, Cl. 5-122.
Kottke, Roger H.: *See—*
Moser, Vincent J., Greizerstein, Walter, and Kottke, Roger H.,3,551,179.
Kovar, Joseph J.: *See—*
McCormick, Loran F., Kovar, Joseph J., and Brown, Claude W.,3,551,814.
Kovar, Joseph J., to United States of America, Navy. Doublet bit synchronizer and detector. 3,551,817, Cl. 325-346.
Kowack, Frank J., to Columbian Slides Inc. Cable guide. 3,550,910, Cl. 254-190.
Kowalski, Alfed C. Ignition or like system. 3,550,573, Cl. 123-148.
Kowalski, Walter: *See—*
Bordak, John A., and Kowalski, Walter,3,551,627.
Kozak, Gary S.: *See—*
Bakos, Peter, and Kozak, Gary S.,3,551,160.
Kozel, James A.: *See—*
Noakes, Thomas E., and Kozel, James A.,3,550,632.
Kozu, Isao: *See—*
Nishimura, Katsutoshi, Fujisawa, Kiyoji, Kozu, Isao, and Yamamoto, Kozo,3,551,691.
Krakinowski, Morris: *See—*
Juliusburger, Hans Y., Krakinowski, Morris, and Stilwell, George R., Jr.,3,551,616.
Kramer, David C., and Rogers, Waldo I., to Baldwin Kongsberg Company. Multiple-pen automatic drafting machine. 3,550,276, Cl. 33-18.
Kramer, Norman, Meyer, Burton C., and Disko, Harry, to Glass, Marvin, & Associates. Toy electronic musical instrument. 3,551,579, Cl. 84-1.01
Krapcho, John, to Squibb, E. R., & Sons, Inc. Benzo-lactams. 3,551,413, Cl. 260-239.3
Krause, John T., to Bell Telephone Laboratories, Incorporated. Stabilization of glasses for ultrasonic delay lines. 3,551,129, Cl. 65-117.
Krause, Victor W., and Harlan, Martin L., to Wolverine World Wide, Inc. Double side skinning. 3,550,660, Cl. 146-241.
Krein, Reuben J. Movable arm rest. 3,550,958, Cl. 297-417.
Kresge, Edward N.: *See—*
Jacobson, Norman, Brownawell, Darrell W., and Kresge, Edward N.,3,551,336.
Kress, Heinz: *See—*
Severing, Herbert, Radtke, Dieter, Grasshoff, Hans-Wilhelm, and Kress, Heinz,3,551,216.
Kreuter, Kenneth G., and Mueller, Klaus P., to Robertshaw Controls Company. Condition resposive parameter control means. 3,550,629, Cl. 137-625.66
Krieger, Arthur L., Stein, Ira S., and Tulagin, Vesvolod, to Xerox Corporation. Imaging apparatus. 3,551,320, Cl. 204-299.
Krimm, Heinrich, Malamet, Georg, and Schnell, Hermann, to Farbenfabriken Bayer Aktiengesellschaft. Copolymers of para-isopropenylphenyl isocyanate. 3,551,390, Cl. 260-78.5
Kristensen, Ib Knud, to Danfoss A/S. Zener diode made without doping of semiconductor material. 3,551,757, Cl. 317-234.
Krockow, Ernst Wilhelm, to Spiess, Dr., G.m.b.H. Process of producing organic sulfur-containing compounds. 3,551,499, Cl. 260-607.
Kroneisen, Armin: *See—*
Halasz, Istvan, and Kroneisen, Armin,3,550,452.
Krueger, Gerhard: *See—*
Hoppe, Klaus, and Krueger, Gerhard,3,550,916.
Krumtinger, Robert T.: *See—*
Bechman, William H., and Krumtinger, Robert T.,3,550,478.
Krupnik, Stephen J., Jr.: *See—*
Rauser, Charles K., Sr., and Krupnik, Stephen J., Jr.,3,550,976.
Kubach, Hans, to Brown, Boveri & Cie Aktiengesellschaft. Biquinary counter for digital indicators. 3,551,650, Cl. 235-92.
Kubota, Saburoh S.: *See—*
Shimizu, Masanao, Takase, Yoshiyuki, and Kubota, Saburoh S.,3,551,566.
Kuczynski, Eugene R., to Leeds & Northrup Company. Electrolytic conductivity cell employing a tube and a barrier member. 3,551,802, Cl. 324-30.
Kuhle, Engelbert: *See—*
Frohberger, Paul-Ernest, Kuhle, Engelbert, and Urbschat, Ewald,3,551,574.
Kuhn, Lloyd W., and Fontaine, William J., said Fontaine assor. to said Kuhn. Turret head for quick-change tool. 3,550,489, Cl. 82-36.
Kuhne, Christoph, to Carl Zeiss-Stiftung, d/b/a Zeiss, Carl. Device for indicating astronomical coordinates of astrs. 3,551,905, Cl. 340-198.
Kuhnis, Hans Herbert, and Denss, Rolf, to Geigy Chemical Corporation. Isonipecotonitriles. 3,551,431, Cl. 260-293.
Kulsichenko, Walter, and Burke, Joseph A., to Pennwalt Corporation. Manually adjustable electrical probe for testing printed circuits and the like. 3,551,807, Cl. 324-72.5
Kuo, Chan Hwa: *See—*
Wendler, Norman L., Taub, David, and Kuo, Chan Hwa,3,551,432.
Kuo, Chan-Hwa: *See—*
Taub, David, and Kuo, Chan-Hwa,3,551,454.
Kupchick, John J., to TRW Inc. Bearing seal. 3,550,974, Cl. 308-187.2
Kupiec, Harry Peter. Expansible chamber type pressure compensator and accumulator. 3,550,634, Cl. 138-26.
Kurashiki Rayon Co., Ltd.: *See—*
Sueyoshi, Jungo, 3,550,427.
Kurashvili, Abessalom Iosifovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.
Kurokawa, Eisuke: *See—*
Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru,3,551,644.
Kusakabe, Takeshi, Suzuki, Kenji, and Kano, Kimio, to Toyoda Machine Works Ltd. Feed control apparatus with a safety device. 3,550,327, Cl. 51-165.
Kuslich, John Stephen. Fishing lure. 3,550,304, Cl. 43-42.15
Kuster, Werner, to Geigy, J. L., AG. Alcohol-soluble color salts. 3,551,170, Cl. 106-22.
Kusunoki, Shinji: *See—*
Yanagisawa, Yuzuru, and Kusunoki, Shinji,3,551,653.
Kuwahara, Yasuharu, and Sakanoue, Michio, to Yasyharu Kuwahara. Liquid preservative for corneal grafts, its method of preparation and use. 3,551,290, Cl. 195-1.7
Kwiatkowski, Rudolph J. Paint brush holder. 3,550,887, Cl. 248-113.
Labatt, John, Limited: *See—*
Murray, David W., and Quittenton, Richard Charles, 3,551,351.

Laboratoires Laroche Navarron: *See—*
Laroche Navarron, Marguerite, 3,551,408.
Labude, Wolfgang, and Bauer, Karl-Heinz, to Preh Electro-Feinmechanische Werke. Plural voltage divider aggregate. 3,551,791, Cl. 323-80.
Ladish Co.: *See—*
Zimmerly, Robert D., 3,551,072.
La Espana Industrial, S.A.: *See—*
Garcia, Joaquin Morales, 3,551,557.
Lagier, Jean-Claude, to Mefina S.A. Adjusting system for universal motors. 3,551,768, Cl. 318-245.
Lagogue, Guy, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Apparatus for longitudinally entraining elongated material. 3,550,830, Cl. 226-180.
L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude:*See—*
Lagogue, Guy, 3,550,830.
Laird, William B., to Air Reduction Company, Incorporated. Method of directly converting molten metal to powder having low oxygen content. 3,551,532, Cl. 264-11.
Lambda Electronics Corporation: *See—*
Gautherin, George A., 3,551,780.
Lambert, Arthur H.: *See—*
Allen, Melvin K., Gunst, Ole, and Lambert, Arthur H.,3,550,238.
Lambert, Chandley W.: *See—*
Lambert, Chandley W., Lambert, Clara I., executrix of said, and Lambert, Chandley W., deceased,3,550,284.
Lambert, Chandley W., Lambert, Clara I., executrix of said, and Lambert, Chandley W., deceased. Vacuum clothes dryer with removable shelves and hangers. 3,550,284, Cl. 34-92.
Lambert, Clara I.: *See—*
Lambert, Chandley W., Lambert, Clara I., executrix of said, and Lambert, Chandley W., deceased,3,550,284.
Lampson, Gerald L., to Data Science Corporation. Magnetic control of a welding arc. 3,551,637, Cl. 219-123.
Landa, Torstein, to Allmanna Svenska Elektriska Aktiebolaget. Press for treating products under high pressure. 3,550,199, Cl. 18-5.
Landau, Ralph, to Halcon International, Inc. Process for preparing polyester resins from aromatic dinitriles. 3,551,387, Cl. 260-75.
Landon, William W., Jr., to Combustion Engineering, Inc. Flame detector. 3,551,908, Cl. 340-228.1
Landwald, Arthur: *See—*
Spiro, Lloyd W., and Landwald, Arthur,3,550,941.
Lang, Ernest U., to National-Standard Company. Band clutch construction. 3,550,736, Cl. 192-41.
Lang, James: *See—*
Lang, Lloyd N.,3,551,285.
Lang, Jean: *See—*
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul,3,550,675.
Lang, Lloyd N., deceased (by Lang, James, administrator). Continuous pulping multizone methods. 3,551,285, Cl. 162-18.
Lange, Arthur A. Steering device for snowmobiles. 3,550,707, Cl. 180-5.
Lange, Fritz, and Dreyer, Gunter, to Deutsche Akademie der Wissen Schaften Zu Berlin. Process of diffusing a material in a liquid phase. 3,551,329, Cl. 210-19.
Lange, Karl Heinz, to Balda-Werke Photographische Gerate und Kunststoff h. Gruter KG. Photographic cameras. 3,550,512, Cl. 95-11.
Langen & Co.: *See—*
Peiffer, Joachim, 3,550,993.
Langer, Erik, to Siemens Aktiengesellschaft. AM-FM N-path filter arrangement with center frequency and band width adjustments. 3,551,857, Cl. 333-70.
Langley, Lawrence W.: *See—*
Cotta, Gilbert A., and Langley, Lawrence W.,3,550,431.
Langton, Frederick H.: *See—*
Boot, Herbert W., and Langton, Frederick H.,3,550,329.
Lanmon, C P II, to Schlumberger Technology Corporation. Formation-sampling apparatus. 3,550,699, Cl. 175-78.
Lansky, Zdenek J., Leibfritz, Kurt W., and Malinowski, Lester W., to Parker-Hannifin Corporation. Fluid distributing manifold for directional control valve. 3,550,621, Cl. 137-608.
Lanthier, Raymond, to Gulf Oil Canada Limited. Continuous vinyl polymerization process. 3,551,396, Cl. 260-85.7
Lappin, Richard J.: *See—*
Vanderlaan, Robert D., and Lappin, Richard J.,3,550,631.
Larkin, George L., Jr.: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T.,3,551,210.
Laroche Navarron, Marguerite, to Laboratoires Laroche Navarron. Triterpene derivatives, process for preparing same, and applications thereof. 3,551,408, Cl. 260-210.
Larrabee, Edward W.: *See—*
Herron, Rand E., Larrabee, Edward W., and Johnson, Carl V.,3,550,858.
Larson International Corporation: *See—*
Larson, Robert W., and Larson, Jerome M., 3,550,801.
Larson, Jerome M.: *See—*
Larson, Robert W., and Larson, Jerome M.,3,550,801.
Larson, Robert A.: *See—*
Gauthier, Edward, Larson, Robert A., and LaTendresse, Philip E.,3,550,653.
Larson, Robert W., and Larson, Jerome M., to Larson International Corporation. Extendable and tiltable load bed structure. 3,550,801, Cl. 214-505.
Laszlo, Joseph, to International Patents & Development Corporation, mesne. Line one gear reducer. 3,550,462, Cl. 74-118.
LaTendresse, Philip E.: *See—*
Gauthier, Edward, Larson, Robert A., and LaTendresse, Philip E.,3,550,653.
Laubach, Gerald D.: *See—*
McLamore, William M., and Laubach, Gerald D.,3,551,483.
Laufe, Leonard E., to Western Pennsylvania Hospital Foundation for Medical Education and Research. Obstetrical forceps. 3,550,595, Cl. 128-323.
LaWarre, Robert W., to Beatrice Foods Co. Tube extruding die. 3,550,539, Cl. 107-14.
Lawima-Holding A.G.: *See—*
Feldmann, Friedrich, 3,550,712.
Lawrence Manufacturing Company: *See—*
Coski, William D., 3,550,972.
Lawton, John G.: *See—*
Bock, Ditmar H., and Lawton, John G.,3,551,795.
Lear Siegler, Inc.: *See—*
Burnett, Frank, 3,550,232.
Hogue, Wilford L., 3,551,282.
Jarosek, Gordon G., 3,551,875.
Leary, Robert E.: *See—*
Mackey, E. Scudder, Pechmann, Karl, and Leary, Robert E.,3,551,152.
Lebenich, Hans: *See—*
Ruschig, Heinrich, Schmitt, Karl, Lebenich, Hans, and Hartfelder, Gunther,3,551,493.
Le Blanc, Walter J., and Main, Ralph R., to Goodrich, B. F., Company, The. Segmented friction member for brake or clutch. 3,550,740, Cl. 192-107.
Leboutet, Alain: *See—*
Friconneau, Claude, Leboutet, Alain, and Lepeintre, Marcel,3,551,315.
Lee, Chung-Pah Xavier: *See—*
Svala, Carl Gunnar, and Lee, Chung-Pah Xavier,3,550,288.
Lee, Donald D. Motor vehicle safety wheel. 3,550,664, Cl. 152-158.
Lee, Norman C., to Carolina Enterprises, Inc. Spring propelled toy pellet gun. 3,550,574, Cl. 124-27.
Lee, Richard J. Integral chamfering tool. 3,550,482, Cl. 77-73.
Leeds & Northrup Company: *See—*
Kuczynski, Eugene R., 3,551,802.
Leesona Corporation: *See—*
Keith, John V., 3,550,871.
Lehikoinen, Urho A., to Ethyl Corporation. Chemiluminescent and smoke producing composition and method. 3,551,343, Cl. 252-188.3
Lehikoinen, Urho Albert, to Ethyl Corporation. Chemiluminescent smokes. 3,551,341, Cl. 252-188.3
Lehikoinen, Urho Albert, to Ethyl Corporation. Chemiluminescent smokes. 3,551,342, Cl. 252-188.3
Lehman, Meir M., Rosenfeld, Jack L., and Schlaeppi, Hans P., to International Business Machines Corporation. Serial cross-bar bussing system. 3,551,894, Cl. 340-172.5
Lehmann, Herbert G., to Valve Corporation. Hand-held dispenser for mixing fluids. 3,550,813, Cl. 222-94.
Lehmann, Wolfgang: *See—*
Ziemann, Heinz, Zenner, Karl-Friedrich, Lehmann, Wolfgang, and Troemel, Gerhard,3,551,288.
Lehrman, David, to Ironees Company, The. Iron rest. 3,550,888, Cl. 248-117.2
Leiber, Heinz, to Teldix GmbH. Brake control system for preventing wheel locking. 3,550,966, Cl. 303-21.
Leibfritz, Kurt W.: *See—*
Lansky, Zdenek J., Leibfritz, Kurt W., and Malinowski, Lester W.,3,550,621.
Leiser, Roger S.: *See—*
Darr, Donald E., Leiser, Roger S., Loehr, Clifford E., and Richardson, Kenneth W.,3,550,177.
Lekan, Henry N.: *See—*
Richards, Louis R., and Lekan, Henry N.,3,550,190.
Lely Ltd.: *See—*
MacKinnon, Ian Archie, 3,550,865.
Lemelson, Jerome H. Apparatus for electrical cable. 3,550,203, Cl. 18-13.
Le Molin, Arrigo Varettoni, and Barlow, Sidney D. Valving construction for felt nib marking devices. 3,551,065, Cl. 401-206.
Lenk, James W., Burnett, Arthur H., and May, Kenneth D., to Berkley Machine Company. Automated adjustment of envelope machines. 3,550,510, Cl. 93-61.
Lenze, Eberhard: *See—*
Muller, Josef, and Lenze, Eberhard,3,551,669.
Leon Chemical & Plastics, Inc.: *See—*
Nicholas, Arthur S., and Chamberlain, James S., 3,550,955.
Leonard, Merrill G.: *See—*
Lockie, Arthur M., and Leonard, Merrill G.,3,551,881.
Leone, Joseph T.: *See—*
Woodward, Robert N., and Leone, Joseph T.,3,551,150.

Leonforte, Michele. Closure having integral spoon. 3,550,805, Cl. 220-42.

Lepeintre, Marcel: *See—*
Friconneau, Claude, Leboutet, Alain, and Lepeintre, Marcel,3,551,315.

Leroi, Eugene L., and Renault, Jean A., to Societe Civile de Recherchest d'Applications Scientifiques, mesne. Treatment of influenza A infections. 3,551,575, Cl. 424-316.

Lesh, Edward J. Aerial tramway system. 3,550,536, Cl. 104-124.

Lesh, Nathan G.: *See—*
Emmott, John T., Lesh, Nathan G., and Stevens, Mead F.,3,551,872.

Letter, Eugene C., and Sullivan, Philip J., to Bausch & Lomb Incorporated. Method for producing a composite article. 3,551,304, Cl. 204-38.

Lever Brothers Company: *See—*
Miles, John J., 3,551,559.
Rapisarda, Anthony A., 3,551,338.

Levine, Martin E., to Gulf & Western Industries, Inc., mesne. Dual-input time-delay switching circuit. 3,551,702, Cl. 307-252.

Levishko, Anatoly Alexandrovich, and Kaljunov, Gennady Alexandrovich. Cone gyratory crusher. 3,550,870, Cl. 241-215.

Levit, Edward C., to Steelcase, Inc. Resilient seat and platform assembly. 3,550,927, Cl. 267-110.

Levy, Andre: *See—*
Gouilloud, Michel Marie Albert, and Levy, Andre,3,551,797.

Lewiecki, Edward M.: *See—*
Grefe, Philipp G., Lewiecki, Edward M., and Shnitzler, Meyer J.,3,550,554.

Lewis, Edward H. Multiple-light bar for portable camera. 3,550,519, Cl. 95-86.

Lewis, Sheldon N., Mc Nulty, Patrick J., and Viste, Kenneth L., to Rohm and Haas Company. 3,5-Disubstituted benzamides. 3,551,484, Cl. 260-558.

LFE Corporation: *See—*
DuVivier, Charles L., Brockett, Peter C., Barney, Alan F., and Pallat, Ludwig R., 3,551,825.

Libby, Cecil Winthrop, and Sand, Robert H., to Burroughs Corporation. Magnetic recording head with interlocking 'V' bars. 3,551,609, Cl. 179-100.2

Licenta Patent Verwaltungs-G.m.b.H.: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter, 3,551,891.
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert, 3,551,893.

Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
Koppelmann, Floris, 3,551,799.

Lichtenstein, Joseph, to Saline Water Conversion Corporation. Apparatus for combining vapors. 3,551,298, Cl. 202-173.

Lienert, Werner M., to Wurlitzer Company, The. Piano stringing method. 3,550,236, Cl. 29-169.5

Lightner, Gene E., and Muhlestein, Howard B., to Hewlett-Packard Company. Automatic liquid sampler. 3,550,453, Cl. 73-422.

Lignes Telegraphiques & Telephoniques: *See—*
Pichot, Michel Georges Andre, and Roquet, Raymond Jacques Charles, 3,551,610.

Lillard, James G., deceased (by Lillard, Thelma C., executrix). Transformer oil production by acetic acid extraction. 3,551,324, Cl. 208-87.

Lillard, Thelma C.: *See—*
Lillard, James G.,3,551,324.

Limberger, Walter, and Wendt, Rudolf, to Lumoprint Zindler K.G. Photographic method for producing a copy and apparatus for carrying out this method. 3,551,049, Cl. 355-107.

Lin, Chao H., to Olin Corporation. Firing mechanism. 3,550,500, Cl. 89-1.

Linde Aktiengesellschaft: *See—*
Tajbl, Franz, and Gillitzer, Max, 3,551,741.

Lindquist, Claude A., Jr., to Pfizer Inc. Dielectric films. 3,551,197, Cl. 117-217.

Lindquist, Clifford W., to United States Steel Corporation. Method of lining cylinders. 3,551,188, Cl. 117-97.

Lindsay, Jacque K.: *See—*
Cooper, Walter, and Lindsay, Jacque K.,3,551,153.

Lindsey, John J., and Lindsey, William R. Nut-kernel dicing machine. 3,550,658, Cl. 146-78.

Lindsey, William R.: *See—*
Lindsey, John J., and Lindsey, William R.,3,550,658.

Linton and Hirst Limited: *See—*
Pickles, Kathleen M., Hirst, Harry, and French, William G., 3,550,266.

Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernaleken, Hugo, to Farbenfabriken Bayer Aktiengesellschaft. Apparatus for carrying out evaporations and reactions accompanied by the evolution gases. 3,550,669, Cl. 159-6.

List, Harold A. Apparatus for stabilizing gagemeter control of rolling mills. 3,550,414, Cl. 72-8.

Litt, Donald D., and Jaroff, David B., to Techmation Corporation. Delivery device for one-revolution cylinder cutter/creaser press. 3,550,934, Cl. 271-68.

Little, Donald M.: *See—*
Hettick, George R., and Little, Donald M.,3,551,102.

Litton Industries, Inc.: *See—*
Balsiger, Harold E., 3,550,323.

Litwiller, Robert J.: *See—*
Powers, Don M., Litwiller, Robert J., and Goldschmidt, Robert E.,3,551,665.

Livermore, H. F., Corporation: *See—*
Stephens, William J., 3,550,643.

Lloyd, James A.: *See—*
Lloyd, Thomas W., 3,550,822.

Lloyd, Thomas W., 1/2 to Lloyd, James A. Hand gun holster. 3,550,822, Cl. 224-2.

Lloyd, William A.: *See—*
Bliss, Arthur E., and Lloyd, William A.,3,551,661.

Locascio, Russell J.: *See—*
Body, William K., Locascio, Russell J., Rice, Harold W., and Scott, Douglas R.,3,550,848.

Lockheed Aircraft Corporation: *See—*
Culp, Richard B., 3,550,753.
Evans, Ernest B., 3,551,764.
Hamilton, Ralph A., 3,551,057.

Lockie, Arthur M., and Leonard, Merrill G., to Westinghouse Electric Corporation. Plug-in type connector for a high current and high voltage circuit. 3,551,881, Cl. 339-112.

Loeffler, John Edward, Jr.: *See—*
Keckler, David P., and Loeffler, John Edward, Jr.,3,551,512.

Loeffr, Larry J., to Merck & Co., Inc. Anti-fibrinolytic agent. 3,551,576, Cl. 424-319.

Loehr, Clifford E.: *See—*
Darr, Donald E., Leiser, Roger S., Loehr, Clifford E., and Richardson, Kenneth W.,3,550,177.

Loner, Aldo, and Meier, Otto, to Carinthia Elektrogerate Gesellschaft m.b.H., Firma. Electric shavers. 3,550,281, Cl. 30-346.51

Long, Harry T., Jr.: *See—*
Whiteside, Roger B., and Long, Harry T., Jr.,3,551,015.

Long, Robert L., and Friason, Lawrence H. Animal enclosure. 3,550,559, Cl. 119-20.

Longley, Kermit D., to Witco Chemical Corporation. By-water dissolution, steam distillation, activated carbon and cation exchange treatment and crystallization. 3,551,300, Cl. 203-31.

Lorenz, Howard A. Crypt closure. 3,550,337, Cl. 52-136.

Lotz, Walter E. Patty forming machine. 3,550,189, Cl. 17-32.

Lovett, Wilson, and Burroughs, Dale. Tobacco priming apparatus. 3,550,365, Cl. 56-27.5

Low, Lothar: *See—*
Jaeger, Friedrich, Low, Lothar, and Tzschoppe, Hans-Joachim,3,550,913.

Lowd, Judson D., and Hill, Ernest C., to Combustion Engineering, Inc. Method of and means for field processing of subsea oil wells. 3,550,385, Cl. 61-46.5

Lowe, John J., to Burlington Industries, Inc. Safety webbing. 3,550,956, Cl. 297-385.

Lubitz, William J.: *See—*
Joslyn, John A., and Lubitz, William J.,3,551,747.

Lucas, Bernard Andre. Device for automatic developing of photographic sensitive surfaces. 3,550,520, Cl. 95-89.

Lucas, Joseph, (Industries) Limited: *See—*
Bloom, Joseph Lewis, 3,550,373.
Bloom, Joseph Lewis, 3,550,374.
Dickinson, Michael, 3,550,441.
Mainprize, David, 3,550,571.
Rubery, Alfred Moffatt, and Harrison, Kenneth Arthur, 3,550,233.

Lummus Company, The: *See—*
Tsao, Utah, 3,551,096.

Lumoprint Zindler K.G.: *See—*
Limberger, Walter, and Wendt, Rudolf, 3,551,049.

Lump, Ronald G.: *See—*
Szajna, John L., and Lump, Ronald G.,3,550,197.

Lund, Svend Aage, and Northeved, Allan, to Svejsecentralen. Method for automatic sorting or recording of objects and apparatus for carrying out the method. 3,550,770, Cl. 209-111.7

Lunde, Gerald A.: *See—*
Warner, Darrel M., and Lunde, Gerald A.,3,551,254.

Lunz, John E.: *See—*
Maynard, John T., and Lunz, John E.,3,551,748.

Luster, James S. Price comparator. 3,551,647, Cl. 235-80.

Lynn, John W.: *See—*
Brotherton, Thomas K., Lynn, John W., and Knopf, Robert J.,3,551,475.

Lynn, Scott, and Paalman, Hendrick Hunter, to Dow Chemical Company, The. Method of preparing hydrogen peroxide. 3,551,104, Cl. 23-207.

Macchi, Eugene E., and Katz, Henry B. Egg carton. 3,550,836, Cl. 229-44.

MacDonald, Donald M., and Godsay, Madhu P., to Canadian International Paper Company. Method of increasing the water-retentivity of cellulose fibers and the product produced thereby. 3,551,410, Cl. 260-212.

MacGregor, Douglas, to Kessler, George. Intravenous catheter unit. 3,550,591, Cl. 128-214.4

Machavariani, Irakly Shalvovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid

Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.

Machlett Laboratories, Incorporated, The: *See—*
Nevins, William H., 3,551,724.

Mackey, E. Scudder, Pechmann, Karl, and Leary, Robert E., to GAF Corporation. Antistatic photographic film. 3,551,152, Cl. 96-85.

Mackie, James, & Sons Limited: *See—*
Mackie, John Kay Pringle, 3,550,876.

Mackie, John Kay Pringle, to Mackie, James, & Sons Limited. Creel. 3,550,876, Cl. 242-129.8

MacKinnon, Ian Archie, to Lely Ltd. Transportable devices for spreading material. 3,550,865, Cl. 239-670.

MacMurtrie, Edward D., and Taylor, Wesley V., Jr., to Texaco Inc. Chromatographic analysis. 3,550,429, Cl. 73-23.1

MacPherson, Leonard, to Rathcon, Inc. Magnetic amusement device. 3,550,316, Cl. 46-238.

Maeda, Tetsuo. Chain fall prevention device for bicycle. 3,550,465, Cl. 74-240.

Maelstaf, Serge: *See—*
Vazquez, Charles, Dufresnoy, Guy, Maelstaf, Serge, and Barbaut, Michel,3,551,631.

Magee, Ted N. Disposable food tray carrier. 3,550,978, Cl. 312-108.

Magerlein, Helmut: *See—*
Rupp, Hans-Dieter, Meyer, Gerhard, and Magerlein, Helmut,3,551,103.

Maggio, Albert C.: *See—*
Roselius, Charles F., Pelikan, George A., and Maggio, Albert C.,3,550,731.

Magnavox Company, The: *See—*
deVries, Gerard, 3,551,595.

Magnusson, Norval: *See—*
Dunn, Luther L., Jr., and Magnusson, Norval,3,551,309.

Mahon, John H., and Schlamb, Kermit F., to Calgon Corporation. Treatment of flesh for food. 3,551,167, Cl. 99-107.

Mahoney, Ralph P., and Phillips, Irvin J., to Beloit Corporation. Air knife coating pan. 3,550,553, Cl. 118-63.

Maier, Robert P., Byfield, Donald R., and Reintjes, George G., to Reintjes, Geo P., Co., Inc. Adjustable support assembly for kiln lining apparatus. 3,550,344, Cl. 52-749.

Main, Ralph R.: *See—*
Le Blanc, Walter J., and Main, Ralph R.,3,550,740.

Mainprize, David, to Lucas, Joseph, (Industries) Limited. Spark ignition systems for internal combustion engines. 3,550,571, Cl. 123-148.

Mais, Ago: *See—*
Miller, Eugene J., Jr., and Mais, Ago,3,551,464.

Maisonneuve, Leo V. Combined container and dispenser having an expansible wrapper. 3,550,809, Cl. 221-25.

Majkus, Vladimir: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto,3,551,556.

Makino, Kazunosuke: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo,3,551,251.

Malamet, Georg: *See—*
Krimm, Heinrich, Malamet, Georg, and Schnell, Hermann,3,551,390.

Malan, Rodwick L., to Eastman Kodak Company. Fischer coupler-gelatin compositions. 3,551,151, Cl. 96-74.

Malinowski, Lester W.: *See—*
Lansky, Zdenek J., Leibfritz, Kurt W., and Malinowski, Lester W.,3,550,621.

Mammucari, Franco: *See—*
Balugani, Fabio, and Mammucari, Franco,3,551,888.

Mann, Roger H.: *See—*
Snyder, John L., Mann, Roger H., and Pate, Mary J.,3,551,392.

Manners, Frank Alan, to Square D Company. Limit control for an alternating current motor. 3,551,740, Cl. 318-203.

Manning, Robert E.: *See—*
Houlihan, William J., and Manning, Robert E.,3,551,411.
Frey, Albert J., Houlihan, William J., and Manning, Robert E.,3,551,450.

Manning, Robert E., to Sandoz-Wander, Inc. 3-Phenyl and substituted phenyl imidazo and pyrimido thiazoles. 3,551,426, Cl. 260-251.

Mapco Inc.: *See—*
Roach, David A., 3,550,618.

Marandi, Ali: *See—*
Englund, Christer E. T., and Marandi, Ali,3,550,614.

Marathon Oil Company: *See—*
Johnson, Irvin D., 3,550,608.

Marc Wood Societe Anonyme Pour la Promotion des Exchanges Techniques Internaux: *See—*
Gewiss, Lucien Victor, 3,550,423.

Marchese, Michael A., and Taft, Lewis G., to International Business Machines Corporation. Method for coating a thin, uniform thickness stripe on a substrate. 3,551,201, Cl. 117-235.

Marchione, Joseph H., to Atwood Vacuum Machine Company. Door hinges with combination hold-open, cushioning, and assist means. 3,550,185, Cl. 16-145.

Marenco, Mario, to Nuova San Giorgio S.p.A. Automatic spinning machine having a device for the automatic doffing of the bobbins and replacing of the tubes. 3,550,368, Cl. 57-52.

Margolis, Joseph M., to General Electric Company. Aqueous binder with adherence additive for lamp phosphor coating. 3,551,180, Cl. 117-33.5

Margon Corporation: *See—*
Samo, Harvey W., 3,550,315.

Marjoram, Ernest B.: *See—*
Craven, Jack L., and Marjoram, Ernest B.,3,550,882.

Marker, Hannes, and Jungkind, Roland, to Hannes Marker. Heel holding device for safety ski bindings. 3,550,996, Cl. 280-11.35

Markert, Ferdinand, Schunck, Michael, and Weber, Georg, to Texaco Development Corporation. Oxidation process with improved waste heat boiler. 3,551,347, Cl. 252-373.

Marks, Morton: *See—*
Wolk, Allan I., and Marks, Morton,3,550,769.

Marradi, Renato, to American Machine & Foundry Company. Automatic tray feeder for cigarette packer. 3,550,799, Cl. 214-302.

Marsh, Gregory S. Color display for sound reproducing systems. 3,550,497, Cl. 84-464.

Marshall, John Donald: *See—*
Budzyna, Joseph M., and Thatcher, Harry William, 3,550,644.

Martin, Karl, and Stabel, Wolfgang, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Finishing glass-fibers. 3,551,186, Cl. 117-65.2

Martin, Keith Fraser: *See—*
Mercer, Frank Brian, and Martin, Keith Fraser,3,551,543.

Martin Marietta Corporation: *See—*
Damico, John J., Rudy, John F., Shuford, David M., and Wischhusen, Theodore F., 3,551,240.

Martin, Ronald C., and Sixt, Marty E., to Advanced Drainage Systems, Inc. Corrugated tube couplings and adapters. 3,551,007, Cl. 285-156.

Martinelli, Saverio: *See—*
De Varda, Giorgio, and Martinelli, Saverio,3,551,598.

Martin-Marietta Corporation: *See—*
Casadevall, James L., 3,551,268.
Richards, Edward F., and Depperman, Warren B., 3,550,604.

Marton, Louis L. Transformer with heat dissipator. 3,551,863, Cl. 336-58.

Marukawa, Gohei, Oikawa, Takashi, and Hamada, Arinobu, to Showa Denko Kabushiki Kaisha. Aluminum base alloys having improved high temperature properties and method for their production. 3,551,143, Cl. 75-138.

Marzocchi, Alfred, to Owens-Corning Fiberglas Corporation. Glass fiber-plastic composites of improved strength. 3,551,269, Cl. 161-93.

Marzolph, Herbert: *See—*
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther,3,551,373.

Masaka, Toshiharu: *See—*
Takaura, Hirozo, Masaka, Toshiharu, and Ando, Sumio,3,551,281.

Maschinenfabrik FAHR AG: *See—*
Graeber, Ewald, 3,550,362.

Maschinenfabrik Reinhausen Gebruder Scheubeck K.G.: *See—*
Bleibtreu, Alexander, 3,551,628.

Mason, Colin P., to Polymer Corporation Limited. Process of gelling, foaming, and vulcanizing a blend of high solids synthetic latices. 3,551,359, Cl. 260-2.5

Mason, Ronald C., Burke, George F. C., and Fuller, George A., Jr., to USM Corporation. Adjustable pick-off devices. 3,550,932, Cl. 271-26.

Masonite Corporation: *See—*
Thrasher, Elbridge W., 3,550,654.

Massilon-Cleveland, Akron, Sign Company, The: *See—*
Friedrichse, Thomas, 3,550,297.

Masson, Lucien. Cigarette lighting and air refreshing device. 3,551,092, Cl. 21-119.

Mast-Foos Manufacturing Company, Incorporated: *See—*
Musgrave, Orly, 3,550,364.

Matalon, Ralph. Composite cross-linking agent/resin former compositions and cold-setting and heat-setting resins prepared therefrom. 3,551,365, Cl. 260-17.2

Matecki, Edward A., to Union Carbide Corporation. Method for making shirred casing articles. 3,550,191, Cl. 17-49.

Mator, Richard T., Petrocelli, James A., and Puzniak, Thomas J., to Gulf Research & Development Company. Method and apparatus for separating mixtures of hydrocarbons. 3,550,428, Cl. 73-23.1

Matsubara, Akira: *See—*
Yamanaka, Tadashi, and Matsubara, Akira,3,551,117.

Matsui, Kenichi: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.

Matsuki, Yosiaki: *See—*
Matsuo, Shigetomo, Matsuki, Yosiaki, and Komeya, Katsutoshi,3,551,101.

Matsuo, Shigetomo, Matsuki, Yosiaki, and Komeya, Katsutoshi. Preparation of sintered aluminum nitride. 3,551,101, Cl. 23-192.

Matsuoka, James T., to Intercole Automation, Inc. Machine for processing rubber, plastic and the like and method. 3,550,914, Cl. 259-104.

Matsushima, Eiichi: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo,3,551,251.

Matsushita Electric Industrial Co.: *See—*
Yamanaka, Tadashi, and Matsubara, Akira, 3,551,117.
Matsushita Electric Industrial Co., Ltd.: *See—*
Nishimura, Katsutoshi, Fujisawa, Kiyoji, Kozu, Isao, and Yamamoto, Kozo, 3,551,691.
Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru, 3,551,644.
Suzuki, Takashi, and Hamabe, Takesi, 3,551,303.
Wada, Mitsuo, and Iida, Yoshio, 3,551,195.
Matsushita Electric Industrial Company Limited: *See—*
Orita, Takao, Kosaka, Masahiro, and Fujita, Tadamasa, 3,550,289.
Matsushita Electronics Corporation: *See—*
Kato, Yoshio, Konosu, Osamu, and Nakagawa, Yoshio, 3,551,717.
Matsuura, Minoru, to Kobe Steel, Ltd. Process for the production of medium-to low-carbon ferromanganese alloys. 3,551,141, Cl. 75-80.
Mattel, Inc.: *See—*
Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M., 3,551,022.
Matzuk, Alexander: *See—*
Shen, Tsung-Ying, Matzuk, Alexander, and Dorn, Conrad P., Jr.,3,551,444.
Maurice, Jean, and Piret, Jean, to Regie Nationale des Usines Renault and Automobiles Peugeot. Transmission and final drive units. 3,550,474, Cl. 74-606.
Maxon, Leroy James. Purge valve for cooling fluid conduit systems. 3,550,612, Cl. 137-112.
May, Kenneth D.: *See—*
Lenk, James W., Burnett, Arthur H., and May, Kenneth D.,3,550,510.
Mayer, Francis X.: *See—*
Brown, James W., Mayer, Francis X., and Kalina, Theodore,3,551,138.
Mayer, Gerald C., to Howe Richardson Scale Company. Automatic batch and checkweighing apparatus. 3,550,704, Cl. 177-50.
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter, to Farbenfabriken Bayer Aktiengesellschaft. Certain 5-(2-pyridyl)-4,5-dihydro-1,3,4- thiadiazole-2-thiol derivatives. 3,551,434, Cl. 260-294.8
Mayers, John L., to United Aircraft Corporation. Valve seal. 3,550,906, Cl. 251-306.
Maynard, John T., to Smith, O.A., Corporation. Bi-directional power circuit having crossover control means. 3,551,782, Cl. 321-13.
Maynard, John T., and Lunz, John E., to Smith, A. O., Corporation. Polyphase full wave rectified power circuit having phase detection means. 3,551,748, Cl. 317-47.
Maytag Company, The: *See—*
Anthony, Tad B., and Hunter, William H., 3,550,171.
Davis, Gordon Jerry, 3,550,170.
McCabe, Robert V. Filter and shaker means therefor. 3,550,358, Cl. 55-305.
McCain, Glendell R., to Amarillo Gear Company. Slip coupling and one way brake for irrigation pump. 3,550,727, Cl. 188-82.9
McCall, Richard J. Shipping container. 3,550,834, Cl. 229-22.
McCluckie, Donald E., and Brown, Willard D., Jr., to White Consolidated Industries, Inc. Coupling mechanism for power conveyors. 3,550,533, Cl. 104-100.
McCollough, John K., and Wylie, Richard D., to Deering Milliken Research Corporation. Coin conveyor. 3,550,350, Cl. 53-167.
McCormick, Loran F., Kovar, Joseph J., and Brown, Claude W., to United States of America, Navy. Communication system time recovery unit. 3,551,814, Cl. 325-38.
McDermott, Jane O. Shower apparatus. 3,550,863, Cl. 239-562.
McDonnell Douglas Corporation: *See—*
Beesley, Robert L., 3,551,033.
Jong, Howard W., 3,550,163.
McDonough, James O.: *See—*
Grossimon, Herbert P., McDonough, James O., and Moore, Gerald T.,3,551,808.
McGarr, John J., to USM Corporation. Processes for making microporous polyurethane bodies employing non-boiling liquid alkyl ethers or liquid aliphatic hydrocarbons. 3,551,364, Cl. 260-2.5
McGivern, Robert F., to Bausch & Lomb Incorporated. Lamphouse assembly for photogrammetric stereo map plotter. 3,551,041, Cl. 353-6.
McGlumphy, James H., Pfaff, James Orville, Quinn, Alton De Witt, and Wellner, Georges. Reconstituted tobacco containing adherent encapsulated flavors and other matter. 3,550,598, Cl. 131-17.
McGraw-Edison Company: *See—*
Bordak, John A., and Kowalski, Walter, 3,551,627.
Burton, James R., 3,551,684.
McHale, John J.: *See—*
Holcomb, Richard H., and McHale, John J.,3,551,722.
McIntosh, Harold A., to Robertshaw Controls Company. Valve construction with modulating diaphragm construction. 3,550,901, Cl. 251-38.
McKay Machine Company, The: *See—*
Davis, Charles H., 3,550,249.
McKellen, Patrick Ewart, and Clayton, Dennis Albert, to Electric Power Storage Limited. Topping-up devices for electric batteries. 3,550,651, Cl. 141-198.
Mc Kinney, Carlton B., to Hamilton Company, Inc. Septum for use in a gas chromatograph. 3,551,273, Cl. 161-166.
McLamore, William M., and Laubach, Gerald D., to Pfizer, Chas, & Co., Inc. 2,4-Disulfonyl halide substituted acylanilides. 3,551,483, Cl. 260-543.
McLeod, Cannell J. Rack gear formation. 3,550,418, Cl. 72-192.
McLeod, William J.: *See—*
Smith, Calvin S., and McLeod, William J.,3,551,106.
Mc Master, Dexter H., to Permaglass, Inc. Apparatus for applying gas against the opposite surfaces of a sheet of glass. 3,551,130, Cl. 65-182.
McMaster, Robert C., to Ohio State University, The. Process forthe cold forming of metal. 3,550,417, Cl. 72-57.
McNeil Laboratories, Incorporated: *See—*
Mohrbacher, Richard J., and Paragamian, Vasken, 3,551,435.
McNelis, Patrick M., to Emtec Designs, Inc. Timing device for generating a plurality of controllable pulse trains. 3,551,822, Cl. 328-62.
Mc Nulty, Patrick J.: *See—*
Lewis, Sheldon N., Mc Nulty, Patrick J., and Viste, Kenneth L.,3,551,484.
Measurement Science Corporation: *See—*
Ensign, John D., 3,550,448.
Mebus, George W., to United States of America, Navy. Bearing angle computer. 3,551,664, Cl. 235-164.
Meer, Winfried, and Schembs, Wolfgang, to Siemens Aktiengesellschaft. Method of producing a transistor. 3,551,220, Cl. 148-175.
Mefina S.A.: *See—*
Lagier, Jean-Claude, 3,551,768.
Mehnert, Walter: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter,3,551,891.
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert, to Licenta Patent Verwaltungs-GmbH, and Entwicklungsring Sud GmbH. Power fluctuation simulator. 3,551,893, Cl. 340-172.5
Meier, Otto: *See—*
Loner, Aldo, and Meier, Otto,3,550,281.
Meiji Seika Kaisha, Ltd.: *See—*
Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo, 3,551,502.
Meister, William J., to Globe Universal Sciences, Inc., mesne. Seismic energy generator handling mechanism. 3,550,719, Cl. 181-0.5
Meixner, Arthur E.: *See—*
Reynolds, Frederick W., and Meixner, Arthur E.,3,551,870.
Melche, Fanz Josef: *See—*
Knothe, Eich Emil, Billin, Eckhad, and Melche, Fanz Josef,3,550,703.
Melnikov-Eikhenvald, Mikhail Alexeevich, Kamarian, Georgy Mikirtychevich, Suchkov, Vladimir Nikolaevich, Djumulen, Vadim Ipolitovich, and Nesterkin, Alexandr Kuzmich. Emulsifier. 3,550,912, Cl. 259-4.
Meltzer, Robert I.: *See—*
Heansen, Holger V., Meltzer, Robert I., and Merger, Franz,3,551,430.
Melvin, Daniel E., and Randolph, John W. Automatic laundry sorting apparatus. 3,550,772, Cl. 209-125.
Menell, Hans, and Henning, Hermann, to Continental Gummi-Werke Aktiengesellschaft. Pneumatic vehicle tire. 3,550,666, Cl. 152-354.
Menell, Jerome. Wall module for optical rear projection systems. 3,551,044, Cl. 353-94.
Menendez, Julius, and Duino, Louis A. Practice device for golfers. 3,550,946, Cl. 273-186.
Mercer, Frank Brian, and Martin, Keith Fraser, to Plastic Textile Accessories Limited. Manufacture of plastic net. 3,551,543, Cl. 264-167.
Merck & Co., Inc.: *See—*
Girotra, Narindar N., and Wendler, Norman L., 3,551,455.
Loeffr, Larry J., 3,551,576.
Shen, Tsung-Ying, Matzuk, Alexander, and Dorn, Conrad P., Jr., 3,551,444.
Sletzinger, Meyer, and Gal, George, 3,551,476.
Taub, David, and Kuo, Chan-Hwa, 3,551,454.
Tristram, Edward W., Tull, Roger J., and Powell, Burwell F., 3,551,498.
Wendler, Norman L., Taub, David, and Kuo, Chan Hwa, 3,551,432.
Merger, Franz: *See—*
Zeidler, Adolf, Fischer, Adolf, Buerger, Gert, and Merger, Franz,3,551,429.
Heansen, Holger V., Meltzer, Robert I., and Merger, Franz,3,551,430.
Meridian Industries, Inc.: *See—*
Keller, Adam L., 3,551,744.
Merino, Dennis H.: *See—*
Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M.,3,551,022.
Merten, Rudolf: *See—*
Weber, Christian, and Merten, Rudolf,3,551,527.
Meshberg, Philip. Method of filling two compartment container. 3,550,649, Cl. 141-3.
Metal Containers Limited: *See—*
Ragettli, Christian, 3,551,255.
Metaltronics: *See—*
Harvey, Richard F., 3,550,671.

Metayer, Michel Paul Marie: *See—*
Kerhoas, Jean-Claude, Metayer, Michel Paul Marie, and Teboul, James Remy Albert,3,551,682.
Meth, Max, to Meth, Rose, executrix of the estate of Meth, Max, deceased, mesne. Glass etching composition and method of preparing nonreflective glass. 3,551,228, Cl. 156-24.
Meth, Rose: *See—*
Meth, Max, 3,551,228.
Metzger Construction Co., Inc.: *See—*
Metzger, Hendrix W., 3,550,237.
Metzger, Hendrix W., to Metzger Construction Co., Inc. Apparatus for opening baled springs. 3,550,237, Cl. 29-200.
Metzger, Leopold H., and Miller, Harold C., to Super-Cut, Inc. Method of and apparatus for surfacing refractory slabs or the like. 3,550,575, Cl. 125-3.
Meyer, Burton C.: *See—*
Kramer, Norman, Meyer, Burton C., and Disko, Harry,3,551,579.
Meyer, Donald R., and Arel, Robert W., to Oster, John, Manufacturing Co. Automatic can opener. 3,550,271, Cl. 30-4.
Meyer, Gerhard: *See—*
Rupp, Hans-Dieter, Meyer, Gerhard, and Magerlein, Helmut,3,551,103.
Meyer, Karin G.: *See—*
Bode, Hans, Meyer, Karin G., Rieder, Ernst, and Voss, Ernst,3,551,755.
Meyer, Roth & Pastor: *See—*
Wattler, Wilhelm, and Englisch, Adolf, 3,551,633.
Meyer, Werner, and Braun, Gunter, to Westinghouse Bremsen-und Apparatebau, G.m.b.H. Mechanism for controlling output pressure of fluid pressure regulating valve. 3,550,929, Cl. 267-175.
Michaels, Leonard H., to Harper-Wyman Company. Fuel burner ignition. 3,551,083, Cl. 431-66.
Michaelson, Joseph B., to Applied Biological Sciences Laboratory, Inc. Bacteriocidal treatment of liquids. 3,551,334, Cl. 252-8.55
Michel, Kurt, to Zeiss-Stiftung, Carl, d/b/a Zeiss, Carl. Universal microscope. 3,551,019, Cl. 350-18.
Mihelic, Edward L.: *See—*
Hawthorne, John O., and Mihelic, Edward L.,3,551,414.
Mikkelsen, Jens Engholm: *See—*
Juul, Knud Dinesen, and Mikkelsen, Jens Engholm,3,550,746.
Miklos, Zoltan W.: *See—*
Weigel, Russell V., and Miklos, Zoltan W.,3,550,227.
Miles, John J., to Lever Brothers Company. Process for producing deacrated toothpaste. 3,551,559, Cl. 424-49.
Miles, John M., Killebrew, Wilbur N., Jr., and Wood, James Q., to Phillips Petroleum Company. Method for forming high impact polymers. 3,551,522, Cl. 260-878.
Milianowicz, Stanislaw A., to Westinghouse Electric Corporation. Fluid-blast circuit interrupters with improved electromagnetic driving means. 3,551,626, Cl. 200-148.
Miller, Chauncey S., to Westinghouse Electric Corporation. Remote signaling of control signals. 3,551,889, Cl. 340-171.
Miller, David H.: *See—*
Evans, Marvin, and Miller, David H.,3,550,925.
Miller, Eugene J., Jr., and Mais, Ago, to Armour Industrial Chemical Company, mesne. Esterification. 3,551,464, Cl. 260-410.6
Miller, Fred F., Jr., to Dana Corporation. Constant velocity universal joint. 3,550,396, Cl. 64-21.
Miller, Harold C.: *See—*
Metzger, Leopold H., and Miller, Harold C.,3,550,575.
Miller, Henry C., and Muetterties, Earl L., to Du Pont de Nemours, E. I., and Company. Substituted dodecaborates. 3,551,120, Cl. 23-358.
Miller, Herman, Inc.: *See—*
Propst, Robert L., 3,550,892.
Propst, Robert L., and Kelley, James O., 3,550,908.
Protzmann, Peter J., 3,550,979.
Miller, Marshall W., to General Motors Corporation. Transmission control and indicator apparatus. 3,550,551, Cl. 116-124.
Miller, Park H., Jr., and Whittemore, William L., to Gulf Energy & Environmental Systems, Inc., mesne. Method and apparatus for modulating the density of a beam of particles and determining the velocity distribution of the particles. 3,551,675, Cl. 250-83.1
Miller, Robert J.: *See—*
Clayton, William J., Miller, Robert J., and Smith, Clair C.,3,550,839.
Miller, William P.: *See—*
Kenyon, David W., and Miller, William P.,3,550,320.
Minarik, William L.: *See—*
Harp, John W., and Minarik, William L.,3,551,249.
Mine Safety Appliances Company: *See—*
Temple, Robert, Temple, Ernest E., and Giebel, Joseph L., 3,550,274.
Minnesota Mining and Manufacturing Company: *See—*
Bingham, Wallace Karl, and Vanstrum, Robert C., 3,551,025.
Dunlop, Alexander K., and Hogenson, Raymond A., 3,550,458.
Gilkeson, David C., and Buzawa, Michael J., 3,551,030.
Wickstrom, Svante Theodore, 3,550,716.
Minnesota Rubber Company: *See—*
Rentschler, John H., and Carlson, Robert W., Jr., 3,550,990.
Minton, George H.: *See—*
Eich, Walter J., Minton, George H., Andrews, Harry N., and French, Robert J.,3,551,289.
Miskolczy, Laszlo: *See—*
Wolkober, Zoltan, Wolkober, Eva, Bazsika, Gabor, and Miskolczy, Laszlo,3,550,454.
Mitchell, Clifford F. Ice flaking machine. 3,550,392, Cl. 62-320.
Mitchell, Richard L., to Sybron Corporation. Paper parameter measurement using infrared radiation. 3,551,678, Cl. 250-83.3
Mitsui Petrochemical Industries, Ltd.: *See—*
Arakawa, Takaaki, and Saeki, Kenji, 3,551,467.
Mittermayer, Emerick J., to American Envelope Company. Method and apparatus of high speed manufacture of flap glued lined envelope. 3,550,509, Cl. 93-61.
Miyasaka, Takao, to Victor Company of Japan Limited. Commutatorless motor. 3,551,765, Cl. 318-138.
Miyauchi, Yoshio, to Dainippon Screen Mfg. Co., Ltd. Device for automatically selecting and feeding roll films. 3,550,829, Cl. 226-110.
Mizzoni, Renat Herbert, to Ciba Corporation. N, N'-diaminoalkoxybenzyl-diamino-alkanes and the salts thereof. 3,551,492, Cl. 260-570.7
Mobay Chemical Company: *See—*
Chadwick, David H., 3,551,468.
Mobil Oil Corporation: *See—*
Chen, Nai Yuen, and Smith, Fritz A., 3,551,353.
Clayton, William J., Miller, Robert J., and Smith, Clair C., 3,550,839.
Gee, Paul Y. C., and Andress, Harry J., Jr., 3,551,466.
Gosper, David L., and Moffitt, Myron L., 3,551,546.
Prater, Charles D., and Wei, James, 3,551,658.
Weindel, Herman F., 3,551,371.
Mochinzuki, Toyoju, and Watanabe, Mamoru. Intensifier for dual system power brakes. 3,550,377, Cl. 60-54.5
Model, Ernst, and Gatzi, Karl, to Geigy Chemical Corporation. 2-Hydroxy-4-halo-diphenyl sulfones. 3,551,500, Cl. 260-607.
Modern Election Equipment Co.: *See—*
Albrecht, Leonard N., and Harris, Joseph P., 3,550,540.
Moeller, Eugene Charles. Method of and apparatus for cleaning a grinder screen and distributing materials. 3,550,661, Cl. 146-242.
Moffitt, Myron L.: *See—*
Gosper, David L., and Moffitt, Myron L.,3,551,546.
Mohasco Industries, Inc.: *See—*
Crawford, Allan H., 3,550,543.
Ferguson, Arlen H., 3,550,952.
Mohrbacher, Richard J., and Paragamian, Vasken, to McNeil Laboratories, Incorporated. Certain 4-(pyridylmethylene)-3,4-dihydro-1-benzothiepin-5(2H)-ones. 3,551,435, Cl. 260-294.8
Moleculon Research Corporation: *See—*
Nichols, Larry D., and Kapustin, Daniel B., 3,551,592.
Molins Machine Company Limited: *See—*
Jackson, Norman Walter, 3,550,750.
Molins Machine Company Limited, The: *See—*
Davis, Peter Grant, 3,550,245.
Moller, Waldemar, to Bodenseewerk Geraetetechnik, GmbH. Autopilot. 3,550,884, Cl. 244-77.
Monforte, Frank R., and Schnettler, Frank J., to Bell Telephone Laboratories, Incorporated. Method of forming particulate material. 3,551,533, Cl. 264-14.
Monsanto Company: *See—*
Alt, Gerhard H., and Strelau, Robert J., 3,551,495.
Ash, Jacob R., 3,551,272.
Baker, Joseph W., and Howe, Robert K., 3,551,573.
Barker, George E., 3,551,839.
Berkau, Eugene E., and Hocutt, William R., 3,551,386.
Carter, Ernest P., and Vest, Chilton T., 3,551,263.
Dalton, William O., 3,551,370.
Husted, Robert F., 3,551,132.
Jackson, Robert Cheves, 3,551,265.
Knudsen, John P., 3,551,547.
Phillips, Jerry R., 3,550,407.
Price, George B., 3,551,666.
Sahni, Atam P., 3,551,368.
Stearns, Robert I., 3,551,314.
Stein, Alvin, 3,551,524.
Sundbeck, Edward H., 3,551,549.
Timbie, Robert W., 3,550,827.
Weingarten, Harold I., and White, William A., 3,551,418.
Monsanto Company (Australia) Limited: *See—*
Holan, George, 3,551,577.
Montecatina Edison S.p.A.,: *See—*
Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco, 3,551,452.
Montecatini Edison S.p.A.: *See—*
Portolani, Augusto, Panciroli, Gino, and Giovanardi, Sandro, 3,551,284.
Moore, Charles T.: *See—*
Jaeger, Benjamin E., and Moore, Charles T.,3,550,789.
Moore, Donald R.: *See—*
Tesoro, Giuliana C., Sello, Stephen B., Moore, Donald R., and Wurster, Rudolf F.,3,551,422.
Moore, Douglas A., to Northrop Corporation. T%AOE TRANSPORT mechanism. 3,550,984, Cl. 274-4.
Moore, Gerald T.: *See—*
Grossimon, Herbert P., McDonough, James O., and Moore, Gerald T.,3,551,808.
Morgan Construction Company: *See—*
Kinnicutt, Roger, Jr., 3,550,477.

Morgan, Peter Ernest: *See—*
Evans, Lee Stanley, and Morgan, Peter Ernest,3,550,247.
Mori, Takaaki: *See—*
Tokuyama, Takashi, Nishimatsu, Shigeru, Uehara, Keijiro, and Mori, Takaaki,3,551,760.
Morris, Albert Earl, Jr., deceased (by Morris, Helen Knox, executrix). Throttle override control linkage. 3,551,069, Cl. 416-27.
Morris, Helen Knox: *See—*
Morris, Albert Earl, Jr.,3,551,069.
Morris, Robert L.: *See—*
Howard, Henry G., Jr., Knight, Lee H., Jr., and Morris, Robert L.,3,550,188.
Morrison, Ralph A.: *See—*
Harding, Richard E., Morrison, Ralph A., Peterson, Raymond L., and Smalley, Edwin P.,3,550,172.
Morse, John F. Rotary actuator for push-pull cables. 3,550,469, Cl. 74-501.
Moser, Vincent J., Greizerstein, Walter, and Kottke, Roger H., to Rohm and Haas Company. Non-aqueous adhesive system for use in an electrostatic flocking method. 3,551,179, Cl. 117-17.
Moskovitz, Irving, to Ward Electronic Industries, mesne. Apparatus for converting monochrome television signals to color signals. 3,551,589, Cl. 178-5.4
Mothes, Donald A., to Jewell Electrical Instruments, Inc., mesne. Electrical measuring moving coil mechanism. 3,551,812, Cl. 324-151.
Motion Media, Inc.: *See—*
Hewitt, Robert G., 3,551,039.
Motoki, Takashi: *See—*
Yonezu, Shuzo, Nojima, Yasuhiro, and Motoki, Takashi,3,551,400.
Motorola, Inc.: *See—*
Fowler, William R., 3,551,695.
Griffey, Donald E., 3,551,821.
Hilbert, Francis H., and Ohn, Tin, 3,551,833.
Saltich, Jack L., and Rutledge, James L., 3,550,260.
Smith, Lawrence R., 3,551,698.
Moul, David R.: *See—*
Woods, Roger M., and Moul, David R.,3,551,302.
Mounts, Lewis S., and Tigner, Ruben A., to Dow Chemical Company, The. Container stacking feature. 3,550,808, Cl. 220-97.
Mowbot, Inc.: *See—*
Bellinger, S. Lawrence, 3,550,714.
Muanyagipari Kutato Intezet and Hungaria Muanyagfeldolgozo Vallalat: *See—*
Wolkober, Zoltan, Wolkober, Eva, Bazsika, Gabor, and Miskolczy, Laszlo, 3,550,454.
Mueller, Arthur C., to Bell & Howell Company. Triangulation rangefinding mechanism with locking device. 3,550,517, Cl. 95-44.
Mueller, Klaus P.: *See—*
Kreuter, Kenneth G., and Mueller, Klaus P.,3,550,629.
Muetterties, Earl L.: *See—*
Miller, Henry C., and Muetterties, Earl L.,3,551,120.
Muhlestein, Howard B.: *See—*
Lightner, Gene E., and Muhlestein, Howard B.,3,550,453.
Muir, Earl B., to White Motor Corporation. Control mechanism. 3,550,460, Cl. 74-89.
Mulay, Salvatore S., to Tri-Point Industries, Inc. Fluorocarbon sound record. 3,551,264, Cl. 161-42.
Mulders, Julien: *See—*
Ryckaert, Andre, and Mulders, Julien,3,551,505.
Muller, Hellmut. Radial drilling machine. 3,550,480, Cl. 77-28.
Muller, Josef, and Lenze, Eberhard, to Trilux-Lenze KG. Replaceable chassis section for light fittings. 3,551,669, Cl. 240-73.
Multi-Minerals Limited: *See—*
Cochran, Linden Wayne, 3,550,917.
Munch, Peter: *See—*
Dany, Franz-Josef, Kandler, Joachim, and Munch, Peter,3,551,379.
Munger, John R., and Tate, Sherman E., to United States of America, Army. Rocket launcher for launching rockets with high initial acceleration. 3,550,501, Cl. 89-1.816
Murata, Yoshio: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo,3,551,251.
Murphy, Robert N., to Case, J. I., Company, mesne. Torque absorbing coupler. 3,550,655, Cl. 144-34.
Murray, David W., and Quittenton, Richard Charles, to Labatt, John, Limited. Regeneration of nylon used to treat beer. 3,551,351, Cl. 252-415.
Musashi, Akira: *See—*
Suzuki, Hisao, Musashi, Akira, Uo, Shinzaburo, and Yamazaki, Masami,3,551,193.
Musgrave, Orly, to Mast-Foos Manufacturing Company, Incorporated. Riding mower. 3,550,364, Cl. 56-25.4
Musselman, John M., and Schieman, Richard D., to Standard Oil Company, The. Plant growth stimulant composition and process. 3,551,131, Cl. 71-82.
Muzyczko, Thaddeus M., Shore, Samuel, and Schulert, Sanford, to Richardson Company, The. Preparation of water soluble polymeric vinyl aromatic sulfonates. 3,551,393, Cl. 260-79.3
Myers, Clifford E., to Welsh Panel Company. Wood impregnation. 3,551,190, Cl. 117-116.
Myers, John G., and Field, Joseph H., to United States of America, Interior. Alkalized alumina absorbent and method of making same. 3,551,093, Cl. 23-2.
Myles, Walter E.: *See—*
Neuberger, Thomas P., and Myles, Walter E.,3,551,043.
Naff, John T.: *See—*
Brumfield, Robert C., Naff, John T., and Robinson, Alonzo T. W.,3,551,090.
Nagamine, Katushiko: *See—*
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko,3,551,277.
Nagaoka, Kozo: *See—*
Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo,3,551,502.
Nagashima, Kiyoji: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo,3,551,251.
Nagata, Koetsu: *See—*
Ando, Satoshi, Uraya, Toru, and Nagata, Koetsu,3,551,279.
Nagel, William S.: *See—*
Douglas, Paul M., and Nagel, William S.,3,550,730.
Nagoya Metallic Card Clothing Co., Ltd.: *See—*
Watanabe, Moriichi, 3,550,214.
Naito, Takayuki, and Nakagawa, Susumu, to Bristol-Myers Company, mesne. 3-Phenyl-5(alkyl)isothiazole-4-carboxylic acids and intermediates thereof. 3,551,440, Cl. 260-302.
Naitoo, Takio, to Hitachi, Ltd. Semiconductor device and method of making same. 3,551,762, Cl. 317-236.
Nakagawa, Susumu: *See—*
Naito, Takayuki, and Nakagawa, Susumu,3,551,440.
Nakagawa, Yoshio: *See—*
Kato, Yoshio, Konosu, Osamu, and Nakagawa, Yoshio,3,551,717.
Nakai, Chiyouzi: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.
Nakamura, Yasushi: *See—*
Yamamoto, Hisao, Nakamura, Yasushi, Nakao, Masaru, and Kobayashi, Tsuyoshi,3,551,446.
Nakamura, Yukiyasu, to H. Giken Kogyo Kabushiki Kaisha. Process for grinding gears. 3,550,330, Cl. 51-287.
Nakamura, Yuko, Yamane, Hisakichi, and Yanagimachi, Akio, to Japan Broadcasting Corporation. Supervisory and control system of television image signal for the broadcasting program. 3,551,591, Cl. 178-5.6
Nakanishi, Atsuo: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.
Nakao, Masaru: *See—*
Yamamoto, Hisao, Nakamura, Yasushi, Nakao, Masaru, and Kobayashi, Tsuyoshi,3,551,446.
Nakata, Tetsuya: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.
Nakatani, Hiroshi: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio,3,551,462.
Nanko, Yoshiyuki: *See—*
Irie, Toshiaki, and Nanko, Yoshiyuki,3,550,292.
Naruse, Noboru: *See—*
Takebe, Toshio, Kayano, Masanori, and Naruse, Noboru,3,551,558.
Nass, Gerald I.: *See—*
Bassemir, Robert W., Dennis, Richard, and Nass, Gerald I.,3,551,235.
Nass, Gerald I., Bassemir, Robert W., and Carlick, Daniel J., to Sun Chemical Corporation. Radiation-curable compositions. 3,551,311, Cl. 204-159.18
National Cash Register Company, The: *See—*
Breen, William H., and Sirine, Gloria F., 3,551,346.
Yen, Yao Tung, 3,551,692.
National Lead Company: *See—*
Blumenthal, Warren B., 3,551,095.
National Research Corporation: *See—*
Villani, Gerard J., and Klibanoff, Allen L., 3,550,773.
National Research Development Corporation: *See—*
Cloete, Francis Louis Dirk, and Streat, Michael, 3,551,118.
Tucker, Malcolm John, and Smith, Norman Dennis, 3,550,446.
National Steel Corporation: *See—*
Benbow, Albert R., and Suray, Donald J., 3,550,679.
National Sulphur Company: *See—*
Campbell, Roy E., 3,550,195.
National-Standard Company: *See—*
Lang, Ernest U., 3,550,736.
Nawashiro, Yoshio: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio,3,551,462.
Nawn, George H., and Timson, William J., to Polaroid Corporation. Method of conducting electric current through developed silver halide images. 3,551,149, Cl. 96-38.4
Nayar, Harbhajan S., to Contemporary Research Inc. Production of copper and copper oxide powder for powder metallurgy. 3,551,136, Cl. 75-0.5
Neale, Erick W., to Hallam, Sleigh & Cheston Limited. Seats. 3,550,953, Cl. 297-312.

Neary, Ralph E., and Schlage, Ernest L., to Schlage Lock Company. Lock protecting mechanism. 3,550,411, Cl. 70-370.
Needham, Donald G., to Phillips Petroleum Company. Method of foaming an olefin polymer using starch as a nucleating agent. 3,551,361, Cl. 260-2.5
Nehring, Rudolf, Heidel, Klaus, and Hamann, Karl, to Chemische Werke Huels A.G. Unsaturated polyesters having improved properties from cyclohexane dimethanol carbonates. 3,551,520, Cl. 260-861.
Neidinger, William Kuno: *See—*
Isaacson, Larry Zorah, Kelly, Peter Bernard, and Neidinger, William Kuno,3,551,283.
Neilsen, Hildaur L., to Zephyr American Corporation. Combination of a rotary index and a support therefor. 3,550,980, Cl. 312-186.
Nelson, Herbert, to RCA Corporation. Semiconductor laser having high power output and reduced threshold. 3,551,842, Cl. 331-94.5
Nelson, Jerome W., to CRC-Crose International Inc. Automatic pipeline welding method and apparatus therefor. 3,551,636, Cl. 219-125.
Nelson, Lawrence B.: *See—*
Bluestein, Bernard R., Solomon, Jack M., and Nelson, Lawrence B.,3,551,487.
Nemiroff, Robert V.: *See—*
Dannettell, Aian C., Nemiroff, Robert V., and Tedd, David C.,3,551,773.
Nerwin, Hubert, and Kern, Frederick W., to Eastman Kodak Company. Slide exchanging device. 3,551,045, Cl. 353-116.
Nesterkin, Alexandr Kuzmich: *See—*
Melnikov-Eikhenvald, Mikhail Alexeevich, Kamarian, Georgy Mikirtychevich, Suchkov, Vladimir Nikolaevich, Djumulen, Vadim Ippolitovich, and Nesterkin, Alexandr Kuzmich,3,550,912.
Neuberger, Thomas P., and Myles, Walter E., to Singer-General Precision, Inc. Virtual image window display. 3,551,043, Cl. 353-37.
Neumann, Robert P.: *See—*
Conn, Charles E., Jr., and Neumann, Robert P.,3,550,252.
Nevins, William H., to Machlett Laboratories, Incorporated, The. Cathode structure having thermal expansion compensating means. 3,551,724, Cl. 313-278.
New England Planning Service Corporation: *See—*
Woolner, Fred Melvin, 3,550,218.
New Zealand Government Property Corporation: *See—*
Skinner, Robert Ivan, 3,550,437.
Newell Corporation: *See—*
Newton, Jay Earl, and Schmitt, Russell Arthur, 3,551,907.
Newman, John W.: *See—*
Chapman, Duane K., Green, William Sidney, and Newman, John W.,3,551,508.
Newton, Ernest J. Box covering method and apparatus. 3,551,239, Cl. 156-213.
Newton, Jay Earl, and Schmitt, Russell Arthur, to Newell Corporation. Temperature warning devices. 3,551,907, Cl. 340-227.1
Niagara Machine & Tool Works: *See—*
Jones, Clarence O., Jr., 3,550,461.
Nicholas, Arthur S., and Chamberlain, James S., to Leon Chemical & Plastics, Inc. Seat belt terminal jacket. 3,550,955, Cl. 297-385.
Nicholas, David L.: *See—*
Pachter, Irwin J., and Nicholas, David L.,3,551,571.
Nicholas, John F., to United States of America, Army, mesne. Shunt regulator over-voltage trip. 3,551,745, Cl. 317-16.
Nichols, Larry D., and Kapustin, Daniel B., to Moleculon Research Corporation. Pattern processing system. 3,551,592, Cl. 178-6.
Nickel, Ronald W. Method of collecting material by means of dump trucks. 3,550,797, Cl. 214-152.
Nicolson, Garth F.: *See—*
Dickmann, John L., and Nicolson, Garth F.,3,550,485.
Nilles, Paul Emile, and Denis, Etienne Marie, to Centre National de Recherches Metallurgiques. Controlled refining of pig iron. 3,551,140, Cl. 75-60.
Nimylowycz, Osyp, to United States of America, Army. Inflating apparatus. 3,550,652, Cl. 141-313.
Ninomiya, Osamu: *See—*
Sakamoto, Tetsuzo, and Ninomiya, Osamu,3,551,066.
Nippon Electric Company: *See—*
Igarashi Ryo, 3,551,899.
Nippon Electric Company, Limited: *See—*
Irie, Toshiaki, and Nanko, Yoshiyuki, 3,550,292.
Kancko, Hisashi, and Takimoto, Yukio, 3,551,813.
Yanagawa, Takayuki, 3,551,221.
Nippon Hoso Kyokai: *See—*
Konishi, Yoshihiro, 3,551,853.
Nippon Soda Co., Ltd.: *See—*
Suzuki, Hisao, Musashi, Akira, Uo, Shinzaburo, and Yamazaki, Masami, 3,551,193.
Nischk, Gunther: *See—*
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther,3,551,373.
Nishii, Mashahiko: *See—*
Sinoda, Akibumi, and Nishii, Mashahiko,3,550,734.
Nishimatsu, Shigeru: *See—*
Tokuyama, Takashi, Nishimatsu, Shigeru, Uehara, Keijiro, and Mori, Takaaki,3,551,760.
Nishimura, Katsutoshi, Fujisawa, Kiyoji, Kozu, Isao, and Yamamoto, Kozo, to Matsushita Electric Industrial Co., Ltd. Device for detecting rotation. 3,551,691, Cl. 307-120.
Nita, Toshiyuki: *See—*
Kimura, Shiro, Kobayashi, Teruo, Ishige, Sadao, Hirano, Isao, and Nita, Toshiyuki,3,551,181.
Nitzsche, Reinhard: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf,3,551,397.
Niwa, Takazumi: *See—*
Suzukawa, Yuichi, Kono, Hisashi, Terai, Kenji, and Niwa, Takazumi,3,551,513.
Nixon, David, and Phillips, Alvin B., to North American Rockwell Corporation. Flat electronic package assembly. 3,550,766, Cl. 206-46.
Nkayama, Takeshi: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.
Noakes, Thomas E., and Kozel, James A., to American Standard, Inc. Three way solenoid valve. 3,550,632, Cl. 137-625.65
Noble, Allen T. Article relocating systems. 3,550,790, Cl. 214-1.
Nogaj, Alfred: *See—*
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther,3,551,373.
Nojima, Yasuhiro: *See—*
Yonezu, Shuzo, Nojima, Yasuhiro, and Ban, Kimio,3,551,399.
Yonezu, Shuzo, Nojima, Yasuhiro, and Motoki, Takashi,3,551,400.
Nomiya, Bunzo: *See—*
Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo,3,551,502.
Norcliffe, Kenneth Adrian, to Brown, David, Gear Industries Limited. Agricultural tractors. 3,550,688, Cl. 172-9.
Noren, Tore H. Endless conveyor for a dishwasher with links interconnecting adjacent dollies. 3,550,755, Cl. 198-181.
North American Rockwell Corporation: *See—*
Boom, Roger W., Salter, Luther Carlton, Jr., and Vetrano, James B.,3,551,861.
Conn, Charles E., Jr., and Neumann, Robert P., 3,550,252.
Grantham, Leroy F., 3,551,108.
Greenewald, Herbert, Jr., 3,550,670.
Greenspan, Harold J., and Ecker, Louis F., 3,550,254.
Nixen, David, and Phillips, Alvin B., 3,550,766.
Potter, Richard M., 3,550,422.
North Electric Company: *See—*
Svala, Carl Gunnar, and Lee, Chung-Pah Xavier, 3,550,288.
North Star Research and Development Institute: *See—*
Forester, Ralph H., and Francis, Peter S., 3,551,244.
Northeved, Allan: *See—*
Lund, Svend Aage, and Northeved, Allan,3,550,770.
Northrop Corporation: *See—*
Dyer, Denzel L., 3,551,295.
Guerreiro, Antone M., 3,551,536.
Moore, Douglas A., 3,550,984.
Norton, Douglas Edwin: *See—*
Norton, Hubert Veare, Norton, Leslie Buckingham, and Norton, Douglas Edwin,3,550,375.
Norton, Hubert Veare, Norton, Leslie Buckingham, and Norton, Douglas Edwin, to Norton Tool Company Limited. Hydraulic ram apparatus. 3,550,375, Cl. 60-52.
Norton, Leslie Buckingham: *See—*
Norton, Hubert Veare, Norton, Leslie Buckingham, and Norton, Douglas Edwin,3,550,375.
Norton Research Corporation: *See—*
Feakes, Frank, 3,551,247.
Norton Tool Company Limited: *See—*
Norton, Hubert Veare, Norton, Leslie Buckingham, and Norton, Douglas Edwin, 3,550,375.
Novak, John Richard: *See—*
Windsor, Maurice W., and Novak, John Richard,3,551,053.
NRM Corporation: *See—*
Gazuit, Georges, 3,550,196.
Nunlist, Erwin J.: *See—*
Hall, Donald H., and Nunlist, Erwin J.,3,550,989.
Nunning, Walter J.: *See—*
Brignac, Edmond P., Duke, Bascum H., Nunning, Walter J., and Snooks, Rupert J., Jr.,3,551,548.
Nuova San Giorgio S.p.A.: *See—*
Marenco, Mario, 3,550,368.
N.V. Hollandse Signaalapparaten: *See—*
Offereins, Rienk Pieter, 3,551,651.
Oberdorf, Anton: *See—*
Oediger, Hermann, and Oberdorf, Anton,3,551,416.
Oediger, Hermann, and Oberdorf, Anton,3,551,438.
Obergfell, Allen R., to Fastener Corporation. Mechanical fastener feeding assembly. 3,550,831, Cl. 227-136.
O'Boyle, Kenneth M. Garment treating apparatus. 3,550,820, Cl. 223-73.
O'Brobinak, John D.:*See—*
Kaufman, Martin H., O'Brobinak, John D., and Carroz, John W.,3,551,222.
O'Connor, Stephen C.:*See—*
Dawson, William Orval, O'Connor, Stephen C., and Fellowes, Frederick S.,3,551,089.

Odiorne, John W., to Polaroid Corporation. Method of manufacturing a roller. 3,550,258, Cl. 29-527.2

Oediger, Hermann, and Oberdorf, Anton, to Farbenfabriken Bayer Aktiengesellschaft. Piperideides. 3,551,416, Cl. 260-240.

Oediger, Hermann, and Oberdorf, Anton, to Farbenfabriken Bayer Aktiengesellschaft. Hydroxy-phenyl-acetic acid-Δ^3- piperidcide. 3,551,438, Cl. 260-297.

Offereins, Rienk Pieter, to N.V. Hollandse Signaalapparaten. Arrangement for digitally establishing a value. 3,551,651, Cl. 235-92.

Office National d'Études et de Recherches Aerospatiales: *See—*
Veret, Claude Marcel, and Surget, Jean Marcel, 3,551,054.

Oganowski, Kasimir: *See—*
Schwieterman, Roman A., and Oganowski, Kasimir,3,551,185.

Ogata, Fumimaro: *See—*
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko,3,551,277.

Ogura, Kenji: *See—*
Yamamoto, Sadao, Okubo, Minoru, Honda, Seiichiro, and Ogura, Kenji,3,551,538.
Clark, James K., Watters, Larry H., and Ogura, Kenji,3,551,539.

O'Hara, Janvier F. Velocipede with chain drive. 3,551,003, Cl. 280-261.

Ohio State University Research Foundation, The: *See—*
Jennetti, Anthony G., 3,551,818.

Ohio State University, The: *See—*
Harpster, Joseph W. C., 3,551,731.
McMaster, Robert C., 3,550,417.

Ohn, Tin: *See—*
Hilbert, Francis H., and Ohn, Tin,3,551,833.

Oikawa, Takashi: *See—*
Marukawa, Gohei, Oikawa, Takashi, and Hamada, Arinobu,3,551,143.

Oil Shale Corporation, The: *See—*
Vawter, Roy Glenn, 3,550,904.

Oishi, Yasushi: *See—*
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,155.
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,156.

Okagami, Akio: *See—*
Iwaki, Takayuki, Egashira, Shohachi, and Okagami, Akio,3,551,124.

O'Keefe, Michael Francis, to AMP Incorporated. Crimp type method and means for multiple outer conductor coaxial cable connection. 3,551,882, Cl. 339-177.

O'Keeffe, Terence W., and Vine, James, to Westinghouse Electric Corporation. Multi-coil electron image control apparatus. 3,551,734, Cl. 315-31.

O. K. Tool Company Inc., The: *See—*
Armstrong, Harold F., and Huppe, George L., 3,550,230.

Okubo, Minoru: *See—*
Yamamoto, Sadao, Okubo, Minoru, Honda, Seiichiro, and Ogura, Kenji,3,551,538.

Okuda, Takeo. Buffer pipe. 3,550,639, Cl. 138-121.

Okumura, Shinji: *See—*
Kamimura, Akira, Tsugawa, Ryuichiro, and Okumura, Shinji,3,551,292.

Olin Corporation: *See—*
Ford, James A., Caule, Elmer J., and Sperry, Philip R., 3,551,214.
King, Charles S., and Sawhill, Duane L., 3,551,094.
Lin, Chao H., 3,550,500.

Olivetti, C., Ing., & C., S.p.A.: *See—*
Cerutti, Giovanni, and Ricciardi, Giuseppe, 3,550,844.

Olmstead, Merlin E.: *See—*
Shear, Wayne G., and Olmstead, Merlin E.,3,551,884.

Olsen, Lawrence O., to Hyster Company. Fluid pressure reversing clutches and brake for winch. 3,550,735, Cl. 192-17.

Olsson, Kjell P., and Almqvist, Sven-Olof O., to Pharmacia AB. Oxadithiaadamantanoles and process for their manufacture. 3,551,453, Cl. 260-327.

Omark Industries, Inc.: *See—*
Van Gulik, Johan L., 3,551,786.

Omohundro, William A., to General Electric Company. Hair dryer apparatus. 3,550,285, Cl. 34-97.

O'Neill, Roger L. Letter construction. 3,550,298, Cl. 40-130.

O'Neill, Thomas Montague. Teabag squeezer and holder. 3,550,528, Cl. 100-211.

Opalewski, Vincent J., to Allied Chemical Corporation. Method employing gaskets for casting plastic articles. 3,551,552, Cl. 264-331.

OPT Omechanisms, Inc.: *See—*
Chitayat, Anwar K., 3,551,055.

Opti-Holding AG: *See—*
Frohlich, Alfons, 3,550,194.

Orbit Manufacturing Company, Inc.: *See—*
Shriver, Charles S., 3,550,680.

Organon Inc.: *See—*
Shuurs, Antonius Hermanus Wilhelmus Maria, 3,551,555.

Orita, Takao, Kosaka, Masahiro, and Fujita, Tadamasa, to Matsushita Electric Industrial Company Limited. Electronic language teaching system. 3,550,289, Cl. 35-35.

Ormsby, Phillip A., and Thompson, Ethbert C., III, to United States of America, Army. High strength hot-press die. 3,550,213, Cl. 18-47.

Orozco, Graziella D. Headwear. 3,550,161, Cl. 2-198.

Ortheil, Johannes. Packing system for hydro-pneumatic shock absorbers. 3,550,733, Cl. 188-282.

Ortman-McCain Company: *See—*
Archibald, Edward J., 3,550,552.

Osbond, John Mervyn, Fothergill, Graham Alwyn, and Wickens, James Charles, to Hoffmann-La Roche Inc.2-[2-(Lower alkyl)-amino-1-hydroxy-ethyl] benzofuran having a hydrocarbon cyclic moiety bridging positions 6 and 7. 3,551,458, Cl. 260-346.2

Oseroff, Israel. Apparatus for pulverizing litter and burning refuse. 3,550,541, Cl. 110-8.

Oshima, Keiji: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.

Osmond, Charles W.: *See—*
Galvanoni, Aldo B., Osmond, Charles W., and Farley, Lloyd M.,3,551,258.

Ospag, Osterreichische Sanitar-Kermik- und Porzellan-Industrie Aktiengesellschaft: *See—*
Gram, Erwin, Kastl, Peter, and Schretzmayer, Josef, 3,550,224.

Oster, John, Manufacturing Co.: *See—*
Meyer, Donald R., and Arel, Robert W., 3,550,271.
Palm, Bernhard, 3,550,280.

Ostrander-Seymour Co.: *See—*
Fink, Robert C., 3,550,204.

Ott, Hans: *See—*
Hardtmann, Goetz E., and Ott, Hans,3,551,445.

Ott, Hans, to Sandoz-Wander, Inc. 4-Thienyl-2-(1H)-quinazolones. 3,551,427, Cl. 260-251.

Ott, Zdenek: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto,3,551,556.

Ouellette, Elphege J. Multiple coin pawl for coin operated lock. 3,550,744, Cl. 194-54.

Outboard Marine Corporation: *See—*
Watkins, Lucius D., 3,550,706.

Overdiep, Wigle S., to American Enka Corporation. Method for processing synthetic thermoplastics into shaped structures. 3,551,545, Cl. 264-176.

Owens-Corning Fiberglas Corporation: *See—*
Hullhorst, William B., 3,550,287.
Marzocchi, Alfred, 3,551,269.
Paoletti, Robert J., 3,551,250.
Shannon, Richard F., 3,551,274.
Shannon, Richard F., 3,551,276.
Shannon, Richard F., 3,551,559.

Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo, to Kabushiki Kaisha Koparu. Motion picture projector. 3,551,040, Cl. 352-159.

Paalman, Hendrick Hunter: *See—*
Lynn, Scott, and Paalman, Hendrick Hunter,3,551,104.

Pachmann, Alexander. Method of weaving terry-like fabric. 3,550,226, Cl. 28-76.

Pachter, Irwin J., and Nicholas, David L., to Endo Laboratories, Inc. Methods for relieving pain, reducing fever and alleviating inflammatory syndromes with heteroaromatic pyrrol-3-yl ketones. 3,551,571, Cl. 424-274.

Pachulia, Budu Pavlovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalovich,3,550,389.

Packard, William: *See—*
Herzog, Howard Allan, and Packard, William,3,550,395.

Page, Donald F., to Sterling Drug Inc.Perhydrocyclopenta[1,2-C-3,4-C] dipyrroles. 3,551,447, Cl. 260-326.3

Pallat, Ludwig R.: *See—*
DuVivier, Charles L., Brockett, Peter C., Barney, Alan F., and Pallat, Ludwig R.,3,551,825.

Pallay, Louis, to Sperry Rand Canada Limited. Machine tool work loading and unloading apparatus. 3,550,503, Cl. 90-11.

Palm, Bernhard, to Oster, John, Manufacturing Co. Hair clipper. 3,550,280, Cl. 30-217.

Palmer, Allan M., to Eastman Kodak Company. Film stripping mechanism. 3,550,880, Cl. 242-192.

Palmieri, Nicola, to Pirelli Societa per Azioni. Accessories for cables carrying very heavy currents. 3,551,582, Cl. 174-19.

Pammer, Gottfried, to Vockenhuber, Karl, and Hauser, Raimund. Film-feeding mechanism for cartridge-loaded motion picture apparatus. 3,551,037, Cl. 352-72.

Pan American Hydroponics, Inc.: *See—*
Gaines, Floyd C., Jr., 3,550,319.

Pan American Petroleum Corporation: *See—*
Silverman, Daniel, 3,551,890.

Panciroli, Gino: *See—*
Portolani, Augusto, Panciroli, Gino, and Giovanardi, Sandro,3,551,284.

Panish, Morton B., and Sumski, Stanley, to Bell Telephone Laboratories, Incorporated. Epitaxial growth technique. 3,551,219, Cl. 148-171.

Panissidi, Hugo A., to International Business Machines Corporation. Serial-to-parallel hydraulic device. 3,550,630, Cl. 137-624.18

Pan-Nova, Inc.: *See—*
Rothschild, Harry R., Jr., and Young, Robert B., 3,550,743.

Pansey, Felix E.: *See—*
Aszalos, Adorjan, Robison, Robert S., Pansey, Felix E., and Berk, Benard,3,551,561.

Paoletti, Robert J., to Owens-Corning Fiberglas Corporation. Apparatus for making uniform mats of inorganic fibers. 3,551,250, Cl. 156-370.

Papvasilious, Mary J., assors. to Shell Oil Company: *See—*
Snyder, John L., Mann, Roger H., and Pate, Mary J., 3,551,392.

Paragamian, Vasken: *See—*
Mohrbacher, Richard J., and Paragamian, Vasken,3,551,435.

Paramythioti, Jean Michel, to Albaret S.A. Direction and speed control system for motor vehicles. 3,550,708, Cl. 180-6.48

Pariser, Sidney, to RMS Electronics, Inc. Antitheft device for automobiles and the like. 3,550,409, Cl. 70-203.

Parke, Davis & Company: *See—*
French, James C., Howells, John D., and Anderson, Lucia E., 3,551,294.

Parker, Harry W., to Phillips Petroleum Company. Shale oil production. 3,550,685, Cl. 166-303.

Parker-Hannifin Corporation: *See—*
Lansky, Zdenek J., Leibfritz, Kurt W., and Malinowski, Lester W., 3,550,621.

Parker-Kalon Corporation: *See—*
Skierski, Edwin J., 3,550,255.

Parkline Corporation: *See—*
Klein, Louis E., 3,550,340.

Pasbrig, Max. Clamping devices. 3,551,883, Cl. 339-273.

Passannante, Anthony J., and Beach, Leland K., to Esso Research and Engineering Company. Difluoroamines and preparation thereof. 3,551,496, Cl. 260-583.

Pastura, Albino: *See—*
Hulsmann, Hans-Leo, Hoffmann, Gerhart, Renckhoff, Gustav, and Pastura, Albino,3,551,481.

Pate, Mary J.: *See—*
Snyder, John L., Mann, Roger H., and Pate, Mary J.,3,551,392.

Patent Concern N.V.: *See—*
van der Lely, Cornelis, 3,550,334.

Patsey, John A., and Schindler, Donald G., to United States Steel Corporation. Method and apparatus for ultrasonic thickness gaging of objects in non-normal alignment. 3,550,436, Cl. 73-67.8

Patsis, Angelos Vlasus: *See—*
Hodge, George R., and Patsis, Angelos Vlasus,3,551,830.

Patterson, David E.: *See—*
Wright, George G., and Patterson, David E.,3,550,937.

Paul, Harry F., to Tram Corporation. Solid state tuned amplifier. 3,551,835, Cl. 330-27.

Pauley, Reginald W., to Ingersoll-Rand Company. Penetration method and apparatus. 3,550,698, Cl. 175-57.

Paulik, Josef: *See—*
Flemmert, Gosta Lennart, Sirtl, Erhard, and Paulik, Josef,3,551,098.

Peacher, Teddy J.: *See—*
Kilbourn, Dorwin L., Peacher, Teddy J., Askew, Raymond F., and Foster, William D.,3,551,720.

Peacher, Teddy J., and Kilbourn, Dorwin L., to United States of America, Army. Arc lamp with concentric electrodes. 3,551,719, Cl. 313-110.

Pease, John W. Detachable seat toilet. 3,550,164, Cl. 4-236.

Peat, Derek, and Sutton, Richard William Bicknell. National Research Development Corporation Stitch control utilizing means for counting number of stitches per unit running length of yarn. 3,550,400, Cl. 66-82.

Pechmann, Karl: *See—*
Mackey, E. Scudder, Pechmann, Karl, and Leary, Robert E.,3,551,152.

Peckham, David G., to Trane Company, The. Condensate heating of intermediate strength solution in two stage absorption machiine. 3,550,394, Cl. 62-485.

Pecoraro, Francis R., to Aerojet-General Corporation. Fastener tool. 3,550,484, Cl. 81-54.

Peerman, Dwight E., Vertnik, Leonard R., and Rogier, Edgar R., to General Mills, Inc. Metallic structures. 3,550,806, Cl. 220-81.

Peeter, Henricus Hubertus: *See—*
van Stratum, Antonius Johannes Alberta, and Peeter, Henricus Hubertus,3,551,198.

Peiffer, Joachim, to Langen & Co. Level regulated hydro-pneumatic spring suspension system for vehicles. 3,550,993, Cl. 280-6.

Peine, Hans Georg: *See—*
Raff, Paul, Peine, Hans Georg, Schuster, Ludwig, and Adam, Karl,3,551,485.

Pelikan, George A.: *See—*
Roselius, Charles F., Pelikan, George A., and Maggio, Albert C.,3,550,731.

Pelletier, Fernand F., and Gosnell, Thomas F., to Bendix Corporation, The. Pushbutton tuner. 3,550,459, Cl. 74-10.33

Pelli, Pierre, to Societe Anonyme dite: L'Oreal. Compound glass and plastic receptacle. 3,550,803, Cl. 215-12.

Pellicciari, Giorgio Lodovico, and Frishinghelli, Ugo Lodovico, to Grace, W. R., & Co. Process for the continuous production of uniaxially and biaxially oriented films. 3,551,540, Cl. 264-89.

Pennell, Kit E., and Hanaway, Paul R., to Vendo Company, The. Convertible price coin changer for vending machines. 3,550,742, Cl. 194-10.

Penning, Ernst: *See—*
Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm,3,551,525.

Pennwalt Corporation: *See—*
Kulsichenko, Walter, and Burke, Joseph A., 3,551,807.
Schwartz, Norbert, Richards, James F., and Pistell, Joseph F., 3,551,335.
Strauss, William, 3,550,207.

Penoyer, John A., Sr.: *See—*
Hollies, Norman R. S., and Penoyer, John A., Sr.,3,550,439.

Perkins, James F.: *See—*
Cason, Charles M., III, and Perkins, James F.,3,551,843.

Perla, Martin R., to Verplex Company. Lamp shade stretcher attachment for sewing machines. 3,550,544, Cl. 112-121.26

Permaglass, Inc.: *See—*
Mc Master, Dexter H., 3,551,130.

Perrin, Jacques: *See—*
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel,3,551,792.

Perrone, Rosario J., to Anaconda Wire and Cable Company. Marking method for electric cable. 3,551,542, Cl. 264-166.

Perronnet, Jacques: *See—*
Bertin, Daniel, and Perronnet, Jacques,3,551,421.

Persson, Karl Rune, to Sprinter Pack AB. Package, especially for food products. 3,550,835, Cl. 229-31.

Peters, Charles J., and Rattman, William J., to Sylvania Electric Products, Inc. Low drive power wideband optical modulator. 3,551,679, Cl. 250-199.

Peters, Colin, to USM Corporation. Plasticator screws having non-return valve means. 3,550,208, Cl. 18-30.

Peters, Donald F.Portable collapsible child's play enclosure. 3,550,601, Cl. 135-4.

Petersen, Harro, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of amides substituted on the nitrogen atom. 3,551,423, Cl. 260-251.

Petersen, Harro, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of 2-oxohexahydropyrimidines. 3,551,425, Cl. 260-251.

Petersen, Siegfried: *See—*
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter,3,551,434.

Peterson, Henry J., to Sun Oil Company. Preparation of dihydroxynitrophenols. 3,551,503, Cl. 260-622.

Peterson, Maurice L., 25% to Edwards, Clayton. Opposing piston engine. 3,550,568, Cl. 123-51.

Peterson, Raymond L.: *See—*
Harding, Richard E., Morrison, Ralph A., Peterson, Raymond L., and Smalley, Edwin P.,3,550,172.

Peterson, Robert A.: *See—*
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A.,3,550,691.

Petra, Ioan: *See—*
Juncu, Virginia, Torok, Zsigmond, and Petra, Ioan,3,550,399.

Petrocelli, James A.: *See—*
Mator, Richard T., Petrocelli, James A., and Puzniak, Thomas J.,3,550,428.

Petrovits, Paul F., to Evans, Chandler, Inc. Pumping system with improved jet inducer. 3,551,073, Cl. 417-76.

Petrushin, Vasily Petrovich: *See—*
Sinitsin, Pavel Petrovich, and Petrushin, Vasily Petrovich,3,550,527.

Pettibone Corporation: *See—*
Gauthier, Edward, Larson, Robert A., and LaTendresse, Philip E., 3,550,653.

Pettit, Edgar E., to Herlon Industries, Inc. Sprinkler apparatus. 3,550,859, Cl. 239-468.

Pfaff, Alan R., Jr., to Bernal Incorporated. Method for making cylindrical dies. 3,550,479, Cl. 76-107.

Pfaff and Kendall: *See—*
Briden, Charles Richard, 3,550,637.

Pfaff, James Orville: *See—*
McGlumphy, James H., Pfaff, James Orville, Quinn, Alton De Witt, and Wellner, Georges,3,550,598.

Pfandl, Julius, to Afrocommerce S.A. Locking device. 3,550,222, Cl. 24-126.

Pfersch, George H.: *See—*
Tawfik, David A., Thomas, Frank J., and Pfersch, George H.,3,551,776.

Pfizer, Chas, & Co., Inc.: *See—*
McLamore, William M., and Laubach, Gerald D., 3,551,483.

Pfizer Inc.: *See—*
Lindquist, Claude A., Jr., 3,551,197.

Pfouts, Robert R., to United Aircraft Products, Inc. Surface radiator. 3,550,678, Cl. 165-44.

Pharma Tech: *See—*
Rolin, Kenneth C., 3,550,900.

Pharmacia AB: *See—*
Olsson, Kjell P., and Almqvist, Sven-Olof O., 3,551,453.

Phillips, Alvin B.: *See—*
Nixen, David, and Phillips, Alvin B.,3,550,766.

Phillips, Irvin J.: *See—*
Mahoney, Ralph P., and Phillips, Irvin J.,3,550,553.

Phillips, Jerry R., to Monsanto Company. Cascade dam. 3,550,407, Cl. 68-181.
Phillips Petroleum Company: *See—*
Boeke, Paul J., 3,551,242.
Cash, Jerrold G., 3,551,113.
Clampitt, Richard L., 3,551,322.
Cywinski, Norbert F., 3,551,463.
Galvanoni, Aldo B., Osmond, Charles W., and Farley, Lloyd M., 3,551,258.
Gentry, Harvey F., 3,551,515.
Gilbert, Dixie E., 3,550,200.
Gray, Earl H., 3,551,307.
Gray, Lew T., 3,550,212.
Hettick, George R., and Little, Donald M., 3,551,102.
Hicks, Joel T., 3,550,490.
Miles, John M., Killebrew, Wilbur N., Jr., and Wood, James Q., 3,551,522.
Needham, Donald G., 3,551,361.
Parker, Harry W., 3,550,685.
Reinert, Andrew J., 3,551,192.
Photocircuits Corporation: *See—*
Keogh, Raymond J., 3,550,645.
Pichot, Michel Georges Andre, and Roquet, Raymond Jacques Charles, to Lignes Telegraphiques & Telephoniques. Devices for distant supervision of the working condition of telephone line repeaters by means of local generators associated therewith. 3,551,610, Cl. 179-175.31
Pickering & Company, Inc.: *See—*
Chass, Jacob, 3,551,866.
Pickles, Kathleen M., Hirst, Harry, and French, William G., to Linton and Hirst Limited. Method of producing cores. 3,550,266, Cl. 29-609.
Pico Electronics, Inc.: *See—*
Sweeney, Joseph N., and Spoldi, Henry, 3,551,864.
Pidgeon, Edgar J., and Vanegas, Guillermo J., to Cabot Corporation. Double-union ball valve assembly. 3,550,902, Cl. 251-151.
Pioneer Electronic Corporation: *See—*
Takahashi, Yoshio, 3,550,986.
Pippin, Reginald F., Jr. Multi-stage reaction toy. 3,550,313, Cl. 46-74.
Pirelli Societa per Azioni: *See—*
Palmieri, Nicola, 3,551,582.
Piret, Jean: *See—*
Maurice, Jean, and Piret, Jean,3,550,474.
Pisano, Frank T., to United States of America, Army. Stake extracting apparatus. 3,550,909, Cl. 254-30.
Pistell, Joseph F.: *See—*
Schwartz, Norbert, Richards, James F., and Pistell, Joseph F.,3,551,335.
Pitel, Irving, Cornine, Floyd C., and Silverman, Richard S., to Automatic Merchandising Machine Mfg. Corporation. Door lock. 3,550,412, Cl. 70-461.0
Pitney-Bowes, Inc.: *See—*
Brown, Fred A., 3,550,930.
Pitzl, Gilbert, to Du Pont de Nemours, E. I., and Company. Steamed coupled-process nylon yarn. 3,550,369, Cl. 57-140.
Plaisted, Alan H.: *See—*
Pricenski, Theodore J., and Plaisted, Alan H.,3,551,643.
Plastic Textile Accessories Limited: *See—*
Mercer, Frank Brian, and Martin, Keith Fraser, 3,551,543.
Plategods A/S: *See—*
Eriksen, Walter, and Strengelsrud, Sverre, 3,550,615.
Pleuger, Friedrich W., and Bey, Wilhelm. Auxiliary maneuvring means for ships. 3,550,547, Cl. 114-151.
Ploss, Richard S., to Baird-Atomic, Inc. Electro-optical light modulator-low voltage. 3,551,028, Cl. 350-160.
Plunkett, Larry D., to Signode Corporation. Sealing mechanism for strapping machine. 3,550,646, Cl. 140-93.4
Pneumo Dynamics Corporation: *See—*
Vanderlaan, Robert D., and Lappin, Richard J., 3,550,631.
Poignant, Pierre: *See—*
Guillot, Jean Claude, Poignant, Pierre, and de Lesseaux, Jacques de Bazelaire,3,551,442.
Polaroid Corporation: *See—*
Alexander Arthur D., III, 3,551,027.
Erlichman, Irving, 3,550,515.
Idelson, Elbert M., 3,551,406.
Johnson, Bruce K., and Schettino, Anthony J., 3,550,513.
Nawn, George H., and Timson, William J., 3,551,149.
Odiorne, John W., 3,550,258.
Pollitzer, Ernest L., Donaldson, George R., and Hawkins, Richard C., to Universal Oil Products Company. Alkylation-transalkylation process. 3,551,510, Cl. 260-672.
Pollock, David H.: *See—*
Jensen, Andrew O., and Pollock, David H.,3,551,727.
Pollock, Samuel C., to General Motors Corporation. Vehicle body gutter arrangement. 3,550,950, Cl. 296-137.
Polovina, Walter: *See—*
Shepherd, Thomas Hugh, and Polovina, Walter,3,551,194.
Polymer Corporation Limited: *See—*
Edwards, Douglas C., and Wunder, Richard H., 3,551,402.
Mason, Colin P., 3,551,359.
Polymer Processing Research Institute Ltd.: *See—*
Yazawa, Masahide, 3,551,229.
Ponci, Riccardo: *See—*
Baruffini, Agostino, de Pietri Tonelli, Pietro, and Gialdi, Franco, 3,551,452.
Pornin, Rene, to Societe Nationale des Petroles d'Aquitane. Grafted copolymers. 3,551,518, Cl. 260-836.
Portolani, Augusto, Panciroli, Gino, and Giovanardi, Sandro, to Montecatini Edison S.p.A. Bonding olefin copolymers to polyolefin fibers. 3,551,284, Cl. 161-252.
Poterfield, Erik A., to Columbia Broadcasting System, Inc. Hub for endless magnetic tape cartridge. 3,550,872, Cl. 242-55.19
Potter, Richard M., to North American Rockwell Corporation. Creepform tooling. 3,550,422, Cl. 72-342.
Potts, Thomas Cecil, to Hudswell Clarke and Company Limited. Road carpeting machine. 3,550,511, Cl. 94-46.
Powell, Burwell F.: *See—*
Tristram, Edward W., Tull, Roger J., and Powell, Burwell F.,3,551,498.
Powell, Peter D., Capon, Leonard George Thomas, and Bellinger, Frederick Leslie, said Capon and said Bellinger assors. to said Powell. Selector switch cleaner. 3,550,178, Cl. 15-210.
Powers, Don M., Litwiller, Robert J., and Goldschmidt, Robert E., to International Business Machines Corporation. Floating point binary adder utilizing completely sequential hardware. 3,551,665, Cl. 235-175.
Powers Regulator Company: *See—*
Thorburn, David H., 3,550,606.
Powers, Richard L.: *See—*
Cox, Frank T., Jr., and Powers, Richard L.,3,550,379.
PPG Industries, Inc.: *See—*
Darr, Donald E., Leiser, Roger S., Loehr, Clifford E., and Richardson, Kenneth W., 3,550,177.
Dowbenko, Rostyslaw, and Christenson, Roger M., 3,551,517.
Rabenold, Ronald R., and Kondrad, Edward S., 3,551,378.
Wismer, Marco, and Prucnal, Paul J., 3,551,182.
Prater, Charles D., and Wei, James, to Mobil Oil Corporation. Reduction of data from spectral analysis. 3,551,658, Cl. 235-151.35
Precision Parts Corporation: *See—*
Harmon, Paul V., 3,551,646.
Preh Electro-Feinmechanische Werke: *See—*
Labude, Wolfgang, and Bauer, Karl-Heinz, 3,551,791.
Preh Elektro-Feinmechanische Werke: *See—*
Eberwein, Helmut, and Bogsch, Waldemar, 3,551,871.
Price, George B., to Monsanto Company. Statistical computer. 3,551,666, Cl. 235-179.
Price, Gerald W., to United States of America, Army. Square root apparatus. 3,551,662, Cl. 235-158.
Pricenski, Theodore J., and Plaisted, Alan H., to Sylvania Electric Products, Inc. Electric heater for heating fluids flowing longitudinally therethrough. 3,551,643, Cl. 219-381.
Priest, Benjamin H., Jr. Flashing retrodirective reflector. 3,551,024, Cl. 350-99.
Prieto, Anthony, to RCA Corporation. Computer memory addressing. 3,551,898, Cl. 340-172.5
Primosch, Edward P.: *See—*
Smith, William E., Primosch, Edward P., and Keenan, John D., Jr.,3,550,935.
Prince, Arthur E., Jr., to Celanese Corporation. Process for the polymerization of aromatic polybenzimidazoles. 3,551,389, Cl. 260-78.4
Princeton Chemical Research, Inc.: *See—*
Shepherd, Thomas Hugh, and Polovina, Walter, 3,551,194.
Weinstein, Norman J., 3,551,506.
Pringle, William L., to Radke, Lee, Associates, Inc. Remote adjustable mirror. 3,550,456, Cl. 74-501.
Pringle, William L., and Cucheran, John S., to Radke, Lee, Associates, Inc. Remotely controlled rear view mirror. 3,550,468, Cl. 74-501.
Probst, Georg, and Herterich, Walter, to Grundig E.M.V. Elektro-Mechanische Versuchs- Anstalt INH.: Max Grundig. Sound recording and reproducing apparatus. 3,550,983, Cl. 274-4.
Procter & Gamble Company, The: *See—*
Quimby, Oscar T., 3,551,339.
Proctor, Noel B.: *See—*
Wood, Fenton M., Goodman, Barnard P., and Proctor, Noel B.,3,551,801.
Produits Chimiques Pechiney-Saint-Gobain: *See—*
Guillot, Jean Claude, Poignant, Pierre, and de Lesseaux, Jacques de Bazelaire, 3,551,442.
Prolss, Erhard: *See—*
Schenk, Horst, and Prolss, Erhard,3,550,416.
Promecam Sisson-Lehmann: *See—*
Cailloux, Paul, 3,550,425.
Propst, Richard F., to General Electric Company. Inclined bushing for transformers and related devices. 3,551,587, Cl. 174-152.
Propst, Robert L., to Miller, Herman, Inc. Detachable furniture support. 3,550,892, Cl. 248-282.
Propst, Robert L., and Kelley, James O., to Miller, Herman, Inc. Unit load handling device. 3,550,908, Cl. 254-8.
Protzmann, Peter J., to Miller, Herman, Inc. Molded card drawers and cabinets therefor. 3,550,979, Cl. 312-183.
Provance, Jason D., to Bourns, Inc. Resistor composition and element. 3,551,355, Cl. 252-514.
Prucnal, Paul J.: *See—*
Wismer, Marco, and Prucnal, Paul J.,3,551,182.
Pruett, Donald E. Pipe intersection marker. 3,550,278, Cl. 33-175.

Puck, Siegfried, to Karrenberg, Hugo, & Sohn K.-G. Hydromechanic controls for automatic machine tools and more particularly for automatic lathes. 3,550,378, Cl. 60-54.5
Pugatch, Eugene M. J. Method for obtaining mesothelial cells. 3,551,291, Cl. 195-1.7
Puleo, Anthony E. Brush making apparatus with dual twisting heads. 3,550,963, Cl. 300-21.
Putsch, H., & Company: *See—*
Hanke, Helmut, 3,550,659.
Putter, Lothar, and Riermeier, Manfred, to Siemens Aktiengesellschaft. Metho d of simultaneously producing a multiplicity of semiconductor devices. 3,550,262, Cl. 29-591.
Puttick, Donald W. Amusement device including annular magnets slidably disposed on nonmagnetic tube. 3,550,936, Cl. 272-8.
Putz, Joachim, and Sebald, Franz, to Deutsche Erdol Aktiengesellschaft. Asphalt containing fatty alcohols as plant root growth retardants. 3,551,135, Cl. 71-122.
Puzniak, Thomas J.: *See—*
Mator, Richard T., Petrocelli, James A., and Puzniak, Thomas J.,3,550,428.
Puzniak, Thomas J., to Gulf Research & Development Company. Method and apparatus for economizing the use of refrigerant. 3,550,390, Cl. 62-5.
Quanbeck, Sherman H. Swinging beam plow. 3,550,690, Cl. 172-265.
Quimby, Oscar T., to Procter & Gamble Company, The. Built detergent compositions. 3,551,339, Cl. 252-152.
Quinn, Alton De Witt: *See—*
McGlumphy, James H., Pfaff, James Orville, Quinn, Alton De Witt, and Wellner, Georges,3,550,598.
Quisenberry, Carter E., to American Machine & Foundry Company. Adjustable bicycle tank. 3,550,995, Cl. 280-7.11
Quisenberry, Carter E., to American Machine & Foundry Company. Bicycle improvement. 3,551,004, Cl. 280-281.
Quittenton, Richard Charles: *See—*
Murray, David W., and Quittenton, Richard Charles,3,551,351.
Rabello, Sabino Correa. Grills. 3,550,525, Cl. 99-421.
Rabenold, Ronald R., and Kondrad, Edward S., to PPG Industries, Inc. Graft copolymers of unsaturated polyesters. 3,551,378, Cl. 260-40.
Rabich, Erich: *See—*
Seip, Hermann, and Rabich, Erich,3,550,728.
Radke, Donald G., and Booth, Frederick C., to Robbins, Jim, Seat Belt Co. Shoulder harness with belt elongation means. 3,550,957, Cl. 297-386.
Radke, Lee, Associates, Inc.: *See—*
Pringle, William L., 3,550,456.
Pringle, William L., and Cucheran, John S., 3,550,468.
Radtke, Dieter: *See—*
Severing, Herbert, Radtke, Dieter, Grasshoff, Hans-Wilhelm, and Kress, Heinz,3,551,216.
Raff, Paul, Peine, Hans Georg, Schuster, Ludwig, and Adam, Karl, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of bis-(4-aminocyclohexyl)- alkanes. 3,551,485, Cl. 260-563.
Ragettli, Christian, to Metal Containers Limited. Device for forming ribbons of resin-impregnated strands of filaments. 3,551,255, Cl. 156-434.
Rahenkamp, Kurt R., to Union Camp Corporation. Bag-in-a-box with spout opening. 3,550,833, Cl. 229-17.
Rairden, John R., III, to General Electric Company. Method of forming thin film magnetic memory devices having laminated substrates. 3,550,265, Cl. 29-604.
Rajnik, Lawrence S., and Rodgers, Harris G., Sr., to Corning Glass Works. Edge beveler. 3,550,322, Cl. 51-89.
Ramsey, James E., Jr.: *See—*
Zisa, William J., and Ramsey, James E., Jr.,3,551,810.
Ramsey, Robert B., Jr.: *See—*
Gray, Charles L., Jr., and Ramsey, Robert B., Jr.,3,551,189.
Rand, Sperry, Corporation: *See—*
Halls, Lawrence M., 3,550,463.
Randall, David I., to GAF Corporation. Phosphonic acid esters and the method for their preparation. 3,551,528, Cl. 260-928.
Randall, John S., Hutchens, Morris L., Drechsler, Erich F., and Brainard, Wallace E., to Kearney & Trecker Corporation. Machine tool. 3,550,487, Cl. 82-2.5
Randolph, August: *See—*
Huckstadt, Harald, Randolph, August, Saleck, Wilhelm, and Ranz, Erwin,3,551,158.
Randolph, John W.: *See—*
Melvin, Daniel E., and Randolph, John W.,3,550,772.
Randolph, Robert W.: *See—*
Geyer, Wallace T., and Randolph, Robert W.,3,550,538.
Ranz, Erwin: *See—*
Huckstadt, Harald, Randolph, August, Saleck, Wilhelm, and Ranz, Erwin,3,551,158.
Rapisarda, Anthony A., to Lever Brothers Company. Prevention of discoloration of cloth. 3,551,338, Cl. 252-99.
Rast, Wlodzimierz. Tube expander. 3,550,424, Cl. 72-399.
Rathcon, Inc.: *See—*
MacPherson, Leonard, 3,550,316.
Rattman, William J.: *See—*
Peters, Charles J., and Rattman, William J.,3,551,679.
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf, to VEB Leuna-Werke 'Walter Ulbricht'. Process for polymerization of ethylene. 3,551,397, Cl. 260-86.7
Rausch, Maurice K., to Sinclair Research, Inc. Process for the production of a lubricating oil. 3,551,325, Cl. 208-89.
Rauser, Charles K., Sr., and Krupnik, Stephen J., Jr. Tool storage fixture. 3,550,976, Cl. 312-28.
Raveux, Roger: *See—*
Schmitt, Josef, Raveux, Roger, and Brunaud, Marcel Daniel Pierre,3,551,478.
Rawson, John E.: *See—*
Kliewer, Homer F., and Rawson, John E.,3,550,333.
Ray, Jimmy C. Apparatus including tanged connector means for testing cable wires. 3,551,803, Cl. 324-51.
Raychem Corporation: *See—*
Deal, Robert S., and Evans, Joseph H., 3,551,223.
Stivers, Edward C., 3,551,200.
Rayethon Company: *See—*
Sepe, Raymond B., 3,551,826.
Raymond Corporation, The: *See—*
Bilco, Arthur, 3,550,471.
Raymond, Hugh A., to United States of America, Army. Fluid accelerometer. 3,550,457, Cl. 73-503.
Raynal, Jean-Claude, and Sagot, Andre, to Societe Nationale des Petroles d'Aquitaine. Drilling tool having an adjustable scraping angle. 3,550,702, Cl. 175-289.
RCA Corporation: *See—*
Annis, Joseph E., 3,551,900.
Burns, Joseph R., and Gibson, John James, 3,551,693.
Carlson, David J., 3,551,819.
Gray, George William, 3,551,696.
Heilmeier, George H., 3,551,026.
Nelson, Herbert, 3,551,842.
Prieto, Anthony, 3,551,898.
Walters, William R., 3,551,787.
Watson, James P., 3,550,828.
Zanoni, Louis A., 3,551,689.
Read, Dale W., to Canadian International Paper Company. Process for producing desulfonated lignin resins. 3,551,405, Cl. 260-124.
Reardon, Daniel, to Cook Testing Co. Apparatus for testing a well without interrupting flow therefrom. 3,550,444, Cl. 73-152.
Red Arrow Enterprises, Incorporated: *See—*
Gerry, William J., 3,550,324.
Rederiaktiebolaget Nordstjernan: *See—*
Jernqvist, Ake, and Hedstrom, Bengt, 3,551,330.
Reed, Wallace D.: *See—*
Alles, James J., Ricks, Herbert E., Reed, Wallace D., and Carter, Jay B.,3,551,209.
Reesman, Stanley Hamilton, and Cole, James Harold. Process for producing shaped dough pieces and apparatus. 3,551,165, Cl. 99-81.
Regie Nationale des Usines Renault: *See—*
Bonnaud, Michel, 3,550,949.
Regie Nationale des Usines Renault and Automobiles Peugeot: *See—*
Maurice, Jean, and Piret, Jean, 3,550,474.
Regie Nationale des Usines Renault Automobiles Peugeot: *See—*
Archaux, Francois, and Bouthors, Pierre, 3,550,408.
Rehm, Walter: *See—*
Klaui, Heinrich, and Rehm, Walter,3,551,564.
Reiber, Richard W., to United States Testing Company, Inc. Boundary detection apparatus. 3,551,052, Cl. 356-51.
Reich, Bernard, to United States of America, Army. Rectifier and transient suppressor. 3,551,7[illegible], Cl. 321-14.
Reichhold Chemicals, Inc.: *See—*
Bernardi, Eugene L., and Brazdovic, Rudolph T., 3,550,283.
Reid, Harry M.: *See—*
Watson, Hal, Jr., 3,550,570.
Reinecker, Walter J., and Westergard, David J. Mulching machine. 3,550,965, Cl. 302-37.
Reinert, Andrew J., to Phillips Petroleum Company. Method of imparting biologically active materials to articles of manufacture. 3,551,192, Cl. 117-138.8
Reinhard, Hans, and Dotzauer, Bernhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Caulking and sealing compounds. 3,551,374, Cl. 260-29.6
Reininghaus & Co.: *See—*
Seelbach, Heinz, 3,551,617.
Seelbach, Heinz, 3,551,618.
Reintjes, Geo P., Co., Inc.: *See—*
Maier, Robert P., Byfield, Donald R., and Reintjes, George G., 3,550,344.
Reintjes, George G.: *See—*
Maier, Robert P., Byfield, Donald R., and Reintjes, George G.,3,550,344.
Remke, Adam Robert, and Remke, Anna, to Remke Company. Contour formed bag and methods of making and using same. 3,550,318, Cl. 47-37.
Remke, Adam Robert, and Remke, Anna, to Remke Company. Side laced flat bottom draw string bag for tree and shrub balling. 3,550,662, Cl. 150-11.
Remke, Anna: *See—*
Remke, Adam Robert, and Remke, Anna,3,550,318.
Remke, Adam Robert, and Remke, Anna,3,550,662.
Remke Company: *See—*
Remke, Adam Robert, and Remke, Anna, 3,550,318.
Remke, Adam Robert, and Remke, Anna, 3,550,662.
Remus, George A., and Glueckert, Albert J., to General American Transportation Corporation. Oxygen separation process. 3,550,355, Cl. 55-16.
Renault, Jean A.: *See—*
Leroi, Eugene L., and Renault, Jean A.,3,551,575.

Renckhoff, Gustav: *See—*
Hulsmann, Hans-Leo, Hoffmann, Gerhart, Renckhoff, Gustav, and Pastura, Albino,3,551,481.
Reni, Cesare: *See—*
Aglietti, Giancarlo, Canavesi, Roberto, and Reni, Cesare,3,551,511.
Rentschler, John H., and Carlson, Robert W., Jr., to Minnesota Rubber Company. Saling device. 3,550,990, Cl. 277-205.
Renwanz, Gerhard, Credner, Karl, Geisel, Berthold, and Engelhard, Hermann, to Diwag Chemische Fabriken GmbH. 4-Halothymyl-[N-ethyl-N-β-chloroethyl-1-and-2- amino propyl (2) and (1)] ethers and salts thereof. 3,551,491, Cl. 260-570.7
Republic Corporation: *See—*
Icenbice, Phineas J., Jr., 3,551,605.
Rooklyn, Jack, 3,550,534.
Rooklyn, Jack, 3,550,535.
Research Corportion: *See—*
Kino, Gordon S., and Robson, Peter N., 3,551,831.
Resnick, Charles, to Bronner, Fred, Corporation. Jigsaw puzzle and base for retaining same. 3,550,945, Cl. 273-157.
Rethmeier, Gerhard, and Herger, Horst. Electromechanical apparatus for converting coded into decoded digital values. 3,551,660, Cl. 235-155.
Reynolds, Frederick W., and Meixner, Arthur E. Photoconductive thin film cell responding to a broad spectral range of light input. 3,551,870, Cl. 338-15.
Rhone-Poulenc S.A.: *See—*
Dumoulin, Jean, and Sanfourche, Jacques, 3,551,375.
Ricciardi, Giuseppe: *See—*
Cerutti, Giovanni, and Ricciardi, Giuseppe,3,550,844.
Rice, Harold W.: *See—*
Body, William K., Locascio, Russell J., Rice, Harold W., and Scott, Douglas R.,3,550,848.
Richards, Edward F., and Depperman, Warren B., to Martin-Marietta Corporation. High speed fluidic devices. 3,550,604, Cl. 137-81.5
Richards, James F.: *See—*
Schwartz, Norbert, Richards, James F., and Pistell, Joseph F.,3,551,335.
Richards, Louis R., and Lekan, Henry N., to Richards/Lekan Engineering. Steak folder. 3,550,190, Cl. 17-32.
Richards/Lekan Engineering: *See—*
Richards, Louis R., and Lekan, Henry N., 3,550,190.
Richardson Company, The: *See—*
Muzyczko, Thaddeus M., Shore, Samuel, and Schulert, Sanford, 3,551,393.
Richardson, Kenneth W.: *See—*
Darr, Donald E., Leiser, Roger S., Loehr, Clifford E., and Richardson, Kenneth W.,3,550,177.
Richter, Sidney B., to Velsicol Chemical Corporation. Halo-substituted phenyl thiophosphonates as insecticides. 3,551,563, Cl. 424-222.
Richter, Walther: *See—*
Anderson, Perry, Richter, Walther, and Kleinke, Donald F.,3,551,077.
Rickets, William Thomas: *See—*
Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas,3,551,020.
Ricks, Herbert E.: *See—*
Alles, James J., Ricks, Herbert E., Reed, Wallace D., and Carter, Jay B.,3,551,209.
Rider, George William, to AMP Incorporated. Terminal applicator having means for separating dies. 3,550,239, Cl. 29-203.
Rieder, Ernst: *See—*
Bode, Hans, Meyer, Karin G., Rieder, Ernst, and Voss, Ernst,3,551,755.
Riermeier, Manfred: *See—*
Putter, Lothar, and Riermeier, Manfred,3,550,262.
Rigterink, Raymond H., to Dow Chemical Company, The. Insecticidal use of S-(4-oxo-1,2,3-benzotriazin-3 (4H)-yl)-methyl) phosphorothioates and phosphorodithioates. 3,551,562, Cl. 424-200.
Riley Stoker Corporation: *See—*
Cammuso, John Anthony, and Bruce, Lester Dudley, 3,551,009.
Ring, Wallace H. Mouth gag. 3,550,584, Cl. 128-12.
Rinkler, Heinrich: *See—*
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther,3,551,373.
Riordan, Hugh E.: *See—*
Jones, Malcolm D., and Riordan, Hugh E.,3,551,712.
Risberg, Robert L., and Scrbiak, Richard P., to Cutler-Hammer, Inc. Static shunt motor crane hoist control system with field supply on power failure. 3,551,771, Cl. 318-302.
Rittenhouse, Larry E.: *See—*
Baskin, Herbert B., and Rittenhouse, Larry E.,3,551,896.
Rivolier, Charles, to Societe Anonyme D.B.A. Headlight adjusting system. 3,551,668, Cl. 240-61.1
RJS Corporation: *See—*
Slezak, Raymond J., 3,551,253.
RMS Electronics, Inc.: *See—*
Pariser, Sidney, 3,550,409.
Roach, David A., to Mapco Inc. Anhydrous ammonia pipeline system. 3,550,618, Cl. 137-566.
Robbins, Jim, Seat Belt Co.: *See—*
Radke, Donald G., and Booth, Frederick C., 3,550,957.
Roberts, Albert Samuel, to Kennametal Inc. Apparatus for compacting finely-granulated materials. 3,550,198, Cl. 18-5.
Roberts, Elliott J., to Dorr-Oliver Incorporated. Reduction of sulphates. 3,551,100, Cl. 23-137.
Robertshaw Controls Company: *See—*
Body, William K., Locascio, Russell J., Rice, Harold W., and Scott, Douglas R., 3,550,848.
Graham, Marvin M., and Haskins, Lauren D., 3,550,616.
Katchka, Jay R., 3,550,623.
Kreuter, Kenneth G., and Mueller, Klaus P., 3,550,629.
McIntosh, Harold A., 3,550,901.
Scott, Douglas R., 3,550,404.
Scott, Douglas R., 3,550,847.
Robinson, Alonzo T. W.: *See—*
Brumfield, Robert C., Naff, John T., and Robinson, Alonzo T. W.,3,551,090.
Robinson, Donald Brown. Dead front fused electrical connector. 3,551,869, Cl. 337-201.
Robinson, Gene H., to Eastman Kodak Company. Liquid developers for electrostatic images. 3,551,337, Cl. 252-62.1
Robinson, George Jr., to Teletype Corporation. Vibration device and method with parts separation. 3,550,326, Cl. 51-163.
Robinson, Mayes R. Tool clamp for agricultural machinery. 3,550,969, Cl. 306-1.5
Robinson, Thomas C.: *See—*
Huffman, Fred N., Robinson, Thomas C., and Kitrilakis, Sotiris S.,3,550,162.
Robinson, W. E. Boat carrier and launcher for pickup trucks. 3,550,800, Cl. 214-450.
Robison, Robert S.: *See—*
Aszalos, Adorjan, Robison, Robert S., Pansey, Felix E., and Berk, Benard,3,551,561.
Robson, Peter N.: *See—*
Kino, Gordon S., and Robson, Peter N.,3,551,831.
Roche, Jean A., to General Electric Company. Temperature compensating receiver for use with a bourdon tube fluidic transducer. 3,550,609, Cl. 137-83.
Rochla, Kurt, to Windmoller & Holscher. Process and apparatus for manufacturing valved bag of plastic material sheeting. 3,551,238, Cl. 156-201.
Rochla, Kurt, to Windmoller & Holscher. Machine for manufacturing open bags of plastics material. 3,551,257, Cl. 156-510.
Rockwell-Standard Company: *See—*
Cox, Frank T., Jr., and Powers, Richard L., 3,550,379.
Roder, Philipp. Firearm with two or more adjustable barrels. 3,550,300, Cl. 42-1.
Rodgers, Harris G., Sr.: *See—*
Rajnik, Lawrence S., and Rodgers, Harris G., Sr.,3,550,322.
Rogers, Waldo I.: *See—*
Kramer, David C., and Rogers, Waldo I.,3,550,276.
Rogier, Edgar R.: *See—*
Peerman, Dwight E., Vertnik, Leonard R., and Rogier, Edgar R.,3,550,806.
Rohaus, Donald E.: *See—*
Guseman, James R., and Rohaus, Donald E.,3,550,205.
Rohm & Haas Company: *See—*
Emmons, William D., 3,551,479.
Rohm and Haas Company: *See—*
Brenteson, Allen J., 3,551,134.
Lewis, Sheldon N., Mc Nulty, Patrick J., and Viste, Kenneth L., 3,551,484.
Moser, Vincent J., Greizerstein, Walter, and Kottke, Roger H., 3,551,179.
Rolin, Kenneth C., to Pharma Tech. Flow regulator. 3,550,900, Cl. 251-9.
Rolinson, George Newbolt: *See—*
Cole, Martin, and Rolinson, George Newbolt,3,551,448.
Rolls-Royce Limited: *See—*
Feller, Fritz, 3,551,080.
Roman, Robert J.: *See—*
Bundschuh, John J., Roman, Robert J., and Thomson, Kenneth W.,3,550,879.
Roman, Robert J., to Eastman Kodak Company. Manually operated film stripper mechanism. 3,550,881, Cl. 242-192.
Rooklyn, Jack, to Republic Corporation. Indexer. 3,550,534, Cl. 104-103.
Rooklyn, Jack, to Republic Corporation. Transportation system. 3,550,535, Cl. 104-118.
Roquet, Raymond Jacques Charles: *See—*
Pichot, Michel Georges Andre, and Roquet, Raymond Jacques Charles,3,551,610.
Rorer, Donald R., to Stone Container Corporation. Automatic package handling apparatus for a skin- packaging machine. 3,550,348, Cl. 53-112.
Rose, Ellsworth S. Cable duct or raceway and support for partition walls. 3,551,584, Cl. 174-49.
Roselius, Charles F., Pelikan, George A., and Maggio, Albert C., to Ellcon-National, Inc. Railway car braking apparatus. 3,550,731, Cl. 188-153.
Rosenfeld, Jack L.: *See—*
Lehman, Meir M., Rosenfeld, Jack L., and Schlaeppi, Hans P.,3,551,894.
Rosenkranz, Dieter, and Gorgen, Kurt, to Hacoba-Textilmaschinen G.m.b.H., Firma. Flanged roller. 3,550,231, Cl. 29-123.
Ross, Camilla B.: *See—*
Henderson, William E., and Ross, Camilla B.,3,551,535.

Ross, Jerome J., to General Mills, Inc. Free-flowing form of tocopheryl succinate. 3,551,457, Cl. 260-345.5
Ross, Phillip T., to General Motors Corporation. Electrical insulation in lithium-chlorine electrochemical cell. 3,551,206, Cl. 136-86.
Rossetti, Carlo. Method of polymerizing monomeric material into cast polymer sheets and the apparatus for the casting of said polymeric sheets. 3,551,541, Cl. 264-102.
Rossman, Donald, to Elco Corporation. Test connector for integrated circuit module. 3,551,878, Cl. 339-75.
Rossoff, Arthur L., to General Instrument Corporation. Laser modulating system. 3,551,848, Cl. 332-7.51
Rotax Limited: *See—*
Silvertown, Cyril, and Wharton, Eddie, 3,551,715.
Rotex Limited: *See—*
Shaw, Fred, and Wharton, Eddie, 3,551,784.
Rothschild, Harry R., Jr., and Young, Robert B., to Pan-Nova, Inc., mesne. Coin-actuated fluid-dispensing system. 3,550,743, Cl. 194-13.
Rotier, Donald J., to Honeywell Inc. Control apparatus. 3,551,824, Cl. 328-147.
Rotork Engineering Company Limited: *See—*
Hore, Donald L., 3,551,749.
Rotron Incorporated: *See—*
Griffo, Joseph B., 3,550,426.
Rotta Research Laboratorium S.p.A.: *See—*
Da Re, Giorgio, and Rovati, Luigi, 3,551,419.
Rottmann, Gernot: *See—*
Hein, Georg, and Rottmann, Gernot,3,550,862.
Rouberol, Jean-Michel, to Compagnie d'Applications Mecaniques a l'Electronique au Cinema et a l'Atomistique (C.A.M.E.C.A.). Ion-electron image converter for use with ion microanalyzers. 3,551,671, Cl. 250-49.5
Roussel UCLAF: *See—*
Bertin, Daniel, and Perronnet, Jacques, 3,551,421.
Rovati, Luigi: *See—*
Da Re, Giorgio, and Rovati, Luigi,3,551,419.
Roworth, Donald Anthony Acott, to International Standard Electric Corporation. Vocoder filter system. 3,551,588, Cl. 179-1.
Roy, Neal L.: *See—*
Hansen, David O., and Roy, Neal L.,3,551,846.
Royal, Celestian L.: *See—*
Seidman, Martin, and Royal, Celestian L.,3,551,293.
Rubery, Alfred Moffatt, and Harrison, Kenneth Arthur, to Lucas, Joseph, (Industries) Limited. Methods of making rotors for piston type hydraulic pumps and motors. 3,550,233, Cl. 29-156.4
Rubinstein, Charles B.: *See—*
Enloe, Louis H., Jakes, William C., Jr., and Rubinstein, Charles B.,3,551,594.
Rubner, Tibor, to Westinghouse Electric Corporation. Voltage acceptor circuit and overvoltage undervoltage detector for use therein. 3,551,746, Cl. 317-26.
Rudolph, Louis R., and Dalpee, Joseph A., to United States of America, Navy. Suppressed-carrier modulator. 3,551,850, Cl. 332-44.
Rudy, John F.: *See—*
Damico, John J., Rudy, John F., Shuford, David M., and Wischhusen, Theodore F.,3,551,240.
Ruc z, William J., III.: *See—*
Bardgette, John J., and Ruc z, William J., III.,3,550,384.
Runnels, Russell W. Aircraft collision warning system with panoramic viewing reflectors. 3,551,676, Cl. 250-83.3
Runnion, Ernest E.: *See—*
Chapman, Robert E., 3,550,656.
Ruoff, Carl E., and Winter, Edward F., to International Business Machines Corporation. Integrated photodiode array. 3,551,761, Cl. 317-235.
Rupp, Hans-Dieter, Meyer, Gerhard, and Magerlein, Helmut, to Glanzetoff AG. Process for the conversion of trithiane into carbon disulfide. 3,551,103, Cl. 23-206.
Rusch, Philip H., to Square D Company. Current limiting circuit for a solid state D.C. motor control circuit. 3,551,774, Cl. 318-341.
Ruschig, Heinrich, Schmitt, Karl, Lebenich, Hans, and Hartfelder, Gunther, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Alkyl-and cycloalkyl-amino-propanol- and cyclopentenyl-phenol ethers. 3,551,493, Cl. 260-570.7
Rushlow, Daniel T. Combination cigarette case. 3,550,763, Cl. 206-38.
Russell, James L., to Bendix Corporation, The. Telephone telemetry. 3,551,597, Cl. 179-2.
Russell, Ralph W.: *See—*
Fisher, Ervin, Russell, Ralph W., and Golembczyk, Raymond A.,3,550,359.
Rutherford, Robert E., Jr.: *See—*
Grosso, Patrick F., Rutherford, Robert E., Jr., and Sargent, Donald E.,3,551,306.
Ruti Machinery Works Ltd.: *See—*
Strauss, Edgar H., 3,550,641.
Rutledge, James L.: *See—*
Saltich, Jack L., and Rutledge, James L.,3,550,260.
Ryan, Le Roy J., Jr.: *See—*
Gaudriot, Henri L., and Ryan, Le Roy J., Jr.,3,551,593.
Ryckaert, Andre, and Mulders, Julien, to Solvay & Cie. Stabilized chlorinated hydrocarbon. 3,551,505, Cl. 260-652.5
Rymes, John E., to Flex-Track Equipment Ltd., mesne. High performance snow track. 3,550,968, Cl. 305-54.
Saadeh, Fuad T.: *See—*
Haynes, Stewart, Jr., and Saadeh, Fuad T.,3,550,849.
Saari, Jacob E.: *See—*
Segal, Irving, 3,550,523.
Sachs, Sidney. Animal cages. 3,550,558, Cl. 119-15.
Sacrez, Jules, Javaux, Gustave, Doquire, Gilbert, and Bodart, Marcel, to Glaverbel S.A. Method and apparatus for manufacturing flat glass. 3,551,126, Cl. 65-27.
Saeki, Kenji: *See—*
Arakawa, Takaaki, and Saeki, Kenji,3,551,467.
Safir, Sidney Robert: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert,3,551,436.
Bauer, Victor John, Fanshawe, William Joseph, and Safir, Sidney Robert,3,551,437.
Fanshawe, William Joseph, Bauer, Victor John, and Safir, Sidney Robert,3,551,567.
Safiuddin, Mohammed, to Westinghouse Electric Corporation. Current limit protection for individual motors for a multimotor drive system. 3,551,775, Cl. 318-434.
Sagnis, James C., Jr., and Stuckert, Paul E., to International Business Machines Corporation. Magnetic strip memory. 3,551,902, Cl. 340-174.
Sagot, Andre: *See—*
Raynal, Jean-Claude, and Sagot, Andre,3,550,702.
Sahni, Atam P., to Monsanto Company. Metal primers comprising partial fatty acid esters of styrene-allyl alcohol copolymers and adipic acid. 3,551,368, Cl. 260-23.
Saito, Tetsushi: *See—*
Yagii, Sokichi, Saito, Tetsushi, and Watanabe, Takuji,3,550,464.
Sakamoto, Tetsuzo, and Ninomiya, Osamu, to Tokyo Shibaura Denki Kabushiki Kaisha. Steam turbine control system. 3,551,066, Cl. 415-40.
Sakanoue, Michio: *See—*
Kuwahara, Yasuharu, and Sakanoue, Michio,3,551,290.
Sakashita, Tatsuo: *See—*
Sakuragi, Taketami, and Sakashita, Tatsuo,3,551,507.
Sakuragi, Taketami, and Akiyama, Shinichi, to Japanese Geon Co., Ltd., The. Manufacture of high molecular weight substances. 3,551,394, Cl. 260-80.7
Sakuragi, Taketami, and Sakashita, Tatsuo, to Japanese Geon Co., Ltd., The. Method of reducing the tendency of butadiene to polymerize. 3,551,507, Cl. 260-666.5
Sale, Edwin E.: *See—*
Claiborne, Earl B., and Sale, Edwin E.,3,551,215.
Saleck, Wilhelm: *See—*
Huckstadt, Harald, Randolph, August, Saleck, Wilhelm, and Ranz, Erwin,3,551,158.
Salgo, Francis J., to General Electrodynamics Corporation. Infra-red detectors. 3,551,051, Cl. 356-51.
Saline Water Conversion Corporation: *See—*
Lichtenstein, Joseph, 3,551,298.
Salmela, John M., to Chevron Research Company. Method for preparing extremely fine fibrous webs. 3,550,826, Cl. 225-3.
Salminen, Wilho M., to Eastman Kodak Company. Ultrasonics for dissolving color couplers. 3,551,157, Cl. 96-100.
Salonen, Albert R. Applicator for dispensing a molten material. 3,550,815, Cl. 222-146.
Salov, Sergei Fedorovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.
Salter, Luther Carlton, Jr.: *See—*
Boom, Roger W., Salter, Luther Carlton, Jr., and Vetrano, James B.,3,551,861.
Saltich, Jack L., and Rutledge, James L., to Motorola, Inc. Method for making a hot carrier PN-diode. 3,550,260, Cl. 29-576.
Salz, Theodore. Display mount for pictures and other articles. 3,550,299, Cl. 40-156.
Samo, Harvey W., to Margon Corporation. Side-to-side moving doll eye. 3,550,315, Cl. 46-167.
Sanchez, Francisco G. Internal combustion engine. 3,550,565, Cl. 123-8.41
Sand, Robert H.: *See—*
Libby, Cecil Winthrop, and Sand, Robert H.,3,551,609.
Sandoz-Wander, Inc.: *See—*
Frey, Albert J., Houlihan, William J., and Manning, Robert E., 3,551,450.
Houlihan, William J., and Manning, Robert E., 3,551,411.
Manning, Robert E., 3,551,426.
Ott, Hans, 3,551,427.
Sandoz-Warner, Inc.: *See—*
Hardtmann, Goetz E., and Ott, Hans, 3,551,445.
Sanfourche, Jacques: *See—*
Dumoulin, Jean, and Sanfourche, Jacques,3,551,375.

Sano, Kazuya: *See—*
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,155.
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,156.

Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Automatic electric rice cooker. 3,551,644, Cl. 219-441.

Sanraku Ocean Co., Ltd.: *See—*
Kamimura, Akira, Tsugawa, Ryuichiro, and Okumura, Shinji, 3,551,292.

Santi, John D., to Briggs & Stratton Corporation. Method of assembling dry reed switches. 3,550,268, Cl. 29-622.

Santier, Christian: *See—*
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel,3,551,792.

Santosuosso, Robert C. Fishing device. 3,550,305, Cl. 43-42.74

Sarah, Thomas F., to Shakespear of Arkansas, Inc., mesne. Bail assembly for spinning reels. 3,550,874, Cl. 242-84.2

Sargent, Donald E.: *See—*
Grosso, Patrick F., Rutherford, Robert E., Jr., and Sargent, Donald E.,3,551,306.

Sarpkaya, Turgut, to United States of America, Army, mesne. Convexwalled, cusped, vented, bistable flueric amplifier. 3,550,607, Cl. 137-81.5

Sartorius-Werke GmbH: *See—*
Knothe, Eich Emil, Billin, Eckhad, and Melchc, Fanz Josef, 3,550,703.

Sarvay, John Thomas, and Dallen, John A., to Standard Products Company, The. Lock strip inserting tool. 3,550,242, Cl. 29-235.

Sasaguri, Kiichiro: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru,3,551,380.

Sasaki, Hiromu: *See—*
Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru,3,551,644.

Sasaki, Shinichi. Microwave apparatus for determining moisture content of hygroscopic webs, especially during manufacture. 3,551,806, Cl. 324-58.5

Sass, Samuel, Witten, Benjamin, and Davis, Paul, to United States of America, Army. Method of making a incendiary formulation containing white phosphorus. 3,551,531, Cl. 264-3.

Satkin, David M., Helvic, Gene B., and Tillotson, Charles J., to Architectural Partitions. Wall Structure. 3,550,338, Cl. 52-241.

Sato, Hiroshi: *See—*
Kitano, Yutaka, Sato, Hiroshi, and Ishida, Isao,3,550,973.

Sato Kiko Kabushiki Kaisha: *See—*
Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo, 3,551,251.

Sato, Yasuhiro: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.

Sato, Yo, Nagashima, Kiyoji, Murata, Yoshio, Makino, Kazunosuke, Matsushima, Eiichi, and Izumihara, Sozo, to Sato Kiko Kabushiki Kaisha. Portable, one-hand-operable labeling machine. 3,551,251, Cl. 156-384.

Sauer, Paul, to Burger Eisenwerke AG. Food-treatment apparatus with washing means. 3,550,576, Cl. 126-21.

Saveliev, Leonid Ivanovich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich,. Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.

Sawhill, Duane L.: *See—*
King, Charles S., and Sawhill, Duane L.,3,551,094.

Sawyer, David F. Method and apparatus for forming novel lighting element coils of fluorescent glass tubing. 3,551,128, Cl. 69-109.

Sayles, David C., to United States of America, Army. Solid propellant composition with a polymeric binder containing ammonium perchlorate and aluminum. 3,551,225, Cl. 149-19.

Scaboo, Gust N.: *See—*
Stier, Paul G., and Scaboo, Gust N.,3,550,681.

Scalzo, Augustine J., and Allen, James M., to Westinghouse Electric Corporation. Rotor structure for an axial flow machine. 3,551,068, Cl. 415-173.

Schaefer, Frederic Charles, and Zimmermann, William Douglas, to American Cyanamid Company. Aqueous process of preparing pseudoureas and acid salts thereof. 3,551,489, Cl. 260-564.

Schaum, Helmut, and Horlein, Gerhard, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of amorphous copolymers of ethylene and higher α-olefins. 3,551,395, Cl. 260-80.78

Schaumann, Wolfgang: *See—*
Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl,3,551,409.

Scheffler, Peter, and Jandeleit, Otto, to Compagnie de Saint-Gobain. Process and apparatus for detecting defects of surface sheet material. 3,551,060, Cl. 356-239.

Scheitlin, George E.: *See—*
Brighton, John C., and Scheitlin, George E.,3,550,470.

Schembs, Wolfgang: *See—*
Meer, Winfried, and Schembs, Wolfgang,3,551,220.

Schenck, Robert C., Jr., and Storms, Robert S., to Duriron Company, Inc., The. Piston and PTFE ring assembly for engines. 3,550,988, Cl. 277-63.

Schenk, Horst, and Prolss, Erhard, to Siemens Aktiengesellschaft. Field concentrator device for forming of metallic workpieces. 3,550,416, Cl. 72-56.

Schettino, Anthony J.: *See—*
Johnson, Bruce K., and Schettino, Anthony J.,3,550,513.

Schiefer, Joachim: *See—*
Germscheid, Hans-Gunther, and Schiefer, Joachim,3,551,480.

Schieman, Richard D.: *See—*
Musselman, John M., and Schieman, Richard D.,3,551,131.

Schindler, Donald G.: *See—*
Patsey, John A., and Schindler, Donald G.,3,550,436.

Schjeldahl, G. T., Company: *See—*
Adams, Richard C., and Coombes, William S., 3,550,494.

Schlaeppi, Hans P.: *See—*
Lehman, Meir M., Rosenfeld, Jack L., and Schlaeppi, Hans P.,3,551,894.

Schlage, Ernest L.: *See—*
Neary, Ralph E., and Schlage, Ernest L.,3,550,411.

Schlage Lock Company: *See—*
Neary, Ralph E., and Schlage, Ernest L., 3,550,411.

Schlamb, Kermit F.: *See—*
Mahon, John H., and Schlamb, Kermit F.,3,551,167.

Schlau, Floyd E.: *See—*
Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M.,3,551,022.

Schleicher, Harold E., to Arrow-Hart, Inc. Electromagnetic contactor. 3,551,859, Cl. 335-128.

Schleicher Regelautomatik GmbH & Co., KG: *See—*
Twellsiek, Friedel, 3,551,751.

Schloemann Aktiengesellschaft: *See—*
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul, 3,550,675.
Wochnik, Josef, 3,550,971.

Schlumberger Technology Corporation: *See—*
Cubberly, Walter E., Jr., 3,550,684.
Lanmon, C P II, 3,550,699.
Shore, James B., 3,550,695.
Urbanosky, Harold J., 3,550,700.

Schmerling, Louis, and Dombro, Robert A., to Universal Oil Products Company. Preparation of alcohols. 3,551,504, Cl. 260-632.

Schmidt, Oswald. Badische Anilin- & Soda Fabrik Aktiengesellschaft Simultaneous dyeing and bleaching of proteinaceous fibrous material. 3,551,087, Cl. 8-19.

Schmidt, Paul: *See—*
Druey, Jean, and Schmidt, Paul,3,551,428.

Schmitt, Josef, to Etablissements Clin-Byla. 5-Substituted benzodiazepines. 3,551,412, Cl. 260-239.3

Schmitt, Josef, Raveux, Roger, and Brunaud, Marcel Daniel Pierre, to Etablissements Clin-Byla. Basic phenoxy acetamides. 3,551,478, Cl. 260-472.

Schmitt, Karl: *See—*
Ruschig, Heinrich, Schmitt, Karl, Lebenich, Hans, and Hartfelder, Gunther,3,551,493.

Schmitt, Russell Arthur: *See—*
Newton, Jay Earl, and Schmitt, Russell Arthur,3,551,907.

Schnakenberg, Robert H., and Hoffman, Robert C., to Victor Comptometer Corporation. Unit counter. 3,550,845, Cl. 235-6.

Schneider, Jos., & Co.: *See—*
Himmelsbach, Paul, and Thomas, Otto, 3,550,518.

Schnell, Hermann: *See—*
Krimm, Heinrich, Malamet, Georg, and Schnell, Hermann,3,551,390.

Schnettler, Frank J.: *See—*
Monforte, Frank R., and Schnettler, Frank J.,3,551,533.

Schnurrbusch, Karl, and Kniege, Wilfried, to Farbenfabriken Bayer Aktiengesellschaft. Structure control additive for convertible organopolysiloxanes, and preparation thereof. 3,551,382, Cl. 260-46.5

Schofield, Fred, to Harrison, McGregor & Guest Limited. Mechanical handling device for vehicles. 3,550,795, Cl. 214-138.

Schokkenbroek, Jan, to Konimkijke Nederlandsche Hoogovens en Staalfabrieken N.V. Desulphurizing composition for treating iron melts and method. 3,551,139, Cl. 75-53.

Scholz, William A., to Standum Inc. Slit wrapper for produce. 3,550,842, Cl. 229-87.

Schott, Robert E., to Allis-Chalmers Manufacturing Company. Hydraulic valve. 3,550,507, Cl. 91-446.

Schretzmayer, Josef: *See—*
Gram, Erwin, Kastl, Peter, and Schretzmayer, Josef,3,550,224.

Schrewelius, Nils Gustav, to Aktiebolaget Kanthal. Electric resistor elements and procedure for their manufacture. 3,551,635, Cl. 219-104.

Schroeder, Jon M., to Fairchild Camera and Instrument Corporation. Method of bonding and an electrical contact construction. 3,550,261, Cl. 29-583.

Schroeer, Rudi M., Garmhausen, Thomas A., and Frank, Johann E., to Arvin Systems, Inc. Flaw detection system and probe. 3,550,434, Cl. 73-67.2

Schroer, John B. Cap assembly. 3,550,635, Cl. 138-89.

Schuil, Elmer H.: *See—*
Kliewer, Homer F., and Rawson, John E., 3,550,333.

Schuler, Gerhard, to Vaillant, Joh., KG. Rotary gas switch, in particular for water heaters. 3,550,603, Cl. 137-66.

Schulert, Sanford: *See—*
Muzyczko, Thaddeus M., Shore, Samuel, and Schulert, Sanford,3,551,393.

Schulz, Hans-Dieter: *See—*
Hess, Walter, Schulz, Hans-Dieter, Lang, Jean, Bauer, Karl-Heinz, and Desfossex, Paul,3,550,675.

Schunck, Michael: *See—*
Markert, Ferdinand, Schunck, Michael, and Weber, Georg,3,551,347.

Schuster, Ludwig: *See—*
Raff, Paul, Peine, Hans Georg, Schuster, Ludwig, and Adam, Karl,3,551,485.

Schutten, Maarten, to Koninklijke Zwavelzuurfabrieken v/h Ketjen N.V. Process for reducing the loss due to abrasion of alumina extrudates and of extruded catalysts based on alumina. 3,551,354, Cl. 252-466.

Schutz, Mihaly: *See—*
Hauska, Miklos, Schutz, Mihaly, and Kontra, Ferenc,3,551,174.

Schuur, Gerrit, and Breukink, Carel J., to Shell Oil Company. Method of producing a laminated foamed thermoplastic sheet. 3,551,243, Cl. 156-244.

Schwartz, Norbert, Richards, James F., and Pistell, Joseph F., to Pennwalt Corporation. Metal working lubricants. 3,551,335, Cl. 252-34.7

Schwarze, Gerhard: *See—*
Jensen, Knut, Witting, Joachim, and Schwarze, Gerhard,3,551,716.

Schwarzkopf, August, to Windmoller & Holscher. Apparatus for making heat-seals with a weakened tear line. 3,551,259, Cl. 156-581.

Schwieterman, Roman A., and Oganowski, Kasimir, to Armco Steel Corporation. Method of breaking seal between furnace and cladding pot. 3,551,185, Cl. 117-51.

SCM Corporation: *See—*
Babin, Frank A., 3,550,817.
Kohnken, Donald H., 3,551,233.
Watkins, Gerald S., Jr., 3,551,404.

Scott & Fetzer Company, The: *See—*
Dolan, Francis D., and Burgoon, Jack L., 3,550,181.

Scott, Charles F. Adjustable shelf bracket. 3,550,891, Cl. 248-242.

Scott, Douglas R.: *See—*
Body, William K., Locascio, Russell J., Rice, Harold W., and Scott, Douglas R.,3,550,848.

Scott, Douglas R., to Robertshaw Controls Company. Pneumatic control system and parts therefor or the like. 3,550,404, Cl. 68-12.

Scott, Douglas R., to Robertshaw Controls Company. Pneumatically operated logic system or the like. 3,550,847, Cl. 235-201.

Scott, Michael, Metal Shaping, Inc.: *See—*
Swanson, Wilford A., 3,550,420.

Sebald, Franz: *See—*
Putz, Joachim, and Sebald, Franz,3,551,135.

Sedlacek, Herbert: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter,3,551,891.
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert,3,551,893.

Seelbach, Heinz, to Reininghaus & Co. Lighting device with supporting ledges and connecting boxes. 3,551,617, Cl. 200-51.

Seelbach, Heinz, to Reininghaus & Co. Connecting boxes including switching means for illuminating devices. 3,551,618, Cl. 200-51.

Seeley, Gerard: *See—*
Goetz, Fred E., Druzba, Perry R., Jr., Hause, James R., and Seeley, Gerard,3,550,325.

Segal, Irving, 30% to Coe, Richard T., and 30% to Saari, Jacob E. Seat construction for automotive air conditioning. 3,550,523, Cl. 98-2.

Seidel, Hans-Joachim: *See—*
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter,3,551,434.

Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Impedance transformer. 3,551,855, Cl. 333-33.

Seidman, Martin, and Royal, Celestian L., to Stalcy, A. E., Manufacturing Company. Method for enzymatically hydrolyzing starch. 3,551,293, Cl. 195-31.

Seip, Hermann, and Rabich, Erich, to Teves, Alfred, G.m.b.H. Diskbrake adjustment mechanism with stepless unidirectional radial clutch. 3,550,728, Cl. 188-71.8

Seitzer, Dieter, to International Business Machines Corporation. Coupled transmission lines arrangement. 3,551,707, Cl. 307-317.

Seitzinger, Vaughn E.: *See—*
United States of America,National Aeronautics and Space Administration, Administrator, 3,551,266.

Seiz, Edward A. Free-standing support structure. 3,550,785, Cl. 211-176.

Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo, to Meiji Seika Kaisha, Ltd. (2-Propynyloxy)-beta-nitro-styrenes. 3,551,502, Cl. 260-612.

Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio, to Sumitomo Chemical Co., Ltd. N-substituted amides of natural fatty acids. 3,551,462, Cl. 260-404.

Sekisui Kagaku Kogyo Kabushiki Kaisha: *See—*
Takaura, Hirozo, Masaka, Toshiharu, and Ando, Sumio, 3,551,281.
Yamamoto, Sadao, Okubo, Minoru, Honda, Seiichiro, and Ogura, Kenji, 3,551,538.

Sekiyama, Kinzo: *See—*
Shimizu, Katsuji, and Sekiyama, Kinzo,3,551,369.

Selby, Roy F.: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T.,3,551,210.

Sello, Stephen B.: *See—*
Tesoro, Giuliana C., Sello, Stephen B., Moore, Donald R., and Wurster, Rudolf F.,3,551,422.

Selnes, Roald. Equipment for optical measurement of the chassis of a vehicle. 3,550,277, Cl. 33-46.

Senseney, Robert G.: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Senseney, Robert G., and Van Fleet, Webster T.,3,551,210.

Sepe, Raymond B., to Rayethon Company. Frequency multiplier and frequency waveform generator. 3,551,826, Cl. 328-160.

Sequeira, Peter J. L., and Drake, Alan Rendal, to Baird and Tatlock (London) Limited. Multiple pipetting apparatus. 3,551,129, Cl. 23-259.

Serbiak, Richard P.: *See—*
Risberg, Robert L., and Serbiak, Richard P.,3,551,771.

Service d'Exploitation Industrielle des Tabacs et des Allumettes:*See—*
Gau, Christian Henri Jose Marie, 3,550,762.

Servo Corporation of America: *See—*
Summer, Steven E., 3,551,788.

Servoz-Gavin, Pierre: *See—*
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel,3,551,792.

Settimi, Raymond J., to American Safety Equipment Corporation. Restraint apparatus. 3,550,875, Cl. 242-107.4

Severing, Herbert, Radtke, Dieter, Grasshoff, Hans-Wilhelm, and Kress, Heinz, to Hoesch Aktiengesellschaft Hauptverwaltung. Method of producing a steel packing strip of high strength. 3,551,216, Cl. 148-12.

Seyfried, Klaus, and Toepsch, Hans, to Farbenfabriken Bayer Aktiengesellschaft. Adhesion-resistant organopolysiloxane coatings. 3,551,376, Cl. 260-32.8

Shaffer, William E., to Stromberg-Carlson Corporation. Sensitive pick-up relay. 3,551,754, Cl. 317-155.5

Shakespear of Arkansas, Inc.: *See—*
Sarah, Thomas F., 3,550,874.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. Rigid shock resistant roof deck board made of cellular pellets. 3,551,274, Cl. 161-168.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. High temperature insulation-binder composition. 3,551,276, Cl. 161-170.

Shannon, Richard F., to Owens-Corning Fiberglas Corporation. Lubricating metal mold surfaces and dispersing carbon black in manufacture of inorganic hydraucially bonded articles. 3,551,559, Cl. 264-338.

Shapiro, Arkady Matveevich, Sisoyan, Ripsime Grigorievna, Alania, Anzor Markozovich, Shnaider, Teodor Maiseevich, and Goldman, Mikhail Grigorievich. Transducer for converting mechanical force to an electric output signal. 3,551,790, Cl. 321-51.

Sharkey, Melvin. Bonding air-impervious flexible sheets using an adhesive, perforated, inner sheet and article produced thereby. 3,551,270, Cl. 161-113.

Sharp, Edwin H.: *See—*
Bresley, Lloyd J., and Sharp, Edwin H.,3,550,240.

Sharp, Lester T.: *See—*
Bishop, Earl L., and Sharp, Lester T.,3,551,252.

Shaw, Fred, and Wharton, Eddie, to Rotex Limited. Alternating current generators having plural output windings. 3,551,784, Cl. 322-90.

Shaw, Wilfrid G., Grasselli, Robert K., and Hardman, Harley F., to Standard Oil Company, The. Process for the ammoxidation of olefins to unsaturated nitriles. 3,551,470, Cl. 260-465.3

Shear, Wayne G., and Olmstead, Merlin E., to Bendix Corporation, The. Frequency diversity time multiplex means for increasing capacity of a cooperative collision avoidance system. 3,551,884, Cl. 340-23.

Sheets, Ronald E., to Geotel Inc. Gas vortex-stabilized radiation source and method and additive-introduction means therefor. 3,551,737, Cl. 315-111.

Shell Oil Company: *See—*
Schuur, Gerrit, and Breukink, Carel J., 3,551,243.

Shen, Tsung-Ying, Matzuk, Alexander, and Dorn, Conrad P., Jr., to Merck & Co., Inc. Lower alkyl sulfinyl methyl imidazoles. 3,551,444, Cl. 260-309.

Shepherd, Thomas Hugh, and Polovina, Walter, to Princeton Chemical Research, Inc. Polybutene-1-composition and method of printing thereon. 3,551,194, Cl. 117-122.

Sherkin, Morris A. Method and apparatus for inspecting tires. 3,550,443, Cl. 73-146.

Sherman, Herbert P. Conveyor for paper sheets and the like. 3,550,741, Cl. 193-35.

Shesterikov, Alexandr Sergeevich. Trigger mechanism for sporting guns. 3,550,301, Cl. 42-69.

Shibata, Fukuo. Electric control system for induction machine containing winding elements of two wound rotor induction machines. 3,551,767, Cl. 318-197.

Shields, Harper, to Alamance Industries, Inc. Apparatus and method for pneumatically tensioning and supporting tubular fabric on a circular kniting machine. 3,550,403, Cl. 66-150.
Shima, Tsukasa: *See—*
Fujisaki, Yoshisato, Aishima, Itsuho, Fukuma, Noboru, Nakanishi, Atsuo, Matsui, Kenichi, Shima, Tsukasa, and Nakai, Chiyouzi,3,551,401.
Shimizu, Katsuji, and Sekiyama, Kinzo. Antifouling compositions comprising a dispersion of a mixed powder in a carrier. 3,551,369, Cl. 260-23.3
Shimizu, Masanao, Takase, Yoshiyuki, and Kubota, Saburoh S., to Dainippon Pharmaceutical Co., Ltd. Fish disease treating composition and method of using same. 3,551,566, Cl. 424-263.
Shimodaira, Tadayoshi, to Kabushiki Kaisha Suwa Seikosha. Electric timepiece. 3,550,370, Cl. 58-23.
Shimotakahara, Tsumoru: *See—*
Iwasaki, Toshikatsu, and Shimotakahara, Tsumoru,3,551,017.
Shipley Company, Inc.: *See—*
Gulla, Michael, 3,551,122.
Shirwo, Darold M.: *See—*
Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M.,3,551,022.
Shnaider, Teodor Maiseevich: *See—*
Shapiro, Arkady Matveevich, Sisoyan, Ripsime Grigorievna, Alania, Anzor Markozovich, Shnaider, Teodor Maiseevich, and Goldman, Mikhail Grigorievich,3,551,790.
Shnitzler, Meyer J.: *See—*
Grefe, Philipp G., Lewiecki, Edward M., and Shnitzler, Meyer J.,3,550,554.
Shoffa, Vadim Nikolaevich: *See—*
Smirnov, Vladimir Alexeevich, and Shoffa, Vadim Nikolaevich,3,551,860.
Shore, James B., to Schlumberger Technology Corporation. Oriented perforating apparatus. 3,550,695, Cl. 175-4.51
Shore, Samuel: *See—*
Muzyczko, Thaddeus M., Shore, Samuel, and Schulert, Sanford,3,551,393.
Shotmeyer, Albert. Musical instrument with magnetic type tape reproducer. 3,550,495, Cl. 84-267.
Showa Denko Kabushiki Kaisha: *See—*
Marukawa, Gohei, Oikawa, Takashi, and Hamada, Arinobu, 3,551,143.
Shriver, Charles S., to Orbit Manufacturing Company, Inc. Finned tube heat exchanger and method of making same. 3,550,680, Cl. 165-55.
Shuford, David M.: *See—*
Damico, John J., Rudy, John F., Shuford, David M., and Wischhusen, Theodore F.,3,551,240.
Shuurs, Antonius Hermanus Wilhelmus Maria, to Organon Inc. Coated immunochemical reagent particles and process of preparation. 3,551,555, Cl. 424-12.
Sidles, James: *See—*
Bartley, Donald R., and Sidles, James,3,550,667.
Siebert, Alan R., to Goodrich, B. F., Company, The. Liquid hydroxy terminated polymers of butadiene- acrylonitrile. 3,551,471, Cl. 260-465.4
Siebert, Alan R., to Goodrich, B. F., Company, The. Liquid hydroxyl terminated polymers of butadiene- acrylonitrile. 3,551,472, Cl. 260-465.4
Siebert, William, Jr.: *See—*
Freeman, Raymond, and Siebert, William, Jr.,3,551,793.
Siegel, Harold. Self-opening dental X-ray film pack. 3,551,673, Cl. 250-69.
Siemens Aktiengesellschaft: *See—*
Flemmert, Gosta Lennart, Sirtl, Erhard, and Paulik, Josef, 3,551,098.
Langer, Erik, 3,551,857.
Mecr, Winfried, and Schembs, Wolfgang, 3,551,220.
Putter, Lothar, and Riermeier, Manfred, 3,550,262.
Schenk, Horst, and Prolss, Erhard, 3,550,416.
Tschermak, Manfred, 3,551,759.
Sifford, Perry P., to United Aircraft Corporation. Valve seal. 3,550,905, Cl. 251-306.
Signode Corporation: *See—*
Beach, John R., 3,550,647.
Plunkett, Larry D., 3,550,646.
Silver, Stanley Milton, to Keyolok Co., Inc. Cartoning machines and methods. 3,550,345, Cl. 53-29.
Silverman, Daniel, to Pan American Petrolcum Corporation. Electrical communication system for oil field gathering system. 3,551,890, Cl. 340-171.
Silverman, Richard S.: *See—*
Pitel, Irving, Cornine, Floyd C., and Silverman, Richard S.,3,550,412.
Silvertown, Cyril, and Wharton, Eddie, to Rotax Limited. Stator winding with printed circuit connectors. 3,551,715, Cl. 310-179.
Simson, Dionizy: *See—*
Gawlik, Czeslaw Wincenty, and Simson, Dionizy,3,550,694.
Sinclair Oil Corporation: *See—*
Thomas, Owen H., Beck, Thomas A., and Wickman, Robert F., 3,551,509.
Sinclair Research, Inc.: *See—*
Rausch, Maurice K., 3,551,325.
Singer-General Precision, Inc.: *See—*
Neuberger, Thomas P., and Myles, Walter E., 3,551,043.
Singleton, Jack S., to Fluid Dynamics Incorporated. Adjustable filter element. 3,550,777, Cl. 210-91.
Sinitsin, Pavel Petrovich, and Petrushin, Vasily Petrovich. Paper disintegrator. 3,550,527, Cl. 100-97.
Sinoda, Akibumi, and Nishii, Mashahiko, to Toyoda Automatic Loom Works, Ltd. Speed change controlling device for industrial vehicle. 3,550,734, Cl. 192-4.
Sippel, Arnulf C. T., Bumiller, Maria-Lotte, and Vollmer, Paul, to Deutsche Rhodiaceta A.G. Polyamide fibers of improved dyeability prepared in the presence of ethylene or propylene carbonate. 3,551,388, Cl. 260-77.5
Sirine, Gloria F.: *See—*
Breen, William H., and Sirine, Gloria F.,3,551,346.
Siron, Robert E., and King, Cecil K., to United States of America, Army. Pressurized tensile test apparatus. 3,550,440, Cl. 73-90.
Sirtl, Erhard: *See—*
Flemmert, Gosta Lennart, Sirtl, Erhard, and Paulik, Josef,3,551,098.
Sisoyan, Ripsime Grigorievna: *See—*
Shapiro, Arkady Matveevich, Sisoyan, Ripsime Grigorievna, Alania, Anzor Markozovich, Shnaider, Teodor Maiseevich, and Goldman, Mikhail Grigorievich,3,551,790.
Sissons, Christopher R.: *See—*
Thomas, Gwilym G., and Sissons, Christopher R.,3,551,271.
Sixt, Marty E.: *See—*
Martin, Ronald C., and Sixt, Marty E.,3,551,007.
Skamfer, Robert E.: *See—*
Baker, Donal E., and Skamfer, Robert E.,3,551,789.
Skierski, Edwin J., to Parker-Kalon Corporation. Method of making rotary threaded fasteners. 3,550,255, Cl. 29-557.
Skinner, Harold A. Liquid additive for alkaline paint strippers. 3,551,340, Cl. 252-156.
Skinner, Robert Ivan, to New Zealand Government Property Corporation. Accelerographs and accelerometers. 3,550,437, Cl. 73-71.3
Skvortsov, Boris Vasilievich: *See—*
Gruzdev, Valentin Anatolievich, Bakeev, Alexandr Alexeevich, and Skvortsov, Boris Vasilievich,3,551,742.
Sletzinger, Meyer, and Gal, George, to Merck & Co., Inc. 3-(Hydroxyphenyl)-4-aminovalerates. 3,551,476, Cl. 260-471.
Slezak, Raymond J., to RJS Corporation. Tire band building machine. 3,551,253, Cl. 156-407.
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R., to American Telephone and Telegraph Company. Equipment for automatically retrying customer dialed calls. 3,551,601, Cl. 179-18.
Slominski, Walter V., to Hoover Ball and Bearing Company. Back spring assembly. 3,550,926, Cl. 267-107.
Smalley, Edwin P.: *See—*
Harding, Richard E., Morrison, Ralph A., Peterson, Raymond L., and Smalley, Edwin P.,3,550,172.
Smart, Ivan Frank, and Andrews, Melvin Lyndon, to Ellison, George, Limited. Electrical distribution systems. 3,551,585, Cl. 174-72.
Smedberg, George E., to Du Pont de Nemours, E. I., and Company. Process for preparing a tufted carpet using a hot melt backsizing composition. 3,551,231, Cl. 156-72.
Smidth, F. L., & Co.: *See—*
Andersen, Axel Brix, 3,550,488.
Smirnov, Vladimir Alexeevich, and Shoffa, Vadim Nikolaevich. Electromagnetic device for electric-circuit control and protection systems. 3,551,860, Cl. 335-151.
Smith, A. O., Corporation: *See—*
Maynard, John T., and Lunz, John E., 3,551,748.
Smith, Burton D. Concrete pipe molding assembly. 3,550,225, Cl. 25-30.
Smith, Calvin S., and McLeod, William J., to Chevron Research Company. Centrifugal compression of hydrogen to two pressure levels. 3,551,106, Cl. 23-210.
Smith, Clair C.: *See—*
Clayton, William J., Miller, Robert J., and Smith, Clair C.,3,550,839.
Smith, Earl D., to General Motors Corporation. Transient voltage suppression circuit. 3,551,781, Cl. 321-11.
Smith, Fritz A.: *See—*
Chen, Nai Yuen, and Smith, Fritz A.,3,551,353.
Smith, Herchel: *See—*
Hughes, Gordon A., and Smith, Herchel,3,551,459.
Smith, James. Fish gutting machine. 3,550,193, Cl. 17-58.
Smith, Joseph B. Repair coupling with deformable metal seal. 3,550,638, Cl. 138-99.
Smith, Joseph W., to Combustion Engineering, Inc. Nipple or nozzle build-up by the electroslag consumable nozzle technique. 3,550,259, Cl. 29-527.6
Smith Kline & French Laboratories: *See—*
Kaiser, Carl, and Zirkle, Charles L., 3,551,568.
Smith, Lawrence R., to Motorola, Inc. Analog memory system. 3,551,698, Cl. 307-238.
Smith, Melvin Wilmer, and Brun, Andre Georges, to Westinghouse Electric Corporation. Locating and attachment means for a submersible vehicle. 3,550,388, Cl. 61-69.
Smith, Norman Dennis: *See—*
Tucker, Malcolm John, and Smith, Norman Dennis,3,550,446.
Smith, O.A., Corporation: *See—*
Maynard, John T., 3,551,782.
Smith, Peter W., to Bell Telephone Laboratories, Incorporated. Ring-type parametric oscillator. 3,551,844, Cl. 331-107.

Smith, Richard D., Furlong, Dale A., and Kinsey, Ronald D., to Combustion Power Company, Inc., mesne. Materials storage and conveying assembly. 3,550,791, Cl. 214-17.
Smith, Roger M.: *See—*
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A.,3,550,691.
Smith, Thomas Albert. Rotary engine. 3,550,563, Cl. 123-8.07
Smith, William D., III. Ladle tilting apparatus. 3,550,816, Cl. 222-166.
Smith, William E., Primosch, Edward P., and Keenan, John D., Jr., to Amsco Packaging Machinery, Inc. Bag delivery and stacking mechanism for bag- making machine. 3,550,935, Cl. 271-76.
Smythe, William J., Isreeli, Jack, and Kling, Nelson G., to Technicon Corporation. Debubbling means and method for liquid analysis apparatus. 3,551,063, Cl. 356-246.
Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A.: *See—*
Ando, Satoshi, Uraya, Toru, and Nagata, Koetsu, 3,551,279.
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko, 3,551,277.
Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko, 3,551,277.
Snook, Peter B., and Snyder, Omar E., to Snook, W. B., Mfg. Co., Inc. Automatic control apparatus for silver recovery. 3,551,318, Cl. 204-228.
Snook, W. B., Mfg. Co., Inc.: *See—*
Snook, Peter B., and Snyder, Omar E., 3,551,318.
Snooks, Rupert J., Jr.: *See—*
Brignac, Edmond P., Duke, Bascum H., Nunning, Walter J., and Snooks, Rupert J., Jr.,3,551,548.
Snyder, John L., Mann, Roger H., and Pate, Mary J., said Pate, Mary J., now by change of name to Papvasilious, Mary J., assors. to Shell Oil Company. Process for the preparation of branched conjugated diene polymers. 3,551,392, Cl. 260-78.4
Snyder, Omar E.: *See—*
Snook, Peter B., and Snyder, Omar E.,3,551,318.
Societa Italiana Resine S.p.A.: *See—*
Aglietti, Giancarlo, Canavesi, Roberto, and Reni, Cesare, 3,551,511.
Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Balugani, Fabio, and Mammucari, Franco, 3,551,888.
De Varda, Giorgio, and Martinelli, Saverio, 3,551,598.
Tommasi, Giovanni Battista, and Zanuso, Marco, 3,551,607.
Societe Anonyme Andre Citroen: *See—*
Henry-Biabaud, Edmond, 3,550,994.
Societe Anonyme D.B.A.: *See—*
Rivolier, Charles, 3,551,668.
Societe Anonyme dite: L'Oreal:*See—*
Pelli, Pierre, 3,550,803.
Societe Civile de Recherchest d'Applications Scientifiques:*See—*
Lcroi, Eugene L., and Renault, Jean A., 3,551,575.
Societe de Prospection Electrique Schlumberger, S.A.: *See—*
Gouilloud, Michel Marie Albert, and Levy, Andre, 3,551,797.
Societe Nationale des Petroles d'Aquitaine:*See—*
Raynal, Jean-Claude, and Sagot, Andre, 3,550,702.
Societe Nationale des Petroles d'Aquitanc:*See—*
Pornin, Rene, 3,551,518.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (Snecma): *See—*
Freund, Jean-Pierre, and Stoll, Roger, 3,551,212.
Solomon, Jack M.: *See—*
Bluestein, Bernard R., Solomon, Jack M., and Nelson, Lawrence B.,3,551,487.
Bluestein, Bernard R., and Solomon, Jack M.,3,551,488.
Solomon, Jack M., Isbitsky, Bernard, Jr., and Bluestein, Bernard R., to Witco Chemical Company, Inc. Process for preparing dicyclohexylamine. 3,551,486, Cl. 260-563.
Solvay & Cie: *See—*
Delbouille, Andre, and Hoffait, Alfred, 3,551,403.
Ryckaert, Andre, and Mulders, Julien, 3,551,505.
Solway & Cie: *See—*
Brooks, Richard, and Tasiaux, Paul, 3,551,097.
Sommer, Jurgen: *See—*
Baum, Willi, and Sommer, Jurgen,3,551,166.
Sonneville, Roger Paul. Device for fixing a composite sleeper on a railway track support without ballast. 3,550,850, Cl. 238-115.
Sonneville, Roger Paul. Elastically yieldable rail fastener. 3,550,851, Cl. 238-349.
Sony Corporation: *See—*
Yanagisawa, Yuzuru, and Kusunoki, Shinji, 3,551,653.
South, Donald A. Ornamental shutter and mounting therefor. 3,550,342, Cl. 52-509.
South, Donald A. Rain gutter and mounting means therefor. 3,550,381, Cl. 61-15.
Soutif, Michel: *See—*
Galland, Daniel, Perrin, Jacques, Santier, Christian, Servoz-Gavin, Pierre, and Soutif, Michel,3,551,792.
Sowerby, Austen E., to Electric Reduction Company of Canada Ltd. Process for sulphonation. 3,551,460, Cl. 260-401.
Spanski, Paul L., to United States of America, Army. Flexible frame vehicle. 3,550,710, Cl. 180-14.
Speiser, Jeffrey M., and Whitehouse, Harper John, to United States of America, Navy. Surface wave transducers with side lobe supperssion. 3,551,837, Cl. 333-30.
Sperry, Philip R.: *See—*
Ford, James A., Caule, Elmer J., and Sperry, Philip R.,3,551,214.
Sperry Rand Canada Limited: *See—*
Pallay, Louis, 3,550,503.
Sperry Rand Corporation: *See—*
Arlen, David, and King, John J., 3,551,654.
Halls, Lawrence M., and Cyr, Joseph H., 3,550,363.
Harer, Delmar C., 3,550,367.
Spiess, Dr., G.m.b.H.: *See—*
Krockow, Ernst Wilhelm, 3,551,499.
Spiro, Lloyd W., and Landwald, Arthur. Target with hit actuated electrical indication means. 3,550,941, Cl. 273-102.2
Spitulnik, Michael Jay: *See—*
Knudson, Selden Arthur, and Spitulnik, Michael Jay,3,551,494.
Spoldi, Henry: *See—*
Sweeney, Joseph N., and Spoldi, Henry,3,551,864.
Sprayberry, Billy A., and Urbanowski, Richard L., to Diamond Shamrock Corporation. Granular thickening agent and preparation. 3,551,133, Cl. 71-116.
Sprenger, Gerhard E.: *See—*
Bassemir, Robert W., Carlick, Daniel J., and Sprenger, Gerhard E.,3,551,246.
Spring-Fred, Inc.: *See—*
Coplans, Carl Waddington, 3,550,597.
Sprinkle, Robert S., III: *See—*
Wartman, William B., Jr., and Sprinkle, Robert S., III,3,550,508.
Sprinter Pack AB: *See—*
Persson, Karl Rune, 3,550,835.
Spyropoulos, Chris E., to United States of America, Army. Fluidic weighing and sorting system. 3,550,771, Cl. 209-121.
Spyropoulos, Chris E., to United States of America, Army. Flueric transport system. 3,550,964, Cl. 302-2.
Square D Company: *See—*
Manners, Frank Alan, 3,551,740.
Rusch, Philip H., 3,551,774.
Squibb, E. R., & Sons, Inc.: *See—*
Krapcho, John, 3,551,413.
Squibb, E.R. & Sons, Inc.: *See—*
Aszalos, Adorjan, Robison, Robert S., Pansey, Felix E., and Berk, Benard, 3,551,561.
St. Joseph Lead Company: *See—*
Bowman, Robert S., 3,551,356.
Staats, James E., to General Electric Company. Crossed-field discharge devices and oscillators and amplifiers incorporating the same. 3,551,735, Cl. 315-39.3
Stabel, Wolfgang: *See—*
Martin, Karl, and Stabel, Wolfgang,3,551,186.
Stach, Kurt: *See—*
Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl,3,551,409.
Stachurski, Zbigniew, to Yardney International Corporation. Cell with displaceable electrode. 3,551,208, Cl. 136-86.
Stahl, Ronald, to Trelleborgs Gummifabriks Aktiebolag. Protective masks. 3,550,588, Cl. 128-141.
Stakel, Frederick C. Stacked fluted-wall receptacles. 3,550,421, Cl. 72-327.
Staley, A. E., Manufacturing Company: *See—*
Seidman, Martin, and Royal, Celestian L., 3,551,293.
Stalker, Peter. Idler roller for conveyor belts. 3,550,758, Cl. 198-192.
Standard Oil Company: *See—*
Evering, Bernard Lewis, 3,551,514.
Standard Oil Company, The: *See—*
Musselman, John M., and Schieman, Richard D., 3,551,131.
Shaw, Wilfrid G., Grasselli, Robert K., and Hardman, Harley F., 3,551,470.
Standard Pressed Steel Co.: *See—*
Villo, Joseph P., 3,550,241.
Villo, Joseph P., and Utzy, William, 3,550,244.
Whiteside, Roger B., and Long, Harry T., Jr., 3,551,015.
Standard Products Company, The: *See—*
Sarvay, John Thomas, and Dallen, John A., 3,550,242.
Zoller, Robert A., 3,550,246.
Standum Inc.: *See—*
Scholz, William A., 3,550,842.
Stanley, Charles P., Jr.: *See—*
Bowen, Henry D., and Stanley, Charles P., Jr.,3,550,357.
Stanley, Jon Ovitt: *See—*
Brown, Robert Glenn, Derick, Burton Nathaniel, Stanley, Jon Ovitt, and Watkins, John Mauldin, Jr.,3,550,257.
Stanley Works, The: *See—*
Briggs, Frank E., 3,550,768.
Stark, Bernard Peter: *See—*
Dubsky, George Jon, and Stark, Bernard Peter,3,551,519.
Stazel, Victor. Astronaut figure toy with simulated weightless action mechanism. 3,550,314, Cl. 46-74.
Stearns, Robert I., to Monsanto Company. Apparatus for the production of high-purity gallium. 3,551,314, Cl. 204-194.
Steelcase, Inc.: *See—*
Levit, Edward C., 3,550,927.
Stein, Alvin, to Monsanto Company. Novel interpolymers. 3,551,524, Cl. 260-880.
Stein, Ira S.: *See—*
Krieger, Arthur L., Stein, Ira S., and Tulagin, Vesvolod,3,551,320.

Steinbrunn, Gustav: *See—*
Koenig, Karl-Heinz, Steinbrunn, Gustav, Windel, Hermann, and Fischer, Adolf,3,551,477.

Steinhoff, Dieter: *See—*
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter,3,551,434.

Steinmuller, L. & C., G.m.b.H.: *See—*
Veldgen, Willi, 3,551,634.

Stemmler, Herbert, to Aktiengesellschaft Brown, Boveri & Cie. Regulatable and controllable inverter or frequency changer arrangement for feeding A. C. motors. 3,551,766, Cl. 318-179.

Stengel, Rudolph F., to Entropy Limited. Plasma containment apparatus and method. 3,551,828, Cl. 328-233.

Stephanoff, Nicholas N., to Fluid Energy Processing & Equipment Co. Fluid energy milling solid granular material. 3,550,868, Cl. 241-5.

Stephanoff, Nicholas N., to Fluid Energy Processing & Equipment Company. Fluid energy processing system. 3,550,921, Cl. 263-53.

Stephens, William J., to Livermore, H. F., Corporation, mesne. Solenoid actuator. 3,550,643, Cl. 139-187.

Sterling Drug Inc.: *See—*
Page, Donald F., 3,551,447.

Sterling, Maurice S.: *See—*
Telmosse, William, and Sterling, Maurice S.,3,551,877.

Sterling, Maurice S., to Eby, Hugh H., Co. Circuit board connector. 3,551,750, Cl. 317-101.

Sternbach, Leo Henryk: *See—*
Earley, James Valentine, Fryer, Rodney Ian, and Sternbach, Leo Henryk,3,551,415.

Stetson, Karl A. Total internal reflection holography. 3,551,018, Cl. 350-3.5

Stevens, J. P., & Co., Inc.: *See—*
Tesoro, Giuliana C., Sello, Stephen B., Moore, Donald R., and Wurster, Rudolf F., 3,551,422.

Stevens, Mead F.: *See—*
Emmott, John T., Lesh, Nathan G., and Stevens, Mead F.,3,551,872.

Stevens, Michael Charles, to Cossor, A.C., Limited. Electrical pulse decoders. 3,551,823, Cl. 328-119.

Stewart, Mary J., and Carlson, Otto K., to FMC Corporation. Saturated linear polyesters with amines thermally stabilized. 3,551,381, Cl. 260-45.9

Stewart, Meredith M.: *See—*
Carr, Norman L., Hamilton, Harry A., and Stewart, Meredith M.,3,551,352.

Stewart, Nally C.: *See—*
Watson, Blake F., Jr., and Stewart, Nally C.,3,550,270.

Stier, Paul G., and Scaboo, Gust N., to General Motors Corporation. Self-adjusting thermal connector. 3,550,681, Cl. 165-80.

Stilwell, George R., Jr.: *See—*
Juliusburger, Hans Y., Krakinowski, Morris, and Stilwell, George R., Jr.,3,551,616.

Stinson, John P.: *See—*
Fay, John R., and Stinson, John P.,3,551,056.

Stivers, Edward C., to Raychem Corporation. Electrical component insulated by poly (1,12 dodecamethylene pyromellitimide) or poly (1,13 tridecamethylene pyromellitimide). 3,551,200, Cl. 117-232.

Stock Equipment Company: *See—*
Homer, John C., III, and Stock, John R., 3,551,672.

Stock, John R.: *See—*
Homer, John C., III, and Stock, John R.,3,551,672.

Stoddard, Xerxes T., Sutherland, John A., and Terry, Ruel C., to Allied Chemical Corporation. Surface sulfur recovery. 3,551,333, Cl. 210-69.

Stol, Miroslav: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto,3,551,556.

Stoll, Milton. Methods, apparatus and systems for heat sealing electrical devices within flat glass packages. 3,551,127, Cl. 65-32.

Stoll, Milton. Heater for sealing flat-packs and the like. 3,551,645, Cl. 219-462.

Stoll, Roger: *See—*
Freund, Jean-Pierre, and Stoll, Roger,3,551,212.

Stone Container Corporation: *See—*
Rorer, Donald R., 3,550,348.

Stopper, Herbert, to Telefunken Patentverwertungsgesellschaft m.b.H. T-flipflop composed of logic circuits. 3,551,827, Cl. 328-206.

Storms, Robert S.: *See—*
Schenck, Robert C., Jr., and Storms, Robert S.,3,550,988.

Story, William E., to East Tennessee Packing Company. Method and apparatus for transferring articles. 3,550,749, Cl. 198-31.

Stotler, Harold H., 1/2 to Hydrocarbon Research, Inc., and 1/2 to United States of America, Interior. System employing coal as fuel in a steam reformer. 3,551,123, Cl. 48-94.

Stout, George W., to Walhamlin Inc. Flow augmenting device for oil wells. 3,551,074, Cl. 417-172.

Stowell, Philip A., to Borg-Warner Corporation. Ink particle reservoir. 3,550,792, Cl. 214-17.

Stoy, Vladimir: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto,3,551,556.

Straat, Harold W., to Bausch & Lomb Incorporated. High power magnifier. 3,551,021, Cl. 350-69.

Strand, Helen R. Backpack trundling assembly. 3,550,997, Cl. 280-30.

Strauss, Edgar H., to Ruti Machinery Works Ltd., formerly Caspar Honegger. Arrangement for the monitoring of the insertion of weft threads. 3,550,641, Cl. 139-12.

Strauss, William, to Pennwalt Corporation. Sprue bushing purge port for injection molding machine. 3,550,207, Cl. 18-30.

Streat, Michael: *See—*
Cloete, Francis Louis Dirk, and Streat, Michael,3,551,118.

Strelau, Robert J.: *See—*
Alt, Gerhard H., and Strelau, Robert J.,3,551,495.

Strengelsrud, Sverre: *See—*
Eriksen, Walter, and Strengelsrud, Sverre,3,550,615.

Strindehag, Ove Magnus, to Aktiebolaget Atomenergi. Liquid-rinsed precipitation electrode for a device for precipitating and collecting charged particles from a gas. 3,551,674, Cl. 250-83.

Strohmeyer, Charles, Jr., to Electrodyne Research Corporation. Control system for a steam generator. 3,550,562, Cl. 122-448.

Stromberg-Carlson Corporation: *See—*
Berch, William H., 3,551,600.
Shaffer, William E., 3,551,754.

Strudwick, Thomas H.: *See—*
Jamieson, James E., and Strudwick, Thomas H.,3,551,115.

Stryker, Frederick J., and Verduyn, Frederick M., to United States of America, Army, mesne. Liquid pretreatment of an image bearing surface to increase absorbency of nonimage area. 3,551,175, Cl. 117-1.7

Stuckert, Paul E.: *See—*
Sagnis, James C., Jr., and Stuckert, Paul E.,3,551,902.

Sturtevant, Michael J.: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R.,3,551,601.

Suchkov, Vladimir Nikolaevich: *See—*
Melnikov-Eikhenvald, Mikhail Alexeevich, Kamarian, Georgy Mikirtychevich, Suchkov, Vladimir Nikolaevich, Djumulen, Vadim Ippolitovich, and Nesterkin, Alexandr Kuzmich,3,550,912.

Sueyoshi, Jungo, to Kurashiki Rayon Co., Ltd. Automatic continuous dynamic modulus determining apparatus. 3,550,427, Cl. 73-15.6

Sugawara, Mitsuo: *See—*
Ozawa, Tadashi, Akahane, Norio, Kawarada, Tutomu, Hayami, Tadao, and Sugawara, Mitsuo,3,551,040.

Sullivan, Philip J.: *See—*
Letter, Eugene C., and Sullivan, Philip J.,3,551,304.

Sulzer Brothers, Ltd.: *See—*
Frey, Karl, 3,550,253.

Sumitomo Chemical Co., Ltd.: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio, 3,551,462.

Sumitomo Chemical Company, Ltd.: *See—*
Yamamoto, Hisao, Nakamura, Yasushi, Nakao, Masaru, and Kobayashi, Tsuyoshi, 3,551,446.

Summer, Steven E., to Servo Corporation of America. High voltage transistorized stack with leakage current compensation. 3,551,788, Cl. 323-22.

Sumski, Stanley: *See—*
Panish, Morton B., and Sumski, Stanley,3,551,219.

Sun Chemical Corporation: *See—*
Bassemir, Robert W., Dennis, Richard, and Nass, Gerald I., 3,551,235.
Bassemir, Robert W., Carlick, Daniel J., and Sprenger, Gerhard E., 3,551,246.
Nass, Gerald I., Bassemir, Robert W., and Carlick, Daniel J., 3,551,311.

Sun Oil Company: *See—*
Congdon, Paul D., 3,551,169.
Holder, John E., 3,550,960.
Hosler, Peter, 3,551,297.
Peterson, Henry J., 3,551,503.

Sundbeck, Edward H., to Monsanto Company. Stretching nylon filaments in a gas vortex. 3,551,549, Cl. 264-290.

Sundberg, Richard J.: *See—*
Hydro, William R., and Sundberg, Richard J.,3,551,433.

Super Sky Products, Inc.: *See—*
Huffman, Larry L., 3,550,335.

Super-Cut, Inc.: *See—*
Metzger, Leopold H., and Miller, Harold C., 3,550,575.

Suray, Donald J.: *See—*
Benbow, Albert R., and Suray, Donald J.,3,550,679.

Surget, Jean Marcel: *See—*
Veret, Claude Marcel, and Surget, Jean Marcel,3,551,054.

Sutherland, John A.: *See—*
Stoddard, Xerxes T., Sutherland, John A., and Terry, Ruel C.,3,551,333.

Sutliff, Robert C., and Tucker, Archie J., to Eastman Kodak Company. Cartridge and method for removing film from the cartridge. 3,550,877, Cl. 242-180.

Sutliff, Wayne N., and Downen, Jim L. Rod shock absorber. 3,551,012, Cl. 287-103.

Sutton, Richard William Bicknell: *See—*
Peat, Derek, and Sutton, Richard William Bicknell,3,550,400.

Suverkrop, Don, to Hopper, Inc. Back hoe or grader. 3,550,794, Cl. 214-138.

Suzanna's Kitchen, Inc.: *See—*
Howard, Henry G., Jr., Knight, Lee H., Jr., and Morris, Robert L., 3,550,188.

Suzukawa, Yuichi, Kono, Hisashi, Terai, Kenji, and Niwa, Takazumi, to Ube Industries, Ltd. Process for the preparation of olefins by cracking of liquid hydrocarbon. 3,551,513, Cl. 260-683.

Suzuki, Hisao, Musashi, Akira, Uo, Shinzaburo, and Yamazaki, Masami, to Nippon Soda Co., Ltd. Woo d substance and the production process thereof. 3,551,193, Cl. 117-148.

Suzuki, Kenji: *See—*
Kusakabe, Takeshi, Suzuki, Kenji, and Kano, Kimio,3,550,327.

Suzuki, Takashi, and Hamabe, Takesi, to Matsushita Electric Industrial Co., Ltd. Method for forming anodic oxide film on aluminum or aluminum alloy. 3,551,303, Cl. 204-35.

Suzuki, Yoshio: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio,3,551,462.

Svala, Carl Gunnar, and Lee, Chung-Pah Xavier, to North Electric Company. Operator training system. 3,550,288, Cl. 35-8.

Svejsecentralen: *See—*
Lund, Svend Aage, and Northeved, Allan, 3,550,770.

Swanke, Roy L., to Dynamics Corporation of America, Waring Products Division. Homogenizing liquidizer. 3,550,657, Cl. 146-68.

Swanson, Vernon H., and Day, Charles E., to Freightliner Corporation. Quick exchange engine assembly. 3,550,713, Cl. 180-64.

Swanson, Wilford A., to Scott, Michael, Metal Shaping, Inc. Metalforming system. 3,550,420, Cl. 72-296.

Swartz, Dorian J., to Hyer Hardware Mfg. Co. Self-closing hinge. 3,550,186, Cl. 16-180.

Swartz, Dorian J., to Hyer Hardware Mfg. Co. Snap acting hinge. 3,550,187, Cl. 16-180.

Sweeney, Joseph N., and Spoldi, Henry, to Pico Electronics, Inc. Miniature inductive devices. 3,551,864, Cl. 336-83.

Sweeney, Joseph Patrick: *See—*
Wise, Joseph Agusta, Sweeney, Joseph Patrick, and Chenoweth, Stewart Jacob,3,550,856.

Swenson, Eskil W., to Swenson Spreader & Mfg. Co. Material spreading apparatus. 3,550,866, Cl. 239-677.

Swenson Spreader & Mfg. Co.: *See—*
Swenson, Eskil W., 3,550,866.

Swincicki, Konrad: *See—*
Mayer, Karl-Heinz, Swincicki, Konrad, Petersen, Siegfried, Bierling, Robert, Seidel, Hans-Joachim, and Steinhoff, Dieter,3,551,434.

Swiss Aluminium Ltd.: *See—*
Capitaine, Wolfgang, and Bard, Martin, 3,551,308.

Sybron Corporation: *See—*
Britton, Orson J., 3,551,234.
Hall, Donald H., and Nunlist, Erwin J., 3,550,989.
Mitchell, Richard L., 3,551,678.

Sylvania Electric Products, Inc.: *See—*
Boothroyd, Wilson P., 3,551,590.
Bossers, Chris F., 3,551,718.
Peters, Charles J., and Rattman, William J., 3,551,679.
Pricenski, Theodore J., and Plaisted, Alan H., 3,551,643.

Symon, Ted, and Guarnaccio, Anthony J., to Universal Oil Products Company. Pesticidal heterocycic sulfides. 3,551,417, Cl. 260-243.

Synergistics, Inc.: *See—*
Halewijn, Harry J., 3,550,767.

Synthetic Products Company: *See—*
Juredine, Gordon M., 3,551,530.

Szajna, John L., and Lump, Ronald G., to Continental Can Company, Inc. Molds for blowing engraved appearing bottles without the use of engraved molds. 3,550,197, Cl. 18-5.

Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther, to Farbenfabriken Bayer Aktiengesellschaft. Acrylonitrile copolymers. 3,551,373, Cl. 260-79.3

Szmuszkovicz, Jacob, to Upjohn Company, The. Bis(alkoxyphenyl) pyrroles and pyrrolines. 3,551,449, Cl. 260-326.3

Szmuszkovicz, Jacob, to Upjohn Company, The. Trifluoromethyl-substituted 2,3-bis-(p-methoxy phenyl)indoles. 3,551,451, Cl. 260-326.16

Tabor, Joseph M., and Donofrio, Alfonso M., to Craft Master Corporation, mesne. Method and apparatus for filling multiple cavity containers with measured charges of liquid. 3,550,648, Cl. 141-1.

Taft, David D.: *See—*
Gasper, Alton J., and Taft, David D.,3,551,367.

Taft, Lewis G.: *See—*
Marchese, Michael A., and Taft, Lewis G.,3,551,201.

Tajbl, Franz, and Gillitzer, Max, to Linde Aktiengesellschaft. Arc striking or stabilization network having a detecting and capacitor connected to the electrode. 3,551,741, Cl. 315-209.

Takahashi, Yoshio, to Pioneer Electronic Corporation. Record player provided with an automatic control mechanism. 3,550,986, Cl. 274-15.

Takase, Yoshiyuki: *See—*
Shimizu, Masanao, Takase, Yoshiyuki, and Kubota, Saburoh S.,3,551,566.

Takasuna, Tsuneyoshi: *See—*
Takeuchi, Hisasuke, Toda, Tadatoshi, and Takasuna, Tsuneyoshi,3,551,622.

Takaura, Hirozo, Masaka, Toshiharu, and Ando, Sumio, to Sekisui Kagaku Kogyo Kabushiki Kaisha. Laminated safety glass with polyvinyl-acetal interlayer containing organotin compound. 3,551,281, Cl. 161-199.

Takebe, Toshio, Kayano, Masanori, and Naruse, Noboru, to Eisai Kabushiki Kaisha. Therapeutical acrosol composition and preparation thereof. 3,551,558, Cl. 424-46.

Takei, Takaji: *See—*
Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya,3,550,269.

Takeuchi, Hisasuke, Toda, Tadatoshi, and Takasuna, Tsuneyoshi, to Hitachi, Ltd. Alloy materials for electrodes of vacuum circuit breakers. 3,551,622, Cl. 200-144.

Takimoto, Yukio: *See—*
Kaneko, Hisashi, and Takimoto, Yukio,3,551,813.

Tamruchi, Oleg Vladimirovich. Joint of thin-walled members. 3,551,014, Cl. 287-189.36

Tamura, Yoshio, Ando, Satoshi, , Ogata, Fumimaro, and Nagamine, Katushiko, to Kanegajuchi Boseki Kabushiki Kaisha, and Snia Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A. Kanegafuchi Boseki Kabushiki Kaisha, and Snia Viscosa Societa Nazionale Industria Applicaziona Viscosa S.p.A. Highly crimpable polyamide composite filaments Method of producing improved self-crimpable conjugate filaments, from polyamides and polyetheresters. 3,551,277, Cl. 161-173.

Tanaka, Hirosuke: *See—*
Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi,3,551,854.

Tanimura, Noboru: *See—*
Kobayashi, Hidehiko, Sasaguri, Kiichiro, Komoto, Hiroshi, Kawashima, Sukeo, and Tanimura, Noboru,3,551,380.

Tapp, Geoffrey Edward Ernest, and Davey, Joseph, to County Commercial Cars Limited. Four wheel drive vehicle. 3,550,711, Cl. 180-44.

Tarenskeen, Theodore, to United States Steel Corporation. Feed and toe angle indicator for billet- piercing mill. 3,550,415, Cl. 72-35.

Tarpinian, Haig D.: *See—*
Carr, Clide I., Friedmann, Harry, and Tarpinian, Haig D.,3,550,442.

Tasiaux, Paul: *See—*
Brooks, Richard, and Tasiaux, Paul,3,551,097.

Tate, Sherman E.: *See—*
Munger, John R., and Tate, Sherman E.,3,550,501.

Tatemoto, Masayoshi: *See—*
Kometani, Yutaka, and Tatemoto, Masayoshi,3,551,398.

Taub, David: *See—*
Wendler, Norman L., Taub, David, and Kuo, Chan Hwa,3,551,432.

Taub, David, and Kuo, Chan-Hwa, to Merck & Co., Inc. Preparation of optically active (-)-zearalenone and intermediates therefor. 3,551,454, Cl. 260-343.2

Tawfik, David A., Thomas, Frank J., and Pfersch, George H., to Bendix Corporation, The. Triple redundant servo flight control including digital resynchronization of channels, detection of failed channels, and voted output. 3,551,776, Cl. 318-18.

Taylor, Brian William: *See—*
Brinkard, William Charles, Jr., and Taylor, Brian William,3,551,474.

Taylor, Wesley V., Jr.: *See—*
MacMurtrie, Edward D., and Taylor, Wesley V., Jr.,3,550,429.

Teboul, James Remy Albert: *See—*
Kerhoas, Jean-Claude, Metayer, Michel Paul Marie, and Teboul, James Remy Albert,3,551,682.

Techmation Corporation: *See—*
Litt, Donald D., and Jaroff, David B., 3,550,934.

Technicon Corporation: *See—*
Herron, Rand E., Larrabee, Edward W., and Johnson, Carl V., 3,550,858.
Smythe, William J., Isreeli, Jack, and Kling, Nelson G., 3,551,063.

Tedd, David C.: *See—*
Dannettell, Alan C., Nemiroff, Robert V., and Tedd, David C.,3,551,773.

Tedd, David C., to Eaton Yale & Towne, Inc. Electrical control systems for the drive motor of an industrial truck. 3,551,769, Cl. 318-285.

Tektronix, Inc.: *See—*
Blankenship, Luther Earl, 3,551,726.
Johnson, Robert M., 3,551,733.

Teldix GmbH: *See—*
Leiber, Heinz, 3,550,966.

Teledyne, Inc.: *See—*
Delong, William T., 3,551,121.

Teleflex Incorporated: *See—*
Fretz, William L., 3,550,248.

Telefunken Patentverwertungsgesellschaft m.b.H.: *See—*
Stopper, Herbert, 3,551,827.

Teletype Corporation: *See—*
Carlson, Donald A., 3,551,701.
Cook, Harold D., 3,551,886.
Robinson, George Jr., 3,550,326.

Telmosse, William, and Sterling, Maurice S., to Eby, Hugh H., Co. Electrical connector. 3,551,877, Cl. 339-62.

Temple, Ernest E.: *See—*
Temple, Robert, Temple, Ernest E., and Giebel, Joseph L.,3,550,274.

Temple, Robert, Temple, Ernest E., and Giebel, Joseph L., to Mine Safety Appliances Company. Explosively actuated cutting tool. 3,550,274, Cl. 30-228.
Tenex Corporation: *See—*
Hlinka, Charles F., 3,551,544.
Teng, James. Branched fiber and fibrous composition formed therefrom. 3,551,275, Cl. 161-170.
Teno, Richard L.: *See—*
Cowen, Arthur, Davies, Lynn T., and Teno, Richard L.,3,551,301.
Tension Envelope Corporation: *See—*
Berkley, Eugene B., 3,550,841.
Terai, Kenji: *See—*
Suzukawa, Yuichi, Kono, Hisashi, Terai, Kenji, and Niwa, Takazumi,3,551,513.
Terry, Ruel C.: *See—*
Stoddard, Xerxes T., Sutherland, John A., and Terry, Ruel C.,3,551,333.
Teson, William R. Hose nozzle. 3,550,861, Cl. 239-546.
Tesoro, Giuliana C., Sello, Stephen B., Moore, Donald R., and Wurster, Rudolf F., to Stevens, J. P., & Co., Inc. N-(oxymethyl) derivatives of phosphonopolyamino- triazines. 3,551,422, Cl. 260-249.9
Tessitore, Armando: *See—*
Bisone, Dario, and Tessitore, Armando,3,550,745.
Teves, Alfred, G.m.b.H.: *See—*
Beller, Albert, 3,550,732.
Seip, Hermann, and Rabich, Erich, 3,550,728.
Wagner, Karl, and Hubscher, Ralph Andre, 3,550,640.
Texaco Development Corporation: *See—*
Markert, Ferdinand, Schunck, Michael, and Weber, Georg, 3,551,347.
Texaco Inc.: *See—*
Ashley, Kenneth D., and Estes, John H., 3,551,516.
Cole, Edward L., Wilson, Raymond F., and Herbstman, Sheldon, 3,551,328.
Haynes, Stewart, Jr., and Saadeh, Fuad T., 3,550,849.
MacMurtrie, Edward D., and Taylor, Wesley V., Jr., 3,550,429.
Textron, Inc.: *See—*
Glowa, Michael, 3,551,061.
Halkovich, Leo J., and Janic, Stephen M., 3,550,336.
Thatcher, Harry William: *See—*
Budzyna, Joseph M., and Thatcher, Harry William,3,550,644.
Thaxton, Roger E. Automatic sprinkler shut-off device. 3,550,687, Cl. 169-2.
Thayer, Helen I., to Gulf Research & Development Company. Motor fuel multipurpose agents. 3,551,461, Cl. 260-403.
The First National Bank of Madison: *See—*
Chamberlin, Francis W.,3,550,944.
Thermo Electron Corporation: *See—*
Huffman, Fred N., Robinson, Thomas C., and Kitrilakis, Sotiris S., 3,550,162.
Thiel Max: *See—*
Kampe, Wolfgang, Thiel Max, Stach, Kurt, Schaumann, Wolfgang, and Dietmann, Karl,3,551,409.
Thiele, Heinrich F. Process of reconstructing tendons, cartilage, nerve sheaths, and products. 3,551,560, Cl. 424-95.
Thieme, Klaus-Dietrich: *See—*
Hermes, Heinz, Thieme, Klaus-Dietrich, Sedlacek, Herbert, Koerv, Peter, and Mehnert, Walter,3,551,891.
Thieme, Klaus-Dietzl: *See—*
Mehnert, Walter, Koerv, Peter, Hermes, Heinz, Thieme, Klaus-Dietzl, and Sedlacek, Herbert,3,551,893.
Thomas, Frank J.: *See—*
Tawfik, David A., Thomas, Frank J., and Pfersch, George H.,3,551,776.
Thomas, George L., to General Electric Company. BaO-PbO-SiO_2 semiconductor encapsulation glass. 3,551,171, Cl. 106-53.
Thomas, Gwilym G., and Sissons, Christopher R., to British Nylon Spinners Limited. Nonwoven fabrics containing heterofilaments. 3,551,271, Cl. 161-150.
Thomas, John Lionel: *See—*
Desty, Denis Henry, Whitehead, David Montagu, and Thomas, John Lionel,3,551,085.
Thomas, Otto: *See—*
Himmelsbach, Paul, and Thomas, Otto,3,550,518.
Thomas, Owen H., Beck, Thomas A., and Wickman, Robert F., to Sinclair Oil Corporation. Moving bed process using sieve catalyst to make xylenes by toluene disproportionation and trans- Alkylation with C_9-C_{10} alkylbenzenes. 3,551,509, Cl. 260-672.
Thomas, Walter W., to Hercules Incorporated. Polypropylene compositions containing polyester amines. 3,551,521, Cl. 260-873.
Thomason, Larry V. Method for forming monolithic pipe in situ. 3,551,537, Cl. 264-33.
Thompson, Ethbert C., III: *See—*
Ormsby, Phillip A., and Thompson, Ethbert C., III,3,550,213.
Thompson, James T., to General Motors Corporation. Method of vacuum forming laminated articles. 3,551,232, Cl. 156-87.
Thompson, McKinley W., Jr. Automobile body construction. 3,550,948, Cl. 296-28.
Thompson, Walter W. Acoustical ceiling system. 3,550,341, Cl. 52-488.
Thomson, Kenneth W.: *See—*
Bundschuh, John J., Roman, Robert J., and Thomson, Kenneth W.,3,550,879.
Thorburn, David H., to Powers Regulator Company. Fluidic sequentials switching. 3,550,606, Cl. 137-81.5
Thorlin, Charles Fredrik Wilhelm, to AGA Aktiebolag. Distance measuring device having a common optical system for the transmitted and received beams. 3,551,050, Cl. 356-4.
Thorn, Alvin E. Device for attaching to the military uniform all decoration. 3,550,221, Cl. 24-90.
Thornton, Duane V.: *See—*
Holt, Jan D., and Thornton, Duane V.,3,550,537.
Thrasher, Elbridge W., to Masonite Corporation. Saw guide mounting. 3,550,654, Cl. 143-56.
Tigner, Ruben A.: *See—*
Mounts, Lewis S., and Tigner, Ruben A.,3,550,808.
Tigner, Ruben A., to Dow Chemical Company, The. Opening device. 3,550,764, Cl. 206-46.
Tillotson, Charles J.: *See—*
Satkin, David M., Helvie, Gene B., and Tillotson, Charles J.,3,550,338.
Timbie, Robert W., to Monsanto Company. Uniform tension textile accumulator. 3,550,827, Cl. 226-25.
Time, Incorporated: *See—*
Brink, Robert M., and Welch, Paul E., 3,551,042.
Timson, William J.: *See—*
Nawn, George H., and Timson, William J.,3,551,149.
Tinsley Wire Industries Limited: *See—*
Burton, William H., 3,550,911.
Tobias, Joseph B.: *See—*
Bhat, Gopal Krishna, and Tobias, Joseph B.,3,551,137.
Toda, Tadatoshi: *See—*
Takeuchi, Hisasuke, Toda, Tadatoshi, and Takasuna, Tsuneyoshi,3,551,622.
Toepfer, Edwin F. Indicating cylinder lock mechanism. 3,550,410, Cl. 70-364.
Toepsch, Hans: *See—*
Seyfried, Klaus, and Toepsch, Hans,3,551,376.
Tofte, Charles F., Jr. Line holder for fish stringers, and the like. 3,550,823, Cl. 224-7.
Toki, Katsuyuki: *See—*
Seki, Takashi, Toki, Katsuyuki, Nakatani, Hiroshi, Suzuki, Yoshio, Fukushima, Hideaki, and Nawashiro, Yoshio,3,551,462.
Tokuyama, Takashi, Nishimatsu, Shigeru, Uehara, Keijiro, and Mori, Takaaki, to Hitachi, Ltd. Semiconductor device with an inversion preventing layer formed in a diffused region. 3,551,760, Cl. 317-235.
Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Sakamoto, Tetsuzo, and Ninomiya, Osamu, 3,551,066.
Tokyo Shibaura Electric Co., Ltd.: *See—*
Goto, Eizo, 3,550,251.
Tolaca, C.A., 'Altamira': *See—*
Esteve, Vicente Soler, 3,550,376.
Tolman, Thomas William Charles: *See—*
Horsewell, Henry George, and Tolman, Thomas William Charles,3,550,600.
Tomaszewski, Carlos A., and Goodliffe, Timothy A. R., to Wyle Laboratories. Memory system. 3,551,904, Cl. 340-174.
Tommasi, Giovanni Battista, and Zanuso, Marco, to Societa Italiana Telecomunicazioni Siemens S.p.A. Pivotable telephone handset. 3,551,607, Cl. 179-100.
Topol, George J., and Carr, Larry R., to Bowser, Inc. Sludge level detector using an infrared source and detector. 3,551,670, Cl. 250-43.5
Torok, Vilmos, and Hansson, Curt, to Allmanna Svenska Elektriska Aktiebolaget. Closed control system having means responsive to the amplitude of self-oscillations to modify one or more parameters of the system. 3,551,772, Cl. 318-308.
Torok, Zsigmond: *See—*
Juncu, Virginia, Torok, Zsigmond, and Petra, Ioan,3,550,399.
Tothill, Gordon R., to Electro Dynamics & Telecom Limited. Apparatus for detecting the presence of an object in a zone having photocells and a series of staggered and overlapping lenses for producing multiple images on said photocells. 3,551,683, Cl. 250-221.
Tournois, Pierre, and Gires, Francois. CSF Compagnie Generale de Telegraphic Sans Fil Wave compression device. 3,551,034, Cl. 350-321.
Toyoda Automatic Loom Works, Ltd.: *See—*
Sinoda, Akibumi, and Nishii, Mashahiko, 3,550,734.
Toyoda Machine Works Ltd.: *See—*
Kusakabe, Takeshi, Suzuki, Kenji, and Kano, Kimio, 3,550,327.
Trachtenberg, William, to Eastman Kodak Company. Method of reproducing a toner image carried by an electrophotographic plate. 3,551,145, Cl. 96-1.
trading in partnership as the Helio Mirror Company: *See—*
Cowan, David Mark, Cowan, Stanley Philip, and Rickets, William Thomas, 3,551,020.
Tram Corporation: *See—*
Paul, Harry F., 3,551,835.
Trane Company, The: *See—*
Peckham, David G., 3,550,394.
Transducer Systems, Inc.: *See—*
Frenkel, Amotz, 3,551,865.
Travers, Fernand: *See—*
Guillerd, Jean, and Travers, Fernand,3,551,321.
Trelleborgs Gummifabriks Aktiebolag: *See—*
Stahl, Ronald, 3,550,588.
Triberti, Domenico: *See—*
Ballestra, Mario, and Triberti, Domenico,3,550,867.

Trieschmann, Hans-Georg, and Zeitler, Gerhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Chlorinated ethylene polymer molding materials. 3,551,526, Cl. 260-897.
Trilux-Lenze KG: *See—*
Muller, Josef, and Lenze, Eberhard, 3,551,669.
Tri-Point Industries, Inc.: *See—*
Mulay, Salvatore S., 3,551,264.
Tristram, Edward W., Tull, Roger J., and Powell, Burwell F., to Merck & Co., Inc. Dehydrogenation of 10,11-dihydro-5H-dibenzo[a,d] cycloheptene-5-one. 3,551,498, Cl. 260-590.
Triumph Industries, Inc.: *See—*
Cohen, Robert, 3,550,981.
Troeger, Andrew, & Company: *See—*
Fermi, Rudolph, 3,550,761.
Troeger, Jack S., and Fermi, Rudolph, to Froeger, Andrew, & Company. Assembly apparatus for cast lines of type. 3,550,760, Cl. 199-61.
Troemel, Gerhard: *See—*
Ziemann, Heinz, Zenner, Karl-Friedrich, Lehmann, Wolfgang, and Troemel, Gerhard,3,551,288.
Trojanowski, Theodore S., and Wills, George P., to Hayes-Dana Limited. Safety shield connecting device. 3,551,013, Cl. 287-119.
Trott, David W., to Celanese Corporation. Cross lapping apparatus and process. 3,550,215, Cl. 19-163.
Truhan, Andrew. Refrigerated intravenous liquid warming device. 3,551,641, Cl. 219-303.
Tru-Wall Concrete Forming Limited: *See—*
Ursini, Leonard A., and Citrullo, Joseph J., 3,550,898.
TRW Inc.: *See—*
Hansen, David O., and Roy, Neal L., 3,551,846.
Kupchick, John J., 3,550,974.
Windsor, Maurice W., and Novak, John Richard, 3,551,053.
Tsao, Utah, to Lummus Company, The. Preparation of sodium carbonate from sodium amalgam. 3,551,096, Cl. 23-63.
Tschermak, Manfred, to Siemens Aktiengesellschaft. Semiconductor. 3,551,759, Cl. 317-234.
Tsuda, Momotoshi: *See—*
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,155.
Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi,3,551,156.
Tsugawa, Ryuichiro: *See—*
Kamimura, Akira, Tsugawa, Ryuichiro, and Okumura, Shinji,3,551,292.
Tsunemi, Yasuhiko. Compass. 3,550,282, Cl. 33-27.
Tucker, Archie J.: *See—*
Sutliff, Robert C., and Tucker, Archie J.,3,550,877.
Tucker, Malcolm John, and Smith, Norman Dennis, to National Research Development Corporation. Electromagnetic flowmeters. 3,550,446, Cl. 73-194.
Tulagin, Vesvolod: *See—*
Krieger, Arthur L., Stein, Ira S., and Tulagin, Vesvolod,3,551,320.
Tull, Roger J.: *See—*
Tristram, Edward W., Tull, Roger J., and Powell, Burwell F.,3,551,498.
Twellsiek, Friedel, to Schleicher Regelautomatik GmbH & Co., KG. Switching system for inductive loads. 3,551,751, Cl. 317-123.
Tzenov, Petar Ivanov: *See—*
Konstantinov, Mihail Spirov, Dragiev, Dragomir Svetoslavov, Genova, Penka Jossifova, and Tzenov, Petar Ivanov,3,550,475.
Tzschoppe, Hans-Joachim: *See—*
Jaeger, Friedrich, Low, Lothar, and Tzschoppe, Hans-Joachim,3,550,913.
Ube Industries, Ltd.: *See—*
Suzukawa, Yuichi, Kono, Hisashi, Terai, Kenji, and Niwa, Takazumi, 3,551,513.
Uehara, Keijiro: *See—*
Tokuyama, Takashi, Nishimatsu, Shigeru, Uehara, Keijiro, and Mori, Takaaki,3,551,760.
Ugine Kuhlmann: *See—*
Decroix, Jean H., 3,551,142.
Uitti, Kenneth D.: *See—*
Kelly, Michael F., and Uitti, Kenneth D.,3,551,327.
Ulrich, Arnulf: *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf,3,551,397.
Ultrasonic Systems, Inc.: *See—*
Balamuth, Lewis, 3,550,586.
Underwood, August L. Brake shoe gauge tool assembly. 3,550,729, Cl. 188-79.5
Union Camp Corporation: *See—*
Baker, Richard G., 3,551,286.
Rahenkamp, Kurt R., 3,550,833.
Union Carbide Corporation: *See—*
Brotherton, Thomas K., Lynn, John W., and Knopf, Robert J., 3,551,475.
Coless, Thomas L., 3,551,217.
Grulke, Carl, 3,551,211.
Henderson, William E., and Ross, Camilla B., 3,551,535.
Matecki, Edward A., 3,550,191.
Uniroyal, Inc.: *See—*
Carr, Clide I., Friedmann, Harry, and Tarpinian, Haig D., 3,550,442.
United Aircraft Corporation: *See—*
Mayers, John L., 3,550,906.
Sifford, Perry P., 3,550,905.
United Aircraft Products, Inc.: *See—*
Pfouts, Robert R., 3,550,678.
United Gas Industries Limited: *See—*
Baker, Ian P. S., 3,550,579.
United Industrial Syndicate, Inc.: *See—*
Auzins, Raimunds, and Yendrich, Stephen P., Jr., 3,550,788.
United Kingdom Atomic Energy Authority: *See—*
Ballinger, Hugh Anthony, 3,550,386.
United States of America
Hollies, Norman R. S., and Penoyer, John A., Sr., 3,550,439.
Allan, Barry D., Wharton, Walter W., and Hubbuch, Theodore N., 3,551,226.
Ballard, Harold N., and Izquierdo, Miguel, 3,550,720.
Cason, Charles M., III, and Perkins, James F., 3,551,843.
Chezem, Jimmie A., and Bendl, Robert E., 3,550,726.
Crabtree, Royale R., and Beeker, Charles W., 3,550,885.
Donovan, William F., 3,550,889.
Halliday, Kenneth C., Jr., 3,550,380.
Holder, James D., and Greene, Hugh W., 3,551,796.
Huskins, Chester W., Howard, Clay D., and Ayers, Orval E., 3,551,224.
Hydro, William R., and Sundberg, Richard J., 3,551,433.
Keith, George H., 3,550,502.
Kilbourn, Dorwin L., Peacher, Teddy J., Askew, Raymond F., and Foster, William D., 3,551,720.
Munger, John R., and Tate, Sherman E., 3,550,501.
Nicholas, John F., 3,551,745.
Nimylowycz, Osyp, 3,550,652.
Ormsby, Phillip A., and Thompson, Ethbert C., III, 3,550,213.
Peacher, Teddy J., and Kilbourn, Dorwin L., 3,551,719.
Pisano, Frank T., 3,550,909.
Price, Gerald W., 3,551,662.
Raymond, Hugh A., 3,550,457.
Reich, Bernard, 3,551,783.
Sarpkaya, Turgut, 3,550,607.
Sass, Samuel, Witten, Benjamin, and Davis, Paul, 3,551,531.
Sayles, David C., 3,551,225.
Siron, Robert E., and King, Cecil K., 3,550,440.
Spanski, Paul L., 3,550,710.
Spyropoulos, Chris E., 3,550,771.
Spyropoulos, Chris E., 3,550,964.
Stryker, Frederick J., and Verduyn, Frederick M., 3,551,175.
Werner, Louis B., 3,551,119.
Alles, James J., Ricks, Herbert E., Reed, Wallace D., and Carter, Jay B., 3,551,209.
Myers, John G., and Field, Joseph H., 3,551,093.
Stotler, Harold H., 3,551,123.
Seitzinger, Vaughn E., and Allen, Robert W. Ceramic insulation for radiant heating enviroments and method of preparing the same. 3,551,266, Cl. 161-69.
Anderson, Tage O. Digital synchronizer. 3,551,816, Cl. 325-325.
Howard, Wayne H., and Young, Donald R., 3,550,585.
Cocca, Theodore A., 3,551,613.
Kaufman, Martin H., O'Brobinak, John D., and Carroz, John W., 3,551,222.
Kovar, Joseph J., 3,551,817.
McCormick, Loran F., Kovar, Joseph J., and Brown, Claude W., 3,551,814.
Mebus, George W., 3,551,664.
Rudolph, Louis R., and Dalpee, Joseph A., 3,551,850.
Speiser, Jeffrey M., and Whitehouse, Harper John, 3,551,837.
United States Steel Corporation: *See—*
Gallucci, Francis, 3,550,674.
Gallucci, Francis, 3,550,676.
Grosko, John A., 3,550,924.
Guseman, James R., and Rohaus, Donald E., 3,550,205.
Hawthorne, John O., and Mihelic, Edward L., 3,551,414.
Kelly, Calvin E., 3,551,262.
Lindquist, Clifford W., 3,551,188.
Patsey, John A., and Schindler, Donald G., 3,550,436.
Tarenskeen, Theodore, 3,550,415.
United States Testing Company, Inc.: *See—*
Reiber, Richard W., 3,551,052.
United-Carr Incorporated: *See—*
Collyer, Robert C., 3,550,217.
Van Buren, Harold S., Jr., 3,550,219.
Universal Harvester Co., Inc.: *See—*
Gibson, Charles M., 3,550,366.
Universal Oil Products Company: *See—*
Bloch, Herman S., 3,551,456.
Fenske, Ellsworth R., 3,550,451.
Hamblin, Robert J. J., 3,551,323.
Kelly, Michael F., and Uitti, Kenneth D., 3,551,327.
Pollitzer, Ernest L., Donaldson, George R., and Hawkins, Richard C., 3,551,510.
Schmerling, Louis, and Dombro, Robert A., 3,551,504.
Symon, Ted, and Guarnaccio, Anthony J., 3,551,417.
Uo, Shinzaburo: *See—*
Suzuki, Hisao, Musashi, Akira, Uo, Shinzaburo, and Yamazaki, Masami,3,551,193.
Upjohn Company, The: *See—*
Anthony, William C., 3,551,420.
Kaugars, Girts, 3,551,529.

Szmuszkovicz, Jacob, 3,551,449.
Szmuszkovicz, Jacob, 3,551,451.
Upton, Garthop, Jr. Foot powder applicator. 3,550,594, Cl. 128-265.
Urano, Tadao, to Iwatsu Electric Company Ltd. Asymmetric deflection systems for cathode ray tubes. 3,551,732, Cl. 315-18.
Uraya, Toru: *See—*
Ando, Satoshi, Uraya, Toru, and Nagata, Koetsu,3,551,279.
Urbanosky, Harold J., to Schlumberger Technology Corporation. Well-completion apparatus. 3,550,700, Cl. 175-78.
Urbanowski, Richard L.: *See—*
Sprayberry, Billy A., and Urbanowski, Richard L.,3,551,133.
Urbschat, Ewald: *See—*
Frohberger, Paul-Ernest, Kuhle, Engelbert, and Urbschat, Ewald,3,551,574.
Ursini, Leonard A., and Citrullo, Joseph J., to Tru-Wall Concrete Forming Limited. Concrete wall forms. 3,550,898, Cl. 249-195.
U.S. Philips Corporation: *See—*
Bouwma, Jan, 3,550,264.
Harrick, Nicolas J., 3,551,841.
Jaspers, Hendrik Alphons, 3,550,371.
van Stratum, Antonius Johannes Alberta, and Peeter, Henricus Hubertus, 3,551,198.
USM Corporation: *See—*
Allen, Melvin K., Gunst, Ole, and Lambert, Arthur H., 3,550,238.
Boot, Herbert W., and Langton, Frederick H., 3,550,329.
Harding, Richard E., Morrison, Ralph A., Peterson, Raymond L., and Smalley, Edwin P., 3,550,172.
Mason, Ronald C., Burke, George F. C., and Fuller, George A., Jr., 3,550,932.
McGarr, John J., 3,551,364.
Peters, Colin, 3,550,208.
Uthe Technology, Inc.: *See—*
Greenan, Richard E., 3,551,700.
Utzy, William: *See—*
Villo, Joseph P., and Utzy, William,3,550,244.
Vaccaro, Angelo, and Dixon, Harold F.E., to Columbia Controls Research Corporation. Character reading apparatus. 3,551,887, Cl. 340-146.3
Vacik, Jiri: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto,3,551,556.
Vaillant, Joh., KG: *See—*
Hein, Georg, and Rottmann, Gernot, 3,550,862.
Schuler, Gerhard, 3,550,603.
Valfre, Cesare. Negative impedance repeater. 3,551,838, Cl. 330-61.
Valmet Oy, Helsinki: *See—*
Konttinen, Kauko U., 3,550,286.
Valve Corporation: *See—*
Lehmann, Herbert G., 3,550,813.
Van Buren, Harold S., Jr., to United-Carr Incorporated. Wiring fastener. 3,550,219, Cl. 24-73.
Van De Velde, John, and Kosonen, Leonard D., to Atlantic Richfield Company. Coke-water separator method. 3,550,780, Cl. 210-170.
Vander Heyden, William H., and Battocletti, Joseph H., to Badger Meter Manufacturing Company. Phase locked NMR flowmetering system. 3,551,794, Cl. 324-0.5
van der Lely, Cornelis, to Patent Concern N.V. Plural story building comprising superimposed box- shaped dwelling units. 3,550,334, Cl. 52-79.
Van Der Lely, Cornelis. Mowing device. 3,550,360, Cl. 56-6.
Vanderlaan, Robert D., and Lappin, Richard J., to Pneumo Dynamics Corporation. Valve plunger drive mechanism. 3,550,631, Cl. 137-625.65
Vanegas, Guillermo J.: *See—*
Pidgeon, Edgar J., and Vanegas, Guillermo J.,3,550,902.
Van Fleet, Webster T.: *See—*
Bahler, Max E., Kellams, Roger W., Larkin, George L., Jr., Selby, Roy F., Sensency, Robert G., and Van Fleet, Webster T.,3,551,210.
Van Groningen, Henri Popko. Lighting fixture which is flexible and can be coiled. 3,551,723, Cl. 313-250.
Van Gulik, Johan L., to Omark Industries, Inc. Circuit for adjustably increasing or decreasing the charge on a capacitor. 3,551,786, Cl. 323-22.
Van Laar, Jacobus, to Koninklijke Nederlandsche Hoogovens en Staalfgbrieken N.V. Heat regenerator, particularly a regenerative air preheater for a blast furnace. 3,550,918, Cl. 263-19.
Van Pelt, Richard W.: *See—*
Crisp, James M., and Van Pelt, Richard W.,3,550,878.
van Stratum, Antonius Johannes Alberta, and Peeter, Henricus Hubertus, to U.S. Philips Corporation, mesne. Method of manufacturing an impregnated tungsten dispenser cathode. 3,551,198, Cl. 117-224.
Vanstrum, Robert C.: *See—*
Bingham, Wallace Karl, and Vanstrum, Robert C.,3,551,025.
Varco Incorporated: *See—*
Koepke, Donald H., and Jennings, Lewis F., 3,551,743.
Varian Associates: *See—*
Bliss, Arthur E., and Lloyd, William A., 3,551,661.
Freeman, Raymond, and Siebert, William, Jr., 3,551,793.
Varigraph, Inc.: *See—*
Chamberlin, Francis W., 3,550,944.
Varta Aktiengesellschaft Hagen: *See—*
Bode, Hans, Meyer, Karin G.; Rieder, Ernst, and Voss, Ernst, 3,551,755.
Vasilenko, Evstafy Andreevich: *See—*
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Saveliev, Leonid Ivanovich, Bolotin, Evgeny Moiseevich, and Khaidurov, Leonid Konstantinovich,3,550,382.
Khodosh, Vladimir Alexandrovich, Salov, Sergei Fedorovich, Ivanov, Valentin Alexandrovich, Vasilenko, Evstafy Andreevich, Pachulia, Budu Pavlovich, Kurashvili, Abessalom Iosifovich, Bolotin, Evgeny Moiseevich, Khaidurov, Leonid Konstantinovich, and Machavariani, Irakly Shalvovich,3,550,389.
Vawter, Roy Glenn, to Oil Shale Corporation, The. Flapper valve assembly. 3,550,904, Cl. 251-298.
Vazquez, Charles, Dufresnoy, Guy, Maelstaf, Serge, and Barbaut, Michel, to International Standard Electric Corporation. Miniature crossbar multiswitch. 3,551,631, Cl. 200-175.
Veb Germania Chemiealagen-und Apparatebau: *See—*
Hoppe, Klaus, and Krueger, Gerhard, 3,550,916.
VEB Leuna-Werke 'Walter Ulbricht': *See—*
Ratzsch, Manfred, Nitzsche, Reinhard, Kilian, Rolf, Ebster, Klaus-Dieter, and Ulrich, Arnulf, 3,551,397.
Veeder Industries, Inc.: *See—*
Hoffman, Ernest G., 3,550,705.
Veldgen, Willi, to Steinmuller, L. & C., G.m.b.H. Apparatus for feeding ceramic rings. 3,551,634, Cl. 219-98.
Veloz, Louis P. Water sterilizer apparatus. 3,550,782, Cl. 210-192.
Veloz, Louis P. Combination water filter and sterilizer. 3,551,091, Cl. 21-102.
Velsicol Chemical Corporation: *See—*
Richter, Sidney B., 3,551,563.
Velvetex Industrial Corporation: *See—*
Chmelar, Alois, 3,551,178.
Vendo Company, The: *See—*
Pennell, Kit E., and Hanaway, Paul R., 3,550,742.
Vennola, Jorma. Toy. 3,550,309, Cl. 46-1.
Venzke, Stephen B., to Hewlett Packard Company. Low frequency generator. 3,551,847, Cl. 331-143.
Verdier, Henri, to Compagnie Generale des Etablissements Michelin, raison Social Michelin & Cie. Tire cover. 3,550,665, Cl. 152-209.
Verduyn, Frederick M.: *See—*
Stryker, Frederick J., and Verduyn, Frederick M.,3,551,175.
Veret, Claude Marcel, and Surget, Jean Marcel, to Office National d'Etudes et de Recherches Aerospatiales. Interferometers. 3,551,054, Cl. 356-106.
Vernaleken, Hugo: *See—*
Lippert, Axel, Bottenbruch, Ludwig, Casper, Clemens, Court, Otto, and Vernaleken, Hugo,3,550,669.
Verplex Company: *See—*
Perla, Martin R., 3,550,544.
Verson Allsteel Press Company: *See—*
Bernotus, Donald E., 3,550,473.
Vertnik, Leonard R.: *See—*
Peerman, Dwight E., Vertnik, Leonard R., and Rogier, Edgar R.,3,550,806.
Vest, Chilton T.: *See—*
Carter, Ernest P., and Vest, Chilton T.,3,551,263.
Vetrano, James B.: *See—*
Boom, Roger W., Salter, Luther Carlton, Jr., and Vetrano, James B.,3,551,861.
Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen: *See—*
Gey, Werner, Hofmann, Hansdieter, Bende, Friedrich, and Bonders, Peter, 3,551,482.
Victor Company of Japan Limited: *See—*
Miyasaka, Takao, 3,551,765.
Victor Comptometer Corporation: *See—*
Schnakenberg, Robert H., and Hoffman, Robert C., 3,550,845.
Villani, Gerard J., and Klibanoff, Allen L., to National Research Corporation. Size separation of fine powders by column elutriation. 3,550,773, Cl. 209-138.
Villo, Joseph P., to Standard Pressed Steel Co. Spring pin extraction means. 3,550,241, Cl. 29-229.
Villo, Joseph P., and Utzy, William, to Standard Pressed Steel Co. Method of making coded dowel pins. 3,550,244, Cl. 29-407.
Vincent, Daniel B. Producing animal feed from citrus cannery waste. 3,551,163, Cl. 99-6.
Vine, James: *See—*
O'Keeffe, Terence W., and Vine, James,3,551,734.
Vish Machino-Elektrotechnitcheski Institut: *See—*
Konstantinov, Mihail Spirov, Dragiev, Dragomir Svetoslavov, Genova, Penka Jossifova, and Tzenov, Petar Ivanov, 3,550,475.
Viste, Kenneth L.: *See—*
Lewis, Sheldon N., Mc Nulty, Patrick J., and Viste, Kenneth L.,3,551,484.
Vockenhuber, Karl: *See—*
Pammer, Gottfried, 3,551,037.
Vogel, Eric T.: *See—*
Fastert, Herbert, Huber, Horst, and Vogel, Eric T.,3,550,672.
Volinskie, Robert, to AMP Incorporated. Multiple coaxial connector. 3,551,874, Cl. 339-17.
Vollmer, George W., to Eaton Yale & Towne, Inc. Pressure lubrication system for geared drive mechanism. 3,550,724, Cl. 184-6.

Vollmer, Paul: *See—*
Sippel, Arnulf C. T., Bumiller, Maria-Lotte, and Vollmer, Paul,3,551,388.
von der Heide, Elmer J., to Fabricators, Inc. Rotational casting apparatus. 3,550,206, Cl. 18-26.
Vondracek, Charles H., and Dunlap, Anne B., to Westinghouse Electric Corporation. Method of coating a steam chamber. 3,551,183, Cl. 117-49.
von Lersner, Wolf A., to Campbell Soup Company. Mixing and dispensing unit. 3,550,814, Cl. 222-145.
Von Mildenstein, Maximilian, to Fahlbert-List GmbH. Zinc powder-silicate paint having a long pot life. 3,551,739, Cl. 106-84.
Von Papen, Udo, to Hauni-Werke Korber & Co. KG. Apparatus for transporting tobacco or the like. 3,550,759, Cl. 198-205.
Voorhis, Harold W., to Continental Can Company, Inc. Machine for closing egg cartons. 3,550,352, Cl. 53-376.
Voss, Ernst: *See—*
Bode, Hans, Meyer, Karin G., Rieder, Ernst, and Voss, Ernst,3,551,755.
Vyzkumny Ustav Organickych Syntez: *See—*
Kaspar, Jan, and Bicik, Vladislav, 3,550,915.
Wada, Mitsuo, and Iida, Yoshio, to Matsushita Electric Industrial Co., Ltd. Resistor compositon and article. 3,551,195, Cl. 117-201.
Wagner Electric Corporation: *See—*
Atkins, Carl E., 3,551,753.
Wagner, Karl, and Hubscher, Ralph Andre, to Teves, Alfred, G.m.b.H. Brake-line hose. 3,550,640, Cl. 138-137.
Wagner, Warren A.: *See—*
Atherton, James G., and Wagner, Warren A.,3,551,168.
Waitzkin, Abe. Reel holder. 3,550,893, Cl. 248-309.
Walda, Fedde. Transshipment of containers from a container ship to loading platforms. 3,550,796, Cl. 214-152.
Walhamlin Inc.: *See—*
Stout, George W., 3,551,074.
Walker (Enfield) Limited: *See—*
Walker, William Edward, 3,550,873.
Walker, Jerome F., to Brunswick Corporation. Electronic scorer for bowling games. 3,550,939, Cl. 273-54.
Walker, Ralph P. Solid state ignition system. 3,550,572, Cl. 123-148.
Walker, William Edward, 1/2 to Walker (Enfield) Limited. Locking mechanisms. 3,550,873, Cl. 242-72.
Waller, Edmund M., Sr. Non-loosening electrical connector. 3,551,879, Cl. 339-75.
Wallerstein, Lawrence B. Process and mechanism for making round end prepared cut bandages. 3,550,589, Cl. 128-156.
Wallis, Neil Rudolph. Methods and apparatus for applying powder coatings to articles. 3,550,852, Cl. 239-15.
Walsh, Arthur, to Xerox Corporation. Image contrast control in photoelectrophoretic imaging. 3,551,313, Cl. 204-181.
Walsh, Dale M., to Honeywell Inc. Control apparatus for approximating a signal waveform. 3,551,655, Cl. 235-150.53
Walter Electrical Manufacturing Company: *See—*
Walter, Gerard S., 3,551,876.
Walter, Gerard S., to Walter Electrical Manufacturing Company. Wireways and connector clamps. 3,551,876, Cl. 339-21.
Walters, Kenneth R.: *See—*
Sloan, William W., Sturtevant, Michael J., and Walters, Kenneth R.,3,551,601.
Walters, William R., to RCA Corporation. Thyristor control circuit using D.C. controllable triggering means. 3,551,787, Cl. 323-22.
Warburton, Richard S., and Jones, Raymond T., to Eastman Kodak Company. Viscosity responsive apparatus. 3,550,433, Cl. 73-54.
Ward Electronic Industries: *See—*
Moskovitz, Irving, 3,551,589.
Warner, Dale J., to Gits Bros. Mfg. Co. Fluid control valve. 3,550,628, Cl. 137-625.46
Warner, Darrel M., and Lunde, Gerald A., to Aerojet-General Corporation. Method and apparatus for winding filament material. 3,551,254, Cl. 156-426.
Warner-Lambert Pharmaceutical Company: *See—*
Heansen, Holger V., Meltzer, Robert I., and Merger, Franz, 3,551,430.
Wartman, William B., Jr., and Sprinkle, Robert S., III, to American Tobacco Company, The. Method of making a composite filter. 3,550,508, Cl. 93-1.
Watanabe, Koichi: *See—*
Endo, Koichi, Aizawa, Kiyoto, Kojima, Takamoto, Tanaka, Hirosuke, and Watanabe, Koichi,3,551,854.
Watanabe, Mamoru: *See—*
Mochinzuki, Toyoju, and Watanabe, Mamoru,3,550,377.
Watanabe, Moriichi, to Nagoya Metallic Card Clothing Co., Ltd. Method of fiber transfer in carding process. 3,550,214, Cl. 19-98.
Watanabe, Takuji: *See—*
Yagii, Sokichi, Saito, Tetsushi, and Watanabe, Takuji,3,550,464.
Waters, Marion C.: *See—*
Glenn, Thomas R., and Waters, Marion C.,3,551,580.
Watkins, Gerald S., Jr., to SCM Corporation. Process for removing color and odor in tall oil rosin. 3,551,404, Cl. 260-97.6
Watkins, John Mauldin, Jr.: *See—*
Brown, Robert Glenn, Derick, Burton Nathaniel, Stanley, Jon Ovitt, and Watkins, John Mauldin, Jr.,3,550,257.
Watkins, Lucius D., to Outboard Marine Corporation. Steering actuated banking mechanism for snow vehicle. 3,550,706, Cl. 180-5.
Watson, Blake F., Jr., and Stewart, Nally C., to Great Lakes Carbon Corporation. Process of making nipple-electrode assembly and joint. 3,550,270, Cl. 29-628.
Watson, George A., to Celanese Corporation. Apparatus for making a multi- segmented filter. 3,551,256, Cl. 156-441.
Watson, Hal, Jr., to Reid, Harry M. Flow control system. 3,550,570, Cl. 123-119.
Watson, James P., to RCA Corporation. Tape level sensor. 3,550,828, Cl. 226-30.
Watters, Clarence J.: *See—*
Wright, Archibald N., and Watters, Clarence J.,3,551,202.
Watters, Larry H.: *See—*
Clark, James K., Watters, Larry H., and Ogura, Kenji,3,551,539.
Wattler, Wilhelm, and Englisch, Adolf, to Meyer, Roth & Pastor. Process and apparatus for the butt welding of chain links. 3,551,633, Cl. 219-51.
Watts, Leland V. Cylinder honing device. 3,550,331, Cl. 51-340.
Weaver, Clyde G. Process for making coffee drink. 3,551,164, Cl. 99-65.
Weber, Christian, and Merten, Rudolf, to Farbenfabriken Bayer Aktiengesellschaft. 1,4,2-Diazaphospholidine derivatives and process for their preparation. 3,551,527, Cl. 260-927.
Weber, Edward V., to International Business Machines Corporation. Position measuring system. 3,551,649, Cl. 235-92.
Weber, Georg: *See—*
Markert, Ferdinand, Schunck, Michael, and Weber, Georg,3,551,347.
Webster, George H.: *See—*
Dembiak, Matthew R., and Webster, George H.,3,551,586.
Weddle, Vernon W. Method and apparatus for sonic detection of open breaks in overhead telephone cables. 3,551,804, Cl. 324-52.
Wei, James: *See—*
Prater, Charles D., and Wei, James,3,551,658.
Weigel, Russell V., and Miklos, Zoltan W., to General Electric Company. Lamp mount making apparatus. 3,550,227, Cl. 29-25.19
Weil, Walter M.: *See—*
Cooper, Hugh S., 3,551,105.
Weindel, Herman F., to Mobil Oil Corporation. Coating compositions containing modified rosin for imparting strippability. 3,551,371, Cl. 260-27.
Weingarten, Harold I., and White, William A., to Monsanto Company. Tetra tertiary amino methanes and their preparation. 3,551,418, Cl. 260-246.
Weinstein, Norman J., to Princeton Chemical Research, Inc. Vinyl chloride production. 3,551,506, Cl. 260-656.
Welch, Paul E.: *See—*
Brink, Robert M., and Welch, Paul E.,3,551,042.
Wellner, Georges: *See—*
McGlumphy, James H., Pfaff, James Orville, Quinn, Alton De Witt, and Wellner, Georges,3,550,598.
Welsh Panel Company: *See—*
Myers, Clifford E., 3,551,190.
Weltner, Corliss L. Bed with reciprocable head portion. 3,550,165, Cl. 5-109.
Wendler, Norman L.: *See—*
Girotra, Narindar N., and Wendler, Norman L.,3,551,455.
Wendler, Norman L., Taub, David, and Kuo, Chan Hwa, to Merck & Co., Inc. 1-Loweralkanoyl-nipecotonitriles. 3,551,432, Cl. 260-294.3
Wendt, Rudolf: *See—*
Limberger, Walter, and Wendt, Rudolf,3,551,049.
Werner, Louis B., to United States of America, Atomic Energy Commission. Precipitation method of recovering element 95 from contaminants. 3,551,119, Cl. 23-343.
Werotte, Louis E.: *See—*
Grammont, Paul D., and Werotte, Louis E.,3,551,358.
Wesoloski, Henry J., to Allis-Chalmers Manufacturing Company. Flexible metallic stress free sealing member and attached rod. 3,550,991, Cl. 277-212.
Westergard, David J.: *See—*
Reinecker, Walter J., and Westergard, David J.,3,550,965.
Western, Delroy. Fishing lure retriever. 3,550,303, Cl. 43-17.2
Western Electric Company, Incorporated: *See—*
Dembiak, Matthew R., and Webster, George H., 3,551,586.
Western Pennsylvania Hospital Foundation for Medical Education and Research: *See—*
Laufe, Leonard E., 3,550,595.
Westinghouse Air Brake Company: *See—*
Bechman, William H., and Krumtinger, Robert T., 3,550,478.
Westinghouse Bremsen-und Apparatebau, G.m.b.H.: *See—*
Meyer, Werner, and Braun, Gunter, 3,550,929.
Westinghouse Electric Corporation: *See—*
Ambrose, John J., 3,550,810.
Baker, Donal E., and Skamfer, Robert E., 3,551,789.
Brun, Andre Georges, 3,551,005.
Brundige, William L., 3,551,725.
Colclaser, Robert G., Jr., and Fischer, William H., 3,551,623.
Eich, Walter J., Minton, George H., Andrews, Harry N., and French, Robert J., 3,551,289.
Elbling, Irving N., and Goldberg, Newton N., 3,551,191.
Engel, Joseph C., 3,551,851.
Ferree, Herbert E., 3,551,758.
Fischer, William H., 3,551,624.
Fischer, William H., 3,551,625.

Guentner, Robert L., 3,551,612.
Husby, Donald E., and Goetz, Alfred K., 3,551,667.
Lockie, Arthur M., and Leonard, Merrill G., 3,551,881.
Milianowicz, Stanislaw A., 3,551,626.
Miller, Chauncey S., 3,551,889.
O'Keeffe, Terence W., and Vine, James, 3,551,734.
Rubner, Tibor, 3,551,746.
Safiuddin, Mohammed, 3,551,775.
Scalzo, Augustine J., and Allen, James M., 3,551,068.
Smith, Melvin Wilmer, and Brun, Andre Georges, 3,550,388.
Vondracek, Charles H., and Dunlap, Anne B., 3,551,183.
Young, Robert G., 3,551,738.
Zisa, William J., and Ramsey, James E., Jr., 3,551,810.

Weyenberg, Lionel E. Resistor. 3,551,873, Cl. 338-253.

Weyland, Herman H., and Hamel, Edward E., to Aerojet-General Corporation. 1,3,5-Cyclohexane triisocyanate. 3,551,469, Cl. 260-453.

Wharton, Eddie: *See—*
Silvertown, Cyril, and Wharton, Eddie, 3,551,715.
Shaw, Fred, and Wharton, Eddie, 3,551,784.

Wharton, Walter W.: *See—*
Allan, Barry D., Wharton, Walter W., and Hubbuch, Theodore N., 3,551,226.

White Consolidated Industries, Inc.: *See—*
McCluckie, Donald E., and Brown, Willard D., Jr., 3,550,533.

White, Franklin A. Motor hook-up ring. 3,551,713, Cl. 310-71.

White, Harrison James: *See—*
Bolger, Justin C., and White, Harrison James, 3,551,204.

White Motor Corporation: *See—*
Muir, Earl B., 3,550,460.

White, Wayne H., to Bell Telephone Laboratories, Incorporated. Automatic message accounting system to insure that trunks desiring to be identified for timing purposes will not be deprived of access to the identifier by trunks desiring to have an initial entry recorded. 3,551,599, Cl. 179-7.1

White, William A.: *See—*
Weingarten, Harold I., and White, William A., 3,551,418.

Whitehead, David Montagu: *See—*
Desty, Denis Henry, Whitehead, David Montagu, and Thomas, John Lionel, 3,551,085.

Whitehouse, Harper John: *See—*
Speiser, Jeffrey M., and Whitehouse, Harper John, 3,551,837.

Whiteside, Roger B., and Long, Harry T., Jr., to Standard Pressed Steel Co. Rivet and collar unit and joint formed thereby. 3,551,015, Cl. 287-189.36

Whitestone, Esther. Method of preparing a protein-potato article. 3,551,161, Cl. 99-1.

Whittemore, William L.: *See—*
Miller, Park H., Jr., and Whittemore, William L., 3,551,675.

Wichterle, Otto: *See—*
Kliment, Karel, Vacik, Jiri, Ott, Zdenek, Majkus, Vladimir, Stoy, Vladimir, Stol, Miroslav, and Wichterle, Otto, 3,551,556.

Wick, Paul: *See—*
Hoffmann, Wolfgang, and Wick, Paul, 3,550,346.

Wickens, James Charles: *See—*
Osbond, John Mervyn, Fothergill, Graham Alwyn, and Wickens, James Charles, 3,551,458.

Wickman, Robert F.: *See—*
Thomas, Owen H., Beck, Thomas A., and Wickman, Robert F., 3,551,509.

Wickstrom, Svante Theodore, to Minnesota Mining and Manufacturing Company. Automobile speed-controlling mechanism. 3,550,716, Cl. 180-98.

Widdowson, Albert Henry, to Wildt Mellor Bromley Limited. Patterning mechanism for knitting machines. 3,550,398, Cl. 66-50.

Widmer, Albert X., to International Business Machines Corporation. Test apparatus for analyzing the performance characteristics of internal combustion engine ignition systems. 3,551,800, Cl. 324-15.

Wieden, Horst: *See—*
Szita, Jeno, Wieden, Horst, Rinkler, Heinrich, Nogaj, Alfred, Marzolph, Herbert, and Nischk, Gunther, 3,551,373.

Wiegand, Gretchen Ellen: *See—*
Bauer, Victor John, Wiegand, Gretchen Ellen, and Safir, Sidney Robert, 3,551,436.

Wiesman, George Carl, to Houdaille Industries, Inc. Construction system and concrete structural member therefor. 3,550,332, Cl. 52-28.

Wildt Mellor Bromley Limited: *See—*
Widdowson, Albert Henry, 3,550,398.

Wilhelm, Hans: *See—*
Faulhaber, Gerhard, Henkler, Herbert, Wilhelm, Hans, Brodt, Rudolf, and Floss, Josef Georg, 3,551,489.

Wilhelm, Hans, Penning, Ernst, Gulbins, Klaus, Hartman, Heinrich, and Hann, Ernst Wilhelm, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Surface coating copolymers containing etherified N-methylolamide. 3,551,525, Cl. 260-881.

Wilhelmi, Gerhard, to Geigy Chemical Corporation. Composition and method for treating inflammation with oxyphenbutazone and indomethacin. 3,551,570, Cl. 424-273.

Wilhelmson, Jack L., to Hoffmann-La Roche Inc., mesne. System for closely monitoring a blood pressure over an extended period of time. 3,550,582, Cl. 128-2.05

Wilkinson Sword Limited: *See—*
Gale, Robert J., 3,551,316.

Williams, Harry H. Method of fabricating a heating element. 3,550,267, Cl. 29-611.

Wills, George P.: *See—*
Trojanowski, Theodore S., and Wills, George P., 3,551,013.

Willson, James R. Electric ignition system having a PTC ignitor element. 3,551,084, Cl. 431-66.

Wilson, Eric, to International Computers Limited. Document feeding apparatus. 3,550,933, Cl. 271-52.

Wilson, James D., to Banner Metals, Inc. Detachable hand brake assembly. 3,551,001, Cl. 280-47.34

Wilson, Lawrence F., to Interpace Corporation. Tubular diaphragm pump. 3,551,076, Cl. 417-385.

Wilson, Peter M., to Clyde Blowers Limited. Soot blowers. 3,551,075, Cl. 417-182.

Wilson, Raymond F.: *See—*
Cole, Edward L., Wilson, Raymond F., and Herbstman, Sheldon, 3,551,328.

Wiltsey, Howard E., to Eaton Yale & Towne, Inc. Friction coupling. 3,550,739, Cl. 192-84.

Windel, Hermann: *See—*
Koenig, Karl-Heinz, Steinbrunn, Gustav, Windel, Hermann, and Fischer, Adolf, 3,551,477.

Windmoller & Holscher: *See—*
Rochla, Kurt, 3,551,238.
Rochla, Kurt, 3,551,257.
Schwarzkopf, August, 3,551,259.

Windsor, Maurice W., and Novak, John Richard, to TRW, Inc. Laser photolysis and spectroscopy system. 3,551,053, Cl. 356-85.

Wingard, William F. Punch and die assembly. 3,550,491, Cl. 83-22.

Winter, Edward F.: *See—*
Ruoff, Carl E., and Winter, Edward F., 3,551,761.

Wirt, Leon A.: *See—*
Davies, James M., Hackmann, Larry G., Peterson, Robert A., Smith, Roger M., and Wirt, Leon A., 3,550,691.

Wischhusen, Theodore F.: *See—*
Damico, John J., Rudy, John F., Shuford, David M., and Wischhusen, Theodore F., 3,551,240.

Wise, Joseph Agusta, Sweeney, Joseph Patrick, and Chenoweth, Stewart Jacob, to AMP Incorporated. Electrical connector feed strip assembly. 3,550,856, Cl. 339-276.

Wismer, Marco, and Prucnal, Paul J., to PPG Industries, Inc. Coated polyolefins. 3,551,182, Cl. 117-45.

Wissman, Jack L., to Duriron Company, Inc., The. Lined corrosion resistant pump. 3,551,067, Cl. 415-134.

Witco Chemical Company, Inc.: *See—*
Bluestein, Bernard R., Solomon, Jack M., and Nelson, Lawrence B., 3,551,487.
Bluestein, Bernard R., and Solomon, Jack M., 3,551,488.
Clark, John R., 3,551,501.
Solomon, Jack M., Isbitsky, Bernard, Jr., and Bluestein, Bernard R., 3,551,486.

Witco Chemical Corporation: *See—*
Longley, Kermit D., 3,551,300.

Witten, Benjamin: *See—*
Sass, Samuel, Witten, Benjamin, and Davis, Paul, 3,551,531.

Witting, Joachim: *See—*
Jensen, Knut, Witting, Joachim, and Schwarze, Gerhard, 3,551,716.

Wochnik, Josef, to Schloemann Aktiengesellschaft. Roll bearings for roll stands. 3,550,971, Cl. 308-76.

Wohlfeil, Jack A., to Giddings & Lewis Inc. Numerical control system. 3,551,656, Cl. 235-151.11

Wolf, Lee A., to Haley Corporation. Cleaning tool for vacuum cleaner. 3,550,183, Cl. 15-375.

Wolk, Allan I., and Marks, Morton. Display package for tapes and the like. 3,550,769, Cl. 206-78.

Wolkober, Eva: *See—*
Wolkober, Zoltan, Wolkober, Eva, Bazsika, Gabor, and Miskolczy, Laszlo, 3,550,454.

Wolkober, Zoltan, Wolkober, Eva, Bazsika, Gabor, and Miskolczy, Laszlo, to Muanyagipari Kutato Intezet and Hungaria Muanyagfeldolgozo Vallalat. Apparatus for testing the thermooxidation of macromolecular plastic and elastic materials. 3,550,454, Cl. 73-432.

Wolverine World Wide, Inc.: *See—*
Krause, Victor W., and Harlan, Martin L., 3,550,660.

Wong, James Lee. Movable tray for ovens. 3,550,580, Cl. 126-337.

Wood, Fenton M., Goodman, Barnard P., and Proctor, Noel B., to American Machine & Foundry Company. Method and apparatus utilizing an electrolyte for detecting holidays in metallic coating on pipe. 3,551,801, Cl. 324-29.

Wood Industries, Inc.: *See—*
Bernardi, Eugene L., and Brazdovic, Rudolph T., 3,550,283.

Wood, James Q.: *See—*
Miles, John M., Killebrew, Wilbur N., Jr., and Wood, James Q., 3,551,522.

Woodall, Jerry M., and Wuestenhefer, William C., to International Business Machines Corporation. Process for preparing low resistivity high purity gallium arsenide. 3,551,116, Cl. 23-293.

Woodford, Frank W. Folding bed. 3,550,168, Cl. 5-137.

Woods, Roger M., and Moul, David R. Gold plating process. 3,551,302, Cl. 204-32.

Woodward, Robert N., and Leone, Joseph T., to Eastman Kodak Company. Process for producing lithographic plates comprising etch bleaching, etching and copperizing. 3,551,150, Cl. 96-36.

Woolner, Fred Melvin, to New England Planning Service Corporation. Shoe fastener. 3,550,218, Cl. 24-73.

Wragg, Arthur Hedley. Methods and composition for treating asthma. 3,551,572, Cl. 424-278.

Wright, Archibald N., and Watters, Clarence J., to General Electric Company. System components having protective film thereon. 3,551,202, Cl. 117-239.

Wright, George G., and Patterson, David E. Basketball training aid. 3,550,937, Cl. 273-1.5

Wuestenhefer, William C.: *See—*
Woodall, Jerry M., and Wuestenhefer, William C., 3,551,116.

Wunder, Richard H.: *See—*
Edwards, Douglas C., and Wunder, Richard H., 3,551,402.

Wurlitzer Company, The: *See—*
Lienert, Werner M., 3,550,236.

Wurster, Rudolf F.: *See—*
Tesoro, Giuliana C., Sello, Stephen B., Moore, Donald R., and Wurster, Rudolf F., 3,551,422.

Wykoff, Richard H.: *See—*
Hirs, Gene, and Wykoff, Richard H., 3,550,774.

Wyle Laboratories: *See—*
Tomaszewski, Carlos A., and Goodliffe, Timothy A. R., 3,551,904.

Wylie, Richard D.: *See—*
McCollough, John K., and Wylie, Richard D., 3,550,350.

Wymore, Charles E., to Dow Chemical Company, The. Catalysis of the exchange reaction between secondary alcohols and ketones. 3,551,497, Cl. 260-592.

Xerox Corporation: *See—*
Chawda, Prabhulal P., 3,550,556.
Gundlach, Robert W., 3,551,146.
Hudson, Frederick W., 3,550,555.
Jensen, Andrew O., and Pollock, David H., 3,551,727.
Krieger, Arthur L., Stein, Ira S., and Tulagin, Vesvolod, 3,551,320.
Walsh, Arthur, 3,551,313.

Yagii, Sokichi, Saito, Tetsushi, and Watanabe, Takuji. Laminated transmission belt. 3,550,464, Cl. 74-232.

Yamada, Yujiro: *See—*
Seki, Shigeo, Ichikawa, Kazuo, Yamada, Yujiro, Nagaoka, Kozo, and Nomiya, Bunzo, 3,551,502.

Yamamoto, Hisao, Nakamura, Yasushi, Nakao, Masaru, and Kobayashi, Tsuyoshi, to Sumitomo Chemical Company, Ltd. 1-Aryloxyalkylcarbonyl-3-indolyl aliphatic acid derivatives. 3,551,446, Cl. 260-326.13

Yamamoto, Kozo: *See—*
Nishimura, Katsutoshi, Fujisawa, Kiyoji, Kozu, Isao, and Yamamoto, Kozo, 3,551,691.

Yamamoto, Sadao, Okubo, Minoru, Honda, Seiichiro, and Ogura, Kenji, to Sekisui Kagaku Kogyo Kabushiki Kaisha. Method of producing paperlike thermoplastic film for graphic art use. 3,551,538, Cl. 264-49.

Yamanaka, Tadashi, and Matsubara, Akira, to Matsushita Electric Industrial Co. Method for growing single crystals of II_aO-VI_aO compounds. 3,551,117, Cl. 23-315.

Yamane, Hisakichi: *See—*
Nakamura, Yuko, Yamane, Hisakichi, and Yanagimachi, Akio, 3,551,591.

Yamasaki, Toshio, Baynes, William R., Schlau, Floyd E., Merino, Dennis H., and Shirwo, Darold M., to Mattel, Inc. Optical stand. 3,551,022, Cl. 350-85.

Yamashita, Hachiro. Apparatus for packing flowable materials. 3,550,650, Cl. 141-145.

Yamazaki, Kaoru: *See—*
Sano, Yoshiaki, Yamazaki, Kaoru, Kurokawa, Eisuke, Sasaki, Hiromu, and Hayakawa, Shigeru, 3,551,644.

Yamazaki, Masami: *See—*
Suzuki, Hisao, Musashi, Akira, Uo, Shinzaburo, and Yamazaki, Masami, 3,551,193.

Yamazaki, Seishi, and Kaneda, Masao, to Hitachi, Ltd. Automatic gain controlling circuit. 3,551,834, Cl. 330-29.

Yanagawa, Takayuki, to Nippon Electric Company, Limited. Method of manufacturing a semiconductor integrated circuit. 3,551,221, Cl. 148-175.

Yanagimachi, Akio: *See—*
Nakamura, Yuko, Yamane, Hisakichi, and Yanagimachi, Akio, 3,551,591.

Yanagisawa, Yuzuru, and Kusunoki, Shinji, to Sony Corporation. Number and symbol display system. 3,551,653, Cl. 235-92.

Yanai, Hideo. Component member of constructions. 3,550,339, Cl. 52-250.

Yardney International Corporation: *See—*
Stachurski, Zbigniew, 3,551,208.

Yasyharu Kuwahara: *See—*
Kuwahara, Yasuharu, and Sakanoue, Michio, 3,551,290.

Yatabe, Hiroshi, Takei, Takaji, Oshima, Keiji, Hikita, Masatoshi, Kanda, Shigeru, Sato, Yasuhiro, Nkayama, Takeshi, and Nakata, Tetsuya, to Furukawa Electric Company Limited, The. Method of manufacturing insulated bus bar. 3,550,269, Cl. 29-624.

Yates, George, Jr., to Growth International Industries Corporation. Reinforcing structure for receiving a bail. 3,550,807, Cl. 220-91.

Yazawa, Masahide, to Polymer Processing Research Institute Ltd. Method for producing non-woven fabrics from split fibers. 3,551,229, Cl. 156-62.2

Yee, Ying S.: *See—*
Dodds, Kay E., and Yee, Ying S., 3,551,058.

Yen, Yao Tung, to National Cash Register Company, The. Insulated-gate field-effect transistor coupling circuits. 3,551,692, Cl. 307-205.

Yendrich, Stephen P., Jr.: *See—*
Auzins, Raimunds, and Yendrich, Stephen P., Jr., 3,550,788.

Yeomans, Robert P.: *See—*
Daniels, Robert A., Foster, Norman B., Yeomans, Robert P., and Cadley, John L., 3,550,626.

Yonezu, Shuzo, Nojima, Yasuhiro, and Ban, Kimio, to Kanegafuchi Chemical Industry Company, Limited. Manufacturing method of vinyl chloride polymers for paste resin. 3,551,399, Cl. 260-92.8

Yonezu, Shuzo, Nojima, Yasuhiro, and Motoki, Takashi, to Kanegafuchi Chemical Industry Co., Ltd. Method for manufacturing the chlorinated polyvinyl chloride having improved quality. 3,551,400, Cl. 260-92.8

Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi, to Fuji Shashin Film Kabushiki Kaisha. Light sensitive silver halide materials containing yellow-forming couplers. 3,551,155, Cl. 96-100.

Yoshida, Makoto, Tsuda, Momotoshi, Sano, Kazuya, and Oishi, Yasushi, to Fuji Shashin Film Kabushiki Kaisha. Light sensitive silver halide materials containing yellow-forming couplers. 3,551,156, Cl. 96-100.

Young, David W., to Atlantic Richfield Company. Cylindrical muffler with spaced openings in both end plates. 3,550,722, Cl. 181-60.

Young, Donald R.: *See—*
Howard, Wayne H., and Young, Donald R., 3,550,585.

Young, Irving U.: *See—*
Anania, James A., 3,550,295.

Young, Niels O., to Block Engineering, Inc. Pressure generating device. 3,550,476, Cl. 74-640.

Young, Robert B.: *See—*
Rothschild, Harry R., Jr., and Young, Robert B., 3,550,743.

Young, Robert G., to Westinghouse Electric Corporation. Condenser discharge lamp circuit with a pulse forming network and a keep alive circuit. 3,551,738, Cl. 315-171.

Zaidan, Joseph P. Refrigerator shelf. 3,550,982, Cl. 312-302.

Zakaria, Moneeb Hassan, to Armour and Company. N,N'-di-substituted ureas and antiseptic detergent compositions containing same. 3,551,441, Cl. 260-305.

Zaklady Remontu Maszyn Budowlanych Nr 3: *See—*
Gawlik, Czeslaw Winceuty, and Simson, Dionizy, 3,550,694.

Zanoni, Louis A., to RCA Corporation. Alternating current driven load circuit. 3,551,689, Cl. 307-38.

Zanuso, Marco: *See—*
Tommasi, Giovanni Battista, and Zanuso, Marco, 3,551,607.

Zeh, Herbert J., Jr., to Calgon Corporation. Water soluble polymers of diacetone acrylamide. 3,551,384, Cl. 260-63.

Zeidler, Adolf, Fischer, Adolf, Buerger, Gert, and Merger, Franz, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. 1-(α,α-Dimethyl-β-acetorypiopinyl)-3- isopropyl-2,4-dioxodecahydroquinazoline. 3,551,429, Cl. 260-260.

Zeiss, Carl: *See—*
Kuhne, Christoph, 3,551,905.
Michel, Kurt, 3,551,019.

Zeiss-Stiftung, Carl: *See—*
Michel, Kurt, 3,551,019.

Zeitler, Gerhard: *See—*
Trieschmann, Hans-Georg, and Zeitler, Gerhard, 3,551,526.

Zelina, William B., to General Systems, Inc. Transistor-magnetic oscillators incorporating voltage reference means to regulate the output frequency. 3,551,845, Cl. 331-113.

Zenith Radio Corporation: *See—*
Korpel, Adrianus, 3,551,690.

Zenner, Karl-Friedrich: *See—*
Ziemann, Heinz, Zenner, Karl-Friedrich, Lehmann, Wolfgang, and Troemel, Gerhard, 3,551,288.

Zenses, Carl. Rasp and method for its manufacture. 3,550,229, Cl. 29-78.

Zentko, Joseph: *See—*
Fox, Thomas A., and Zentko, Joseph, 3,550,419.

Zentrallaboratorium Elektrogerate der VVB Elektrogerate: *See—*
Jensen, Knut, Witting, Joachim, and Schwarze, Gerhard, 3,551,716.

Zephyr American Corporation: *See—*
Neilsen, Hildaur L., 3,550,980.

Ziegler, Charles Thomas. Means to detect changes in level of a stream of water. 3,550,610, Cl. 137-101.25

Ziegler, Edwin E., to General Electric Company. Positive fill control and weight distribution system for an automatic washer. 3,550,405, Cl. 68-23.3

Ziemann, Heinz, Zenner, Karl-Friedrich, Lehmann, Wolfgang, and Troemel, Gerhard, to Farbenfabriken Bayer Aktiengesellschaft. Process for increasing the wet strength of paper. 3,551,288, Cl. 162-164.

Zimmerly, Robert D., to Ladish Co. Variable speed motor driven pumping system. 3,551,072, Cl. 417-45.

Zimmerman, George V., and Carlisle, Neil K., to General Time Corporation. Events counter. 3,551,648, Cl. 235-92.

Zimmerman, Theodore. Moisture-proof combustible cartridge case. 3,550,532, Cl. 102-43.

Zimmermann, Markus: *See—*
Baumann, Peter, and Zimmermann, Markus, 3,551,569.

Zimmermann, William Douglas: *See—*
Schaefer, Frederic Charles, and Zimmermann, William Douglas, 3,551,489.

Zimmern, Bernard. Globoid-worm compressors. 3,551,082, Cl. 418-195.
Zirkle, Charles L.: *See*—
Kaiser, Carl, and Zirkle, Charles L.,3,551,568.
Zisa, William J., and Ramsey, James E., Jr., to Westinghouse Electric Corporation. Three-wire induction meter with minimized unbalance errors. 3,551,810, Cl. 324-137.
Zoller, Robert A., to Standard Products Company, The. Rotary worm lance die and method for making continuous windlace core strip. 3,550,246, Cl. 29-413.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 29TH DAY OF DECEMBER, 1970

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Dijksterhuis, Popko R., Y. B. F. J. Groeneveld, and T. Verhey, to U.S. Philips Corp. Electronic keyboard instruments. Re. 2,015, 12–29–70, Cl. 84—1.26.
Ferro Corp.: *See*—
Russo, Frank C. Re. 27,014.
Ferro-Corp.: *See*—
Russo, Frank C. Re. 27,014.
Fraze, Ermal C. Can end with folded pull tab. Re. 27,017, 12–29–70, Cl. 220—54.
Groeneveld, Yme B. F. J.: *See*—
Dijksterhuis, Popko R., Groeneveld, and Verhey. Re. 27,015.
Kiessling, Rudolf H., and C. A. Schaefer, to Square D Co. Electric limit switch having a diagonally divided housing, a detachable actuator, and mechanism for causing selected operation of a pushbutton snap switch. Re. 27,016, 12–29–70. Cl. 200—47.
Russo, Frank C., by Ferro Corp., to Ferro-Corp. Method for producing sintered ferrous article. Re. 27,014, 12–29–70, Cl. 29—182.5.
Schaefer, Carl A.: *See*—
Kiessling, Rudolf H., and Schaefer. Re. 27,016.
Square D. Co.: *See*—
Kiessling, Rudolf H., and Schaefer. Re. 27,016.
Verhey, Thomas: *See*—
Dijksterhuis, Popko R., Groeneveld, and Verhey. Re. 27,015.
U.S. Philips Corp.: *See*—
Dijksterhuis, Popko R., Groeneveld, and Verhey. Re. 27,015.

LIST OF DESIGN PATENTEES

Ainslie, Dianne B., to Eastman Kodak Co. Motion picture projector or the like. 219,624, 12–29–70, Cl. D61—1.
12–29–70, Cl. D56—1.
American District Telegraph Co.: *See*—
Swift, James L., and Halpin. 219,617.
American Standard Inc.: *See*—
Van Skyhawk, Norman. 219,587.
Ampex Corp.: *See*—
Matsuda, Hari. 219,594.
Staley, Darrell S. 219,596.
Taylor, Terrance N. 219,595.
Andis Clipper Co.: *See*—
Carpenter, Herbert R. 219,636.
Appleton, Orbra W. Guitar or similar article. 219,618,
Armco Steel Corp.: *See*—
Gibson, Robert R. 219,612.
Ashton, Harold P.: *See*—
Sweet, James B., and Ashton. 219,611.
Barbaresi, Ivo, to Salvatore Ferragamo S.p.A. Heel for lady's shoe. 219,570, 12–29–70, Cl. D2—325.
Bartels, Dorothy S.: *See*—
Bartels, William R. and D. S. 219,631.
Bartels, William R. and D. S. Teether and pacifier combination. 219,631, 12–29–70, Cl. D83—8.
Belcher, James J., to Clary Corp. Data printer. 219,625, 12–29–70, Cl. D64—11.
Bogan, Robert T., Jr. Grille. 219,578, 12–29–70, Cl. D13—1.
Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Tire. 219,634, 12–29–70, Cl. D90—20.
Boyle, John, & Co.: *See*—
Fritz, Frank. 219,580.
Braun Aktiengesellschaft: *See*—
Rams, Dieter, and Greubel. 219,598.
Bruce, Robert A., and K. G. Pollock. Float for cables or the like. 219,626, 12–29–70, Cl. D71—1.
Bushnell, David P. Telescope. 219,623, 12–29–70, Cl. D57—1.
Cahen, Edward B. Combination mooring bit, cleat, chock, light and lift. 219,574, 12–29–70, Cl. D8—232.
Campbell, Laurie J., to Louis Marx & Co. Inc. Rocking toy. 219,606, 12–29–70, Cl. D34—5.
Carpenter, Herbert R., to Andis Clipper Co. Hair clipper. 219,636, 12–29–70, Cl. D95—3.
Cartridge Television, Inc.: *See*—
Protas, Arthur I. 219,591.
Carver, Richard N., and P. G. Goodwin, to Louis Marx & Co., Inc. Toy vehicle. 219,608, 12–29–70, Cl. D34—15.
Caserta, Charles D.: *See*—
Fiedler, Fred, and Caserta. 219,577.
Charmglow Mfg. Co.: *See*—
Koziol, Walter. 219,629.
Clary Corp.: *See*—
Belcher, James J. 219,625.
Cole, Richard C. Hull for planing boat. 219,627, 12–29–70, Cl. D71—1.
Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie: *See*—
Boileau, Jacques. 219,634.
Corning Glass Works: *See*—
Gibson, Robert R. 219,613.
Gibson, Robert R. 219,614.
Cowan, Murray L., to Textron Inc. Link for an identification bracelet or similar article. 219,615, 12–29–70, Cl. D45—4.
Cowan, Murray L., to Textron Inc. Link for an identification bracelet or similar article. 219,616, 12–29–70, Cl. D45—4.
Culbertson, Richard, to General Electric Co. Portable radio. 219,622, 12–29–70, Cl. D56—4.
Dart Industries, Inc.: *See*—
Sweet, James B., and Ashton. 219,611.
Datanetics Corp.: *See*—
Miller, Meryl E. 219,589.
Douglas, David. Combined food packaging cup and cover therefor. 219,575, 12–29–70, Cl. D9—220.
Eastman Kodak Co.: *See*—
Ainslie, Dianne B. 219,624.
Electronics Transmission Systems, Inc.: *See*—
Pidssnetz, Edmund F. 219,593.
Ferragamo, Salvatore, S.p.A.: *See*—
Barbaresi, Ivo. 219,570.
Fiedler, Fred, and C. D. Caserta, to Unlwash, Inc. Combination service station and car wash. 219,577, 12–29–70, Cl. D13—1.
Fritz, Frank, to John Boyle & Co. Portable cabana. 219,580, 12–29–70, Cl. D13—1.
Game Time, Inc.: *See*—
Wormser, Robert S. 219,579.
Wormser, Robert S. 219,601.
Wormser, Robert S. 219,602.
Wormser, Robert S. 219,603.
Wormser, Robert S. 219,604.
Wormser, Robert S. 219,605.
General Electric Co.: *See*—
Culbertson, Richard. 219,622.
Smith, John A. 219,597.
Vose, Fred C. 219,590.
Gibbons, Christopher O. Television or radio receiving antenna. 219,592, 12–29–70, Cl. D26—14.
Gibson, Robert R., to Armco Steel Corp. Percolator or the like. 219,612, 12–29–70, Cl. D44—26.
Gibson, Robert R., to Corning Glass Works. Casserole dish or the like. 219,613, 12–29–70, Cl. D44—15.
Gibson, Robert R., to Corning Glass Works. Casserole cover. 219,614, 12–29–70, Cl. D44—15.
Goodrich, B. F., Co., The: *See*—
Marlowe, Robert L. 219,635.
Goodwin, Paul G.: *See*—
Carver, Richard N., and Goodwin. 219,608.
Greubel, Juergen: *See*—
Rams, Dieter, and Greubel. 219,598.
Greubel, Juergen: *See*—
Rams, Dieter, and Greubel. 219,599.
Halpin, Thomas L.: *See*—
Swift, James L., and Halpin. 219,617.
Hasbro Industries, Inc.: *See*—
Speers, Samuel F. 219,571.
Hendricks, Donald B., to Litton Precision Products, Inc. Recipe index or the like. 219,628, 12–29–70, Cl. D74—1.
Ithaca Gun Co., Inc.: *See*—
Purchase, Richard E. 219,586.
Keller Industries, Inc.: *See*—
Parsons, Milton. 219,581.
Koziol, Walter, to Charmglow Mfg. Co. Combined cart and cooking apparatus. 219,629, 12–29–70, Cl. D81—10.
Laupot, Richard. Blower fan. 219,588, 12–29–70, Cl. D23—155.
Litton Precision Products, Inc.: *See*—
Hendricks, Donald B. 219,628.
Makino, Katsuhiko, to Matsushita Electric Industrial Co., Ltd. Radio receiver. 219,621, 12–29–70, Cl. D56—4.
Marlowe, Robert L., to The B. F. Goodrich Co. Tire. 219,635, 12–29–70, Cl. D90—20.
Marx, Louis, & Co. Inc.: *See*—
Campbell, Laurie J. 219,606.
Carver, Richard N., and Goodwin. 219,608.
Matsuda, Hari, to Ampex Corp. Cassette transport. 219,594, 12–29–70, Cl. D26—14.
Matsushita Electric Industrial Co., Ltd.: *See*—
Makino, Katsuhiko. 219,621.
Mattel, Inc.: *See*—
Tam, Paul. 219,607.
McQueen, Steven T. Bucket seat. 219,584, 12–29–70, Cl. D15—8.
Miller, Meryl E., to Datanetics Corp. Combined keyboard and electronic module. 219,589, 12–29–70, Cl. D26—5.
Moore, Charles E. Electrical guitar. 219,620, 12–29–70, Cl. D56—1.

Okula, narodni podnik: *See*—
Ubr, Bohumil. 219,630.
Orthman, Henry. Tomato vine support. 219,609, 12–29–70, Cl. D35—1.
Pandolfo, John F.: *See*—
Sulger, Champlyn K., and Pandolfo. 219,576.
Parsons, Milton, to Keller Industries, Inc. Trash cart. 219,581, 12–29–70, Cl. D14—3.
Petkus, George, to J. Petkus. Combination portable collapsible hoist and ladder. 219,619, 12–29–70, Cl. D54—1.
Petkus, Josephine: *See*—
Petkus, George. 219,619.
Pidsnetz, Edmund F., to Electronics Transmission Systems, Inc. Facsimile transmitter. 219,593, 12–29–70, Cl. D26—14.
Pollock, Kenneth G.: *See*—
Bruce, Robert A., and Pollock. 219,626.
Prifti, William N. Confection. 219,569, 12–29–70, Cl. D1—1.
Protas, Arthur I., to Cartridge Television, Inc. Tape cartridge. 219,591, 12–29–70, Cl. D26—14.
Purchase, Richard E., to Ithaca Gun Co., Inc. Ventilated sighting rib for guns. 219,586, 12–29–70, Cl. D22—8.
Rams, Dieter, and J. Greubel, to Braun Aktiengesellschaft. Combined holder for an electrical toothbrush and toothbrush attachments. 219,598, 12–29–70, Cl. D33—28.
Rams, Dieter, and J. Greubel. Combined holder for an electrical toothbrush and toothbrush attachments. 219,599, 12–29–70, Cl. D33—28.
Reichl, Eva R. Post-mounted playground climber. 219,600, 12–29–70, Cl. D34—5.
Sato, Norio: *See*—
Shimano, Keizo, and Sato. 219,633.
Shames, Sidney J. Tube cutter. 219,572, 12–29–70, Cl. D8—60.
Shimano, Keizo, and N. Sato. Chain sprocket for a bicycle. 219,633, 12–29–70, Cl. D90—17.
Smith, John A., to General Electric Co. Current transformer. 219,597, 12–29–70, Cl. D26—15.
Spear, Gladys I. Handbag. 219,632, 12–29–70, Cl. D87—3.
Speers, Samuel F., to Hasbro Industries, Inc. Combined paint holder and brush therefor. 219,571, 12–29–70, Cl. D4—7.
Staley, Darrell S., to Ampex Corp. Magnetic tape duplicator. 219,596, 12–29–70, Cl. D26—14.
Stout, Glen E., Jr. Pallet. 219,582, 12–29–70, Cl. D14—3.
Sulger, Champlyn K., and J. F. Pandolfo. Fruit container. 219,576, 12–29–70, Cl. D9—224.
Sweet, James B., and H. P. Ashton, to Dart Industries, Inc. Closure for a food mold or the like. 219,611, 12–29–70, Cl. D44—1.
Swift, James L., and T. I. Halpin, to American District Telegraph Co. Thermostat socket. 219,617, 12–29–70, Cl. D52—7.
Tam, Paul, to Mattel, Inc. Lap counter or the like. 219,607, 12–29–70, Cl. D34—15.
Taylor, Terrance N., to Ampex Corp. Tape deck. 219,595, 12–29–70, Cl. D26—14.
Textron Inc.: *See*—
Cowan, Murray L. 219,615.
Cowan, Murray L. 219,616.
Ubr, Bohumil, to Okula, narodni podnik. Anti-dust breathing mask. 219,630, 12–29–70, Cl. D83—1.
Universal Sections Ltd.: *See*—
Weiss, Fred G. 219,573.
Uniwash, Inc.: *See*—
Fiedler, Fred, and Caserta. 219,577.
Van Skyhawk, Norman, to American Standard Inc. Combined bathtub and shower enclosure. 219,587, 12–29–70, Cl. D23—49.
Vaught, Jack R. Combined dial and hands for a clock or similar article. 219,610, 12–29–70, Cl. D42—7.
Vose, Fred C., to General Electric Co. Electrical strain insulator or similar article. 219,590, 12–29–70, Cl. D26—10.
Wallner, James D. Building block. 219,585, 12–29–70, Cl. D18—2.
Weiss, Fred G., to Universal Sections Ltd. Wiring clip. 219,573, 12–29–70, Cl. D8—230.
Wormser, Robert S., to Game Time, Inc. Playground equipment storage shelter. 219,579, 12–29–70, Cl. D13—1.
Wormser, Robert S., to Game Time, Inc. Playground climber. 219,601, 12–29–70, Cl. D34—5.
Wormser, Robert S., to Game Time, Inc. Playground climber. 219,602, 12–29–70, Cl. D34—5.
Wormser, Robert S., to Game Time, Inc. Playground climber. 219,603, 12–29–70, Cl. D34—5.
Wormser, Robert S., to Game Time, Inc. Playground climber. 219,604, 12–29–70, Cl. D34—5.
Wormser, Robert S., to Game Time, Inc. Playground climber. 219,605, 12–29–70, Cl. D34—5.
Zellick, Harry, L. H., and P. Chair. 219,583, 12–29–70, Cl. D15—1.
Zellick, Louis H.: *See*—
Zellick, Harry, L. H., and P. 219,583.
Zellick, Philip: *See*—
Zellick, Harry, L. H., and P. 219,583.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 29, 1970

NOTE.—First number, class; second number, subclass; third number, patent number

2— 2	3,550,159	23—343	3,551,119	42— 69	3,550,301	61— 69	3,550,388	74—501	3,550,468	99—107	3,551,167
197	3,550,160	358	3,551,120	43— 16	3,550,302	84	3,550,389		3,550,469	235	3,550,524
198	3,550,161	24— 71	3,550,216	17.2	3,550,303	62— 5	3,550,390		3,550,470	421	3,550,525
3— 1	3,550,162	73	3,550,217	42.15	3,550,304	103	3,550,391	529	3,550,471	100— 37	3,550,526
4— 10	3,550,163		3,550,218	.37	3,550,306	320	3,550,392	531	3,550,472	97	3,550,527
236	3,550,164		3,550,219	.74	3,550,305	394	3,550,393	584	3,550,473	211	3,550,528
5—109	3,550,165	81	3,550,220	56	3,550,307	485	3,550,394	606	3,550,474	101—352	3,550,529
122	3,550,166	90	3,550,221	121	3,550,308	64— 15	3,550,395	640	3,550,475	359	3,550,530
136	3,550,167	126	3,550,222	46— 1	3,550,309	21	3,550,396		3,550,476	102— 42	3,550,531
137	3,550,168	204	3,550,223	25	3,550,310	65— 27	3,551,126	817	3,550,477	43	3,550,532
8— 19	3,551,087	25— 29	3,550,224	28	3,550,311	32	3,551,127	847	3,550,478	104—100	3,550,533
41	3,551,088	30	3,550,225	52	3,550,312	109	3,551,128	75— .5	3,551,136	103	3,550,534
94.27	3,551,089	28— 76	3,550,226	74	3,550,313	117	3,551,129	10	3,551,137	118	3,550,535
150	3,550,169	29— 25.19	3,550,227		3,550,314	182	3,551,130	26	3,551,138	124	3,550,536
158	3,550,170	.42	3,550,228	167	3,550,315	66— 50	3,550,398	53	3,551,139	105—376	3,550,538
	3,550,171	78	3,550,229	238	3,550,316	60	3,550,399	60	3,551,140	381	3,550,537
10— 2	3,550,172	96	3,550,230	243	3,550,317	82	3,550,400	80	3,551,141	106— 8	3,551,168
140	3,550,173	123	3,550,231	47— 37	3,550,318	121	3,550,401	128	3,551,142	10	3,551,169
152	3,550,174	149.5	3,550,232	38	3,550,319	147	3,550,402	138	3,551,143	22	3,551,170
12— 16.4	3,550,175	156.4	3,550,233	48— 94	3,551,123	150	3,550,403	162	3,551,144	53	3,551,171
13— 29	3,551,578	.8	3,550,234	214	3,551,124	154	3,550,397	76—107	3,550,479	59	3,551,172
15— 21	3,550,176	157.3	3,550,235	51— 3	3,550,320	68— 12	3,550,404	77— 28	3,550,480	84	3,551,173
104.1	3,550,177	169.5	3,550,236	8	3,550,321	23.3	3,550,405	55	3,550,481	314	3,551,174
210	3,550,178	182.5	RE.27,014	89	3,550,322	58	3,550,406	73	3,550,482	107— 14	3,550,539
230	3,550,179	196.1	3,551,121	105	3,550,323	181	3,550,407	79— 5	3,550,483	108— 23	3,550,540
250.32	3,550,180	197.5	3,551,122	109	3,550,324	70—203	3,550,409	81— 54	3,550,484	110— 8	3,550,541
320	3,550,181	200	3,550,237	156	3,550,325	264	3,550,408	57.15	3,550,485	111— 95	3,550,542
323	3,550,182	203	3,550,238	163	3,550,326	364	3,550,410	125	3,550,486	112— 79	3,550,543
375	3,550,183		3,550,239	165	3,550,327	370	3,550,411	82— 2.5	3,550,487	121.26	3,550,544
16— 87.2	3,550,184	208	3,550,240	232	3,550,328	461	3,550,412	4	3,550,488	130	3,550,545
145	3,550,185	229	3,550,241	241	3,550,329	71— 82	3,551,131	36	3,550,489	113— 1	3,550,546
180	3,550,186	235	3,550,242	287	3,550,330	111	3,551,132	48	3,550,490	114—151	3,550,547
	3,550,187	240	3,550,243	293	3,551,125	116	3,551,133	83— 22	3,550,491	183	3,550,548
17— 1	3,550,188	407	3,550,244	340	3,550,331	118	3,551,134	50	3,550,492	230	3,550,549
32	3,550,189		3,550,245	52— 28	3,550,332	122	3,551,135	64	3,550,493	235	3,550,550
	3,550,190	413	3,550,246	73	3,550,333	72— 8	3,550,413	99	3,550,494	116—124	3,550,551
49	3,550,191	419	3,550,247	79	3,550,334		3,550,414	84— 1.01	3,551,579	117— 1.7	3,551,175
55	3,550,192	423	3,550,248	82	3,550,335	35	3,550,415	.02	3,551,580	5.5	3,551,176
58	3,550,193	428	3,550,249	127	3,550,336	56	3,550,416	.26	RE.27,015	11	3,551,177
18— 1	3,550,194	429	3,550,250	136	3,550,337	57	3,550,417	267	3,550,495	17	3,551,178
2.7	3,550,195	455	3,550,251	241	3,550,338	192	3,550,418	293	3,550,496		3,551,179
4	3,550,196	470.9	3,550,252	250	3,550,339	199	3,550,419	464	3,550,497	33.5	3,551,180
5	3,550,197	471.1	3,550,253	312	3,550,340	296	3,550,420	85— 32	3,550,498	36.2	3,551,181
	3,550,198	493	3,550,254	488	3,550,341	327	3,550,421	84	3,550,499	45	3,551,182
	3,550,199	527.2	3,550,258	509	3,550,342	342	3,550,422	89— 1	3,550,500	49	3,551,183
	3,550,200	.6	3,550,259	704	3,550,343	363	3,550,423	.816	3,550,501	50	3,551,184
12	3,550,201	557	3,550,255	749	3,550,344	399	3,550,424	16	3,550,502	51	3,551,185
	3,550,202	571	3,550,256	53— 29	3,550,345	453	3,550,425	90— 11	3,550,503	65.2	3,551,186
13	3,550,203	576	3,550,260	32	3,550,346	73— 3	3,550,426	63	3,550,504	76	3,551,187
16	3,550,204	583	3,550,261	35	3,550,347	15.6	3,550,427	91—411	3,550,505		3,551,830
21	3,550,205	591	3,550,262	112	3,550,348	23.1	3,550,428	414	3,550,506	97	3,551,188
26	3,550,206	592	3,550,257	124	3,550,349		3,550,429	446	3,550,507	102	3,551,189
30	3,550,207	600	3,550,263	167	3,550,350	30	3,550,430	93— 1	3,550,508	116	3,551,190
	3,550,208	603	3,550,264	187	3,550,351	37	3,550,431	61	3,550,509	122	3,551,194
34	3,550,209	604	3,550,265	376	3,550,352	41.2	3,550,432		3,550,510	138.8	3,551,192
	3,550,210	609	3,550,266	390	3,550,353	54	3,550,433	94— 46	3,550,511	148	3,551,193
	3,550,211	611	3,550,267		3,550,354	67.2	3,550,434	95— 11	3,550,512	201	3,551,195
39	3,550,212	622	3,550,268	55— 16	3,550,355	.8	3,550,435		3,550,513	212	3,551,196
47	3,550,213	624	3,550,269	236	3,550,356		3,550,436		3,550,514	217	3,551,197
19— 98	3,550,214	628	3,550,270	270	3,550,357	71.3	3,550,437	13	3,550,515	224	3,551,198
163	3,550,215	30— 4	3,550,271	305	3,550,358	.5	3,550,438	44	3,550,516	227	3,551,199
21— 54	3,551,090	90.1	3,550,272	341	3,550,359	73	3,550,439		3,550,517	229	3,551,191
102	3,551,091	164.95	3,550,273	56— 6	3,550,360	90	3,550,440	45	3,550,518	232	3,551,200
119	3,551,092	217	3,550,280	16	3,550,361	94	3,550,441	86	3,550,519	235	3,551,201
23— 2	3,551,093	228	3,550,274	23	3,550,363	146	3,550,442	89	3,550,520	239	3,551,202
50	3,551,094	339	3,550,275	25	3,550,362		3,550,443	93	3,550,521	118— 7	3,550,552
61	3,551,095	346.51	3,550,281	.4	3,550,364	152	3,550,444	96— 1	3,551,145	63	3,550,553
63	3,551,096	33— 18	3,550,276	27.5	3,550,365	155	3,550,445		3,551,146	503	3,550,554
65	3,551,097	27	3,550,282	226	3,550,366	194	3,550,446	27	3,551,147	637	3,550,555
88	3,551,098	46	3,550,277	315	3,550,367	301	3,550,447	35.1	3,551,148		3,550,556
98	3,551,099	143	3,550,279	57— 52	3,550,368	343	3,550,448	36	3,551,150	119— 14.36	3,550,557
137	3,551,100	175	3,550,278	140	3,550,369	379	3,550,449	38.4	3,551,149	15	3,550,558
192	3,551,101	184.5	3,550,283	58— 23	3,550,370	380	3,550,450	74	3,551,151	20	3,550,559
193	3,551,102	34— 92	3,550,284	60— 24	3,550,371	422	3,550,451	85	3,551,152	72.5	3,550,560
206	3,551,103	97	3,550,285	39.02	3,550,372		3,550,452	86	3,551,153	122—235	3,550,561
207	3,551,104	162	3,550,286	.28	3,550,373		3,550,453	91	3,551,154	448	3,550,562
209	3,551,105	236	3,550,287		3,550,374	432	3,550,454	100	3,551,155	123— 8.07	3,550,563
210	3,551,106	35— 8	3,550,288	52	3,550,375	483	3,550,455		3,551,156	.37	3,550,564
224	3,551,108	35	3,550,289	54.5	3,550,376	503	3,550,457		3,551,157	.41	3,550,565
230	3,551,107	48	3,550,290		3,550,377	74— 3.5	3,550,458	107	3,551,158	32	3,550,566
	3,551,109	63	3,550,291		3,550,378	10.33	3,550,459	111	3,551,159	41.86	3,550,567
253	3,551,110	66	3,550,292	.6	3,550,379	89	3,550,460	115	3,551,160	51	3,550,568
	3,551,111	37—141	3,550,293	215	3,550,380	.17	3,550,461	98— 2	3,550,522	71	3,550,569
259	3,551,112	191	3,550,294	61— 15	3,550,381	118	3,550,462		3,550,523	119	3,550,570
262	3,551,113	40— 21	3,550,295	45	3,550,382	226	3,550,463	99— 1	3,551,161	148	3,550,571
266	3,551,114	104	3,550,296		3,550,383	232	3,550,464	2	3,551,162		3,550,572
273	3,551,115	128	3,550,297	46	3,550,384	240	3,550,465	6	3,551,163		3,550,573
293	3,551,116	130	3,550,298	.5	3,550,385	471	3,550,466	65	3,551,164	124— 27	3,550,574
315	3,551,117	156	3,550,299	69	3,550,386	473	3,550,467	81	3,551,165	125— 3	3,550,575
321	3,551,118	42— 1	3,550,300		3,550,387	501	3,550,456	94	3,551,166	126— 21	3,550,576

126— 59.5 : 3,550,577
263 : 3,550,578
307 : 3,550,579
337 : 3,550,580
127— 46 : 3,551,203
128— 2 : 3,550,581
.05: 3,550,582
3,550,583
12 : 3,550,584
24 : 3,550,585
3,550,586
33 : 3,550,587
141 : 3,550,588
156 : 3,550,589
161 : 3,550,590
214.4 : 3,550,591
260 : 3,550,593
265 : 3,550,594
290 : 3,550,592
323 : 3,550,595
361 : 3,550,596
585 : 3,550,597
131— 9 : 3,550,598
146 : 3,550,599
267 : 3,550,600
134— 42 : 3,551,204
135— 4 : 3,550,601
45 : 3,550,602
136— 22 : 3,551,205
86 : 3,551,206
3,551,207
3,551,208
120 : 3,551,209
148 : 3,551,210
153 : 3,551,211
202 : 3,551,212
137— 66 : 3,550,603
81.5 : 3,550,604
3,550,605
3,550,606
3,550,607
83 : 3,550,609
93 : 3,550,608
101.25: 3,550,610
111 : 3,550,611
112 : 3,550,612
113 : 3,550,613
245 : 3,550,614
362 : 3,550,615
513.7 : 3,550,616
514.5 : 3,550,617
566 : 3,550,618
595 : 3,550,619
596.15: 3,550,620
608 : 3,550,621
3,550,748
609 : 3,550,622
613 : 3,550,623
614 : 3,550,624
.03: 3,550,626
.2 : 3,550,625
624.18: 3,550,630
625.46: 3,550,627
3,550,628
.65: 3,550,631
3,550,632
.66: 3,550,629
636.4 : 3,550,633
138— 26 : 3,550,634
89 : 3,550,635
3,550,636
92 : 3,550,637
99 : 3,550,638
121 : 3,550,639
137 : 3,550,640
139— 12 : 3,550,641
124 : 3,550,642
187 : 3,550,643
336 : 3,550,644
140— 92.2 : 3,550,645
93.4 : 3,550,646
3,550,647
141— 1 : 3,550,648
3 : 3,550,649
145 : 3,550,650
198 : 3,550,651
313 : 3,550,652
143— 46 : 3,550,653
56 : 3,550,654
144— 34 : 3,550,655
323 : 3,550,656
146— 68 : 3,550,657
78 : 3,550,658
124 : 3,550,659
241 : 3,550,660
242 : 3,550,661
148— 1.5 : 3,551,213
6.31: 3,551,214
.35: 3,551,215
12 : 3,551,216
26 : 3,551,217
3,551,218
171 : 3,551,219
175 : 3,551,220
3,551,221
149— 7 : 3,551,222

149— 15 : 3,551,223
18 : 3,551,224
19 : 3,551,225
36 : 3,551,226
150— 11 : 3,550,662
28 : 3,550,663
151— 7 : 3,550,668
152—158 : 3,550,664
209 : 3,550,665
354 : 3,550,666
361 : 3,550,667
156— 13 : 3,551,227
24 : 3,551,228
62.2 : 3,551,229
71 : 3,551,230
72 : 3,551,231
87 : 3,551,232
89 : 3,551,233
98 : 3,551,234
99 : 3,551,235
167 : 3,551,236
175 : 3,551,237
201 : 3,551,238
213 : 3,551,239
228 : 3,551,240
230 : 3,551,241
244 : 3,551,242
3,551,243
246 : 3,551,244
260 : 3,551,245
272 : 3,551,246
278 : 3,551,247
305 : 3,551,248
330 : 3,551,249
370 : 3,551,250
384 : 3,551,251
406 : 3,551,252
407 : 3,551,253
426 : 3,551,254
434 : 3,551,255
441 : 3,551,256
510 : 3,551,257
556 : 3,551,258
581 : 3,551,259
583 : 3,551,260
3,551,261
584 : 3,551,262
159— 6 : 3,550,669
161— 21 : 3,551,263
42 : 3,551,264
57 : 3,551,265
69 : 3,551,266
82 : 3,551,267
89 : 3,551,268
93 : 3,551,269
113 : 3,551,270
150 : 3,551,271
164 : 3,551,272
165 : 3,551,273
168 : 3,551,274
170 : 3,551,275
3,551,276
173 : 3,551,277
3,551,278
174 : 3,551,279
175 : 3,551,280
199 : 3,551,281
220 : 3,551,282
248 : 3,551,283
252 : 3,551,284
162— 18 : 3,551,285
82 : 3,551,286
157 : 3,551,287
164 : 3,551,288
164— 37 : 3,550,670
52 : 3,550,671
228 : 3,550,673
273 : 3,550,672
282 : 3,550,674
3,550,675
3,550,676
165— 1 : 3,550,677
44 : 3,550,678
47 : 3,550,679
55 : 3,550,680
80 : 3,550,681
166— .6 : 3,550,682
156 : 3,550,683
250 : 3,550,684
303 : 3,550,685
307 : 3,550,686
169— 2 : 3,550,687
172— 9 : 3,550,688
44 : 3,550,689
265 : 3,550,690
699 : 3,550,691
793 : 3,550,692
173— 43 : 3,550,693
131 : 3,550,694
174— 15 : 3,551,581
19 : 3,551,582
41 : 3,551,583
49 : 3,551,584
72 : 3,551,585
107 : 3,551,586
152 : 3,551,587

175— 4.51: 3,550,695
25 : 3,550,696
26 : 3,550,697
57 : 3,550,698
78 : 3,550,699
3,550,700
122 : 3,550,701
289 : 3,550,702
176— 22 : 3,551,289
177— 45 : 3,550,703
50 : 3,550,704
210 : 3,550,705
178— 5.4 : 3,551,589
3,551,590
.6 : 3,551,591
6 : 3,551,592
3,551,593
.5 : 3,551,594
7.1 : 3,551,595
.3 : 3,551,596
179— 1 : 3,551,588
2 : 3,551,597
7.1 : 3,551,598
3,551,599
18 : 3,551,600
3,551,601
3,551,602
3,551,603
3,551,604
27 : 3,551,605
99 : 3,551,606
100 : 3,551,607
.2 : 3,551,608
3,551,609
175.31: 3,551,610
180— 5 : 3,550,706
3,550,707
6.48: 3,550,708
8 : 3,550,709
14 : 3,550,710
44 : 3,550,711
53 : 3,550,712
64 : 3,550,713
79.1 : 3,550,714
90 : 3,550,715
98 : 3,550,716
103 : 3,550,717
121 : 3,550,718
181— .5 : 3,550,719
31 : 3,550,720
51 : 3,550,721
60 : 3,550,722
182— 36 : 3,550,723
184— 6 : 3,550,724
104 : 3,550,725
188— 65.4 : 3,550,726
71.8 : 3,550,728
79.5 : 3,550,729
82.9 : 3,550,727
152 : 3,550,730
153 : 3,550,731
196 : 3,550,732
282 : 3,550,733
191— 12 : 3,551,612
192— 4 : 3,550,734
17 : 3,550,735
41 : 3,550,736
45.1 : 3,550,737
53 : 3,550,738
84 : 3,550,739
107 : 3,550,740
193— 35 : 3,550,741
194— 10 : 3,550,742
13 : 3,550,743
54 : 3,550,744
195— 1.7 : 3,551,290
3,551,291
30 : 3,551,292
31 : 3,551,293
96 : 3,551,294
103.5 : 3,551,295
3,551,296
143 : 3,551,297
197—133 : 3,550,745
198— 8 : 3,550,746
20 : 3,550,747
31 : 3,550,749
34 : 3,550,750
38 : 3,550,751
106 : 3,550,752
109 : 3,550,753
164 : 3,550,754
181 : 3,550,755
183 : 3,550,756
184 : 3,550,757
192 : 3,550,758
205 : 3,550,759
3,550,760
3,550,761
200— 5 : 3,551,611
16 : 3,551,613
3,551,614
34 : 3,551,615
46 : 3,551,616
47 : Re.27,016
51 : 3,551,617

200— 51 : 3,551,618
61.41: 3,551,619
83 : 3,551,620
144 : 3,551,622
148 : 3,551,621
3,551,623
3,551,624
3,551,625
3,551,626
153 : 3,551,627
166 : 3,551,628
3,551,629
168 : 3,551,630
175 : 3,551,631
202—173 : 3,551,298
203— 8 : 3,551,299
31 : 3,551,300
204— 29 : 3,551,301
32 : 3,551,302
35 : 3,551,303
38 : 3,551,304
46 : 3,551,305
56 : 3,551,306
59 : 3,551,307
67 : 3,551,308
99 : 3,551,309
143 : 3,551,310
159.18: 3,551,311
177 : 3,551,312
181 : 3,551,313
194 : 3,551,314
195 : 3,551,315
206 : 3,551,316
212 : 3,551,317
228 : 3,551,318
243 : 3,551,319
299 : 3,551,320
321 : 3,551,321
206— 20 : 3,550,762
38 : 3,550,763
46 : 3,550,764
3,550,765
3,550,766
52 : 3,550,767
65 : 3,550,768
78 : 3,550,769
208— 11 : 3,551,322
58 : 3,551,323
87 : 3,551,324
89 : 3,551,325
93 : 3,551,326
240 : 3,551,328
325 : 3,551,327
209—111.7 : 3,550,770
121 : 3,550,771
125 : 3,550,772
138 : 3,550,773
210— 19 : 3,551,329
3,551,330
23 : 3,551,331
53 : 3,551,332
67 : 3,550,774
69 : 3,551,333
81 : 3,550,775
91 : 3,550,777
94 : 3,550,776
167 : 3,550,778
169 : 3,550,779
170 : 3,550,780
180 : 3,550,781
192 : 3,550,782
522 : 3,550,783
211—116 : 3,550,784
176 : 3,550,785
177 : 3,550,786
212—125 : 3,550,787
128 : 3,550,788
214— 1 : 3,550,789
3,550,790
17 : 3,550,791
3,550,792
83.26: 3,550,793
138 : 3,550,794
3,550,795
152 : 3,550,796
3,550,797
3,550,798
302 : 3,550,799
450 : 3,550,800
505 : 3,550,801
512 : 3,550,802
215— 12 : 3,550,803
219— 10.43: 3,551,632
51 : 3,551,633
98 : 3,551,634
104 : 3,551,635
123 : 3,551,637
125 : 3,551,636
134 : 3,551,638
214 : 3,551,640
241 : 3,551,639
303 : 3,551,641
368 : 3,551,642
381 : 3,551,643
441 : 3,551,644
462 : 3,551,645

219—485 : 3,551,646
220— 4 : 3,550,804
42 : 3,550,805
54 : Re.27,017
81 : 3,550,806
91 : 3,550,807
97 : 3,550,808
221— 25 : 3,550,809
125 : 3,550,810
262 : 3,550,811
222— 70 : 3,550,812
94 : 3,550,813
145 : 3,550,814
146 : 3,550,815
166 : 3,550,816
207 : 3,550,817
400.7 : 3,550,818
559 : 3,550,819
223— 73 : 3,550,820
224— 1 : 3,550,821
2 : 3,550,822
7 : 3,550,823
28 : 3,550,824
29 : 3,550,825
225— 3 : 3,550,826
226— 25 : 3,550,827
30 : 3,550,828
110 : 3,550,829
180 : 3,550,830
227—136 : 3,550,831
229— 1.5 : 3,550,832
5.6 : 3,550,840
17 : 3,550,833
22 : 3,550,834
31 : 3,550,835
44 : 3,550,836
45 : 3,550,837
54 : 3,550,838
55 : 3,550,839
71 : 3,550,841
87 : 3,550,842
233— 20 : 3,550,843
234—128 : 3,550,844
235— 6 : 3,550,845
88 : 3,551,647
92 : 3,551,648
3,551,649
3,551,650
417 : 3,550,958
3,551,651
3,551,652
3,551,653
137 : 3,550,846
150.24: 3,551,654
.53: 3,551,655
151.11: 3,551,656
.33: 3,551,657
.35: 3,551,658
153 : 3,551,659
155 : 3,551,660
3,551,661
158 : 3,551,662
159 : 3,551,663
164 : 3,551,664
175 : 3,551,665
179 : 3,551,666
201 : 3,550,847
236— 15 : 3,550,848
20 : 3,550,849
238—115 : 3,550,850
349 : 3,550,851
239— 15 : 3,550,852
44 : 3,550,853
155 : 3,550,854
265.29: 3,550,855
288 : 3,550,857
338 : 3,550,858
468 : 3,550,859
491 : 3,550,860
546 : 3,550,861
557 : 3,550,862
562 : 3,550,863
601 : 3,550,864
670 : 3,550,865
677 : 3,550,866
240— 3 : 3,551,667
61.1 : 3,551,668
73 : 3,551,669
241— 3 : 3,550,867
5 : 3,550,868
20 : 3,550,869
215 : 3,550,870
242— 18 : 3,550,871
55.19: 3,550,872
72 : 3,550,873
84.2 : 3,550,874
107.4 : 3,550,875
129.8 : 3,550,876
180 : 3,550,877
184 : 3,550,878
192 : 3,550,879
3,550,880
3,550,881
197 : 3,550,882
244— 17.11: 3,550,883
77 : 3,550,884
138 : 3,550,885

248— 56 : 3,550,886
113 : 3,550,887
117.2 : 3,550,888
176 : 3,550,889
205 : 3,550,890
242 : 3,550,891
282 : 3,550,892
309 : 3,550,893
316 : 3,550,894
459 : 3,550,895
473 : 3,550,896
249— 178 : 3,550,897
195 : 3,550,898
250— 43.5 : 3,551,670
3,551,672
49.5 : 3,551,671
69 : 3,551,673
83 : 3,551,674
.1 : 3,551,675
.3 : 3,551,676
3,551,678
93 : 3,551,677
199 : 3,551,679
203 : 3,551,680
209 : 3,551,681
214 : 3,551,682
221 : 3,551,683
239 : 3,551,684
251— 5 : 3,550,899
9 : 3,550,900
38 : 3,550,901
151 : 3,550,902
158 : 3,550,903
298 : 3,550,904
306 : 3,550,905
3,550,906
252— 8.55: 3,551,334
34.7 : 3,551,335
59 : 3,551,336
62.1 : 3,551,337
99 : 3,551,338
152 : 3,551,339
156 : 3,551,340
188.3 : 3,551,341
3,551,342
3,551,343
300 : 3,551,344
301.2 : 3,551,345
316 : 3,551,346
373 : 3,551,347
388 : 3,551,348
392 : 3,551,349
408 : 3,551,350
415 : 3,551,351
439 : 3,551,352
455 : 3,551,353
466 : 3,551,354
514 : 3,551,355
518 : 3,551,356
254— 1 : 3,550,907
8 : 3,550,908
30 : 3,550,909
190 : 3,550,910
256— 7 : 3,550,911
259— 4 : 3,550,912
8 : 3,550,913
104 : 3,550,914
110 : 3,550,915
260— 2.1 : 3,551,357
.2 : 3,551,358
.5 : 3,551,359
3,551,360
3,551,361
3,551,362
3,551,363
3,551,364
17.2 : 3,551,365
.4 : 3,551,366
20 : 3,551,367
23 : 3,551,368
.3 : 3,551,369
.7 : 3,551,370
27 : 3,551,371
28.5 : 3,551,372
29.6 : 3,551,374
31.2 : 3,551,375
32.8 : 3,551,376
37 : 3,551,377
40 : 3,551,378
41 : 3,551,379
45.7 : 3,551,380
.9 : 3,551,381
46.5 : 3,551,382
63 : 3,551,384
3,551,385
75 : 3,551,386
3,551,387
77.5 : 3,551,388
78 : 3,551,383
.4 : 3,551,389
3,551,392
.5 : 3,551,390
3,551,391
79.3 : 3,551,373
3,551,393
80.7 : 3,551,394

260— 80.78: 3,551,395
85.7 : 3,551,396
86.7 : 3,551,397
87.5 : 3,551,398
92.8 : 3,551,399
3,551,400
93.7 : 3,551,401
94.7 : 3,551,402
.9 : 3,551,403
97.6 : 3,551,404
124 : 3,551,405
147 : 3,551,406
152 : 3,551,407
210 : 3,551,408
211.5 : 3,551,409
212 : 3,551,410
239 : 3,551,411
.3 : 3,551,412
3,551,413
3,551,414
3,551,415
240 : 3,551,416
243 : 3,551,417
246 : 3,551,418
247.2 : 3,551,419
.5 : 3,551,420
249.8 : 3,551,421
.9 : 3,551,422
251 : 3,551,423
3,551,424
3,551,425
3,551,426
3,551,427
256.5 : 3,551,428
260 : 3,551,429
287 : 3,551,430
293 : 3,551,431
294.3 : 3,551,432
3,551,433
.8 : 3,551,434
3,551,435
3,551,436
296 : 3,551,437
297 : 3,551,438
299 : 3,551,439
302 : 3,551,440
305 : 3,551,441
306.8 : 3,551,442
307 : 3,551,443
309 : 3,551,444
325 : 3,551,445
326.11: 3,551,450
.13: 3,551,446
.16: 3,551,451
.3 : 3,551,447
3,551,448
3,551,449
327 : 3,551,452
3,551,453
343.2 : 3,551,454
3,551,455
345.2 : 3,551,456
.5 : 3,551,457
346.2 : 3,551,458
397.4 : 3,551,459
401 : 3,551,460
403 : 3,551,461
404 : 3,551,462
410 : 3,551,463
.6 : 3,551,464
.9 : 3,551,465
429 : 3,551,466
439 : 3,551,467
453 : 3,551,468
3,551,469
465.3 : 3,551,470
.4 : 3,551,471
3,551,472
.5 : 3,551,473
.9 : 3,551,474
468 : 3,551,475
471 : 3,551,476
472 : 3,551,477
3,551,478
485 : 3,551,479
501.19: 3,551,480
524 : 3,551,481
533 : 3,551,482
543 : 3,551,483
558 : 3,551,484
563 : 3,551,485
3,551,486
3,551,487
3,551,488
564 : 3,551,489
3,551,490
570.7 : 3,551,491

260— 570.7 : 3,551,492
3,551,493
576 : 3,551,494
583 : 3,551,495
3,551,496
590 : 3,551,498
592 : 3,551,497
607 : 3,551,499
3,551,500
3,551,501
612 : 3,551,502
622 : 3,551,503
632 : 3,551,504
652.5 : 3,551,505
656 : 3,551,506
666.5 : 3,551,507
670 : 3,551,508
672 : 3,551,509
3,551,510
674 : 3,551,511
679 : 3,551,512
683 : 3,551,513
.48: 3,551,515
.59: 3,551,514
.68: 3,551,516
834 : 3,551,517
836 : 3,551,518
3,551,519
861 : 3,551,520
873 : 3,551,521
878 : 3,551,522
880 : 3,551,523
3,551,524
881 : 3,551,525
897 : 3,551,526
927 : 3,551,527
928 : 3,551,528
944 : 3,551,529
967 : 3,551,530
261—114 : 3,550,916
121 : 3,550,917
263— 19 : 3,550,918
20 : 3,550,919
21 : 3,550,920
53 : 3,550,921
264— 3 : 3,551,531
11 : 3,551,532
14 : 3,551,533
16 : 3,551,534
28 : 3,551,535
3,551,536
33 : 3,551,537
49 : 3,551,538
85 : 3,551,539
89 : 3,551,540
102 : 3,551,541
166 : 3,551,542
167 : 3,551,543
175 : 3,551,544
176 : 3,551,545
178 : 3,551,546
182 : 3,551,547
234 : 3,551,548
290 : 3,551,549
3,551,550
311 : 3,551,551
331 : 3,551,552
338 : 3,551,553
266— 3 : 3,550,922
34 : 3,550,923
3,550,924
37 : 3,550,925
267—107 : 3,550,926
110 : 3,550,927
156 : 3,550,928
175 : 3,550,929
270— 20 : 3,550,930
61 : 3,550,931
271— 26 : 3,550,932
52 : 3,550,933
68 : 3,550,934
76 : 3,550,935
272— 8 : 3,550,936
273— 1.5 : 3,550,937
26 : 3,550,938
54 : 3,550,939
65 : 3,550,940
102.2 : 3,550,941
119 : 3,550,942
131 : 3,550,943
149 : 3,550,944
157 : 3,550,945
186 : 3,550,946
274— 4 : 3,550,983
3,550,984
3,550,985
15 : 3,550,986

277— 10 : 3,550,987
63 : 3,550,988
96 : 3,550,989
205 : 3,550,990
212 : 3,550,991
280— 6 : 3,550,992
3,550,993
.11: 3,550,994
7.11: 3,550,995
11.35: 3,550,996
30 : 3,550,997
31 : 3,550,998
47.19: 3,550,999
.32: 3,551,000
.34: 3,551,001
150 : 3,551,002
261 : 3,551,003
281 : 3,551,004
285 —10 : 3,551,005
16 : 3,551,006
156 : 3,551,007
177 : 3,551,008
226 : 3,551,009
3,551,010
287— 53.5 : 3,551,011
103 : 3,551,012
119 : 3,551,013
189.36: 3,551,014
3,551,015
290— 14 : 3,551,685
38 : 3,551,686
294— 25 : 3,551,016
296— 23 : 3,550,947
28 : 3,550,948
69 : 3,550,949
137 : 3,550,950
152 : 3,550,951
297— 85 : 3,550,952
312 : 3,550,953
374 : 3,550,954
385 : 3,550,955
3,550,956
386 : 3,550,957
417 : 3,550,958
299— 1 : 3,550,959
67 : 3,550,960
71 : 3,550,961
82 : 3,550,962
300— 21 : 3,550,963
302— 2 : 3,550,964
37 : 3,550,965
303— 21 : 3,550,966
305— 27 : 3,550,967
54 : 3,550,968
306— 1.5 : 3,550,969
307— 10 : 3,551,687
11 : 3,551,688
38 : 3,551,689
88.3 : 3,551,690
120 : 3,551,691
205 : 3,551,692
3,551,693
229 : 3,551,694
235 : 3,551,695
3,551,696
3,551,697
238 : 3,551,698
246 : 3,551,699
252 : 3,551,700
3,551,701
254 : 3,551,703
265 : 3,551,704
293 : 3,551,705
309 : 3,551,706
317 : 3,551,707
308— 8.2 : 3,550,972
36.1 : 3,550,970
76 : 3,550,971
160 : 3,550,973
187.2 : 3,550,974
237 : 3,550,975
310— 4 : 3,551,708
3,551,709
10 : 3,551,710
43 : 3,551,711
67 : 3,551,712
71 : 3,551,713
87 : 3,551,714
179 : 3,551,715
234 : 3,551,716
312— 28 : 3,550,976
31 : 3,550,977
108 : 3,550,978
183 : 3,550,979
186 : 3,550,980

312—198 : 3,550,981
302 : 3,550,982
313— 46 : 3,551,717
64 : 3,551,718
110 : 3,551,719
182 : 3,551,720
204 : 3,551,721
222 : 3,551,722
250 : 3,551,723
278 : 3,551,724
318 : 3,551,725
337 : 3,551,726
346 : 3,551,727
315— 3.5 : 3,551,728
3,551,729
10 : 3,551,730
12 : 3,551,731
18 : 3,551,732
22 : 3,551,733
31 : 3,551,734
39.3 : 3,551,735
100 : 3,551,736
111 : 3,551,737
171 : 3,551,738
200 : 3,551,739
209 : 3,551,741
248 : 3,551,742
317— 2 : 3,551,743
16 : 3,551,744
3,551,745
26 : 3,551,746
33 : 3,551,747
47 : 3,551,748
48 : 3,551,749
101 : 3,551,750
123 : 3,551,751
138 : 3,551,752
146 : 3,551,753
155.5 : 3,551,754
230 : 3,551,755
3,551,756
234 : 3,551,757
3,551,758
3,551,759
235 : 3,551,760
3,551,761
236 : 3,551,762
237 : 3,551,763
318—116 : 3,551,764
138 : 3,551,765
179 : 3,551,766
197 : 3,551,767
203 : 3,551,740
245 : 3,551,768
285 : 3,551,769
302 : 3,551,771
308 : 3,551,772
341 : 3,551,773
3,551,774
434 : 3,551,775
564 : 3,551,776
597 : 3,551,770
321— 2 : 3,551,777
5 : 3,551,778
3,551,779
10 : 3,551,780
11 : 3,551,781
13 : 3,551,782
14 : 3,551,783
322— 90 : 3,551,784
323— 4 : 3,551,785
8 : 3,551,799
22 : 3,551,786
3,551,787
3,551,788
43.5 : 3,551,789
51 : 3,551,790
80 : 3,551,791
324— .5 : 3,551,792
3,551,793
3,551,794
3 : 3,551,795
6 : 3,551,797
3,551,798
15 : 3,551,800
29 : 3,551,801
30 : 3,551,802
51 : 3,551,796
3,551,803
52 : 3,551,804
58.5 : 3,551,805
3,551,806
72.5 : 3,551,807
83 : 3,551,808
99 : 3,551,809
137 : 3,551,810

324—151 : 3,551,812
173 : 3,551,811
325— 4 : 3,551,813
38 : 3,551,814
55 : 3,551,815
321 : 3,551,816
346 : 3,551,817
374 : 3,551,818
461 : 3,551,819
465 : 3,551,820
328— 8 : 3,551,821
62 : 3,551,822
119 : 3,551,823
147 : 3,551,824
155 : 3,551,825
160 : 3,551,826
206 : 3,551,827
233 : 3,551,828
329—122 : 3,551,829
330— 5 : 3,551,831
17 : 3,551,832
22 : 3,551,833
27 : 3,551,835
29 : 3,551,834
30 : 3,551,836
61 : 3,551,838
99 : 3,551,839
331— 94.5 : 3,551,840
3,551,841
3,551,842
3,551,843
355— 4 : 3,551,844
107 : 3,551,844
113 : 3,551,845
117 : 3,551,846
143 : 3,551,847
332— 7.51: 3,551,848
9 : 3,551,849
3,551,851
44 : 3,551,850
333— 1.1 : 3,551,852
3,551,853
3,551,854
28 : 3,551,857
30 : 3,551,837
33 : 3,551,855
35 : 3,551,856
70 : 3,551,857
79 : 3,551,858
335—128 : 3,551,859
151 : 3,551,860
216 : 3,551,861
260 : 3,551,862
336— 58 : 3,551,863
83 : 3,551,864
130 : 3,551,865
132 : 3,551,866
337— 63 : 3,551,867
96 : 3,551,868
201 : 3,551,869
338— 15 : 3,551,870
122 : 3,551,871
202 : 3,551,872
253 : 3,551,873
339— 17 : 3,551,874
19 : 3,551,875
21 : 3,551,876
75 : 3,551,878
3,551,879
89 : 3,551,880
112 : 3,551,881
177 : 3,551,882
223 : 3,551,883
276 : 3,550,856
340— 23 : 3,551,884
146.1 : 3,551,885
3,551,886
166 : 3,551,888
171 : 3,551,889
3,551,890
172.5 : 3,551,891
3,551,892
3,551,893
3,551,894
3,551,895
3,551,896
274 : 3,551,571
278 : 3,551,572
304 : 3,551,573
311 : 3,551,574
316 : 3,551,575
319 : 3,551,576
321 : 3,551,577
431— 66 : 3,551,083
3,551,084
198 : 3,551,905
224 : 3,551,906

340—227.1 : 3,551,907
228.1 : 3,551,908
350— 1 : 3,551,017
3.5 : 3,551,018
18 : 3,551,019
67 : 3,551,020
69 : 3,551,021
85 : 3,551,022
95 : 3,551,023
99 : 3,551,024
105 : 3,551,025
150 : 3,551,026
155 : 3,551,027
160 : 3,551,028
182 : 3,551,029
196 : 3,551,030
214 : 3,551,031
301 : 3,551,032
315 : 3,551,033
321 : 3,551,034
351—160 : 3,551,035
352— 60 : 3,551,036
72 : 3,551,037
3,551,038
126 : 3,551,039
159 : 3,551,040
353— 6 : 3,551,041
30 : 3,551,042
37 : 3,551,043
94 : 3,551,044
116 : 3,551,045
355— 4 : 3,551,046
59 : 3,551,047
73 : 3,551,048
107 : 3,551,049
356— 4 : 3,551,050
51 : 3,551,051
3,551,052
85 : 3,551,053
106 : 3,551,054
108 : 3,551,055
3,551,056
172 : 3,551,057
177 : 3,551,058
226 : 3,551,059
239 : 3,551,060
241 : 3,551,061
246 : 3,551,062
3,551,063
401— 96 : 3,551,064
206 : 3,551,065
415— 40 : 3,551,066
134 : 3,551,067
173 : 3,551,068
416— 27 : 3,551,069
91 : 3,551,070
417— 43 : 3,551,071
45 : 3,551,072
76 : 3,551,073
172 : 3,551,074
182 : 3,551,075
385 : 3,551,076
415 : 3,551,077
436 : 3,551,078
418— 39 : 3,551,079
171 : 3,551,081
424— 7 : 3,551,554
12 : 3,551,555
21 : 3,551,556
28 : 3,551,557
46 : 3,551,558
49 : 3,551,559
95 : 3,551,560
119 : 3,551,561
200 : 3,551,562
222 : 3,551,563
229 : 3,551,564
248 : 3,551,565
263 : 3,551,566
3,551,567
267 : 3,551,568
271 : 3,551,569
273 : 3,551,570

D 1– 1	219,569	D14– 3	219,581	D26– 14	219,593	D34– 5	219,604	D45– 4	219,615	D71– 1	219,626
D 2–325	219,570		219,582		219,594		219,605		219,616		219,627
D 4– 7	219,571	D15– 1	219,583		219,595		219,606	D52– 7	219,617	D74– 1	219,628
D 8– 60	219,572	8	219,584		219,596	15	219,607	D54– 1	219,619	D81– 10	219,629
230	219,573	D18– 2	219,585	15	219,597		219,608	D56– 1	219,618	D83– 1	219,630
232	219,574	D22– 8	219,586	D33– 28	219,598	D35– 1	219,609		219,620	8	219,631
D 9–220	219,575	D23– 49	219,587		219,599	D42– 7	219,610	4	219,621	D87– 3	219,632
224	219,576	155	219,588	D34– 5	219,600	D44– 1	219,611		219,622	D90– 17	219,633
D13– 1	219,577	D26– 5	219,589		219,601	15	219,613	D57– 1	219,623	20	219,634
	219,578	10	219,590		219,602		219,614	D61– 1	219,624		219,635
	219,579	14	219,591		219,603	26	219,612	D64– 11	219,625	D95– 3	219,636
	219,580		219,592								

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

v 3,550,213	6 : 3,553,466	6 : 3,550,861	6 : 3,551,584	9 : 3,550,657	12 : 3,550,828
3,550,278	3,550,484	3,550,869	3,551,601	3,550,705	3,550,905
3,550,407	3,550,485	3,550,875	3,551,605	3,550,765	3,550,906
3,550,440	3,550,489	3,550,882	3,551,609	3,550,768	3,550,940
3,550,501	3,550,496	3,550,899	3,551,630	3,550,813	3,551,163
3,550,701	3,550,498	3,550,901	3,551,637	3,550,858	3,551,228
3,551,224	3,550,519	3,550,902	3,551,647	3,550,930	3,551,268
3,551,225	3,550,534	3,550,903	3,551,661	3,550,974	3,551,332
3,551,226	3,550,535	3,550,919	3,551,675	3,551,035	3,551,404
3,551,662	3,550,540	3,550,941	3,551,680	3,551,042	3,551,516
3,551,719	3,550,549	3,550,946	3,551,685	3,551,073	3,551,548
3,551,720	3,550,573	3,550,969	3,551,688	3,551,100	3,551,655
3,551,796	3,550,580	3,550,984	3,551,700	3,551,214	3,551,666
3,551,843	3,550,585	3,550,999	3,551,708	3,551,306	3,551,867
4 : 3,550,260	3,550,594	3,551,001	3,551,713	3,551,489	3,551,884
3,550,303	3,550,607	3,551,003	3,551,727	3,551,524	3,551,898
3,550,447	3,550,610	3,551,012	3,551,737	3,551,615	13 : 3,550,188
3,550,811	3,550,614	3,551,022	3,551,764	3,551,681	3,550,321
3,551,663	3,550,616	3,551,033	3,551,779	3,551,724	3,550,341
3,551,695	3,550,623	3,551,053	3,551,793	3,551,825	3,550,655
3,551,698	3,550,624	3,551,057	3,551,814	3,551,859	3,550,753
3,551,832	3,550,636	3,551,074	3,551,817	3,551,908	3,550,827
5 : 3,550,167	3,550,654	3,551,084	3,551,828	10 : 3,550,257	3,551,267
3,550,490	3,550,658	3,551,090	3,551,829	3,550,497	3,551,640
3,550,853	3,550,668	3,551,091	3,551,831	3,550,602	16 : 3,550,790
6 : 3,550,163	3,550,677	3,551,104	3,551,837	3,550,757	17 : 3,550,185
3,550,166	3,550,687	3,551,106	3,551,846	3,551,007	3,550,190
3,550,179	3,550,691	3,551,108	3,551,861	3,551,120	3,550,191
3,550,186	3,550,692	3,551,119	3,551,863	3,551,189	3,550,197
3,550,187	3,550,714	3,551,175	3,551,875	3,551,231	3,550,204
3,550,232	3,550,718	3,551,176	3,551,897	3,551,331	3,550,236
3,550,235	3,550,729	3,551,187	3,551,904	3,551,473	3,550,249
3,550,238	3,550,738	3,551,200	8 : 3,550,661	3,551,474	3,550,250
3,550,252	3,550,743	3,551,222	3,550,744	3,551,503	3,550,293
3,550,254	3,550,752	3,551,223	3,550,878	3,551,521	3,550,298
3,550,256	3,550,755	3,551,237	3,550,904	11 : 3,550,771	3,550,307
3,550,272	3,550,766	3,551,254	3,550,954	3,550,964	3,550,318
3,550,276	3,550,772	3,551,273	3,551,201	3,551,266	3,550,326
3,550,283	3,550,775	3,551,295	3,551,240	3,551,816	3,550,348
3,550,312	3,550,780	3,551,296	3,551,322	12 : 3,550,164	3,550,355
3,550,316	3,550,782	3,551,318	3,551,847	3,550,261	3,550,451
3,550,317	3,550,783	3,551,326	9 : 3,550,255	3,550,332	3,550,478
3,550,333	3,550,791	3,551,334	3,550,273	3,550,393	3,550,500
3,550,338	3,550,794	3,551,346	3,550,285	3,550,550	3,550,509
3,550,366	3,550,802	3,551,355	3,550,413	3,550,581	3,550,516
3,550,411	3,550,807	3,551,392	3,550,421	3,550,604	3,550,517
3,550,420	3,550,818	3,551,469	3,550,499	3,550,612	3,550,531
3,550,431	3,550,826	3,551,536	3,550,544	3,550,709	3,550,533
3,550,444	3,550,842	3,551,537	3,550,626	3,550,769	3,550,552
3,550,460	3,550,848	3,551,580	3,550,649	3,550,778	3,550,575

17 : 3,550,590
3,550,606
3,550,617
3,550,621
3,550,628
3,550,633
3,550,646
3,550,647
3,550,662
3,550,664
3,550,722
3,550,741
3,550,776
3,550,789
3,550,816
3,550,817
3,550,825
3,550,831
3,550,834
3,550,840
3,550,845
3,550,866
3,550,891
3,550,897
3,550,900
3,550,995
3,551,004
3,551,083
3,551,094
3,551,168
3,551,203
3,551,285
3,551,293
3,551,300
3,551,323
3,551,325
3,551,393
3,551,417
3,551,441
3,551,456
3,551,464
3,551,504
3,551,509
3,551,510
3,551,514
3,551,535
3,551,544
3,551,563
3,551,579
3,551,595
3,551,603
3,551,608
3,551,614
3,551,648
3,551,690
3,551,701
3,551,703
3,551,711
3,551,743
3,551,781
3,551,821
3,551,833
3,551,886
18 : 3,550,169
3,550,237
3,550,267
3,550,294
3,550,302
3,550,404
3,550,470
3,550,473
3,550,629
3,550,760
3,550,761
3,550,847
3,550,896
3,550,985
3,551,206
3,551,210
3,551,542
3,551,744
3,551,819
19 : 3,550,170
3,550,171
3,550,343
3,550,793
3,550,951
3,550,958
3,551,702
20 : 3,550,510
3,550,723
3,550,841
3,551,242
3,551,248
21 : 3,550,663
3,550,926
3,551,508
3,551,735
22 : 3,550,160
3,550,225
3,550,356
3,550,384
3,550,542
3,550,683
3,550,800
3,550,809

22 : 3,551,215
3,551,638
23 : 3,550,895
3,550,967
24 : 3,550,209
3,550,210
3,550,313
3,550,388
3,550,439
3,550,459
3,550,491
3,550,559
3,550,634
3,550,854
3,550,885
3,550,889
3,550,976
3,551,043
3,551,099
3,551,302
3,551,433
3,551,468
3,551,531
3,551,611
3,551,612
3,551,613
3,551,856
25 : 3,550,161
3,550,162
3,550,218
3,550,219
3,550,220
3,550,258
3,550,305
3,550,405
3,550,418
3,550,432
3,550,476
3,550,477
3,550,493
3,550,513
3,550,515
3,550,554
3,550,642
3,550,643
3,550,644
3,550,767
3,550,773
3,550,810
3,550,857
3,550,863
3,550,864
3,550,893
3,550,932
3,550,977
3,550,991
3,551,009
3,551,024
3,551,027
3,551,028
3,551,031
3,551,070
3,551,122
3,551,136
3,551,147
3,551,149
3,551,204
3,551,247
3,551,291
3,551,319
3,551,345
3,551,364
3,551,368
3,551,370
3,551,406
3,551,523
3,551,587
3,551,590
3,551,592
3,551,621
3,551,643
3,551,665
3,551,679
3,551,747
3,551,785
3,551,808
3,551,885
3,551,889
3,551,900
26 : 3,550,201
3,550,328
3,550,353
3,550,396
3,550,442
3,550,456
3,550,468
3,550,479
3,550,504
3,550,523
3,550,548
3,550,551
3,550,627
3,550,631
3,550,632
3,550,653
3,550,660

26 : 3,550,710
3,550,730
3,550,736
3,550,763
3,550,764
3,550,774
3,550,784
3,550,808
3,550,892
3,550,908
3,550,927
3,550,947
3,550,948
3,550,950
3,550,955
3,550,957
3,550,979
3,551,002
3,551,194
3,551,165
3,551,177
3,551,178
3,551,294
3,551,301
3,551,340
3,551,341
3,551,342
3,551,343
3,551,344
3,551,420
3,551,424
3,551,449
3,551,451
3,551,497
3,551,529
3,551,562
3,551,581
3,551,712
27 : 3,550,221
3,550,304
3,550,331
3,550,458
3,550,568
3,550,716
3,550,742
3,550,806
3,550,943
3,550,990
3,551,025
3,551,030
3,551,039
3,551,081
3,551,244
3,551,249
3,551,367
3,551,457
3,551,699
3,551,824
28 : 3,550,563
3,550,952
29 : 3,550,344
3,550,449
3,550,537
3,550,538
3,550,582
3,551,079
3,551,132
3,551,314
3,551,418
3,551,495
3,551,573
3,551,804
3,551,839
30 : 3,550,596
3,550,689
31 : 3,550,567
3,550,622
32 : 3,550,613
3,550,635
33 : 3,550,172
3,550,175
3,550,230
3,550,505
3,550,786
3,551,812
3,551,835
34 : 3,550,203
3,550,216
3,550,295
3,550,315
3,550,324
3,550,412
3,550,495
3,550,502
3,550,532
3,550,558
3,550,619
3,550,637
3,550,672
3,550,698
3,550,704
3,550,731
3,550,754
3,550,777
3,550,801
3,550,814

34 : 3,550,833
3,550,836
3,550,886
3,550,909
3,550,917
3,550,935
3,550,963
3,550,965
3,550,980
3,551,006
3,551,015
3,551,023
3,551,065
3,551,096
3,551,115
3,551,123
3,551,129
3,551,162
3,551,194
3,551,199
3,551,205
3,551,207
3,551,213
3,551,217
3,551,219
3,551,286
3,551,299
3,551,311
3,551,312
3,551,336
3,551,353
3,551,365
3,551,389
3,551,391
3,551,411
3,551,413
3,551,415
3,551,426
3,551,430
3,551,432
3,551,436
3,551,437
3,551,444
3,551,445
3,551,450
3,551,454
3,551,455
3,551,466
3,551,476
3,551,486
3,551,487
3,551,488
3,551,490
3,551,492
3,551,496
3,551,498
3,551,506
3,551,532
3,551,533
3,551,552
3,551,559
3,551,561
3,551,567
3,551,568
3,551,586
3,551,594
3,551,596
3,551,604
3,551,641
3,551,652
3,551,658
3,551,689
3,551,693
3,551,696
3,551,697
3,551,704
3,551,709
3,551,710
3,551,721
3,551,725
3,551,736
3,551,738
3,551,753
3,551,763
3,551,783
3,551,787
3,551,840
3,551,842
3,551,844
3,551,855
3,551,870
3,551,872
3,551,903
35 : 3,550,820
36 : 3,550,176
3,550,265
3,550,270
3,550,279
3,550,296
3,550,299
3,550,308
3,550,311
3,550,320
3,550,322
3,550,325
3,550,340

36 : 3,550,349
3,550,352
3,550,380
3,550,391
3,550,395
3,550,409
3,550,426
3,550,433
3,550,461
3,550,462
3,550,471
3,550,488
3,550,492
3,550,514
3,550,528
3,550,543
3,550,555
3,550,556
3,550,564
3,550,586
3,550,589
3,550,593
3,550,601
3,550,605
3,550,630
3,550,645
3,550,737
3,550,779
3,550,805
3,550,821
3,550,838
3,550,839
3,550,872
3,550,877
3,550,879
3,550,880
3,550,881
3,550,894
3,550,910
3,550,934
3,550,945
3,550,989
3,551,021
3,551,038
3,551,041
3,551,044
3,551,045
3,551,046
3,551,048
3,551,055
3,551,058
3,551,062
3,551,063
3,551,064
3,551,076
3,551,095
3,551,109
3,551,116
3,551,127
3,551,145
3,551,146
3,551,150
3,551,151
3,551,152
3,551,153
3,551,157
3,551,160
3,551,161
3,551,172
3,551,196
3,551,202
3,551,208
3,551,227
3,551,234
3,551,235
3,551,246
3,551,264
3,551,270
3,551,298
3,551,304
3,551,313
3,551,317
3,551,320
3,551,328
3,551,335
3,551,337
3,551,338
3,551,350
3,551,371
3,551,387
3,551,410
3,551,422
3,551,447
3,551,483
3,551,494
3,551,501
3,551,512
3,551,546
3,551,565
3,551,571
3,551,589
3,551,593
3,551,600
3,551,616
3,551,642
3,551,645

36 : 3,551,649
3,551,654
3,551,659
3,551,673
3,551,678
3,551,705
3,551,718
3,551,745
3,551,754
3,551,761
3,551,775
3,551,776
3,551,780
3,551,788
3,551,795
3,551,800
3,551,807
3,551,822
3,551,836
3,551,841
3,551,848
3,551,858
3,551,864
3,551,866
3,551,887
3,551,892
3,551,894
3,551,895
3,551,896
3,551,901
3,551,902
3,551,906
37 : 3,550,357
3,550,403
3,550,526
3,550,574
3,550,938
3,551,088
3,551,256
3,551,263
3,551,385
3,551,386
3,551,547
3,551,549
3,551,756
3,551,810
39 : Re.27,014
Re.27,017
3,550,177
3,550,181
3,550,183
3,550,206
3,550,227
3,550,242
3,550,246
3,550,287
3,550,288
3,550,297
3,550,342
3,550,364
3,550,379
3,550,381
3,550,417
3,550,419
3,550,422
3,550,434
3,550,469
3,550,539
3,550,546
3,550,598
3,550,609
3,550,638
3,550,648
3,550,667
3,550,670
3,550,678
3,550,717
3,550,724
3,550,740
3,550,747
3,550,756
3,550,788
3,550,819
3,550,832
3,550,874
3,550,890
3,550,914
3,550,939
3,550,987
3,550,988
3,551,067
3,551,105
3,551,130
3,551,131
3,551,133
3,551,171
3,551,180
3,551,185
3,551,211
3,551,232
3,551,241
3,551,250
3,551,252
3,551,253
3,551,258
3,551,265

39 : 3,551,274
3,551,275
3,551,276
3,551,282
3,551,283
3,551,339
3,551,348
3,551,470
3,551,471
3,551,472
3,551,530
3,551,539
3,551,553
3,551,599
3,551,667
3,551,672
3,551,676
3,551,692
3,551,706
3,551,722
3,551,731
3,551,740
3,551,752
3,551,789
3,551,818
3,551,869
40 : 3,550,200
3,550,212
3,550,385
3,550,578
3,550,618
3,550,685
3,550,686
3,550,781
3,550,975
3,551,102
3,551,192
3,551,307
3,551,361
3,551,463
3,551,515
3,551,522
3,551,714
3,551,890
41 : 3,550,713
3,550,822
3,551,190
3,551,677
3,551,726
3,551,733
3,551,786
42 : 3,550,198

42 : 3,550,202
3,550,205
3,550,207
3,550,239
3,550,240
3,550,241
3,550,244
3,550,248
3,550,263
3,550,274
3,550,323
3,550,347
3,550,358
3,550,359
3,550,363
3,550,367
3,550,390
3,550,414
3,550,415
3,550,428
3,550,436
3,550,453
3,550,457
3,550,463
3,550,506
3,550,522
3,550,524
3,550,529
3,550,536
3,550,541
3,550,545
3,550,562
3,550,595
3,550,652
3,550,671
3,550,674
3,550,676
3,550,680
3,550,785
3,550,792
3,550,798
3,550,804
3,550,856
3,550,868
3,550,887
3,550,888
3,550,921
3,550,923
3,550,924
3,550,961
3,550,962

42 : 3,550,978
3,550,982
3,550,998
3,551,026
3,551,052
3,551,068
3,551,093
3,551,111
3,551,114
3,551,121
3,551,137
3,551,167
3,551,169
3,551,179
3,551,182
3,551,183
3,551,184
3,551,188
3,551,191
3,551,197
3,551,209
3,551,236
3,551,262
3,551,289
3,551,297
3,551,352
3,551,356
3,551,360
3,551,378
3,551,381
3,551,383
3,551,384
3,551,414
3,551,435
3,551,459
3,551,461
3,551,465
3,551,479
3,551,484
3,551,517
3,551,528
3,551,576
3,551,597
3,551,623
3,551,624
3,551,625
3,551,626
3,551,664
3,551,729
3,551,734
3,551,746

42 : 3,551,750
3,551,758
3,551,769
3,551,773
3,551,802
3,551,820
3,551,845
3,551,851
3,551,865
3,551,874
3,551,876
3,551,877
3,551,878
3,551,880
3,551,881
3,551,882
43 : 3,550,361
44 : 3,550,168
3,550,494
3,550,735
3,550,871
3,551,269
3,551,826
45 : 3,550,350
3,550,365
3,550,883
3,551,534
46 : 3,550,690
3,550,749
3,550,259
47 : 3,550,369
3,550,455
3,550,748
3,551,606
3,551,646
3,551,830
48 : 3,550,173
3,550,195
3,550,284
3,550,314
3,550,319
3,550,392
3,550,429
3,550,445
3,550,570
3,550,682
3,550,684
3,550,695
3,550,696
3,550,699
3,550,700

48 : 3,550,719
3,550,720
3,550,727
3,550,823
3,550,849
3,550,859
3,550,960
3,550,981
3,551,008
3,551,011
3,551,051
3,551,069
3,551,071
3,551,113
3,551,164
3,551,324
3,551,333
3,551,620
3,551,636
3,551,770
3,551,797
3,551,801
3,551,803
3,551,868
49 : 3,550,448
3,550,481
3,550,577
3,550,584
3,550,591
3,551,032
3,551,128
3,551,230
50 : 3,550,223
3,550,837
3,551,056
3,551,061
51 : 3,550,215
3,550,508
3,550,625
3,550,726
3,550,956
3,551,016
3,551,670
3,551,730
3,551,850
3,551,879
53 : 3,550,290
3,550,291
3,550,486
3,550,855
3,550,972

53 : 3,550,997
3,551,000
3,551,272
3,551,309
3,551,554
54 : 3,550,165
3,550,336
3,550,679
3,551,475
55 : Re.27,016
3,550,182
3,550,268
3,550,271
3,550,280
3,550,306
3,550,335
3,550,337
3,550,387
3,550,394
3,550,410
3,550,472
3,550,482
3,550,487
3,550,507
3,550,553
3,550,560
3,550,572
3,550,592
3,550,673
3,550,681
3,550,706
3,550,707
3,550,715
3,550,739
3,550,797
3,550,824
3,550,925
3,550,944
3,551,072
3,551,077
3,551,089
3,551,627
3,551,656
3,551,684
3,551,748
3,551,771
3,551,774
3,551,782
3,551,794
3,551,873
3,551,907

Design Patents

6 : 219,576
219,577
219,582
219,584
219,589
219,591
219,596
219,607
219,610
219,623

6 : 219,625
12 : 219,574
219,627
13 : 219,581
17 : 219,585
219,594
219,595
219,619
219,629
219,636

18 : 219,618
219,620
219,631
24 : 219,590
219,612
219,613
219,614
25 : 219,569
219,571
219,583

25 : 219,615
219,616
26 : 219,579
219,601
219,602
219,603
219,604
219,605
27 : 219,628
31 : 219,609

33 : 219,597
34 : 219,580
35 : 219,578
36 : 219,572
219,586
219,588
219,593
49 : 219,617
219,622
219,624

36 : 219,626
219,632
219,635
42 : 219,600
219,606
219,608
44 : 219,611
49 : 219,587
219,592
53 : 219,575

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

U.S. DEPARTMENT OF COMMERCE

Official Gazette of the United States Patent Office

December 29, 1970 Volume 881 Number 5

TRADEMARKS

NOTICES

Changes in Legal Holidays

Those doing business before the Patent Office are hereby reminded that by Public Law 90—363, 82 Stat. 250, effective January 1, 1971, Section 6103(a) of Title 5, United States Code, was amended to read as follows:

§ 6103. *Holidays*

(a) The following are legal public holidays:
New Year's Day, January 1.
Washington's Birthday, the third Monday in February.
Memorial Day, the last Monday in May.
Independence Day, July 4.
Labor Day, the first Monday in September.
Columbus Day, the second Monday in October.
Veterans Day, the fourth Monday in October.
Thanksgiving Day, the fourth Thursday in November.
Christmas Day, December 25.

Each of the holidays enumerated will constitute "a holiday within the District of Columbia," as referred to in Section 21, Title 35, United States Code.

WILLIAM E. SCHUYLER, JR.,
Dec. 2, 1970. *Commissioner of Patents.*

Service by Publication

Compute-A-Match, its assigns or legal representatives, take notice:

An interference having been declared by this Office between the applications of PBI Research, Inc., 400 Montgomery Street, San Francisco, California 94104, for registrations of trademarks and application Serial No. 257,369, filed October 27, 1966, by Compute-A-Match, P.O. Box 9176, Asheville, North Carolina 28805, and the order to show cause sent to the said Compute-A-Match at the said address of record having been returned by the Post Office undeliverable, notice is hereby given that unless Compute-A-Match, its assigns or legal representatives, shall enter an appearance therein within thirty days from the first publication of this order, the interference will be proceeded with as in the case of default.

This notice will be published in the OFFICIAL GAZETTE for three consecutive weeks.

JOHN H. SCHNEIDER,
Examiner-in-Chief.

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 232,197. (See Reg. No. 804,469.)

Reg. No. 732,361. (See 3,417,569.)

CONDITION OF TRADEMARK APPLICATIONS AS OF OCTOBER 31, 1970

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	23,607
Date of oldest new application	September 17, 1969
Date of oldest amended application (filing date)	March 31, 1967

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISION, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 3, 4, 5, 7, 8, 9, 10, 11, 17, 27, 28, 30, 32, 33, 37, 38, 39, 40, 41, 42, 43, 50; Certification Marks, Classes A and B	12-24-69	3-31-67
(II) F. H. WETHERBEE, Classes 1, 6, 15, 18, 45, 46, 47, 48, 49, 51, 52; Collective Membership Mark, Class 200	12-16-69	12-11-67
(III) C. R. FOWLER, Classes 12, 16, 19, 21, 23, 26, 31, 34, 35, 36, 44	2-26-70	10-30-67
(IV) M. E. ABRAMSON, Classes 13, 14, 20, 22, 24, 25, 29; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, and 107	9-17-69	1-26-68
Renewals (All Classes)	9-21-70	----------
Sec. 12(c) Publications (All Classes)	10-8-70	----------

Applications filed during the month of October 1970—2,802

Registrations Issued ----------375—No. 904,944 to No. 905,318
Renewals Issued ----------120

THE TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $20.50 per annum, foreign mailing $5.75 additional; single copies, 40 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C. 20231.

Reg. No. 762,414. (See 3,227,158.)

Reg. No. 776,327 (PROMISE), Colgate-Palmolive Company, Detergent with Fabric Softener, **filed** Sept. 9, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2227, *S. C. Johnson & Son, Inc.* v. *Colgate-Palmolive Company.*

Reg. No. 785,673. (See 3,227,158.)

Reg. No. 800,031 (AMERICARE), American Republic Insurance Company, Underwriting of hospital, surgical, and medical insurance; **Reg. No. 838,463,** same, First aid kit, **filed** Apr. 11, 1969, D.C., E.D. Mo. (St. Louis), Doc. 69C114(3), *American Republic Ins. Co.* v. *The Americare Corp.* Stipulation dismissing complaint with prejudice, July 10, 1970.

Reg. No. 804,469 (DOW CORNING AND DESIGN), Dow Corning Corporation, Silicon; silicones; fluorosilicones; compositions containing silicones; silanes; silicon chemicals; organo-metallic compounds; defoamers; sterilizing, hydraulic, damping, heat transfer and diffusion pump fluids; catalysts; water repellants; plastisol additives, surfactants for use in the manufacture of urethane foam, **filed** Nov. 26, 1968, D.C., N.D. Ill. (Chicago), Doc. 68c2297, *Dow Corning Corporation* v. *Applied Power Industries, Inc.* Memo Opinion, Trademark Trial and Appeal Board is reversed with directions to register No. 232,197 and to reinstate No. 804,469, Aug. 11, 1970.

Reg. No. 809,110. (See 3,417,569.)

Reg. No. 815,076 (CHURCH'S), Church's Food Service Industries, Inc., Prepared boxed dinners consisting of combinations of meat, fish, poultry, salads, french fries, hot rolls, honey spread, and pickles; **Reg. No. 815,614,** same, Food and restaurant services; **Reg. No. 816,323** (DESIGN OF A CHEF), same, Carry-out restaurant services, **filed** July 22, 1970, D.C., W.D. Tex. (San Antonio), Doc. SA 70CA287, *Church's Fried Chicken, Inc.* v. *Chuckie's Fried Chicken, Inc.* Final decree, permanent injunction granted, Aug. 6, 1970.

Reg. No. 815,614. (See Reg. No. 815,076.)

Reg. No. 816,323. (See Reg. No. 815,076.)

Reg. No. 838,463. (See Reg. No. 800,031.)

Reg. No. 859,233. (See 3,227,158.)

3,227,158, J. W. Mattingly, METHOD AND APPARATUS FOR ORAL HYGIENE; **3,393,673,** same, ORAL HYGIENE APPARATUS; **Reg. No. 762,414** (WATER PIK), Aqua-Tec Corporation, Readily portable oral hygiene appliance utilizing a pulsed jet of water for massaging the gums and cleaning spaces adjacent the teeth; **Reg. No. 785,673** (WATER PIK AND DESIGN), same; **Reg. No. 859,233** (NORTHERN), Northern Electric Company, Electric heating tapes, electric heating pads, electric heating gutter cables, cord sets and electric vaporizers of general utility (Class 21); Electric tooth brushes (Class 29); Humidifiers (Class 34); Electric socks (Class 39); Electric bed covers (Class 42); Electric vaporizers, sterilizers, massagers, curling irons, baby bottle warmers, devices for fluid conditioning facial tissue, heating pads, and a portable oral hygiene appliance utilizing a pulse jet of water for massaging the gums and cleaning the spaces adjacent the teeth (Class 44), **filed** Sept. 8, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70–2003–IH, *Northern Electric Company* v. *Teledyne Ryan Aeronautical Co.*

3,393,673. (See 3,227,158.)

3,417,569, W. N. Laughlin, PROTECTIVE COATING AND METHOD; **Reg. No. 809,110** (SPLASHTRON AND DESIGN), Mark Tool Company, Inc., Synthetic Rubber Sheathing for use on oil and gas flow lines as protection against salt water corrosion; **Reg. No. 732,361** (PLASTRON), William N. Laughlin, doing business as Mark Tool Company, Synthetic rubber blast joints used to protect the tubing in oil and/or gas wells, **filed** Aug. 3, 1970, D.C., E.D. La. (New Orleans), Doc. 70–2075–G, *W. N. Laughlin and Mark Tool Company, Inc.* v. *Royal Industries, Inc.*

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.**]**

SN 320,307. University of Houston, Houston, Tex. Filed Feb. 28, 1969.



Class 38—Prints and Publications

For Publications—Namely, Catalogs, Bulletins, Reports, Brochures, Books, Directories, General Information and Other Pamphlets for Students, and Lab Manuals (Int. Cl. 16).

Class 107—Education and Entertainment

For Providing Educational Instruction and Classes on the University Level, and Assorted Sporting Events (Int. Cl. 41).

First use on or about Sept. 1, 1934.

SN 324,515. Pittway Corporation, and Sunbeam Plastics Corporation (joint venture), Cary, Ill. Filed Apr. 14, 1969.

SPRA-GUIDE

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Aerosol Valves (Int. Cl. 6).

Class 50—Merchandise Not Otherwise Classified

For Valve Caps (Int. Cl. 20).

First use November 1968.

SN 327,133. Del Chemical Corporation, Menomonee Falls, Wis. Filed May 13, 1969.

DEL

Owner of Reg. No. 816,008.

Class 18—Medicines and Pharmaceutical Preparations

For Local Anesthetics and Liniment (Int. Cl. 5).

Class 51—Cosmetics and Toilet Preparations

For Spray Foot and Body Powder (Int. Cl. 3).

First use Mar. 15, 1965.

SN 333,226. Whirlpool Corporation, Benton Harbor, Mich. Filed July 23, 1969.



Owner of Reg. Nos. 670,935, 736,400, and others.

Class 15—Oils and Greases

For Lubricating Oils, Penetrating Oils, and Greases (Int. Cl. 4).

Class 16—Protective and Decorative Coatings

For Paints, Lacquers, and Varnishes (Int. Cl. 2).

First use on or prior to Jan. 2, 1958.

SN 333,227. Whirlpool Corporation, Benton Harbor, Mich. Filed July 23, 1969.

FSP

Owner of Reg. Nos. 670,935, 736,400, and others.

Class 15—Oils and Greases

For Lubricating Oils, Penetrating Oils, and Greases (Int. Cl. 4).

Class 16—Protective and Decorative Coatings

For Paints, Lacquers, and Varnishes (Int. Cl. 2).

First use on or prior to Jan. 2, 1958.

SN 335,816. Lincoln Security Corp., Minneapolis, Minn. Filed Aug. 21, 1969.



Class 21—Electrical Apparatus, Machines, and Supplies

For Electronic Burglar, Fire and Emergency Alarm Systems and Component Parts Therefor (Int. Cl. 9).

Class 100—Miscellaneous

For Residential and Commercial Security and Alarm System Services (Int. Cl. 35).

First use July 1969.

SN 340,005. Explosive Technology, Inc., Fairfield, Calif. Filed Oct. 7, 1969.



Class 9—Explosives, Firearms, Equipments, and Projectiles

For Metal-Clad Explosive Detonating Cords, Explosive Bolts, Explosive Squibs, Explosive Disconnects, Explosive Detonating Cords, Explosives for Cutting and Gaining Forcible Entry, and Flexible Linear Shaped Explosive Charges (Int. Cl. 13).

First use Aug. 21, 1967.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Explosively Actuating Tools for Cutting and Gaining Forcible Entry (Int. Cl. 7).

First use at least as early as Mar. 5, 1969.

SN 340,308. Worldly Goods, Ltd., New York, N.Y. Filed Oct. 10, 1969.

WORLDLY GOODS BY PAUL L.

The word "Goods" is disclaimed apart from the mark as shown.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

For Women's Handbags (Int. Cl. 18).

Class 39—Clothing

For Men's and Women's Leather Vests and Tunics (Int. Cl. 25).

First use Sept. 9, 1969.

SN 343,616. Potlatch Forests, Inc., San Francisco, Calif. Filed Nov. 17, 1969.

pfi

Owner of Reg. Nos. 762,015 and 763,314.

Class 1—Raw or Partly Prepared Materials

For Packaged Fuel Logs Made of Compressed Sawdust (Int. Cl. 4).

First use Oct. 2, 1967.

Class 2—Receptacles

For Paperboard and Corrugated Paper Cartons, Paper Cups, Trays, Bowls, and Plates (Int. Cl. 16).

First use at least as early as 1963.

Class 38—Prints and Publications

For Company Publications—Namely, a Company Magazine, Stockholder Reports, Publicity Reviews, Newsletters, Brochures, and Pamphlets Describing Company Products (Int. Cl. 16).

First use at least as early as March 1951.

SN 345,816. Robert Richard Garbe, Jr., Columbus, Ohio. Filed Dec. 10, 1969.

ECONODOSE

Class 2—Receptacles

For Nestable Compartmented Trays (Int. Cl. 20).

Class 37—Paper and Stationery

For Partially Printed Forms (Int. Cl. 16).

Class 38—Prints and Publications

For Printed Labels (Int. Cl. 16).

First use Oct. 28, 1969.

SN 345,852. Pale Corporation, Providence, R.I. Filed Dec. 10, 1969.

BØRNE

Class 51—Cosmetics and Toilet Preparations

For Cosmetic Cleansing Creme (Int. Cl. 3).

Class 52—Detergents and Soaps

For Hand Soap (Int. Cl. 3).

First use Sept. 29, 1969.

SN 346,548. Avon Products, Inc., New York, N.Y. Filed Dec. 18, 1969.

AVON

Owner of Reg. Nos. 506,046, 633,318, and 663,255.

Class 51—Cosmetics and Toilet Preparations

For Personal Deodorant, After Shave Lotion, Shaving Cream, Talcum Powder, Cologne, Dusting Powder, Toothpaste, Mascara, Lipstick, Nail Enamel, Filled Powder Compact, and Bubble Bath (Int Cls. 3 and 5).

Class 52—Detergents and Soaps

For Toilet Soap (Int. Cl. 3).

First use May 21, 1969.

SN 346,822. H. G. Treacher Co., Fullerton, Calif. Filed Dec. 22, 1969.

TREAT

Class 22—Games, Toys, and Sporting Goods

For Postage Stamp Kits Comprising Albums, Postage Stamps and Mounting Hinges (Int. Cl. 16).

First use November 1967.

Class 38—Prints and Publications

For Stamp Packets, Collections, Albums, and Posters (Int. Cl. 16).

First use on or about June 12, 1967.

SN 348,202. Roddy Discount Auto Stores, Inc., North Highlands, Calif. Filed Jan. 12, 1970.

RODDY
DISCOUNT AUTO STORES

The drawing is lined for the color red; same is claimed as an integral portion of the mark.

Class 15—Oils and Greases

For Motor Oil (Int. Cl. 4).

Class 21—Electrical Apparatus, Machines, and Supplies

For Automotive Batteries (Int. Cl. 9).

Class 31—Filters and Refrigerators

For Oil Filters (Int. Cl. 7).

First use Jan. 1, 1969.

SN 351,138. Mecaplast S.A., Geneva, Switzerland. Filed Feb. 11, 1970.



The representation of the plastic container is disclaimed apart from the mark as shown. Owner of Swiss Reg. No. 240,079, dated July 1, 1969.

Class 2—Receptacles

For Plastic Containers—Namely, Bags and Liners (Int. Cl. 20).

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Machines To Produce Plastic Containers (Int. Cl. 7).

SN 360,403. Revac, Inc., Denver, Colo. Filed May 21, 1970.



Class 38—Prints and Publications

For Manuals, Pamphlets and Films in the Fields of Real Estate and Insurance (Int. Cl. 16).

Class 107—Education and Entertainment

For Training Programs for Real Estate and Insurance Brokers and Agents (Int. Cl. 41).

First use Mar. 30, 1969.

SN 364,711. Alberto-Culver Company, Melrose Park, Ill. Filed July 9, 1970.

EXCITEMENT

Owner of Reg. Nos. 868,246, 896,121, and others.

Class 51—Cosmetics and Toilet Preparations

For Hair Spray (Int. Cl. 3).

Class 52—Detergents and Soaps

For Hair Shampoo (Int. Cl. 3).

First use Sept. 29, 1969.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 315,471. B. L. Cobia, Inc., Winter Garden, Fla. Filed Dec. 31, 1968.

SILVER PRINCESS

For Live Tropical House Plants (Int. Cl. 31).

First use on or about May 10, 1968.

SN 322,038. Carlton Nursery Company, Incorporated, Forest Grove, Oreg. Filed Mar. 18, 1969.

MASON BRAND

For Prune Trees (Int. Cl. 31).

First use on or about Dec. 4, 1968.

SN 328,271. Chapman Industries Inc., Avondale, Pa. Filed May 26, 1969.

FEPLINE

For Corrosion-Resistant Anti-Stick Linings of Plastic for General Use in the Industrial Arts (Int. Cl. 17).

First use May 24, 1968.

SN 330,688. Armour and Company, Chicago, Ill. Filed June 23, 1969.

KORDOTAN

Owner of Reg. Nos. 708,572 and 725,478.

For Leather (Int. Cl. 18).

First use on or prior to Mar. 8, 1962.

SN 341,460. General Mills, Inc., Minneapolis, Minn. Filed Oct. 20, 1969.

GLO·FLOK

Owner of Reg. No. 628,405.
For Florescent Decorative Flocking Material Which Is Used To Produce a Simulated Velour Surface (Int. Cl. 22).
First use on or prior to Sept. 23, 1969.

SN 352,115. Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany. Filed Feb. 24, 1970.

BAYPREN

Owner of German Reg. No. 688,571, dated Feb. 1, 1956.
For Chloroprene Caoutchouc (Int. Cl. 17).

SN 352,367. Ocean Leather Corp., Newark, N.J. Filed Feb. 25, 1970.

CARVELLA

For Leather (Int. Cl. 18).
First use Jan. 12, 1970.

SN 352,450. Celanese Coatings Company, New York, N.Y. Filed Feb. 26, 1970.

GLY-CEL

For Synthetic Resins (Int. Cl. 1).
First use Dec. 16, 1969.

SN 352,781. Collagen Corp., New York, N.Y. Filed Mar. 2, 1970.

KROYTAN

For Leather-Based Sheet Material for Footwear, Upholstery, Handbags, and Other Products (Int. Cl. 18).
First use Dec. 5, 1969.

SN 353,026. Chemalloy Company, Inc., Philadelphia, Pa. Filed Mar. 4, 1970.

NA-FLUX

For Alkaline Earth Bearing Materials for Use in Metal Fluxing (Int. Cl. 1).
First use Mar. 1, 1968.

SN 353,028. Chemalloy Company, Inc., Philadelphia, Pa. Filed Mar. 4, 1970.

MANOX

For Manganese Bearing Flux Material for the Manufacture of Metals (Int. Cl. 1).
First use July 6, 1965.

SN 353,031. Chemalloy Company, Inc., Philadelphia, Pa. Filed Mar. 4, 1970.

MANSILEX

For Manganese Silicon Bearing Materials for Use in the Manufacture of Ferrous and Non-Ferrous Metals (Int. Cl. 1).
First use Sept. 12, 1963.

SN 353,032. Chemalloy Company, Inc., Philadelphia, Pa. Filed Mar. 4, 1970.

CO-RIM

For Fluxing Material for the Manufacturing of Ferrous Metals (Int. Cl. 1).
First use Dec. 14, 1965.

SN 353,072. Milburne Laboratories Corp., Chicago, Ill. Filed Mar. 4, 1970.

PROTECT-O-SEAL

For Pressure Sensitive Plastic Sheets for Laminating Cards, Photographs and Other Items (Int. Cl. 17).
First use on or about Jan. 29, 1970.

SN 353,219. Ponderosa Products, Incline Village, Nebr. Filed Mar. 5, 1970.

KWIK STIX

For Wax Dipped Kindling Wood (Int. Cl. 4).
First use Aug. 28, 1969.

SN 353,306. International Paint Company, Inc., New York, N.Y. Filed Mar. 6, 1970.



The numerals "800" and the name of the goods are disclaimed apart from the goods as shown.
For Polyester Resin Solution (Int. Cl. 1).
First use Jan. 27, 1970.

SN 353,672. Reichhold - Albert - Chemie Aktiengesellschaft, Hamburg, Germany. Filed Mar. 10, 1970.

REICHOPOX

Owner of German Reg. No. 835,040, dated Oct. 28, 1966.
For Resins, Resin-Containing Bases for Use as a Foundation for Painting, Coating and Plastic Compositions and Molding Compositions on the Basis of Epoxy Resins (Int. Cl. 1).

SN 353,885. Renzel Joubert, Eland, Wis. Filed Mar. 12, 1970.

JOUBERT'S BLUE & WHITE

For Dairy Cattle (Int. Cl. 31).
First use Jan. 20, 1970.

SN 354,220. Fred Rueping Leather Company, Fond Du Lac, Wis. Filed Mar. 16, 1970.

MIRADA

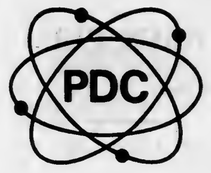
For Leathers (Int. Cl. 18).
First use Nov. 26, 1969.

SN 354,667. Royalty Designs of Florida, Inc., Hialeah, Fla. Filed Mar. 19, 1970.

QUIVER

For Plastic Resins and Plastisols and Plastic Sheet Material and the Like Molded From the Same (Int. Cls. 1 and 17).
First use on or about Dec. 1, 1964.

SN 354,747. Plastics Development Corporation of America, Philadelphia, Pa. Filed Mar. 20, 1970.



For Silicone Rubber, Rubber Dispersions and Resins—Namely, Polyester and Polyurethane Formulations (Int. Cls. 1 and 17).
First use Nov. 1, 1969.

SN 354,836. General Electric Company, Schenectady, N.Y. Filed Mar. 23, 1970.

LYTREL

For Polyimide Resin-Containing Laminate (Int. Cl. 17).
First use Feb. 27, 1970.

SN 355,466. Ulery Greenhouse Company, Springfield, Ohio. Filed Mar. 30, 1970.



For Nursery Plants (Int. Cl. 31).
First use Mar. 11, 1970.

SN 355,764. Husky Briquetting, Inc., Cody, Wyo. Filed Apr. 2, 1970.



For Type of Fireplace Logs (Int. Cl. 4).
First use prior to Dec. 1, 1968.

SN 356,200. W. R. Grace & Co., Cambridge, Mass. Filed Apr. 7, 1970.

VERSAFLEX

Owner of Reg. No. 766,128.
For Polymer Emulsion for Latex Paint Formulations (Int. Cl. 1).
First use Nov. 17, 1969.

SN 362,764. Union Carbide Corporation, New York, N.Y. Filed June 15, 1970.

ZIRCAR

For Ceramic Staple Fiber and Tow (Int. Cl. 22).
First use on or about Dec. 16, 1969.

SN 369,418. Flow Research Animals, Inc., Dublin, Va. Filed Aug. 31, 1970.



For Laboratory Research Animals, Including Dogs, Rats, Mice, and Guinea Pigs (Int. Cl. 31).
First use Aug. 5, 1970.

SN 369,419. Flow Research Animals, Inc., Dublin, Va. Filed Aug. 31, 1970.



For Laboratory Research Animals, Including Dogs, Rats, Mice, and Guinea Pigs (Int. Cl. 31).
First use Aug. 5, 1970.

SN 369,844. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Sept. 4, 1970.

PORYL

For Hairbrush Bristle (Int. Cl. 21).
First use Aug. 11, 1970.

SN 370,033. Rubicon Chemicals, Inc., Geismar, La. Filed Sept. 8, 1970.

RUBICOL

Owner of Reg. Nos. 845,693 and 876,832.
For Synthetic Resins (Int. Cl. 1).
First use at least as early as July 8, 1969.

Class 2—Receptades

SN 327,066. Southern Icee Corporation, Baton Rouge, La. Filed May 12, 1969.

SLAKEE

For Paper Cups (Int. Cl. 16).
First use Mar. 10, 1969.

SN 337,188. National Can Corporation, Chicago, Ill. Filed Sept. 5, 1969.



Applicant claims the exclusive right to use the outline of the map of the United States as part of its mark, but not otherwise. Owner of Reg. No. 654,598.
For Plastic Bottles (Int. Cl. 21).
First use in or about November 1963.

SN 340,505. Bliss-Pak, Inc., Lawrence, Mass. Filed Oct. 13, 1969.

ZIP-SAV

For Container—Namely, Cardboard Packages With Transparent Plastic Windows for Displaying the Contents (Int. Cl. 16).
First use Aug. 23, 1969.

SN 347,635. John Petersen Mfg. Co., Inc., Madison, Wis. Filed Jan. 2, 1970.

PEMCO

For Tanks for Liquid Fuels, Food and Chemicals (Int. Cl. 6).
First use Apr. 4, 1969.

SN 348,346. Seven Seas, Incorporated, Westport, Conn. Filed Jan. 12, 1970.

SEVEN SEAS

Owner of Reg. No. 858,941.
For Ice Buckets, Serving Bowls, Trays, Boxes, and Salt and Pepper Shakers Made Principally of Wood (Int. Cl. 21).
First use November 1968.

SN 361,242. Power Plastics Corp., Brooklyn, N.Y. Filed June 1, 1970.

DEXTRON

For Plastic Bags, and Plastic Liners for Drums, Boxes, and Waste Cans (Int. Cl. 20).
First use May 25, 1970.

SN 362,254. Kyowa Gomu Kogyo Kabushiki Kaisha, Nishinari-ku Osaka, Japan. Filed June 10, 1970.

PYLON

For Hand Actuated Tape Dispensers (Int. Cl. 8).
First use Jan. 10, 1964; in commerce on or about May 15, 1966.

SN 362,396. Modern Packaging, Inc., South Bend, Ind. Filed June 11, 1970.

I.Q.S. PAK

Applicant disclaims the word "Pak" apart from the mark as shown.
For Storage Containers—Namely, Boxes (Int. Cl. 16).
First use May 26, 1970.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 328,992. Kimberly-Clark Corporation, Neenah, Wis. Filed June 3, 1969.

WAG 'N PURR

For Pet Products—Namely, Place Mats (Int. Cl. 18).
First use Mar. 7, 1969.

SN 347,123. Circo International Corp., Mount Vernon, N.Y. Filed Dec. 24, 1969.

BAGS PLUS

For Wallets (Int. Cl. 18).
First use Nov. 10, 1969.

SN 357,001. Reliable Luggage, Inc., West Pittsburg, Pa. Filed Apr. 15, 1970.

AQUARIUS

For Suitcases, Valises, and Travelling Bags (Int. Cl. 18).
First use Feb. 18, 1970.

SN 357,005. Ronay Accessories Corp., New York, N.Y. Filed Apr. 15, 1970.

BIEN-BAG

For Ladies' Handbags (Int. Cl. 18).
First use Mar. 26, 1970.

SN 357,429. A. J. Siris Products Corporation, New York, N.Y. Filed Apr. 20, 1970.

BETTY LOU

For Wallets, Utility Bags, and Cosmetic Bags (Int. Cl. 18).
First use on or about Feb. 1, 1943.

SN 358,481. St. Thomas Inc., Gloversville, N.Y. Filed Apr. 30, 1970.

CARD-PAK

Owner of Reg. No. 531,118.
For Card Cases (Int. Cl. 18).
First use Mar. 15, 1949.

Class 4—Abrasives and Polishing Materials

SN 346,497. New Hope Abrasives, Inc., St. Louis Park, Minn. Filed Dec. 17, 1969.



The mark consists of a fanciful representation related to the letters "n" and "h."
For Coated and Bonded Abrasives (Int. Cl. 3).
First use Oct. 22, 1969.

SN 361,975. Ball Chemical Company, Cleveland, Ohio. Filed June 8, 1970.

CONVERSATION

For Self-Polishing, Floor Finishing Preparation (Int. Cl. 3).
First use Mar. 15, 1958.

Class 5—Adhesives

SN 310,801. Pro-Tel Products Company, Los Angeles, Calif. Filed Oct. 29, 1968.

GRIPPER

For All-Purpose Glue (Int. Cl. 1).
First use Oct. 4, 1968.

SN 324,221. The Polymer Corporation, Reading, Pa. Filed Apr. 10, 1969.

CORVEL

Owner of Reg. Nos. 676,220 and 729,354.
For Fabric Adhesives Comprising Finely Divided, Heat-Fusible, Synthetic Polymeric Powders (Int. Cl. 1).
First use on or about Feb. 14, 1958.

SN 326,996. Chicago Mastic Company, Rosemont, Des Plaines, Ill. Filed May 12, 1969.

SEAM-WELDER

For Carpet Seaming Adhesive (Int. Cl. 1).
First use on or about Nov. 27, 1968.

SN 334,037. Armour Industrial Products Company, Chicago, Ill. Filed July 31, 1969.

AMERICAN

Owner of Reg. No. 747,733.
For Pressure Sensitive Adhesive Tape (Int. Cl. 17).
First use on or prior to Feb. 1, 1957.

SN 340,372. David Clark Company Incorporated, Worcester, Mass. Filed Oct. 10, 1969.

MOLECULOC

For Synthetic Rubber-Based Adhesive Compound Especially for Aeronautical and Thermal Protective Clothing and Laminating of Materials, Etc., to wit, Plastics, Rubber, Metals, and Glass (Int. Cl. 1).
First use Aug. 20, 1969.

SN 353,443. Crown Dielectic Industries, Inc., Columbus, Ohio. Filed Mar. 9, 1970.

VIN-TASTIC

For Adhesive for Bonding Vinyl to Vinyl (Int. Cl. 1).
First use Nov. 17, 1969.

SN 355,921. Uniroyal, Inc., New York, N.Y. Filed Apr. 3, 1970.

STRIP SEALZ

Owner of Reg. Nos. 738,074, 766,957, and 771,666.
For Carpet Tacking Tape Adhesive (Int. Cl. 1).
First use Feb. 20, 1970.

SN 355,922. Uniroyal, Inc., New York, N.Y. Filed Apr. 3, 1970.

BEAD SEALZ

Owner of Reg. Nos. 738,074, 766,957, and 771,666.
For Carpet Seaming Adhesive (Int. Cl. 1).
First use Feb. 20, 1970.

SN 355,923. Uniroyal, Inc., New York, N.Y. Filed Apr. 3, 1970.

PAD SEALZ

Owner of Reg. Nos. 738,074, 766,957, and 771,666.
For Carpet Underlay Adhesive (Int. Cl. 1).
First use Feb. 20, 1970.

Class 6—Chemicals and Chemical Compositions

SN 327,495. A. H. Hoffman, Inc., Landisville, Pa. Filed May 16, 1969.

PRE-MULCH

For Weed Control Preparation for Flowers and Vegetable Gardens (Int. Cl. 5).
First use Mar. 31, 1969.

SN 330,181. Parker Laboratories, Inc., Irvington, N.J. Filed June 16, 1969.

SPECTRA

For Contact Gel Used in Conjunction With Electro-Medical Instruments Such as Electrocardiographs (Int. Cl. 1).
First use Oct. 18, 1968.

SN 336,325. Fisons Limited, Suffolk, England (Filed Aug. 26, 1969.

LOVOZAL

Owner of Reg. No. 714,874.
For Miticides (Int. Cl. 5).
First use July 11, 1968; in commerce on or about July 11, 1968.

SN 340,109. Americhem, Inc., Cuyahoga Falls, Ohio. Filed Oct. 8, 1969.



For Chemical Additives for Use in Plastics Formulations, specifically, Color Pigments, Dispersions, Stabilizers and Peptizers for Plastic and Synthetic Rubbers (Int. Cls. 1 and 2).
First use Sept. 2, 1969.

SN 344,800. Universal Oil Products Company, Des Plaines, Ill. Filed Nov. 28, 1969.

SUPPLEMENT S

Owner of Reg. No. 827,442.
For Oxygen Scavenging Compound for Boilers and Steam Generators for the Prevention of Corrosion (Int. Cl. 1).
First use on or prior to Aug. 7, 1965.

SN 344,801. Universal Oil Products Company, Des Plaines, Ill. Filed Nov. 28, 1969.

F-91

Owner of Reg. No. 869,895.
For Chemical Corrosion Inhibiting Compound for Potable Water and Closed Systems (Int. Cl. 2).
First use on or prior to Dec. 24, 1958.

SN 344,802. Universal Oil Products Company, Des Plaines, Ill. Filed Nov. 28, 1969.

M-60

Owner of Reg. Nos. 839,729 and 859,222.
For Algaecide (Int. Cl. 5).
First use on or prior to Nov. 10, 1957.

SN 345,271. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

K-87

Owner of Reg. Nos. 614,694, 850,049, and 869,896.
For Scale and Corrosion Inhibitor for Cooling Towers, Evaporative Condensers, and Cooling Water Systems (Int. Cl. 2).
First use on or prior to Sept. 13, 1967.

SN 345,272. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

KP-40

Owner of Reg. Nos. 850,033 and 850,049.
For Scale Inhibiting Chemical Compound for Cooling Water Systems (Int. Cl. 2).
First use on or prior to May 31, 1969.

SN 345,273. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

E-57

For Scale and Corrosion Inhibitor for Closed Hot Water System (Int. Cl. 2).
First use on or prior to Dec. 28, 1962.

SN 345,274. Universal Oil Products Company, Des Plaines, Ill. Filed Dec. 4, 1969.

ORGANIFLOC PX

For Flocculating and Dispersing Agent for Use in Water Distribution Lines, Cooling Towers, and Evaporative Condensers (Int. Cl. 1).
First use on or prior to Oct. 7, 1967.

SN 347,055. Camp Laboratories, Inc., Brooklyn, N.Y. Filed Dec. 24, 1969.

X-Rat

For Rodenticide (Int. Cl. 5).
First use Aug. 20, 1965.

SN 355,594. Air Reduction Company, Incorporated, New York, N.Y. Filed Apr. 1, 1970.

AIRCOFLEX

Owner of Reg. No. 743,212.
For Vinyl Acetate-Ethylene Copolymer Emulsions (Int. Cl. 1).
First use on or about Jan. 26, 1965.

SN 355,682. Picker Corporation, Cleveland, Ohio. Filed Apr. 1, 1970.

SLS

For Chemicals for Developing and Fixing X-Ray Film (Int. Cl. 1).
First use on or about Mar. 18, 1966.

SN 357,901. C & C Laboratories, Inc., Chicago, Ill. Filed Apr. 27, 1970.

PUT AWAY

For Corrosion, Gum and Varnish Inhibitor (Int. Cl. 2).
First use in or about November 1968.

SN 360,872. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

SUN ORCHARD

For Room Freshener (Int. Cl. 5).
First use Apr. 17, 1970.

SN 360,873. Avon Products, Inc., New York, N.Y. Filed May 26, 1970.

WIND CHIMES

For Room Freshener (Int. Cl. 5).
First use Apr. 17, 1970.

SN 362,447. Ferrofluidics Corporation, Burlington, Mass. Filed June 12, 1970.

FERROFLUID

For Liquid Medium Having a High Magnetization Value, for Example, a Dispersion of Magnetic Particles in a Fluid Carrier (Int. Cl. 1).
First use July 14, 1969.

SN 362,468. Allied Chemical Corporation, New York, N.Y. Filed June 12, 1970.

BA

Owner of Reg. Nos. 437,081, 503,198, and 519,893.
For Electronic Chemicals—Namely, High-Grade Chemicals Useful in the Manufacture of Electronic Equipment (Int. Cl. 1).
First use Aug. 28, 1968.

Class 7—Cordage

SN 353,989. Columbian Rope Company, Auburn, N.Y. Filed Mar. 13, 1970.

FRUIT TREE ROPE

The Word "Rope" is disclaimed apart from the mark as shown.
For Rope (Int. Cl. 22).
First use at least as early as Feb. 20, 1970.

SN 354,335. Tubbs Cordage Company, San Francisco, Calif. Filed Mar. 17, 1970.

LOKTITE

For Cordage (Int. Cl. 22).
First use Dec. 4, 1969.

SN 357,096. S. S. Kresge Company, Detroit, Mich. Filed Apr. 16, 1970.

SK

For Sisal Rope, Synthetic Rope and Wire Cable (Int. Cls. 6 and 22).
First use on or before Jan. 30, 1970.

Class 8—Smokers' Articles, Not Including Tobacco Products

SN 345,300. Bentley Lighter Corporation, New York, N.Y. Filed Dec. 4, 1969.

Alum-a-Lite

For Butane Gas Cigarette and Pipe Lighters (Int. Cl. 34).
First use Aug. 29, 1969.

Class 9—Explosives, Firearms, Equipments, and Projectiles

SN 330,275. Fuller Laboratories, Inc., Eden Prairie, Minn. Filed June 17, 1969.

SHEATH TAKE-ALONGS

Owner of Reg. No. 874,965.
For Disposable Gun Wipes (Int. Cl. 13).
First use Jan. 15, 1969.

SN 336,288. Pains-Wessex, Ltd., High Post, Salisbury, England. Filed Aug. 12, 1969.

PENSMOKE

Owner of British Reg. No. B924,686, dated May 6, 1968.
For Fireworks and Explosive Signal Smoke Cartridge (Int. Cl. 13).

SN 336,289. Pains-Wessex Ltd., High Post, Salisbury, England. Filed Aug. 12, 1969.

PENFLARE

Owner of British Reg. No. B924,684, dated May 6, 1968.
For Fireworks and Explosive Signal Flare Cartridges (Int. Cl. 11).

Class 10—Fertilizers

SN 305,424. Eli Lilly and Company, Indianapolis, Ind. Filed Aug. 19, 1968.

WINTER GREEN

For Lawn Fertilizer (Int. Cl. 1).
First use July 25, 1968.

SN 348,976. The Natural Development Company, Bainbridge, Pa. Filed Jan. 19, 1970.

LIQUID FERTRELL

Applicant disclaims the word "Liquid" apart from the mark as shown. Owner of Reg. No. 666,748.
For Highly Concentrated Emulsion of Fish Oil, Fish Viscera, Bones, Heads and Other Fish Offal Used for Fertilization of All Types of Plants by Mixing With Water (Int. Cl. 1).
First use Feb. 10, 1966.

Class 11—Inks and Inking Materials

SN 356,852. Bridgeport Engravers Supply Co., Inc., Bridgeport, Conn. Filed Apr. 14, 1970.

BESCO

Owner of Reg. No. 898,582.
For Printers' Ink (Int. Cl. 2).
First use at least as early as 1950.

Class 12 — Construction Materials

SN 275,929. GAF Corporation, New York, N.Y., by change of name from General Aniline & Film Corporation, New York, N.Y. Filed July 13, 1967.



The drawing is lined for the color red or pink. The trademark consists of alternate white and red or pink laminations forming a structural part of the goods. No claim is made to the representation of a cross-section of a mineral fiber board.
For Mineral Fiber Boards (Int. Cl. 19).
First use May 18, 1967.

SN 296,308. Yorkshire Imperial Plastics Limited, Stourton, near Leeds, England, assignee of Classic Profiles Limited, Coulsdon, Surrey, England. Filed Apr. 23, 1968.

UNIPLAS

Priority claimed under Sec. 44(d) on British Reg. No. 916,748, dated Nov. 3, 1967.
For Construction Items—Namely, Constructional Units, Core Inserts, Planks, Posts, Rods, Sections, Tubes and Capping, All for Use in Making the Following: Seats, Balustrades, Balconies, False Ceilings, Pergolas, Screens for Gardens and Swimming Pools, Fencing, Handrails, Stair Guards, Trunking in the Nature of Casing To Protect Electrical Conductors, Skirting in the Nature of Baseboards, and Displays in the Nature of Fixtures for Shops and Exhibits (Int. Cl. 19).

SN 335,776. Prismo Universal Corporation, Huntingdon, Pa. Filed Aug. 20, 1969.

hot·spray PLASTIX

No claim is made to the words "Hot-Spray" apart from the mark as shown. Owner of Reg. No. 624,162.
For Permanent Reflective Type Pavement Markings (Int. Cl. 19).
First use Oct. 26, 1967.

SN 340,295. Takiron Kagaku Kabushiki Kaisha (Takiron Chemical Co., Ltd.), Osaka-shi, Osaka-fu, Japan. Filed Oct. 9, 1969.

Takiron

For Plastic Corrugated Panel (Int. Cl. 19).
First use June 20, 1960; in commerce June 20, 1960.

SN 341,262. Maze Corporation, Azle, Tex., assignee of A. B. Clemonds, d.b.a. Perma-Post, Fort Worth, Tex. Filed Oct. 21, 1969.



The words "Life-Time Permanent Molded Uniform Plastic Poles and Post, A. B. Clemonds, d.b.a., 6713 Yosemite, Ft. Worth, Texas" are disclaimed apart from the mark as shown.
For Plastic Fence Posts (Int. Cl. 19).
First use Sept. 22, 1969.

SN 347,057. Camp Laboratories, Inc., Brooklyn, N.Y. Filed Dec. 24, 1969.

perma-treet

For Concrete Sealer Used for Sealing, Curing and Hardening Concrete (Int. Cl. 1).
First use Apr. 10, 1964.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

SN 327,938. Marketing Associates, Inc., d.b.a. Satisfaction House, St. Louis, Mo. Filed May 21, 1969.



For Pans, Kettles, Casseroles, Pan Covers, Poachers, Pots and Frying Pans, All of Metal (Int. Cl. 21).
First use Mar. 15, 1968.

SN 332,640. G. F. Wright Steel & Wire Company, Worcester, Mass. Filed July 15, 1969.

WRIGHTLINE

For Wire Netting (Int. Cl. 6).
First use Apr. 30, 1959.

SN 336,876. Standard Pressed Steel Co., Jenkintown, Pa. Filed Sept. 2, 1969.

STRESS PIN

For Fasteners—Namely, Rivets and Collars (Int. Cl. 6).
First use Aug. 8, 1969.

SN 359,531. Timber Engineering Company, Washington, D.C. Filed May 12, 1970.

TEN-CON

For Connectors for Concrete Pile Caps (Int. Cl. 6).
First use in or about December 1969.

SN 365,090. Mildred Rose Haydock, d.b.a. Haydock Caster Company, Niles, Ill. Filed July 13, 1970.

FLOATING BALL

For Casters, for Use in Furniture (Int. Cl. 6).
First use May 1970.

SN 367,911. Pathway Bellows, Inc., El Cajon, Calif. Filed Aug. 13, 1970.

X-PRESS

For Expansion Joints, Expansion Joint Assemblies, Bellows and Bellow Assemblies (Int. Cl. 6).
First use Feb. 4, 1970.

Class 14 — Metals and Metal Castings and Forgings

SN 323,283. Fagersta Bruks Aktiebolag, Fagersta, Sweden. Filed Apr. 1, 1969.

FAMA

Owner of Swedish Reg. No. 25,541, dated Feb. 7, 1922.
For Metal Magnets (Int. Cl. 6).

SN 323,882. Aktiebolaget Bofors, Bofors, Sweden. Filed Apr. 2, 1969.

BOVAC

Owner of Swedish Reg. No. 124,438, dated Aug. 2, 1968.
For Vacuum Degassed Steels and Vacuum Degassed Steel Alloys Sold in the Form of Ingots, Bars, Sheets, Plates, Forged Products, and Rolled Products (Int. Cl. 6).

SN 360,745. Flynn & Emrich Company, Baltimore, Md. Filed May 25, 1970.

FE

For Metal Castings (Int. Cl. 6).
First use as early as 1938.

Class 15 — Oils and Greases

SN 362,563. Union Oil Company of California, Los Angeles, Calif. Filed June 12, 1970.

UNION 76

The drawing is lined for the colors blue and orange, but color is not claimed as a feature of the mark. Owner of Reg. Nos. 733,276, 850,455, and others.
For Lubricating Greases (Int. Cl. 4).
First use July 31, 1969.

Class 16 — Protective and Decorative Coatings

SN 330,636. Sears, Roebuck and Co., Chicago, Ill. Filed June 20, 1969.

COLORHOUSE

For House Paint for Interior Surfaces (Int. Cl. 2).
First use on or about Apr. 12, 1968.

SN 330,914. The Dexter Corporation, Windsor Locks, Conn. Filed June 25, 1969.

MICOCOTE

Owner of Reg. Nos. 643,843, 854,429, and others.
For Coating Compositions for General Use in the Industrial Arts in the Nature of Lacquers, Varnishes, Resinous Primers, Enamels, Paint Type Fillers, Solutions, and Emulsions in the Nature of Paints (Int. Cl. 2).
First use Feb. 3, 1969.

SN 331,235. Pabco Paint Corporation, Emeryville, Calif. Filed June 27, 1969.

THE RAIN STAIN

The word "Stain" is disclaimed except as used in combination with the rest of the mark; applicant waives none of its common law rights therein.
For Interior and Exterior Wood Stains (Int. Cl. 2).
First use Feb. 18, 1969.

Class 17 — Tobacco Products

SN 353,455. Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel N.V., Joure, Netherlands. Filed Mar. 9, 1970.

ARUNDO

For Pipe Tobacco (Int. Cl. 34).
First use May 13, 1969; in commerce May 13, 1969.

SN 359,831. Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel N.V., Joure, Netherlands. Filed May 15, 1970.

CHARLES ASHLEY

The mark is fanciful with no relation to any living individual.
For Pipe Tobacco (Int. Cl. 34).
First use Mar. 17, 1970; in commerce Mar. 17, 1970.

SN 359,832. Douwe Egberts Koninklijke Tabaksfebriek-Koffiebranderijen-Theehandel N.V., Joure, Netherlands. Filed May 15, 1970.

CHARLES BRENNAN

The mark is fanciful with no relation to any living individual.
For Pipe Tobacco (Int. Cl. 34).
First use Mar. 17, 1970; in commerce Mar. 17, 1970.

SN 359,833. Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel N.V., Joure, Netherlands. Filed May 15, 1970.

CHARLES HARLEY

The mark is fanciful, with no relation to any living individual.
For Pipe Tobacco (Int. Cl. 34).
First use Mar. 17, 1970; in commerce Mar. 17, 1970.

SN 361,167. St. James's Tobacco Company Limited, London, England. Filed May 28, 1970.

St. James

For Smoking Tobacco (Int. Cl. 34).
First use Dec. 1, 1969; in commerce Feb. 1, 1970.

SN 361,168. St. James's Tobacco Company Limited, London, England. Filed May 28, 1970.

St. James

For Smoking Tobacco (Int. Cl. 34).
First use Dec. 1, 1969; in commerce Feb. 1, 1970.

SN 361,169. St. James's Tobacco Company Limited, London, England. Filed May 28, 1970.

St. James

For Smoking Tobacco (Int. Cl. 34).
First use Dec. 1, 1969; in commerce Feb. 1, 1970.

SN 363,176. The International Tobacco Co., Inc., New York, N.Y. Filed June 19, 1970.

afra

For Cigarettes (Int. Cl. 34).
First use June 1, 1970.

SN 364,323. Alfred Dunhill Limited, London, England. Filed July 6, 1970.

Dunhill
LONDON MIXTURE

The drawing is lined for the color red. Applicant disclaims "London Mixture" apart from the mark as shown. Owner of U.S. Reg. Nos. 155,951, 863,403, and others.
For Smoking Tobacco (Int. Cl. 34).
First use at least 1935; in commerce at least 1935.

SN 369,163. American Brands, Inc., New York, N.Y. Filed Aug. 27, 1970.

NEEDLES

For Cigars (Int. Cl. 34).
First use June 22, 1970.

SN 371,107. Rembrandt Tobacco Corporation (Overseas) Limited, Zurich, Switzerland. Filed Sept. 18, 1970.

FLAGSHIP

For Cigarettes (Int. Cl. 34).
First use July 16, 1970; in commerce July 16, 1970.

Class 18—Medicines and Pharmaceutical Preparations

SN 284,020. Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan. Filed Nov. 2, 1967.

KHK

Priority claimed under Sec. 44(d) on Japanese application filed July 24, 1967; Reg. No. 816,463, dated May 12, 1969.
For Amino Acids, Organic Acids, Nucleic Acid Derivatives, Saccharides, Antibiotics, Enzymes, and Animal Hormones (Int. Cl. 5).

SN 344,536. Baxter Laboratories, Inc., Morton Grove, Ill. Filed Nov. 25, 1969.

BARI-SHAKE

For Oral Barium Sulfate Unit (Int. Cl. 5).
First use July 23, 1969.

SN 346,612. Eisai Co., Ltd., Bunkyo-ku, Tokyo, Japan. Filed Dec. 18, 1969.

Juvela

For Vitamin E Nicotinate Preparations and Pharmaceutical Preparations Containing Vitamin E Nicotinate (Int. Cl. 5).
First use January 1967; in commerce April 1969.

Class 19—Vehicles

SN 310,481. Lockheed Aircraft Corporation, Burbank, Calif. Filed Oct. 24, 1968.

LOCKHEED

Owner of Reg. Nos. 320,151, 843,601, and 843,670.
For Space Satellite Launching Vehicles, Helicopters, Submarines, Commercial and Military Ships—Namely, Destroyers, Support Ships and Barges, Equipment Transfer Dollies, Propellant Transfer Carts, and Parts Thereof; and Off-the-Road Type Ground Vehicles and Amphibious Vehicles (Int. Cl. 12).
First use at least as early as 1959, on space satellite launching vehicles.

SN 313,703. Honda Giken Kogyo Kabushiki Kaisha (Honda Motor Co., Ltd.), Chuo-ku, Tokyo, Japan. Filed Dec. 5, 1968.

MINI TRAIL

For Motorcycles (Int. Cl. 12).
First use prior to Aug. 12, 1968; in commerce Aug. 12, 1968.

SN 335,386. Scorpion Inc., Crosby, Minn., by change of name from Trail-A-Sled, Inc., Crosby, Minn. Filed Aug. 14, 1969.

Scorpion

For Snow Mobiles (Int. Cl. 12).
First use on or about Sept. 1, 1964.

SN 341,427. C. O. Smith, Jr. Industries, Inc., Moultrie, Ga. Filed Oct. 22, 1969.

PEACHTREE HOUSING

Applicant disclaims the word "Housing" apart from the mark as shown.
For Mobile Homes (Int. Cl. 12).
First use Oct. 13, 1969.

SN 349,578. The Budd Company, Philadelphia, Pa. Filed Jan. 26, 1970.

PLANE-MATE

For Vehicles for Transporting Passengers From an Airport Terminal to an Aircraft (Int. Cl. 12).
First use Jan. 16, 1969.

SN 354,103. Aquanox, Inc., Englewood Cliffs, N.J., by change of name from Water Pollution Controls, Inc., Englewood Cliffs, N.J. Filed Mar. 16, 1970.

SLICK-SLED

For Water Craft for Removing and Recovering Oil Polluting the Surface of Water (Int. Cl. 12).
First use Dec. 10, 1969.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 310,480. Lockheed Aircraft Corporation, Burbank, Calif. Filed Oct. 24, 1968.

LOCKHEED

Owner of Reg. Nos. 320,151, 843,601, and 843,670.
For Metal Protecting Cathodic Anti-Corrosion Systems, and Parts Thereof (Int. Cl. 9).
First use at least as early as 1963.

SN 338,589. Medical Plastics Corporation of America, Greensboro, N.C. Filed Sept. 22, 1969.

MEDI-GARD

Owner of Reg. Nos. 829,172, 858,716, and others.
For Molded Plastic Caps Which Fit Over the Speaker and Receiver Ends of a Telephone, Said Caps Being Made of Plastic Containing Bacteriostatic Compounds Which Kill or Inhibit the Growth of Common Bacteria (Int. Cl. 9).
First use June 26, 1969.

SN 340,825. D. C. Heath and Company, Lexington, Mass., by change of name from Raytheon Education Company, Lexington, Mass. Filed Oct. 15, 1969.

DIROD

For Electrostatic Generators (Int. Cl. 7).
First use Sept. 18, 1969.

SN 349,654. S. S. Kresge Company, Detroit, Mich. Filed Jan. 26, 1970.

Kmart

Owner of Reg. Nos. 791,329, 807,487, 887,427, and others.
For Spark Plugs, Ignition Coils, Distributor Caps, and Ignition Tune-Up Kits, Including Rotor, Condenser and Electrical Contact Set (Int. Cls. 7 and 9).
First use on or before Nov. 14, 1969.

SN 354,444. KMS Industries, Inc., Ann Arbor, Mich. Filed Mar. 18, 1970.

MTI

For Television Cameras, Television Monitor Units, and Synchronizing Generators for Close Circuit Television Applications (Int. Cl. 9).
First use Dec. 31, 1966.

SN 354,860. Lewis Spring Products Limited, Redditch, Worcester, England. Filed Mar. 23, 1970.

DARAY

Owner of British Reg. No. 934,812, dated Dec. 3, 1968.
For Electrically Powered, Adjustable Lamps for Precision Lighting (Int. Cl. 11).

SN 355,208. Electronor Corporation, Panama, Panama. Filed Mar. 27, 1970.

CHEMNOR

For Electrodes (Int. Cl. 9).
First use on or about Jan. 27, 1970.

SN 355,211. Electronor Corporation, Panama, Panama. Filed Mar. 27, 1970.

ELECTRONOR

For Electrodes (Int. Cl. 9).
First use on or about Jan. 27, 1970.

SN 355,378. General Electric Company, Schenectady, N.Y. Filed Mar. 30, 1970.

FUSA-FLEX

For Coil Lead Seal Used for Electrical Insulating in the Industrial Arts (Int. Cl. 17).
First use Nov. 7, 1969.

SN 355,630. Douglas Battery Manufacturing Company, Winston-Salem, N.C. Filed Apr. 1, 1970.

DOUGLAS

For Electric Storage Batteries (Int. Cl. 9).
First use 1963; 1918 as to "Douglas."

SN 356,152. Sunbeam Corporation, Chicago, Ill. Filed Apr. 6, 1970.

SUNBEAM

For Electric Lather Dispensers (Int. Cl. 11).
First use Oct. 8, 1969.

SN 357,012. TRW Inc., Cleveland, Ohio. Filed Apr. 15, 1970.

TRW

Owner of Reg. Nos. 773,595 and 788,907.
For Electronic Components of All Kinds—Namely, Resistors, Capacitors, Inductors, Diodes, Transistors, Rectifiers, Motors, Transformers, Semiconductor Devices and Circuits, Hybrid and Integrated Circuits, Microelectronic Circuit Modules, Oscillators, Drivers, Amplifiers, Zeners, Regulators, Micro Diodes, Alloy Diodes, Microelectronic Filters, and Microelectronic Power Amplifiers (Int. Cl. 9).
First use Jan. 15, 1970.

SN 362,341. A. B. Chance Company, Centralia, Mo. Filed June 11, 1970.

EPOXILATOR

Owner of Reg. Nos. 719,947 and 889,621.
For Electrical Conductor Support Assemblies (Int. Cl. 9).
First use Apr. 7, 1970.

Class 22 — Games, Toys, and Sporting Goods

SN 347,488. Dunlop Tire and Rubber Corporation, Buffalo, N.Y. Filed Dec. 31, 1969.

Tuffli

For Golf Balls (Int. Cl. 28).
First use Dec. 9, 1969.

SN 369,305. Mattel, Inc., Hawthorne, Calif. Filed Aug. 28, 1970.

BABY HOLD-ME-TIGHT

Applicant makes no claim to exclusive right in the word "Baby" apart from the mark.
For Dolls, Doll Clothing, and Doll Accessories (Int. Cl. 28).
First use July 30, 1970.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

SN 282,769. Robert Blohm, Hamburg-Bergedorf, Germany. Filed Oct. 18, 1967.

BLOHM

Owner of German Reg. No. 830,023, dated Feb. 20, 1967.
For Grinding Machines and Feed Control Devices for Grinding Machines (Int. Cl. 7).

SN 294,598. Compagnie Normande de Mechanique de Precision (C.N.M.P.), Societe Anonyme, Gonfreville-l'Orcher, Seine Maritime, France. Filed Apr. 1, 1968.

CNMP

Owner of French Reg. No. 719,669, dated Nov. 9, 1966.
For Horizontal Boring Machines, Indexing and Turning Tables, Vertical Boring Mills, Vertical Grinding Machines; and Machine Parts and Accessories—Namely, Face Plates, Heads, and Boring Bars (Int. Cl. 7).

SN 304,492. Nitto Kohki Company, Limited, Ohta-ku, Tokyo, Japan. Filed Aug. 6, 1968.

BELTON

Priority claimed under Sec. 44(d) on Japanese application filed Feb. 29, 1968; Reg. No. 858,970, dated June 2, 1970.
For Portable, Belt-Type Grinding Tools (Int. Cl. 7).

SN 306,268. Ohio Machinery Company, Independence, Ohio. Filed Aug. 29, 1968.



The drawing is lined for the color yellow.
For Tractors, Bulldozers, Rippers, Excavators Mounted on Tracks, Pipelayers, Scrapers, and Tool Bars (Int. Cl. 7).
First use April 1957.

SN 310,478. Lockheed Aircraft Corporation, Burbank, Calif. Filed Oct. 24, 1968.

LOCKHEED

Owner of Reg. Nos. 320,151, 843,601, and 843,670.
For Shipboard and Industrial Cranes and Hoists, Maintenance Workstands, Wrenches, and Wrench Adapters, Jacks, Jack Pads and Towbars, All for the Maintenance, Repair and Servicing of Aircraft, Missiles, Satellites and Space Vehicles; Dredges; Shipboard and Industrial Cranes and Hoists; and Solid Propellant Rocket Motors (Int. Cl. 7).
First use at least as early as 1939.

SN 328,366. Touron y Cia., S.A. (Tycosa-Alfa Laval), Madrid, Spain. Filed May 26, 1969.

CRISBEA ALFA-LAVAL

Priority claimed under Sec. 44(d) on Spanish application filed Feb. 22, 1969; Reg. No. 581,985, dated May 20, 1970.
For Agricultural Machinery and Equipment—Namely, Harvesters and Pickers for Olives, Fruit and Vegetables, and Parts Thereof (Int. Cl. 7).

SN 327,940. Marketing Associates, Inc., d.b.a. Satisfaction House, St. Louis, Mo. Filed May 21, 1969.

Satisfaction House

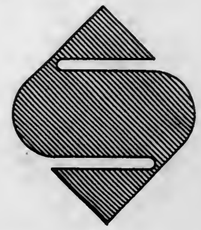
For Hand Tools (Int. Cl. 8).
First use Mar. 15, 1968.

SN 328,988. Hispano Suiza (Suisse) S.A., Geneva, Switzerland. Filed June 3, 1969.

HISPARAPID

Owner of Swiss Reg. No. 226,592, dated May 30, 1967.
For Machines for the Textile Industry—Namely, Carding Machines and Parts Thereof (Int. Cl. 7).

SN 334,399. Superior Chemical Products, Inc., Philadelphia, Pa. Filed Aug. 4, 1969.



The drawing is lined for the color green, but without limitation to any specific color.
For Equipment for Pest Control Purposes—Namely, Pumps, Sprayers, Drills, Tanks, Roto Hammers, and Injection Rods (Int. Cl. 7).
First use May 1, 1966.

SN 337,872. Templeton, Kenly & Company, Broadview, Ill. Filed Sept. 15, 1969.

CHARGER

For Hydraulic Power Systems, Comprised of Power-Operated Pumps, Directional Control Valves, and Reservoirs (Int. Cl. 7).
First use in or about August 1968.

SN 341,784. Bernzomatic Corporation, Rochester, N.Y. Filed Oct. 27, 1969.

BERNZCUTTER

The word "Cutter" is disclaimed apart from the mark as shown.
For Hand Cutting Tools for Cutting Sheet Plastics, Floor Tile, Sheet Metals, Pegboard, Paneling, and the Like (Int. Cl. 8).
First use Aug. 25, 1969.

SN 342,712. Agemaspark Limited, High Wycombe, England. Filed Nov. 5, 1969.

EUROSPARK

Owner of British Reg. No. 933,117, dated Oct. 29, 1968.
For Spark Erosion Machines and Parts Therefor (Int. Cl. 7).

SN 342,748. Landis Machine Company, d.b.a. Oster Manufacturing, a Teledyne Company, Wickliffe, Ohio. Filed Nov. 5, 1969.

PIPE MASTER

Applicant seeks no right in the word "Pipe," apart from the mark as shown. Owner of Reg. No. 426,003.
For Pipe, Bolt, and Rod Threading and Cutting-Off Machines (Int. Cl. 7).
First use Sept. 15, 1939.

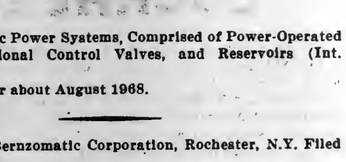
SN 345,617. Dynamark Sales, Inc., Chicago, Ill. Filed Dec. 8, 1969.

SNO-COLT

For Power Snow Shovel (Int. Cl. 7).
First use Sept. 22, 1969.

SN 345,912. John J. Bagwell, d.b.a. Crenshaw Chain Saw Company, Luverne, Ala. Filed Dec. 11, 1969.

Bagwell's Uni-Plow



Applicant disclaims the representation of a plow apart from the mark as shown.
For Engine Driven Plow (Int. Cl. 7).
First use Feb. 15, 1969.

SN 346,036. Nippon Accumulator Co., Ltd., Shimizu, Shizuoka, Japan. Filed Dec. 12, 1969.

PREFTY

Owner of Japanese Reg. No. 713,230, dated July 14, 1966.
For Noise and Pressure Fluctuation Dampeners Consisting of Tanks Specially Adapted for the Storage of Compressible Fluid Arranged to Cushion and Absorb Pulsation and Shock in a Hydraulic Circuit (Int. Cl. 7).
First use June 30, 1965; in commerce June 15, 1967.

SN 349,349. The B. F. Goodrich Company, Akron, Ohio. Filed Jan. 22, 1970.

CUTLESS

Owner of Reg. No. 150,936.
For Journal Bearings for Rotating Machinery (Int. Cl. 7).
First use Aug. 3, 1920.

SN 353,190. The Grant Company, Chicago, Ill. Filed Mar. 5, 1970.

SPACE AGE

For Saw Blade Set (Int. Cl. 8).
First use Aug. 19, 1969.

SN 355,536. W. & M. Ostermann, Wuppertal-Barmen, Germany. Filed Mar. 31, 1970.



For Sheathing or Armoring Machines for Elongated Flexible Stock Such as Hoses and Cables, and Accessories for Such Machines—Namely, Bobbins, Bobbin Winders, Bobbin Holders, Soaking Tanks, Cutters, Pull-Offs, Winders, Coiling Blocks and Wire Carriers, Braiding Machines, Yarn Lapping Machines, Steel Wire Lapping Machines, Taping Machines, Spiralling Machines, Wrapping and Unwrapping Machines and Steel Wire Winding Machines (Int. Cl. 7).
First use 1945; in commerce 1957.

SN 364,306. Wayne Engineering Corp., Cedar Falls, Iowa. Filed July 2, 1970.

COMPAC TAINER

For Refuse Compacting Units for Mounting on Vehicles (Int. Cl. 7).
First use Aug. 15, 1968.

Class 24—Laundry Appliances and Machines

SN 360,481. Pellerin Milnor Corporation, Kenner, La. Filed May 21, 1970.

MILNOR

Owner of Reg. Nos. 591,110 and 666,284.
For Laundry and Dry Cleaning Machinery (Int. Cl. 7).
First use May 12, 1970.

Class 25—Locks and Safes

SN 360,109. National Hardware Company, Inc., Ozone Park, N.Y. Filed May 18, 1970.

SELF-A-LINE

For Lock Sets (Int. Cl. 6).
First use Apr. 6, 1970.

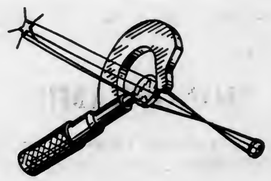
Class 26—Measuring and Scientific Appliances

SN 319,567. Basic Computing Arts, Inc., Mountain View, Calif. Filed Feb. 19, 1969.



For Electronic Apparatus Relating to Computer Equipment—Namely, an Analog Multivariate Function Generator (Int. Cl. 9).
First use Nov. 1, 1968.

SN 340,025. Fred Lustig, d.b.a. Scientific Instrument Company, Sunnyvale, Calif. Filed Oct. 7, 1969.



For Optical, Scientific and Mechanical Instruments—Namely, Special Purpose Microscopes Including Cloud Chamber Microscopes and Mask Aligning Microscopes, Photomicrographic Microscopes With and Without Camera Mounts and Remote Positioning Devices for Remotely Positioning Small Parts or Portions Thereof for Visual Observation or for Photographing Through a Microscope Operated Either Electrically or Mechanically (Int. Cl. 9).
First use July 1, 1961.

SN 342,196. Lehigh Valley Electronics, Inc., Fogelsville, Pa. Filed Oct. 28, 1969.

LVE

For Behavioral Analysis Apparatus for Studying, Recording, Testing and Analyzing Behavior Patterns of Human and Animal Subjects—Namely, Animal Environmental Systems (Test Cages and Chambers, and Stimulus Response, and Reinforcement Devices Therefor), Electromechanical and Solid State Controls and Recording Devices for Said Systems; Physiological Instruments; and Computer Systems All for Use in Behavioral Analysis (Int. Cl. 9).
First use May 16, 1961.

SN 348,173. Optoelectronics, Inc., San Rafael, Calif. Filed Jan. 9, 1970.

OPTO

For Radiation Detectors for Sensing Radiation Within the Visible and Infrared Spectrums (Int. Cl. 9).
First use Dec. 4, 1969.

SN 357,678. Diamond Research Corporation, Rolling Hills, Calif. Filed Apr. 23, 1970.

RANGER

For Test Sheets With Temperature-Responsive Areas Thereon To Determine Operating Temperature of Copying Machines (Int. Cl. 9).
First use Mar. 17, 1970.

SN 357,823. Gevaert-Agfa N.V., Mortsel, Belgium. Filed Apr. 24, 1970.

DUPLICHROME

Owner of Belgian Reg. No. 20,519, dated Nov. 18, 1969.
For Light-Sensitive Photographic Material, Especially Photographic Films (Int. Cl. 1).

SN 357,824. Gevaert-Agfa N.V., Mortsel, Belgium. Filed Apr. 24, 1970.

MAMORAY

Owner of Belgian Reg. No. 20,410, dated June 25, 1969.
For Light-Sensitive Photographic Material, Especially Photographic Films (Int. Cl. 1).

SN 358,572. Industrial Standard Mfg. Co., Inc., Calumet City, Ill. Filed May 1, 1970.

TONLIMITER

For Dynamic Load Detecting Devices for Presses (Int. Cl. 9).
First use November 1963.

SN 358,838. Baumritter Corporation, New York, N.Y. Filed May 5, 1970.

ETHAN ALLEN

"Ethan Allen" is the name of the early American patriot, now deceased. Owner of Reg. Nos. 381,746 and 737,146.
For Barometers (Int. Cl. 9).
First use during October 1969.

SN 359,551. International Harvester Company, Chicago, Ill. Filed May 13, 1970.

INTERNATIONAL

For Electronic Seed Monitoring Device for Use in Agriculture To Indicate the Smooth Flow of Seeds Through the Hoppers of Planting Machines (Int. Cl. 9).
First use March 1970.

Class 27 — Horological Instruments

SN 356,449. General Time Corporation, Thomaston, Conn., assignee of Mark Wallach, New York, N.Y. Filed Apr. 9, 1970.

LOLLI-CLOCK

For Watches and Clocks (Int. Cl. 14).
First use Mar. 2, 1970.

Class 29 — Brooms, Brushes, and Dusters

SN 360,443. Baker Brush Co., Inc., New York, N.Y. Filed May 21, 1970.

BRUSHES BY BAKER

Owner of Reg. Nos. 508,508, 868,390, and others.
For Paint Brushes—Namely, Artists' Brushes and Painters' Brushes (Int. Cl. 16).
First use at least as early as 1928.

Class 32 — Furniture and Upholstery

SN 281,110. Plaza Furniture Co., Jackson Heights, N.Y. Filed Sept. 25, 1967.

UPP

For Furniture for the Home—Namely, Sofas, Chairs, Tables, Dining Room Sets, Living Room Sets, Bedroom Sets, Breakfronts, Bookcases, and Home Bars (Int. Cl. 20).
First use Jan. 9, 1957.

SN 341,733. Kewlox (1969) Limited, London, England. Filed Oct. 13, 1969.

KEWLOX

Owner of British Reg. No. 882,401, dated July 28, 1965.
For Furniture and Parts Thereof Which Are Capable of Being Assembled From a Kit of Parts and Readily Dismantled, Said Kit Including Wooden or Glass Panels and Horizontal Structural Members and Vertical Metal Strips Which Act To Connect All the Parts Together Without the Use of Nails, Screws or Glue, and Said Furniture Including Wardrobes, Cupboards, Dressing Room Wall Units, Doors, Side Panels, Horizontal Rails, Distance Pieces, Tops, Bottoms, Shelves, Hanging Rails, Cupboard Backs, and the Like (Int. Cl. 20).

SN 345,049. Matilda M. Miazga, Riverdale, Md. Filed Dec. 2, 1969.

TILLIE WHEEL

For Rack for Supporting Articles, Such as Shoes and the Like (Int. Cl. 20).
First use Nov. 27, 1969.

SN 346,580. Scroll, Inc., Miami, Fla. Filed Dec. 18, 1969.

SCROLL

Owner of Reg. No. 668,041.
For Metal Furniture—Namely, Chairs, Lounge Chairs, Dining Tables, Coffee Tables, End Tables, Sofas, Love Seats and Patio Furniture of Both Indoor and Outdoor Type (Int. Cl. 20).
First use Dec. 10, 1957.

SN 347,445. Ther-A-Pedic Associates, Inc., Passaic, N.J. Filed Dec. 30, 1969.

THER-A-PEDIC TRIPLE EDGE

Applicant makes no claim to the words "Triple Edge" apart from the mark as shown, but not otherwise. Owner of Reg. No. 787,550.
For Mattresses and Box Springs (Int. Cl. 20).
First use Mar. 1, 1965.

SN 347,640. Questor Corporation, Toledo, Ohio. Filed Jan. 2, 1970.

QUESTOR

For Baby Carriers of the Furniture Type and Seats for Small Children (Int. Cl. 20).
First use Sept. 14, 1968.

SN 347,926. Haroldson Industries, Inc., Kirkland, Wash. Filed Jan. 7, 1970.

interchange

For Wall Cabinets, Desks, and Chests (Int. Cl. 20).
First use Dec. 1, 1969.

SN 351,949. Joanna Western Mills Company, Chicago, Ill. Filed Feb. 20, 1970.

SUNCHEX

For Window Shades (Int. Cl. 20).
First use Jan. 31, 1969.

SN 352,575. Shepherd Casters, Inc., St. Joseph, Mich., assignee of Shepherd Manufacturing, Inc., St. Joseph, Mich. Filed Feb. 27, 1970.

MONOFRAME

For Frames for Upholstered Furniture (Int. Cl. 20).
First use Jan. 16, 1970.

SN 353,302. Group Seven, Inc., Grand Rapids, Mich. Filed Mar. 6, 1970.

WHISTLE SEAT

Applicant disclaims the word "Seat" apart from the mark.
For Furniture—Namely Ottoman-Type Seats (Int. Cl. 20).
First use in or about May 1969.

SN 356,728. Modulo 3 Incorporated, Chicago, Ill. Filed Apr. 13, 1970.

MODULO 3

For Office Furniture (Int. Cl. 20).
First use on or before Feb. 19, 1970.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 329,722. Incinerator Engineering Company, Philadelphia, Pa. Filed June 11, 1969.

DESTRUCTALL

For Incinerators (Int. Cl. 11).
First use June 30, 1968.

SN 330,682. Air Reduction Company, Incorporated, New York, N.Y. Filed June 23, 1969.

AVACOR

Owner of Reg. No. 878,636.
For Arc Welding Electrodes (Int. Cl. 9).
First use June 2, 1969.

SN 337,882. Ato-Mac Industries, Inc., Detroit, Mich. Filed Sept. 15, 1969.

SPARKY

For Lantern and Stove Lighters (Int. Cl. 11).
First use on or about Jan. 1, 1950.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 342,461. International Buyers Corporation, Pineville, N.C. Filed Nov. 3, 1969.

LANCER CONQUEROR

For Pneumatic Tires for Automobiles (Int. Cl. 12).
First use Sept. 23, 1969.

Class 36 — Musical Instruments and Supplies

SN 332,832. Kabushiki Kaisha Hattori Tokeiten, d.b.a. K. Hattori & Co., Ltd., Chuo-ku, Tokyo, Japan. Filed July 17, 1969.

SEIKO

Owner of Japanese Reg. No. 686,046, dated Sept. 21, 1965.
For Metronomes (Int. Cl. 9).

SN 333,223. Ray Boatright, Los Angeles, Calif. Filed June 9, 1969.

Moseley of California

Applicant disclaims "Moseley of California" apart from the mark as shown.
For Guitars and Strings, Picks and Amplifiers Therefor (Int. Cl. 15).
First use Feb. 25, 1969.

SN 342,739. Gulton Industries, Inc., Metuchen, N.J. Filed Nov. 5, 1969.

GULTON

Owner of Reg. No. 644,673.
For Electric Organs, Phonographs, Phonograph Pickup Cartridges, and Phonograph Needles (Int. Cls. 9 and 15).
First use February 1961.

Class 37 — Paper and Stationery

SN 350,330. Wiggins Teape Limited, London, England. Filed Feb. 2, 1970.

READASPEED

Owner of British Reg. No. B924,515, dated May 2, 1968.
For Printing and Writing Paper (Int. Cl. 16).

SN 355,781. Lowe Paper Company, Ridgefield, N.Y. Filed Apr. 2, 1970.

NU-GLOSS

Owner of Reg. No. 746,935.
For Coated Papers, Coated Paperboards and Coated Boxboards (Int. Cl. 16).
First use Nov. 7, 1969.

SN 356,667. Georgia-Pacific Corporation, Portland, Oreg. Filed Apr. 13, 1970.



Owner of Reg. Nos. 405,606 and 606,402.
For Kraft Paper and Paperboard (Int. Cl. 16).
First use May 1, 1969.

SN 356,668. Georgia-Pacific Corporation, Portland, Oreg. Filed Apr. 13, 1970.



Owner of Reg. Nos. 405,606 and 606,402.
For Kraft Paper and Paperboard (Int. Cl. 16).
First use May 1, 1969.

SN 356,882. Keuffel & Esser Company, Morristown, N.J. Filed Apr. 14, 1970.

COMSTOC

For Graph and Plotting Papers (Int. Cl. 16).
First use Nov. 16, 1967.

SN 357,223. Manifold Business Forms Company, Chicago, Ill. Filed Apr. 17, 1970.

TABMASTER

For Printed Business Forms (Int. Cl. 16).
First use February 1952.

Class 38—Prints and Publications

SN 330,496. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed June 19, 1969.



The term "Greetings" is disclaimed apart from the mark as shown.
For Greeting Cards in the Form of Collapsible Three Dimensional Figures (Int. Cl. 16).
First use on or about Nov. 20, 1968.

SN 330,528. Robert McMichael, Inc., New York, N.Y. Filed June 19, 1969.

AMERICAN GUIDE TO

For Books (Int. Cl. 16).
First use Feb. 21, 1969.

SN 331,470. Coles Publishing Company Limited, Rexdale, Ontario, Canada. Filed June 30, 1969.

FORUM

Owner of Canadian Reg. No. 163,141, dated May 30, 1969.
For Printed Publications—Namely, Educational Texts, Student Notes, Percis, Summaries and Translations (Int. Cl. 16).

SN 332,850. Mary Susan Pearson, Silver Spring, Md. Filed July 17, 1969.

FIT-KIT

For Instruction Book for Dress Pattern Alteration (Int. Cl. 16).
First use May 20, 1969.

SN 338,276. Visual Data Corporation, Chesterfield, Mo. Filed Sept. 18, 1969.

VISUALINE

For Film Strips, Slides, Gift Packages Including 3-D Viewer and Slides, Packaged Film Strips in Mailing Folder, and Packaged Film Strips in Albums (Int. Cl. 9).
First use May 1969.

SN 340,737. Psychological Associates, Inc., St. Louis, Mo. Filed Oct. 15, 1969.



For Text Booklets and Questionnaire Sheets (Int. Cl. 16).
First use January 1958.

SN 341,284. RC Publications, Inc., Washington, D.C. Filed Oct. 21, 1969.

DESIGN & ENVIRONMENT

For Newsletter and Magazine (Int. Cl. 16).
First use Sept. 19, 1969.

SN 342,004. Adventures in Living, Inc., Nashville, Tenn. Filed Oct. 29, 1969.

ADVENTURES IN LIVING

For Magazine Including Articles and Advertising Related to Real Estate Development, Home Building and Home Furnishings (Int. Cl. 16).
First use July 17, 1969.

SN 342,512. Reinforced Plastics, Inc., Warminster, Pa. Filed Nov. 3, 1969.

MODUCAL

For Decalcomanias (Int. Cl. 16).
First use at least as early as July 31, 1969.

SN 343,040. Edgar Rice Burroughs, Inc., Tarzana, Calif. Filed Nov. 10, 1969.

TARZAN

Owner of Reg. Nos. 799,908 and 824,548.
For Cartoon Stories for Optical Viewers and Still Projectors, Coloring Books, and Trading Cards (Int. Cl. 16).
First use at least as early as Apr. 25, 1967.

SN 343,183. System Development Corporation, Santa Monica, Calif. Filed Nov. 10, 1969.

SDC DATACENTER BULLETIN

The words "Datacenter Bulletin" are disclaimed apart from the mark as shown. Owner of Reg. Nos. 727,338, 798,183, and others.
For Bulletins Printed From Time to Time (Int. Cl. 16).
First use on or about Sept. 2, 1969.

SN 345,078. Industry Publications, Inc., Fairfield, N.J. Filed Dec. 2, 1969.



For Magazine (Int. Cl. 16).
First use Feb. 6, 1969.

SN 347,034. Motor Travel Services, Inc., Minneapolis, Minn. Filed Dec. 23, 1969.

SNO-MOBILE TIMES

For Magazine (Int. Cl. 16).
First use June 10, 1969.

SN 347,834. Intext, Inc., Scranton, Pa. Filed Jan. 6, 1970.



Applicant makes no claim to the word "Book" apart from the mark as shown.
For Books (Int. Cl. 16).
First use Nov. 18, 1969.

SN 348,798. Qasar Publications, Inc., New York, N.Y. Filed Jan. 16, 1970.

TV BEACON

No registration rights are claimed for the notation "TV" apart from the mark shown, but applicant waives none of its common law rights in the mark shown and all features thereof.
For Weekly Television Program Guide (Int. Cl. 16).
First use Sept. 25, 1966.

SN 348,799. Qasar Publications, Inc., New York, N.Y. Filed Jan. 16, 1970.



No registration rights are claimed for the notation "TV" apart from the mark shown, but applicant waives none of its common law rights in the mark shown and all features thereof.
For Weekly Television Program Guide (Int. Cl. 16).
First use Sept. 25, 1966.

SN 350,628. Universal Publishing & Distributing Corporation, New York, N.Y. Filed Feb. 5, 1970.



For Magazine (Int. Cl. 16).
First use Dec. 11, 1969; Dec. 15, 1950, in a different form.

SN 350,844. Allied Publications, Inc., Fort Lauderdale, Fla. Filed Feb. 9, 1970.

THE NEW WOMAN

For Magazine (Int. Cl. 16).
First use Nov. 5, 1969.

SN 351,905. Child Guidance Products, Inc., Toledo, Ohio. Filed Feb. 20, 1970.

PEGGY

For Children's Books (Int. Cl. 16).
First use at least as early as 1963.

SN 351,906. Child Guidance Products, Inc., Toledo, Ohio. Filed Feb. 20, 1970.

PEGGY CLOTH BOOK

Applicant disclaims the words "Cloth Book" apart from the mark.
For Children's Books (Int. Cl. 16).
First use at least as early as 1963.

SN 351,962. The New Weekly Project, Inc., Washington, D.C. Filed Feb. 20, 1970.



For Weekly Newspaper (Int. Cl. 16).
First use Mar. 10, 1969.

SN 354,807. Chicagoland Aamco Talk Converter, Chicago, Ill. Filed Mar. 23, 1970.



For Association Business Newspaper Issued Monthly (Int. Cl. 16).
First use Mar. 6, 1970.

SN 359,708. Four Pi, Inc., Oak Park, Ill. Filed May 15, 1970.

CALCTRAN

For Computer Program in the Form of Punched Cards, Magnetic Tape, and Other Machine Readable Media; and an Instruction Manual for Said Program (Int. Cl. 16).
First use Dec. 28, 1968.

SN 359,718. Arthur W. Fischer, Cincinnati, Ohio. Filed May 14, 1970.



Applicant disclaims, except for common law rights, the use of the words "Famous Family Finance Facts" apart from the mark as shown.

For Instructional Budget and Purchasing Booklets (Int. Cl. 16).

First use Apr. 30, 1970.

SN 361,629. United Computing Corporation, Redondo Beach, Calif. Filed June 3, 1970.

UNIAPT

For Computer Programs (Int. Cl. 16).
First use Jan. 11, 1968.

SN 363,856. American Photographic Book Publishing Co., Inc., New York, N.Y. Filed June 29, 1970.

amphoto

For Books and Newsletters Concerning Photography (Int. Cl. 16).
First use June 15, 1967.

SN 364,343. The Scrimshaw Press, San Francisco, Calif. Filed July 6, 1970.

SCRIMSHAW

For Books and Greeting Cards (Int. Cl. 16).
First use on or about November 1963.

SN 370,403. Dials Inc., Englewood, Colo. Filed Sept. 11, 1970.

STAR WHEEL

For Printed Horoscope in Card Form (Int. Cl. 16).
First use Aug. 28, 1970.

SN 370,520. Webb Publishing Company, St. Paul, Minn. Filed Sept. 14, 1970.

Track N' Trail DEALER

For Trade Magazine (Int. Cl. 16).
First use Sept. 2, 1970.

SN 370,780. Nectar Press, Inc., Hollywood, Calif. Filed Sept. 16, 1970.

FORGOTTEN FANTASY

For Bi-Monthly Magazine (Int. Cl. 16).
First use Aug. 5, 1970.

Class 39 — Clothing

SN 293,137. Isadore A. Hessel, d.b.a. I. A. Hessel Associates, St. Louis, Mo. Filed Mar. 13, 1968.

"FANEE" PANTY

No exclusive right is claimed in the word "Panty."
For Panties for Women, Misses and Children (Int. Cl. 25).
First use Mar. 4, 1968.

SN 304,623. Ringer Company, Minneapolis, Minn. Filed Aug. 7, 1968.

it's a Ringer

For Men's and Boys' Outerwear—Namely, Jackets, Ski Jackets, Parkas, Knee-Length Walking Coats, Caps, Hats, and Knitted Face Masks (Int. Cl. 25).
First use 1963; Nov. 17, 1949, as to "Ringer."

SN 311,377. Jones Knitting Corporation, New York, N.Y. Filed Nov. 5, 1968.

MISS JONES

For Junior Miss, and Women's Knitwear—Namely, Knit and Woven Shirts and Blouses for Junior Miss and Women, Knit and Woven Skirts, Knit and Woven Pants and Slacks, Knit and Woven Dresses, Jackets and Coats, All for Junior Miss, and Women (Int. Cl. 25).
First use Oct. 23, 1968.

SN 318,233. Royal Industries, Inc., Berkeley, Ill. Filed Feb. 3, 1969.

ROYAL MAID

For Hosiery (Int. Cl. 25).
First use in or about October 1964.

SN 330,417. Red Wing Shoe Company, Inc., Red Wing, Minn. Filed June 18, 1969.

"SWEAT-PROOF"

For Split Leather Insoles (Int. Cl. 25).
First use 1939.

SN 330,817. Caressa, Inc., Miami, Fla. Filed June 24, 1969.

Magnifico!

For Shoes (Int. Cl. 25).
First use May 14, 1969.

SN 331,008. Barron, Anderson Company, Boston, Mass. Filed June 26, 1969.

Albatross

For Rainwear and All-Weather Coats (Int. Cl. 25).
First use April 1969.

SN 331,764. Leslie Fossey London Fashions, Inc., Columbus, Ohio. Filed July 3, 1969.

BOND THE STREET GANG BY LESLIE FOSSEY

"Leslie Fossey" is the name of a living individual whose consent is of record.
For Shoes (Int. Cl. 25).
First use June 20, 1969.

SN 332,902. After Six, Incorporated, Philadelphia, Pa. Filed July 18, 1969.

ROBERTO DON PAULO

The mark is fanciful and does not identify any known living individual.
For Men's Clothing—Namely, Formal Suits, Coats, Trousers, Shirts, Vests, Cummerbunds, and Ties (Int. Cl. 25).
First use on or about May 1, 1969.

SN 333,743. Palmland Fashions, Inc., Miami, Fla. Filed July 28, 1969.

TAKE FIVE

For Boys' Sport Shirts, Swimwear, Walk Shorts, Slacks and Leisure Jackets (Int. Cl. 25).
First use July 18, 1969.

SN 333,968. Majelli, Inc., New York, N.Y. Filed July 29, 1969.

majelli

For Wearing Apparel—Namely, Scarfs (Int. Cl. 25).
First use January 1969.

SN 335,542. Broadway-Hale Stores, Inc. (California corporation), Los Angeles, Calif., by merger into Broadway-Hale Stores, Inc. (Delaware corporation), Los Angeles, Calif. Filed Aug. 18, 1969.

VIVA ITALIA

The word "Italia" is disclaimed apart from the balance of the mark as shown. Owner of Reg. No. 631,997.
For Women's Shoes (Int. Cl. 25).
First use at least as early as February 1963.

SN 335,561. Michael P. Ebert and William S. Ebert (joint owners), d.b.a. Ebert Enterprises, Columbia, S.C. Filed Aug. 18, 1969.

EE

For Jackets and Related Racing Apparel (Int. Cl. 25).
First use September 1967.

SN 335,693. Genesco Inc., Nashville, Tenn. Filed Aug. 19, 1969.

ANDRÉ FRANCE

"André France" is fanciful and is not the name of any known living individual.
For Women's Shoes (Int. Cl. 25).
First use at least as early as 1962.

SN 335,908. Philip Rothenberg & Co., Inc., New York, N.Y. Filed Aug. 8, 1969.

STUFF



Owner of Reg. Nos. 796,437 and 869,441.
For Slacks, Skirts, Jumpers, Shifts, Jackets, Shorts, Pant Dress, Shirts, Dresses for Ladies (Int. Cl. 25).
First use June 18, 1969.

SN 337,540. Genesco Inc., Nashville, Tenn. Filed Sept. 10, 1969.

allen Jaymison

The name "Allen Jaymison" is fanciful.
For Men's Slacks (Int. Cl. 25).
First use May 22, 1969.

SN 338,124. Harry Brahm, Miami, Fla. Filed Sept. 17, 1969.

AIR WALK SHOE AIR CONDITIONER

The term "Shoe" is disclaimed apart from the mark as shown.
For Insoles of the Air Conditioner Type (Int. Cl. 25).
First use July 3, 1969.

SN 338,148. Gordons of Beverly Hills, Inc., Highland Park, Ill. Filed Sept. 17, 1969.

JUST JEANS

The word "Jeans" is disclaimed apart from the mark as shown, without disclaiming any common law rights therein.
For Trousers for Men, Women, and Children (Int. Cl. 25).
First use July 24, 1969.

SN 341,367. Christian Cuvelier & Cie., Tourcoing, Nord, France. Filed Oct. 22, 1969.

CHRISTIAN CUVELIER

"Christian Cuvelier" is the name of a living individual whose consent is of record. Owner of French Reg. No. 701,188, dated Oct. 26, 1965.
For Clothing—Namely, Tailor-Made Suits, Dresses, Blouses, Bathing Suits, Skirts, Slacks, Halters, Sweaters, Jackets, Scarves, Hosiery, and Gloves (Int. Cl. 25).
First use 1962; in commerce 1963.

SN 341,368. Christian Cuvelier & Cie, Tourcoing, Nord, France. Filed Oct. 22, 1969.

Jean Dessès

Priority claimed under Sec. 44(d) on French Reg. No. 764,414, dated June 20, 1969. "Jean Desses" refers to a well-known dress designer, now deceased.
For Clothing—Namely, Tailor-Made Suits, Dresses, Blouses, Bathing Suits, Skirts, Slacks, Halters, Sweaters, Jackets, Scarves, Hosiery, and Gloves (Int. Cl. 25).
First use 1962; in commerce 1963.

SN 341,707. St. Louis Shoe Corporation, St. Louis, Mo. Filed Oct. 24, 1969.



Applicant disclaims the representation of the shoe per se, apart from the mark as shown.
For Women's Shoes (Int. Cl. 25).
First use Mar. 17, 1969.

SN 343,545. Richard Gregg Manufacturing Co., Inc., Huntsville, Ala. Filed Nov. 14, 1969.



For Rain and Wind Bonnet (Int. Cl. 25).
First use Sept. 26, 1969.

SN 345,417. Jefferson Stores, Inc., Miami, Fla. Filed Dec. 5, 1969.

RICHARD LAWRENCE

The name "Richard Lawrence" is fanciful and not that selected as being the name of an individual.
For Men's Wearing Apparel—Namely, Coats, Pants, Sweaters, and Shirts (Int. Cl. 25).
First use January 1968.

SN 346,226. Coverall Mfg. Co., Inc., Philadelphia, Pa. Filed Dec. 15, 1969.



For Items of Apparel—Namely, Men's Work Shirts, Men's Work Pants, Men's Work Jackets and Men's Work Coveralls Sold Only at Wholesale to Laundries for Rental Purposes (Int. Cl. 25).
First use Oct. 2, 1969.

SN 349,524. Etablissements Camuset, Romilly - sur - Seine, Aube, France. Filed Jan. 26, 1970.

MICHEL JAZY

"Michel Jazy" is the name of a living individual whose consent is of record. Owner of French Reg. No. 752,909, dated Oct. 16, 1968.
For Sport and Relaxation Clothes, Particularly Shorts, Jerseys, Jerkins, Leotards, Underwear, and Footwear (Int. Cl. 25).
First use at least as early as Oct. 1, 1968; in commerce at least as early as Apr. 10, 1969.

SN 349,755. N. Edelson Sons Corporation, New York, N.Y. Filed Jan. 27, 1970.

LADY EDSO

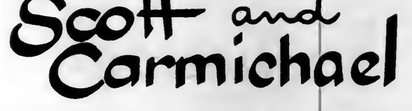
Owner of Reg. No. 636,495.
For Women's and Misses' Slips, Nightgowns, Pajamas, and Chemises (Int. Cl. 25).
First use Jan. 2, 1941.

SN 350,326. Varsity House, Inc., Columbus, Ohio. Filed Feb. 2, 1970.

ZIPPITY-DO-DAT

For Children's Clothing—Namely, Shirts (Int. Cl. 25).
First use Mar. 10, 1969.

SN 351,943. Ideal Shoe Company, Philadelphia, Pa. Filed Feb. 20, 1970.



For Men's, Women's and Children's Footwear (Int. Cl. 25).
First use Aug. 1, 1966.

SN 352,952. Etablissements Lejaby, Ol Bellegarde, France. Filed Mar. 3, 1970.

FRAGANCE

Owner of French Reg. No. 756,062, dated June 17, 1968.
For Articles of Feminine Clothing—Namely, Brassiers, Slips Corsets, Lingerie, Bathing Costumes, Stockings (Int. Cl. 25

SN 353,024. Charles Knitting Mills, Inc., Chicago, Ill. Filed Mar. 4, 1970.



For Shirts, Sweaters, Pants, Coats, Jackets, Suits, Underwear, Hats, Suspenders, and Belts (Int. Cl. 25).
First use Jan. 6, 1970.

SN 355,467. Ultra Smart Hosiery Co., Inc., New York, N.Y. Filed Mar. 30, 1970.

GOLD MARK

For Ladies' Hosiery (Int. Cl. 25).
First use Mar. 4, 1960.

SN 357,944. Batchelder Rubico, Inc., Boston, Mass. Filed Apr. 27, 1970.

BARUWAY

For Shoes (Int. Cl. 25).
First use Apr. 15, 1970.

SN 358,002. The H. W. Gossard Co., Chicago, Ill. Filed Apr. 27, 1970.

ARTEMIS

Owner of Reg. No. 364,758.
For Garments for Ladies and Children—Namely, Bloomers, Panties, Briefs, Vests, Chemises, Petticoats, Slips, Gowns, and Pajamas (Int. Cl. 25).
First use on or about July 5, 1938.

SN 358,764. George F. Kratz, Portland, Oreg. Filed May 4, 1970.



The lining shown on the drawing is merely for the purposes of reproducing the lines shown on the specimen and not for the purpose of indicating the color red.
For Soft Sole Gym Shoes and Slippers (Int. Cl. 25).
First use 1947.

SN 360,691. Ballito Hosiery Mills Limited, London, England. Filed May 25, 1970.

BALLITO

Owner of British Reg. No. 519,851, dated Jan. 28, 1931.
For Pantee Hose (Int. Cl. 25).

SN 361,328. Irene of New York, Inc., New York, N.Y. Filed June 1, 1970.

IRENE OF NEW YORK

For Hats, Veils, Scarves, Boas, Ascots, and Muffs (Int. Cl. 25).
First use January 1931.

SN 361,329. Irene of New York, Inc., New York, N.Y. Filed June 1, 1970.

MISS IRENE

For Hats, Veils, Scarves, Boas, Ascots, and Muffs (Int. Cl. 25).
First use January 1931.

SN 361,489. Kimberly-Clark Corporation, Neenah, Wis. Filed June 2, 1970.

SKIMMIES

For Panties (Int. Cl. 25).
First use May 8, 1970.

SN 362,123. Ohrbach's, Inc., New York, N.Y. Filed June 9, 1970.



For Ladies', Men's, Children's, and/or Infants' Clothing, in One-, Two-, and Three-Piece Garments, and Accessories—Namely, Suits, Coats, Pants, Jackets, Slacks, Dresses, Skirts, Blouses, Shirts, Sweaters, Bath Robes, Sleepwear, Underwear, Lingerie, Foundation Garments, Hosiery, Headwear, Neckwear, Footwear, Beachwear, Shorts, Scarfs, and Gloves (Int. Cl. 25).
First use on or about May 15, 1970.

SN 362,498. Edmonton Manufacturing Company, Rochester, Ind. Filed June 12, 1970.



For Racing Apparel Including Racing Pit Crew Apparel—Namely, Jackets and Racing Clothing Consisting of Shirts, Pants, Jackets, Coveralls, Shopcoats, Hats, and Caps (Int. Cl. 25).
First use Apr. 3, 1970.

SN 362,824. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. Filed June 16, 1970.

Jonathan Jones

"Jonathan Jones" is a fanciful name.
For Suits and Sportcoats (Int. Cl. 25).
First use on or about May 16, 1966.

SN 362,825. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. Filed June 16, 1970.

Jonathan Jones

"Jonathan Jones" is a fanciful name.
For Suits and Sportcoats (Int. Cl. 25).
First use on or about May 16, 1966.

SN 362,826. Robert Hall Clothes, Inc., d.b.a. Robert Hall Clothes, New York, N.Y. Filed June 16, 1970.

Jonathan Jones

"Jonathan Jones" is a fanciful name.
For Suits and Sportcoats (Int. Cl. 25).
First use on or about May 16, 1966.

SN 362,978. White Stag Manufacturing Co., Portland, Oreg. Filed June 18, 1970.

Teddy Bear Coat White Stag

No claim is made to the word "Coat" apart from the mark as shown. Owner of Reg. Nos. 369,881, 892,508, and others.
For Girls' Coats (Int. Cl. 25).
First use July 1967.

SN 368,800. Eugene J. McHugh, d.b.a. Eugene Jay & Company, Wilton, Conn. Filed Aug. 24, 1970.

EUJANES

For Panty Hose (Int. Cl. 25).
First use June 16, 1970.

SN 368,801. Eugene J. McHugh, d.b.a. Eugene Jay & Company, Wilton, Conn. Filed Aug. 24, 1970.

EUJEANS

For Panty Hose (Int. Cl. 25).
First use June 16, 1970.

SN 369,413. Botany Industries, Inc., New York, N.Y. Filed Aug. 31, 1970.

PINTO

For Men's and Young Men's Sport Jackets, Suits, and Slacks (Int. Cl. 25).
First use Aug. 21, 1970.

SN 369,731. Merit Clothing Co. Limited, Montreal, Quebec, Canada. Filed Sept. 3, 1970.

Robin-Burne

For Suits, Sport Jackets, and Pants for Men Int. Cl. 25).
First use July 7, 1970; in commerce July 7, 1970.

SN 370,497. Dan River Inc., Danville, Va. Filed Sept. 14, 1970.

DAN RIVER

For Hosiery for Men, Women and Children, Panty Hose, and Woven and Knitted Fabrics Made Up Into Wearing Apparel for Men, Women and Children Including Slacks, Shirts, Skirts, Shorts, Dresses, Coats, Pants, Suits, Jackets, Sweaters, Blouses, Bathing Suits, Pajamas, Underwear, and Lingerie (Int. Cl. 25).
First use at least as early as June 1, 1945.

SN 370,764. Nicholas Brecher, New York, N.Y. Filed Sept. 16, 1970.

CANOPY

For Panty Hose (Int. Cl. 25).
First use Sept. 9, 1970.

Class 40—Fancy Goods, Furnishings, and Notions

SN 356,867. The Duplan Corporation, New York, N.Y. Filed Apr. 14, 1970.

ensure

For Elastic Bands That Go Into Men's Underwear and Women's Panty Hose, Also Known as Elastic Webbing (Int. Cl. 26).
First use Dec. 17, 1969.

SN 357,754. Roberta Enterprises, Phoenix, Ariz. Filed Apr. 23, 1970.

SHANTRESSA

For Hair Wigs and Head Forms for Wigs (Int. Cl. 26).
First use Apr. 13, 1970.

SN 357,799. American Velcro, Inc., Manchester, N.H. Filed Apr. 24, 1970.

VBS

For Nylon Tape and Other Fasteners of the Hook and Loop Type Including the Hook Tape and the Loop Tape (Int. Cl. 26).
First use May 22, 1964.

SN 357,800. American Velcro, Inc., Manchester, N.H. Filed Apr. 24, 1970.

VFS

For Nylon Tape and Other Fasteners of the Hook and Loop Type Including the Hook Tape and the Loop Tape (Int. Cl. 26).
First use Oct. 13, 1964.

SN 357,801. American Velcro, Inc., Manchester, N.H. Filed Apr. 24, 1970.

VST

For Nylon Tape and Other Fasteners of the Hook and Loop Type Including the Hook Tape and the Loop Tape (Int. Cl. 26).
First use Mar. 24, 1964.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 327,421. Standard Fabrics, Inc., Minneapolis, Minn. Filed May 15, 1969.

McDuff

The drawing is lined for the color red.
For Woolen Fabrics, and Synthetic Fabrics Such as Polyesters, Acrylics, Acetates, and Nylons (Int. Cl. 24).
First use Feb. 22, 1969.

SN 327,943. Marketing Associates, Inc., d.b.a. Satisfaction House, St. Louis, Mo. Filed May 21, 1969.

Satisfaction House

For Bath Towels, Dish Towels, Guest Towels, Wash Cloths, Dish Cloths, and Pot Holders (Int. Cl. 24).
First use Mar. 15, 1968.

SN 331,496. C. A. Dawson and Company, Springfield, Ill. Filed July 1, 1969.

Dawson's... CARPET WORLD

No claim is made for the word "Carpet" apart from the mark as shown.
For Carpets and Rugs (Int. Cl. 27).
First use on or about May 19, 1969.

SN 341,965. Waumbec Mills, Incorporated, New York, N.Y. Filed Oct. 28, 1969.

COLLAGE

For Textile Fabrics, Including Knitted Textile Fabrics Made of Natural and/or Synthetic Fibers and/or Blends Thereof (Int. Cl. 24).
First use Sept. 11, 1969.

SN 343,512. Burlington Industries, Inc., New York, N.Y. Filed Nov. 14, 1969.

PEERLESS

Owner of Reg. Nos. 521,150, 521,155, and others.
For Textile Fabrics in the Piece Suitable for Use in the Manufacture of Men's, Women's and Children's Outerwear (Int. Cl. 24).
First use in or about August 1906.

SN 345,629. Holiday Inns, Inc., Memphis, Tenn. Filed Dec. 8, 1969.

INNKRAFT

For Carpets and Rugs (Int. Cl. 27).
First use as early as September 1968.

SN 353,196. Hill Industries, Inc., Hillsboro, Tex. Filed Mar. 5, 1970.

hillcrest carpets

The term "Carpets" is disclaimed apart from the mark as shown.
For Carpets (Int. Cl. 27).
First use Oct. 13, 1969.

SN 353,596. Teijin Limited, Kita-ku, Osaka, Japan. Filed Mar. 9, 1970.



The drawing is lined for the colors orange and gold. Owner of Japanese Reg. No. 786,890, dated July 20, 1968.
For Fabrics—Namely, Knitted Goods, Felt and Other Cloth (Int. Cl. 24).

SN 355,872. The General Tire & Rubber Company, Akron, Ohio. Filed Apr. 3, 1970.

CROWN PATENEL

Owner of Reg. No. 375,915.
For Coated Fabrics (Int. Cl. 24).
First use Feb. 18, 1970.

SN 361,779. United Merchants and Manufacturers, Inc., New York, N.Y. Filed June 4, 1970.

ROYALGLAS

For Piece Goods of Industrial and Decorative Fabrics Made From Glass Yarns (Int. Cl. 24).
First use on or about May 1, 1970.

SN 364,181. Bonam Corporation, Princeton, N.J. Filed July 2, 1970.

ScanLin

For Synthetic Substitutes for Linen and Other Fabrics Used for Making Table Covers, Tablecloths, Table Napkins, and Table Runners (Int. Cl. 24).
First use on or about Apr. 6, 1970.

SN 370,201. Deering Milliken, Inc., New York, N.Y. Filed Sept. 9, 1970.

BANKERS CARPET

Applicant disclaims the word "Carpet" apart from the mark as shown.
For Textile Rugs, Carpets, and Carpeting (Int. Cl. 27).
First use Mar. 27, 1967.

SN 370,498. Dan River Inc., Danville, Va. Filed Sept. 14, 1970.

DAN RIVER

For Textile Fabrics in the Piece of Cotton or Synthetic Fibers or Any Combinations Thereof Including Woven Fabrics and Knitted Fabrics, Both Warp Knitted Fabrics and Circular Knitted Fabrics, and Sheets, Sheeting and Pillowcases, Apparel Fabrics, Drapery Fabrics, Drapes, Curtains, Towels, Bedspreads, Upholstery Fabrics, Carpets, Rugs and Textile Floor Coverings Including Woven and Tufted Carpeting, Carpets, Rugs and Scatter Rugs for Indoor and Outdoor Use, Bath Mats, and Bath Sets (Int. Cls. 24 and 27).
First use 1892, on cotton plaids and checks.

SN 370,883. Deering Milliken, Inc., New York, N.Y. Filed Sept. 17, 1970.

NEW DECADE

For Textile Rugs, Carpets, and Carpeting (Int. Cl. 27).
First use July 9, 1970.

SN 370,884. Deering Milliken, Inc., New York, N.Y. Filed Sept. 17, 1970.

SEVILLA

For Textile Rugs, Carpets, and Carpeting (Int. Cl. 27).
First use July 9, 1970.

SN 370,885. Deering Milliken, Inc., New Work, N.Y. Filed Sept. 17, 1970.

SERENADE

For Textile Rugs, Carpets, and Carpeting (Int. Cl. 27).
First use June 26, 1970.

SN 370,887. Deering Milliken, Inc., New York, N.Y. Filed Sept. 17, 1970.

WESTERN PLEASURE

For Textile Rugs, Carpets, and Carpeting (Int. Cl. 27).
First use Mar. 19, 1970.

SN 371,248. Johnson & Johnson, New Brunswick, N.J. Filed Sept. 21, 1970.

chifOnet

For Nonwoven Fabric Used for All-Purpose Towels (Int. Cl. 24).
First use July 14, 1970.

Class 43—Thread and Yarn

SN 352,763. Brunswick Corporation, Chicago, Ill. Filed Mar. 2, 1970.

BRUNSLON

For Static Control Yarn and Spun Yarn (Int. Cl. 23).
First use on or about Dec. 8, 1969.

SN 362,765. Union Carbide Corporation, New York, N.Y. Filed June 15, 1970.

ZIRCAR

For Fibrous Ceramic Yarn (Int. Cl. 23).
First use on or about Feb. 4, 1970.

Class 44—Dental, Medical, and Surgical Appliances

SN 306,931. Martin'l, Inc., Brielle, N.J. Filed Sept. 9, 1968.

GUARDENT

For Dental Device, Specifically a Double Impression Tray (Int. Cl. 10).
First use June 17, 1968.

SN 327,073. Superior Plastic Products Co., Providence, R.I. Filed May 12, 1969.

PLASTIC-GLIDE

For Catheters (Int. Cl. 10).
First use on or about Nov. 27, 1968.

SN 331,998. DePuy Manufacturing Co., Inc., Warsaw, Ind. Filed July 8, 1969.

FLOTEPAD

For Therapeutic Mattresses (Int. Cl. 10).
First use December 1968.

SN 332,000. DePuy Manufacturing Co., Inc., Warsaw, Ind. Filed July 8, 1969.

FLOTEBED

For Therapeutic Mattresses (Int. Cl. 10).
First use December 1968.

SN 333,845. Popper & Sons, Inc., New York, N.Y. Filed July 29, 1969.

PERFLEX

For Medical Guide Wires (Int. Cl. 10).
First use 1968.

SN 348,835. Horizon Industries Limited, Bronx, N.Y. Filed Jan. 19, 1970.

A-VOID

For Fluid Drainage Device for Collecting and Measuring Urine and Other Body Fluids Drained From a Person's Body (Int. Cl. 10).
First use Oct. 5, 1969.

SN 352,102. Diginetics Incorporated, Bridgeton, Mo. Filed Feb. 24, 1970.

CARDIAPHONE

For Instruments for Detecting or Measuring Human Myocardiological Potentials and Providing an Output in Response Thereto (Int. Cl. 10).
First use Feb. 6, 1970.

SN 358,419. Marion M. Corkery, Birmingham, Mich. Filed Apr. 30, 1970.

BOO BOO BANDS

The word "Bands" is disclaimed apart from the mark as shown.
For Medical and Surgical Appliances—Namely Bandage Strips (Int. Cl. 5).
First use Apr. 14, 1970.

SN 361,548. American Massage Sales and Manufacturing Corporation, Silver Creek, N.Y. Filed June 3, 1970.

SONOID

For Heat and Massage Appliances—Namely, Motor Operated Vibratory Chairs, Pads, Cushions, Mattresses, Tables, and Hand Held Units (Int. Cl. 10).
First use on or about May 11, 1970.

SN 363,195. Stanton Scientific Equipment Co., Inc., Los Angeles, Calif. Filed June 19, 1970.

RAPITATOR

For Valved Resuscitators for Controlling Admission of Air-Oxygen (Int. Cl. 10).
First use May 26, 1970.

SN 364,447. Kirkman Laboratories, Inc., Portland, Oreg. Filed July 6, 1970.

FLURACATOR

For Application Device for Professional Use, Consisting of a Handle and a Foam or Sponge Applicator for Use on the Teeth (Int. Cl. 10).
First use Nov. 28, 1968.

SN 365,506. Dahlberg Electronics, Inc., Minneapolis, Minn. Filed July 17, 1970.

TOUCHÉ

For Eye-Glass Hearing Aids (Int. Cl. 10).
First use Apr. 24, 1970.

SN 371,109. Schick Electric Inc., Lancaster, Pa. Filed Sept. 18, 1970.

TOTE 'N DRY

For Hair Dryer (Int. Cl. 11).
First use at least as early as June 1970.

Class 46—Foods and Ingredients of Foods

SN 315,446. Schluderberg-Kurdle Company, Inc., Baltimore, Md. Filed Dec. 30, 1968.

ESSKAY
QUALITY

The word "Quality" is disclaimed apart from the mark shown. Owner of Reg. Nos. 154,687, 691,831, and others.
For Fresh, Frozen and Canned Pork, Ham and Chicken, Also Bacon, Frankfurters, Sausages, Bologna, Derivatives of Said Meats—Namely, Lard and Fats (Int. Cl. 29).
First use Nov. 13, 1967.

SN 335,373. Schepps Dairy, Inc., Dallas, Tex. Filed Aug. 14, 1969.

POLY-HI

For Imitation Milk (Int. Cl. 29).
First use Jan. 9, 1969.

SN 335,683. Broughton Foods Company, Marietta, Ohio. Filed Aug. 19, 1969.

BROUGHTON

WHIP-N-SERVE

Applicant disclaims the words "Whip-N-Serve" apart from the mark as shown. Owner of Reg. Nos. 608,823, 784,552, and others.
For Whipped Vegetable Topping (Int. Cl. 29).
First use on or about July 24, 1969.

SN 341,139. Brilliant Seafood, Inc., Boston, Mass. Filed Oct. 20, 1969.

BRILLIANT

Owner of Reg. No. 853,755.
For Sea Foods—Namely, Cooked Shrimp (Int. Cl. 29).
First use as early as 1930.

SN 341,287. Spilke's Bakery, Inc., Brooklyn, N.Y. Filed Oct. 21, 1969.

RED MILL FARMS

For Fruitcakes, Cakes, Macaroons, and Cookies (Int. Cl. 30).
First use at least since Feb. 17, 1957.

SN 341,289. Betty Stuart, Ltd., Brooklyn, N.Y. Filed Oct. 21, 1969.

BETTY STUART

The name "Betty Stuart" does not represent a particular living person.
For Fruitcakes, Cakes, Macaroons, and Cookies (Int. Cl. 30).
First use at least since Feb. 17, 1957.

SN 344,317. Baumer Foods, Inc., New Orleans, La. Filed Nov. 24, 1969.

CRYSTAL

Owner of Reg. Nos. 524,011 and 745,179.
For Mustard, Food Seasoning Sauces, Jellies, Jams, Peanut Butter, Worcester Sauce, and Applebutter (Int. Cls. 29 and 30).
First use January 1919, on mustard.

SN 345,367. The Pasty House Inc., Minneapolis, Minn. Filed Dec. 4, 1969.

Cousin Jenney's

For Frozen Pasties Filled With Meat and Vegetables (Int. Cl. 30).
First use Mar. 4, 1969.

SN 346,051. J. Bongrain & Cie, Illoud, Haute-Marne, France. Filed Dec. 12, 1969.

LA CROTTE DU DIABLE

The English translation of the mark is "the devil's dirt." Owner of French Reg. No. 1,634, dated Feb. 23, 1960 (Chaumont); Natl. Inst. No. 139,990.
For Cheese (Int. Cl. 29).

SN 346,286. Packers Provision Co., Inc., Highland Park, Ill. Filed Dec. 15, 1969.

El Español

The Spanish words "El Español" mean "the Spaniard."
For Prepared Beef and Pork Products (Int. Cl. 29).
First use June 1959.

SN 350,233. Dairy Maid Confectionery Company, Philadelphia, Pa. Filed Feb. 2, 1970.

The Original

BITUMINOUS CANDY

No claim is made to the words "The Original" and "Candy" apart from the mark as shown, applicant reserving all of its rights at common law. Owner of Reg. No. 823,708.
For Candy (Int. Cl. 30).
First use Nov. 23, 1965.

SN 352,243. A. E. Staley Manufacturing Company, Decatur, Ill. Filed Feb. 24, 1970.

DSLC

For Corn Solubles Ingredient for Livestock Feed (Int. Cl. 31).
First use Feb. 9, 1970.

SN 352,246. A. E. Staley Manufacturing Company, Decatur, Ill. Filed Feb. 24, 1970.

COLONEL SWEET

The wording "Colonel Sweet" does not represent any particular living individual. The word "Sweet" is disclaimed apart from the mark as shown.
For Table Syrup (Int. Cl. 30).
First use Feb. 18, 1970.

SN 352,558. Bartlow Brothers, Inc., Rushville, Ill. Filed Feb. 27, 1970.



For Prepared Pork and Beef Products (Int. Cl. 29).
First use Dec. 1, 1969; May 1950 as to the word portion.

SN 353,549. Petfoods Limited, Melton Mowbray, England. Filed Mar. 9, 1970.

ROUNDERS

Owner of British Reg. No. 873,110, dated Dec. 12, 1964.
For Dog Food (Int. Cl. 31).

SN 353,779. National Biscuit Company, New York, N.Y. Filed Mar. 11, 1970.

RICE HONEYS

The word "Rice" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 208,326 and 741,002.
For Cereal Breakfast Food (Int. Cl. 30).
First use during 1955.

SN 363,226. Columbia Pictures Industries, Inc., d.b.a. Screen Gems, New York, N.Y. Filed June 22, 1970.



The word "Cereal" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 802,409 and 879,594.
For Breakfast Cereal (Int. Cl. 30).
First use May 18, 1970; Dec. 27, 1968, as to "Pebbles."

SN 367,535. Gus Glaser Meats, Incorporated, Fort Dodge, Iowa. Filed Aug. 10, 1970.

STERLING

For Prepared Meat Products—Namely, Wieners, Bologna, Braunschweiger Sausage, Ham, and Bacon (Int. Cl. 29).
First use 1955.

SN 369,632. Ford Gum and Machine Company, Inc., Akron, N.Y. Filed Sept. 2, 1970.



Applicant disclaims the words "Gum," "1¢," "Branded," and "For Your Protection" apart from the mark as shown. Owner of Reg. No. 537,588.
For Candy Coated Chewing Gum (Int. Cl. 30).
First use Nov. 1, 1962; 1935 as to "Ford."

Class 49—Distilled Alcoholic Liquors

SN 334,672. Puerto Rico Distillers, Inc., d.b.a. Barcelo Marques & Co., Arecibo, Puerto Rico. Filed Aug. 7, 1969.

GRANADO

The Spanish word "Granado" may be translated as "Notable and Distinguished." Owner of Reg. Nos. 818,826 and 848,310.
For Alcoholic Beverages—Namely, Rum (Int. Cl. 33).
First use Mar. 13, 1967.

SN 367,261. Bonnie Imports, Inc., Miami, Fla. Filed Aug. 6, 1970.

TWELVE JUDGES

For Scotch Whisky (Int. Cl. 33).
First use July 16, 1970.

Class 50—Merchandise Not Otherwise Classified

SN 328,128. Troy Industries, San Carlos, Calif. Filed May 28, 1969.

CROWN

For Protective Steel Guard for Compressed Gas Cylinders (Int. Cl. 6).
First use Oct. 22, 1968.

SN 339,313. F & J Enterprises, Inc., Willoughby, Ohio. Filed Sept. 30, 1969.



For Plastic Drinking Straws or Siphons (Int. Cl. 20).
First use at least as early as Jan. 9, 1968.

SN 341,027. The Franklin Mint, Inc., Yeadon, Pa. Filed Oct. 17, 1969.

AMERICA IN SPACE

For Non-Monetary Coins; Tokens; Medals and Medallions (Int. Cl. 14).
First use Oct. 17, 1969.

SN 341,078. E. T. Barwick Industries, Inc., Chamblee, Ga. Filed Oct. 15, 1969.

DURA-FORM-BAC

For Rug Pads and Cushions (Int. Cl. 27).
First use May 15, 1969.

SN 342,383. The Akro Corporation, Canton, Ohio. Filed Nov. 3, 1969.



Owner of Reg. Nos. 876,701, 876,702, and 878,835.
For Carpet-to-Vinyl Mats and Matting (Int. Cl. 27).
First use on or about Apr. 1, 1969.

SN 344,584. Stem Industries, Inc., New York, N.Y. Filed Nov. 25, 1969.



For Safety Cover Caps and Safety Closures for Bottles and Aerosol Containers or the Like (Int. Cl. 20).
First use June 15, 1969.

SN 360,107. Mullins of Dublin Limited, d.b.a. Thomas Mullins Limited, Dublin, Ireland. Filed May 18, 1970.



For Shields, Placques and Badges (Int. Cl. 20).
First use May 1967; in commerce May 1967.

SN 360,332. Handy Things Manufacturing Company, Ludington, Mich. Filed May 20, 1970.

ADJUSTA-STRAIT

For Adjustable Christmas Tree Stands (Int. Cl. 28).
First use Jan. 20, 1970.

SN 360,540. Deaton Museum Studio, Newton, Iowa. Filed May 22, 1970.

DINO-MITES

For Figurines of Prehistoric Animals (Int. Cl. 20).
First use Apr. 2, 1970.

SN 360,598. Trio Manufacturing Co., Griggsville, Ill. Filed May 22, 1970.

TRIO-GRANDPA

Owner of Reg. Nos. 793,766 and 793,768.
For Bird Houses (Int. Cl. 21).
First use Dec. 17, 1969.

SN 360,807. Slip-X Safety Treads Inc., Springfield, Ill. Filed May 25, 1970.

BATHSAFE

For Non-Skid Treads for Stairs, Floors, Halls, Walks, Bathtubs, Shower Stalls, and Other Similar Locations (Int. Cls. 19 and 27).
First use Feb. 22, 1963.

SN 361,158. Polywood Plastics Corporation, North Canton, Ohio. Filed May 28, 1970.

MEGA FORMS

For Decorative Wall Plaques (Int. Cl. 20).
First use on or about May 18, 1970.

SN 361,259. Astro Surfaces Company, Denver, Colo. Filed June 1, 1970.

ASTRO-MAT

For Synthetic Grass Door Mats (Int. Cl. 27).
First use Apr. 1, 1970.

SN 364,338. Dr. Leon C. Nelson, d.b.a. Nova Dental Supply Company, Redding, Calif. Filed July 6, 1970.

DENT-AWARD

For Dentists' Giveaway Merit Badges for Children (Int. Cl. 20).
First use Apr. 25, 1970.

SN 370,515. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Sept. 14, 1970.

SECTAR

For Insect Traps (Int. Cl. 21).
First use Apr. 30, 1970.

SN 370,519. Uniroyal, Inc., New York, N.Y. Filed Sept. 14, 1970.

SEALDBOOM

For Flotation Boom for Confining Spills of Floatable Materials, Such as Oil, in Large Bodies of Water (Int. Cl. 20).
First use at least as early as July 14, 1970.

Class 51 — Cosmetics and Toilet Preparations

SN 330,713. John H. Breck, Inc., Wayne, N.J. Filed June 23, 1969.

SEA FOAM

For Hair Coloring Preparation and Hair Lightener (Int. Cl. 3).
First use June 2, 1969.

SN 340,526. Dep Corporation, Los Angeles, Calif. Filed Oct. 13, 1969.

HEAT SHIELD

For Ingredient Incorporated in a Wig Setting Preparation Which Protects the Hair Against the Damaging Effects of Heat (Int. Cl. 3).
First use Aug. 14, 1969.

SN 344,571. Owen Laboratories, Inc., Dallas, Tex. Filed Nov. 25, 1969.

MEDI-DROPS

For Hand Lotion (Int. Cl. 3).
First use Oct. 1, 1969.

SN 347,856. Beecham Inc., Clifton, N.J. Filed Jan. 7, 1970.

BLUE BRYLCREEM

Without waiving its common law rights, applicant disclaims the word "Blue" apart from the mark as shown. Owner of Reg. Nos. 337,709, 795,692, and others.
For Hairdressing (Int. Cl. 3).
First use July 21, 1966.

SN 355,527. Jerich International, Inc., Fort Lauderdale, Fla. Filed Mar. 31, 1970.



CAMBRIDGE LTD.

For Men's Hair Spray (Int. Cl. 3).
First use July 9, 1969.

SN 356,015. Avon Products, Inc., New York, N.Y. Filed Apr. 6, 1970.

SEE-ME

For Facial Blusher (Int. Cl. 3).
First use Feb. 12, 1970.

SN 369,430. Tussy Cosmetics, Inc., New York, N.Y. Filed Aug. 31, 1970.

BODY-ALL

For Personal Deodorant (Int. Cl. 5).
First use Aug. 5, 1970.

Class 52 — Detergents and Soaps

SN 286,249. Elizabeth of Sweden Limited, Kingston, Jamaica. Filed Dec. 5, 1967.

BATH-IT

For Skin Cleanser (Int. Cl. 3).
First use June 15, 1964; in commerce Sept. 30, 1964.

SN 330,972. International Laboratories Limited, Sunbury-on-Thames, Middlesex, England. Filed June 23, 1969.



Priority claimed under Sec. 44(d) on British Reg. No. 936,072, dated Jan. 3, 1969. The picture of the girl shown in the drawing is not that of any particular individual. No claim is made to a device or a depiction of a woman washing her hair. Owner of U.S. Reg. No. 806,474.
For Hair Shampoos (Int. Cl. 3).

SN 360,708. Calgon Corporation, Pittsburgh, Pa. Filed May 25, 1970.

LIQUA-CLEAN

Owner of Reg. No. 709,759.
For Preparation for Use in Removing Grease and Stains From Fabrics (Int. Cl. 3).
First use Feb. 11, 1970.

SERVICE MARKS

Class 100 — Miscellaneous

SN 300,213. Ponderosa, Inc., Washington, D.C., assignee of The Ponderosa Lodge, Reno, Nev. Filed June 11, 1968.

PONDEROSA

For Motel Services (Int. Cl. 42).
First use Jan. 15, 1960.

SN 305,168. Value Engineering Company, Alexandria, Va. Filed Aug. 14, 1968.

VALUE
ENGINEERING COMPANY

The term "Engineering Company" is disclaimed when used apart from the mark as shown.
For Consulting and Advisory Services Including Producibility Engineering, Design and Development Engineering, Maintainability and Reliability Engineering, Technical Writing, Research, Development and Testing Services for Metals and Other Materials (Int. Cl. 42).
First use on or about Jan. 22, 1959.

SN 310,483. Lockheed Aircraft Corporation, Burbank, Calif. Filed Oct. 24, 1968.

LOCKHEED

Owner of Reg. Nos. 320,151, 843,601, and 843,670.
For Aerospace Vehicle and Systems Research, Design, Development and Testing; Aerospace Medicine and Aerospace Materials Research; Nuclear Research; Metrology Services for Industrial Instrument Calibration and Testing; Meteorology Research; and Marine Research Services (Int. Cl. 42).
First use at least as early as 1950.

SN 322,434. General Testing & Inspection Agency, Inc., Portland, Oreg. Filed Mar. 21, 1969.

GTI

For Inspection of Lumber and Wood Products Which Are for Use in Construction (Int. Cl. 42).
First use Mar. 17, 1961.

SN 322,683. Ponderosa, Inc., Washington, D.C., assignee of Ponderosa Inn, Inc., Burley, Idaho. Filed Mar. 25, 1969.

PONDEROSA

For Hotel and Restaurant Services (Int. Cl. 42).
First use Feb. 15, 1962.

SN 331,925. Milchem Incorporated, Houston, Tex. Filed July 7, 1969.

MILCHEM

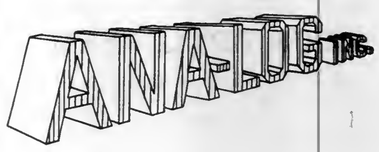
Owner of Reg. No. 887,329.
For Consulting and Technical Assistance in the Technology of Well Drilling and Drilling Fluids (Int. Cl. 42).
First use about Jan. 27, 1964.

SN 340,561. Joint Commission on Accreditation of Hospitals, Chicago, Ill. Filed Oct. 13, 1969.

THE JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

For Inspection Services Rendered to Hospitals by Applicant With a View To Issuance of Certificates of Accreditation—Namely, Surveying and Checking Premises and Equipment of Hospitals To Determine Their Conformity With Certain Prescribed Standards (Int. Cl. 42).
First use Apr. 23, 1953.

SN 341,128. Analytical Logging of Texas, Inc., Tyler, Tex. Filed Oct. 20, 1969.



The lining on the face of the letters on the drawing represents the color red.
For Analytical Logging of Oil and Gas Wells (Int. Cl. 42).
First use November 1965.

SN 344,302. Telmar Communications Corp., New York, N.Y. Filed Nov. 24, 1969.

NETACS

For Computer Time Sharing Services (Int. Cl. 42).
First use Sept. 11, 1969.

SN 350,278. D. B. Lester, Inc., Manchester, Conn. Filed Feb. 2, 1970.

TACORRAL

For Restaurant Services (Int. Cl. 42).
First use Sept. 28, 1969.

SN 357,037. Marriott Corporation, Washington, D.C. Filed Apr. 16, 1970.



The pictorial representation of a hamburger is hereby disclaimed apart from the mark as shown, however, applicant waives none of its common law rights thereto. Owner of Reg. Nos. 561,430, 574,742, and others.
For Restaurant Services (Int. Cl. 42).
First use at least as early as October 1968.

Class 101 — Advertising and Business

SN 293,657. Sient, Incorporated, Houston, Tex. Filed Mar. 20, 1968.

UNIVERSITY OF COMPUTER SCIENCES

For Computerized Accounting Services and for Placing Persons Having Computer Skills in Employment Positions Which Require Such Skills (Int. Cl. 35).
First use Sept. 15, 1966.

SN 312,469. The Shoe Shack Corporation, Winnetka, Ill., assignee of Marvin W. Harms, d.b.a. The Harms Company, Madison, Wis. Filed Nov. 18, 1968.

the Shoe Shack

Applicant disclaims the word "Shoe" apart from the mark as a whole.
For Retail Shoe Store Services (Int. Cl. 35).
First use Sept. 15, 1967.

SN 313,586. KPA Computer Techniques, Inc., Large, Pa. Filed Dec. 4, 1968.

KPA

For Data Processing by Computer, Computer Programming, and Computer Software Design (Int. Cl. 35).
First use on or about Feb. 28, 1968.

SN 324,773. Ziesel Brothers Company, Inc., Elkhart, Ind. Filed Apr. 16, 1969.

For Retail Carpeting Store Services, and Distributorship Services in the Field of Carpeting (Int. Cl. 35).
First use Mar. 17, 1969.

SN 325,631. State of Oklahoma, Oklahoma City, Okla. Filed Apr. 25, 1969.

OKIE

For Promotion of Industry and Tourism Within the State of Oklahoma by Promoting Pride in Being a Citizen or Honorary Citizen of the State of Oklahoma (Int. Cl. 35).
First use June 1968.

SN 325,970. Gimbel Brothers, Inc., New York, N.Y. Filed Apr. 30, 1969.

GIMBELS

Owner of Reg. Nos. 370,759, 709,092, and others.
For Retail Department Store Services (Int. Cl. 35).
First use on or about Sept. 12, 1887.

SN 327,108. Adams, Martin & Nelson, Inc., Minneapolis, Minn. Filed May 13, 1969.

PYRAMID OF GOLD

For Promoting the Sale of Goods and/or Services of Others Through the Distribution of Printed Materials and Advertising Designed for Promotional Contests (Int. Cl. 35).
First use Feb. 24, 1969.

SN 327,177. Systek Computing Corporation, New Canaan, Conn. Filed May 13, 1969.



For Computer Programming Services, and Consulting and Staffing Services and Arranging for Consulting Services in the Area of Computer and Other Information and Control Systems (Int. Cl. 35).
First use Dec. 2, 1967.

SN 327,178. Systek Computing Corporation, New Canaan, Conn. Filed May 13, 1969.

SYSTEK

For Computer Programming Services, and Consulting and Staffing Services and Arranging for Consulting Services in the Area of Computer and Other Information and Control Systems (Int. Cl. 35).
First use Dec. 2, 1967.

SN 328,158. Compufind, Inc., Birmingham, Ala. Filed May 23, 1969.

Compufind

For Real Estate Multiple Listing Services Utilizing Computers (Int. Cl. 35).
First use Jan. 26, 1969.

SN 328,609. Richard W. Visokay, Fairfield, Conn. Filed May 28, 1969.



For Organizing and Managing Antique Shows for Others; Providing Brochures, Advertisements, and Advertising Material for Such Shows (Int. Cl. 35).
First use April 1967.

SN 329,136. Standard Supply and Hardware Company, Incorporated, New Orleans, La. Filed June 4, 1969.

STANDARDIZE ON STANDARD

For Distributorship and Jobbing Services in the Fields of Industrial, Marine, Agricultural, Railway, and Oil Field Equipment, Hardware, and Supplies (Int. Cl. 35).
First use in or about February 1956.

SN 329,137. Standard Supply and Hardware Company, Incorporated, New Orleans, La. Filed June 4, 1969.



For Distributorship and Jobbing Services in the Fields of Industrial, Marine, Agricultural, Railway, and Oil Field Equipment, Hardware, and Supplies (Int. Cl. 35).
First use in or about September 1965.

SN 330,109. Control Industries, Inc., Kansas City, Mo. Filed June 16, 1969.



For Computer Programming Services (Int. Cl. 35).
First use May 1, 1968.

SN 330,156. Leo Burnett Company, Inc., Chicago, Ill. Filed June 16, 1969.



For Advertising Agency Services (Int. Cl. 35).
First use on or before 1935.

SN 334,806. Attache Inns of America, Inc., Akron, Ohio. Filed Aug. 8, 1969.

attaché inns

No claim of exclusive right is made to "Inns" as used with the services recited apart from the mark in its entirety.
For Technical Assistance in the Establishment and/or Operation of Hotels and Motels (Int. Cl. 35).
First use in or about October 1965.

SN 334,811. Chilton Company, Philadelphia, Pa. Filed Aug. 8, 1969.



The word "Services" is disclaimed apart from the mark.
Owner of Reg. No. 768,000.
For Advertisement Research Service by Measuring Advertisement Effectiveness for Others (Int. Cl. 35).
First use Jan. 2, 1968.

SN 337,913. William E. Evans, d.b.a. Evans Cattle Management Corporation, Phoenix, Ariz. Filed Sept. 15, 1969.



For Management of the Cattle of Others in Stockyard Locations (Int. Cl. 35).
First use Feb. 27, 1969.

SN 340,729. Mobile Home Show, Corona, Calif. Filed Oct. 15, 1969.



No registration rights are claimed for the words "Mobile Home Show" apart from the mark as shown, but applicant waives none of its common law rights therein.
For Mobile Home Distributorship Services (Int. Cl. 35).
First use Sept. 23, 1969.

SN 341,113. No Soap Radio, Ltd., New York, N.Y. Filed Oct. 20, 1969.

NO SOAP RADIO

For Producing Radio Commercials and Advertisements (Int. Cl. 35).
First use June 20, 1969.

SN 344,496. Trans World Airlines, Inc., New York, N.Y. Filed Nov. 25, 1969.

TWA FLIGHT SHOP

Owner of Reg. Nos. 390,227, 729,274, and others.
For Mail Order and Retail Outlet Services Specializing in Gifts, Souvenirs and Travel Accessories (Int. Cl. 35).
First use June 26, 1967.

SN 345,639. Kalamazoo Label Company, Kalamazoo, Mich. Filed Dec. 8, 1969.



For Printing Services in Connection With Labels, and Customized Production of Printed Labels (Int. Cl. 35).
First use 1956.

SN 345,640. Kalamazoo Label Company, Kalamazoo, Mich. Filed Dec. 8, 1969.



The words "Quality Labels Since 1906" are disclaimed apart from the mark as shown.
For Printing Services in Connection with Labels, and Customized Production of Printed Labels (Int. Cl. 35).
First use January 1969.

SN 350,764. Nabcor, Inc., Jenkintown, Pa. Filed Feb. 6, 1970.



For Automobile Brokerage Service (Int. Cl. 36).
First use Nov. 5, 1969.

SN 369,431. Vencap, Inc., Los Angeles, Calif. Filed Aug. 31, 1970.

T-man

For Furnishing Temporary Help (Int. Cl. 35).
First use Aug. 6, 1970.

Class 102 — Insurance and Financial

SN 328,289. First National City Bank, New York, N.Y. Filed May 26, 1969.

THE RIGHT BANK IN THE RIGHT PLACE

For Banking Services (Int. Cl. 36).
First use December 1964.

SN 340,090. First Realty Investment Corporation, Miami Beach, Fla. Filed Oct. 8, 1969.

FIRST REALTY INVESTMENT CORPORATION

The wording "Realty Investment Corporation" is disclaimed apart from the mark as shown. The drawing comprises a fanciful representation of the letters "FRI."
For Providing Financing for Land Development to the Real Estate Construction and Development Industry (Int. Cl. 36).
First use June 20, 1969.

SN 341,919. First National Bank & Trust Company of Ithaca, Ithaca, N.Y. Filed Oct. 28, 1969.

FIRST NATIONAL ITHACA

For Banking Services (Int. Cl. 36).
First use Feb. 27, 1967.

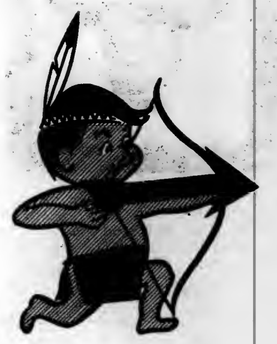
SN 350,565. Covington Trust and Banking Co., Inc., Covington, Ky. Filed Feb. 5, 1970.

MULTI-SAV

For Savings Account Services (Int. Cl. 36).
First use Dec. 6, 1969.

Class 103 — Construction and Repair

SN 288,856. Red Wing Exterminating Co., Inc., Chattanooga, Tenn. Filed Jan. 15, 1968.



The drawing is lined for the color brown, but this color is not claimed as an essential feature of the mark.
For Pest and Termite Control Services (Int. Cl. 37).
First use Apr. 1, 1955.

Class 106 — Material Treatment

SN 350,754. MacDermid Incorporated, Waterbury, Conn. Filed Feb. 6, 1970.

COMPLETE CYCLE RESPONSIBILITY

For Rendering Technical Assistance to Those Engaged in Metal Plating, Including the Metal Plating of Plastic Parts (Int. Cl. 40).
First use May 1964.

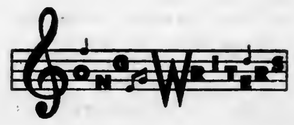
Class 107 — Education and Entertainment

SN 317,311. All-America Football Associates, Inc., Sioux Falls, S. Dak., assignee of Robert O. Birney, Sioux Falls, S. Dak. Filed Jan. 23, 1969.

COMPUTER KICK-OFF

For Entertainment Services—Namely, a Radio and Television Program Featuring the Prediction of Scores of Athletic Contests (Int. Cl. 41).
First use Dec. 23, 1968.

SN 328,832. O. W. Donald, Fort Smith, Ark. Filed June 2, 1969.



For Promoting the Publication and Recording of Musical Compositions for Composers (Int. Cl. 41).
First use May 17, 1969.

SN 334,518. ITT Educational Services, Inc., Indianapolis, Ind. Filed Aug. 6, 1969.

National Data Processing Institute

Applicant disclaims "Data Processing Institute" apart from the mark as shown.
For Educational Services—Namely, the Training of Computer Programmers (Int. Cl. 41).
First use Oct. 1, 1967.

SN 339,170. Fitness Finders, Inc., Emmaus, Pa. Filed Sept. 29, 1969.



For Service of Counseling as to Health and Physical Fitness and Conducting Physical Fitness Exercise Classes (Int. Cl. 41).
First use June 27, 1969.

SN 340,264. Fitness Finders, Inc., Emmaus, Pa. Filed Oct. 9, 1969.

fitness finders

For Service of Counseling as to Health and Physical Fitness and Conducting Physical Fitness Exercise Classes (Int. Cl. 41).
First use June 27, 1969.

SN 341,143. Camden Symphony Orchestra, Huntingdon Valley, Pa. Filed Oct. 20, 1969.

PHILHARMONIA

For Musical Entertainment Services (Int. Cl. 41).
First use May 1969.

SN 341,144. Camden Symphony Orchestra, Huntingdon Valley, Pa. Filed Oct. 20, 1969.



For Musical Entertainment Services (Int. Cl. 41).
First use May 1969.

SN 345,979. Plant and See, Fayetteville, N.C. Filed Dec. 11, 1969.

PLANT AND SEE

For Entertainment Services—Namely, Variety Singing, Orchestration and Comedy by a Group (Int. Cl. 41).
First use Jan. 30, 1969.

SN 353,122. Amerco, Phoenix, Ariz. Filed Mar. 5, 1970.

MUSE CITY

For Entertainment Services—Namely, Providing Amusement Park Facilities (Int. Cl. 41).
First use Jan. 15, 1970.

CERTIFICATION MARKS

Class A — Goods

SN 363,961. Porcelain Enamel Institute, Inc., Washington, D.C. Filed June 29, 1970.



The mark certifies that the surface of the metal goods is porcelain enamel. Applicant disclaims the words "Genuine Porcelain" apart from the mark as shown. Owner of Reg. No. 567,592.

For Metal Articles Which Have Genuine Porcelain Enamel Surfaces Thereon.

First use July 1, 1969.

SN 364,017. Sponge and Chamois Institute, New York, N.Y. Filed June 30, 1970.



The exclusive right to use the words "Genuine Chamois" is disclaimed apart from the mark as shown. The mark certifies that the goods are made from fish oil-tanned sheep-skin or lambskin fleshers and meet the general physical and chemical standards promulgated by applicant.

For Chamois Leather.

First use Apr. 20, 1970.

SN 365,337. Rabbi Alter Silverman, New York, N.Y. Filed July 15, 1970.

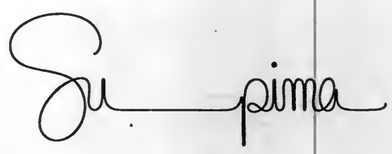


The mark certifies that the goods meet the standards of Jewish dietary laws.

For Food Products—Namely, Matzos and Matzo Products, Dehydrated Soup Mixes, Noodles, Macaroni and Spaghetti, Macaroons, Soup Nuts, Egg Kichel, Cookies, and Chow Mein Noodles.

First use Aug. 1, 1964.

SN 365,788. Supima Association of America, El Paso, Tex. Filed July 20, 1970.



The mark certifies that the goods are made wholly or in a functionally significant part of American southwestern extra-long stable cotton in conformance with the standards of the applicant without the admixture of any other kind of cotton. Owner of Reg. No. 880,213.

For Thread, Fabrics and Wearing Apparel.

First use May 15, 1969.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

904,944. SWAN WHITE. York Feather & Down Corp. SN 295,071. Pub. 10–13–70. Filed 4–5–68.

904,945. NAPPEL. Lelio Furlan Rossi. MULTIPLE CLASS (Classes 1, 20, 39, and 42). SN 319,664. Pub. 10–13–70. Filed 2–20–69.

Class 2 — Receptades

904,946. PERMALITE. Structural Plastics Corporation. SN 311,695. Pub. 10–13–70. Filed 11–8–68.

904,947. BOTTLE PACK. Kocher Plastic H. Bohmer KG. SN 314,020. Pub. 10–13–70. Filed 12–10–68.

904,948. THE GOBBLER AND DESIGN. Auto Pak Company. MULTIPLE CLASS (Classes 2 and 23). SN 316,726. Pub. 10–14–69. Filed 1–16–69.

904,949. BOXIT CORPORATION AND DESIGN. Boxit Corporation. SN 321,763. Pub. 10–13–70. Filed 3–14–69.

904,950. BRADLEY AND DESIGN. Bradley Washfountain Company. MULTIPLE CLASS (Classes 2, 13, and 32). SN 338,219. Pub. 10–13–70. Filed 9–18–69.

904,951. JOY. Griffon Cutlery Corp. MULTIPLE CLASS (Classes 2, 23, and 44). SN 341,567. Pub. 10–13–70. Filed 10–24–69.

904,952. —AN ISLAND OF REFRESHMENT. A & W International, Inc. MULTIPLE CLASS (Classes 2, 45, 46, and 51). SN 348,381. Pub. 10–13–70. Filed 1–13–70.

904,953. XANADU DESIGN. Faberge, Incorporated. MULTIPLE CLASS (Classes 2, 29, 40, 51, and 52). SN 354,340. Pub. 10–13–70. Filed 3–18–70.

904,954. JETILITY. Columbian Rope Company. SN 357,056. Pub. 10–13–70. Filed 4–16–70.

904,955. PER-CUPS. Nay-Holl, Inc. SN 358,059. Pub. 10–13–70. Filed 4–27–70.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

904,956. KELTY PACK AND DESIGN. Kelty Pack, Inc. SN 323,708. Pub. 10–13–70. Filed 4–4–69.

Class 4 — Abrasives and Polishing Materials

904,957. GLISTENIZ. Harold Keith Slade, d.b.a. The Glisten Company. SN 326,258. Pub. 10–13–70. Filed 5–2–69.

904,958. KP AND DESIGN. Consolidated Foods Corporation, assignee of Keene Products, Inc. MULTIPLE CLASS (Classes 4, 6, 15, 16, and 52). SN 333,988. Pub. 10–13–70. Filed 7–31–69.

904,959. MOPPIT. Sterling Drug Inc. SN 363,845. Pub. 10–13–70. Filed 6–29–70.

Class 5 — Adhesives

904,960. AO DESIGN. American Optical Corporation. SN 335,652. Pub. 10–13–70. Filed 8–19–69.

904,961. 57. Johns-Manville Corporation. SN 343,292. Pub. 10–13–70. Filed 11–12–69.

904,962. MARLITE. Masonite Corporation. SN 358,582. Pub. 10–13–70. Filed 5–1–70.

904,963. ADSOL. Stein, Hall & Co., Inc. SN 360,909. Pub. 10–13–70. Filed 5–26–70.

904,964. MICRO-STIK. Handi Products Corporation. SN 360,975. Pub. 10–13–70. Filed 5–27–70.

904,965. PYLON. Kyowa Gomu Kogyo Kabushiki Kaisha. SN 362,253. Pub. 10–13–70. Filed 6–10–70.

Class 6 — Chemicals and Chemical Compositions

904,958. (See Class 4 for this trademark.)

904,966. JEL-ADD. W. R. Grace & Co. SN 309,376. Pub. 10–13–70. Filed 10–10–68.

904,967. TRIGGER. Chemtrust Industries Corporation. SN 332,032. Pub. 10–13–70. Filed 7–8–69.

904,968. LIQUA-MELT. Chemtrust Industries Corporation. SN 332,143. Pub. 10–13–70. Filed 7–9–69.

904,969. FICAM. Fisons Limited. SN 338,770. Pub. 10–13–70. Filed 9–24–69.

904,970. REBORN. Reborn Products Co., Inc. SN 346,113. Pub. 10–13–70. Filed 12–12–69.

904,971. PROTOSOL. New England Nuclear Corporation. SN 346,282. Pub. 10–13–70. Filed 12–15–69.

904,972. FOSTEX. Textiliana Corporation. SN 346,523. Pub. 10–13–70. Filed 12–17–69.

904,973. AQUAMATE. Morton International, Inc. SN 348,085. Pub. 10–13–70. Filed 1–9–70.

904,974. REDIMOIST. Moore Business Forms, Inc. SN 353,777. Pub. 10–13–70. Filed 3–11–70.

Class 7 — Cordage

904,975. VELVETTE. Lion Ribbon Company, Inc. SN 278,012. Pub. 10–13–70. Filed 8–10–67.

904,976. SIM-STRAND. Simpson Timber Company. SN 344,299. Pub. 10–13–70. Filed 11–24–69.

904,977. ALPS. All Purpose Wire Rope, Inc. SN 347,805. Pub. 10–13–70. Filed 1–6–70.

Class 8 — Smokers' Articles, Not Including Tobacco Products

904,978. B & B LORRYS AND DESIGN. Eagle Clothes, Inc., d.b.a. B & B Lorrys Stores. SN 362,818. Pub. 10–13–70. Filed 6–16–70.

904,979. PARIS MATCH. Consolidated Cigar Corporation. SN 363,269. Pub. 10–13–70. Filed 6–22–70.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

904,980. DIVERTER. Clifford Logan Ashbrook and Wilson Gordon Wing (joint owners). SN 307,697. Pub. 10–13–70. Filed 9–18–68.

904,981. HY-SCORE. S. E. Laszlo. MULTIPLE CLASS (Classes 9 and 26). SN 322,772. Pub. 10–13–70. Filed 3–26–69.

Class 10 — Fertilizers

904,982. AYLCO. Kaiser Aluminum & Chemical Corporation. SN 332,241. Pub. 10–13–70. Filed 7–10–69.

904,983. IDEAL GOLDEN IDEAL AND DESIGN. Kerr-McGee Chemical Corp., assignee of Emhart Corporation. SN 344,101. Pub. 10–13–70. Filed 11–20–69.

904,984. SEAFARM. American Forest Industries Ltd. SN 348,401. Pub. 10–13–70. Filed 1–13–70.

Class 11 — Inks and Inking Materials

904,985. PRIDE MARK AND SHIELD DESIGN. Columbia Ribbon and Carbon Manufacturing Co., Inc. SN 304,672. Pub. 6–9–70. Filed 8–8–68.

Class 12 — Construction Materials

904,986. EPOXIGLAS. A. B. Chance Company. MULTIPLE CLASS (Classes 12, 13, 21, 23, and 50). SN 268,134. Pub. 10–13–70. Filed 4–3–67.

904,987. TRIMBERLINE ETC. AND DESIGN. Gossen Corporation. SN 327,016. Pub. 10–13–70. Filed 5–12–69.

904,988. STARRCO AND STARS DESIGN. Starrco Company, Inc. SN 327,965. Pub. 10–13–70. Filed 5–21–69.

904,989. CORAL PLASTIC. Dresser Industries, Inc. SN 333,690. Pub. 10–13–70. Filed 7–28–69.

904,990. GILSABIND. American Gilsonite Company. SN 334,682. Pub. 10–13–70. Filed 8–7–69.

904,991. TREMONT AND DESIGN. Tremont Lumber Company. SN 334,753. Pub. 10–13–70. Filed 8–7–69.

904,992. NODA JAPAN AND BUILDING DESIGN. Noda Plywood Manufacturing Co., Ltd. SN 335,463. Pub. 10–13–70. Filed 8–15–69.

904,993. UP DESIGN. Universal Papertech Corporation. SN 343,194. Pub. 10–13–70. Filed 11–10–69.

904,994. DEEPGARD. PPG Industries, Inc. SN 354,773. Pub. 10–13–70. Filed 3–23–70.

904,995. NOOTKA. Washington Timber Products, Inc. SN 357,449. Pub. 10–13–70. Filed 4–20–70.

904,996. T AND DESIGN. Trylon Incorporated. SN 357,648. Pub. 10–13–70. Filed 4–22–70.

904,997. VISTAROK. Harold Chemical Products, Inc. SN 358,014. Pub. 10–13–70. Filed 4–27–70.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

904,950. (See Class 2 for this trademark.)

904,986. (See Class 12 for this trademark.)

904,998. SPERISTAR DESIGN. Sperry Rand Corporation. SN 319,374. Pub. 10–13–70. Filed 2–17–69.

904,999. KABELMETAL. Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft. MULTIPLE CLASS (Classes 13, 14, and 23). SN 325,047. Pub. 10–13–70. Filed 4–21–69.

905,000. HYDRALEASE. Grove Valve and Regulator Company. SN 337,660. Pub. 10–13–70. Filed 9–11–69.

905,001. APOLLO. Stephen A. Young Corporation. SN 337,999. Pub. 10–13–70. Filed 9–15–69.

905,002. COUNTRY CLASSIC. Ajax Hardware Corporation. SN 342,216. Pub. 10–13–70. Filed 10–31–69.

905,003. CVG. Typhoon Industries, Inc. SN 344,160. Pub. 10–13–70. Filed 11–20–69.

905,004. FLO-SET. Josam Manufacturing Co. SN 344,247. Pub. 10–13–70. Filed 11–21–69.

905,005. IBN AND DESIGN. Industrial Bolt and Nut Company. SN 351,471. Pub. 10–13–70. Filed 2–16–70.

905,006. STA-RAP. Panduit Corp. SN 352,658. Pub. 10–13–70. Filed 2–27–70.

905,007. CIRCLOC. Firth Cleveland Fastenings Limited. SN 353,134. Pub. 10–13–70. Filed 3–5–70.

905,008. POWERSTRAP. The Stanley Works. SN 355,993. Pub. 10–13–70. Filed 4–6–70.

Class 14 — Metals and Metal Castings and Forgings

904,999. (See Class 13 for this trademark.)

905,009. 15–5 PH. Armco Steel Corporation. SN 321,450. Pub. 10–13–70. Filed 3–12–69.

905,010. LUSTROFOIL. General Roll Leaf Mfg. Co., Inc. SN 328,116. Pub. 10–21–69. Filed 5–26–69.

905,011. PI AND DESIGN. Portec, Inc. SN 336,595. Pub. 10–13–70. Filed 8–28–69.

905,012. UNILEC. Cyclops Corporation. SN 337,014. Pub. 10–13–70. Filed 9–4–69.

905,013. MAGNET AND METALS POWDERS DESIGN. Federal-Mogul Corporation. SN 337,159. Pub. 10–13–70. Filed 9–5–69.

905,014. GJ AND DESIGN. Blackstone Corporation. SN 346,848. Pub. 10–13–70. Filed 12–22–69.

905,015. CLIMAX. American Metal Climax, Inc. SN 362,588. Pub. 10–13–70. Filed 6–15–70.

Class 15 — Oils and Greases

904,958. (See Class 4 for this trademark.)

905,016. BIT LUBE. Dresser Industries, Inc. SN 298,667. Pub. 10–13–70. Filed 5–16–68.

905,017. ZAYRE. Zayre Corp. SN 362,205. Pub. 10–13–70. Filed 6–10–70.

Class 16 — Protective and Decorative Coatings

904,958. (See Class 4 for this trademark.)

905,018. FINAL-TOUCH. United Coatings, Inc. SN 321,412. Pub. 10–13–70. Filed 3–11–69.

905,019. AN-CRYLIC. Anderson Chemical Company. SN 324,331. Pub. 10–13–70. Filed 4–14–69.

Class 17 — Tobacco Products

905,020. JADE. Bayuk Cigars Incorporated. SN 314,870. Pub. 6–17–69. Filed 12–19–68.

905,021. HOME RUN. Liggett & Myers Incorporated. SN 334,597. Pub. 10–13–70. Filed 8–6–69.

905,022. AQUARIUS AND DESIGN. Plantation Tobacco Company, Incorporated. SN 334,613. Pub. 10–13–70. Filed 8–6–69.

Class 18 — Medicines and Pharmaceutical Preparations

905,023. GLAD BAG. West Laboratories, Inc. SN 324,104. Pub. 10–13–70. Filed 4–9–69.

905,024. APF. American Home Products Corporation. SN 324,975. Pub. 11–4–69. Filed 4–21–69.

905,025. PRIADEL. Delalande S.A. SN 329,964. Pub. 10–13–70. Filed 6–13–69.

905,026. JENO VERM/2. Richardson-Merrell Inc. SN 332,853. Pub. 10–13–70. Filed 7–17–69.

905,027. KITCHEN HANDS. Miles Laboratories, Inc. SN 333,737. Pub. 10–13–70. Filed 7–28–69.

905,028. GOLD 500. The Upjohn Company. SN 335,808. Pub. 10–13–70. Filed 8–20–69.

905,029. ORACIN. Richardson-Merrell Inc. SN 340,426. Pub. 10–13–70. Filed 10–10–69.

905,030. AQUA-BAN. Thompson Medical Company, Inc. SN 341,337. Pub. 10–13–70. Filed 10–22–69.

905,031. SINE-AID. Johnson & Johnson. SN 344,619. Pub. 4–21–70. Filed 11–26–69.

905,032. CYAMINE. Rucker Pharmacal Co., Inc. SN 354,998. Pub. 10–13–70. Filed 3–25–70.

905,033. SPECTROCAINE. E. R. Squibb & Sons, Inc. SN 359,980. Pub. 10–13–70. Filed 5–18–70.

Class 19 — Vehicles

905,034. SKYLINE AND DESIGN. Skyline Industries, Inc. SN 307,239. Pub. 10–13–70. Filed 9–12–68.

905,035. JIGER. Breton Versatrek Limited. SN 315,038. Pub. 10–13–70. Filed 12–23–68.

905,036. GREAT-NORTHERN. Great Northern Corporation. SN 333,825. Pub. 10–13–70. Filed 7–29–69.

905,037. MISCELLANEOUS DESIGN. Mooney Aircraft Corporation. SN 336,651. Pub. 10–13–70. Filed 8–29–69.

905,038. CARGO. Myers Industries, Inc. SN 338,167. Pub. 10–13–70. Filed 9–17–69.

905,039. BLUE FLYER. Richard D. Huddleston, d.b.a. Blue Flyer Camper Company. SN 340,555. Pub. 10–13–70. Filed 10–13–69.

905,040. AMERICAN MOTORS AND DESIGN. American Motors Corporation. SN 345,288. Pub. 10–13–70. Filed 12–4–69.

Class 20 — Linoleum and Oiled Cloth

904,945. (See Class 1 for this trademark.)

905,041. DOMANI. American Biltrite Rubber Co., Inc. SN 342,129. Pub. 10–13–70. Filed 10–30–69.

Class 21 — Electrical Apparatus, Machines, and Supplies

904,986. (See Class 12 for this trademark.)

905,042. APCO ELECTRONICS. American Plasticraft Company. SN 307,076. Pub. 10–13–70. Filed 9–11–68.

905,043. WITHDRAWN.

905,044. PRIVATE WORLD. Marpac Corporation. SN 315,243. Pub. 10–13–70. Filed 12–26–68.

905,045. FERCO. Ferco, S.p.A. MULTIPLE CLASS (Classes 21 and 23). SN 317,738. Pub. 10–13–70. Filed 1–28–69.

905,046. GROMSTRIP. Rally Industries. SN 319,075. Pub. 10–13–70. Filed 2–13–69.

905,047. MIRTONE. Brasco Electronics Limited. SN 321,155. Pub. 10–13–70. Filed 3–6–69.

905,048. ADJUST-A-STAT. Walter G. Legge Company, Inc. SN 321,515. Pub. 10–13–70. Filed 3–12–69.

905,049. SOLOTECTOR. Flinn & Dreffein Engineering Co. SN 322,851. Pub. 10–13–70. Filed 3–26–69.

905,050. LAWRENCE. Sherold Crystals, Inc., d.b.a. The Lawrence Company, SN 325,404. Pub. 10–13–70. Filed 4–23–69.

905,051. AUDIO DESIGNS. Audio Designs and Manufacturing, Inc. SN 325,703. Pub. 10–13–70. Filed 4–28–69.

905,052. CABLE TWINS. Richards Manufacturing Company. SN 330,629. Pub. 10–13–70. Filed 6–20–69.

905,053. ETHAN ALLEN. Baumritter Corporation. SN 330,700. Pub. 10–13–70. Filed 6–23–69.

905,054. VC AND DESIGN. Anderson Electric Corporation (Nevada corporation), assignee of Anderson Electric Corporation (Alabama corporation). SN 331,100. Pub. 10–13–70. Filed 6–27–69.

905,055. TOT-O-MATIC. Caco Manufacturing Corporation. SN 332,449. Pub. 10–13–70. Filed 7–14–69.

905,056. DIGINET. The General Electric Company. SN 333,920. Pub. 10–13–70. Filed 7–30–69.

905,057. JOHANSON AND DESIGN. Johanson Manufacturing Corporation. SN 335,697. Pub. 10–13–70. Filed 8–10–69.

905,058. SELEC-PAK. General Instrument Corporation. SN 338,562. Pub. 10–13–70. Filed 9–22–69.

905,059. REGETHERMIC. Monsieur Yves Tricault. SN 340,441. Pub. 10–13–70. Filed 10–10–69.

905,060. MICRO-MASTER. Studebaker Corporation. SN 342,533. Pub. 10–13–70. Filed 11–3–69.

905,061. COUNTDOC. Allied Computer Systems, Inc. SN 344,648. Pub. 10–13–70. Filed 11–26–69.

905,062. SCANSORT. Allied Computer Systems, Inc. SN 344,649. Pub. 10–13–70. Filed 11–26–69.

905,063. MAILDOC. Allied Computer Systems, Inc. SN 344,650. Pub. 10–13–70. Filed 11–26–69.

905,064. HANDHOLE. Superior Continental Corporation. SN 344,738. Pub. 10–13–70. Filed 11–26–69.

905,065. SUPERIOR CONTINENTAL. Superior Continental Corporation. SN 350,782. Pub. 10–13–70. Filed 2–6–70.

905,066. EMCO. Engelmann Microwave Co. SN 352,110. Pub. 6–30–70. Filed 2–24–70.

905,067. ZAYRE. Zayre Corp. SN 362,203. Pub. 10–13–70. Filed 6–10–70.

Class 22 — Games, Toys, and Sporting Goods

905,068. CHRISTIE 300 AND DESIGN. Christie 300 Corporation. SN 296,942. Pub. 10–13–70. Filed 4–30–68.

905,069. ROLL'EM. Fred Weatherford. SN 327,527. Pub. 10–13–70. Filed 5–16–69.

905,070. OREGON DIVER. Donald J. Dawson, d.b.a. Chief Joseph Products. SN 337,788. Pub. 10–13–70. Filed 9–12–69.

905,071. JOYCE MILLER ORIGINAL AND FLOWER AND BIRD DESIGN. Helen Joyce Kondratuk, d.b.a. Joyce Miller Originals. SN 339,439. Pub. 10–13–70. Filed 10–1–69.

905,072. PUMA. Puma Sportschuhfabriken Rudolf Dassler KG. MULTIPLE CLASS (Classes 22 and 39). SN 343,354. Pub. 10–13–70. Filed 11–13–69.

905,073. ZEPHYR. The Firestone Tire & Rubber Company. SN 344,360. Pub. 10–13–70. Filed 11–24–69.

905,074. FLUTTERINGS. Clinton V. Carlson, d.b.a. Clinton Vee. SN 345,408. Pub. 10–13–70. Filed 12–5–69.

905,075. DUMPETY-DUMPY. Mattel, Inc. SN 345,556. Pub. 10–13–70. Filed 12–8–69.

905,076. WIKID' WITCH. Magic Lure Co. SN 348,963. Pub. 10–13–70. Filed 1–19–70.

905,077. BRACHO. American Home Products Corporation. SN 351,643. Pub. 10–13–70. Filed 2–18–70.

905,078. ORBIT LAUNCHER. Amerola Products Corporation. SN 352,059. Pub. 10–13–70. Filed 2–24–70.

905,079. WORDCRAFT. Vocab Incorporated. MULTIPLE CLASS (Classes 22, 36, and 38). SN 352,707. Pub. 10–13–70. Filed 3–2–70.

905,080. BAD MEDICINE. Mattel, Inc. SN 363,835. Pub. 10–13–70. Filed 6–29–70.

905,081. DOG CATCHER. Mattel, Inc. SN 363,836. Pub. 10–13–70. Filed 6–29–70.

905,082. TRICK "T." Mattel, Inc. SN 363,837. Pub. 10–13–70. Filed 6–29–70.

905,083. JINX EXPRESS. Mattel, Inc. SN 363,838. Pub. 10–13–70. Filed 6–29–70.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

904,948. (See Class 2 for this trademark.)

904,951. (See Class 2 for this trademark.)

904,986. (See Class 12 for this trademark.)

904,999. (See Class 13 for this trademark.)

905,045. (See Class 21 for this trademark.)

905,084. CON-O-PAK. Continental Sensing, Inc. MULTIPLE CLASS (Classes 23, 26, and 34). SN 308,733. Pub. 10–13–70. Filed 10–3–68.

905,085. THUMBSPOT. Harold P. Zemke, d.b.a. Thumbspot. SN 317,901. Pub. 10–13–70. Filed 1–29–69.

905,086. SILOX. Applied Materials Technology, Inc. SN 324,999. Pub. 10–13–70. Filed 4–21–69.

905,087. CALER-CONVERTER. Caler Industries, Inc. SN 327,123. Pub. 10–13–70. Filed 5–13–69.

905,088. T-U MATIC. Union Steel Products Company. SN 327,308. Pub. 10–13–70. Filed 5–14–69.

905,089. BUCK-EL AND DESIGN. The Bucket Elevator Company. SN 327,354. Pub. 10–13–70. Filed 5–15–69.

905,090. D-G. Didde-Glaser, Inc. SN 331,877. Pub. 10–13–70. Filed 7–7–69.

905,091. AUSTIN VIBRA TAMP. Harold J. Austin. SN 333,080. Pub. 10–13–70. Filed 7–22–69.

905,092. COMCO. Communications Conveyor Company. SN 334,313. Pub. 10–13–70. Filed 8–8–69.

905,093. MODU-LINE. Kearney & Trecker Corporation. SN 335,876. Pub. 10–13–70. Filed 8–21–69.

905,094. ARDA. Electrovert, Inc. SN 335,958. Pub. 10–13–70. Filed 8–22–69.

905,095. ACCUMATIC. Medalist Industries, Inc. SN 335,998. Pub. 10–13–70. Filed 8–22–69.

905,096. MISCELLANEOUS DESIGN. Waterbury Hydraulic & Pollution Sciences, Inc., by change of name from Waterbury Hydraulic Industries, Inc. SN 337,734. Pub. 10–13–70. Filed 9–11–69.

905,097. FRAP. Etablissements Planche-Machines Frap. SN 338,236. Pub. 10–13–70. Filed 9–18–69.

905,098. ZIPFLO. Kornylak Corporation. SN 340,167. Pub. 10–13–70. Filed 10–8–69.

905,099. HAND-O-PUMP. Monogram Industries, Inc. SN 346,936. Pub. 10–13–70. Filed 12–22–69.

Class 25 — Locks and Safes

905,100. VEND-GUARD. Gas Defenders, Inc. SN 331,609. Pub. 10–13–70. Filed 7–2–69.

905,101. ETC. Keystone Consolidated Industries, Inc. SN 356,097. Pub. 10–13–70. Filed 4–6–70.

Class 26 — Measuring and Scientific Appliances

904,981. (See Class 9 for this trademark.)

905,084. (See Class 23 for this trademarrk.)

905,102. DATA PACIFIC AND DESIGN. Data Pacific Corporation. SN 327,006. Pub. 10–13–70. Filed 5–12–69.

905,103. MICRODOC. Walter Leemann. SN 330,521. Pub. 10–13–70. Filed 6–19–69.

905,104. MIXTURE MIZER. K S Avionics, Inc. SN 331,211. Pub. 10–13–70. Filed 6–27–69.

905,105. MICROFAB SYSTEMS. Microfab Systems Corporation. SN 333,937. Pub. 10–13–70. Filed 7–30–69.

905,106. TEMPS. Codman & Shurtleff, Inc. SN 334,694. Pub. 10–13–70. Filed 8–7–69.

905,107. SATIN CLOUD. P. R. Myers & Co. SN 336,941. Pub. 10–13–70. Filed 9–3–69.

905,108. FLASHPACK. General Electric Company. SN 340,543. Pub. 10–13–70. Filed 10–13–69.

905,109. NEW CENTURY. Meredith Corporation. SN 341,830. Pub. 10–13–70. Filed 10–27–69.

905,110. DC DESIGN. Clary Datacomp Systems, Inc. SN 346,063. Pub. 10–13–70. Filed 12–12–69.

905,111. XEROX DATA SYSTEMS. Xerox Corporation. SN 347,371. Pub. 10–13–70. Filed 12–29–69.

905,112. OPTECON. The Bunker-Ramo Corporation. SN 348,110. Pub. 10–13–70. Filed 1–9–70.

905,113. CIRCULAR DESIGN. Optoelectronics, Inc. SN 348,172. Pub. 10–13–70. Filed 1–9–70.

905,114. B AND DESIGN. H. L. Bouton Company, Inc. SN 348,886. Pub. 10–13–70. Filed 1–19–70.

905,115. MULTIFACTOR. Donald R. Isbell, d.b.a. Lou Don Enterprises. SN 349,642. Pub. 10–13–70. Filed 1–26–70.

905,116. TINTOLITES. American Optical Corporation. SN 351,646. Pub. 10–13–70. Filed 2–18–70.

905,117. MILLIVAC. Millivac Instruments, Inc. SN 352,361. Pub. 10–13–70. Filed 2–25–70.

905,118. TRU-TEST. Scientific Farm Appliances, Limited. SN 353,385. Pub. 10–13–70. Filed 3–9–70.

905,119. ASTRASCOPE. Lumiuos Photo Corporation. SN 353,771. Pub. 10–13–70. Filed 3–11–70.

905,120. PARIS-SOL. Paris Presents, Ltd. SN 356,424. Pub. 10–13–70. Filed 4–9–70.

905,121. IMPAKTA. Imperial Camera Corp. SN 356,685. Pub. 10–13–70. Filed 4–13–70.

905,122. CODALT. Lear Siegler, Inc. SN 356,711. Pub. 10–13–70. Filed 4–13–70.

905,123. HOLTEST. M.T.I. Corporation. SN 357,102. Pub. 10–13–70. Filed 4–16–70.

905,124. MICROSELECT. Pierre Roch, S.A.R.L. SN 357,421. Pub. 10–13–70. Filed 4–20–70.

905,125. ATLAS. Atlas Supply Company. SN 357,577. Pub. 10–13–70. Filed 4–22–70.

Class 27 — Horological Instruments

905,126. STAR TREK. Bulova Watch Company, Inc. SN 354,287. Pub. 10–13–70. Filed 3–17–70.

905,127. ASPEN. General Time Corporation. SN 356,072. Pub. 10–13–70. Filed 4–6–70.

905,128. COUNTRYSIDE. General Time Corporation. SN 356,497. Pub. 10–13–70. Filed 4–10–70.

Class 28 — Jewelry and Precious-Metal Ware

905,129. MANCHU GEMS. Manchu Gems Ltd. SN 338,956. Pub. 10–13–70. Filed 9–25–69.

905,130. BLACKINTON AND DESIGN. V. H. Blackinton & Co., Inc. SN 354,947. Pub. 10–13–70. Filed 3–24–70.

905,131. DIAMONADA. Crystalography Corporation. SN 360,632. Pub. 10–13–70. Filed 5–25–70.

Class 29 — Brooms, Brushes, and Dusters

904,953. (See Class 2 for this trademark.)

905,132. MISCELLANEOUS DESIGN. South Eastern Cordage Co. SN 331,653. Pub. 10–13–70. Filed 7–2–69.

905,133. GROOM & TAME. Vistron Corporation. SN 338,632. Pub. 10–13–70. Filed 9–22–69.

905,134. HAN-DI-LINTER. Bishop Freeman Company, assignee of Bishop Freeman Company. SN 344,228. Pub. 10–13–70. Filed 11–21–69.

905,135. LIBERATOR. Ben Tunis, d.b.a. Ben Tunis Company. SN 356,795. Pub. 10–13–70. Filed 4–13–70.

Class 32 — Furniture and Upholstery

904,950. (See Class 2 for this trademark.)

Class 33 — Glassware

905,136. BLUERAL. Central Glass Co., Ltd. SN 350,224. Pub. 10–13–70. Filed 2–2–70.

Class 34 — Heating, Lighting, and Ventilating Apparatus

905,084. (See Class 23 for this trademarrk.)

905,137. CERTA-THERM. Purex Corporation, Ltd. SN 338,854. Pub. 10–13–70. Filed 9–25–69.

905,138. FYCON. Fycon Engineering Corporation. SN 339,875. Pub. 10–13–70. Filed 10–6–69.

905,139. ASTRALLOY. Vulcan Steel Corporation. SN 351,164. Pub. 10–13–70. Filed 2–11–70.

905,140. LIQUI-DATUR. Thermal Research & Engineering Corporation. SN 353,931. Pub. 10–13–70. Filed 3–12–70.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

905,141. DORAL. Doral Tire & Rubber Co., Inc. SN 337,644. Pub. 6–2–70. Filed 9–11–69.

Class 36 — Musical Instruments and Supplies

905,079. (See Class 22 for this trademark.)

905,142. MCA RECORDS AND DESIGN. MCA Inc. SN 314,096. Pub. 10–13–70. Filed 12–10–68.

905,143. ESQUIER. Columbia Broadcasting System, Inc. SN 347,226. Pub. 10–13–70. Filed 12–29–69.

905,144. SE AND DESIGN. Sterling Electronics Corporation. SN 351,262. Pub. 10–13–70. Filed 2–13–70.

905,145. STEREO AND DESIGN. Gibson, Inc. SN 352,957. Pub. 10–13–70. Filed 3–3–70.

905,146. SPEAR AND DESIGN. Jerome Electric Corporation, d.b.a. Spear Products Company. SN 358,025. Pub. 10–13–70. Filed 4–27–70.

905,147. MICRO-MINI. BSR Limited. SN 358,260. Pub. 10–13–70. Filed 4–29–70.

905,148. RELOJ. Oscar Trevino. SN 358,487. Pub. 10–13–70. Filed 4–30–70.

Class 37 — Paper and Stationery

905,149. FLEETWOOD. Strum & Drum, Inc. SN 298,481. Pub. 10–13–70. Filed 5–17–68.

905,150. LAMBKIN. Swanee Paper Company, Inc. SN 319,974. Pub. 10–13–70. Filed 2–24–69.

905,151. YAKA MARK. Magic Marker Corporation. SN 335,410. Pub. 10–13–70. Filed 8–15–69.

905,152. FROLIC. Fort Howard Paper Company. SN 336,792. Pub. 10–13–70. Filed 9–2–69.

905,153. MIRACL. Republic Software Products, Inc. MULTIPLE CLASS (Classes 37 and 38). SN 342,787. Pub. 10–13–70. Filed 11–6–69.

905,154. BIC CLIC AND DESIGN. Waterman-Bic Pen Corporation. SN 345,706. Pub. 10–13–70. Filed 12–9–69.

905,155. WESTVACO. Westvaco Corporation. SN 346,674. Pub. 10–13–70. Filed 12–18–69.

Class 38 — Prints and Publications

905,079. (See Class 22 for this trademark.)

905,153. (See Class 37 for this trademark.)

905,156. MAGNI-FILE. National Business Services, Incorporated. SN 291,760. Pub. 7–29–69. Filed 2–23–68.

905,157. INSPIRATIONAL. Gibson Greeting Cards, Inc. SN 311,979. Pub. 10–13–70. Filed 10–16–68.

905,158. SIMULATED CROWN DESIGN. King Broadcasting Company. MULTIPLE CLASS (Classes 38, 101, 104, and 107). SN 313,221. Pub. 10–13–70. Filed 11–29–68.

905,159. S AND DESIGN. Stenoscript ABC Shorthand, Inc. MULTIPLE CLASS (Classes 38 and 107). SN 324,619. Pub. 8–4–70. Filed 4–16–69.

905,160. ENERGY EQUIPMENT PLANNING GUIDE. The Petroleum Engineer Publishing Company. SN 328,889. Pub. 10–13–70. Filed 6–2–69.

905,161. THE NEW CHICAGO. The New World Publishing Co. SN 332,040. Pub. 10–13–70. Filed 7–8–69.

905,162. LEE FOSTER. Lee Foster Industries, Inc. SN 341,025. Pub. 10–13–70. Filed 10–17–69.

905,163. SMOOTH SELLING. George N. Kahn Company, Inc. SN 345,958. Pub. 10–13–70. Filed 12–11–69.

905,164. RODDA'S TOPICAL TRENDS. John A. Rodda Associates. SN 348,686. Pub. 10–13–70. Filed 1–15–70.

905,165. ROSES FOR REMEMBRANCE. Norcross, Inc. SN 350,602. Pub. 10–13–70. Filed 2–5–70.

905,166. WORDS TO INSPIRE. Norcross, Inc. SN 350,603. Pub. 10–13–70. Filed 2–5–70.

905,167. TRAILS. Pioneer Girls, Inc. SN 350,607. Pub. 10–13–70. Filed 2–5–70.

905,168. ACTIONMAP. Denoyer-Geppert Company. SN 351,605. Pub. 10–13–70. Filed 2–17–70.

Class 39 — Clothing

904,945. (See Class 1 for this trademark.)

905,072. (See Class 22 for this trademark.)

905,169. OUTER LTD. Outer Ltd. SN 335,177. Pub. 10–13–70. Filed 8–13–69.

905,170. TRIP TRAP. Torben A. Frederiksen, d.b.a. Tafimex. SN 336,793. Pub. 10–13–70. Filed 9–2–69.

905,171. MR. WRAP-AROUND. Varsity Industries, Inc. SN 337,731. Pub. 10–13–70. Filed 9–11–69.

905,172. GAY TEX. Gay Togs (1962) Ltd. SN 339,383. Pub. 10–13–70. Filed 9–30–69.

905,173. ROSETTE. Russell Hosiery Mills, Incorporated. SN 342,516. Pub. 10–13–70. Filed 11–3–69.

905,174. CHAD. Chadbourn Inc. SN 348,754. Pub. 10–13–70. Filed 1–16–70.

905,175. CHAD, JR. Chadbourn Inc. SN 348,755. Pub. 10–13–70. Filed 1–16–70.

905,176. M AND DESIGN. Mann Manufacturing, Inc. SN 349,990. Pub. 10–13–70. Filed 1–29–70.

905,177. MISCELLANEOUS DESIGN. Dickson Industries, Inc. MULTIPLE CLASS (Classes 39 and 42). SN 351,249. Pub. 10–13–70. Filed 2–13–70.

905,178. TOTAL COLOR TIE-UP. Superba Cravats, Inc. SN 354,531. Pub. 10–13–70. Filed 3–18–70.

905,179. GREAT SHAPE. Joseph Bancroft & Sons Company. SN 356,020. Pub. 10–13–70. Filed 4–6–70.

905,180. HULLACHAN. Jack Coussins. SN 356,041. Pub. 10–13–70. Filed 4–6–70.

905,181. ANDORRA. Cooper's, Incorporated. SN 356,381. Pub. 10–13–70. Filed 4–9–70.

905,182. CHADS. Chadbourn Inc., d.b.a. Carwood Manufacturing Company. SN 356,483. Pub. 10–13–70. Filed 4–10–70.

905,183. NATIONAL PRO. Volume Shoe Corporation. SN 356,528. Pub. 10–13–70. Filed 4–10–70.

905,184. UNDERSCENE. Bestform Foundations, Inc. SN 356,611. Pub. 10–13–70. Filed 4–13–70.

905,185. SKI IMP AND DESIGN. Imperial Caps, Inc. SN 356,686. Pub. 10–13–70. Filed 4–13–70.

Class 40 — Fancy Goods, Furnishings, and Notions

904,953. (See Class 2 for this trademark.)

905,186. SSK AND DESIGN. S. S. Kresge Company. SN 350,098. Pub. 10–13–70. Filed 1–30–70.

905,187. K MART AND DESIGN. S. S. Kresge Company. SN 350,099. Pub. 10–13–70. Filed 1–30–70.

905,188. BABY-SAFE. Scovill Manufacturing Company. SN 360,211. Pub. 10–13–70. Filed 5–19–70.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

904,945. (See Class 1 for this trademark.)

905,177. (See Class 39 for this trademark.)

905,189. MONOLINES. Monolines Limited. SN 322,180. Pub. 10–13–70. Filed 3–19–69.

905,190. GOURMATES. Fieldcrest Mills, Inc. SN 342,253. Pub. 10–13–70. Filed 10–31–69.

905,191. CAMAJO. Klopman Mills, Inc. SN 342,291. Pub. 10–13–70. Filed 10–31–69.

905,192. SUPERSORB. M. Lowenstein & Sons, Inc. SN 342,482. Pub. 10–13–70. Filed 11–3–69.

905,193. XTRA-303. Charles Bloom, Inc. SN 342,724. Pub. 10–13–70. Filed 11–5–69.

905,194. DANCREPE. Dan River Inc., by change of name from Dan River Mills, Incorporated. SN 342,838. Pub. 10–13–70. Filed 11–6–69.

905,795. GLENTUNG. Glen Raven Mills, Inc. SN 342,970. Pub. 10–13–70. Filed 11–7–69.

905,196. MATCHKNITS. Graniteville Company. SN 343,788. Pub. 10–13–70. Filed 11–14–69.

905,197. WHIRLAWAY. Klopman Mills, Inc. SN 347,024. Pub. 10–13–70. Filed 12–23–69.

905,198. J. C. BEST DRAPERY & CARPET CENTERS AND DESIGN. J. C. Best, Inc. SN 353,690. Pub. 10–13–70. Filed 3–11–70.

Class 44 — Dental, Medical, and Surgical Appliances

904,951. (See Class 2 for this trademark.)

905,199. FIDELITY. Copy Systems, Inc., d.b.a. Fidelity Dental Supply Co. SN 352,457. Pub. 10–13–70. Filed 2–26–70.

905,200. INVA-TRAC. Invalex Company. SN 355,402. Pub. 10–13–70. Filed 3–30–70.

905,201. 3M. Minnesota Mining and Manufacturing Company. SN 358,508. Pub. 10–13–70. Filed 5–1–70.

905,202. VIBRA BED. Dynamics Classics, Ltd. SN 359,547. Pub. 10–13–70. Filed 5–13–70.

Class 45 — Soft Drinks and Carbonated Waters

904,952. (See Class 2 for this trademark.)

Class 46 — Foods and Ingredients of Foods

904,952. (See Class 2 for this trademark.)

905,203. TIVOLI. Celebrity Food Products, Inc. SN 309,745. Pub. 10–13–70. Filed 10–16–68.

905,204. BIG BEN. Big Ben Pizza Pub, Inc. SN 319,812. Pub. 10–13–70. Filed 2–24–69.

905,205. OZARK MOUNTAIN AND DESIGN. Ozark Mountain Smoke House, Incorporated, d.b.a. Ozark Mountain Smoke House. SN 325,215. Pub. 10–13–70. Filed 4–22–69.

905,206. NUTTY CORN. A. H. Robins Company, Incorporated. SN 325,223. Pub. 10–13–70. Filed 4–22–69.

905,207. ROYAL CATCH. Intercontinental Industries Inc. SN 328,058. Pub. 10–13–70. Filed 5–22–69.

905,208. TAKE SHAPE. Mead Johnson & Company. SN 334,482. Pub. 10–13–70. Filed 8–5–69.

905,209. TRIMMER'S CHOICE. Mead Johnson & Company. SN 340,807. Pub. 10–13–70. Filed 10–15–69.

905,210. LA ESTERELLA SOLITARIA. Monroe Cheese Corporation, Inc. SN 341,177. Pub. 10–13–70. Filed 10–20–69.

905,211. K KERSEN AND FISH DESIGN. I.M.O. Foods Limited. SN 341,729. Pub. 10–13–70. Filed 10–17–69.

905,212. FRUIT-OF-THE-MONTH CLUB. Harry and David. SN 342,637. Pub. 10–13–70. Filed 11–4–69.

905,213. BUTTERKORN. ABC Consolidated Corporation. SN 343,230. Pub. 10–13–70. Filed 11–12–69.

905,214. FORTE. General Foods Corporation. SN 343,696. Pub. 10–13–70. Filed 11–17–69.

905,215. PIZZ-SAND. Katter's Pizzeria, Incorporated. SN 346,483. Pub. 10–13–70. Filed 12–17–69.

905,216. SARA LEE. Kitchens of Sara Lee, Inc. SN 346,486. Pub. 10–13–70. Filed 12–17–69.

905,217. SARA LEE LIGHT. Kitchens of Sara Lee, Inc. SN 346,487. Pub. 10–13–70. Filed 12–17–69.

905,218. APPLE BARREL. Seneca Foods Corporation. SN 346,515. Pub. 10–13–70. Filed 12–17–69.

905,219. SEAFARM. American Forest Industries, Ltd. SN 348,400. Pub. 10–13–70. Filed 1–13–70.

905,220. PIECE DE RESISTANCE. Armour-Dial, Inc. SN 348,626. Pub. 10–13–70. Filed 1–15–70.

905,221. BARTON'S Barton's Candy Corporation. SN 349,261. Pub. 10–13–70. Filed 1–22–70.

905,222. MR. SALAD. Redi-Spuds of America. SN 349,554. Pub. 10–13–70. Filed 1–26–70.

905,223. SNYDER'S OF HANOVER AND DESIGN. Hanover Guest Quality Foods Corporation. SN 351,329. Pub. 10–13–70. Filed S.R. 2–13–70; Am. P.R. 8–12–70.

905,224. SHAKE-O'S. General Mills, Inc. SN 352,416. Pub. 10–13–70. Filed 2–26–70.

905,225. TOASTER HO'S ITT Continental Baking Company. SN 353,695. Pub. 10–13–70. Filed 3–11–70.

905,226. KRA-KYS. Faby Corporation. SN 355,080. Pub. 10–13–70. Filed 3–26–70.

905,227. PUFFS. Ralston Purina Company. SN 355,584. Pub. 10–13–70. Filed 4–1–70.

905,228. BREEDER'S CHOICE. Breeder's Choice Pet Foods, Inc. SN 356,480. Pub. 10–13–70. Filed 4–10–70.

905,229. CRISTY. Sunline, Inc., d.b.a. Concorde Confections. SN 356,772. Pub. 10–13–70. Filed 4–13–70.

905,230. GOLD CHIP. Terra Bella Citrus Assn., Inc. SN 356,783. Pub. 10–13–70. Filed 4–13–70.

905,231. LAUNCH. Armour-Dial, Inc. SN 357,698. Pub. 10–13–70. Filed 4–23–70.

905,232. WINE LINE. Armour-Dial, Inc. SN 357,699. Pub. 10–13–70. Filed 4–23–70.

905,233. OPAL. Mars, Incorporated. SN 358,915. Pub. 10–13–70. Filed 5–6–70.

905,234. KING GROTESQUE. The Quaker Oats Company. SN 365,203. Pub. 10–13–70. Filed 7–14–70.

Class 47 — Wines

905,235. SENECLAUZE AND DESIGN. Societe de Diffusion des Vins Seneclauze. SN 349,435. Pub. 10–13–70. Filed 1–23–70.

Class 48 — Malt Beverages and Liquors

905,236. LITE AND DESIGN. Meister Brau, Inc. SN 311,283. Pub. 6–23–70. Filed 11–4–68.

Class 49 — Distilled Alcoholic Liquors

905,237. HE AND SHE. Schenley Distillers, Inc. SN 355,052. Pub. 10–13–70. Filed 3–25–70.

905,238. 2000. Schenley Distillers, Inc. SN 355,053. Pub. 10–13–70. Filed 3–25–70.

Class 50 — Merchandise Not Otherwise Classified

904,986. (See Class 12 for this trademark.)

905,239. INTERIORS BY PATZ. AAA Enterprises, Inc. SN 318,726. Pub. 10–13–70. Filed 2–10–69.

905,240. UPSIDE DOWN CHARLEY'S. AAA Enterprises, Inc. SN 318,727. Pub. 10–13–70. Filed 2–10–69.

905,241. DEC-A-TRIM. Avery Products Corporation. SN 339,116. Pub. 10–13–70. Filed 9–29–69.

905,242. "MINI-BAITER." Solvit Chemical Company, Inc. SN 347,650. Pub. 10–13–70. Filed 1–2–70.

Class 51 — Cosmetics and Toilet Preparations

904,952. (See Class 2 for this trademark.)

904,953. (See Class 2 for this trademark.)

905,243. MISCELLANEOUS DESIGN. Scannon, Ltd. SN 331,652. Pub. 10–13–70. Filed 7–2–69.

905,244. SUPERFRAGILUCENT. Du Barry, Inc. SN 336,978. Pub. 10–13–70. Filed 9–4–69.

905,245. SUPERFRAGILIPSTICK. Du Barry, Inc. SN 336,979. Pub. 10–13–70. Filed 9–4–69.

905,246. SWEDISH SUN. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 337,960. Pub. 10–13–70. Filed 9–15–69.

905,247. SWEDISH GOLD. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 337,961. Pub. 10–13–70. Filed 9–15–69.

905,248. SECRET SUN. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 337,962. Pub. 10–13–70. Filed 9–15–69.

905,249. SWEDISH SHIELD. Pfizer Inc., by change of name from Chas. Pfizer & Co., Inc. SN 337,963. Pub. 10–13–70. Filed 9–15–69.

905,250. MORNING GIRL. John H. Breck, Inc. SN 338,356. Pub. 10–13–70. Filed 9–19–69.

905,251. NIDIA. M. & A. Amateau, Inc. SN 338,839. Pub. 10–13–70. Filed 9–25–69.

905,252. DE CARLO P.M. C & J De Carlo, Inc. SN 345,449. Pub. 10–13–70. Filed 12–5–69.

905,253. DE CARLO A.M. C & J De Carlo, Inc. SN 345,450. Pub. 10–13–70. Filed 12–5–69.

905,254. CIRRUS. Union Carbide Corporation. SN 345,577. Pub. 10–13–70. Filed 12–8–69.

905,255. CALIFORNIA SUN FROSTS. Max Factor & Co. SN 348,305. Pub. 10–13–70. Filed 1–12–70.

905,256. NITRO GLYCERINE. Armour-Dial, Inc. SN 349,294. Pub. 10–13–70. Filed 1–22–70.

905,257. ETC. La Maur, Inc., d.b.a. The House of Style. SN 350,101. Pub. 10–13–70. Filed 1–30–70.

905,258. ALBERTO LIGHT TOUCH. Alberto-Culver Company. SN 363,796. Pub. 10–13–70. Filed 6–29–70.

905,259. VERT GALANT. Shulton, Inc., d.b.a. Shulton. SN 364,344. Pub. 10–13–70. Filed 7–6–70.

905,260. ALL DAY. Associated Products, Inc., d.b.a. 5 Day Laboratories. SN 364,607. Pub. 10–13–70. Filed 7–8–70.

905,261. DERMACEA. Pettibone Laboratories, Inc. SN 365,270. Pub. 10–13–70. Filed 7–15–70.

Class 52 — Detergents and Soaps

904,953. (See Class 2 for this trademark.)

904,958. (See Class 4 for this trademark.)

905,262. OSTOSAN. Pettibone Laboratories, Inc. SN 354,941. Pub. 10–13–70. Filed 3–24–70.

Service Marks

Class 100 — Miscellaneous

905,263. CER GEONUCLEAR. CER Geonuclear Corporation. SN 293,354. Pub. 10–13–70. Filed 3–15–68.

905,264. CAMPUS GIRL SCOUTS. Girl Scouts of the United States of America. SN 294,042. Pub. 10–13–70. Filed 3–25–68.

905,265. CANADIEN PACIFIQUE. Canadian Pacific Railway Company. MULTIPLE CLASS (Classes 100, 104, and 105). SN 324,968. Pub. 10–13–70. Filed 12–9–68.

905,266. CONSTRUCTIVE LEISURE WITH CL DESIGN. Patricia B. Edwards, d.b.a. Constructive Leisure. SN 327,612. Pub. 10–13–70. Filed 5–19–69.

905,267. TAKE-A-BOAT AND DESIGN. North American Boat Rental Co., Inc. SN 332,735. Pub. 10–13–70. Filed 7–16–69.

905,268. TELCO. Telco Marketing Services, Inc., by change of name from Technical Equipment Leasing Corporation. SN 333,004. Pub. 10–13–70. Filed 7–18–69.

905,269. MISCELLANEOUS DESIGN. Carson International Inc., d.b.a. Honey Bear Farm. SN 341,146. Pub. 10–13–70. Filed 10–20–69.

905,270. EVERYBODY'S SOMEBODY AT MARRIOTT. Marriott Corporation. SN 357,171. Pub. 10–13–70. Filed 4–17–70.

Class 101 — Advertising and Business

905,158. (See Class 38 for this trademark.)

905,271. GREEN ACRES. Green Acres of America, Inc. SN 316,432. Pub. 10–13–70. Filed 1–13–69.

905,272. PBL AND DESIGN. Pre-Builder Land Corporation. SN 323,841. Pub. 10–13–70. Filed 4–7–69.

905,273. W AND TWIN GROTESQUE DESIGN. Robert H. Wayne, d.b.a. R. H. Wayne Agency Ltd. SN 323,974. Pub. 10–13–70. Filed 4–7–69.

905,274. MISCELLANEOUS DESIGN. Medical Systems, Inc. SN 334,856. Pub. 10–13–70. Filed 10–27–69.

905,275. J. C. BEST CARPETS DRAPERIES AND DESIGN. J. C. Best, Inc. SN 353,691. Pub. 10–13–70. Filed 3–11–70.

905,276. T-GIRL AND DESIGN. Vencap, Incorporated. SN 354,280. Pub. 10–13–70. Filed 3–17–70.

Class 102 — Insurance and Financial

905,277. ABBEY IN OVAL DESIGN (SILHOUETTE). Abbey International Corporation. SN 317,802. Pub. 10–13–70. Filed 1–29–69.

905,278. ABBEY IN OVAL DESIGN (CLEAR). Abbey International Corporation. SN 317,803. Pub. 10–13–70. Filed 1–29–69.

905,279. MATCHMAKER. State Farm Mutual Automobile Insurance Company. SN 318,338. Pub. 10–13–70. Filed 2–4–69.

905,280. THE PROVIDENT WHERE THINGS GO YOUR WAY. Provident National Bank. SN 320,375. Pub. 10–13–70. Filed 2–28–69.

905,281. ARD. American Research and Development Corporation. SN 328,943. Pub. 10–13–70. Filed 6–3–69.

Class 103 — Construction and Repair

905,282. MISTER MINIT SERVICES AND DESIGN. Merchandising International S.A. SN 304,942. Pub. 10–13–70. Filed 8–12–68.

905,283. WAX-EVER. Belent Corp., d.b.a. The Belent Corp. SN 335,538. Pub. 10–13–70. Filed 8–18–69.

905,284. NSC. Nuclear Service and Construction Company, Inc. SN 351,260. Pub. 10–13–70. Filed 2–13–70.

Class 104 — Communication

905,158. (See Class 38 for this trademark.)

905,265. (See Class 100 for this trademark.)

Class 105 — Transportation and Storage

905,265. (See Class 100 for this trademark.)

905,285. IN RESORTS. Resorts International, Inc. SN 309,902. Pub. 10–13–70. Filed 10–17–68.

905,286. UNITED AND DESIGN. United Air Lines, Inc. SN 335,905. Pub. 10–13–70. Filed 8–21–69.

905,287. SUDDATH. Suddath Van Lines, Inc. SN 363,402. Pub. 10–13–70. Filed 6–23–70.

Class 107 — Education and Entertainment

905,158. (See Class 38 for this trademark.)

905,159. (See Class 38 for this trademark.)

905,288. CHILDREN'S WORLD. Children's World. SN 309,841. Pub. 10–13–70. Filed 10–17–68.

905,289. AIM AND DESIGN ETC. Institute of Maintenance, d.b.a. American Institute of Maintenance. SN 316,789. Pub. 10–13–70. Filed 1–16–69.

905,290. AROUND THE WORLD IN 18 HOLES GOLF AND DESIGN. Around the World in 18 Holes Miniature Golf Inc. SN 319,797. Pub. 10–13–70. Filed 2–24–69.

905,291. SATELLITES. Rasberry Enterprises. SN 320,176. Pub. 10–13–70. Filed 2–26–69.

905,292. THE JOHNNY DOLAN SHOW. Storz Broadcasting Co., Inc. SN 320,189. Pub. 10–13–70. Filed 2–26–69.

905,293. MOBILITY FOR THE BLIND. Guiding Eyes for the Blind, Inc. SN 322,711. Pub. 10–13–70. Filed 3–25–69.

905,294. AIFS. American Institute for Foreign Study. SN 325,828. Pub. 10–13–70. Filed 4–29–69.

905,295. CINEMATRONICS. Cinematronics, Inc. SN 326,073. Pub. 10–13–70. Filed 5–1–69.

905,296. BRANDYWINE SINGERS. Brandywine Singers. SN 326,624. Pub. 10–13–70. Filed 5–7–69.

905,297. THE TOWN CRIERS. The Town Criers, Inc. SN 329,541. Pub. 10–13–70. Filed 6–9–69.

905,298. ORIGINAL BCC DESIGN. Bauder Finishing & Career College, Inc. SN 334,969. Pub. 10–13–70. Filed 8–11–69.

905,299. BUCKS. Milwaukee Professional Sports & Services, Inc. SN 345,839. Pub. 10–13–70. Filed 12–10–69.

905,300. B AND DESIGN. Milwaukee Professional Sports & Services, Inc. SN 345,840. Pub. 10–13–70. Filed 12–10–69.

Certification Mark

Class A — Goods

905,301. GRAPHIC UNION ARTISANS AND DESIGN. Graphic Artisans Union. SN 326,167. Pub. 10–13–70. Filed 6–17–69.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

SECTION 1

(Combined Certificates)

905,304. Hotchkiss Instruments, Inc., San Francisco, Calif. SN 308,837. Filed P.R. 10–4–68; Am. S.R. 7–2–70.

HOTCHKISS

Class 21—Electrical Apparatus, Machines, and Supplies

For Transformers, Cords, Rechargers, and Power Sources (Int. Cl. 9).

Class 44—Dental, Medical, and Surgical Appliances

For Otoscopes and Indoscopes for Diagnostic and Therapeutic Applications, and Components Therefor (Int. Cl. 10).
First use on or about Oct. 26, 1967.

SECTION 2

Class 11 — Inks and Inking Materials

905,302. Pacific Industries, Inc., New York, N.Y. SN 265,554. Filed P.R. 2–27–67; Am. S.R. 11–13–68.

EDP

For Carbon Paper (Int. Cl. 16).
First use Jan. 19, 1967.

Class 18 — Medicines and Pharmaceutical Preparations

905,303. Ashe Laboratories Limited, Leatherhead, Surrey, England. SN 347,143. Filed P.R. 12–29–69; Am. S.R. 9–11–70.

SHERLEY'S

Owner of British Reg. No. 531,180, dated Apr. 20, 1932.
For Anthelmintics, Vitamin Preparations, Tranquillisers, Soothing Preparations for the Ear, Eye and Skin, and Medicated Foods for Dogs and Cats (Int. Cl. 5).

Class 21 — Electrical Apparatus, Machines, and Supplies

905,304. See Section 1 (Combined Certificate).

Class 38 — Prints and Publications

905,305. Cahners Publishing Company, Inc., Boston, Mass. SN 306,221. Filed P.R. 8–29–68; Am. S.R. 10–7–70.

AMDEX

For Bar Charts Contained in a Trade Periodical (Int. Cl. 16).
First use December 1967.

905,306. Cahners Publishing Company, Inc., Boston, Mass. SN 306,222. Filed P.R. 8–29–68; Am. S.R. 10–8–70.

ECONOGRAPHIC BAROMETERS

For Graphs Contained in a Trade Periodical (Int. Cl. 16).
First use December 1967.

905,307. American Rehabilitation Foundation, Inc., d.b.a. Institute for Interdisciplinary Studies, Minneapolis, Minn. SN 329,210. Filed P.R. 6–5–69; Am. S.R. 10–5–70.

INSTITUTE FOR INTERDISCIPLINARY STUDIES

For Publications—Namely, Pamphlets Containing the Results of Research Projects (Int. Cl. 16).
First use Feb. 10, 1969.

905,308. Piper, Jaffray & Hopwood, Inc., Minneapolis, Minn. SN 337,491. Filed P.R. 9–10–69; Am. S.R. 10–12–70.

EMERGING COMPANY REPORT

For Periodic Newsletter on Investor-Business (Int. Cl. 16).
First use July 10, 1969.

Class 39 — Clothing

905,309. I. B. Kleinert Rubber Company, New York, N.Y. SN 323,109. Filed P.R. 3–28–69; Am. S.R. 10–5–70.

SNAP-IN

For Baby Pants and Liners Therefor (Int. Cl. 25).
First use on or before Nov. 25, 1968.

905,310. A. S. Orr and Company Limited, Preston, England. SN 347,838. Filed P.R. 1-6-70; Am. S.R. 10-2-70.



EVVAPREST

The photograph on the drawing does not represent any living individual. Owner of British Reg. No. 887,973, dated Dec. 7, 1965.

For Trousers, Suits, Jackets, and Skirts, All Being Permanently Pressed (Int. Cl. 25).

Class 44—Dental, Medical, and Surgical Appliances

905,304. See Section 1 (Combined Certificate).

Class 50—Merchandise Not Otherwise Classified

905,311. Craftex Products Co., Brooklyn, N.Y. SN 337,894. Filed P.R. 9-15-69; Am. S.R. 9-28-70.

INSTANT WALL ART

For Assembly Systems and Kits for Fabrication of Pictorial Compositions and Art Forms Which Include Adhesively Backed Printed Object Sheets, Background Units, and Accessories for Mounting and Hanging Such Compositions and Art Forms (Int. Cl. 16).
First use Aug. 27, 1969.

Class 51—Cosmetics and Toilet Preparations

905,312. Helene Curtis Industries, Inc., Chicago, Ill. SN 313,295. Filed P.R. 11-29-68; Am. S.R. 8-3-70.

REGAL BROWN

For Hair Coloring Preparation (Int. Cl. 3).
First use on or about Sept. 19, 1968.

905,313. Virginia M. Hill, d.b.a. Sold-Cold Co., Burlingame, Calif. SN 316,308. Filed P.R. 1-10-69; Am. S.R. 8-3-70.

MHILLKMASQUE

For Facial Cream (Int. Cl. 3).
First use on or about Sept. 3, 1968.

905,314. Elizabeth Arden Sales Corporation, d.b.a. Elizabeth Arden, New York, N.Y. SN 322,544. Filed P.R. 3-24-69; Am. S.R. 8-17-70.

VERY SHEER

For Face Creams and Lotions, Lipstick, Rouge, and Face Powder (Int. Cl. 3).
First use Feb. 19, 1969.

905,315. Zsa Zsa Limited, New York, N.Y. SN 328,217. Filed P.R. 5-23-69; Am. S.R. 5-4-70.

SKIN TIGHT

For Facial Mask (Int. Cl. 3).
First use Apr. 28, 1969.

905,316. Elizabeth Arden Sales Corporation, d.b.a. Elizabeth Arden, New York, N.Y. SN 334,825. Filed P.R. 8-8-69; Am. S.R. 6-11-70.

HAIR FREE

For Depilatory (Int. Cl. 3).
First use May 6, 1969.

905,317. Elizabeth Arden Sales Corporation, d.b.a. Elizabeth Arden, New York, N.Y. SN 336,398. Filed P.R. 8-27-69; Am. S.R. 8-17-70.

WEATHER SCREEN

For Cosmetic Skin Lotion (Int. Cl. 3).
First use Aug. 11, 1969.

905,318. Elizabeth Arden Sales Corporation, d.b.a. Elizabeth Arden, New York, N.Y. SN 336,399. Filed P.R. 8-27-69; Am. S.R. 8-17-70.

PERSIAN PINK

For Lipsticks, Nail Polish, and Rouge (Int. Cl. 3).
First use Aug. 5, 1969.

TRADEMARK REGISTRATIONS RENEWED

80,790. KLAXON. Cl. 21 (Int. Cl. 9). 1-31-11.
80,911. PLEXO. Cl. 51 (Int. Cl. 3). 2-15-11.
273,191. SCRUBZOL. Cl. 52 (Int. Cl. 3). 7-22-30.
273,573. OLE-SOL. Cl. 4 (Int. Cl. 3). 8-5-30.
275,436. SUPER WHIP. Cl. 46 (Int. Cl. 29). 9-23-30.
276,140. LANDEX. Cl. 23 (Int. Cl. 7). 10-7-30.
276,626. WATERMAN'S. Cl. 37 (Int. Cl. 16). 10-21-30.
277,132. KLIM AND DESIGN. Cl. 46 (Int. Cl. 29). 11-4-30.
278,022. "HARTZELL" AND DESIGN. Cl. 34 (Int. Cl. 11). 12-2-30.
280,084. "LA CROSS" AND REPRESENTATION OF CROSS. Cl. 44 (Int. Cls. 8 and 21). 2-10-31.
524,307. TREASURE CAVE. Cl. 46 (Int. Cl. 29). 4-25-50.
526,863. MISCELLANEOUS DESIGN. Cl. 32 (Int. Cl. 20). 6-27-50.
529,336. KOHLER'S. Cl. 46 (Int. Cl. 30). 8-22-50.
532,023. TOPDOG. Cl. 23 (Int. Cl. 7). 10-17-50.
532,709. PLUS. Cl. 23 (Int. Cl. 7). 10-31-50.
532,841. CYCLEPLATES. Cl. 50 (Int. Cl. 16). 10-31-50.
533,216. WINSMITH. Cl. 23 (Int. Cl. 7). 11-7-50.
533,281. PRINGLE OF SCOTLAND. Cl. 39 (Int. Cl. 25). 11-14-50.
533,562. SULPHUR SORBER AND DESIGN. Cl. 23 (Int. Cl. 11). 11-21-50.

533,839. HELENA RUBENSTEIN. Cl. 51 (Int. Cls. 3 and 5). 11-28-50.
534,231. SUNDAY DINNER. Cl. 46 (Int. Cls. 29, 30, and 31). 12-5-50.
534,240. MONTAL. Cl. 46 (Int. Cls. 29, 30, and 32). 12-5-50.
534,397. AMERICAN. Cl. 21 (Int. Cl. 7). 12-5-50.
534,671. PARKER P AND DESIGN. Cl. 8 (Int. Cl. 34). 12-12-50.
534,881. HF. Cl. 12 (Int. Cl. 19). 12-19-50.
534,885. DURATITE AND DESIGN. Cl. 12 (Int. Cls. 2 and 17). 12-19-50.
535,448. SENSO. Cl. 37 (Int. Cl. 16). 12-26-50.
535,537. PENNSALT PRF. Cl. 12 (Int. Cl. 19). 1-2-51.
535,538. PENNSALT PRFK. Cl. 12 (Int. Cl. 19). 1-2-51.
535,560. ENAMEL CLAD. Cl. 16 (Int. Cl. 2). 1-2-51.
535,741. NOPCOLENE. Cl. 6 (Int. Cl. 1). 1-2-51.
535,742. NOPCOWITE. Cl. 6 (Int. Cl. 1). 1-2-51.
535,985. ROLIGEAR. Cl. 23 (Int. Cl. 7). 1-9-51.
536,092. ANNSHIRE ORIGINAL. Cl. 39 (Int. Cl. 25). 1-9-51.
536,167. CALCOMITES. Cl. 18 (Int. Cl. 5). 1-9-51.
536,186. SCULLY. Cl. 26 (Int. Cl. 9). 1-9-51.
536,455. BETR-JUCE. Cl. 46 (Int. Cl. 32). 1-16-51.
536,473. SMASH-PROOF. Cl. 19 (Int. Cl. 12). 1-16-51.
536,558. GULDEN'S PREPARED MUSTARD LABEL. Cl. 46 (Int. Cl. 30). 1-16-51.
536,561. GULDEN'S AND DESIGN. Cl. 46 (Int. Cl. 30). 1-16-51.
536,704. GOLD MEDAL. Cl. 44 (Int. Cl. 21). 1-16-51.
536,728. EMETROL. Cl. 18 (Int. Cl. 5). 1-16-51.
537,126. NIELSEN. Cl. 38 (Int. Cl. 16). 1-30-51.
537,288. JEAN NATE. Cl. 51 (Int. Cl. 3). 2-6-51.
537,362. OLGA, ETC. AND DESIGN. Cl. 1 (Int. Cl. 4). 2-6-51.
537,528. "BIG FIST." Cl. 39 (Int. Cl. 25). 2-13-51.
537,648. CARDOPLATE. Cl. 23 (Int. Cl. 16). 2-13-51.
537,770. HEKTOWRITER. Cl. 11 (Int. Cl. 16). 2-13-51.
537,898. FF AND DESIGN. Cl. 106 (Int. Cl. 40). 2-13-51.
538,197. SOLIDEX. Cl. 16 (Int. Cl. 2). 2-20-51.
538,345. DISTINCTION. Cl. 28 (Int. Cls. 8 and 14). 2-20-51.
538,428. DOUBLE DUTY. Cl. 39 (Int. Cl. 25). 2-27-51.
538,680. GREEK LETTERS SIGMA ALPHA EPSILON. Cl. 28 (Int. Cl. 14). 2-27-51.
538,723. CURAD. Cl. 44 (Int. Cl. 5). 2-27-51.

TRADEMARK REGISTRATIONS CANCELED

Section 8

The following registrations issued Nov. 10, 1964

779,679. CHROMOPAK. Cl. 1.
779,680. T & R. Cl. 1.
779,681. ANITROOP. Cl. 1.
779,682. VITAFALFA. Cl. 1.
779,688. STEEL TREET. Cl. 6.
779,701. NYOLENE. Cl. 6.
779,704. ATTACK AND DESIGN. Cl. 6.
779,706. QUIK-CLOR. Cl. 6.
779,709. FICIN-CELL. Cl. 6.
779,710. DADI. Cl. 6.
779,716. JUST ONCE AND DESIGN. Cl. 10.
779,719. ZERO LEAKAGE. Cl. 13.
779,720. MMM AND DESIGN. Cl. 13.
779,723. CHESSMAN EMERGING THROUGH AN ELLIPSE (DESIGN). Cls. 13 and 23.
779,724. FAUCETROD. Cl. 13.
779,727. HAPPY HOME. Cl. 13.
779,728. COUNTRY SQUIRE. Cl. 13.
779,729. METLOCK. Cl. 13.
779,734. READIBRYL. Cl. 14.
779,738. KALBRITE. Cl. 14.
779,743. BEMOCOTE. Cl. 16.
779,745. SNAP-START. Cl. 16.
779,746. APIHYDRO. Cl. 16.
779,748. UCARSIL. Cl. 16.
779,752. LA BOLSA. Cl. 17.
779,757. ANTI-PICA. Cl. 18.
779,758. BARNIPS. Cl. 18.
779,765. MONZA G.T. Cl. 19.
779,769. SHORT PUTT AND DESIGN. Cl. 19.
779,771. SUPERDUTY. Cl. 19.
779,774. LOAD KING. Cl. 19.
779,775. TRUNKMASTER. Cl. 19.
779,776. TRUNKING. Cl. 19.
779,779. UNIMETL. Cl. 21.
779,780. VU-82. Cl. 21.
779,784. MMM AND DESIGN. Cl. 21.
779,787. DIVERSITRON. Cl. 21.
779,788. MISCELLANEOUS DESIGN. Cl. 21.
779,789. OUTERCALL. Cl. 21.
779,790. OUTERKEY. Cl. 21.
779,793. CAMPAIGNER. Cl. 21.
779,794. WILSHIRE. Cl. 21.
779,797. GUIDE-WHIP. Cl. 22.
779,798. GOLFISHING CLUBROD. Cl. 22.
779,799. EYE IN THE SKY. Cl. 22.
779,819. S & G. Cl. 23.
779,825. MMM AND DESIGN. Cl. 23.
779,832. SELECTRIC BEAVER AND DESIGN. Cl. 23.
779,841. MACARR. Cl. 23.
779,845. SPRING-O-MATIC. Cl. 23.
779,846. VEND-A-BAKE. Cl. 23.
779,850. SUPREX. Cl. 24.
779,868. COPELADRIVE. Cl. 31.
779,869. SPARTAN. Cl. 31.
779,874. SIBONITE. Cl. 34.
779,880. DISC DUB AND DESIGN. Cl. 36.
779,881. SONO-FLEX. Cl. 36.
779,883. GALAXY. Cl. 36.
779,884. DYNA-POINTS. Cl. 36.
779,886. PRESIDENT. Cl. 36.
779,888. CIRCLE. Cl. 36.
779,892. COOKE & COBB. Cl. 37.
779,895. DESIGN OF A HERALD ON A SHIELD. Cl. 37.
779,897. PRO B-L AND DESIGN. Cl. 37.
779,899. SCORE-MINDER. Cl. 37.
779,905. ZODYS AND DESIGN. Cl. 37.
779,907. CRONICON. Cl. 37.
779,910. TRANSLEC. Cl. 37.
779,911. FABRICOLOR. Cl. 37.
779,912. REMARKABLE. Cl. 37.
779,915. THE NATURIST. Cl. 38.
779,916. FOR WOMEN ONLY. Cl. 38.
779,918. FLOTILLA INTERNACIONAL. Cl. 38.
779,922. PLAZA. Cl. 38.
779,923. BUSINESS ATOMICS REPORT. Cl. 38.
779,926. BUSINESS STIM-U-LIZER. Cl. 38.
779,933. ANDI WARREN. Cl. 39.
779,934. ABELLA'. Cl. 39.
779,935. NE PLUS ULTRA HER GRACE INC. THE CHAMPAGNE OF ROBES AND DESIGN. Cl. 39.
779,938. HOOD-WINKS. Cl. 39.
779,939. HI-JEANS. Cl. 39.
779,942. MAGIC DIAMOND. Cl. 39.
779,945. ARNAV. Cl. 39.
779,946. GOLDEN FALCON. Cl. 39.
779,948. ACTIVE-DUTY. Cl. 39.
779,949. HOE DOWN. Cl. 39.
779,954. SECOND-STRETCH. Cl. 39.
779,961. DAN RIVER PLAID OF THE MONTH. Cl. 46.
779,970. DISIPLINED. Cl. 42.
779,971. SENSATION AND DESIGN. Cl. 42.
779,973. GIVE'N GO. Cl. 42.
779,977. GMR. Cl. 43.
779,980. MONO-HAZEL. Cl. 43.
779,981. BARBARA. Cl. 43.
779,983. SURGIQUIP AND DESIGN. Cl. 44.
779,985. ACHAFOS. Cl. 44.
779,986. LECCO FULL VIEW. Cl. 44.
779,988. GOLDEN EAR. Cl. 44.
779,992. PANDORA. Cl. 44.
779,998. MASON AND DESIGN. Cl. 46.
779,999. NUT-BROWN. Cl. 46.

780,003. JOHNNY APPLE SQUEEZE. Cl. 46.
780,005. MARY LEE AND DESIGN. Cl. 46.
780,008. PICNIC. Cl. 46.
780,010. TOP TRAY. Cl. 46.
780,022. PLAINSMAN. Cl. 46.
780,024. KIK AND DESIGN. Cl. 47.
780,025. CONBREW. Cl. 48.
780,030. HIGH JINKS. Cl. 49.
780,031. RAINDROP. Cl. 49.
780,034. RELIART. Cl. 50.
780,036. MATCAPPS. Cl. 50.
780,041. TARSPHALT. Cl. 52.
780,042. ACTENE. Cl. 52.
780,045. AUTOSPEC. Cl. 100.
780,046. PUPPY PALACE. Cl. 100.
780,055. "BOLL WEEVIL EXPRESS" AND DESIGN. Cl. 105.
780,061. DRI-FIL. Cl. 12.
780,065. ELECTRO WAND. Cl. 22.
780,070. STA-WHITE. Cl. 37.
780,072. POWER FARMING NEWS. Cl. 38.
780,073. GLO CAP. Cl. 39.
780,075. SAFE-N-SOFT. Cl. 39.
780,077. TOOTH TABS. Cl. 44.
780,085. EVERGREEN. Cl. 50.

Section 18

773,108. HOLDAFONE. Cl. 21. 7-14-64.
815,155. CHEM-CLEAN. Cl. 52. 9-13-66.
888,034. ALLIED. Cl. 101. 3-17-70.
888,446. ALLIED PERSONNEL ETC. AND DESIGN. Cl. 101. 3-24-70.

INDEX OF REGISTRANTS

DECEMBER 29, 1970

(Registered ; Renewed ; Canceled ; Amended, Disclaimed, Corrected, etc. ; New Certificates ; 12c Publications.)

AAA Enterprises, Inc., Atlanta, Ga. 905,239-40, pub. 10-13-70. Cl. 50.
ABC Consolidated Corp., New York, N.Y. 905,213, pub. 10-13-70. Cl. 46.
A & W International, Inc., Santa Monica, Calif. 904,952, pub. 10-13-70. Multiple Class (Classes 2, 45, 46, and 51).
Abbey International Corp., Atlanta, Ga. 905,277-8, pub. 10-13-70. Cl. 102.
Addressograph-Multigraph Corp., Cleveland, Ohio. 537,648, ren. 12-29-70. Cl. 23.
Aetna Chemical Corp., East Paterson, N.J. 780,042, canc. Cl. 52.
Ajax Hardware Corp., City of Industry, Calif. 905,002, pub. 10-13-70. Cl. 13.
Alberto-Culver Co., Melrose Park, Ill. 905,258, pub. 10-13-70. Cl. 51.
All Purpose Wire Rope, Inc., Elmhurst, Ill. 904,977, pub. 10-13-70. Cl. 7.
Allied Computer Systems, Inc., Madison, Conn. 905,001-3, pub. 10-13-70. Cl. 21.
Allied Personnel, Inc., Jacksonville, Fla. 888,034, canc. Cl. 101.
Allied Personnel, Inc., Jacksonville, Fla. 888,446, canc. Cl. 101.
Almo Laboratories Co. Inc., New York, N.Y. 779,724, canc. Cl. 13.
Aluminum Specialty Co., Manitowoc, Wis. 780,085, canc. Cl. 50.
American Biltrite Rubber Co., Inc., Trenton, N.J. 905,041, pub. 10-13-70. Cl. 20.
American Cyanamid Co., Wayne, N.J. 536,167, ren. 12-29-70. Cl. 18.
American Forest Industries Ltd., Victoria, British Columbia, Canada. 904,984, pub. 10-13-70. Cl. 10.
American Forest Industries, Ltd., Victoria, British Columbia, Canada. 905,219, pub. 10-13-70. Cl. 46.
American Gilsonite Co., Salt Lake City, Utah. 904,990, pub. 10-13-70. Cl. 12.
American Home Products Corp., New York, N.Y. 536,558, ren. 12-29-70. Cl. 46.
American Home Products Corp., New York, N.Y. 536,561, ren. 12-29-70. Cl. 46.
American Home Products Corp., New York, N.Y. 905,024, pub. 11-4-69. Cl. 18.
American Home Products Corp., New York, N.Y. 905,077, pub. 10-13-70. Cl. 22.
American Institute for Foreign Study, Greenwich, Conn. 905,294, pub. 10-13-70. Cl. 107.
American Metal Climax, Inc., d.b.a. Climax Molybdenum Co., New York, N.Y. 905,015, pub. 10-13-70. Cl. 14.
American Motors Corp., Kenosha, Wis. 905,040, pub. 10-13-70. Cl. 19.
American Optical Corp., Southbridge, Mass. 904,960, pub. 10-13-70. Cl. 5.
American Optical Corp., Southbridge, Mass. 905,116, pub. 10-13-70. Cl. 26.
American Plasticraft Co., Chicago, Ill. 905,042, pub. 10-13-70. Cl. 21.
American Rehabilitation Foundation, Inc., d.b.a. Institute for Interdisciplinary Studies, Minneapolis, Minn. 905,307. Cl. 38.
American Research & Development Corp., Boston, Mass. 905,-281, pub. 10-13-70. Cl. 102.
Amerola Products Corp., Pittsburgh, Pa. 905,078, pub. 10-13-70. Cl. 22.
Ametek, Inc., New York, N.Y. 779,850, canc. Cl. 24.
Anderson Electric Corp., from Anderson Electric Corp., Leeds, Ala. 905,054, pub. 10-13-70. Cl. 21.
Anderson Chemical Co., Litchfield, Minn. 905,019, pub. 10-13-70. Cl. 16.
Annshire Garment Co., Inc., Pittsburg, Kans. 536,092, ren. 12-29-70. Cl. 39.
Appliance Wholesalers, Inc., Jackson Heights, N.Y. 779,869, canc. Cl. 81.
Applied Materials Technology, Inc., Santa Clara, Calif. 905,-086, pub. 10-13-70. Cl. 23.
Arden, Elizabeth, Sales Corp., d.b.a. Elizabeth Arden, New York, N.Y. 905,314. Cl. 51.
Arden, Elizabeth, Sales Corp., d.b.a. Elizabeth Arden, New York, N.Y. 905,316-18. Cl. 51.
Armco Steel Corp., Middletown, Ohio. 905,009, pub. 10-13-70. Cl. 14.
Armour-Dial, Inc., Chicago, Ill. 905,220, pub. 10-13-70. Cl. 46.
Armour-Dial, Inc., Chicago, Ill. 905,231-2, pub. 10-13-70. Cl. 46.
Armour-Dial, Inc., Chicago, Ill. 905,256, pub. 10-13-70. Cl. 51.
Arnav Shoe Corp., Little Ferry, N.J. 779,945, canc. Cl. 39.
Arnett, A. E., Plaza Directory, Wichita, Kans. 779,922, canc. Cl. 38.
Around the World in 18 Holes Miniature Golf Inc., Gallivant's Ferry, S.C. 905,290, pub. 10-13-70. Cl. 107.
Ashbrook, Clifford Logan, and Wilson Gordon Wing, Houston, Tex. 904,980, pub. 10-13-70. Cl. 9.
Ashe Laboratories Ltd., Leatherhead, Surrey, England. 905,-303. Cl. 18.
Associated Products, Inc., d.b.a. 5 Day Laboratories, New York, N.Y. 905,260, pub. 10-13-70. Cl. 51.
Atlas Supply Co., Springfield, N.J. 905,125, pub. 10-13-70. Cl. 26.
Audio Designs & Mfg., Inc., Roseville, Mich. 905,051, pub. 10-13-70. Cl. 21.
Austin, Harold J., Colton, Calif. 905,091, pub. 10-13-70. Cl. 23.
Auto Pak Co., Bladensburg, Md. 904,948, pub. 10-14-70. Multiple Class (Classes 2 and 23).
Avery Products Corp., San Marino, Calif. 905,241, pub. 10-13-70. Cl. 50.
BSR Ltd., Warley, England. 905,147, pub. 10-13-70. Cl. 36.
B & W Fitting Co., Cleveland, Ohio. 779,719, canc. Cl. 13.
Bancroft, Joseph, & Sons Co., New York, N.Y. 905,179, pub. 10-13-70. Cl. 39.
Barnett, R., & Co. Ltd., Nottingham, England. 779,758, canc. Cl. 18.
Barton's Candy Corp., Brooklyn, N.Y. 905,221, pub. 10-13-70. Cl. 46.
Bascom, David F., d.b.a. Wretched Mess Enterprises. 779,798, canc. Cl. 22.
Bates Mfg. Co., Lewiston, Maine. 779,970, canc. Cl. 42.
Bauder Finishing & Career College, Inc., Atlanta, Ga. 905,298, pub. 10-13-70. Cl. 107.
Baumritter Corp., New York, N.Y. 905,053, pub. 10-13-70. Cl. 21.
Bayuk Cigars Inc., Philadelphia, Pa. 905,020, pub. 6-17-69. Cl. 17.
Belent Corp., d.b.a. The Belent Corp., King of Prussia, Pa. 905,283, pub. 10-13-70. Cl. 103.
Bennett Brewing Co., Ltd., The, St. John's, Newfoundland, Canada. 780,025, canc. Cl. 48.
Bennett, James L., d.b.a. Diversitron Electronics, Carlsbad, Calif. 779,787, canc. Cl. 21.
Best, J. C., Inc., Braintree, Mass. 905,198, pub. 10-13-70. Cl. 42.
Best, J. C., Inc., Braintree, Mass. 905,275, pub. 10-13-70. Cl. 101.
Bestform Foundations, Inc., Long Island City, N.Y. 905,184, pub. 10-13-70. Cl. 39.
Big Ben Pizza Pub, Inc., Burlington, Vt. 905,204, pub. 10-13-70. Cl. 46.
Biggs Mfg. Co., Inc., Richmond, Va. 526,863, ren. 12-29-70. Cl. 32.
Birds Eye Foods Ltd., Walton-on-Thames, England. 780,010, canc. Cl. 46.
Bishop Freeman Co., from Bishop Freeman Co., Evanston, Ill. 905,134, pub. 10-13-70. Cl. 29.
Blackinton, V. H., & Co., Inc., North Attleboro, Mass. 905,130, pub. 10-13-70. Cl. 28.
Blackstone Corp., Jamestown, N.Y. 905,014, pub. 10-13-70. Cl. 14.
Blair Fashions, Inc., Chicago, Ill. 779,942, canc. Cl. 39.
Bloom, Charles, Inc., New York, N.Y. 905,193, pub. 10-13-70. Cl. 42.
Blue Ridge Manufacturers, Inc., New York, N.Y. 779,939, canc. Cl. 39.
Borden, Inc., New York, N.Y. 277,132, ren. 12-29-70. Cl. 46.
Bouton, H. L., Co., Inc., Buzzards Bay, Mass. 905,114, pub. 10-13-70. Cl. 26.
Boxit Corp., Cleveland, Ohio. 904,949, pub. 10-13-70. Cl. 2.
Bradley Washfountain Co., Menomonee Falls, Wis. 904,950, pub. 10-13-70. Multiple Class (Classes 2, 13, and 32).
Brandywine Singers, Salt Lake City, Utah. 905,296, pub. 10-13-70. Cl. 107.
Brasco Electronics Ltd., Weston, Ontario, Canada. 905,047, pub. 10-13-70. Cl. 21.
Breeder's Choice Pet Foods, Inc., Irwindale, Calif. 905,228, pub. 10-13-70. Cl. 46.
Breton Versatrek Ltd., Brampton, Ontario, Canada. 905,035, pub. 10-13-70. Cl. 19.
Brock Industries, Inc., New Bedford, Mass. 779,899, canc. Cl. 37.
Bucket Elevator Co., The, Chatham, N.J. 905,089, pub. 10-13-70. Cl. 23.
Bulova Watch Co., Inc., Flushing, N.Y. 905,126, pub. 10-13-70. Cl. 27.
Bunker-Ramo Corp., The, Oak Brook, Ill. 905,112, pub. 10-13-70. Cl. 26.
Burmatt Industries, Detroit, Mich. 779,745, canc. Cl. 16.
CER Geonuclear Corp., Las Vegas, Nev. 905,263, pub. 10-13-70. Cl. 100.
Caco Mfg. Corp., Houston, Tex. 905,055, pub. 10-13-70. Cl. 21.
Cadco, Inc., Des Moines, Iowa. 779,704, canc. Cl. 6.
Cahners Publishing Co., Inc., Boston, Mass. 905,305-6. Cl. 88.
Caler Industries, Inc., San Francisco, Calif. 905,087, pub. 10-13-70. Cl. 23.
Canadian Pacific Railway Co., Montreal, Quebec, Canada. 905,265, pub. 10-13-70. Multiple Class (Classes 100, 104, and 105).
Capp, Madeline, New York, N.Y. 780,036, canc. Cl. 50.
Carbone Corp., The, Boonton, N.J. 779,874, canc. Cl. 34.
Carlson, Clinton V., d.b.a. Clinton Vee, Scottsdale, Ariz. 905,074, pub. 10-13-70. Cl. 22.

Carson International Inc., d.b.a. Honey Bear Farm, Itasca, Ill. 905,269, pub. 10–13–70. Cl. 100.
Case, J. I., Co., Racine, Wis. 779,841, canc. Cl. 23.
Celebrity Food Products, Inc., New York, N.Y. 905,203, pub. 10–13–70. Cl. 46.
Central Glass Co., Ltd., Ube, Yamaguchi Prefecture, Japan. 905,136, pub. 10–13–70. Cl. 33.
Chadbourn Inc., Charlotte, N.C. 905,174–5, pub. 10–13–70. Cl. 89.
Chadbourn Inc., d.b.a. Carwood Mfg. Co., Charlotte, N.C. 905,182, pub. 10–13–70. Cl. 39.
Chance, A. B., Co., Centralia, Mo. 904,986, pub. 10–13–70. Multiple Class (Classes 12, 13, 21, 23, and 50).
Channel Master Corp., Elenville, N.Y. 779,780, canc. Cl. 21.
Chemtrust Industries Corp., Maywood, Ill. 904,967–8, pub. 10–13–70. Cl. 6.
Children's World, Ogden, Utah. 905,288, pub. 10–13–70. Cl. 107.
Christie 300 Corp., Boston, Mass. 905,068, pub. 10–13–70. Cl. 22.
Cinematronics, Inc., Fort Lauderdale, Fla. 905,295, pub. 10–13–70. Cl. 107.
Clary Datacomp Systems, Inc., San Gabriel, Calif. 905,110, pub. 10–13–70. Cl. 26.
Codman & Shurtleff, Inc., Randolph, Mass. 905,106, pub. 10–13–70. Cl. 26.
Cole, Jack, Co., Birmingham, Ala. 780,055, canc. Cl. 105.
Columbia Broadcasting System, Inc., New York, N.Y. 905,143, pub. 10–13–70. Cl. 36.
Columbia Ribbon & Carbon Mfg., Glen Cove, N.Y. 904,985, pub. 6–9–70. Cl. 11.
Columbian Rope Co., Auburn, N.Y. 904,954, pub. 10–13–70. Cl. 2.
Communications Conveyor Co., Dallas, Tex. 905,092, pub. 10–13–70. Cl. 23.
Consolidated Cigar Corp., New York, N.Y. 904,979, pub. 10–13–70. Cl. 8.
Consolidated Foods Corp., Chicago, Ill., from Keene Products, Inc., Keene, N.H. 904,958, pub. 10–13–70. Multiple Class (Classes 4, 6, 15, 16, and 52).
Continental Sensing, Inc., Melrose Park, Ill. 905,084, pub. 10–13–70. Multiple Class (Classes 23, 26, and 34).
Cooper's, Inc., Kenosha, Wis. 905,181, pub. 10–13–70. Cl. 39.
Copeland Refrigeration Corp., Sidney, Ohio. 779,868, canc. Cl. 31.
Copy Systems, Inc., d.b.a. Fidelity Dental Supply Co., Los Angeles, Calif. 905,199, pub. 10–13–70. Cl. 44.
Coussins, Jack, Glasgow, Scotland. 905,180, pub. 10–13–70. Cl. 39.
Craftex Products Co., Brooklyn, N.Y. 905,311. Cl. 50.
Crystalography Corp., Piscataway, N.J. 905,131, pub. 10–13–70. Cl. 26.
Crystals, Sherold, Inc., d.b.a. The Lawrence Co., Lawrence, Kans. 905,050, pub. 10–13–70. Cl. 21.
Curtin, W. H., & Co., Houston, Tex. 779,679, canc. Cl. 1.
Curtis, Helene, Industries, Inc., Chicago, Ill. 905,312. Cl. 51.
Cyclops Corp., Pittsburgh, Pa. 905,012, pub. 10–13–70. Cl. 14.
Daggett, Max, Jr., Dallas, Tex. 779,784, canc. Cl. 14.
Dan River, Inc., from Dan River Mills, Inc., Danville, Va. 905,194, pub. 10–13–70. Cl. 42.
Dan River Mills, Inc., Danville, Va. 779,961, canc. Cl. 46.
Dan River Mills, Inc.: *See*—
Dan River, Inc.
Dap, Inc., Dayton, Ohio. 534,885, ren. 12–29–70. Cl. 12.
Data Pacific Corp., Portland, Oreg. 905,102, pub. 10–13–70. Cl. 26.
Dawson, Donald J., d.b.a. Chief Joseph Products, Salem, Oreg. 905,070, pub. 10–13–70. Cl. 22.
Delanande S.A., Courbevoie, Hauts-de-Seine, France. 905,025, pub. 10–13–70. Cl. 18.
Denoyer-Geppert Co., Chicago, Ill. 905,168, pub. 10–13–70. Cl. 38.
Devoe & Reynolds Co., Inc., Louisville, Ky. 779,746, canc. Cl. 16.
Diamond International Corp., New York, N.Y. 536,704, ren. 12–29–70. Cl. 44.
Diamond Shamrock Corp., Cleveland, Ohio. 535,741–2, ren. 12–29–70. Cl. 6.
Dickson Industries, Inc., Des Moines, Iowa. 905,177, pub. 10–13–70. Multiple Class (Classes 39 and 42).
Didde-Glaser, Inc., Emporia, Kans. 905,090, pub. 10–13–70. Cl. 23.
Doral Tire & Rubber Co., Inc., Stow, Ohio. 905,141, pub. 6–2–70. Cl. 35.
Dresser Industries, Inc., Dallas, Tex. 904,989, pub. 10–13–70. Cl. 12.
Dresser Industries, Inc., Dallas, Tex. 905,016, pub. 10–13–70. Cl. 15.
Drew, Irving, Corp., The, Lancaster, Ohio. 779,948, canc. Cl. 39.
Duncan, Donald F., Evanston, Ill. 779,799, canc. Cl. 22.
Dynamics Classics, Ltd., New York, N.Y. 905,202, pub. 10–13–70. Cl. 44.
Eagle Clothes, Inc., d.b.a. B&B Lorrys Stores, New York, N.Y. 904,978, pub. 10–13–70. Cl. 8.
Edwards, Patricia B., d.b.a. Constructive Leisure, Los Angeles, Calif. 905,266, pub. 10–13–70. Cl. 100.
Electronic Instruments Ltd., Richmond, England. 779,788, canc. Cl. 21.
Electrovert, Inc., Mt. Vernon, N.Y. 905,094, pub. 10–13–70. Cl. 23.
Ellis, George B., Mountain View, Calif. 779,769, canc. Cl. 19.
Emhart Corp.: *See*—
Kerr-McGee Chemical Corp.
Engelmann Microwave Co., Montville, N.J. 905,066, pub. 6–30–70. Cl. 21.
Erwin Mills, Inc., Durham, N.C. 779,973, canc. Cl. 42.
Etablissement Vivadent, Schaan, Liechtenstein. 779,985, canc. Cl. 44.
Etablissements Planche-Machines Frap, Caluire, France. 905,097, pub. 10–13–70. Cl. 23.
Faberge, Inc., New York, N.Y. 904,953, pub. 10–13–70. Multiple Class (Classes 2, 29, 40, 51, and 52).
Fabri-Form Co., Byesville, Ohio. 537,898, ren. 12–29–70. Cl. 106.
Faby Corp., Hialeah, Fla. 905,226, pub. 10–13–70. Cl. 46.
Factor, Max, & Co., Hollywood, Calif. 905,255, pub. 10–13–70. Cl. 51.
Fantasy Records Inc., San Francisco, Calif. 779,883, canc. Cl. 36.
Farm Journal, Inc., Philadelphia, Pa. 780,072, canc. Cl. 38.
Federal-Mogul Corp., Southfield, Mich. 905,013, pub. 10–13–70. Cl. 14.
Ferco, S.p.A., Milan, Italy. 905,045, pub. 10–13–70. Multiple Class (Classes 21 and 23).
Ferrodynamics Corp., The, Lodi, N.J. 779,880, canc. Cl. 36.
Fieldcrest Mills, Inc., Eden, N.C. 905,190, pub. 10–13–70. Cl. 42.
Firestone Tire & Rubber Co., The, Akron, Ohio. 905,073, pub. 10–13–70. Cl. 22.
Firth Cleveland Fastenings Ltd., Pontypridd, England. 905,007, pub. 10–13–70. Cl. 13.
Fisons Ltd., Felixstowe, Suffolk, England. 904,969, pub. 10–13–70. Cl. 6.
Flexnit Co., Inc., New York, N.Y. 779,954, canc. Cl. 39.
Flinn & Dreffein Engineering Co., Northbrook, Ill. 905,049, pub. 10–13–70. Cl. 21.
Flexite Co., Inc., Niagara Falls, N.Y. 780,077, canc. Cl. 44.
Fort Howard Paper Co., Green Bay, Wis. 905,152, pub. 10–13–70. Cl. 37.
Foster, Lee, Industries, Inc., Chicago, Ill. 905,162, pub. 10–13–70. Cl. 38.
Frederiksen, Torben A., d.b.a. Tafimex, San Francisco, Calif. 905,170, pub. 10–13–70. Cl. 39.
Fycon Engineering Corp., Charlotte, N.C. 905,138, pub. 10–13–70. Cl. 34.
Gas Defenders, Inc., Philadelphia, Pa. 905,100, pub. 10–13–70. Cl. 25.
Gay Togs (1962) Ltd., Montreal, Quebec, Canada. 905,172, pub. 10–13–70. Cl. 39.
General Electric Co., East Cleveland, Ohio. 905,108, pub. 10–13–70. Cl. 26.
General Electric Co., The, Lynchburg, Va. 905,056, pub. 10–13–70. Cl. 21.
General Foods Corp., White Plains, N.Y. 780,022, canc. Cl. 46.
General Foods Corp., White Plains, N.Y. 905,214, pub. 10–13–70. Cl. 46.
General Instrument Corp., Newark, N.J. 905,058, pub. 10–13–70. Cl. 21.
General Mills, Inc., Minneapolis, Minn. 905,224, pub. 10–13–70. Cl. 46.
General Motors Corp., Detroit, Mich. 80,790, ren. 12–29–70. Cl. 21.
General Motors Corp., Detroit, Mich. 779,771, canc. Cl. 19.
General Roll Leaf Mfg. Co., Inc., Long Island City, N.Y. 905,010, pub. 10–13–70. Cl. 14.
General Time Corp., Phoenix, Ariz. 905,127–8, pub. 10–13–70. Cl. 27.
Georgia Shoe Mfg. Co., Inc., Flowery Branch, Ga. 779,946, canc. Cl. 39.
Gibson Greeting Cards, Inc., Cincinnati, Ohio. 905,157, pub. 10–13–70. Cl. 38.
Gibson, Inc., Kalamazoo, Mich. 905,145, pub. 10–13–70. Cl. 36.
Girl Scouts of the United States of America, New York, N.Y. 905,264, pub. 10–13–70. Cl. 100.
Glen Raven Mills, Inc., Glen Raven, N.C. 905,195, pub. 10–13–70. Cl. 42.
Good Luck Glove Co., Carbondale, Ill. 538,428, ren. 12–29–70. Cl. 39.
Gossen Corp., Milwaukee, Wis. 904,987, pub. 10–13–70. Cl. 12.
Grace, W. R., & Co., New York, N.Y. 904,966, pub. 10–13–70. Cl. 6.
Graniteville Co., Graniteville, S.C. 905,196, pub. 10–13–70. Cl. 42.
Graphic Artisans Union, Pittsburgh, Pa. 905,301, pub. 10–13–70. Cl. A.
Great Northern Corp., Fleetwood, Pa. 905,036, pub. 10–13–70. Cl. 19.
Green Acres of America, Inc., Chattanooga, Tenn. 905,271, pub. 10–13–70. Cl. 101.
Griffon Cutlery Corp., Inwood, N.Y. 904,951, pub. 10–13–70. Multiple Class (Classes 2, 23, and 44).
Grove Valve & Regulator Co., Oakland, Calif. 905,000, pub. 10–13–70. Cl. 13.
Guiding Eyes for the Blind, Inc., New York, N.Y. 905,293, pub. 10–13–70. Cl. 107.
Handi Products Corp., Atlanta, Ga. 904,964, pub. 10–13–70. Cl. 5.
Hanover Guest Quality Foods Corp., Hanover, Pa. 905,223, pub. 10–13–70. Cl. 46.
Harlee Mfg. Co., Chicago, Ill. 780,046, canc. Cl. 100.
Harold Chemical Products, Inc., Danvers, Mass. 904,997, pub. 10–13–70. Cl. 12.
Harry & David, Medford, Oreg. 905,212, pub. 10–13–70. Cl. 46.
Hartfield Stores, Inc., Los Angeles, Calif. 779,905, canc. Cl. 37.
Hartfield Stores, Inc., Los Angeles, Calif. 779,971, canc. Cl. 42.
Hartzell Industries, Inc., Piqua, Ohio. 278,022, ren. 12–29–70. Cl. 34.
Hassenfeld Bros., Inc., Central Falls, R.I. 780,065, canc. Cl. 22.
Her Grace, Inc., New York, N.Y. 779,935, canc. Cl. 39.
Hill, Virginia M., d.b.a. Sold-Cold Co., Burlingame, Calif. 905,313. Cl. 51.

Holdafone Music Corp., New York, N.Y. 773,108, canc. Cl. 21.
Hotchkiss Instruments, Inc., San Francisco, Calif. 905,304. Multiple Class (Classes 21 and 44).
Huddleston, Richard D., d.b.a. Blue Flyer Camper Co., Indianapolis, Ind. 905,039, pub. 10–13–70. Cl. 19.
Huffman Mfg. Co., The, Dayton, Ohio. 779,765, canc. Cl. 19.
Hulbert Good Corp., The, Ashtabula, Ohio. 536,473, ren. 12–29–70. Cl. 19.
Hunt, Philip A., Chemical Corp., Palisades Park, N.J. 815,155, canc. Cl. 52.
I.M.O. Foods Ltd., Yarmouth, Nova Scotia, Canada. 905,211, pub. 10–13–70. Cl. 46.
ITT Continental Baking Co., Rye, N.Y. 905,225, pub. 10–13–70. Cl. 46.
Imperial Camera Corp., Chicago, Ill. 905,121, pub. 10–13–70. Cl. 26.
Imperial Caps, Inc., Denver, Colo. 905,185, pub. 10–13–70. Cl. 89.
Indianapolis Glove Co., Inc., Indianapolis, Ind. 537,528, ren. 12–29–70. Cl. 39.
Industrial Bolt & Nut Co., Newark, N.J. 905,005, pub. 10–13–70. Cl. 13.
Institute of Maintenance, d.b.a. American Institute of Maintenance, Glendale, Calif. 905,289, pub. 10–13–70. Cl. 107.
Intercontinental Industries Inc., Chicago, Ill. 905,207, pub. 10–13–70. Cl. 46.
International Business Machines Corp., New York, N.Y. 537,770, ren. 12–29–70. Cl. 11.
Invalex Co., Long Beach, Calif. 905,200, pub. 10–13–70. Cl. 44.
Isbell, Donald R., d.b.a. Lou Don Enterprises, Orange, Calif. 905,115, pub. 10–13–70. Cl. 26.
Jensen Industries, Inc., Addison, Ill. 779,884, canc. Cl. 36.
Jerome Electric Corp., d.b.a. Spear Products Co., Orange, N.J. 905,146, pub. 10–13–70. Cl. 36.
Johanson Mfg. Corp., Boonton, N.J. 905,057, pub. 10–13–70. Cl. 21.
Johns-Manville Corp., New York, N.Y. 904,961, pub. 10–13–70. Cl. 5.
Johnson & Johnson, New Brunswick, N.J. 905,031, pub. 4–21–70. Cl. 18.
Jones, Wilson, Co., Chicago, Ill. 779,892, canc. Cl. 37.
Josam Mfg. Co., Michigan City, Ind. 905,004, pub. 10–13–70. Cl. 13.
K S Avionics, Inc., Castro Valley, Calif. 905,104, pub. 10–13–70. Cl. 26.
Kabel- und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany. 904,999, pub. 10–13–70. Multiple Class (Classes 13, 14, and 23).
Kahn, George N., Co., Inc., New York, N.Y. 905,163, pub. 10–13–70. Cl. 38.
Kaiser Aluminum & Chemical Corp., Oakland, Calif. 779,738, canc. Cl. 14.
Kaiser Aluminum & Chemical Corp., Oakland, Calif. 904,982, pub. 10–13–70. Cl. 10.
Kalfex Inc., New York, N.Y. 779,912, canc. Cl. 37.
Katter's Pizzeria, Inc., Salt Lake City, Utah. 905,215, pub. 10–13–70. Cl. 46.
Kearney & Trecker Corp., Milwaukee, Wis. 905,093, pub. 10–13–70. Cl. 23.
Keene Products, Inc.: *See*—
Consolidated Foods Corp.
Kelty Pack, Inc., Sun Valley, Calif. 904,956, pub. 10–13–70. Cl. 3.
Kendall Co., The, Walpole, Mass. 538,723, ren. 12–29–70. Cl. 44.
Kerr-McGee Chemical Corp., Oklahoma City, Okla. from Emhart Corp., Bloomfield, Conn. 904,983, pub. 10–13–70. Cl. 10.
Keystone Consolidated Industries, Inc., Peoria, Ill. 905,101, pub. 10–13–70. Cl. 25.
King Broadcasting Co., Seattle, Wash. 905,158, pub. 10–13–70. Multiple Class (Classes 38, 101, 104, and 107).
Kitchens of Sara Lee, Inc., Deerfield, Ill. 905,216–7, pub. 10–13–70. Cl. 46.
Kleinert, I. B., Rubber Co., New York, N.Y. 780,073, canc. Cl. 39.
Kleinert, I. B., Rubber Co., New York, N.Y. 905,309. Cl. 39.
Klopman Mills, Inc., Rockleigh, N.J. 905,191, pub. 10–13–70. Cl. 42.
Klopman Mills, Inc., Rockleigh, N.J. 905,197, pub. 10–13–70. Cl. 42.
Knight, J. B., Co., d.b.a. J. B. Knight Distributing Co., Brownfield, Tex. 779,723, canc. Multiple Class (Classes 13 and 23).
Kocher Plastic H. Bohmer KG, Kocher, Germany. 904,947, pub. 10–13–70. Cl. 2.
Kondratuk, Helen Joyce, d.b.a. Joyce Miller Originals, Bloomfield Hills, Mich. 905,071, pub. 10–13–70. Cl. 22.
Kornylak Corp., Hamilton, Ohio. 905,098, pub. 10–13–70. Cl. 23.
Kresge, S. S., Co., Detroit, Mich. 905,186–7, pub. 10–13–70. Cl. 40.
Kyowa Gomm Kogyo Kabushiki Kaisha, Osaka, Japan. 904,965, pub. 10–13–70. Cl. 5.
Lake Erie Chemical Co., The, Wickcliffe, Ohio. 779,986, canc. Cl. 44.
La Maur, Inc., Minneapolis, Minn. 905,257, pub. 10–13–70. Cl. 51.
Lanvin-Charles of the Ritz, Inc., New York, N.Y. 537,288, ren. 12–29–70. Cl. 51.
Larousse Inc., New York, N.Y. 779,701, canc. Cl. 6.
Laszlo, S. E., Brooklyn, N.Y. 904,981, pub. 10–13–70. Multiple Class (Classes 9 and 26).
Lear Siegler, Inc., Armonk, N.Y. 905,122, pub. 10–13–70. Cl. 26.
Leeman, Walter, Muntelier, Switzerland. 905,103, pub. 10–13–70. Cl. 26.
Legge, Walter G., Co., Inc., New York, N.Y. 905,048, pub. 10–13–70. Cl. 21.
Liggett & Myers Inc., New York, N.Y. 905,021, pub. 10–13–70. Cl. 17.
Lion Ribbon Co., Inc., New York, N.Y. 904,975, pub. 10–13–70. Cl. 7.
Lowenstein, M., & Sons, Inc., New York, N.Y. 905,192, pub. 10–13–70. Cl. 42.
Lucky Stringe Shoes, Inc., Maysville, Ky. 779,949, canc. Cl. 39.
Ludlow Corp., Needham Heights, Mass. 779,910, canc. Cl. 37.
Luminos Photo Corp., Yonkers, N.Y. 905,119, pub. 10–13–70. Cl. 26.
MCA Inc., Universal City, Calif. 905,142, pub. 10–13–70. Cl. 36.
M.T.I. Corp., New York, N.Y. 905,123, pub. 10–13–70. Cl. 26.
Magic Lure Co., St. Louis, Mo. 905,076, pub. 10–13–70. Cl. 22.
Magic Marker Corp., Brooklyn, N.Y. 905,151, pub. 10–13–70. Cl. 37.
Manchu Gems Ltd., Kowloon, Hong Kong. 905,129, pub. 10–13–70. Cl. 28.
Mann Mfg., Inc., El Paso, Tex. 905,176, pub. 10–13–70. Cl. 39.
Manning, Maxwell & Moore, Inc., Stratford, Conn. 779,720, canc. Cl. 13.
Manning, Maxwell & Moore, Inc., Stratford, Conn. 779,784, canc. Cl. 21.
Manning, Maxwell & Moore, Inc., Stratford, Conn. 779,825, canc. Cl. 23.
Marpac Corp., Wilmington, N.C. 905,044, pub. 10–13–70. Cl. 21.
Marriott Corp., Washington, D.C. 905,270, pub. 10–13–70. Cl. 100.
Mars, Inc., Wilmington, Del. 905,233, pub. 10–13–70. Cl. 46.
Marsh Steel & Aluminum Co., North Kansas City, Mo. 779,688, canc. Cl. 6.
Mason, Au & Magenheimer Confy. Mfg. Co., Inc., Mineola, N.Y. 779,998, canc. Cl. 46.
Masonite Corp., Chicago, Ill. 904,962, pub. 10–13–70. Cl. 5.
Mattel, Inc., Hawthorne, Calif. 779,797, canc. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 905,075, pub. 10–13–70. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 905,080–3, pub. 10–13–70. Cl. 22.
McGraw-Hill, Inc., New York, N.Y. 779,918, canc. Cl. 38.
Mead Johnson & Co., Evansville, Ind. 905,208–9, pub. 10–13–70. Cl. 46.
Medalist Industries, Inc., Milwaukee, Wis. 905,095, pub. 10–13–70. Cl. 23.
Medical Systems, Inc., Milwaukee, Wis. 905,274, pub. 10–13–70. Cl. 101.
Meister Brau, Inc., Chicago, Ill. 905,236, pub. 6–23–70. Cl. 48.
Merchandising International S.A., Fribourg, Switzerland. 905,282, pub. 10–13–70. Cl. 103.
Meredith Corp., Des Moines, Iowa. 905,109, pub. 10–13–70. Cl. 26.
Metcalfe, Paul V., d.b.a. Metcalfe Industries, Columbus, Ohio. 779,729, canc. Cl. 13.
Michigan Shelby Co., Detroit, Mich. 780,005, canc. Cl. 46.
Microfab Systems Corp., Palo Alto, Calif. 905,105, pub. 10–13–70. Cl. 26.
Miles Laboratories, Inc., Elkhart, Ind. 905,027, pub. 10–13–70. Cl. 18.
Milk Equipment, Inc., Seattle, Wash. 779,832, canc. Cl. 23.
Milk Proteins Inc., Detroit, Mich. 780,003, canc. Cl. 46.
Millar, E. B., & Co., Chicago, Ill. 779,999, canc. Cl. 46.
Millivac Instruments, Inc., Schenectady, N.Y. 905,117, pub. 10–13–70. Cl. 26.
Milwaukee Professional Sports & Services, Inc., Milwaukee, Wis. 905,299–300, pub. 10–13–70. Cl. 107.
Minaret Records, Inc., Val Paraiso, Fla. 779,888, canc. Cl. 36.
Minnesota Mining & Mfg. Co., St. Paul, Minn. 905,201, pub. 10–13–70. Cl. 44.
Mission-West Mfg. Co., Hawthorne, Calif. 779,728, canc. Cl. 13.
Monarch Marking System Co., The, Dayton, Ohio. 535,448, ren. 12–29–70. Cl. 37.
Monogram Industries, Inc., Los Angeles, Calif. 905,099, pub. 10–13–70. Cl. 23.
Monolines Ltd., London, England. 905,189, pub. 10–13–70. Cl. 42.
Monroe Cheese Corp., Inc., Monroe, Wis. 905,210, pub. 10–13–70. Cl. 46.
Monsieur Yves Tricault, Paris, France. 905,059, pub. 10–13–70. Cl. 21.
Montebello Liquors, Inc., Baltimore, Md. 780,024, canc. Cl. 47.
Mooney Aircraft Corp., Kerrville, Tex. 905,037, pub. 10–13–70. Cl. 19.
Moore Business Forms, Inc., Niagara Falls, N.Y. 904,974, pub. 10–13–70. Cl. 6.
Morton International, Inc., Chicago, Ill. 904,973, pub. 10–13–70. Cl. 6.
Mutual Citrus Products Co., Anaheim, Calif. 780,008, canc. Cl. 46.
Myers Industries, Inc., Akron, Ohio. 905,088, pub. 10–13–70. Cl. 19.
Myers, P. R., & Co., Larchmont, N.Y. 905,107, pub. 10–13–70. Cl. 26.
NODA Plywood Mfg. Co., Ltd., Shizuoka Prefecture, Japan. 904,992, pub. 10–13–70. Cl. 12.
N.V. Laboratoria Pharmaceutica Dr. C. Janssen, Turnhout, Belgium. 779,757, canc. Cl. 18.
N.V. Sigarenfabriek "La Bolsa" C. J. Boele, Kampen, Netherlands. 779,752, canc. Cl. 17.
National Business Services Inc., Philadelphia, Pa. 905,150, pub. 7–29–69. Cl. 38.
National Service Industries, Inc., Atlanta, Ga. 278,191, ren. 12–29–70. Cl. 52.
National Service Industries, Inc., Atlanta, Ga. 273,573, ren. 12–29–70. Cl. 4.

Nay-Holl, Inc., Roselle, Ill. 904,955, pub. 10–13–70. Cl. 2.
New England Nuclear Corp., Boston, Mass. 904,971, pub. 10–13–70. Cl. 6.
New World Publishing Co., The, Chicago, Ill. 905,161, pub. 10–13–70. Cl. 38.
Nielsen, A. C., Co., Chicago, Ill. 537,126, ren. 12–29–70. Cl. 38.
Norcross, Inc., New York, N.Y. 905,165–6, pub. 10–13–70. Cl. 38.
North American Boat Rental Co., Inc., Tampa, Fla. 905,267, pub. 10–13–70. Cl. 100.
Nuclear Service & Construction Co., Inc., Newport News, Va. 905,284, pub. 10–13–70. Cl. 103.
Olga Coal Co., Youngstown, Ohio. 537,362, ren. 12–29–70. Cl. 1.
Optoelectronics, Inc., San Rafael, Calif. 905,113, pub. 10–13–70. Cl. 26.
Orr, A. S., & Co. Ltd., Preston, Lancashire, England. 905,310. Cl. 39.
Outdoor American Corp., Spokane, Wash. 779,915, canc. Cl. 38.
Outer Ltd., New York, N.Y. 905,169, pub. 10–13–70. Cl. 39.
Outercom Electronics Corp., Charlotte, N.C. 779,789–90, canc. Cl. 21.
Ozark Mountain Smoke House, Inc., d.b.a. Ozark Mountain Smoke House, Fayetteville, Ark. 905,205, pub. 10–13–70. Cl. 46.
PPG Industries, Inc., Pittsburgh, Pa. 904,994, pub. 10–13–70. Cl. 12.
Pacific Industries, Inc., New York, N.Y. 905,302. Cl. 11.
Panacon Corp., Cincinnati, Ohio. 535,560, ren. 12–29–70. Cl. 16.
Panduit Corp., Tinley Park, Ill. 905,006, pub. 10–13–70. Cl. 13.
Paris Presents, Ltd., Chicago, Ill. 905,120, pub. 10–13–70. Cl. 26.
Parker Hardcastle Ltd., London, England. 534,671, ren. 12–29–70. Cl. 8.
Penn Crete Products Co., Inc., Philadelphia, Pa. 780,061, canc. Cl. 12.
Pennwalt Corp., Philadelphia, Pa. 534,881, ren. 12–29–70. Cl. 12.
Pennwalt Corp., Philadelphia, Pa. 535,537–8, ren. 12–29–70. Cl. 12.
Pentron Electronics Corp., Chicago, Ill. 779,886, canc. Cl. 36.
Perkins Machine & Gear Co., West Springfield, Mass. 779,845, canc. Cl. 23.
Petroleum Engineer Publishing Co., The, Dallas, Tex. 905,160, pub. 10–13–70. Cl. 38.
Pettibone Laboratories, Inc., New York, N.Y. 905,261–2, pub. 10–13–70. Cl. 51.
Pioneer Girls, Inc., Wheaton, Ill. 905,167, pub. 10–13–70. Cl. 38.
Pioneer Salt Co., Philadelphia, Pa. 779,706, canc. Cl. 6.
Piper, Jaffray & Hopwood, Inc., Minneapolis, Minn. 905,308. Cl. 38.
Plantation Tobacco Co., Inc., New York, N.Y. 905,022, pub. 10–13–70. Cl. 17.
Plexo Preparations, Inc., Lewistown, Pa. 80,911, ren. 12–29–70. Cl. 51.
Portec, Inc., Oak Brook, Ill. 905,011, pub. 10–13–70. Cl. 14.
Pratt & Labrert Inc., Buffalo, N.Y. 538,197, ren. 12–29–70. Cl. 16.
Pre-Builder Land Corp., Beverly Hills, Calif. 905,272, pub. 10–13–70. Cl. 101.
Prestige Products Co., Inc., The, Marshfield, Mass. 779,988, canc. Cl. 44.
Pringle of Scotland, Ltd., Hawick Mills, Scotland. 533,281, ren. 12–29–70, Cl. 39.
Pritchard-Eco, Inc., Merced, Calif. 533,562, ren. 12–29–70. Cl. 23.
Pro B/L Corp., Wellesley, Mass. 779,897, canc. Cl. 37.
Provident National Band, Philadelphia, Pa. 905,280, pub. 10–13–70. Cl. 102.
Puma Sportsschuhfabriken Rudolf Dassler KG, Nurnberg, Germany. 905,072, pub. 10–13–70. Multiple Class (Classes 22 and 39).
Purex Corp., Ltd., Lakewood, Calif. 905,137, pub. 10–13–70. Cl. 34.
Quaker Oats Co., The, Chicago, Ill. 905,234, pub. 10–13–70. Cl. 46.
Rally Industries, Palo Alto, Calif. 905,046, pub. 10–13–70. Cl. 21.
Ralston Purina Co., St. Louis, Mo. 905,227, pub. 10–13–70. Cl. 46.
Raeberry Enterprisee, Grand Rapids, Mich. 905,291, pub. 10–13–70. Cl. 107.
Raytheon Co., Lexington, Mass. 780,045, canc. Cl. 100.
Reborn Products Co., Inc., Wyncote, Pa. 904,970, pub. 10–13–70. Cl. 6.
Redi-Spuds of America, Hawthorne, Calif. 905,222, pub. 10–13–70. Cl. 46.
Reliart Trailer Mfg. Corp., Stanton, Mich. 780,034, canc. Cl. 50.
Republic Software Products, Inc., East Orange, N.J. 905,153, pub. 10–13–70. Multiple Class (Classes 37 and 38).
Resorts International, Inc., New York, N.Y. 905,285, pub. 10–13–70. Cl. 105.
Rhinesmith, Chester, A., & Marion F., Rhinesmith, d.b.a. Chemical Dispersing Co., Troy, N.Y. 780,041, canc. Cl. 52.
Richards Mfg. Co., Philadelphia, Pa. 905,052, pub. 10–13–70. Cl. 21.
Richardson-Merrell, Inc., New York, N.Y. 905,026, pub. 10–13–70. Cl. 18.
Richardson-Merrell Inc., New York, N.Y. 905,029, pub. 10–13–70. Cl. 18.
Robert Hosiery Mills, Inc., Collegeville, Pa. 779,938, canc. Cl. 39.
Robins, A. H., Co., Inc., Charlotte, N.C. 905,206, pub. 10–13–70. Cl. 46.
Robinson-Phillips, Inc., New York, N.Y. 779,926, canc. Cl. 38.
Roch, Pierre, S.A.R.L., Rolle, Vaud, Switzerland. 905,124, pub. 10–13–70. Cl. 26.
Rodda, John A., Associates, Washington, D.C. 905,164, pub. 10–13–70. Cl. 38.
Rorer, William H., Inc., Fort Washington, Pa. 536,728, ren. 12–29–70. Cl. 18.
Rossi, Lelio Furian, Barcelona, Spain. 904,945, pub. 10–13–70. Multiple Class (Classes 1, 20, 39, and 42).
Rubinstein, Helena, Inc., New York, N.Y. 533,839, ren. 12–29–70. Cl. 51.
Rucker Pharmacal Co., Inc., Shreveport, La. 905,032, pub. 10–13–70. Cl. 18.
Russell Hosiery Mills, Inc., Star, N.C. 905,173, pub. 10–13–70. Cl. 39.
Sauquoit Fibers Co., Scranton, Pa. 779,980–1, canc. Cl. 43.
Scannon, Ltd., Morristown, N.J. 905,243, pub. 10–13–70. Cl. 51.
Schenley Distillers, Inc., New York, N.Y. 780,030–1, canc. Cl. 49.
Schenley Distillers, Inc., New York, N.Y. 905,237–8, pub. 10–13–70. Cl. 49.
Schlichter Jute Cordage Co., The, Philadelphia, Pa. 779,977, canc. Cl. 43.
Schloss & Kahn, Inc., Montgomery, Ala. 534,231, ren. 12–29–70. Cl. 46.
Schloss & Kahn, Inc., Montgomery, Ala. 534,240, ren. 12–29–70. Cl. 46.
Schreiber & Goldberg, Inc., New York, N.Y. 779,819, canc. Cl. 23.
Scientific Farm Appliances, Ltd., Hamilton, New Zealand. 905,118, pub. 10–13–70. Cl. 26.
Scott & Fetzer Co., The, Lakewood, Ohio. 534,397, ren. 12–29–70. Cl. 21.
Scovill Mfg. Co., Waterbury, Conn. 905,188, pub. 10–13–70. Cl. 40.
Scully Signal Co., Wilmington, Mass. 536,186, ren. 12–29–70. Cl. 26.
Seald-Sweet Growers, Inc., Tampa, Fla. 536,455, ren. 12–29–70. Cl. 46.
Sears, Roebuck & Co., Chicago, Ill. 779,793, canc. Cl. 21.
Seneca Foods Corp., Dundee, N.Y. 905,218, pub. 10–13–70. Cl. 46.
Shulton, Inc., d.b.a. Shulton, Clifton, N.J. 905,259, pub. 10–13–70. Cl. 51.
Sigma Alpha Epsilon Fraternity, Evanston, Ill. 538,680, ren. 12–29–70. Cl. 28.
Simpson Timber Co., Seattle, Wash. 904,976, pub. 10–13–70. Cl. 7.
Skyline Industries, Inc., Fort Worth, Tex. 905,034, pub. 10–13–70. Cl. 19.
Slade, Harold K., d.b.a. The Glisten Co., Hillsdale, Mich. 904,957, pub. 10–13–70. Cl. 4.
Societe de Diffusion des Vins Seneclauze, Bouches-du-Rhone, France. 905,235, pub. 10–13–70. Cl. 47.
Societe des Produits Nestle, S.A., Vevey, Switzerland. 529,336, ren. 12–29–70. Cl. 46.
Solvit Chemical Co., Inc., Madison, Wis. 905,242, pub. 10–13–70. Cl. 50.
Sonotone Corp., Elmsford, N.Y. 779,881, canc. Cl. 36.
South Eastern Cordage Co., Cleveland, Ohio. 905,132, pub. 10–13–70. Cl. 29.
Spectra Biologicals, Inc., East Brunswick, N.J. 779,709, canc. Cl. 6.
Speedry Chemical Products, Inc., Glendale, N.Y. 779,911, canc. Cl. 37.
Sperry Rand Corp., New York, N.Y. 904,998, pub. 10–13–70. Cl. 13.
Squibb, E. R., & Sons, Inc., New York, N.Y. 905,033, pub. 10–13–70. Cl. 18.
Stanley Works, The, New Britain, Conn. 905,008, pub. 10–13–70. Cl. 13.
Starrco Co., Inc., St. Louis, Mo. 904,988, pub. 10–13–70. Cl. 12.
State Farm Mutual Automobile Insurance Co., Bloomington, Ill. 905,279, pub. 10–13–70. Cl. 102.
Stein, Hall & Co., Inc., New York, N.Y. 904,963, pub. 10–13–70. Cl. 5.
Stenoscript ABC Shorthand, Inc., Evanston, Ill. 905,159, pub. 8–4–70. Multiple Class (Classes 38 and 107).
Sterilon Corp., Buffalo, N.Y. 779,992, canc. Cl. 44.
Sterling Drug Inc., New York, N.Y. 904,959, pub. 10–13–70. Cl. 4.
Sterling Electronics Corp., Houston, Tex. 905,144, pub. 10–13–70. Cl. 36.
Storz Broadcasting Co., Inc., Kansas City Mo. 905,292, pub. 10–13–70. Cl. 107.
Structural Plastics Corp., Hutchinson, Minn. 904,946, pub. 10–13–70. Cl. 2.
Strum & Drum, Inc., Chicago, Ill. 905,149, pub. 10–13–70. Cl. 37.
Stuart & Co., Inc., Newark, N.Y. 538,345, ren. 12–29–70. Cl. 28.
Studebaker Corp., Muskegon, Mich. 905,060, pub. 10–13–70. Cl. 21.
Suddath Van Lines, Inc., Jacksonville, Fla. 905,287, pub. 10–13–70. Cl. 105.
Sunline, Inc., d.b.a. Concorde Confections, St. Louis, Mo. 905,229, pub. 10–13–70. Cl. 46.
Superba Cravats, Inc., Rochester, N.Y. 905,178, pub. 10–13–70. Cl. 39.
Superior Continental Corp., Hickory, N.C. 905,064–5, pub. 10–13–70. Cl. 21.

Surgiquip Engineering Inc., San Francisco, Calif. 779,983, canc. Cl. 44.
Swanee Paper Co., New York, N.Y. 905,150, pub. 10–13–70. Cl. 37.
Swift & Co., Chicago, Ill. 275,436, ren. 12–29–70. Cl. 46.
Swift & Co., Chicago, Ill. 524,307, ren. 12–29–70. Cl. 46.
Technical Equipment Leasing Corp.: *See*—
Teico Marketing Services, Inc.
Technical Publishing Co., Barrington, Ill. 779,923, canc. Cl. 38.
Teico Marketing Services, Inc., from Technical Equipment Leasing Corp., Chicago, Ill. 905,268, pub. 10–13–70. Cl. 100.
Teledyne Mid-American Corp., Los Angeles, Calif. 276,140, ren. 12–29–70. Cl. 23.
Terra Bella Citrus Assn., Inc., Terra Bella, Calif. 905,230, pub. 10–13–70. Cl. 46.
Teweles, L., Seed Co., Milwaukee, Wis. 779,682, canc. Cl. 1.
Textiliana Corp., Hawthorne, Calif. 904,972, pub. 10–13–70. Cl. 6.
Thermal Research & Engineering Corp., Conshohocken, Pa. 905,140, pub. 10–13–70. Cl. 34.
Thompson & Co., Oakmont, Pa. 779,743, canc. Cl. 16.
Thompson Medical Co., Inc., New York, N.Y. 905,030, pub. 10–13–70. Cl. 18.
Town Criers, Inc., The, Gatlinburg, Tenn. 905,297, pub. 10–13–70. Cl. 107.
Tremont Lumber Co., Joyce, La. 904,991, pub. 10–13–70. Cl. 12.
Trevino, Oscar, Delray Beach, Fla. 905,148, pub. 10–13–70. Cl. 36.
Trostel, Albert, & Sons Co., Milwaukee, Wis. 779,681, canc. Cl. 1.
Trylon Inc., Elverson, Pa. 904,996, pub. 10–13–70. Cl. 12.
Tunis, Ben, d.b.a. Ben Tunis Co., Scarsdale, N.Y. 905,135, pub. 10–13–70. Cl. 29.
Typhoon Industries, Inc., Lindenhurst, N.Y. 905,003, pub. 10–13–70. Cl. 13.
UMC Industries, Inc., St. Louis, Mo. 533,216, ren. 12–29–70. Cl. 23.
Union Bag-Camp Paper Corp., New York, N.Y. 779,680, canc. Cl. 1.
Union Carbide Corp., New York, N.Y. 779,748, canc. Cl. 16.
Union Carbide Corp., New York, N.Y. 905,254, pub. 10–13–70. Cl. 51.
Union Steel Products Co., Albion, Mich. 905,088, pub. 10–13–70. Cl. 23.
Union Tank Car Co., Chicago, Ill. 779,916, canc. Cl. 38.
United Air Lines, Inc., Chicago, Ill. 905,286, pub. 10–13–70. Cl. 105.
United Coatings, Inc., Chicago, Ill. 905,018, pub. 10–13–70. Cl. 16.
U.S. Premier Co. of New York, Inc., Huntington Station, N.Y. 532,841, ren. 12–29–70. Cl. 50.
Universal Papertech Corp., Hatfield, Pa. 904,993, pub. 10–13–70. Cl. 12.
Upjohn Co., Kalamazoo, Mich. 905,028, pub. 10–13–70. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 779,710, canc. Cl. 6.
Varsity Industries, Inc., New York, N.Y. 905,171, pub. 10–13–70. Cl. 39.
Vaughan's Seed Co., Downers Grove, Ill. 779,716, canc. Cl. 10.
Vencap, Inc., Los Angeles, Calif. 905,276, pub. 10–13–70. Cl. 101.
Vend-A-Bake, Inc., Brooklyn, N.Y. 779,846, canc. Cl. 23.
Vibro-Plus Products, Inc., Stanhope, N.J. 532,023, ren. 12–29–70. Cl. 23.
Vibro-Plus Products, Inc., Stanhope, N.J. 532,709, ren. 12–29–70. Cl. 23.
Vibro-Plus Products, Inc., Stanhope, N.J. 535,985, ren. 12–29–70. Cl. 23.
Vistron Corp., Cleveland, Ohio. 905,133, pub. 10–13–70. Cl. 29.
Vivian Dresses, Inc., New York, N.Y. 779,934, canc. Cl. 39.
Vocab Inc., Chicago, Ill. 905,079, pub. 10–13–70. Multiple Class (Classes 22, 36, and 38).
Volume Shoe Corp., Topeka, Kans. 905,183, pub. 10–13–70. Cl. 39.
Vulcan Steel Corp., Birmingham, Ala. 905,189, pub. 10–13–70. Cl. 34.
Warren, Andi, Inc., New York, N.Y. 779,933, canc. Cl. 39.
Washington Timber Products, Inc., Everett, Wash. 904,995, pub. 10–13–70. Cl. 12.
Waterbury Hydraulic Industries, Inc.: *See*—
Waterbury Hydraulic & Pollution
Waterbury Hydraulic & Pollution Sciences, Inc., from Waterbury Hydraulic Industries, Inc., Waterbury, Conn. 905,096, pub. 10–13–70. Cl. 23.
Waterman-Bic Pen Corp., Milford, Conn. 276,626, ren. 12–29–70. Cl. 37.
Waterman-Bic Pen Corp., Milford, Conn. 905,154, pub. 10–13–70. Cl. 37.
Waters Mfg., Inc., Wayland, Mass. 779,779, canc. Cl. 21.
Wayne, Robert H., d.b.a. R. H. Wayne, San Francisco, Calif. 905,273, pub. 10–13–70. Cl. 101.
Weatherford, Fred, Hyattsville, Md. 905,069, pub. 10–13–70. Cl. 22.
Wesbar Stamping Corp., West Bend, Wis. 779,774–6, canc. Cl. 19.
West Laboratories, Inc., Long Island City, N.Y. 905,023, pub. 10–13–70. Cl. 18.
Westvaco Corp., New York, N.Y. 905,155, pub. 10–13–70. Cl. 37.
Weyerhaeuser Co., Tacoma, Wash. 780,070, canc. Cl. 37.
Wilshire Oil Co. of Calif., Los Angeles, Calif. 779,794, canc. Cl. 21.
Winarick, A. R., Inc., New York, N.Y. 280,084, ren. 12–29–70. Cl. 44.
Woolworth, F. W., Co., New York, N.Y. 779,727, canc. Cl. 13.
Woolworth, F. W., Co., New York, N.Y. 779,895, canc. Cl. 37.
Woolworth, F. W., Co., New York, N.Y. 779,907, canc. Cl. 37.
World Toy House, Inc., St. Paul, Minn. 780,075, canc. Cl. 39.
Xerox Corp., Rochester, N.Y. 905,111, pub. 10–13–70. Cl. 26.
York Feather & Down Corp., Brooklyn, N.Y. 904,944, pub. 10–13–70. Cl. 1.
Young, Stephen A., Corp., Flora, Ind. 904,001, pub. 10–13–70. Cl. 13.
Zayre Corp., Natick, Mass. 905,017, pub. 10–13–70. Cl. 15.
Zayre Corp., Natick, Mass. 905,067, pub. 10–13–70. Cl. 21.
Zemke, Harold P., d.b.a. Thumbspot, San Diego, Calif. 905,085, pub. 10–13–70. Cl. 23.
Zsa Zsa Ltd., New York, N.Y. 905,315. Cl. 51.

U.S. GOVERNMENT PRINTING OFFICE: 0—1970

U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE

VOL 881
DECEMBER
1970

MICRO PHOTO DIVISION

BELL & HOWELL

JLN